

Home for Urban Producers

Design proposal for creating more public and productive homes for future target groups in the current housing situation.

P5 Presentation

11th of April, 2024

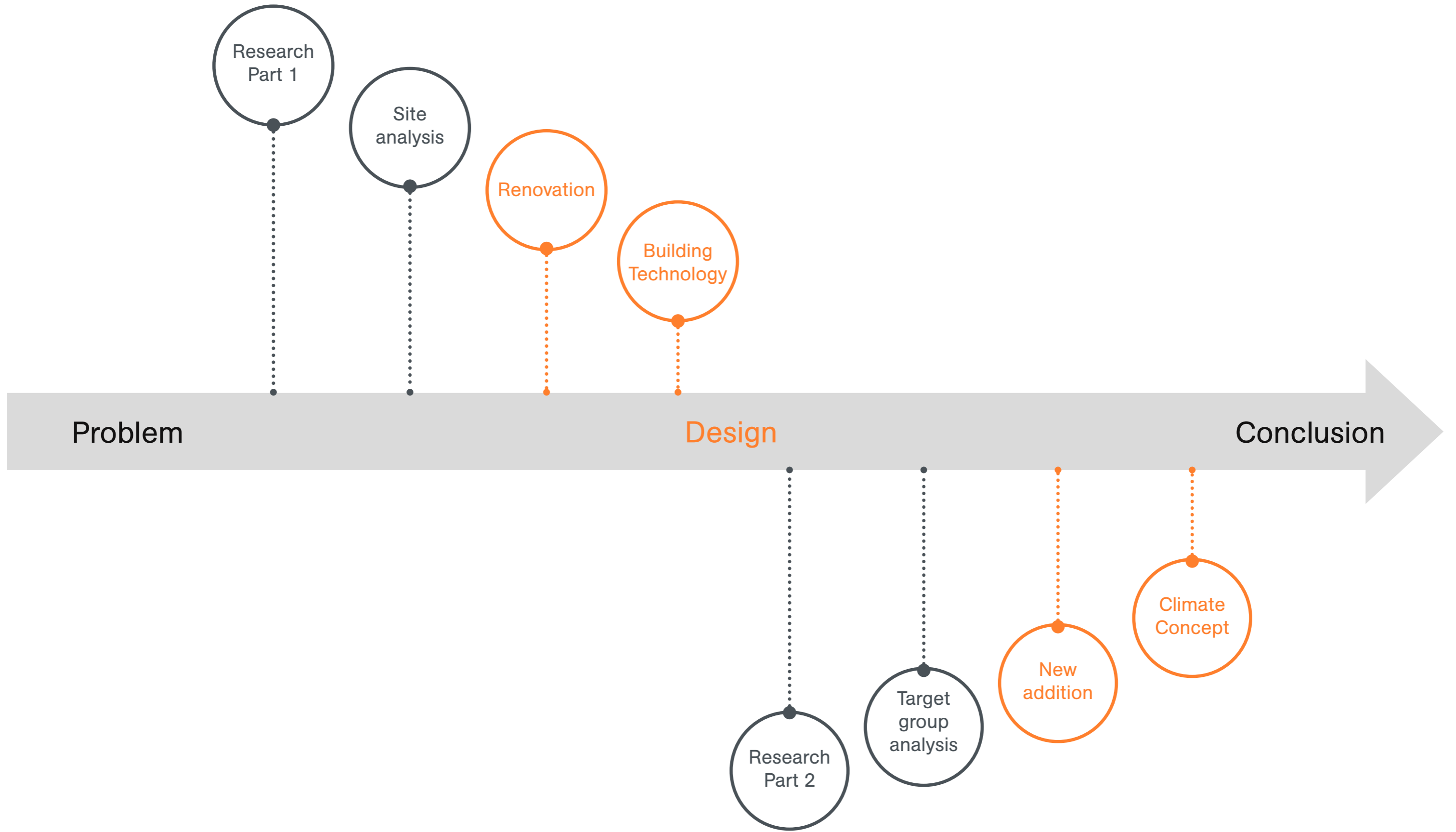
Gyeongri Park

First Mentor: Harald Mooij

Second Mentor: Florian Eckardt

Third Mentor: Robbert Guis

Delegate of the Board of Examiners: André Mulder



Problem

Research Part 1

Site analysis

Renovation

Building Technology

Design

Research Part 2

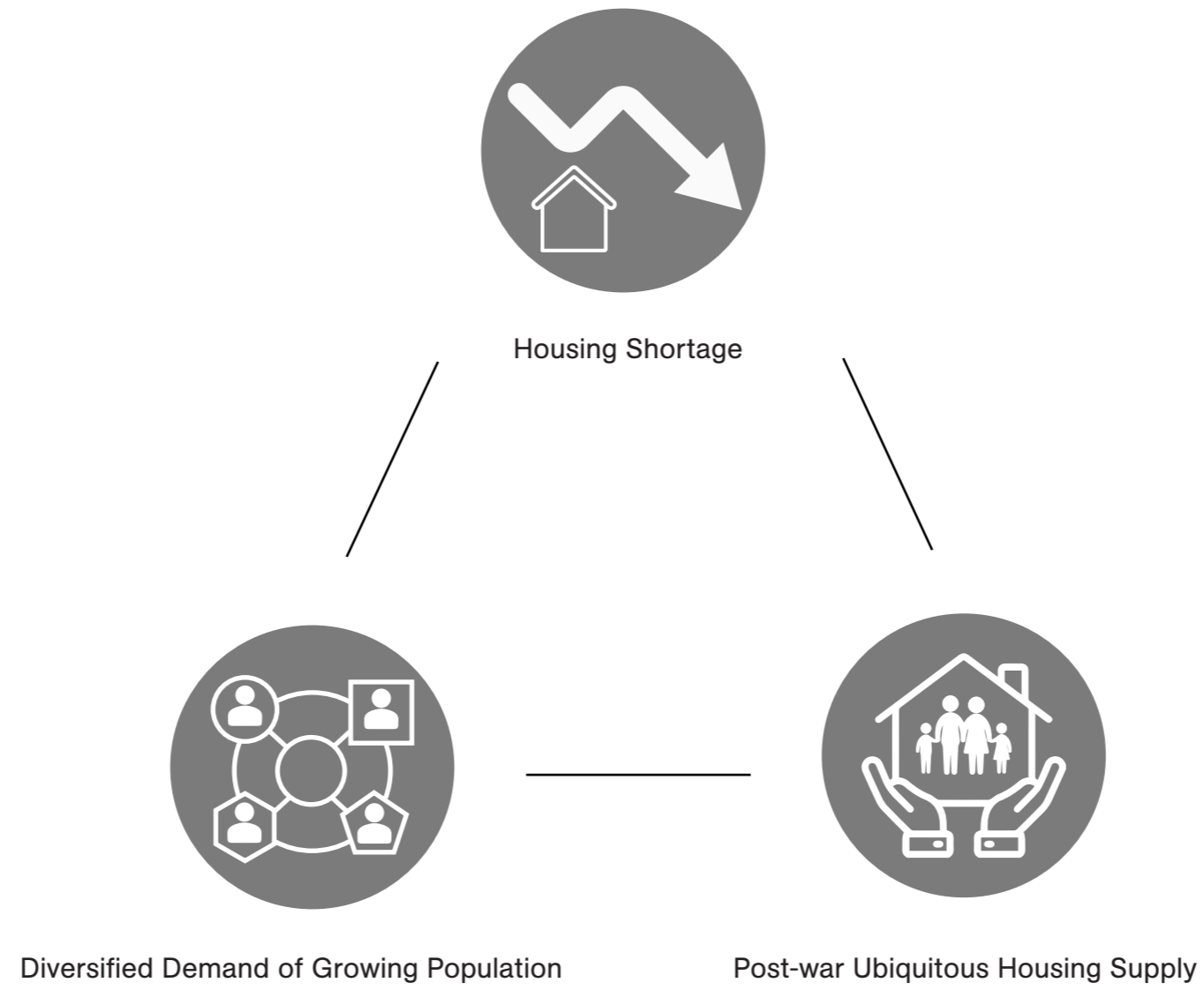
Target group analysis

New addition

Climate Concept

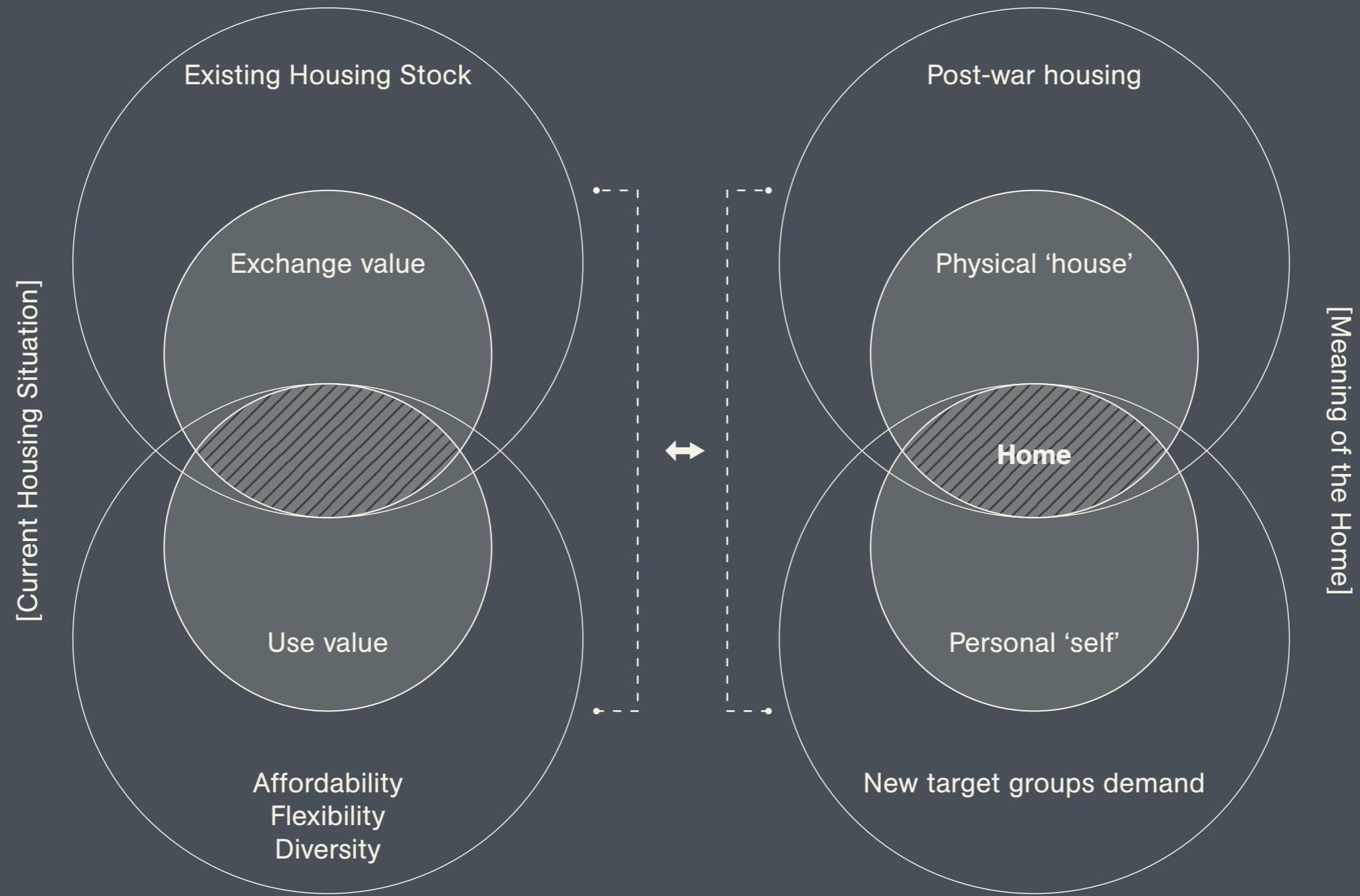
Conclusion

Current Housing Situation





Discrepancy



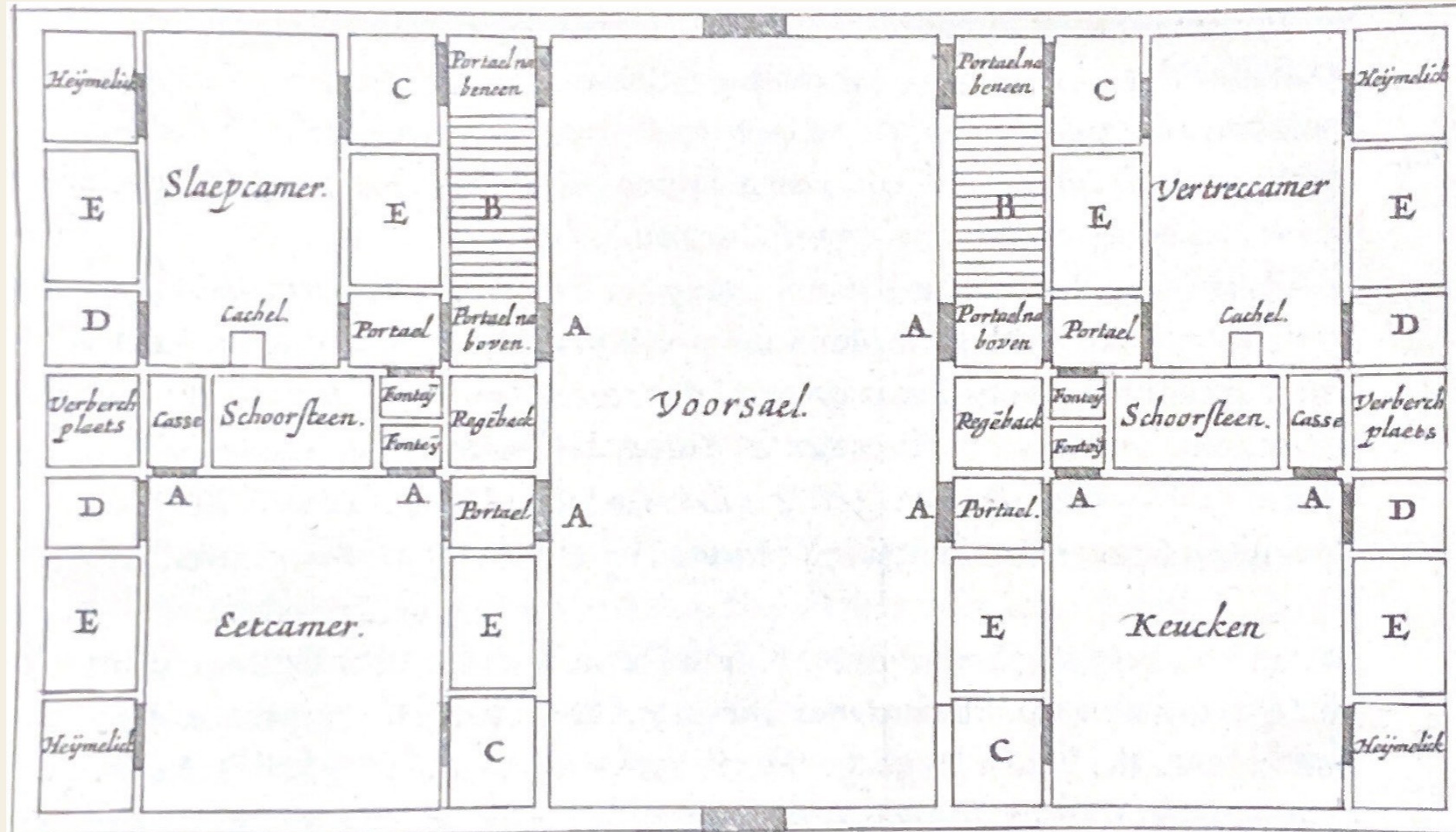
How can the **design of the living environment** integrate a future mix in the **post-war neighborhood** towards times in which urban inhabitants bring diverse **meanings of the home**?

Material Structure of a House

17th and 18th centuries

Concept of Domesticity

Spatial Demarcation and Objects



Front Room

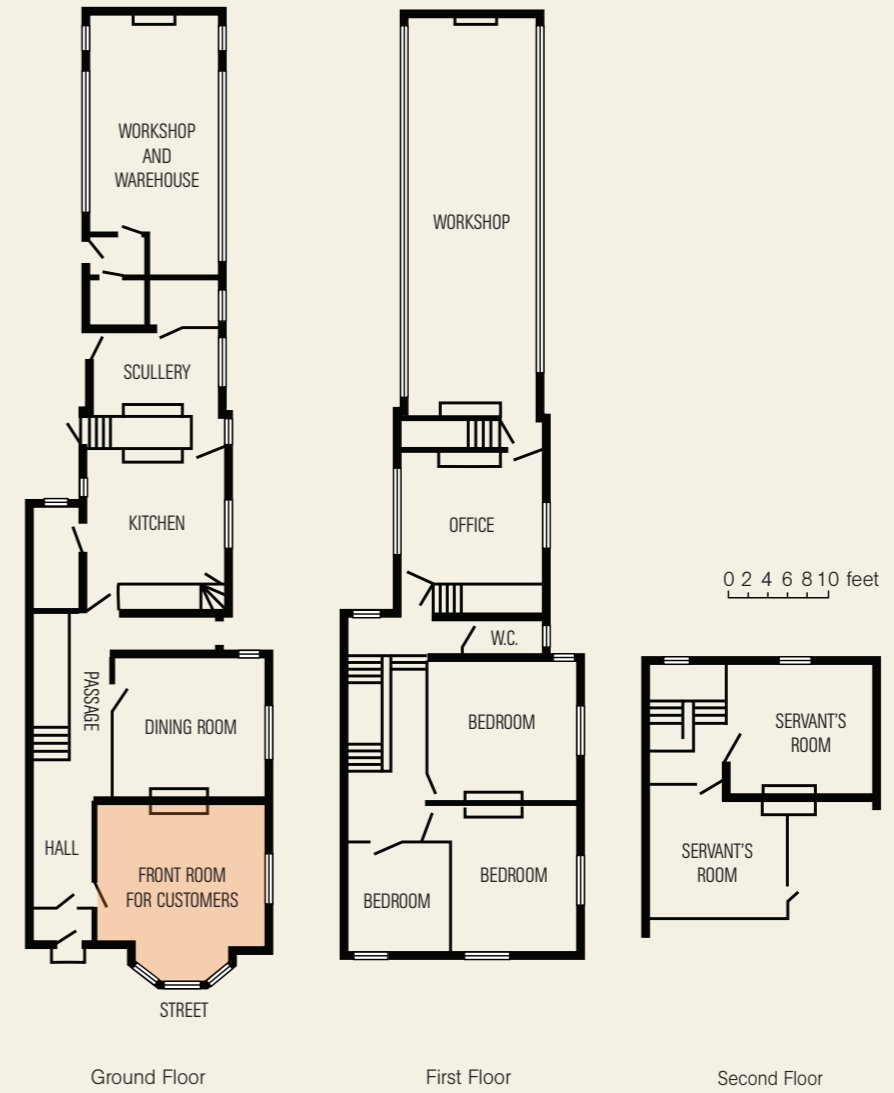
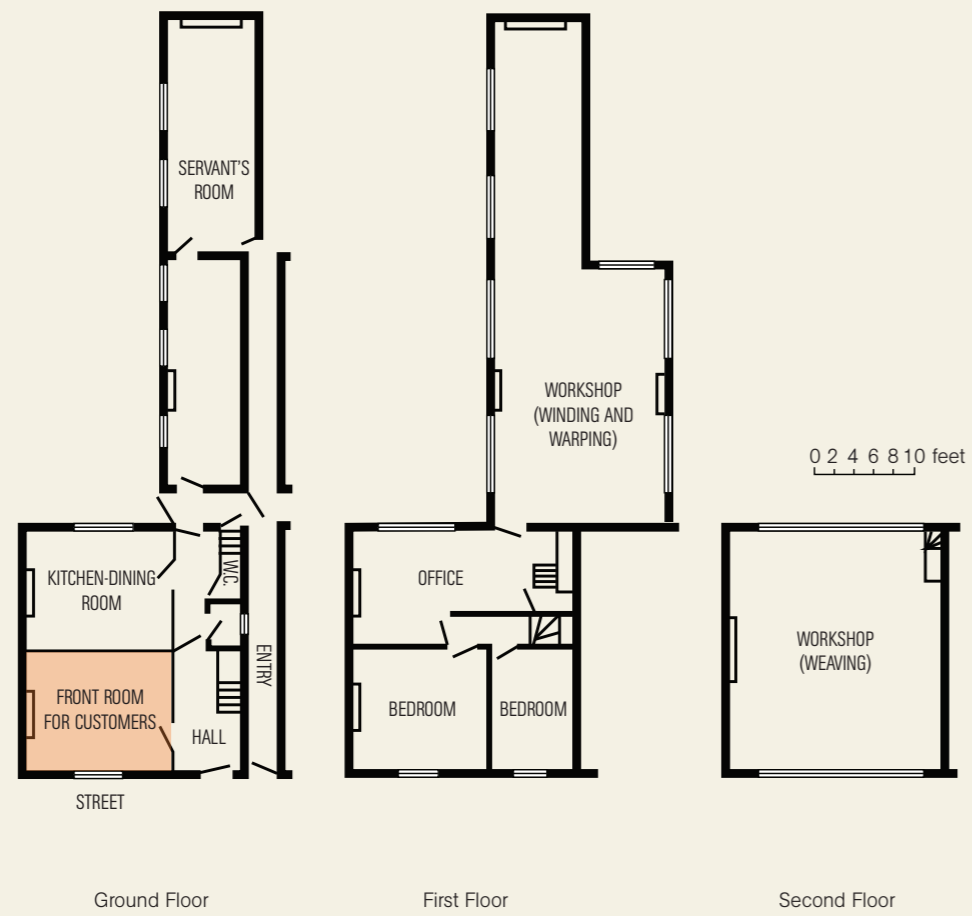
Showcase Mentality



Gabriel Metsu, *Woman Reading a Letter*, ca. 1663. Reproduction, oil on panel, 52.5x50.2 cm. Courtesy of the National Gallery of Ireland.

Front Room

Public Characteristic



Frances Holliss (2015). 32 Queen St, Hillfields, Coventry, Plan Drawing. *Beyond live/work: the architecture of home-based work*. Routledge. Recreated by the author.

Frances Holliss (2015). Master-watchmaker's workhome at No. 61 Allesley Old Rd, Coventry, Plan Drawing. *Beyond live/work: the architecture of home-based work*. Routledge. Recreated by the author.

Front Room

Pictorial Representation

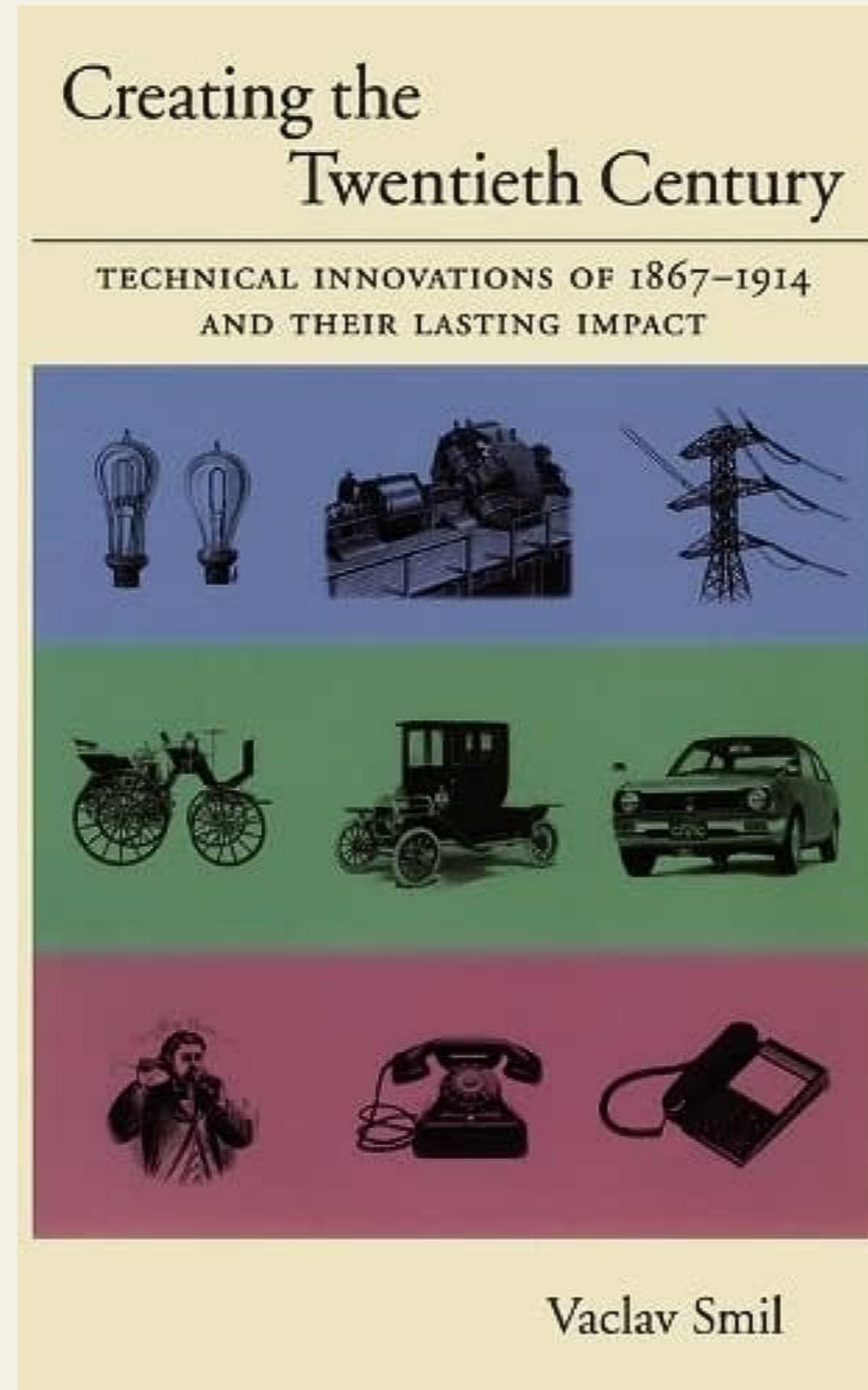


New Mode of Living

20th century

Crosscutting the Two Worlds

Technical Innovation



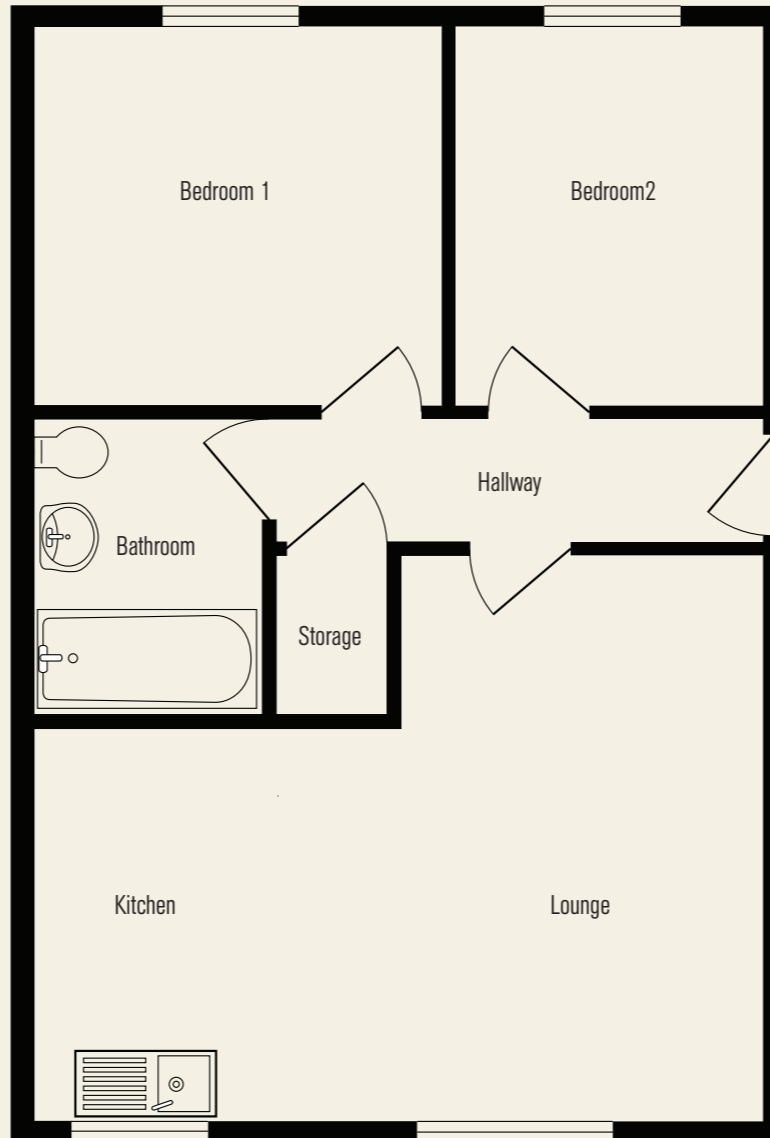
Ideological Home

Reproductive Modes of Living



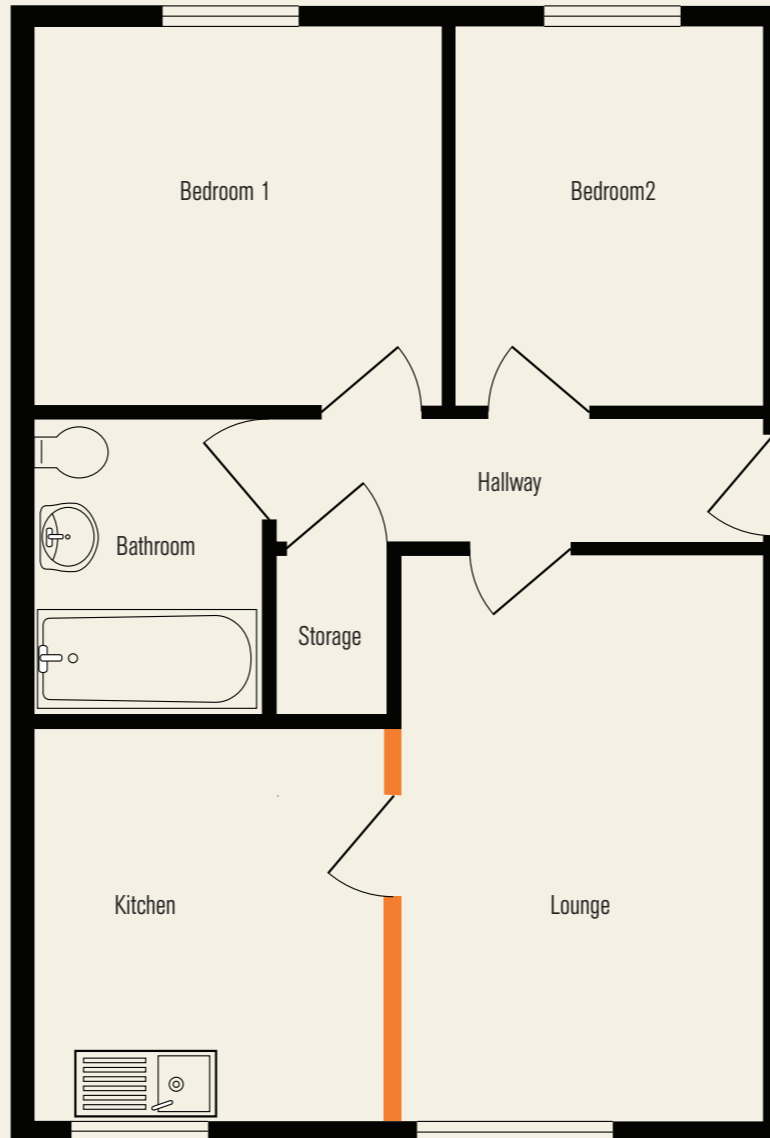
Open Plan

Introduction of a Multifunctional Living-Dining Room



Appropriation

Structural Modification of Lounge





Productivity



Reproductivity

Site Analysis

Home Representing Modern Ideology

Groot-IJsselmonde in Rotterdam-Zuid



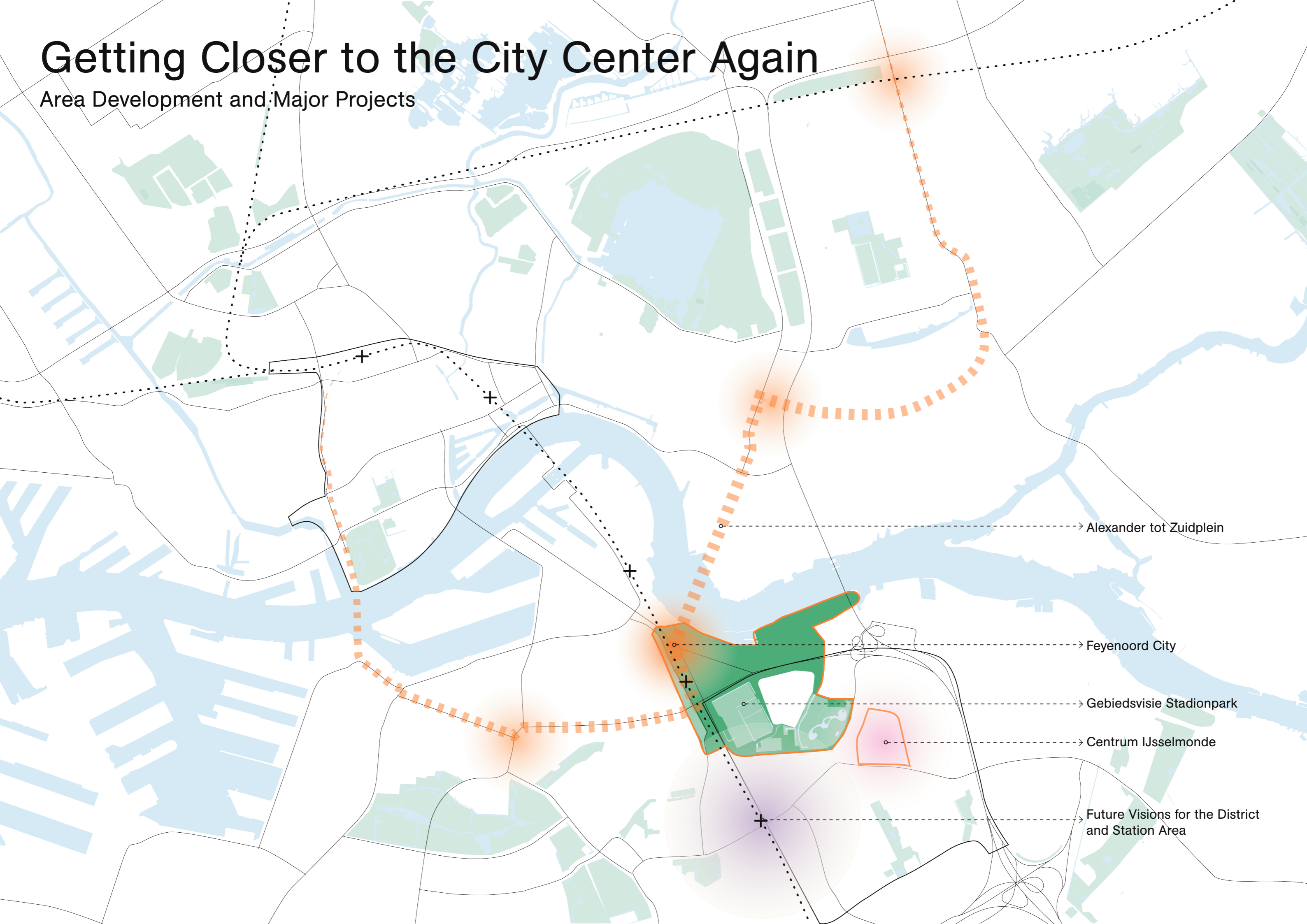
Rotterdam City Centre

6.7km

Groot-IJsselmonde

Getting Closer to the City Center Again

Area Development and Major Projects



→ Alexander tot Zuidplein

→ Feyenoord City

→ Gebiedsvisie Stadionpark

→ Centrum IJsselmonde

→ Future Visions for the District
and Station Area

Zoom-in Groot-IJsselmonde

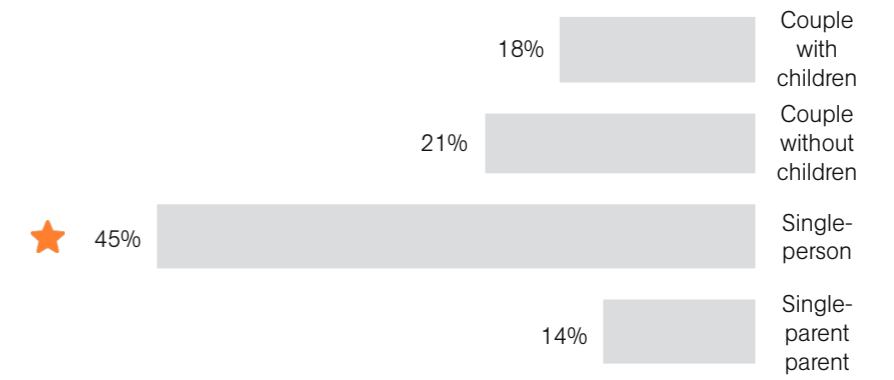
By the Major Development Projects



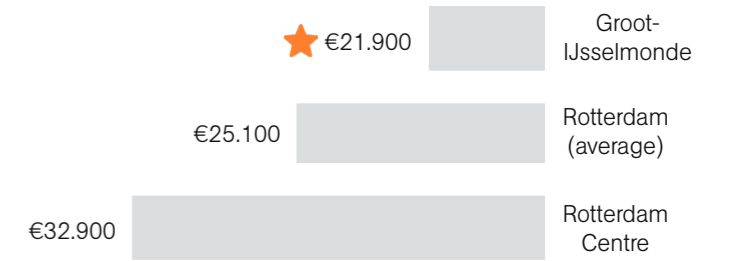
Groot-IJsselmonde

Demographic

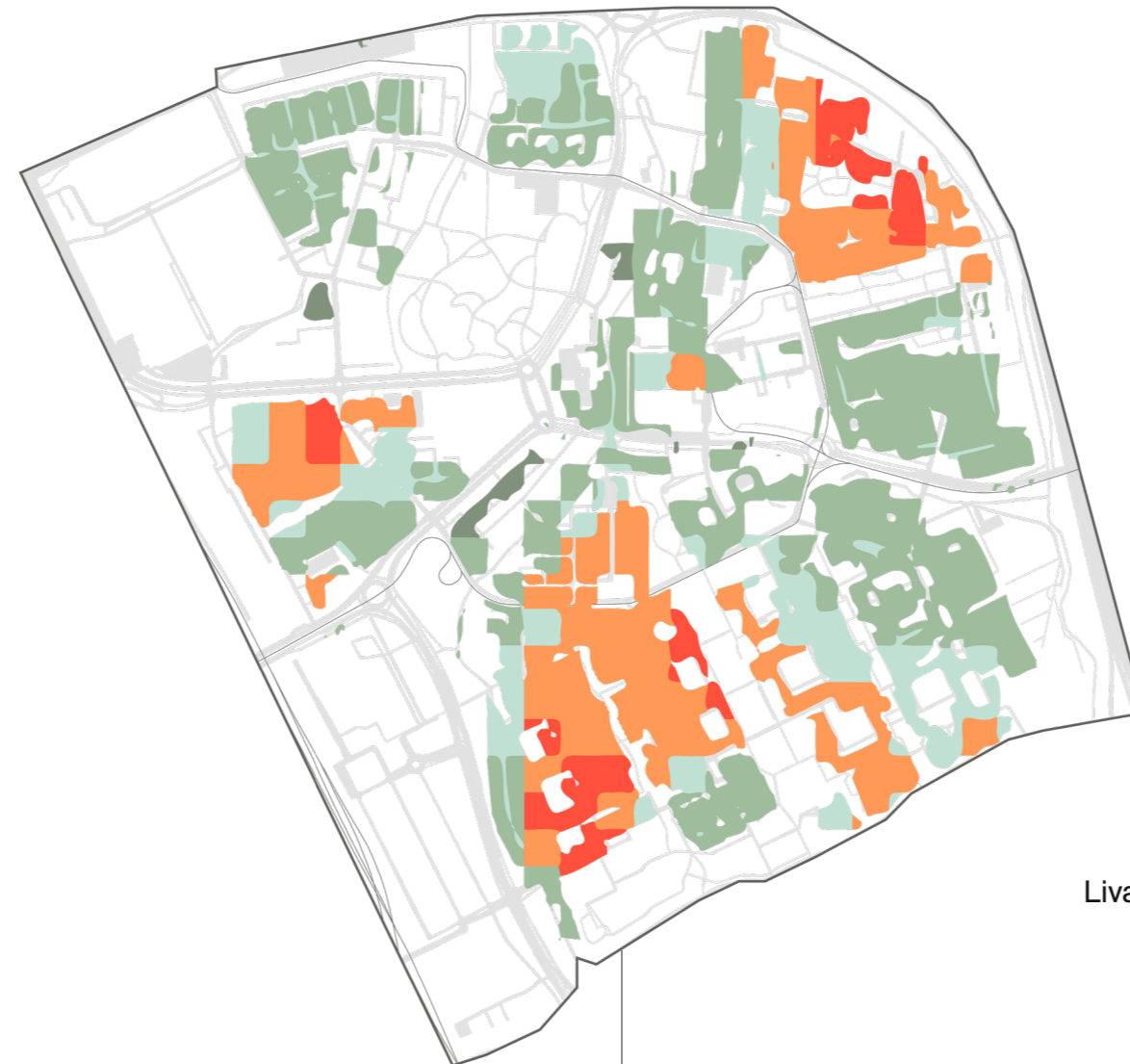
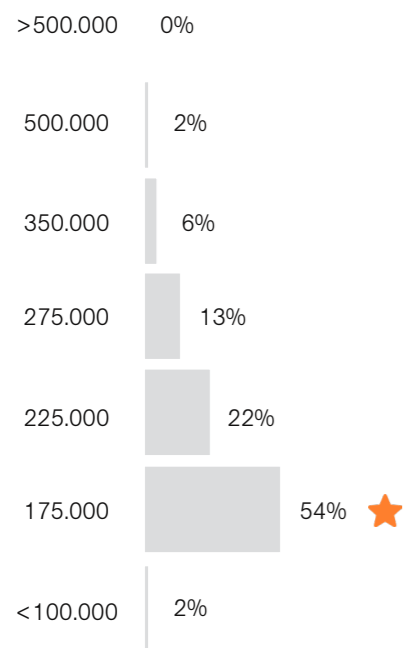
Family Composition



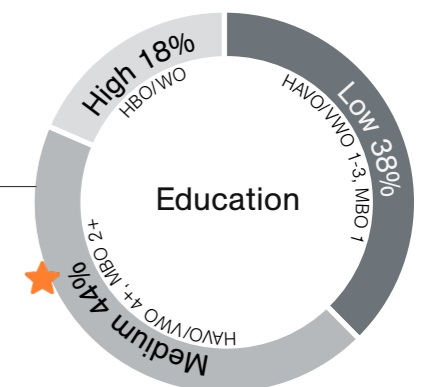
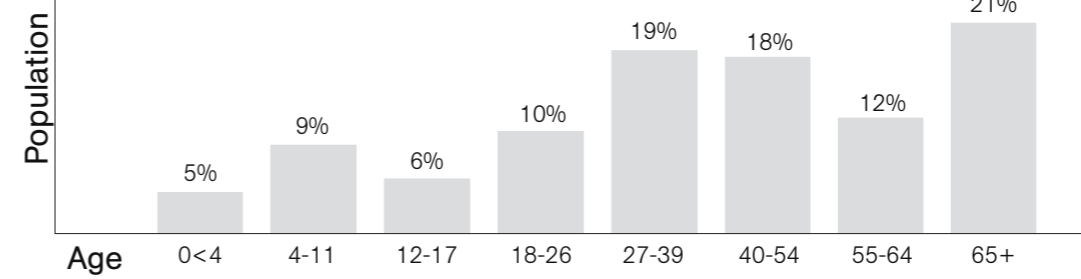
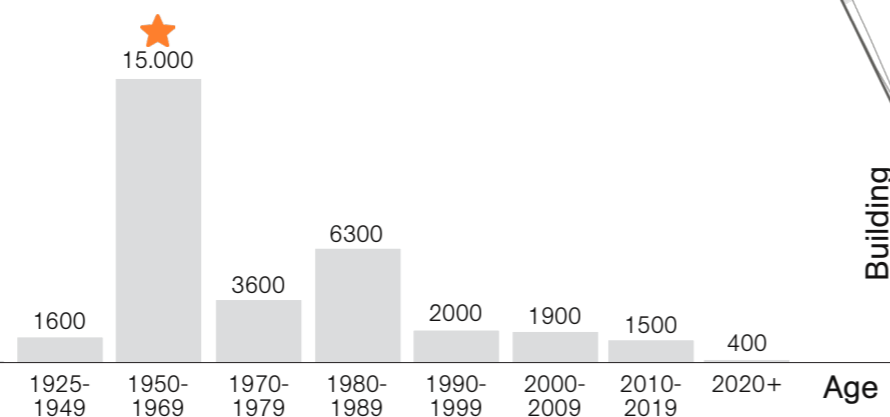
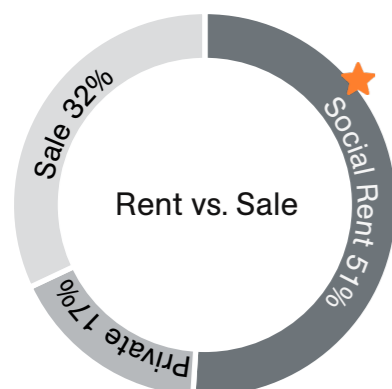
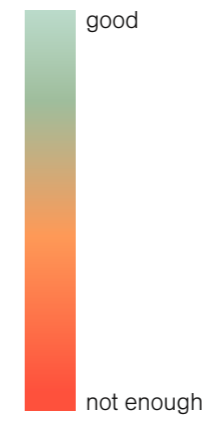
Income



House Value Prices

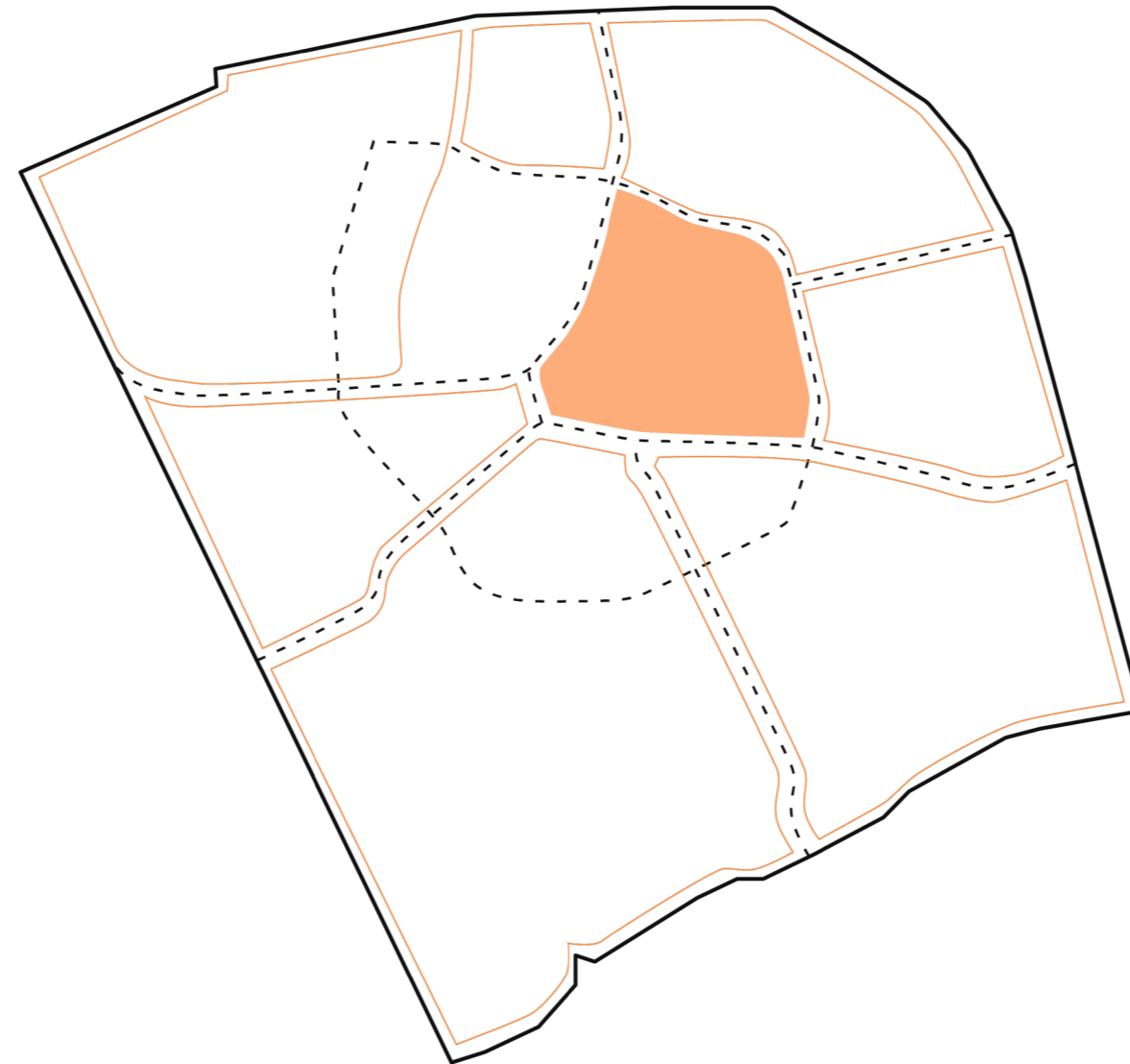


Livability



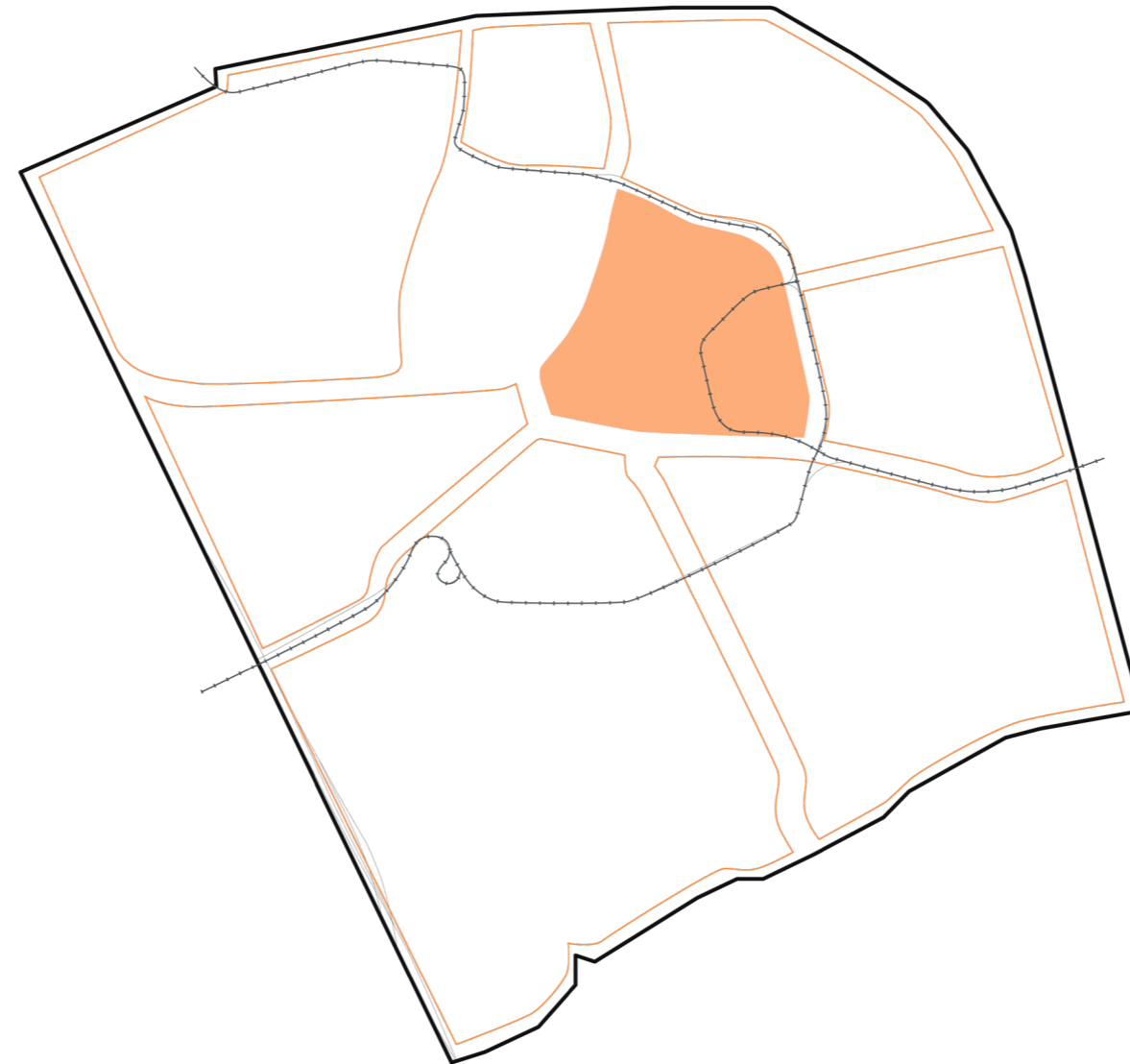
Groot-IJsselmonde

Urban Structure



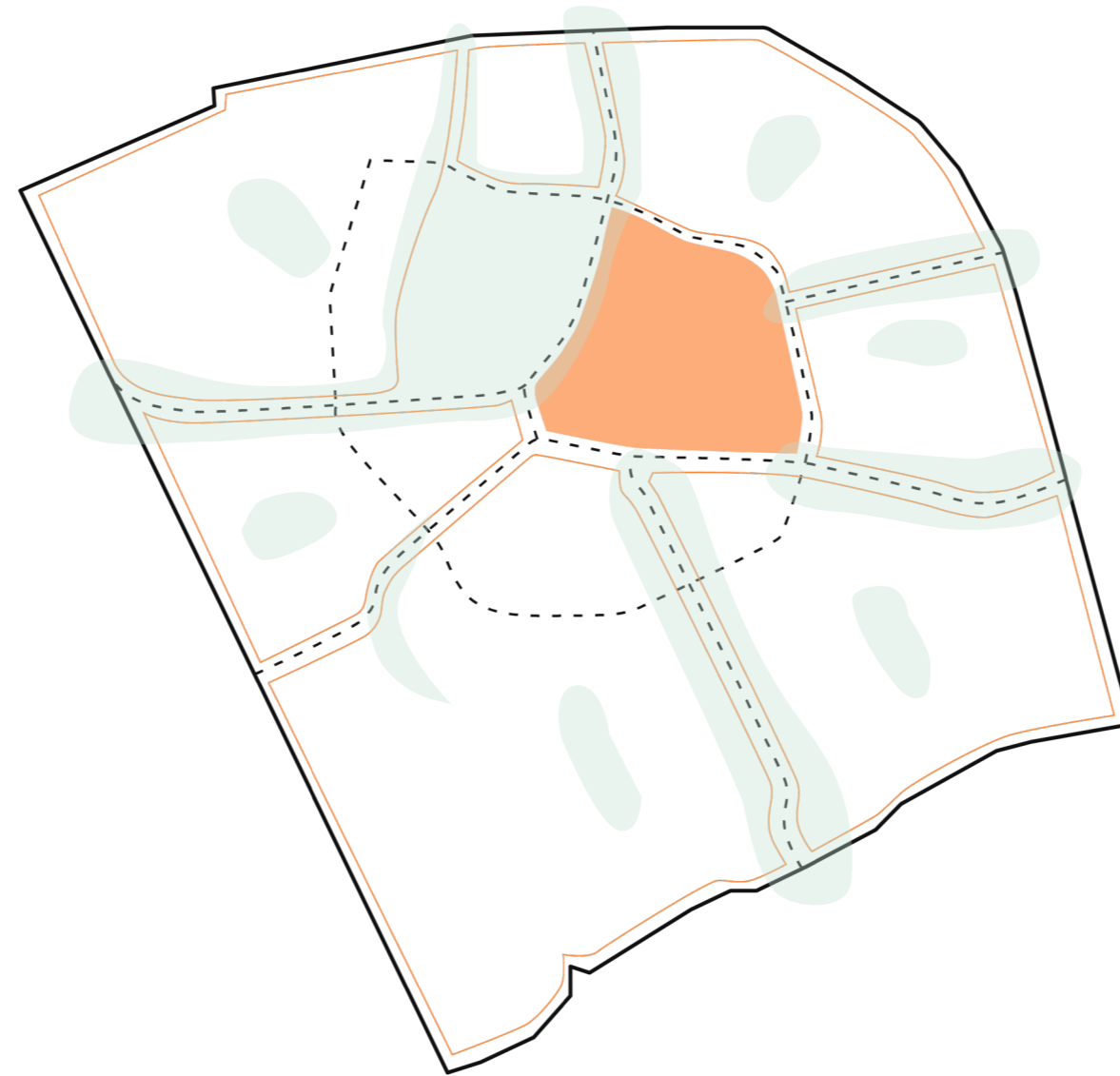
Groot-IJsselmonde

Public Transportation



Groot-IJsselmonde

Green Structure



Groot-IJsselmonde

Stamp



Hordijkerveld

Low-medium Density Residential Area



Industrial Area

Green space that separates the residential area from the industrial area and the highway.

The landscape that indicates the old trace of the dyke before the modern period.

Residential area 1 with big central courtyard.

Residential area 2 with low-rise buildings and central courtyard.

Access to green separating two different residential units.

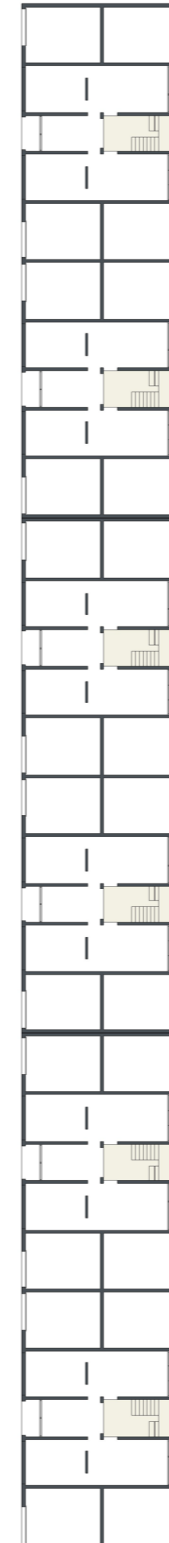
Residential area 3 with low-rise buildings and central courtyard.

Residential area 4 with medium-rise buildings and the big central courtyard.

Green landscape separating two different neighborhoods.

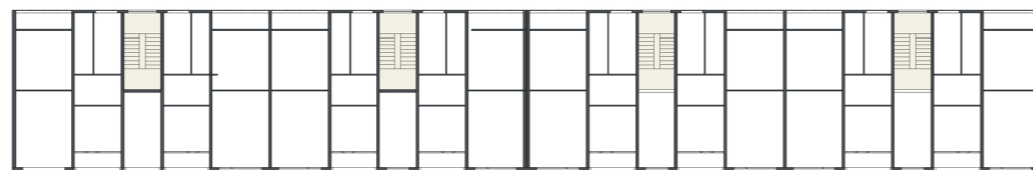
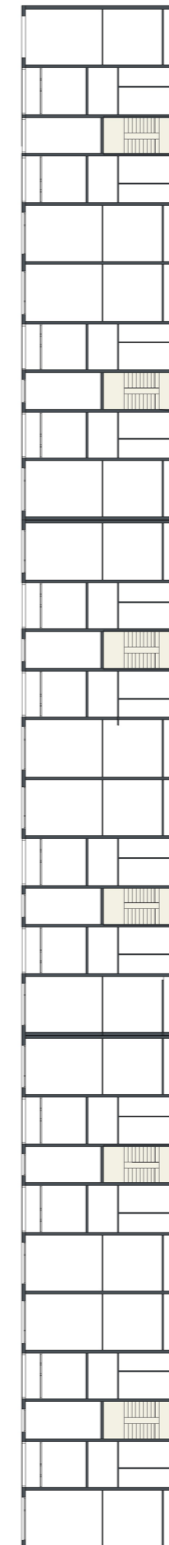
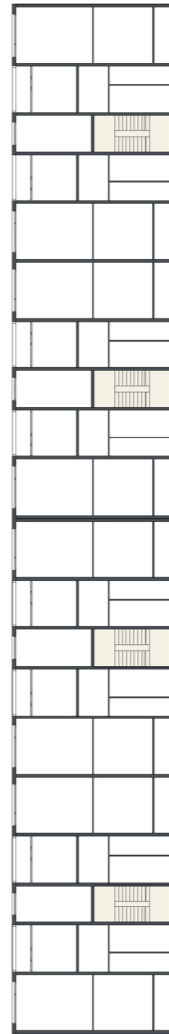
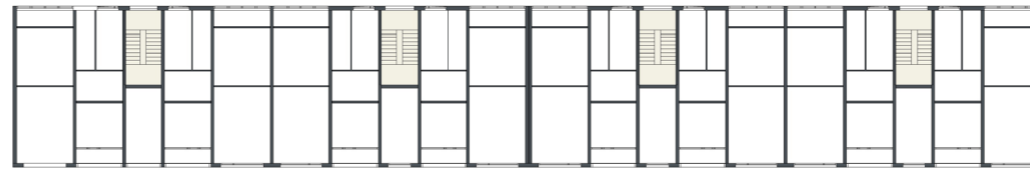
Current Situation

Inactive Plinth



Current Situation

Inactive Central Courtyard



Outdated, Monotonous, Unsustainable Buildings



Car-Dominated Main Street



Inactive Ground Floor



Lifeless Outdoor Space: Courtyard



Lifeless Outdoor Space: Car-Parking Dominated



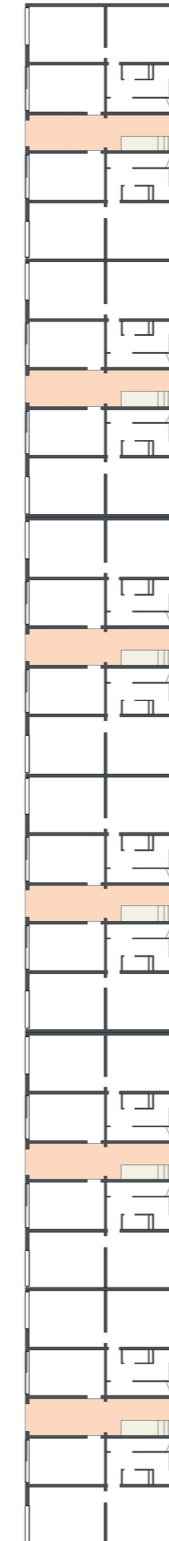
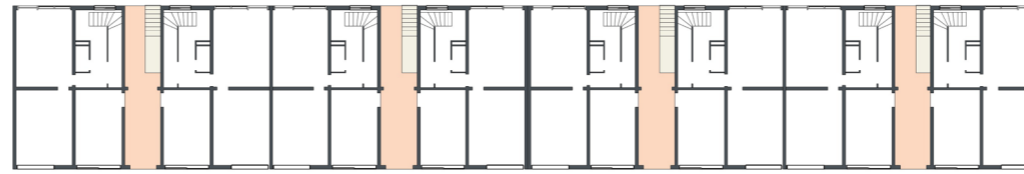
Lifeless Outdoor Space: Leftout Green Space



What if everyone has the **means of production**
in their domestic environment again?

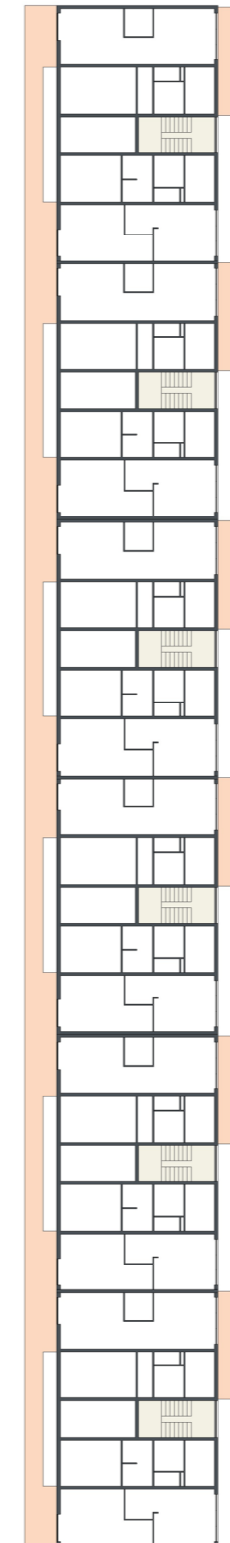
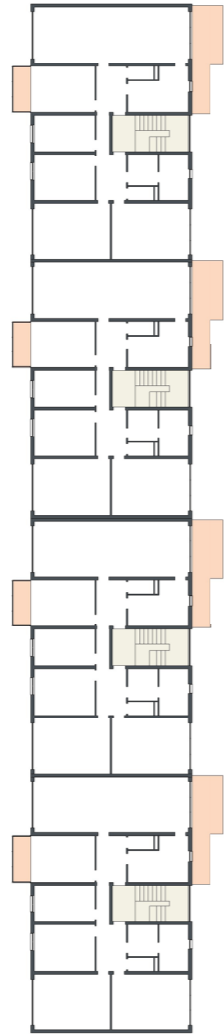
Renovation Strategy 1

Permeable Ground Floor



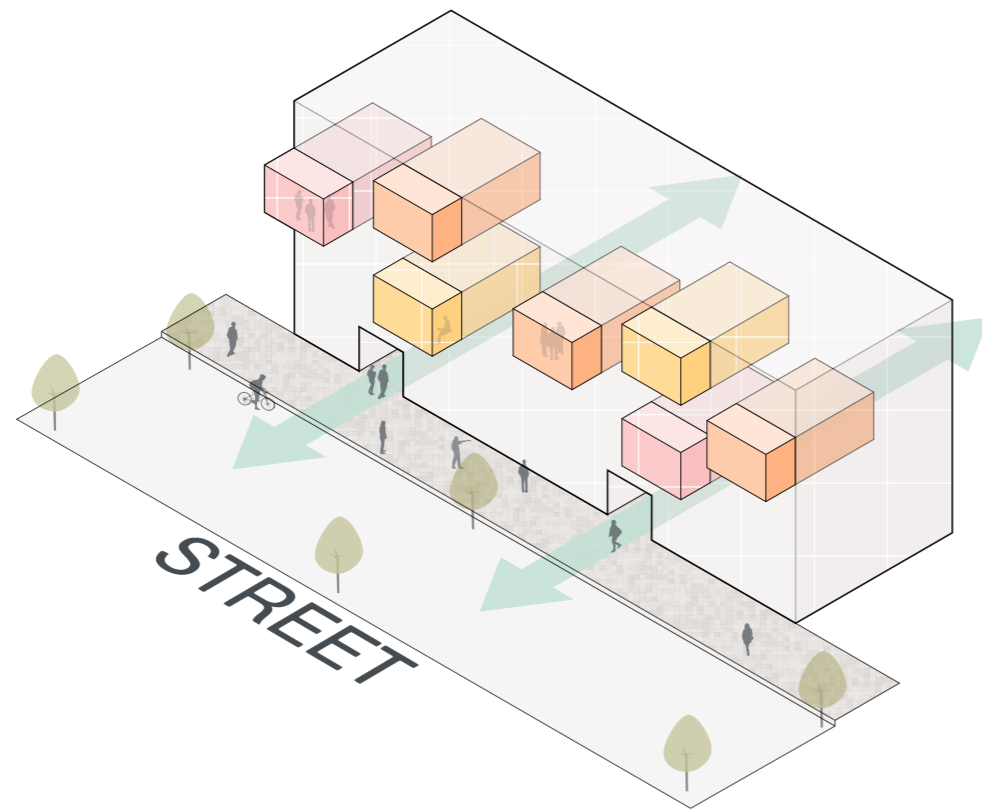
Renovation Strategy 2

Extention: Gallery and Office Garden

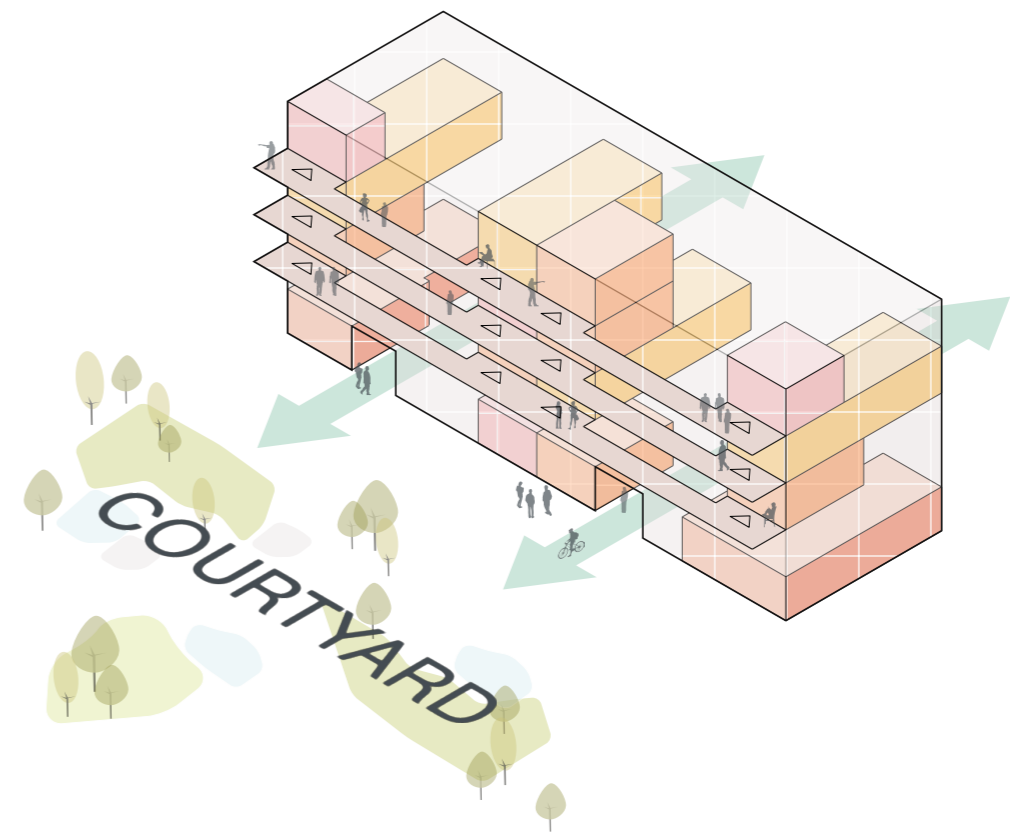


Vertical Front Room

Through Working Corridor and Office Garden



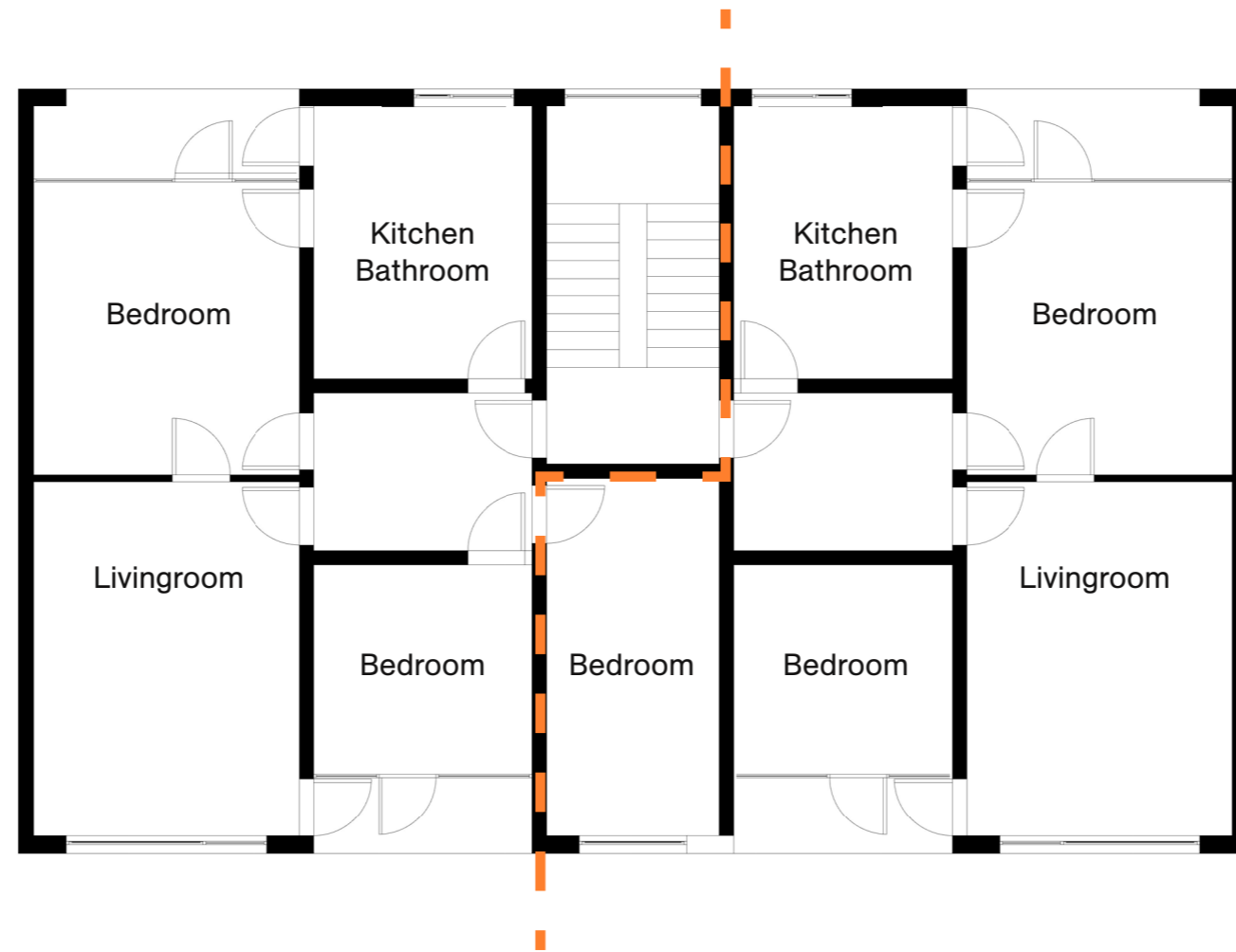
Office Garden
Pictorial Representation of Front Room to the Street



Gallery
Bringing Back the Public Characteristic of Front Room

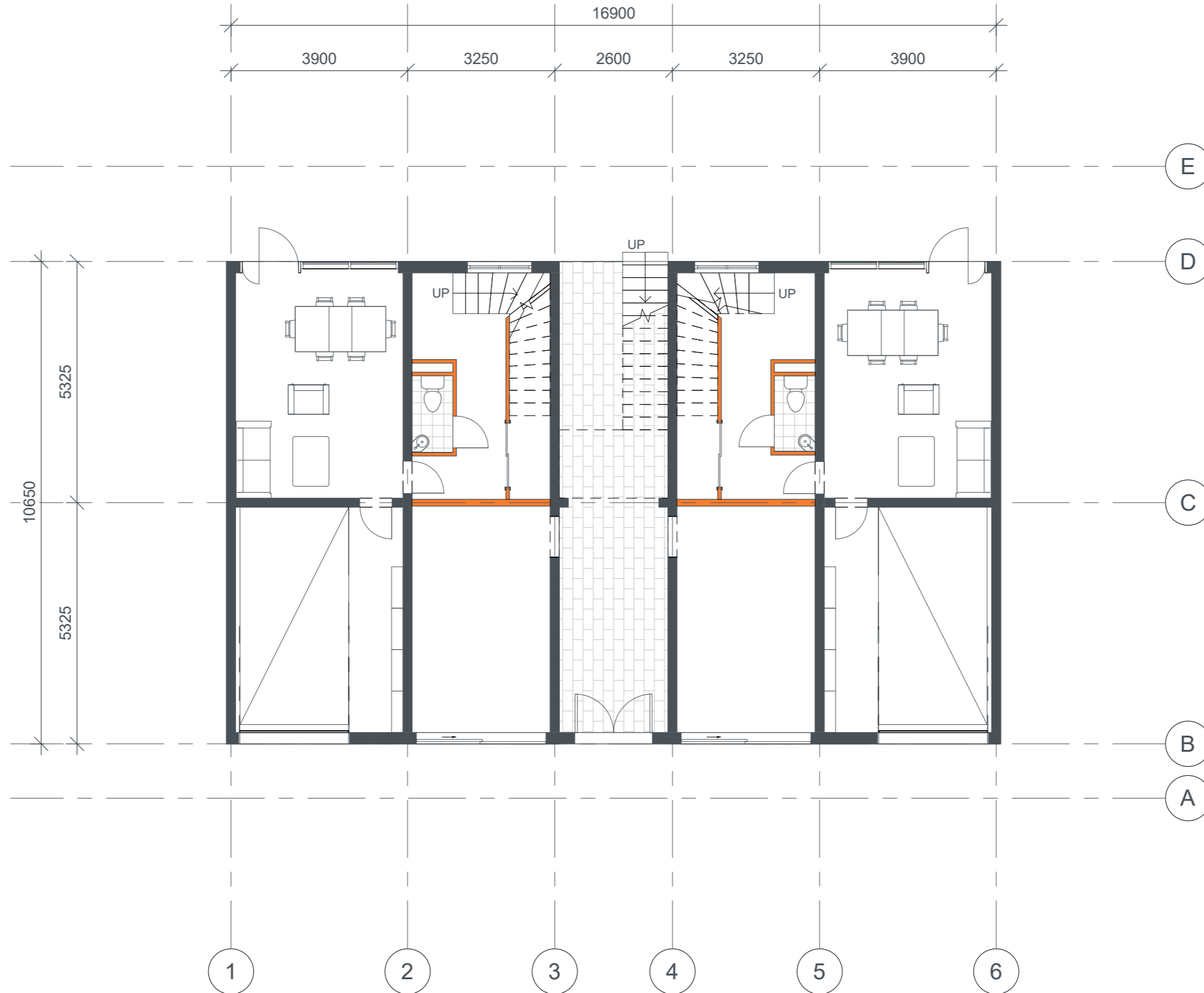
Original Plan

Typical Floor Plan



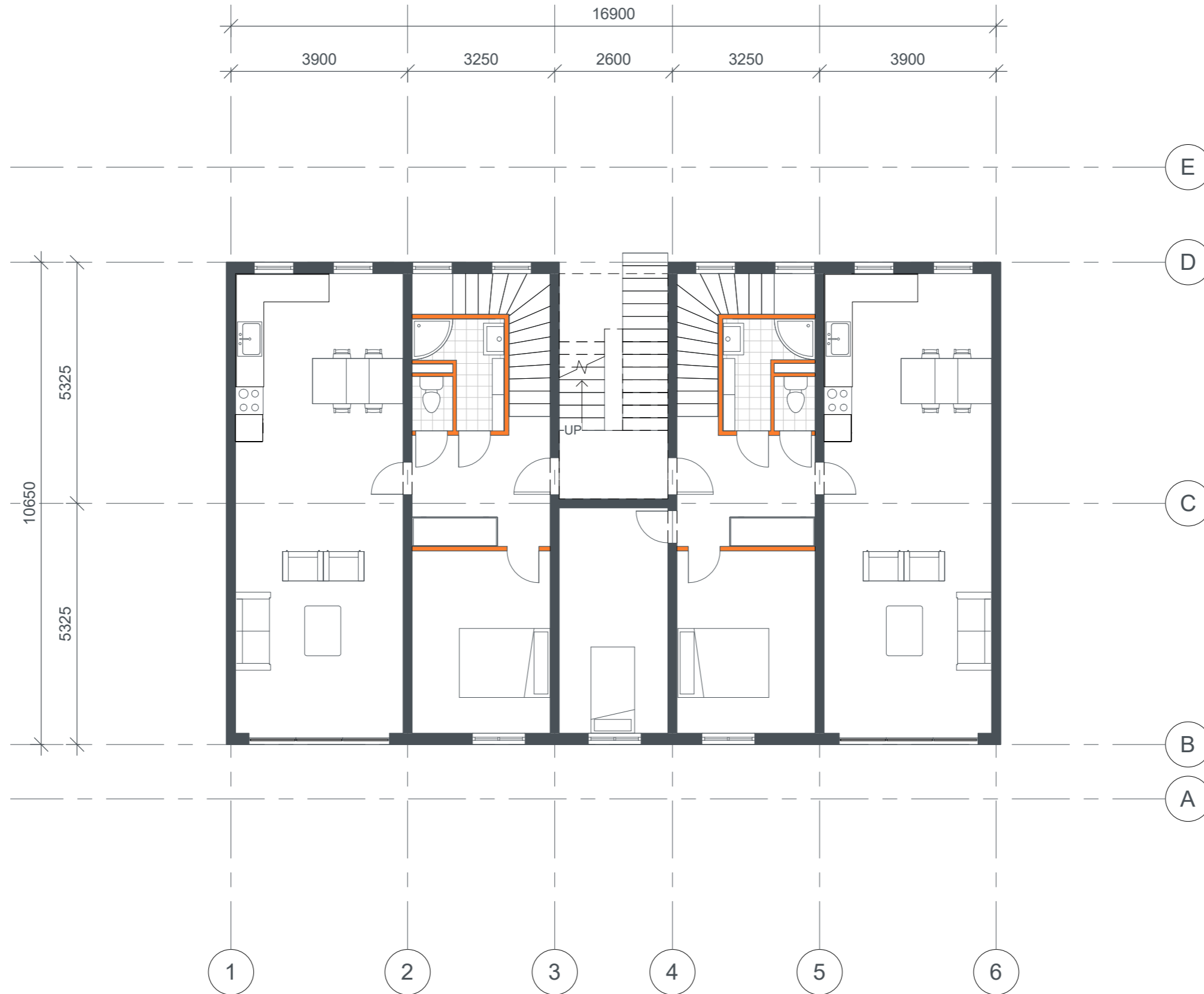
Permeability and Active Ground Floor

Open Core and Mezzanine



Ground-Bound Work-Live Unit

Live-Function Dedicated Upper Level



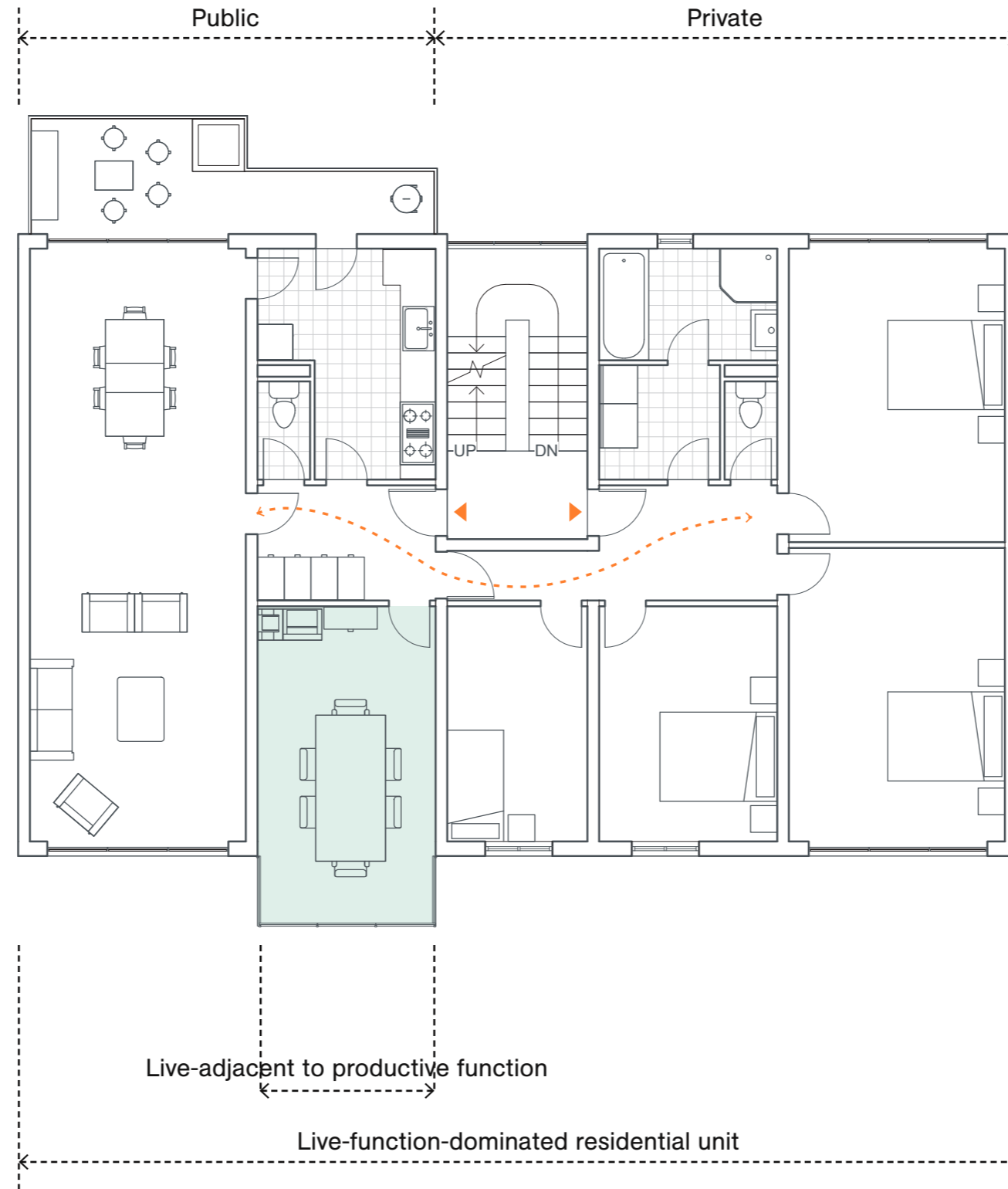
Office Garden and Balcony

Floor Extension



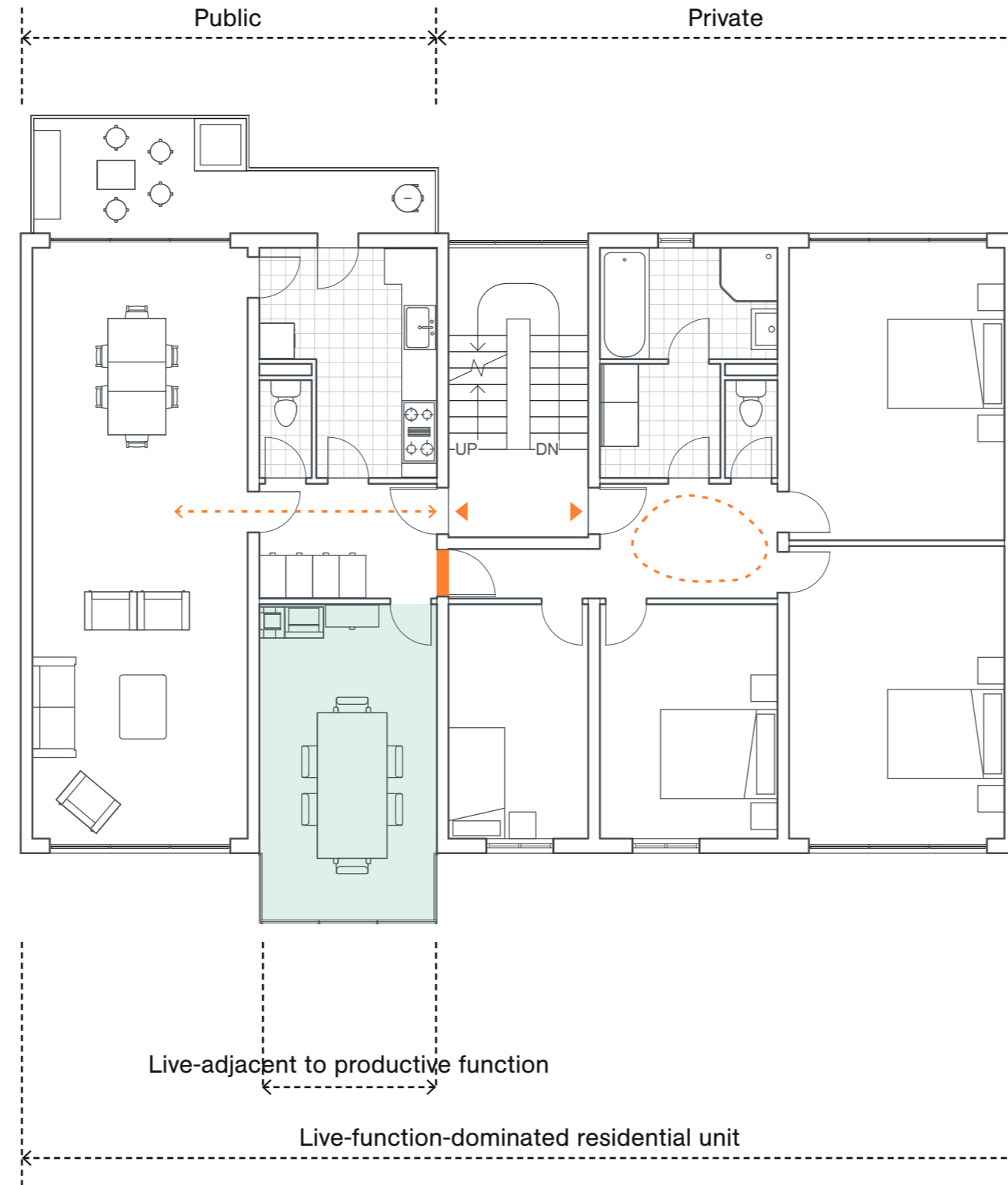
Walking Possibilities on Different Routes

Appropriation of Office Garden based on Time-Zoning



Walking Possibilities on Different Routes

Appropriation of Office Garden based on Time-Zoning

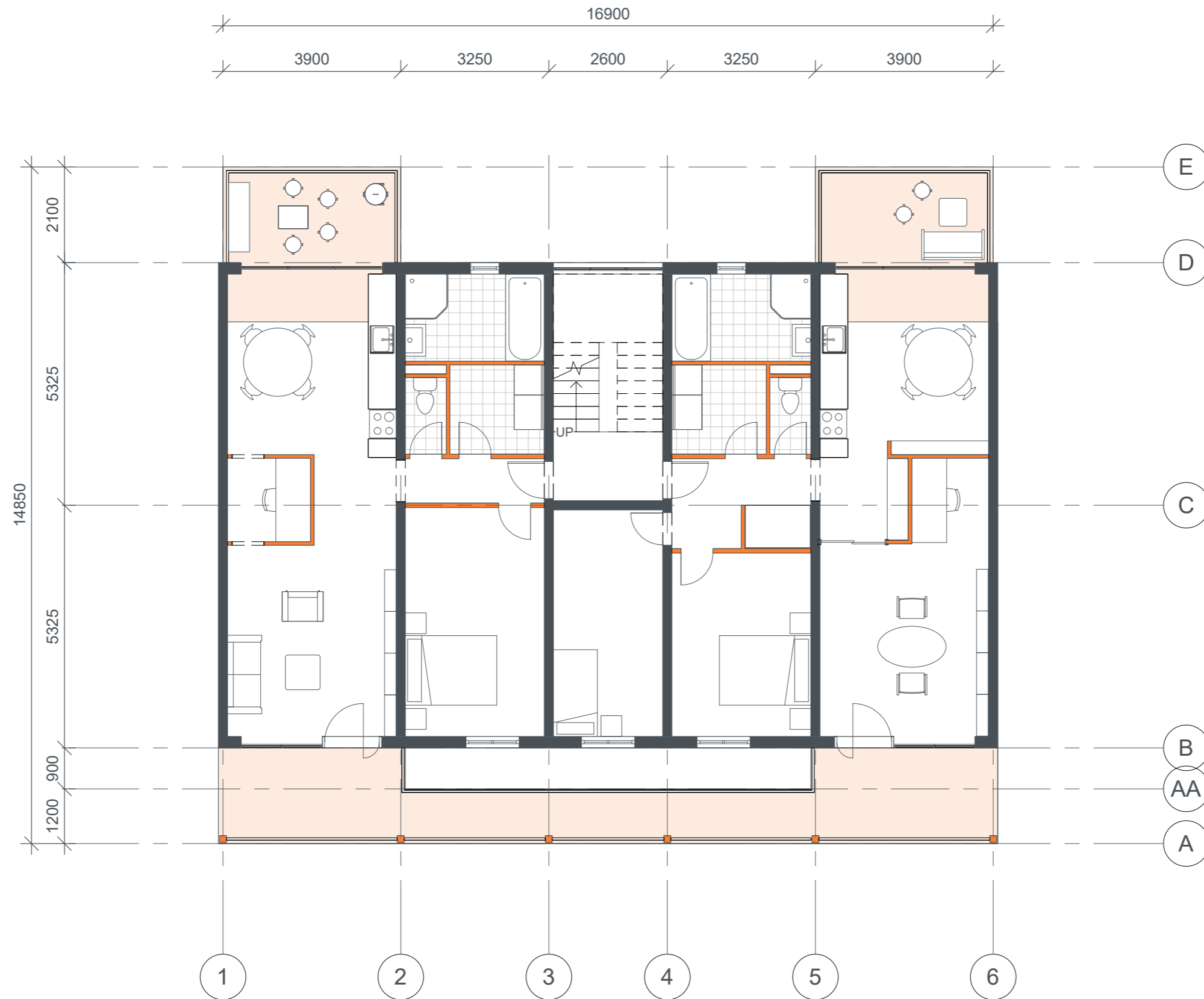






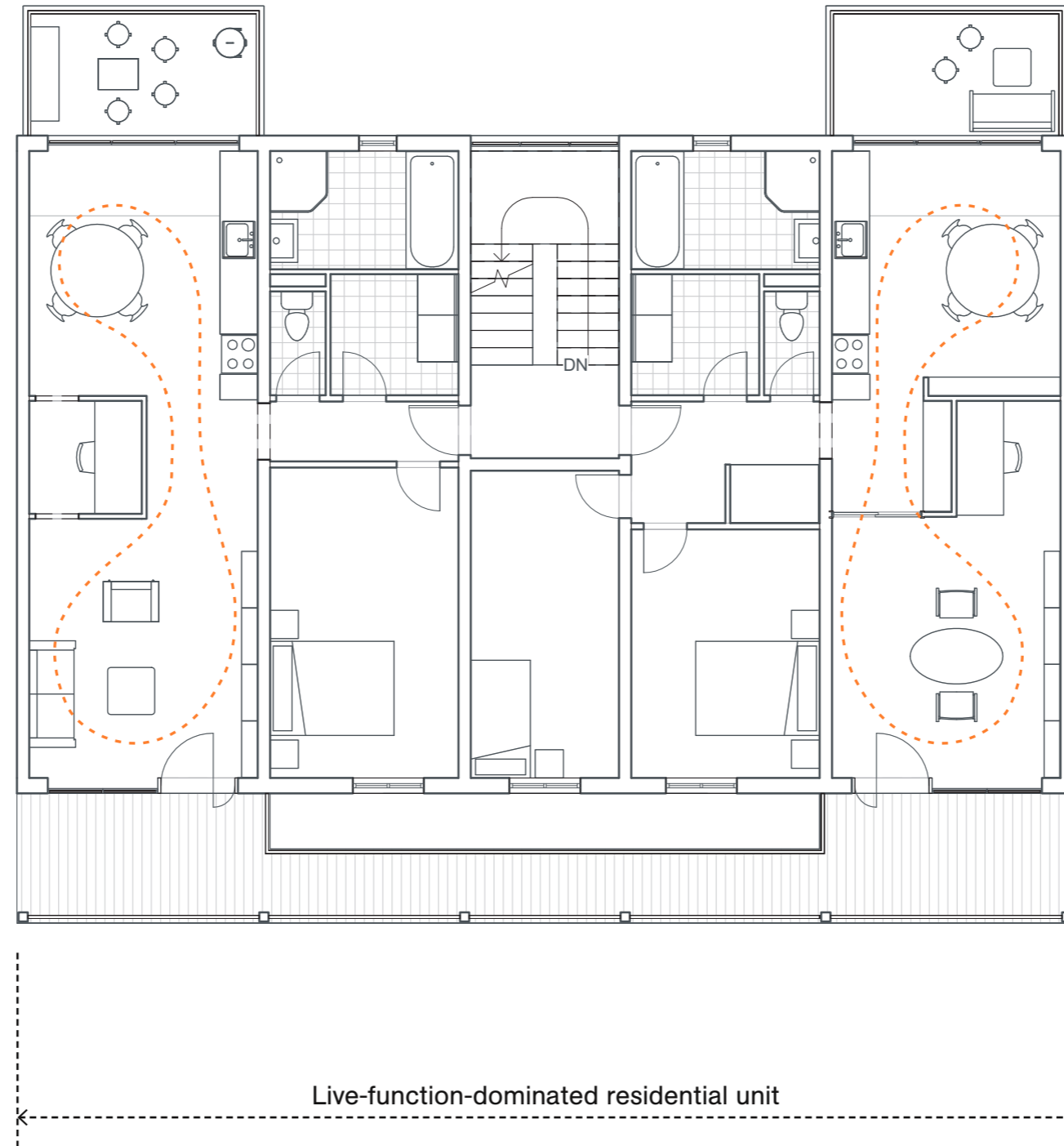
Vertical Front Room

Gallery Extension



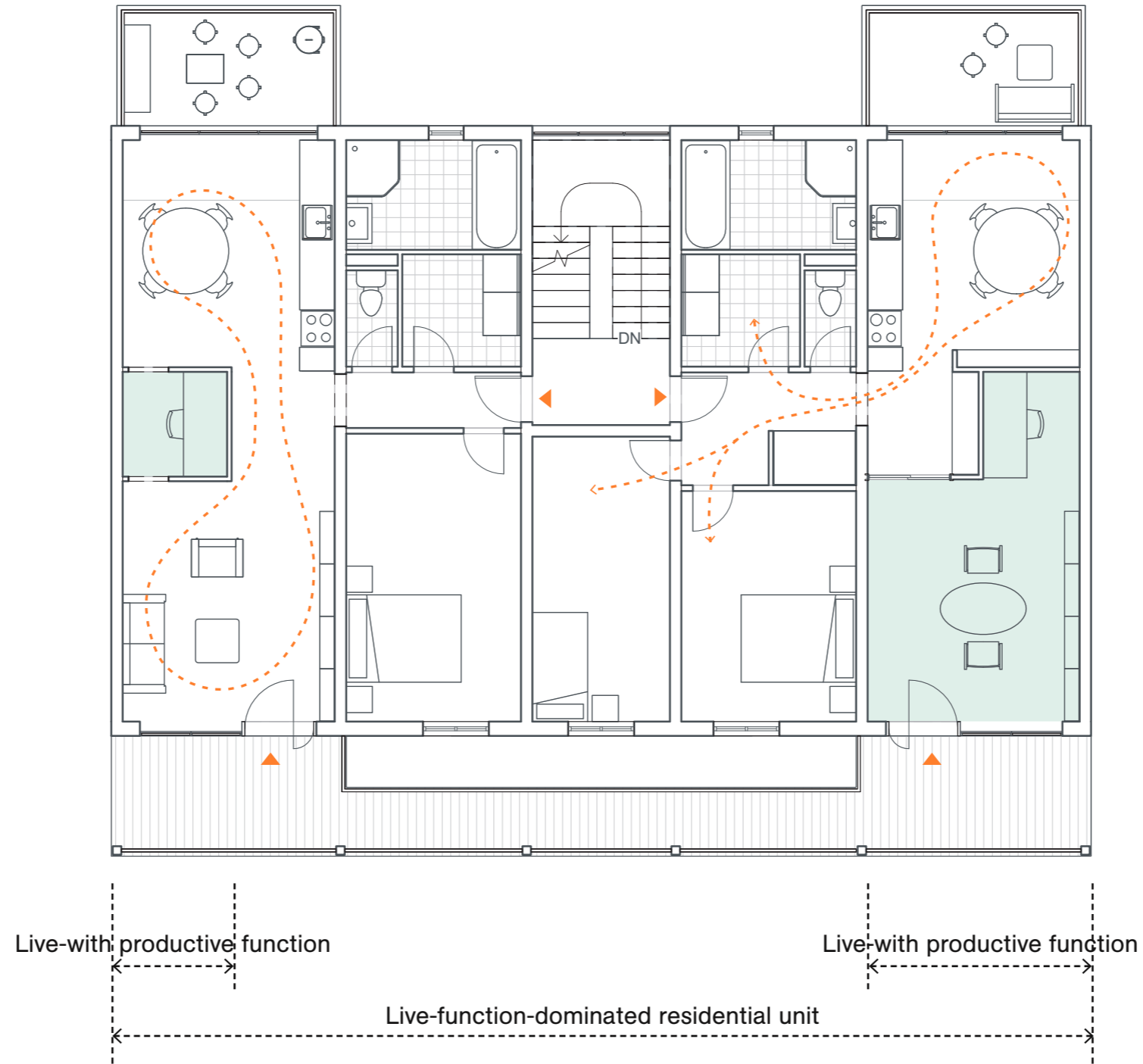
Walking Possibilities on Different Routes

Appropriation of Front Room based on Time Zoning



Walking Possibilities on Different Routes

Appropriation of Front Room based on Time Zoning







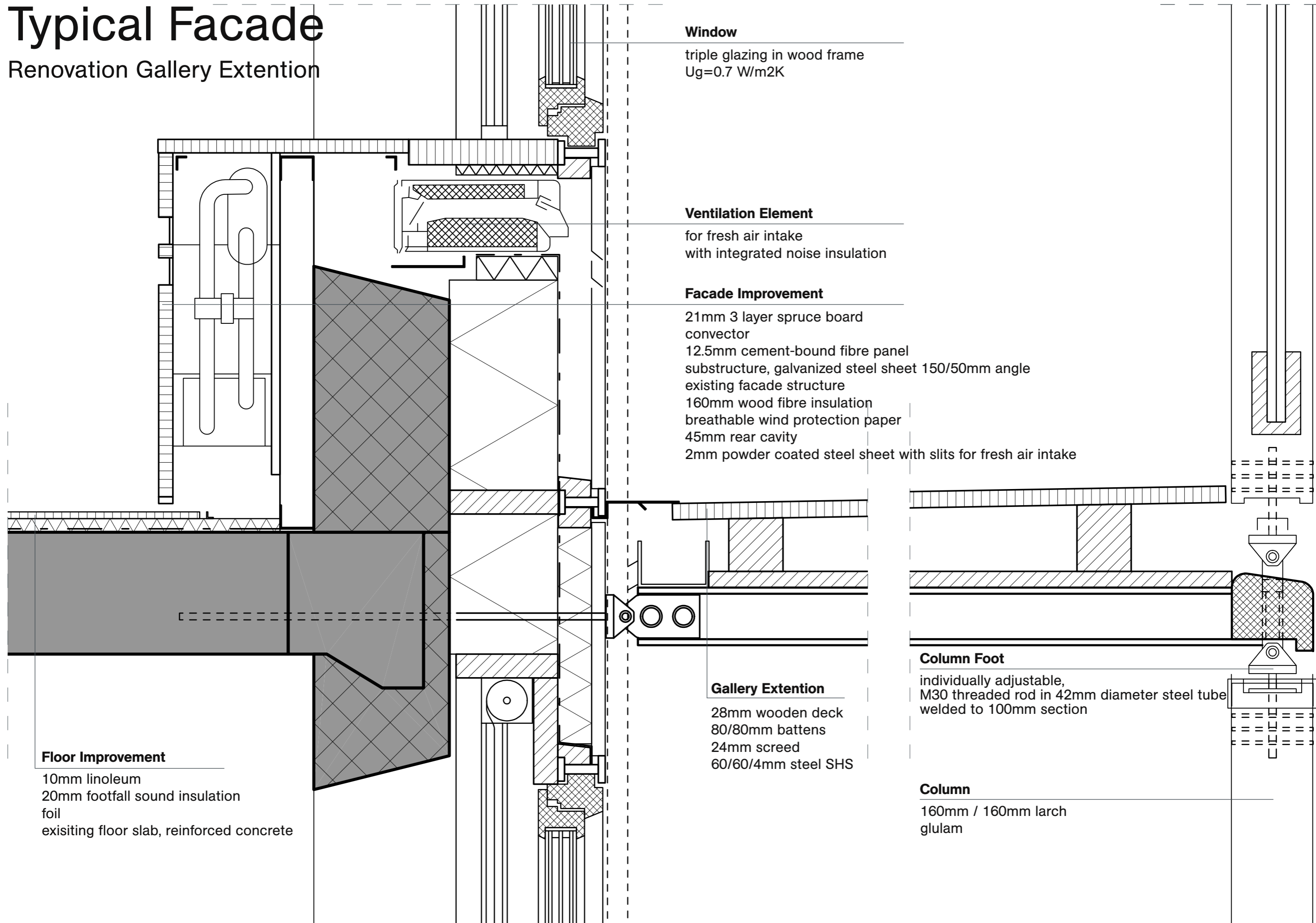
Building Technology

Where the old and new meet



Typical Facade

Renovation Gallery Extension



Window

triple glazing in wood frame
Ug=0.7 W/m2K

Ventilation Element

for fresh air intake
with integrated noise insulation

Facade Improvement

21mm 3 layer spruce board
convector
12.5mm cement-bound fibre panel
substructure, galvanized steel sheet 150/50mm angle
existing facade structure
160mm wood fibre insulation
breathable wind protection paper
45mm rear cavity
2mm powder coated steel sheet with slits for fresh air intake

Gallery Extension

28mm wooden deck
80/80mm battens
24mm screed
60/60/4mm steel SHS

Floor Improvement

10mm linoleum
20mm footfall sound insulation
foil
existing floor slab, reinforced concrete

Column Foot

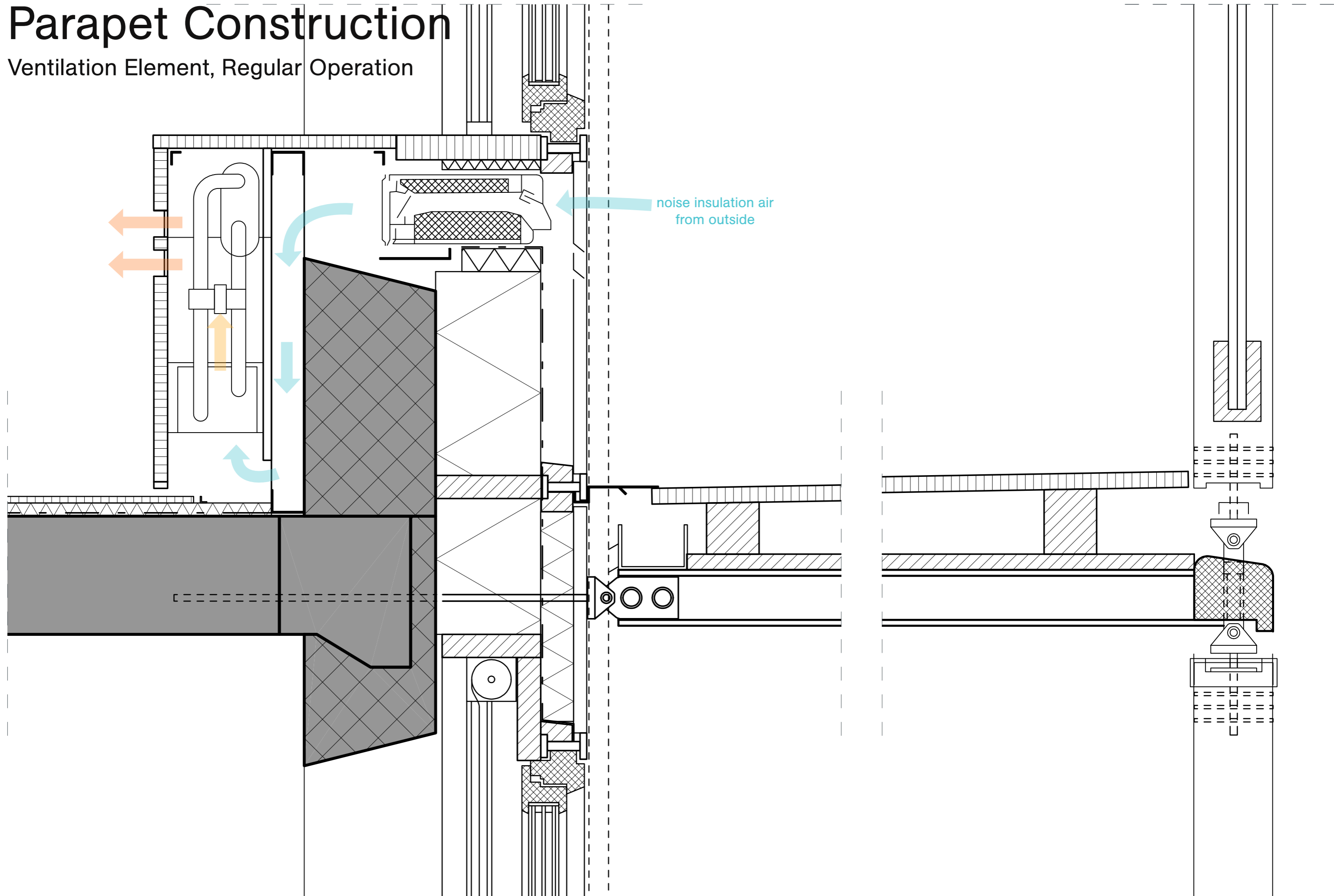
individually adjustable,
M30 threaded rod in 42mm diameter steel tube
welded to 100mm section

Column

160mm / 160mm larch
glulam

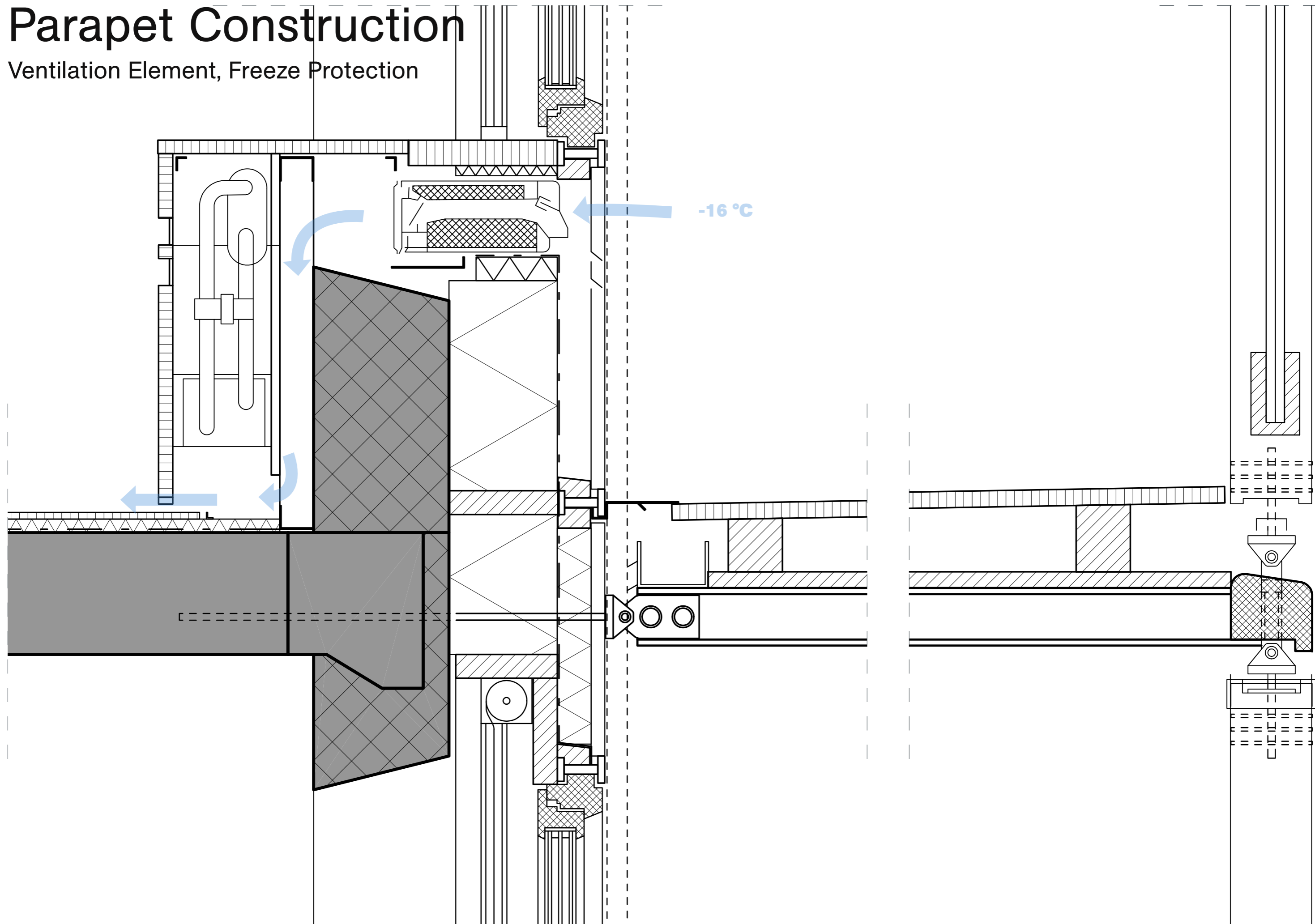
Parapet Construction

Ventilation Element, Regular Operation



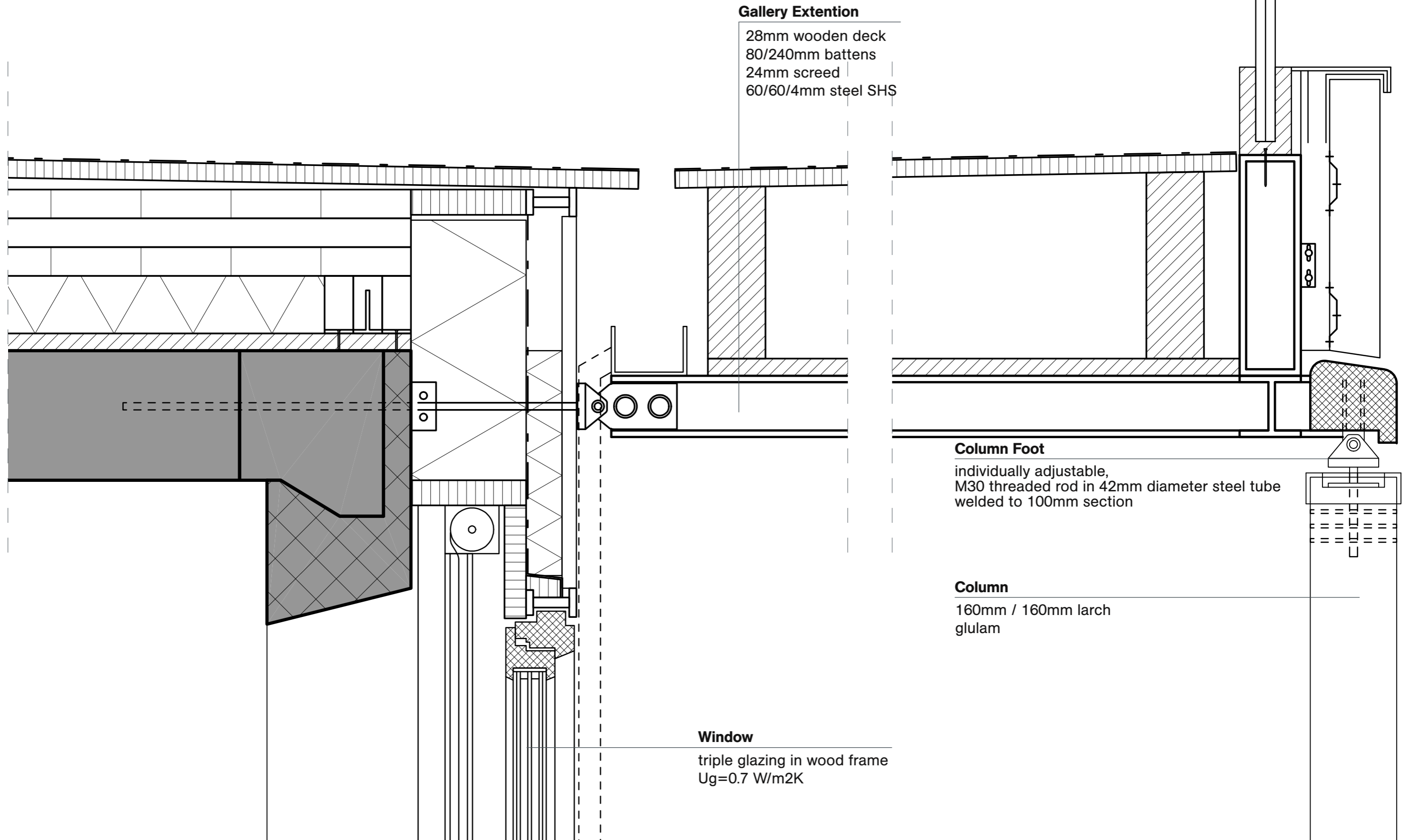
Parapet Construction

Ventilation Element, Freeze Protection



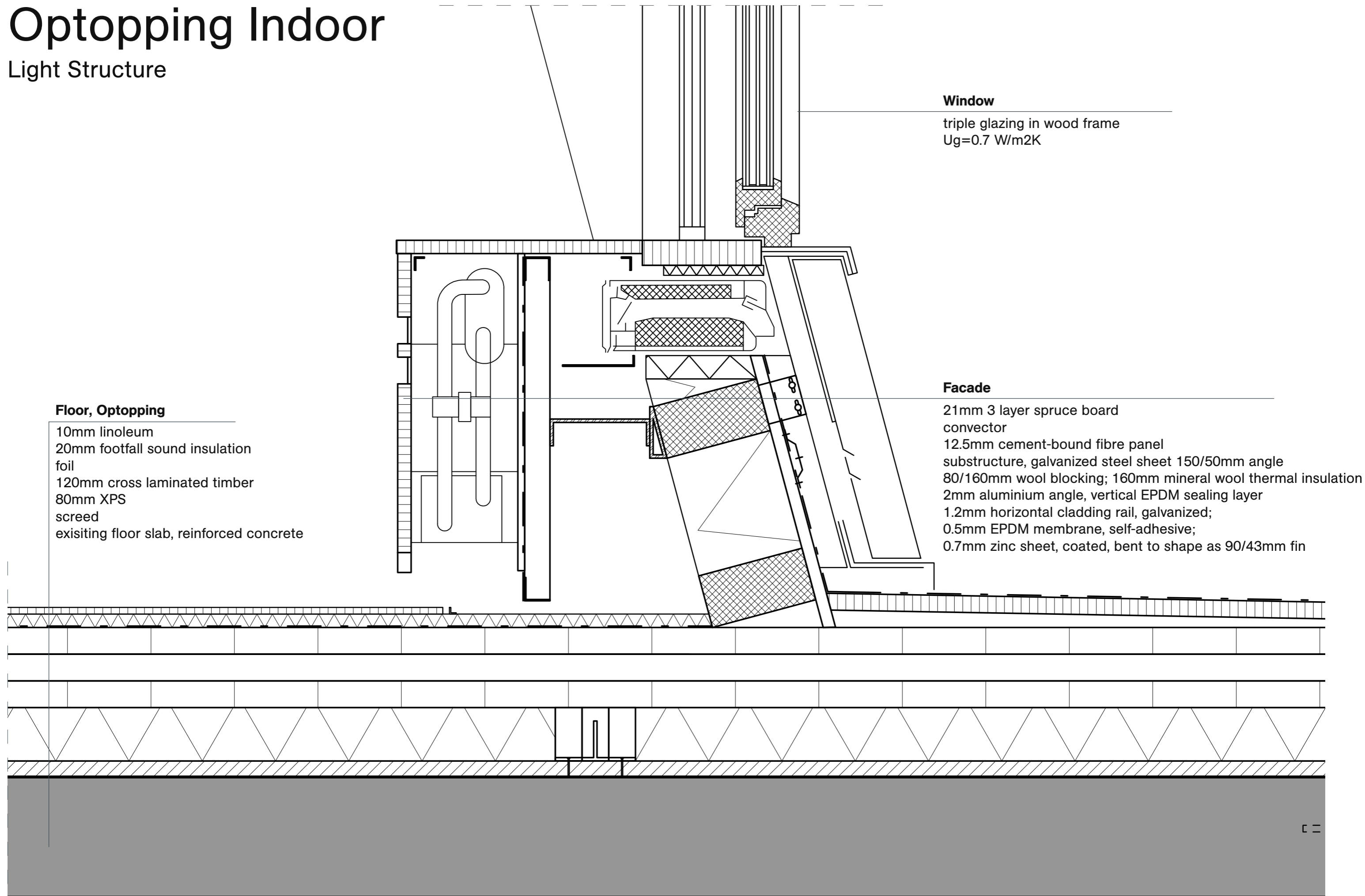
Optopping Outdoor

Renovation Optopping and Gallery Extension



Optopping Indoor

Light Structure



Window

triple glazing in wood frame
 $U_g=0.7 \text{ W/m}^2\text{K}$

Facade

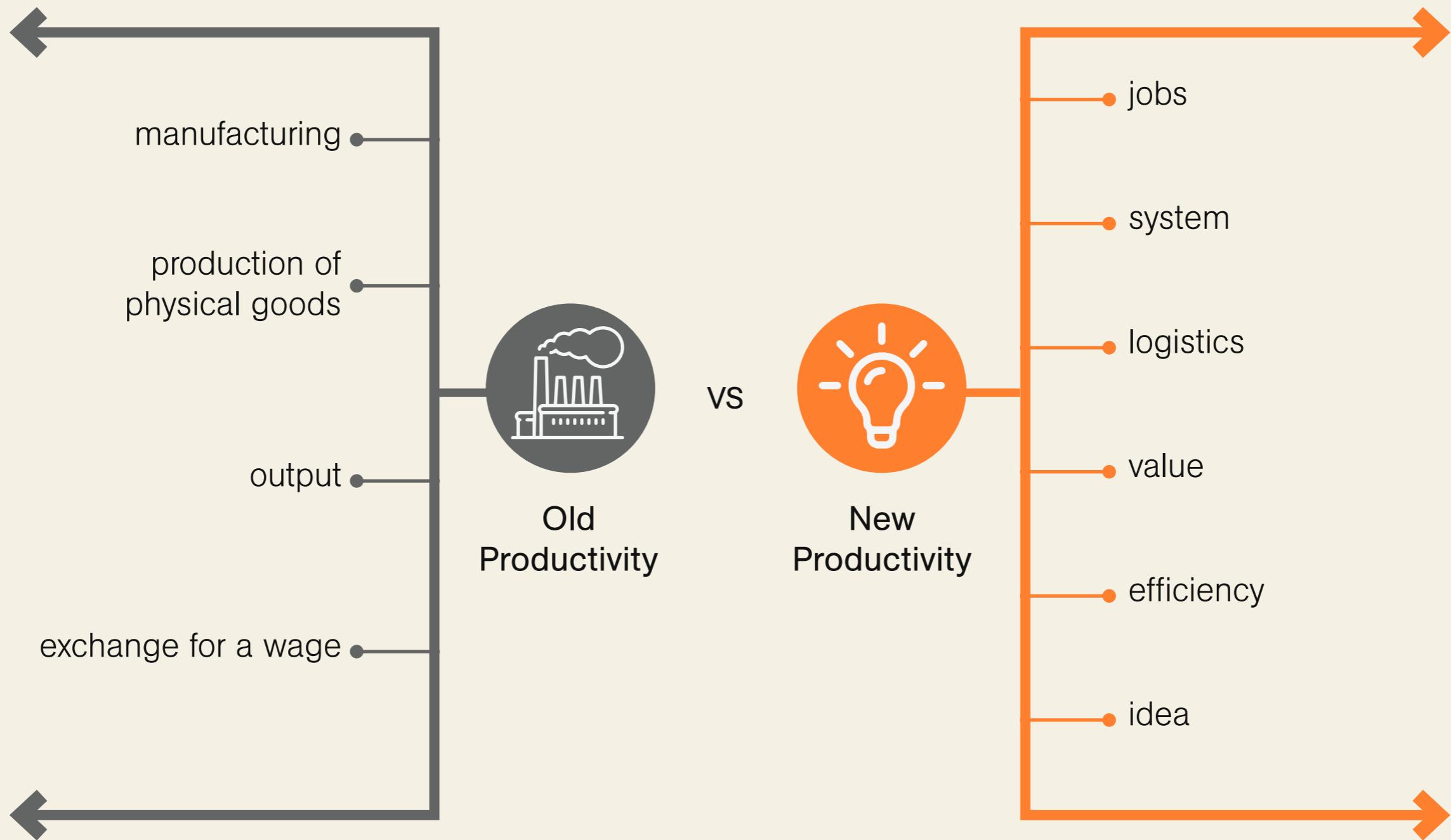
21mm 3 layer spruce board
convector
12.5mm cement-bound fibre panel
substructure, galvanized steel sheet 150/50mm angle
80/160mm wool blocking; 160mm mineral wool thermal insulation
2mm aluminium angle, vertical EPDM sealing layer
1.2mm horizontal cladding rail, galvanized;
0.5mm EPDM membrane, self-adhesive;
0.7mm zinc sheet, coated, bent to shape as 90/43mm fin

Floor, Optopping

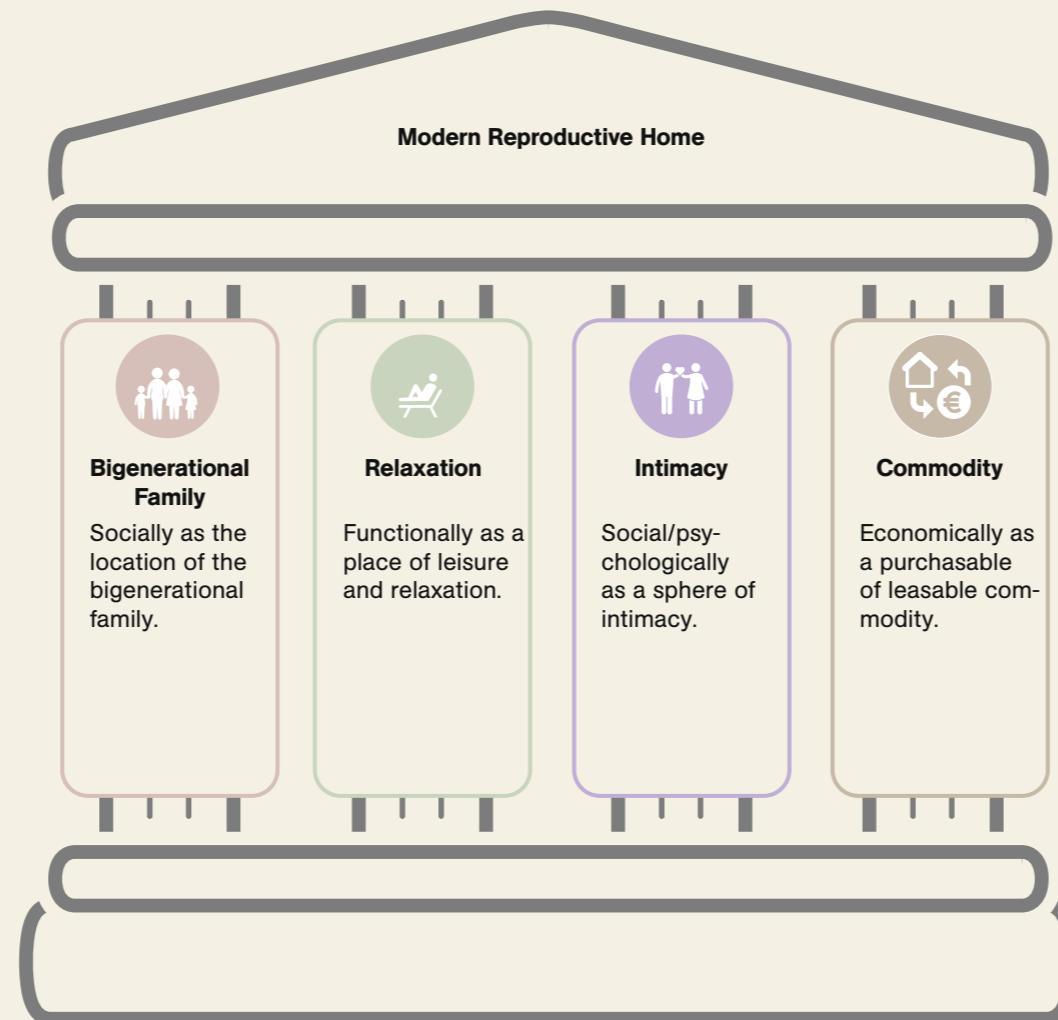
10mm linoleum
20mm footfall sound insulation
foil
120mm cross laminated timber
80mm XPS
screed
existing floor slab, reinforced concrete

Conceptual Ambiguity of Productivity

21st century

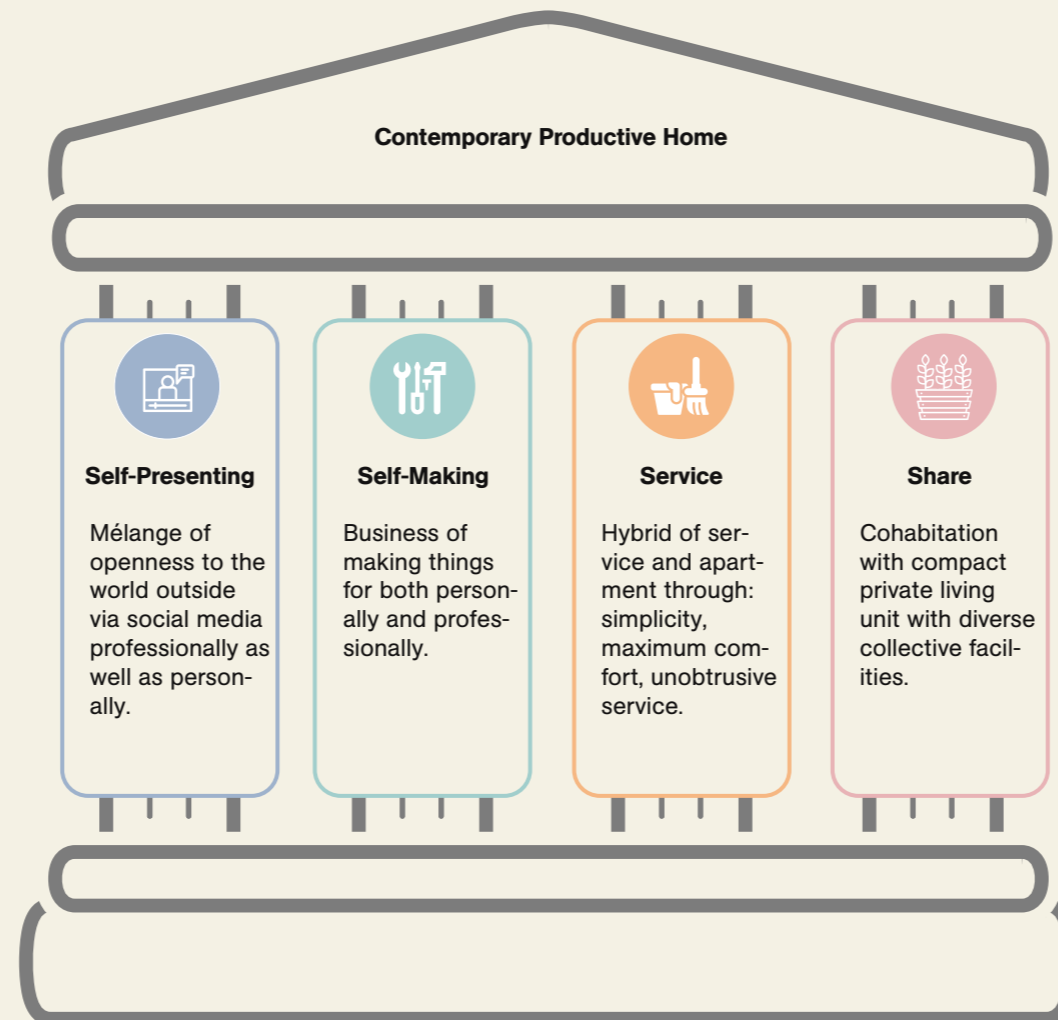


Four Pillars of a Modern Home








Four Pillars of a Productive Home









Target Group Analysis






				
Age	Household	Income	Lifestyle	Ownership
15-25 (Student) 18-25 25-64 65+	Single Couple without child(ren) Couple with child(ren) Single parent family	low middle upper	Disabilities Religious Background Cultural Background LGBTQ+ Live-work Personality Starters Young Professional Migrants Student	Private Community Association Municipality







				
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	 Productive			
	Self-presenting 	Self-making 	Service economy 	Shared economy 
▶ Family				●
▶ The elderly		●	●	●
▶ single-person household				●
Students	●			●
Young professionals	●	●	●	
Starters	●	●	●	
▶ Migrants	●			

	 Productive			
	Self-presenting 	Self-making 	Service economy 	Shared economy 
Family				●
The elderly		●	●	●
single-person household				●
▶ Students	●			●
▶ Young professionals	●	●	●	
▶ Starters	●	●	●	
Migrants	●			

	 Productive				 Reproductive		
	Self-presenting 	Self-making 	Service economy 	Shared economy 	Intimacy 	Relax 	Bigenerational 
Traditional Housing					●		●
Micro Housing				●			
Serviced Apartment			●				
Shared Housing				●			
Studio	●	●		●			
Office	●	●		●			
Workshop	●	●		●			
Storage	●		●	●			
Car parking		●		●			
Logistics		●		●			
Commercial		●	●				
Collective Garden				●			
Green						●	
Playground							●

The functional zoning typical of modern urbanism is no longer self-evident. People's domestic and professional lives increasingly take place in one and the same domain. They need a different type of city, one that accommodates a wide variety of programs, with tailor-made facilities that allow combinations of living, working and care. ... It is where the individual dwelling, the collective domain and urban life meet.' - DASH (2018)

Densification Strategy

Jane Jacobs' Four Conditions of Exuberant Diversity in a City's Streets

Condition 1

The district and its internal parts must serve more than one primary function.

Condition 2

Most blocks must be short. People can have more opportunities to turn corners more frequently.

Condition 3

The district must combine buildings that vary in age and condition, and the mingling must be close-grained.

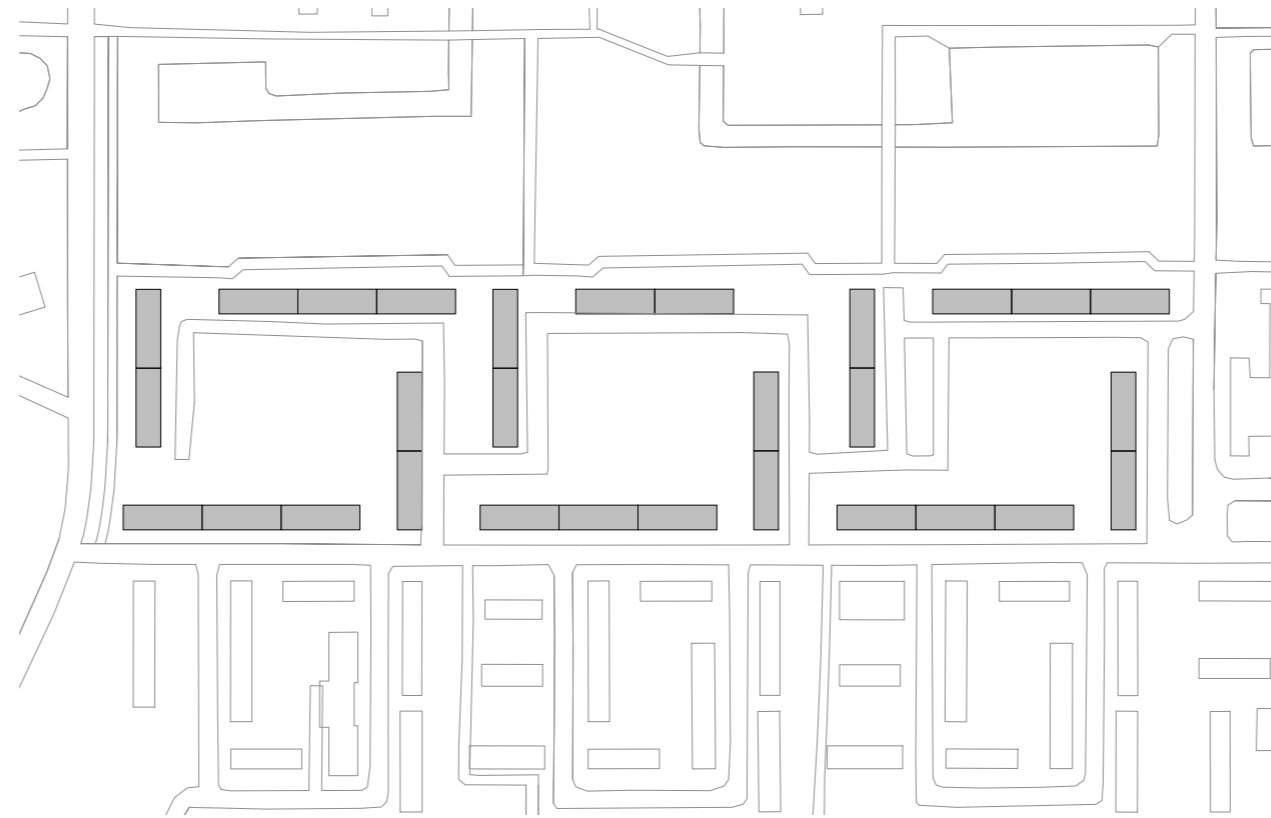
Condition 4

A dense concentration of people who live there must be present.

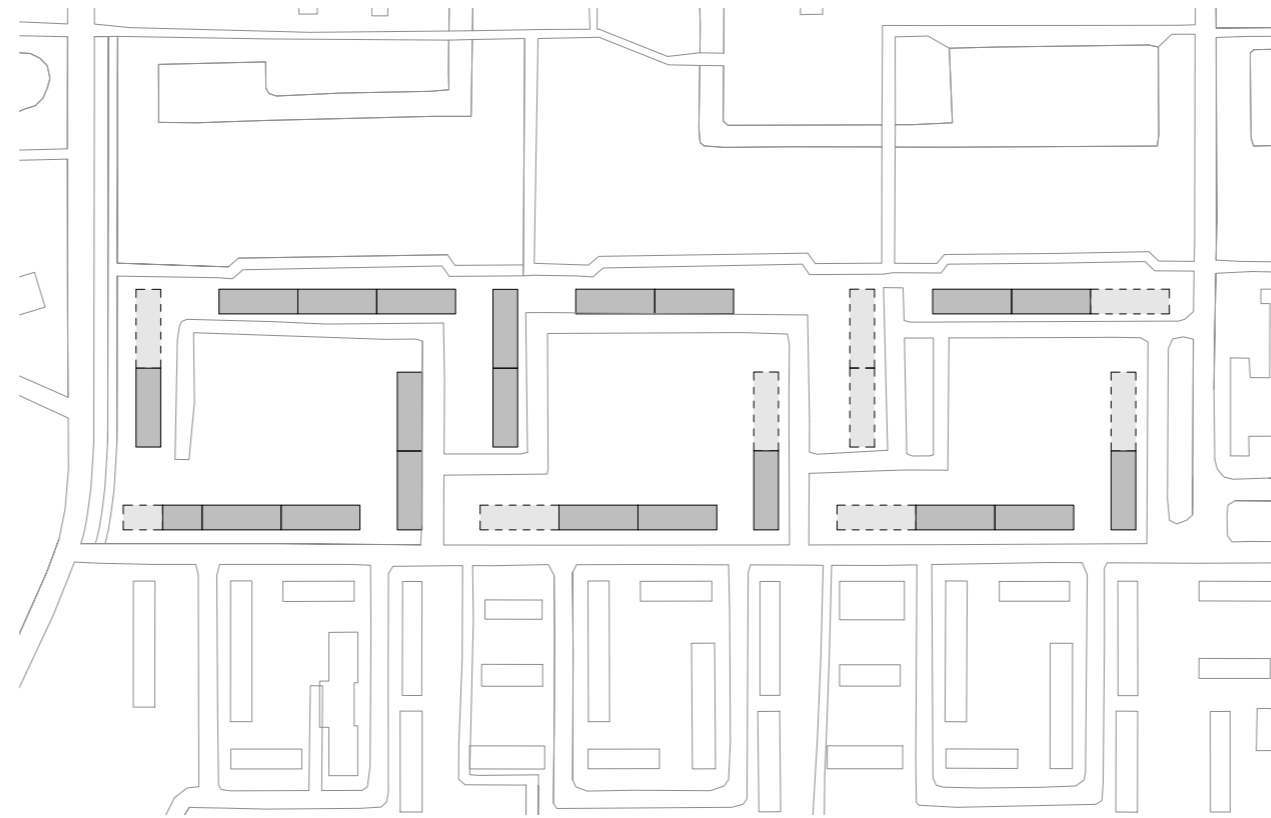
What happens when the **productive living** is mapped onto an existing structure of the post-war housing?

Cluster and Corner

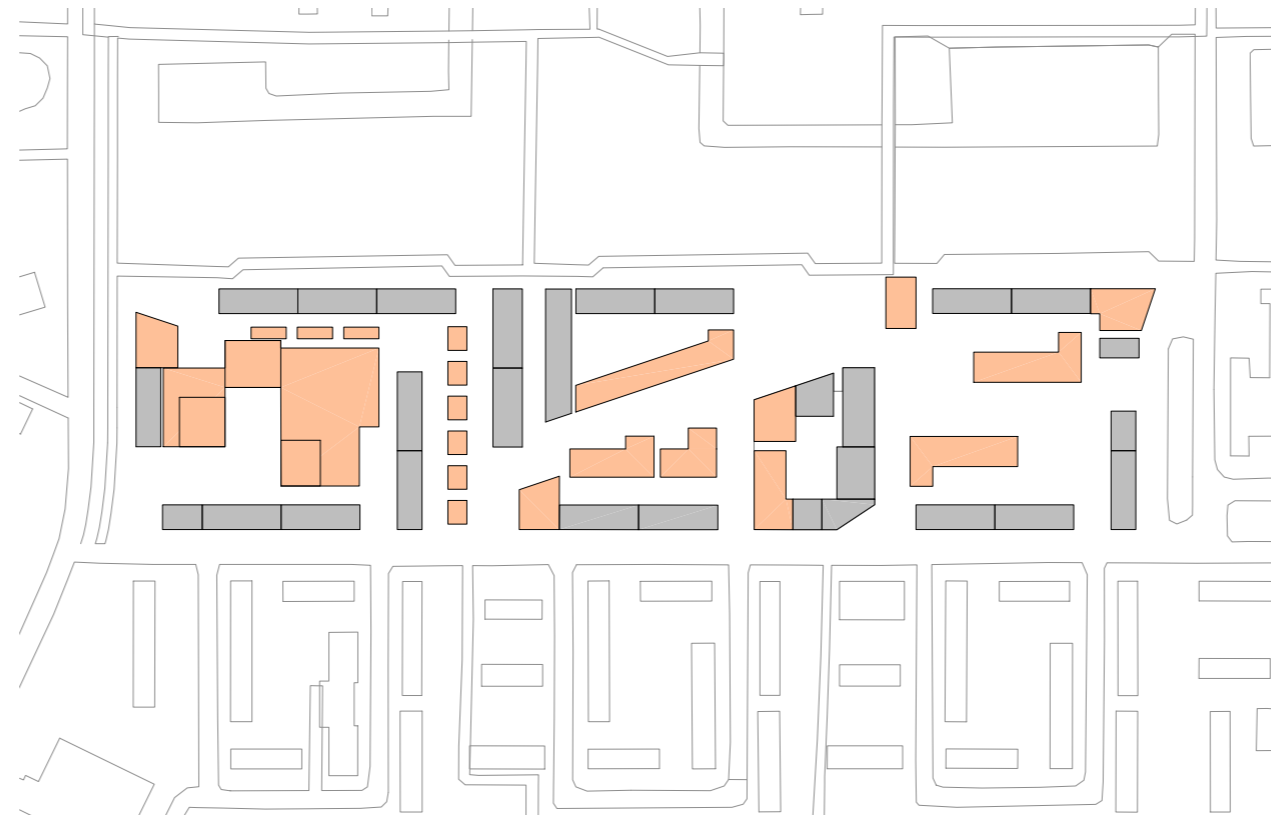
Cluster Design Strategy 1



Cluster Design Strategy 2

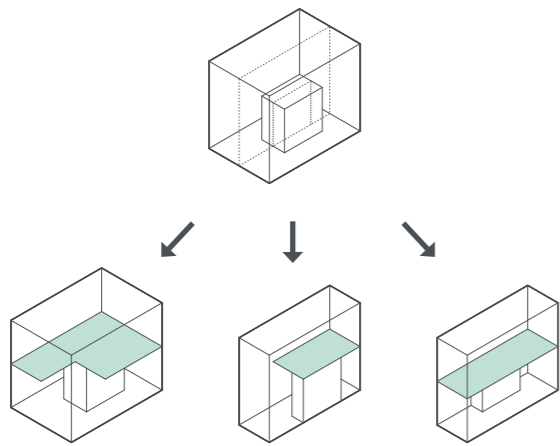


Cluster Design Strategy 3

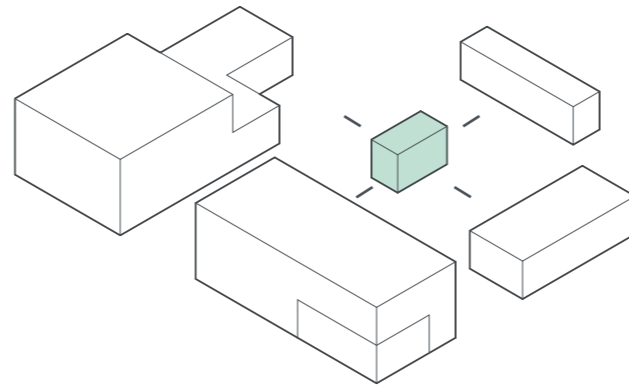


Three New Typologies

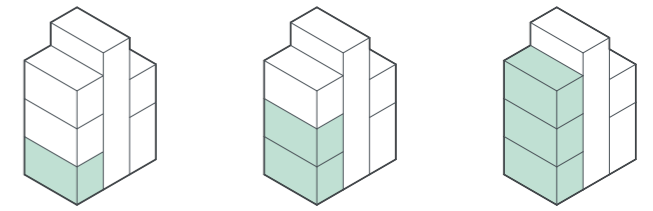
Productive-function Dominated Residences



Greater adaptability
coordinated by Inhabitants
on different life phases



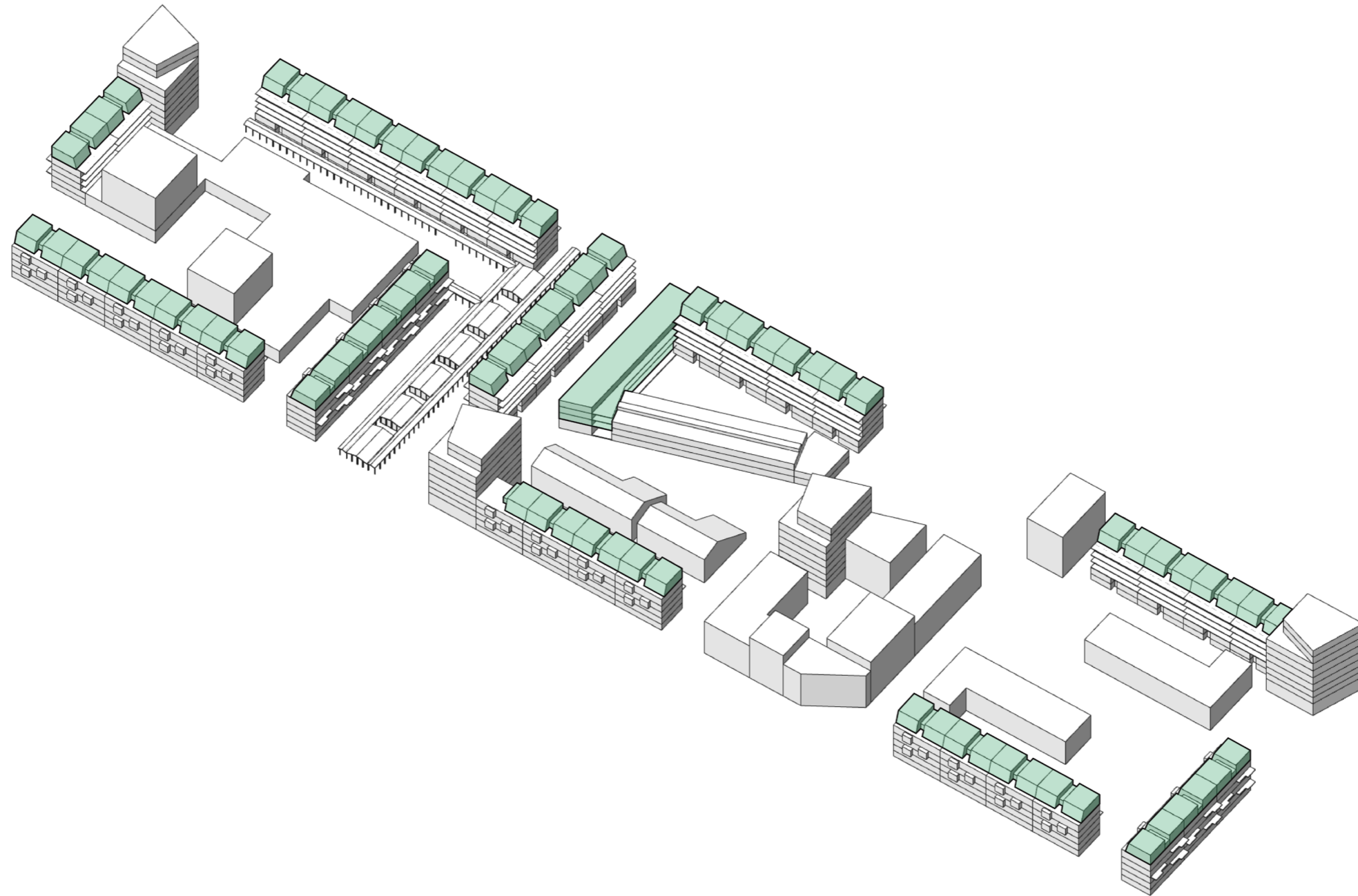
Compact private units
equipped with collective facilities
positioned nearby productive facility



3-storey independent housing unit
split level achieving equal status
between productive and reproductive functions

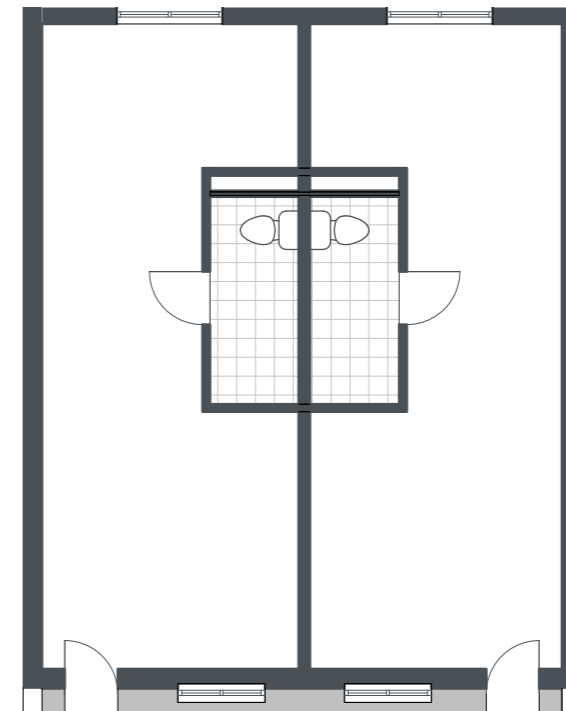
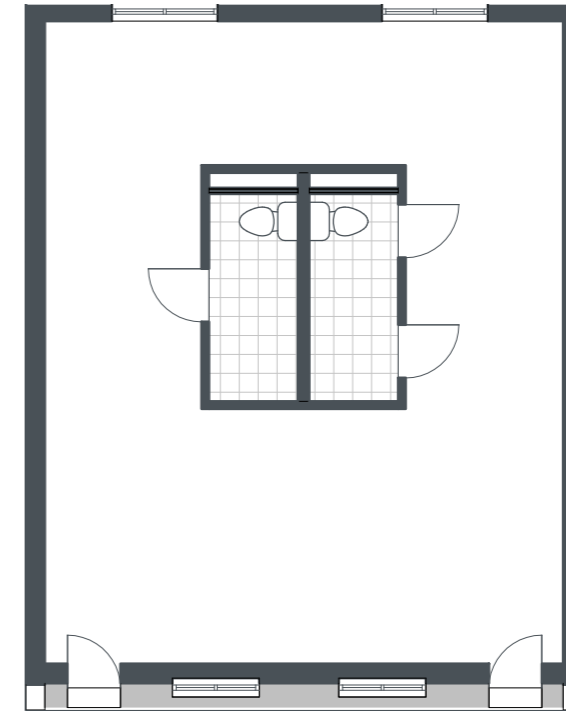
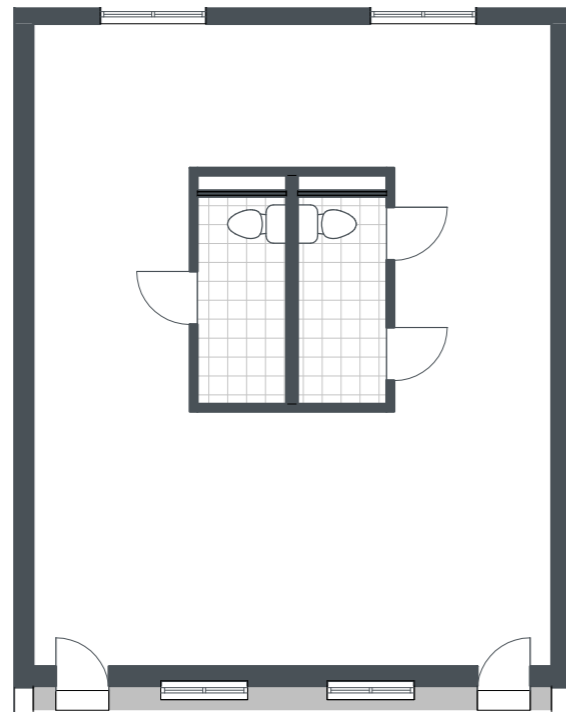
Adaptable House

Optopping



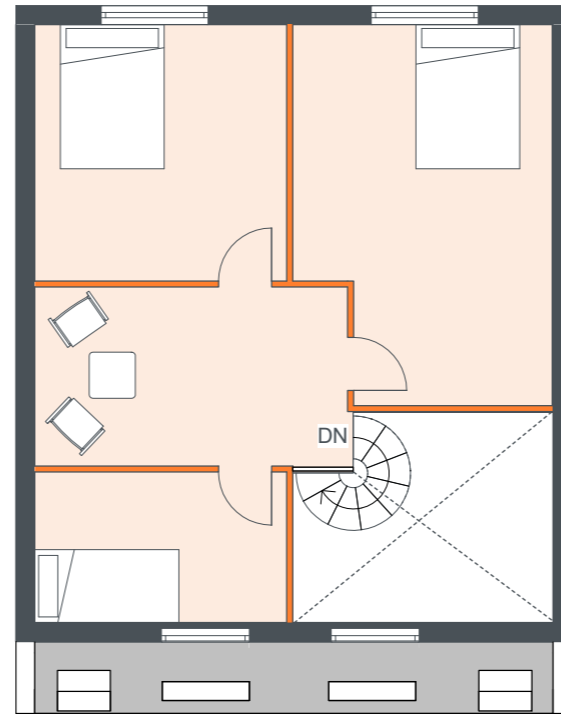
Structural Base

Spatial coordination depending on different life phases

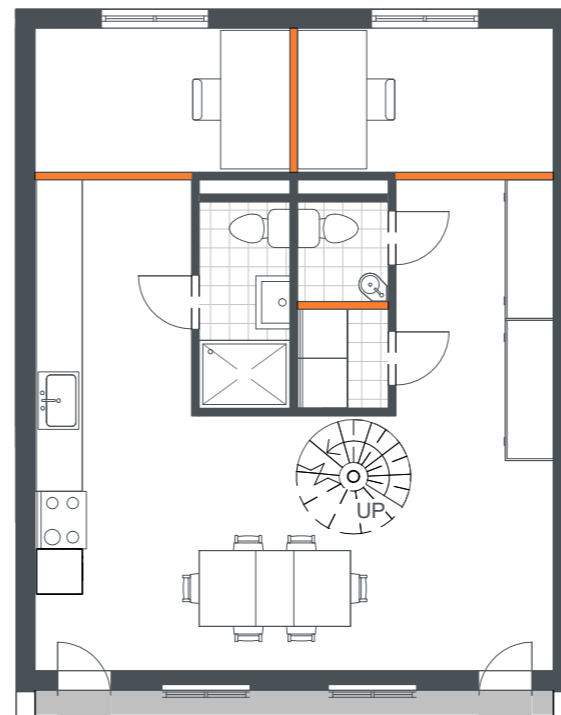


Adaptable Infill

Spatial coordination depending on different life phases



Upper Level, 1:100

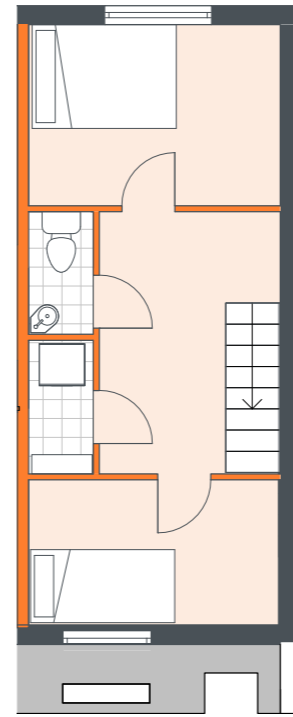
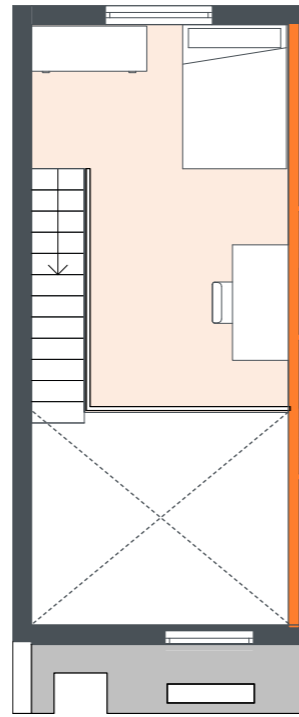


Lower Level, 1:100

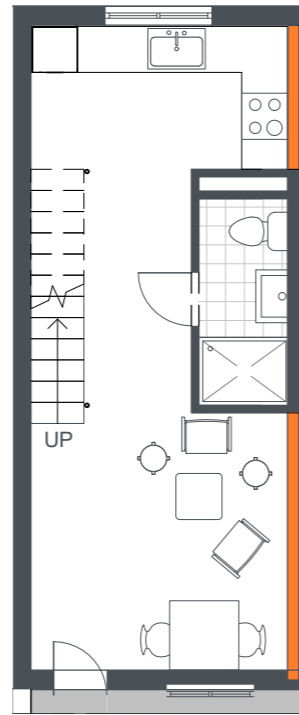
One Unit

Adaptable Infill

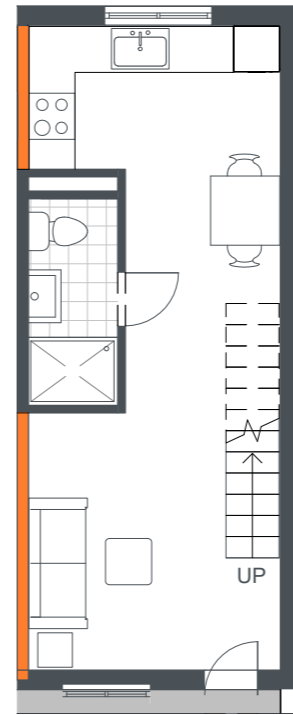
Spatial coordination depending on different life phases



Upper Level, 1:100



Half Unit
Option 1



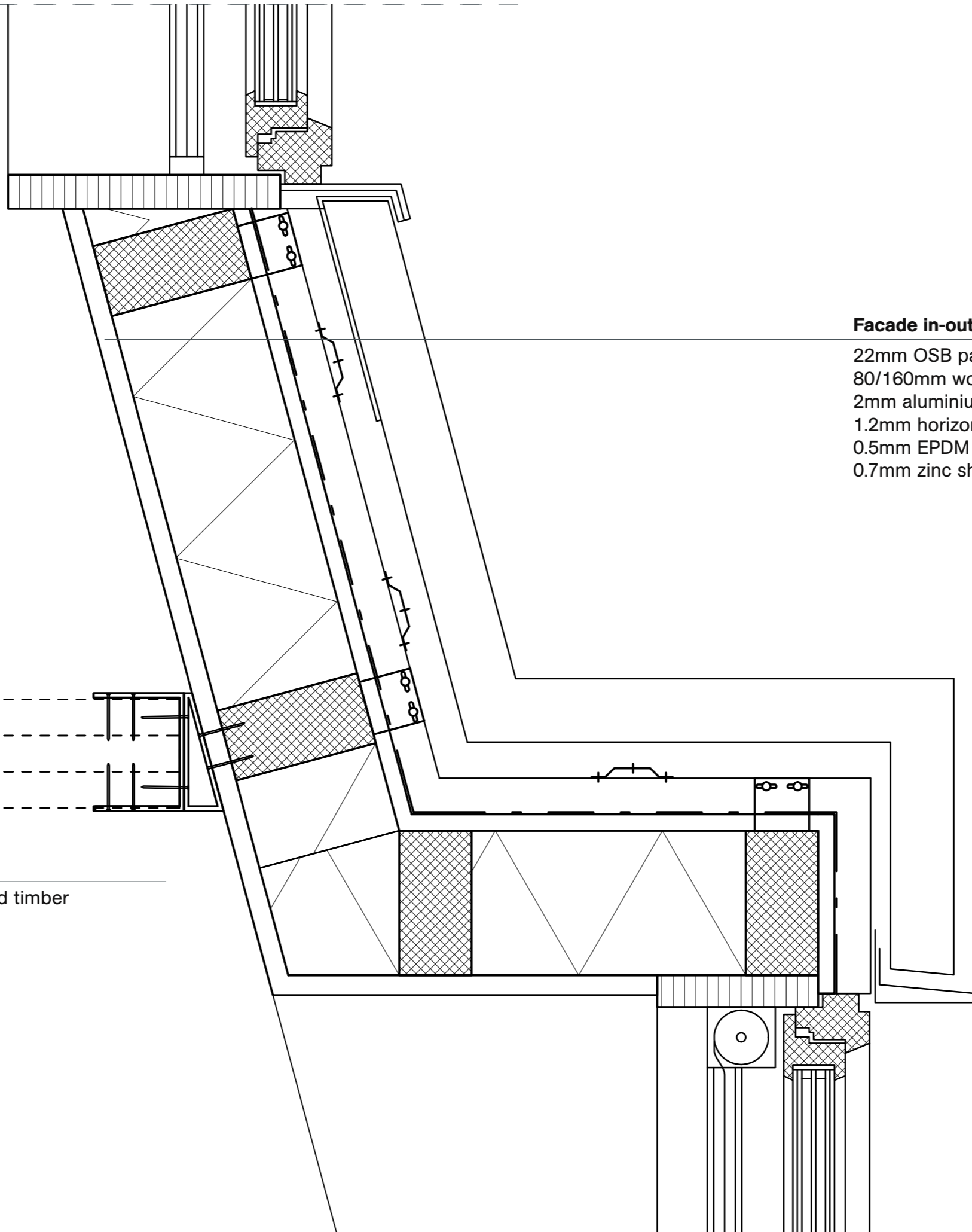
Half Unit
Option 2

Lower Level, 1:100



Optopping

Loft Floor



Facade in-out

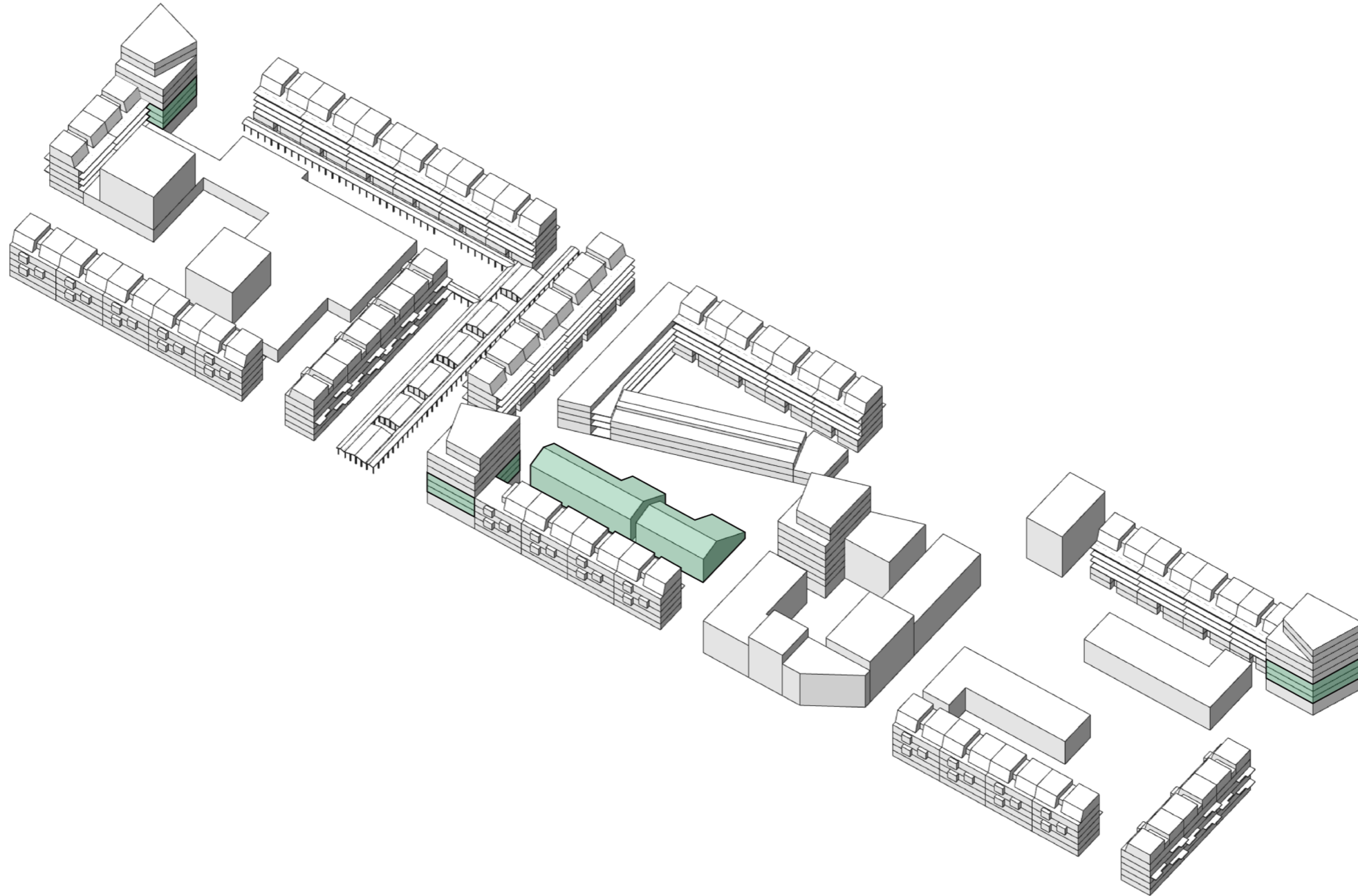
- 22mm OSB panel
- 80/160mm wool blocking; 160mm mineral wool thermal insulation
- 2mm aluminium angle, vertical EPDM sealing layer
- 1.2mm horizontal cladding rail, galvanized;
- 0.5mm EPDM membrane, self-adhesive;
- 0.7mm zinc sheet, coated, bent to shape as 90/43mm fin

Adaptable Floor

120mm cross laminated timber

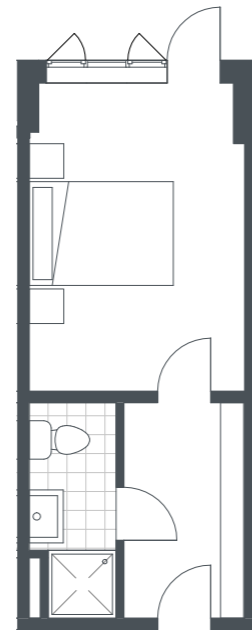
Co-Housing

Living Adjacent to Source of Production



Co-housing

Compact Private Individual Unit + Bigger Collective/Productive Space



+

Collective Kitchen

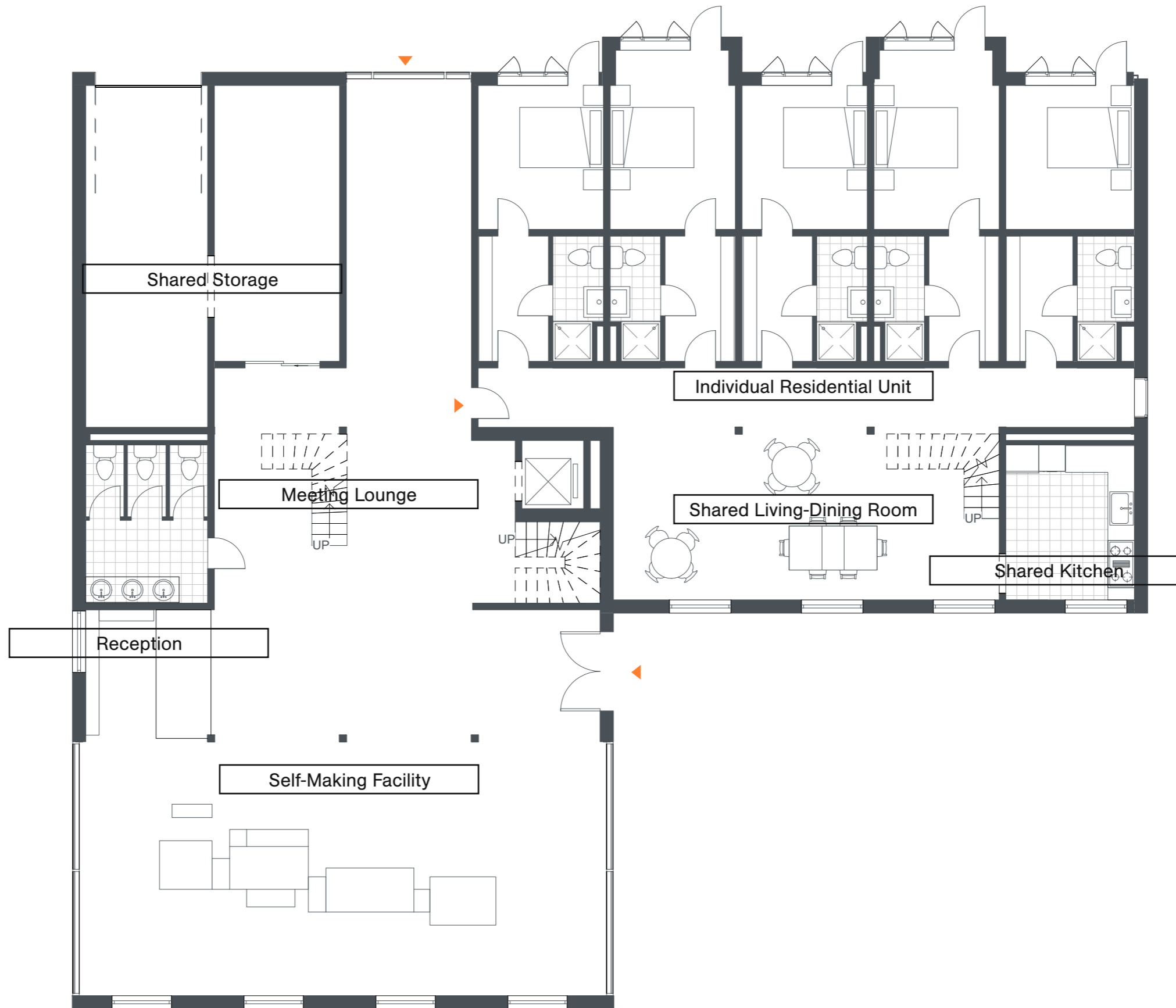
Collective Living Room

Collective Dining Room

Shared Storage

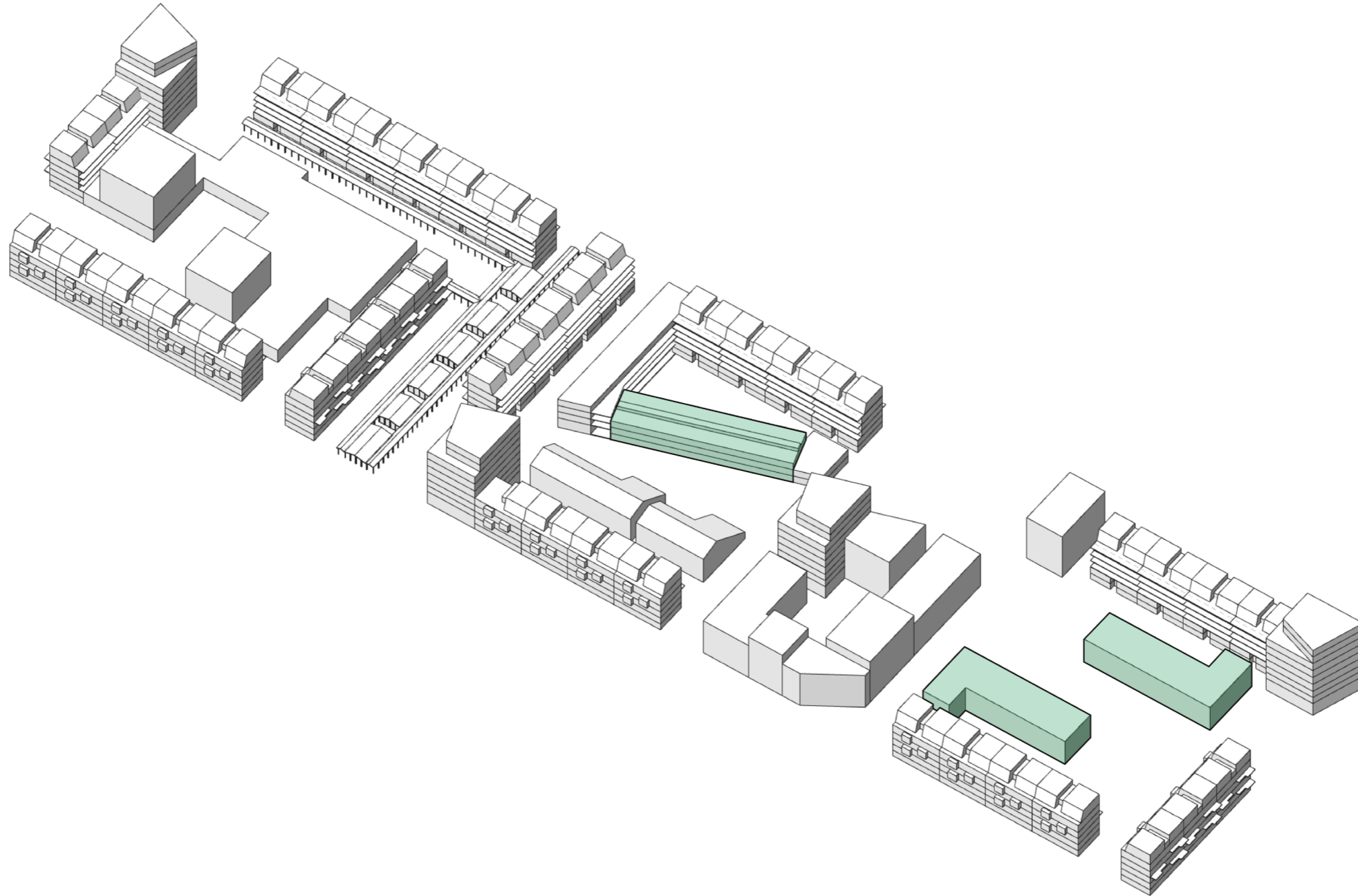
Shared Productive Space



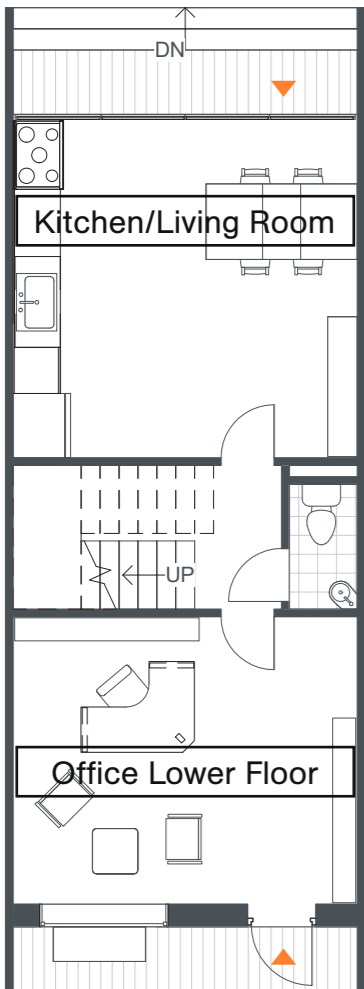


Independent House

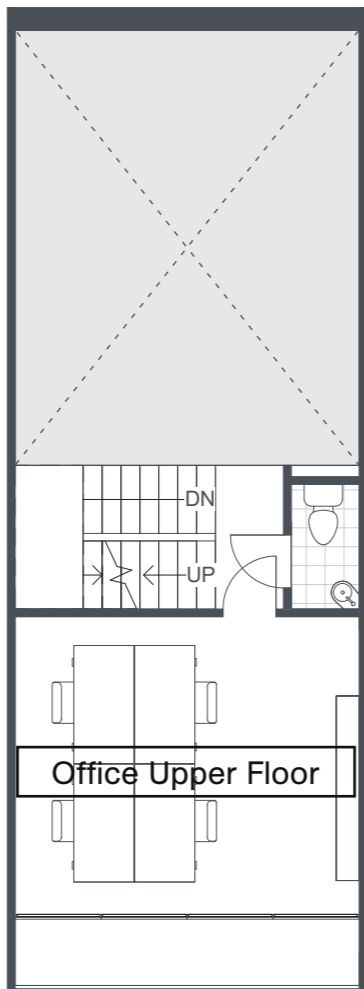
Equal-status between work and live



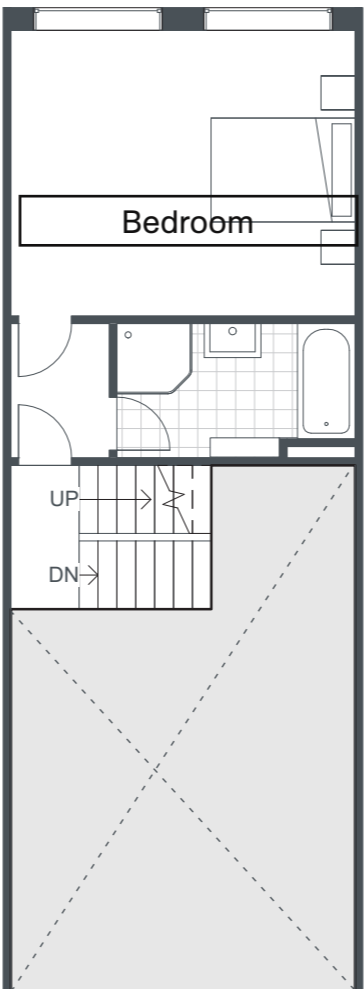
Live function dominated



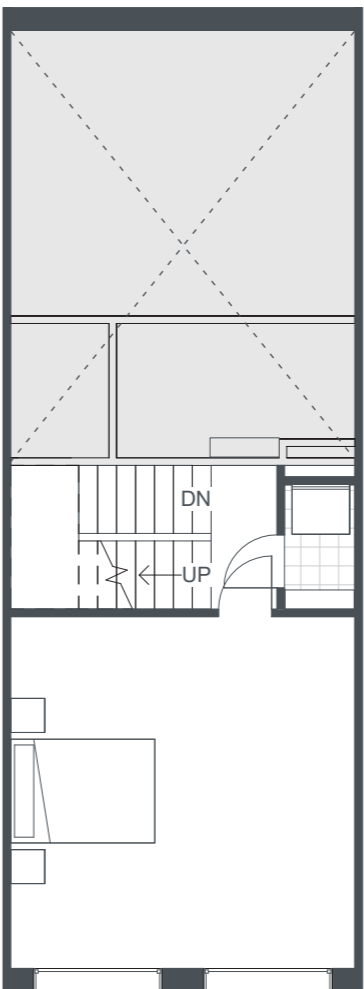
Level 0



Level 1



Level 1.5

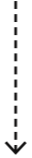


Level 2



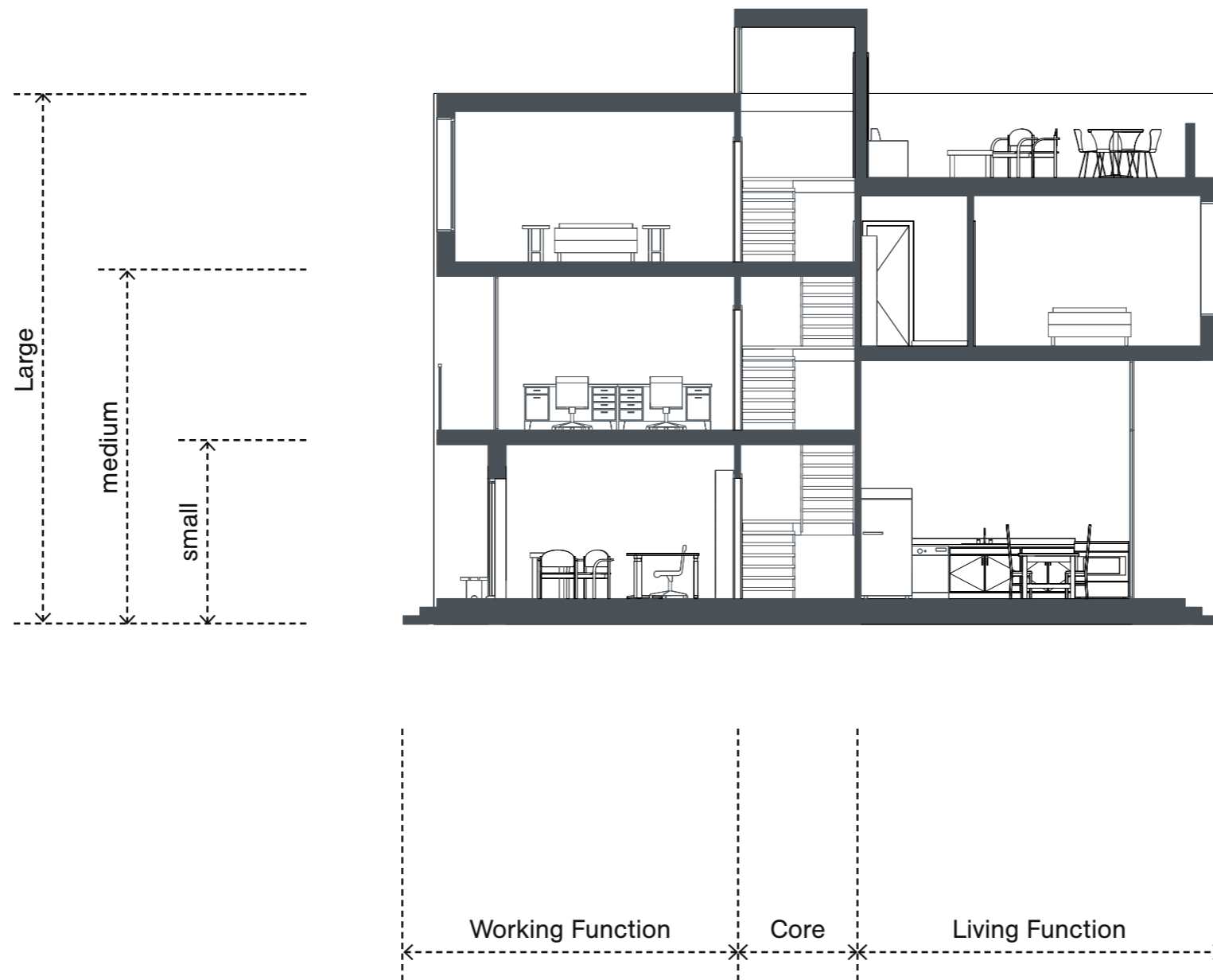
Level 2.5

Work function dominated



Independent Housing Unit

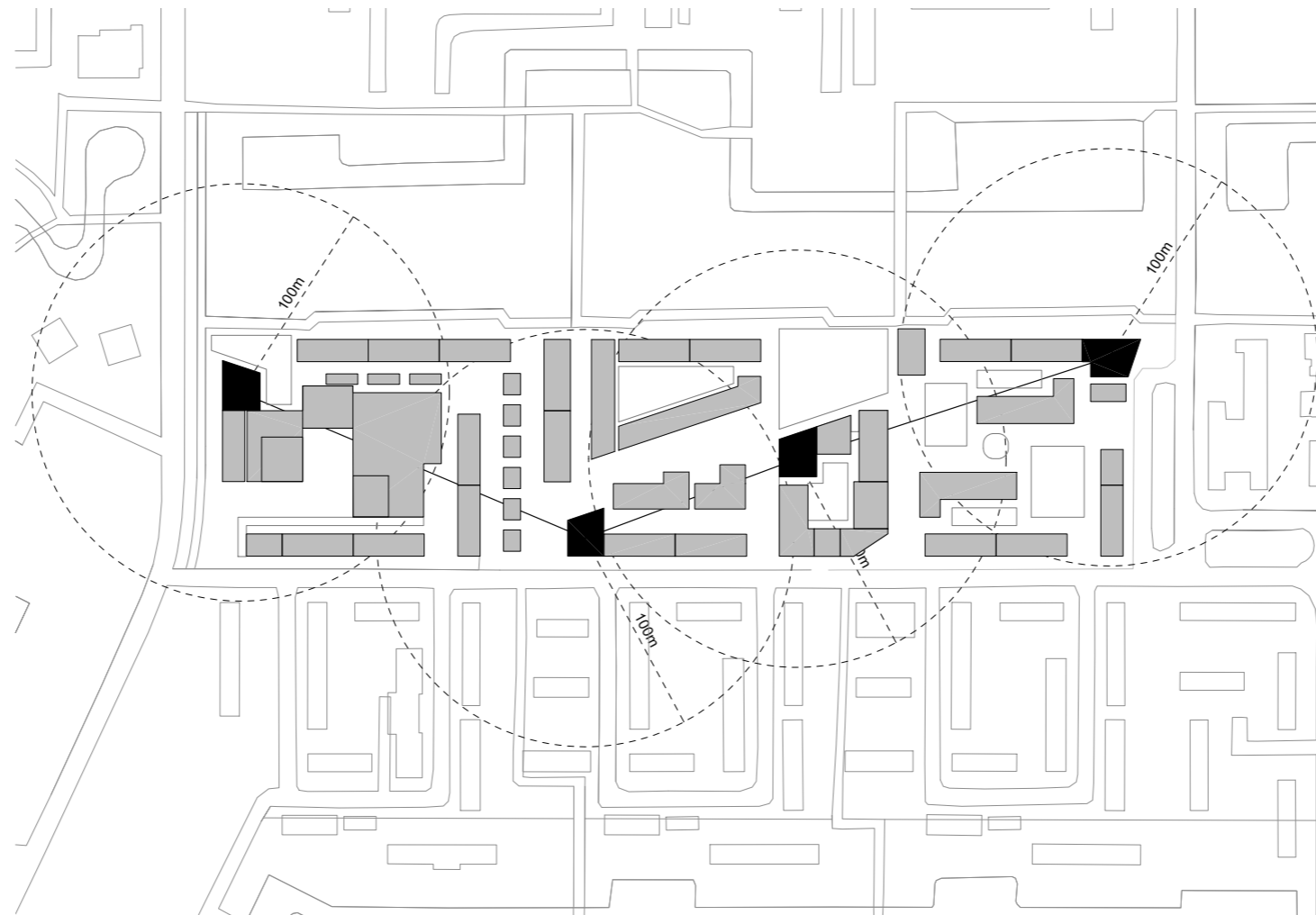
Equal status between work and live function





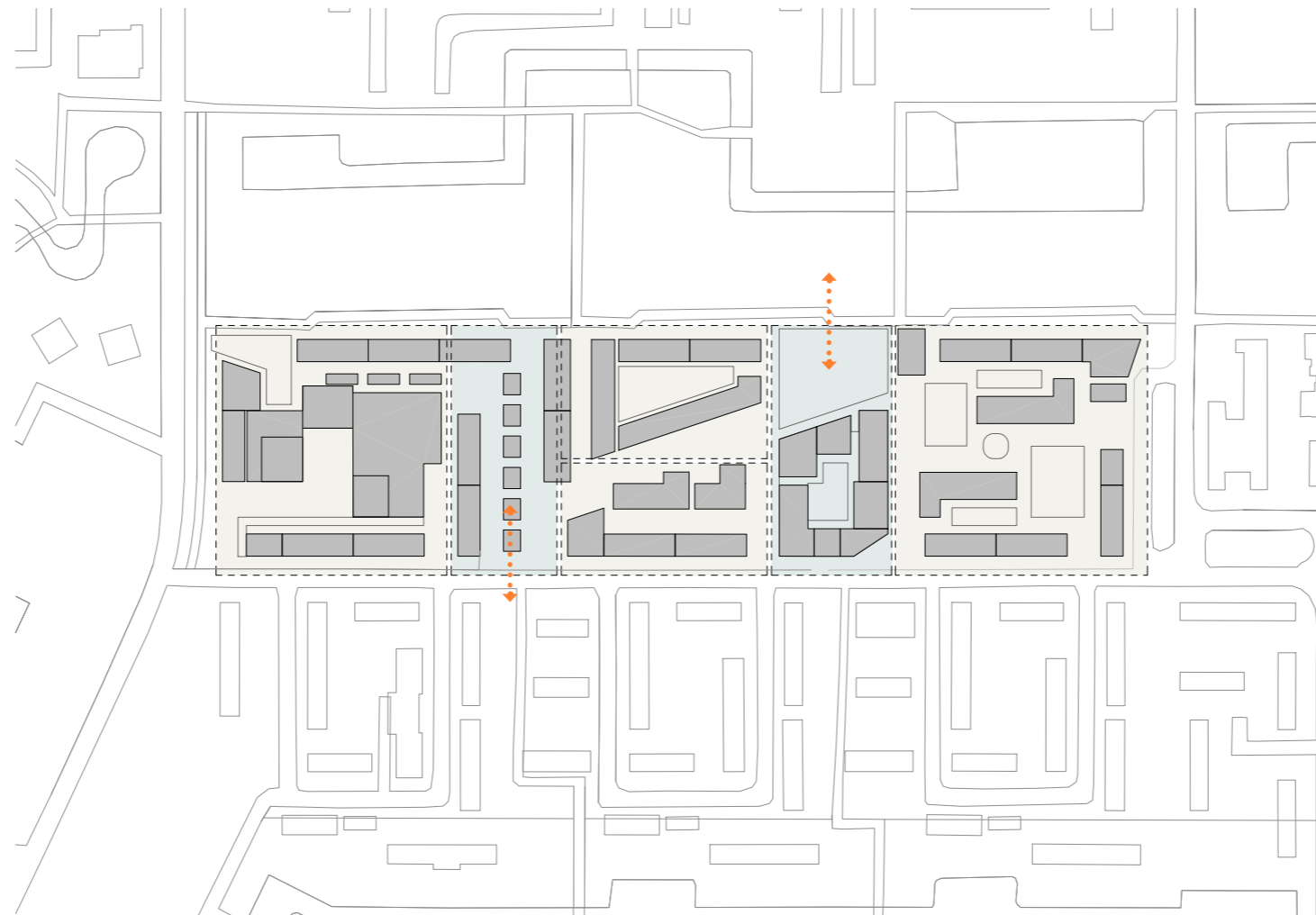
Corner Buildings

As a pivotal point



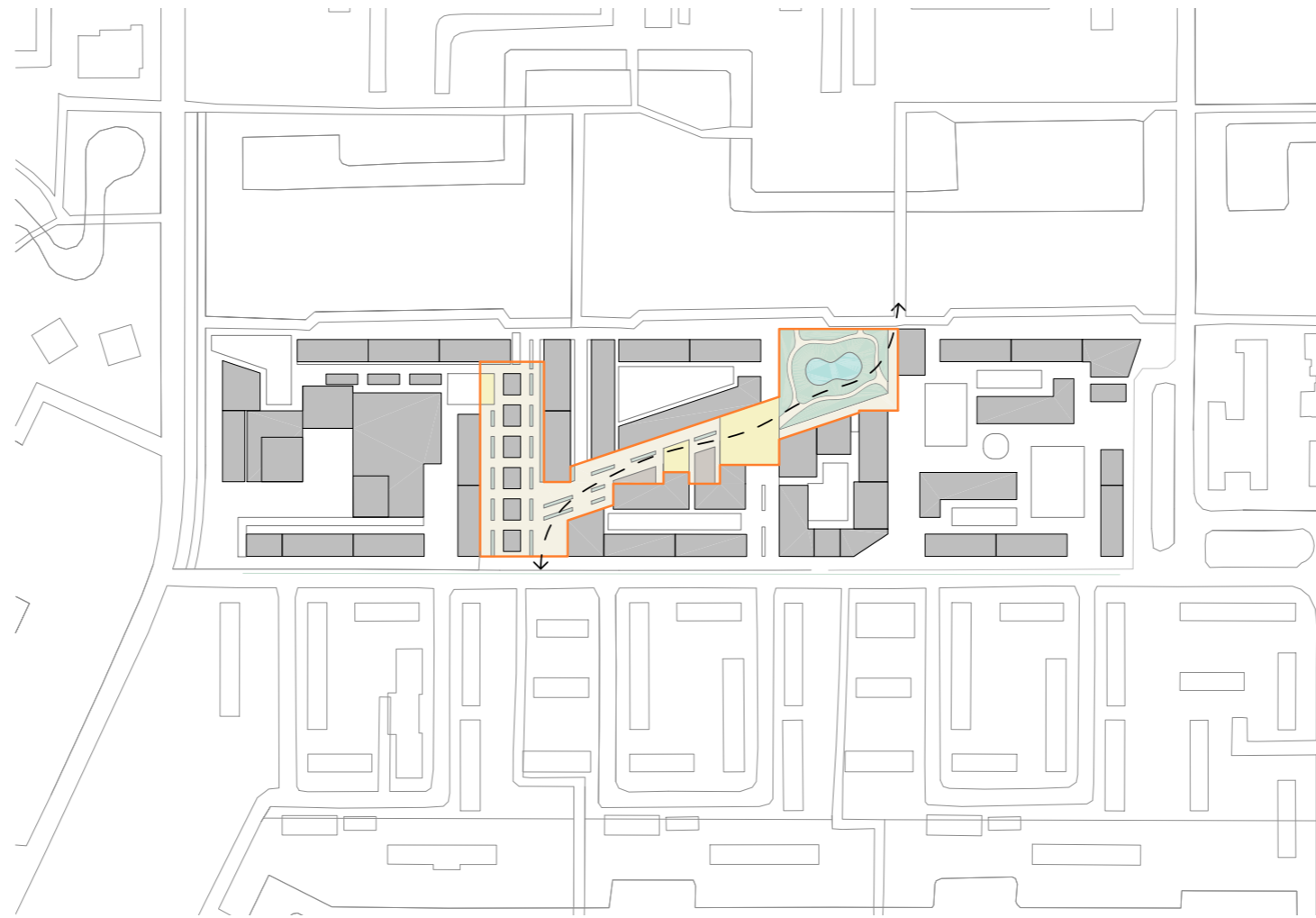
Diverse Zones

Identifying different productivity



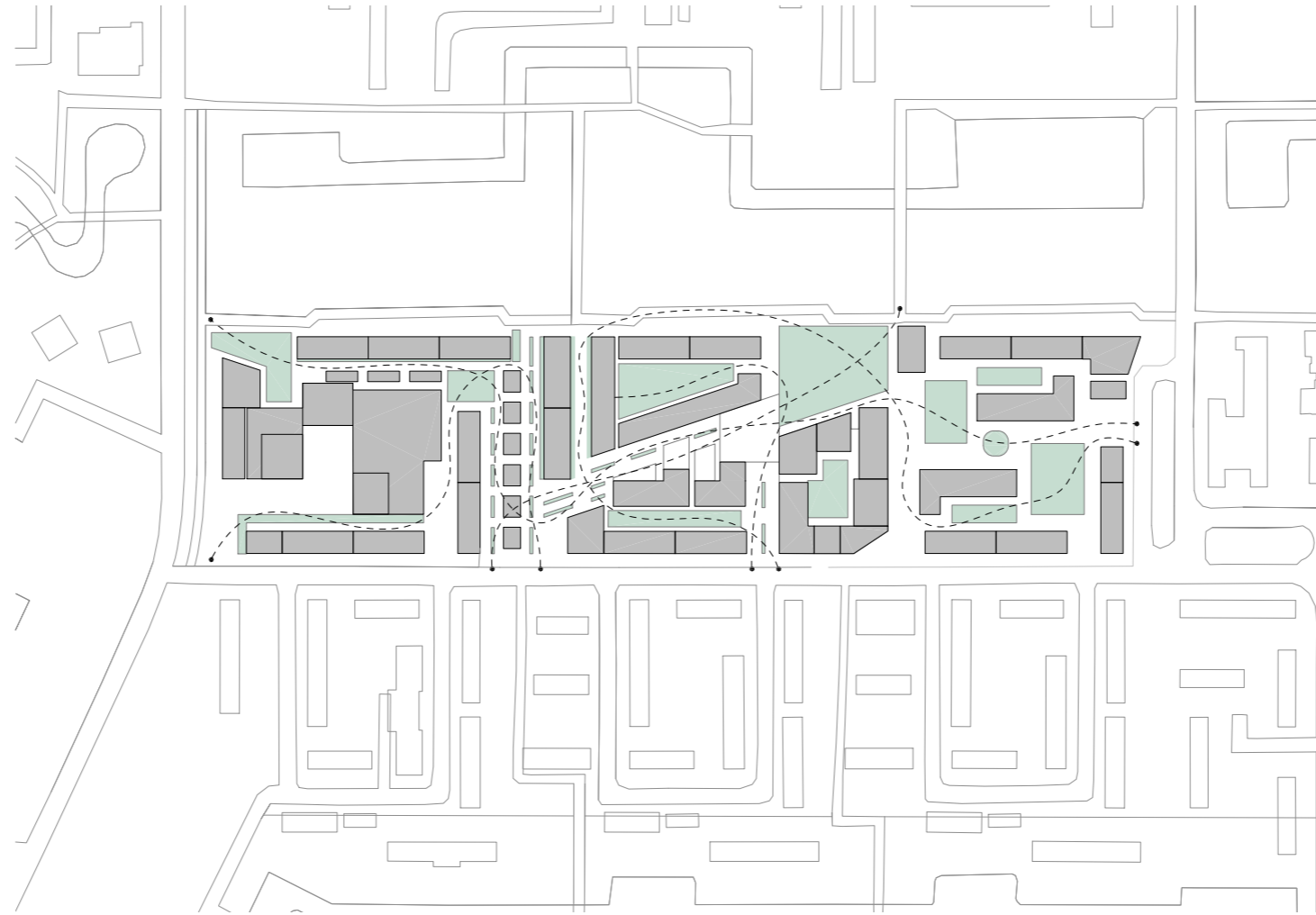
New Axis

Connecting Two Zones



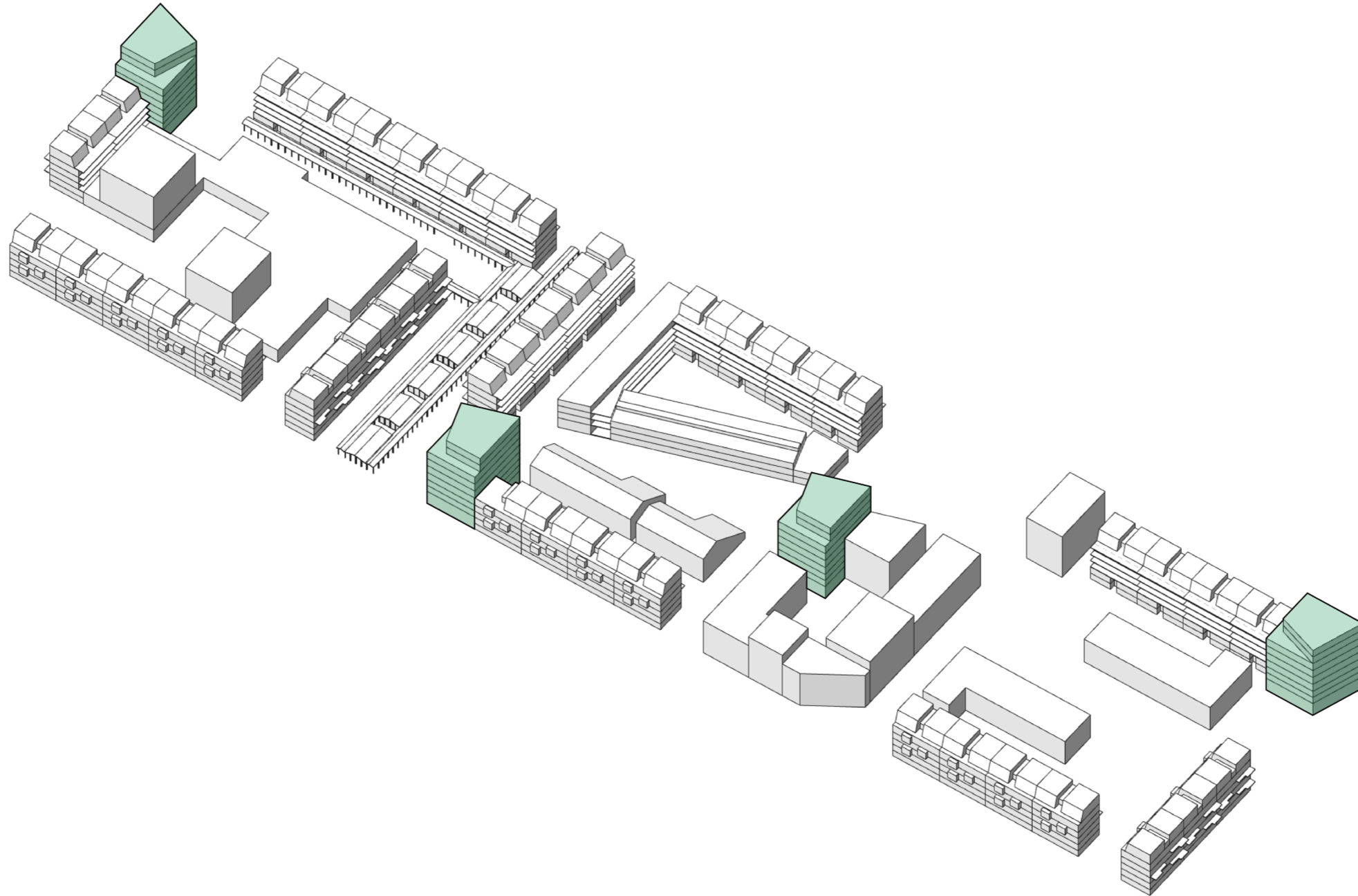
Different Qualities of Green

Better Walkability



Corner Building

Diversification of Productive Agenda



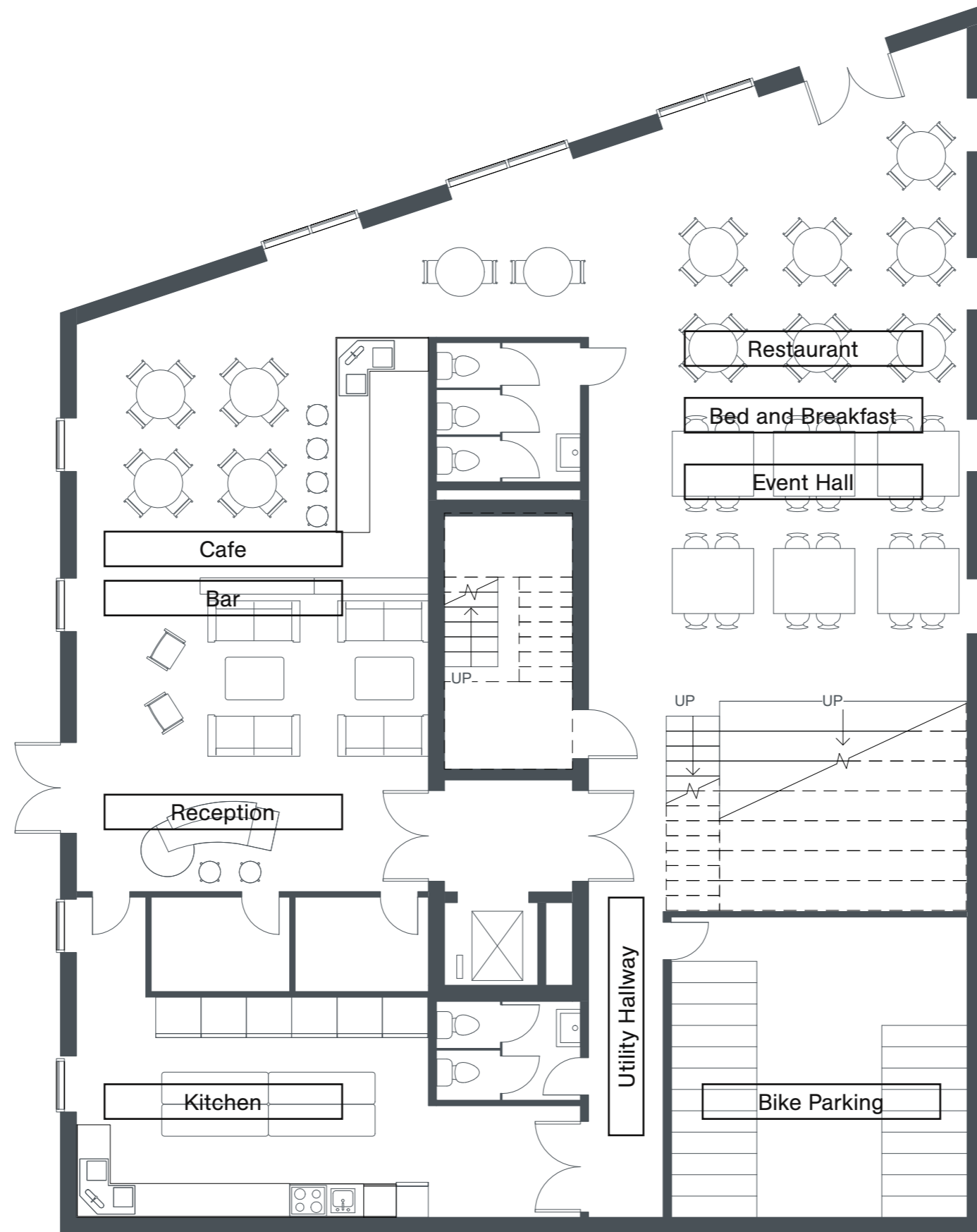
Corner Building Plan Option 1

Daycare



Corner Building Plan Option 2

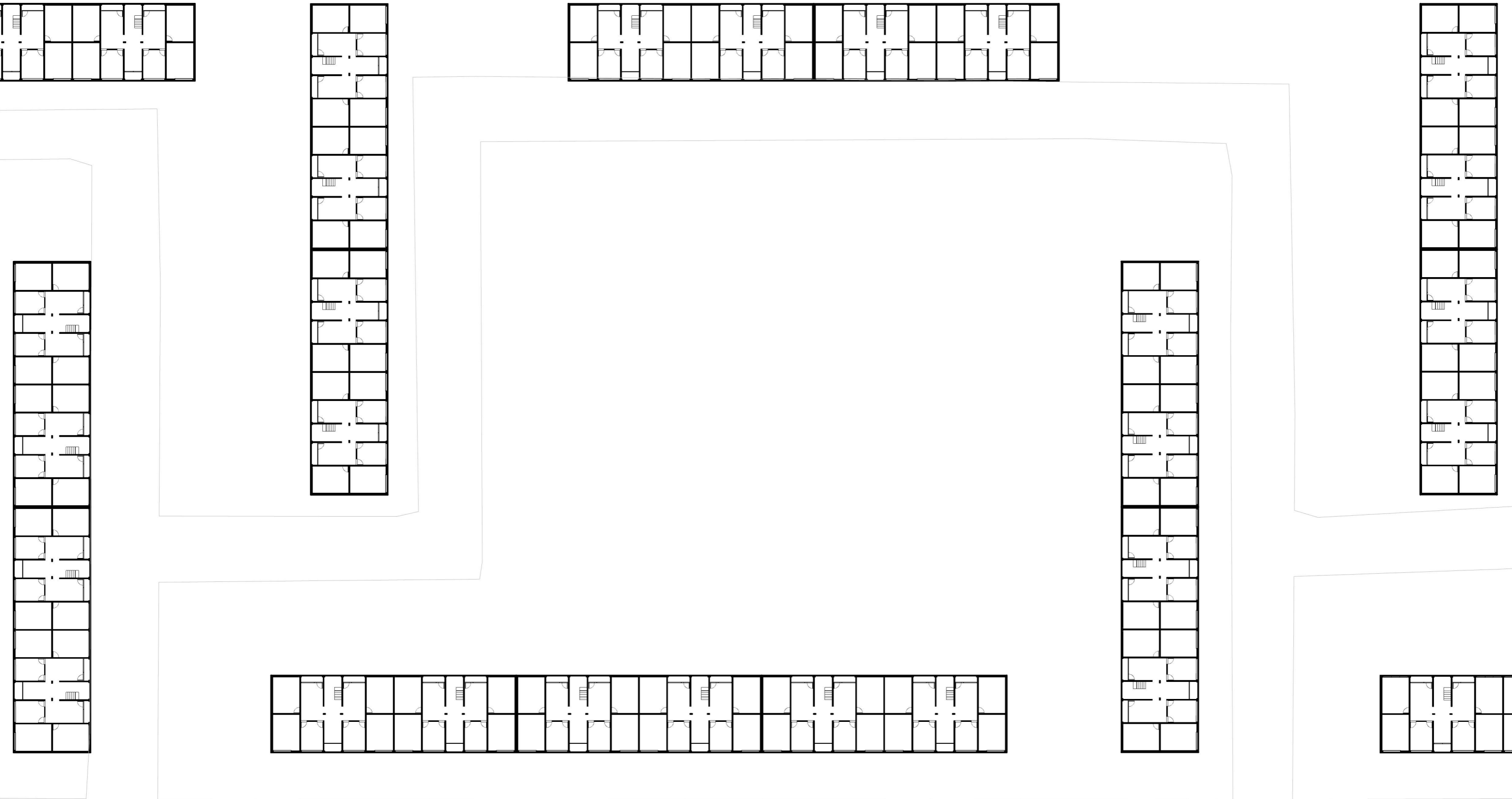
Hotel Apartments





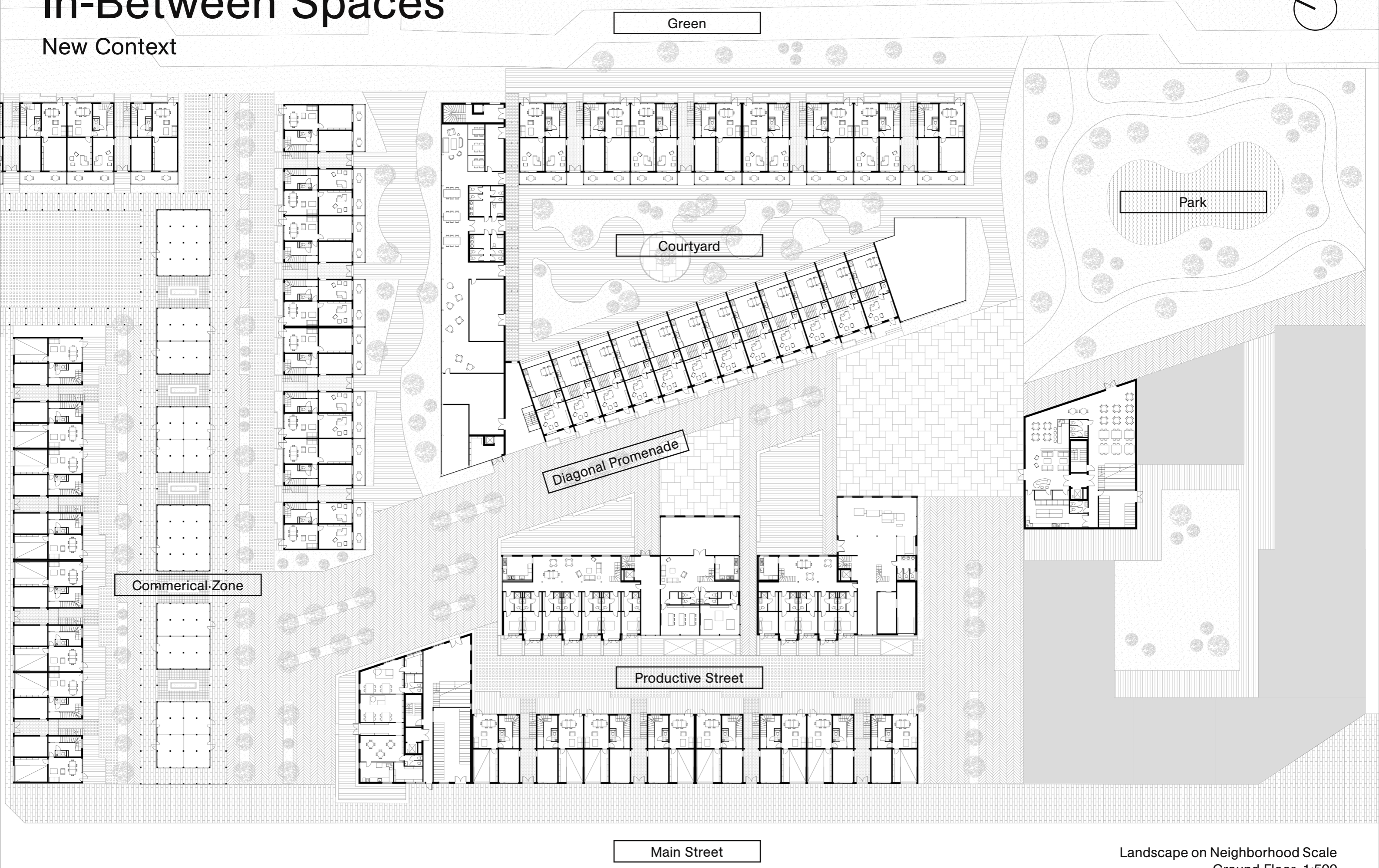
How does newly-created **in-between** spaces look like?

Existing Situation



In-Between Spaces

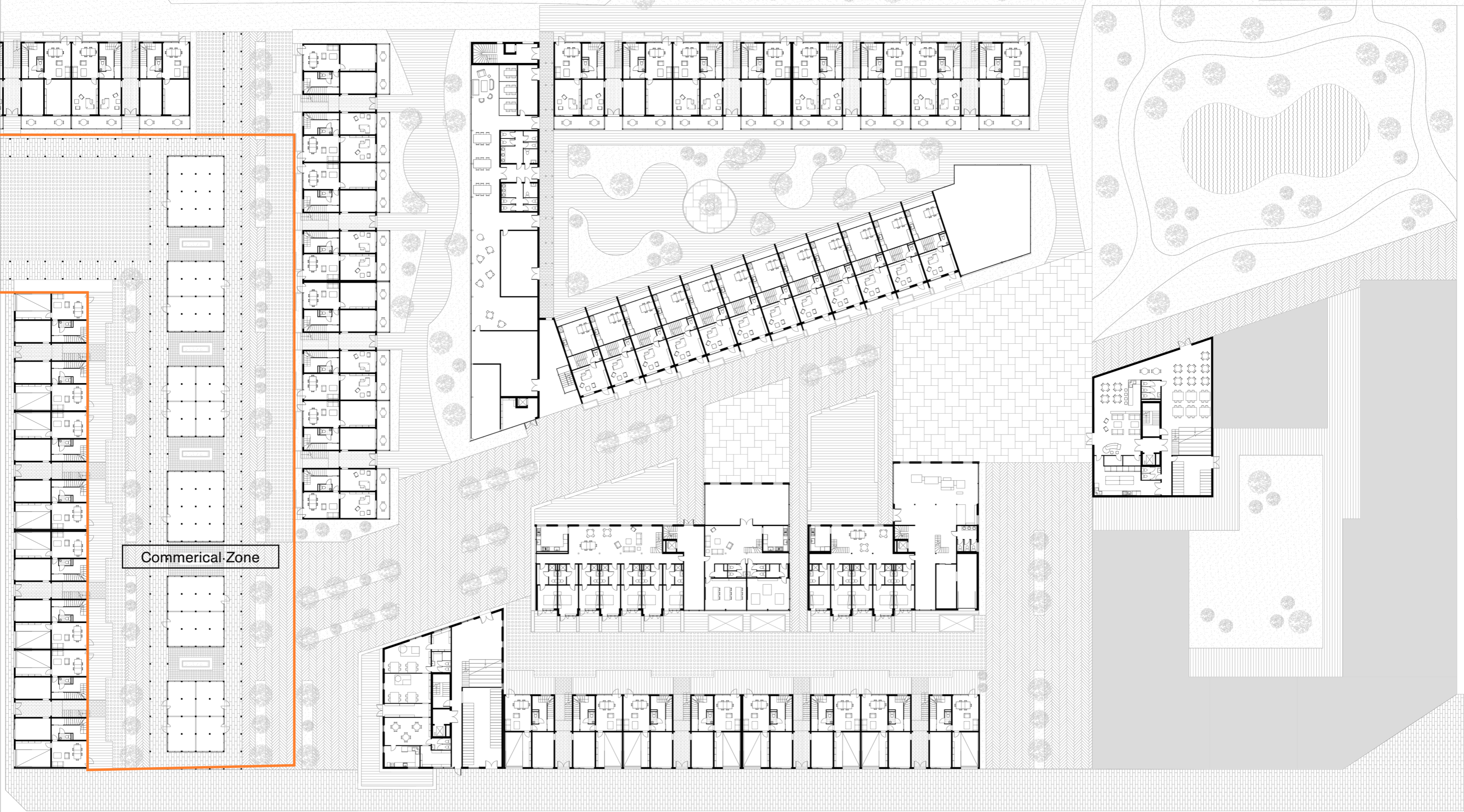
New Context



Landscape on Neighborhood Scale
Ground Floor, 1:500

In-Between Spaces

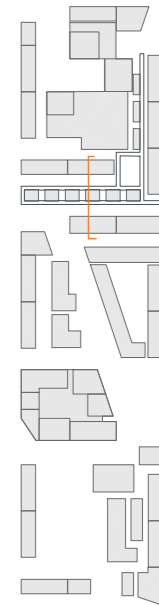
New Context



Commerical Zone

Commercial Zone

Existing In-Between Space between Two Stamps



Existing Residential Building
with Office Garden

Pedestrian Street

Soft Green Barrier

Canopy

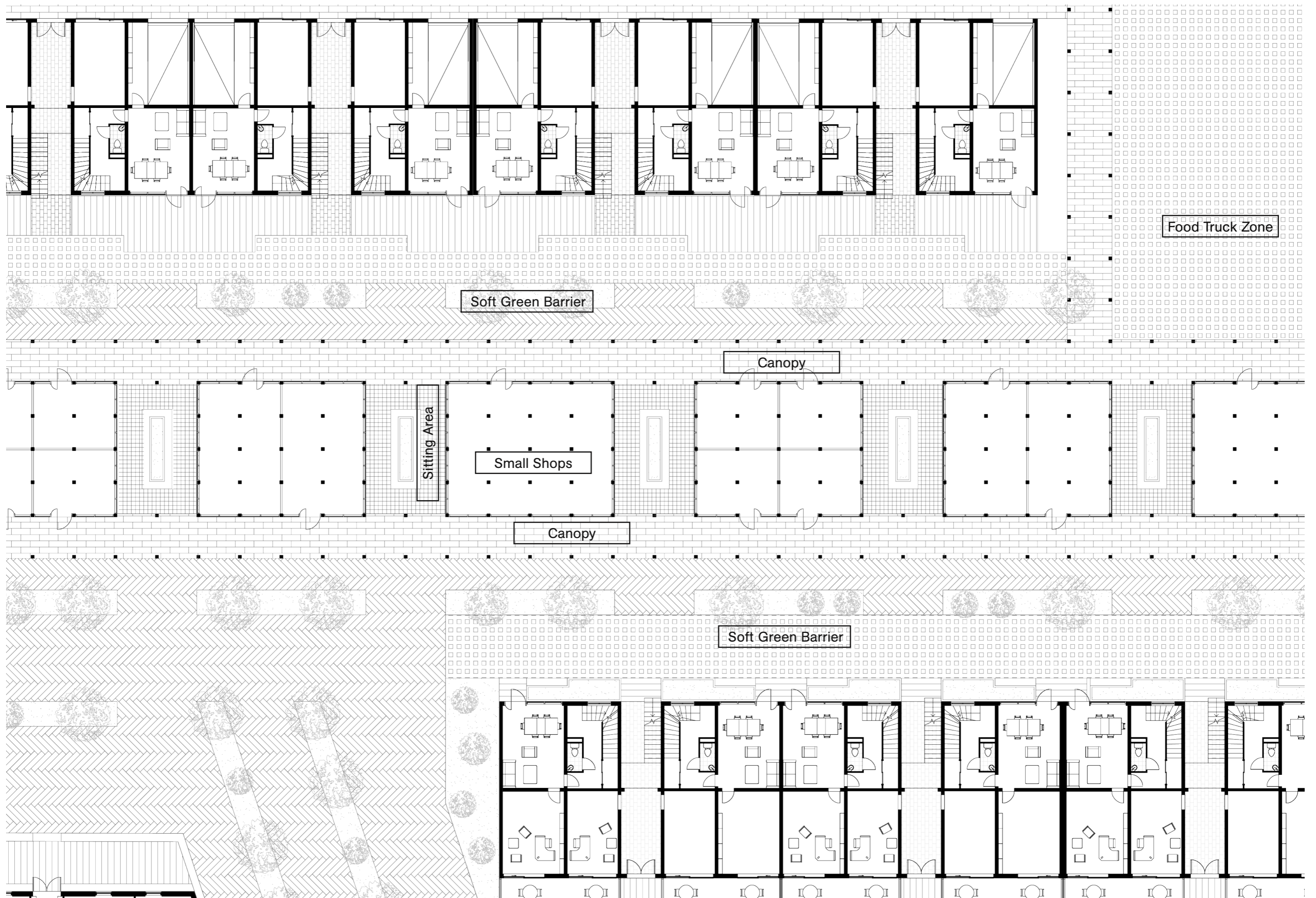
Shops

Canopy

Soft Green Barrier

Pedestrian Street

Existing Residential Building
with Gallery



Food Truck Zone

Soft Green Barrier

Canopy

Sitting Area

Small Shops

Canopy

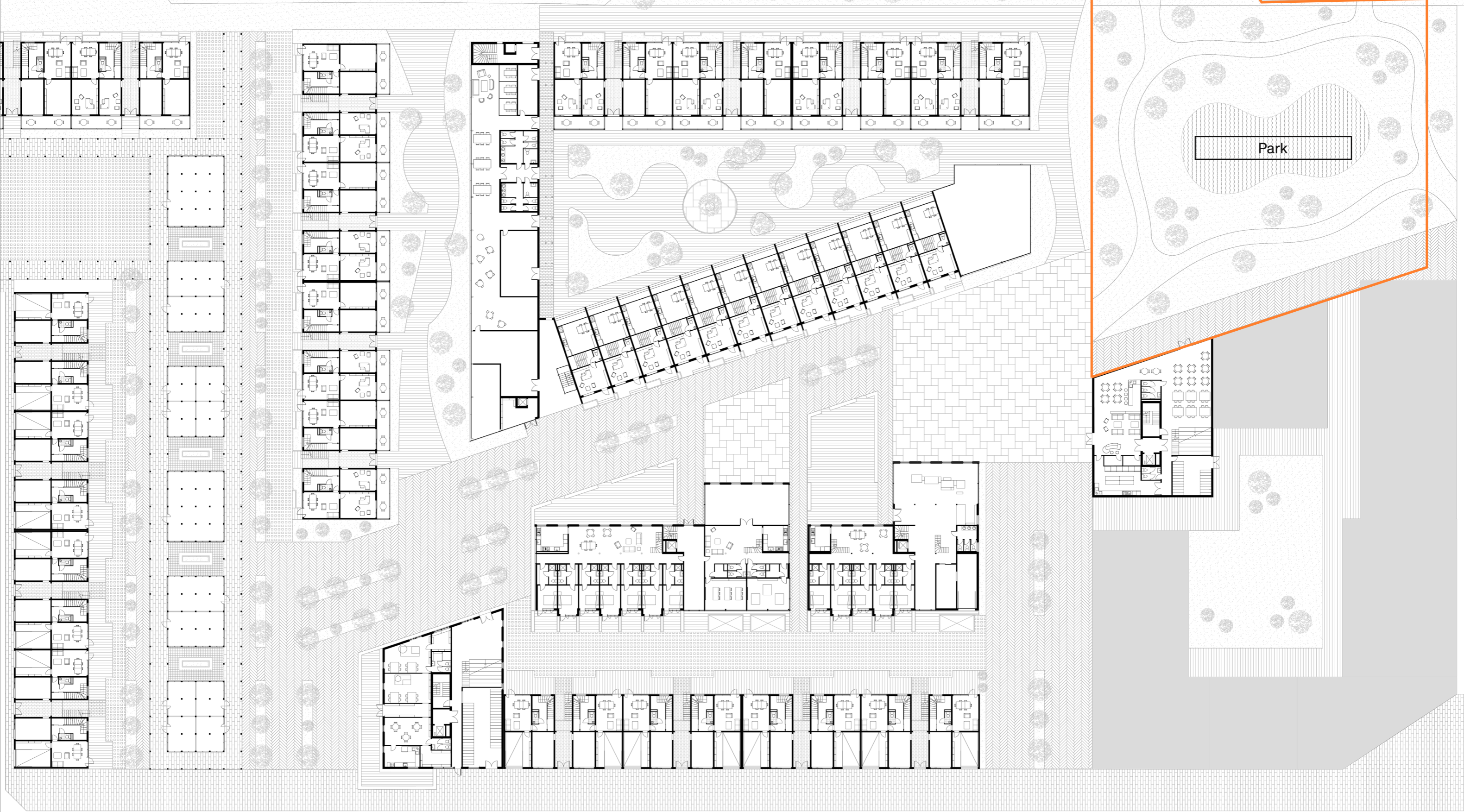
Soft Green Barrier



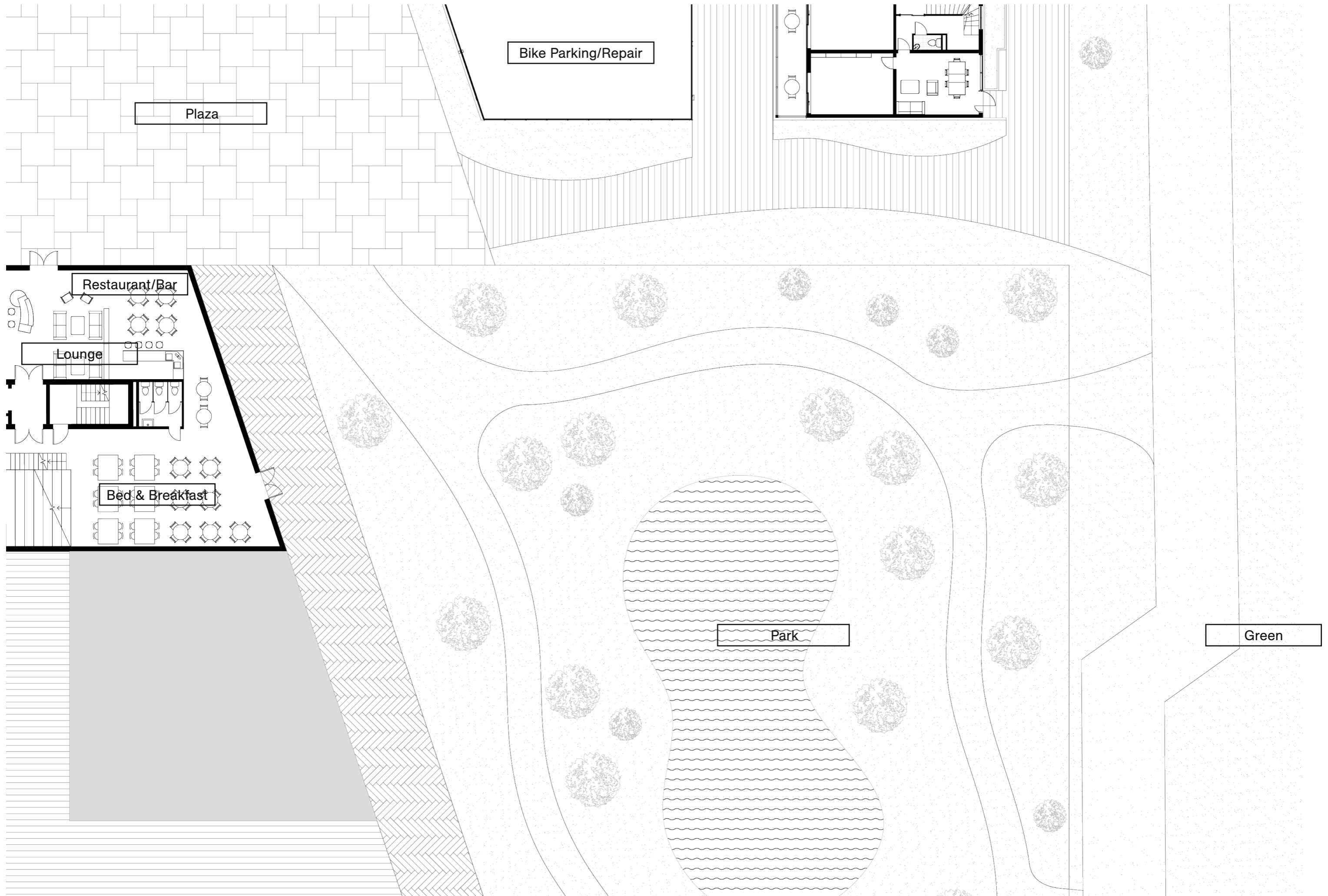


In-Between Spaces

New Context



Landscape on Neighborhood Scale
Ground Floor, 1:500

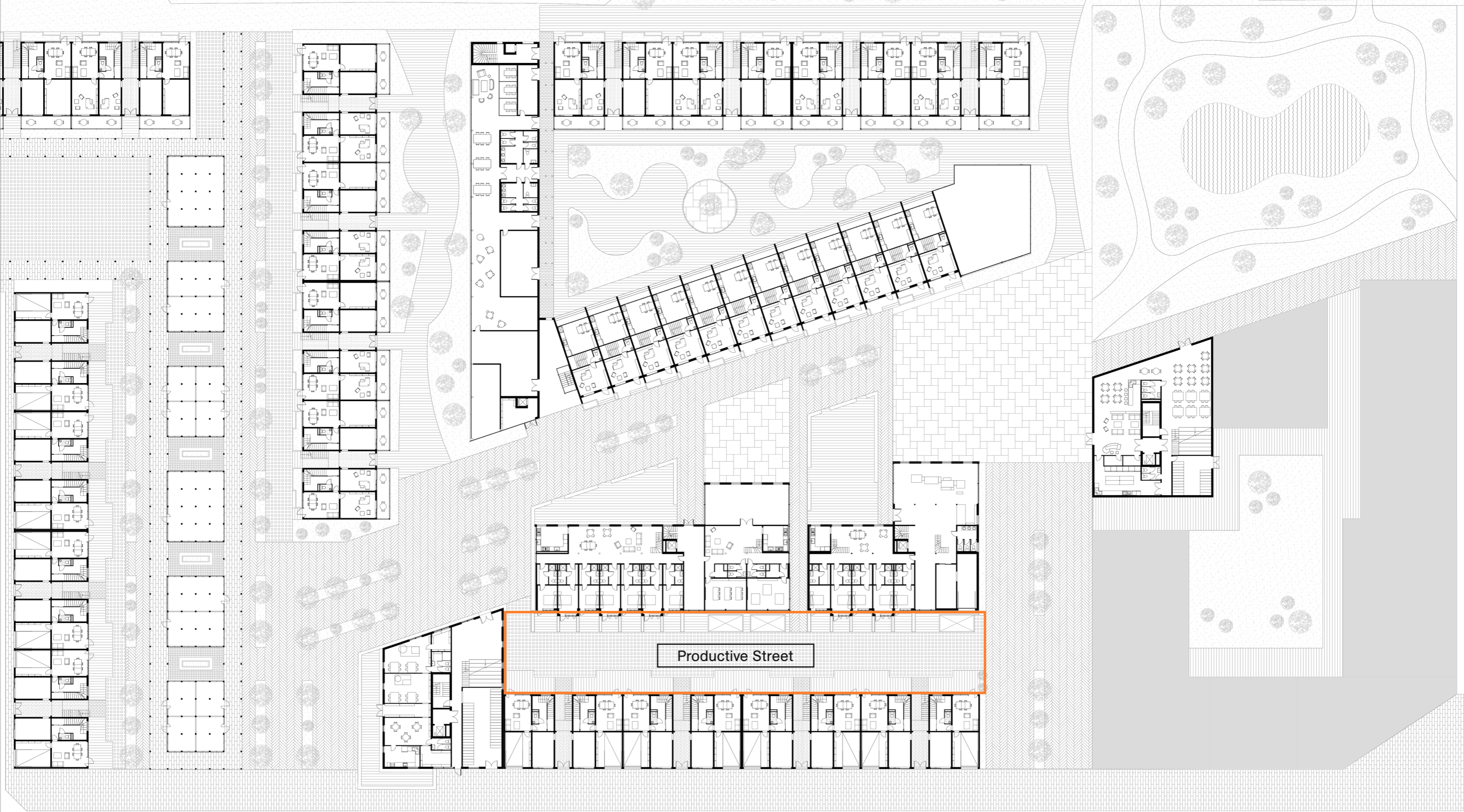


Landscape on Neighborhood Scale
Ground Floor, 1:200



In-Between Spaces

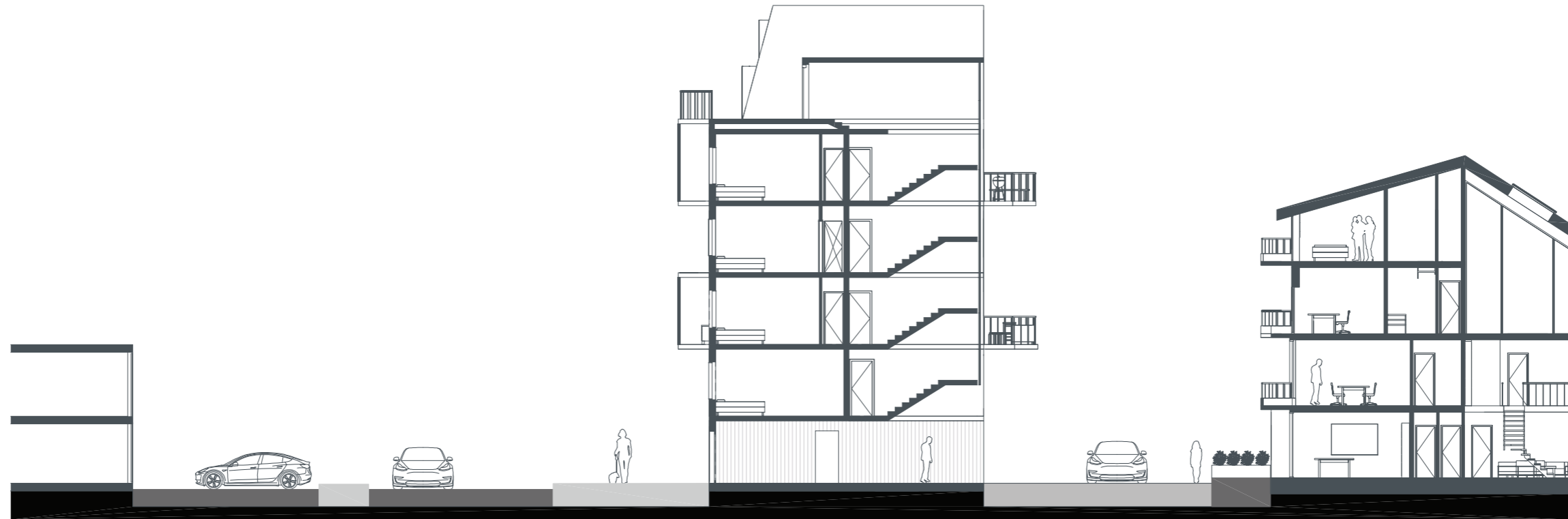
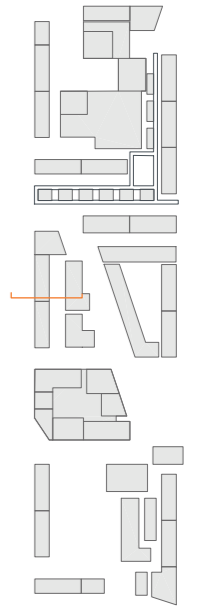
New Context



Landscape on Neighborhood Scale
Ground Floor, 1:500

Productive Street

Main Street to Productive Street



Main Car Road

Pedestrian Street

Existing Residential Building
with Office Garden
and Permeable Core

Permeable Pavement
with Grass Block

Wooden Deck

Co-housing Building
with Adjacent Productive Facility

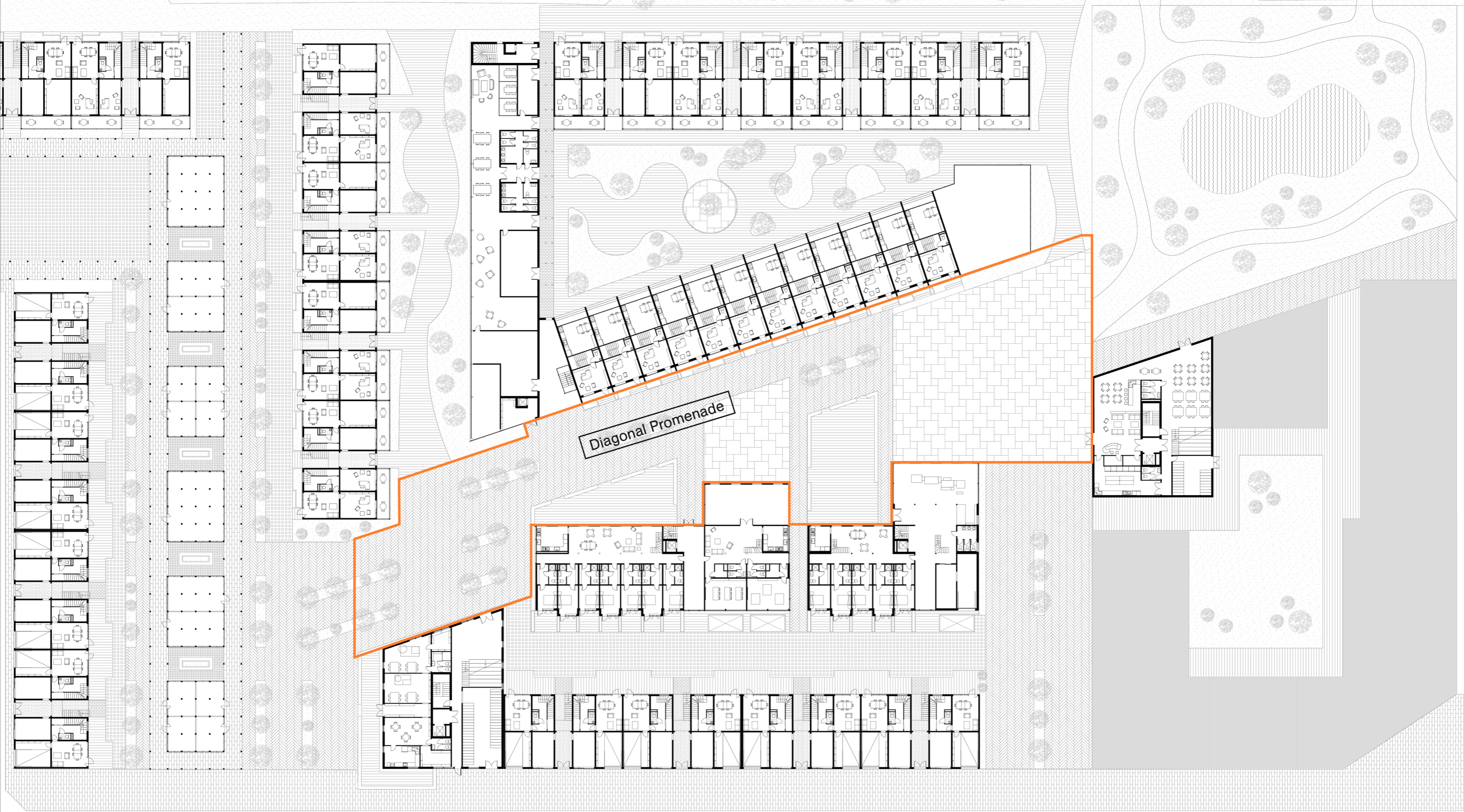
Main Street





In-Between Spaces

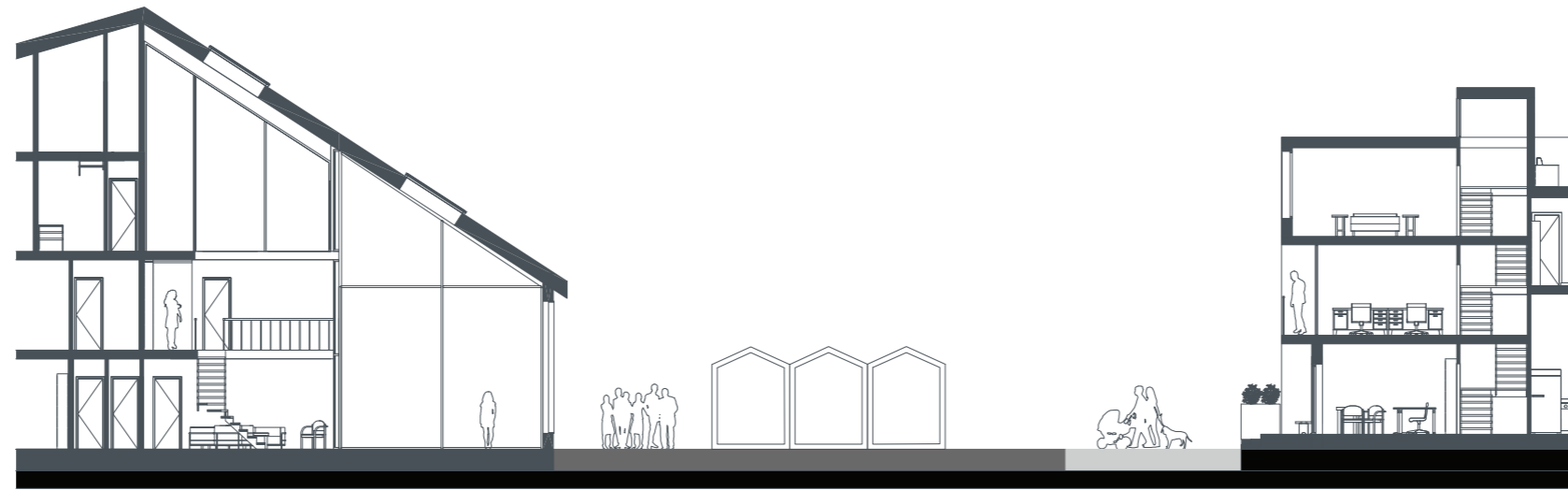
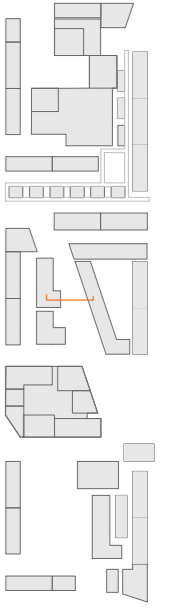
New Context



Landscape on Neighborhood Scale
Ground Floor, 1:500

Diagonal Promenade

In-Between New Productive Homes

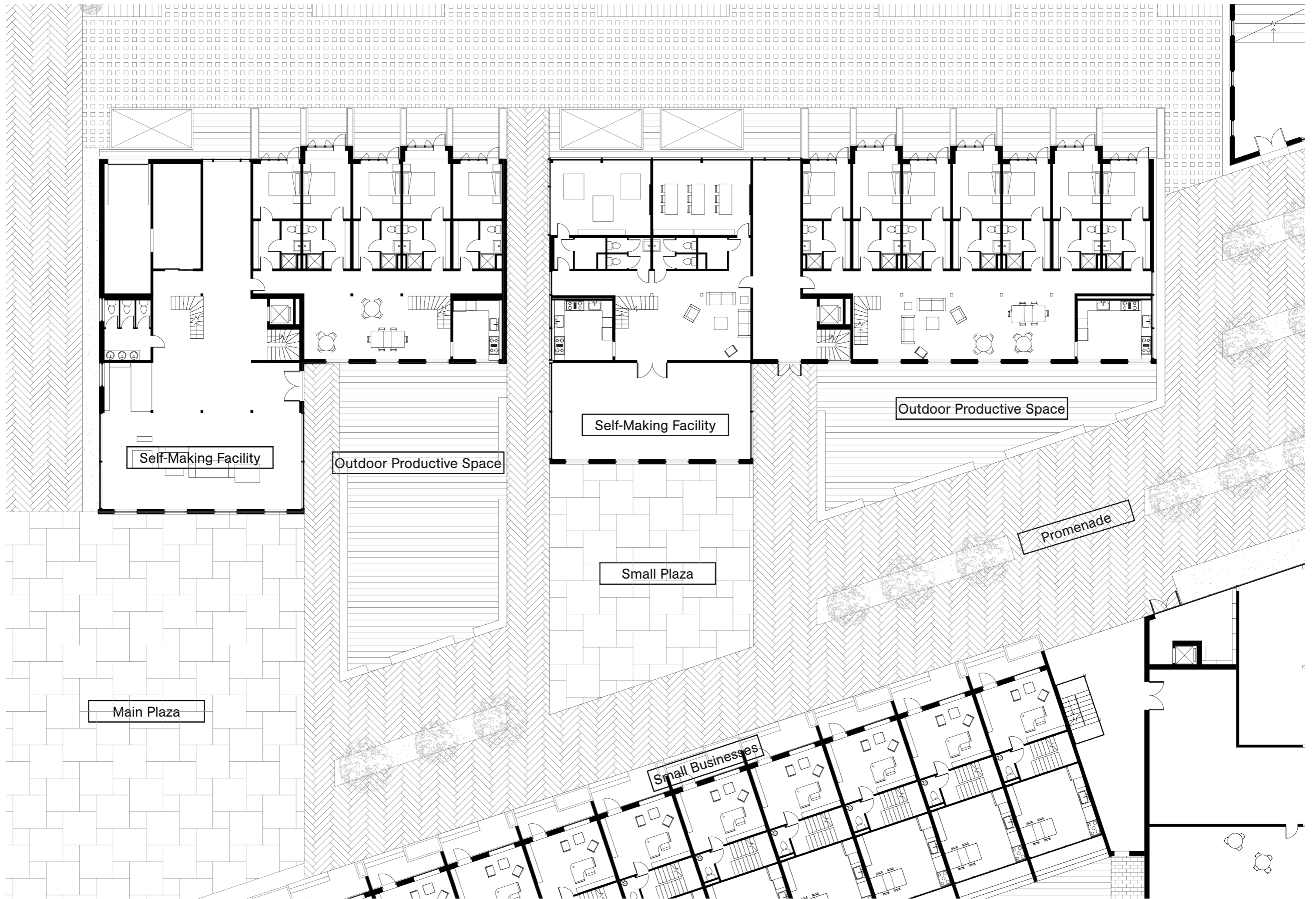


Co-housing Building
with Adjacent Productive Facility

Plaza

Promenade

New Housing Unit
with Equal Status between
Working and Living

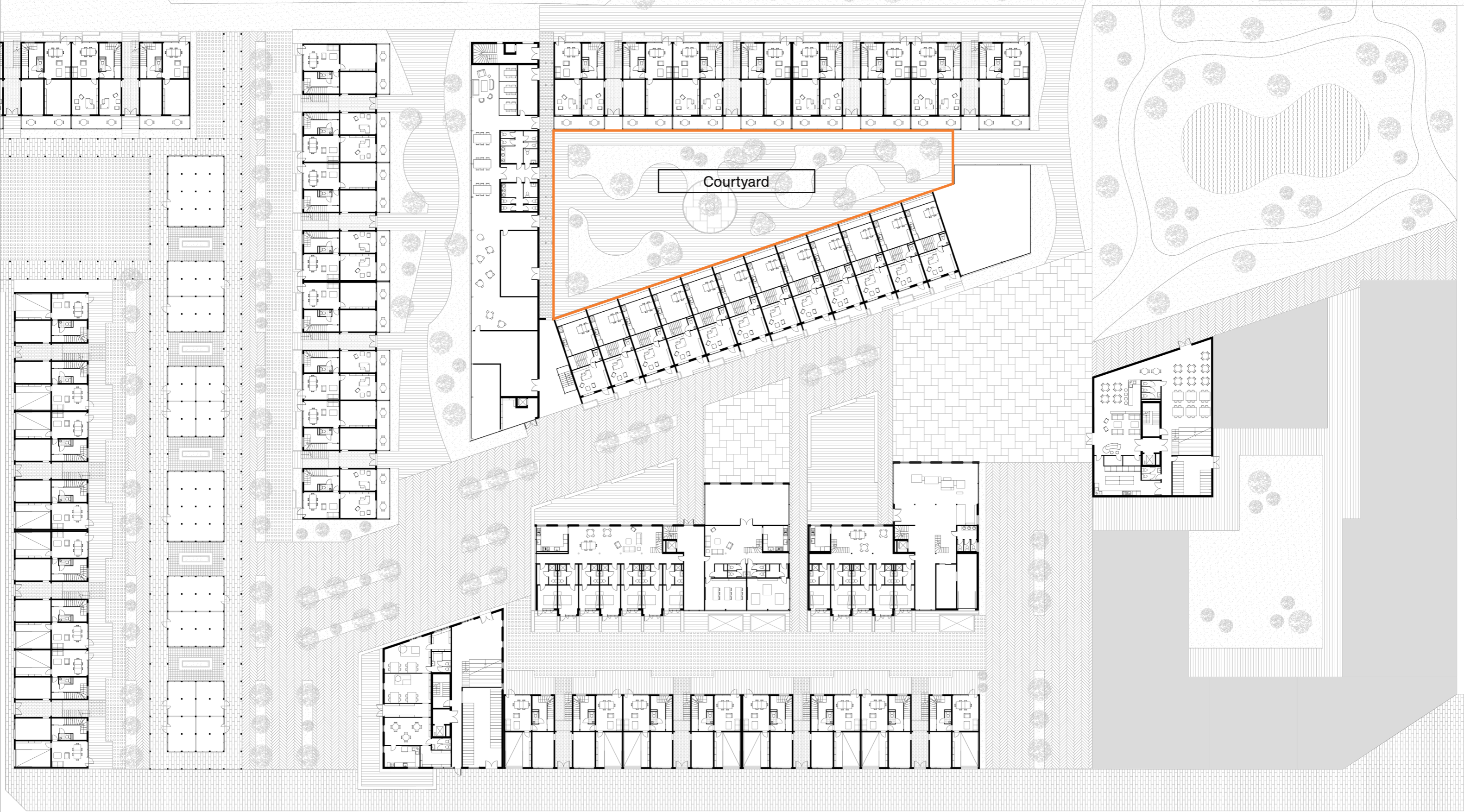


Landscape on Neighborhood Scale
Ground Floor, 1:200



In-Between Spaces

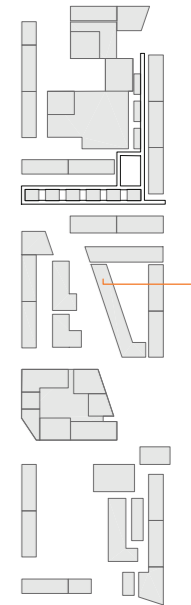
New Context



Landscape on Neighborhood Scale
Ground Floor, 1:500

Courtyard

In-Between the New Residential Building to Existing, to Green



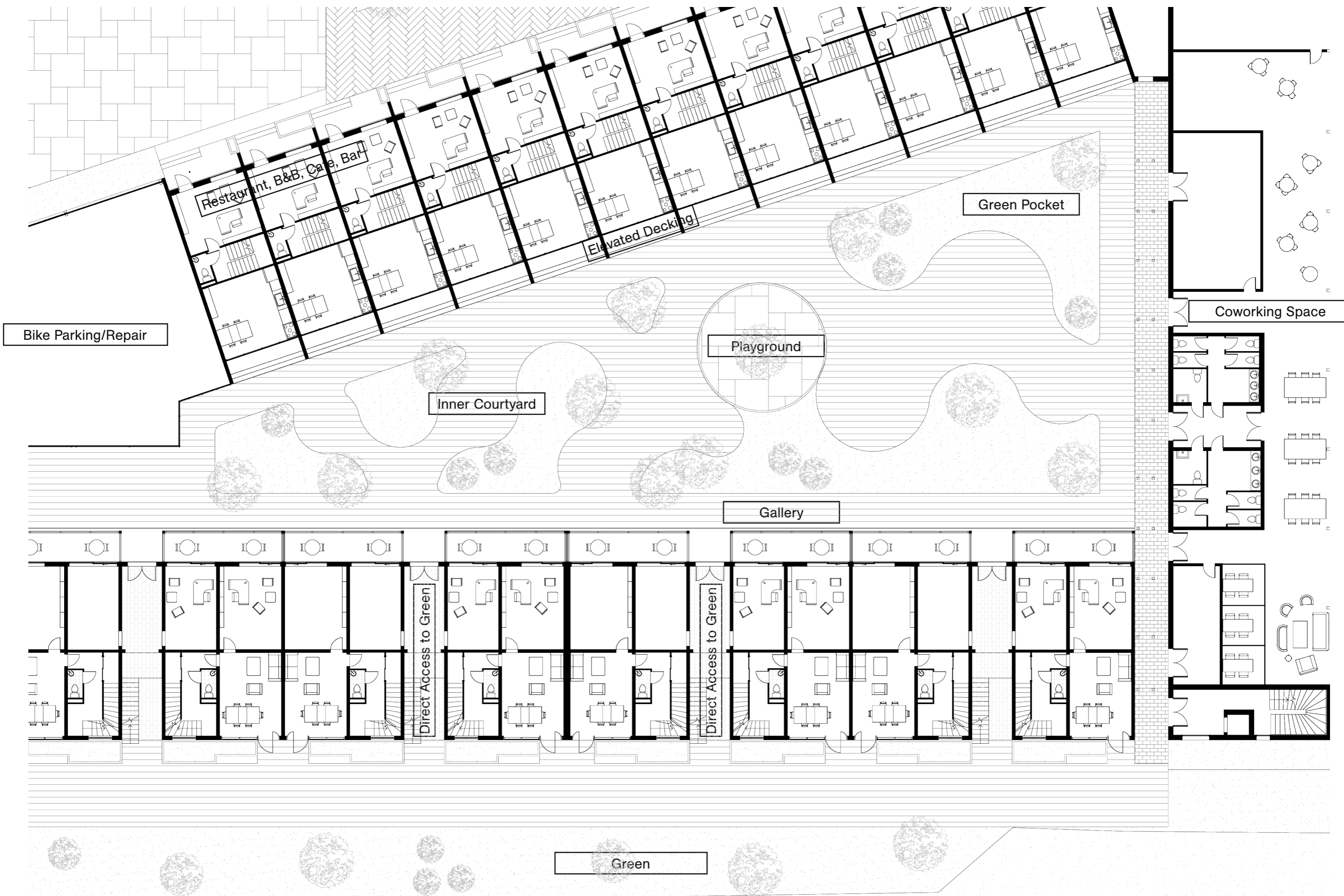
New Housing Unit
with Equal Status between
Working and Living

Courtyard

Existing Residential Building
with Gallery

Wooden Deck

Green



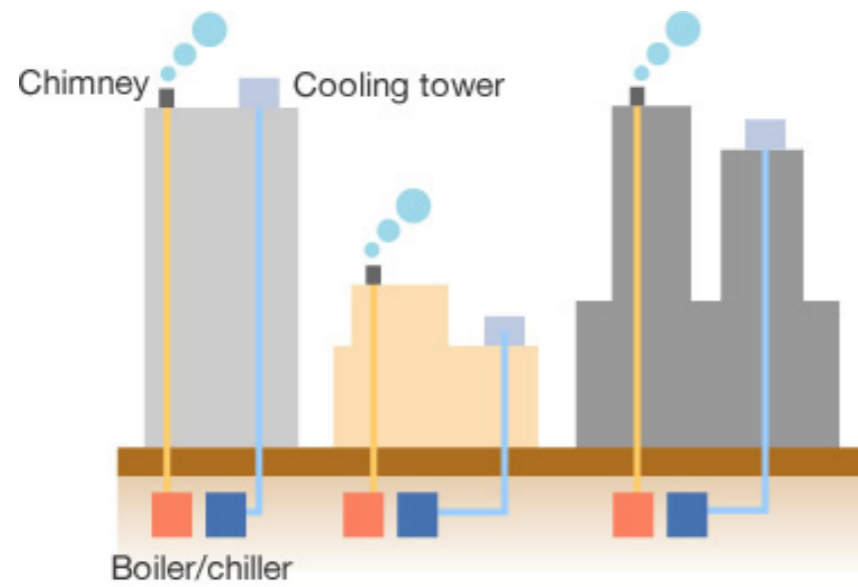


Building Climate

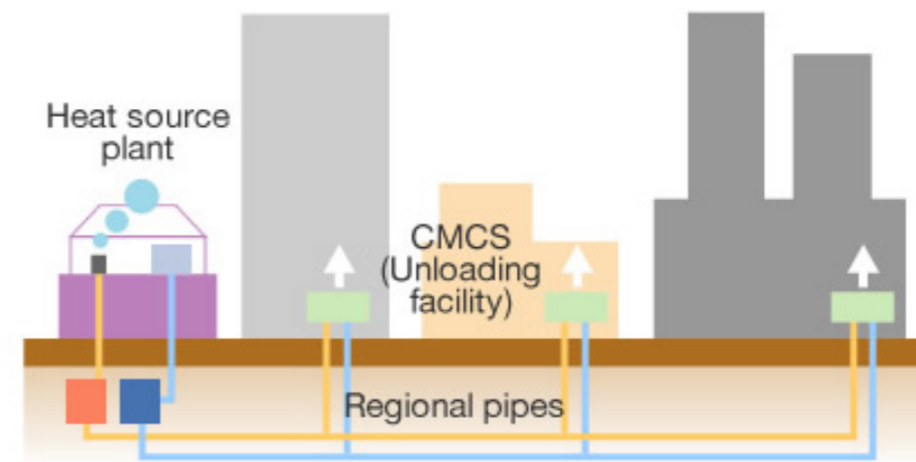
More sustainable and circular system

Climate Concept

District Heating System with Urban Heating Network



Conventional Heat Source System

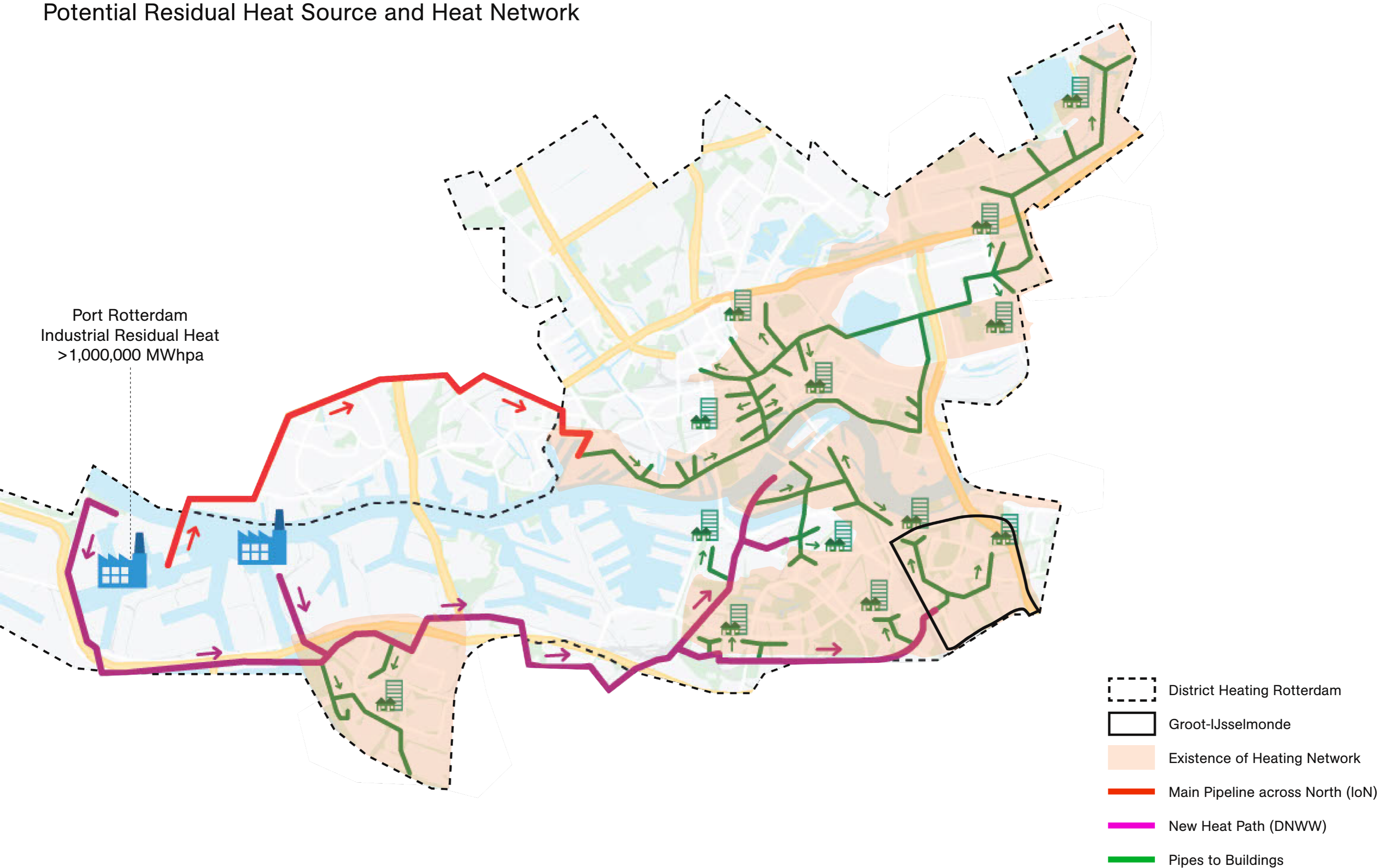


District Heating and Cooling System

By replacing individual boiler and chiller, the system helps reducing energy

Climate Concept

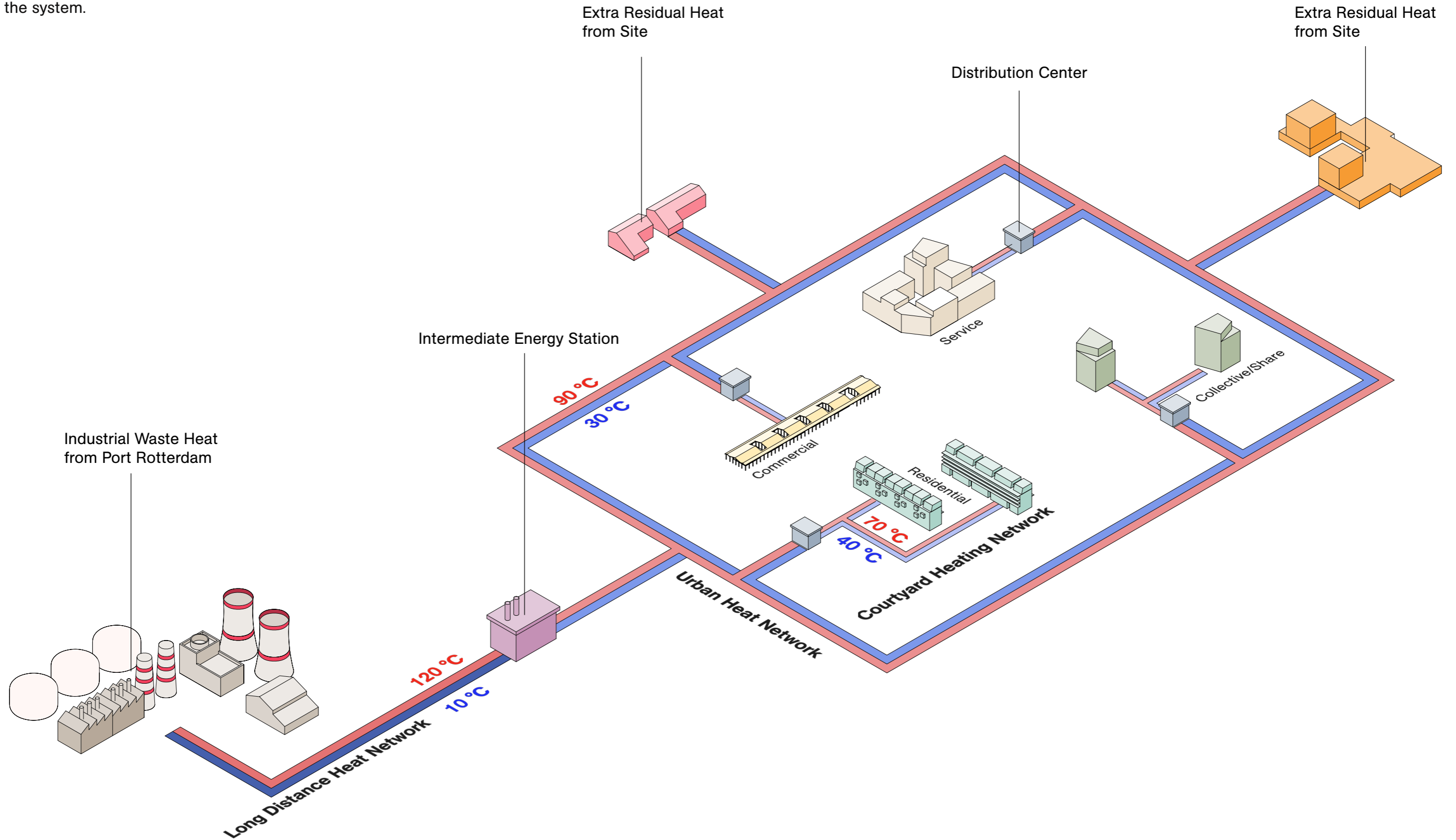
Potential Residual Heat Source and Heat Network



Climate Concept

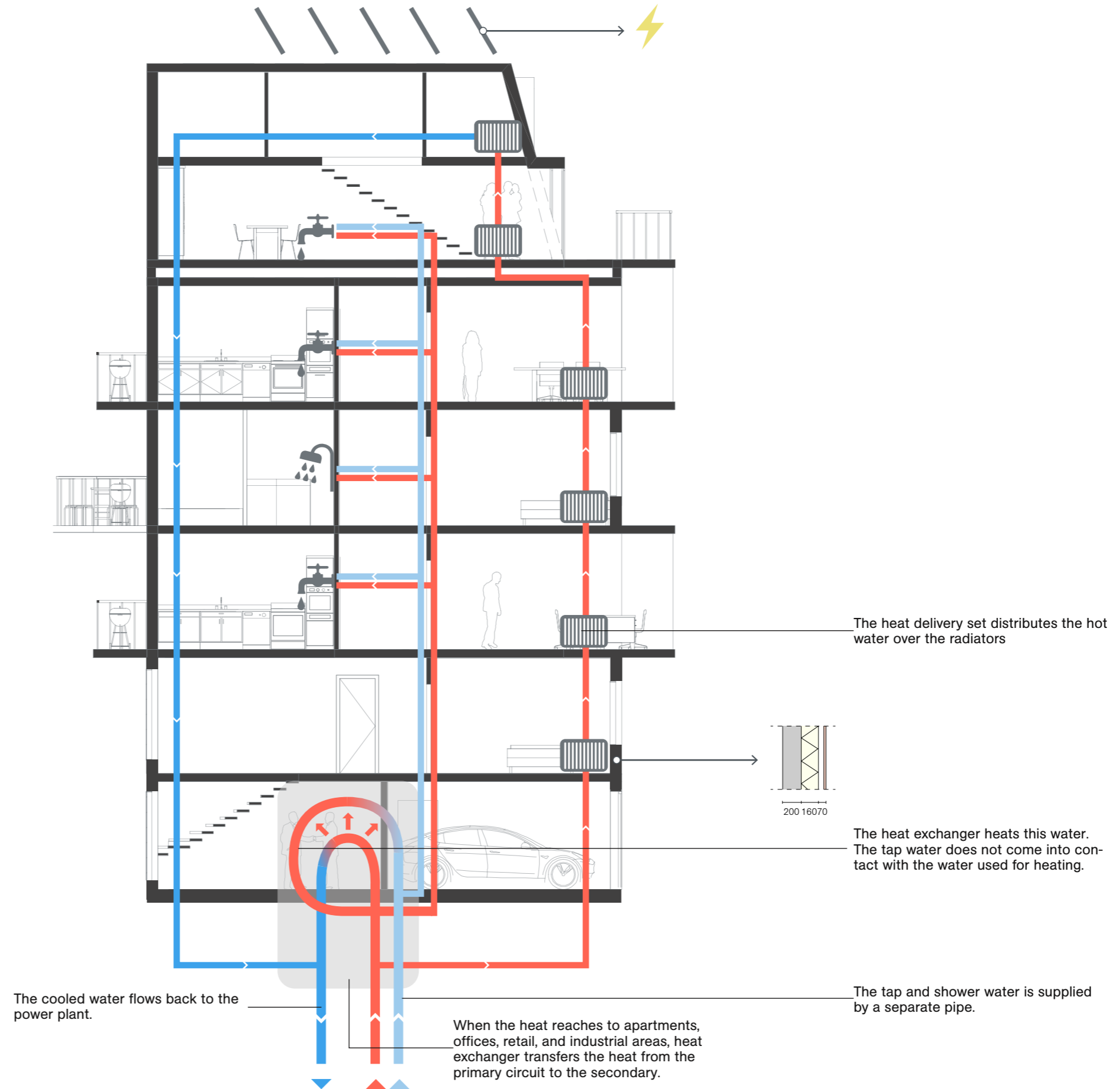
Primary Circuit

Heat generated by Industrial Residual Heat from Port Rotterdam travels as 100 to 120 C water through an underground pipe system to the distribution station in the site. Here, extra residual heat from the site is also contributes to the system.



Climate Concept

Secondary Circuit



An architectural rendering of a modern residential development. The scene features several multi-story buildings with a mix of materials, including light-colored wood paneling and grey concrete. The buildings have large windows and balconies with blue metal railings. In the center, there is a paved courtyard with a brick-like pattern, lined with young trees and some shrubs. A person is riding a bicycle in the courtyard, and other figures are visible on the balconies and walking in the distance. The sky is clear and blue.

What does it all mean?