

A landscape photograph of a park. In the foreground, there is a small pond with some reeds and grass. The middle ground features several bare trees and a grassy field. In the background, there are some buildings and a clear blue sky. The overall scene is peaceful and natural.

Reverting social atomization

Learning from cohousing to combat loneliness

P5 Presentation

Joaquim Boendermaker

June 18th, 2025

Abtswoude park. Tanthof, Delft

In this presentation

I. Introduction

- Graduation studio objectives
- Motivation
- Societal urgencies
- Problem statement
- Research questions
- Methodology

III. Design

- Redesigning deltas design study
- Group masterplan design
- Individual design

II. Research

- Literature review
- Case study analysis
- Discussion of results

IV. Conclusion

Introduction

Graduation studio objectives

'The Advanced Housing Design Graduation Studio (AR3AD100) explores how housing design can successfully address the challenge of reducing the ecological footprint of its residents and assure social inclusion.'

'The students will work on the area between Delft and Rotterdam (Midden-Delfland) [...]'

*'[...] the studio goal: to overcome social polarization and increasing loneliness by sharing resources and social infrastructures within an affordable housing program.'*¹

¹ Taken from the Advanced Housing Design (AR3AD100) Graduation Studio Syllabus

Graduation studio objectives

'The Advanced Housing Design Graduation Studio (AR3AD100) explores how housing design can successfully address the challenge of reducing the ecological footprint of its residents and assure social inclusion.'

'The students will work on the area between Delft and Rotterdam (Midden-Delfland) [...]

*'[...] the studio goal: to overcome social polarization and increasing loneliness by sharing resources and social infrastructures within an affordable housing program.'*¹

Essentially:

A housing design challenge in Midden - Delfland, with a focus on overcoming polarization and loneliness by sharing resources and social infrastructures within an affordable housing program

¹ Taken from the Advanced Housing Design (AR3AD100) Graduation Studio Syllabus

Motivation

Trigger

Our society has proven to be vulnerable

- *Digitization*
- *COVID-19*
- *Politics*
- *Individualization*

overcoming polarization and
loneliness

Motivation

Trigger

Our society has proven to be vulnerable

Potential

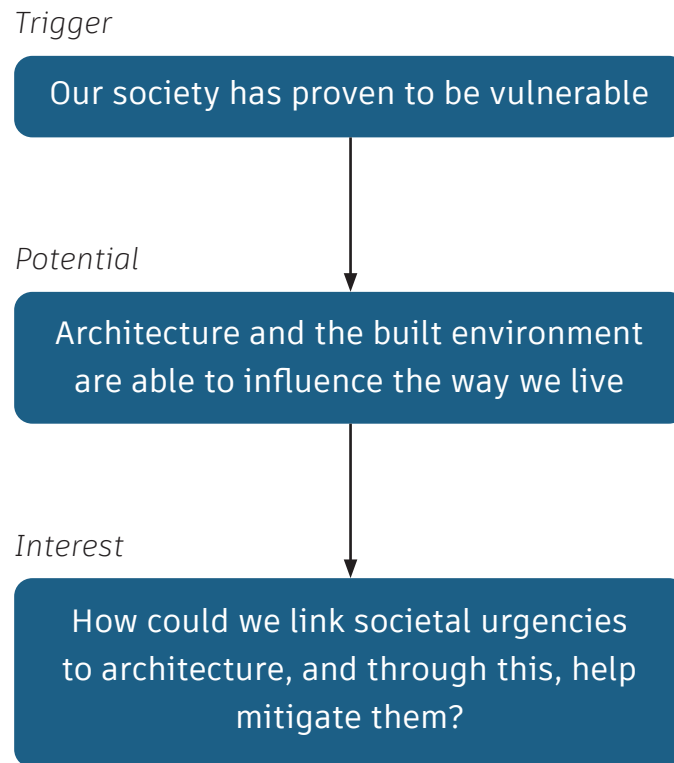
Architecture and the built environment
are able to influence the way we live

- *The way we use land and build our environment has 'significant impacts on individual and population health, safety and well-being'*¹
- *Since we spend so much time indoors, 'The design of buildings can greatly impact human health'*²

¹Roof & Oleru (2008)

²Rice & Drane (2020)

Motivation



Societal urgencies

Loneliness

- According to the WHO (2023), loneliness is a threat to world health
- Loneliness is on the rise (statistically) in the Netherlands
- Awareness has grown, action programs have been set up

WHO launches commission to foster social connection

WHO, 2024

1 op de 10 mensen sterk eenzaam in 2023

26-9-2024 06:30



CBS, 2024



Actieprogramma

Eén tegen eenzaamheid

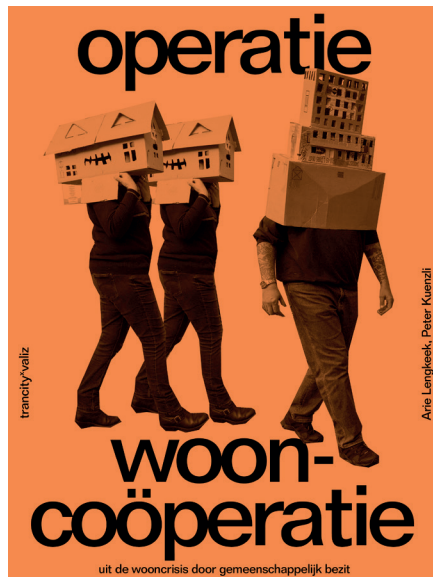


Ministry of Health, Well-being and Sports, 2018 | 2022

Societal urgencies

Housing

- *The housing crisis is widely acknowledged in the Dutch context*
- *Even with the current demand in housing, production is falling behind*
- *Housing is becoming increasingly less affordable*
- *Affordable housing typologies like cohousing, which is seen in other parts of Western Europe, are less present in the Netherlands*



Lengkeek & Kuenzli, 2022

Negen op tien Nederlanders: sprake van 'wooncrisis'

Bijna negen op tien Nederlanders (86 procent) vindt dat er sprake is van een crisis op de woningmarkt. Zeven op de tien zeggen dat de standpunten van partijen over wonen (zeer) belangrijk zijn voor hun partijkeuze bij de komende verkiezingen. Sinds augustus 2023 is wonen zelfs het belangrijkste verkiezingsthema. Uit onderzoek van I&O Research in opdracht van Aedes, de vereniging van woningcorporaties, blijkt verder dat één op vijf mensen aangeven niet passend te wonen bij hun inkomen en/of levensfase.

Ipsos, 2023



NU.nl, 2025

Ontluisterende CBS-cijfers laten zien waarom er werkelijk een gebrek aan betaalbare woonruimte is

[Actueel](#) · 10-10-2024 · leestijd 1 minuten · 82447 keer bekeken · [bewaren](#)

BNNVARA, 2024

Societal urgencies

Housing

- *Municipality of Amsterdam wants to have 50 thousand extra dwellings by 2040 that are considered housing cooperations, a form of cohousing*

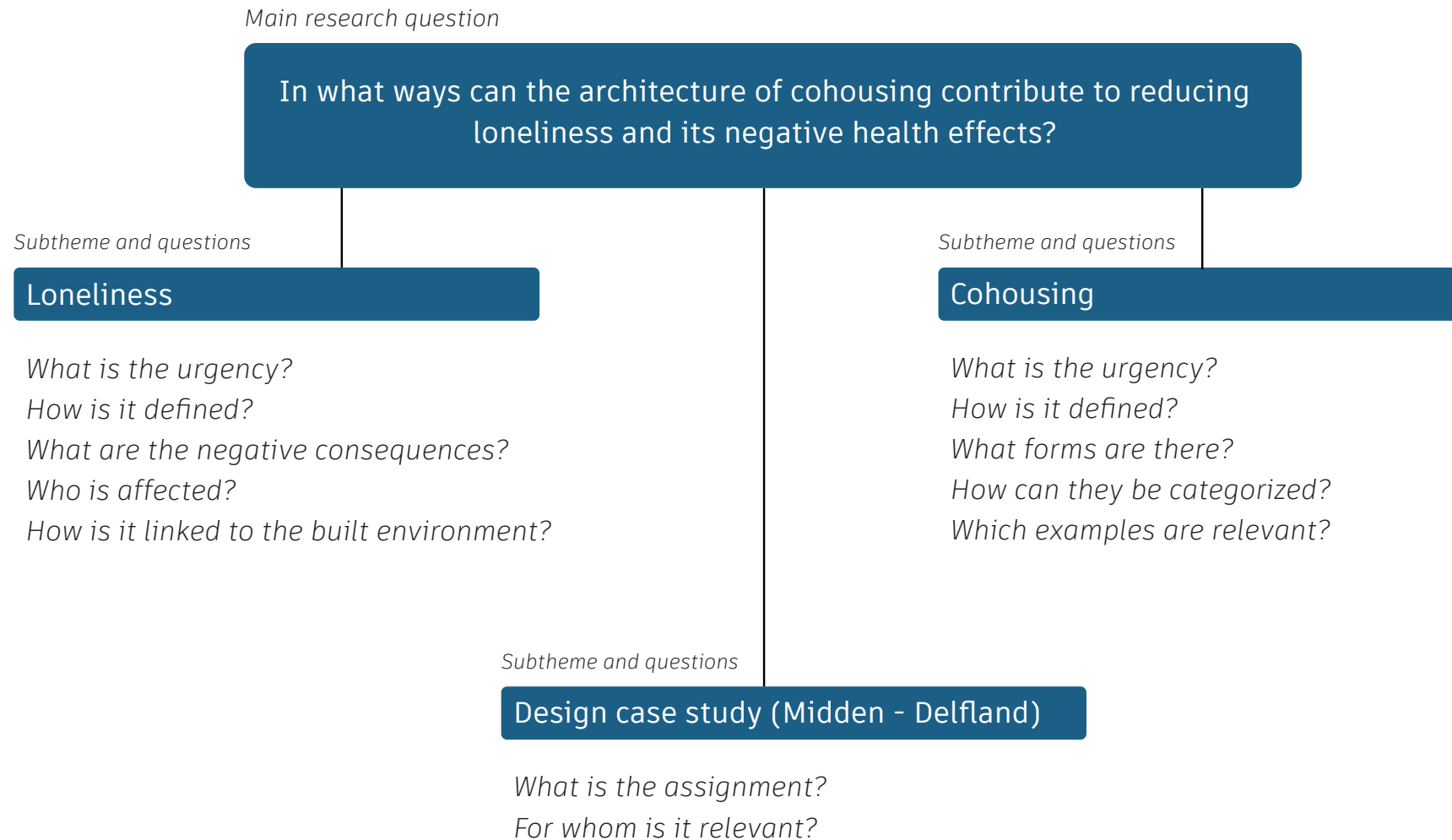
De gemeente Amsterdam wil dat in 2040 10% van de Amsterdamse woningvoorraad uit wooncoöperaties bestaat. Dat betekent dat binnen twintig jaar ongeveer 50.000 woningen moeten zijn (om)gebouwd naar nieuwe vormen van eigendom en/of zeggenschap. Oftewel: evenveel woningen als vijf keer IJburg, vier keer de Jordaan of heel Amsterdam-Noord.

Amsterdam.nl, 2022

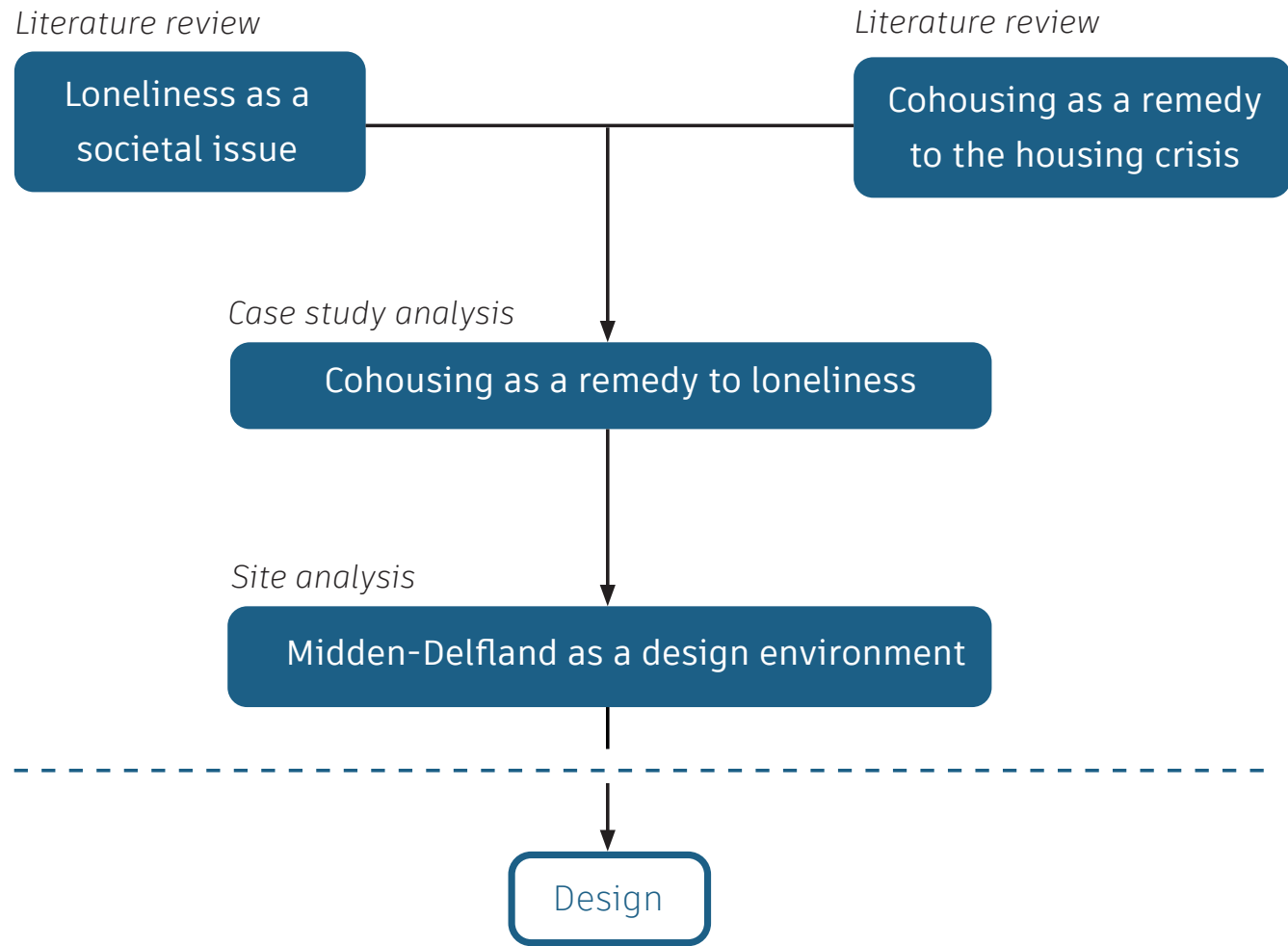
Problem statement

The Netherlands is facing a double crisis: a shortage of affordable housing and rising levels of loneliness. Traditional housing at the moment does not seem to help mitigate loneliness and isolation. Cohousing – an approach that combines private living with the sharing of space, amenities and ideologies – offers a potential solution. The graduation project explores if and in what ways cohousing could effectively address both housing affordability and social isolation, and will impose this on the context of the graduation studio; Midden-Delfland.

Research questions



Research scope and methodology



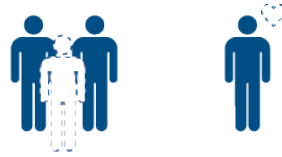
Research

Literature Review

Loneliness

Loneliness

What is loneliness?



Social and emotional loneliness (Weiss, 1973)

Absence of desired social relationships versus an absence of a desired close attachment relationship.



Loneliness vs. being alone (Copel, 1988)

A person may be alone, but not feel lonely. A person may be surrounded by people, but still feel lonely.



Cognitive discrepancy theory (Archibald et al., 1995)

When an individual has higher expectations of their relationships than what they are experiencing, they are more likely to feel lonely.



Loneliness according to De Jong Gierveld (1998)

A lack of relationships and/or a lack of quality of relationships, which may induce hopelessness through time, and, as a result, feelings of shame and frustration.

Loneliness

Why is it a problem?



World Health Organization

"Anyone, anywhere, can be lonely or socially isolated. Across all ages and regions, loneliness and social isolation have serious impacts on our physical and mental health, and the well-being of our communities and society."



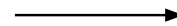
Mental and physical health issues



Maarten van Ooijen

State Secretary of Health, Welfare and Sport

"[...] we are dealing with a societal problem of unprecedented proportions. You do not solve this quickly. Loneliness is connected to numerous societal issues, like a strong social base, improving mental health, combatting poverty, the setup of the physical living environment, working on health prevention, and stimulating volunteer work"



Not an individual, but a societal problem



Rob Leensen

Sector lead Health and Life Sciences, EY Partner Assurance

"It's clear that the Dutch Healthcare sector is dealing with serious issues. High costs, too little investment, too much focus on production, and too little attention towards prevention and health are leading to a vicious circle in which patients, staff and healthcare providers suffer."

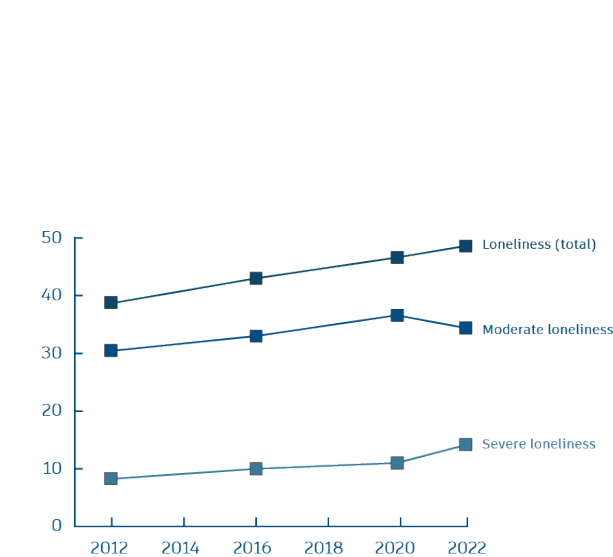


Additional stress on an already stressed Dutch healthcare system

Loneliness

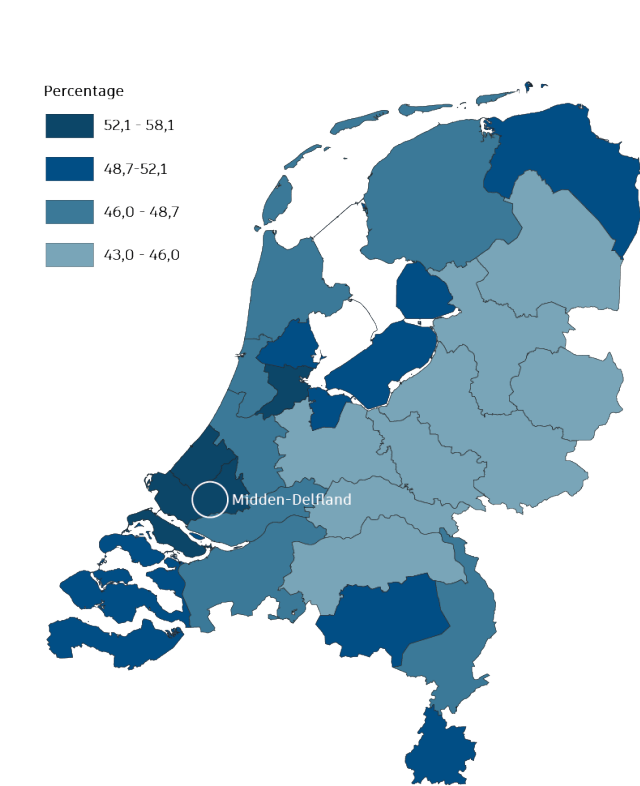
Who is affected?

Development of perceived loneliness, Netherlands 2012-2022



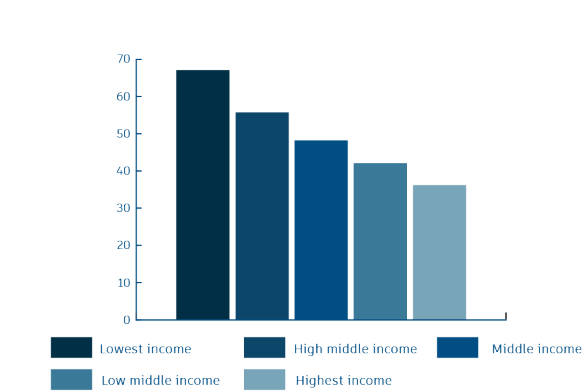
Loneliness is on the rise

Perceived loneliness per health region, Netherlands

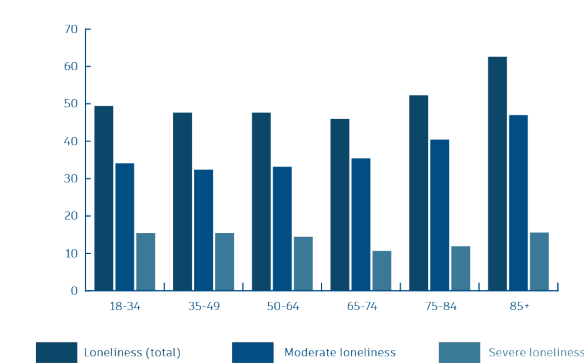


Higher levels locally

Perceived loneliness per income group



Perceived loneliness per age group



Vulnerable groups are affected more

Loneliness

What is the relationship with the built environment?

Research **shows...**



That architecture and the built environment can influence **health**

The way we use land and build our environment has 'significant impacts on individual and population health, safety and well-being' (Roof & Oleru, 2008)

Research **suggests...**



That architecture and the built environment can influence **loneliness**

'Given the multifaceted characteristics of the causes and consequences of loneliness [...] it seems evident that it has a tangible reflection on spatial arrangements.' (Nieto & Rubio, 2021)

Loneliness

What is the relationship with the built environment?

'Designing for social interaction'



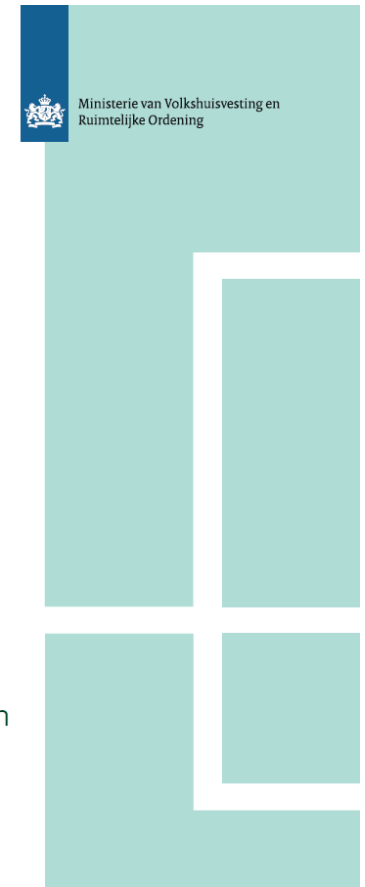
Platform31, 2021

'Inspirational publication on designing for social interaction'



WoonIn, 2025

*'Physical follows social:
Nine visions on the living environments of tomorrow'*



Ministry of Housing and Spatial Planning, 2025

Literature Review

Cohousing

Cohousing

What is it?

Cohousing is housing that is focused on sharing: sharing ideas, investment, **and/or** space

‘Cohousing **facilitates interaction** among neighbors and thereby provides social, practical, economic, and environmental benefits.’
(McCamant & Durrett, 1994)

Cohousing

What is it?

Cohousing is housing that is focused on sharing: sharing ideas, investment, **and/or** space

‘Cohousing **facilitates interaction** among neighbors and thereby provides social, practical, economic, and environmental benefits.’
(McCamant & Durrett, 1994)

Could we learn from **Cohousing** as good practices for making **less lonely dwellings**, in an attempt to also help mitigate the **Dutch housing crisis**?

Cohousing

What organisational types of cohousing are there?

Management cooperative

A project that is developed and managed by the community, but owned by a corporation

CPO

A project that is developed with professionals and led by the community. There is individual homeownership and collective ownership of shared functions

Housing cooperative

A project in which all ownership and management goes to the community

Community Land Trust

A project based on land that is bought up and developed in coherence between community and government



Adapted from Lengkeek & Kuenzli (2022)

Cohousing

What spatial types of cohousing are there?



Eco village Ithaca. New York State, USA.



'Shared micro living'. Miel Arquitectos & Studio P10. Barcelona, Spain.



Kalkbreite housing cooperative. Müller Sigrist Architekten AG. Zürich, Switzerland.

Case Study Analysis

Cohousing projects

Case study analysis

Methodology

Planned vs. unplanned interaction



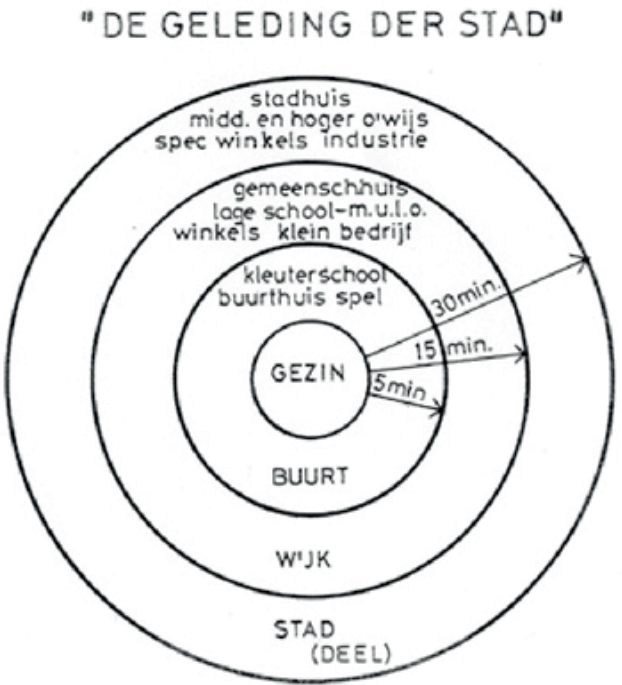
WoonIn, 2025

Interaction on different scale levels



Platform31, 2022

Sharing and collectivity on different scale levels



Doevendans & Stolzenburgh, 1988

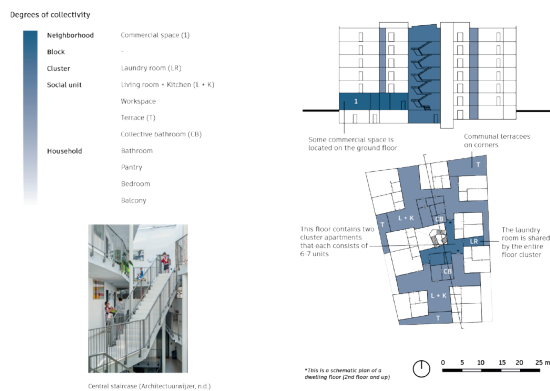
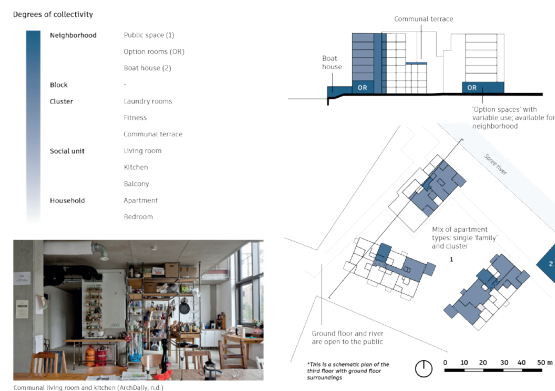
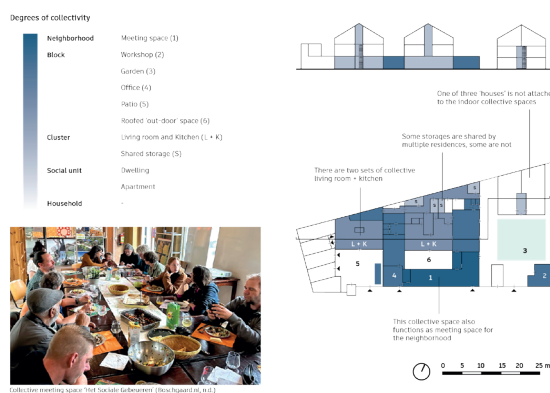
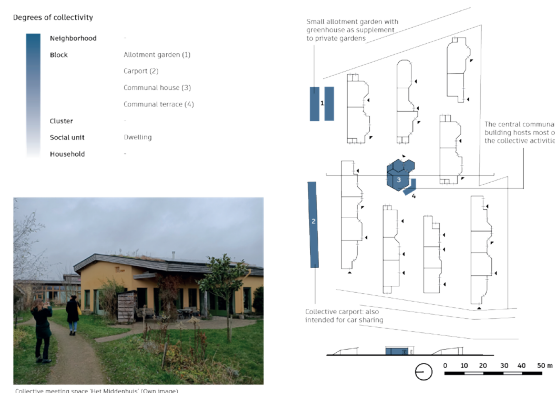
Case study analysis

Project locations



Case study analysis

Overview



Case study analysis

Centraal Wonen Delft

Degrees of collectivity

	Neighborhood	Complex square (1)
	Block	Meeting room / café (2)
	Cluster	Communal garden (3)
		Workshop (4)
		Laundry room
	Social unit	Garden (G)
		Bicycle storage
		Kitchen (K)
		Living room (L)
	Household	Pantry (P)
		Bedroom (B)



Complex square



Garden

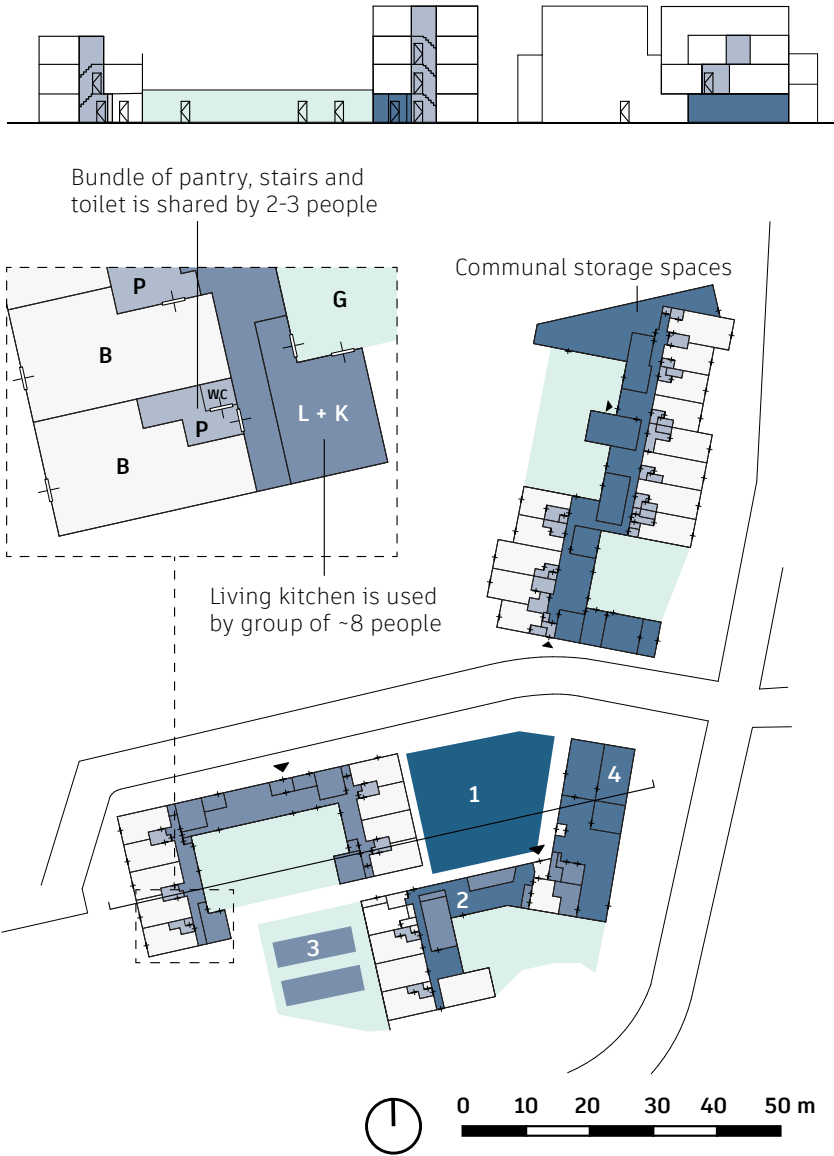


Communal garden



Kitchen

(Centraalwonendelft.nl, n.d.)



Adapted from centraalwonendelft.nl

Case study analysis

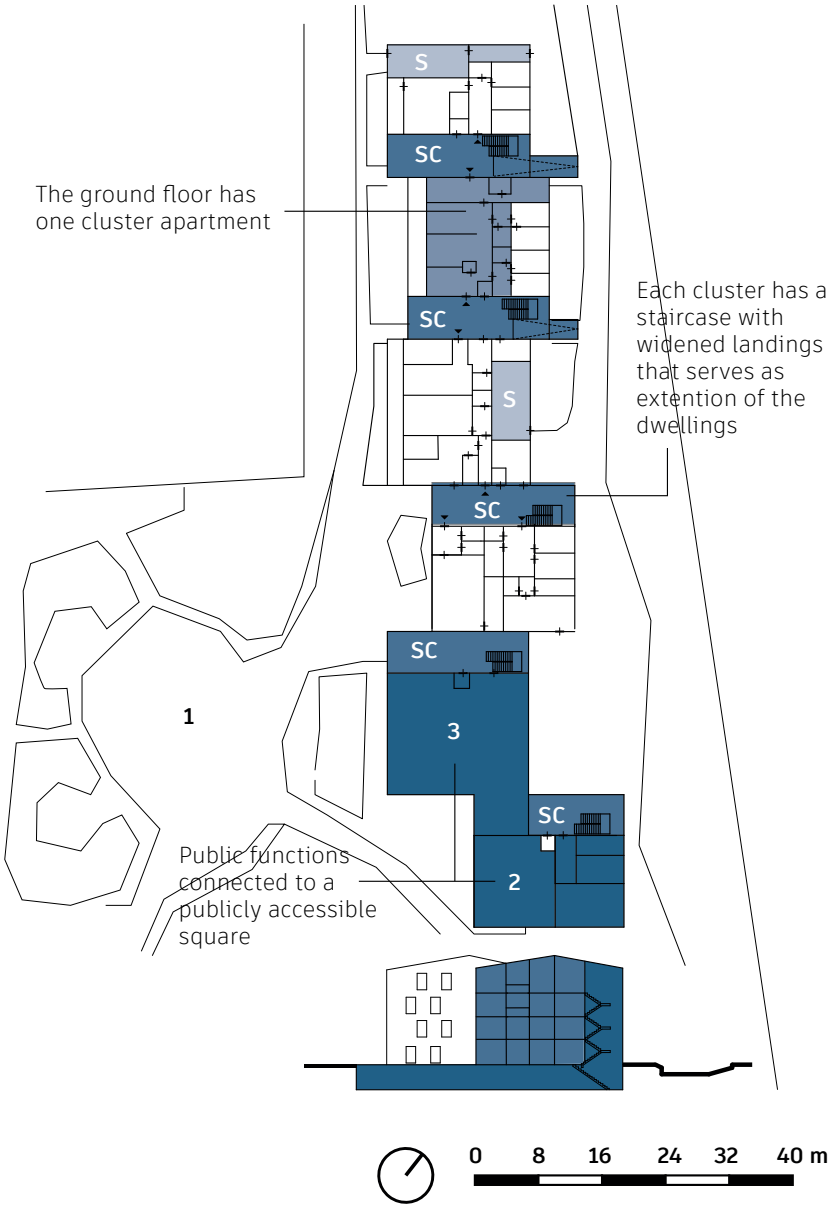
Rigaud Cooperative Housing

Degrees of collectivity

Neighborhood	Public space (1)
	Café (2)
	Nursery (3)
Block	(Bicycle) storage (S)
Cluster	Widened staircases (SC)
Social unit	Living room
	Kitchen
	Bathroom
Household	Apartment
	Bedroom



Staircases with widened landings (Bonhôte-Zapata, n.d.)



Case study analysis

Takeaways

1. The organisational form of cohousing is relevant for the degree of sharing



Aardehuizen Olst. Olst, Netherlands

vs.



Centraal wonen. Delft, Netherlands

2. Circulation is extremely important for (unplanned) interaction



Rigaud Cooperative Housing. Geneva, Switzerland

vs.



A typically Dutch gallery circulation

3. Sharing of space and amenities happens on crucially different scale levels



Shared Micro-living. Barcelona, Spain

vs.



Spreefeld. Berlin, Germany

III Design

Point of departure

Redesigning Deltas Design Study

Redesigning Deltas Design Study

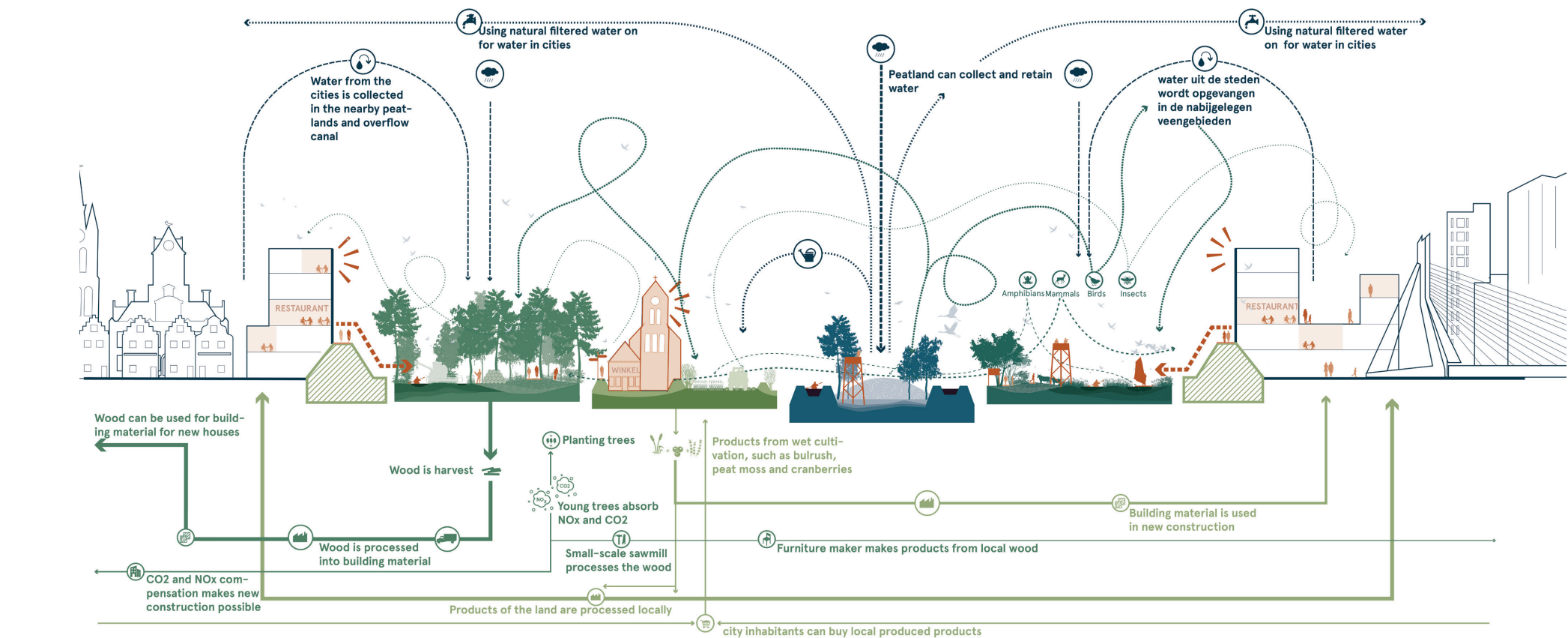
Location and vision map



Vision for Midden - Delfland, map (ZUS, Flux & Sweco, 2022)

Redesigning Deltas Design Study

Section of flows



National productive park
Delfland; a green lung for the
city

Vision for Midden - Delfland, section (ZUS, Flux & Sweco, 2022)

Assimilation of (regional) flows



Separation of functions

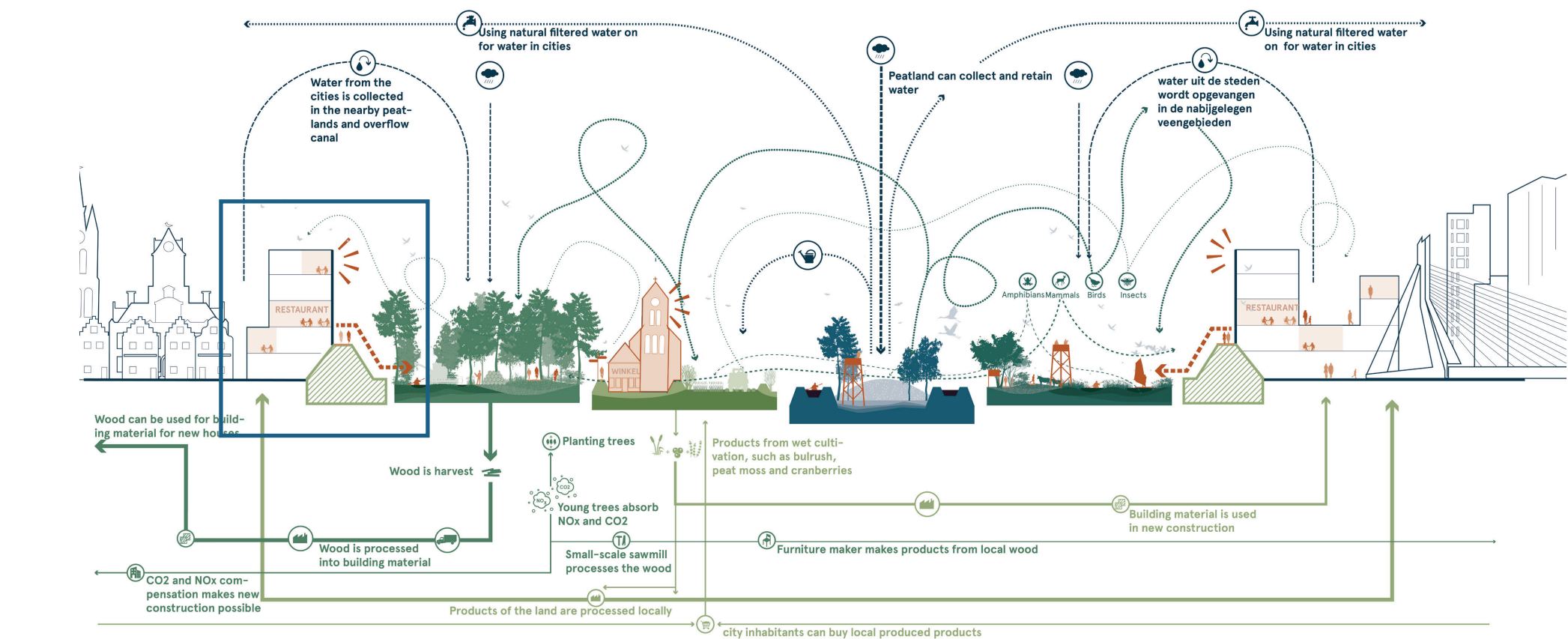
Urban masterplan



A design vision, on the scale
of the neighborhood

Redesigning Deltas Design Study

Section of flows



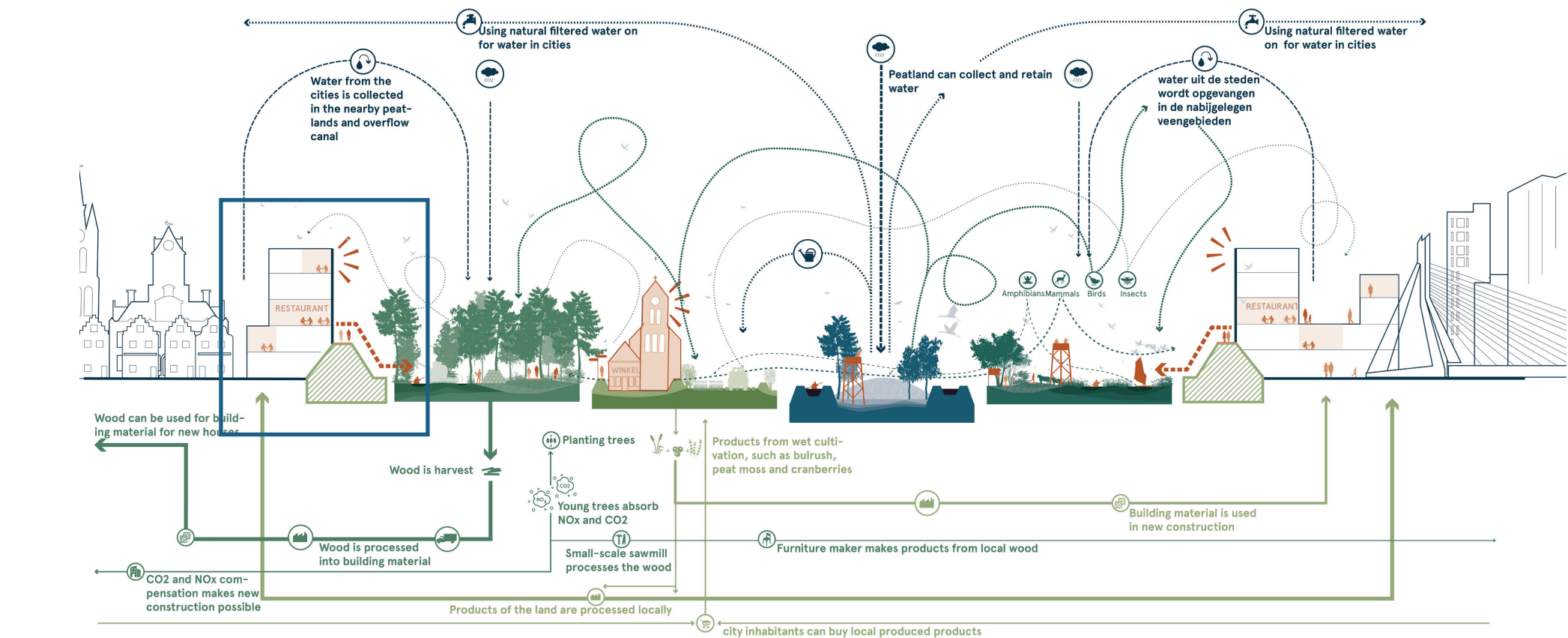
National productive park
Delfland; a green lung for the city

Vision for Midden - Delfland, section (ZUS, Flux & Sweco, 2022)



Redesigning Deltas Design Study

Section of flows



National productive park
Delfland; a green lung for the city

Vision for Midden - Delfland, section (ZUS, Flux & Sweco, 2022)

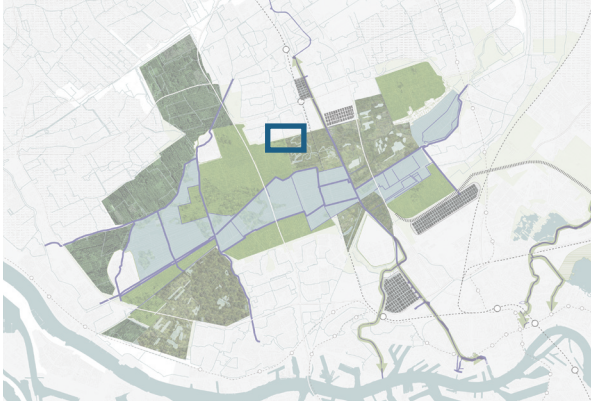
Assimilation of (regional) flows



Combination of functions

Masterplan

Location



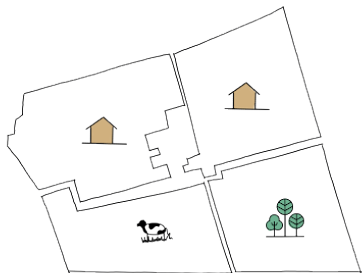
Tanthof in relation to RDD study



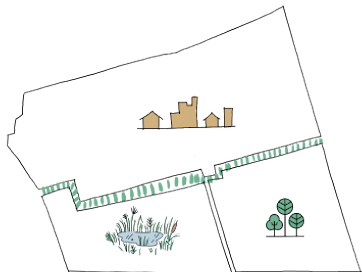
Satellite image of Tanthof (Google Earth, 2024)

Masterplan

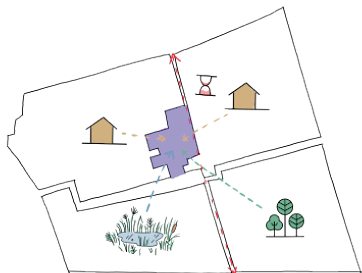
Principles and execution



Current configuration



Patchwork, as proposed by RDD study



Group proposal: creating a common ground

Masterplan design principle (Group work)



Group masterplan for the future of Tanthof (By Diya Sharma)

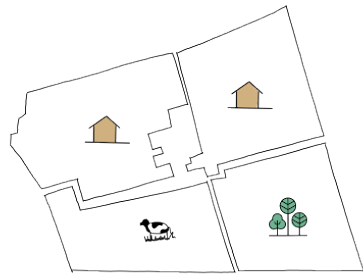


Urban design

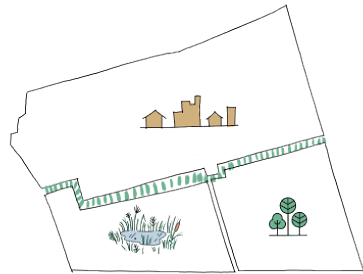
For one block within the neighborhood

Masterplan

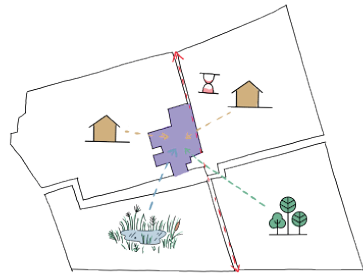
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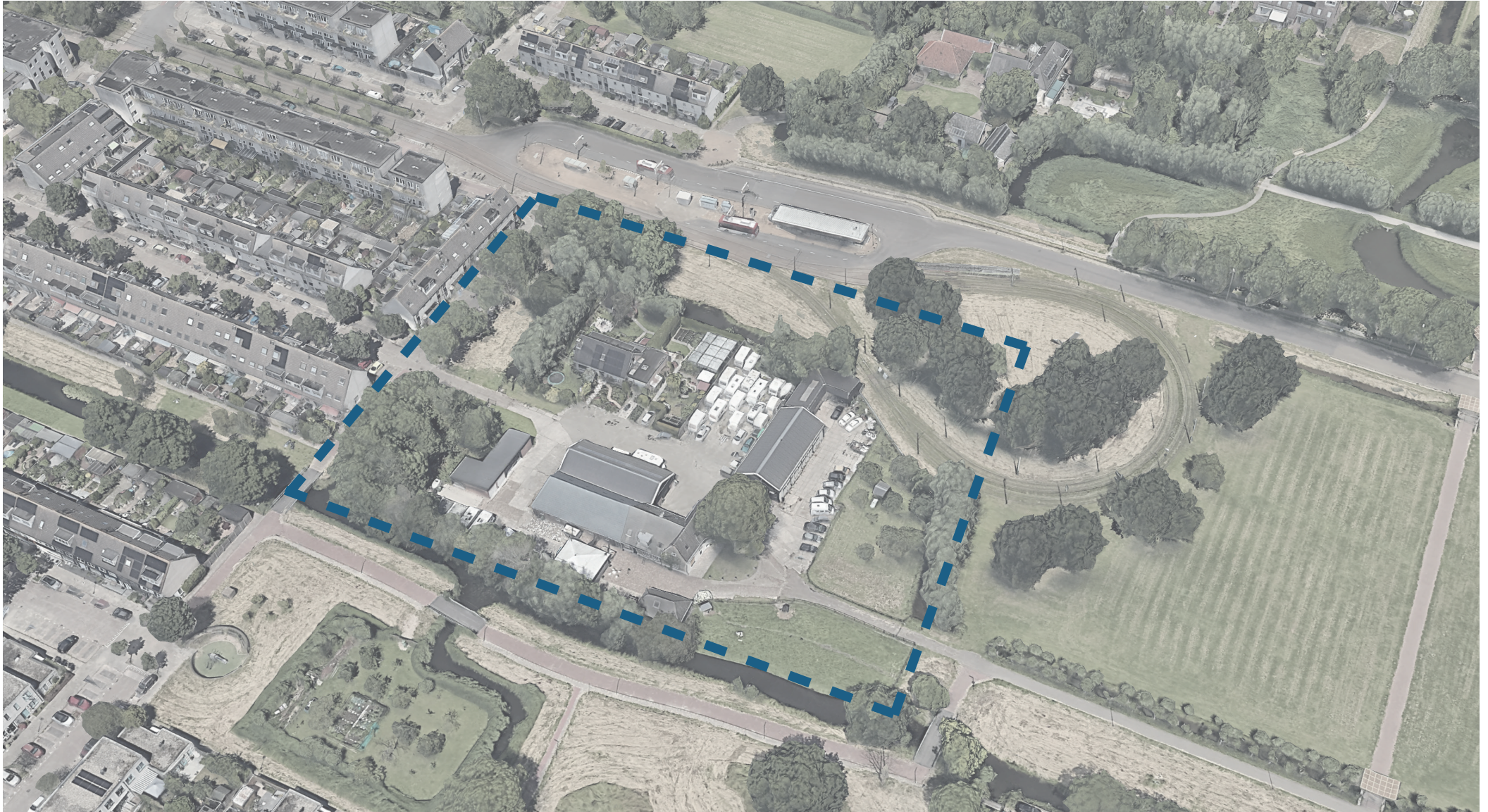
Assimilation of (regional) flows



Combination of functions

Urban design

Aerial view of design location



Urban design

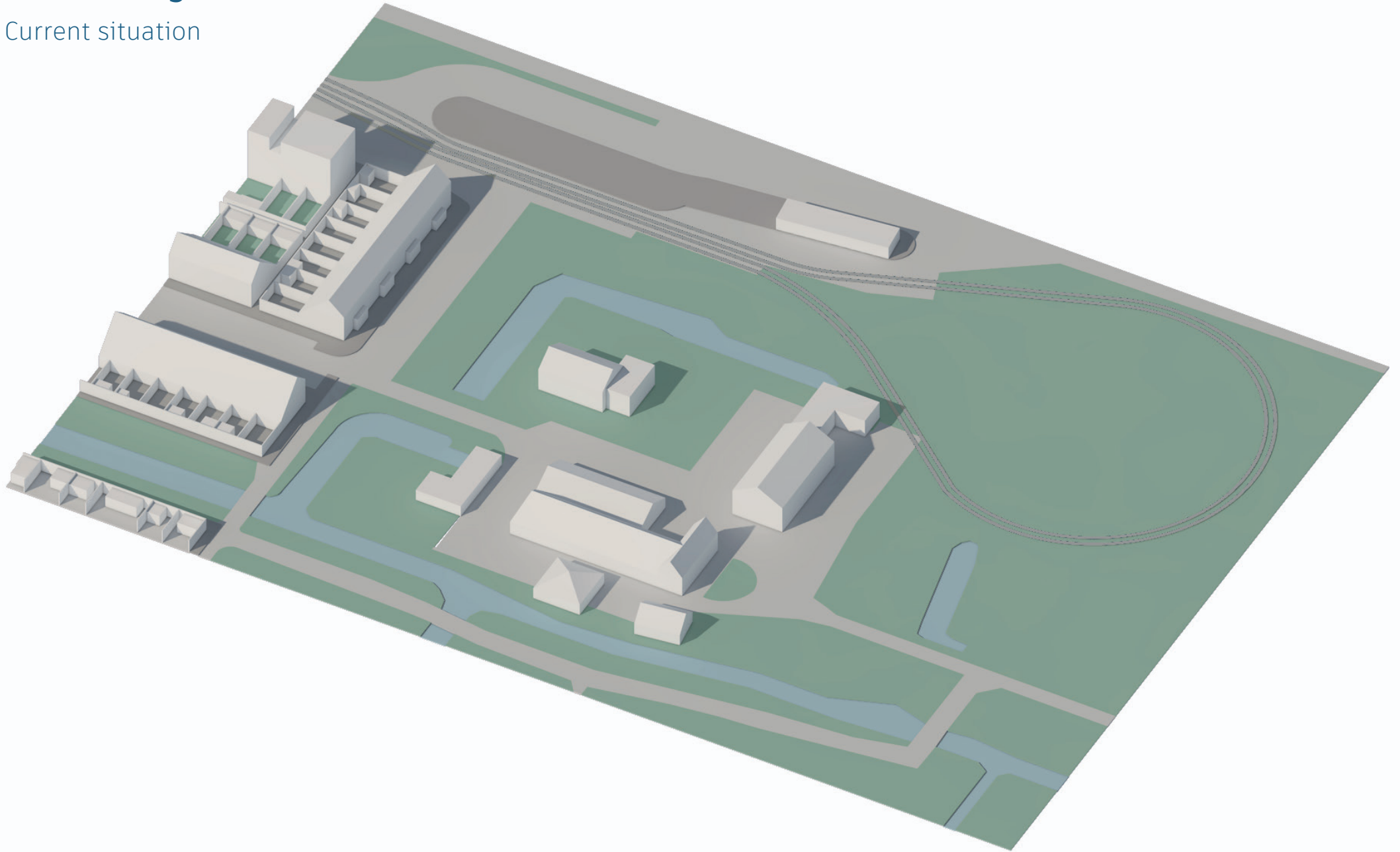
Interesting site properties

- 1 Public transport hub
- 2 Existing urban tissue
- 3 The current water system
- 4 Barn with historical value
- 5 Urban structures on plan site
- 6 Valuable sightlines



Urban design

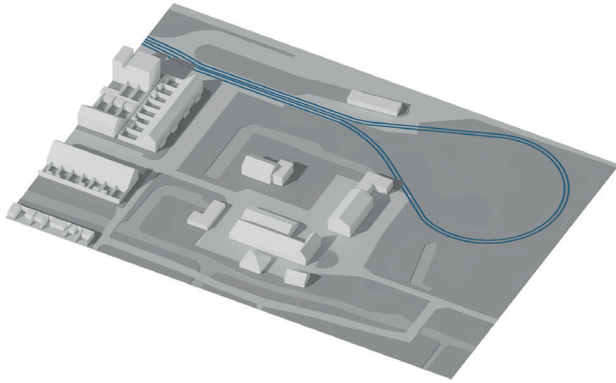
Current situation



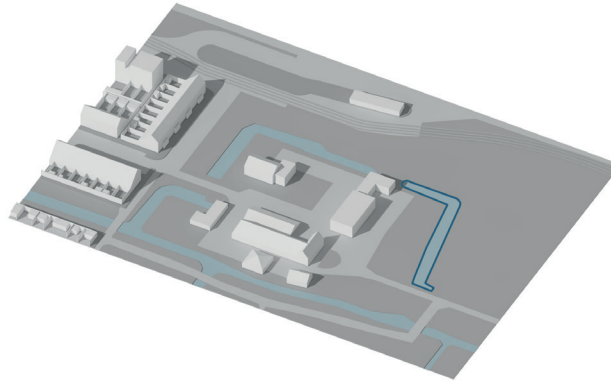
Urban design

Diagrams

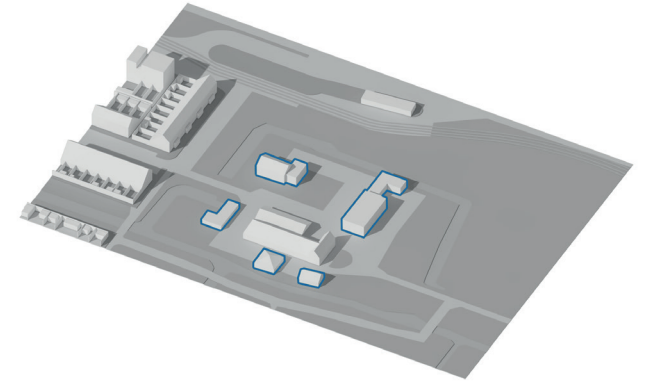
1. Reroute tram according to group masterplan



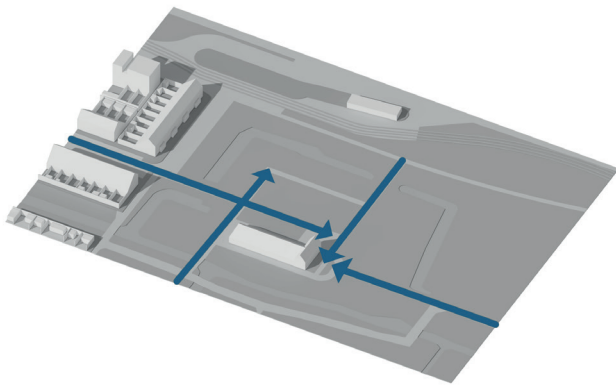
2. Enhance water buffering capacities



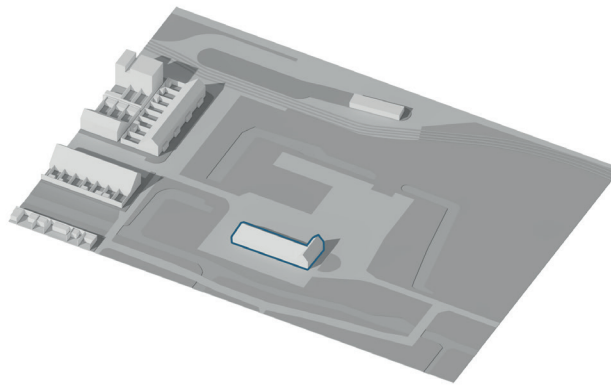
3. Make room by phasing out buildings with minor value



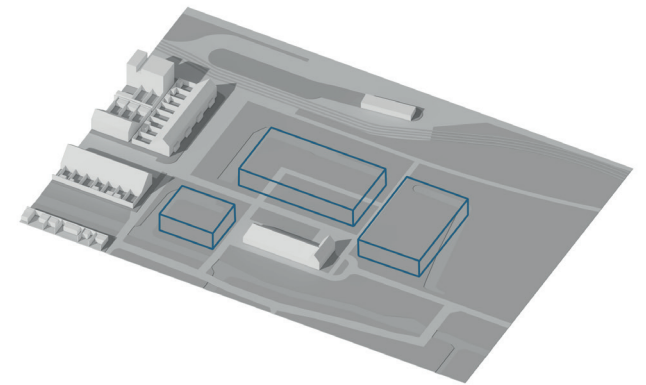
4. Create access from all directions



5. Maintain barn with historical value, and turn it into community centre

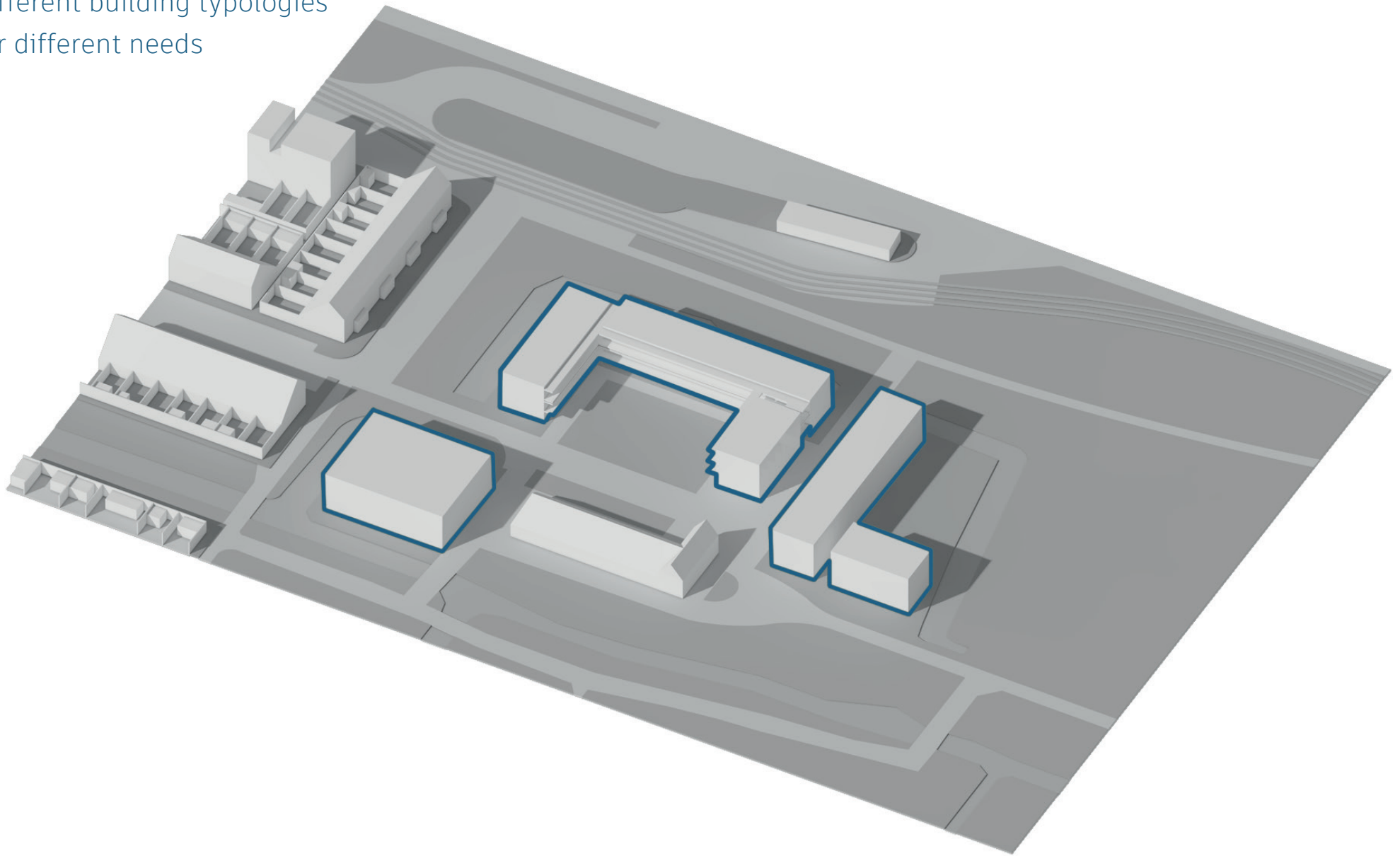


6. Densify around community centre



Urban design

Different building typologies
for different needs



Urban design

Inspiration

Courtyard community



Aahof, Zwolle

'Fat type'



Mehr als Wonen / Hunziker Areal, Zürich

Social street



Marmelade Lane, Cambridge

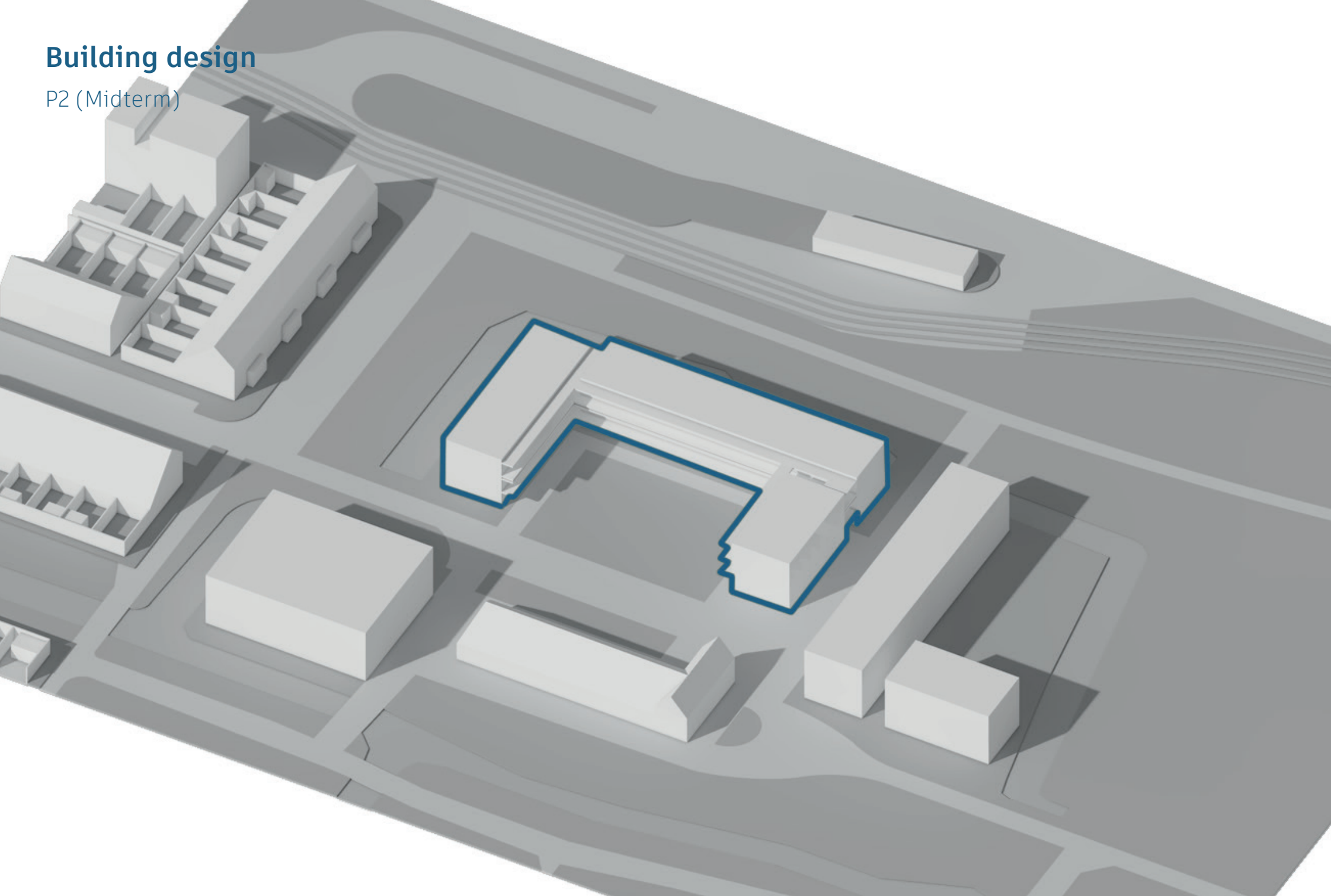
Building design



Zooming in into one of the
three typologies

Building design

P2 (Midterm)



Building design

At the time of the P2 (Midterm)

Organisational typology: management cooperative

- Social housing with self management

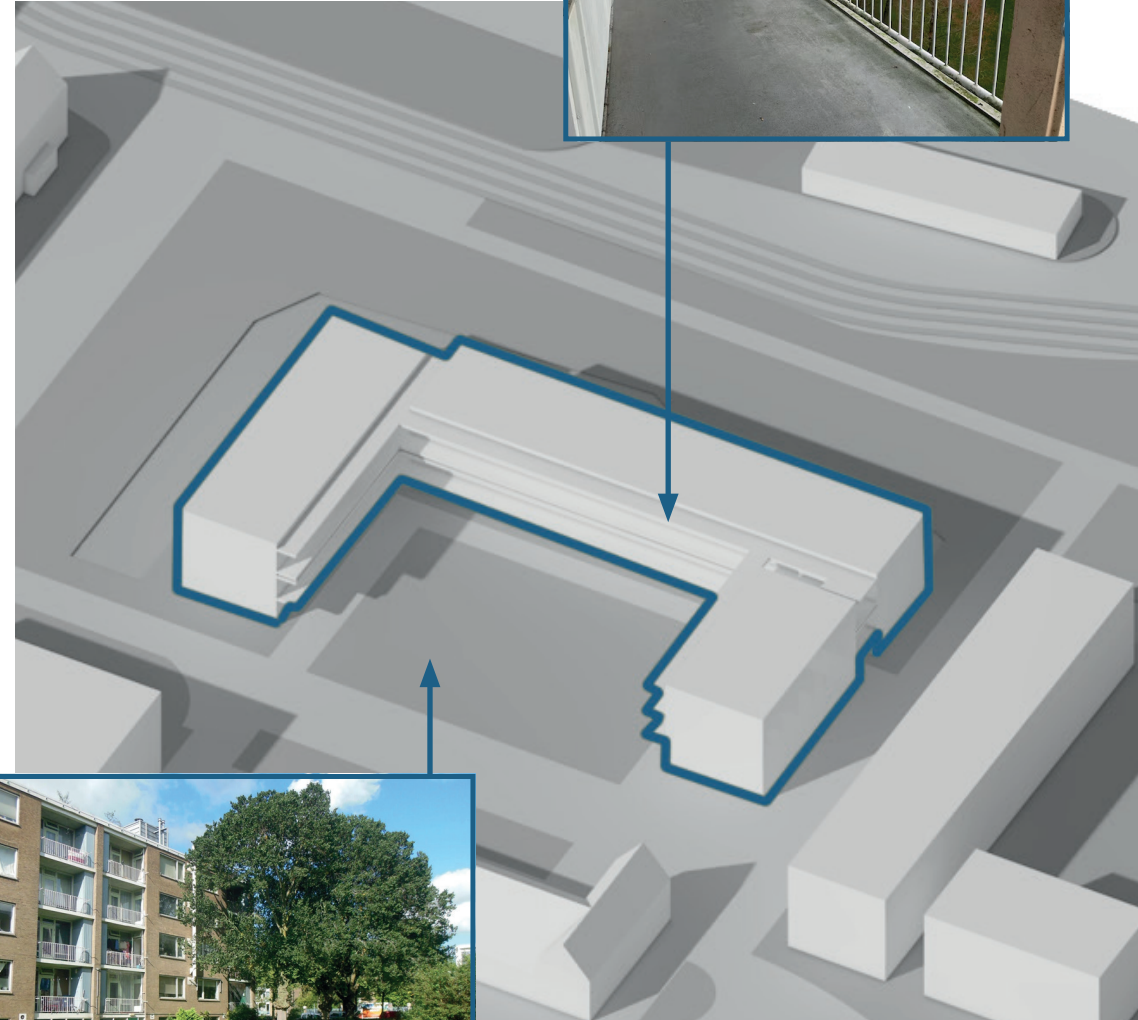
Spatial typology: courtyard

- Inhabitants form one community

Points to improve

- Anonymous and long galleries (1)
- Public space with little use (2)
- Inefficient floor plans
- No gradation between scales

1

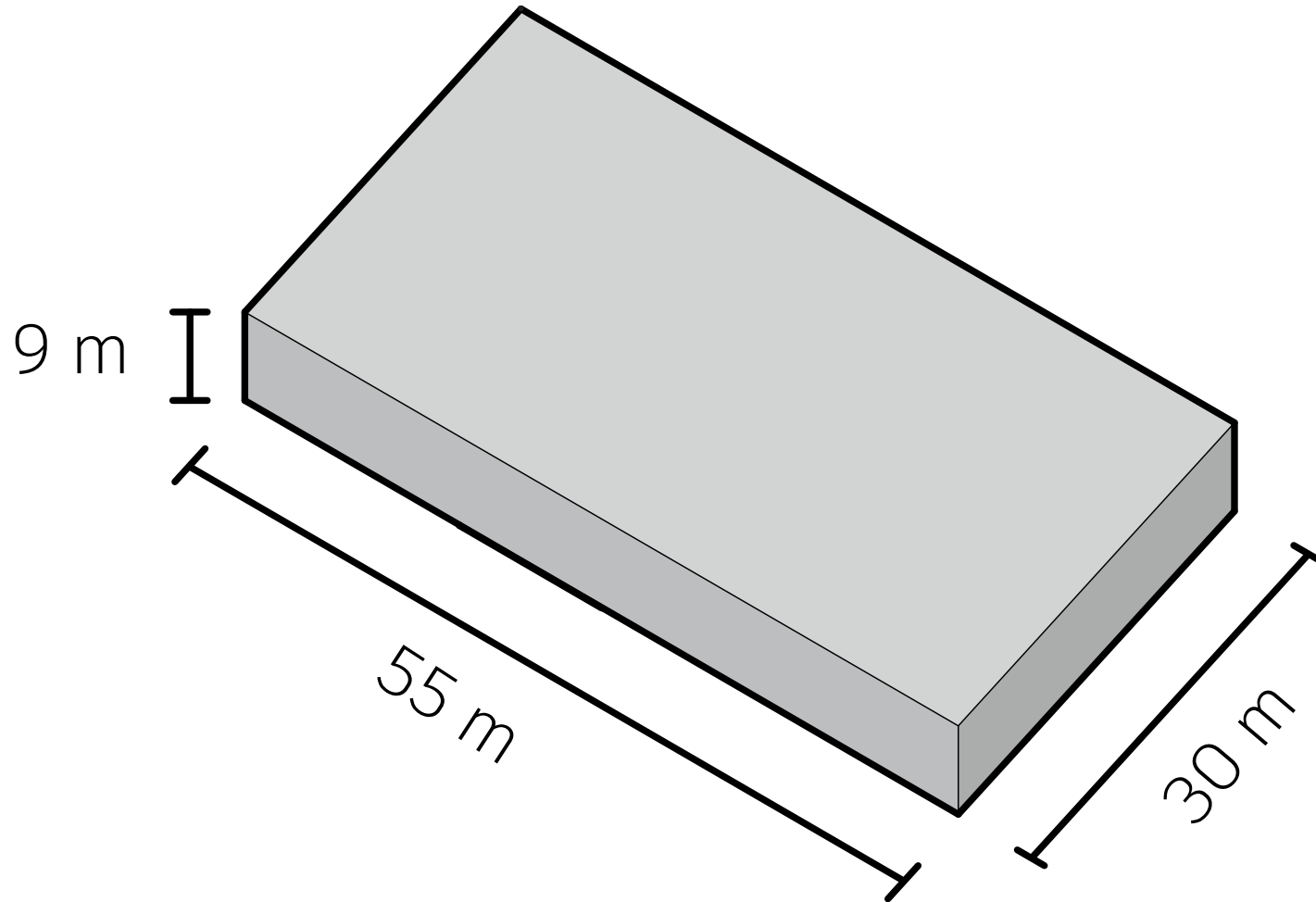


2

Building design

Concept

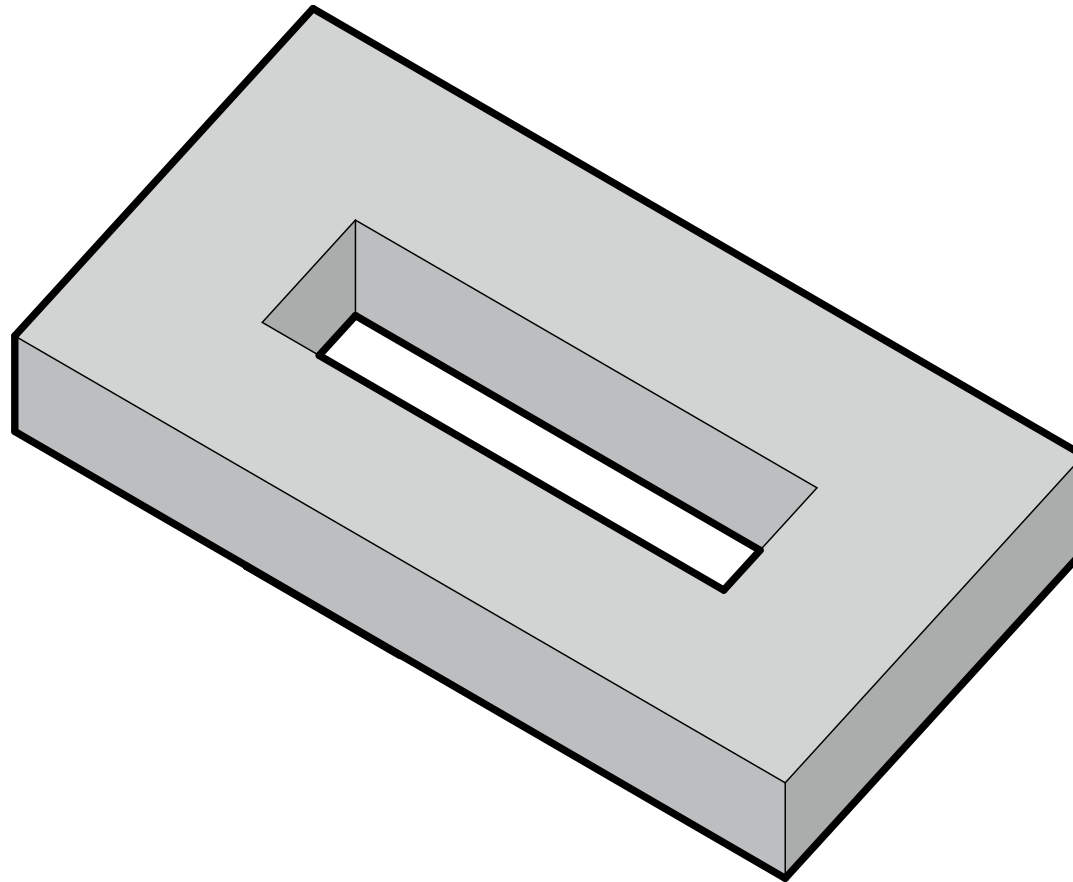
1. Starting volume based on urban design



Building design

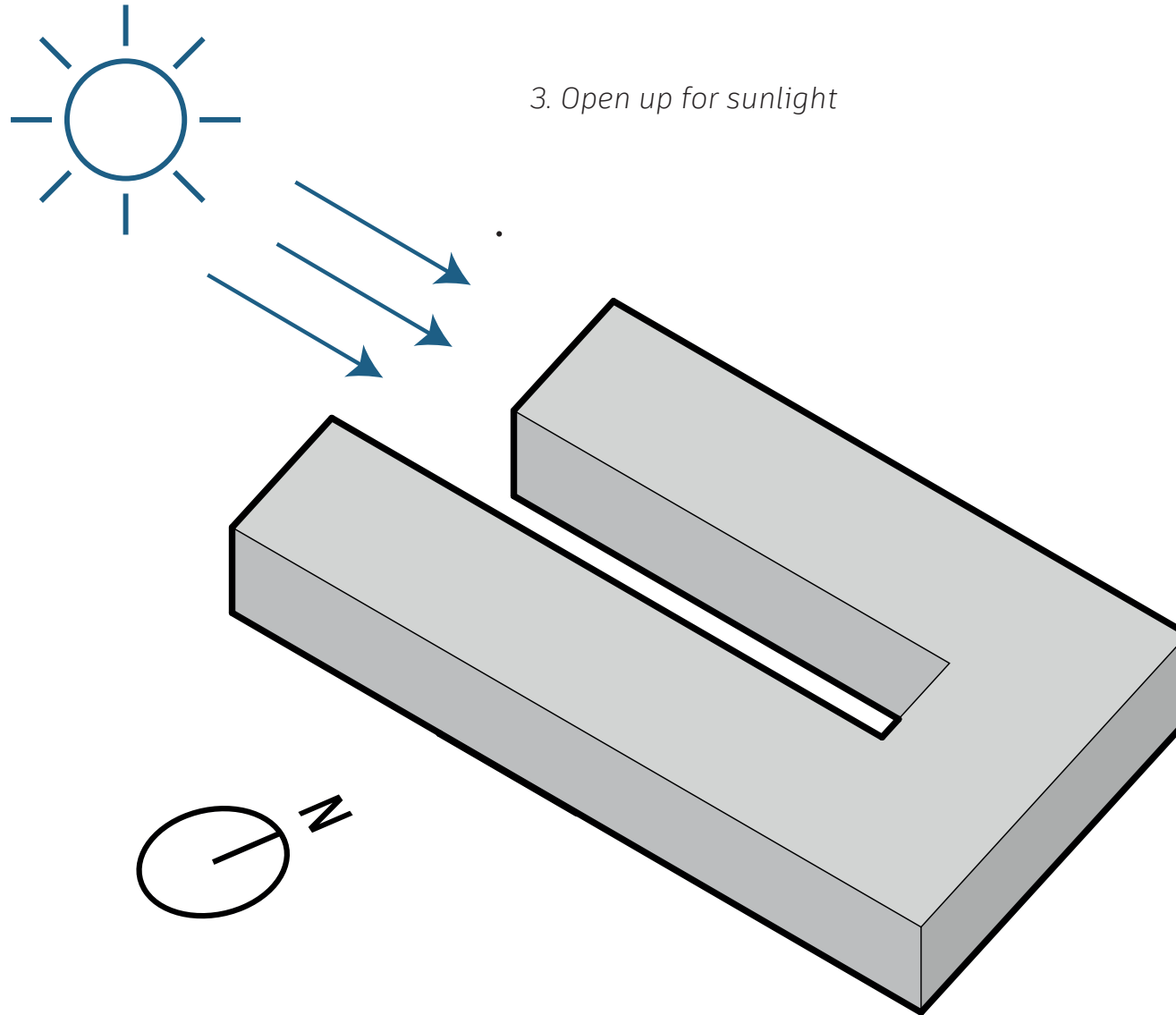
Concept

2. Courtyard typology as departure point



Building design

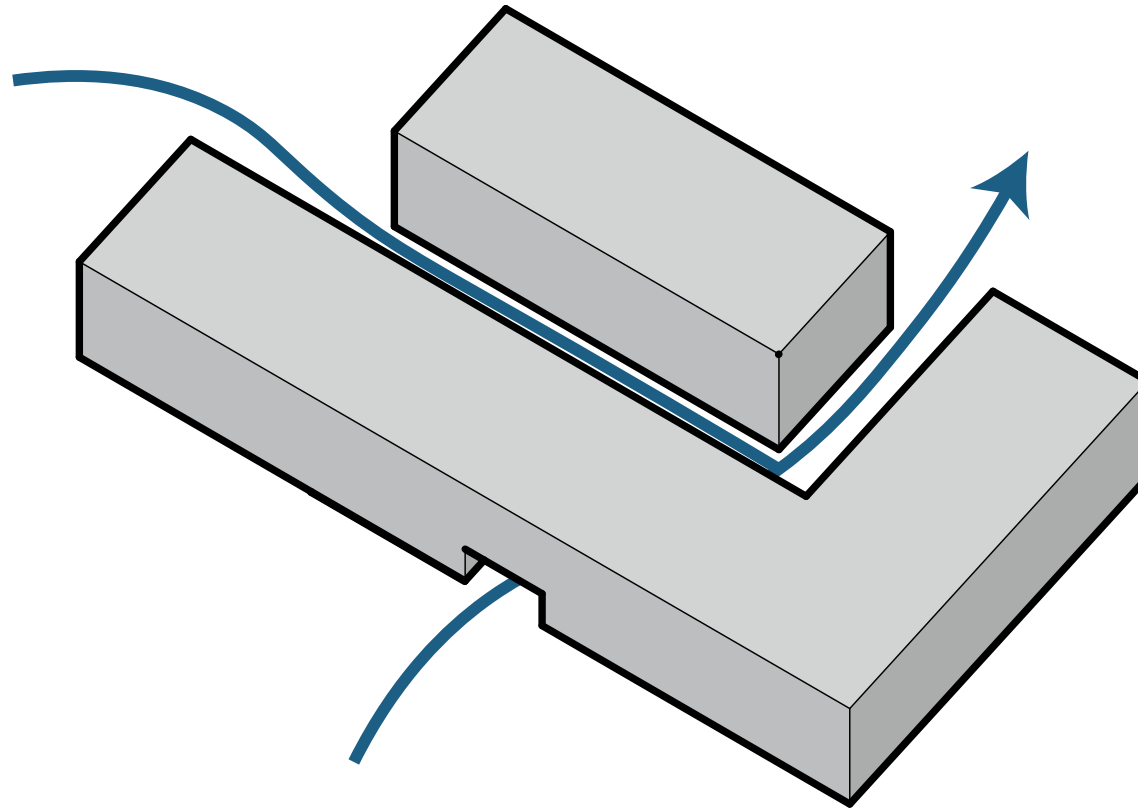
Concept



Building design

Concept

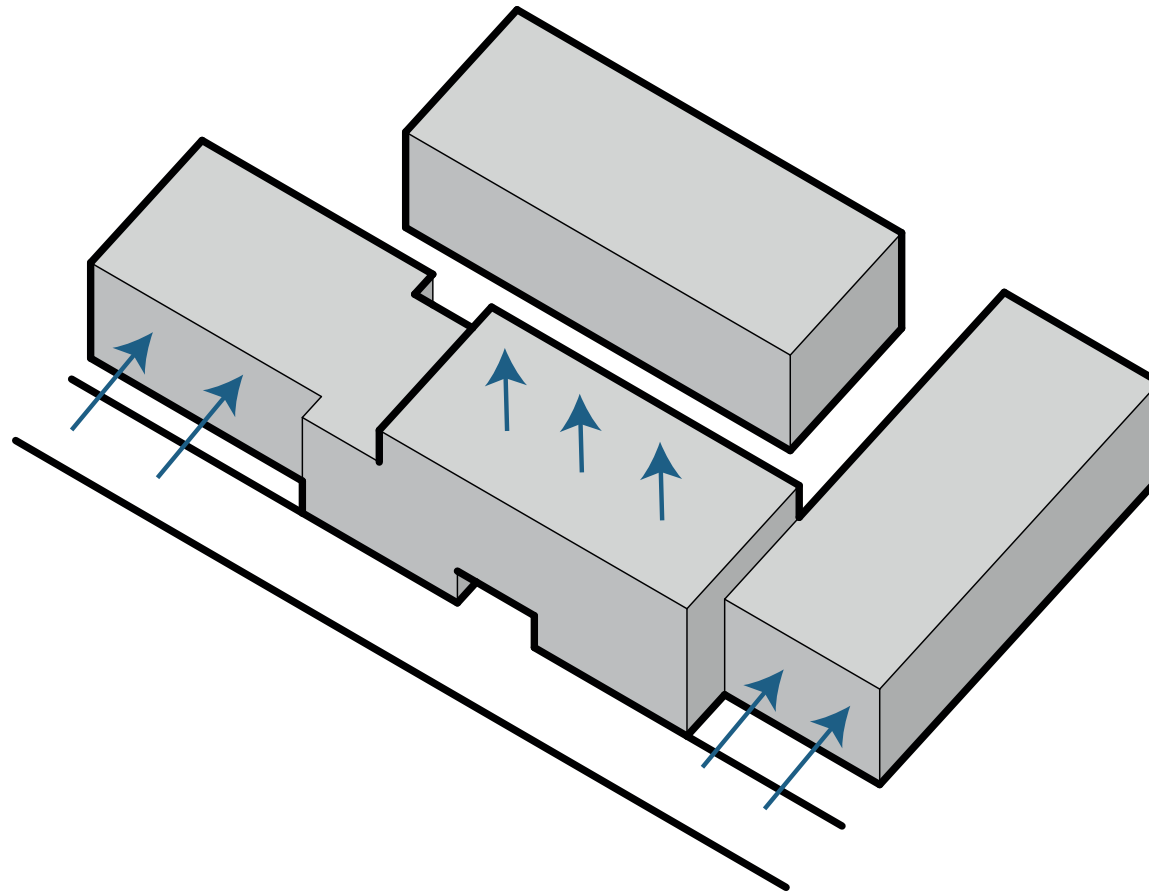
4. Allow for options in routing, to and through the complex



Building design

Concept

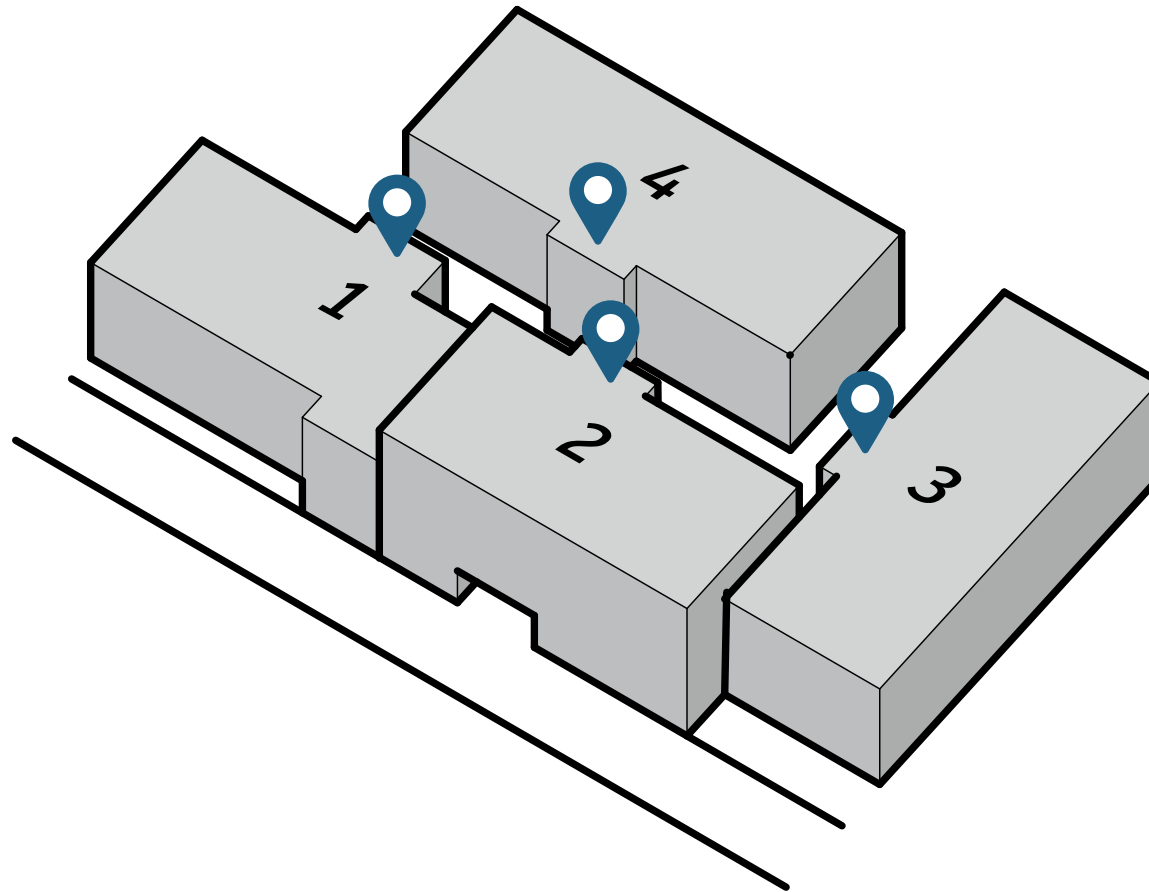
5. Push and pull to create formal entrance zone on street side



Building design

Diagrams

6. Create 4 portico style entrances for more humanly scaled circulation space





Building design

Axonometric

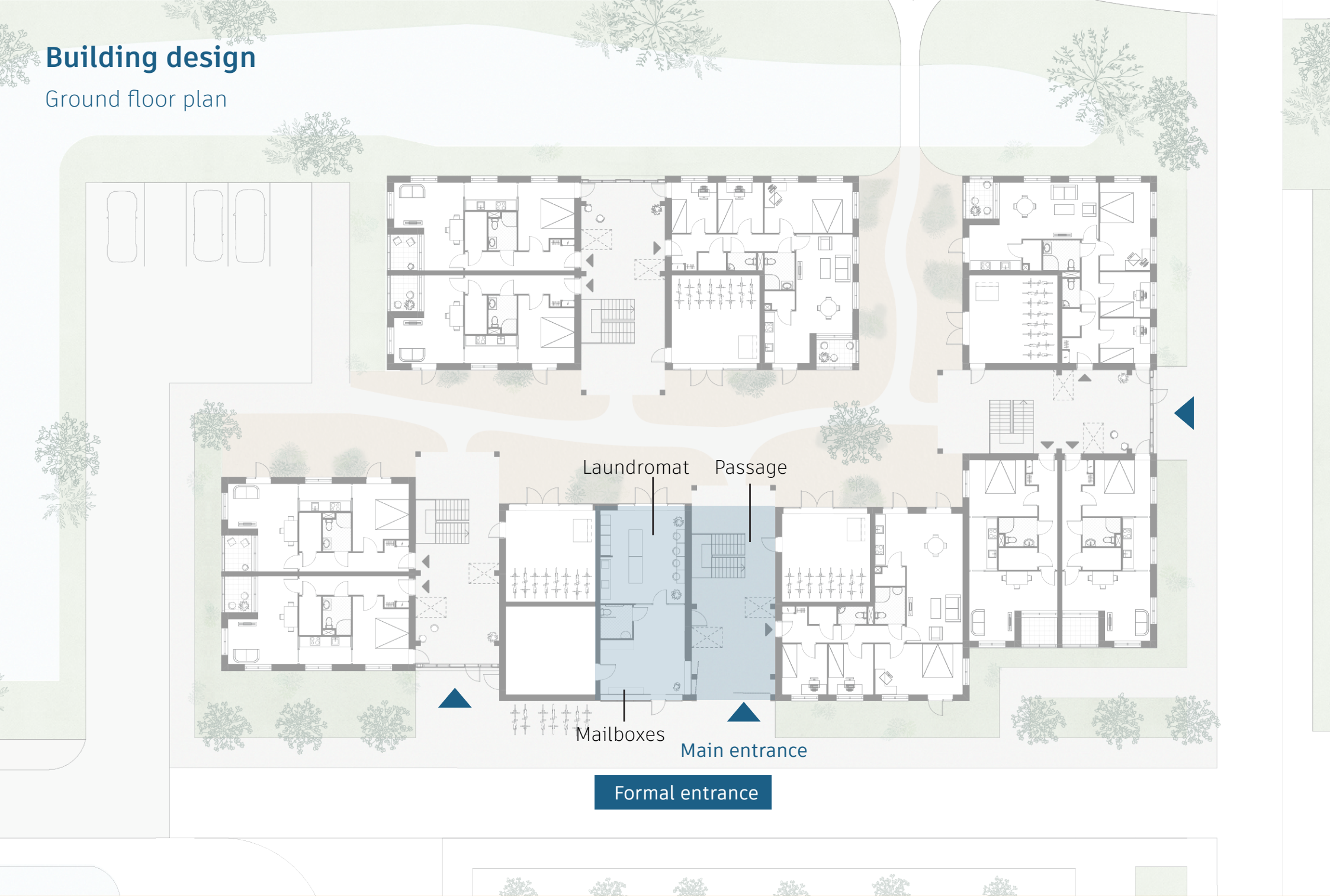
Building design

Ground floor plan



Building design

Ground floor plan





Building design

Axonometric

Building design

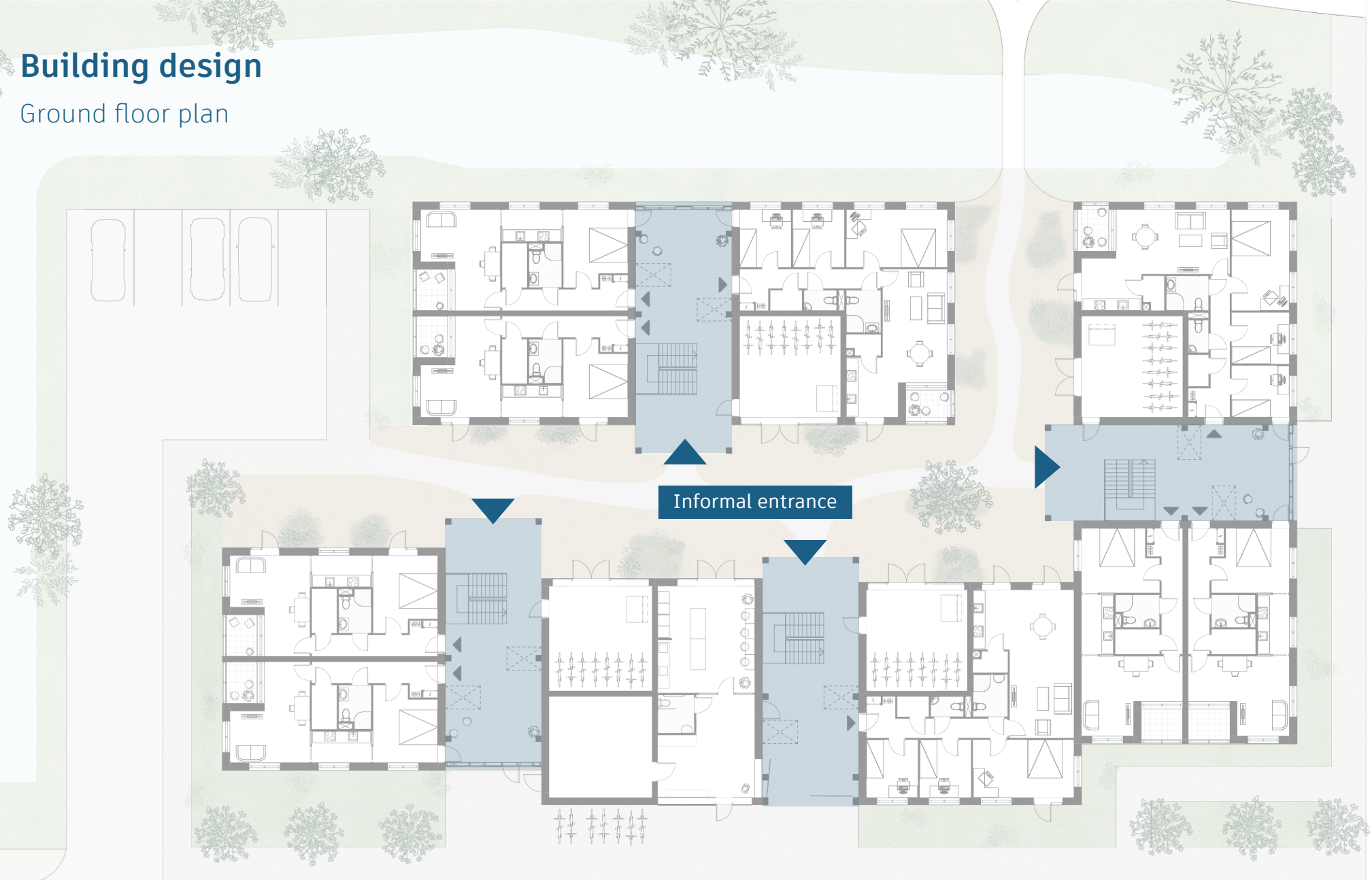
Ground floor plan

Pedestrian bridge —

Informal public space

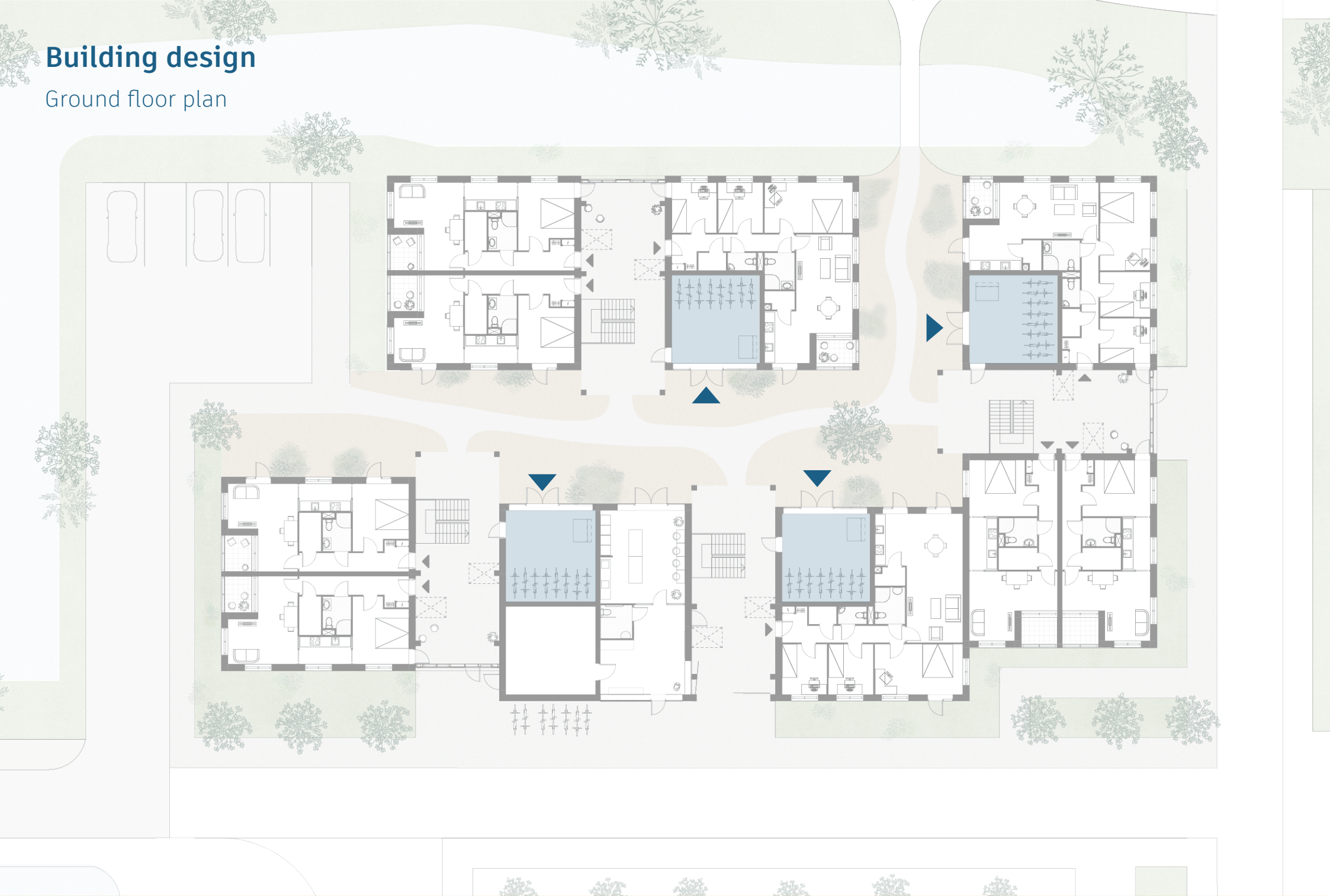
Building design

Ground floor plan



Building design

Ground floor plan



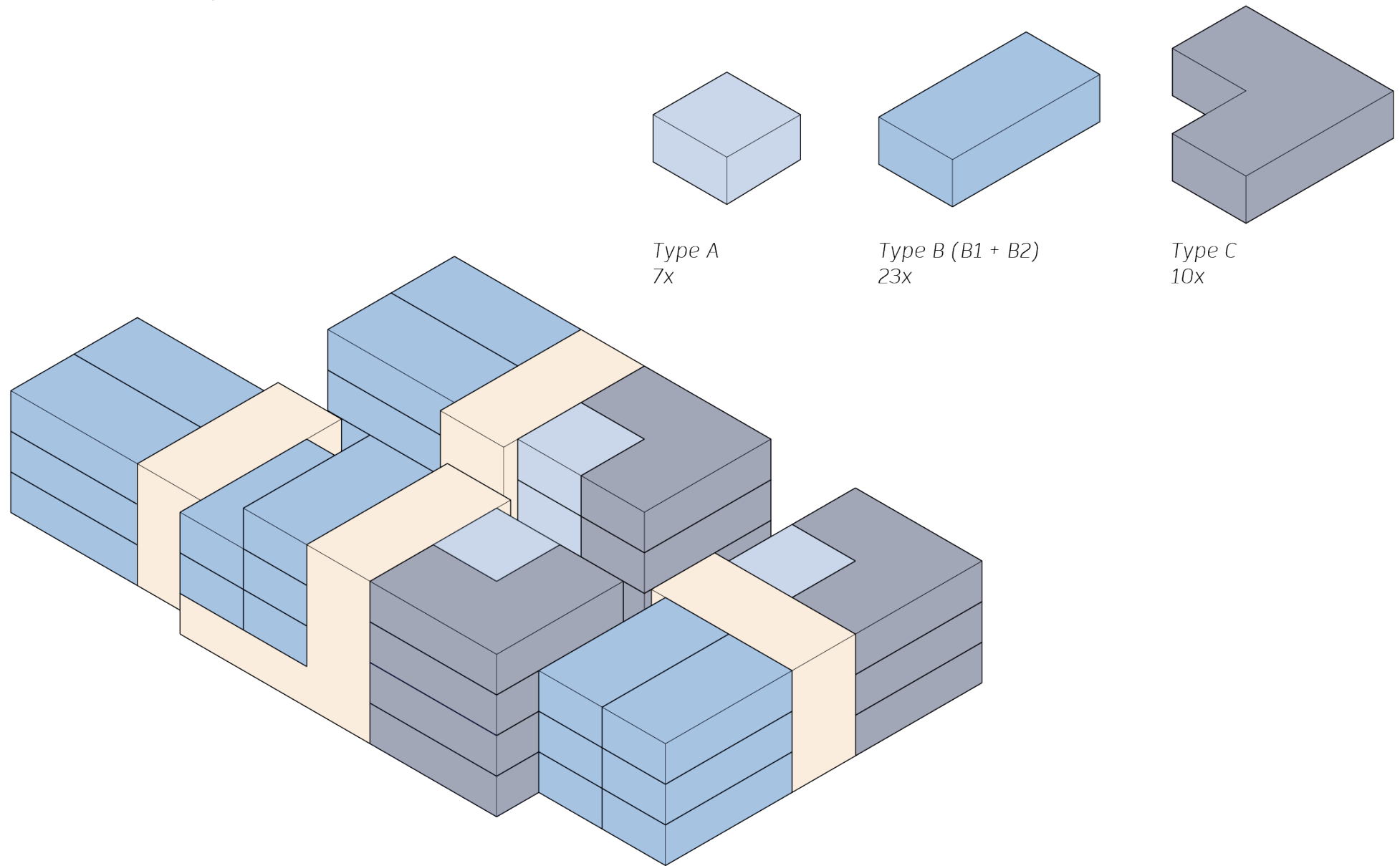
Building design

'Courtyard' | Impression



Building design

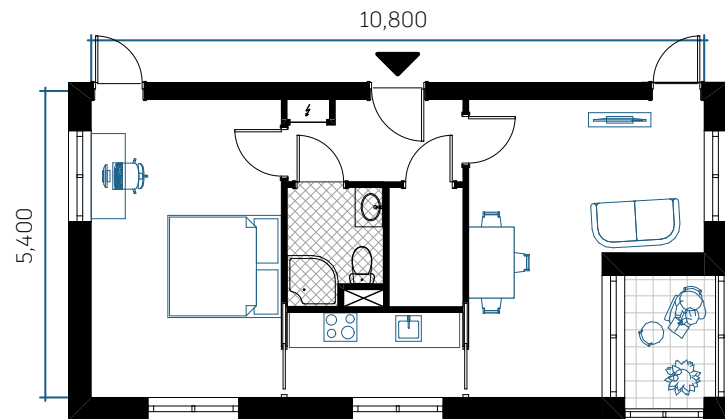
Dispersion of housing units



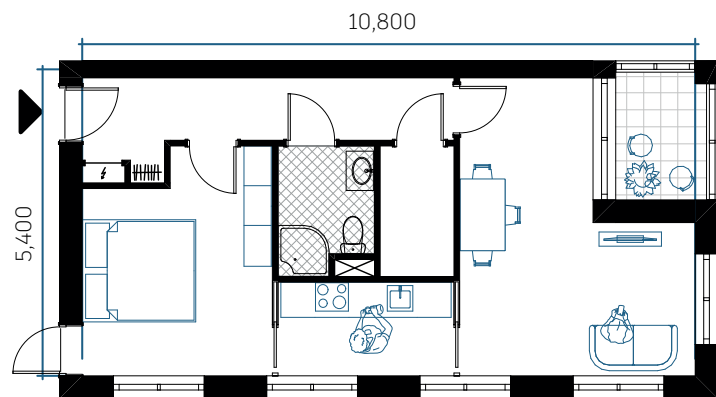
Building design

Housing types

Type B
~ 58 m² GFA
Apartment | 1-2 People

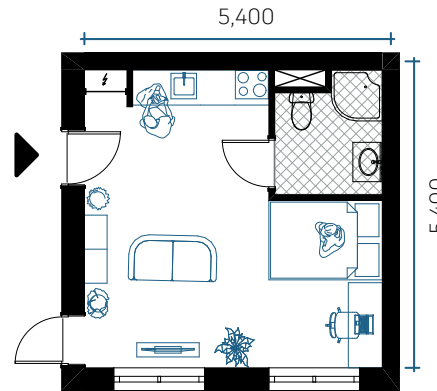


Type B1

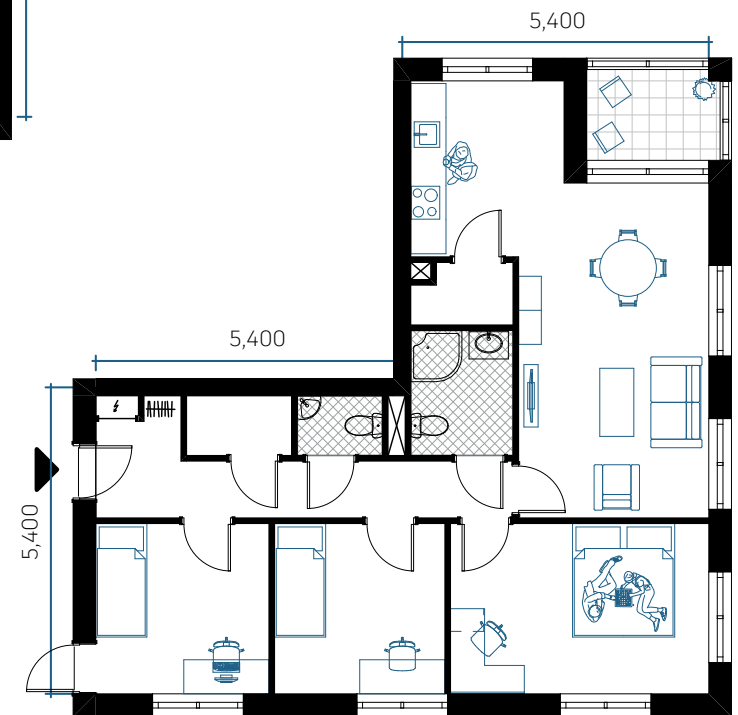


Type B2

Type A
~ 29 m² GFA
Studio | 1 Person

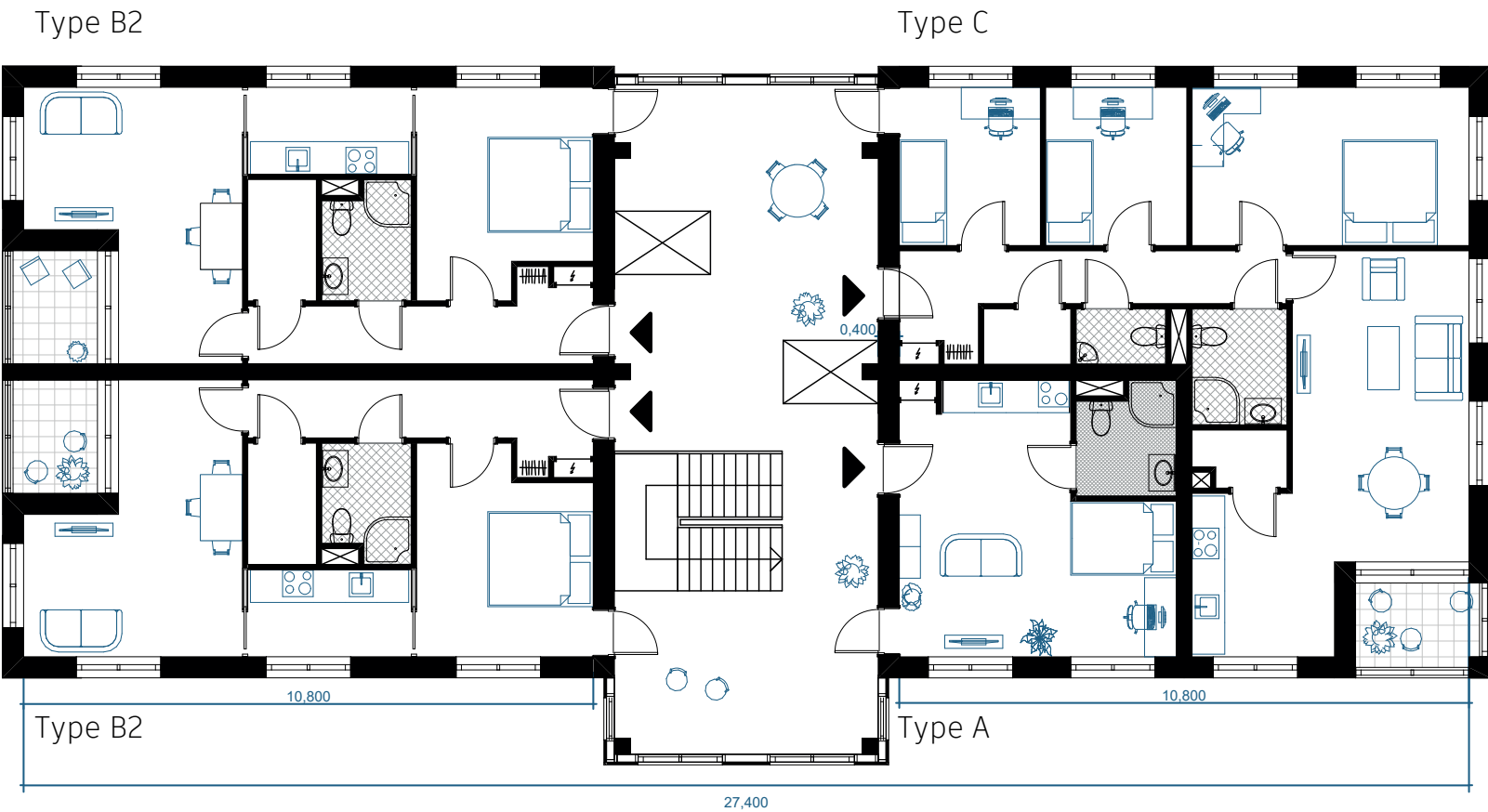


Type C
~ 87 m² GFA
Apartment | 2-4 People



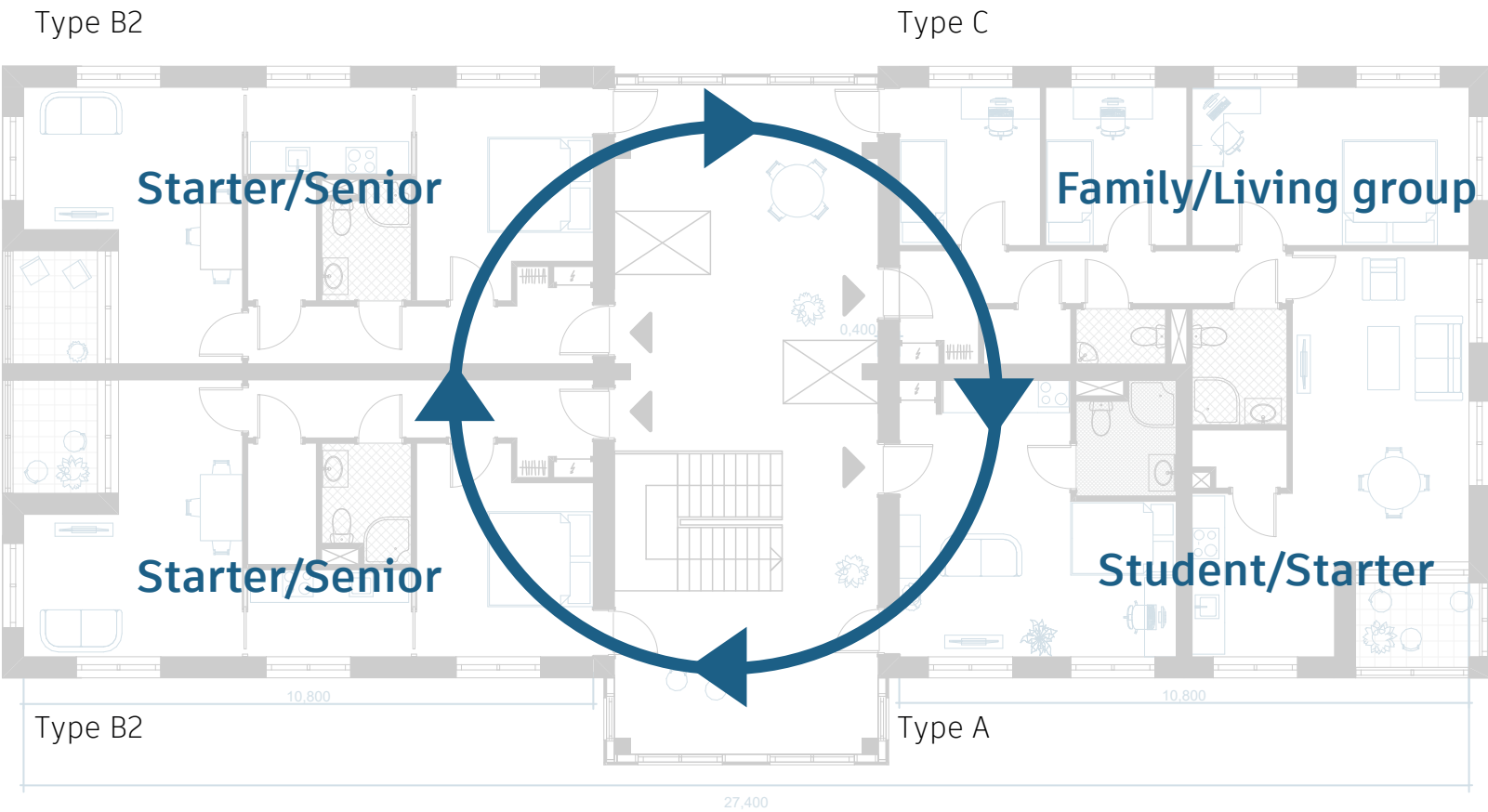
Building design

Portico



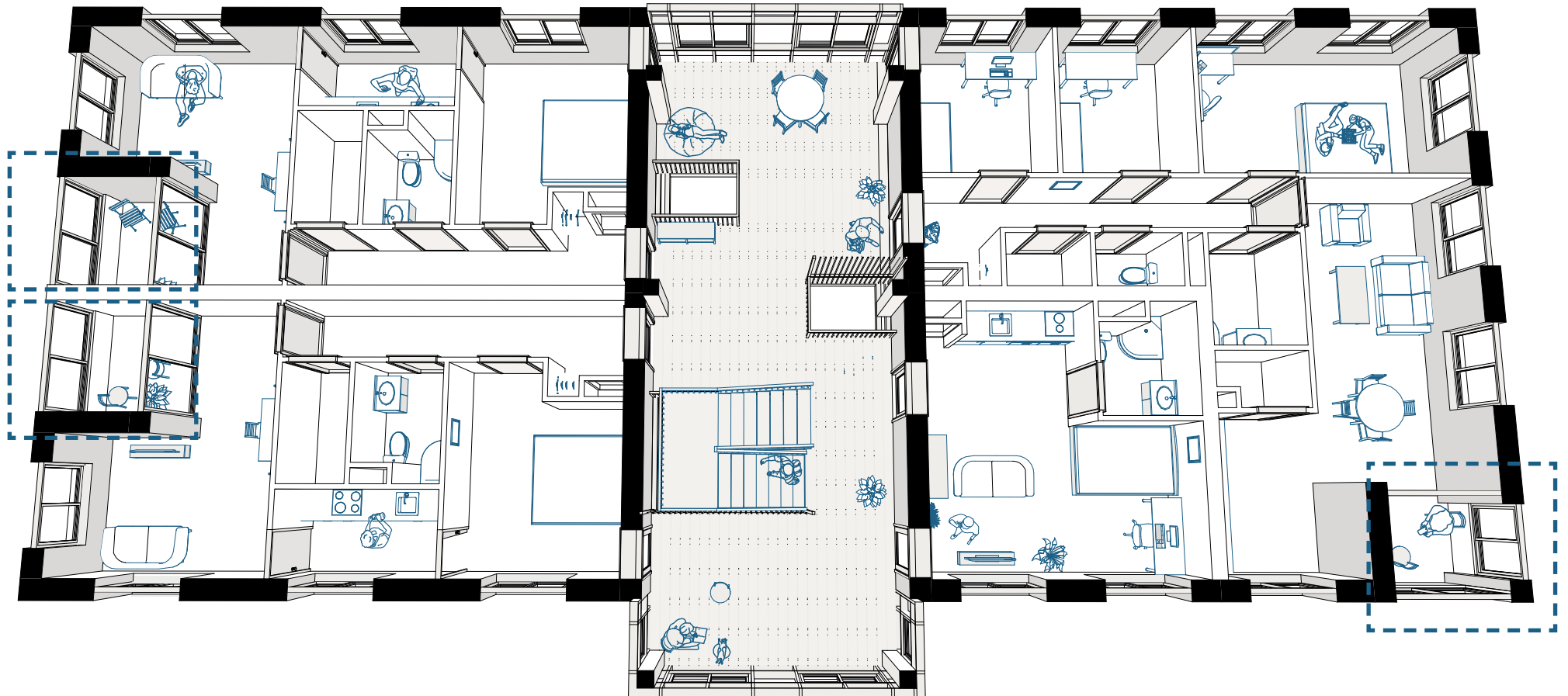
Building design

Portico | Housing diversification principle



Building design

Portico | Private exterior space



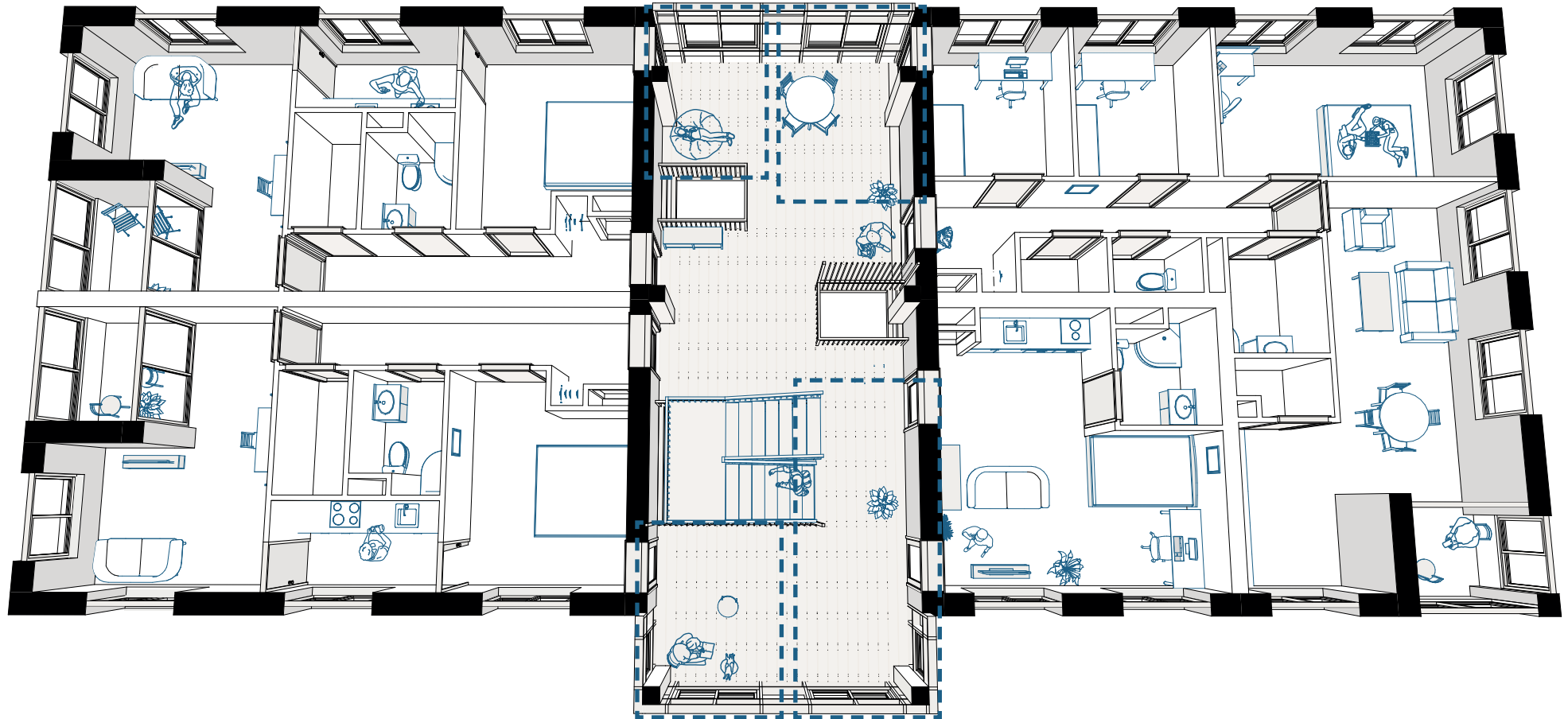
Building design

Loggia | Impression



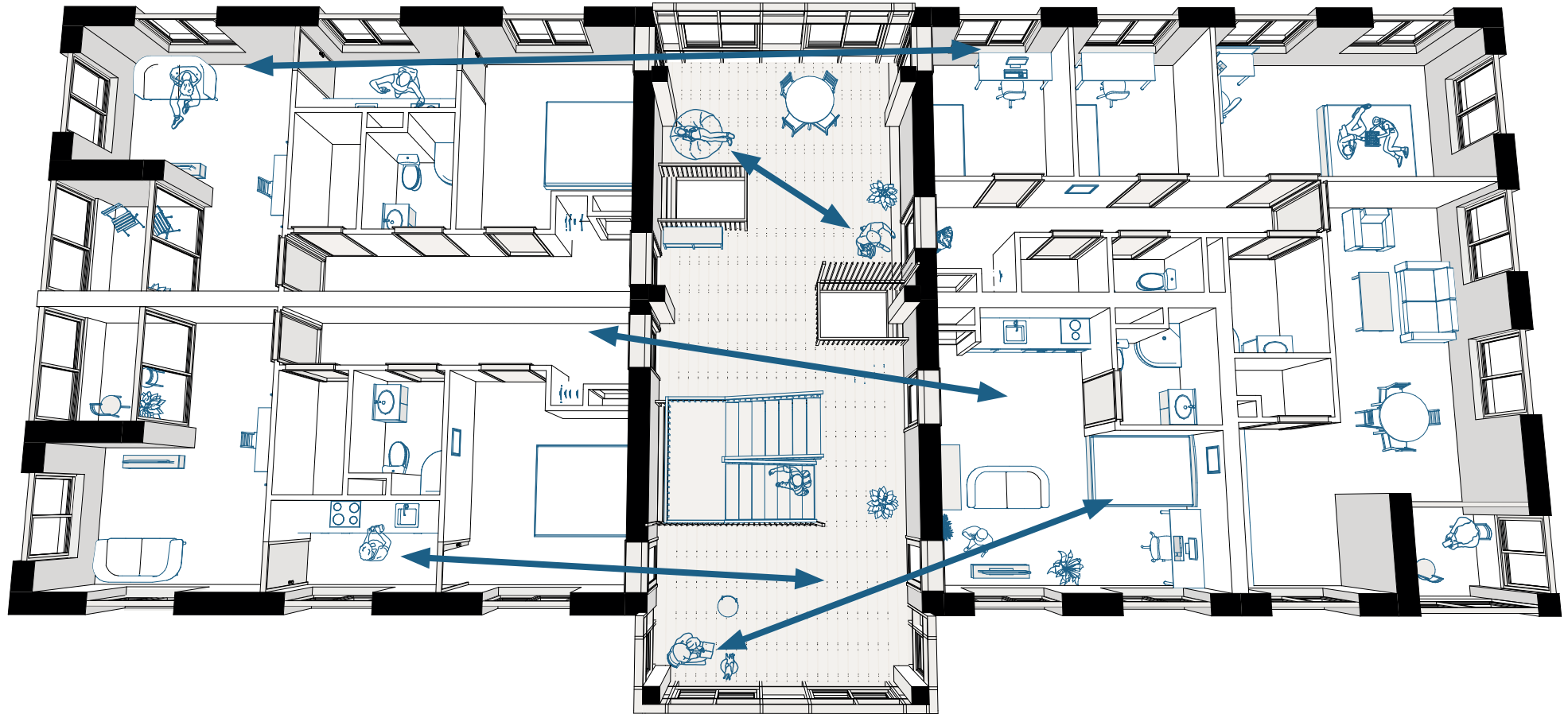
Building design

Multifunctional circulation space



Building design

Portico | Potential to visual connections



Building design

Portico | Impression



Building technology

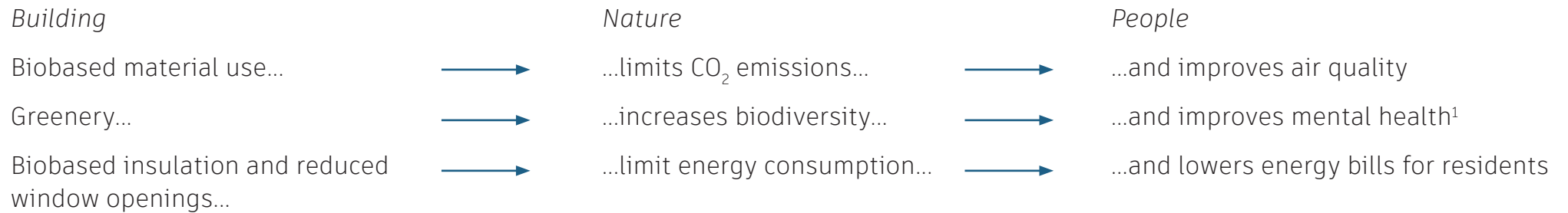


Materialization, detailing,
climatic conditions

Building technology

Position and ambition

Building, Nature and People are interconnected



¹Wang et al., 2019

Building technology

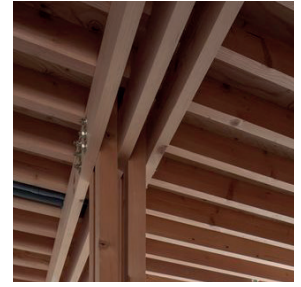
Structural diagram



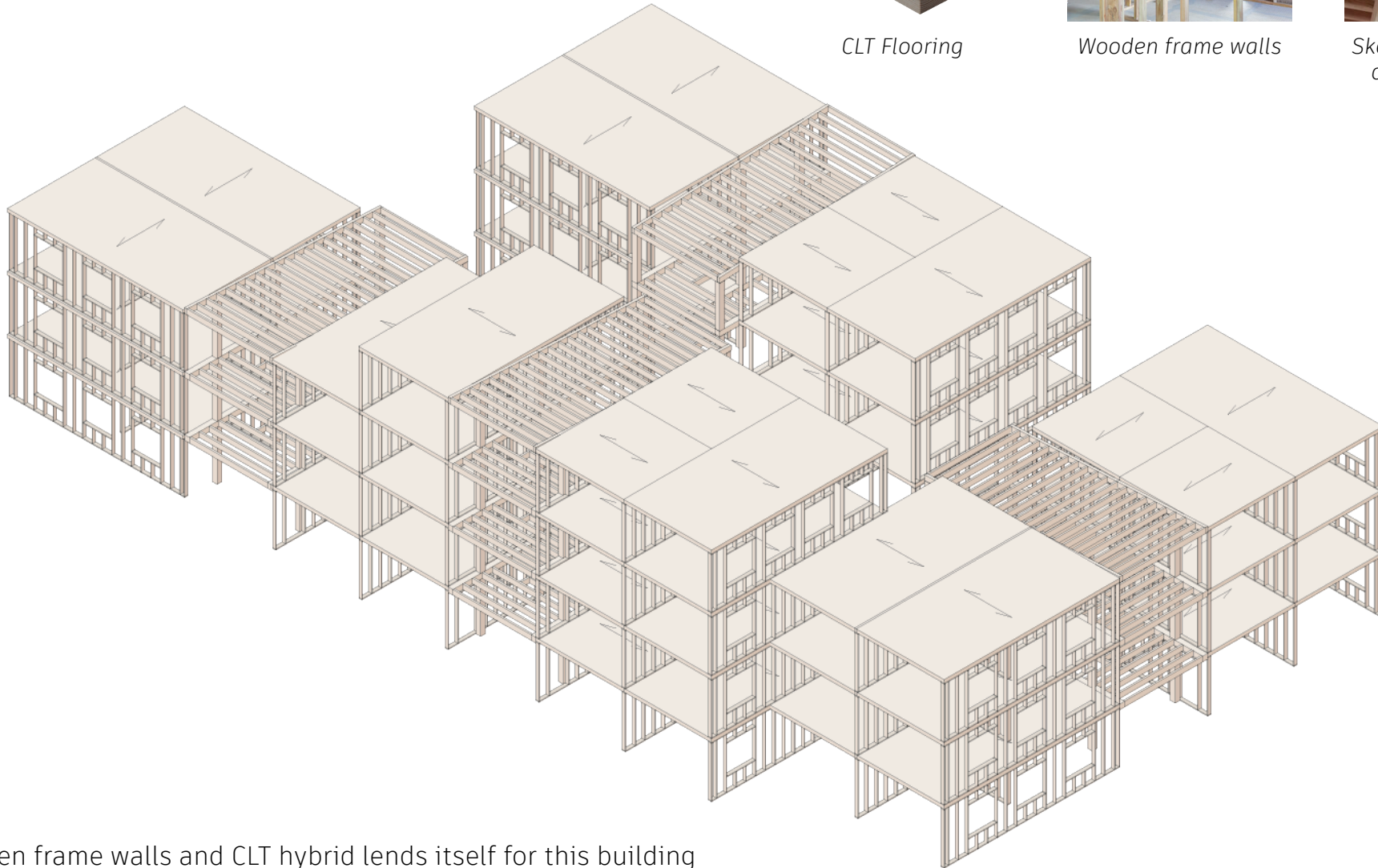
CLT Flooring



Wooden frame walls



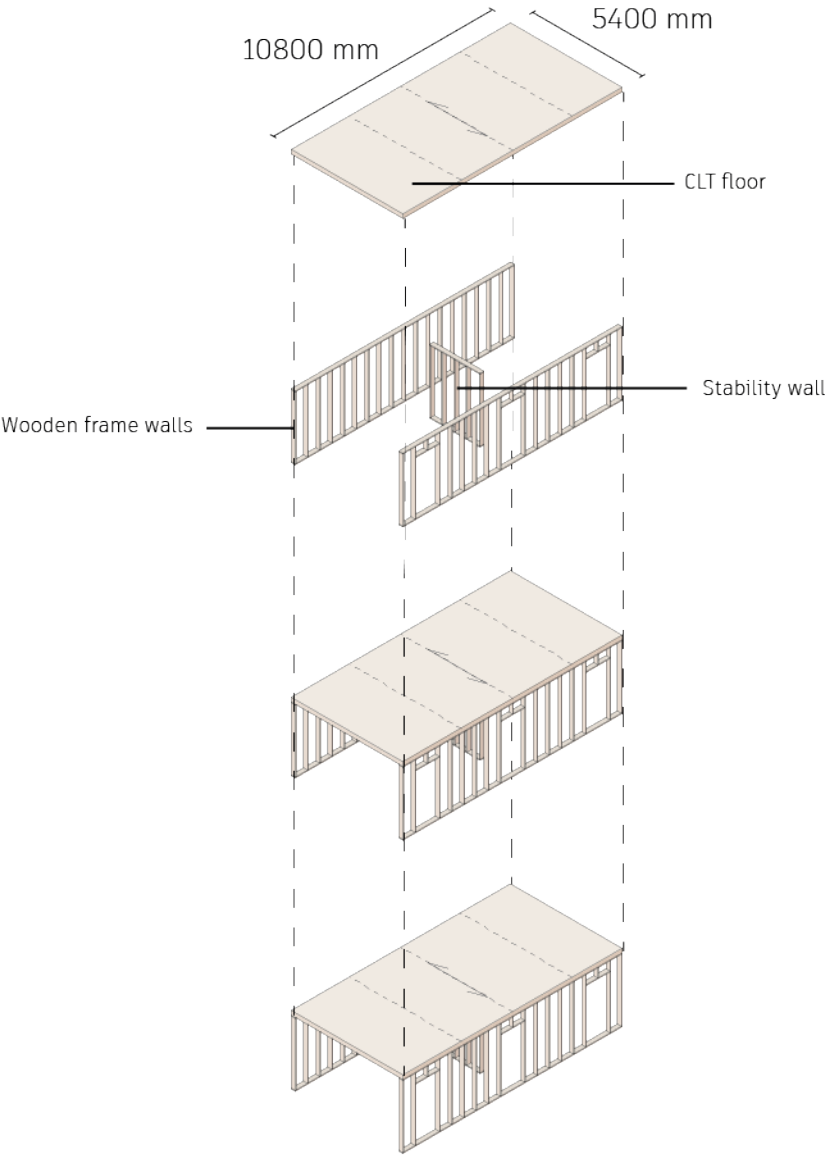
Skeleton structure in circulation space



- Wooden frame walls and CLT hybrid lends itself for this building
- Wooden skeleton structure opens up circulation space

Building technology

Structural diagram



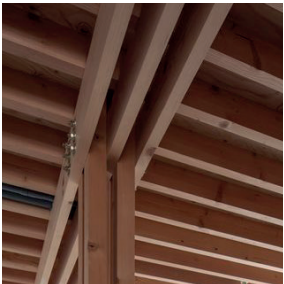
Dwelling (type B example)



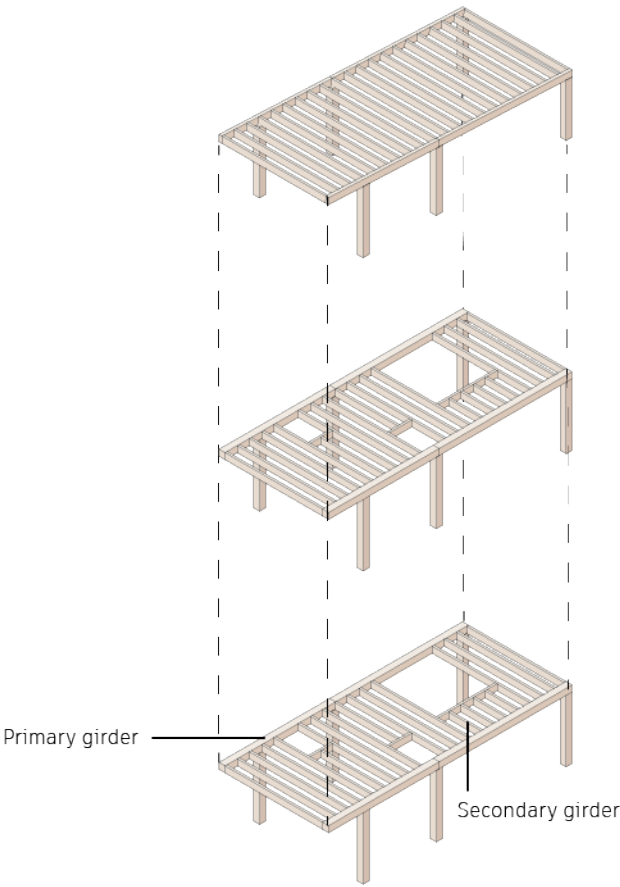
CLT Flooring



Wooden frame walls



Skeleton structure in circulation space



Circulation space

Building technology

Fragment

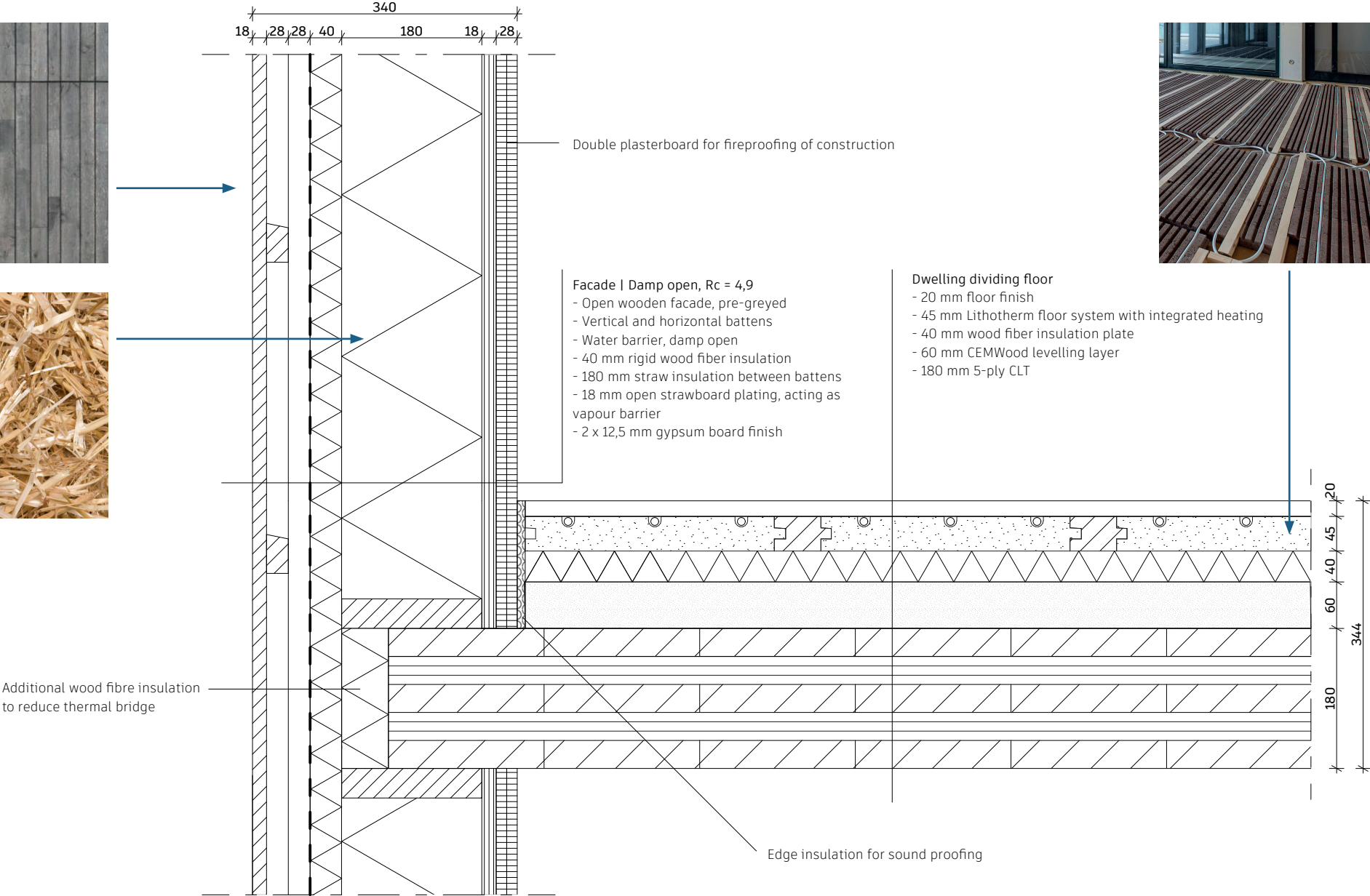
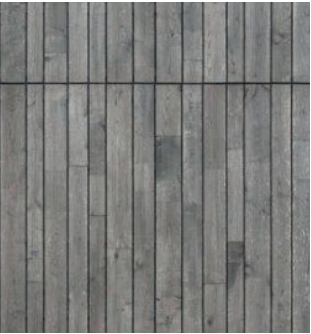
Facade

- Biobased construction
- Double facade elements for winter gardens
- Relatively small window openings for temperature control
- Reduced facade thickness



Building technology

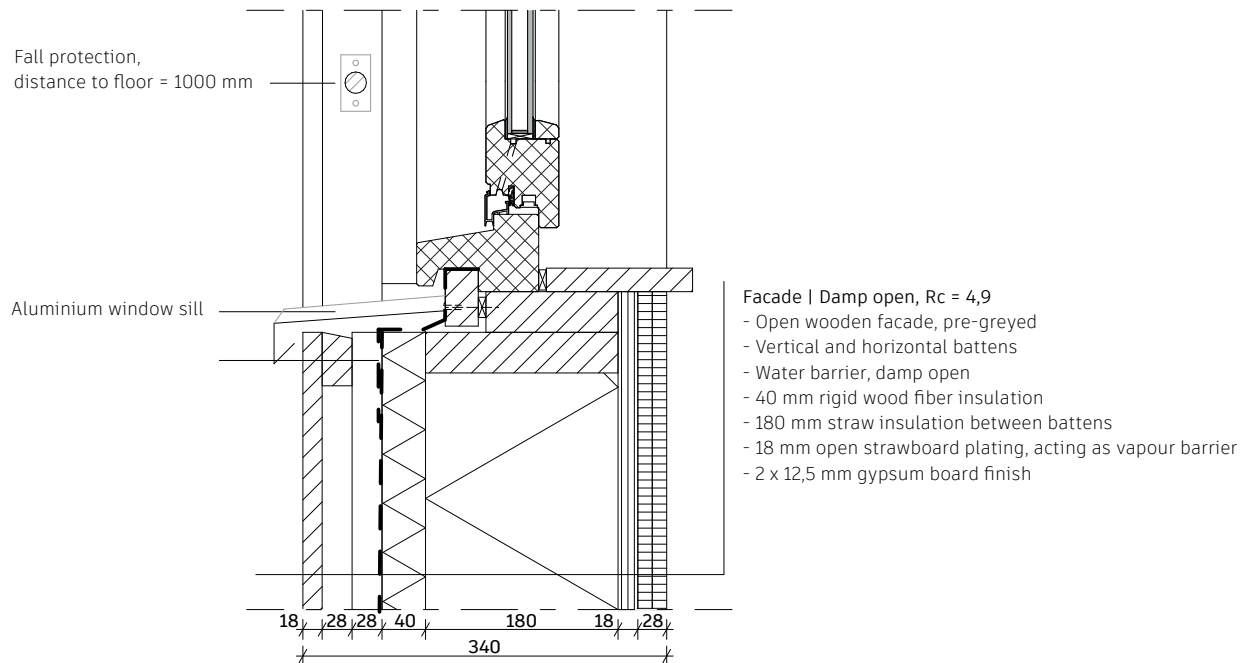
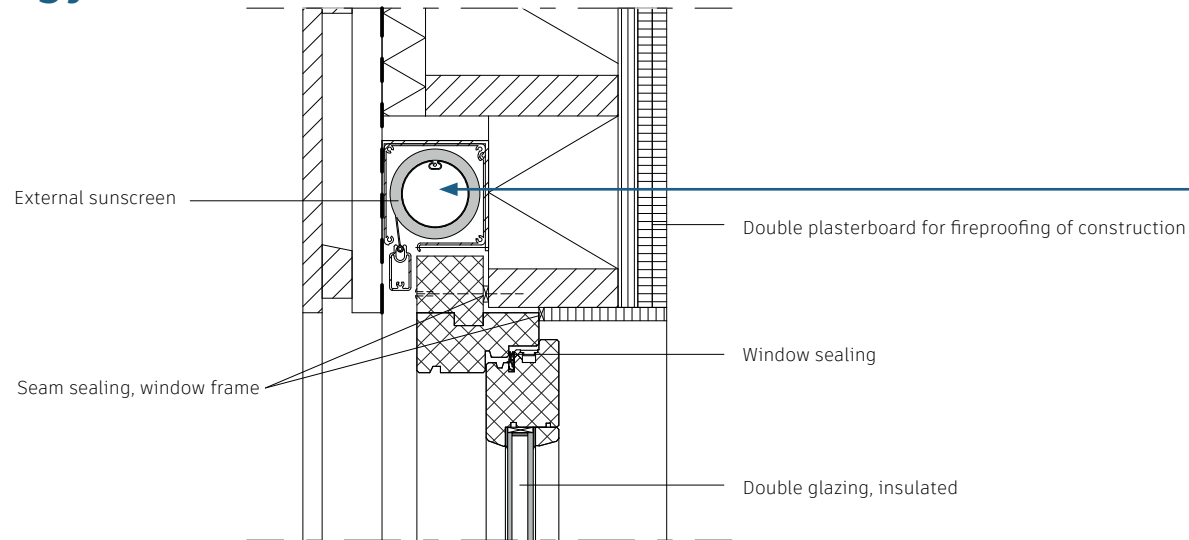
Detail | Dwelling dividing floor



Building technology

Detail | Window

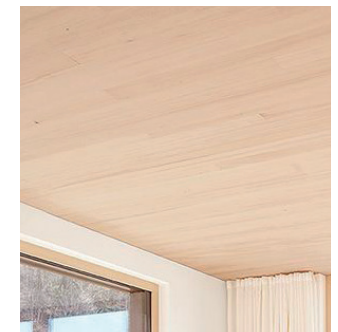
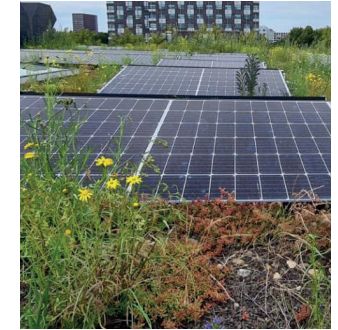
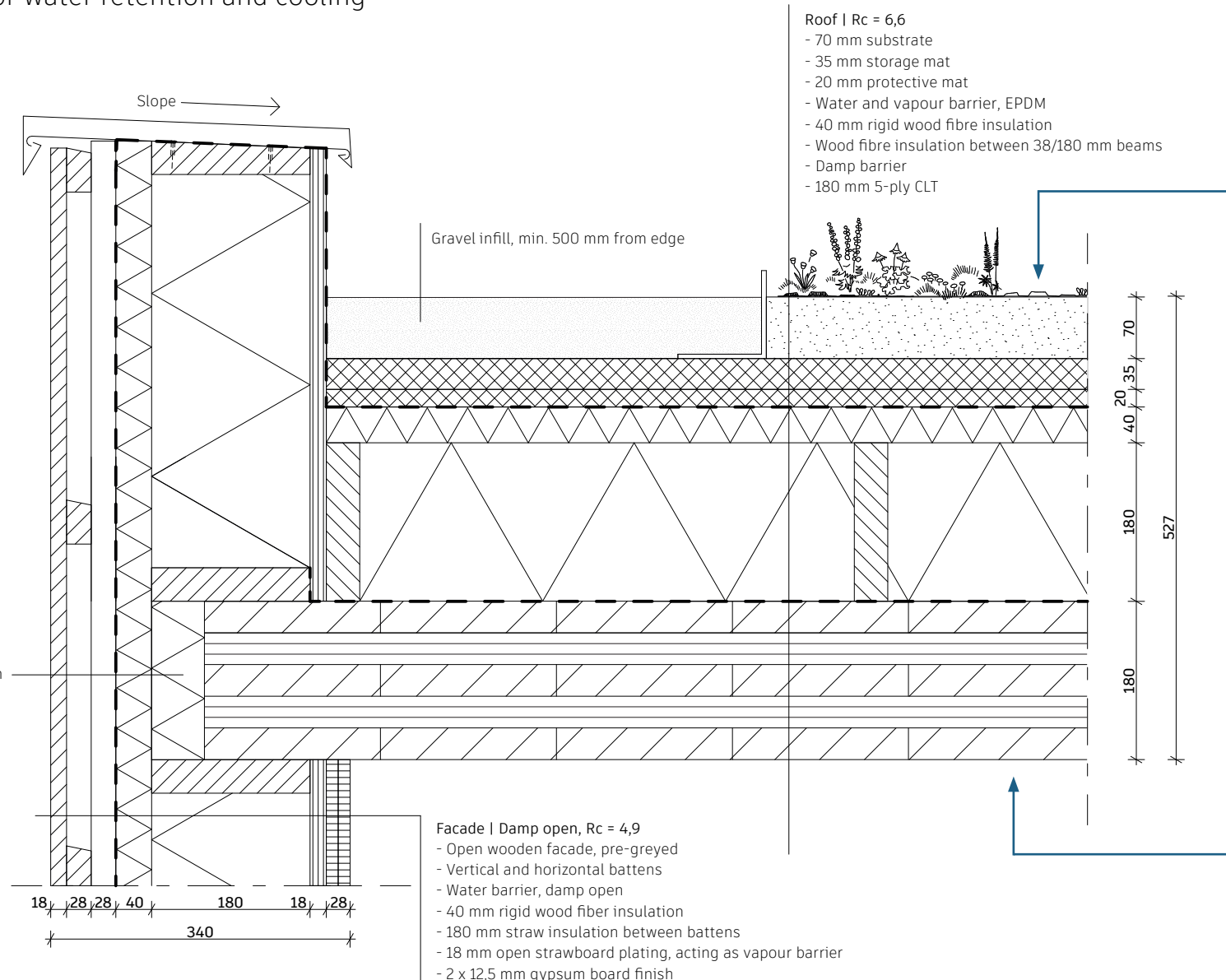
- Double glazed
- External sunscreens
- Limited opening



Building technology

Detail | Roof

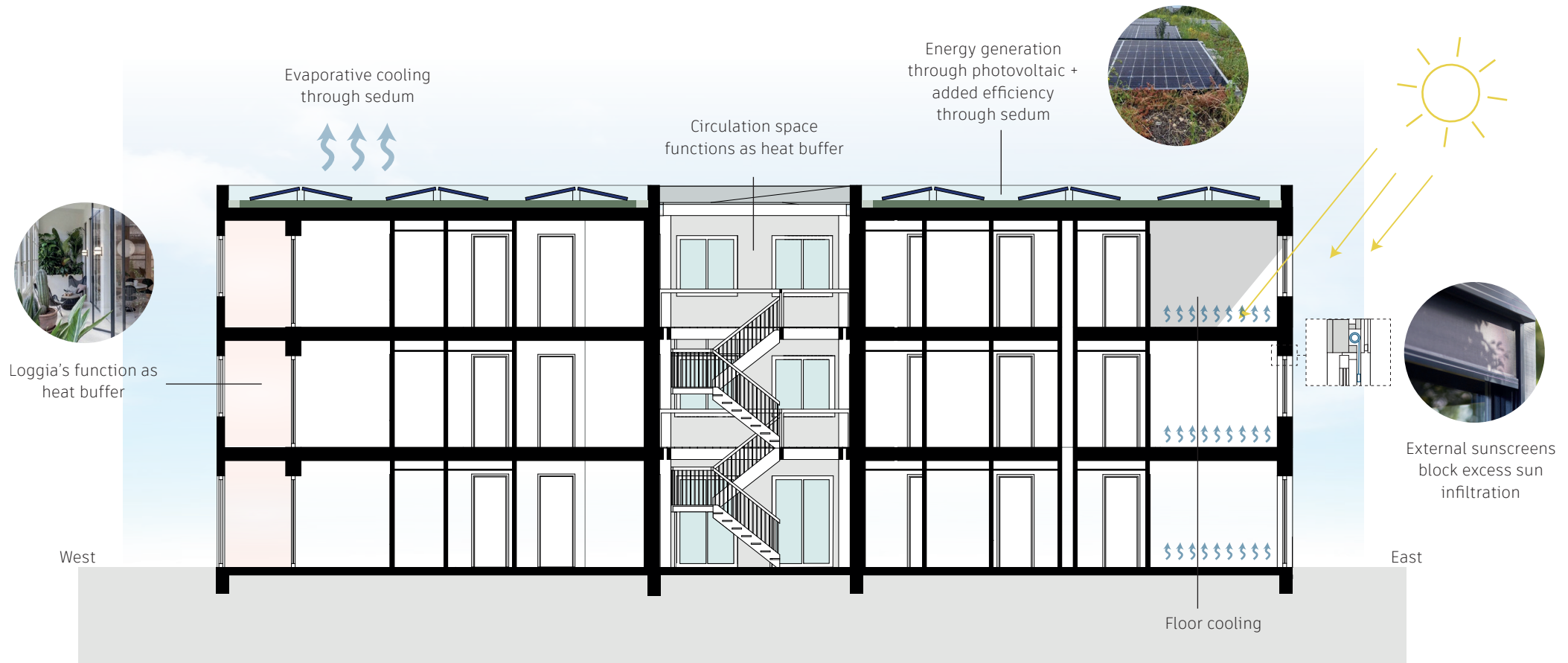
- Sedum roof for water retention and cooling



Building technology

Climate | Summer

- Evaporative cooling
- Floor cooling and mechanical ventilation
- Heat buffer



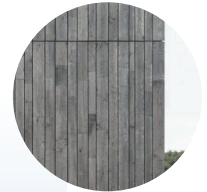
Building technology

Climate | Winter

- Dampopen system
- Floor heating
- Mechanical ventilation
- Heat pumps and PV
- Winter gardens



Roof
Sedum finish
Wood fibre insulation
between battens
CLT carrying structure in sight
 $R_c > 6,6$

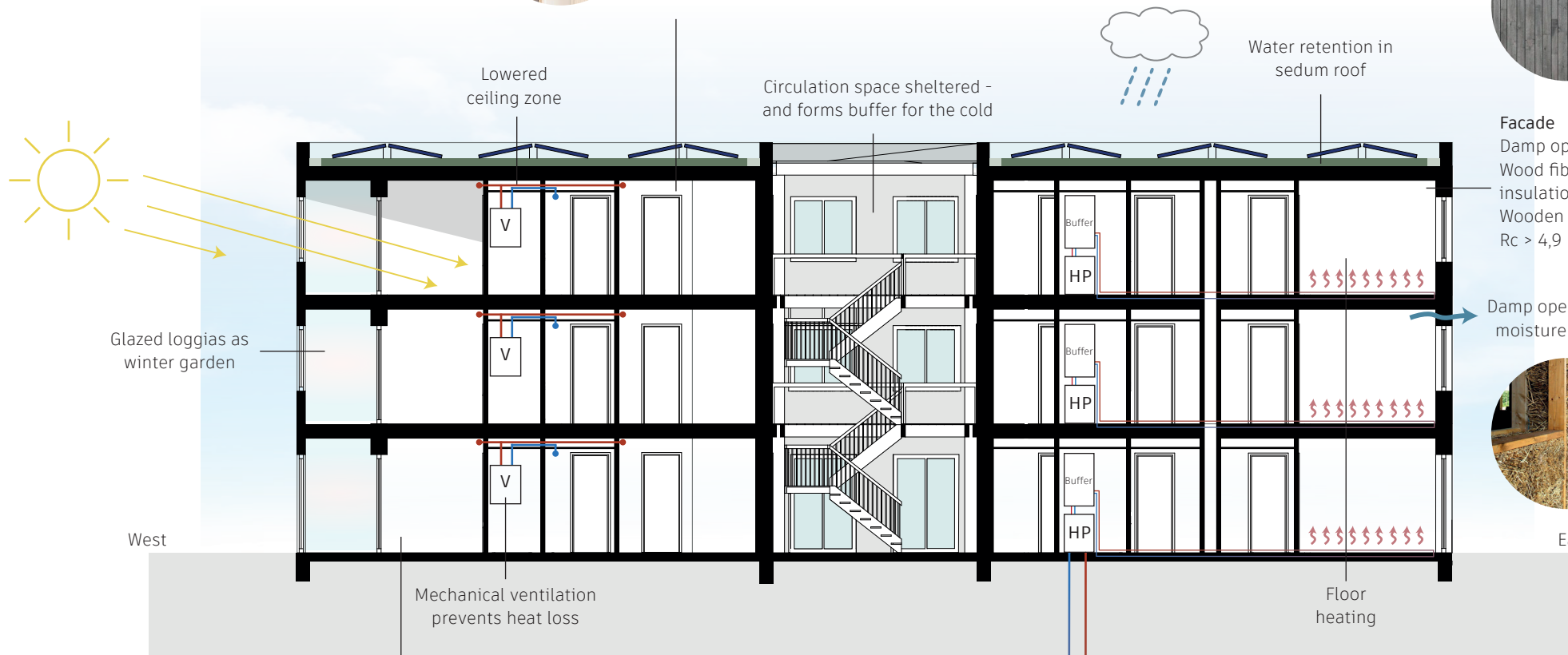


Facade
Damp open
Wood fibre and straw
insulation
Wooden cladding
 $R_c > 4,9$

Damp open facade for
moisture regulation



East



Floor
Lithotherm finish
Geopolymer concrete in situ
Underlying insulation
 $R_c > 4$

IV Conclusion

Conclusion

- A double crisis in the Netherlands: housing and loneliness
- Cohousing is upcoming, but underexplored
- A design was made for a speculative cohousing project, a management cooperative, in Tanthof, Delft
- The design has sought to explore new living configurations, that foster more inclusive and socially cohesive living environments
- Simultaneously, sustainable building methods hope to positively contribute to creating healthy and affordable living environments to further stimulate social inclusion and cohesion



An architectural rendering of a modern courtyard between two multi-story buildings with grey vertical-slat facades. The scene is populated with white silhouettes of people: a family (adult and child) walking in the foreground, a person walking a dog, a person standing near a red bicycle, and a person sitting at a small outdoor table. The courtyard features a paved path, small trees, and various plants. The text "Thank you" is centered in the upper half of the image.

Thank you

Building design

Elevations and sections

West - East



South - North



West - East



North - South



