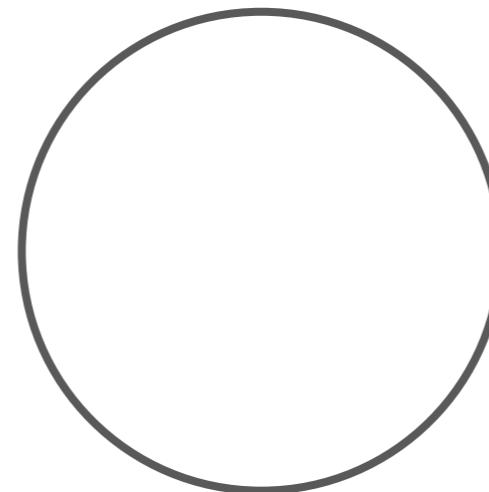
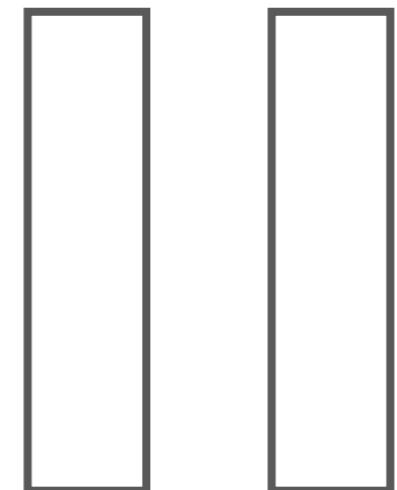
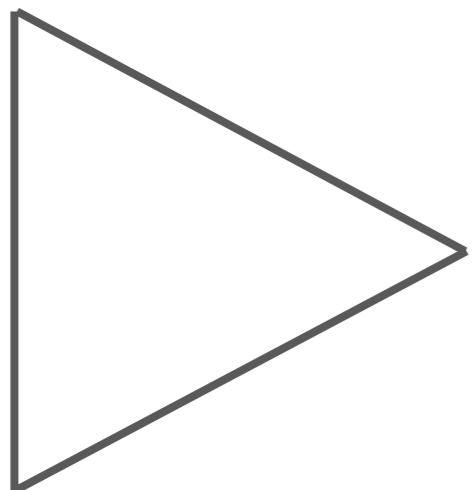


TRANSIT VILLAGE

Creating Space for Transition



Arnhem.



Planning area.

"Rail Junction East Arnhem"



One million homes shortage.



Region Arnhem-Nijmegen.

New neighborhoods.



Planning area = development location.



**Arnhem
City center.**

Blank space.

Rail Junction East Arnhem

5 min walk.

**How do you build
a neighborhood
from scratch?**



**How do you build
a neighborhood
from scratch?**

Variety of people and lifestyles.



Lifestyles change over time.

**How do you build
a neighborhood
from scratch?**



Traditional Building Techniques.



Glued.



Welded.



Cast.

Traditional Building Techniques.



Hard to reuse materials.



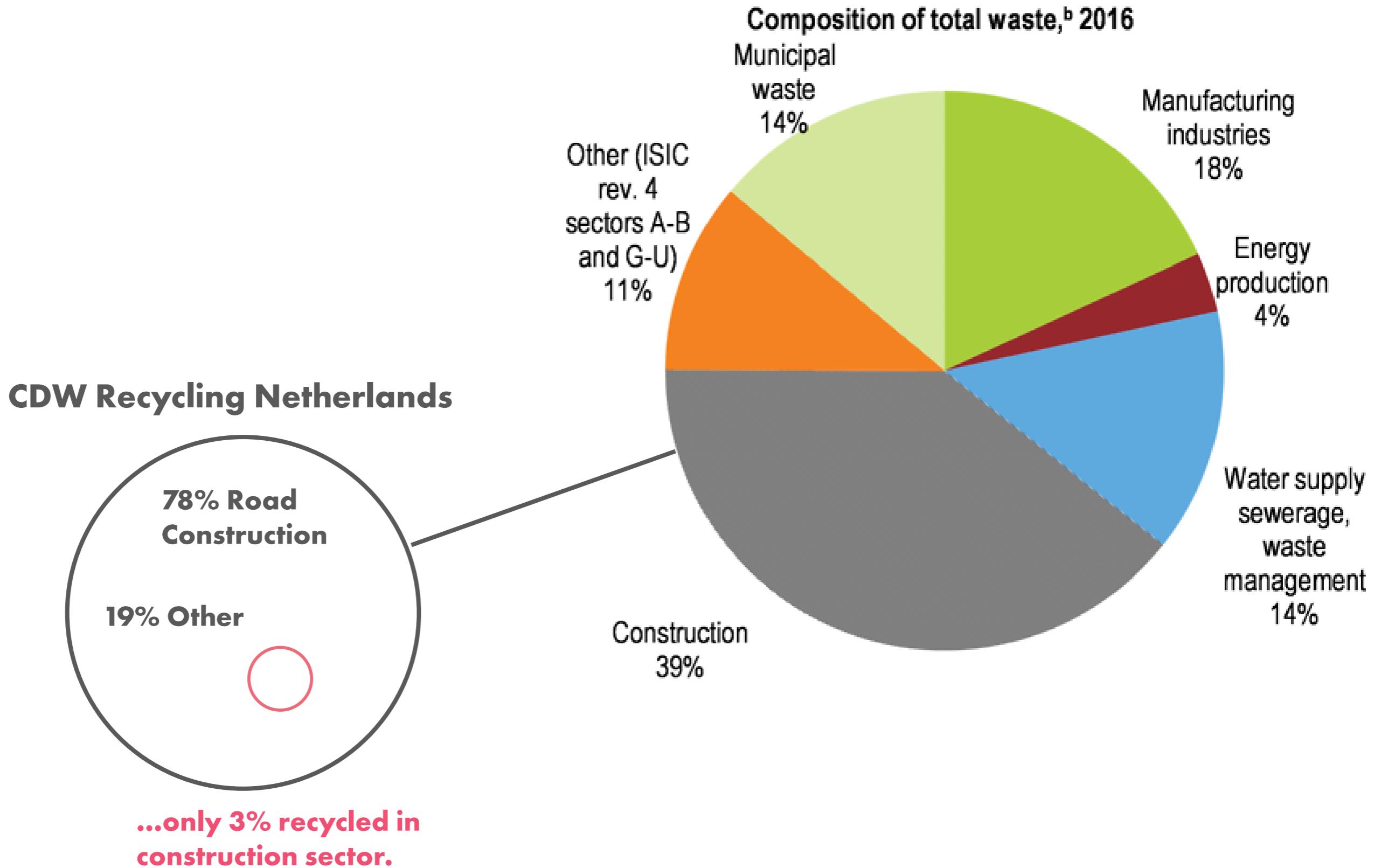
Hard to adjust apartments + buildings.



Construction and Demolition Waste!

Problem statement.

Construction and Demolition Waste!



Problem statement.

Construction and Demolition Waste!

Construction of 1M homes
=

Severe Construction +
Demolition Waste problem!

Problem statement.

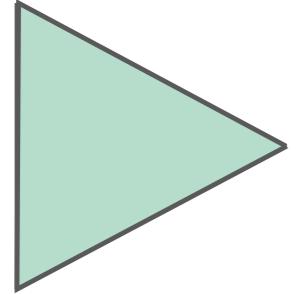
Construction and Demolition Waste!

Construction of 1M homes
Circular!
Demolition Waste problem!

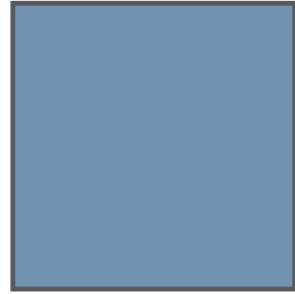
**How can I build
Transit Village in a
circular way?**

Circularity

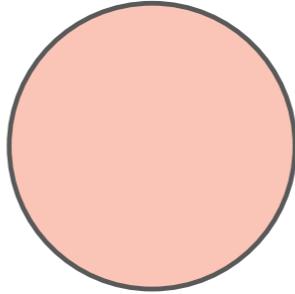
In Transit Village.



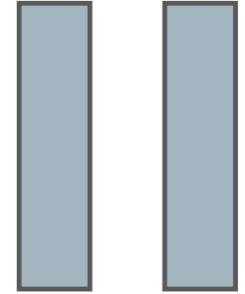
Materials.



Remountability.



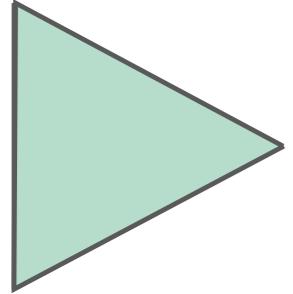
Happy City.



Process.

Circularity

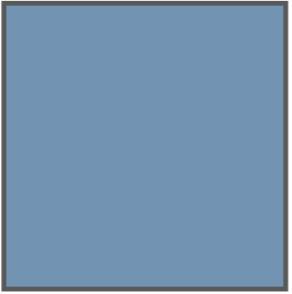
Reasoning.



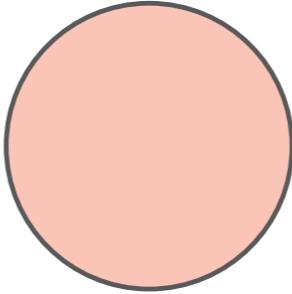
Materials.

Take better
choices.

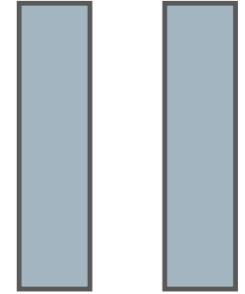
**Some materials
become waste per
definition.**



Remountability.



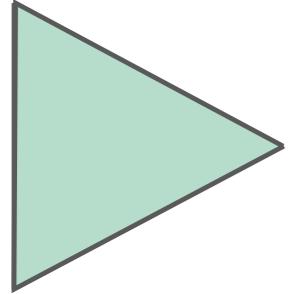
Happy City.



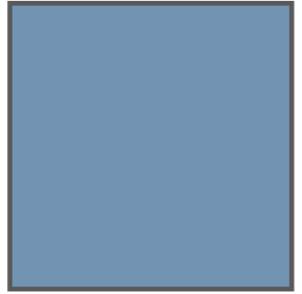
Process.

Circularity

Reasoning.

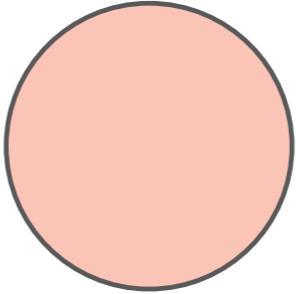


Materials.

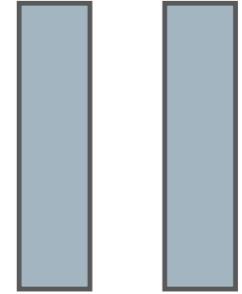


Remountability.

Design remountable.



Happy City.

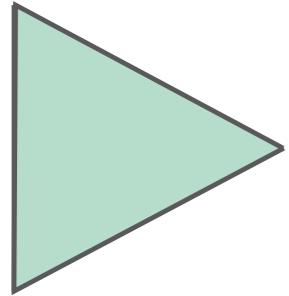


Process.

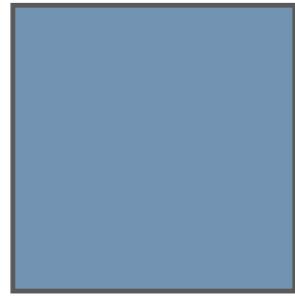
**Traditional building
techniques imply
demolition.**

Circularity

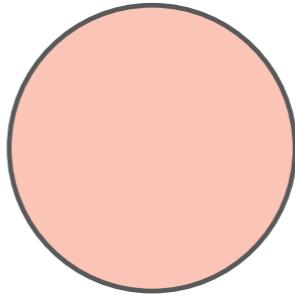
Reasoning.



Materials.

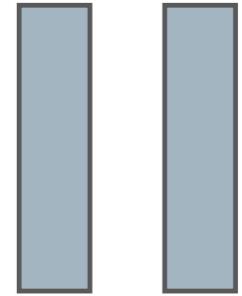


Remountability.



Happy City.

Create architecture
that is loved.

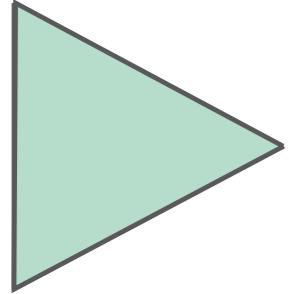


Process.

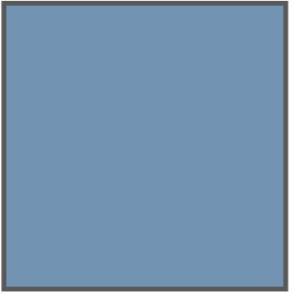
**Something that is
loved, lasts longer.**

Circularity

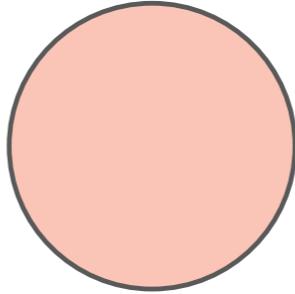
Reasoning.



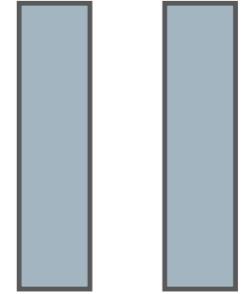
Materials.



Remountability.



Happy City.

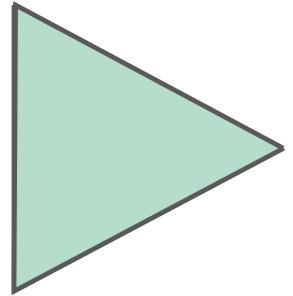


Process.

Create financial incentives for circular design.

Circular design is not compensated enough.

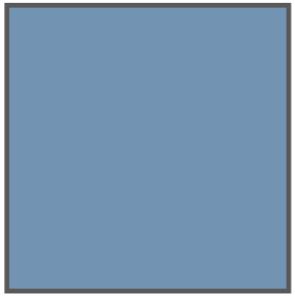
Circularity Strategies.



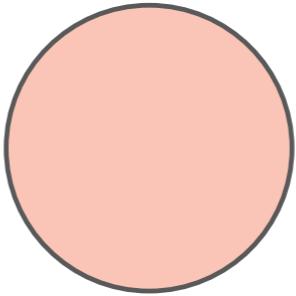
Materials.

Local resources.

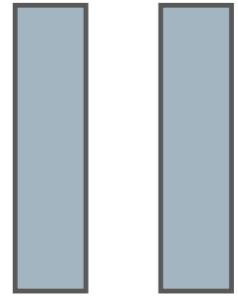
Reclaimed.
or
Biobased.



Remountability.

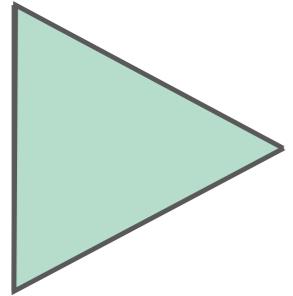


Happy City.



Process.

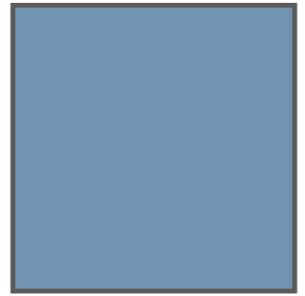
Circularity Strategies.



Materials.

Local sources.

Reclaimed.
or
Biobased.

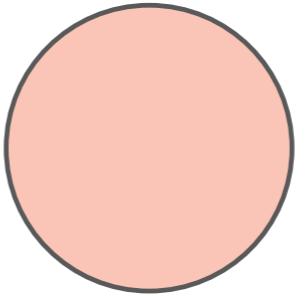


Remountability.

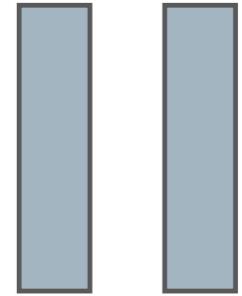
Prefabricated.

Modular.

Shearing layers.

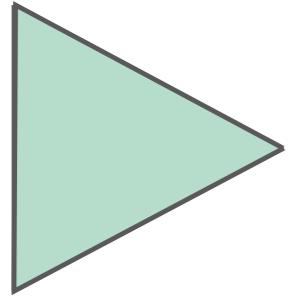


Happy City.



Process.

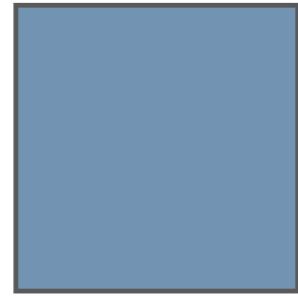
Circularity Strategies.



Materials.

Local sources.

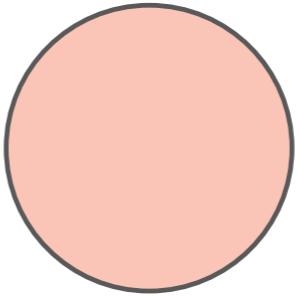
Reclaimed.
or
Biobased.



Remountability.

Prefabricated.

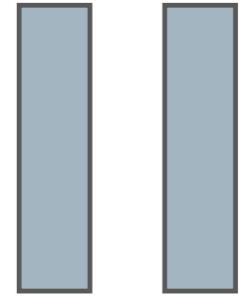
Modular.
Shearing layers.



Happy City.

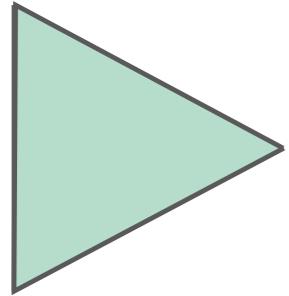
Interaction.

Walkable.
Nature inclusive.



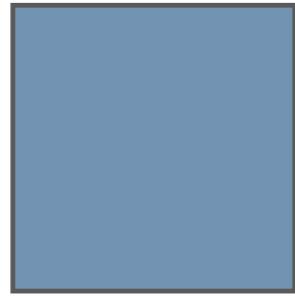
Process.

Circularity Strategies.



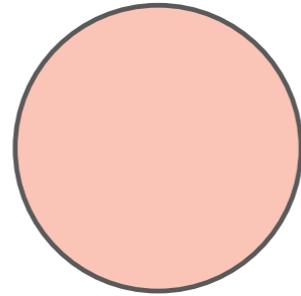
Materials.

Local sources.
Reclaimed.
or
Biobased.



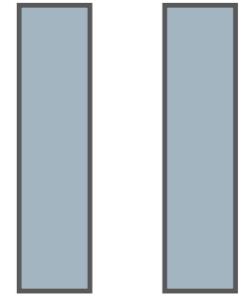
Remountability.

Prefabricated.
Modular.
Shearing layers.



Happy City.

Interaction.
Walkable.
Nature inclusive.



Process.

Maintenance contracts.
Material management.

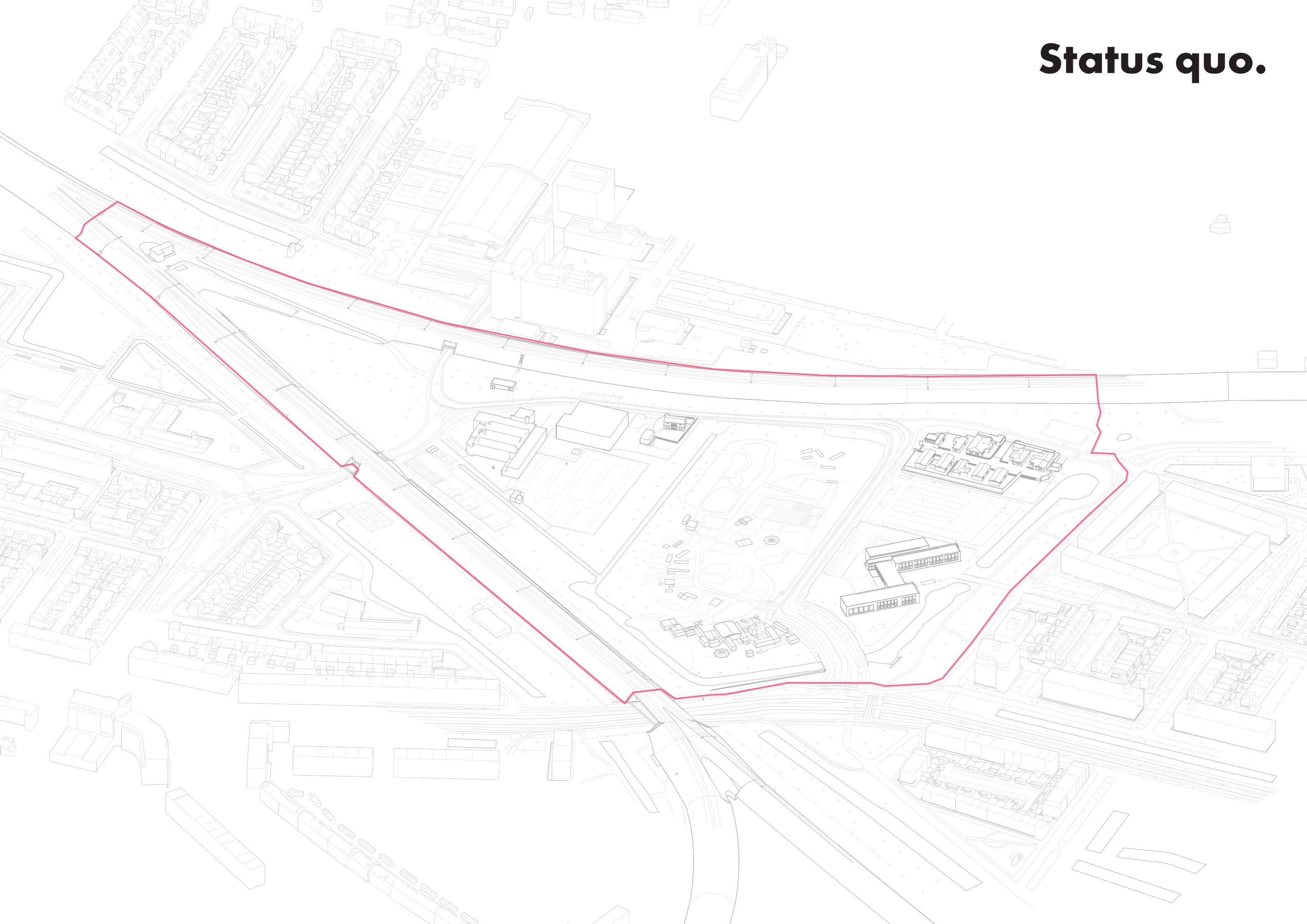
Content.

Introduction.

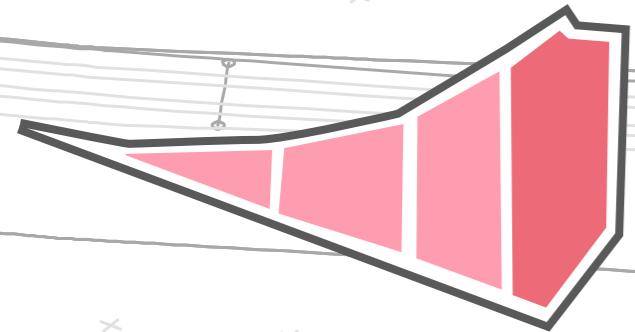
Problem Statement.

Objective.

Site.



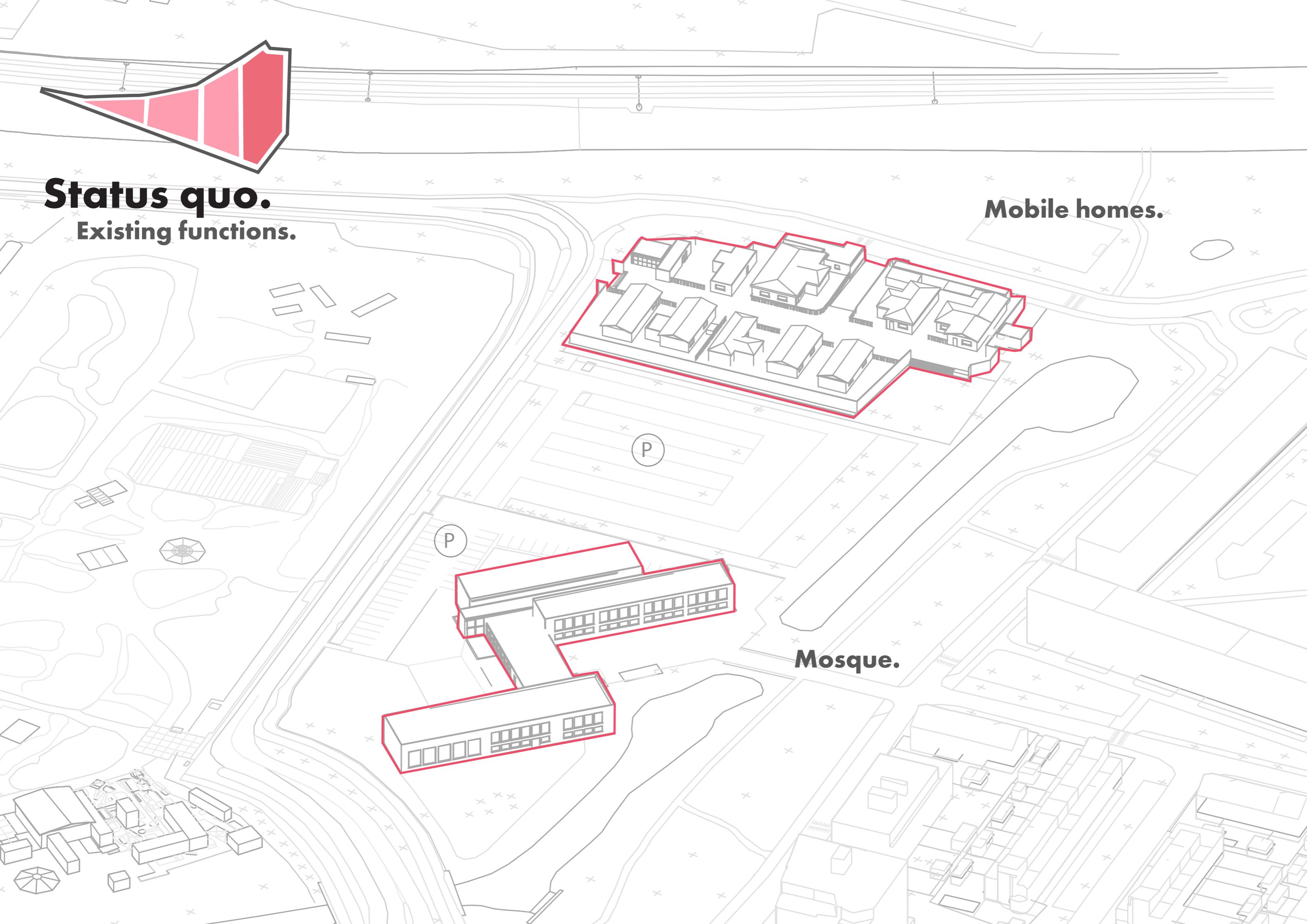
Status quo.

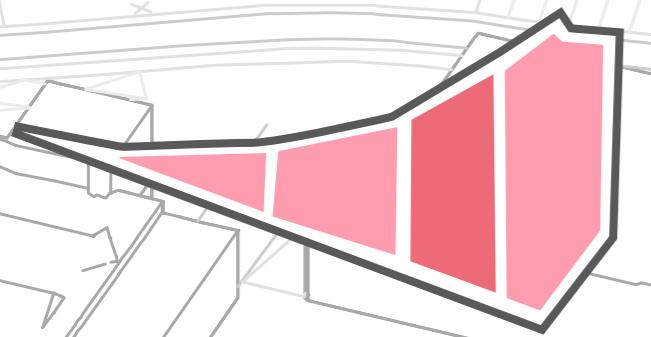


Status quo.
Existing functions.

Mobile homes.

Mosque.

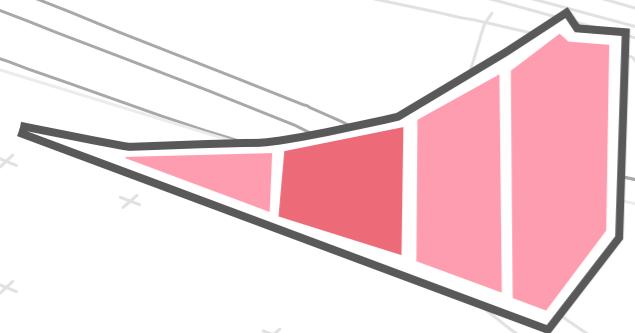




Status quo.
Existing functions.

Artist village.

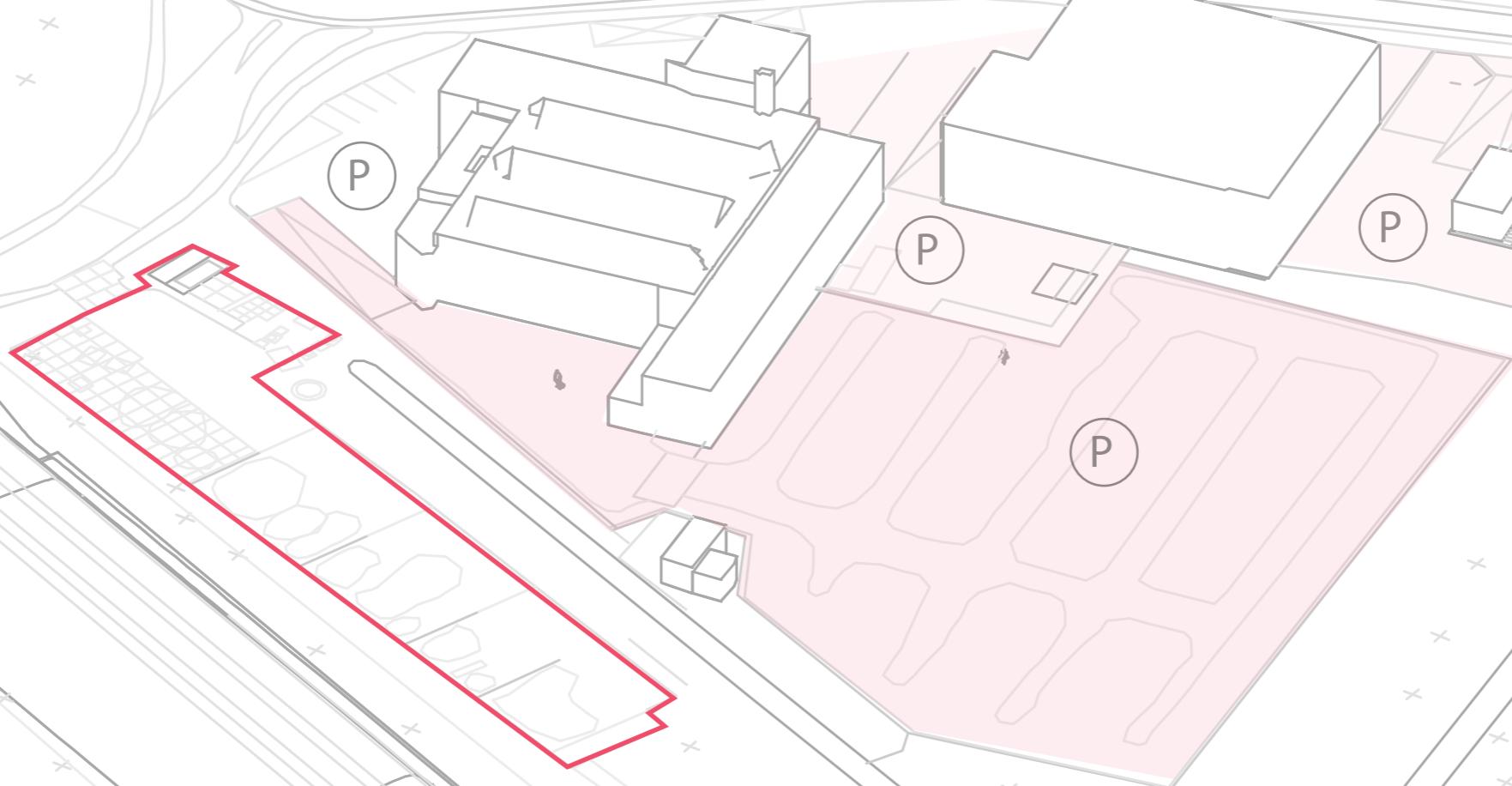
Horse range.

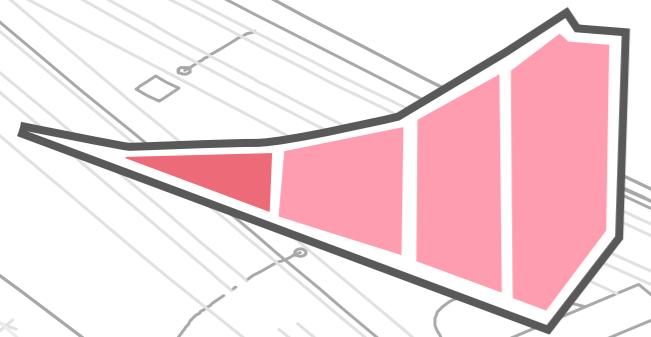


Status quo.
Existing functions.

Car dealer.

Rental offices.





Status quo.
Existing functions.

Empty grass patch.

Train noise.

Confined by
train tracks.

Utrecht
Amsterdam

Noise.

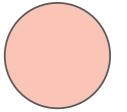
Duisburg
Düsseldorf

Zwolle
Groningen



Connectivity.
On site.

finished



Physical barriers.

Low accessibility.

**Segregation
in plots.**

Connectivity.

To surrounding areas.



Connective point.



City Center
Arnhem



Car centered.

Eastern
Residential
Districts

Water + Green.

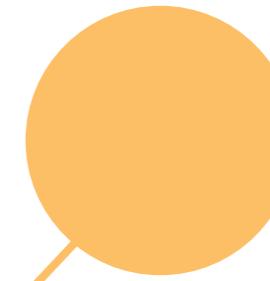
finished

**Inaccessible
green areas.**

Flooding areas.

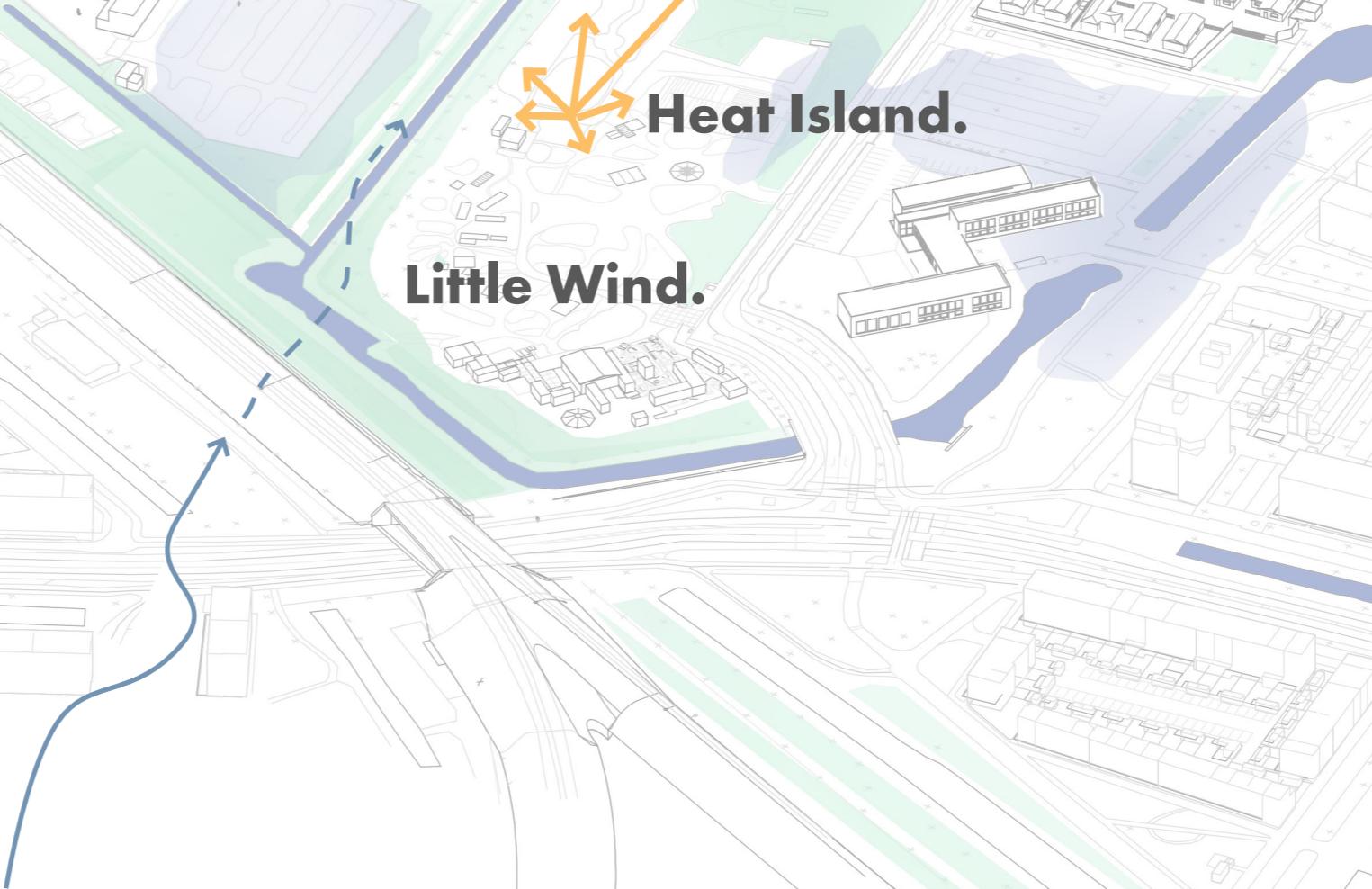
Climatic preconditions.

finished



Heat Island.

Little Wind.



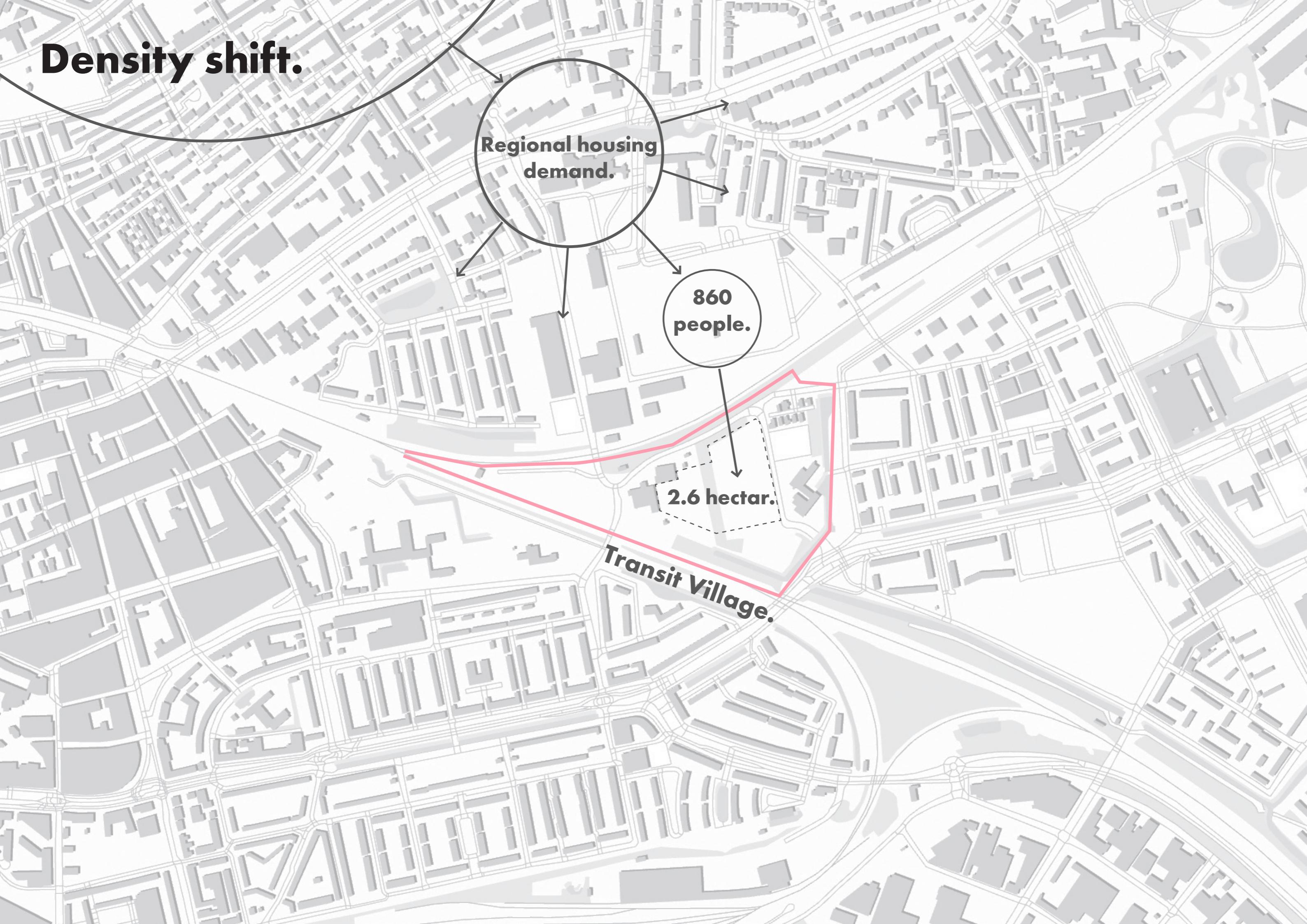
Density shift.

Regional housing
demand.

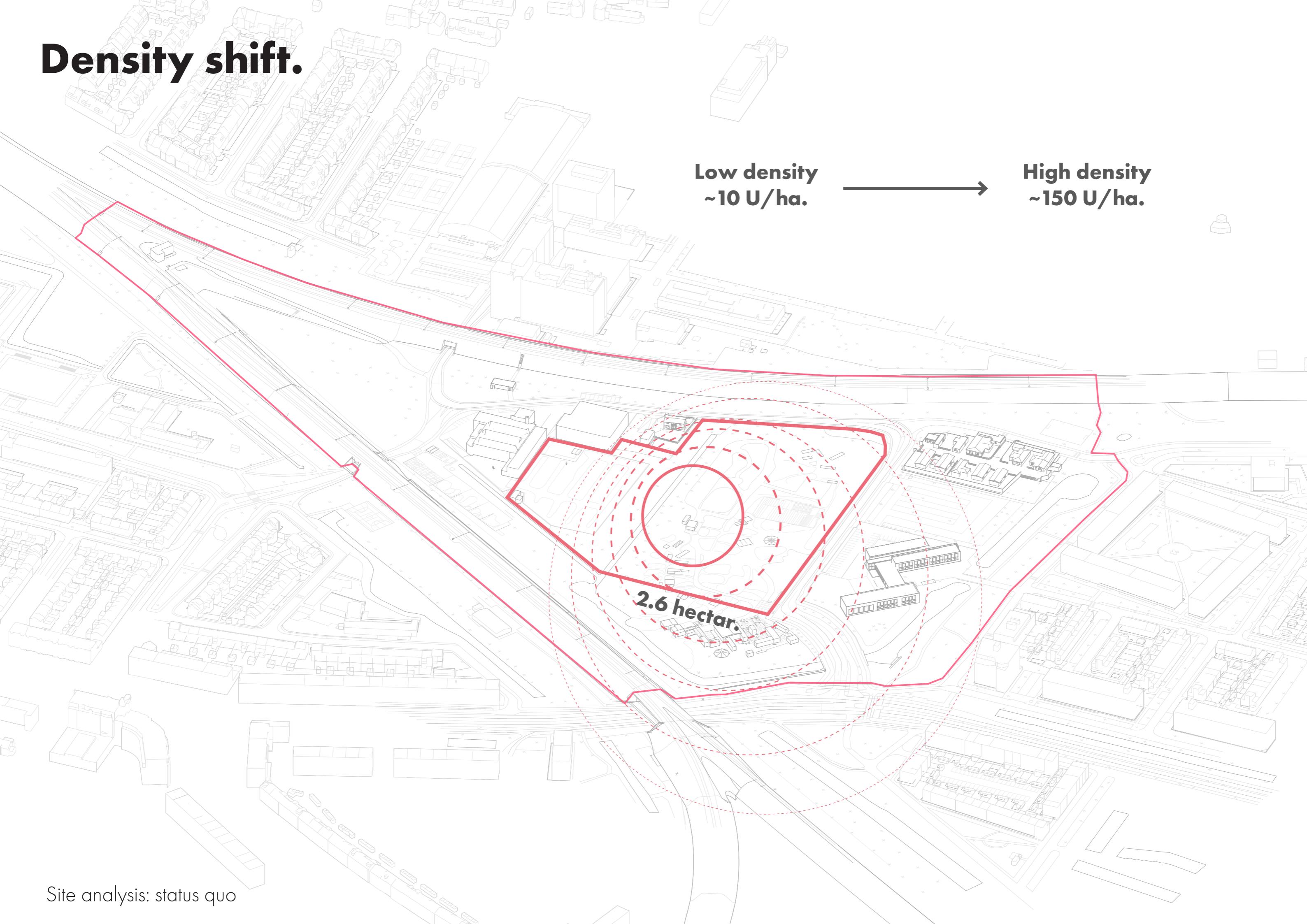
860
people.

2.6 hectar.

Transit Village.

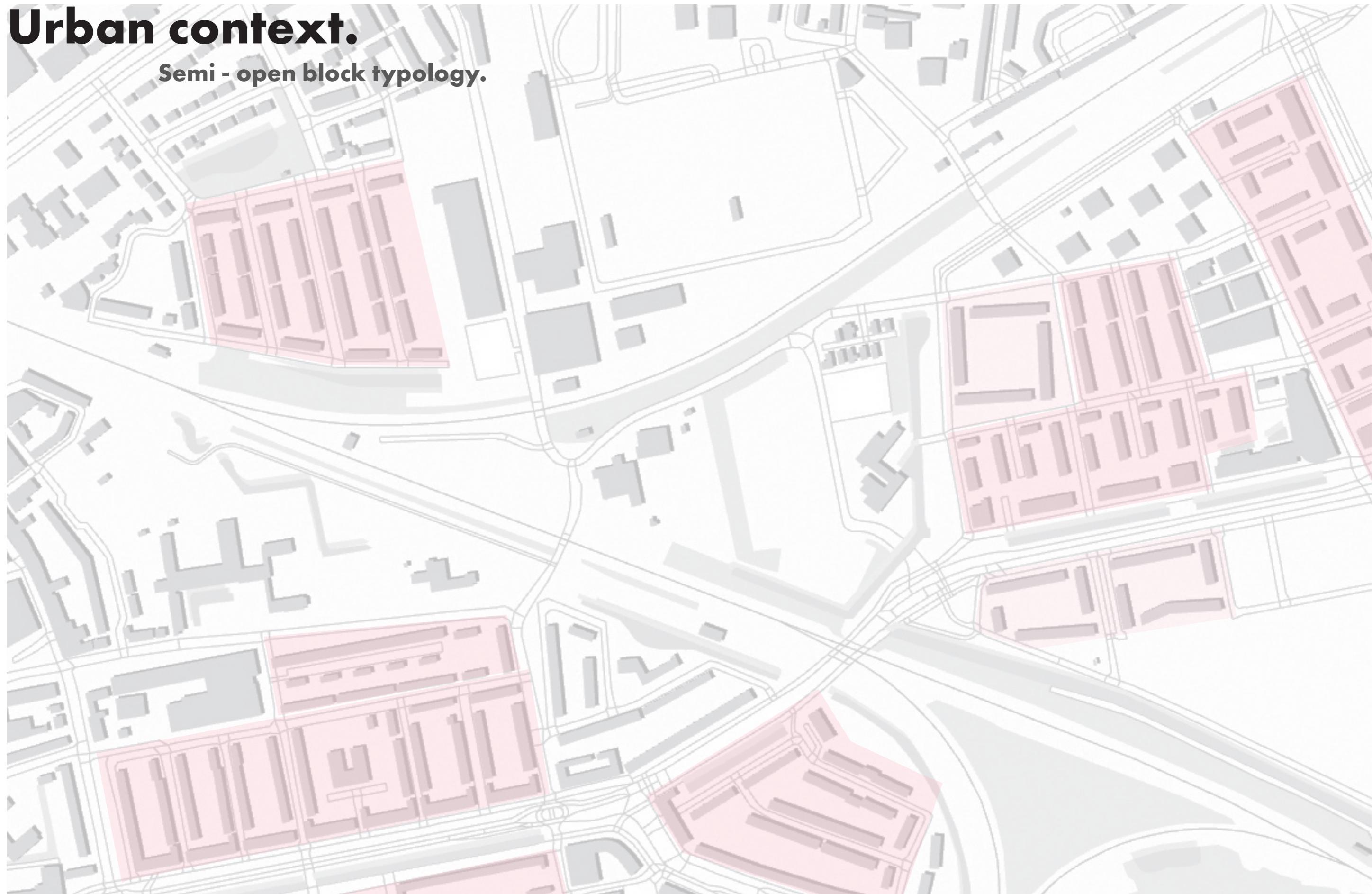


Density shift.



Urban context.

Semi - open block typology.



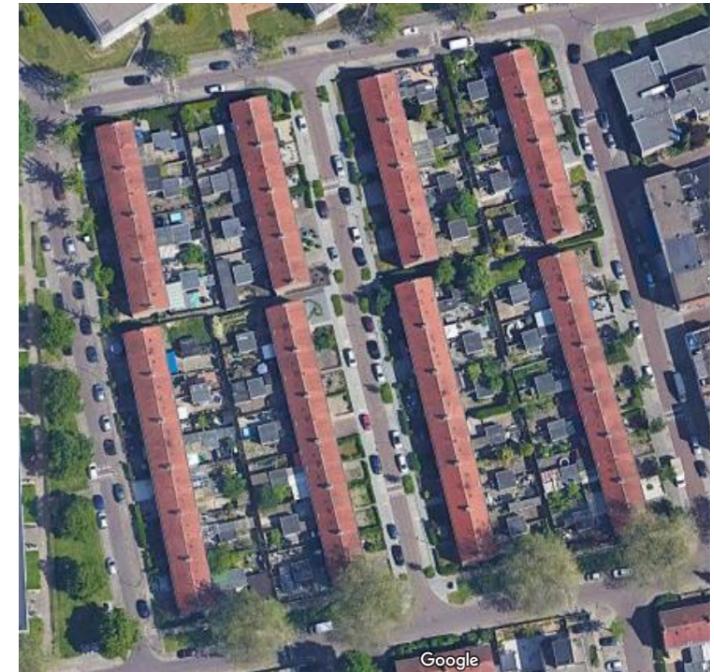
Semi-open block.



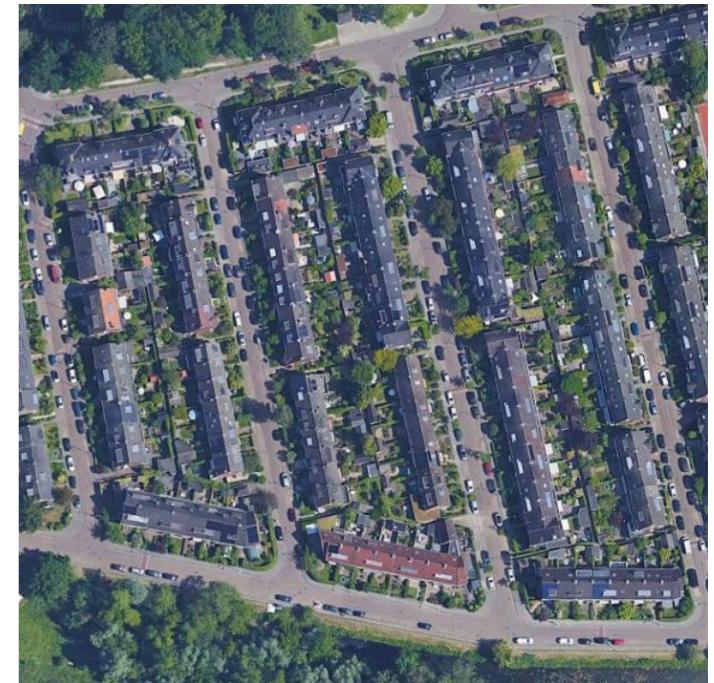
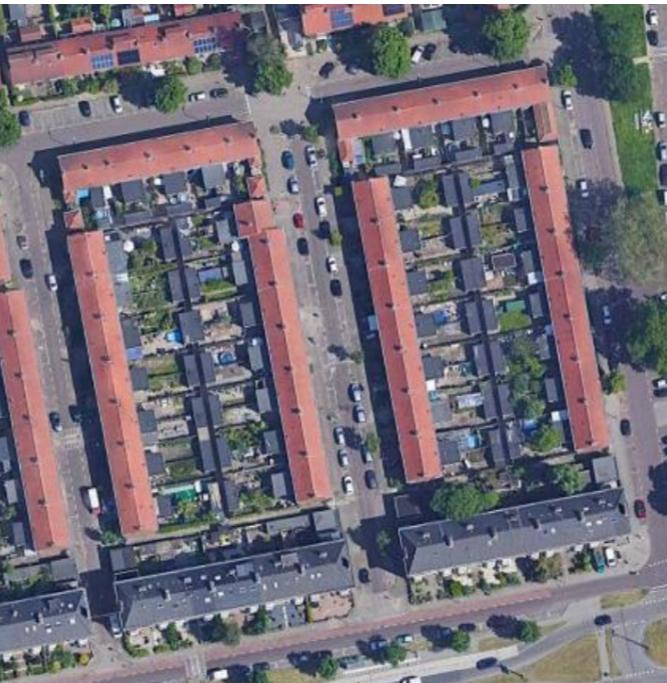
ca. 1930-1970.



Brandgang.



Private gardens.



Semi-open block.

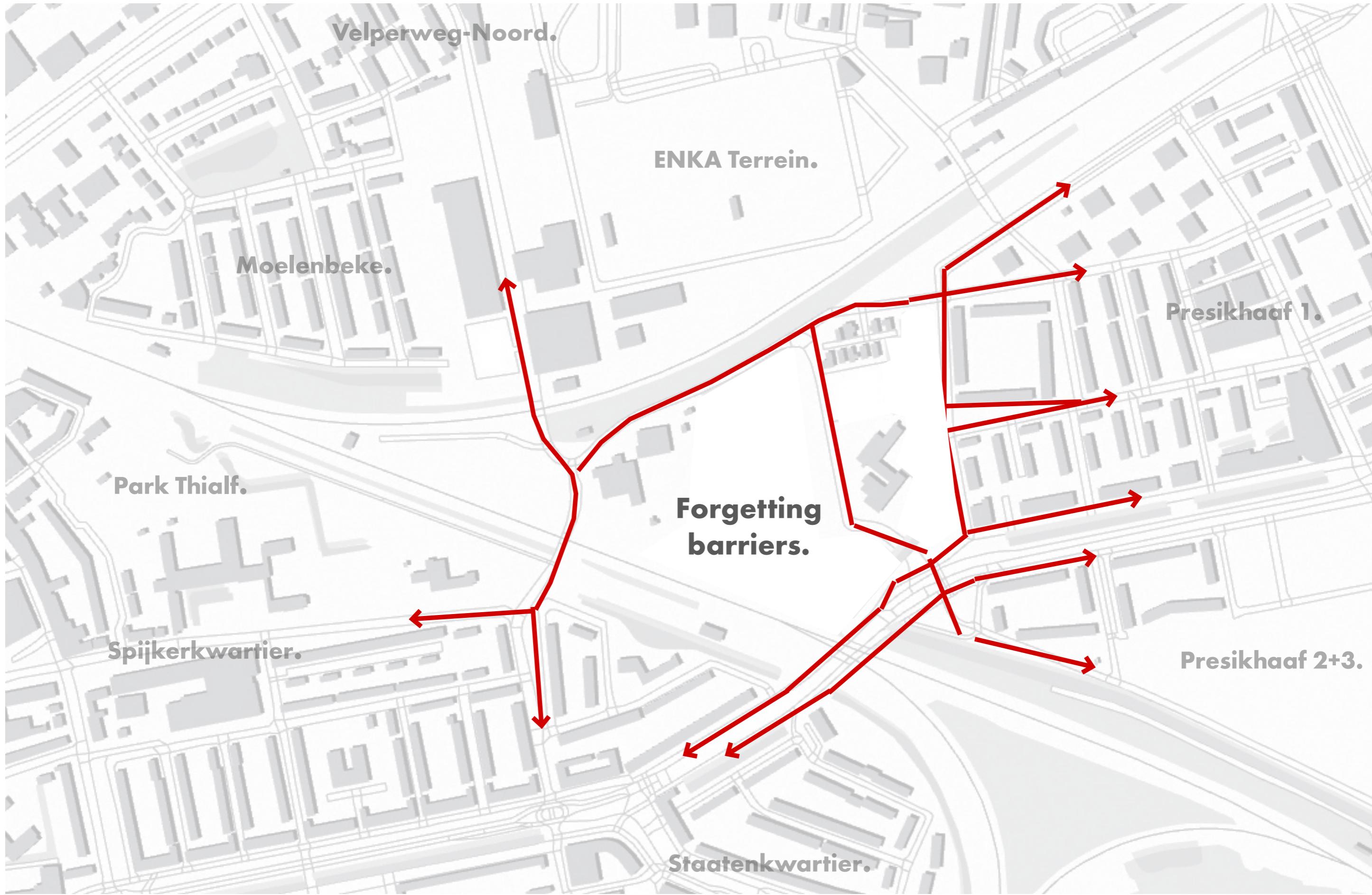
Type of movement.



Restructuring the site.

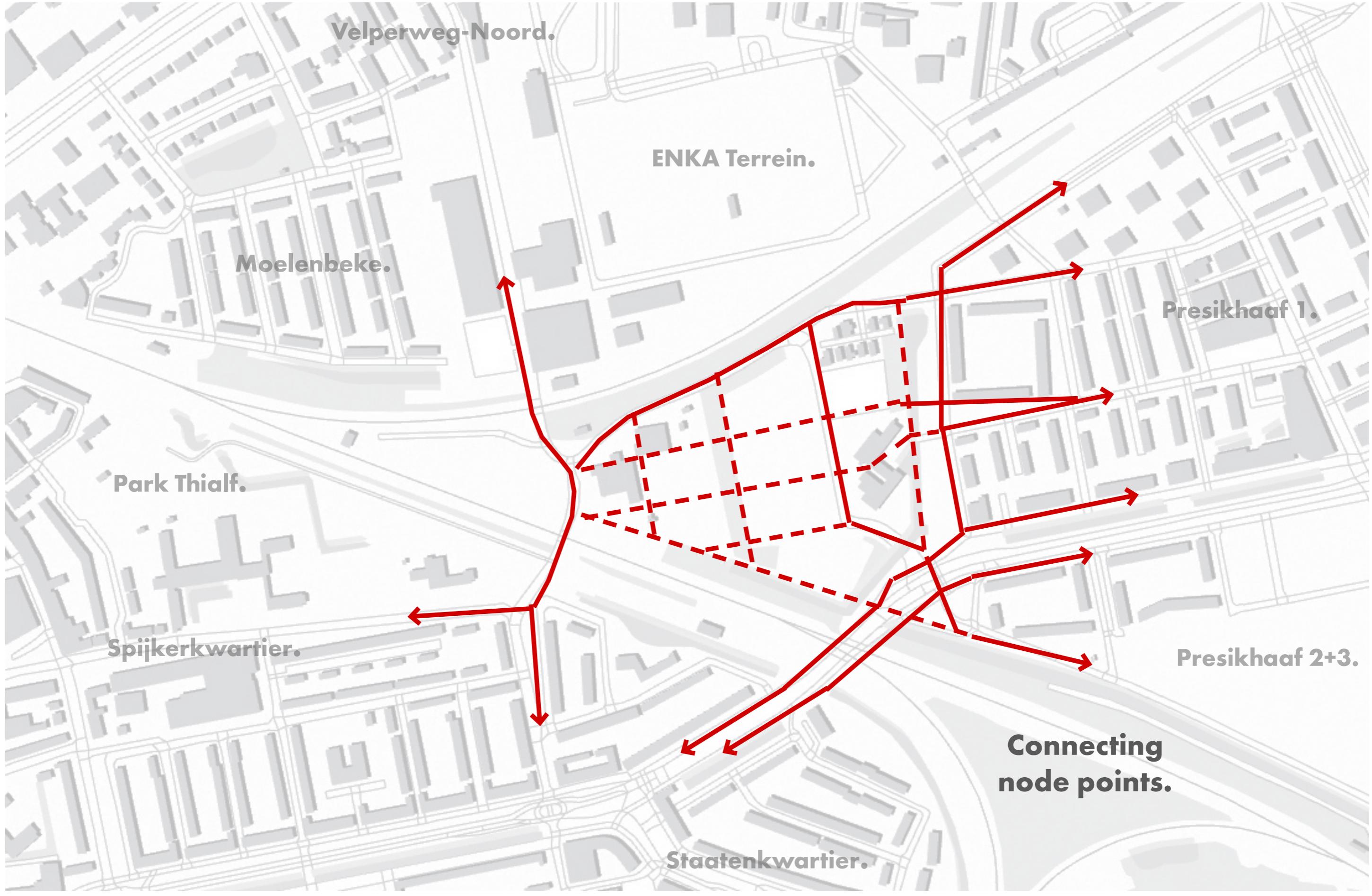
New main axes

Park Sonsbeek.



New main axes.

Park Sonsbeek.



City Center.

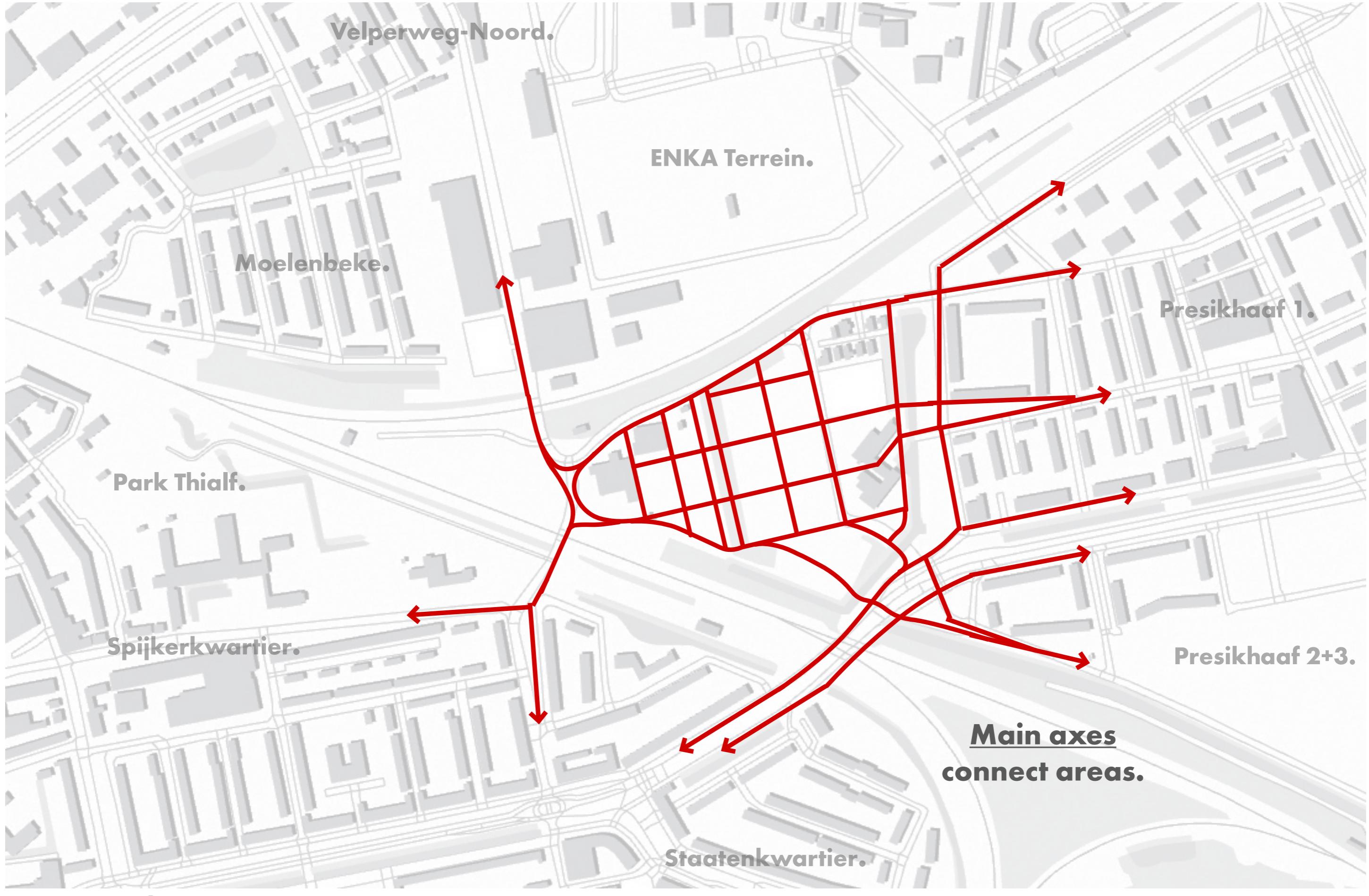
Presikhaaf Station.

Park Presikhaaf.

Rijn-IJssel Delta.

New main axes.

Park Sonsbeek.



**Main axes
connect areas.**

Presikhaaf Station.

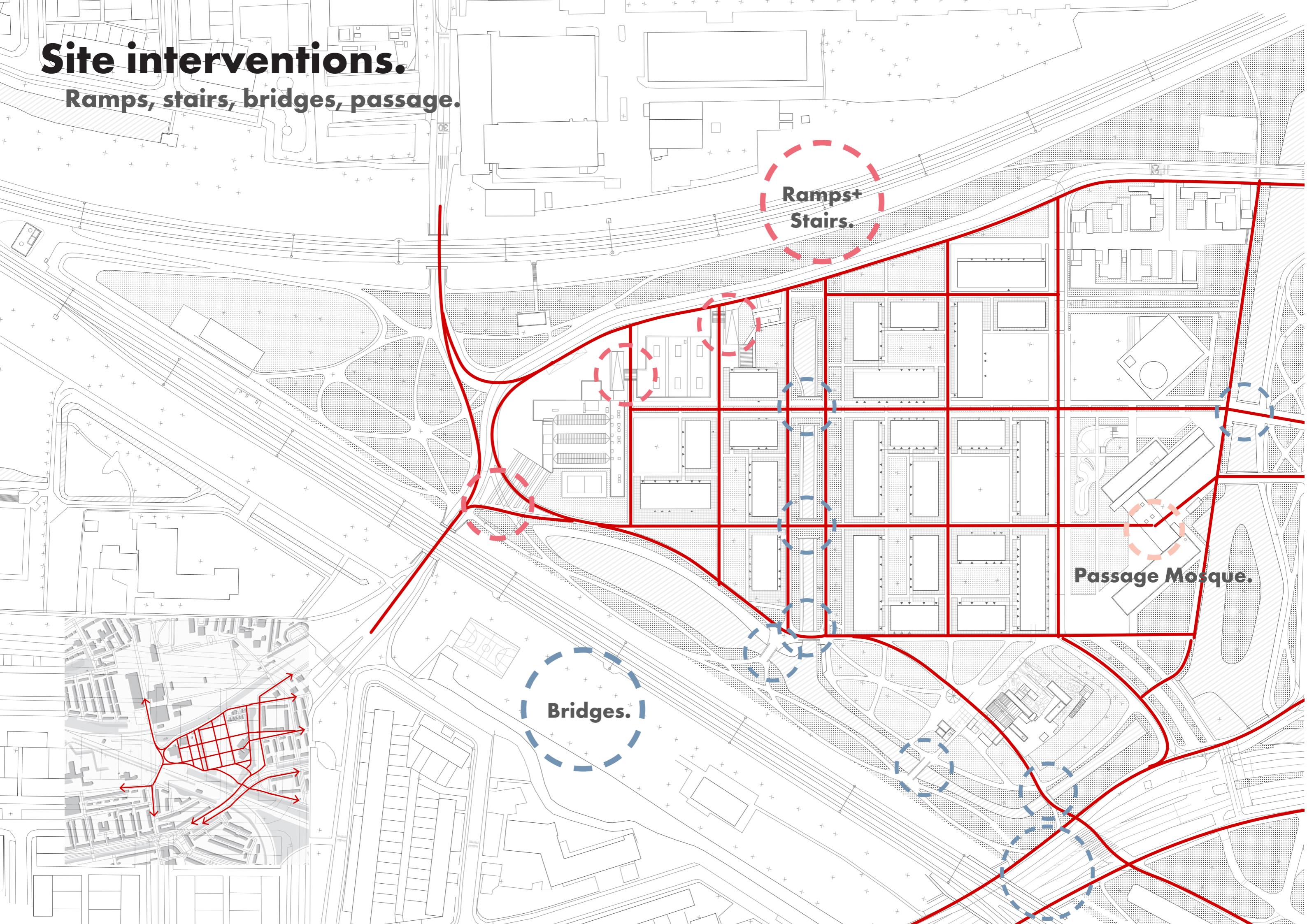
Park Presikhaaf.

Rijn-IJssel Delta.

Het Broek.

Site interventions.

Ramps, stairs, bridges, passage.



Flooding prevention.



**City Beach as
retainment pond.**

**Relieving canal
system.**

**Skate bowl as
overflow pond.**

Flooding area



Train noise strategy.

Noise increases with height.



Train noise strategy.

Noise increases with height.

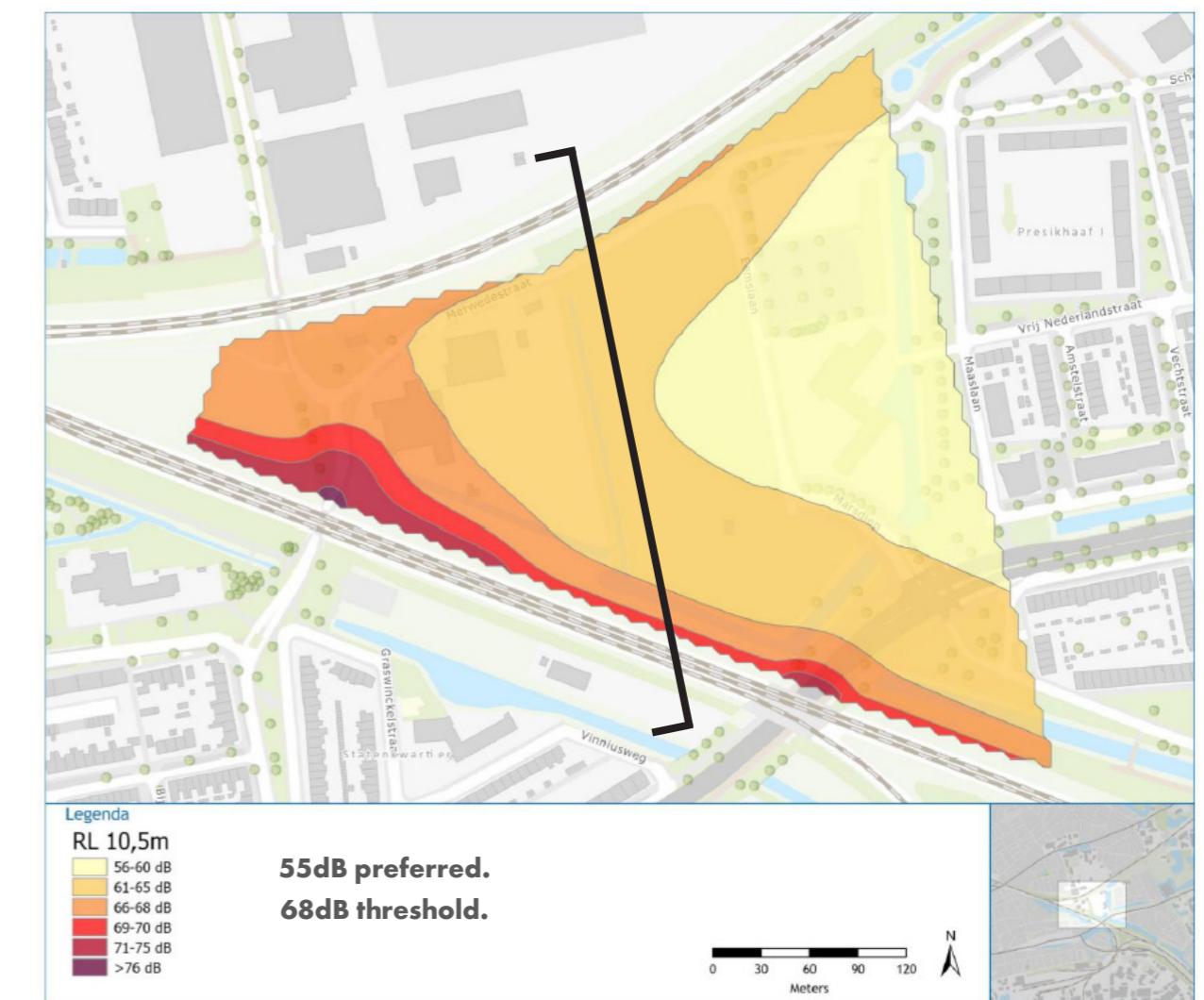
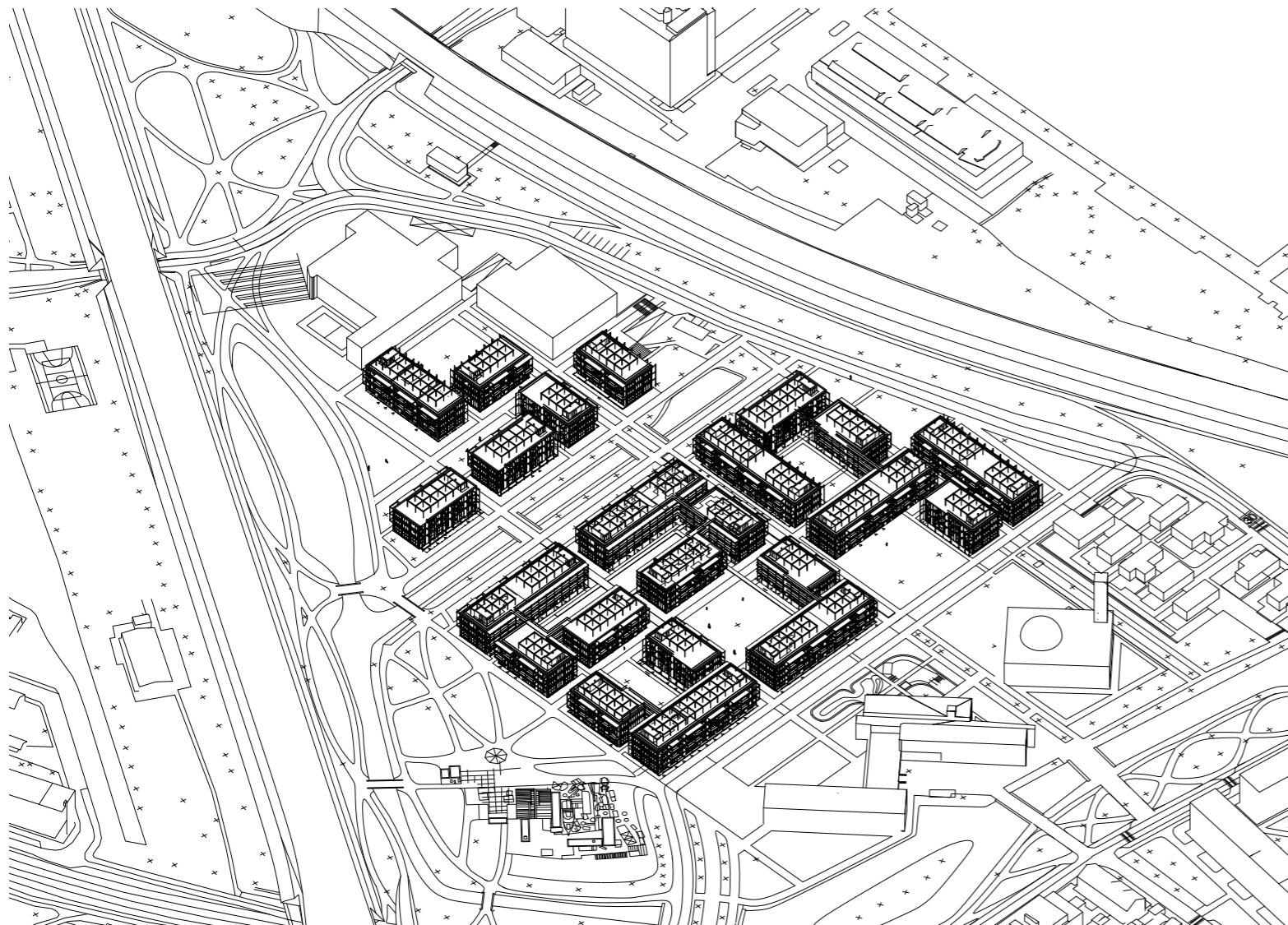


Transit Village.

Low-rise approach.

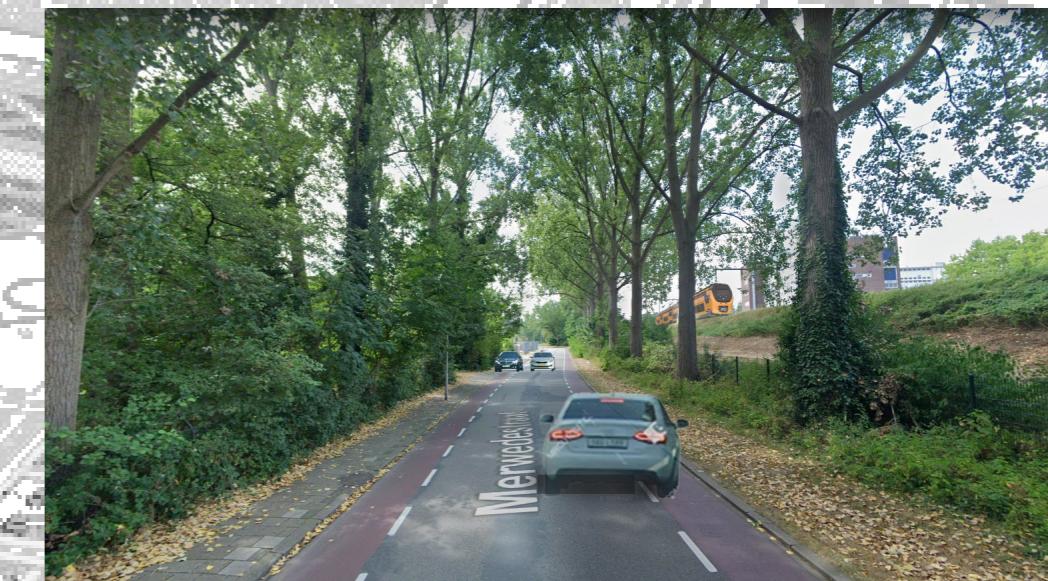
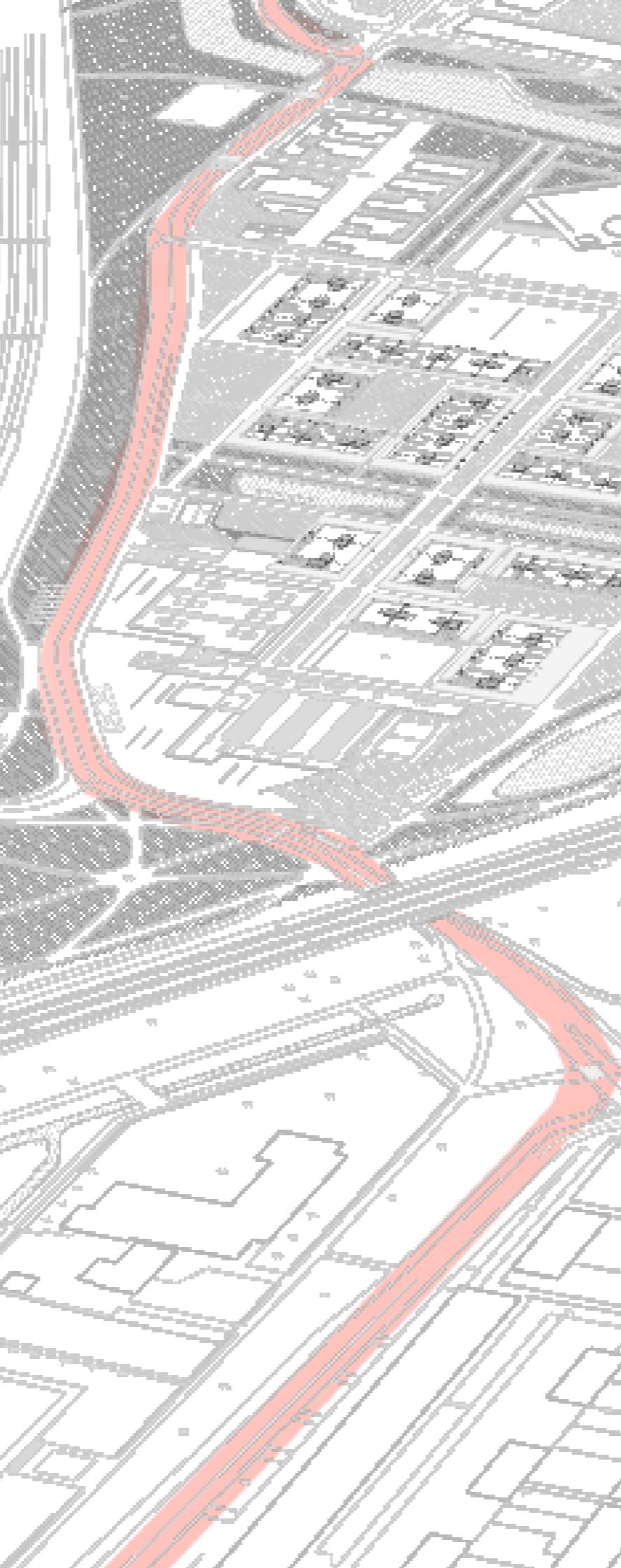
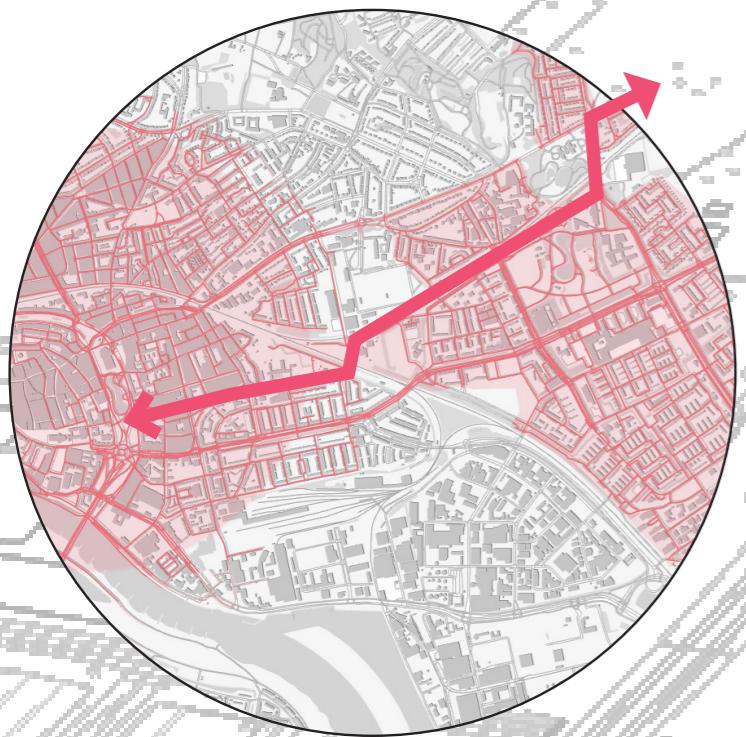


Site section.



Bicycle Highway.

Connecting Arnhem-East to the city center.

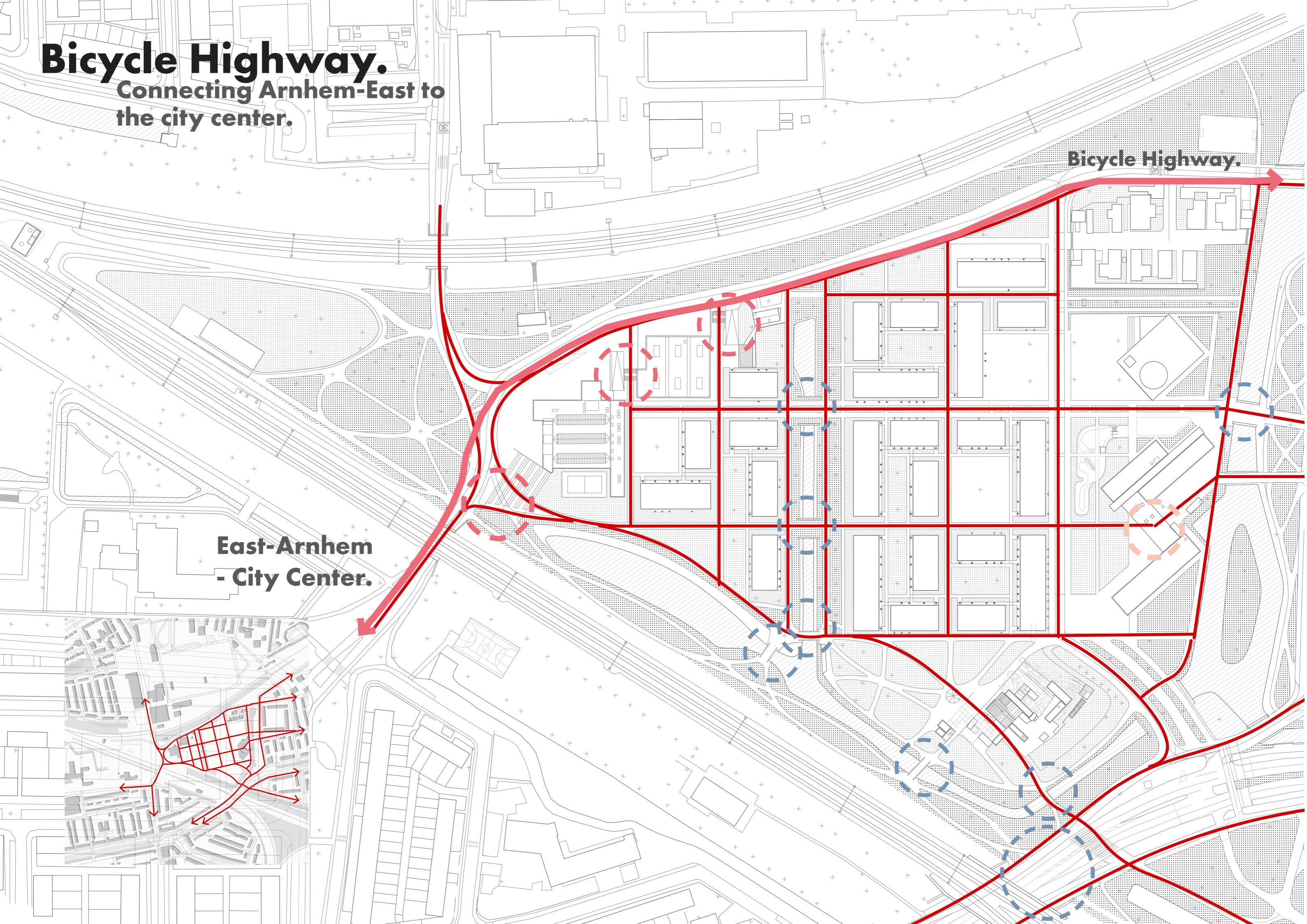
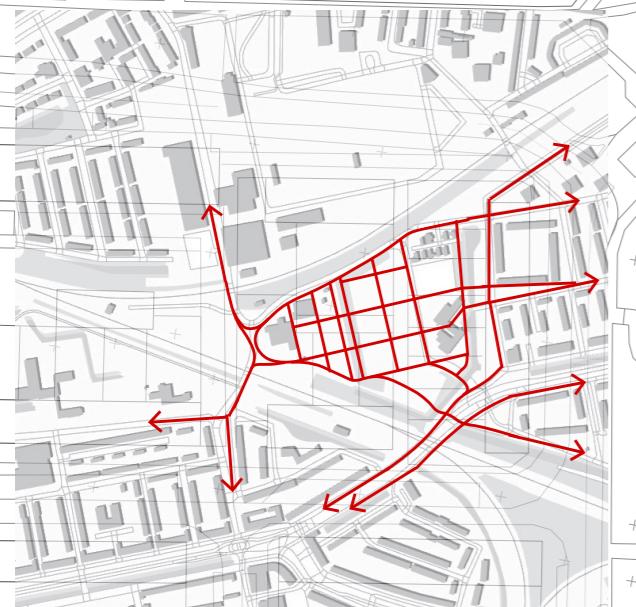


Bicycle Highway.

Connecting Arnhem-East to
the city center.

Bicycle Highway.

East-Arnhem
- City Center.



Green Belt.

Horse Trail.

Horse Range.

City Park.

Transit Trail.

Nature Trail.

"Nature avenue".

Sculpture park.

South entrance.

Green lung.

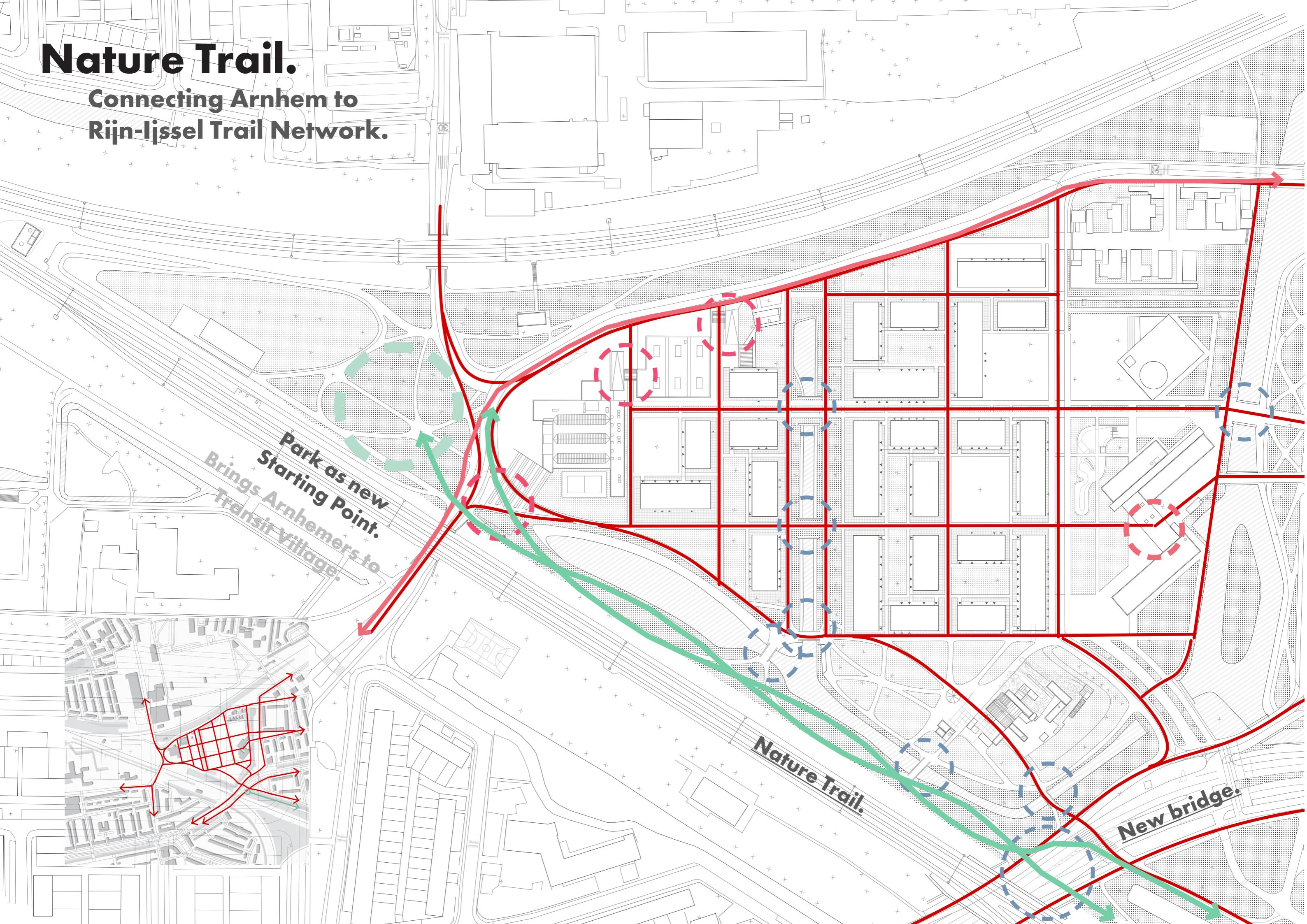
Nature Trail.

Connecting Arnhem to
Rijn-IJssel Trail Network.

Park as new
Starting Point.
Brings Arnhemers to
Transit Village.

Nature Trail.

New bridge.

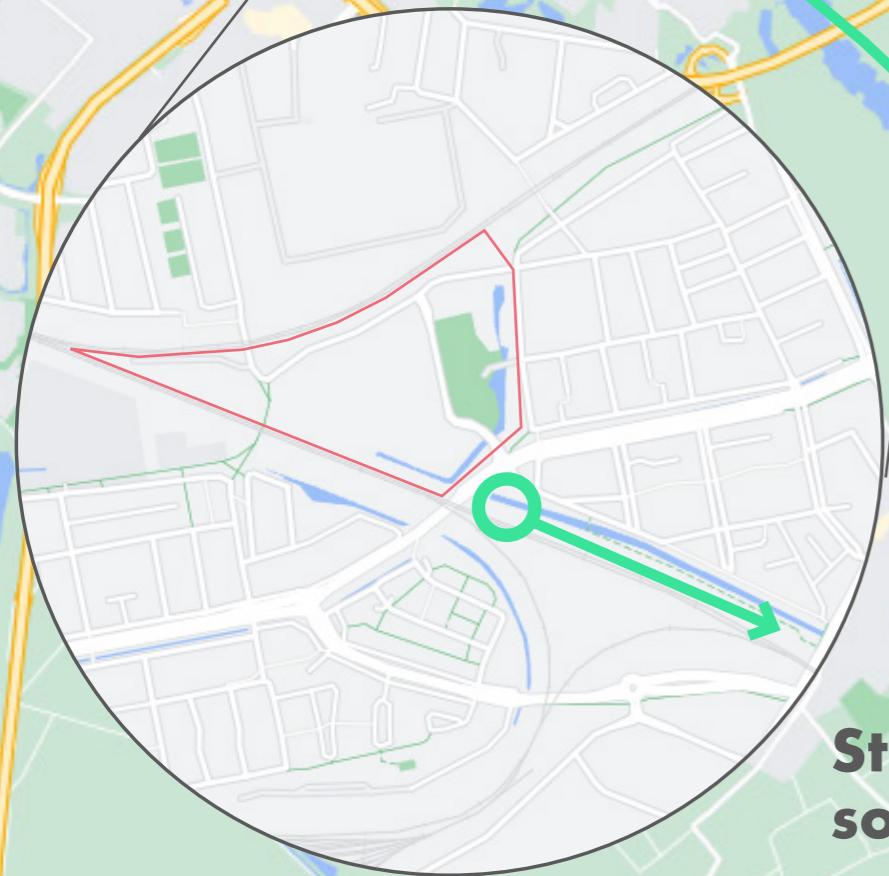


Nature Trail.

Connecting Arnhem to
Rijn-IJssel Trail Network.

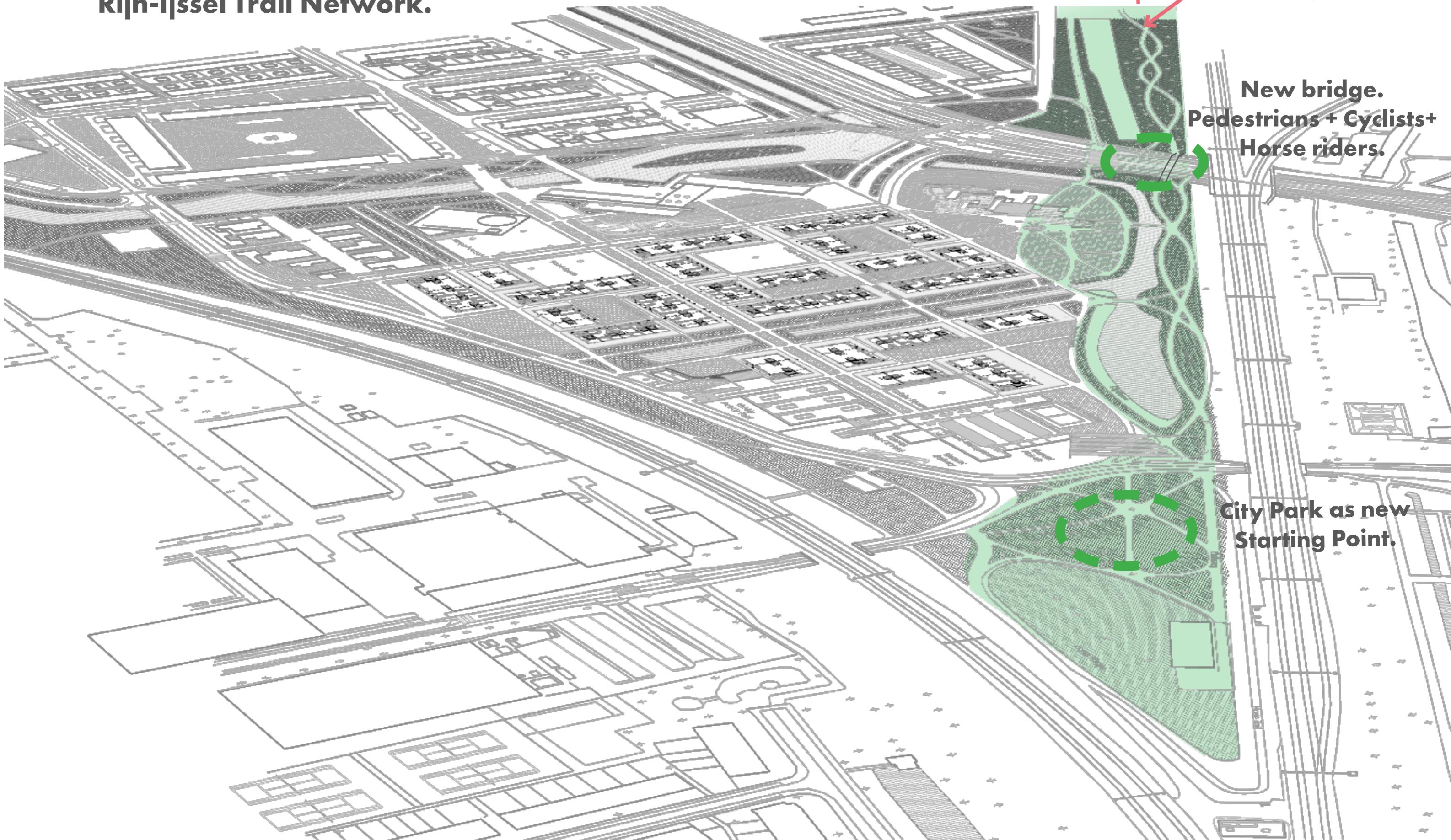
Rijn-IJssel
Trail Network.

Starting point currently
south-east of the site.

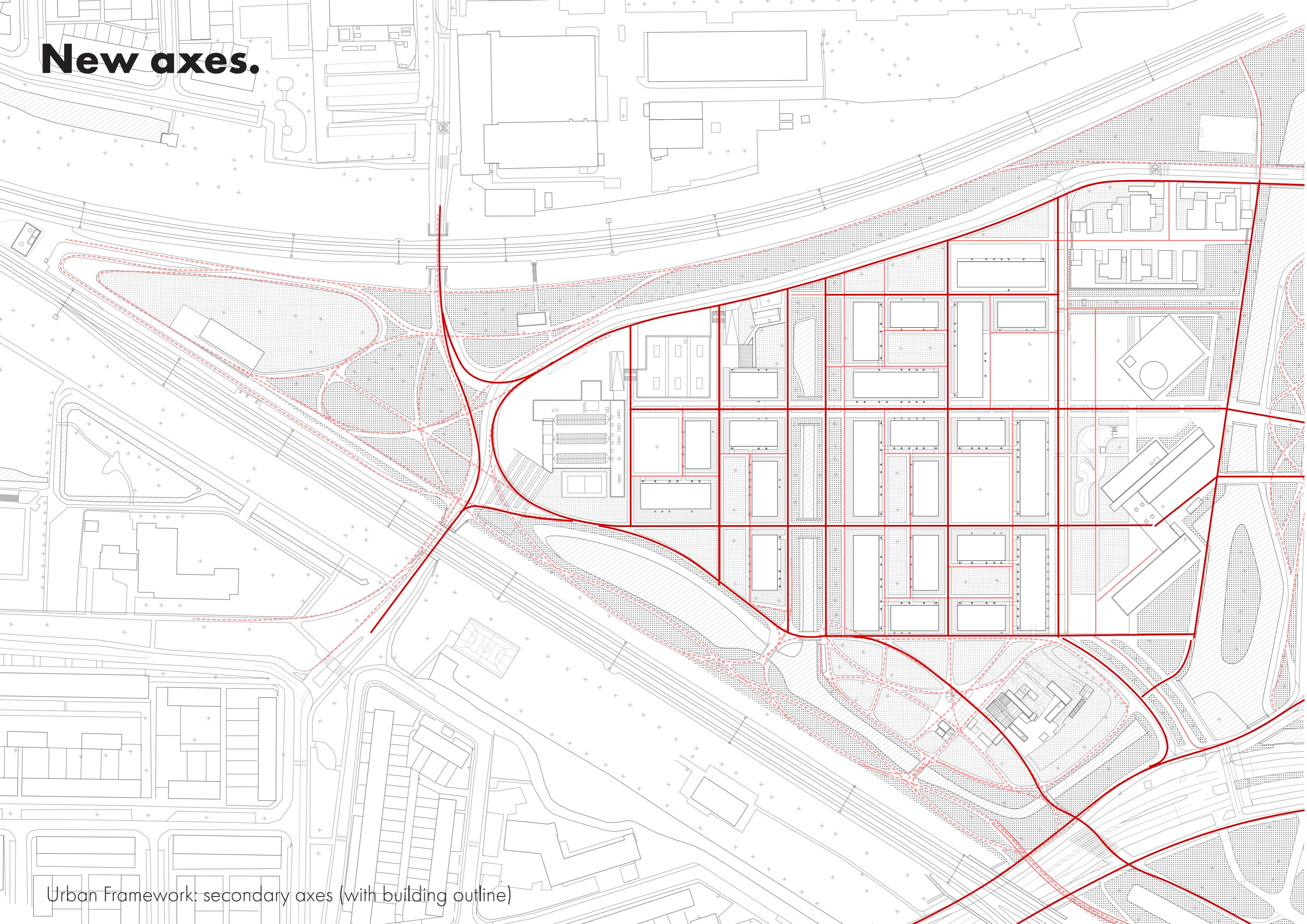


Nature Trail.

**Connecting Arnhem to
Rijn-IJssel Trail Network.**

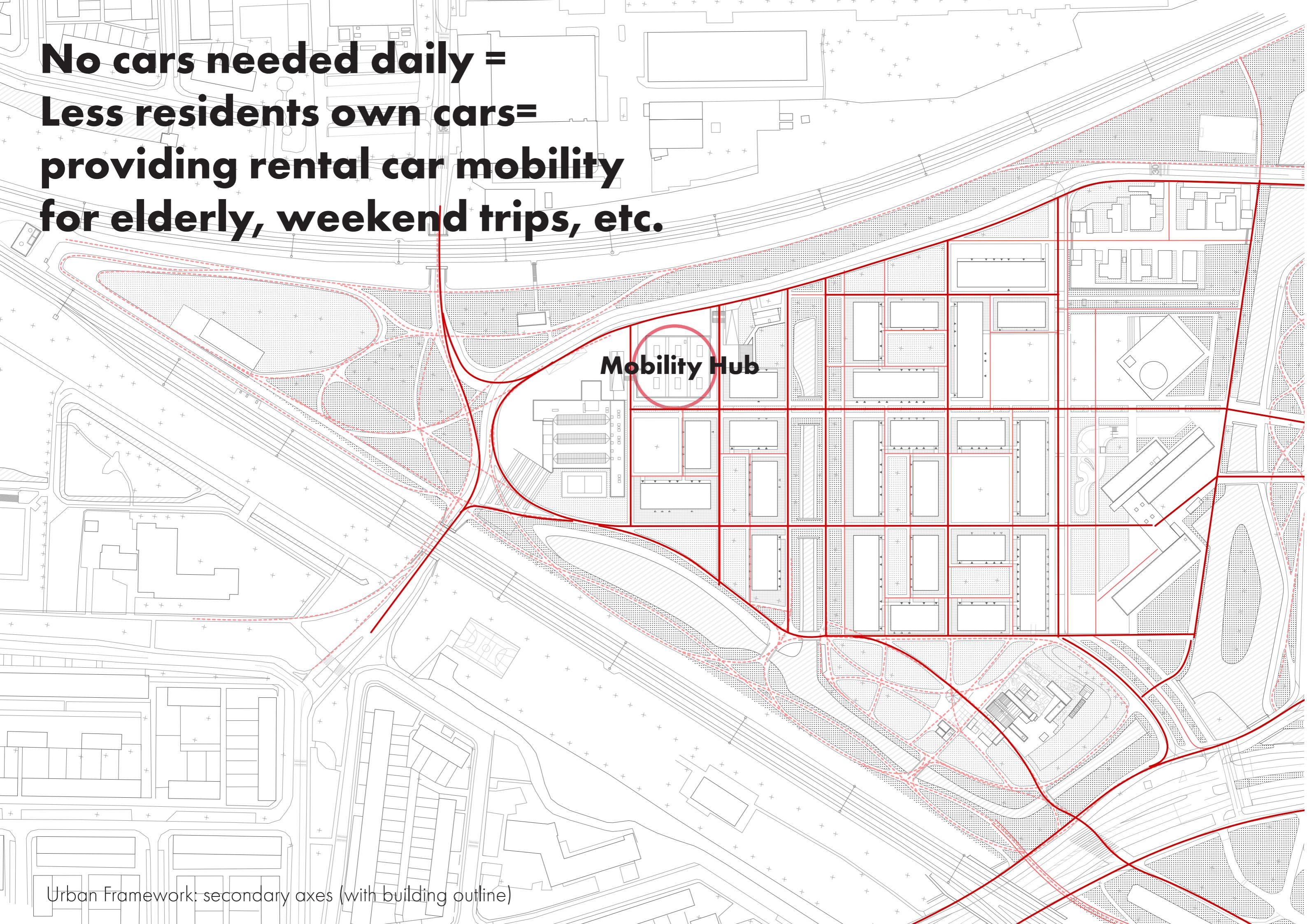


New axes.

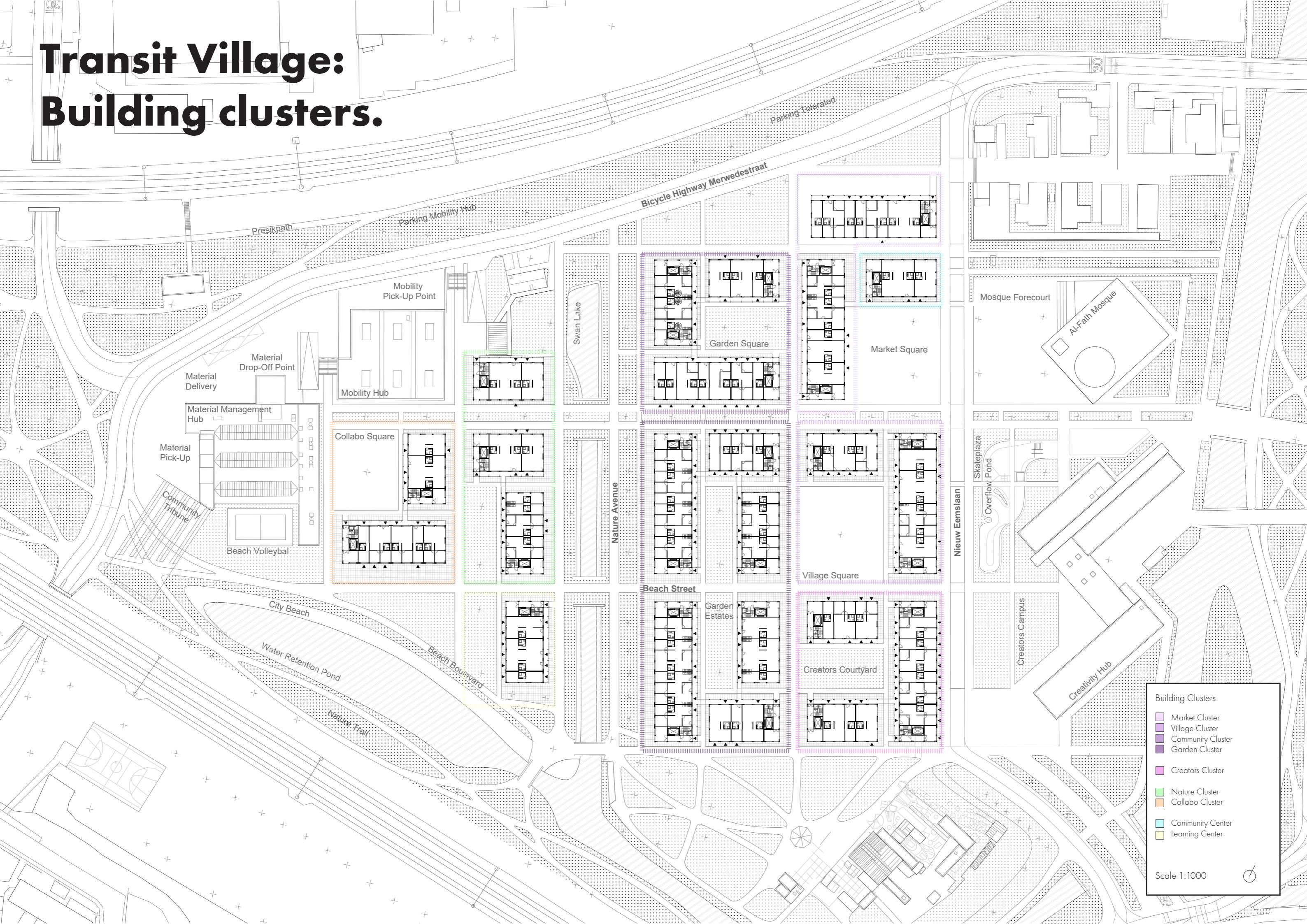


Urban Framework: secondary axes (with building outline)

**No cars needed daily =
Less residents own cars =
providing rental car mobility
for elderly, weekend trips, etc.**



Transit Village: Building clusters.

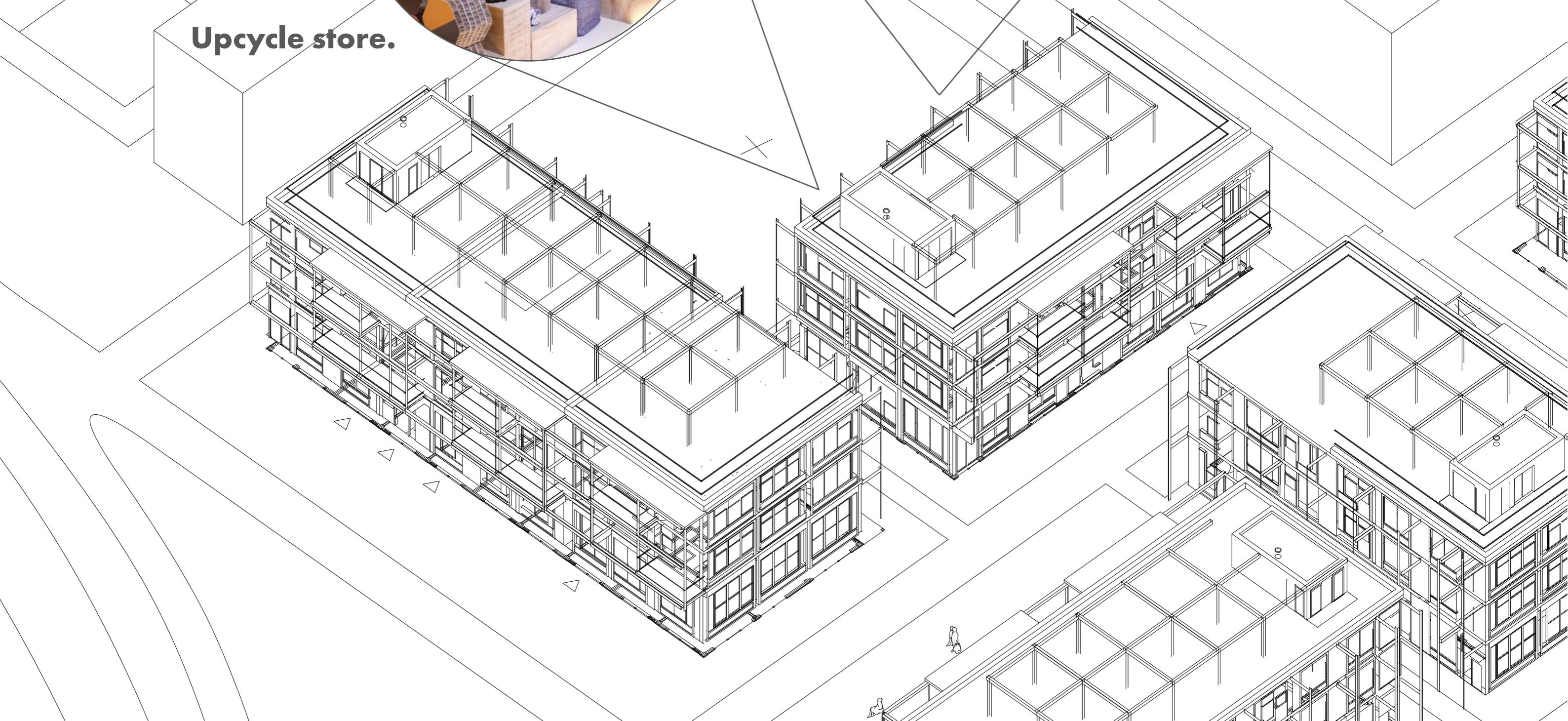


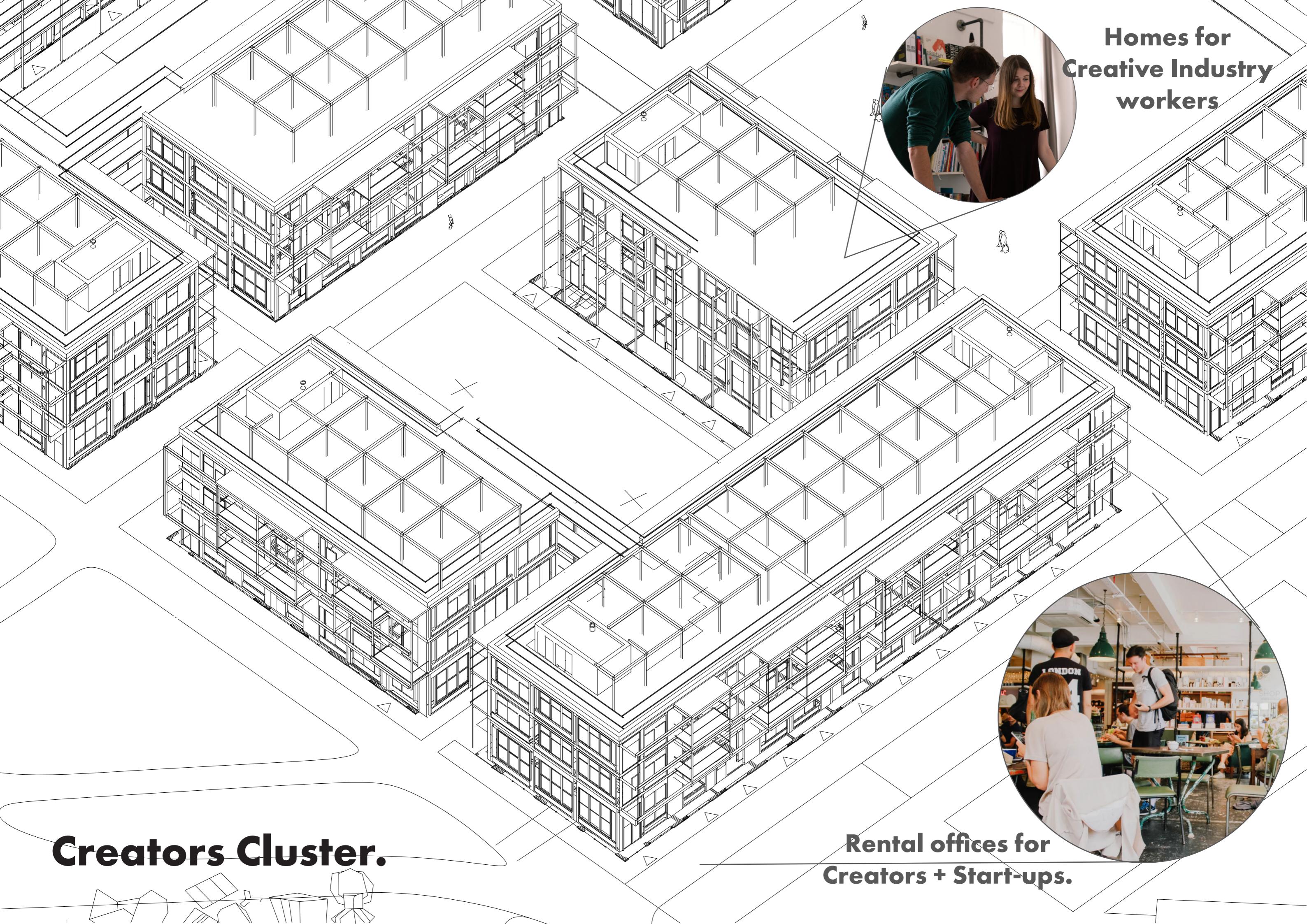
Collabo Cluster.

Upcycle store.



Community workshop.





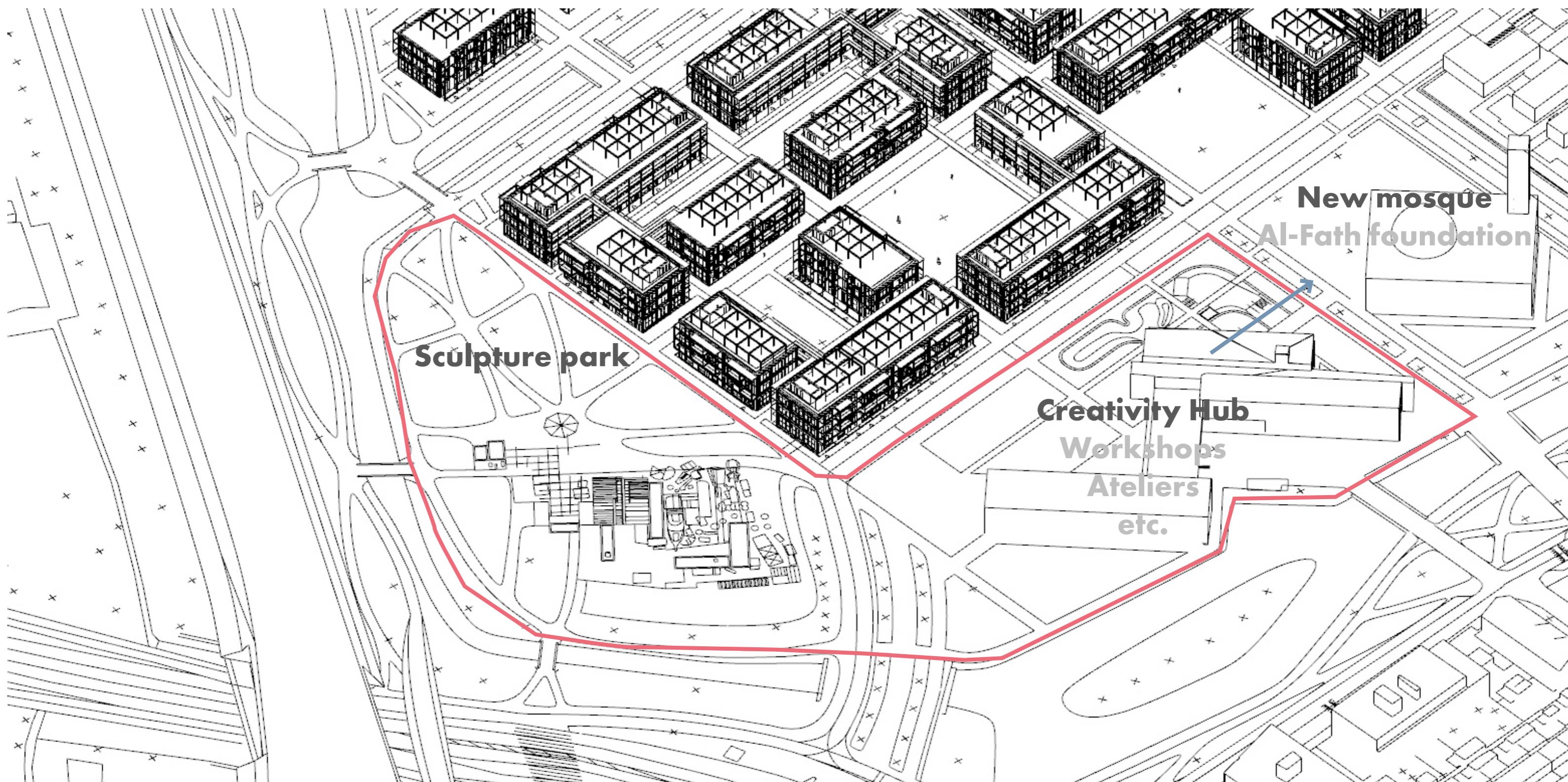
**Homes for
Creative Industry
workers**

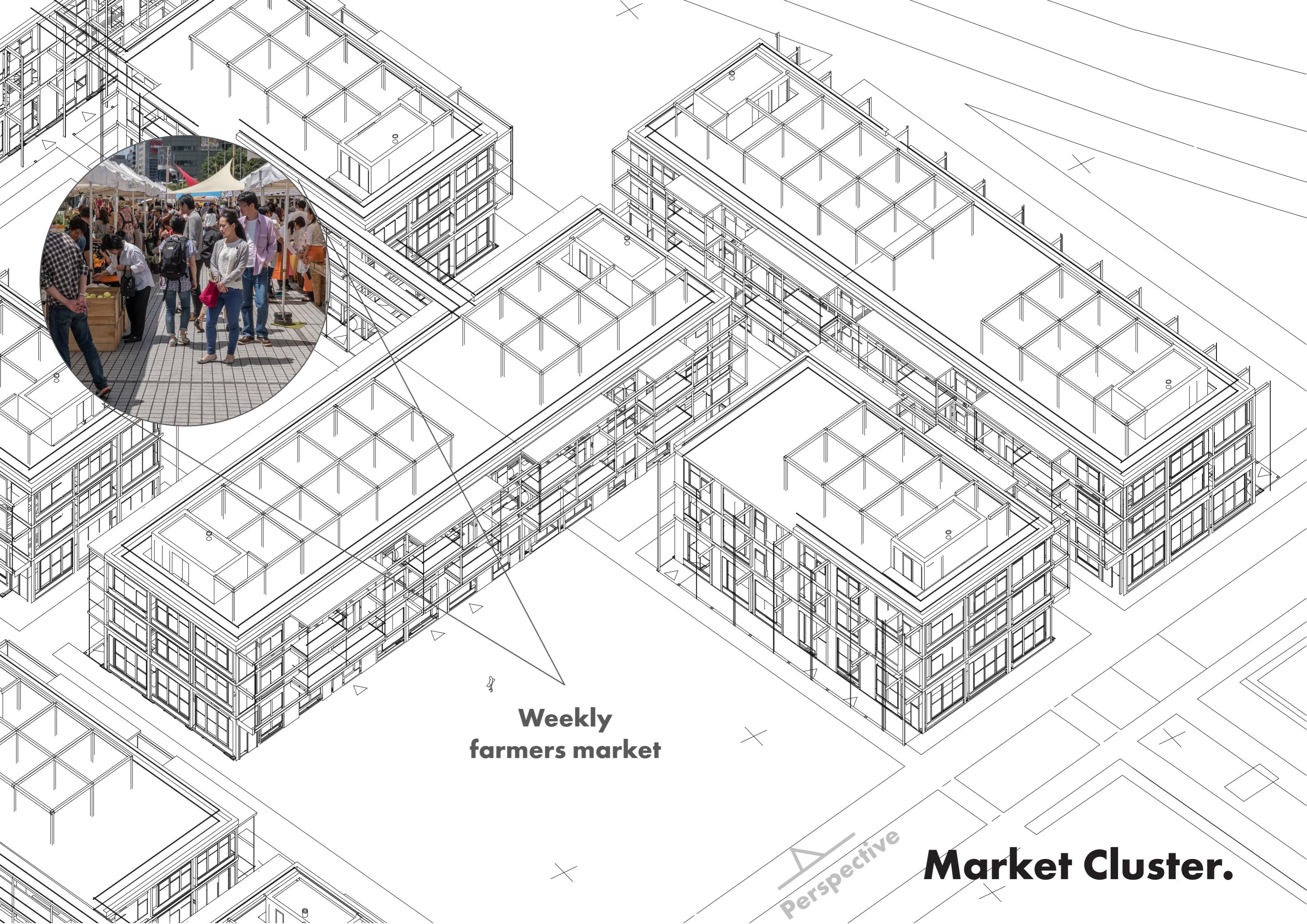


Creators Cluster.

**Rental offices for
Creators + Start-ups.**







**Weekly
farmers market**

Perspective

Market Cluster.



Market Square.

Youth Cluster.

Skateplaza.



Youth hostel.

Garden Cluster.

Community
garden.



Learning center.

Kayak club.



Music school.



Nature avenue cluster.



Artist cluster.

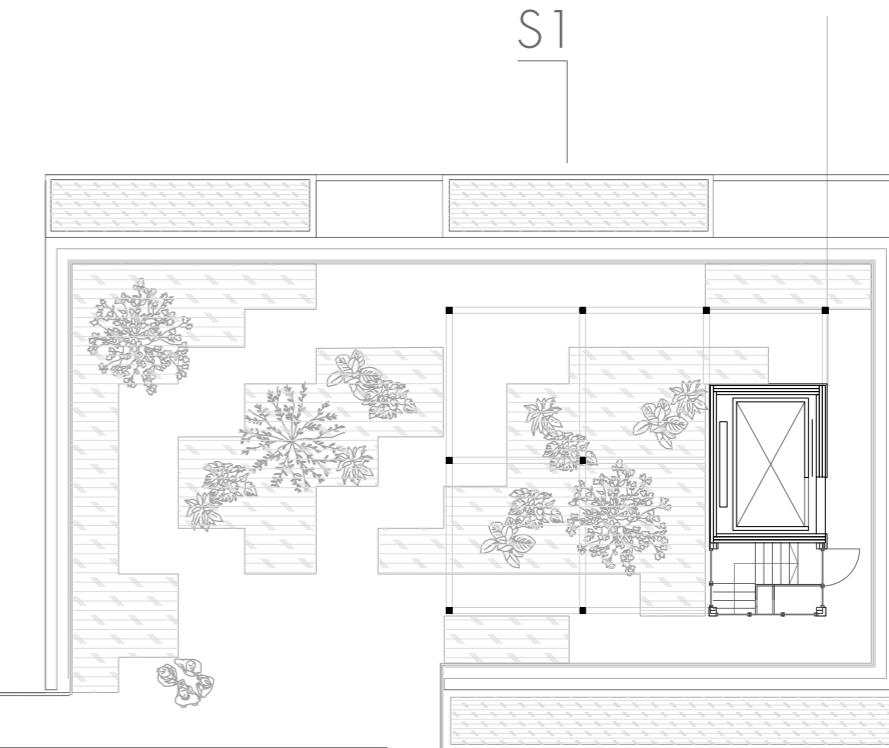
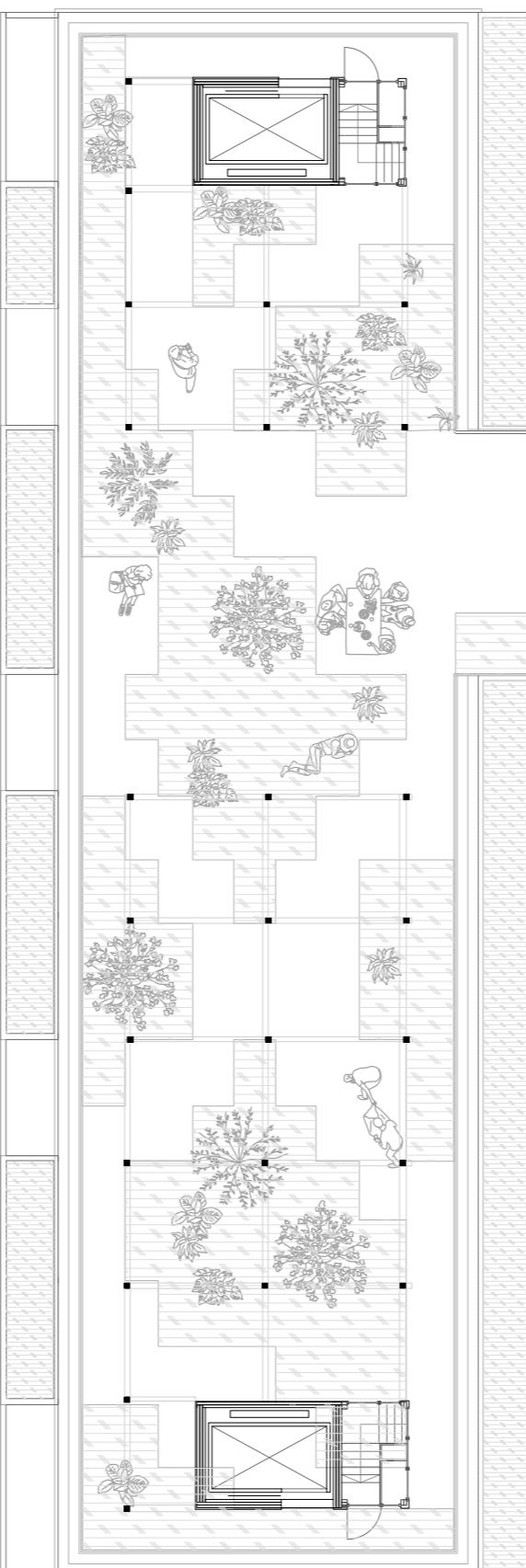


Sculpture park.

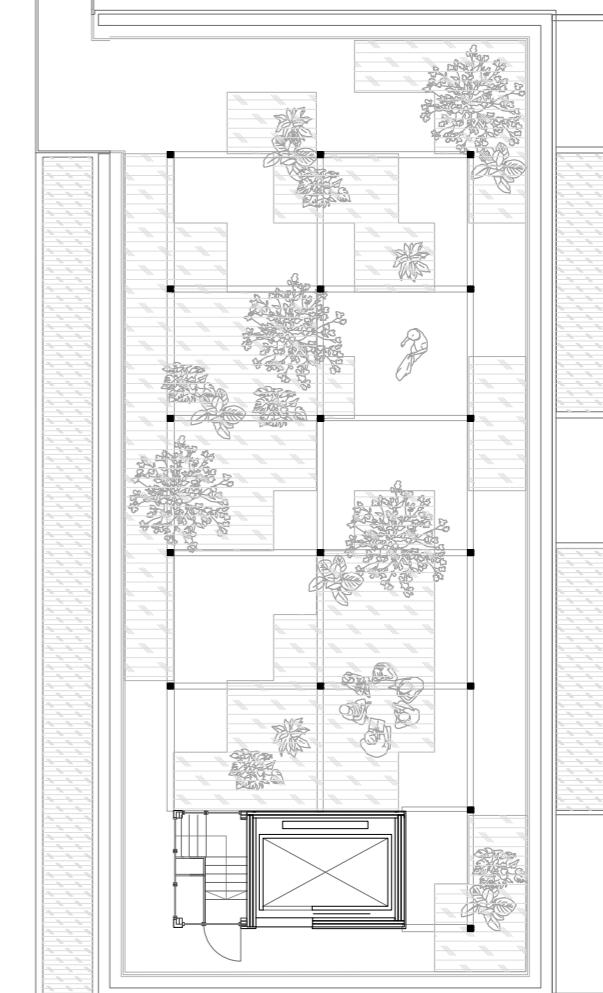
Roof terraces.

Foster community.

**Space to create +
recreate.**



Connect clusters.



E1

S2

S1

E2

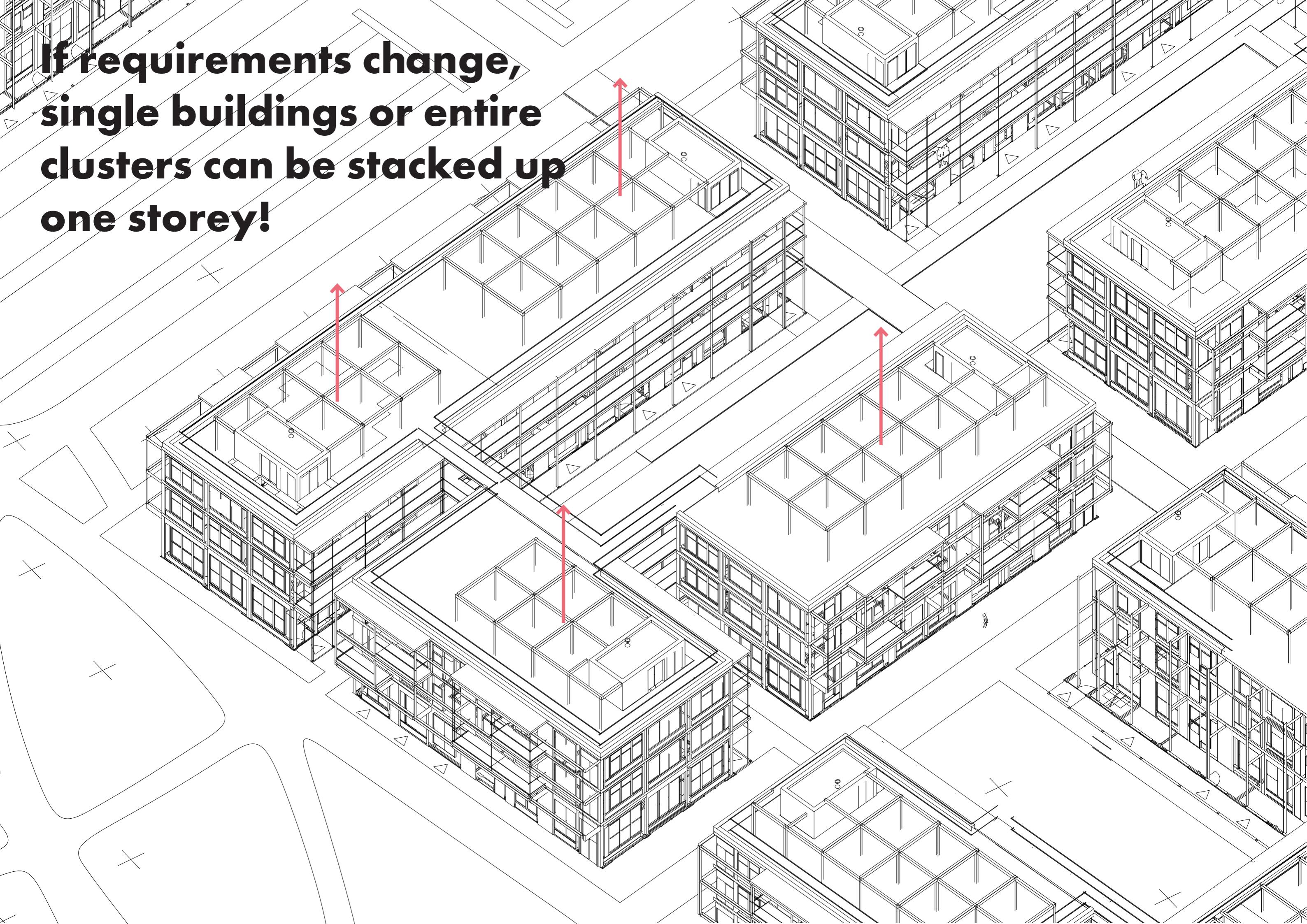
S2



House community space.

Roof terrace.

**If requirements change,
single buildings or entire
clusters can be stacked up
one storey!**



**If requirements change,
single buildings or entire
clusters can be stacked up
one storey!**



**Also: Flexibility for residents to adjust their
apartments.**

Flexibility for residents to adjust their apartments.

Dealing with...
disassembly of components,
material reclaiming, etc.

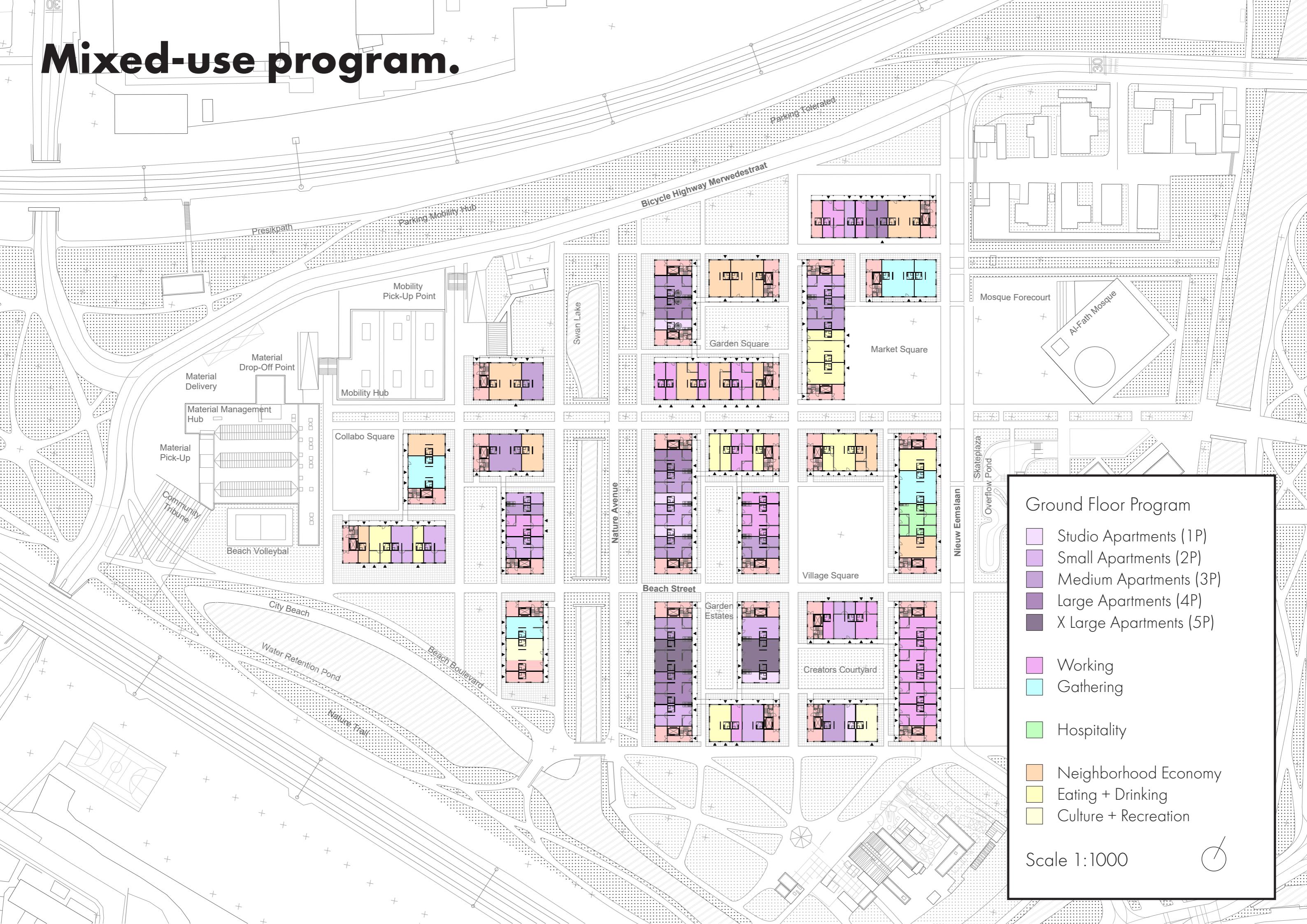
Material Management Hub

Intact components stored flat packed for 1 year. After: Disassembly and selling.

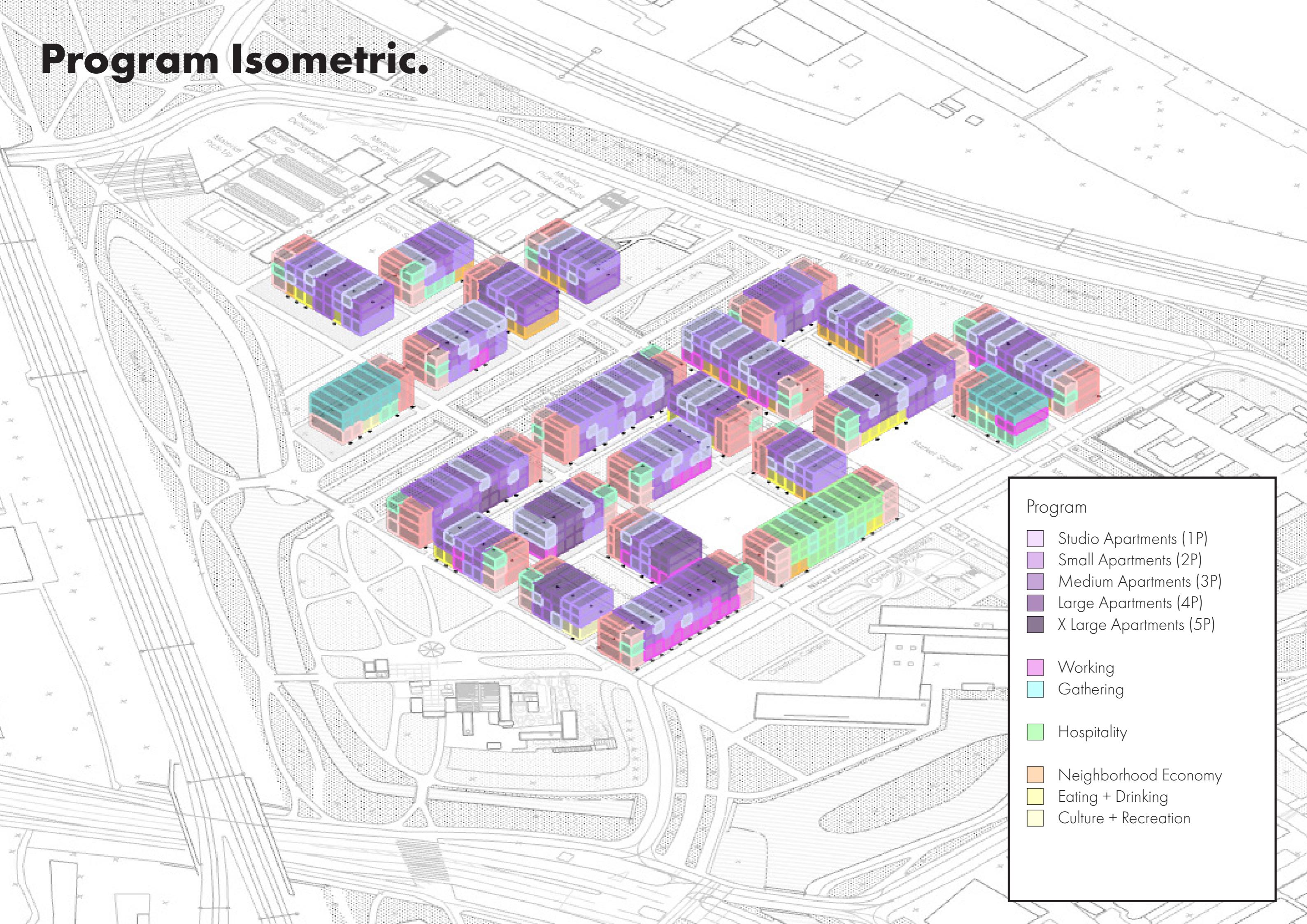
Material Management Hub also reclaims materials from building sites in the area.

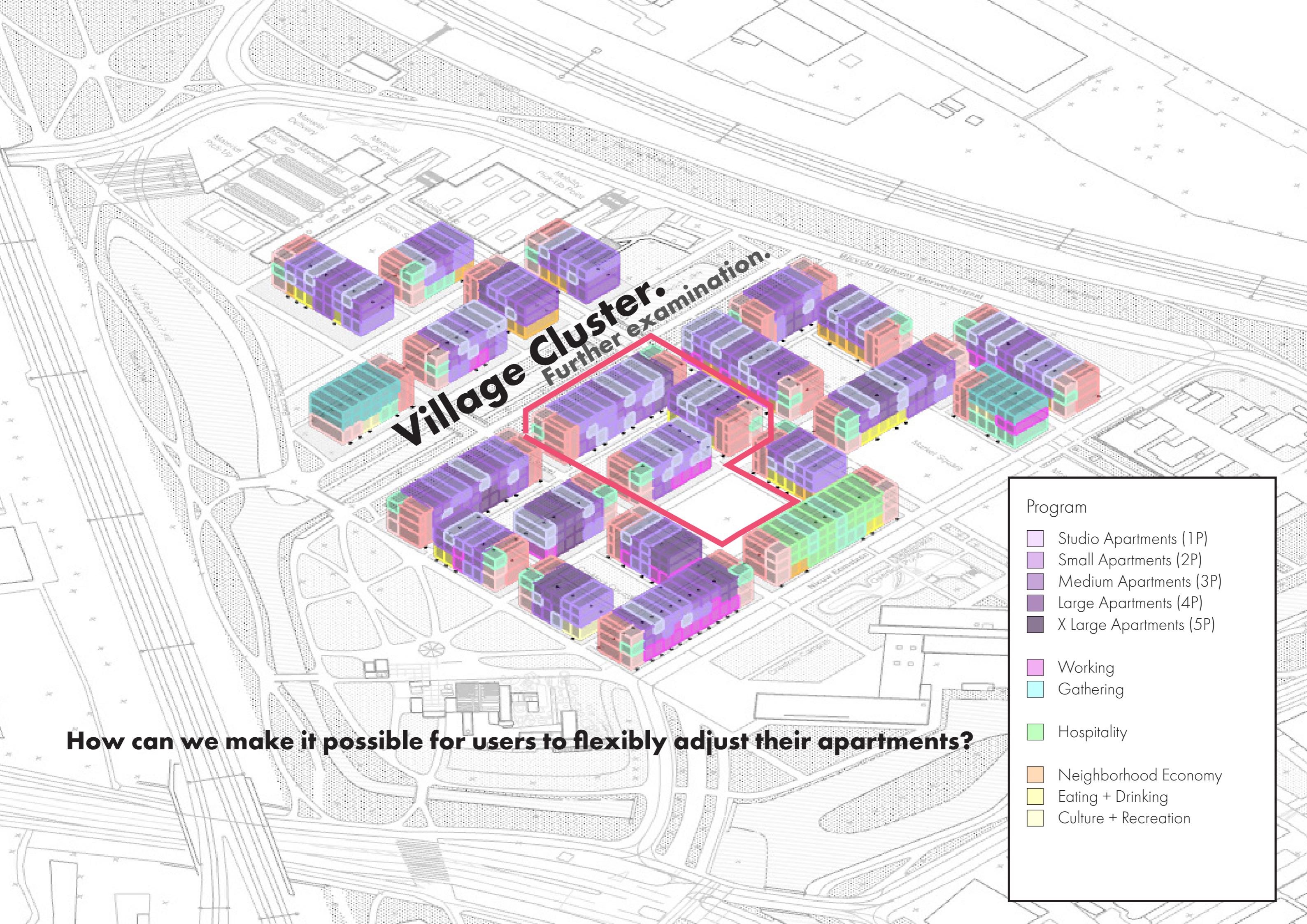
Use of material residual value! = financial incentive

Mixed-use program.



Program Isometric.





Village Cluster.



**Flea markets.
Community events.**

VILLAGE SQUARE.

Village Cluster.

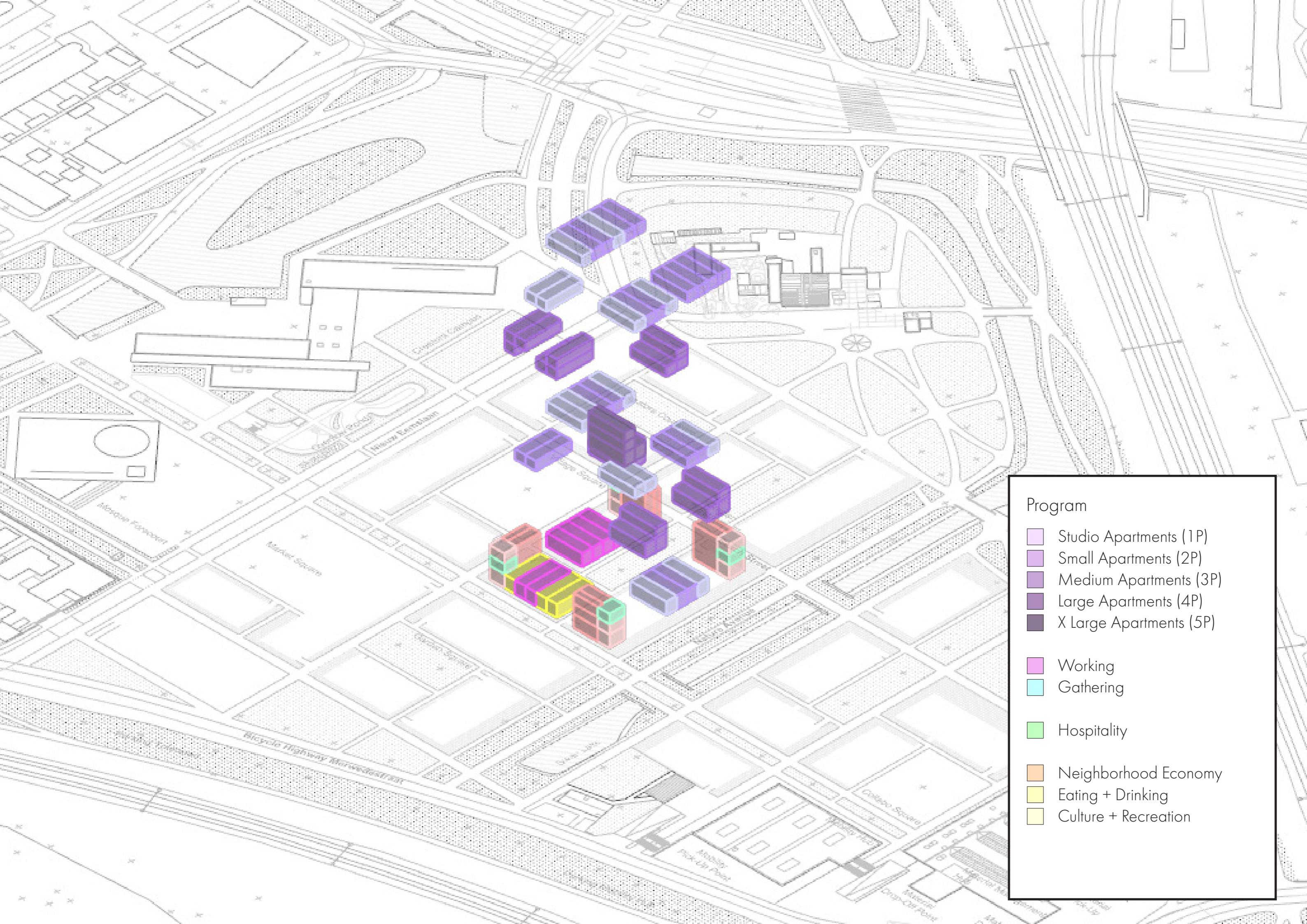
Village garden.

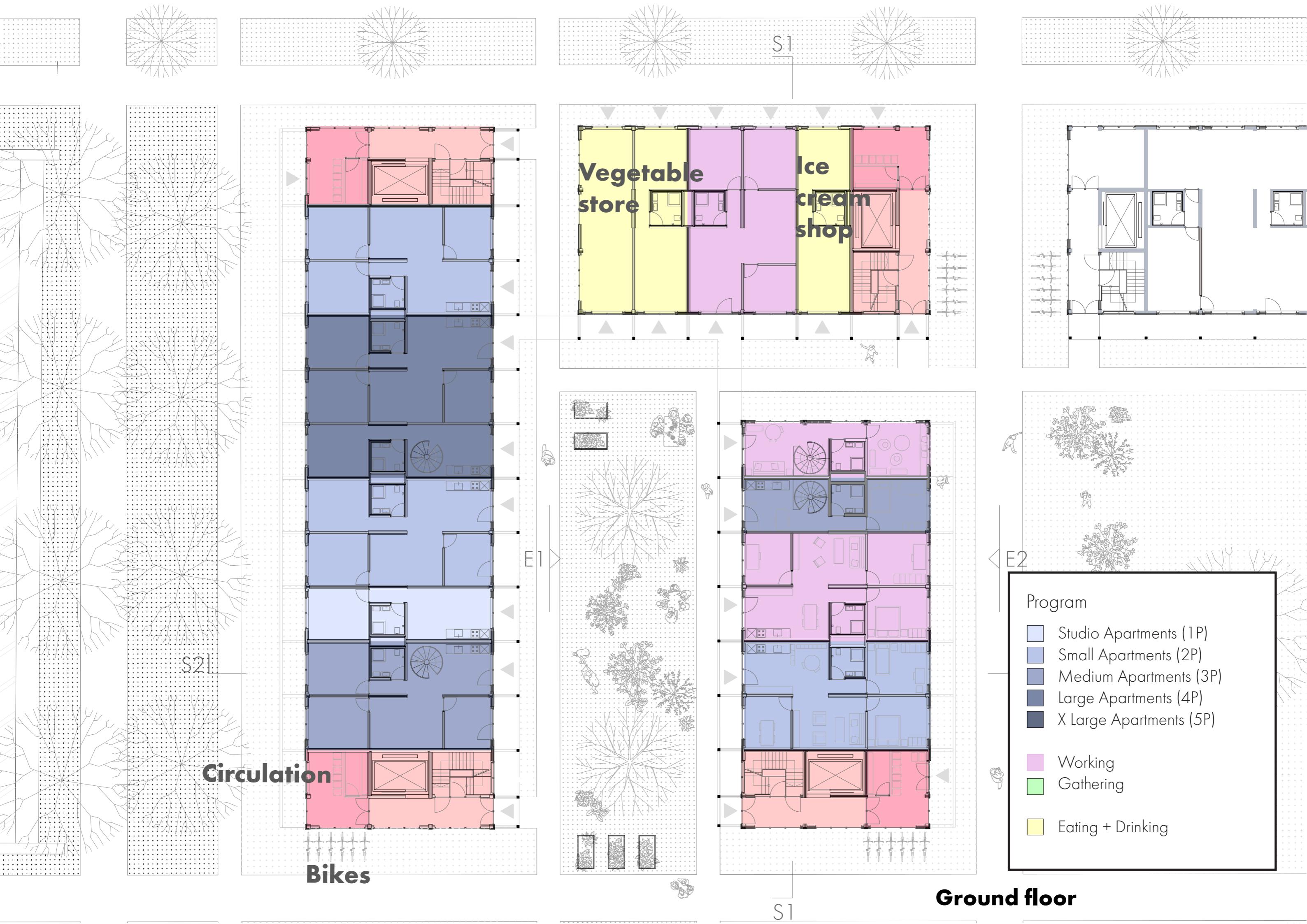


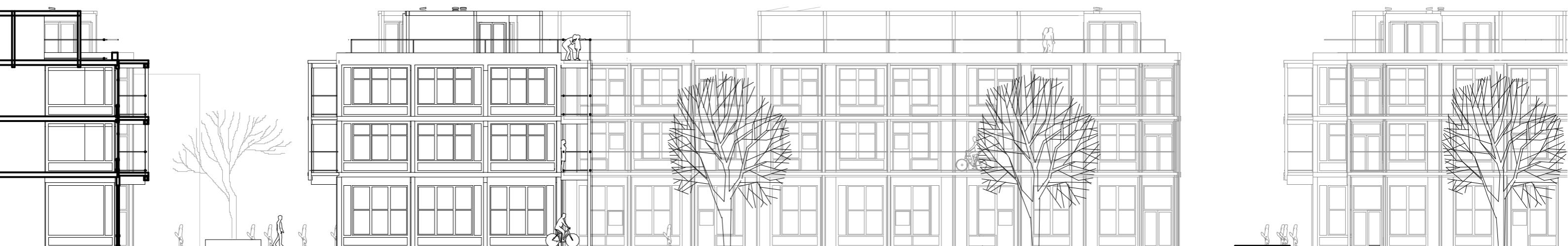
Residents + friends.

**Meeting +
playing space.**

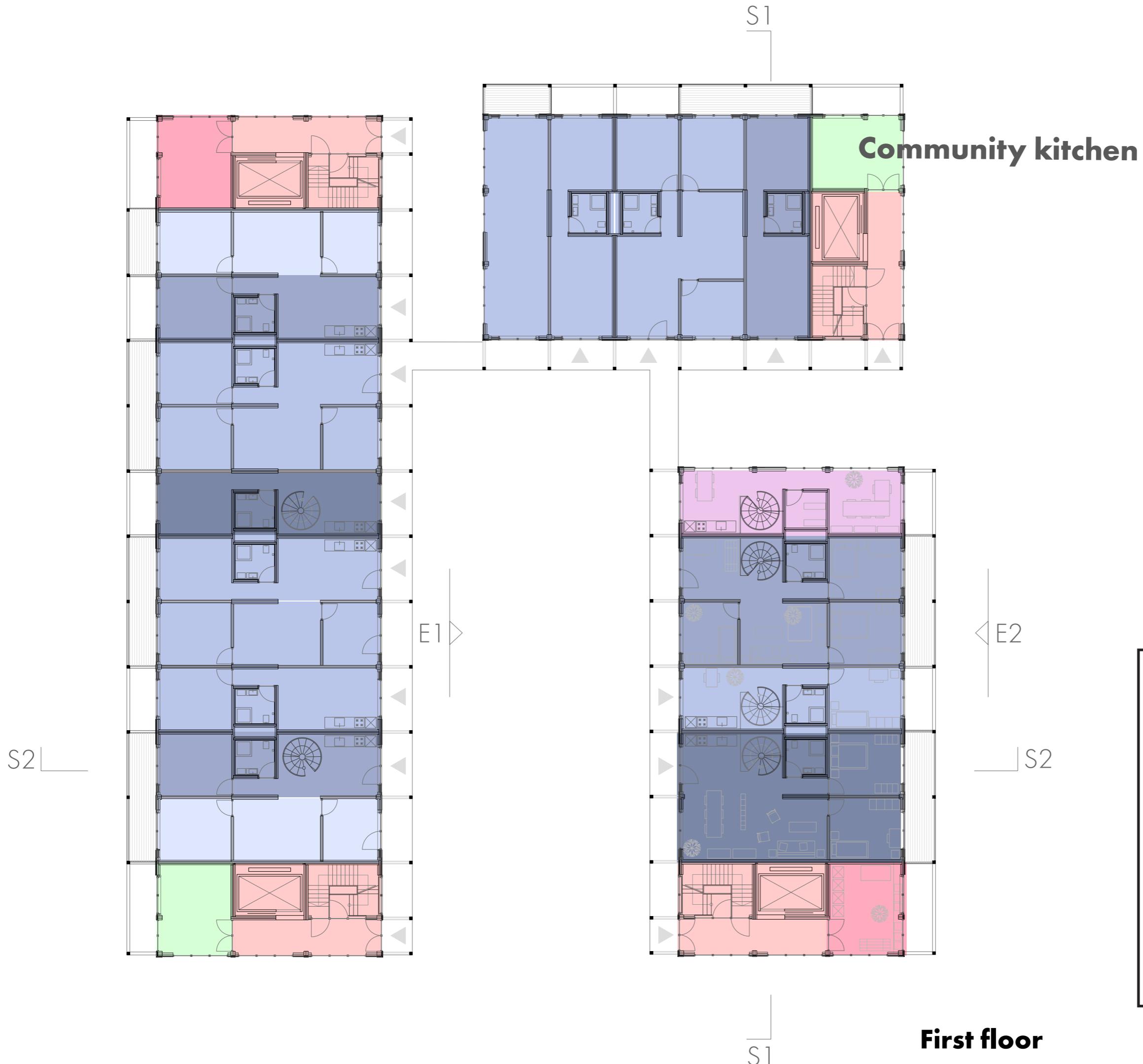
Village garden.





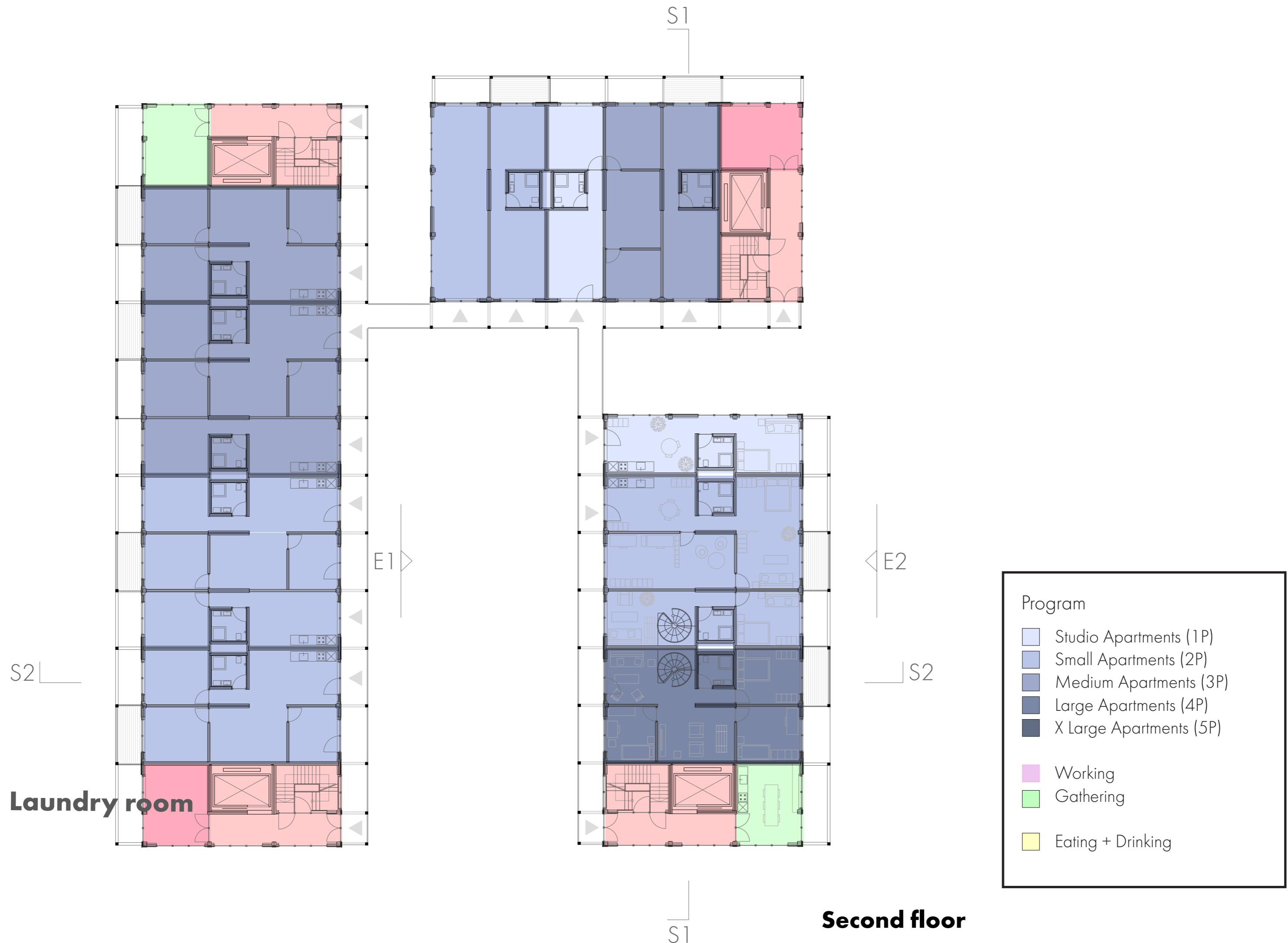


Elevation E1

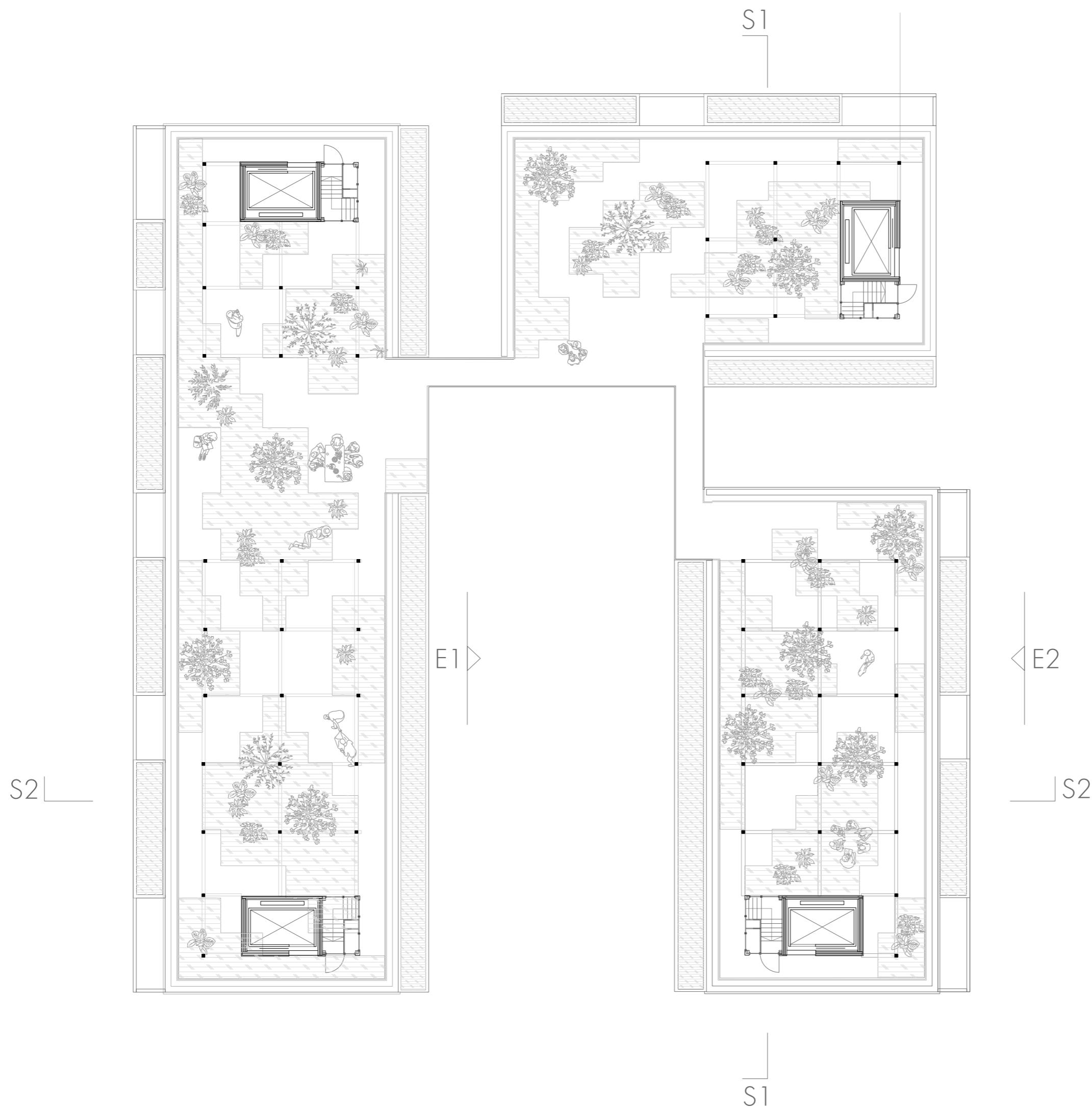


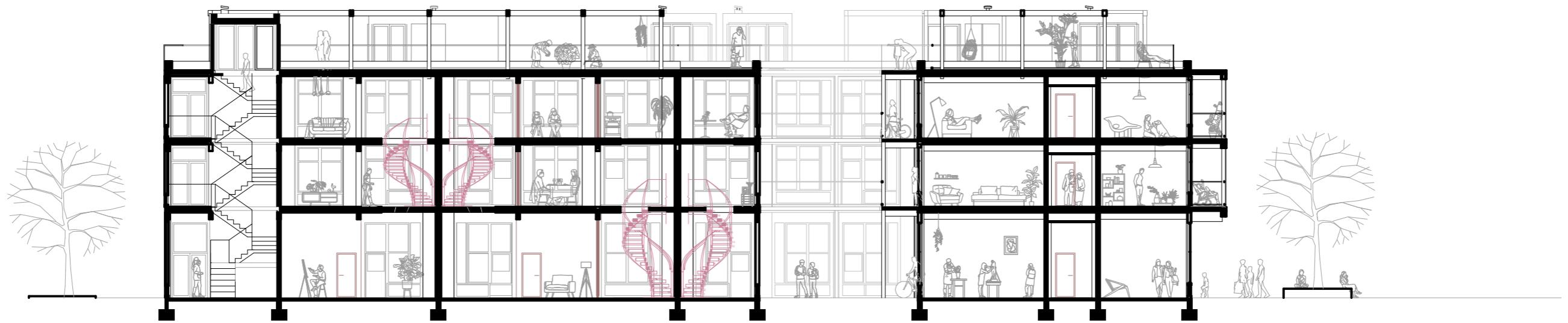
Program	
Studio Apartments (1P)	
Small Apartments (2P)	
Medium Apartments (3P)	
Large Apartments (4P)	
X Large Apartments (5P)	
Working	
Gathering	
Eating + Drinking	

First floor









Interior stairs
= Duplex



Roof garden



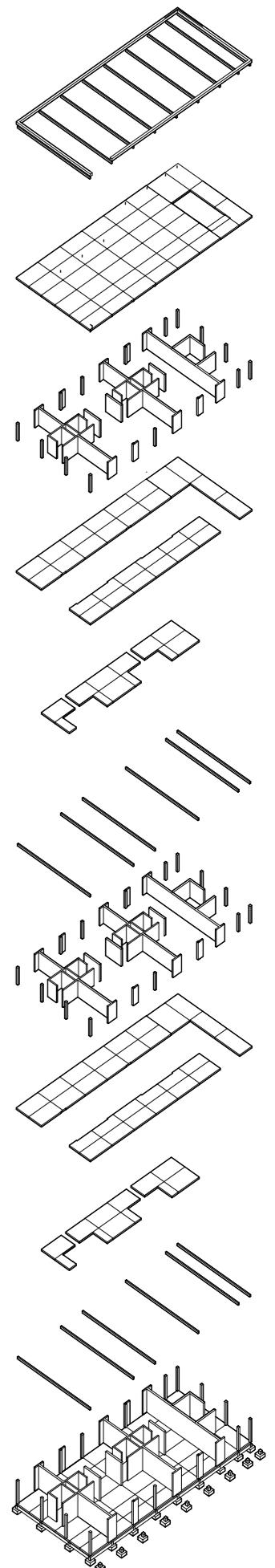
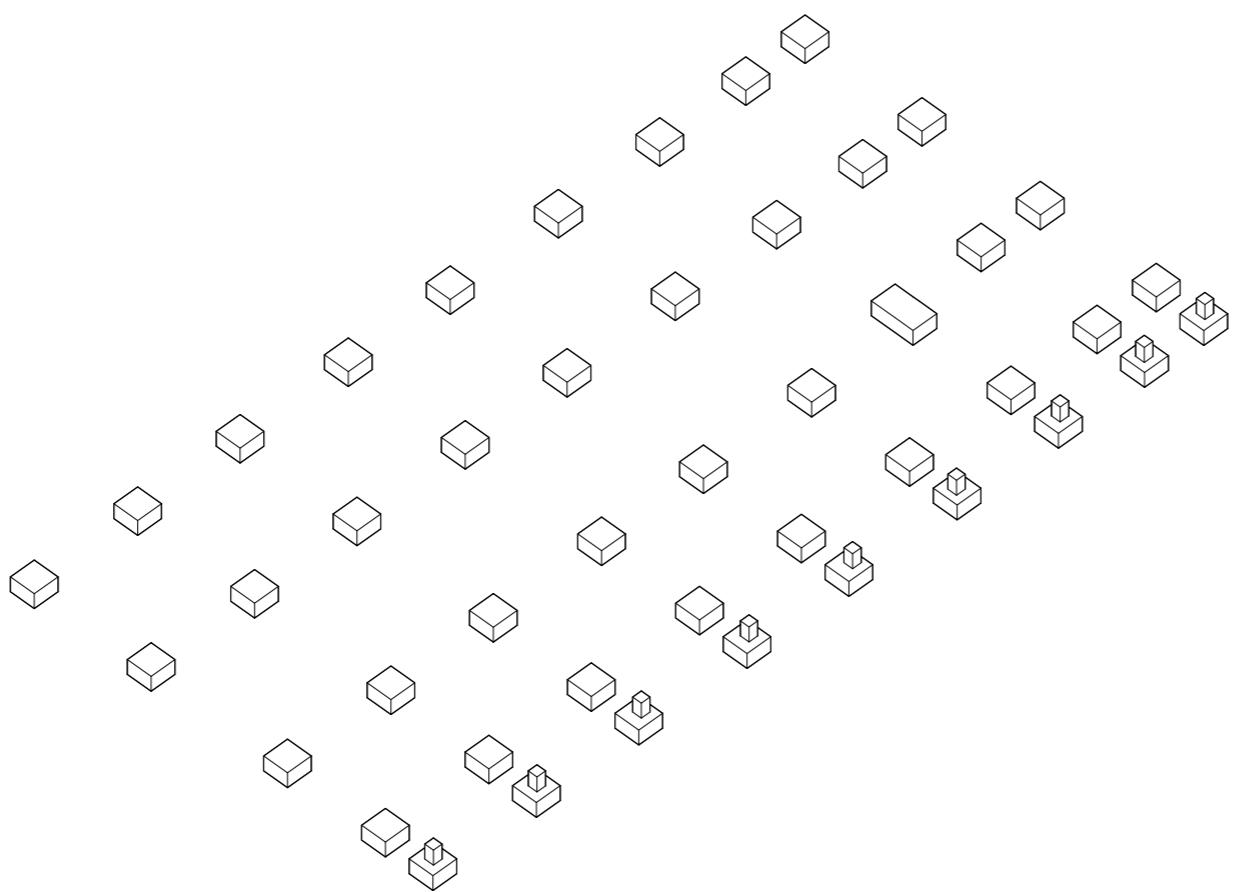
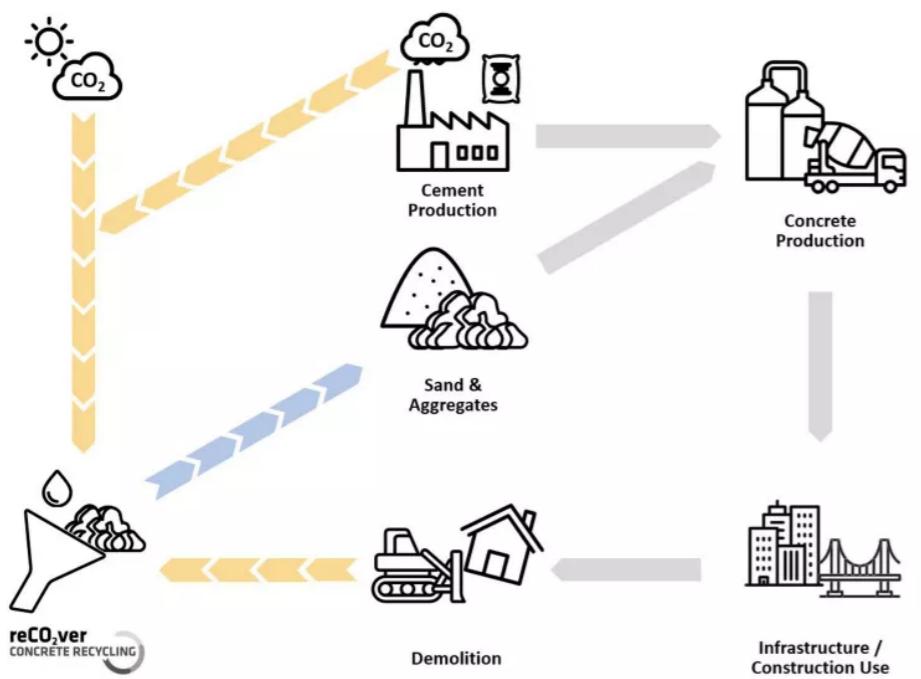
Village garden

Village square

Section S2



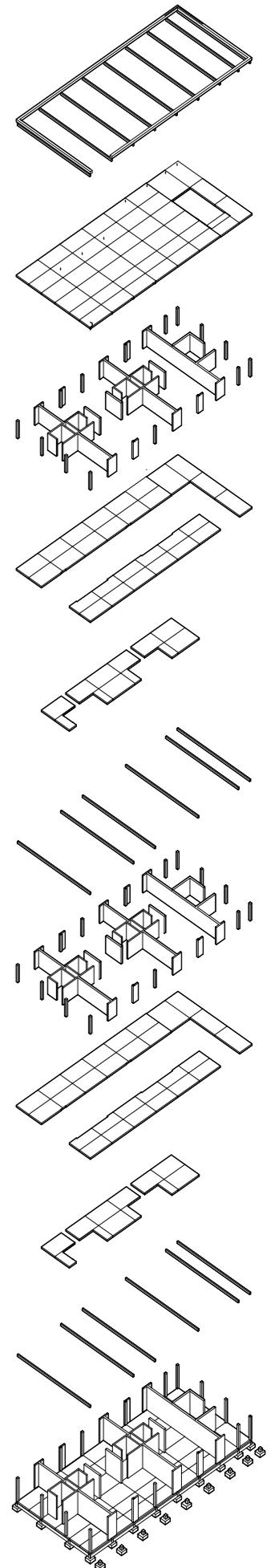
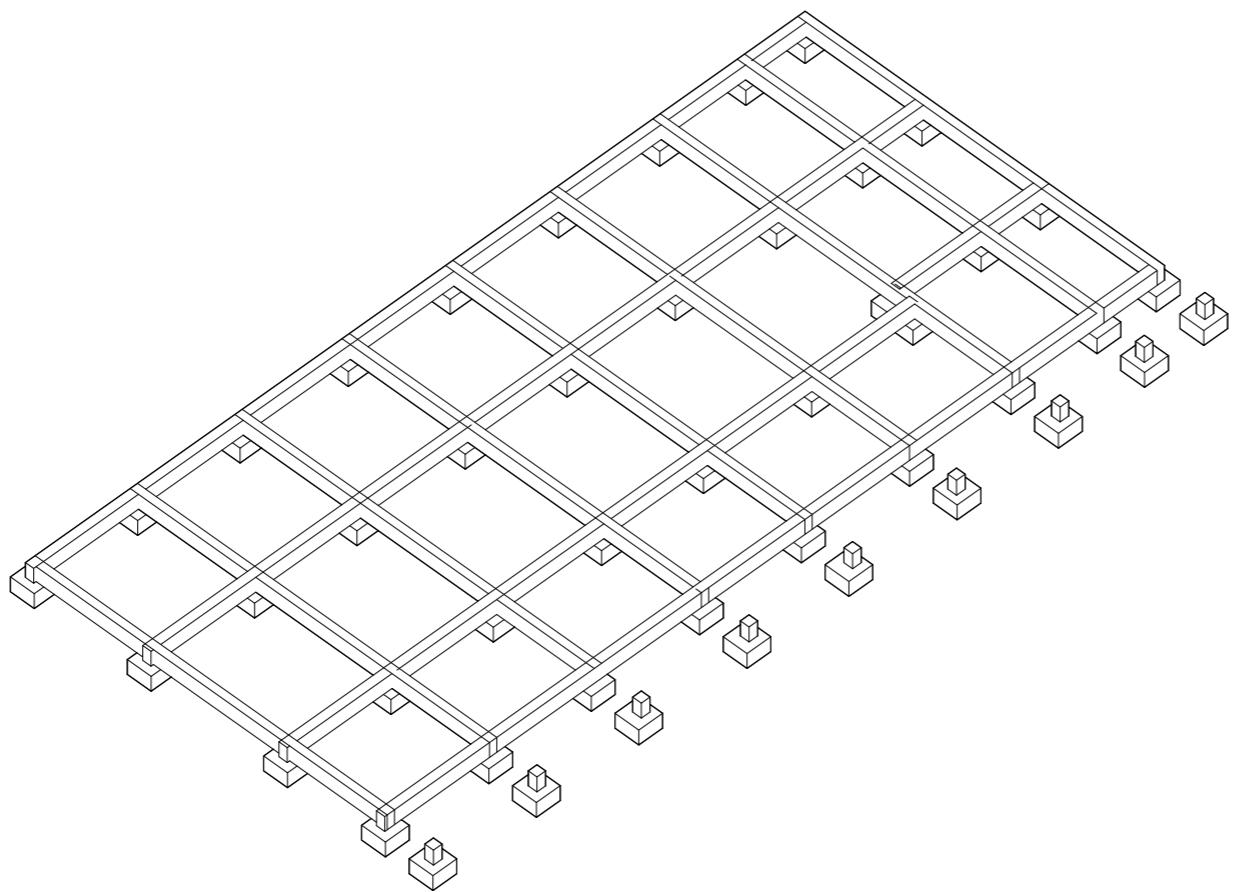
Build-up sequence.



Modular pad + beam foundation. Reco2ver concrete.

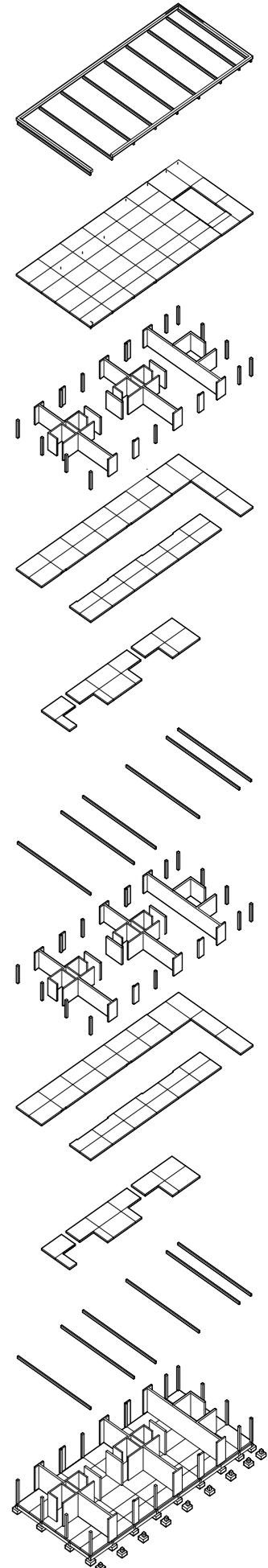
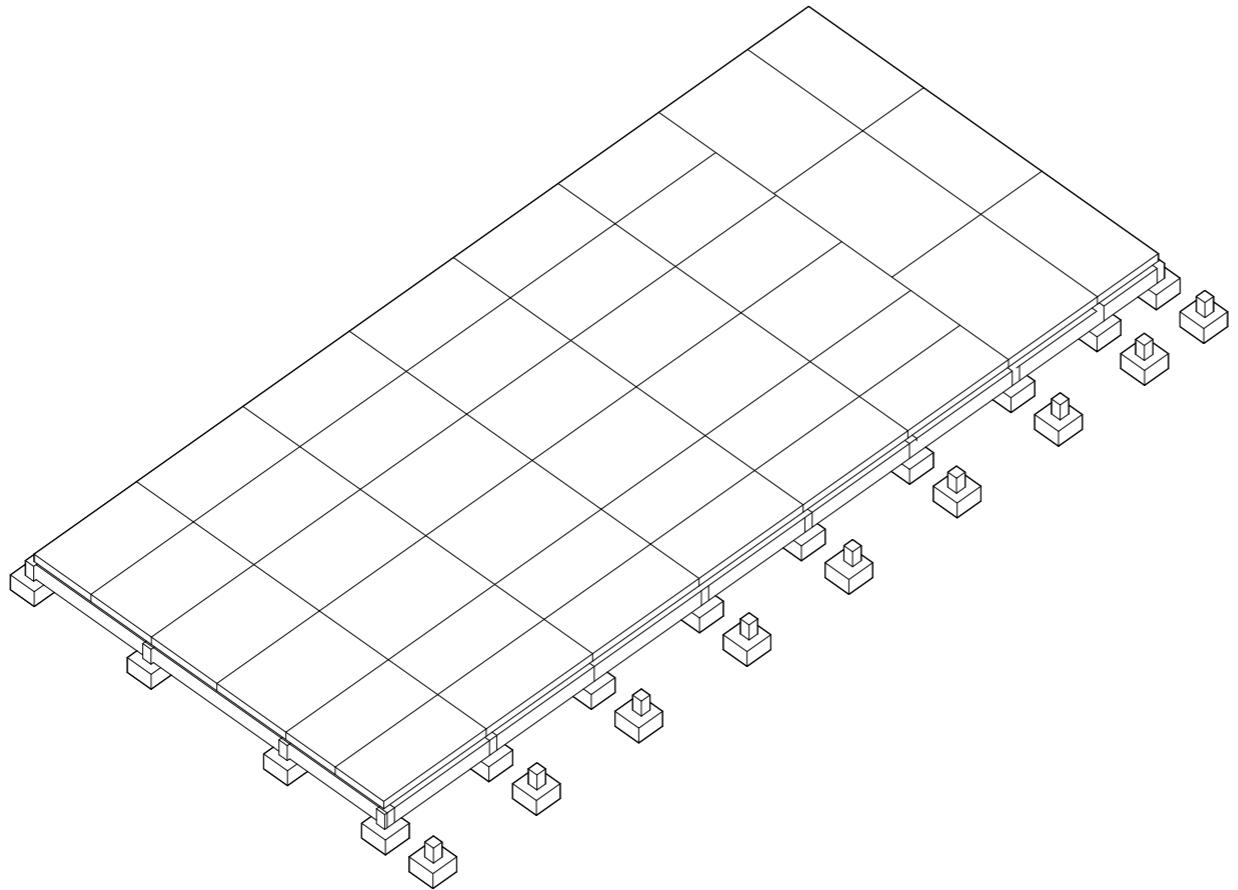
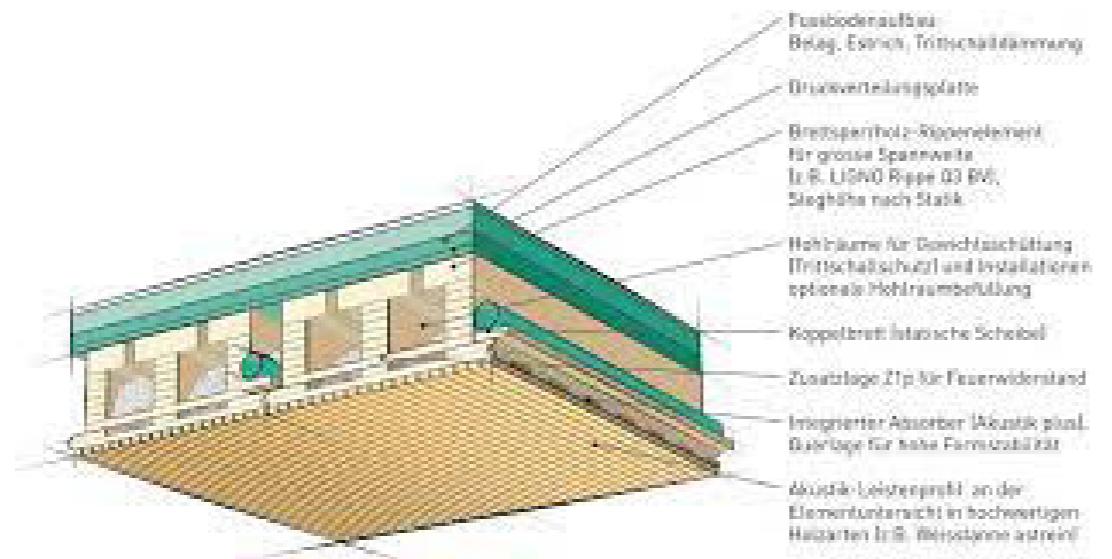
Build-up sequence.

Reversible!



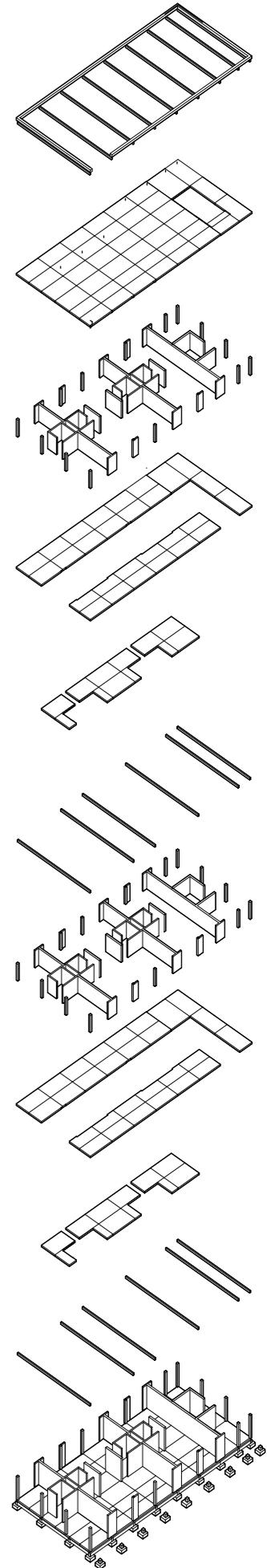
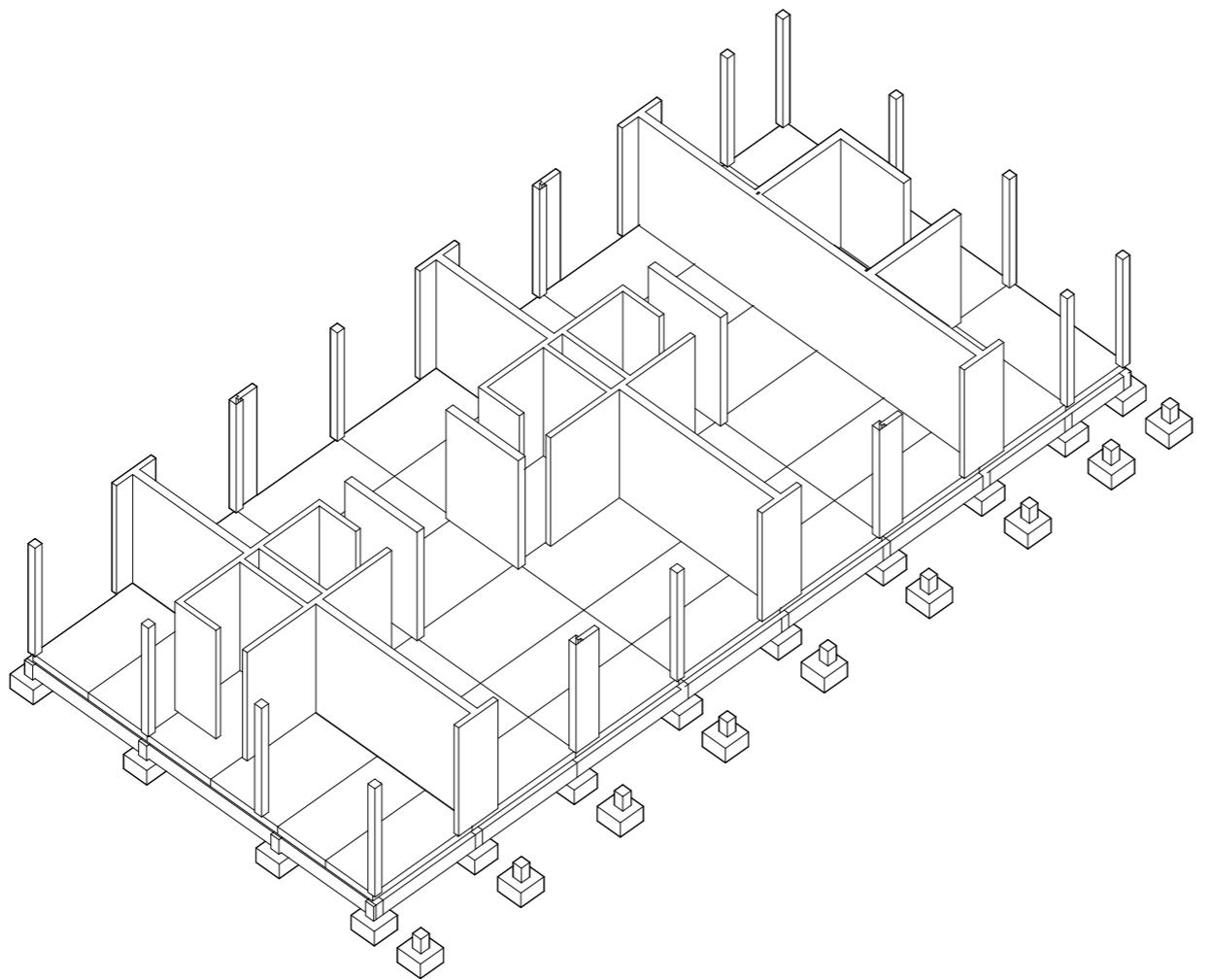
Modular pad + beam foundation. **Reco2ver concrete.**

Build-up sequence.



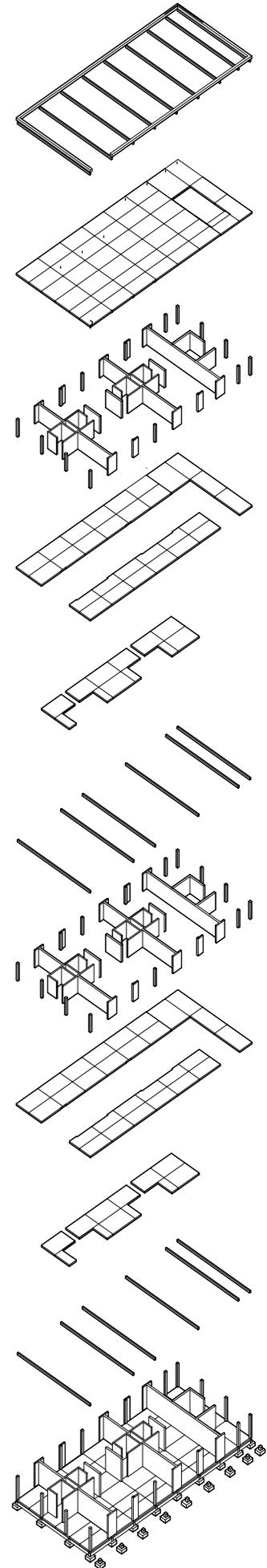
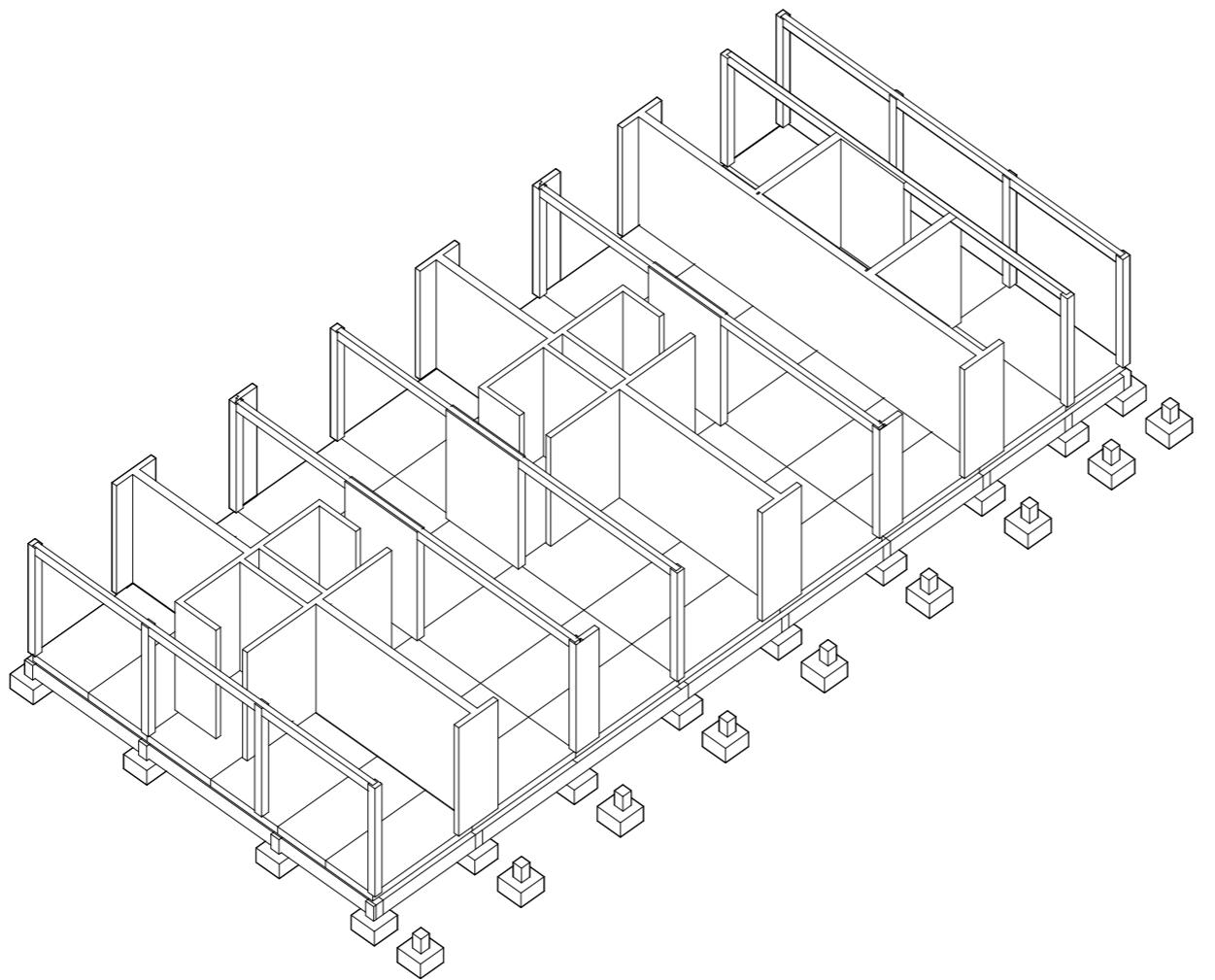
Modular timber system floor. Lignotrend "Rippe". Local Veluwe-larch.

Build-up sequence.



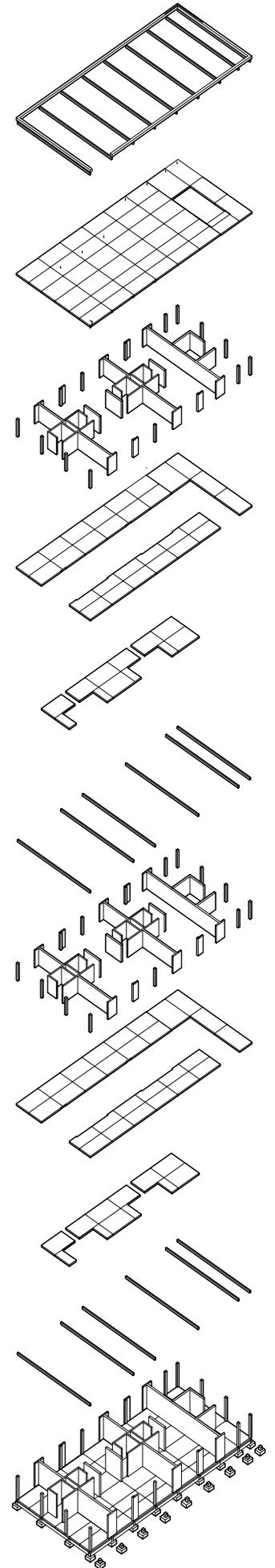
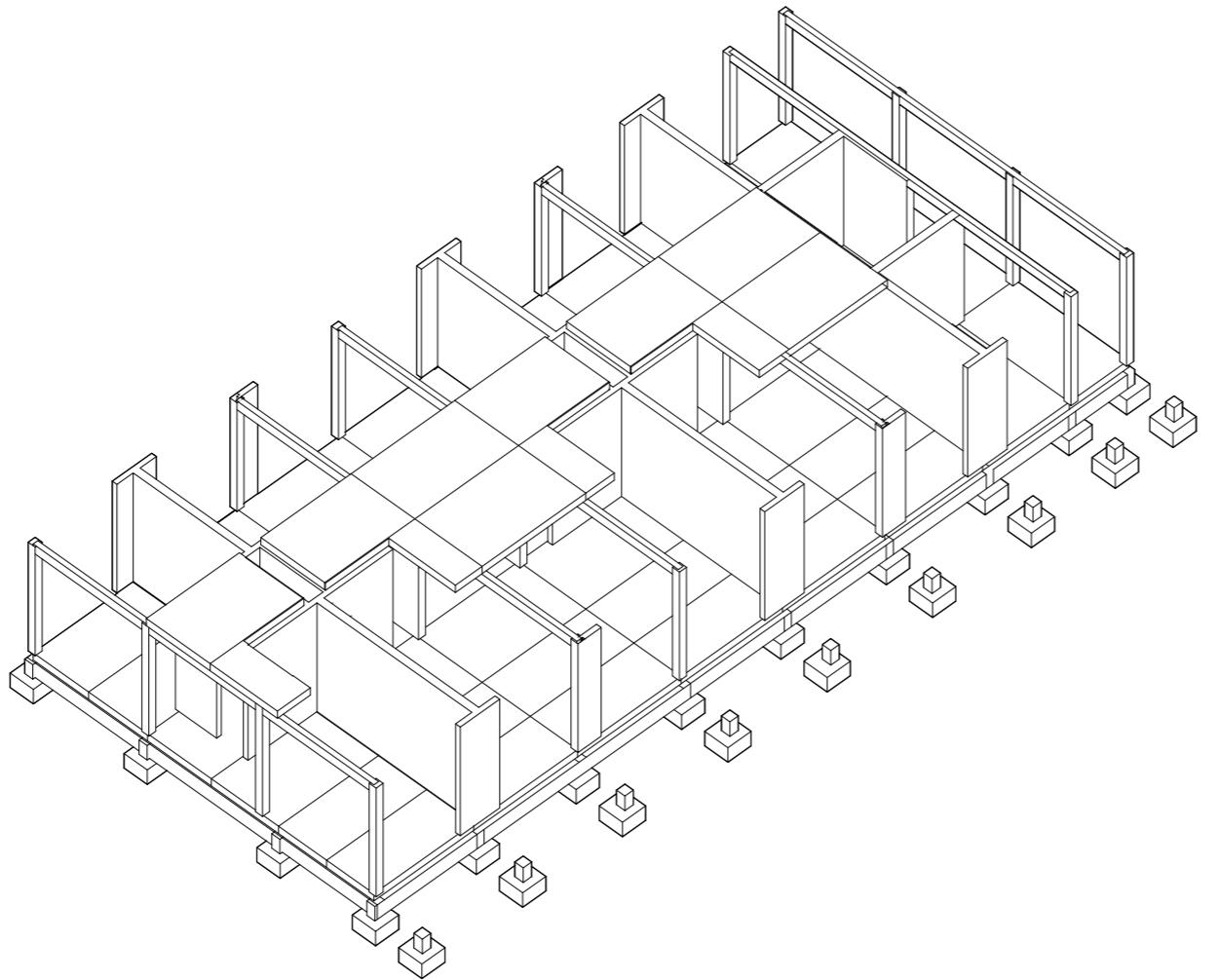
Prefabricated Wet-cell modules + Post/ Shear wall elements.
Local Veluwe-larch.

Build-up sequence.



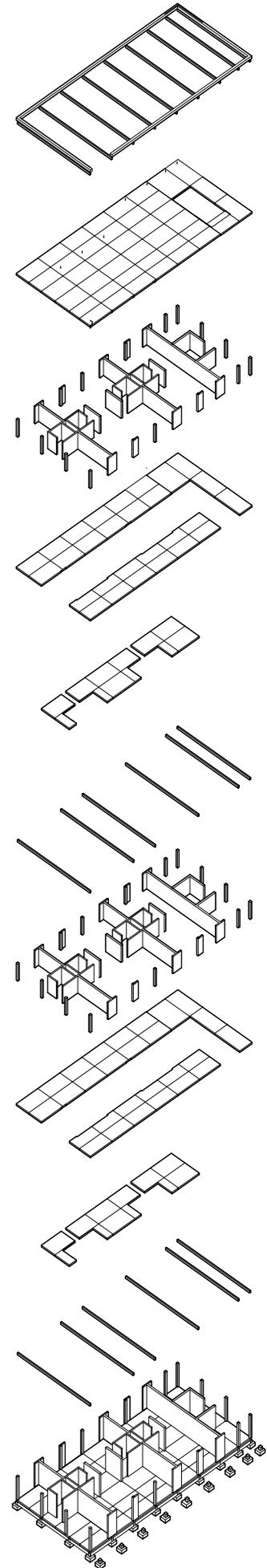
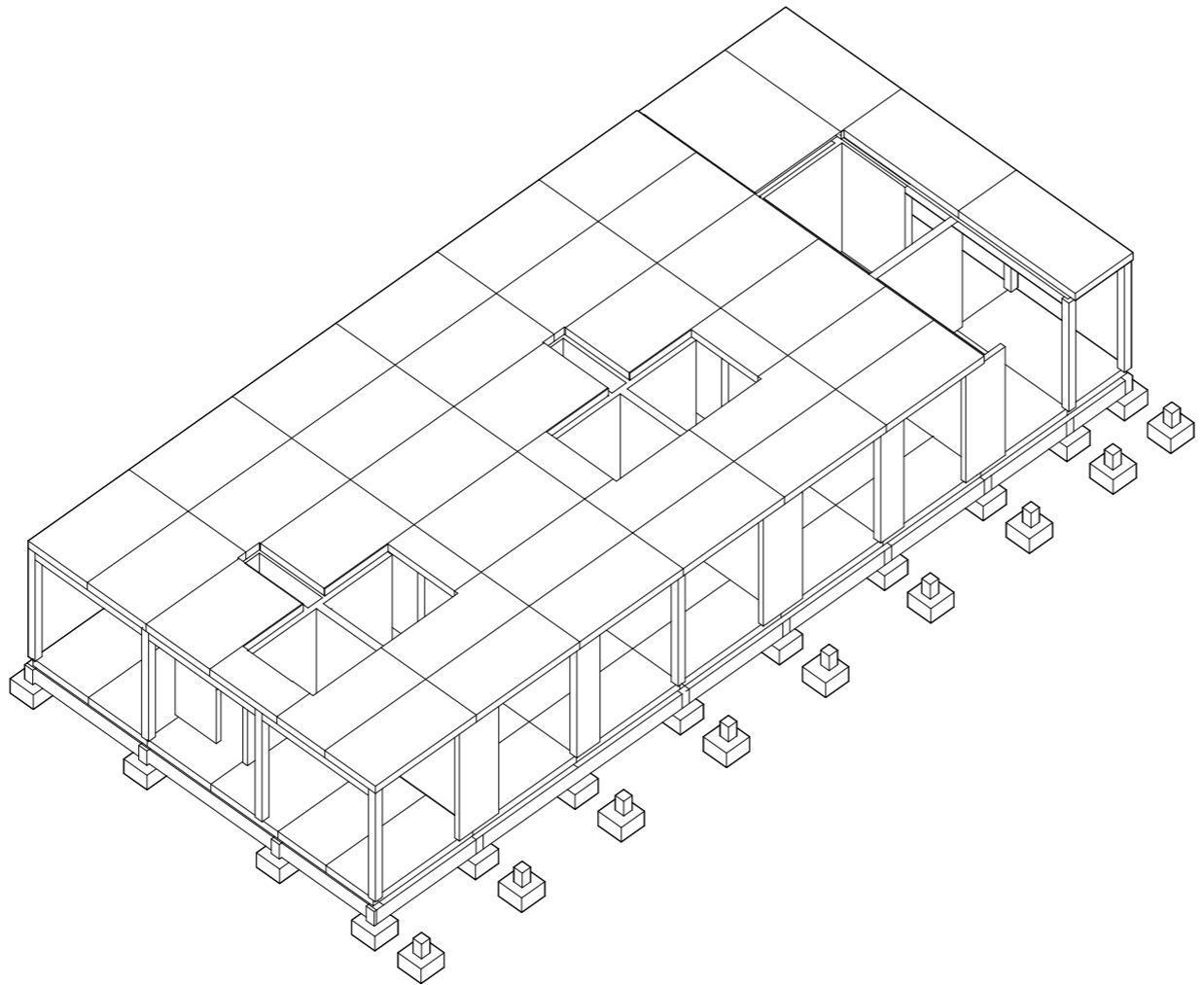
Glulam beam elements. Local Veluwe-larch.

Build-up sequence.



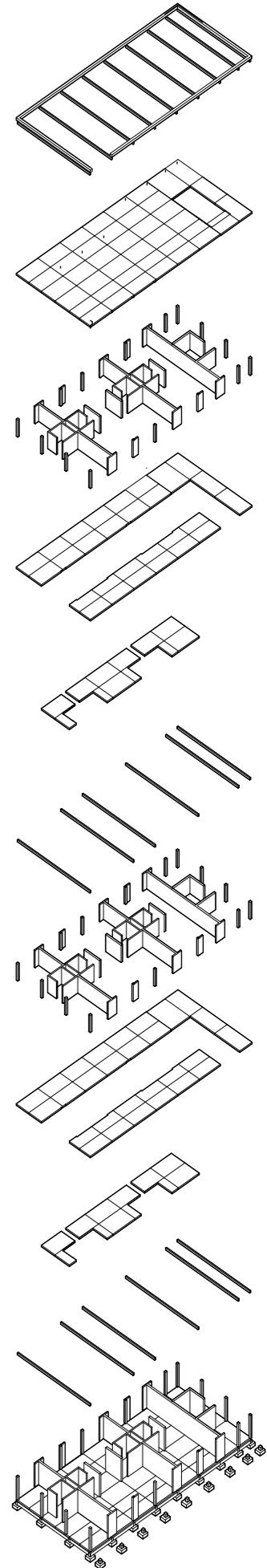
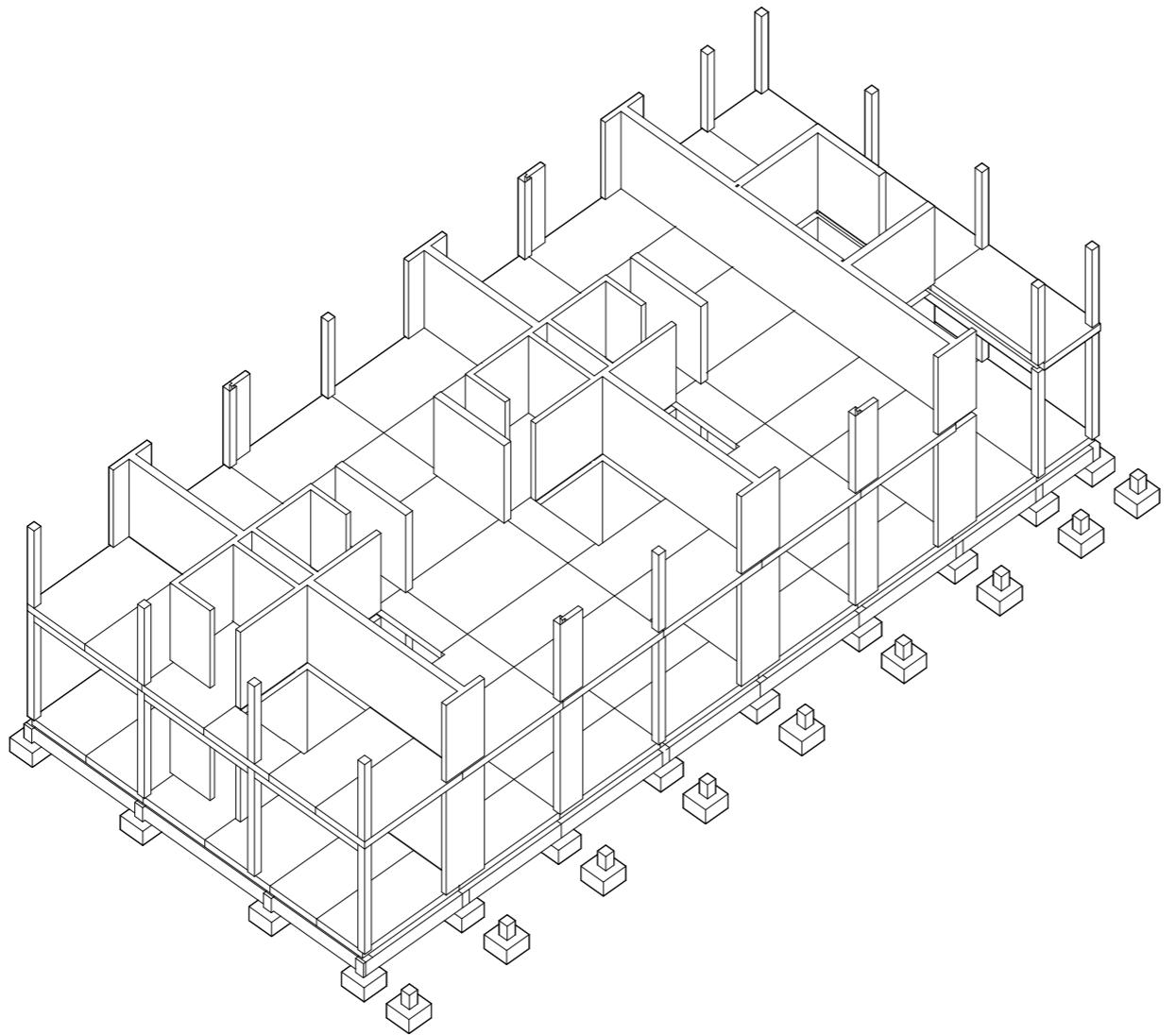
Stiffening CLT slab elements. Local Veluwe-larch.

Build-up sequence.



Modular timber system floor. Lignotrend "Rippe". Local Veluwe-larch.

Build-up sequence.

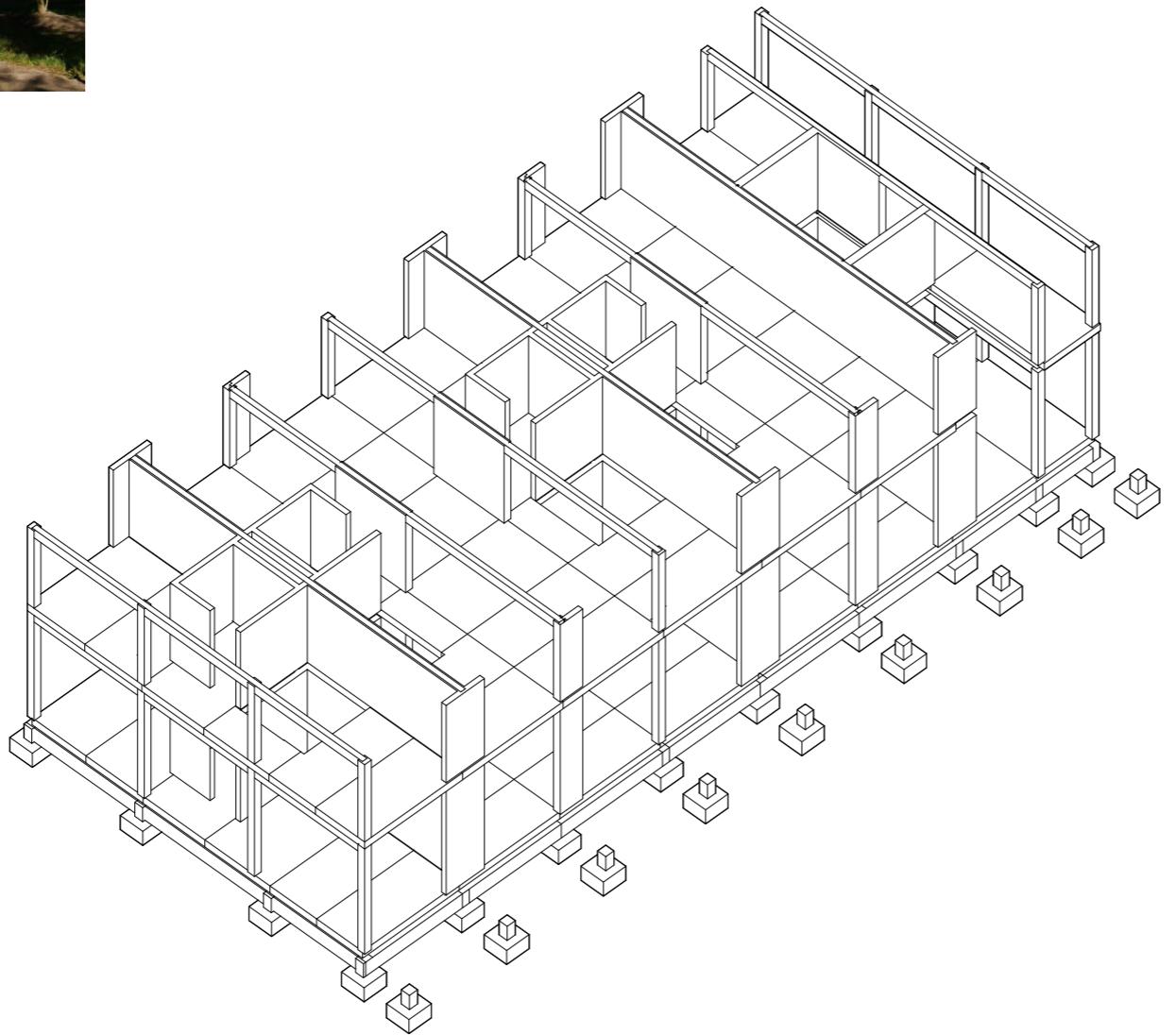


Prefabricated Wet-cell modules + Post/ Shear wall elements.
Local Veluwe-larch.

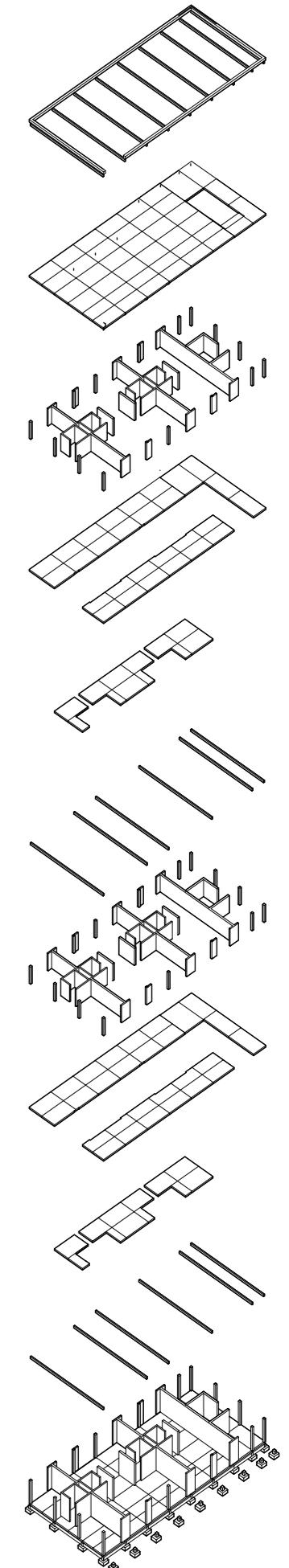
Build-up sequence.



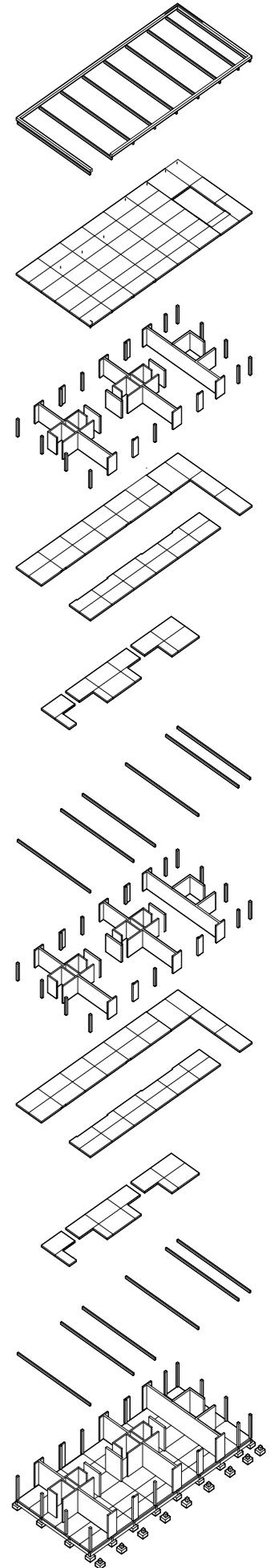
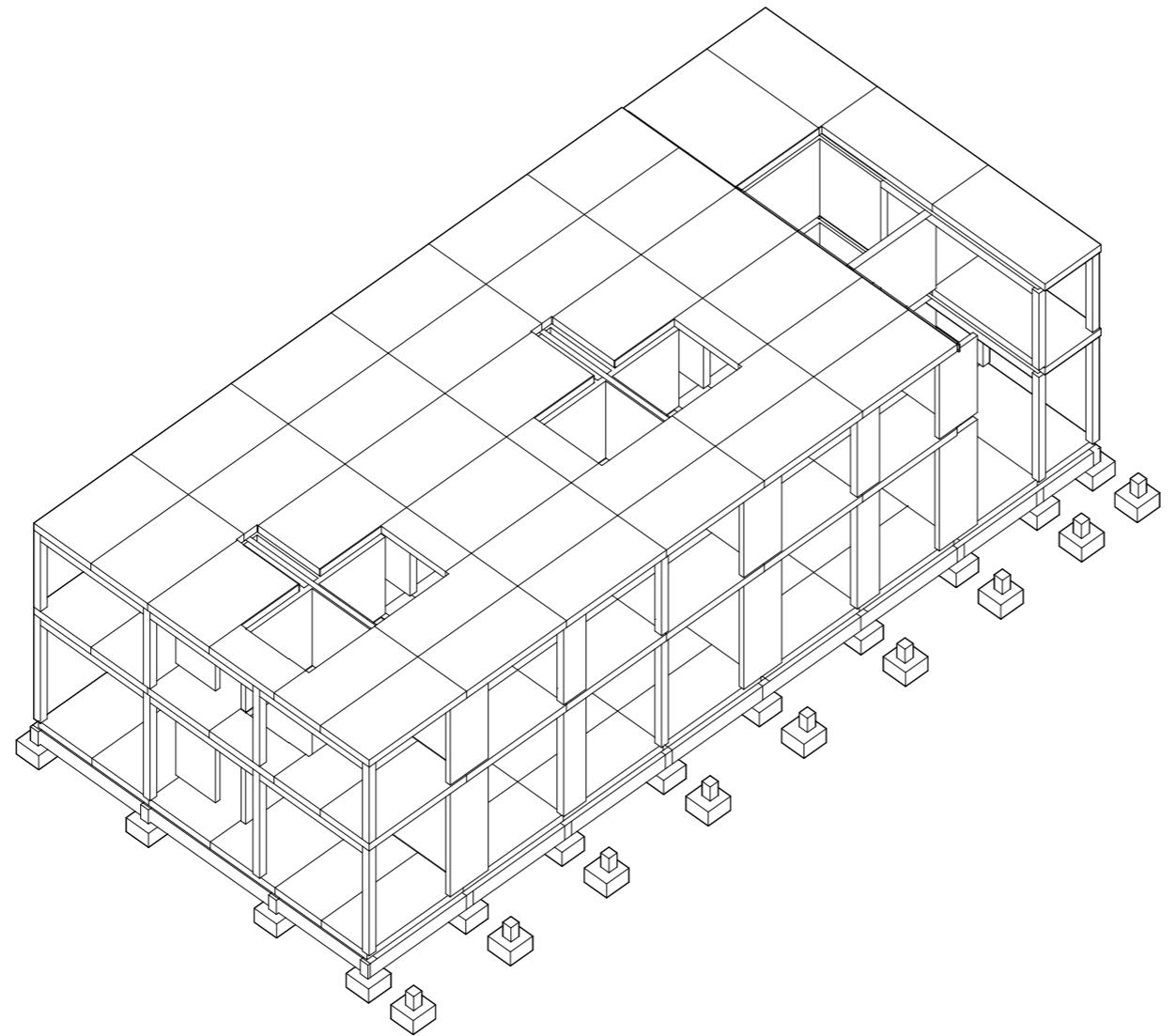
Local!



Glulam beam elements. Local Veluwe-larch.

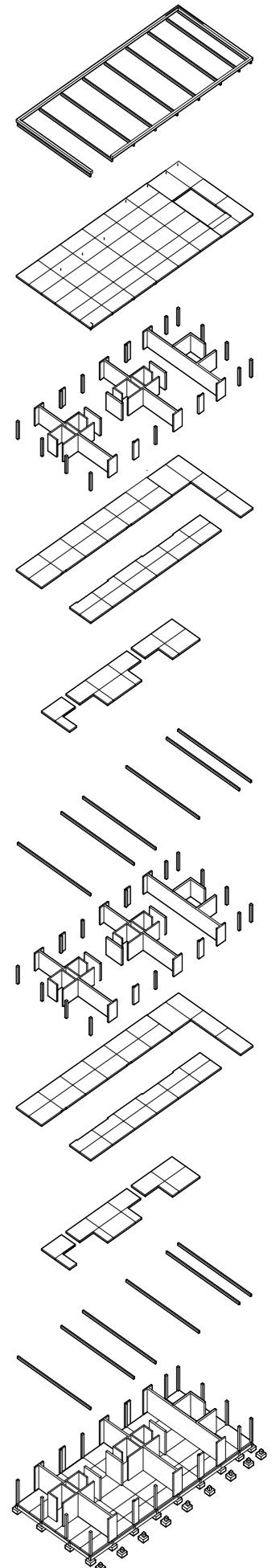
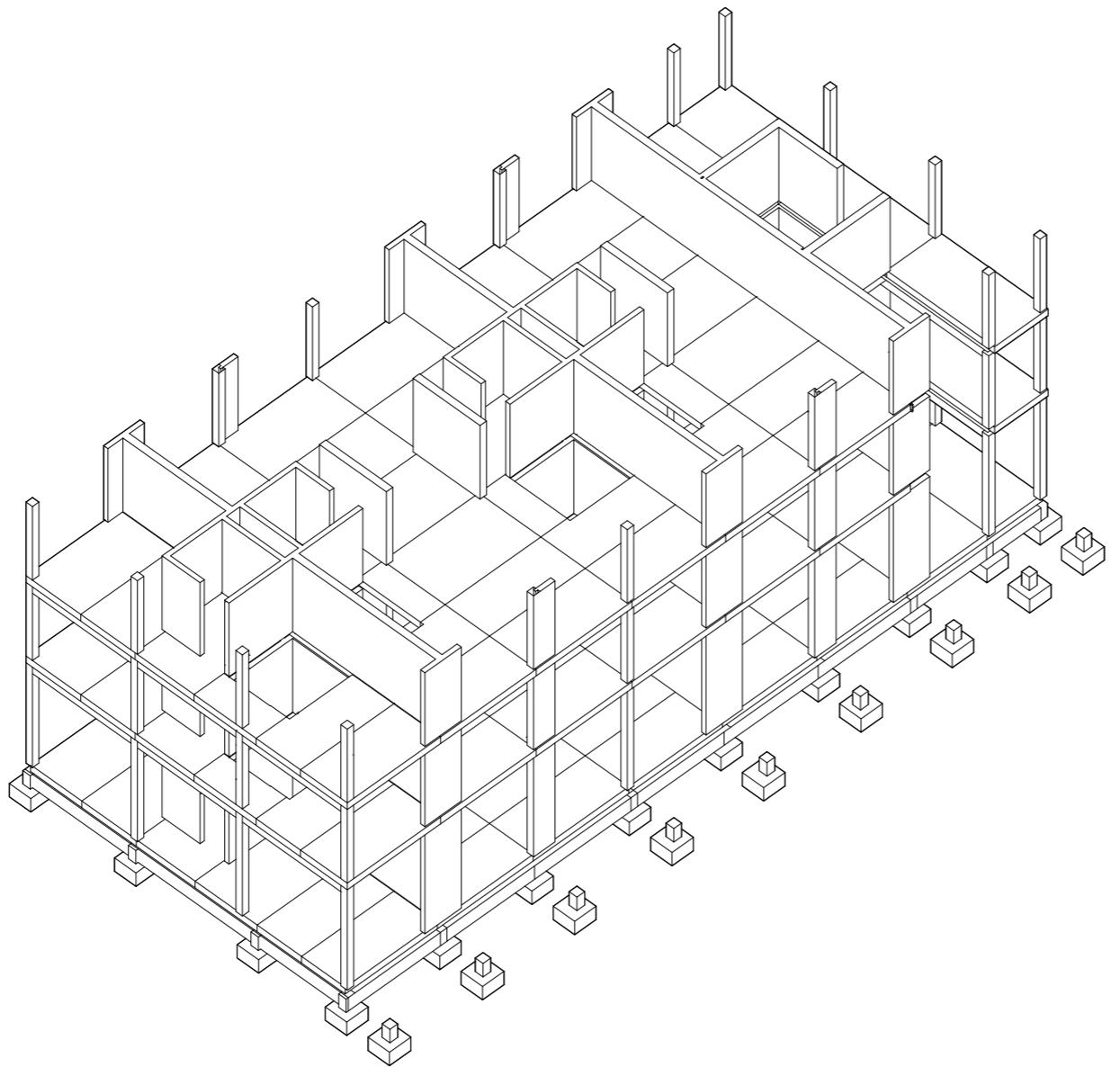


Build-up sequence.



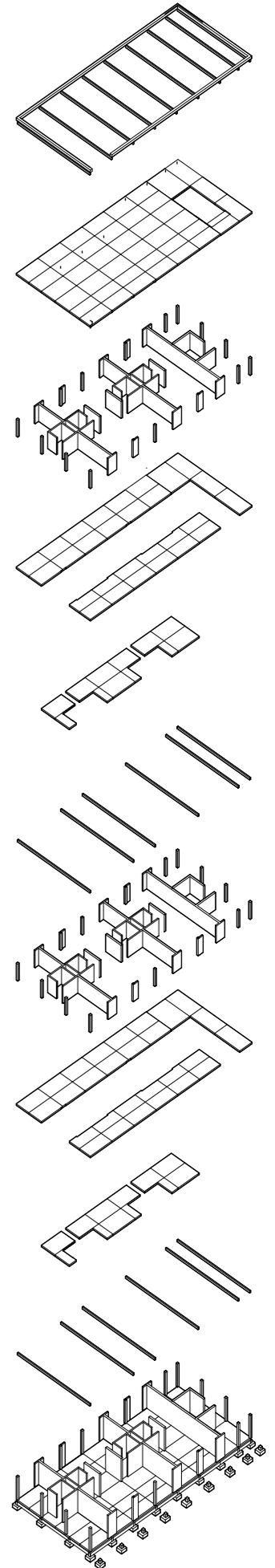
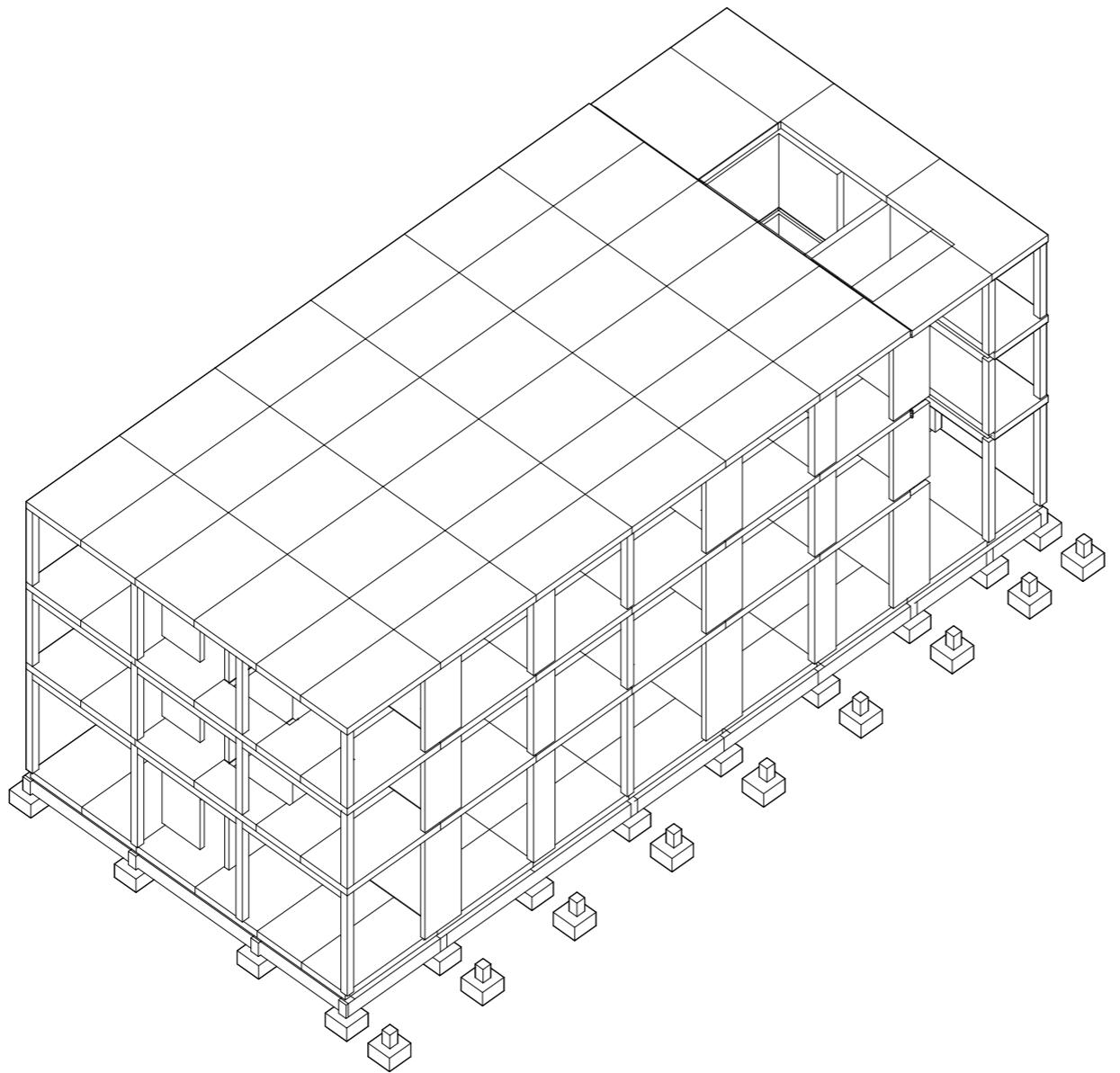
Modular timber system floor. Lignotrend "Rippe". Local Veluwe-larch.

Build-up sequence.



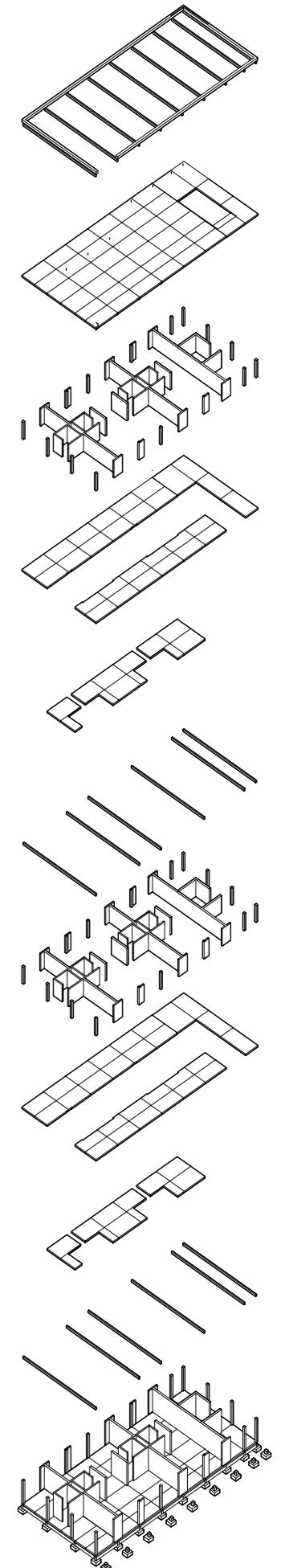
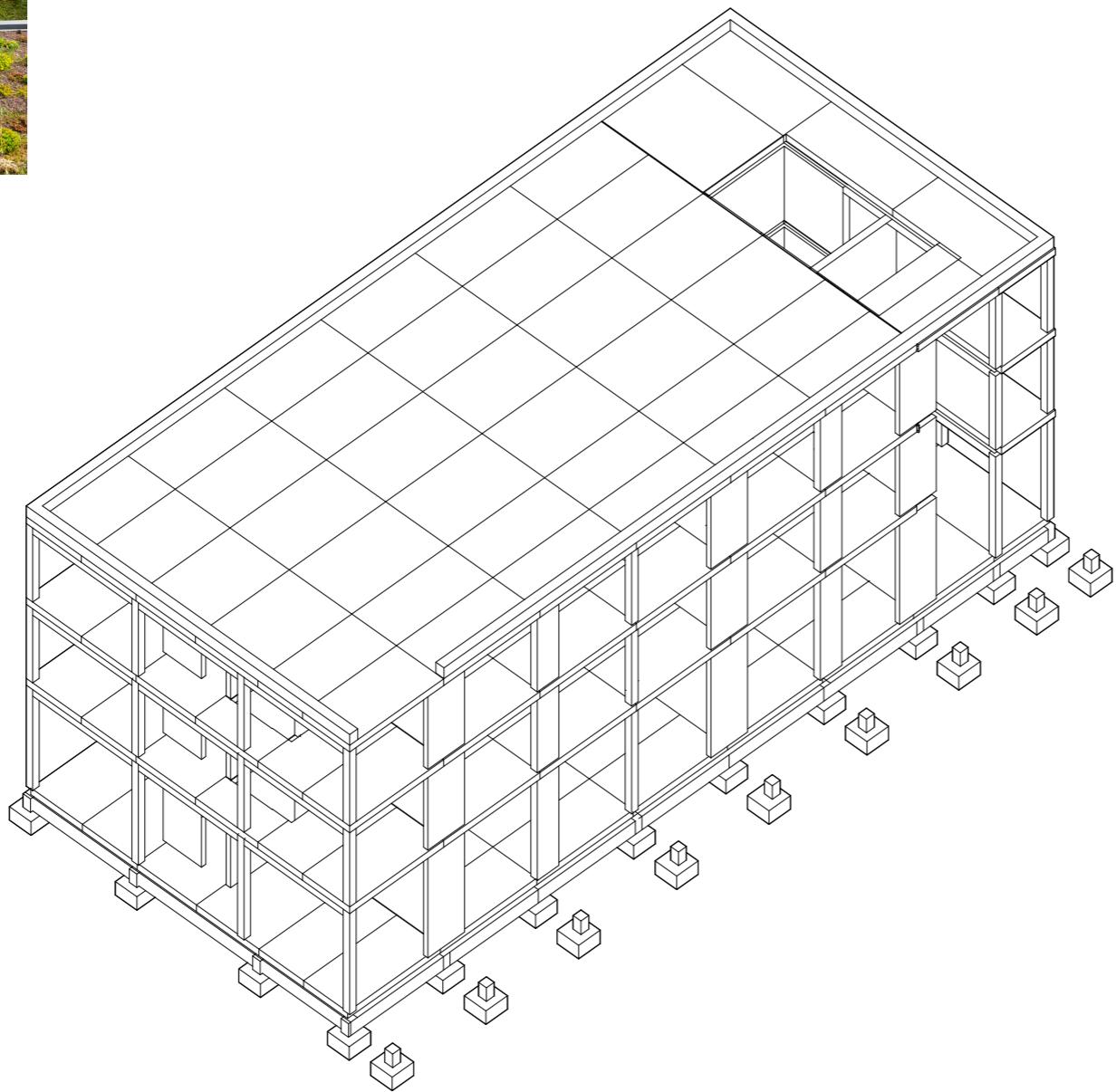
Prefabricated Wet-cell modules + Post/ Shear wall elements.
Local Veluwe-larch.

Build-up sequence.



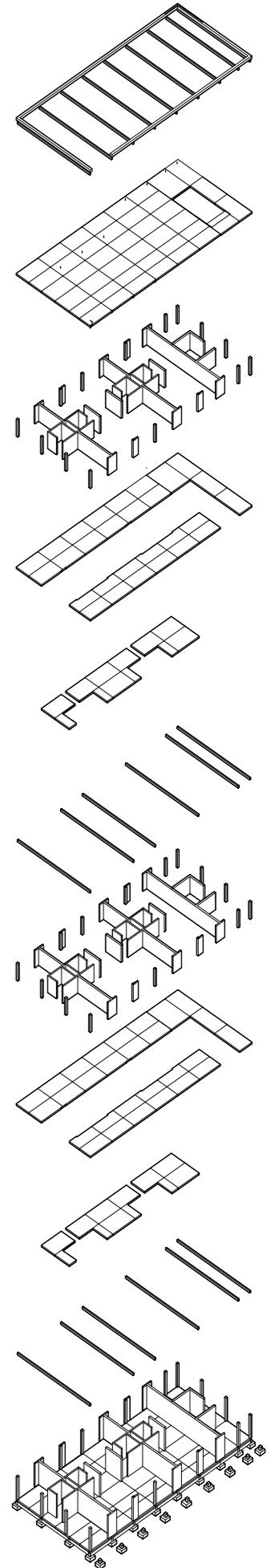
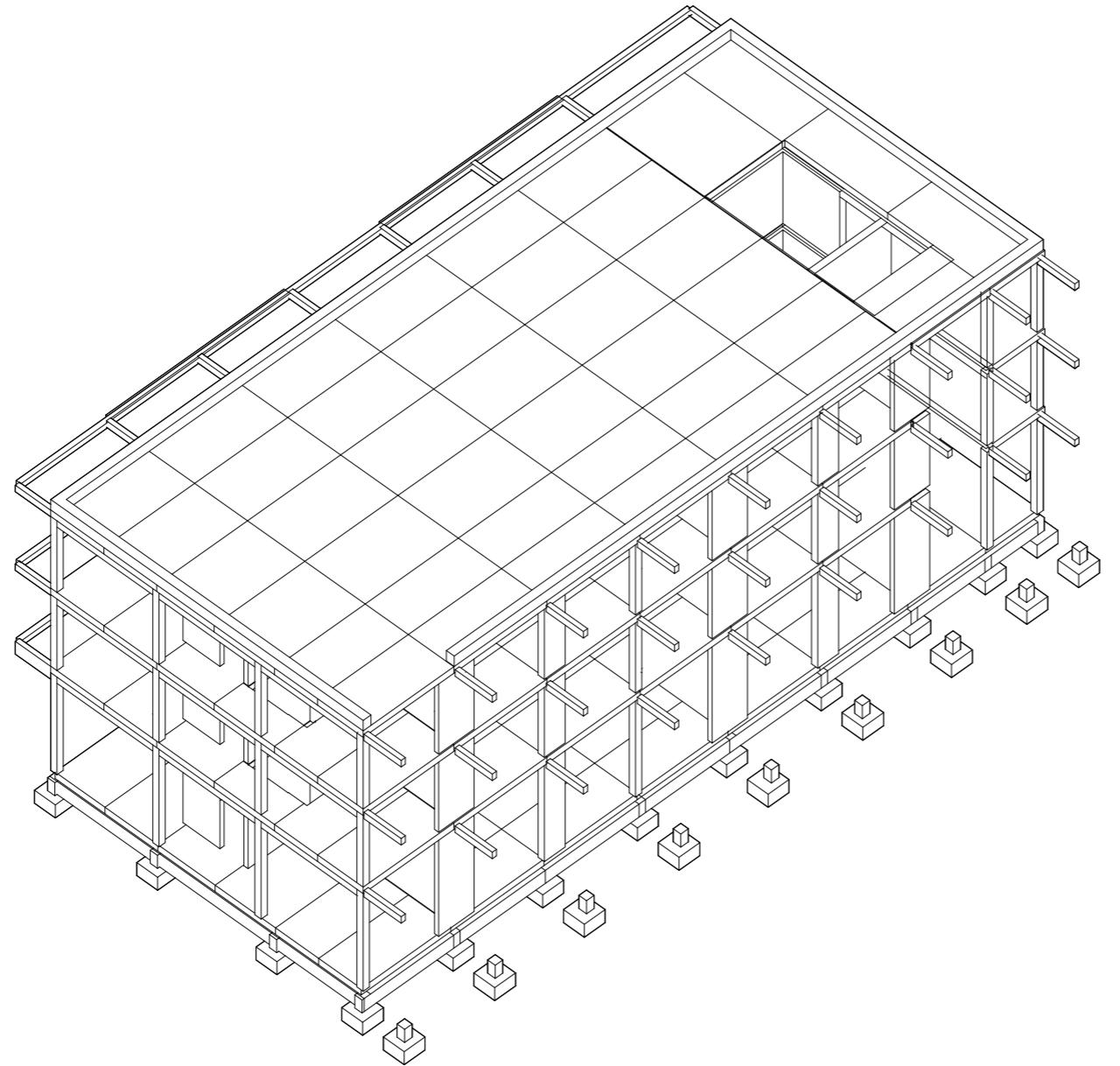
Modular timber roof slabs. Lignotrend "Rippe". Local Veluwe-larch.

Build-up sequence.



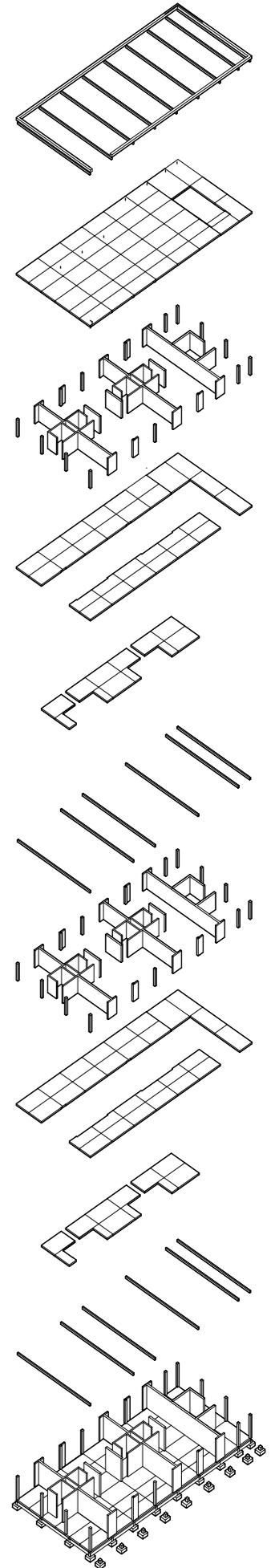
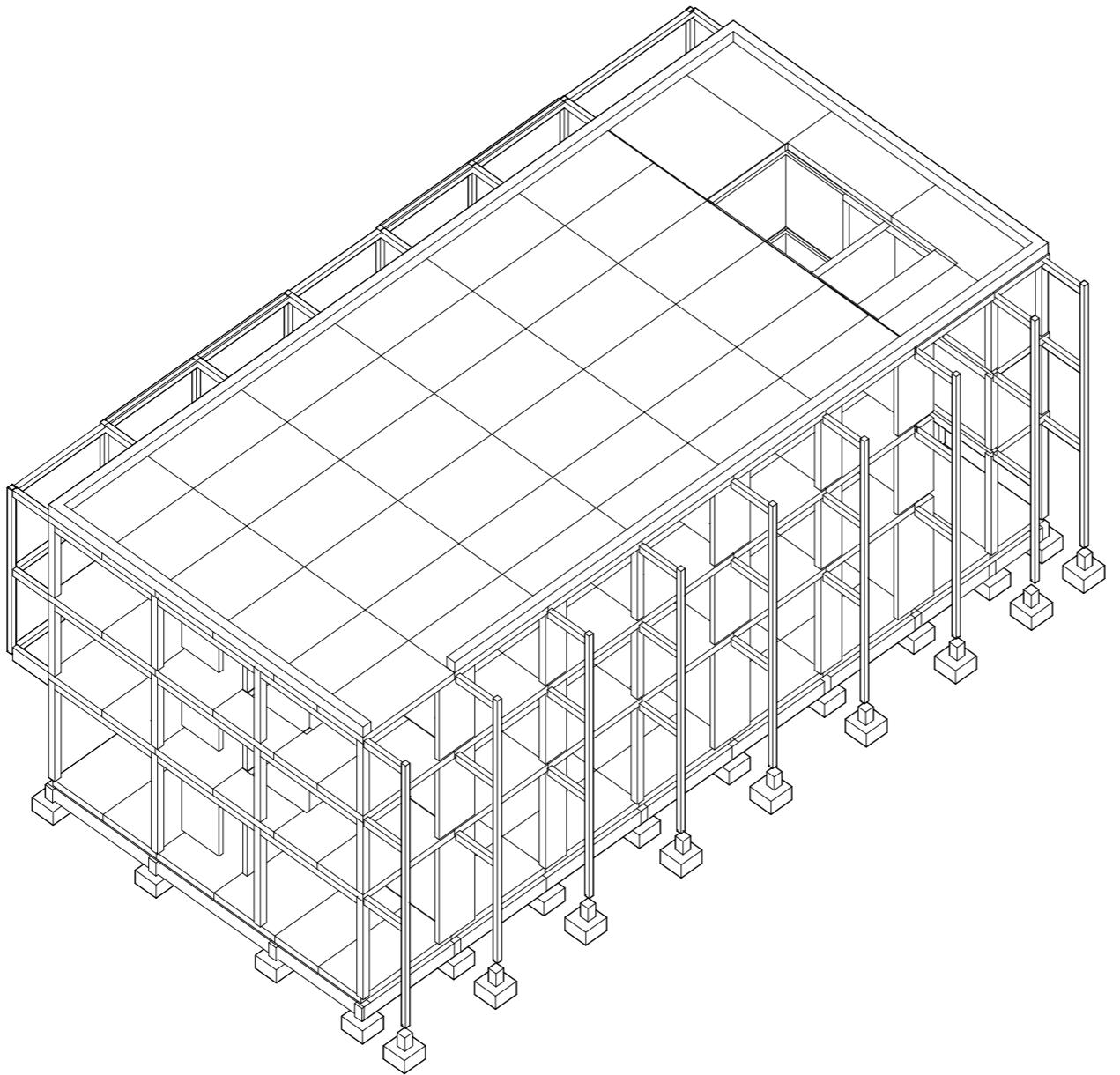
Green roof on circular bitumen sheeting (Citumen). Soil from site, Citumen.

Build-up sequence.



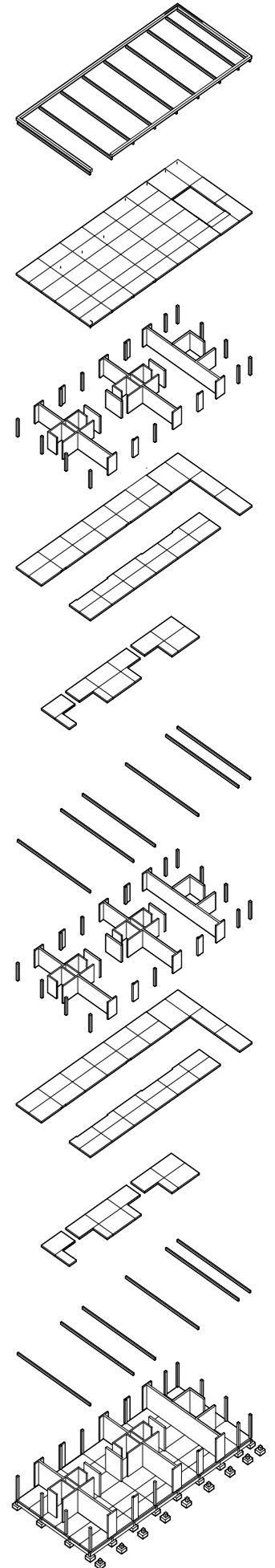
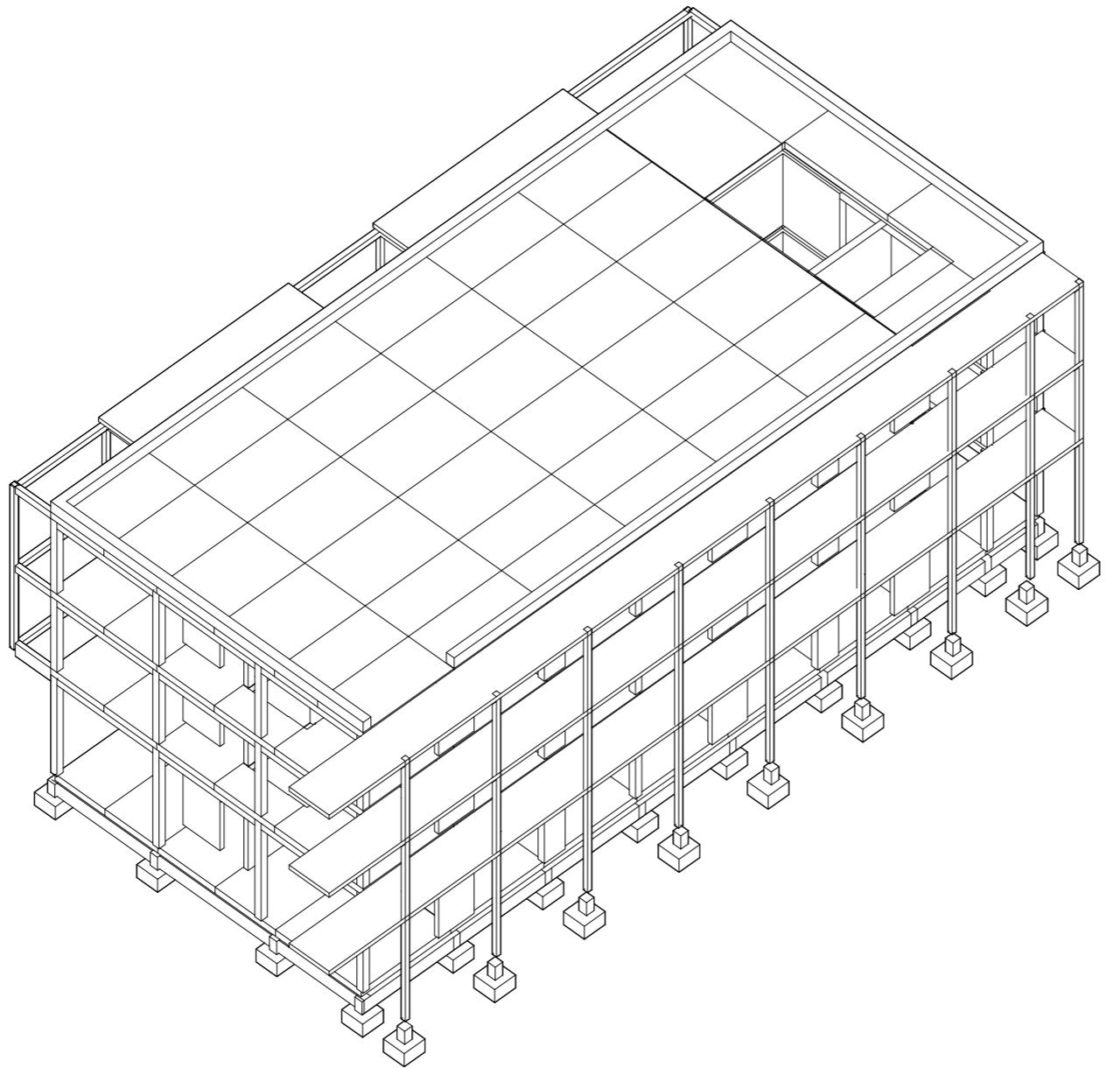
Glulam beams/ cantilevers. Local Veluwe larch.

Build-up sequence.



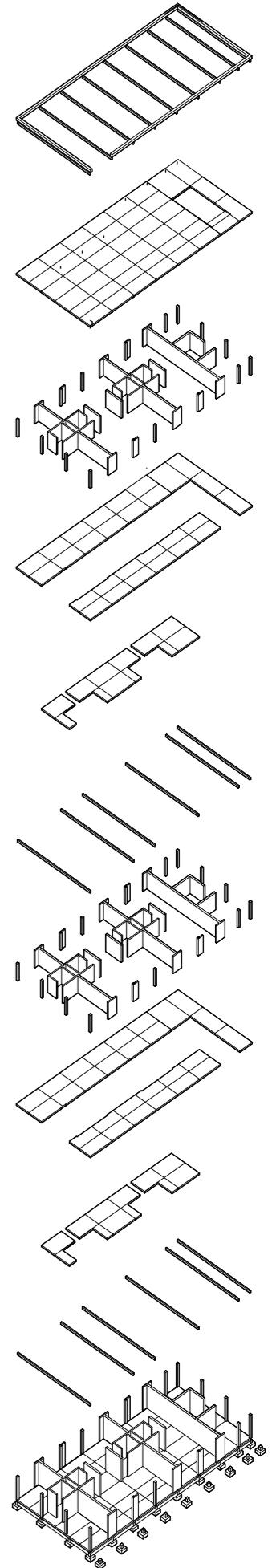
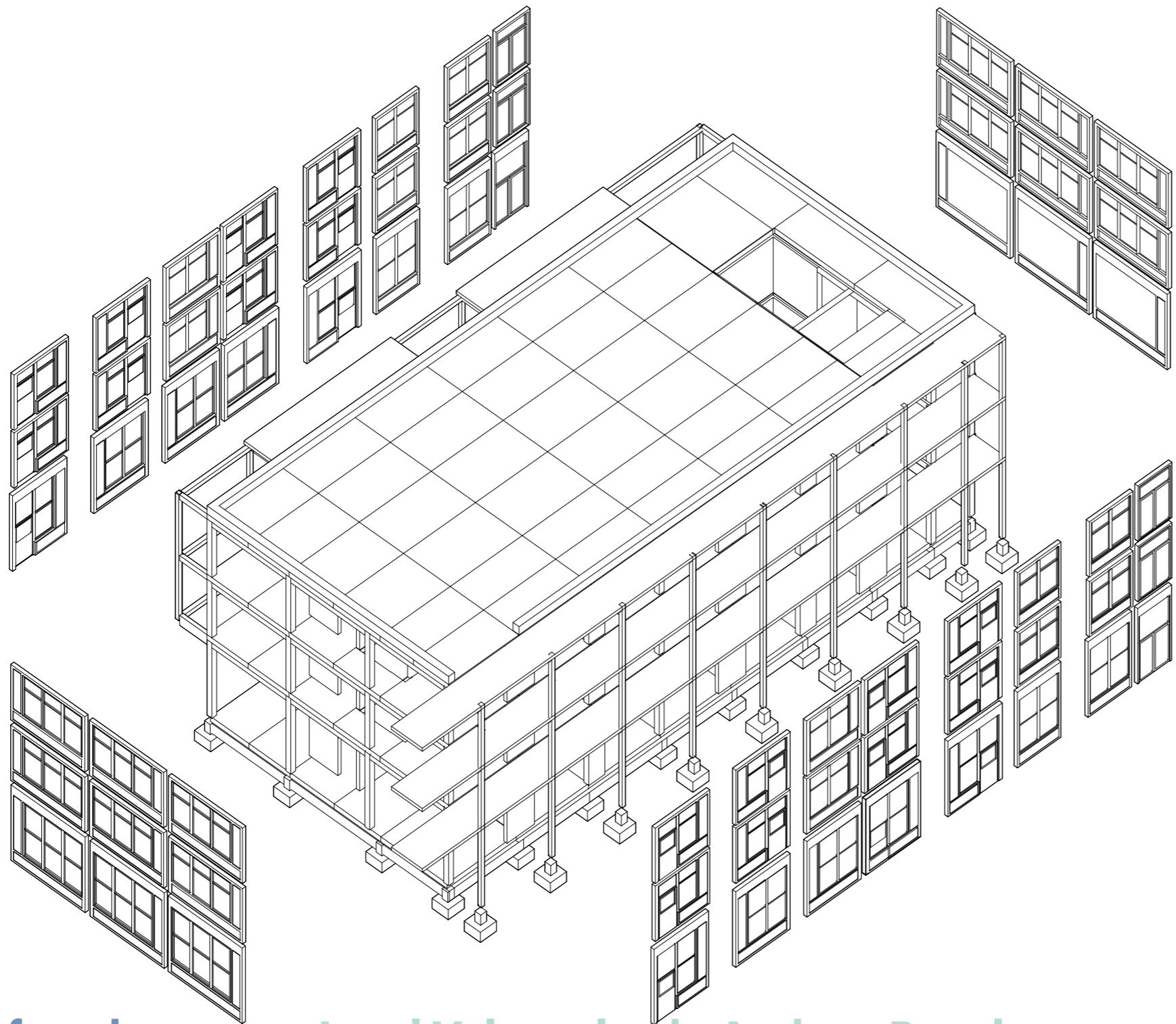
Glulam beams. Local Veluwe larch.

Build-up sequence.



CLT balcony slabs, terrace board decking. Local Veluwe larch.

Build-up sequence.

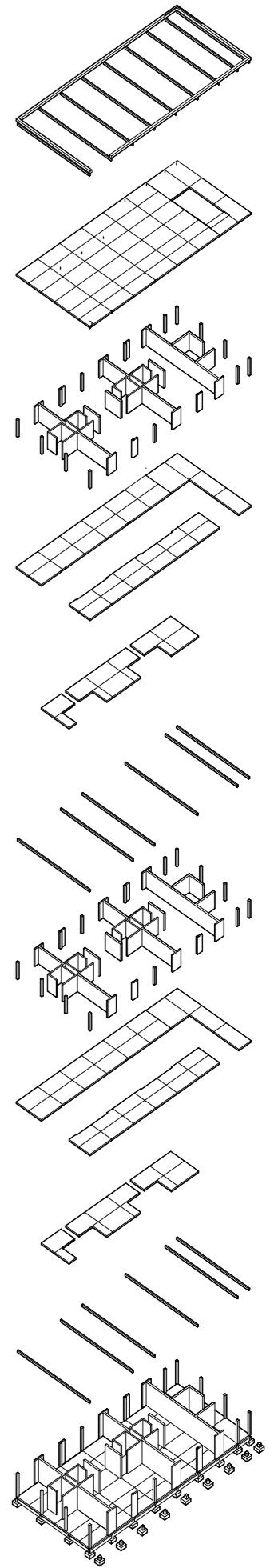
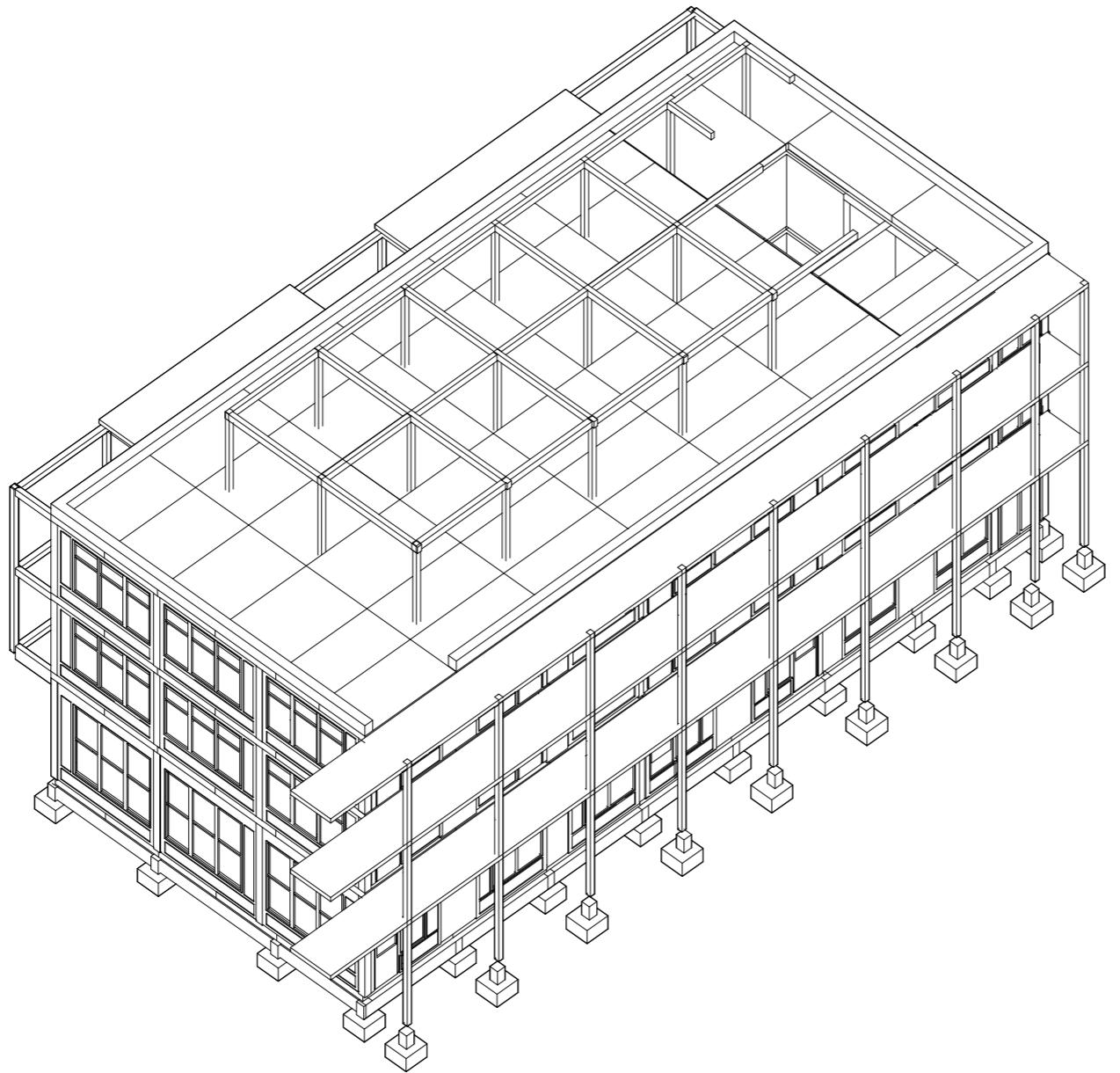


Modular facade system. Local Veluwe larch, Arnhem Populus.
(Robotically) recovered window glass.

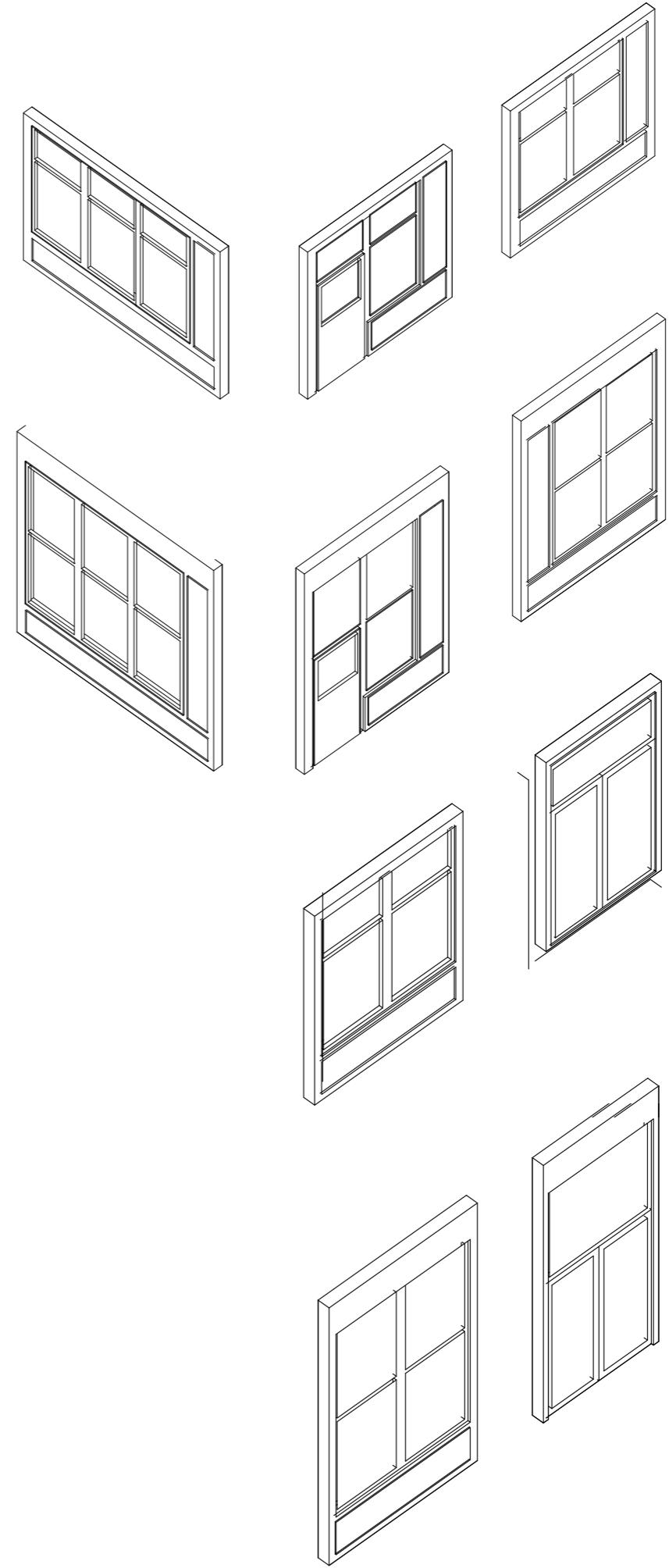
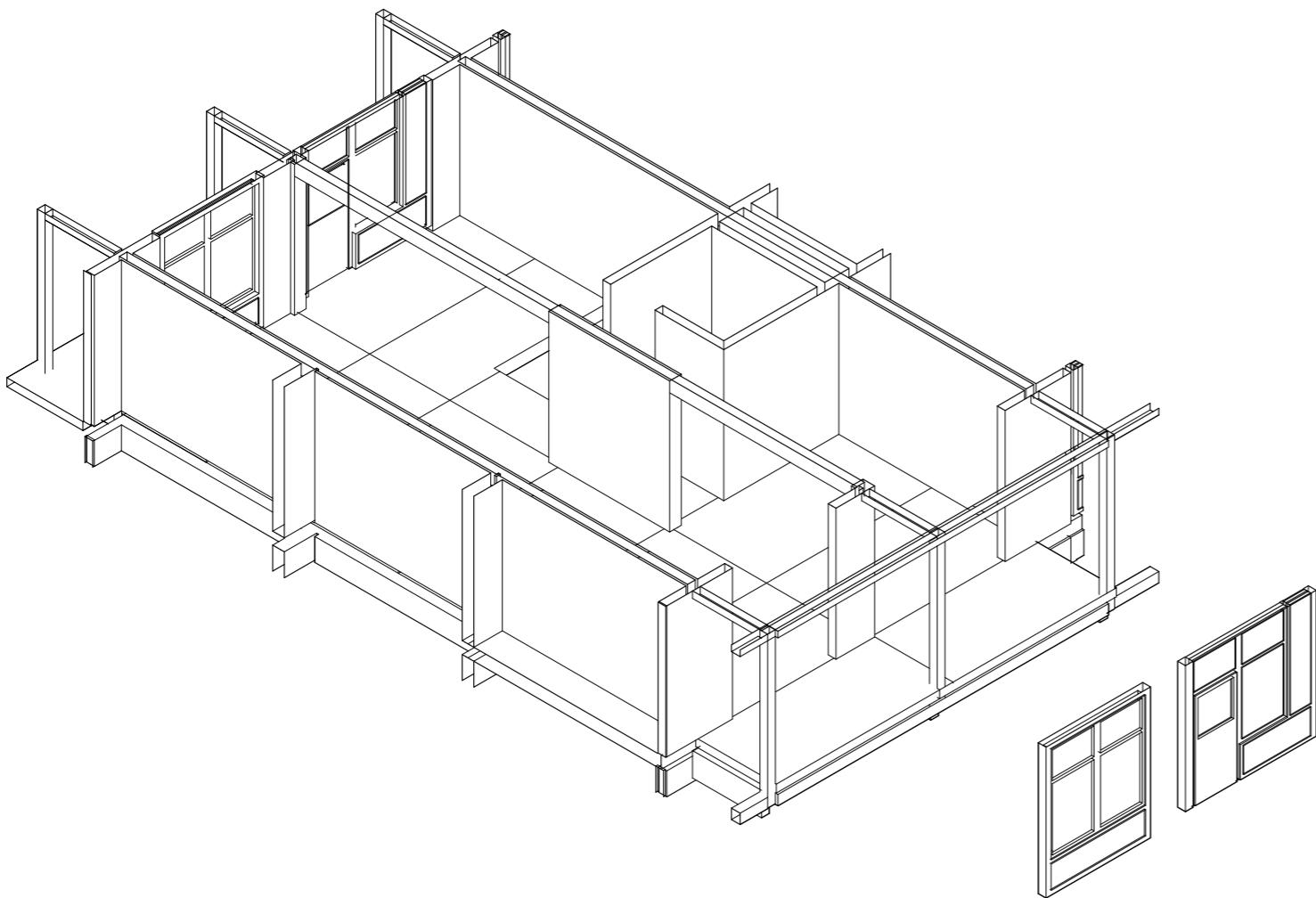


Base building.

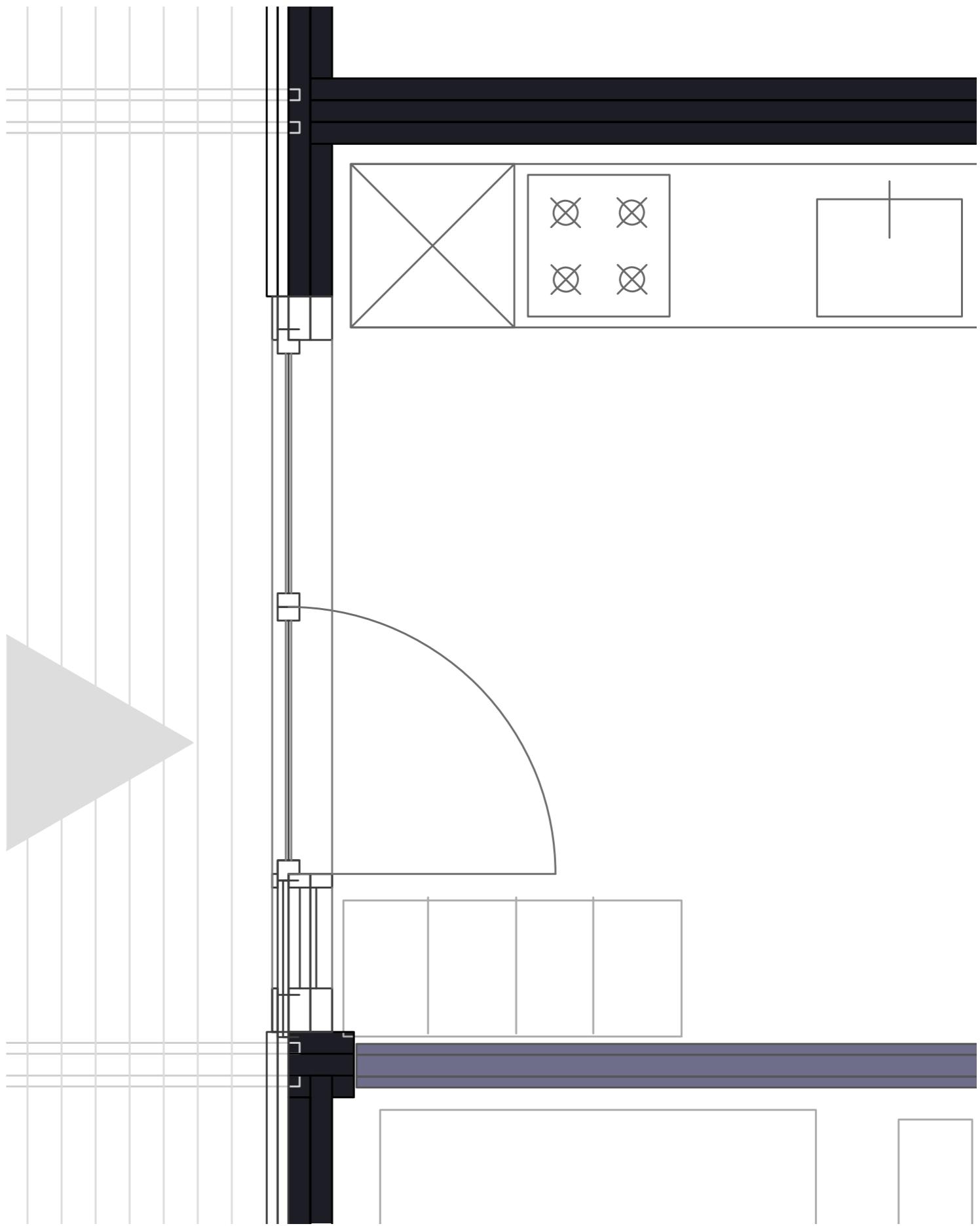
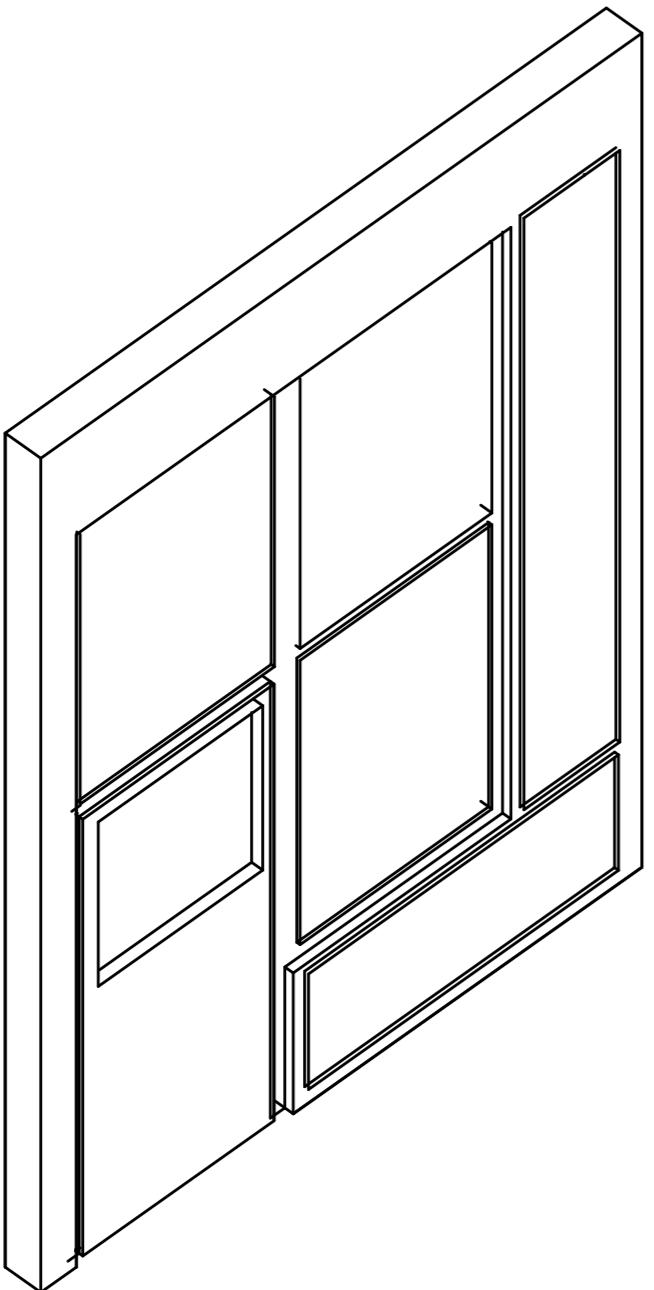
Achieve “Climate-tightness”



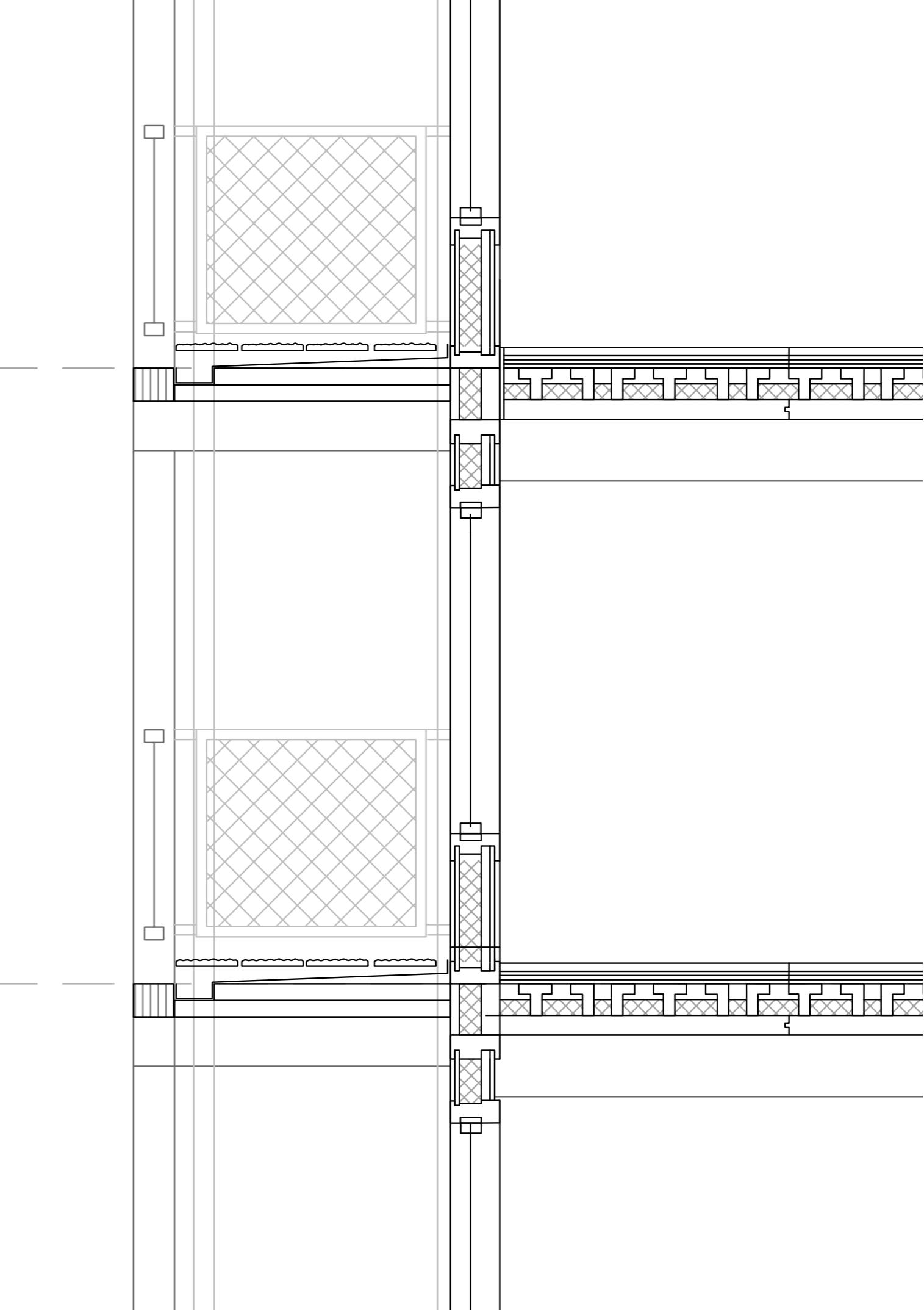
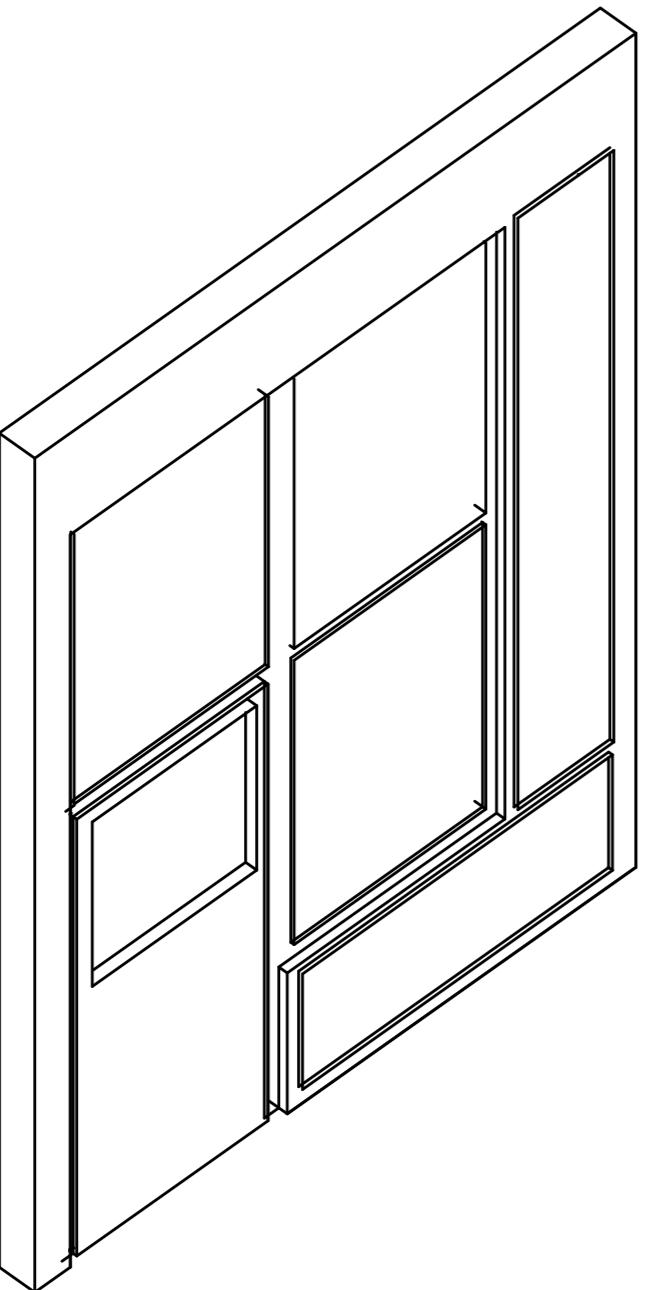
Modular facade.



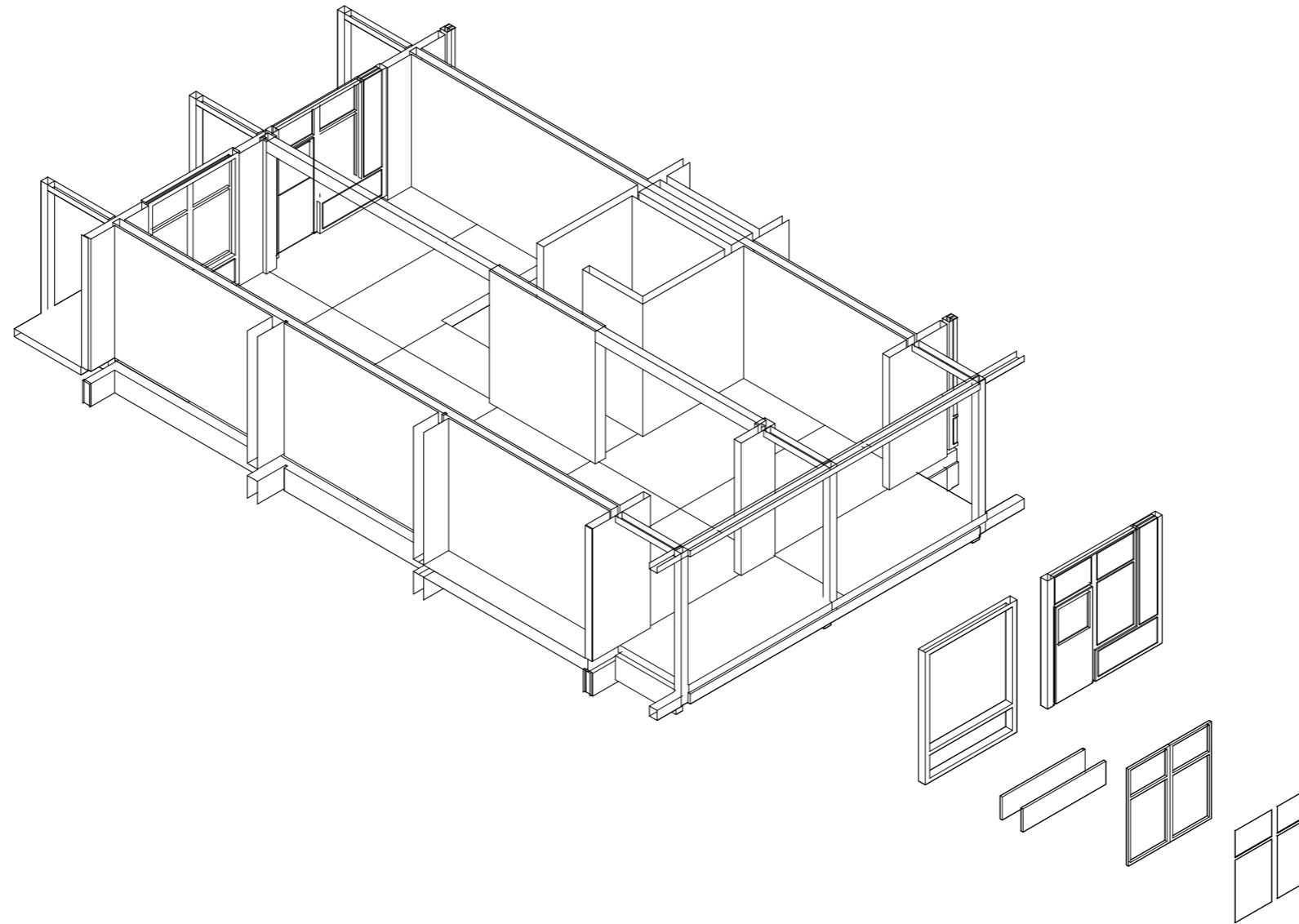
Modular facade.



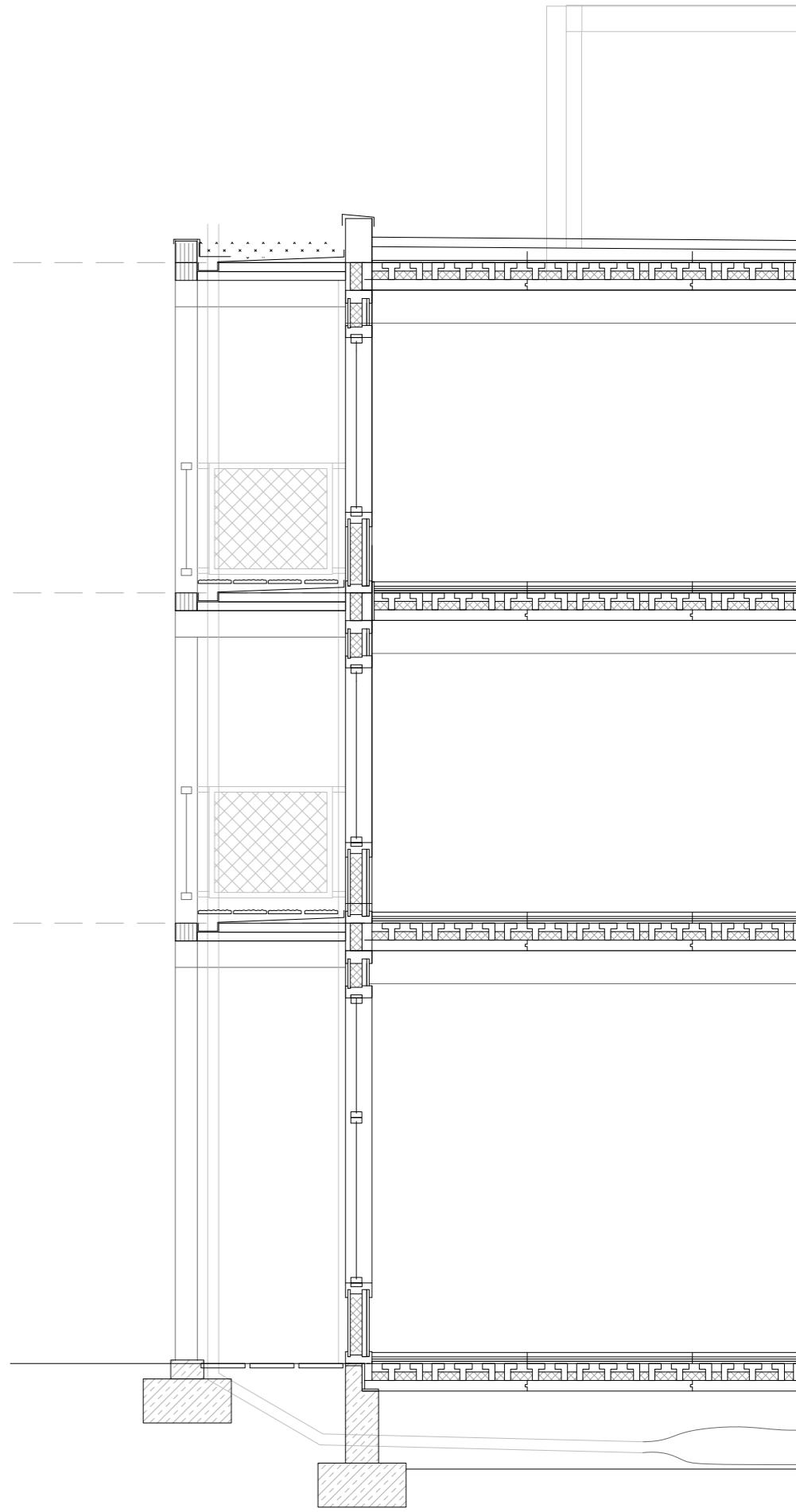
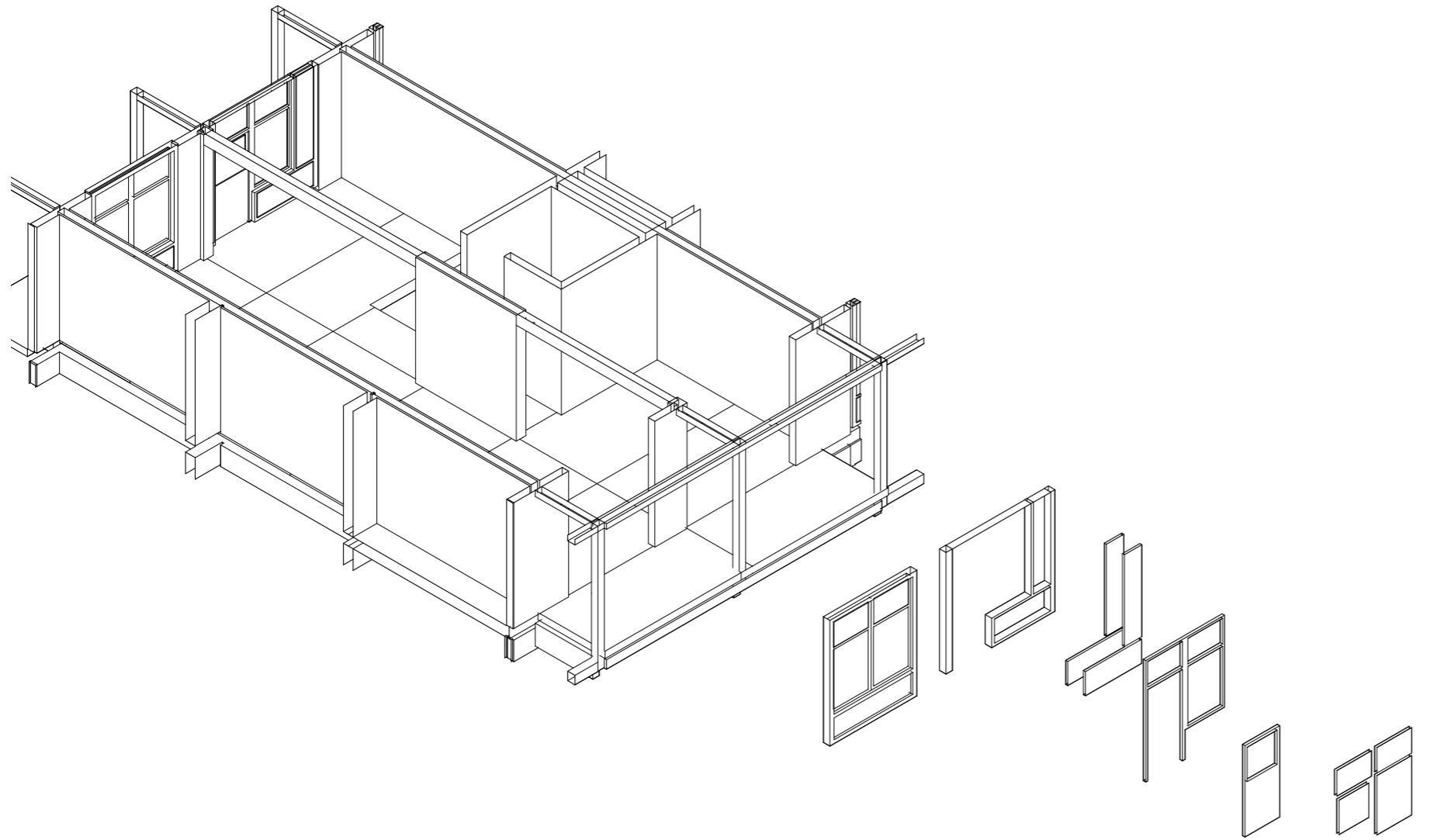
Modular facade.



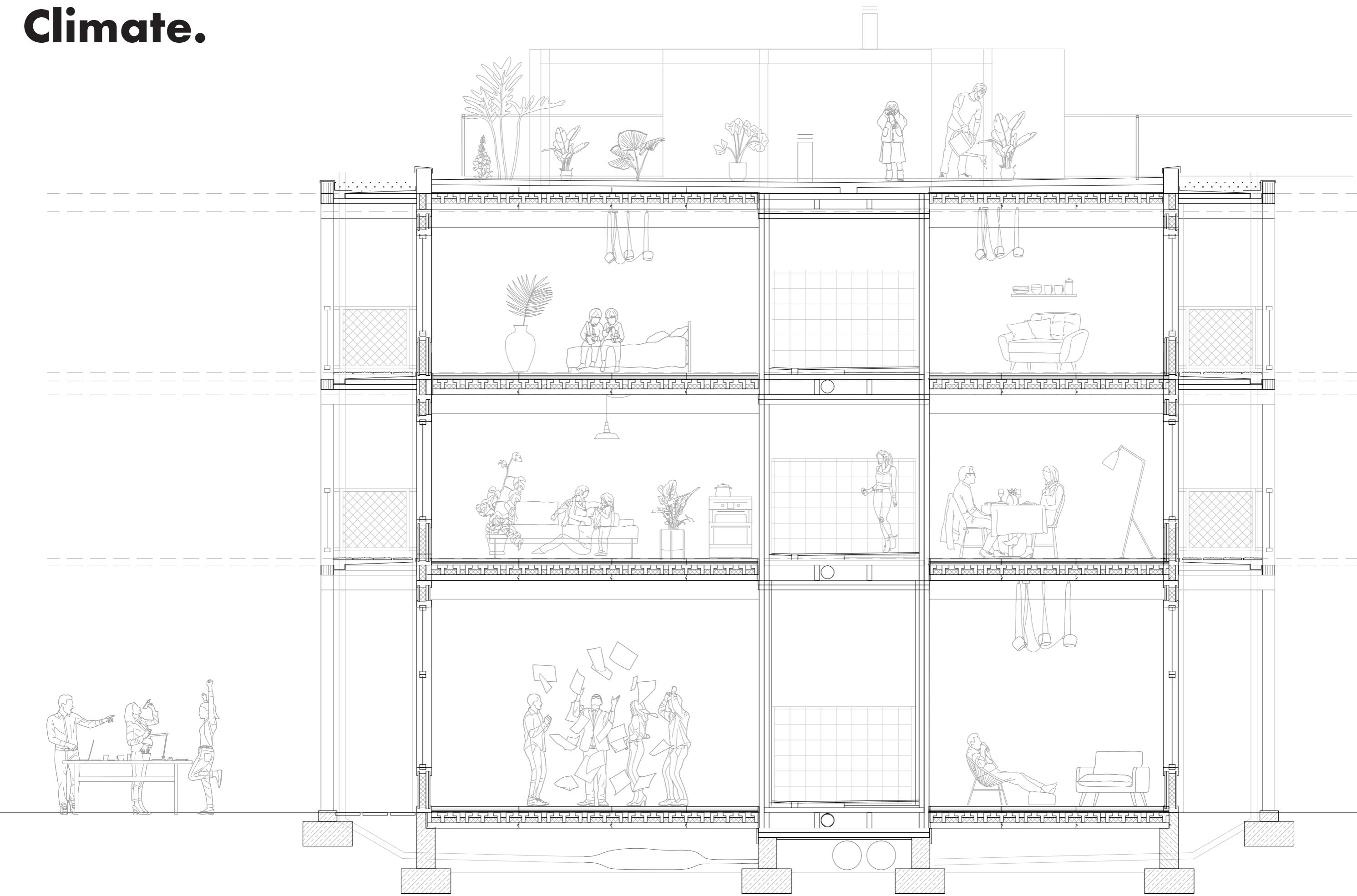
Modular facade.



Modular facade.



Climate.



Climate.

Summer.

PV panels on pergolas

Green roof prevent heat island effect

Arcades and balconies provide natural shading.

Co2 sensor regulates vent. systems

Mixed ventilation Type C/type D.

Green surfaces reduce heat in the courtyards.

Grey water harvesting

Rain water collection from balconies, arcades, and roof

Climate.

Winter.

**Green roof
lowers heat loss.**

20 °C.

**Sun enters deeper
into rooms.**

**infrared floor heating.
modular+ easy maintenance**



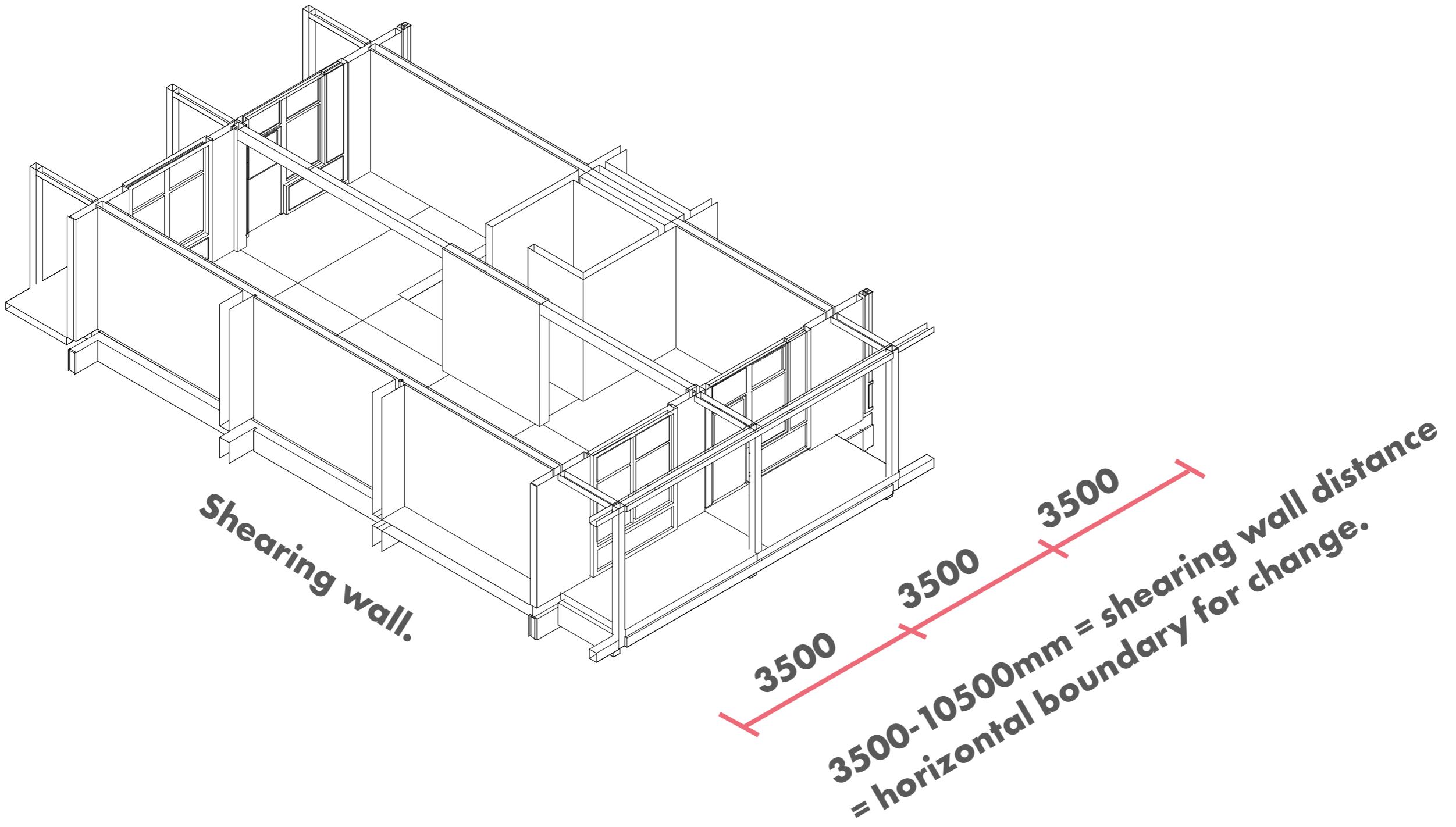
PV panels on pergolas

**Heat recovery
for warm water.**

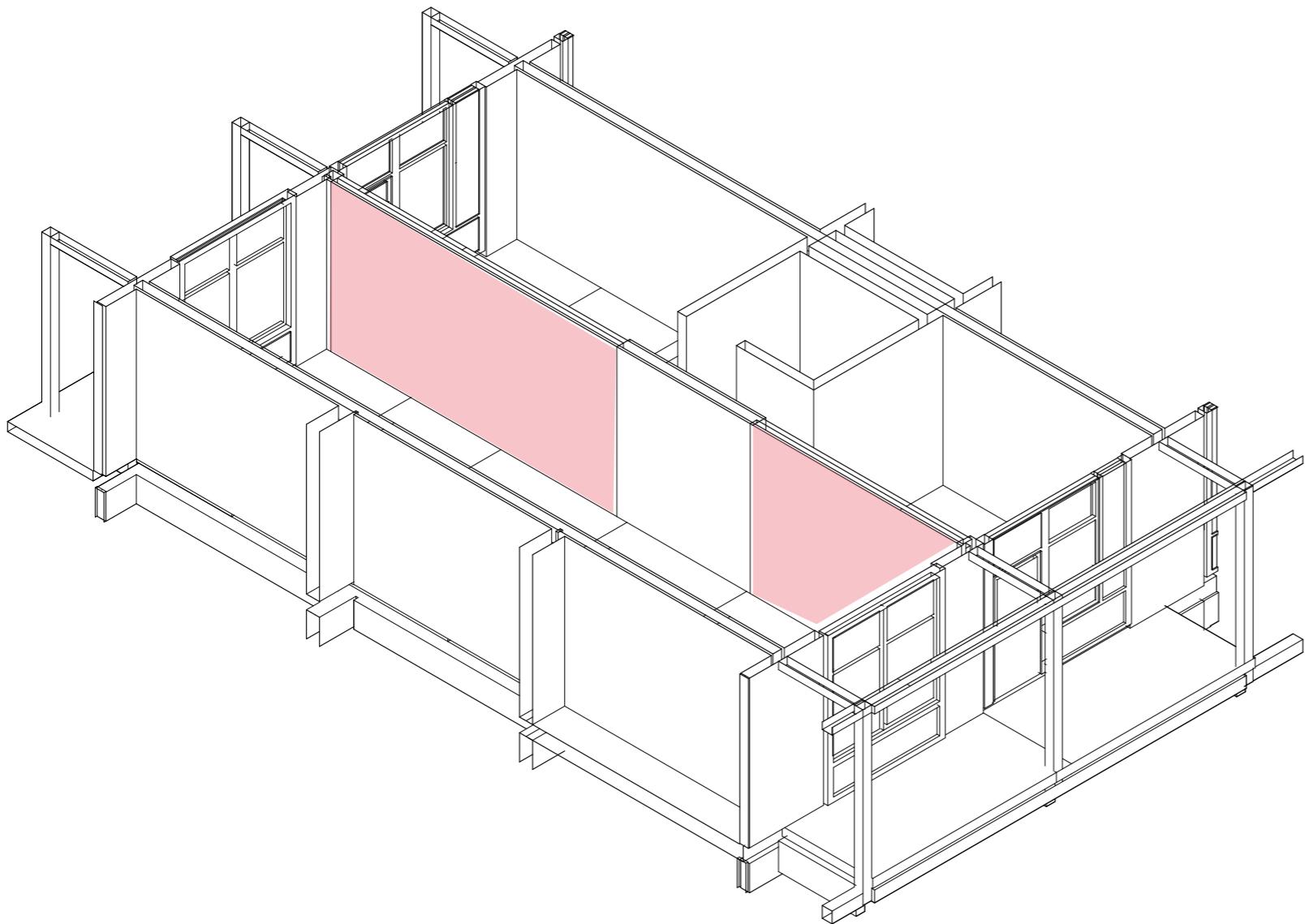
**Tight
facade.**

Balanced ventilation.

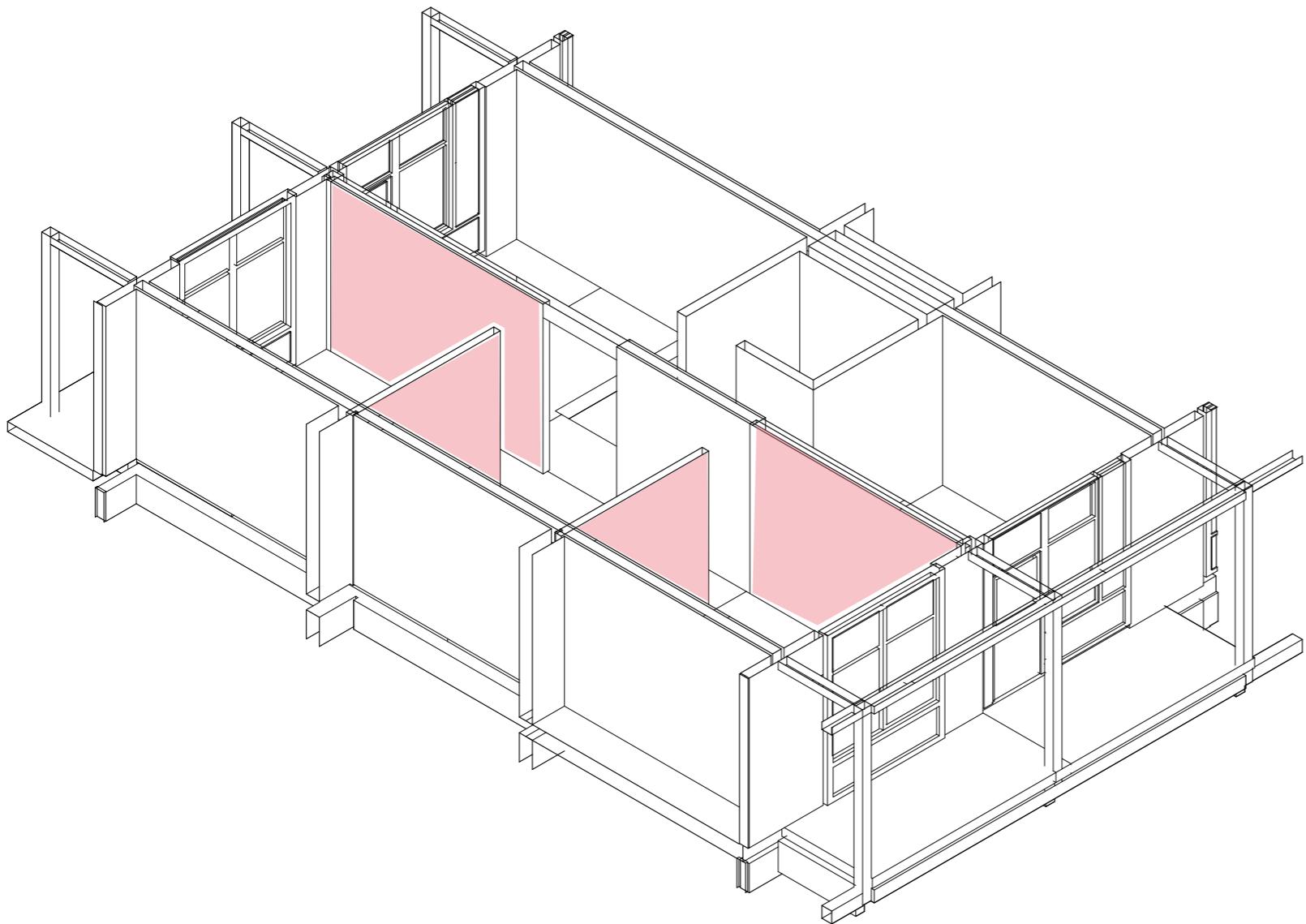
Flexible apartments.



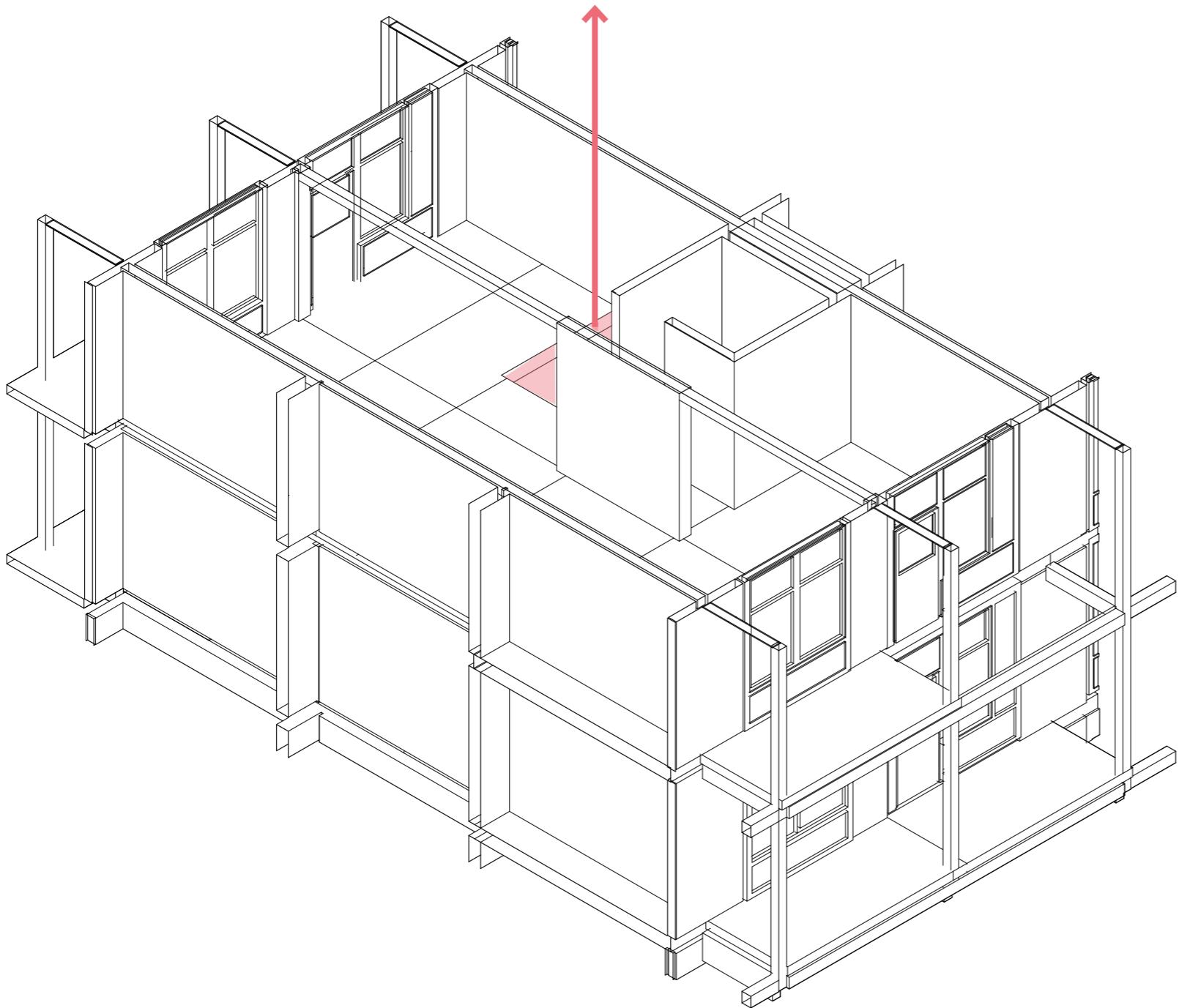
Flexible apartments.

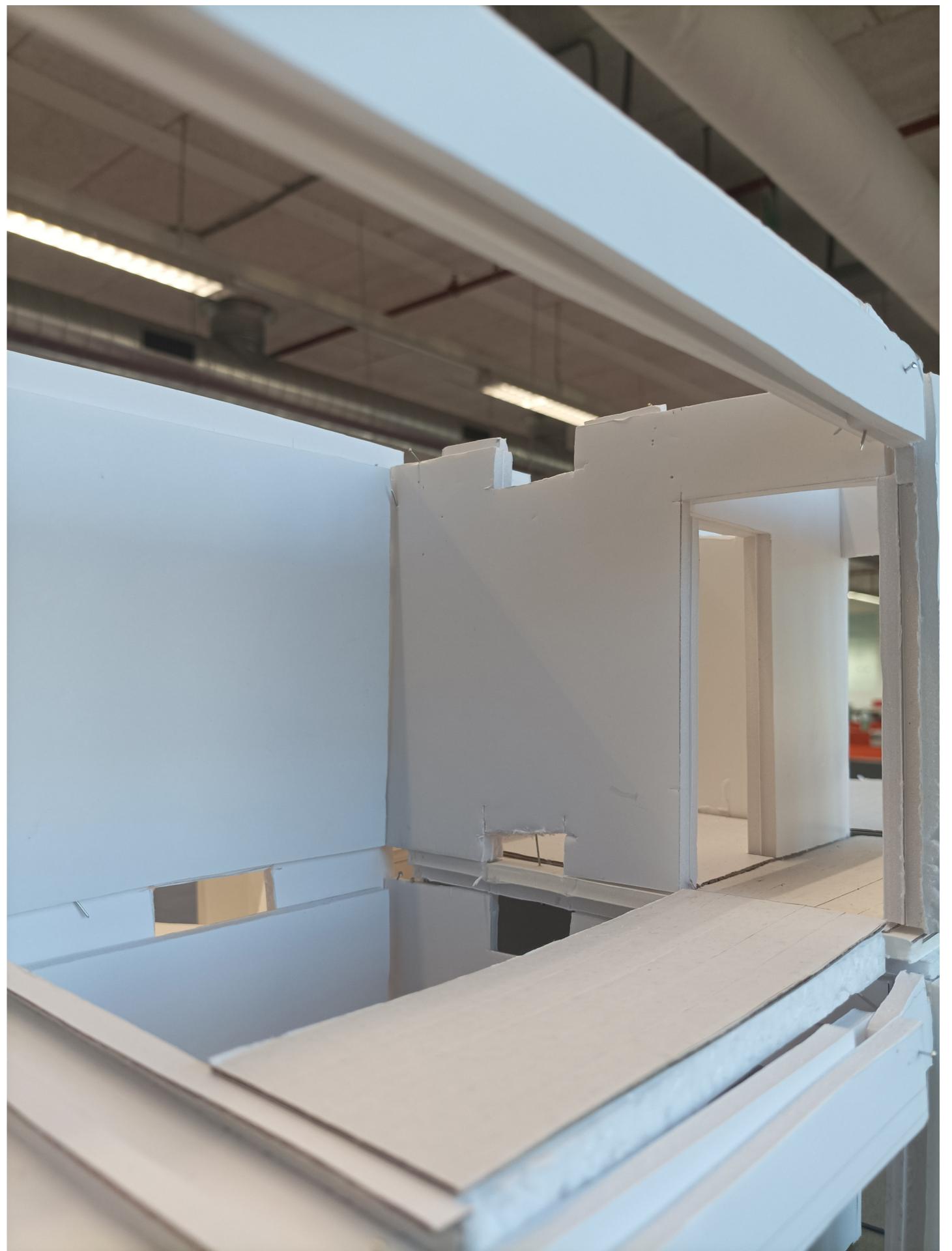


Flexible interior walls.



Flexible interior walls.

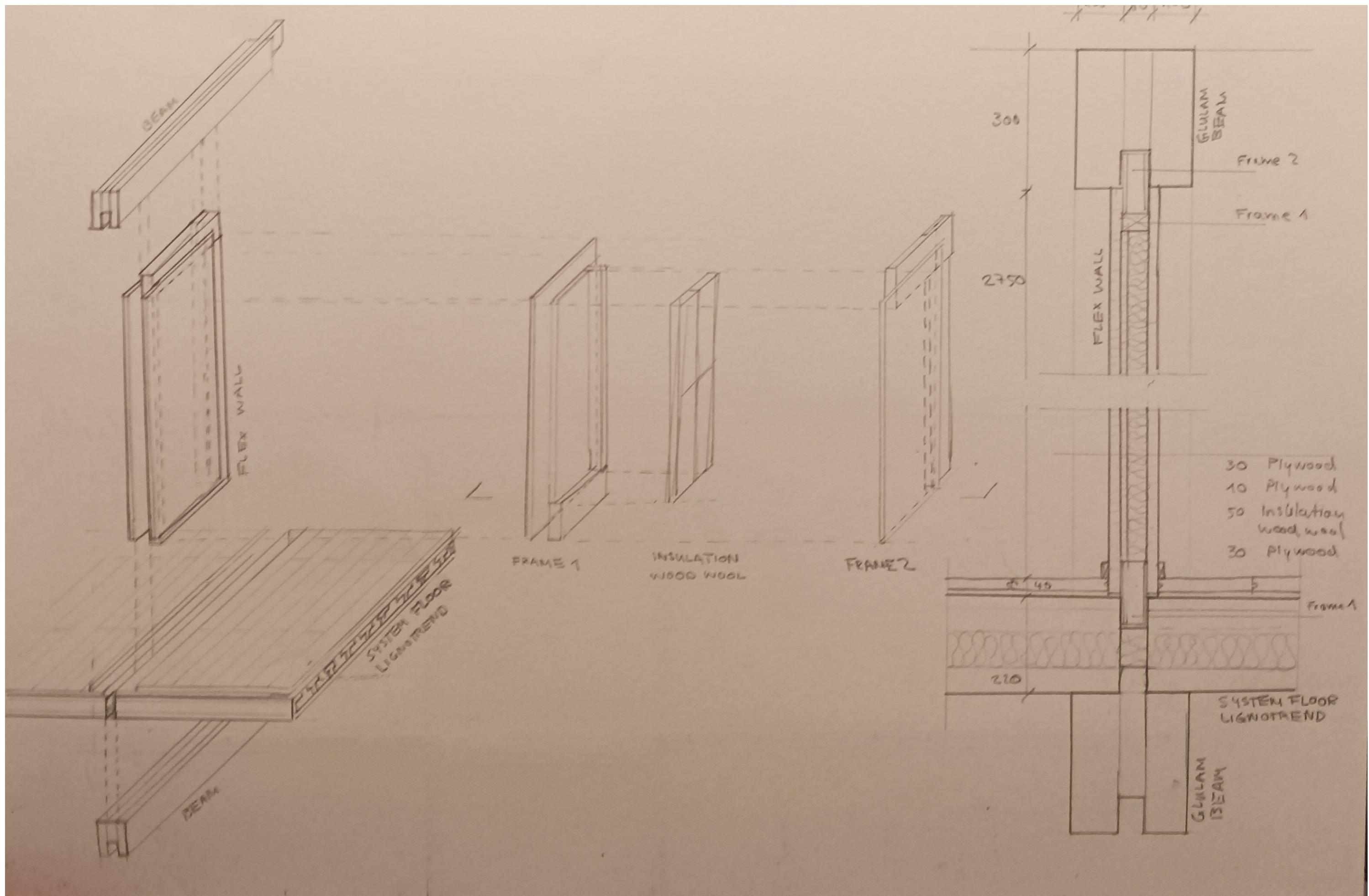




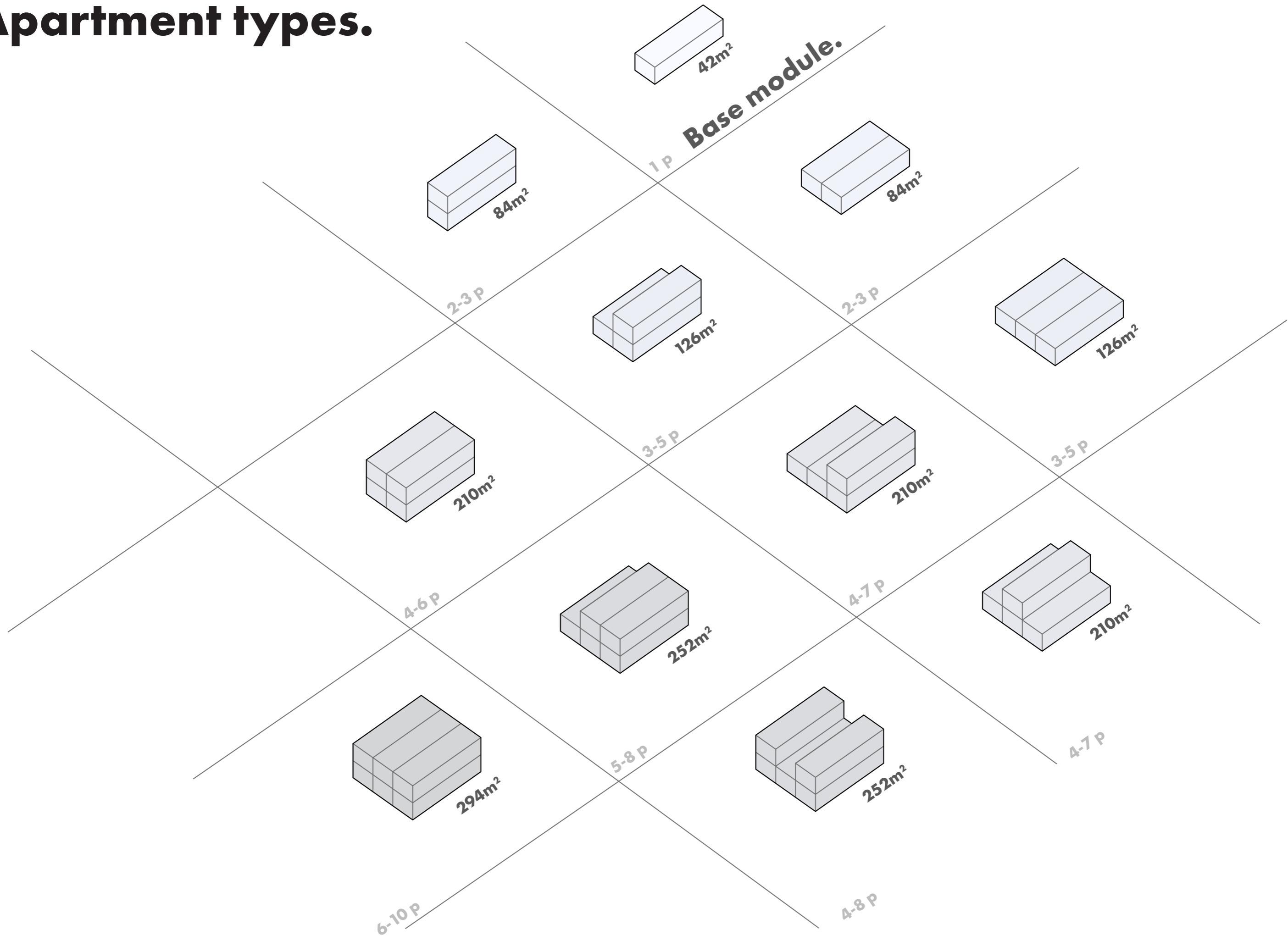






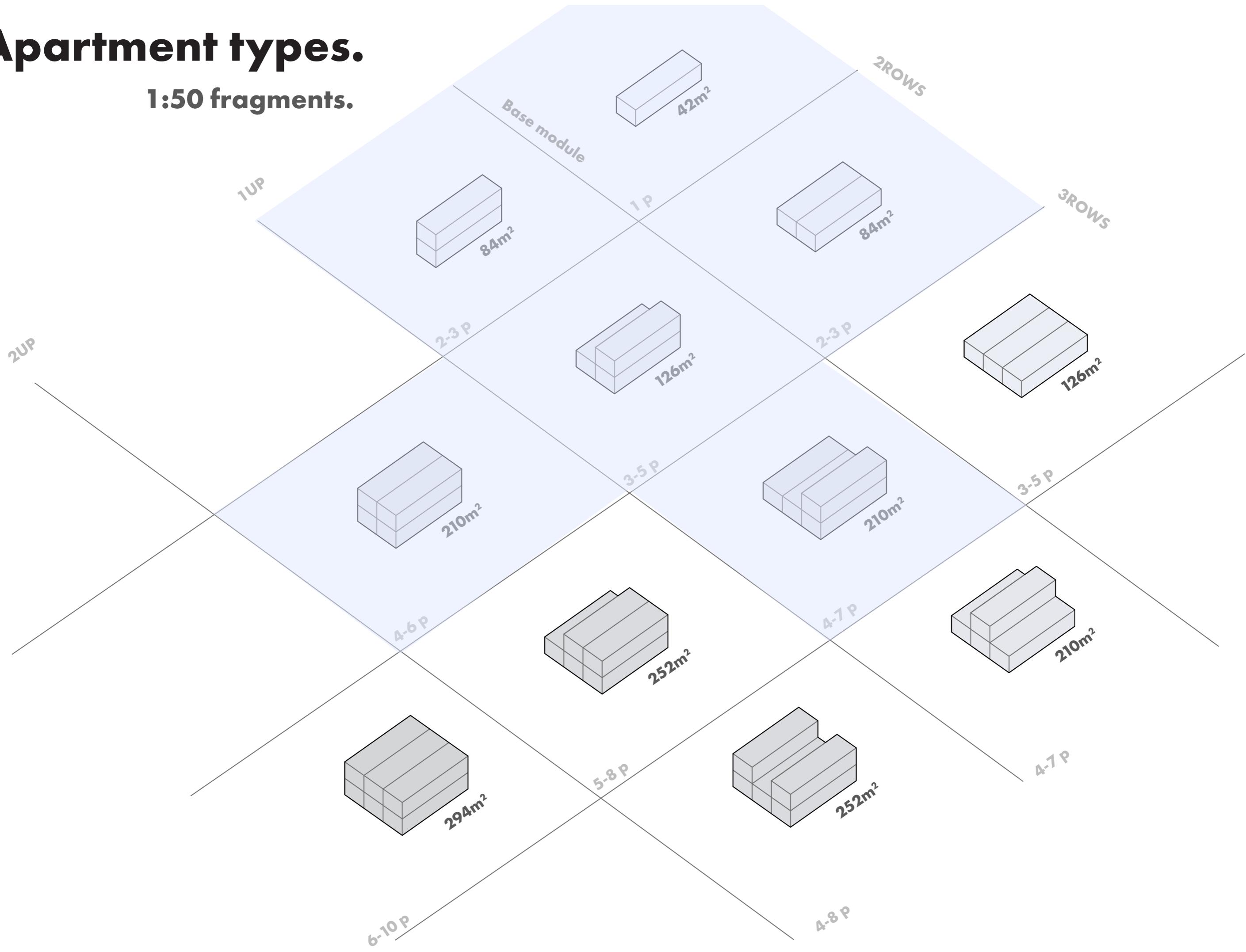


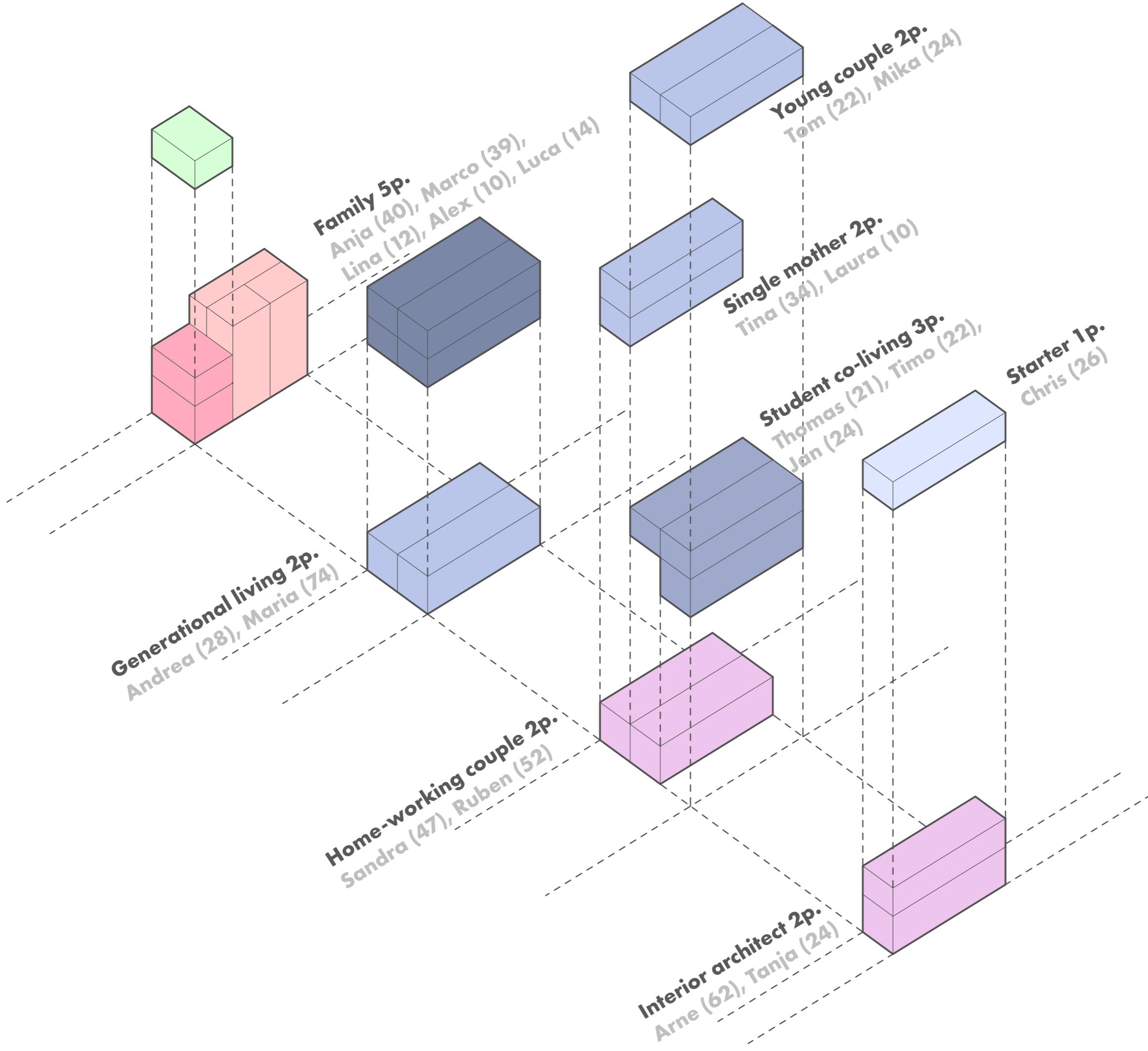
Apartment types.



Apartment types.

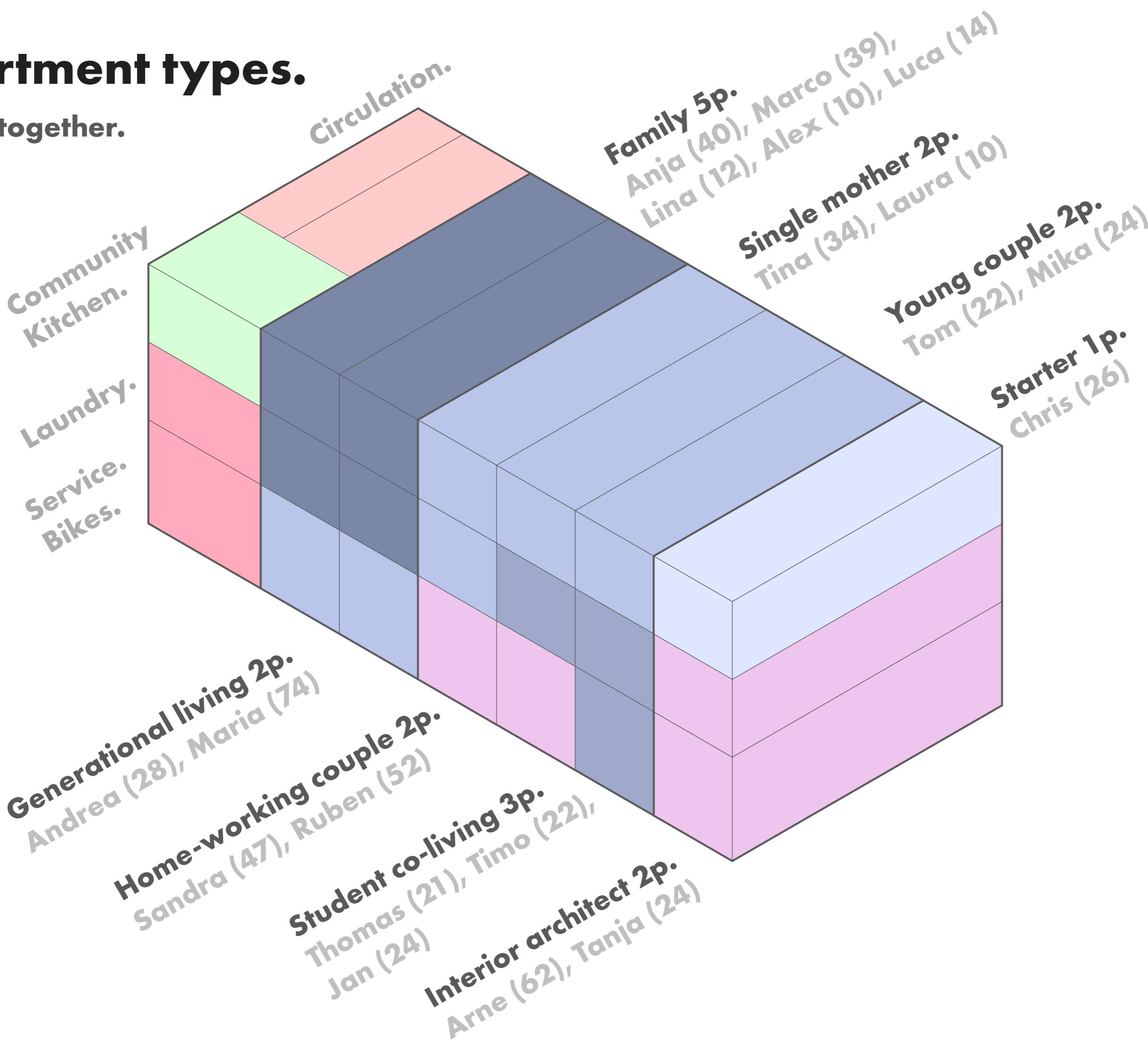
1:50 fragments.





Apartment types.

Joined together.



Family 5p.

Anja (40)

Marco (39)

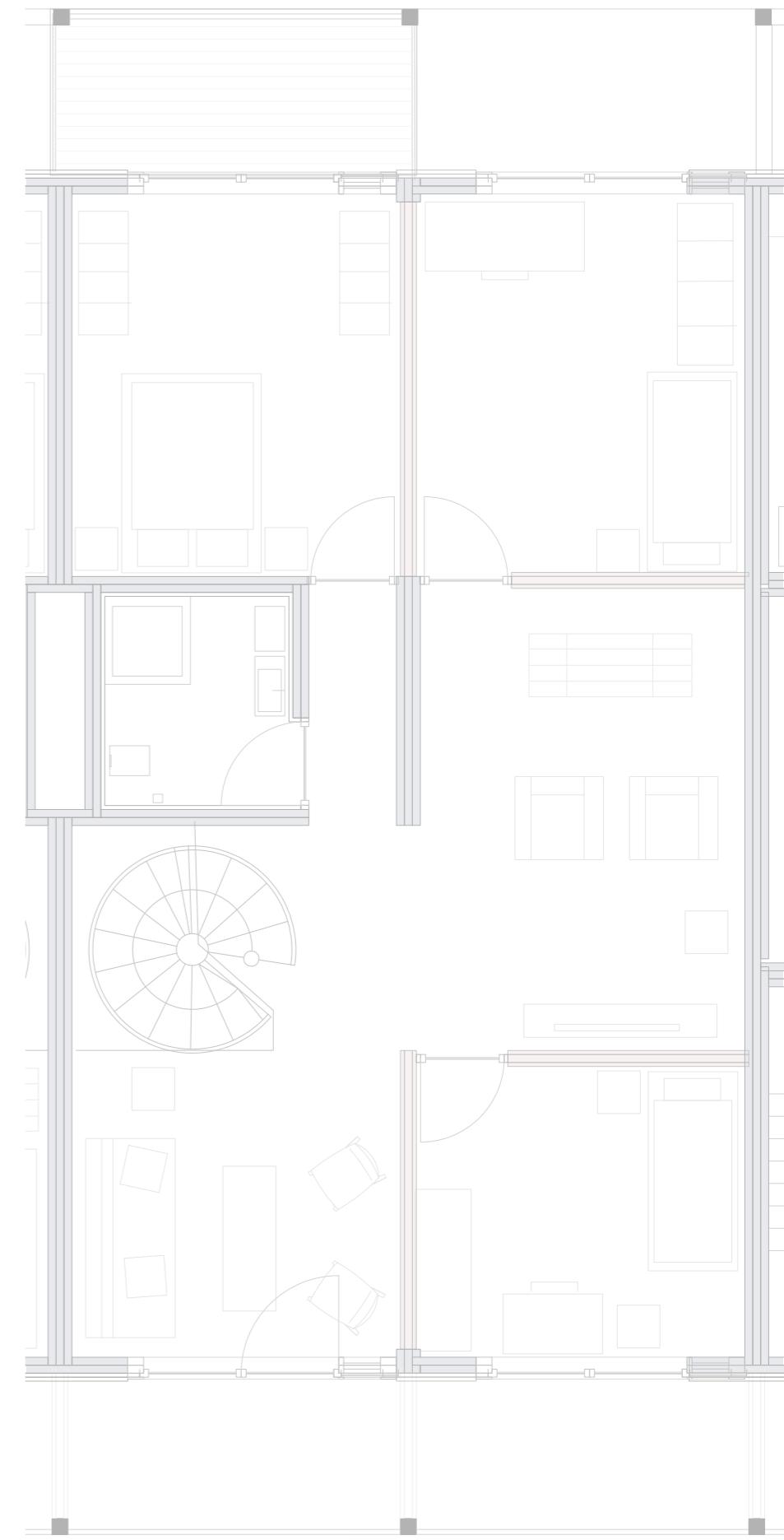
Lina (12)

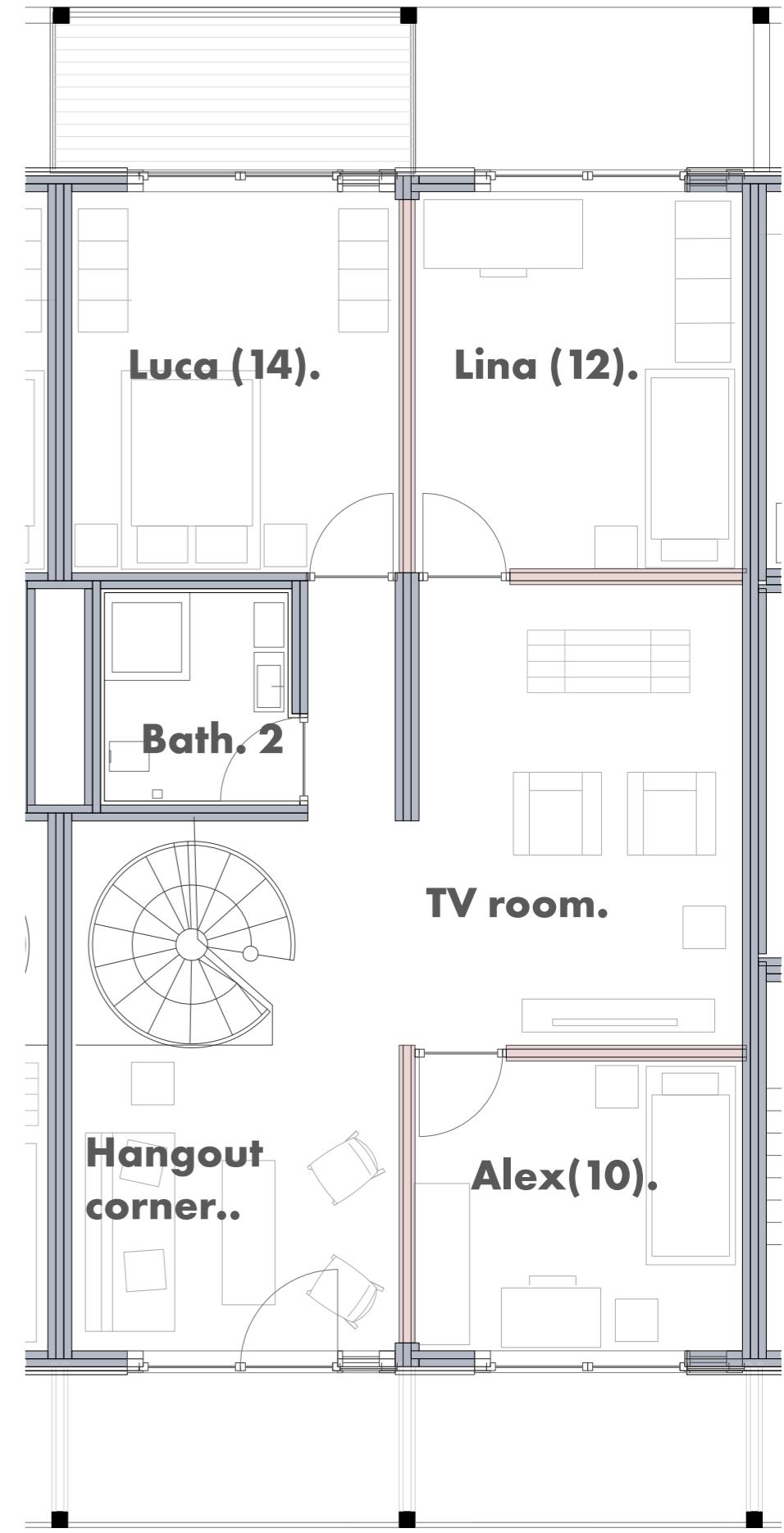
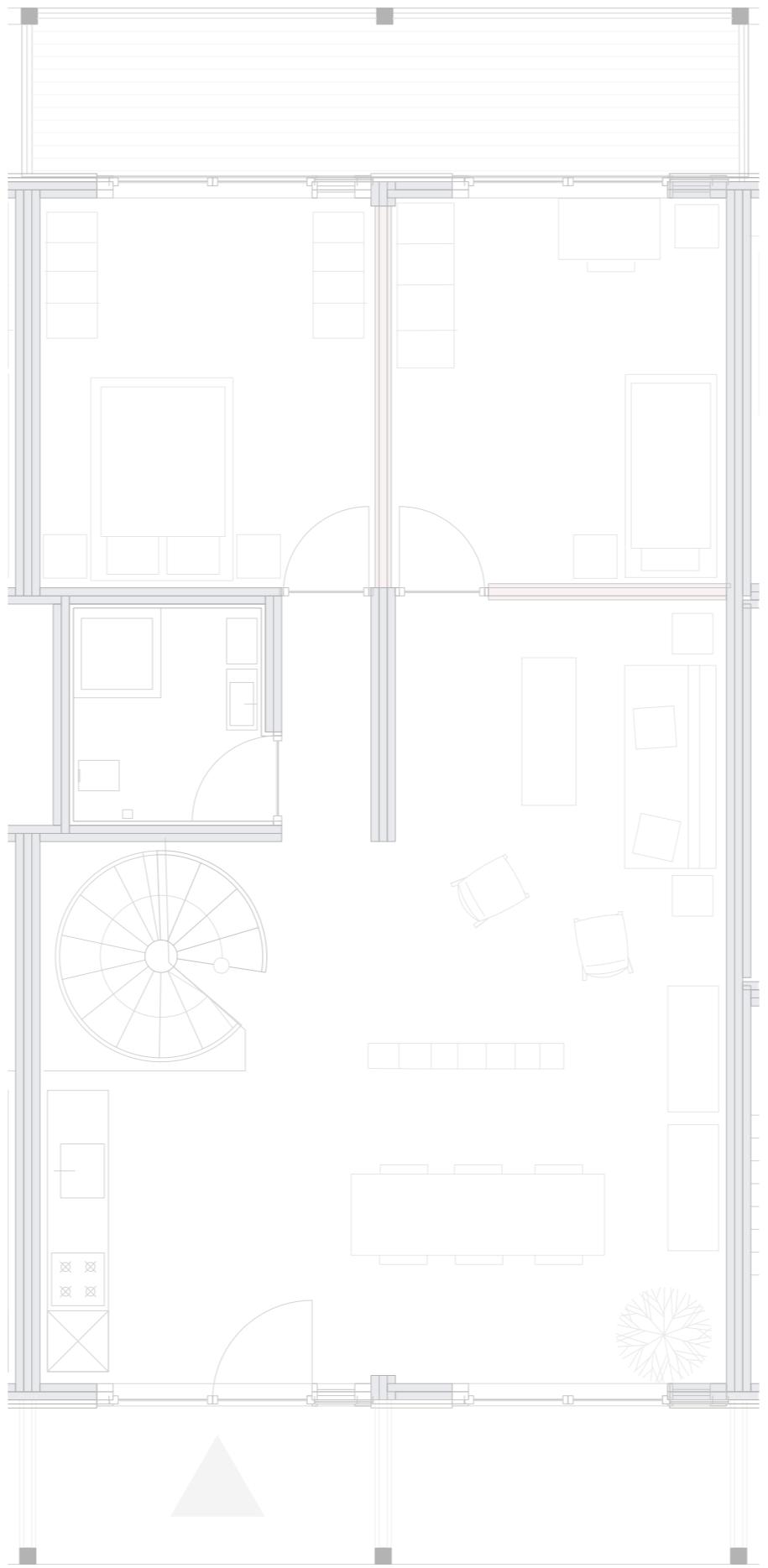
Luca (14)

Alex (10)



Entrance first floor.





Second floor.

Luca (14).

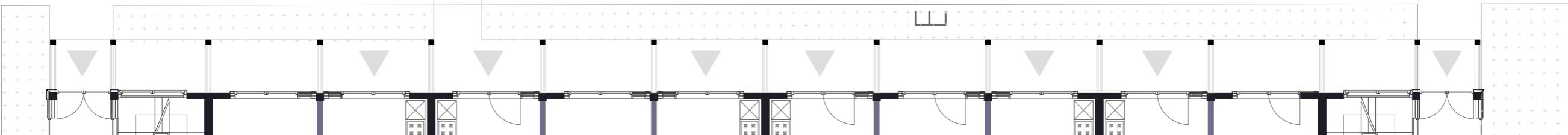
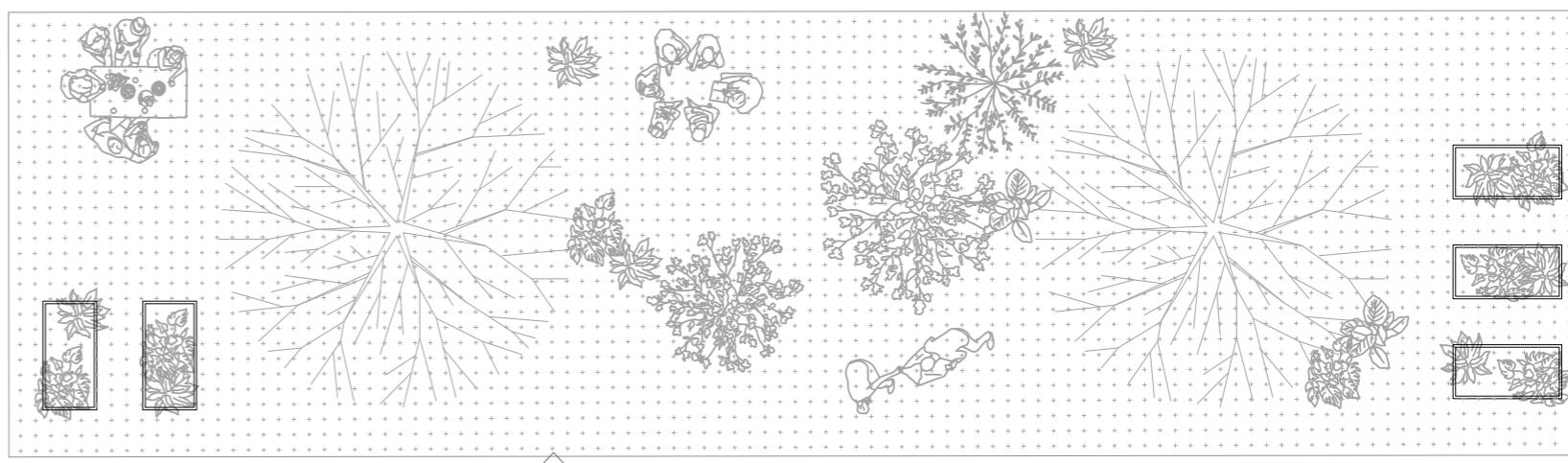
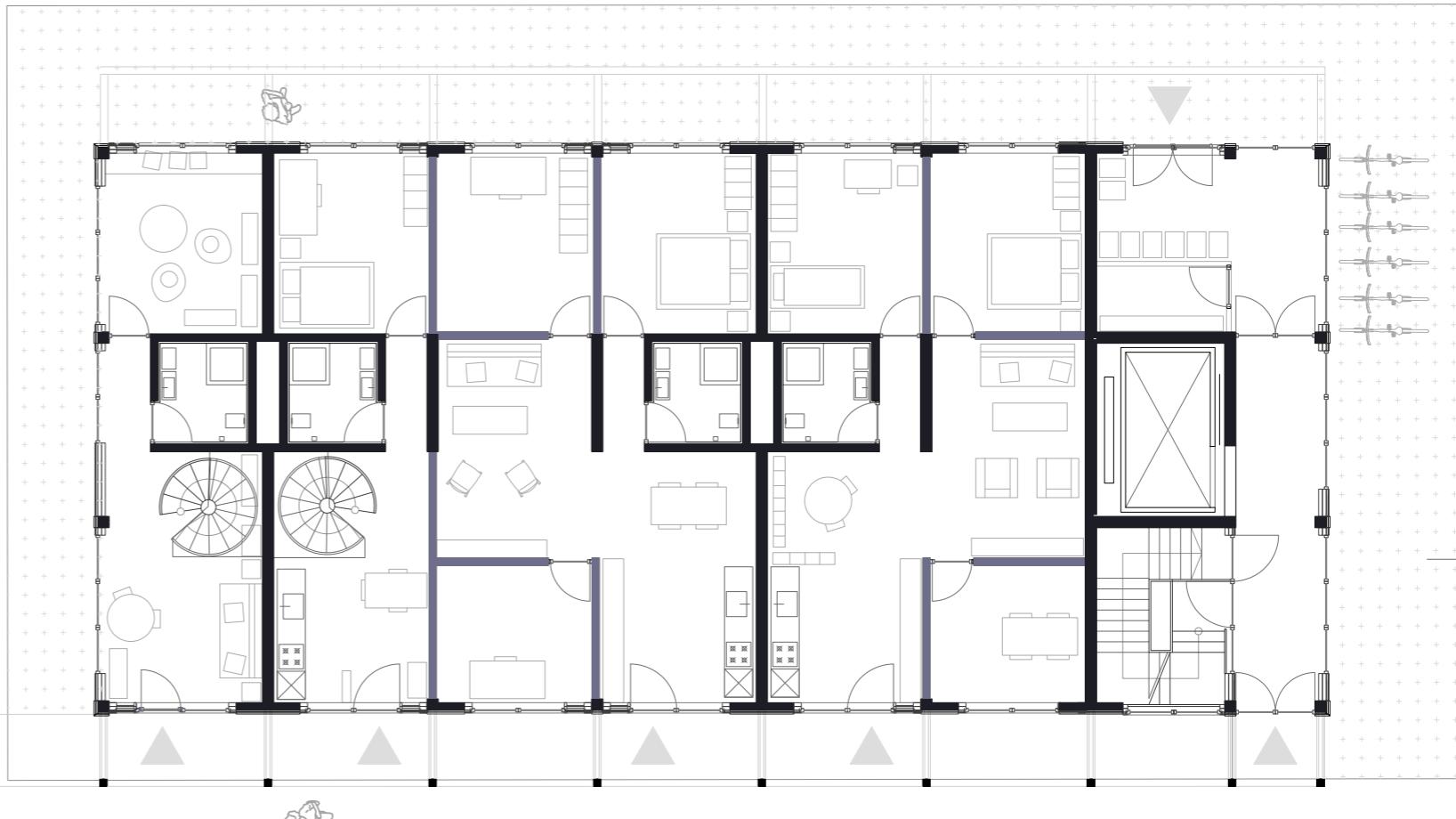
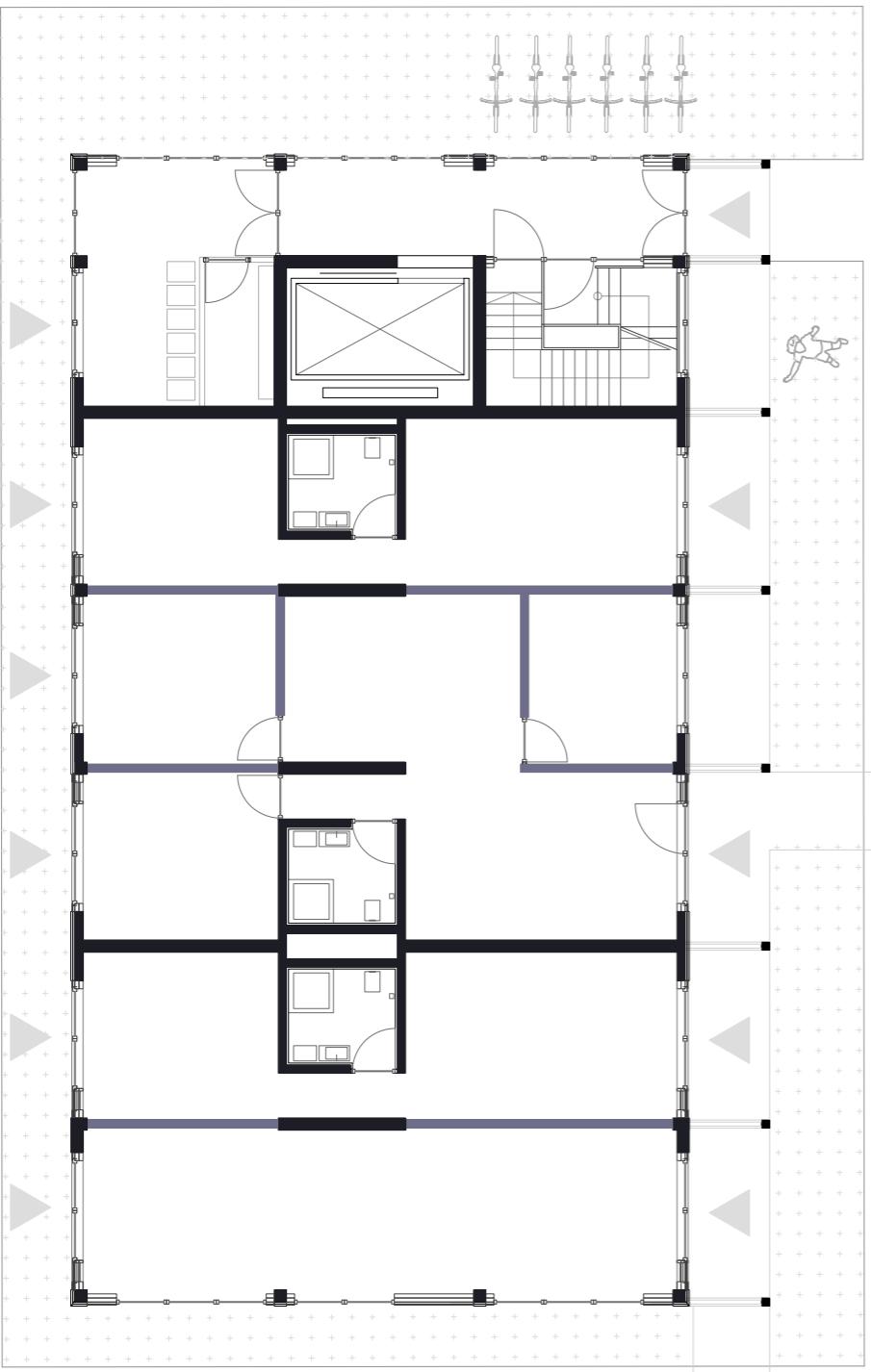
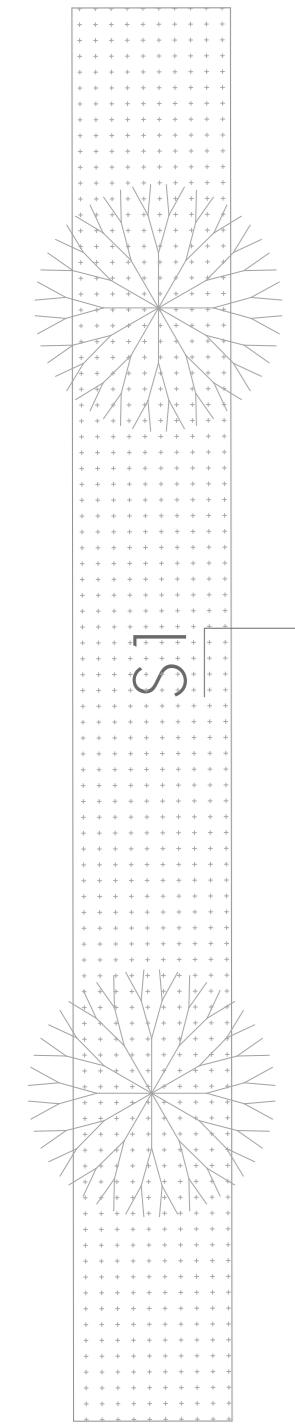
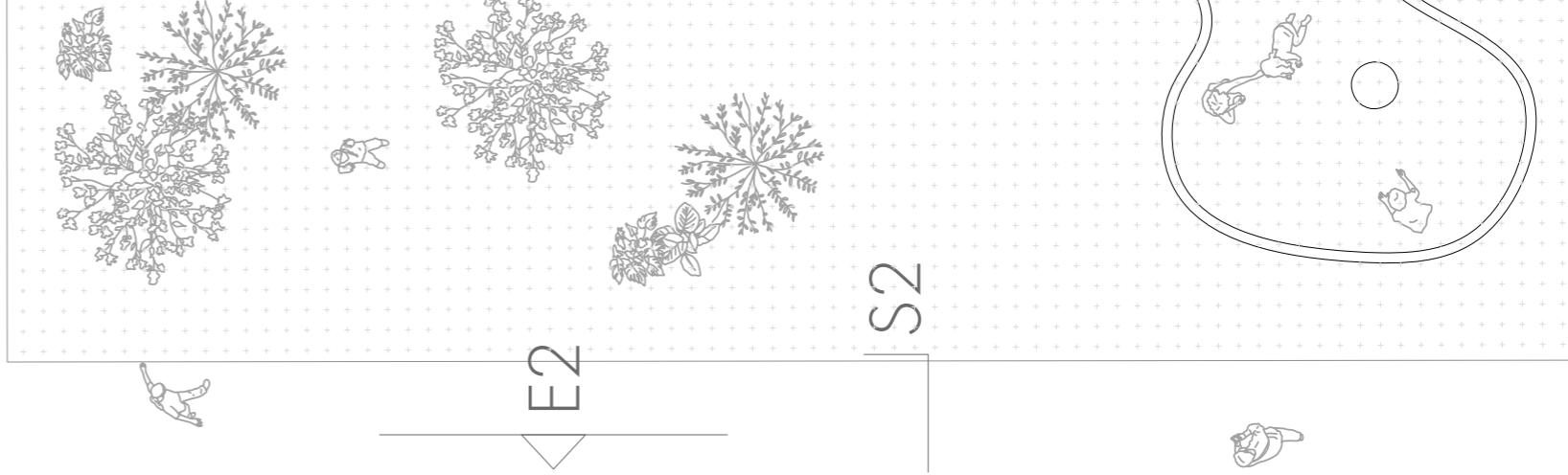
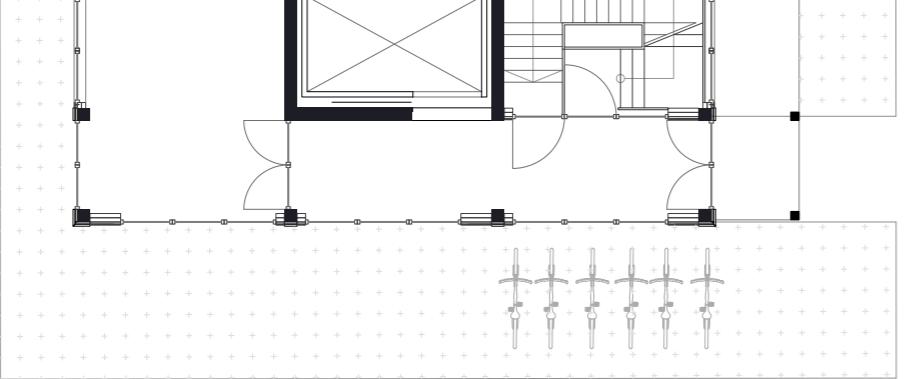
Lina (12).

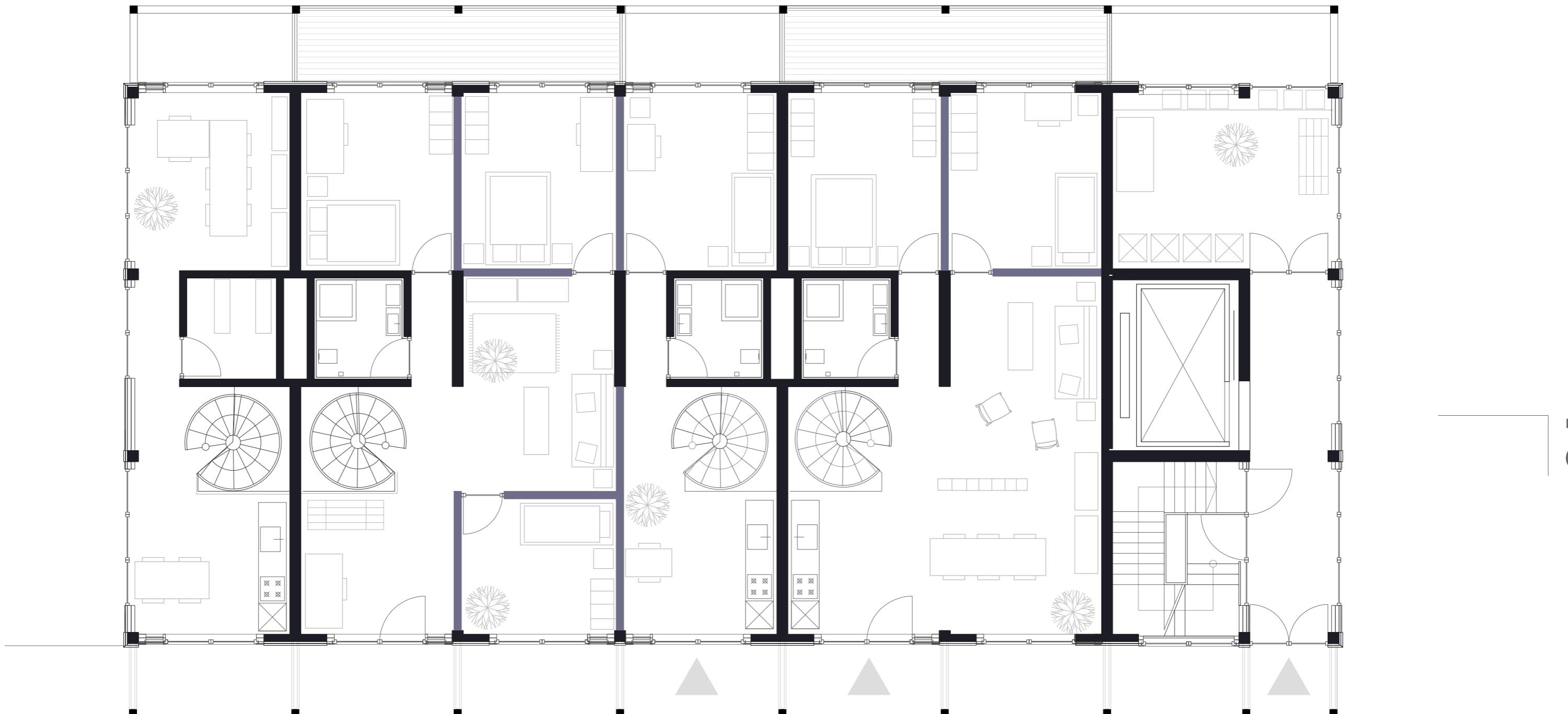
Bath. 2

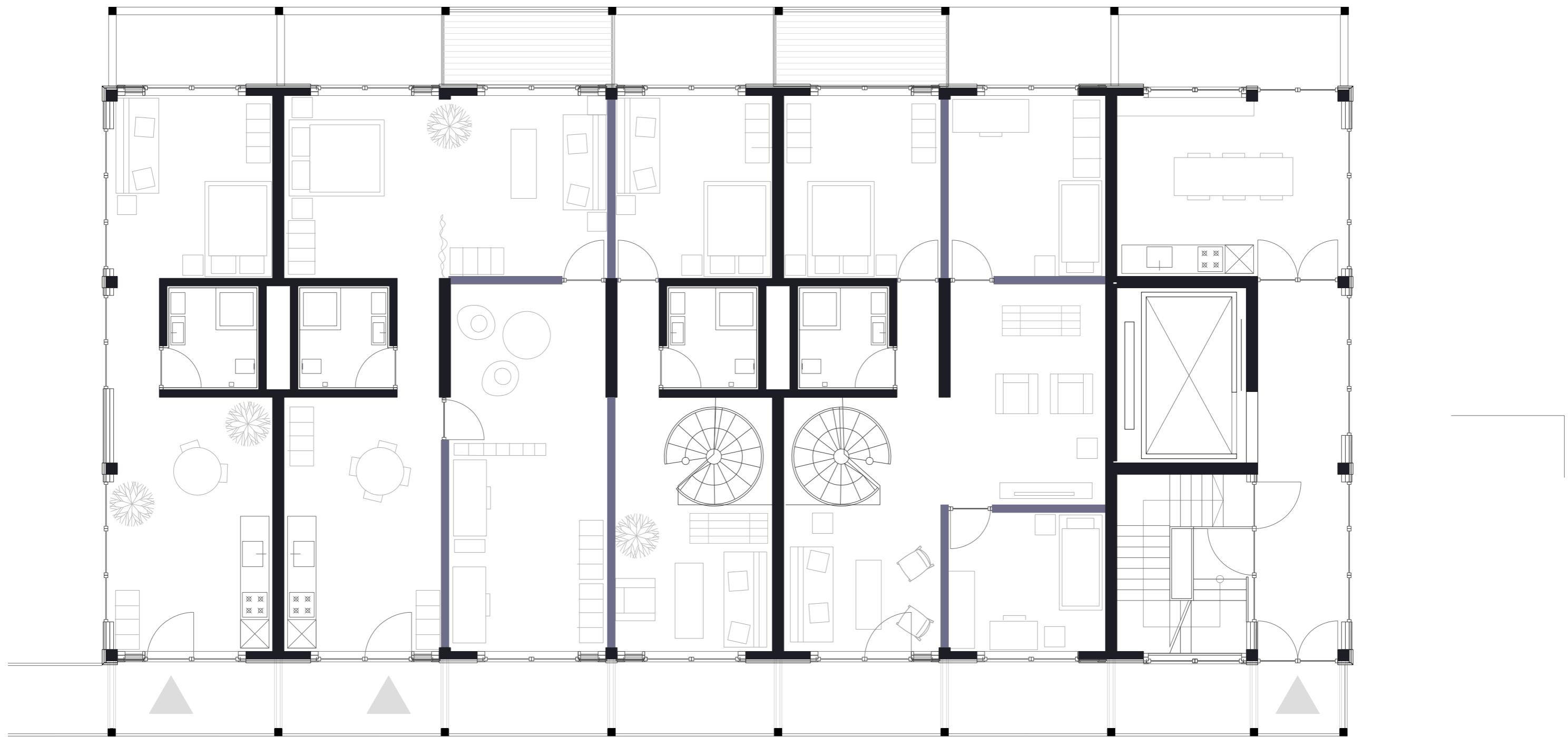
TV room.

**Hangout
corner..**

Alex(10).









Thank you!