

A Catalyst for Circularity



P5 Presentation

Zedi van Oostrom, June 20th 2025



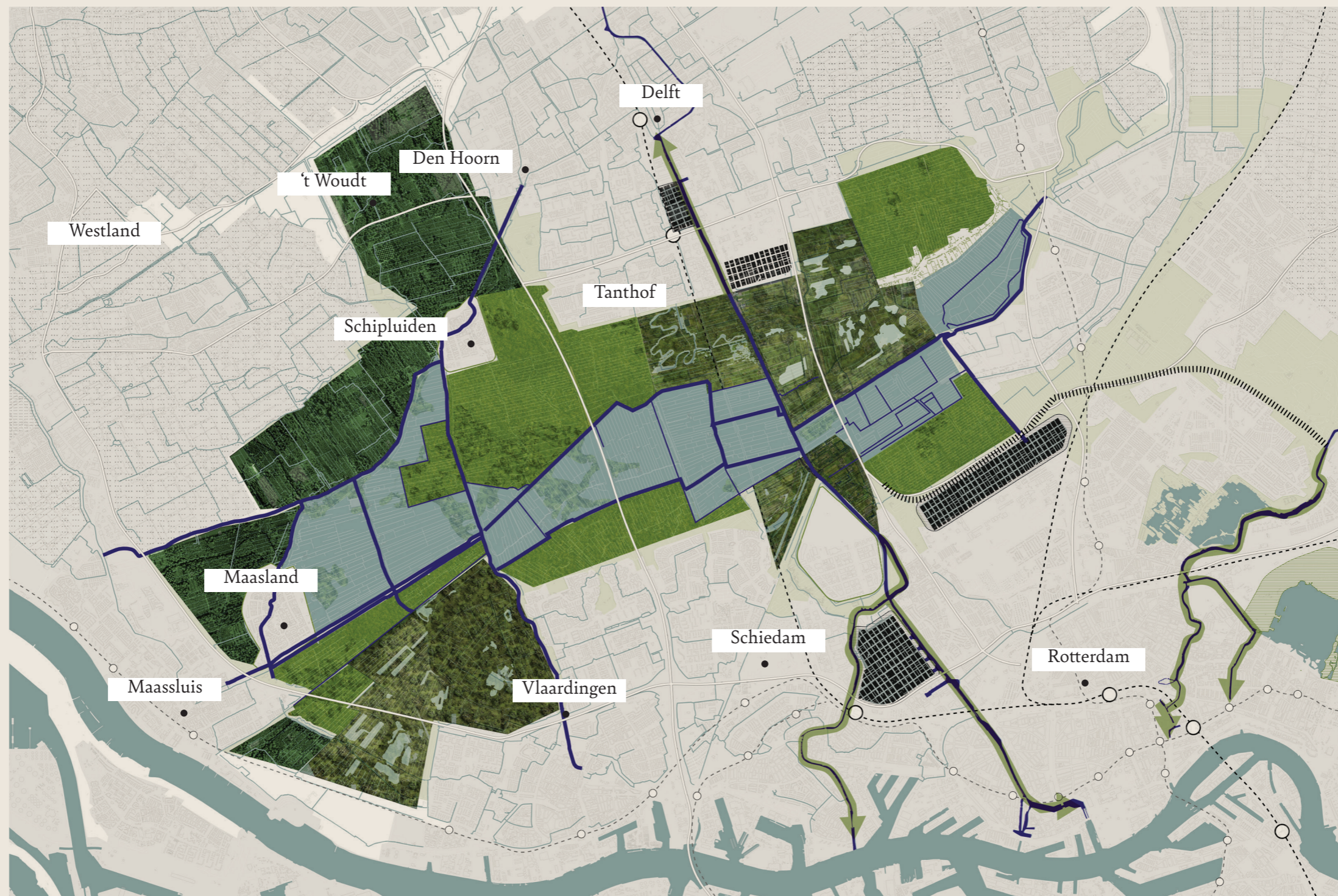
Is there hope for a Circular City?

Neighbourhood Barbecue, 2022



Midden-Delfland

A Green Lung in between Cities



- Boezembuffer; mainly waterstorage and reeds
- Boezem
- Peetlands: new forms of natural farming, wet fields
- Peet+clay lands: natural reserves, wetlands for birds
- Claylands: woodproduction, fruitpicking forests
- Dike around lower parts of the existing urban areas
- Urban area's
- Public transport nodes
- Designated areas for urban densification and waterbuffer within the city
- Boezem as a green blue infrastructure in the city

Redesigning Deltas

National Productive Park with High Density Urban Borders



Abtswoudse Park



Bosrand



Abtswoude

Tanthof

Typical in housing, Typical in Landscape, Atypically Combined



1975



2024

Tanthof

An Outgrown Concept?



Havannastraat



Kartinipad



Abtswoudse Park

Tanhof

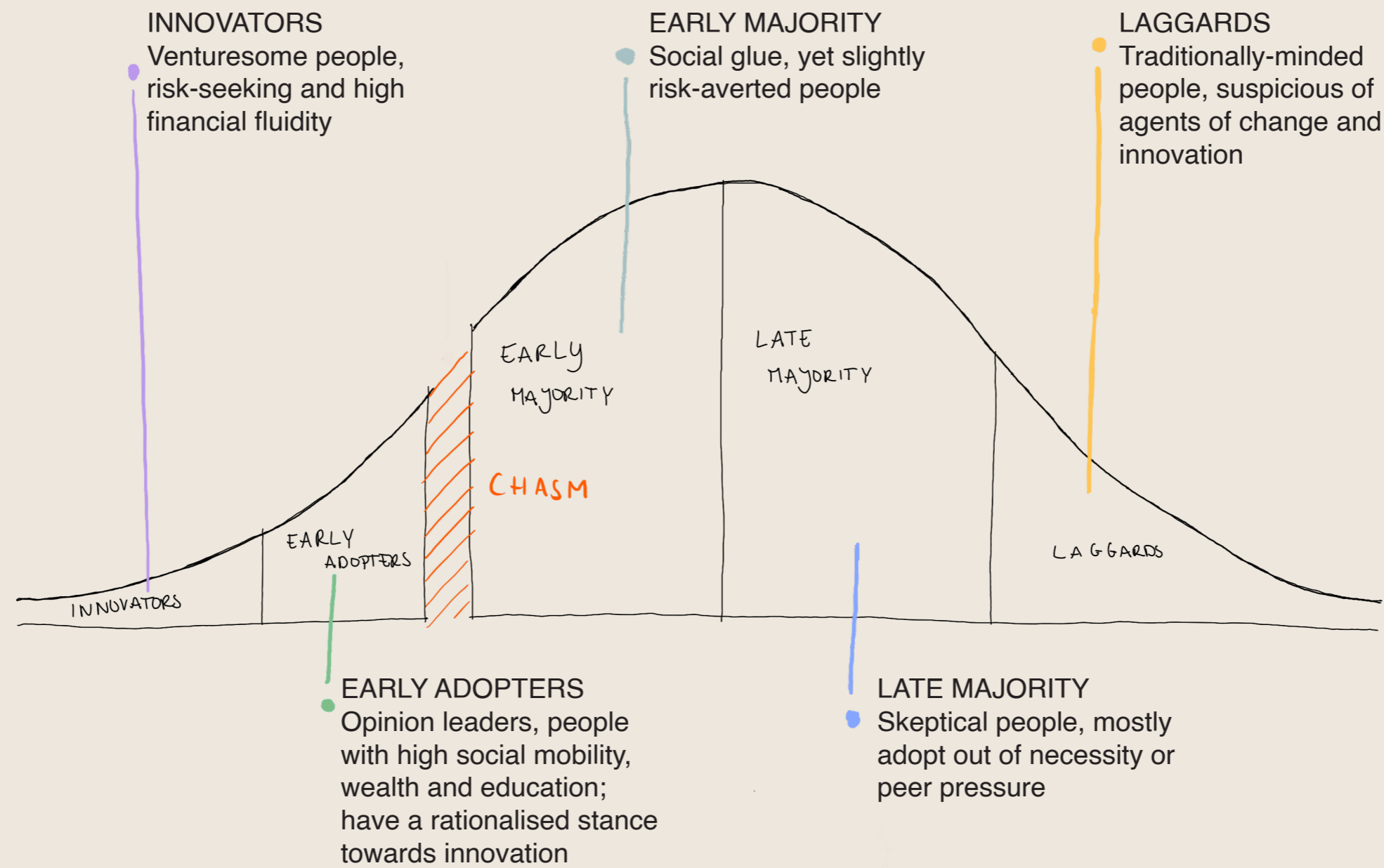
Sustainable Measures (Pictures from Sustainable Housing Route Tanhof by 015Duurzaam)

Main Research Question

‘What role can architects and designers play in fostering an inclusive energy neutral and circular living environment?’

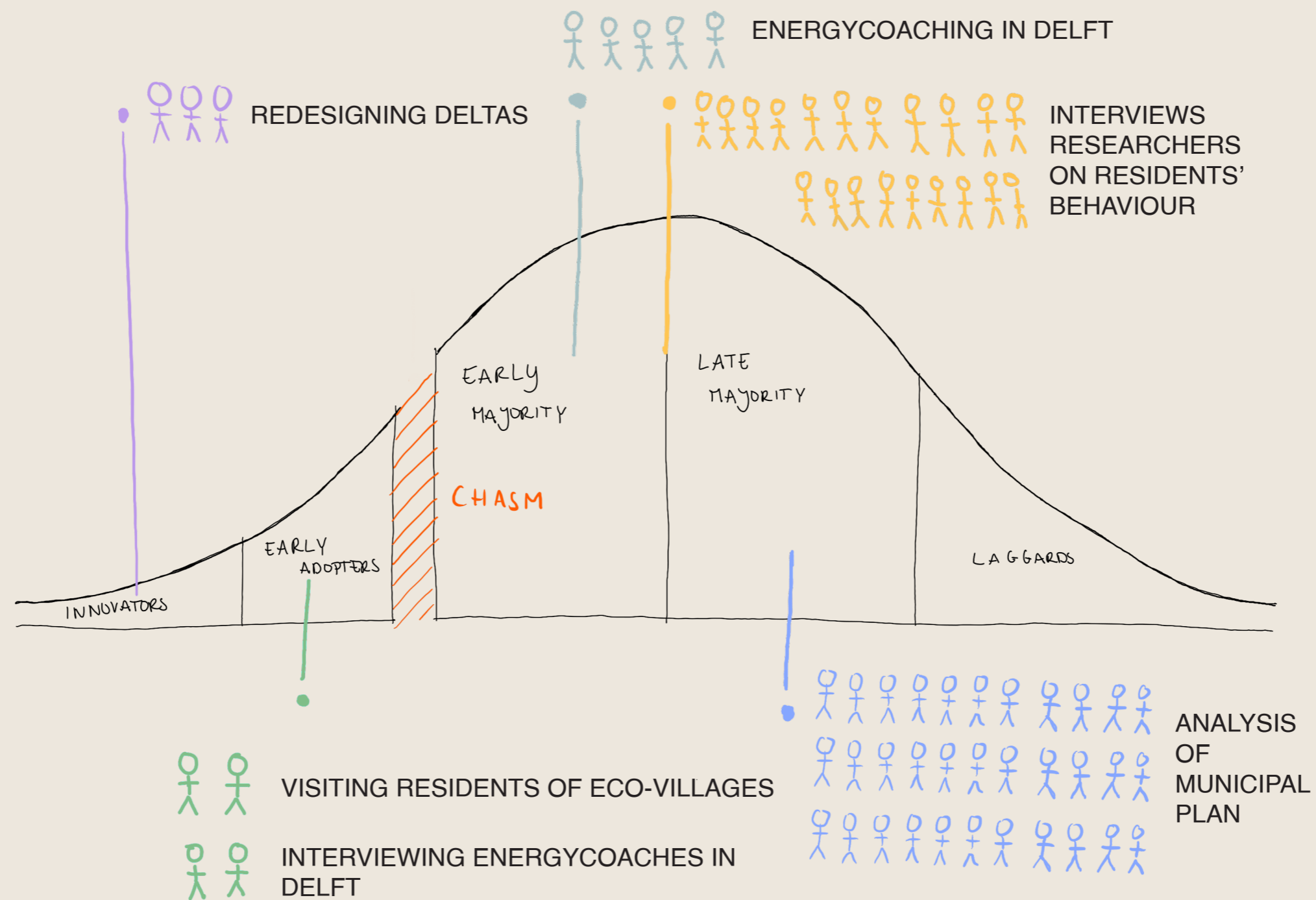
Sub-Questions

- How do different existing communities adopt circular housing?
- What spatial or architectural interventions promote adopting to circular living for residents?
- What is the existing community of Tanthof like regarding sustainability and socio-economic inclusion and justice?



Theory - Diffusion of Innovations

Work by Author based on Rogers, 1995; Moore 1990



Methodology

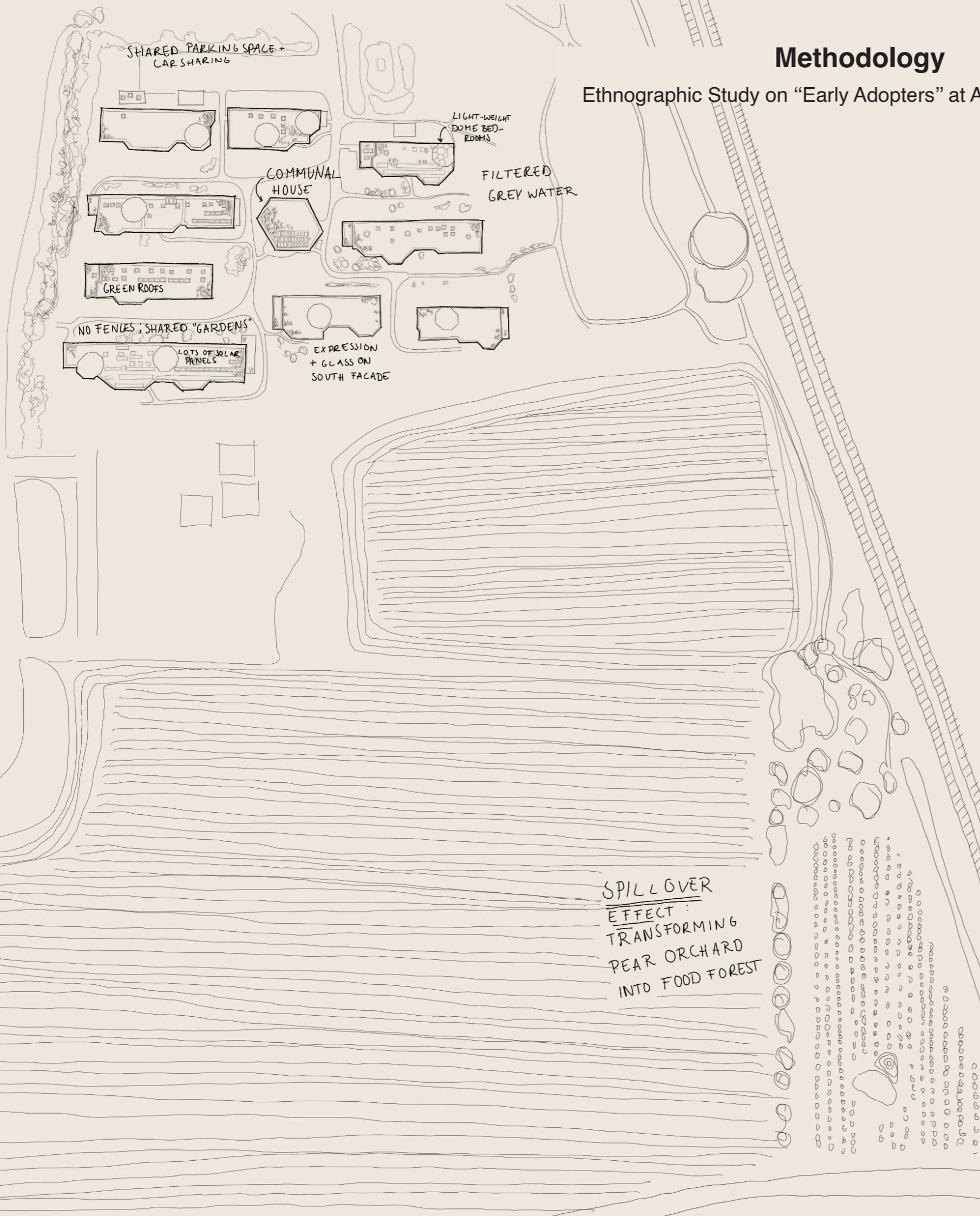
Research Methods in Diffusion of Innovation Framework

Methodology

Zedi van Oostrom

20-06-2025

Ethnographic Study on "Early Adopters" at Aardenhuizen Olst



SPILL OVER
EFFECT:
TRANSFORMING
PEAR ORCHARD
INTO FOOD FOREST

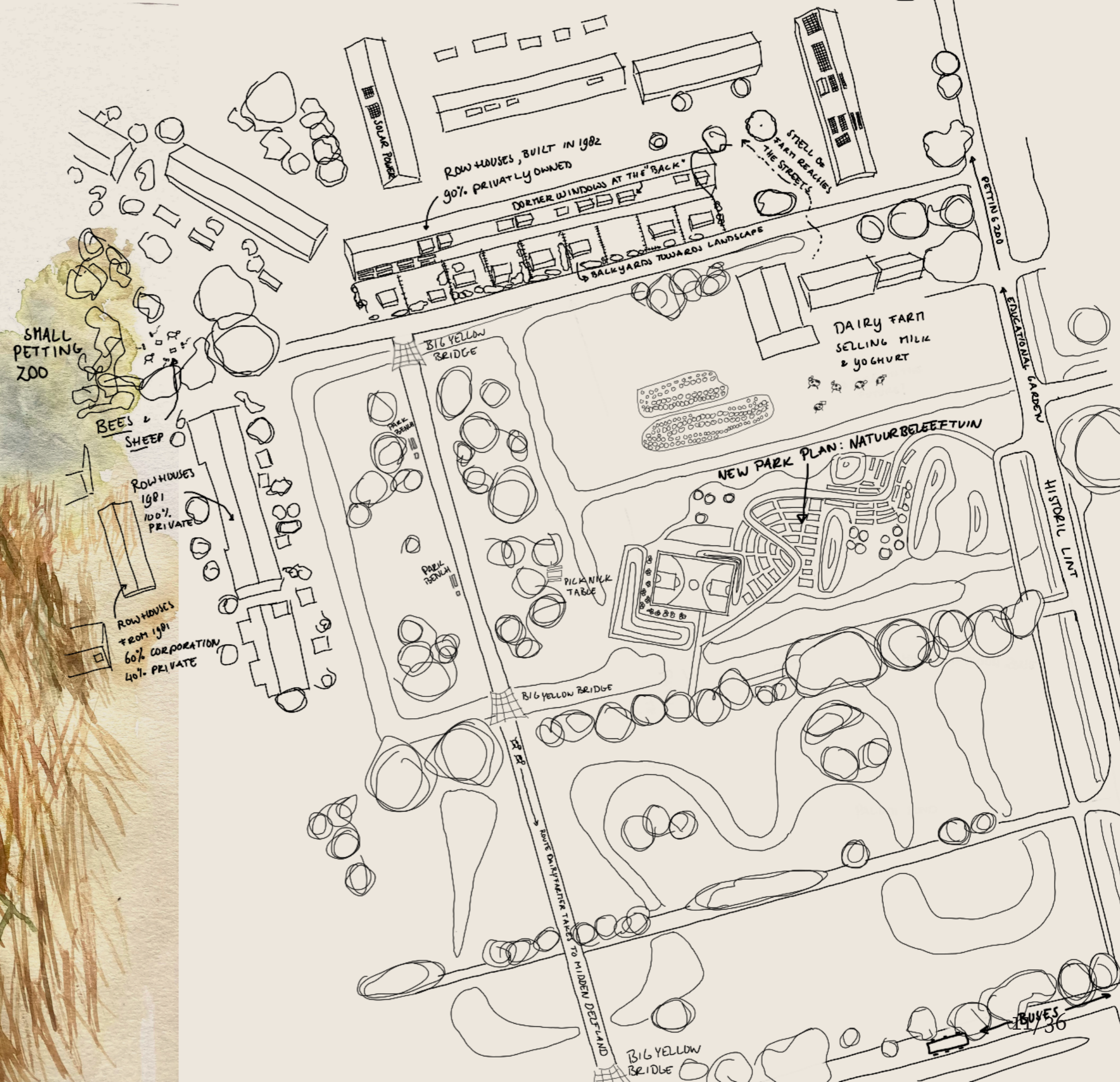


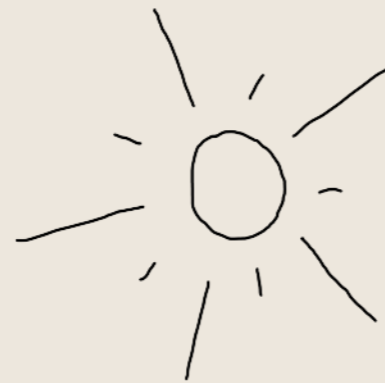
Methodology

Ethnographic Study on "Urban Majority" in Delft & Tanthof

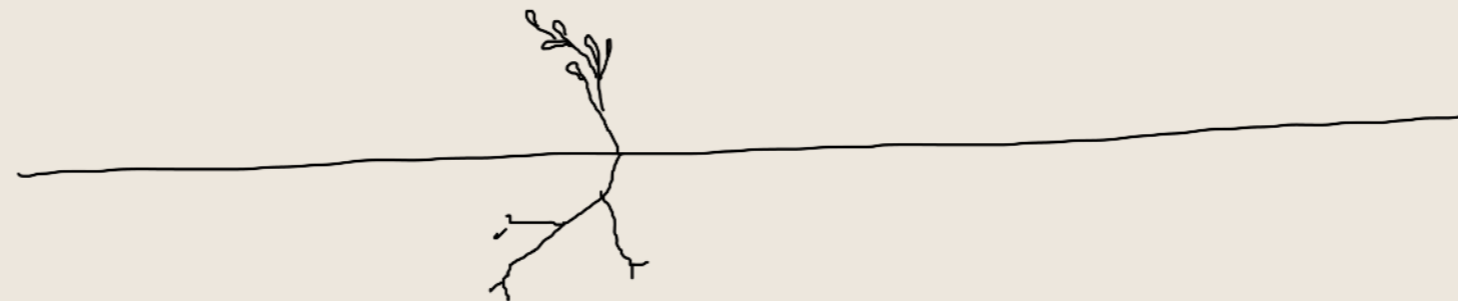
Zed van Oostrom

20-06-2025



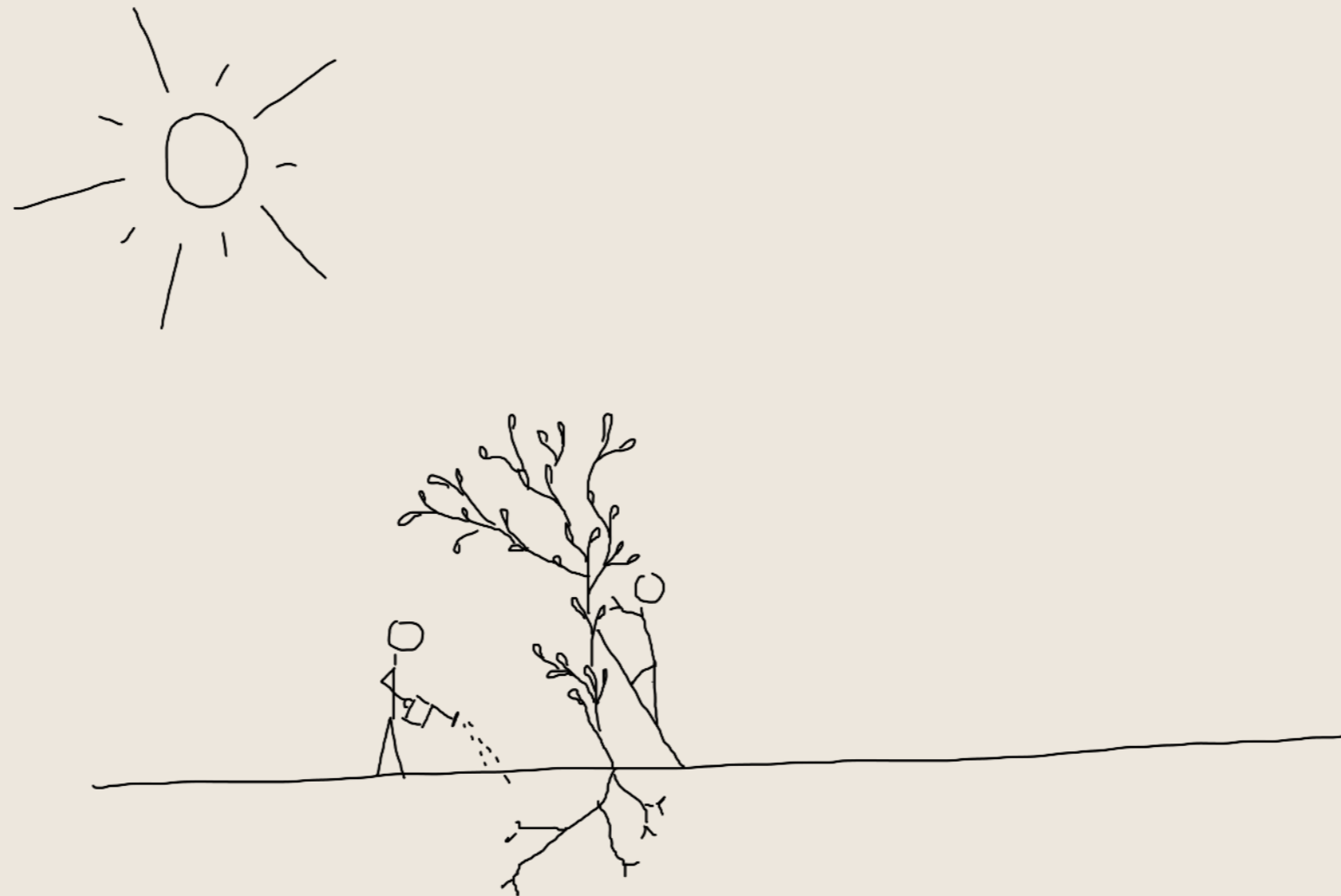


ROOTED IN
THE CONTEXT



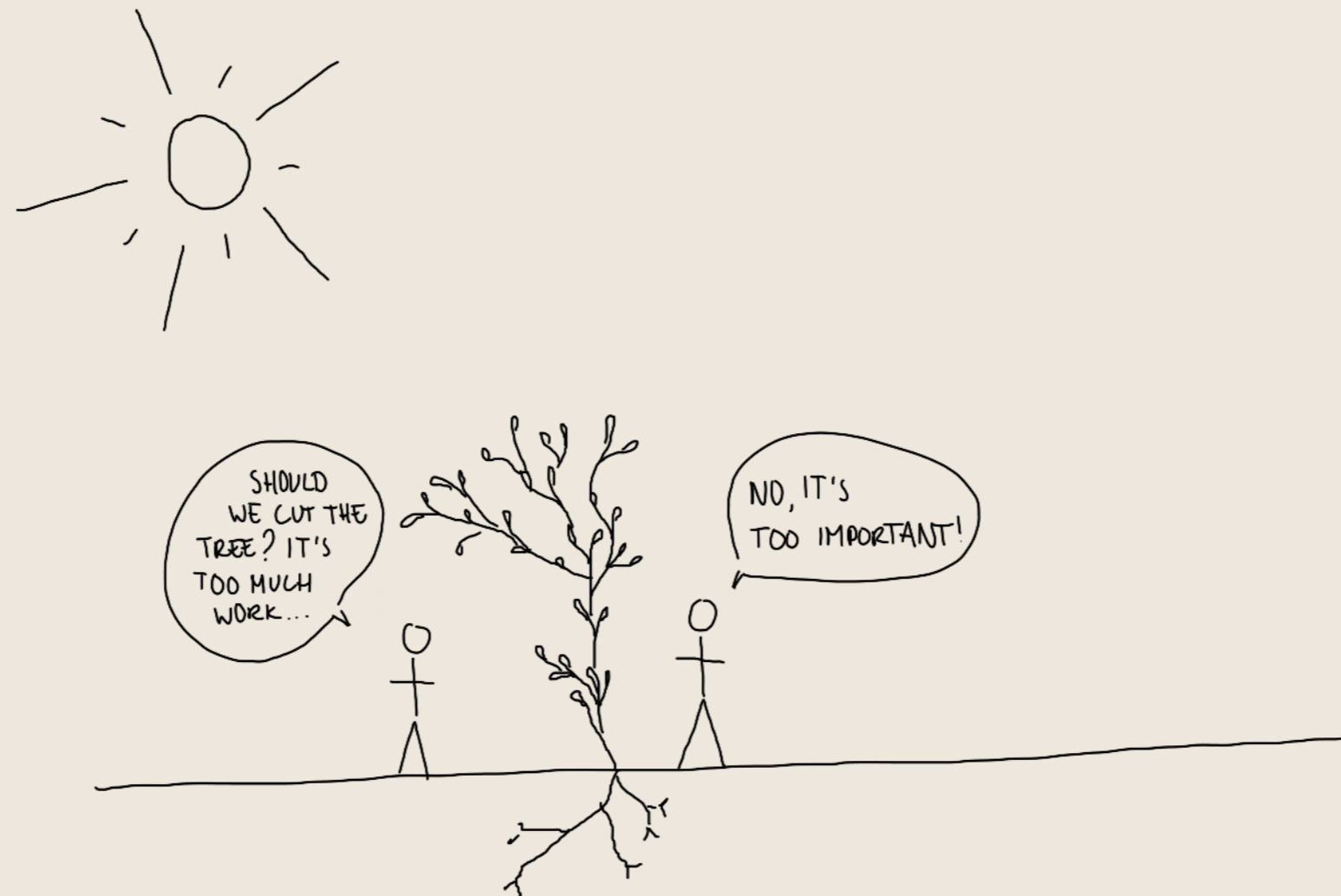
1. Respond to local context

- knowledge transfer between residents and designers/planners



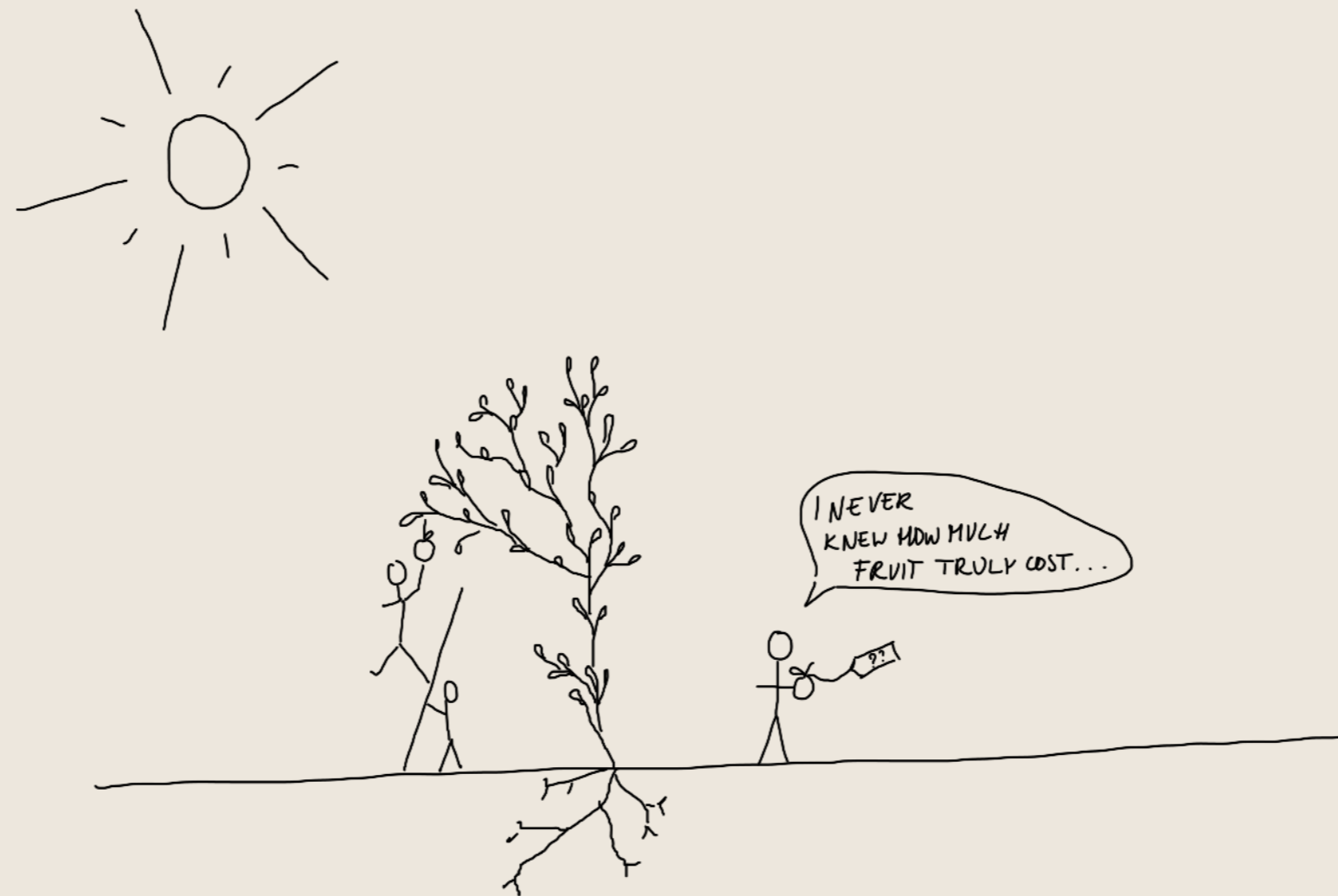
2. Collaborate with residents

- space to appropriate
- clearly defined framework
 - giving options



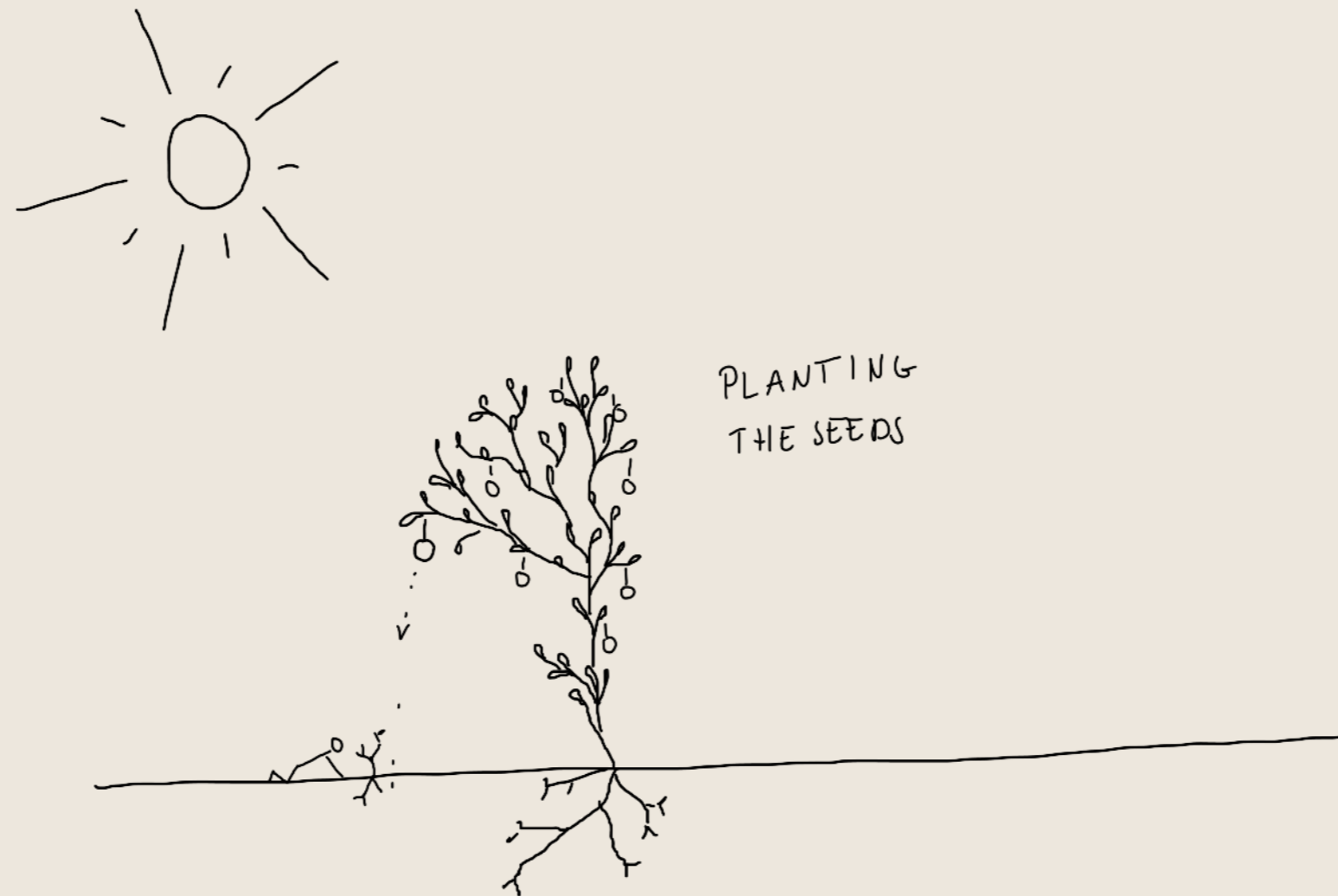
3. Prioritize building circularly

- structural changes sector and supply chain
- extensive safeguarding of circular design



4. Demystify

- making architecture low-tech and tangible
- making people understand their home and behaviour



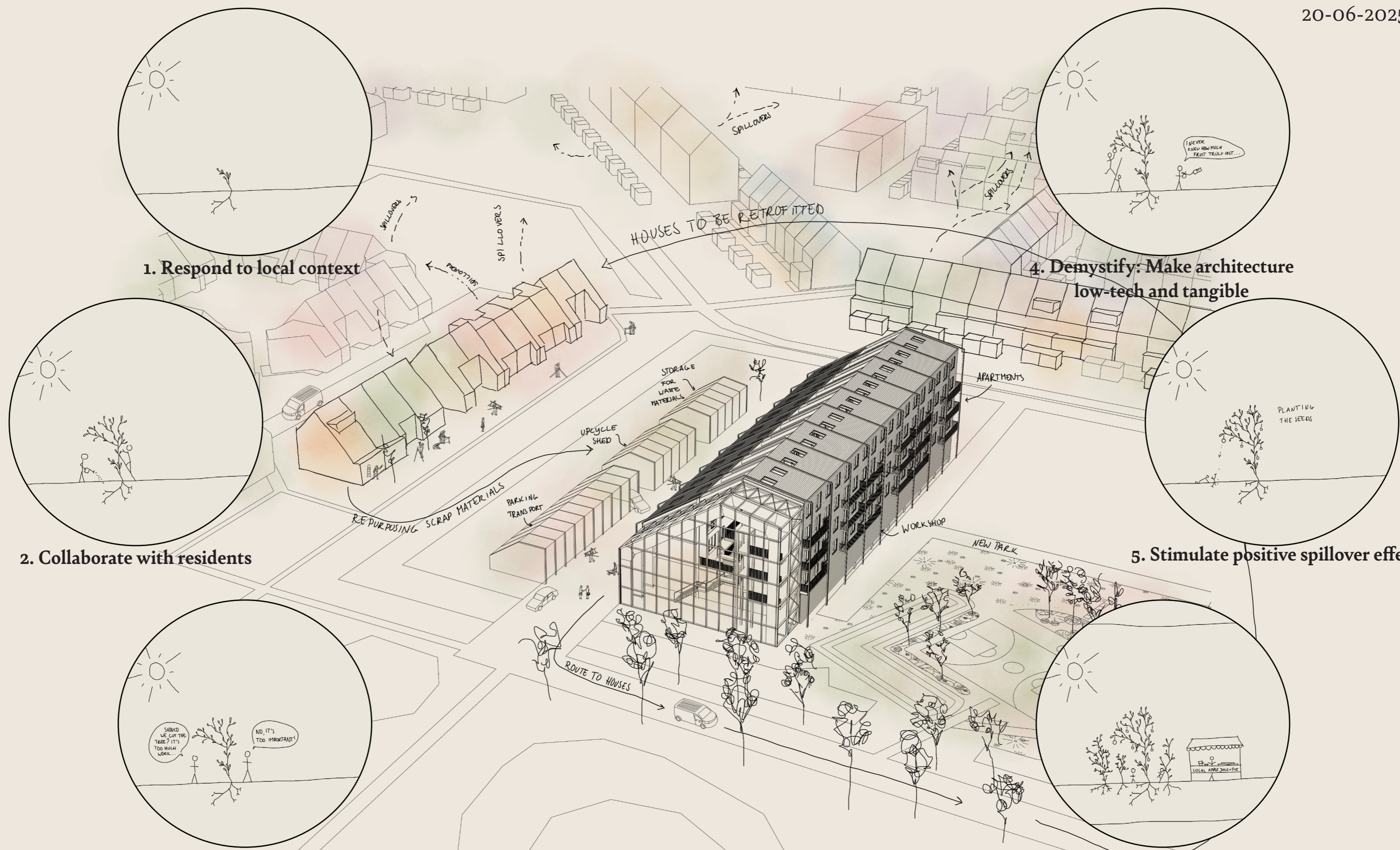
5. Stimulate positive spillover effects

- behavioural effect
- seeing, talking, experiencing



6. Visualize a circular future

- exploring multiple future scenarios through design
 - convincing tool
 - triggering new ideas



1. Respond to local context

4. Demystify: Make architecture low-tech and tangible

2. Collaborate with residents

5. Stimulate positive spillover effects

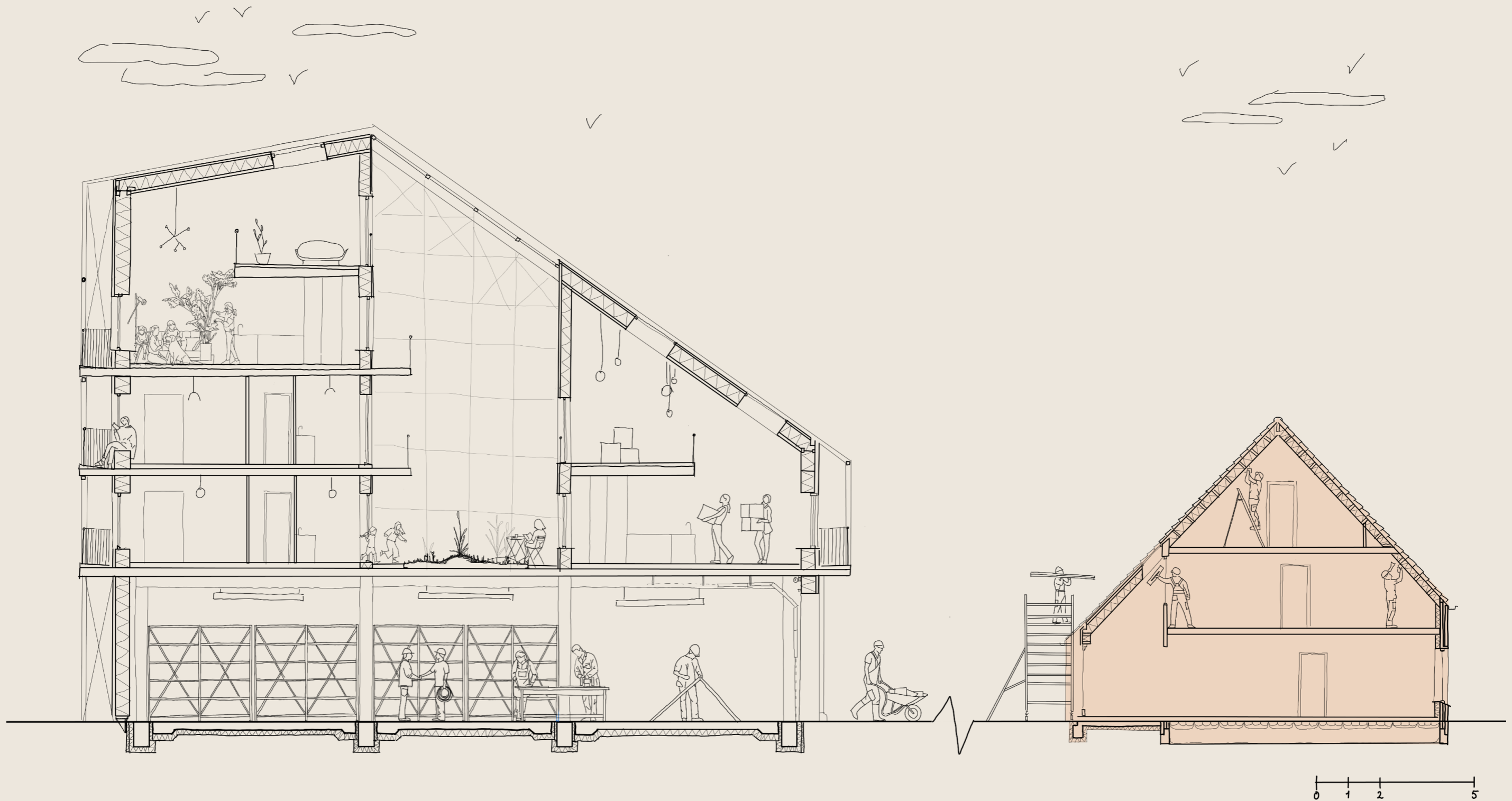
3. Prioritize building circularly

6. Visualize a circular future

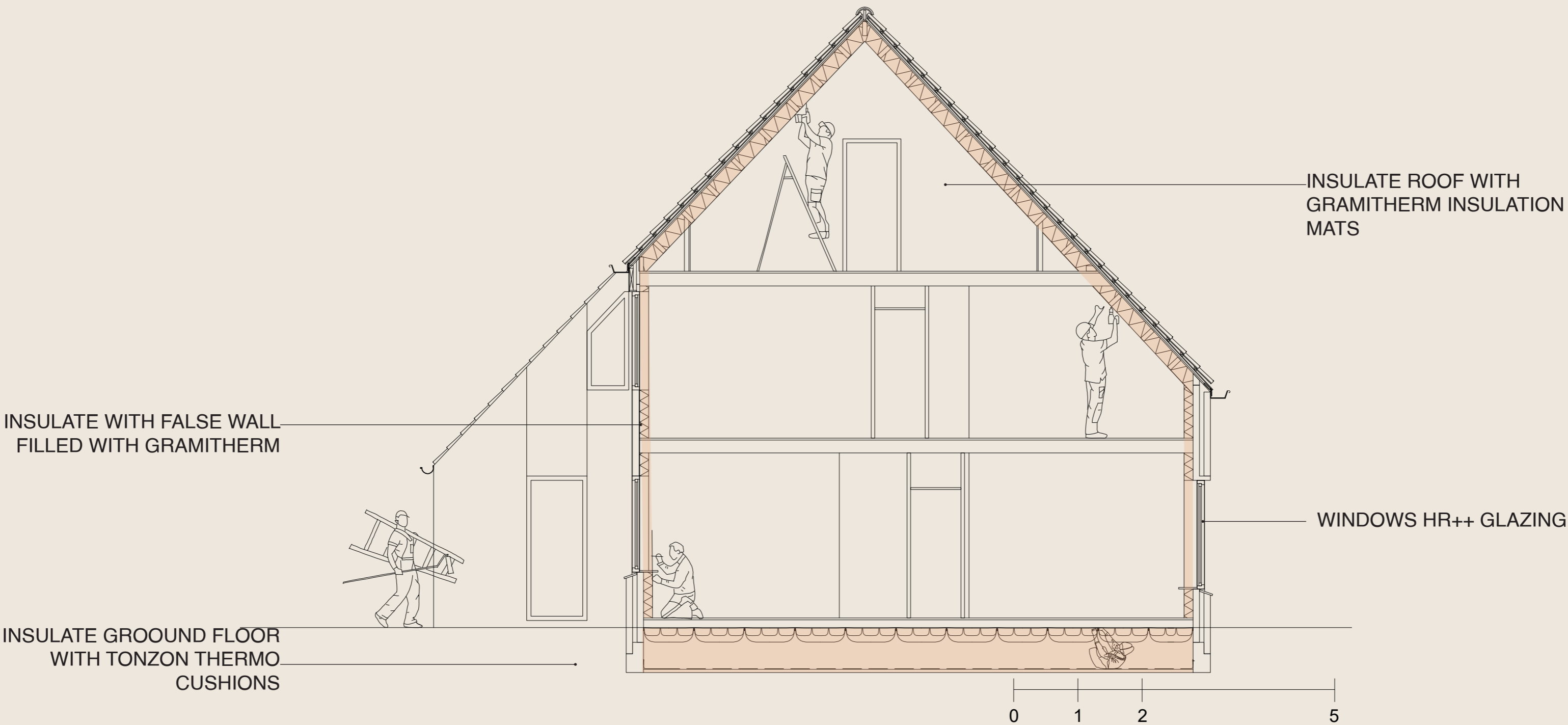
Design Proposal

The Circular Centre



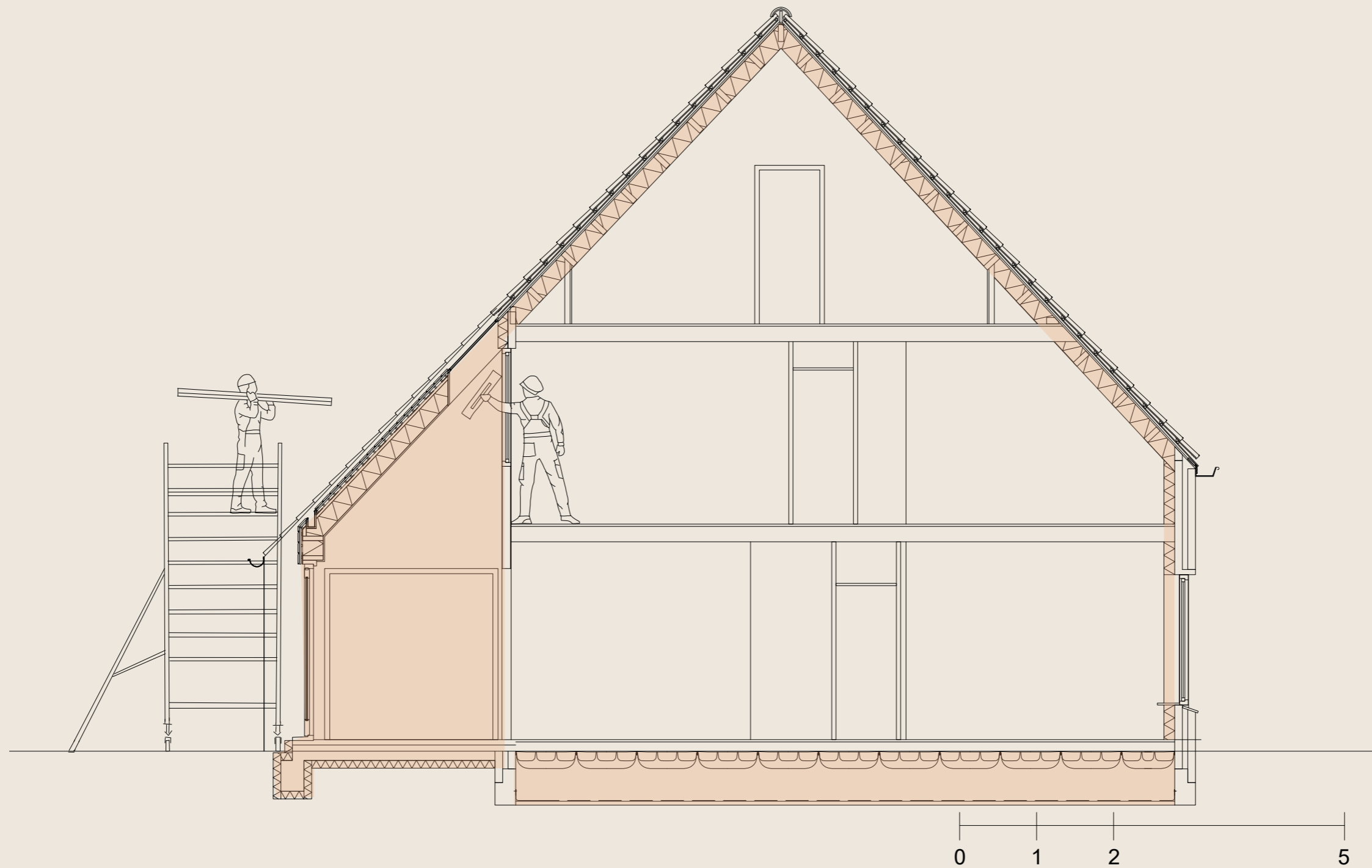


Design Proposal - Section
Retrofitting the Existing

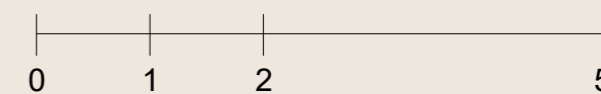
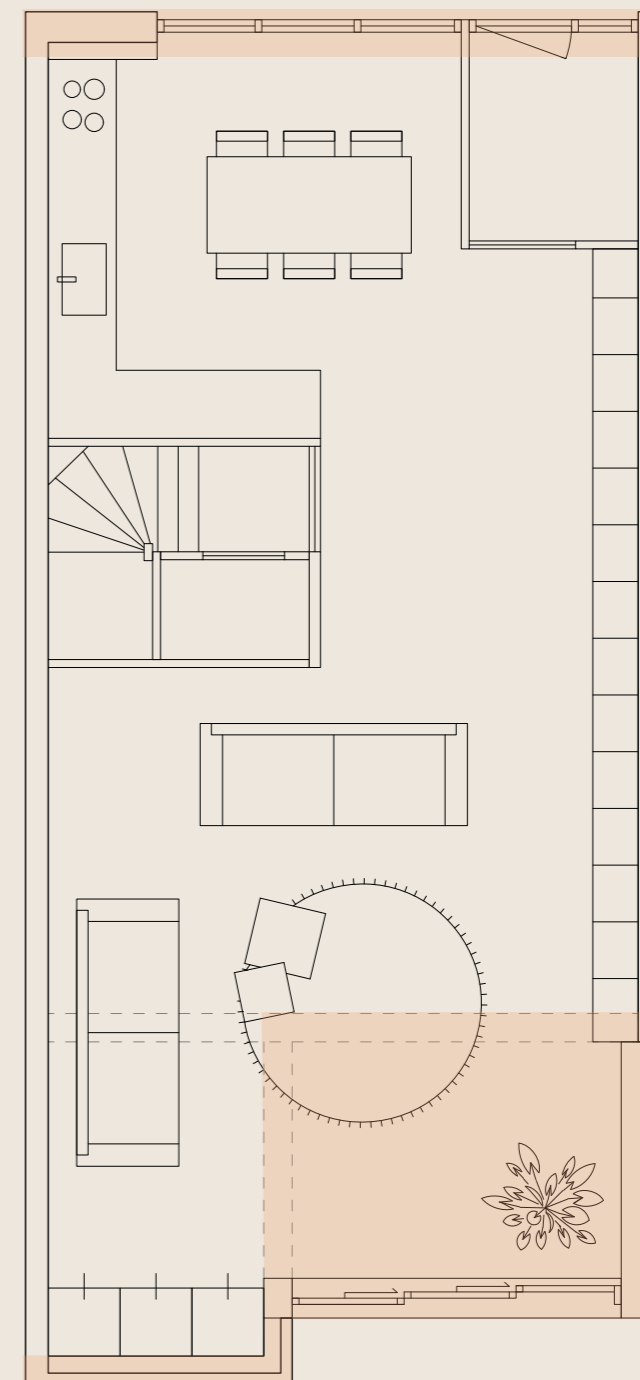
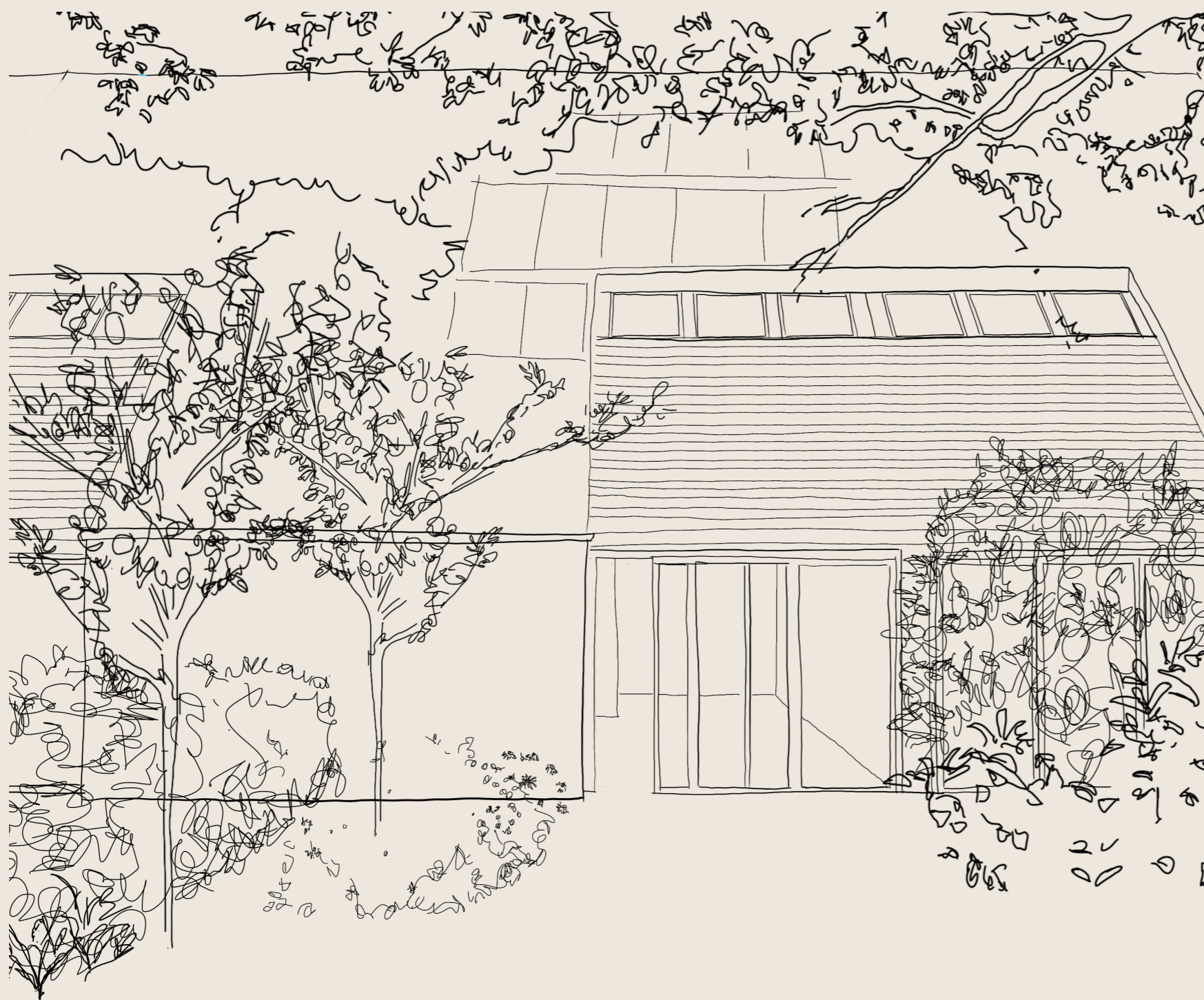


Design Proposal - Renovation Plan

Retrofitting the Existing

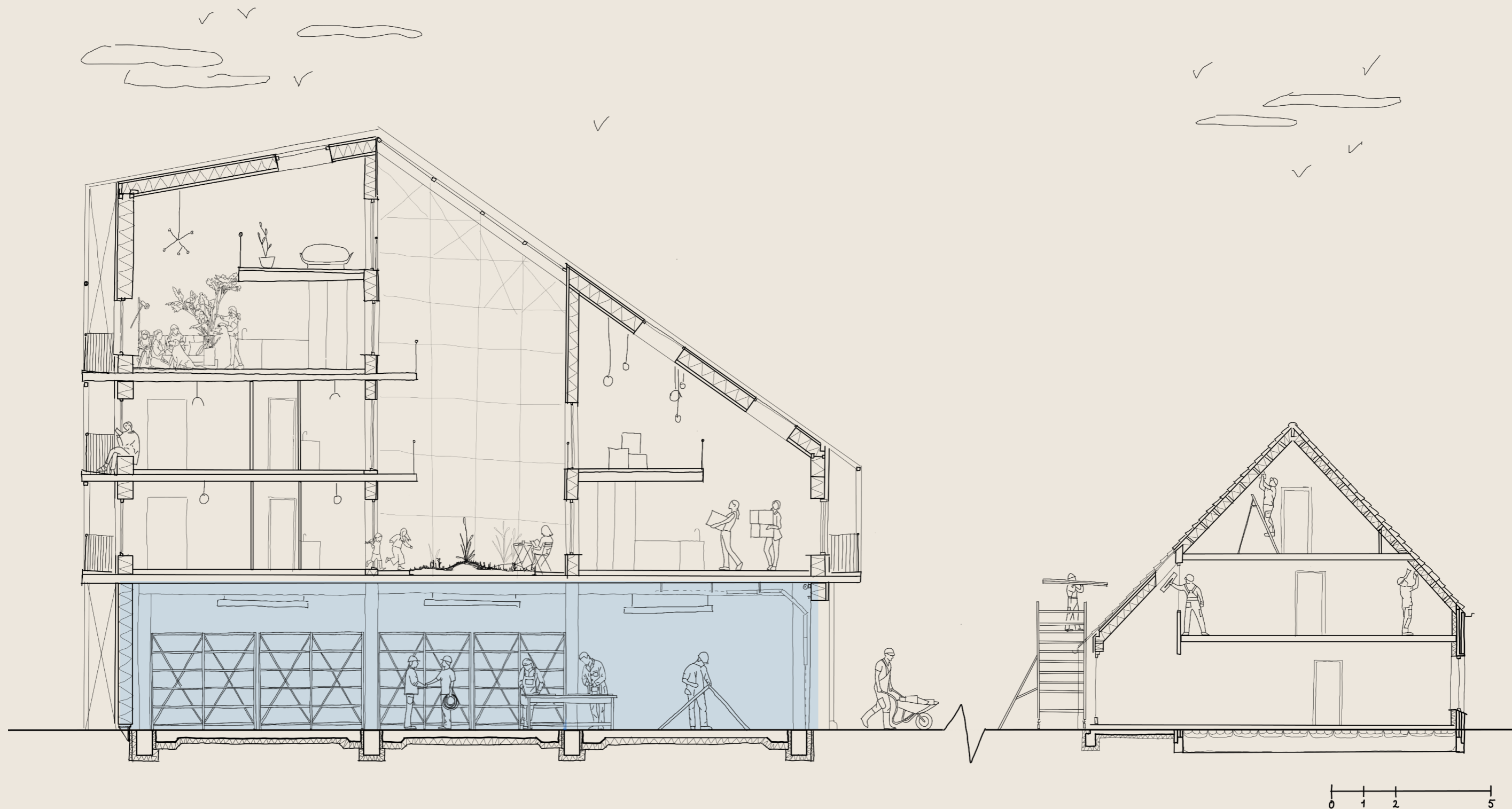


Design Proposal - Renovation Plan
Retrofitting the Existing



Design Proposal - Renovation Plan

Retrofitting the Existing



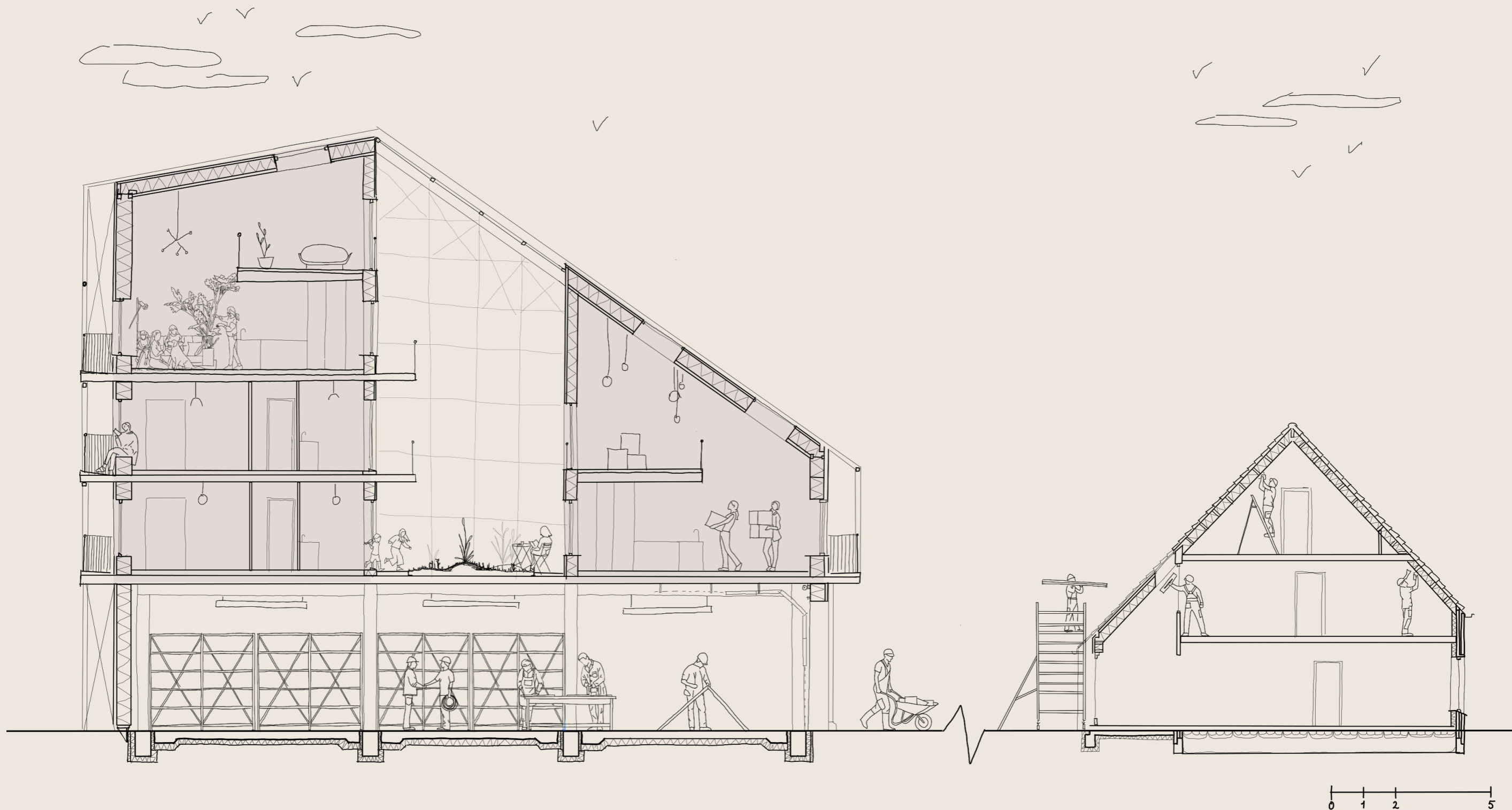
Design Proposal - Section

A Workshop to Facilitate the Circular Transition



Design Proposal

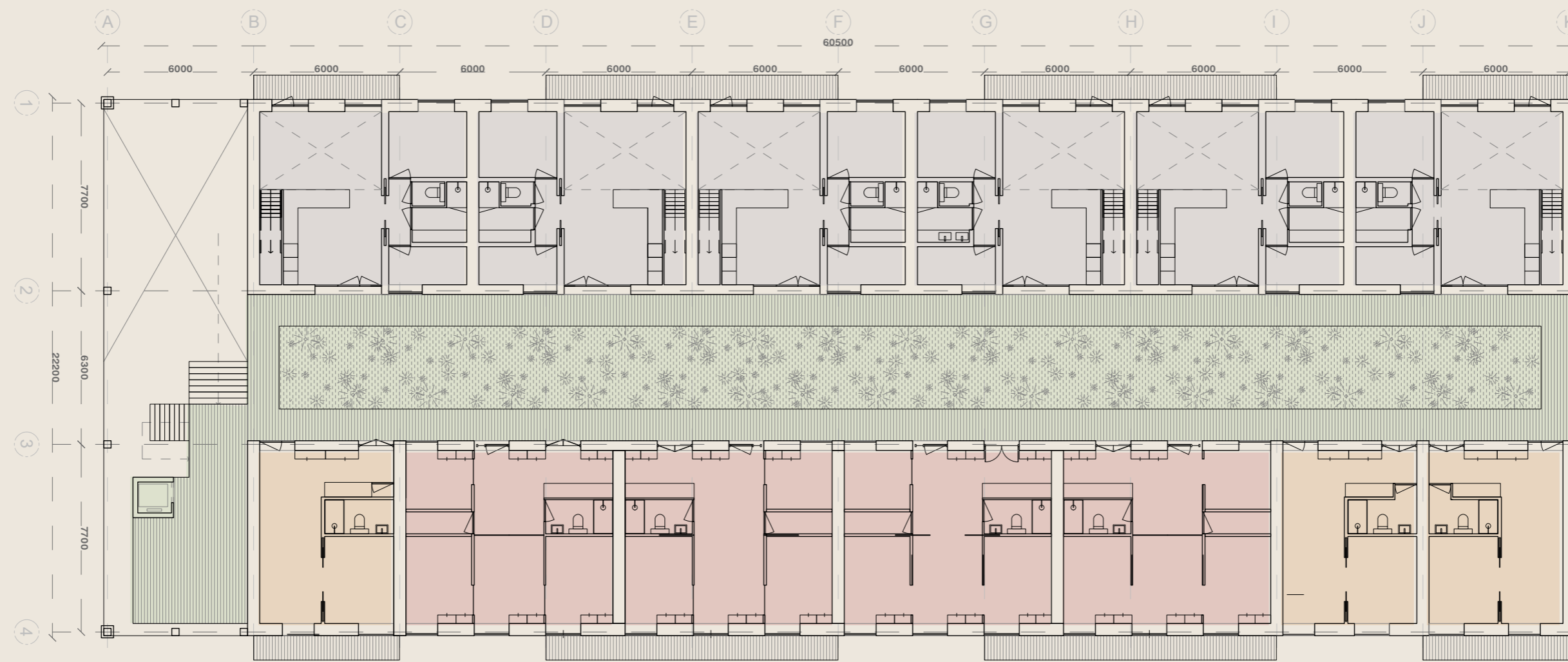
A Workshop to Facilitate the Circular Transition



Design Proposal - Section

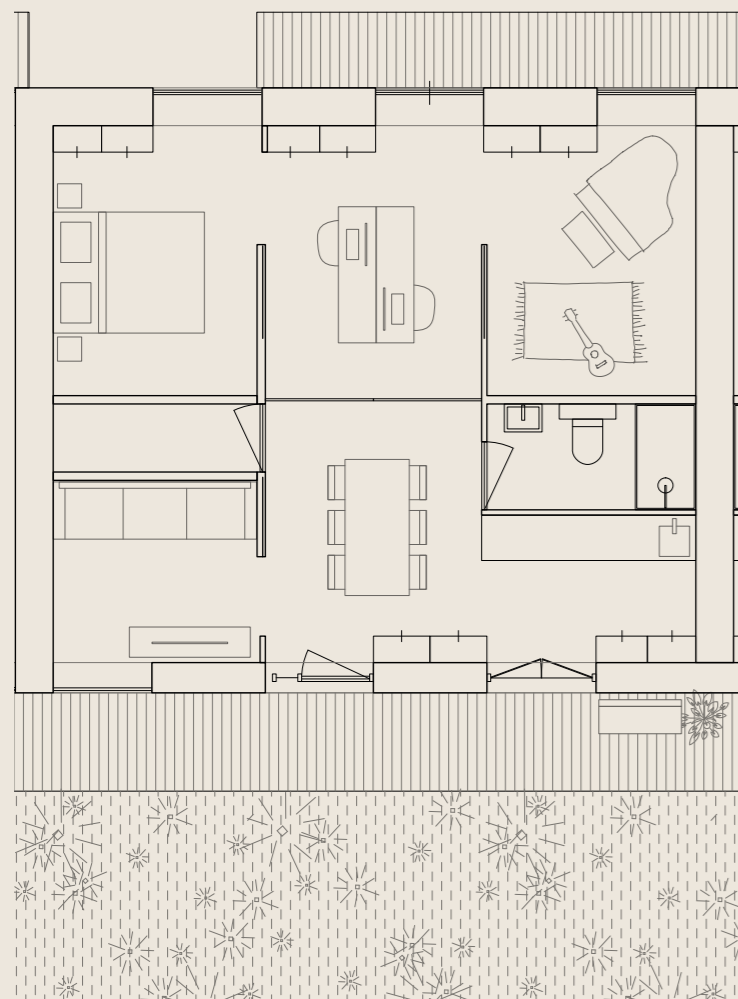
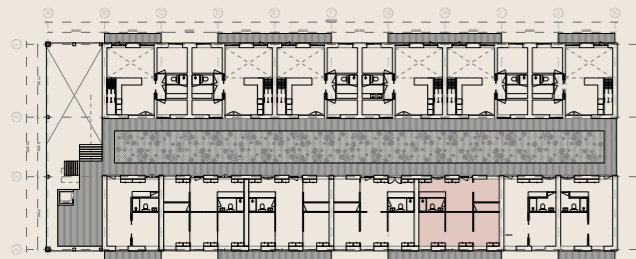
Living Spaces

- Apartment type A (39m²)
- Apartment type B (60m²)
- Apartment type C (100m²)
- Shared space

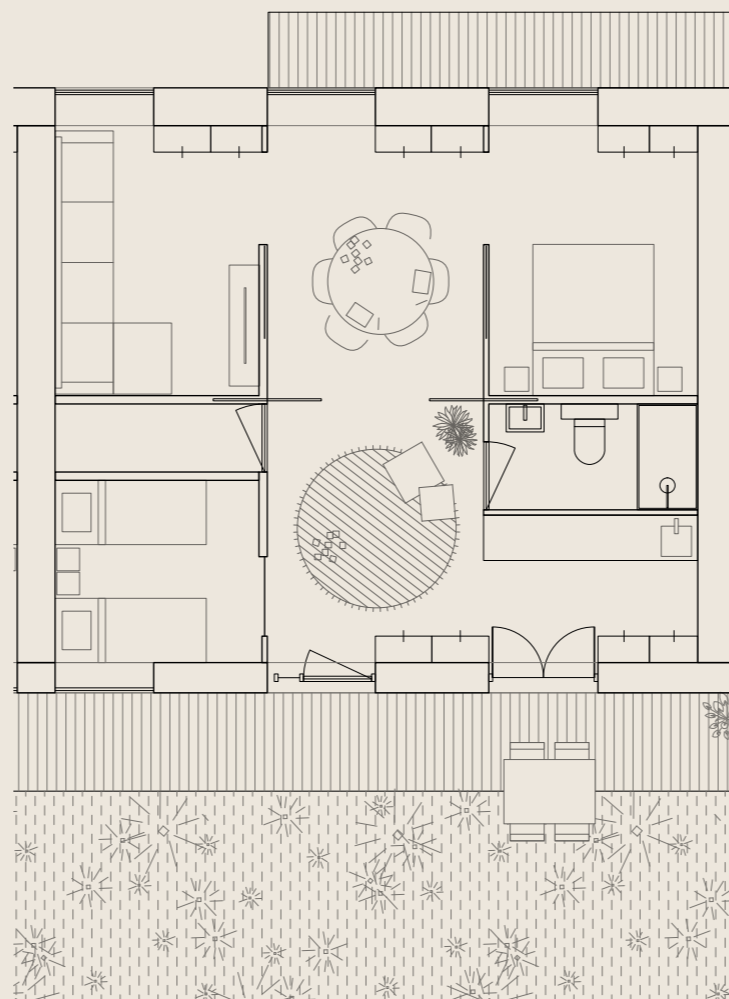


Design Proposal - First Floor

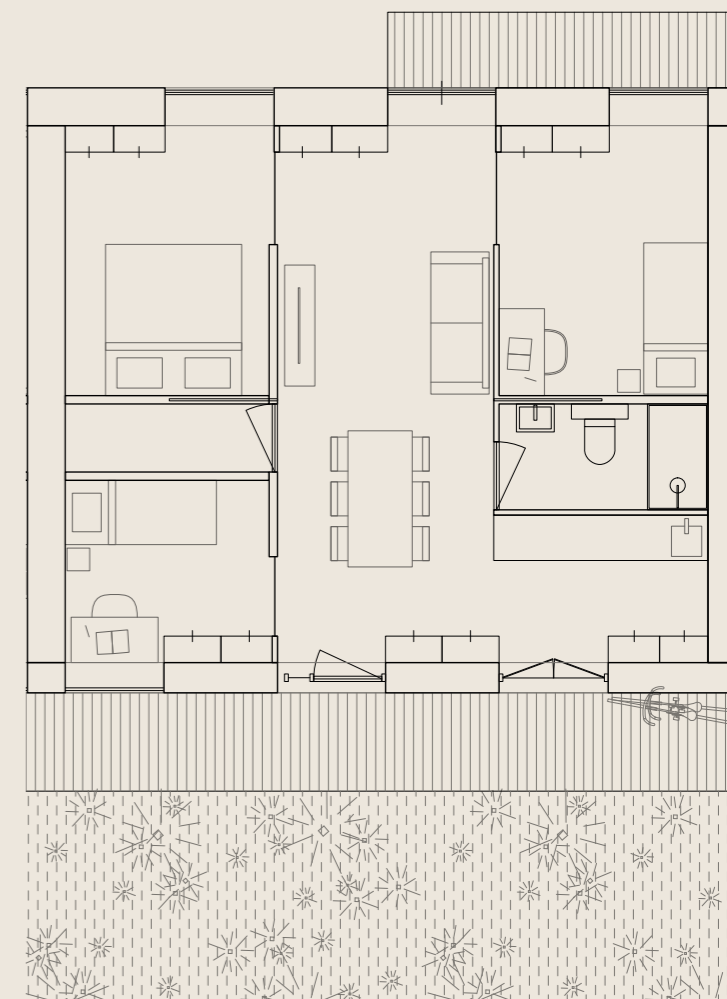
Circular Living



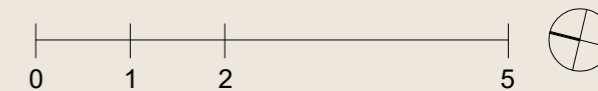
Couple



Young family



Family with teens



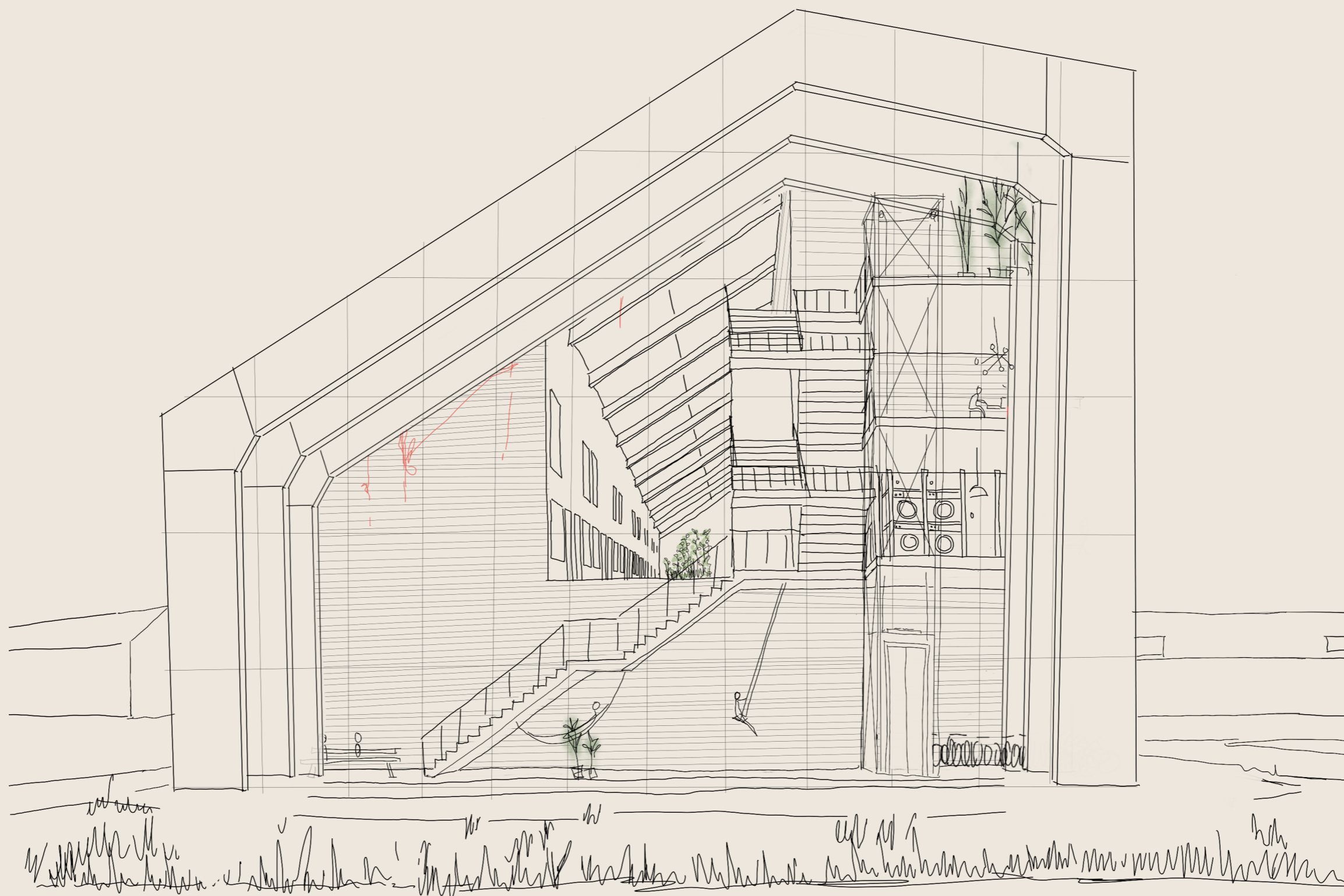
Design Proposal - Apartment Type B

Flexible Layout



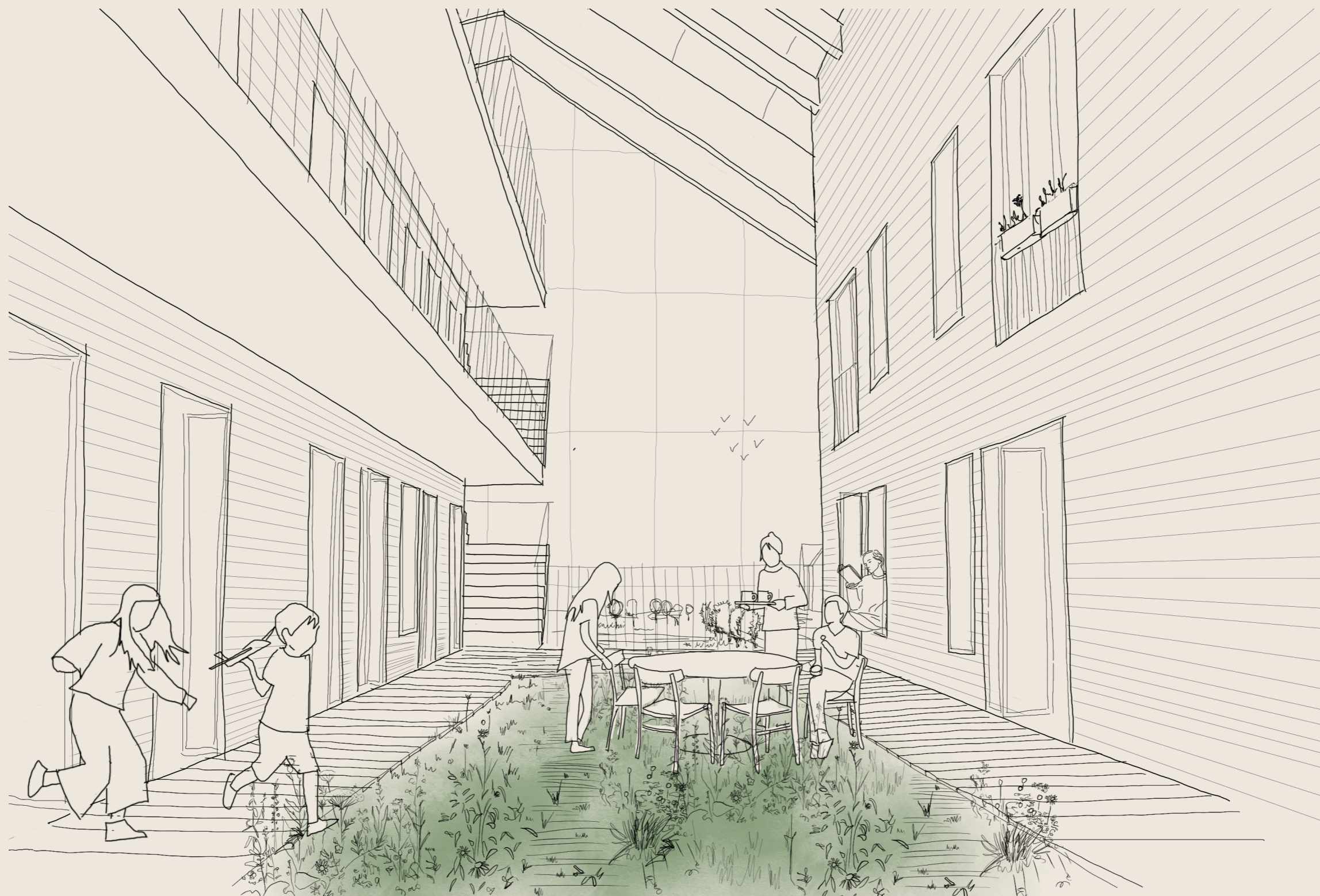
Design Proposal - Apartment Type B

Flexible Layout

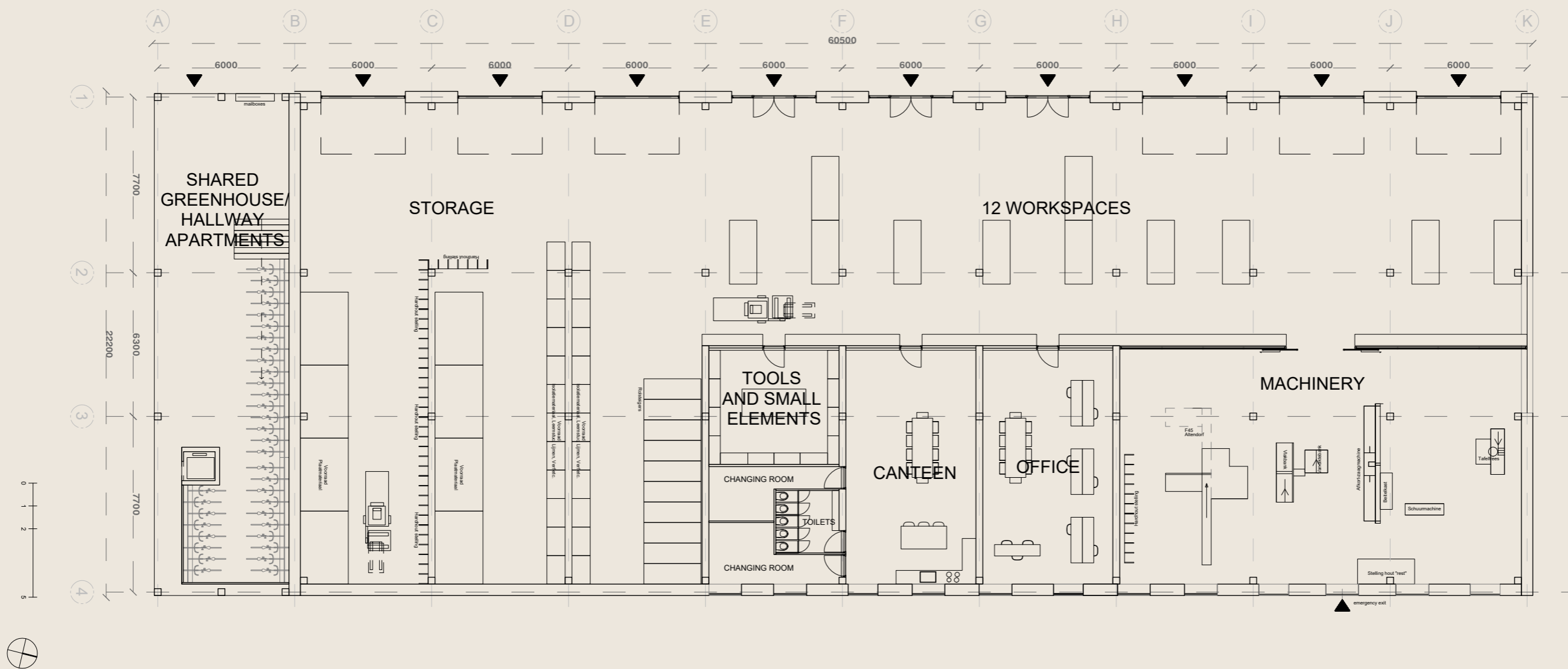


Design Proposal - Shared Spaces

Excess Circulation Space serving as Living Space

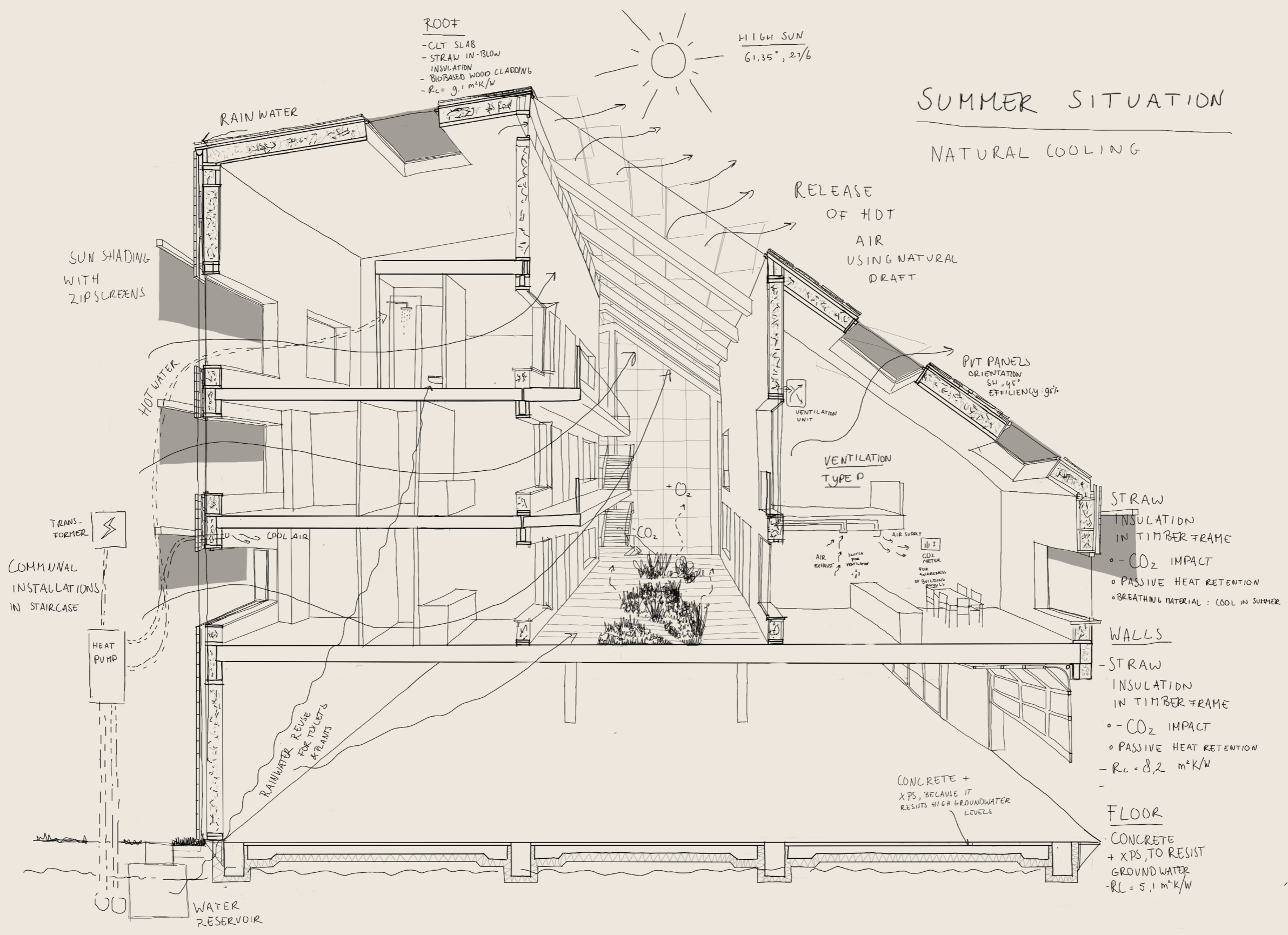


Design Proposal - Shared Spaces
Excess Circulation Space serving as Living Space



Design Proposal - Workshop Hall

Subtitle



SUMMER SITUATION
NATURAL COOLING

ROOF
- CLT SLAB
- STRAW IN-SLOW
INSULATION
- BIOBASED WOOD CLADDING
- $R_c = 9.1 \text{ m}^2\text{K/W}$

HIGH SUN
 $61.35^\circ, 2/6$

RELEASE OF HOT AIR USING NATURAL DRAFT

PVT PANELS
ORIENTATION SW, 45°
EFFICIENCY: 90%

STRAW INSULATION IN TIMBER FRAME
- CO₂ IMPACT
- PASSIVE HEAT RETENTION
- BREATHING MATERIAL: COOL IN SUMMER

WALLS
- STRAW INSULATION IN TIMBER FRAME
- CO₂ IMPACT
- PASSIVE HEAT RETENTION
- $R_c = 8.2 \text{ m}^2\text{K/W}$

FLOOR
- CONCRETE + XPS, TO RESIST GROUNDWATER
- $R_l = 5.1 \text{ m}^2\text{K/W}$

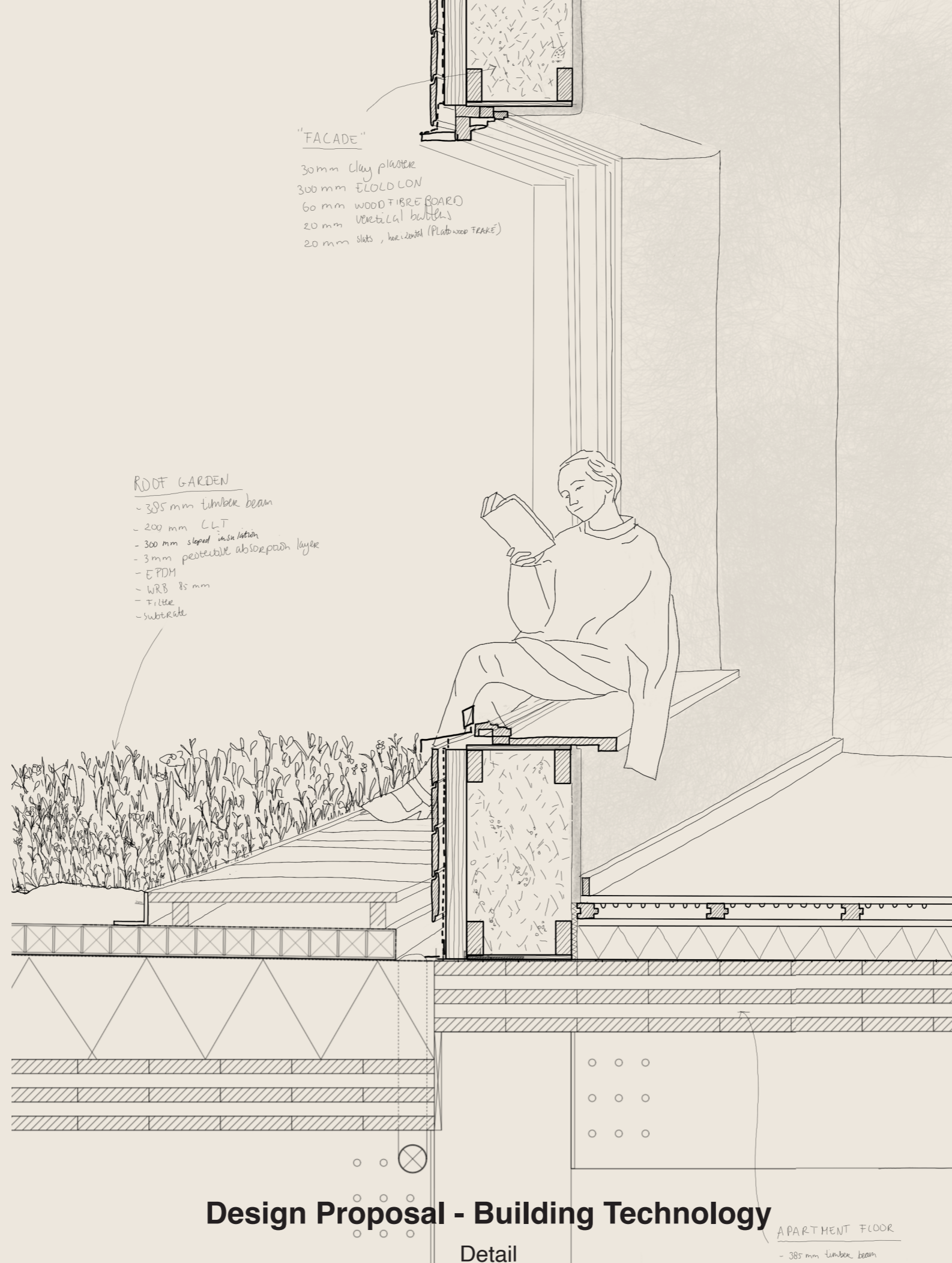
TRANS-FORMER
COMMUNAL INSTALLATIONS IN STAIRCASE
HEAT PUMP

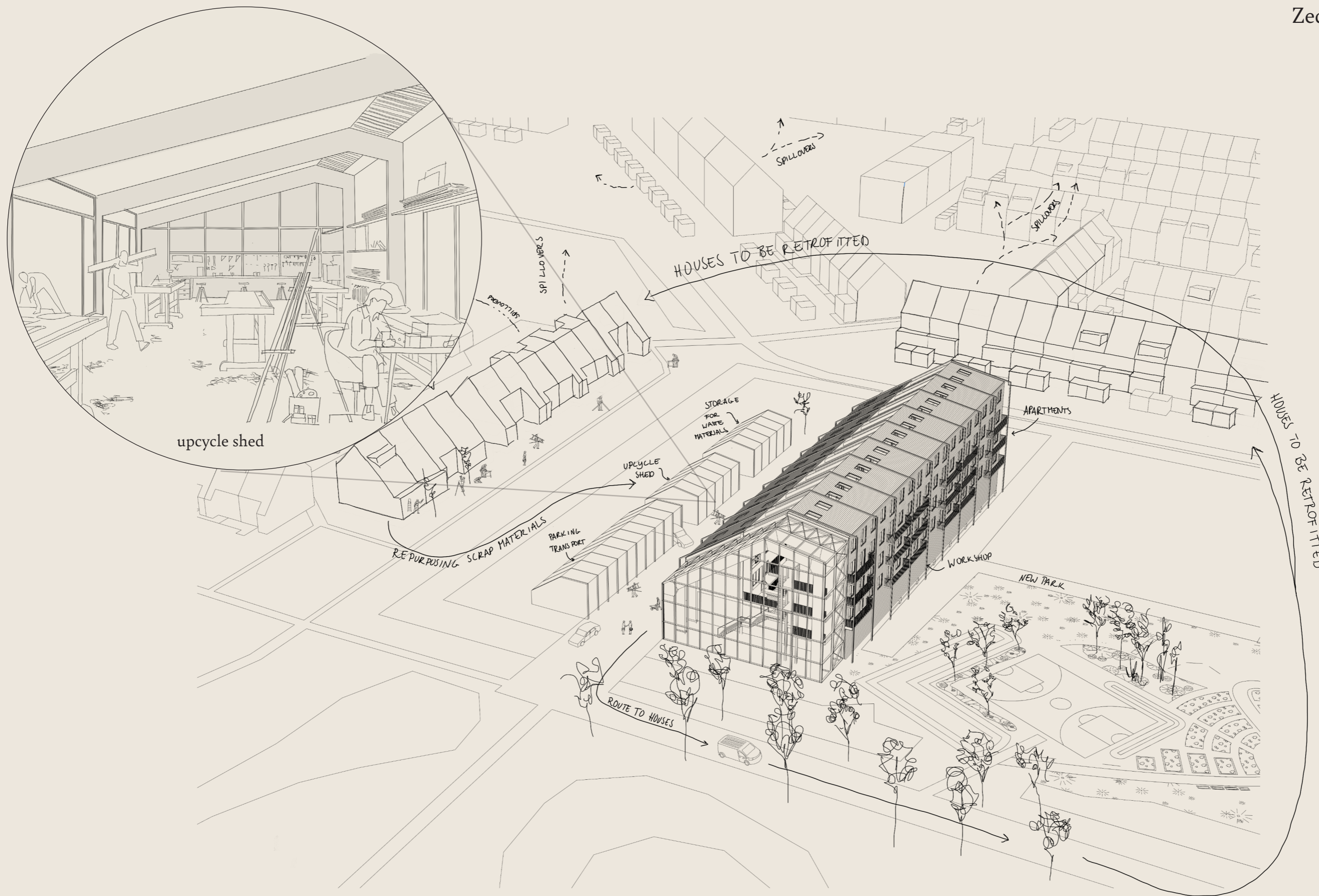
WATER RESERVOIR

CONCRETE + XPS, BECAUSE IT RESISTS HIGH GROUNDWATER LEVELS

Design Proposal - Climate Design

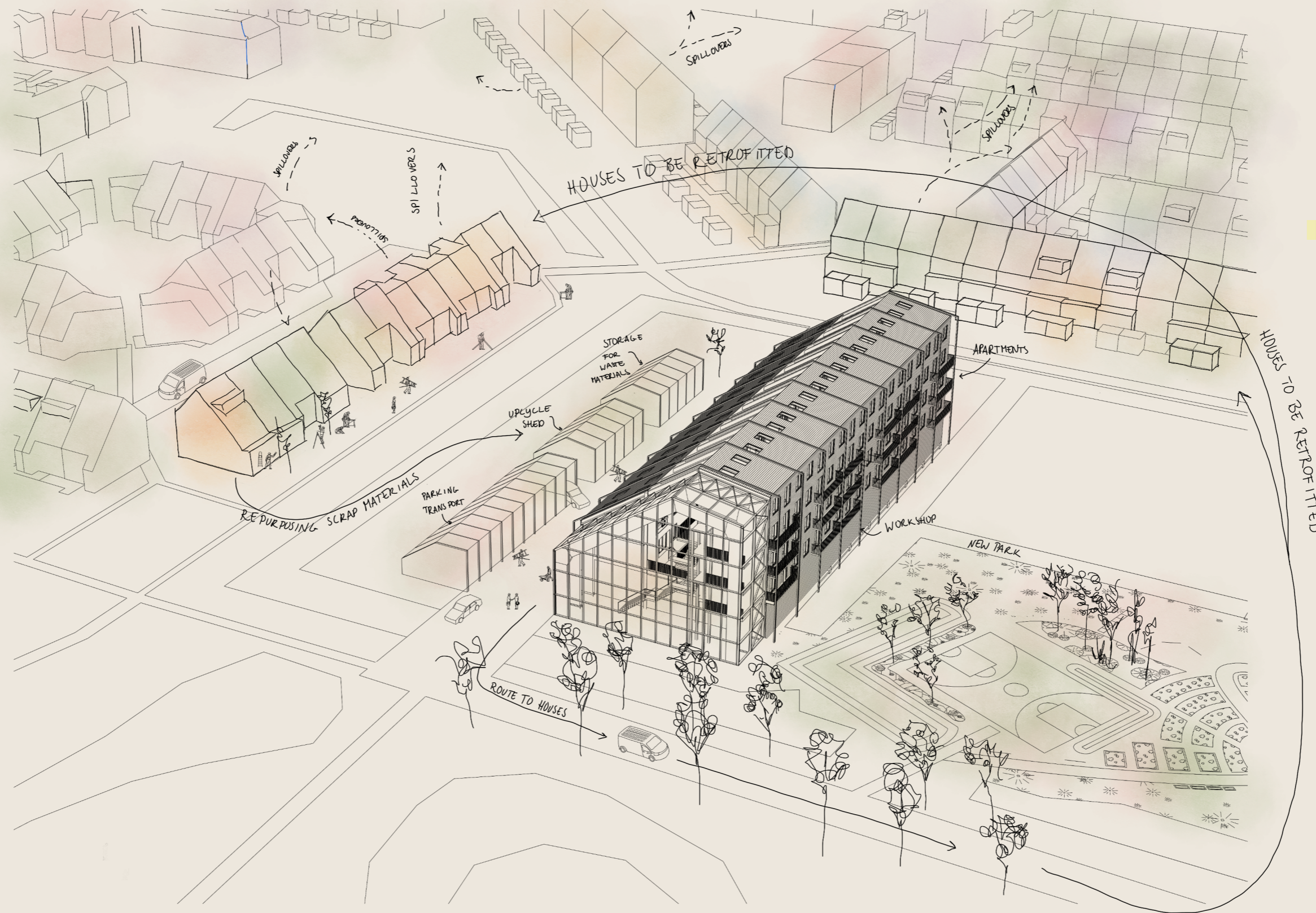
Subtitle





Design Proposal

Overview



Design Proposal

Overview