



A TERRITORIAL APPROACH TO INDUSTRIAL HOUSING

P5 Architectural Engineering
Valery van Heijst



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industrial architecture
critical regionalism

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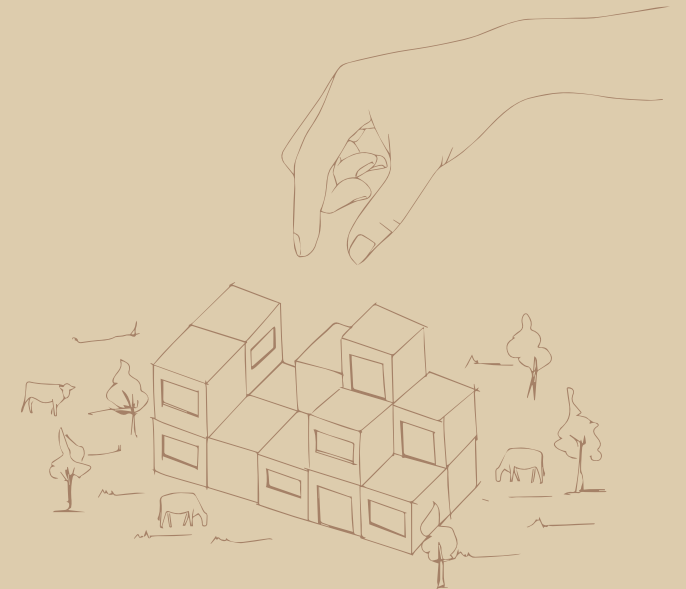
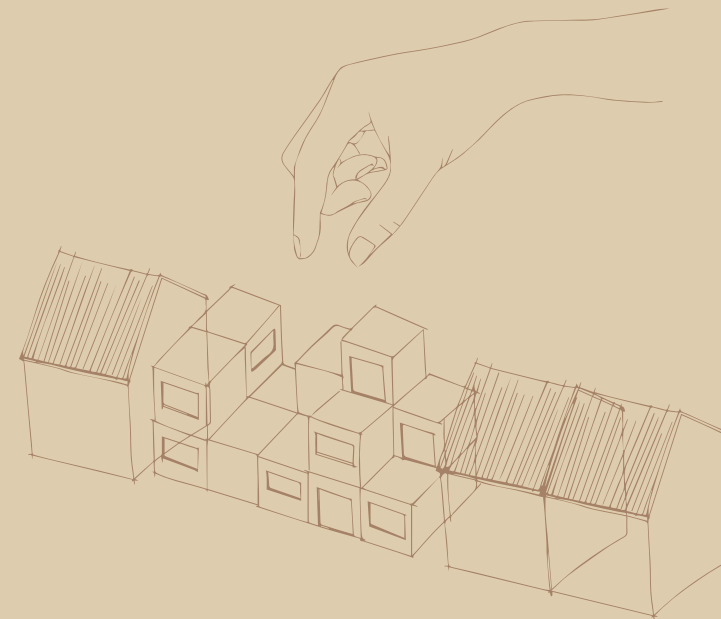
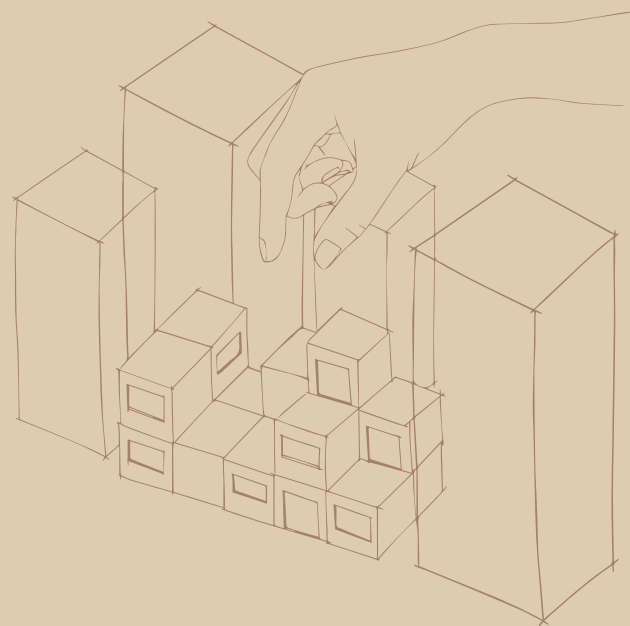
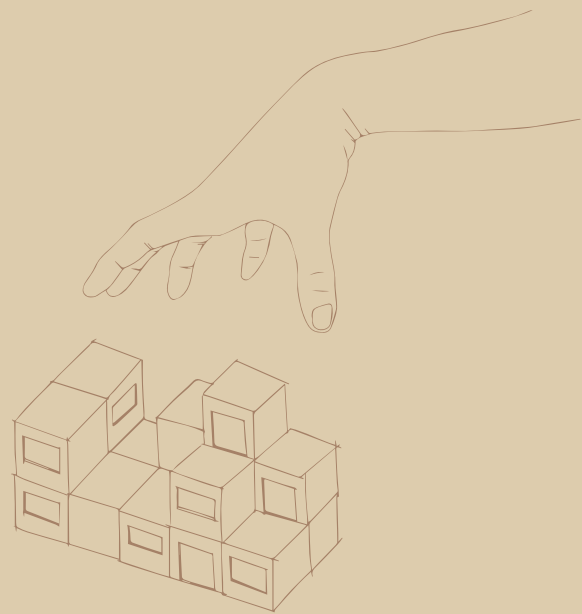
3. Design

densification strategy
context
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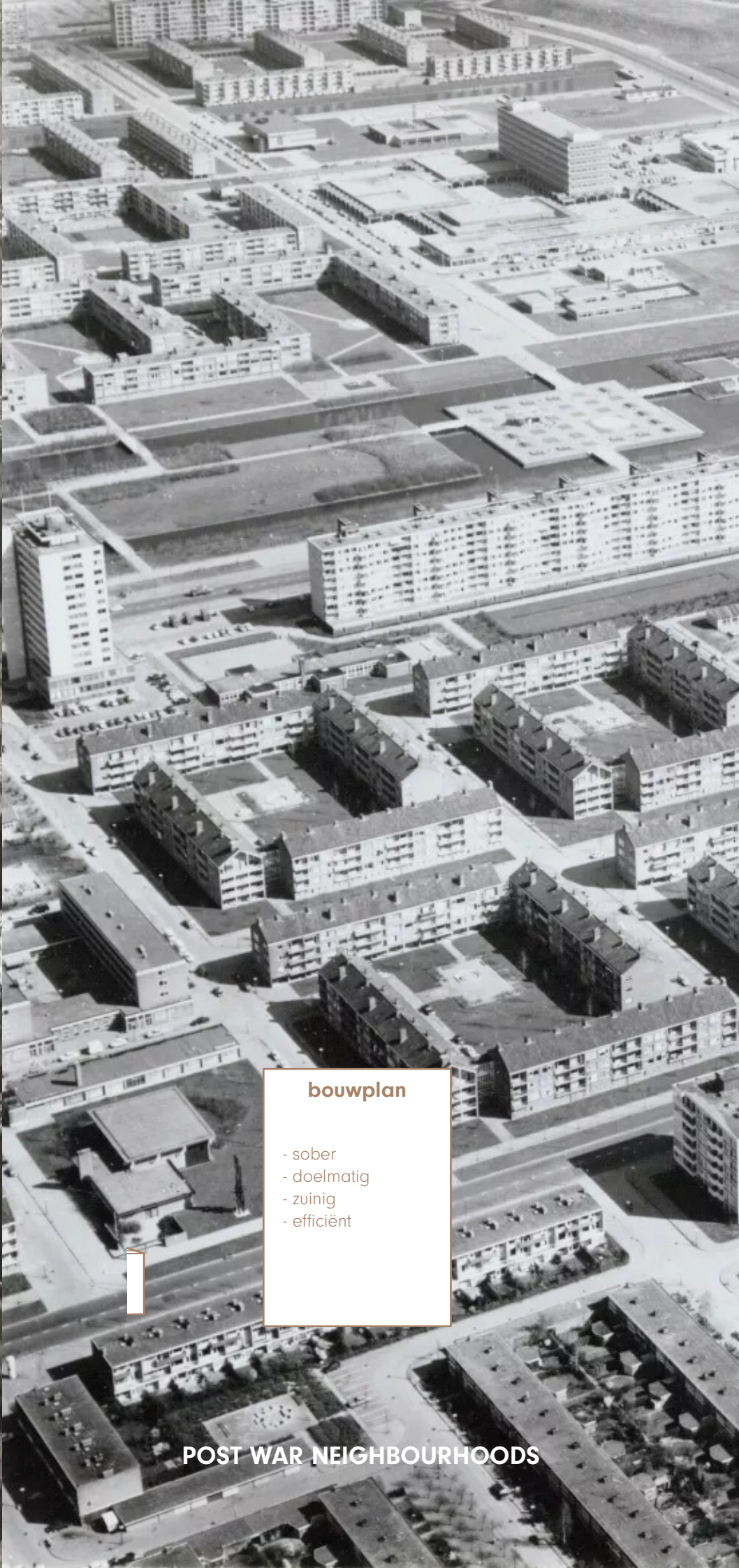
4. Conclusion



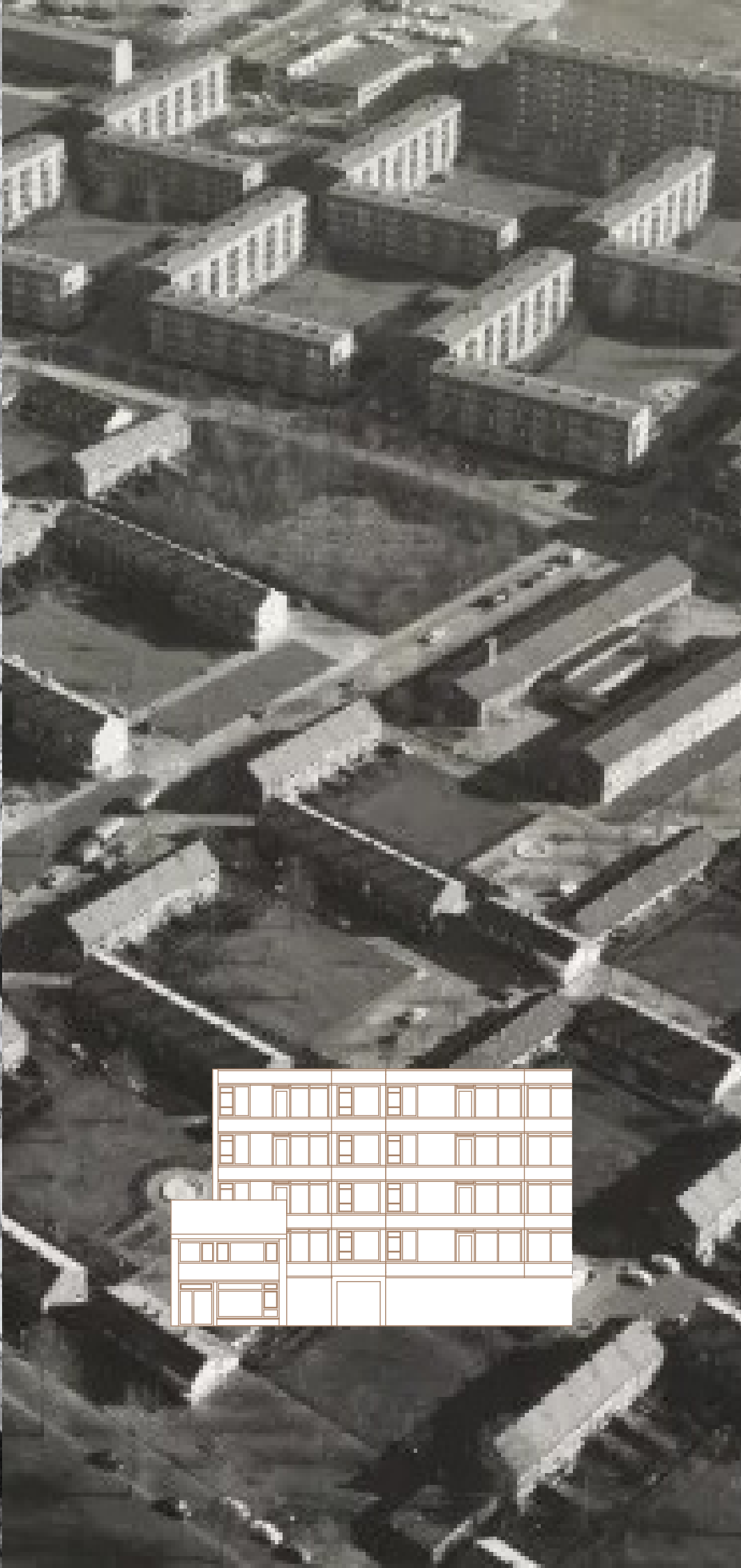
INTRODUCTION

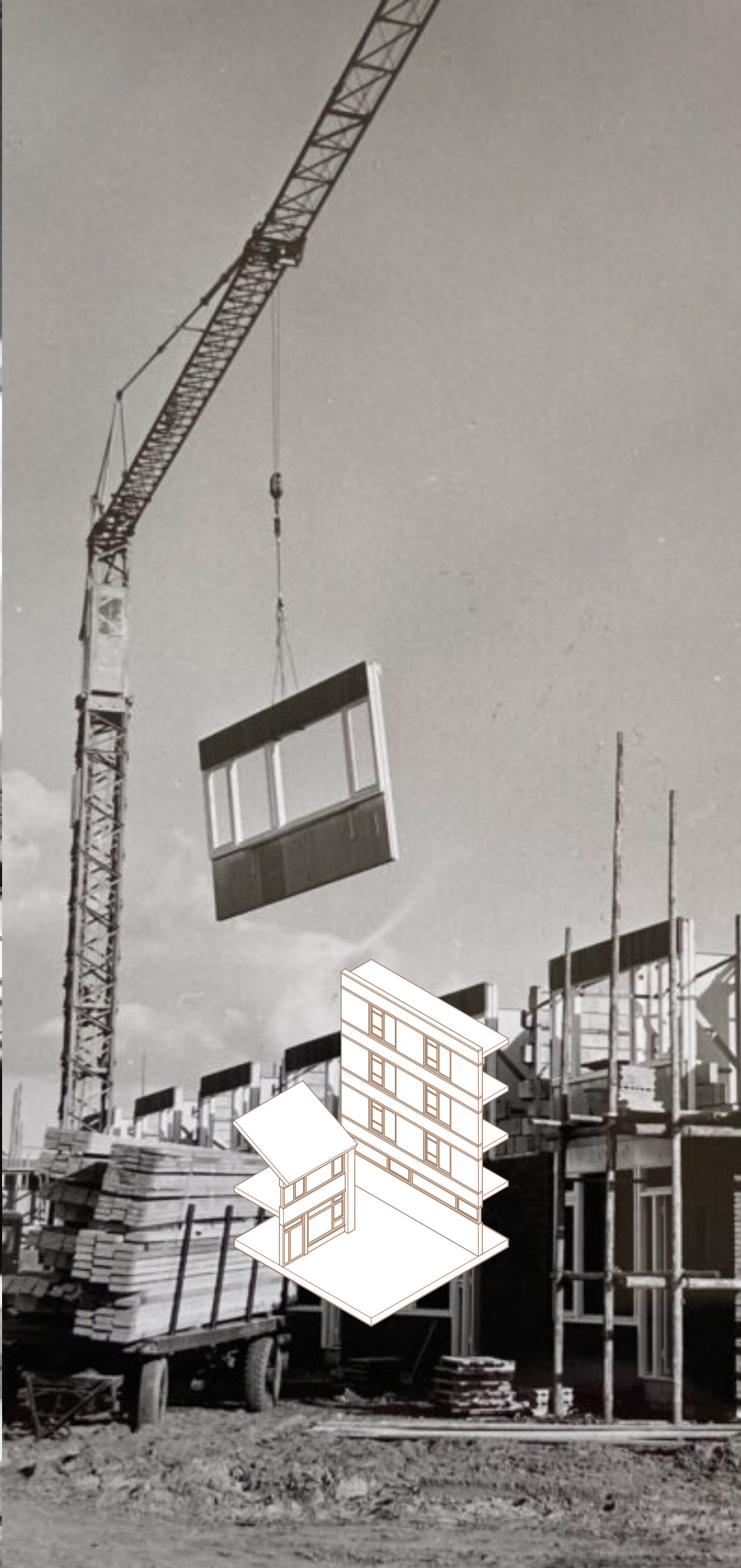


CURRENT EXECUTION OF INDUSTRIAL HOUSING



POST WAR NEIGHBOURHOODS



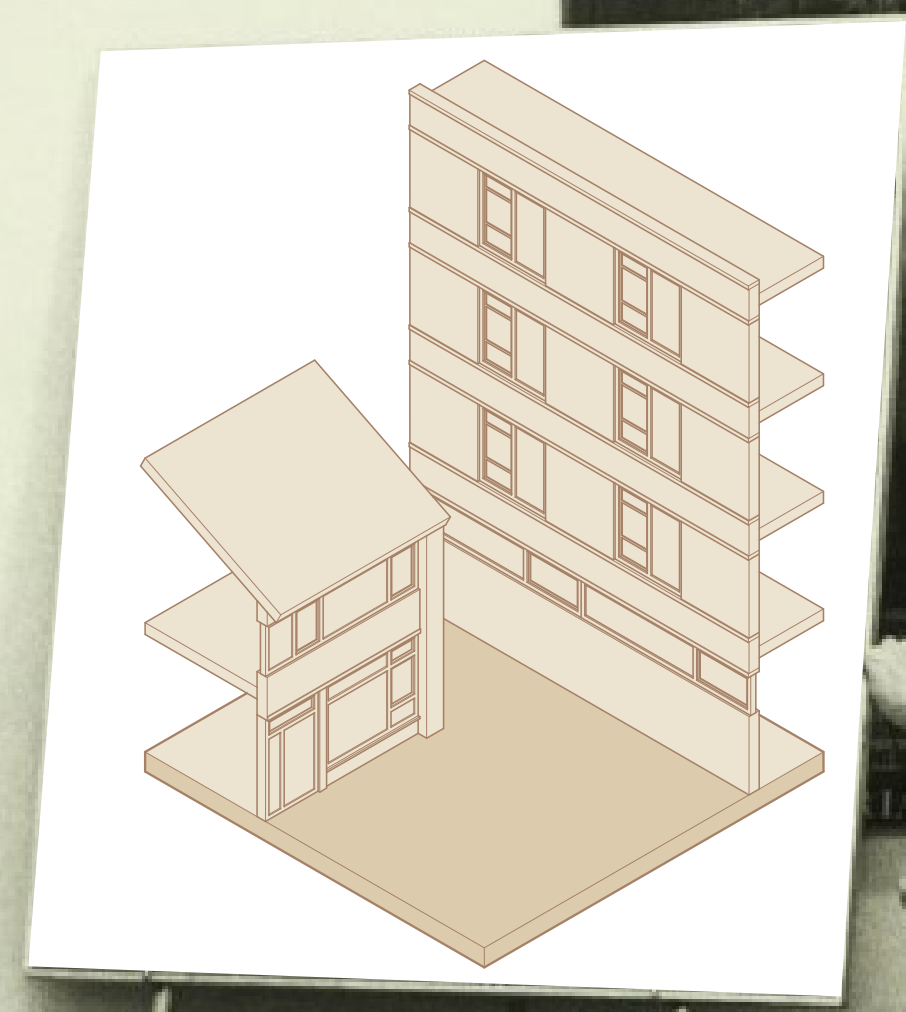




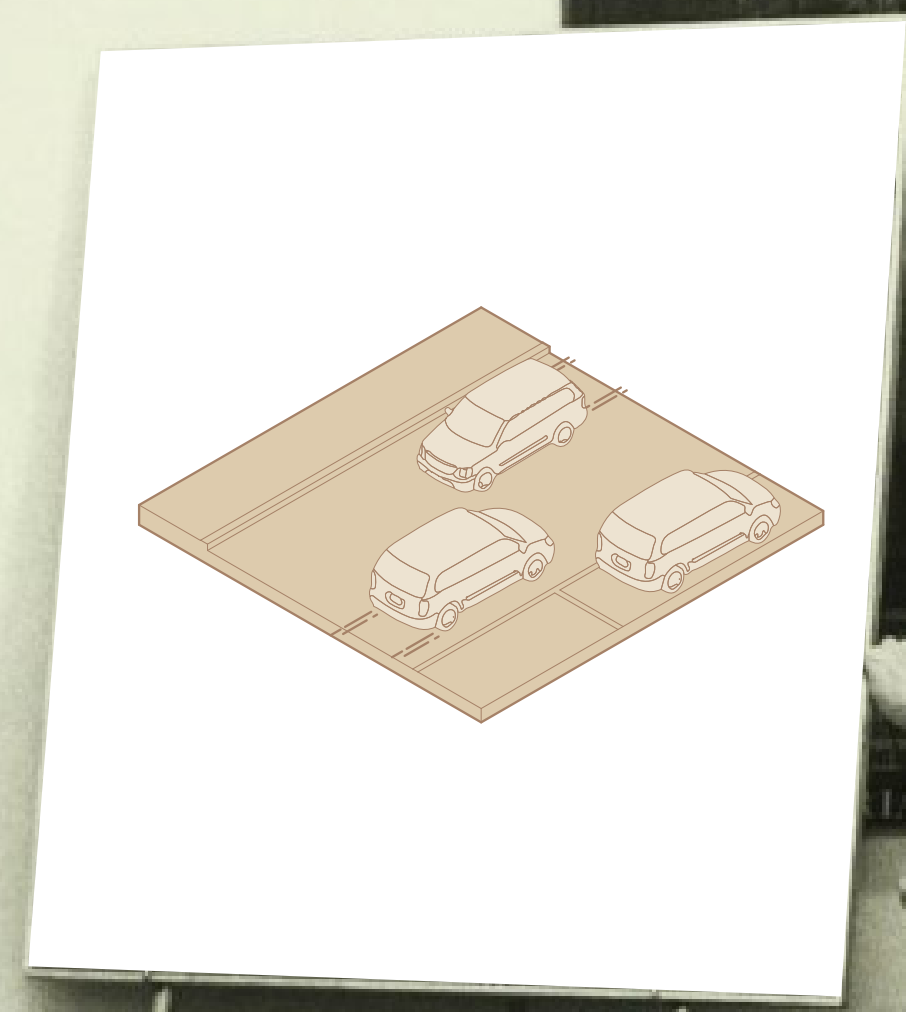
BOERHAAVEWIJK



POST WAR NEIGHBOURHOOD IDEOLOGY



POST WAR NEIGHBOURHOOD IDEOLOGY



POST WAR NEIGHBOURHOOD IDEOLOGY

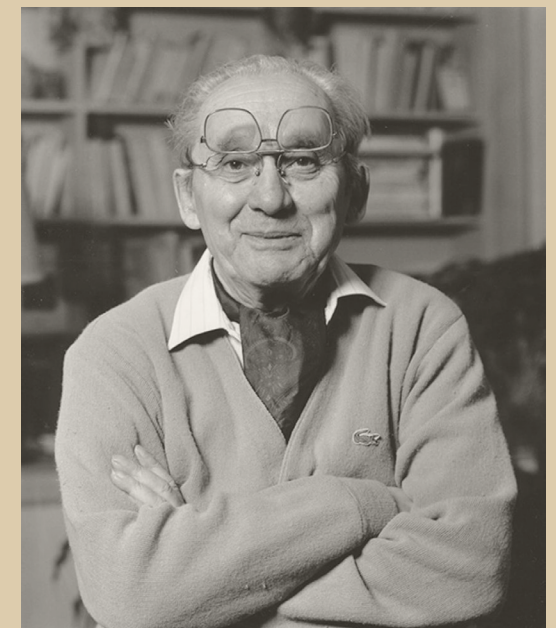


Kenneth Frampton

modern building is now so universally conditioned by optimized technology that the possibility of creating significant urban form has become extremely limited

*we have to **resist the universalisation** by designing with the elements arising indirectly from the **peculiarities of the place***

how to become modern and return to sources; how to revive an old, dormant civilization and take part in universal civilization



Paul Ricoeur



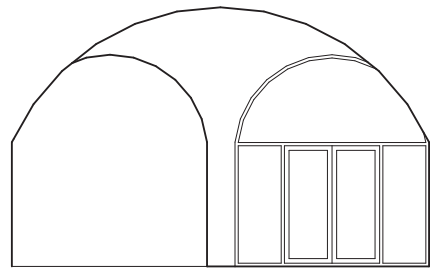
RESEARCH

How can the dichotomy between specificity and repetition in architecture open the opportunity for designing context-specific industrial housing?

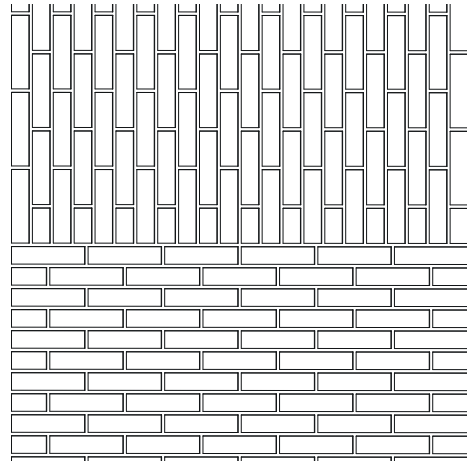
How can context-specific housing projects in the Netherlands visualise the theory of Critical Regionalism into design strategies?

1. TECTONICS

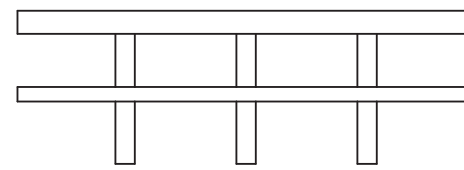
finding inspiration from facade expressions



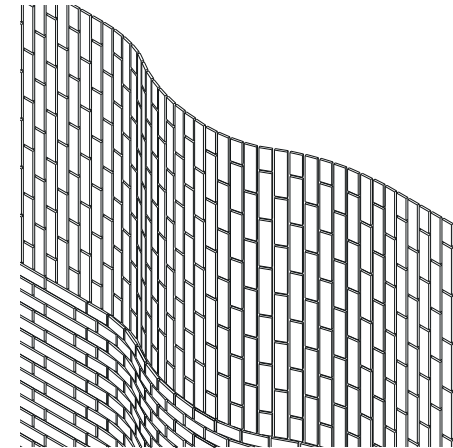
fenestration forms



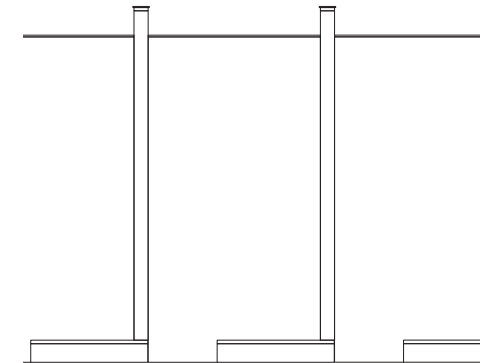
material expression



structural poetics



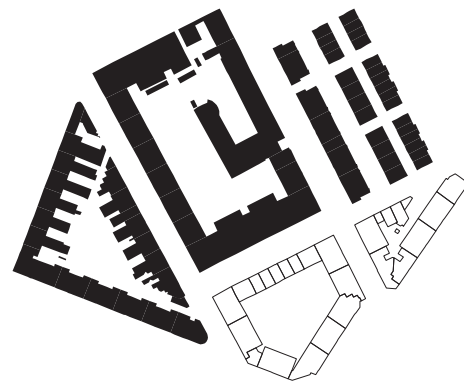
facade sculpturing



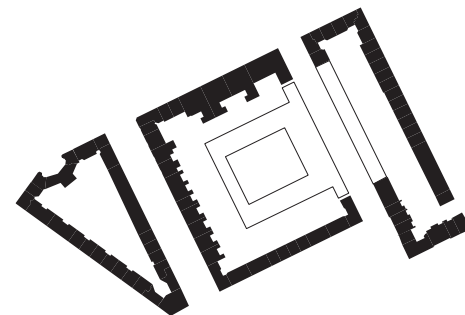
ornamentation

2. PLACE-FORM

finding inspiration from urban forms



local building block typologies



introspective types of local urban forms

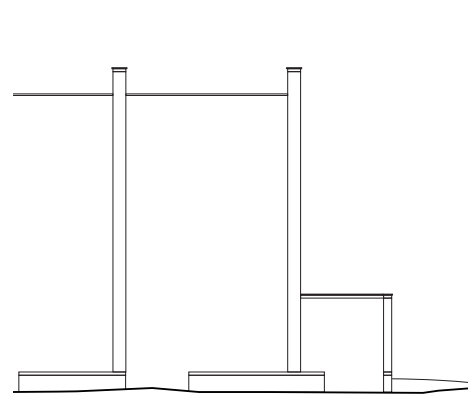


mimicing details of surrounding urban forms

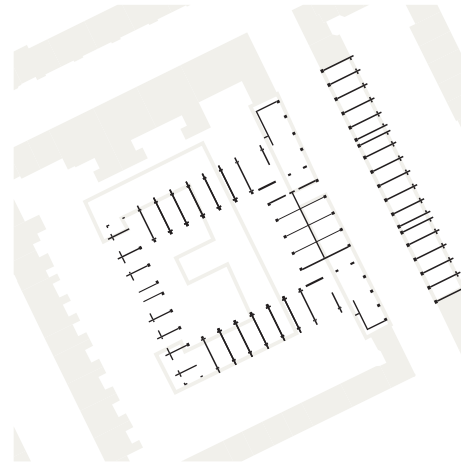
How can context-specific housing projects in the Netherlands visualise the theory of Critical Regionalism into design strategies?

3. FABRIC OF THE SITE

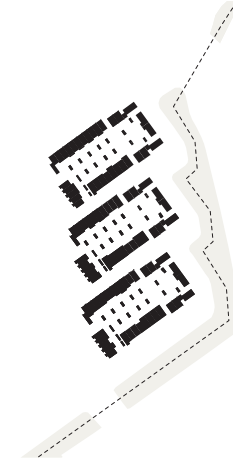
finding inspiration from the structure of the site



maintaining existent
topography



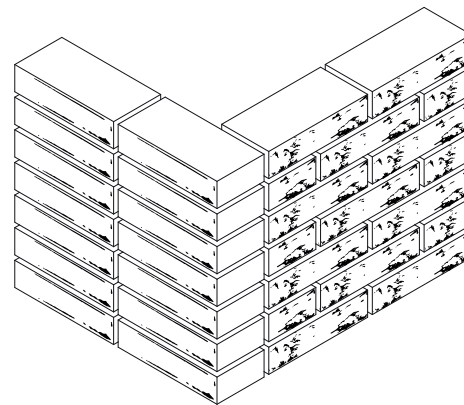
returning to former urban fabric



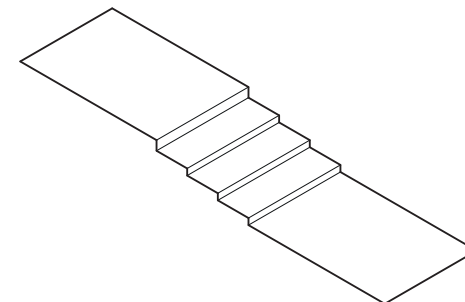
using present historical
linearities

4. THE TACTILE

finding inspiration from sensory perceptions



impulse to touch

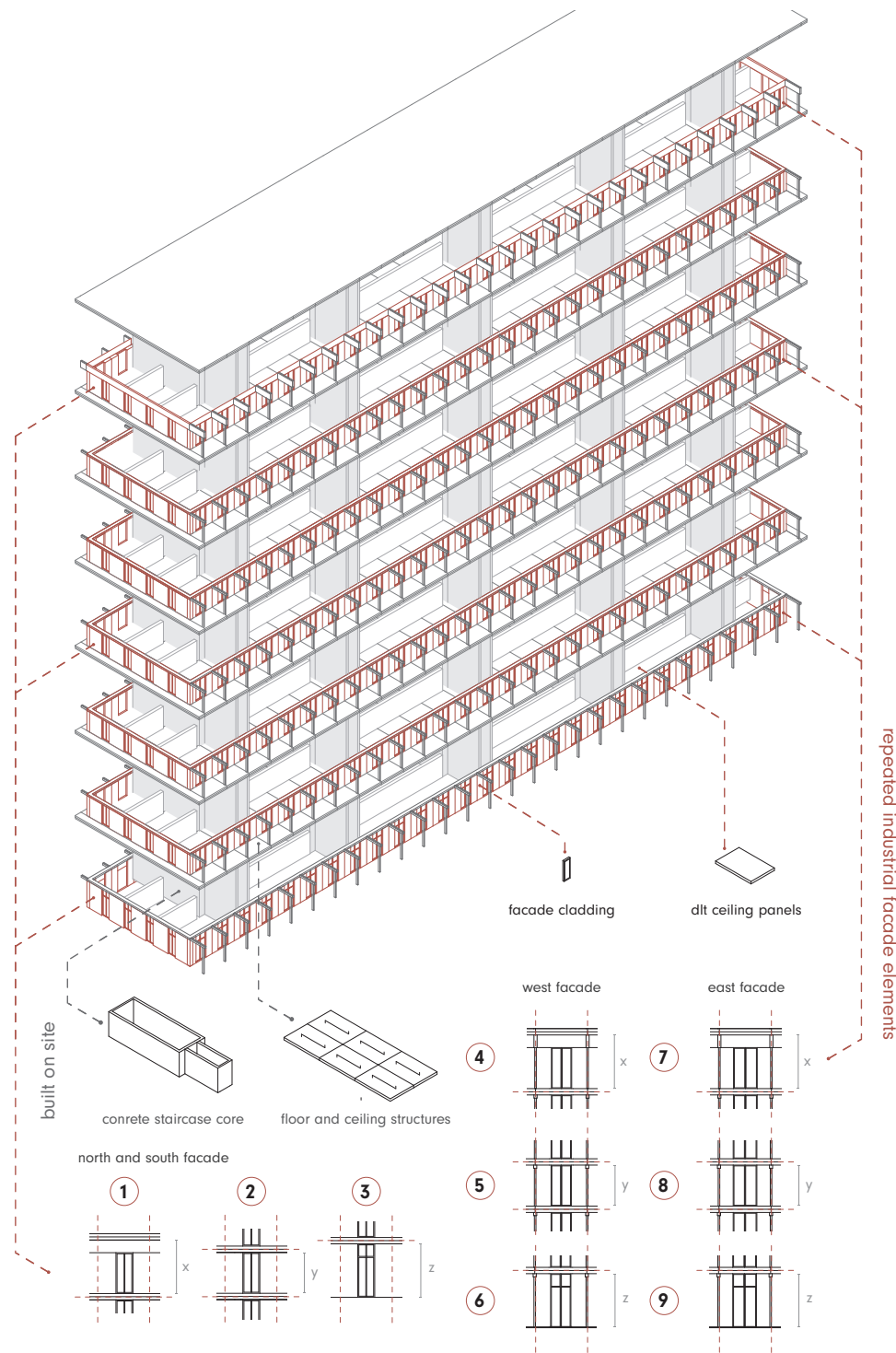


the speed of your body

Which architectural components of industrial housing projects can be identified as elements of repetition?

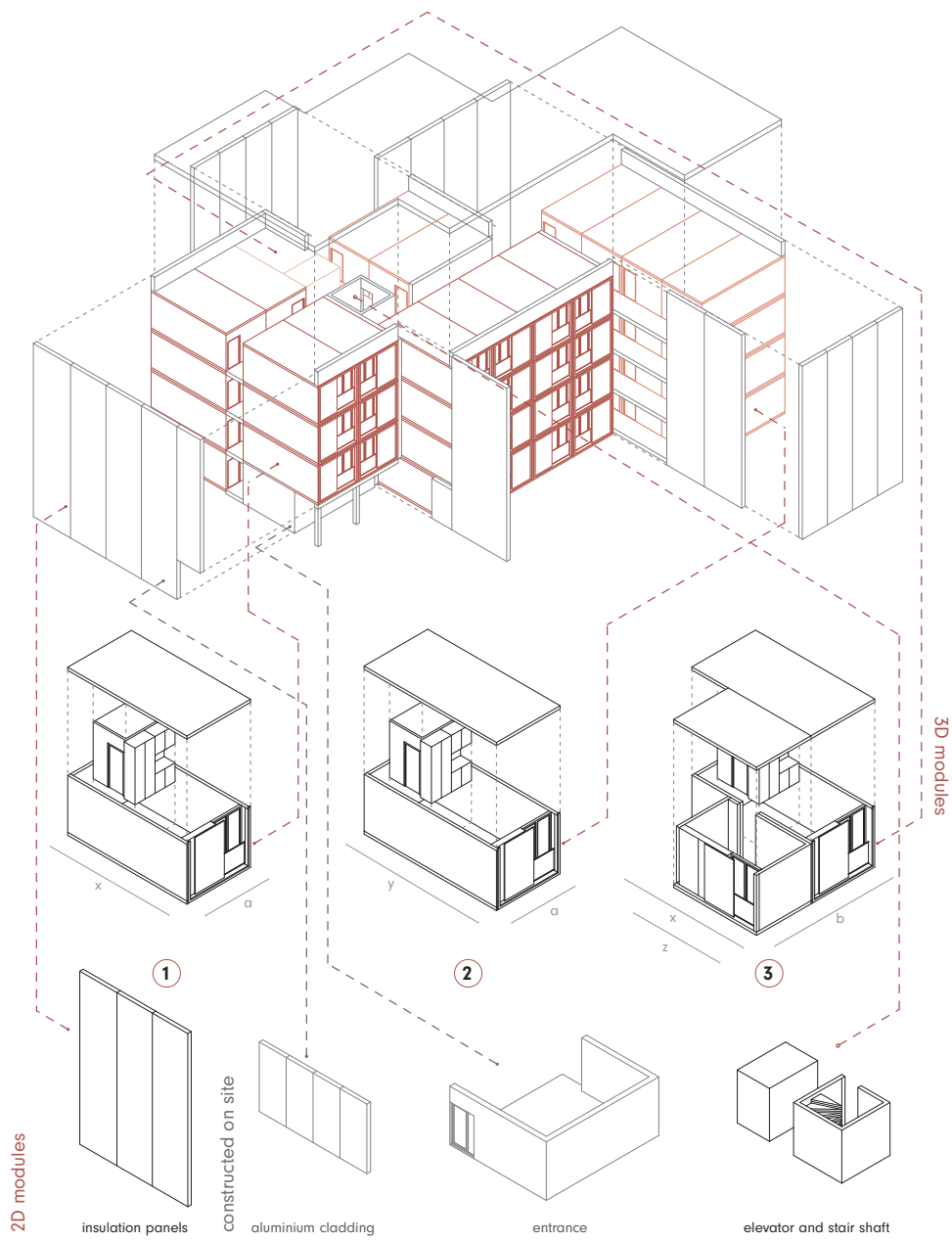
1

Zollfreilager
VARIED 2D ELEMENTS



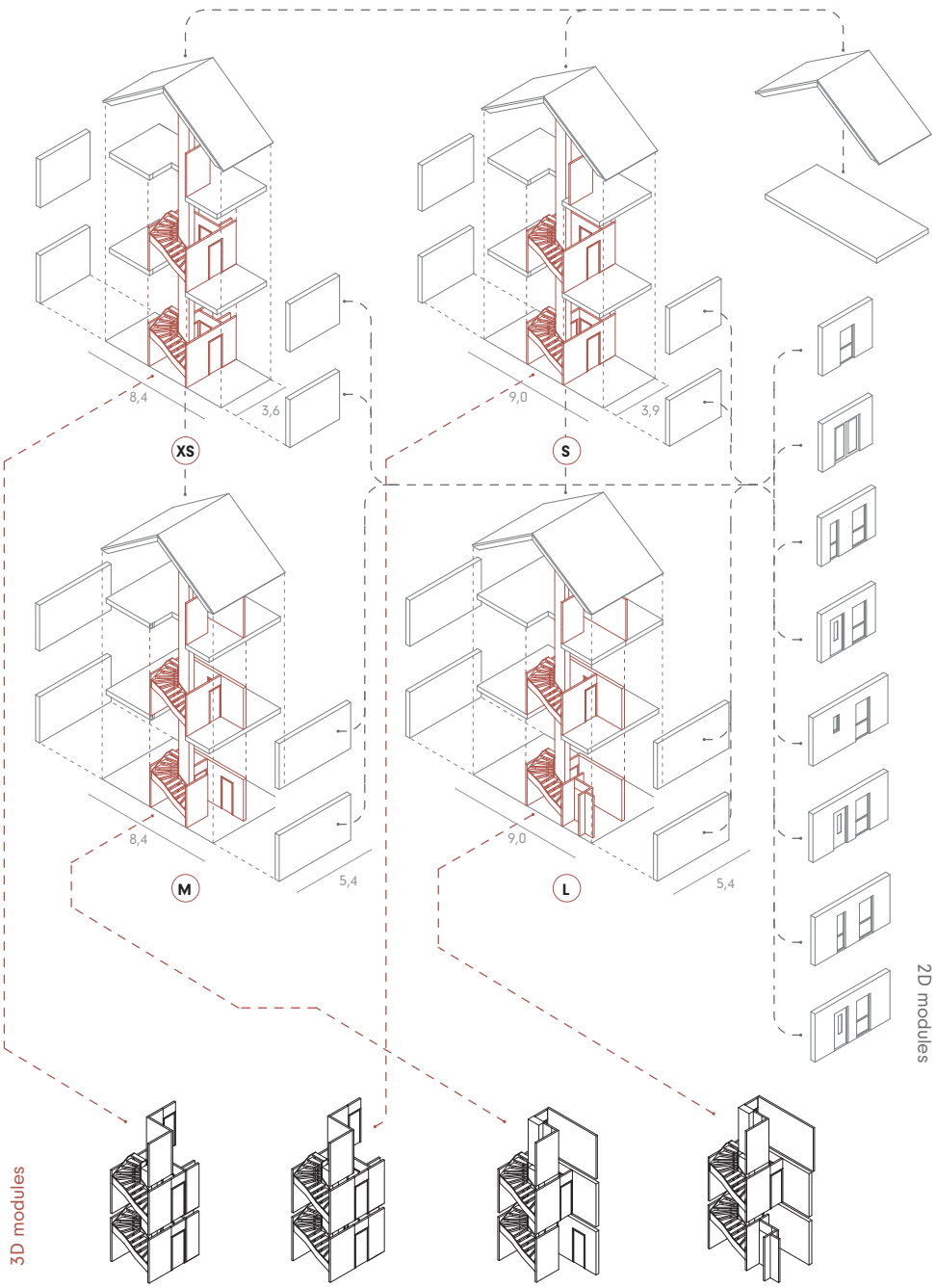
2

Résidence Sociale Toulouse
VARIED 3D ELEMENTS



3

Horizon
VARIED 2D WITH 3D ELEMENTS

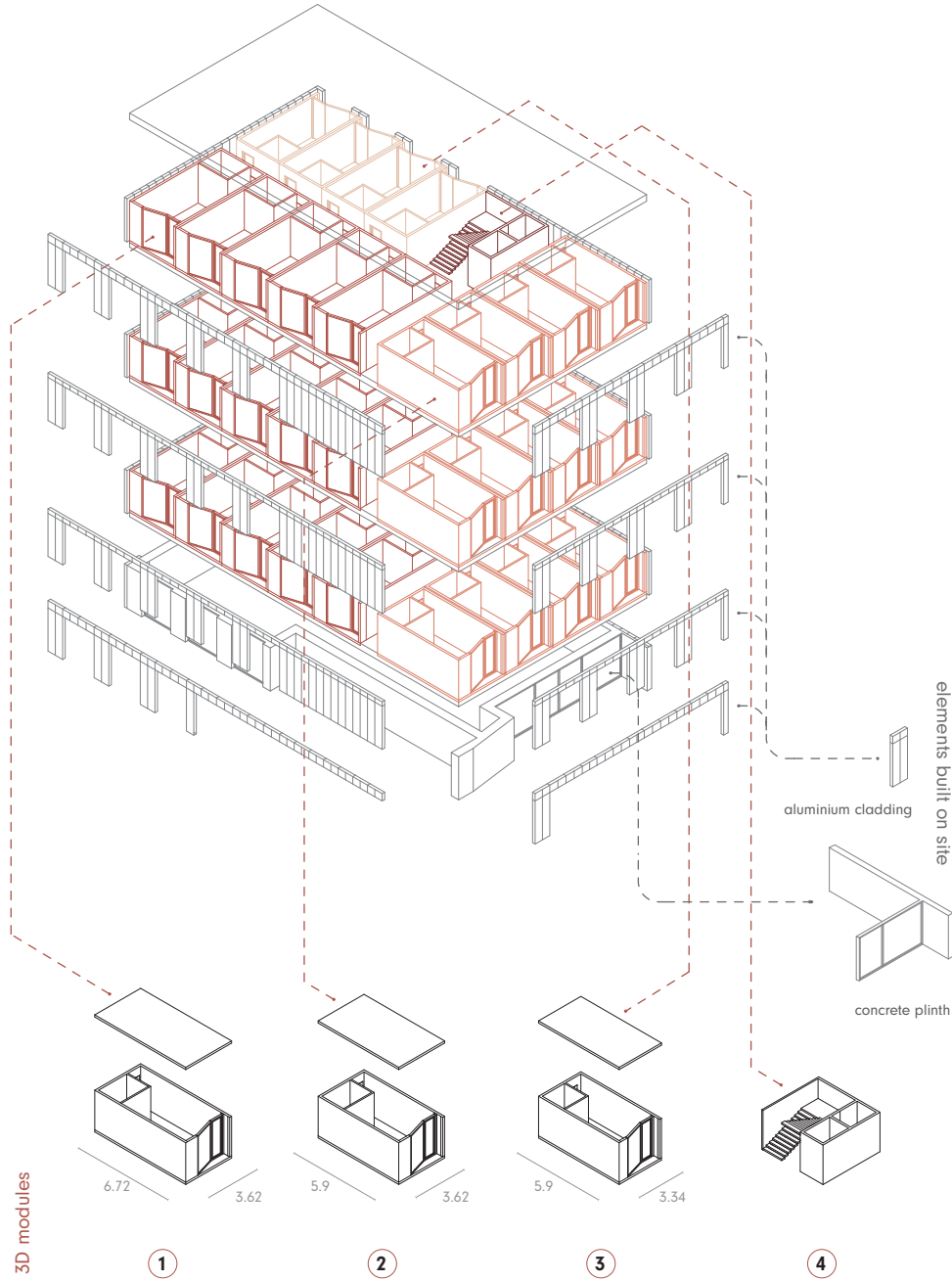


Which architectural components of industrial housing projects can be identified as elements of repetition?

④

Katharinenhof

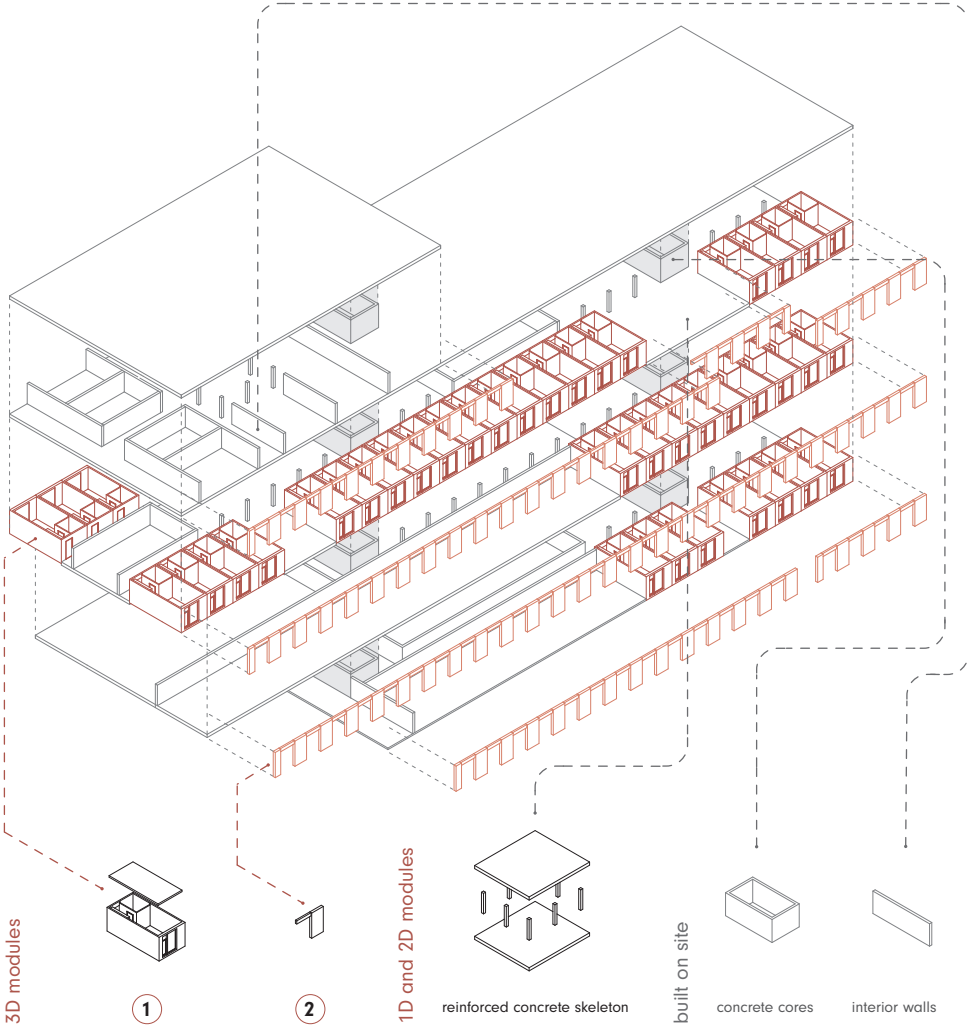
3D WITH ON-SITE EXCEPTIONS



⑤

Sozialzentrum Pillerseetal

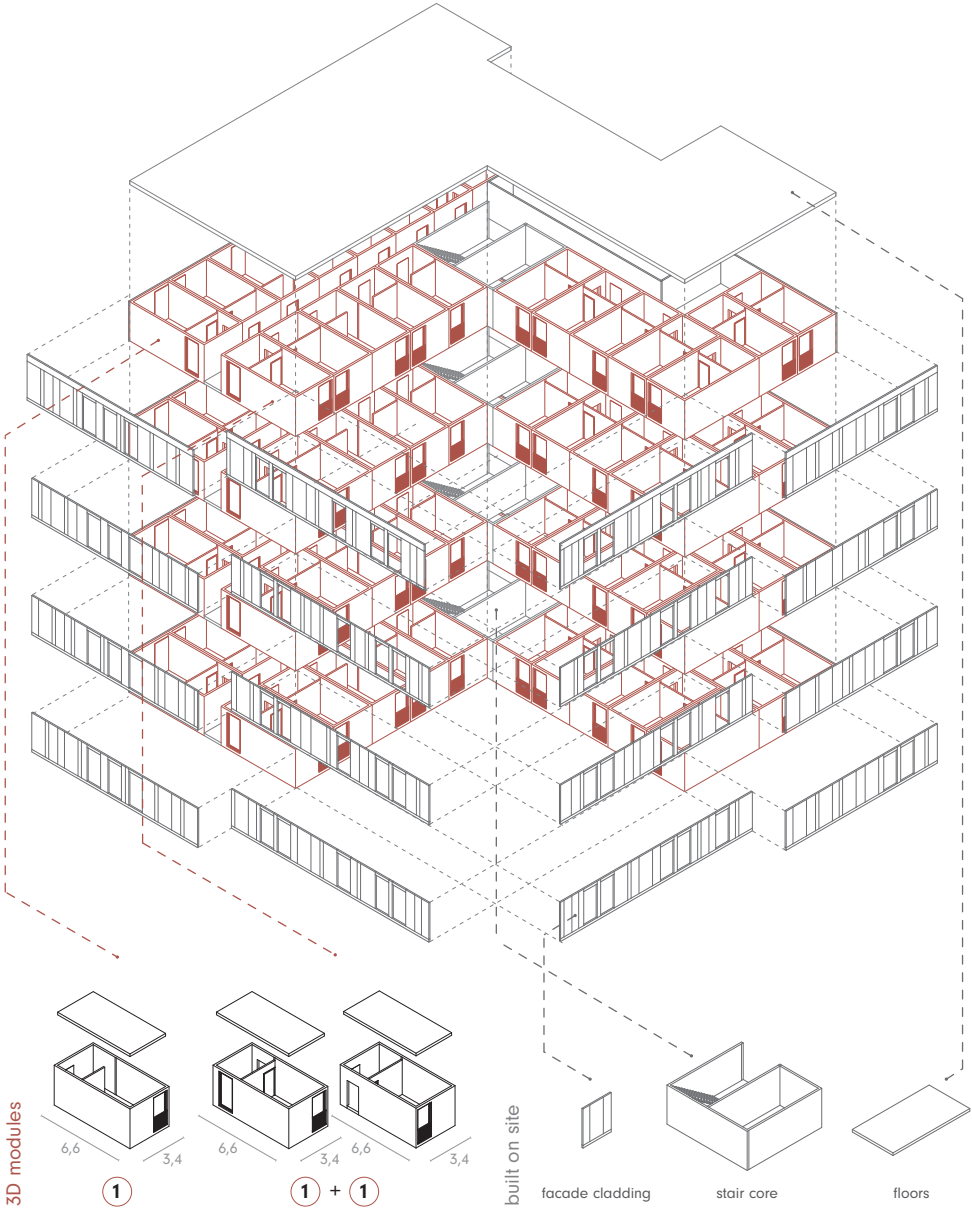
3D WITHIN A 1 D/ 2D FRAME



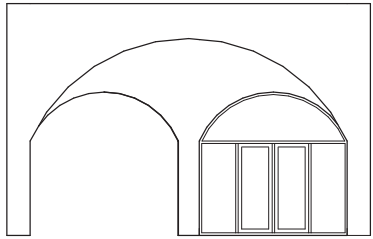
⑥

Student Association Heidelberg

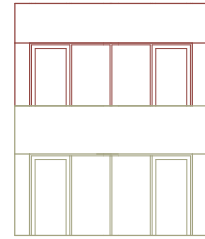
SINGULAR 3D ELEMENT



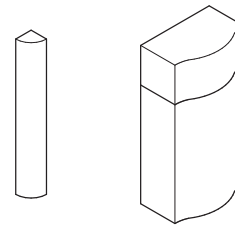
How can the elements of repetition of industrial architecture be used to achieve the design strategies of context-specific architecture?



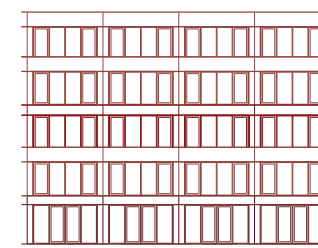
fenestration forms
entrance gates



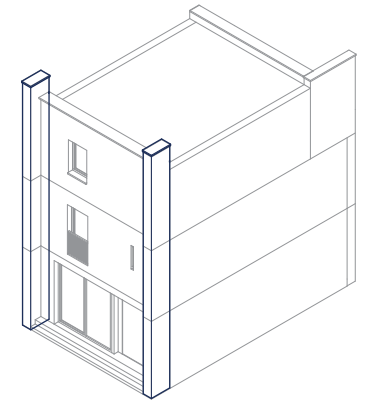
material expression
the use of contrasting brick colours and alternating masonry brickwork



facade sculpturing
waving façades

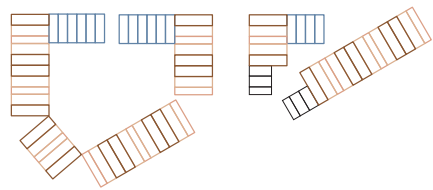


structural poetics
strong horizontal orientation

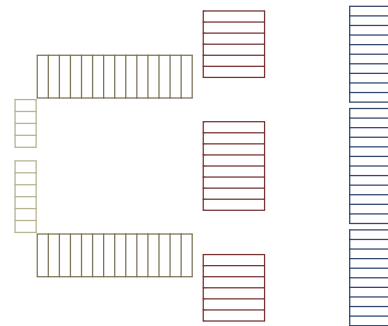


ornamentation
expressive verticality of the buildings, shown through apparent chimneys on the façades and vertical brickwork ornamentation

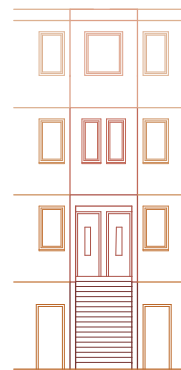
tectonics



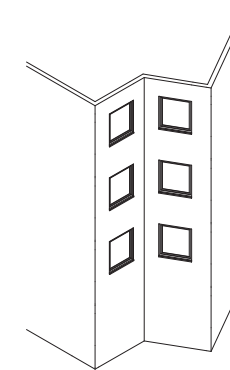
local building block typologies
courtyard typology as a introspective types of urban form



introspective types of local urban forms
courtyard typology as a introspective types of urban form from the perimeter block

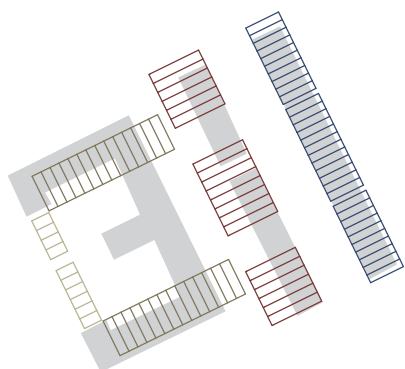


local building block typologies
Haags portiek as an element that can define the boundary

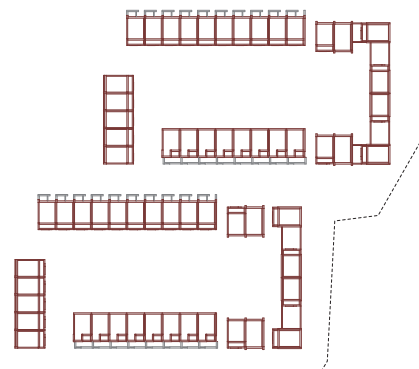


imicing details of surrounding urban forms
indenting corner of the housing block, the corner solution in the housing block, mimics the surrounding urban forms.

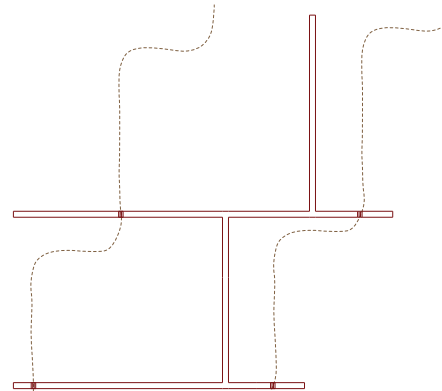
place-form



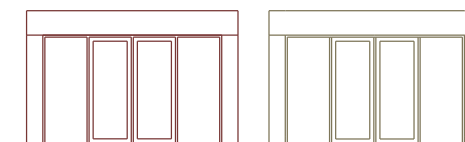
returning to former urban fabric
returning to the urban fabric of 1926



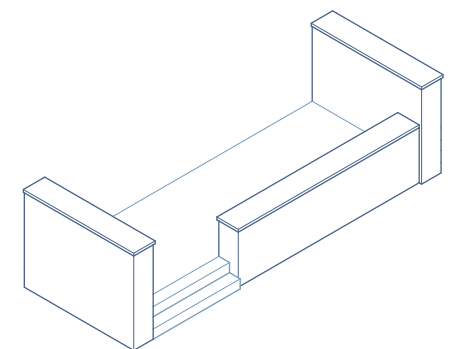
using present historical linearities
following historic urban defense linie



maintaining existent topography
maintaining topography as a way of cultivating the site



impulse to touch
constrasting material finishings



ramps towards housing
the speed of your body

fabric of the site

tactile

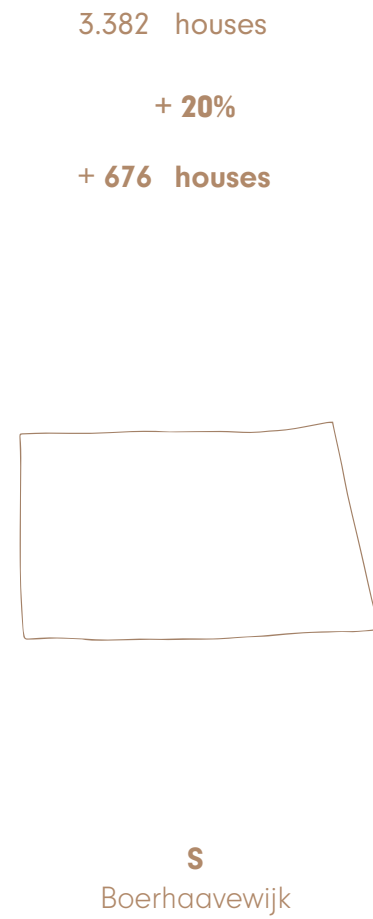
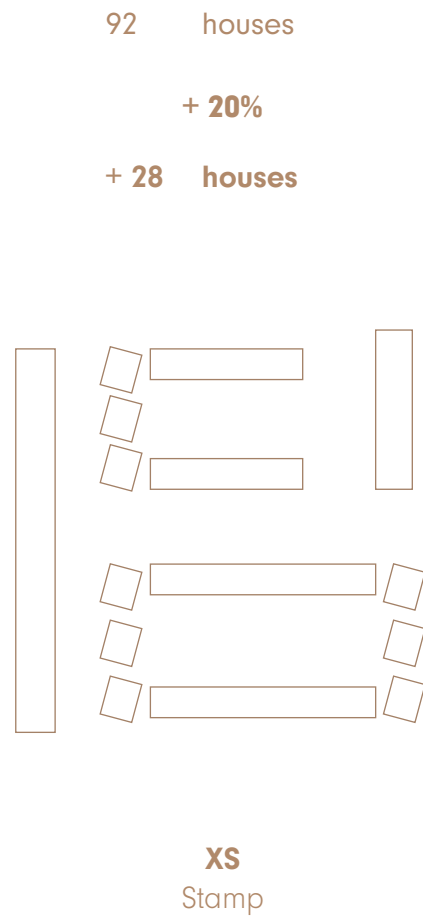


DESIGN

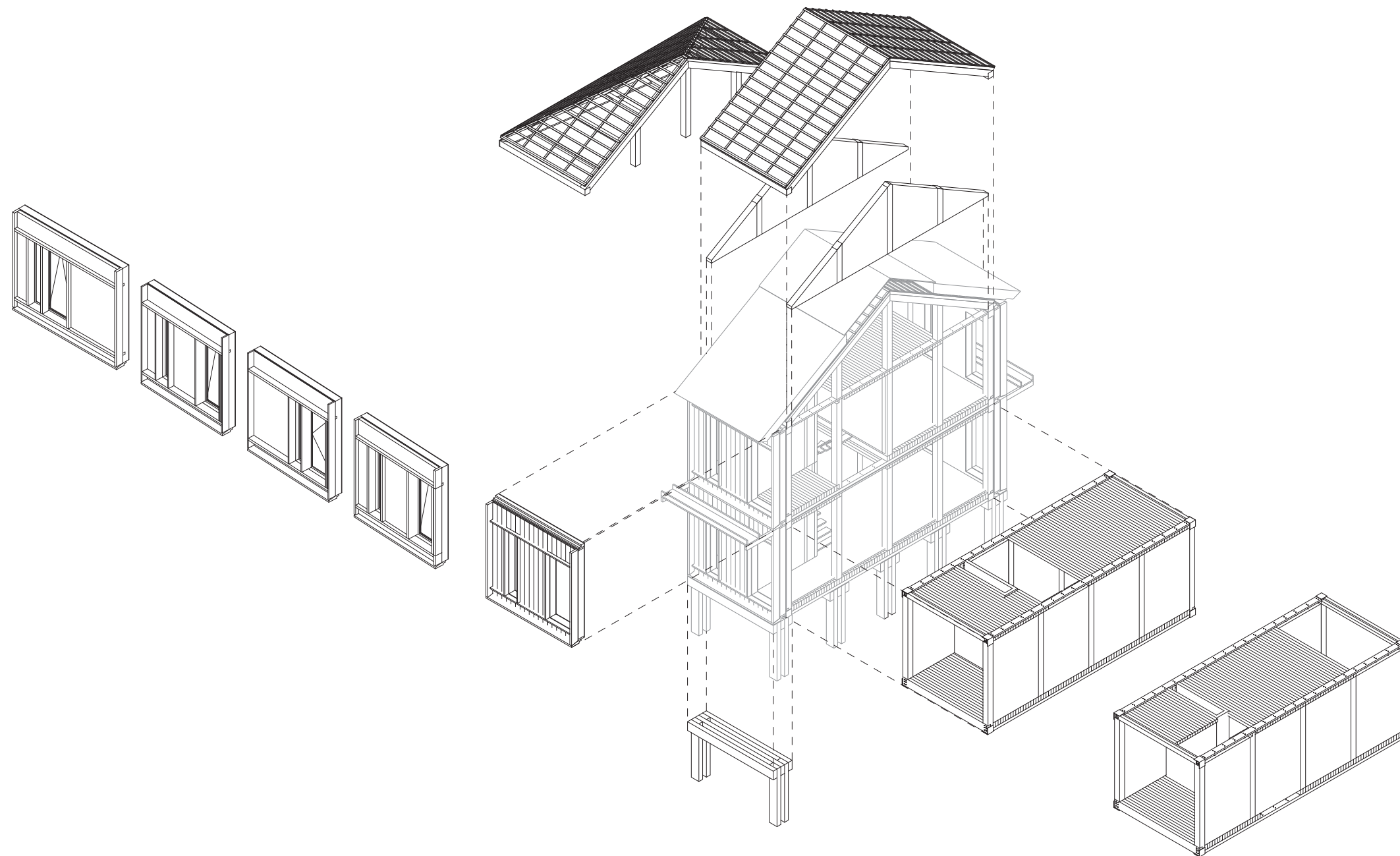
How can the **post-war neighbourhood** stamp be **densified, formed by its surrounding (urban) landscape**, to create a neighbourhood with **a strong local identity** that **reactivates the urban environment**?



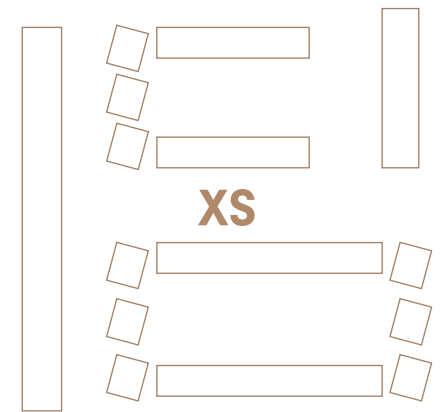
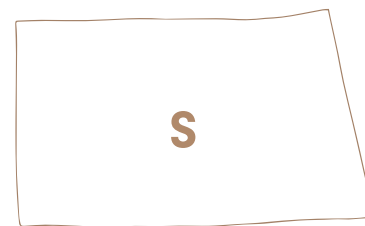
DENSIFICATION STRATEGY



SOLVING HOUSING SHORTAGES



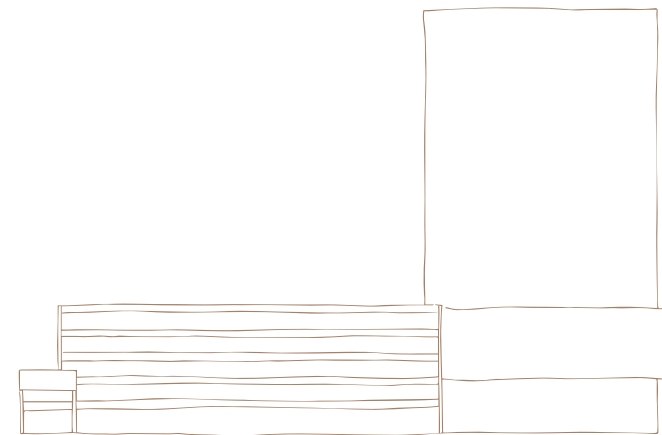
APPROACH PREFAB INDUSTRIAL ELEMENTS



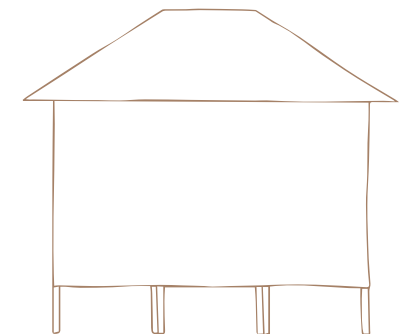
landscape



demography



typology



local design

L - change in the landscape



post-war neighbourhoods built between 1950-1990

1.800 post-war neighbourhoods in the Netherlands

1.8 million houses

L - change in the landscape

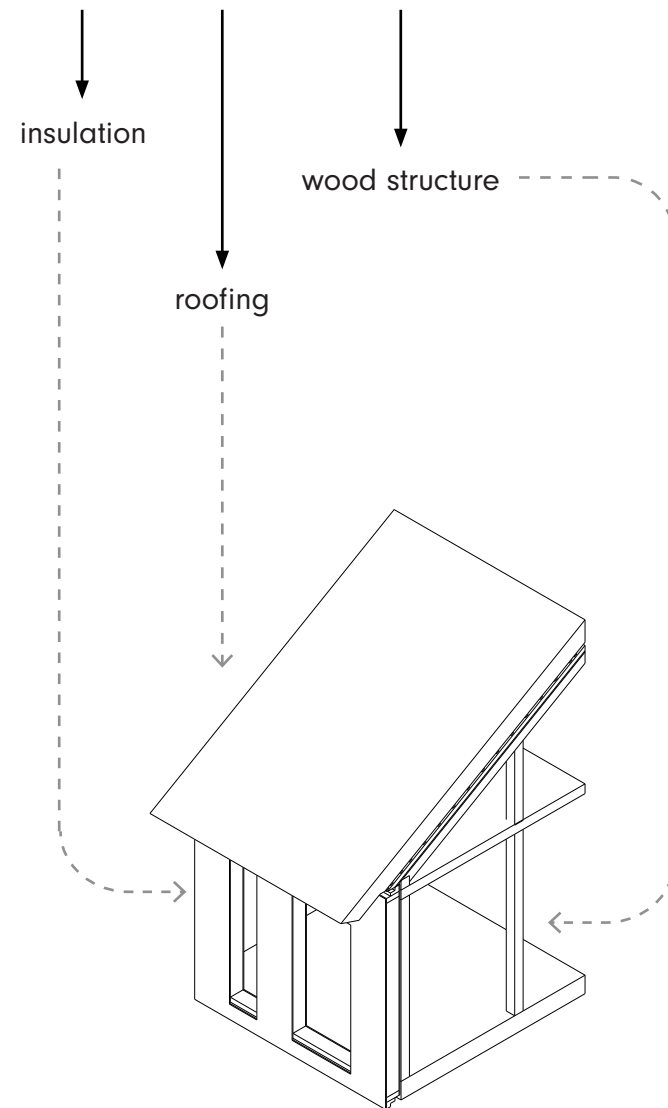


L - change in the landscape

SAND SOIL



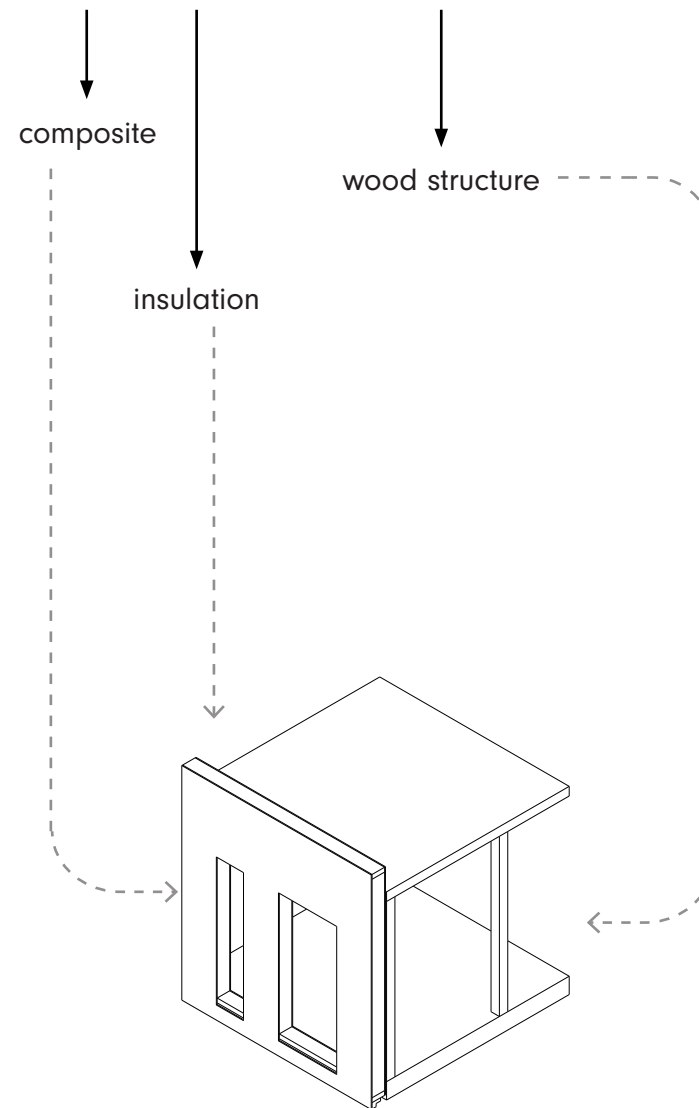
algen / helmgras / naaldbomen / iep / es etc.



CLAY SOIL



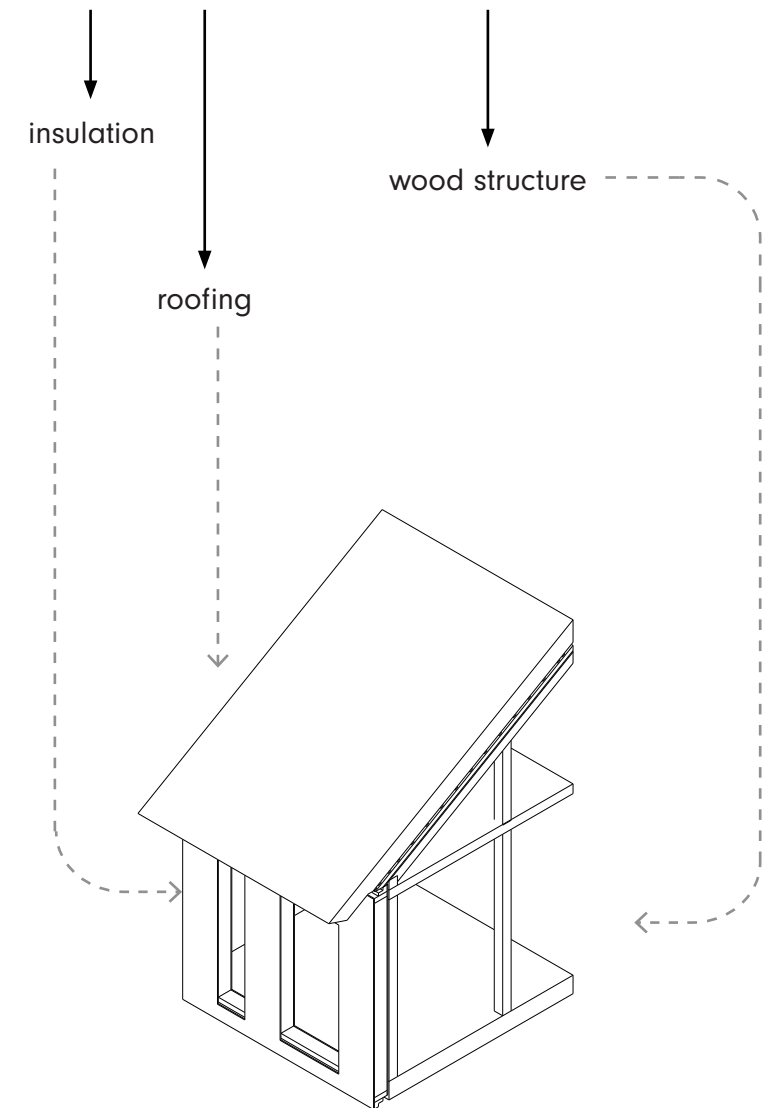
zeegras / vlas / hennep / populier / linde / els etc.



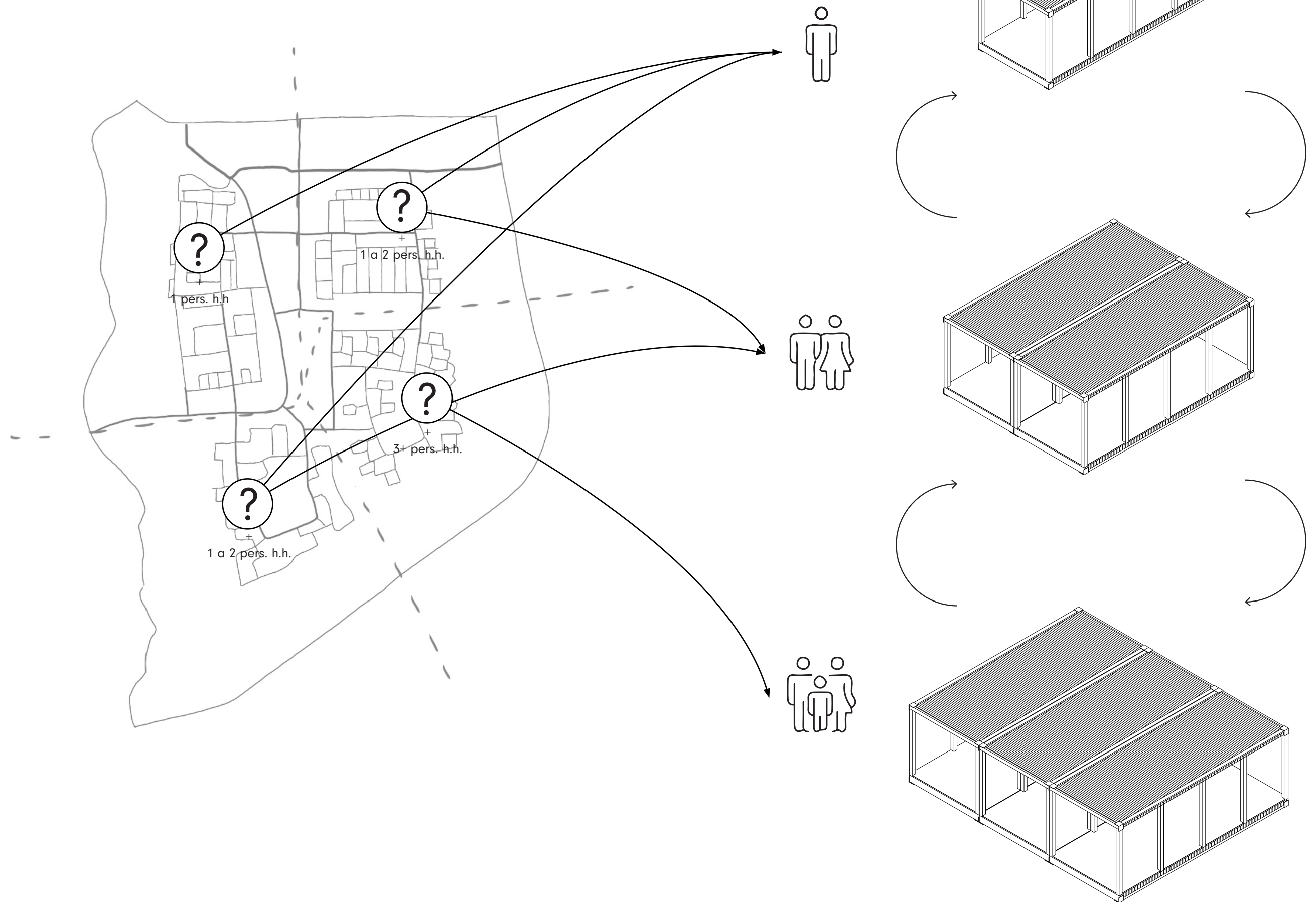
PEAT SOIL



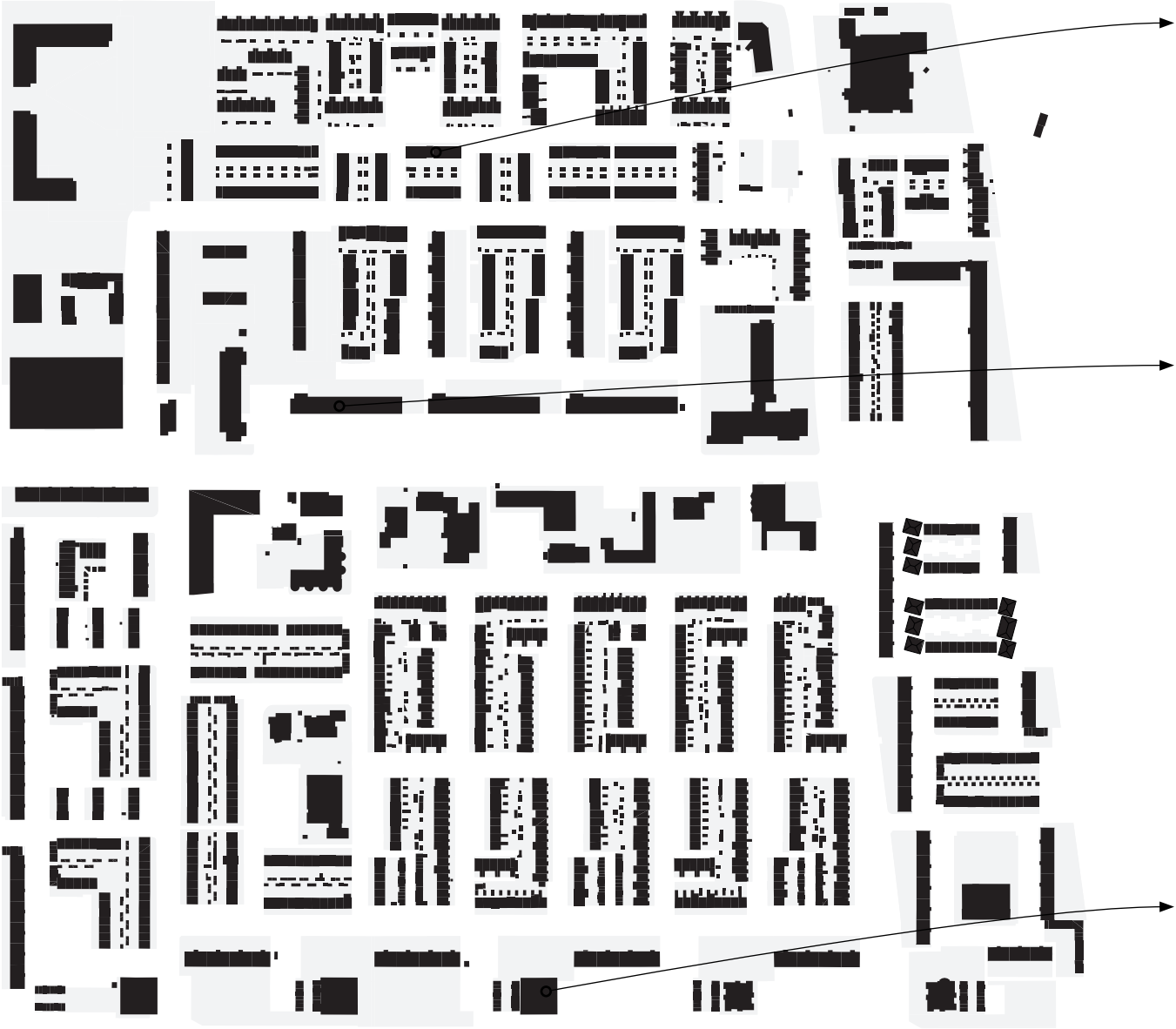
lisdodde / riet / wilg / berk / populier / eik etc.



M - change in demography



S - change in typology

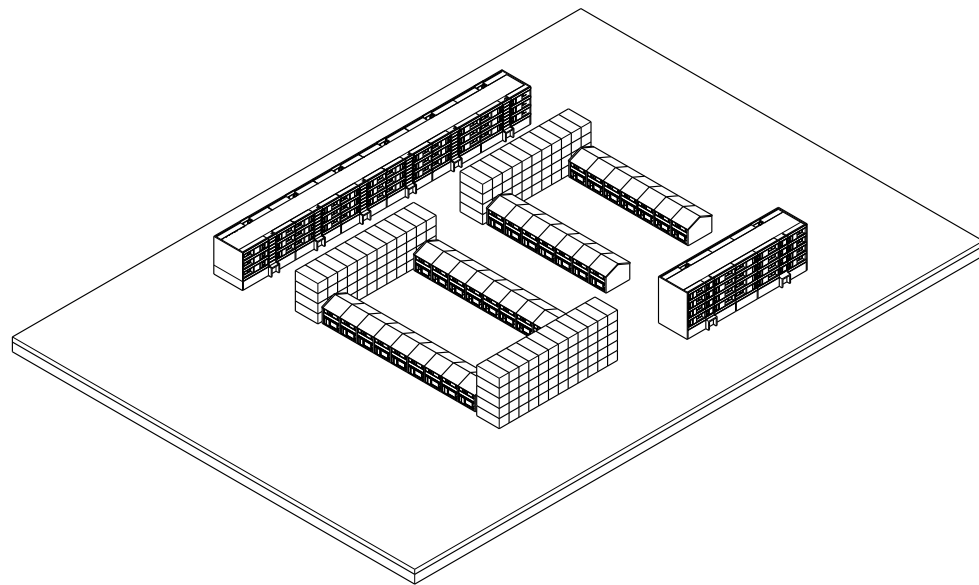


map housing Boerhaavewijk

doelgroep	typologie		
	eenpersoonshuishoudens	tweepersoonshuishoudens	gezinnen met kinderen

XS - the local design

DENSIFICATION STRATEGY



maximum densification
152 modules



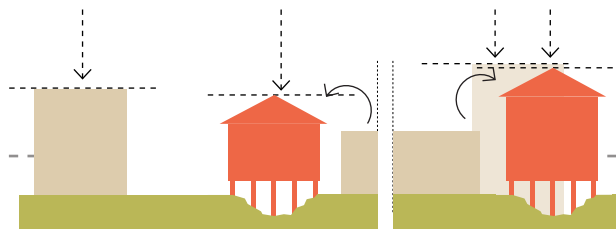
URBAN QUALITY



peat landscape as a buffer



opening up urban space through and for the landscape

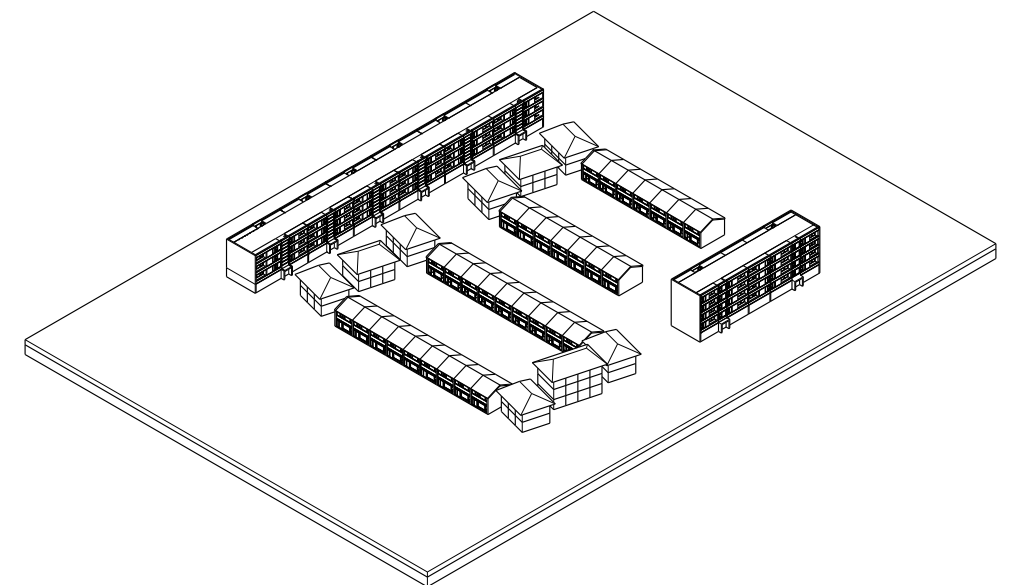


adapt mass to urban context

DESIGN

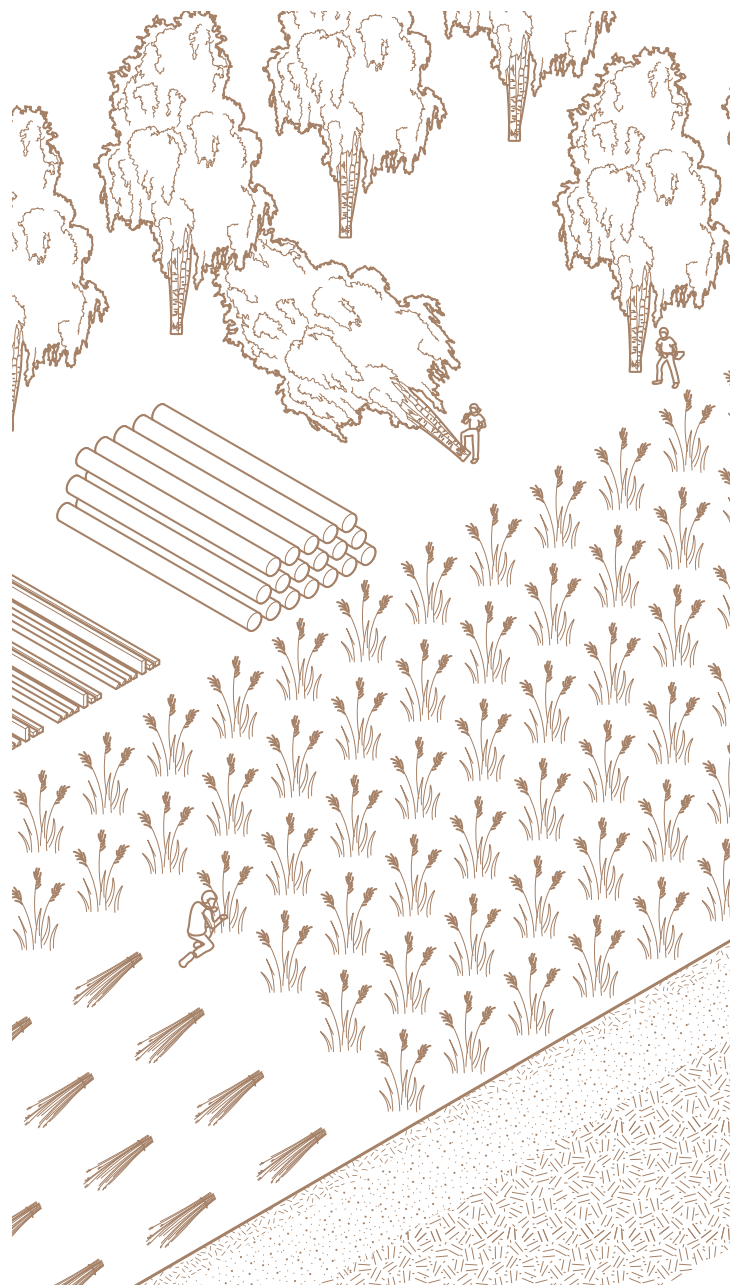


qualitative expansion
60 modules

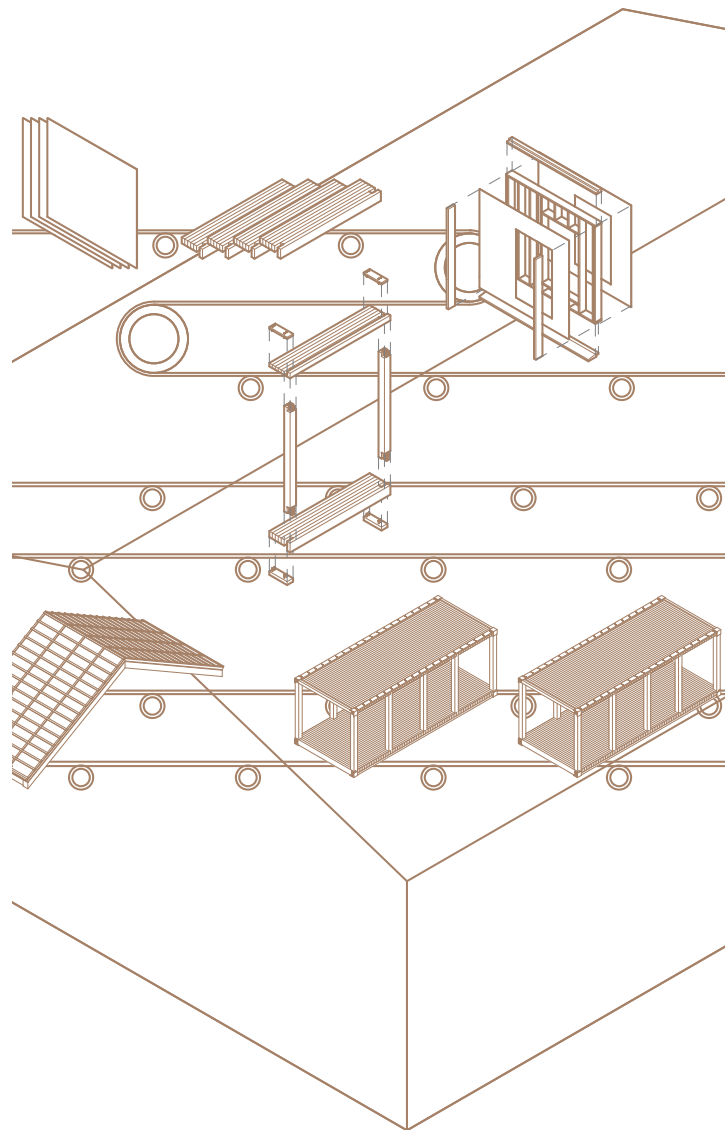




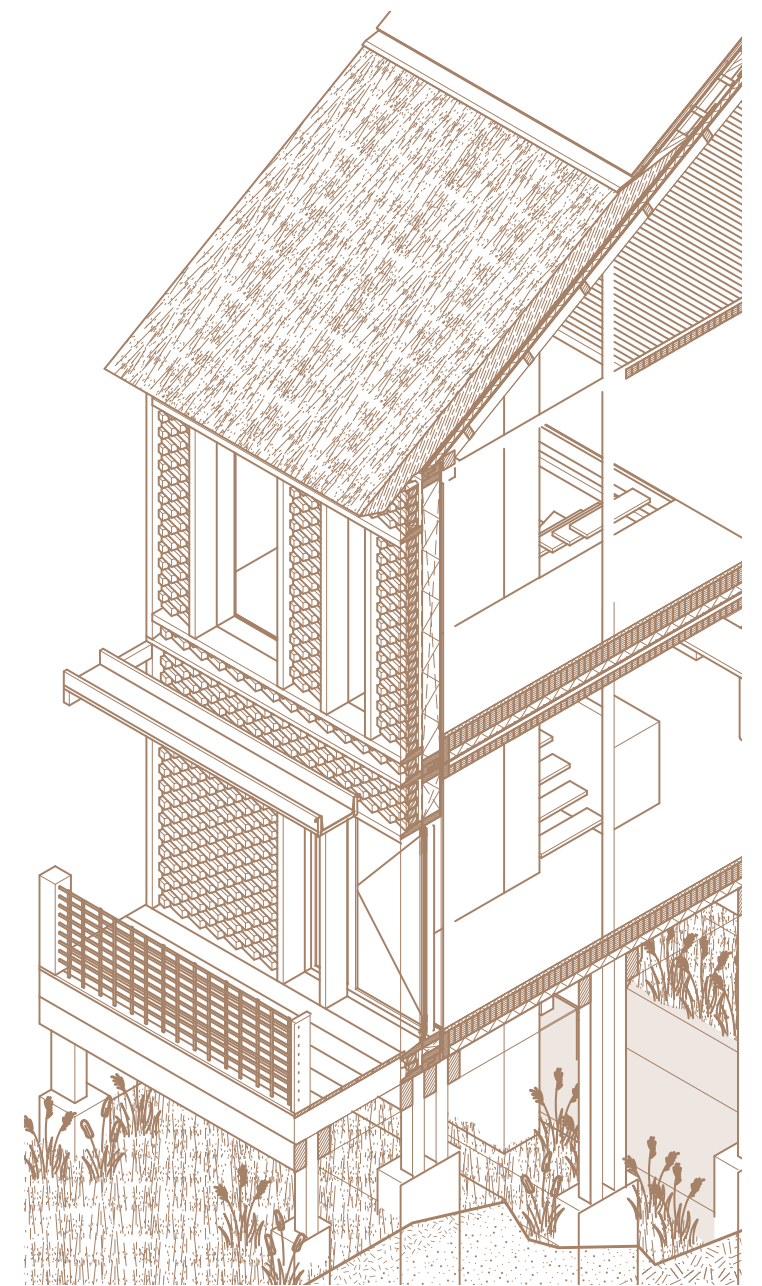
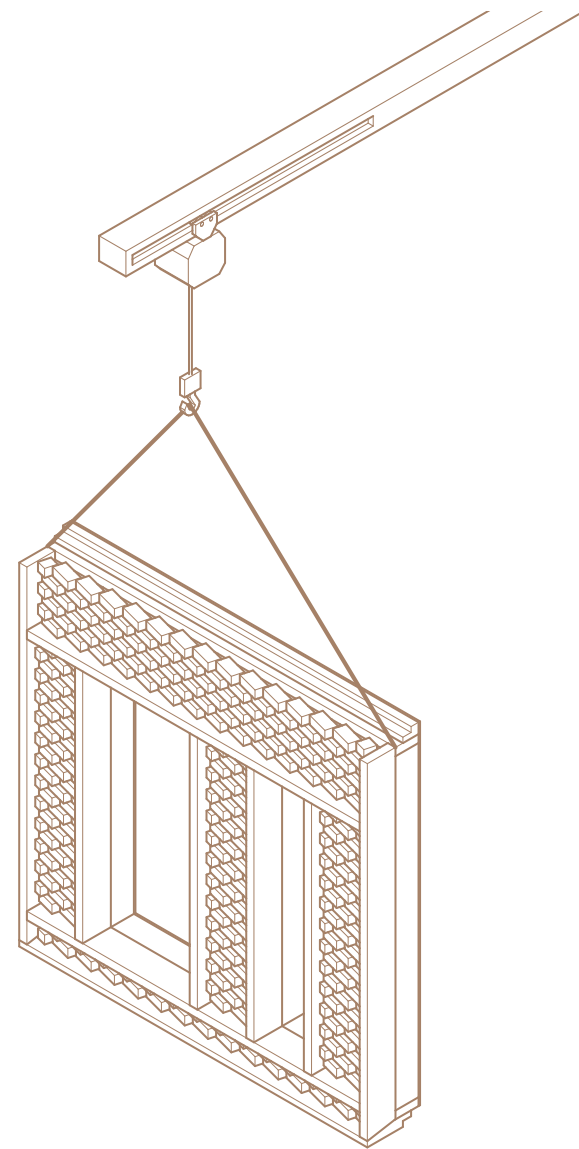
THE DESIGN OF THE SYSTEM
in the Boerhaavewijk



1. LANDSCAPE



2. FABRICATION AND MATERIALISATION



**3. DEMOGRAPHY, TYPOLOGY
AND DESIGN**



LANDSCAPE



1900

1600



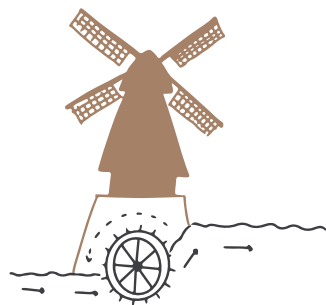
human activity



1970



1900



1852



1739



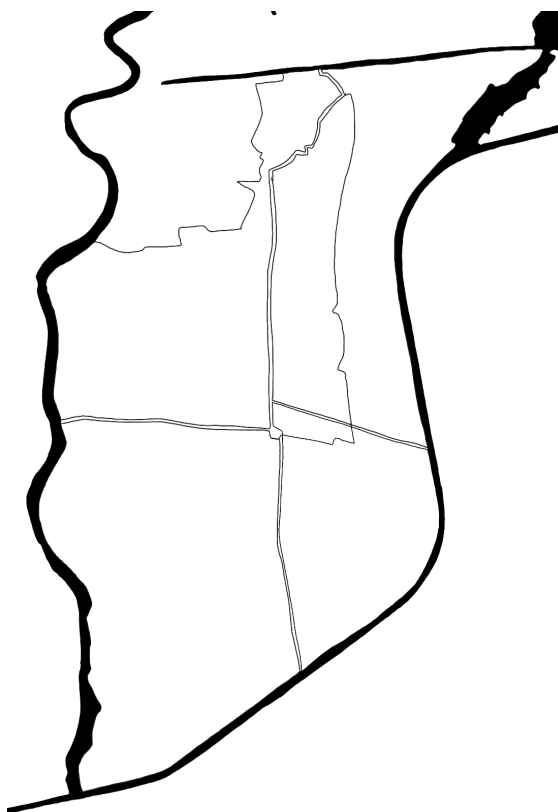
1531



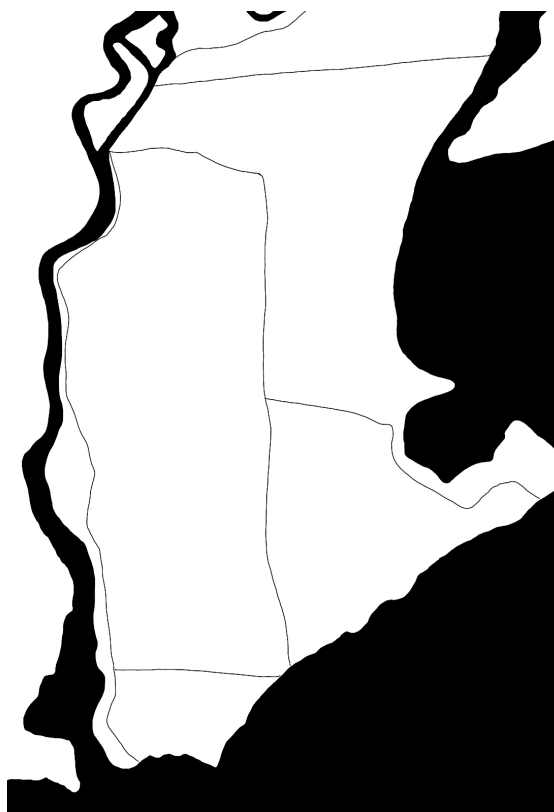
modernist housing structure



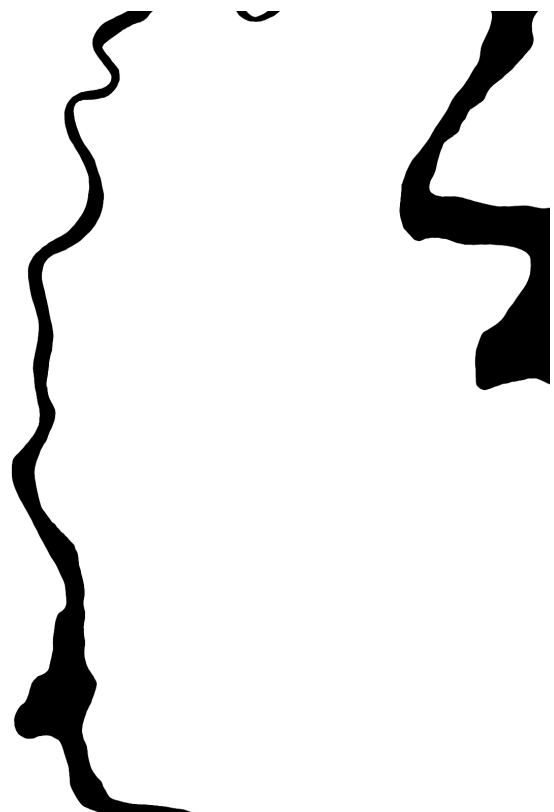
pasture structure



Haarlemmermeer drainage



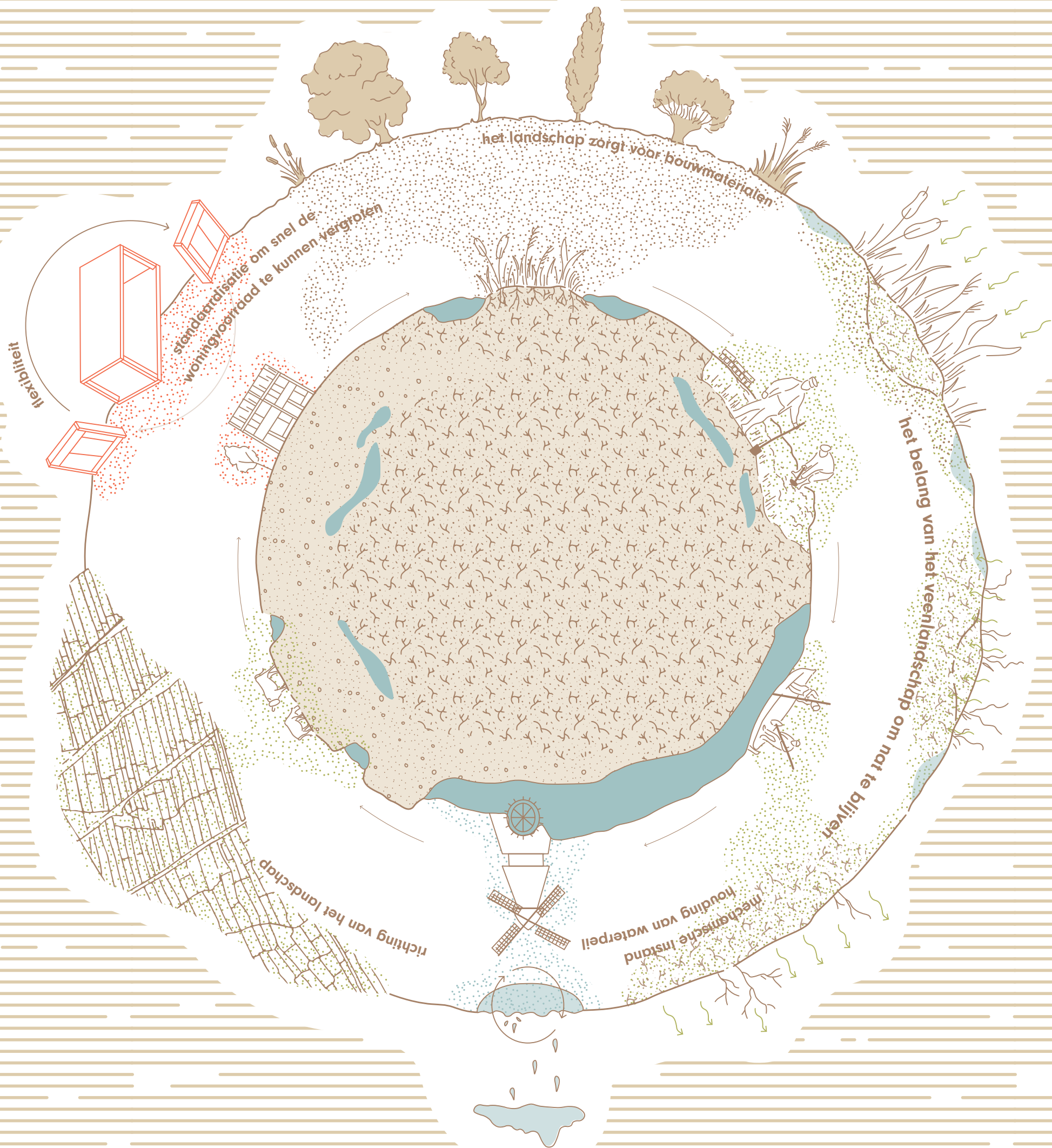
wetting of the landscape



peat landscape

change of the landscape

EXCAVATION OF THE BOERHAAVEWIJK LANDSCAPE



veen



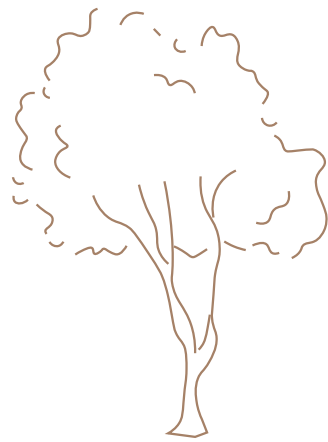
zand



water

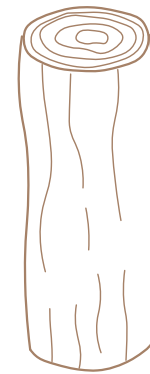
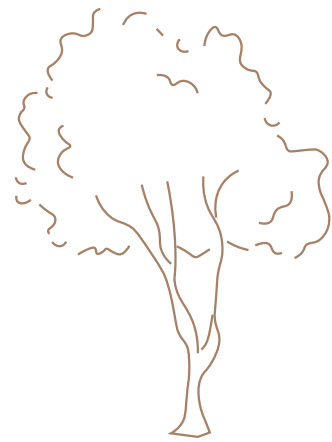


MATERIALS



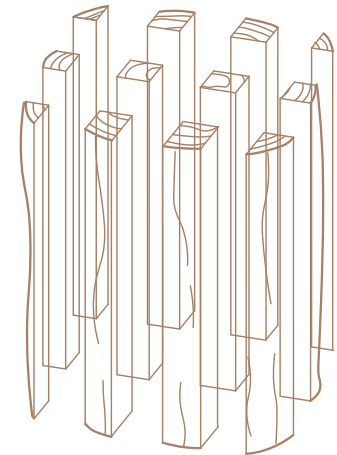
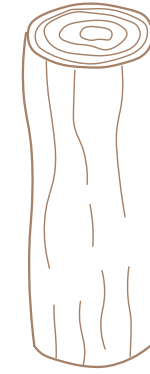
1. from context to raw material

raw material refers to the context



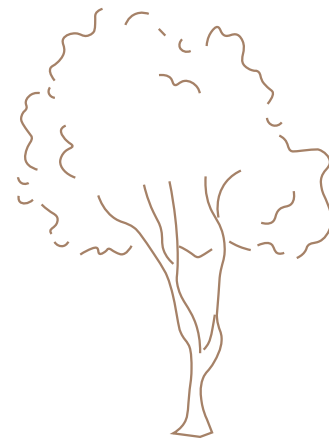
2. from raw material to material

raw material is used as efficiently as possible as a material



3. from material to construction element

material is processed as little as possible into a building element



1. from context to raw material

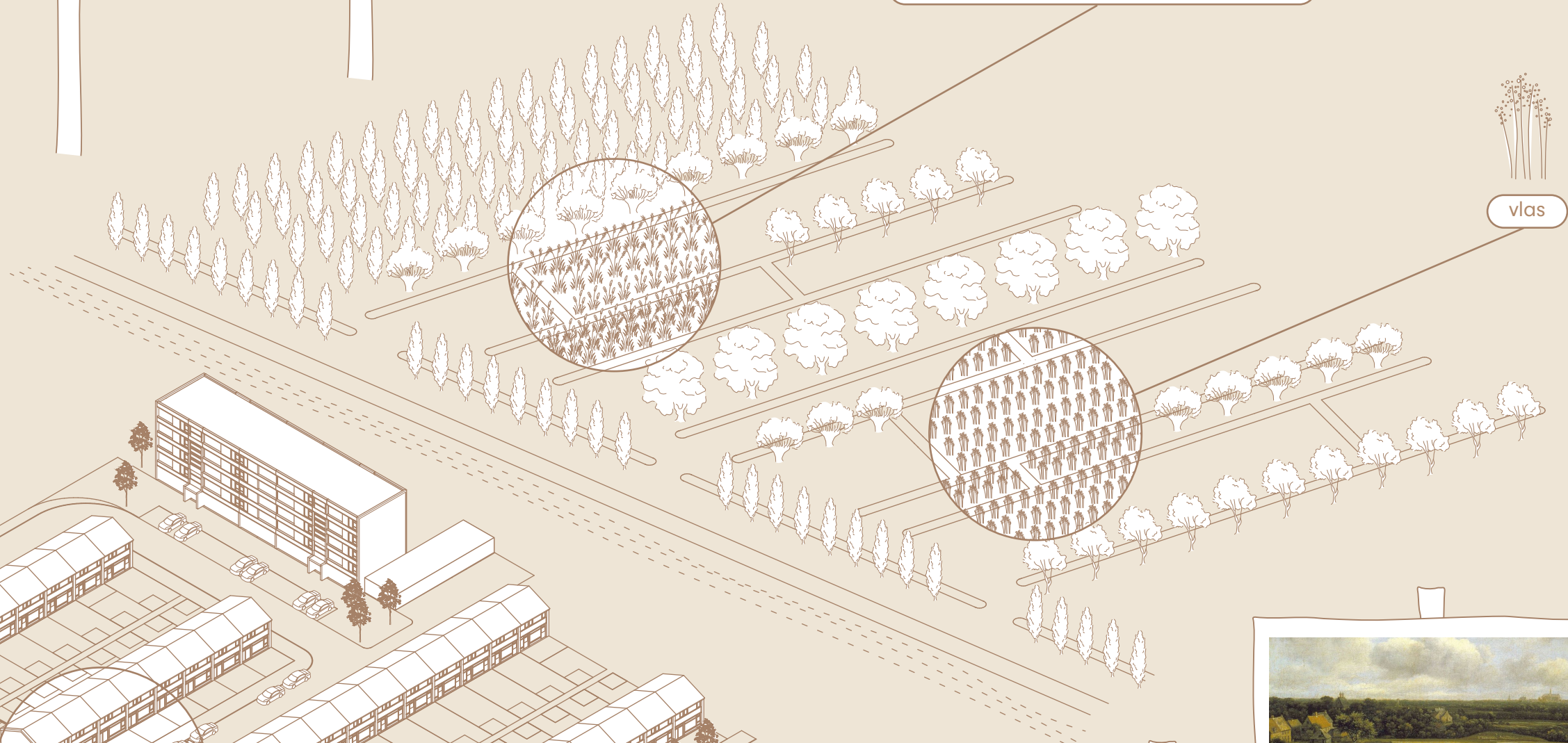
raw material refers to the context



eik / els / populier / wilg / riet / lisdodde



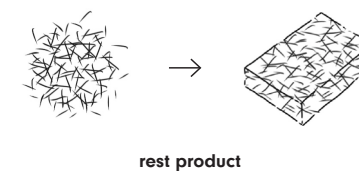
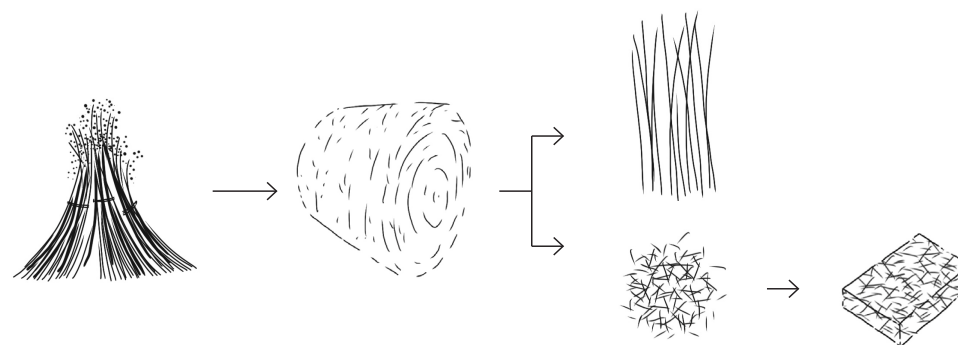
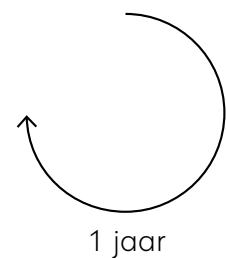
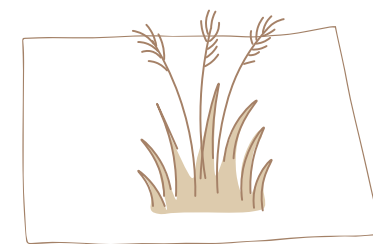
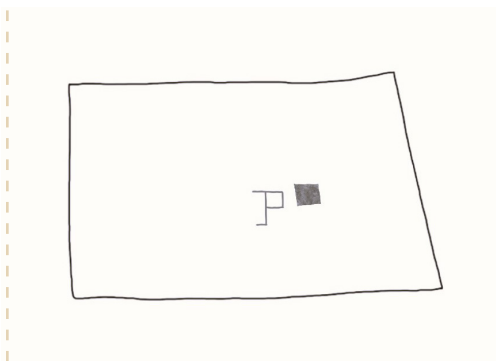
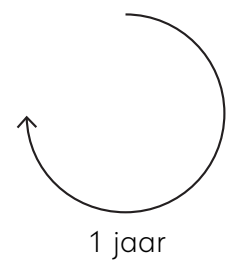
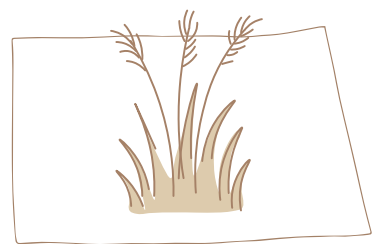
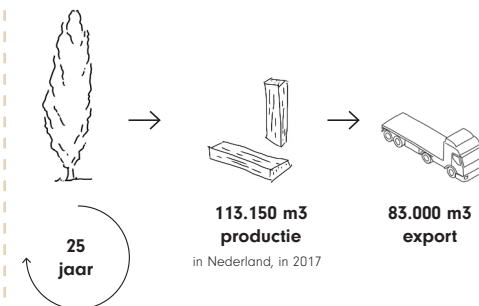
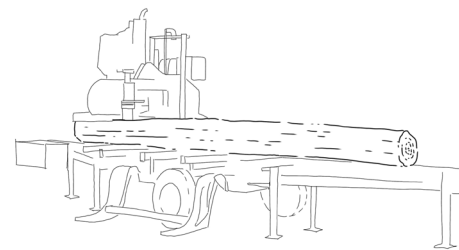
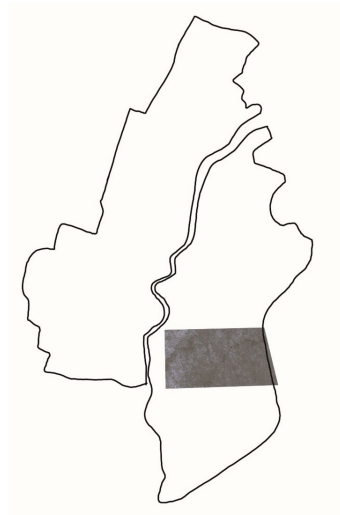
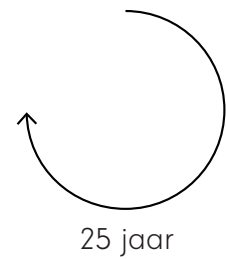
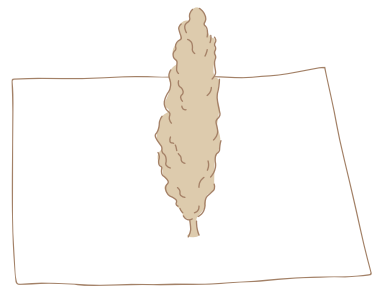
vlas

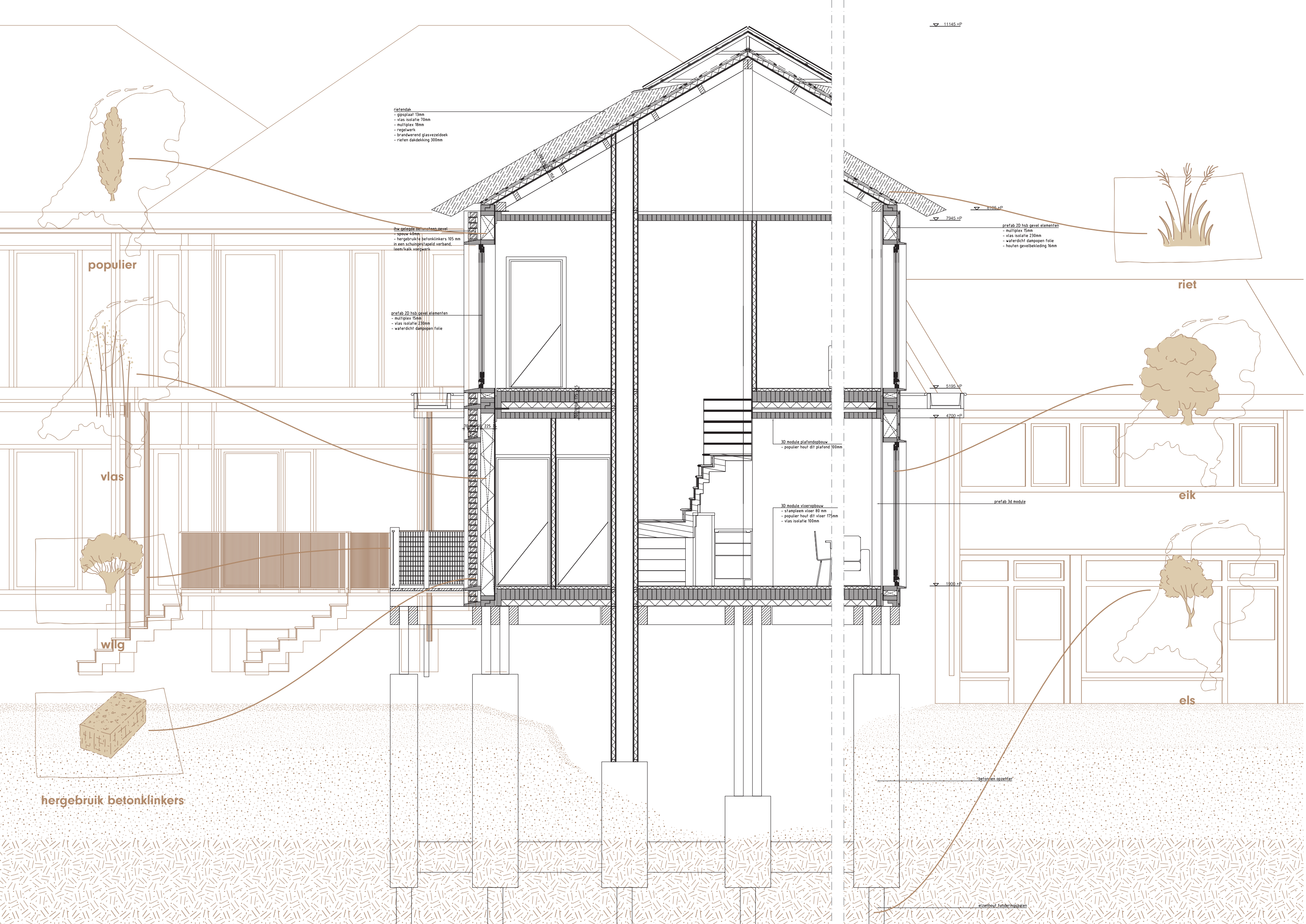


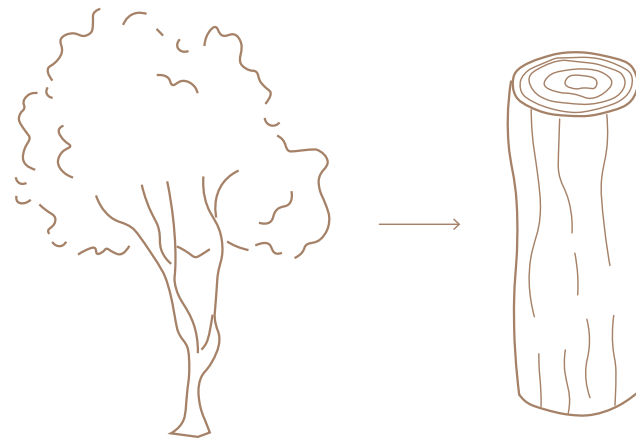
beton klinkers



THE LOCAL HARVEST

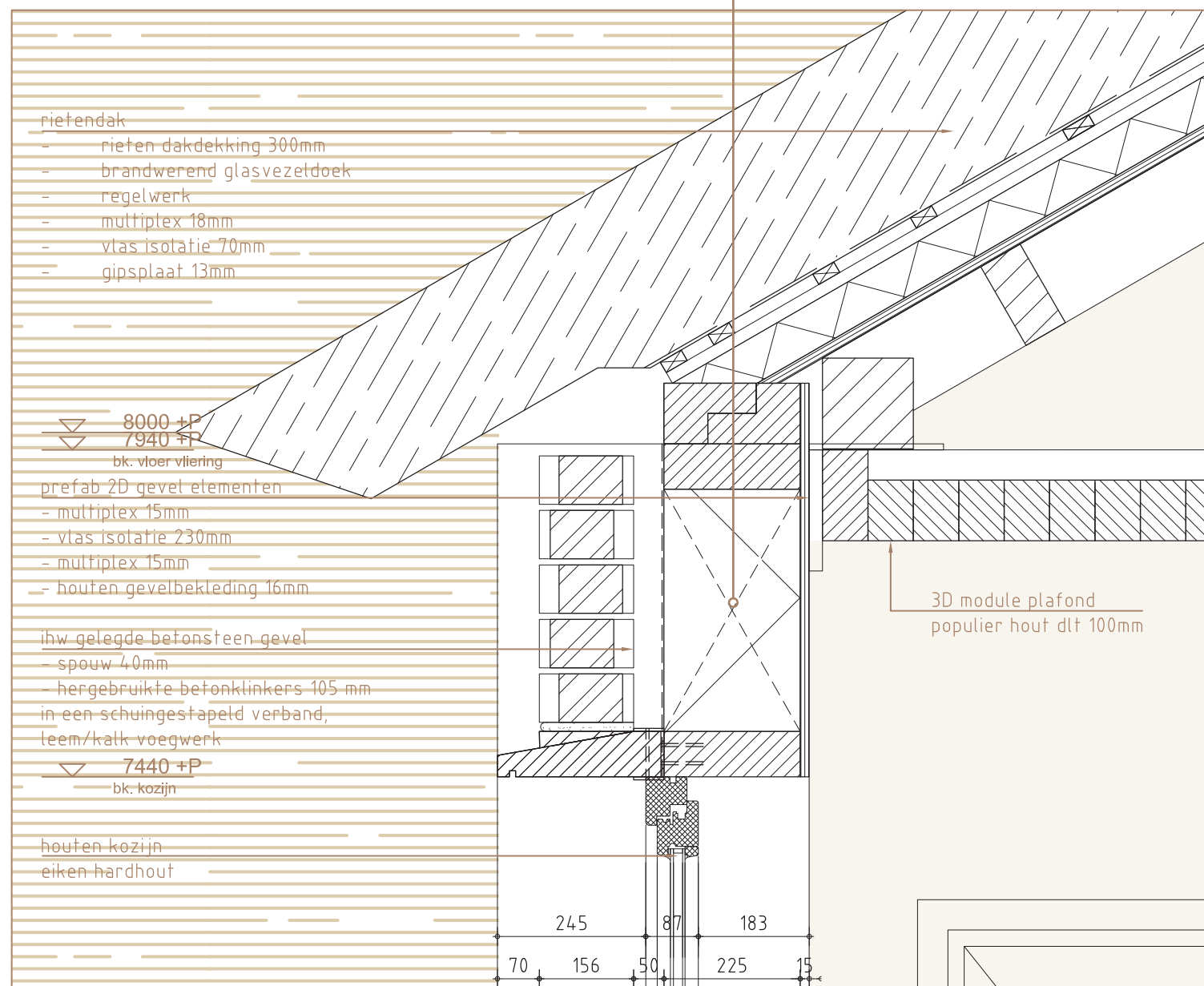
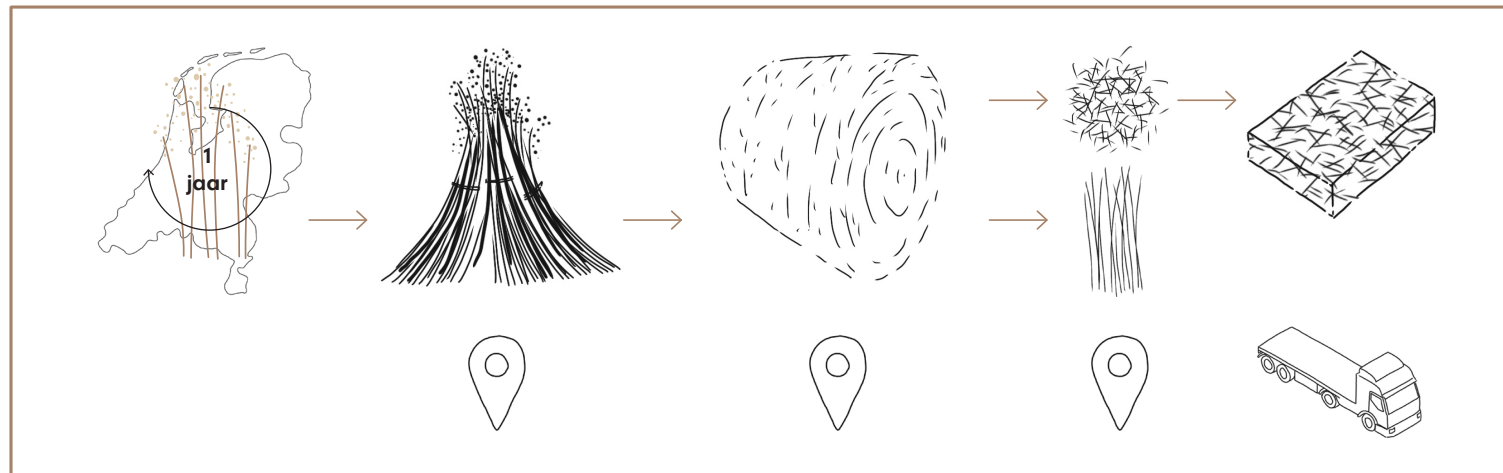




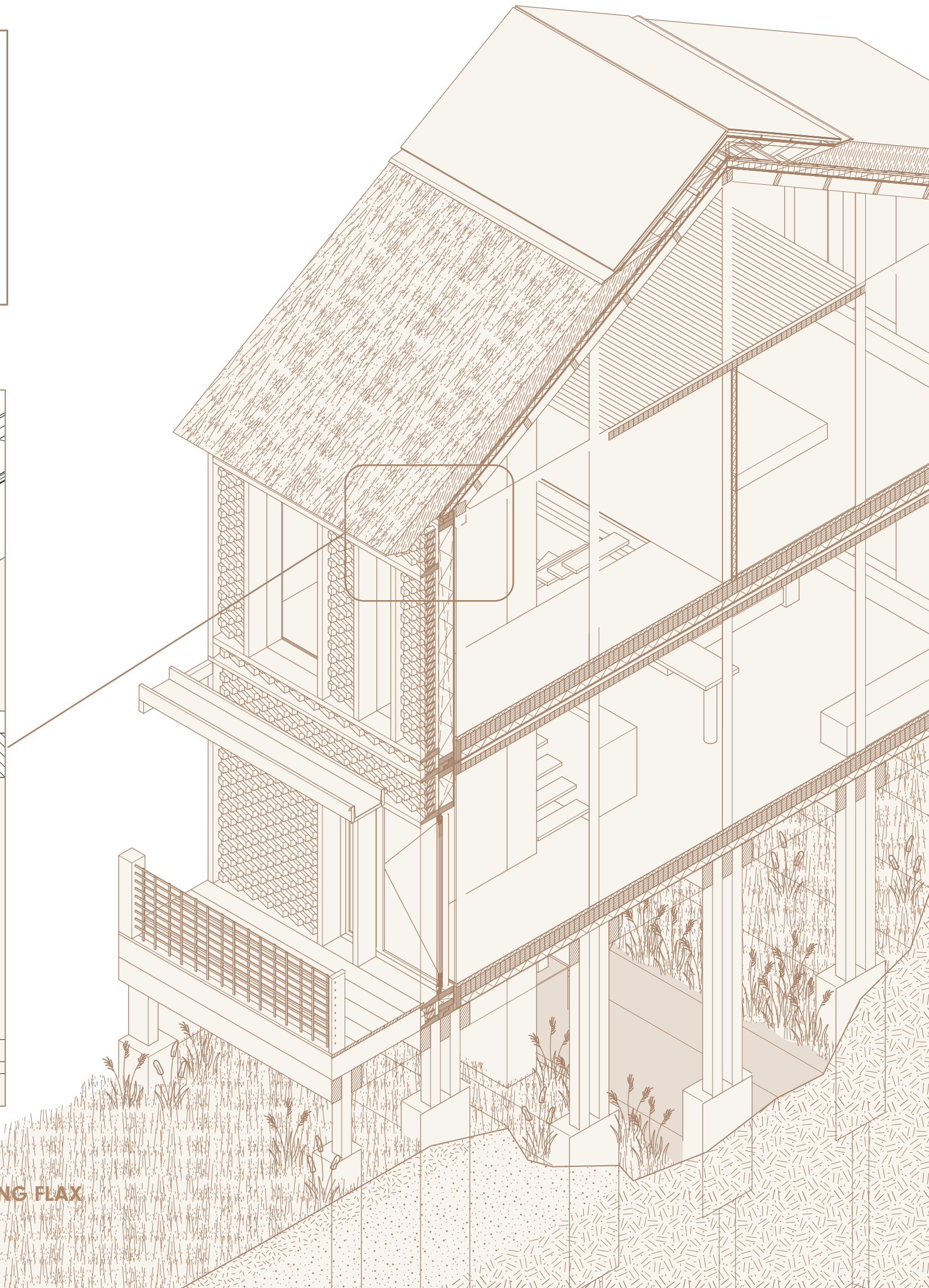


2. from raw material to material

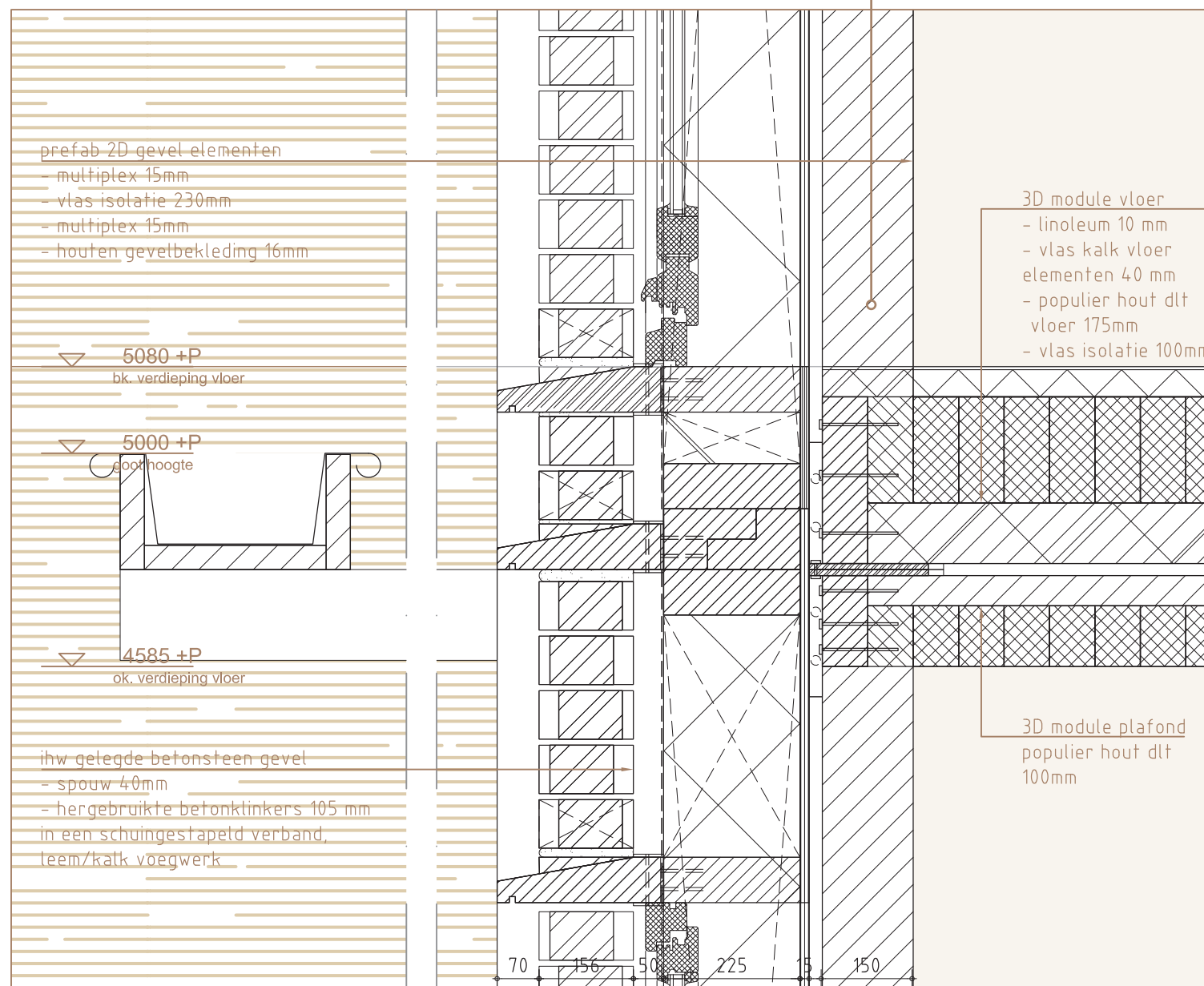
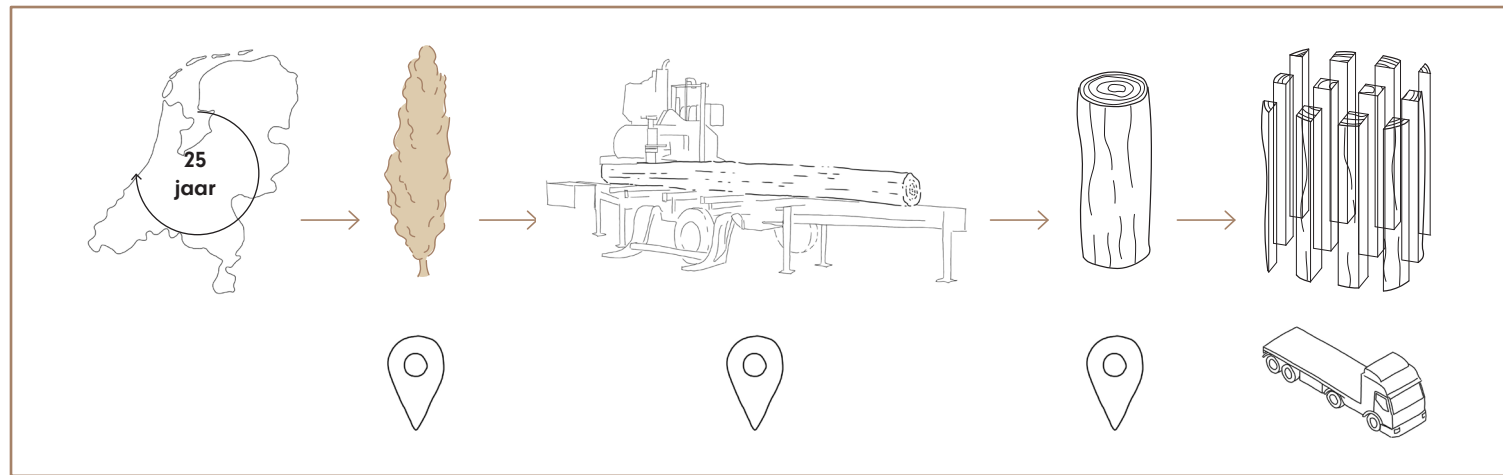
raw material is used as efficiently as possible as a material



detail knooppunt dak en gevel

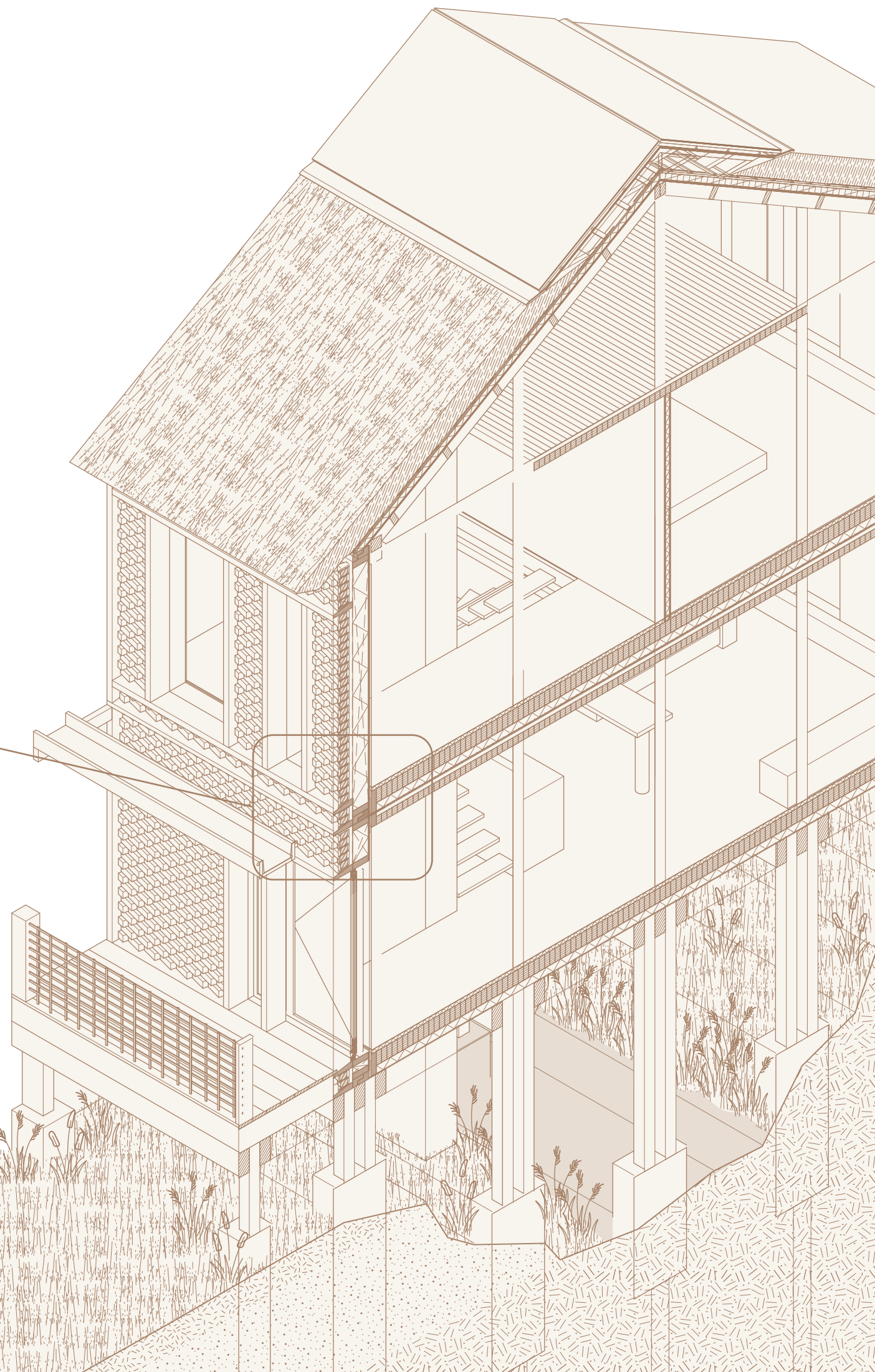


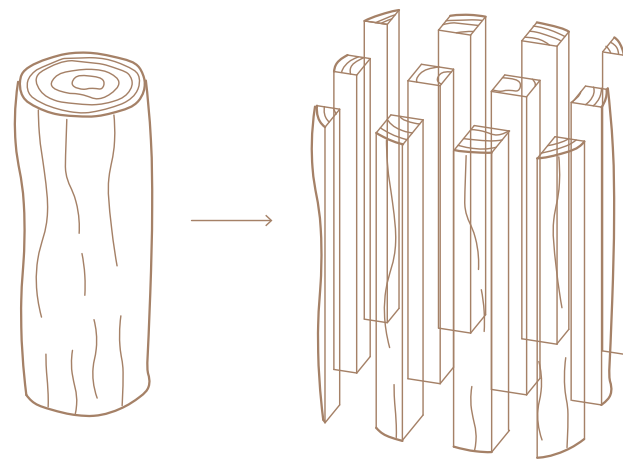
PROCESSING FLAX



detail knooppunt gevel en verdiepingvloer over constructie

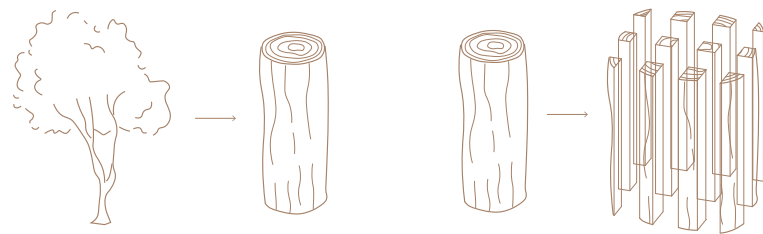
PROCESSING POPLAR





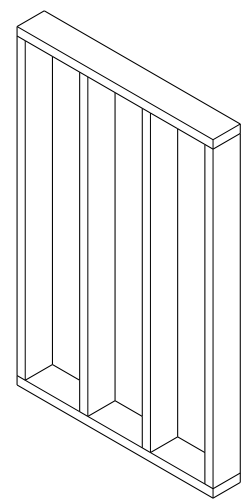
3. from material to construction element

material is processed as little as possible into a building
element

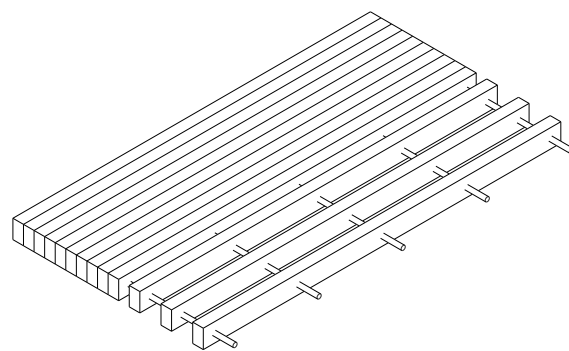


efficient material use

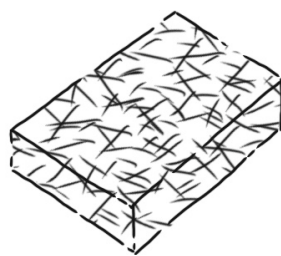
minimal procession



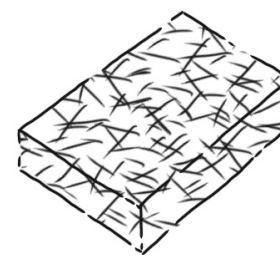
hsb wanden



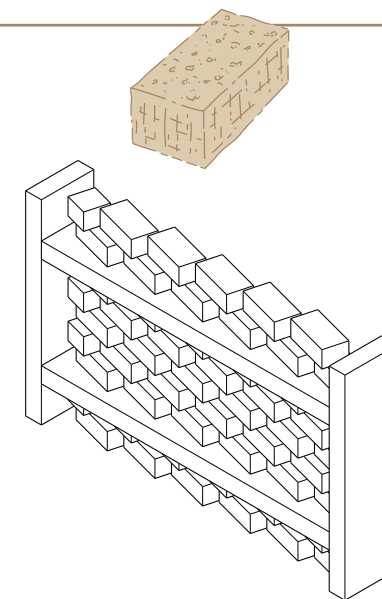
dowel laminated timber vloer



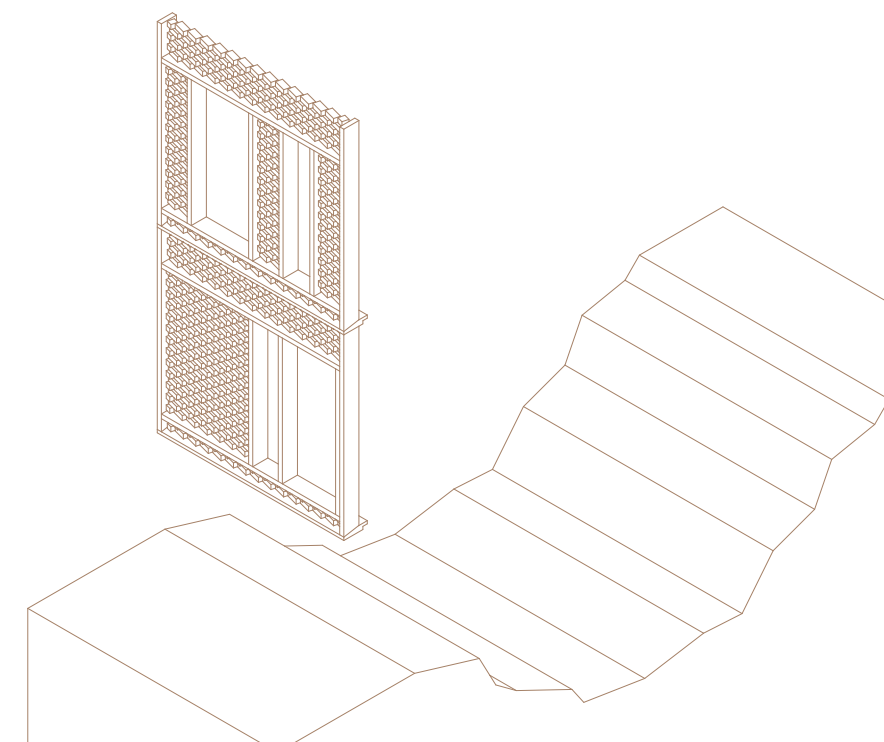
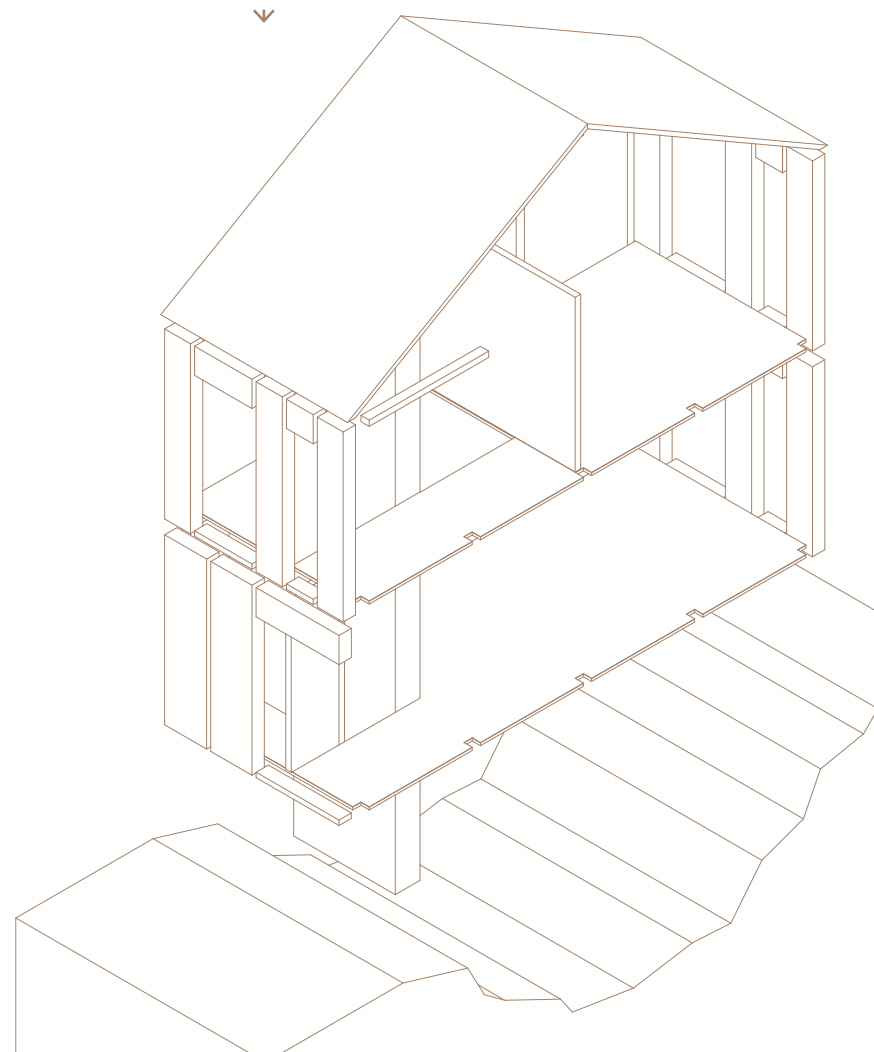
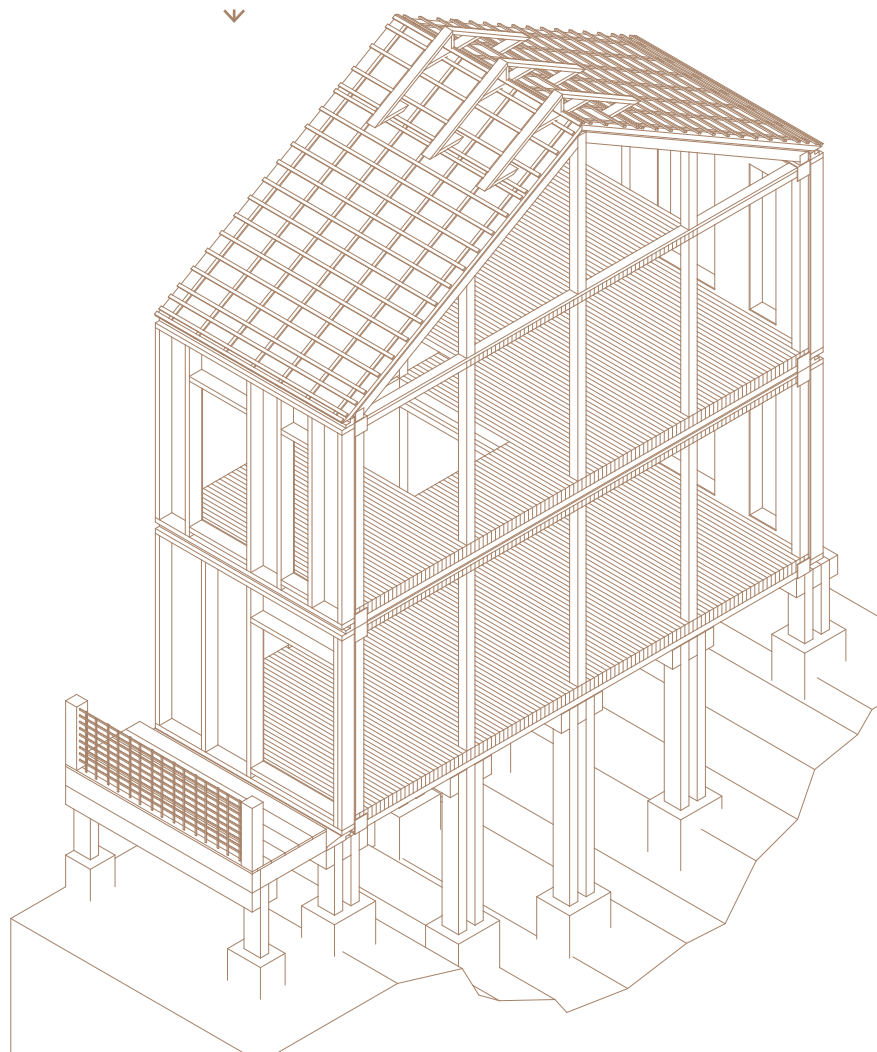
isolatie



druk vaste isolatie
kalk vlas composiet

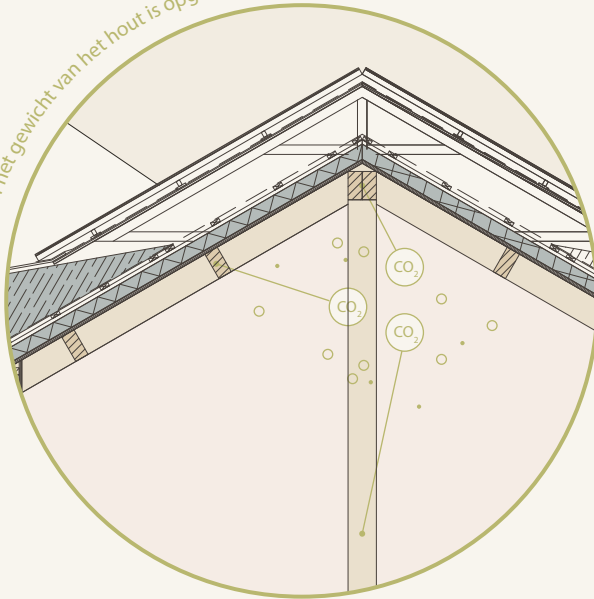


stenen en lateien systeem

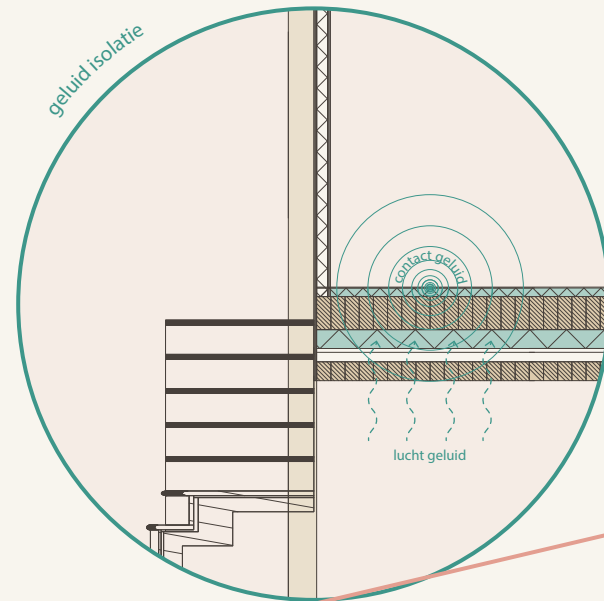


BENEFITS OF USING NATURAL AND LOCAL MATERIALS

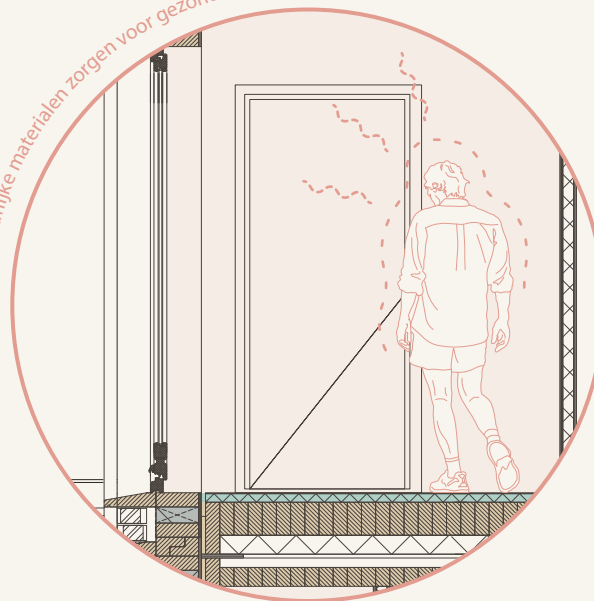
50% van het gewicht van het hout is opgeslagen CO₂



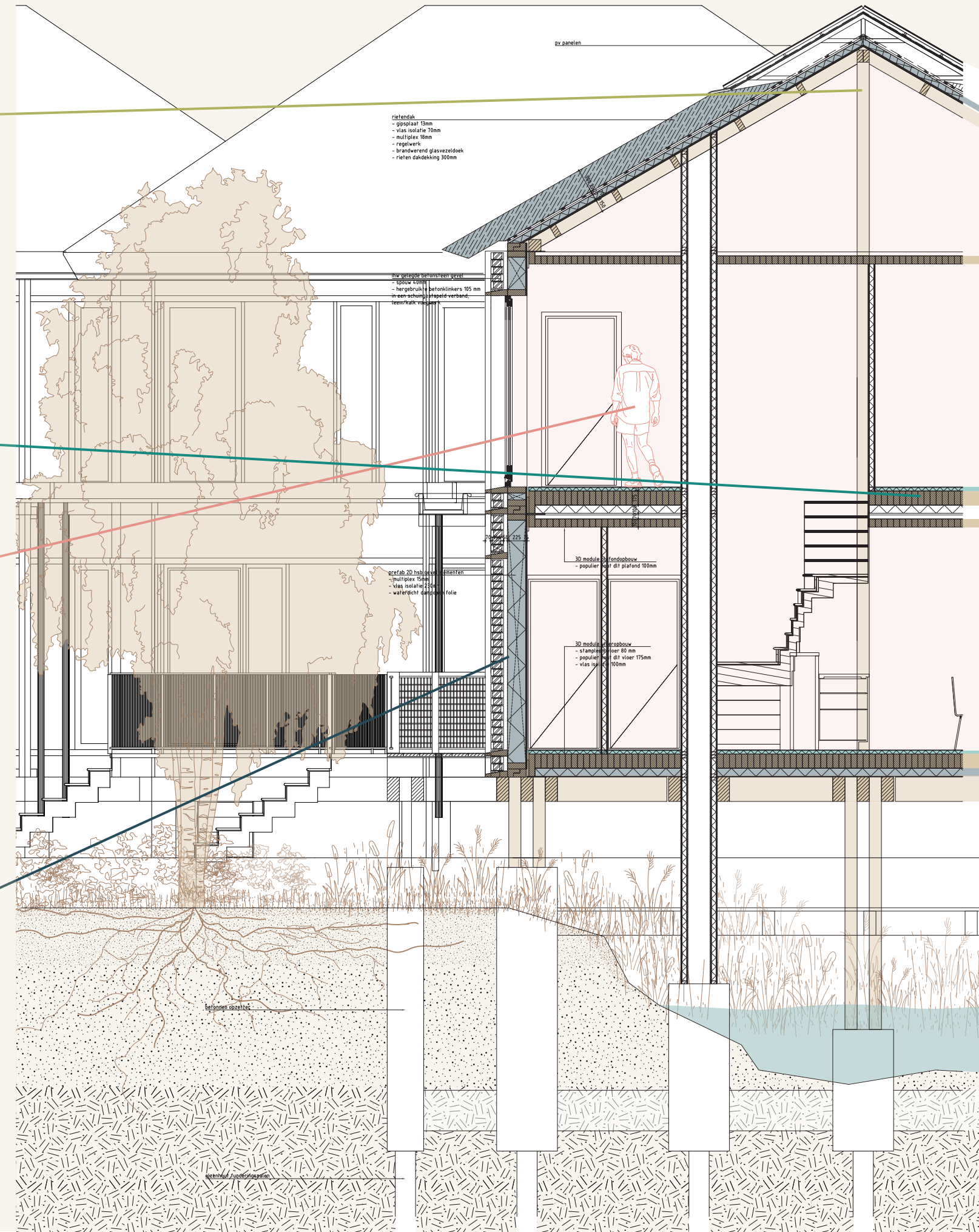
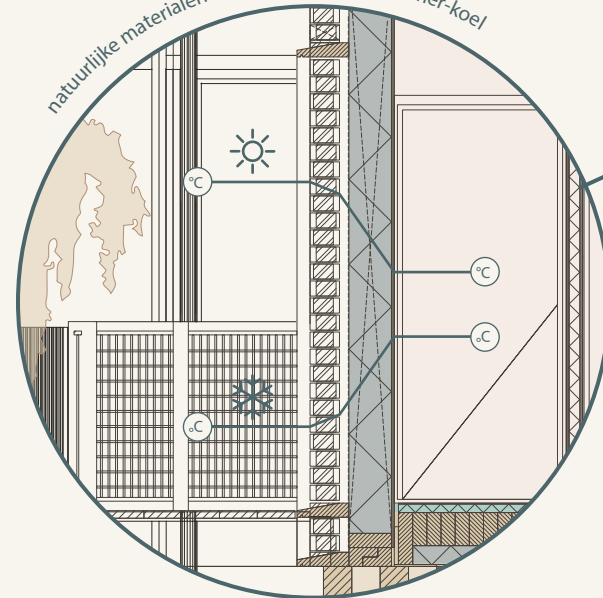
geluid isolatie

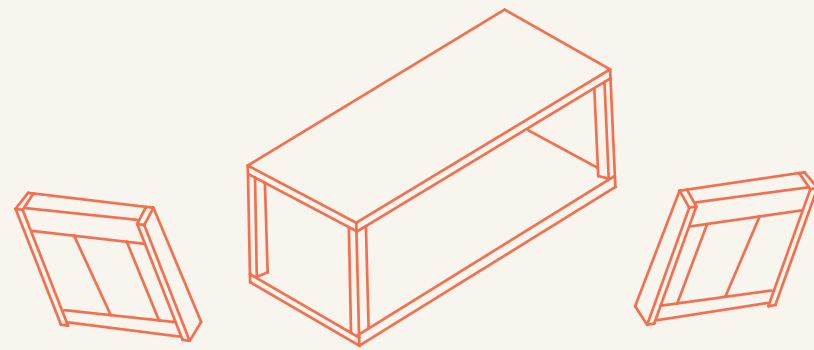


natuurlijke materialen zorgen voor gezond binnen milieu

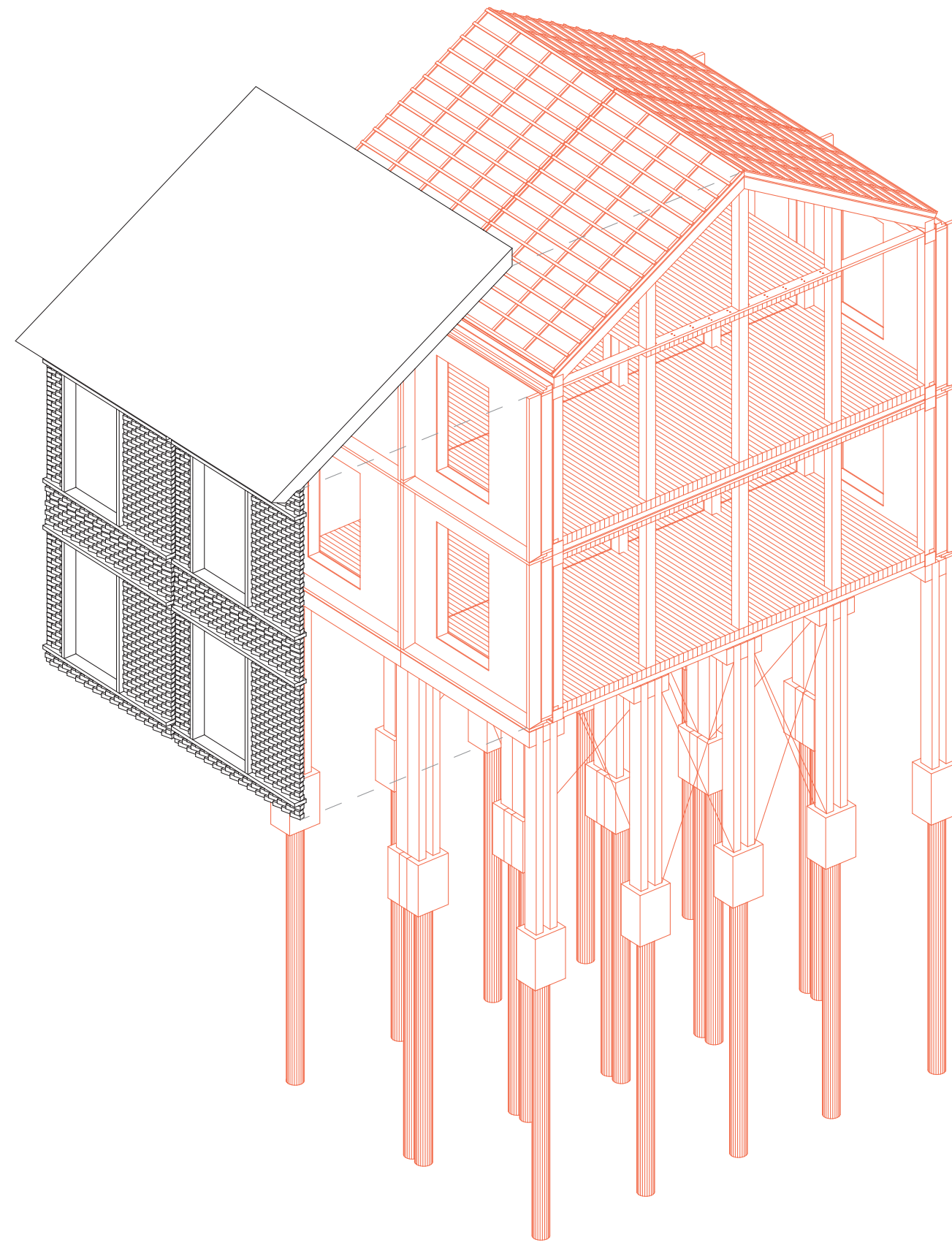


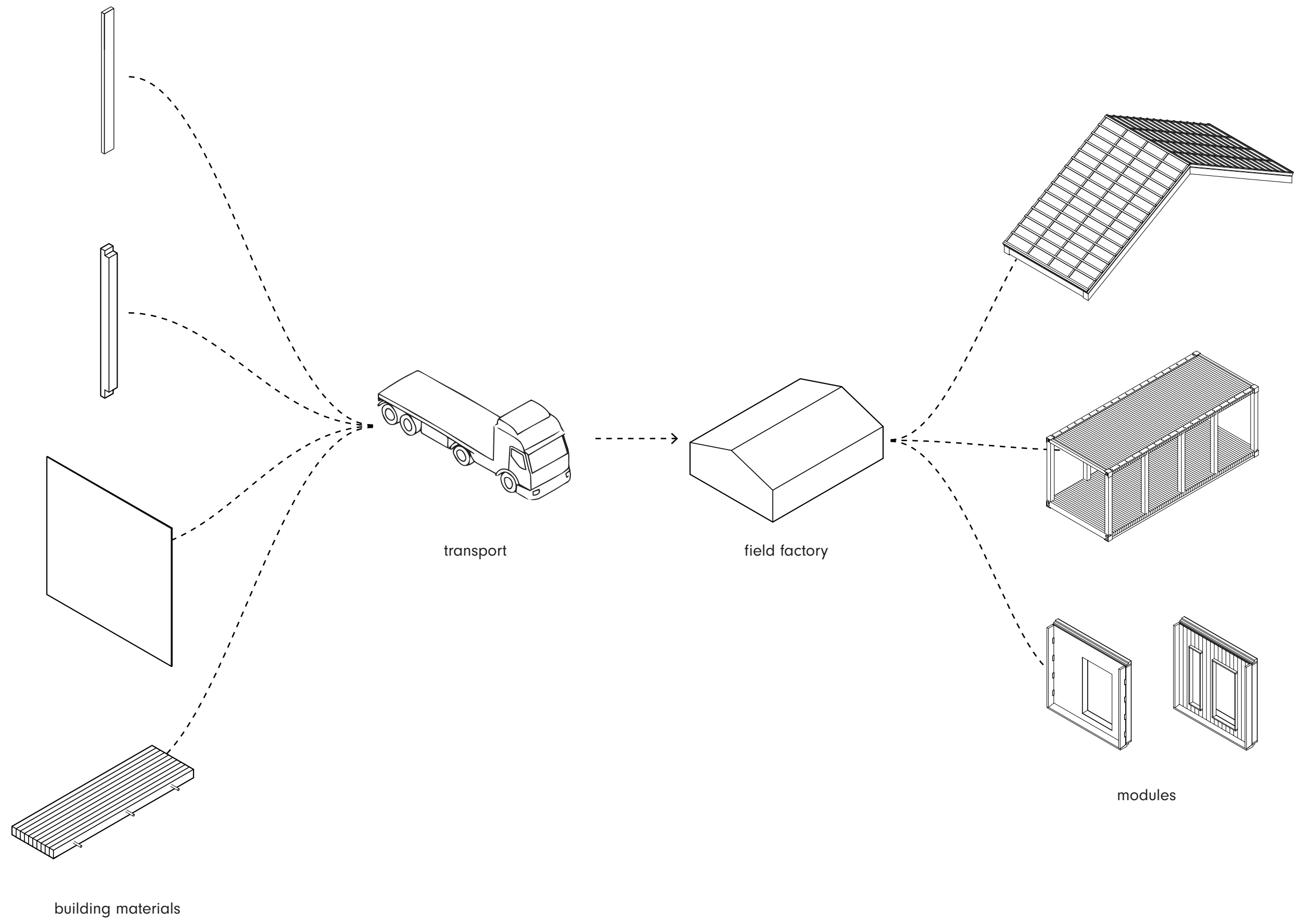
natuurlijke materialen zijn winter-warm en zomer-koel

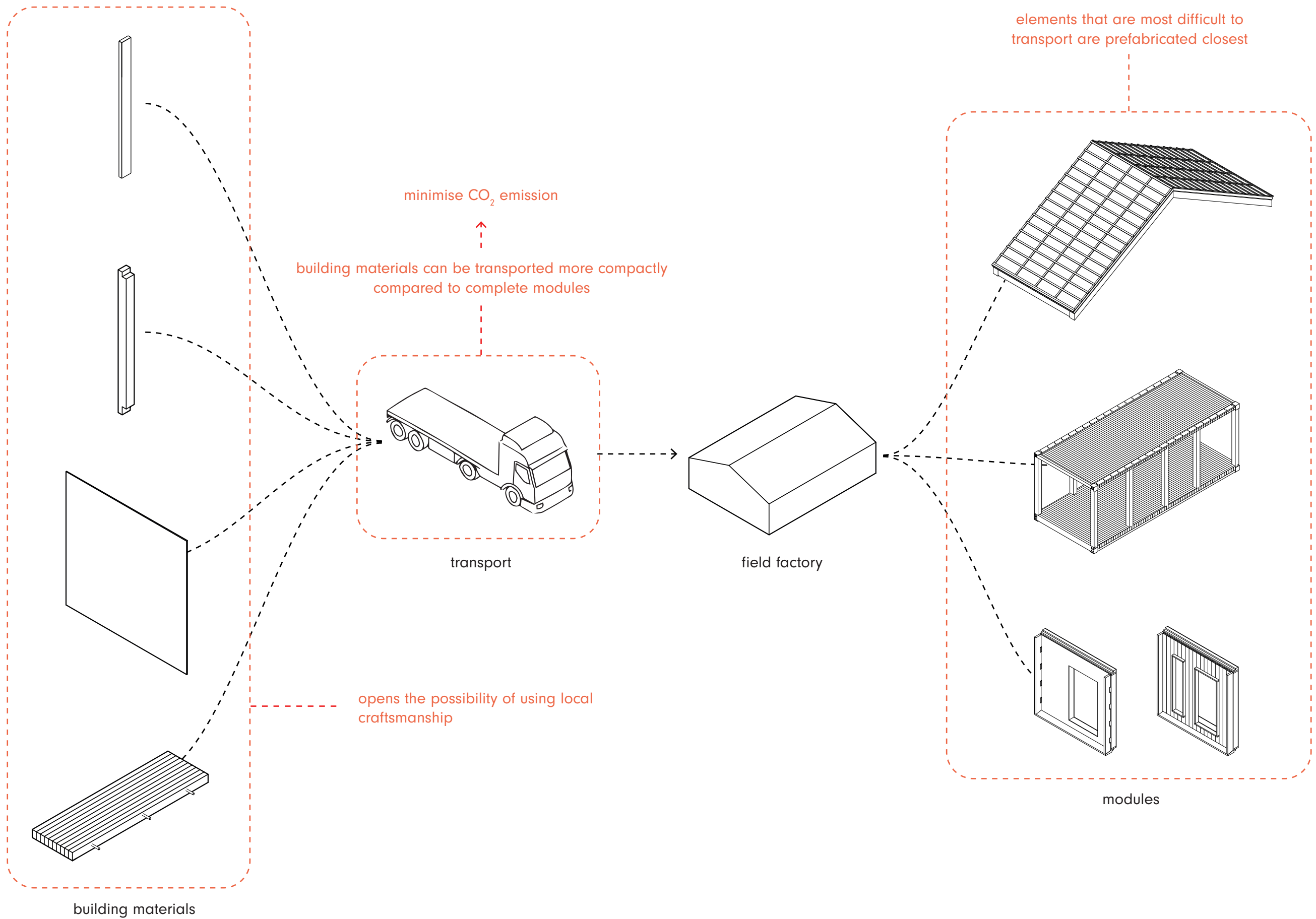


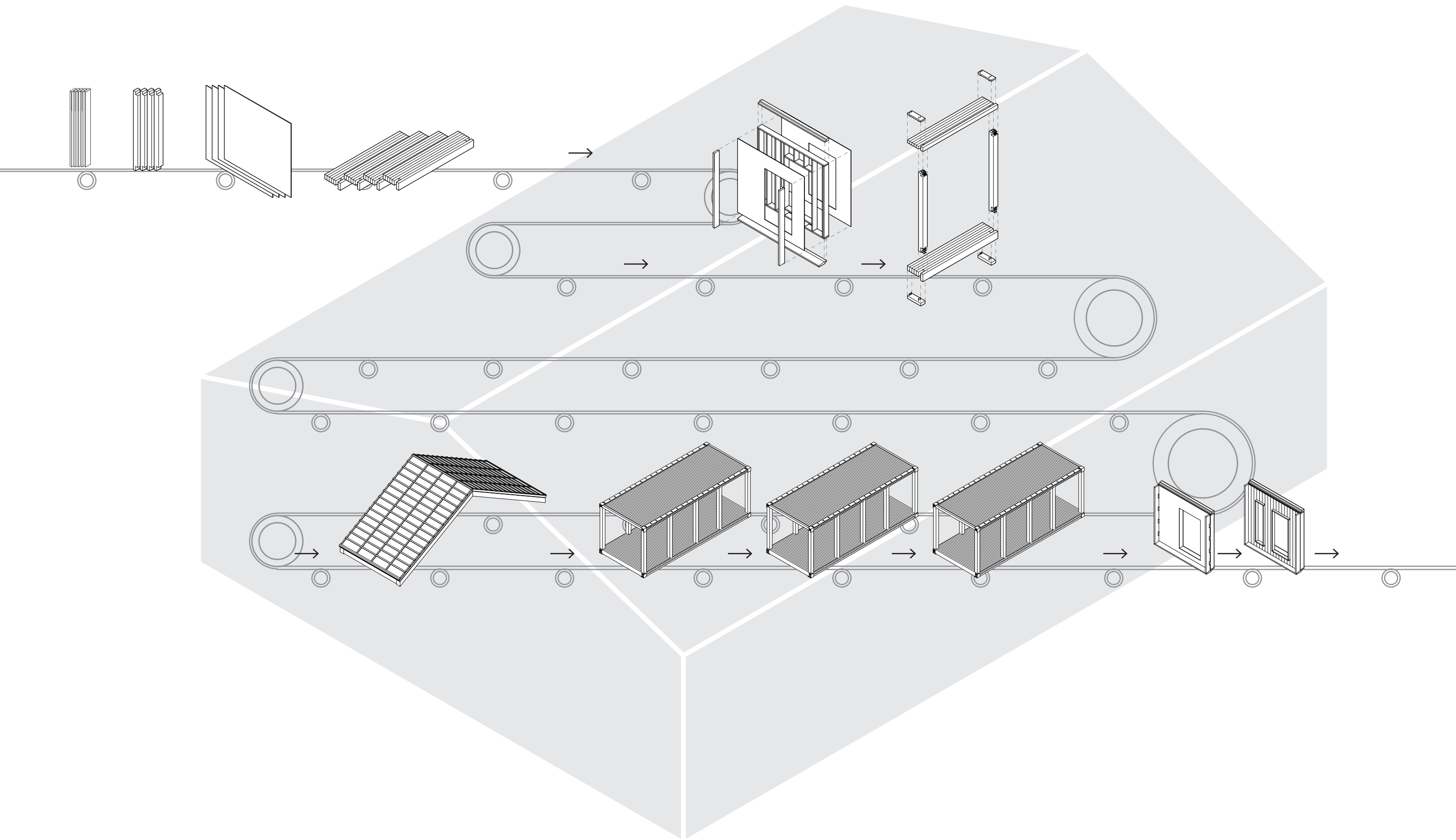


PREFABRICATION

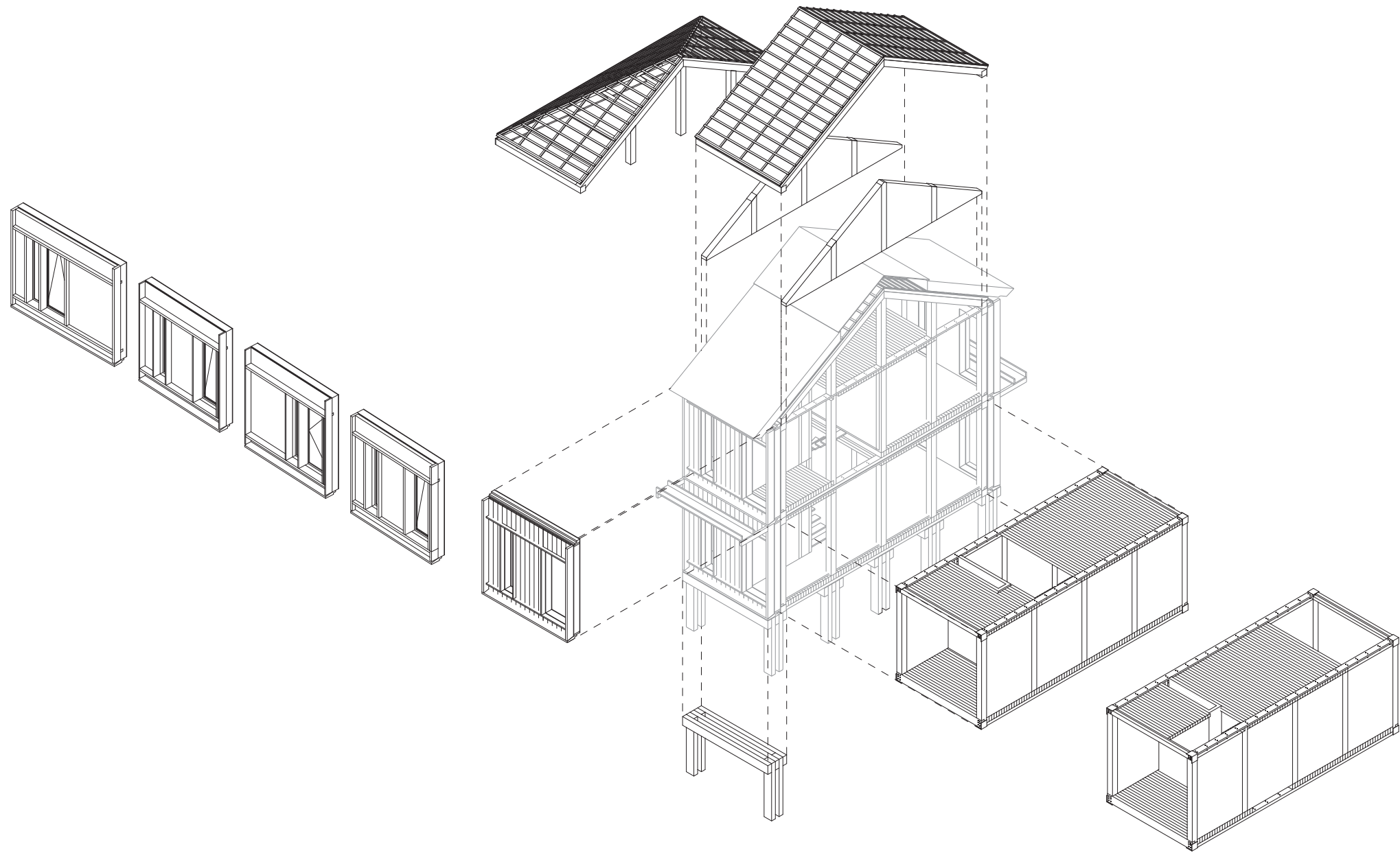






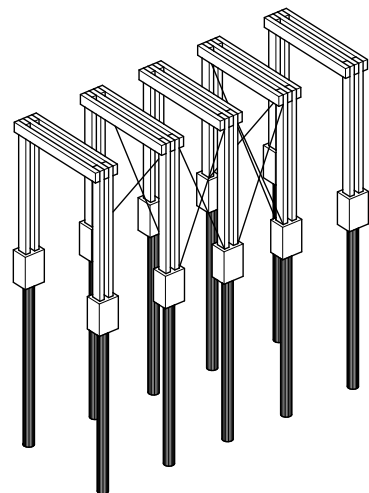


FIELD FACTORY



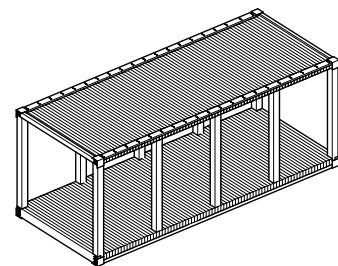
pole foundation construction

2D



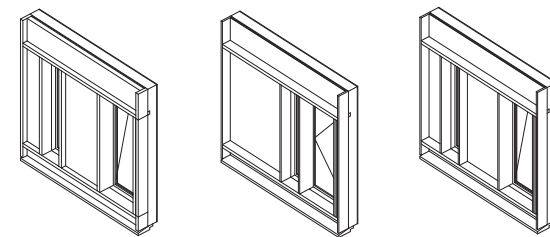
housing modules

3D



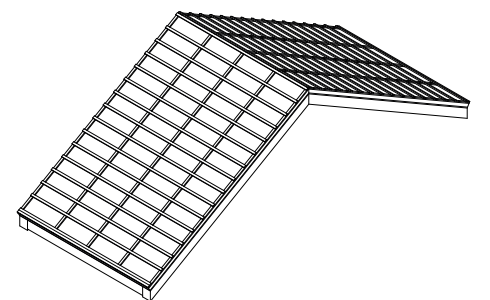
facade modules

2D

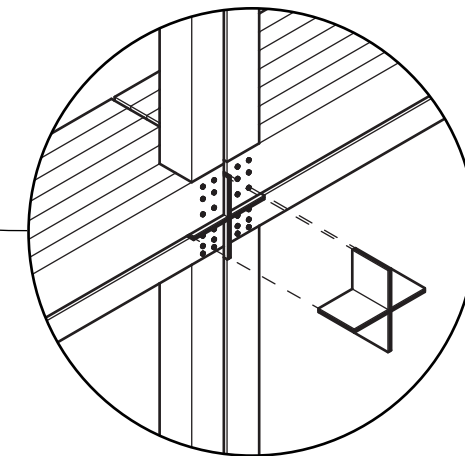
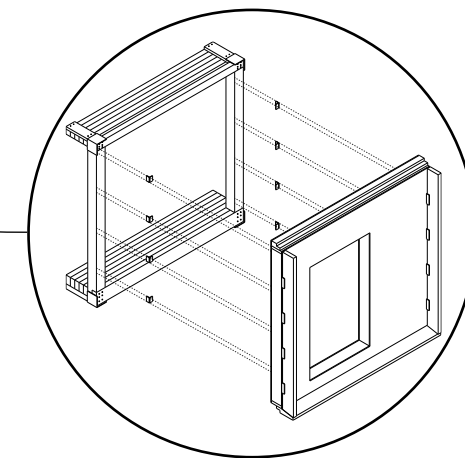
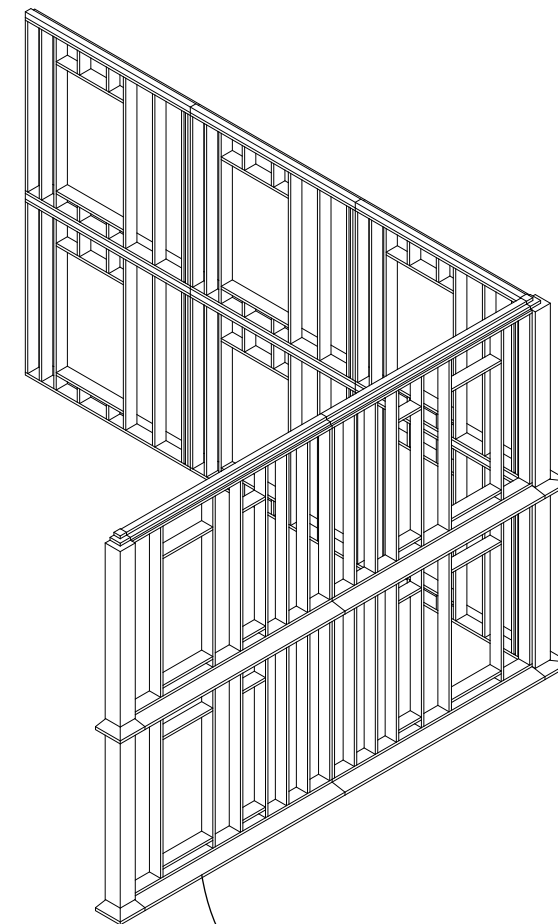
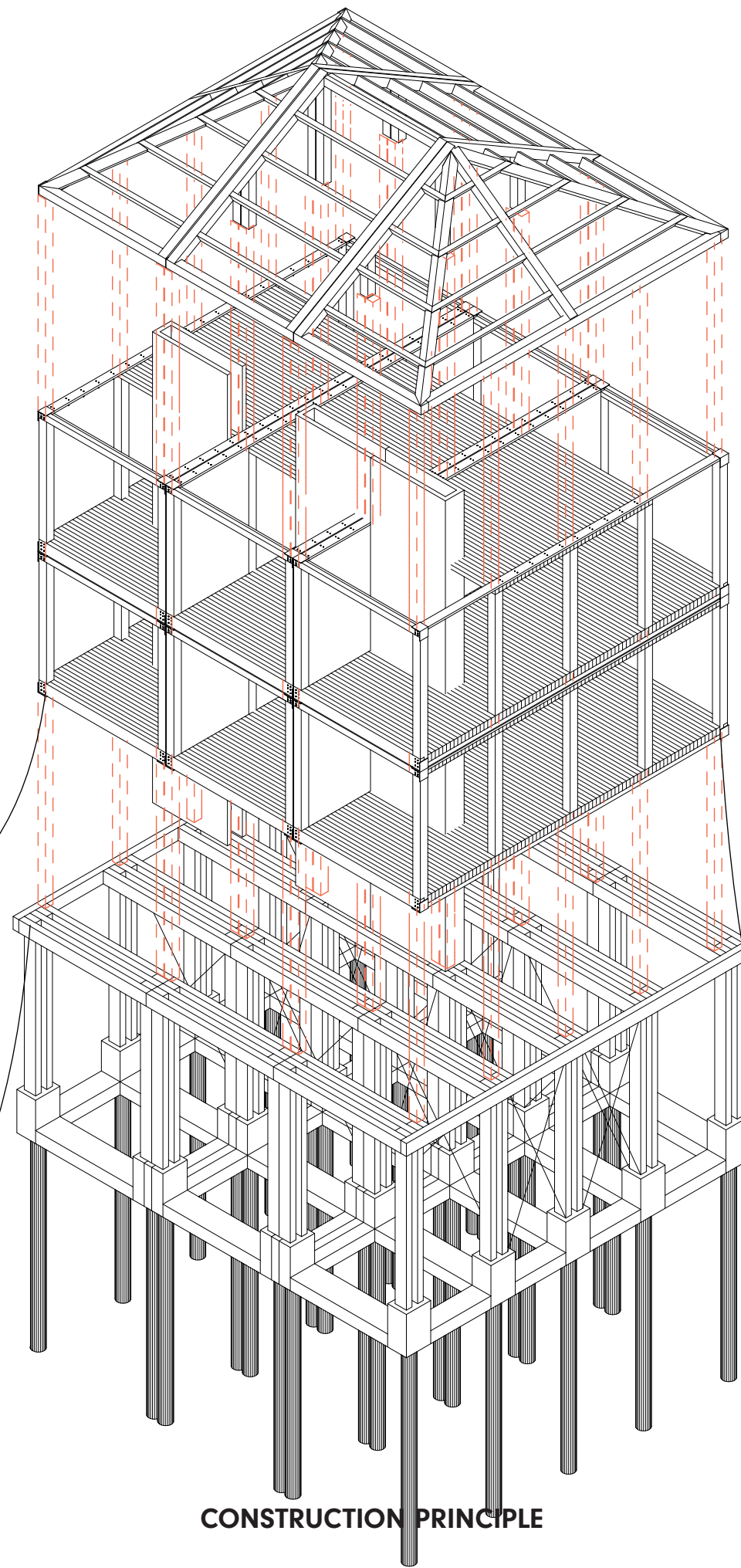
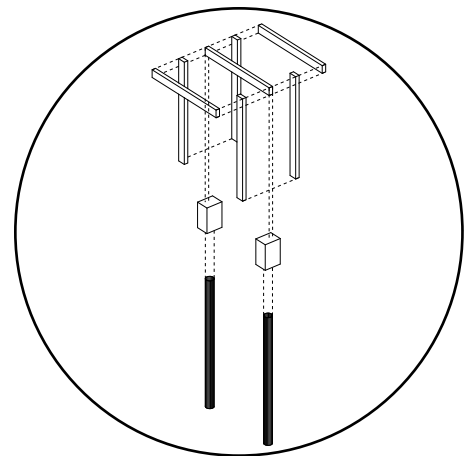
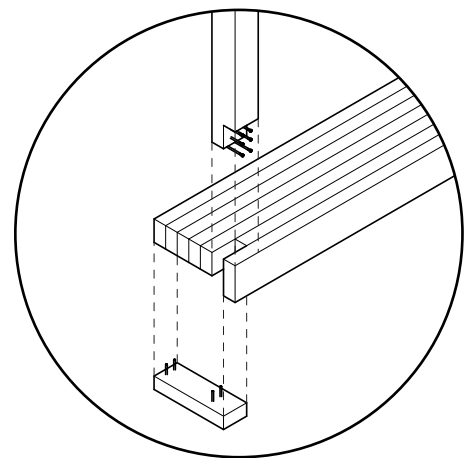
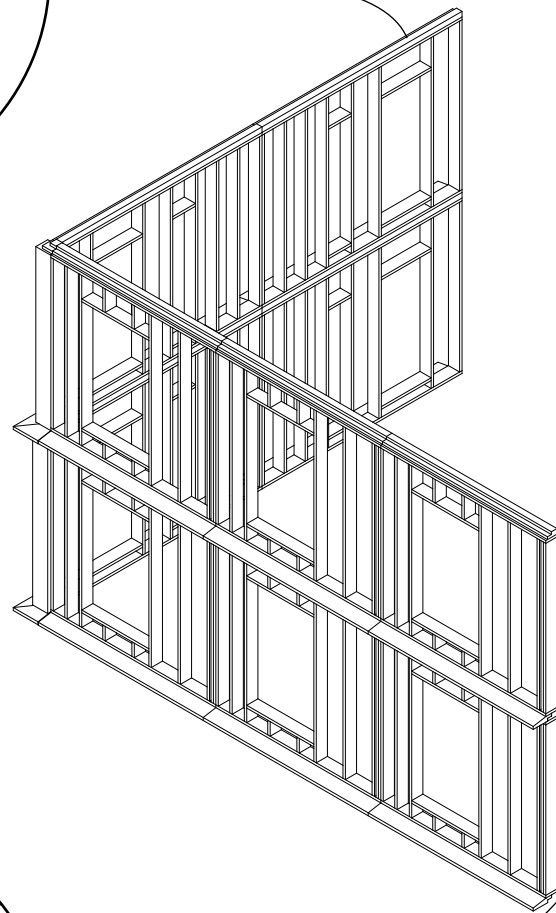
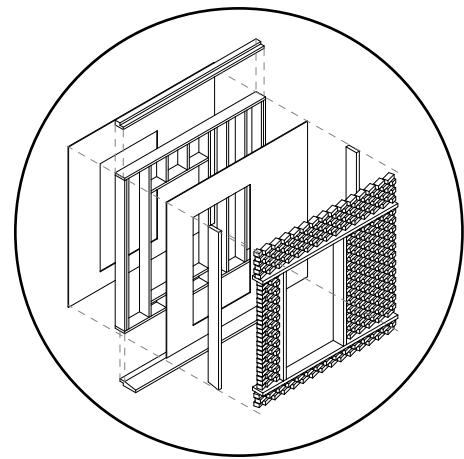


folding roof module

2D



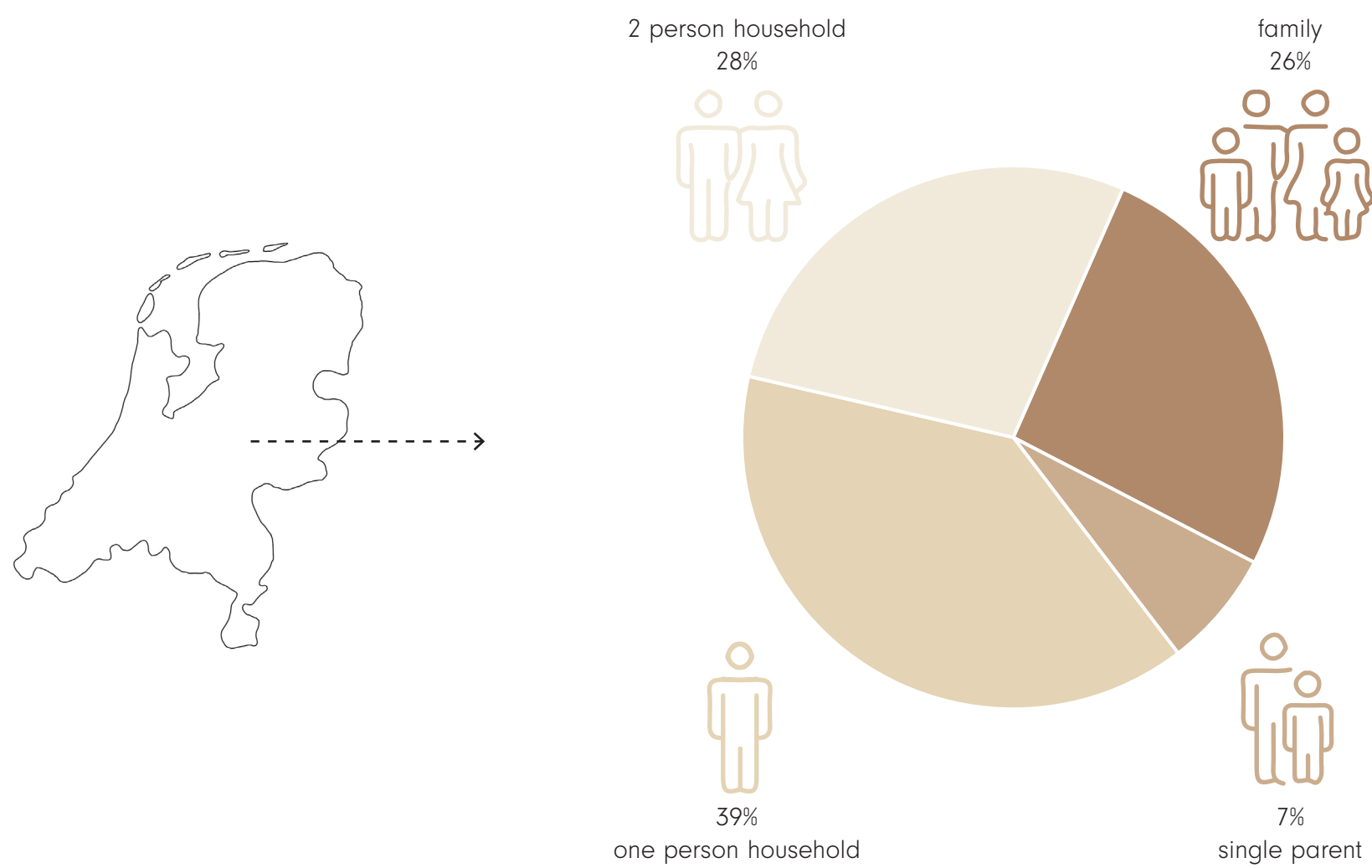
OVERVIEW MODULES



CONSTRUCTION PRINCIPLE



SOCIAL CONTEXT

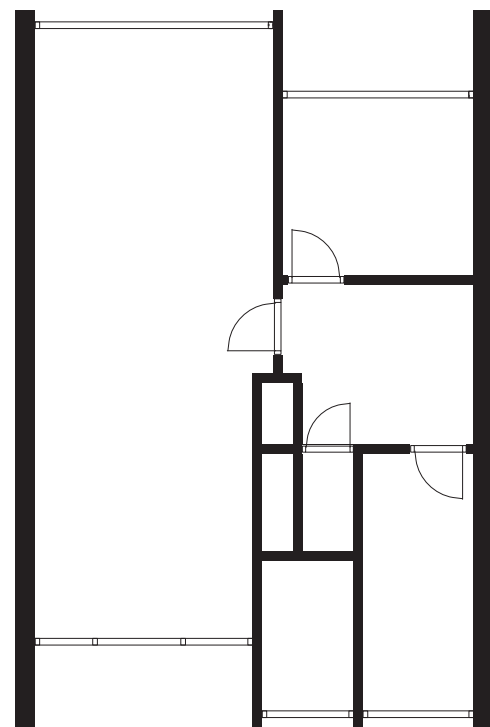


COMPOSITION OF HOUSEHOLDS IN THE NETHERLANDS

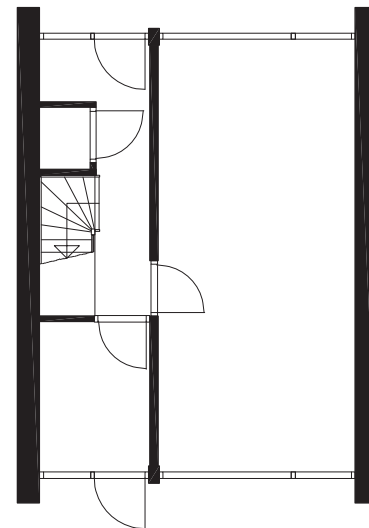


most inhabitants between 25-44 years old

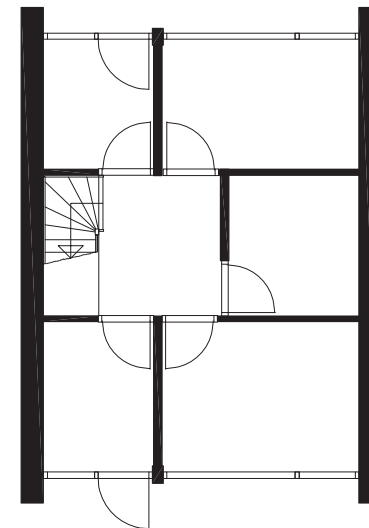
COMPOSITION OF HOUSEHOLDS IN BOERHAAVEWIJK



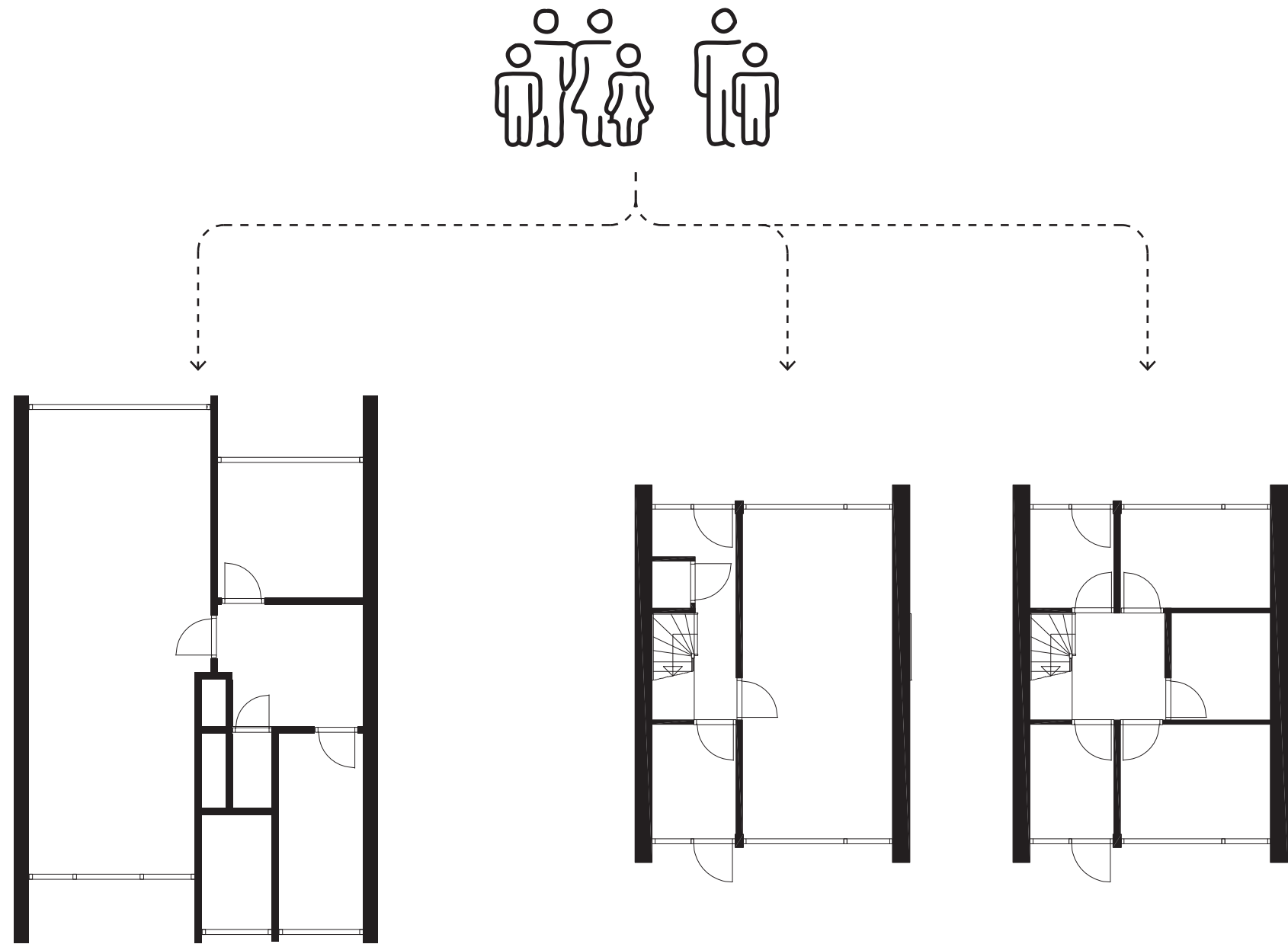
apartments
70 square meters



row housing
94 square meters

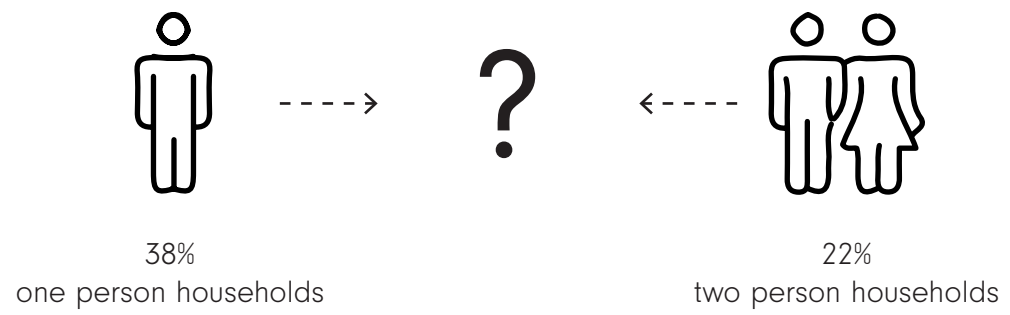


HOUSING COMPOSITION OF THE STAMP



apartments
70 square meters

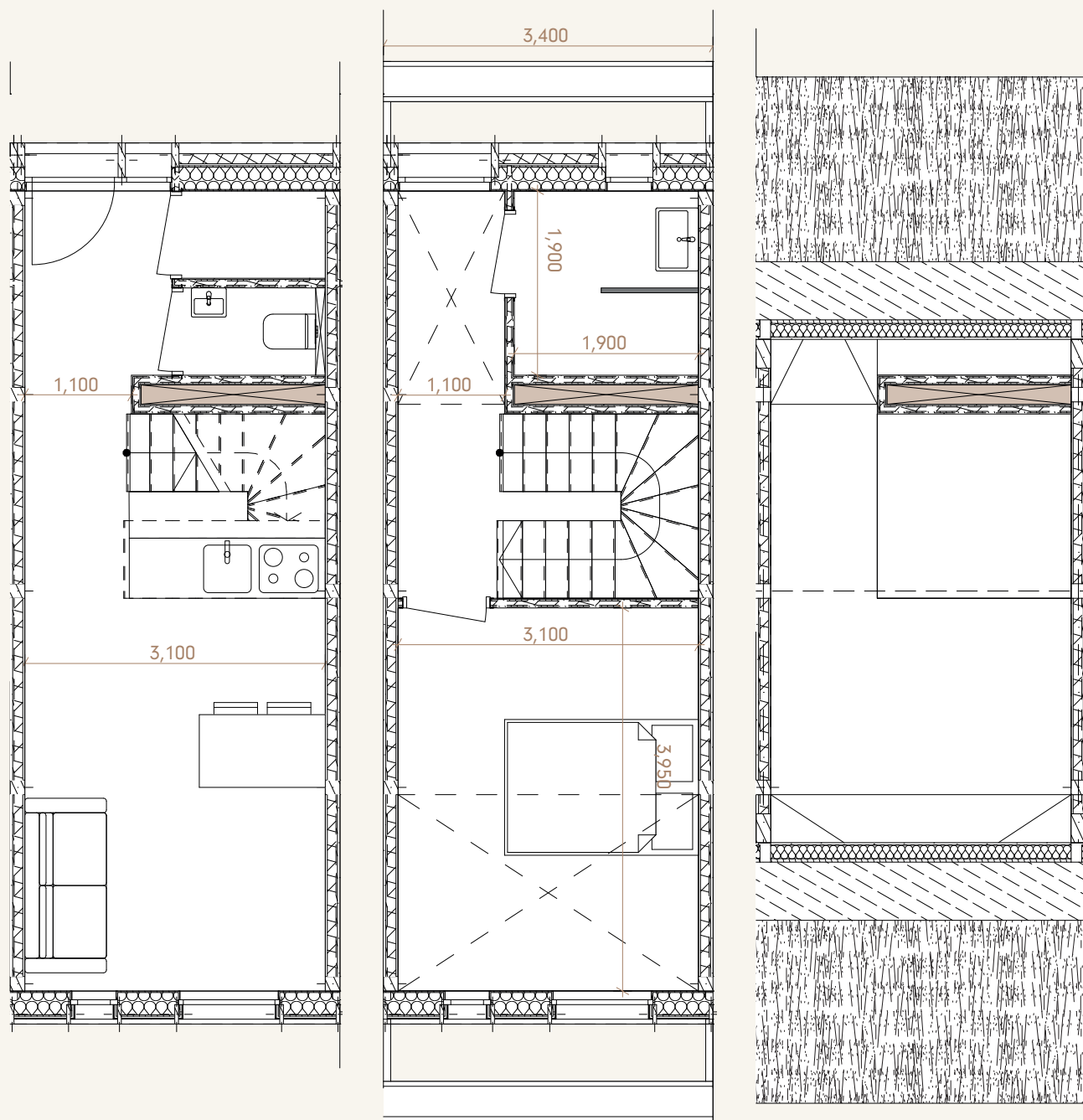
row housing
94 square meters



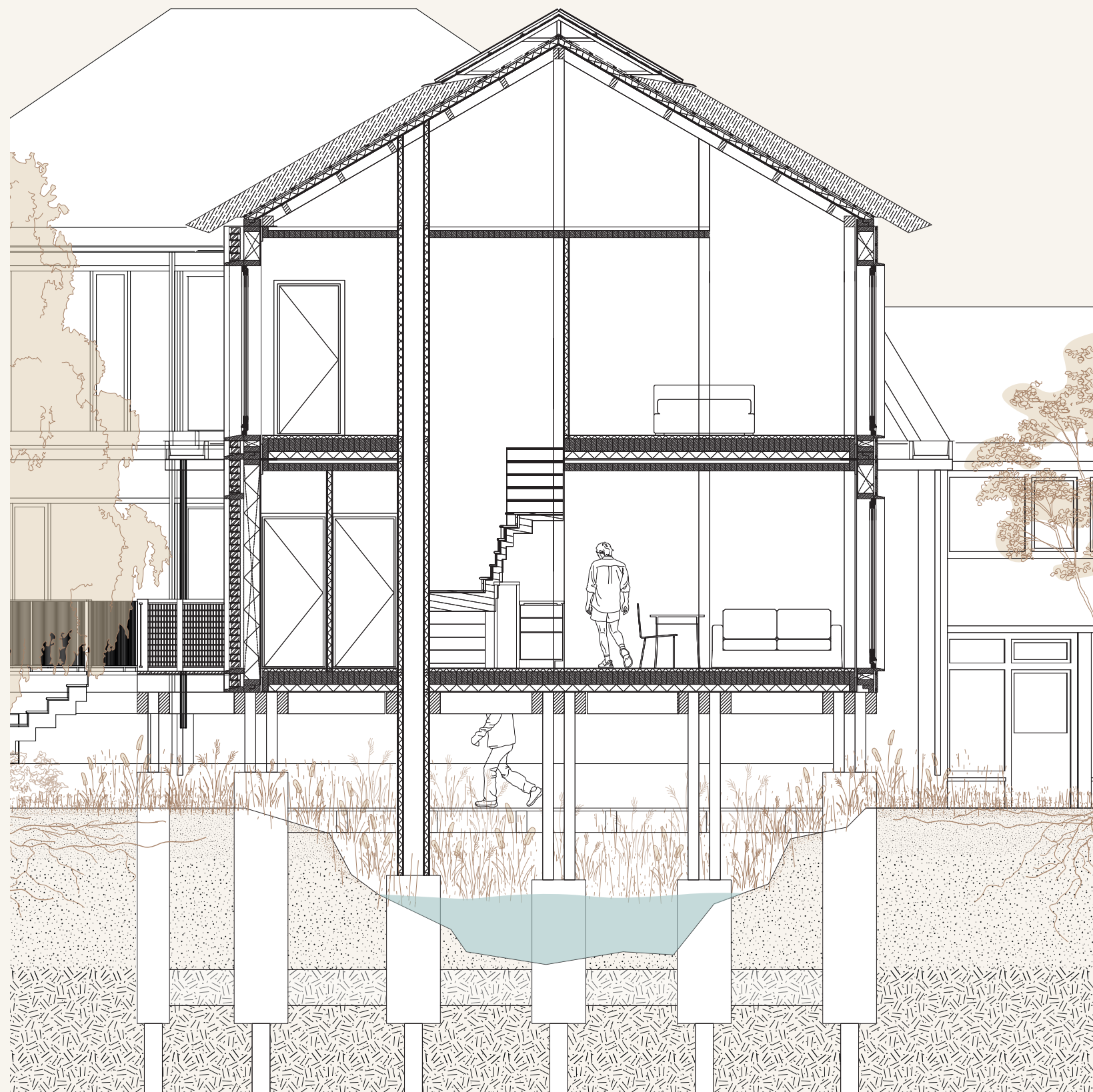
HOUSING COMPOSITION OF THE STAMP



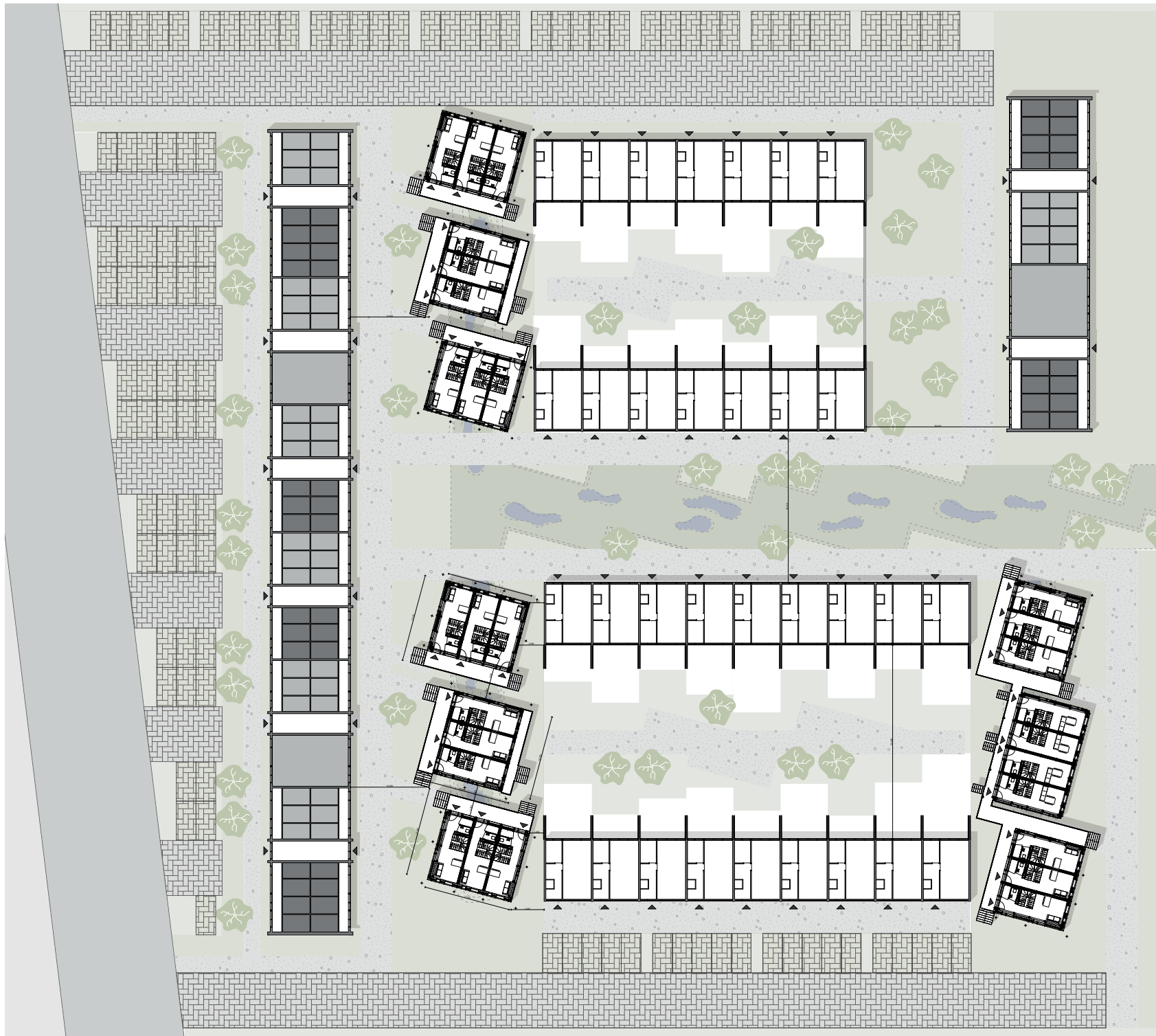
TPOLOGY

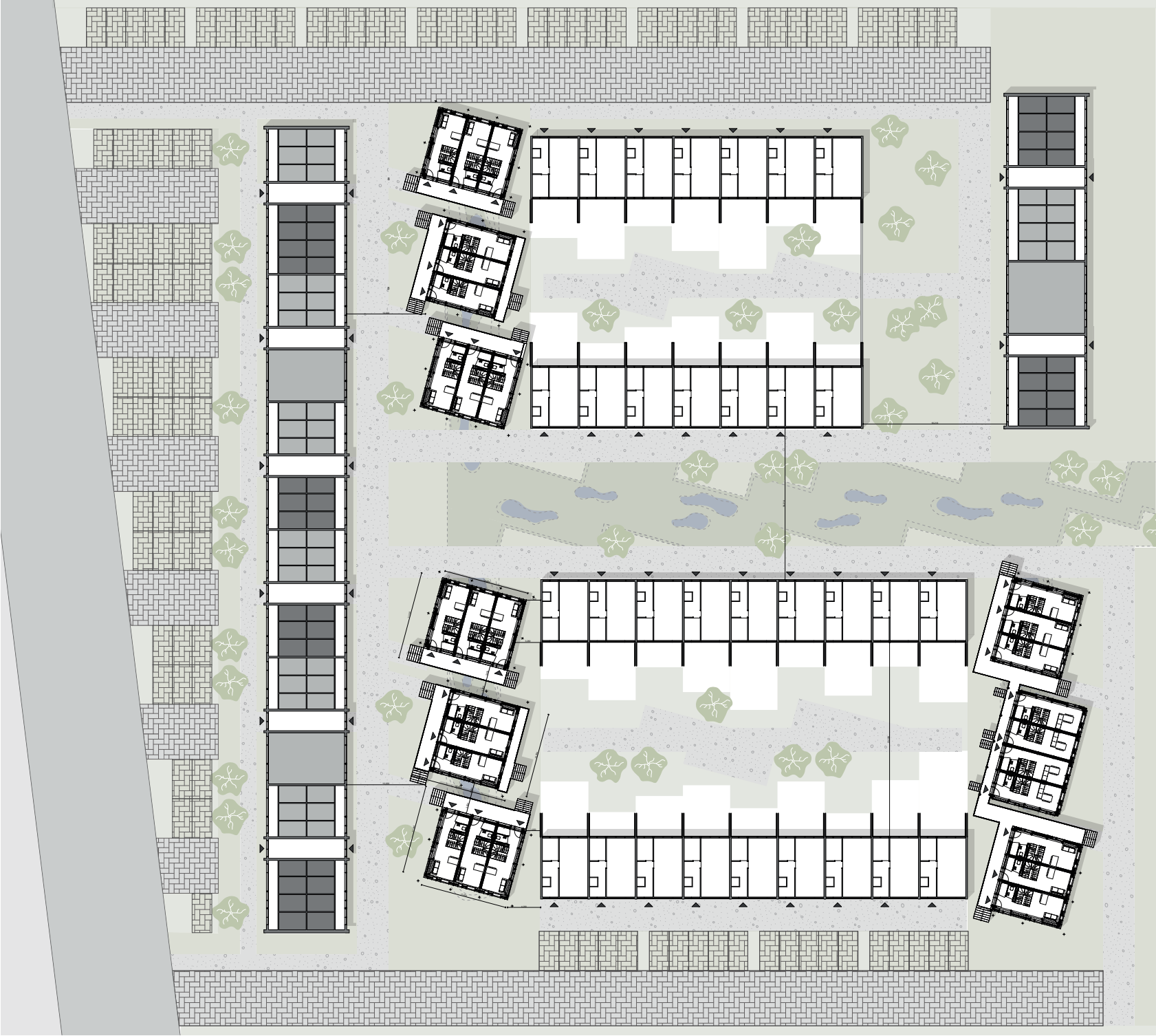


walk up apartments
50 square meters



HOUSING FOR ONE TO TWO PERSON HOUSEHOLDS





towards urban environment



towards natural environment



1600

1900





people are falling away from the city's former social structures



55% of inhabitants feels lonely



individualisation

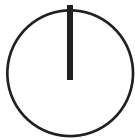
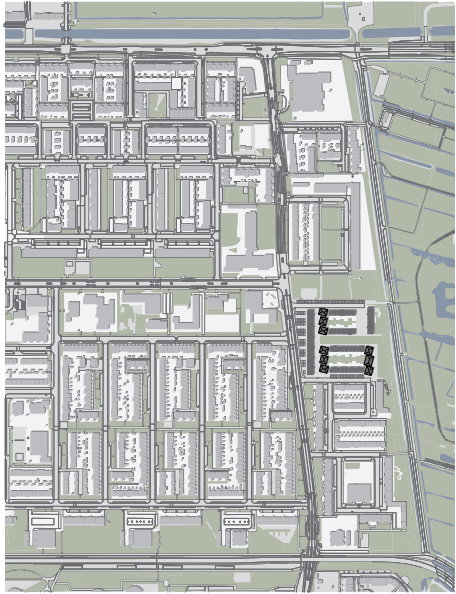


public space as a meeting place



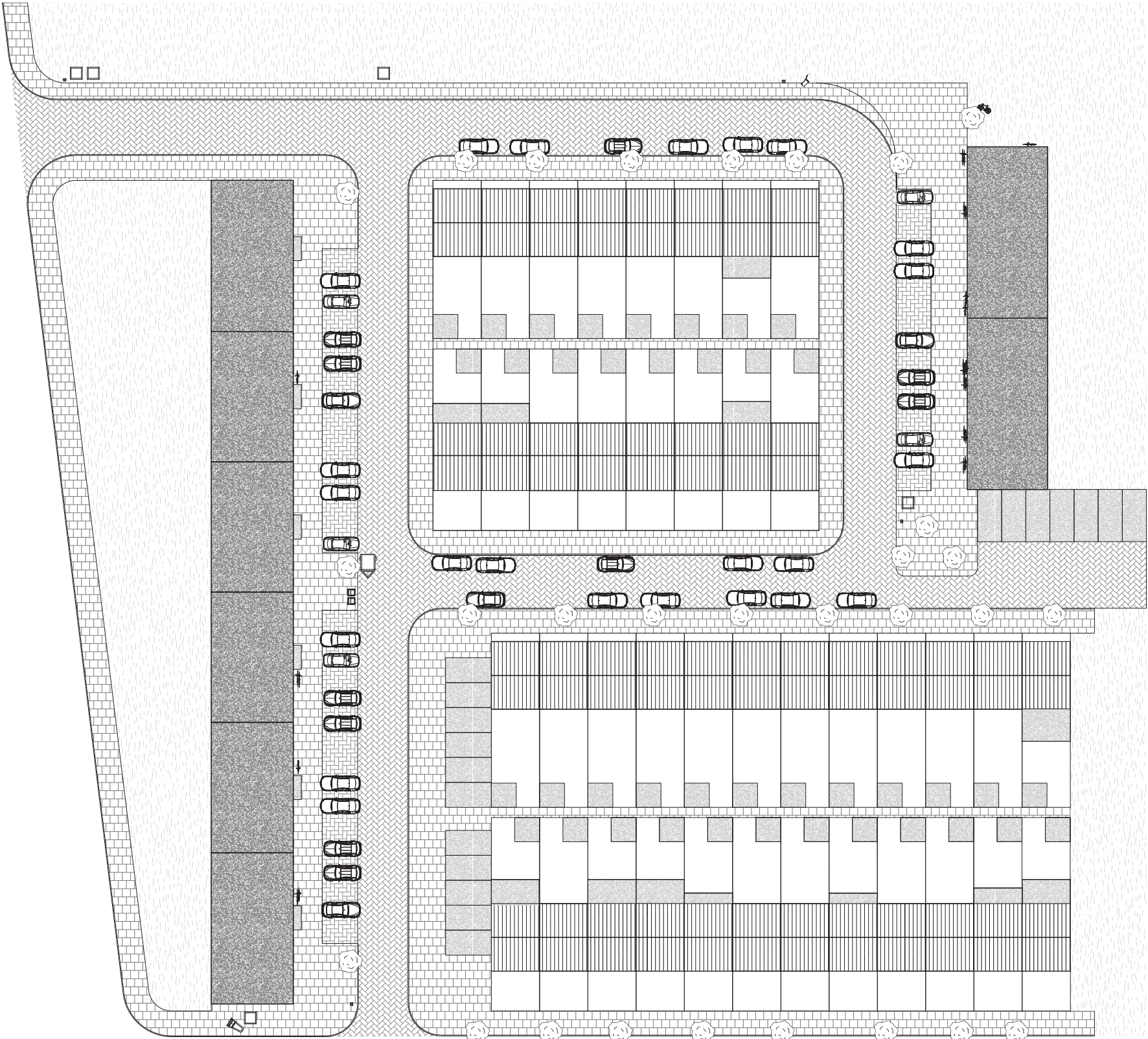
inhabitants have direct connections to the public space

STRENGTHENING SOCIAL FABRIC THROUGH PUBLIC SPACE

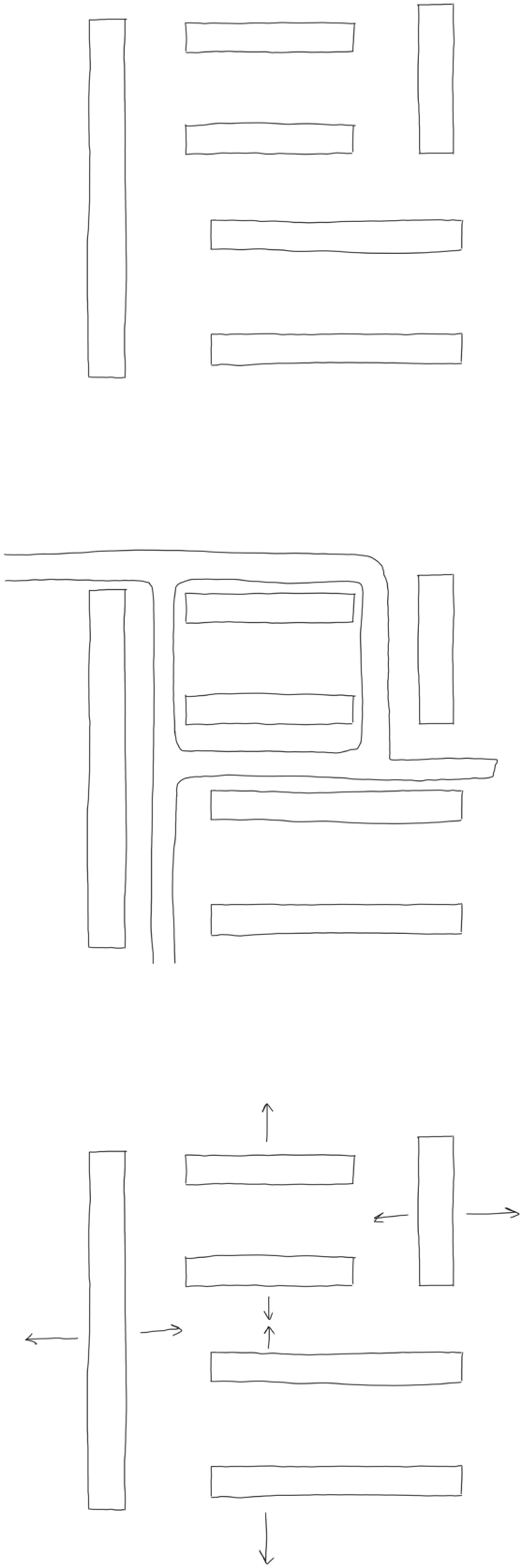


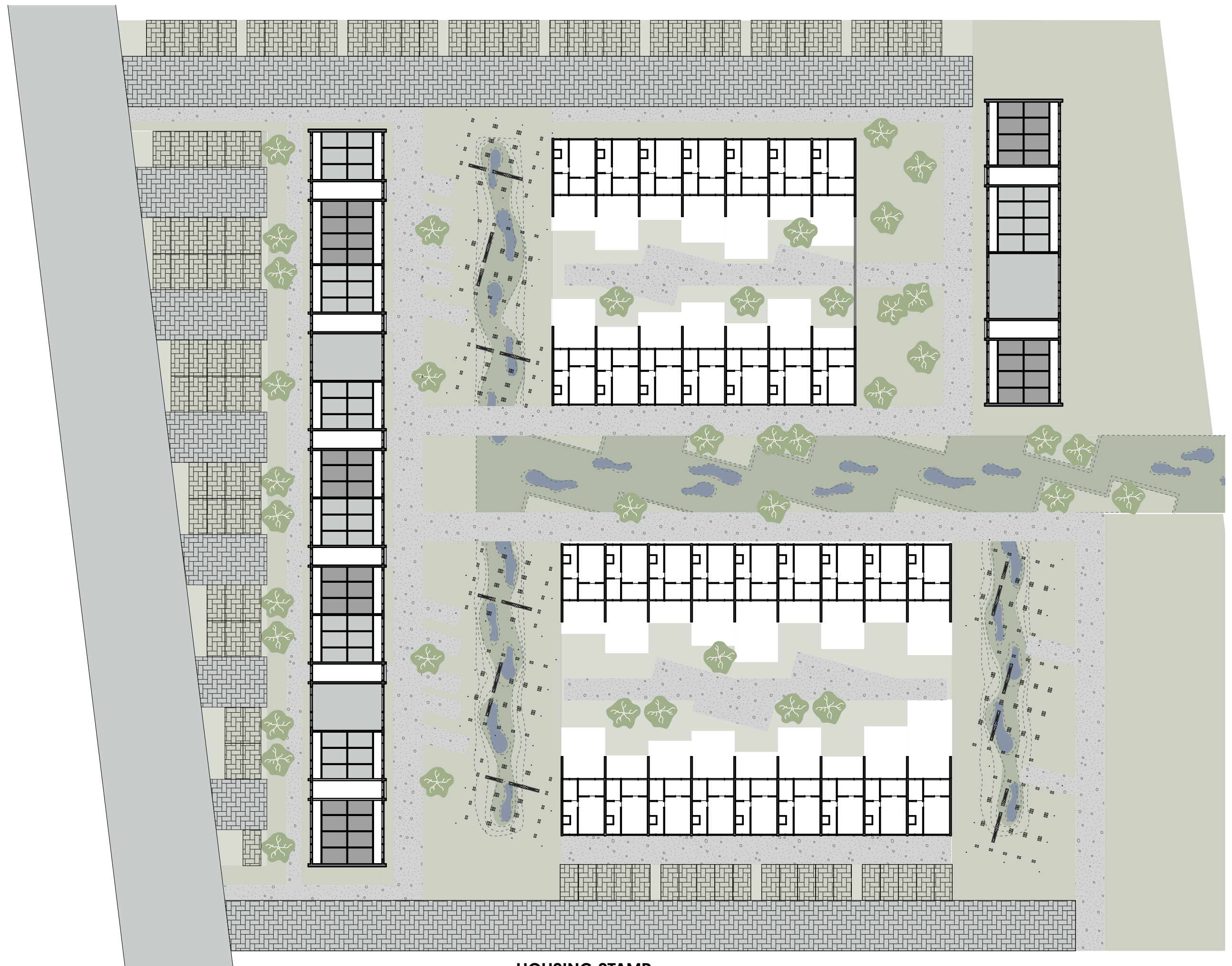
Legenda

- grass
- sidewalk
- road
- parking spaces
- gable roof
- flat roof apartments
- flat roof single storey

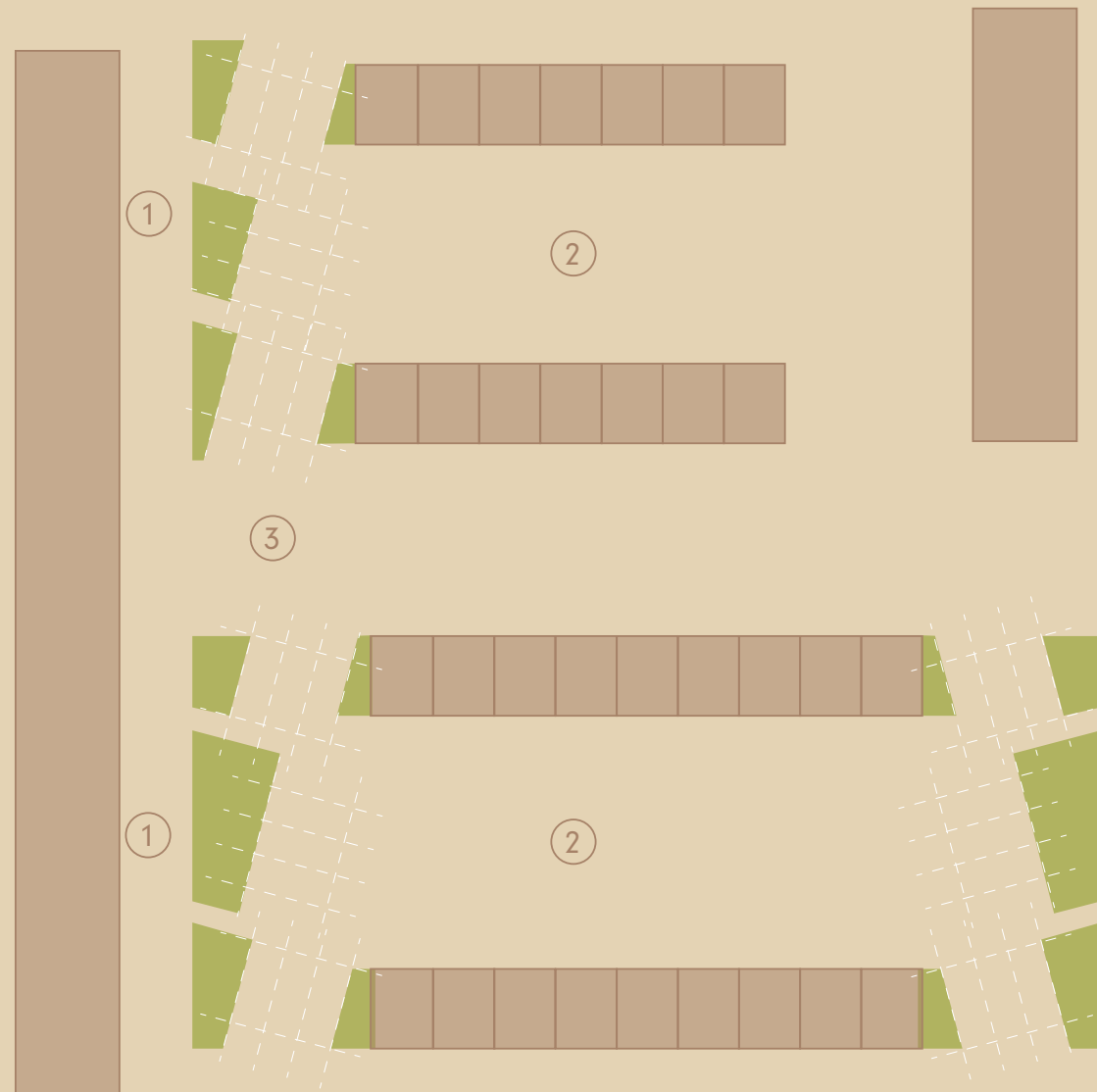


HOUSING STAMP



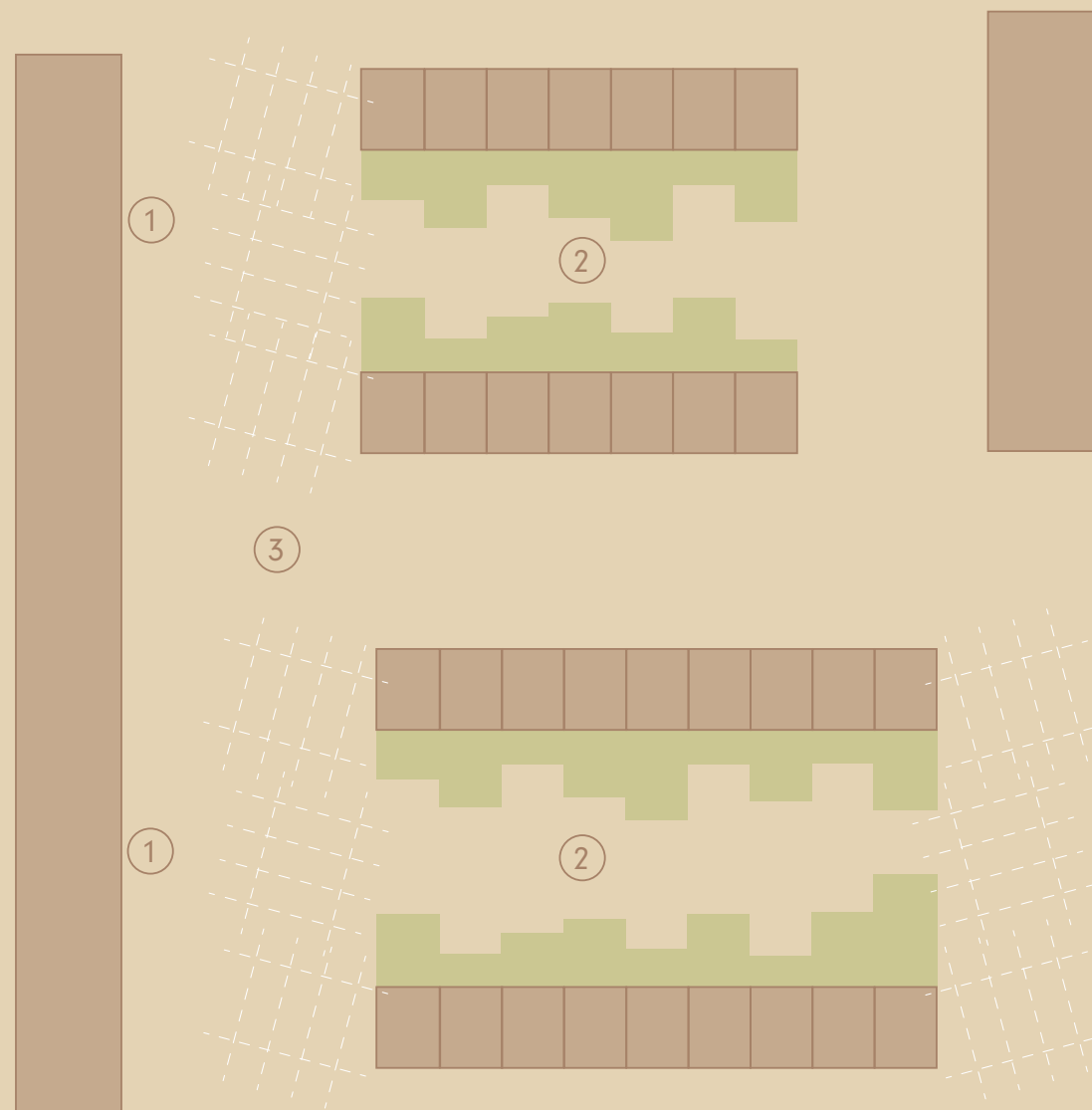


HOUSING STAMP



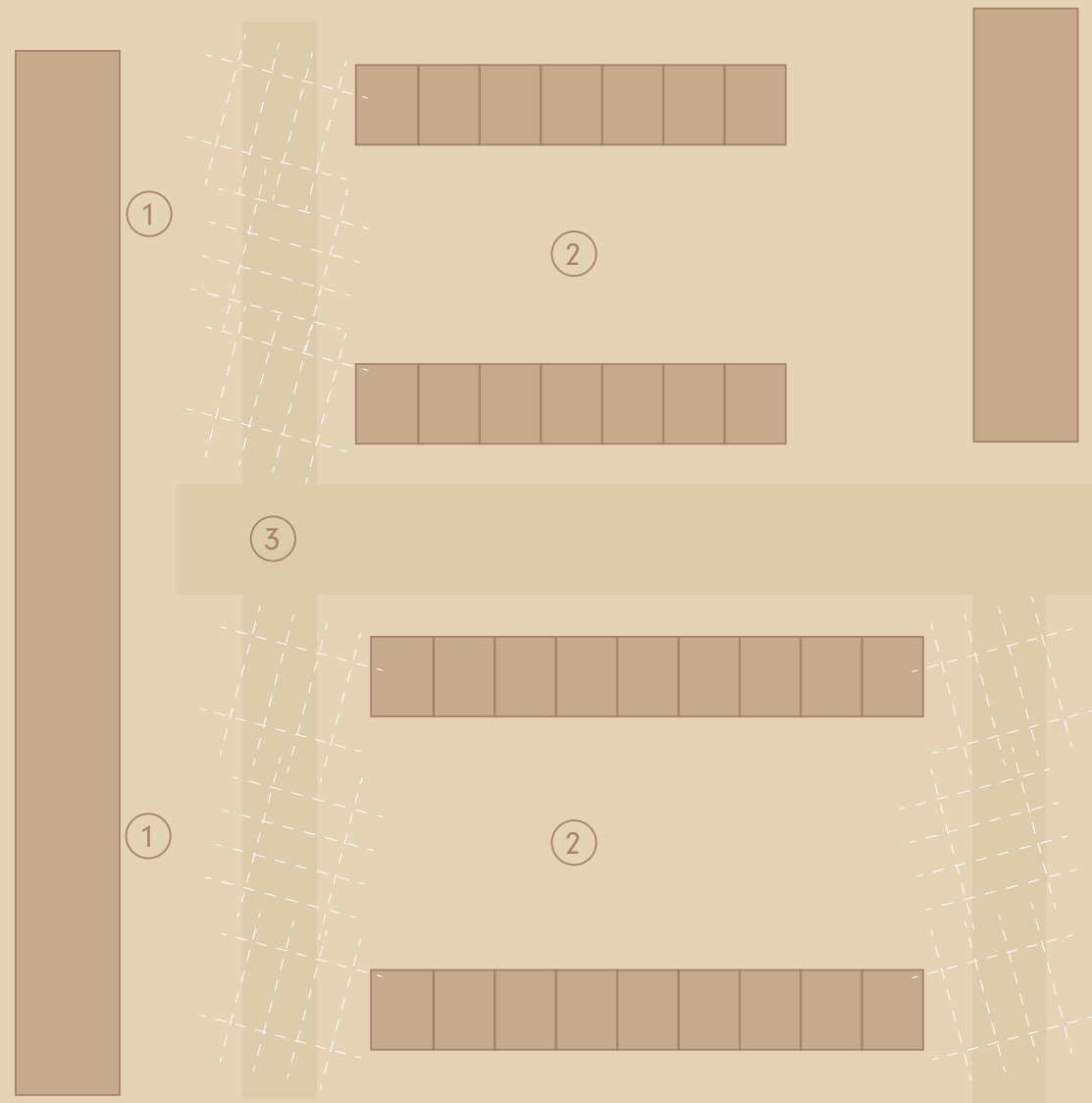
LANDSCAPE DIRECTION CREATES SPACES IN PUBLIC SPACE





WITHIN THE BUILDING BLOCKS THERE IS A COMBINATION OF
PRIVATE AND COMMUNAL OUTDOOR SPACE



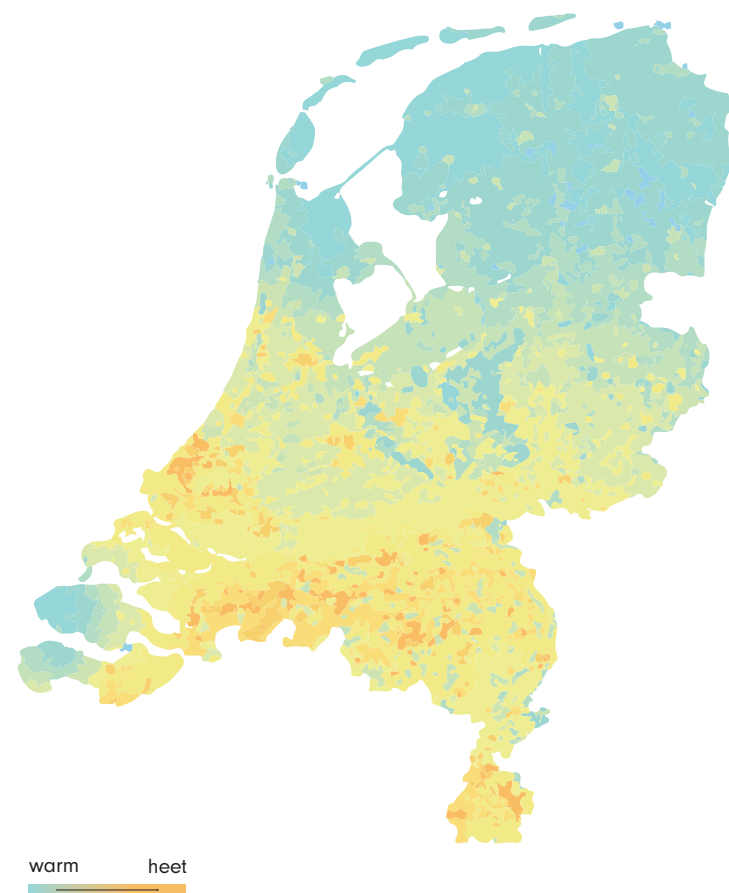


EXCAVATION INTO THE PEAT LANDSCAPE BRINGS BACK NATIVE NATURE AND PROVIDES A WATER BUFFER IN THE DISTRICT

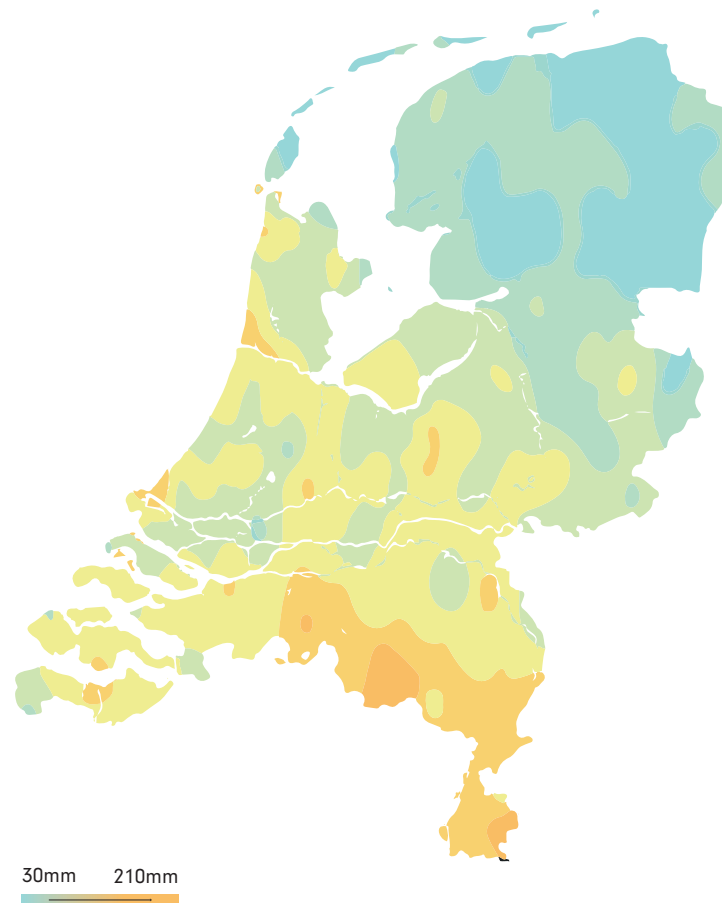




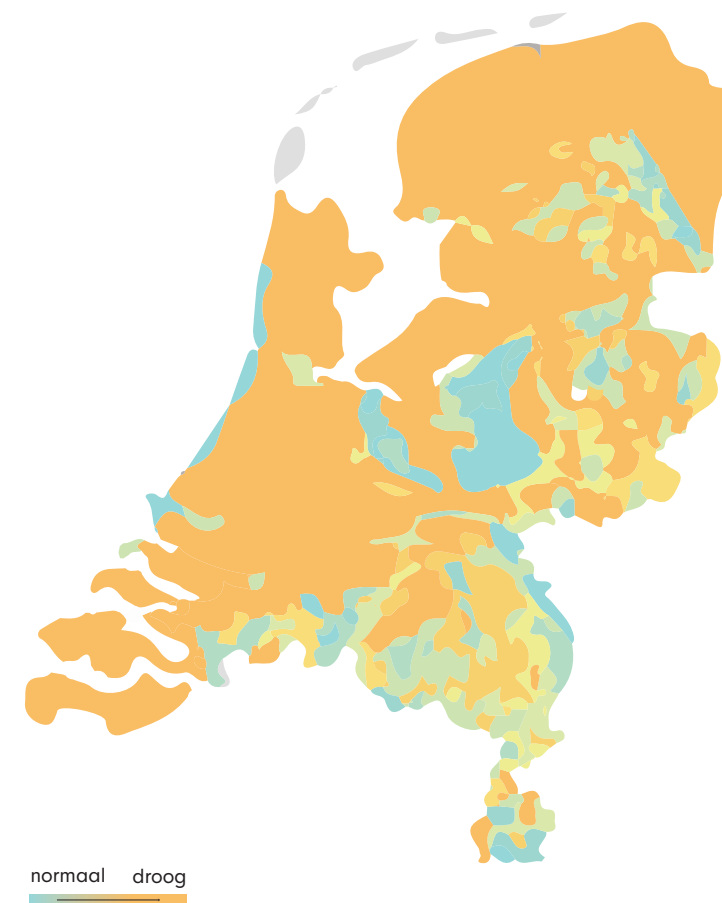
CLIMATE



urban heat effect



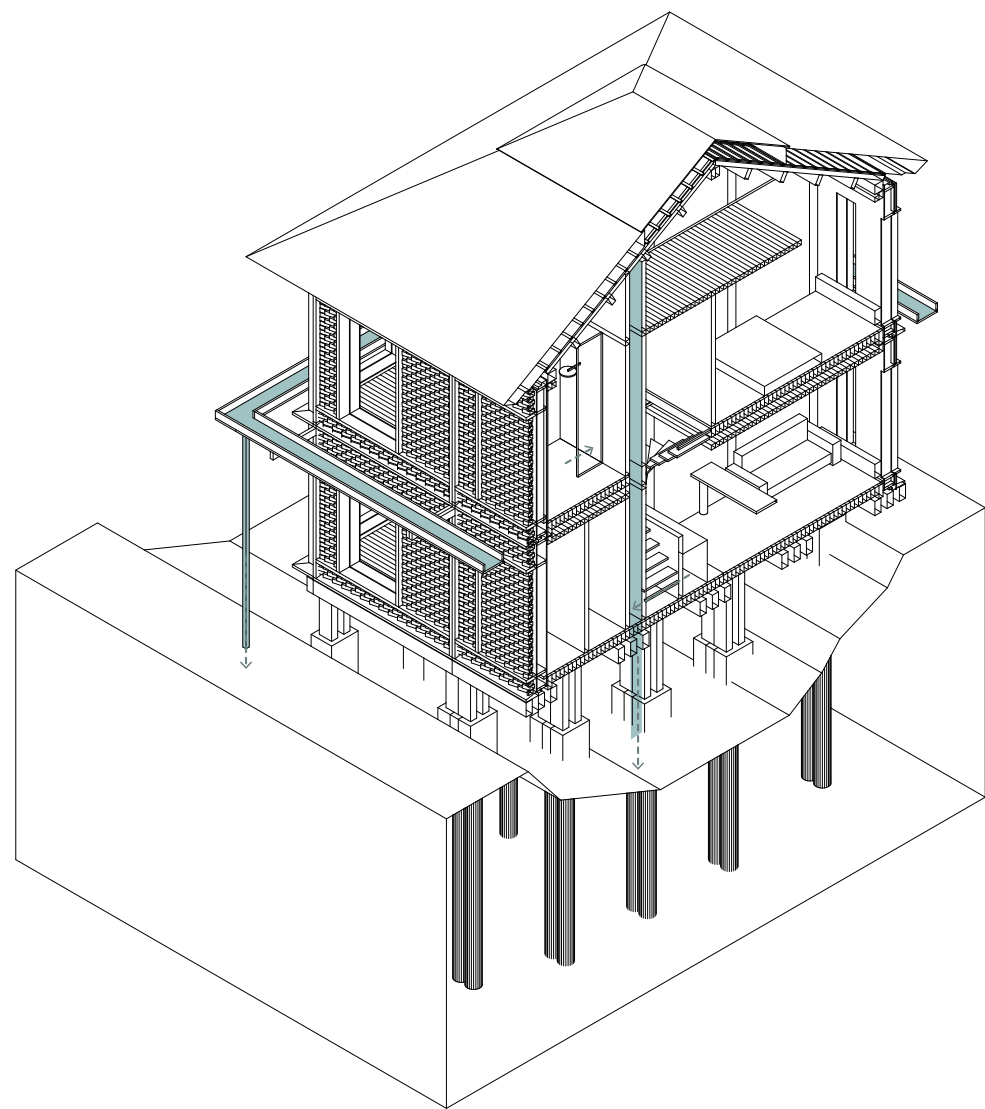
extremely wet weather



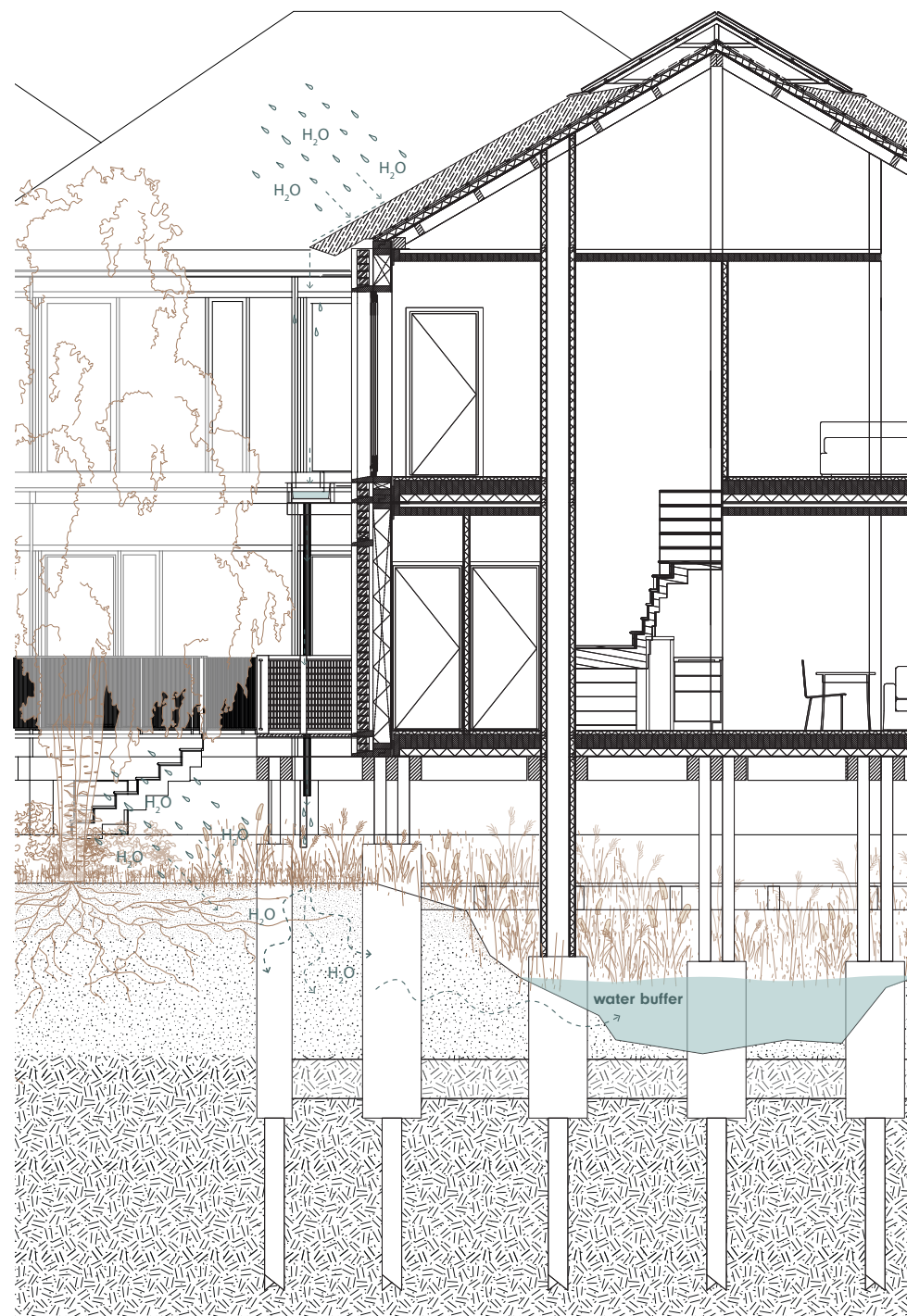
extreme drought

CLIMATE ADAPTATION

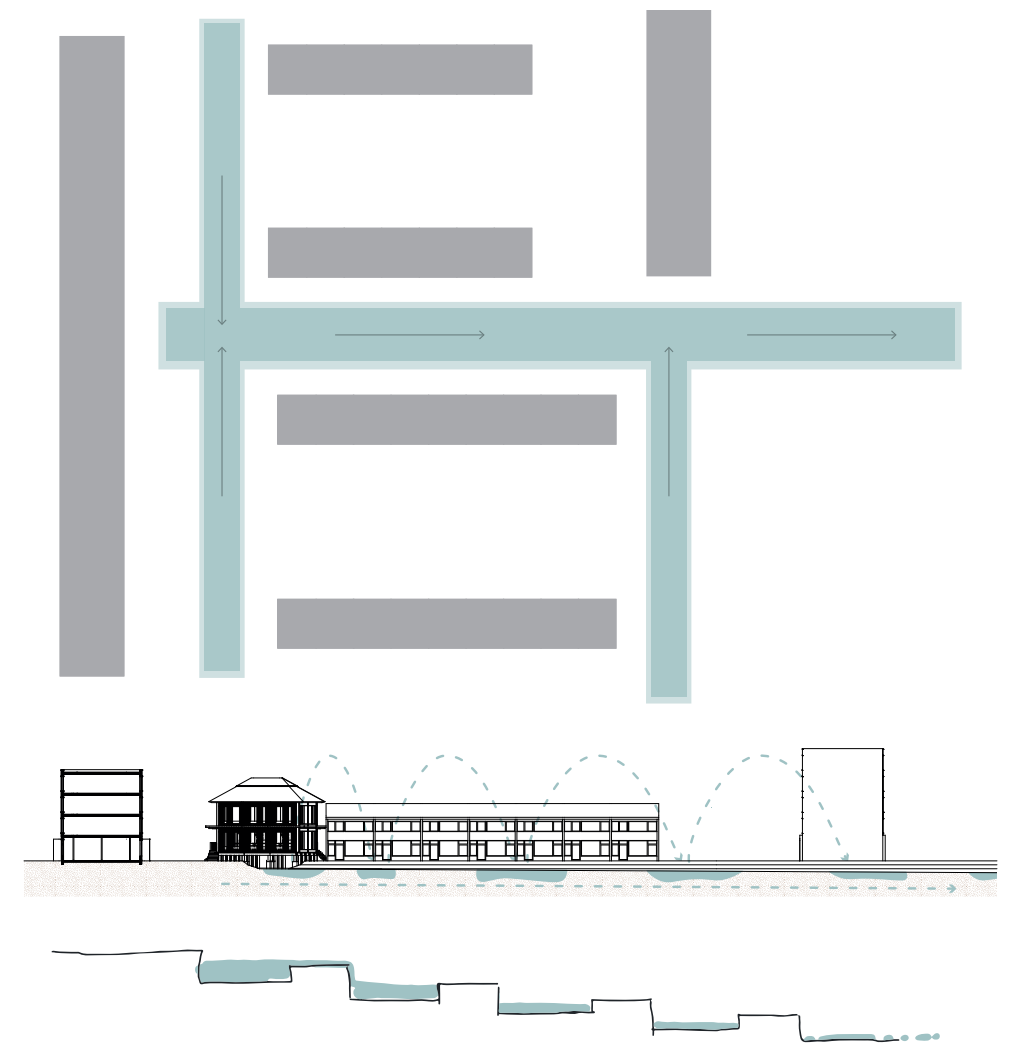




building

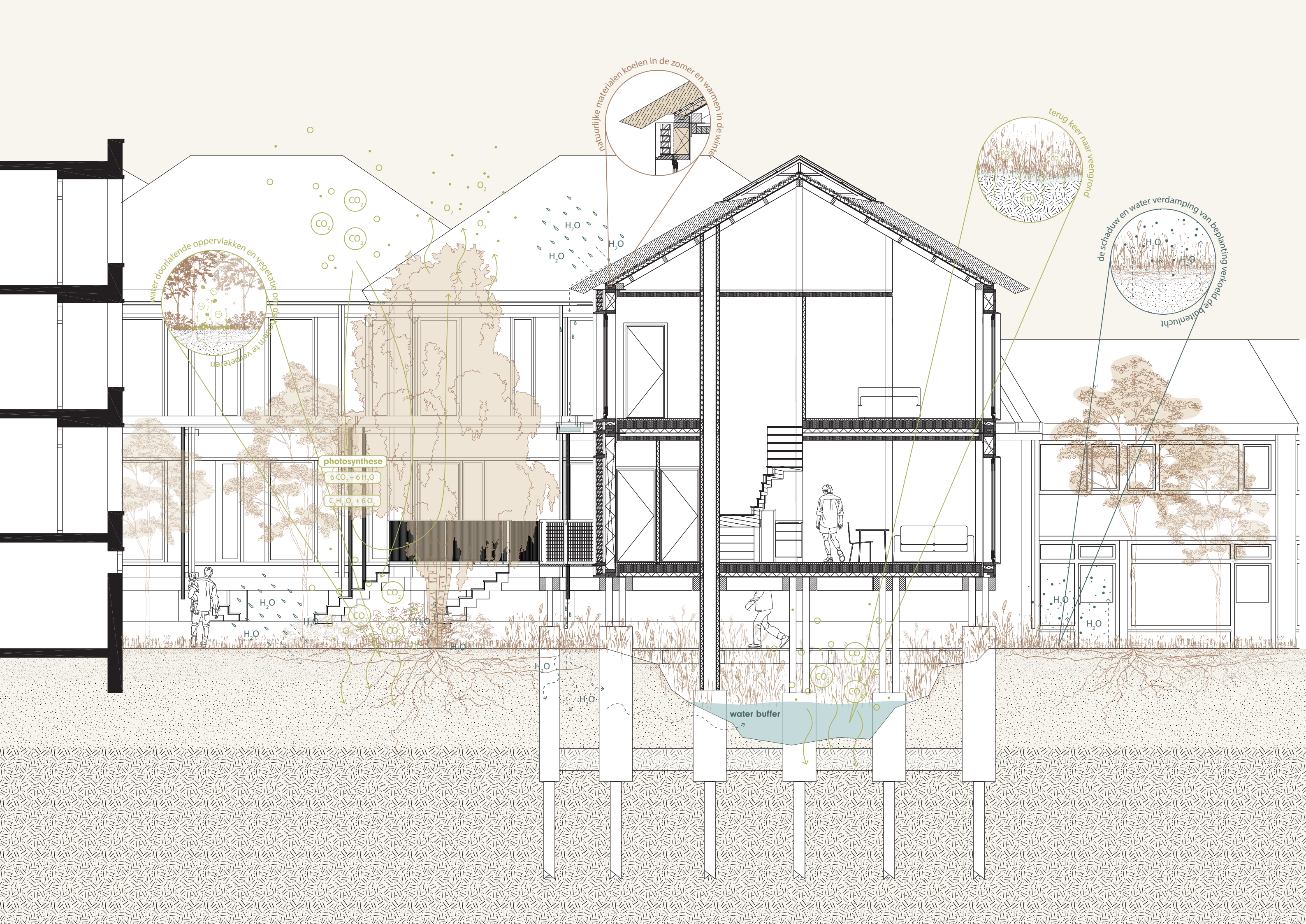


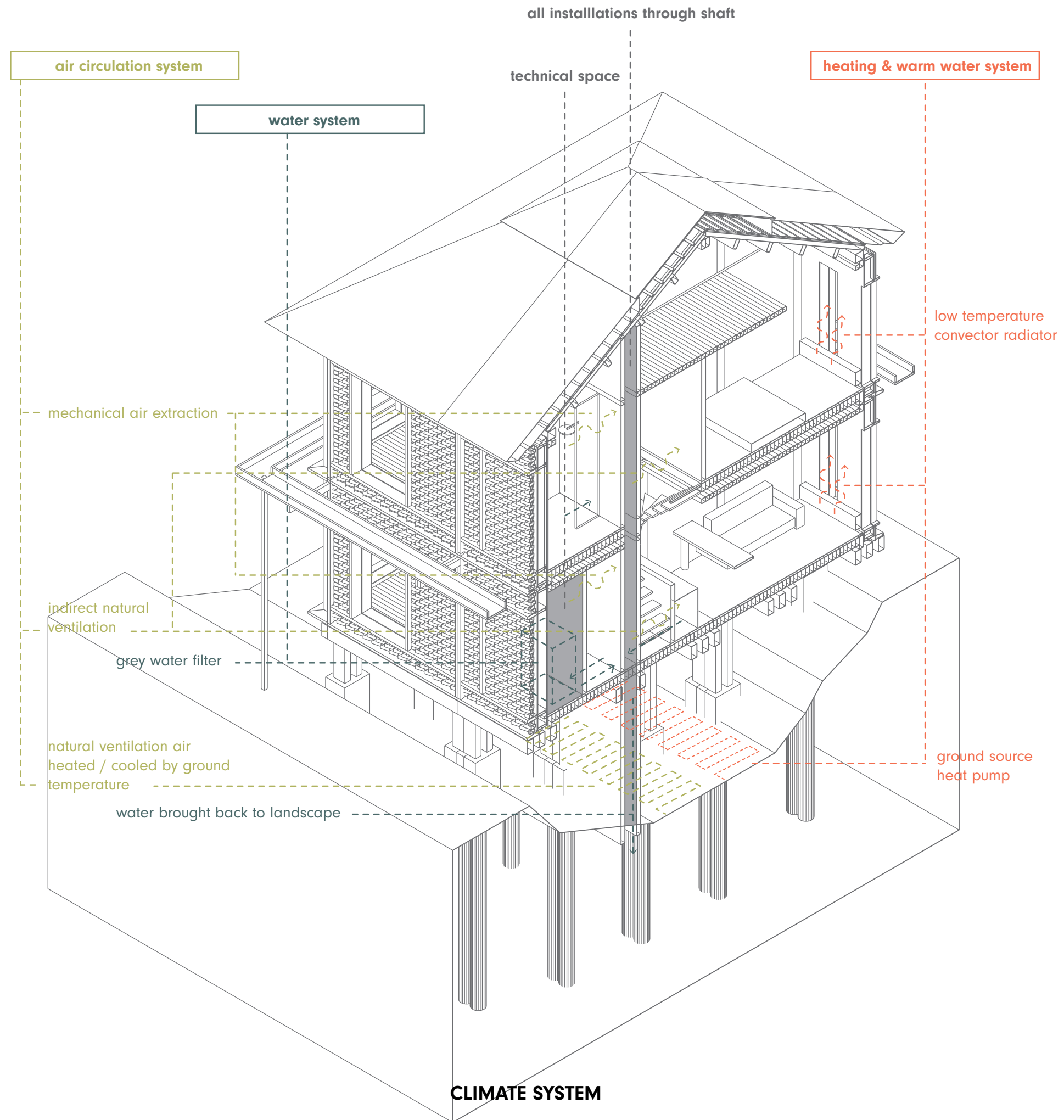
stamp



neighbourhood

WATER SYSTEMS







CONCLUSION...

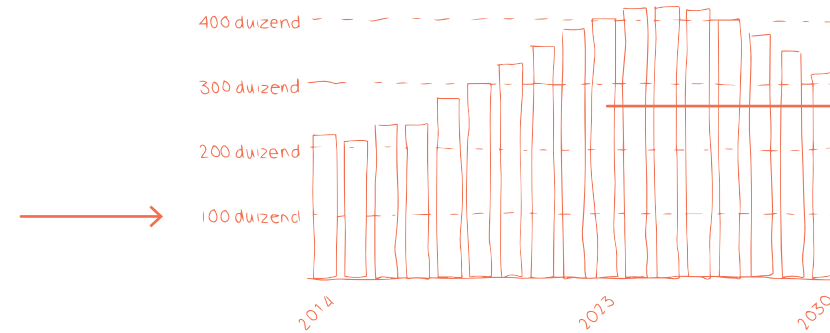
... the future of the post-war neighbourhoods

FOR SALE

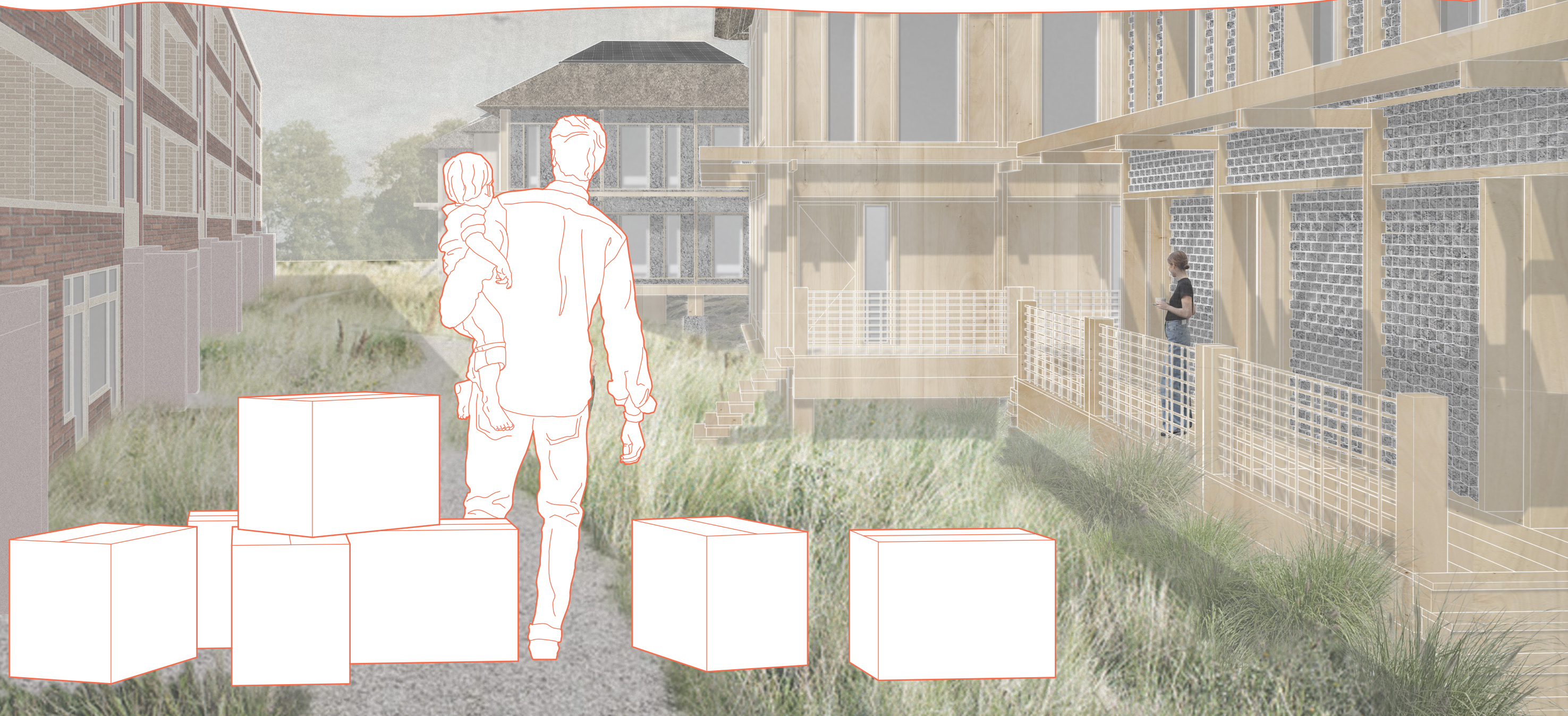


1.8 MILLION HOUSES
+20%

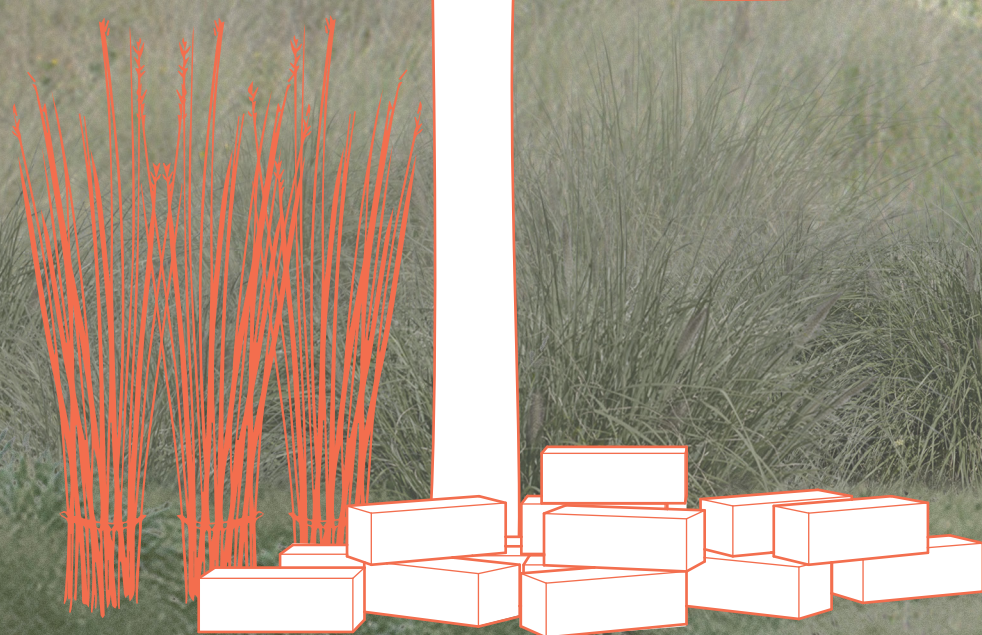
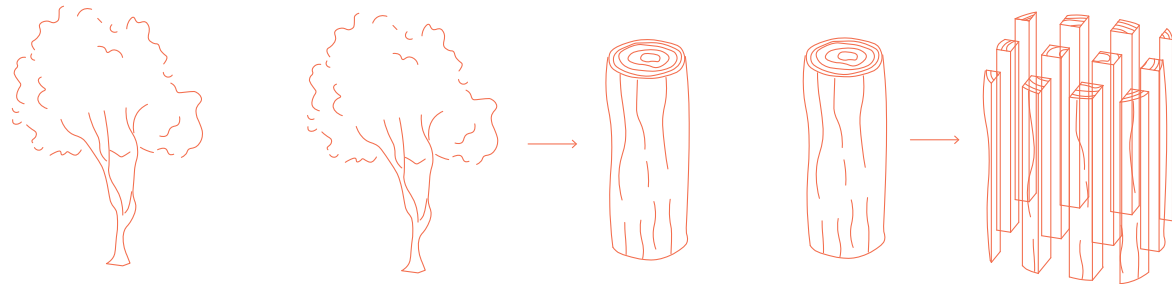
EXISTING POST- WAR
NEIGHBOURHOODS
DENSIFIED WITH
360,000 HOMES



92%
OF THE HOUSING
SHORTAGE SOLVED

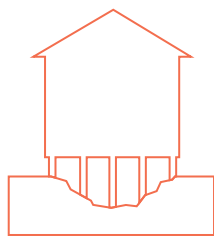


LOCALLY GROWN HOUSING

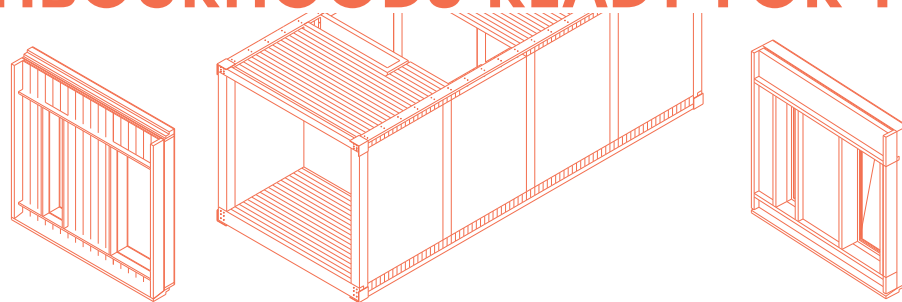




POST-WAR NEIGHBOURHOODS READY FOR THE NEXT 60 YEAR



CHANGE IN CLIMATE



CHANGE IN HOUSING



CHANGING EXISTING HOUSING



A TERRITORIAL APPROACH TO INDUSTRIAL HOUSING

P5 Architectural Engineering
Valery van Heijst