

[Deliberately empty slide to build some excitement..]

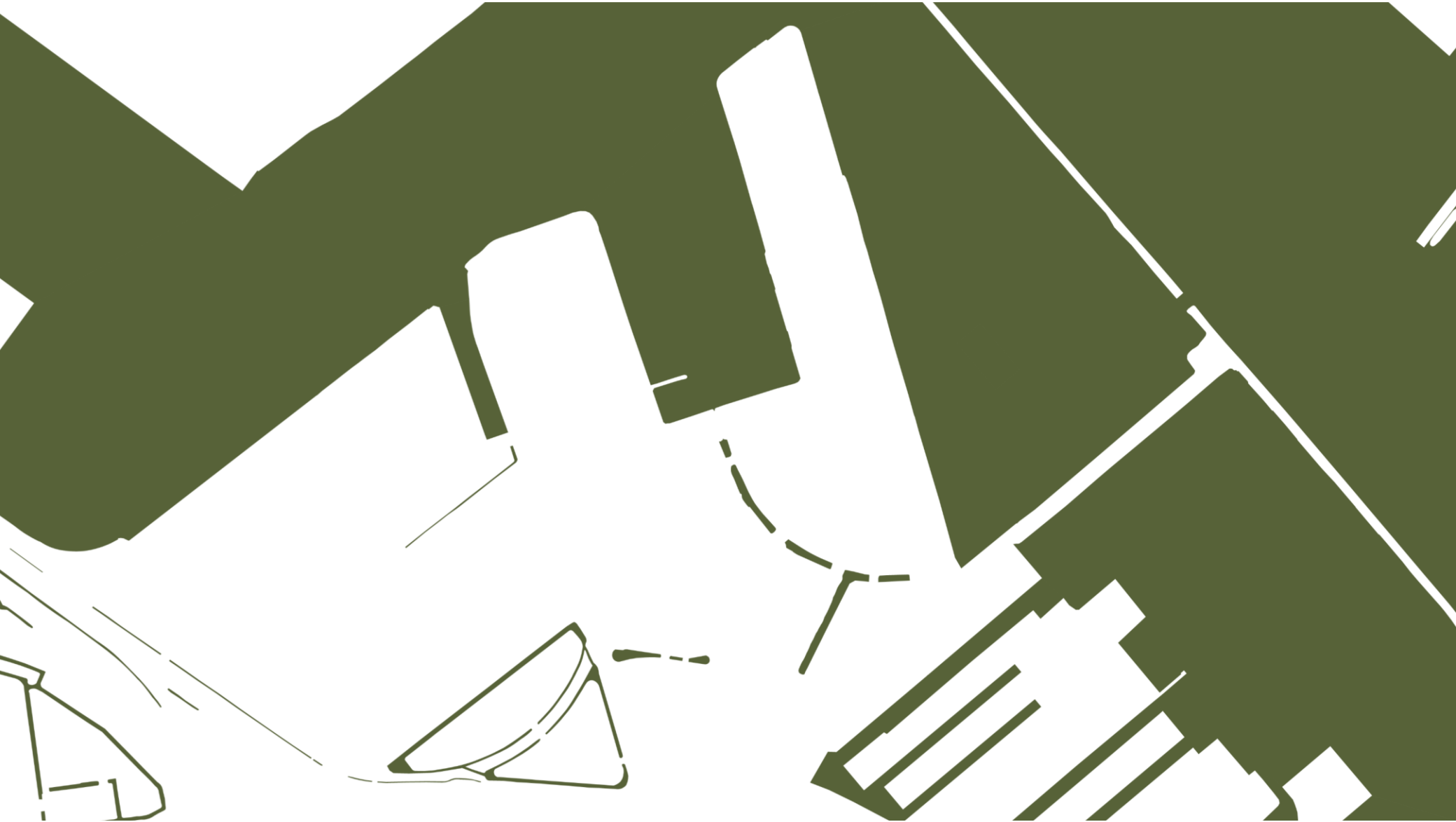






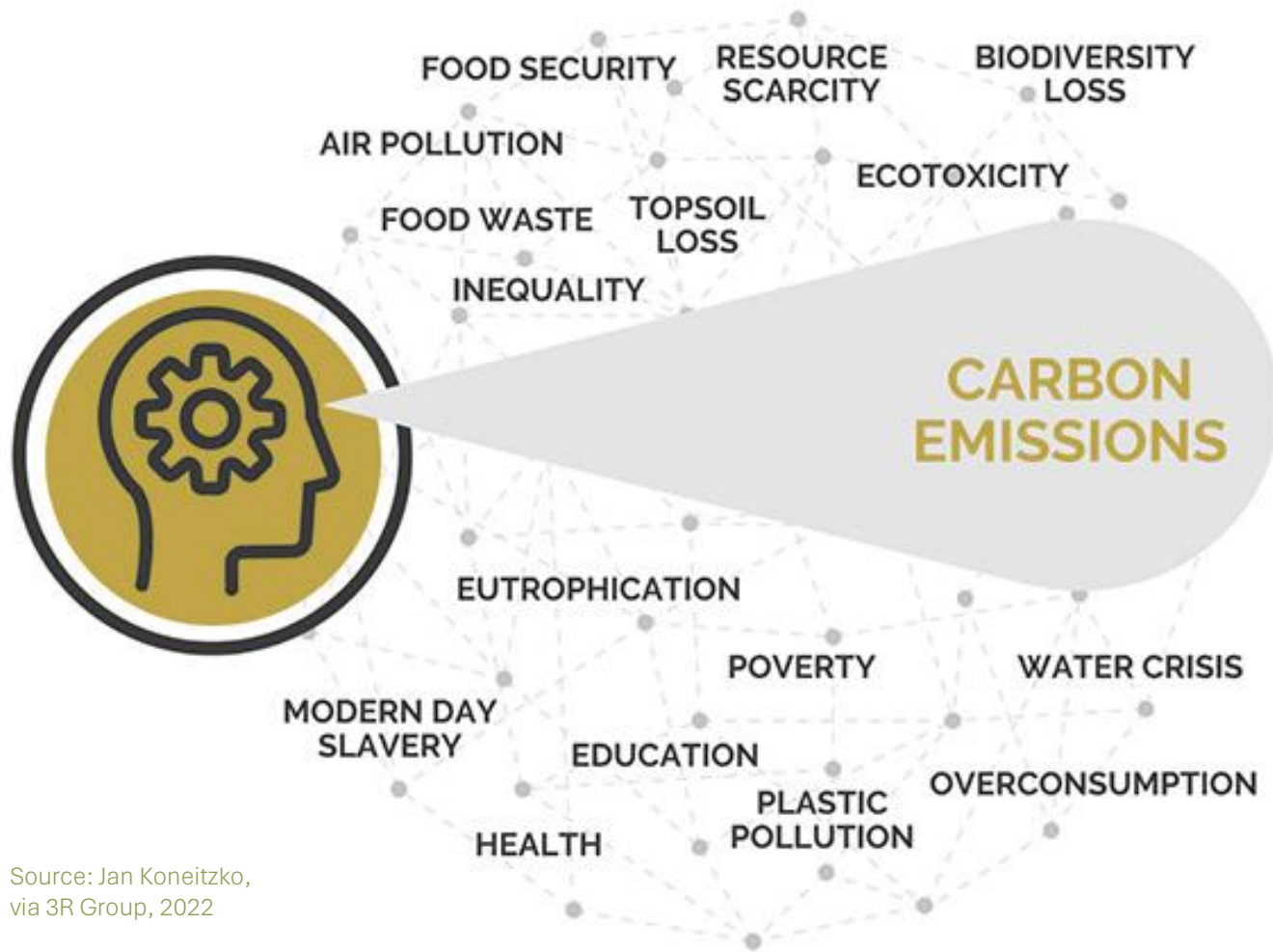






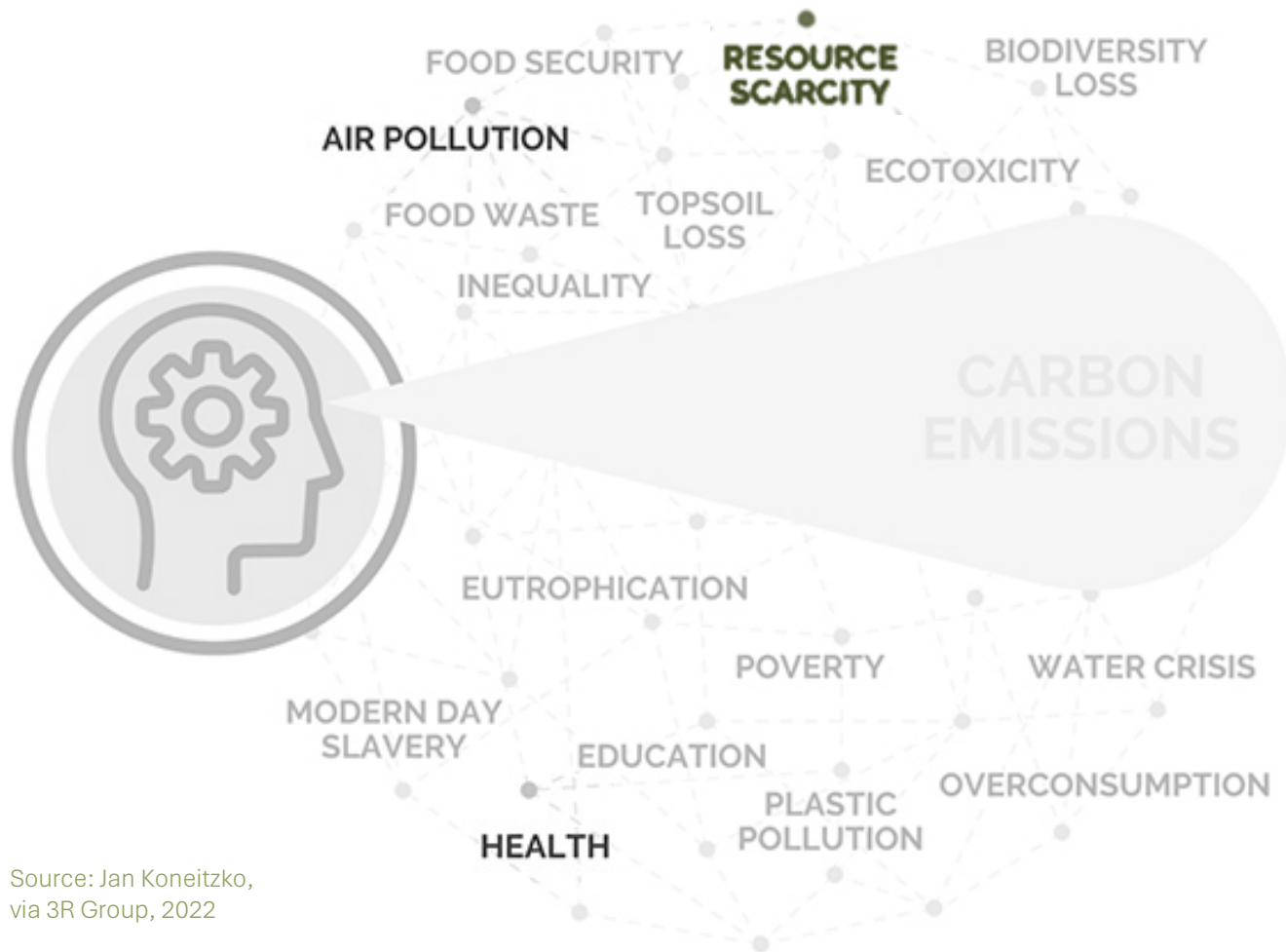
“FEELING GOOD IN ONE'S OWN SKIN”





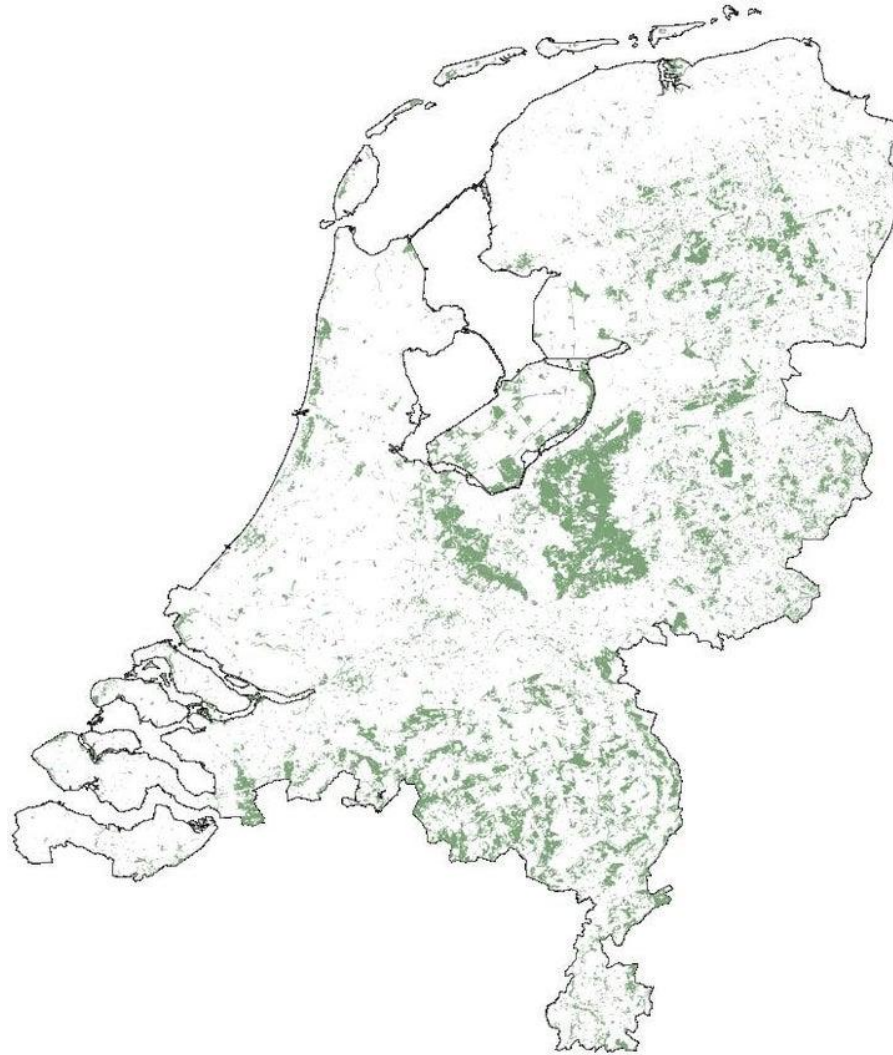
Source: Jan Koneitzko,
via 3R Group, 2022





Source: Jan Koneitzko,
via 3R Group, 2022

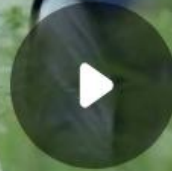




Source: CBS, 2015
via Flux landscape architecture



blijf op
de
hoogte



VPRO Tegenlicht

bouwen met de boer

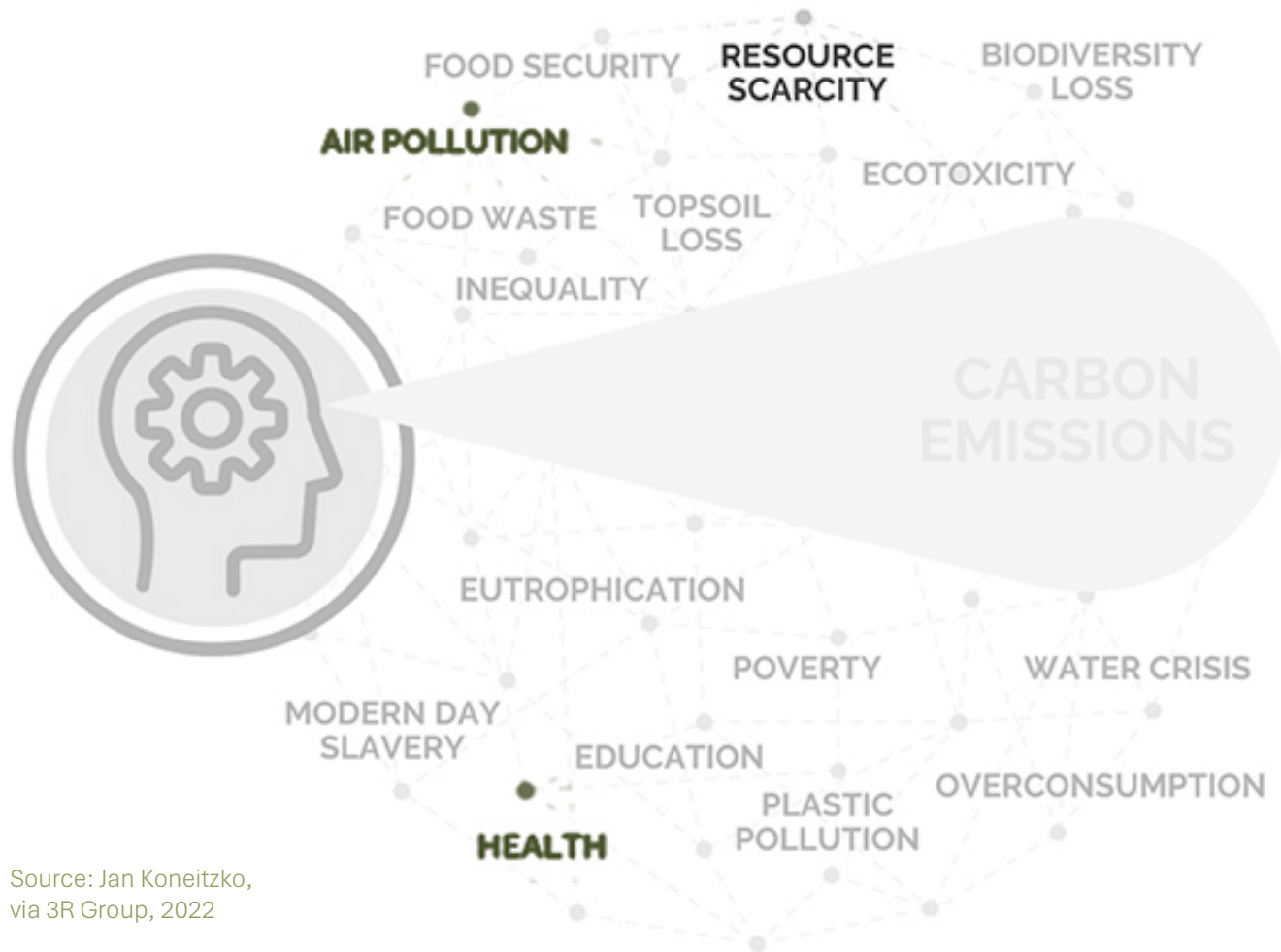
6 OKTOBER 2024

→ programma's → tegenlicht → afleveringen → 2024-2025



1/3 of local cattle farmers intends to keep their cattle business.
1/3 of local cattle farmers is looking for alternative business models.
**1/3 of local cattle farmers strives to interchange their cattle for crops
that can be used for biobased construction.**





Source: Jan Koneitzko,
via 3R Group, 2022





Source: United Nations, 2015





Source: United Nations, 2015

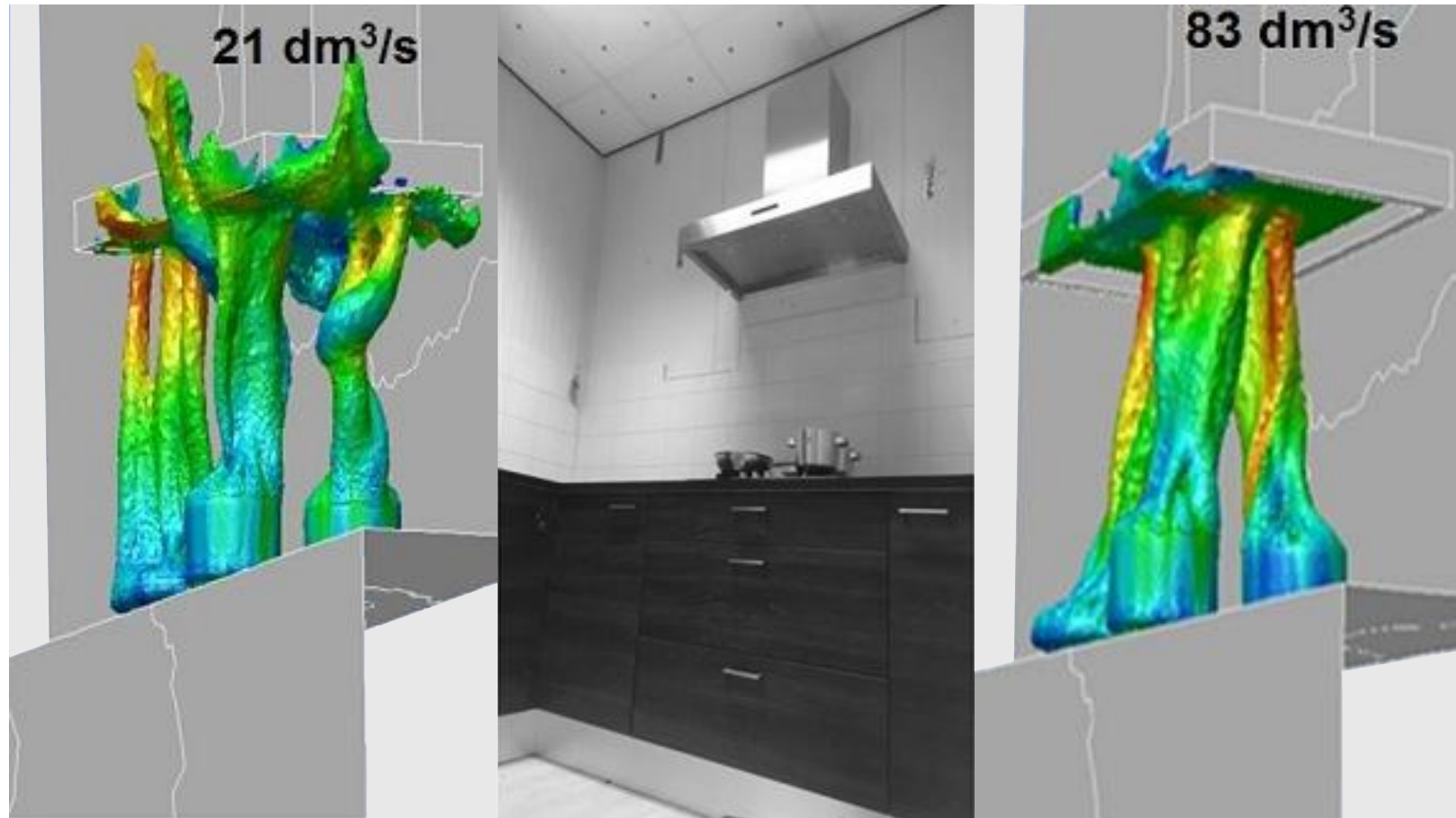


“Feeling good in one's own skin”



Now before I continue...





Source: TNO, 2019





How can biobased and vapour-open construction principles increase health and well-being in residential architecture?

SQ's

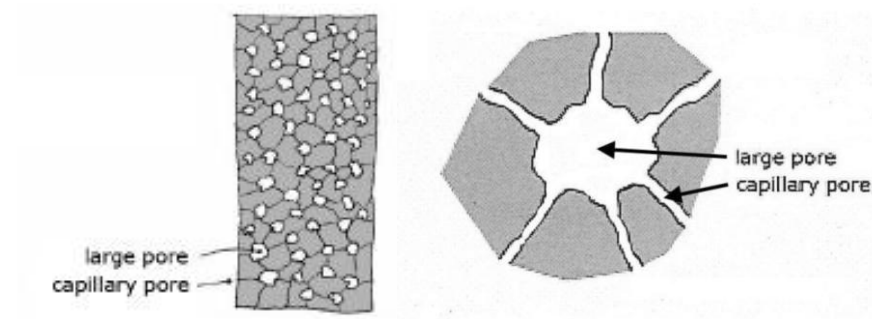
- I. What is the difference between vapour and moisture and what means are required to manage them in a healthy residential environment?
- II. What physical events occur when vapour travels through a solid façade component?
- III. How are vapour-open construction principles applied in existing residential architecture?
- IV. What materials could be applied in vapour-open construction and how do the alternatives perform?
- V. What are the benefits of vapour-open principles to the indoor climate and the overall health and well-being of the resident?



Density,

Porosity,

Permeability



Source: Torraca, 2009, p.82, fig. 3.19

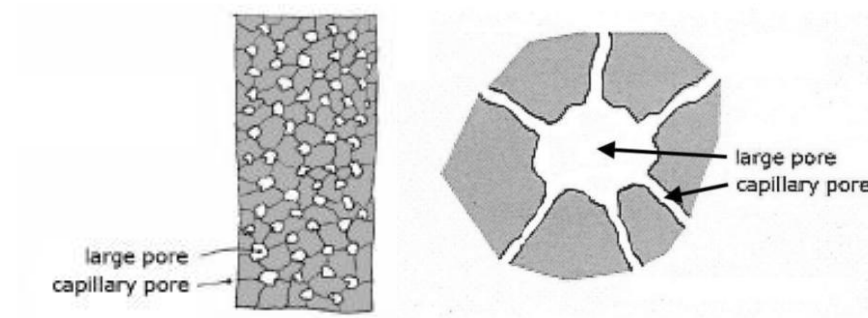


Density,

Density describes the quantities and the size of the solids.

Porosity,

Permeability



Source: Torraca, 2009, p.82, fig. 3.19



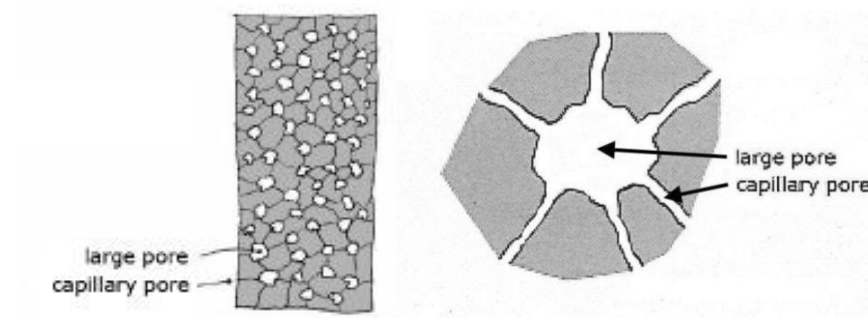
Density,

Density describes the quantities and the size of the solids.

Porosity,

Porosity describes quantities and size of the pores

Permeability



Source: Torraca, 2009, p.82, fig. 3.19



Density,

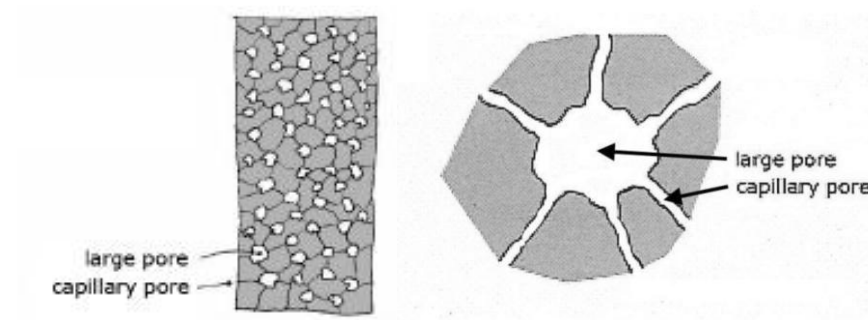
Density describes the quantities and the size of the solids.

Porosity,

Porosity describes quantities and size of the pores

Permeability

Permeability describes the relation between mass and pore



Source: Torraca, 2009, p.82, fig. 3.19



Density,

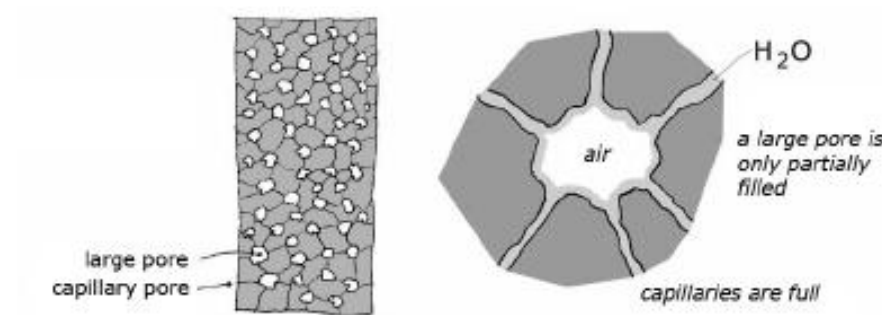
Density describes the quantities and the size of the masses.

Porosity,

Porosity describes quantities and size of the pores

Permeability

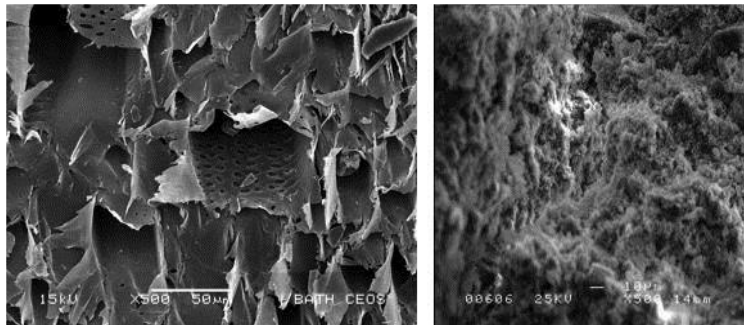
Permeability describes the relation between mass and pore



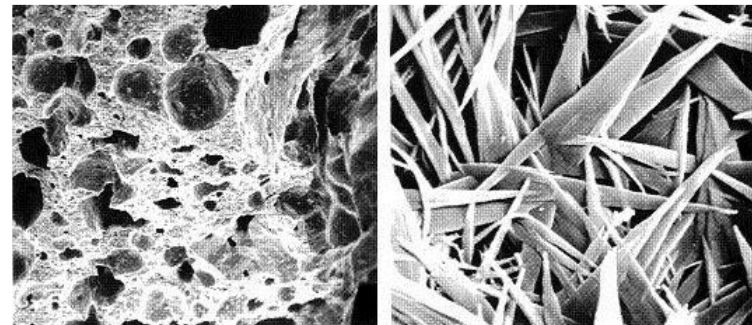
Source: Torraca, 2009, p.82, fig. 3.19



Source: Torraca, 2009, p.82, fig. 3.19



Electron microscope photograph of hemp shiv fibres (left photo) and lime plaster (right photo), both at 250 x magnification. [Image: University of Bath]



Electron microscope photograph of aerated concrete with 22 x magnification (left) and 11,000 x magnification (right). [Image: Fraunhofer-Gesellschaft]



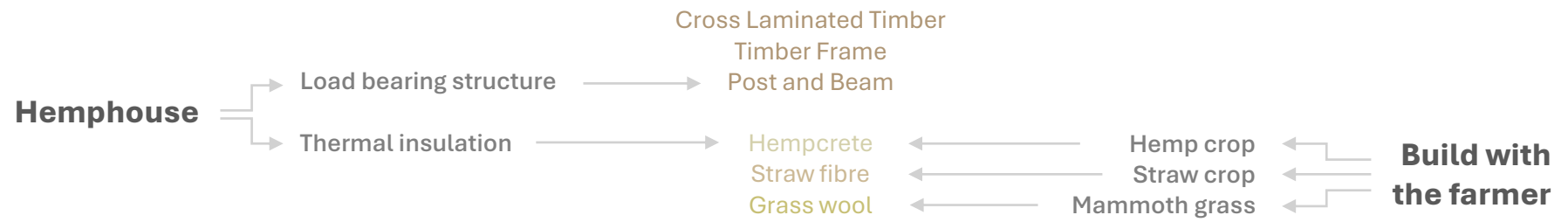
HEMPHOUSE, Oudega Friesland

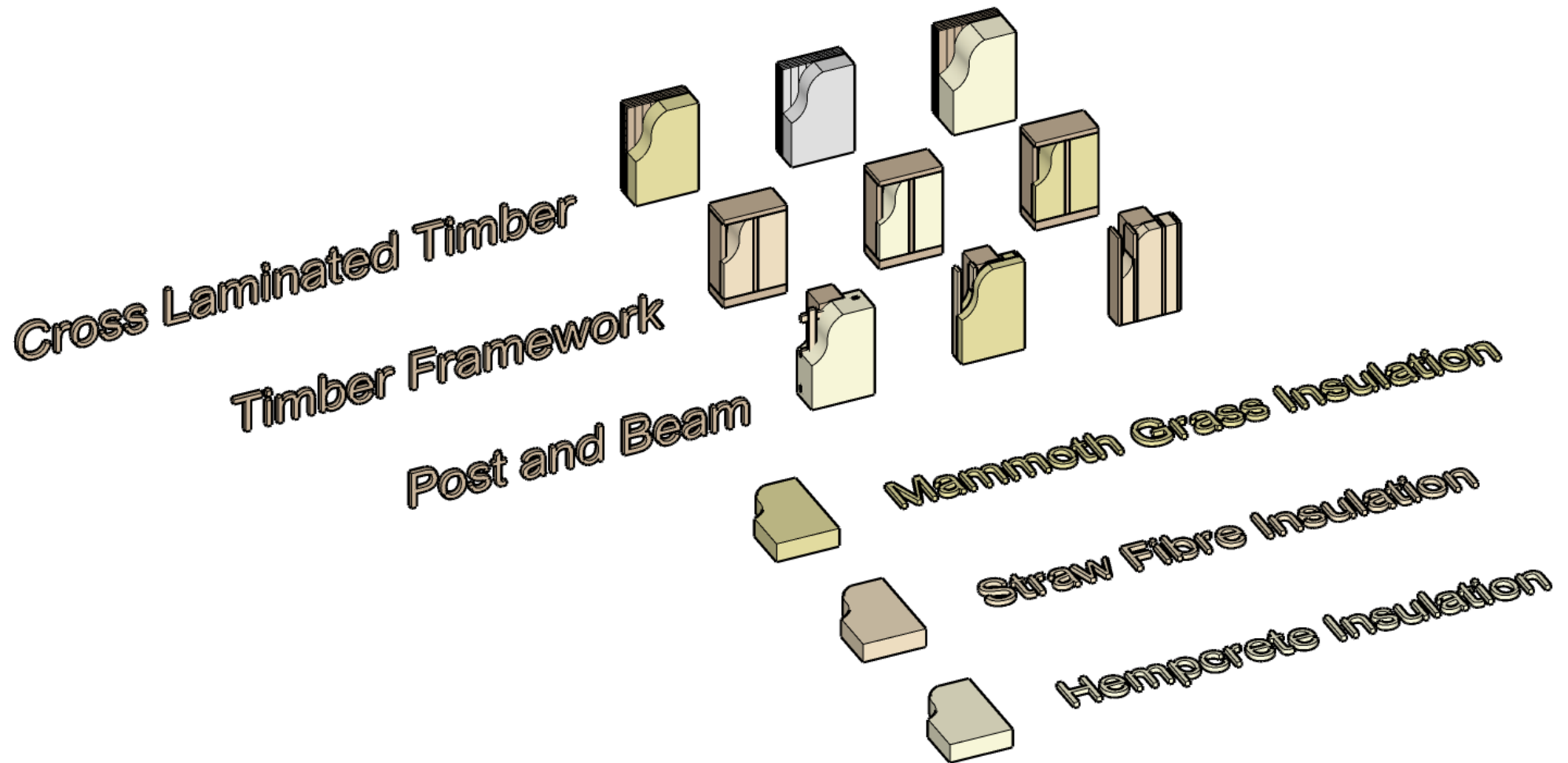
by Werkstatt

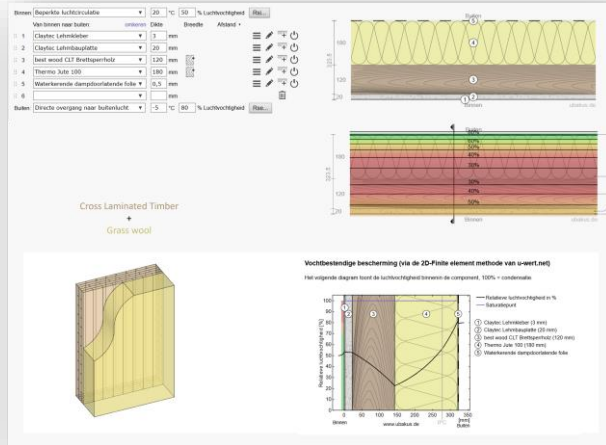
PRECEDENT CASE

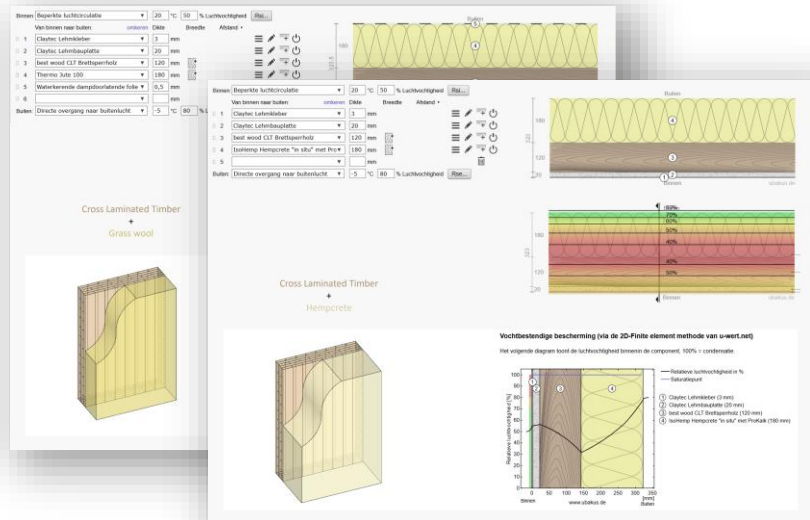
- I. Design ambition
- II. Technical execution
- III. Lessons learned

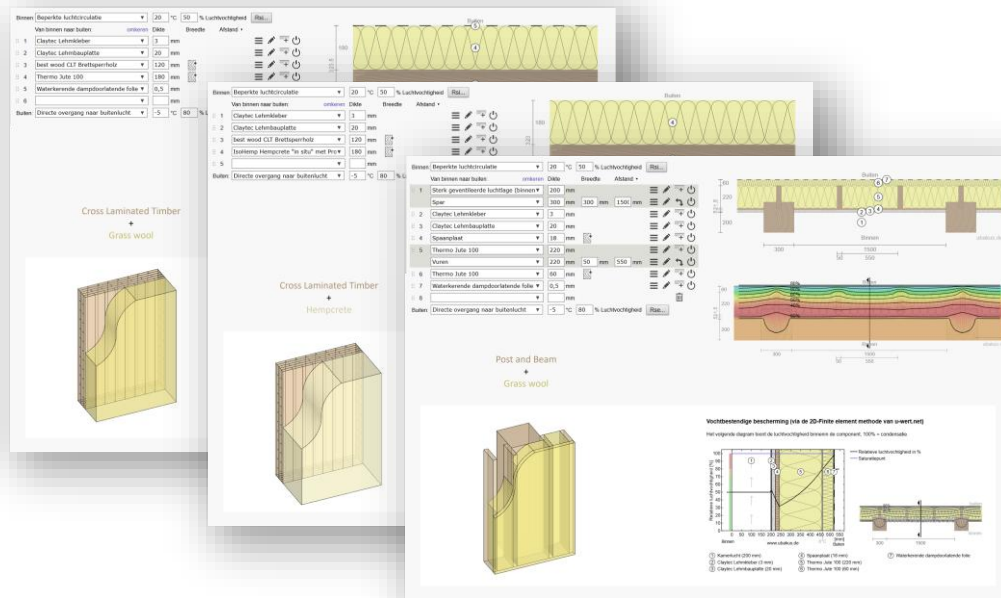


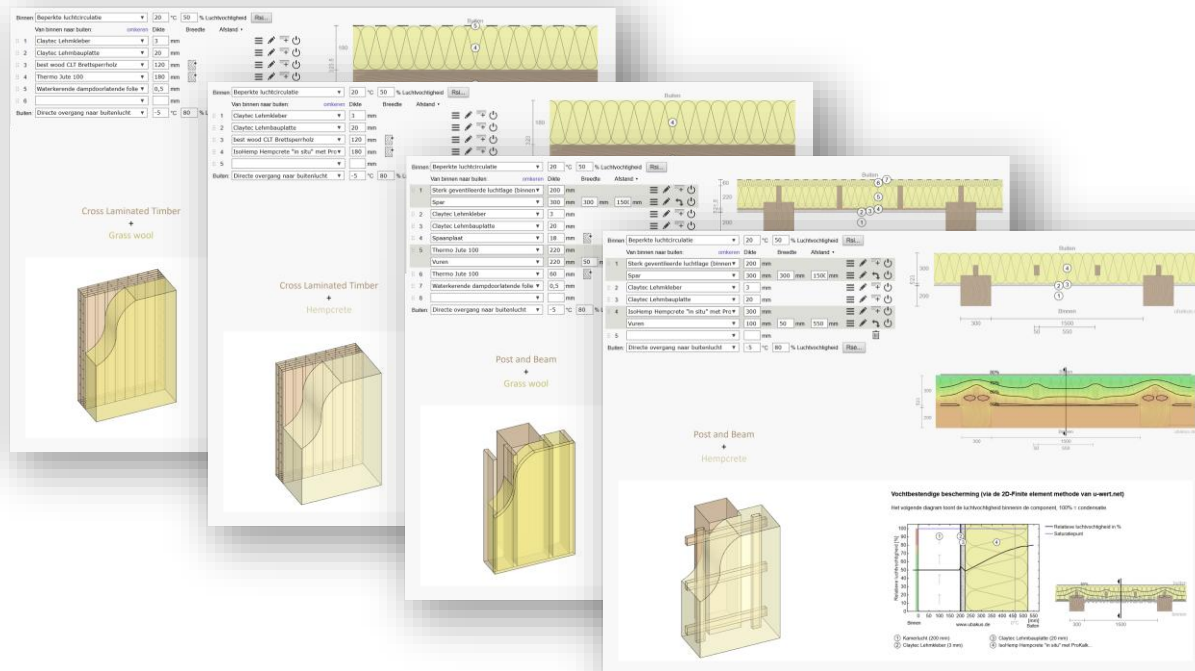


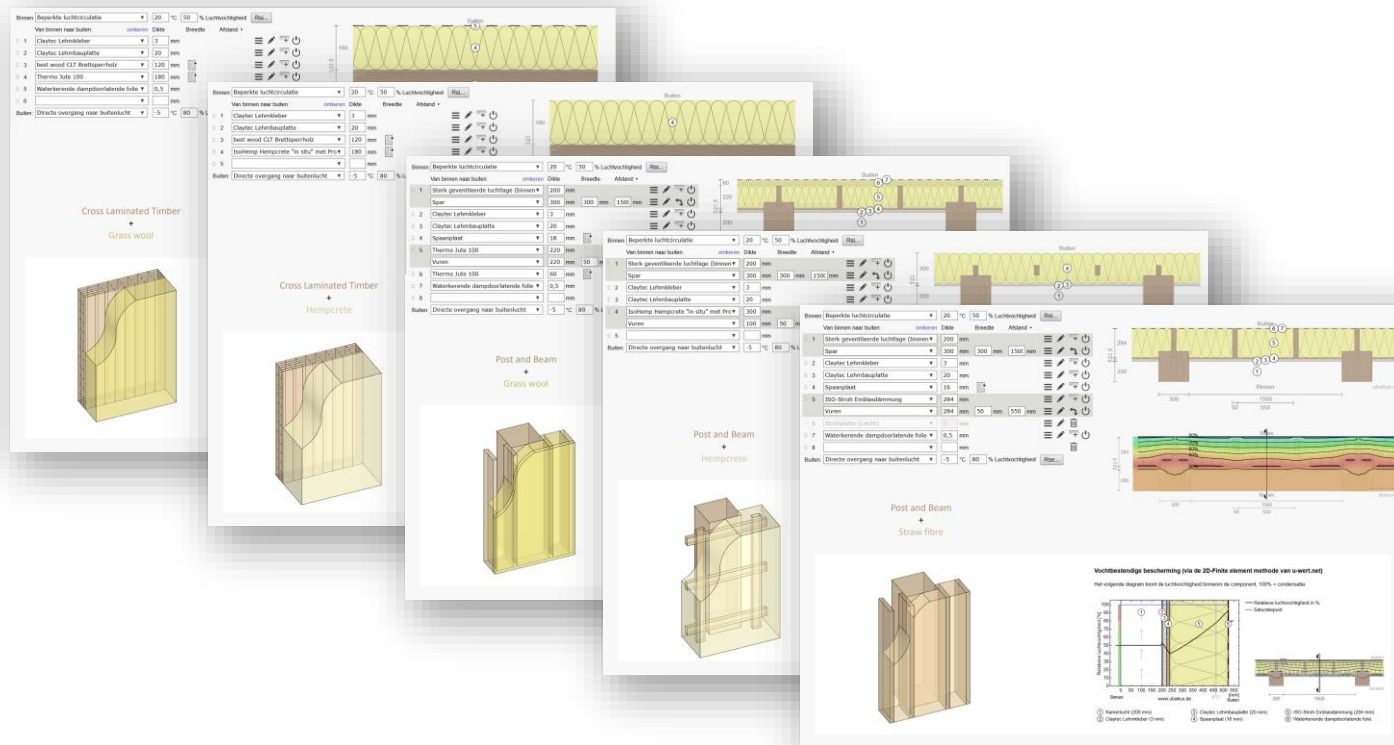


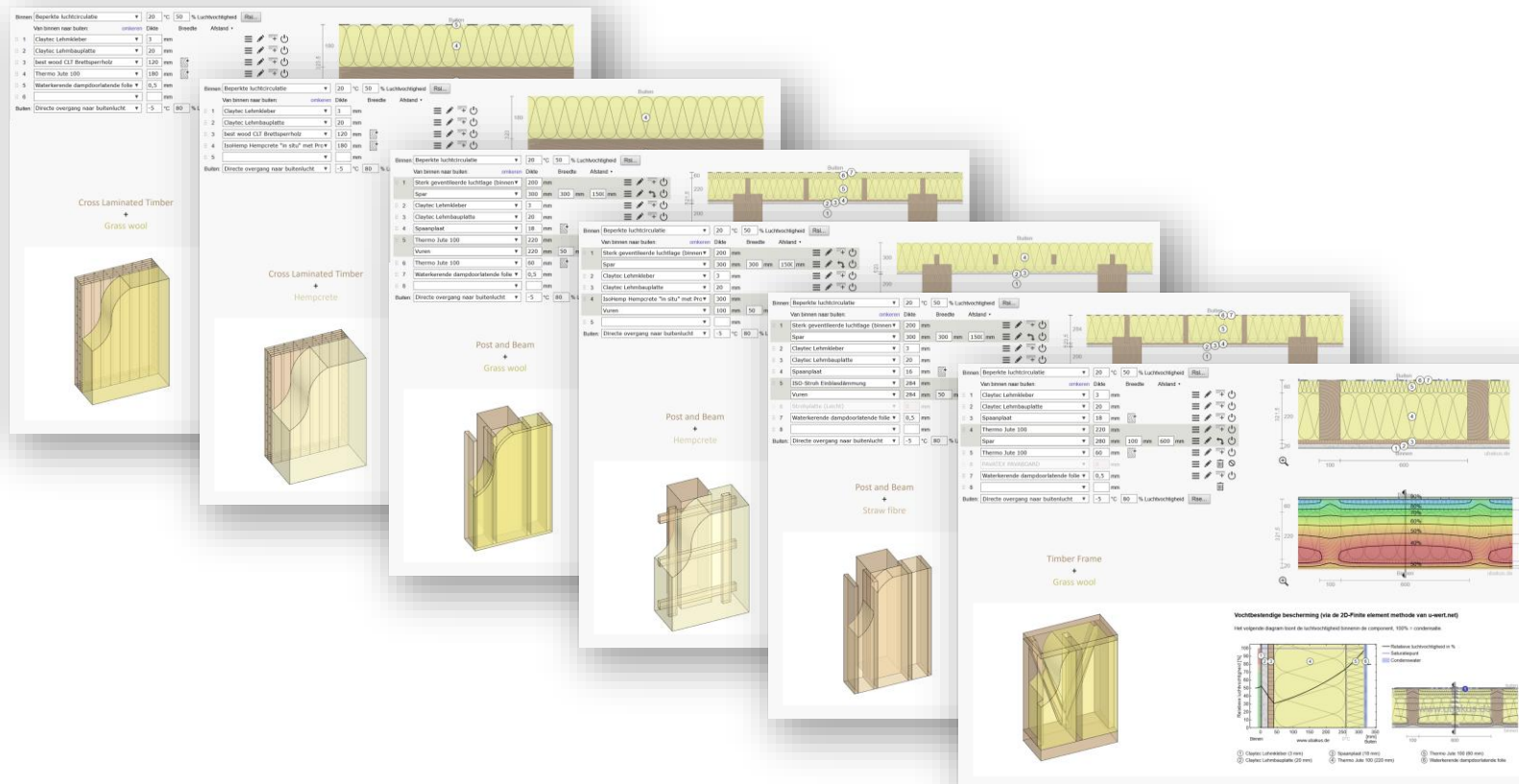






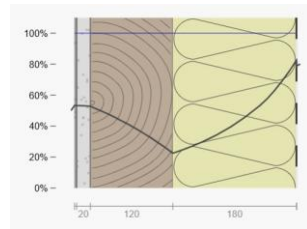






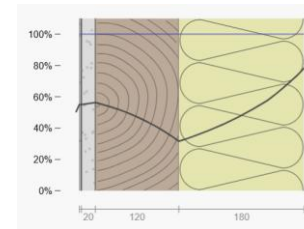




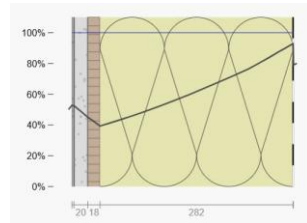


CLT +
Grass wool

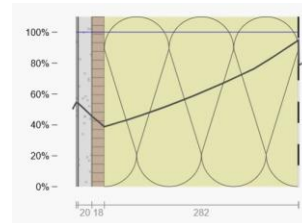
Results Results Results



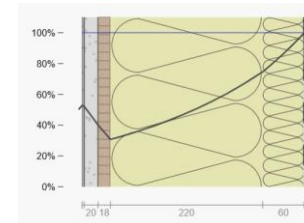
CLT +
Hempcrete



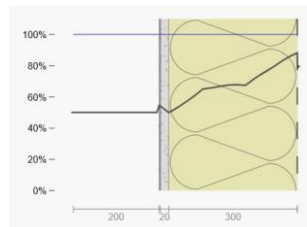
Timber frame +
Straw fibre



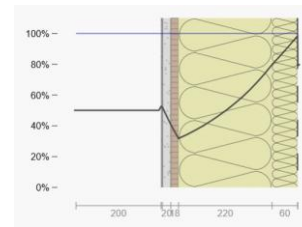
Timber frame +
Hempcrete



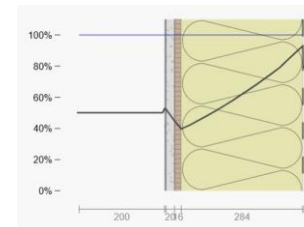
Timber frame +
Grass wool



Post & Beam +
Hempcrete

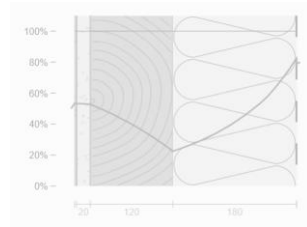


Post & Beam +
Grass wool



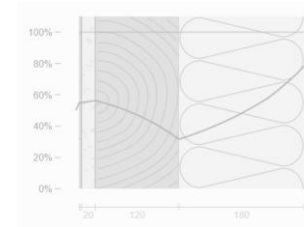
Post & Beam +
Straw fibre



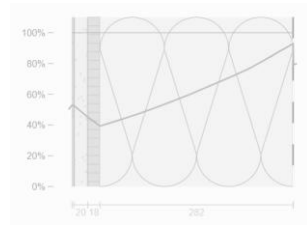


CLT +
Grass wool

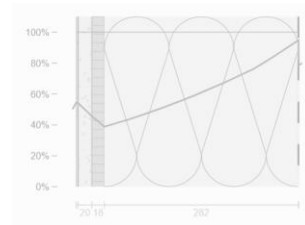
Results Results Results



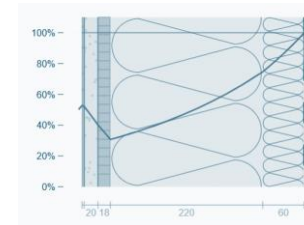
CLT +
Hempcrete



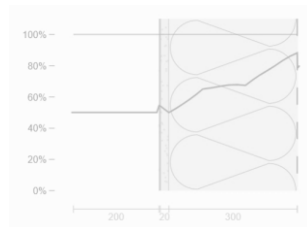
Timber frame +
Straw fibre



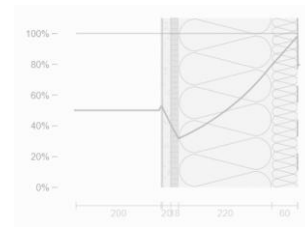
Timber frame +
Hempcrete



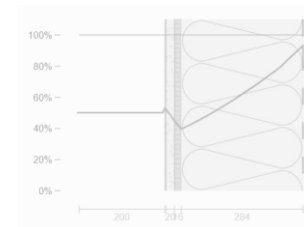
Timber frame +
Grass wool



Post & Beam +
Hempcrete

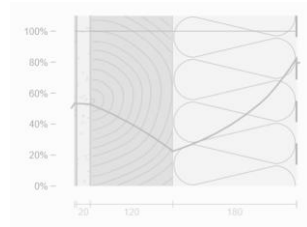


Post & Beam +
Grass wool



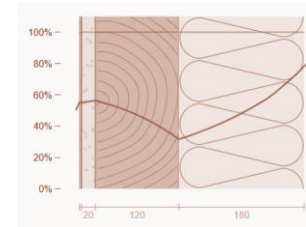
Post & Beam +
Straw fibre



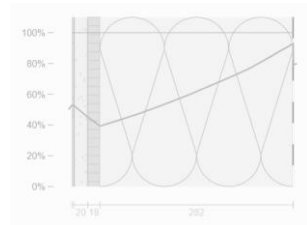


CLT +
Grass wool

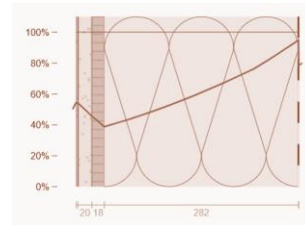
Results Results Results



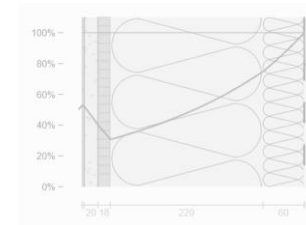
CLT +
Hempcrete



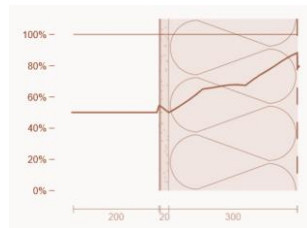
Timber frame +
Straw fibre



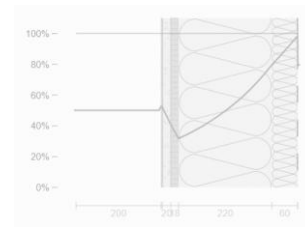
Timber frame +
Hempcrete



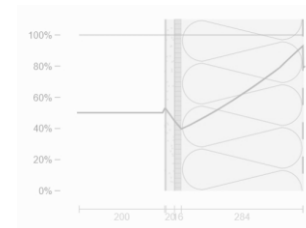
Timber frame +
Grass wool



Post & Beam +
Hempcrete



Post & Beam +
Grass wool



Post & Beam +
Straw fibre



Before we jump to any conclusions...



“THE HYBRID”



The design objective was?



The design objective was:

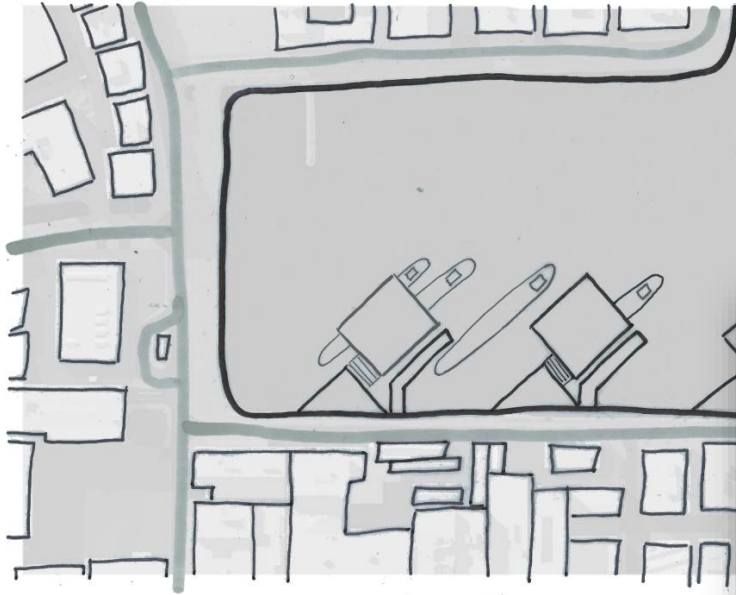
TO DENSIFY THE EXISTING URBAN FABRIC OF THE MINERVAHAVEN IN AMSTERDAM



The design objective was:

TO DENSIFY THE EXISTING URBAN FABRIC OF THE MINERVAHAVEN IN AMSTERDAM





Density,

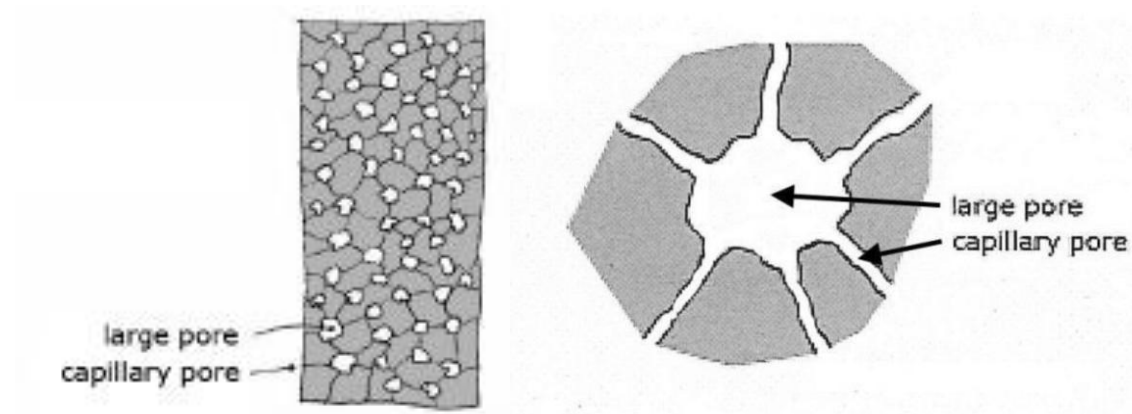
Density describes the quantities and the size of the masses.

Porosity,

Porosity describes quantities and size of the pores

Permeability

Permeability describes the relation between mass and pore



Source: Torraca, 2009, p.82, fig. 3.19



Density,

Density describes the quantities and the size of the masses.

Porosity,

Porosity describes quantities and size of the pores

Permeability

Permeability describes the relation between mass and pore



Density,

Density describes the quantities and the size of the masses.

Porosity,

Porosity describes quantities and size of the pores

Permeability

Permeability describes the relation between mass and pore



Density,

Density describes the quantities and the size of the masses.

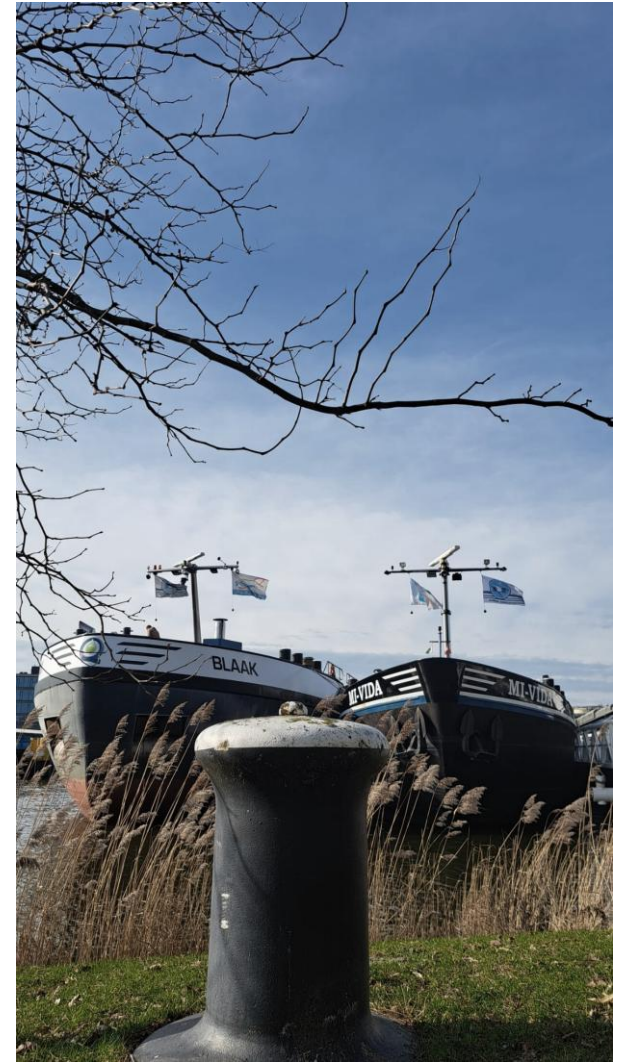
Porosity,

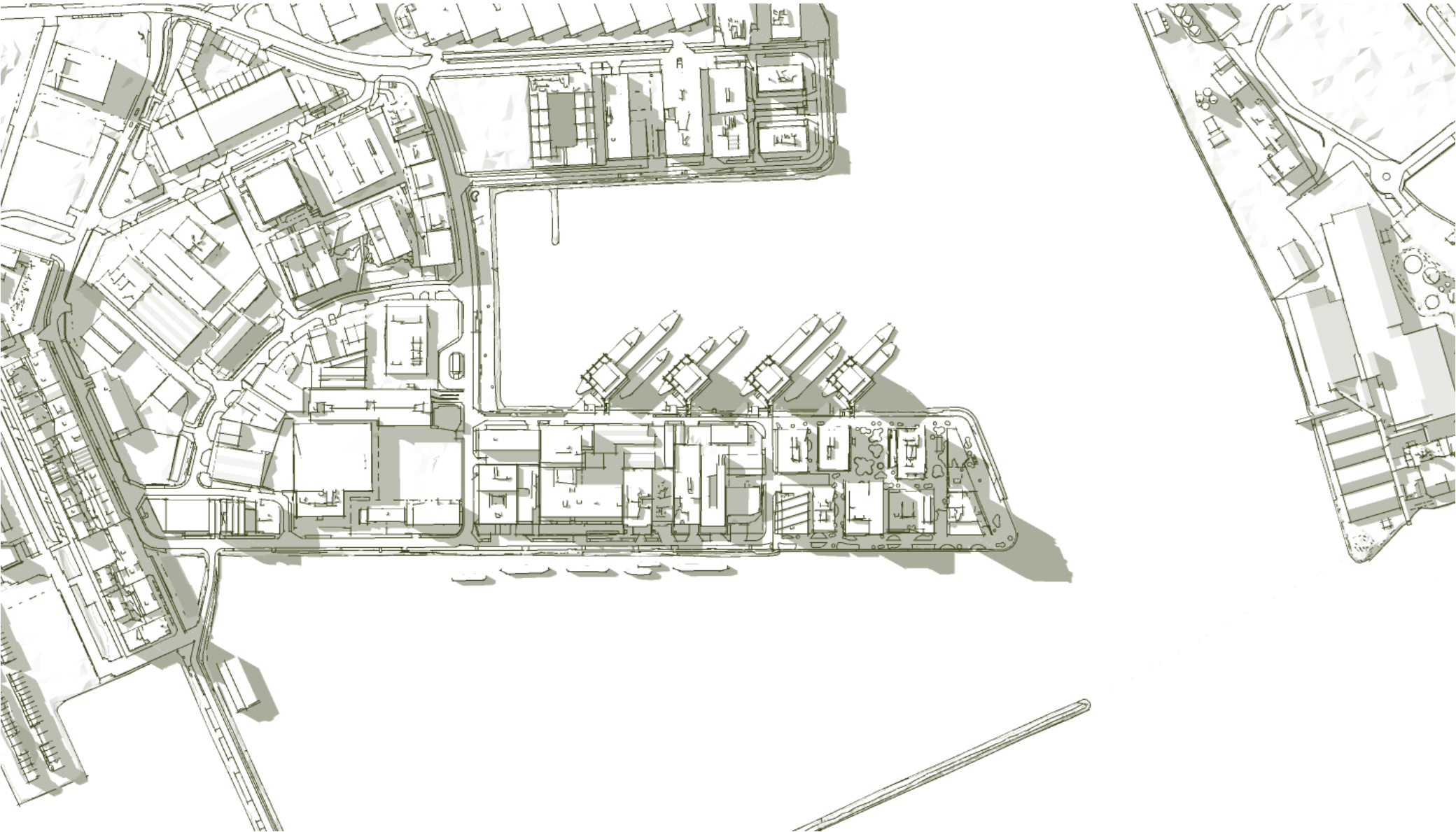
Porosity describes quantities and size of the pores

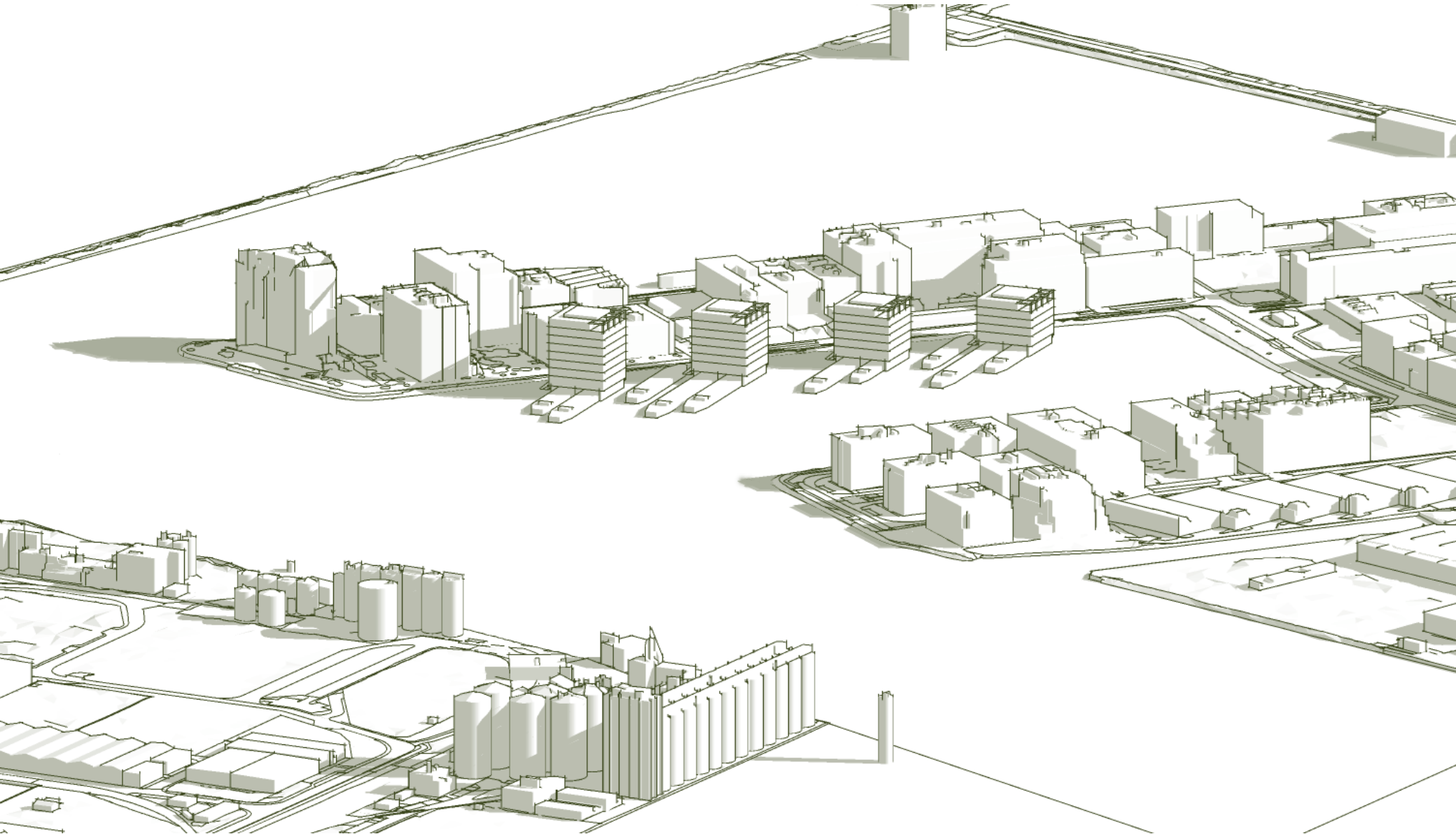
Permeability

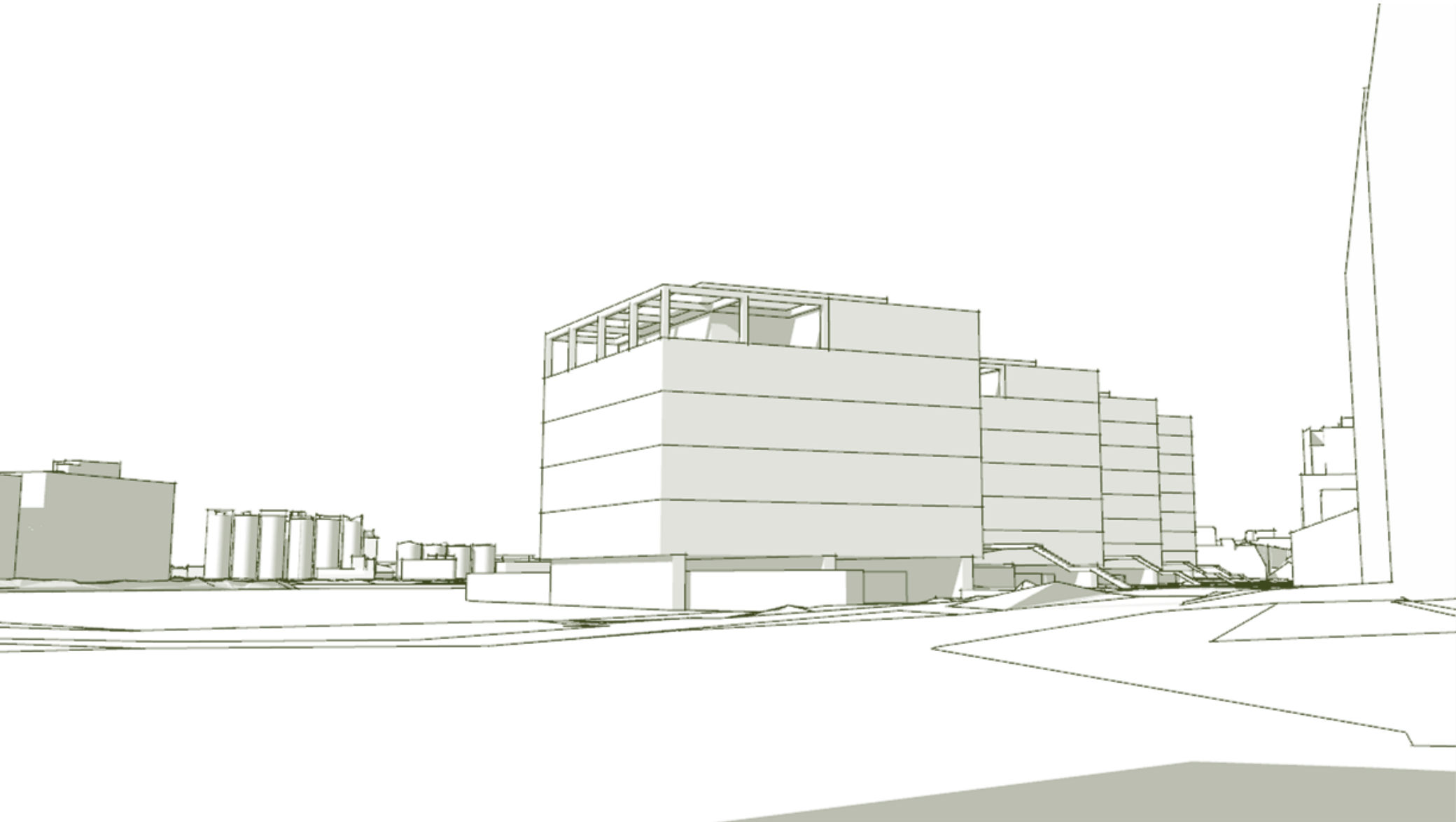
Permeability describes the relation between mass and pore





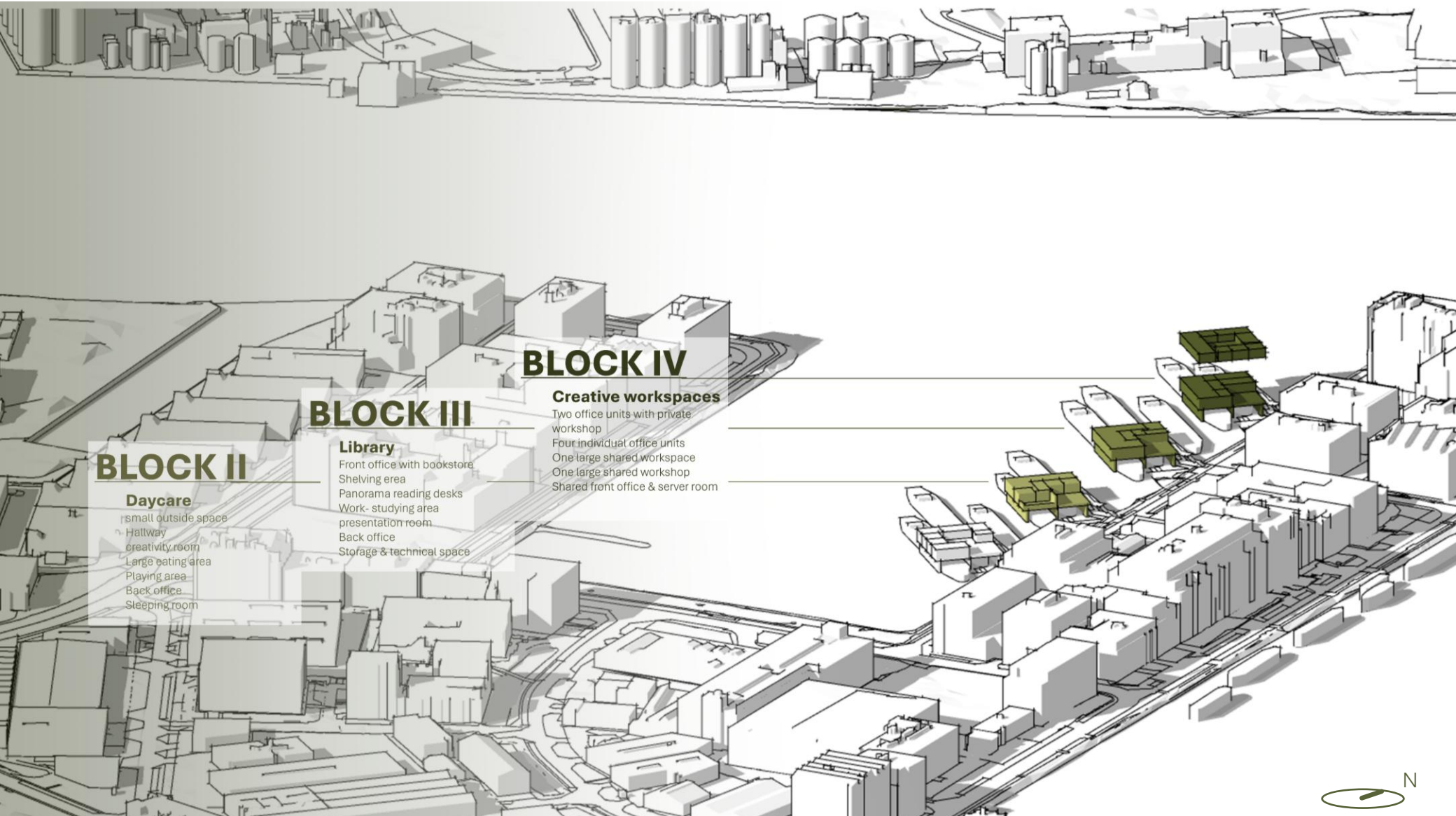






Metropolitan harbour neighbourhood program









B u i l d i n g g u i d e l i n e s

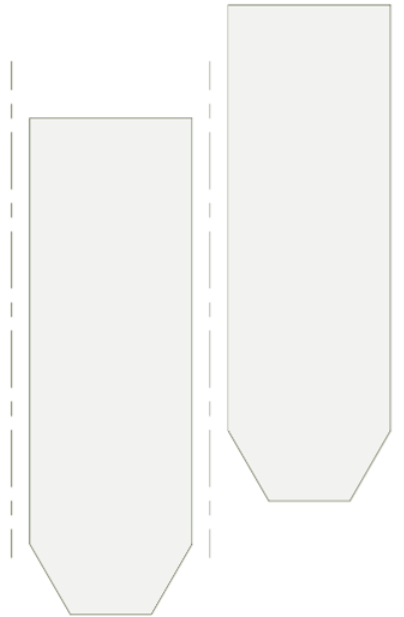
- 01. Ship dimensions
- 02. Orientation and shadow patterns
- 03. Inclusivity and accessibility

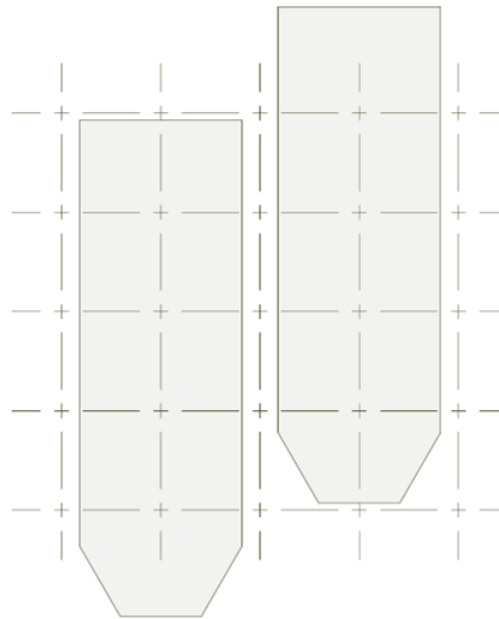


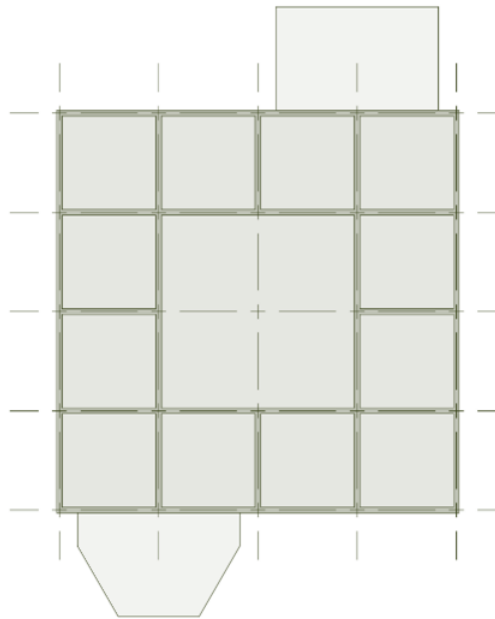
Metropolitan harbour neighbourhood

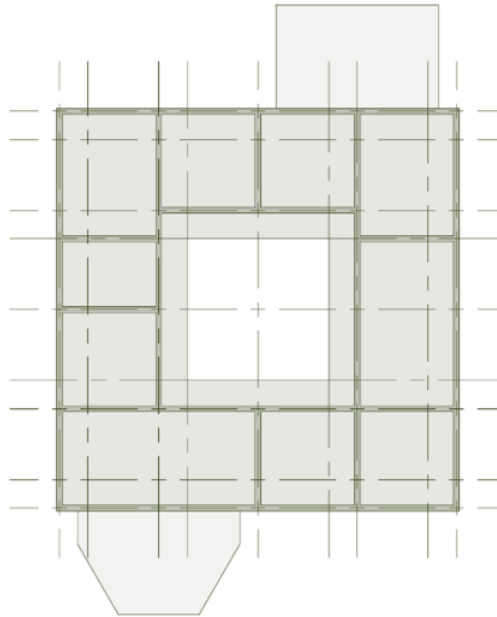
Targeted residents

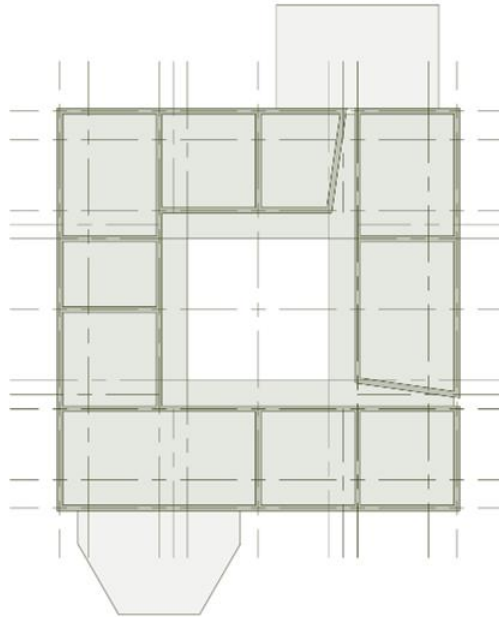












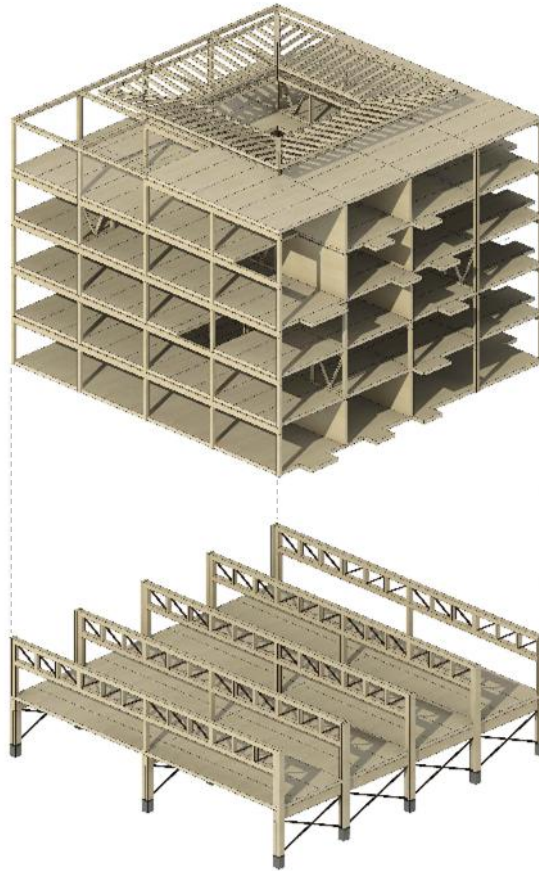


2nd FLOOR

1:100



1:200



THE BLOCK

45 residences

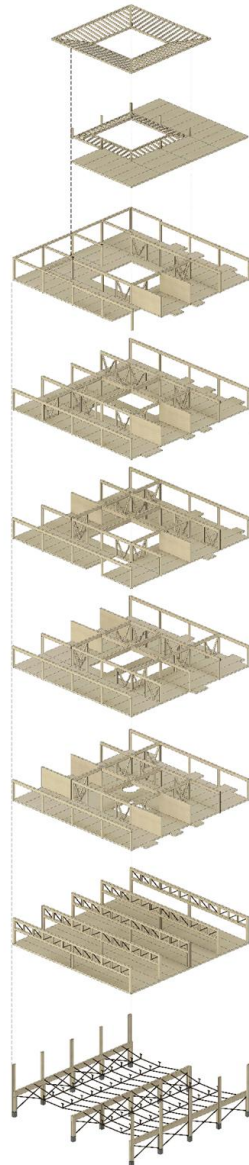
THE BASE

Two barges



1:200

Scaled to fit



(ventec) Roof

5th Floor

6 residences

4th Floor

10 residences

3rd Floor

11 residences

2nd Floor

10 residences

1st Floor

10 residences

New ground floor

Library

The IJ

Two barges





“PERMEABILITY”





P o r o s i t y i n s c a l e

1:200	Central atrium
1:20	Porous typology
1:1	Breathable living envelope





T H E H Y B R I D

4TH FLOOR 1:200

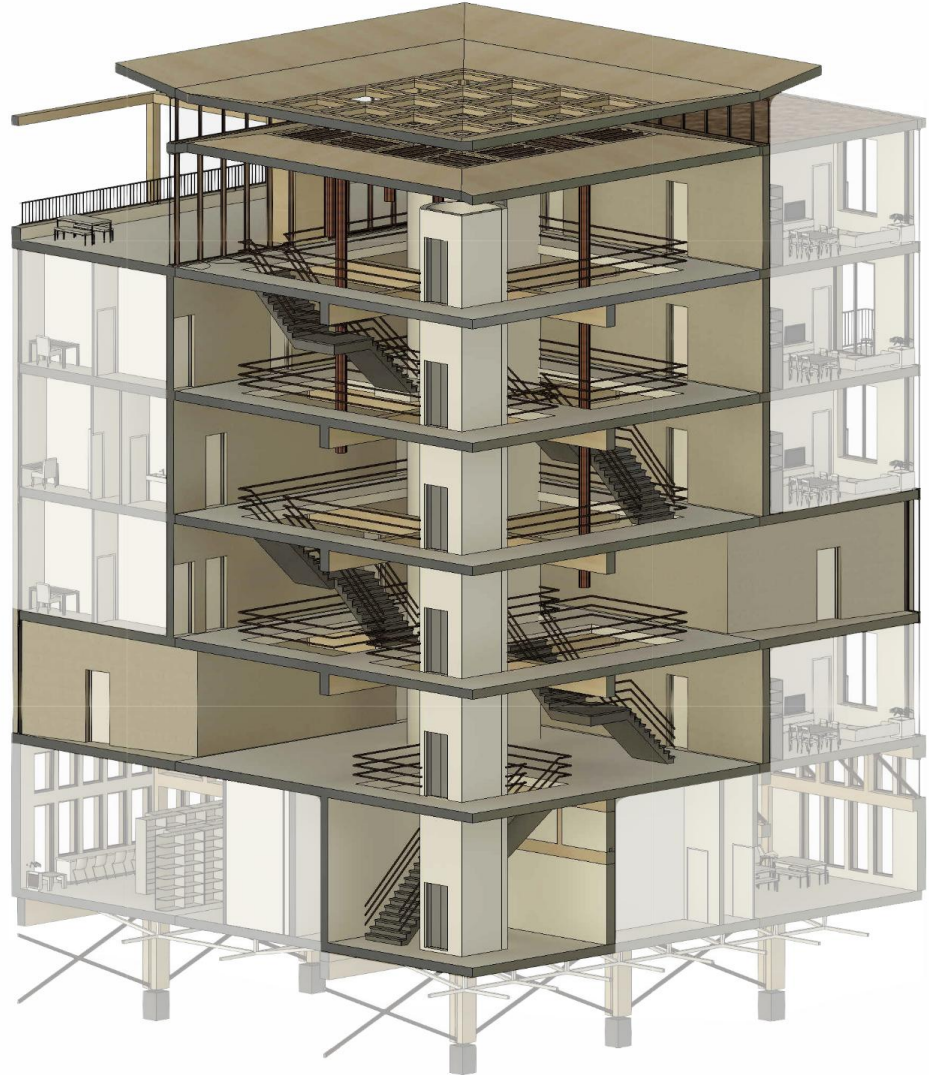


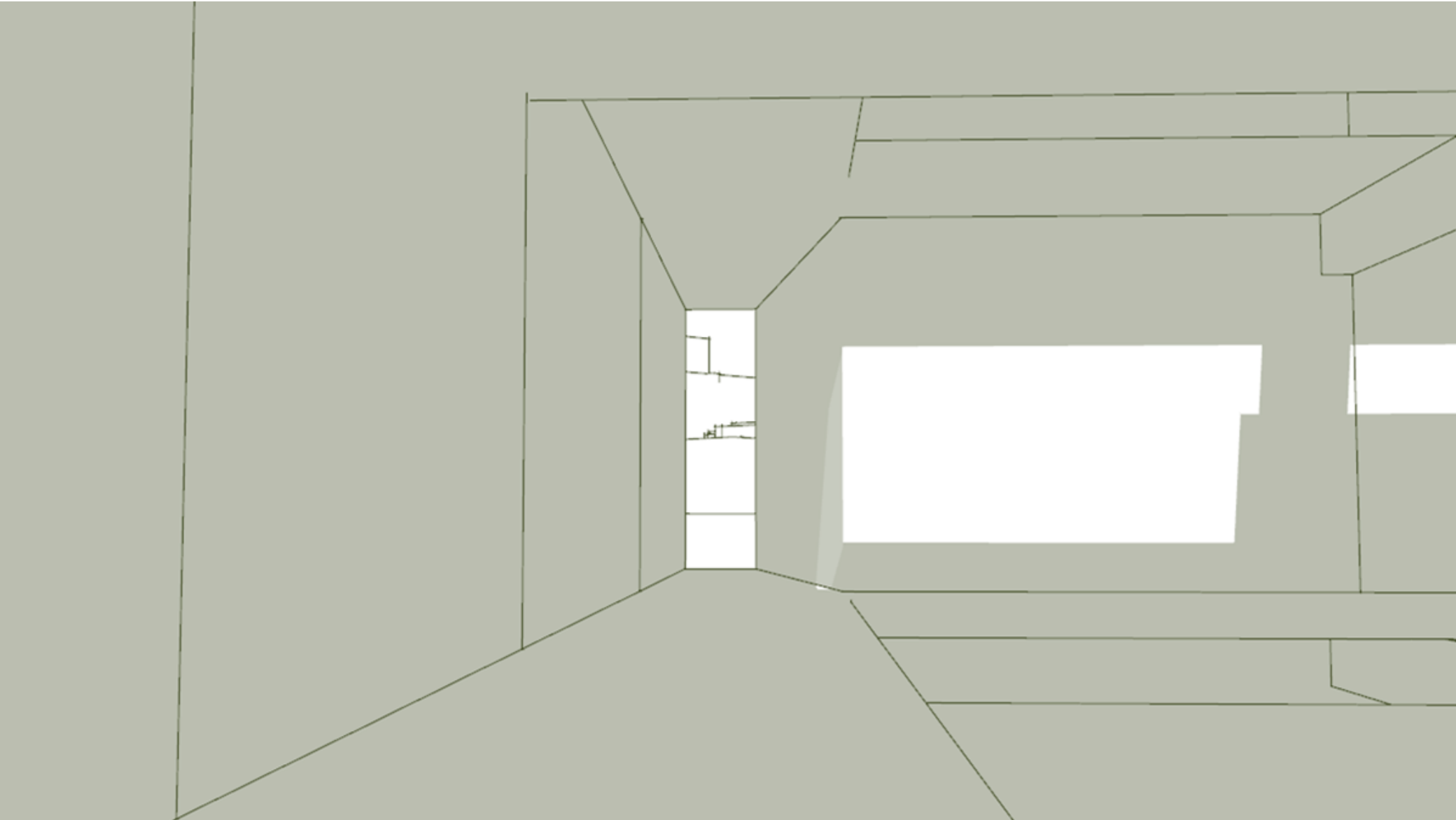


THE HYBRID

4TH FLOOR 1:200

AXONOMETRIE 1:200





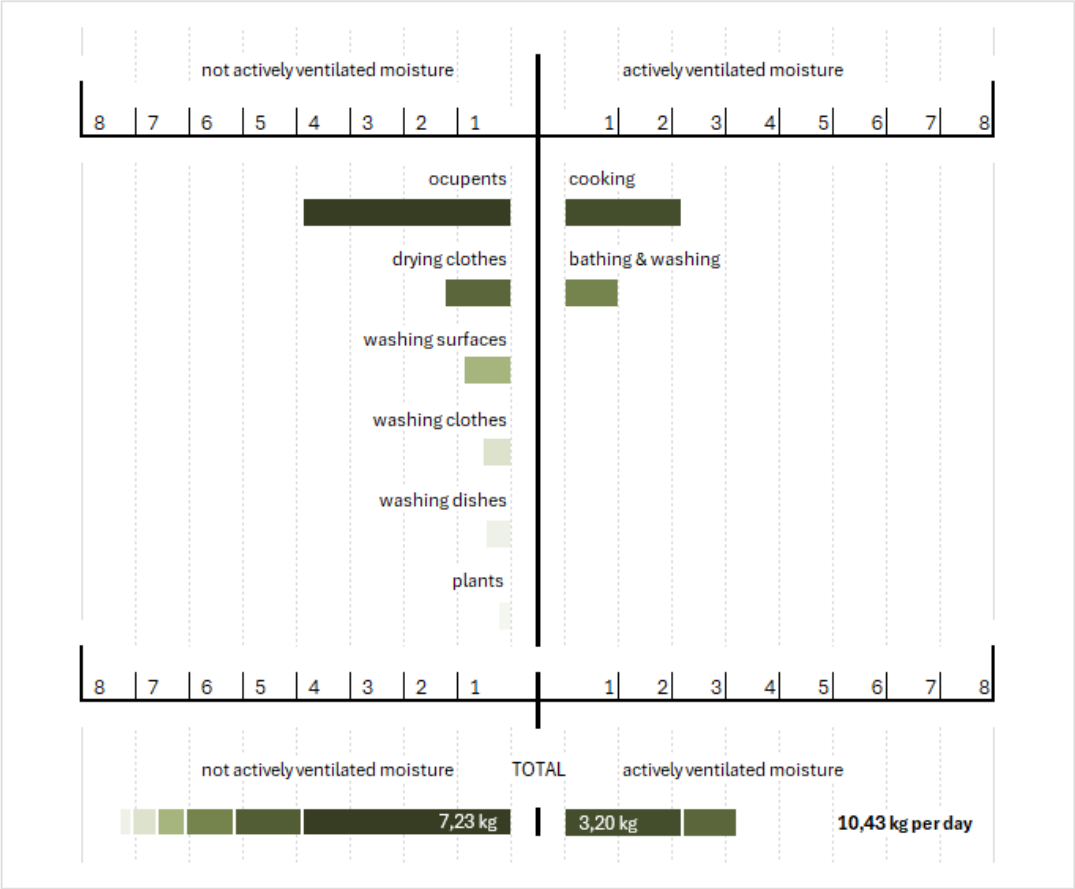
“HEALTH AND WELL-BEING”





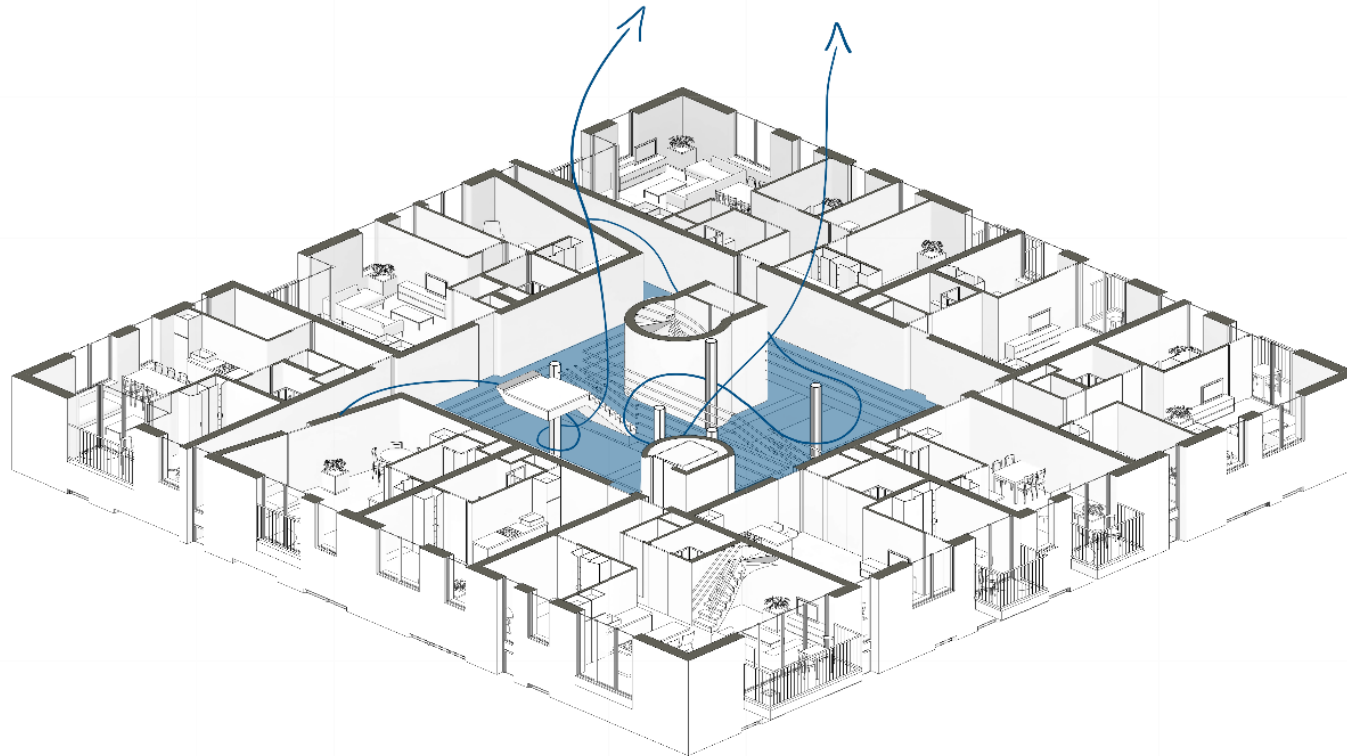
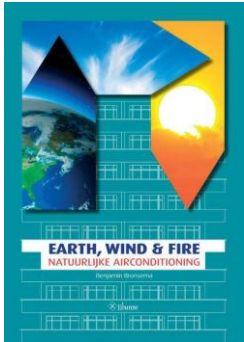
“WHAT FRUSTRATES YOU THE MOST ABOUT YOUR PROFESSION? ‘SOLVING’ SUSTAINABILITY WITH CLIMATE TECHNOLOGY AND INSTALLATIONS.”





Source: Oreszczyn & Pretlove, 2015

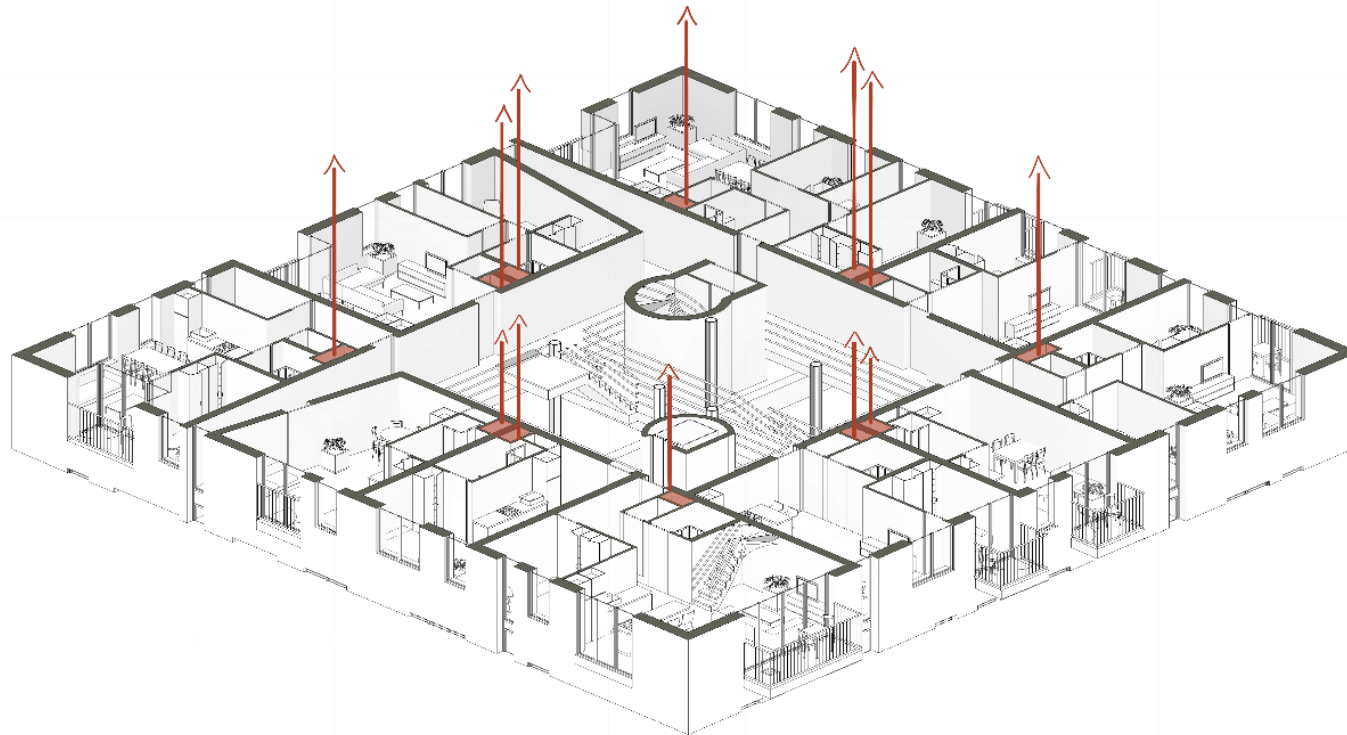




4th FLOOR

1:100

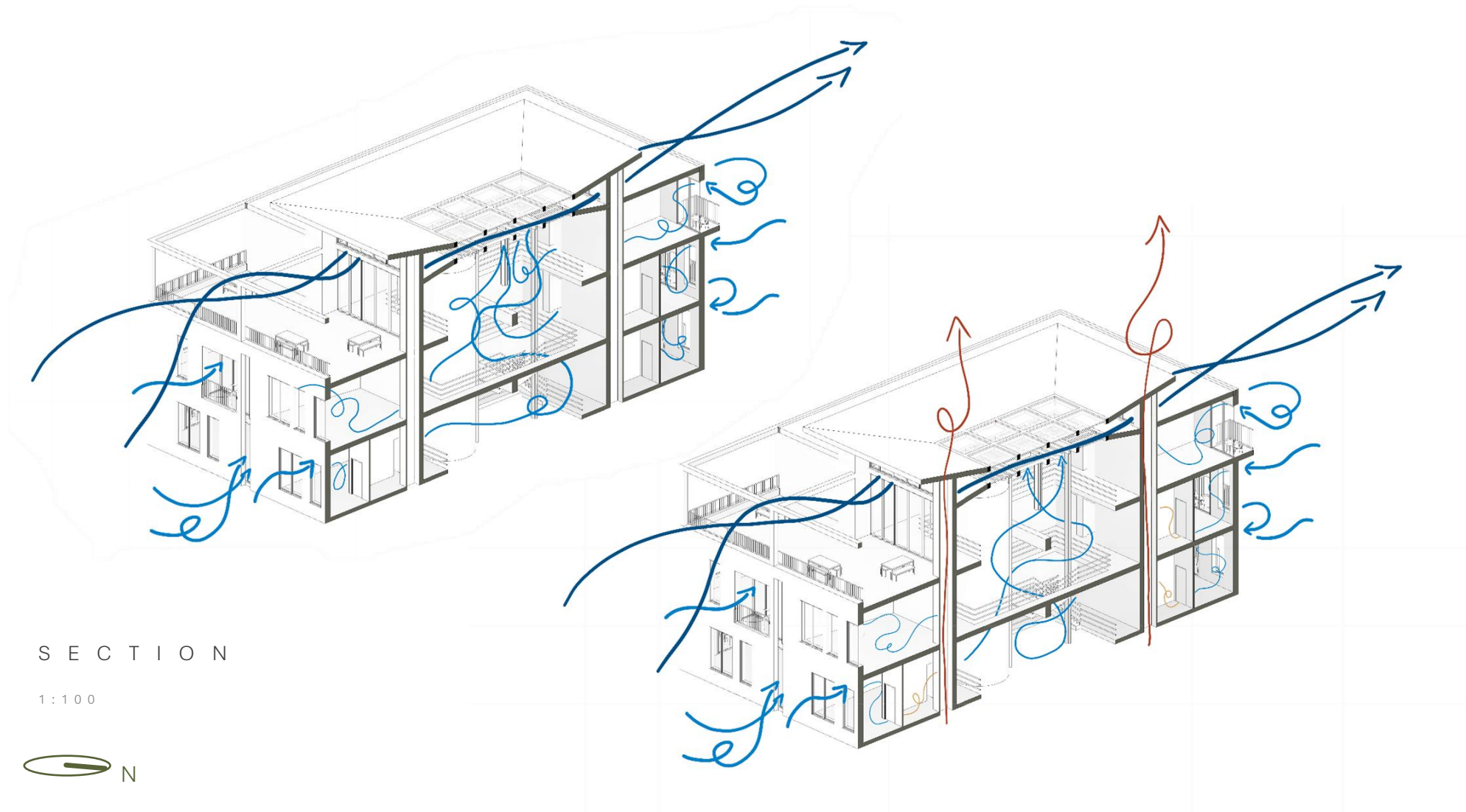


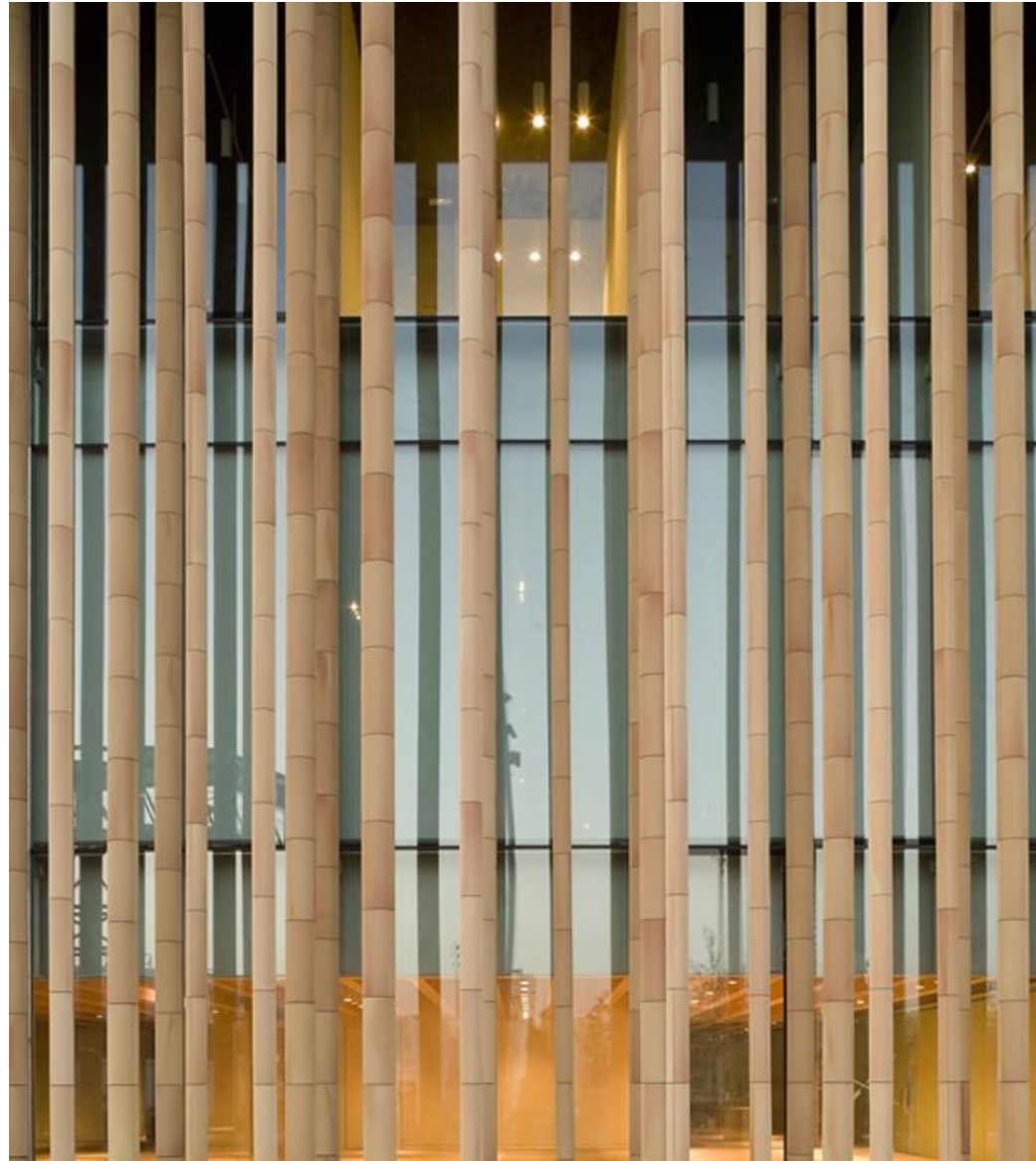


4 t h F L O O R

1 : 1 0 0





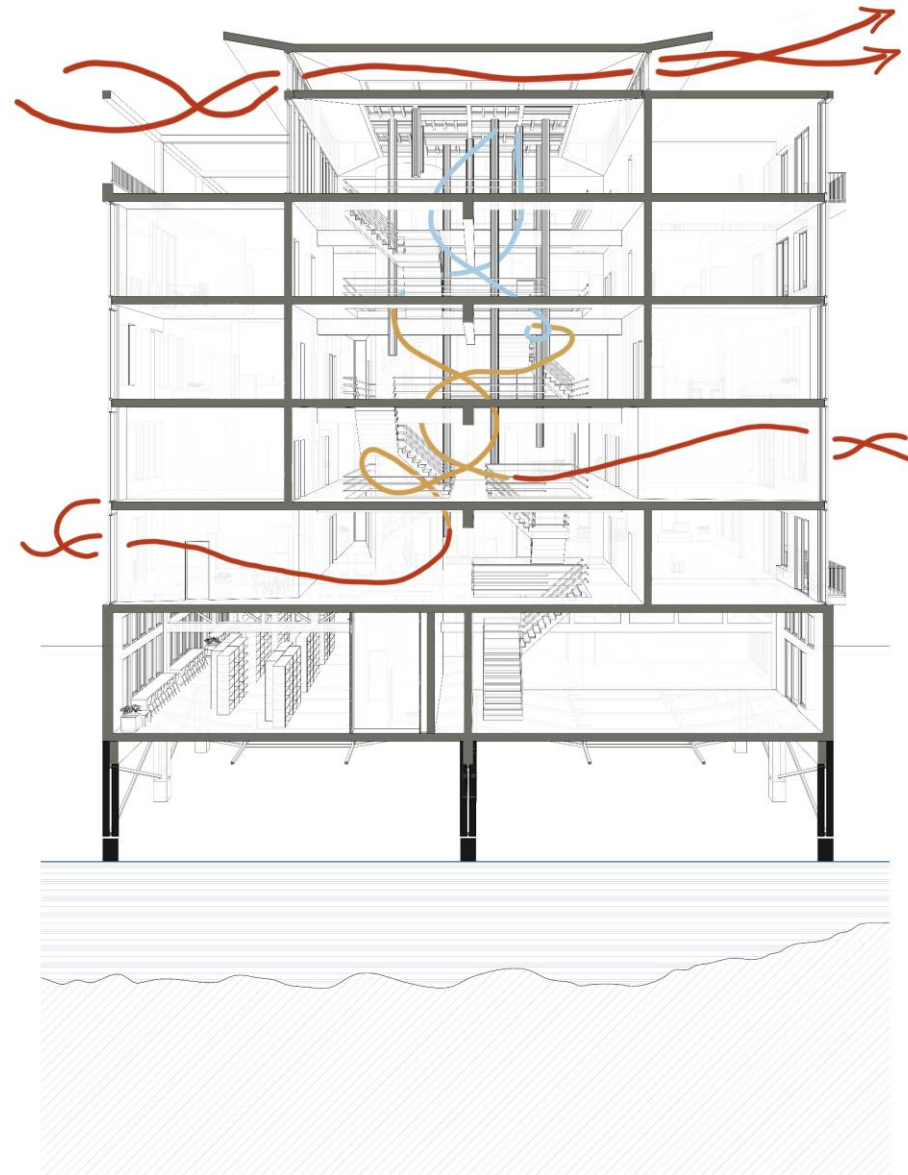
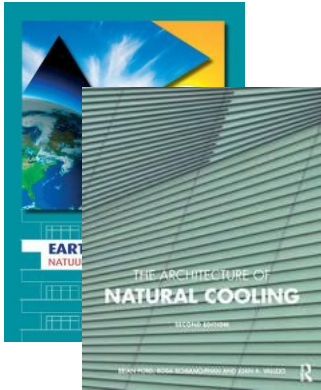


C O O L I N G

1 : 1 0 0

Design: Francisco Mangado
Image: Pedro Pegenaute





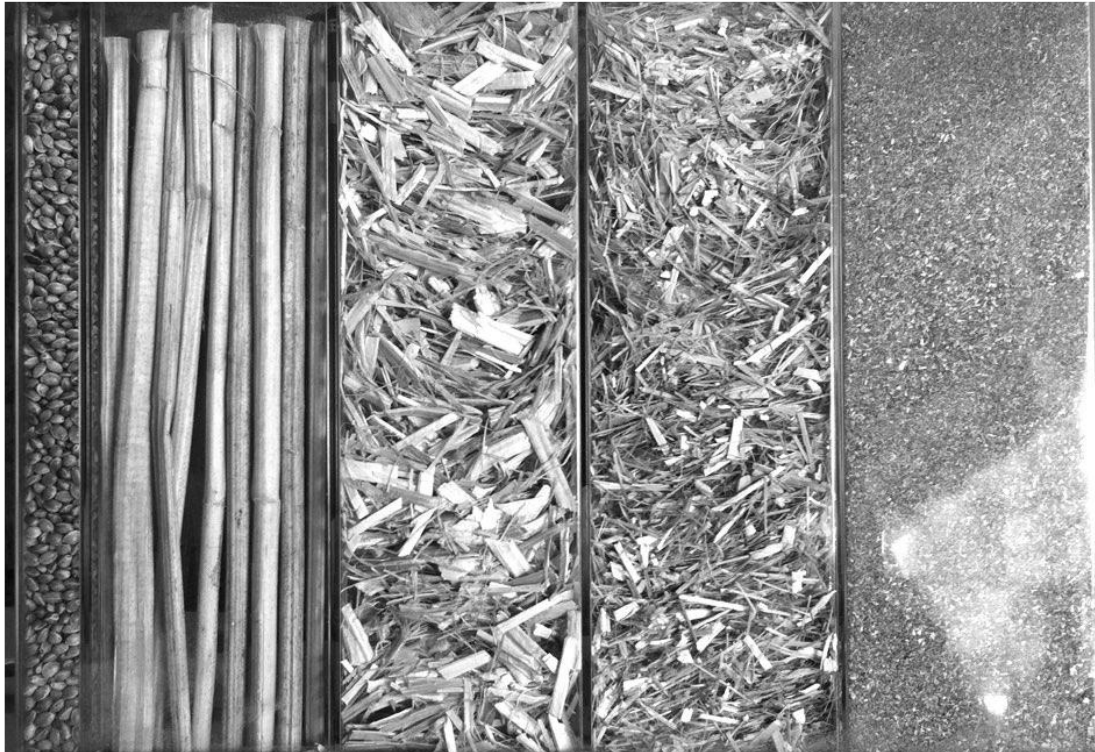
C O O L I N G

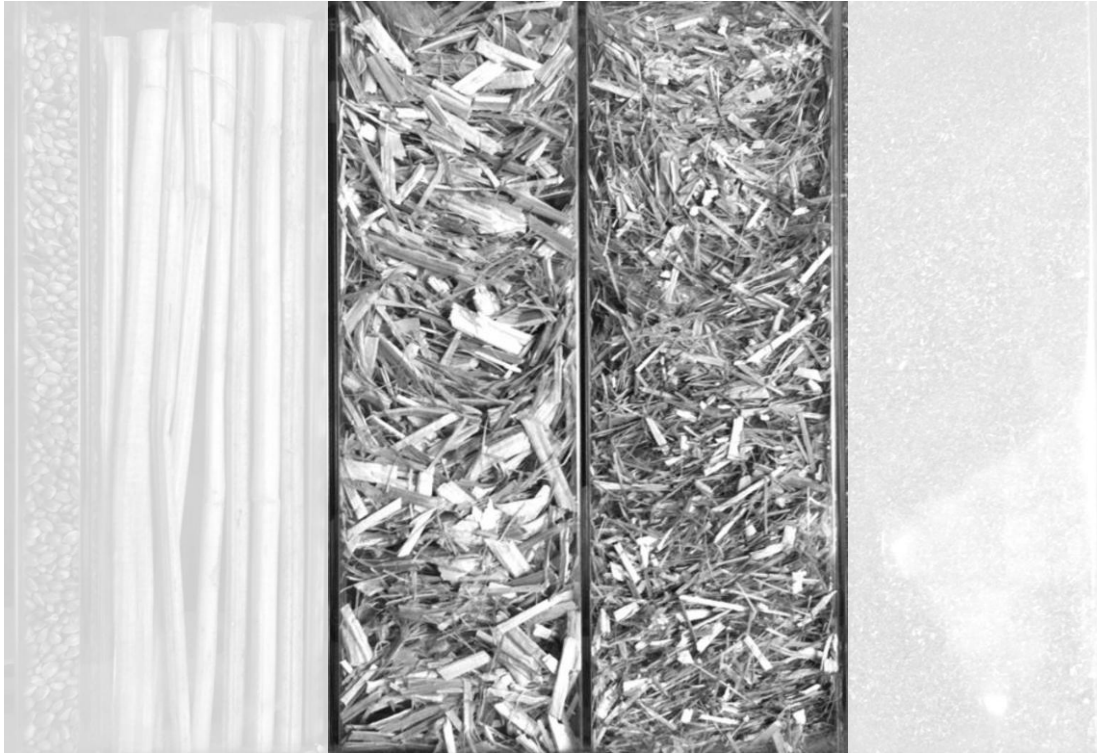
1 : 1 0 0



“MATERIALITY”







Building composition



Spruce



Hempcrete



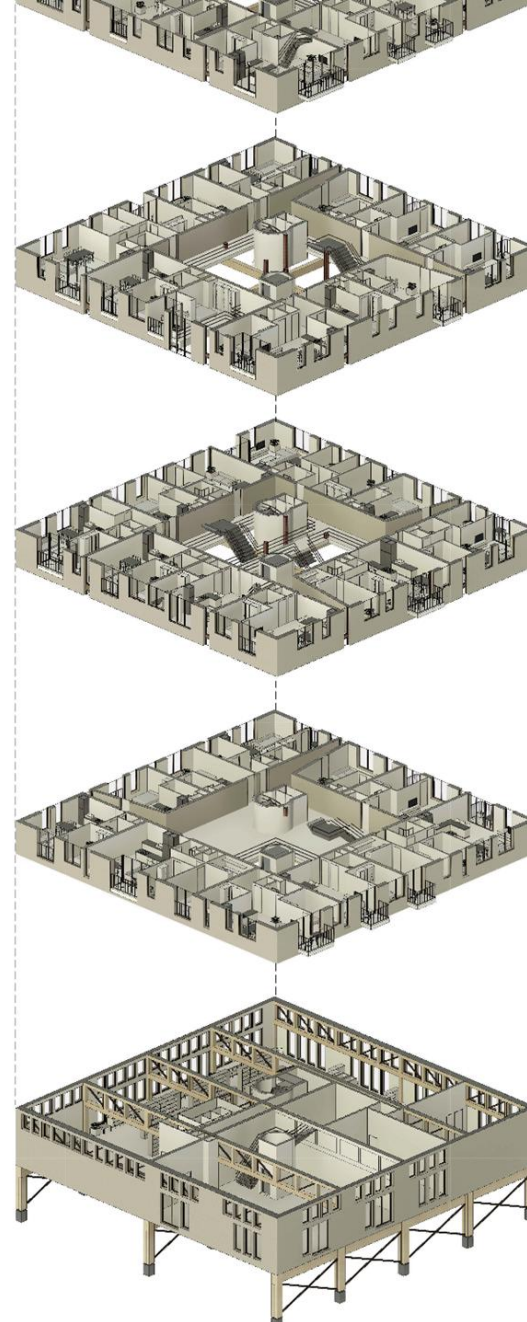
Clay



THE HYBRID

EAST SOUTH FAÇADE FRAGMENT





4th Floor

10 residences

3rd Floor

11 residences

2nd Floor

10 residences

1st Floor

10 residences

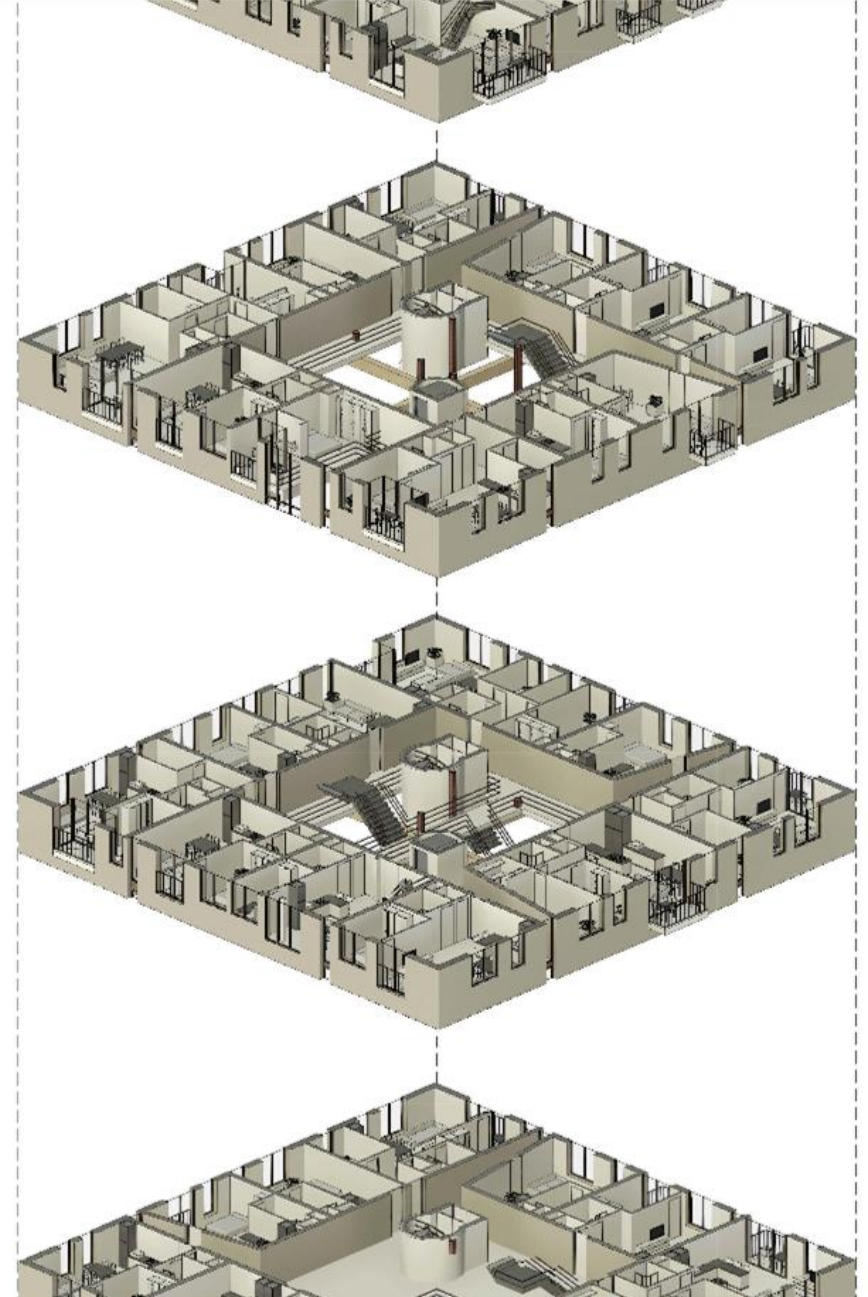
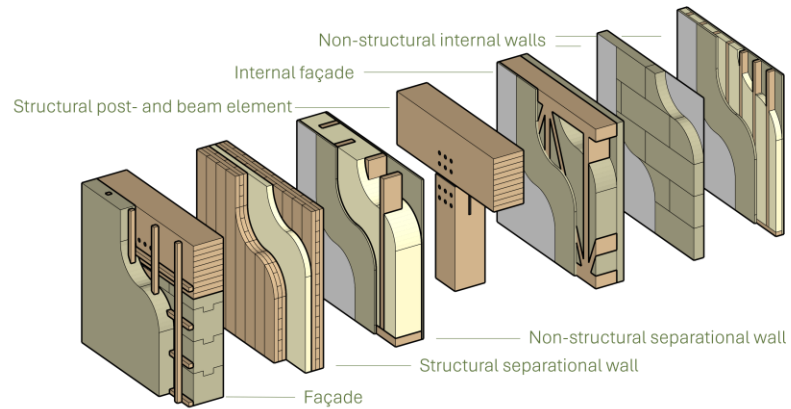
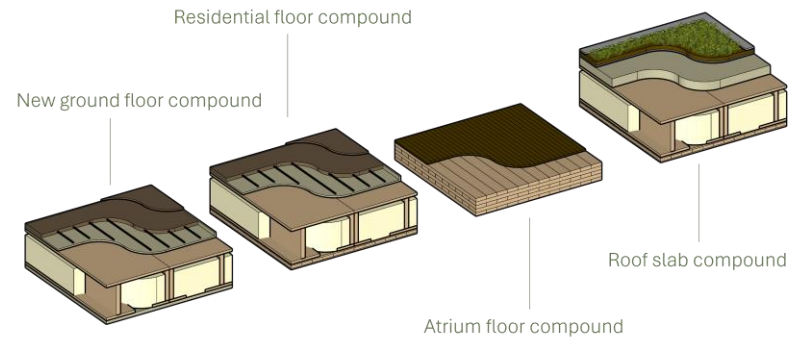
New ground floor

Library

A X O N O M E T R Y

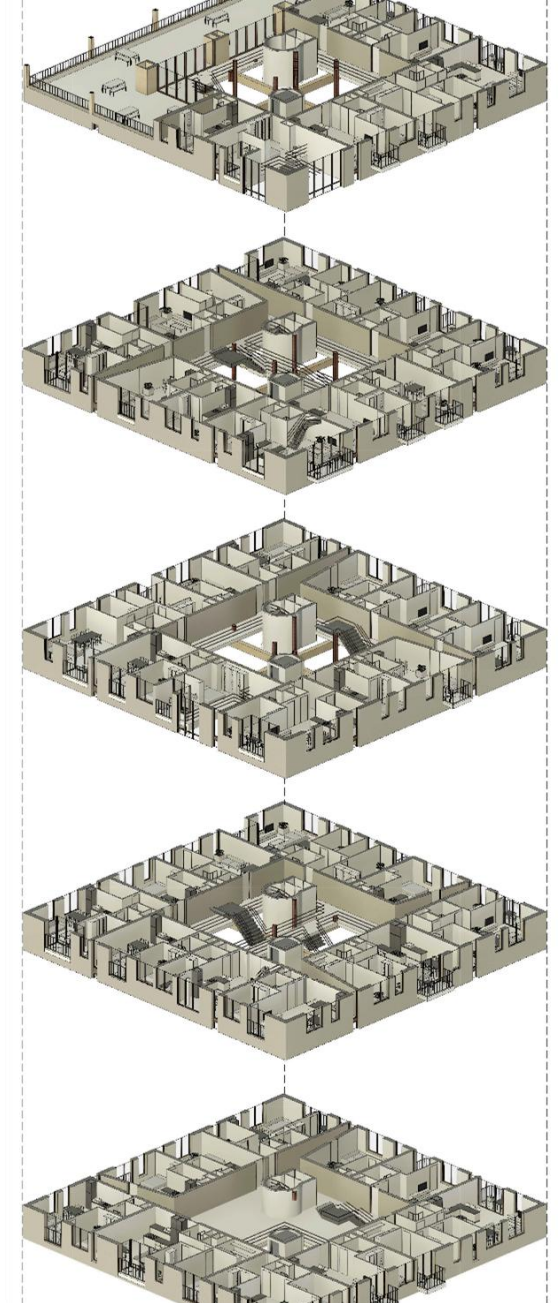
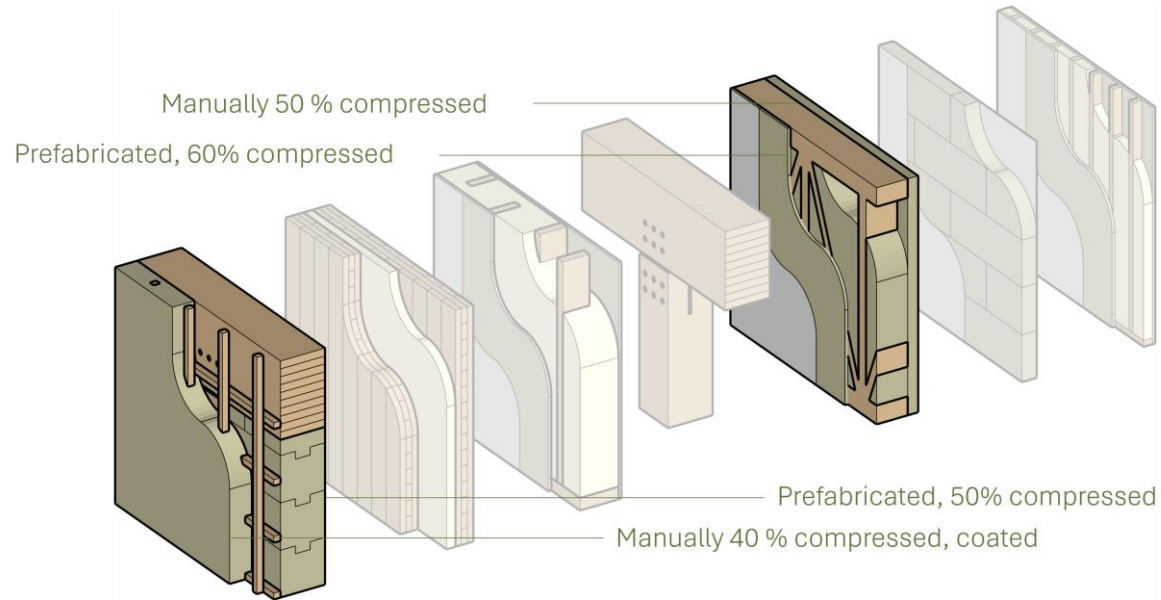
1 : 1 0 0





Source: Tom Boom & GROUP A architects, Afstuderen in de kelder – letterlijk én figuurlijk.





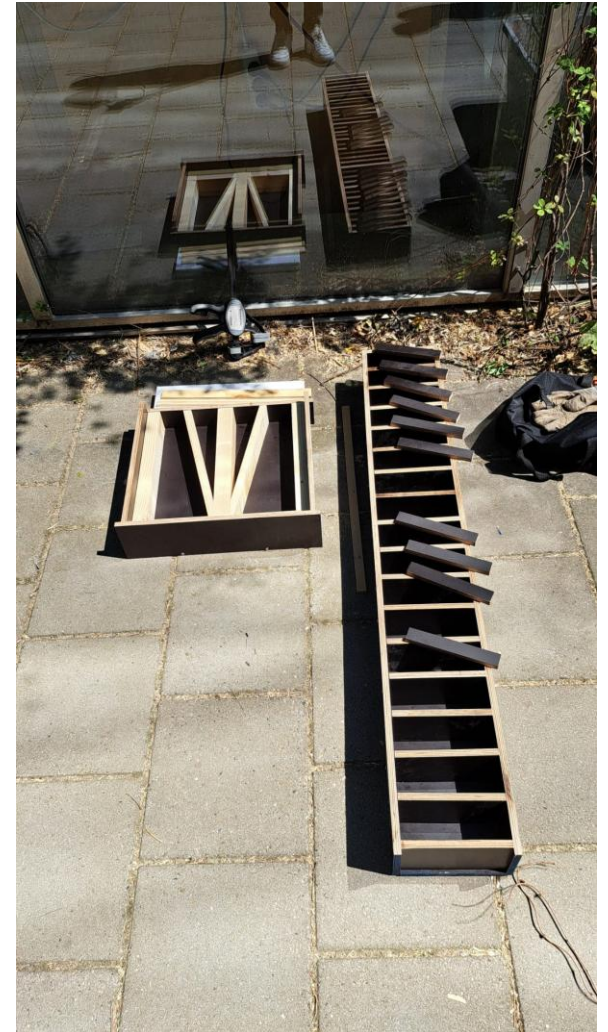
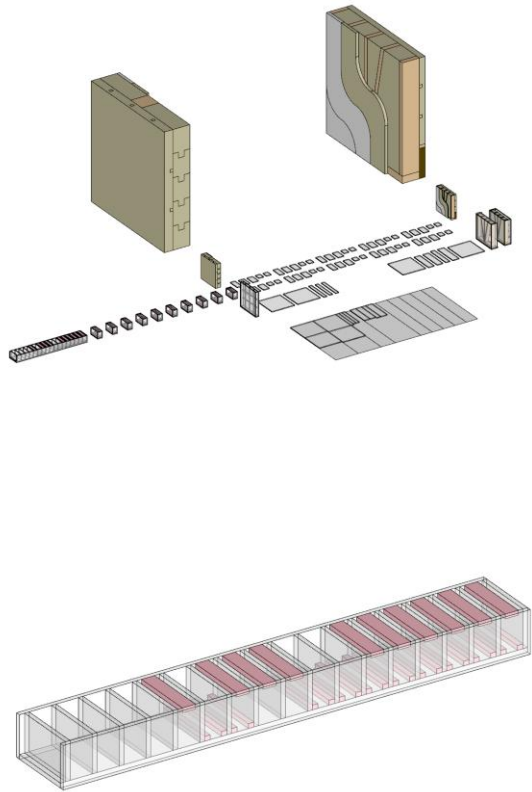
“MAKING”





Source: Maarten & Boudewijn, friends and founders of YOMABOUW, yomabouw.com













“QUESTIONS?”

