

THE VILLAGE IN THE NORTH

Wood Architecture Design Studio
Ekaterina, Jie, Patrick
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the village in the north concept

Accommodation in Lapland

- watching the northern lights in winter
- hiking in summer

Core

- connects the private units and the shared facilities
- supplies the units with water, sewage and electricity
- evens out the uneven nature of the slope
- easy way to extend the village
- easy to maintain the structure and the supply systeme

Central point with common areas

- meetings/group cooking events
- camp fires
- laundry
- grocery shopping
- sauna

Units

contain

- sleeping
- personal hygiene
- small cooking facility
- table (eating/working)
- storage

guidelines

- post and beam structure
- sloped roof
- wood stove
- view facing the south
- consider the life cycle concept

- > long-lasting, durable buildings (around 100 years) but changing inhabitants
- > forming a community out of strangers during the stay



https://explore-share.imgix.net/wp-content/uploads/2018/08/15390358736_7dbc495d27_o.jpg



https://www.cotman.de/Media/Cotman_DE/blog/3341-Bild-1.jpg

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climate and soil

Climate

temperature winter
-17 °C

temperature summer
16 °C

snow height
around 70 cm

dry days/month
4 - 8

dry days/month
10 - 18

sunshine hours/day
0 - 4

sunshine hours/day
5 - 9

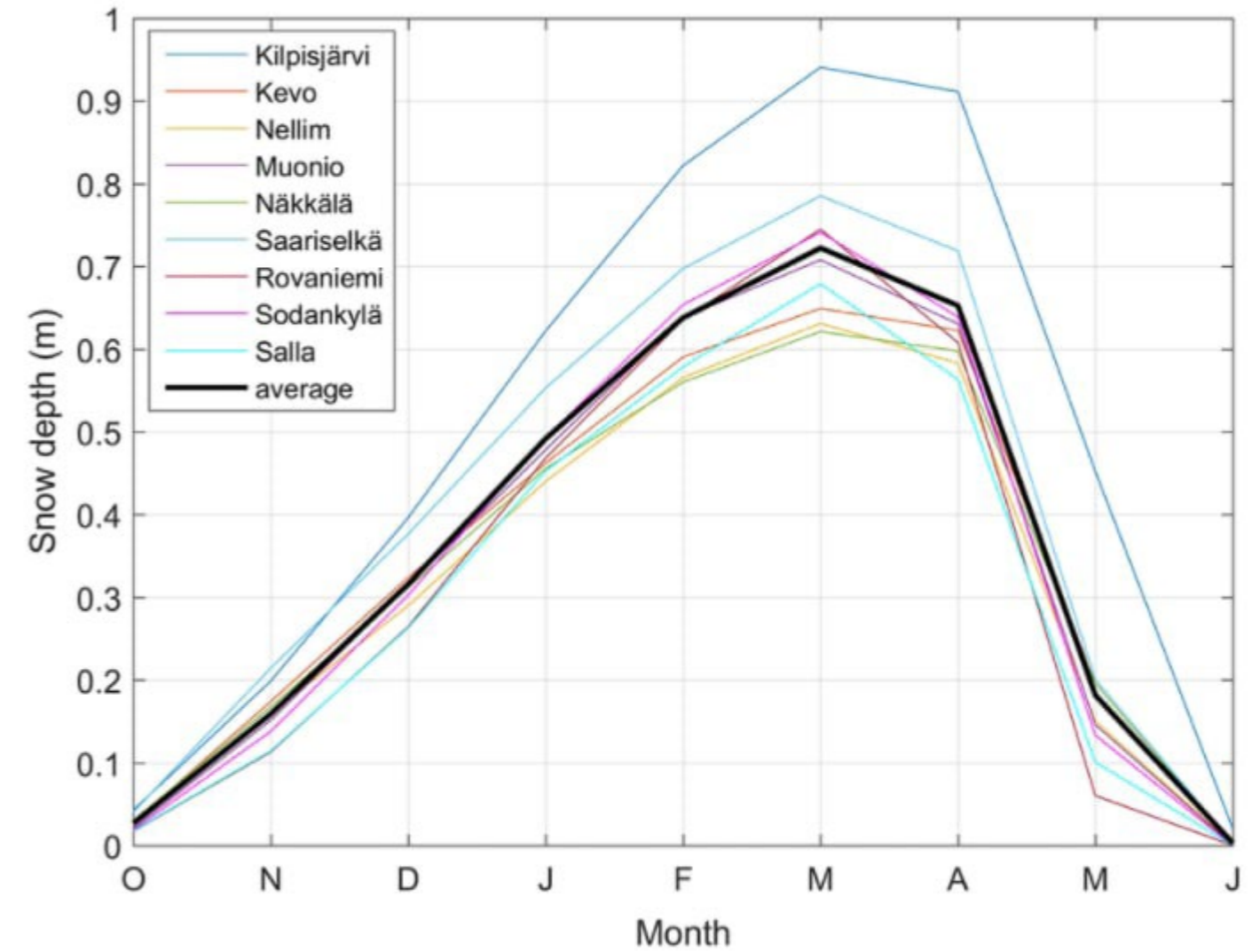
UV index
1-2 (low)

UV index
3-4 (moderate)

Soil

mostly granite, former mountains flattened by glaciers

> easy to built on site



https://www.researchgate.net/figure/Seasonal-variations-in-air-temperature-A-maximum-snow-depth-B-and-precipitation-C_fig6_314110007

- > raise everything up to 100 cm
- > use of pile foundations
- > consider the effects of the snow to the design

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concept



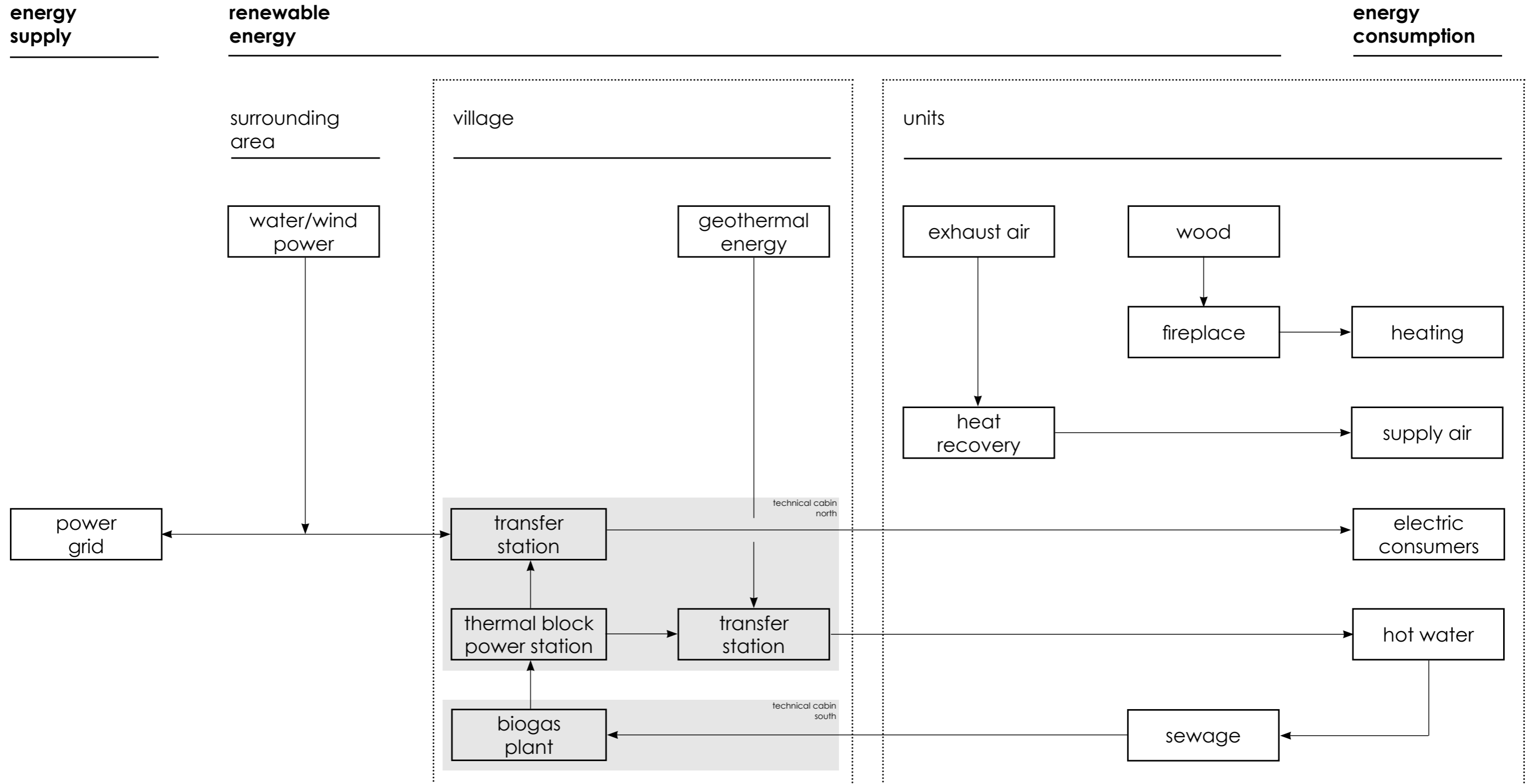
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site plan



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energy concept



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life-cycle concept

REUSE

- easy to disassemble details
- no toxic waste
- easy to reuse materials
 - furniture
 - material banks
 - energy recovery
- easy to reuse parts of the complex

DESIGN

- rational form
- flexible floor plan
 - no load bearing interior walls
- think about repairability
- material choice
 - non toxic
 - good quality
 - renewable resources
- environmental protection
 - overhangs
 - lifted above snow level
 - moisture control
- designed as a long-term carbon storage
- appealing design

MAINTENANCE

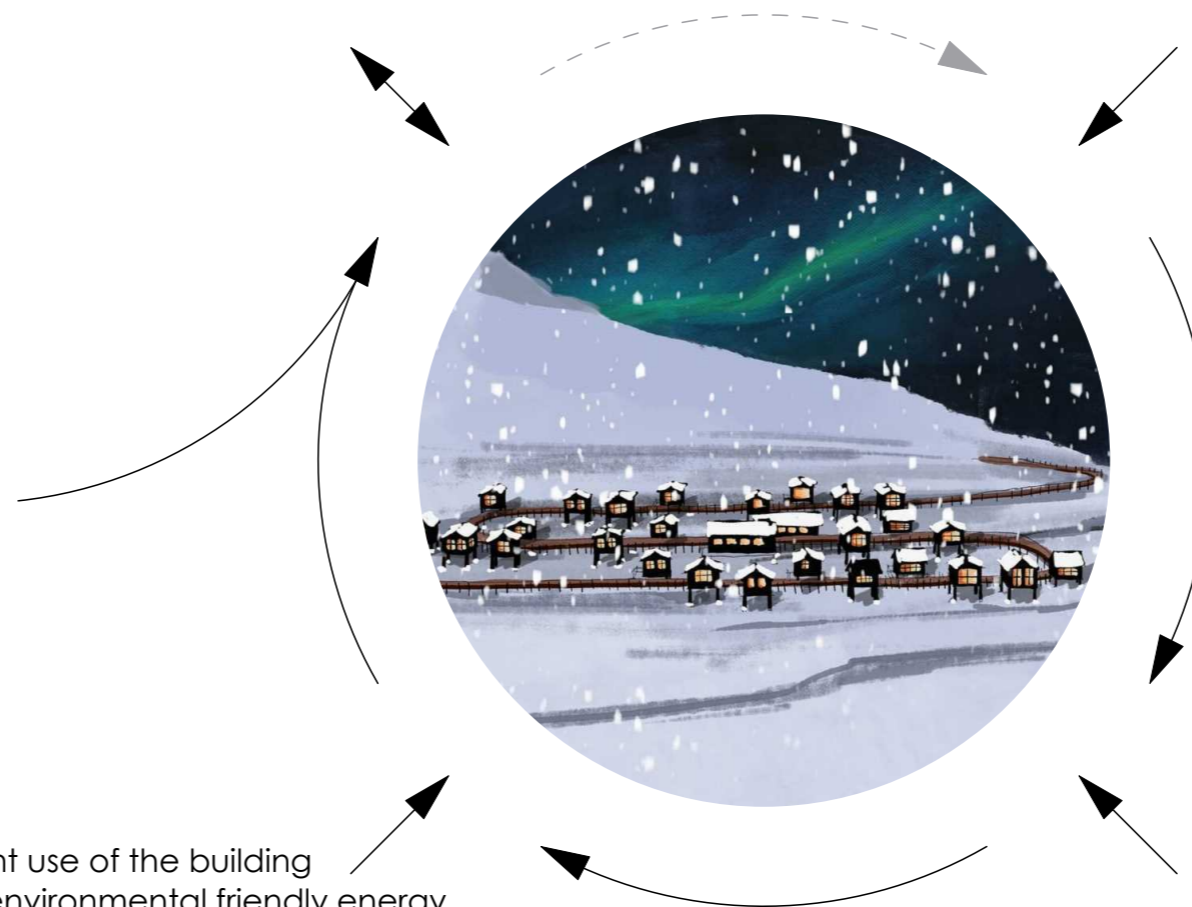
- constant maintaining of the building
 - every spring
 - repair the outdoor pipes
 - repair the cladding and roof
- 5 years
 - repaint the windows
 - replace the railing
- 15 years
 - planing the floor
 - repair the furniture
- 50 years
 - replace the windows
 - replace the outdoor pipes
- 100 years
 - repair the structure

USE

- constant use of the building
- use of environmental friendly energy
- use of energy saving consumers

CONSTRUCTION

- long lasting, durable constructions
- easy to transport materials
- easy to maintain
- exact and easy details



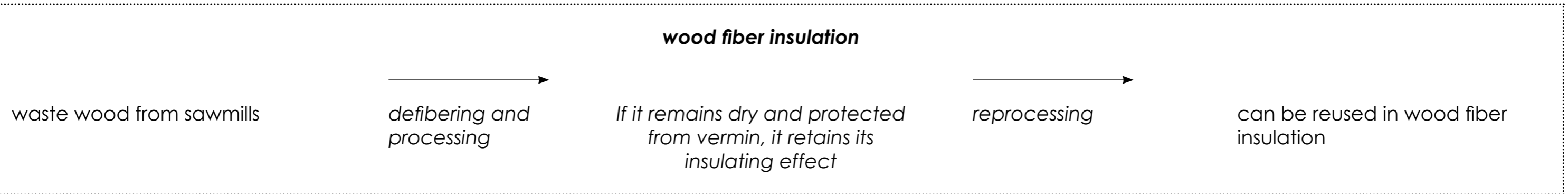
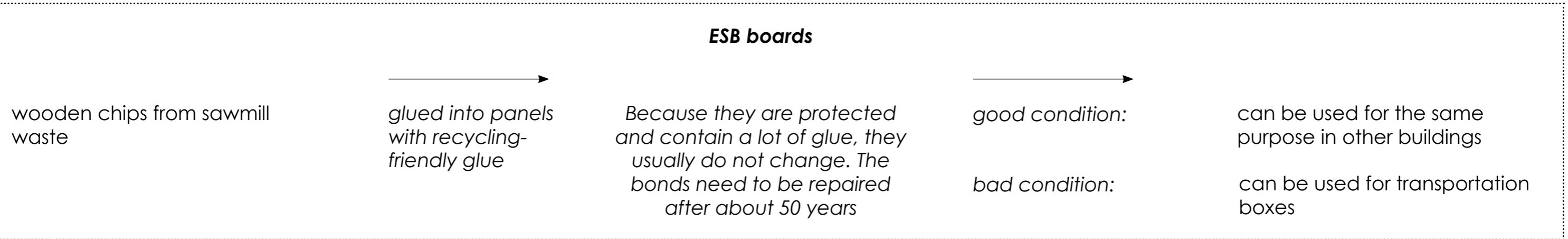
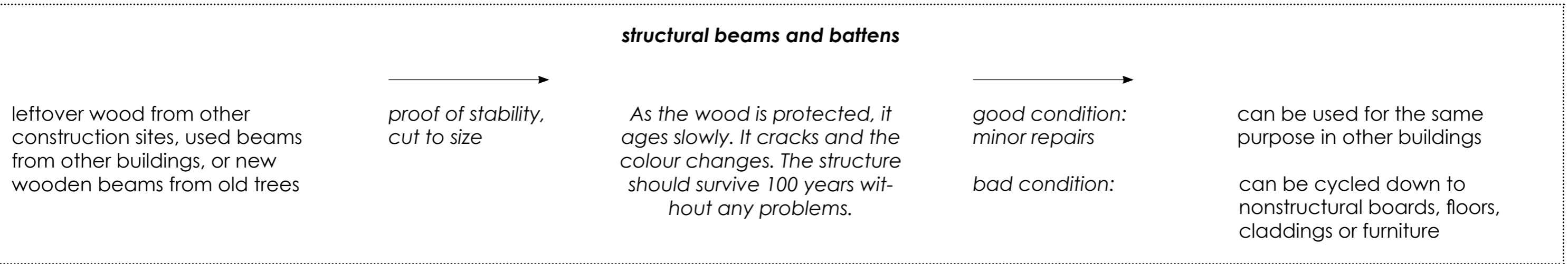
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life-cycle concept

before

use in the design

after



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life-cycle concept

before

use in the design

after

wooden floor

leftover wood from other construction sites, used boards from other buildings, or new wooden boards from old trees

cut down to the same height, planing

The surface is destroyed by mechanical stress and spilled liquids. The top layer must therefore be planed off approx. every 15 years. Afterwards the wood darkens again

good condition: minor repairs, sanding

bad condition:

can be used as thinner boards somewhere else

completely unusable boards can be cycled down to wooden chips

wooden interior cladding, walls and ceiling

new wooden panels from old trees

cut to size, planing, milling the tongue and groove connection

Due to the sun, the wood darkens unevenly. Touching and shading elements causes the wood to change differently in different places

good condition: minor embellishments

bad condition:

can be used for the same purpose in other buildings

usable boards can be used for constructions without aesthetic demands, completely unusable boards can be cycled down to wooden chips

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life-cycle concept

before

use in the design

after

windows and doors

surplus goods or wrong size
manufactured ones

fit into openings by
frame extensions,
recomposition and
individual design
adaptations

The sun and rain put a lot of
stress on the wooden frames.
Therefore, they need to be
painted regularly. After
about 50 years, it makes sense
to replace them.

wood
glass

down cycling to wooden chips
remelting and reuse in other
glass products

furniture

used furniture

minor repairs

Due to the sun, the wood dar-
kens. Through use, the joints
are heavily stressed, which is
why they probably need to be
repaired first. After about 15
years, the surfaces can also be
refurbished.

good condition:
minor repairs

can be used for the same
purpose in other buildings

bad condition:
disassembling

downcycling to wooden chips

leftover wood from other
construction sites, used boards
from other furniture, or new
wooden boards from old trees

easy to construct,
maintain and
disassemble
wooden built in
furniture

good condition:
minor repairs

can be used for the same
purpose in other buildings

bad condition:
disassembling

disassemble into individual
boards

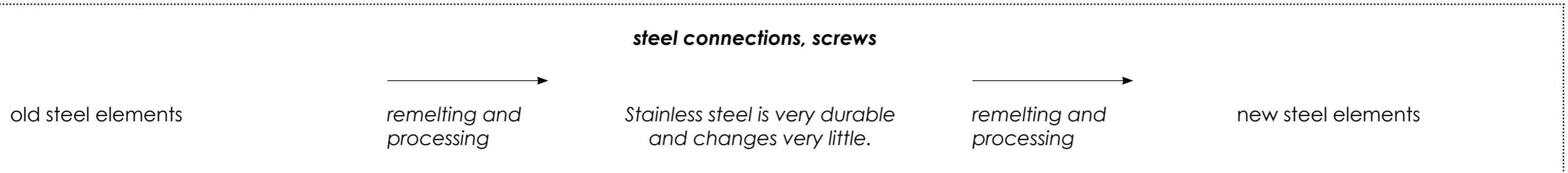
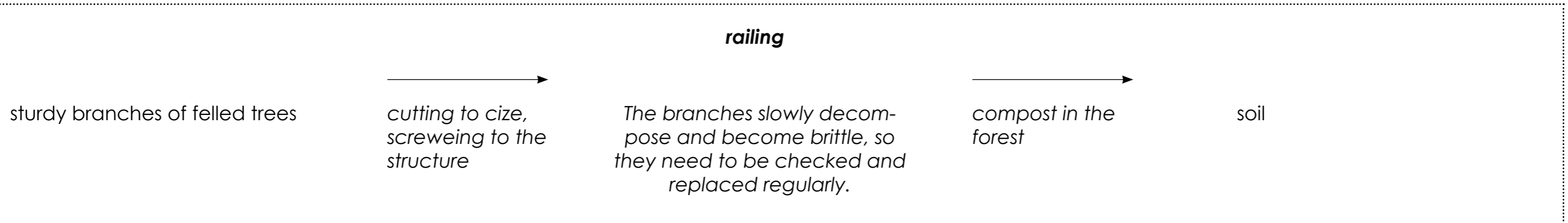
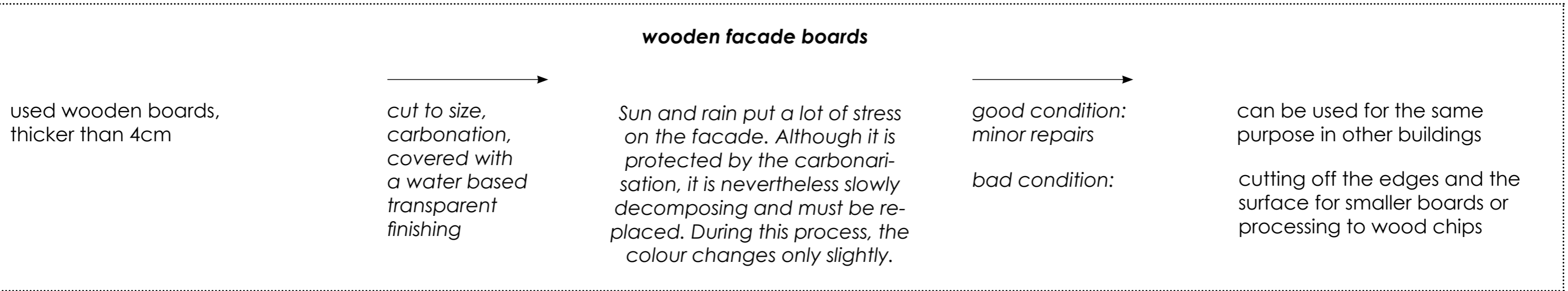
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life-cycle concept

before

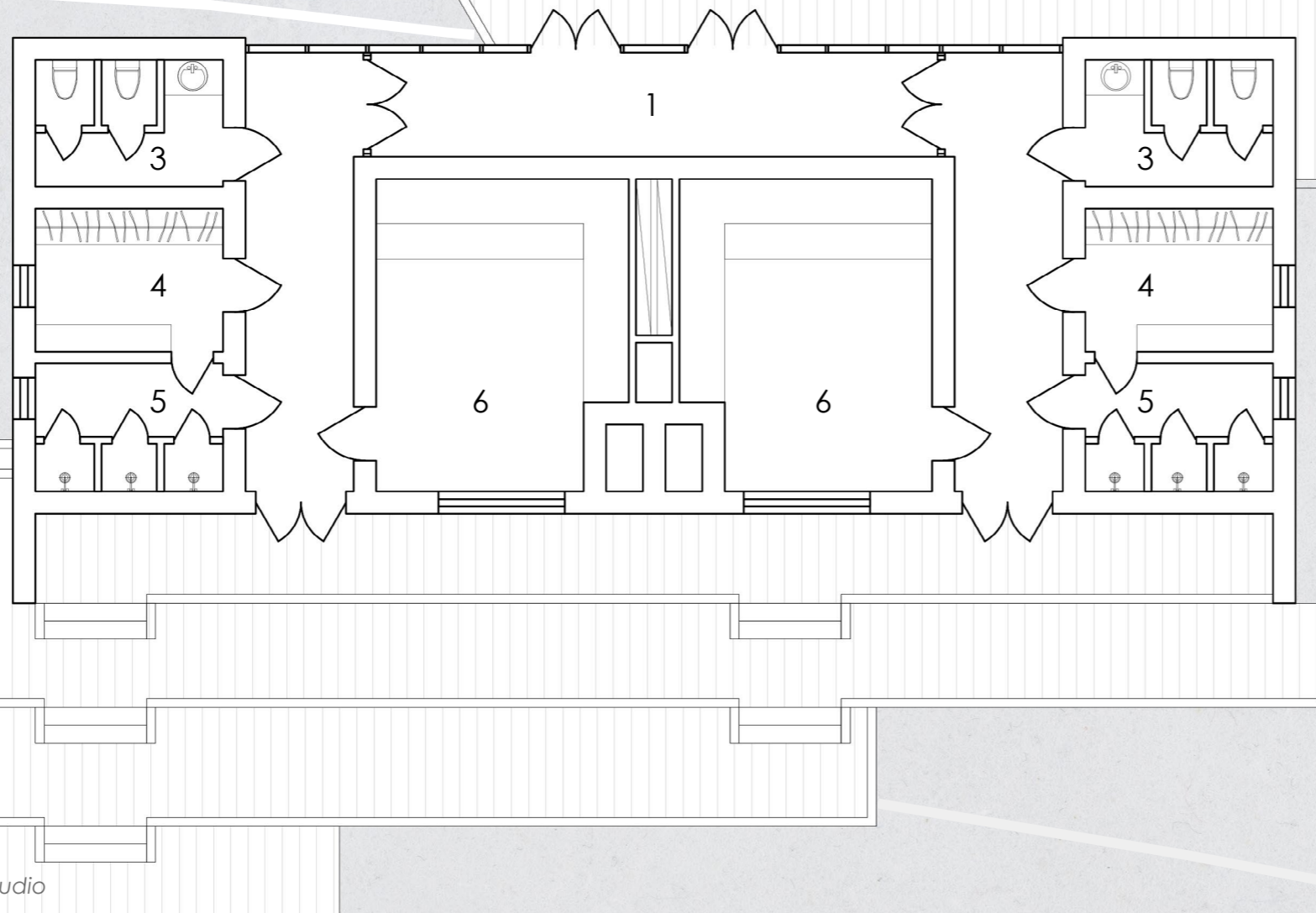
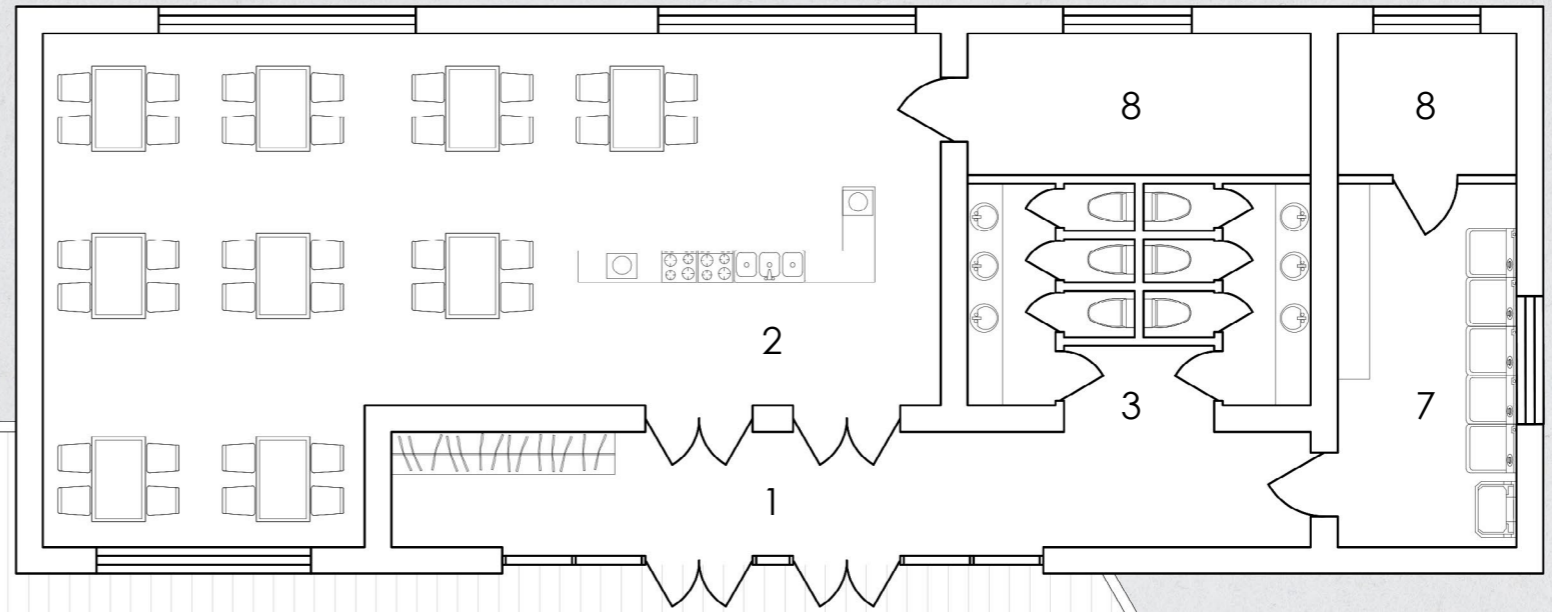
use in the design

after



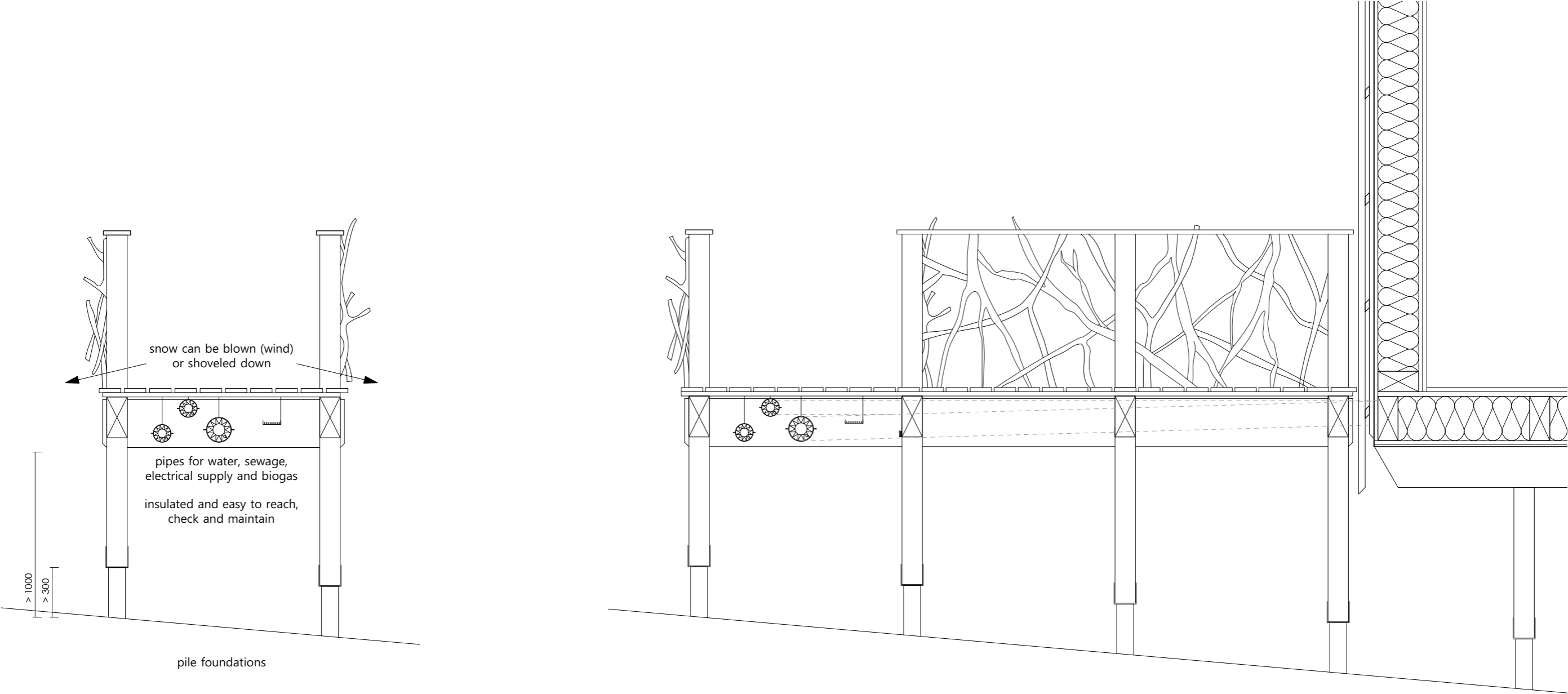
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common units



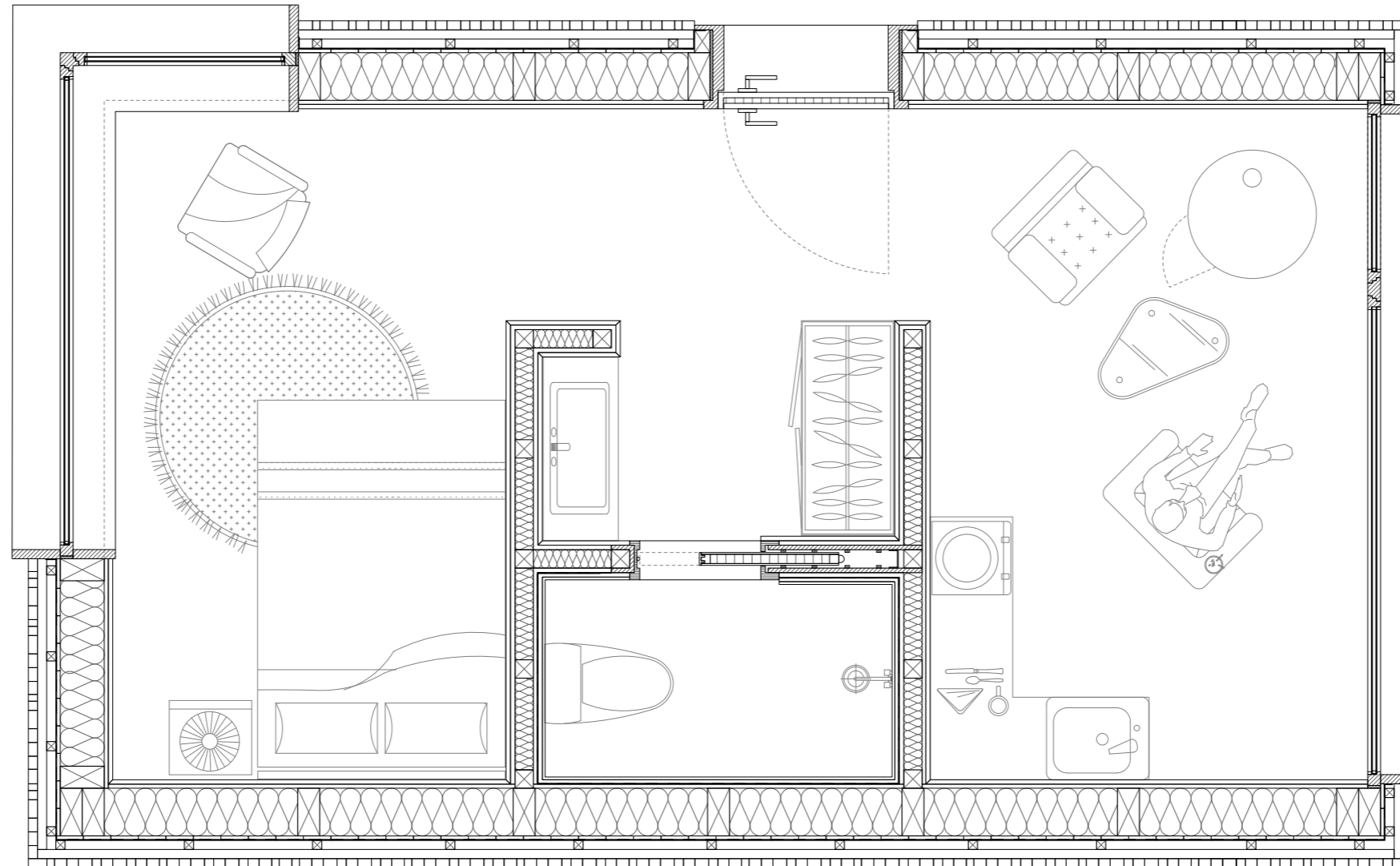
- 1 entrance
- 2 community room
- 3 toilets
- 4 dressing room
- 5 showers
- 6 sauna
- 7 laundry
- 8 storage

the village in the north core



the village in the north

unit 1 - floor plan



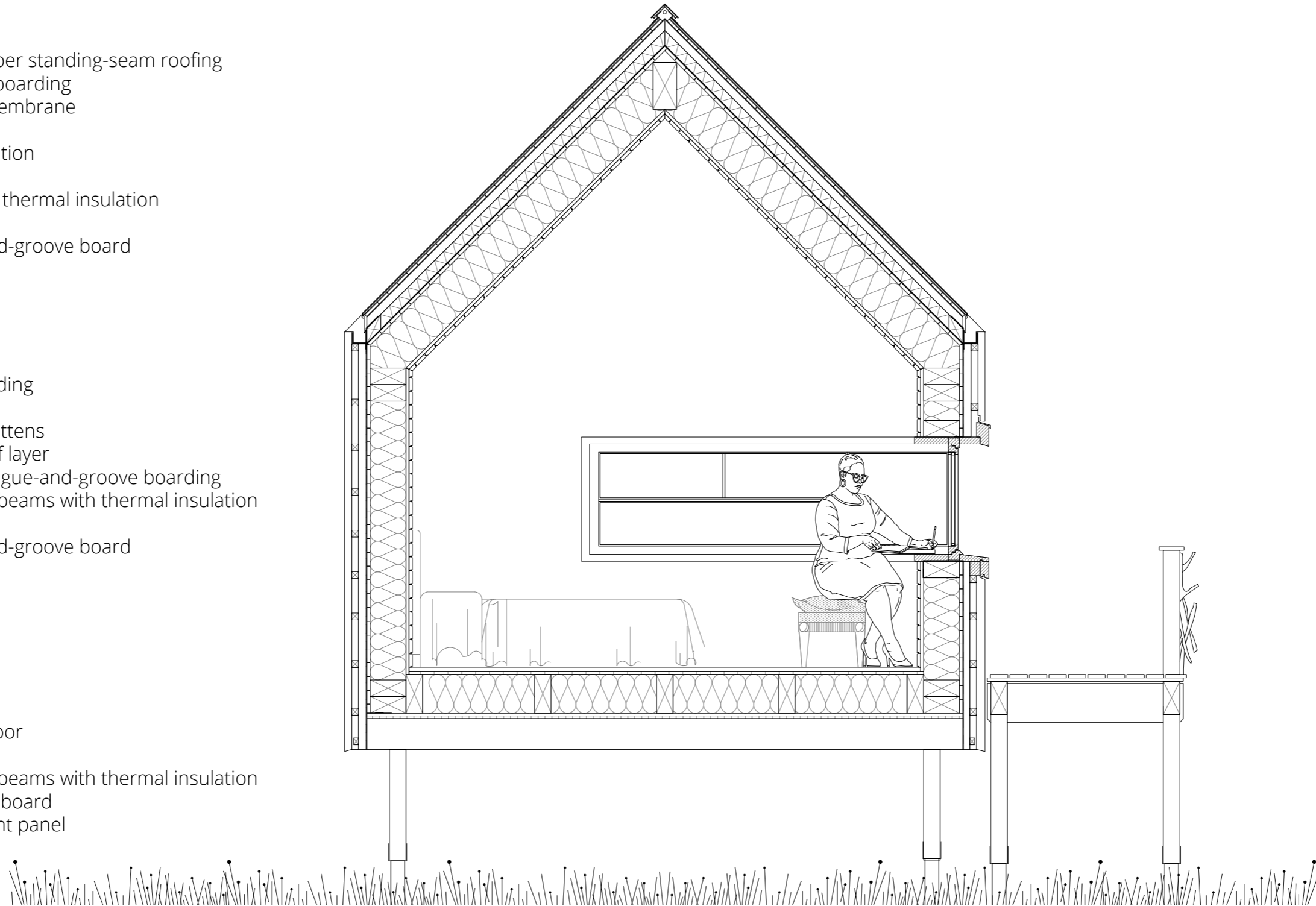
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unit 1 - section

Roof:
 0.5mm sheet-copper standing-seam roofing
 15mm softwood boarding
 breathe membrane
 60/80 mm battens
 80 mm rigid insulation
 20mm planking
 120/300 mm rafter with thermal insulation
 22mm ESB board
 20mm tongue-and-groove board

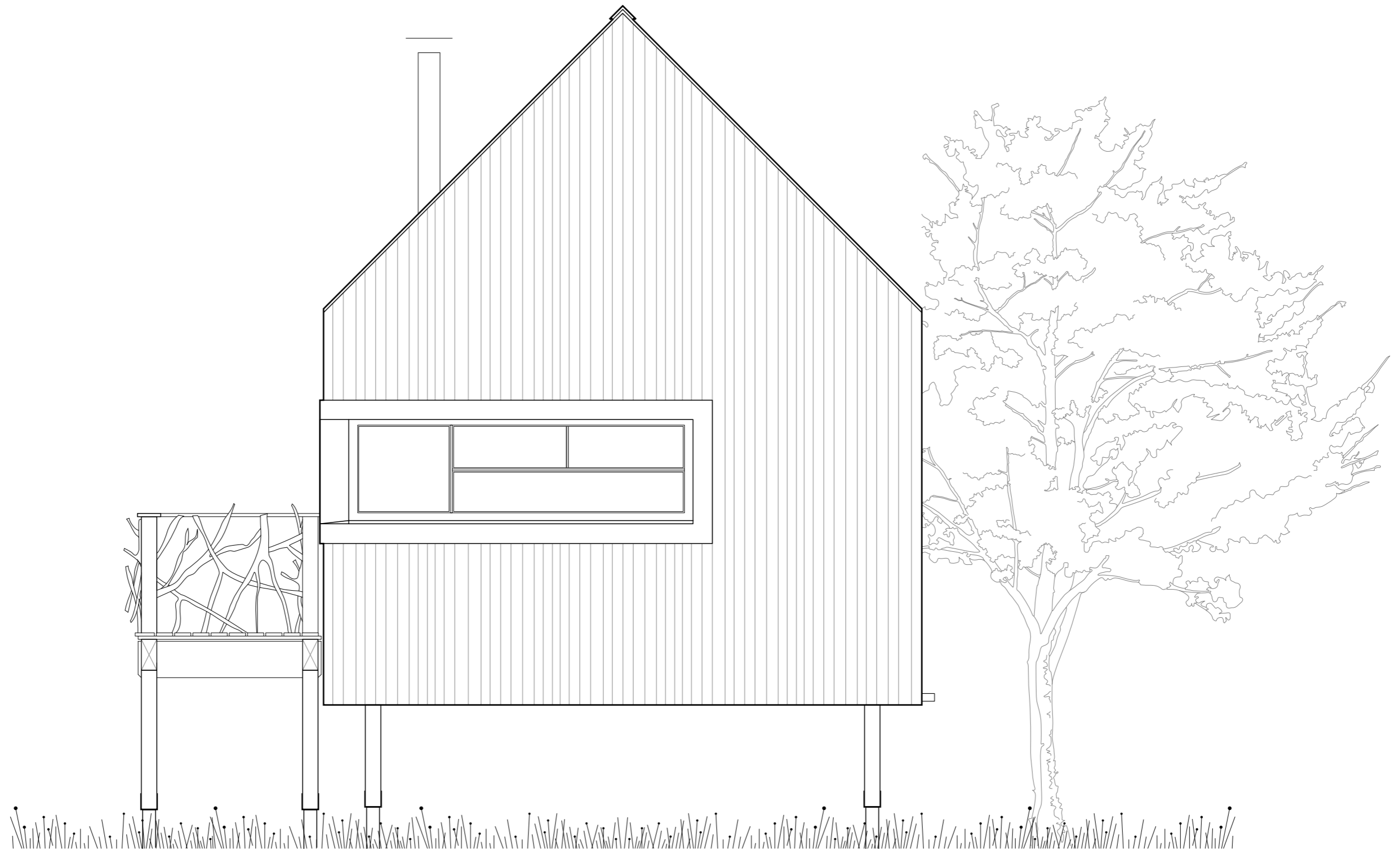
Wall:
 50 mm wood cladding
 50/50mm battens
 50/50mm counter battens
 waterproof layer
 20mm spruce tongue-and-groove boarding
 120/260mm structural beams with thermal insulation
 22mm ESB board
 20mm tongue-and-groove board

Floor:
 30 mm wooden floor
 22mm ESB board
 120/280 mm structural beams with thermal insulation
 20mm wood fibre board
 15mm fibre cement panel



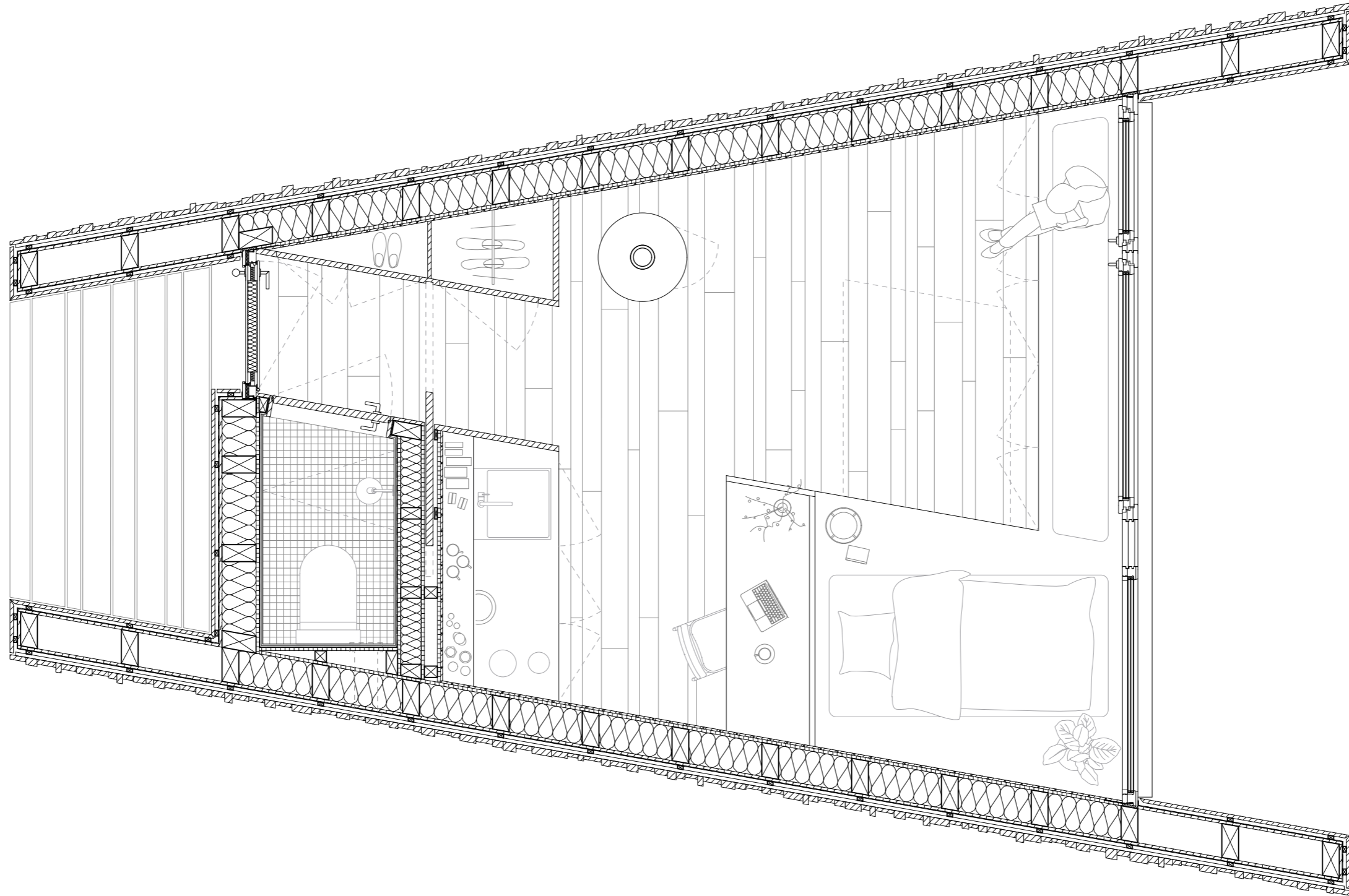
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unit 1 - elevation



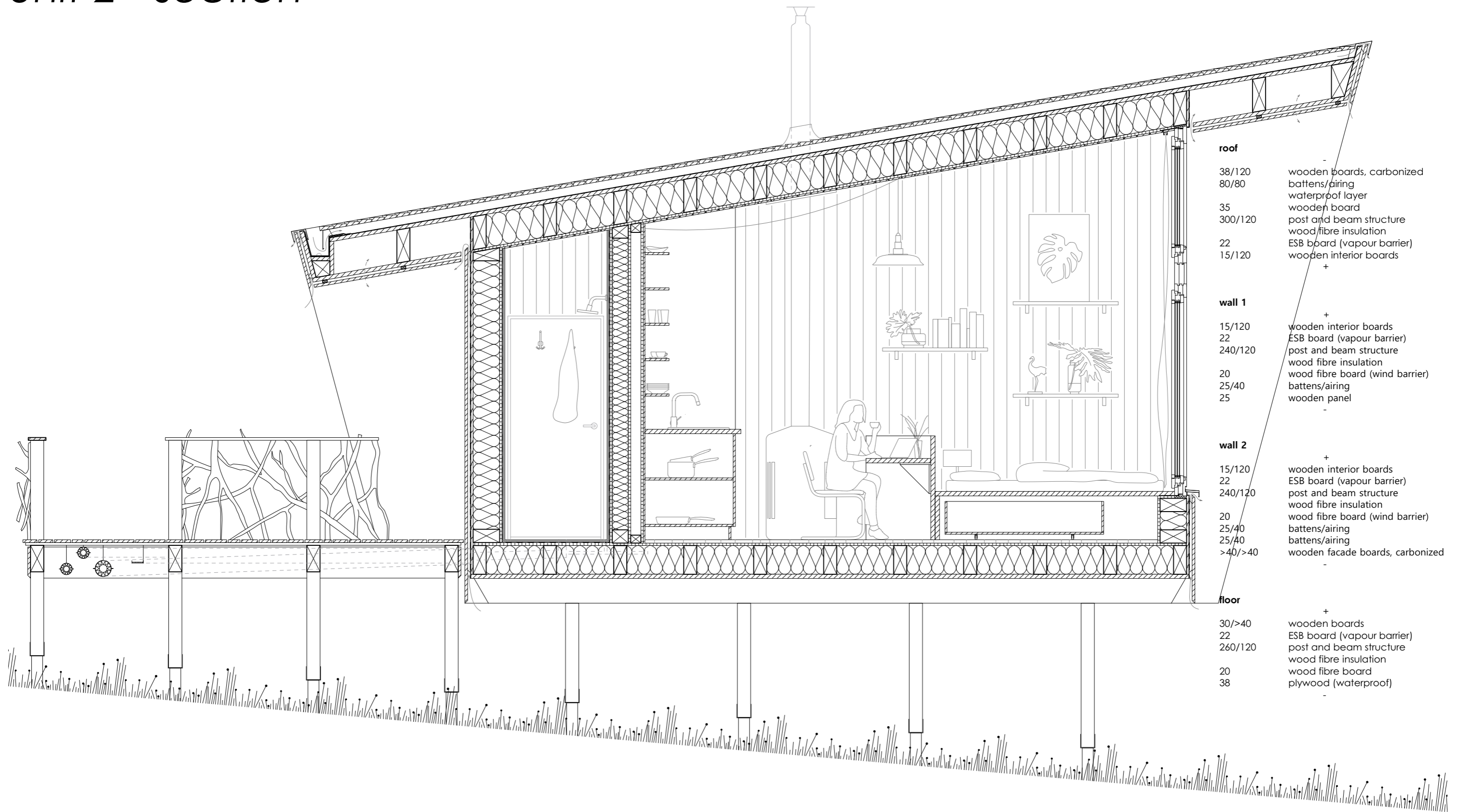
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unit 2 - floor plan



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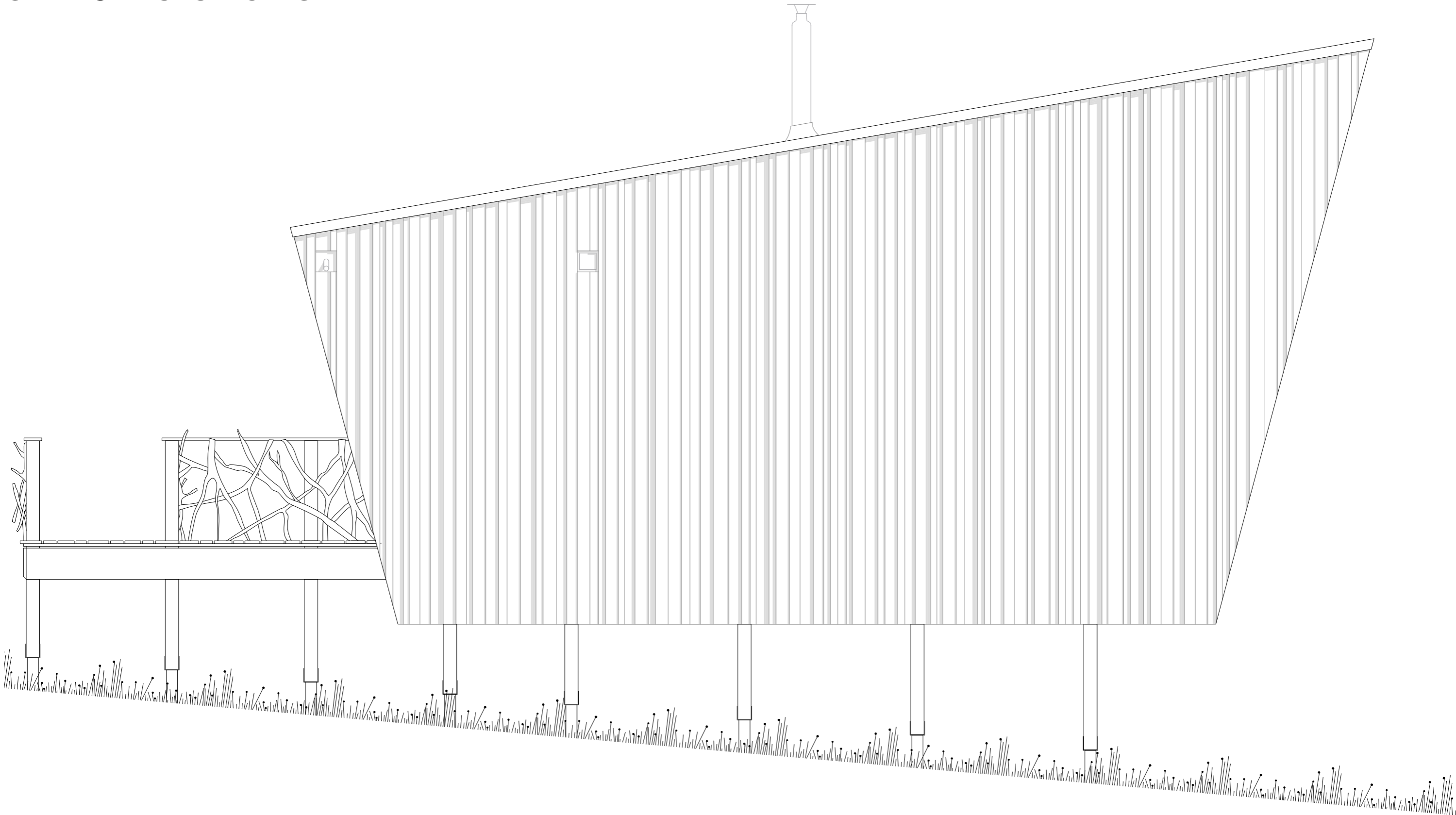
unit 2 - section



- | | |
|---------------|----------------------------------|
| roof | |
| 38/120 | wooden boards, carbonized |
| 80/80 | battens/airing |
| | waterproof layer |
| 35 | wooden board |
| 300/120 | post and beam structure |
| | wood fibre insulation |
| 22 | ESB board (vapour barrier) |
| 15/120 | wooden interior boards |
| | + |
| wall 1 | |
| | + |
| 15/120 | wooden interior boards |
| 22 | ESB board (vapour barrier) |
| 240/120 | post and beam structure |
| | wood fibre insulation |
| 20 | wood fibre board (wind barrier) |
| 25/40 | battens/airing |
| 25 | wooden panel |
| | - |
| wall 2 | |
| | + |
| 15/120 | wooden interior boards |
| 22 | ESB board (vapour barrier) |
| 240/120 | post and beam structure |
| | wood fibre insulation |
| 20 | wood fibre board (wind barrier) |
| 25/40 | battens/airing |
| 25/40 | battens/airing |
| >40/>40 | wooden facade boards, carbonized |
| | - |
| floor | |
| | + |
| 30/>40 | wooden boards |
| 22 | ESB board (vapour barrier) |
| 260/120 | post and beam structure |
| | wood fibre insulation |
| 20 | wood fibre board |
| 38 | plywood (waterproof) |
| | - |

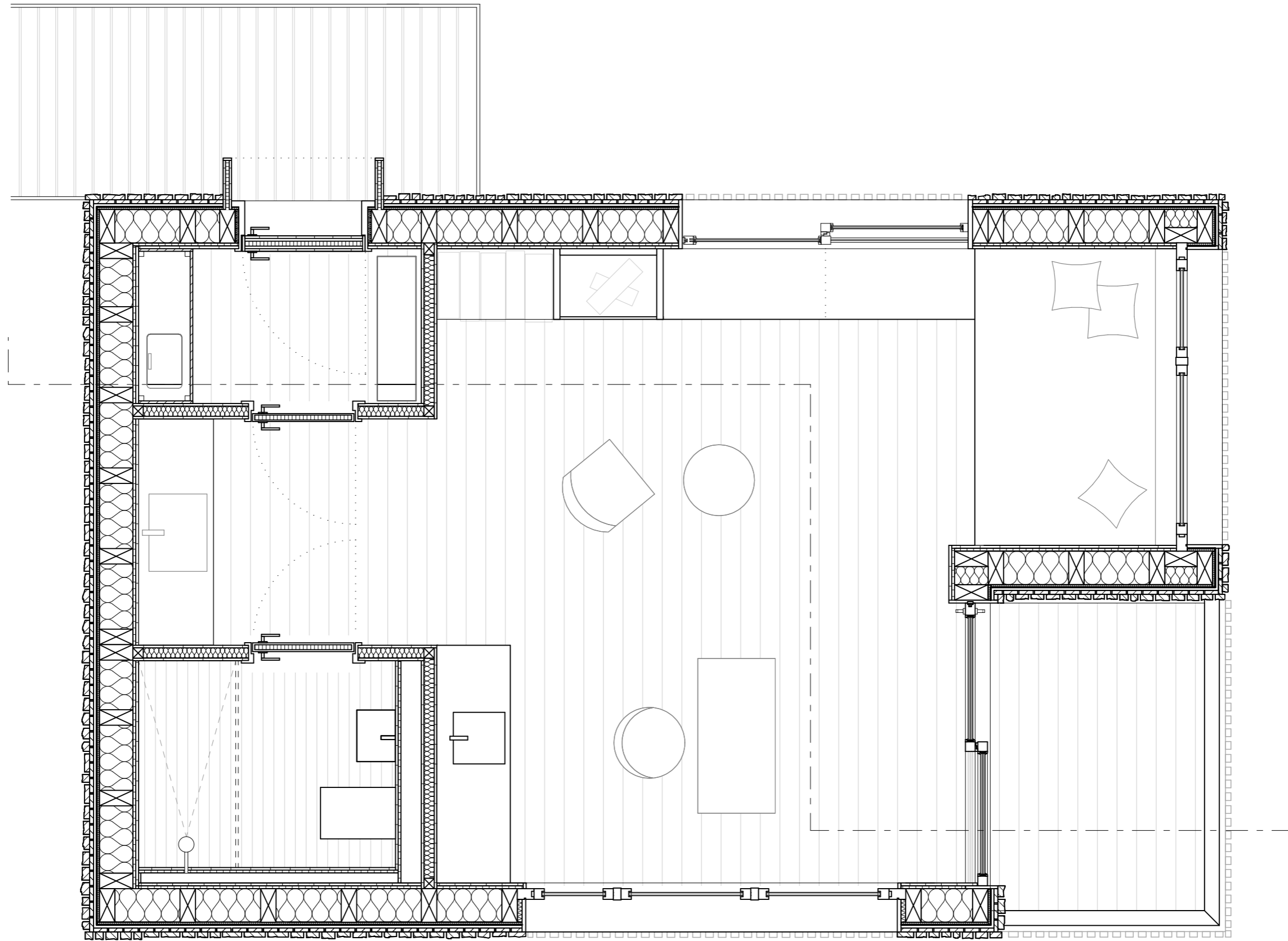
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unit 3 - elevation



the village in the north

unit 3 - floor plan



the village in the north

unit 3 - section

Roof

- 25/110 mm wooden board
- 20 mm wooden board
- 40/60 mm batten
- 80/60 mm counter battens/airing
- waterproof layer
- 35 mm wood fibre insulation panel
- 300/120 mm post and beam structure with wood fiber insulation
- 22 mm ESD board (vapour barrier)
- 20 mm interior boards wood

Wall

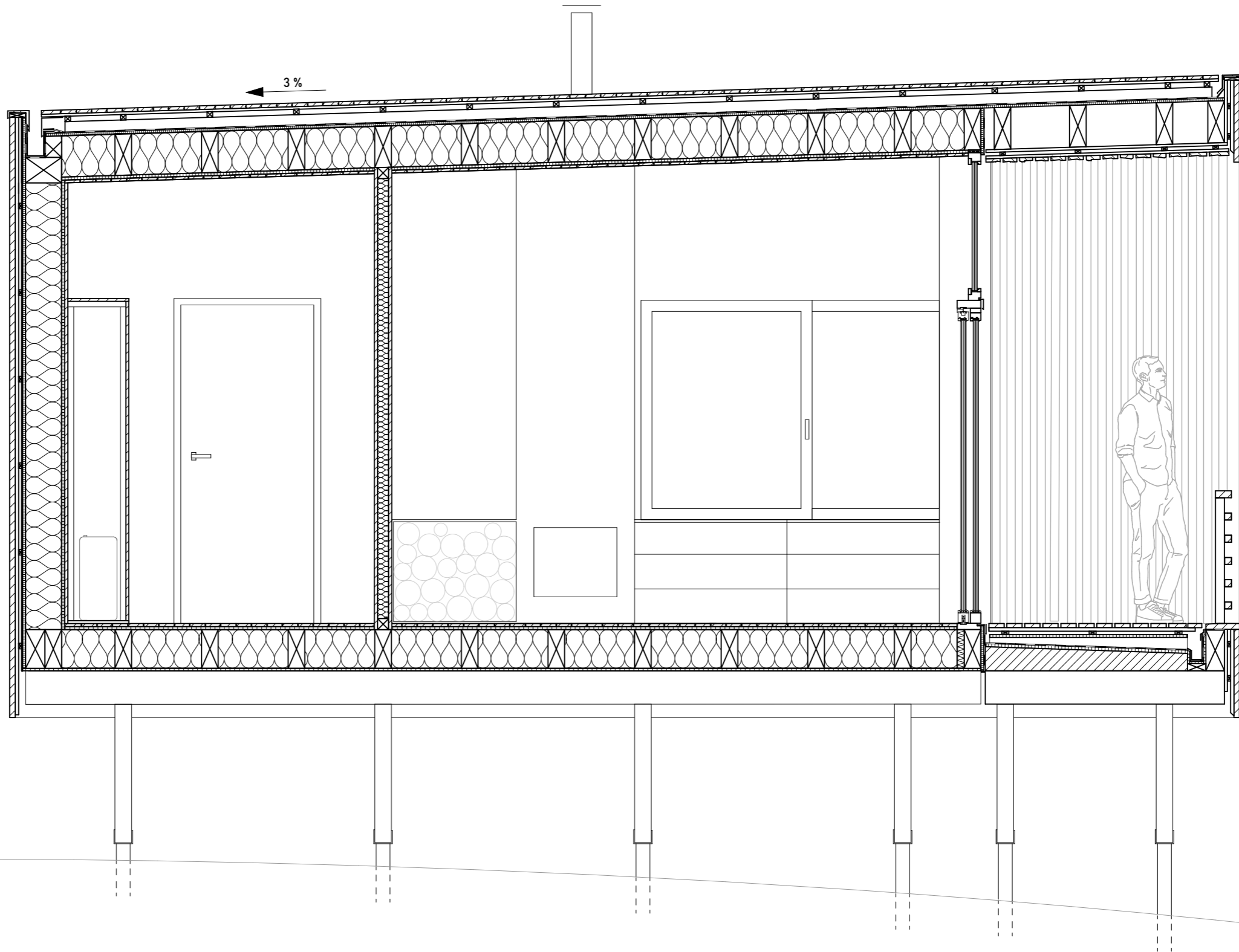
- 40-25 mm wooden boards charred
- 25 mm wooden boards
- 25/40 mm batten/airing
- windproof barrier
- 20 mm wood fibre board
- 240/120 mm post and beam structure with wood fiber insulation
- 22 mm ESD board (vapour barrier)
- 25 mm interior boards wood

Floor

- 30 mm wooden boards
- 22 mm ESD board (vapour barrier)
- 260/120 mm post and beam structure with wood fiber insulation
- 22 mm fibre cement panel

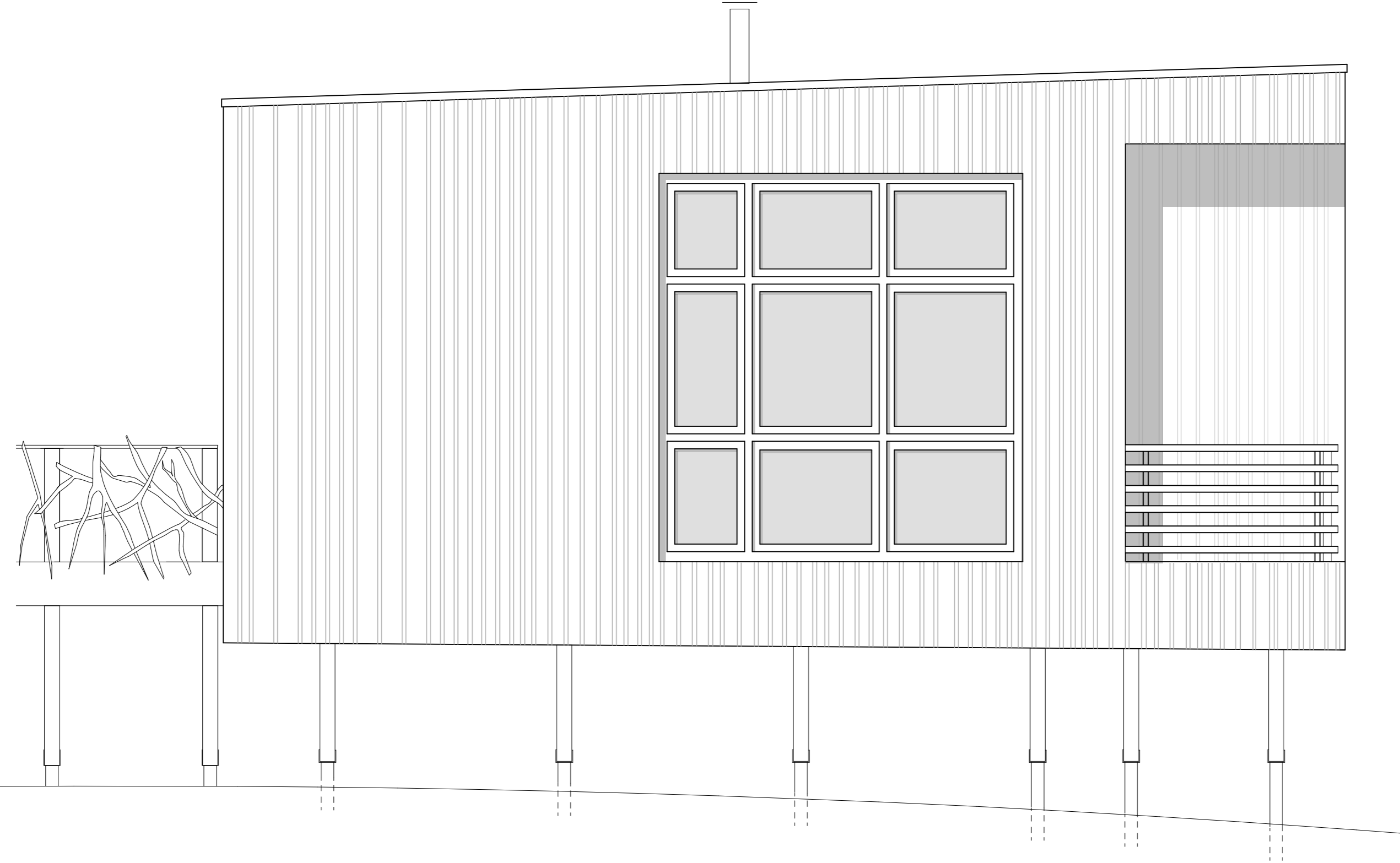
Terrace

- 30 mm wooden boards
- 25 mm battens
- 25/50 mm counter battens
- 20 mm ESD board
- 45-80 mm sloping timber furring
- waterproof layer
- 20 mm ESD board
- 175-127 mm sloping timber furring



the village in the north

unit 3 - elevation



the village in the north

west elevation

