Neighbourhood

Architectural Engineering - Olga van Tol, 4141334
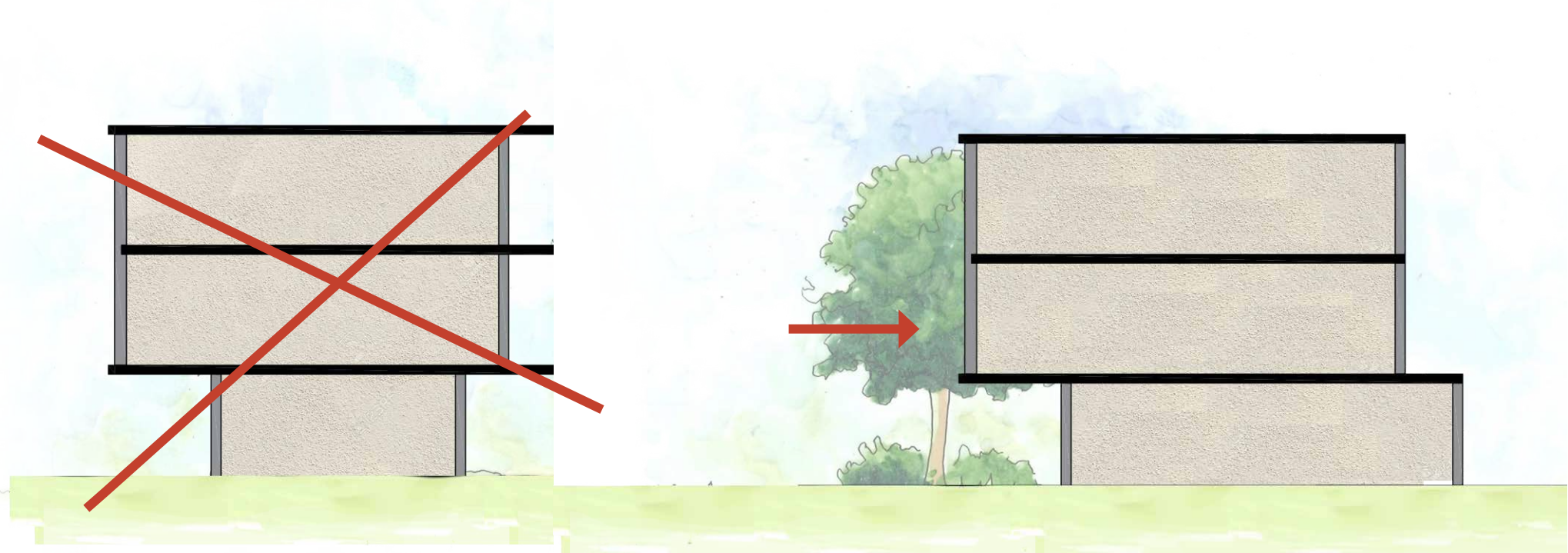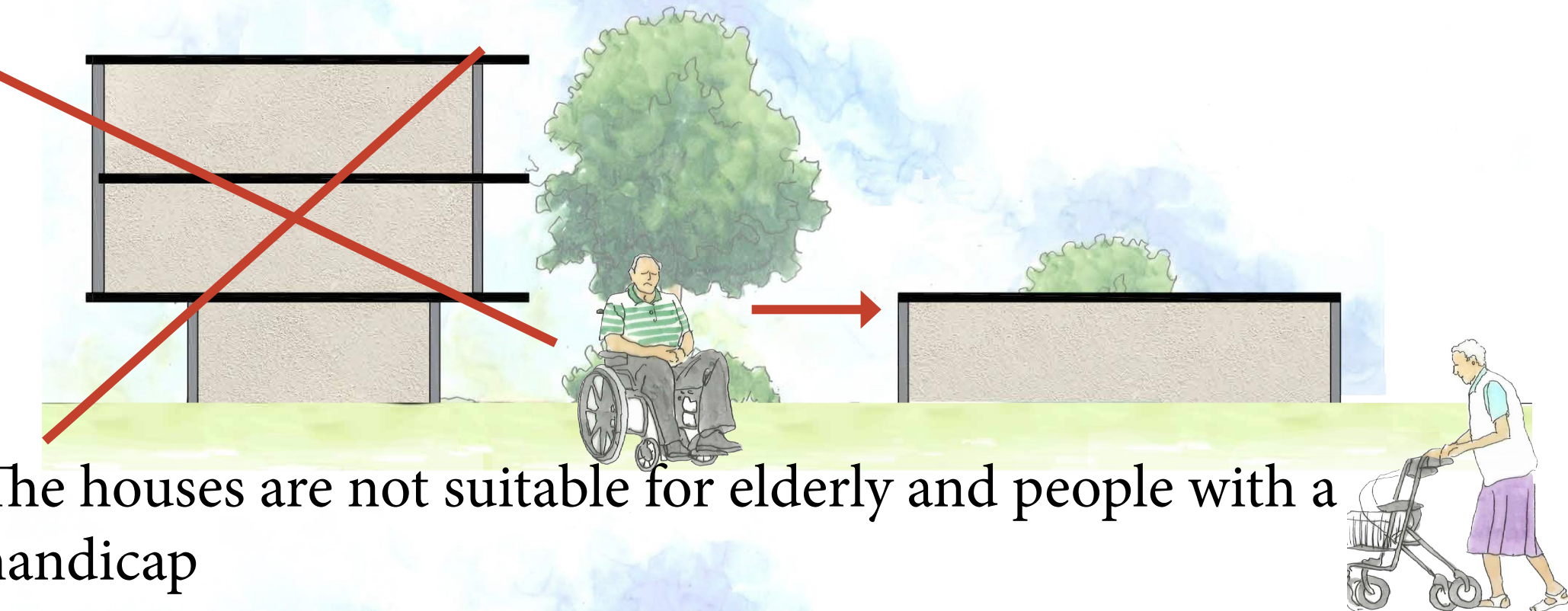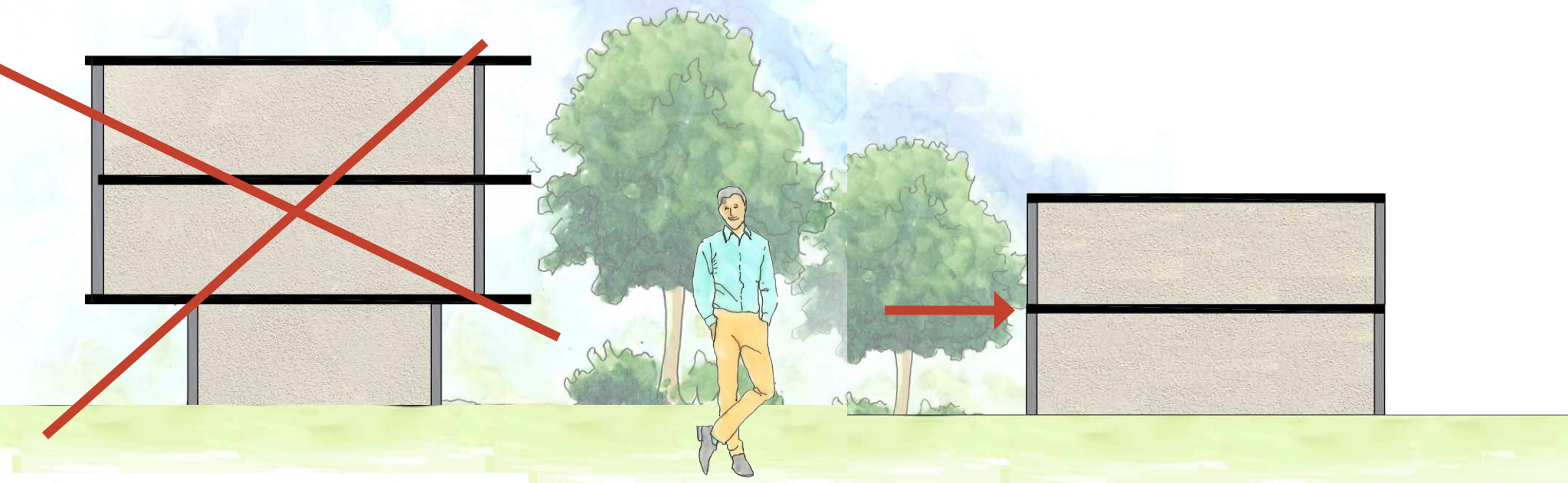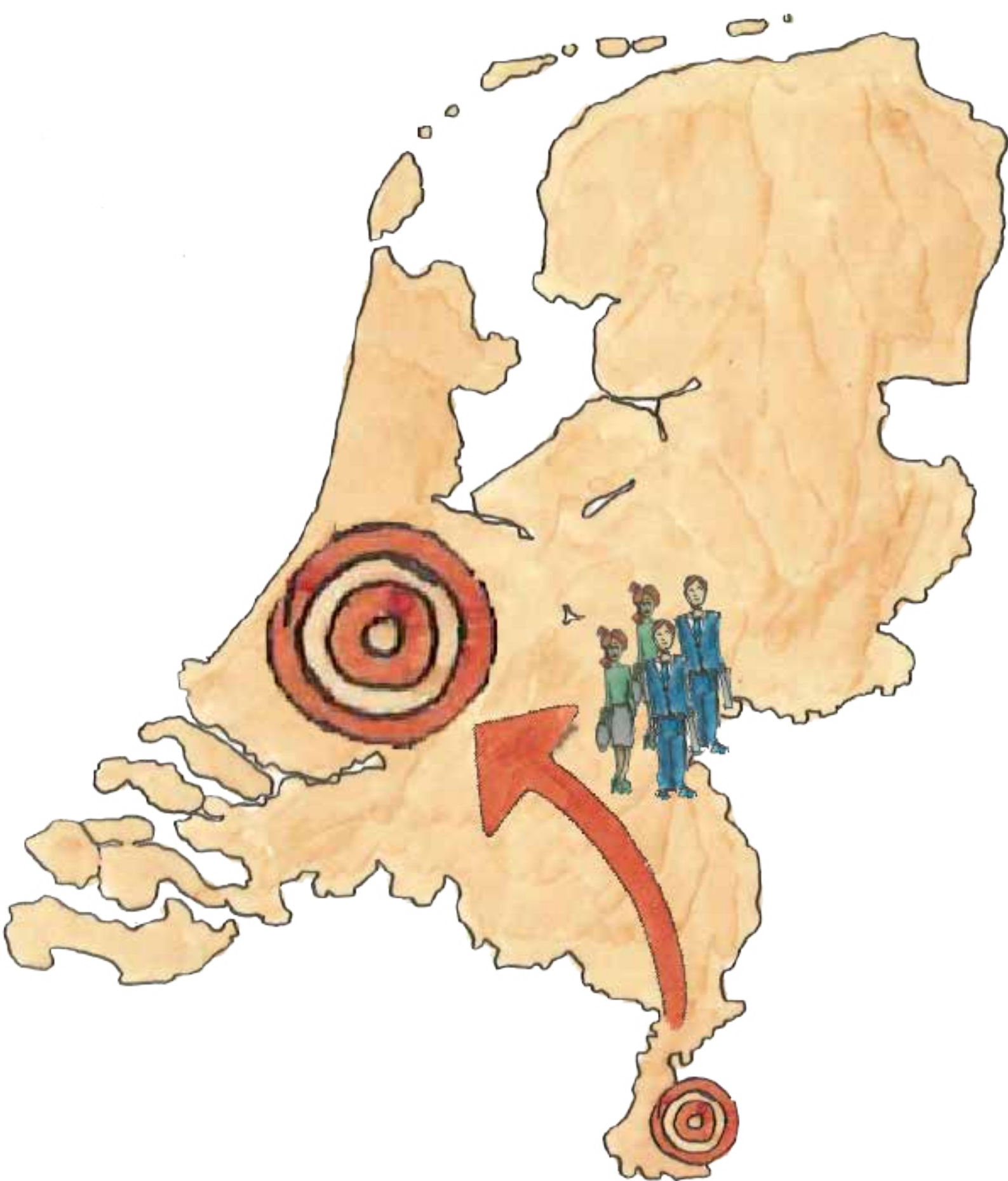
From monotone to multifunctional

The houses in Vrieheide are not big enough for families

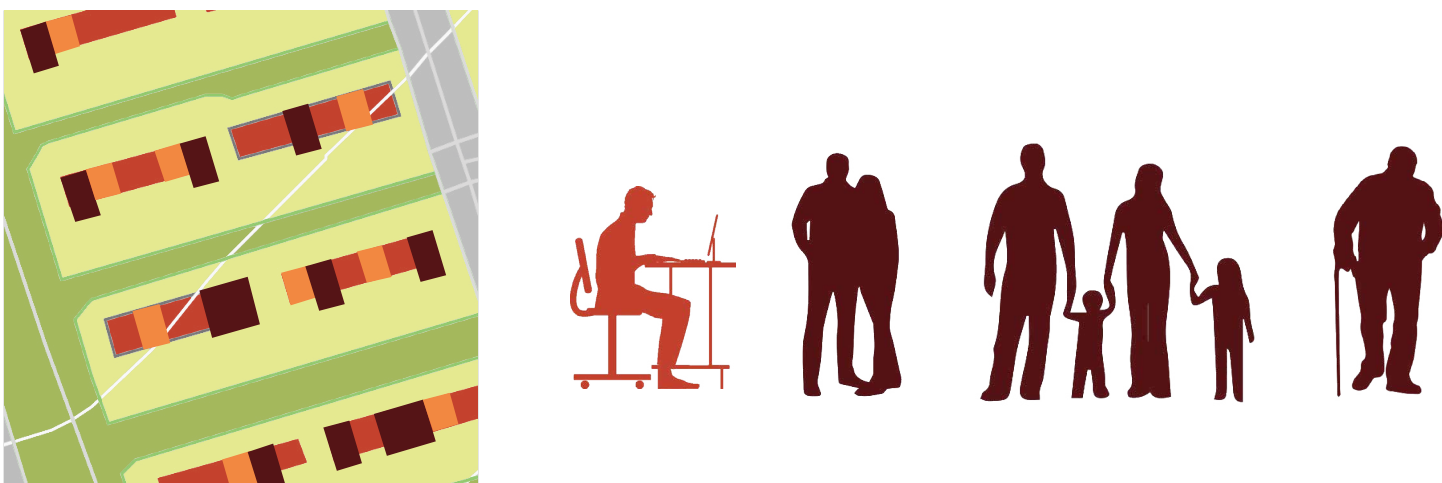The houses are not suitable for elderly and people with a handicap
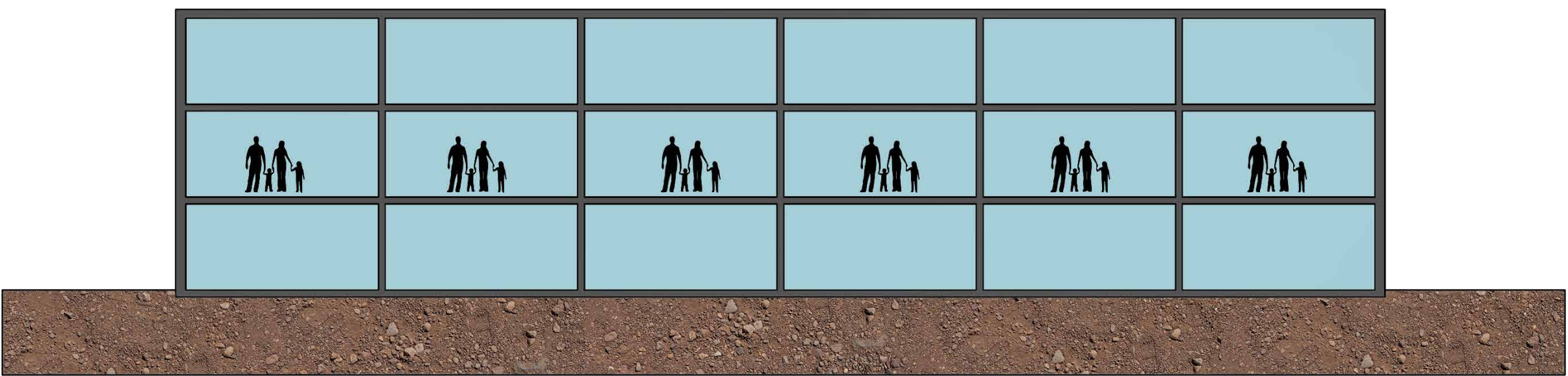
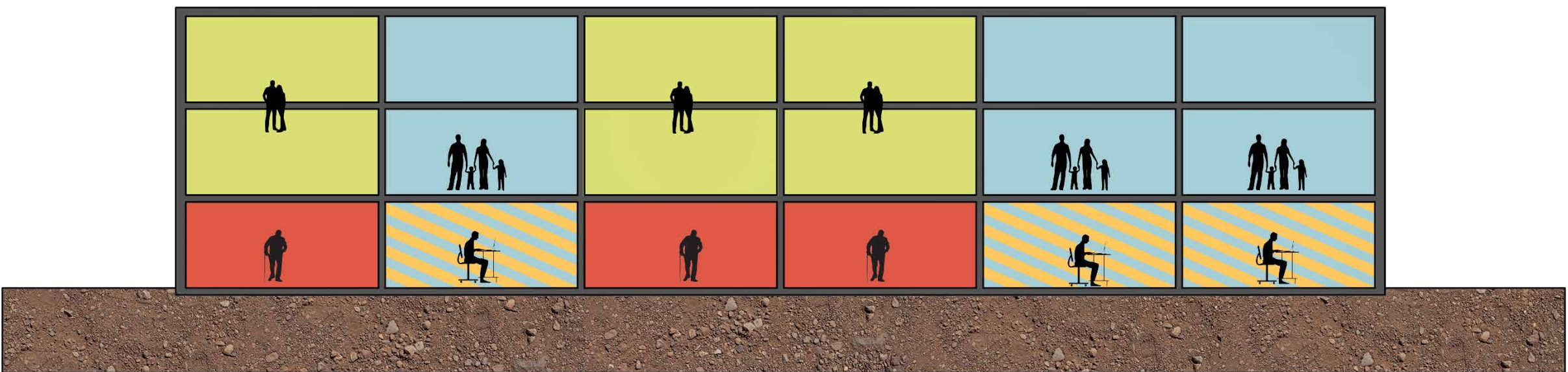The houses are to big for starters

Curren situation

New situation

Curren situation: Only family homes
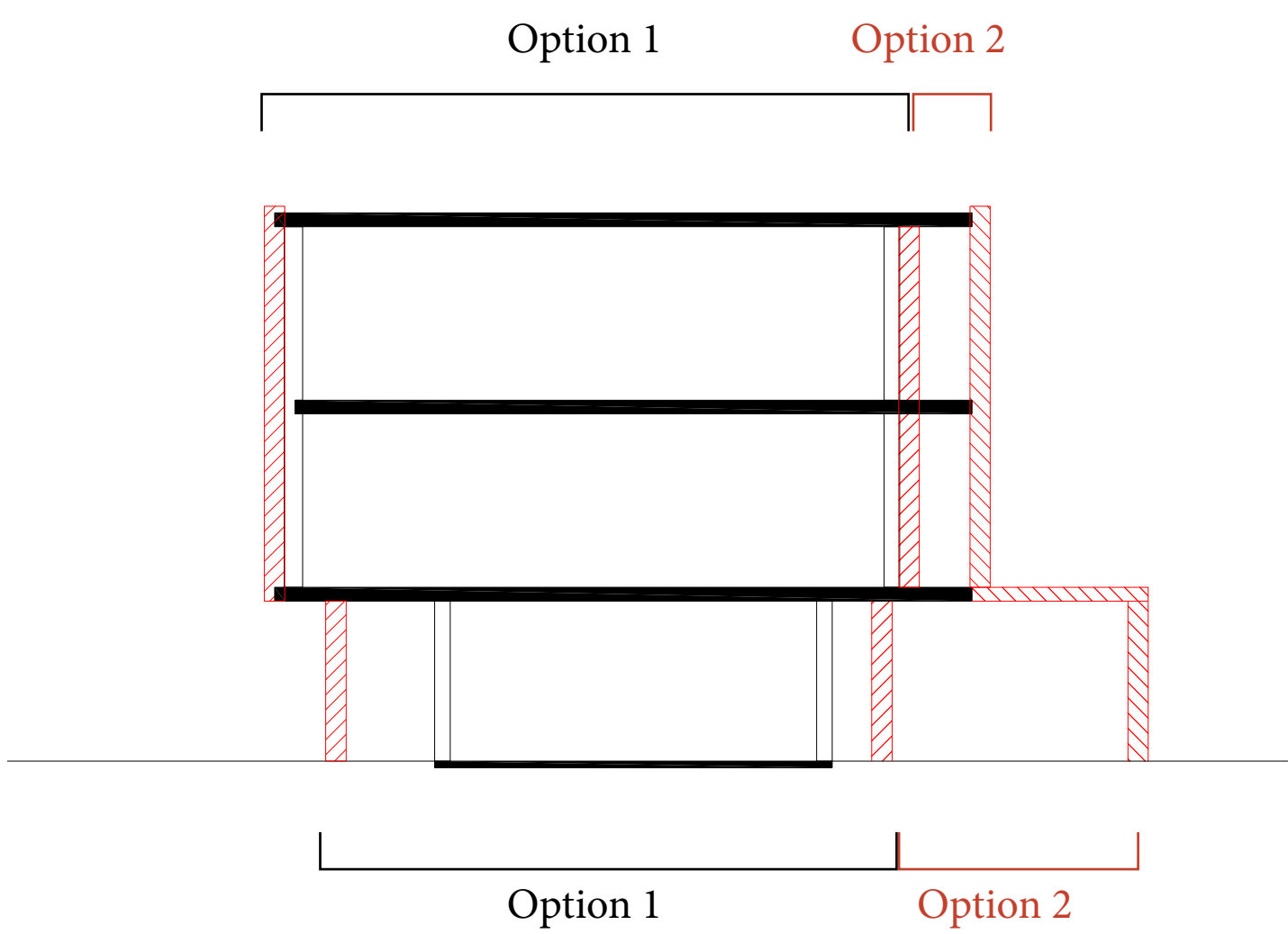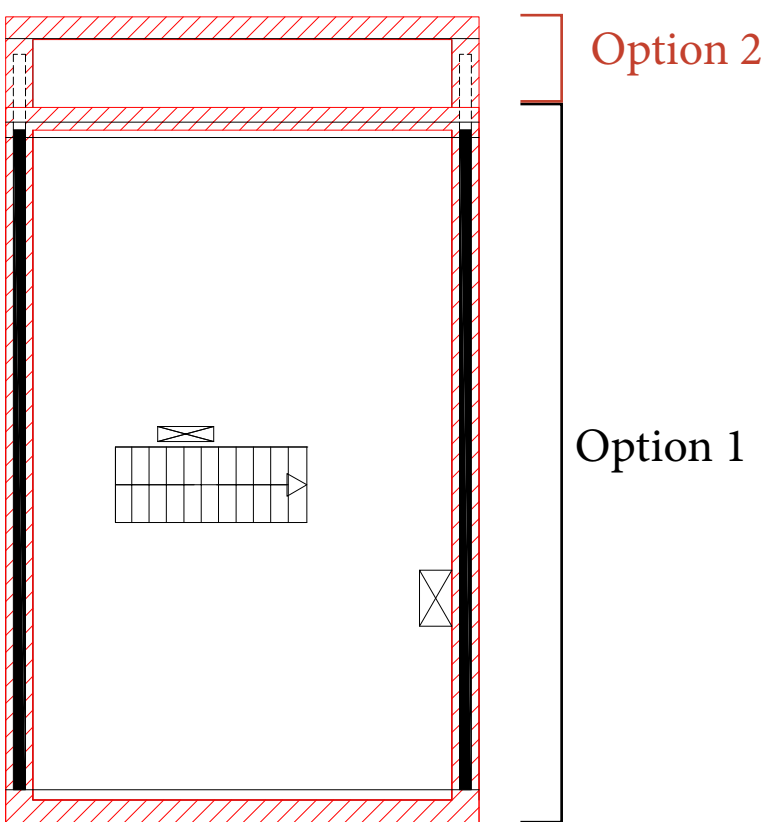
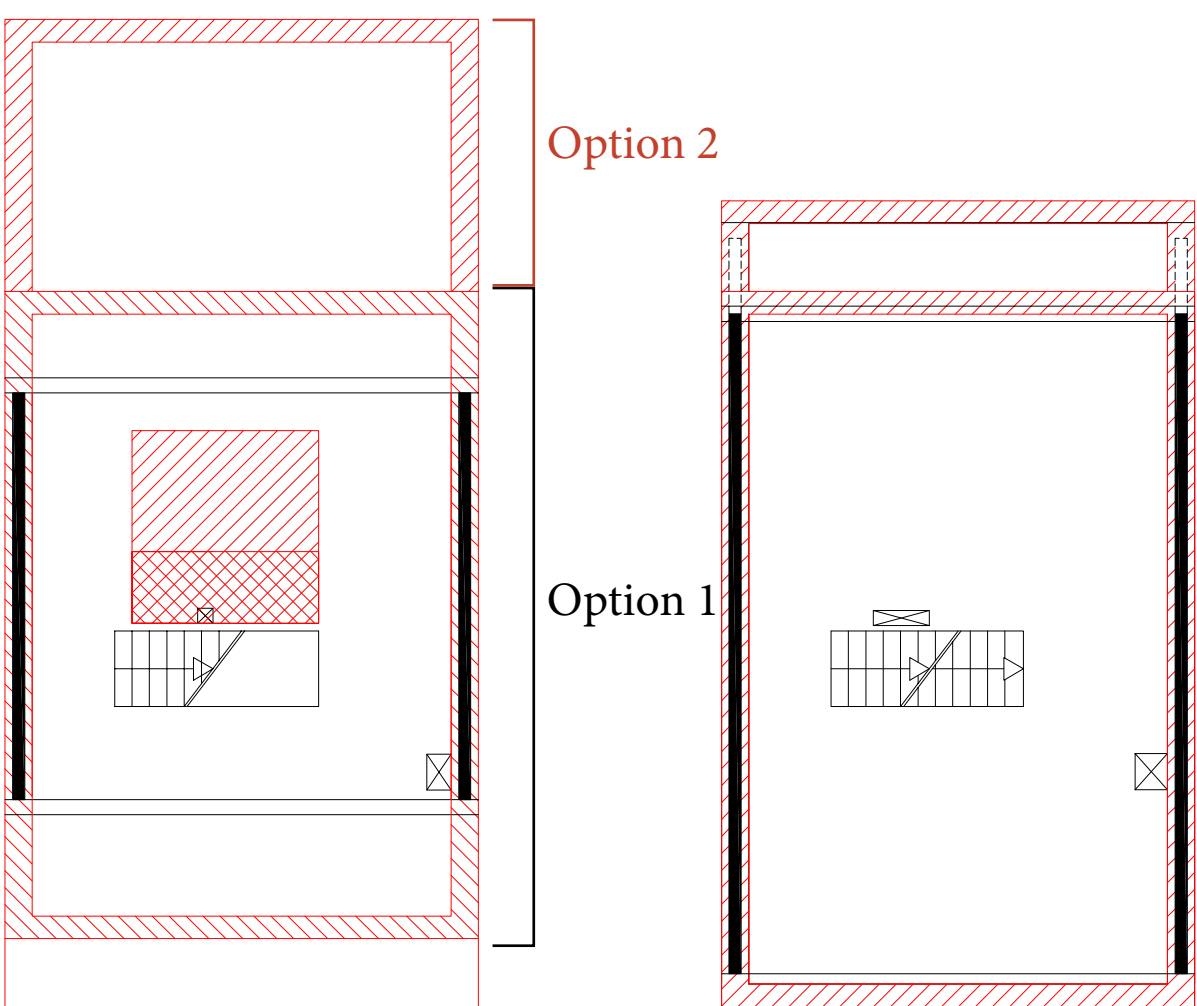New situation: Mix of houses and functions

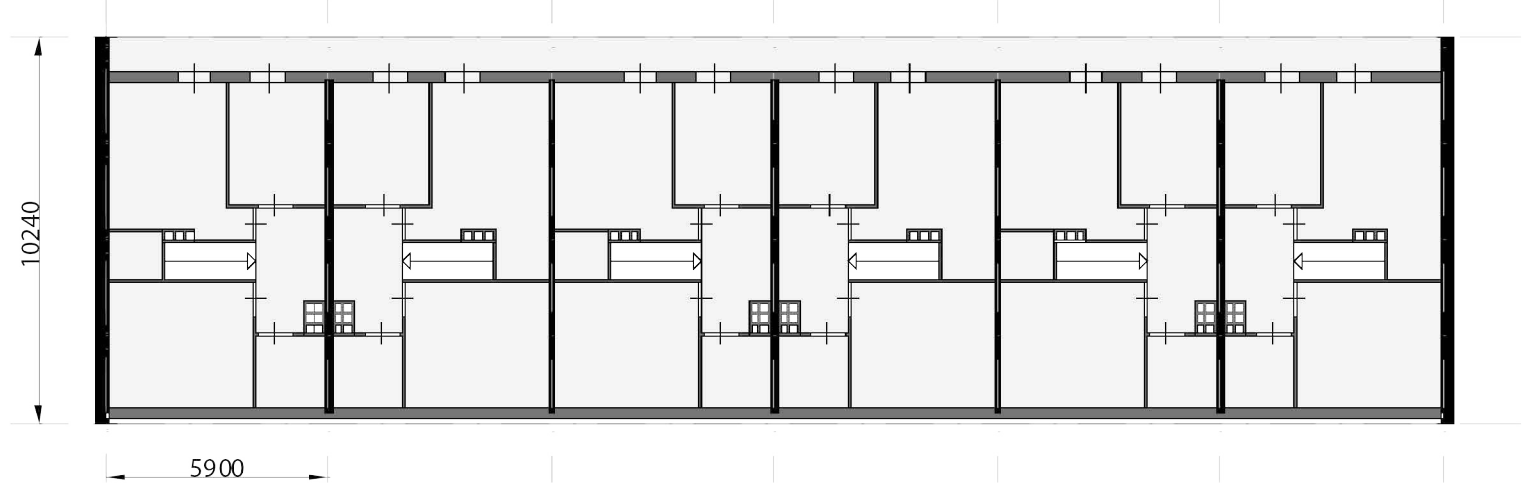Options for the users

N

Ground floor

Floor 1

Floor 2

Option 2

Option 1

Option 2

Option 1

Option 2

Option 1

Option 1

Option 2

Option 1

Option 2

Current situation

Second floor

10240

5900

First floor

10240

5900

Ground floor

5840

A++
A+
A
B
C
D
E   **E**

Façade system

Current façade

Steady

Optional

600
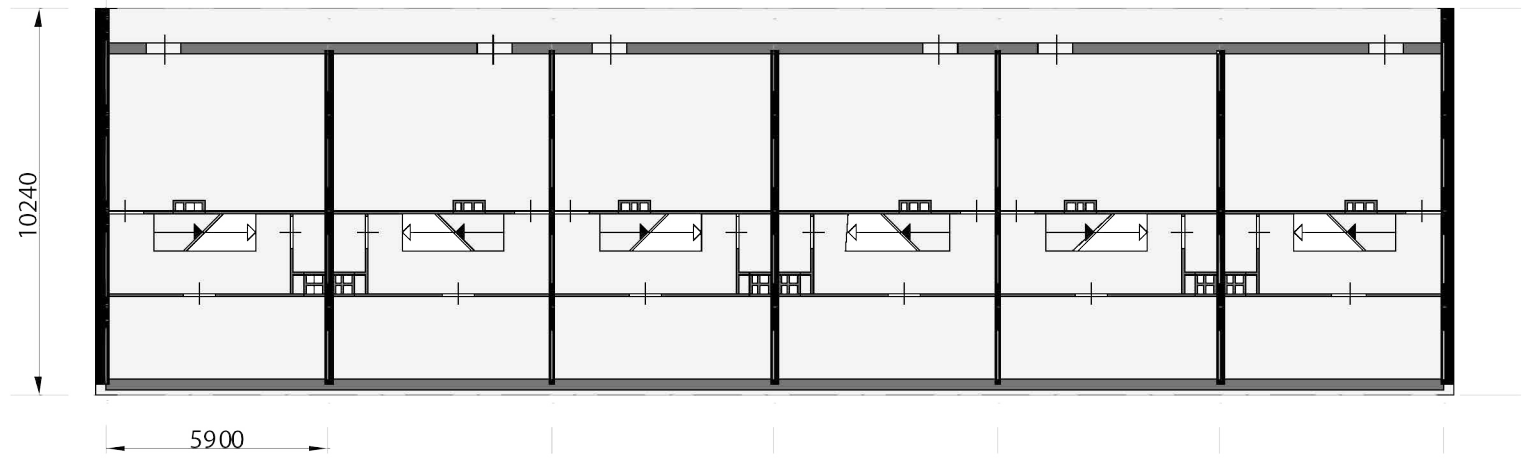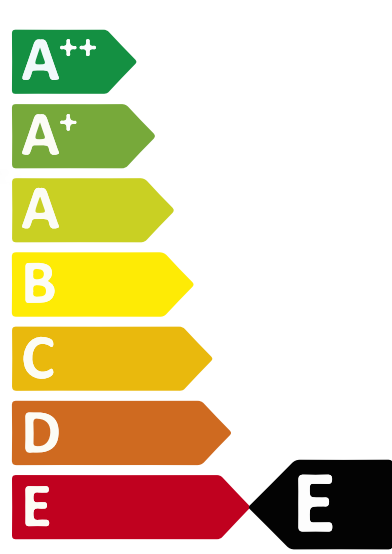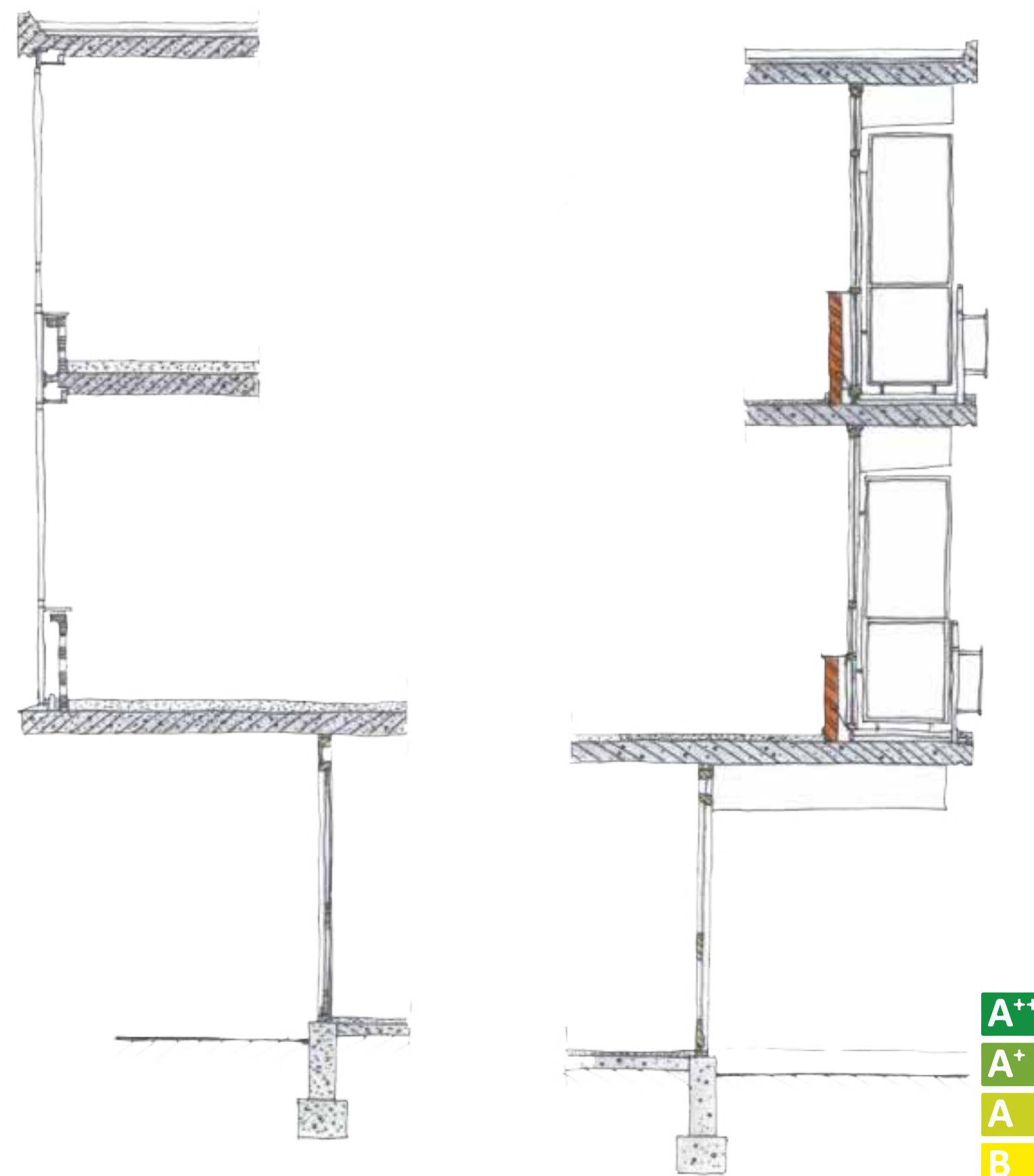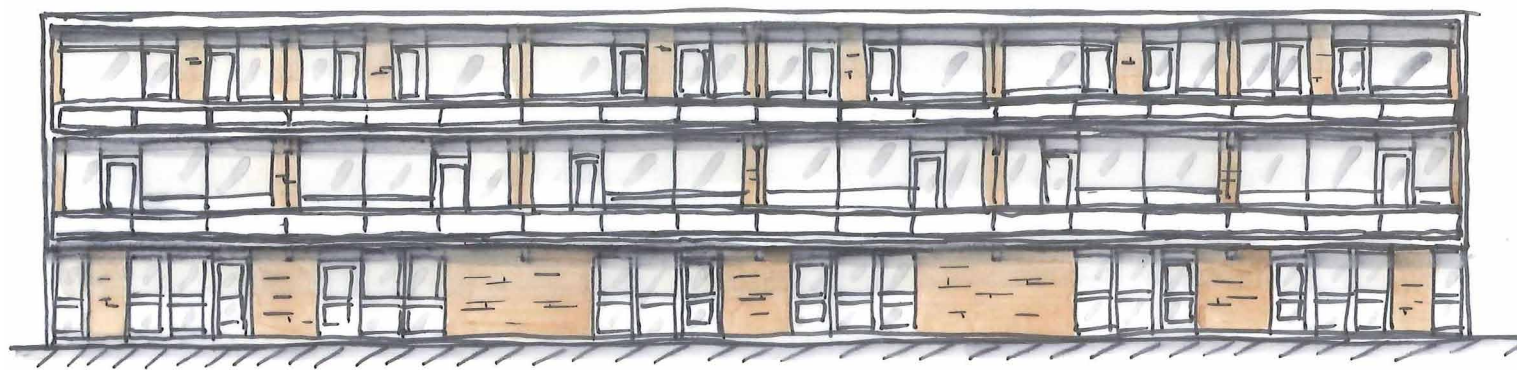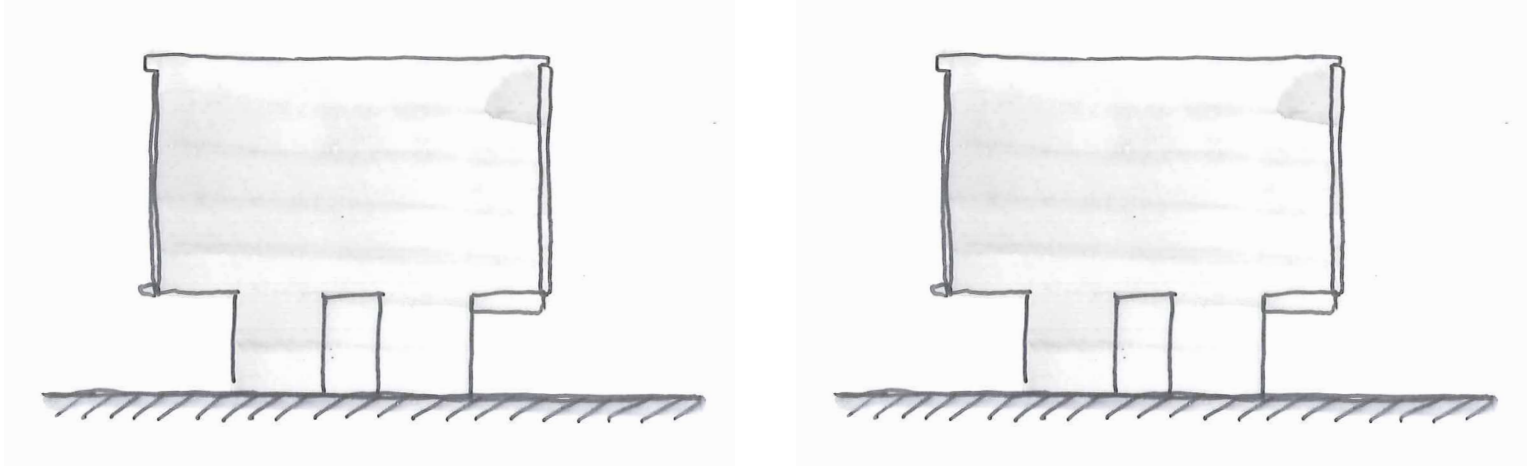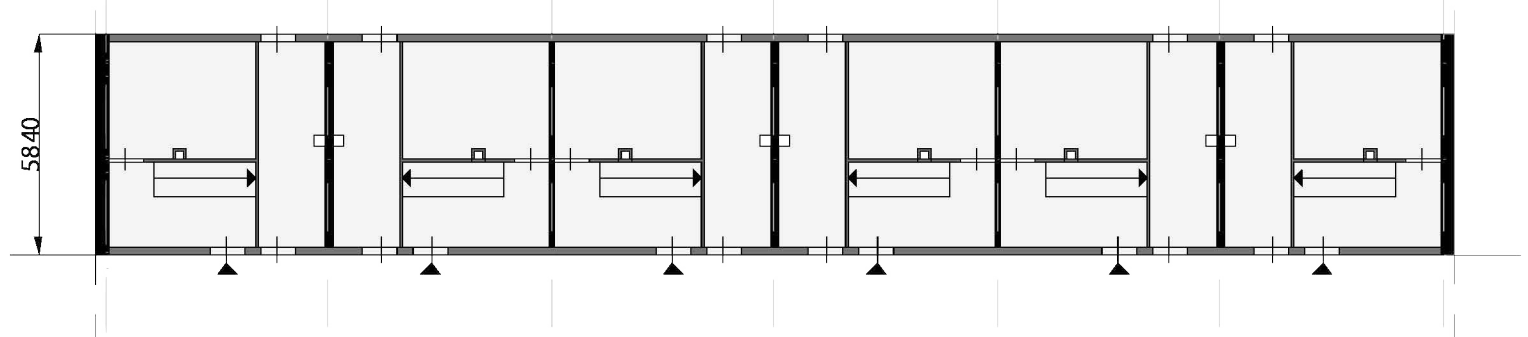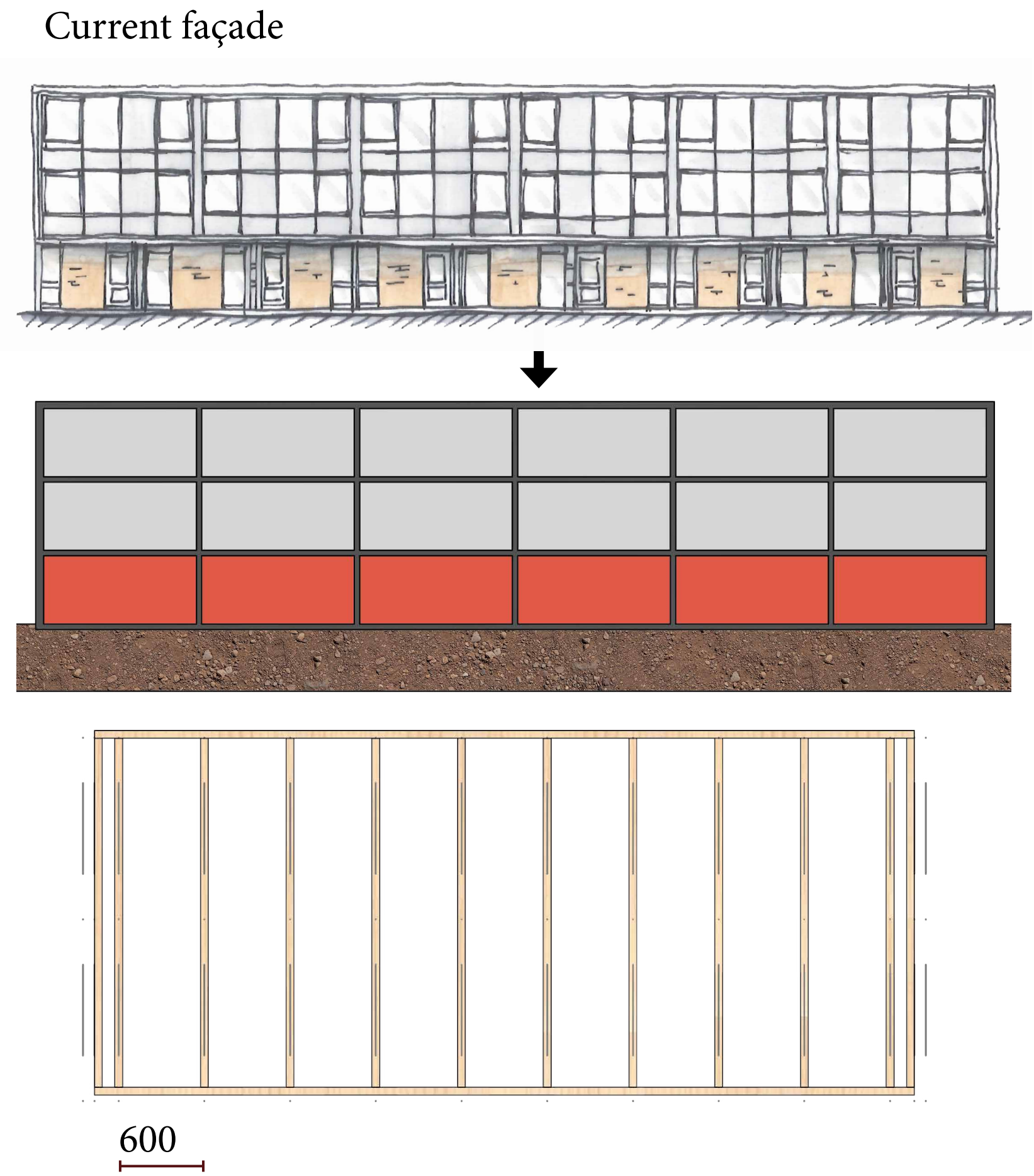
Windows for kitchen and sleeping rooms and bathrooms

1000

600 600 600
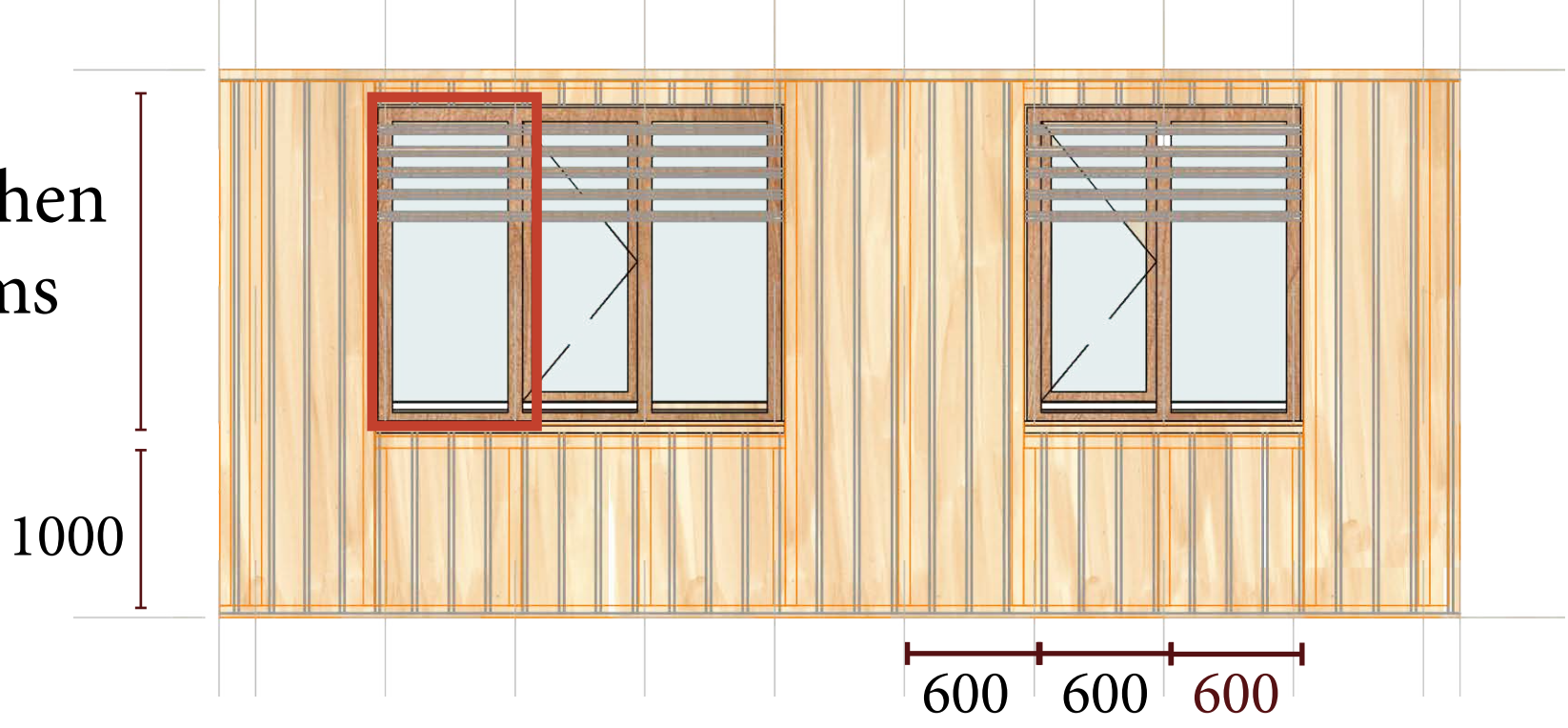
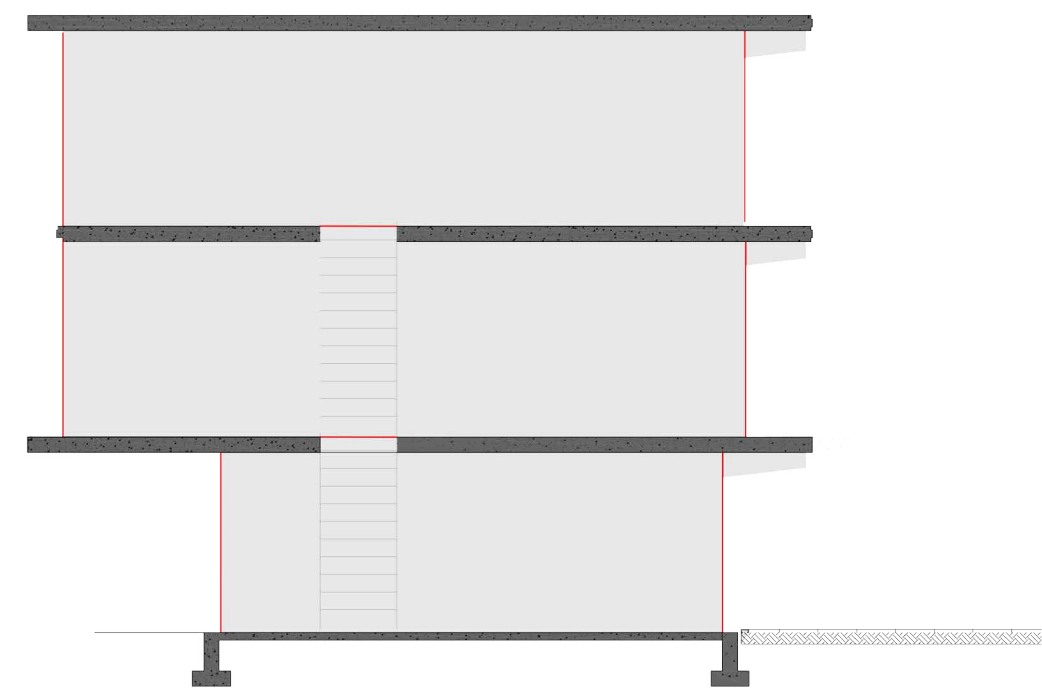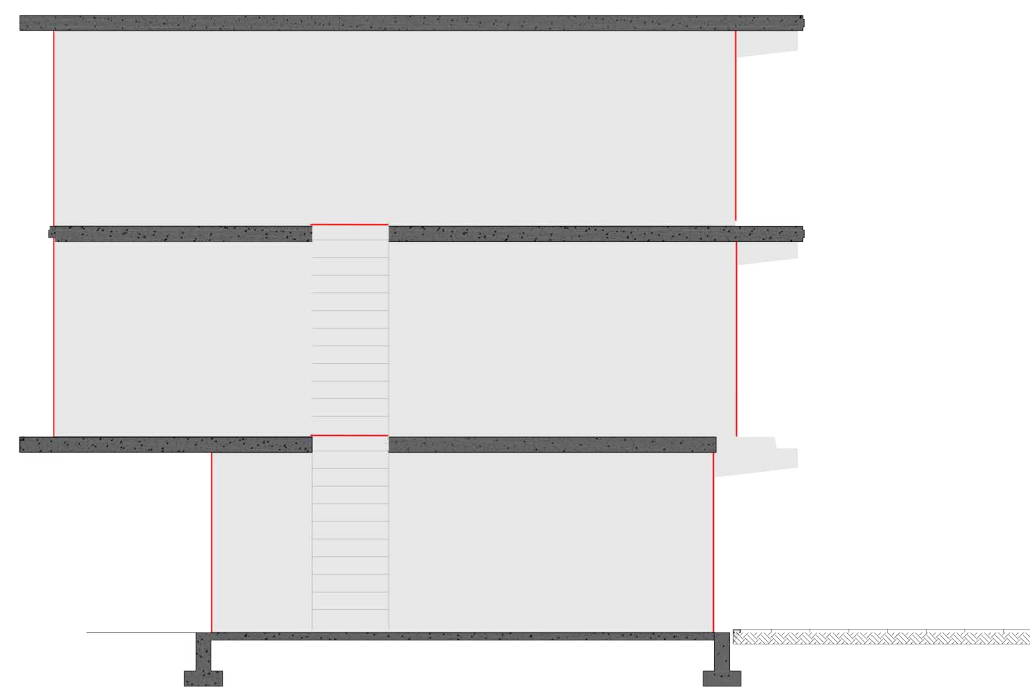Windows for work spaces and living rooms

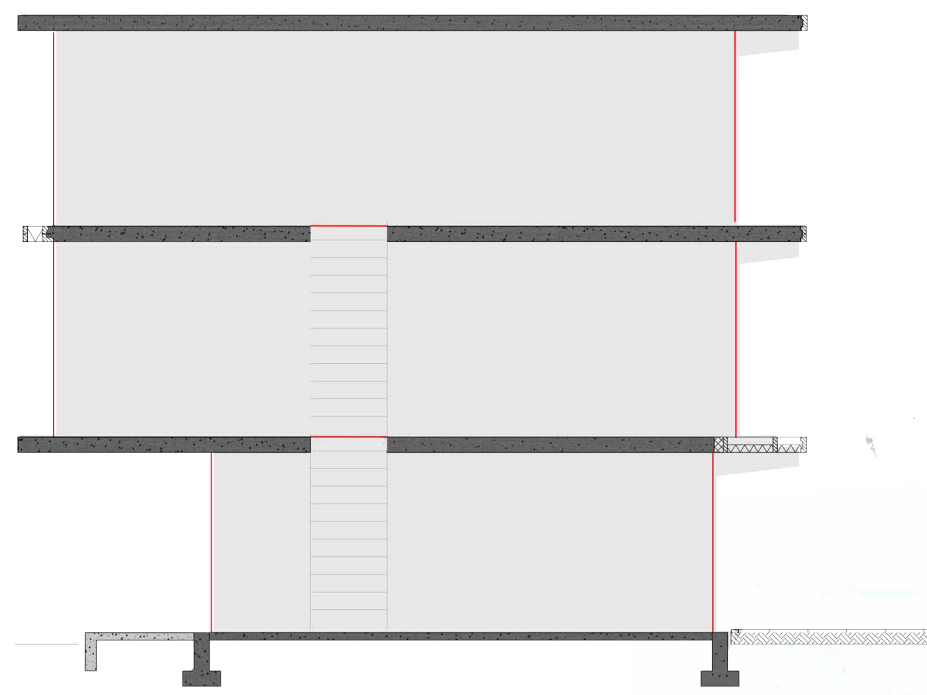600 900
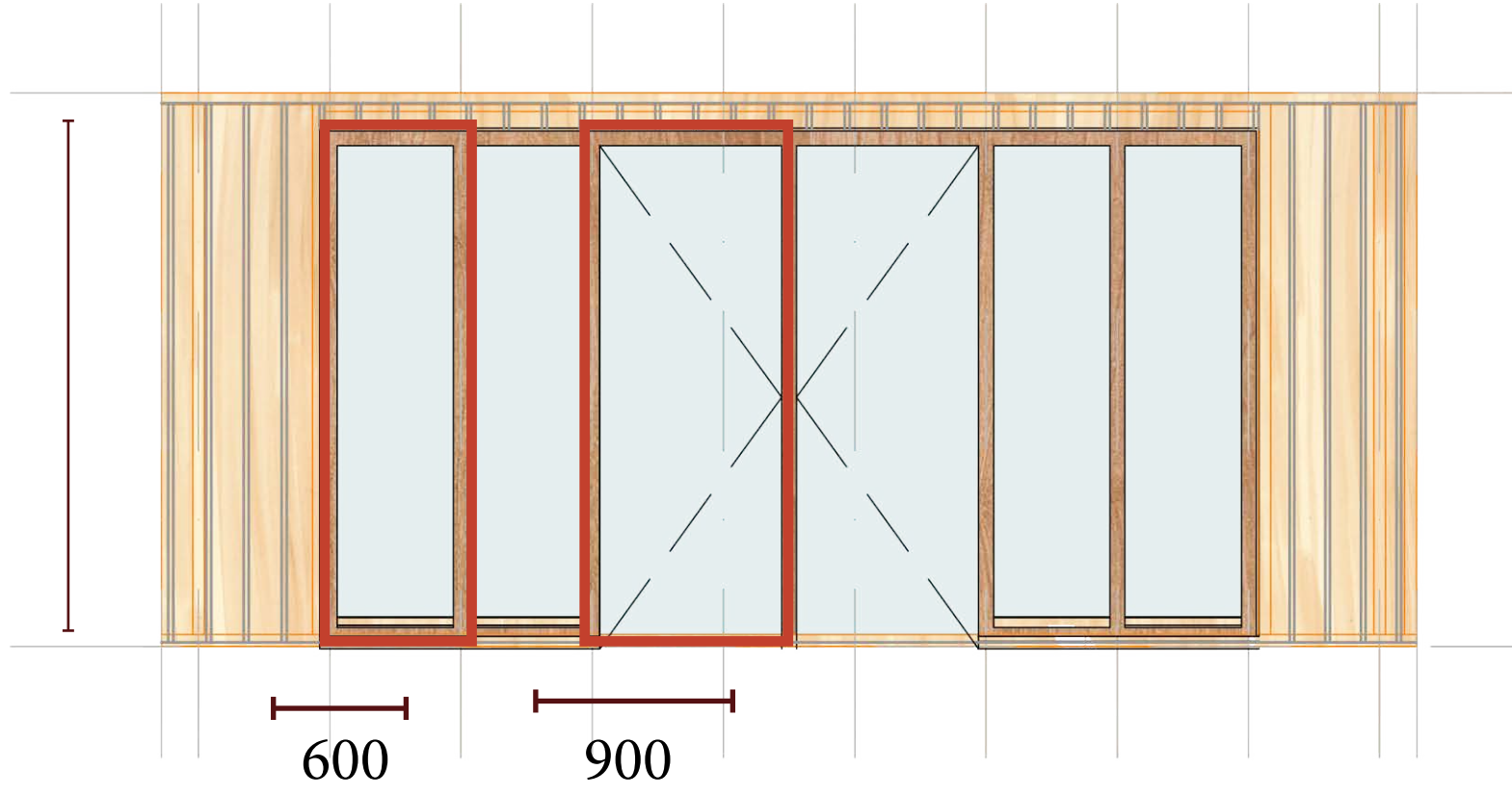
A number of options

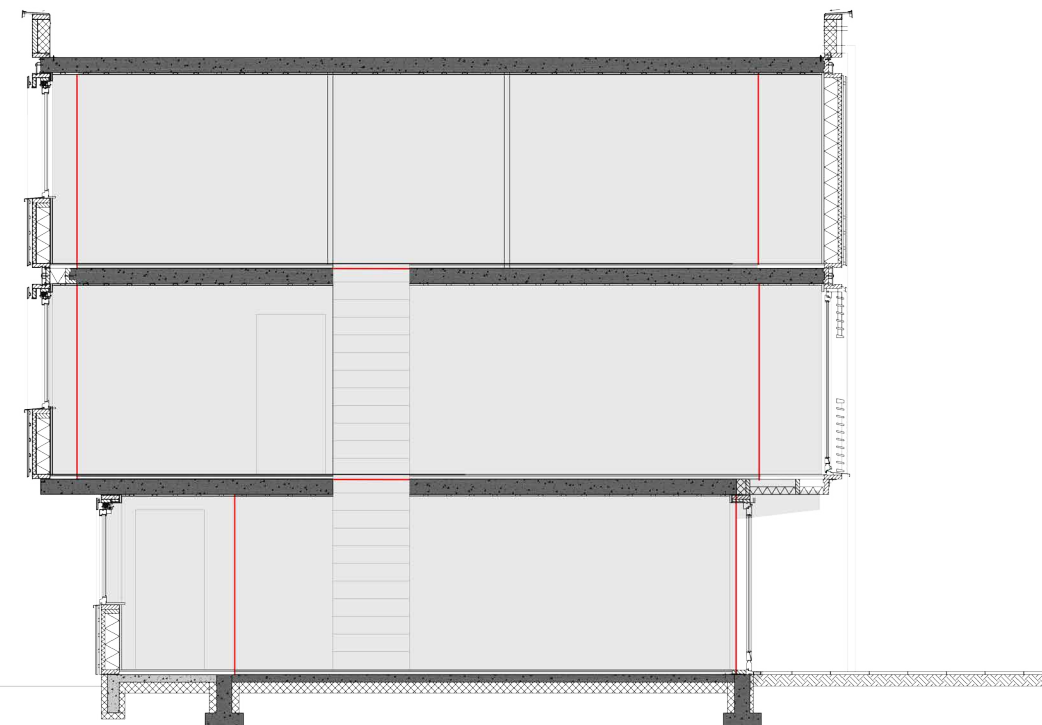# Construction of façade

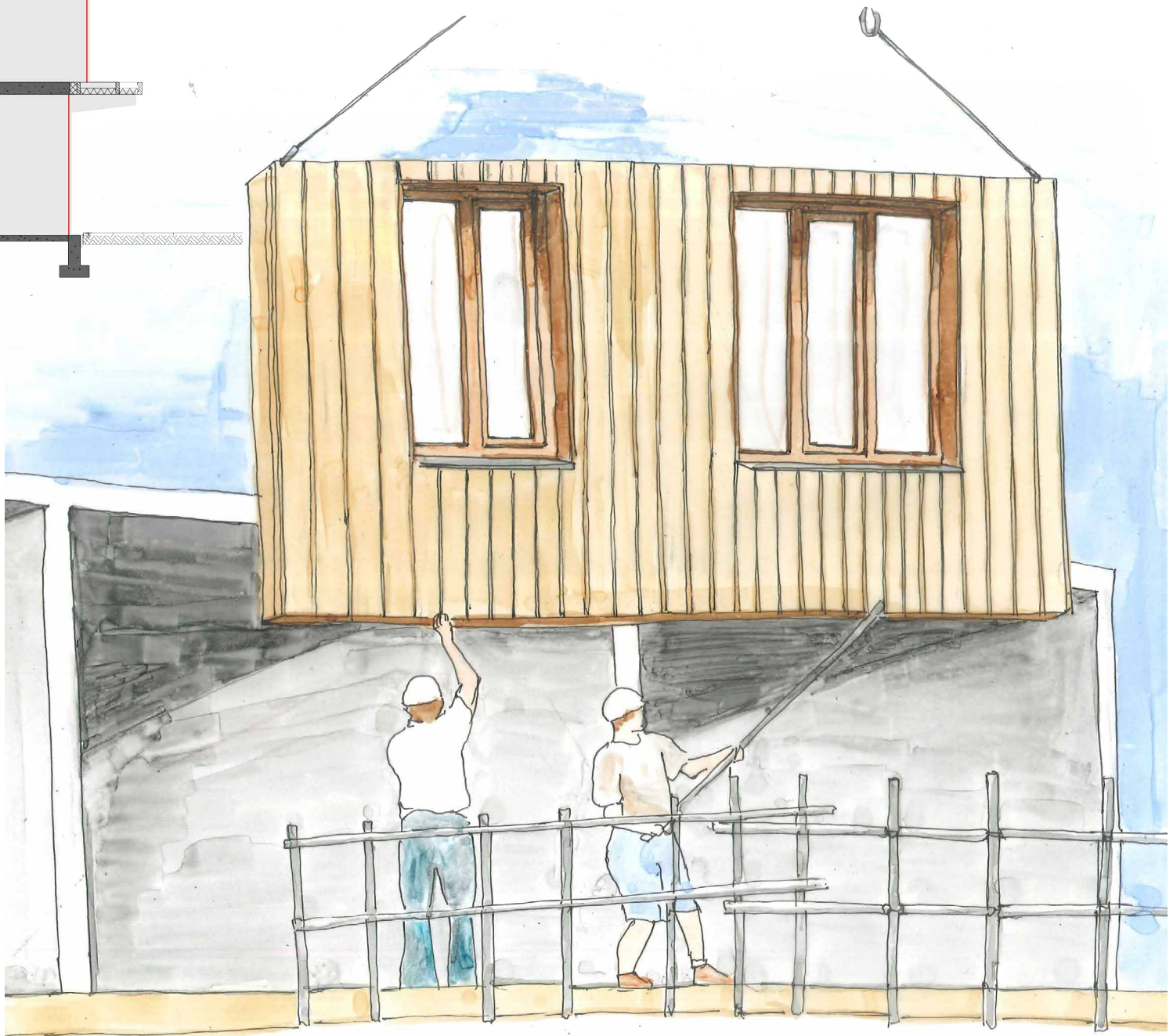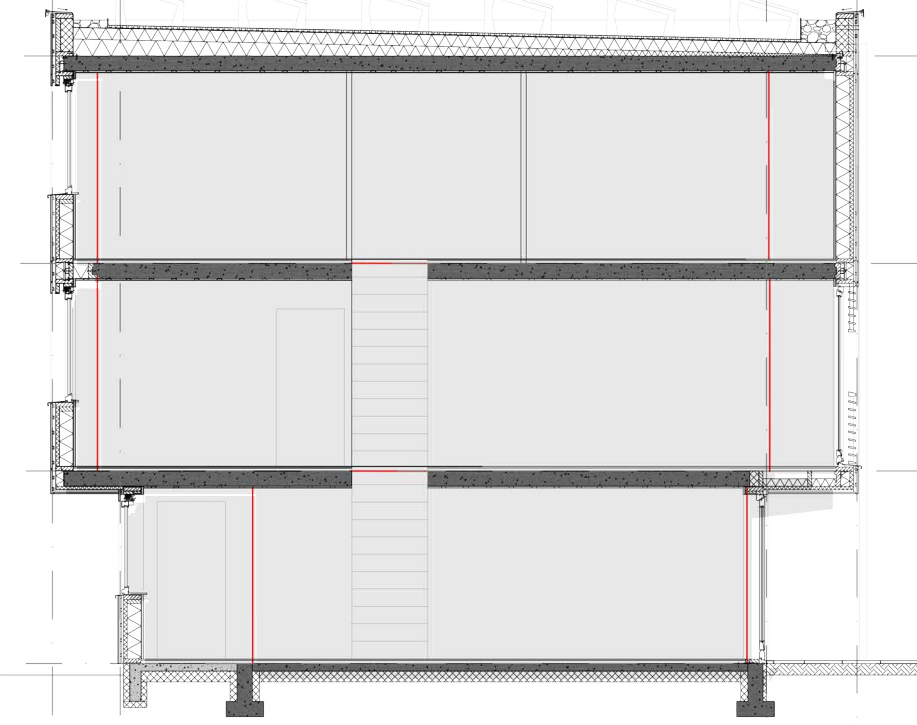1. Strip till curren construction

2. Demolishment of part second floor

3. Construction of wall and floor extensions

4. Infill of the wall elements

5. Finish exterior and interior

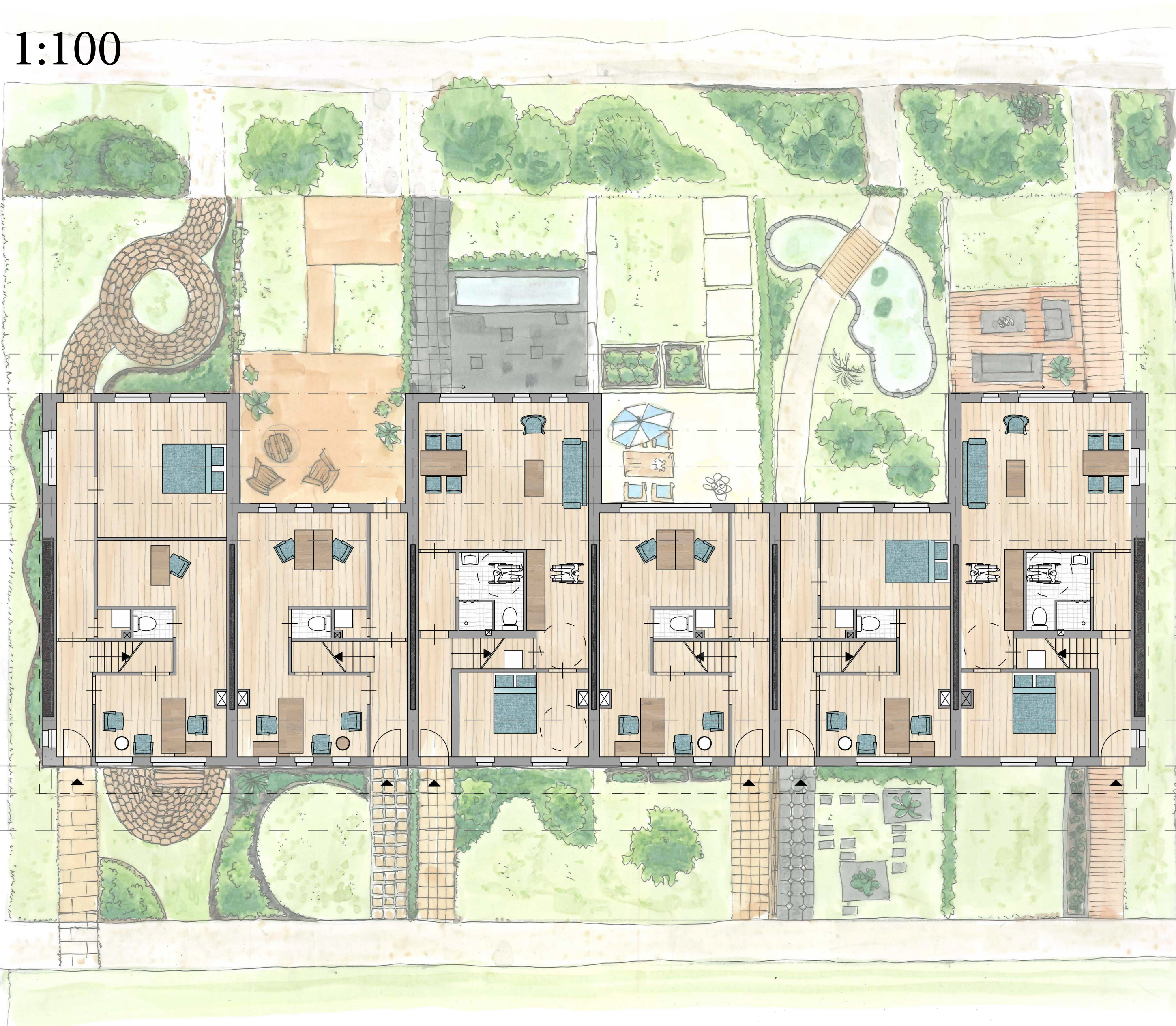Architectural Engineering - Olga van Tol, 4141334

Façades 1:100

North façade

West façade

East façade

South façade

Ground floor 1:100

1. Living Room
2. Kitchen
3. Toilet
4. Bathroom
5. Bedroom
6. Hall
7. Workspace

Impression 1

Section 1

First floor 1:100
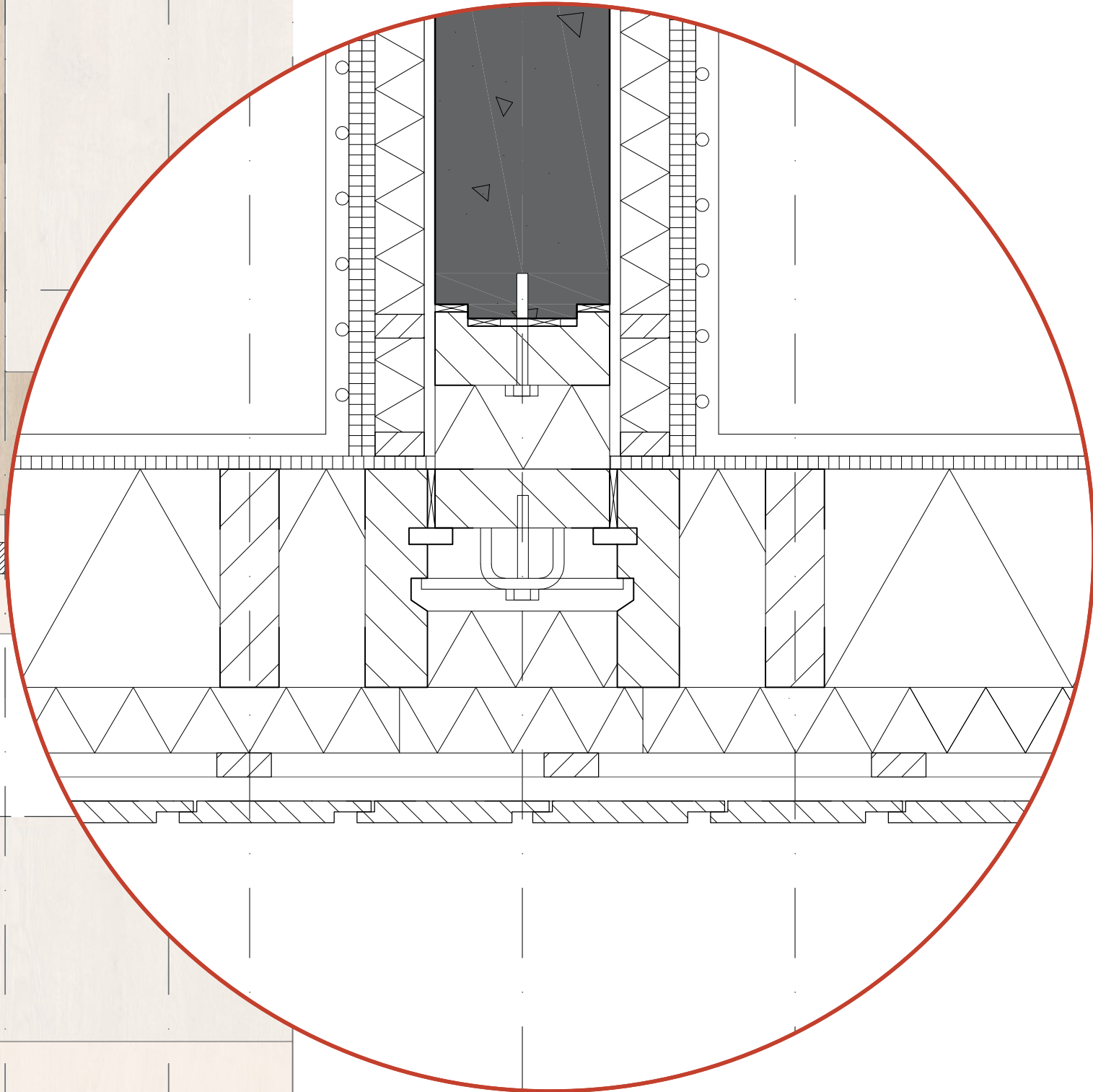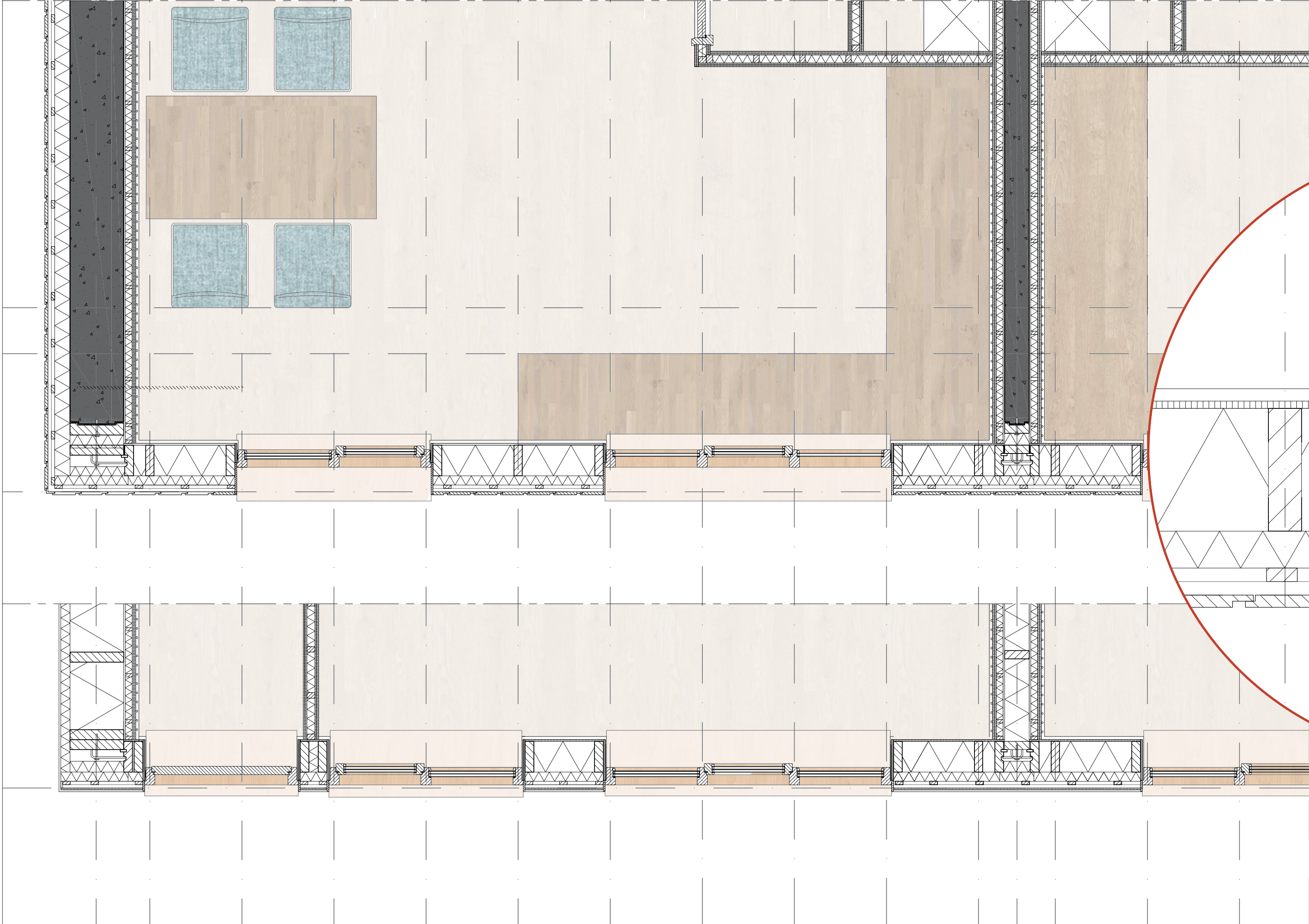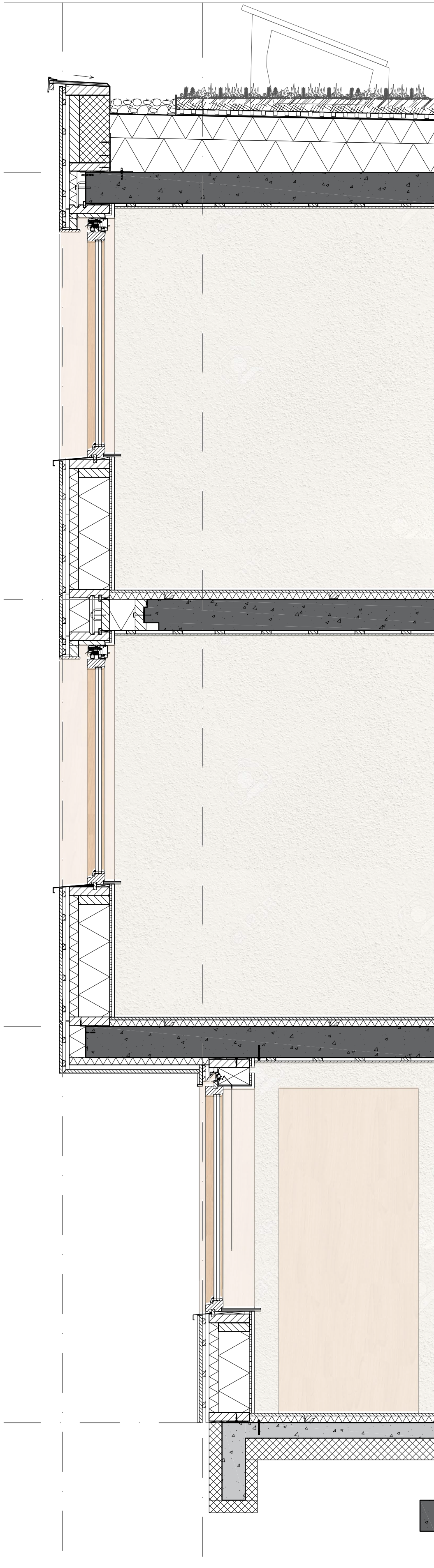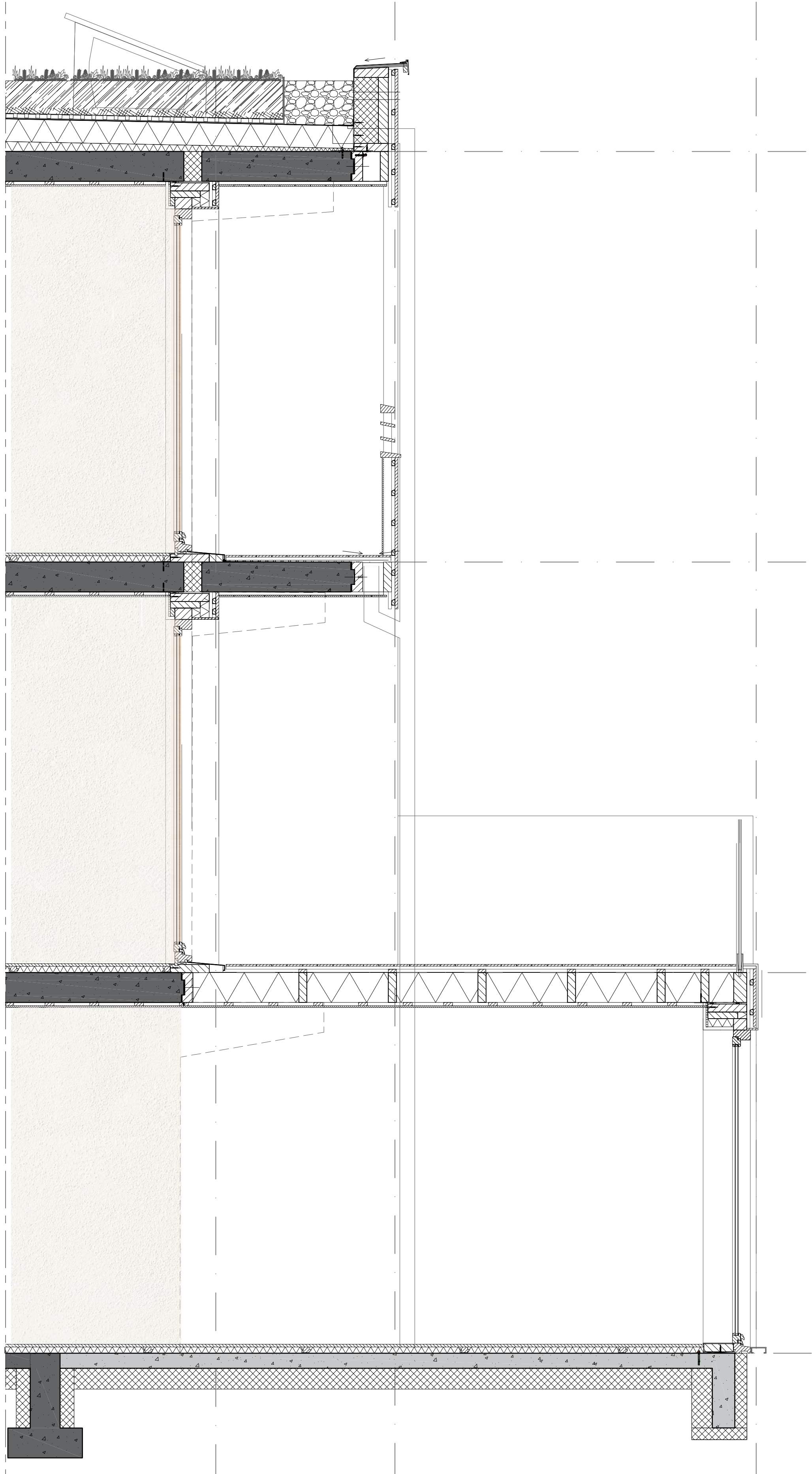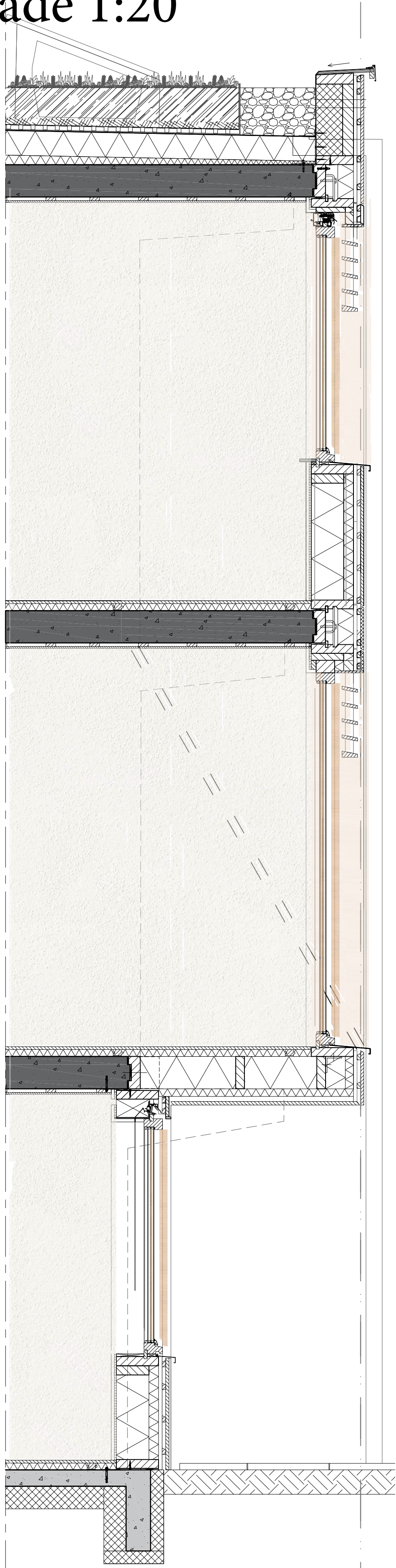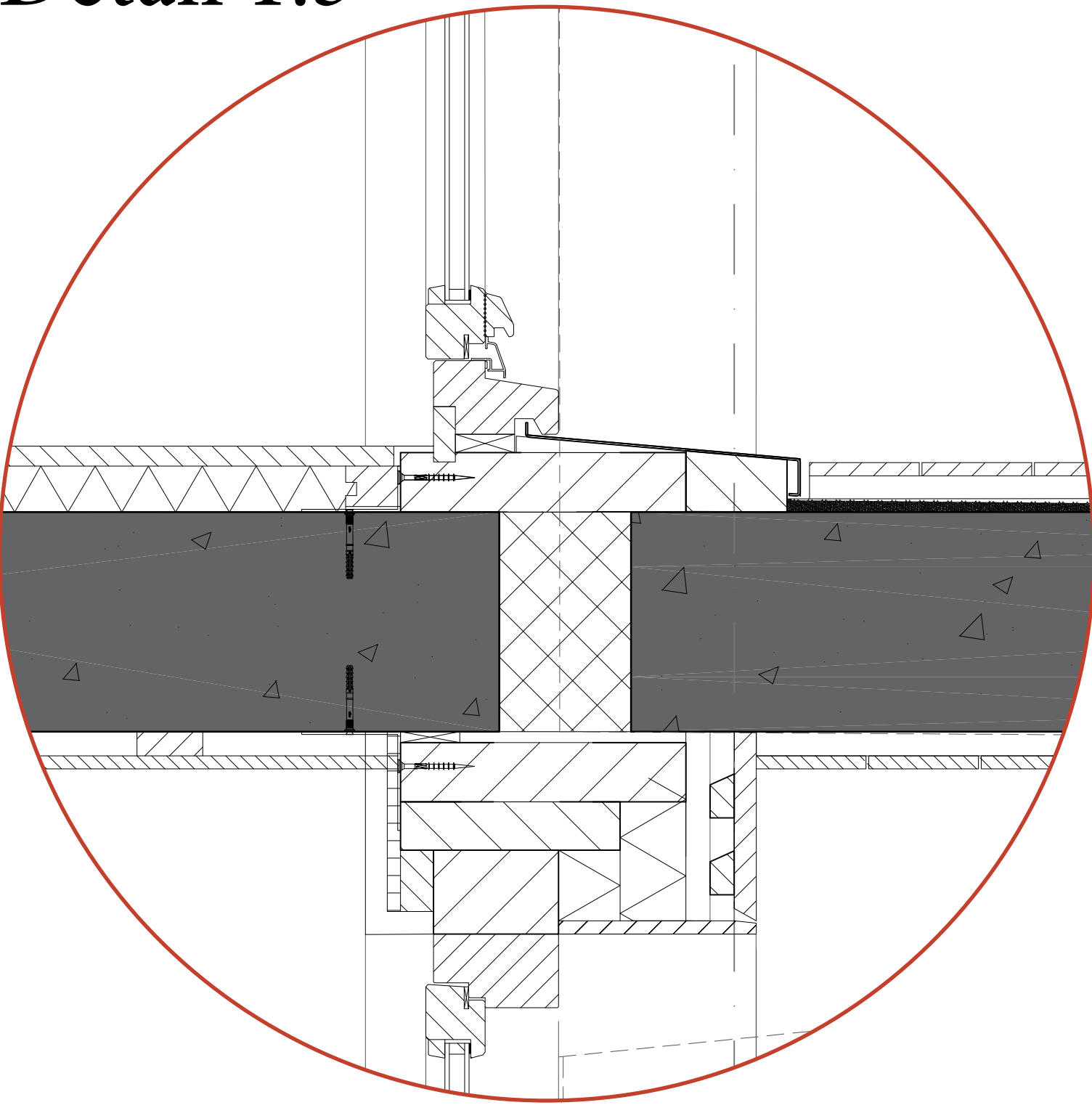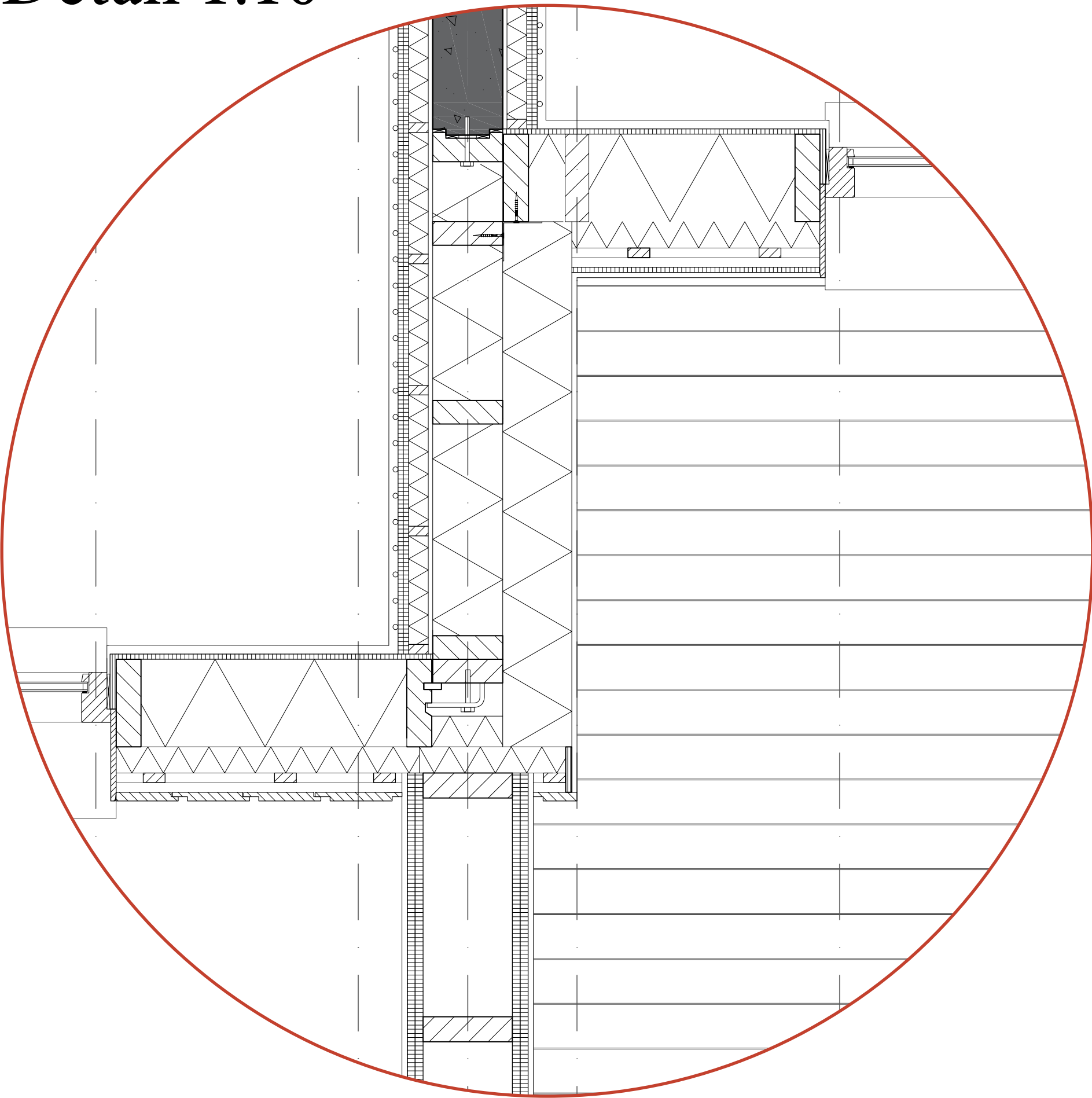
Impression 1

First floor 1:100

Front façade 1:20

Back façade 1:20

Detail 1:5
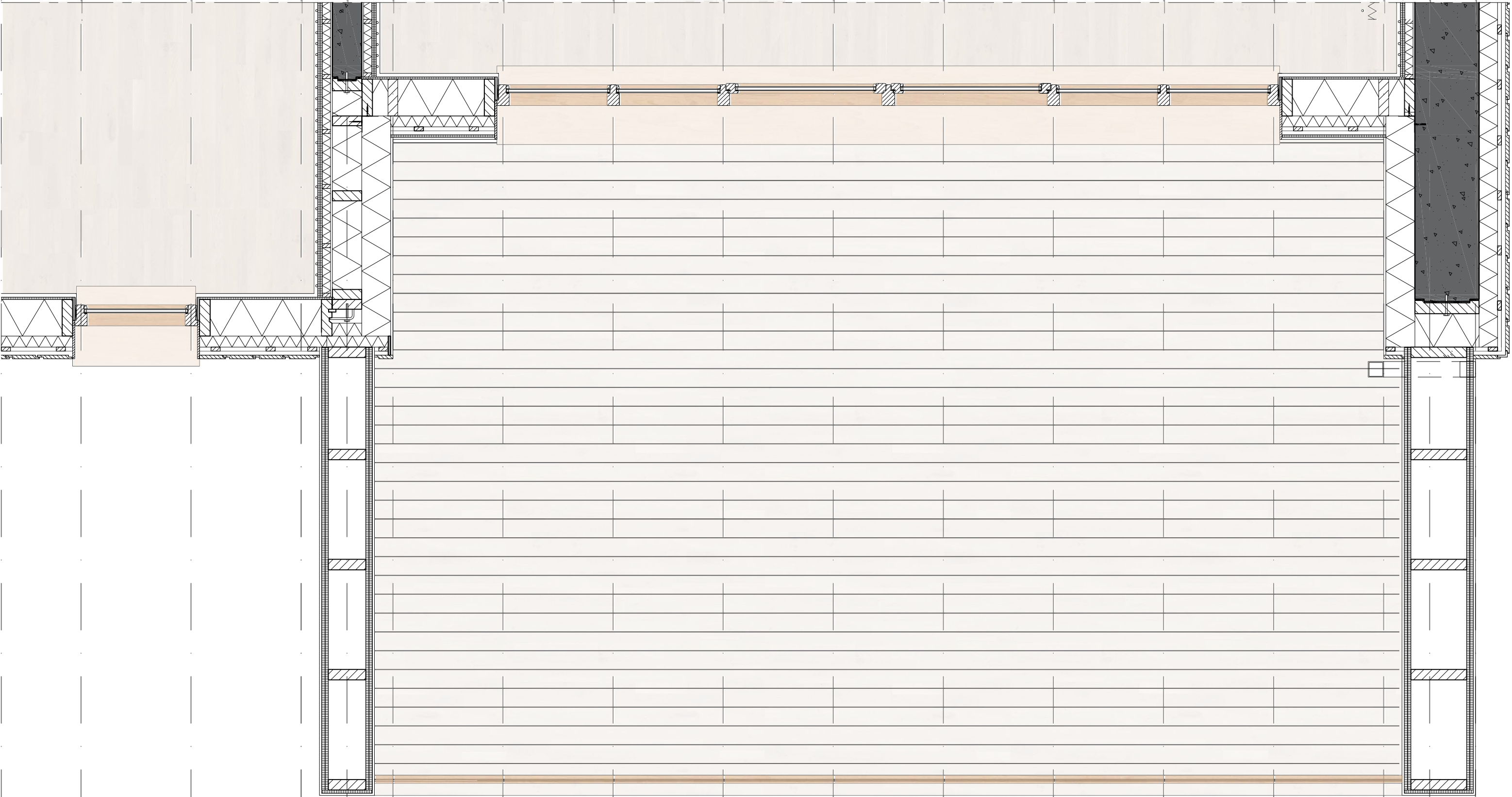

Detail 1:10

Back façade 1:20

Details 1:5
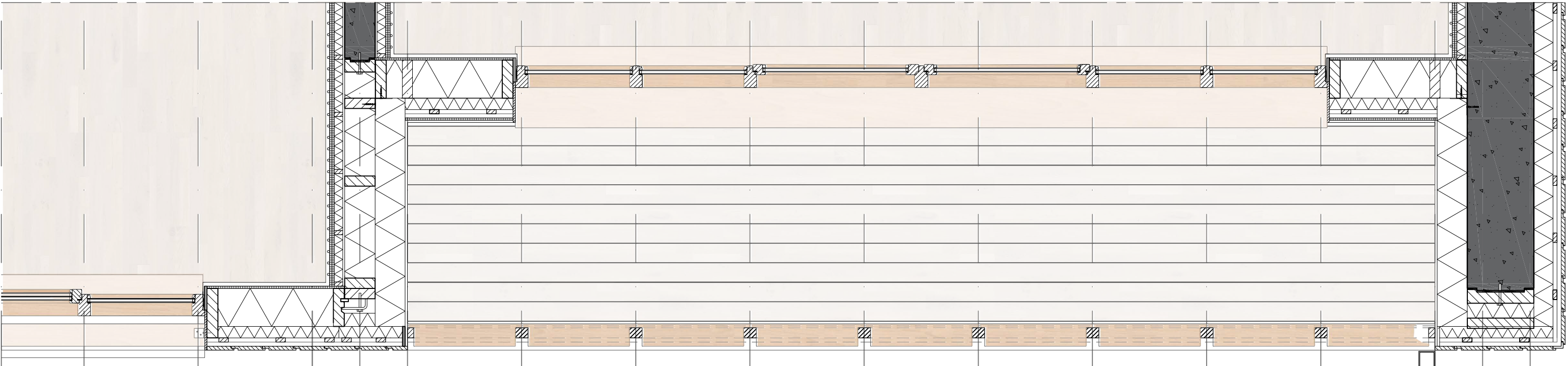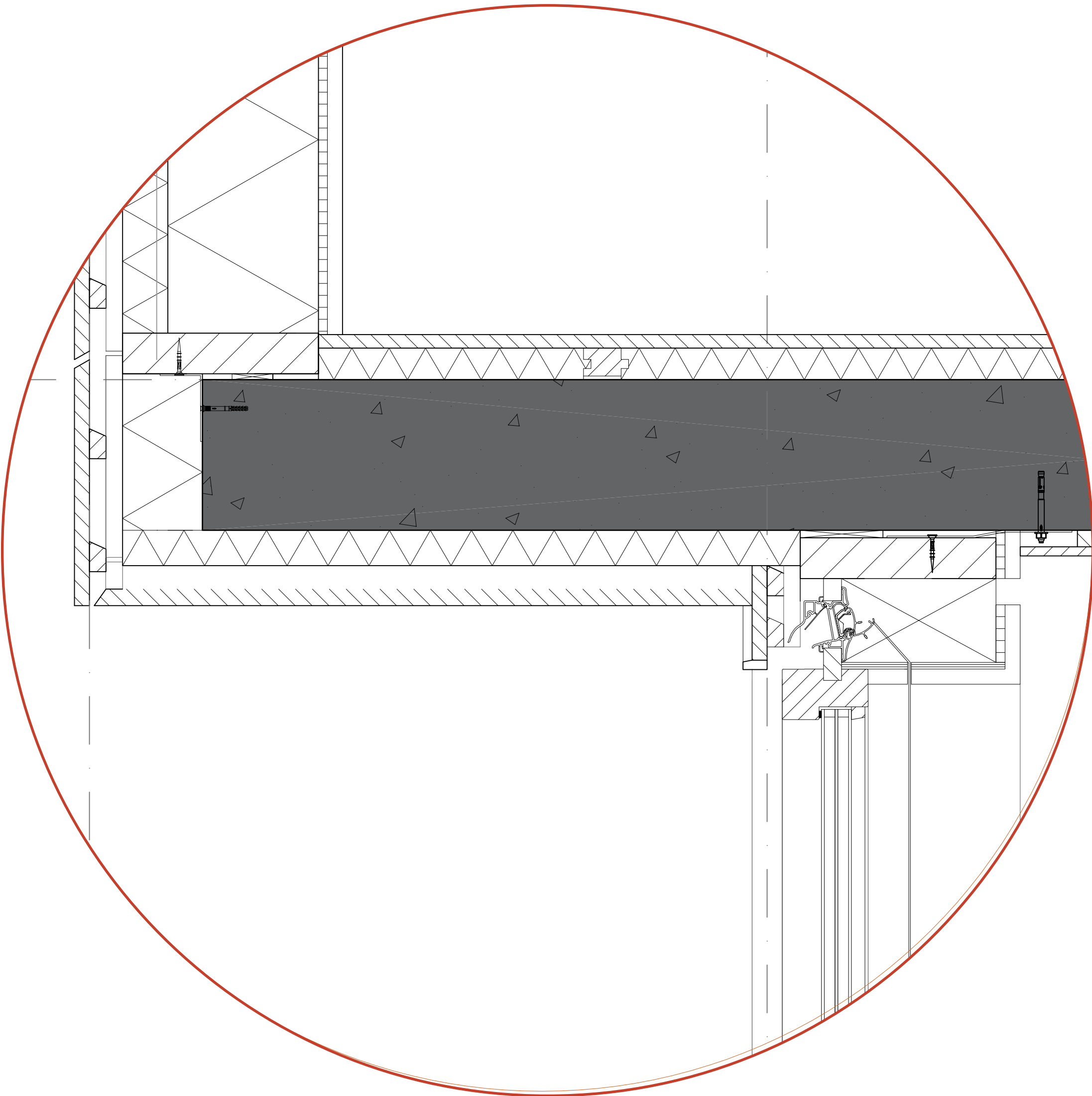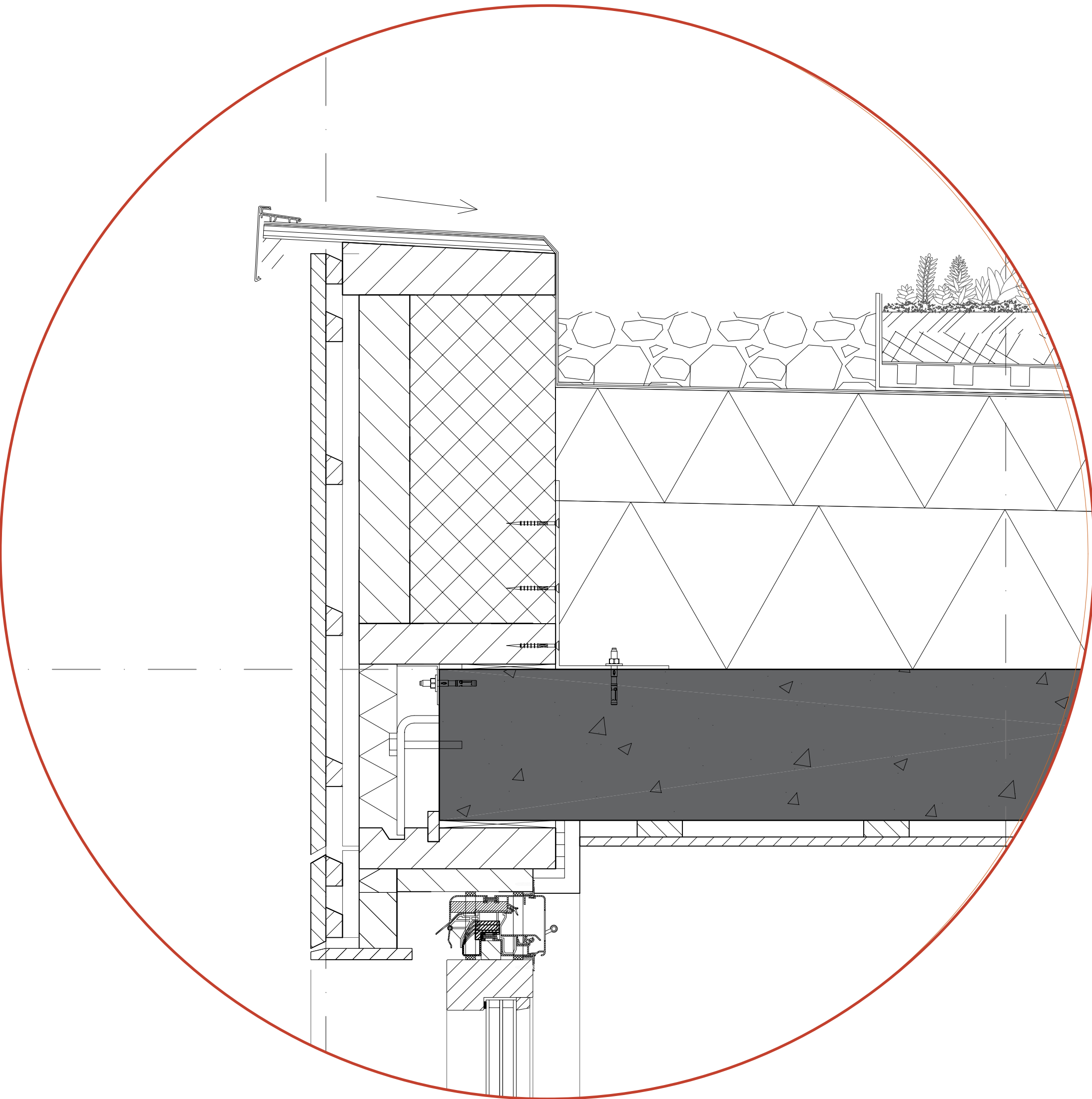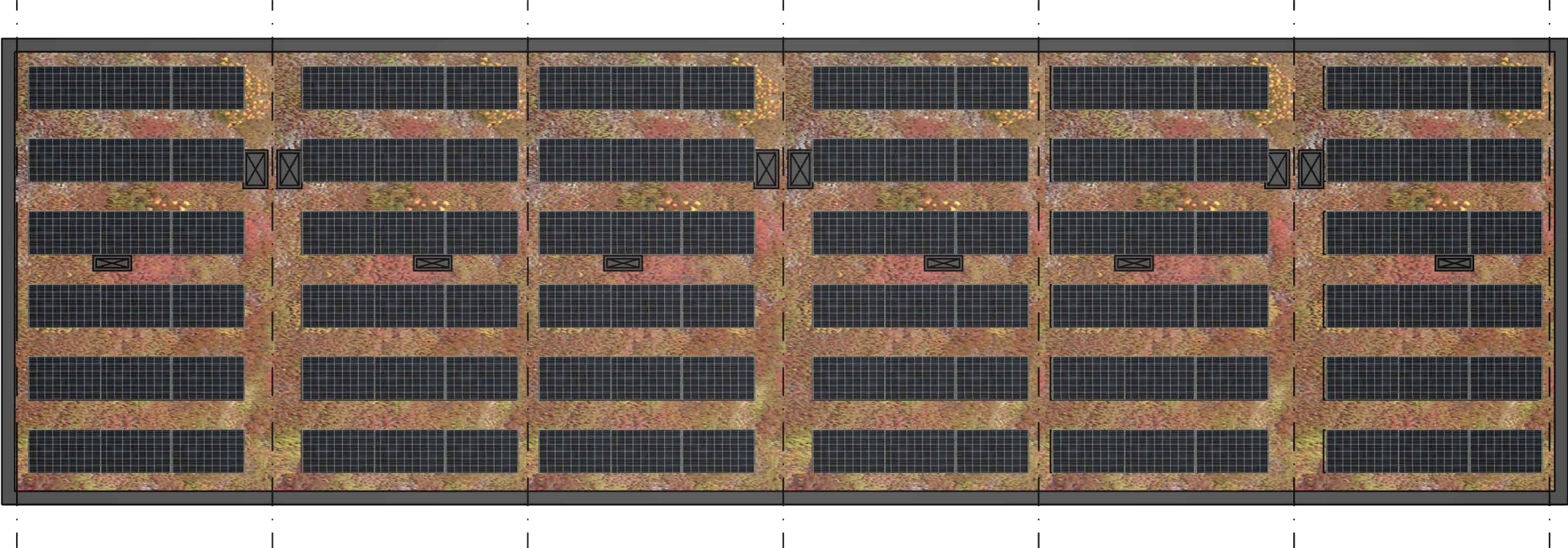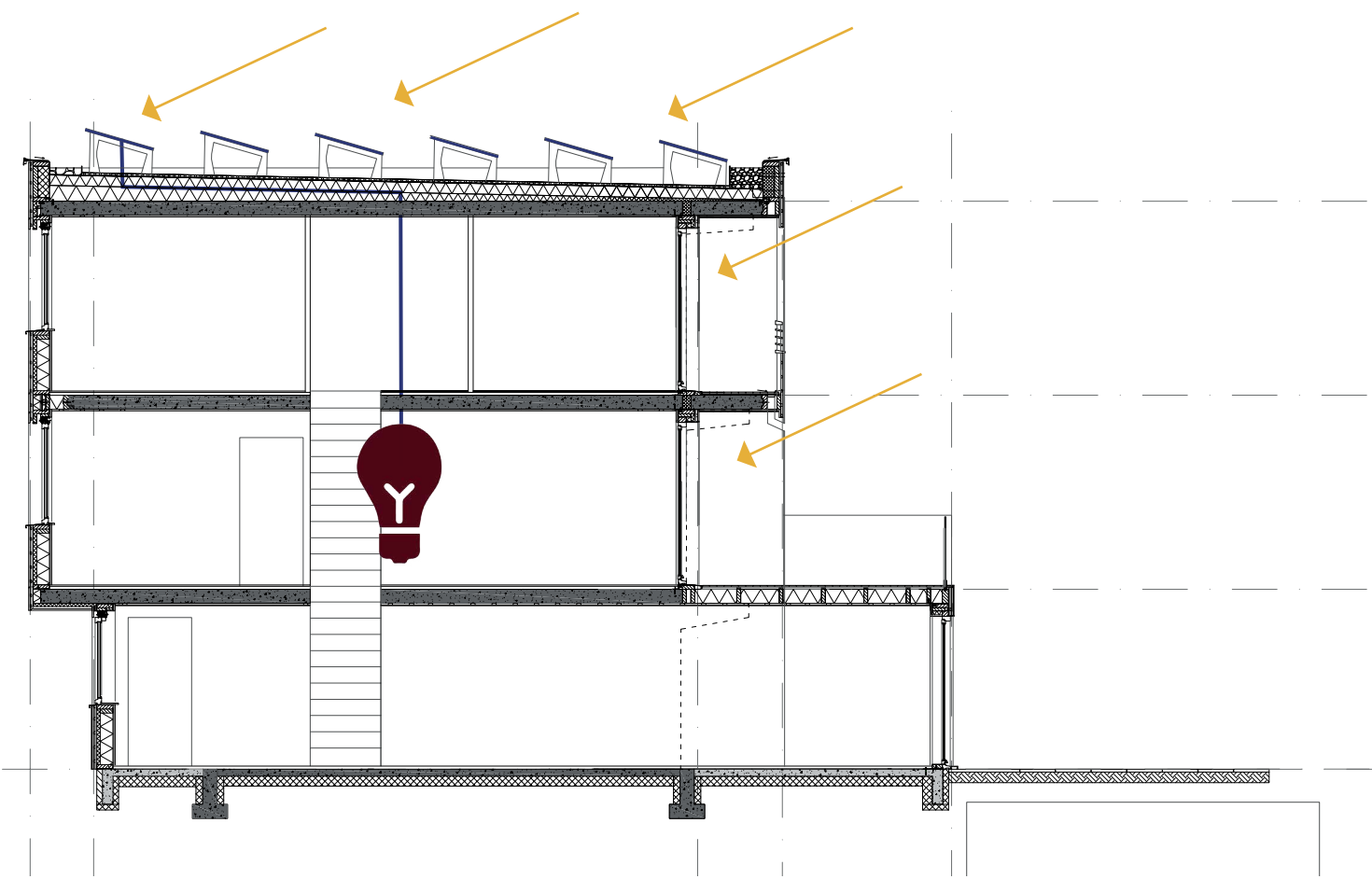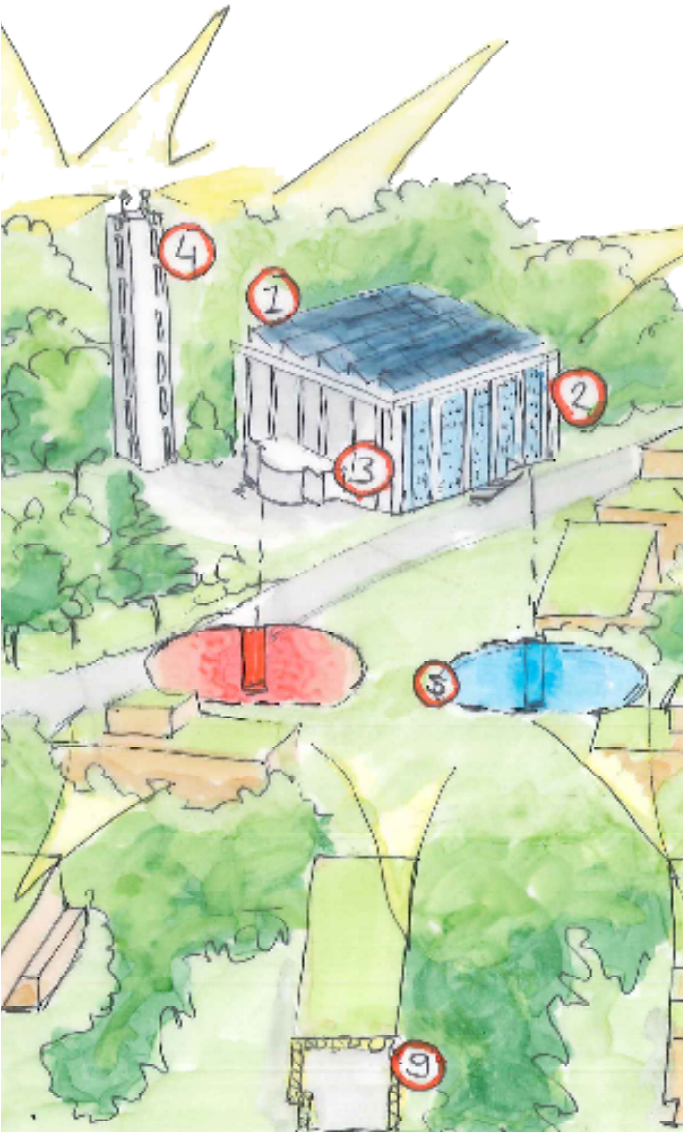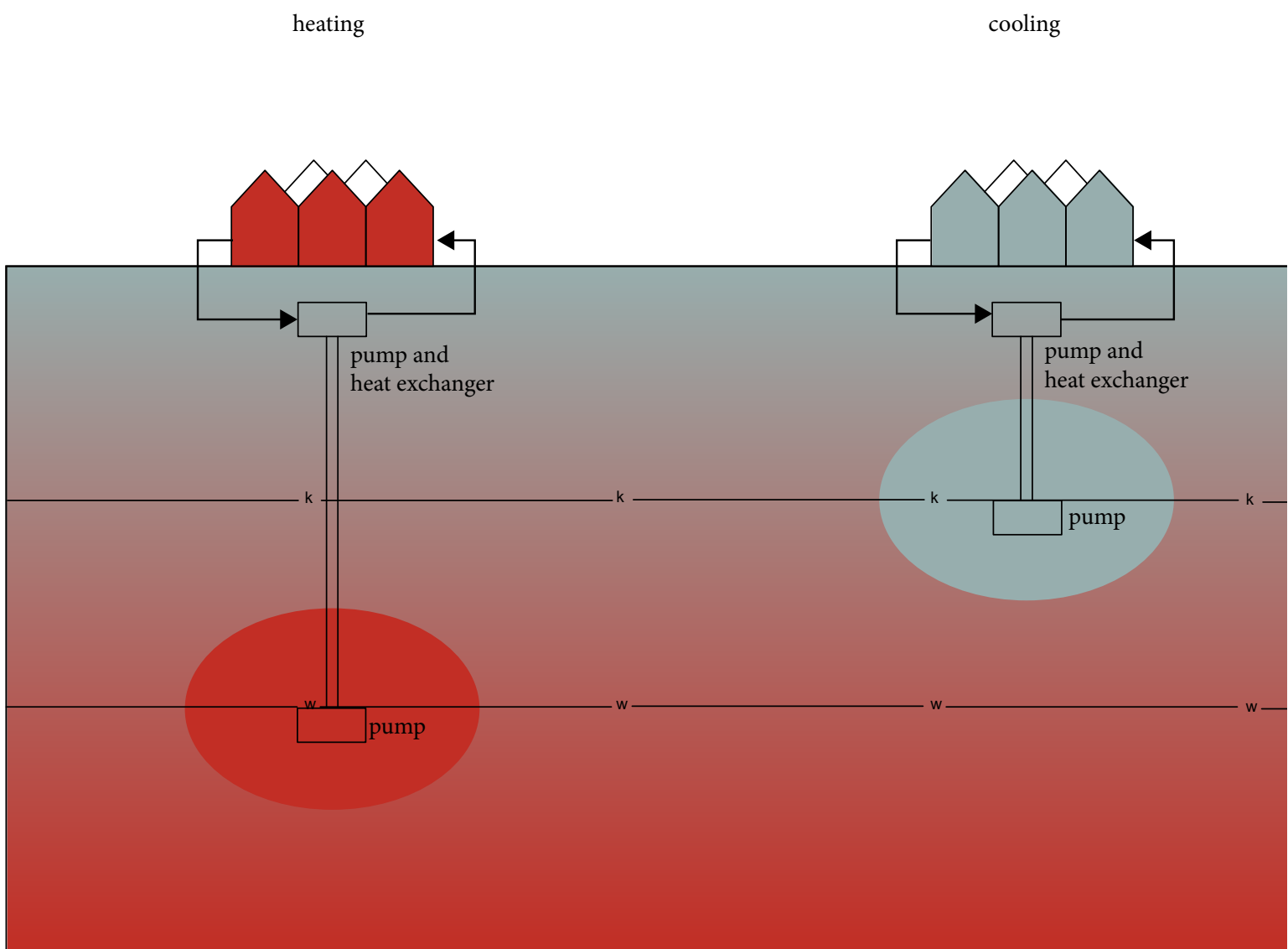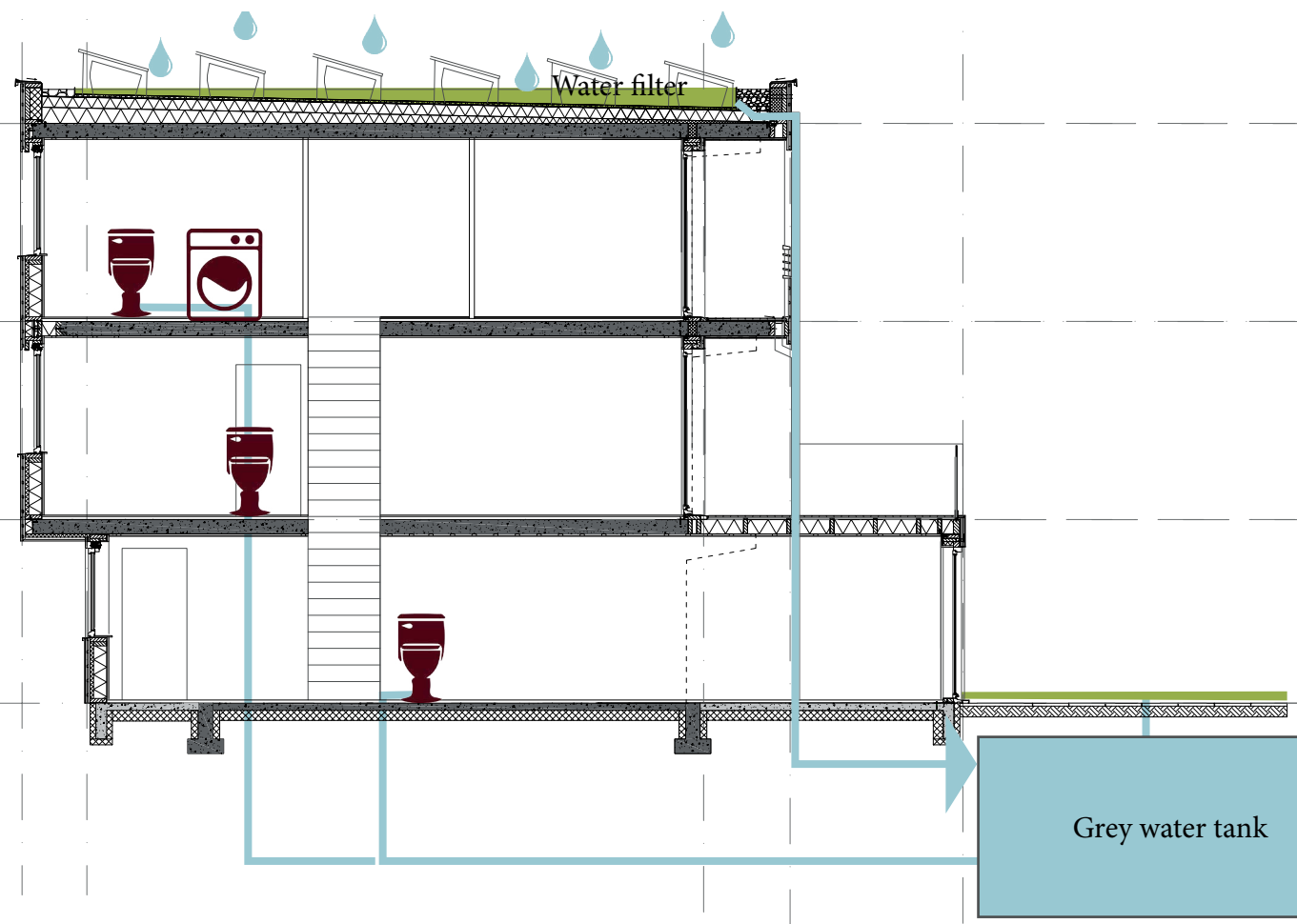
Climate systems 1:100

Roof plan

Solar panels for energy
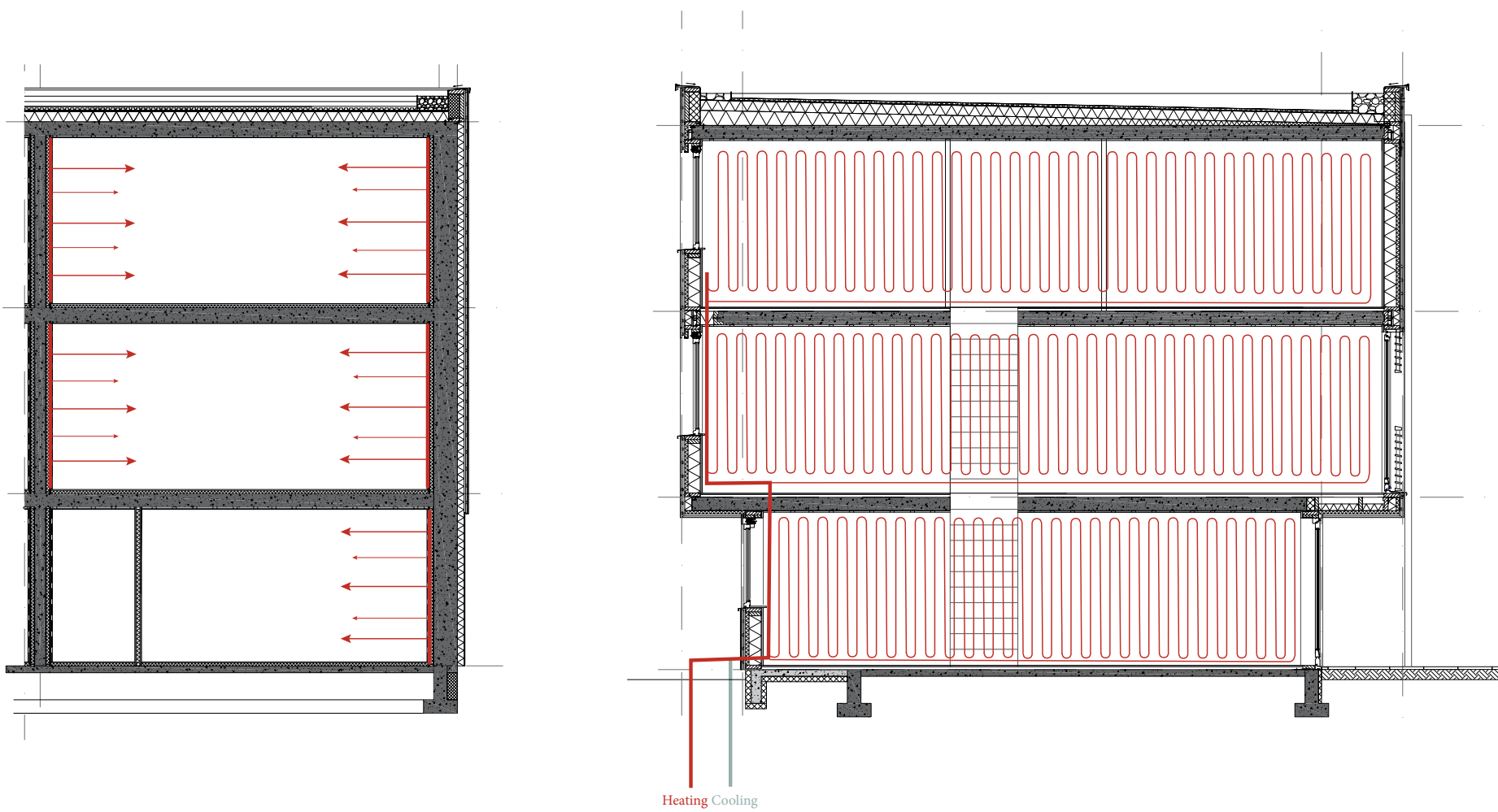

Heating pumps for tap water neighbourhood

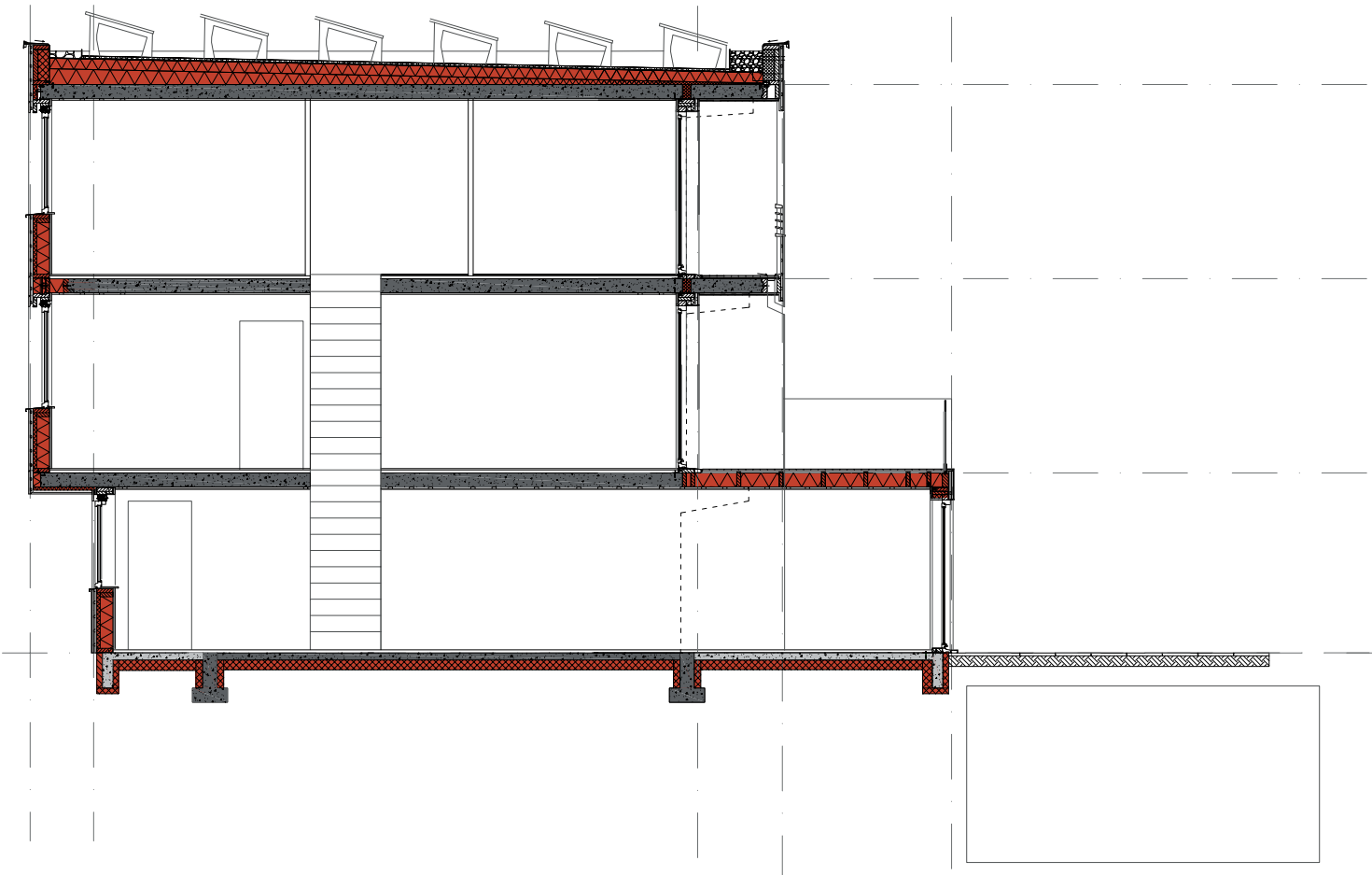Use of water from old mine shafts to heat and cool the buildings

heating

cooling

pump and heat exchanger

pump and heat exchanger

18 C

25 C

pump

pump

sedum roof to clean water and to cool down the building

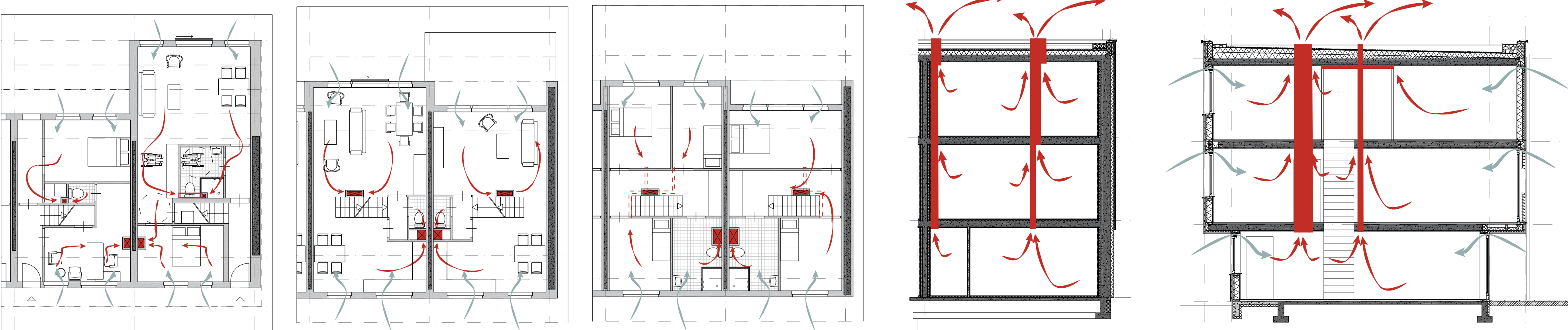Water filter

Grey water tank

Low temperature heating and cooling wallsystem

Heating Cooling

Well insulated walls

Ventilation: Natural imput and demand-driven extraction ventilation

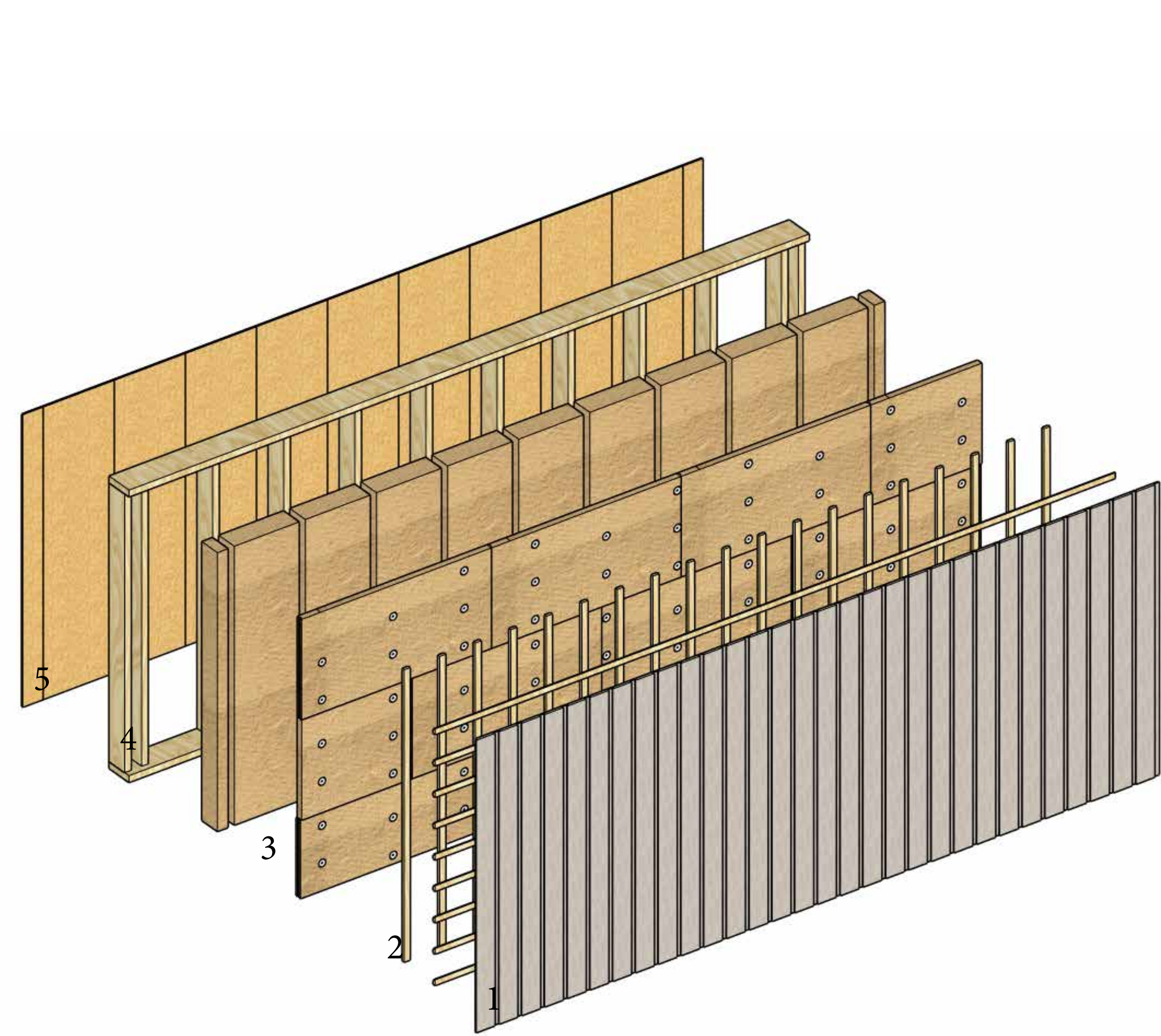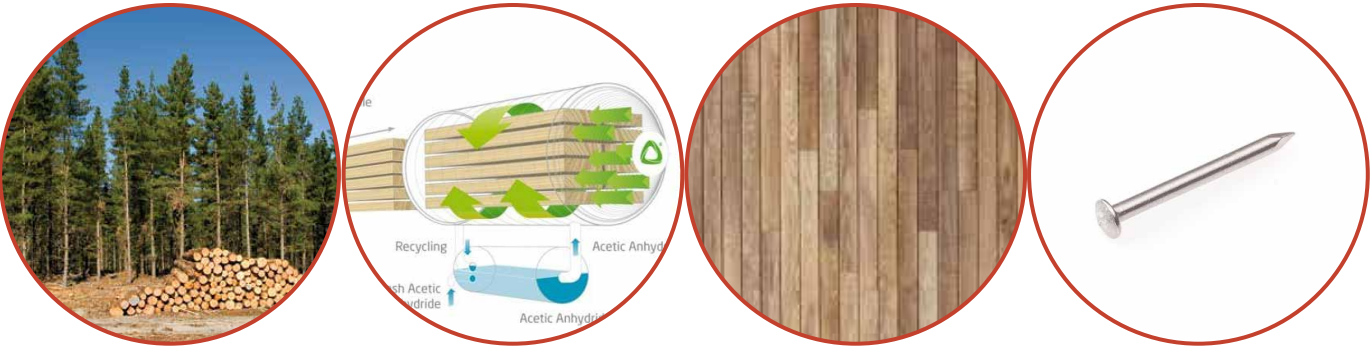# Energy neutral

EPC values:
House on corner   -0,117
House with small ground floor -0,017
House with large ground floor -0,174
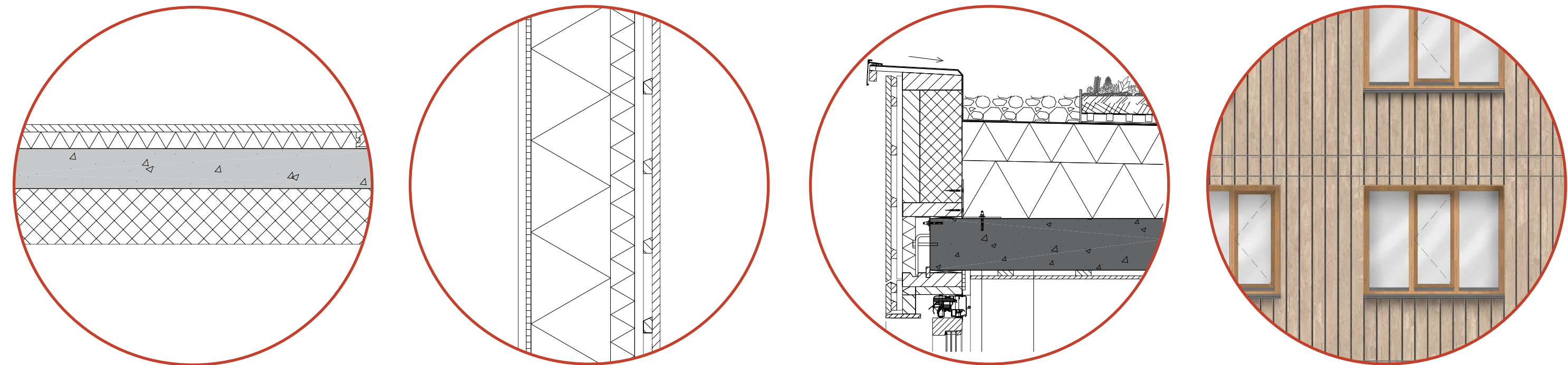
Floor: 0,177 W/m²K   Façade: 0,151 W/m²K   Roof: 0,117 W/m²K   Windows: 0,95 W/m²K

Materialisation

1. Accoya wood (acetylated wood) with stainless steel nails
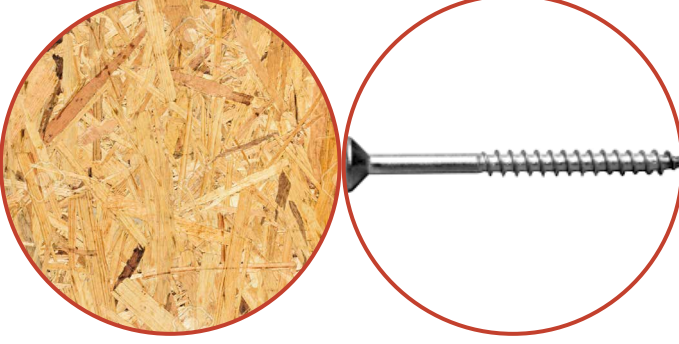

2. Lats of pine sylvestris (Grenen)
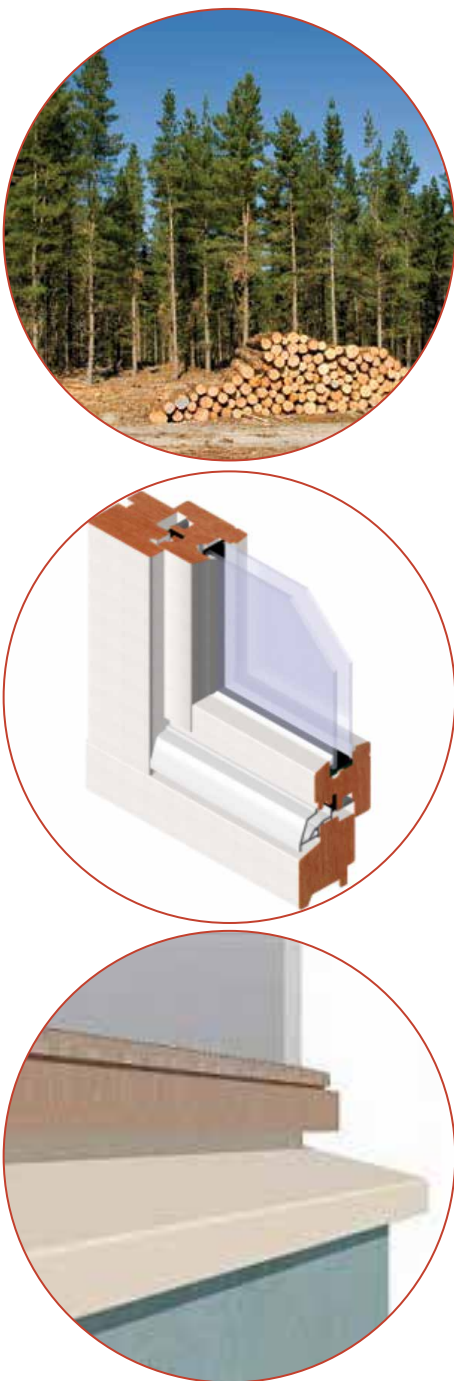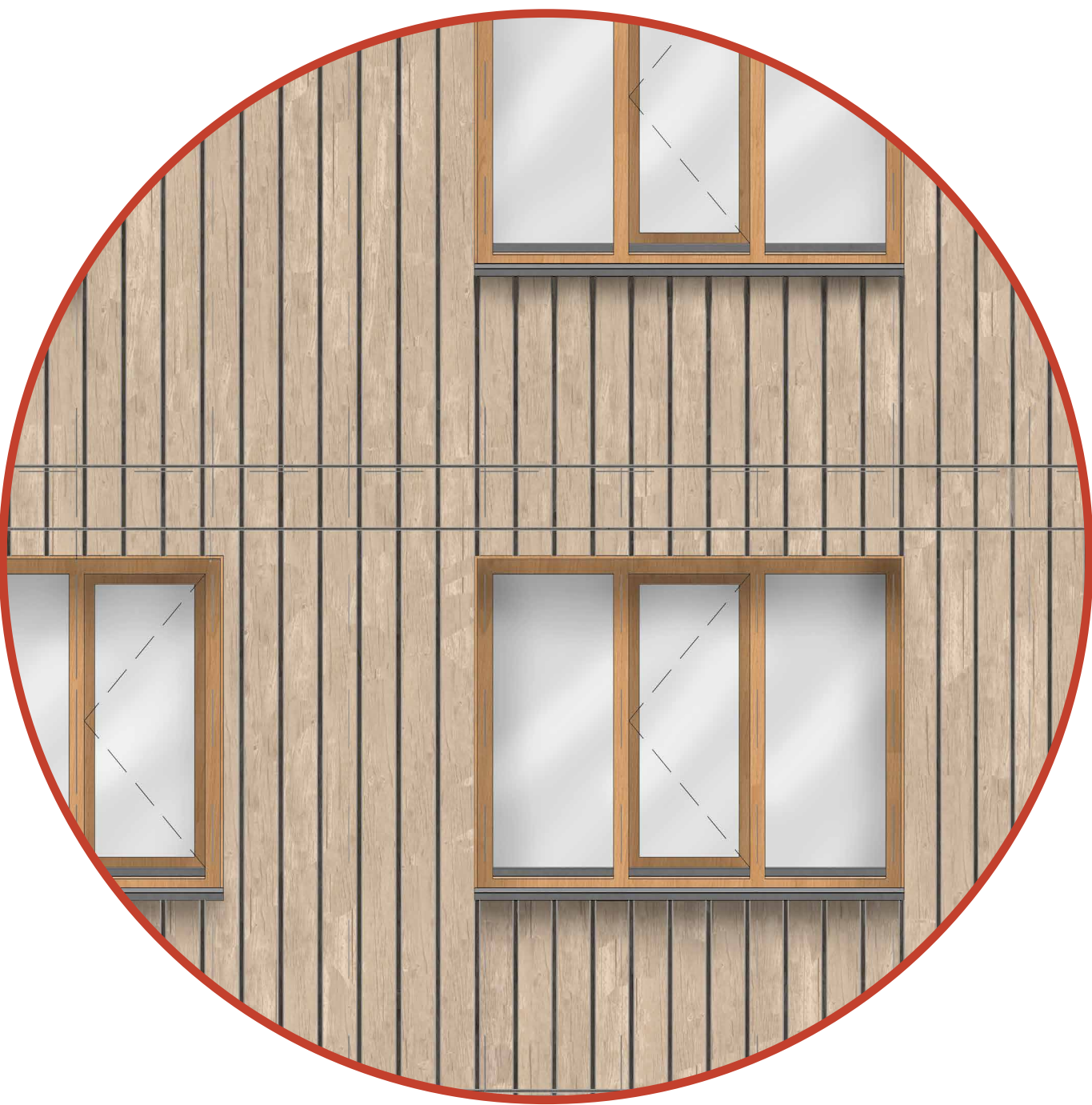

3. Woodfibre insulation with special nails

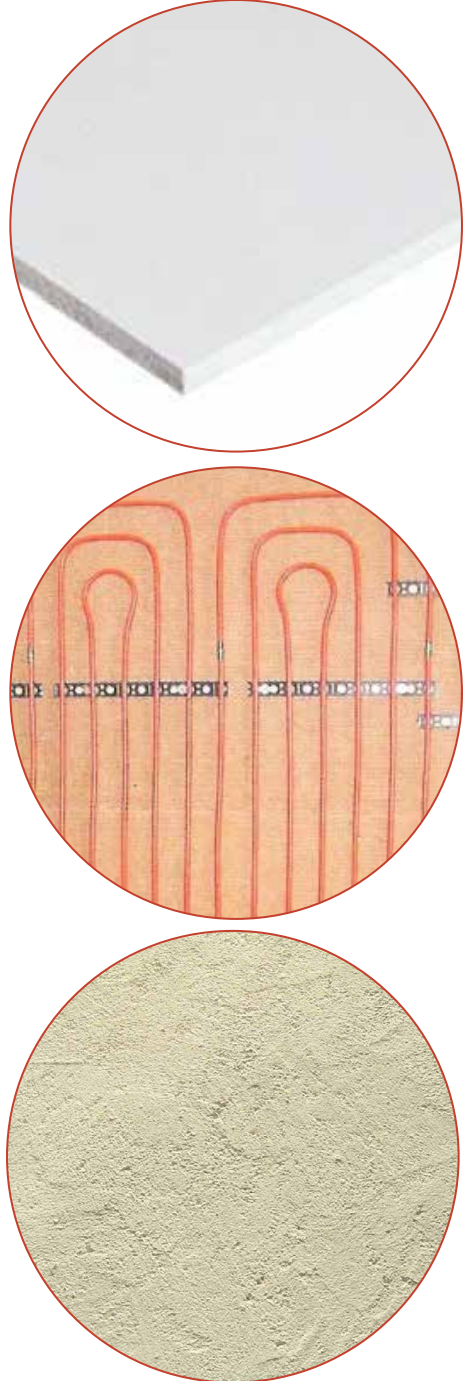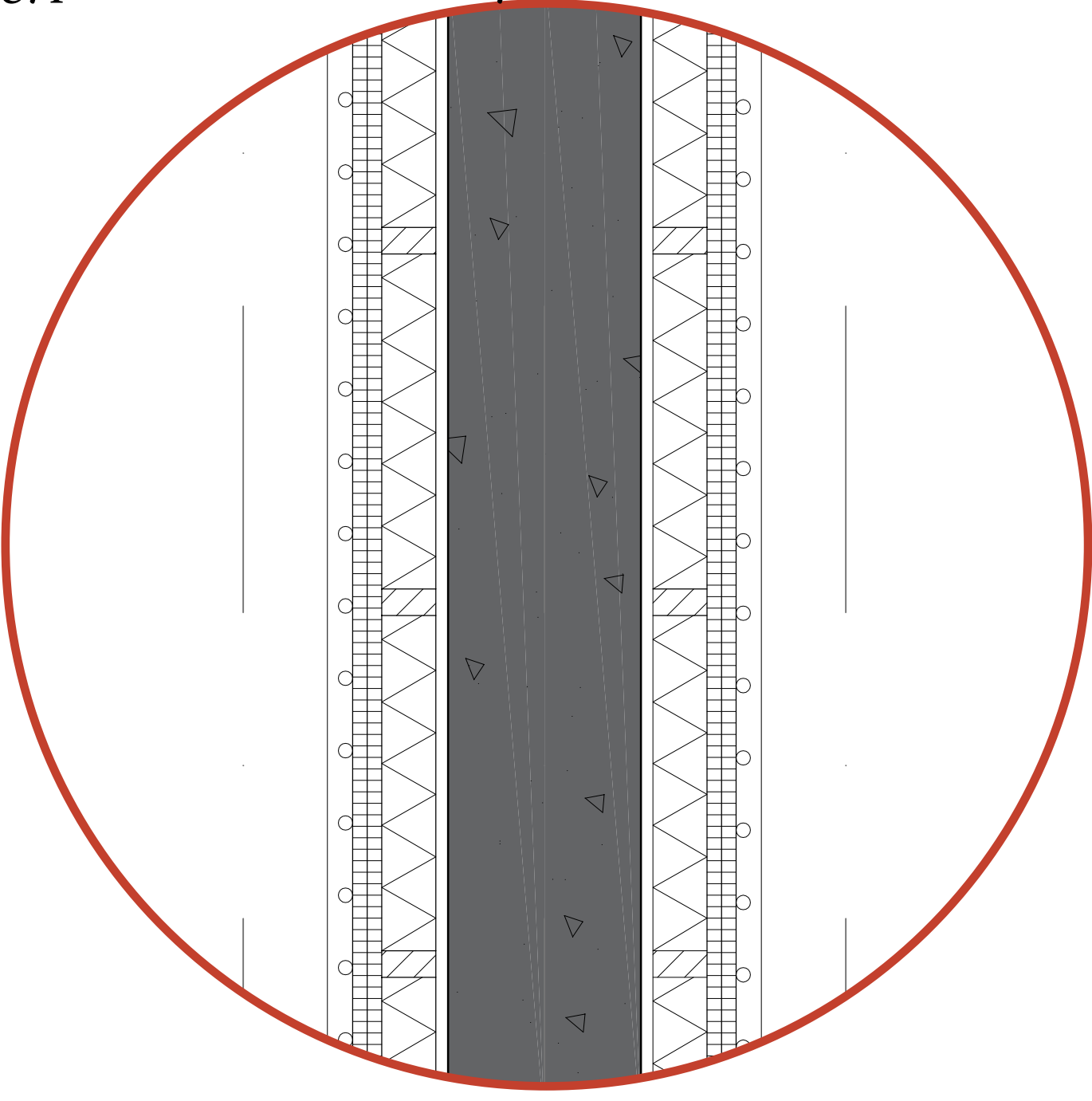4. Larch beams for sturcture and stainless steel ankers and screws
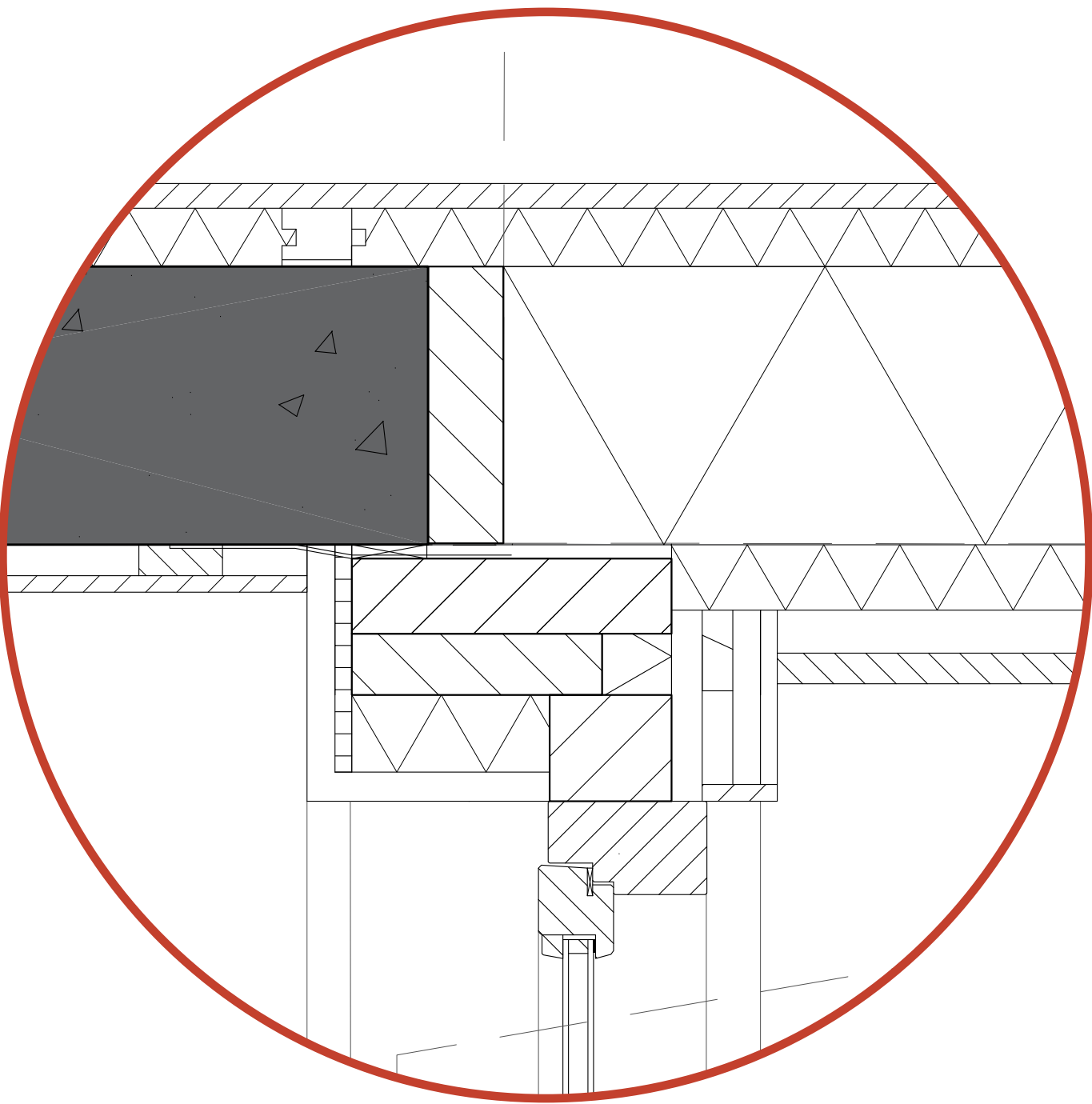

5. OSB panel that are connected with screws

Window frames of accoya wood

House seperating walls
Reduce sounds and heat houses

gypsum fiber boards recycled and natural stucco

Woodfibre insulation to reduce contact sound

Hard woodfiber insulation and sedum roof