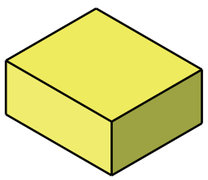
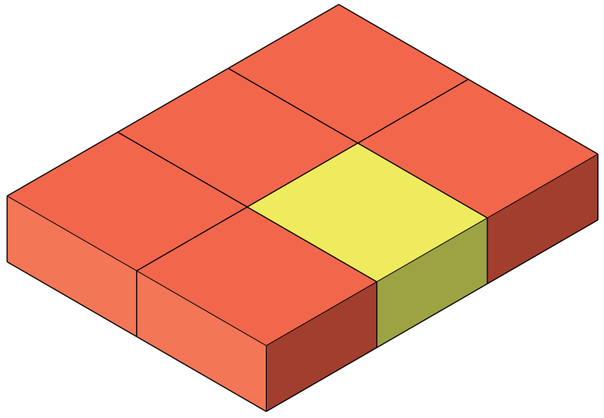
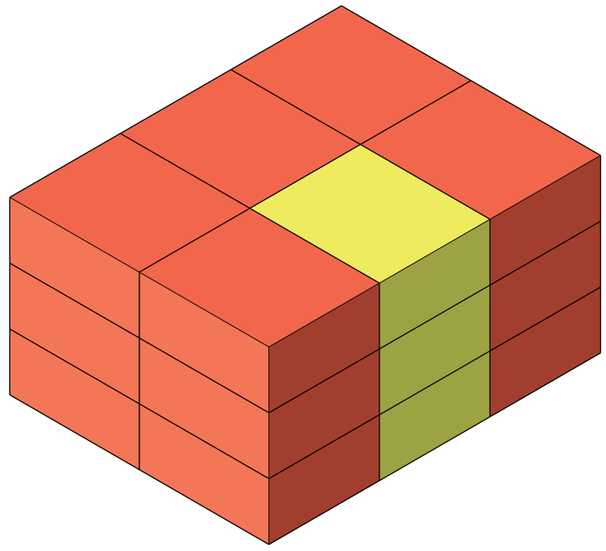
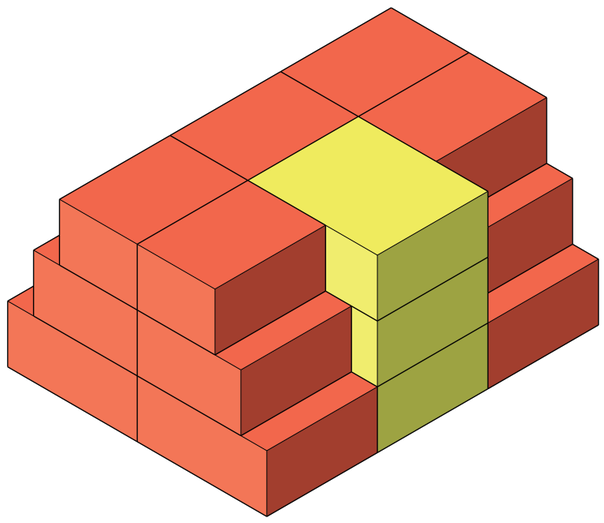
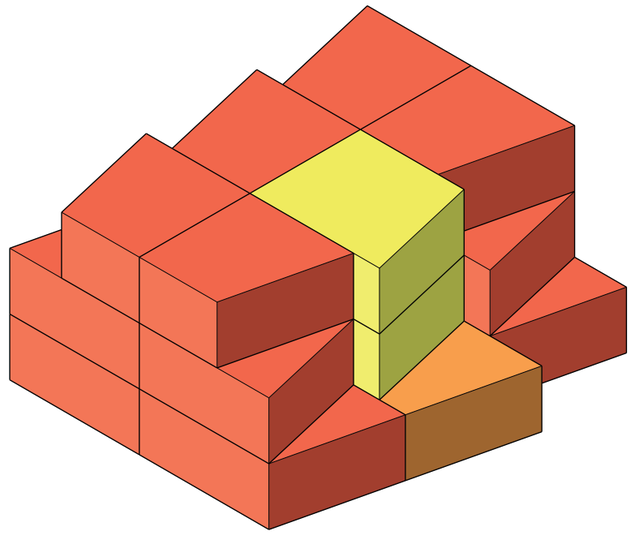
Funded by the Erasmus+ Programme of the European Union











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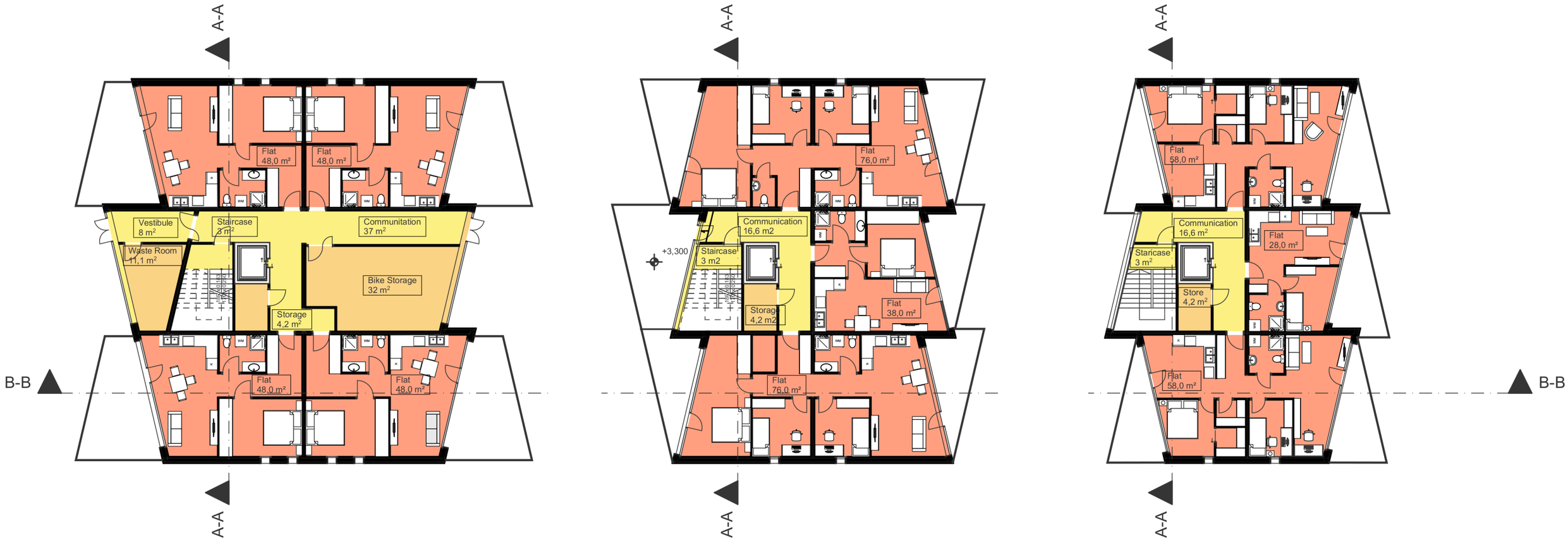
Master Plan

Scale: 1:500



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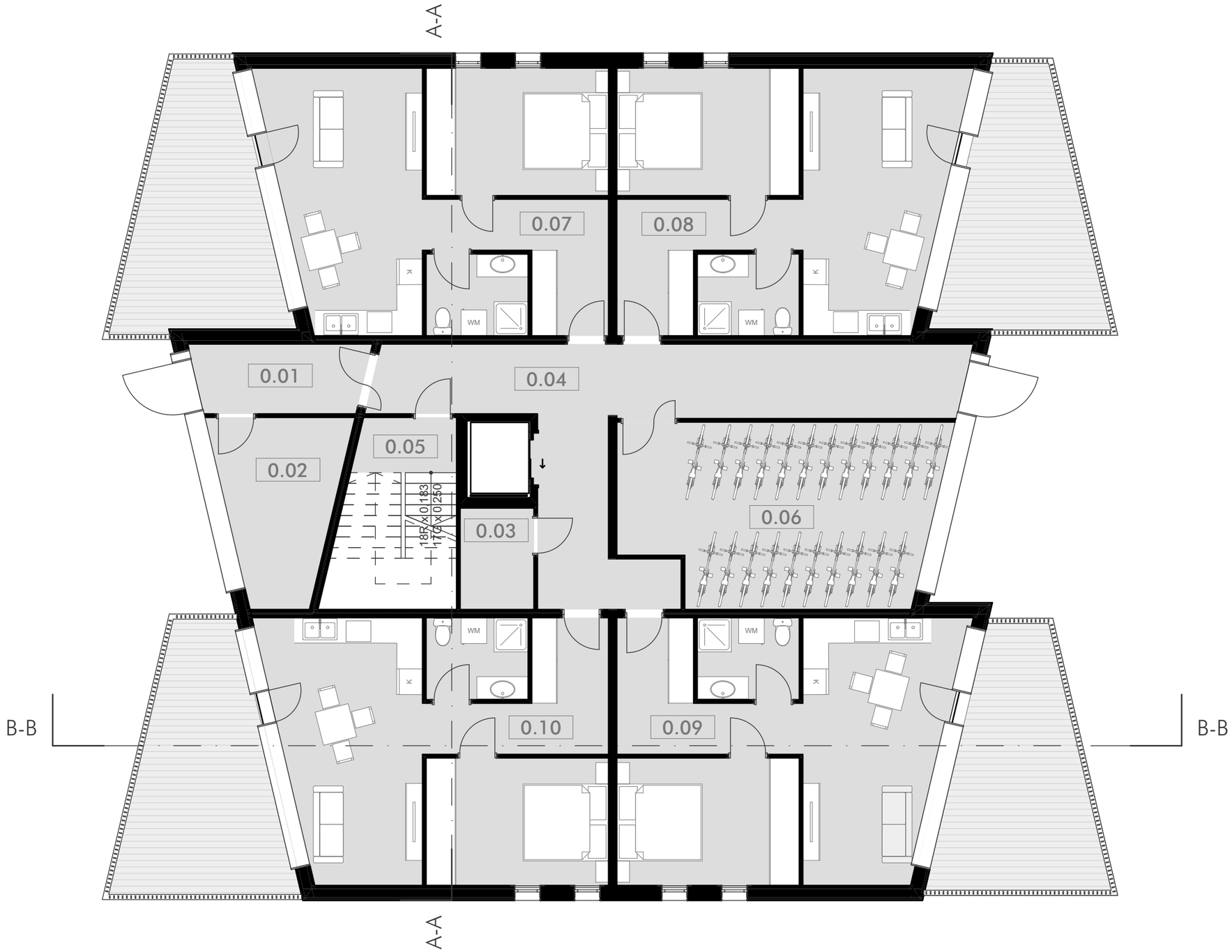
Function Scheme

Scale: 1:200



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GROUND LEVEL
1:100

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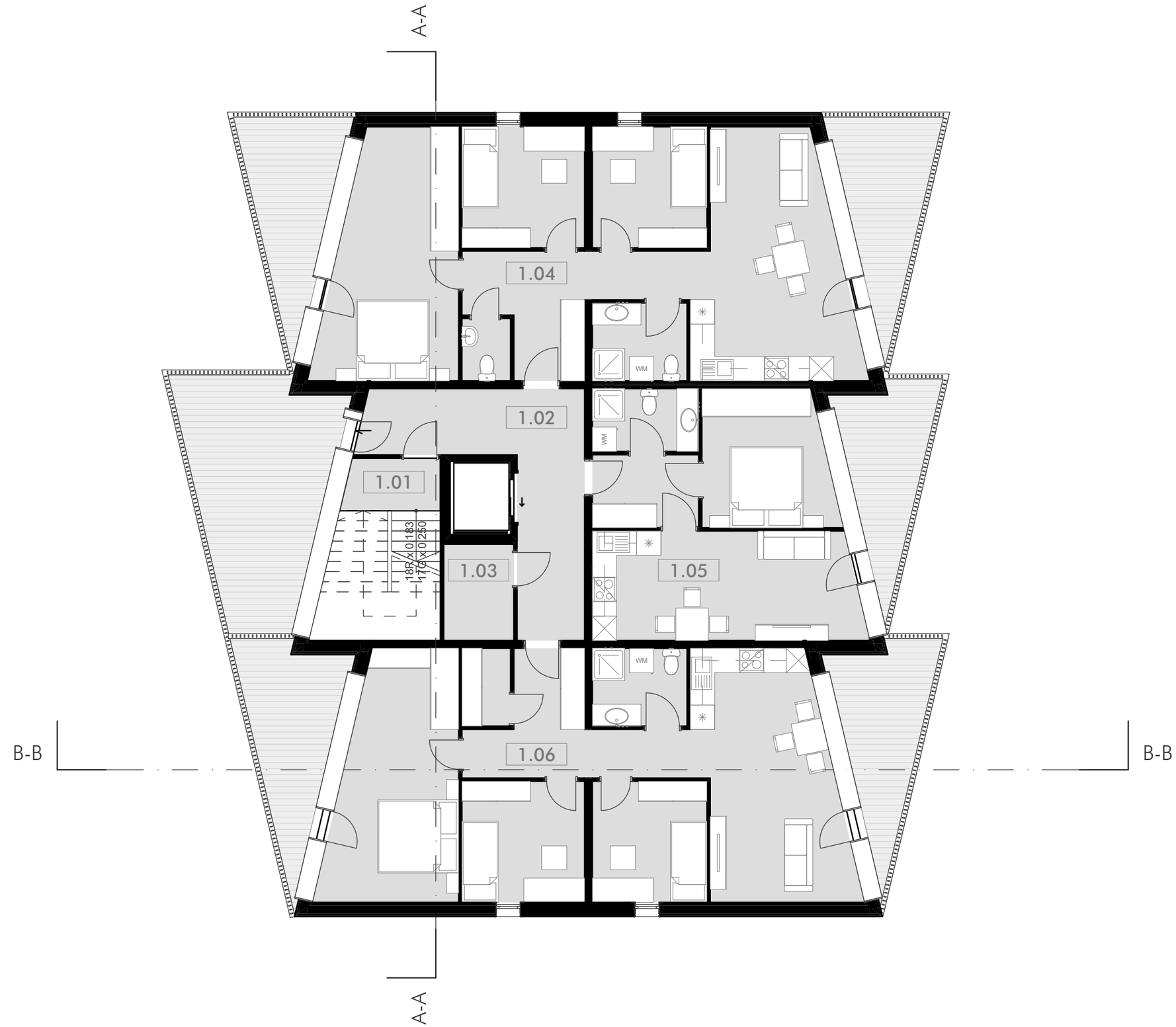
Ground Level

Scale 1:100



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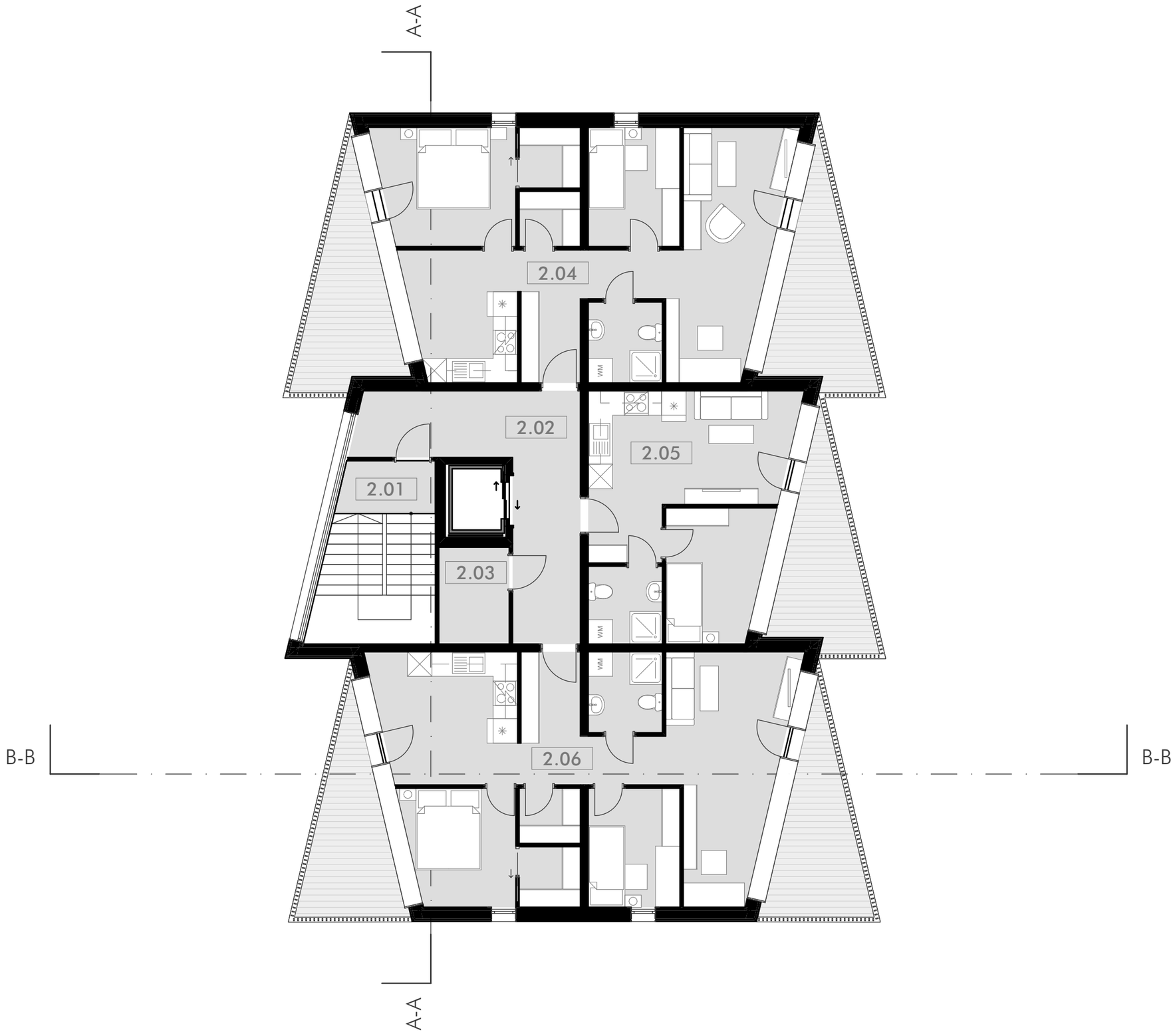
Level 1

Scale 1:100



2.

IFVFI

Level 2

Scale 1:100

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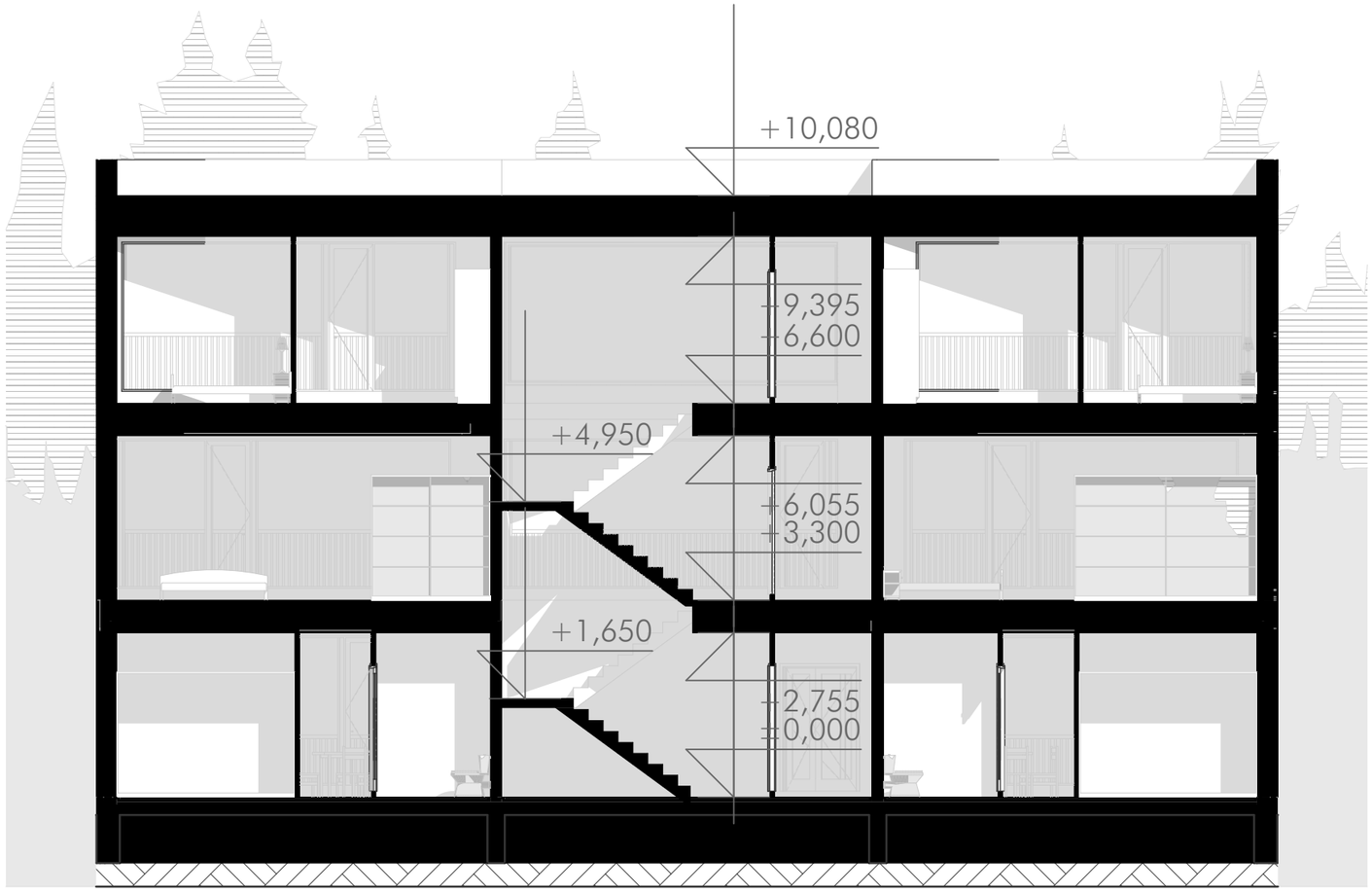

A-A
-

Building Section
1:100

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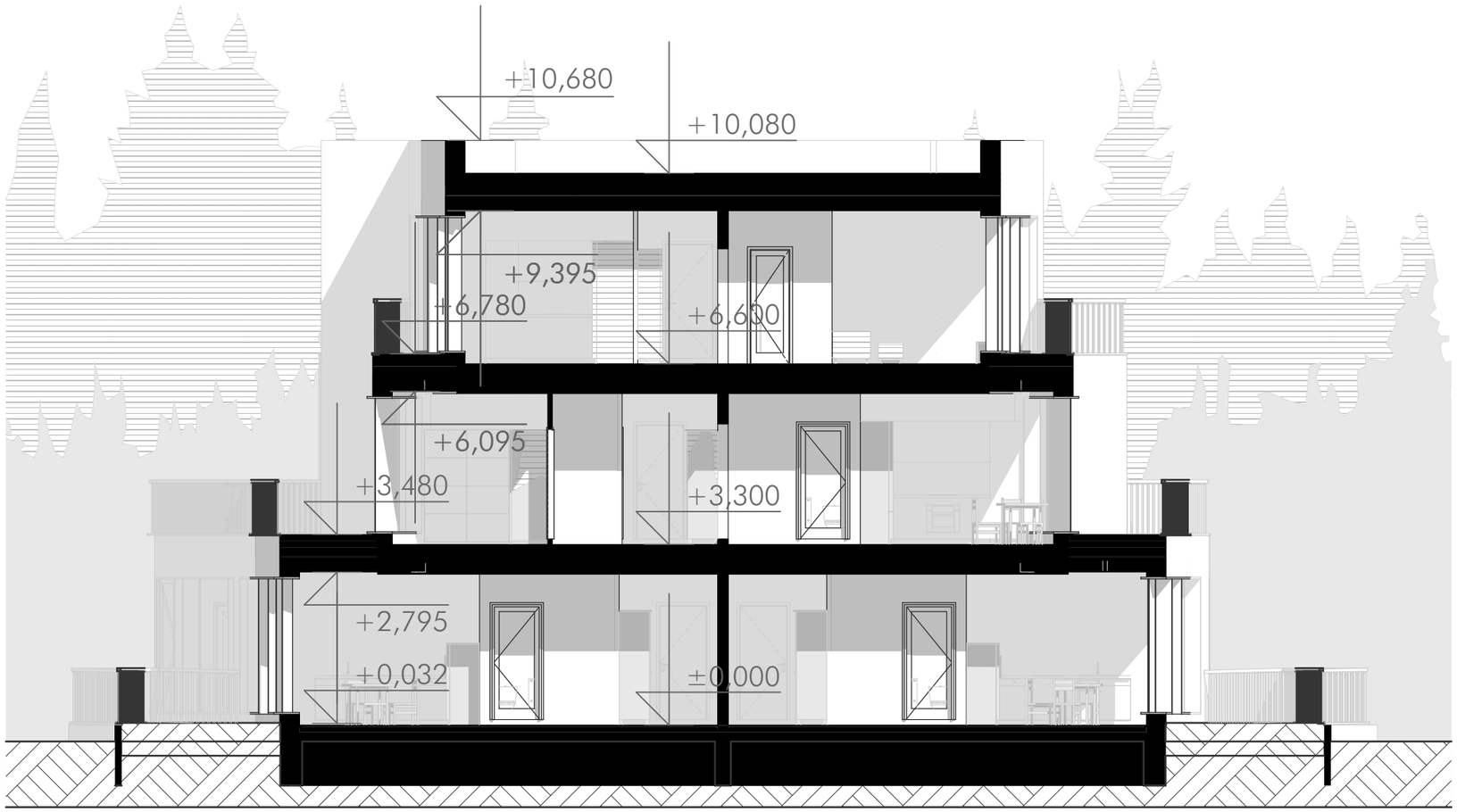
Section A-A

Scale 1:100



B-B
-

Building Section
1:100

Funded by the Erasmus+ Programme of the European Union

Section B-B

Scale 1:100

South Elevation
1:100

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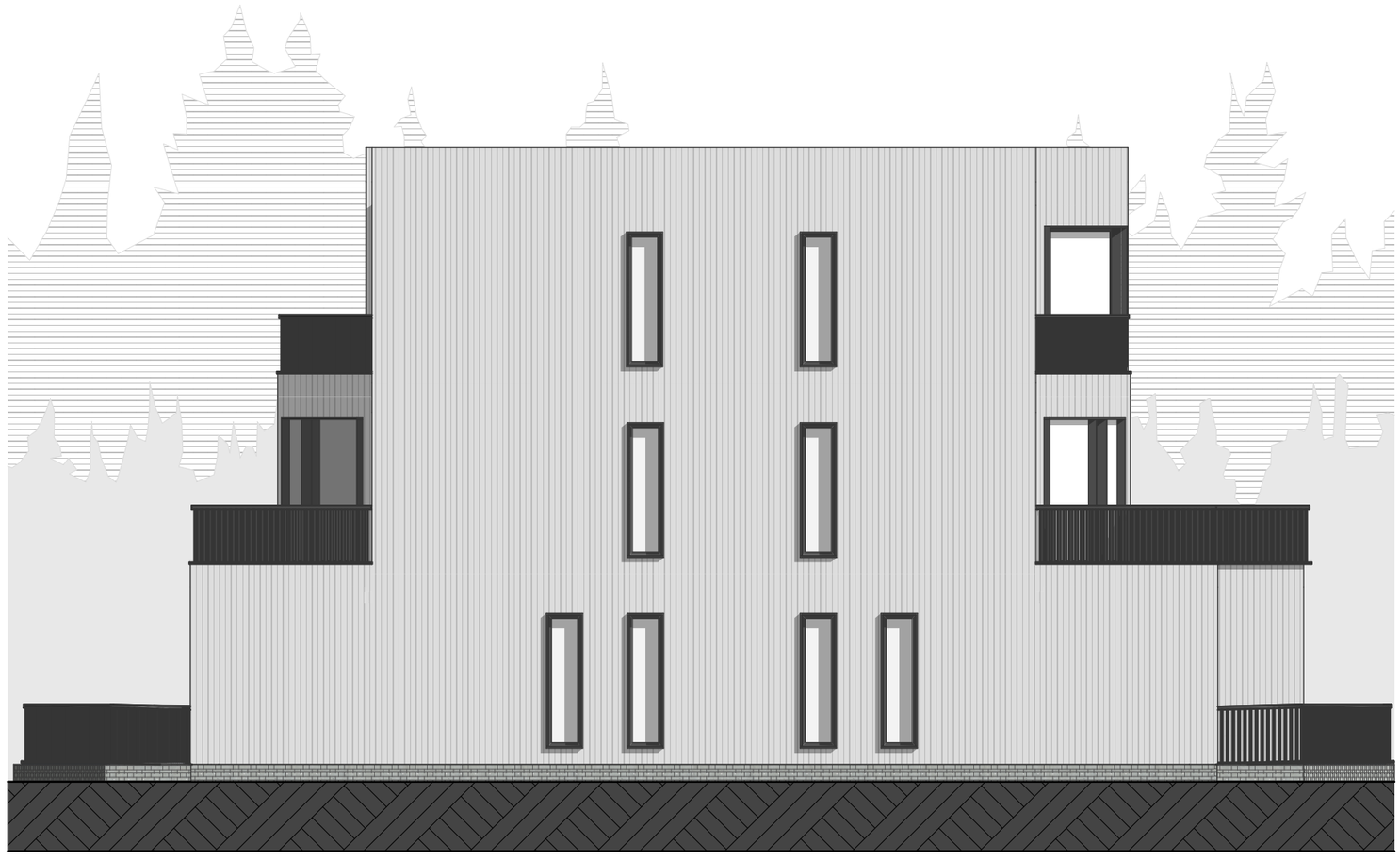
South Elevation

Scale 1:100



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North Elevation
1:100

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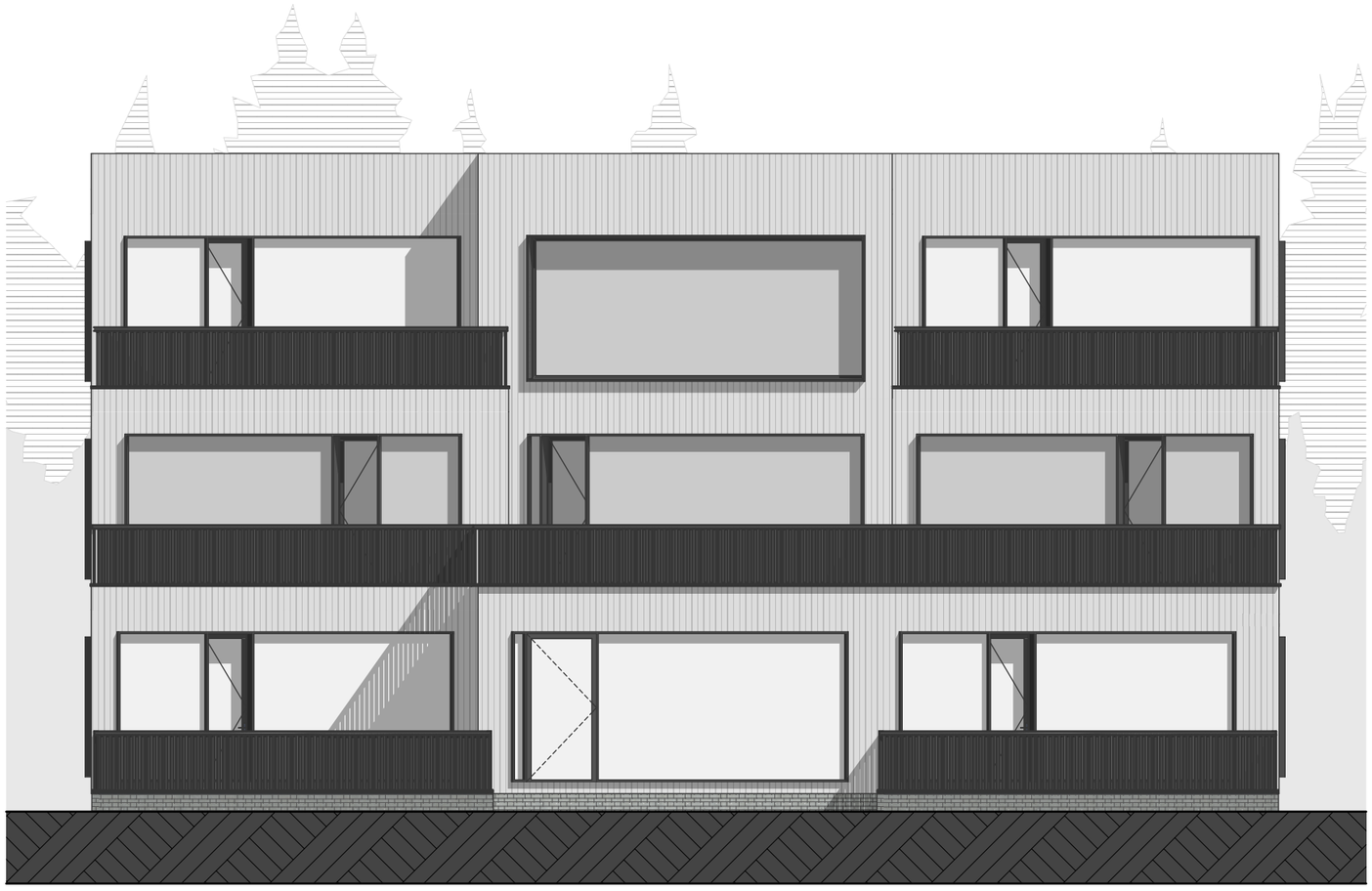
North Elevation

Scale 1:100

East Elevation
1:100

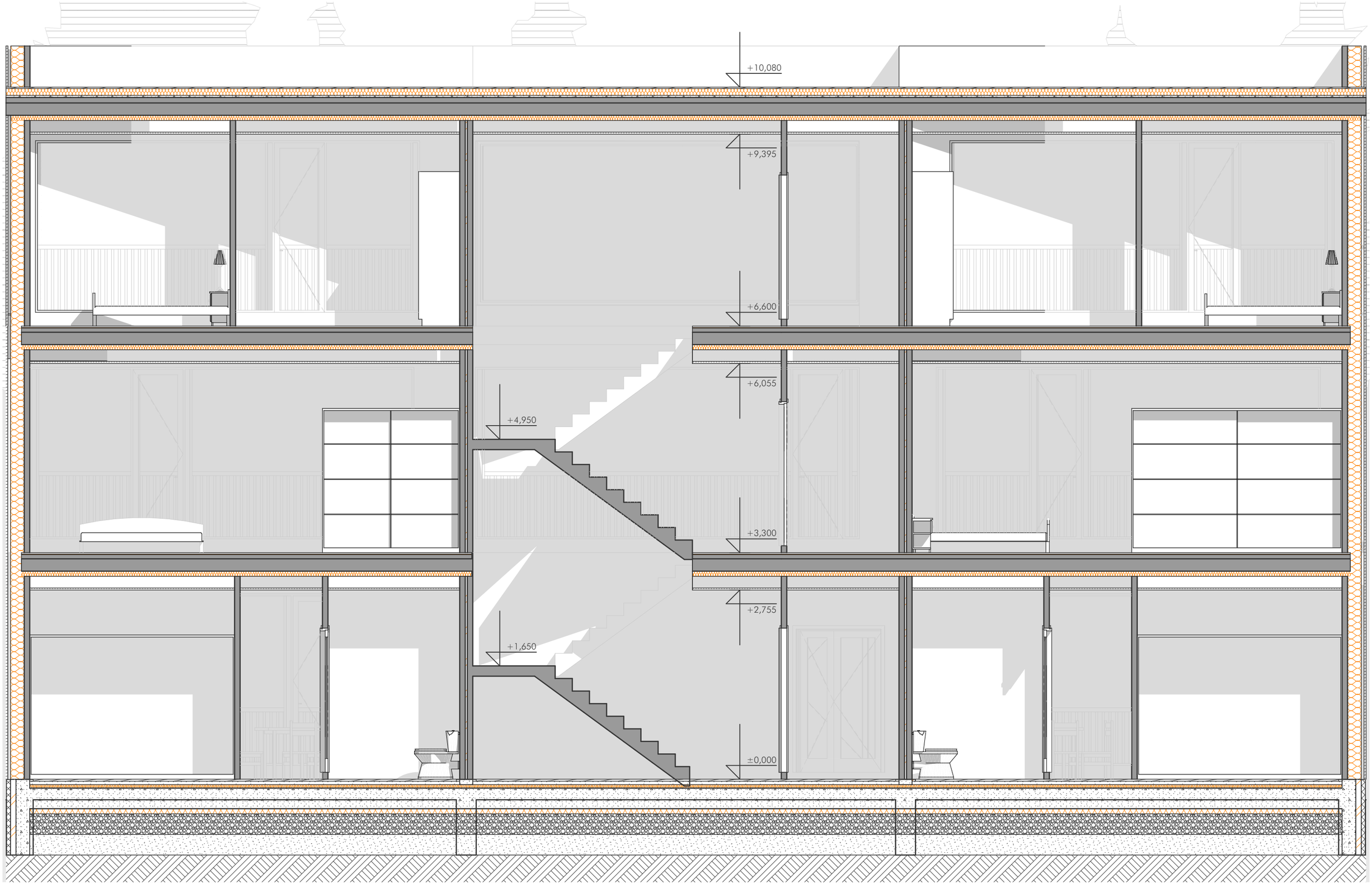


West Elevation
1:100

Funded by the Erasmus+ Programme of the European Union

West Elevation

Scale 1:100



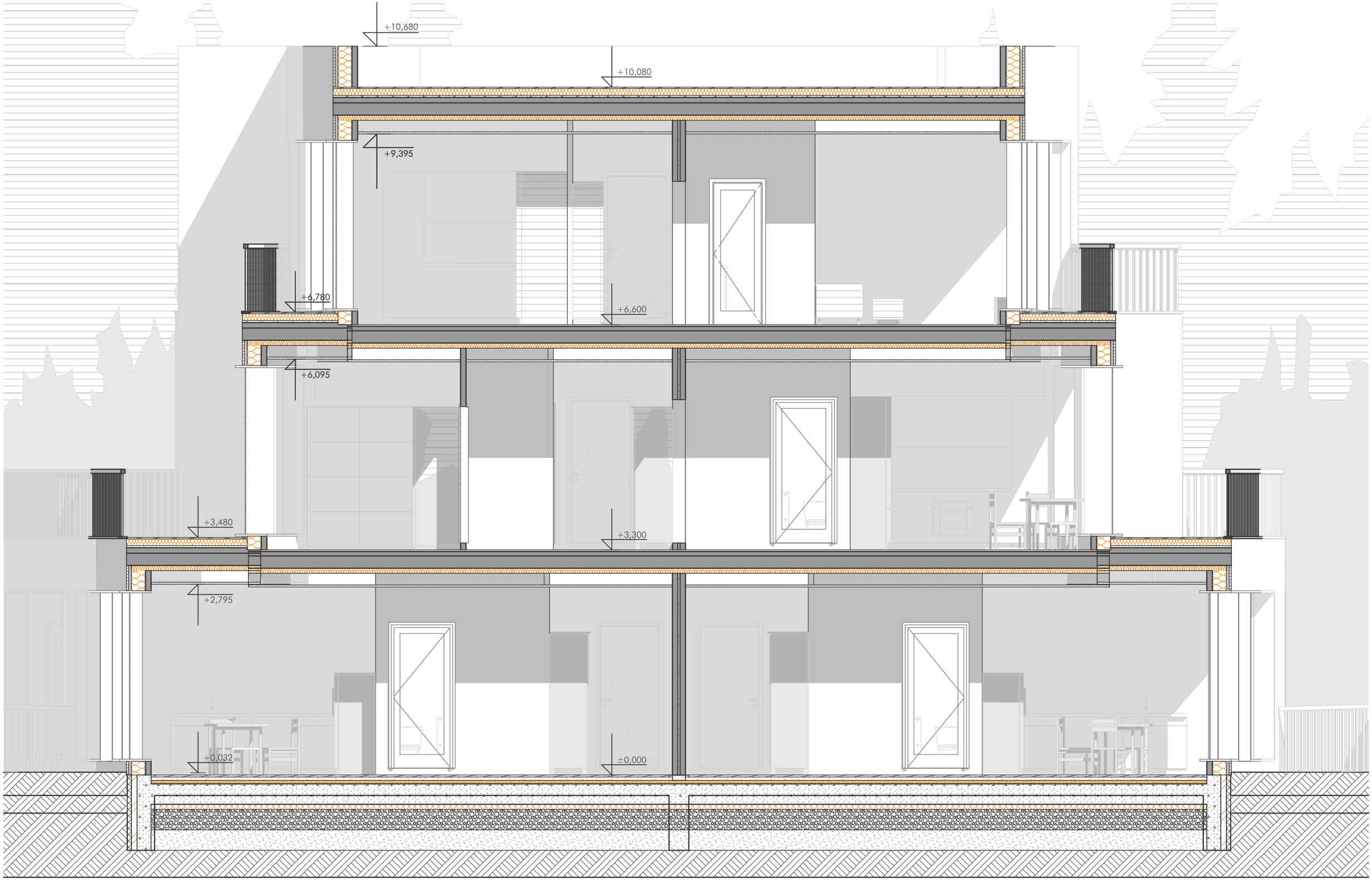
A-A

Building Section

Funded by the Erasmus+ Programme of the European Union

Section A-A

Scale 1:50



B-B

Building Section

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Section B-B

Scale 1:50

Funded by the Erasmus+ Programme of the European Union

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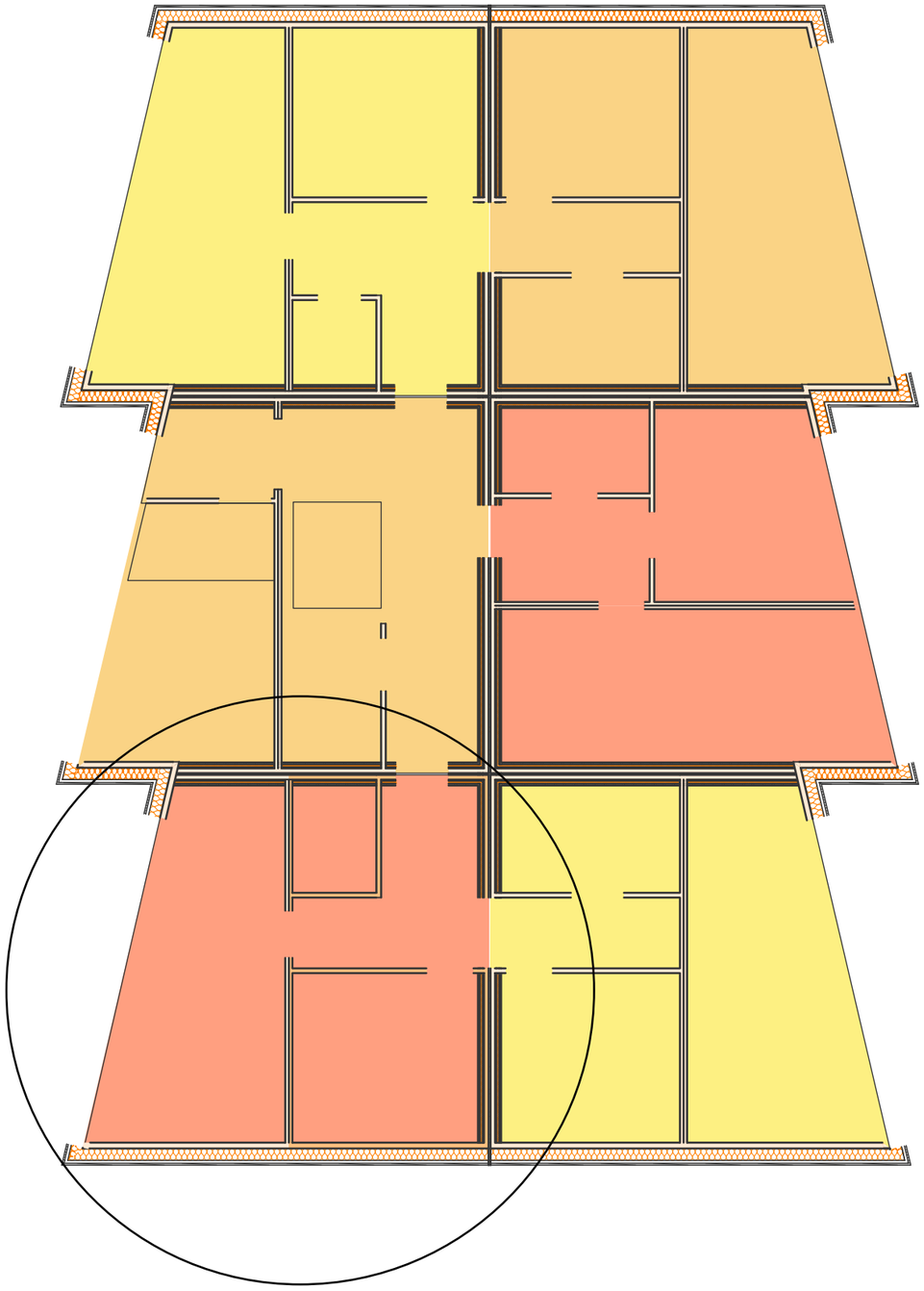

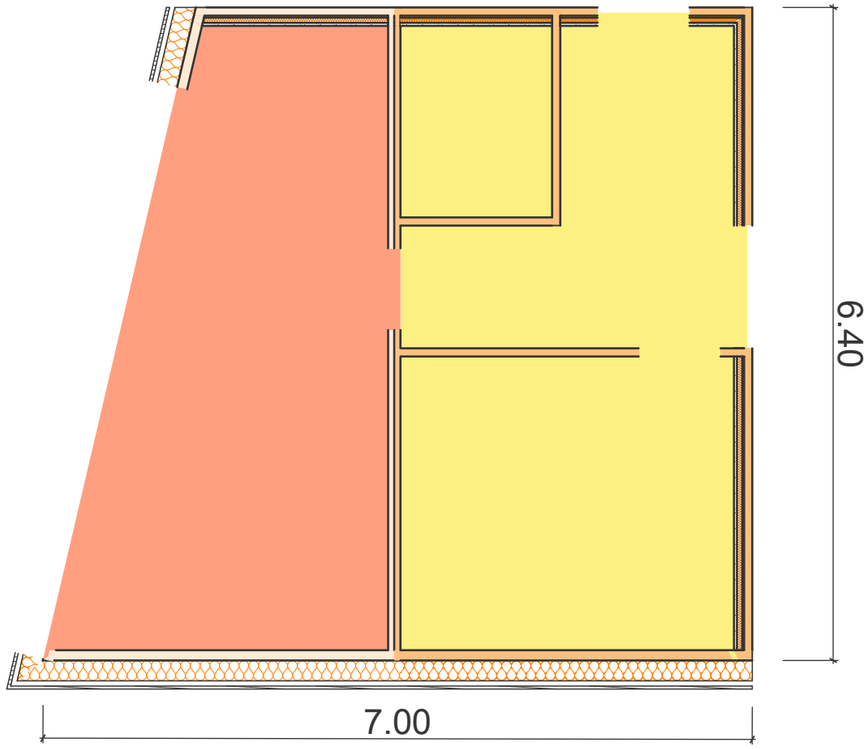

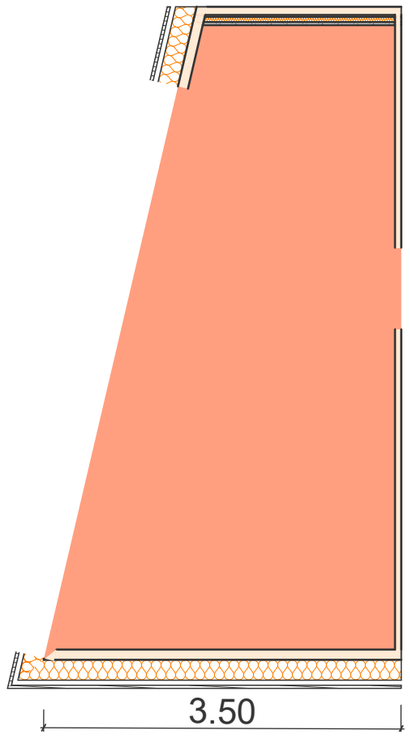

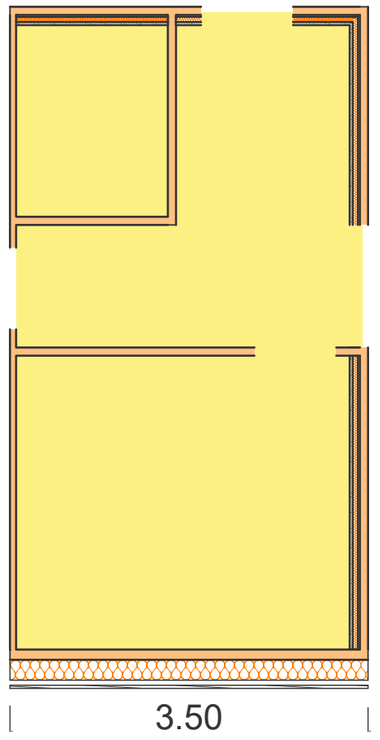

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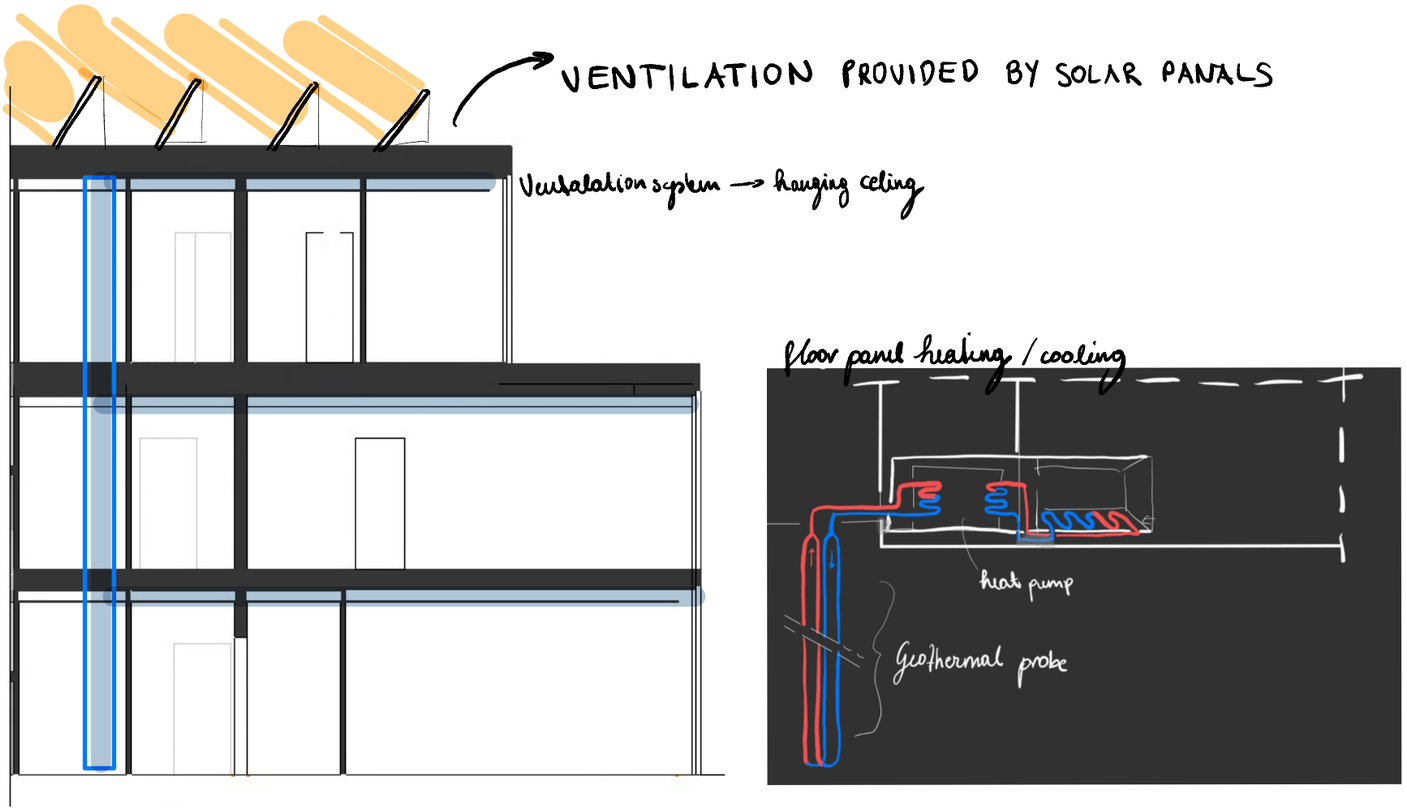
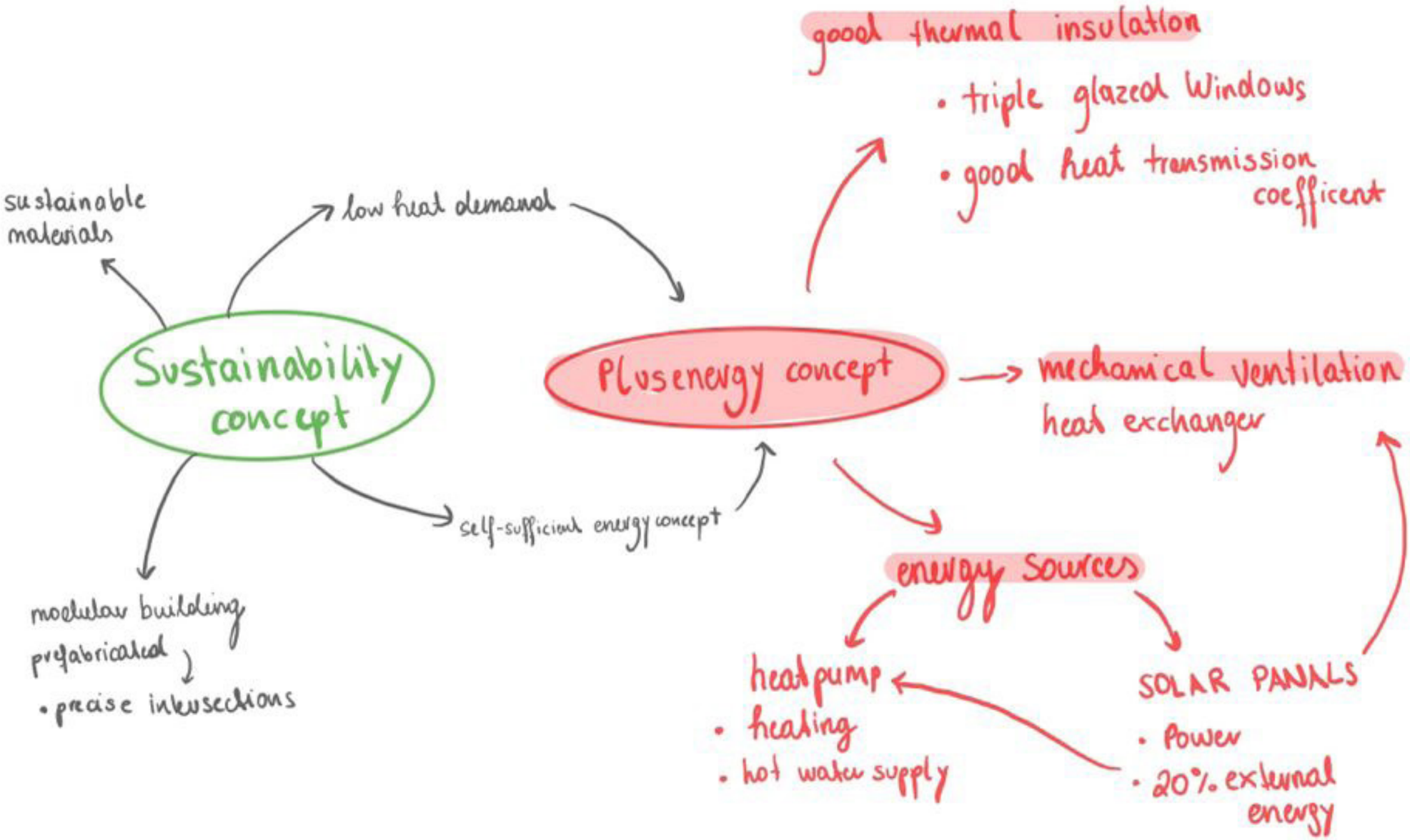
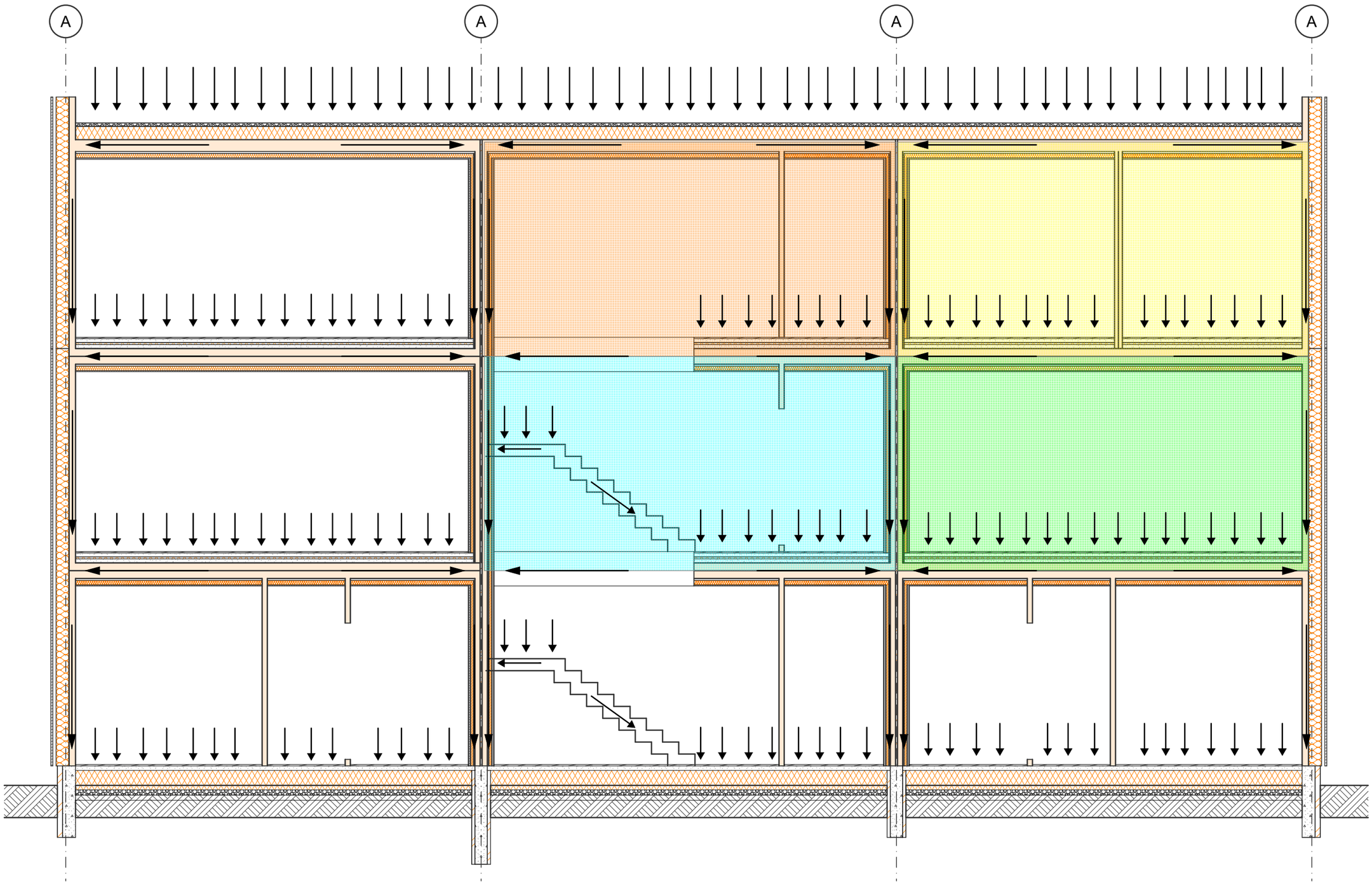
Concept of joining adn transportation of modules

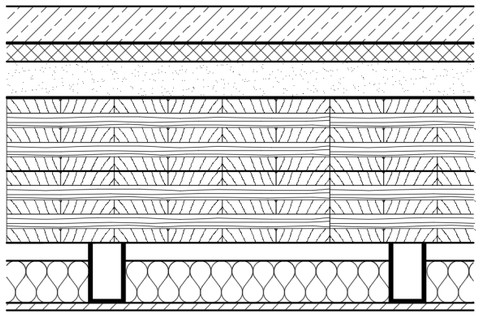
Scale 1:200


VENTILATION PROVIDED BY SOLAR PANALS
Ventalation system → hanging celing
floor panel heating / cooling
heat pump
Geothermal probe


good thermal insulation
• triple glazed windows
• good heat transmission coefficent
sustainable materials
low heat demand
Sustainability concept
Plusenergy concept
mechanical ventilation
heat exchanger
self-sufficient energy concept
energy sources
modular building prefabricated
• precise intersections
heatpump
• heating
• hot water supply
SOLAR PANALS
• Power
• 20% external energy


A
A
A
A

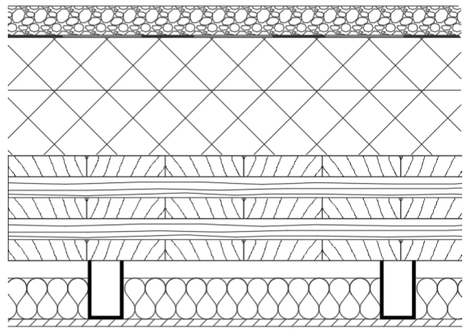
Components: Ceilings



6cm cement screed
plastic seperation layer
3cm impact sound absorbing subflooring mineral wool
6cm elasti vonded fill
Tickling rotection
2x 12cm CLT 5 layers
10cm acoustic hangers with 7cm mineral wool
1.5cm gypcium fibre board

- REI 60
- Diffusion suitable
- Rw > 75dB; Lnw > 45dB

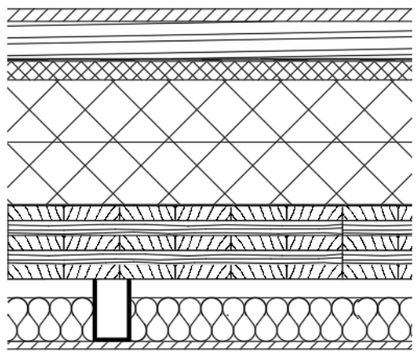
Components: Roof



6cm gravel
Sealing sheet EPDM
2x10cm wood fibre insulation board
Sealing sheet bitumen
18cm CLT 5 layers
7cm acoustic hangers with 5cm mineral wool
1.25cm gypcium fibre board

- REI 60
- Diffusion suitable
- Rw > 50dB
- U = 0,16 W/m²K

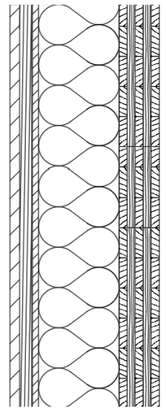
Components: Terrace



8cm wooden terrace
Sealing sheet EPDM
3cm impact sound absorbing subflooring mineral wool
2x10cm wood fibre insulation board
Sealing sheet bitumen
12cm CLT 5 layers
10cm acoustic hangers with 7cm mineral wool
1.5cm gypcium fibre board

- REI 60
- Diffusion suitable
- Rw > 60dB
- U = 0,12 W/m²K

Components: Exterior wall



2.4 cm larch cladding
3cm spruce battens
Vapour-permeable membrane
1.5cm gypsium fibre board
20cm construction timber with cellulose fibre
10cm CLT 5 layers

- REI 60
- Diffusion suitable
- Rw > 43dB
- U = 0,19 W/m²K

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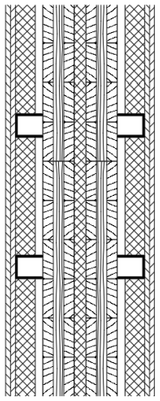
Components: Interior load bearing wall



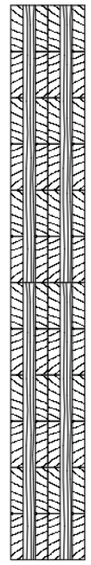
2x 12.5cm gypsium fibre board
7cm alu batten on resilient clips with 5cm mineral wool
8cm CLT 3 layers
3cm mineral wool
8cm CLT 3 layers
7cm alu batten on resilient clips with 5cm mineral wool
2x 12.5cm gypsium fibre board

- REI 60
- Diffusion suitable
- Rw > 59dB
- U = 0,21 W/m²K

Components: Interior walls

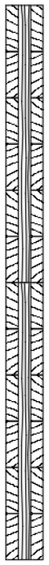
2x 6cm CLT 3 layers
For joining modules
And stiffening

Sight quality

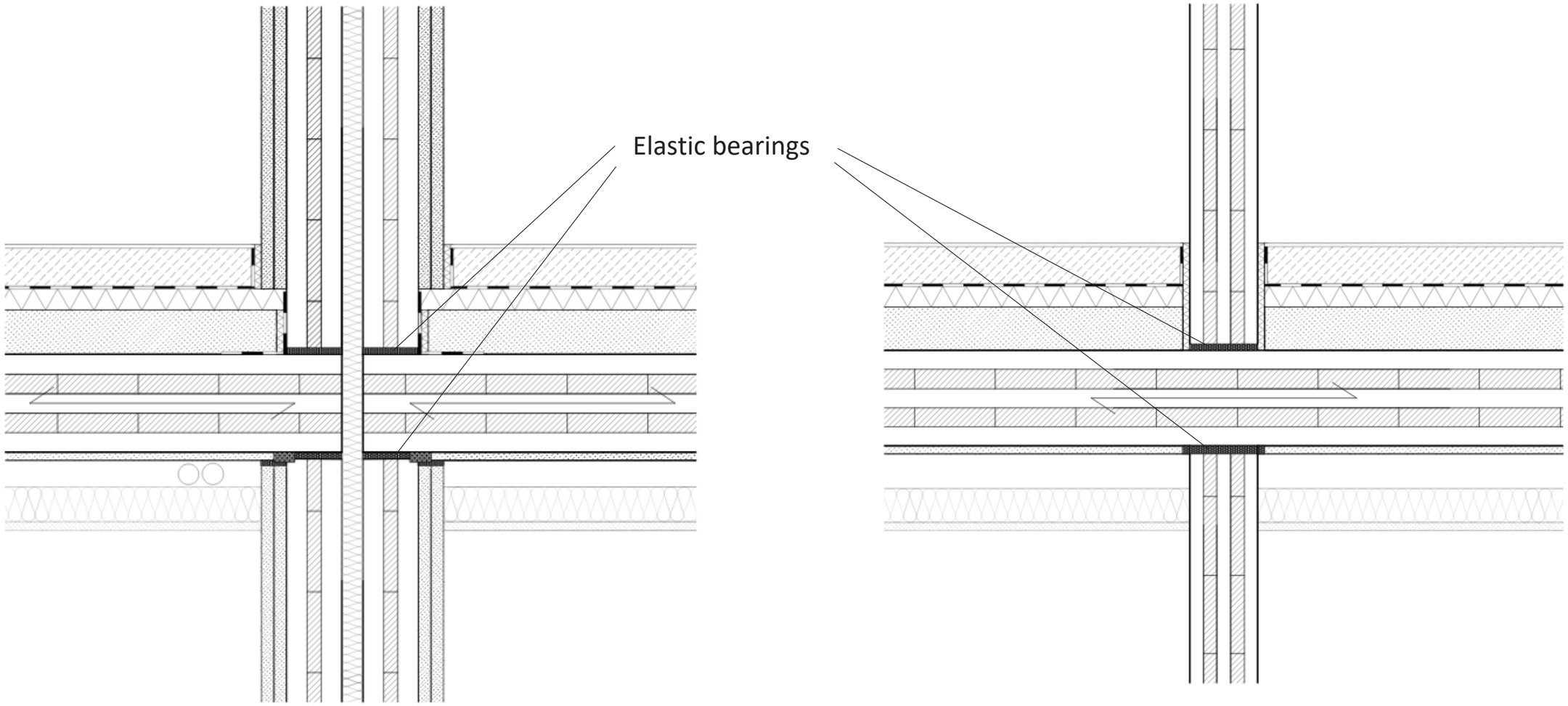


6cm CLT 3 layers
for non load bearing walls

Sight quality



Details: Ceilings – interior load bearing walls



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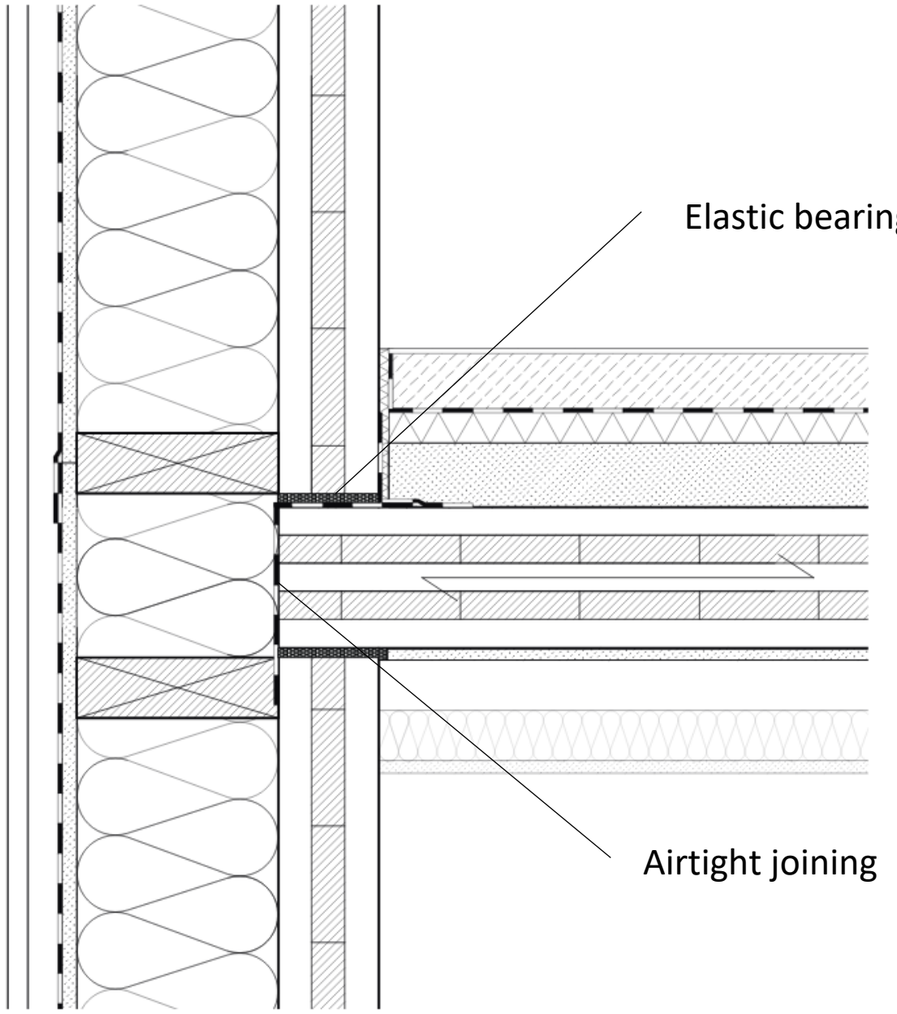
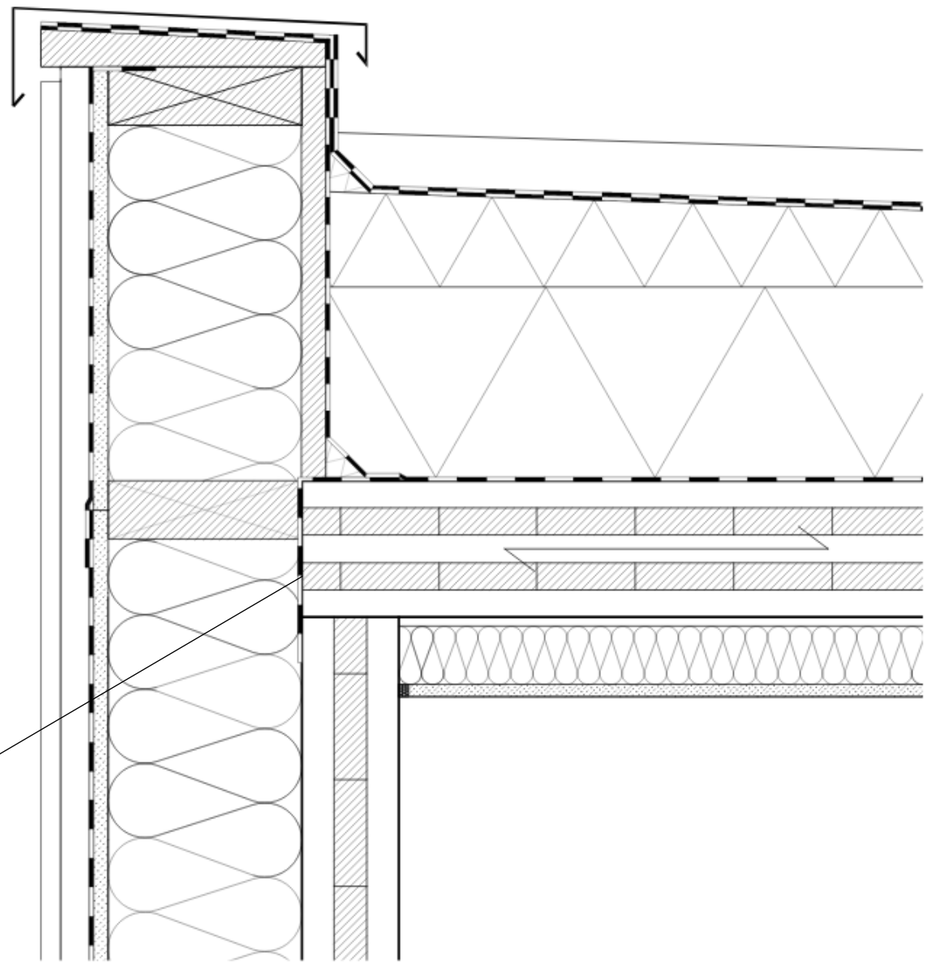
Details: Ceilings – Exterior walls- Roof

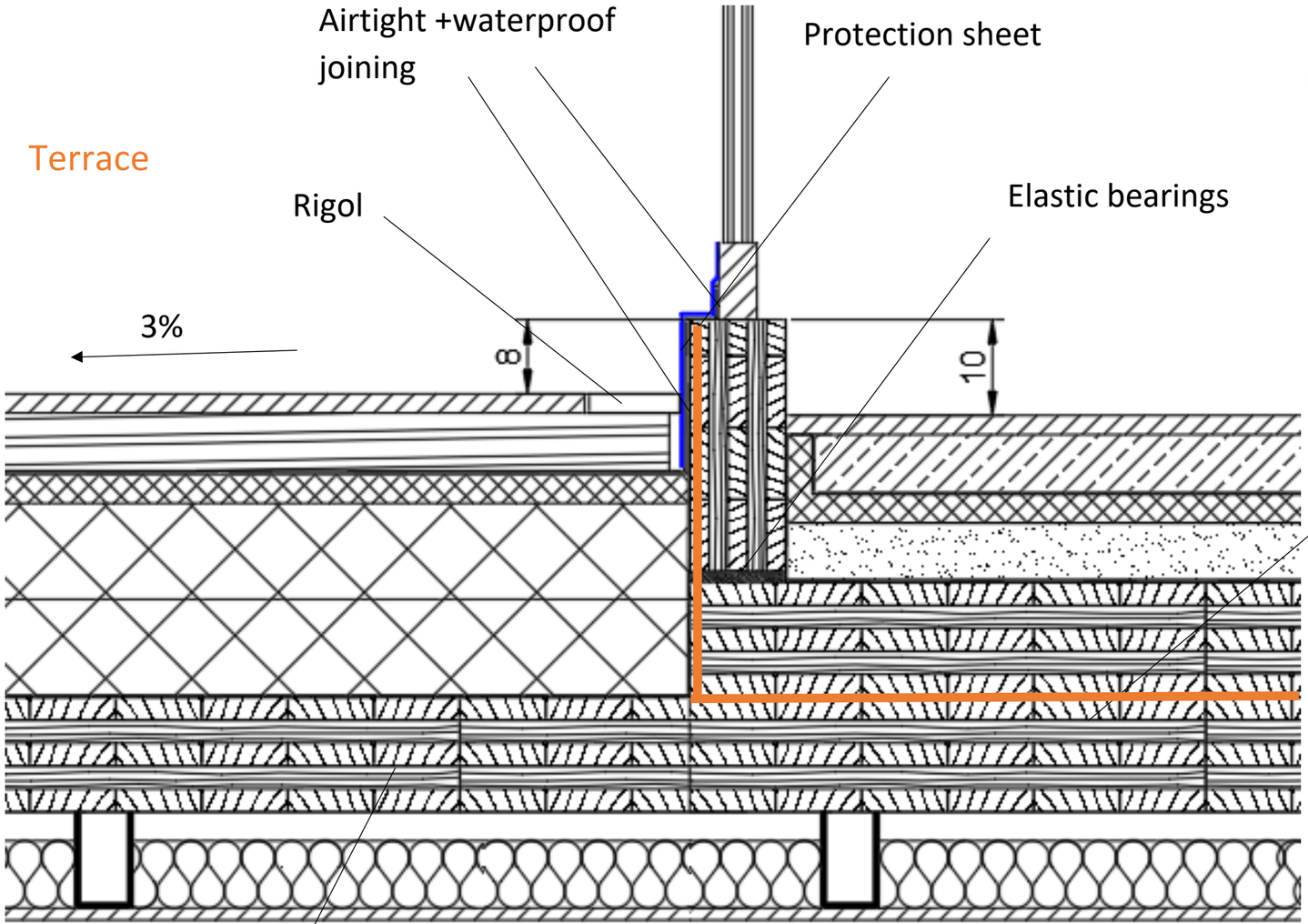




Thermal bridge coefficient:
0.022 W/mK

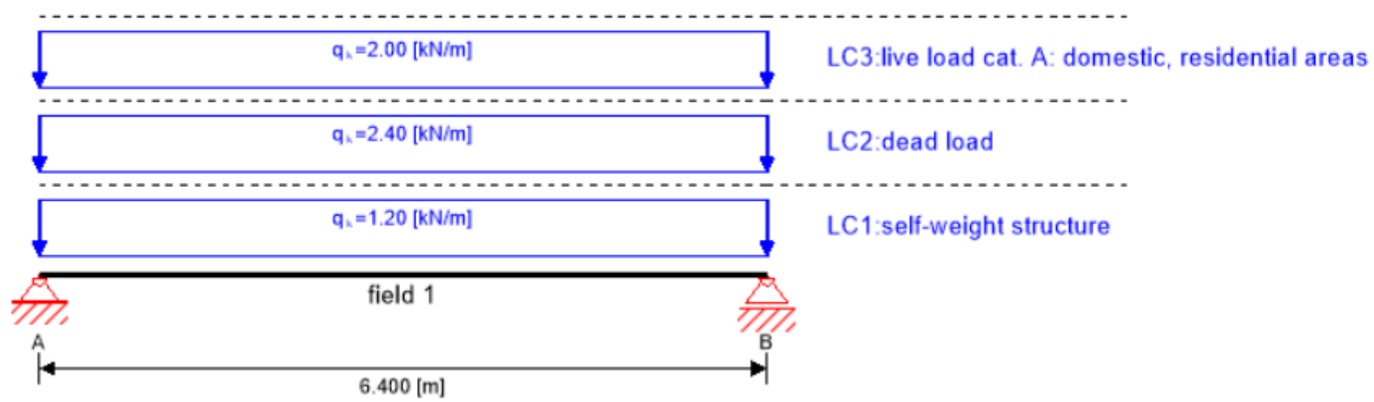
0.205 W/mK

Details: Ceilings – Terrace



Statics: Ceilings

system



section: CLT 240 L7s; **material**: C24 spruce ETA (2019); **service class**: service class 1; **fire resistance class**: R 60

global utilization ratio										99 %
ULS	38 %	ULS fire	20 %	SLS	82 %	SLS vibration	99 %	support	10 %	

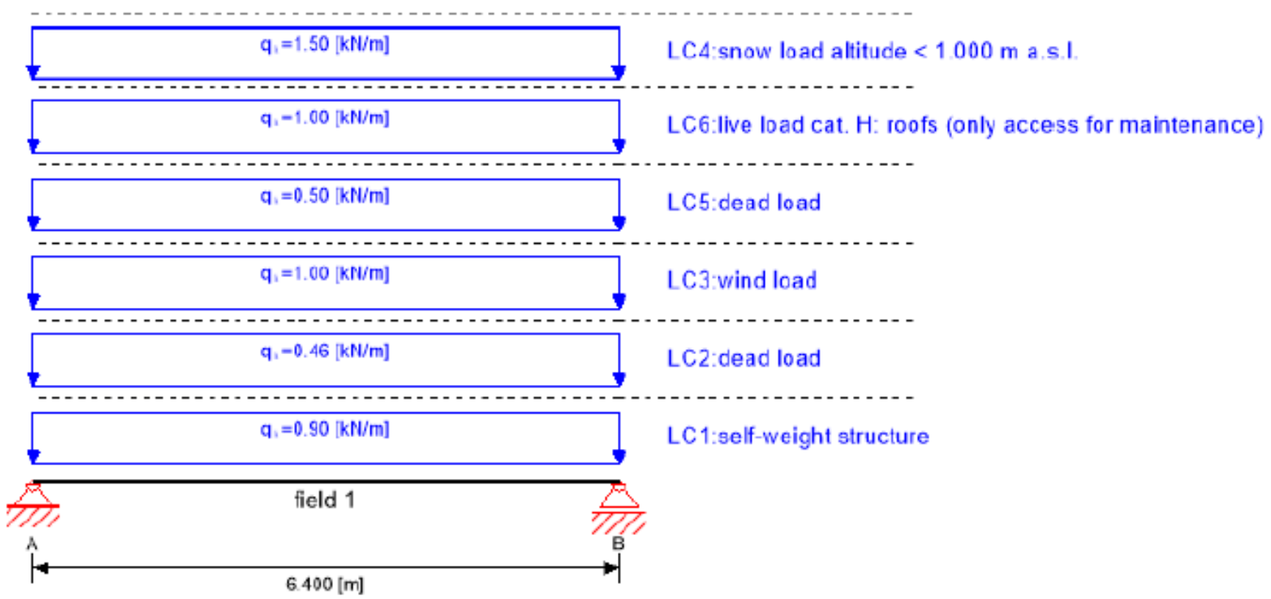
- 24cm CLT 7-layers + 6cm cement screed needed for vibration
- No fire protection layers needed for R60

ULS – Ultimate limit state (bending stress)

SLS – Service limit state (deformation)

Statics: Roof

system

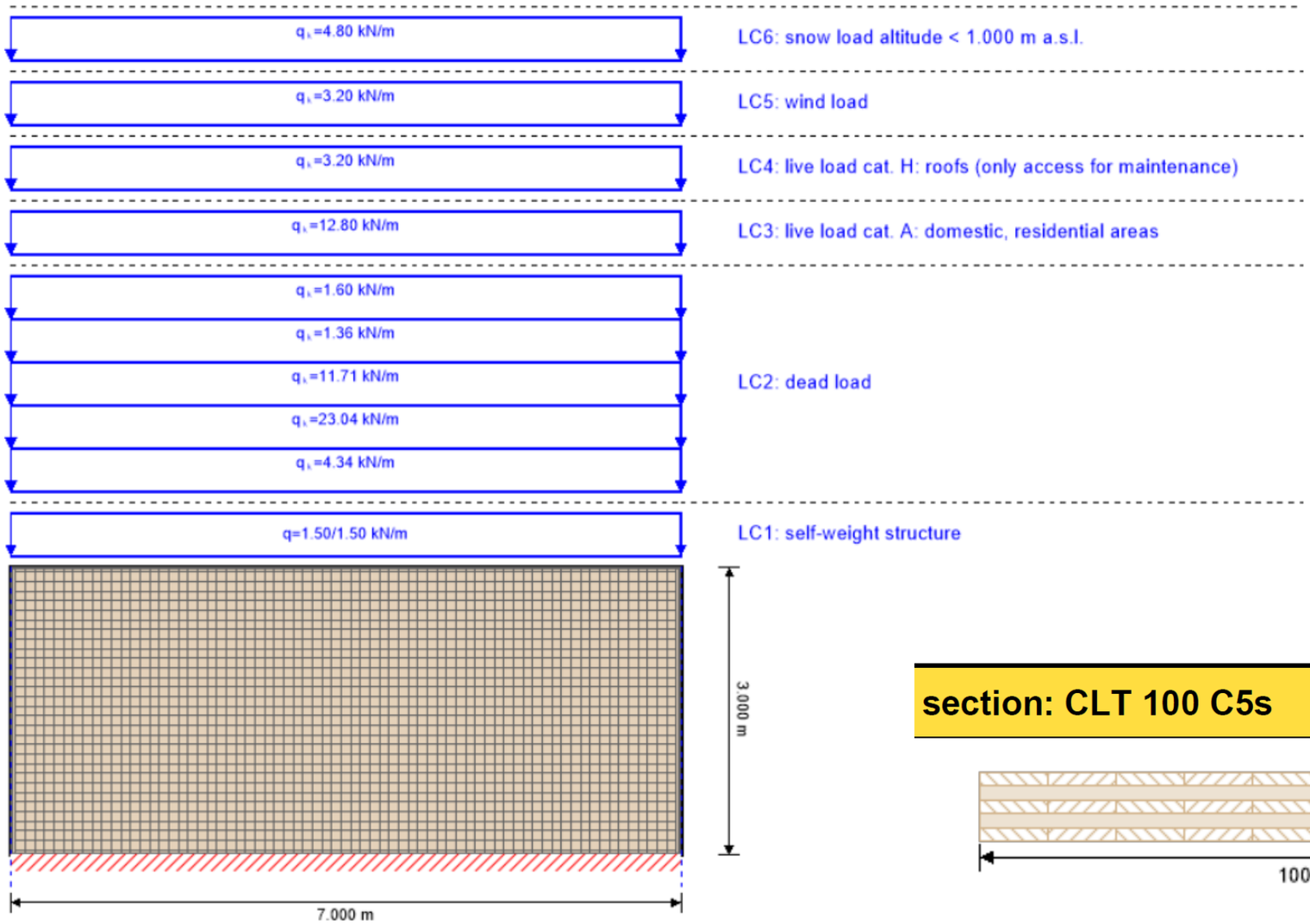


section: CLT 180 L5s; **material**: C24 spruce ETA (2019); **service class**: service class 1; **fire resistance class**: R 30

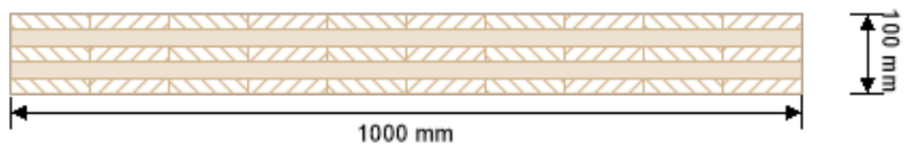
global utilization ratio									95 %
ULS	36 %	ULS fire	13 %	SLS	95 %	SLS vibration	0 %	support	6 %

- 18cm CLT 5-layes needed for service limit state (SLS) – max deformation: 20mm
- No fire protection layers needed for R30

Statics: Exterior walls



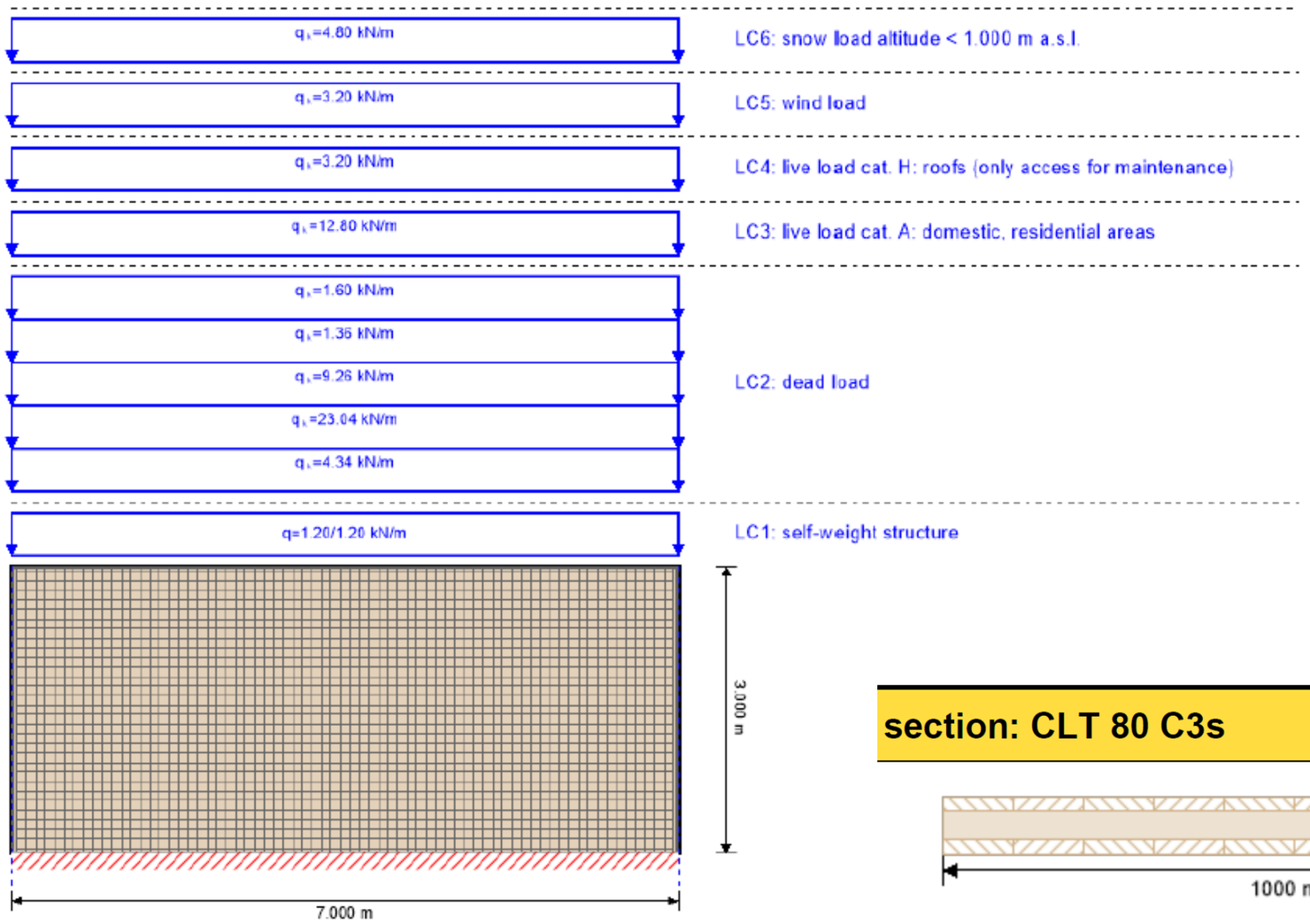
section: CLT 100 C5s

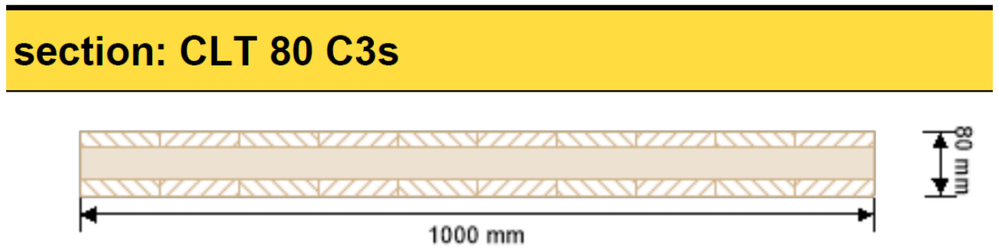


global utilization ratio					
ULS	25 %	ULS fire	68 %	SLS	0 %

- Min 5-layers CLT needed for fire protection R 60 → min. 10cm

Statics: Interior load bearing walls

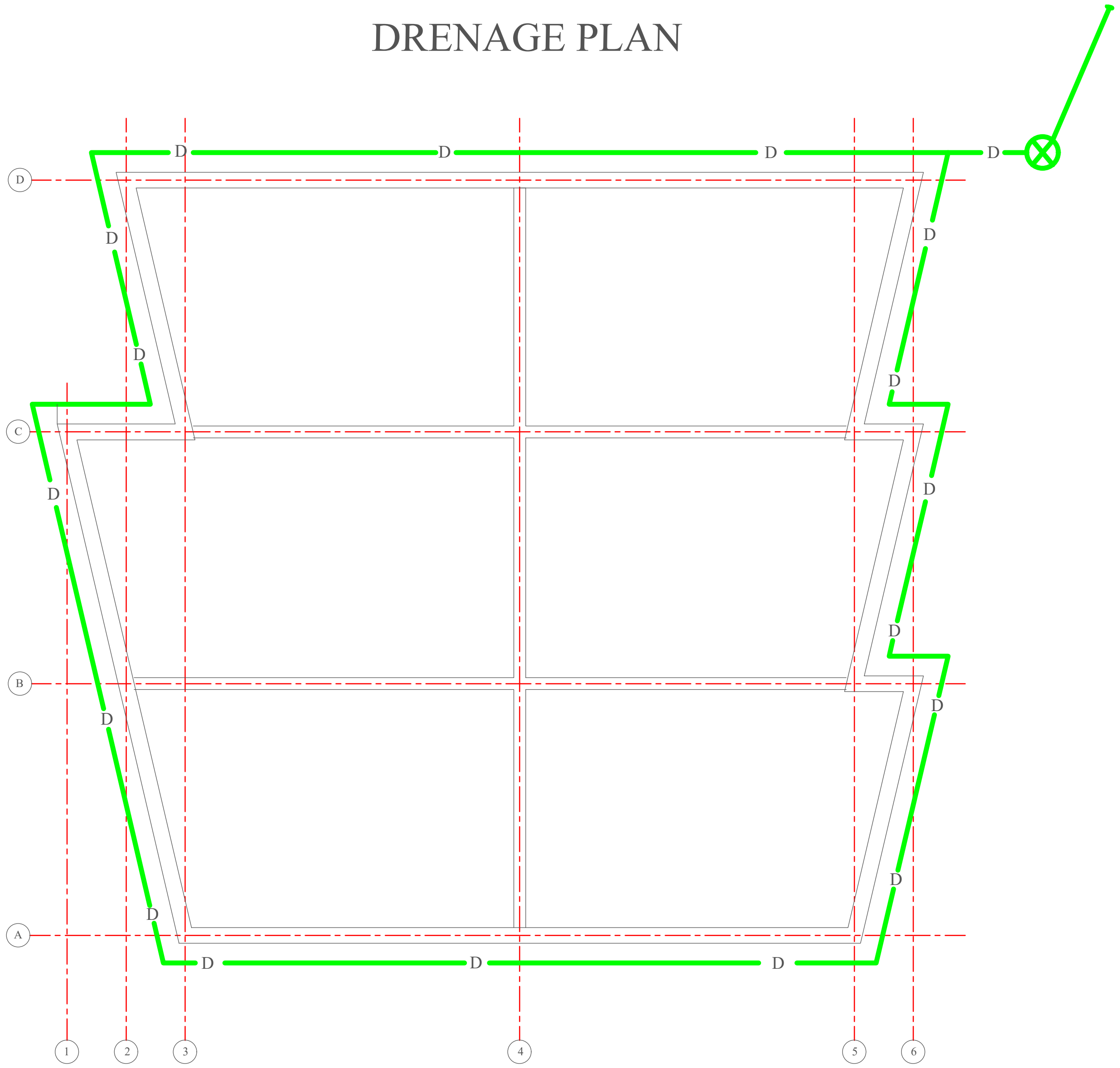




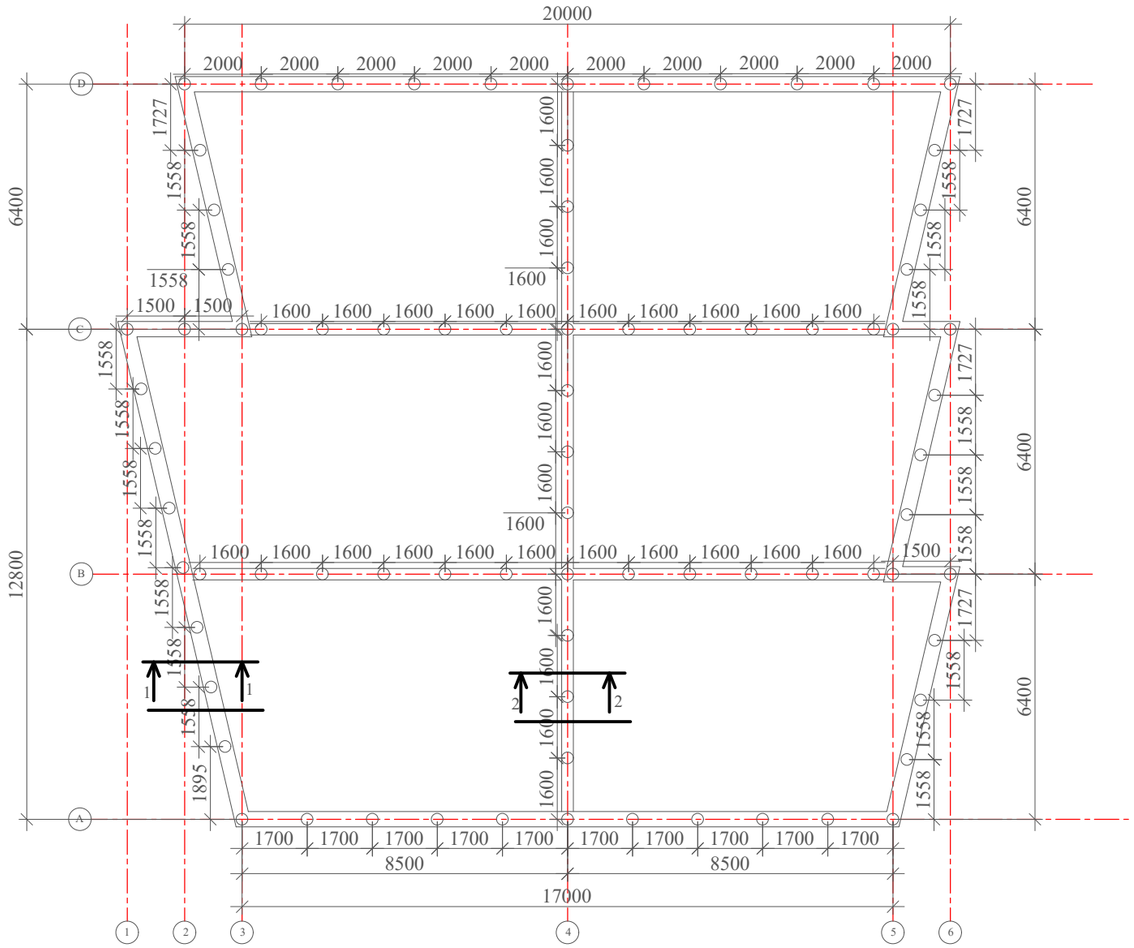
global utilization ratio					42 %
ULS	41 %	ULS fire	42 %	SLS	0 %

- 2x12.5cm gypsium boards + 5cm mineral-wool needed for fire protection R 60

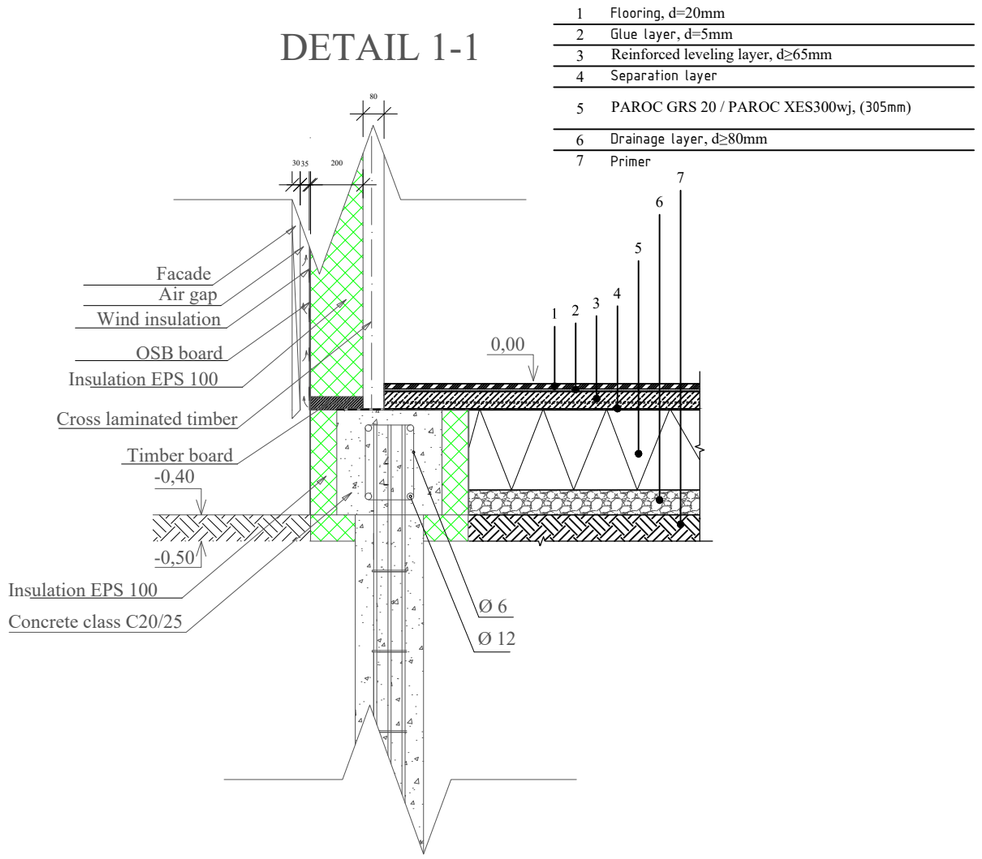
DRENAGE PLAN



FOUNDATION PLAN



DETAIL 1-1



1	Flooring, d=20mm
2	Glue layer, d=5mm
3	Reinforced leveling layer, d≥65mm
4	Separation layer
5	PAROC GRS 20 / PAROC XES300wj, (305mm)
6	Drainage layer, d≥80mm
7	Primer

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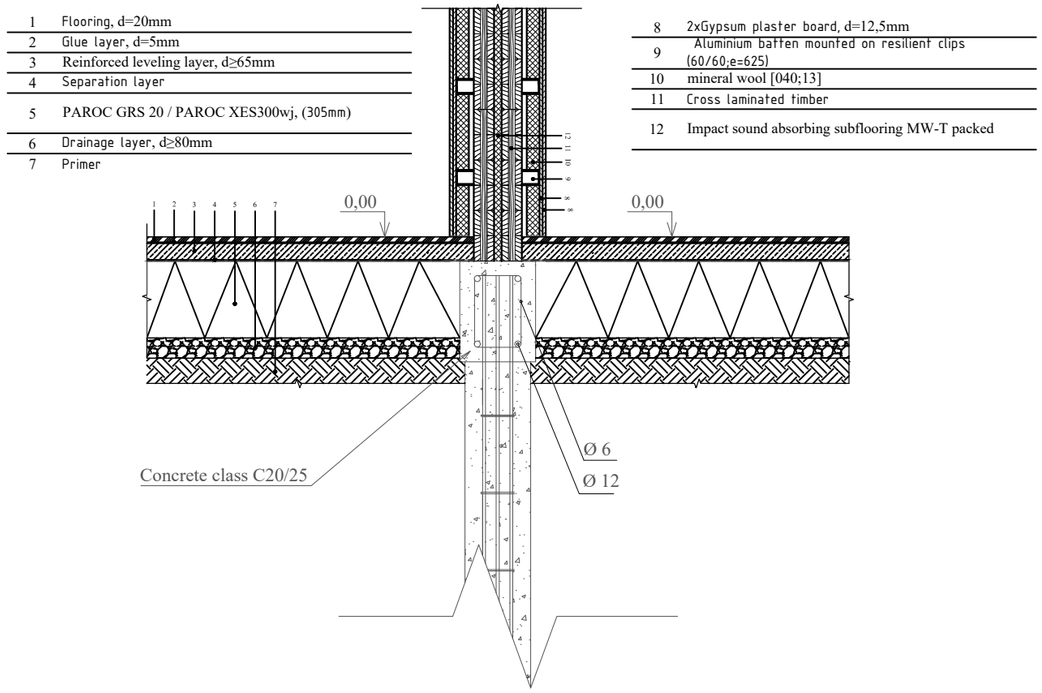
DETAIL 2-2


1 Flooring, d=20mm
2 Glue layer, d=5mm
3 Reinforced leveling layer, d≥65mm
4 Separation layer
5 PAROC GRS 20 / PAROC XES300wj, (305mm)
6 Drainage layer, d≥80mm
7 Primer
8 2xGypsum plaster board, d=12,5mm
9 Aluminium batten mounted on resilient clips (60/60;e=625)
10 mineral wool [040;13]
11 Cross laminated timber
12 Impact sound absorbing subflooring MW-T packed
0,00
0,00
Concrete class C20/25
Ø 6
Ø 12