

SAFE AND SOUND

P5 PRESENTATION

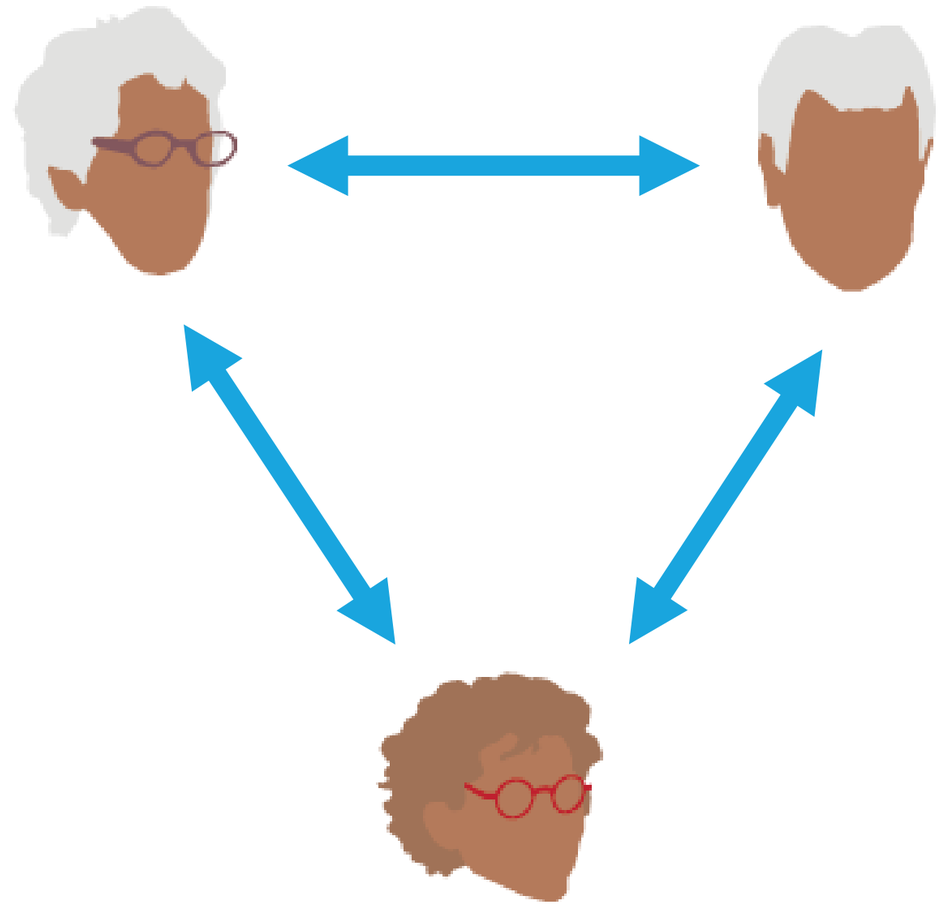
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Tutors
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Marieke Berkers
Lex van Deudekom



VISION

- People know their elderly neighbours
- People can rely on each other
- No need to ask for help
- Elderly can live in their house the rest of their lives

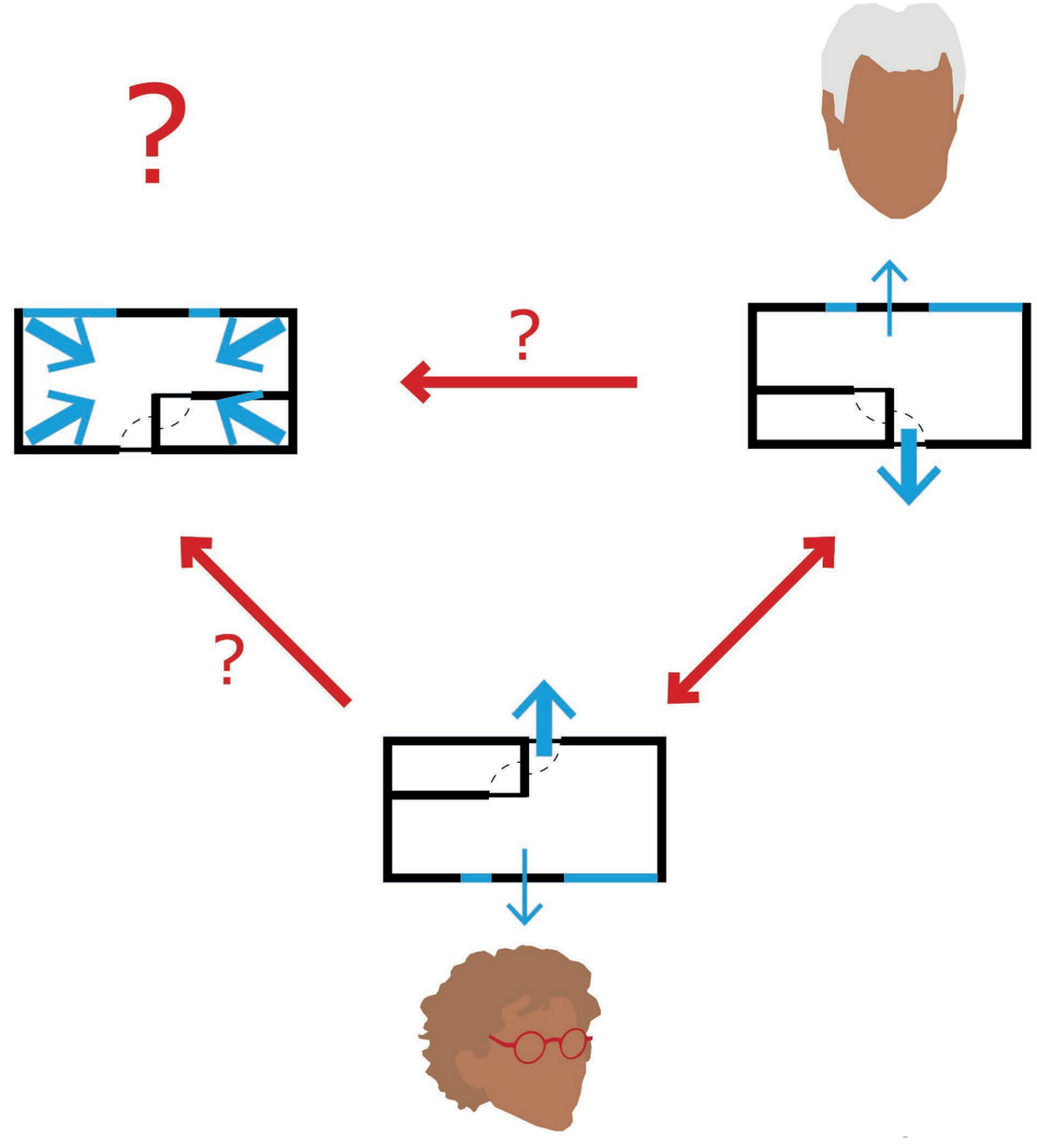


Technically speaking, I think you're already dead to the outside world if nobody sees you anymore. I don't think life is worth it if I would be locked up in a room of 4 by 6 and the food would be placed in front of the door

~ Hendrik Groen (pseud. De Smet), 2020, p.106

PROBLEM

- Anonymous elderly
- More professional help needed
- Decay of the neighbourhood



RESEARCH QUESTION

*How can architecture stimulate the **social safety** of elderly, while maintaining their **individuality**?*

DEFINITIONS

Social safety:

- Not safety from criminals, but safety from feeling weak
- Feeling of strength and independance through social network

Individuality:

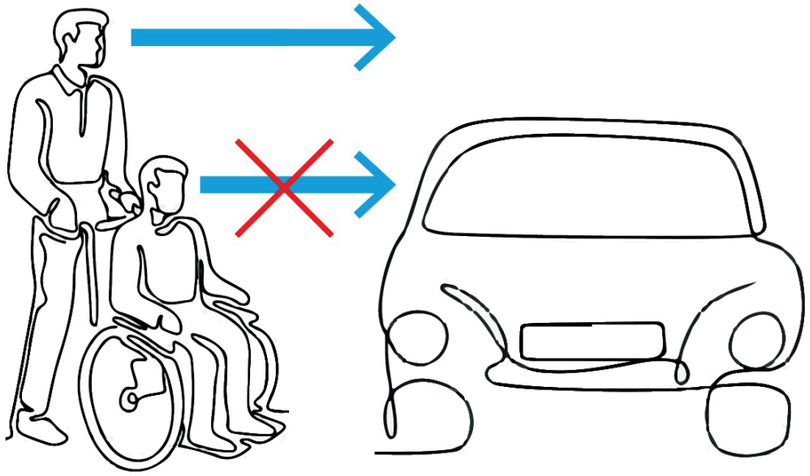
- Freedom of choosing yourself over the rest of society

FIELDWORK



7

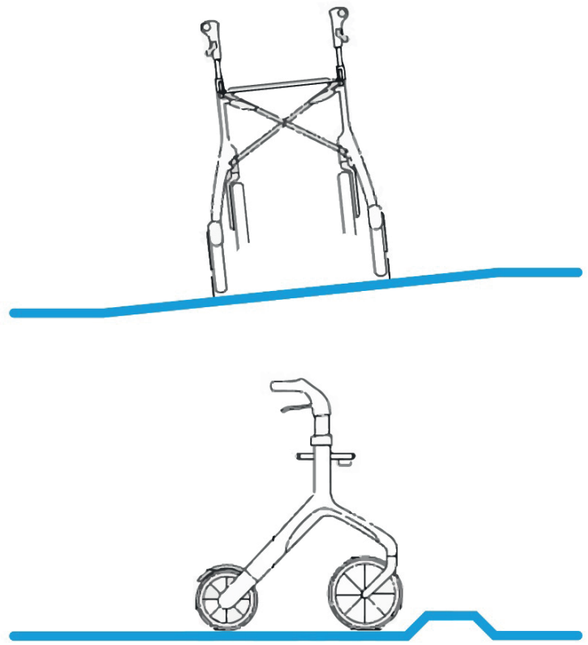
FEELING WEAK



Different eye-level:
unsafe feeling

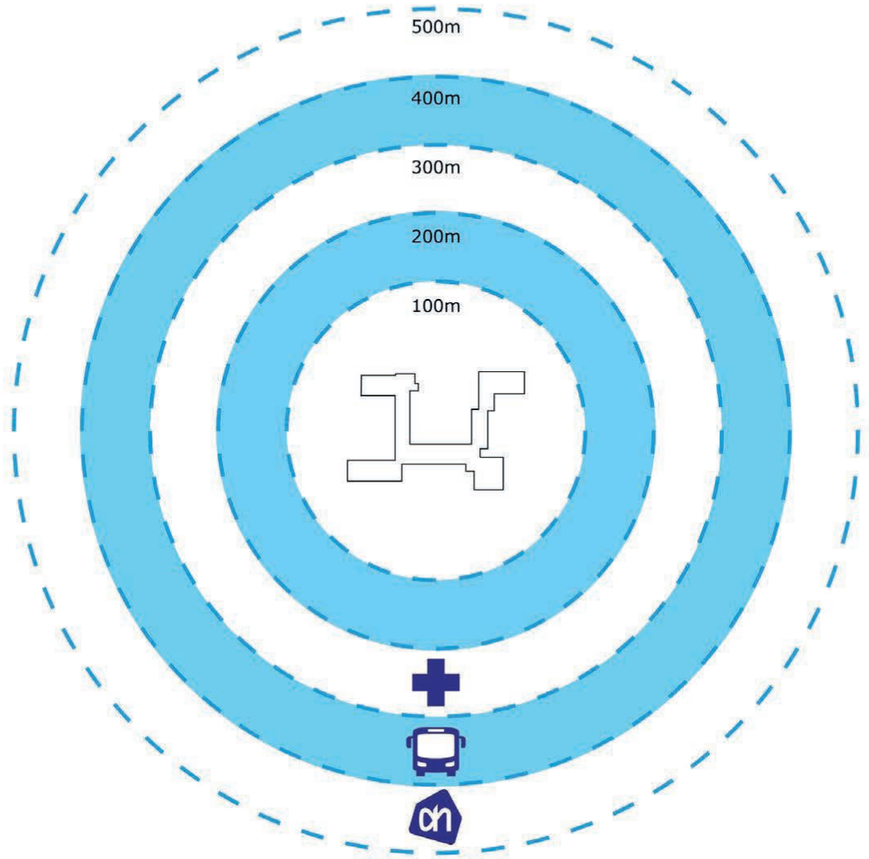


Different forms of pavement can become an obstacle but also a motivator



What seems easy for a walker could be tough for a wheelchair

NEIGHBOURHOOD



Max. 500m walkable distance

Facilities within this radius

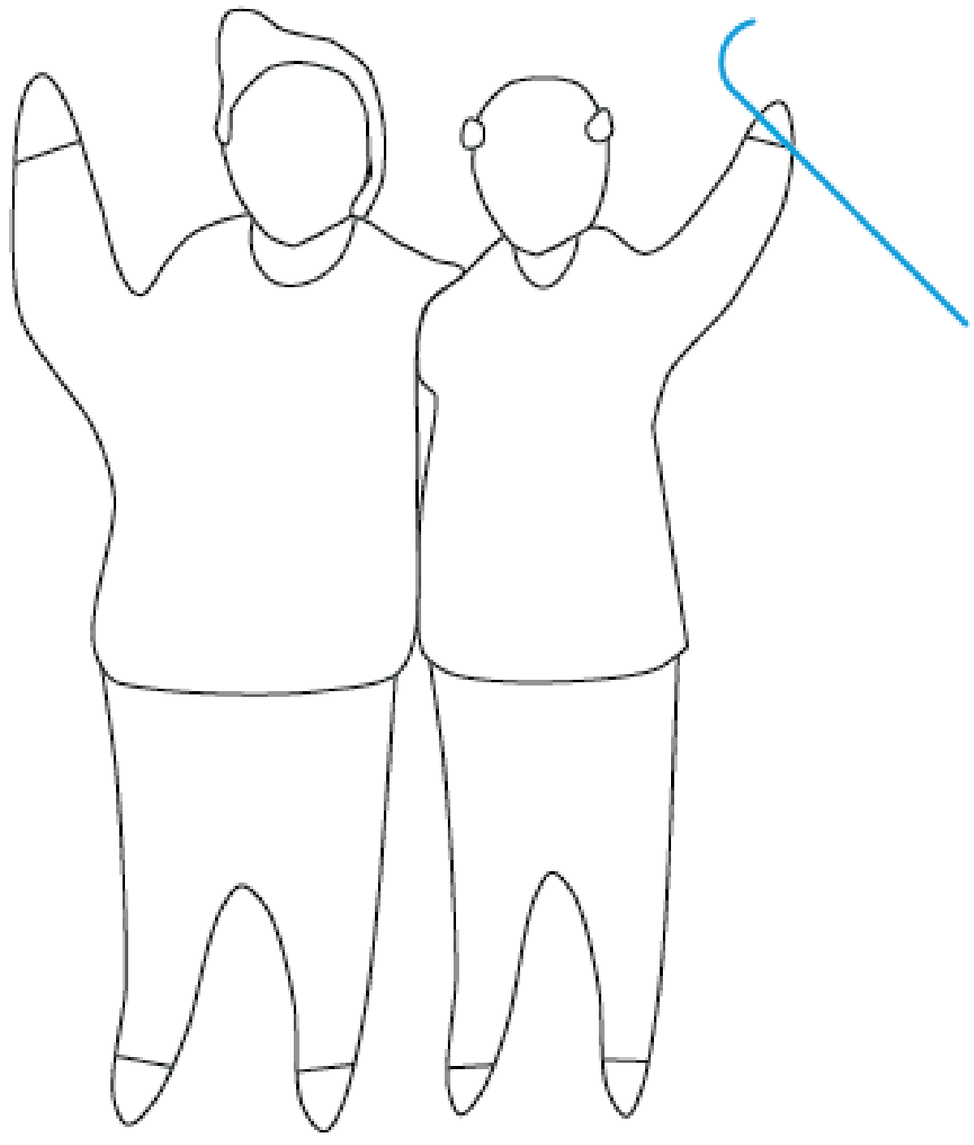
LOENEN AAN DE VECHT

RESIDENTS

- Different types of elderly

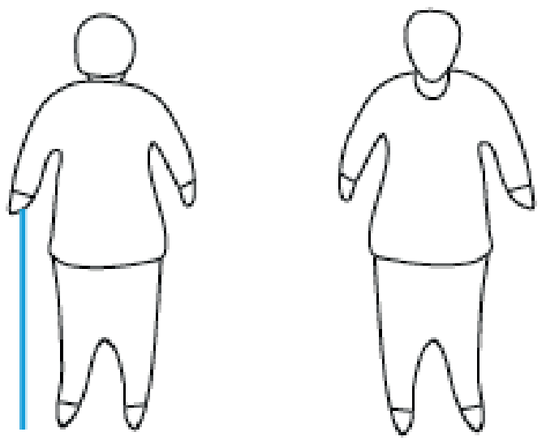


SOCIAL SAFETY

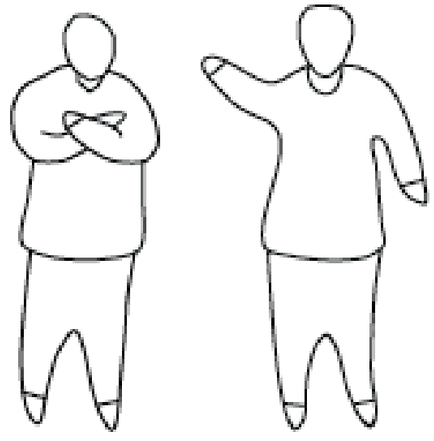


SOCIAL CONTROL

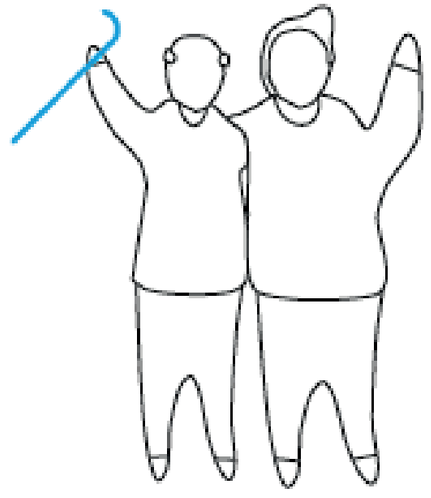
- Not Big Brother
- No social control → anonymous neighbourhood and decay
- Small meetings between different relationships



Transaction



Connection

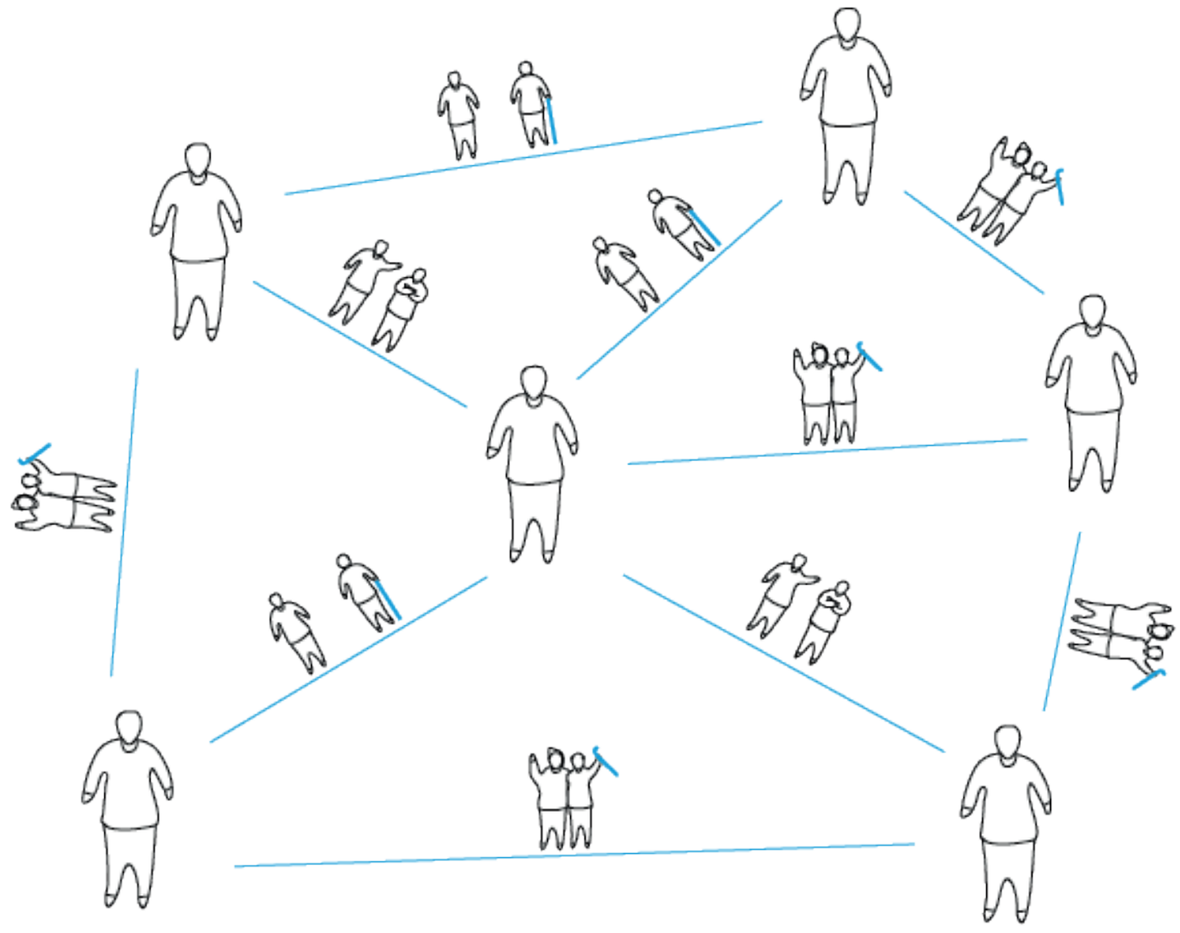


Bond

Source: Granovetter, 1973; Blokland-Potters, 2008

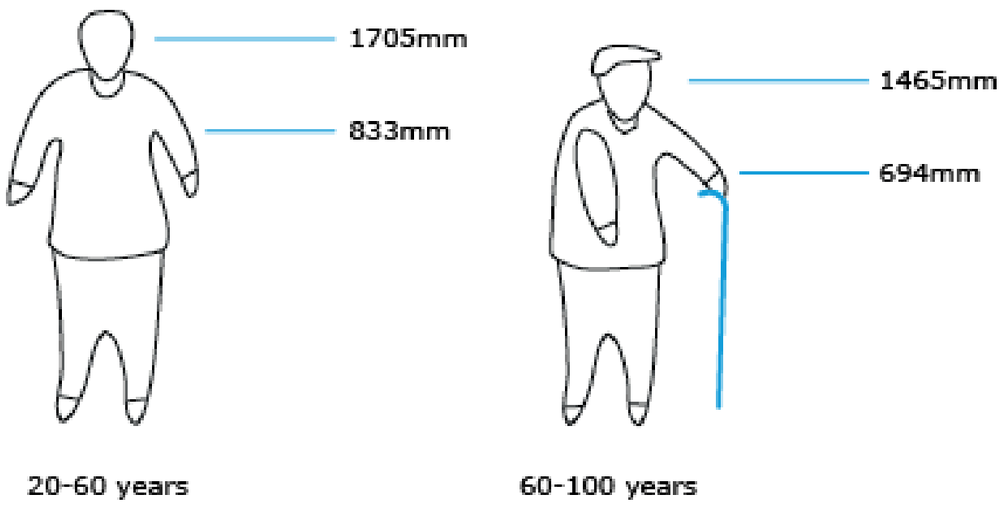
SOCIAL CONTROL

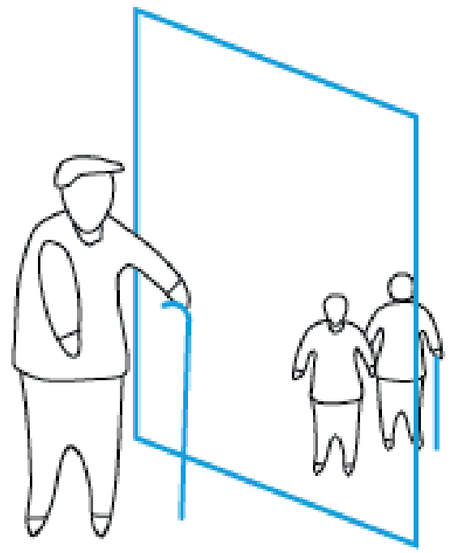
- Safety through chain of recognition



TO SEE

- Elderly have a different eye-level
- Safety through seeing activity: public plinth

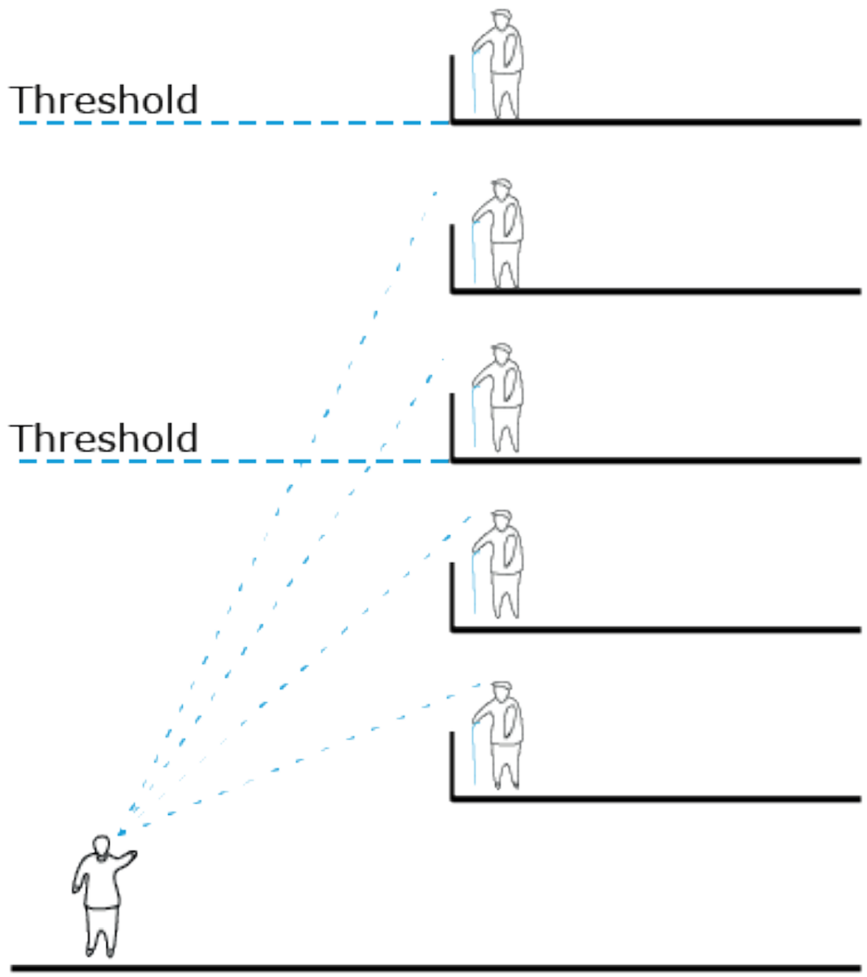




Source: Voskamp, n.d.; Jacobs, 1961

TO BE SEEN

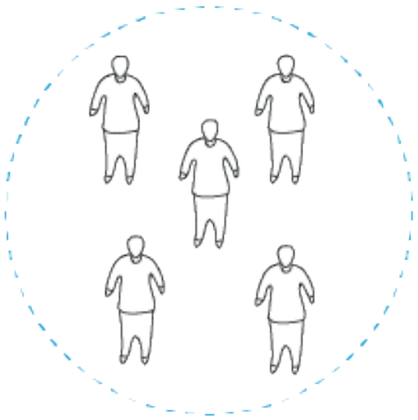
- No feeling of being observed
- Buildings should be 3 or 4 stories high for interaction



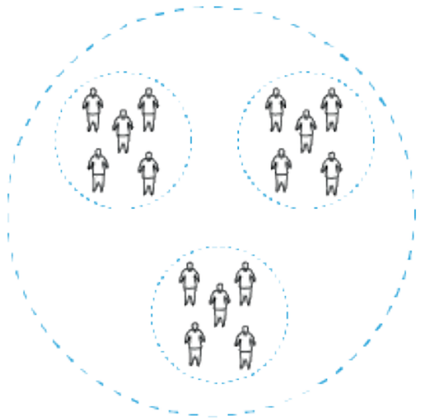
Source: Gehl, 1971

SOCIAL NETWORK PROPORTIONS

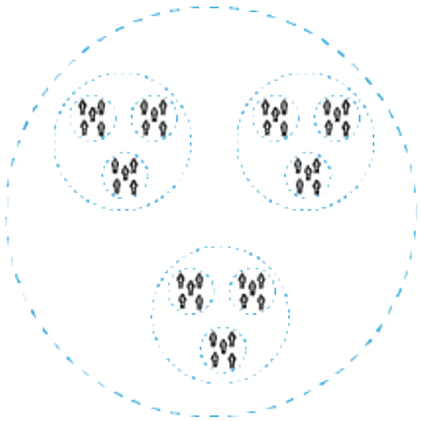
- 5 people: loved ones, dialogue
- 15 people: good friends, monologue
- 50 people: friends
- 150 people: acquaintances



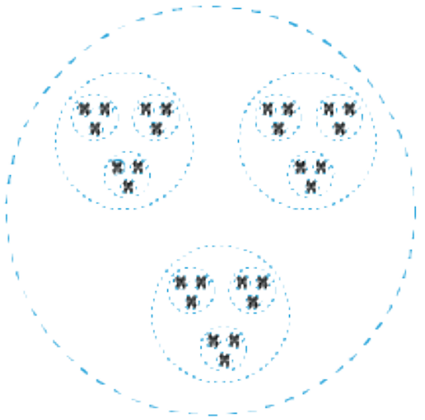
Core group
5



Close group
15



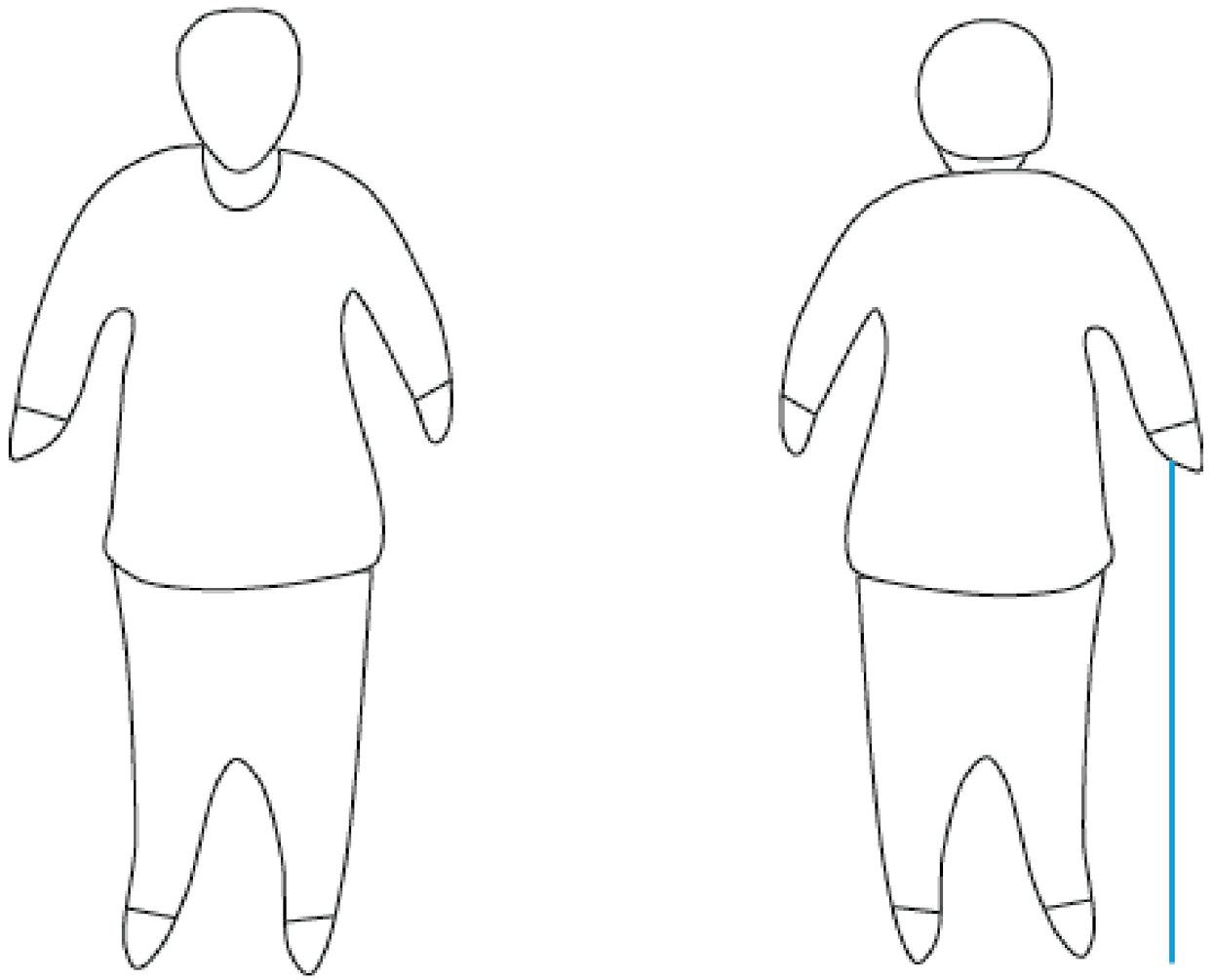
Band
50



Clan
150

Source: Dunbar, 1992; Dunbar 2003

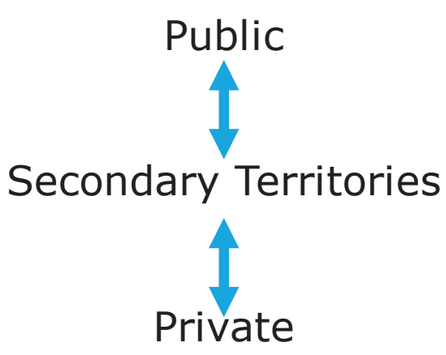
INDIVIDUALITY



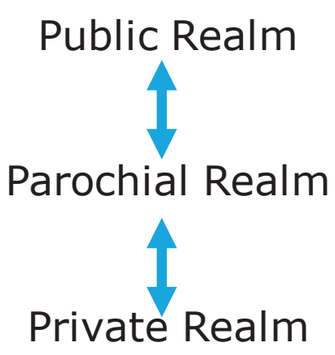
PRIVATE - PUBLIC

- Different opinions on the transition zones

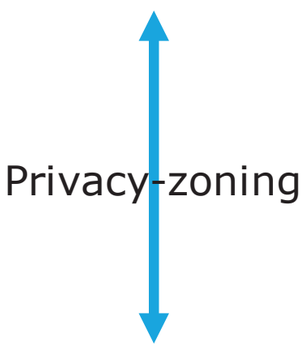
ALTMAN



LOFLAND

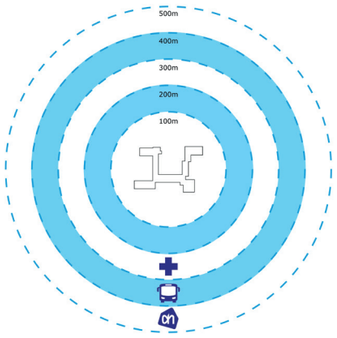


VAN DORST

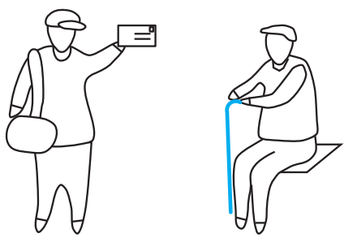


DESIGN GUIDELINES

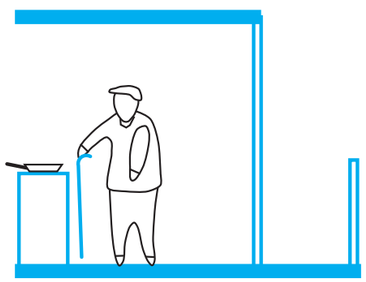
Fieldwork



Place the most important facilities within the 500m radius

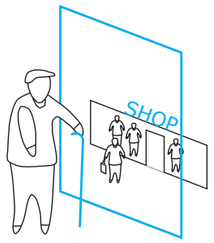


Create a communal entrance where elderly can interact with the neighbourhood

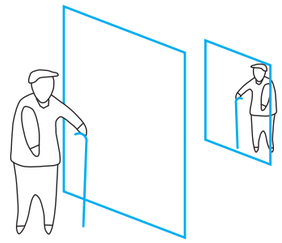


Give freedom to the elderly: freedom to cook and freedom to go outside

Social safety



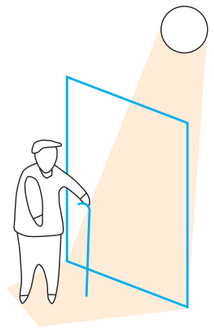
Views on activity



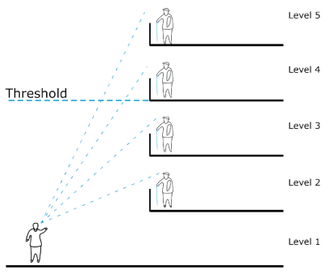
Views on each other



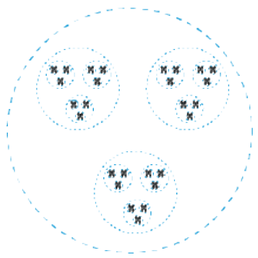
Views on greenery



Let the elderly adapt the amount of direct sunlight

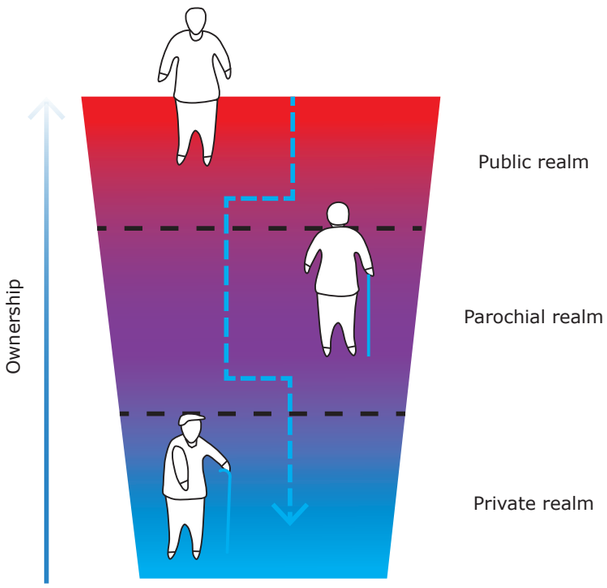


Buildings should be 3 or 4 stories high to optimize contact



Design communal spaces for the different group sizes

Individuality



Create a route from public to private and design in-between-zones which residents can make their own

MEETING SPACES (OUTDOOR)



Supermarket





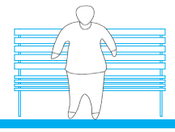
Library



Lunch-room/Restaurant



Medical facility

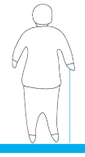




Playground



Communal vegetable garden





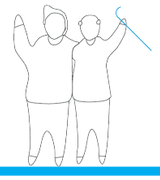
Lounge room: 50 people

Home





Communal living room: 6 people

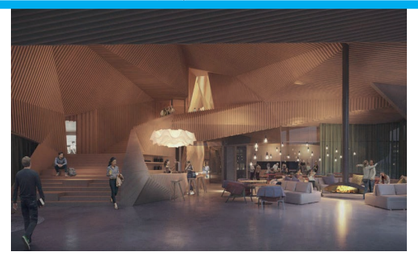




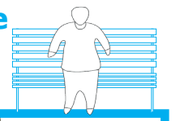
Multifunctional room: 15 people

MEETING SPACES (INDOOR)



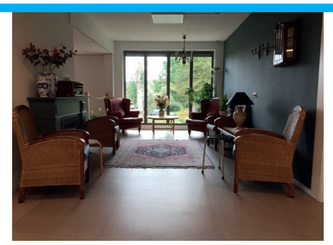


Lounge room: 50 people





Multifunctional room: 15 people



Communal living room: 6 people

COMMUNAL ROUTE



Public space

Home





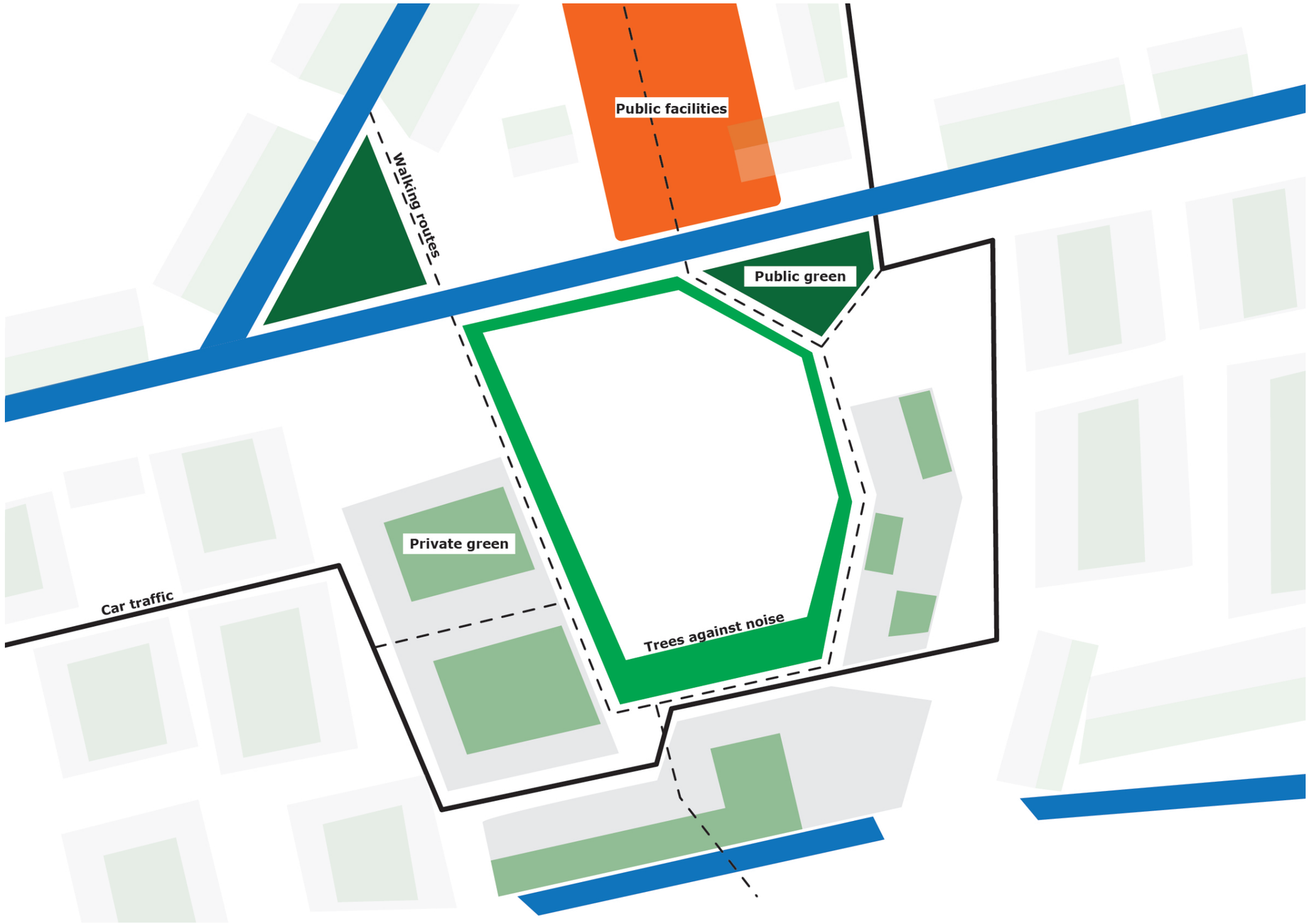


ESCAPE ROUTE

TANTHOF



ANALYSIS


Public facilities
Walking routes
Public green
Private green
Car traffic
Trees against noise

VISION


Extend facilities
Public
Old entrances:
memory
Connection of walking routes
Private
Other points:
- Height between 3 to 4 floors (To be seen)
- View on each other and neighbourhood

MASTERPLAN



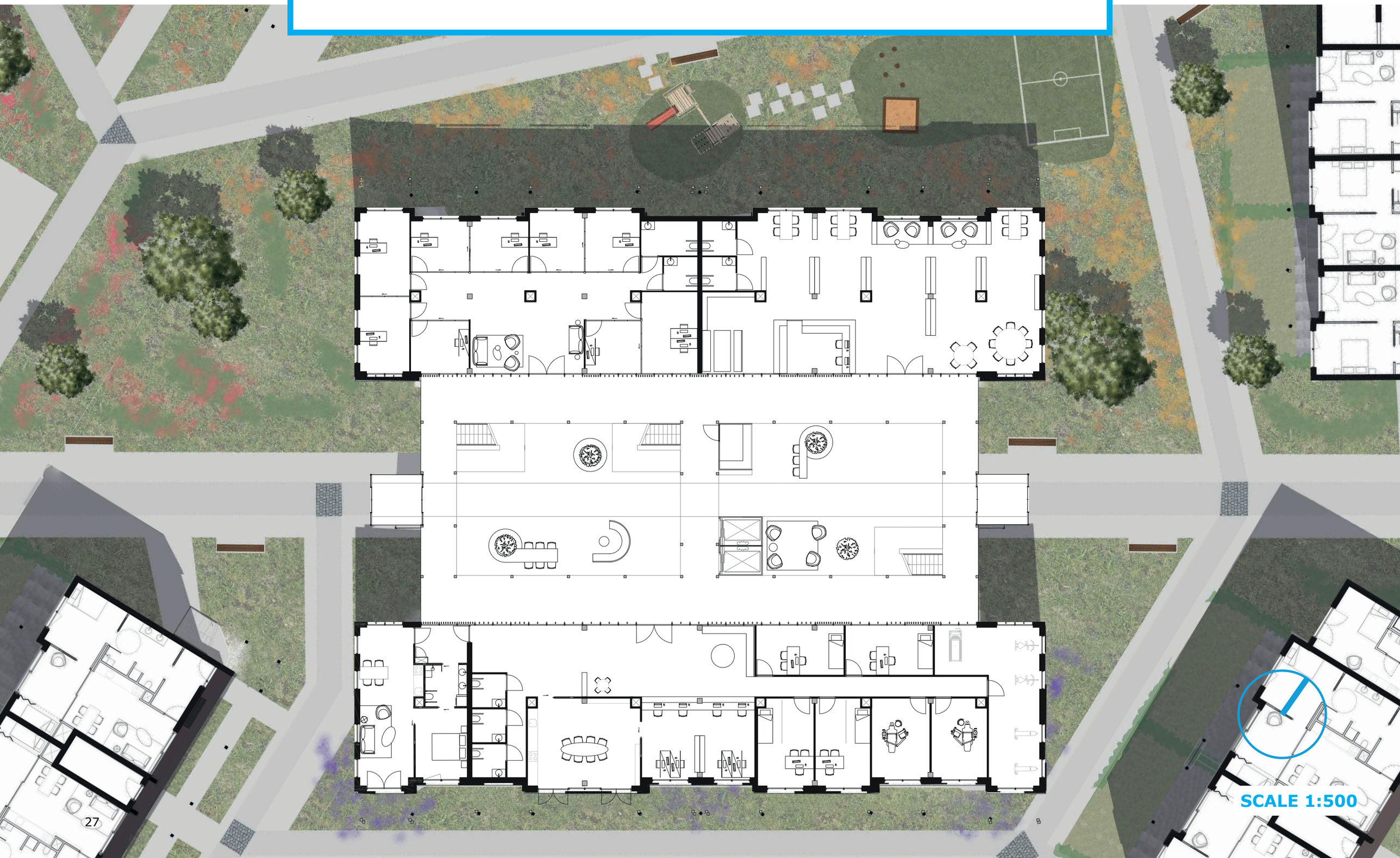
SCALE 1:1000

PUBLIC FACILITIES



SCALE 1:1000

ATRIUM

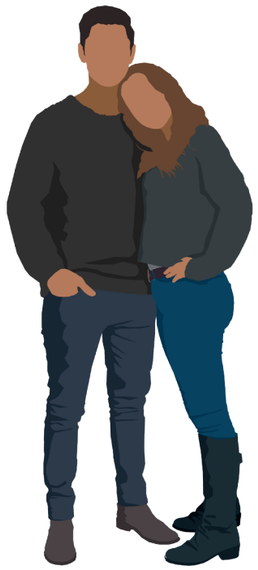


SCALE 1:500

ATRIUM



WHO LIVES HERE?



Starters



Informal caregivers



Elderly
(65+, without care)

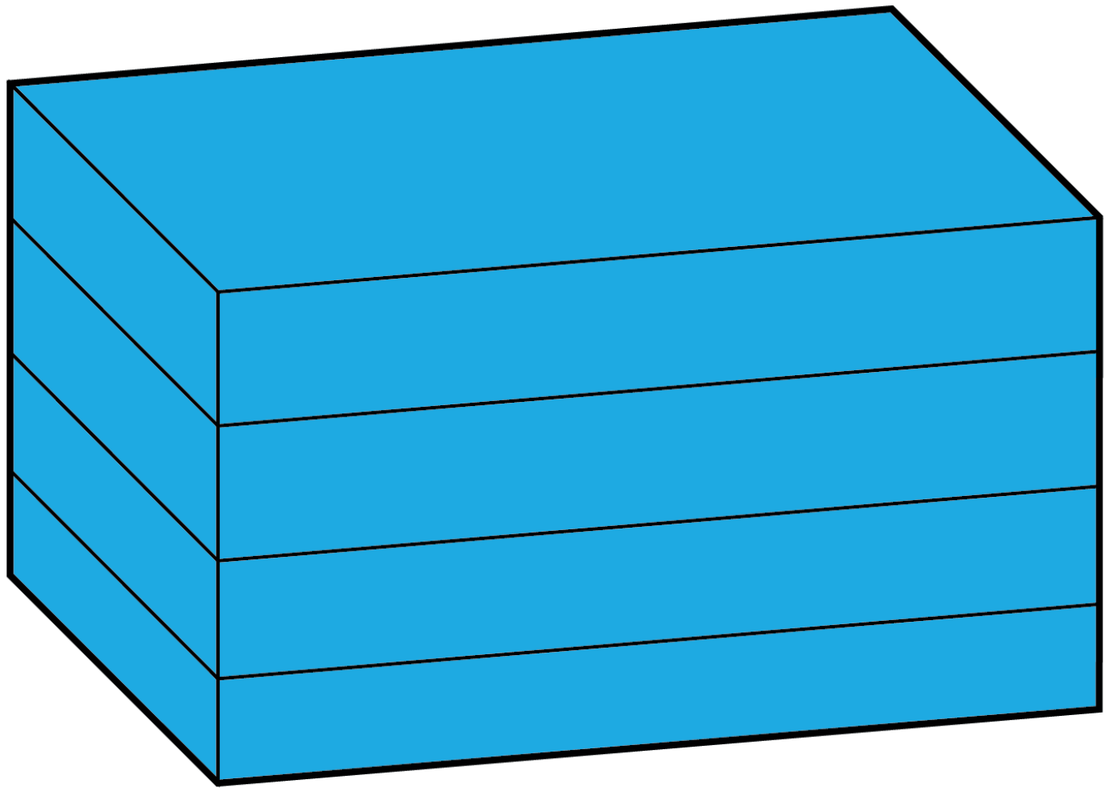


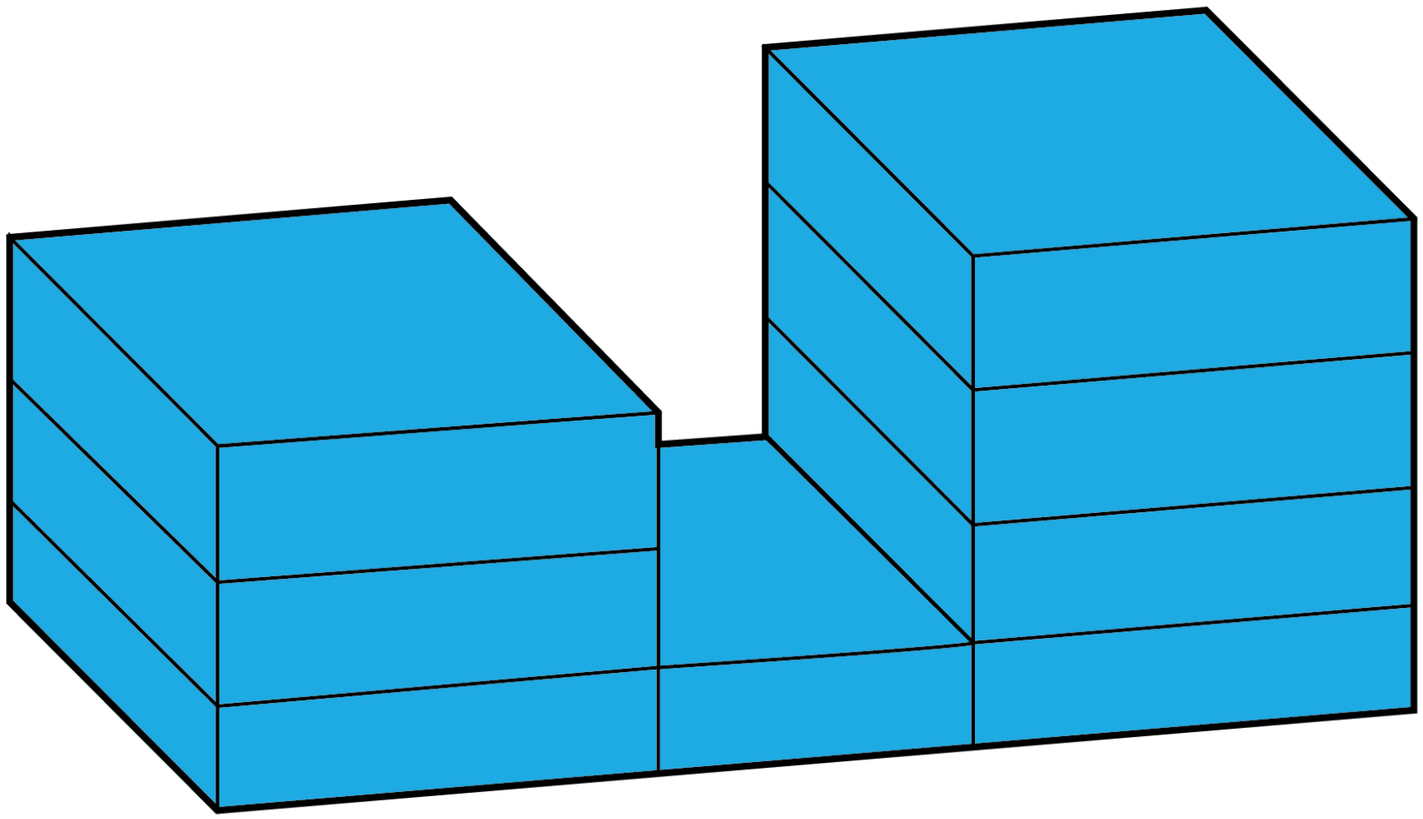
Empty nesters
(55-65)

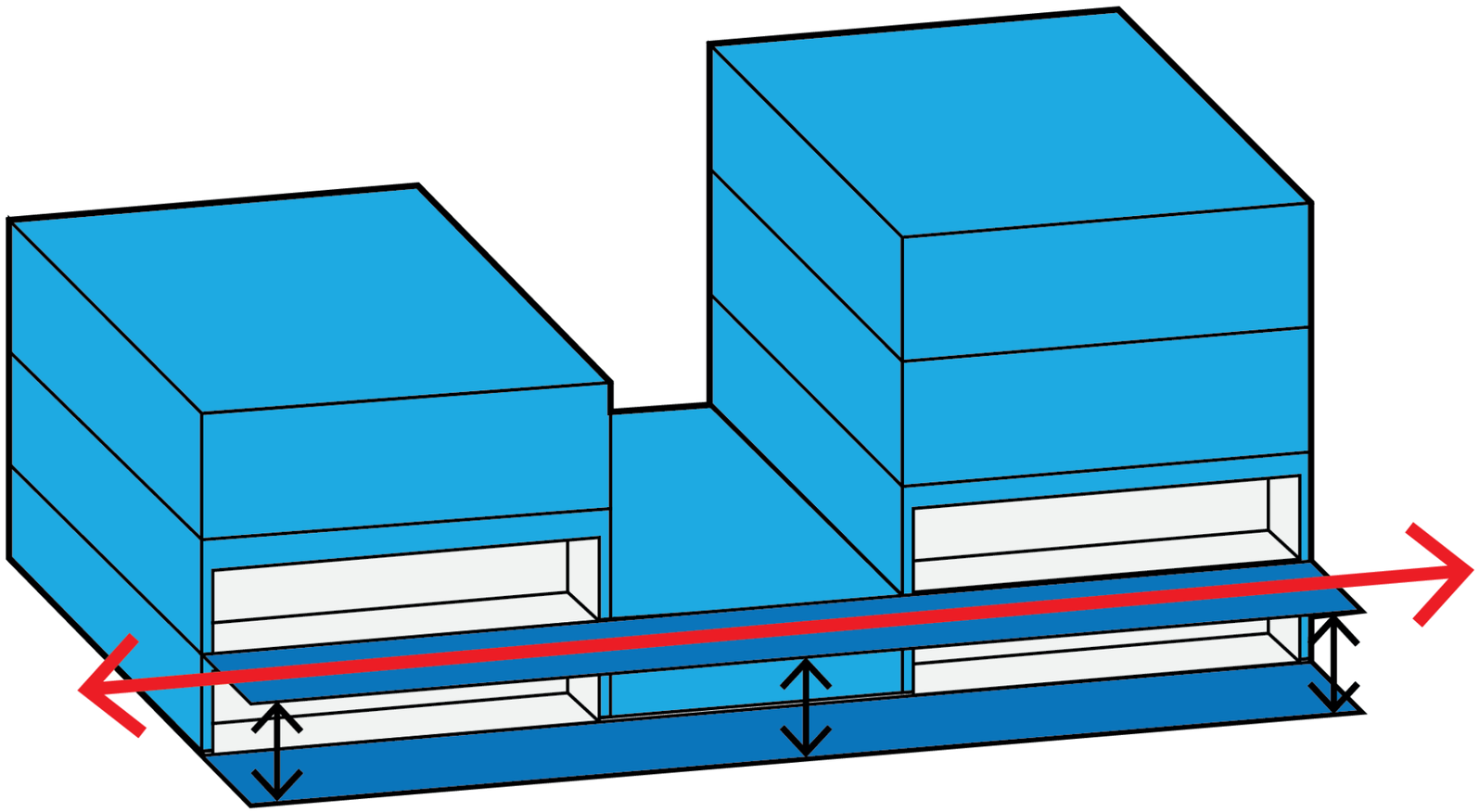


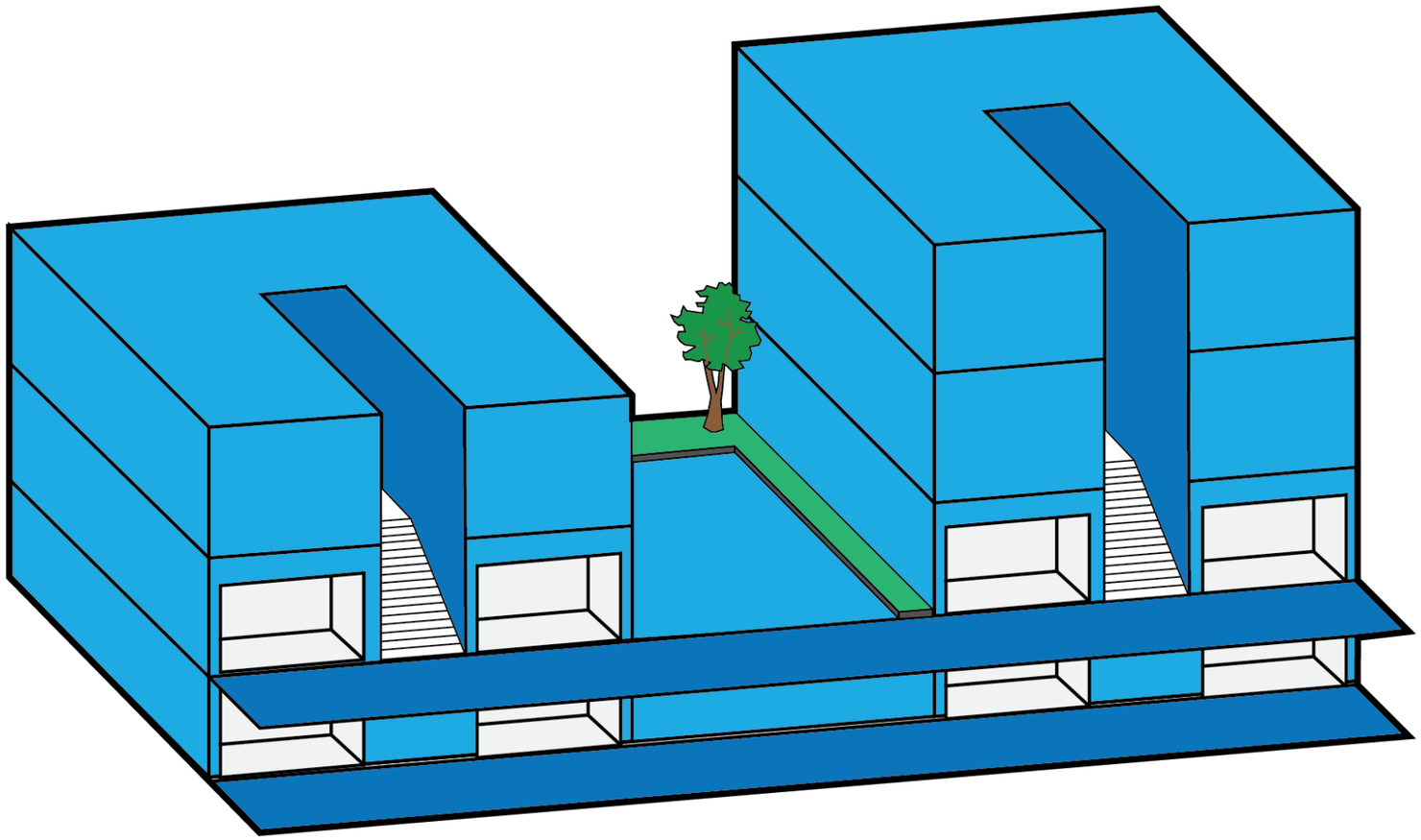
Elderly
(65+, with care)

CONCEPT

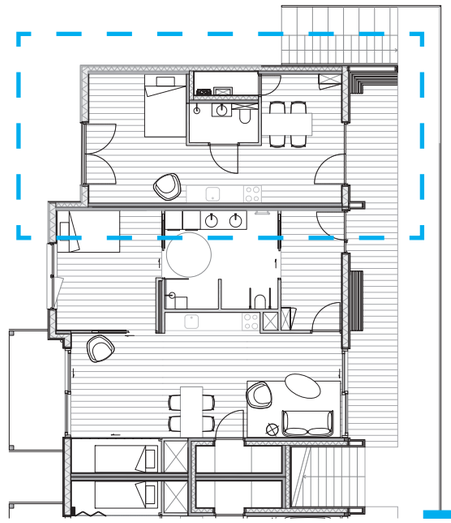




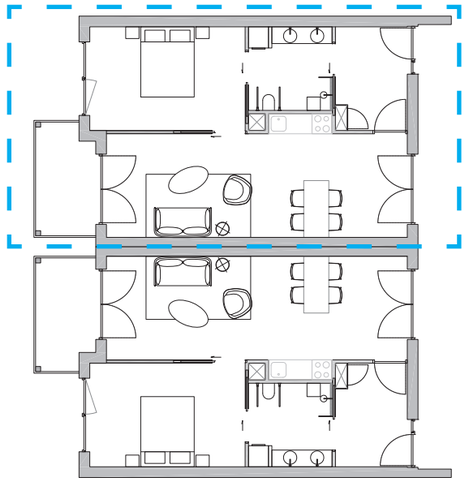




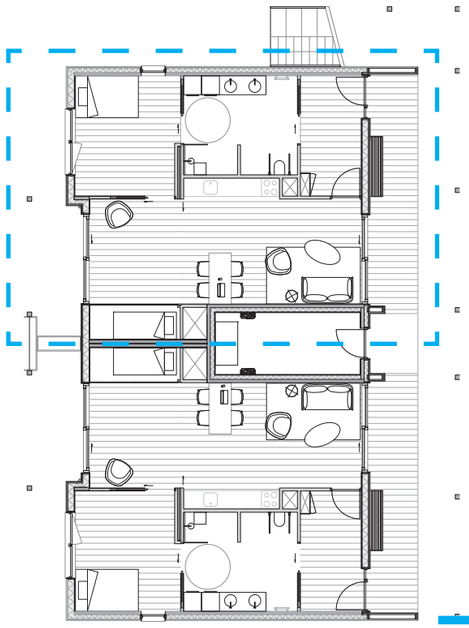
APARTMENT TYPES



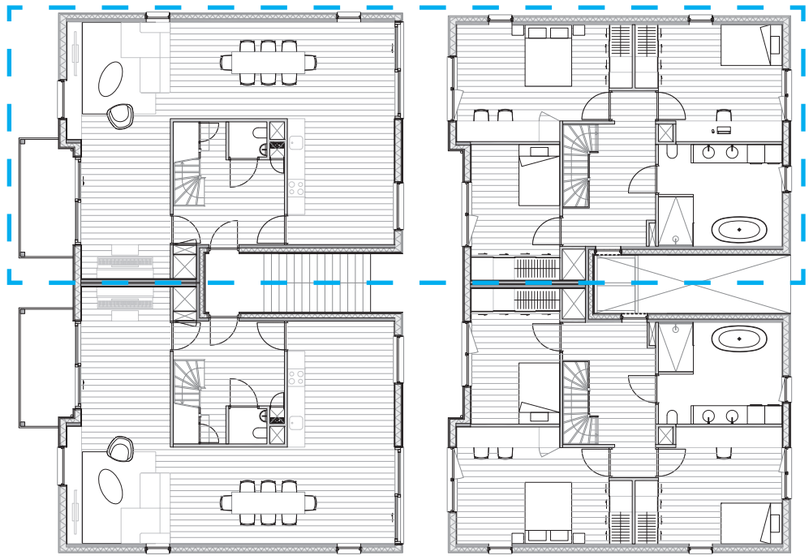
S
Short stay: 34m²



M
Social housing: 58m²

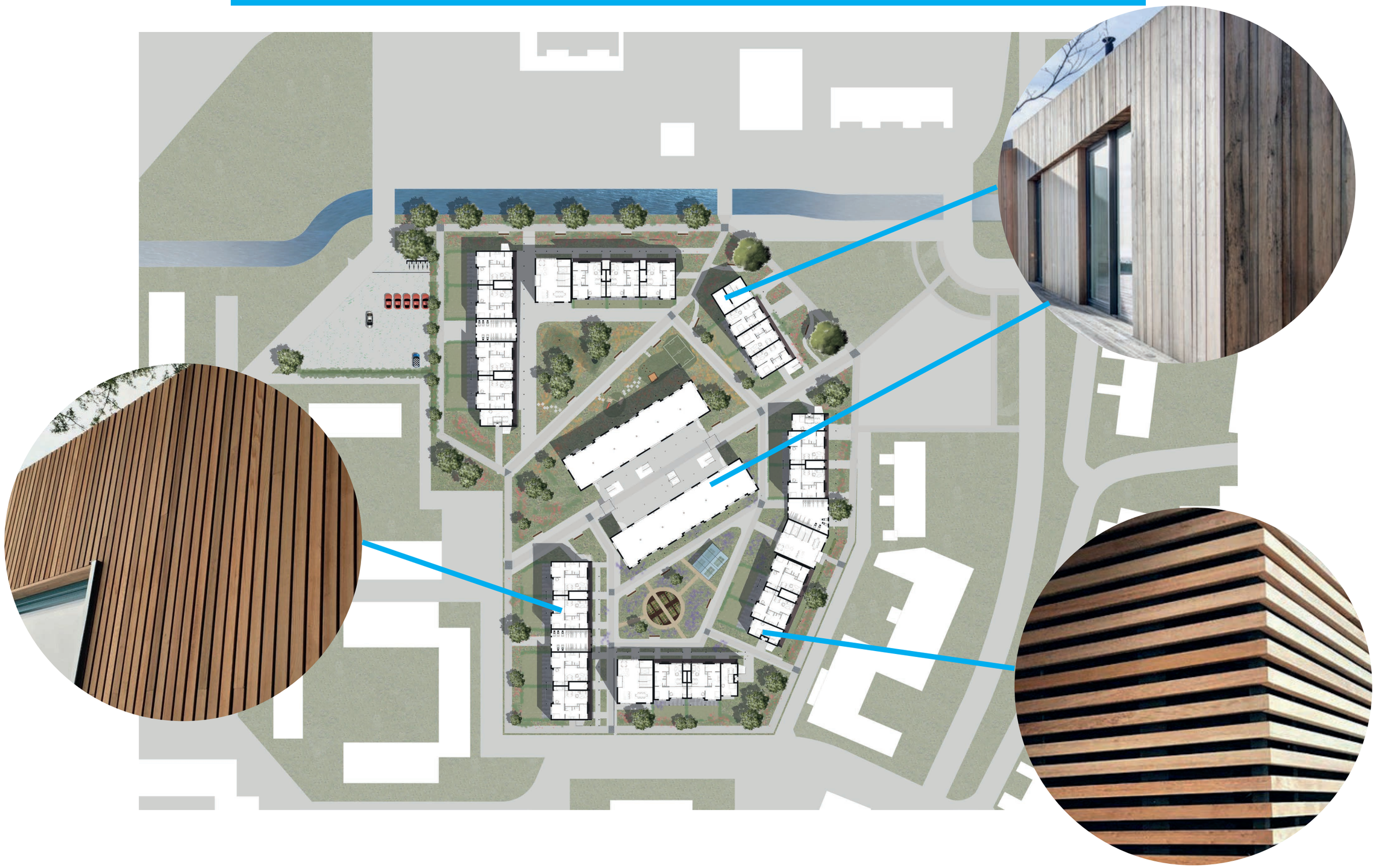


L
Apartment: 72m²



XL
Maisonnette: 144m²

FACADE MATERIALS



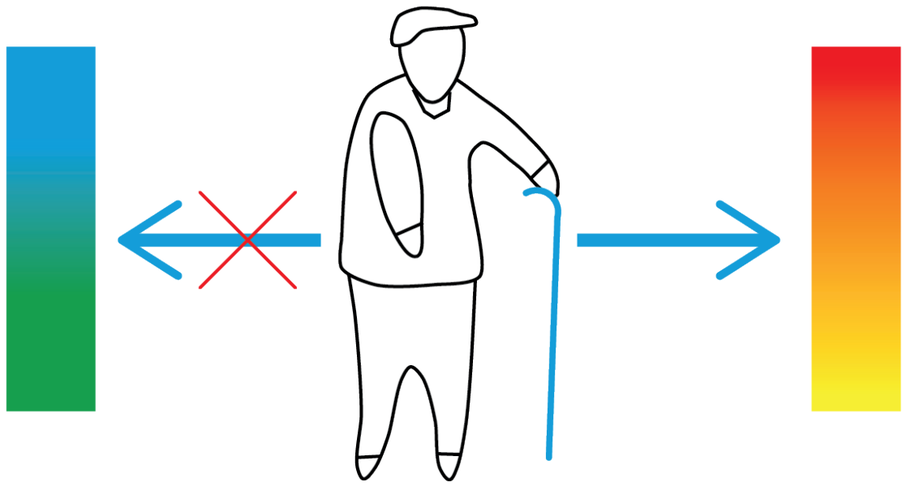
SECTION NEIGHBOURHOOD





SCALE 1:500

GUIDING ROUTE





Crossroad



Concrete tiles 30x30



Concrete slabs with expansion joints

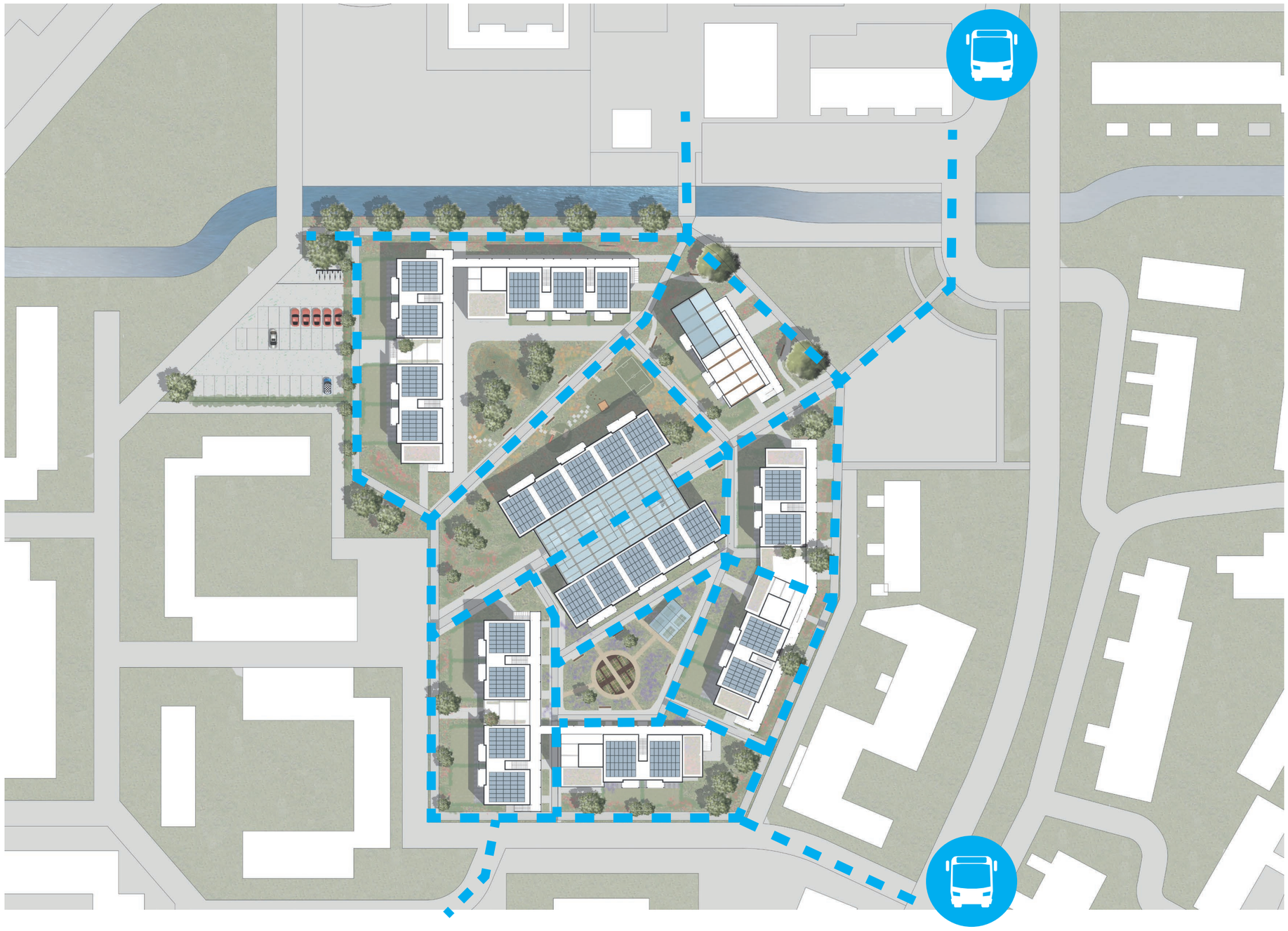


Cobblestones with rought texture



Guiding greenery

ROUTING



SCALE 1:1000

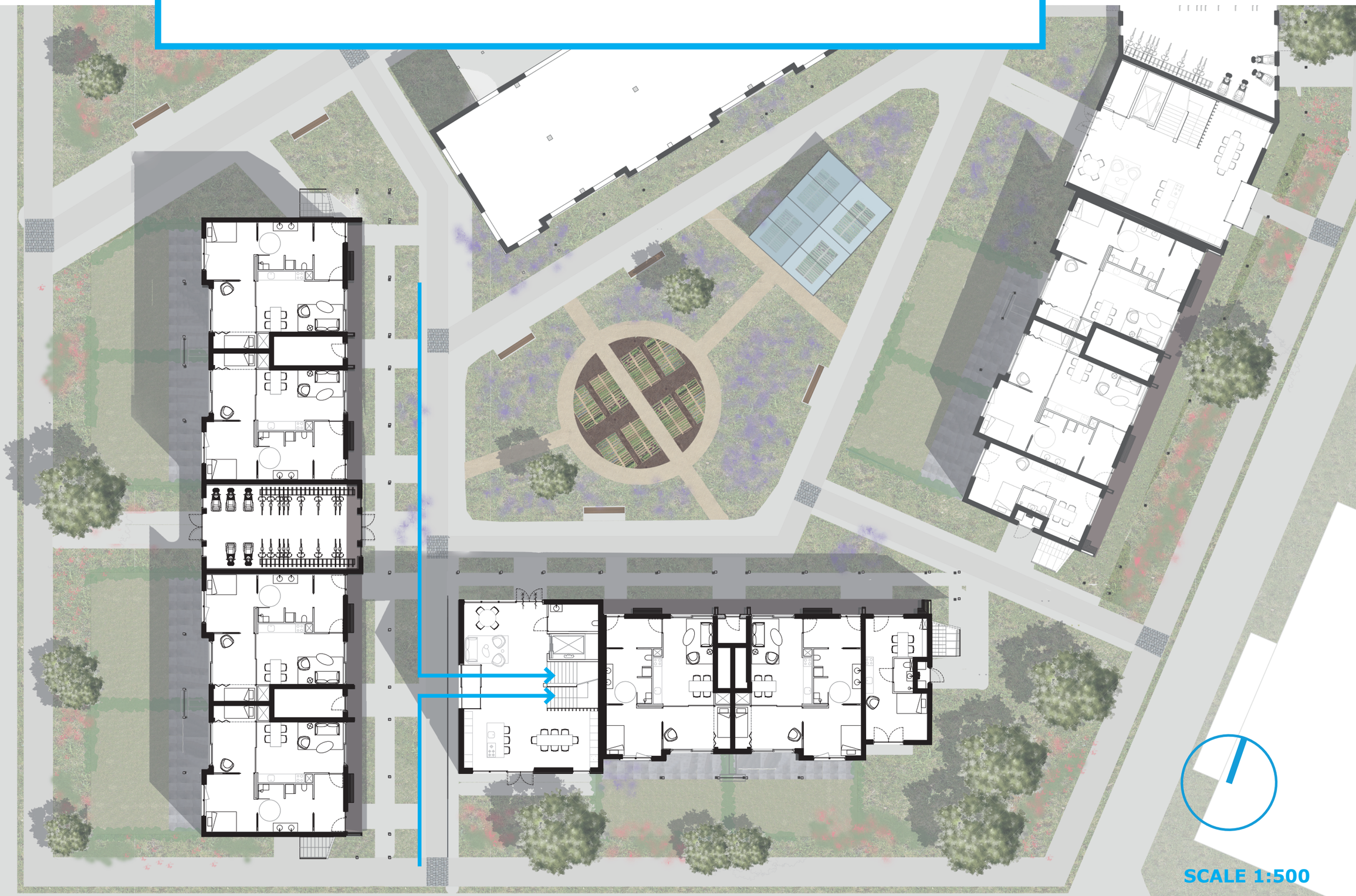
GUIDING PLANTS



GUIDING ROUTE



COMMUNAL ROUTE

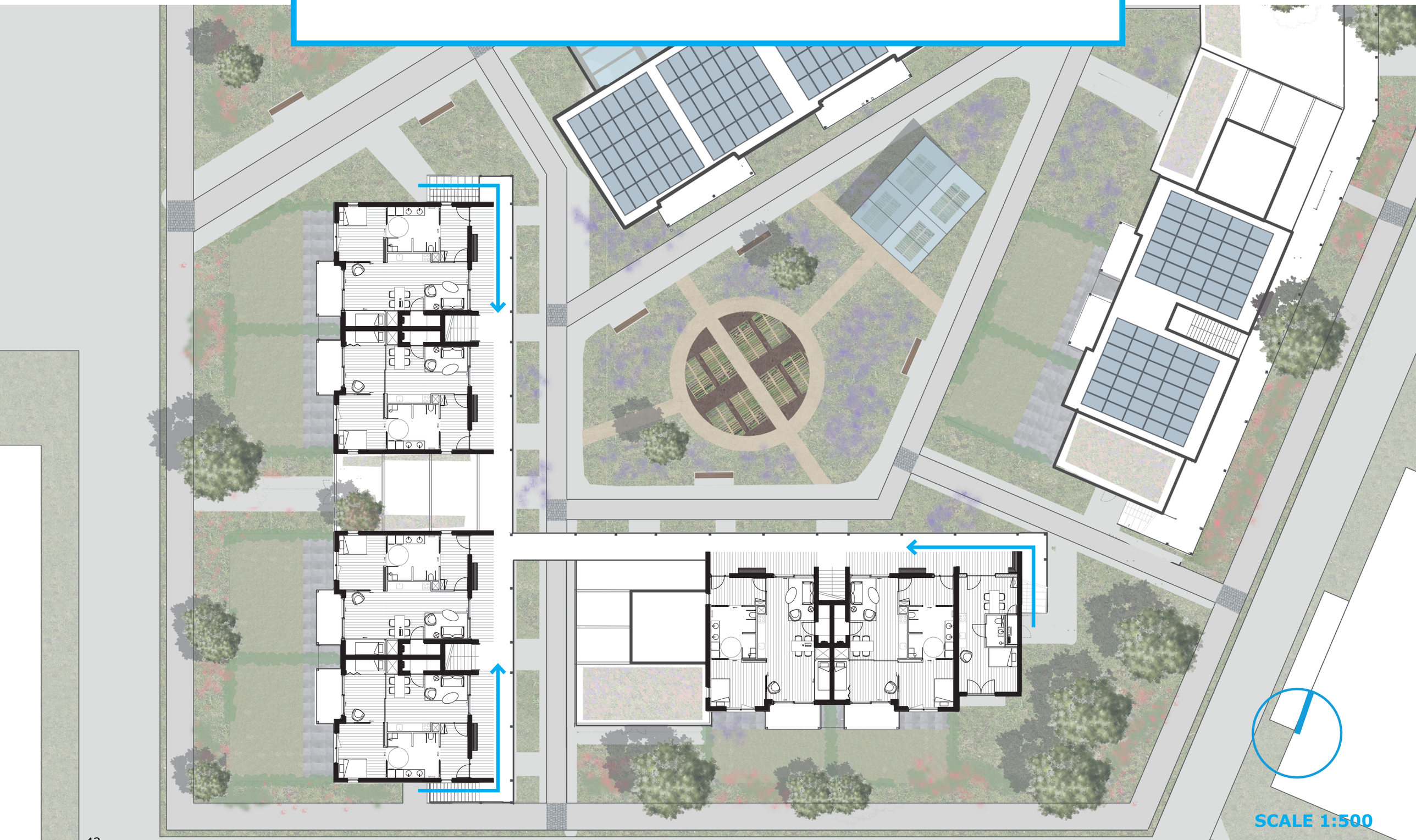


SCALE 1:500

COMMUNAL ENTRANCE



SECRET ROUTE



ESCAPE ROUTE



MEETING SPACE: IN-BETWEEN SPACE

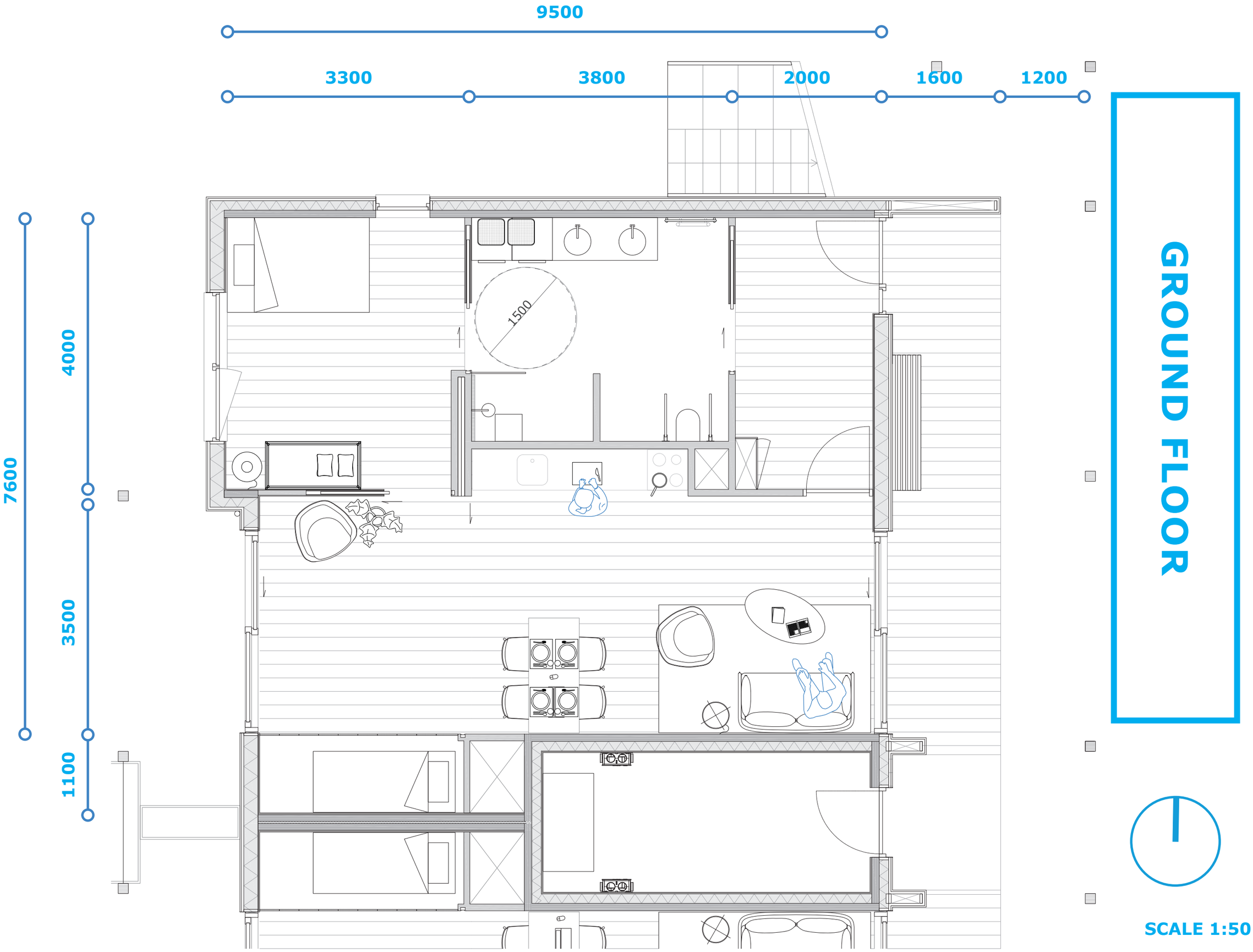


MEETING SPACE: ENTRANCE



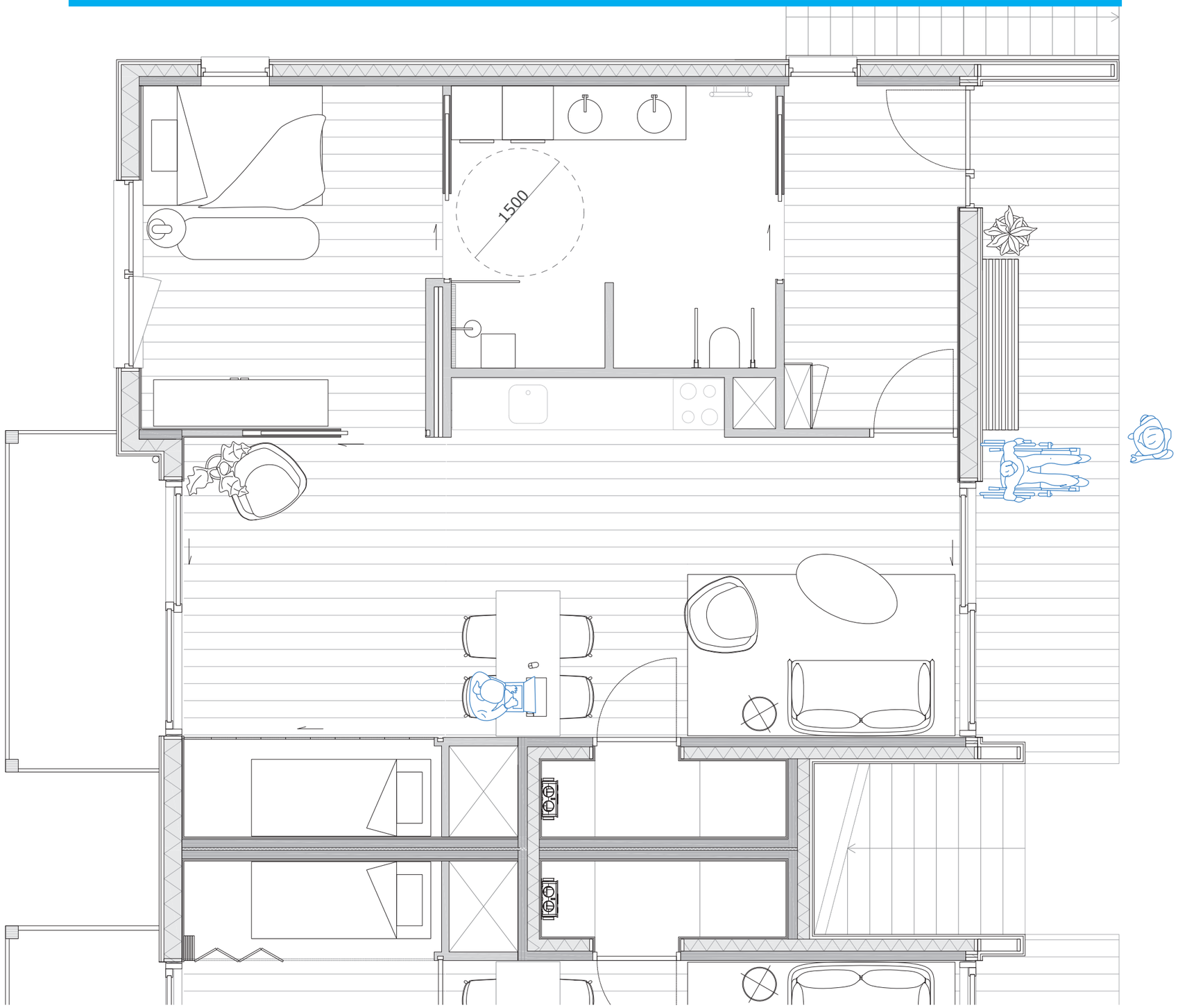


GROUND FLOOR



SCALE 1:50

1ST FLOOR: DAY TIME

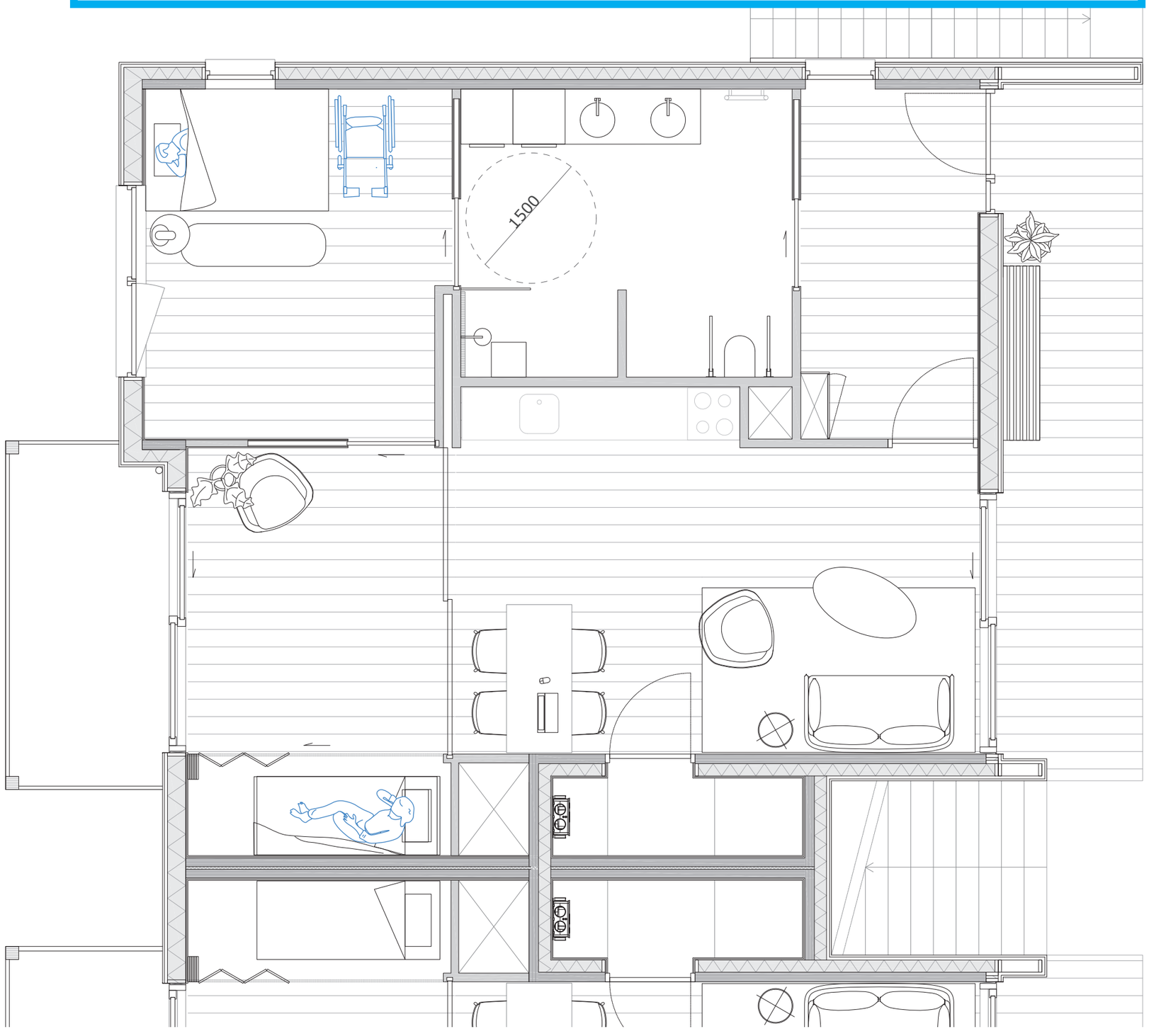


SCALE 1:50

1ST FLOOR: DAY TIME



1ST FLOOR: NIGHT TIME

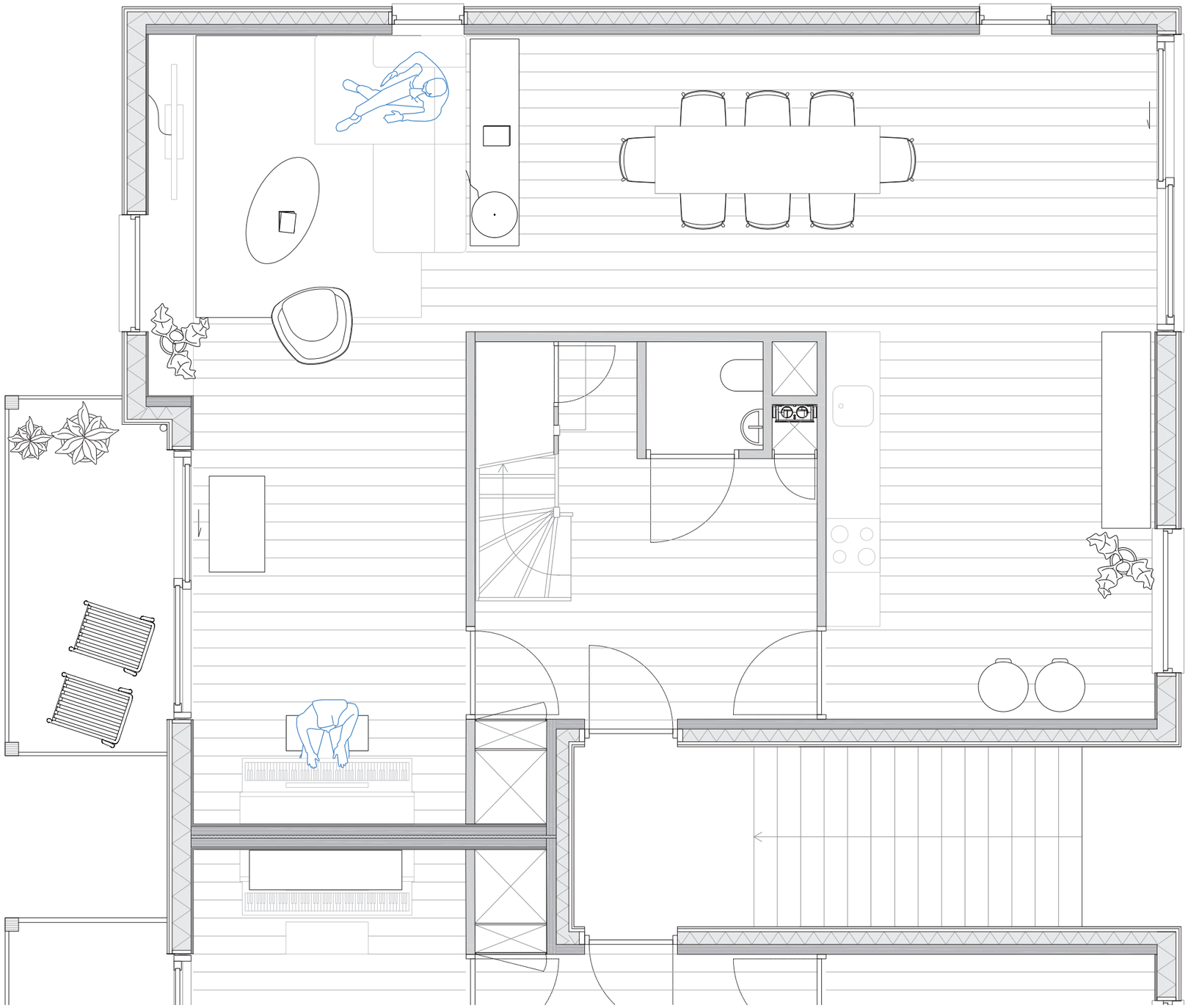


SCALE 1:50

1ST FLOOR: NIGHT TIME

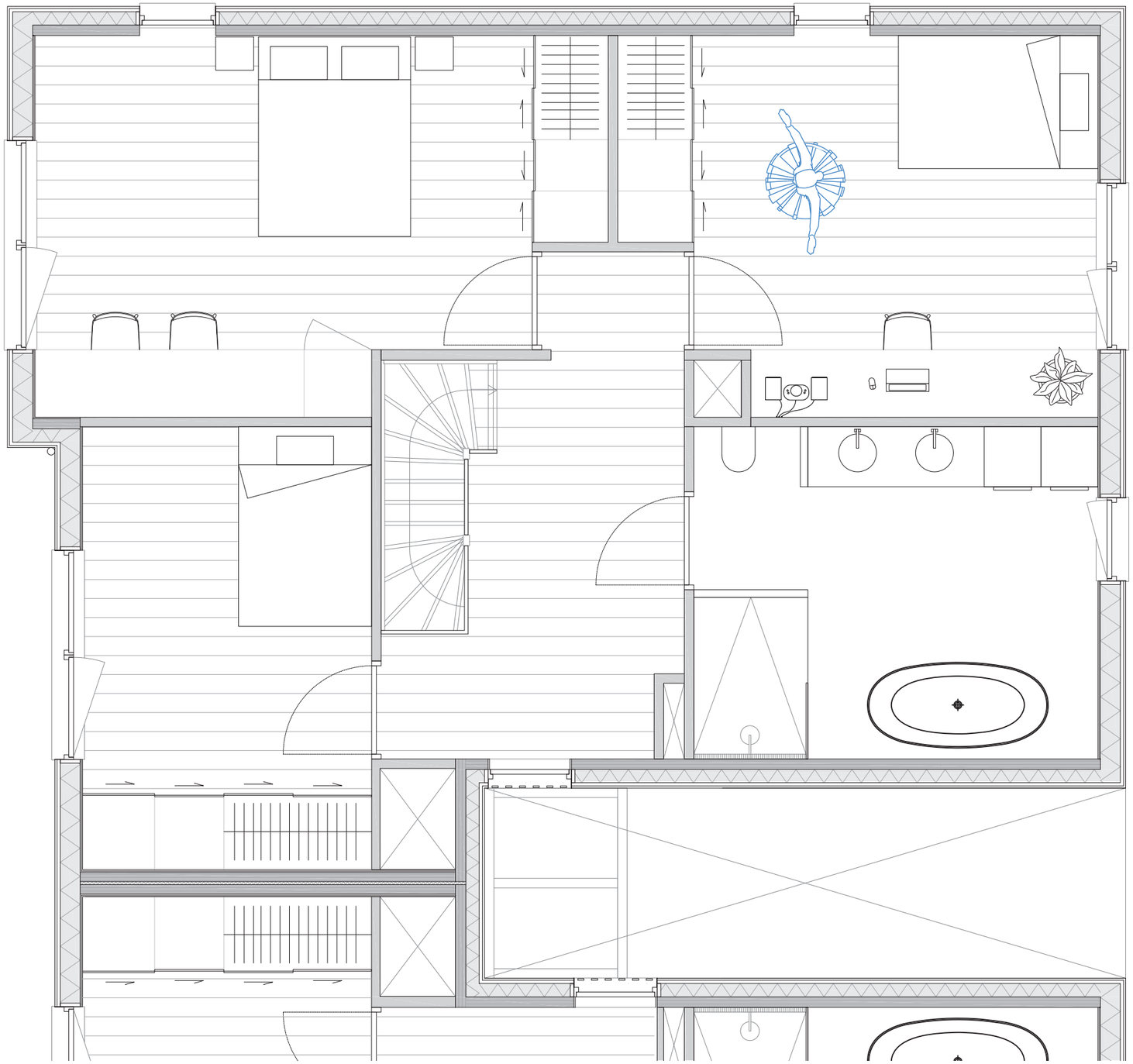


2ND FLOOR: MAISONNETTE



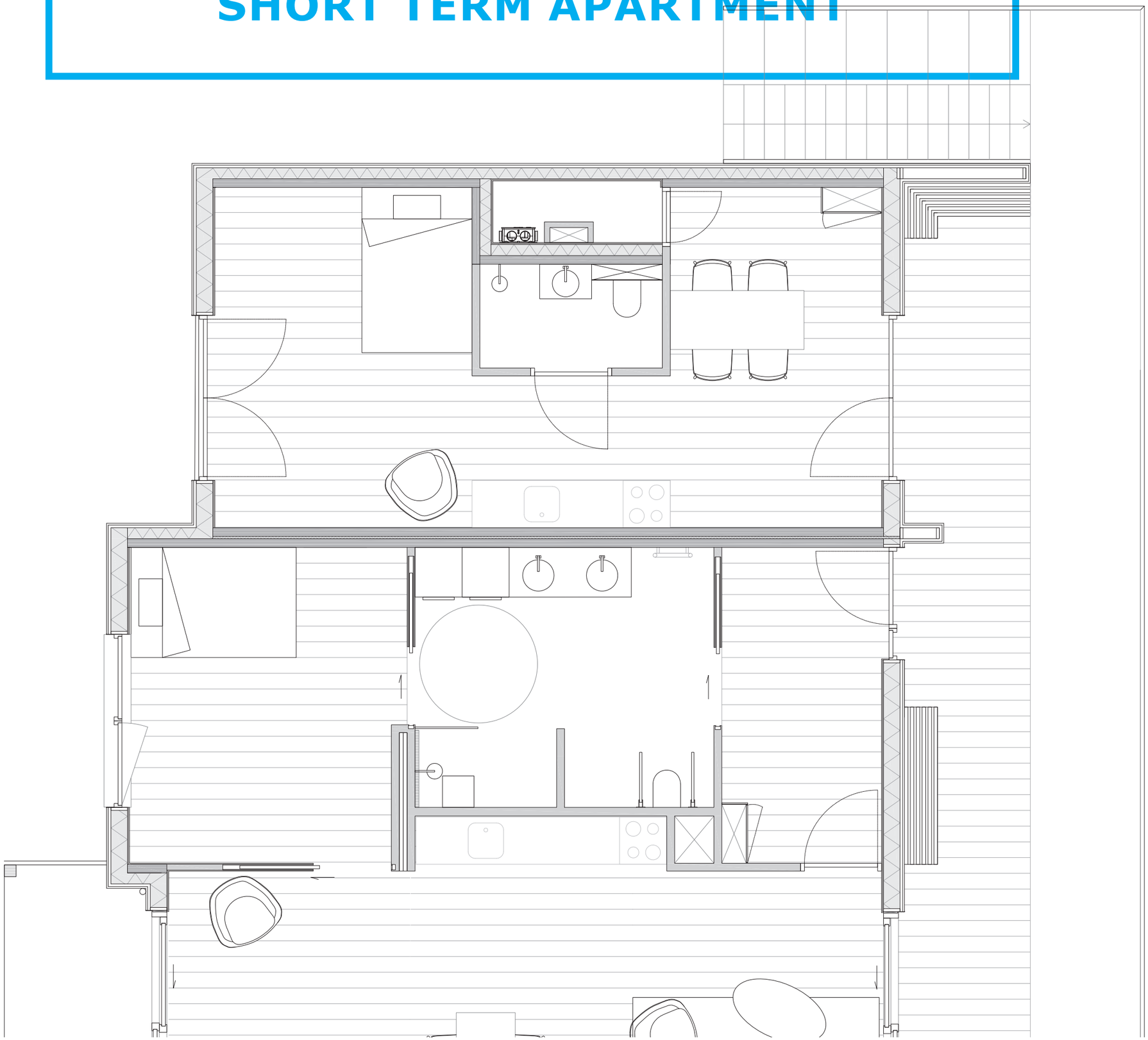
SCALE 1:50

3RD FLOOR: MAISONNETTE



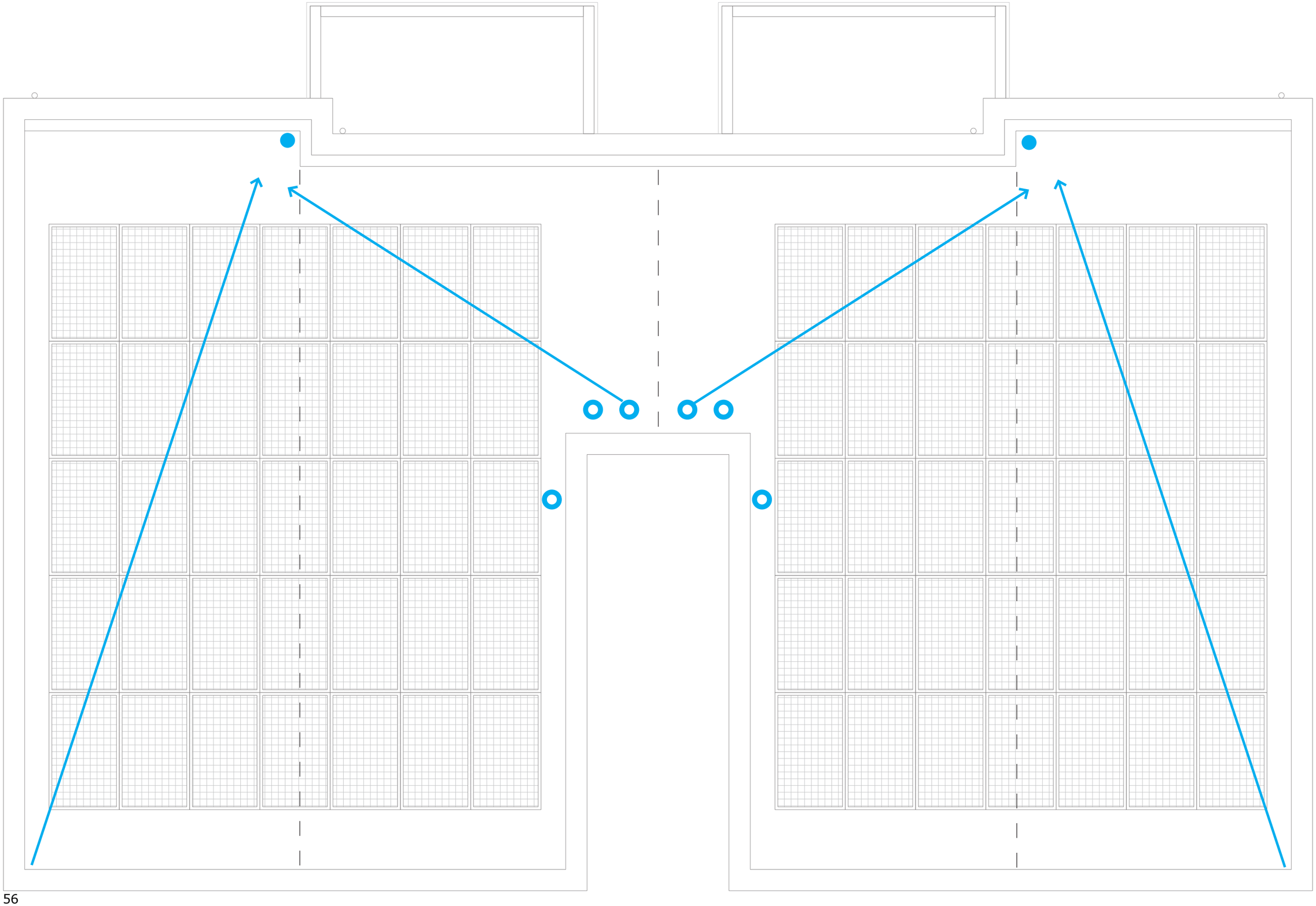
SCALE 1:50

SHORT TERM APARTMENT



SCALE 1:50

ROOFPLAN



ELEVATION: EAST



SCALE 1:100

ELEVATION: NORTH



SCALE 1:100

ELEVATION: WEST

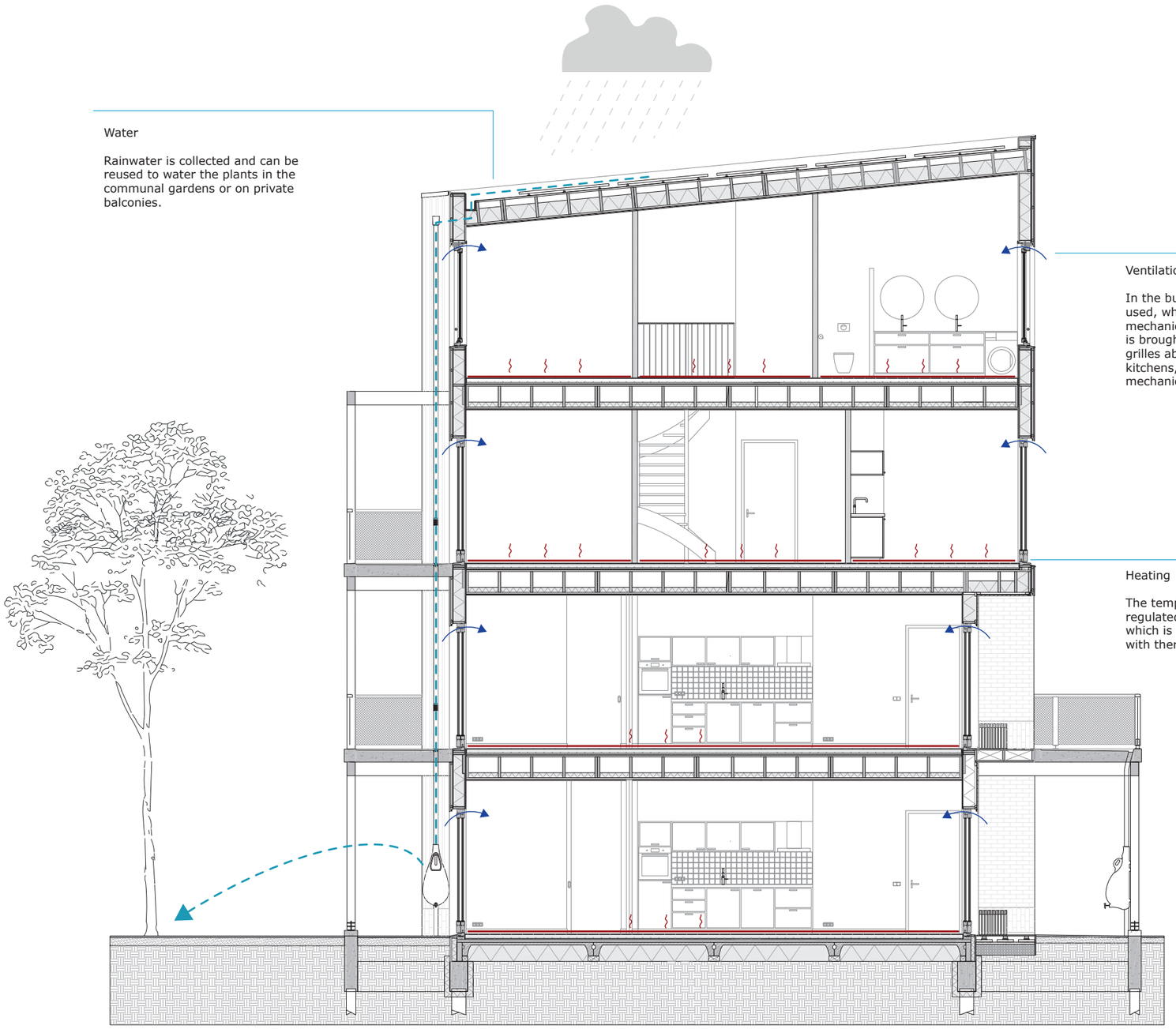


SCALE 1:100

CLIMATE DIAGRAM

Water

Rainwater is collected and can be reused to water the plants in the communal gardens or on private balconies.



Ventilation

In the buildings ventilation type C is used, which means natural input and mechanical outtake. Natural fresh air is brought in through ventilation grilles above the windows. The kitchens, toilets and bathrooms have mechanical outlets.

Heating

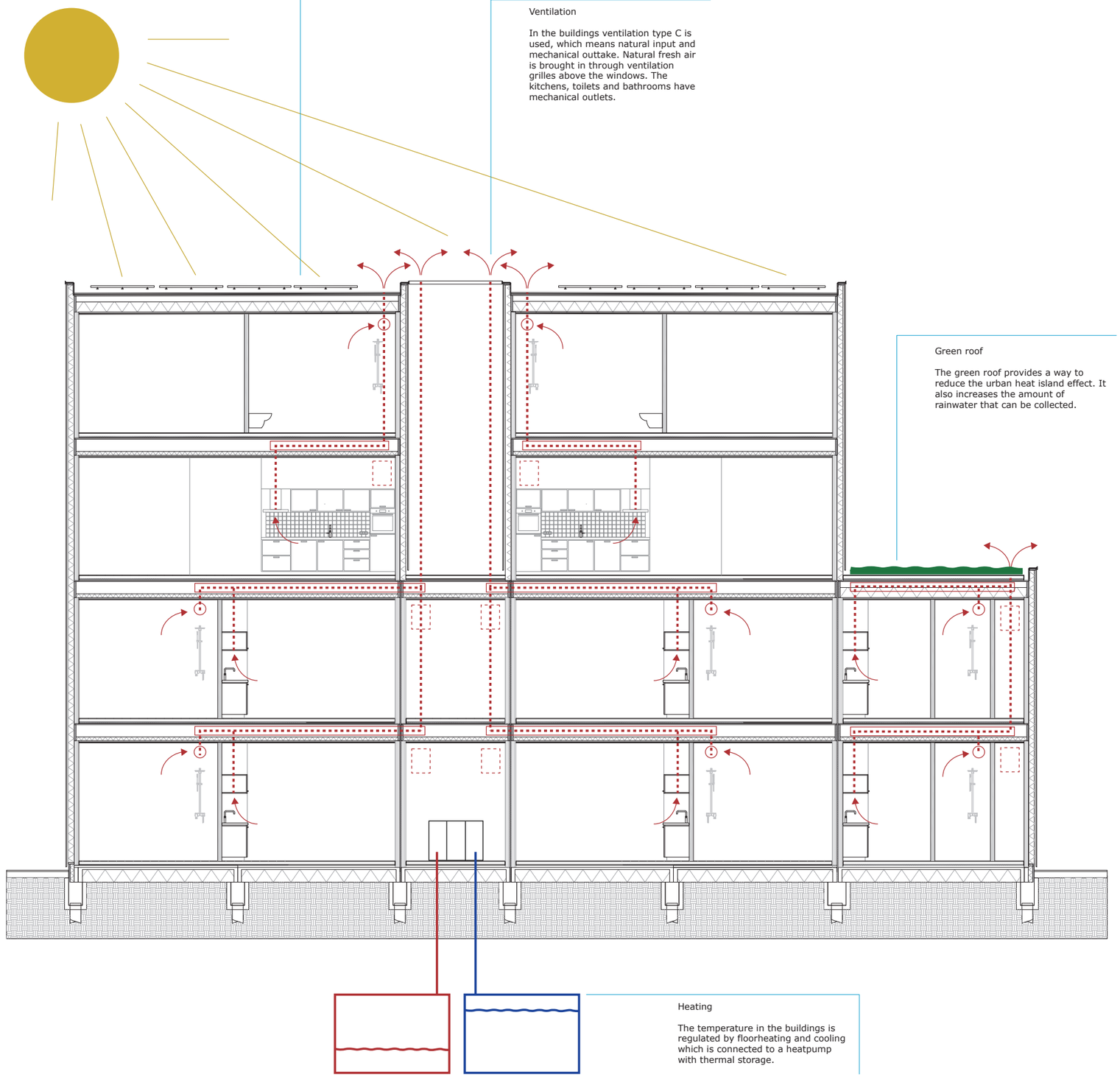
The temperature in the buildings is regulated by floorheating and cooling which is connected to a heatpump with thermal storage.

Energy

70 solarpanels on the roof of each block provide the energy needed for 7 households.

Ventilation

In the buildings ventilation type C is used, which means natural input and mechanical outtake. Natural fresh air is brought in through ventilation grilles above the windows. The kitchens, toilets and bathrooms have mechanical outlets.



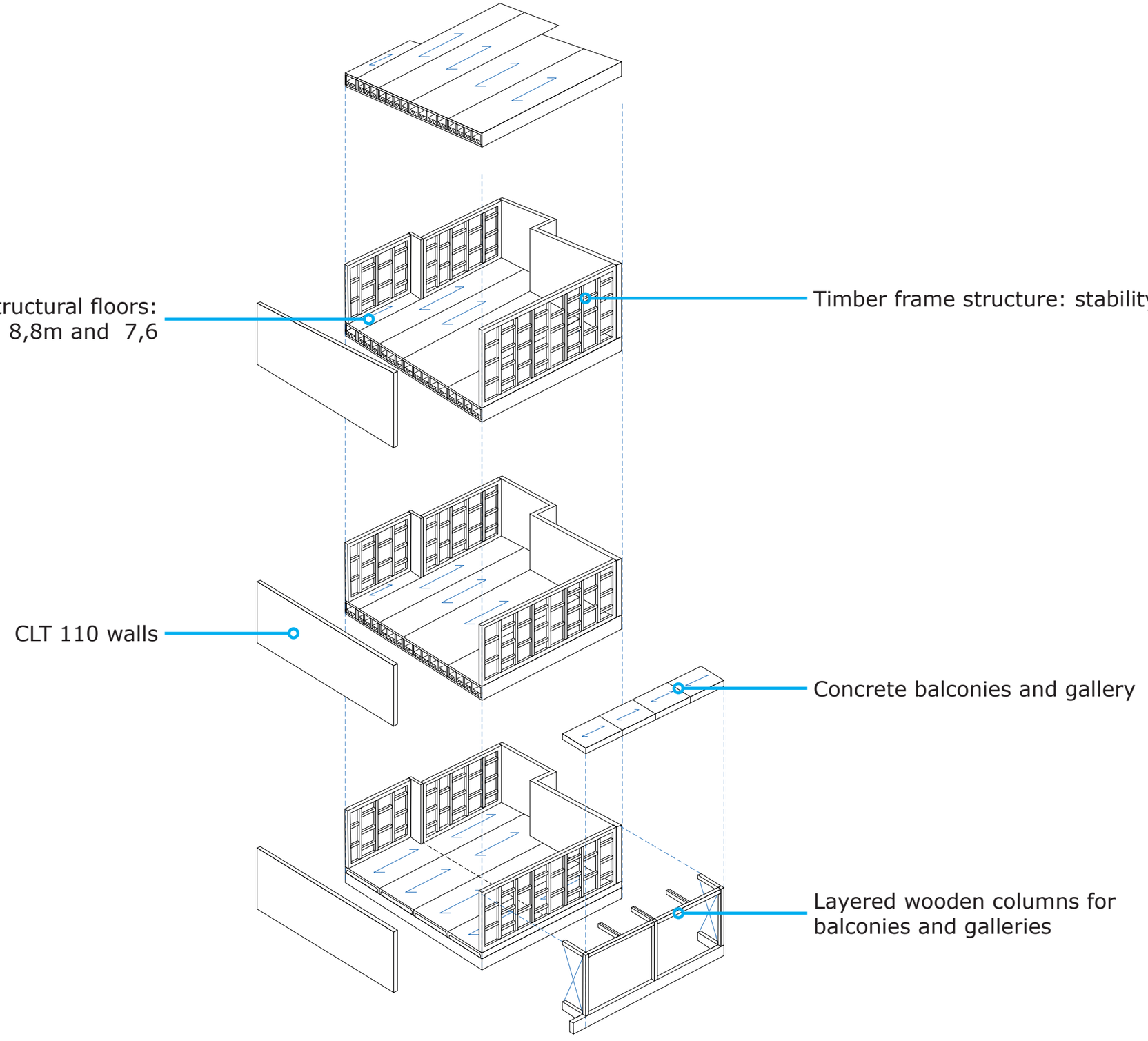
Green roof

The green roof provides a way to reduce the urban heat island effect. It also increases the amount of rainwater that can be collected.

Heating

The temperature in the buildings is regulated by floorheating and cooling which is connected to a heatpump with thermal storage.

STRUCTURE


Kerto Ripa 405 structural floors:
span of 8,8m and 7,6
Timber frame structure: stability
CLT 110 walls
Concrete balconies and gallery
Layered wooden columns for
balconies and galleries

Roof - 457mm (Rd= 6,8 m²K/W):

Solar roof panels
Ventilated cavity
EPDM seal
Breather membrane
Kerto ripa prefab floor - 405mm
- EverUse Circular Insulation - 260mm (Rd= 6,8 m²K/W)
Vapour barrier
Resilient bar - 27mm
Gypsum board - 12.5mm
Gypsum board - 12.5mm

Floor - 586mm:

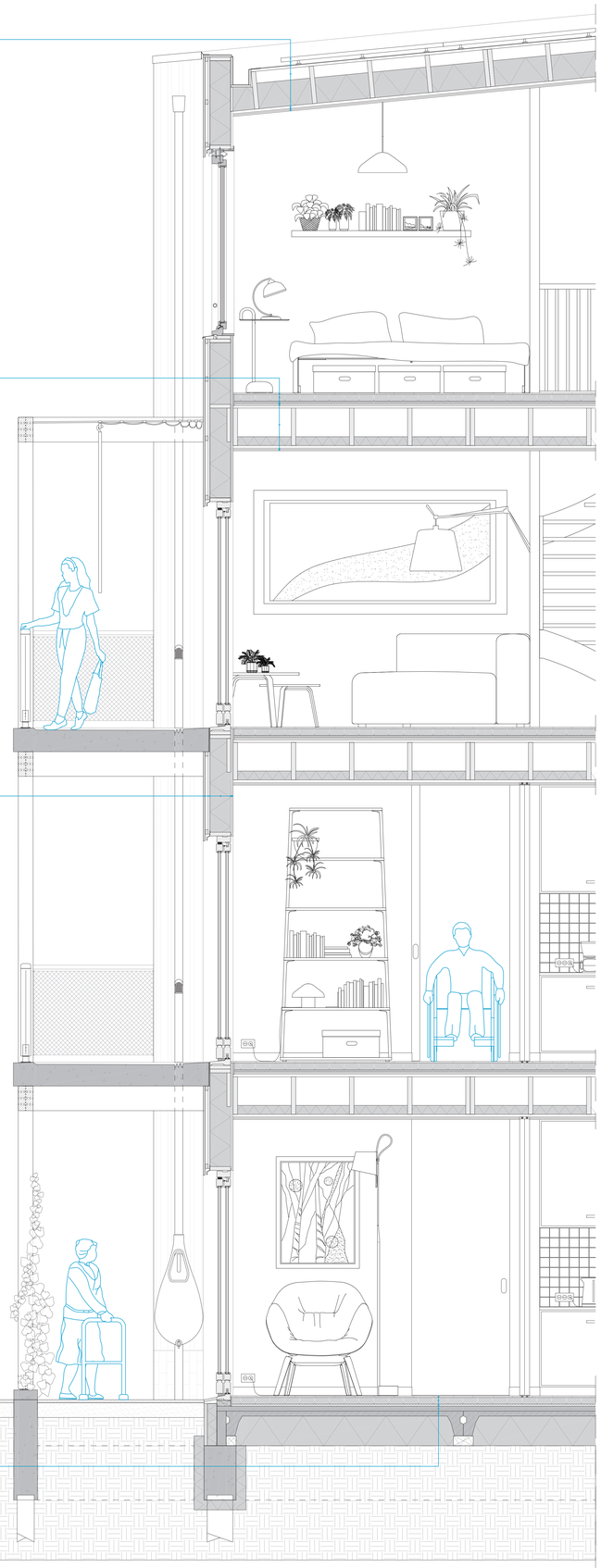
Engineered parquet - 14mm
Screed with floor heating - 70mm
PE protective film
XPS insulation - 20mm (Rd= 0,55 m²K/W)
Gypsum board - 12.5mm
Gypsum board - 12.5mm
Kerto ripa prefab floor - 405mm
- Mineral wool - 90mm (Rd= 2,6 m²K/W)
Resilient bar - 27mm
Gypsum board - 12.5mm
Gypsum board - 12.5mm

Exterior wall - 302mm (Rd= 5,5 m²K/W):

Accoya wood panels - 21mm
Framework (cavity) - 46 mm
- Horizontal 28 x 48
- Vertcial 18 x 45
Breather membrane
Timber frame structure
- EverUse Circular Insulation - 210mm (Rd= 5,5 m²K/W)
Vapour barrier
Gypsum board - 12.5mm
Gypsum board - 12.5mm

Ground floor - 504mm (Rd= 4,25 m²K/W):

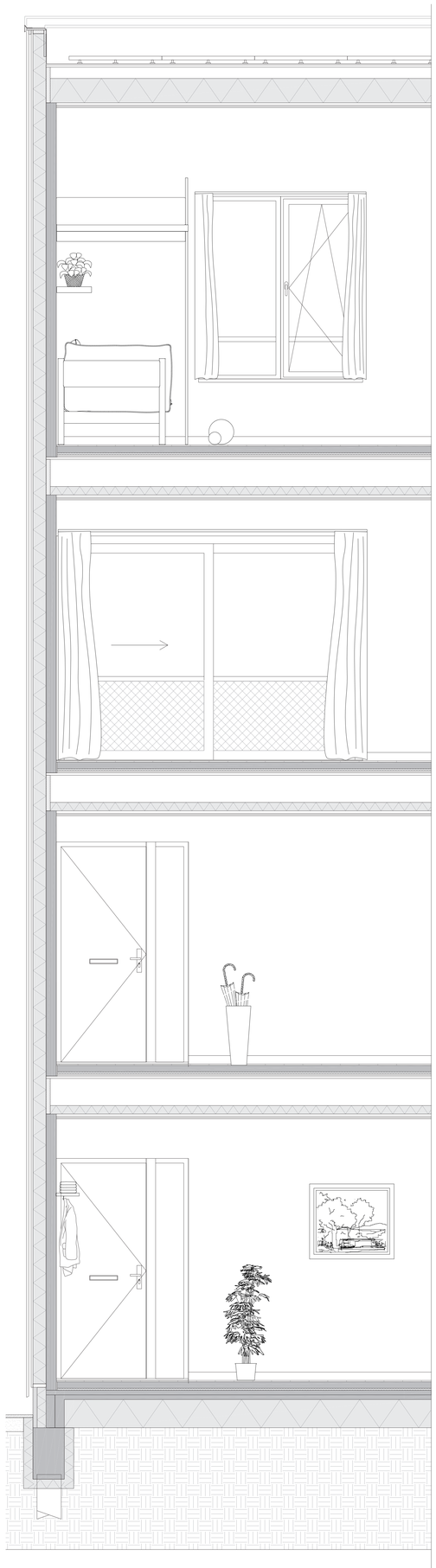
Engineered parquet - 14mm
Screed with floor heating - 70mm
PE protective film
XPS insulation - 20mm (Rd= 0,55 m²K/W)
Compressive layer - 50mm
Dycor ribbed concret floor - 350mm
- EPS insulationpanel 200SE – 300mm (Rd= 3,7 m²K/W)



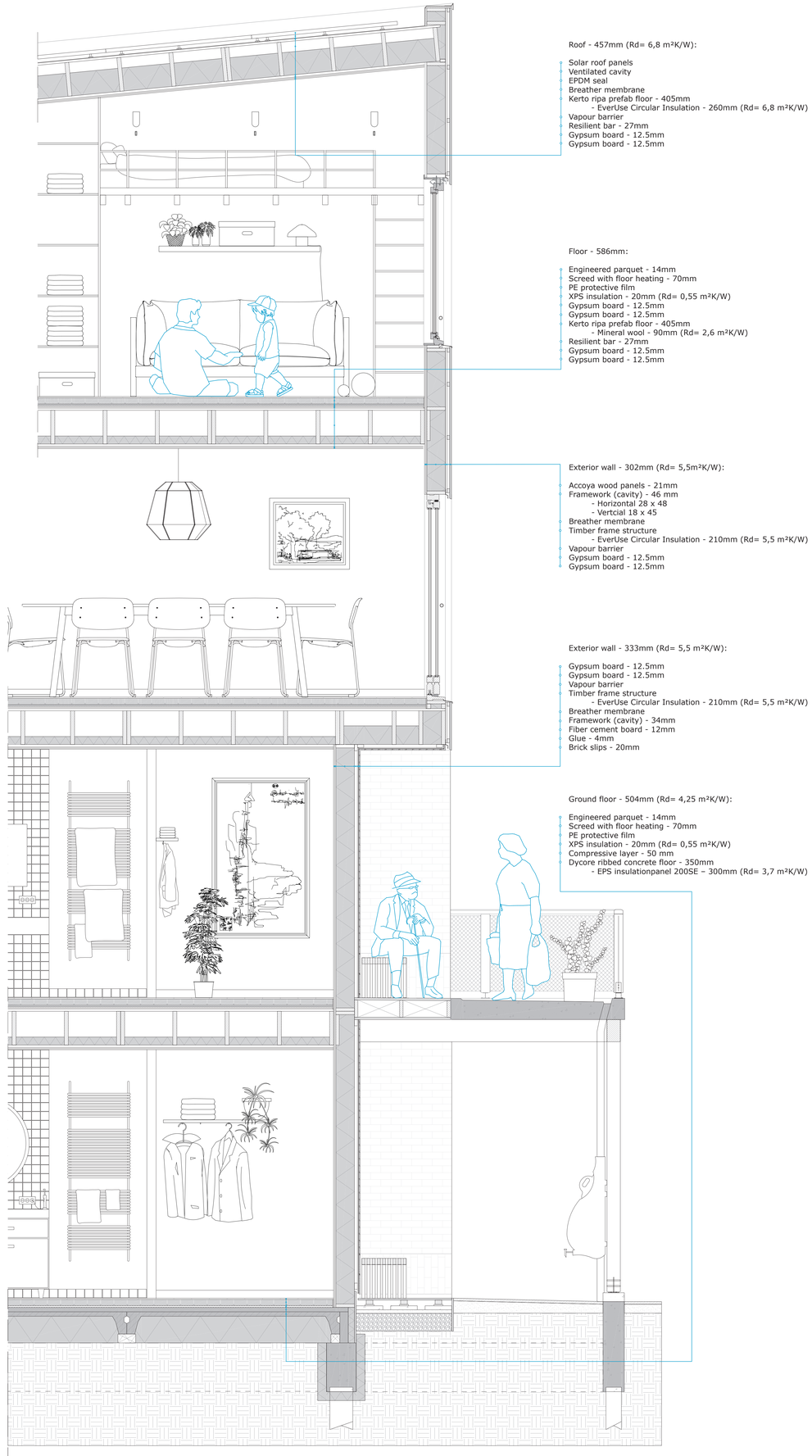
VERTICAL SECTION
1:20



FACADE FRAGMENT
1:20







Roof - 457mm (Rd= 6,8 m²K/W):

- Solar roof panels
- Ventilated cavity
- EPDM seal
- Breather membrane
- Kerto ripa prefab floor - 405mm
  - EverUse Circular Insulation - 260mm (Rd= 6,8 m²K/W)
- Vapour barrier
- Resilient bar - 27mm
- Gypsum board - 12.5mm
- Gypsum board - 12.5mm

Floor - 586mm:

- Engineered parquet - 14mm
- Screed with floor heating - 70mm
- PE protective film
- XPS insulation - 20mm (Rd= 0,55 m²K/W)
- Gypsum board - 12.5mm
- Gypsum board - 12.5mm
- Kerto ripa prefab floor - 405mm
  - Mineral wool - 90mm (Rd= 2,6 m²K/W)
- Resilient bar - 27mm
- Gypsum board - 12.5mm
- Gypsum board - 12.5mm

Exterior wall - 302mm (Rd= 5,5m²K/W):

- Accoya wood panels - 21mm
- Framework (cavity) - 46 mm
  - Horizontal 28 x 48
  - Vertcial 18 x 45
- Breather membrane
- Timber frame structure
  - EverUse Circular Insulation - 210mm (Rd= 5,5 m²K/W)
- Vapour barrier
- Gypsum board - 12.5mm
- Gypsum board - 12.5mm

Exterior wall - 333mm (Rd= 5,5 m²K/W):

- Gypsum board - 12.5mm
- Gypsum board - 12.5mm
- Vapour barrier
- Timber frame structure
  - EverUse Circular Insulation - 210mm (Rd= 5,5 m²K/W)
- Breather membrane
- Framework (cavity) - 34mm
- Fiber cement board - 12mm
- Glue - 4mm
- Brick slips - 20mm

Ground floor - 504mm (Rd= 4,25 m²K/W):

- Engineered parquet - 14mm
- Screed with floor heating - 70mm
- PE protective film
- XPS insulation - 20mm (Rd= 0,55 m²K/W)
- Compressive layer - 50 mm
- Dycore ribbed concrete floor - 350mm
  - EPS insulationpanel 200SE – 300mm (Rd= 3,7 m²K/W)

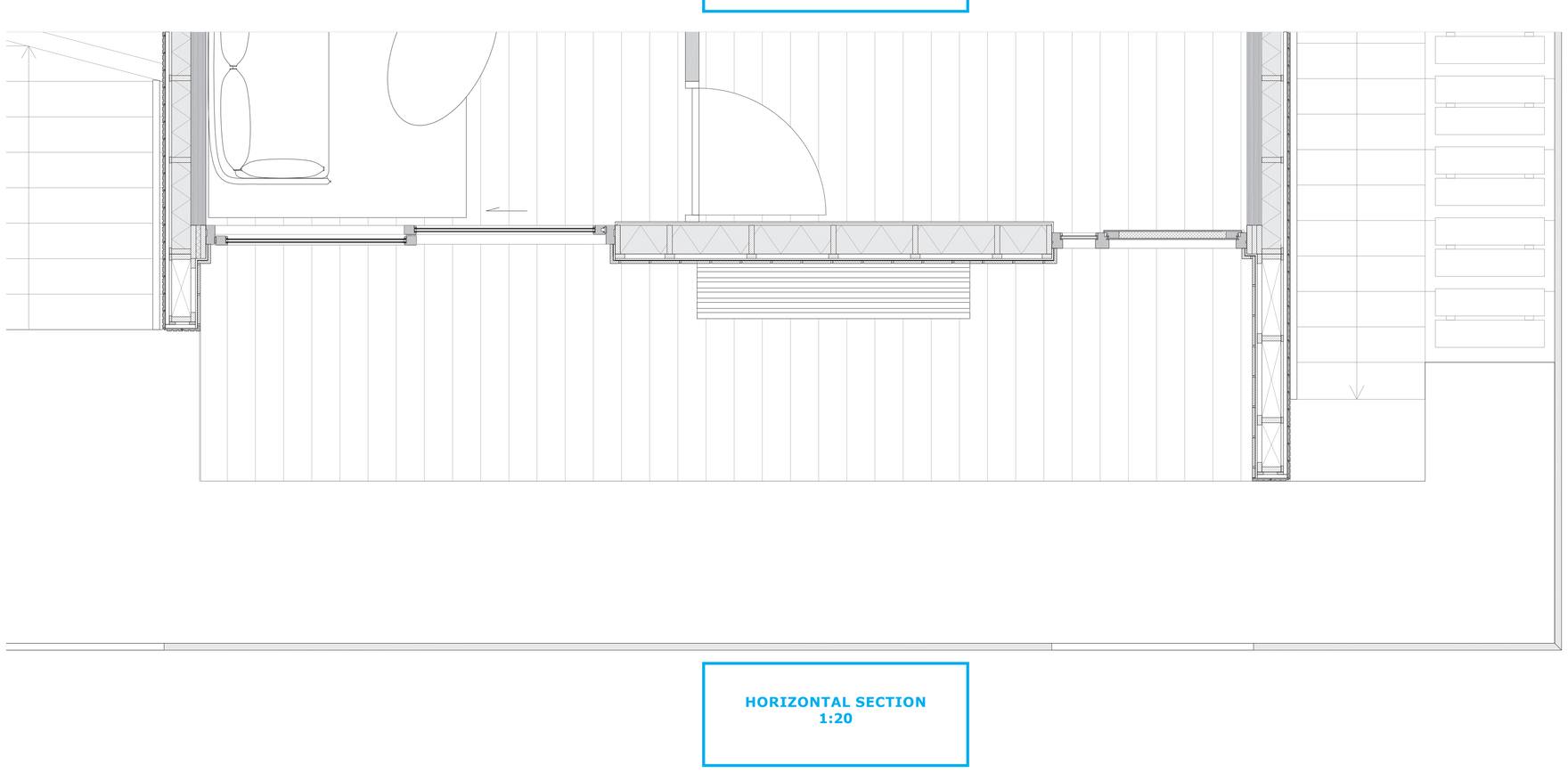
ELEVATION INSIDE
1:20

FACADE FRAGMENT
1:20

VERTICAL SECTION
1:20



FACADE FRAGMENT
1:20



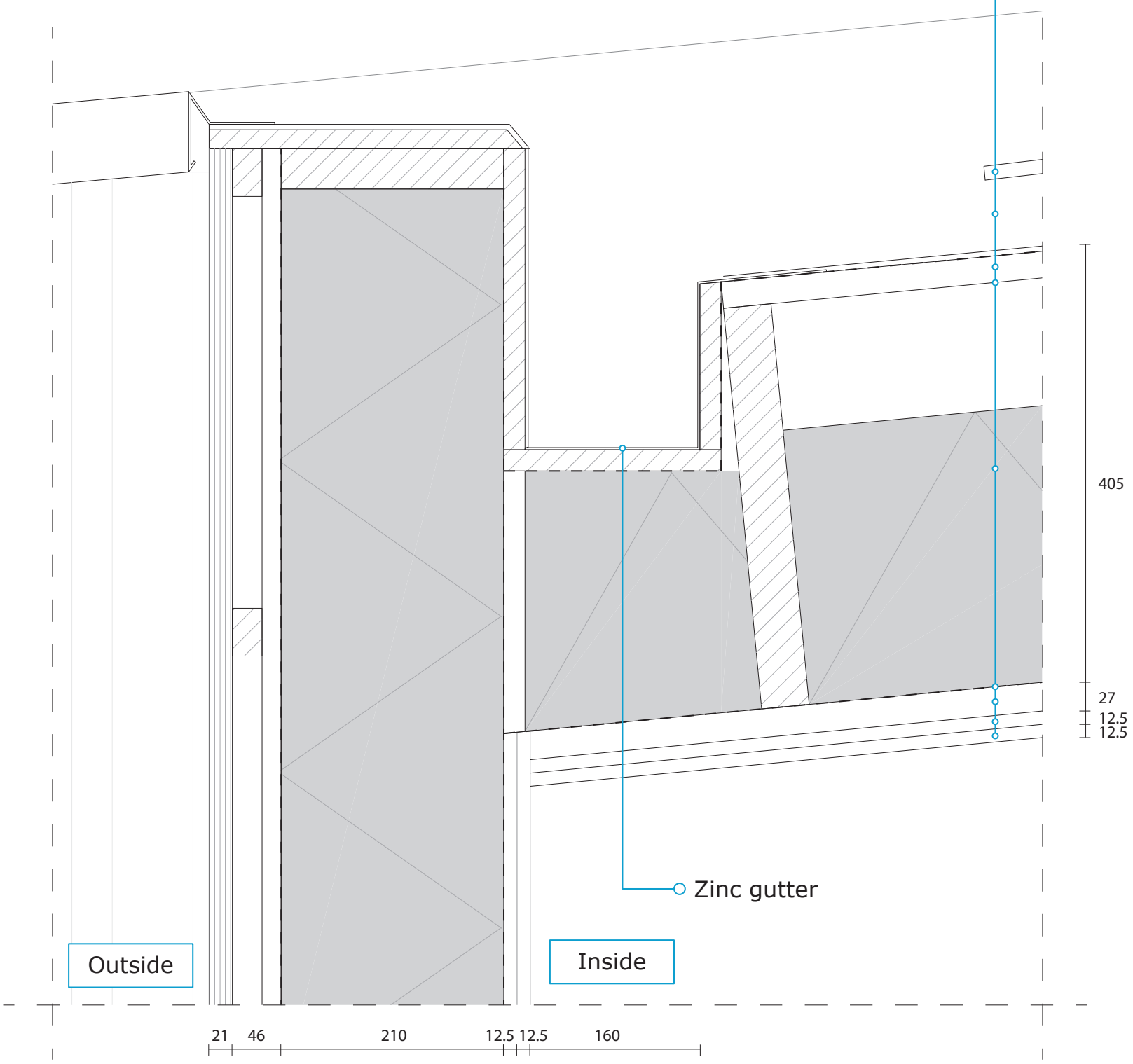
HORIZONTAL SECTION
1:20

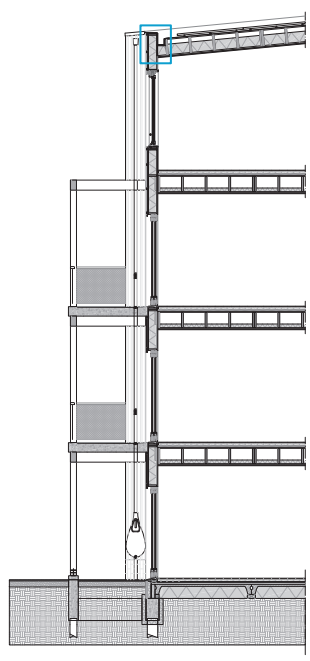
DETAIL 1

CONNECTION OF THE ROOF AND FACADE

Roof - 457mm (Rd= 6,8 m²K/W):

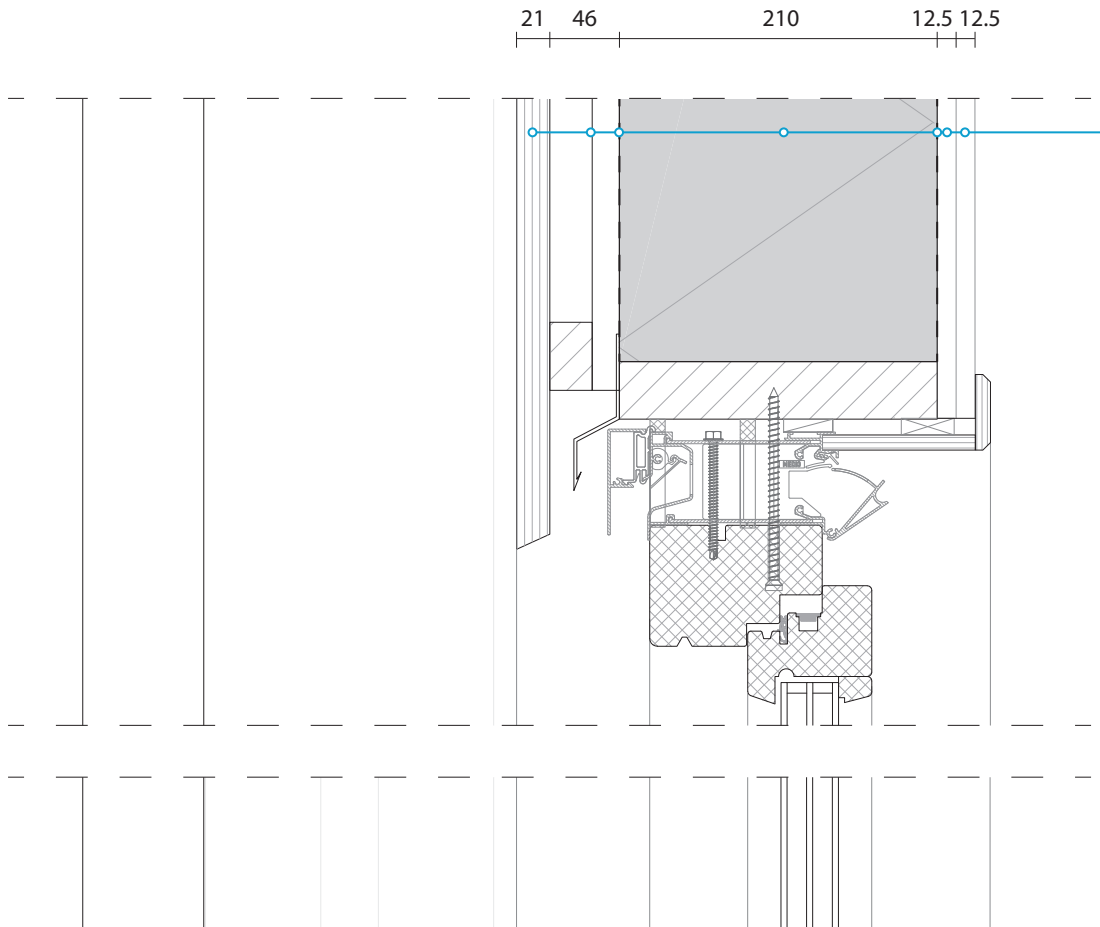
- Solar roof panels
- Ventilated cavity
- EPDM seal
- Breather membrane
- Kerto ripa prefab floor - 405mm
  - EverUse Circular Insulation - 260mm (Rd= 6,8 m²K/W)
- Vapour barrier
- Resilient bar - 27mm
- Gypsum board - 12.5mm
- Gypsum board - 12.5mm





DETAIL 2 + 3

CONNECTION OF THE WINDOW AND FACADE



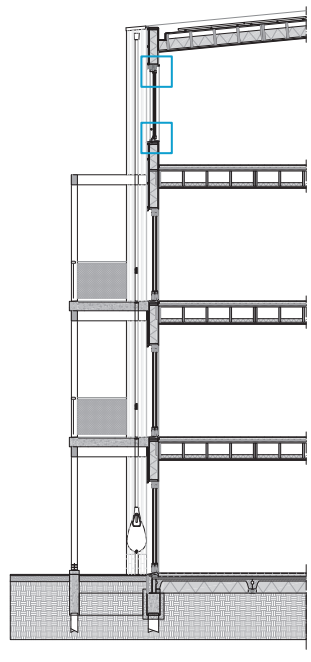
Exterior wall - 302mm (Rd= 5,5 m²K/W):

Accoya wood panels - 21mm
Framework (cavity) - 46 mm
- Horizontal 28 x 48
- Vertcial 18 x 45
Breather membrane
Timber frame structure
- EverUse Circular Insulation - 210mm (Rd= 5,5 m²K/W)
Vapour barrier
Gypsum board - 12.5mm
Gypsum board - 12.5mm

Fall prevention

HR+++ glass

Hebo wooden profile

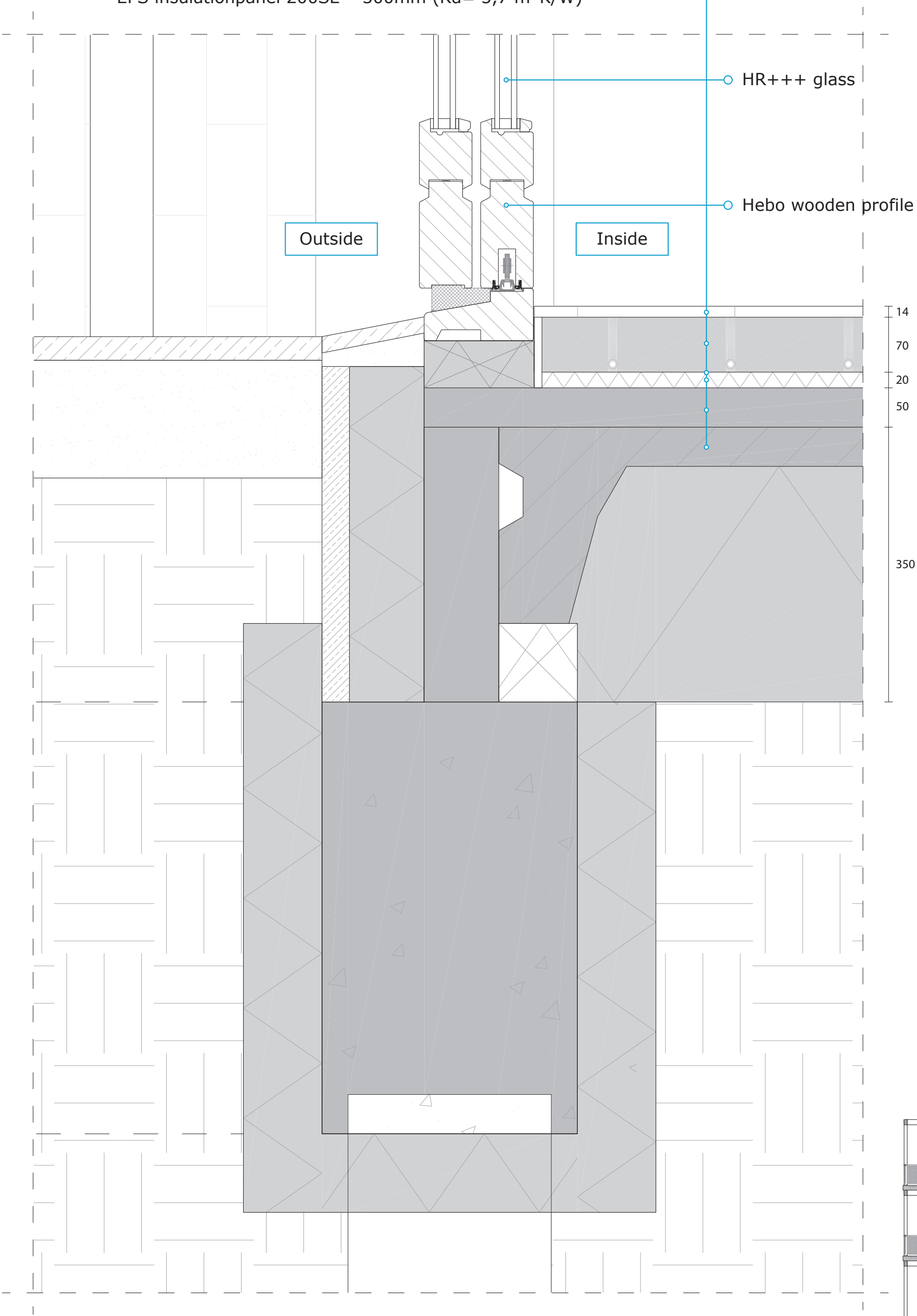


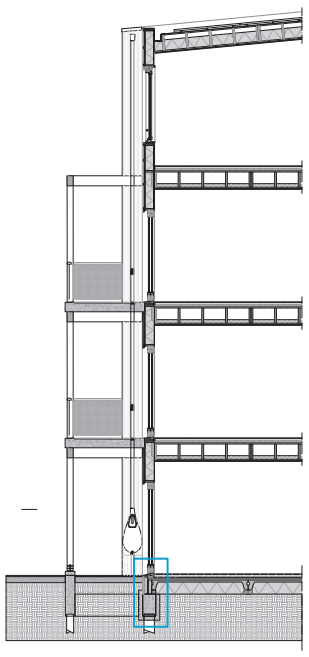
DETAIL 4

CONNECTION OF THE WINDOW, FLOOR AND FOUNDATION

Ground floor - 504mm (Rd= 4,25 m²K/W):

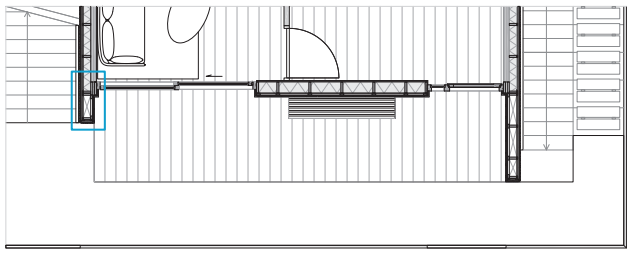
- Engineered parquet - 14mm
- Screed with floor heating - 70mm
- PE protective film
- XPS insulation - 20mm (Rd= 0,55 m²K/W)
- Compressive layer - 50 mm
- Dycore ribbed concrete floor - 350mm
  - EPS insulationpanel 200SE – 300mm (Rd= 3,7 m²K/W)

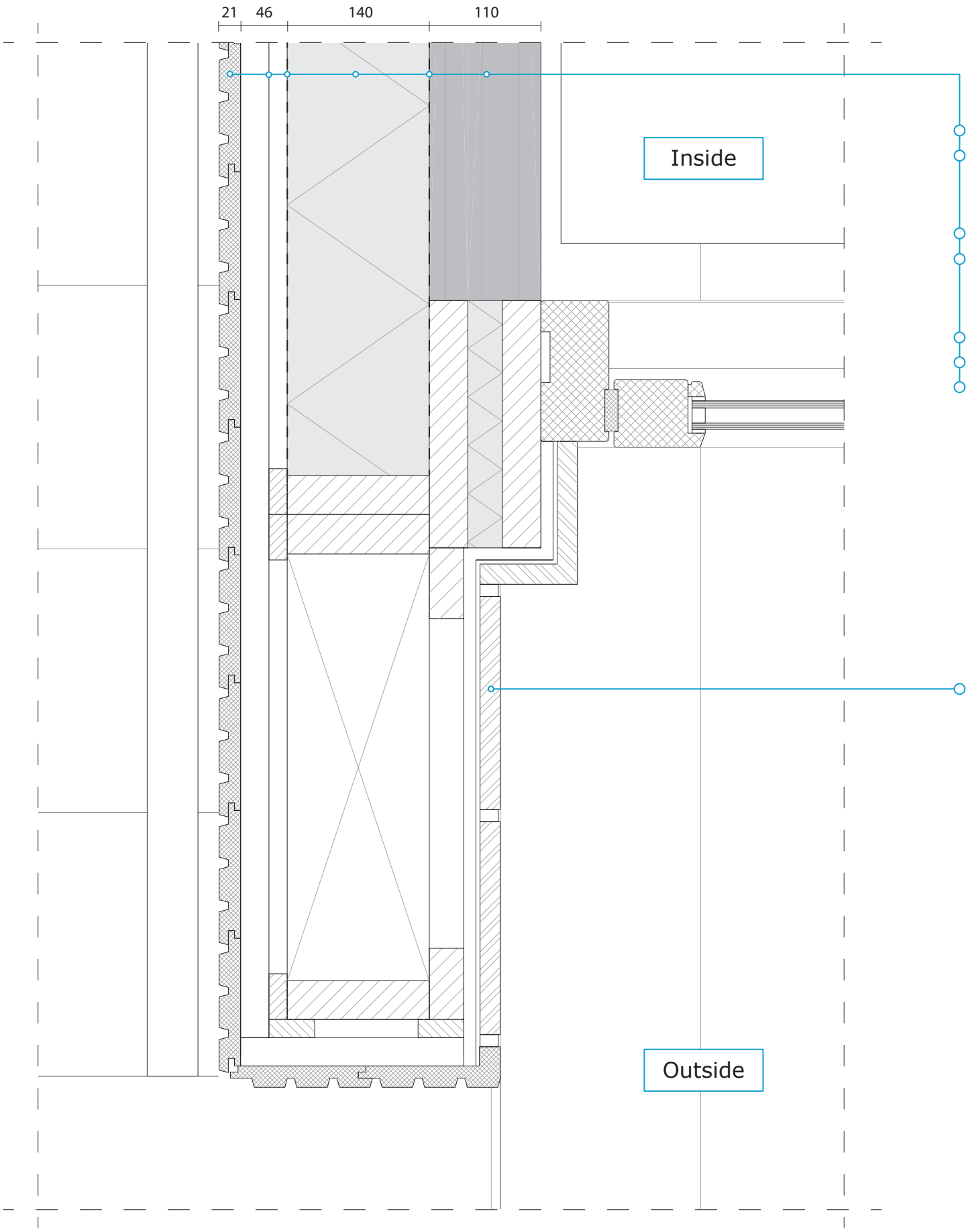




DETAIL 5

HORIZONTAL CONNECTION OF THE FACADE AND SLIDING DOORS





Exterior wall CLT - 317mm
(Rd= 4,7 m²K/W):

Accoya wood panels - 21mm
Framework (cavity) - 46 mm
- Horizontal 28 x 48
- Vertcial 18 x 45
Breather membrane
Timber frame structure
- EverUse Circular Insulation - 140mm (Rd= 3,5 m²K/W)
Vapour barrier
CLT wall - 110mm (Rd = 1,2 m²K/W)

Glazed tiles/glazes brick strips

SOUTH FACADE: SUN-SHADING





FACADE OVER TIME



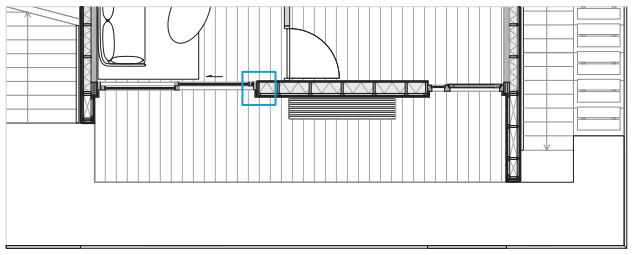


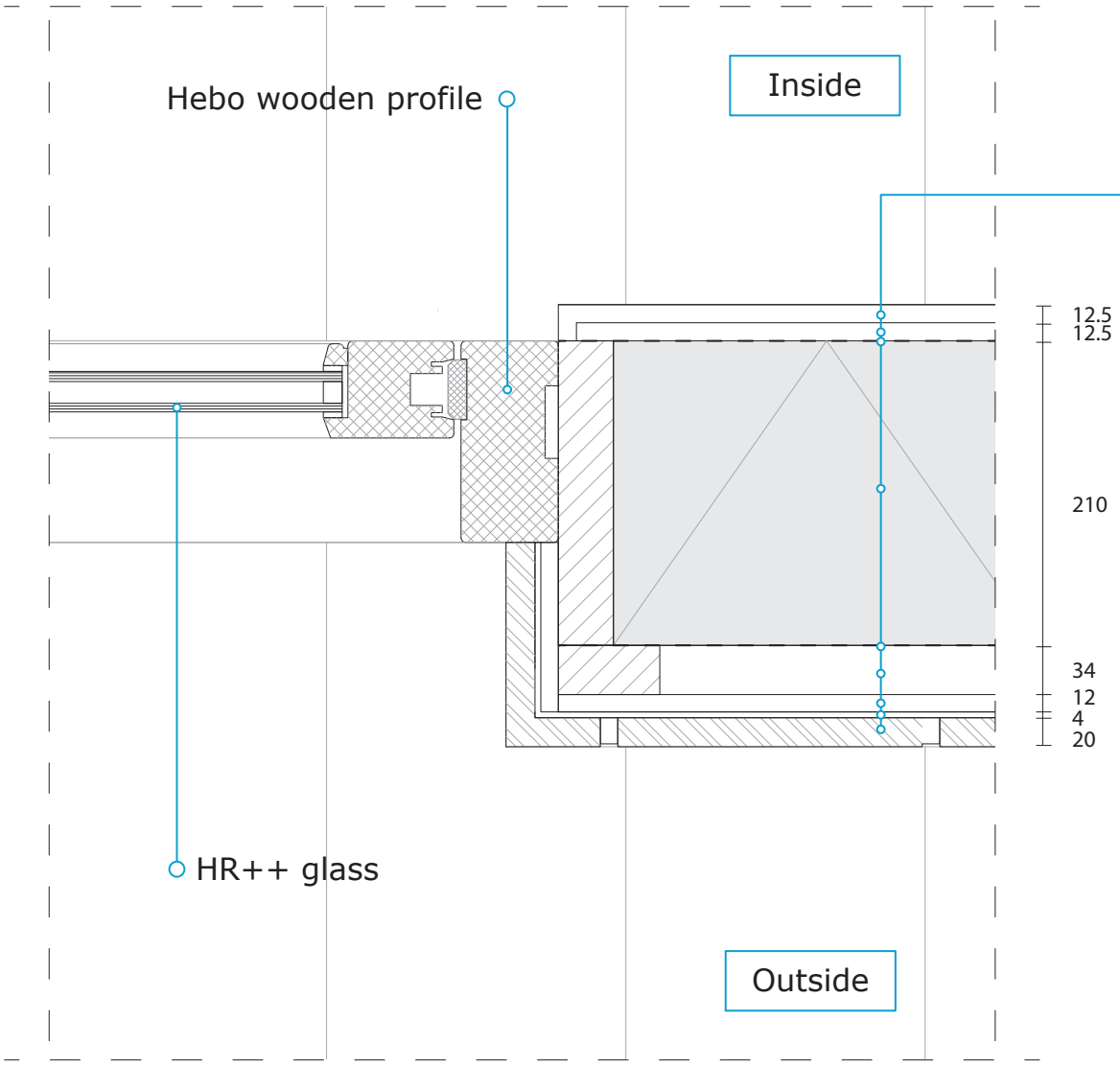


THANK YOU

DETAIL 6

HORIZONTAL CONNECTION OF THE FACADE AND SLIDING DOORS



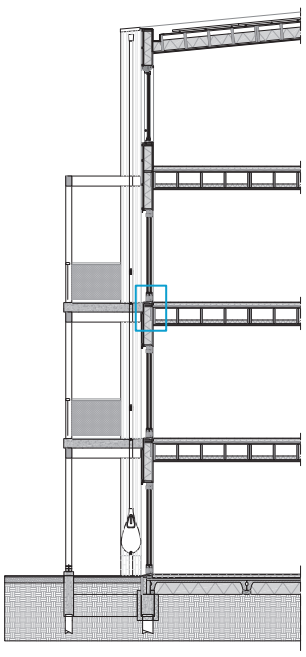


Exterior wall - 333mm (Rd= 5,5 m²K/W):

- Gypsum board - 12.5mm
- Gypsum board - 12.5mm
- Vapour barrier
- Timber frame structure
  - EverUse Circular Insulation - 210mm (Rd= 5,5 m²K/W)
- Breather membrane
- Framework (cavity) - 34mm
- Fiber cement board - 12mm
- Glue - 4mm
- Glazed brick slips - 20mm

DETAIL 7

CONNECTION OF THE FACADE, BALCONY AND SLIDING DOORS



Floor - 586mm:

- Engineered parquet - 14mm
- Screed with floor heating - 70mm
- PE protective film
- XPS insulation - 20mm (Rd= 0,55 m²K/W)
- Gypsum board - 12.5mm
- Gypsum board - 12.5mm
- Kerto ripa prefab floor - 405mm
  - Mineral wool - 90mm (Rd= 2,6 m²K/W)
- Resilient bar - 27mm
- Gypsum board - 12.5mm
- Gypsum board - 12.5mm

Outside

Inside

HR+++ glass

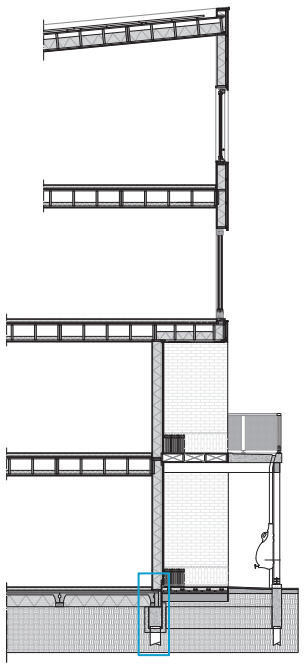
Hebo wooden profile

14
70
20
12.5
12.5
405
27
12.5
12.5

21 46 210 12.5 12.5

DETAIL 8

CONNECTION OF THE FACADE AND FOUNDATION



Ground floor - 504mm (Rd= 4,25 m²K/W):

- Engineered parquet - 14mm
- Screed with floor heating - 70mm
- PE protective film
- XPS insulation - 20mm (Rd= 0,55 m²K/W)
- Compressive layer - 50 mm
- Dycore ribbed concrete floor - 350mm
  - EPS insulationpanel 200SE – 300mm (Rd= 3,7 m²K/W)

