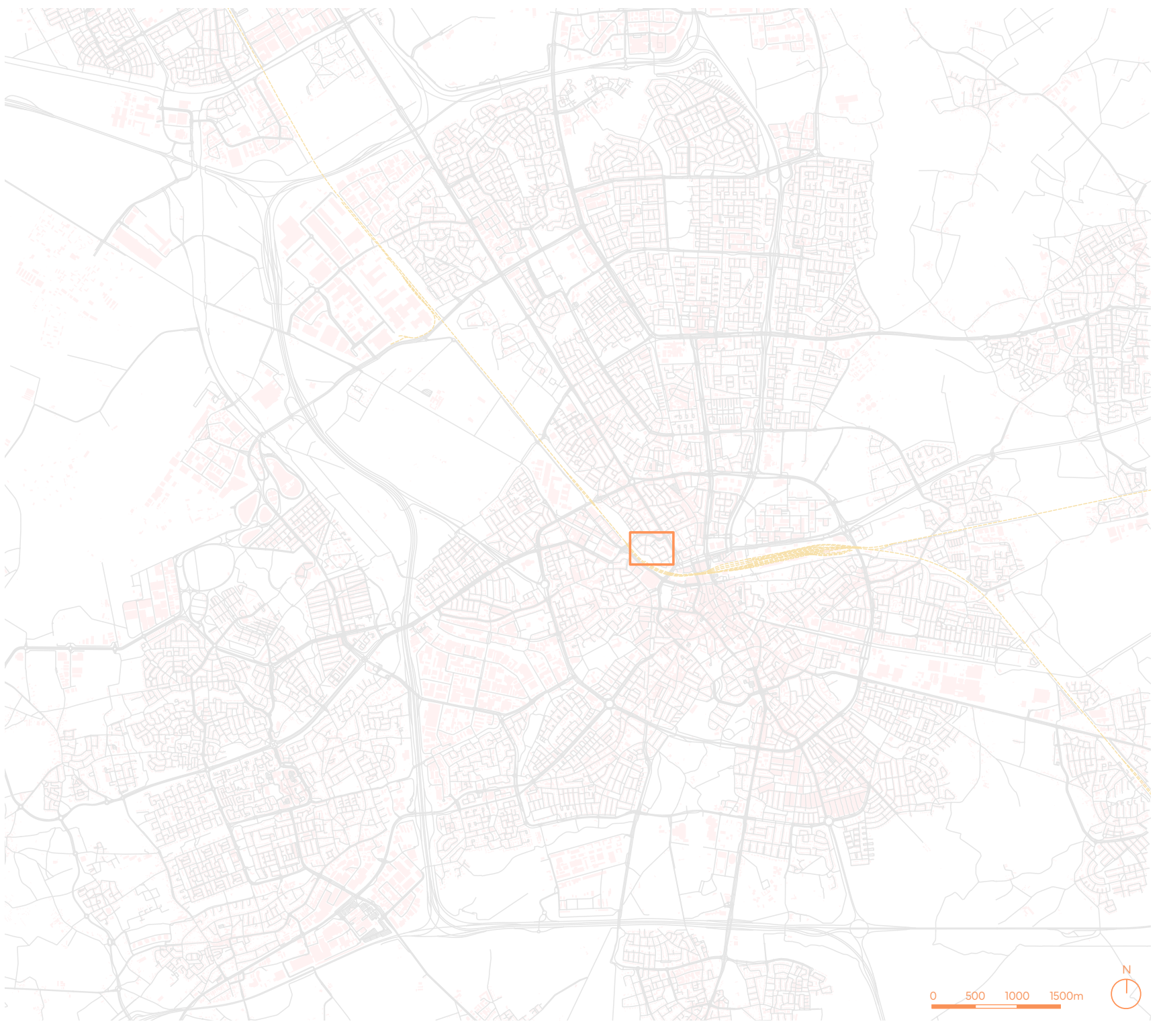
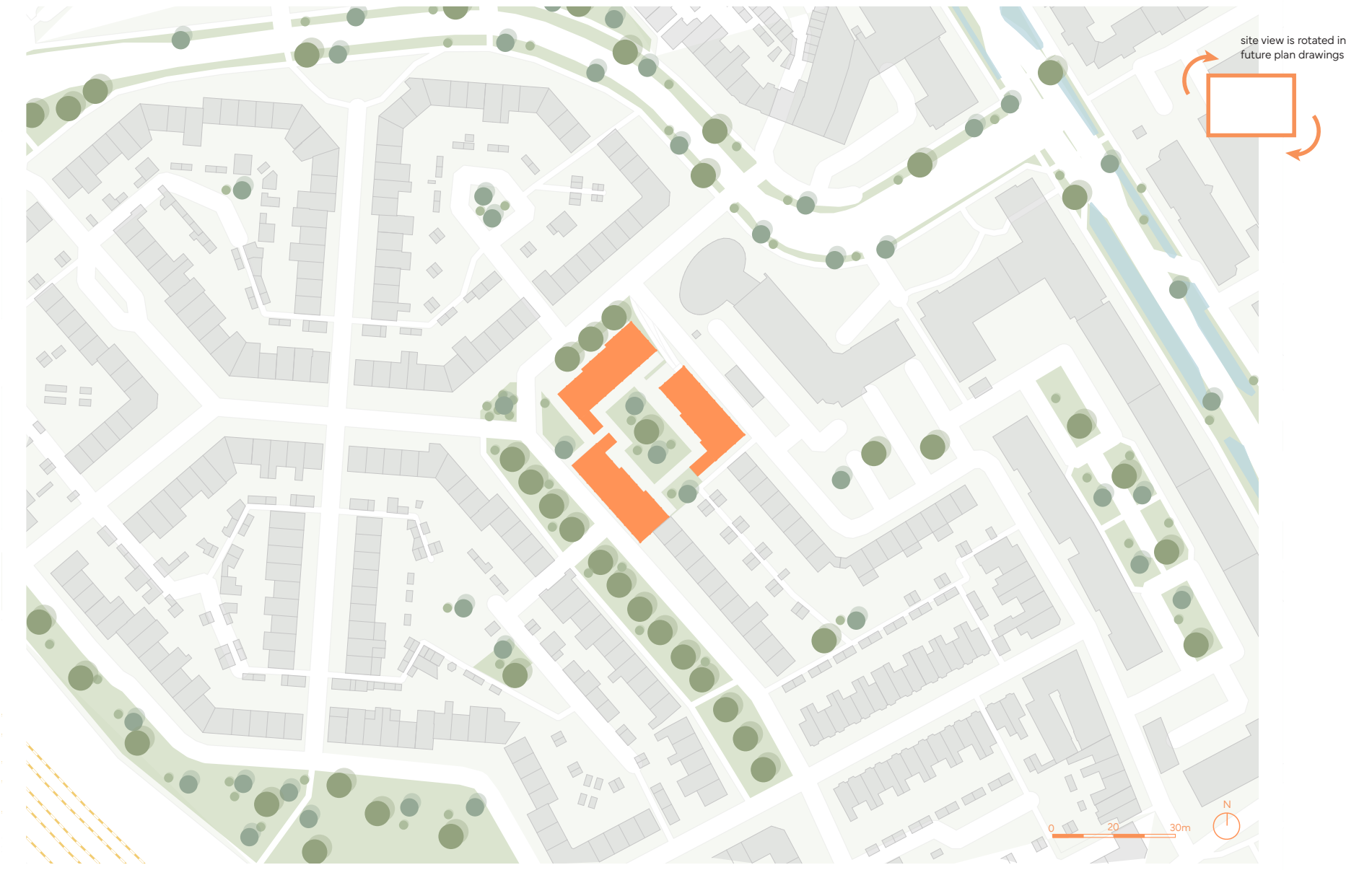
a home grown (old).

emma van barneveld.
5023629

context.


0
500
1000
1500m
N

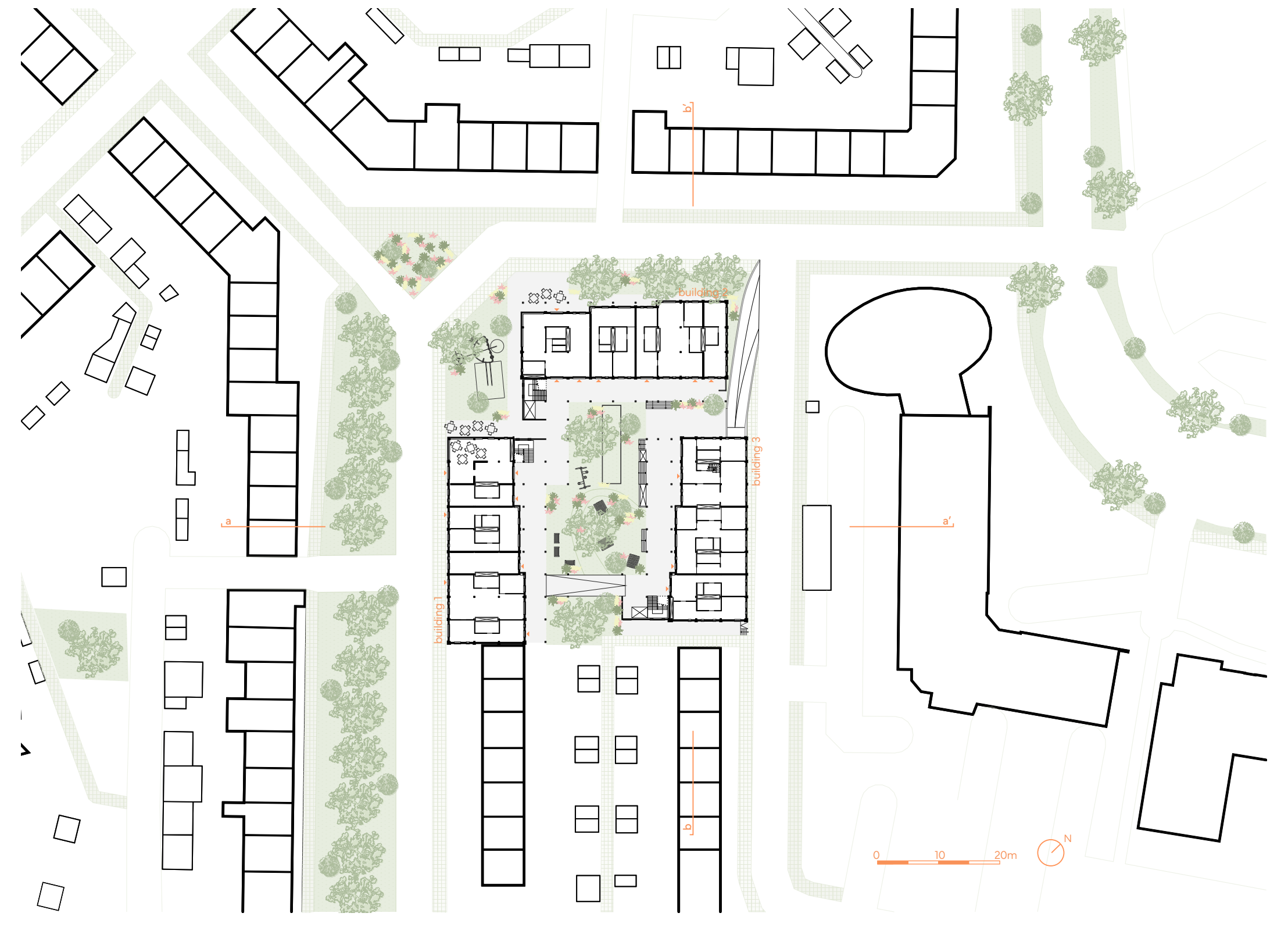

site view is rotated in future plan drawings
0
20
30m
N

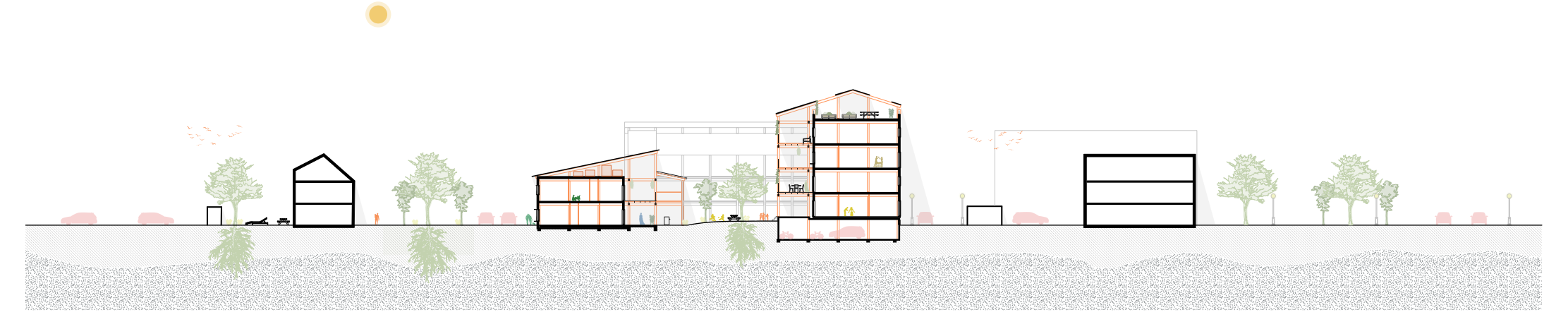
households.

	household typology a.		household typology b.			household typology c.		household typology d.	household typology e.	
	type a 1	type a 2	type b 1	type b 2	type b 3	type c 1	type c 2	type d	type e 1	type e 2
	haitao	anaya	anna dog julie	arjun diya young child	erita	elif's mother elif kadir two children	martha elise daniëlle	nabil eldest son anisa ibrahim three children grandparents	patrizia henk	piet henriët
	young (chinese) single man	young (indian) single woman	young (polish & dutch) couple	young (indian) family	single (indonesian) elderly woman	small (turkish) family	3 single (european) young professionals	big (moroccan) family	(german & dutch) emptynesters	elderly (dutch) couple
maximum m2	60 m²	35 m²	70 m²	80 m²	60 m²	100 m²	100 m²	150 m²	90 m²	90 m²
(bed)rooms	min. 2 rooms, bedroom and living/dining room	studio room	2 bedrooms, 1 master one guest/home office	min. 2 bedrooms, 1 master one baby/guest room	1 bedroom with ensuite bathroom	3 bedrooms (1 master, 2 smaller)	3 bedrooms of equal size min 3x3m, 9m²	5 bedrooms (2 master, 3 smaller)	2 bedrooms (1 master with ensuite bathroom, 1 smaller)	2 bedrooms (1 master with ensuite bathroom, 1 smaller)
kitchen	kitchen in a seperate room	kitchen has an open wall to dining space	kitchen is partially open, due to smells	kitchen in a seperate room	two separate kitchens, a wet for cleaning and a dry for storage & cooking	kitchen is closed & connected to outside	open kitchen plan	kitchen is open to dining room	open kitchen plan	open kitchen plan
outside space	veranda space or courtyard is preferred, can be shared	attached to kitchen, can be shared	terrace or balcony	balcony or terrace, attached to kitchen or dining room	outside space, but shared is good for the connection	preferred to have a garden or an inner courtyard	terrace or balcony, but can be shared	private courtyard that encloses the rooms & terrace?	outside space oriented on the sun, balcony or garden	outside garden, oriented on the sun is a nice-to-have
extra spaces?	veranda space, edge between in- and outside, potentially a guest room (can be outside own house)	guest room for family visiting, a shared office space or a neighbours meeting space	home office is preferred, but can also be the guest bedroom or future baby room	home office is a must, a guest room for family is preferred can be outside of the house	a guest room, outside the house for family visiting, shared spaces to connect with neighbours	no need for a home office, might need space for family or grandparents in the future	storage space is nice due to small bedrooms	preferrably one extra bedroom for guests, seperate living from dining room	seperate toilet, guest room in the house and maybe more outside the house	seperate toilet, guest room in the house (and more outside), places for interaction with neighbours
special home arragements	people can't walk straight into the bedroom or living room, there must be a buffer zone (also for shoes)	outside space attached to kitchen	big windows, and kitchen must be able to air through	outside space attached to kitchen, child daycare is preferred, inner courtyard connection	can be in two floors, but important part is to have a clear separation between the public (living, guest & kitchen space) and the private (bedroom & bathroom)	two floors preferrably (downstairs is private and connected to a garden or courtyard, but has the kitchen, storage & guest space; upstairs has the living room and bedrooms)	big open living room, to also invite guest for dinner or parties, seperate toilet from bathroom	more than one floor, and privacy on floors where public looks in (small windows or just walls), the inner part of the house is open and rooms are on the sides	seperate toilet from bathroom, spacious living & dining room for (dinner) parties and family visiting	seperate toilet from bathroom, spacious living & dining room for (dinner) parties and family visiting

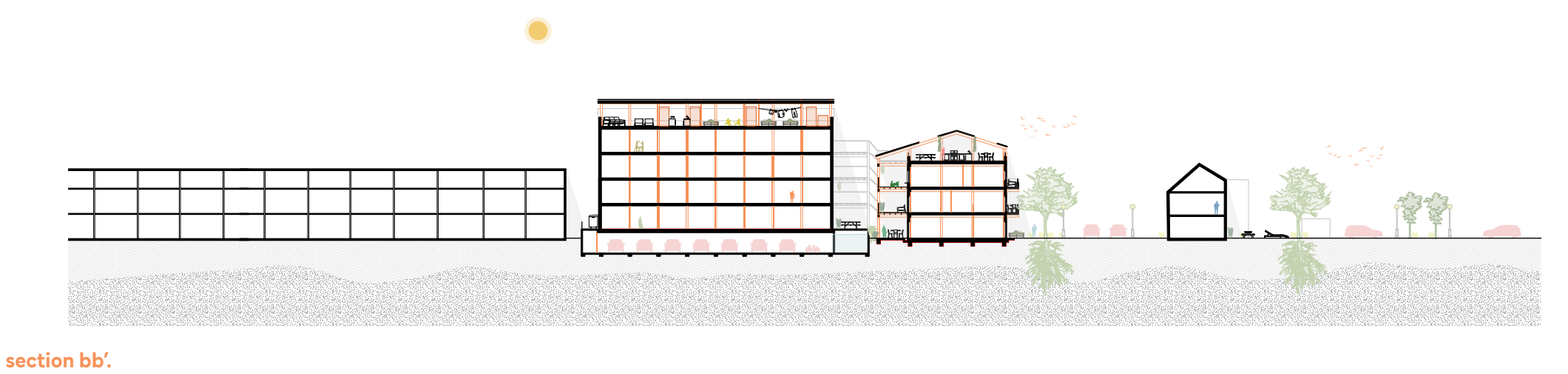
site.

scale **1.500.**


a
a'
b
b'
building 1
building 2
0
10
20m
N



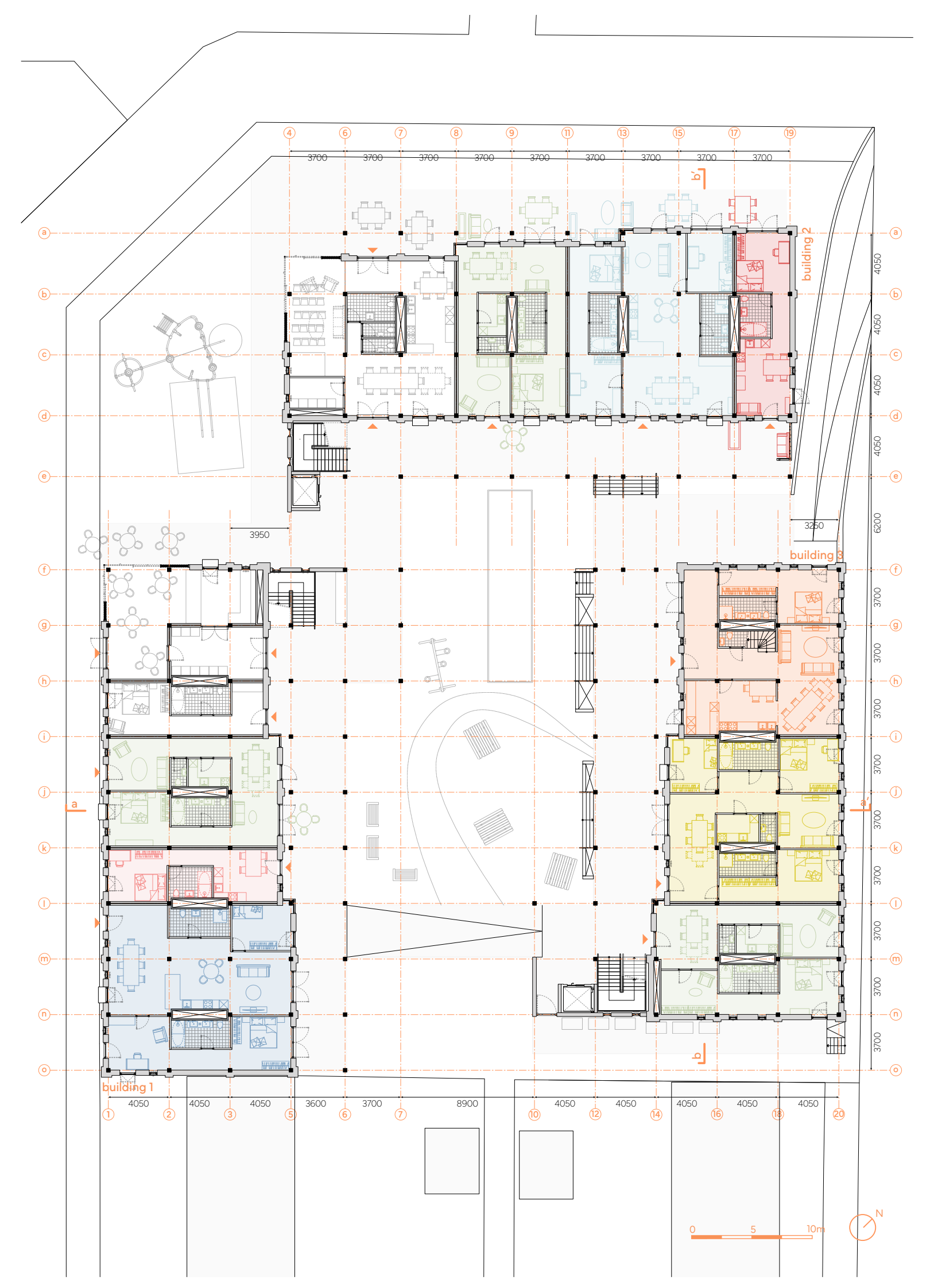
section aa'.



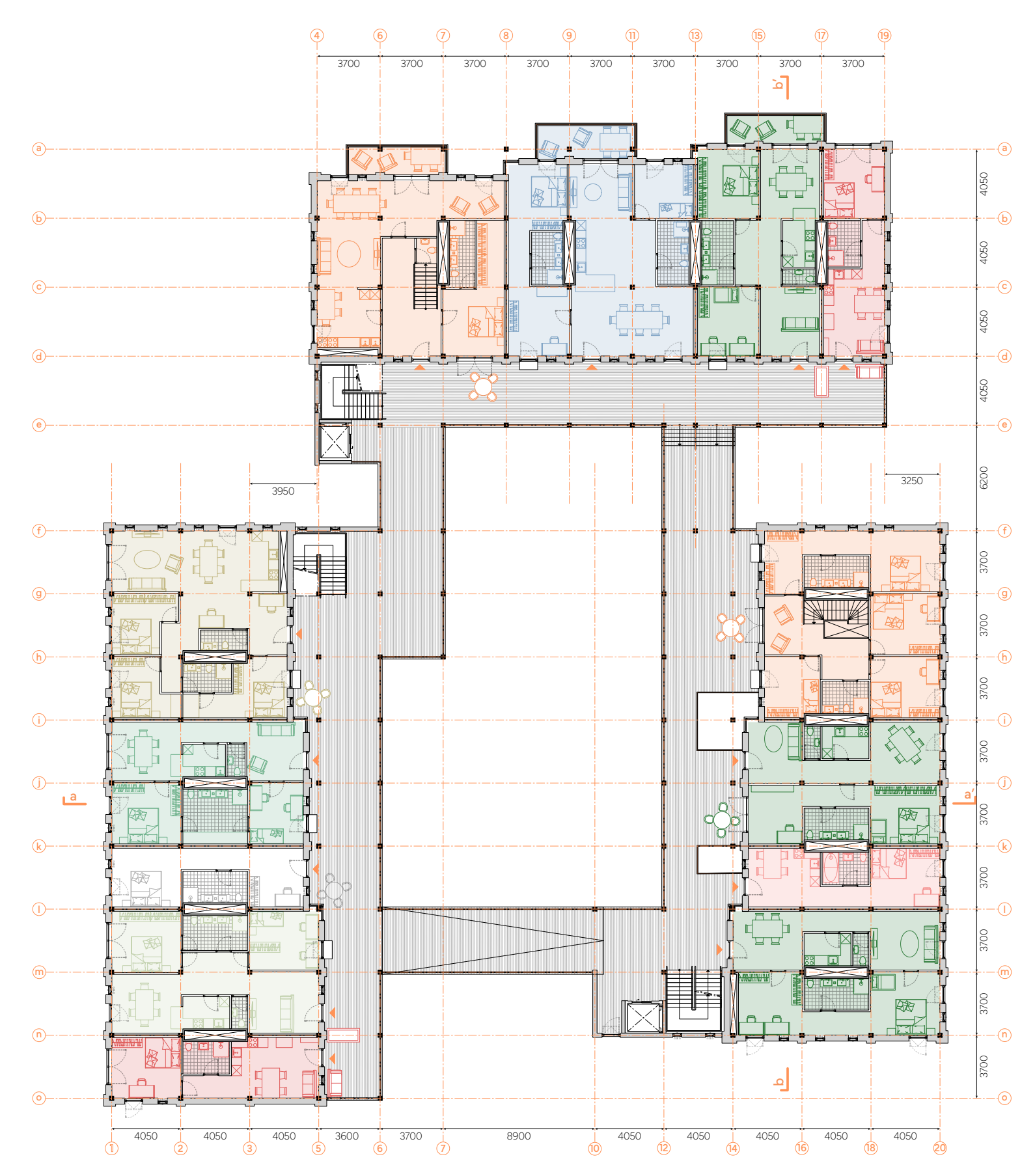
section bb'.

building.

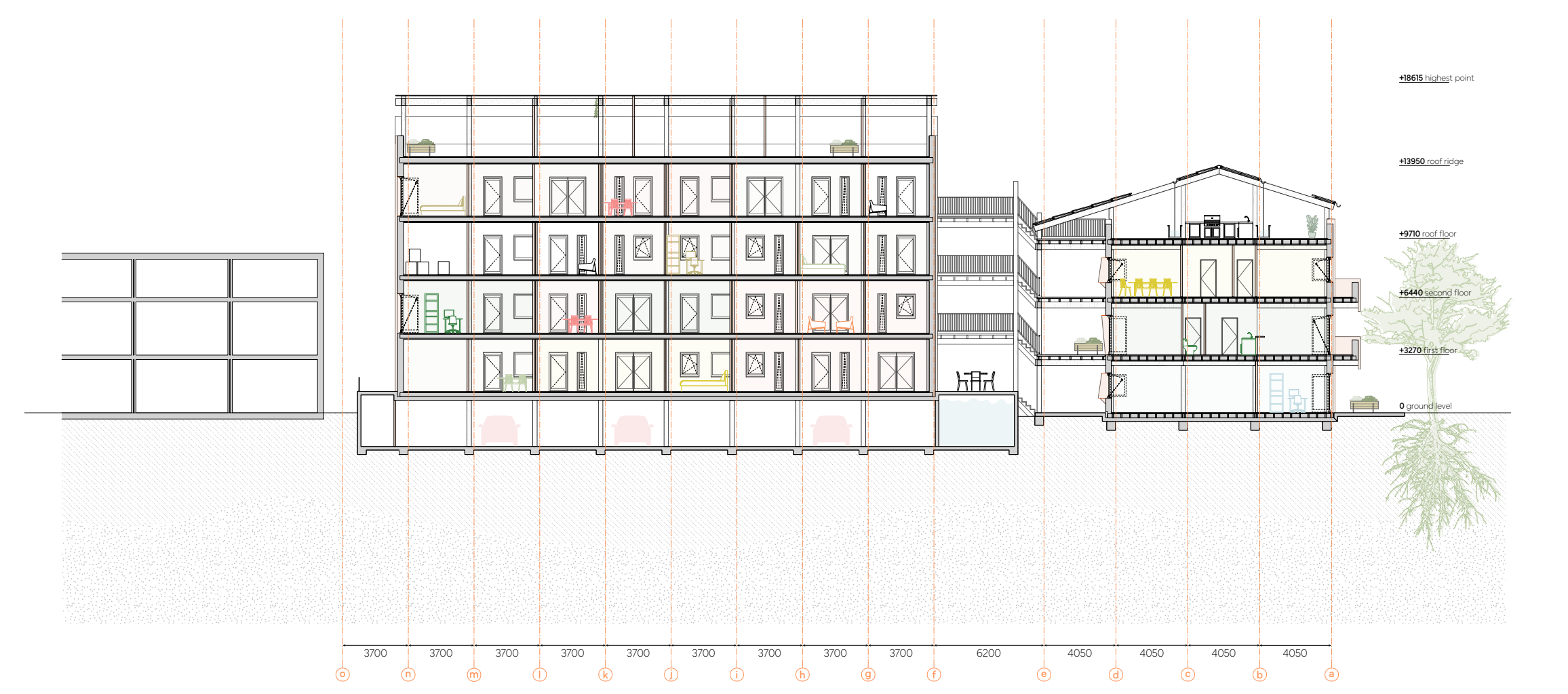
scale **1.200.**


building 1
building 2
building 3
3950
3250
4050
3700
3600
8900
0
5
10m
N

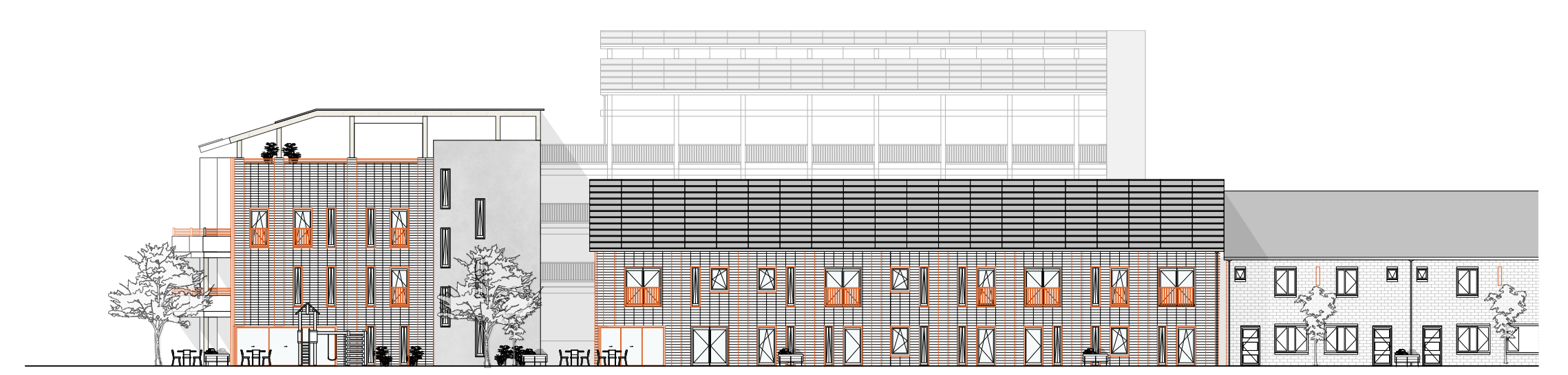
ground floor.


3950
3250
4050
3700
3600
8900
0
5
10m
N

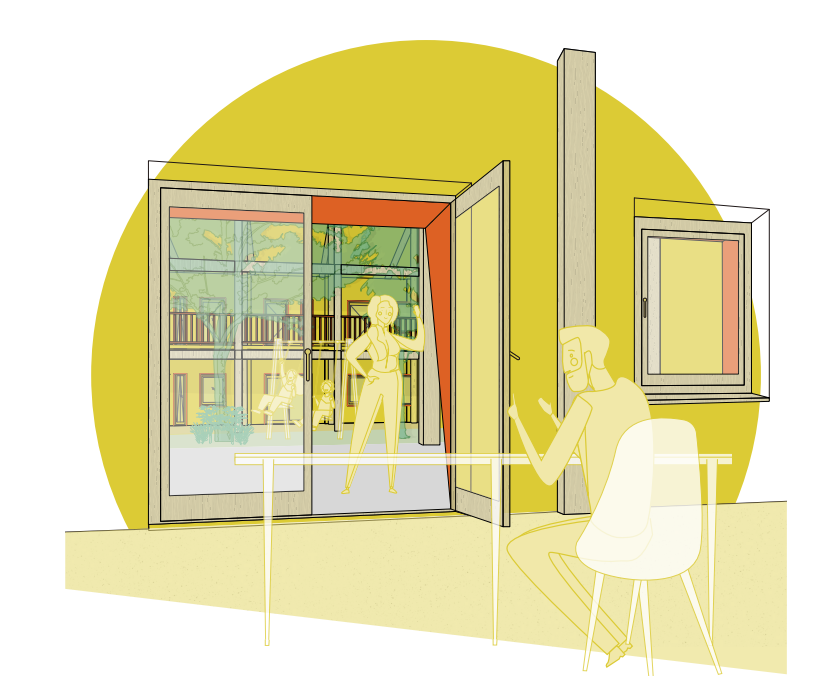
first floor.

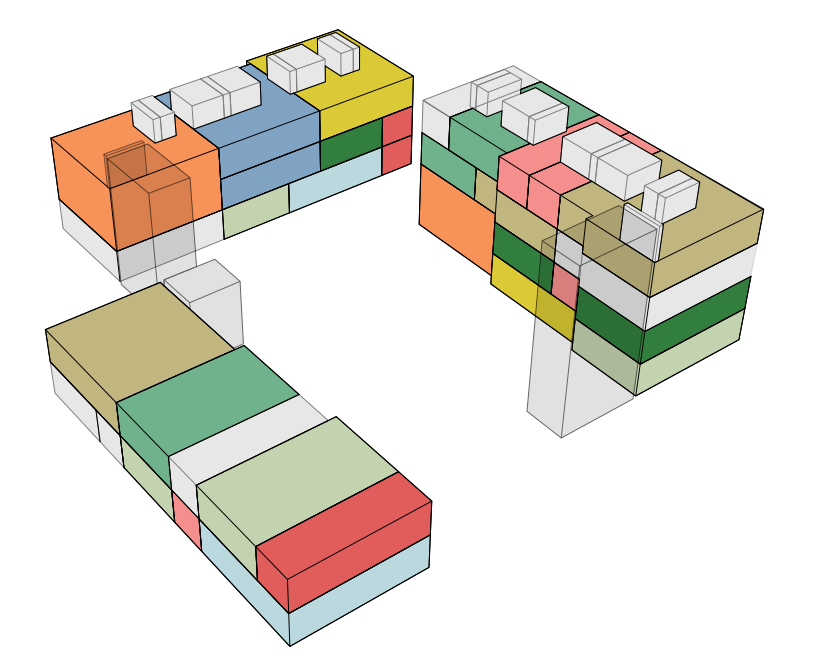

+18615 highest point
+12950 roof ridge
0 ground level
3700
6200
4050

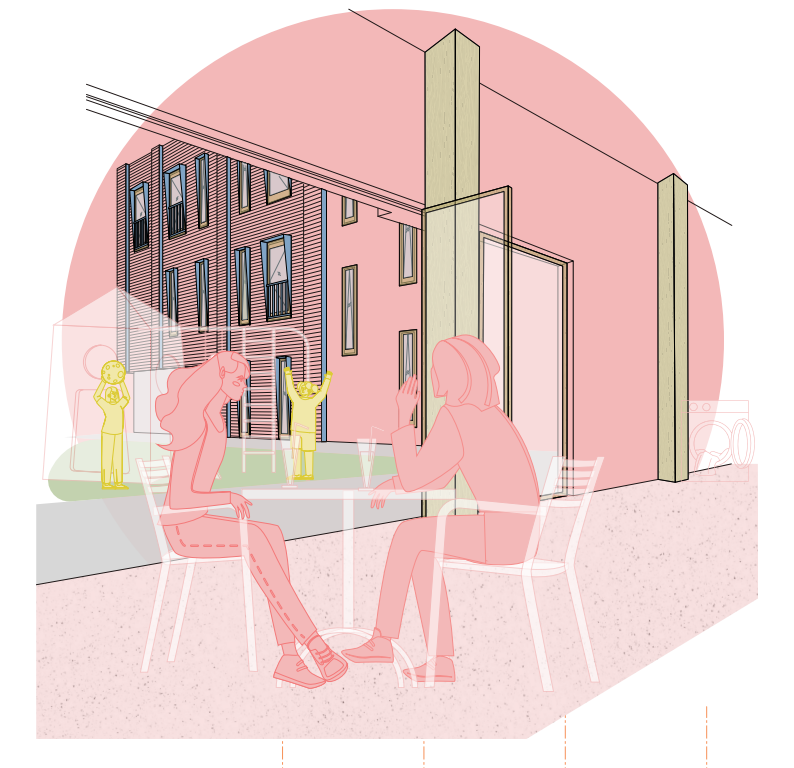
section bb'.

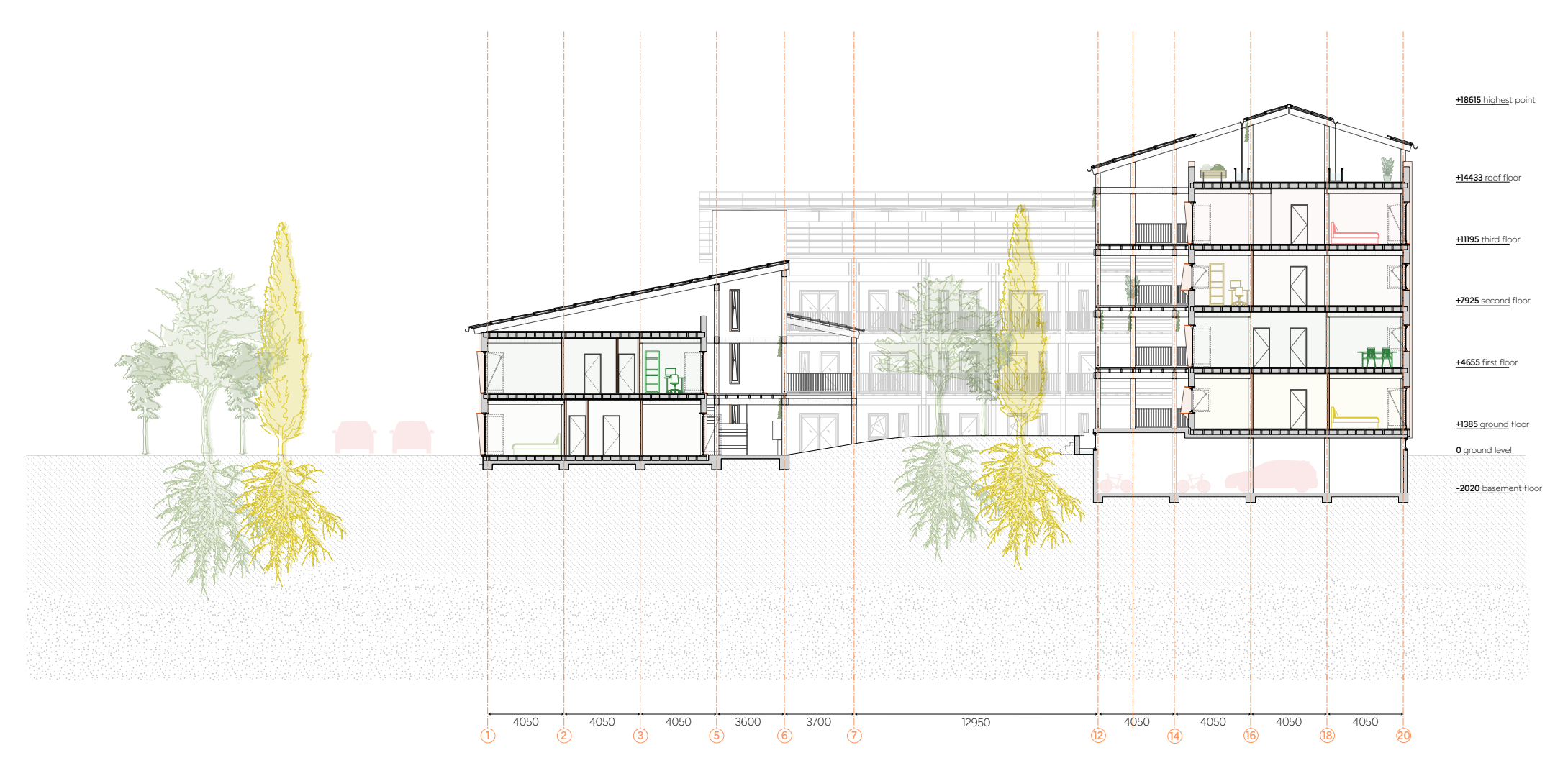


south-west façade.

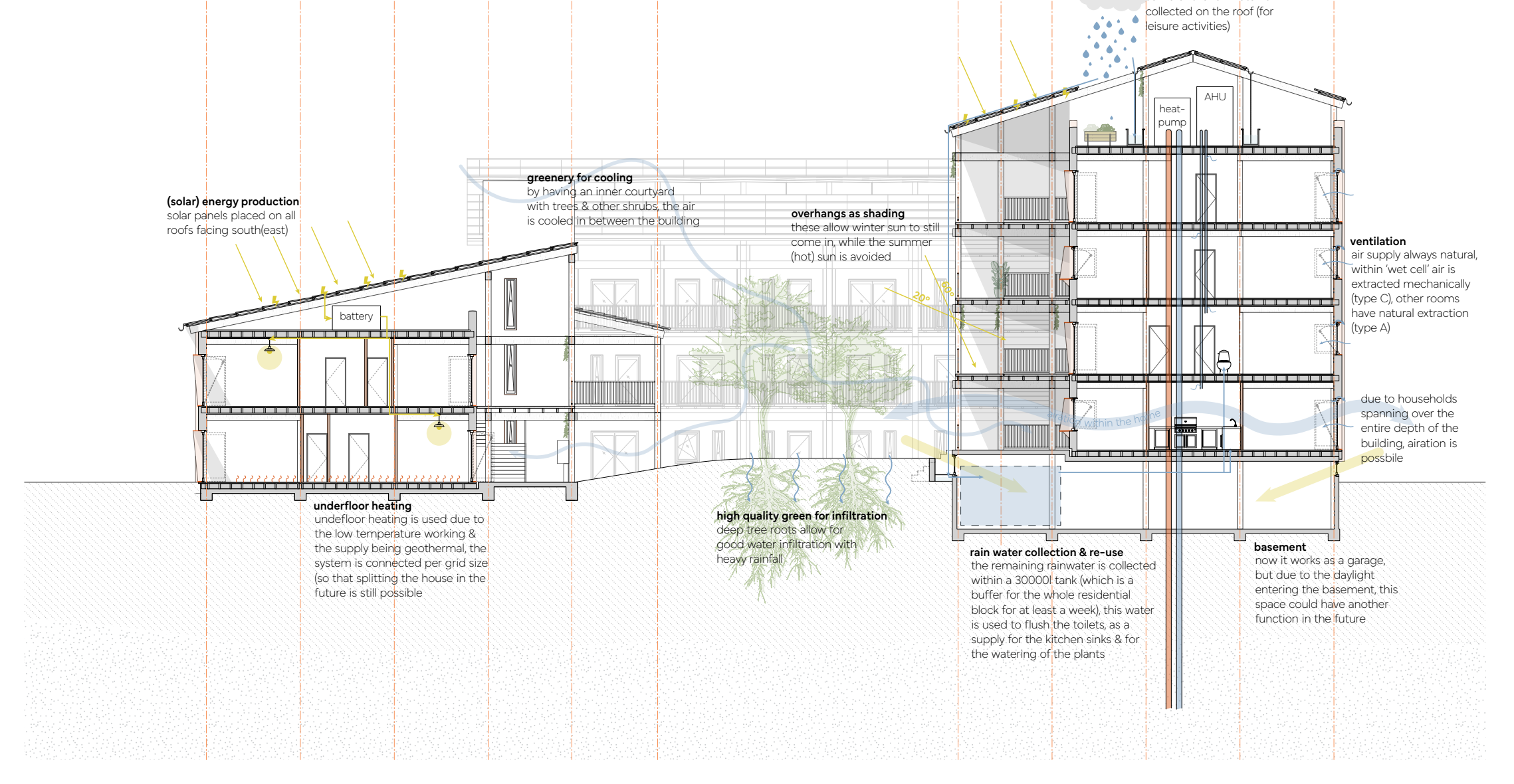







+18615 highest point
+14433 roof floor
+11195 third floor
+7925 second floor
+4655 first floor
+1385 ground floor
0 ground level
-2020 basement floor
4050
3600
3700
12950

section aa'.


battery
heat-pump
AHU

rain water collection
some of the rainwater is collected on the roof (for leisure activities)

(solar) energy production
solar panels placed on all roofs facing south(east)

greenery for cooling
by having an inner courtyard with trees & other shrubs, the air is cooled in between the building

overhangs as shading
these allow winter sun to still come in, while the summer (hot) sun is avoided

ventilation
air supply always natural, within 'wet cell' air is extracted mechanically (type C), other rooms have natural extraction (type A)

due to households spanning over the entire depth of the building, airation is possible

underfloor heating
underfloor heating is used due to the low temperature working & the supply being geothermal, the system is connected per grid size (so that splitting the house in the future is still possible

high quality green for infiltration
deep tree roots allow for good water infiltration with heavy rainfall

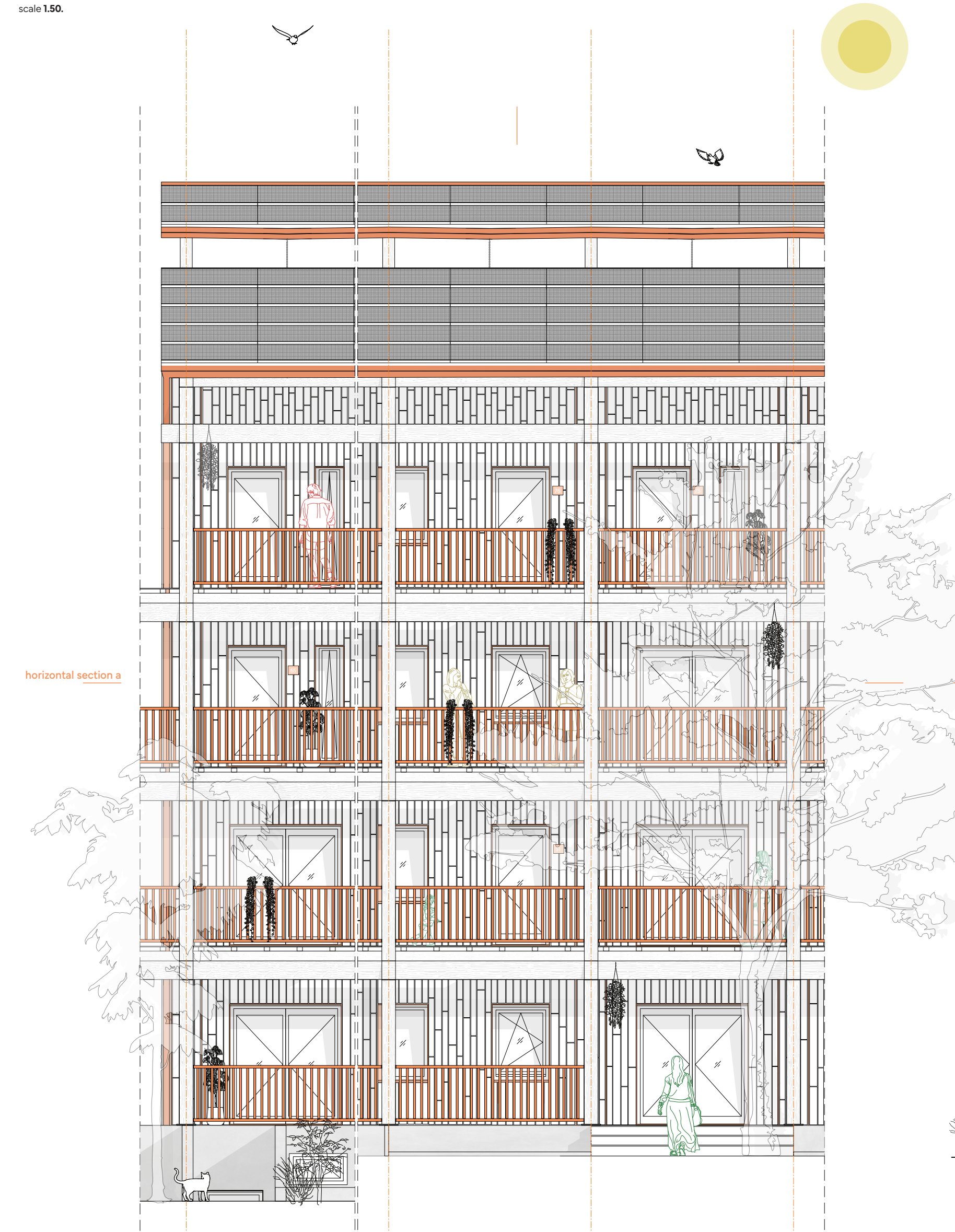
rain water collection & re-use
the remaining rainwater is collected within a 30000l tank (which is a buffer for the whole residential block for at least a week), this water is used to flush the toilets, as a supply for the kitchen sinks & for the watering of the plants

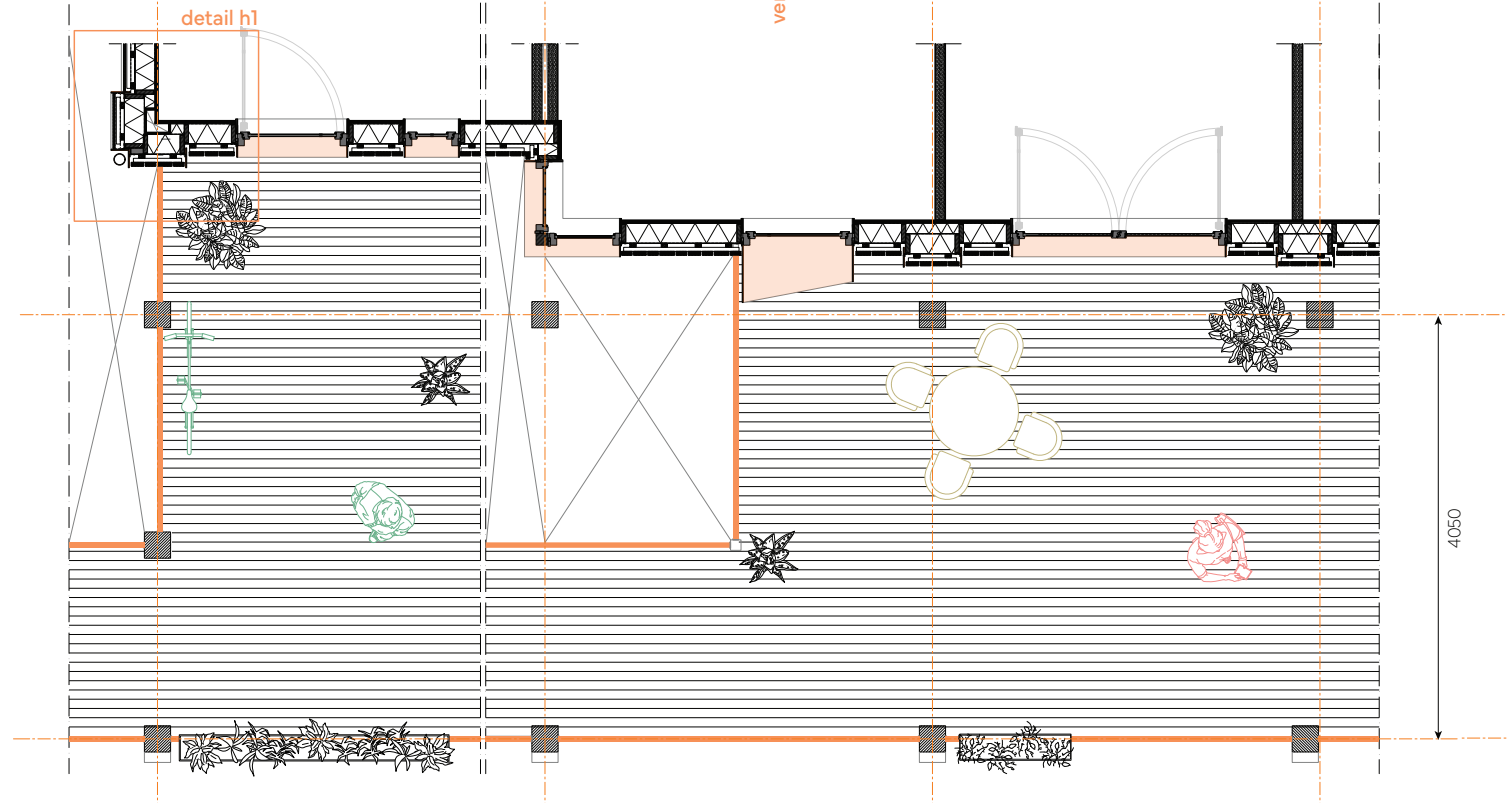
basement
now it works as a garage, but due to the daylight entering the basement, this space could have another function in the future

climate duagram.

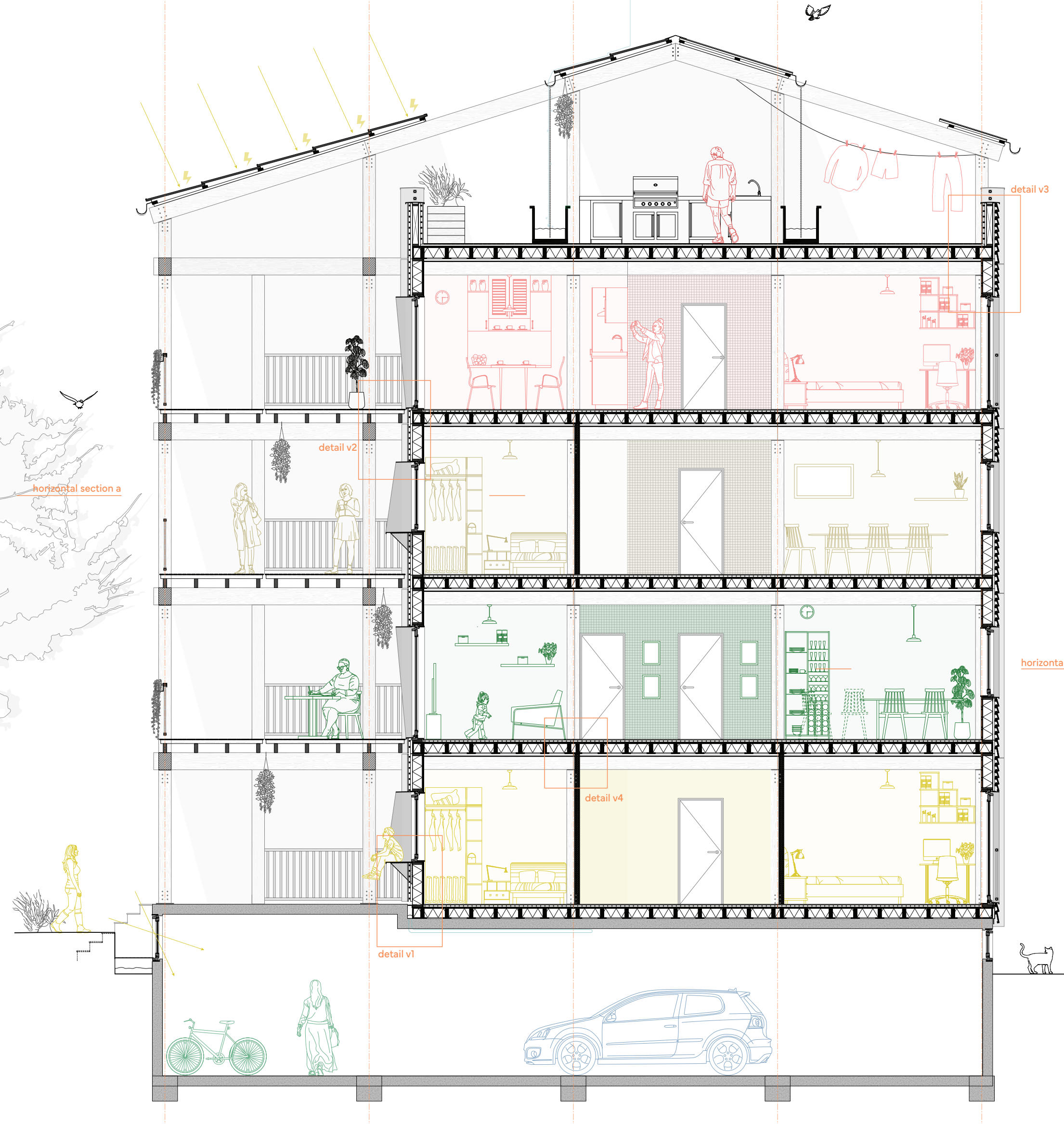
materialisation.

scale **1.50.**


horizontal section a
horizontal section a

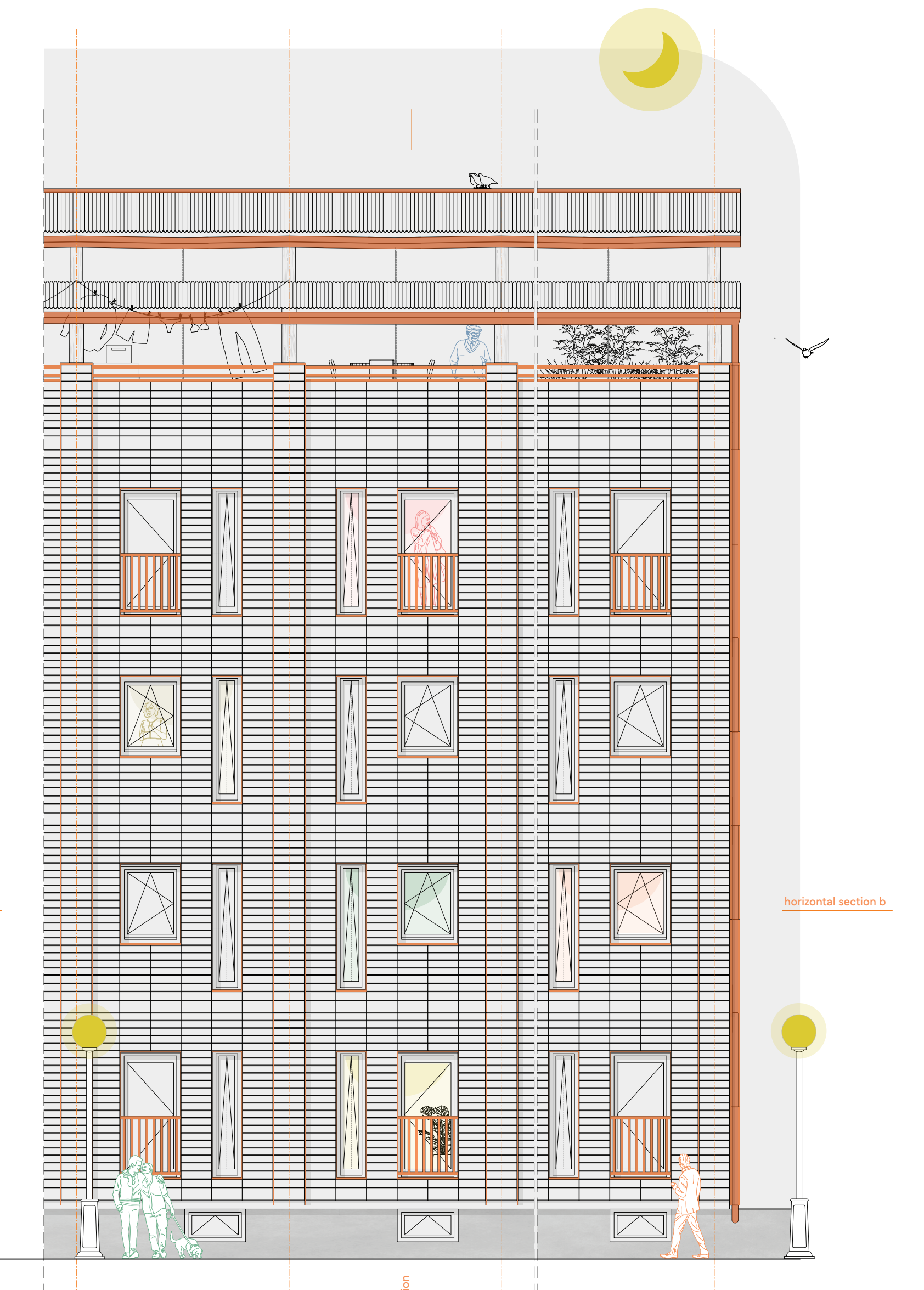

detail h1
vertical section
3700
4050

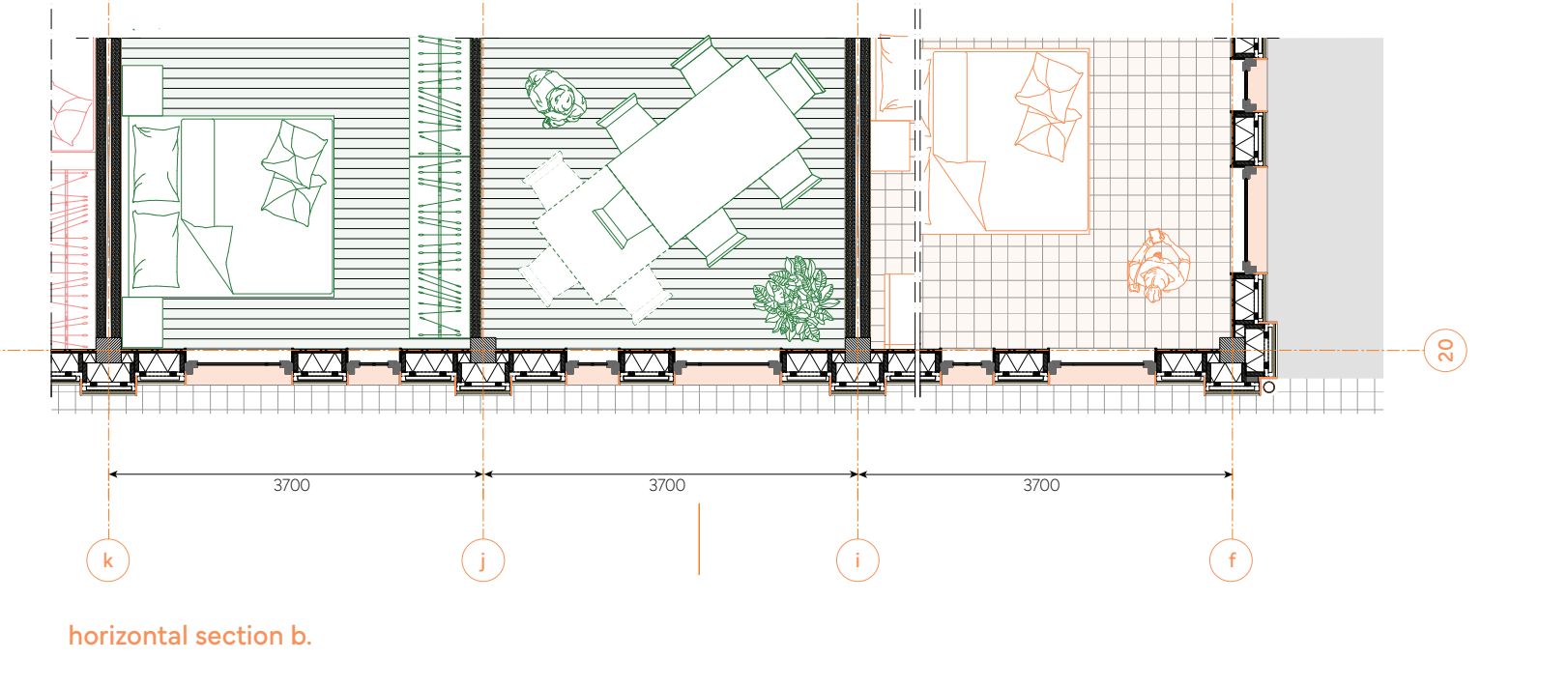
horizontal section a.


detail v3
detail v2
detail v1
detail v4
horizontal section a
horizontal section b
4050

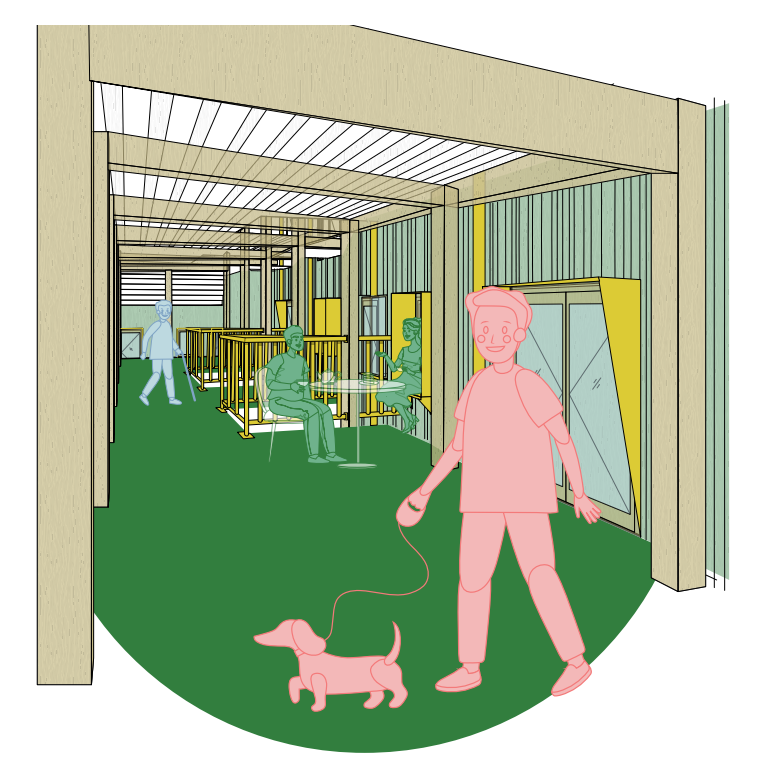
+18615 highest point of the building
+17485 top of roof super structure column
+16217 top of roof super structure column
+15595 top of railing
+15310 bottom of railing
+14433 roof finish
+14180 start roof structure
+13860 bottom of beam
+13470 top of balcony door sill
+11195 third floor finish
+10910 start floor structure
+10590 bottom of beam
+10170 top of window sill
+8755 bottom of window sill
+7925 second floor finish
+7640 start floor structure
+7320 bottom of beam
+6900 top of window sill
+5485 bottom of window sill
+4655 first floor finish
+4370 start floor structure
+4050 bottom of beam
+3660 top of balcony door sill
+1385 ground floor finish
+1100 top of concrete basement
+900 basement ceiling
+250 basement window
0 ground level
-2020 basement floor
-2220 bottom of concrete basement
-2520 bottom of concrete foundation

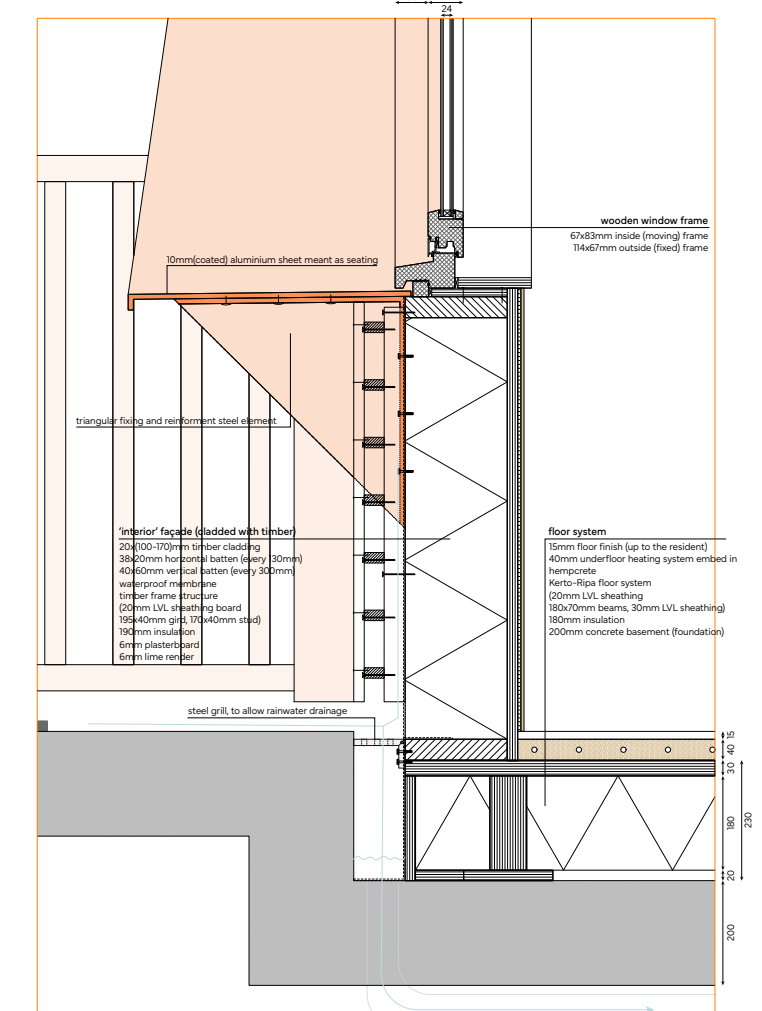
vertical section.


horizontal section b
horizontal section b

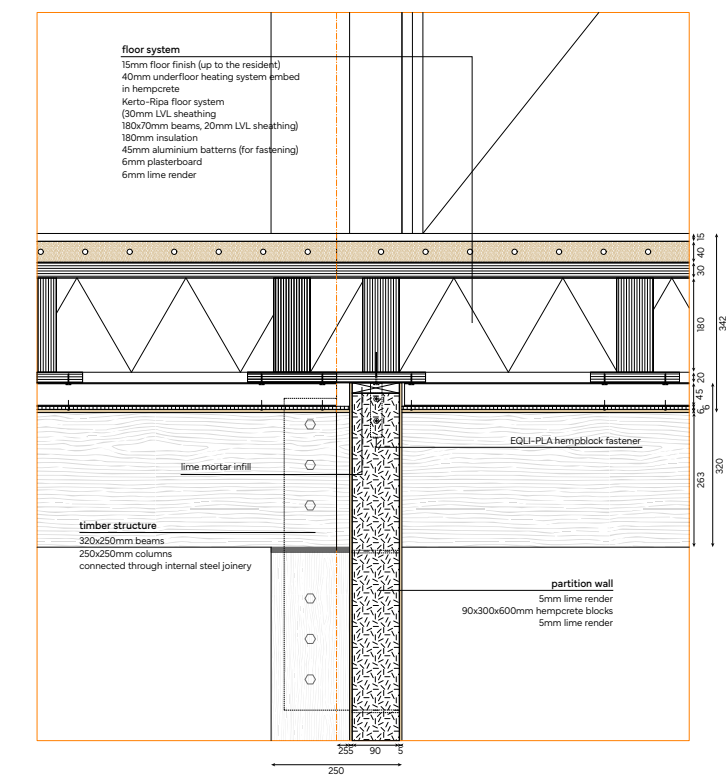

vertical section
3700

horizontal section b.

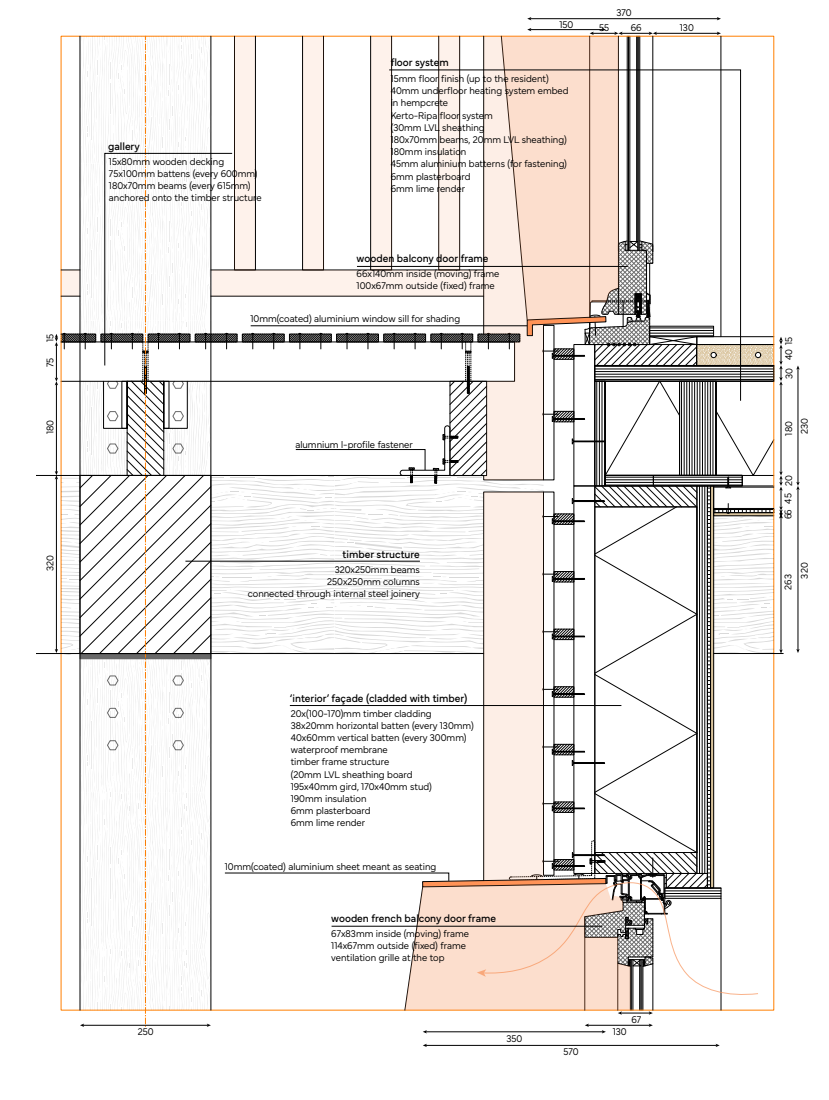



510
260
63
67
24
wooden window frame
67x83mm inside (moving) frame
114x67mm outside (fixed) frame
10mm(coated) aluminium sheet meant as seating
triangular fixing and reinforment steel element
'interior' façade (cladded with timber)
20x(100-170)mm timber cladding
38x20mm horizontal batten (every 130mm)
40x60mm vertical batten (every 300mm)
waterproof membrane
timber frame structure
(20mm LVL sheathing board
195x40mm gird, 170x40mm stud)
190mm insulation
6mm plasterboard
6mm lime render
floor system
15mm floor finish (up to the resident)
40mm underfloor heating system embed in hempcrete
Kerto-Ripa floor system
(20mm LVL sheathing
180x70mm beams, 30mm LVL sheathing)
180mm insulation
200mm concrete basement (foundation)
steel grill, to allow rainwater drainage
rainwater drained & stored in basin

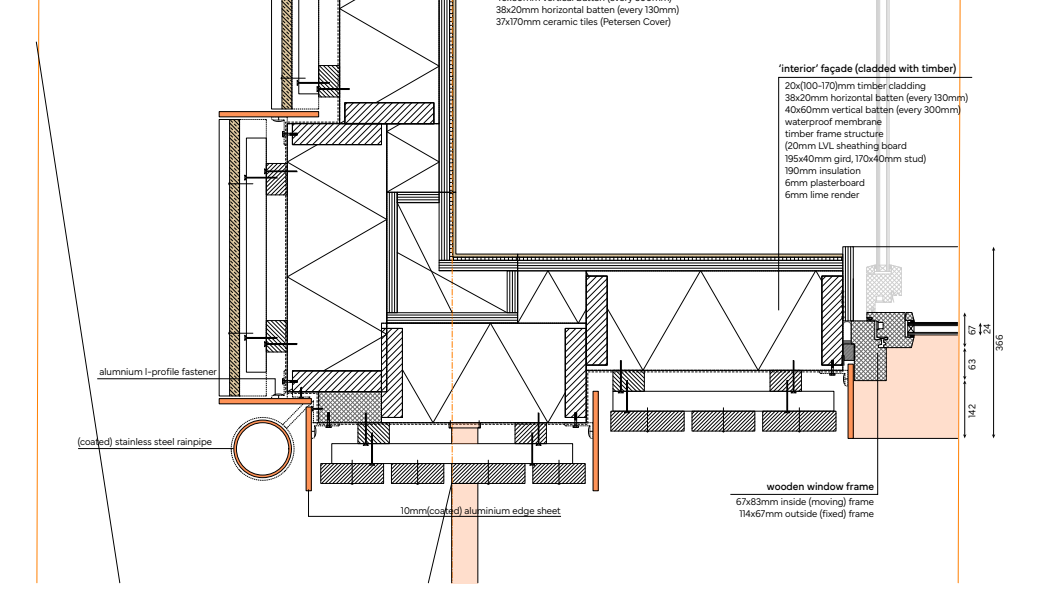
detail v1.
scale **1.10.**


floor system
15mm floor finish (up to the resident)
40mm underfloor heating system embed in hempcrete
Kerto-Ripa floor system
(30mm LVL sheathing
180x70mm beams, 20mm LVL sheathing)
180mm insulation
45mm aluminium batterns (for fastening)
6mm plasterboard
6mm lime render
EQLI-PLA hempblock fastener
lime mortar infill
timber structure
320x250mm beams
250x250mm columns
connected through internal steel joinery
partition wall
5mm lime render
90x300x600mm hempcrete blocks
5mm lime render
342
320
263
250

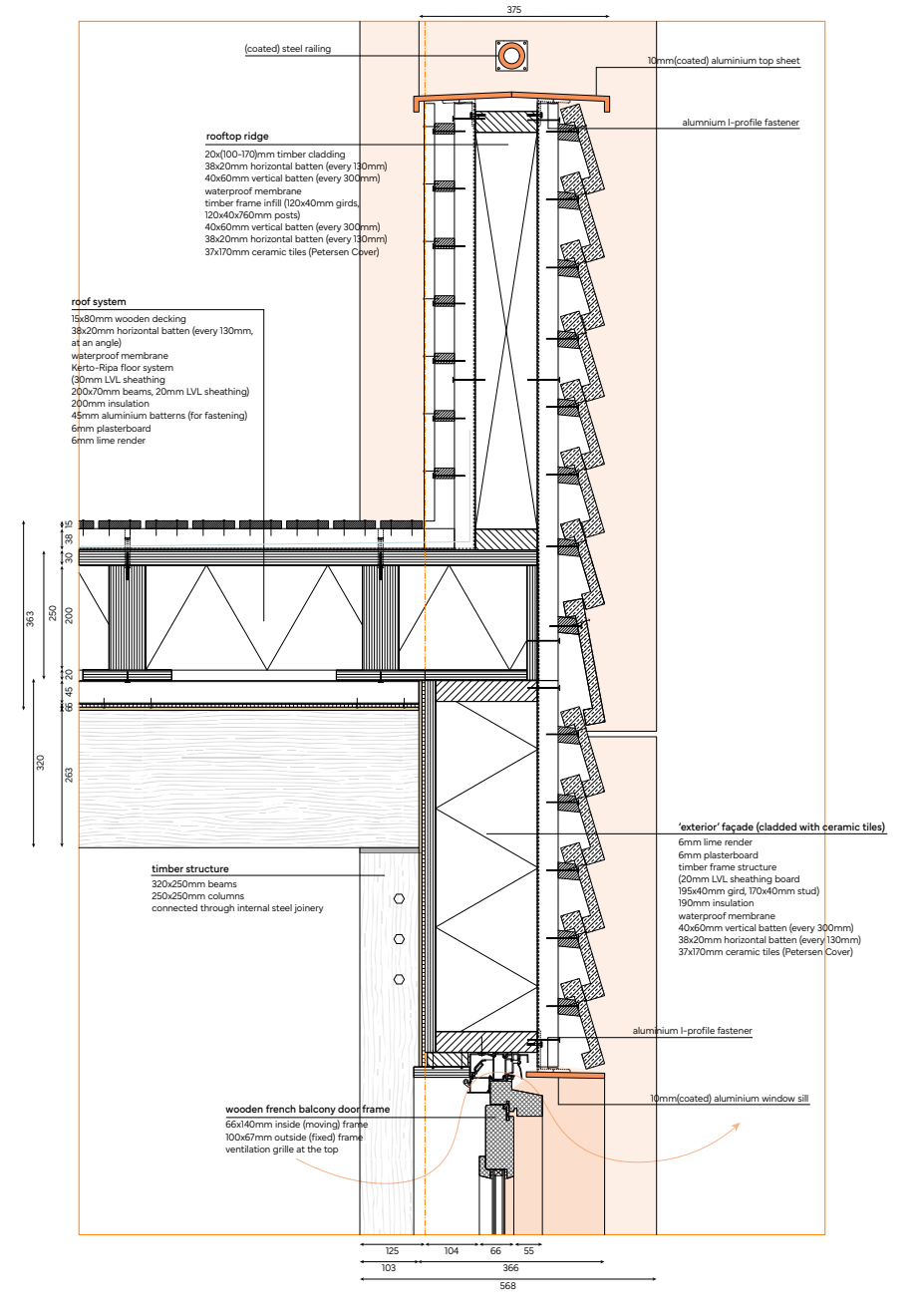
detail v4.
scale **1.10.**


370
150
55
66
130
floor system
15mm floor finish (up to the resident)
40mm underfloor heating system embed in hempcrete
Kerto-Ripa floor system
(30mm LVL sheathing
180x70mm beams, 20mm LVL sheathing)
180mm insulation
45mm aluminium batterns (for fastening)
6mm plasterboard
6mm lime render
gallery
15x80mm wooden decking
75x100mm battens (every 600mm)
180x70mm beams (every 615mm)
anchored onto the timber structure
wooden balcony door frame
66x140mm inside (moving) frame
100x67mm outside (fixed) frame
10mm(coated) aluminium window sill for shading
alumnium I-profile fastener
timber structure
320x250mm beams
250x250mm columns
connected through internal steel joinery
'interior' façade (cladded with timber)
20x(100-170)mm timber cladding
38x20mm horizontal batten (every 130mm)
40x60mm vertical batten (every 300mm)
waterproof membrane
timber frame structure
(20mm LVL sheathing board
195x40mm gird, 170x40mm stud)
190mm insulation
6mm plasterboard
6mm lime render
10mm(coated) aluminium sheet meant as seating
wooden french balcony door frame
67x83mm inside (moving) frame
114x67mm outside (fixed) frame
ventilation grille at the top
250
350
570

detail v2.
scale **1.10.**


352
190
'exterior' façade (cladded with ceramic tiles)
6mm lime render
6mm plasterboard
timber frame structure
(20mm LVL sheathing board
195x40mm gird, 170x40mm stud)
190mm insulation
waterproof membrane
40x60mm vertical batten (every 300mm)
38x20mm horizontal batten (every 130mm)
37x170mm ceramic tiles (Petersen Cover)
'interior' façade (cladded with timber)
20x(100-170)mm timber cladding
38x20mm horizontal batten (every 130mm)
40x60mm vertical batten (every 300mm)
waterproof membrane
timber frame structure
(20mm LVL sheathing board
195x40mm gird, 170x40mm stud)
190mm insulation
6mm plasterboard
6mm lime render
alumnium I-profile fastener
(coated) stainless steel rainpipe
10mm(coated) aluminium edge sheet
wooden window frame
67x83mm inside (moving) frame
114x67mm outside (fixed) frame
366

detail h1.
scale **1.10.**


568
375
(coated) steel railing
10mm(coated) aluminium top sheet
alumnium I-profile fastener
rooftop ridge
20x(100-170)mm timber cladding
38x20mm horizontal batten (every 130mm)
40x60mm vertical batten (every 300mm)
waterproof membrane
timber frame infill (120x40mm girds, 120x40x760mm posts)
40x60mm vertical batten (every 300mm)
38x20mm horizontal batten (every 130mm)
37x170mm ceramic tiles (Petersen Cover)
roof system
15x80mm wooden decking
38x20mm horizontal batten (every 130mm, at an angle)
waterproof membrane
Kerto-Ripa floor system
(30mm LVL sheathing
200x70mm beams, 20mm LVL sheathing)
200mm insulation
45mm aluminium batterns (for fastening)
6mm plasterboard
6mm lime render
timber structure
320x250mm beams
250x250mm columns
connected through internal steel joinery
'exterior' façade (cladded with ceramic tiles)
6mm lime render
6mm plasterboard
timber frame structure
(20mm LVL sheathing board
195x40mm gird, 170x40mm stud)
190mm insulation
waterproof membrane
40x60mm vertical batten (every 300mm)
38x20mm horizontal batten (every 130mm)
37x170mm ceramic tiles (Petersen Cover)
aluminium I-profile fastener
10mm(coated) aluminium window sill
wooden french balcony door frame
66x140mm inside (moving) frame
100x67mm outside (fixed) frame
ventilation grille at the top

detail v3.
scale **1.10.**