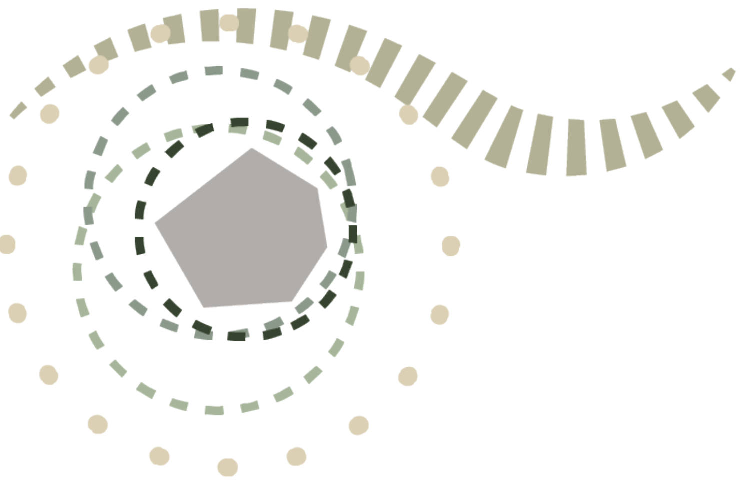
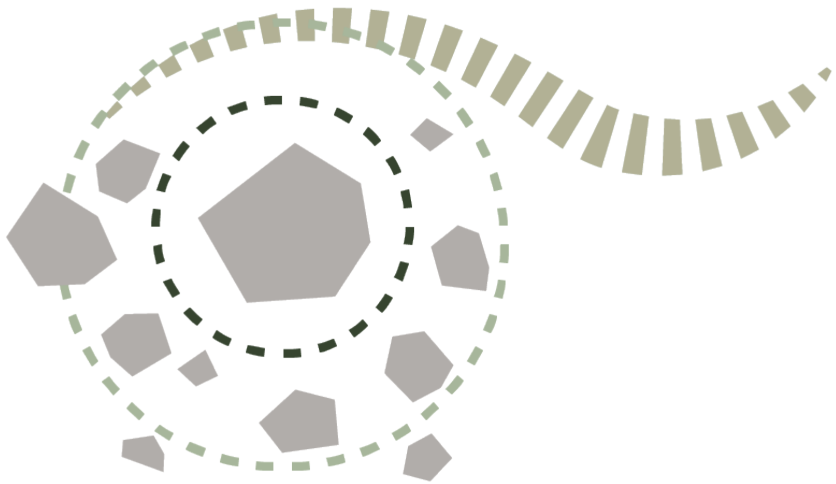
CORNERSTONES

- pl. kamień, kamyk – stone
- pl. kamionka – stone products

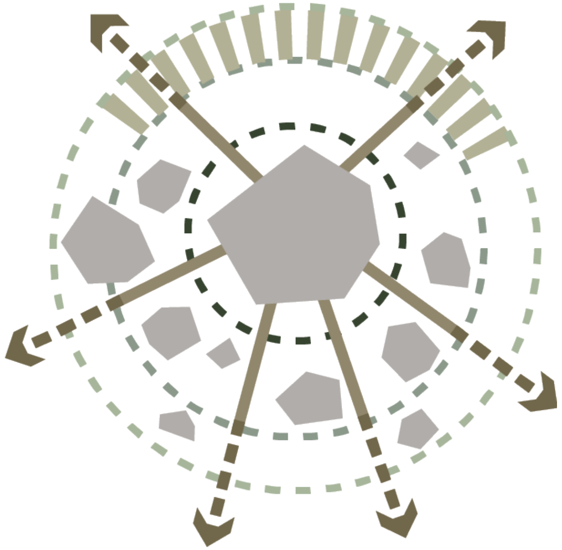
Kamionek district is metaphorically related to stones. Thus, our project mainly focuses on the idea of cornerstones that represents historically significant buildings which we bring to our site from contextual surrounding. To express monumentality and importance of the stones we propose a design of modular dormitories that represent constant change in student life, expression, liveliness, and creativity. Thus, heritage building remains untouched to preserve its origins and uniqueness.



Open space without
certain function

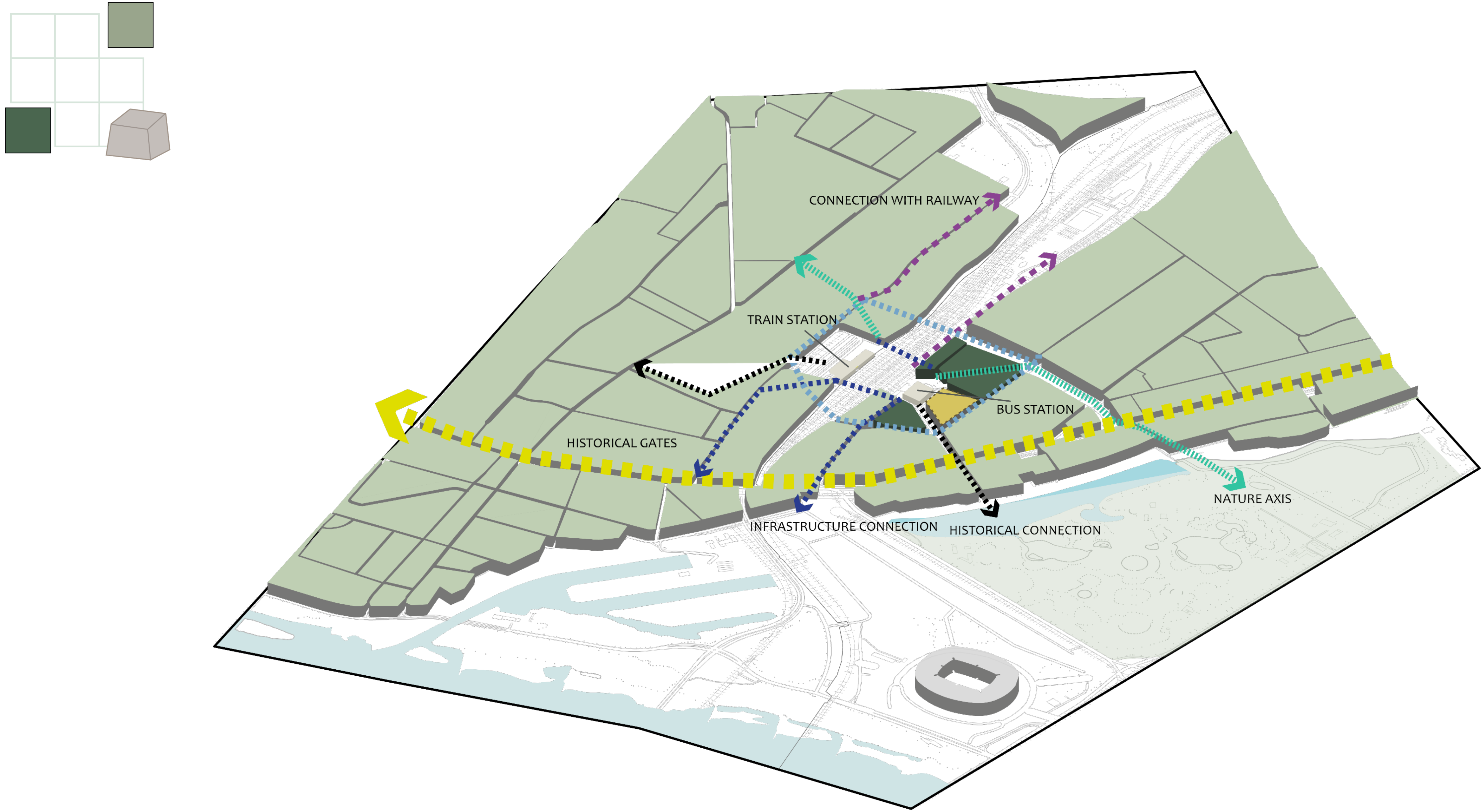


Restructurization

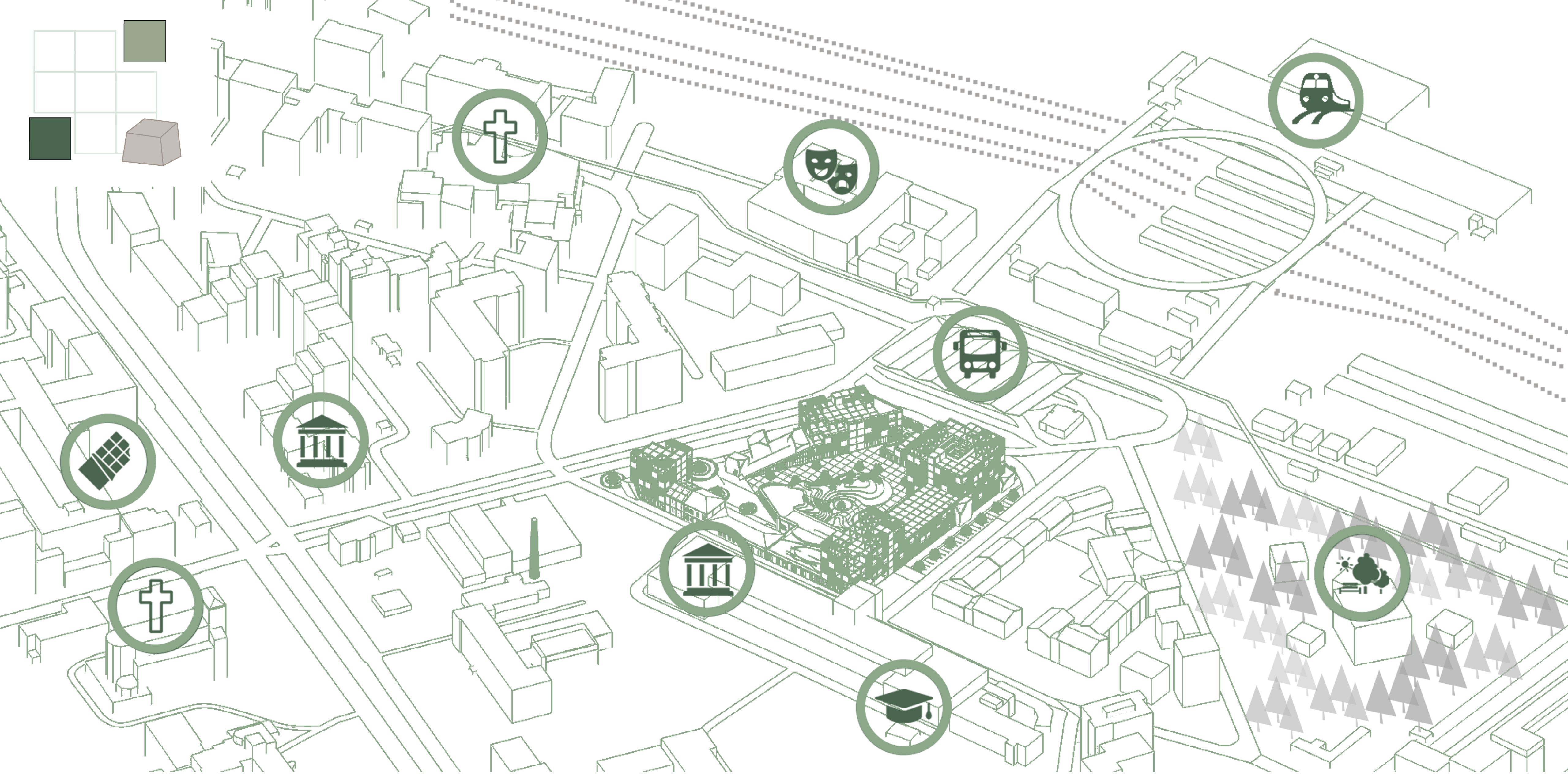


Formation of streets with
unique character

In an active environment stable, “stone like” districts are formed



Axis around nearby districts are given unique character

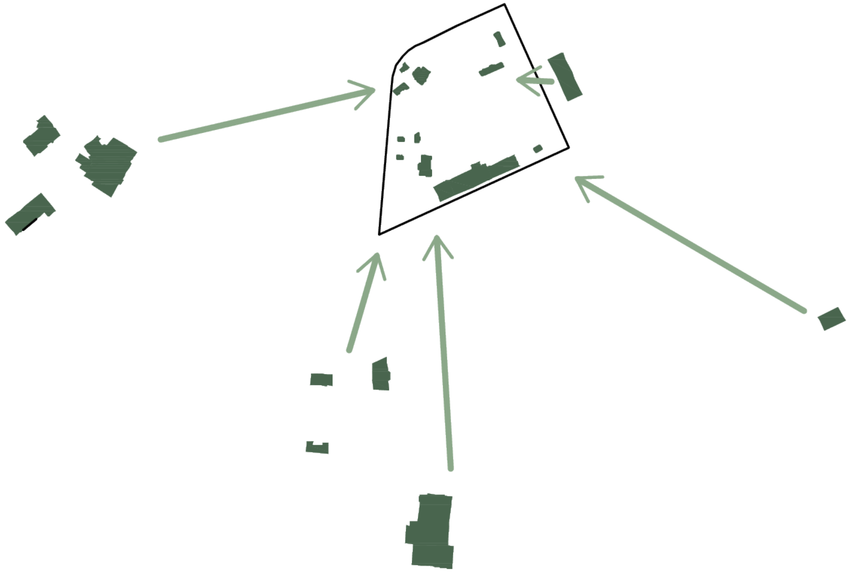
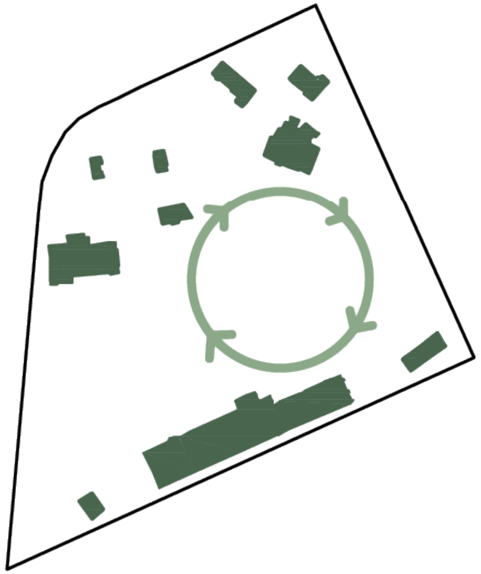


Nearest landmarks and surrounding context

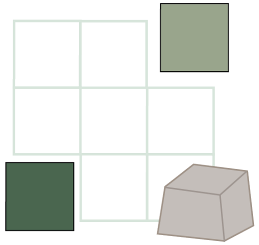


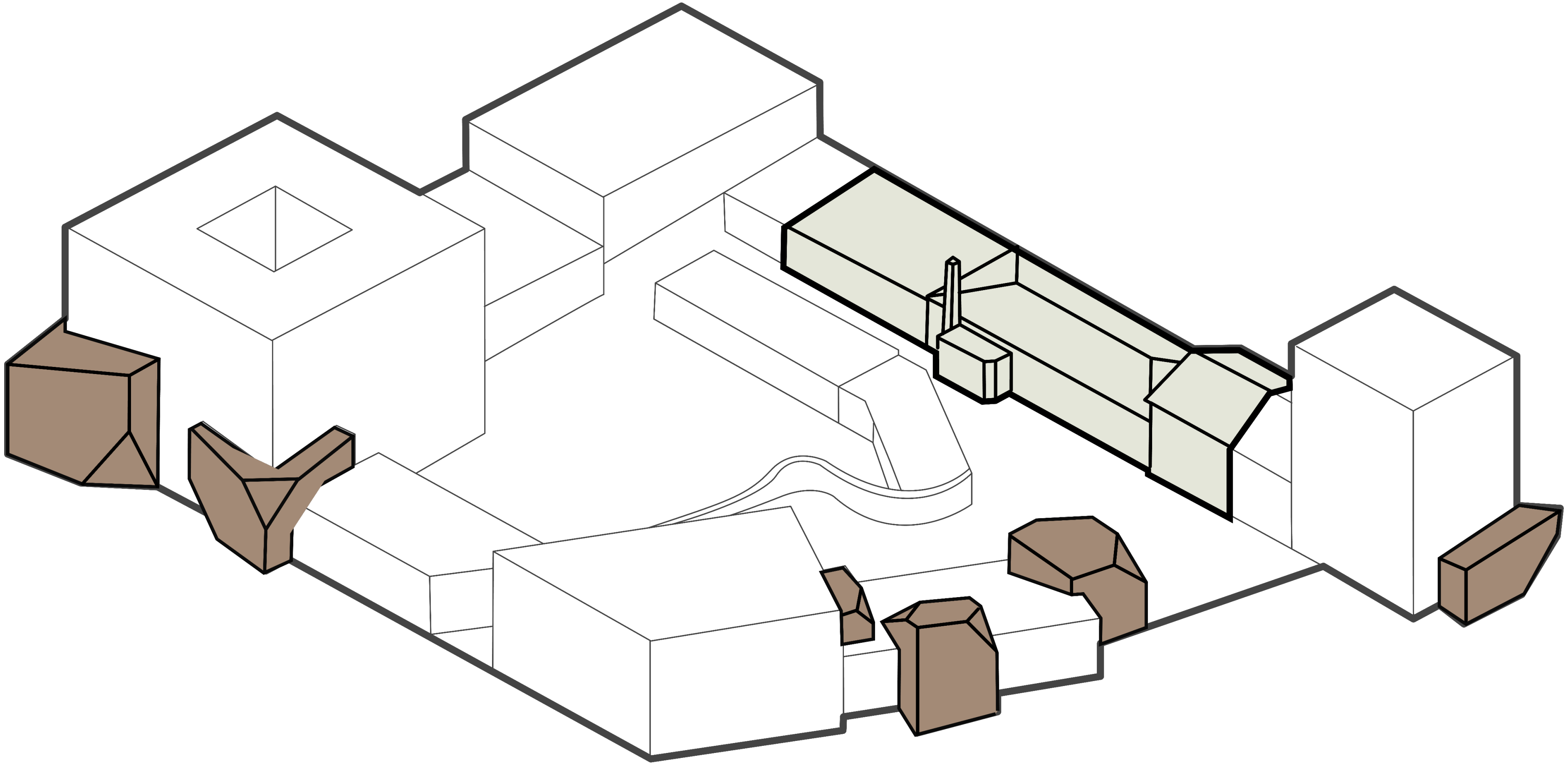




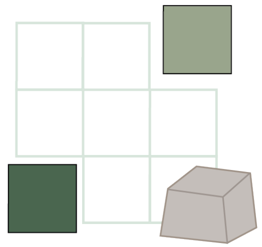



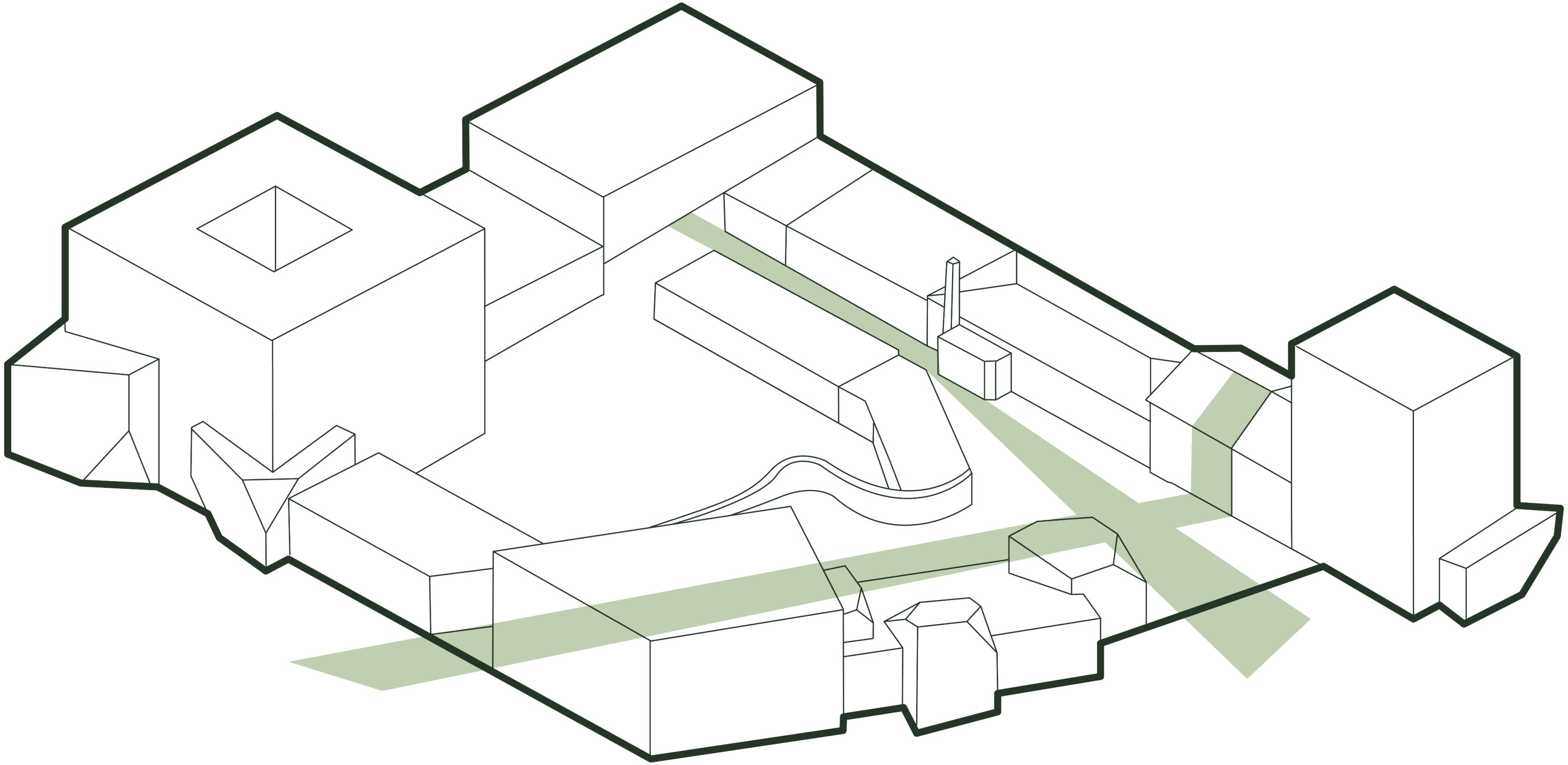
Historical buildings that shapes identity of the area are "brought" into plot and used as a "cornerstones" for the main structure



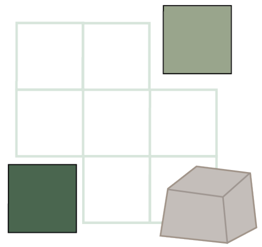


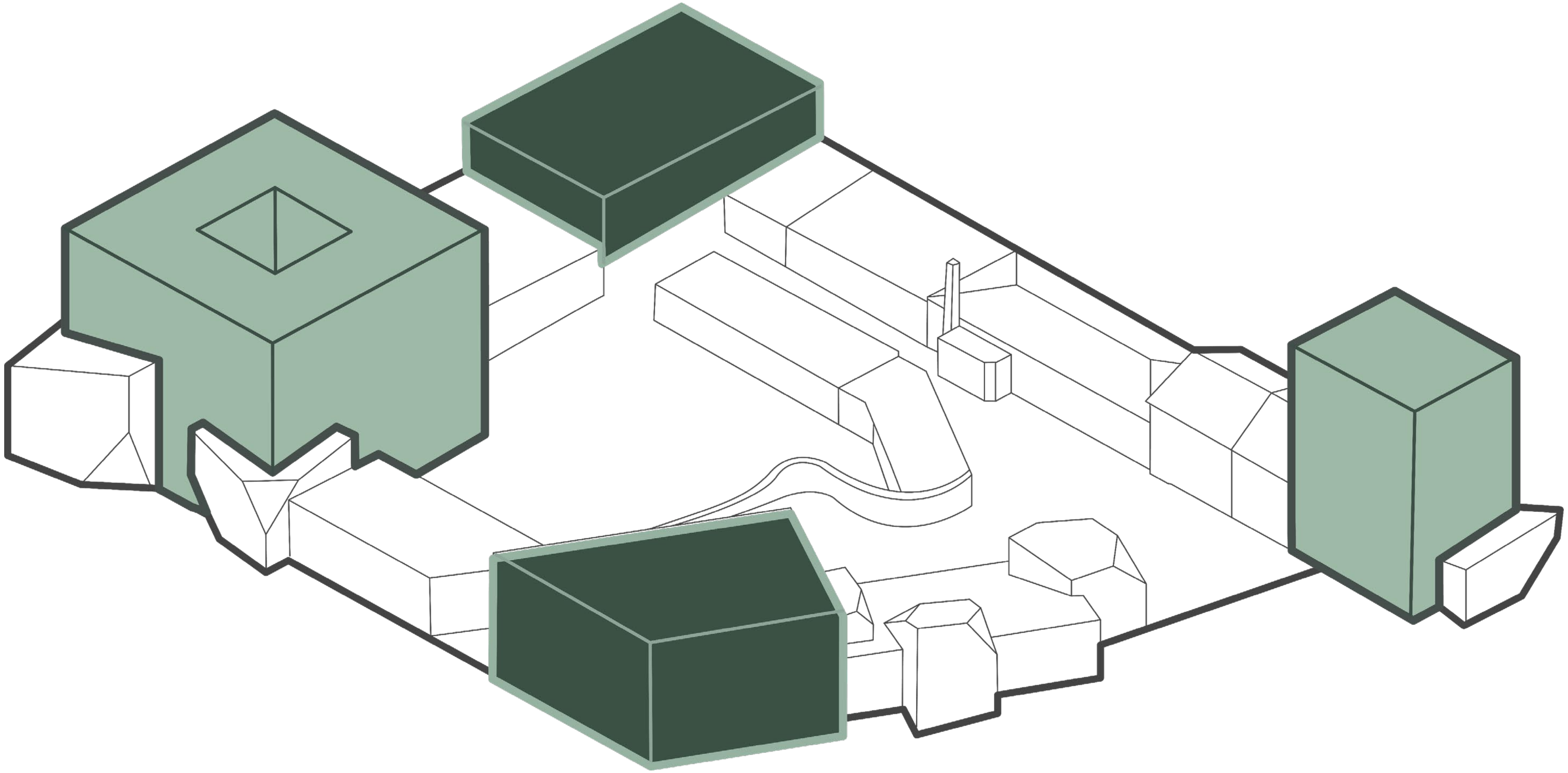
Cornerstones represent historical buildings from surrounding area



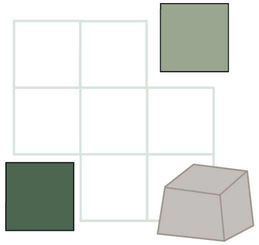


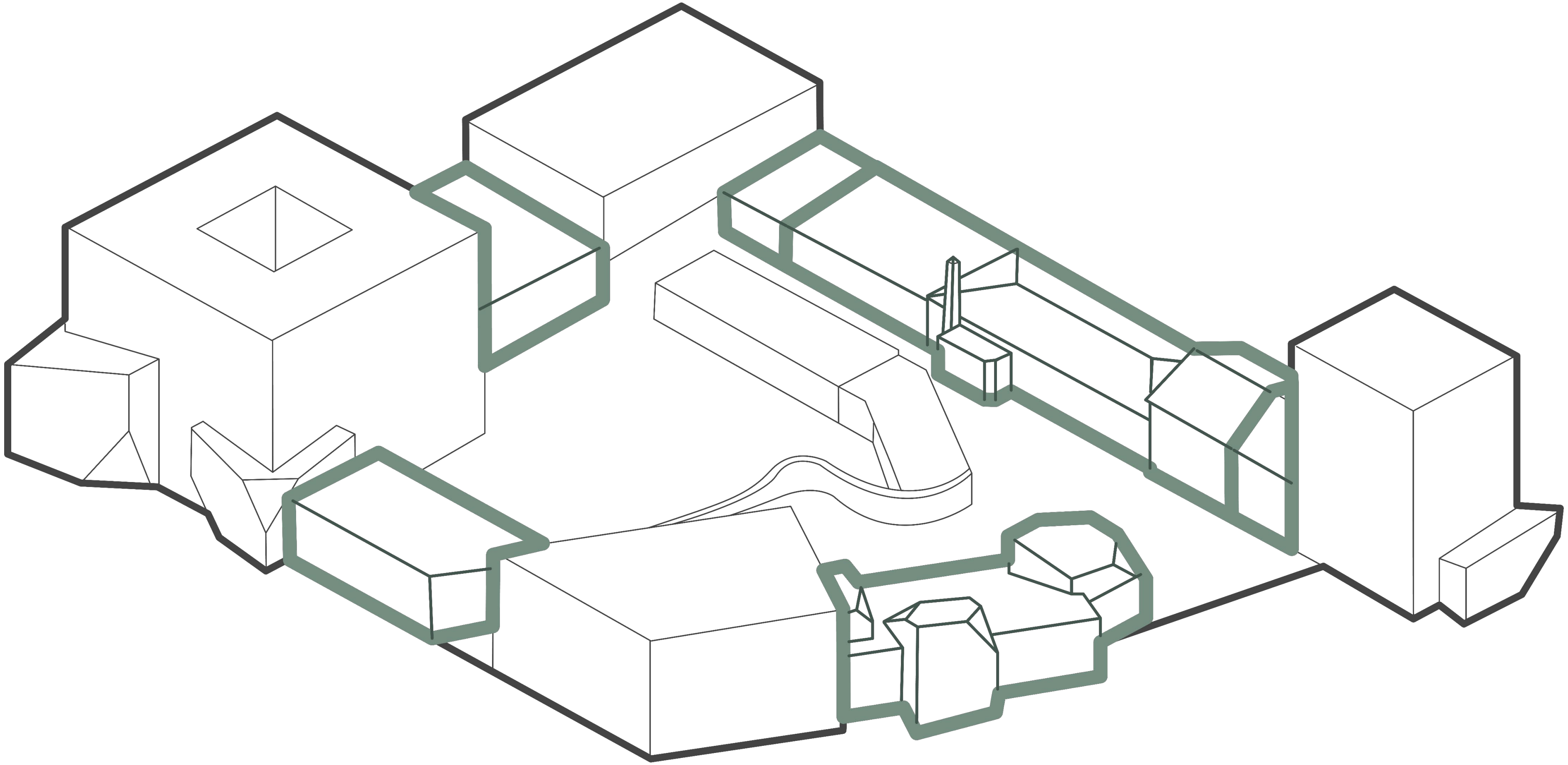
Visual connections with the heritage building



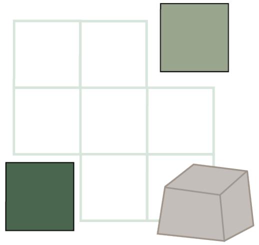


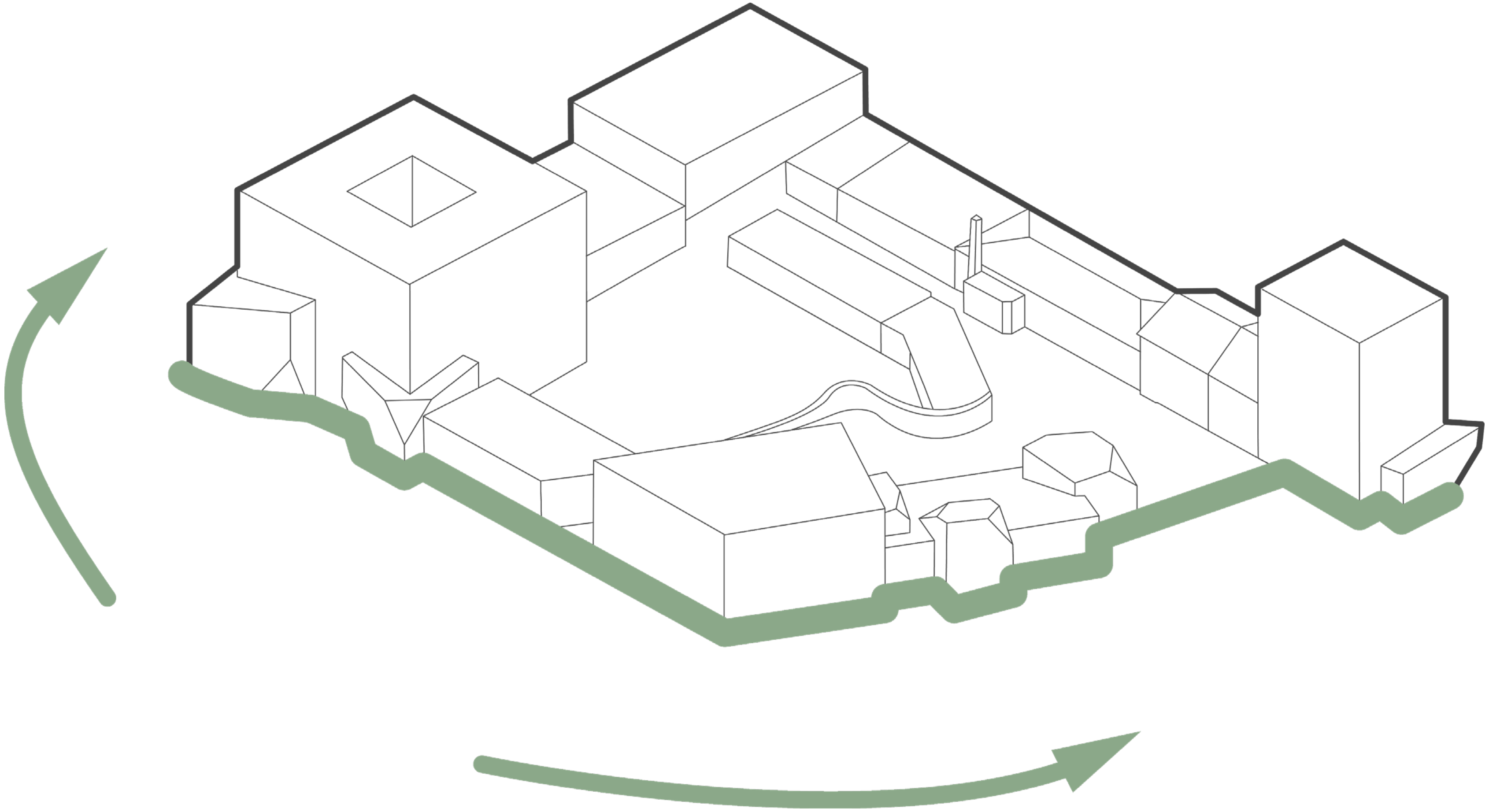
Corner volumes of the plot are used to create distant visual connections



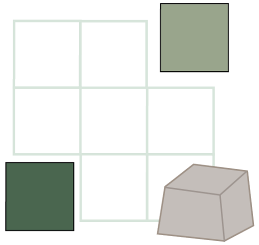


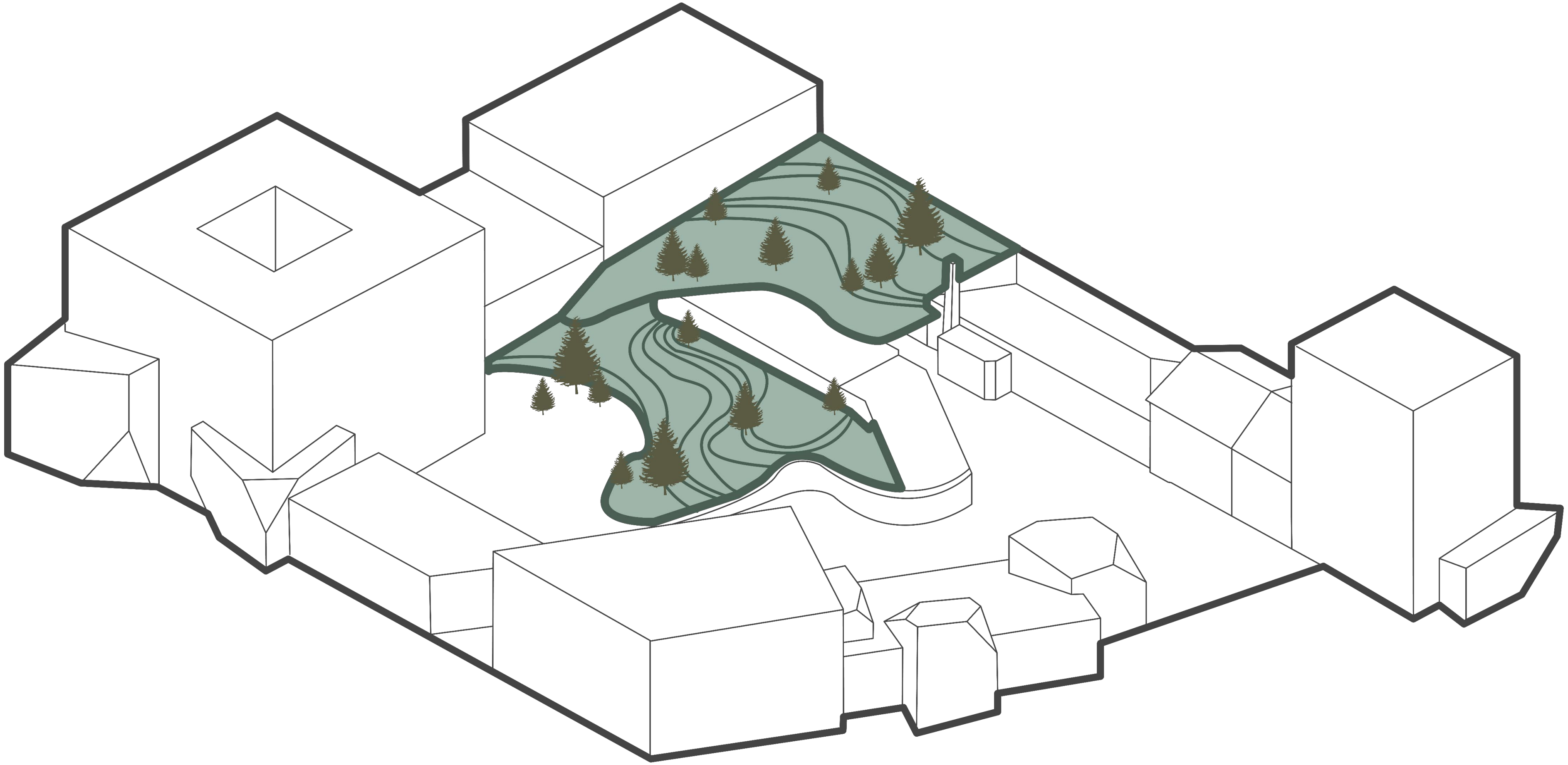
In response to the heritage building a stylobate connecting volumes is formed



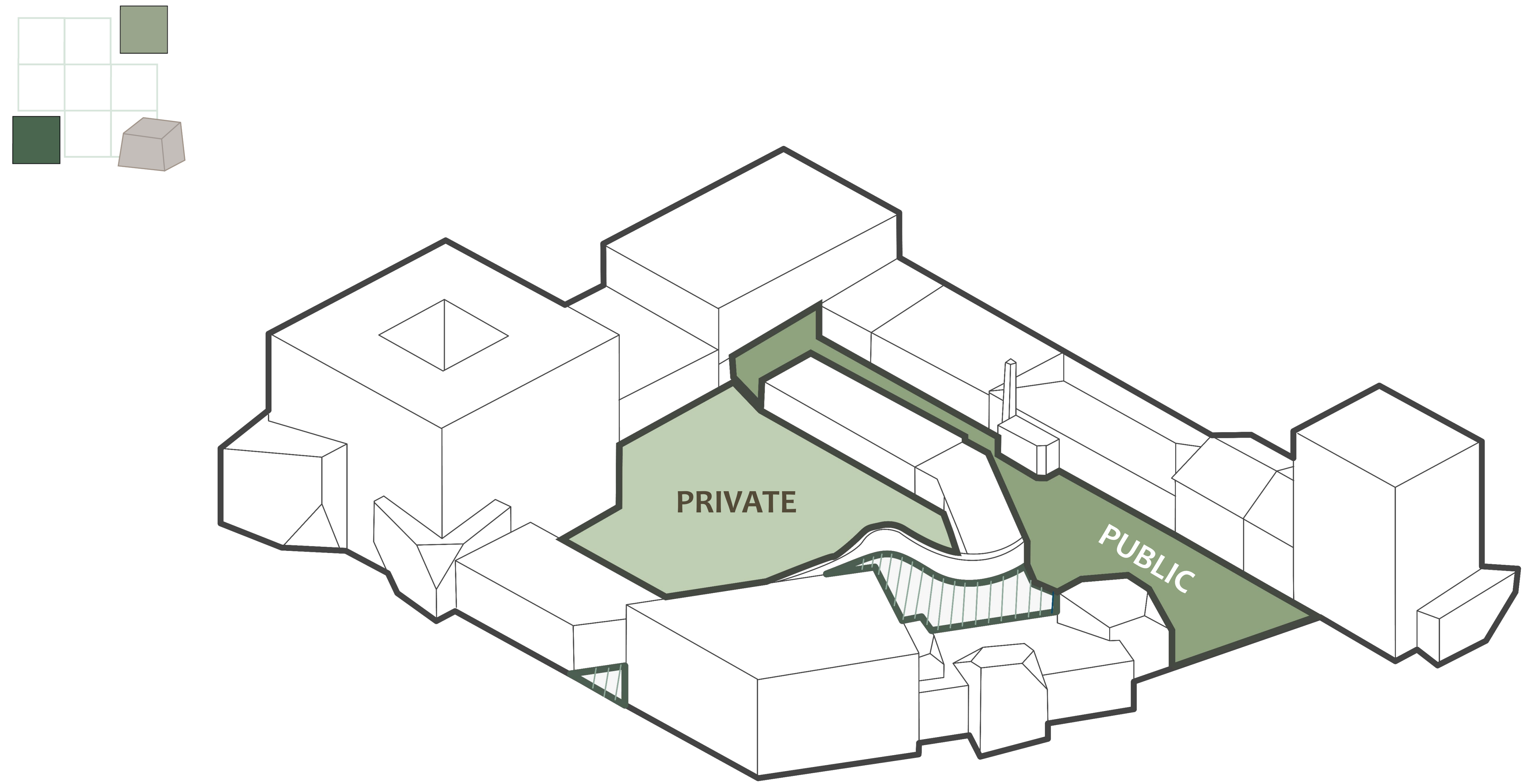


Movement of people is orientated into the main streets

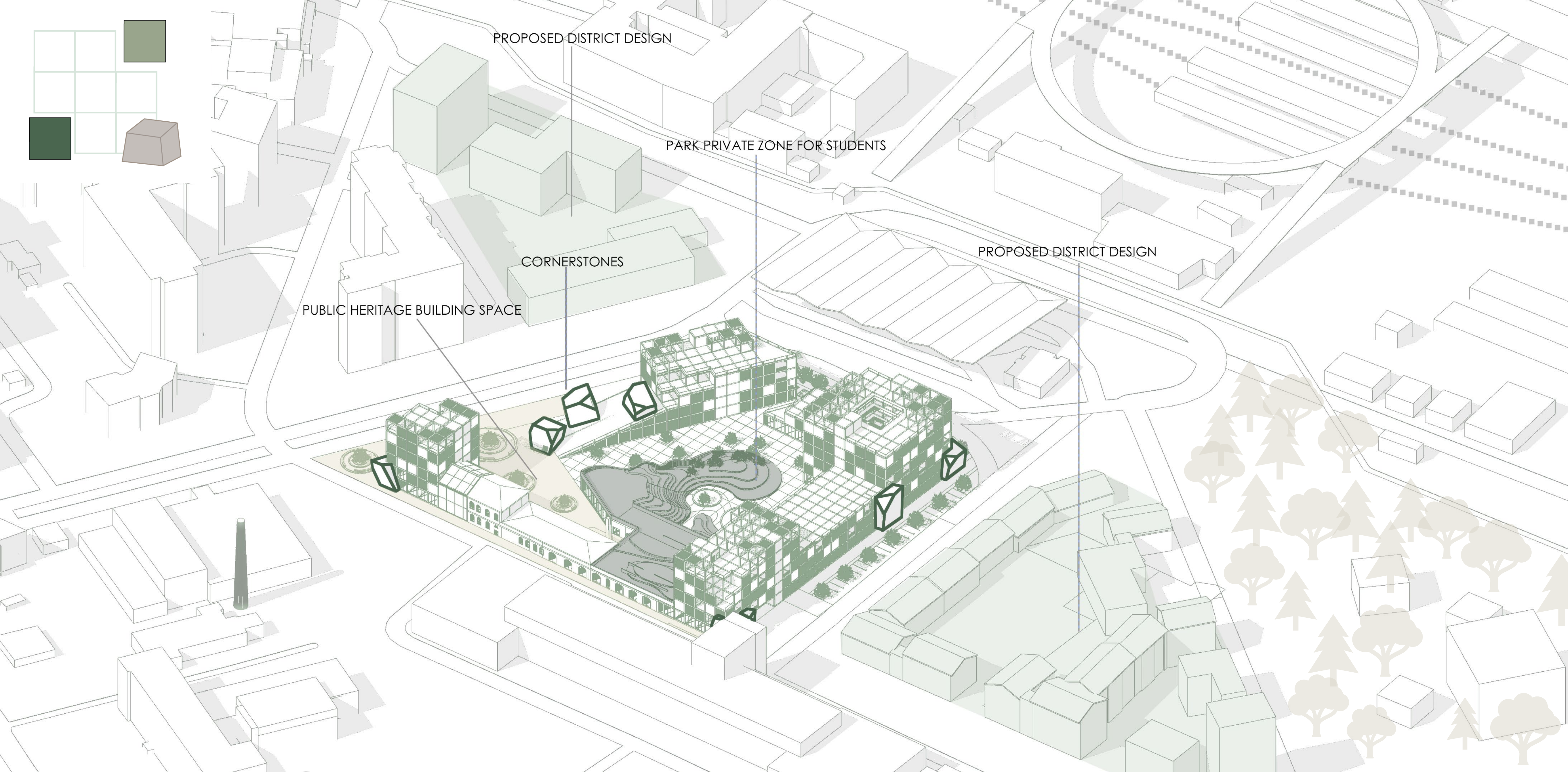




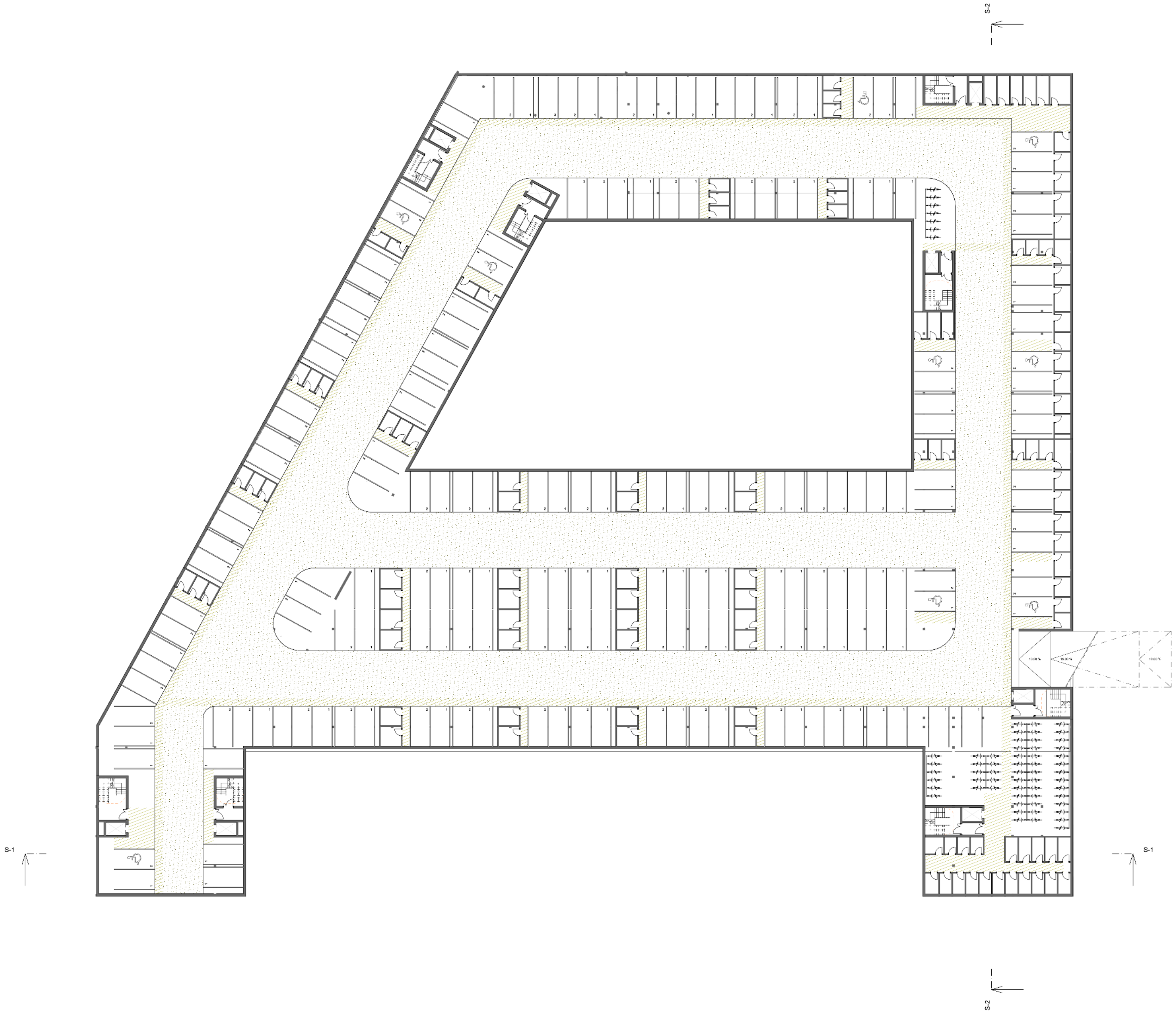
Hill forms various courtyard spaces



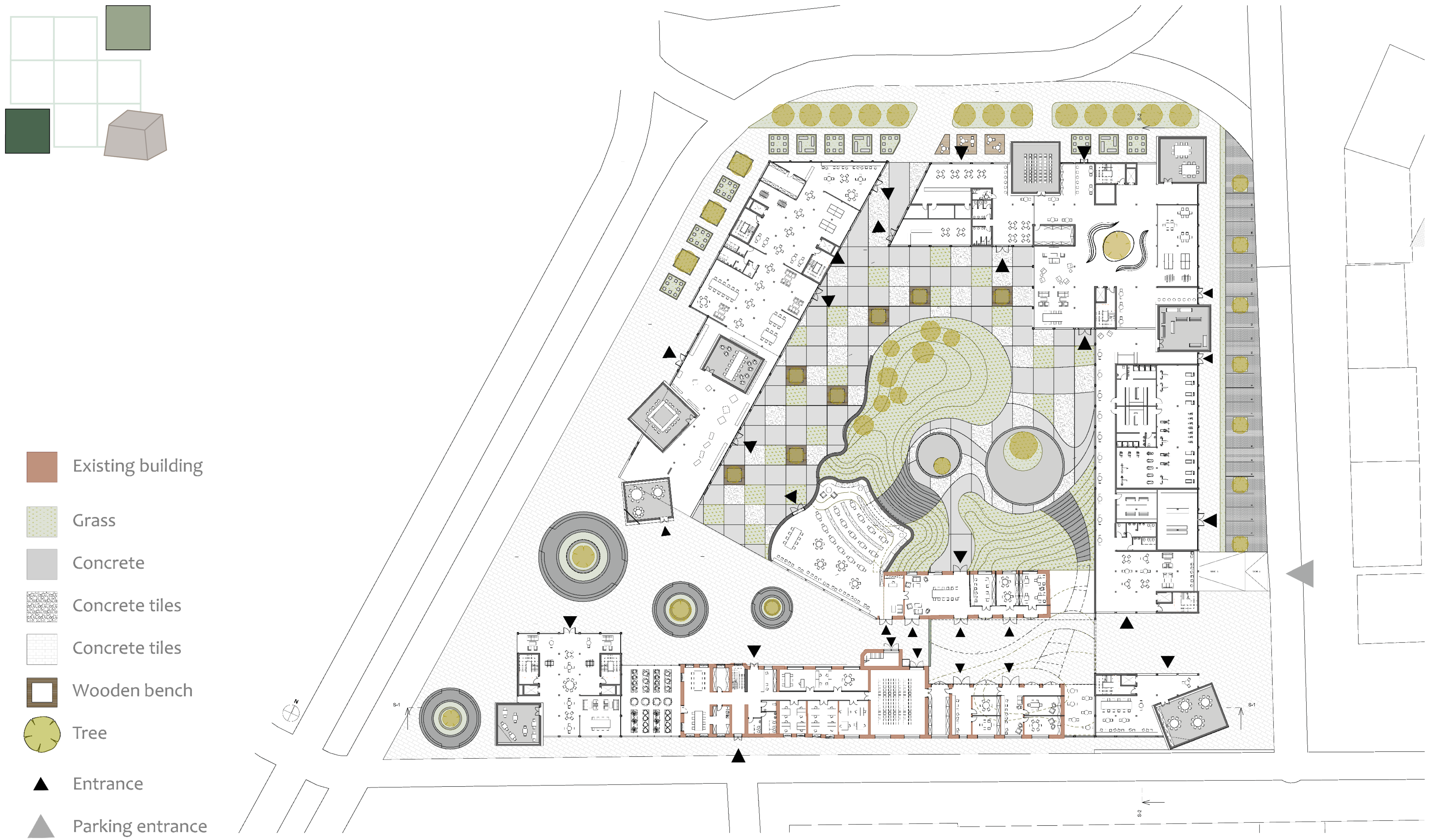
Spaces vary from fully public to more private for student use only



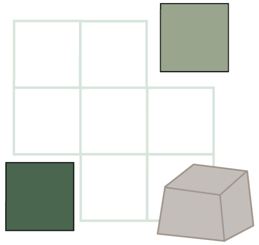
District detalization proposal

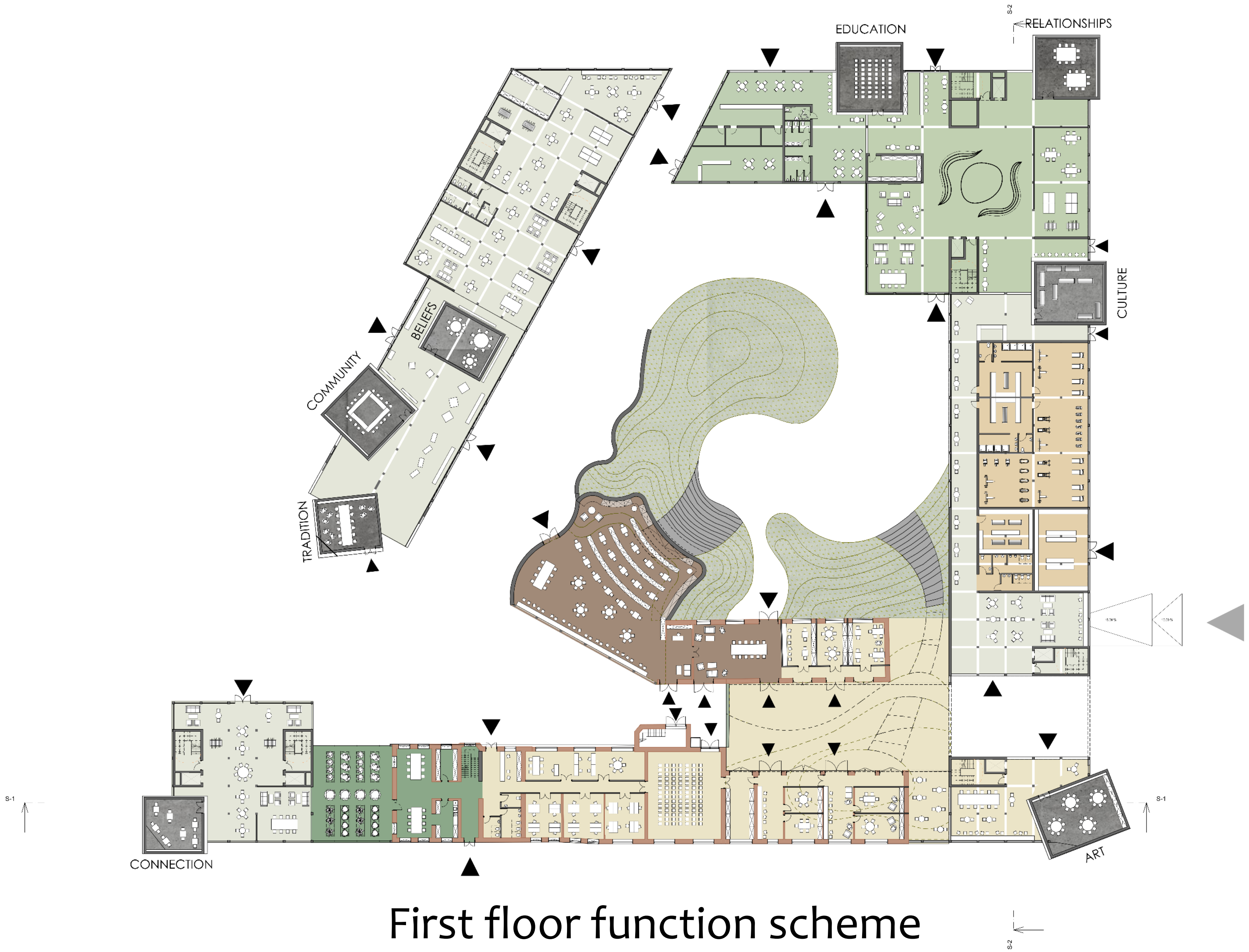


Due to underground parking, inner site is dedicated to pedestrians

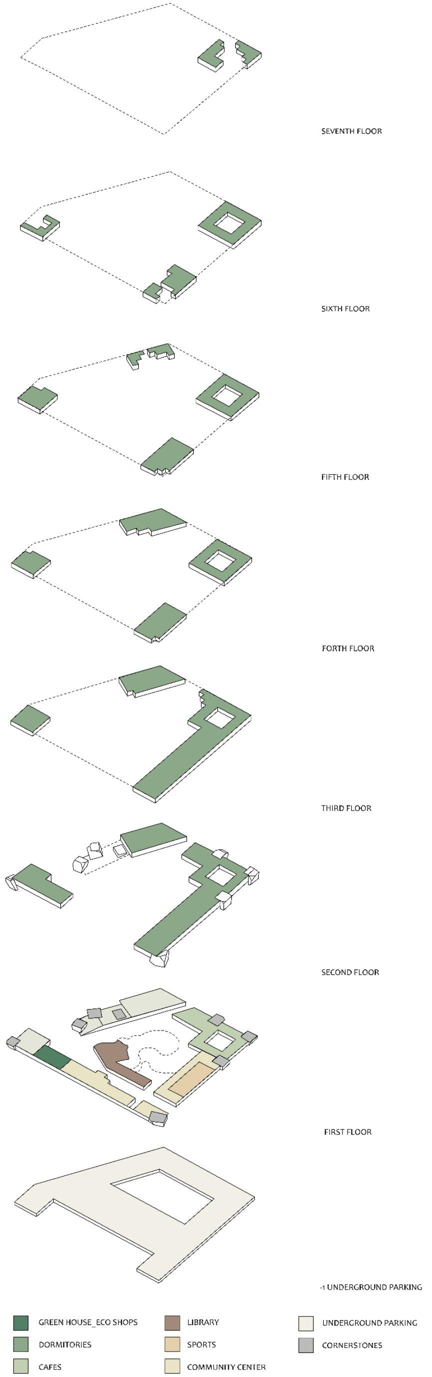

Existing building
Grass
Concrete
Concrete tiles
Concrete tiles
Wooden bench
Tree
Entrance
Parking entrance

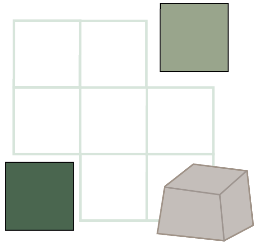
Site plan

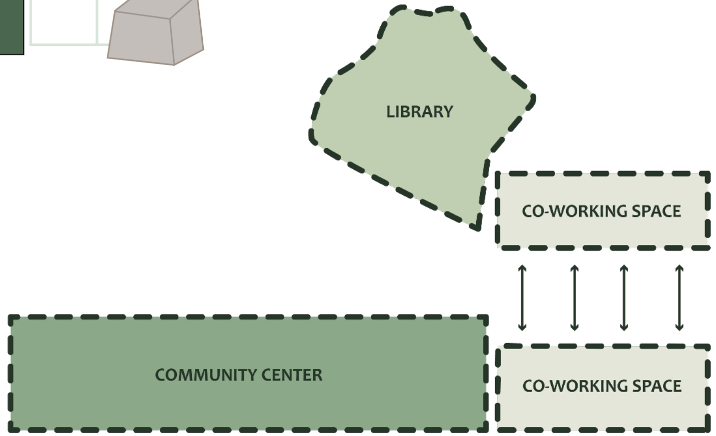


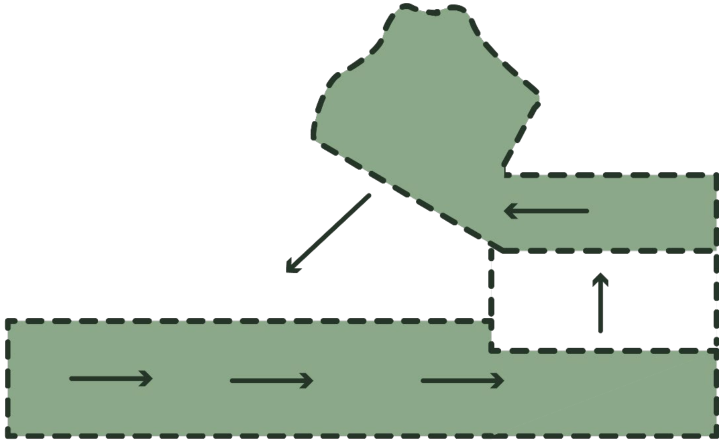


First floor function scheme



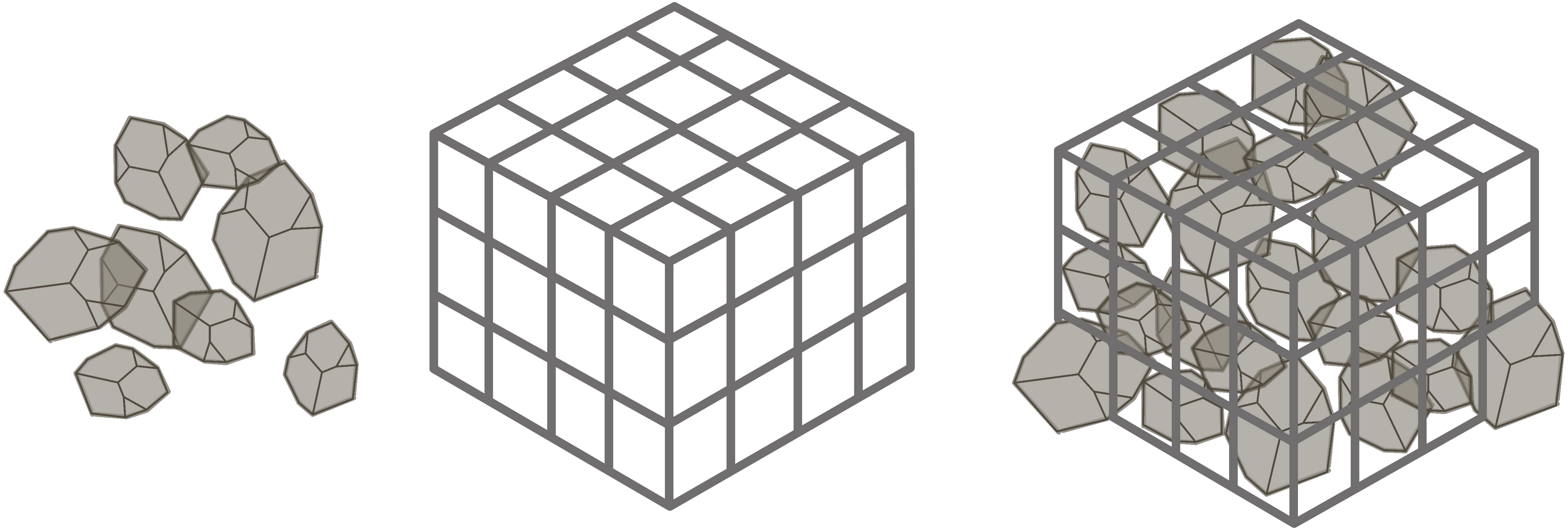






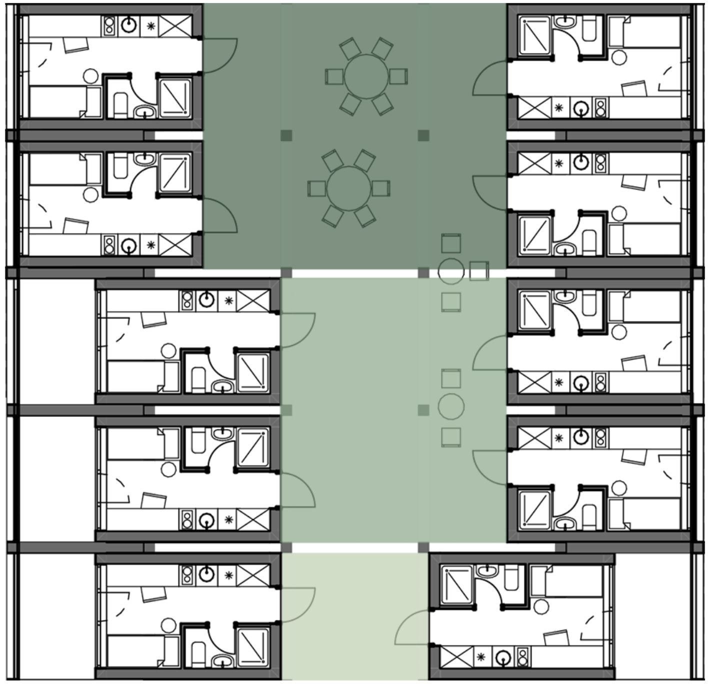
SHARED COMMUNITY CENTER FOR LARGER EVENTS OR SPECIAL OCCASIONS

Heritage building program options

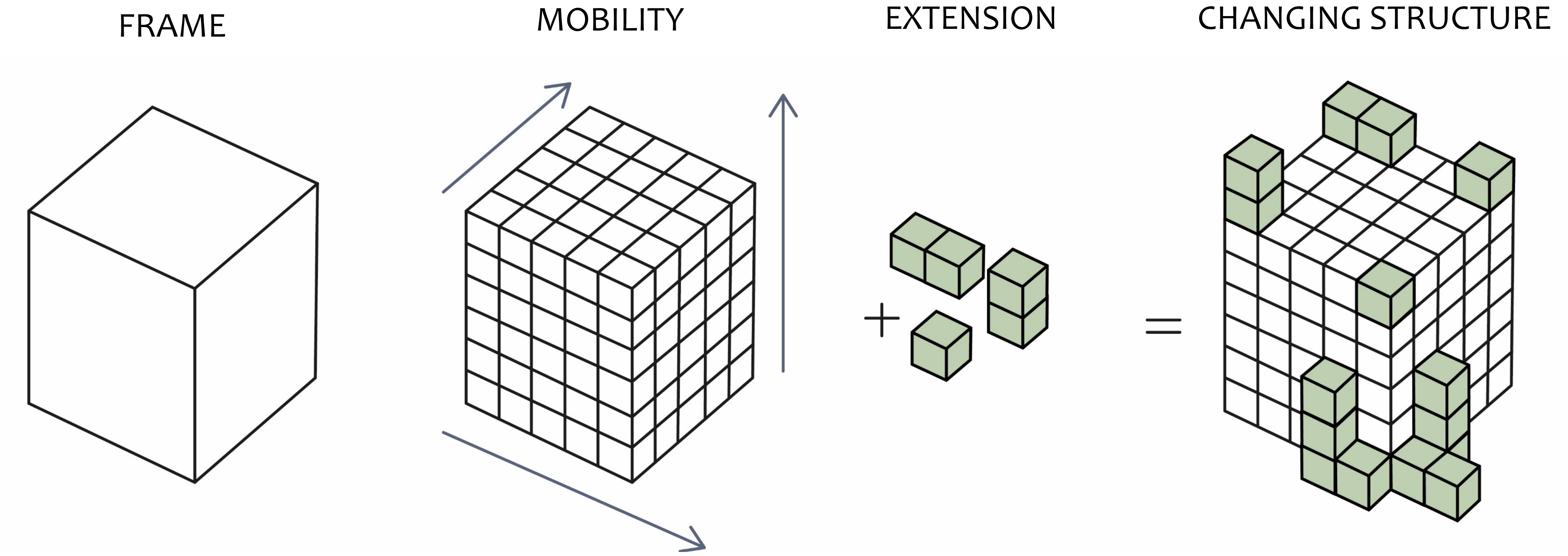


Room modules inserted into the main structure like stones into gabion cage

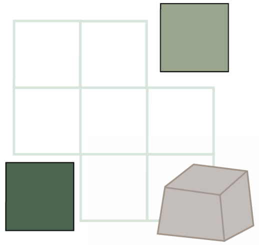
Second floor plan scheme



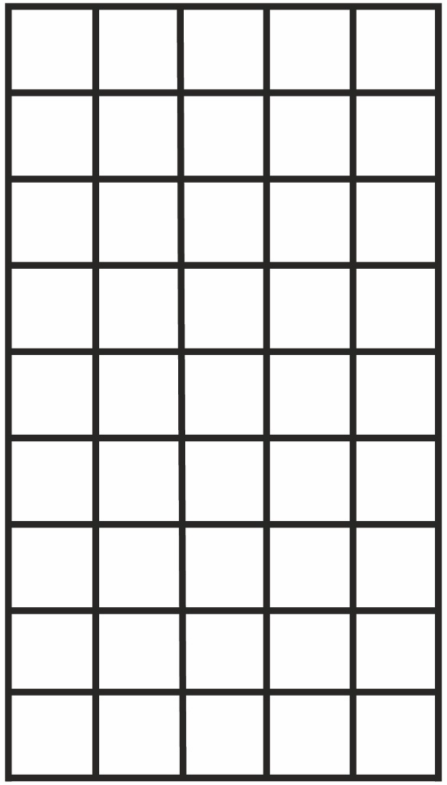
Common space variations



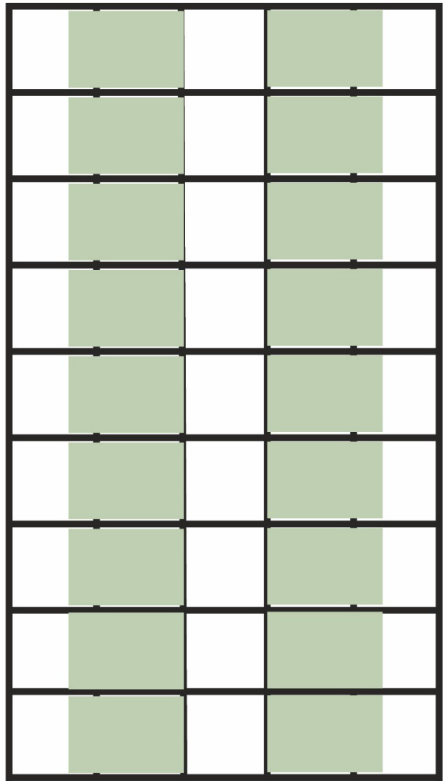
Modules create ever-changing structure according to student needs



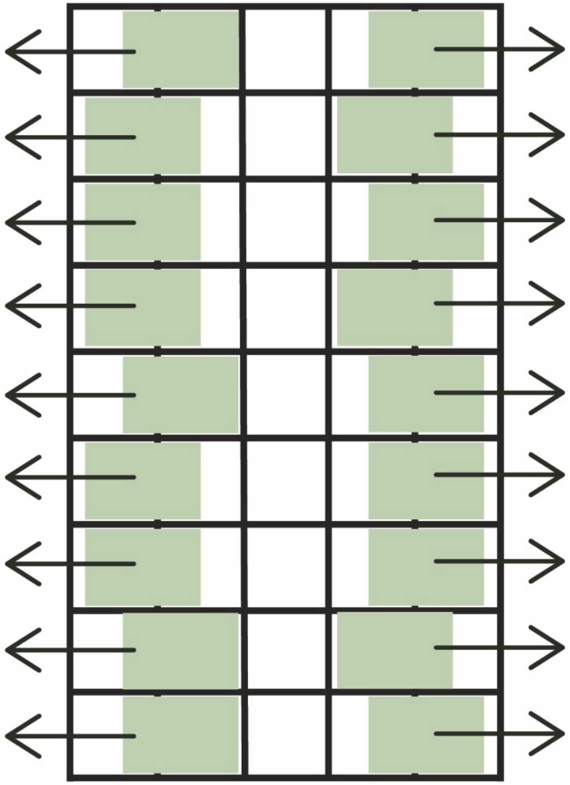
FLAT FRAME



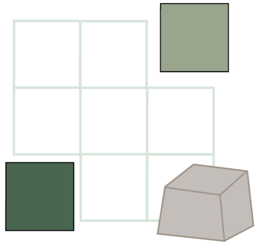
FLAT POSITION

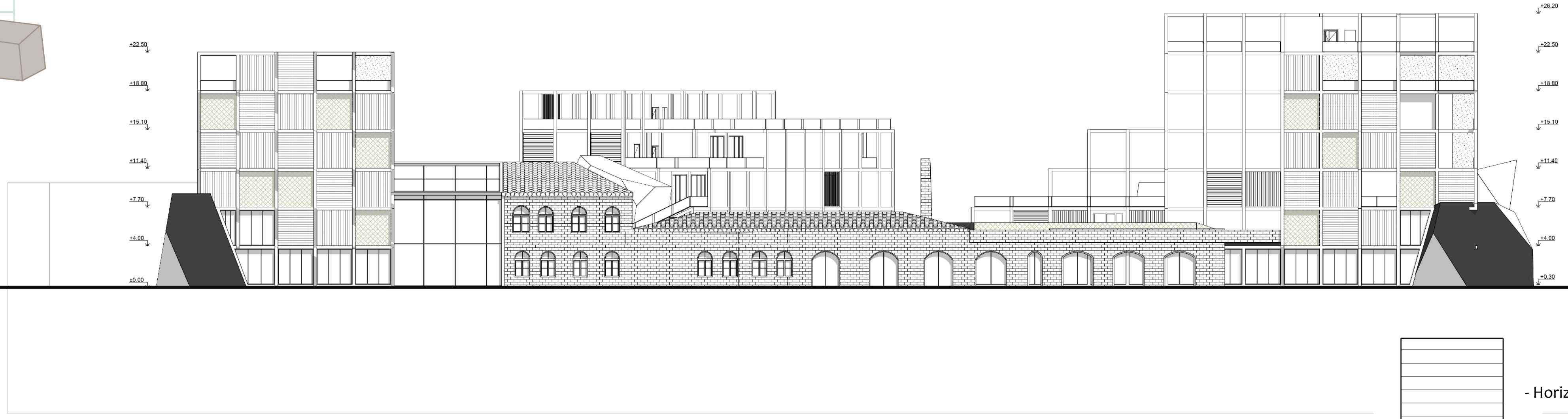


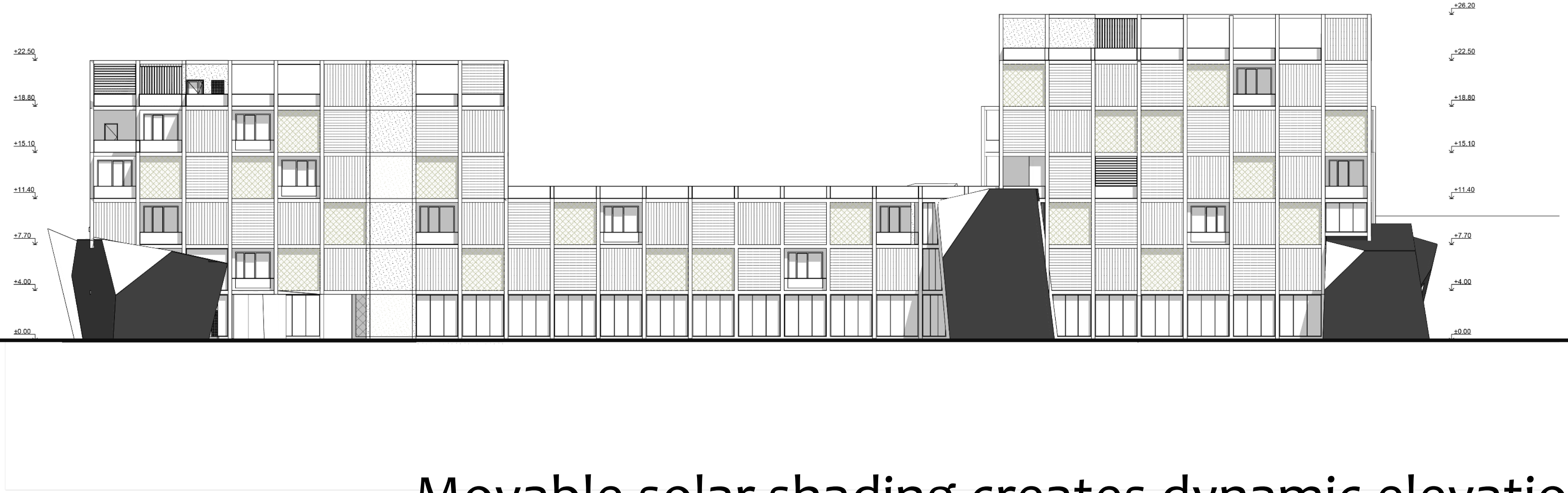
FLAT MOBILITY

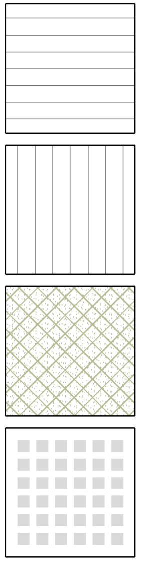


The movement of the modules create private balconies or shared spaces for students









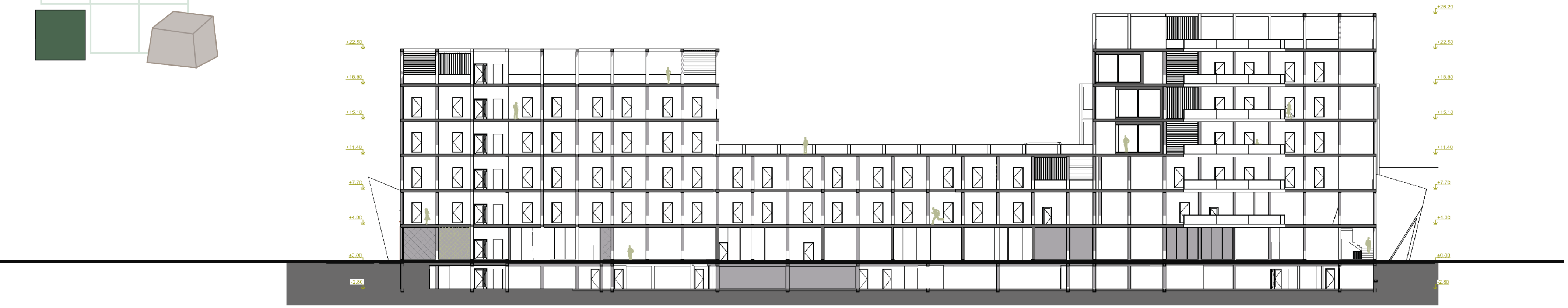
- Horizontal sun shading outdoor blinds

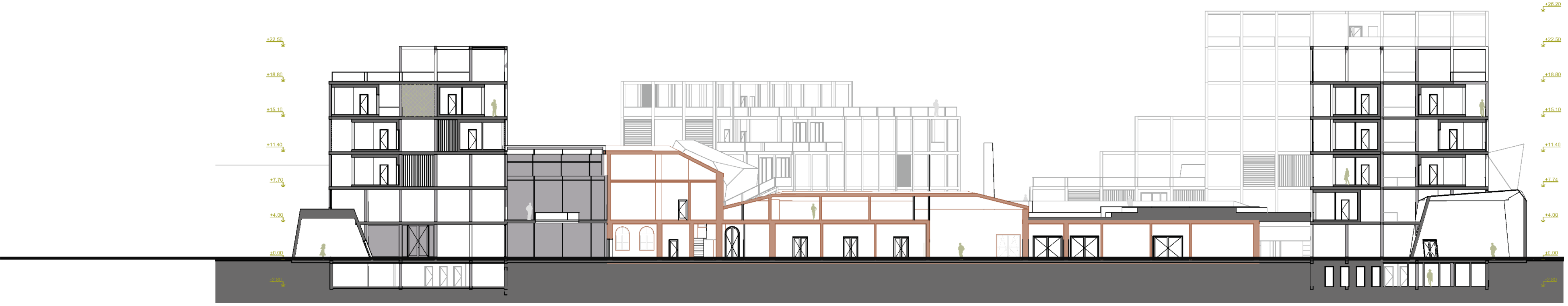
- Vertical sun shading outdoor blinds

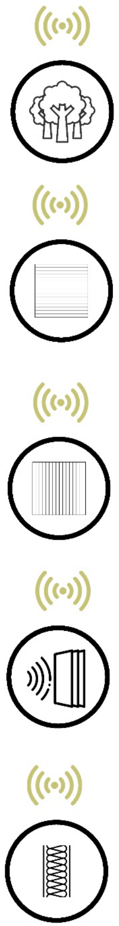
- Green facade panels

- Transparent solar panels for the roofs

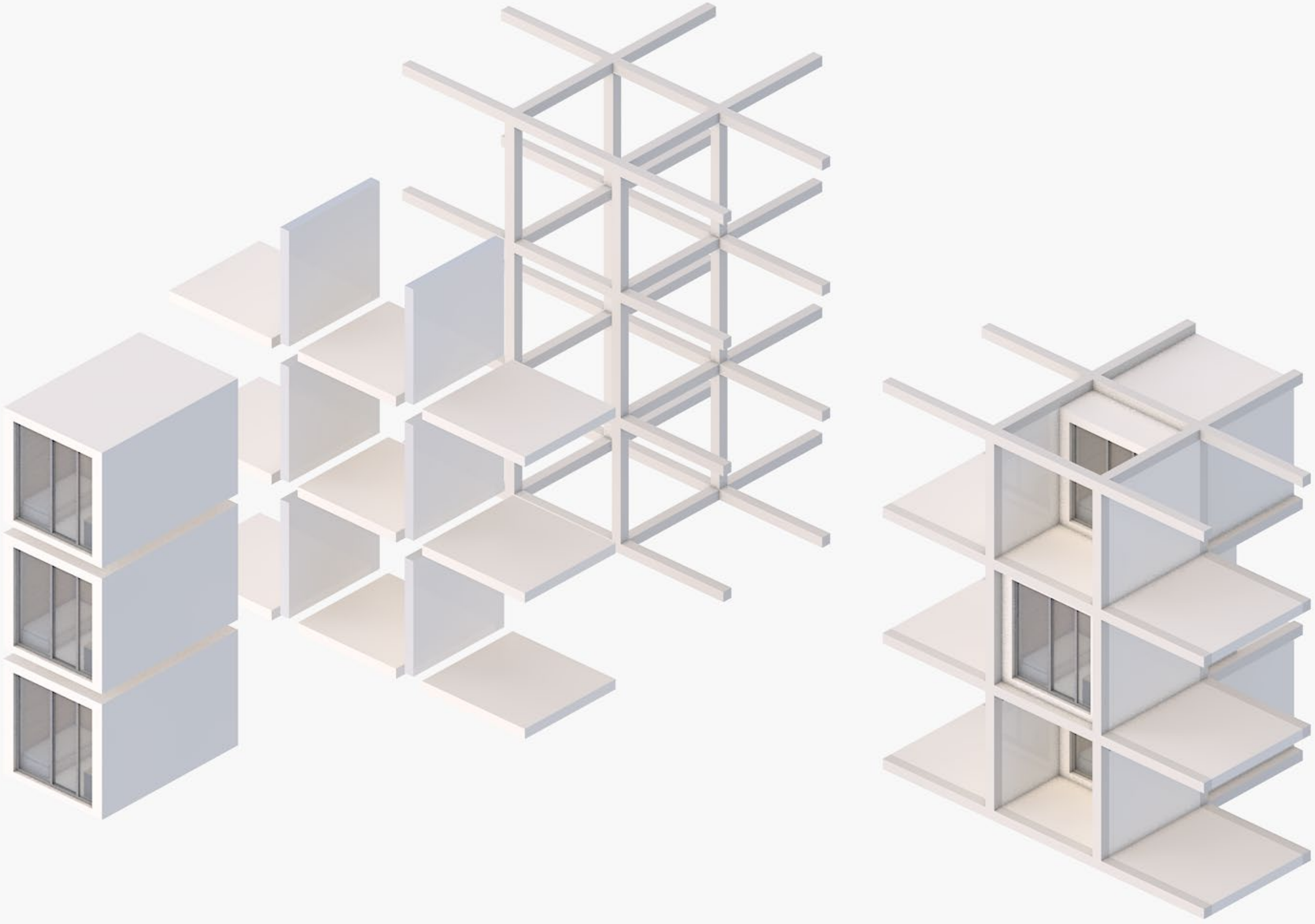
Movable solar shading creates dynamic elevations



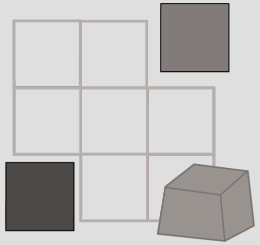




Architectural solutions assure good acoustic quality



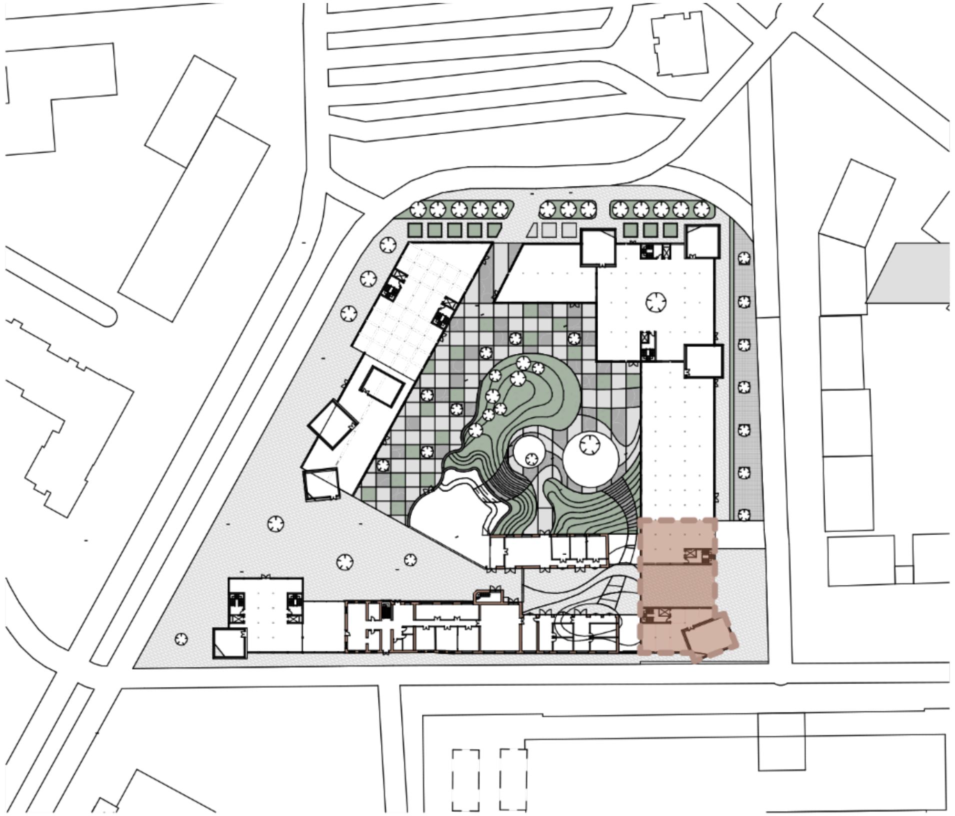
Housing modules can be brought to site and installed into the main structure independently

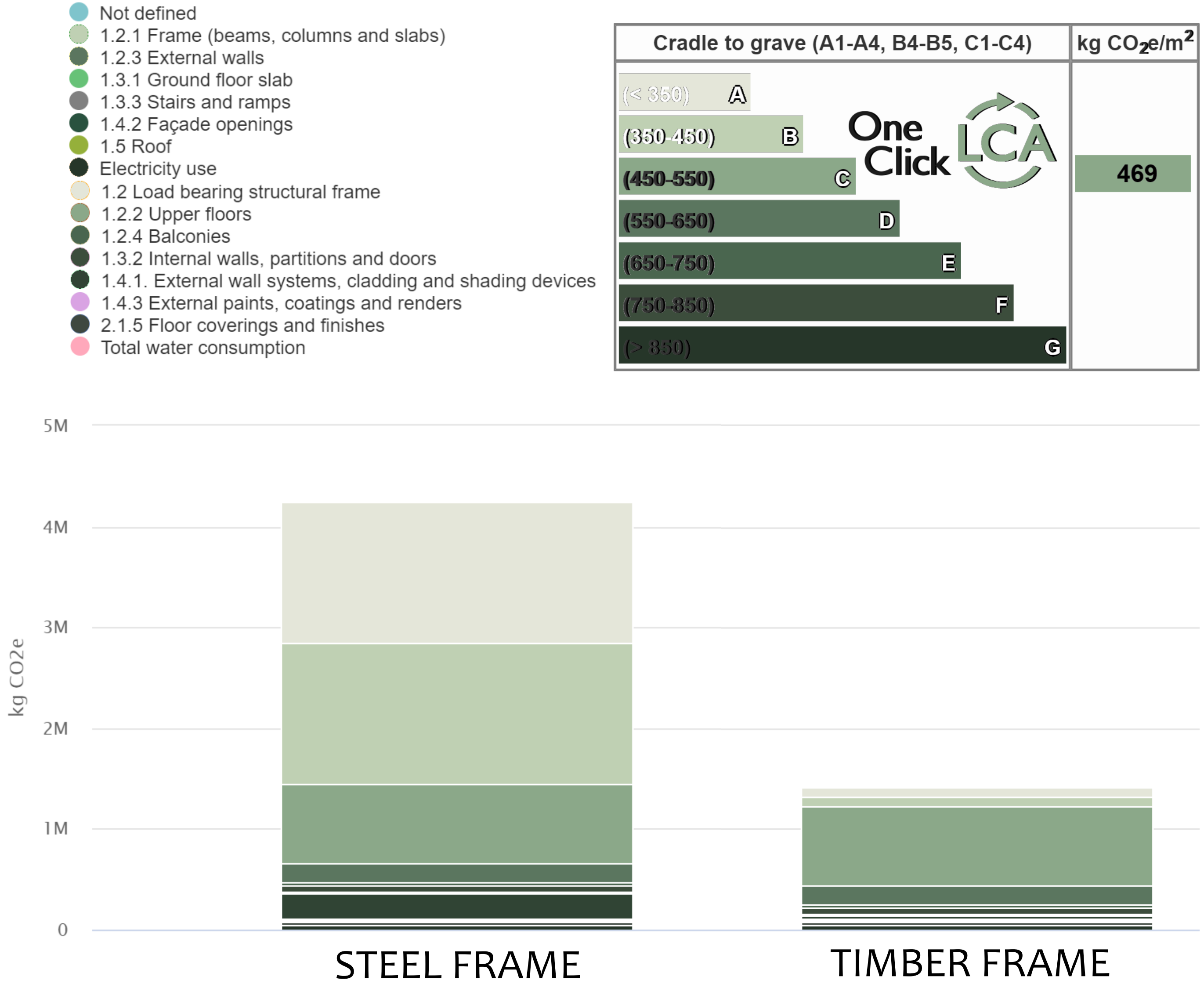


Double room

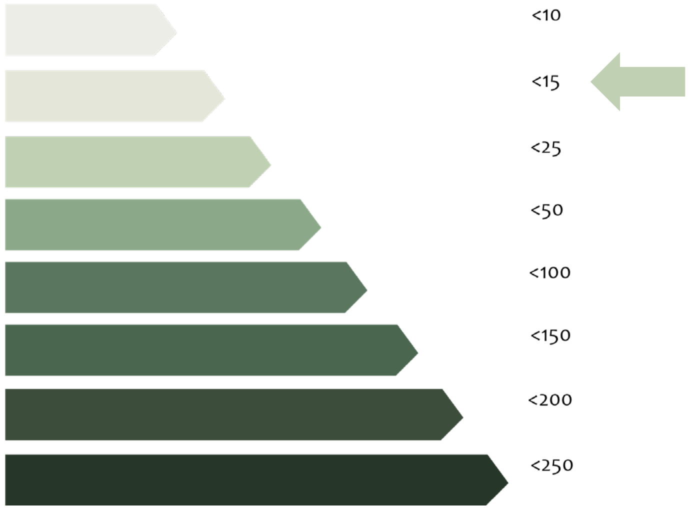
Single room

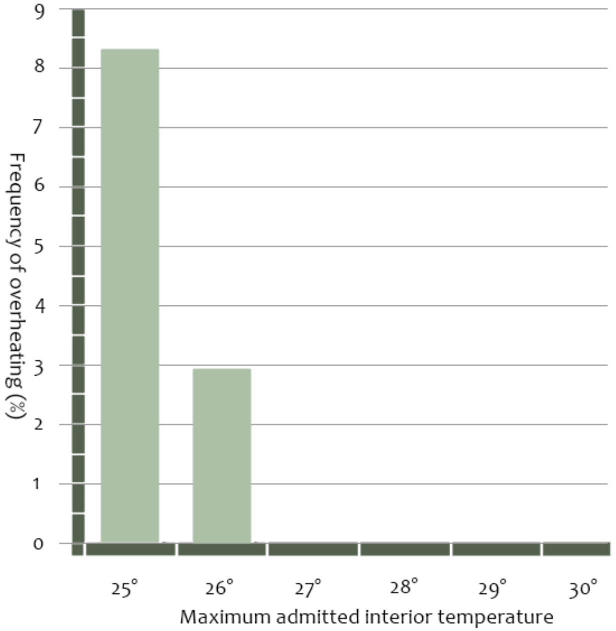
All provided calculations were made to highlighted part of the building





For the main construction timber frame was chosen due to its better CO² qualities





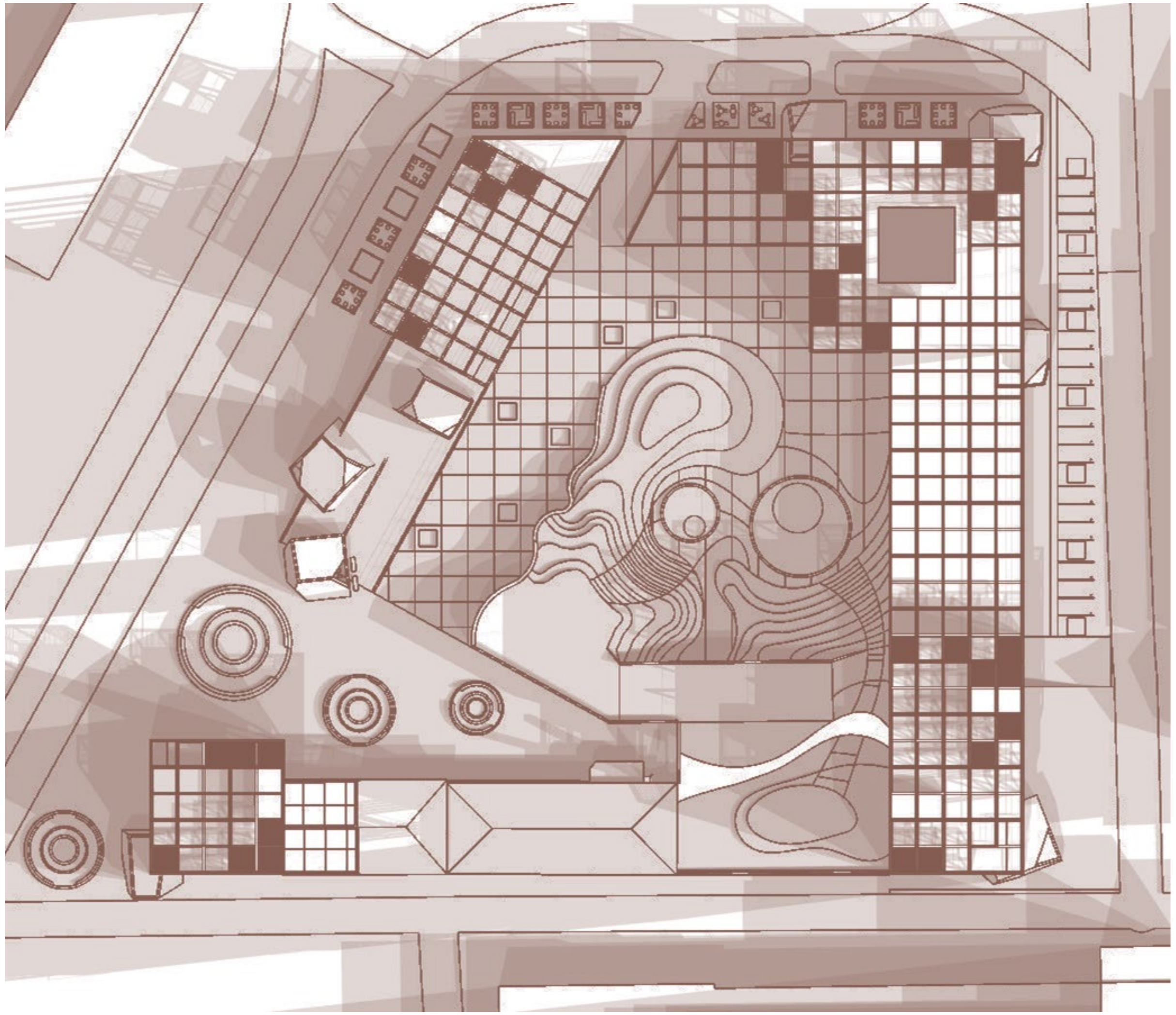
SPECIFIC HEAT DEMAND

68020.52 kWh/a	Transmission Heat Losses
5982.09 kWh/a	Ventilation Heat Losses
74002.61 kWh/a	Total Heat Losses
22772.58 kWh/a	Internal Heat Gains
23261.59 kWh/a	Solar Heat Gains
44313.92 kWh/a	Total Heat Gains
29688.69 kWh/a	Annual Heat Demand
14.32 kWh/(m2a)	Specific Heat Demand

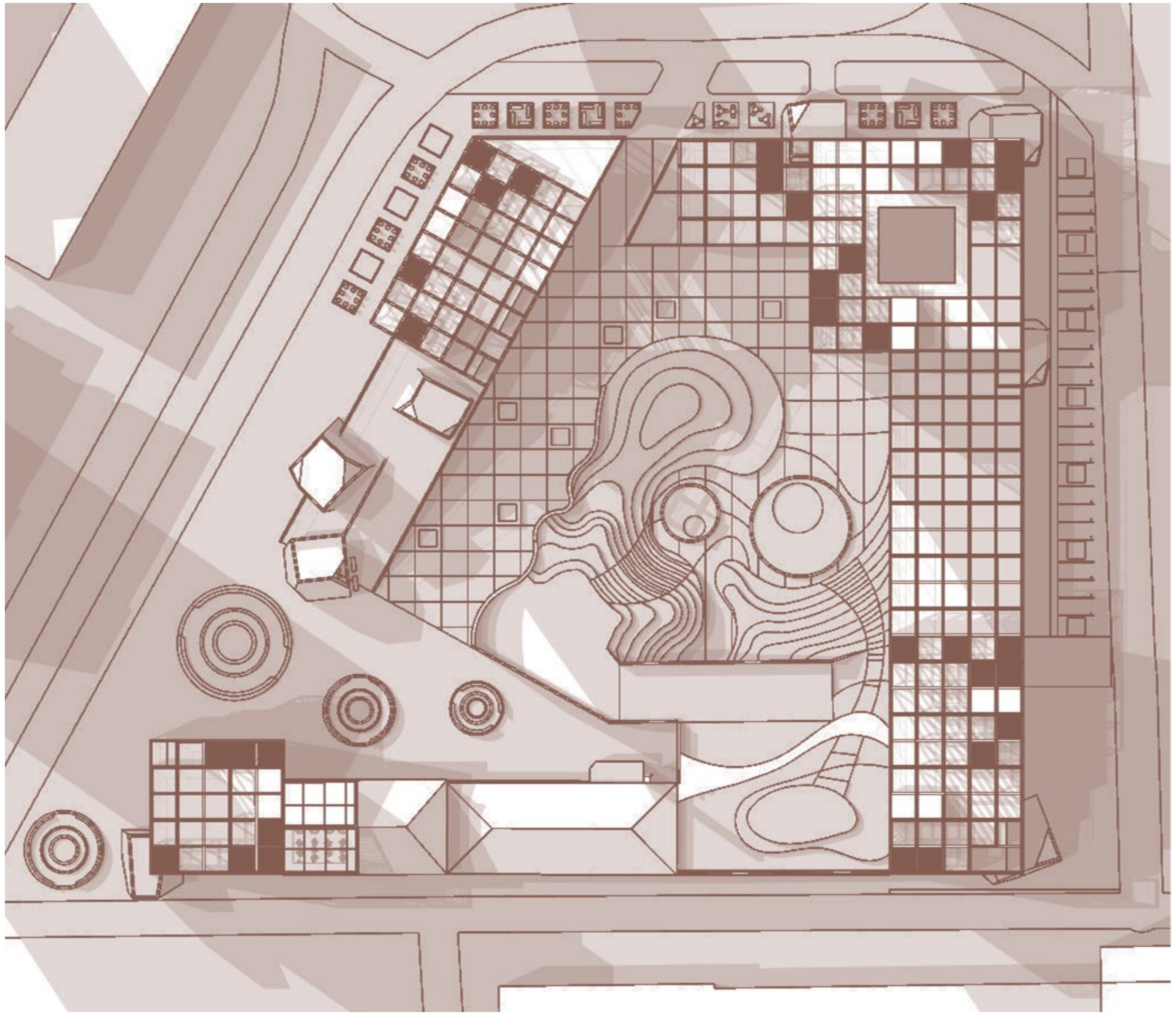
OVERHEATING

690.05 W/K	Exterior Thermal Transmittance
49.65 W/K	Ground Thermal Transmittance
154.86 W/K	Ventilation Transmittion Ambient
0.00 W/K	Ventilation Transmission Ground
70.22 m2	Solar Aperture
8.34 %	Frequency of Overheating

Efficiency calculations

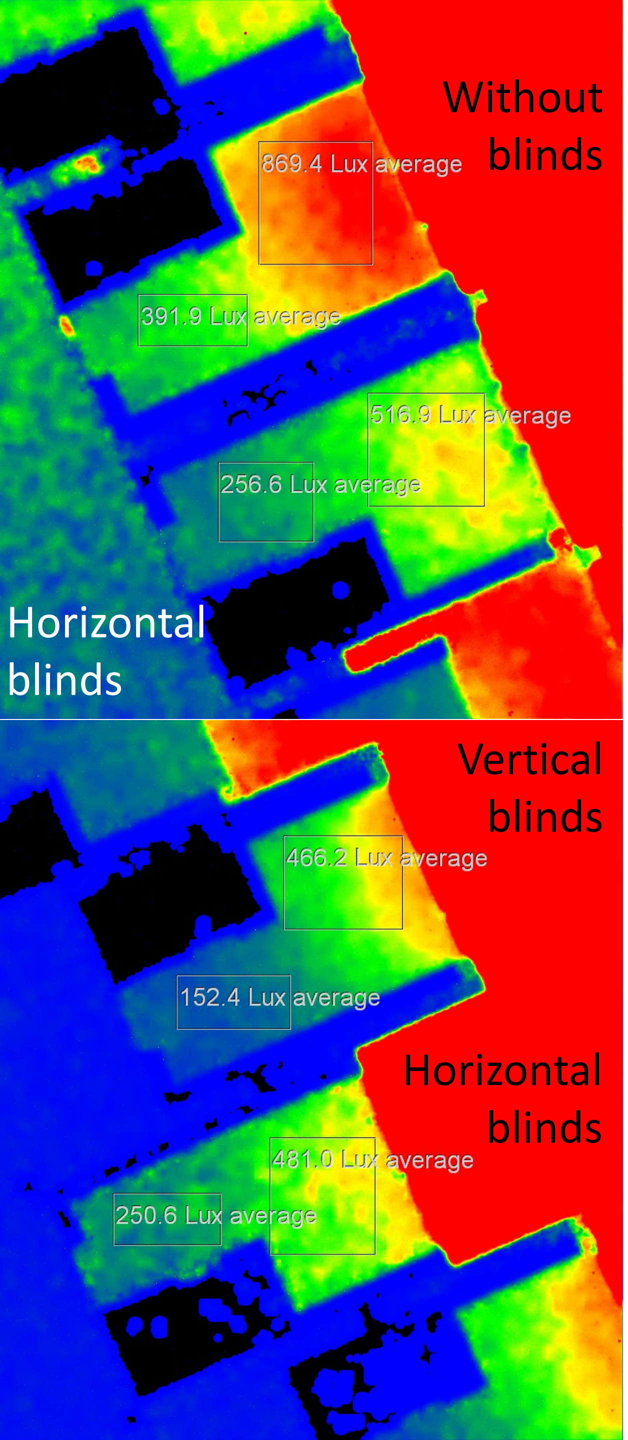


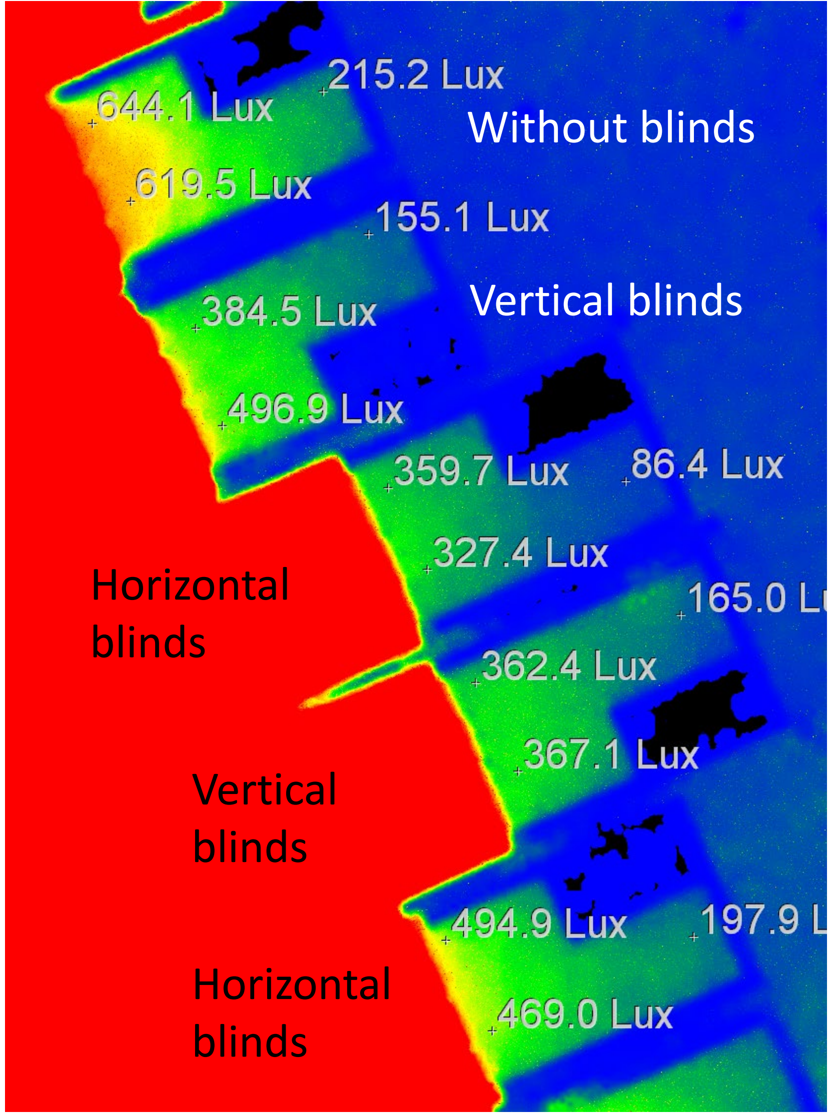
21 06 2022, 4:40 – 12:40

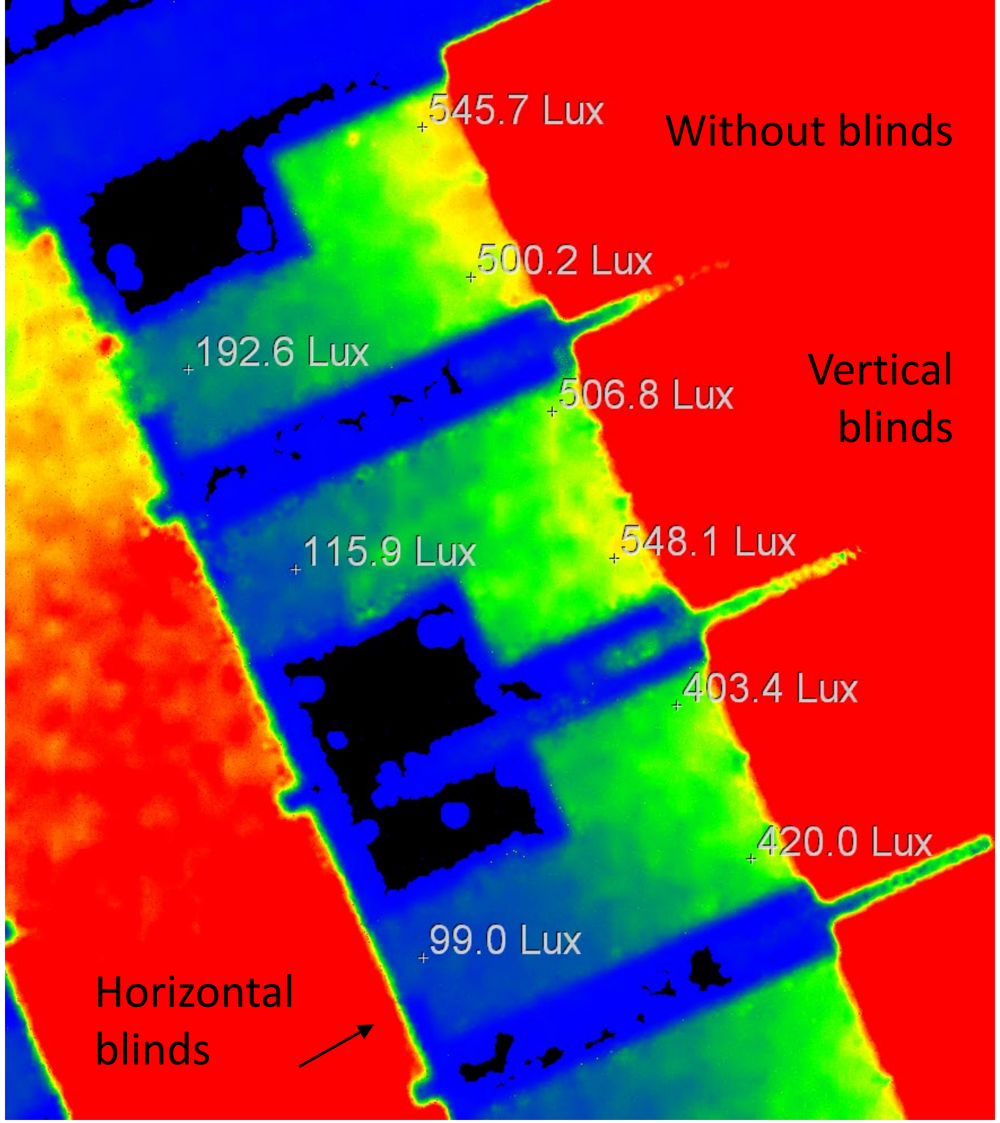


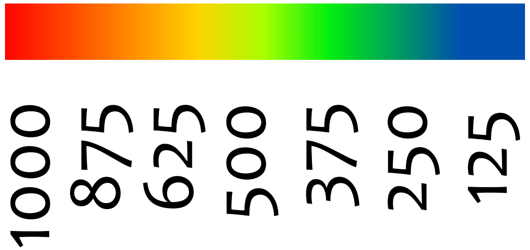
21 06 2022, 12:40-20:40

Sun shadow analysis



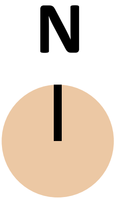






2022
Feb

12:00



NATURAL LIGHT DISTRIBUTION ANALYSIS

SOLAR ENERGY

Semi-quadratic 125x125 mm,
50 mm cell distance;
Transparency: 49%
Power: 118 W/m^2
855 sq.m. --> 100.89 kW
36.82 MW annually

WITHOUT BALCONY

2022 Feb
12:00

	HORIZONTAL BLINDS, lux	VERTICAL BLINDS, lux	WITHOUT BLINDS, lux
Outs	515 | 255	465 | 150	870 | 390
Ins	420 | 230	380 | 205	580 | 290

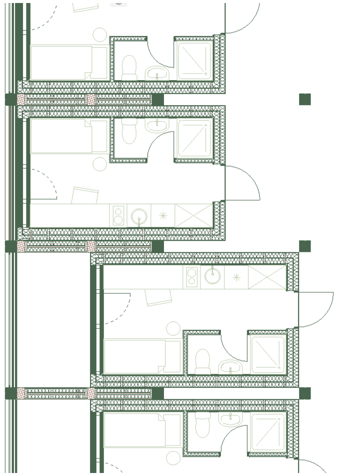
WITH BALCONY

2022 Feb
12:00

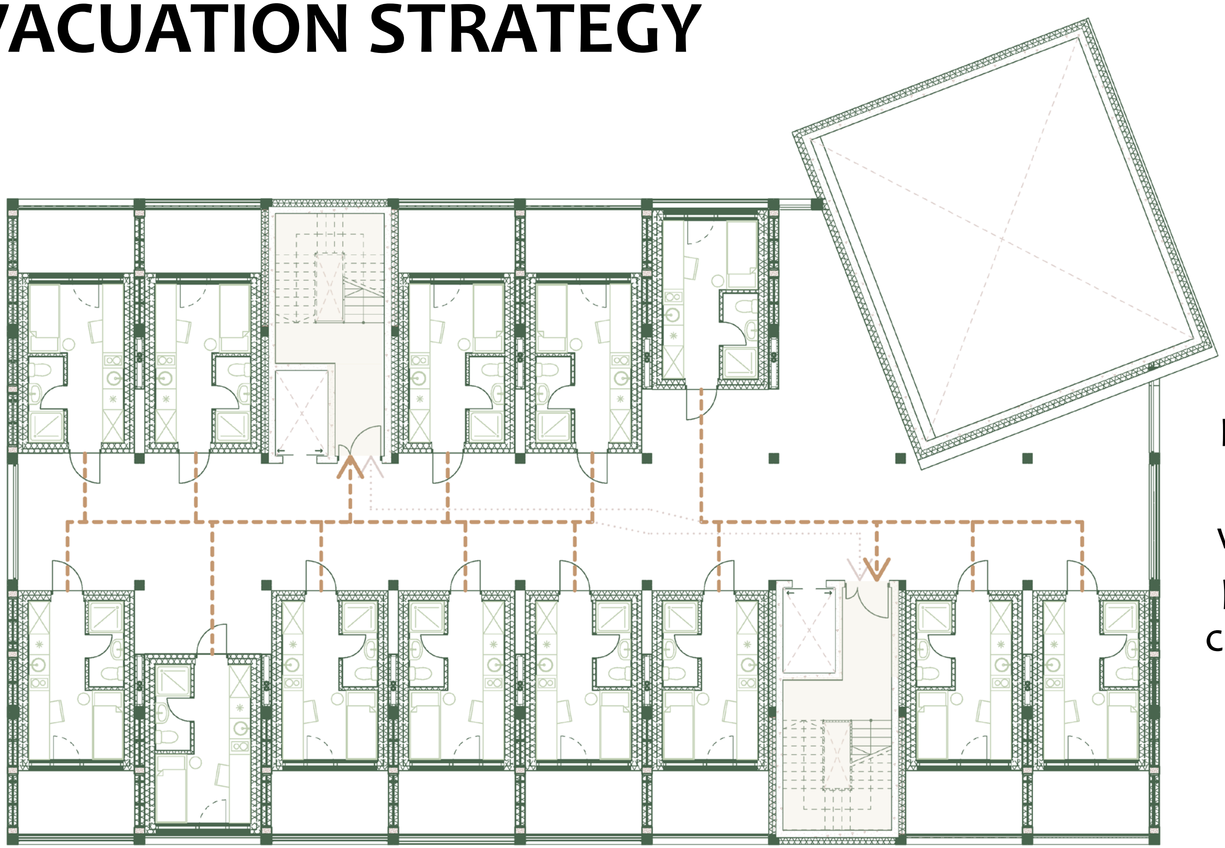
	HORIZONTAL BLINDS, lux	VERTICAL BLINDS, lux	WITHOUT BLINDS, lux
Outs	480 | 250	415 | 180	460 | 220
Ins	300 | 120	330 | 200	535 | 290

WITHOUT BALCONY

WITH BALCONY



EVACUATION STRATEGY



Fire-resistant glass doors, windows and partitions (in common area)

Smoke alarms

Physical barier

Radiation reduction

Insulation

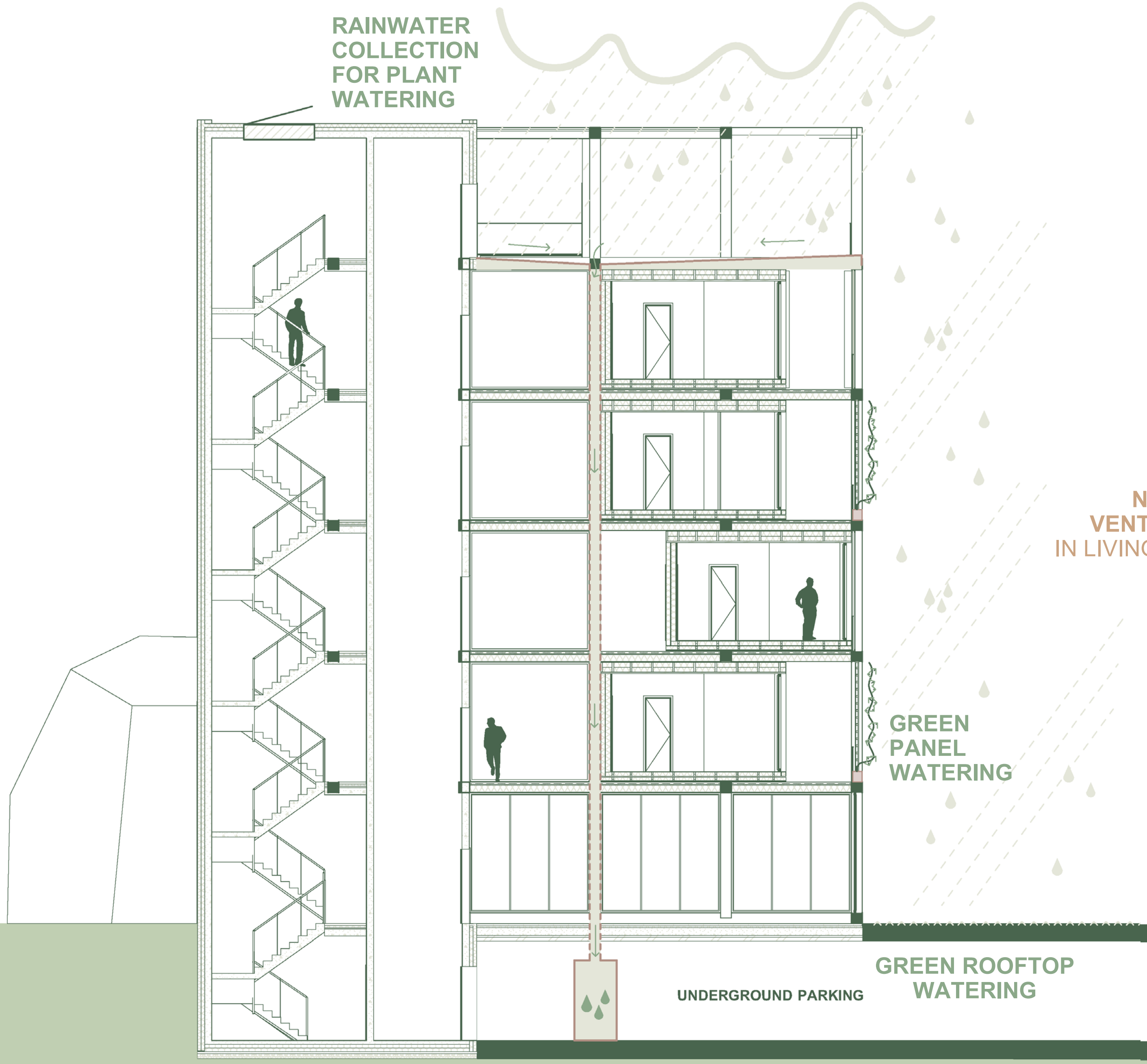
Evacuation route

Alternative evacuation route

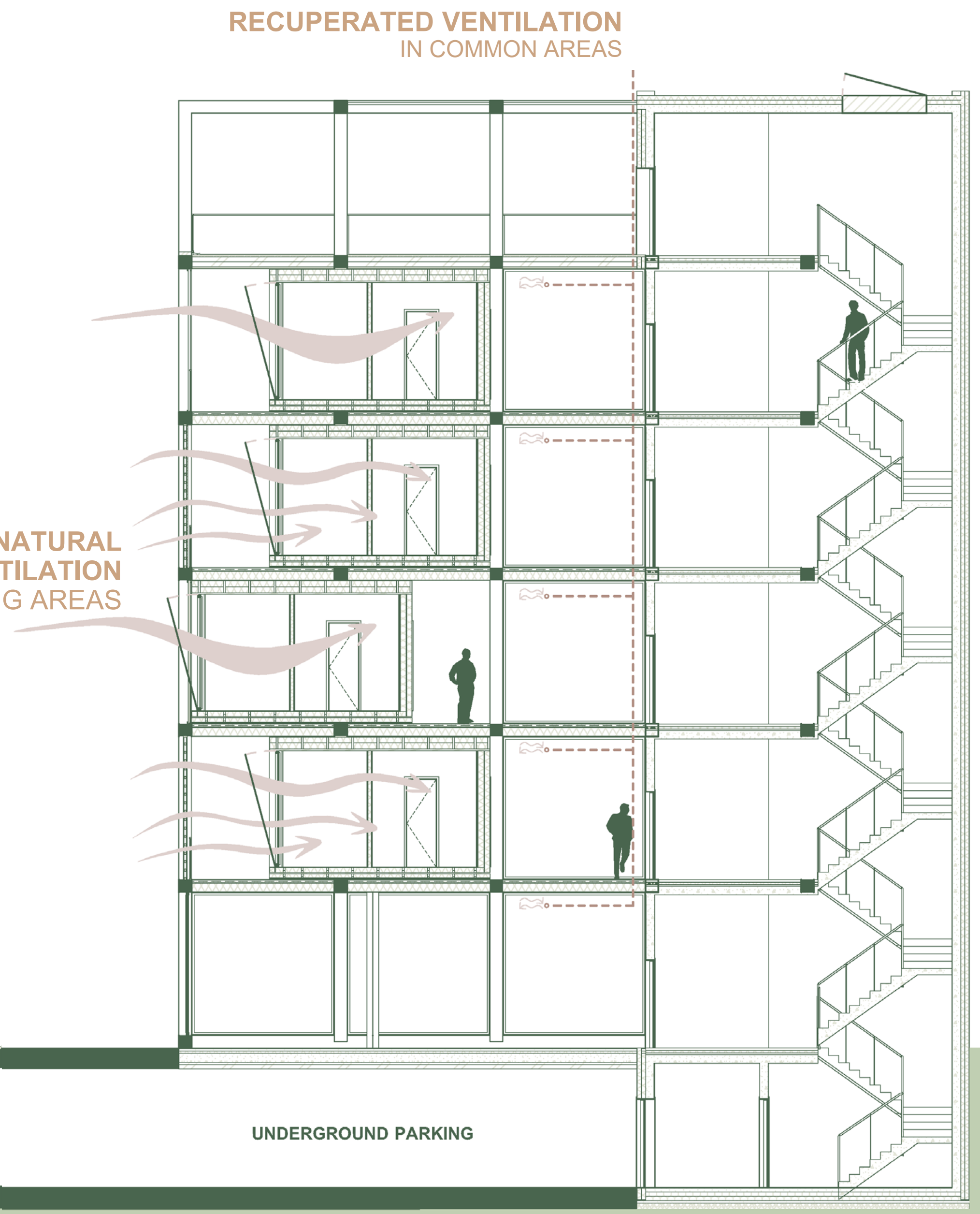
Fire-resistant insulation and suspended ceiling

vetrotech SAINT-GOBAIN

Gyproc SAINT-GOBAIN



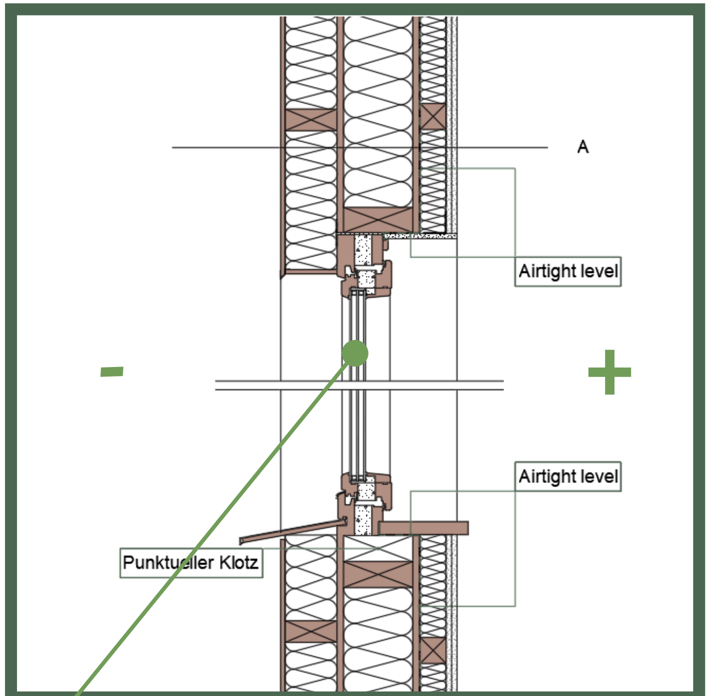
Rainwater use strategy



Ventilation strategy

MODULE WALL

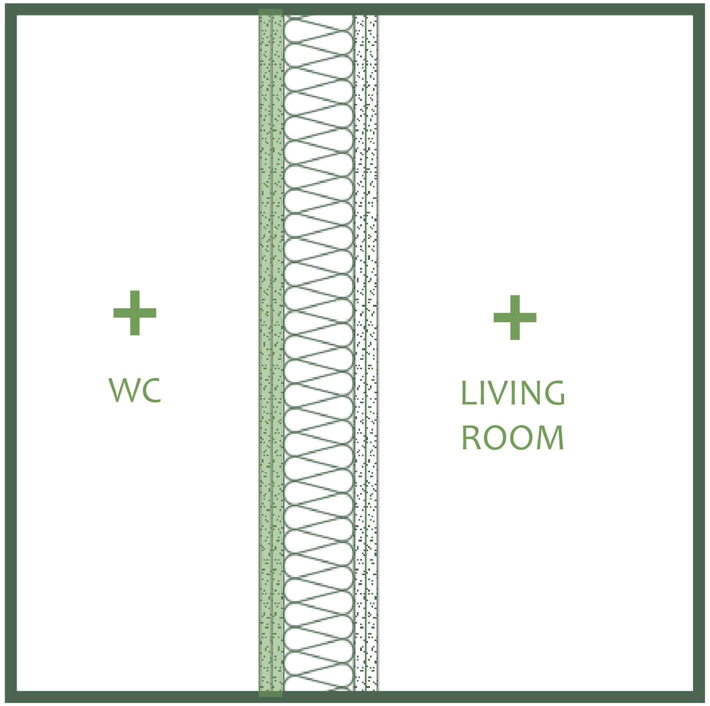
12.5	Rigips Rigidur H
12.5	Rigips Rigidur H
60	ISOVER Integra UKF 1-032 (wood 6/6 e=40cm, 13% wp)
	ISOVER VARIO KM Duplex UV
15	OSB board or chipboard
160	ISOVER Integra ZKF 1-032 (wood 6/16 e=62.5cm, 14%wp)
15	OSB board or chipboard
120	Kontur FSP 1-032 Easy Fix 120 (wood 6/12 e=60cm, 12%wp)
10	Exterior cladding



U=0.15 W/(m2K)

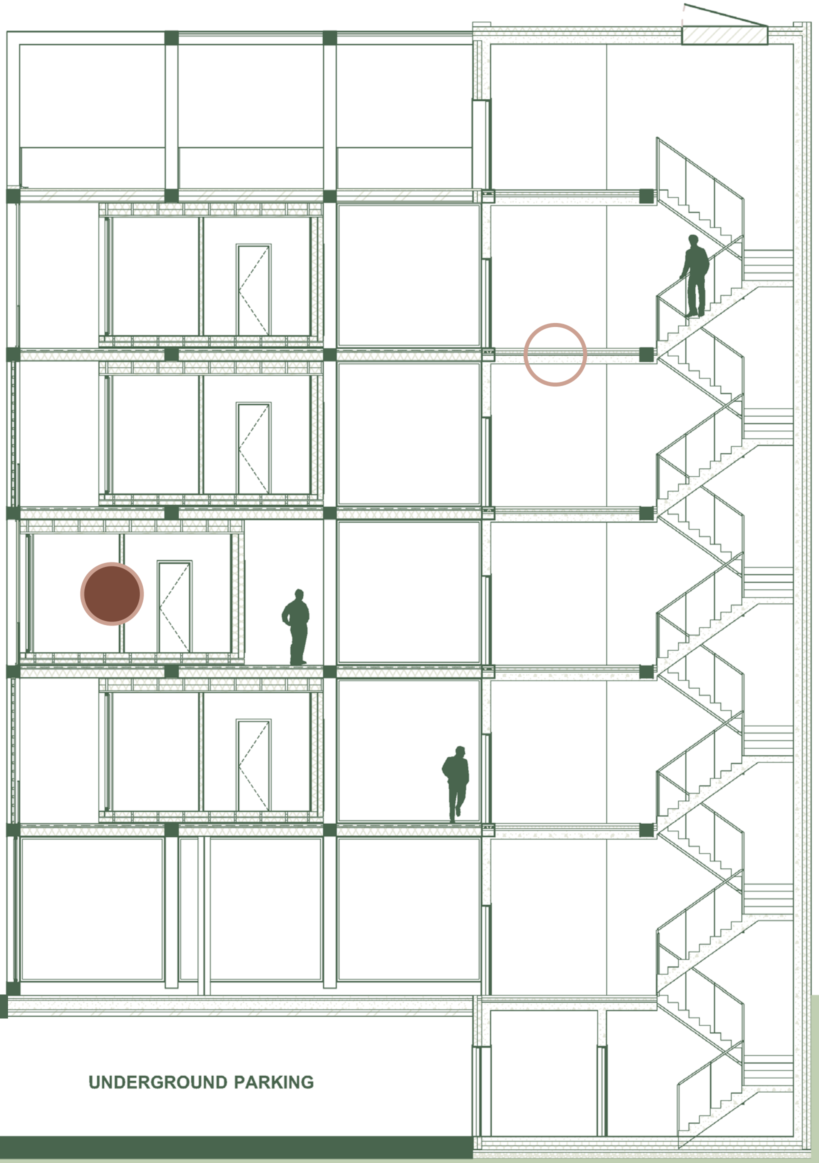
Planitherm Total +

PARTITION WALL



1.5	Rigips Rigidur H
1.5	Rigips Rigidur H
75	Isover Acoustic, between wooden frame
1.5	Gyproc AquaLine
1.5	Gyproc AquaLine

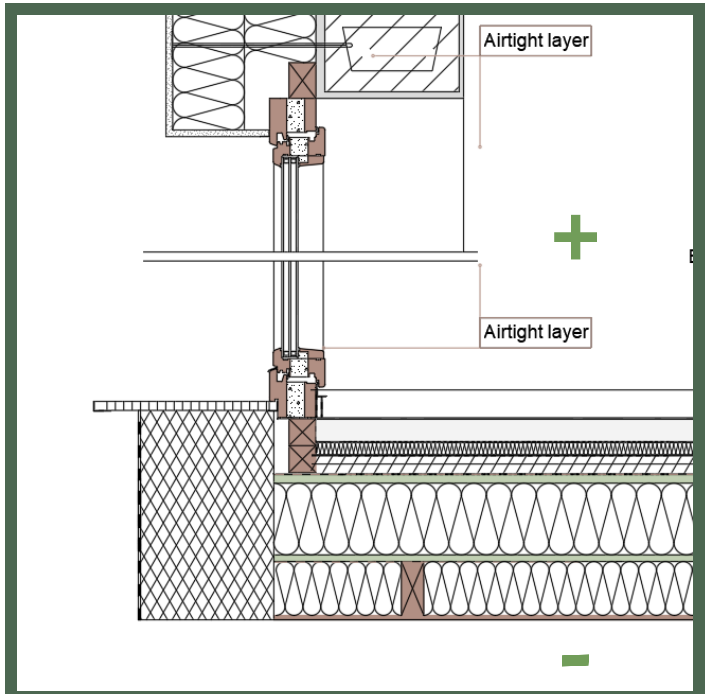
Moisture and mold resistance



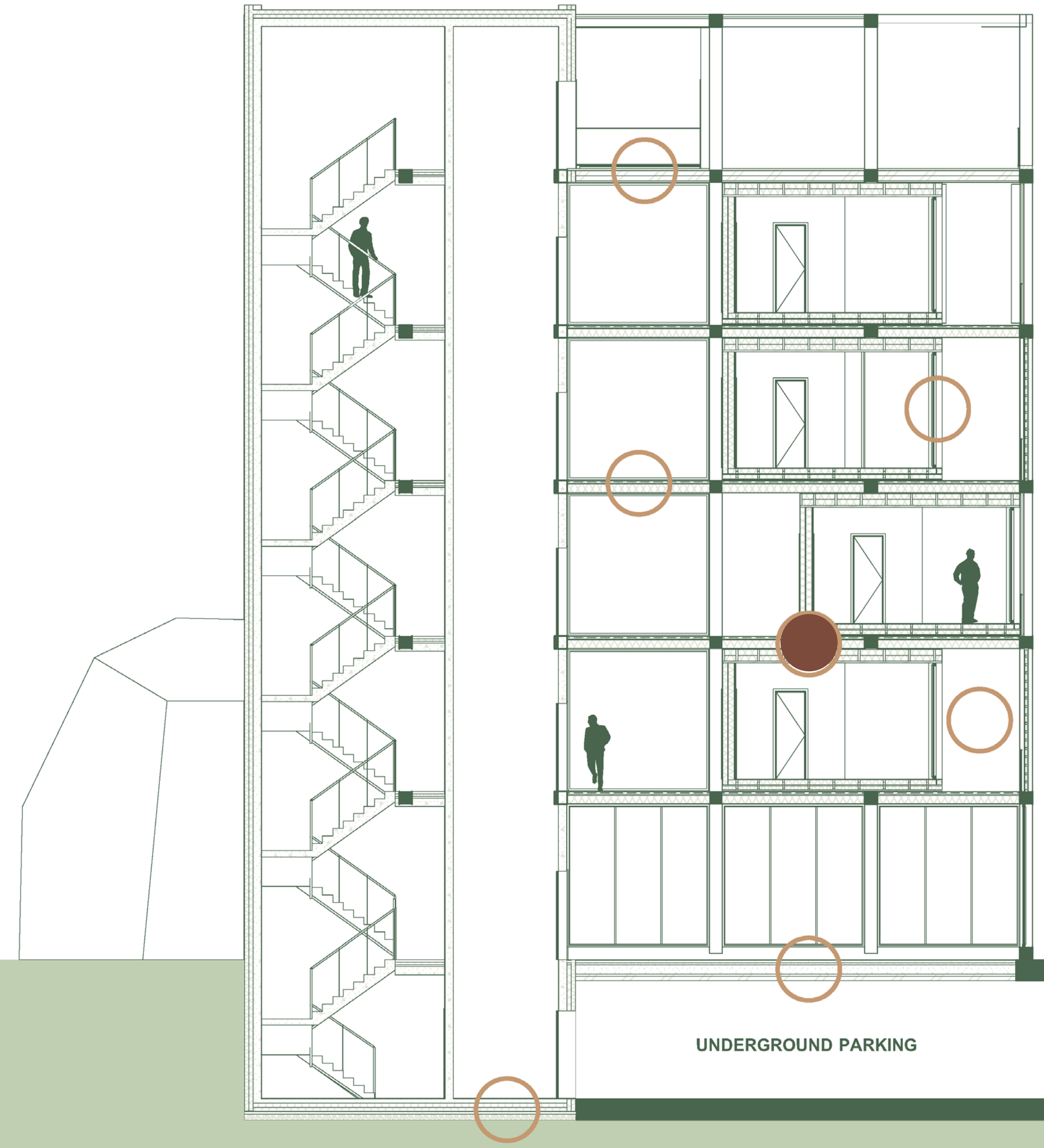
ISOVER SAINT-GOBAIN Rigips SAINT-GOBAIN Gyproc SAINT-GOBAIN

MODULE SLAB

1.7	Floor covering
12	Isover Topdec Loft
2.4	OSB
10	ISOVER Integra ZKF 1-032 (wood 10/16, e=80cm, 11% wp)
	ISOVER VARIO KM Duplex UV
1.8	Isover OL-E-35
1.5	OSB board
1.5	Gyproc Rigidur GL15
1.5	Gyproc Rigidur GL15

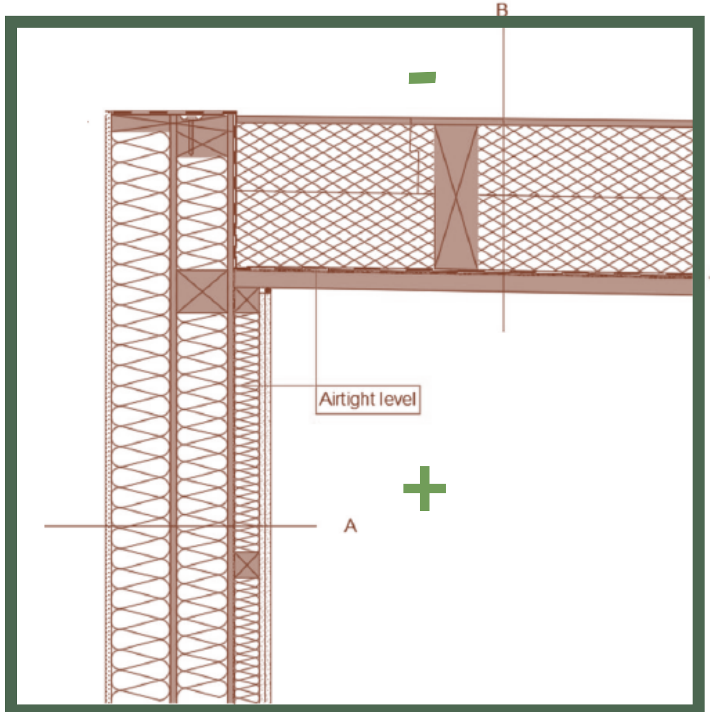


U=0.16 W/(m2K)

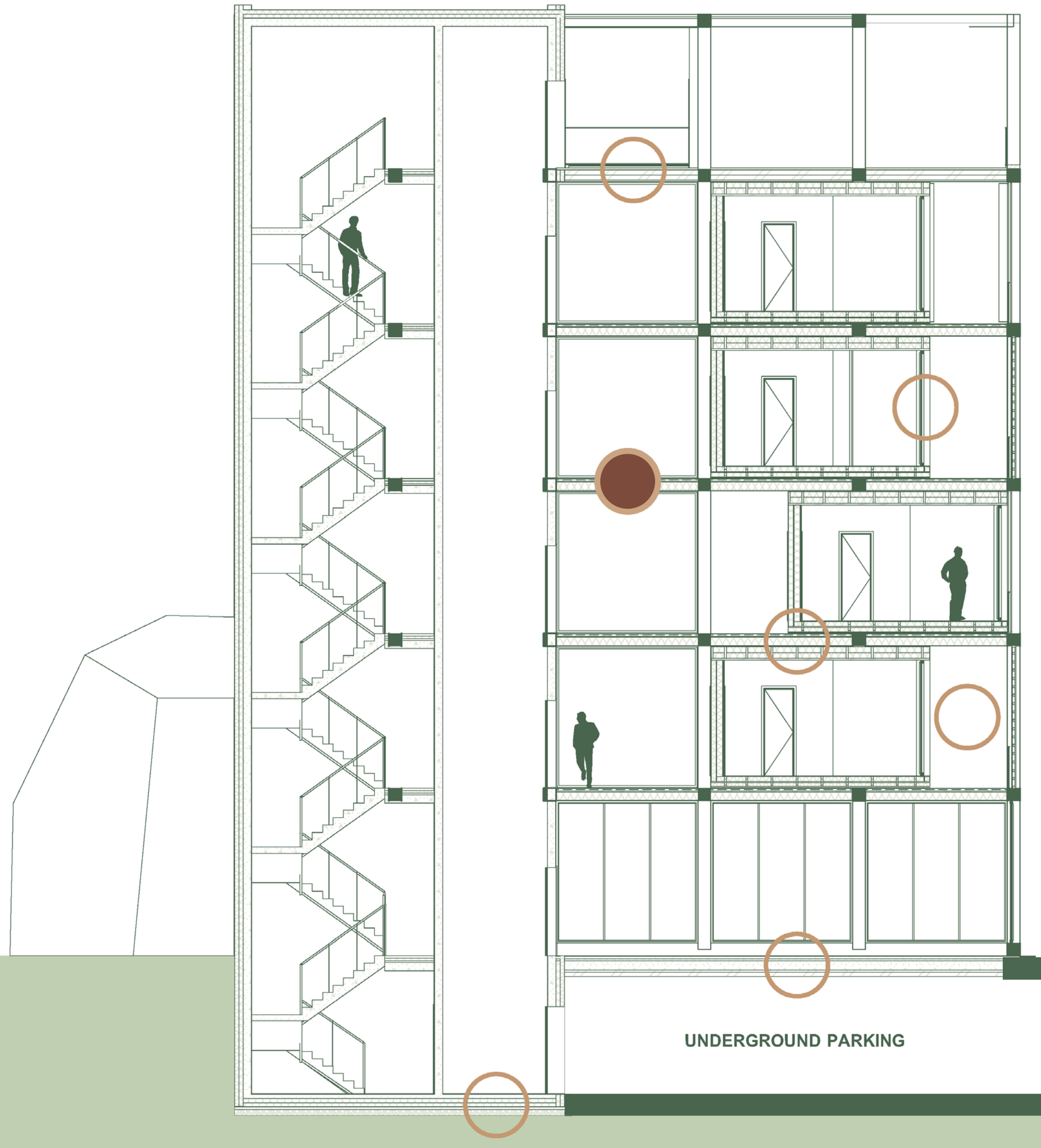


MODULE ROOF

1.5	Roof covering
14	Isover Metac FLP 1 Duralex
14	Isover Metac FLP 1 Duralex
	ISOVER VARIO KM Duplex UV
4	Fire-resistant panelling on load-bearing structure

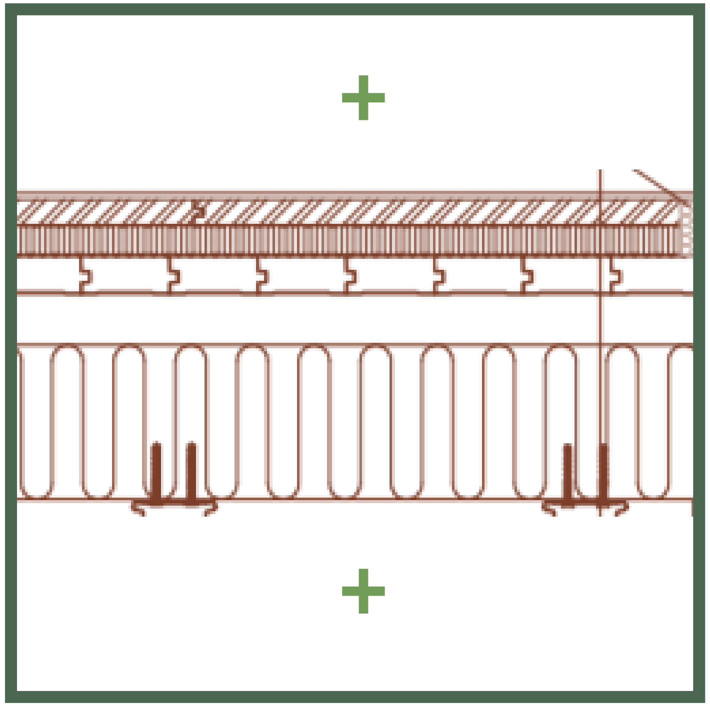


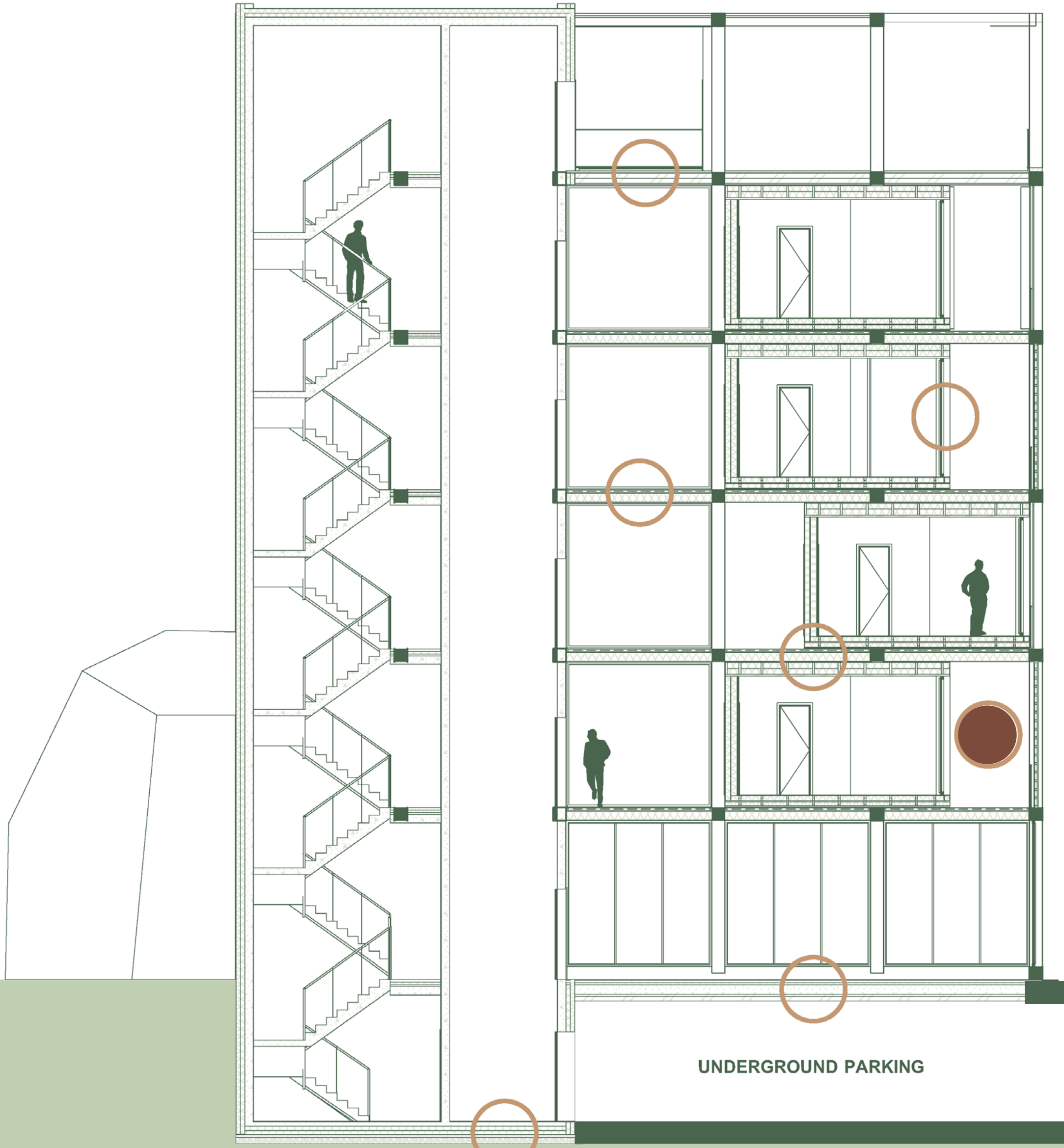
U=0.14 W/(m2K)



INTERMEDIATE SLAB

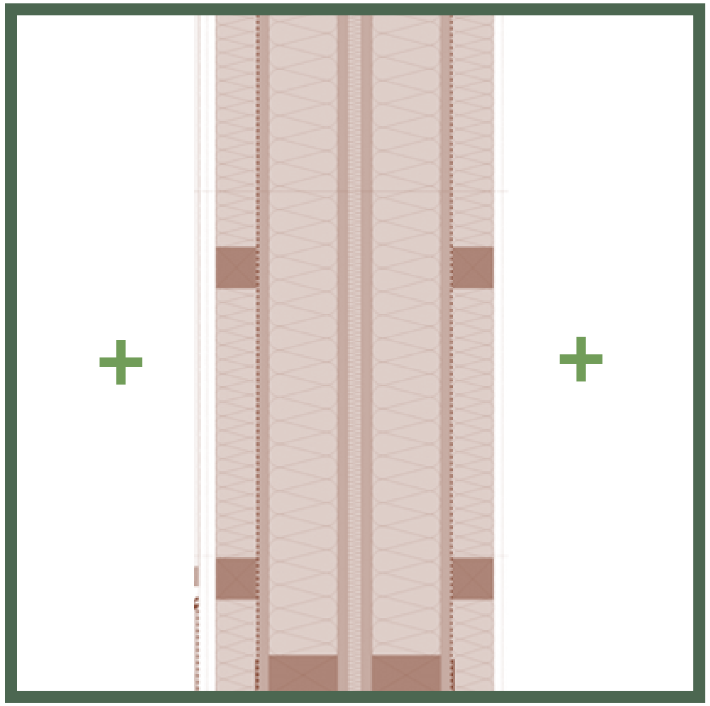
1	Floor covering
1.5	Gyproc Rigidur GL15
1.5	Gyproc Rigidur GL15
30	Isover FLO
2.2	OSB
200	Isover Acoustic
1.5	Gyproc Rigidur GL15
1.5	Gyproc Rigidur GL15





PARTITION WALL

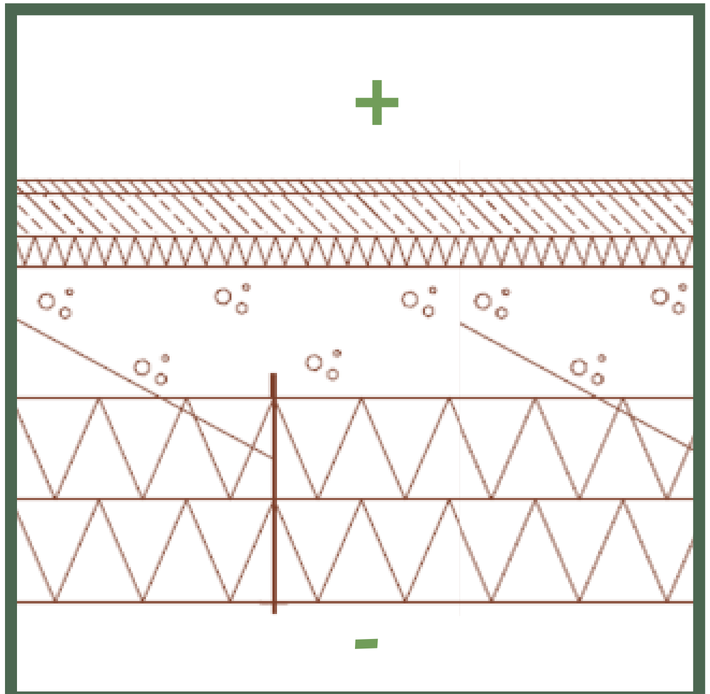
1.25	Gyproc Rigidur GL15
1.25	Gyproc Rigidur GL15
	ISOVER VARIO KM Duplex UV
10	ISOVER Integra UKF 1-032 (wood 6/6 e=40cm, 13% wp)
1.5	OSB
10	Isover Acoustic
1.5	OSB
10	ISOVER Integra UKF 1-032 (wood 6/6 e=40cm, 13% wp)
	ISOVER VARIO KM Duplex UV
1.25	Gyproc Rigidur GL15
1.25	Gyproc Rigidur GL15



Sound isolation

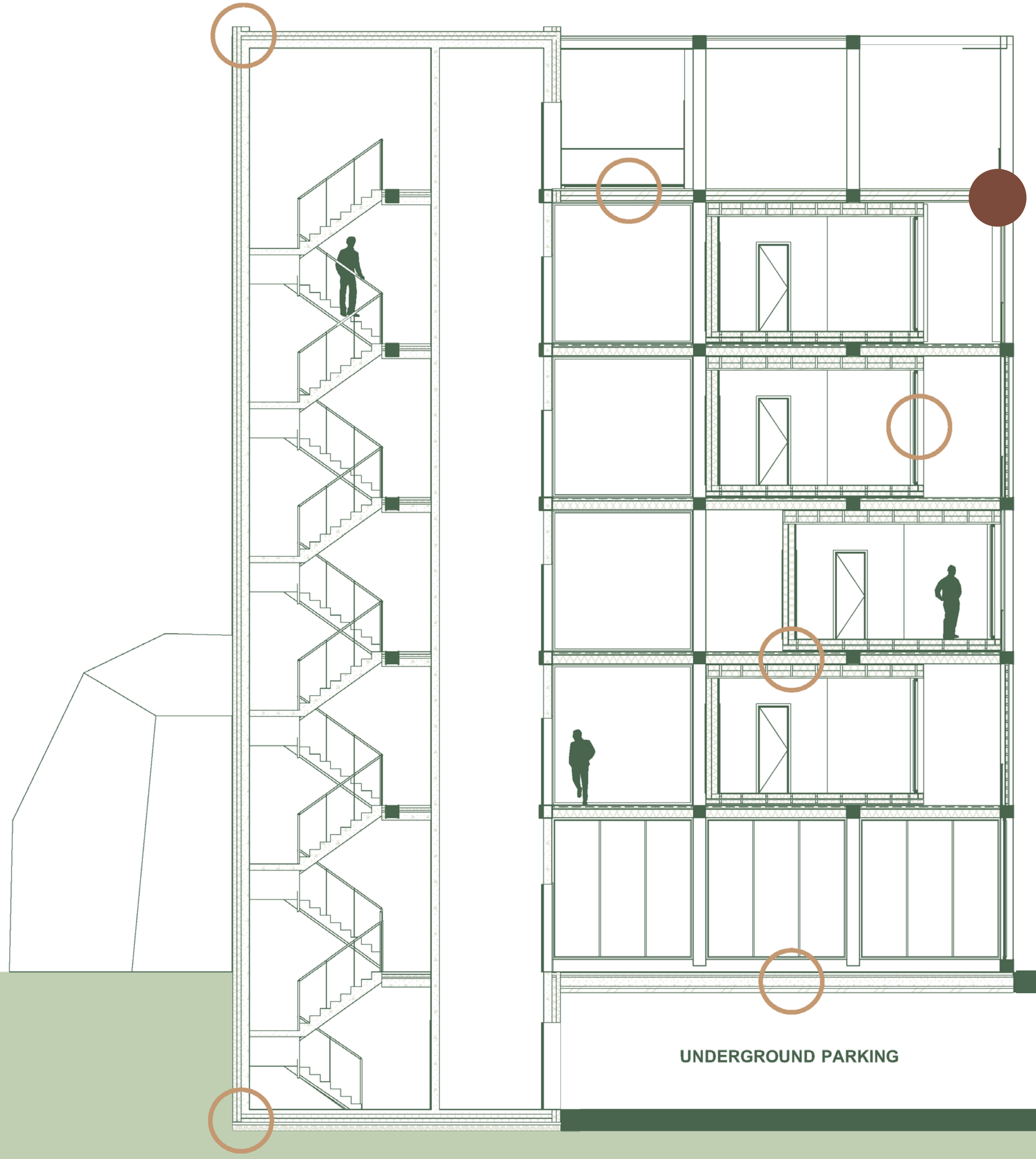
SLAB OVER UNHEATED CELLAR

1.5	Floor covering
6	Concrete
	ISOVER VARIO KM Duplex UV
5	Isover FLO
22	Concrete
5	Isover OL-E-35
10	Isover Stropmax



U=0.16 W/(m2K)

ISOVER SAINT-GOBAIN

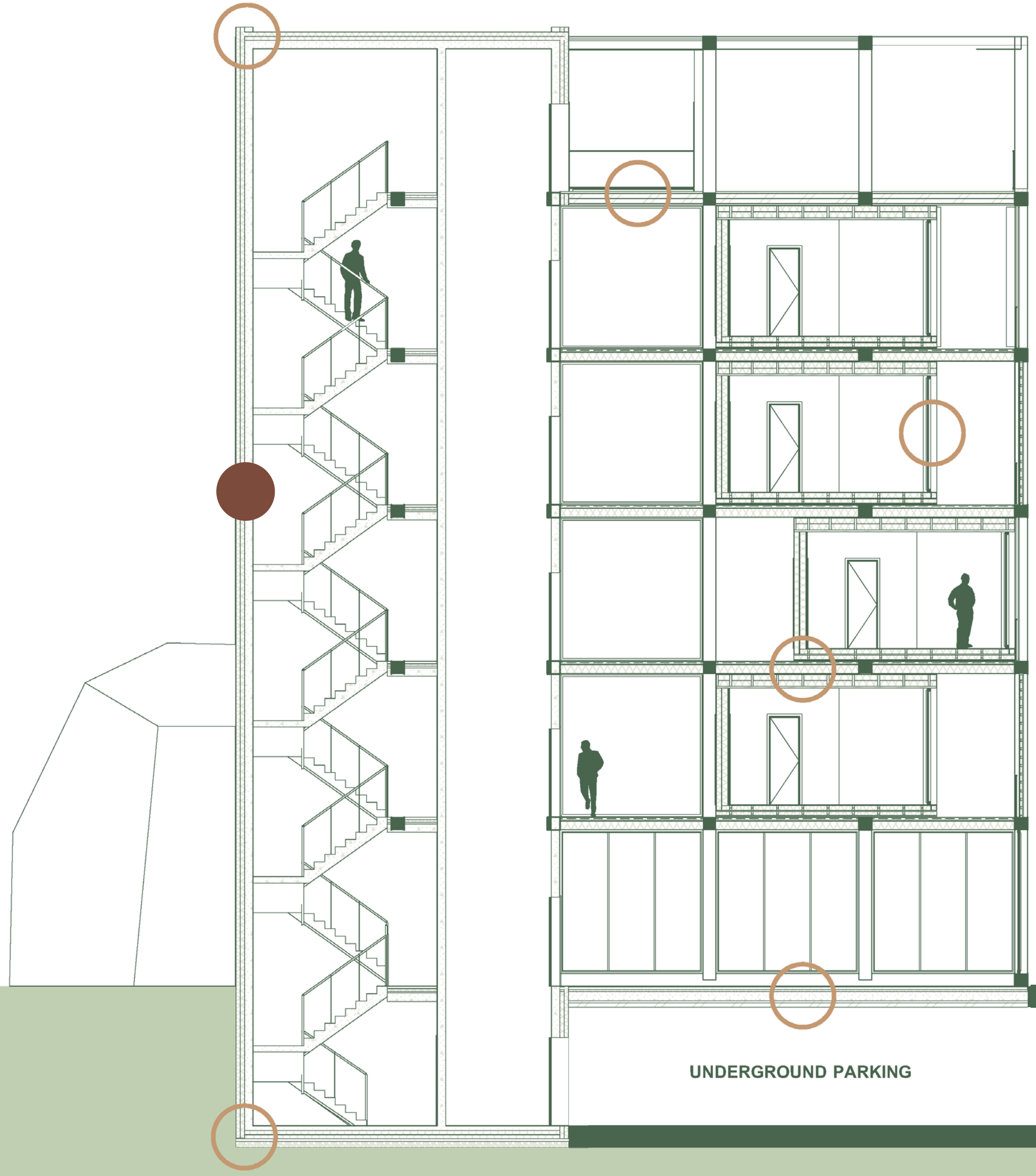


EXPLOITED ROOF

5	Pebbles
0.8	Double layer roof and sealing sheeting, bonded
12	Isover Exporit EPS 200/035 FD
12	Isover Exporit EPS 200/035 FD
	Isover Metac DSB
4	Fire-resistant panelling on load-bearing structure

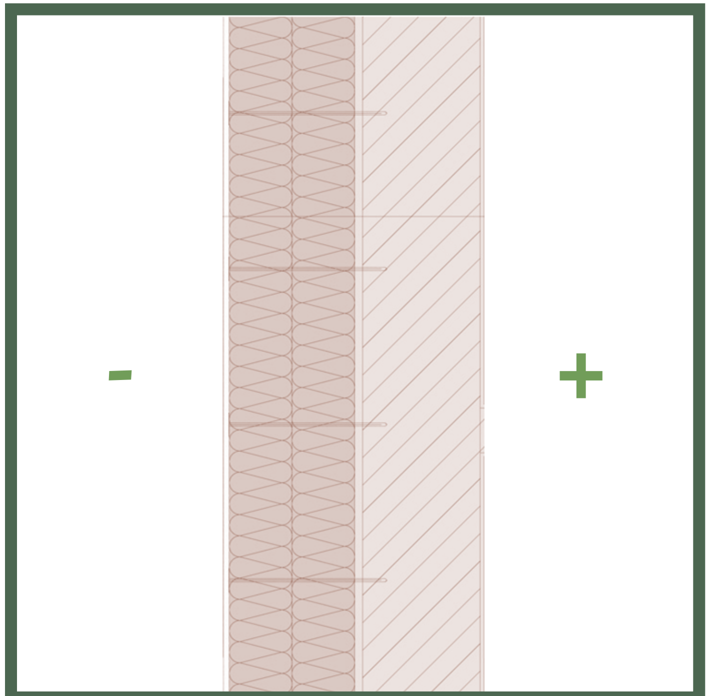
U=0.14 W/(m2K)

Gyproc SAINT-GOBAIN ISOVER SAINT-GOBAIN



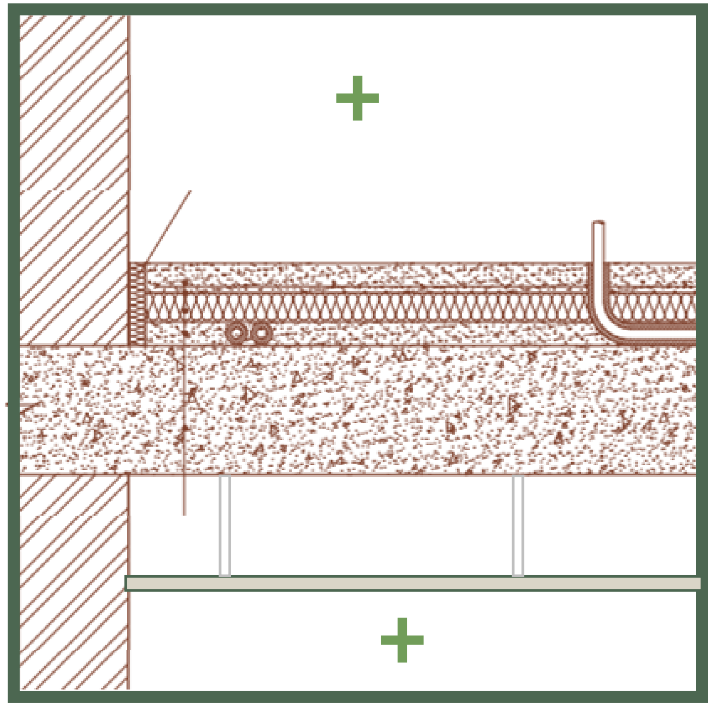
EXTERIOR WALL

1	Exterior cladding
10	Isover Stillatherm
10	Isover Stillatherm
20	Concrete
1	Interior gypsum



U=0.15 W/(m2K)

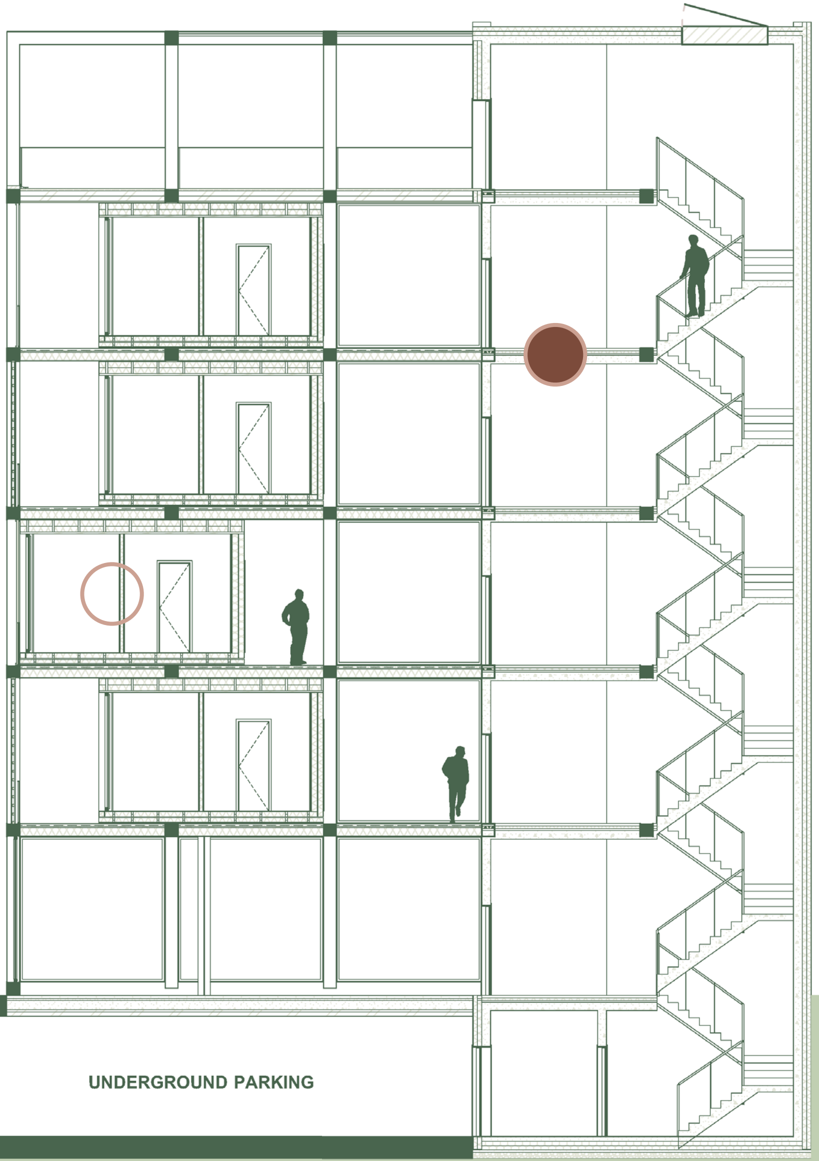
Gyproc SAINT-GOBAIN ISOVER SAINT-GOBAIN



STAIRCASE SLAB

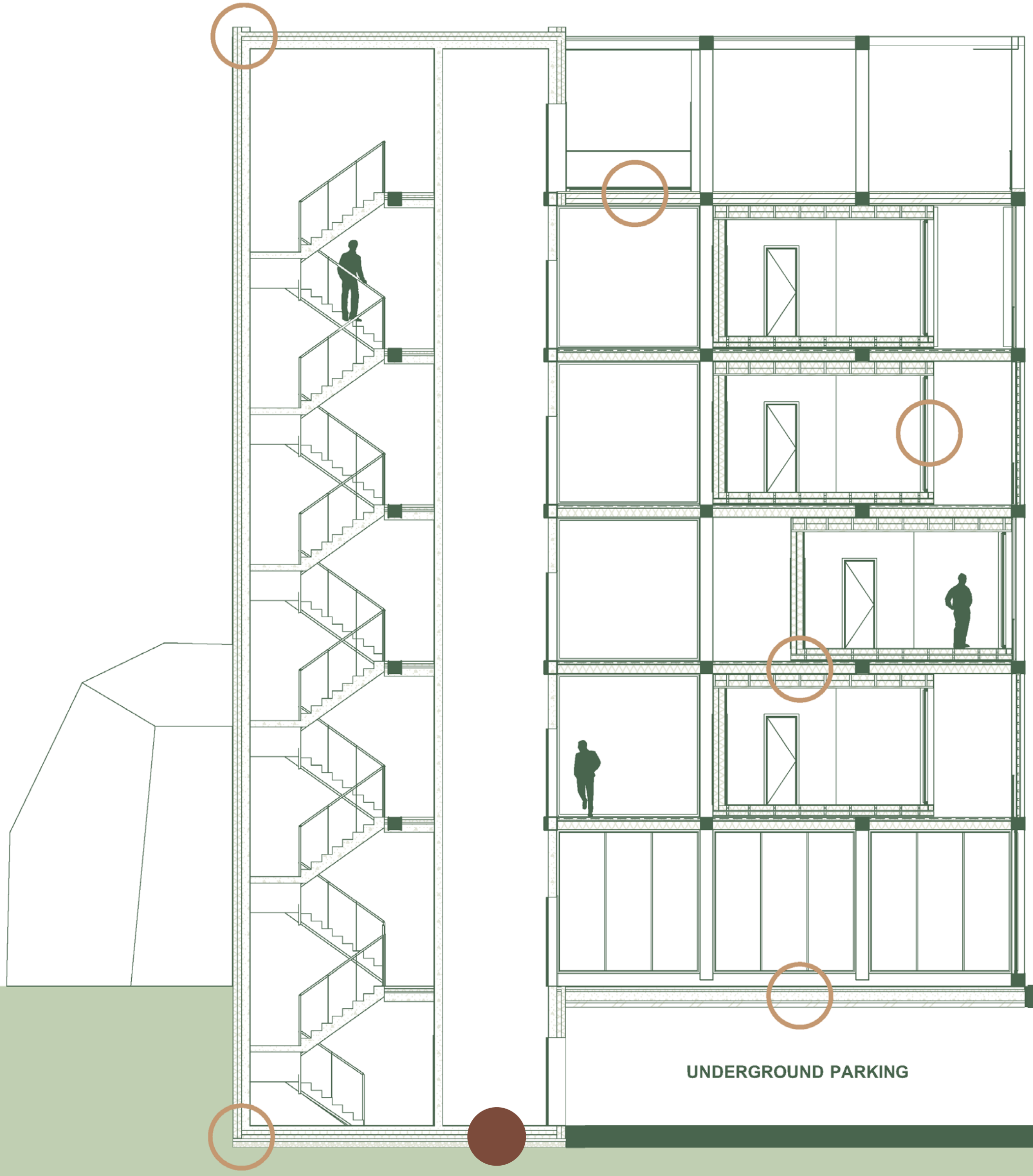
6	Concrete
	ISOVER VARIO KM Duplex UV
6	Isover FLO
4	Dry filling
20	Concrete
30	Air with GypFrame metal components
1.5	Gyproc FireLine

Fire protection



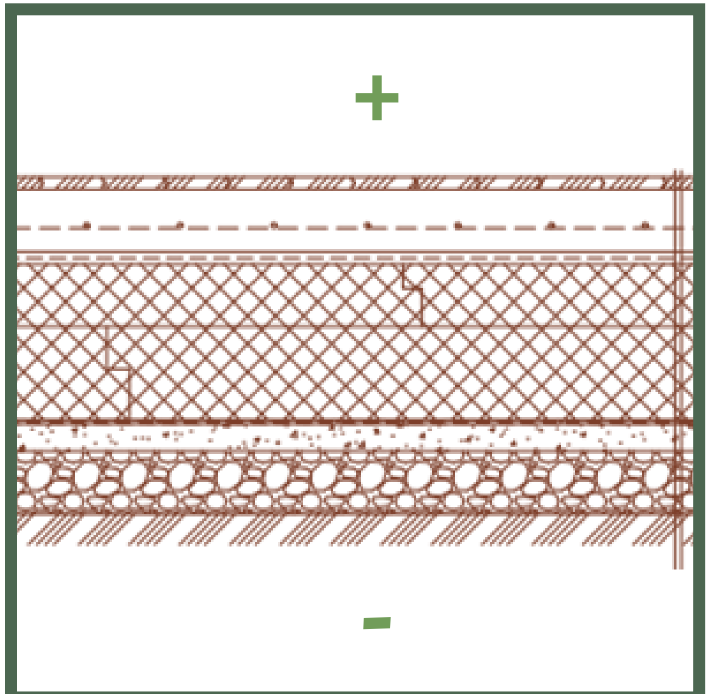
ISOVER SAINT-GOBAIN

Gyproc SAINT-GOBAIN



SLAB ON GROUND

1.5	Floor covering
	ISOVER VARIO KM Duplex UV
30	ISOVER Akustik EP 3 040
40	ISOVER Exporit EPS 100/035as
0.5	Sealing against moisture
30	Concrete founadation slab
	Separating layer
8	Styrodur CS
8	Styrodur CS



U=0.16 W/(m2K)

Rigips SAINT-GOBAIN

ISOVER SAINT-GOBAIN