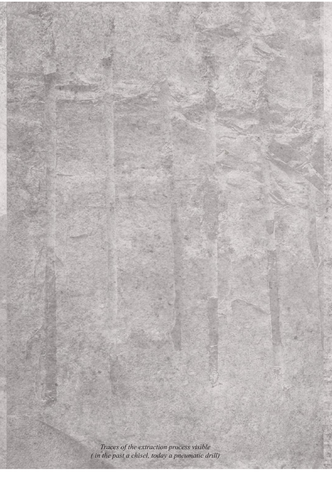
Cnemia Siphonophylia cylindrica

Michelinia Favosa (cnidarians)

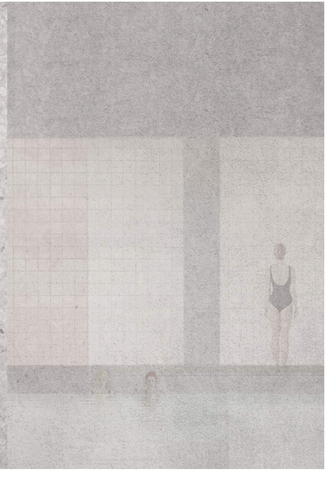
Zaphrentis crassus



*Traces of the extraction process visible
(in the past a chisel, today a pneumatic drill)*

*Surface sawing by special equipment, or a surface dressed by axe in a way to
acquire the stripes ornamentation characteristic for stone (Stoff-meisel)*

Concrete Tarazzo, limestone aggregate and powder can be used

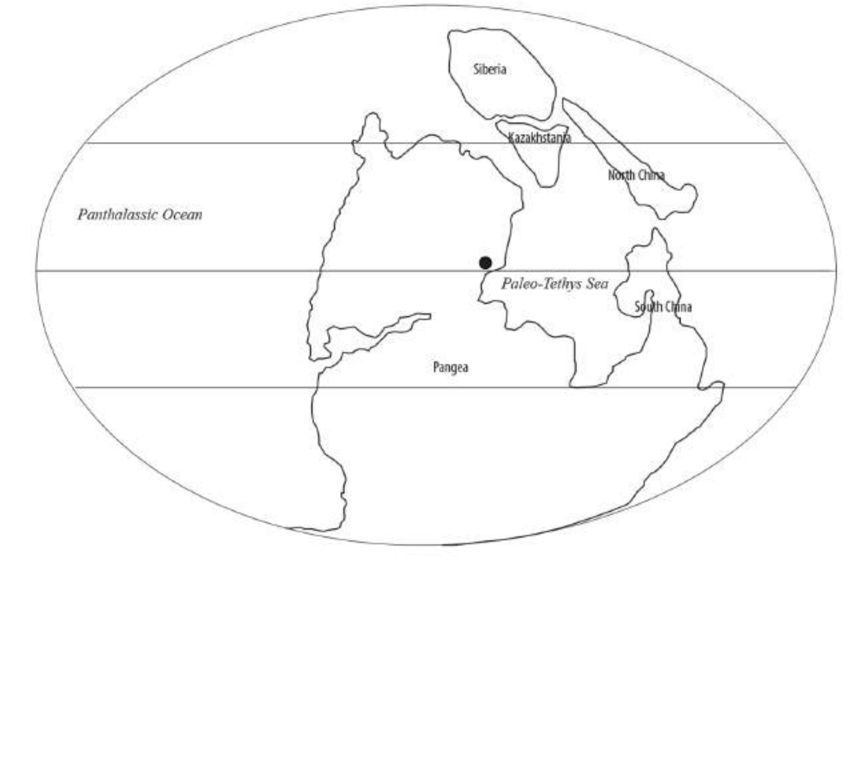


Liminality of the space:
reconnecting materiality and embodiment in the design of the swimming pool.

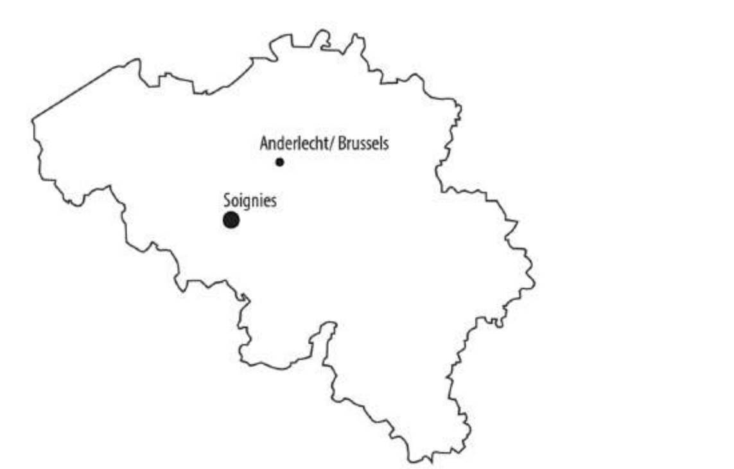
During the Carboniferous period, today's Belgian territory was the place of the tropical sea. 340 million years ago, a fossil of marine organisms in a tropical sea, entrenched in the micro-crystalline mass, was transformed in a process of sedimentation into the Belgian Blue Limestone. In a piece of limestone, numerous fossil marine animals have been tightly compressed, which gives it high durability. It is a very characteristic feature of Belgian Blue Limestone that those organisms are visible in the surface, thus the authenticity can be inferred from it. In its broken side one can find them in shining sparkles, whilst in its polished side, in white shapes.

Could be a better spolia in-re (the prehistoric world is hidden) and at the same time better material for reuse (in-se)?

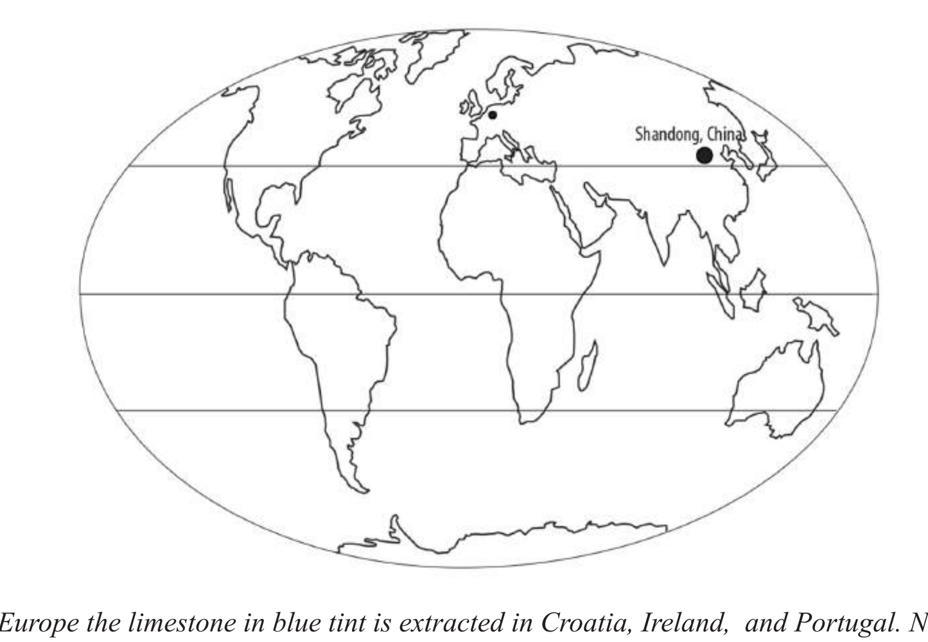
|01



|02

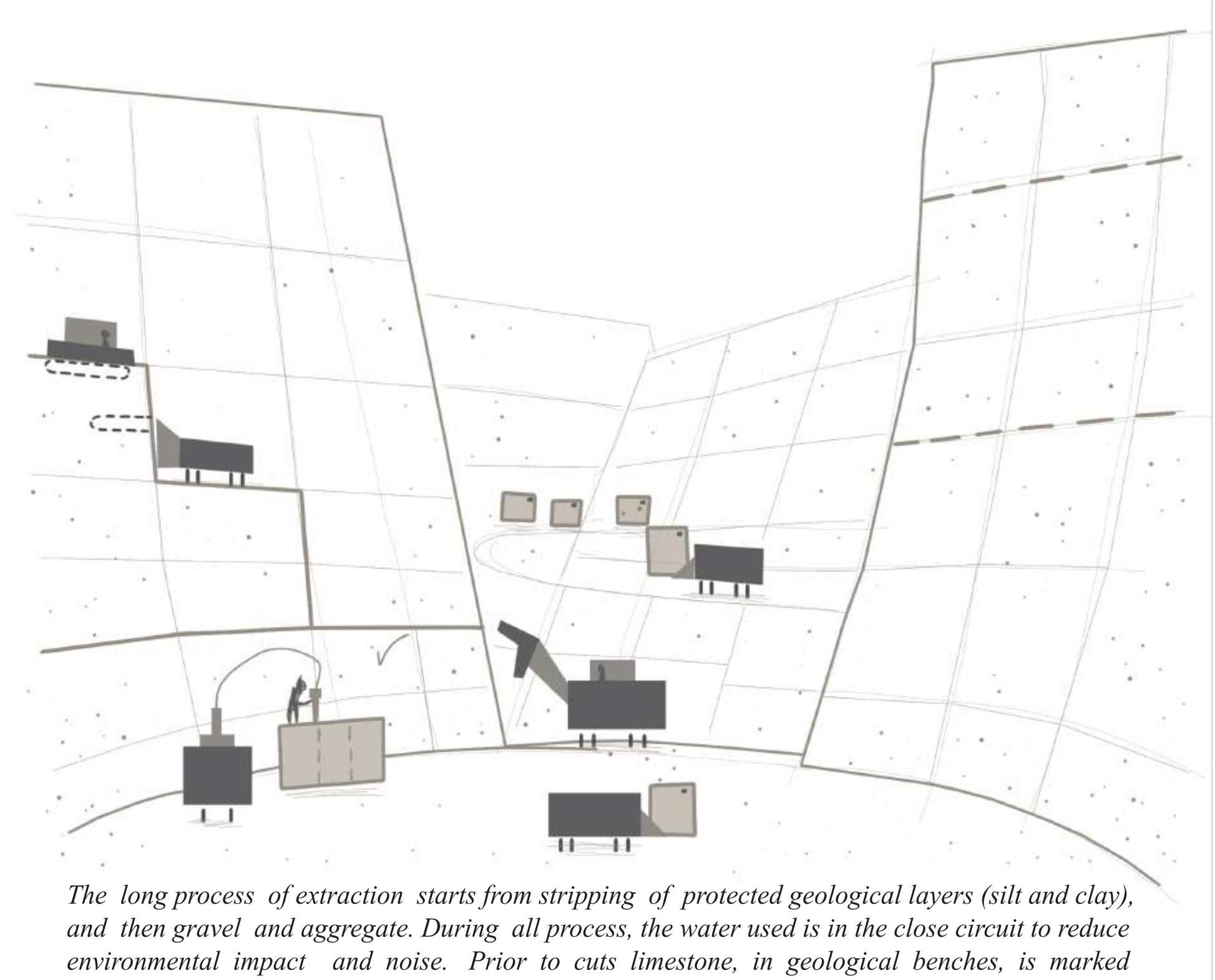


Belgian Blue Limesone quarries are located in the city of Soignies, 38 km from Brussels.



In Europe the limestone in blue tint is extracted in Croatia, Ireland, and Portugal. Nevertheless, they do not constitute a competitor for the Belgian Blue Limestone. The same cannot be said, however, for the province Shandong in China, where prices, despite transport costs, are very competitive. Nevertheless, the quality of imported imitations from Asia is way lower; they are neither as durable nor watertight. Moreover, substitutes of Belgian Blue Limestone have 16 times higher environmental footprint.

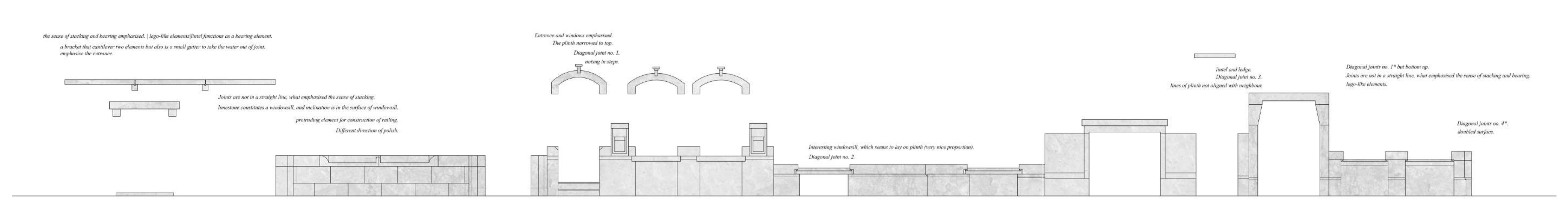
|03



The long process of extraction starts from stripping of protected geological layers (silt and clay), and then gravel and aggregate. During all process, the water used is in the close circuit to reduce environmental impact and noise. Prior to cuts limestone, in geological benches, is marked according to sedimentation of the layers, and a white vein section. First, they used a giant chain saw on tracks — the coal cutter, and then a crawler-mounted coal cutter. 2 m width, hundreds of tonnes weight pieces are removed from the natural bed to be split into 2 or 3 blocks, 40 tons each. It is done by pneumatic drills, and the hydraulic spreaders placed in holes. Labelled blocks are conveyed by bulldozers to a raw materials processing area where they undergo measurement, squaring off, and selection. The upper production facility use a range of techniques for subsequent processing. What the machine is unable to do, the stonemason does.

|04

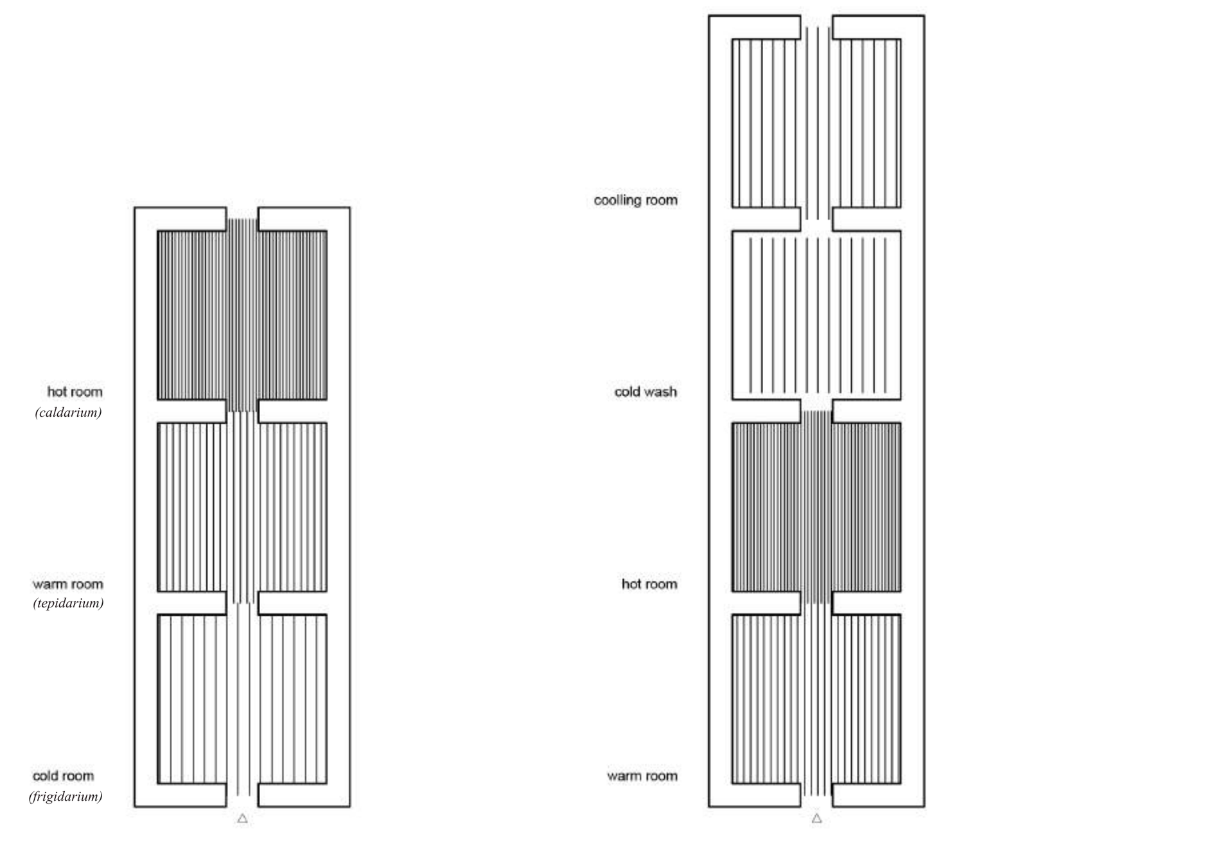
The idea of Samper, Stoffwechsel emphasised the cultural continuum in material culture It says about the possibility of using a knowledge and construction technique of one material even in a different one. At the beginning of the studio case studies of details and construction technique characteristic for limestone have been done, and its extended version is available in the design logbook. Those data was then presented as a bricolage of limestone elements, bricolage of spolias, made of surveyed elevation (plinths, portals). Plaster cast technique helped to find out the construction technology logic, understand the proportion and sizes in more haptic way. That survey will be very helpful in later design stage. Creating modern equivalents of old building practice could preserved the local identity.



|05

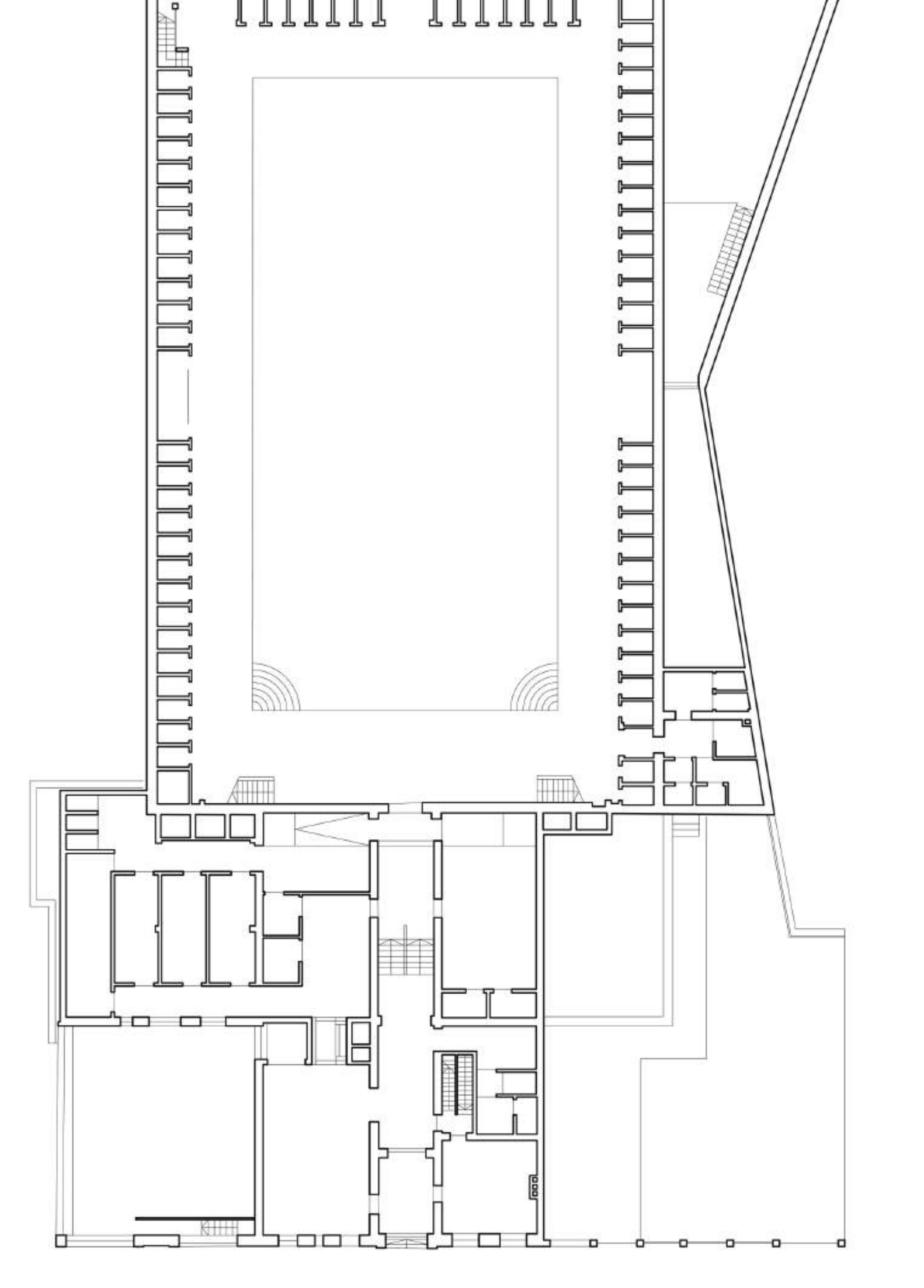
|06

|07



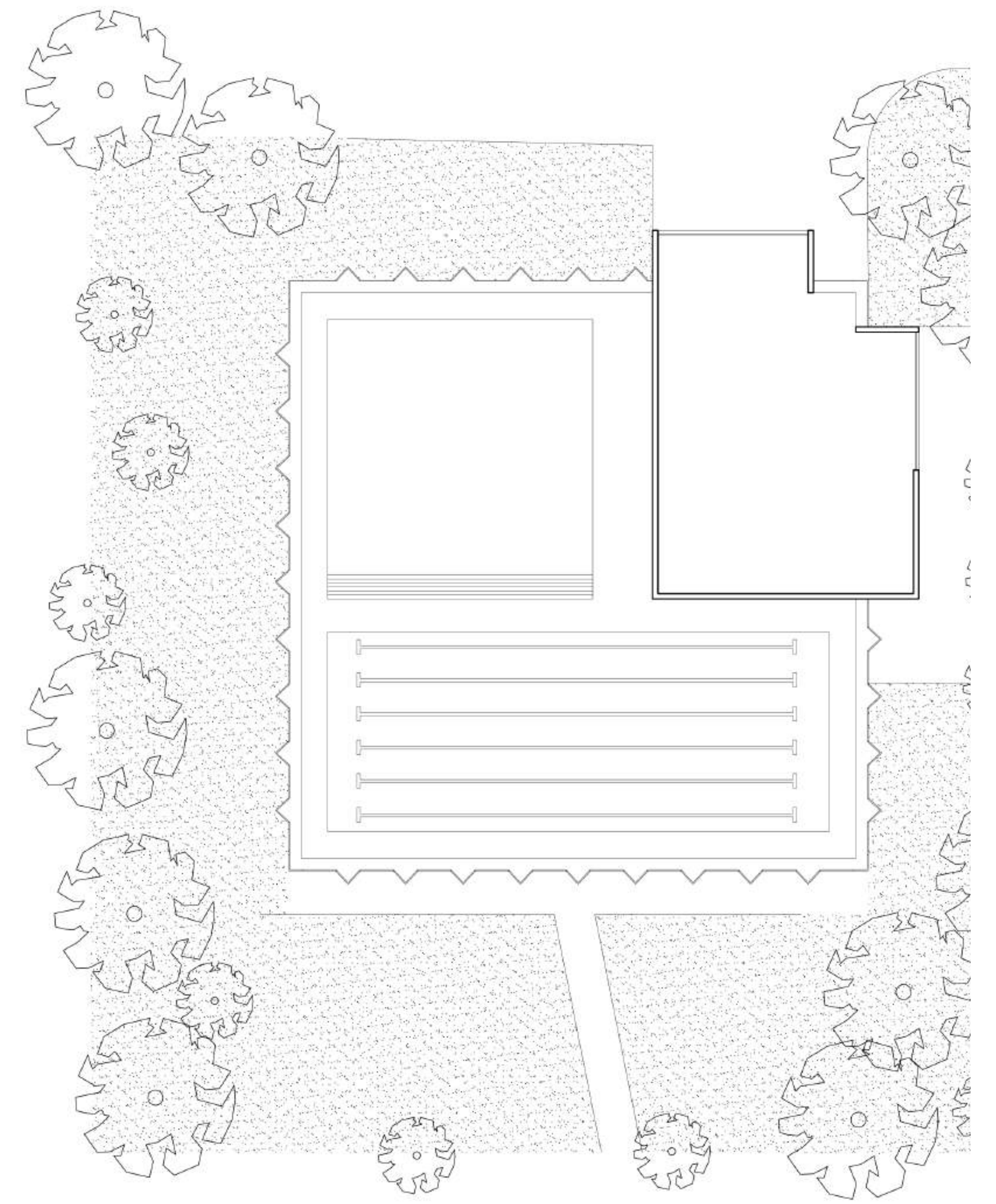
Sequence of rooms in Roman and Turkish Bath

|08



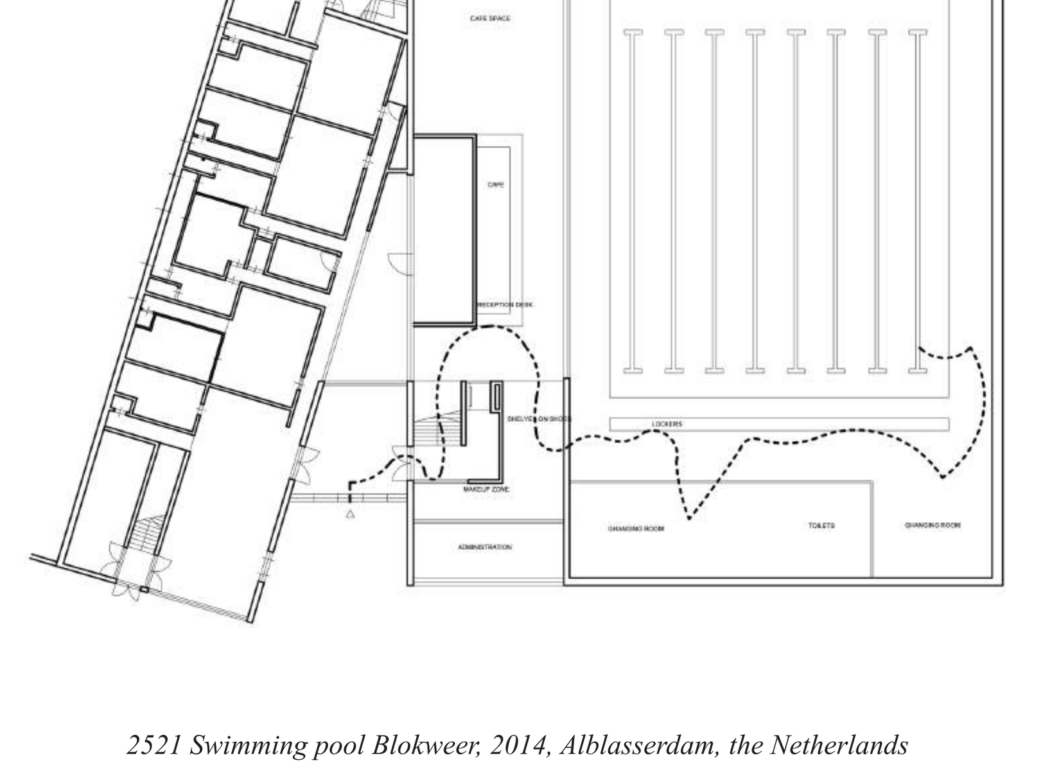
Swimming pool Communale D'ixelles, 1904 Brussels, Belgium

|09



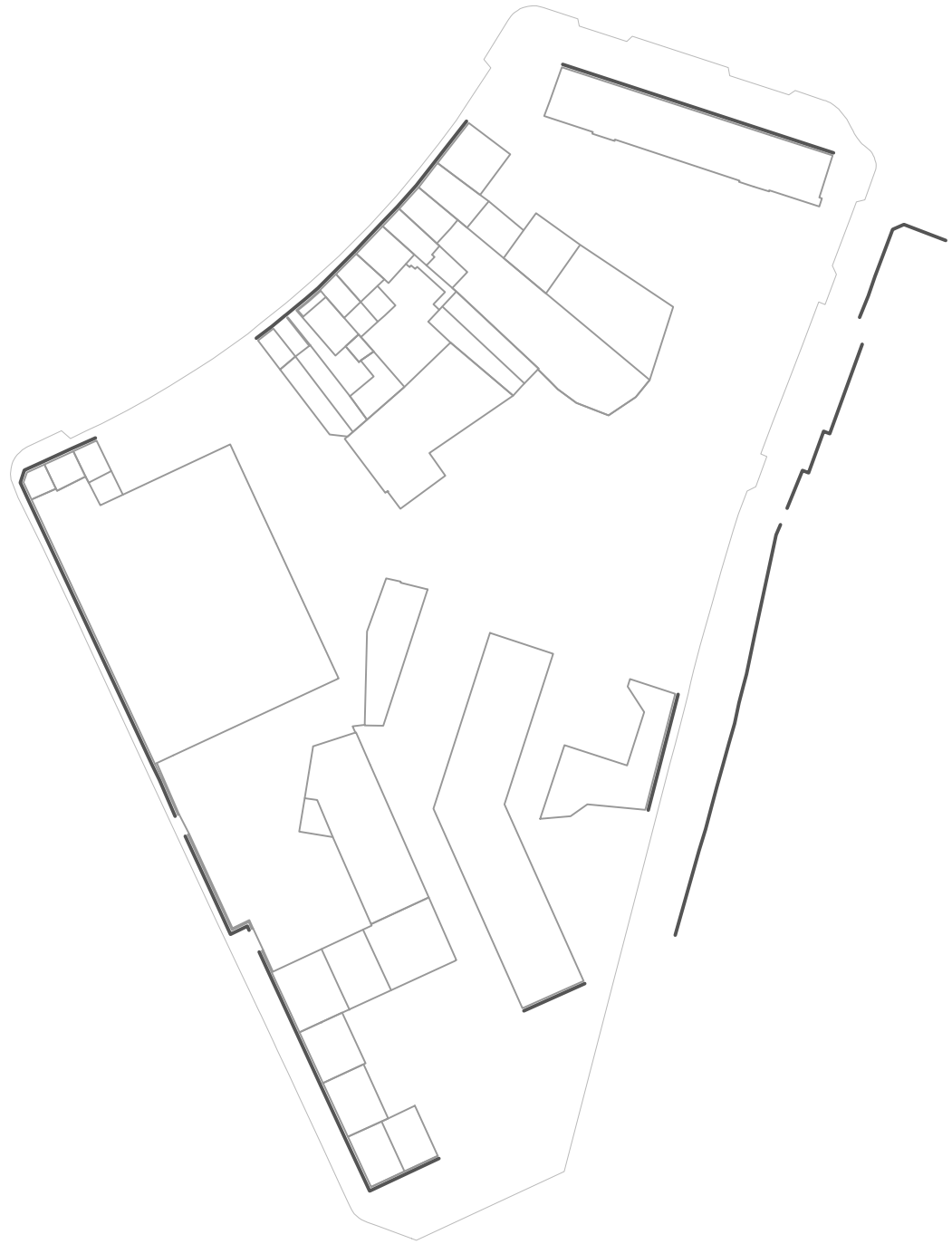
Swimming pool Longchamp, 1971, Uccle, Belgium

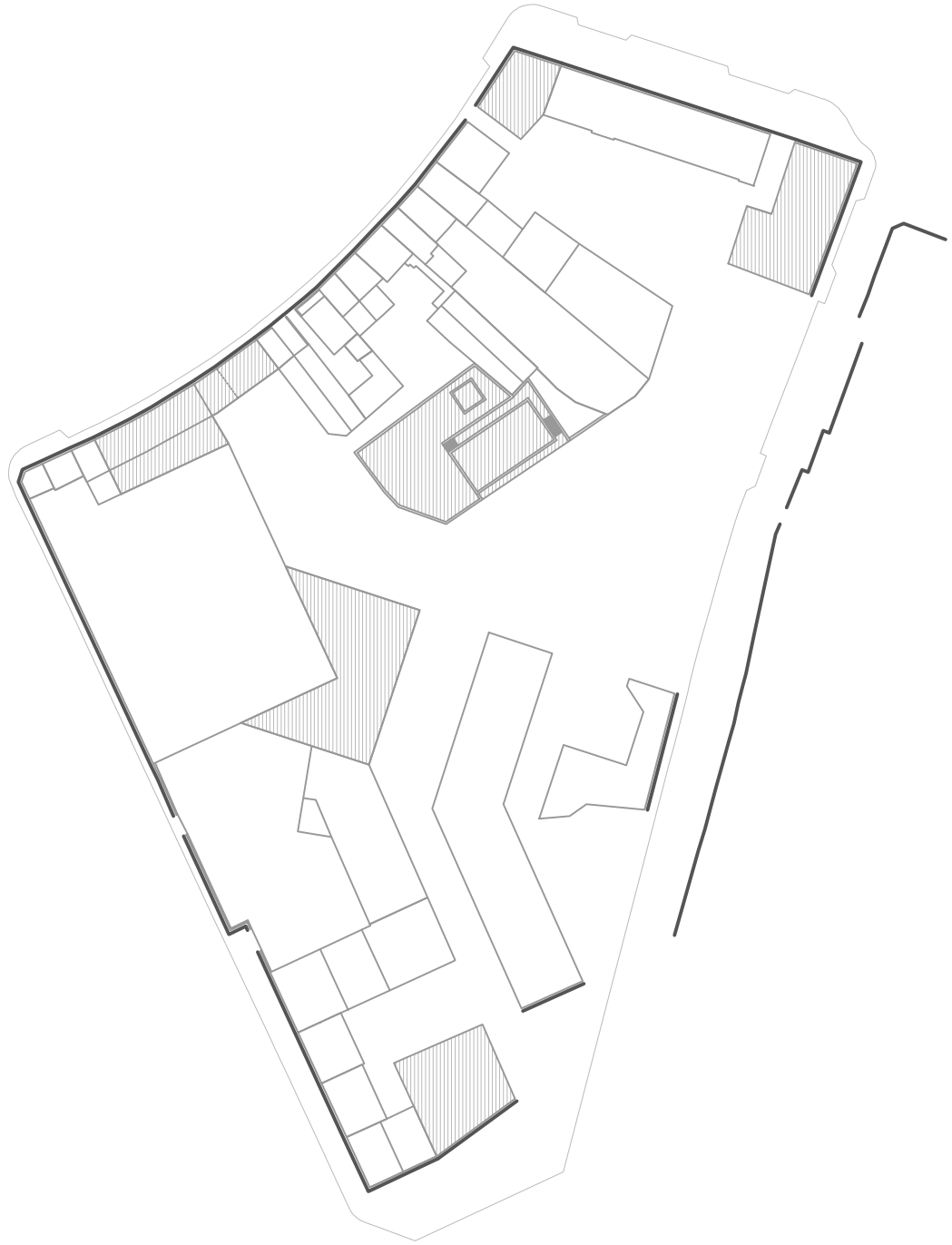
|10

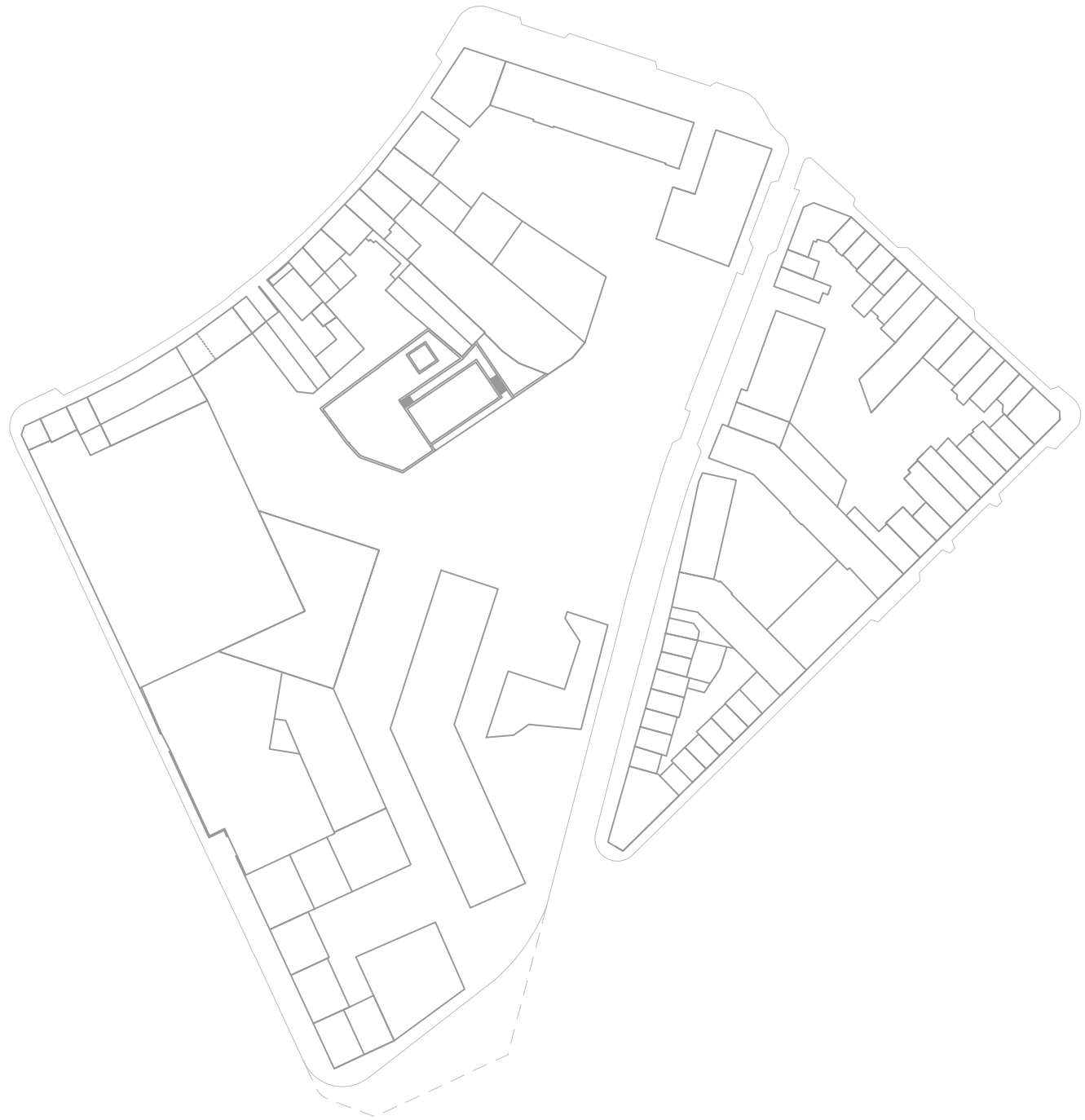


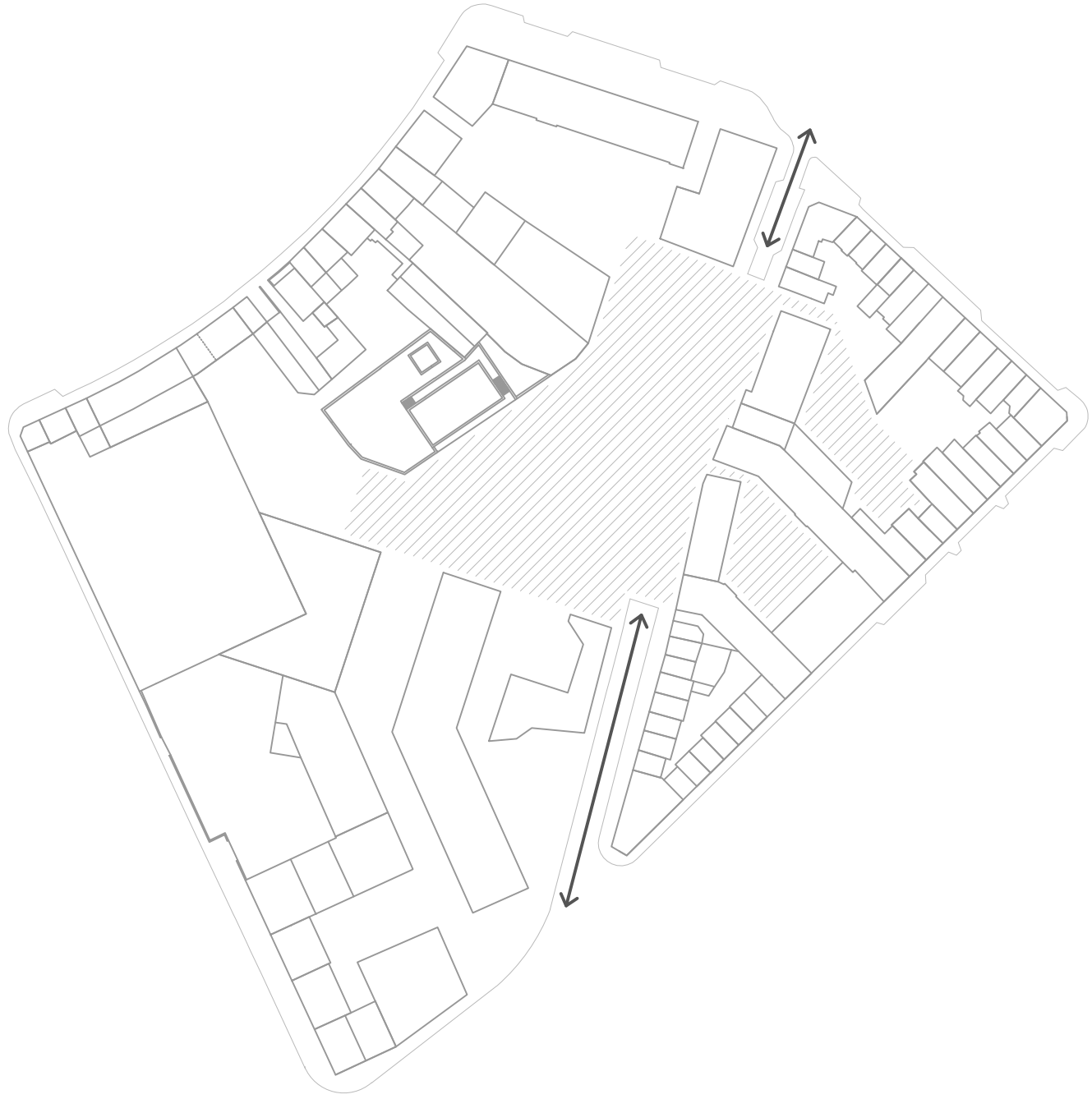
2521 Swimming pool Blokweer, 2014, Alblasserdam, the Netherlands

|11

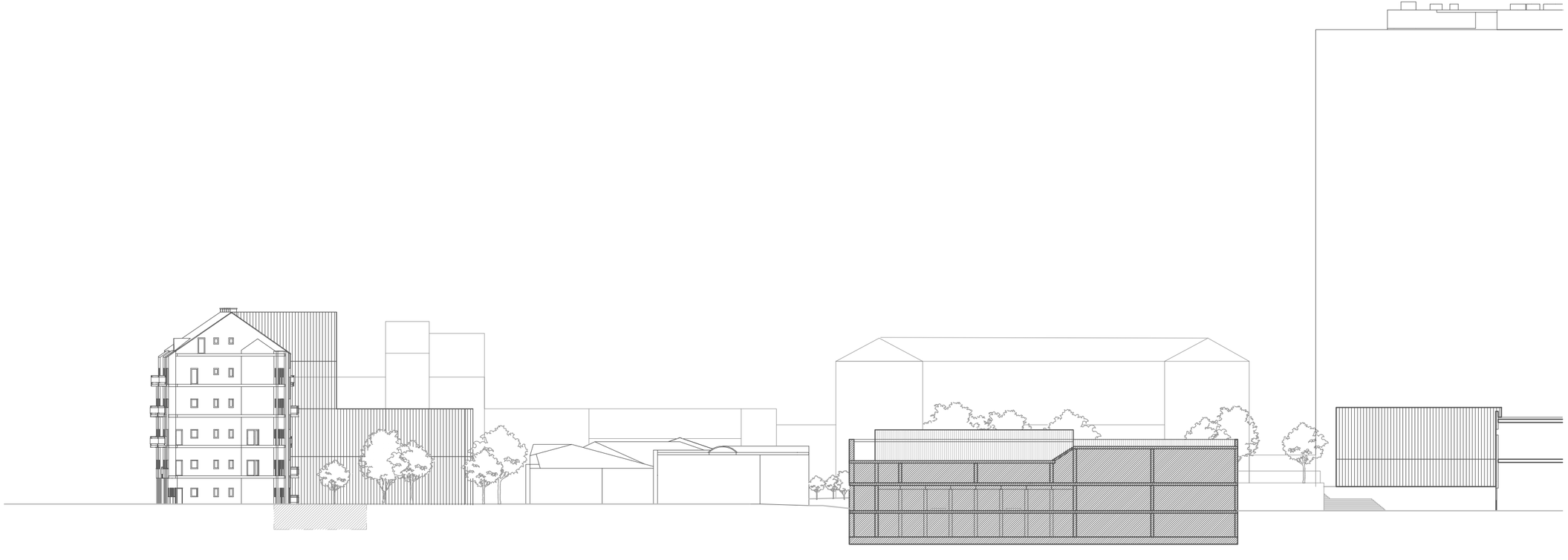


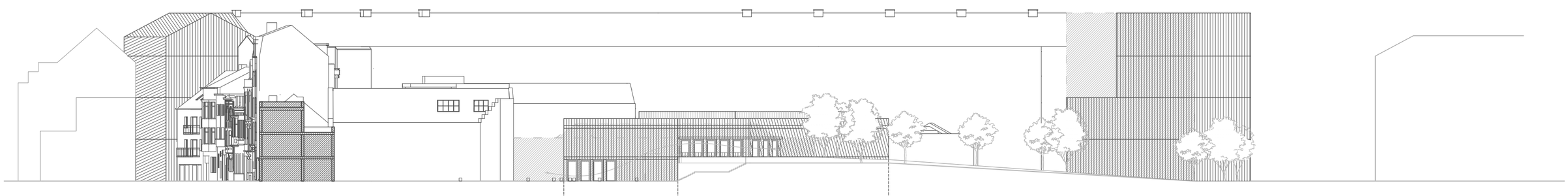


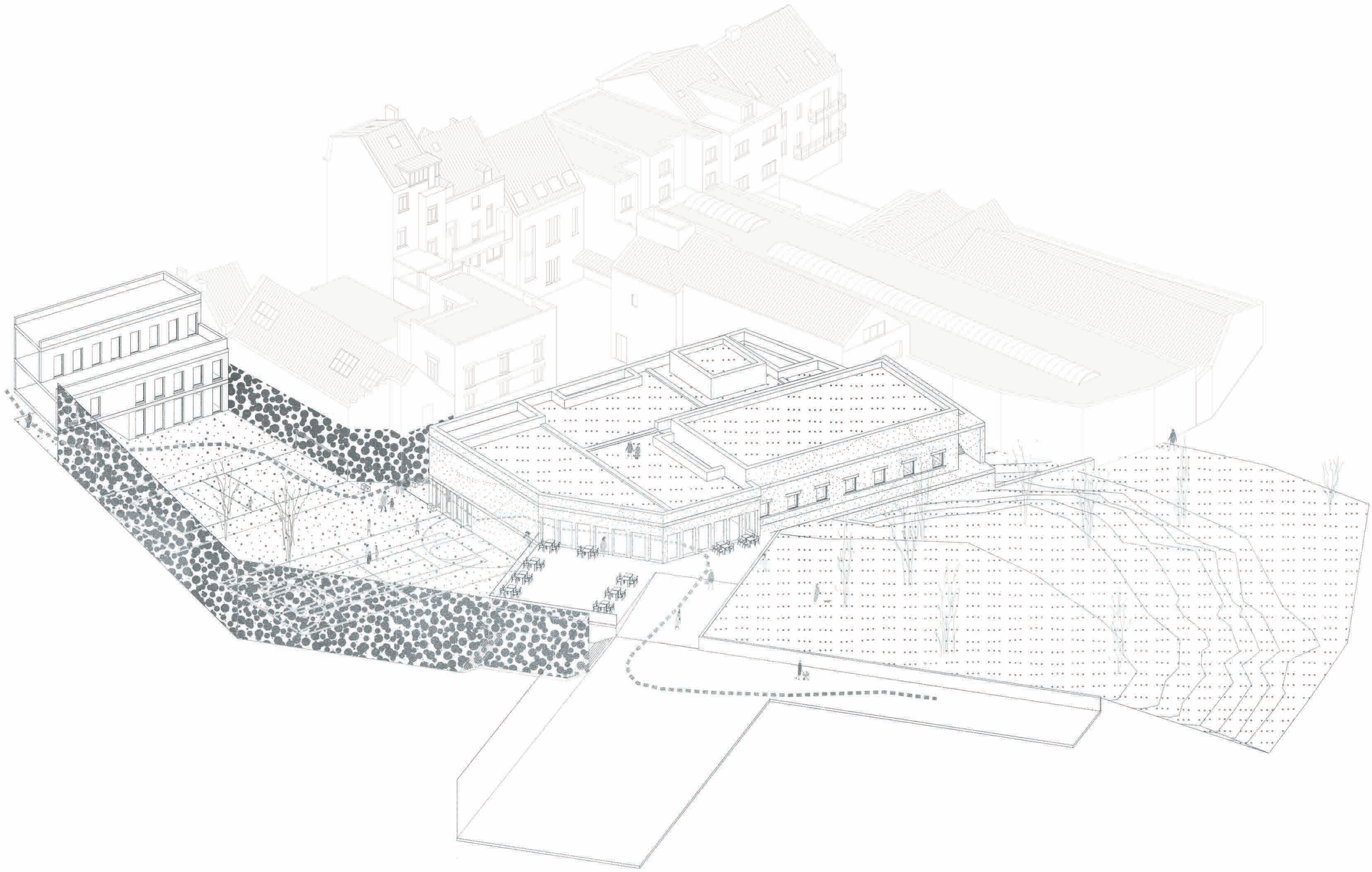




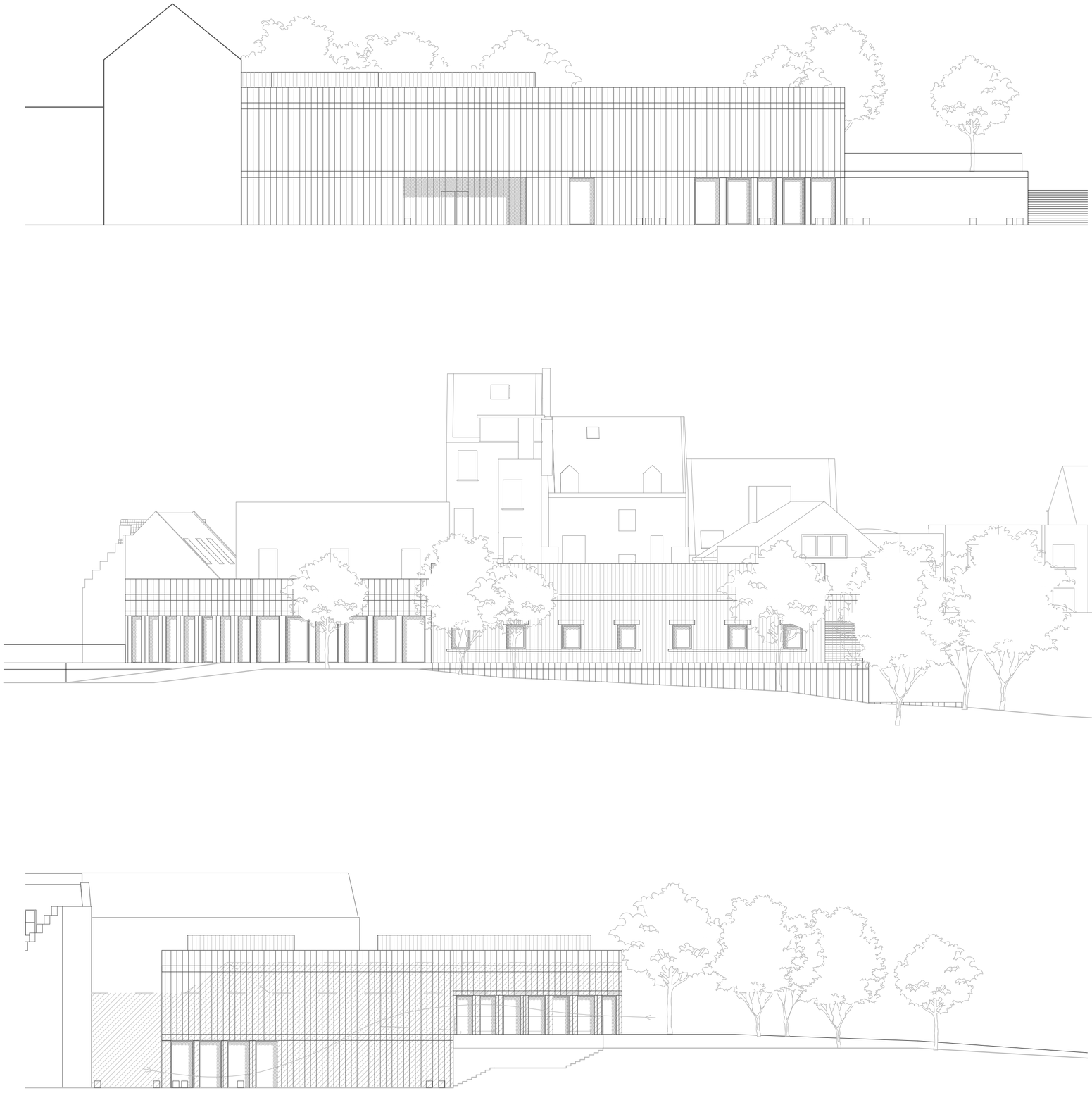

B
A
neighbourhood library
3000 m²
education/
workshop zone
3780m² + 2300m²
swimming pool
2800m²
± 0.00
+ 10.20
+ 3.50
+ 0.30
+ 8.30
+ 10.20
+ 3.50
± 0.00
+ 8.00
+ 9.00
+ 3.50
+ 2.30
education/
workshop zone
3780m² + 2300m²
dancing school
1280m²



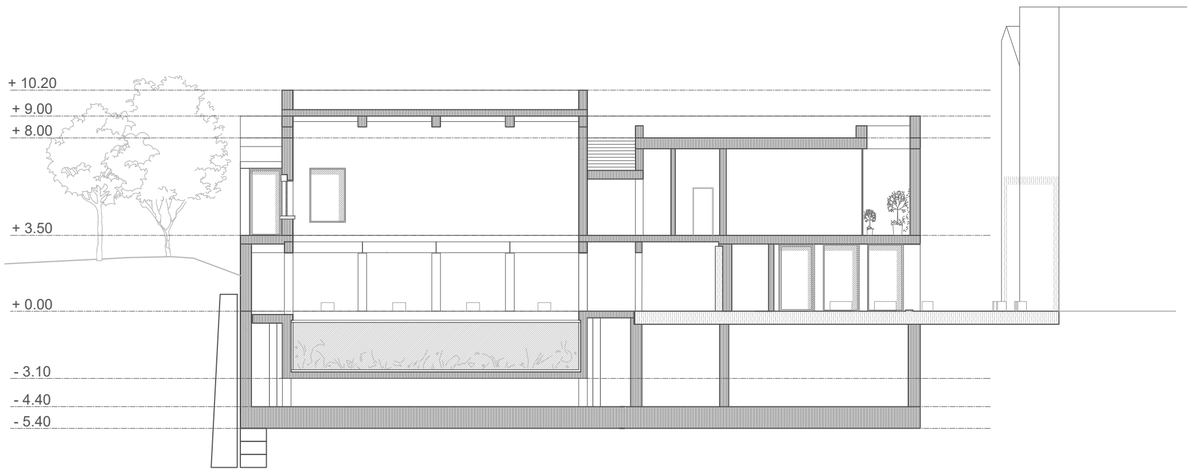




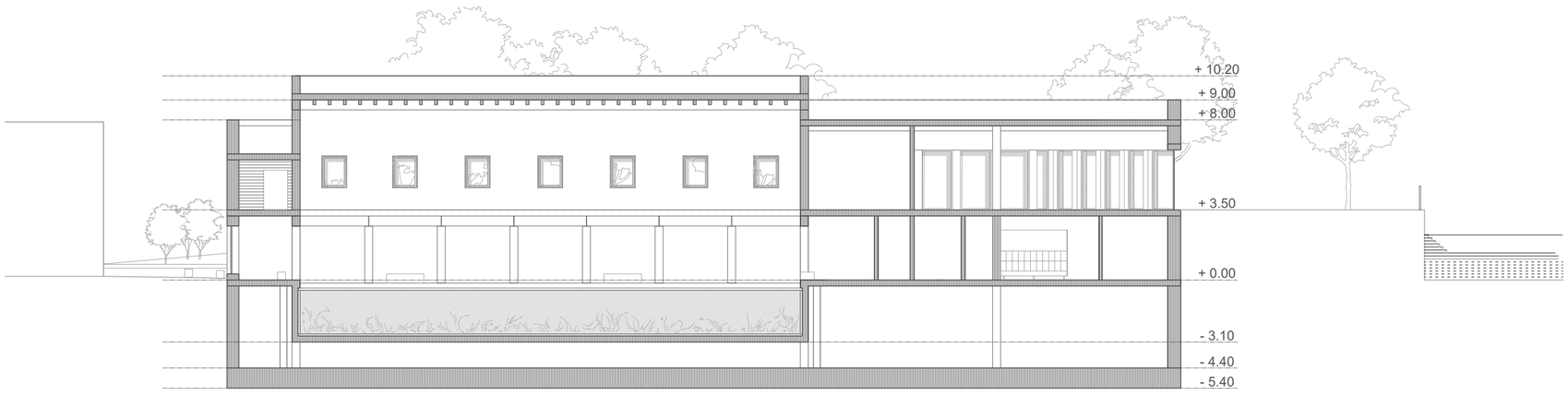
Popular culture as opposed to noble body cultures



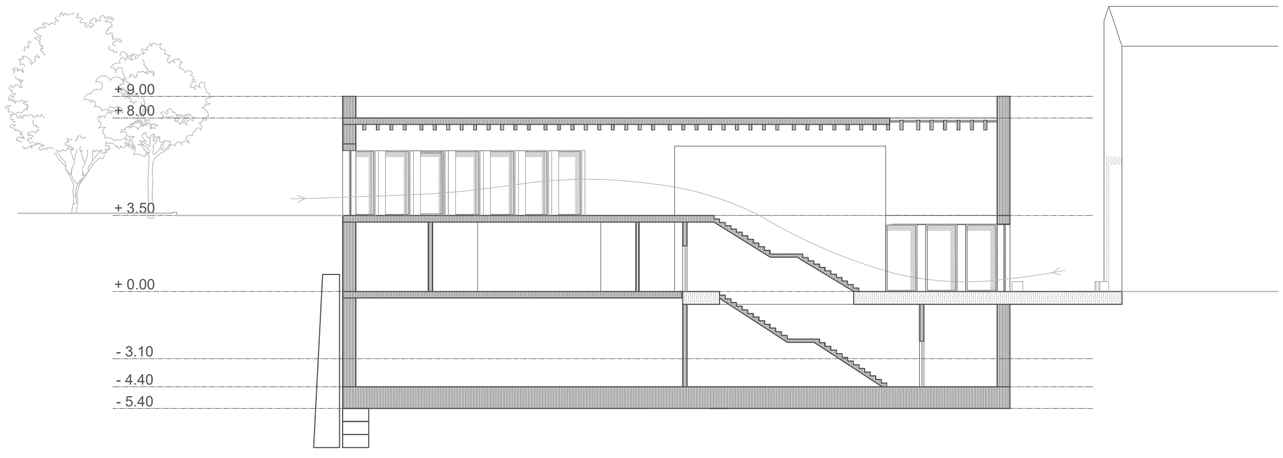
West, East and South elevations | 1:200



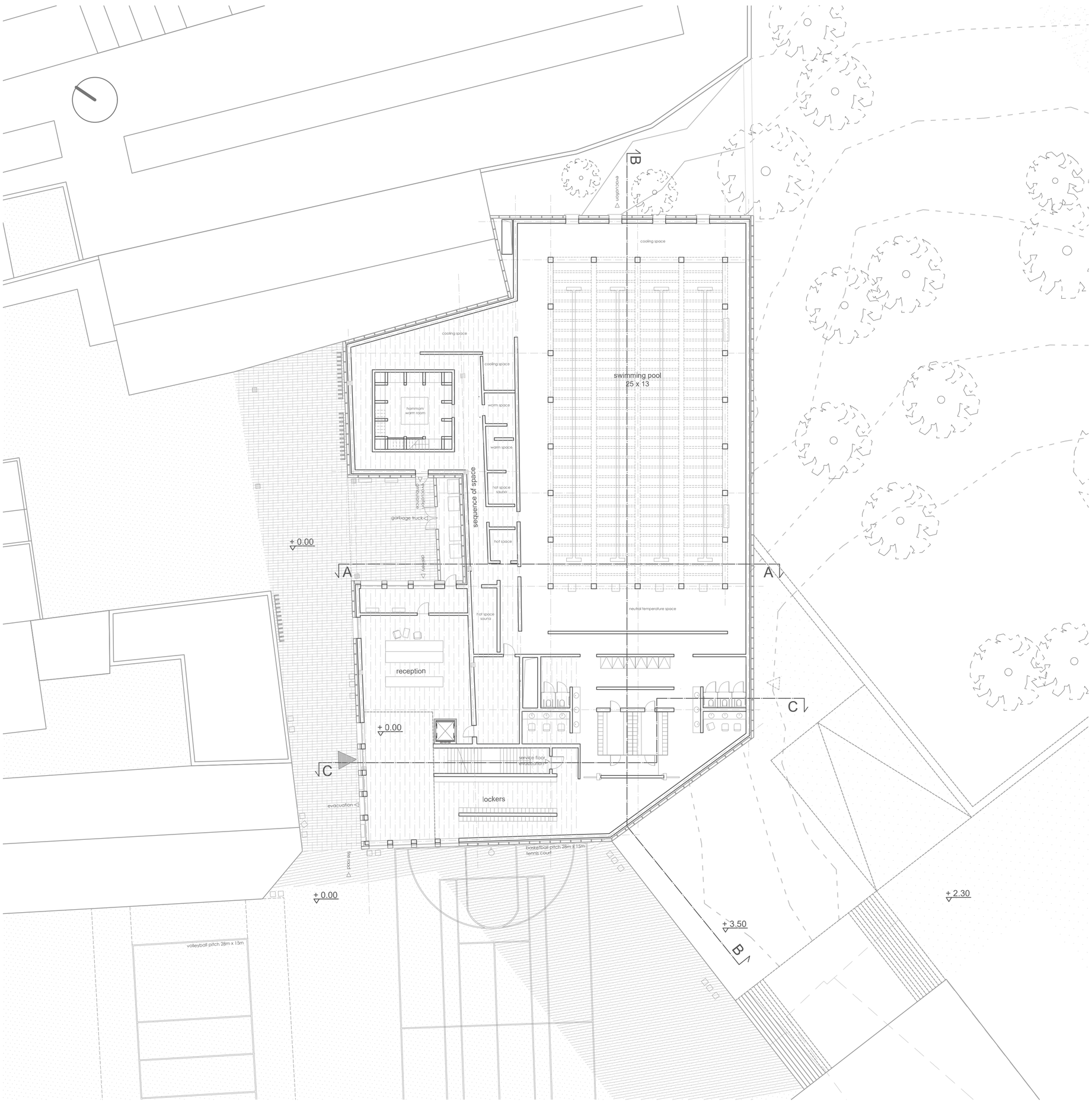
Section A - A| 1:200



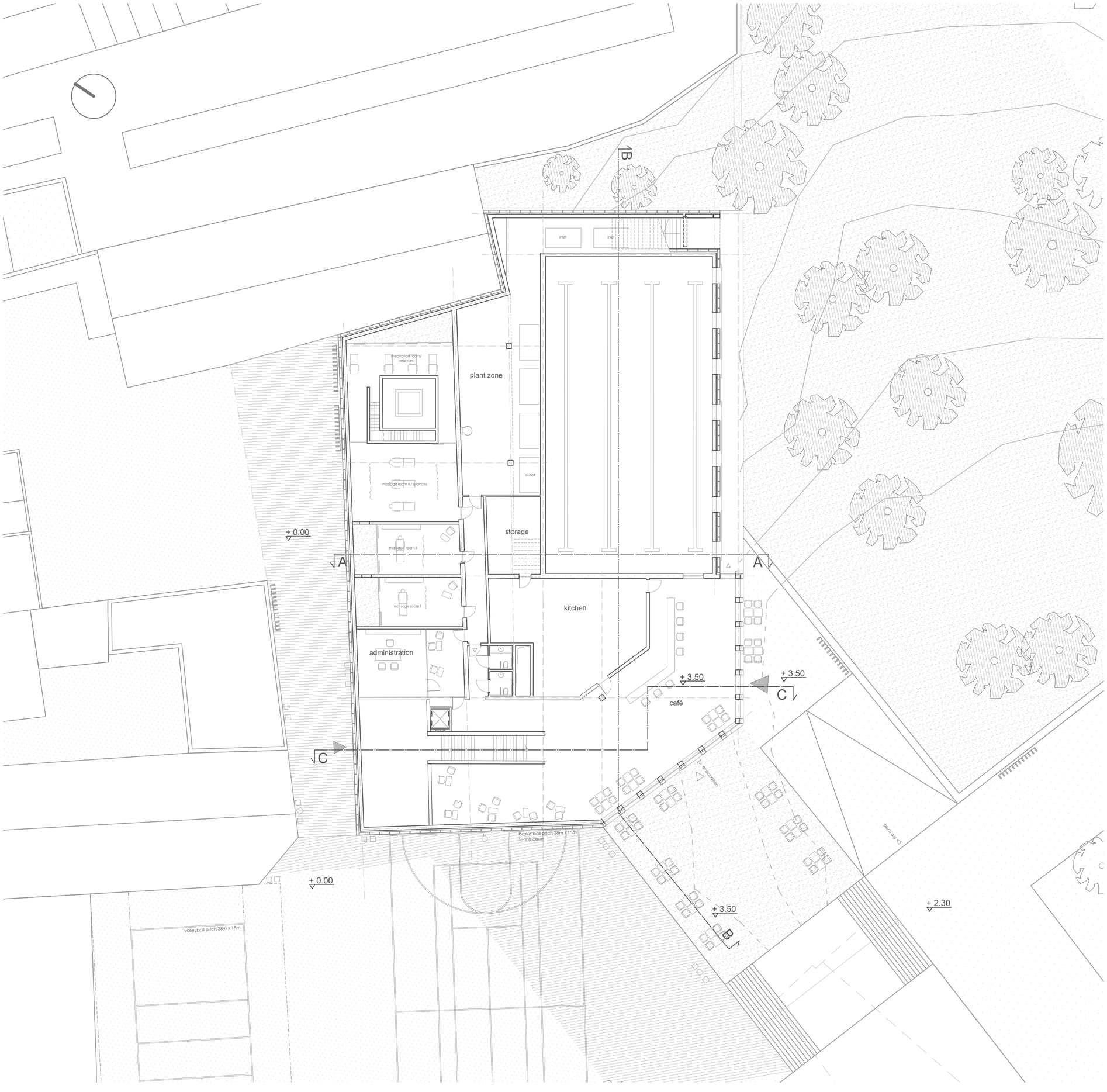
Section B - B | 1:200



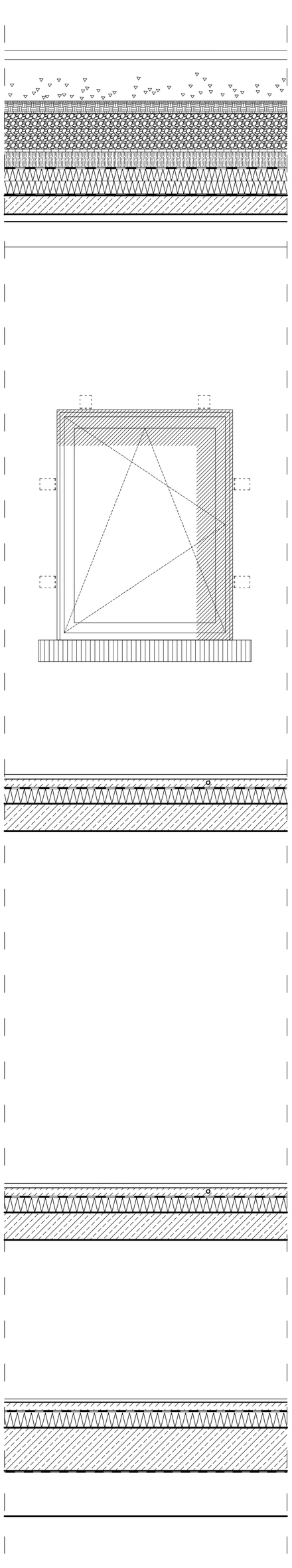
Section C - C | 1:200

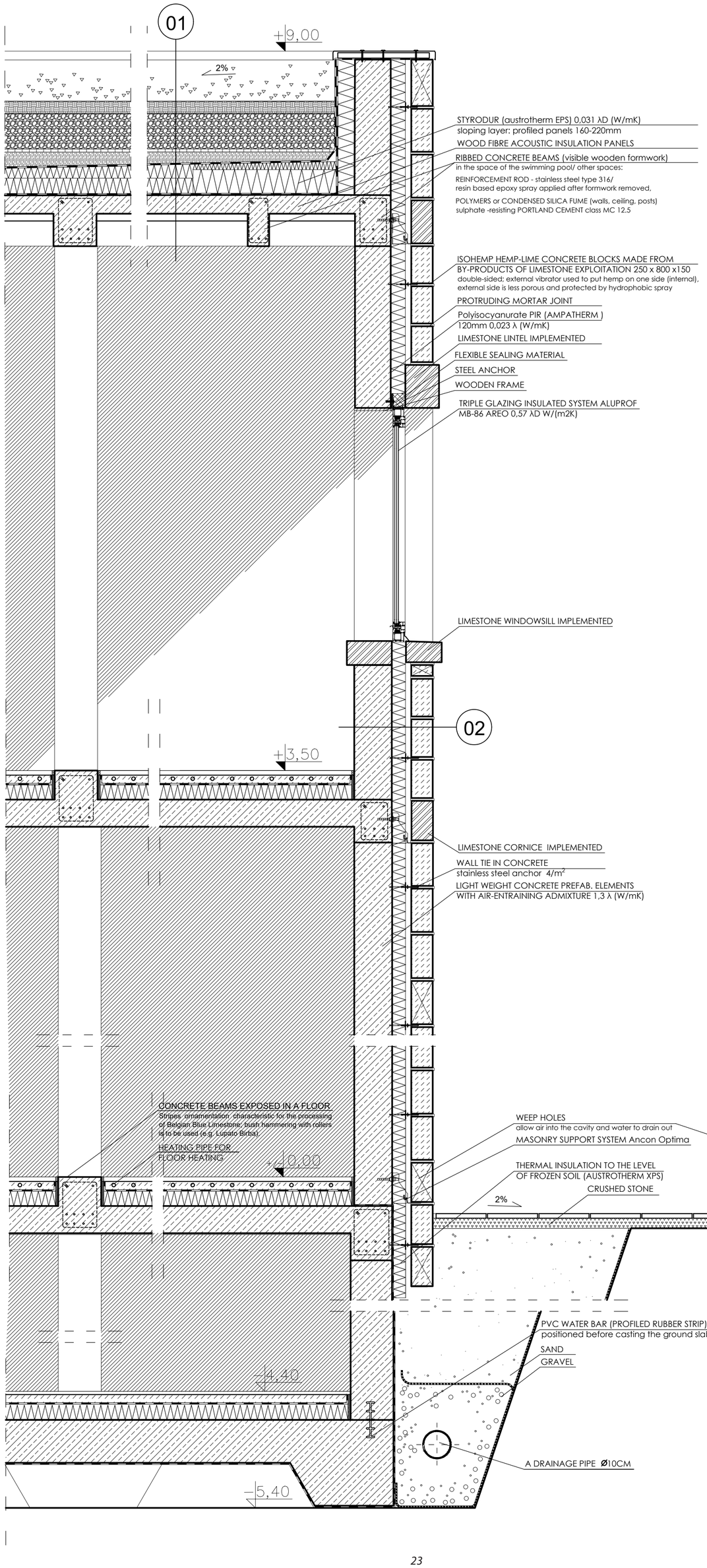


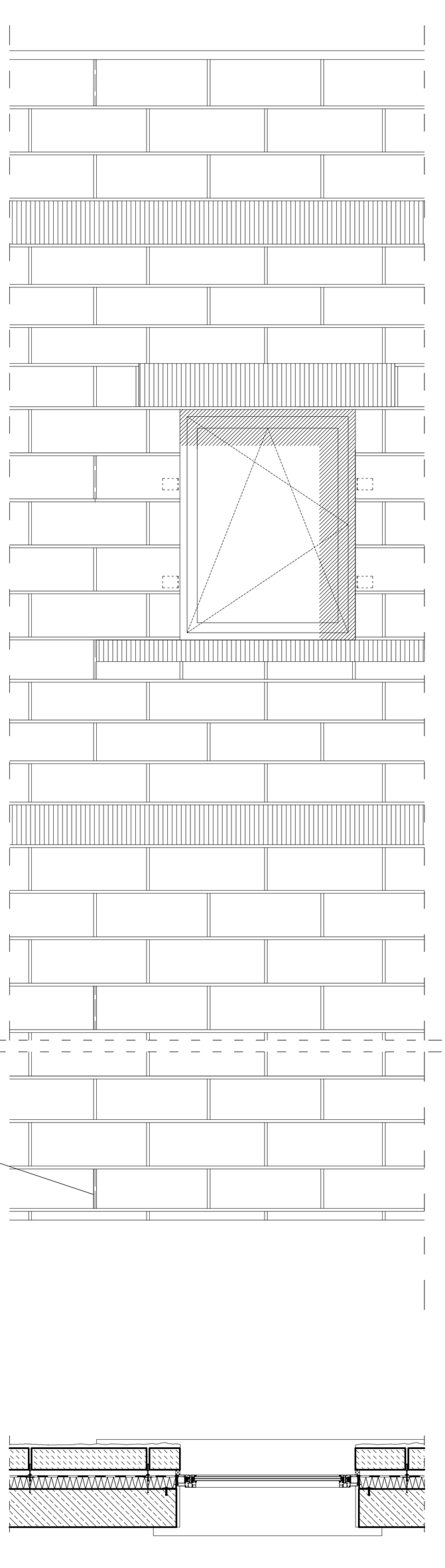
Ground floor level | 1:200



First floor level | 1:200




01
+9,00
2%
STYRODUR (austrotherm EPS) 0,031 λD (W/mK)
sloping layer: profiled panels 160-220mm
WOOD FIBRE ACOUSTIC INSULATION PANELS
RIBBED CONCRETE BEAMS (visible wooden formwork)
in the space of the swimming pool/ other spaces:
REINFORCEMENT ROD - stainless steel type 316/
resin based epoxy spray applied after formwork removed,
POLYMERS or CONDENSED SILICA FUME (walls, ceiling, posts)
sulphate -resisting PORTLAND CEMENT class MC 12.5
ISOHEMP HEMP-LIME CONCRETE BLOCKS MADE FROM
BY-PRODUCTS OF LIMESTONE EXPLOITATION 250 x 800 x150
double-sided; external vibrator used to put hemp on one side (internal),
external side is less porous and protected by hydrophobic spray
PROTRUDING MORTAR JOINT
Polyisocyanurate PIR (AMPATHERM)
120mm 0,023 λ (W/mK)
LIMESTONE LINTEL IMPLEMENTED
FLEXIBLE SEALING MATERIAL
STEEL ANCHOR
WOODEN FRAME
TRIPLE GLAZING INSULATED SYSTEM ALUPROF
MB-86 AREO 0,57 λD W/(m2K)
LIMESTONE WINDOWSILL IMPLEMENTED
02
+3,50
LIMESTONE CORNICE IMPLEMENTED
WALL TIE IN CONCRETE
stainless steel anchor 4/m²
LIGHT WEIGHT CONCRETE PREFAB. ELEMENTS
WITH AIR-ENTRAINING ADMIXTURE 1,3 λ (W/mK)
CONCRETE BEAMS EXPOSED IN A FLOOR
Stripes ornamentation characteristic for the processing
of Belgian Blue Limestone, bush hammering with rollers
is to be used (e.g. Lupato Birba)
HEATING PIPE FOR
FLOOR HEATING
±0,00
WEEP HOLES
allow air into the cavity and water to drain out
MASONRY SUPPORT SYSTEM Ancon Optima
THERMAL INSULATION TO THE LEVEL
OF FROZEN SOIL (AUSTROTHERM XPS)
CRUSHED STONE
2%
PVC WATER BAR (PROFILED RUBBER STRIP):
positioned before casting the ground slab
SAND
GRAVEL
-4,40
A DRAINAGE PIPE Ø10CM
-5,40



+10,20

WEEP HOLES
allow air into the cavity and water to drain out
STYRODUR (austrotherm EPS) 0,031 λD (W/mK)
sloping layer: profiled panels 160-220mm

01

+9,00

2%

MASONRY SUPPORT SYSTEM Ancon Optima
LIGHT WEIGHT CONCRETE PREFAB. ELEMENTS
WITH AIR-ENTRAINING ADMIXTURE 1,3 λ (W/mK)

02

PLANT ZONE BaOpt ++ Bauer Optimisation Ventilation system
In the BaOpt system temperatures in the swimming pool space hardly differ, power consumption is reduced, air is refreshed and dehumidified. Because there is no air turbulence in this system, the layer of air on the surface of the bathing water is not disturbed. Consequently there is less evaporation of bathing water. This has a positive effect on the climate conditions. Thanks to that the stagnant air will not cool one's body after coming out of the pool.

WALL TIE IN CONCRETE
stainless steel anchor 4/m^2

+3,50

ISOHEMP HEMP-LIME CONCRETE BLOCKS MADE FROM
BY-PRODUCTS OF LIMESTONE EXPLOITATION 250 x 800 x150
double-sided; external vibrator used to put hemp on one side (internal), external side is less porous and protected by hydrophobic spray
PROTRUDING MORTAR JOINT
Polyisocyanurate PIR (AMPATHERM)
120mm 0,023 λ (W/mK)
LIMESTONE LINTEL IMPLEMENTED
FLEXIBLE SEALING MATERIAL
STEEL ANCHOR
WOODEN FRAME
TRIPLE GLAZING INSULATED SYSTEM ALUROF
MB-86 AREO 0,57 λD W/(m2K)

LIME JOINTS FOR
PREFABRICATED ELEMENTS

FLEXIBLE EPOXY
HEATING PIPE FOR
FLOOR HEATING
DARK TERRAZZO
CAST IN SITU

03

+0,20
+/- 0,00

LIMESTONE WINDOWSILL IMPLEMENTED

2%

A

2%

-0,50
water level

FLEXIBLE SEALING MATERIAL
SKIMMER
RUBBERS
SHELL IN SITU(when there is no dimmer)
SWIMMING POOL SHELL IN SITU
controlled permability formwork
mixture with reduced w/c ratio
to reduce drying shrinkage cracking
LIMESTONE SLABS 60mm
full movement joints 15mm-20mm
BASIN

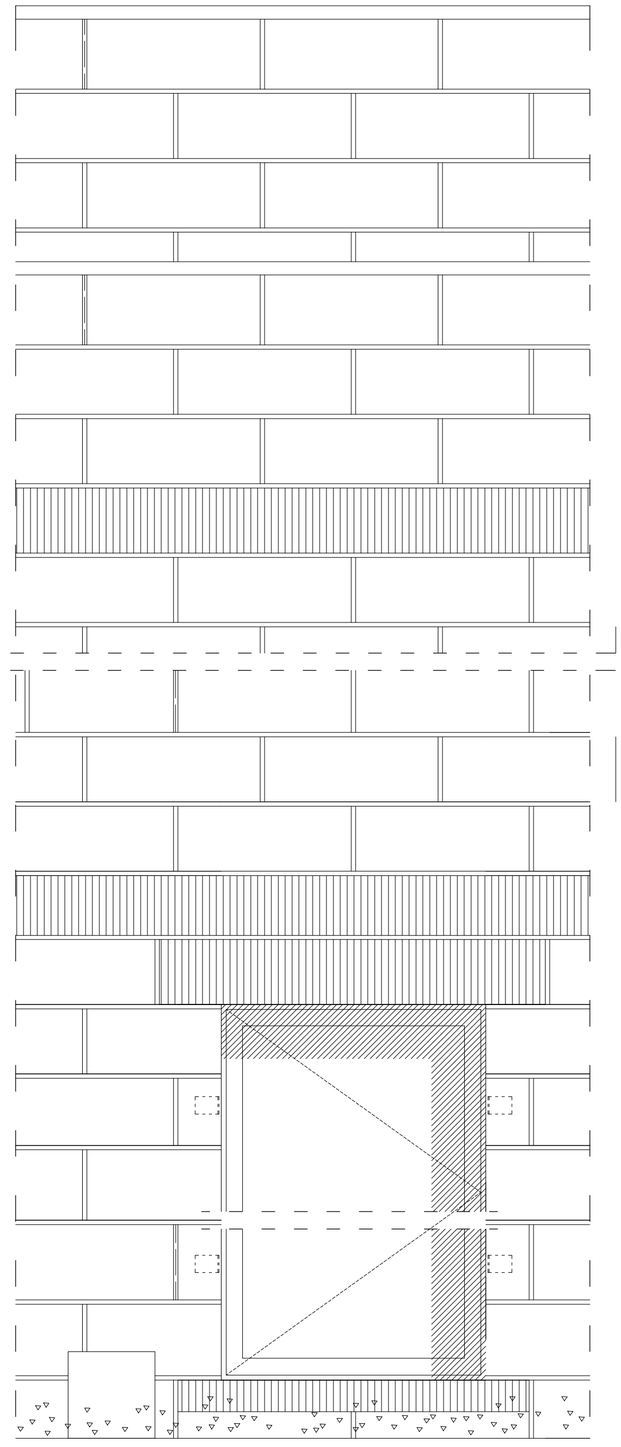
-3,10

PVC WATER-BAR (PROFILED RUBBER STRIP):
positioned before casting the ground slab
SAND
GRAVEL

-4,40

A DRAINAGE PIPE Ø10CM

-5,40



01 FLAT ROOF U= 0,131 - 0,176 W/m^{2}K
vegetation
soil 85mm
reservoir layer with optional aggregate 250mm
filter fabric 20 mm
moisture - retention layer 85mm
root barrier 0.24mm
waterproofing membrane 5mm
styrodur (austrotherm EPS) 160-220mm 0,031 λD (W/mK)
acoustic insulation panels
ribbed concrete slab 350 mm

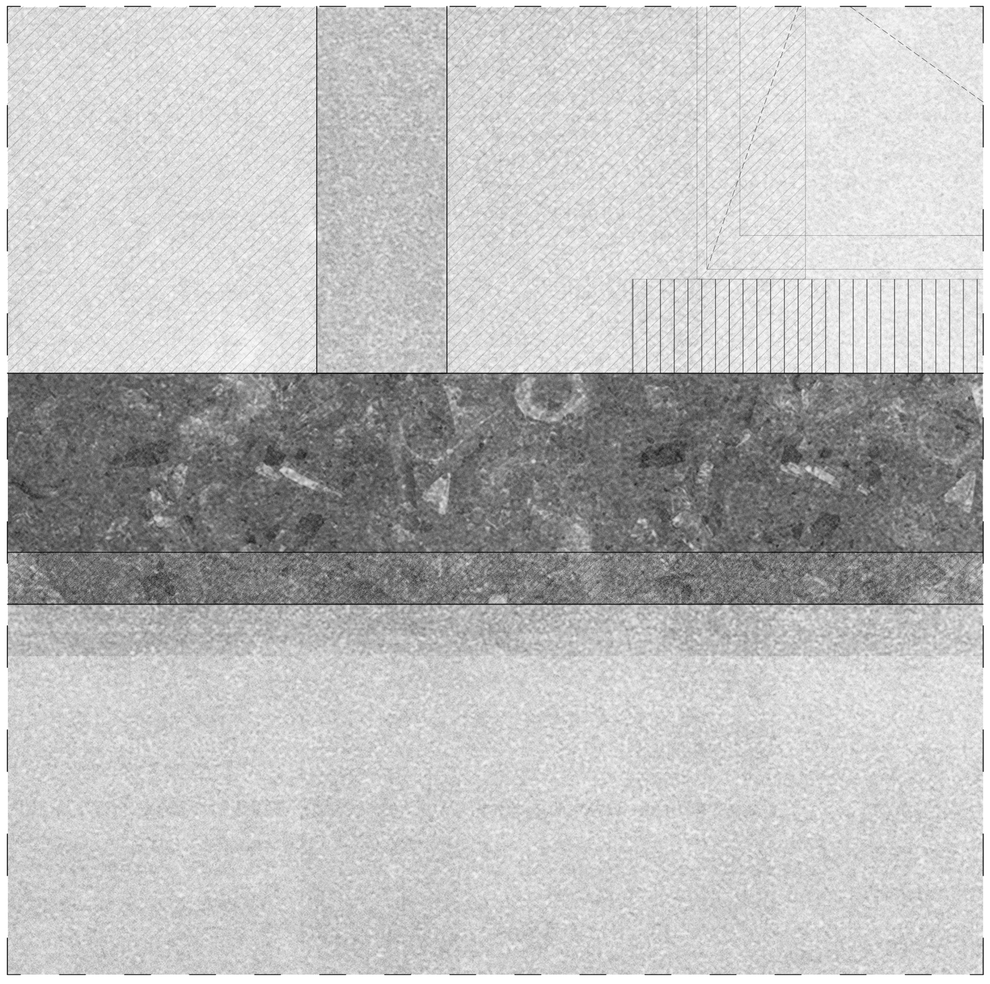
02 WALL U= 0,17 W/m^{2}K
isohemp hemp-lime concrete blocks 150mm
made from by-products of limestone exploitation
cavity 40mm

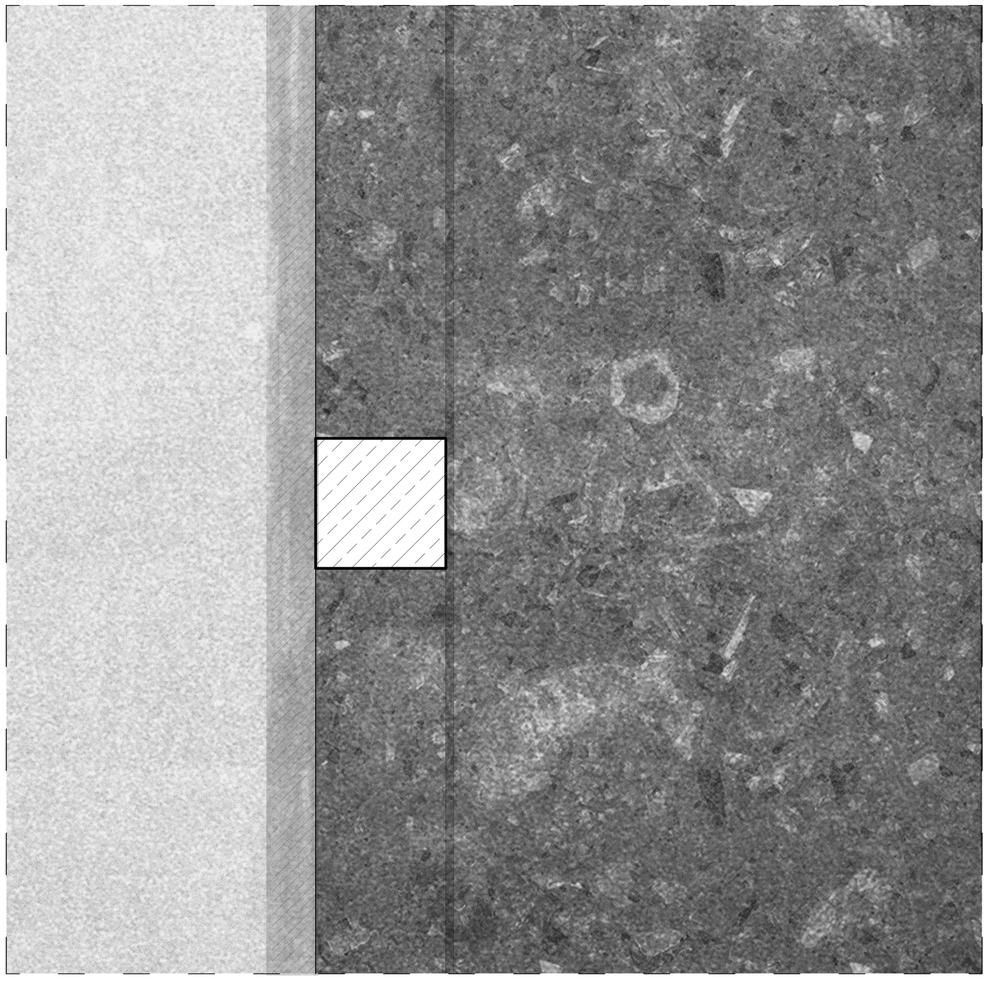
Polyisocyanurate Ampatherm PIR 120mm
Light weight concrete prefabricated elements 250mm
(closed structure, 1000kg/m^3)

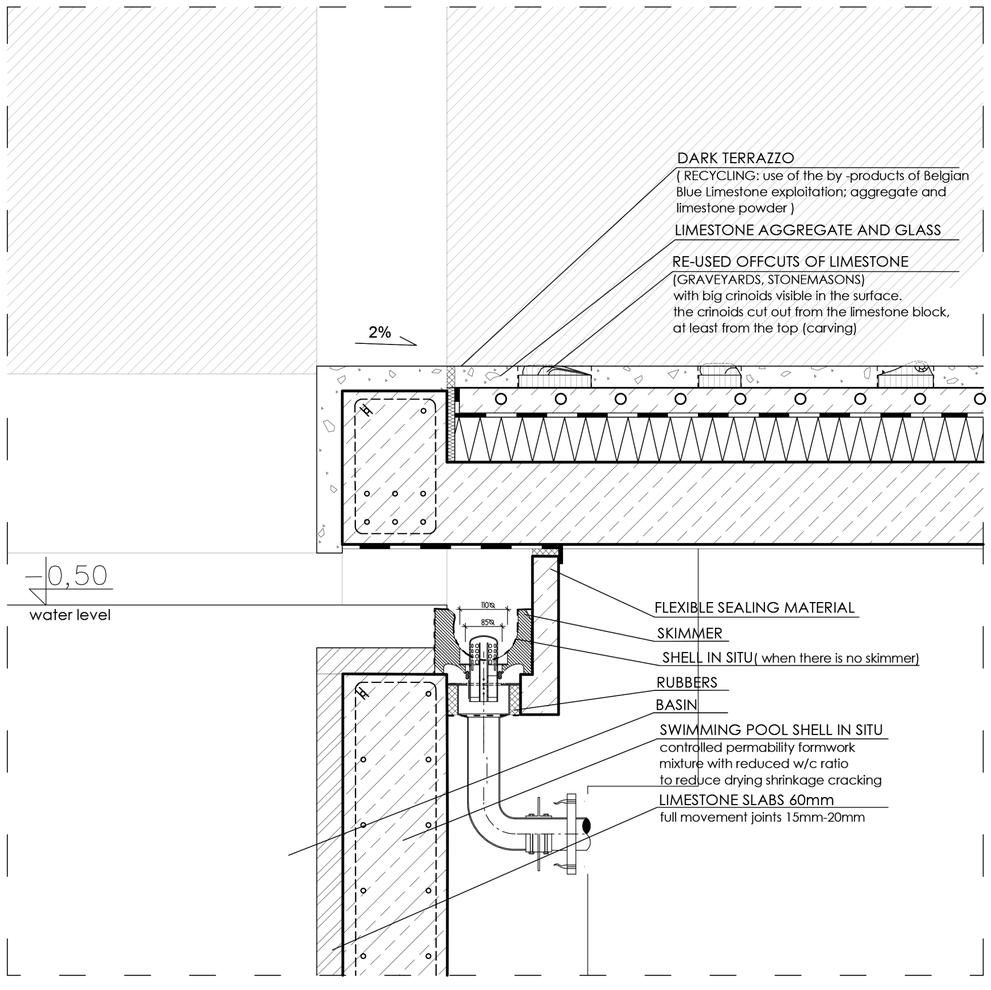
03 FLOOR IN THE SWIMMING POOL
terazzo 40mm
made from by-products of limestone exploitation
concrete with heating pipes 60mm
separation layer 10mm
styrodur (austrotherm EPS) 10cm
reinforced concrete slab 190mm
REINFORCEMENT ROD - stainless steel type 316
POLYMERS or CONDENSED SILICA FUME
sulphate -resisting PORTLAND CEMENT class MC 12.5

04 TERRACE FLOOR U= 0,172 W/m^{2}K

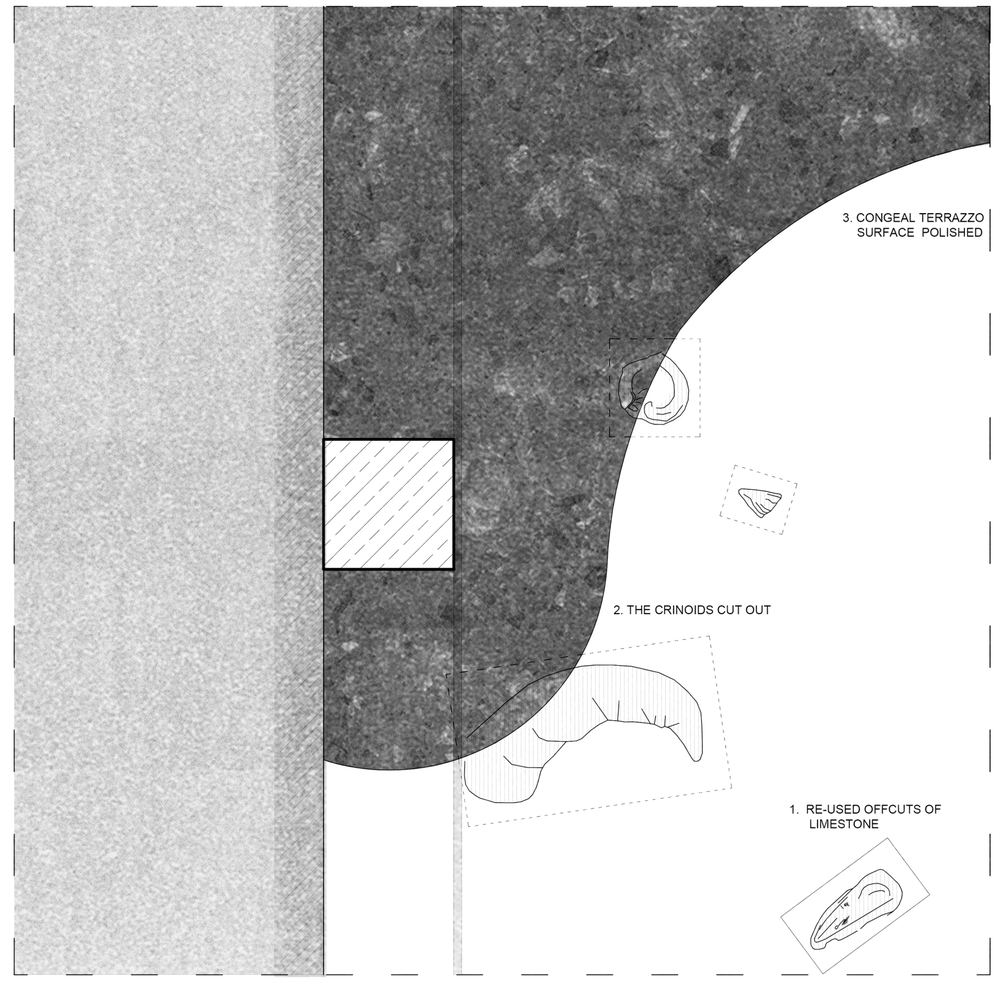
limestone tiles 30mm
protective and drainage layer (rounded gravel) 60mm
waterproofing membrane 5mm
Polyisocyanurate Ampatherm PIR 120mm 0,023 λD (W/mK)
(insulation and sloping layer: profiled panels)
vapour barrier 5mm
Light weight concrete slab 200mm
(closed structure, 1000kg/m^3)






DARK TERRAZZO
(RECYCLING: use of the by -products of Belgian Blue Limestone exploitation; aggregate and limestone powder)
LIMESTONE AGGREGATE AND GLASS
RE-USED OFFCUTS OF LIMESTONE
(GRAVEYARDS, STONEMASONS)
with big crinoids visible in the surface.
the crinoids cut out from the limestone block, at least from the top (carving)
2%
-0,50
water level
110%
85%
FLEXIBLE SEALING MATERIAL
SKIMMER
SHELL IN SITU(when there is no skimmer)
RUBBERS
BASIN
SWIMMING POOL SHELL IN SITU
controlled permability formwork mixture with reduced w/c ratio
to reduce drying shrinkage cracking
LIMESTONE SLABS 60mm
full movement joints 15mm-20mm

DETAIL A 1:10


3. CONGEAL TERRAZZO SURFACE POLISHED
2. THE CRINOIDS CUT OUT
1. RE-USED OFFCUTS OF LIMESTONE

01

+10,20

2%

WEEP HOLES
allow air into the cavity and water to drain out

STYRODUR (austrotherm EPS) 0,031 λD (W/mK)
sloping layer: profiled panels 160-220mm

02

WALL TIE IN CONCRETE
stainless steel anchor 4/m²

ISOHEMP HEMP-LIME CONCRETE BLOCKS MADE FROM
BY-PRODUCTS OF LIMESTONE EXPLOITATION 250 x 800 x150
double-sided: external vibrator used to put hemp on one side (internal), external side is less porous and protected by hydrophobic spray

Polyisocyanurate PIR (AMPATHERM)
120mm 0,023 λ (W/mK)

PROTRUDING MORTAR JOINT

RE-USED LIMESTONE STEPS

+9,00

2%

+6,30

+3,50

LIME JOINTS FOR
PREFABRICATED ELEMENTS

MORE A SPOLIA
The post were cut in a way that there is a gap between its top and a ceiling slab, what emphasised the fact that they are not a structural elements anymore.

The posts originally were painted white but the plan is to wear the paint partially down to emphasise the difference between old and new.

EXISTING CONCRETE STRUCTURE
The designing building plays partly with existing, concrete structure building. Its roof and walls were torn down but the structure has been implemented into design.

EXISTING FOUNDATION SLAB
The floor was exposed both inside and outside the building, what presents existing structure's traces.

03

FLEXIBLE EPOXY

HEATING PIPE FOR
FLOOR HEATING
DARK TERRAZZO
CAST IN SITU

NEOPRENE RUBBER
dilatation between new and existing foundation slab

2%

−0,50
water level

FLEXIBLE SEALING MATERIAL

SKIMMER

BASIN

SHELL IN SITU(when there is no skimmer)

SWIMMING POOL SHELL IN SITU
controlled permability formwork
mixture with reduced w/c ratio
to reduce drying shrinkage cracking

LIMESTONE SLABS 60mm
full movement joints 15mm-20mm

−3,10

PVC WATER BAR (PROFILED RUBBER STRIP):
positioned before casting the ground slab

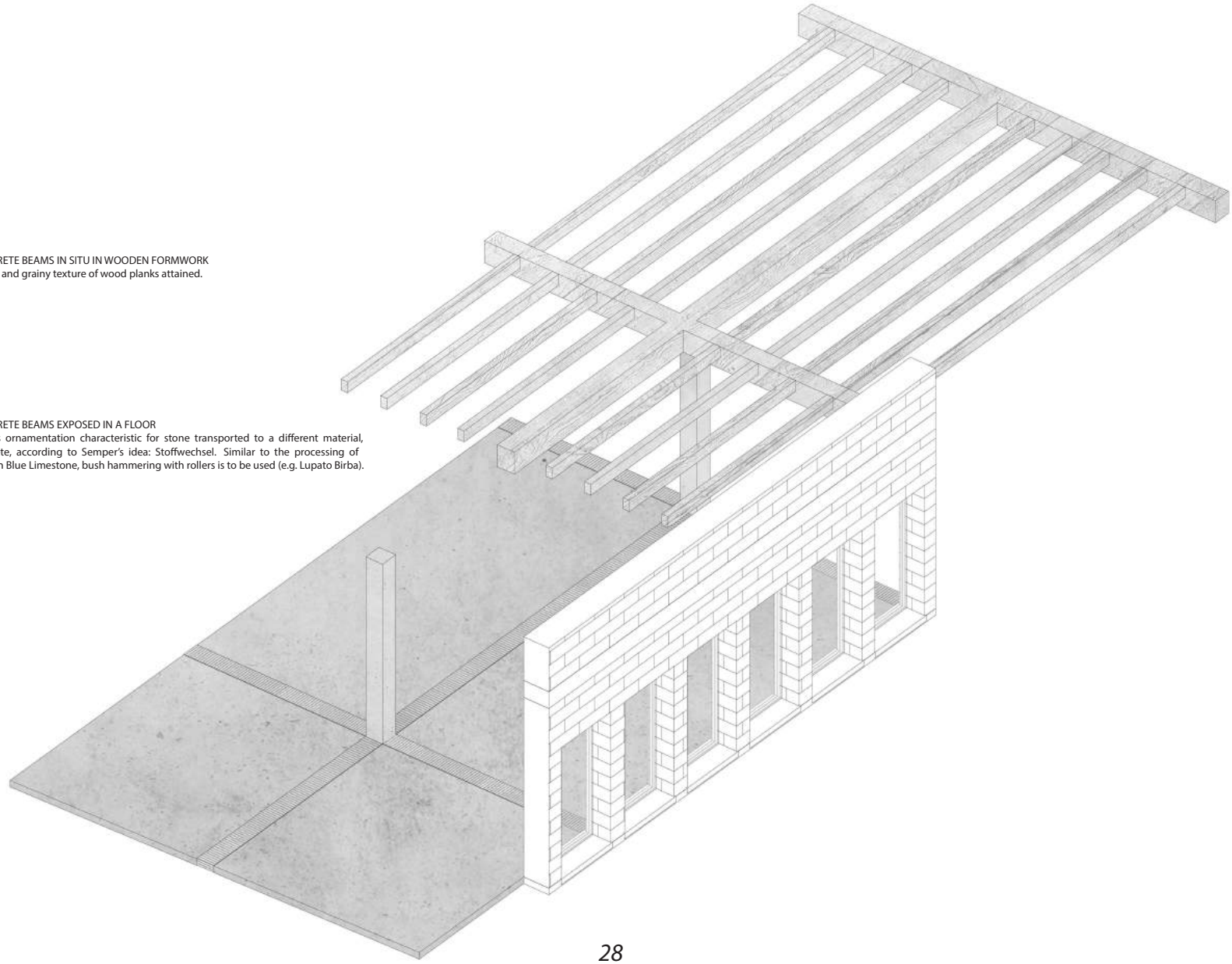
FOUNDATION ENGINEERING BENEATH
EXISTING STRUCTURE

−4,40

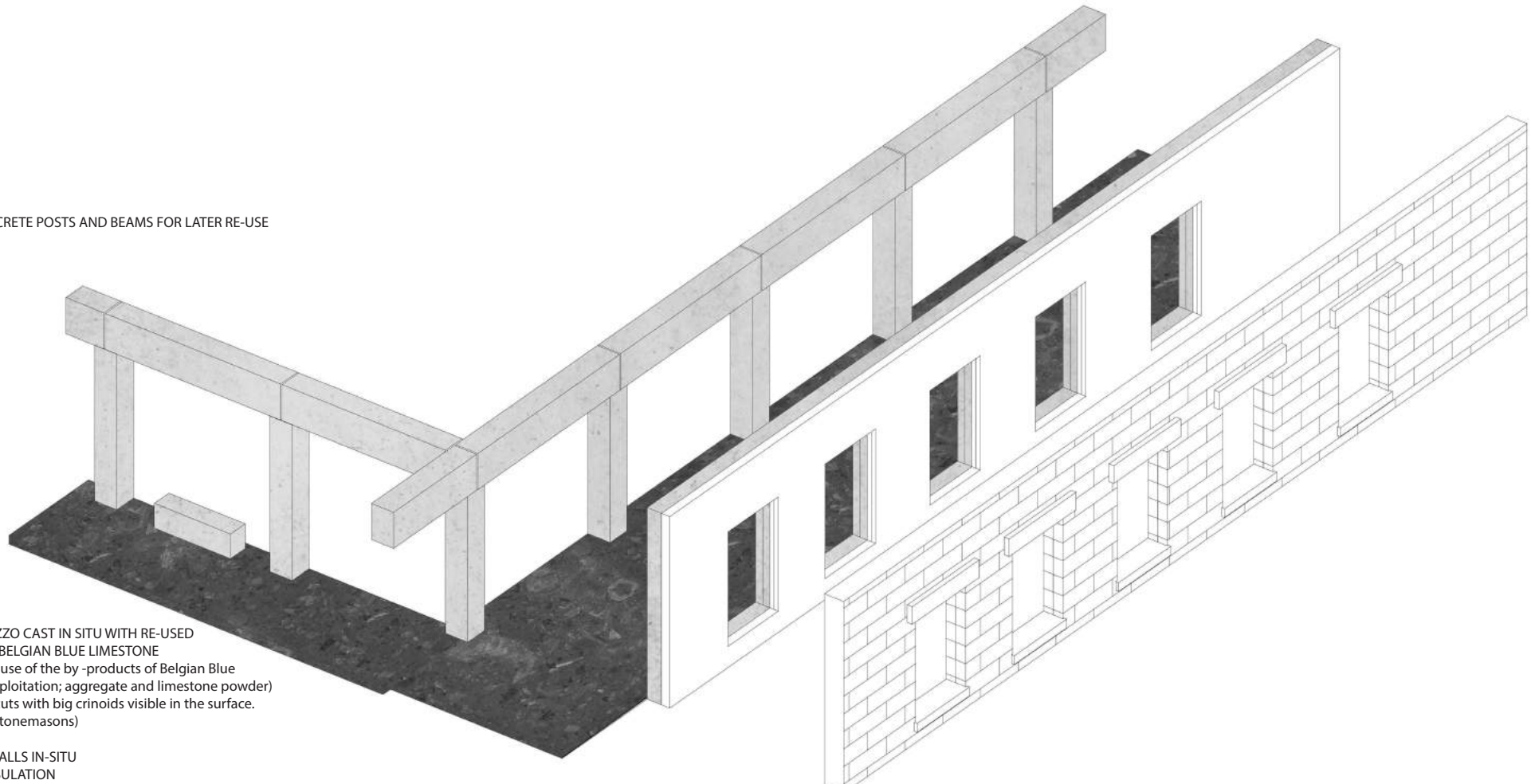
−5,40

CONCRETE BEAMS IN SITU IN WOODEN FORMWORK
coarse and grainy texture of wood planks attained.

CONCRETE BEAMS EXPOSED IN A FLOOR
Stripes ornamentation characteristic for stone transported to a different material, concrete, according to Semper's idea: Stoffwechsel. Similar to the processing of Belgian Blue Limestone, bush hammering with rollers is to be used (e.g. Lupato Birba).



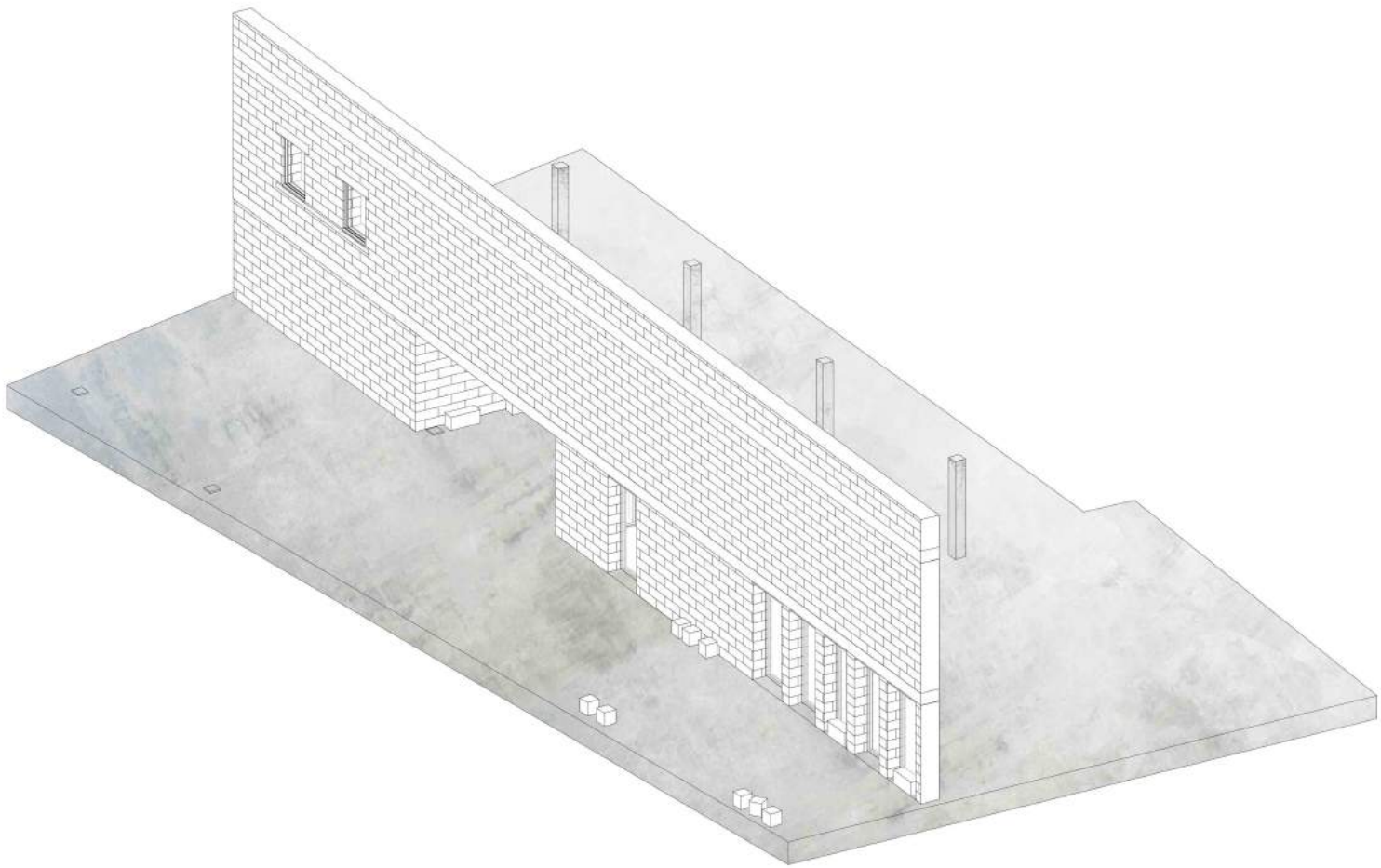
PREFAB CONCRETE POSTS AND BEAMS FOR LATER RE-USE
lime joints



DARK TERRAZZO CAST IN SITU WITH RE-USED
OFFCUTS OF BELGIAN BLUE LIMESTONE
(RECYCLING: use of the by -products of Belgian Blue
Limestone exploitation; aggregate and limestone powder)
(NATURE: offcuts with big crinoids visible in the surface.
Graveyards, Stonemasons)

CONCRETE WALLS IN-SITU
THERMAL INSULATION
CAVITY

LIME-HEMP CONCRETE BLOCKS WITH PROTRUDING JOINTS
RE-USED LIMESTONE LINTELS AND WIDNOWSILLS: spolia



EXISTING CONCRETE STRUCTURE OF THE BUILING IMPLEMENTED TO THE DESIGN

ribbed concrete beams scheme

inlet

outlet

PLANT ZONE

BaOpt ++ Bauer Optimisation Ventilation system
direct acces to the swimming pool space

ventialation scheme

MECHANICAL VENTIALTION

air distribution/air exhaust

structural scheme

existing structure implemented

Axonometric exploded view