





“If light is scarce then light is scarce; we will
immerse ourselves in the darkness and there
discover its own particular beauty.”

— Jun'ichirō Tanizaki, **In Praise of Shadows**
(1933)









Als de klokken niet meer luiden

P5

Gijs Boer

4861833

July, 3

Name of studio: Architectural Engineering

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Introduction

Chapter I: Geobased Materials & Tectonics

Chapter II: “Gedenkpark Leijzenakkers”

Conclusion

MONACHIAN
ARCH

CULTURAL HISTORY

ECHOES

spirit of
A PLACE

GEOLOGUE

GENIUS LOCI

Chapter I: Research

Geobased Materials & Tectonics

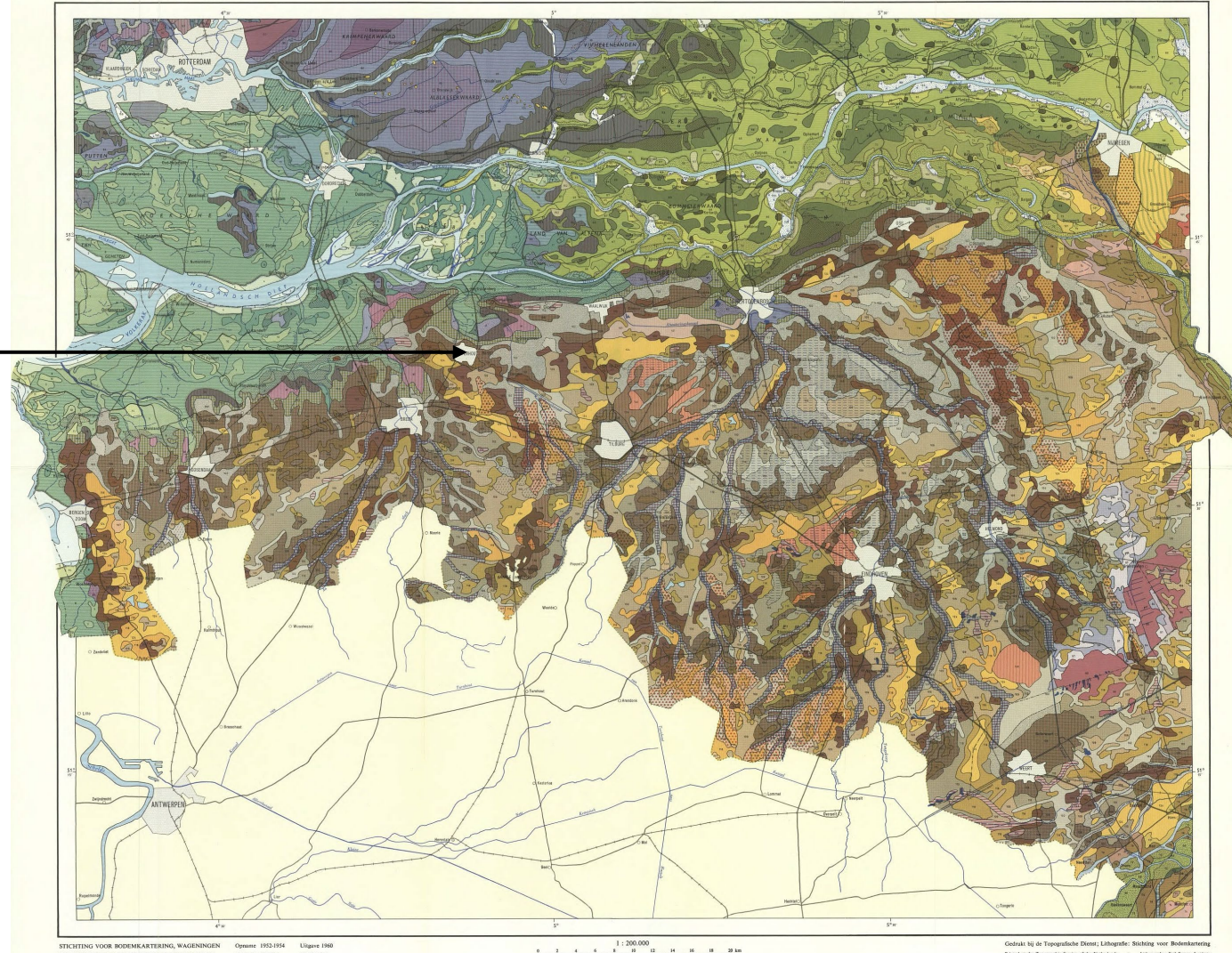
BODEMKAART VAN NEDERLAND
SOIL MAP OF THE NETHERLANDS

NOORDBRABANT

BLAD 8
SHEET 8

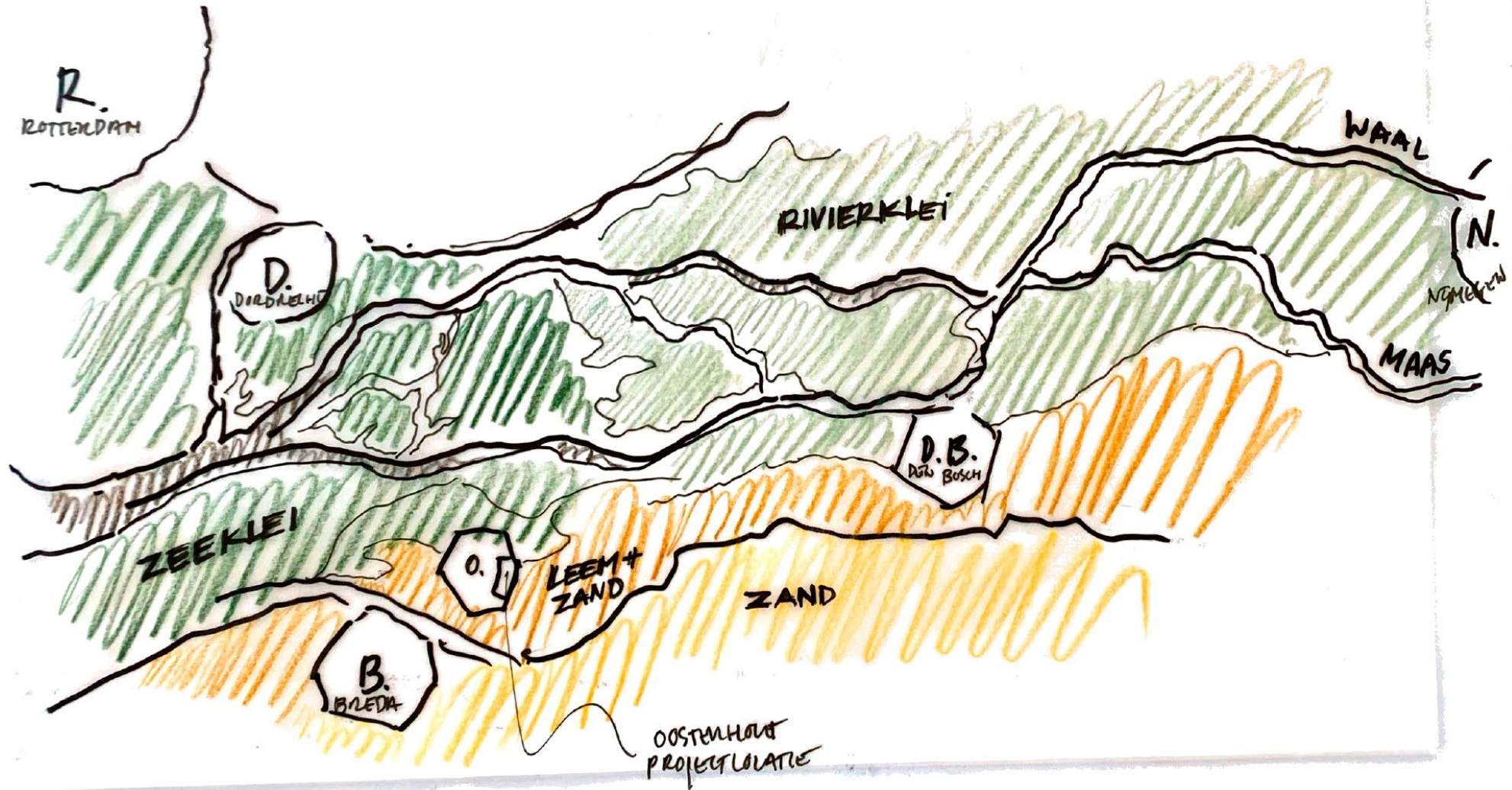
EU 3
16-11

LEGENDA zie blad 10
LEGEND see sheet 11



Detailed Soil Analysis of Noord-
Brabant, 1960Reference:Stichting
voor Bodemkartering. (1960).
Bodemkaart van Nederland:
Noord-Brabant. Blad 8 [Map].
Wageningen: Stichting voor
Bodemkartering. Scale 1:200,000.
Retrieved from Wageningen
University & Research - Library,
Special Collections.

LINK ONDERZOEK x PROJECT?





Research

Question

How can the value chain of geobased materials be restored through a social-ecological-technological framework analysis, enhancing the regional landscape, and built environment?

Research

Question

the way we use local earth building materials

looking at

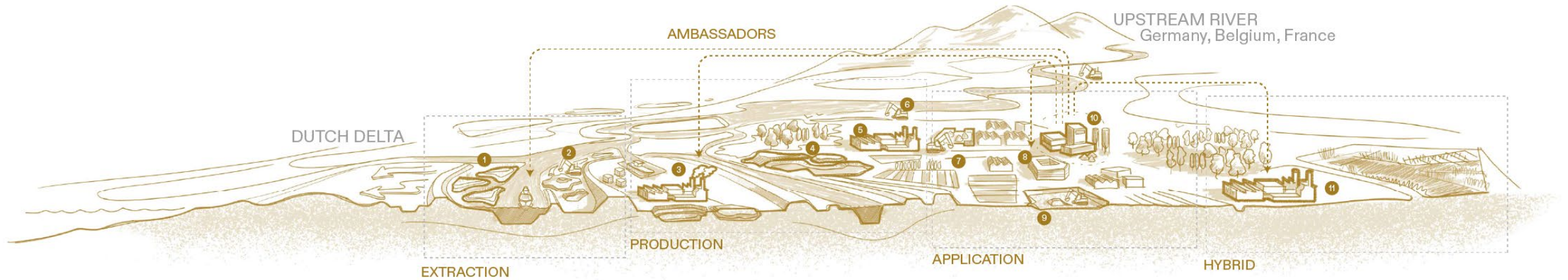
social, ecological, technological factors,

that support

the regional landscape, and built environment?

Research

Conclusions



1. Sustainable clay extraction in Dutch floodplains
2. Misuse of brick application
3. Aesthetic choices should be informed by regional availability
4. Hybrid structures

Knowledge gap

‘Geobased’, afkomstig van *gē* – aarde – omschrijft materialen van een minerale, ‘aardse’ oorsprong, zoals klei, leem (en natuursteen). Geobased materialen worden op een verantwoorde manier gewonnen en met minimale processtappen vervaardigd. [1]

Basic material palette
Aus einem Guss (From the same mould)



BRICKS?

Global Warming Potential

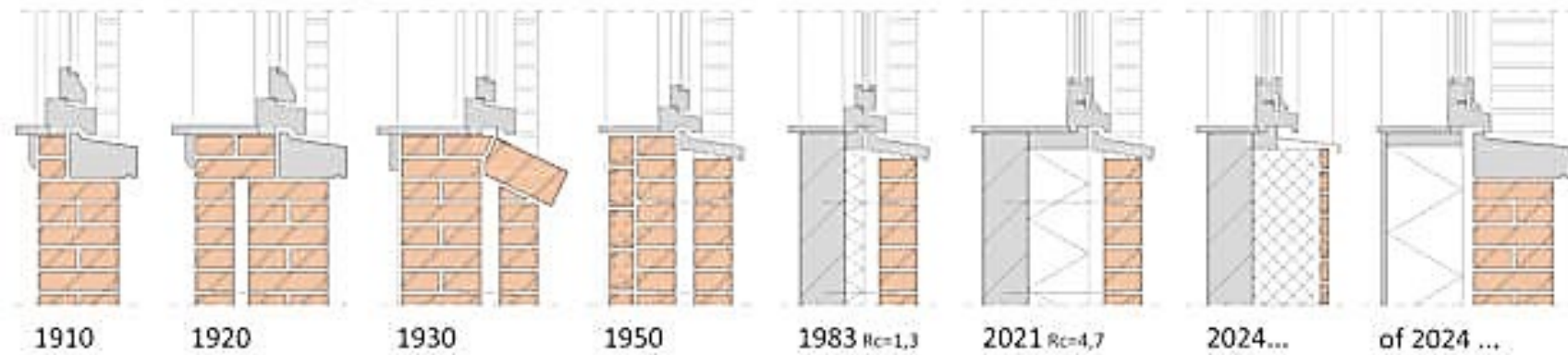
- fired clay (523 kg CO₂ eq/m³)
- unfired clay (91.8 kg CO₂ eq/m³)

Environmental Cost Indicator (MKI) acts well, because of long lifespan of a brick.

Hard mortar is the problem for re-using bricks. It replaces brick bonds that initially gave strength and stability

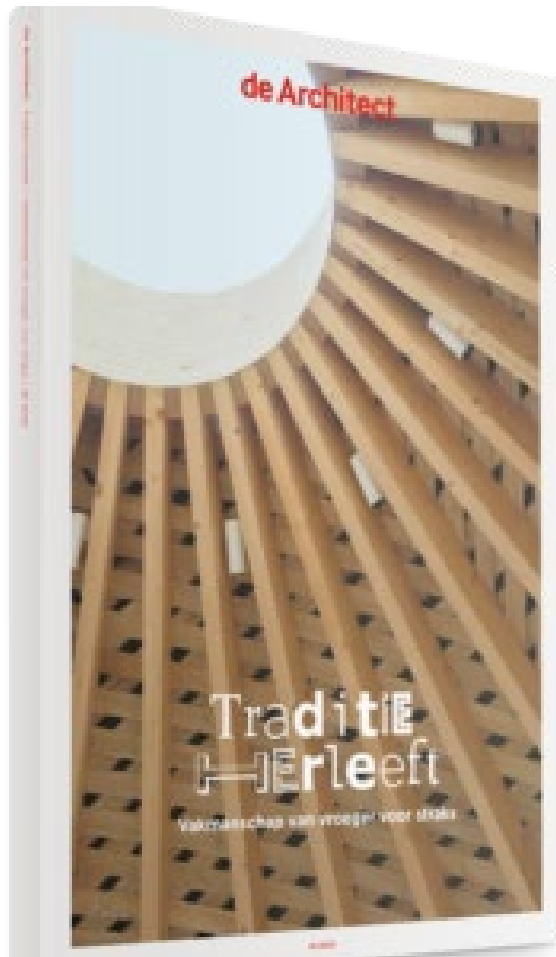
The building I designed is suited for longevity, timeless architecture

Evolution of the brick facade

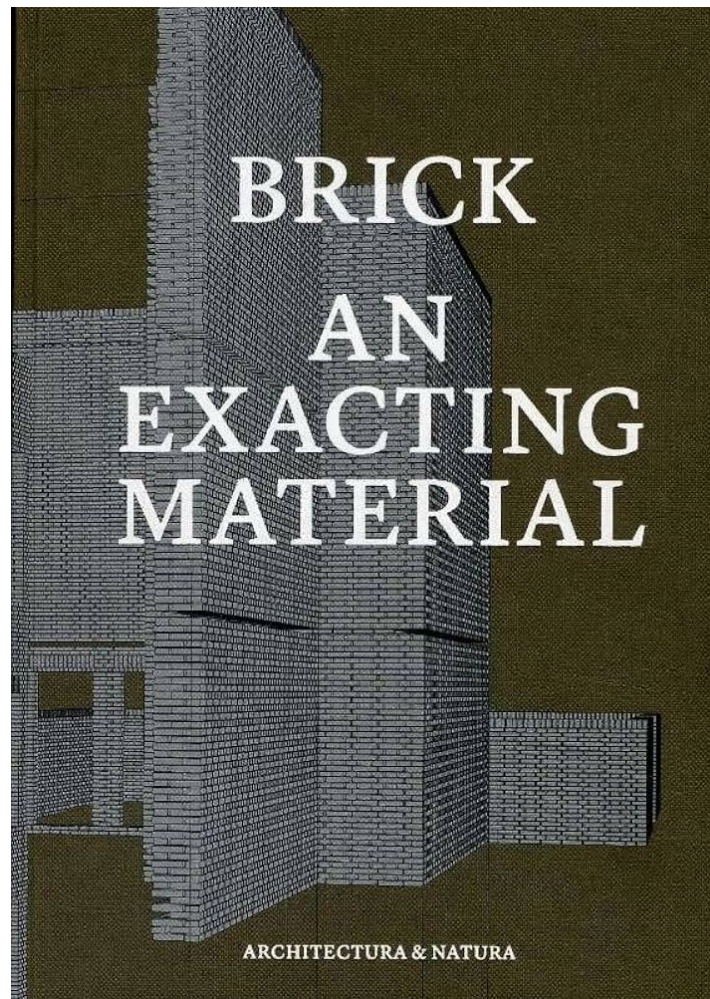


Evolution of the Brick facade, presented by Jan Peter Wingender during the *MasterClass Baksteen: Introductie Ontwikkeling Baksteengevels* on September 19, 2024. Part of the KNB Masterclass series, in collaboration with Koen Mulder.

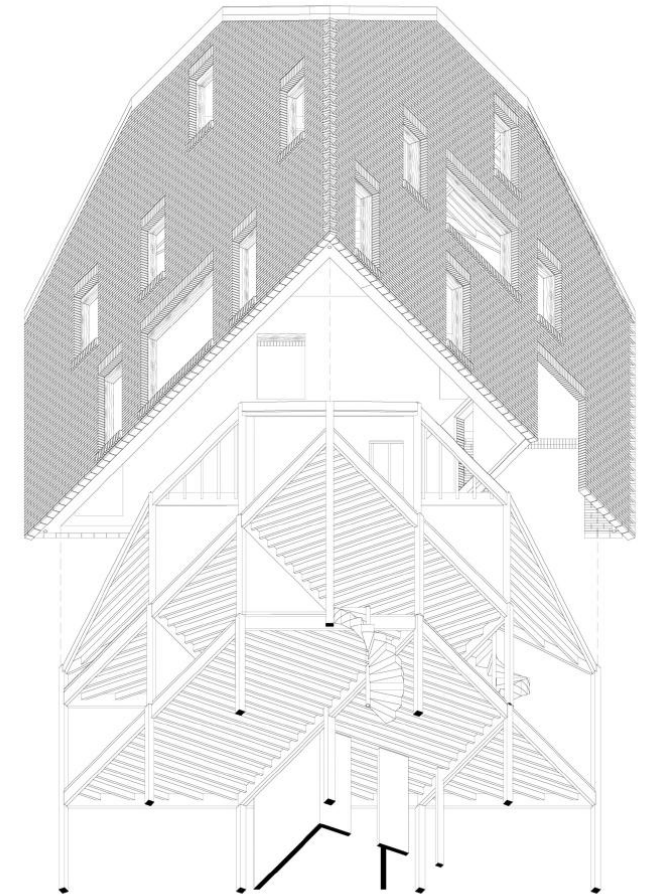
Brick architecture today



Vakmanschap (de Architect)



Selfsupporting brick facades (Office Winhov, NL)



Future Ruin (Blaf Architects, BE)

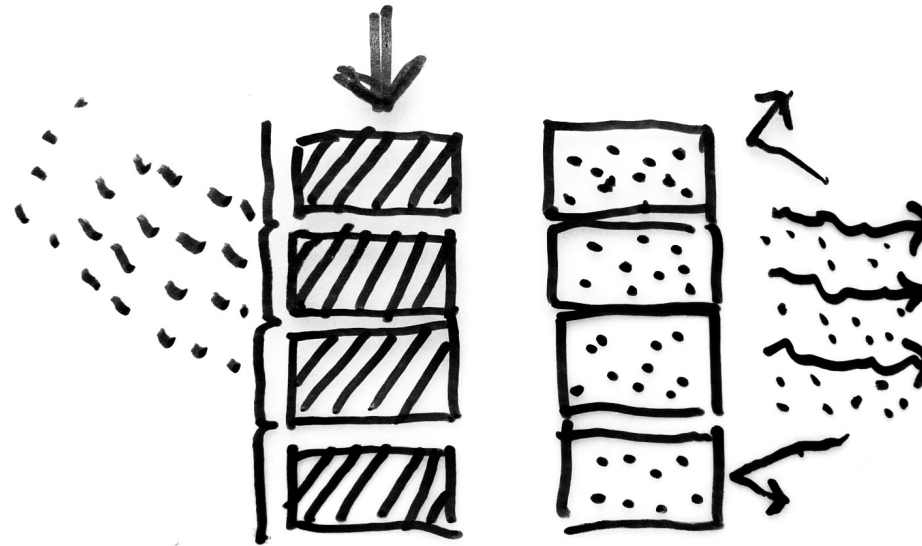
Property Comparison

	Property	Fired Bricks	Clay Bricks (Unfired)
Insulation	Thermal Conductivity (λ)	0.60 – 1.00 W/m·K	0.25 – 0.35 W/m·K
	Thermal Transmittance (U)	~1.4 – 2.0 W/m ² ·K	~0.8 – 1.2 W/m ² ·K
	Thermal Resistance (R _c)	0.24 – 0.40 m ² ·K/W	0.69 – 0.96 m ² ·K/W
Acoustics	Sound Insulation (R)	45 – 55 dB	40 – 50 dB
	Absorption Coefficient (α)	0.01 – 0.03	0.10 – 0.20
Moisture	Moisture Buffer Value (MBV)	Low to medium	High
	Capillary Absorption	Medium	High
	Porosity	~10–20%	~30–45%
Construction	Load-Bearing Capacity (f _k)	5 – 15 N/mm ² (5–15 MPa)	1 – 5 N/mm ² (1–5 MPa)

EXTERIOR

INTERIOR

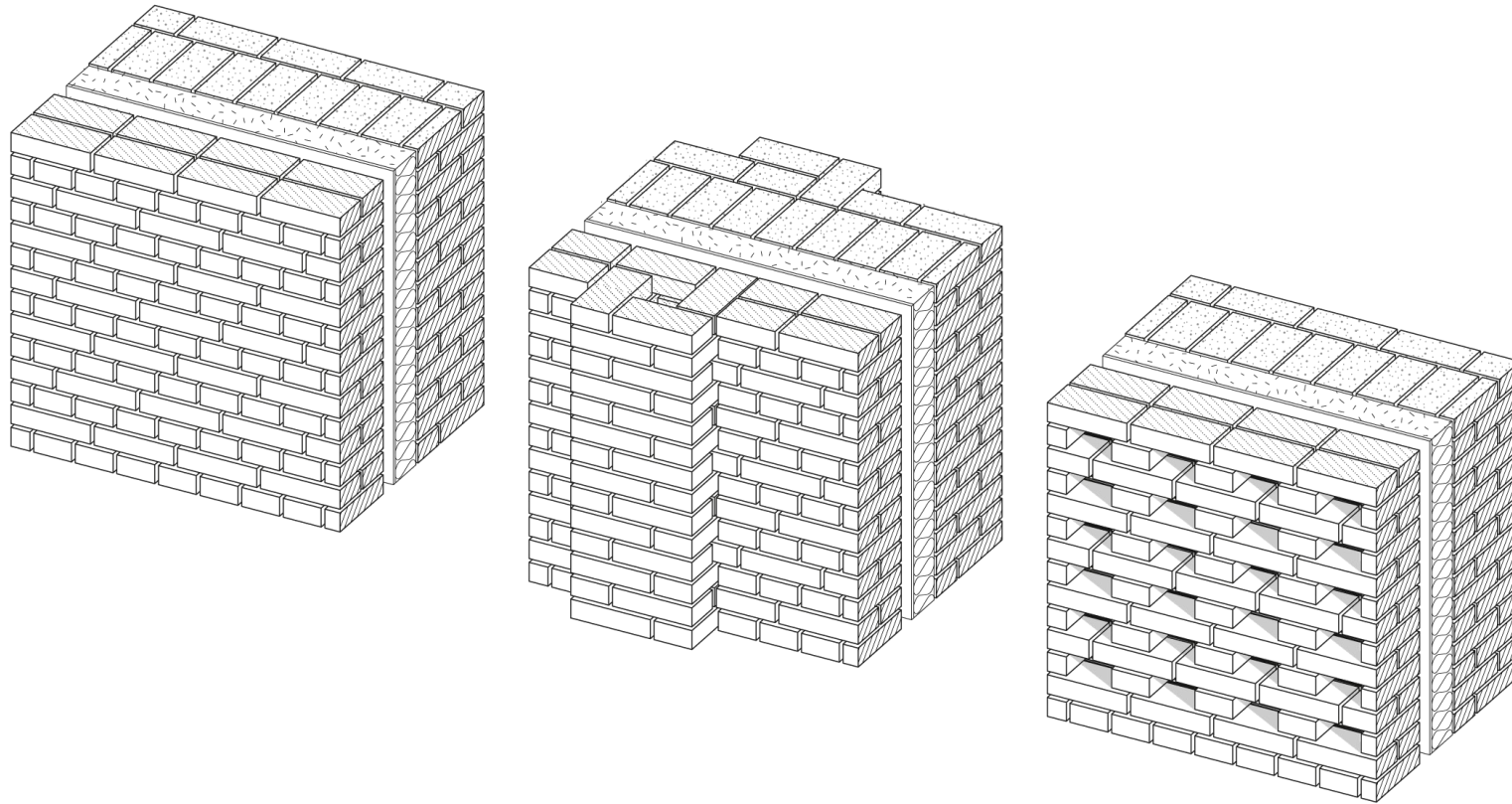
Weather resistance
Loadbearing
Openings
Tactility



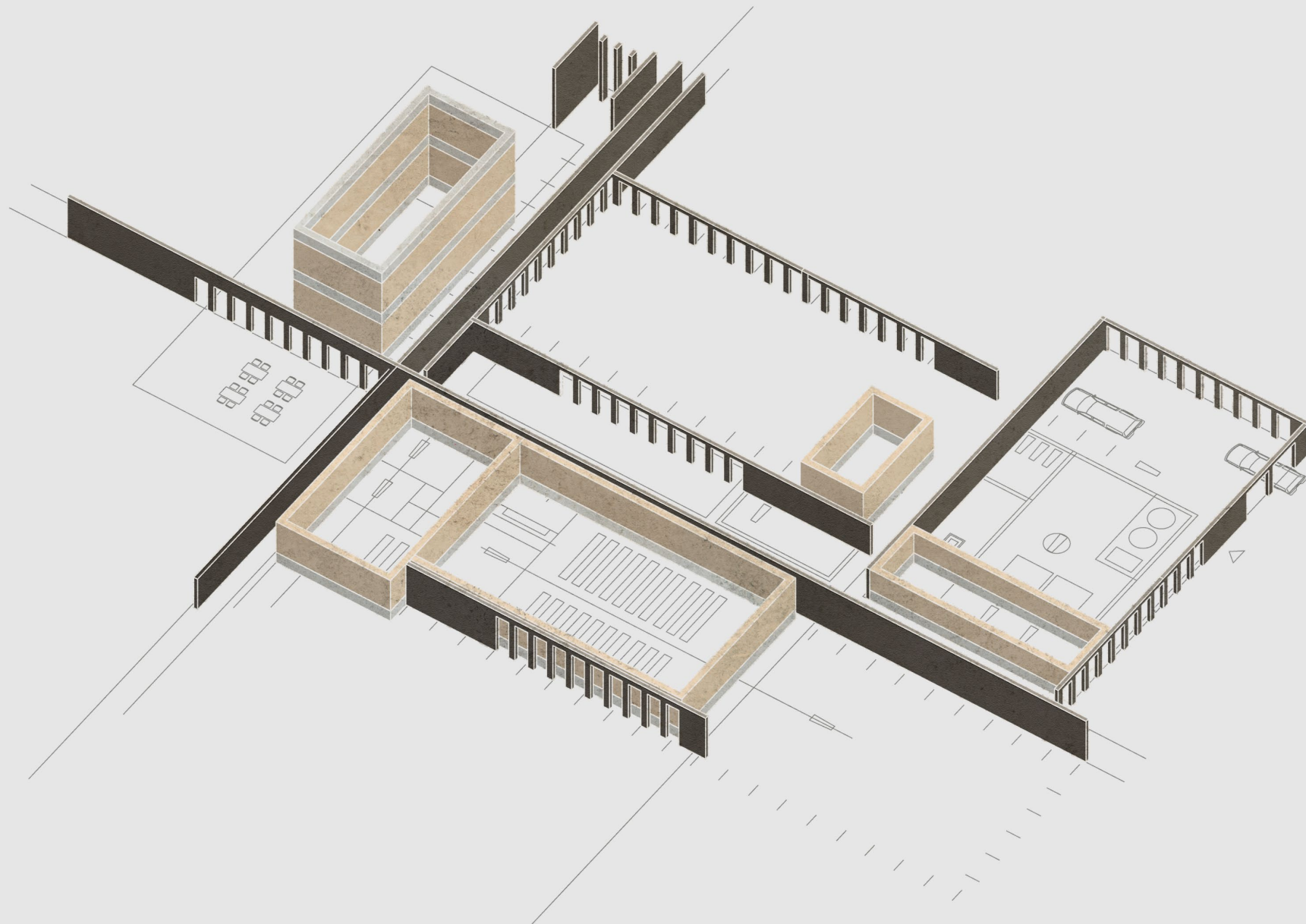
Low thermal transmittance
Sound absorption
Moisture buffering

Fired brick outer leaf, clay brick indoor leaf

Structure, Construction, Expression



A personal interpretation of '*structure, construction, and expression in one and the same layer*,' as described by Jan Peter Wingender during the lecture The Architect x Pakhuis de Zwijger: Craftsmanship of the Past for the Future, Tuesday, April 15.

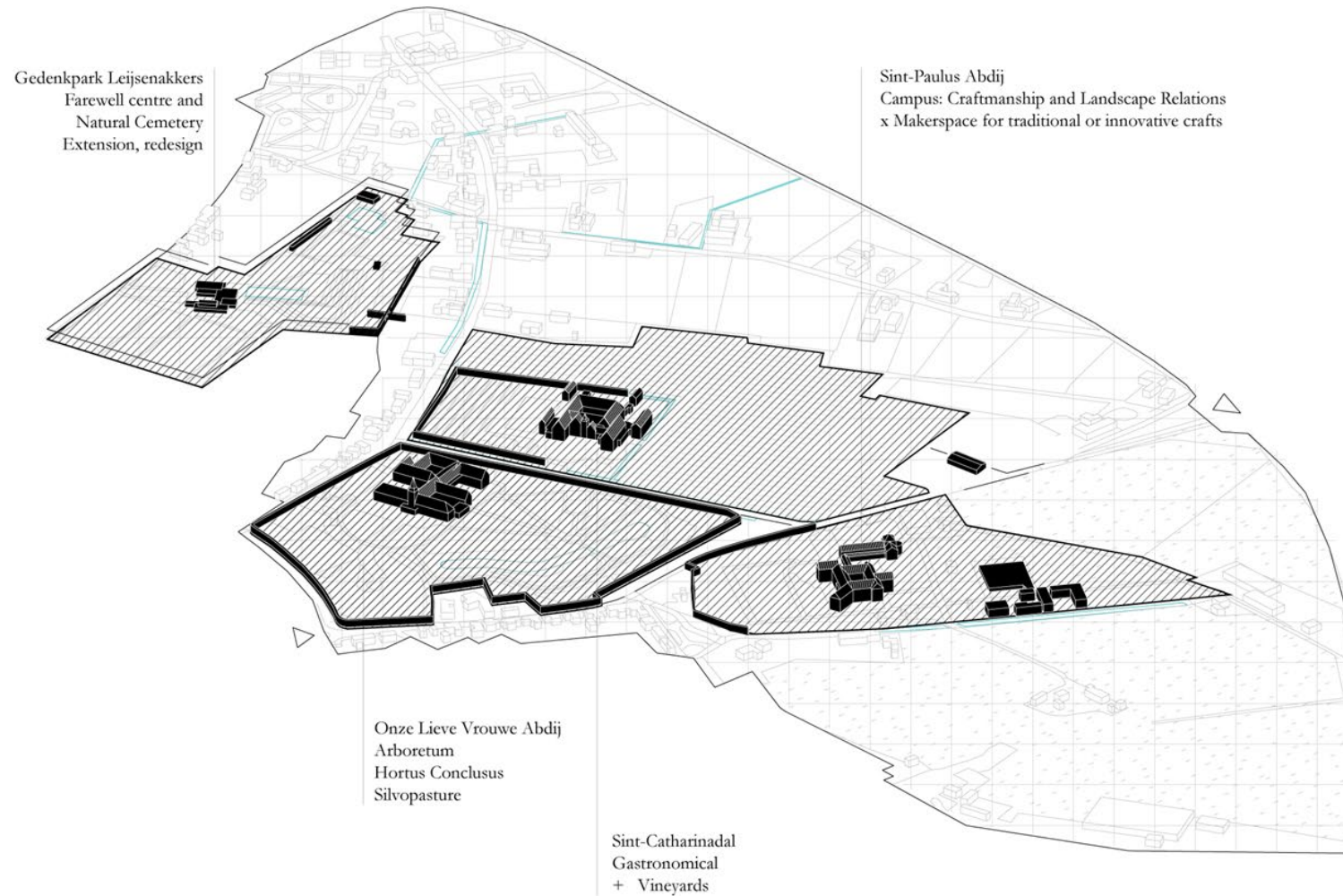




Chapter II

Natural cemetery & farewell centre “Gedenkpark Leijsenakkers”

De Heilige Driehoek



Why a farewell centre?

Proof of concept with geobased materials

*Architecture of Contemplation:
bridging the ethereal and the grounded
with elements around us*

Synergy between the landscape and the building



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Let's start gathering the local ingredients:

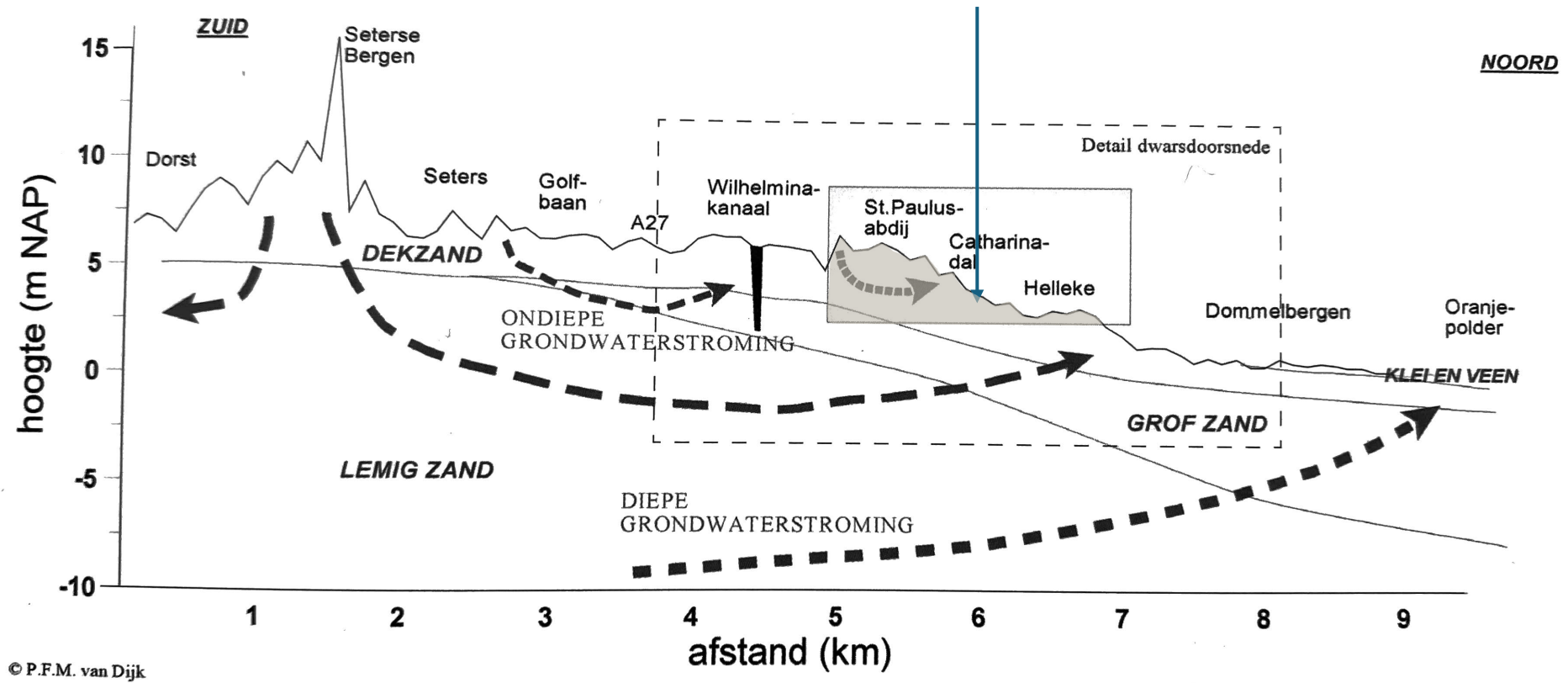
for a slow, grounded architecture shaped by
place, people, and time — using mineral materials
and local know-how to create a lasting farewell
centre embedded in the landscape.

...with a touch of Tanizaki
and Bossche School Architecture

Ingredient A

Water and soil

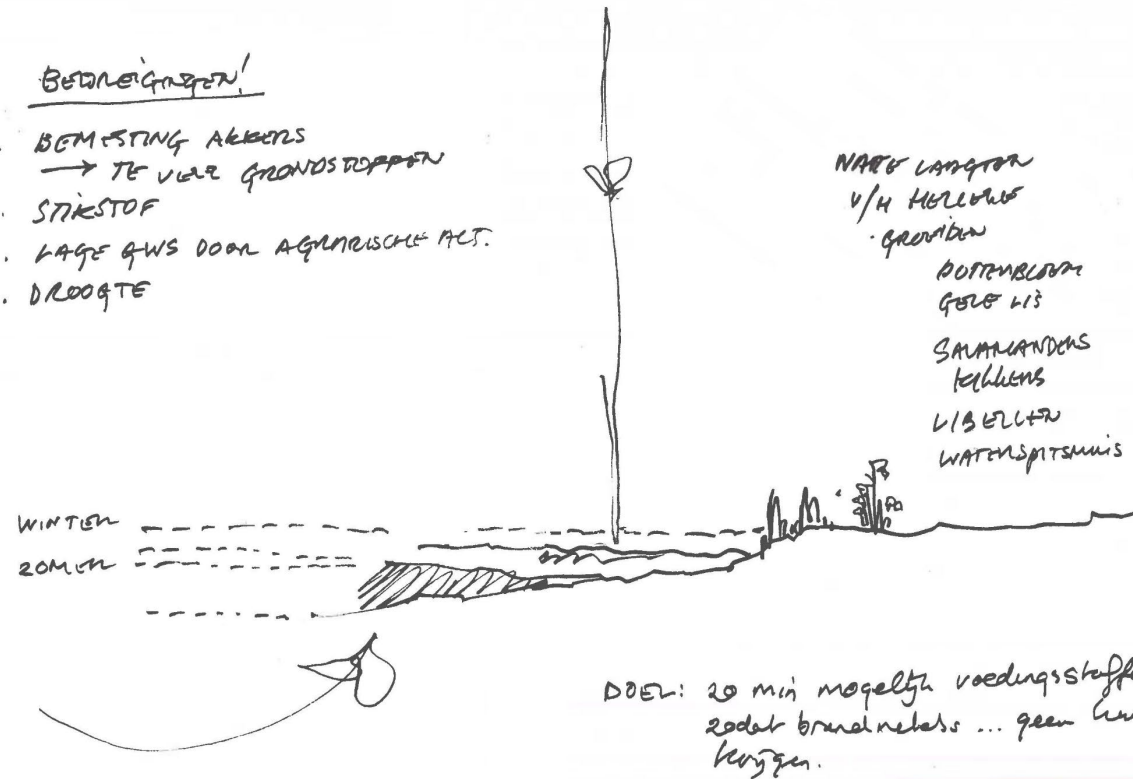
Water conditions



Water conditions

BEDREIGINGEN!

- BEMESTING AKKERS
→ TE VEEL GRONDSTOFFEN
- STIKSTOF
- LAGE GWS DOOR AGRARISCHE ACT.
- DROOGTE



LOKALE KWEL:
GRONDWATER DIRECT UIT
OMGEVING.
WEINIG VOEDINGSTOFFEN!
WEINIG MINERALEN
LICHT ZUUR GZONDER

DOEL: 20 min mogelijk voedingsstoffen
zodat brandnetels ... geen kans
krijgen.

0m NAP

GRAND WATER
STROOM
MARR KEN

Water conditions

Revealing existing
ditches 'Rullekes'

Silvo Pastoral Agro forestry
x Restoring watertable
x highway noise via tree canopies

Stop drainage,
start wet cultivation

Meshwork of interventions

Prevent eutrophication,
via permaculture

NATTE
VOEDINGSARMCE
BODEM GEWOENST!

STOP ONTWAARTER
STOP BEMESTING

Highway

Reinforcing the
character of the
(monastery) walls

Reinforcing the
entrances of the area

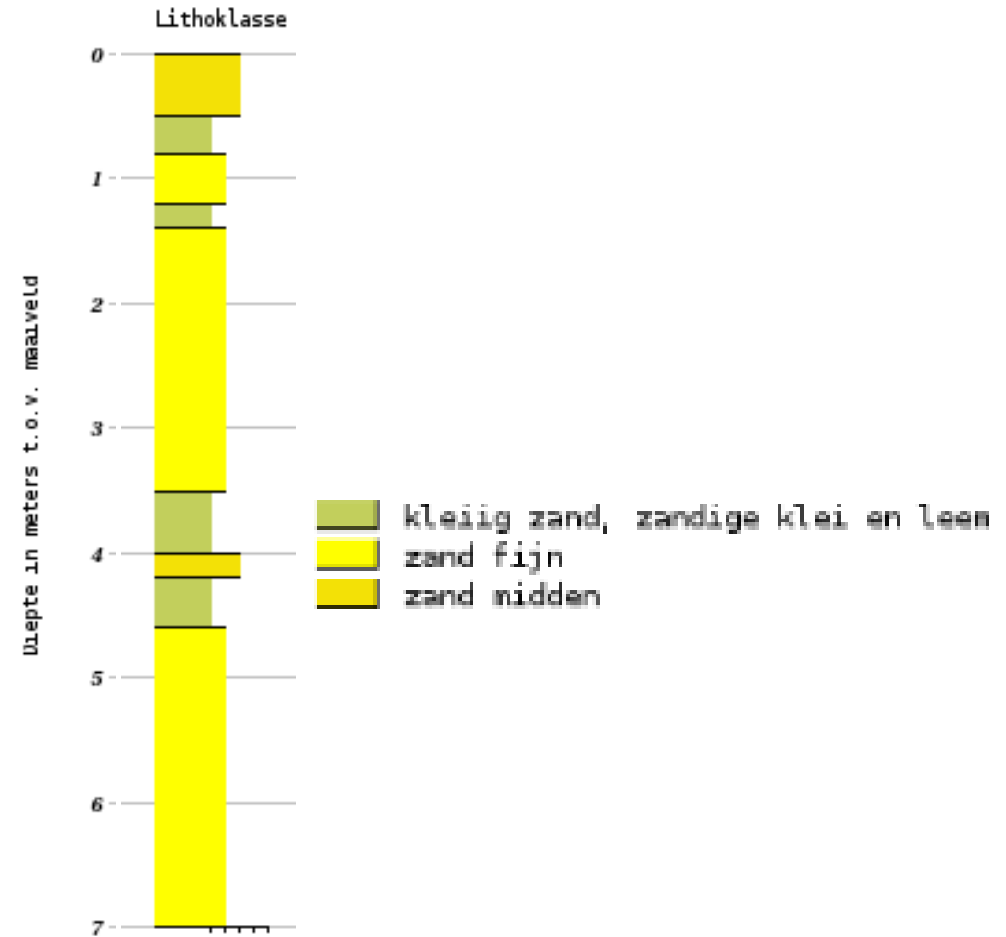
Meshwork of interventions:
Walking route through vineyards,
through natural cemetery

Meshwork of interventions:
Rest Area for Walkers and Cyclists + refreshments

Test new forms of regenerative
wet agriculture and production
of biobased materials

+6m NAP

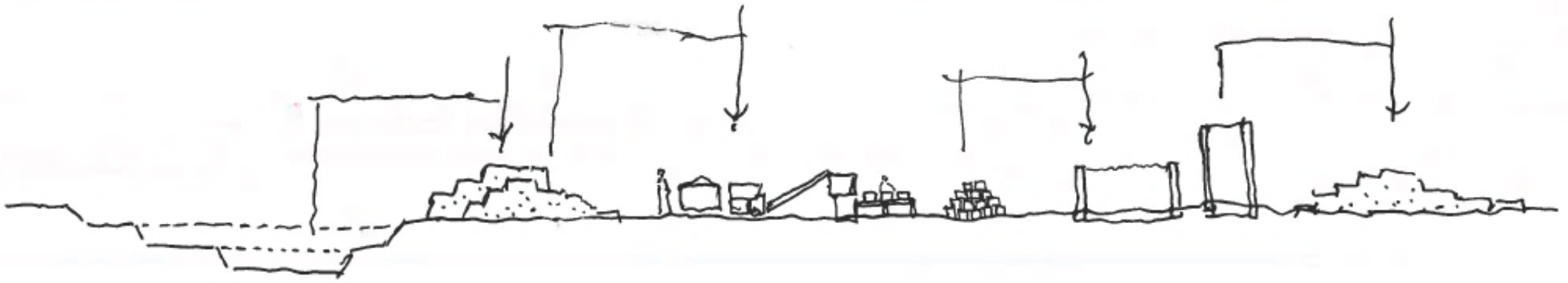
Soil conditions



Soil Classification of High Black
Enkeerd Soils: Loam-Poor and
Weakly Loamy Fine and
Reference: Basisregistratie
Ondergrond (BRO). (2024).

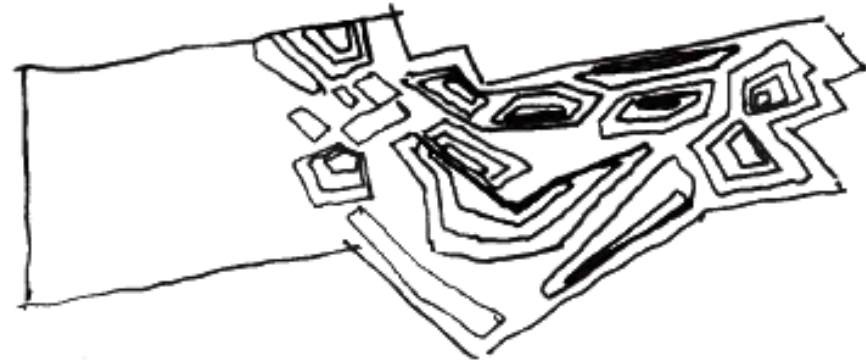
Hoge zwarte enkeerdgronden;
loamy sand, loam

Soil conditions



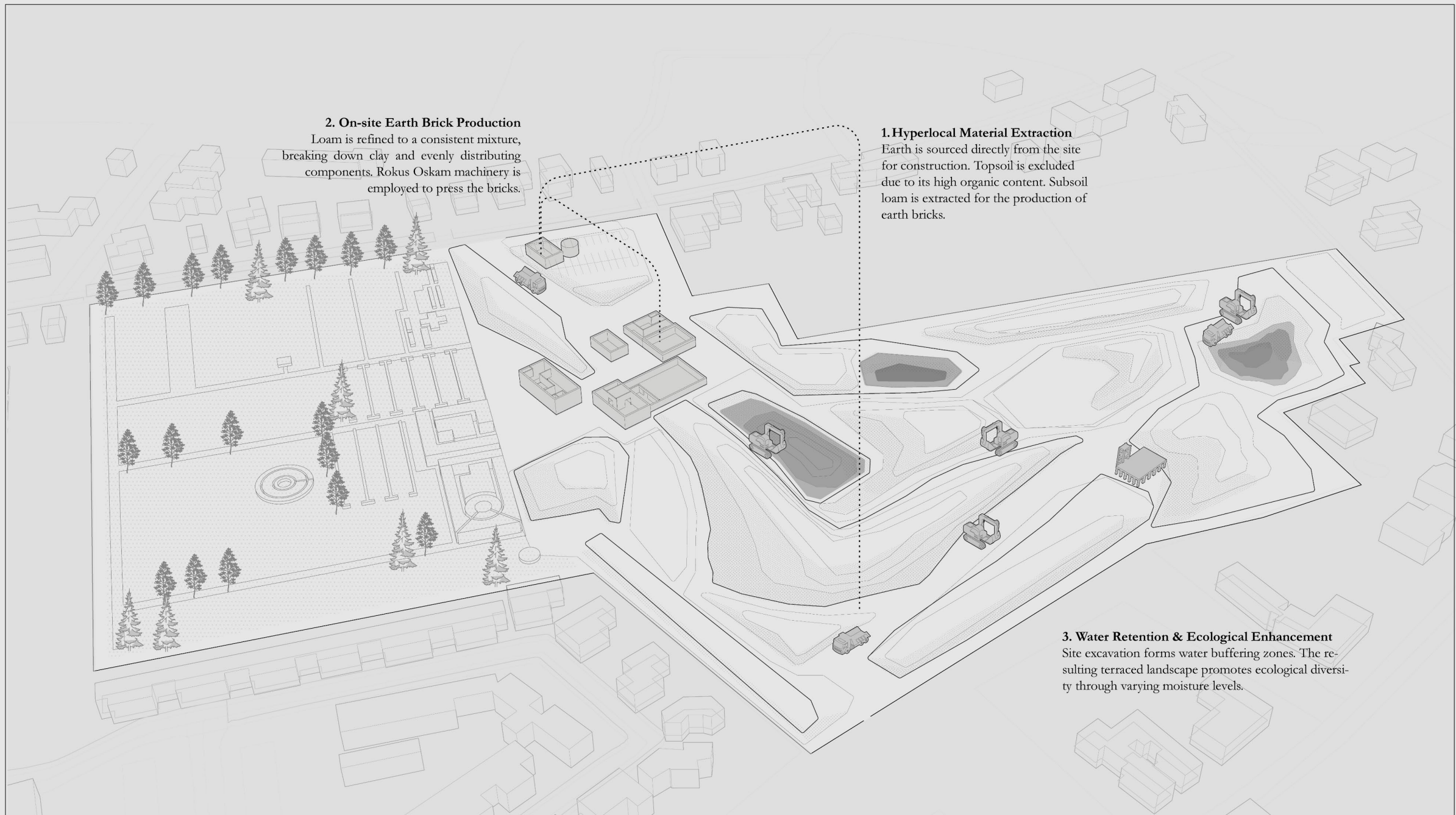


HYPERLOCAL BUILDING MATERIAL



+ ECOLOGICAL GRADIENT LANDSCAPE





2. On-site Earth Brick Production

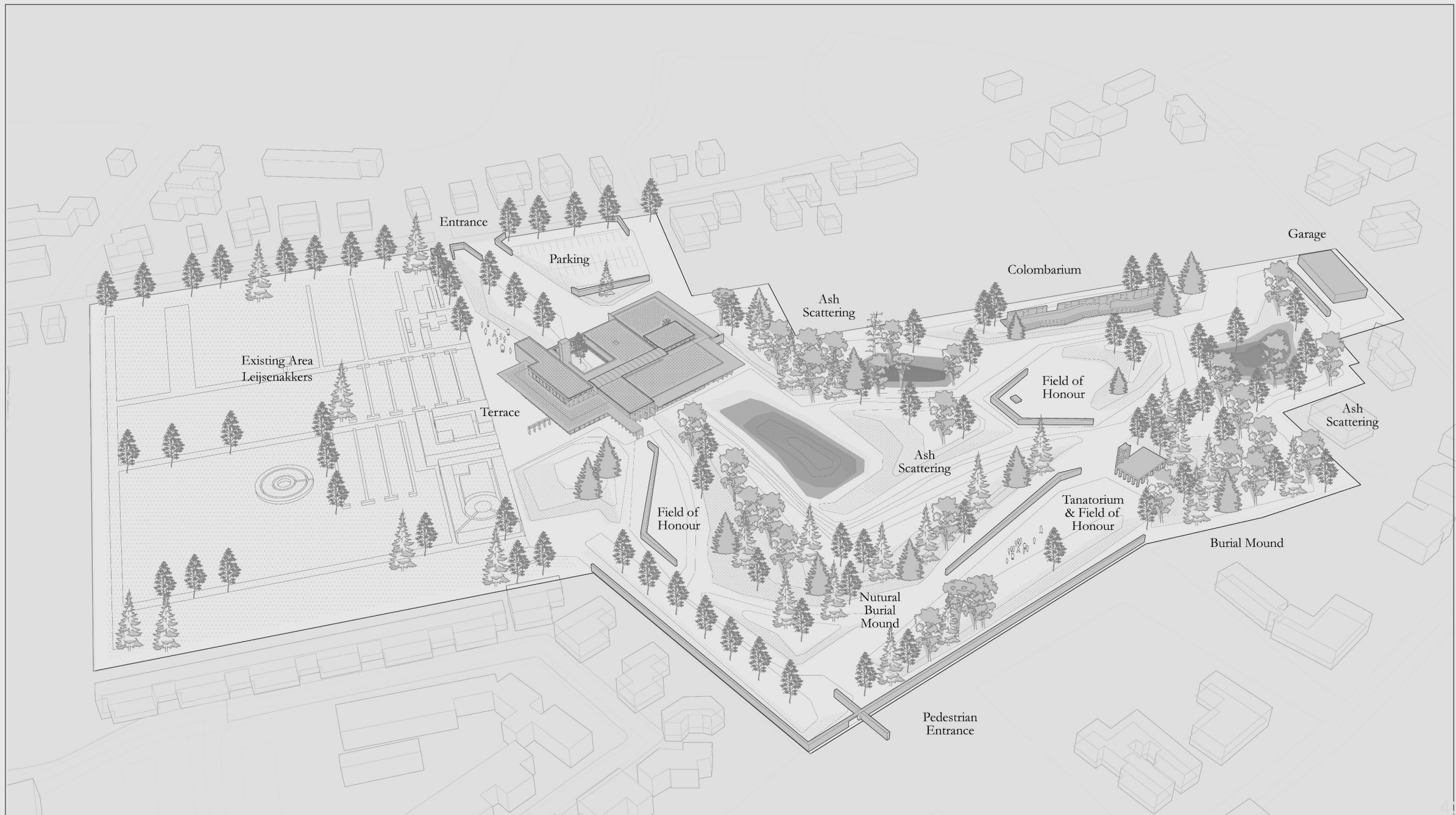
Loam is refined to a consistent mixture, breaking down clay and evenly distributing components. Rokus Oskam machinery is employed to press the bricks.

1. Hyperlocal Material Extraction

Earth is sourced directly from the site for construction. Topsoil is excluded due to its high organic content. Subsoil loam is extracted for the production of earth bricks.

3. Water Retention & Ecological Enhancement

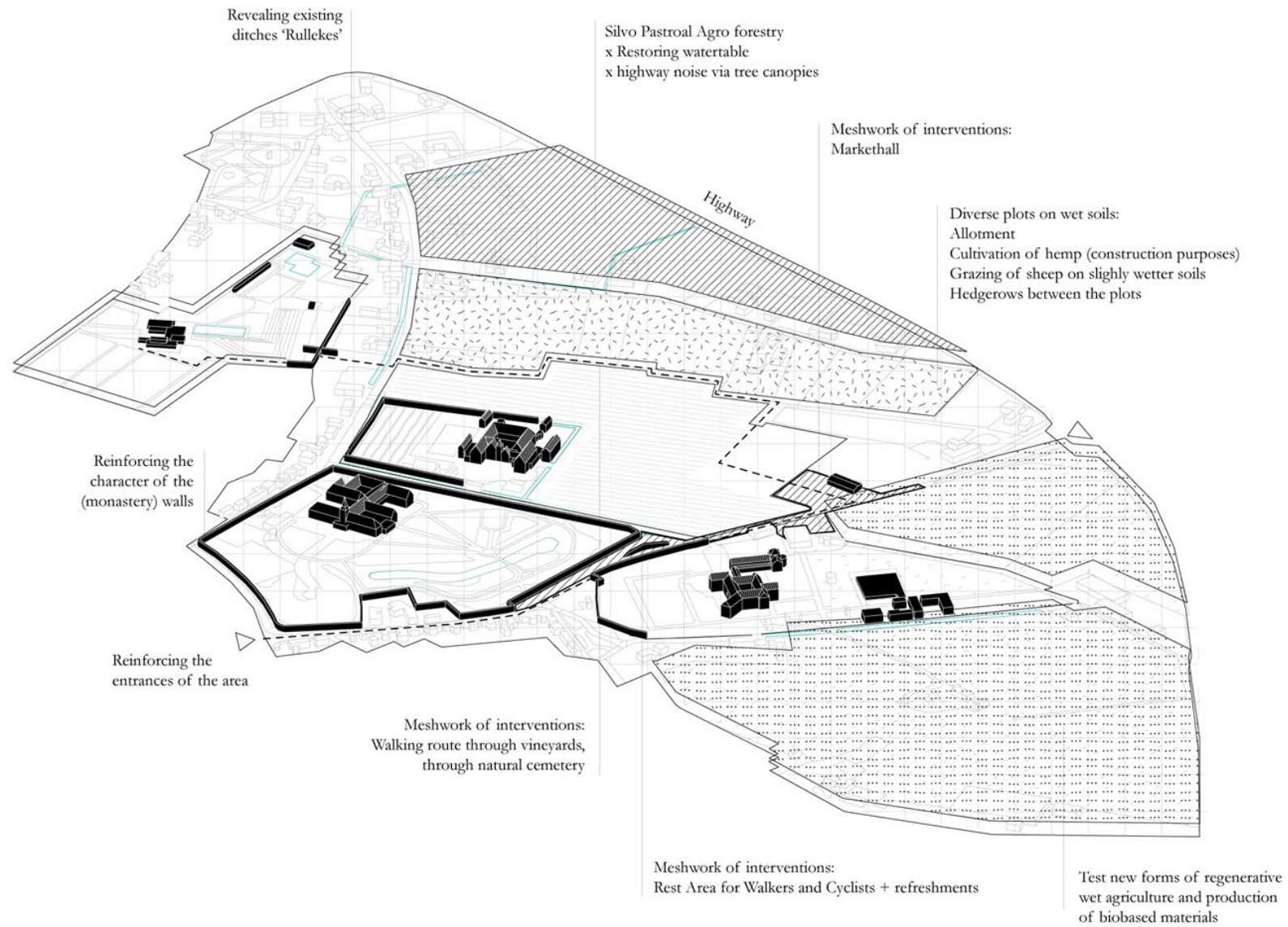
Site excavation forms water buffering zones. The resulting terraced landscape promotes ecological diversity through varying moisture levels.

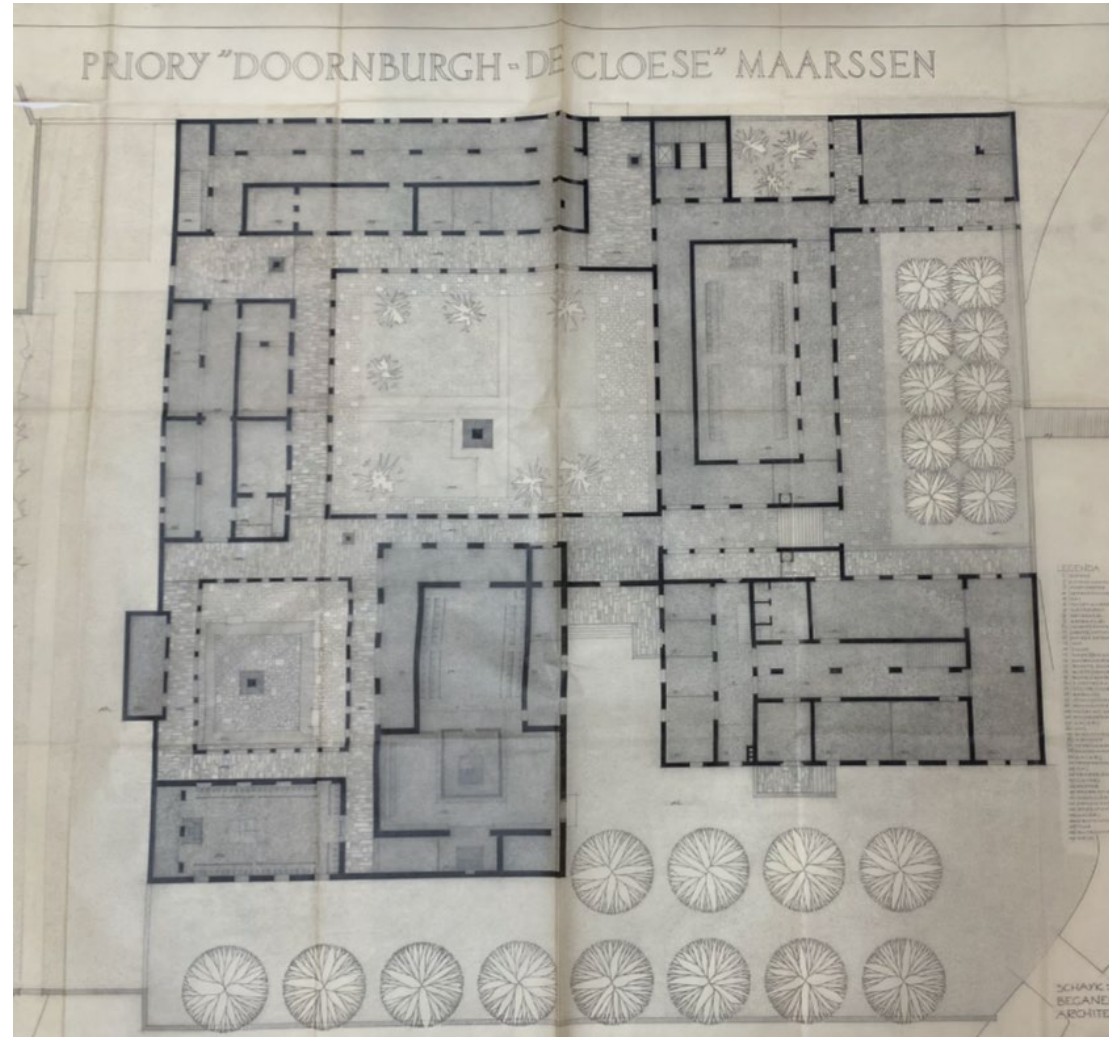


Ingredient B

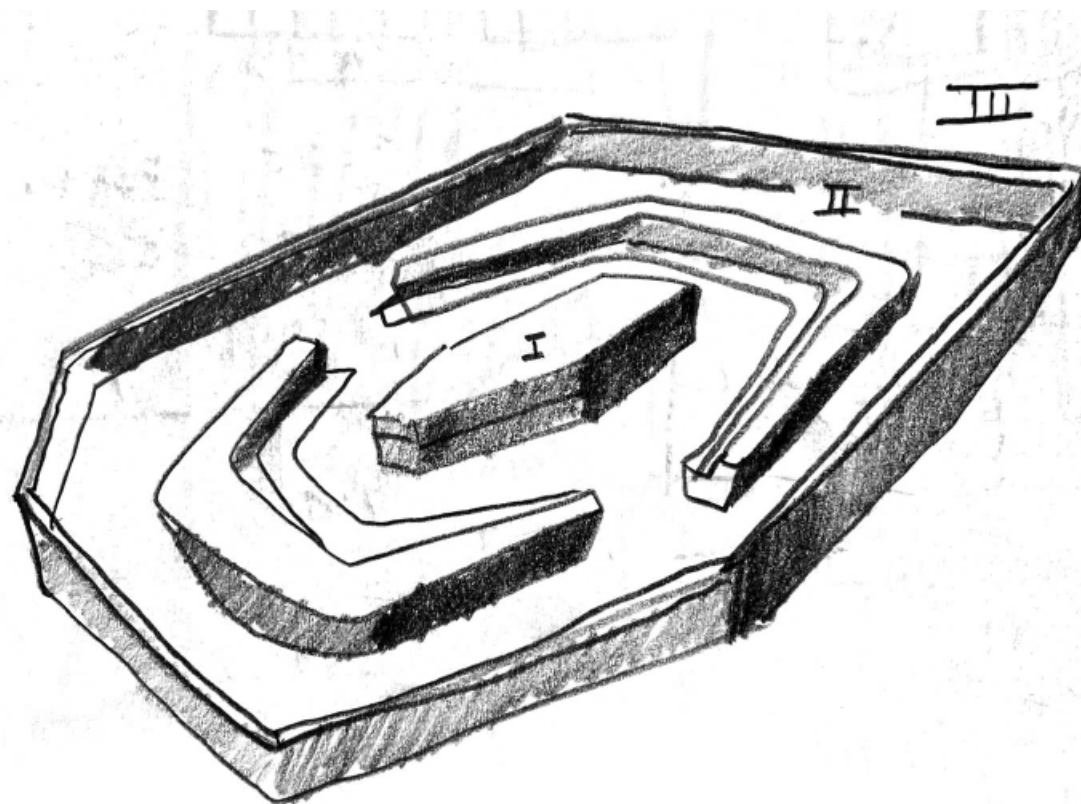
Architecture Typology

Patio's, courtyards and walls

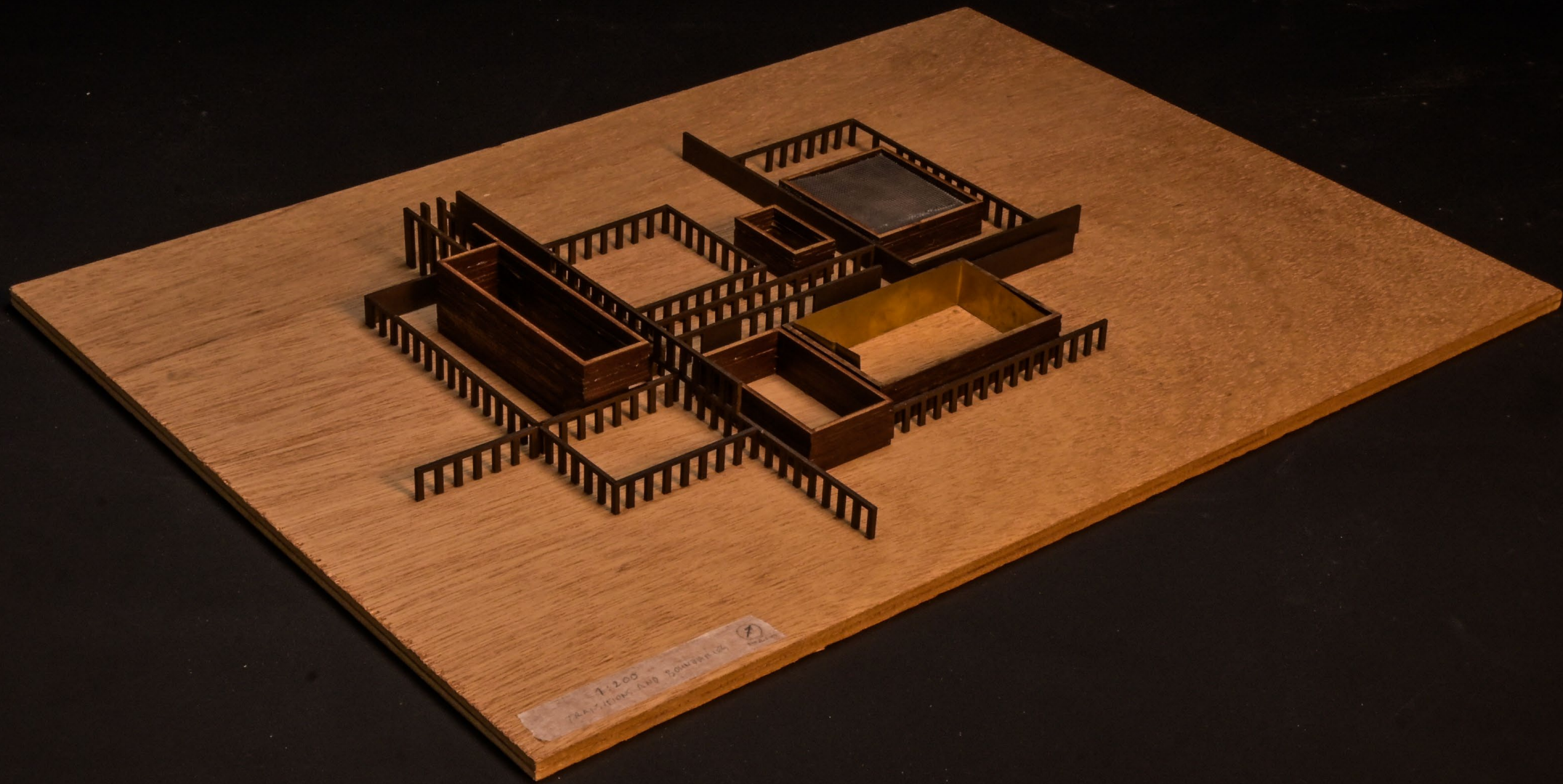


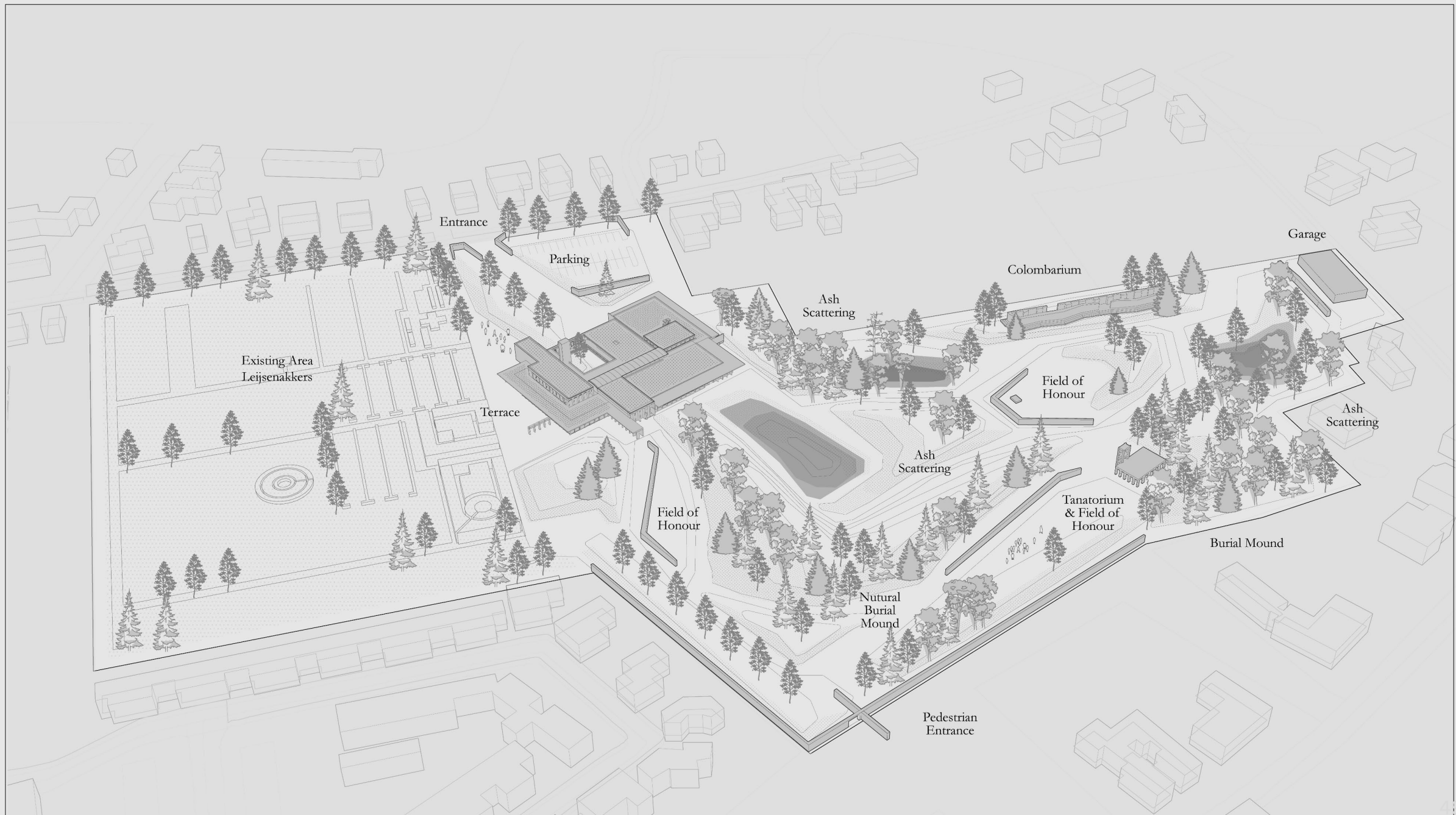


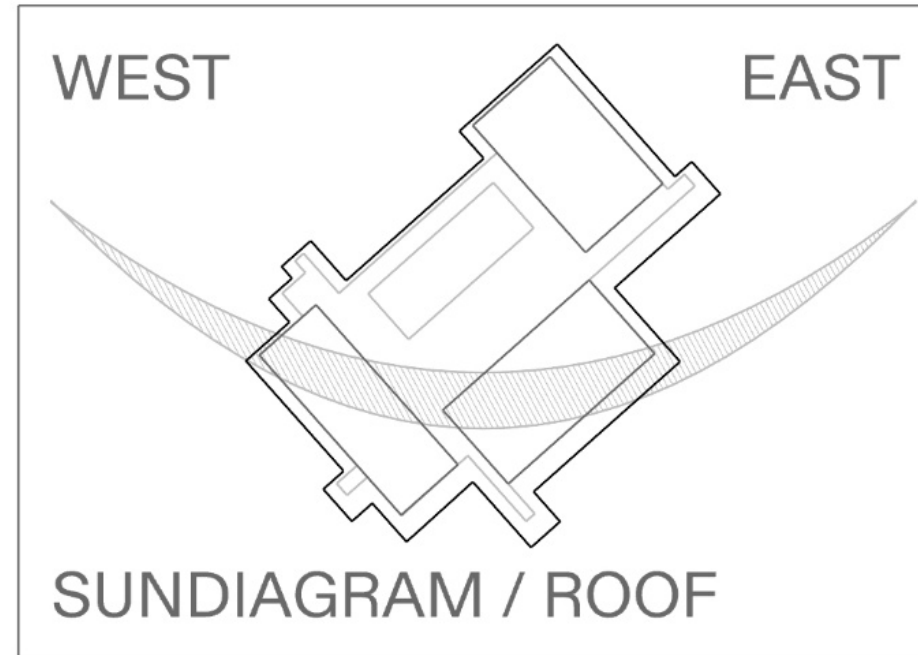
Preliminary floor plan of the Priory Doornburgh – De Cloese or Priory Emmaus, Maarssen, designed by Jan de Jong in the Bossche School style, January 1962. Retrieved from Het Nieuwe Instituut, JONJ.110736557 (1959–1968, 1970, 1980, 1986, undated).

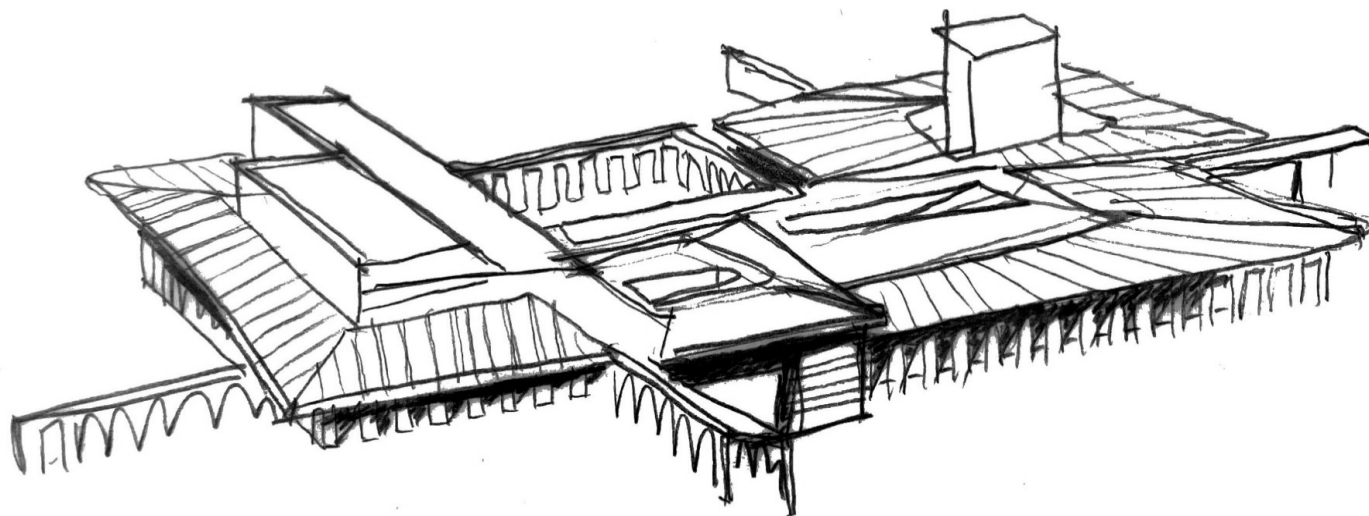


152









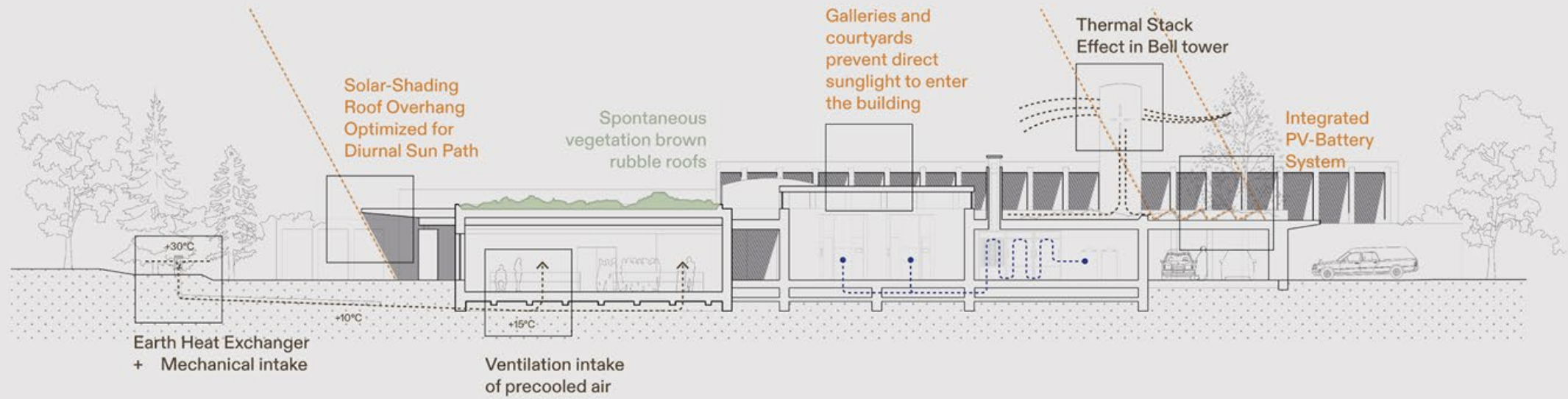


Vista's
Brown rubble roof
Topography to create *landschapskamers*
Differing watertables create ecological gradient

Ingredient C

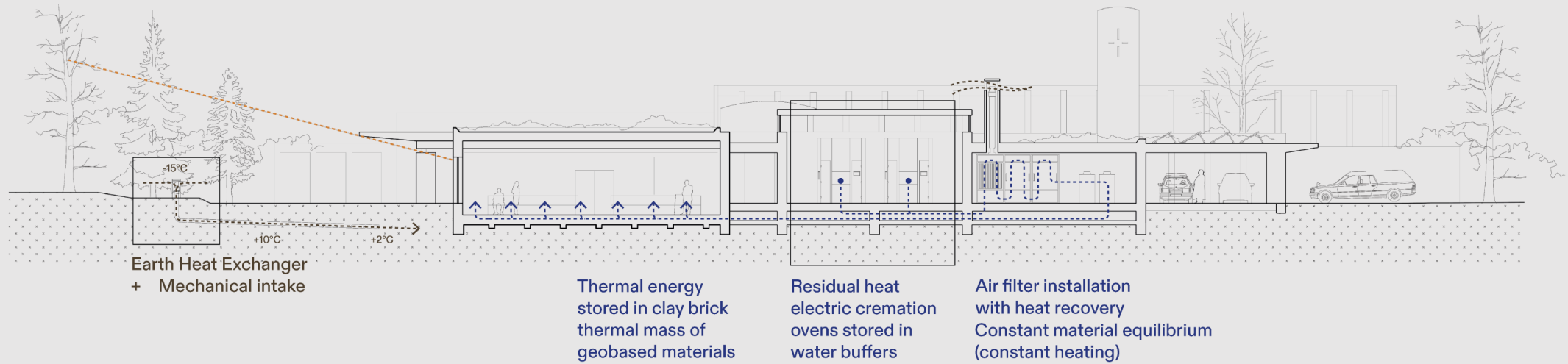
Climate

Summer



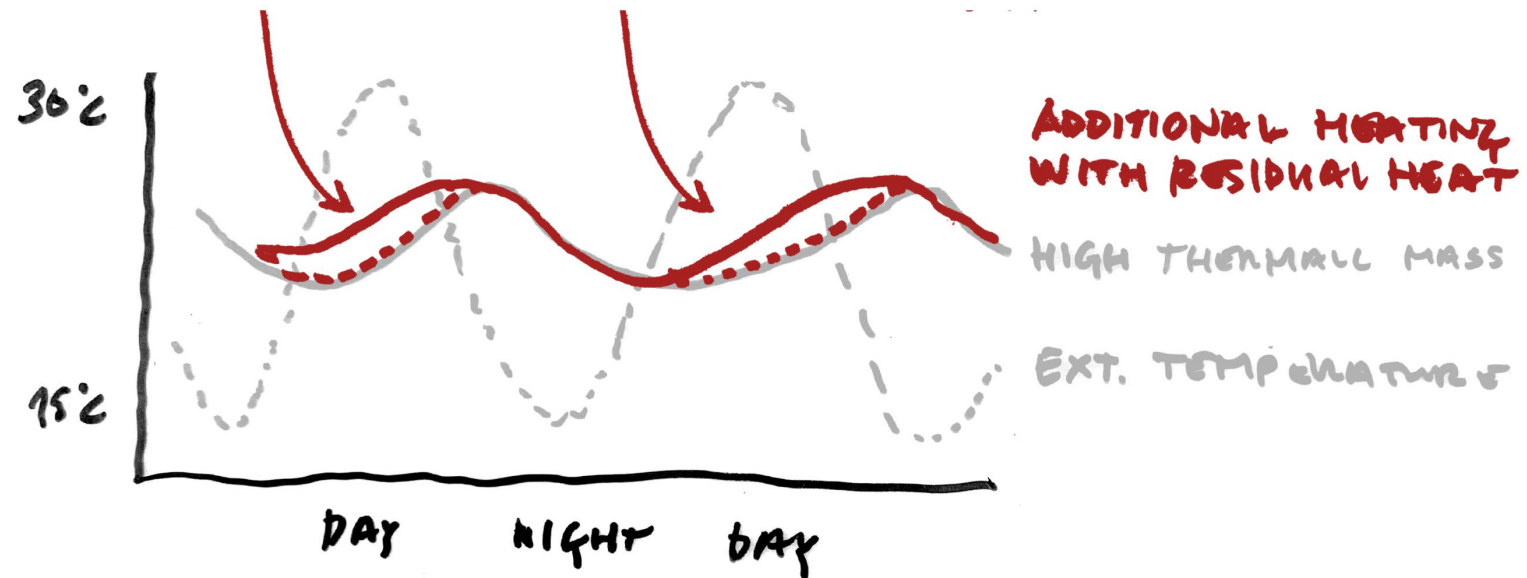
Passive climate strategy, thermal mass

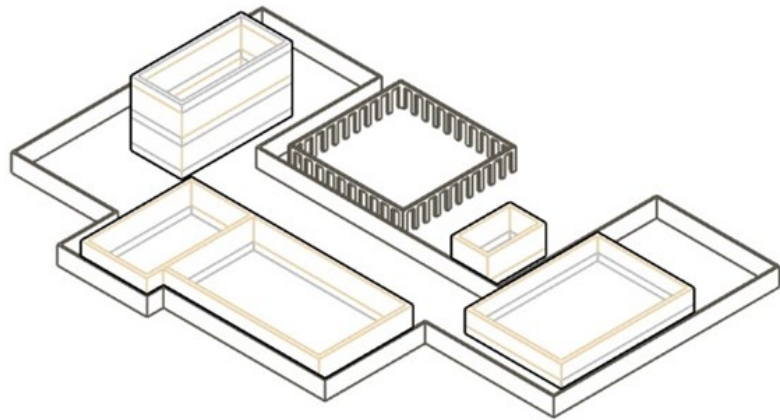
Winter



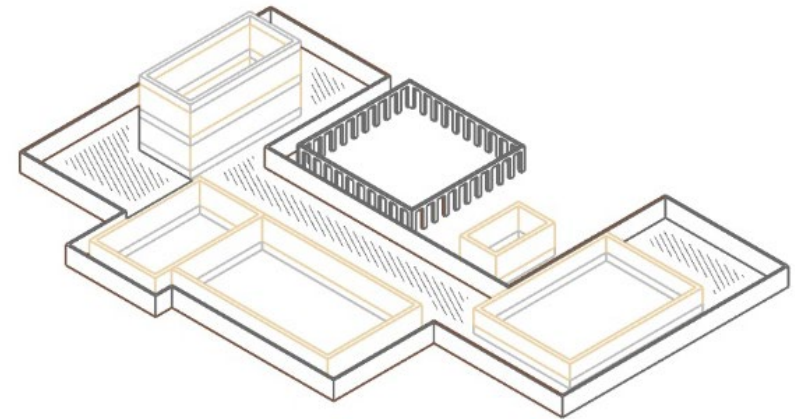
Passive climate strategy, integral
design of residual heat, thermal mass

STABILISING EFFECT OF THERMAL MASS ON INTERNAL TEMPERATURE

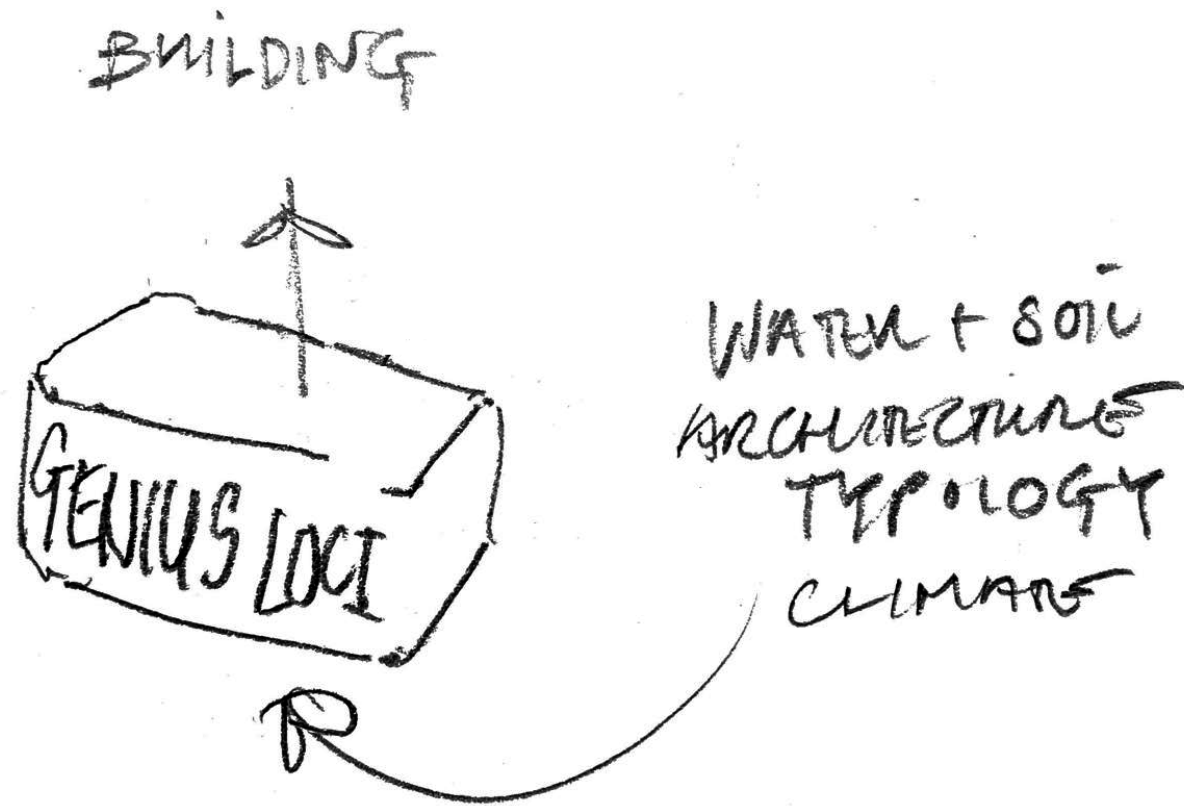


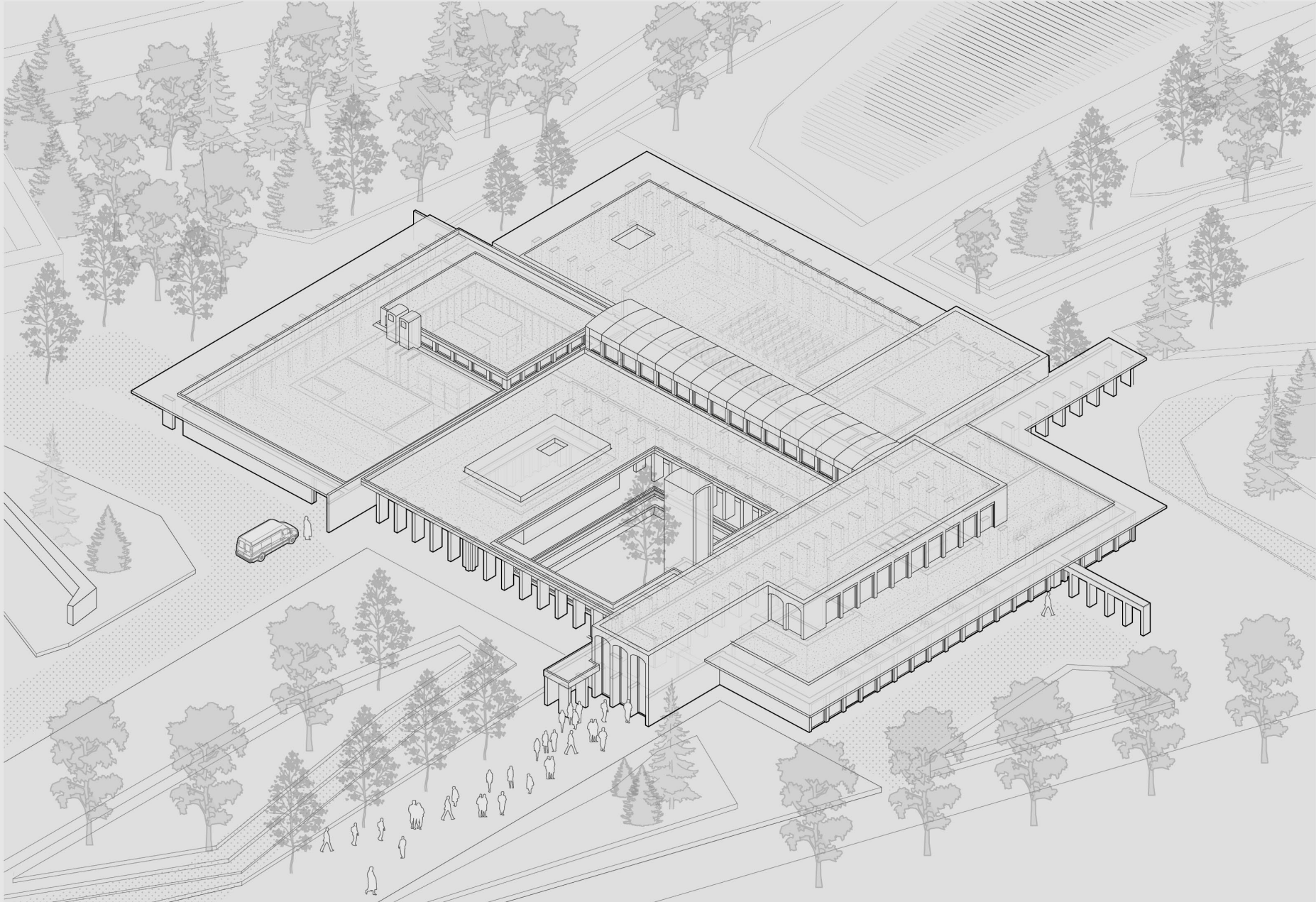


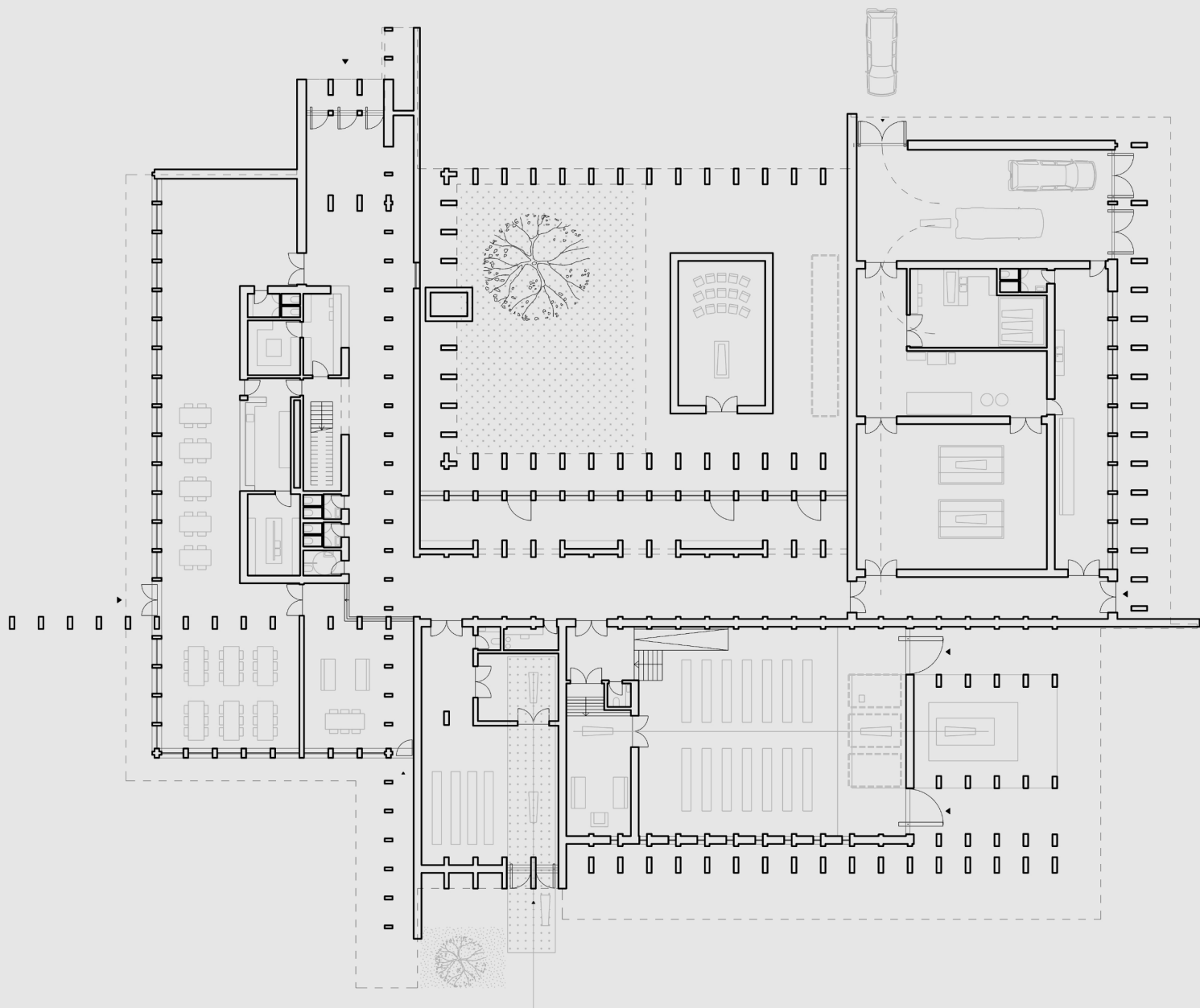
THERMAL MASS CORES

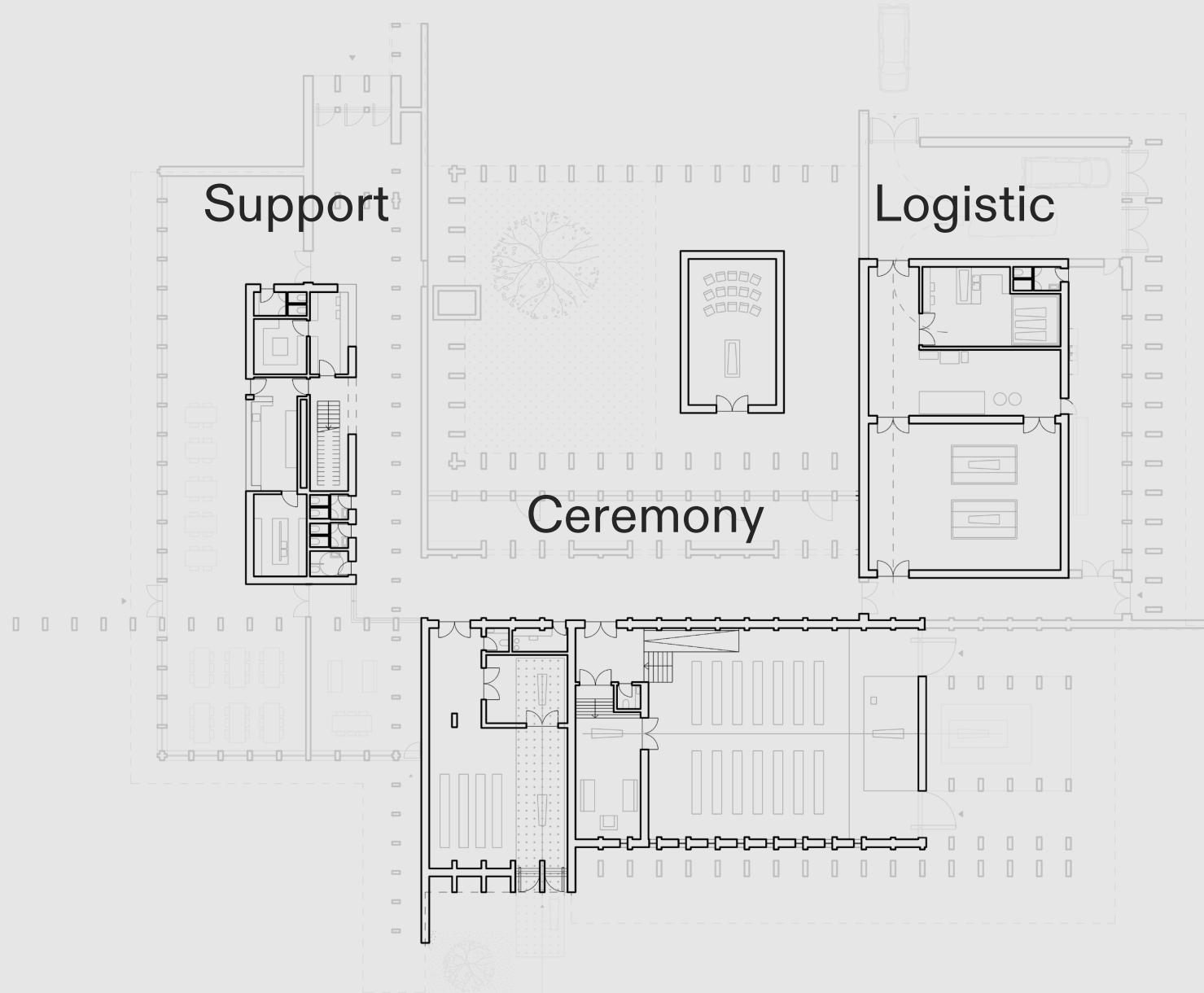


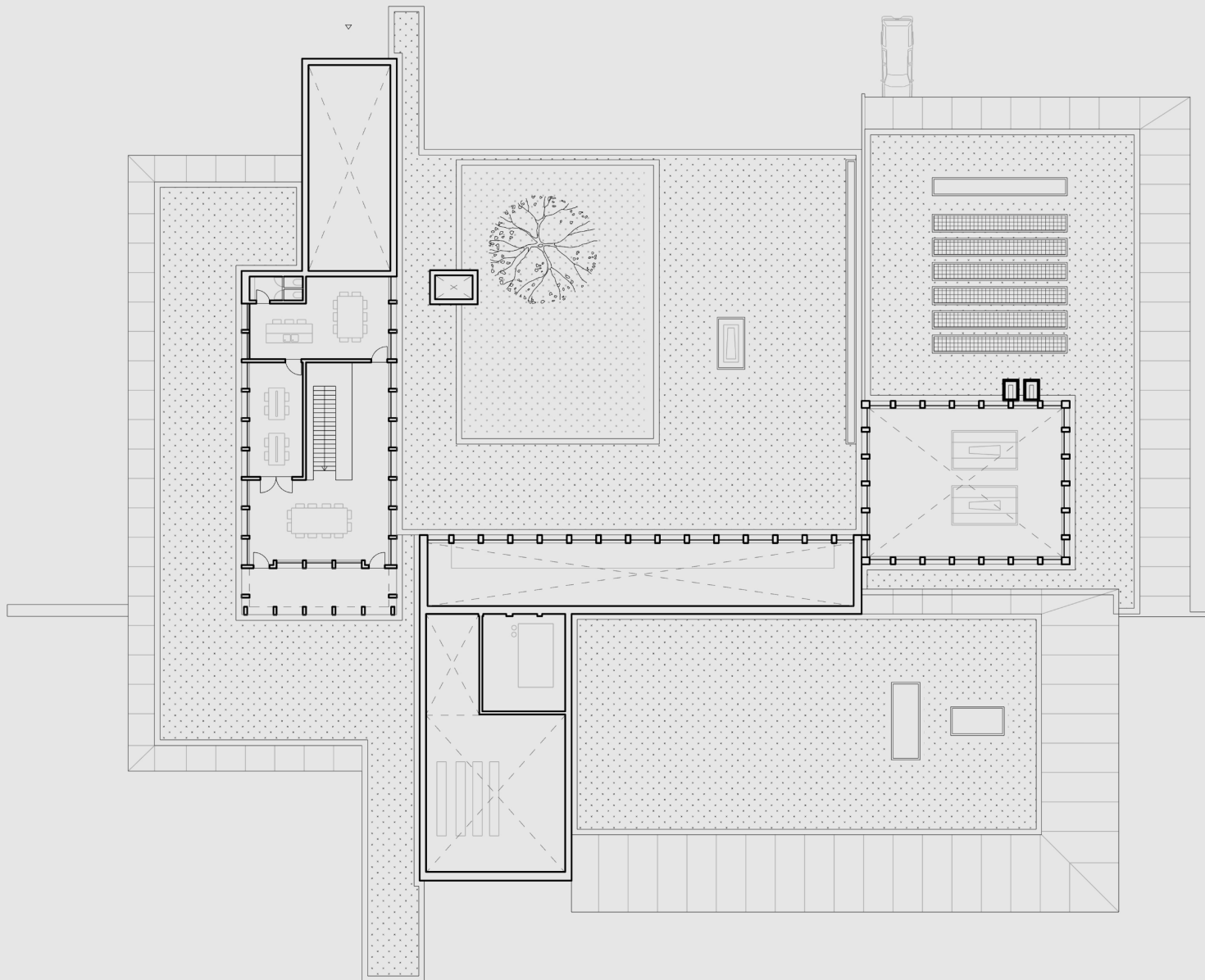
INTERMEDIATE
CLIMATE ZONE

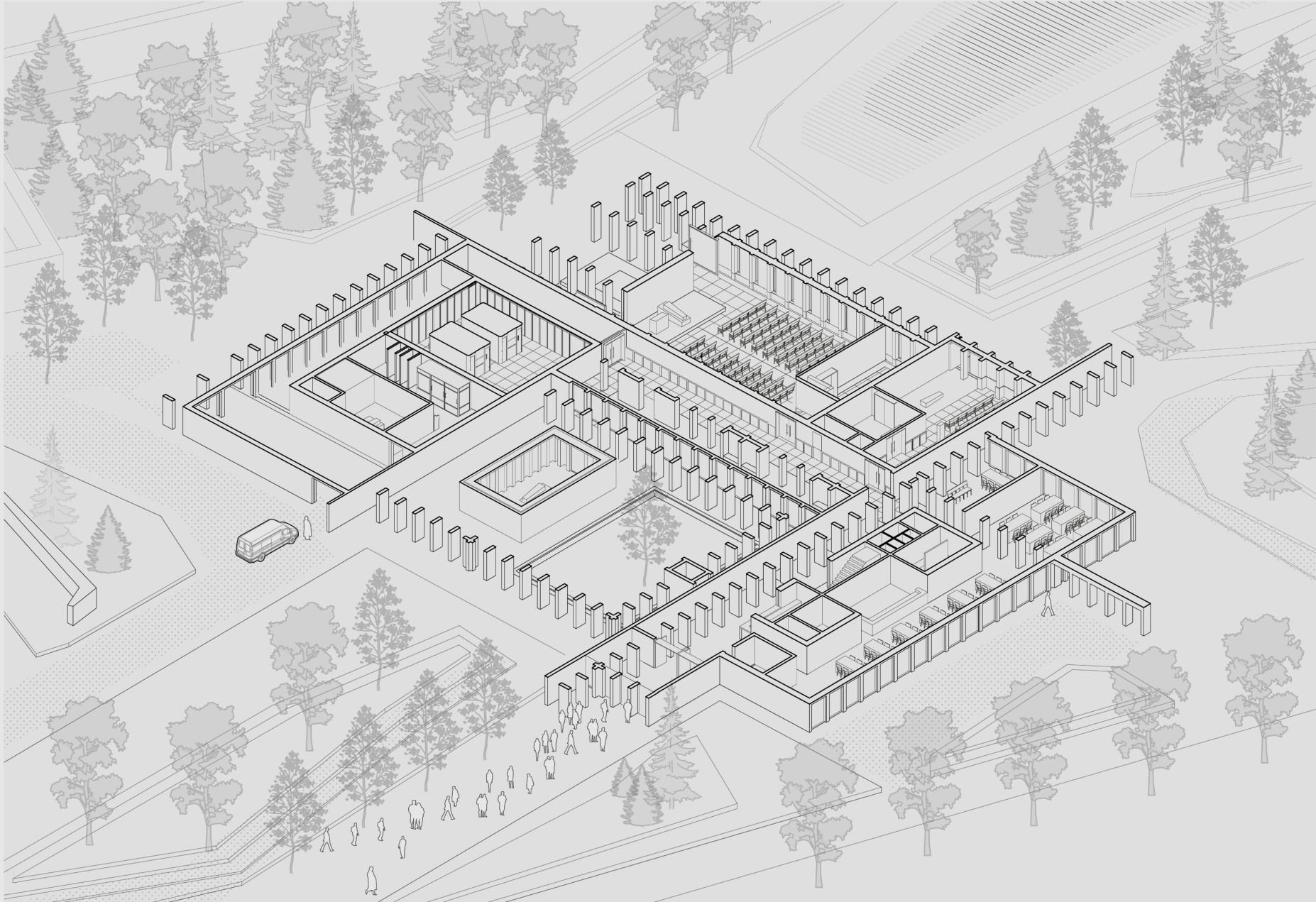












08:30 AM

Dawn

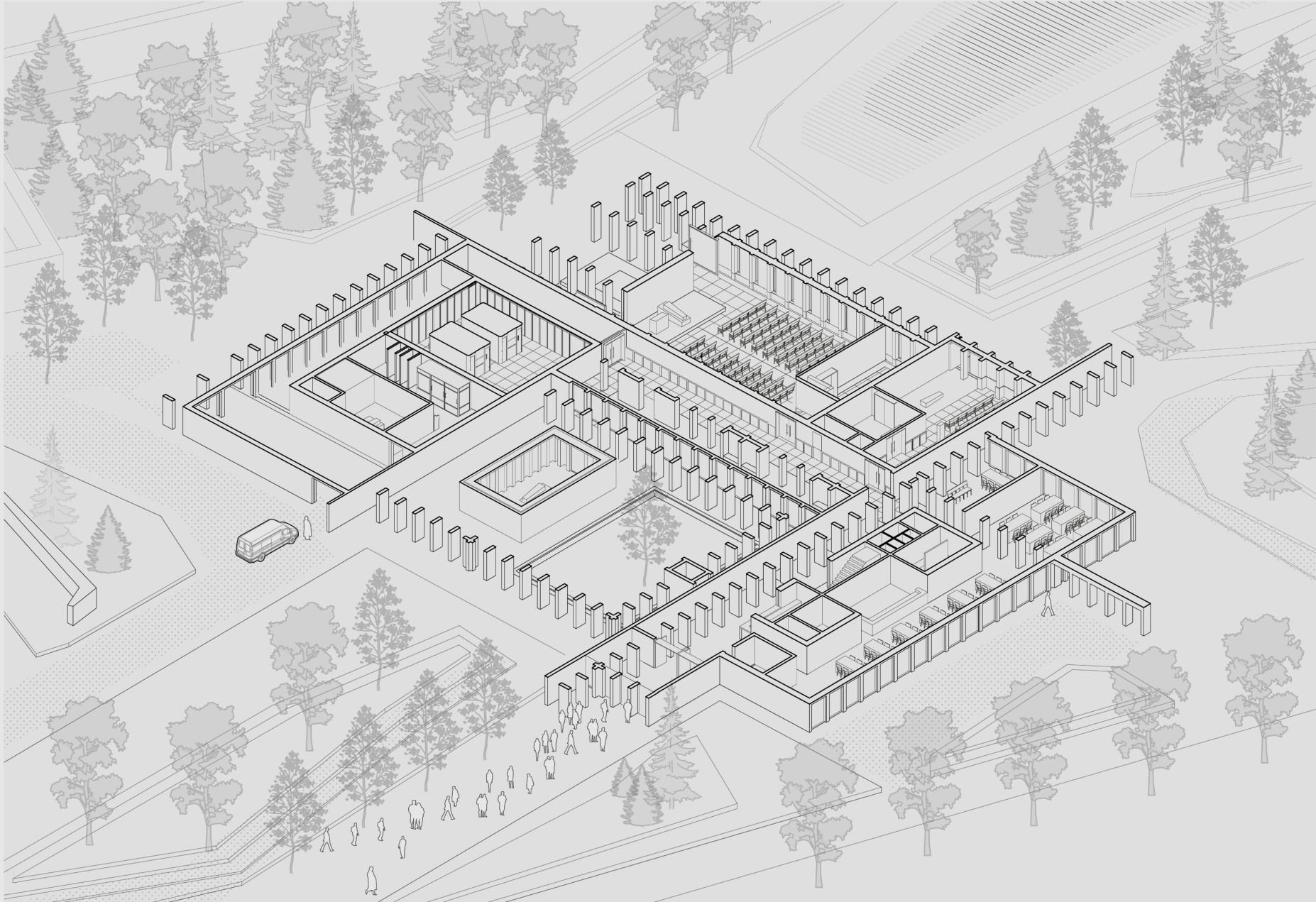
Ochtendgloren



LEIJSEN AKKERS



GARDEROBE



08:45

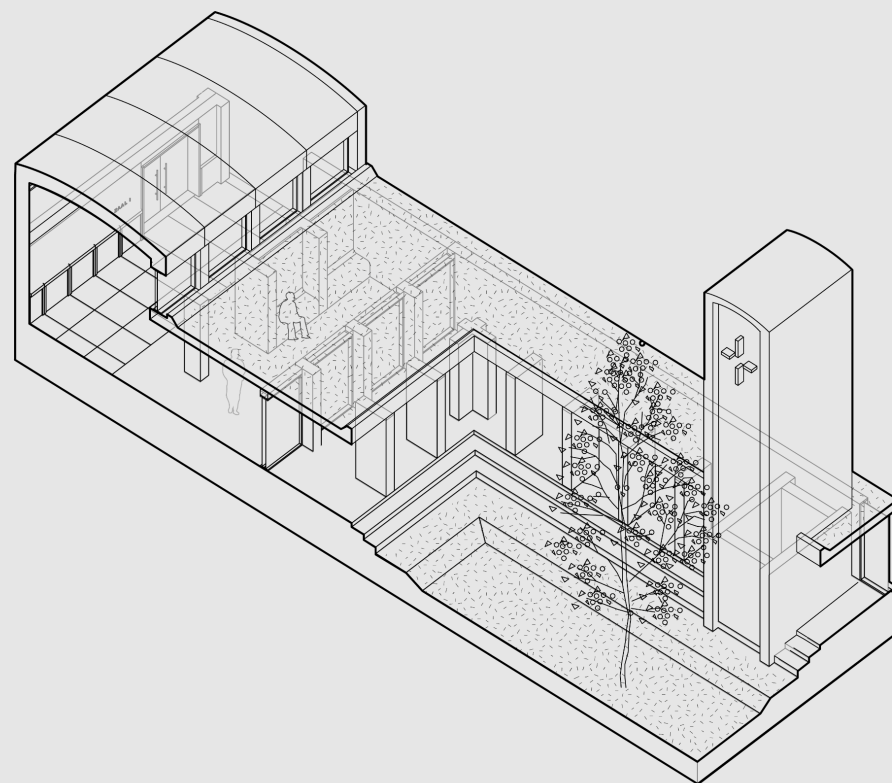
Serenity

Kalmte





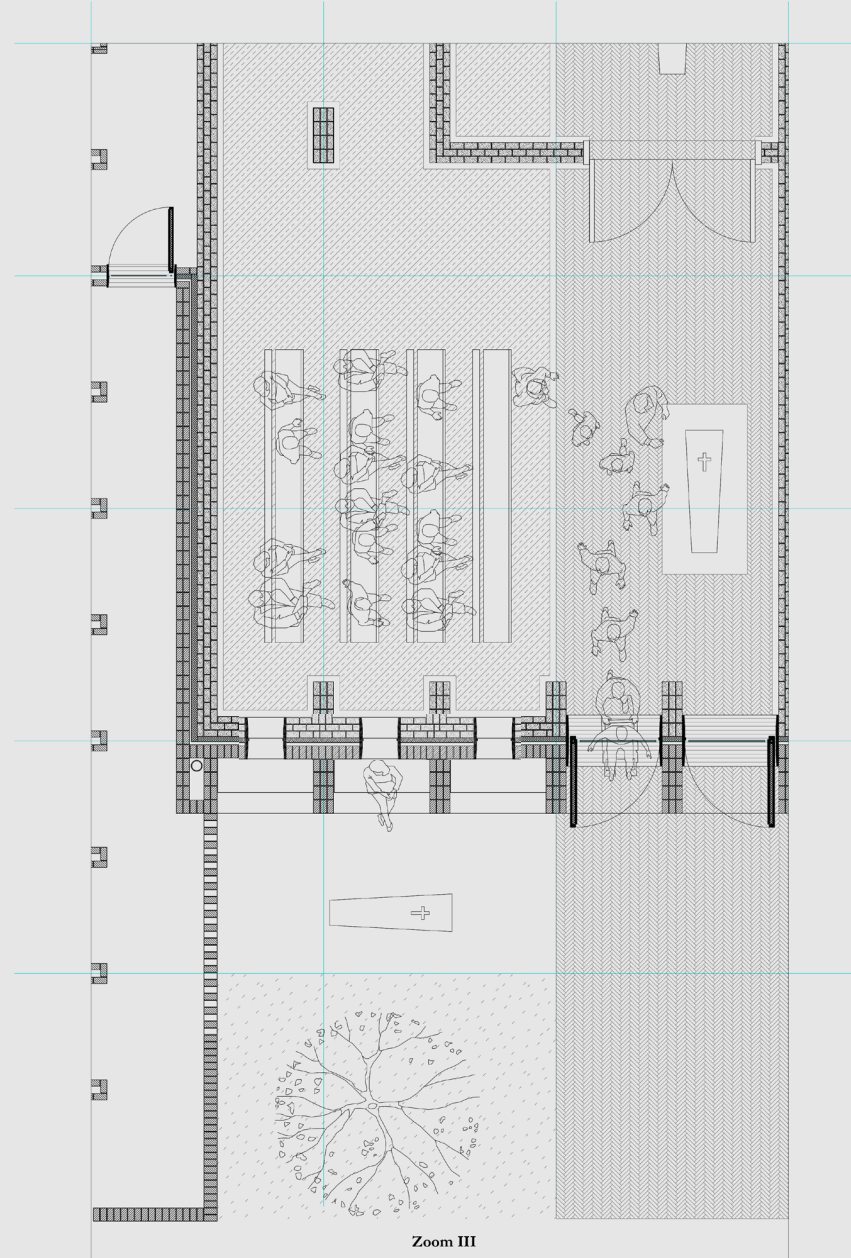
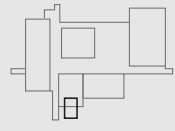


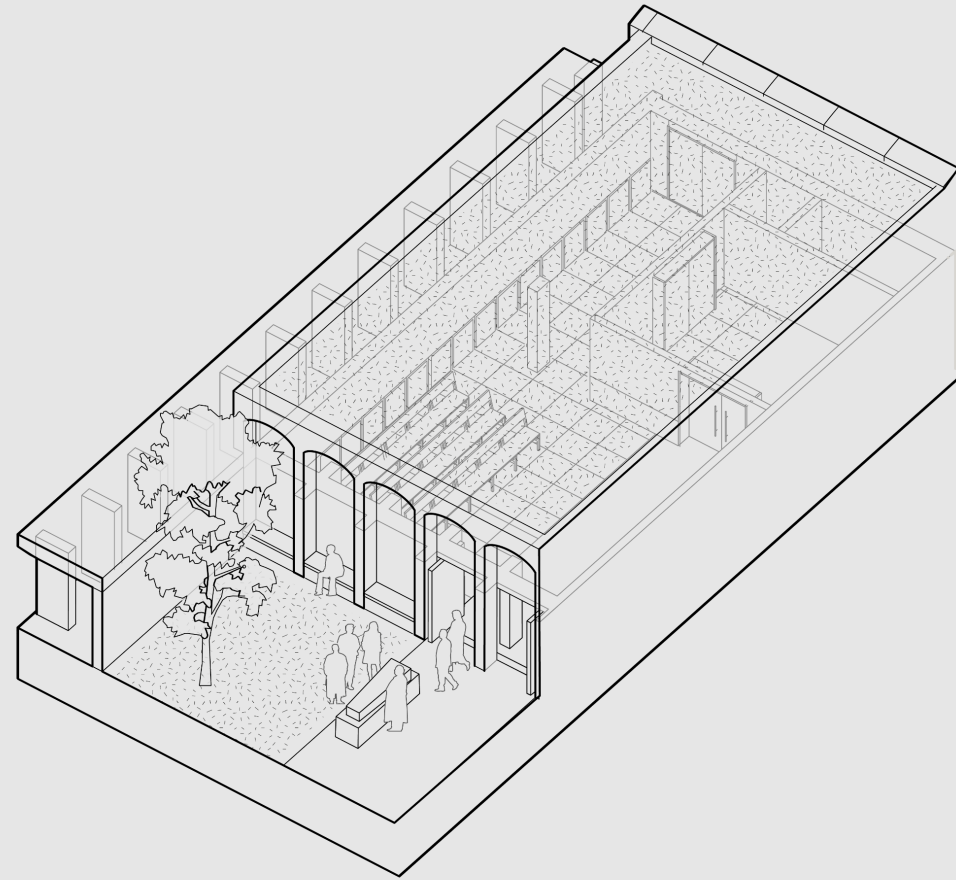


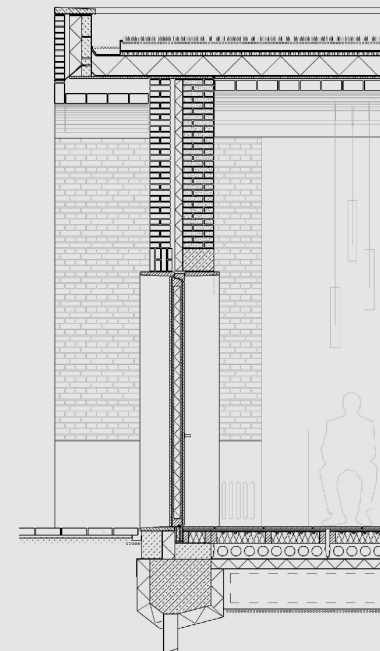
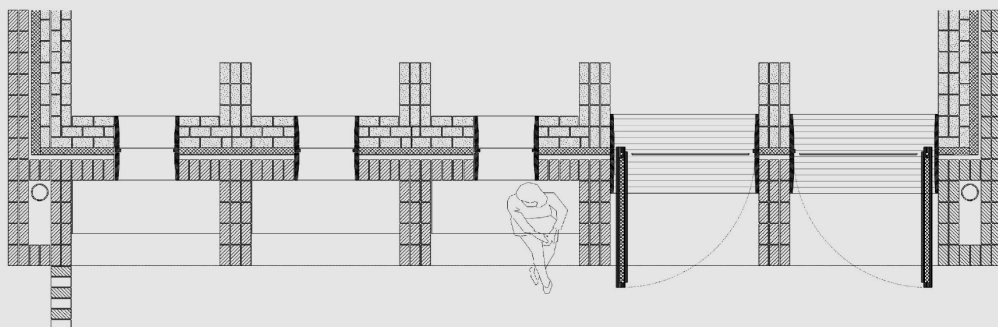
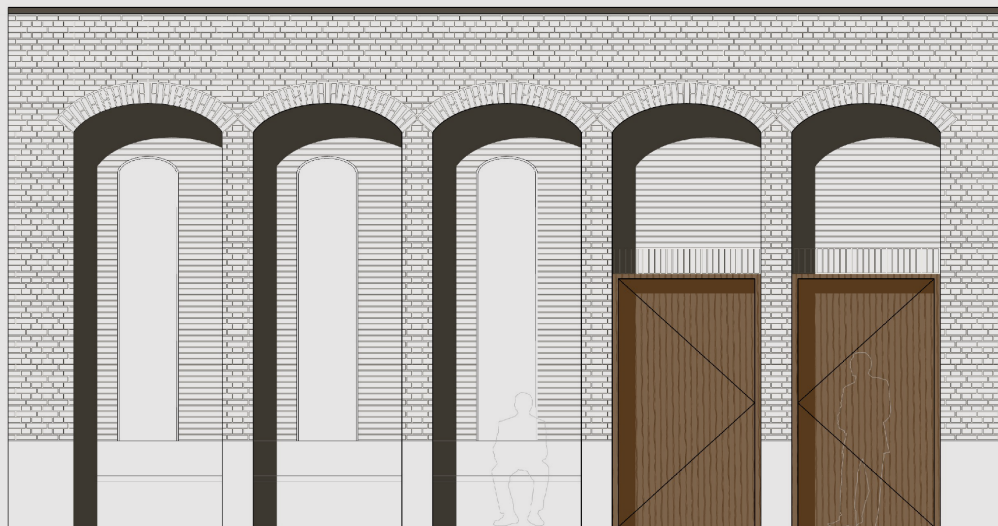
09:00

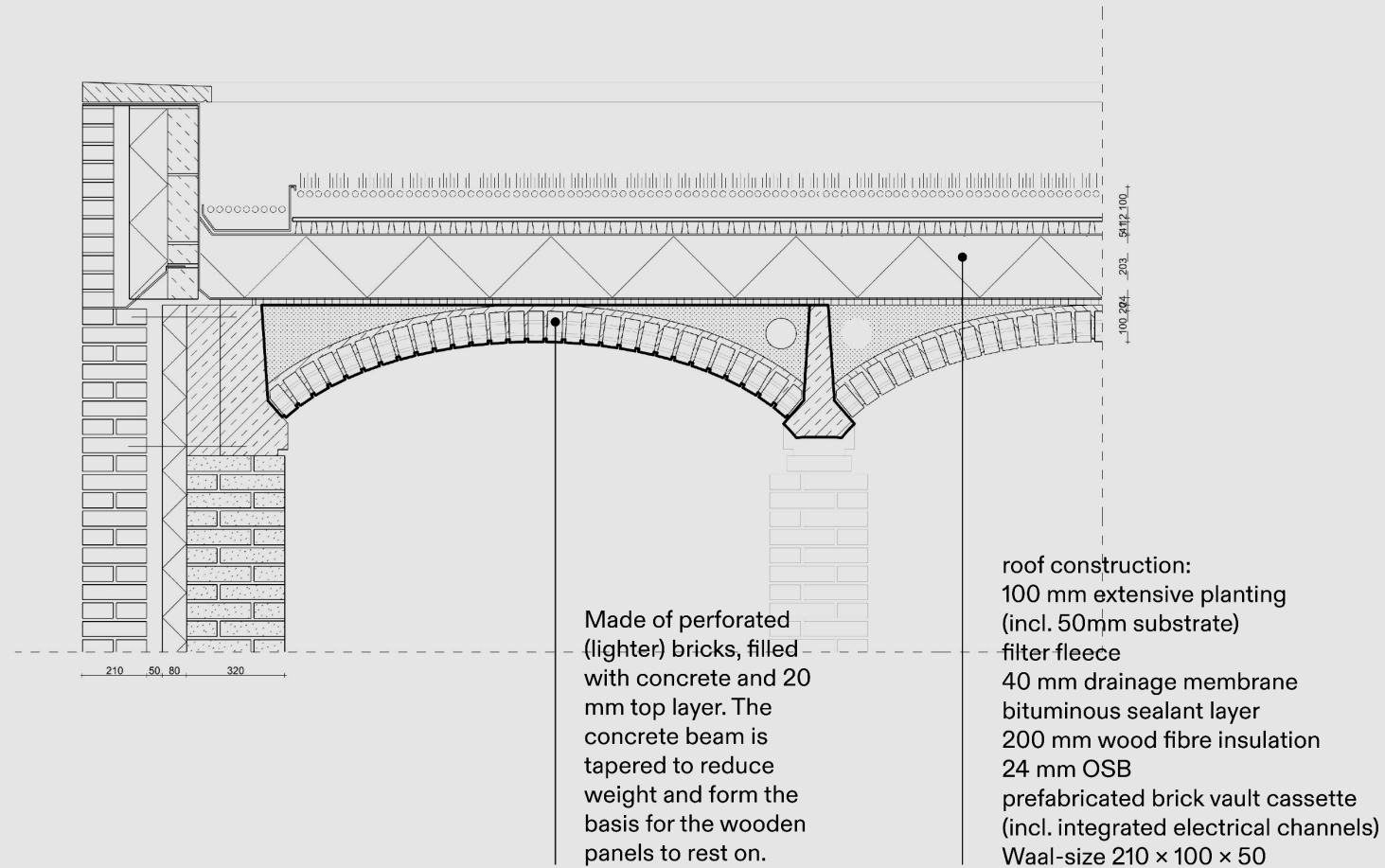
Reverence

Toewijding



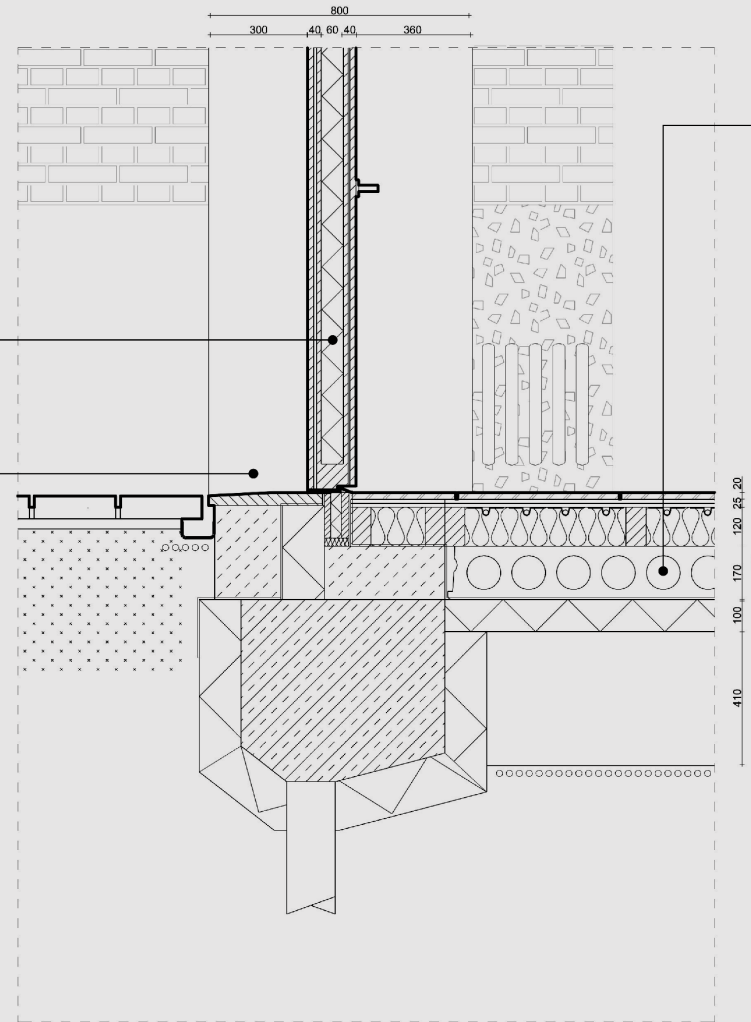






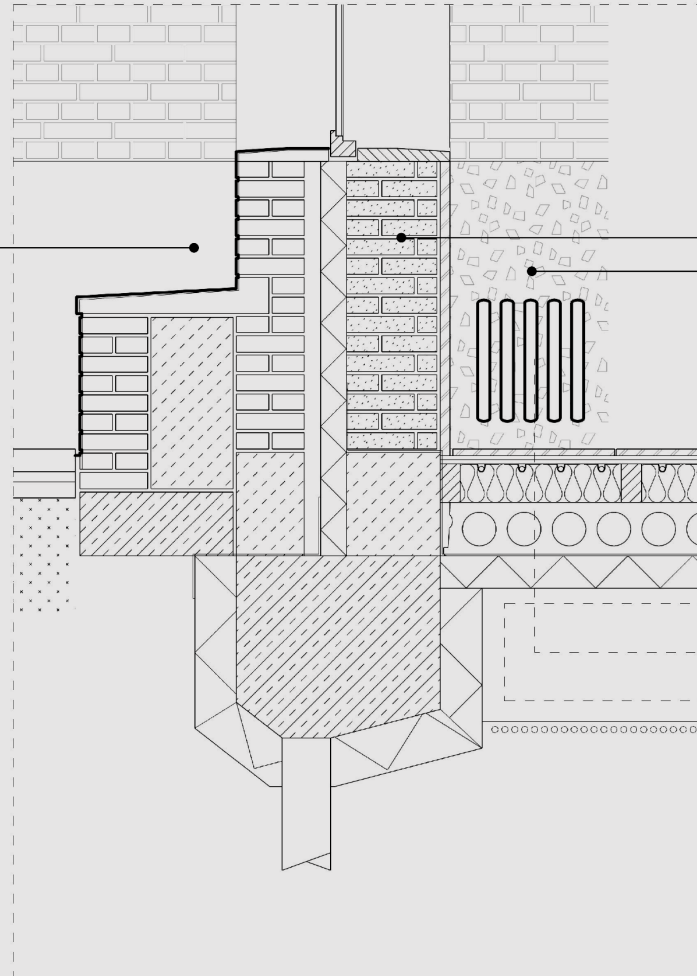
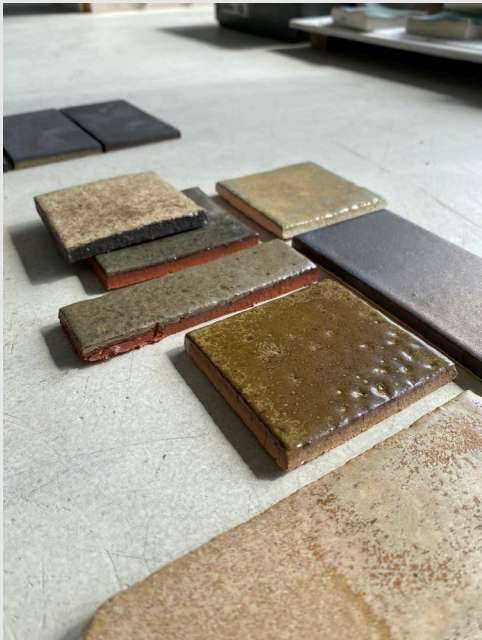
Pivot Door (Frits Jurgens Hinges), Fraké wood, IV96 solid leaf door, outward opening. 60mm insulation. Thermmodified wood. Manufact. Wiegand Fensterbau, adjusted manually to open outwards

Minimal interior-exterior threshold allows smooth passage of a funeral trolley for outdoor ceremonies.



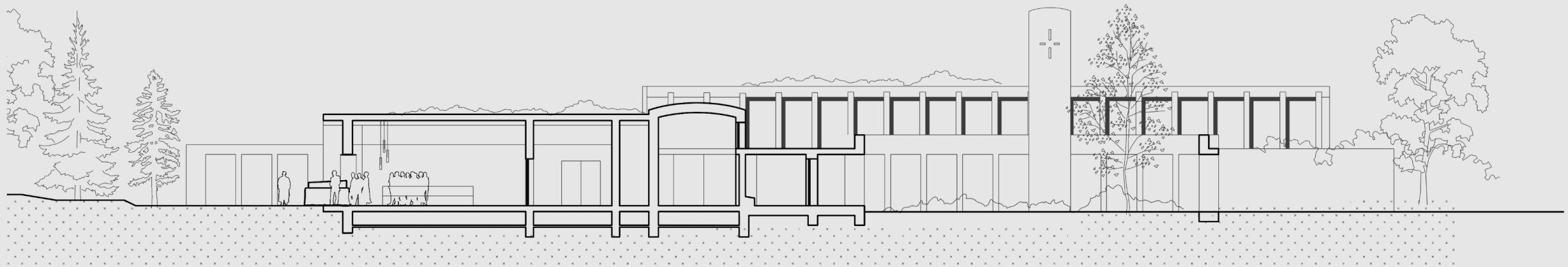
ground floor construction:
floating screed floor:
20 mm terrazzo tile
2 × 12.5 mm Fermacell
120 mm wood fiber insulation (Gutex)
with integrated underfloor heating
Alpex-duo pipe Ø16/2
incl. heat distribution plate (0.5 mm)
160 mm hollow-core slab
Vapour barrier foil
Crawl space with ventilation channels

Integrated benches with
glazed coating are easy
to clean

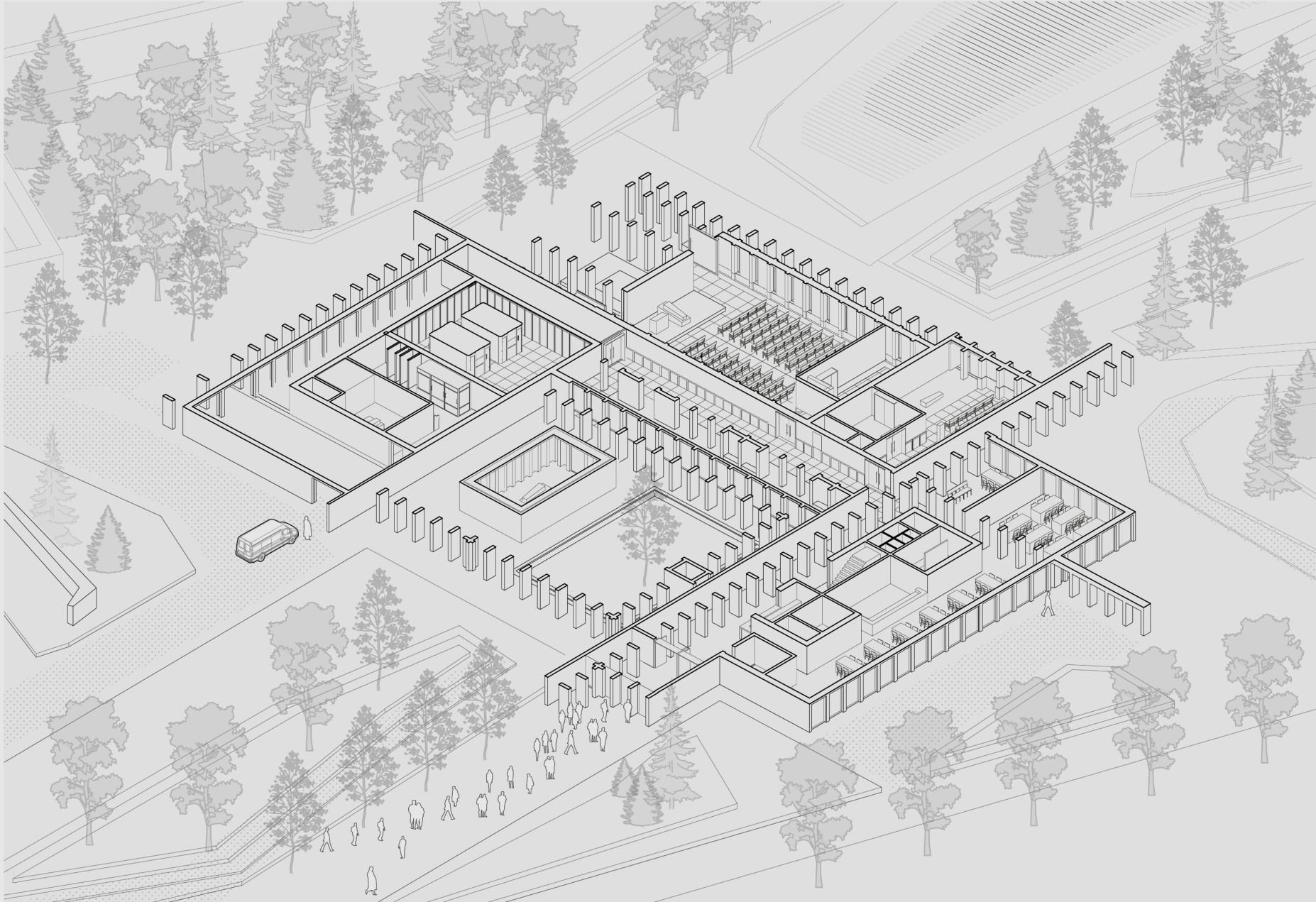


exterior wall ($R_{c,total} = 4.17 \text{ m}^2 \cdot \text{K/Wj}$)
210 mm fired brick
(Waal, cross bond)
50 mm cavity
100 mm hemp wool
insulation
320 mm clay bricks
(unfired)

Terrazzo tiles, milled
ventilation holes. Half of
the pendants are off-grid
due to the absence of
concrete foundation
beams; ventilation is
added accordingly.

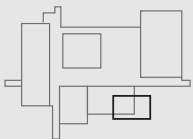
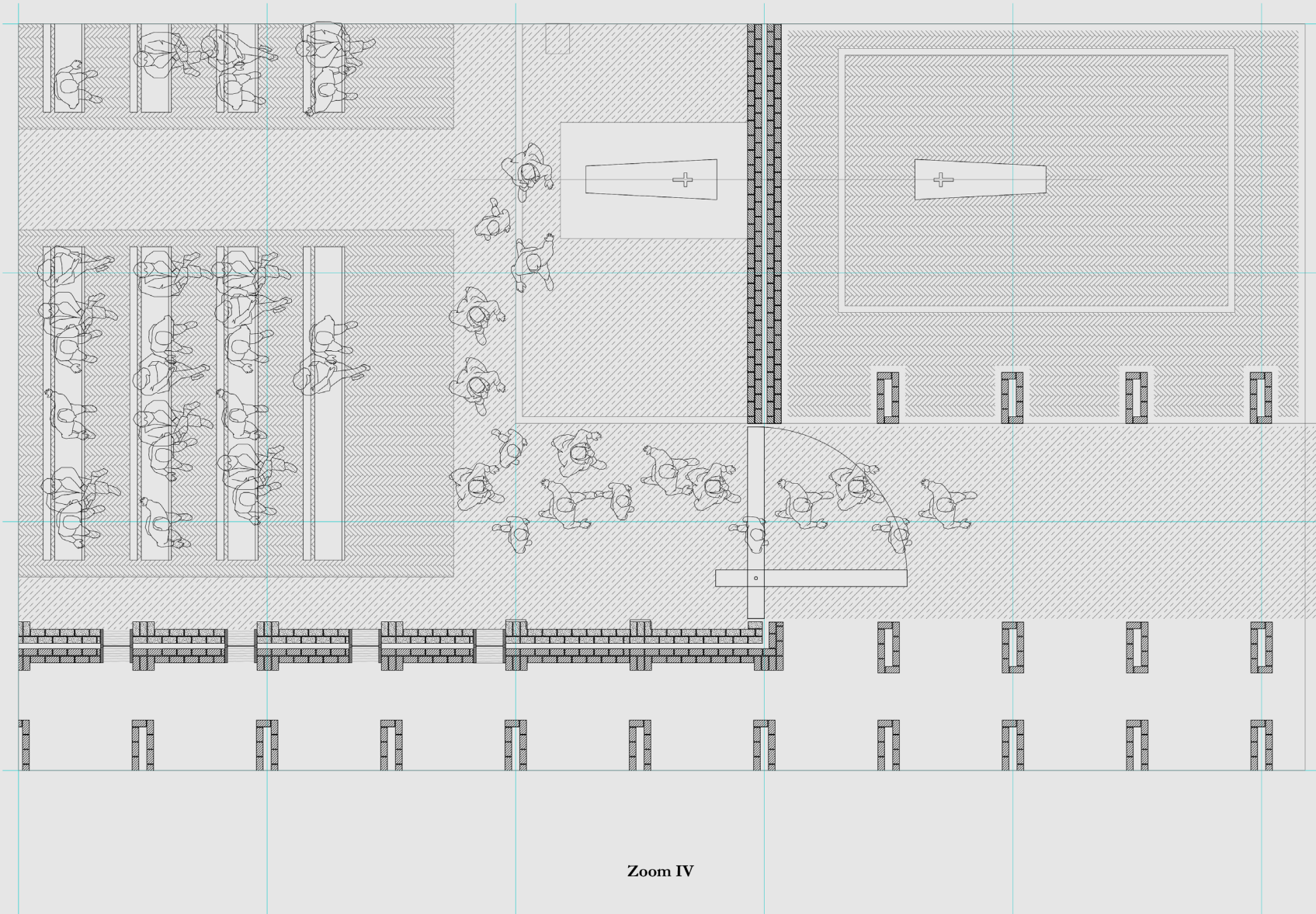


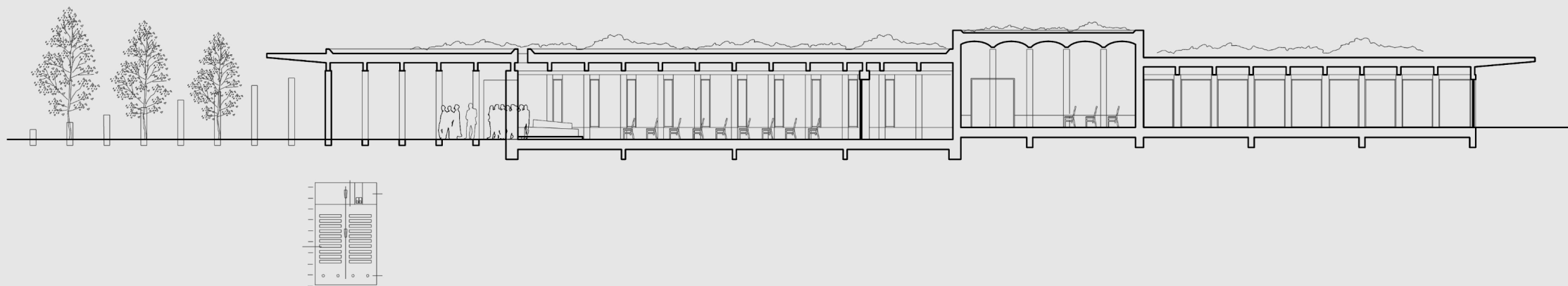












Replacing ceremonies outside
in addition to natural burial





12:00

Exhale

Ontlading





Conclusion

Slow, contemplative and grounded architecture, shaped by place, people, and time — using mineral materials and local know-how to create a lasting farewell centre embedded in the landscape.

It questions the local building standards and is a plea for resonant, rooted architecture.



Dank aan:

Mo, Thomas, Paddy, Robert

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Gert Versteeg (Onze Lieve Vrouwe Abdi),
Bart Vermeulen (Sint-Paulusabdi)

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Koen Mulder (TU Delft),
Ronald Willemsteijn (Rijswaard),
Marcel van der Zanden (Vogelensangh),

my fellow aE students!

Anne

