AUGUSTINUSKERK

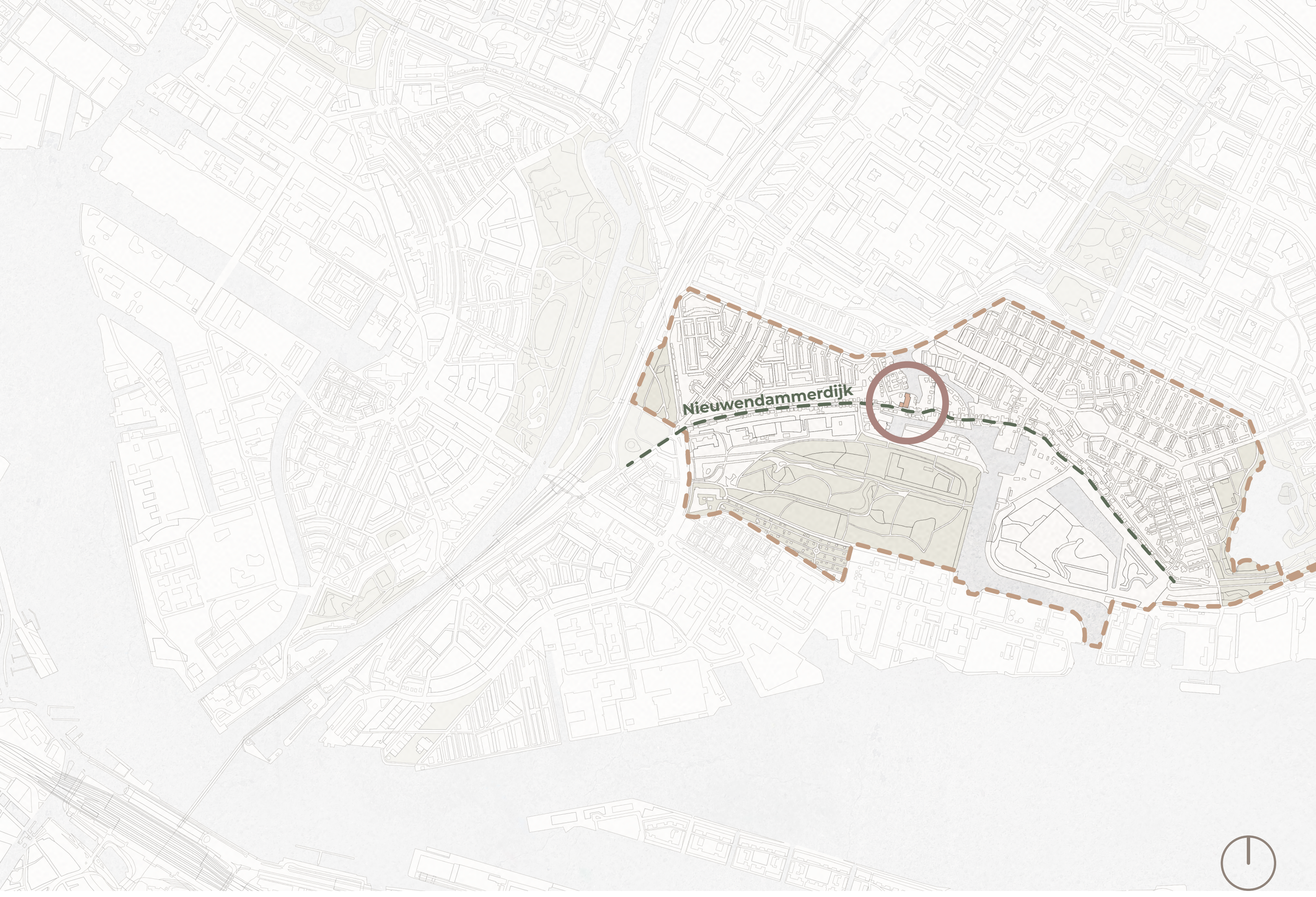
The redesign of a neo-gothic church I ***P5 presentation*** *I Research by design*

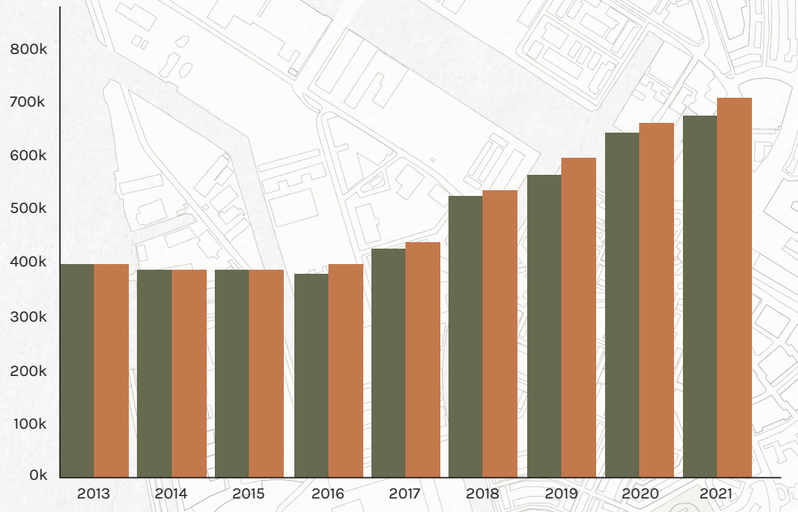
TU Delft **I** *2022/2023* **I** *AR3A010* **I** *Architecture and Heritage graduation studio “Zero-waste church”*

Student: Cozma Nicoleta **I** *Student ID:5603684* **I** *Research tutor: Wido Quist* **I** *Design tutor: Catherine M.N.Visser* **I** *BT tutor: Anet Meijer*



Amsterdam North


Nieuwendammerdijk



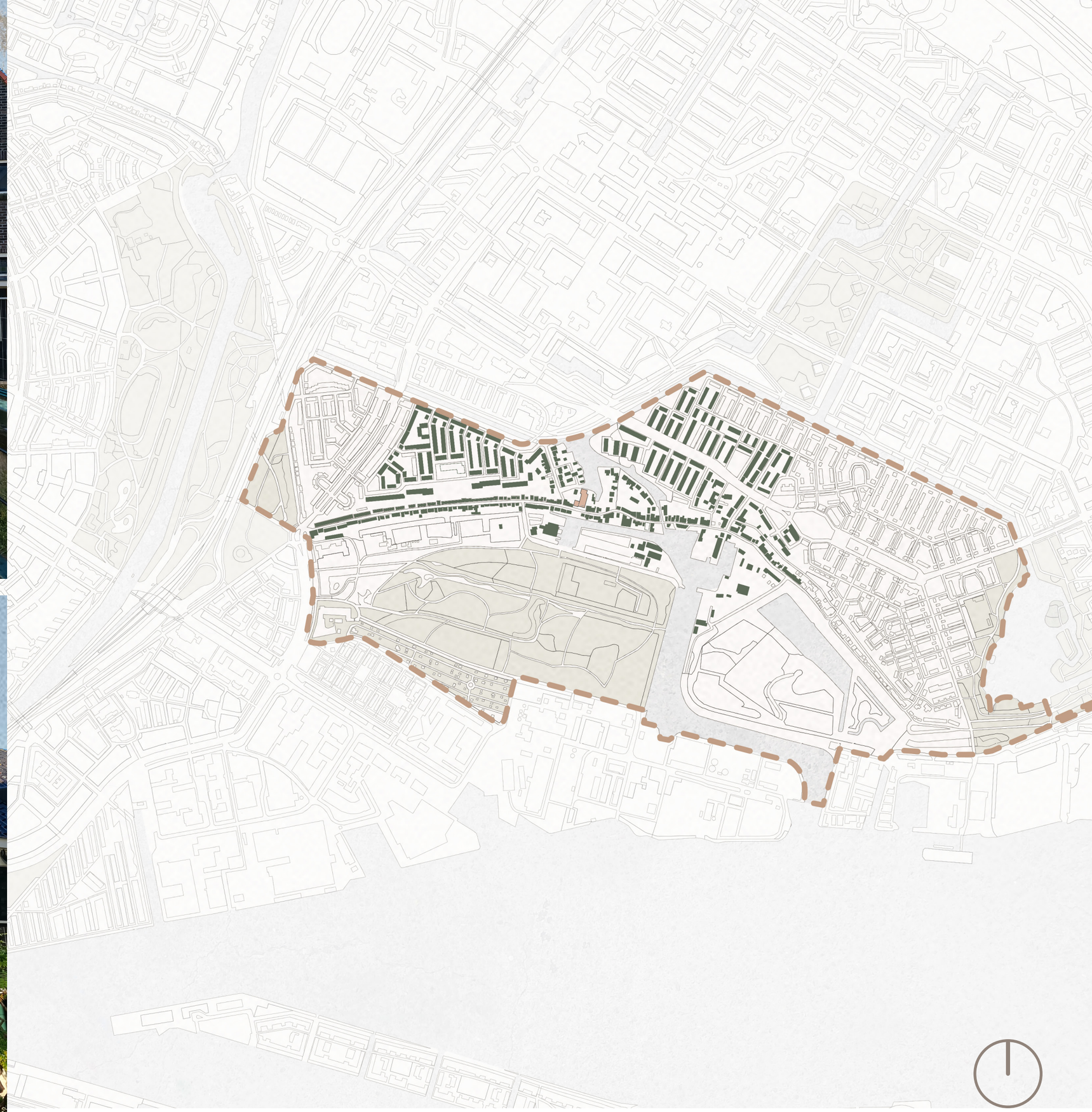
Average value of dwellings

Neighborhood Nieuwedammerdijk

Borough Nieuwedammerdijk




HAVENPAD

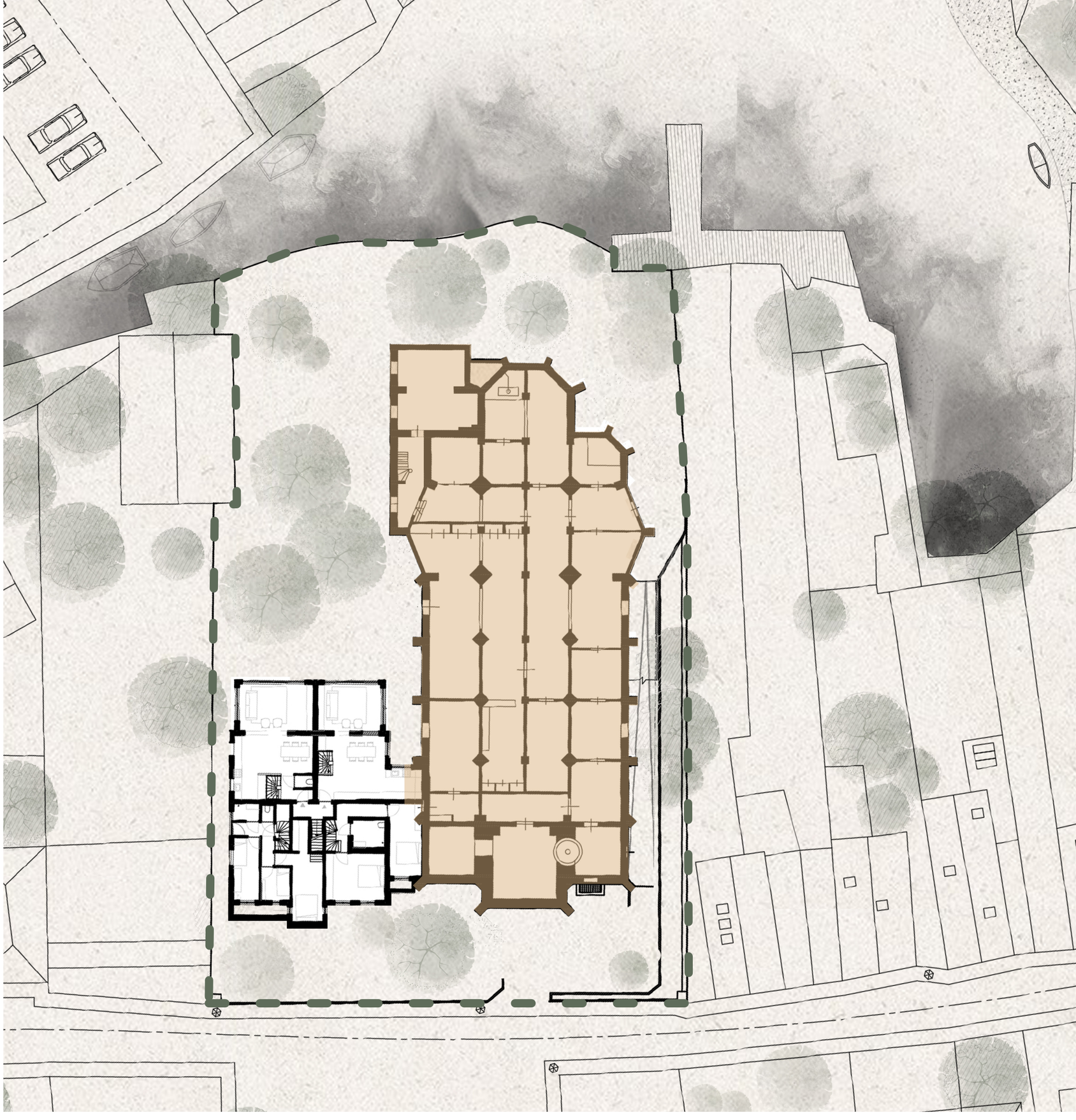


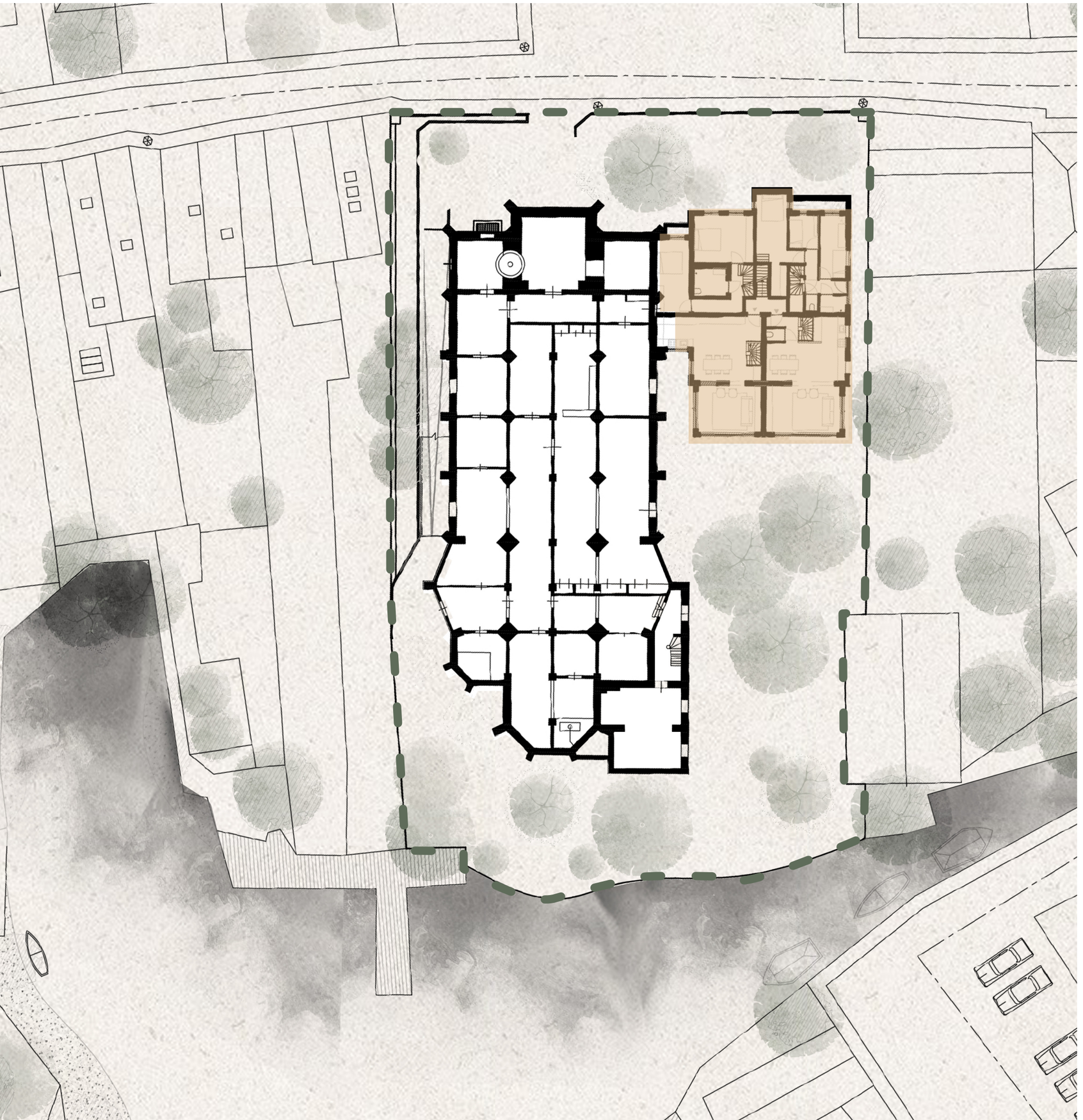






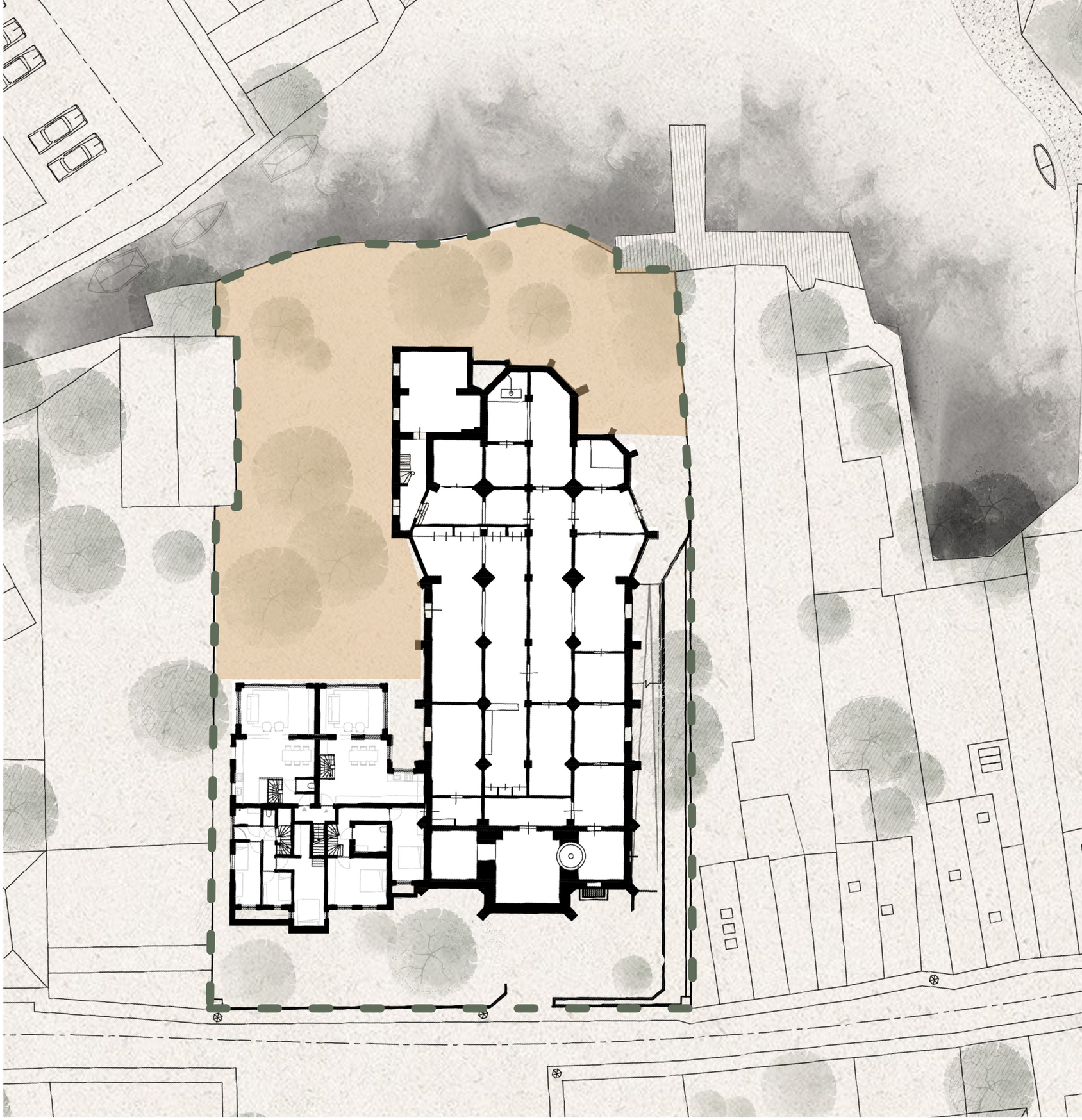
















1815-1850



1875



1875-1900



1900-1930



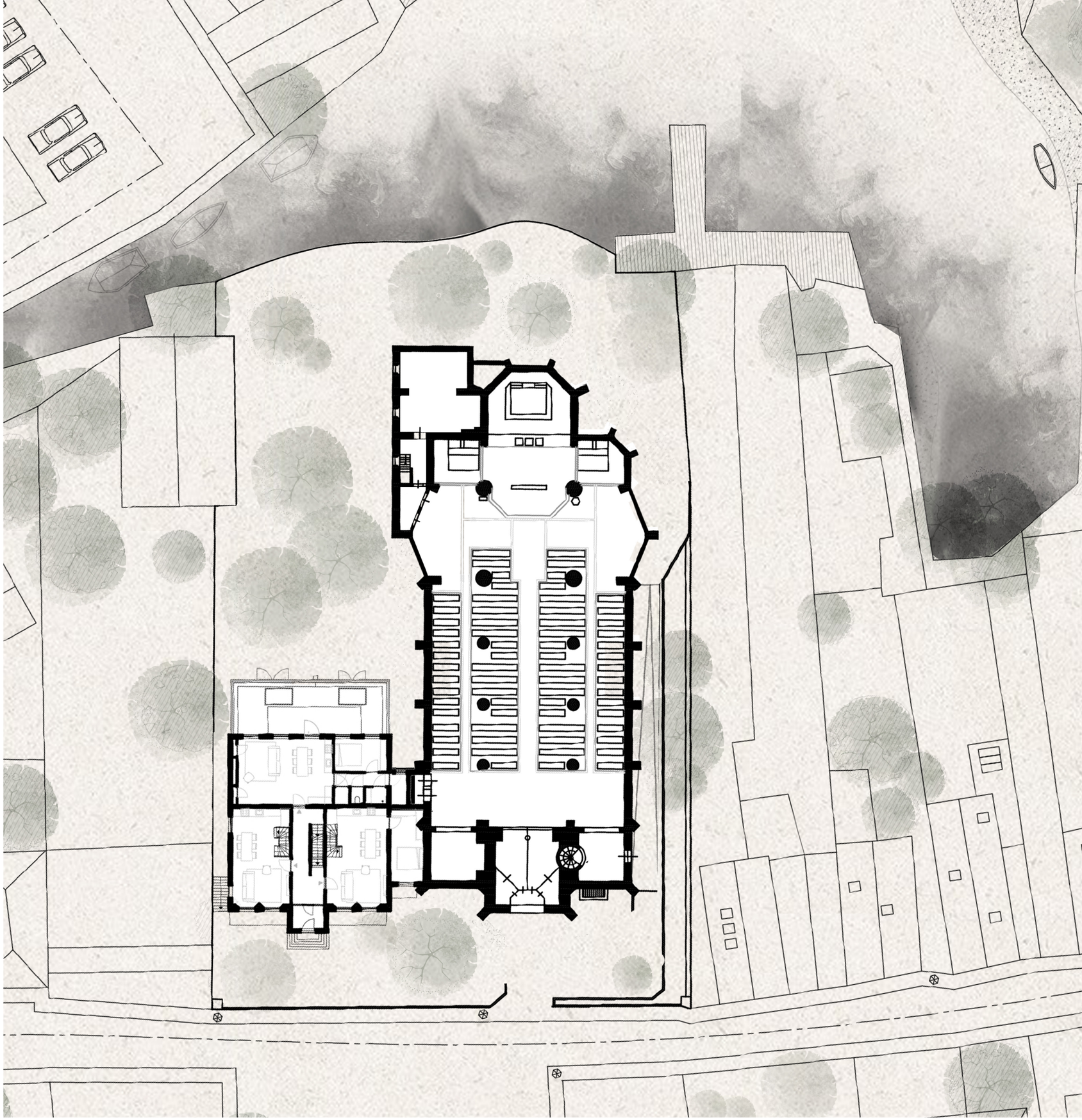
1930-1950



1950-2000

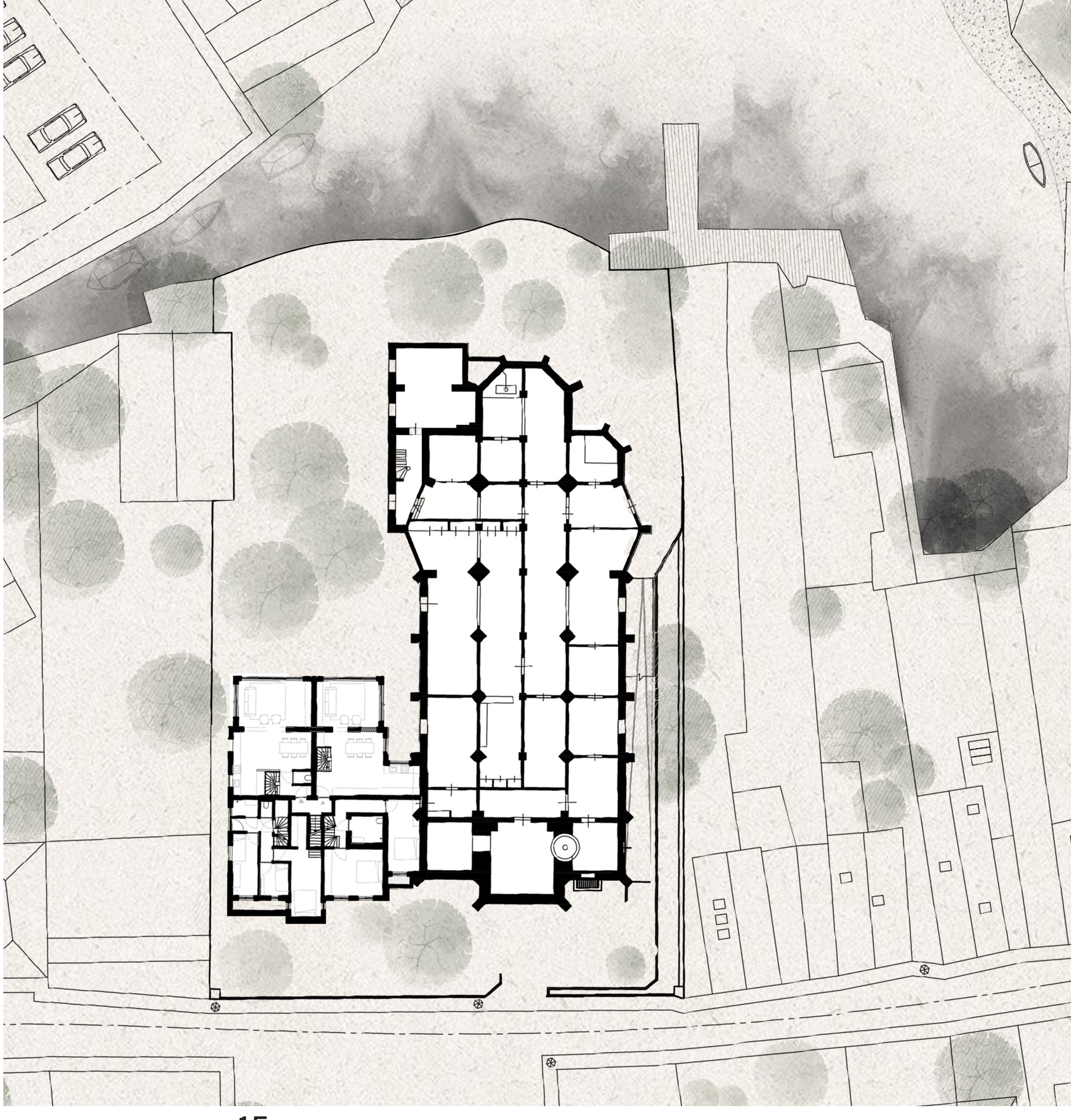


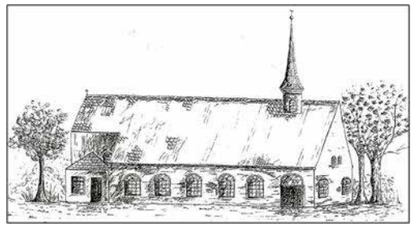












1669

1. The first barn church is build, which was in use by the Augustinian parish.



1685

2. Construction of a new wooden church, which looked like a big shed.



1785

3. The old church is replaced by a new church with a rectory alongside it.



1828

4. A new church is being built as a successor to the previous church.



1838

5. The church was badly damaged by the flood disaster and an explosion at a gunpowder factory nearby.



1889

6. A new church is being built on the same location, commissioned by building pastor J. van Sleeuwen, to a design by Alfred Tepe.



1906

7. A succursal church of the Nieuwendam parish is built, later an independent Saint Rita parish.



1921

8. Together with Buiksloot and Ransdorp, Nieuwendam will become part of the municipality of Amsterdam.



1925

9. Another succursal church is being built for the later independent parish of Allerheiligst Sacrement.



1989

10. End of Augustijnen involvement in the Nieuwendam parish.

2002

11. Merging of Nieuwendam parish with St. Rita parish.

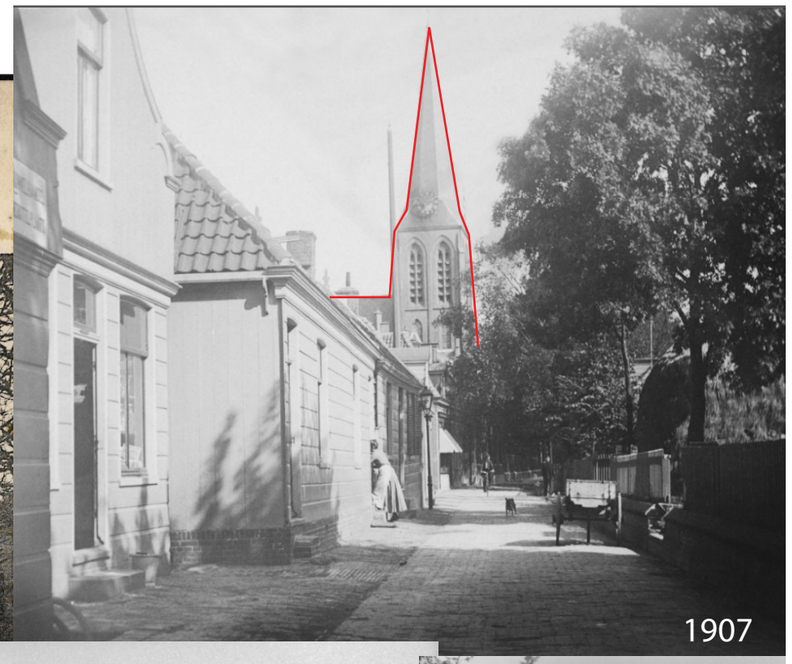


2014

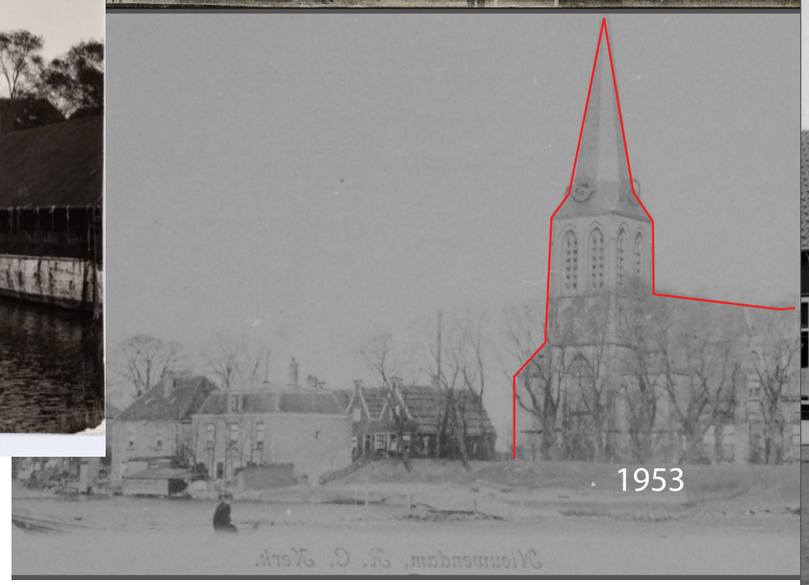
12. The Saint Augustine Church is withdrawn from worship.


1893

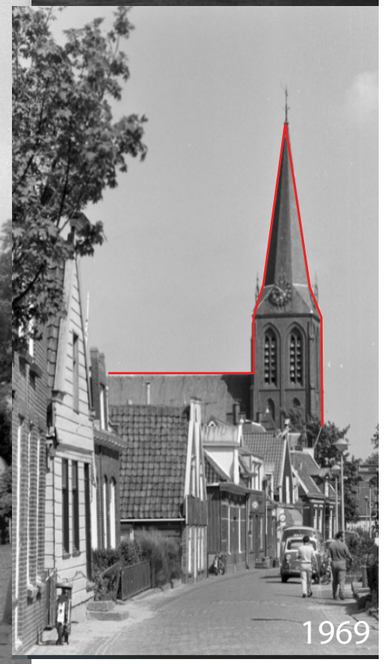

R. K. Kerk, Nieuwendam.
A 1001. Lichtdr. J. M. Schalekamp, Buiksloot.
1900

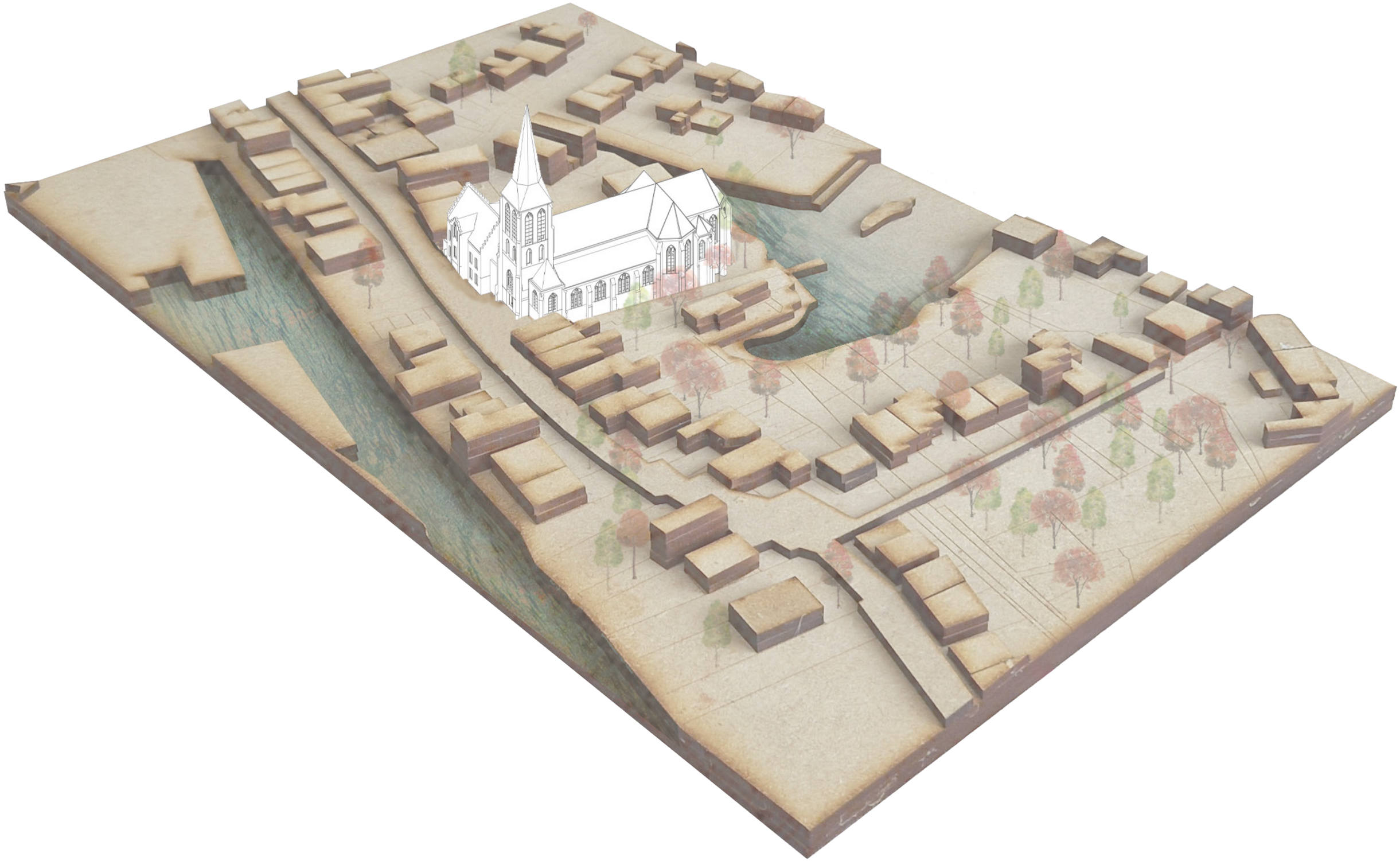

1907

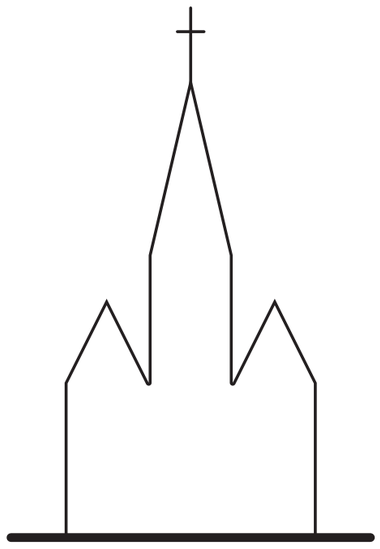

1922


1953

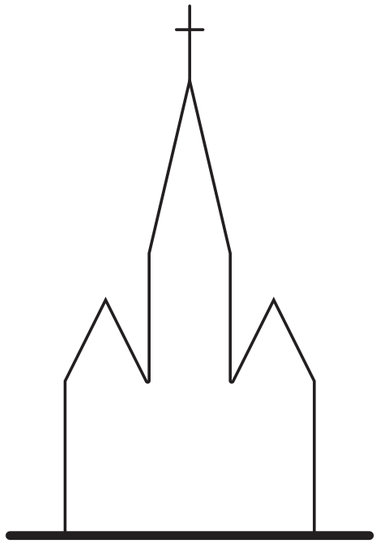

1955


1969

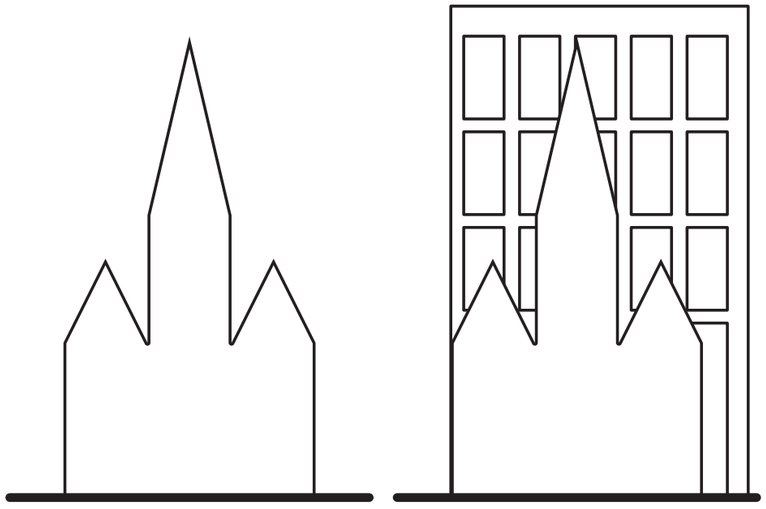




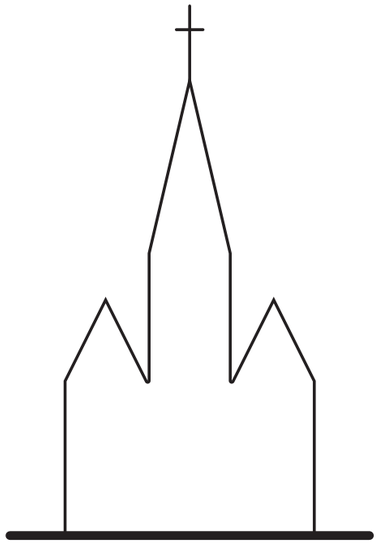
Church.



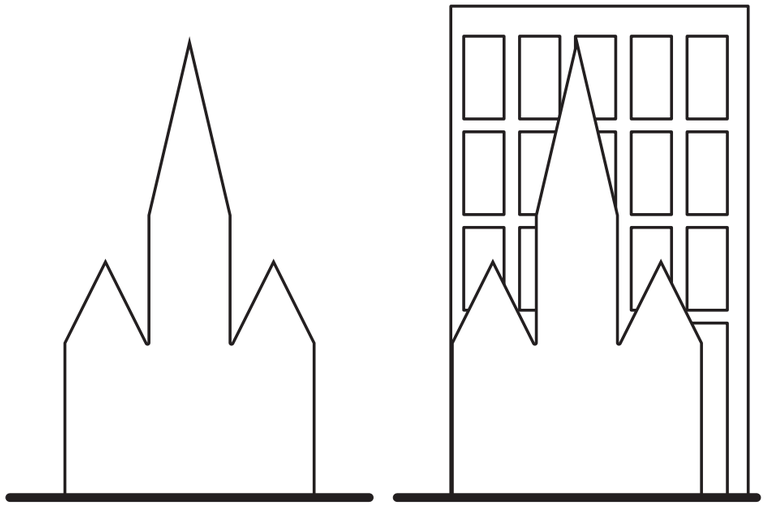
Church.



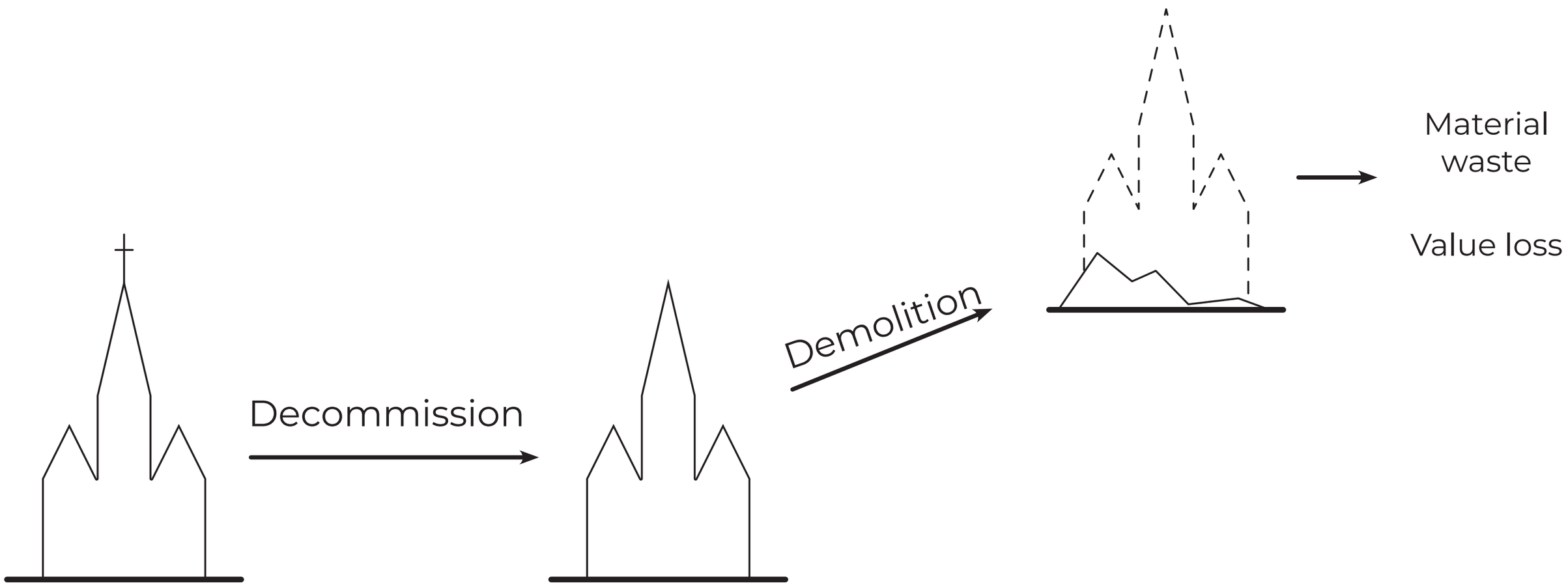
Church?

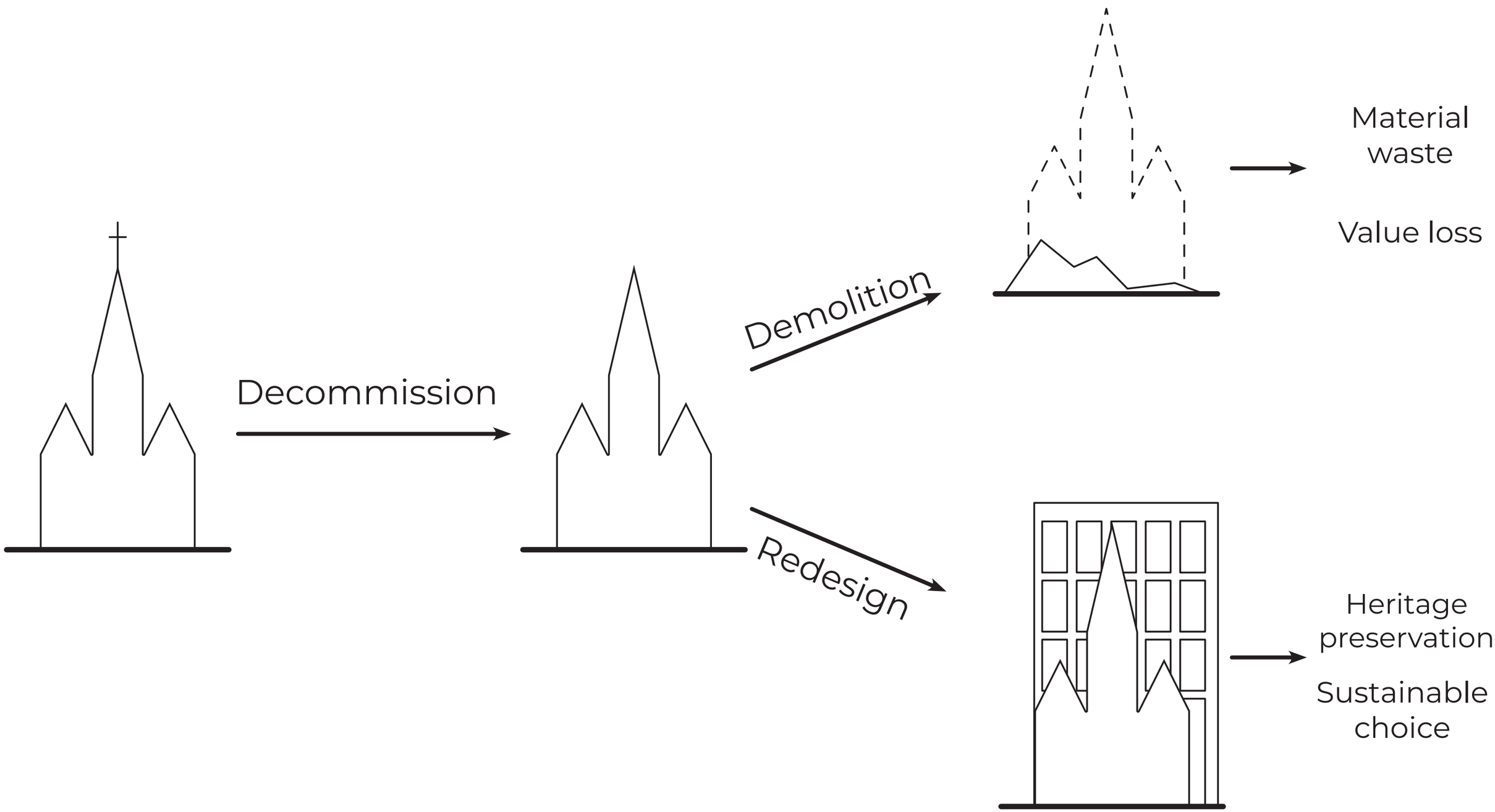


Church.



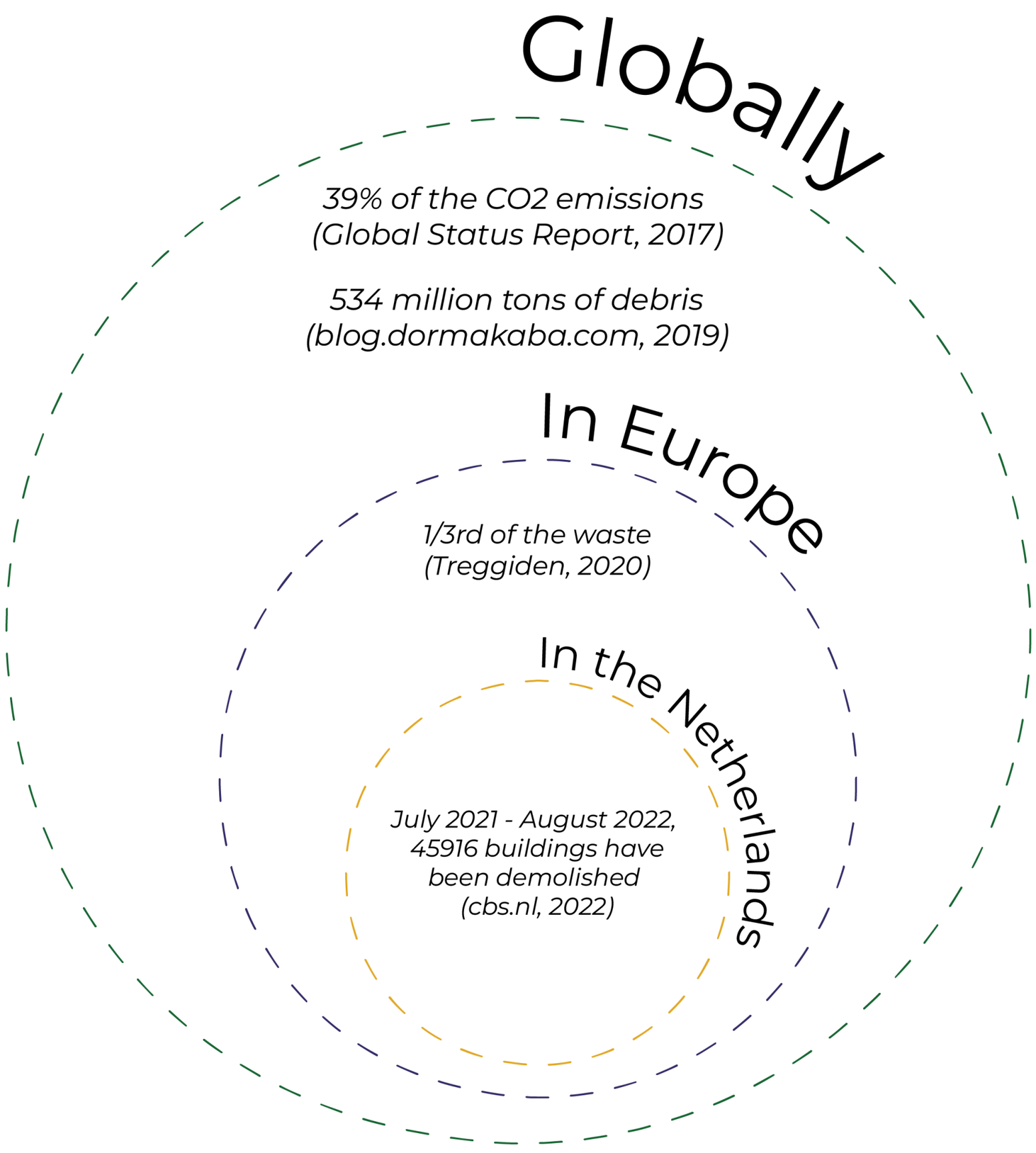
Church!


Material
waste
Value loss
Demolition
Decommission


Material
waste
Value loss
Demolition
Decommission
Redesign
Heritage
preservation
Sustainable
choice

If the religious spirituality is stripped from the church, how can the church still maintain a sense of spirituality?

If the religious spirituality is stripped from the church, how can the church still maintain a **sense of spirituality?**



Construction field impact on different scales. Author: N.Cozma

In 2017, an average person spent 92% of their time inside *(road.cc, 2017)*.

In 2017, an average person spent 92% of their time inside *(road.cc, 2017*).

[...] as little as 20 minutes of natural exposure daily could significantly improve the level of stress hormones in our bodies
(M.C.R. Hunter et al., 2019)

“How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?”

Redesign framework

“How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?”

Redesign framework

“How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?”

Beneficial elements

Redesign framework

“How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?”

Beneficial elements

Conflicting elements

Redesign framework

“How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?”

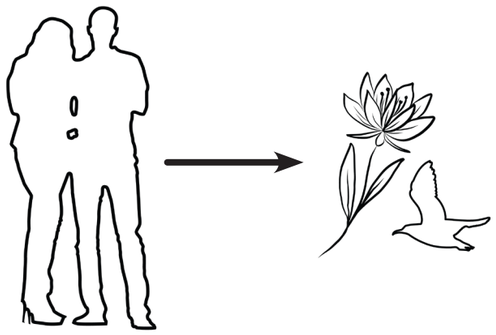
Beneficial elements

Conflicting elements

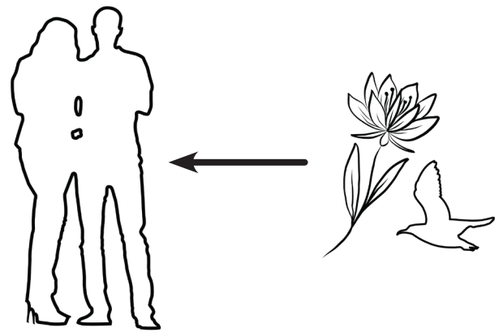
Neutral elements

“How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?”

Biophilia



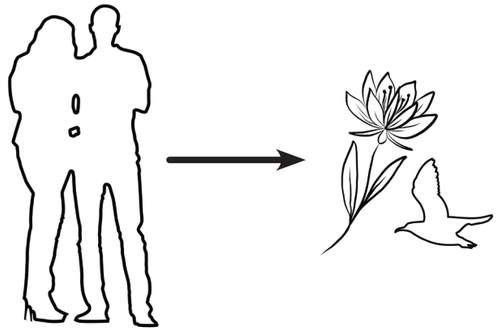
Nature-inclusiveness



“Biophilia is defined as the innate human instinct to connect with nature and other living beings”

Stephen R. Kellert, Judith Heerwagen, Martin Mador (2011) Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life, John Wiley & Sons

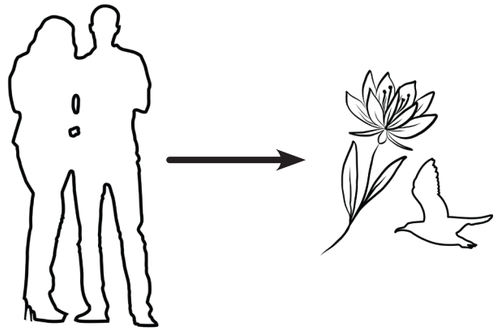
Biophilia



“Biophilic design can reduce stress, enhance creativity and clarity of thought, improve our well-being and expedite healing[[...]”

-Terrapin Bright Green, https://www.terrapinbrightgreen.com/reports/14-patterns/

Biophilic design



Kellert S.R., Heerwagen, J., Mador, M. (2008) Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life. John Wiley & Sons

SIX ELEMENTS AND 70 ATTRIBUTES TO BIOPHILIC DESIGN:

ENVIRONMENTAL FEATURES

-Color
-Water
-Air
-Sunlight
-Plants
-Animals
-Natural Materials
-Views and Vistas
-Façade Greening
-Geology and Landscape
-Habitats and ecosystems
-Fire

NATURAL PATTERNS and PROCESSES

-Sensory Variability
-Information
-Richness
-Age, Change and the Patina of Time
-Growth and Efflorescence
-Central Focal Point
-Patterned Wholes
-Bounded Spaces
-Transitional Spaces
-Linked Series and Chains
-Integration of Parts to Wholes
-Complementary
-Contrasts
-Dynamic Balance and Tension
-Fractals
-Hierarchically organized ratios and scales

PLACE-BASED RELATIONSHIPS

-Geographical connection to place
-Historic connection to place
-Ecological connection to place
-Cultural connection to place
-Indigenous materials
-Landscape orientation
-Landscape features that define building form
-Landscape ecology
-Integration of culture and ecology
-Spirit of Place
-Avoiding placelessness

NATURAL SHAPES and FORMS

-Botanical Motifs
-Tree and Columnar Supports
-Animal (mainly vertebrate) motifs
-Shells and Spirals
-Egg, Oval, and Tubular Forms
-Arches, Vaults, -Domes
-Shapes resisting straight lines and right angles
-Simulation of Natural Features
-Biomorphy

LIGHT and SPACE

-Natural Light
-Filtered and Diffused Light
-Light and Shadow
-Reflected Light
-Light Pools
-Warm Light
-Light as Shape and Form
-Spaciousness
-Spatial Variability
-Space as Shape and Form
-Spatial Harmony
-Inside-Outside Spaces

EVOLVED HUMAN-NATURE RELATIONSHIPS

-Prospect and Refuge
-Order and Complexity
-Curiosity and Enticement
-Change and metamorphosis
-Security and Protection
-Mastery and Control
-Affection and Attachment
-Attraction and Beauty
-Exploration and Discovery
-Information and Cognition
-Fear and Awe
-Reverence and Spirituality

Kellert, S.R. (2018) Nature by Design: The Practice of Biophilic Design, Yale University Press

GOALS, PRINCIPLES, EXPERIENCES AND ATTRIBUTES OF BIOPHILIC DESIGN

DIRECT EXPERIENCE WITH NATURE

-Light
-Air
-Water
-Plants
-Animals
-Weather
-Natural Landscapes and ecosystems
-Fire

EXPERIENCE OF SPACE AND PLACE

-Prospect and Refuge
-Organized Complexity
-Integration of Parts and Wholes
-Transitional Spaces
-Mobility and Wayfinding
-Cultural and Ecological
-Attachment to Place

INDIRECT EXPERIENCE WITH NATURE

-Images of Nature
-Natural Materials
-Natural Colors
-Simulating Natural Light and Air
-Naturalistic Shapes and Forms
-Evoking Nature
-Information Richness
-Age, Change, and the Patina of Time
-Natural Geometries
-Biomimicry

Terrapin Bright green (2014), 14 patterns of biophilic design, available online at: https://www.terrapinbrightgreen.com/reports/14-patterns/#the-patterns

14 PATTERNS OF BIOPHILIC DESIGN

NATURE IN THE SPACE

1. Visual Connection with Nature
2. Non-visual Connection with Nature
3. Non-rhythmic Sensory Stimuli
4. Access to Thermal & Airflow Variability
5. Presence of Water
6. Dynamic & Diffuse Daylight
7. Connection with Natural Systems

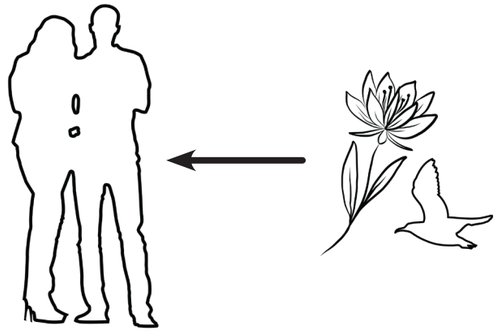
NATURAL ANALOGUES

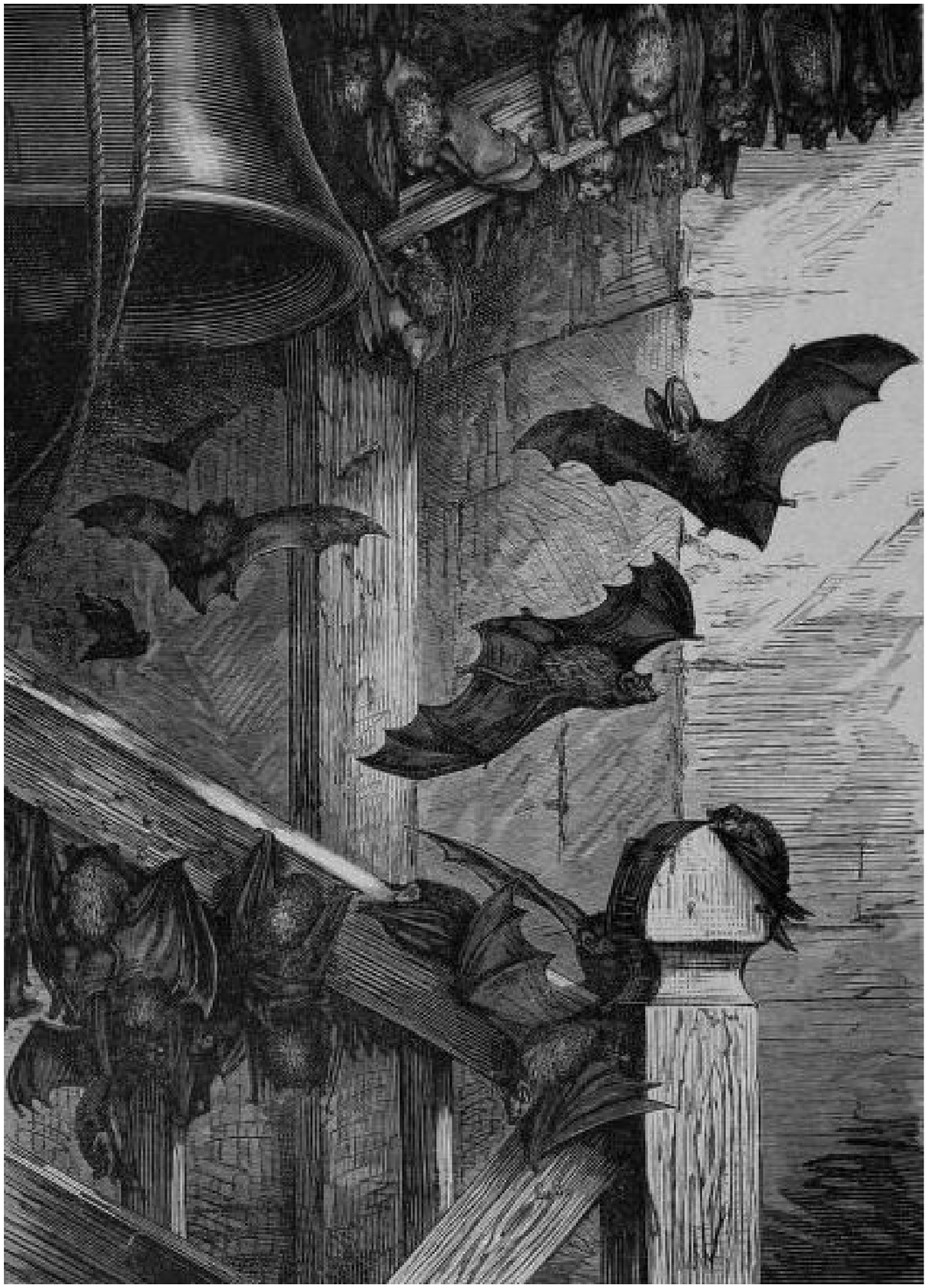
8. Biomorphic Forms & Patterns
9. Material Connection with Nature
10. Complexity & Order

NATURE OF THE SPACE

11. Prospect
12. Refuge
13. Mystery
14. Risk/Peril

Nature-inclusiveness





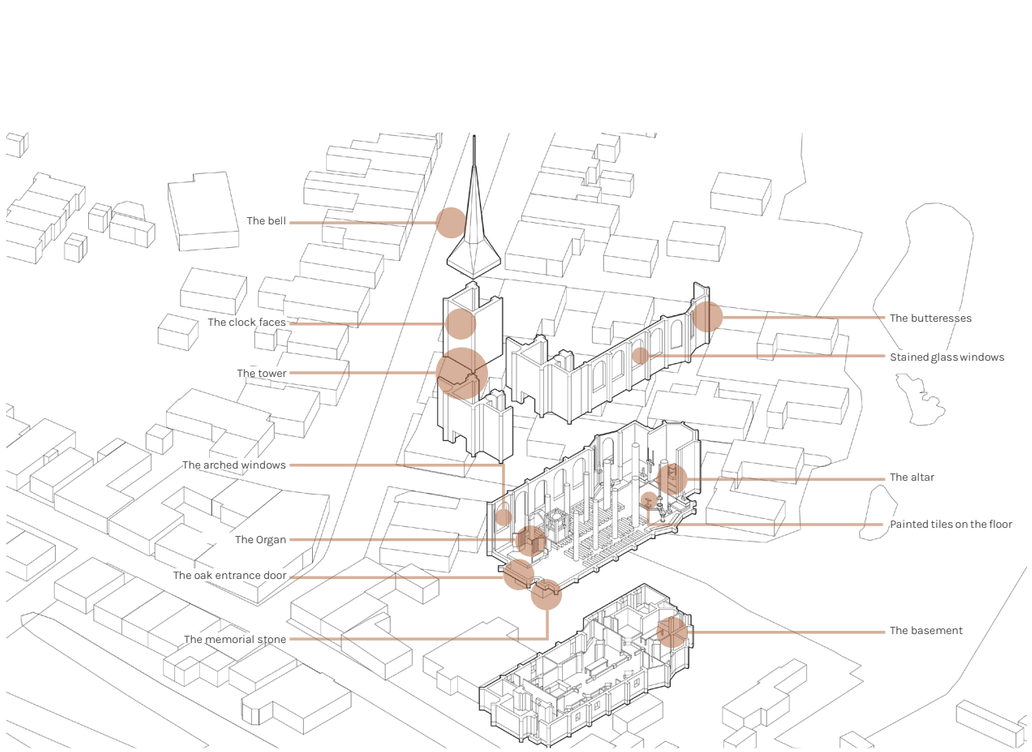
Bats in the Belfry, 19th century engraving, author unknown

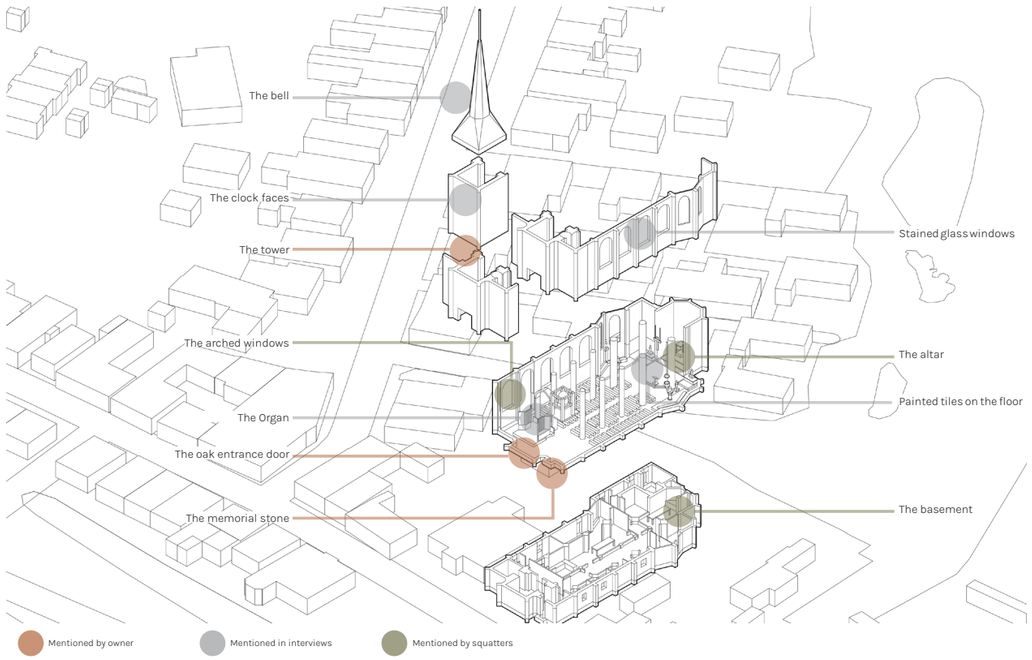
Augustinus church

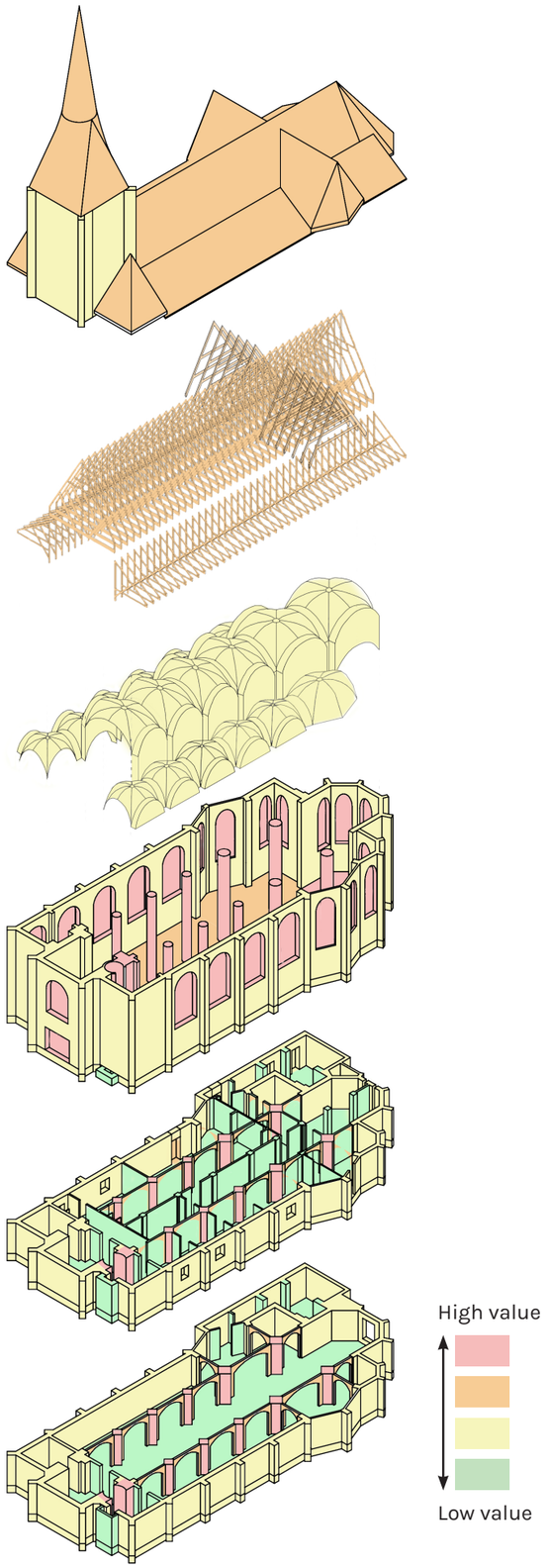
Redesign framework

Value assessment

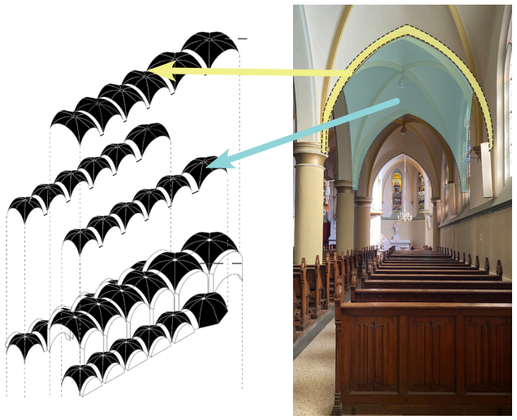
Augustinus church


The bell
The clock faces
The tower
The arched windows
The Organ
The oak entrance door
The memorial stone
The butteresses
Stained glass windows
The altar
Painted tiles on the floor
The basement
Mentioned in 4 documents
Mentioned in 2 documents
Mentioned in 1 documents


The bell
The clock faces
The tower
The arched windows
The Organ
The oak entrance door
The memorial stone
Stained glass windows
The altar
Painted tiles on the floor
The basement
Mentioned by owner
Mentioned in interviews
Mentioned by squatters


High value
Low value

1. Pointed arches and ribbed vaults



2. Flying buttresses



3. Tall spires



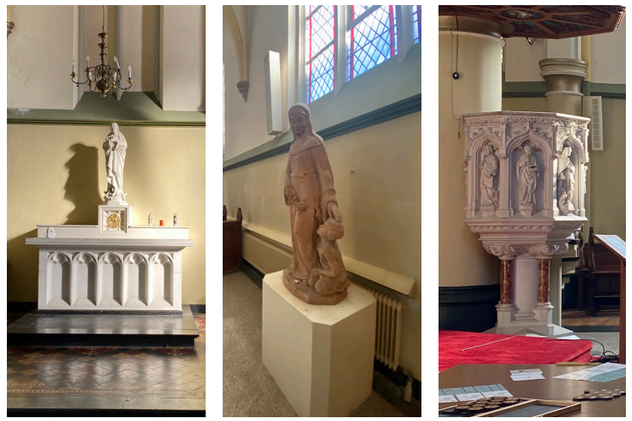
4. Carvings



5. Decorative stained glass



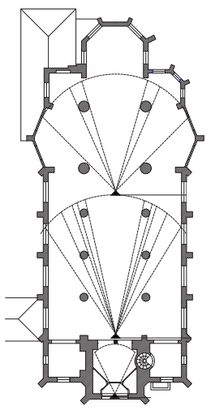
6. Sculptures



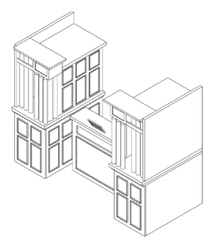
7. Natural materials

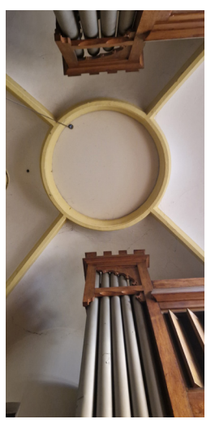


8. Open interior



9. Organ







1. Tall spaces



2. Light-filled spaces



3. Green spaces



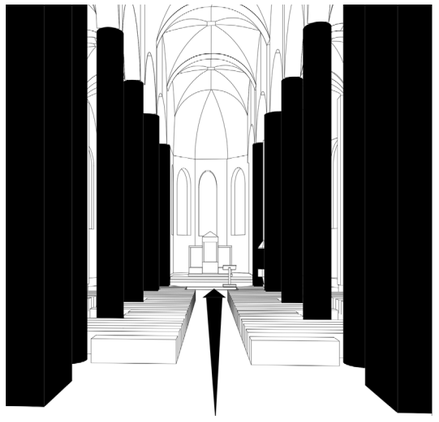
4. Natural materials



5. Columns and vaults, like a forest



6. Sense of rythm



7. Nature-inspired ornaments

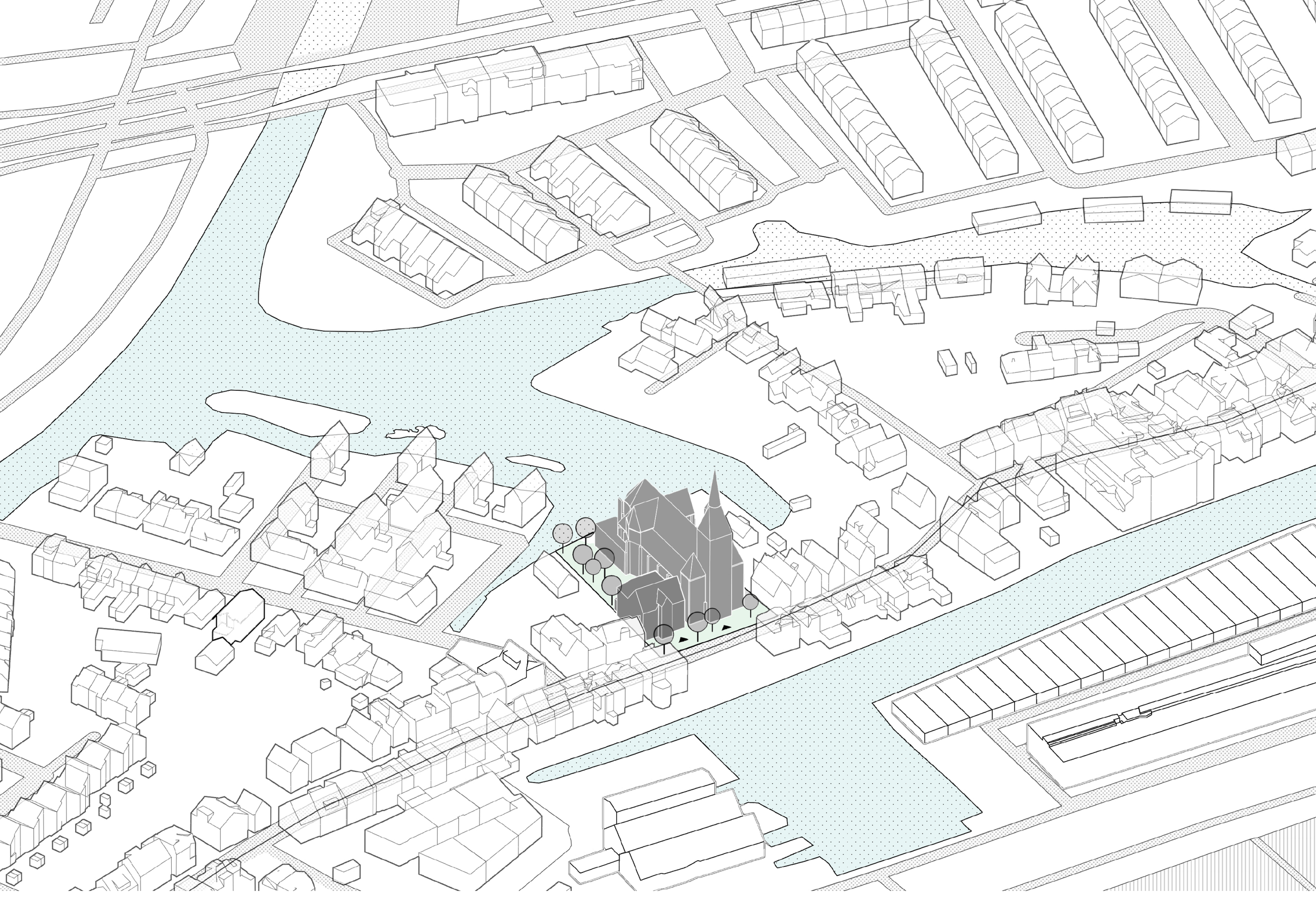


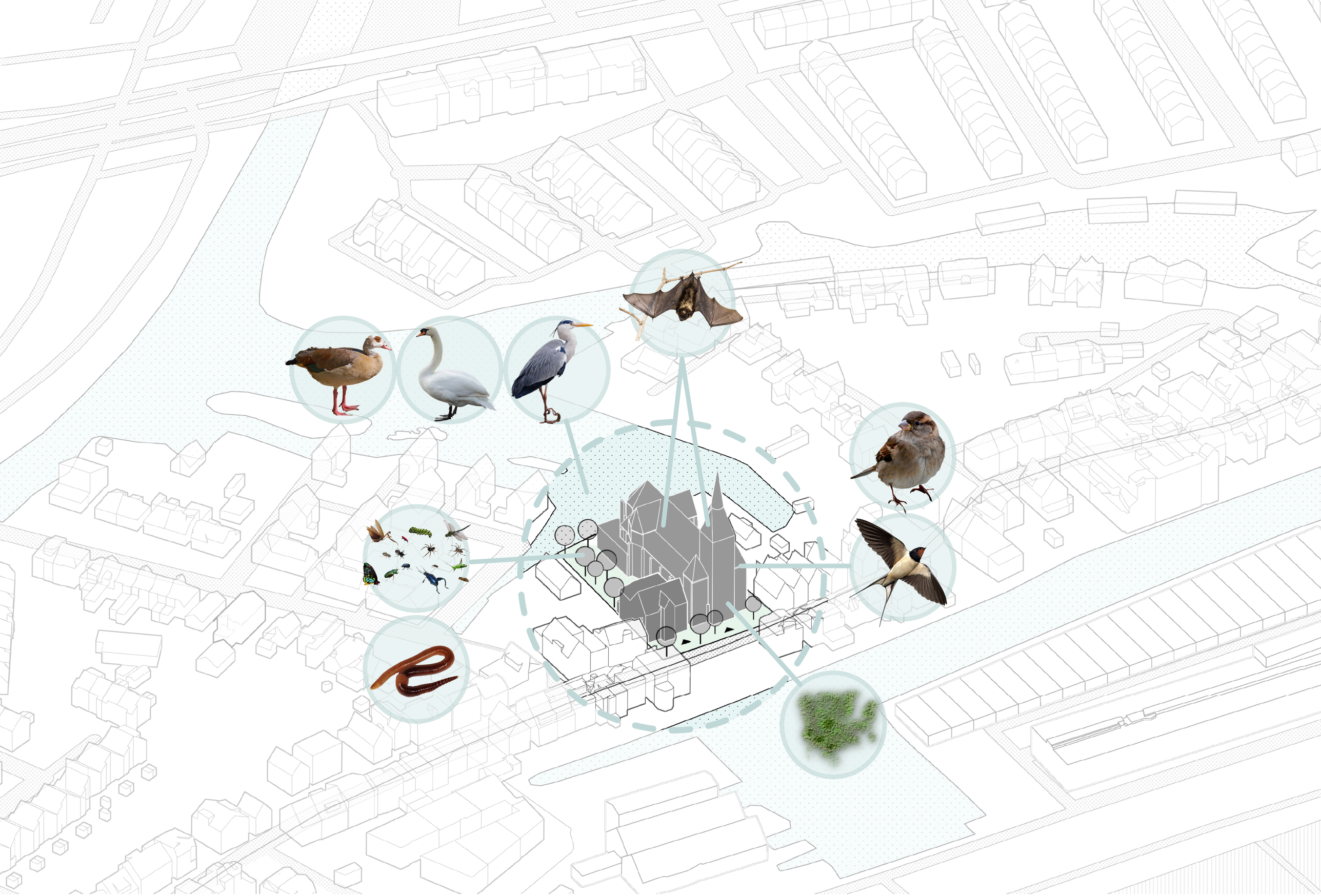
9. Stained-glass windows



7. Patterns and repetitions





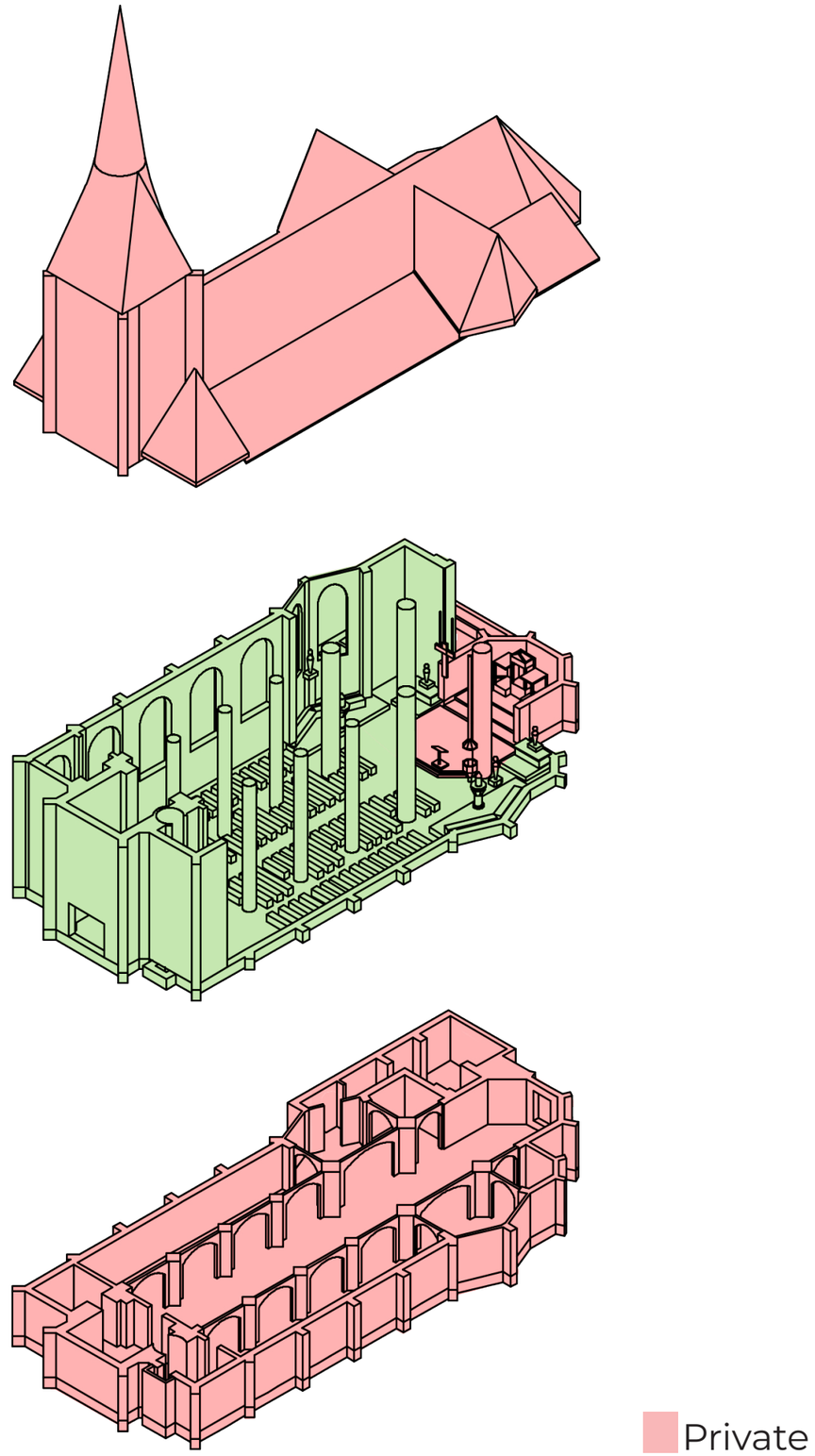



Bats
Birds
Eaves and rafters
Paper, storage
Insects, rodents
Basement, foundations
Insects

Name, image	Presence area			Seasonal presence				Special needs	Food
	Garden	*Building*	*Water*	*Winter*	*Spring*	*Summer*	*Autumn*		
 **Bats**		x		*Hybernation*	*Mating*	*Nursing*	+	*Dark, calm, thermally stable places. Small crawling critters or attachment zones.*	*Insects, polen*
 **Sparrows**		x		+	*Mating*	*Nursing*	+	*Food source on the ground*	*Insects, grains*
 **Swifts**		x		-	*Mating*	*Nursing*	-	*Wildflowers, big overhangs for nests*	*Insects*


Bats and birds acid dropings
Insects, rodents deterioration




Private
Public

1. Finishings



2. Technical elements



3. Doors and frames

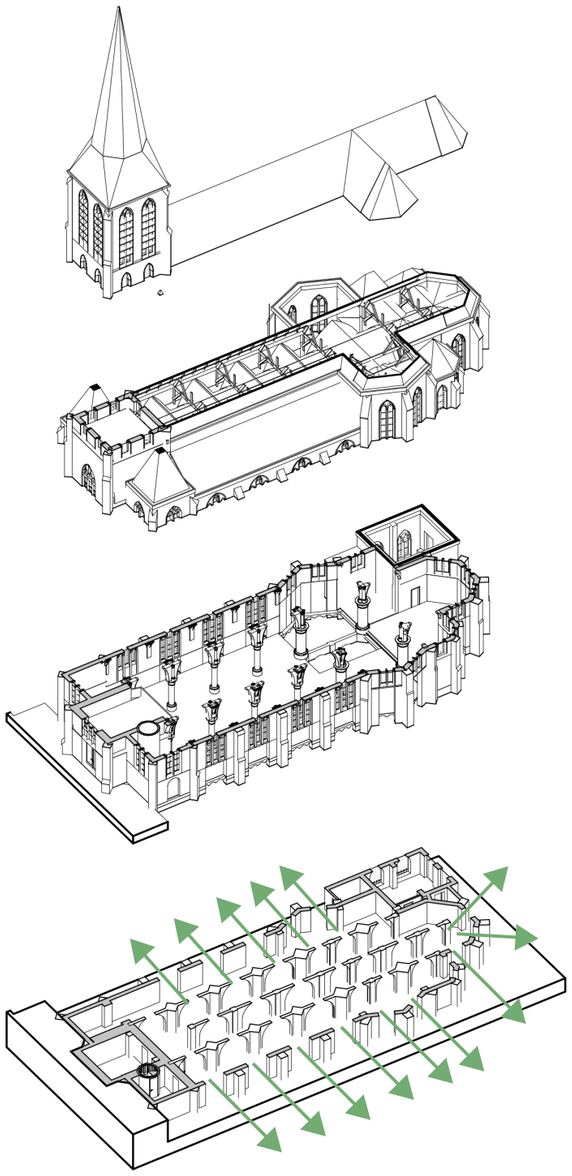


3. Movable elements

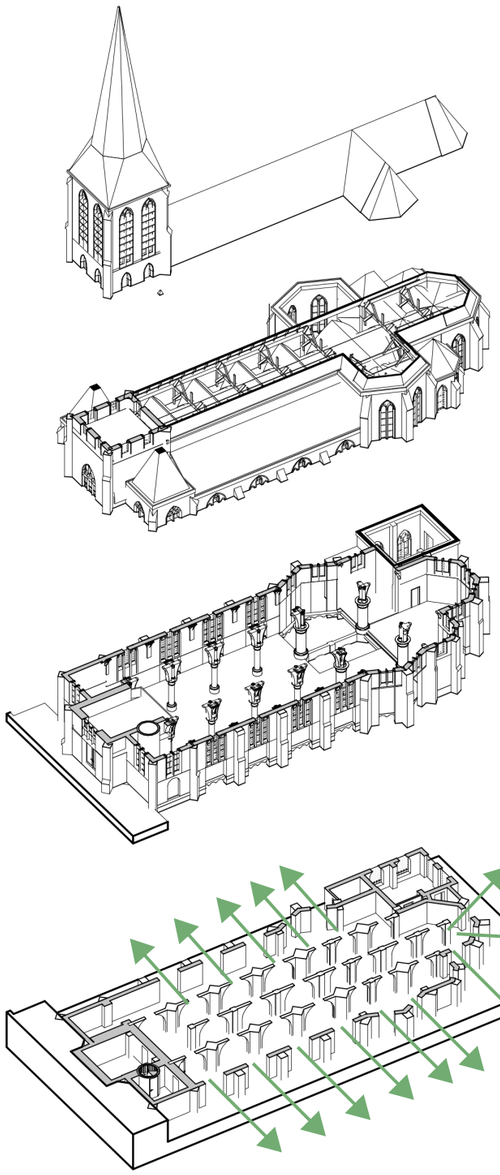


Interventions

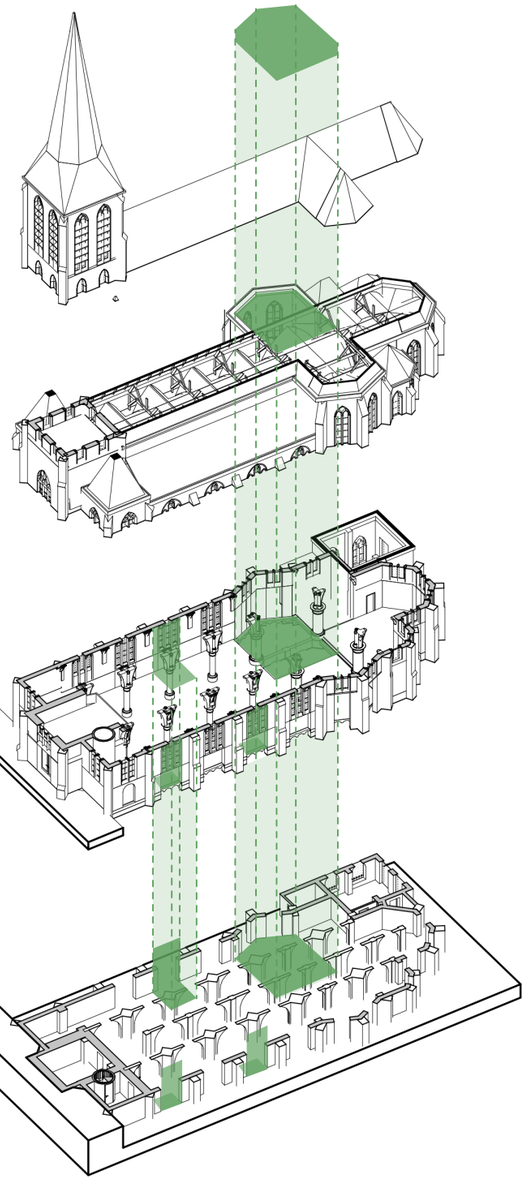
Facade openings



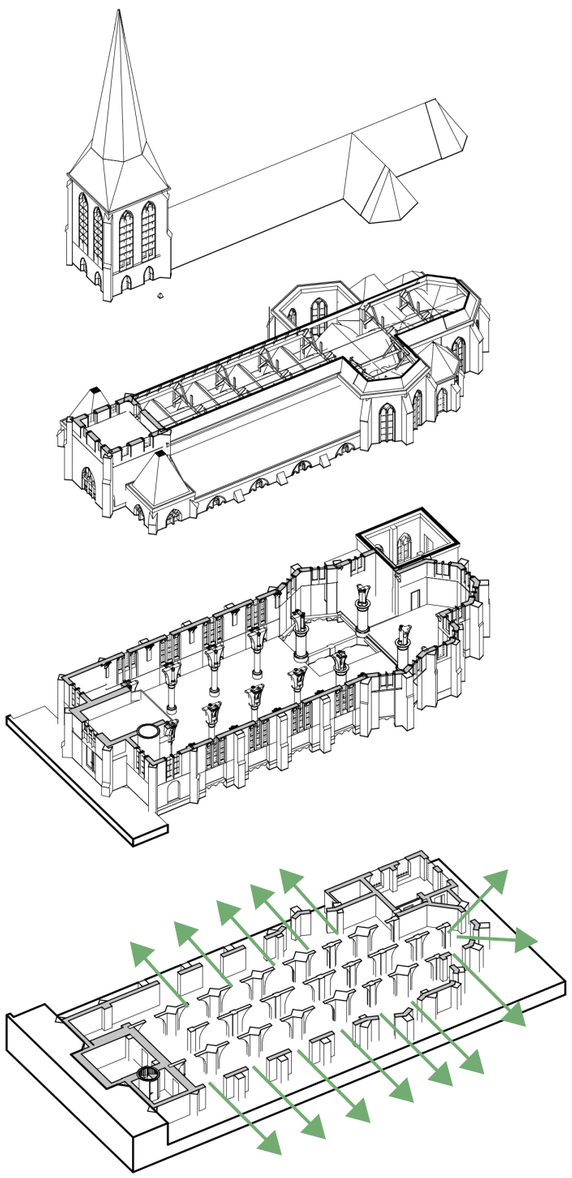
Facade openings



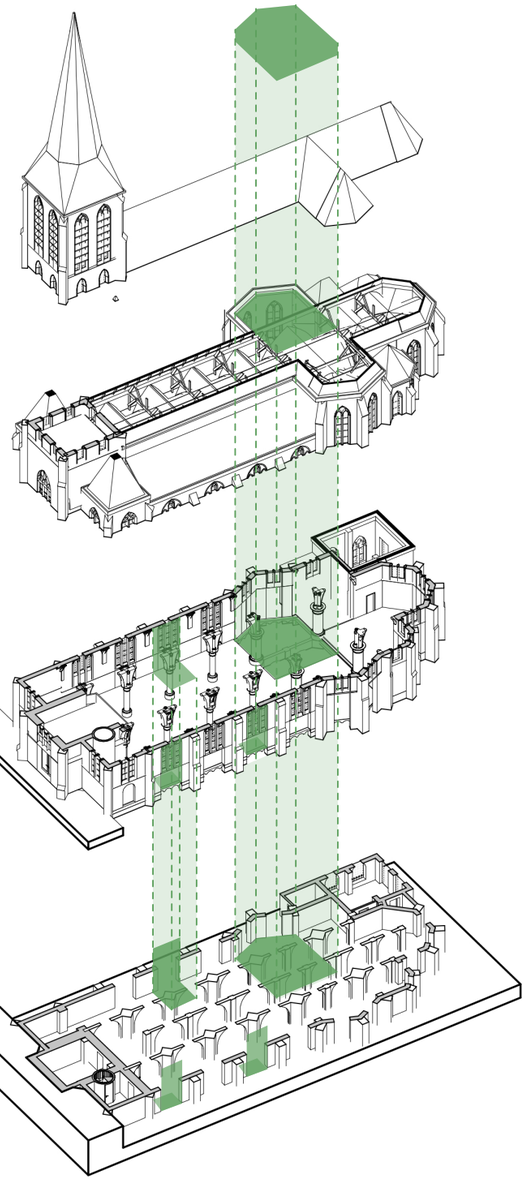
Interior light enclaves



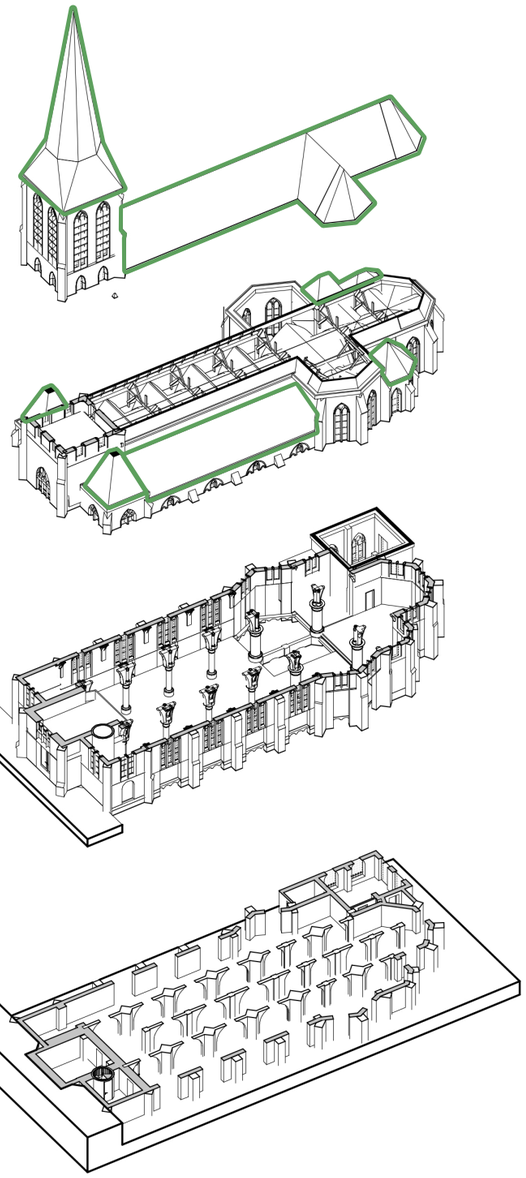
Facade openings



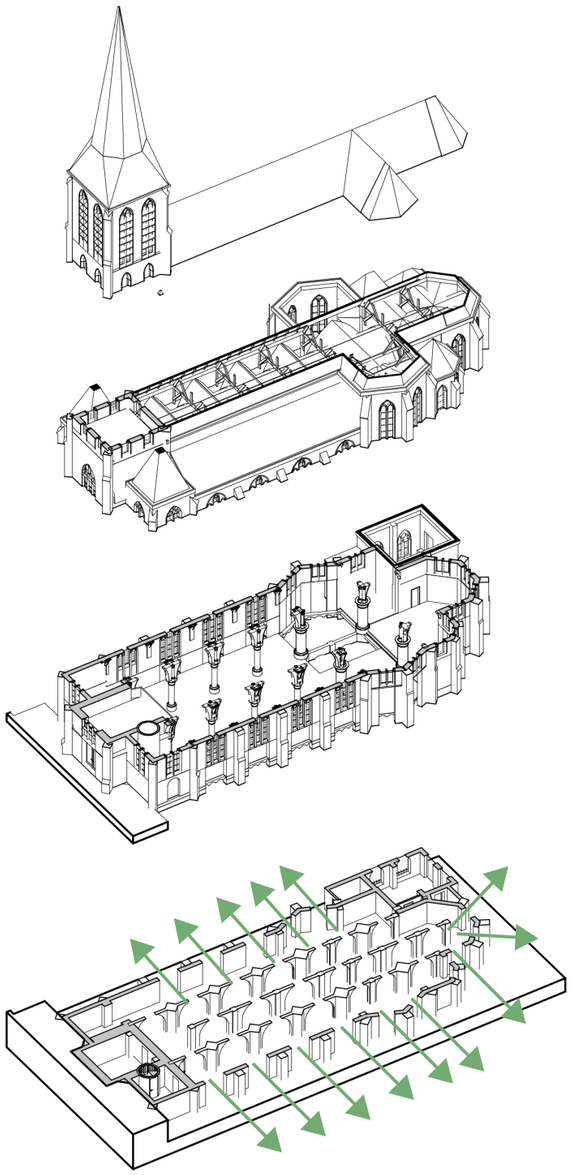
Interior light enclaves



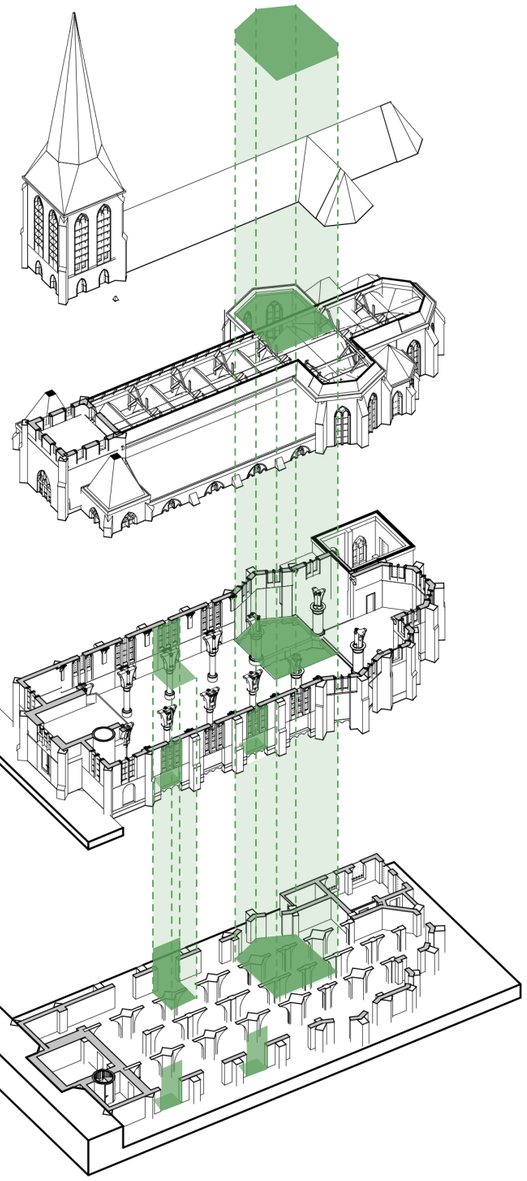
Roof preservation



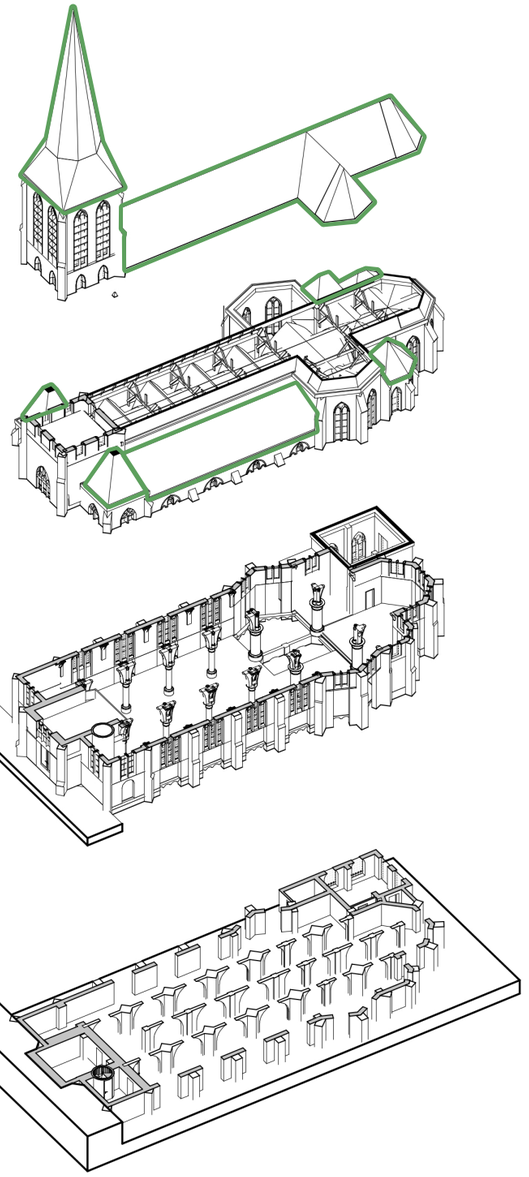
Facade openings



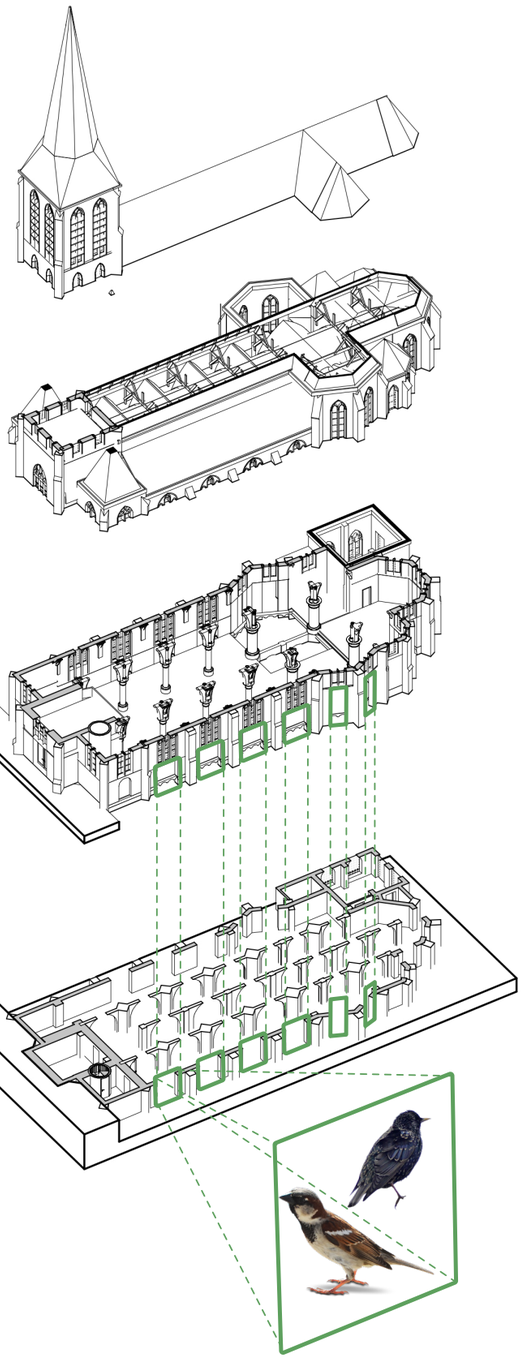
Interior light enclaves



Roof preservation



Animal integration



Programme

Community

Neighborhood
Tourists
Occasional visitors

Community

Individuals

Neighborhood
Tourists
Occasional visitors

Community	Individuals	Animals
Neighborhood Tourists Occasional visitors		Birds Bats

Community

Individuals

Animals

Communal spaces

Private apartments

Biodiversity spaces

Community

Public tower

Offices

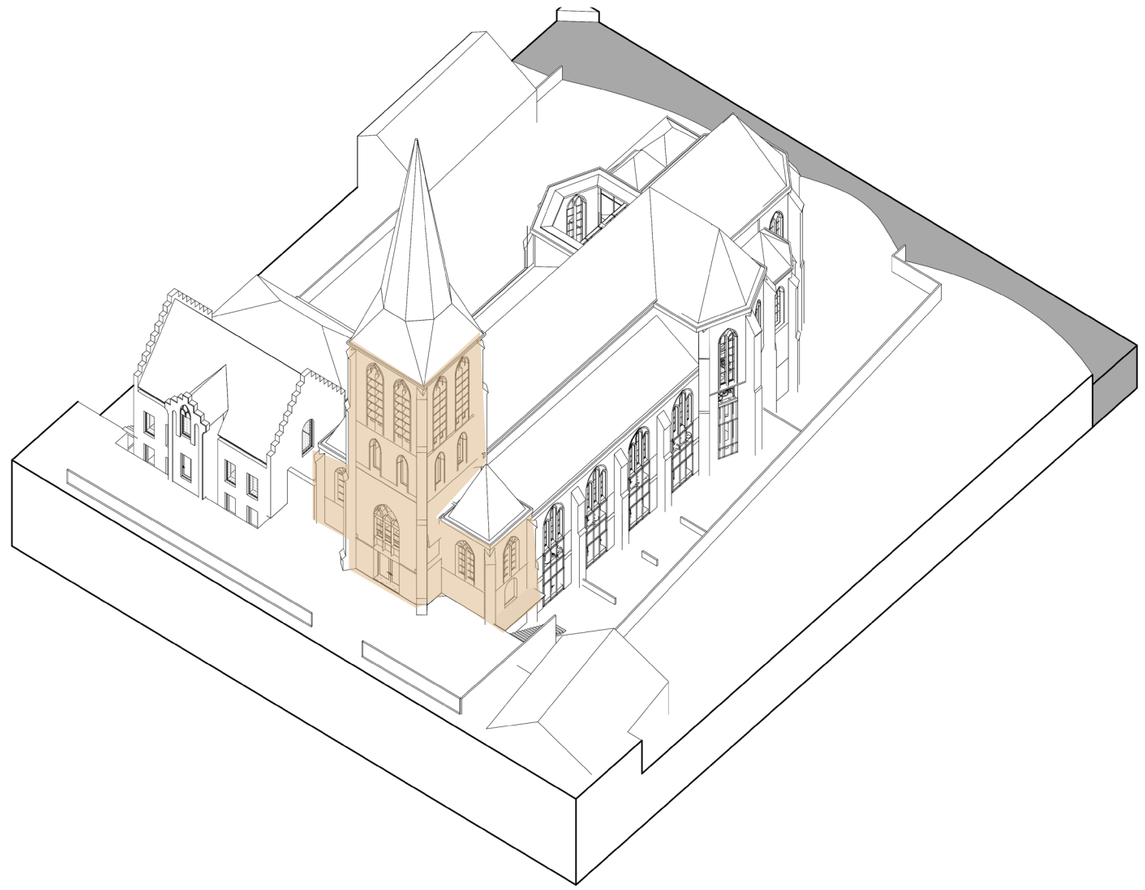
Coworking areas

Recycle and repair workshop

Communal garden

Communal kitchen

Communal lounge



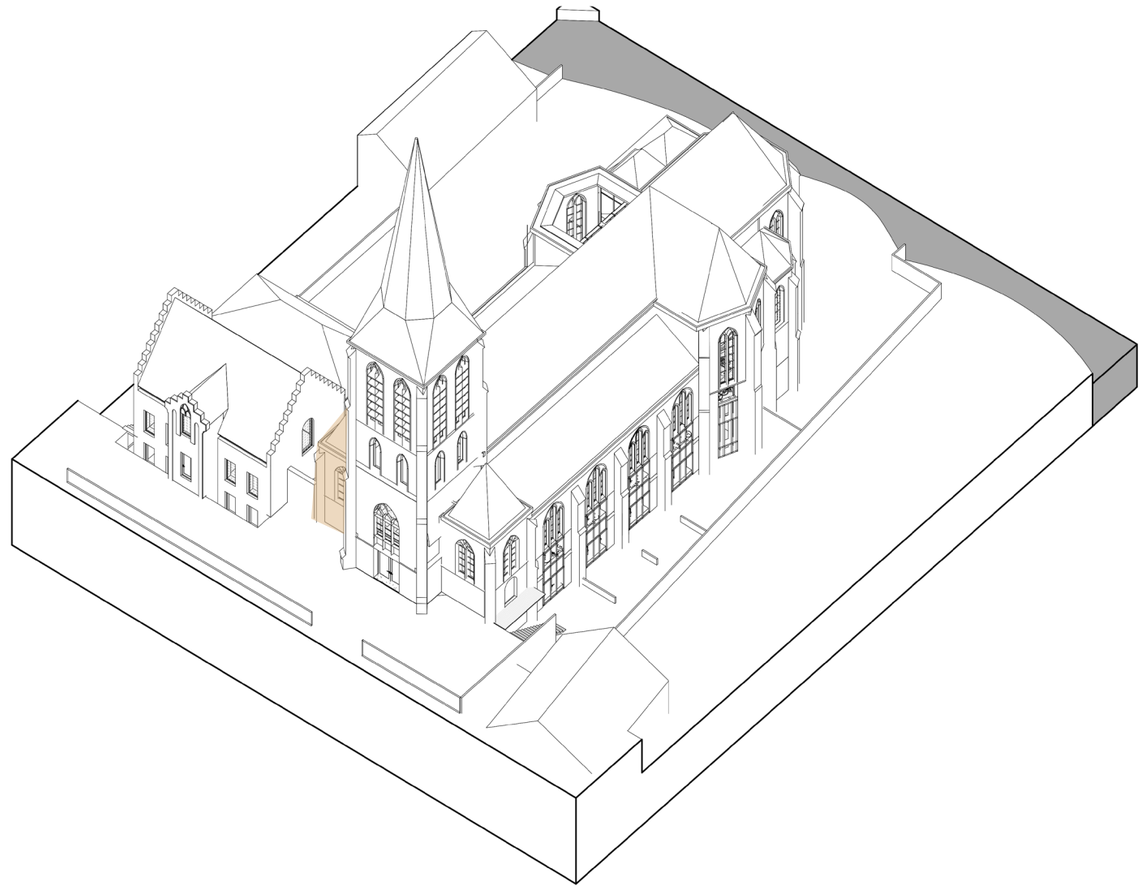
Community

Public tower Communal garden

Offices Communal kitchen

Coworking areas Communal lounge

Recycle and repair workshop



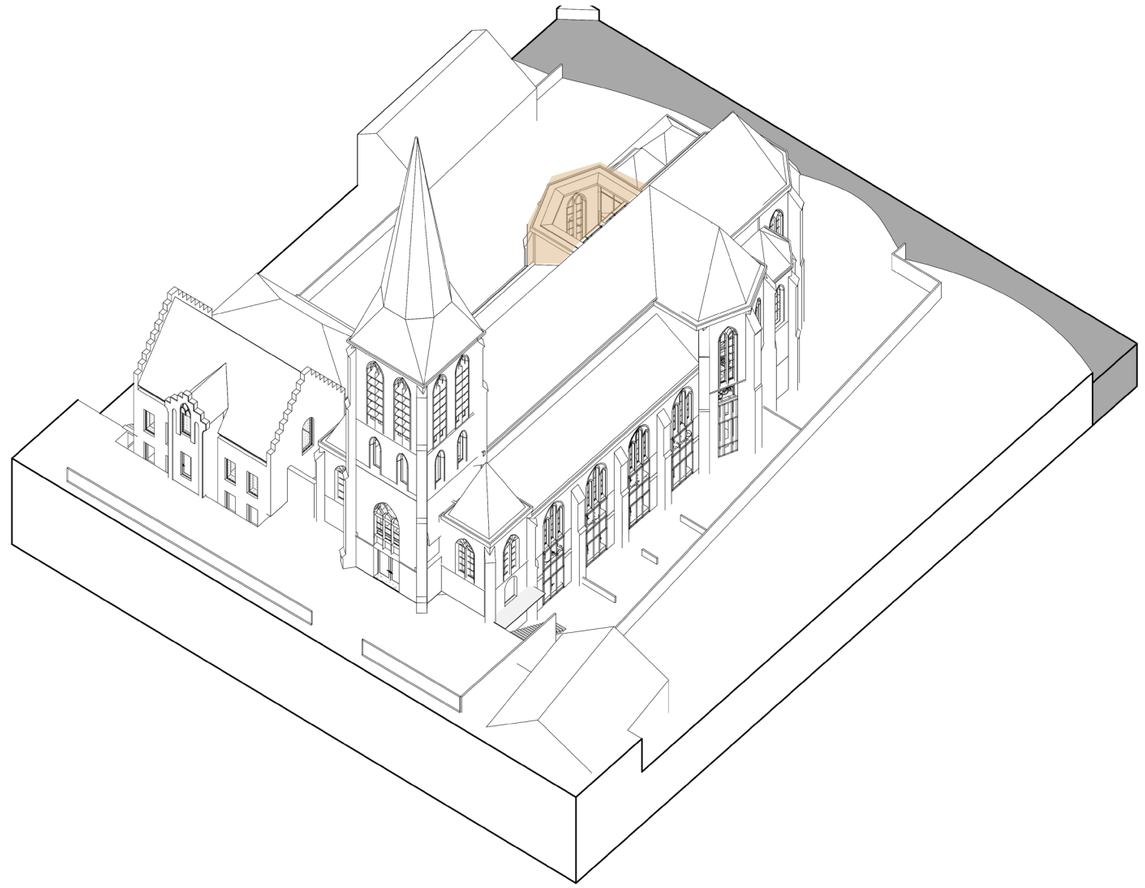
Community

Public tower **Communal garden**

Offices Communal kitchen

Coworking areas Communal lounge

Recycle and repair workshop



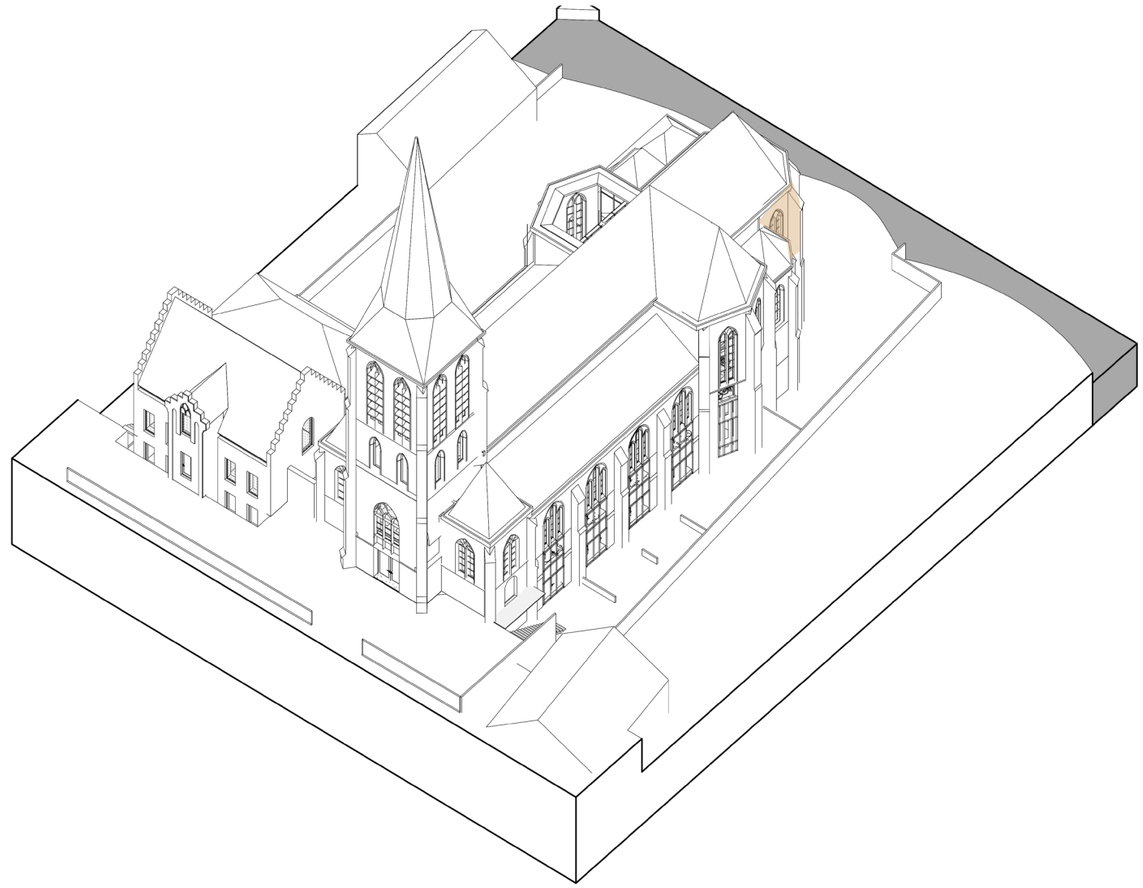
Community

Public tower Communal garden

Offices **Communal kitchen**

Coworking areas Communal lounge

Recycle and repair workshop



Community

Public tower

Communal garden

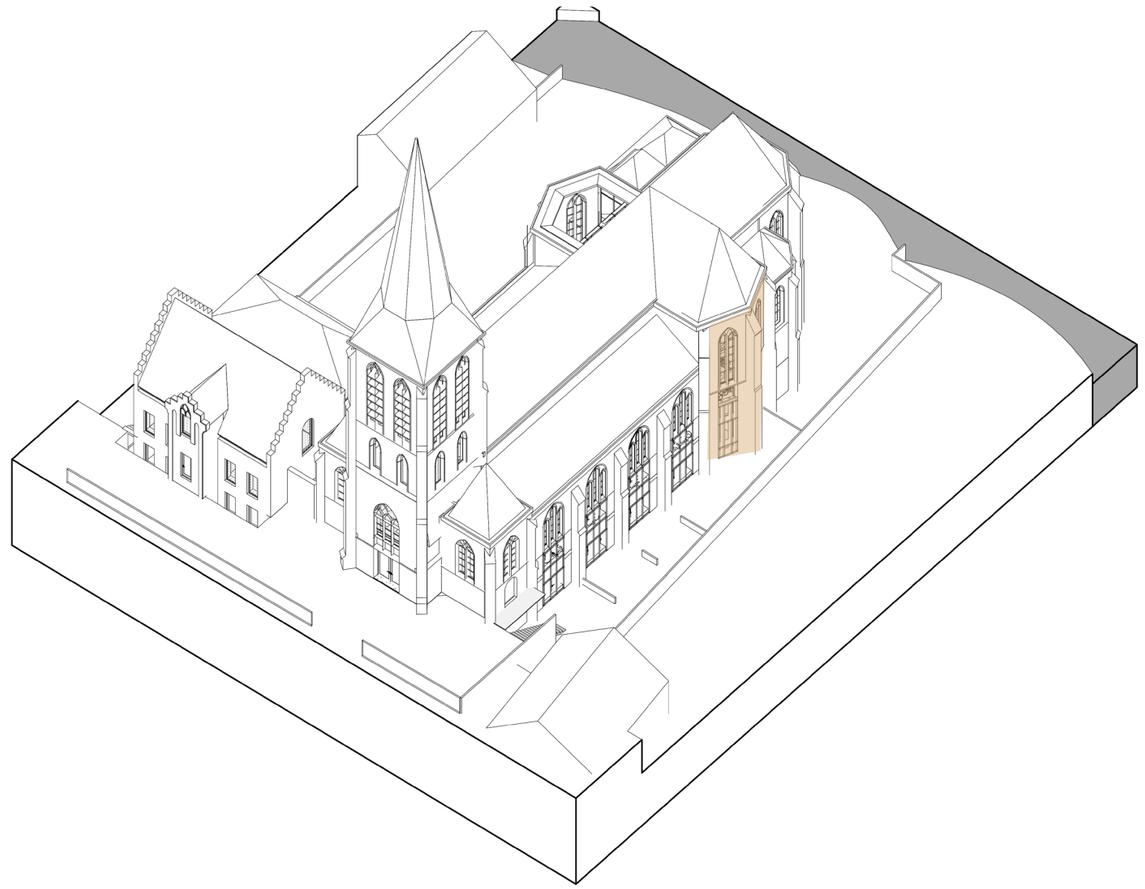
Offices

Communal kitchen

Coworking areas

Communal lounge

Recycle and repair workshop



Community

Public tower

Communal garden

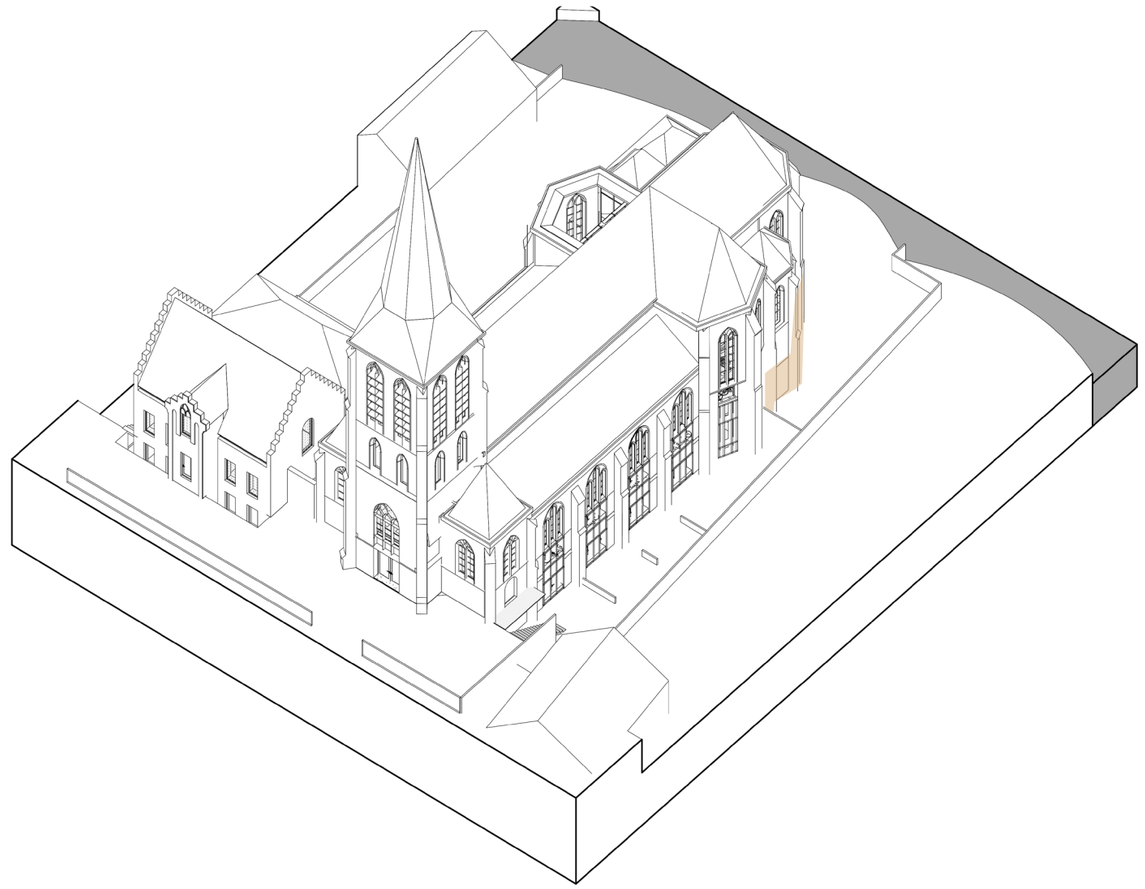
Offices

Communal kitchen

Coworking areas

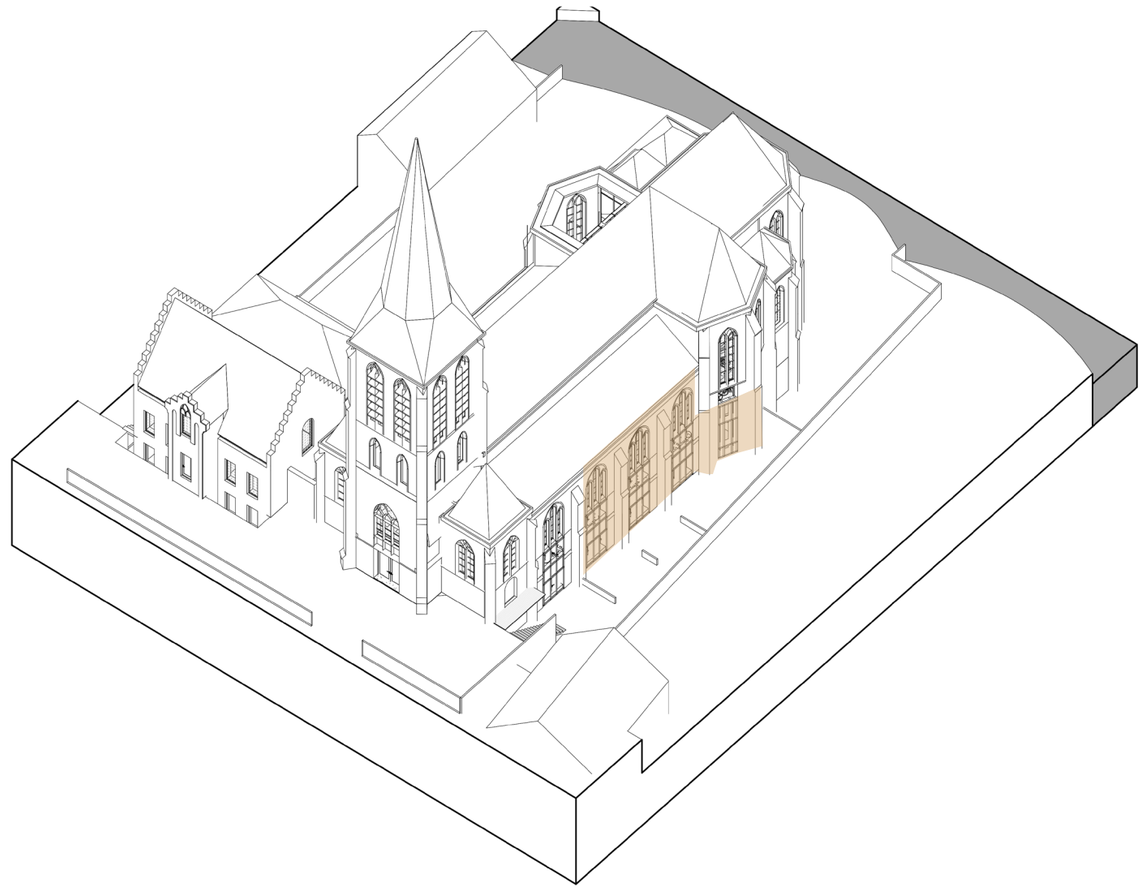
Communal lounge

Recycle and repair workshop



Individuals

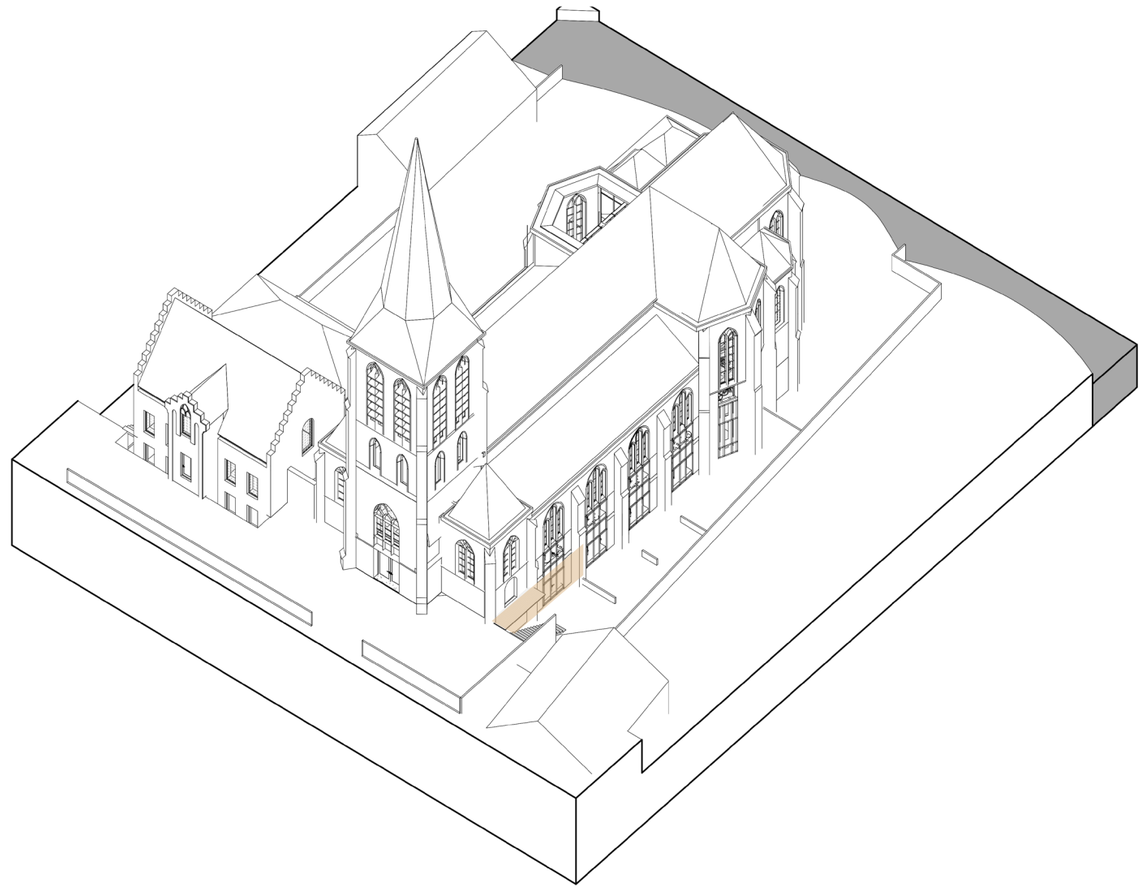
8 apartments Common facilities



Individuals

8 apartments

Common facilities



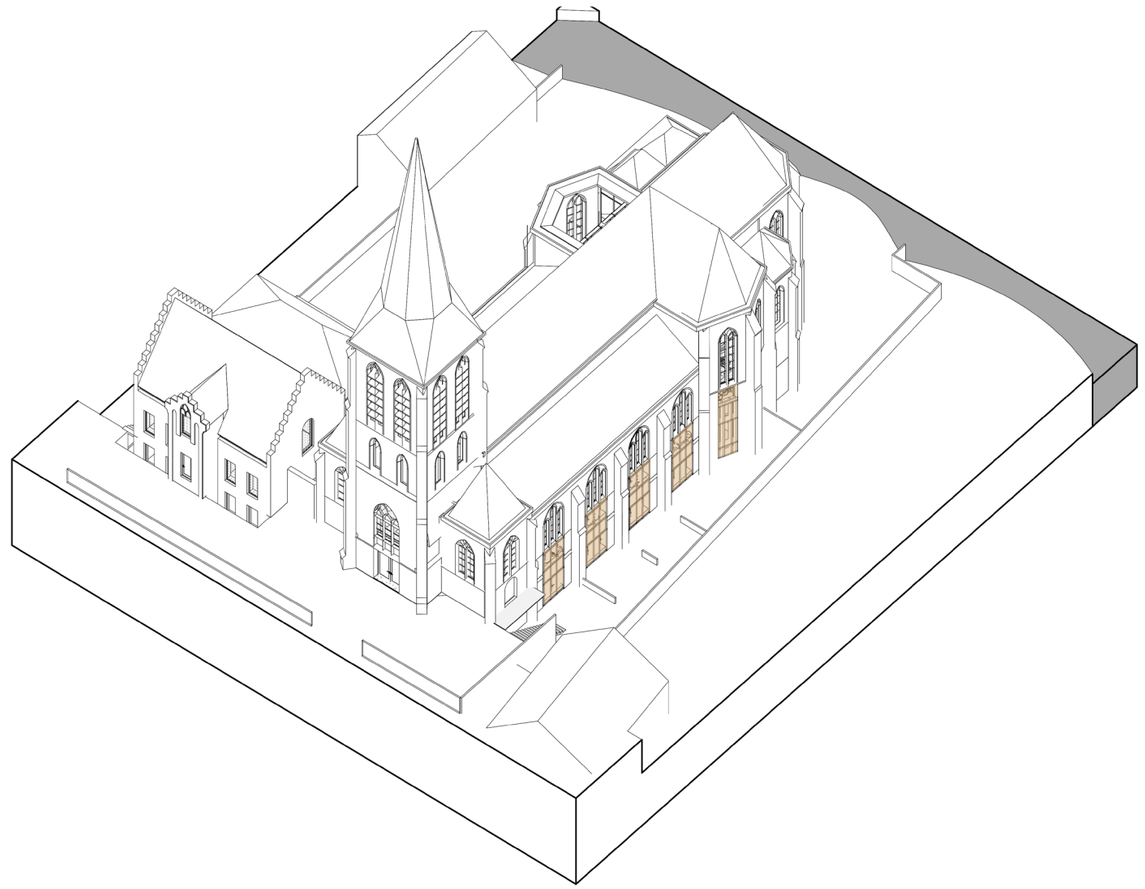
Animals

Bird houses

Bat nests

Greenery

Gardens



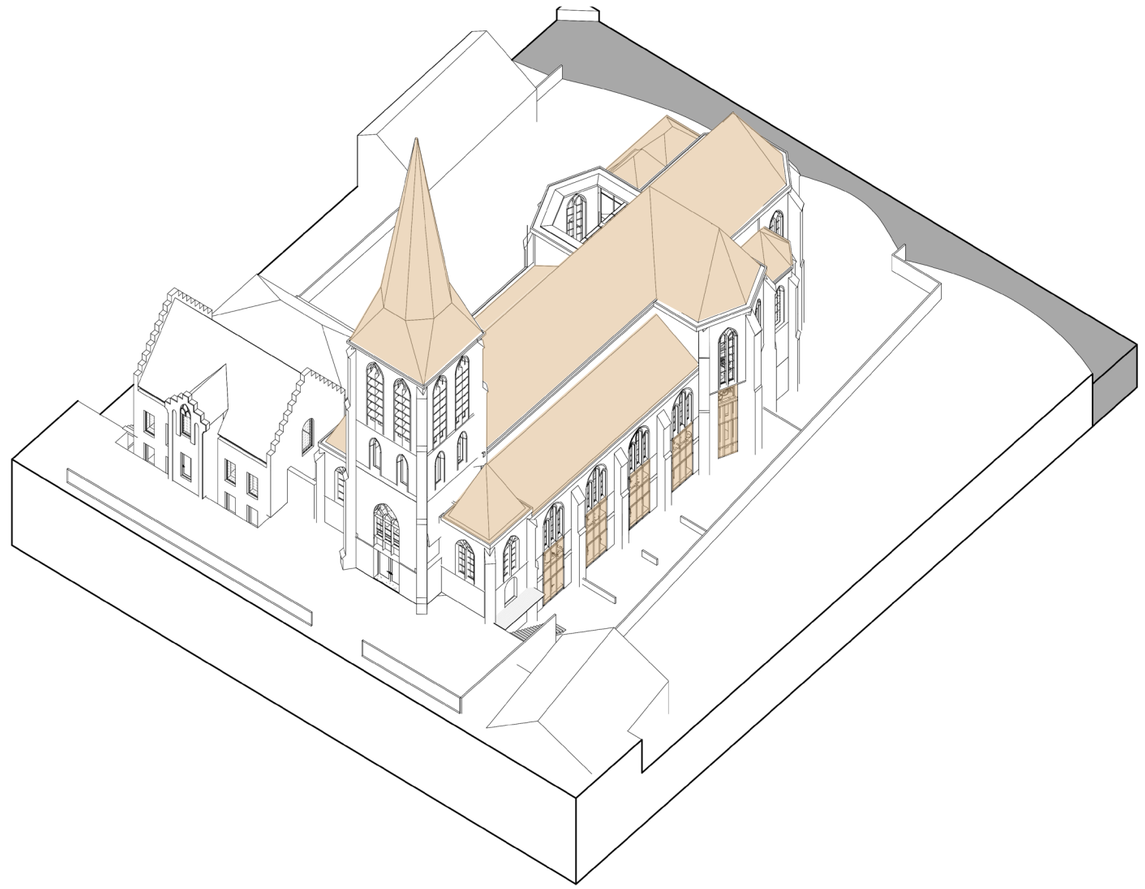
Animals

Bird houses

Bat nests

Greenery

Gardens



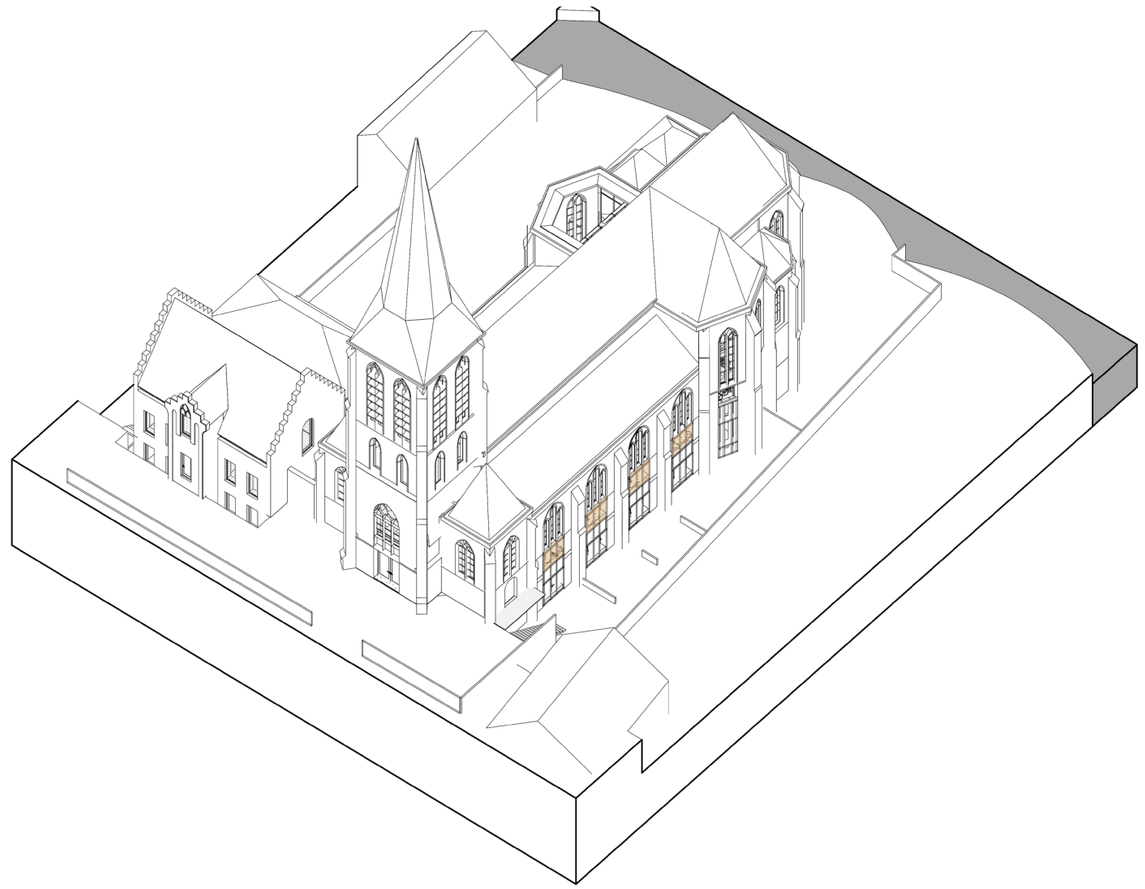
Animals

Bird houses

Bat nests

Greenery

Gardens



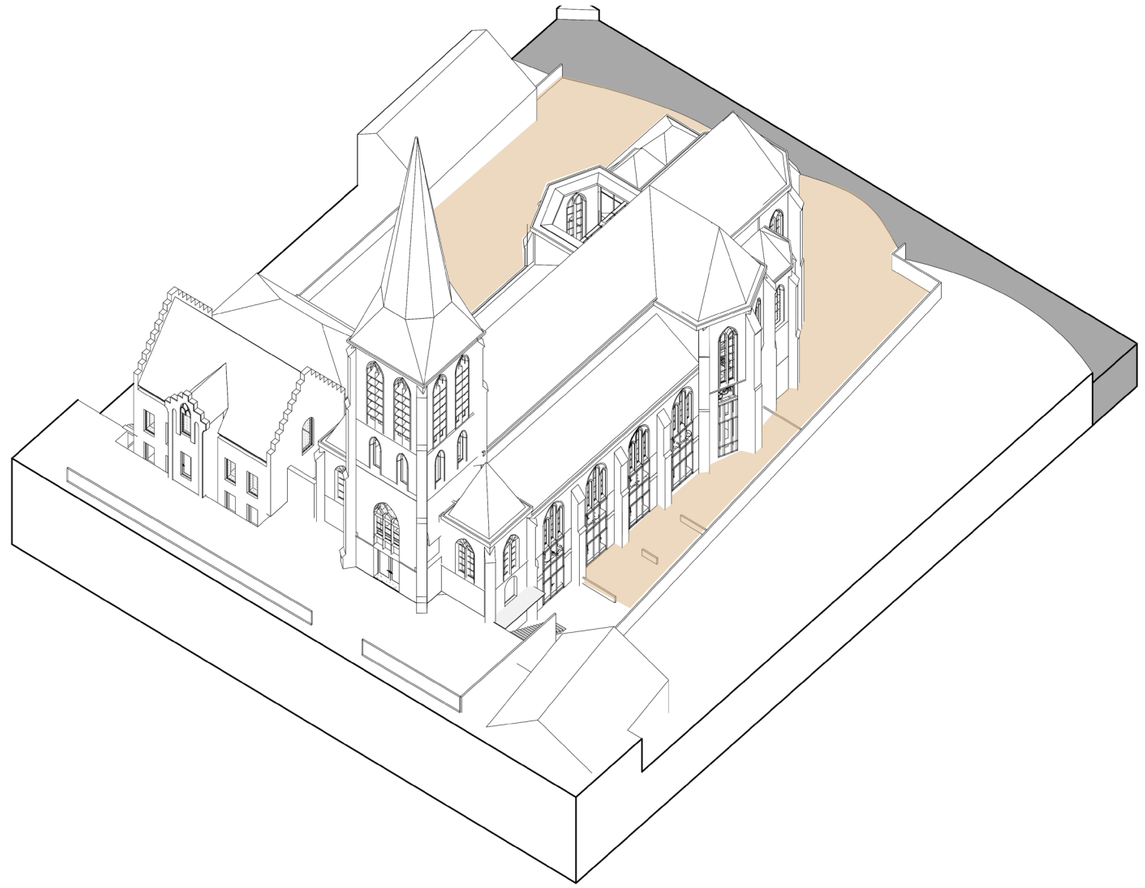
Animals

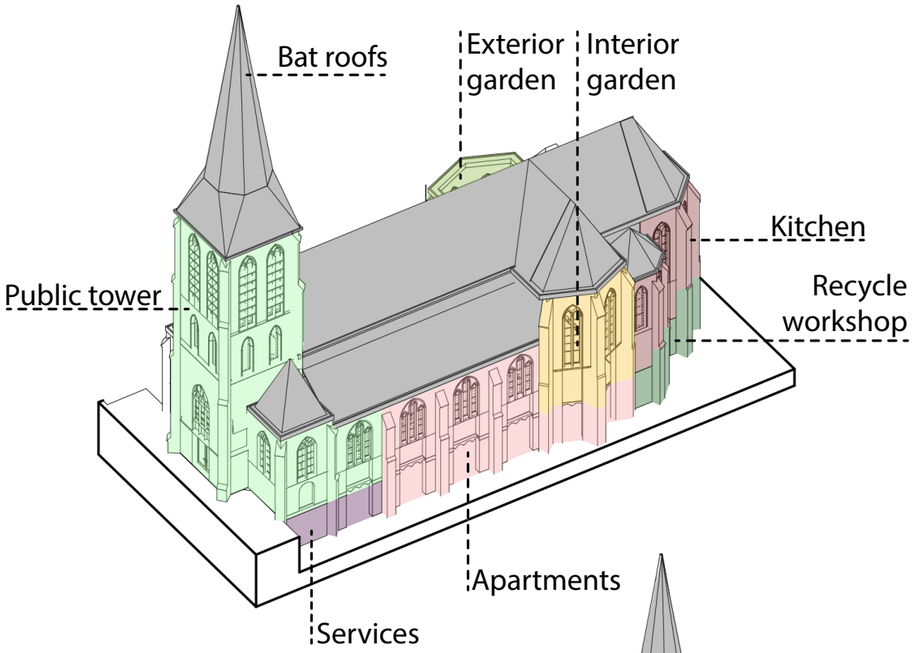
Bird houses

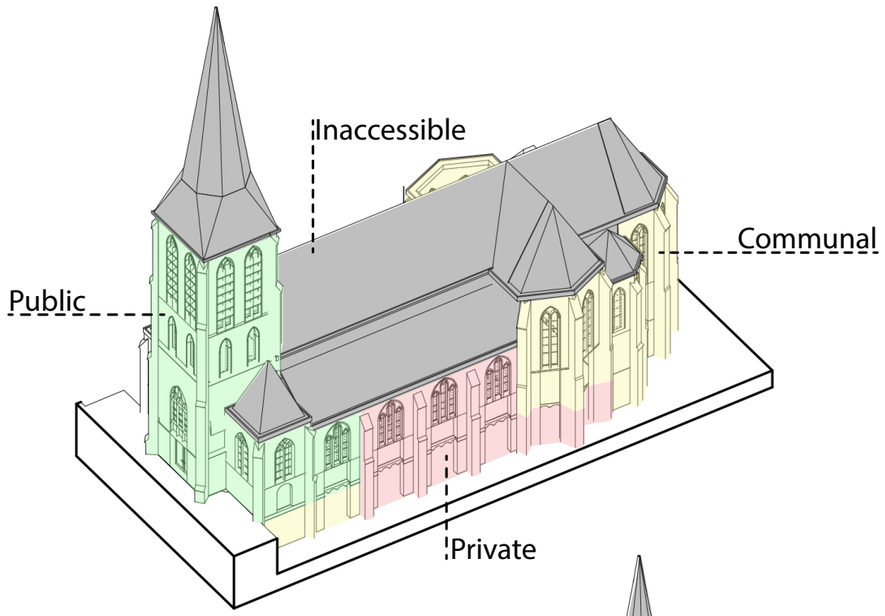
Bat nests

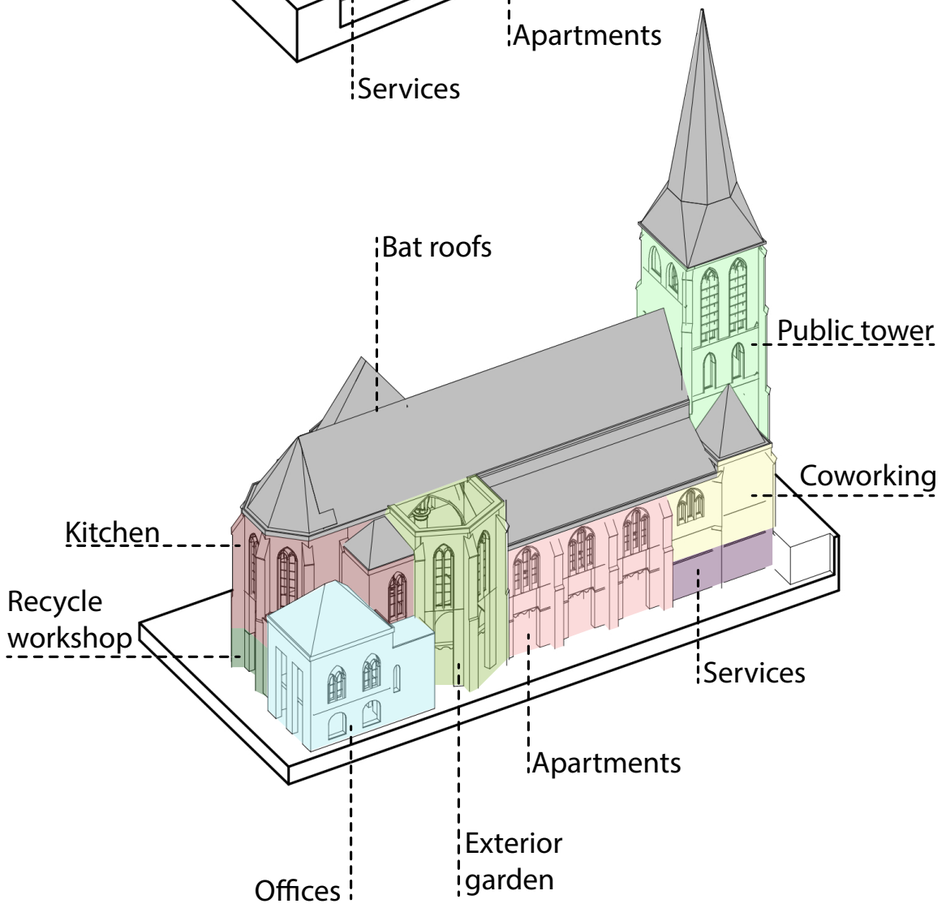
Greenery

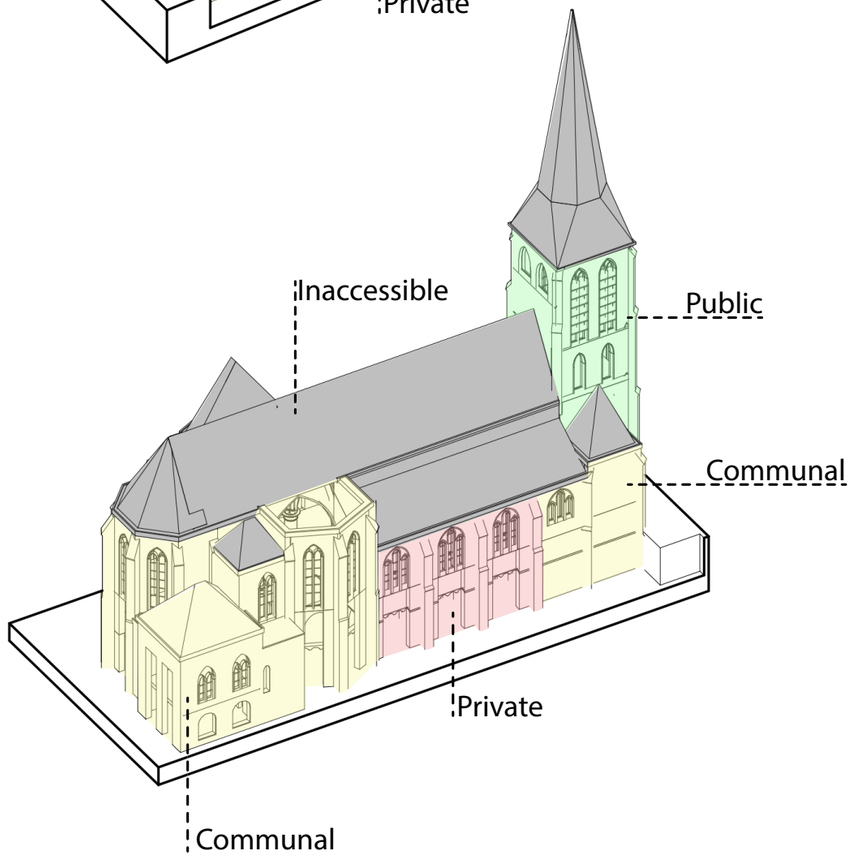
Gardens

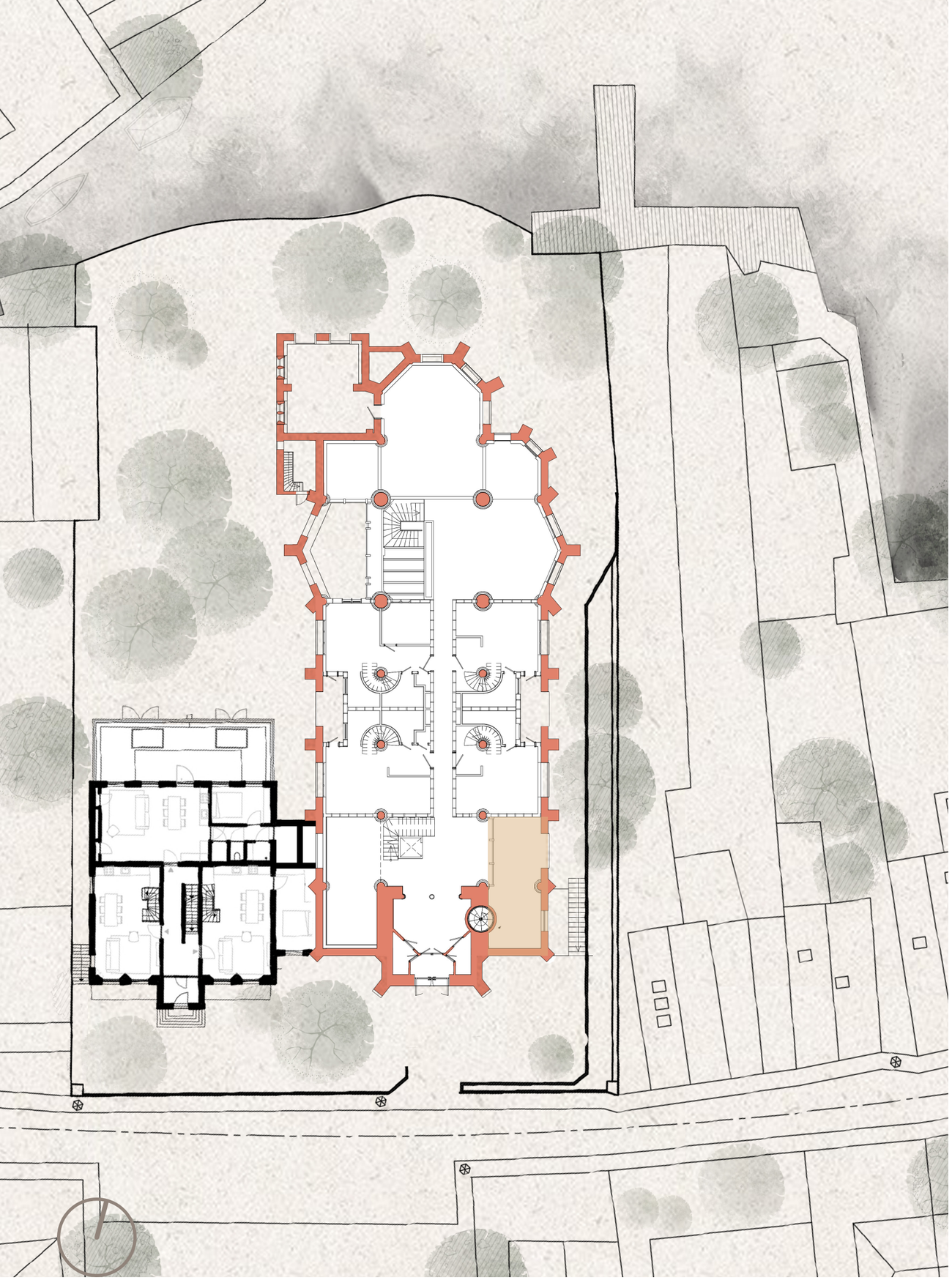


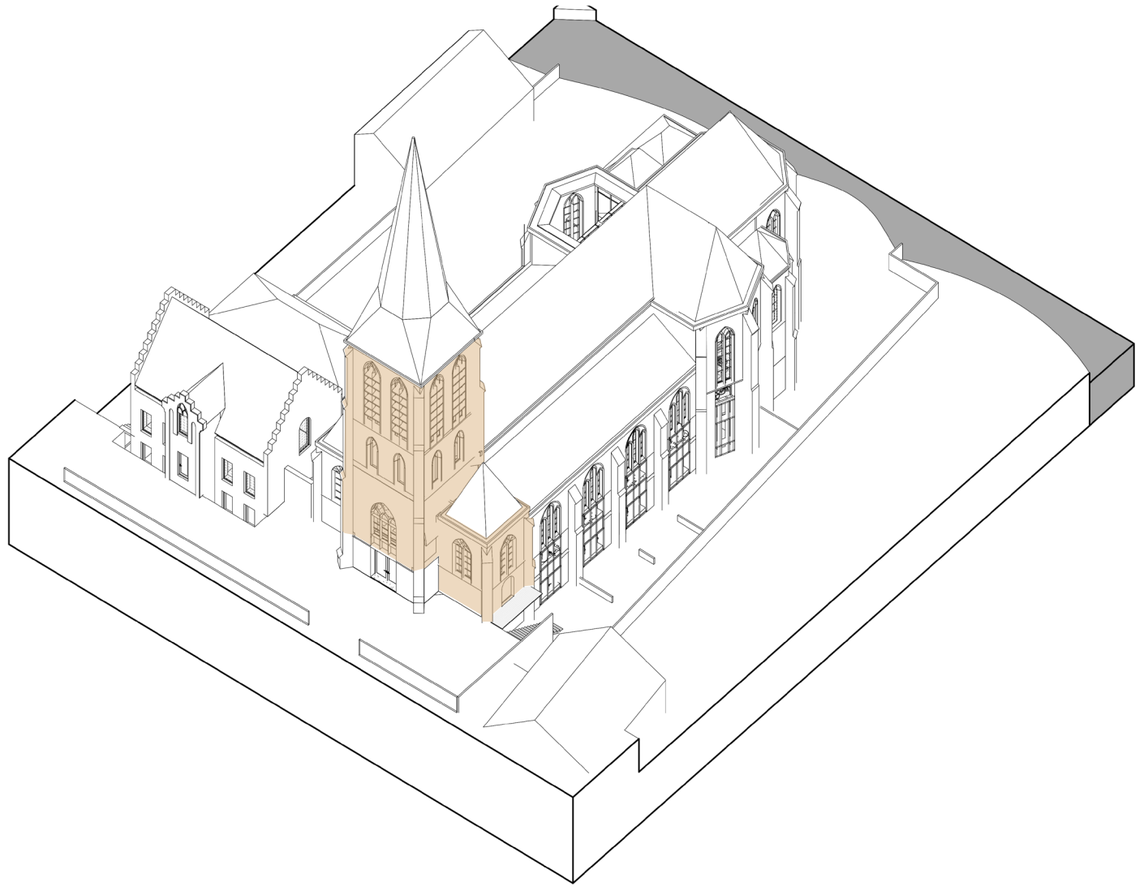

Bat roofs
Exterior garden
Interior garden
Kitchen
Public tower
Recycle workshop
Apartments
Services

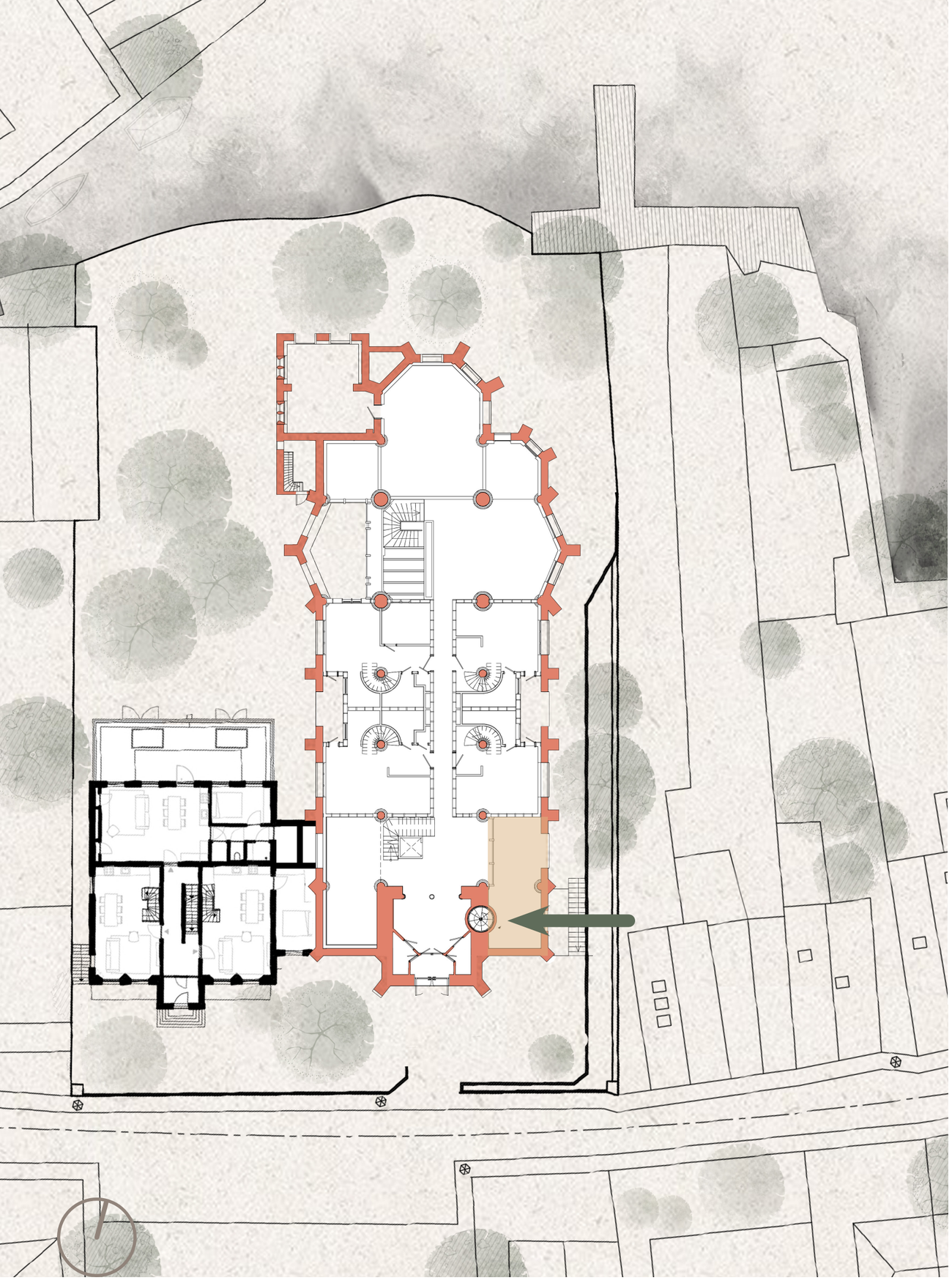

Inaccessible
Communal
Public
Private

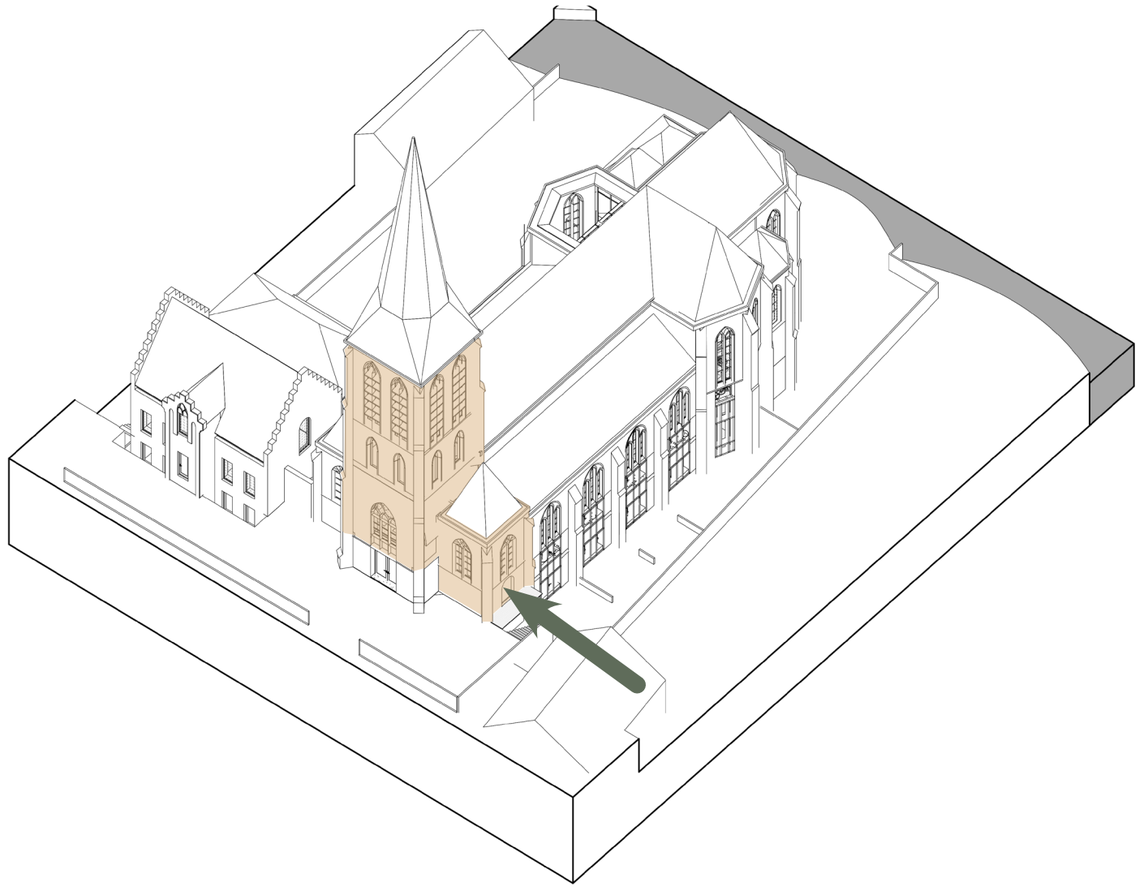

Bat roofs
Public tower
Coworking
Kitchen
Recycle workshop
Services
Apartments
Offices
Exterior garden

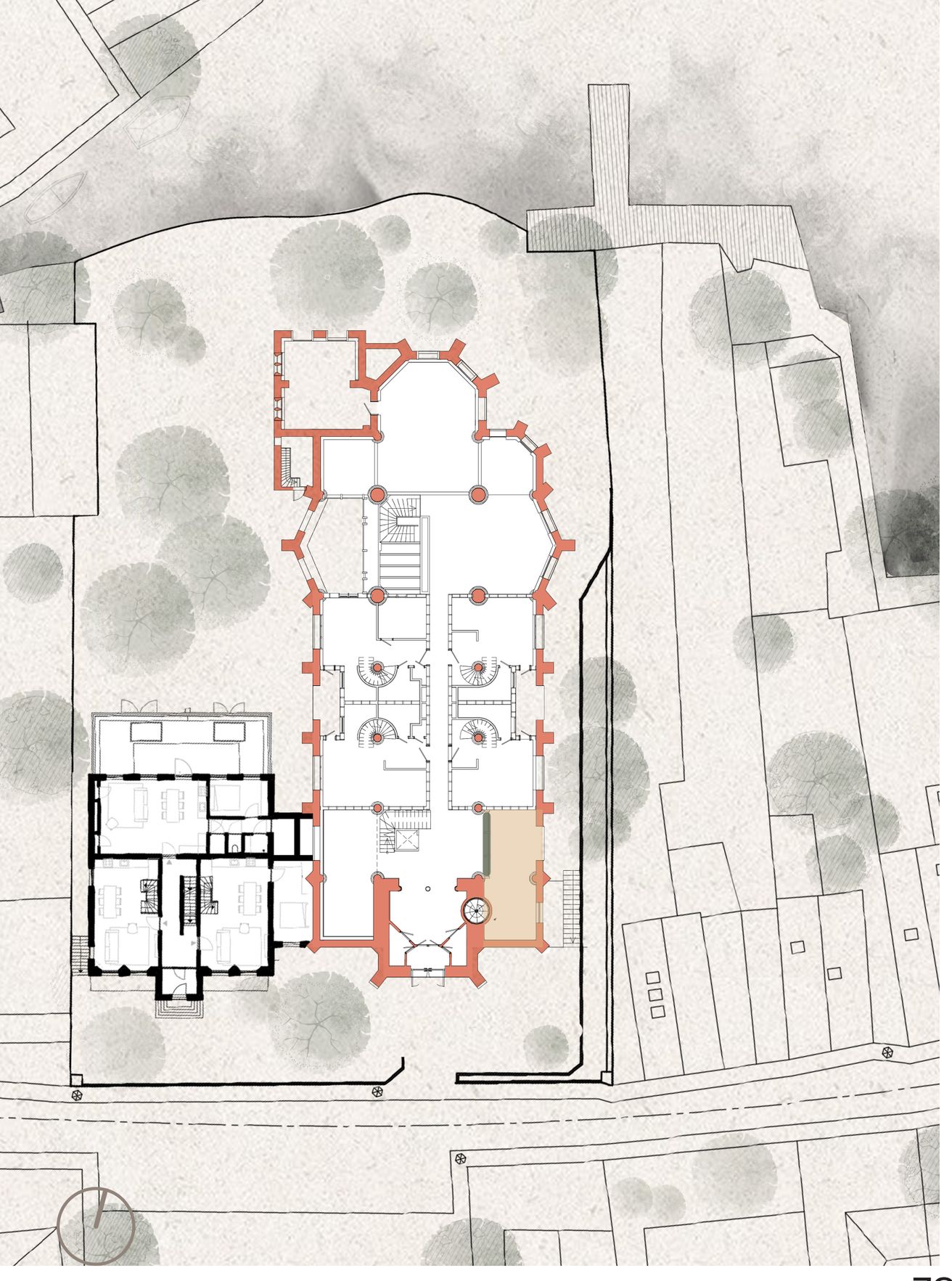

Inaccessible
Public
Communal
Private
Communal

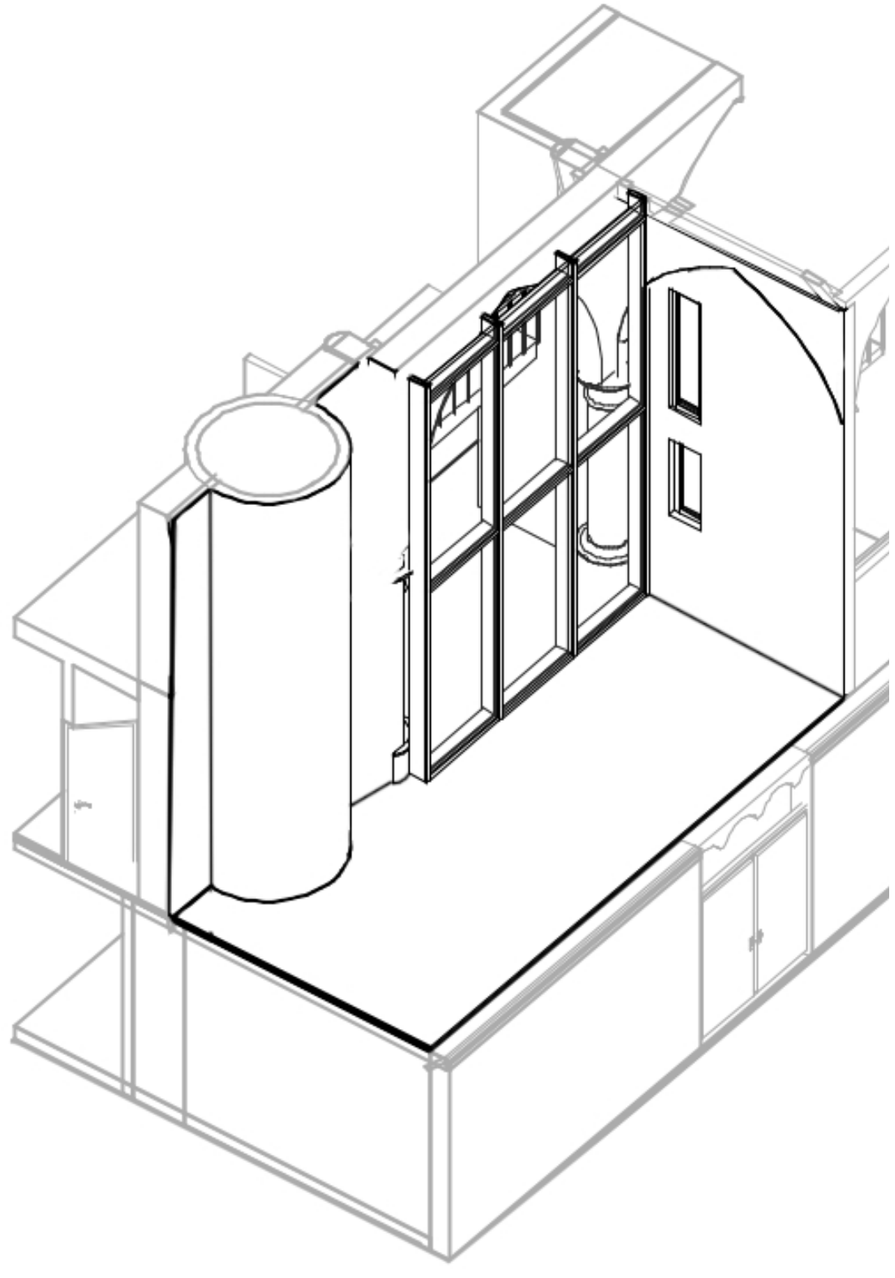


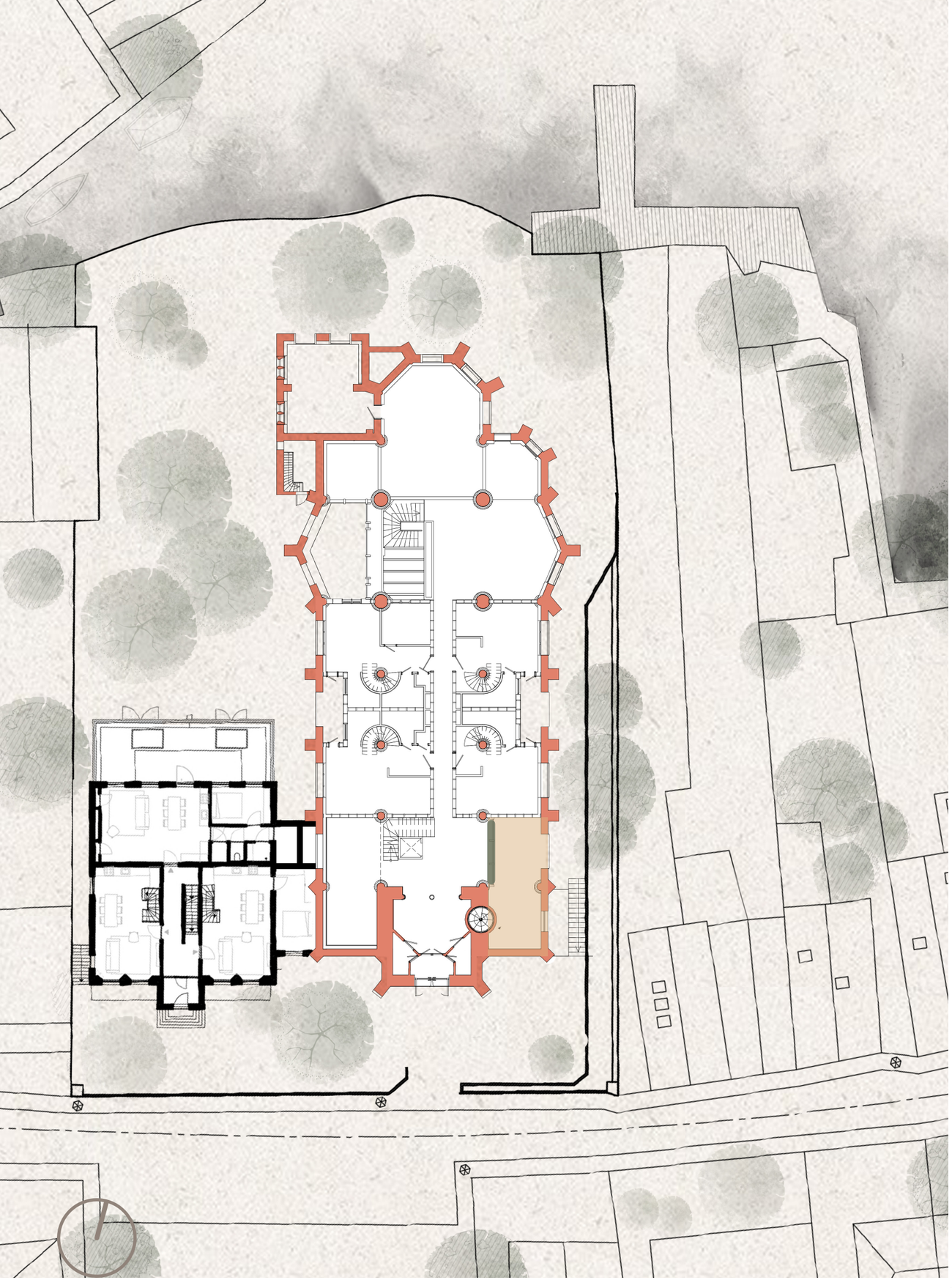




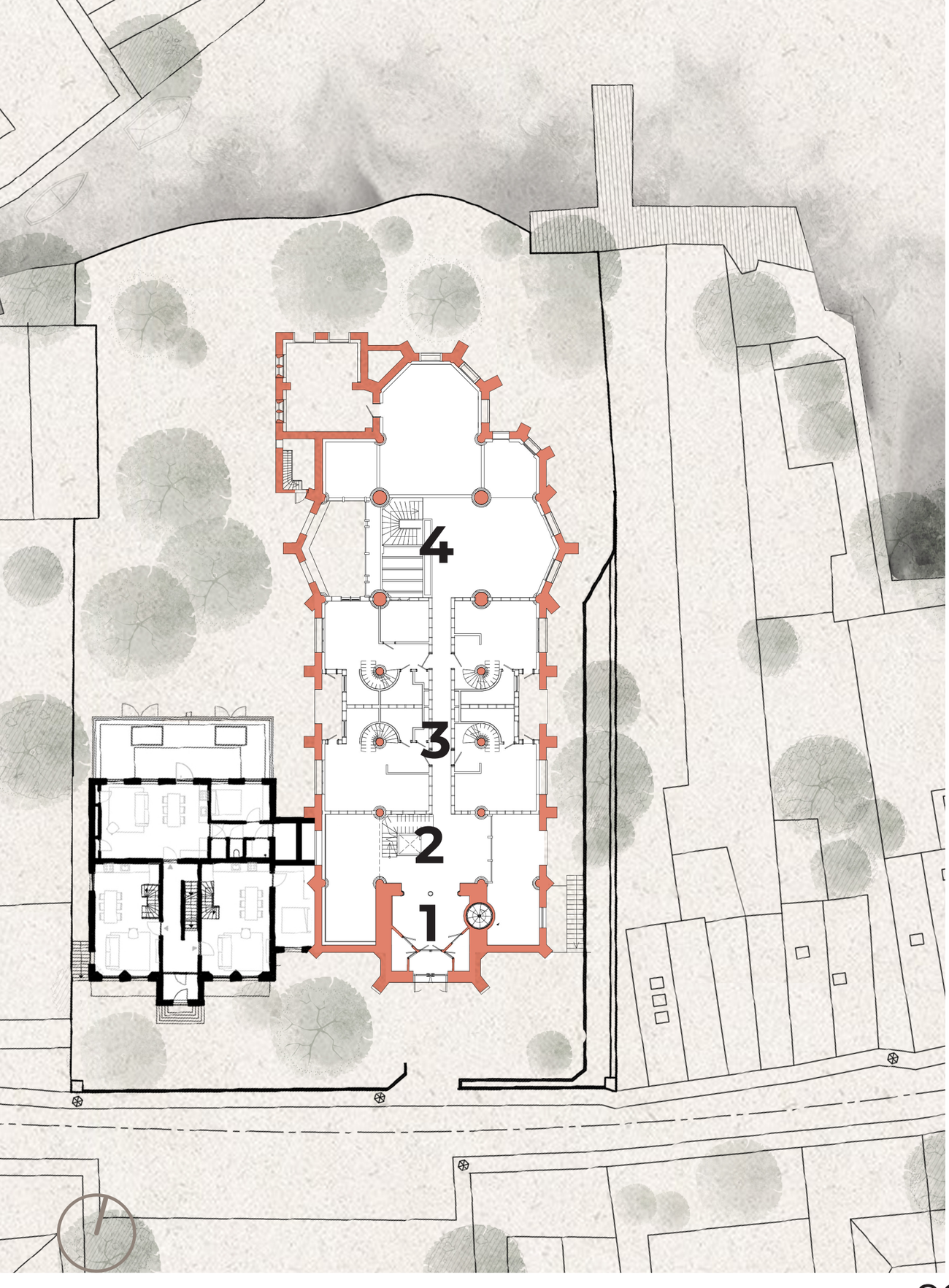


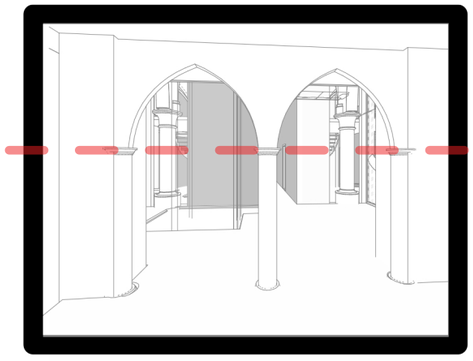


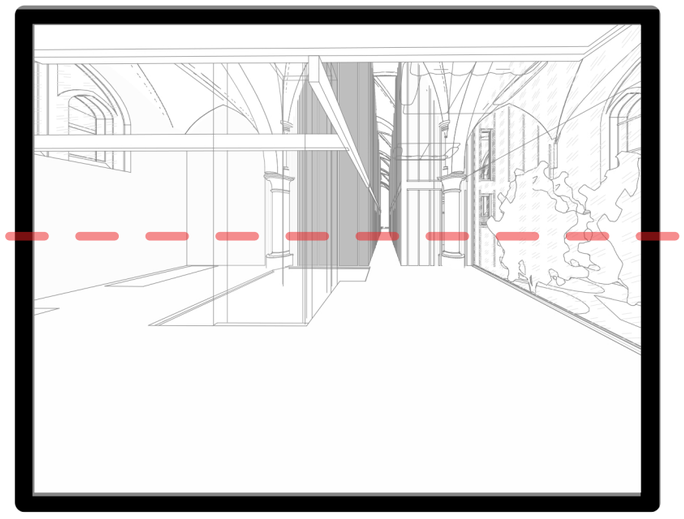


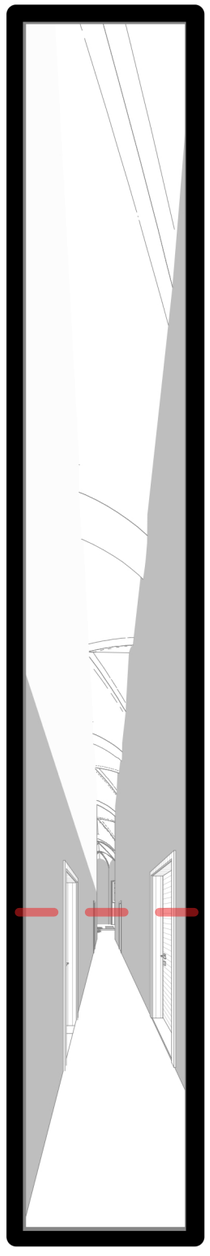


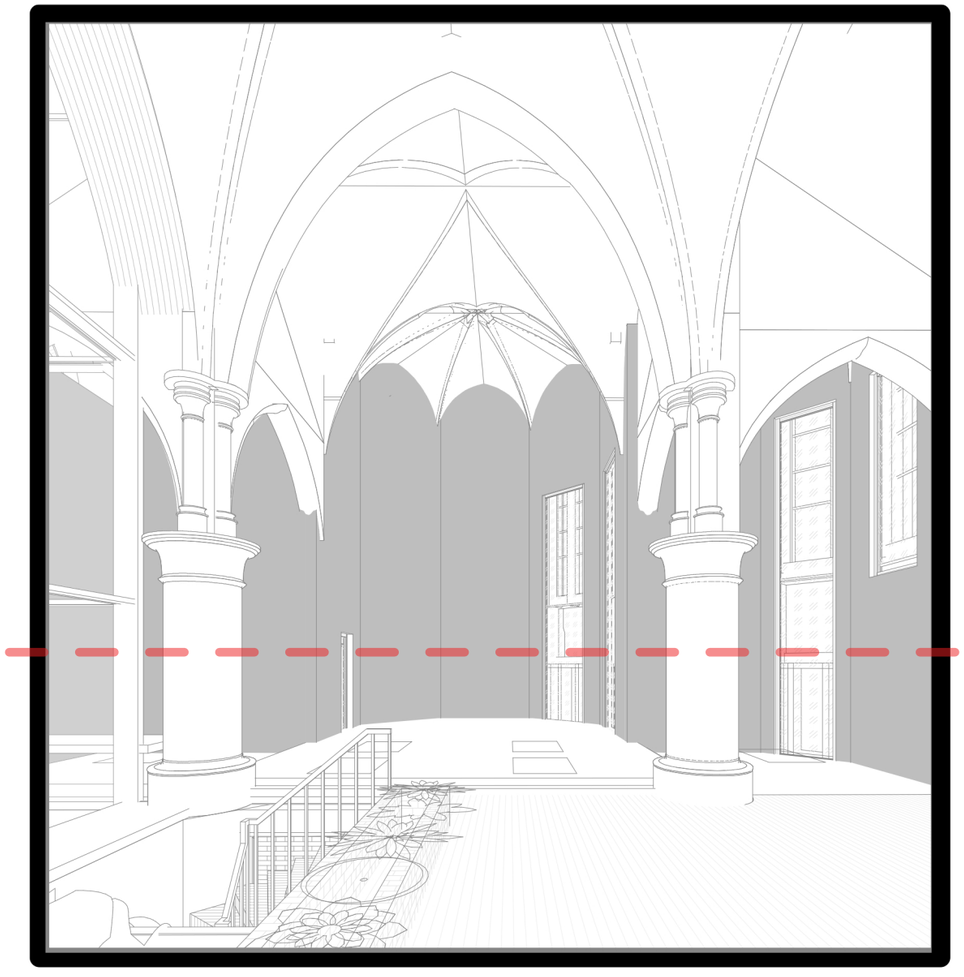



4
3
2
1







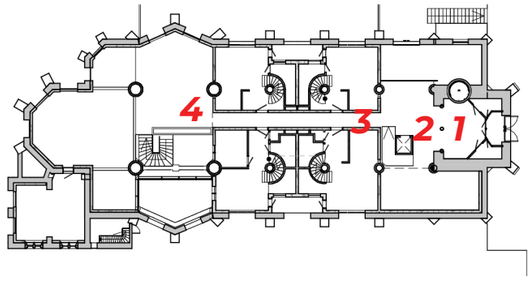


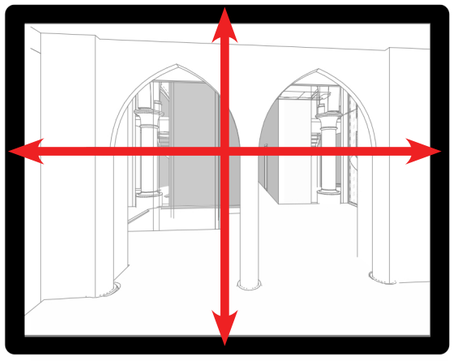
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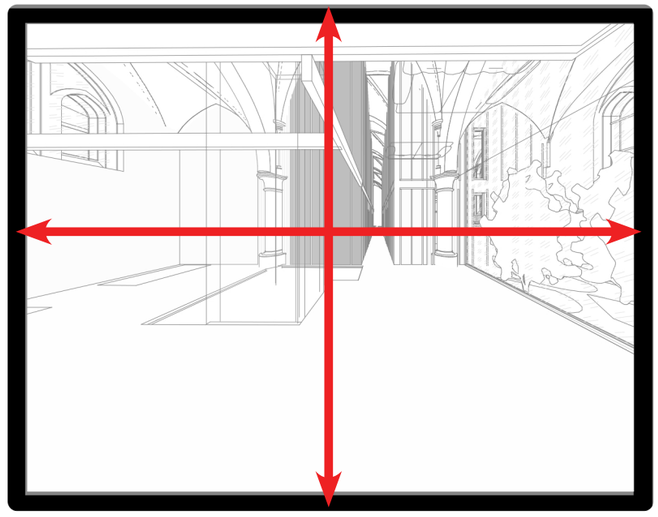
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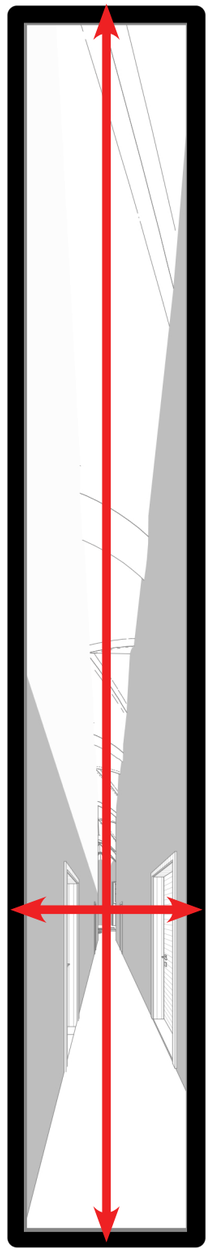




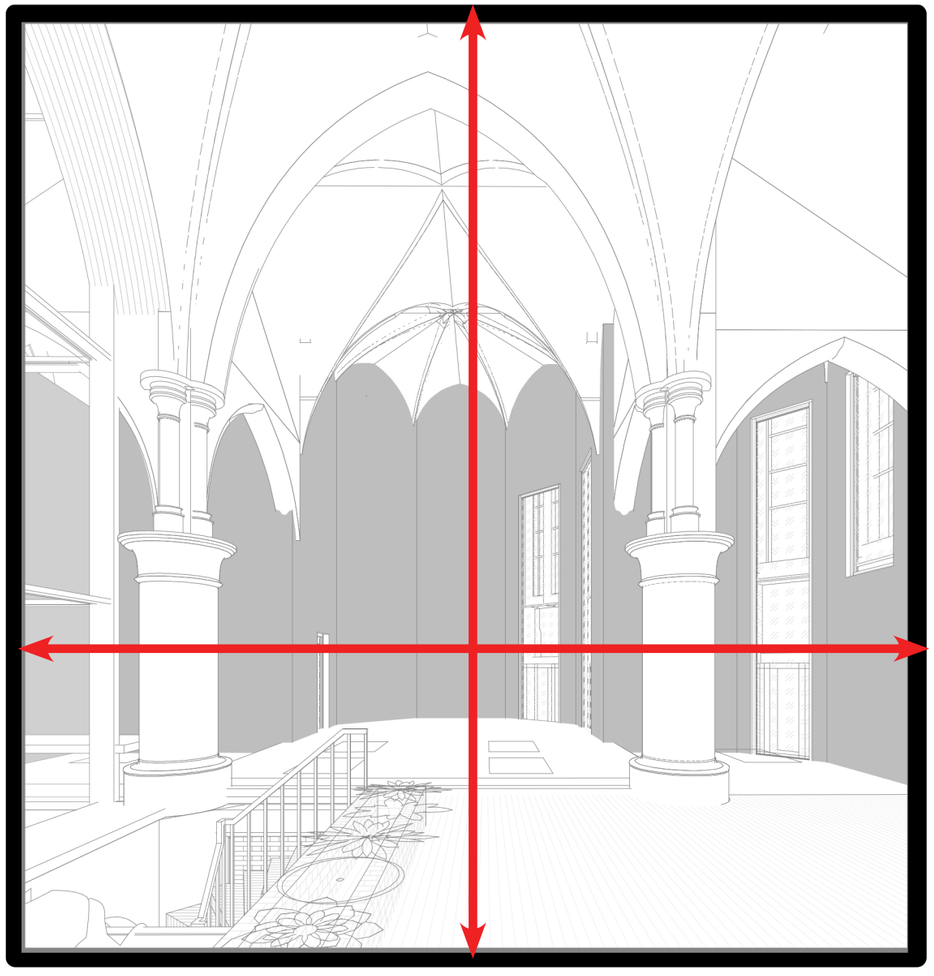
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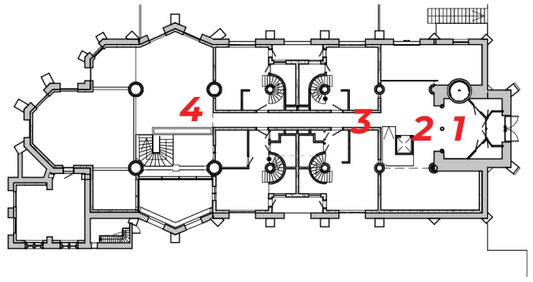
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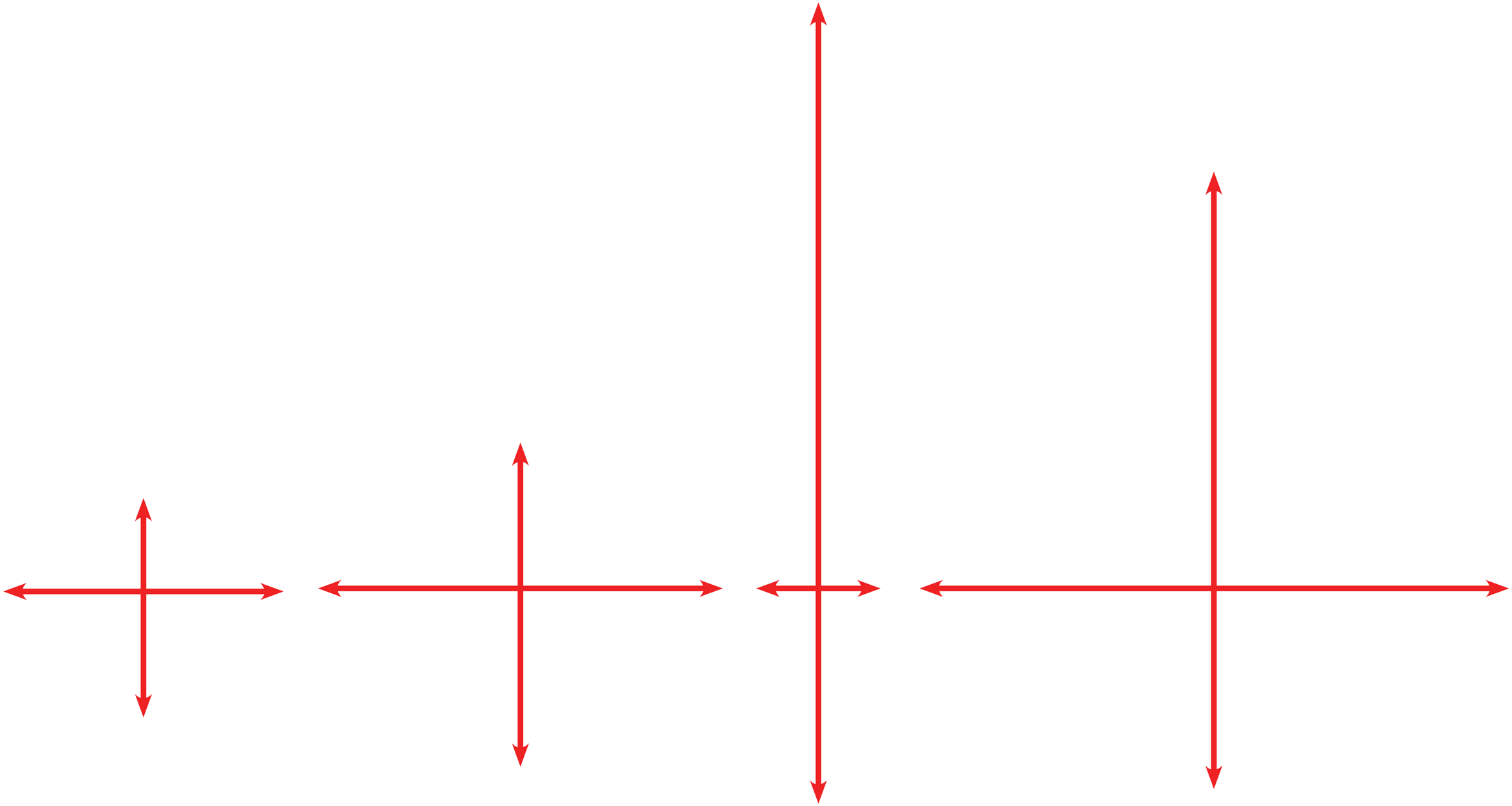


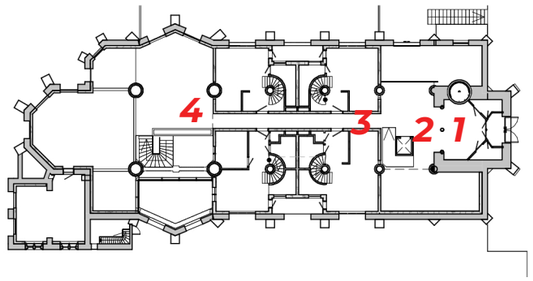
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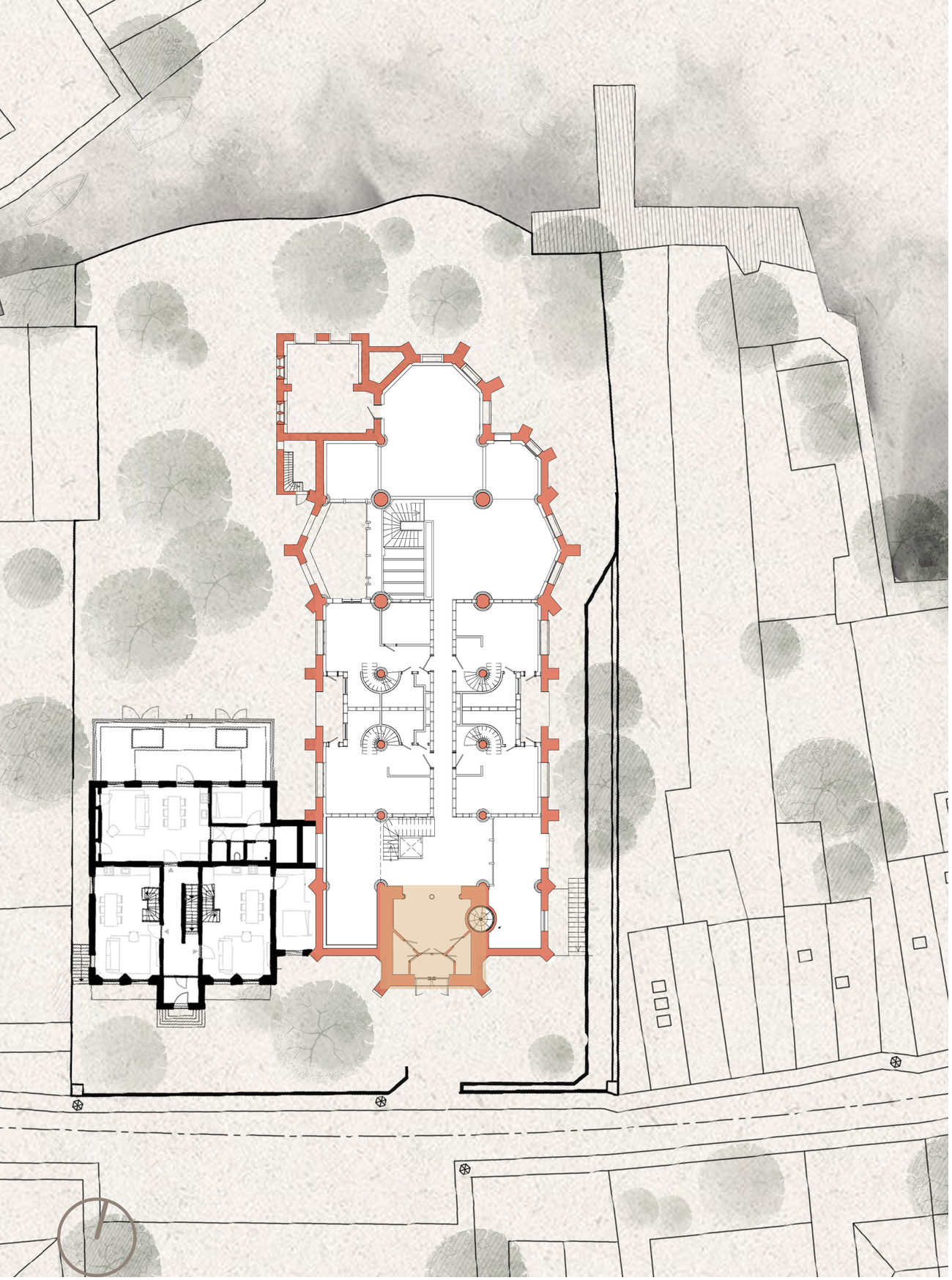


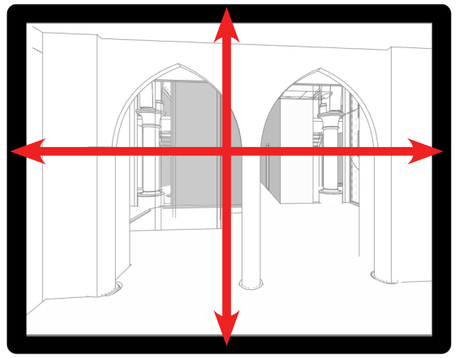
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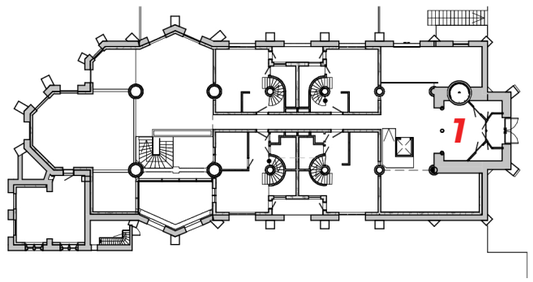


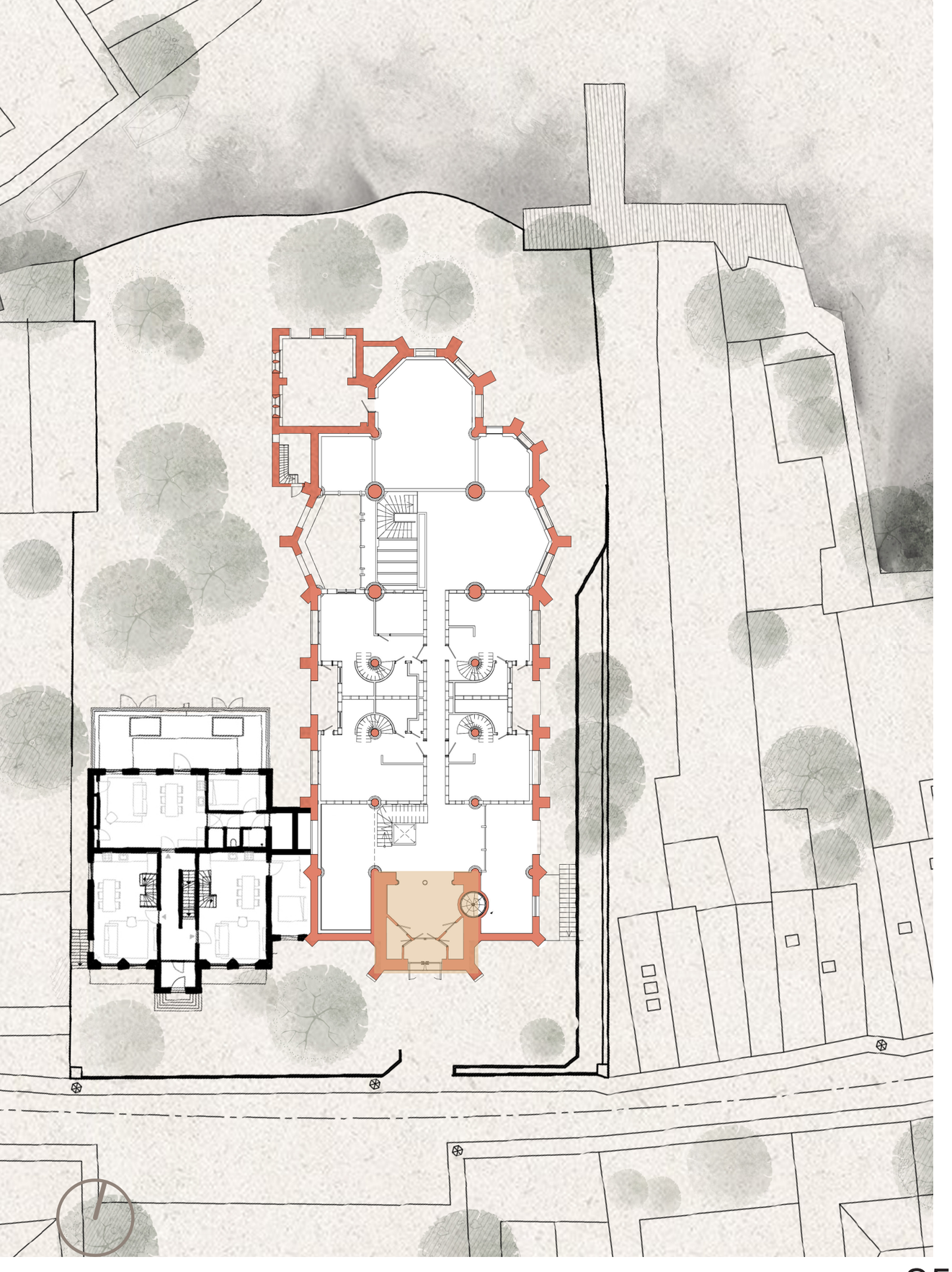

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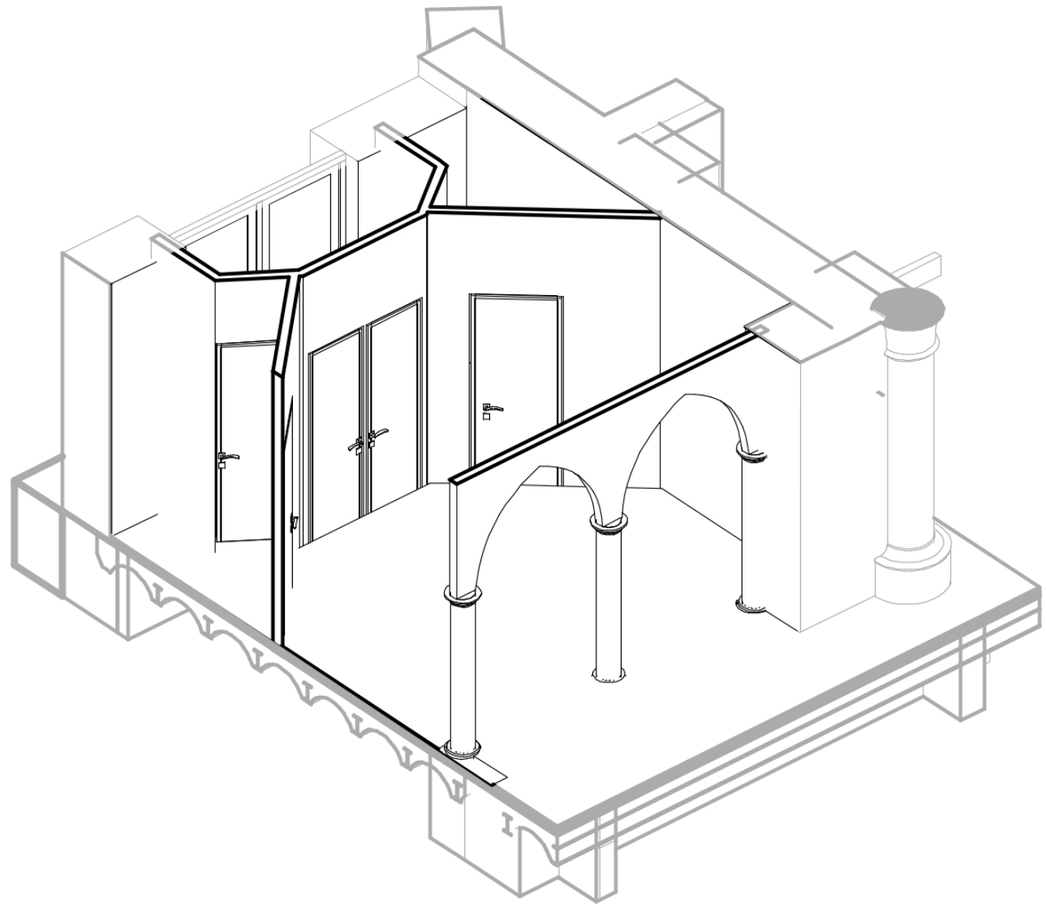

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3
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1

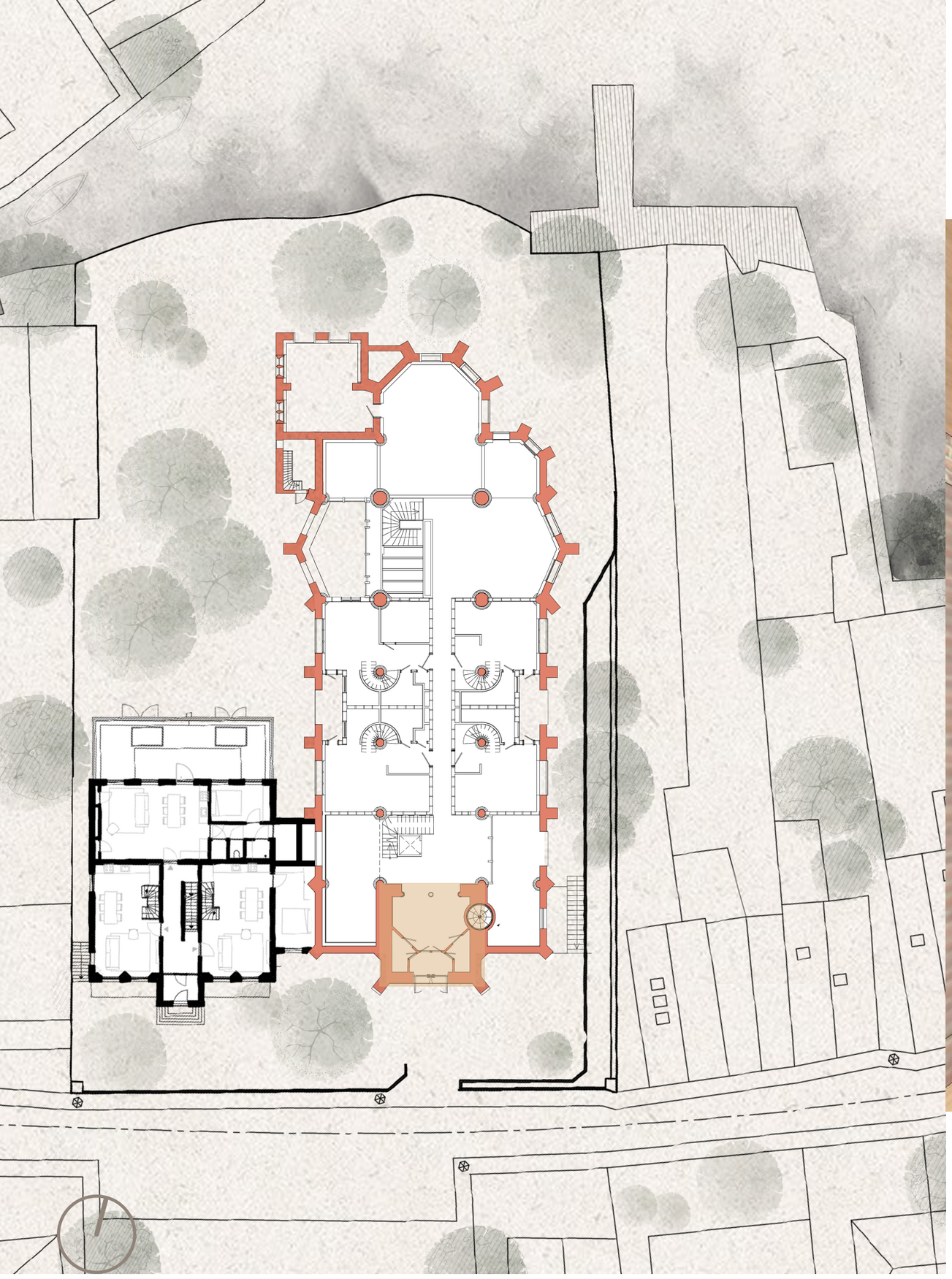




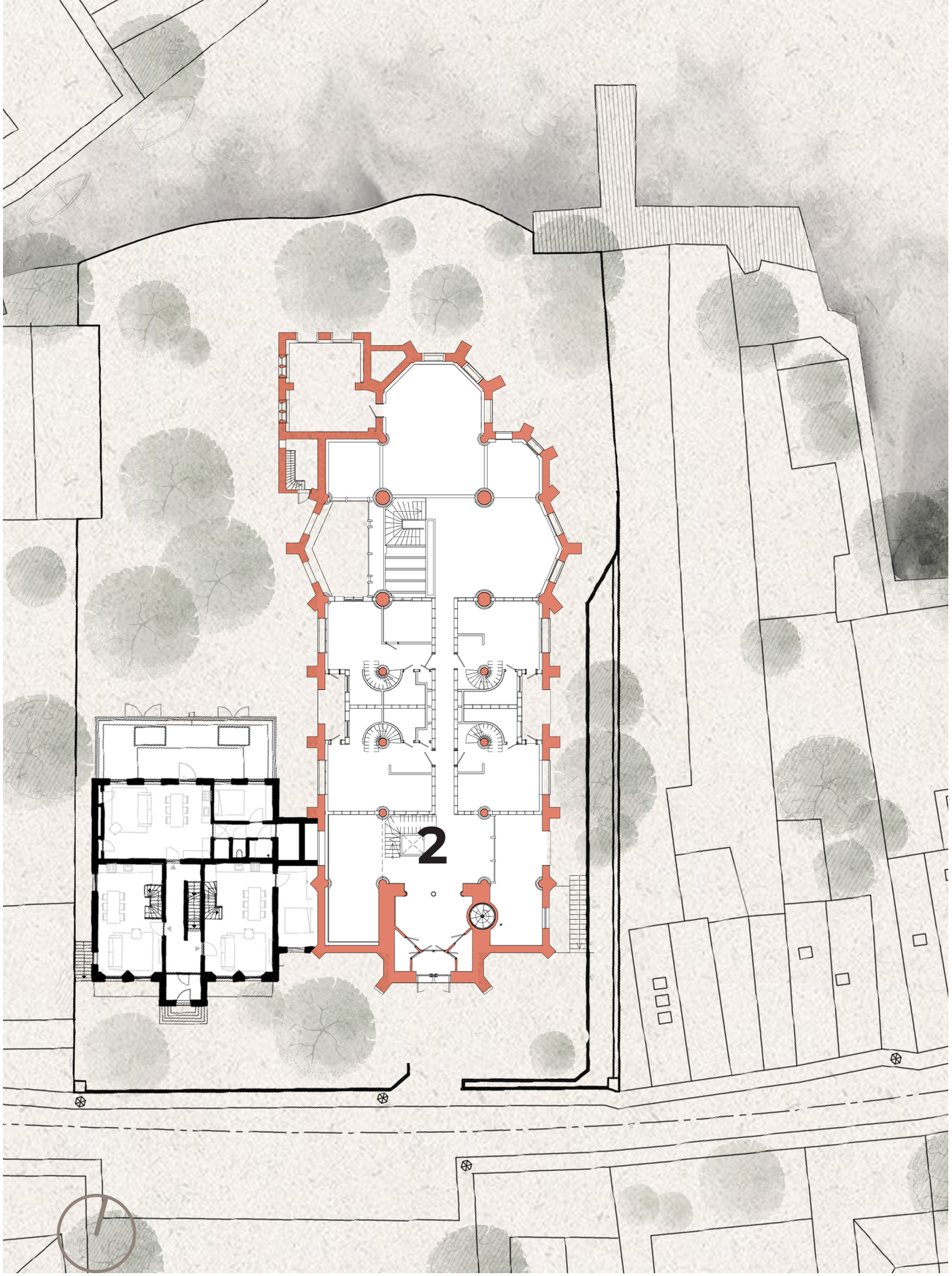

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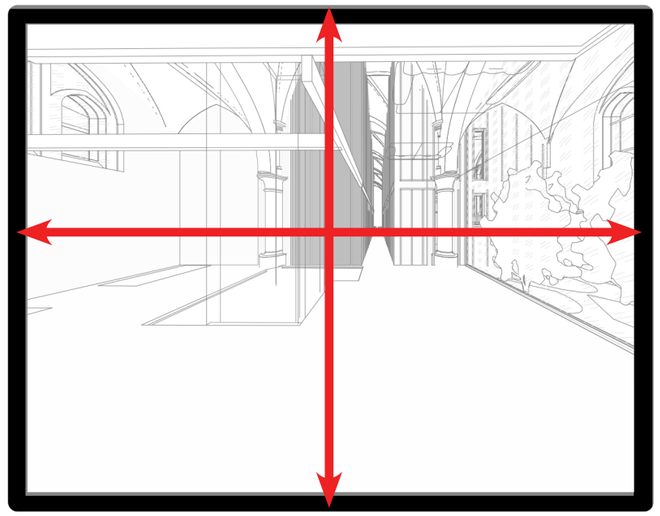


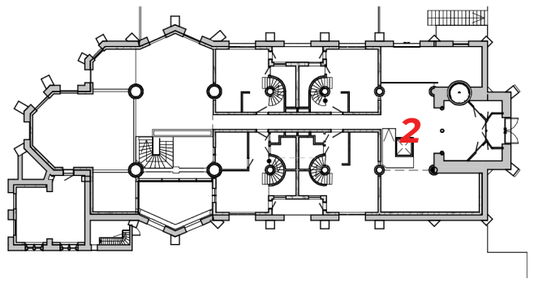


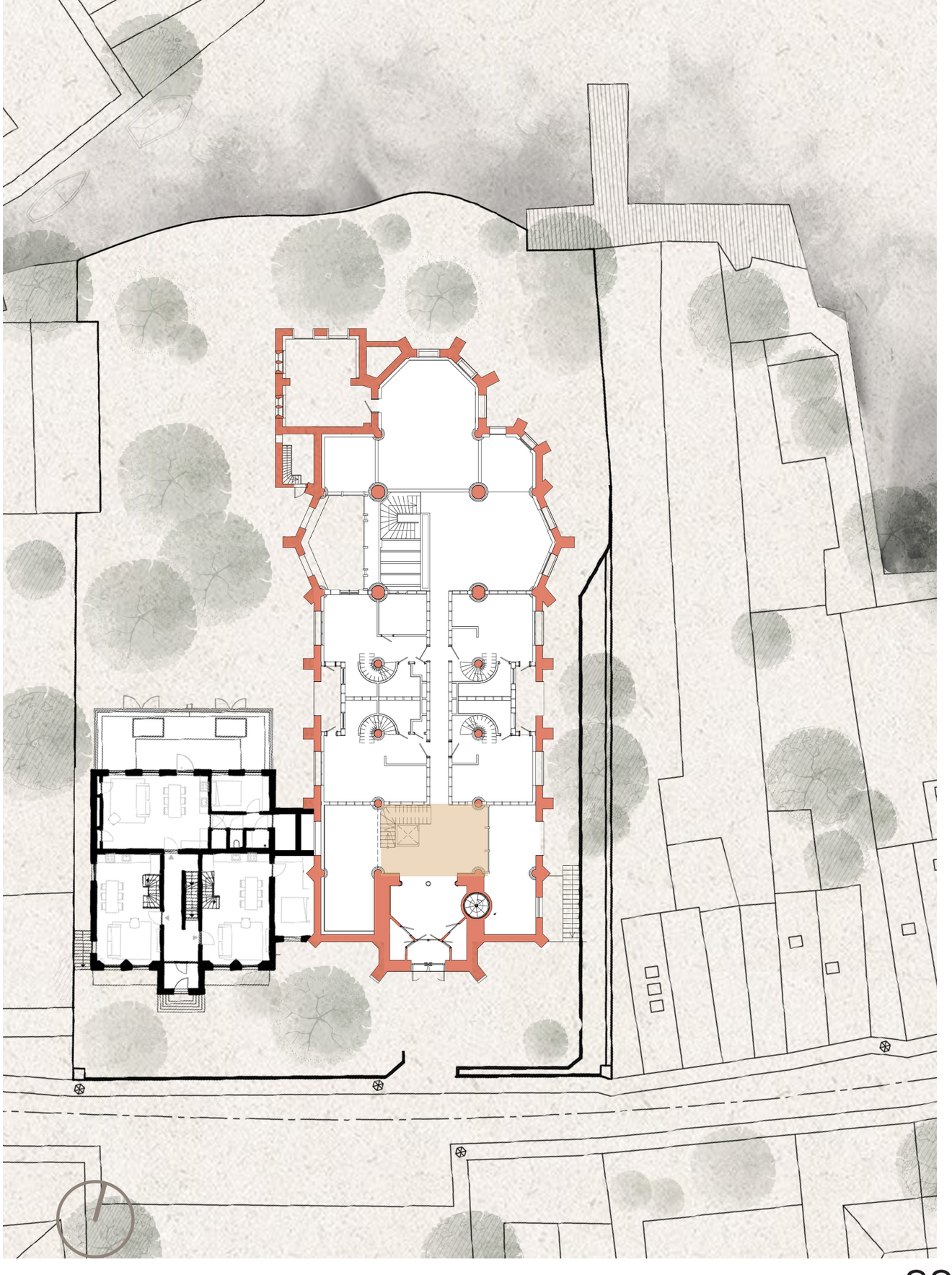


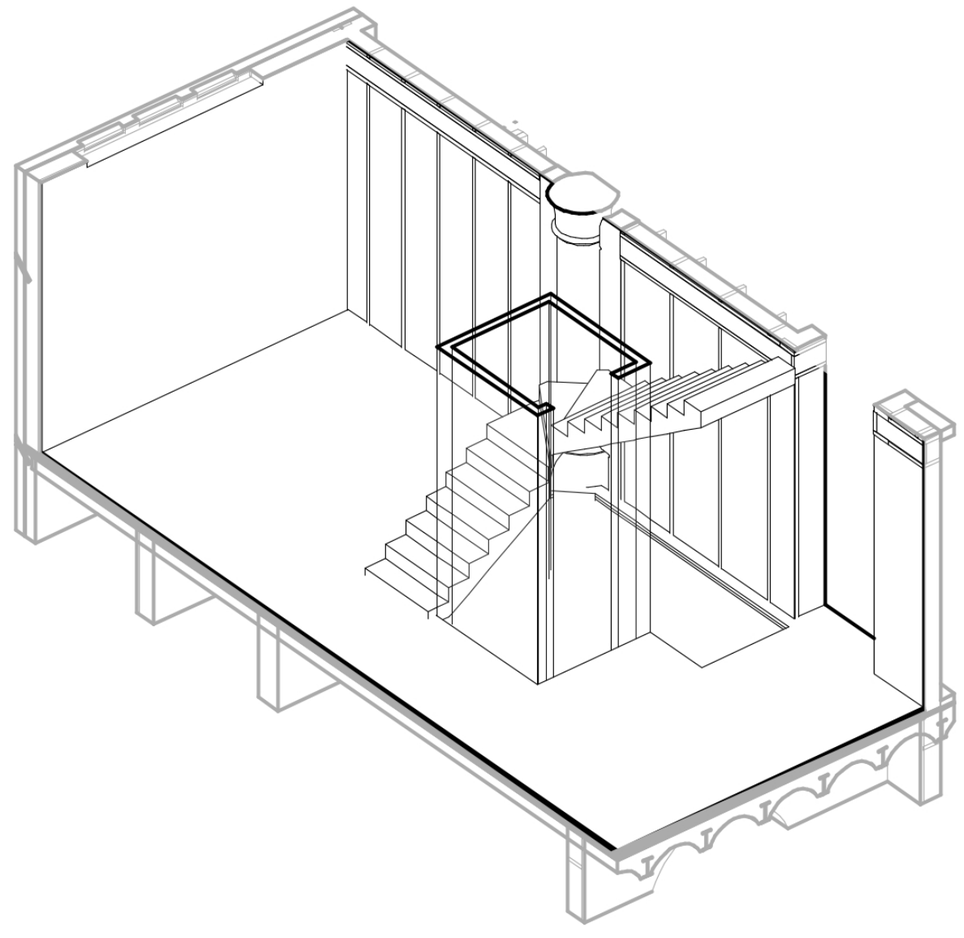


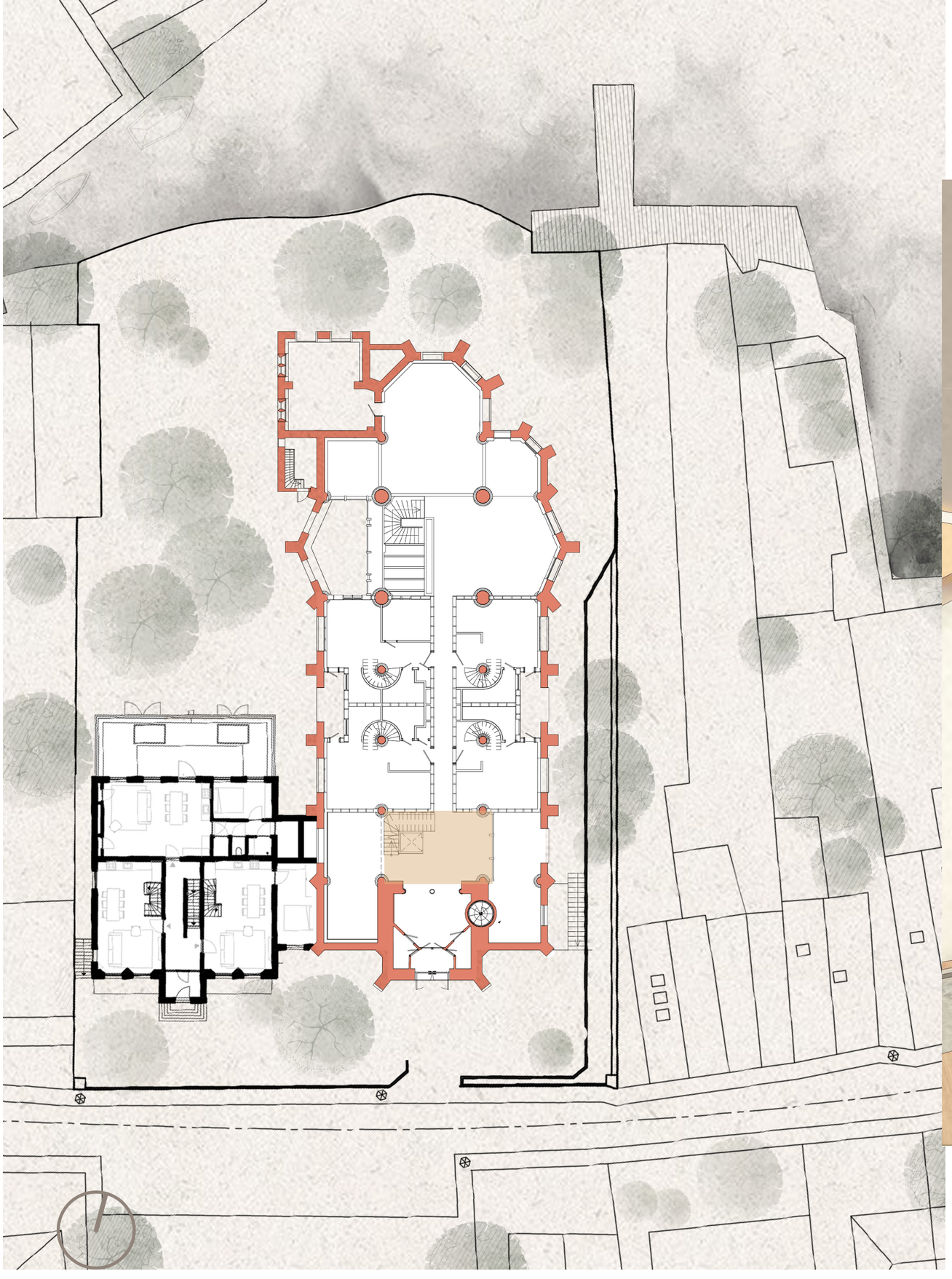

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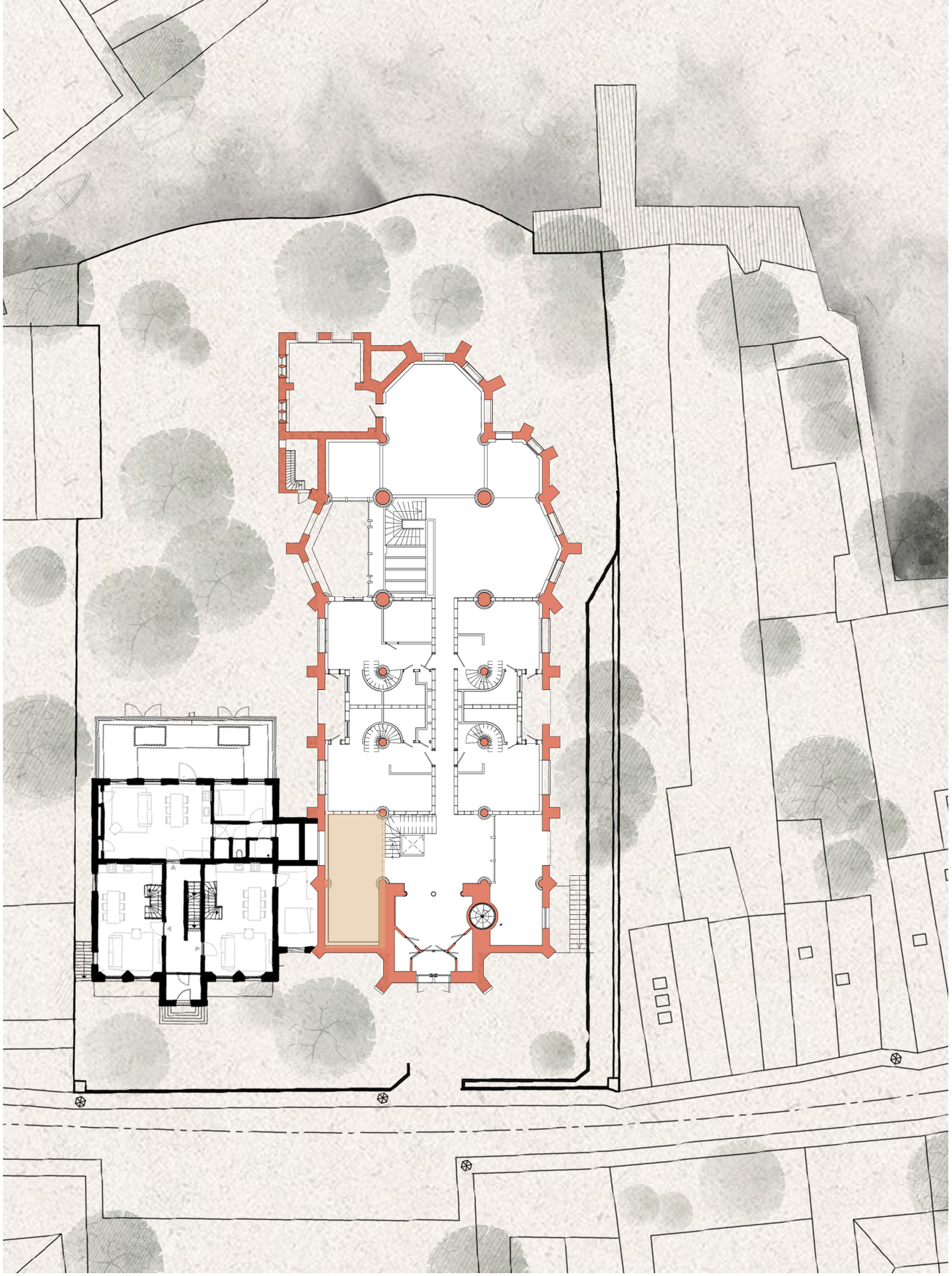

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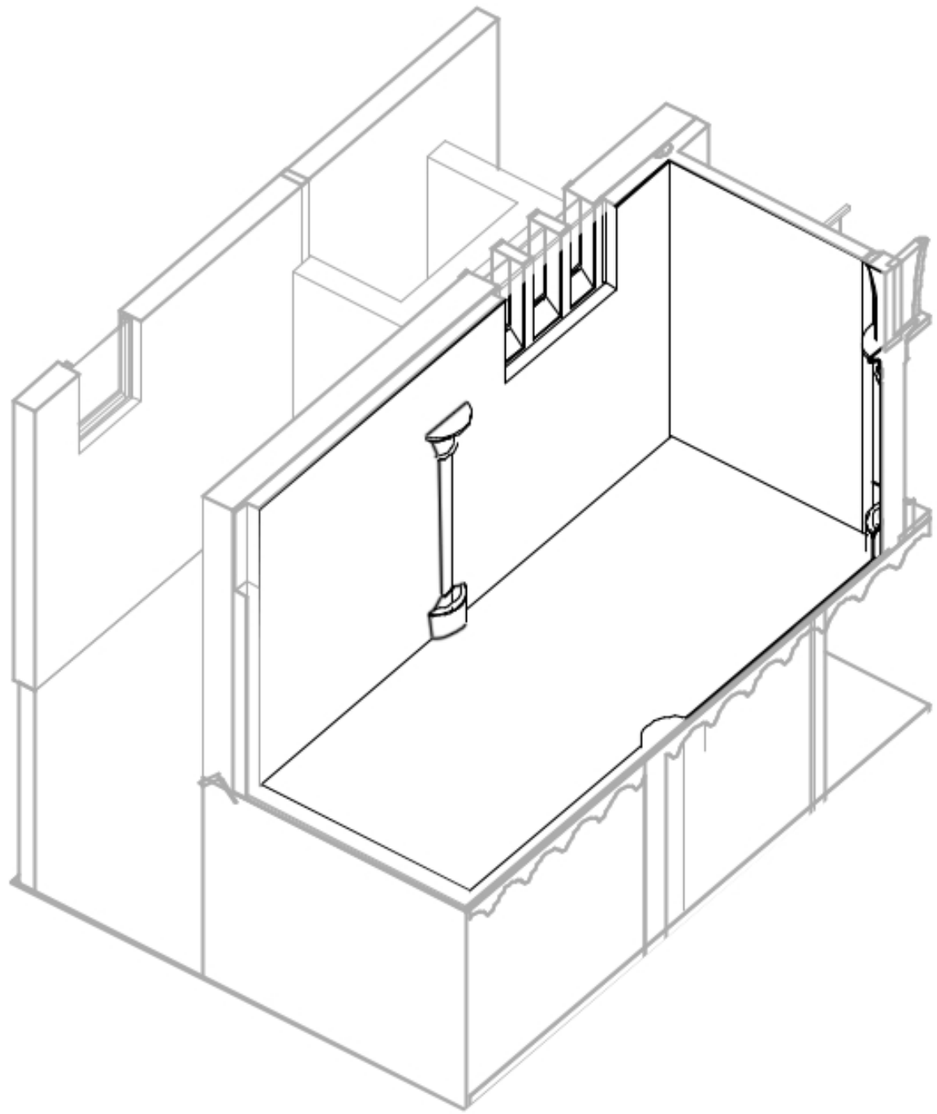


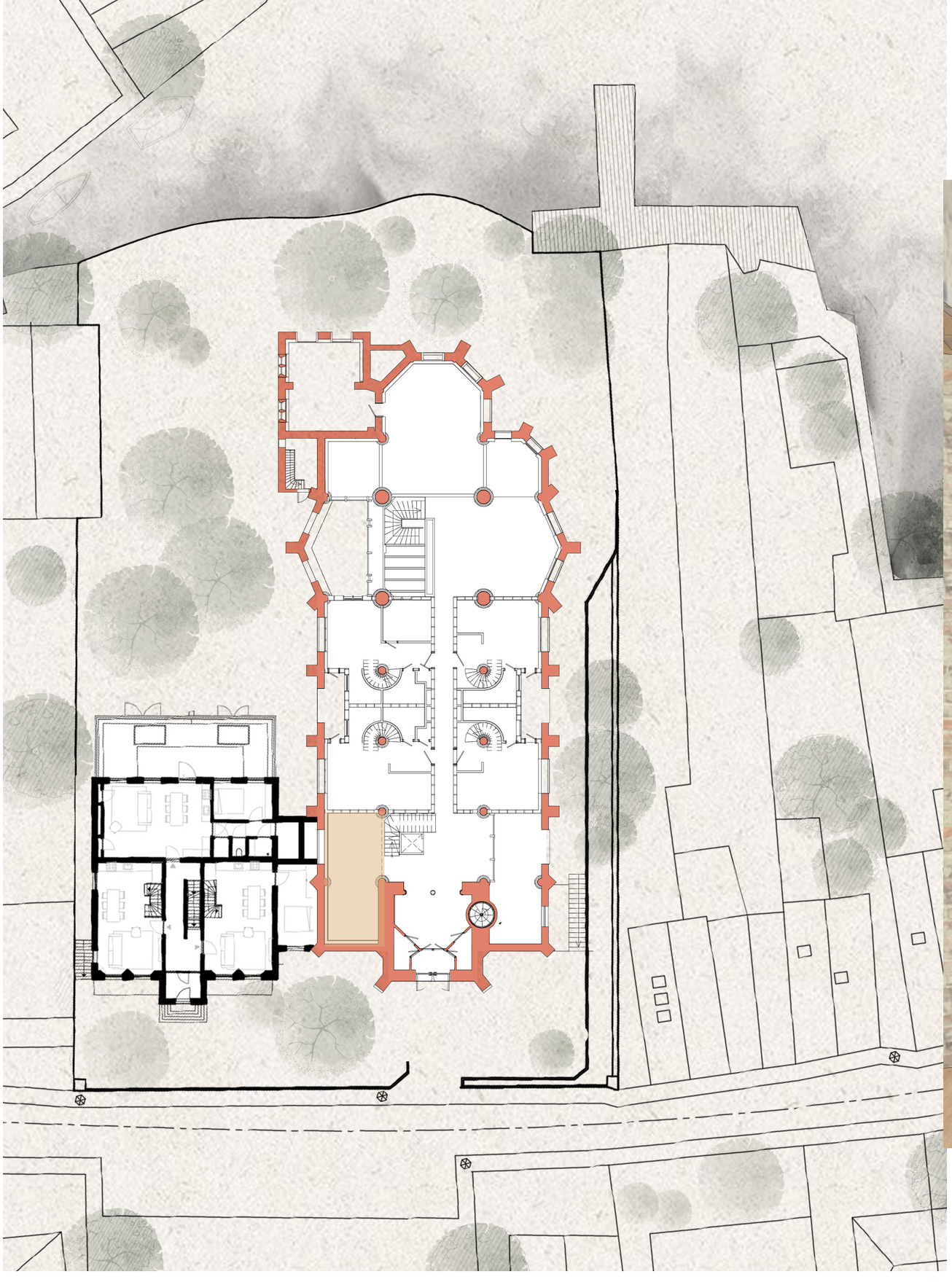




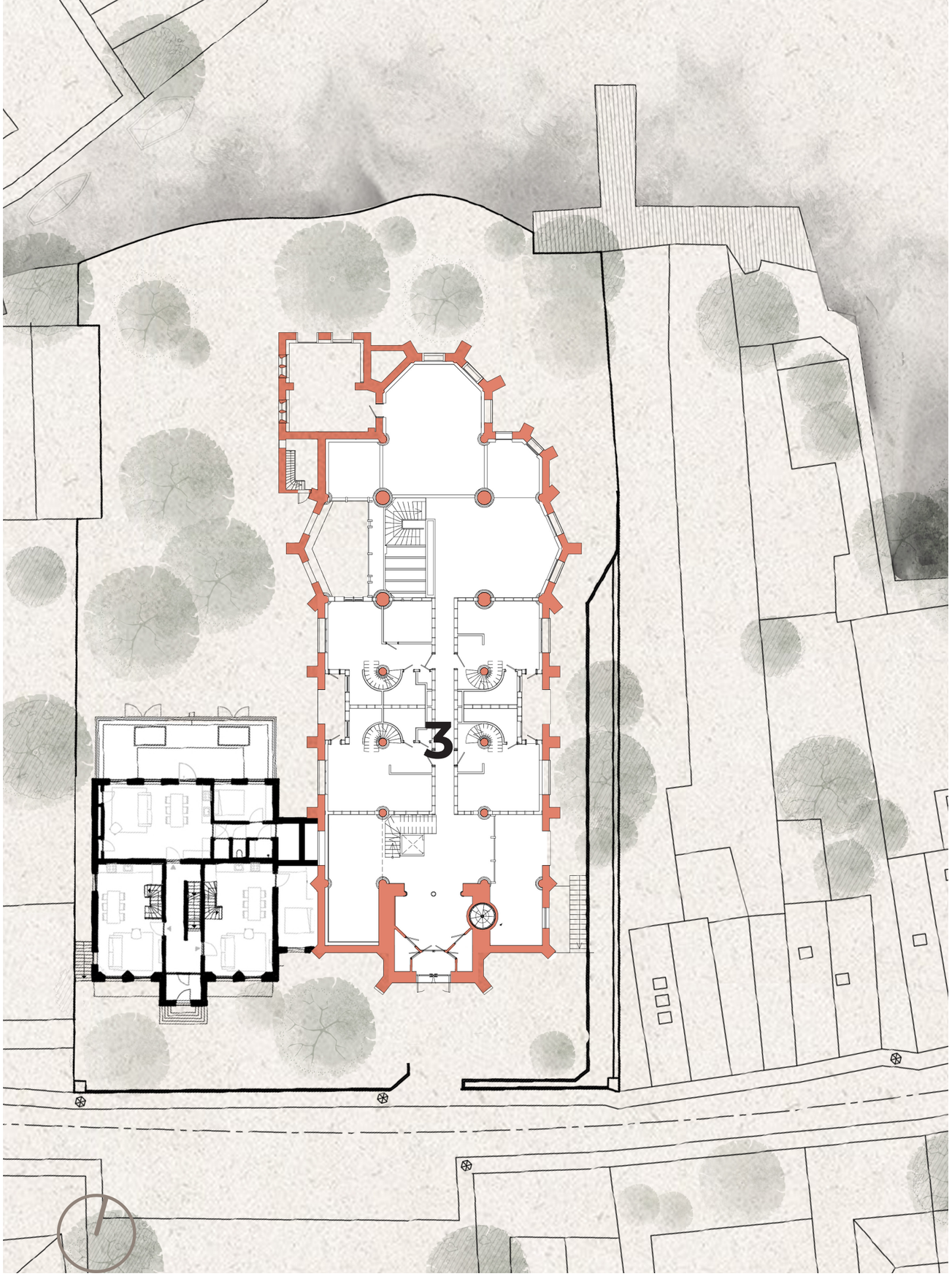


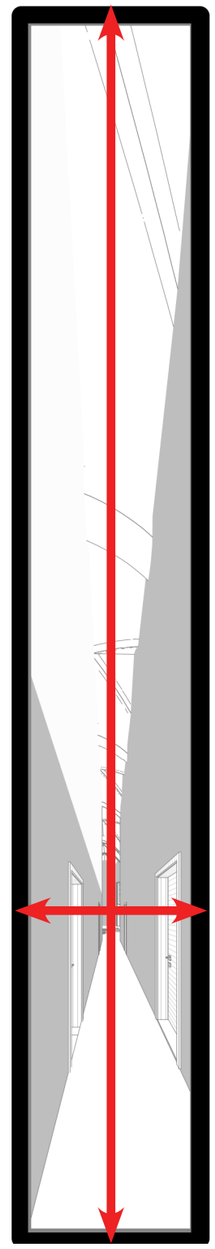


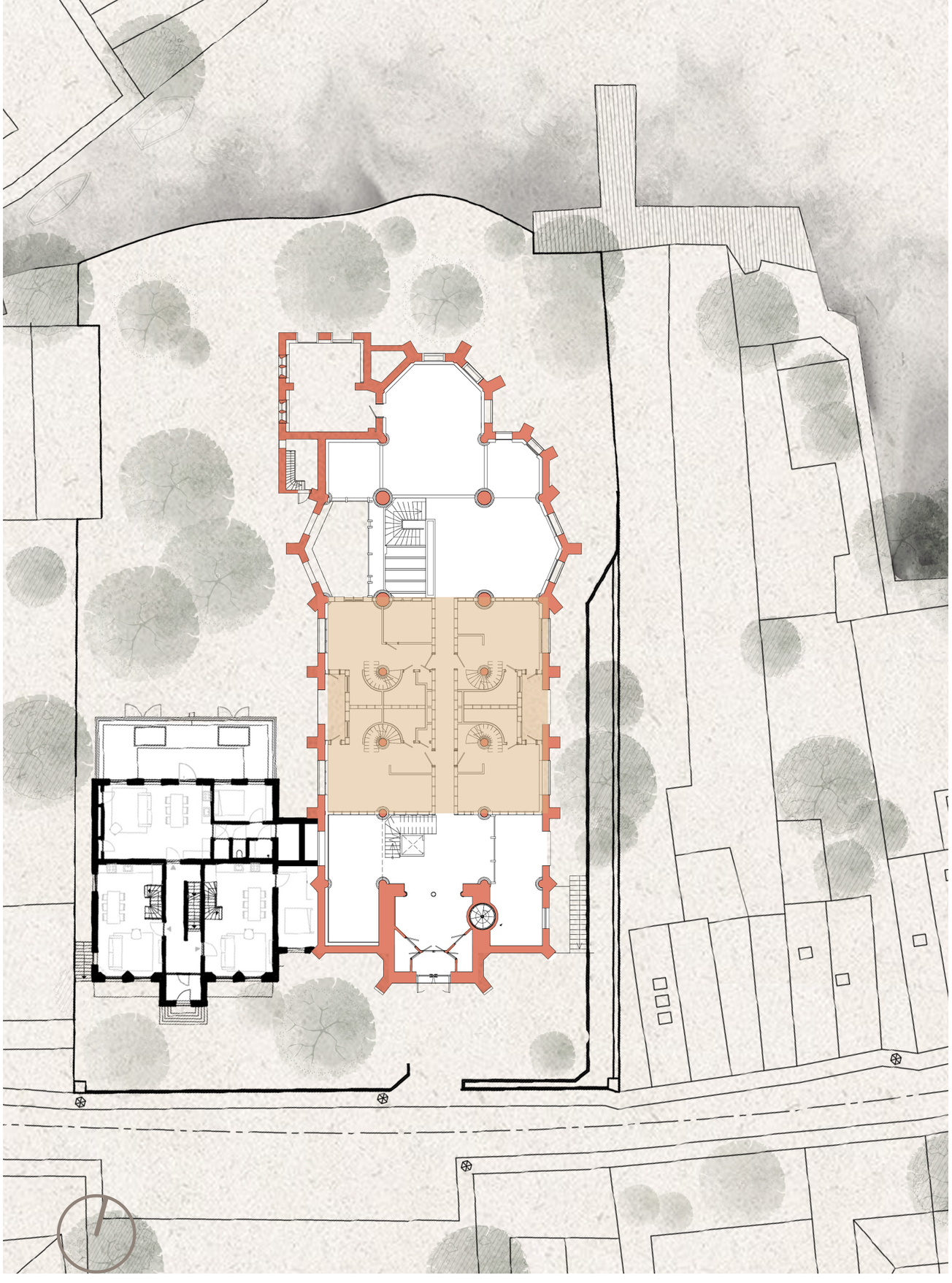


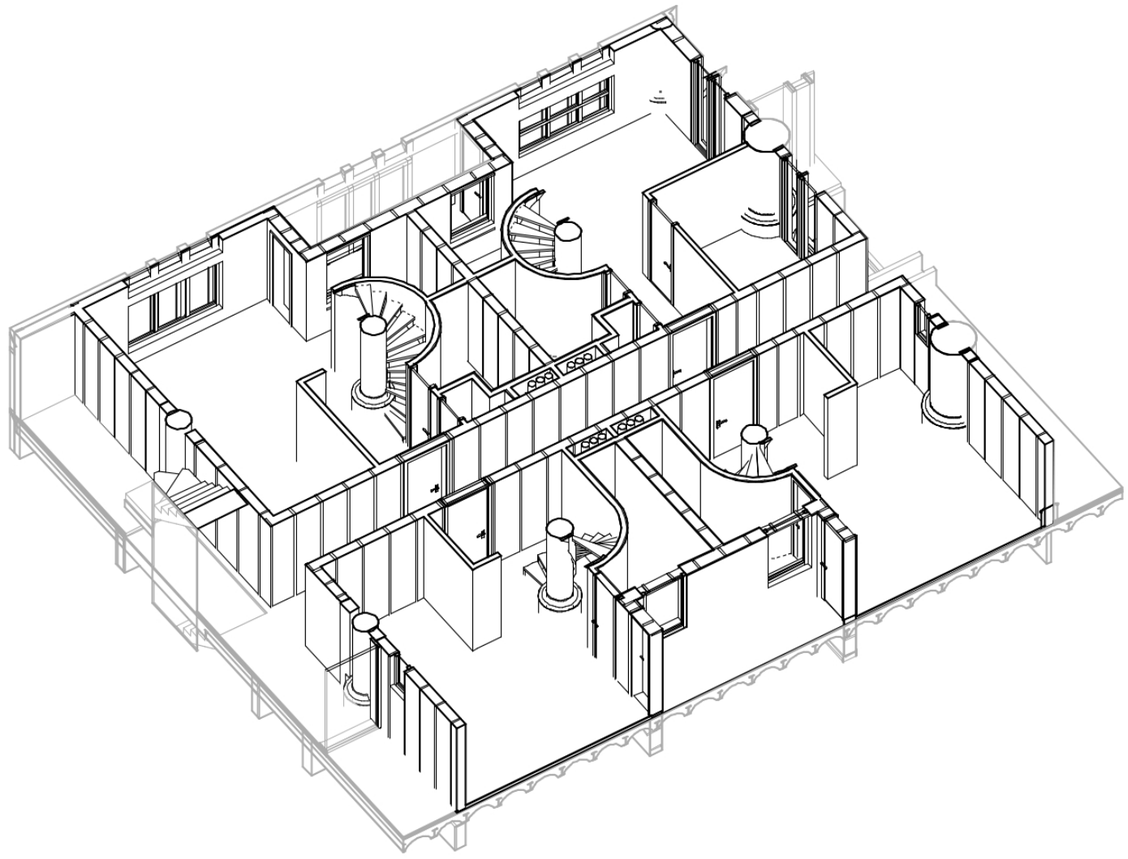


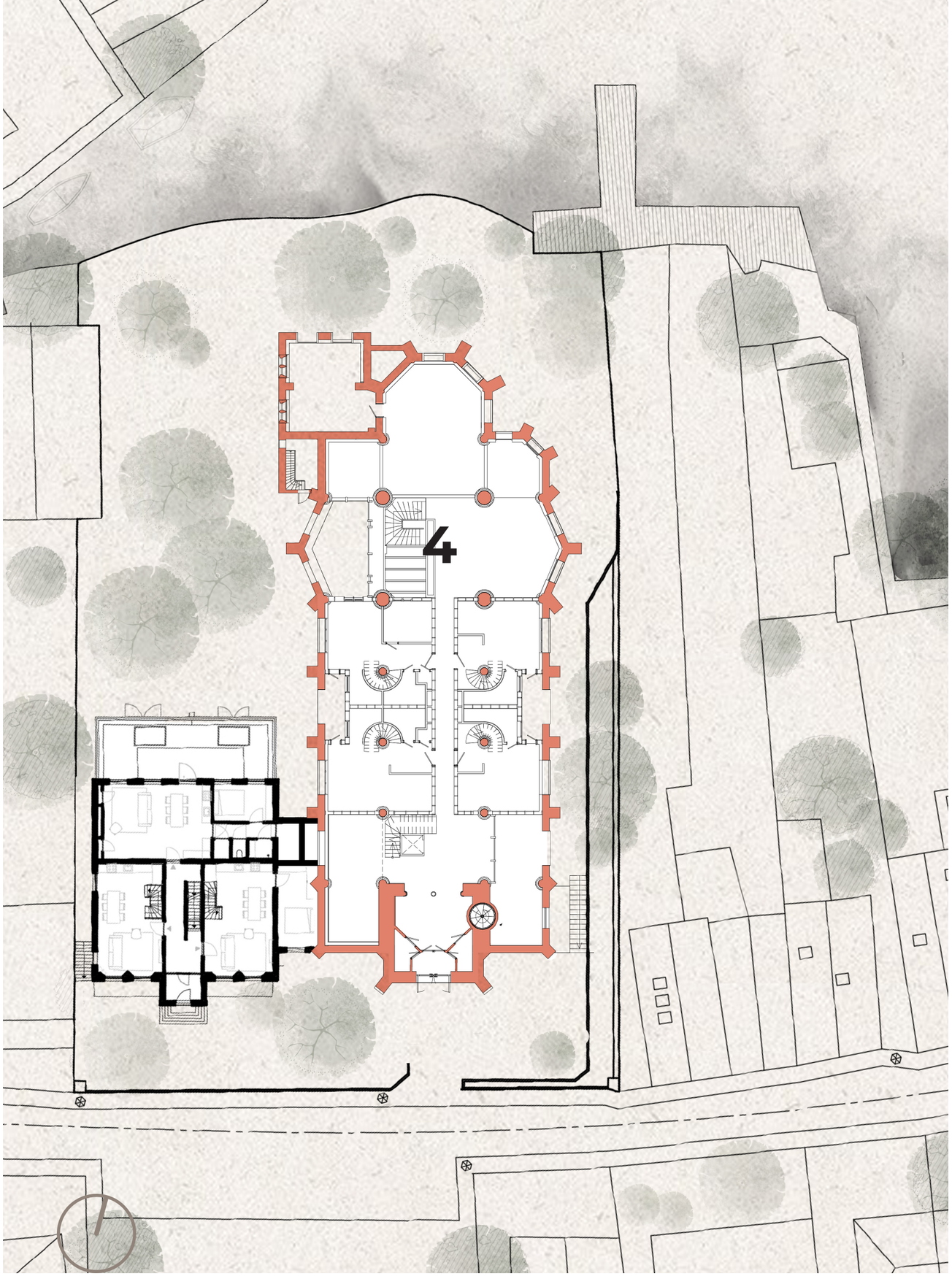


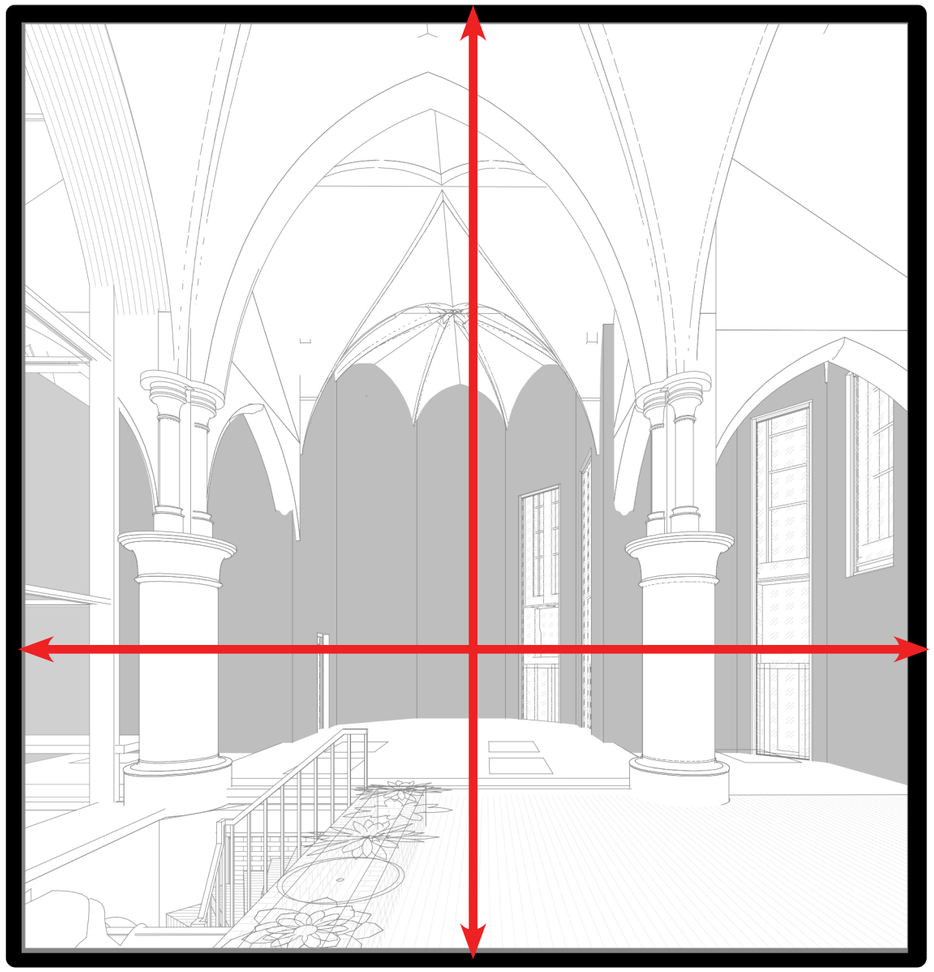

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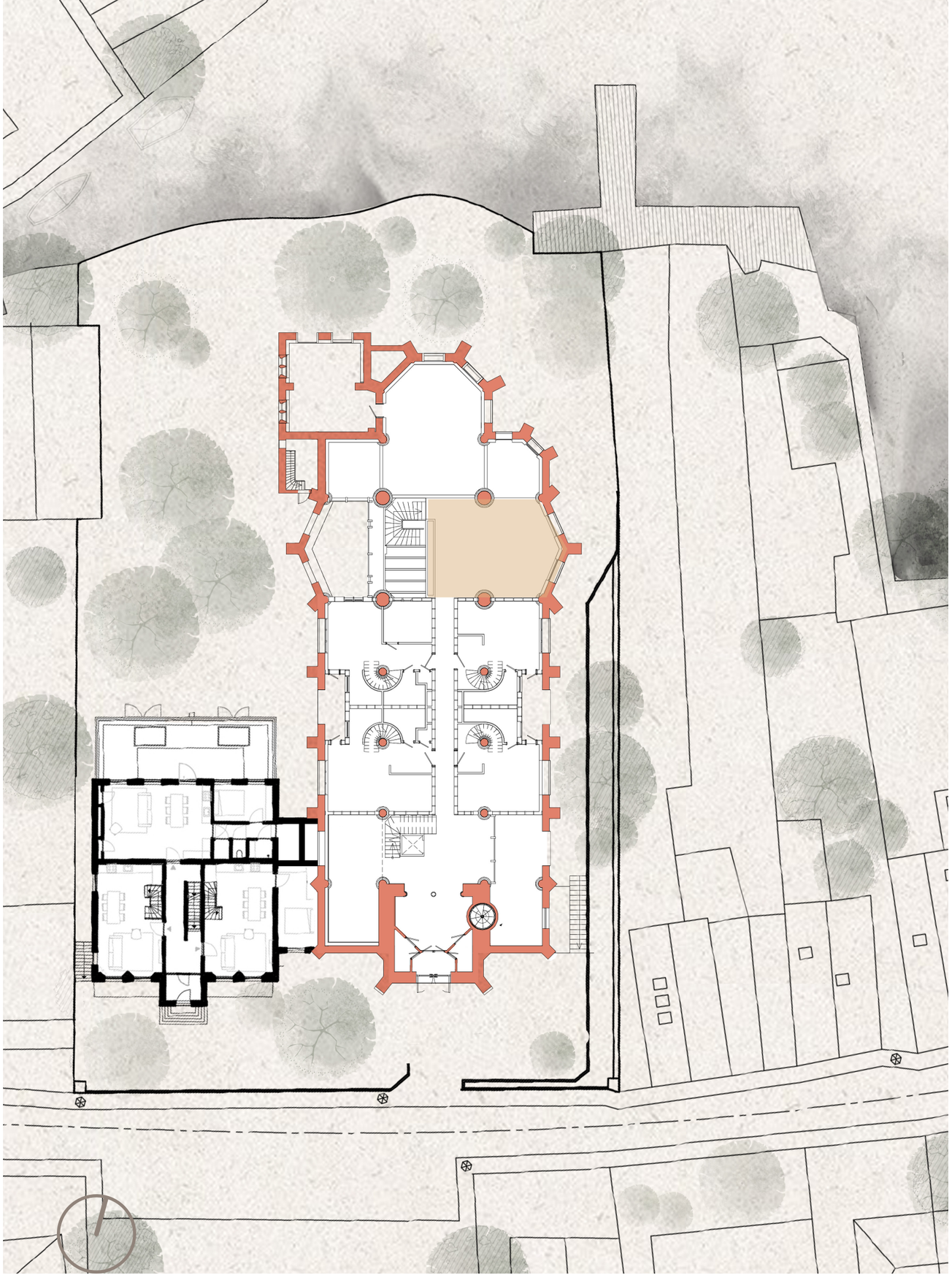


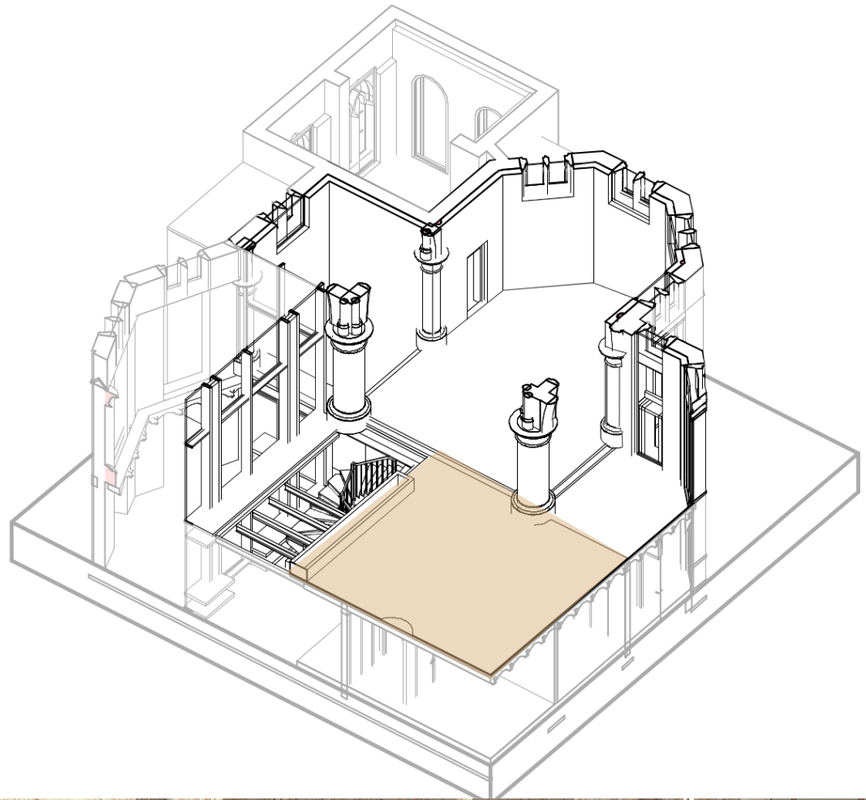




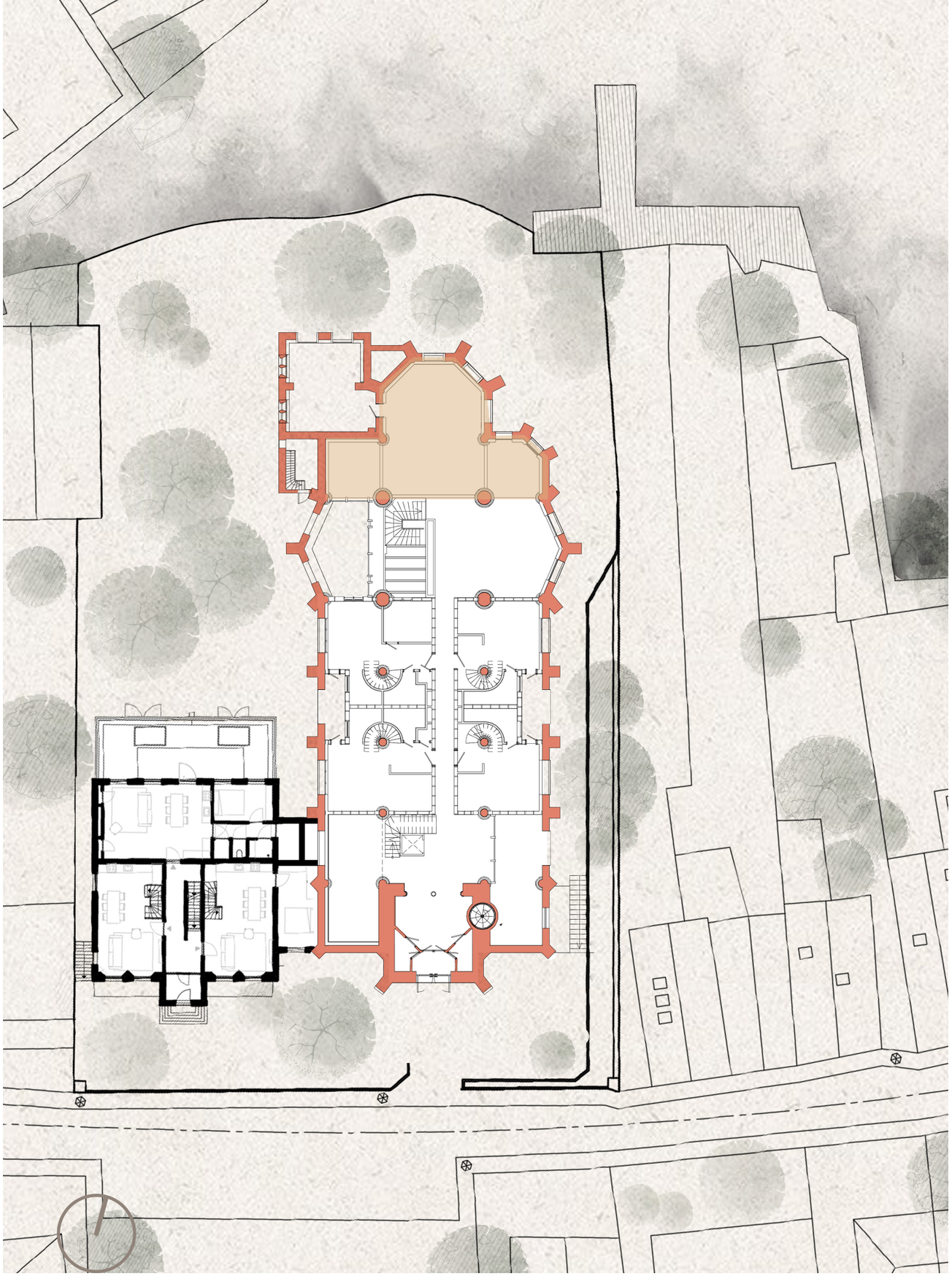

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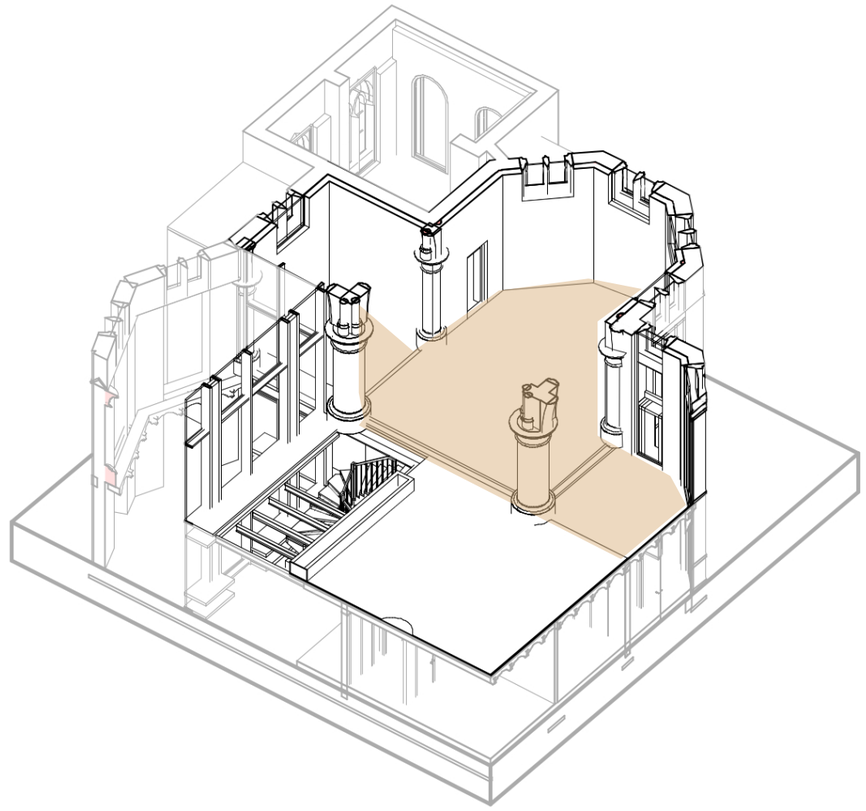




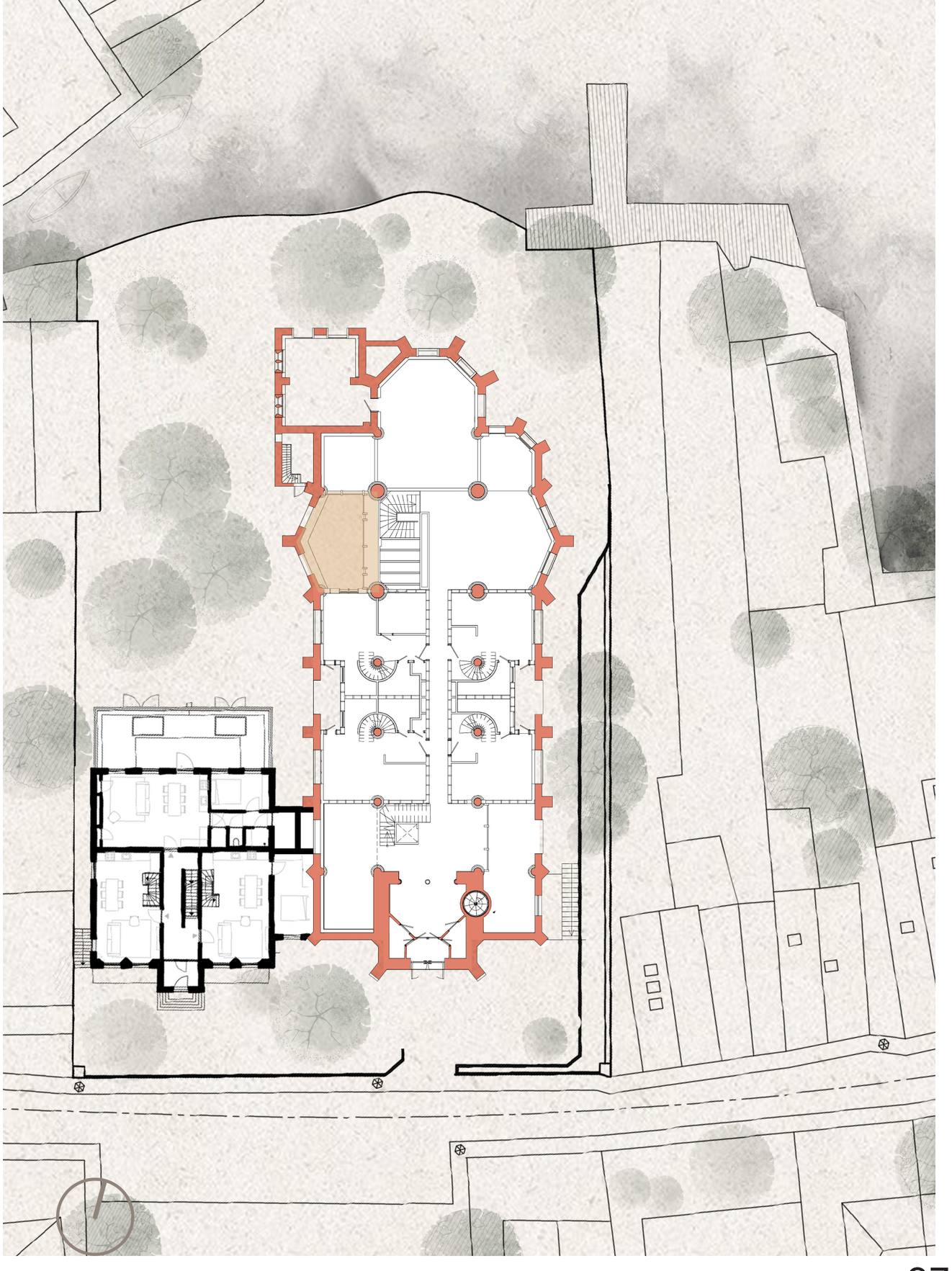


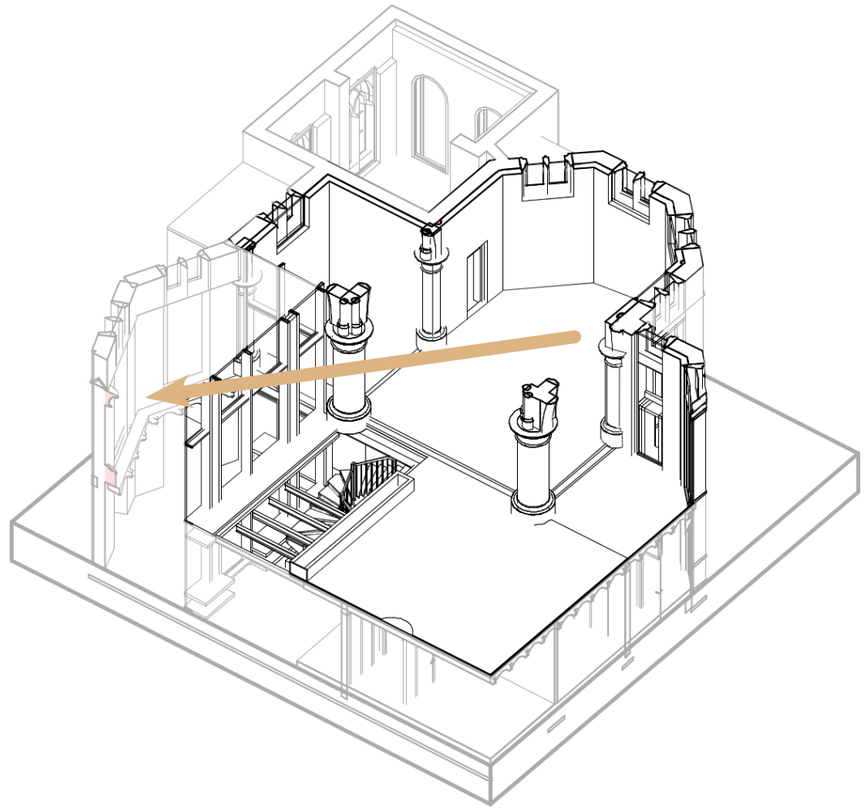


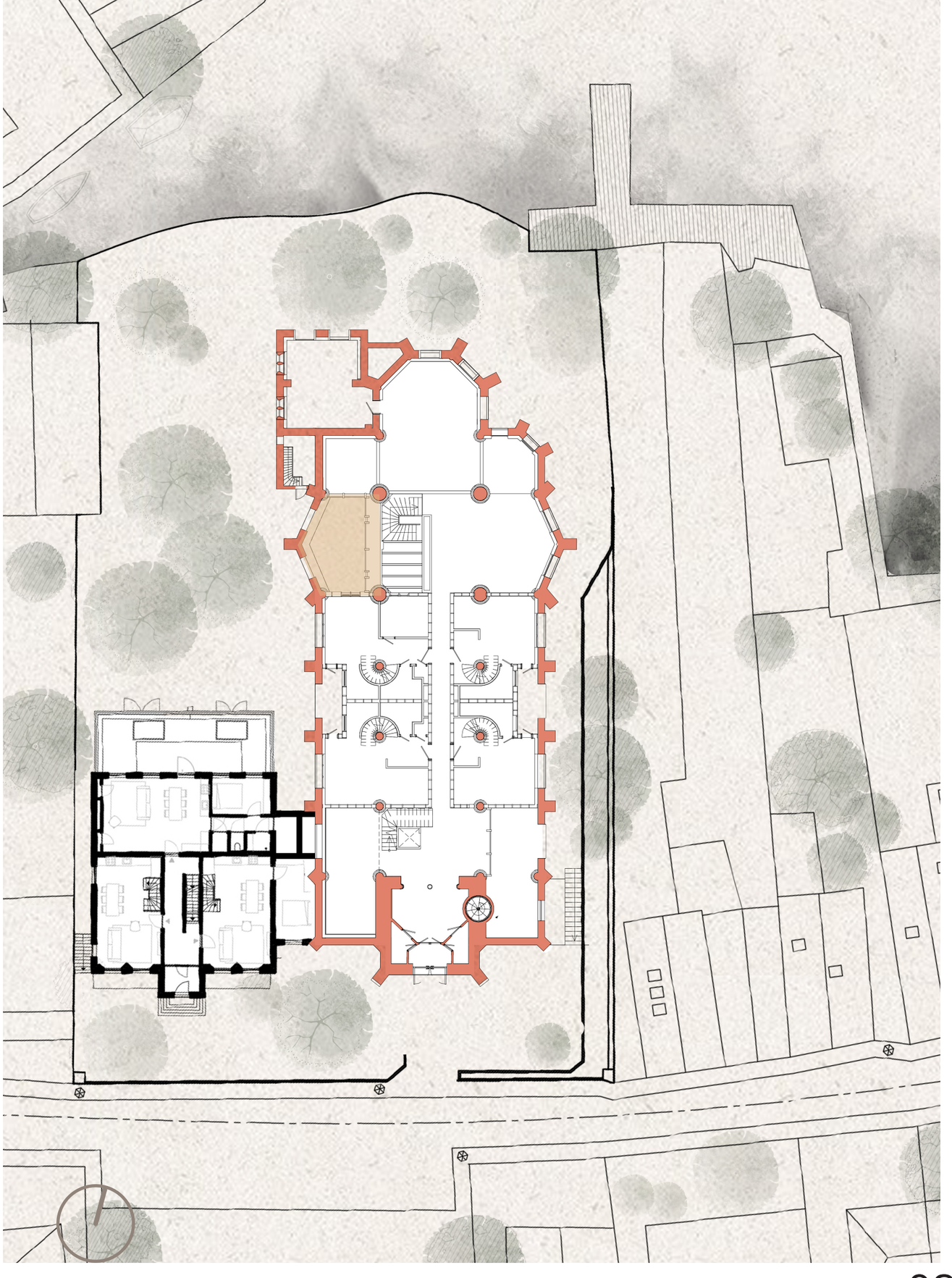


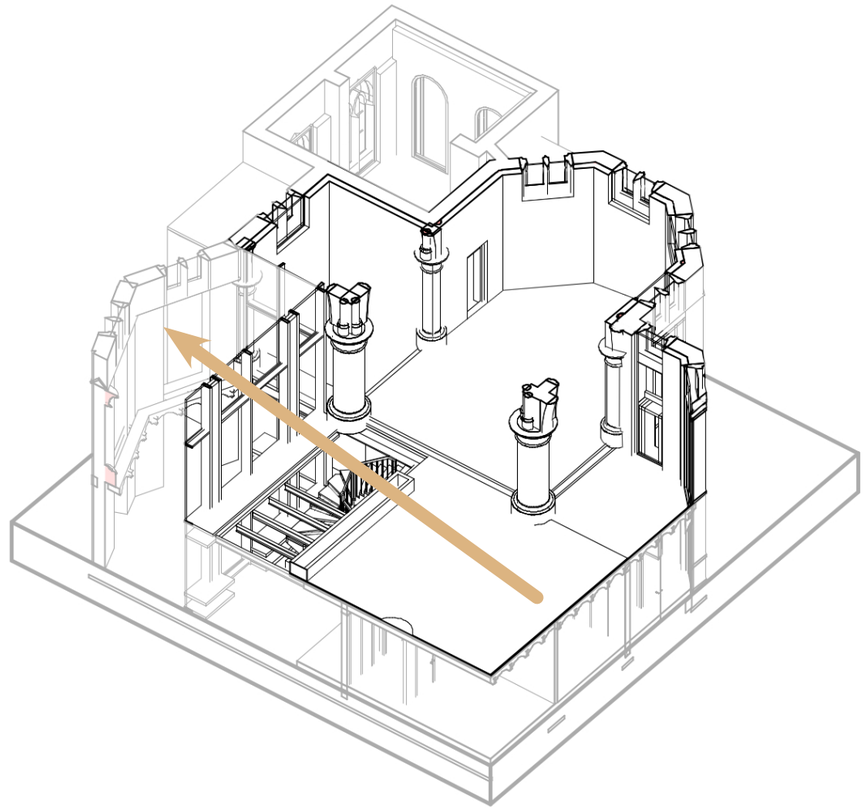


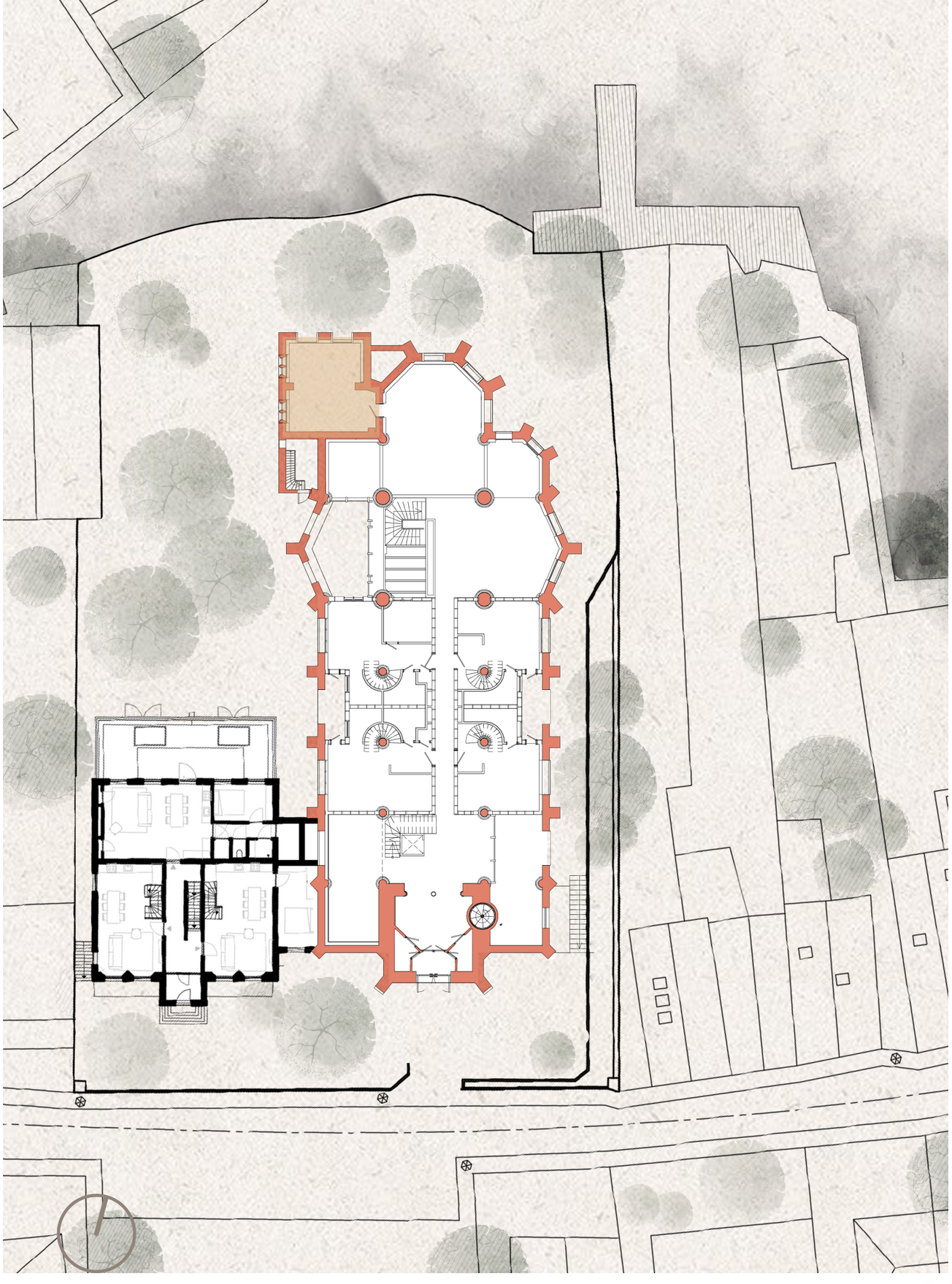


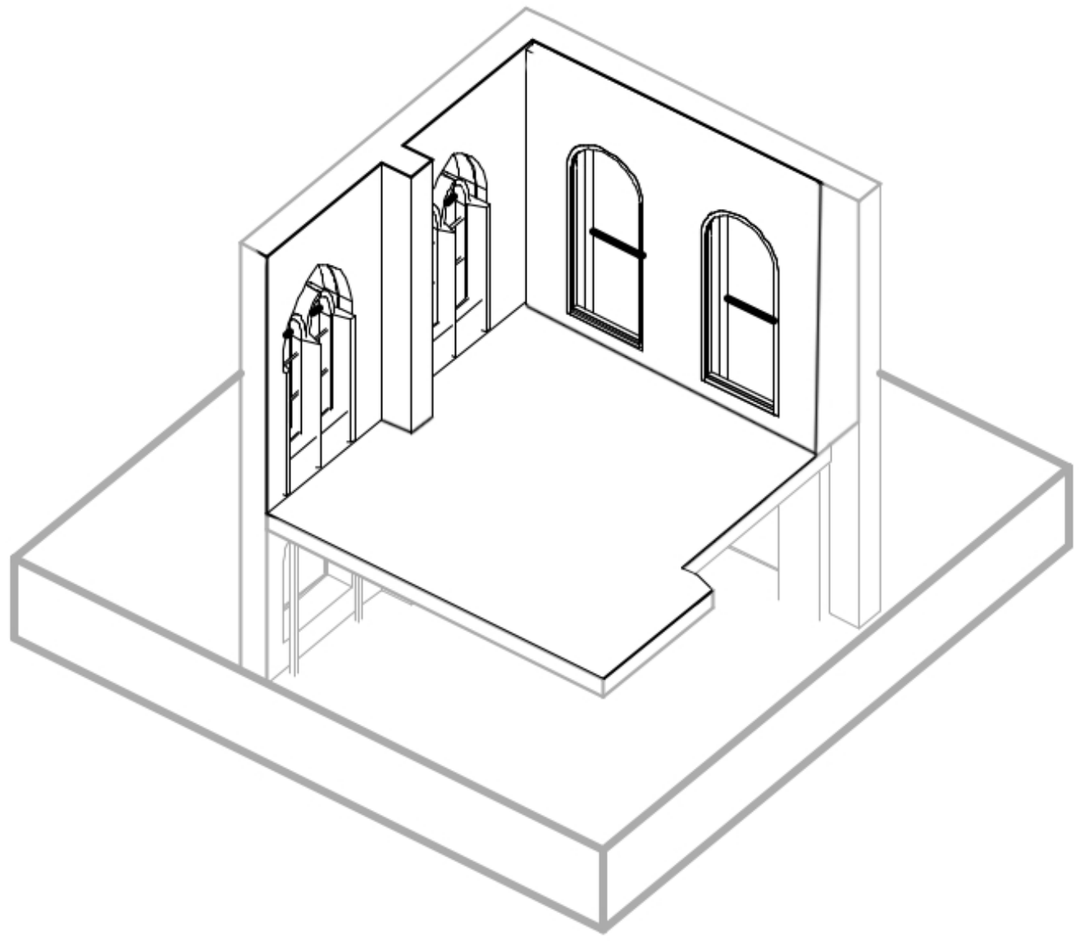


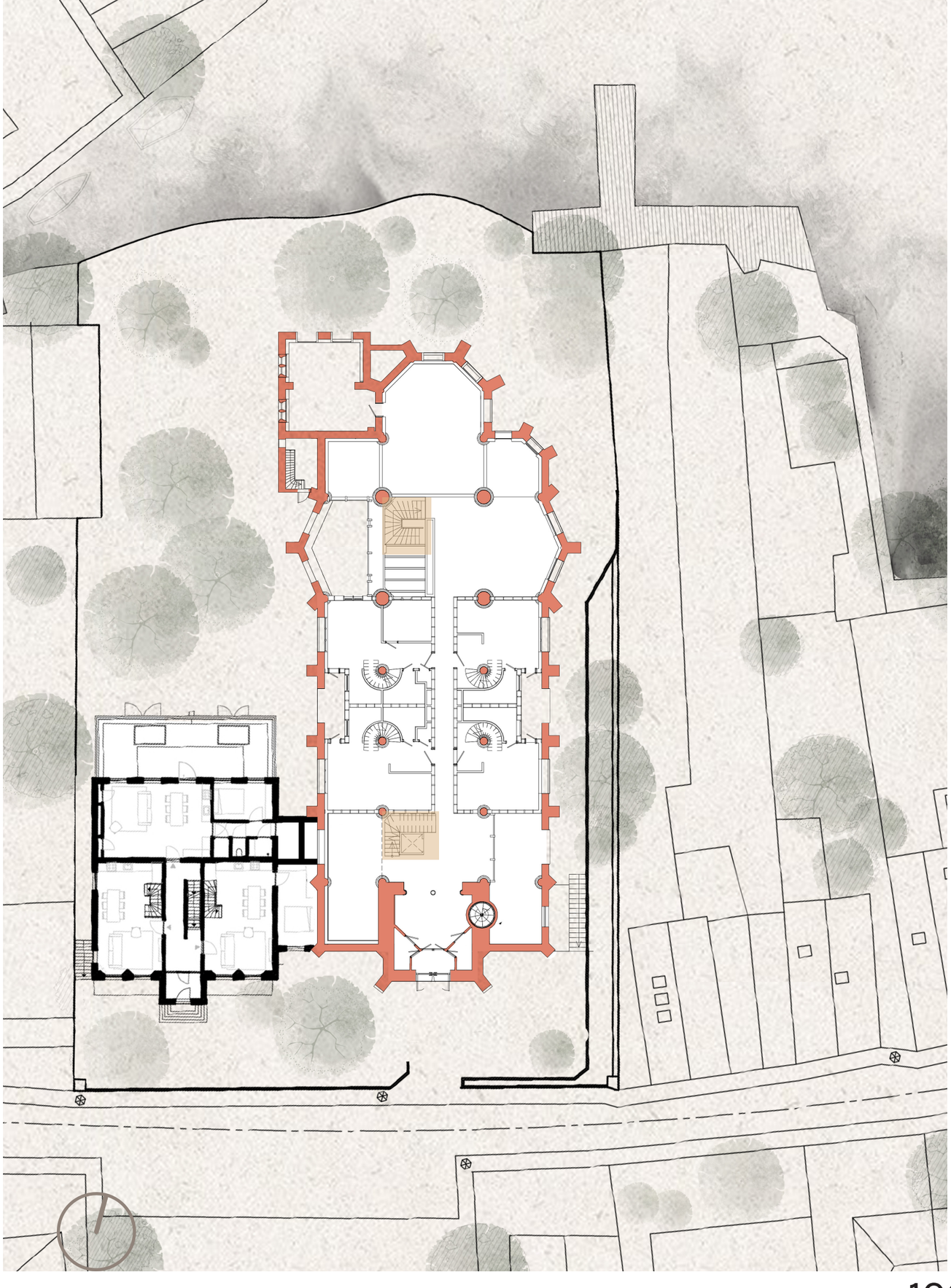


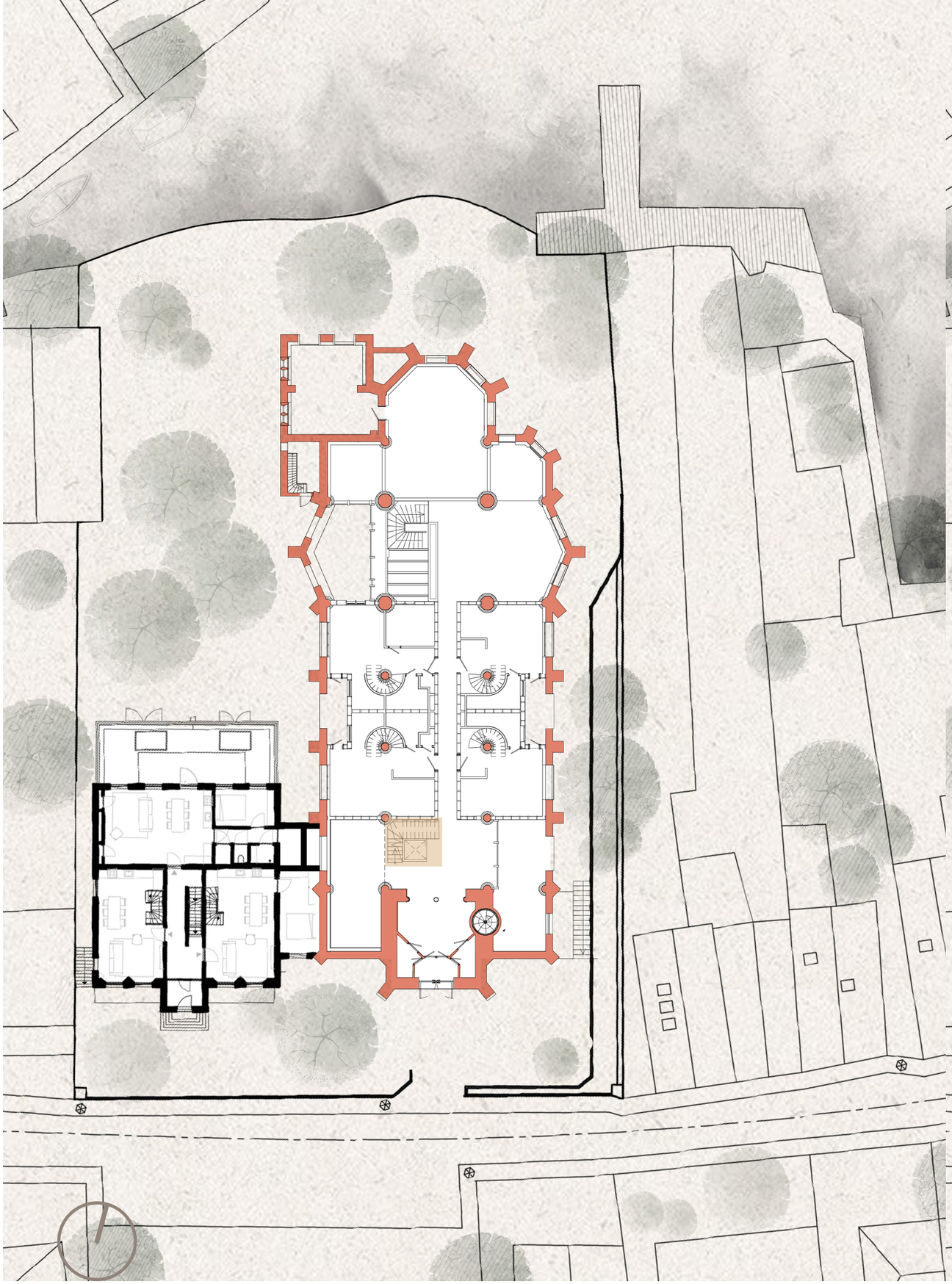


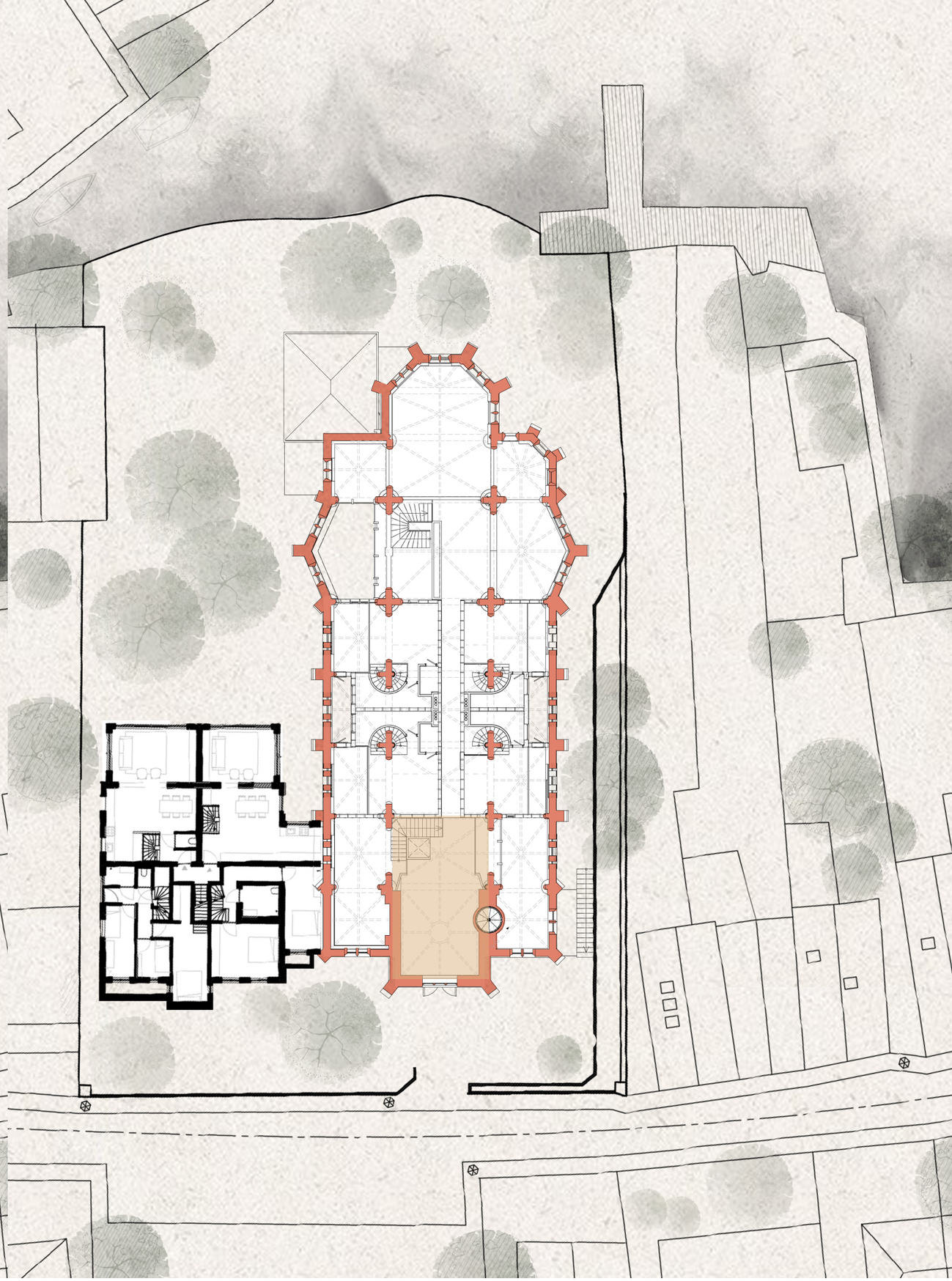


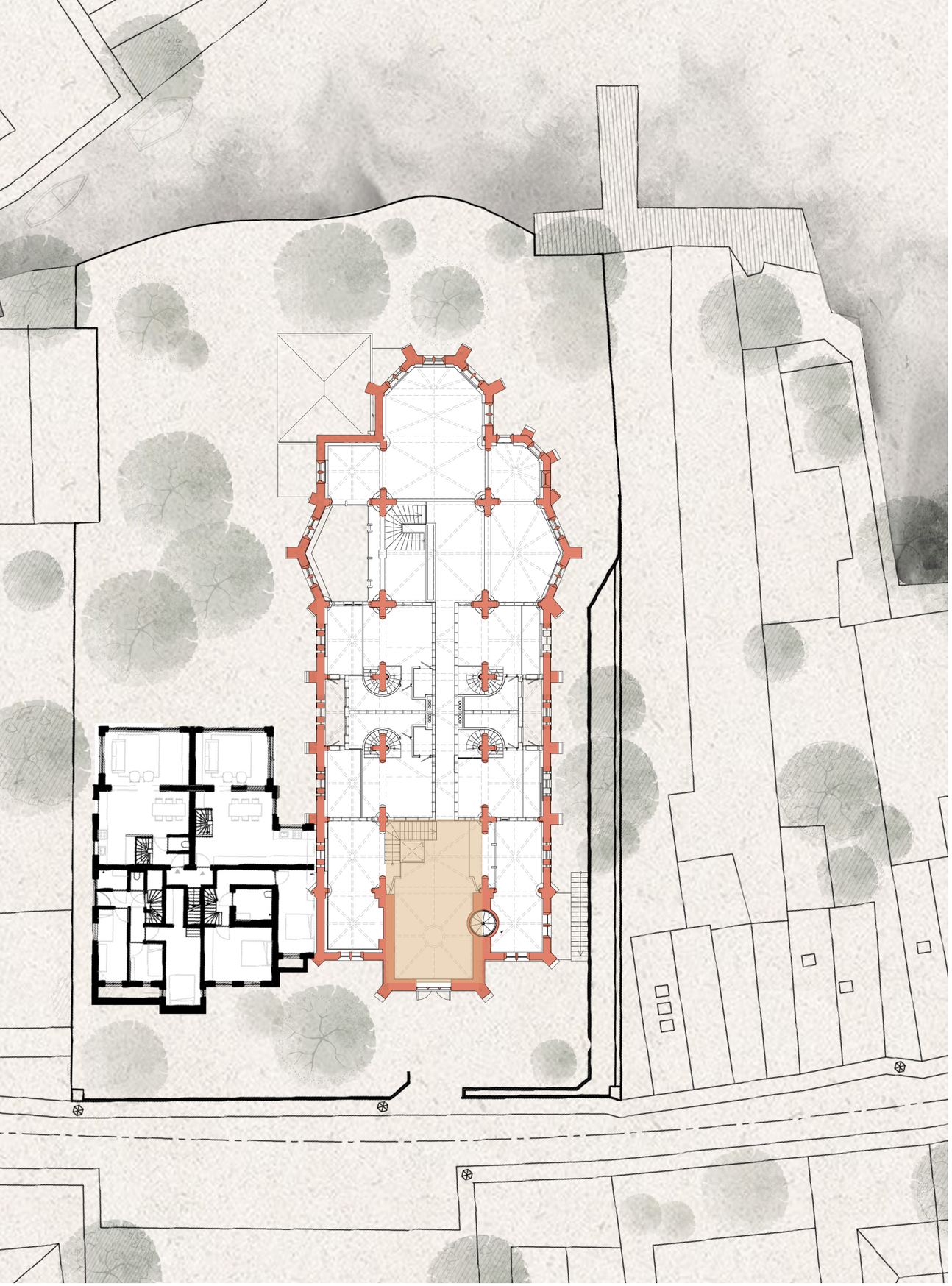


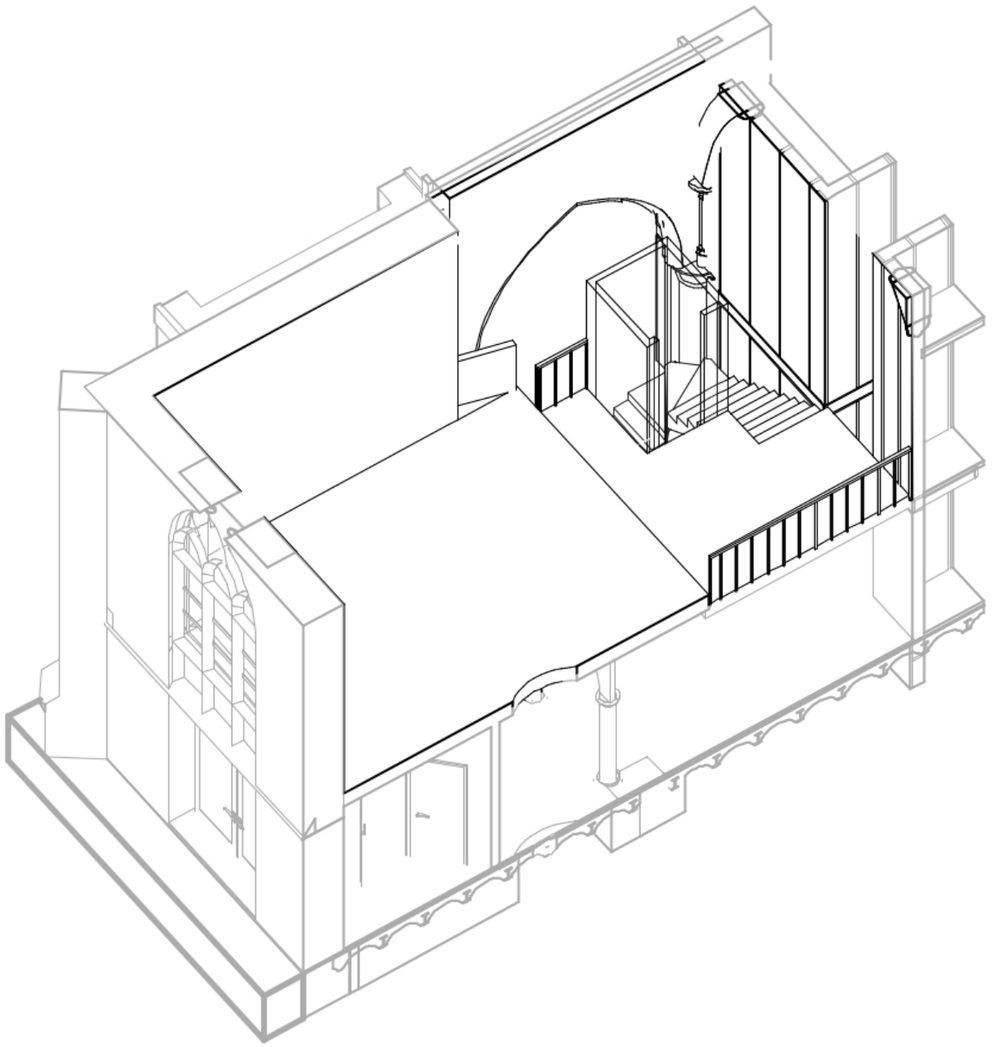


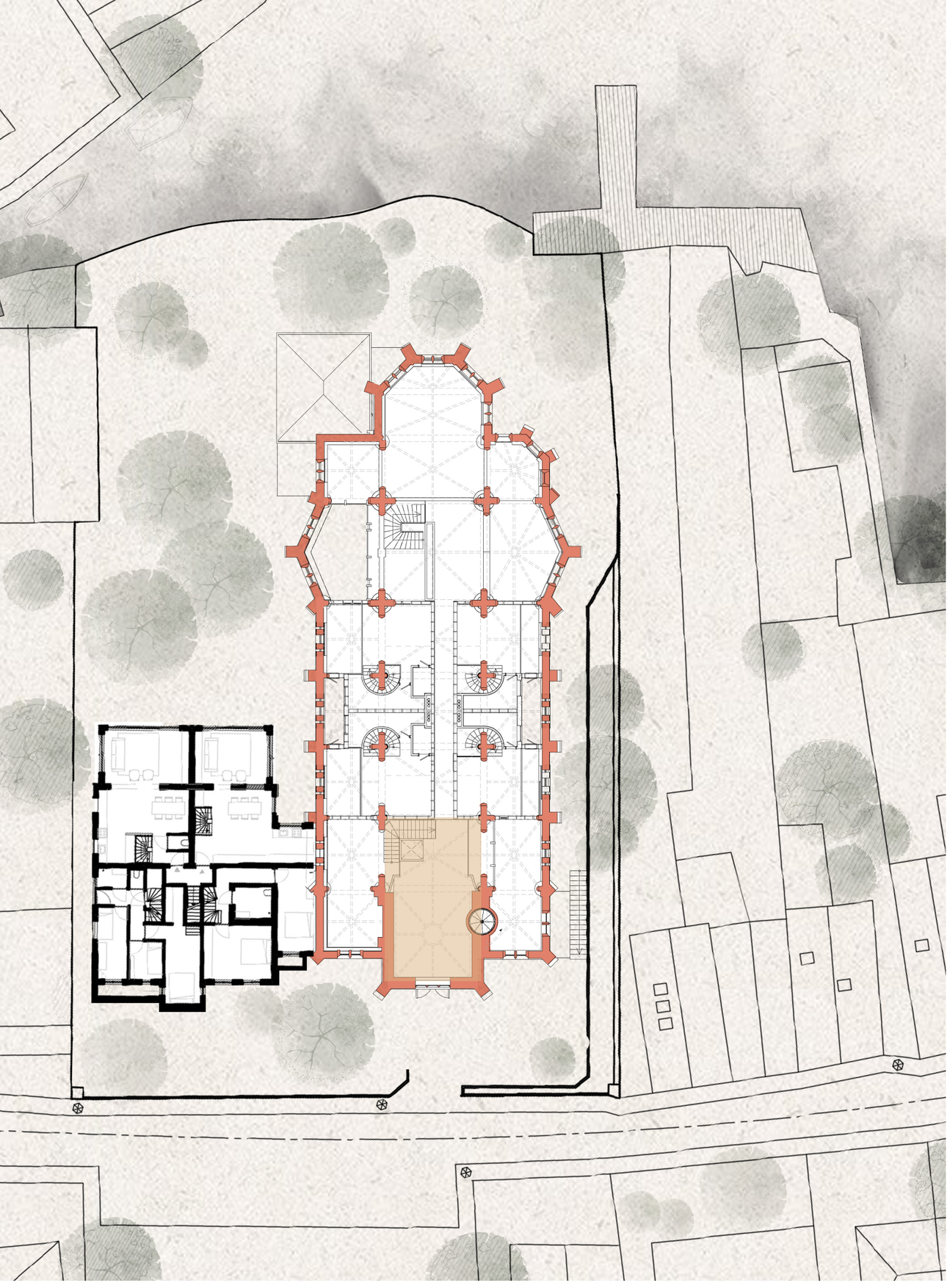




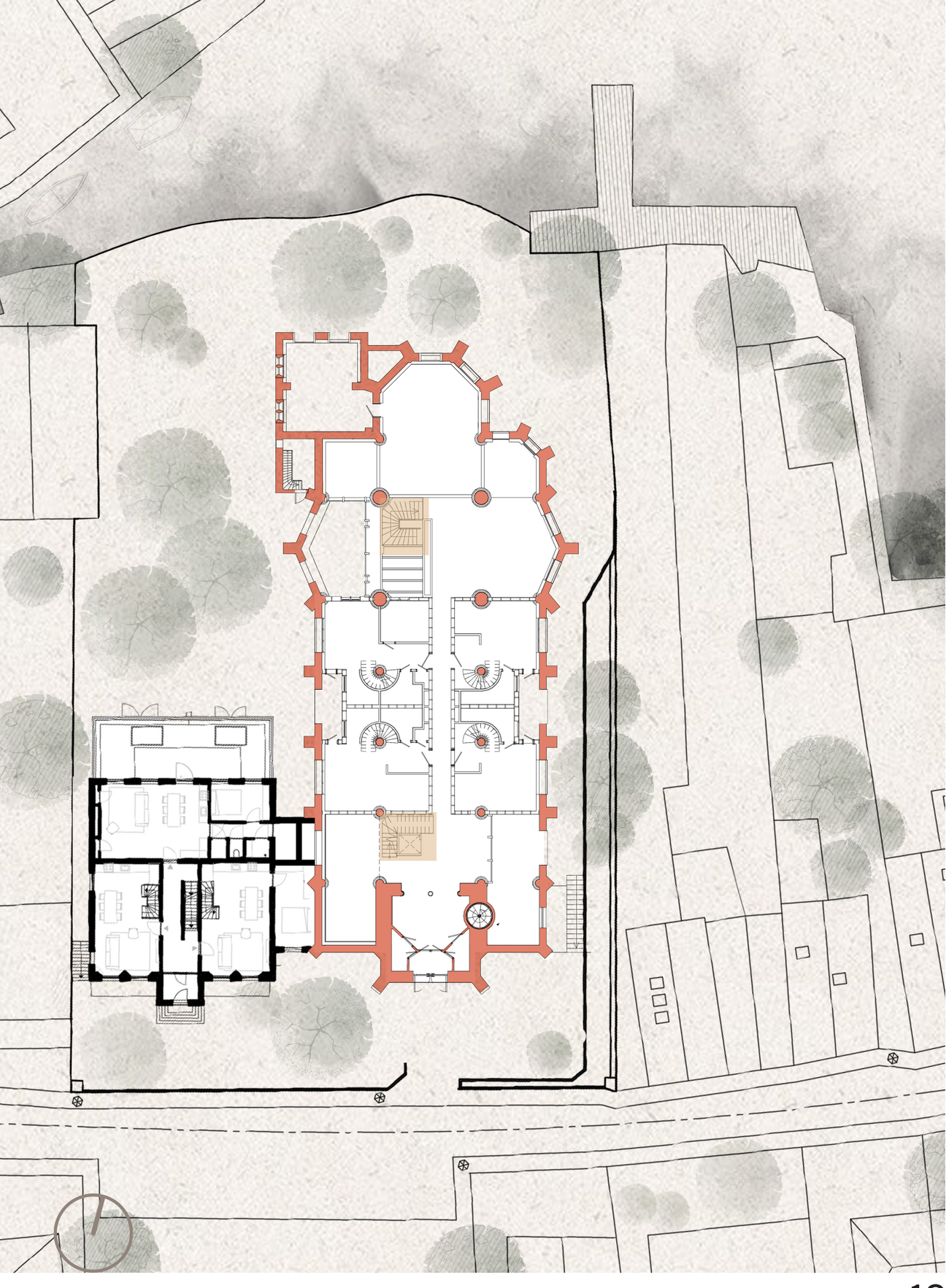


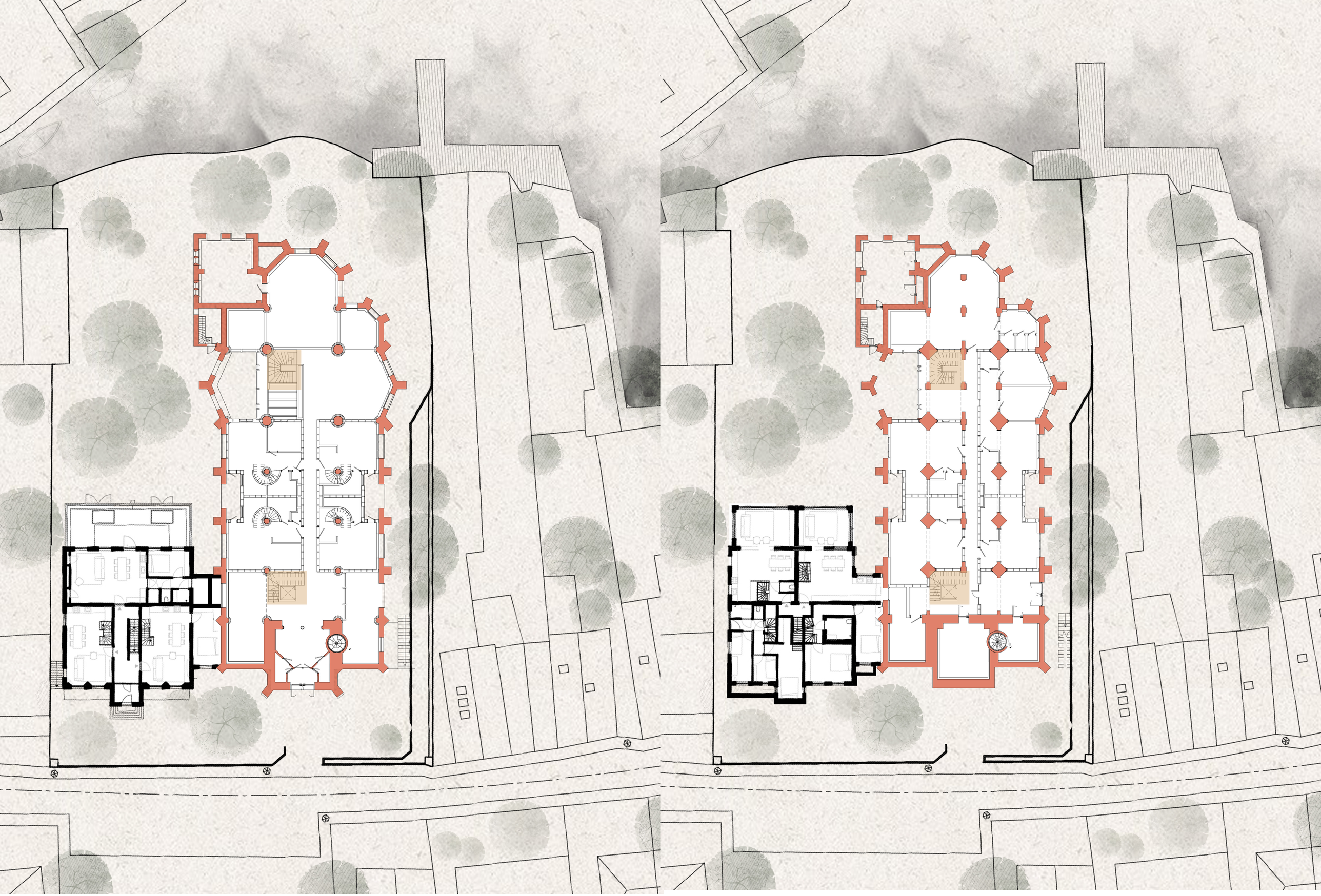


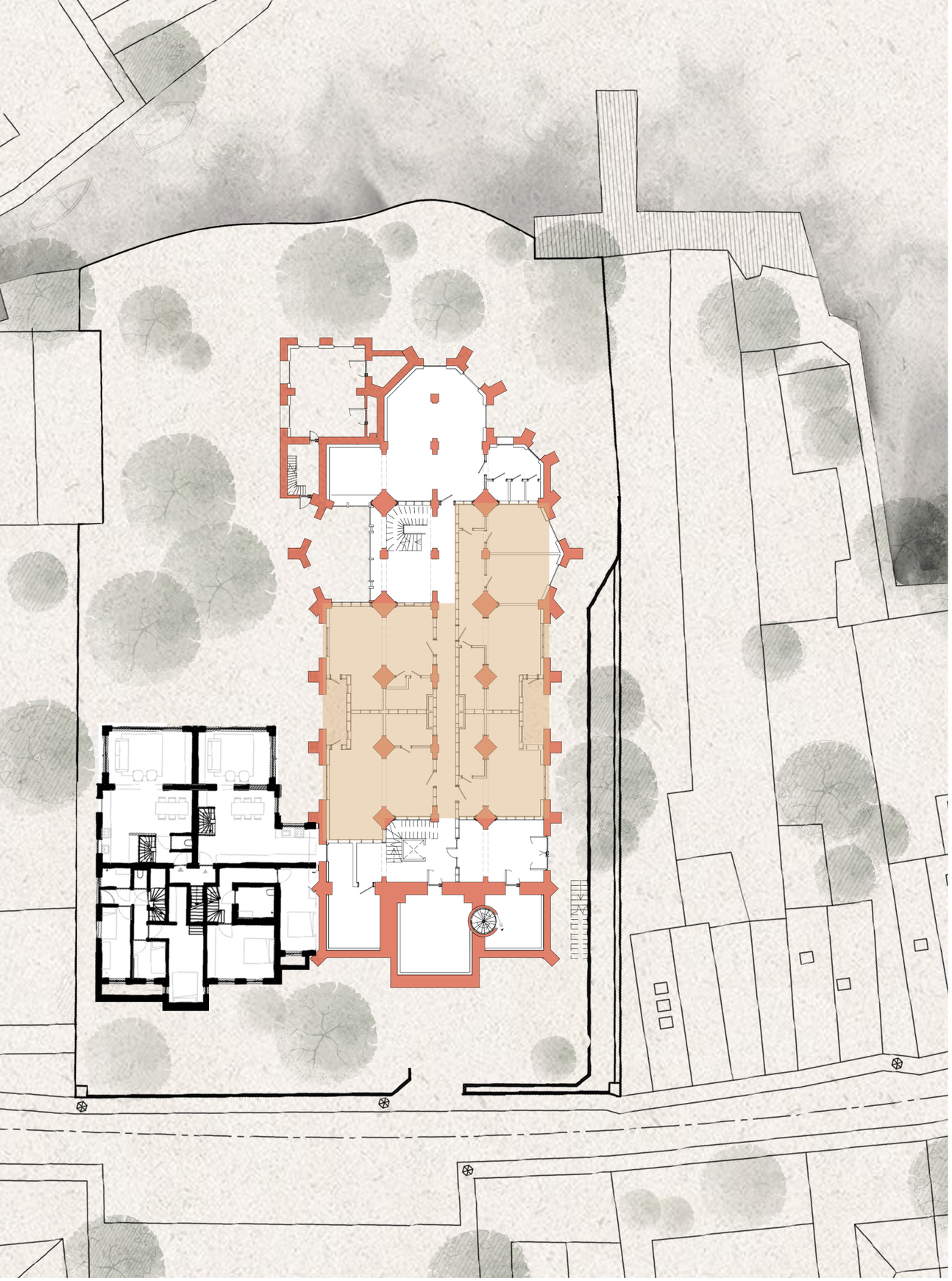


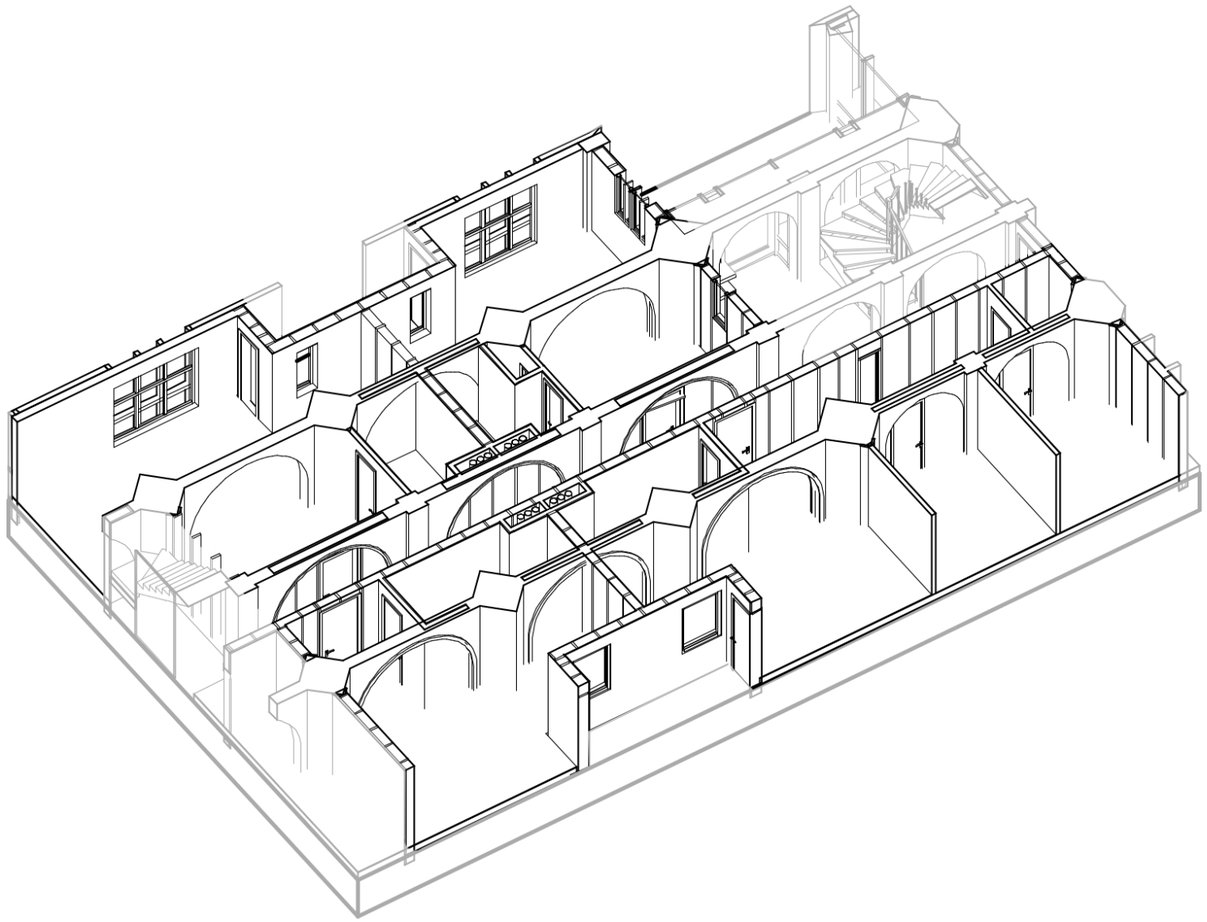


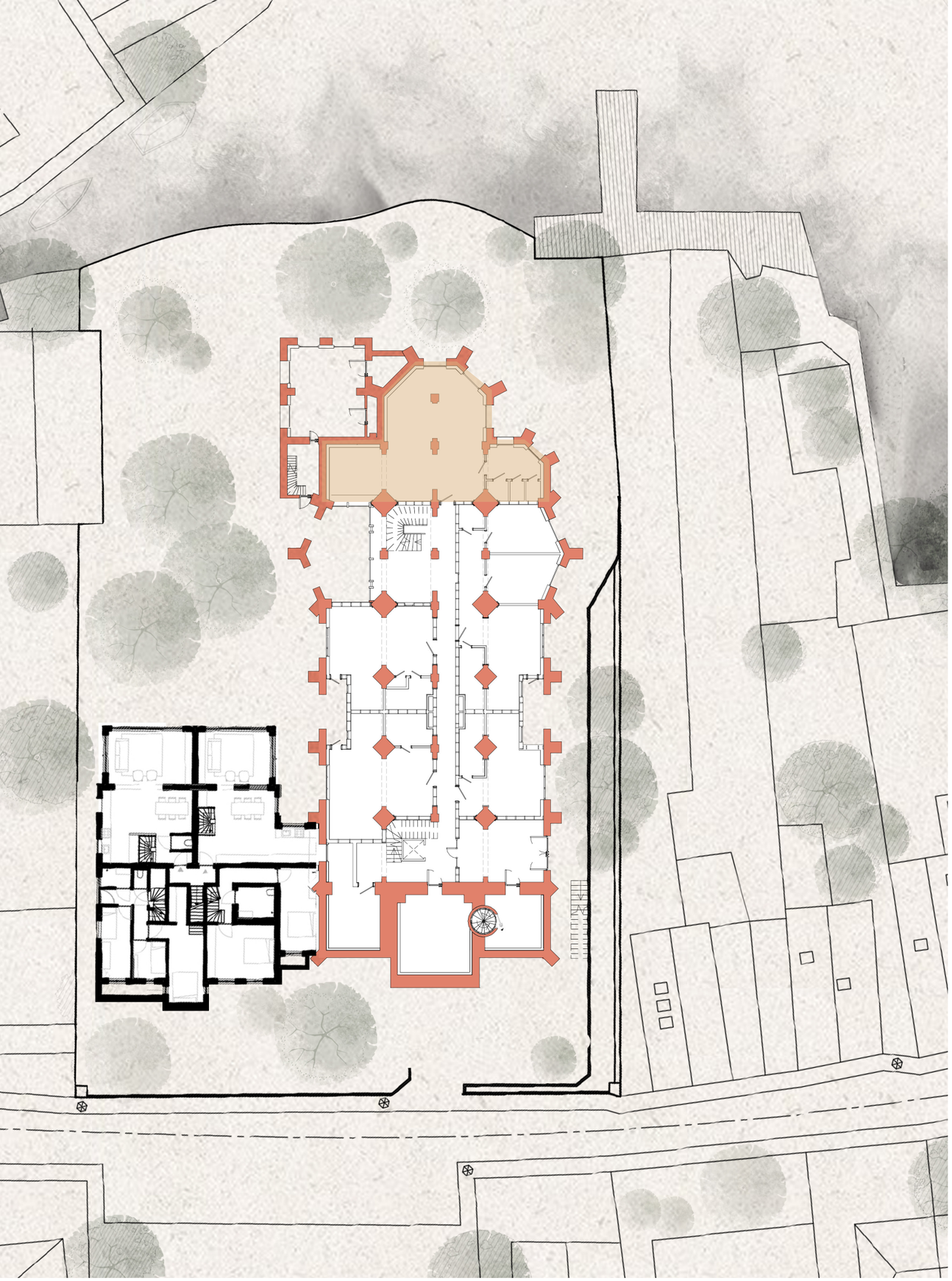


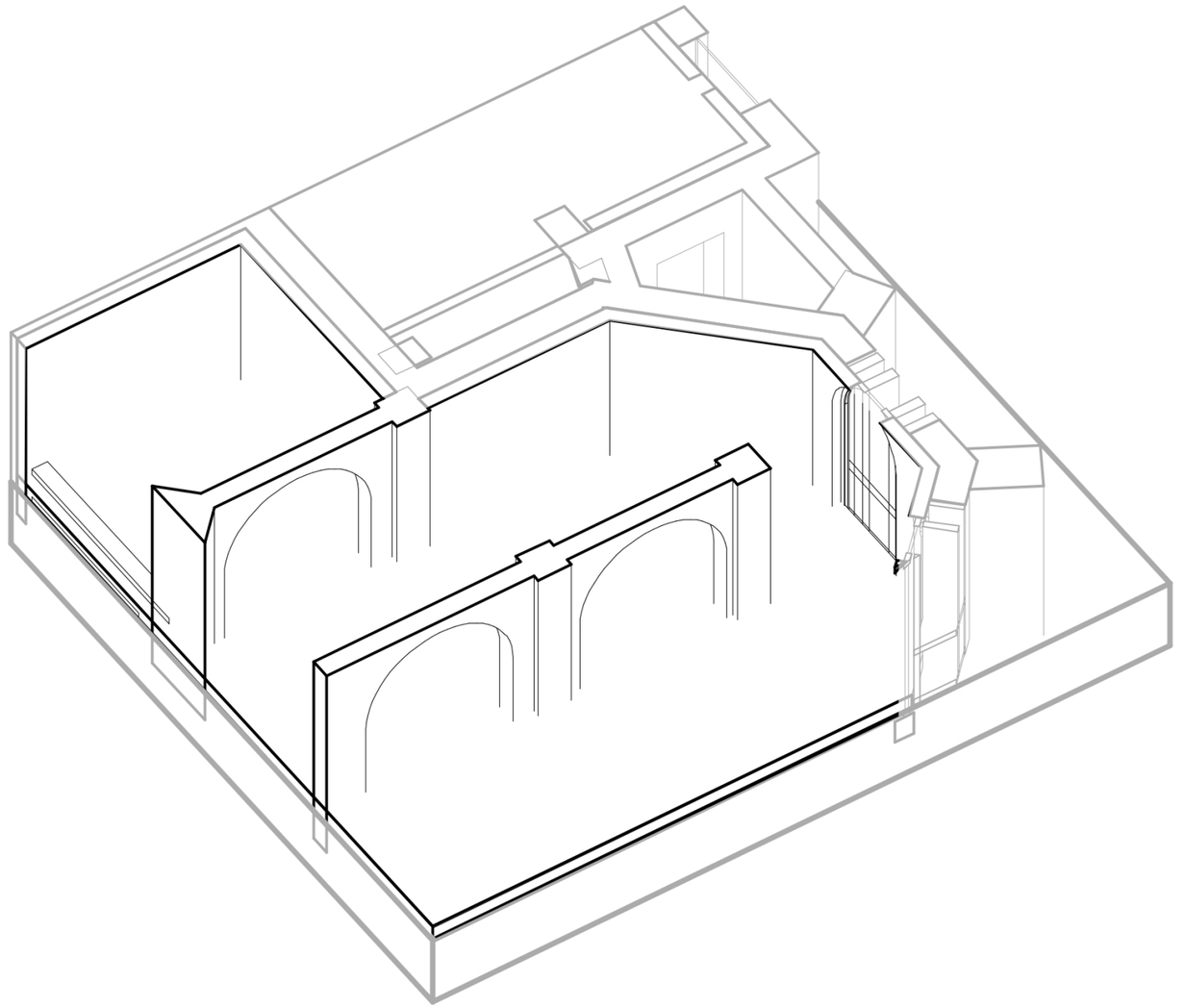


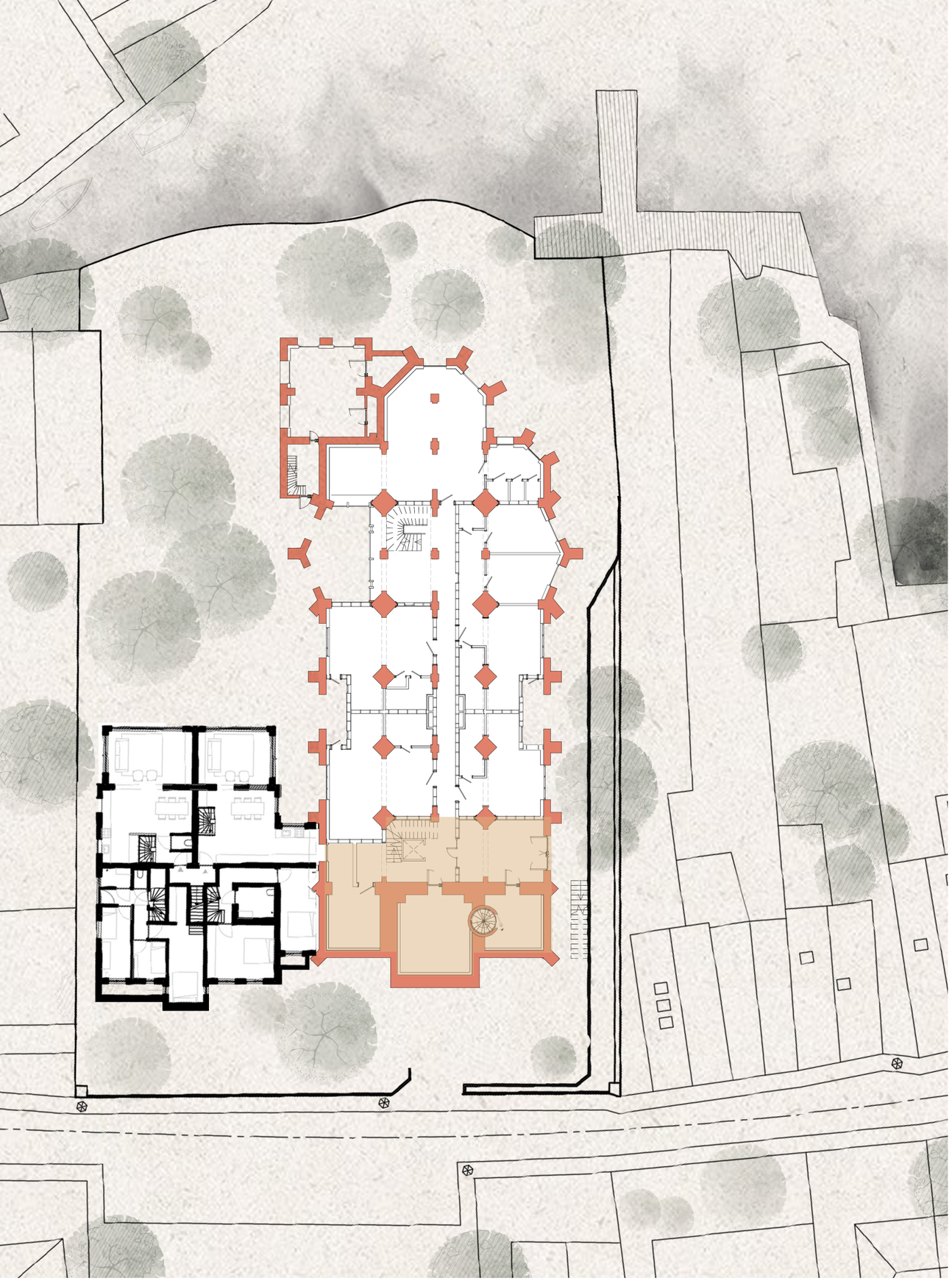


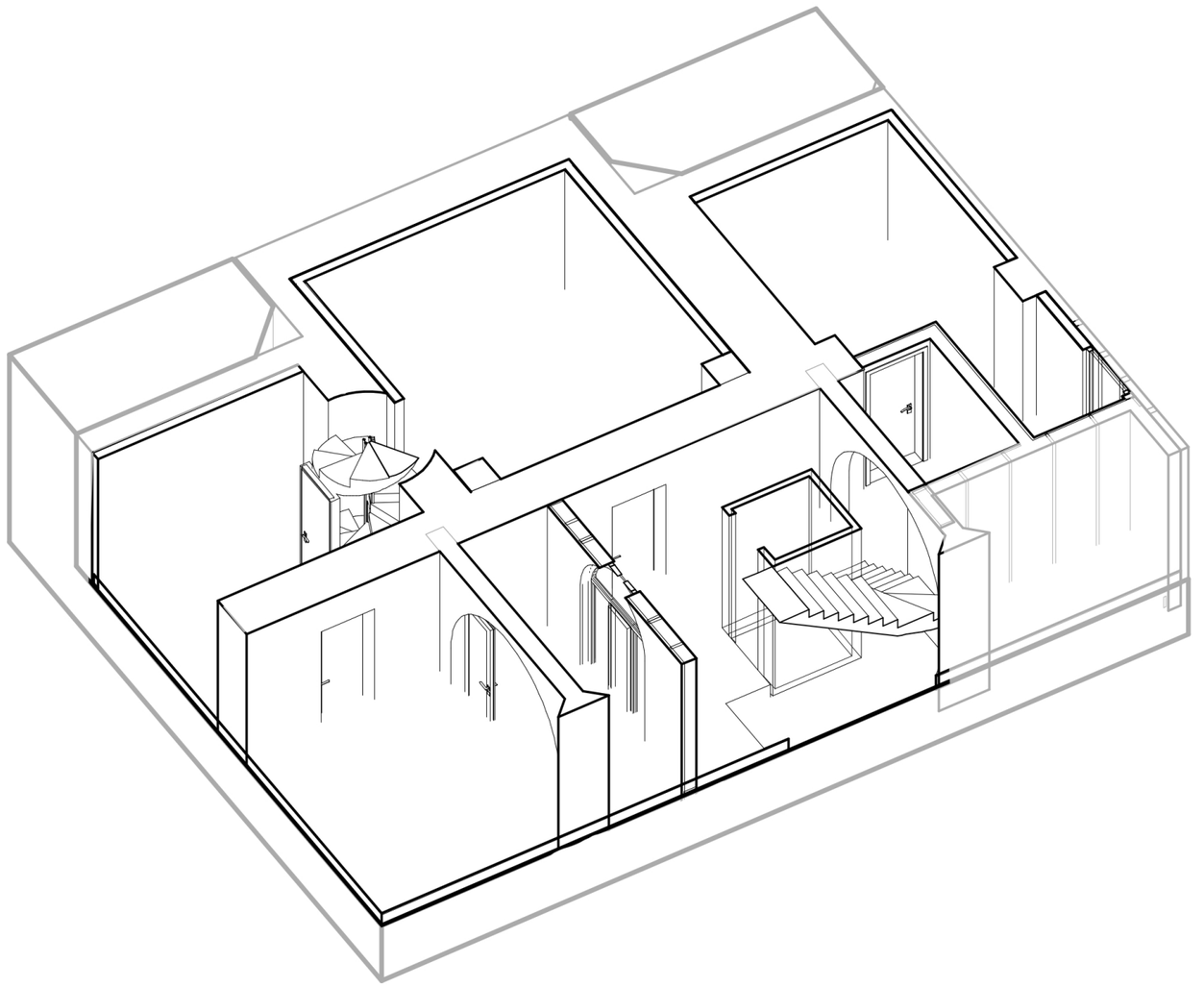


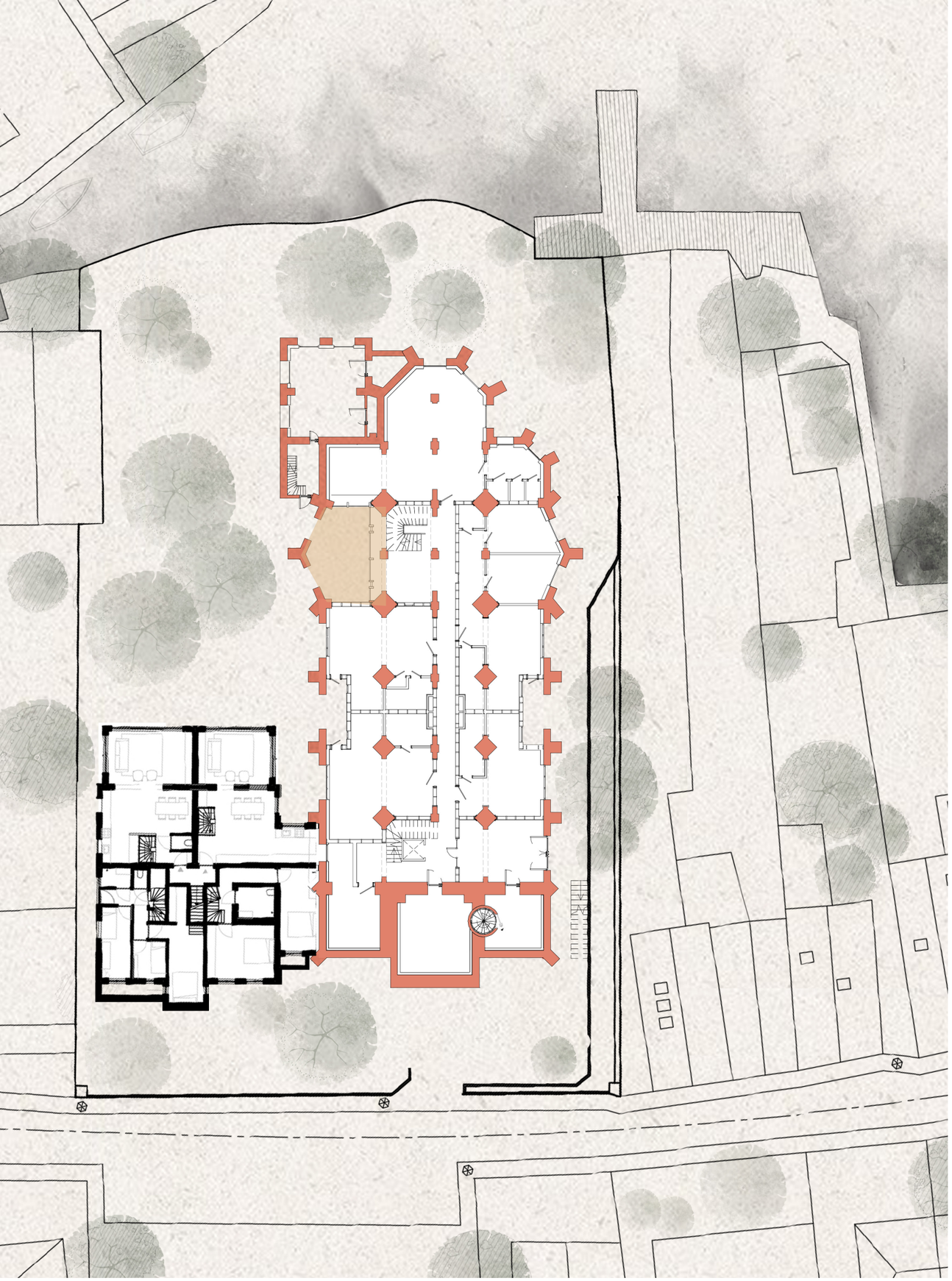


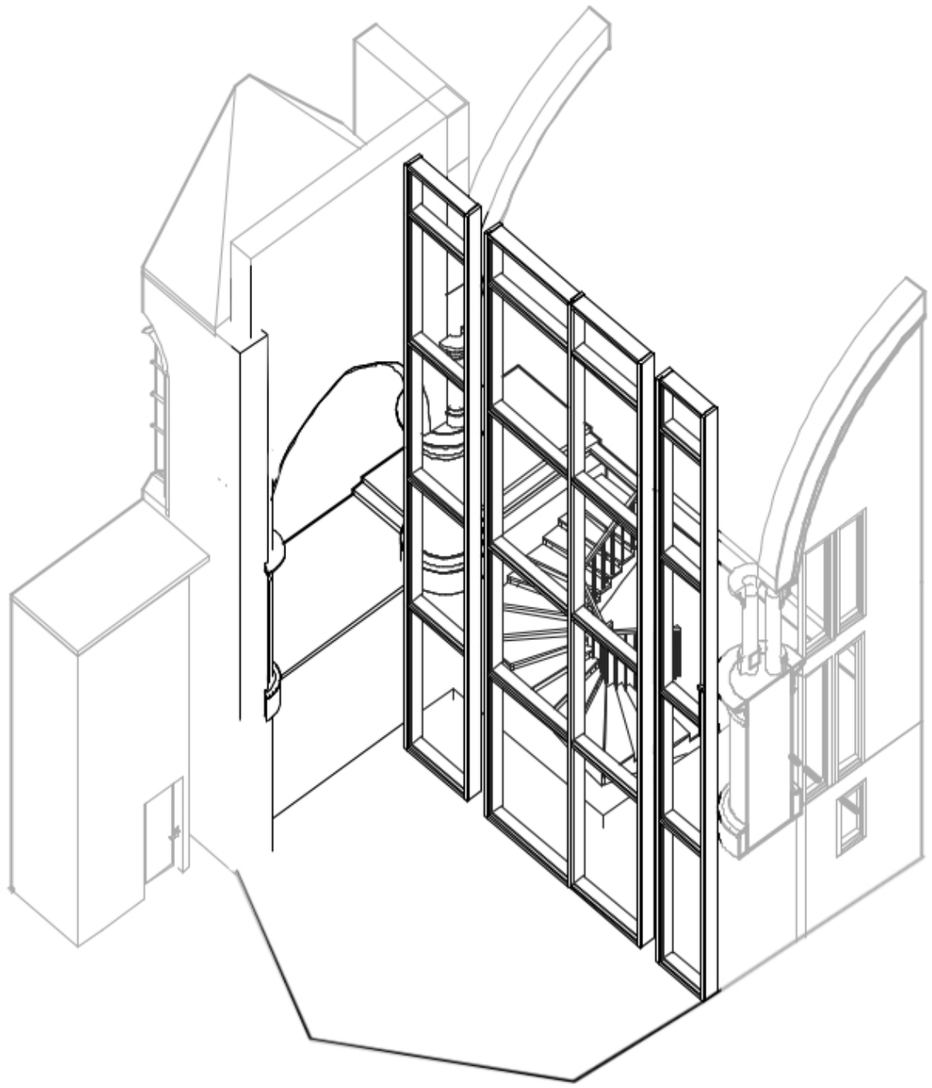


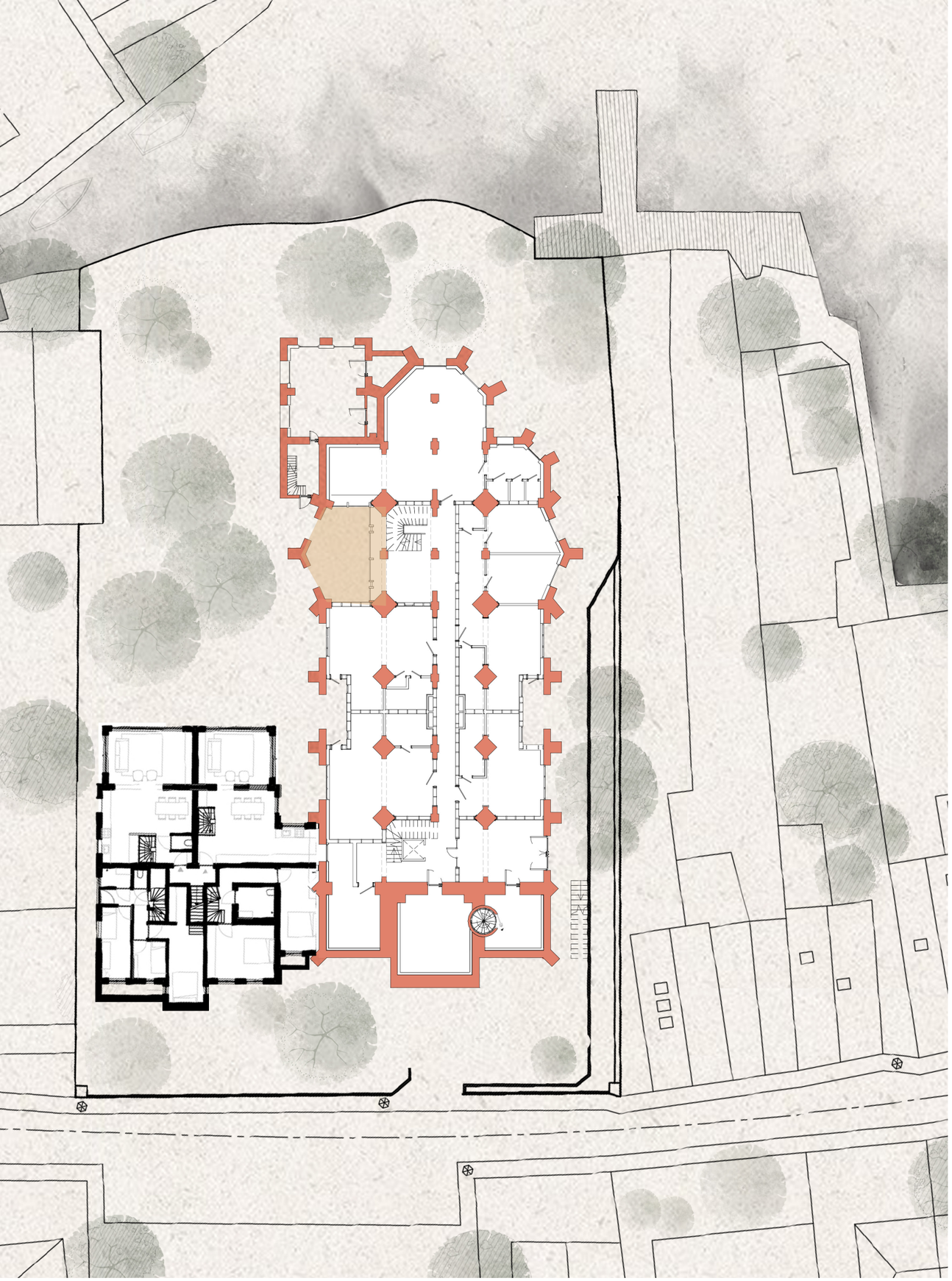




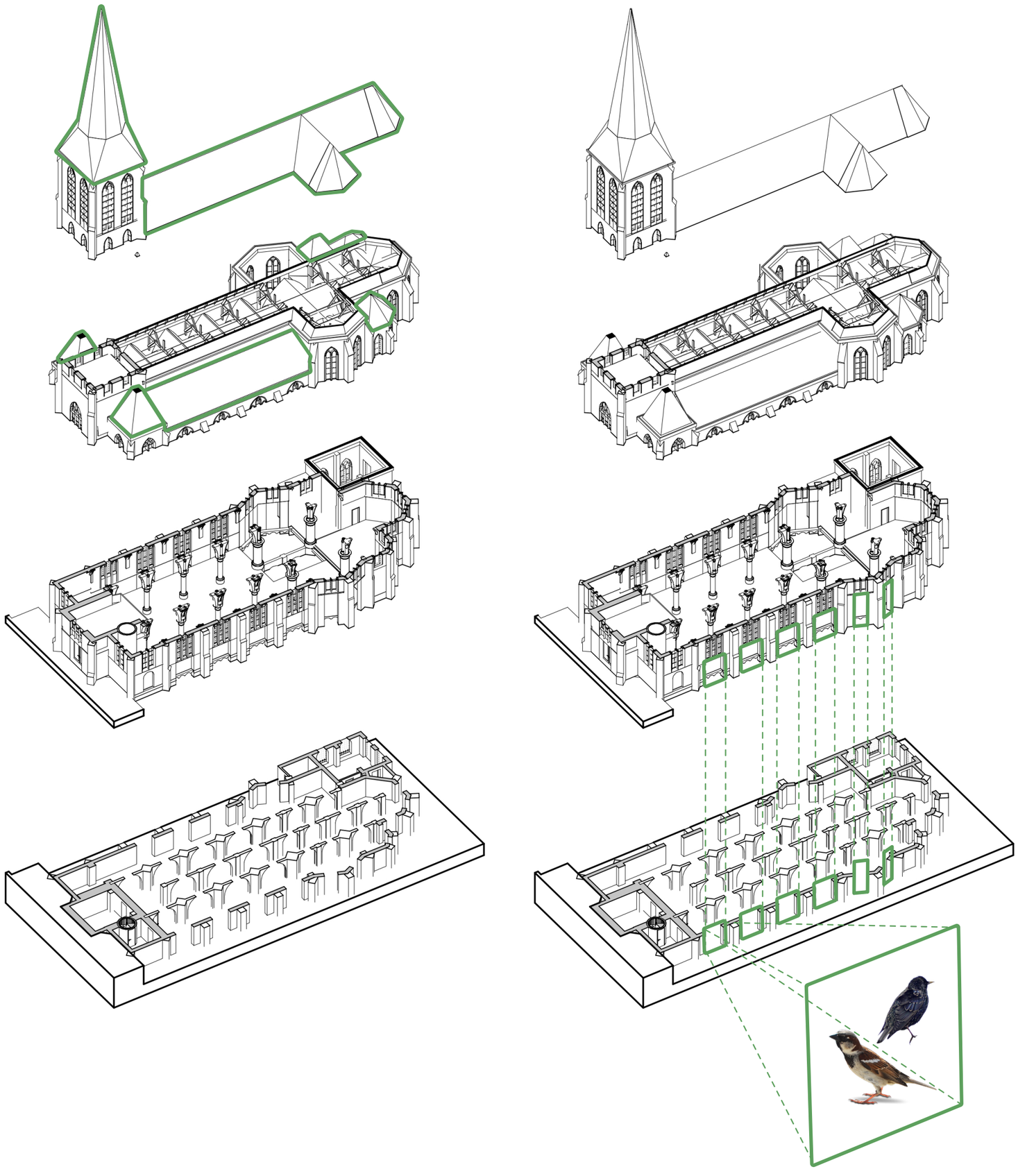


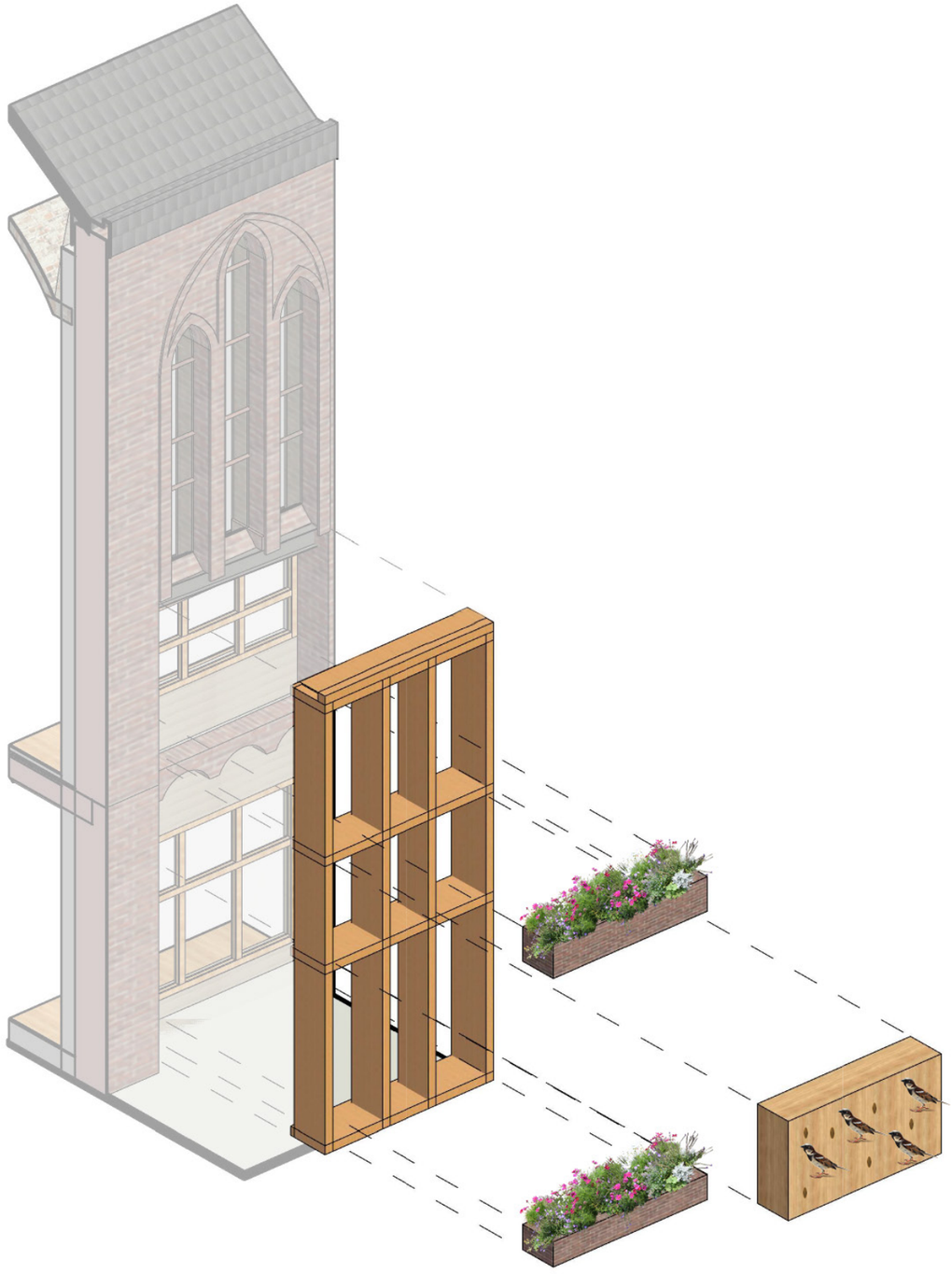


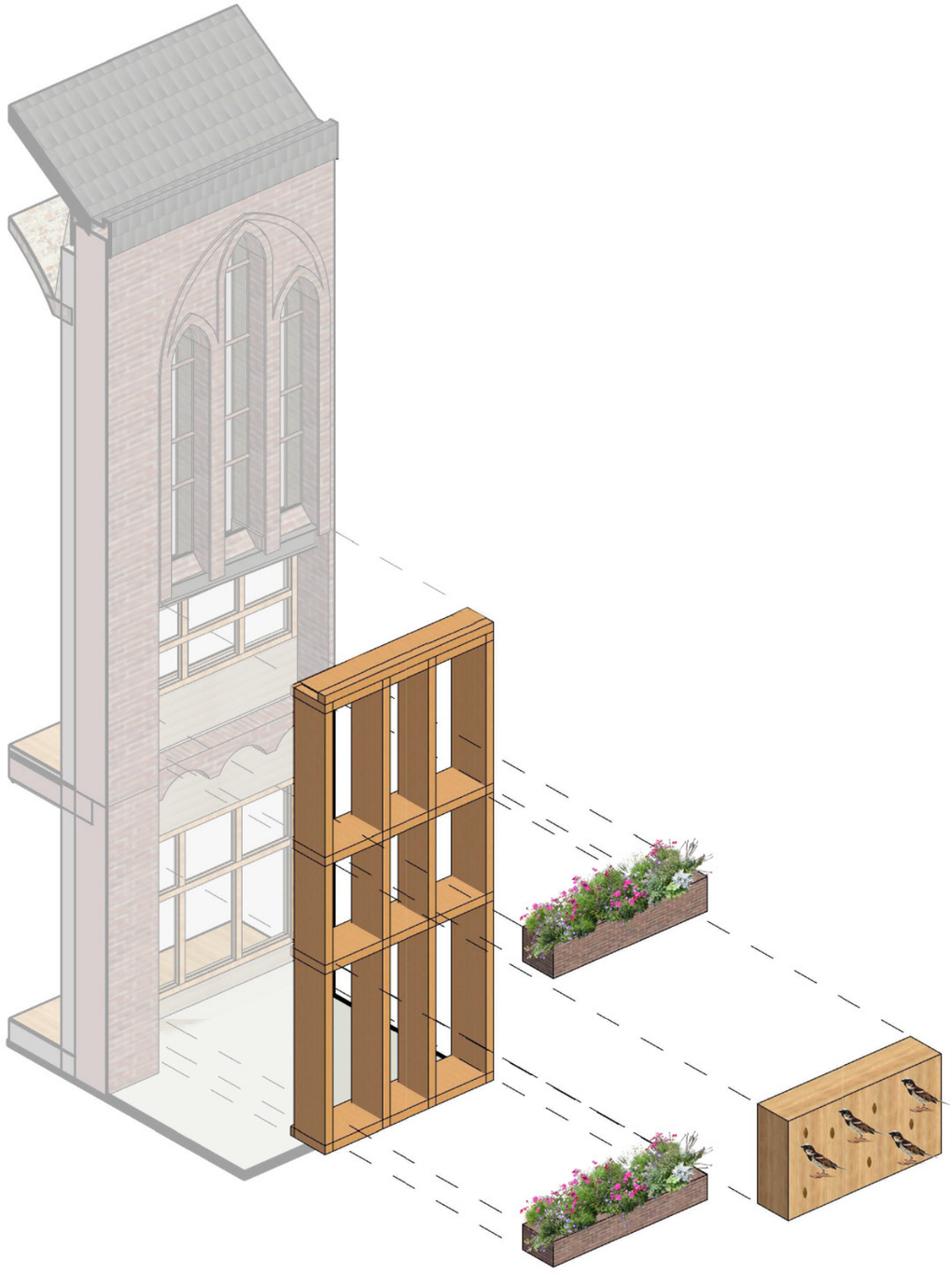


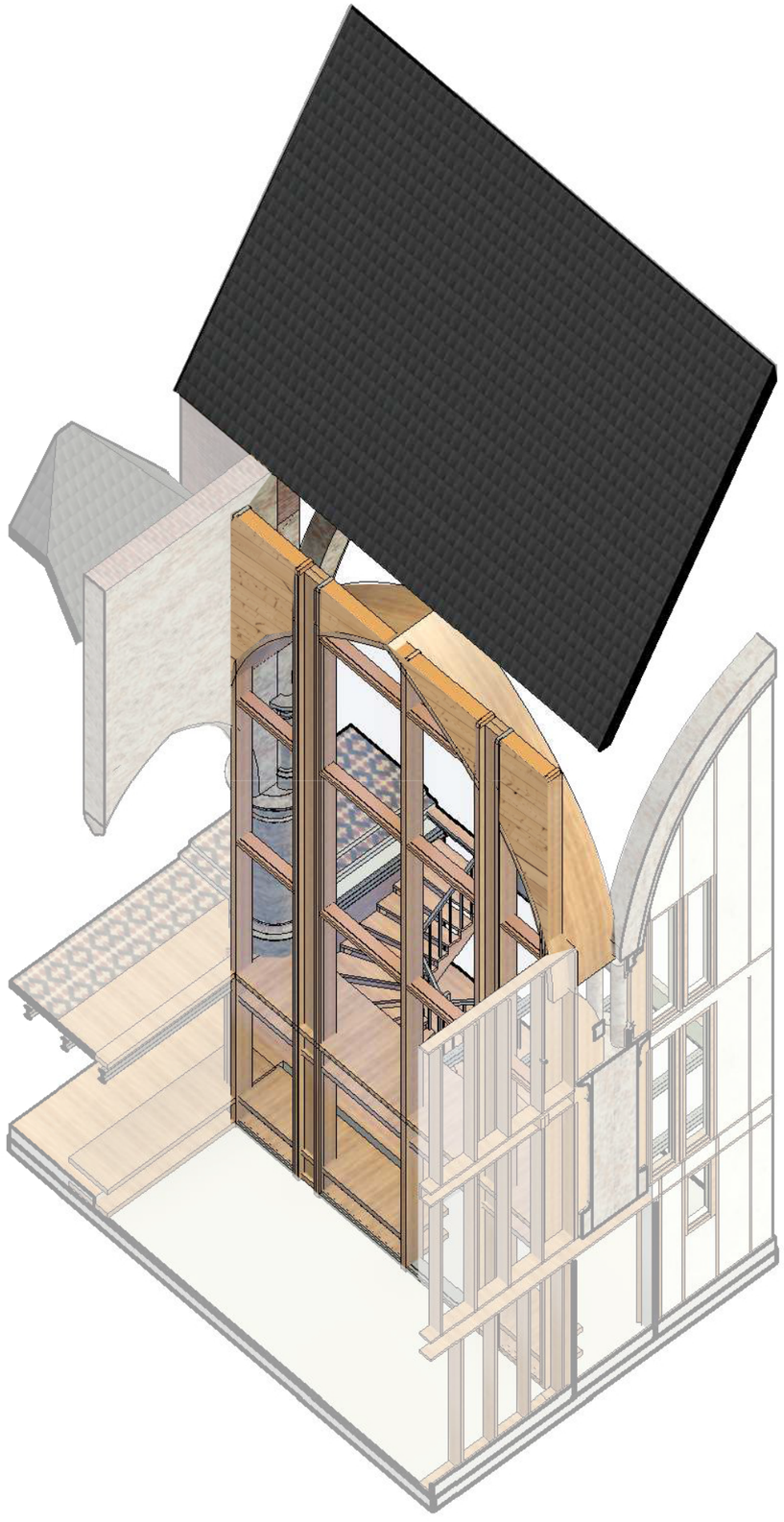












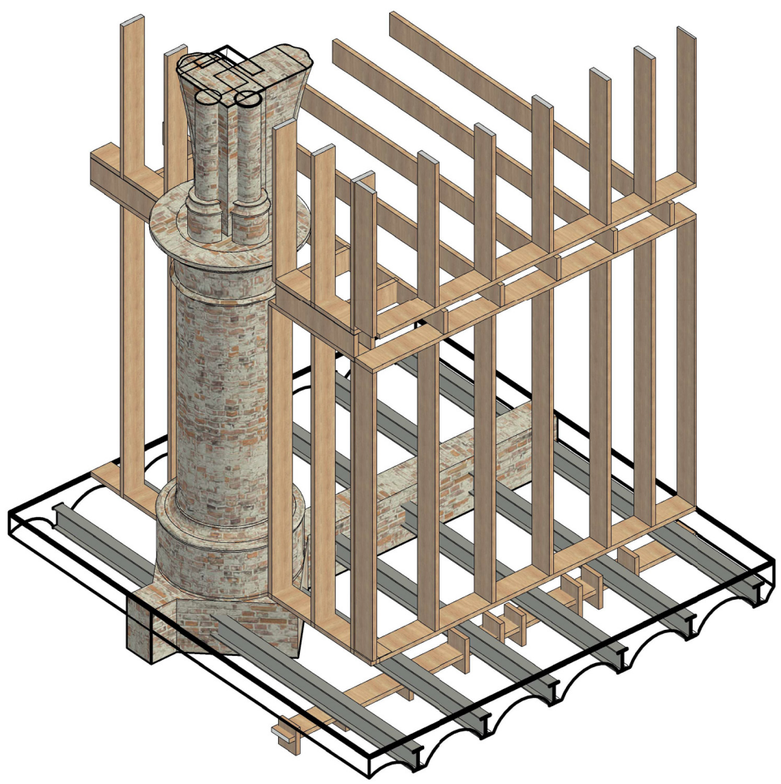
Zero waste

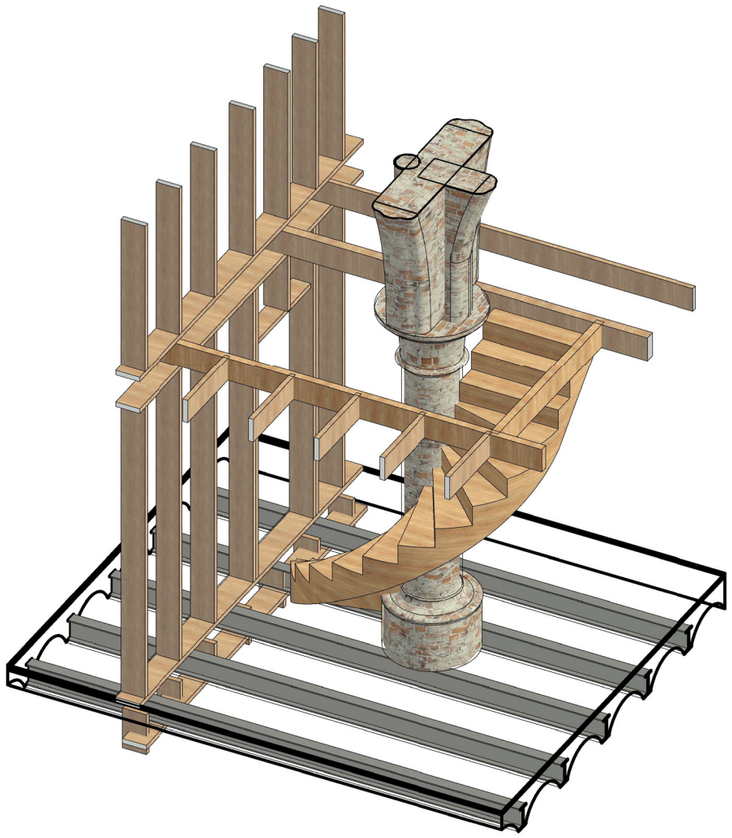
Hempcrete

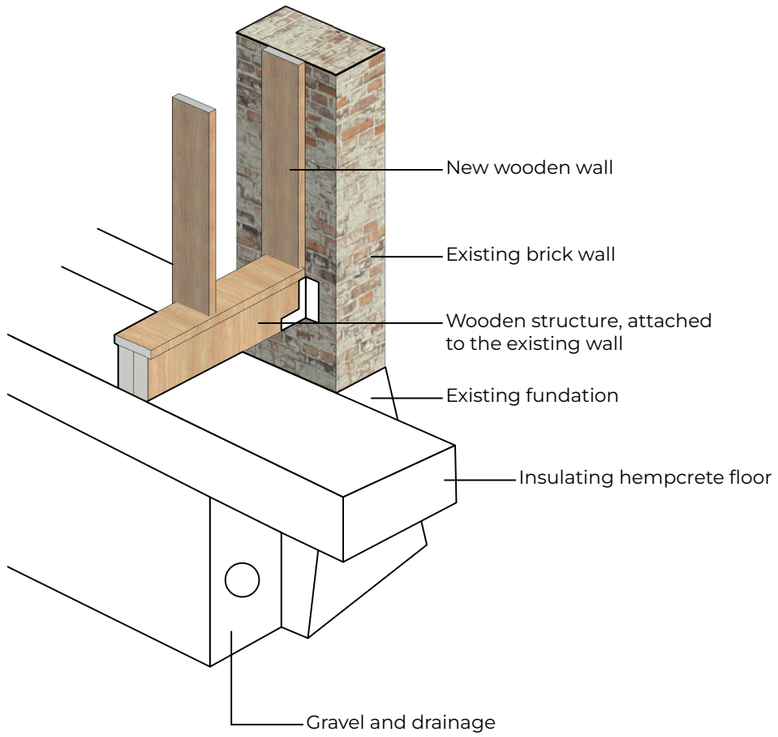


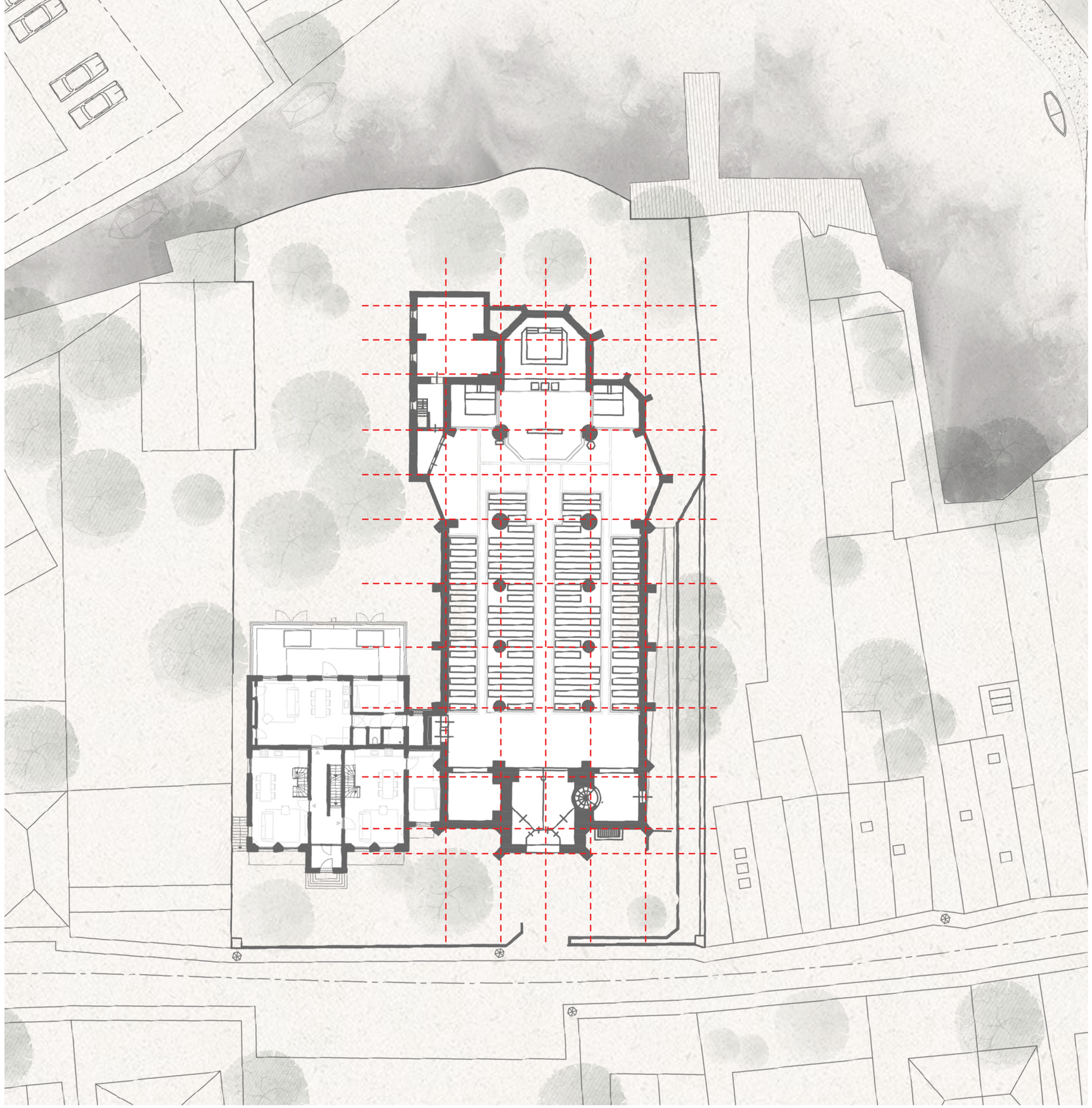
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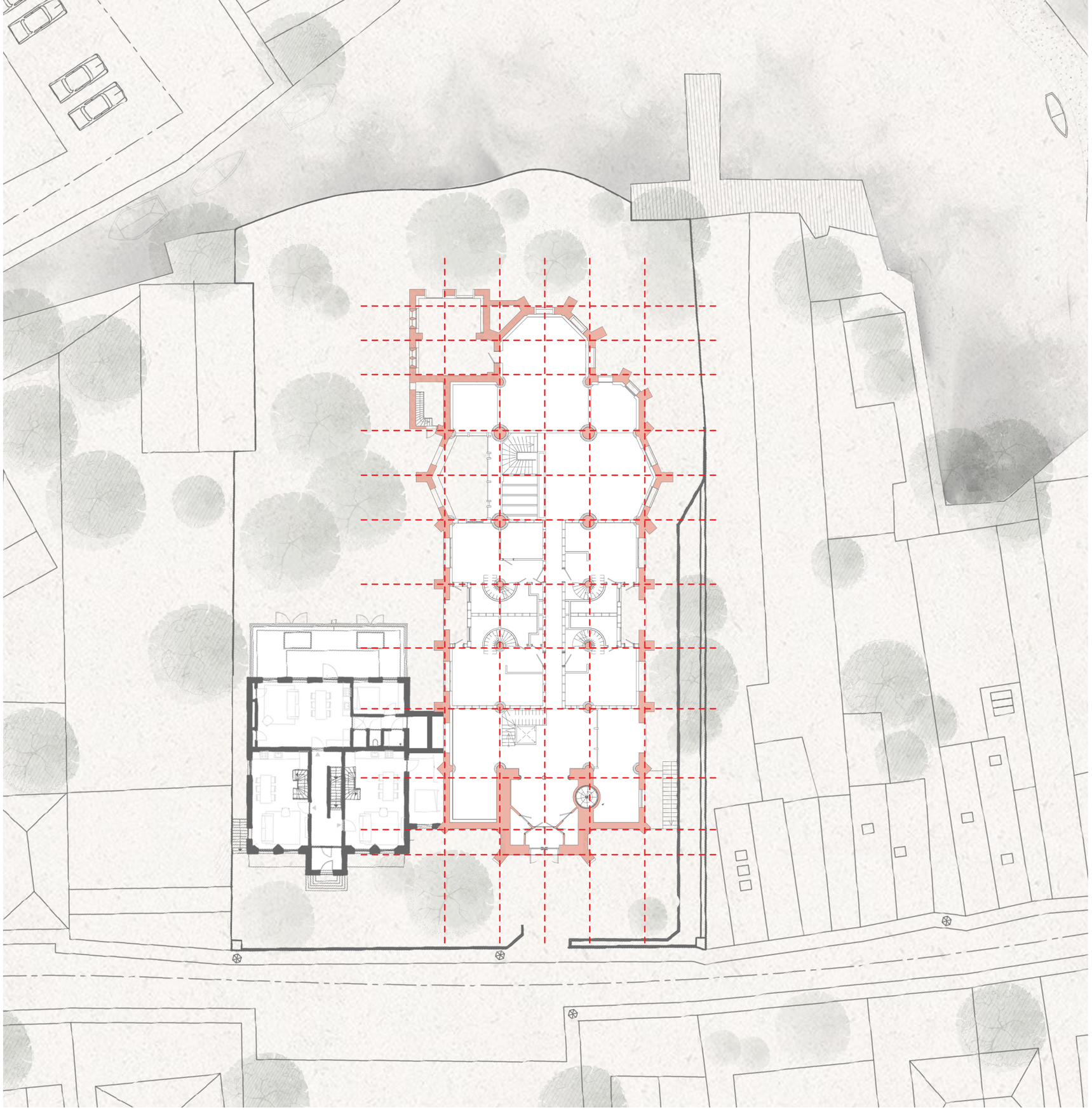


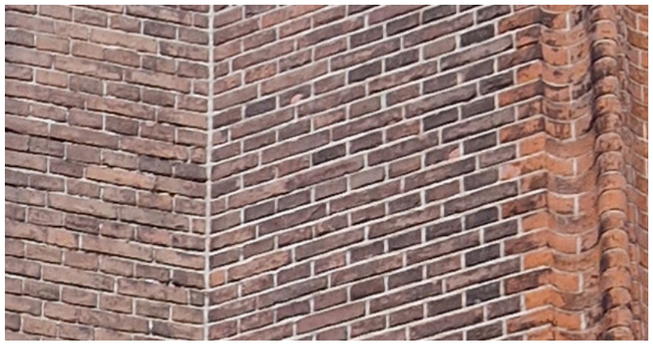




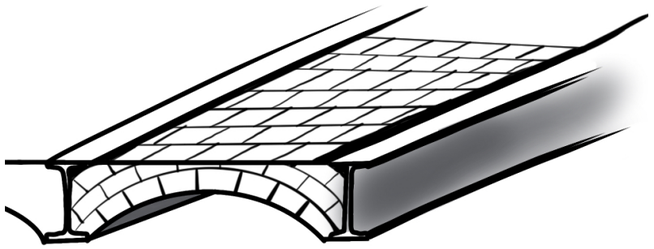

New wooden wall
Existing brick wall
Wooden structure, attached to the existing wall
Existing fundation
Insulating hempcrete floor
Gravel and drainage



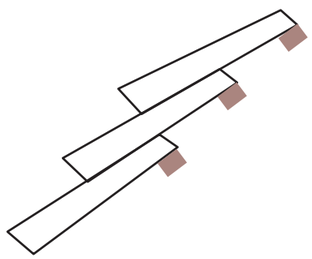




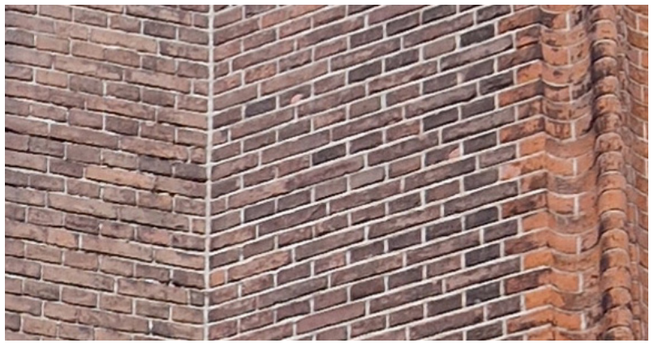
Bricks



I-beams



Roof slates and support elements



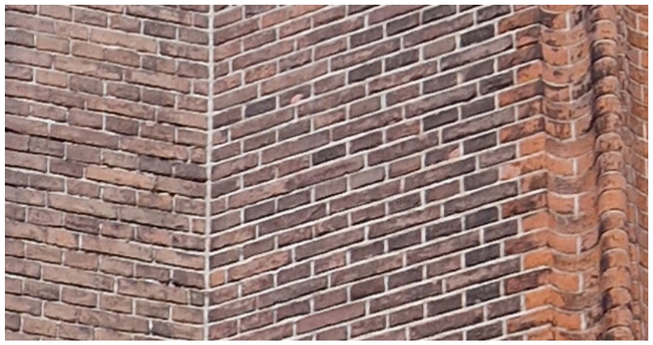
Bricks



Crushed bricks



Hempcrete



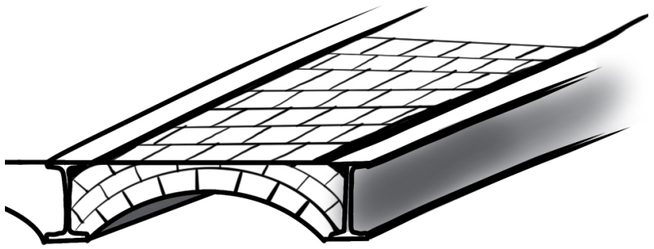
Bricks



Crushed bricks



Hempcrete



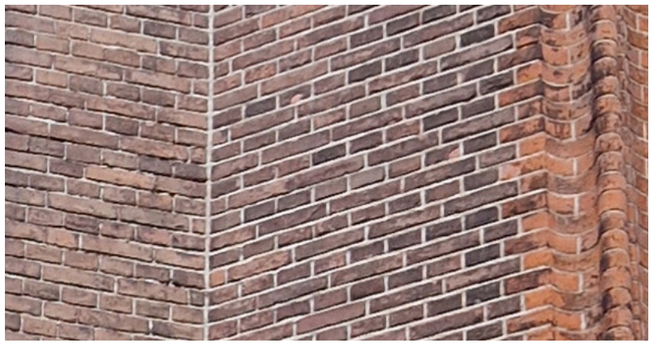
I-beams



Detached



Reused in structure



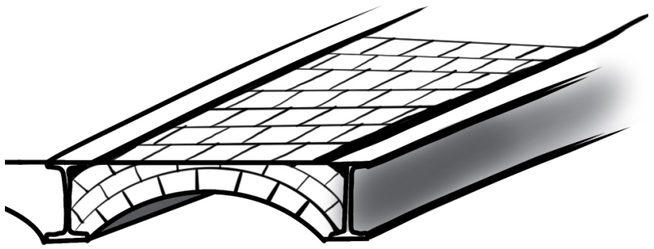
Bricks



Crushed bricks



Hempcrete



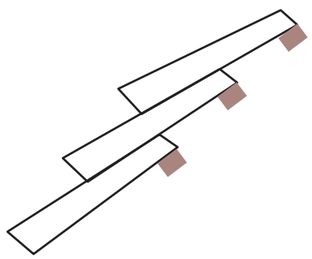
I-beams



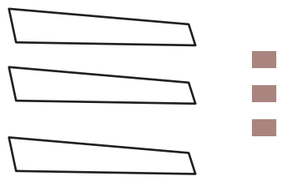
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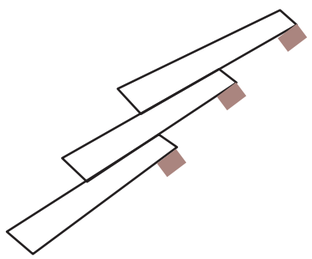
Reused in structure



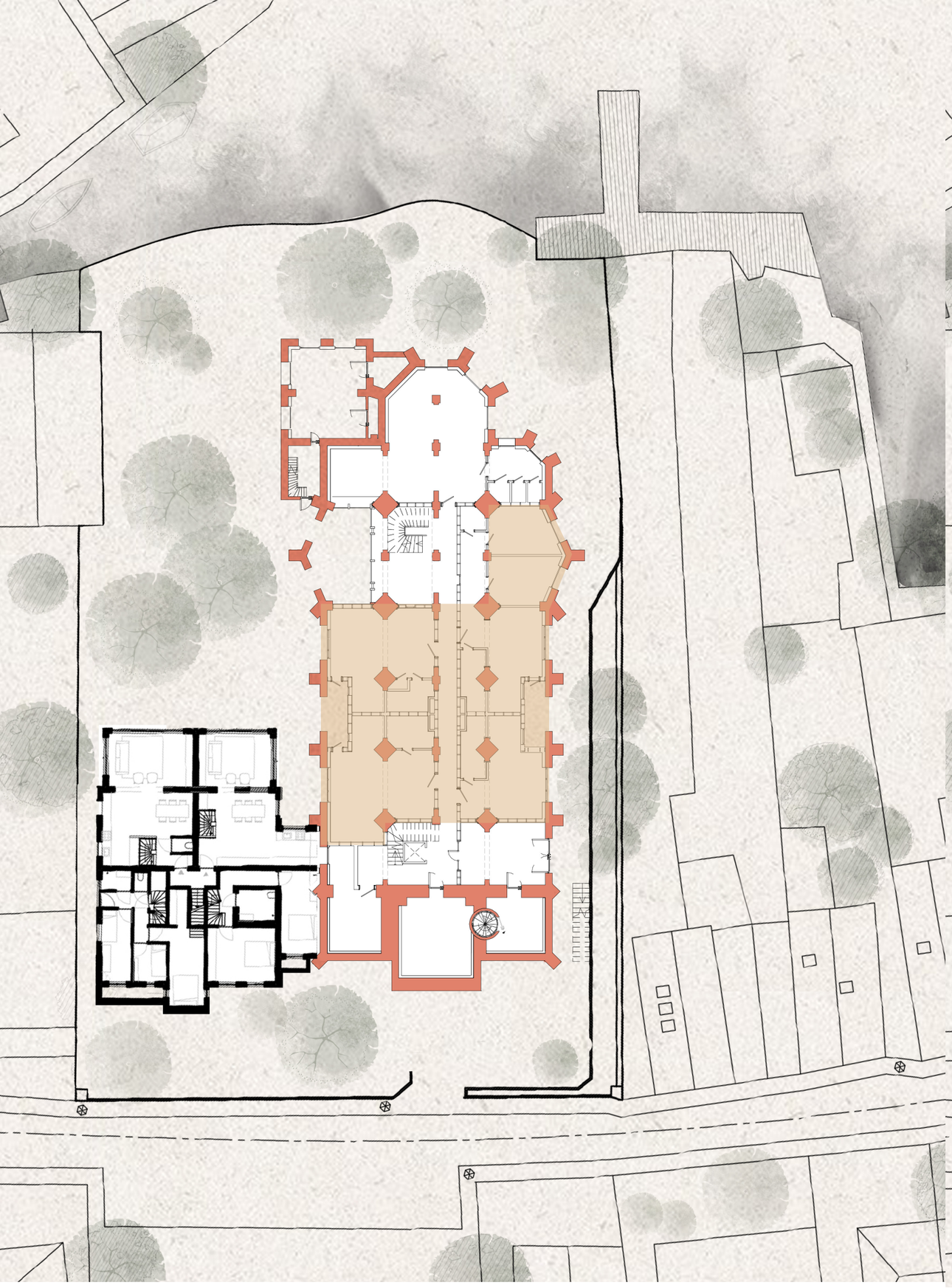
Roof slates and support elements

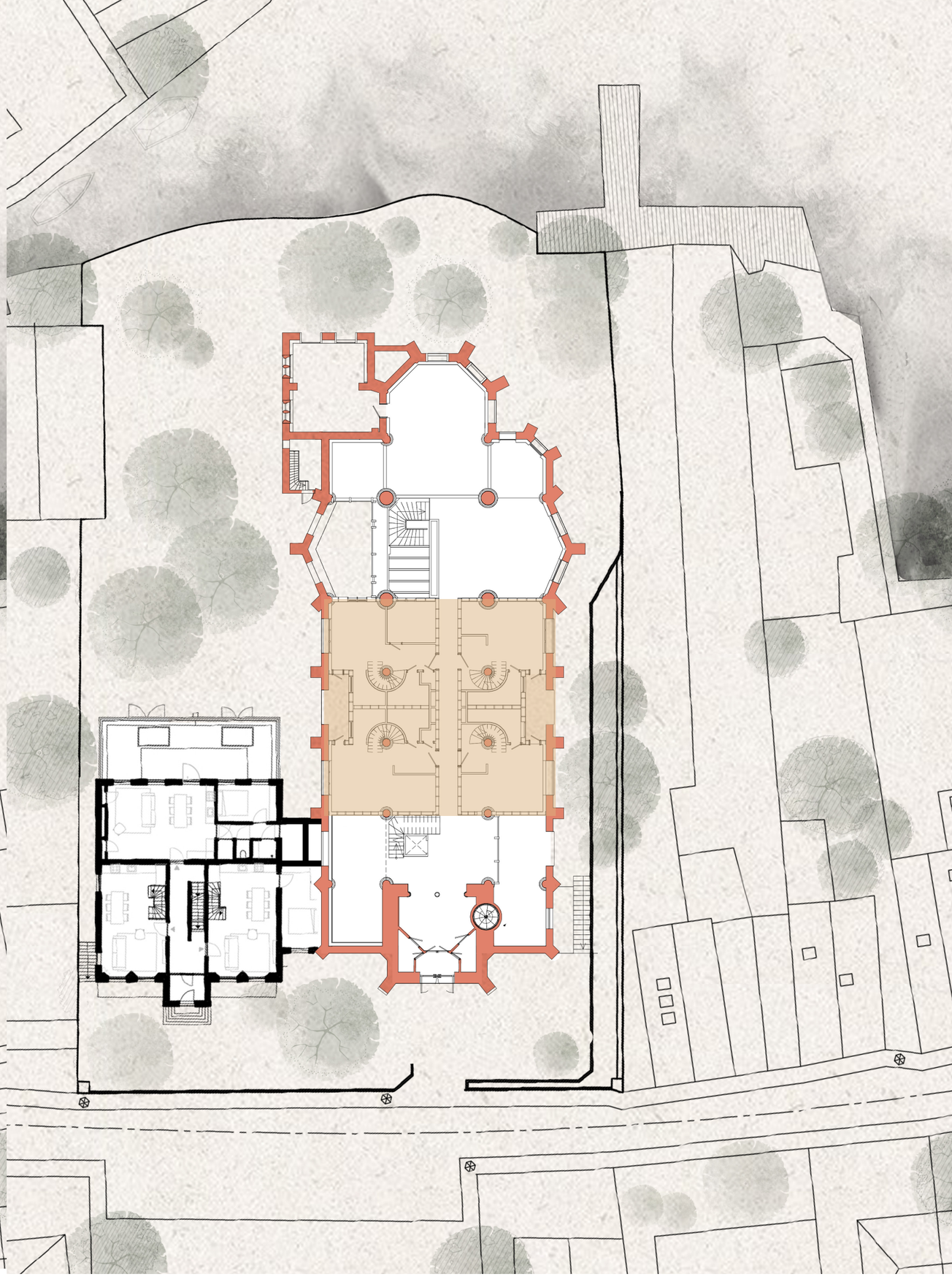


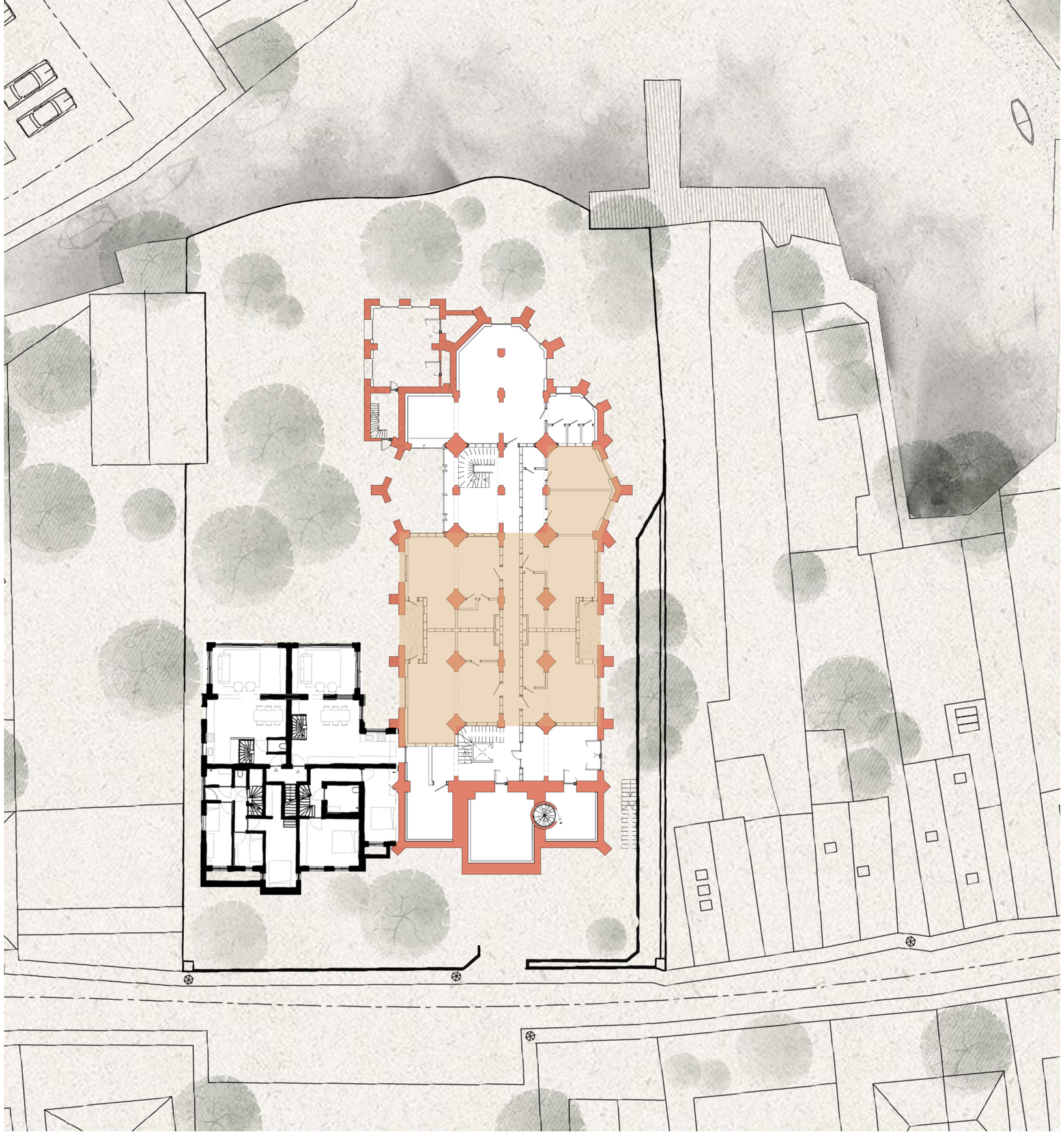
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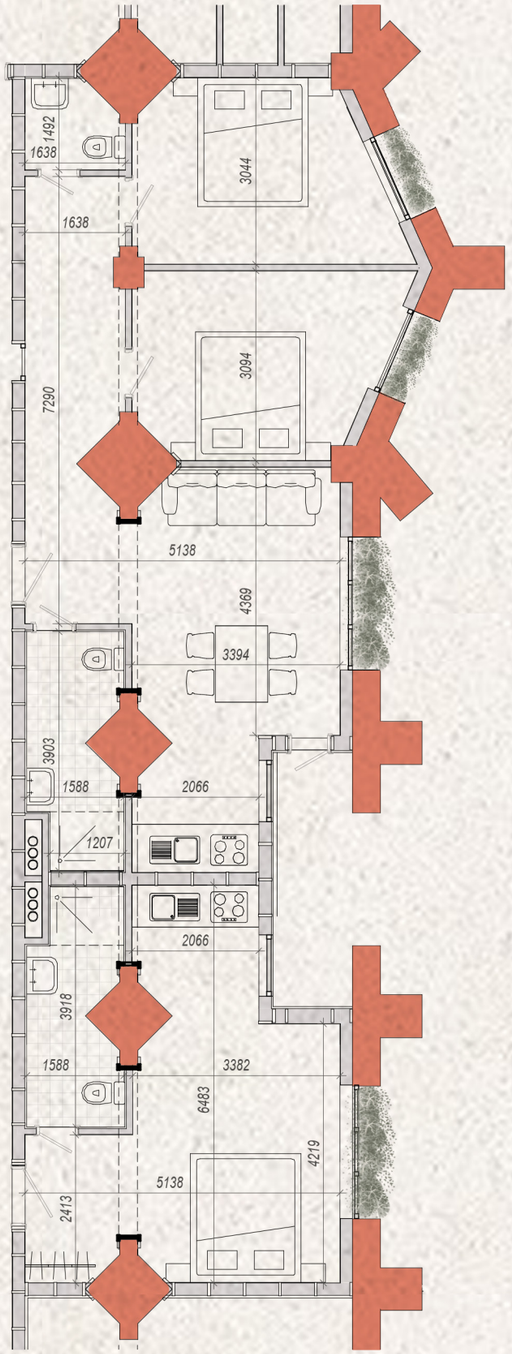


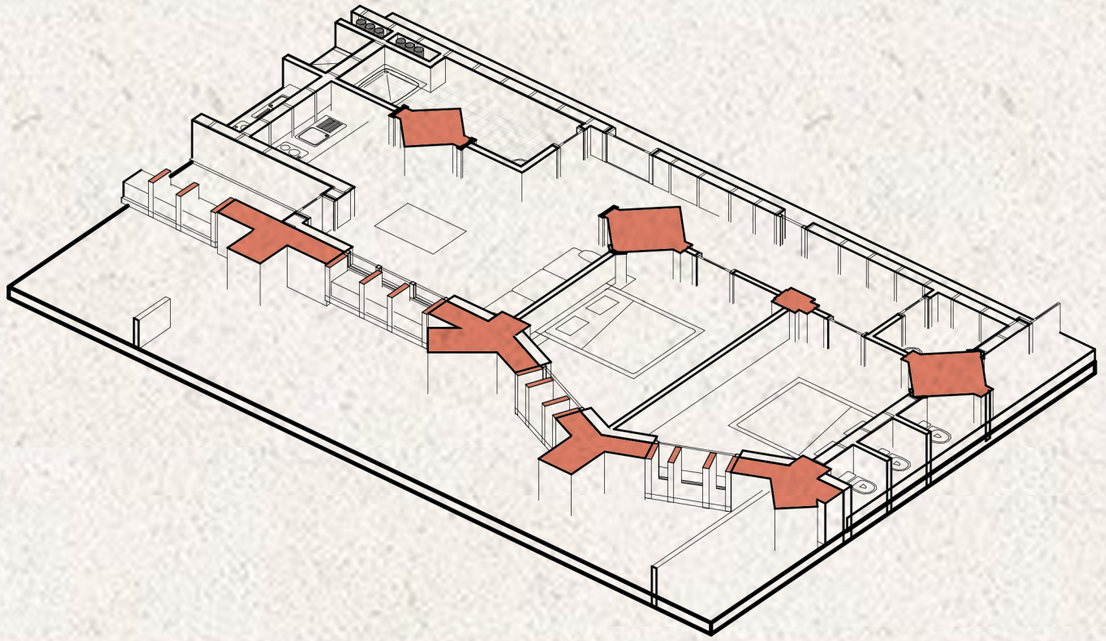
Reused for the new roof

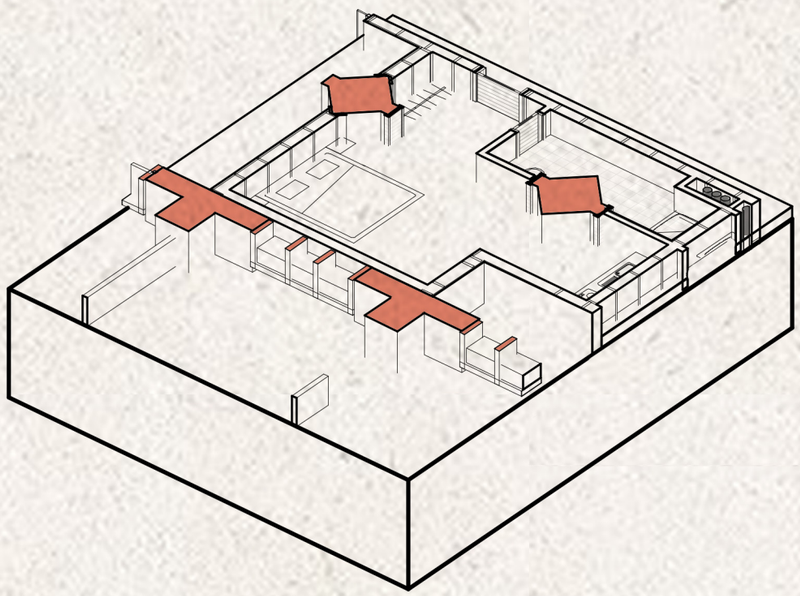


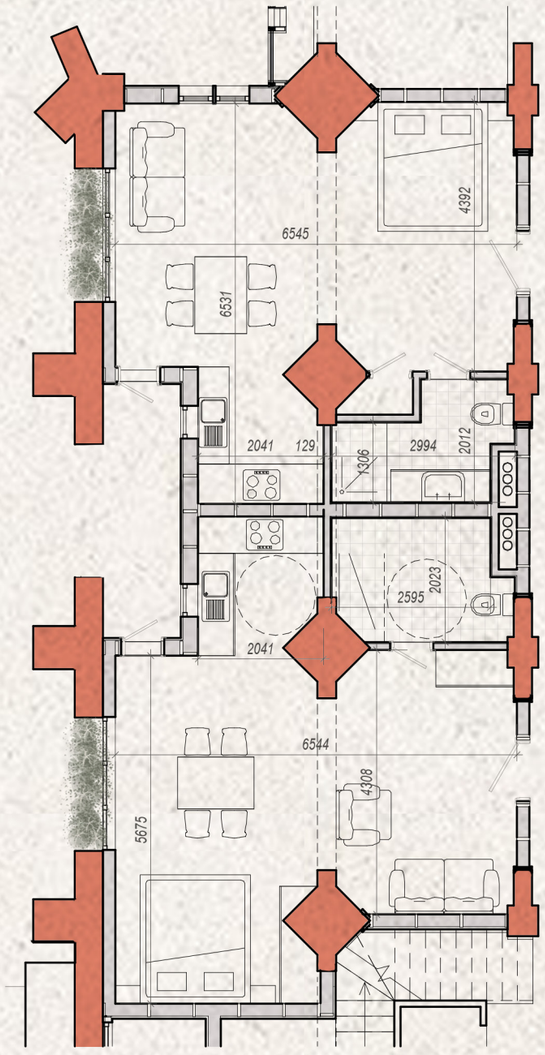


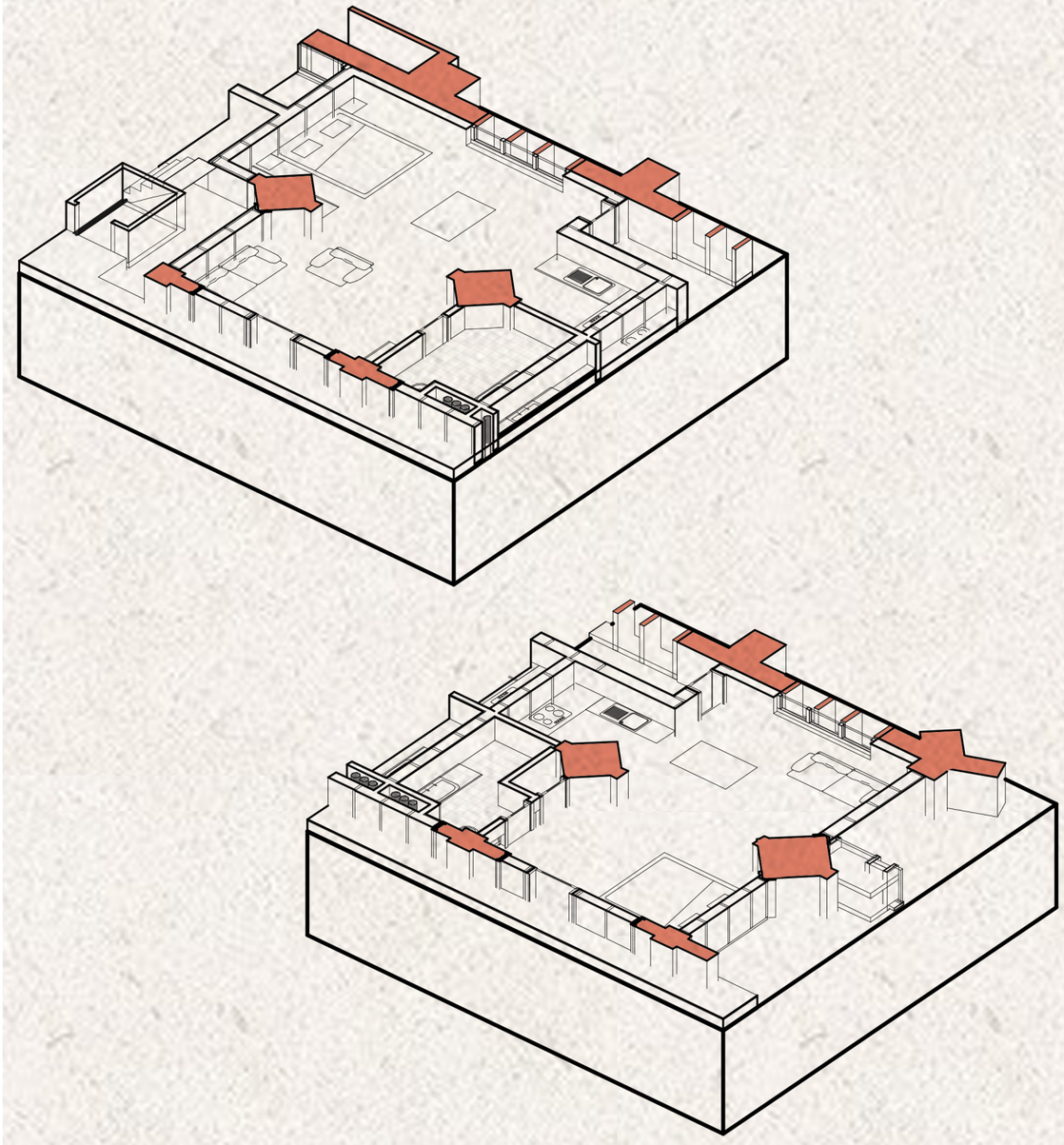


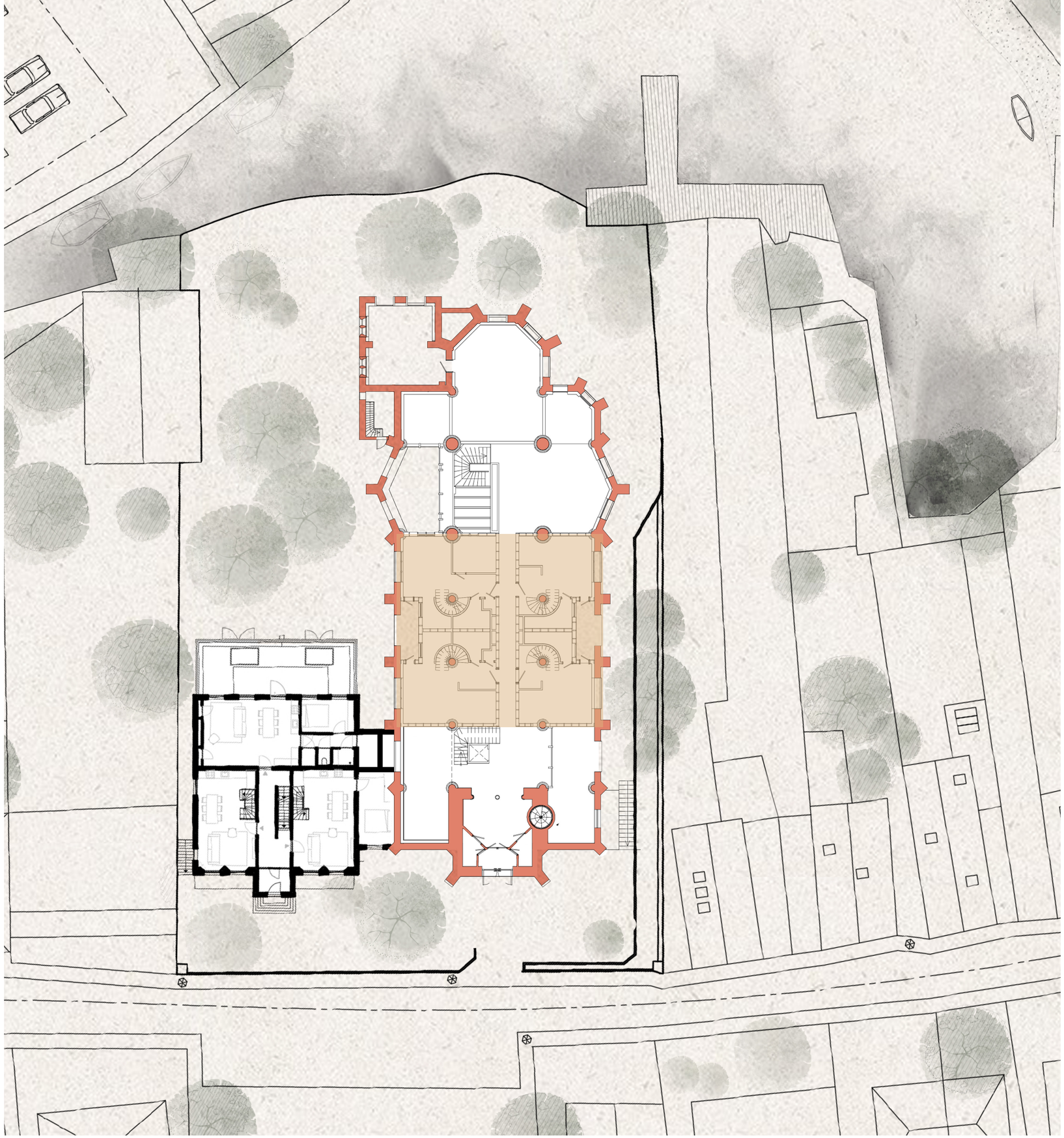

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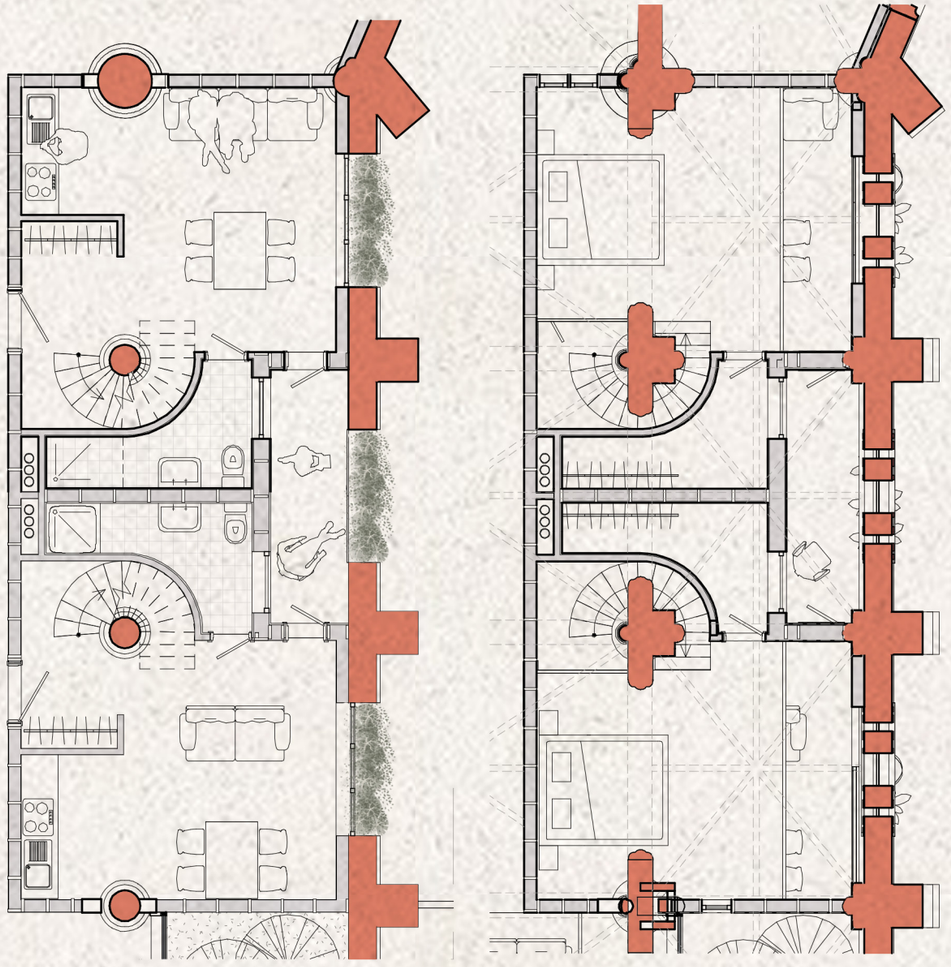


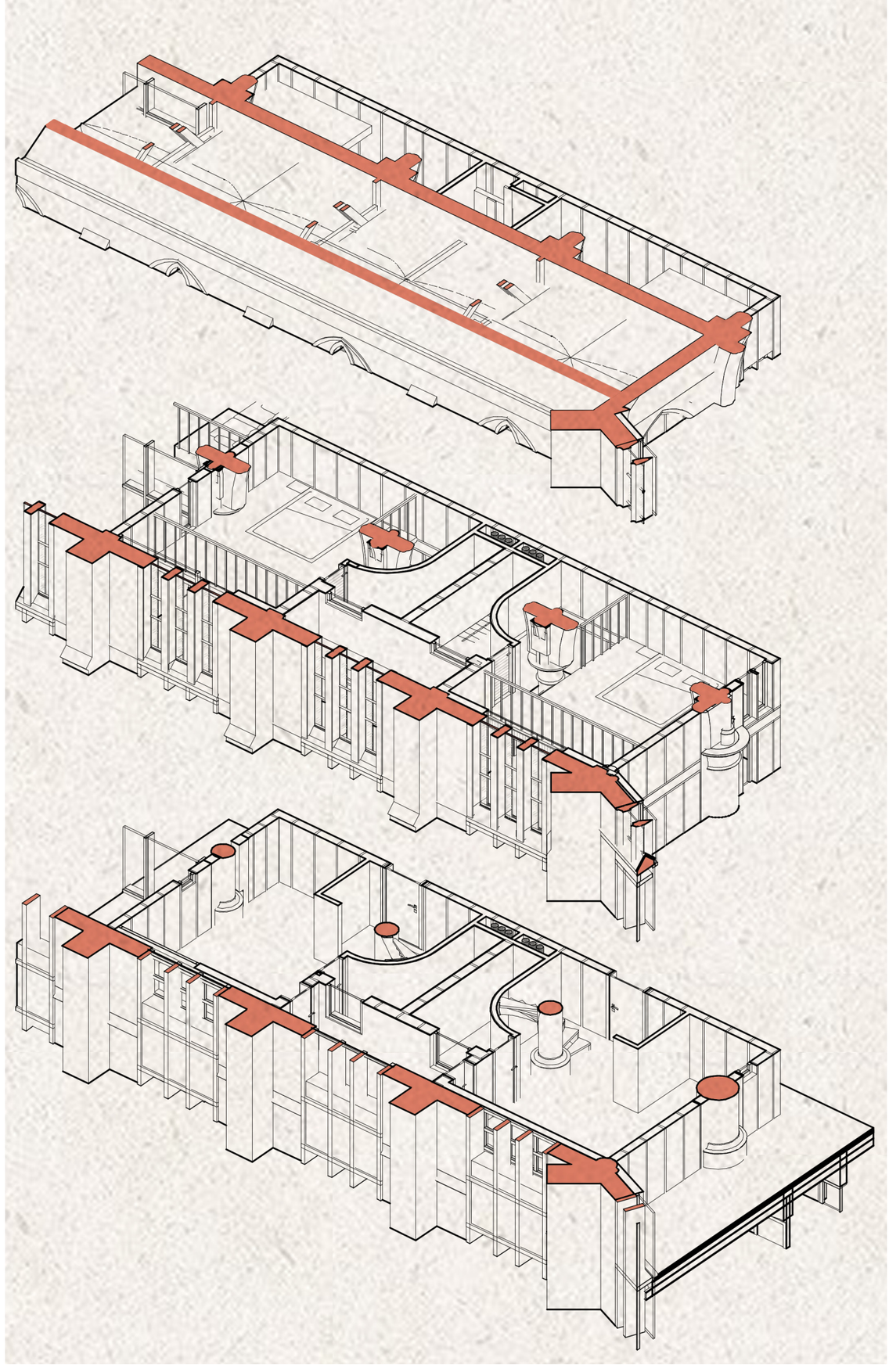



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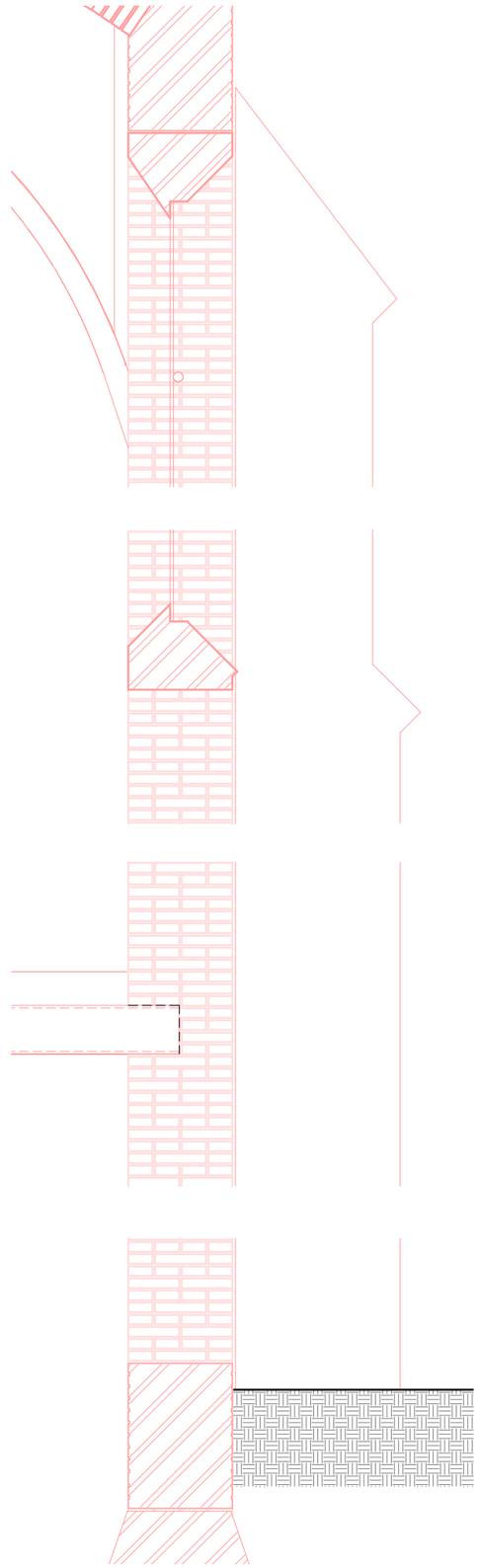


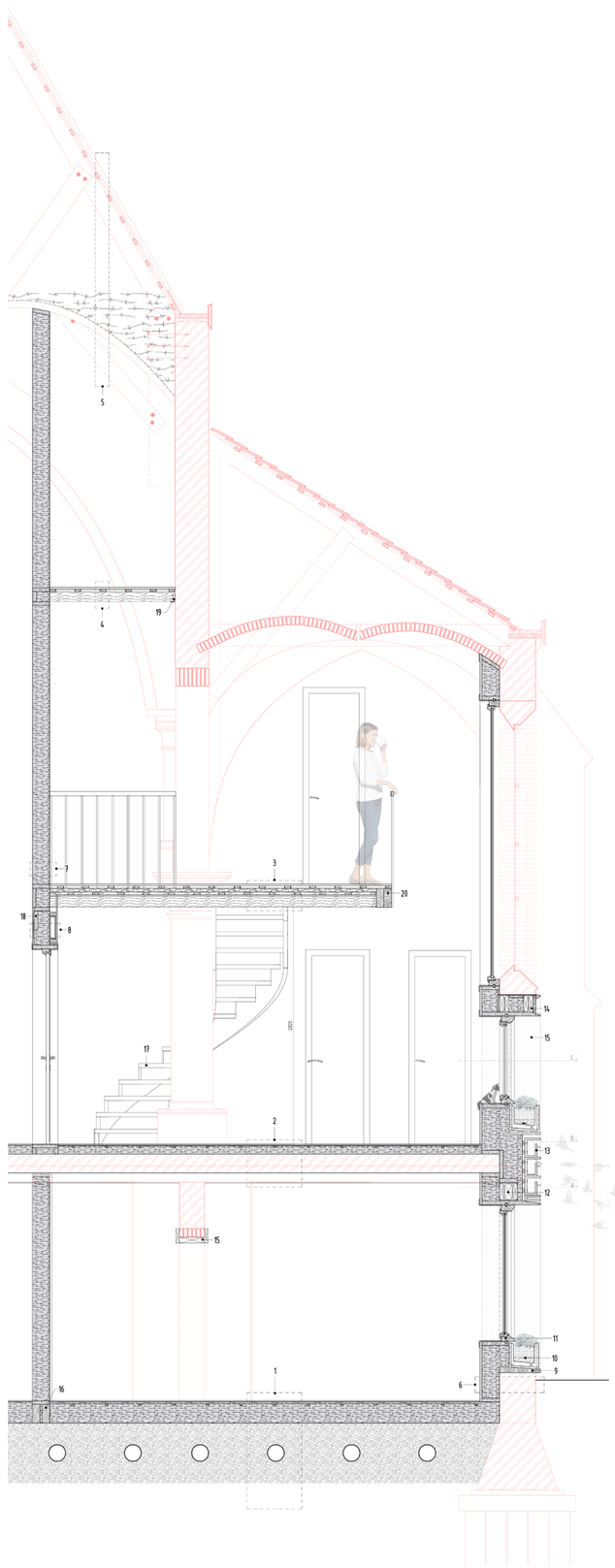


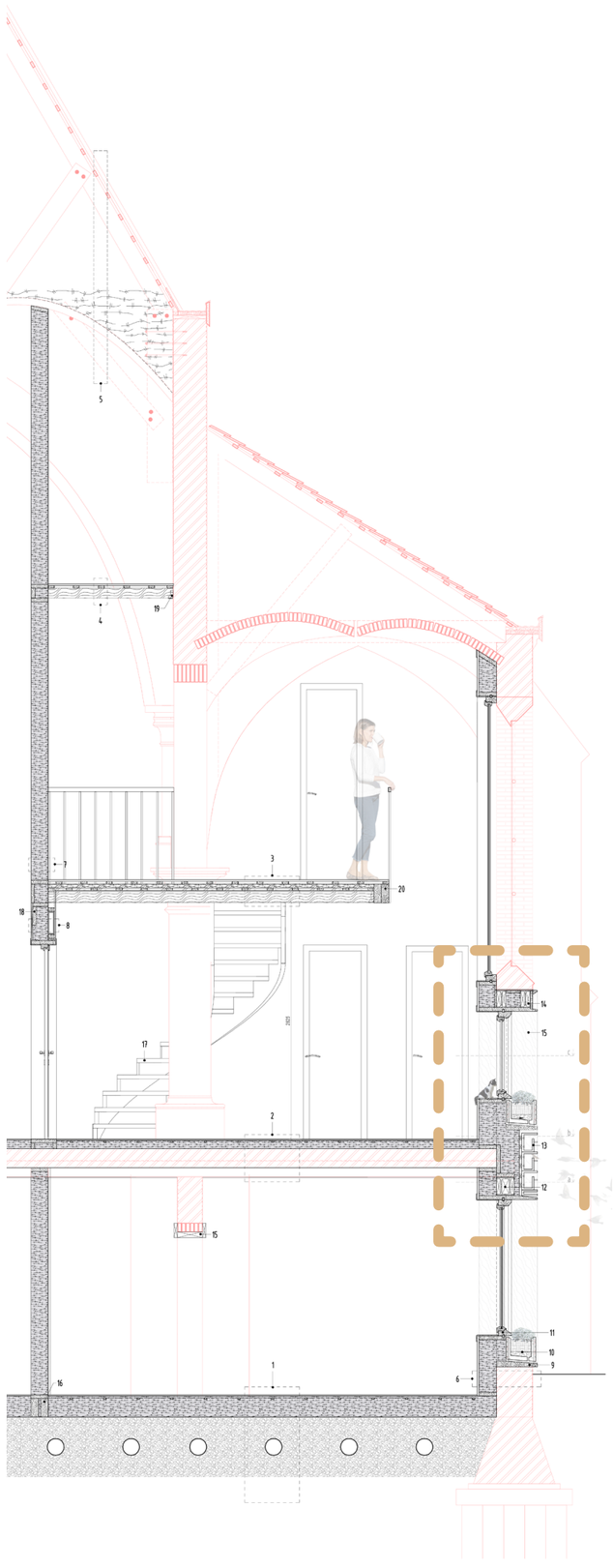


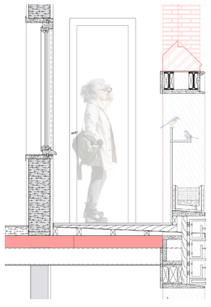


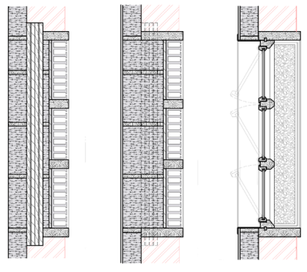





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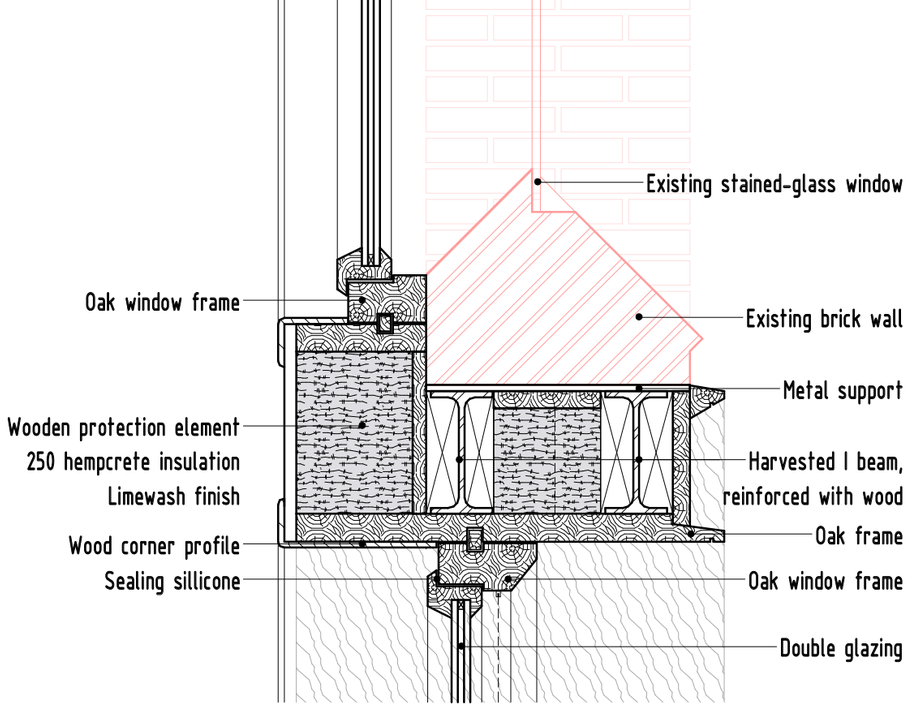


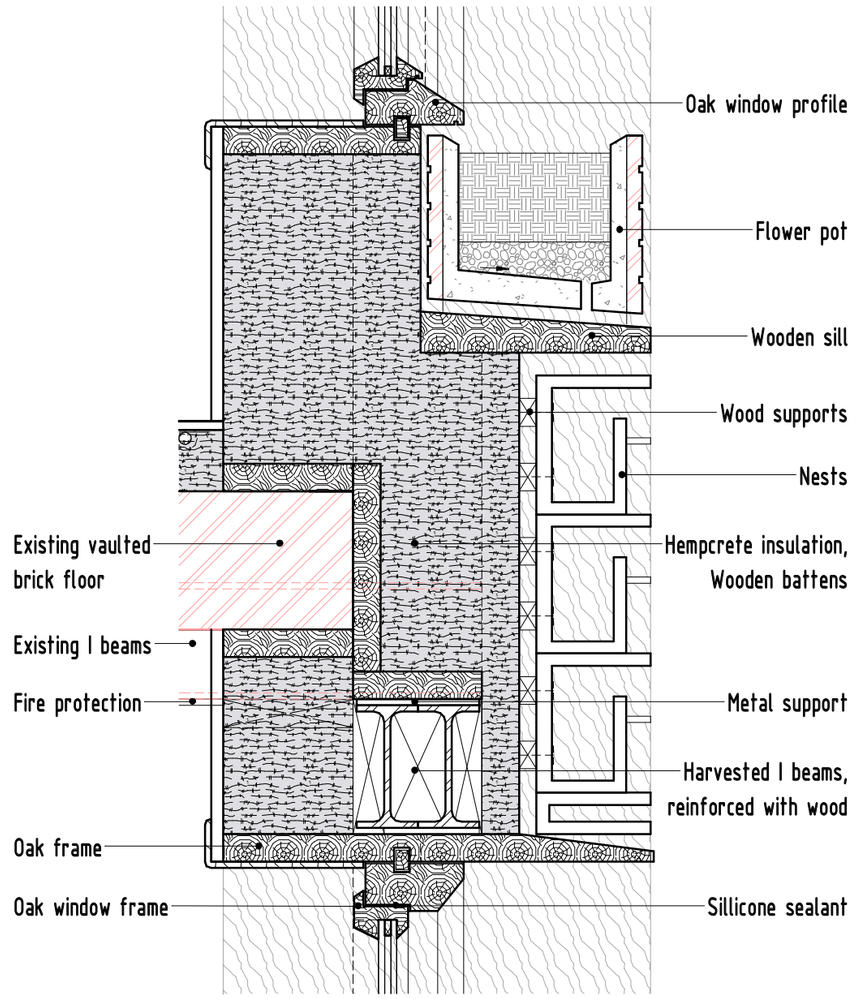


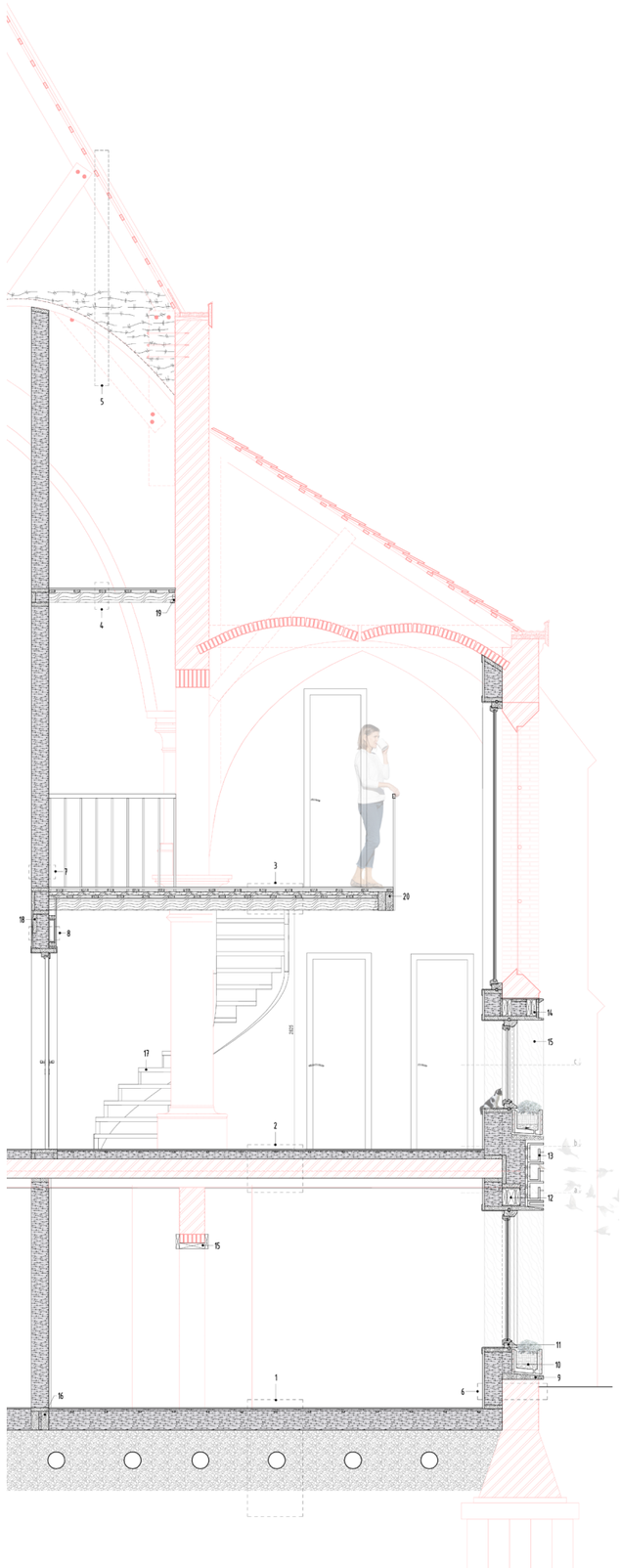
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S 1 : 25

b
S 1 : 25

c
S 1 : 25

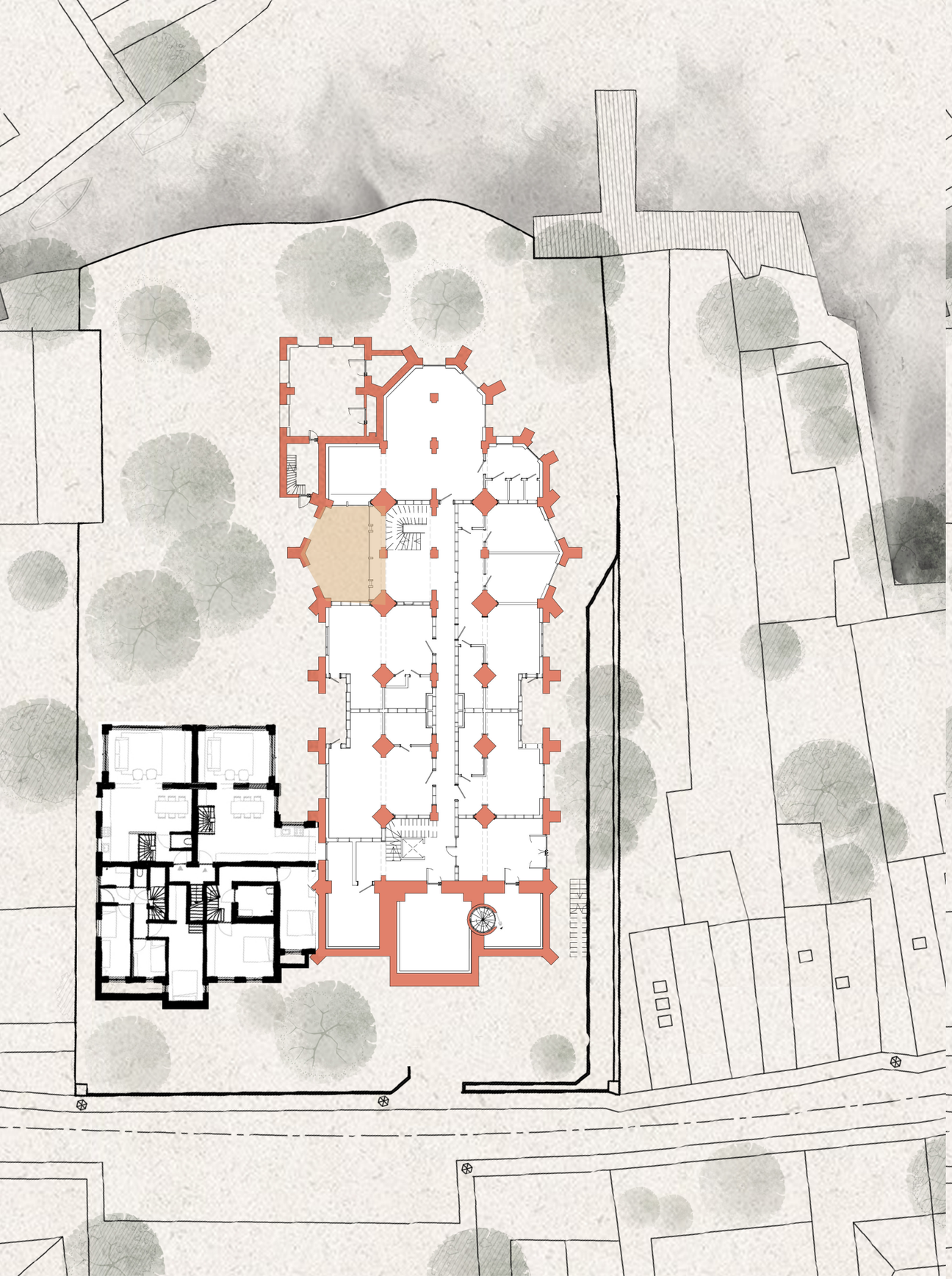


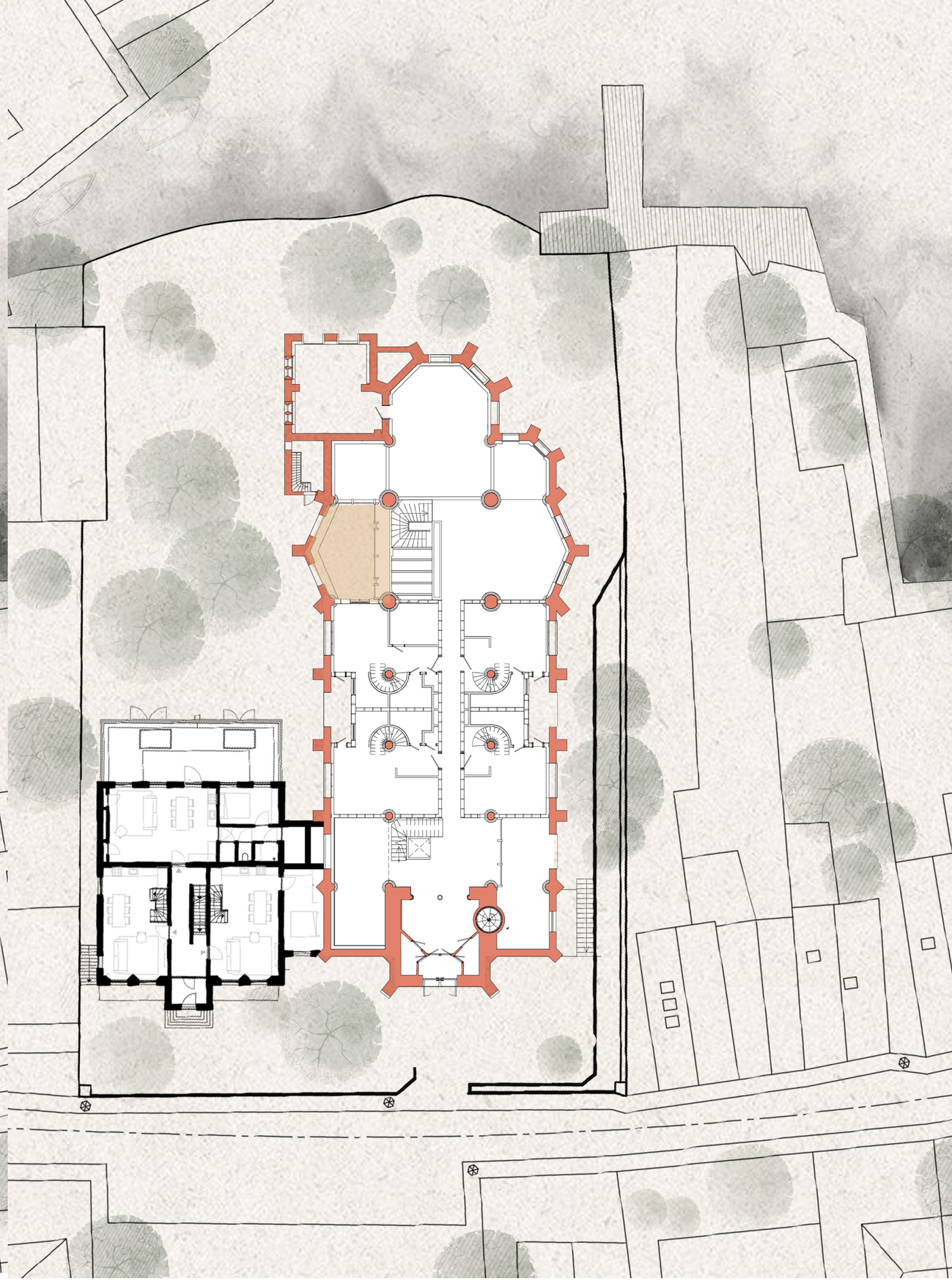


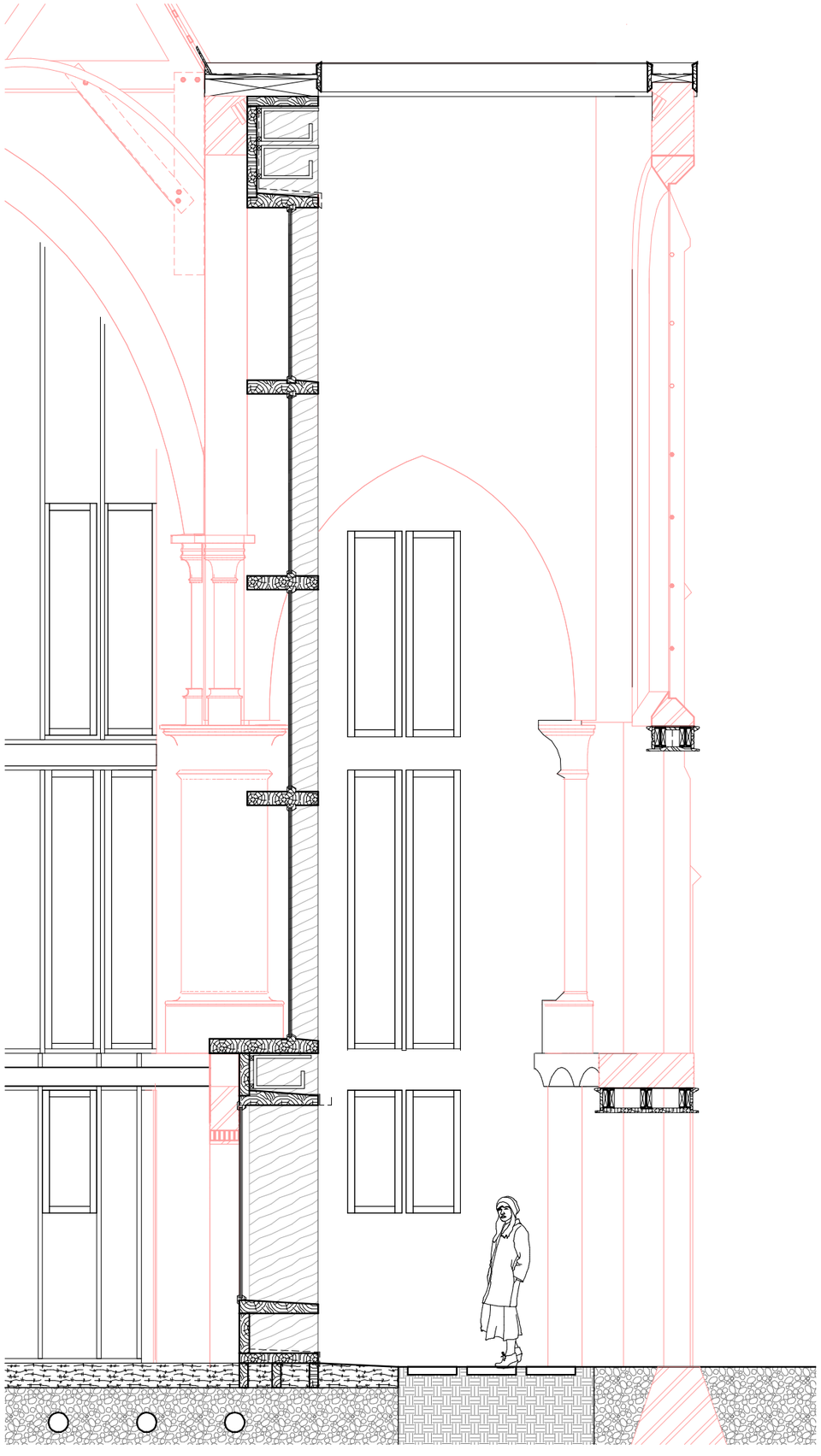

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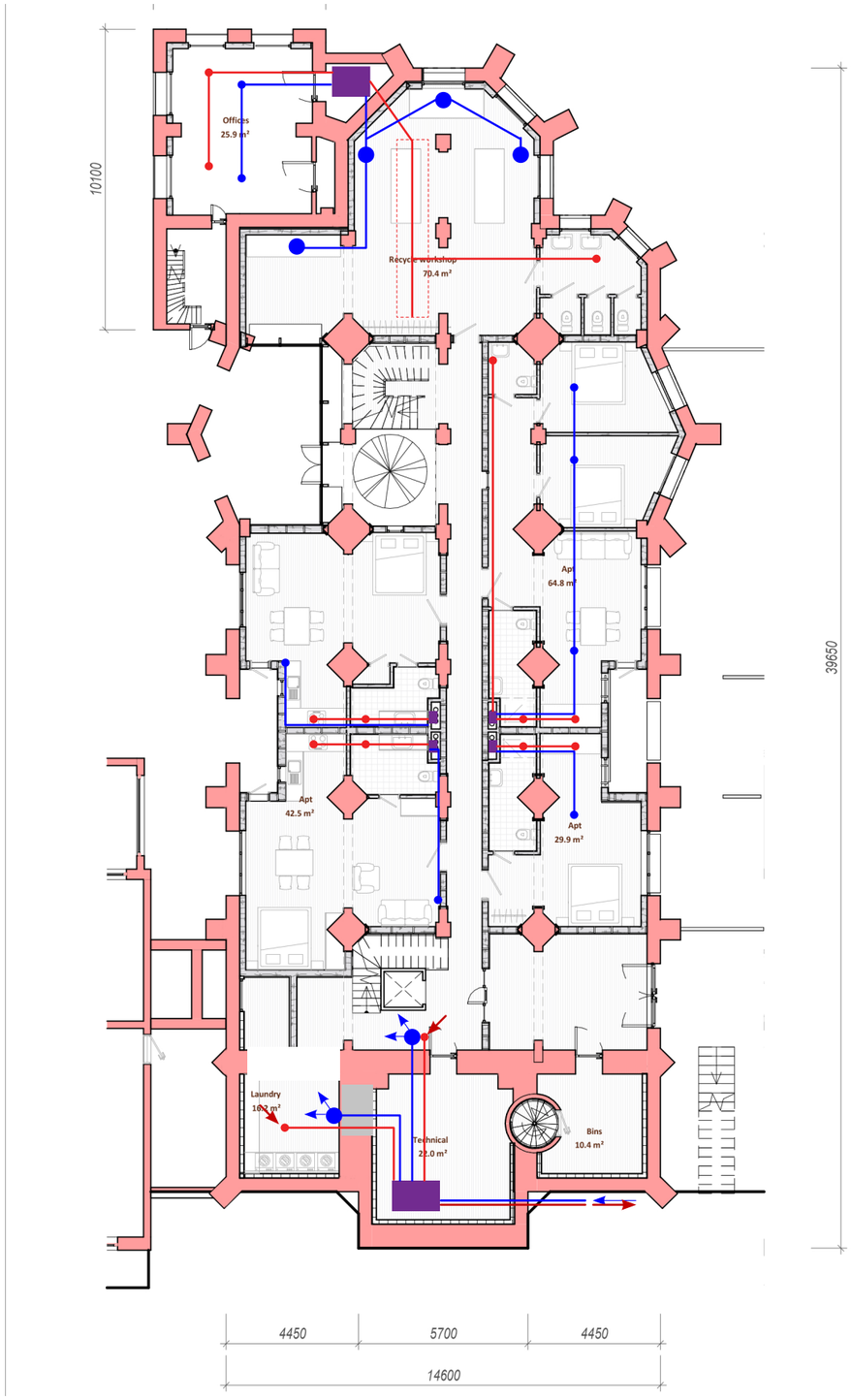


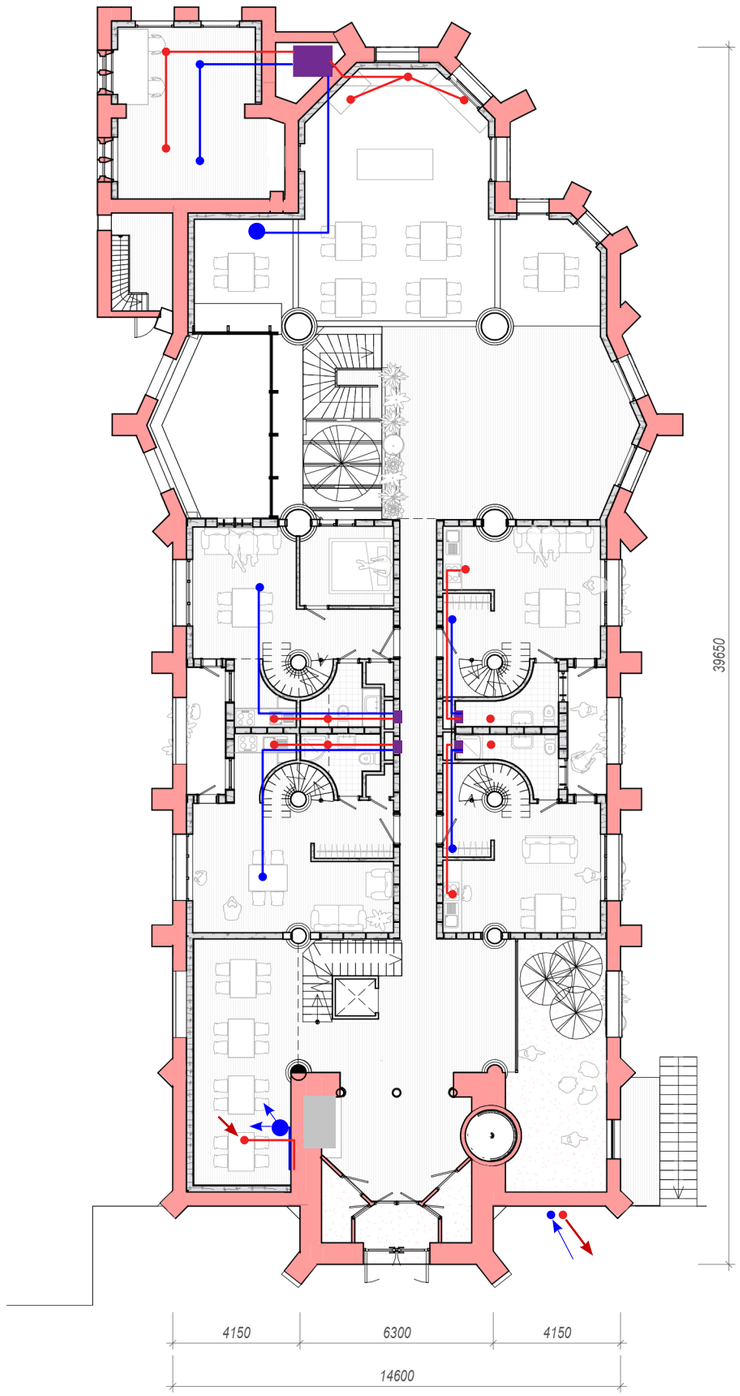




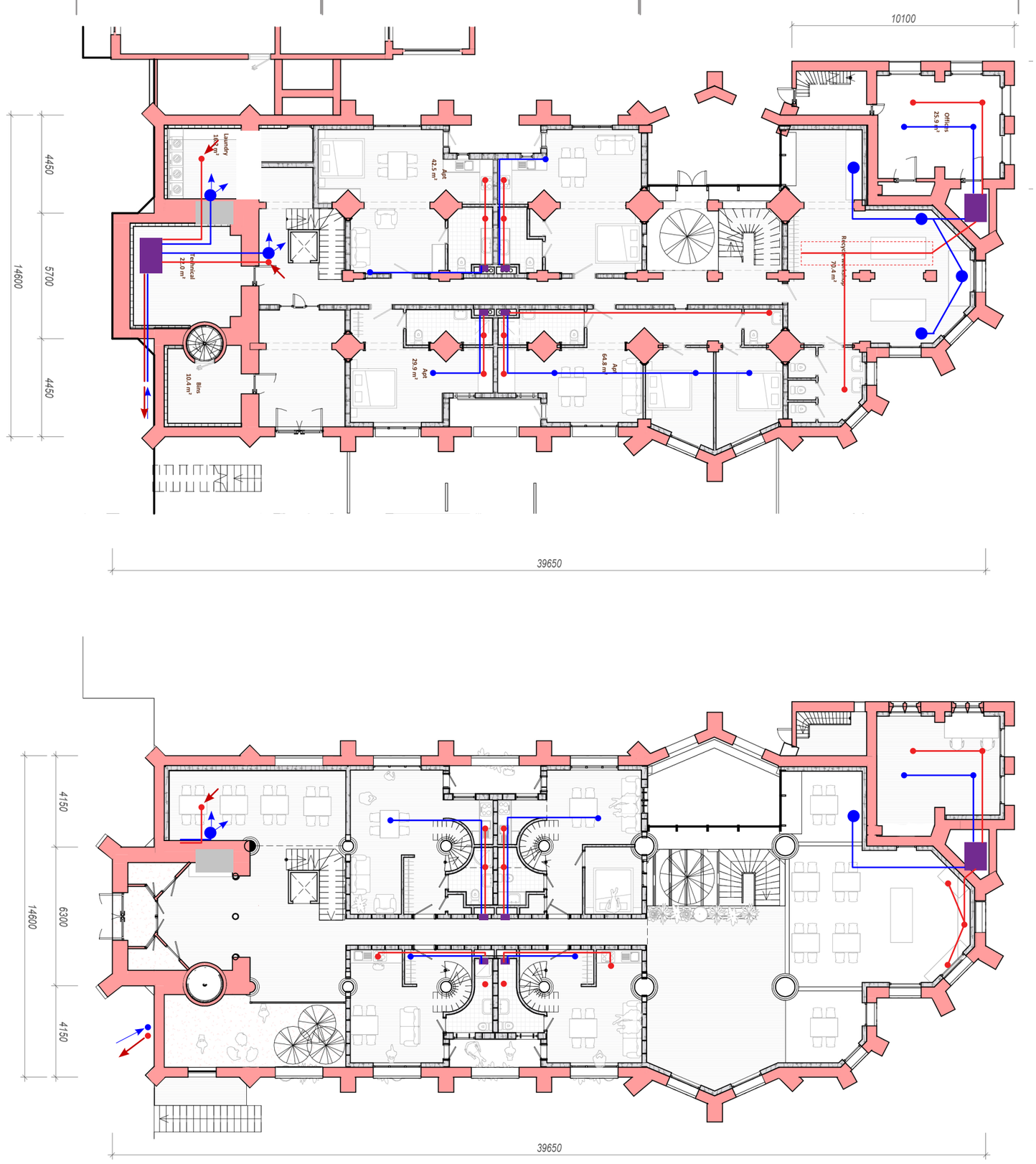


Climate


Office
25.9 m²
Recycle workshop
70.4 m²
Apt
64.8 m²
Apt
42.5 m²
Apt
29.9 m²
Laundry
10.2 m²
Technical
22.0 m²
Bins
10.4 m²
10100
39650
4450
5700
4450
14600

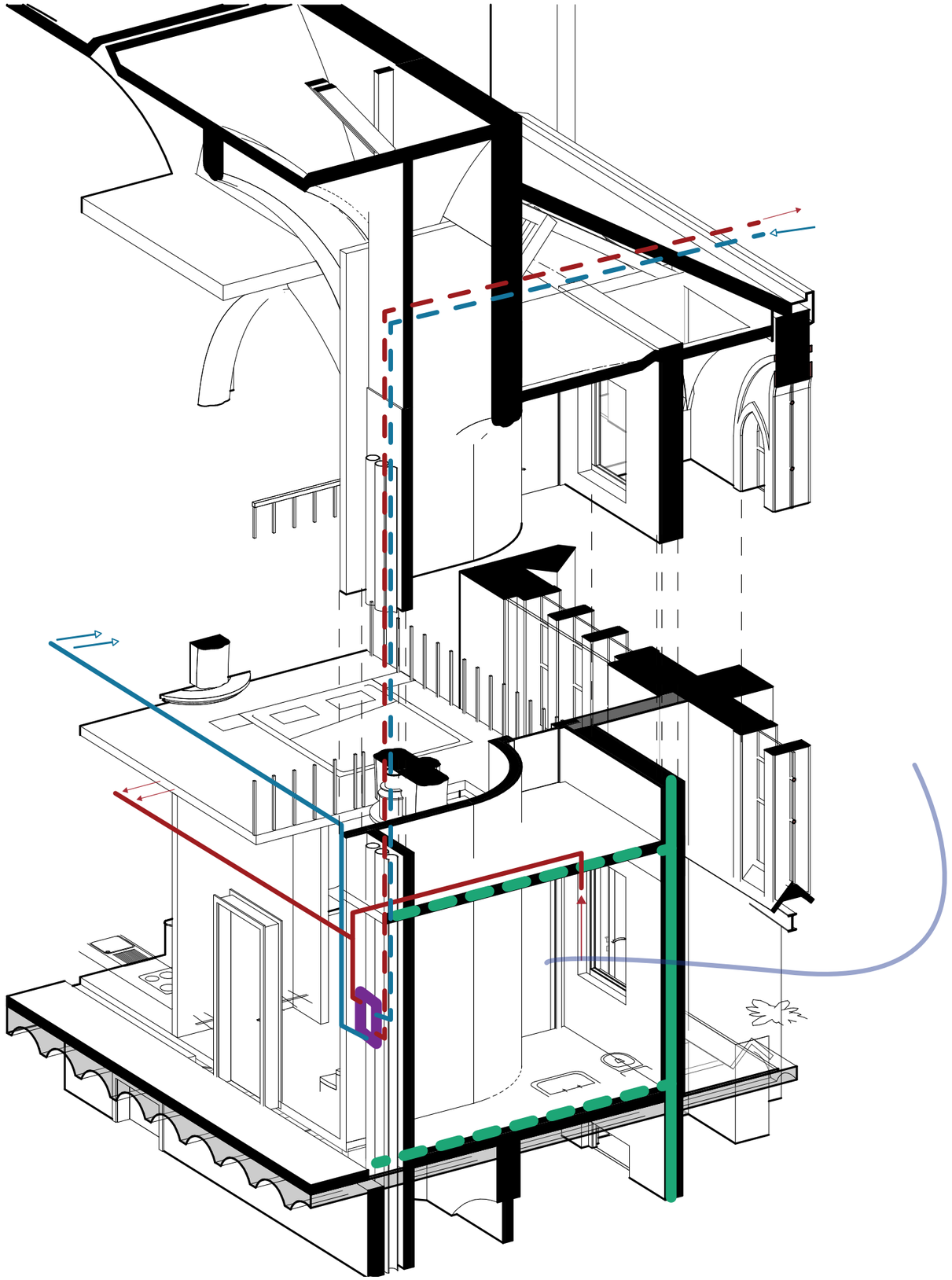

39650
4150
6300
4150
14600

Shared | Individual | Shared



Shared | Individual | Shared

40



Ventilation and thermal confort

Thermal insulation - Hempcrete 200mm

Acoustic insulation - Hempcrete 50mm

Heat recovery individual box unit

Air outake (moist spaces)

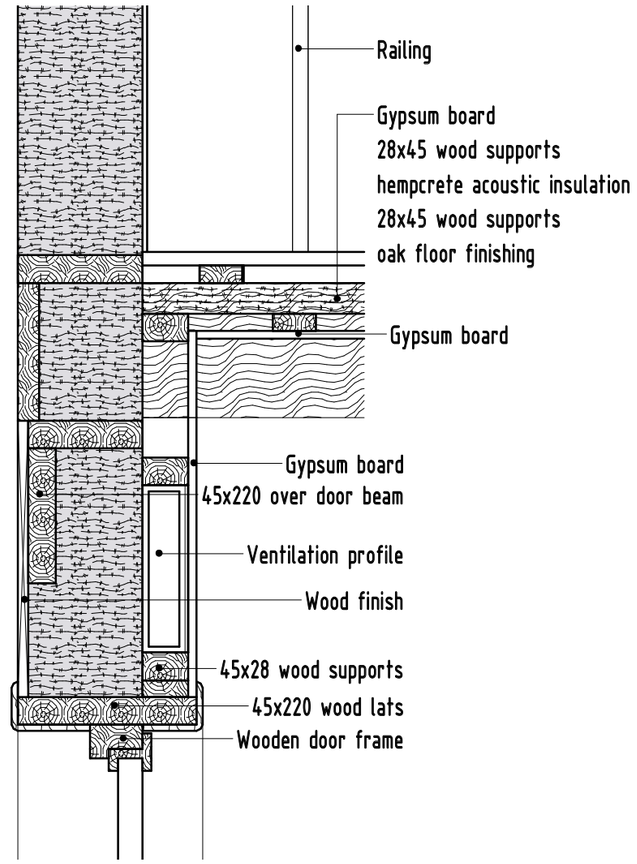
Air intake (living spaces)

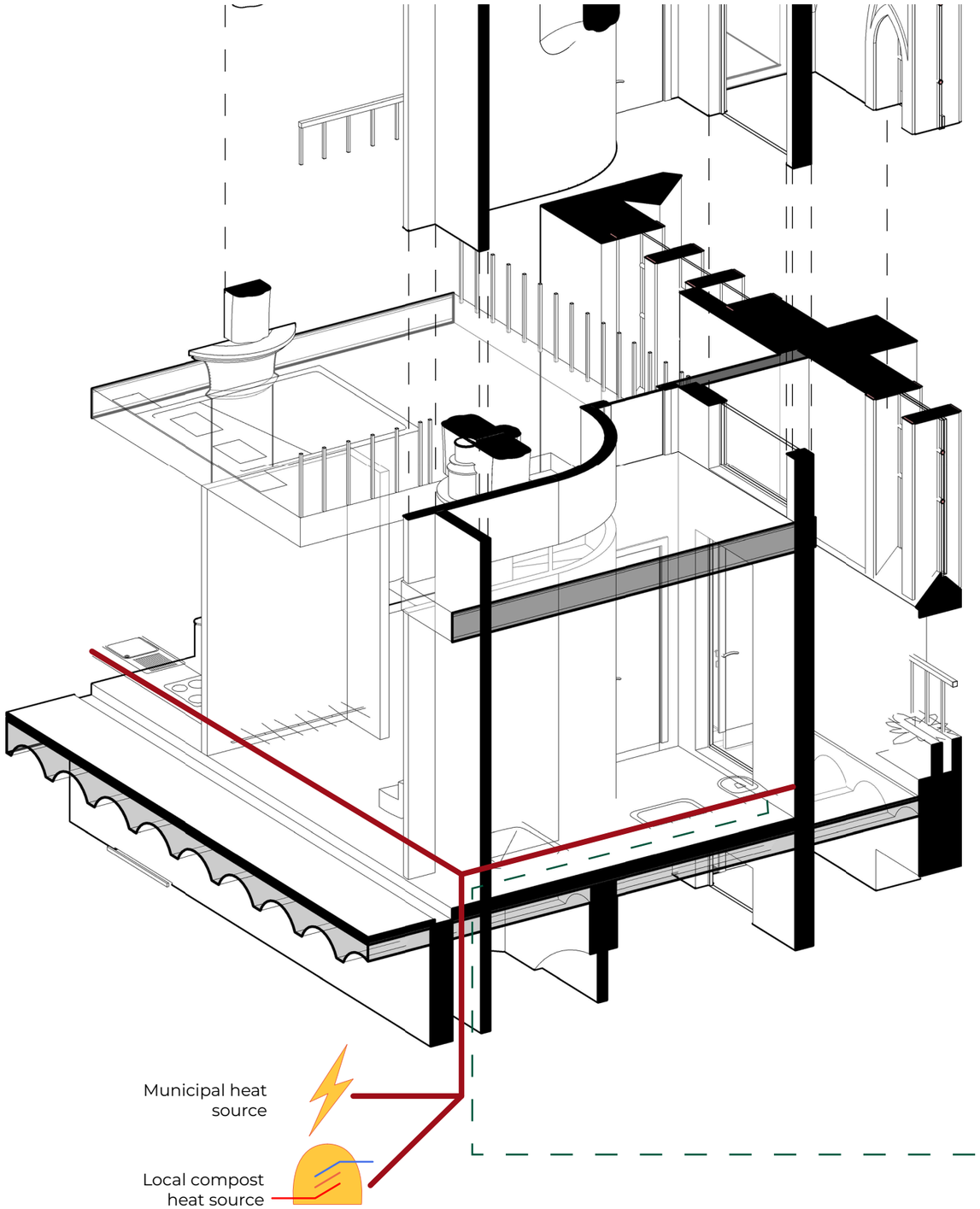
Dirty air outake

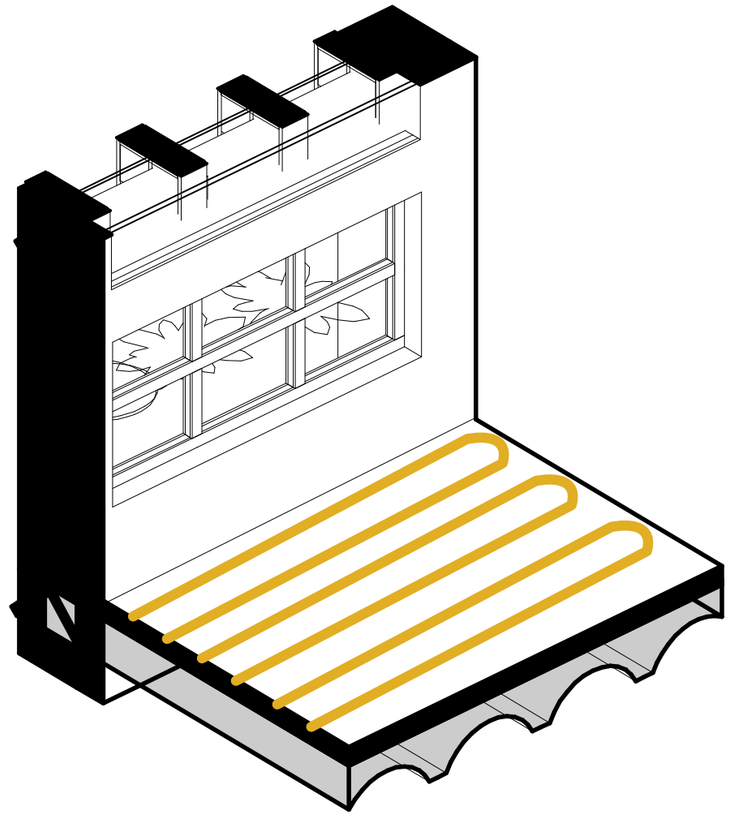
Fresh air intake

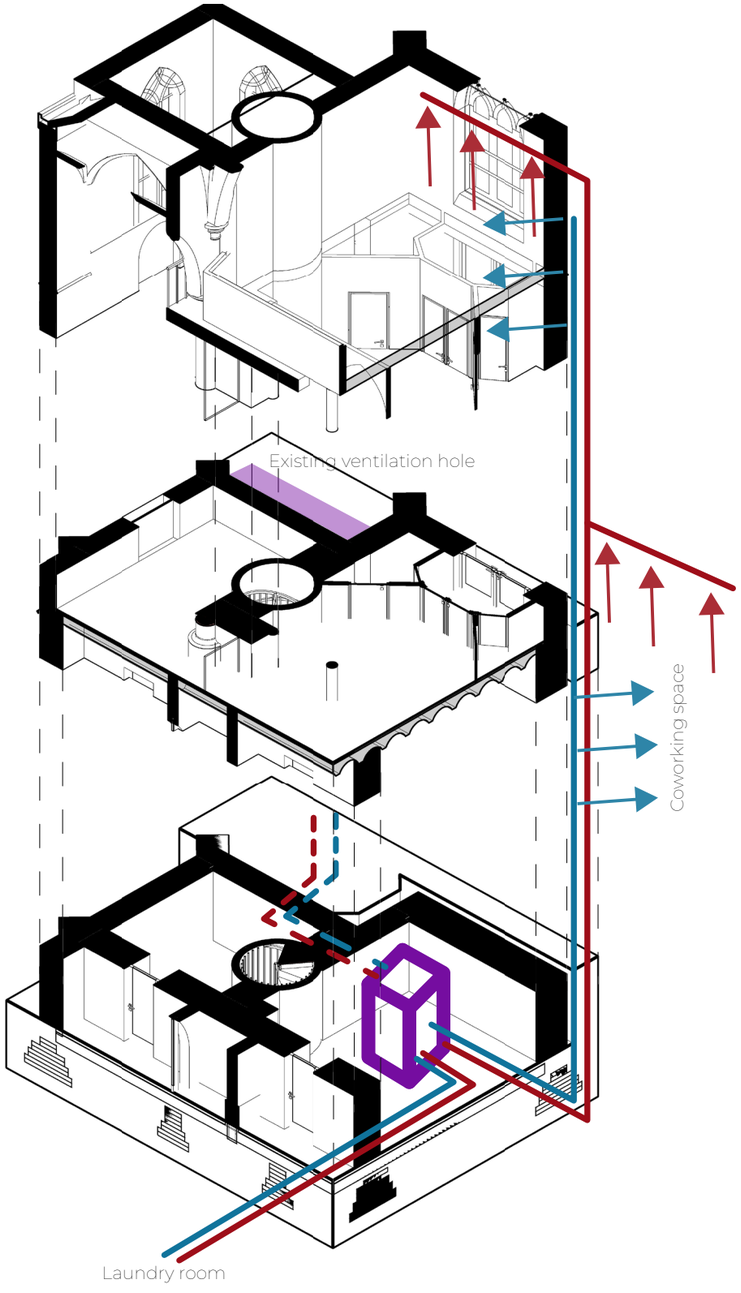
Natural ventilation

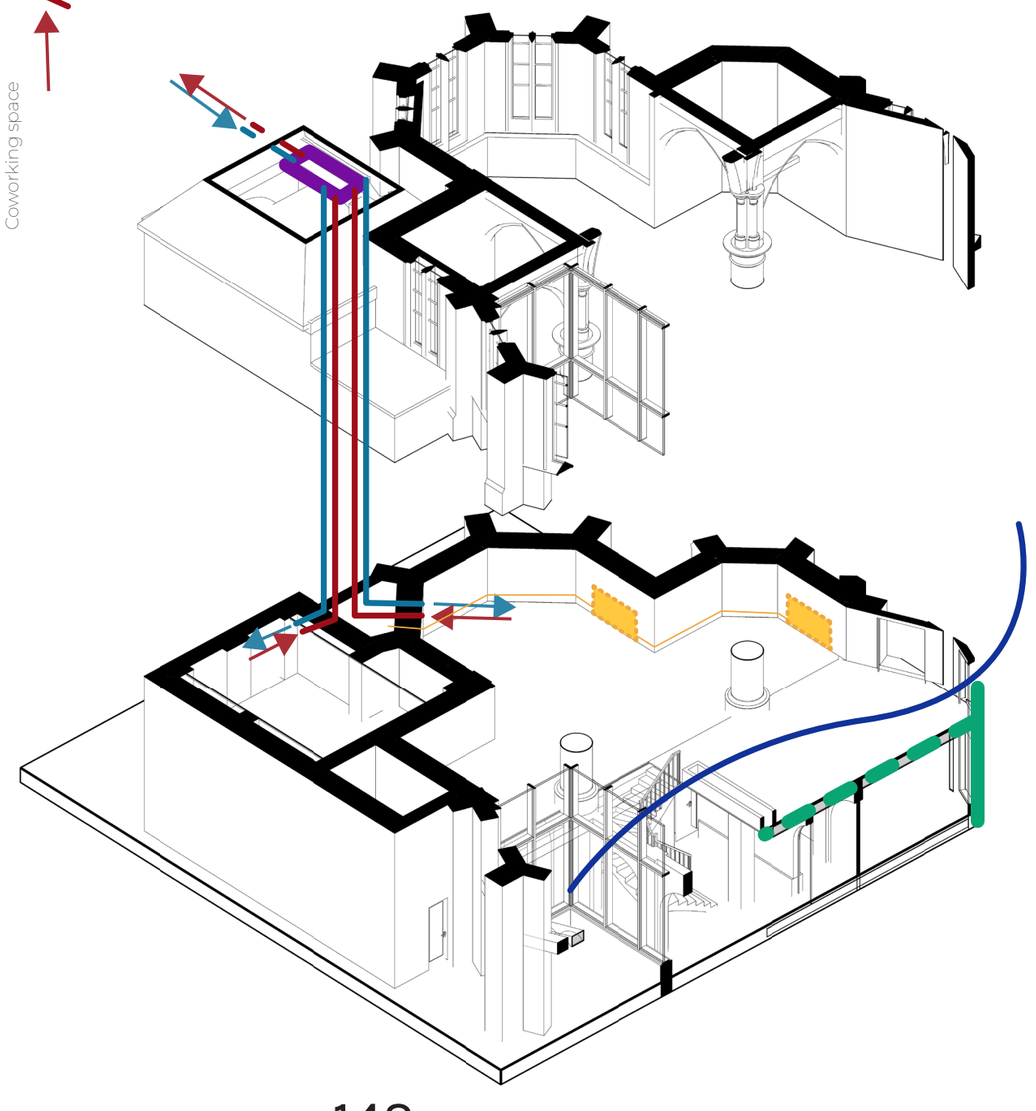
Floor heating




Municipal heat source
Local compost heat source







Ventilation and thermal confort

Heat recovery box unit

Air outake

Air intake

Dirty air outake

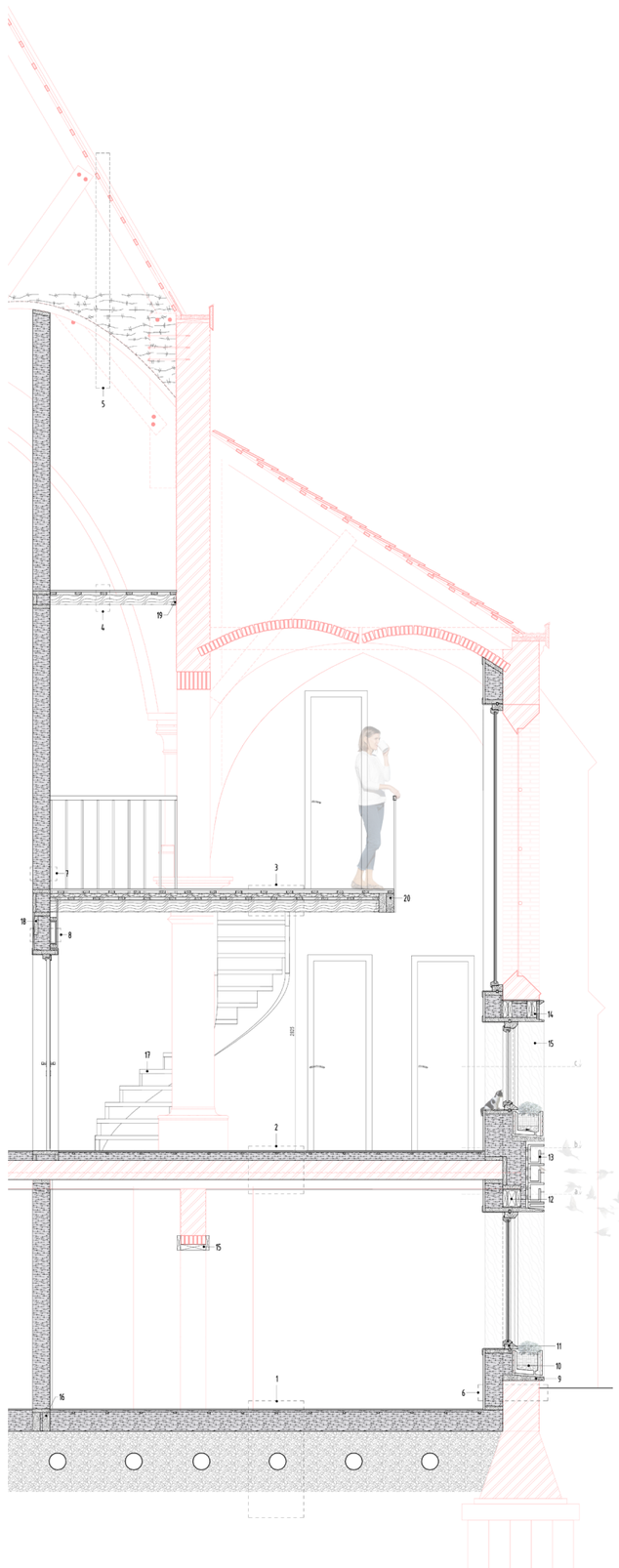
Fresh air intake

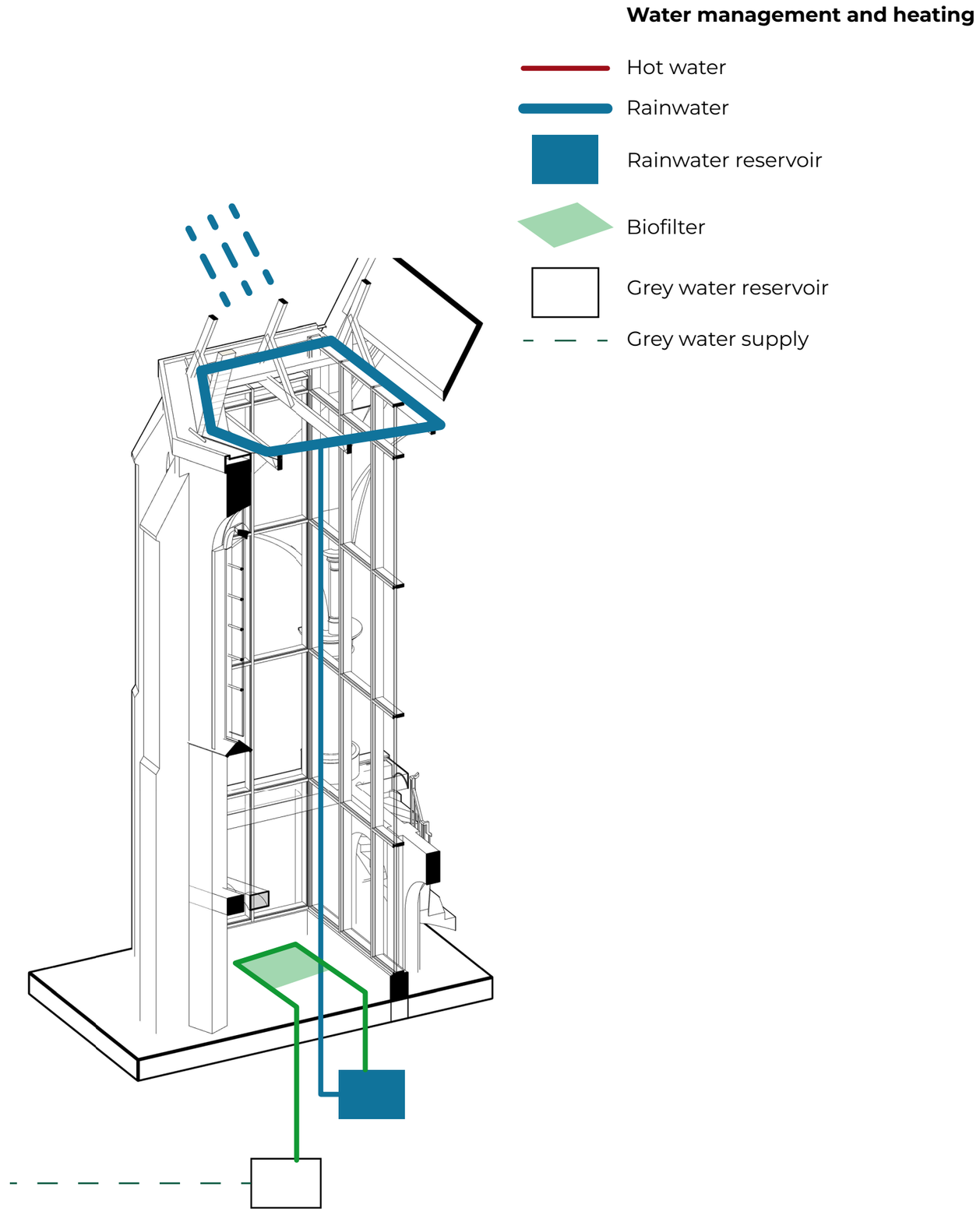
Natural ventilation

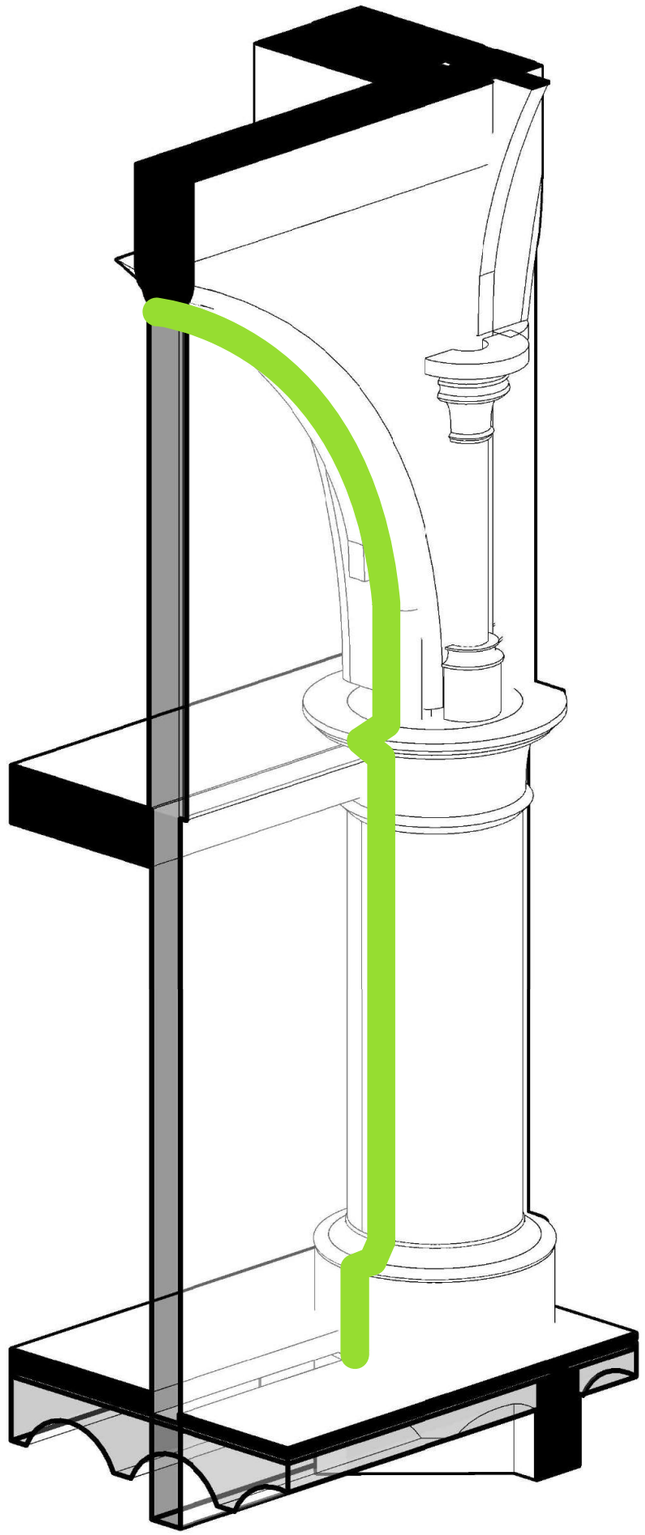
Thermal insulation - Hempcrete 200mm

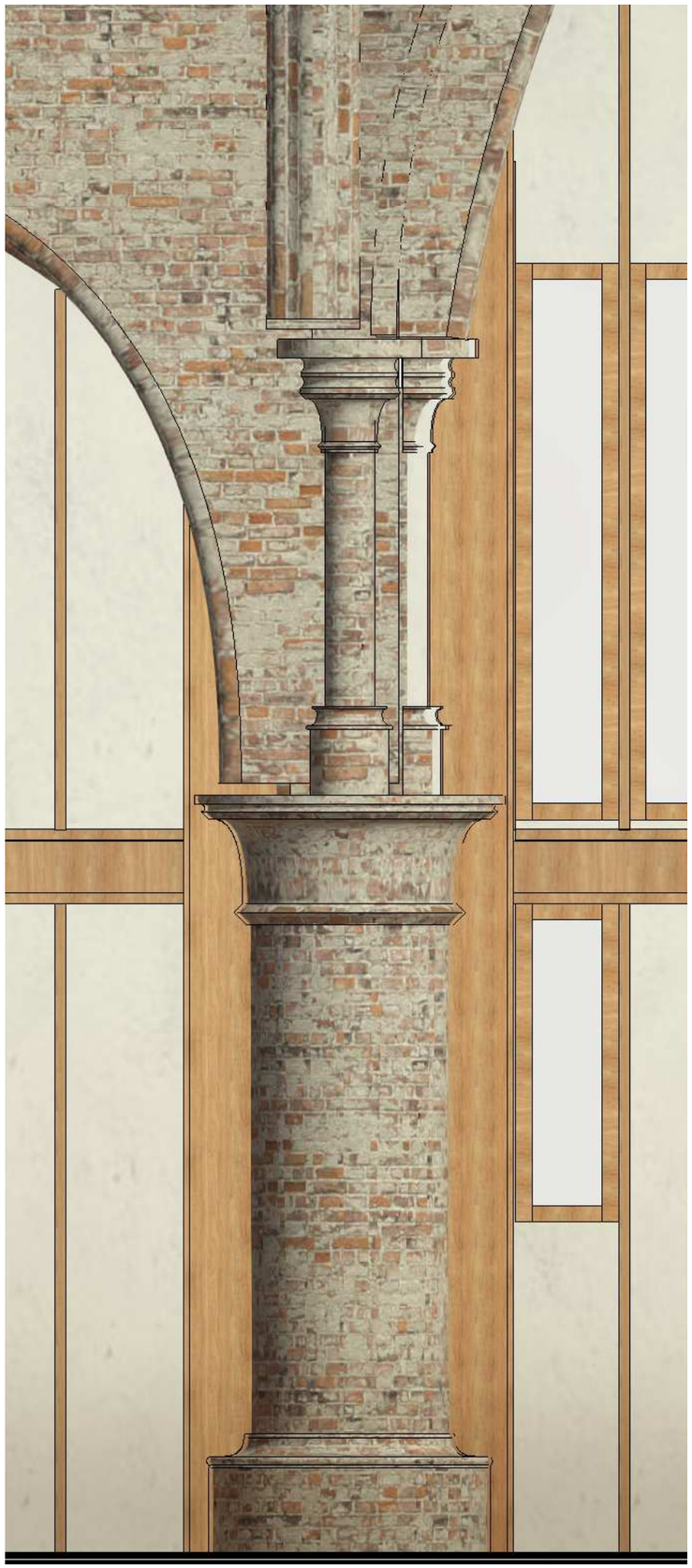
Acoustic insulation - Hempcrete 50mm

Existing water radiator places,
radiators changed with newer ones


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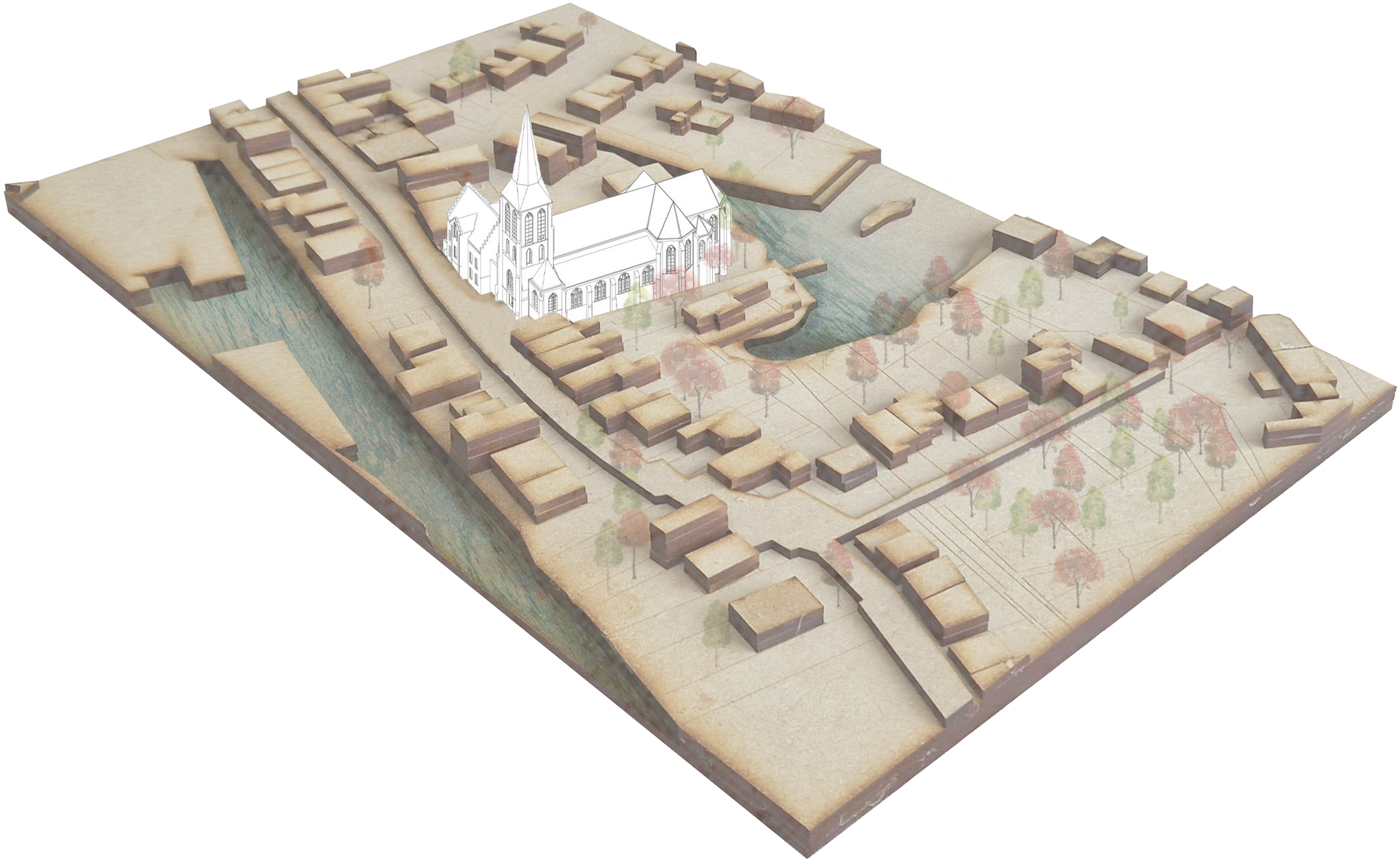

Water management and heating
Hot water
Rainwater
Rainwater reservoir
Biofilter
Grey water reservoir
Grey water supply





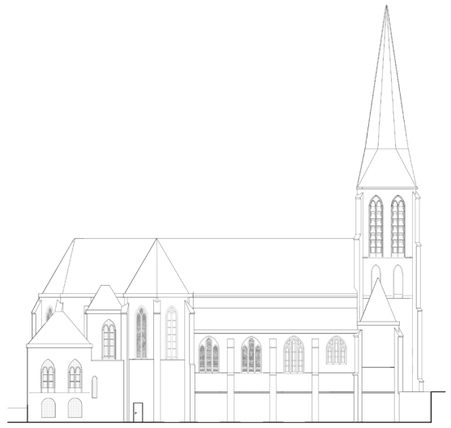






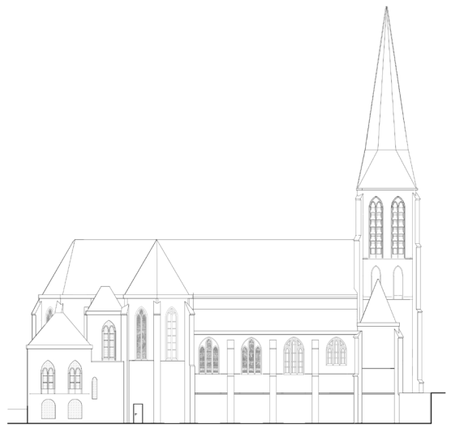


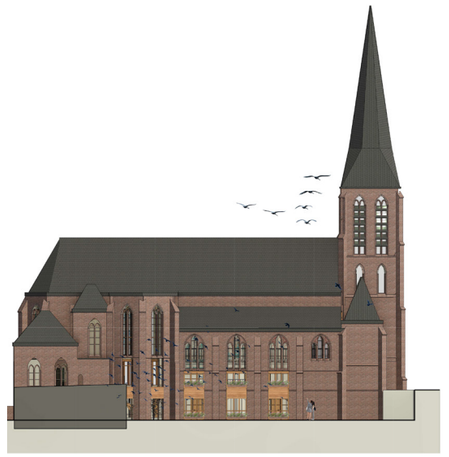














Thank you