

# Huis 't Velde: Story-based adaptive reuse of an estate

Overview



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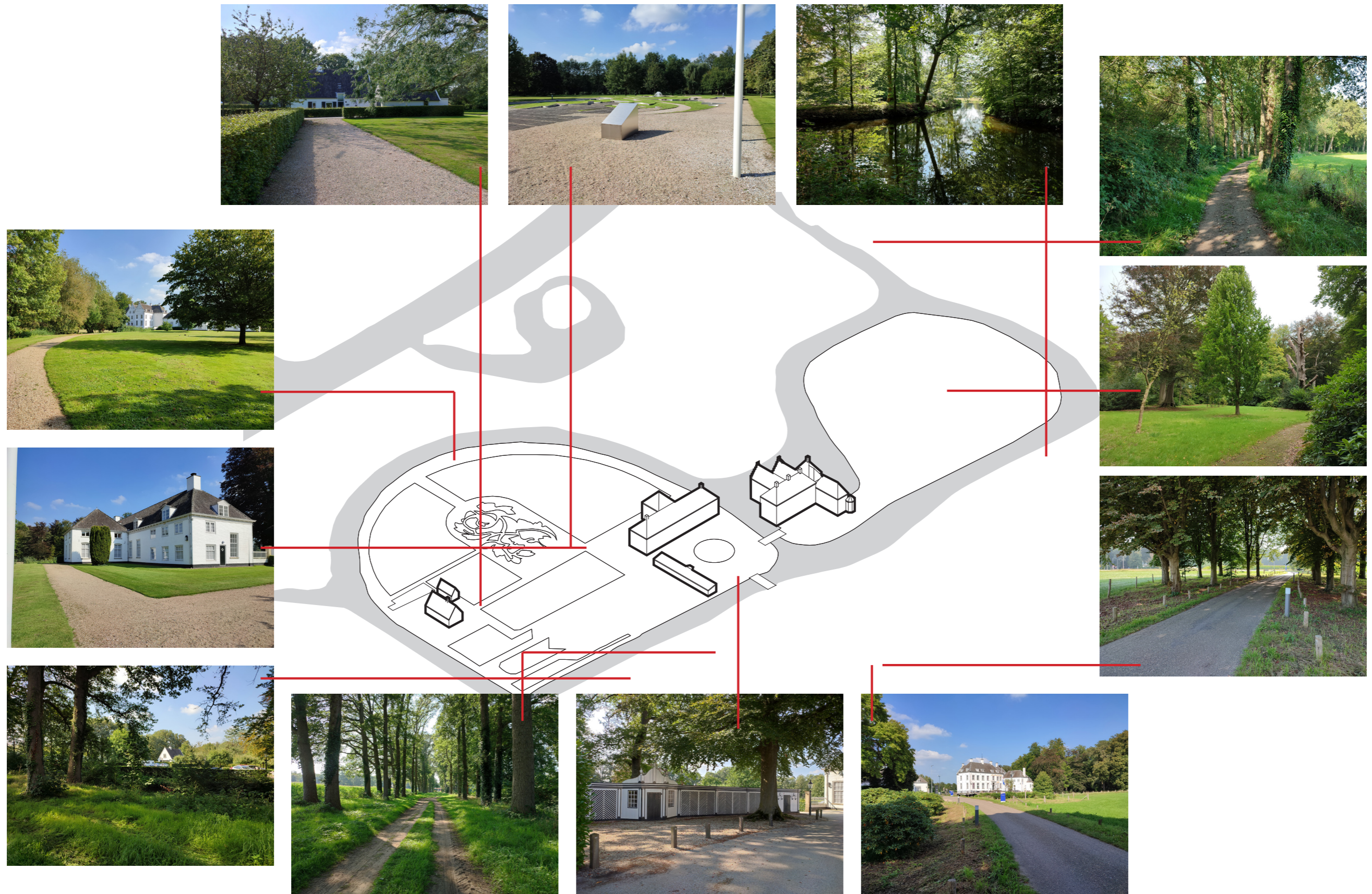








# Location





# Assignment

## Heritage and Architecture: Vacant Heritage

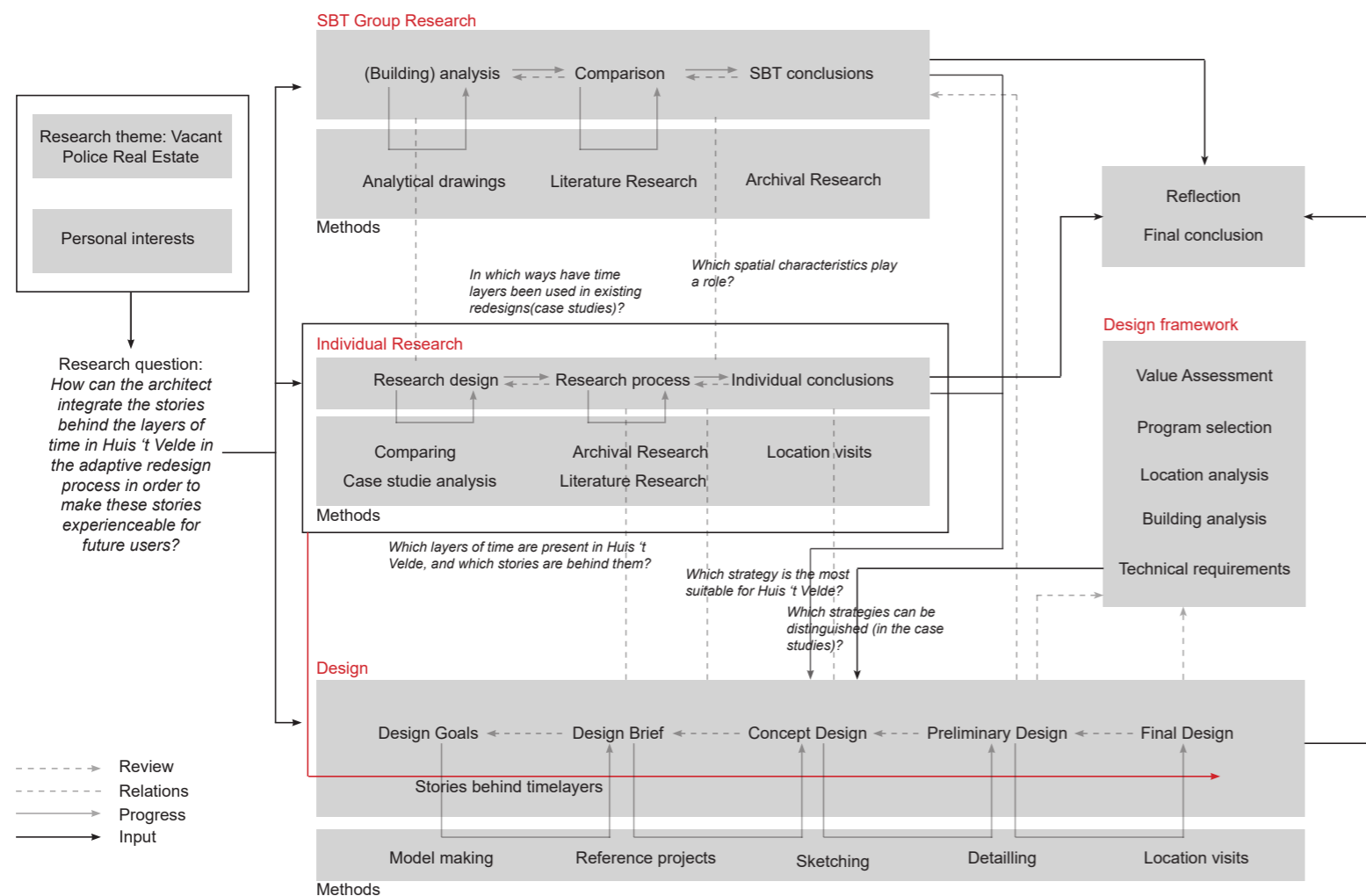
### Spatial Building Typology

3 components:

Group Research

Individual Research

Individual Design





# Problem statement

*The individual research aims to find strategies that can be applied by architects involved in adaptive reuse of country houses and estates to stimulate the experience of their timelayers*



# Research questions

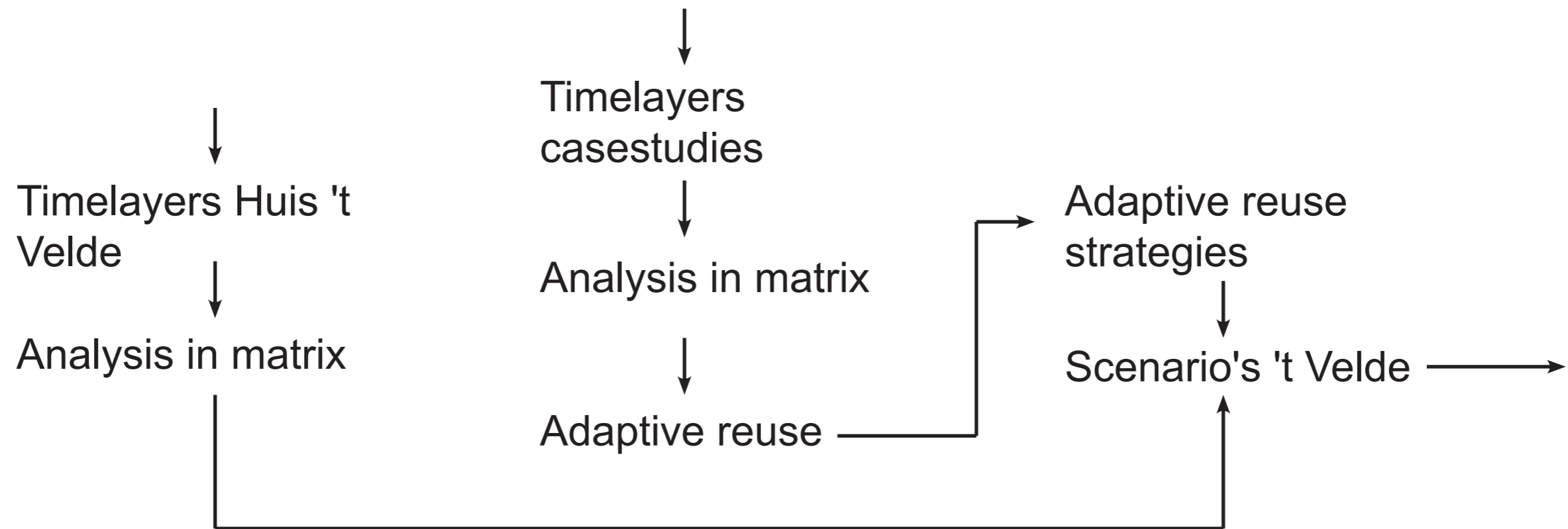
*How can the architect integrate the stories behind the layers of time in Huis 't Velde in the adaptive redesign process in order to make these stories experienceable for future users?*

- 1. Which layers of time are present in Huis 't Velde, and which stories are behind them?*
- 2. In which ways have time layers been used in existing redesigns(case studies)?*
- 3. Which strategies can be distinguished (in the case studies)?*
- 4. Which spatial characteristics play a role?*
- 5. Which strategy is the most suitable for Huis 't Velde?*



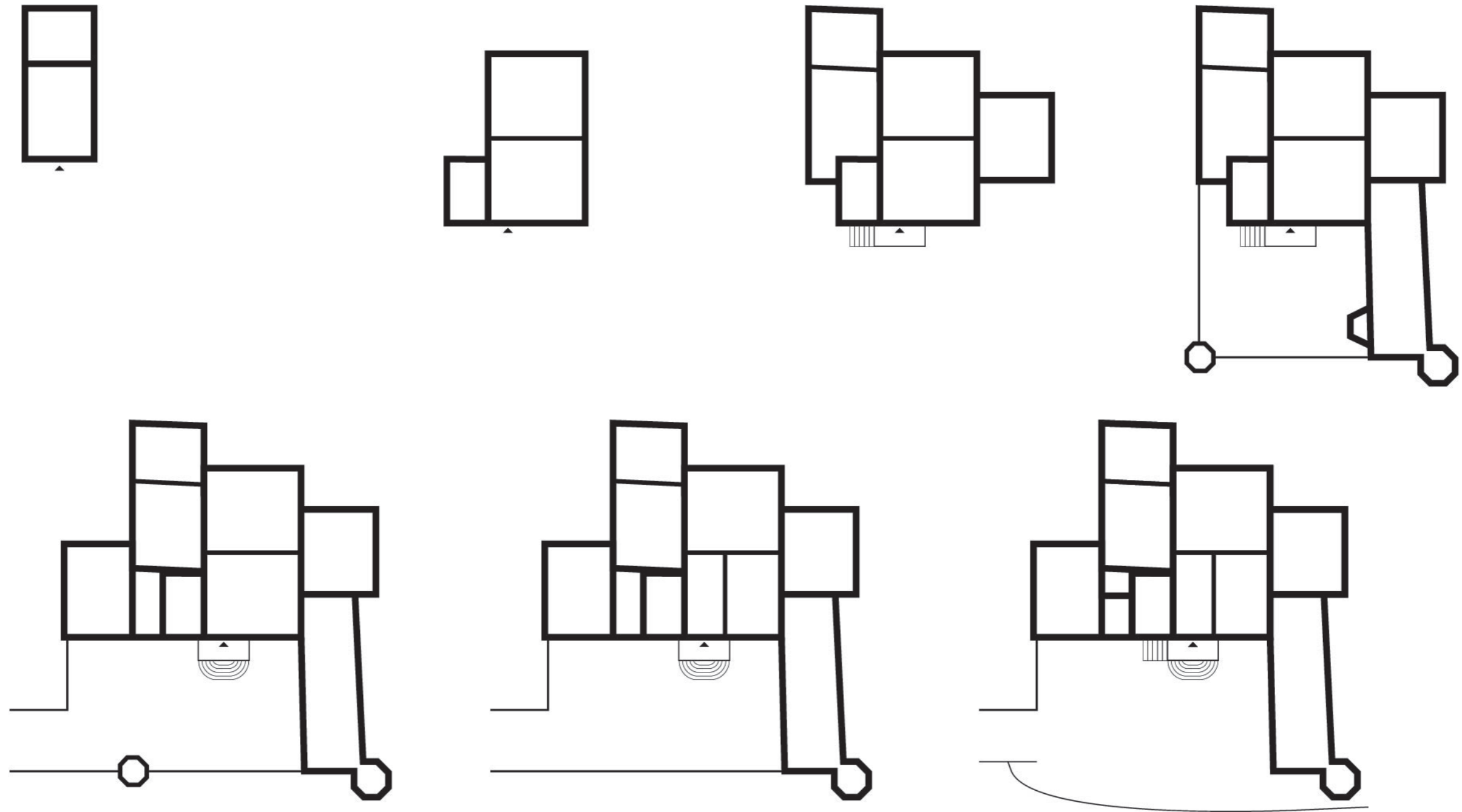
# Individual Research

*How can the architect integrate the stories behind the layers of time in Huis 't Velde in the adaptive redesign process in order to make these stories experienceable for future users?*



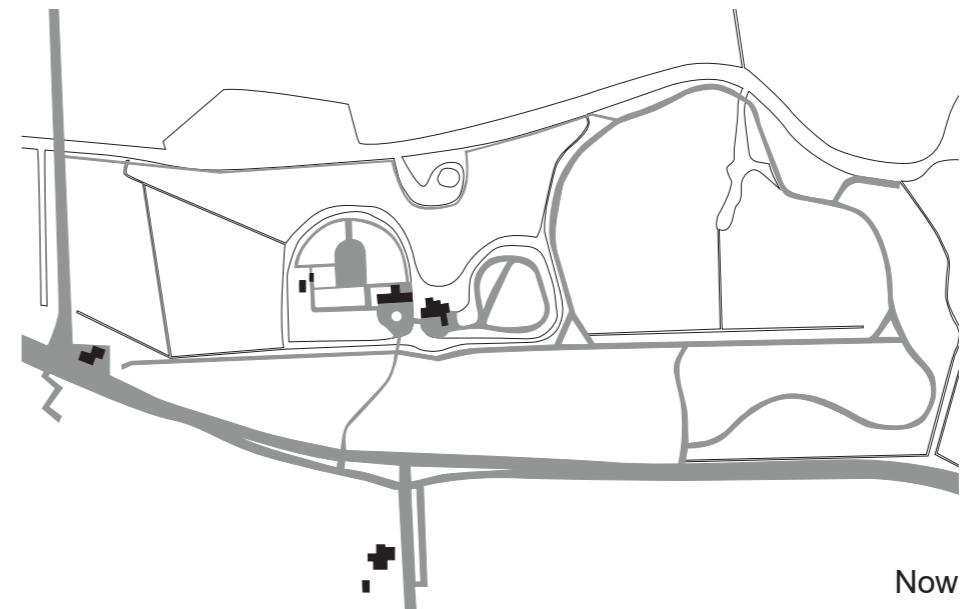
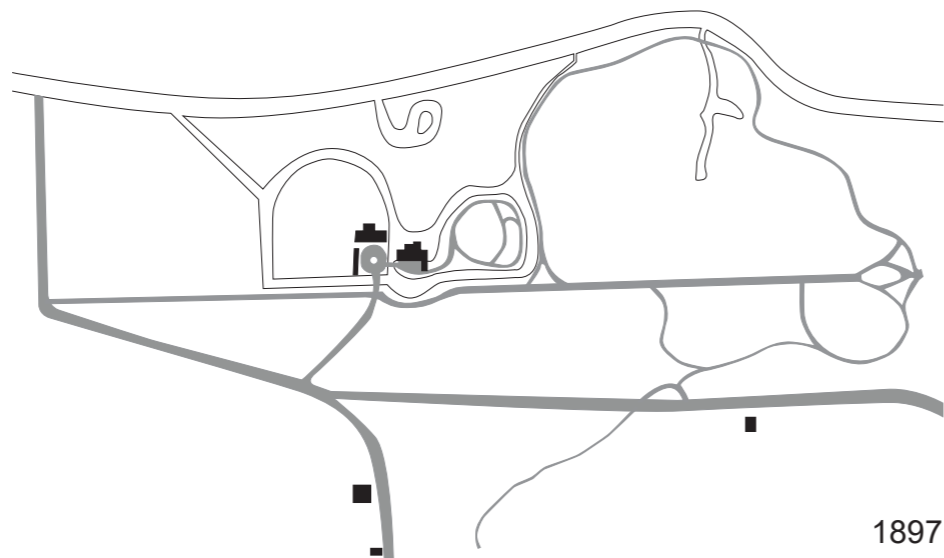
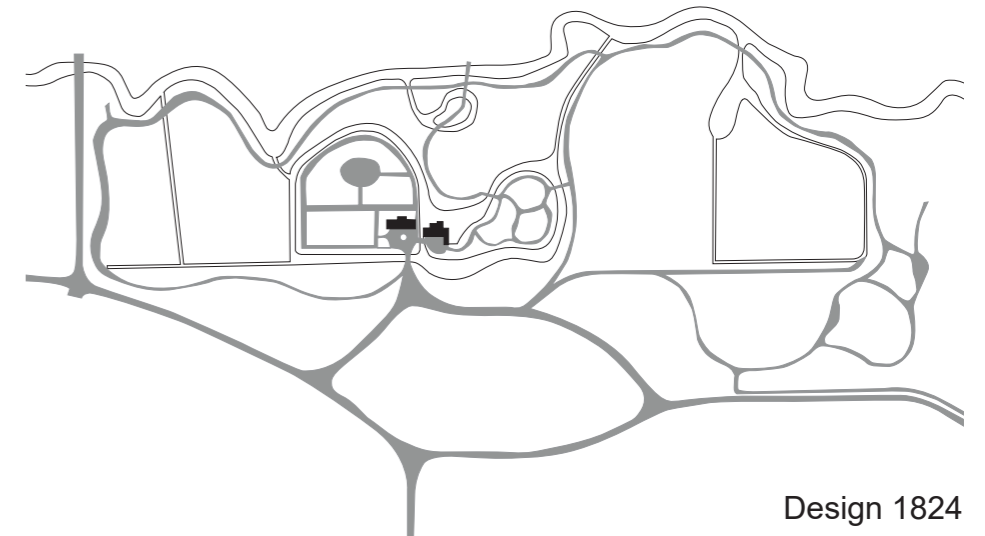
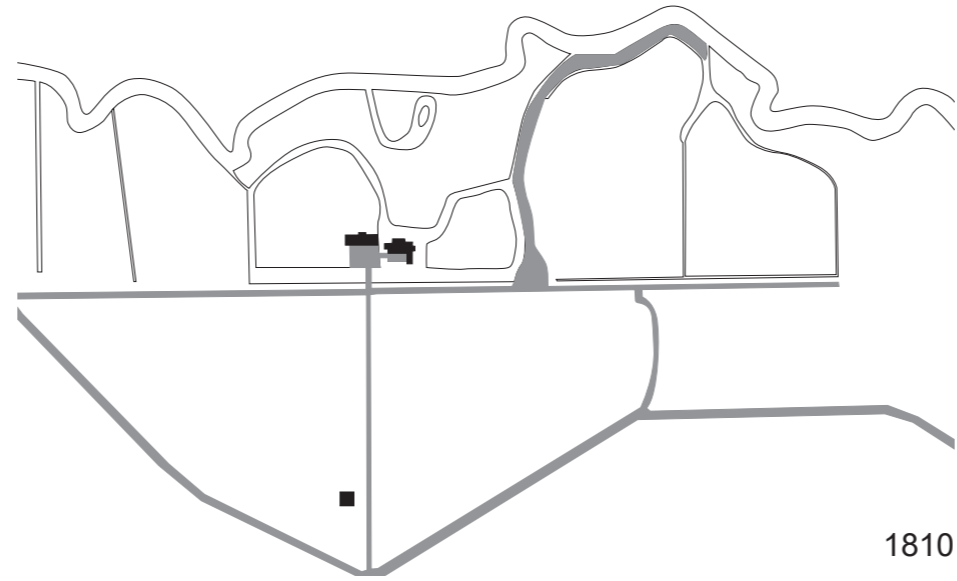
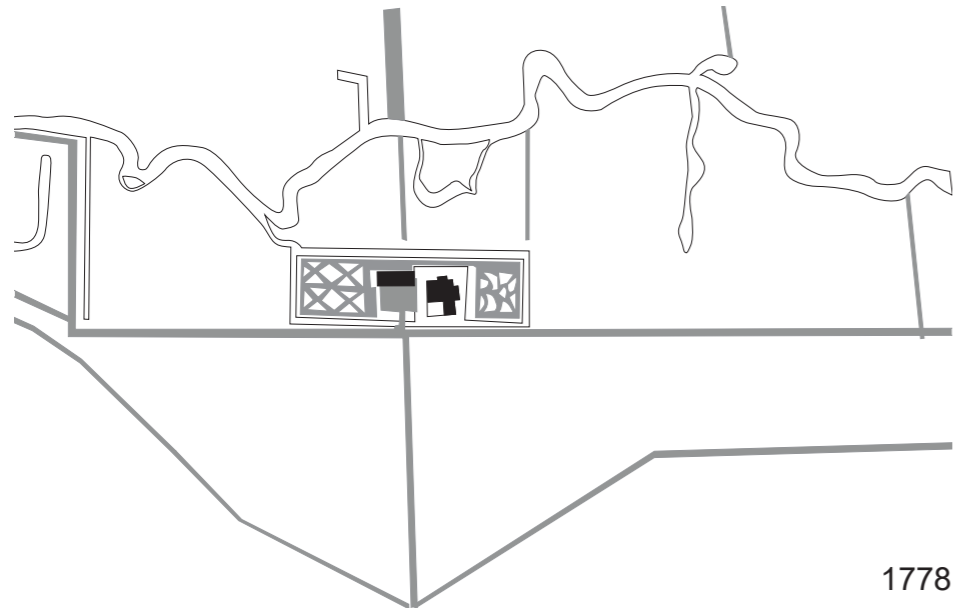


# Timelayers 't Velde





# Timelayers 't Velde





# Case studies



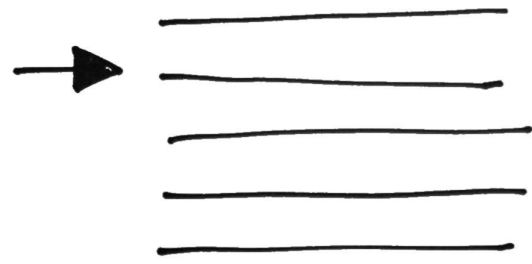


# Case studie: Hofwijck

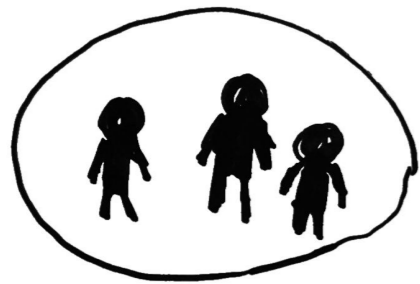




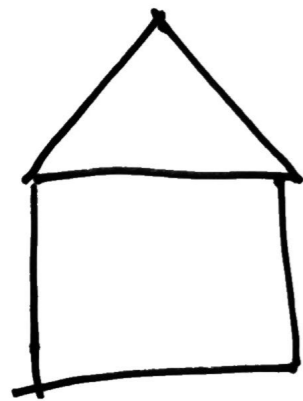
# Scenario: reconstruction (based on Hofwijck)



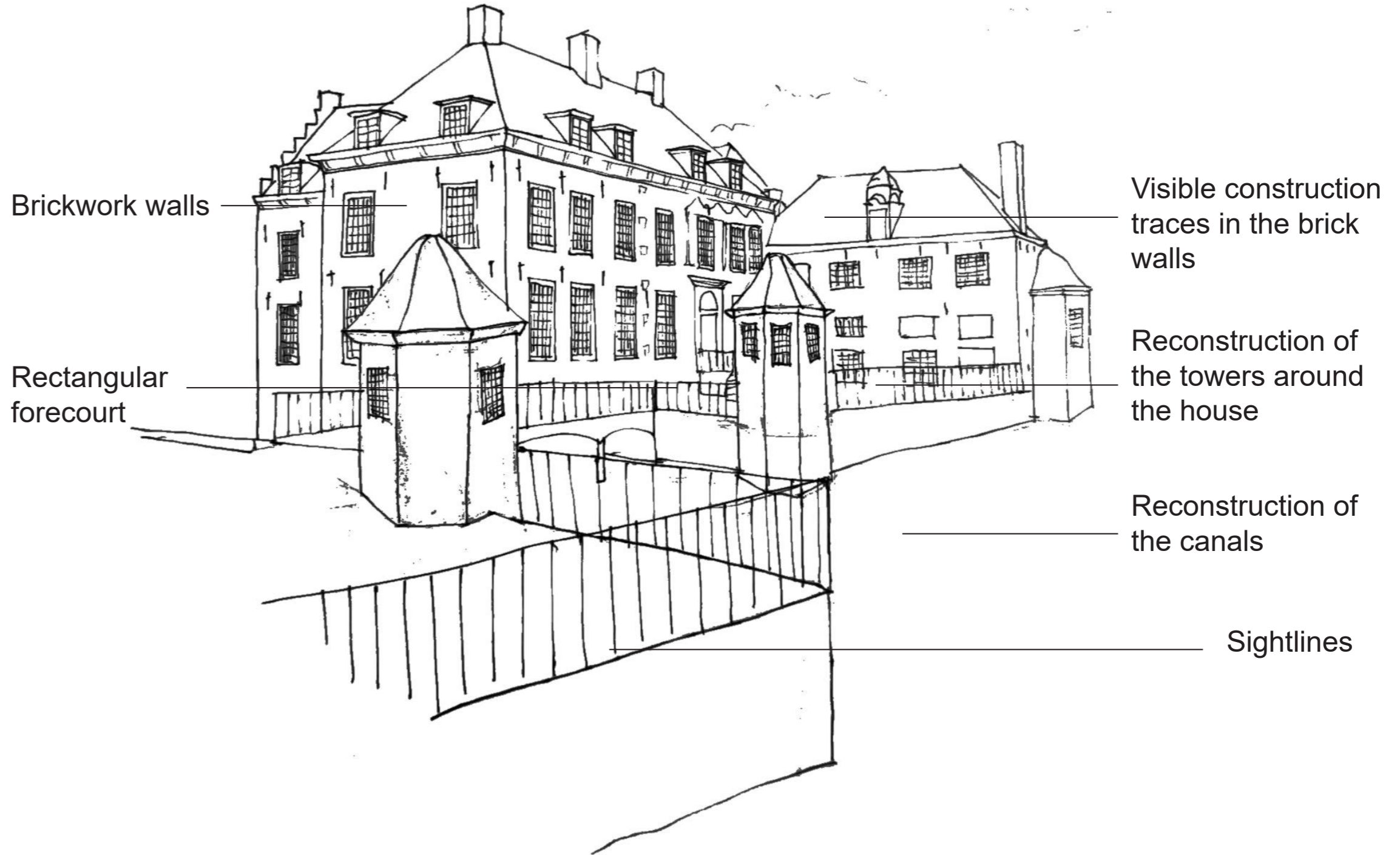
Focus on a specific, important timelayer, others removed or hidden



Focus on use and users in the past



No visible new additions, reconstruction of the past



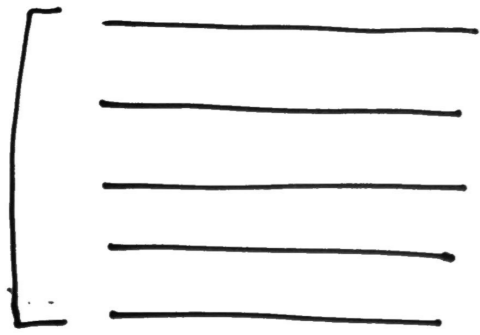


# Case studie: Oud-Amelisweerd

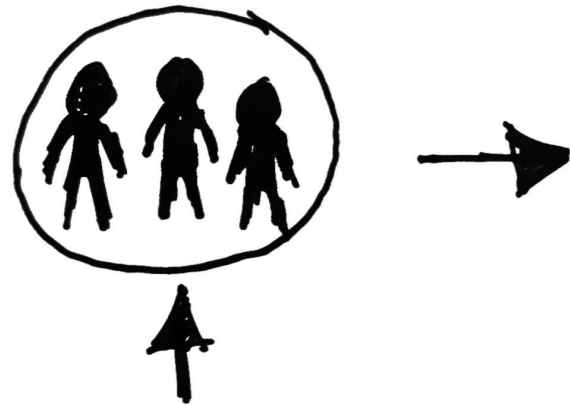




# Scenario: conservation (based on Oud-Amelisweerd)



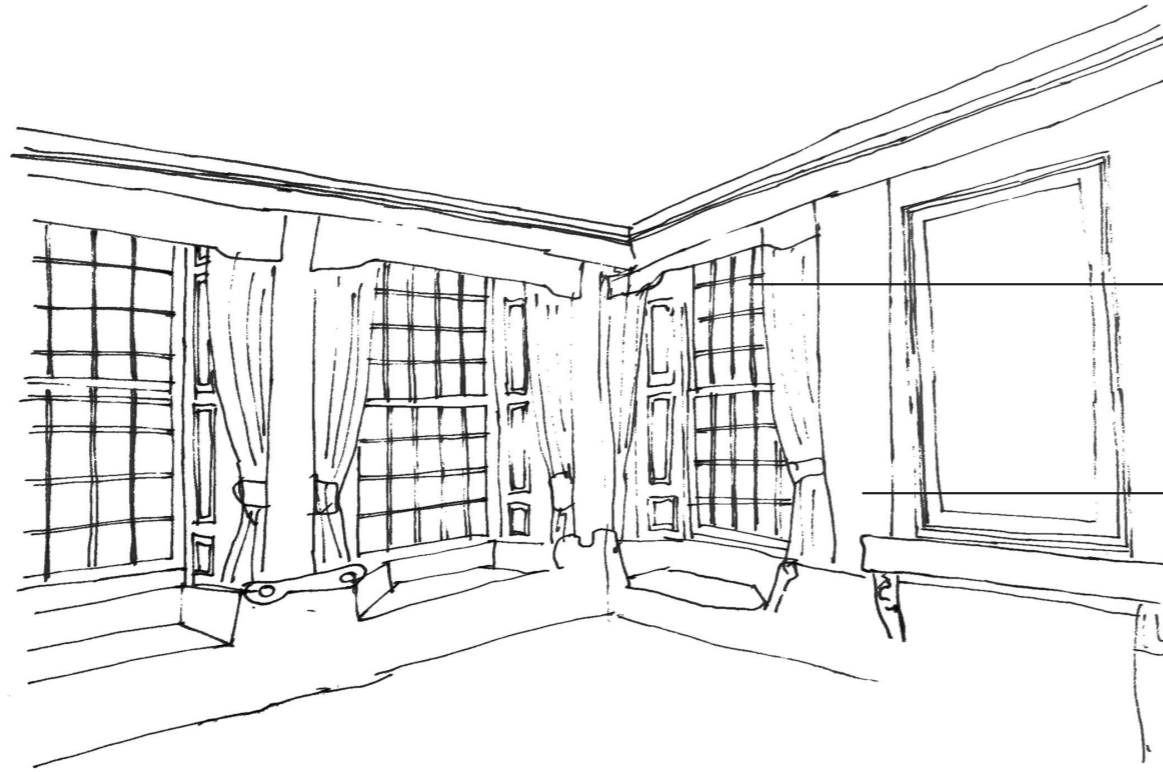
Conservation of all timelayers, but focus on restoration of the oldest



Past function and use is shown and a new function



Small new addition in the interior, subordinate to the existing



Suitable colors, based on color research

Restored wallpapers



Restored floorplan in the carriage house

Shop with locally produced products

Restaurant with terrace

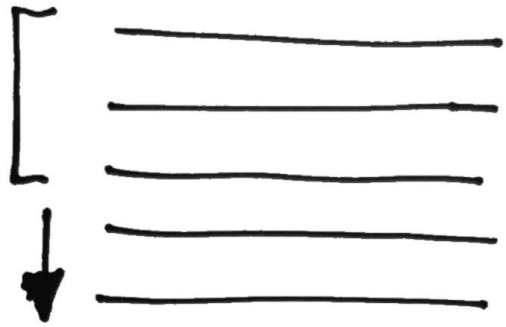


# Case studie: Duin- en Kruidberg





# Scenario: new time layers (based on Duin- en Kruidberg)



Existing timelayers are mostly kept, new layers are being added



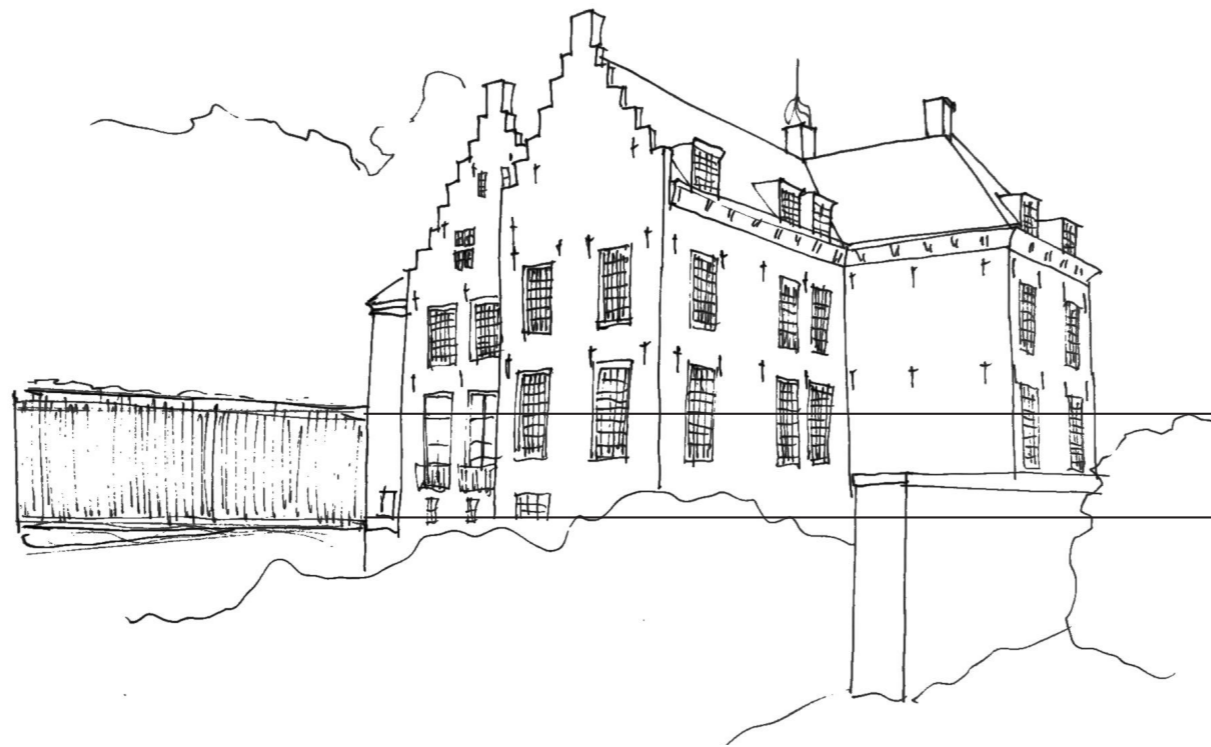
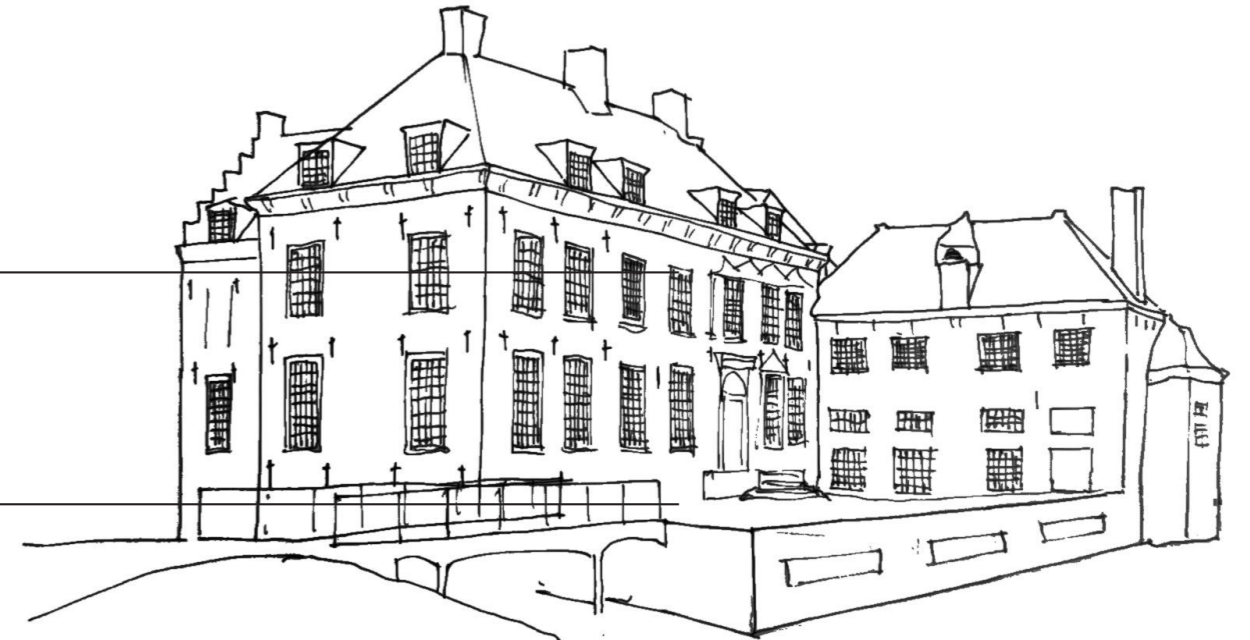
Continuation of use, and new functions added



Relatively large new additions to the exterior, more or less subordinate to the existing

Existing timelayers in the house are kept


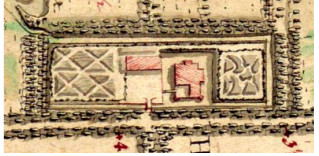
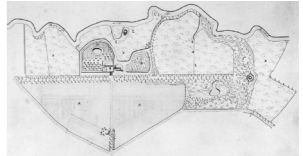
Extension underneath the forecourt



New extension besides the house, subordinate to the existing

Materialisation of the extension based on its location in the garden; wooden walls and green roof

# Matrix

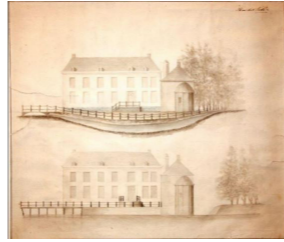



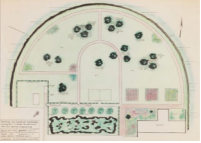
Timelayers	Stuff	Space plan	Services	Skin	Structure	Site	Story
<1538		Simple square shaped building with souterain, two floors and attic		Brickwork walls	Brick walls and oak floor and roof construction, gable roof		Oldest timela built for Henr
1538		New building, besides the existing building. Rectangular shaped building.		Brickwork with ornamentation in natural stone;	Brick walls and oak floor and roof construction, gable roof	Probably vegetabe garden and orchard	Building built start of the c
ca. 1560?		New wings on the back and sides of the building		Brickwork walls			Start of the e growth of the
1597		New wing on the front side of the building					Next extensio part of the bu that the famil time.
1701	Modernization of the interior by Daniel Marot. Still visible in at least two rooms at the first floor	Main wing of the house extended	Two new chimneys	Brickwork, existing windows replaced with 'schuiframen met roedes', two new windows in the front facade	New roofstructure for the main wing, (in pinewood?), hip roof	Construction of the avenue structure around 't Velde and De Voorst	House bought for the Dutch Van Keppel o Voorst.
1778						Plan of the garden shows first reliable information. Rectangular canal, vegetable garden, 'engelsche partie', sight lines towards De Voorst and in front of the house 	House owne
1810						Changes in the canal structure around the house. No longer straigth, but in more natural forms, based on the ideas of the English landscape garden 	House owne Realisation o landscape ga



	<b>Value</b>	<b>Design impact</b>
layer, small (defense) tower rick van Suderoes	Hardly any to no building parts left; possible building traces in foundations do have a age value	
for Bentinck family, actual urrent building and	General historical value because of link to the Bentinck family. Architectural value because of the ornamentation in renaissance style.	Very important in the architecture in the back facade of the main house; therefore used in the design of the extension
extensions of the building, e building.	Architectural historic and age value as part of the development history of the building	Growth principle used as a basis for the extention of the house
on of the building, use of this uilding for staff. Might show y is getting richer around this	Architectural historic and age value as part of the development history of the building	Different types of spaces, staff, quests etc. respected as much as possible.
nt by Van Keppel, who worked (and English) royal family. combined T Velde with De	Architecture historical value due to many high quality architectural interventions, interiors designed by Marot, architectural relation with De Voorst. General historical value due to the important inhabitants/ users.	Architecture as much as possible respected, interior made visible again where possible.
d by Van Dorth family,	(Landscape) architectural value because of the use of sightlines and the garden design.	Sigth lines kept and enhanced by making a new viewpoint in the extension, along the main sight line. New vegetable garden added to the estate. Relation with De Voorst respected.
d by Van Dijk family. of a garden in a new style; arden	Landscape historical value because garden design, in line with wider sociatal developments.	Garden design kept and where possible enhanced.



# Matrix

Timelayers	Stuff	Space plan	Services	Skin	Structure	Site	Story
1824	Stucco in entrance hall			Stucco facades, 'empire vensters' 		Walls around the forecourt replaced with slopes. Design for the garden by Hendrik van Lunteren in an English landscape garden style. 	Major change in building; facade painted white
1897				Facades covered in vegetation			Further expansion and farmland
1962	Changes in the interior. Spaces painted in the colors of different police forces. New furniture in many rooms	Room at the first floor split up. New meeting rooms created at the attic.		Restoration of the exterior. 'Schuiframen' brought back. Stucco replaced with a layer of chalk paint		Three farms that were part of the estate sold separately	House owner Kasteelen. Reuse for the new use.
1987						New garden design for part of the park by Hoefakker 	Redesign by
2005						Memorial garden for police officers who died during their work	Use by the police officer

No longer visible  
Still visible



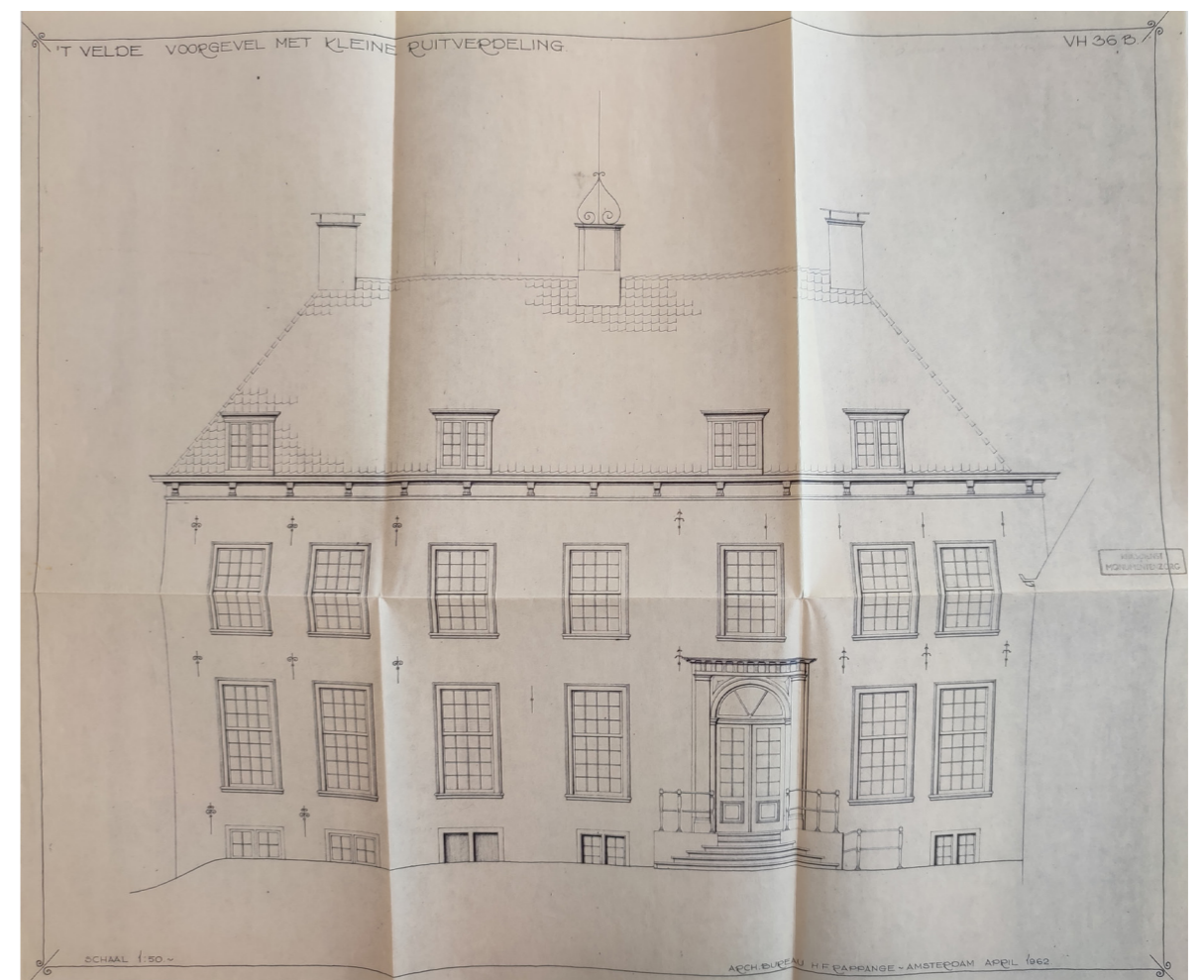
	<b>Value</b>	<b>Design impact</b>
es in the architecture of the ades covered with plaster, e-yellowish,	Architectural value and ensemble value for the redesign of the house and the garden as a unity.	Most important timelayer visible in the exterior after the redesign; recovery of unity of house and garden. Historic windows, plaster and colors restored.
ension of the estate with forests ds	Ensemble value	
d by Geldersch Landschap en restoration and adaptations for	Use value because of the improved technical state of the building and the changes in floorplan that were necessary for the new functions. Negative impact due to loss of historic windows, loss of material authenticity. Value due to visibility of prevailing restoration ethics.	Lots of research done in these years is used for the redesign. Reconstructions or restoration in the interior are mostly kept. Basic functional set-up (spatial qualities) reused. Hotel rooms on the first floor of the carriage house re used.
Hoefakker, use by the police	(Limited) architectural value of the redesign of the garden.	Garden design kept where still in place.
olice and stories of all the s who died during their work	Memorial value and emotional value	Memorial garden retained



# Windowframes

Timelayer	Skin	Story	Value
>1538	'Kruiskozijn' with sandstone ornamentation, 'glas in lood', geblazen glas	First building parts, built for Willem Bentinck, part of the building for a very long time	Age value, rarity. Value as one of the oldest parts of the building, makes it possible to experience
>1710	Schuiframen, small windows, getrokken glas	Extension of the front wing of the building, interior by Marot, for Arnold Joost van Keppel, who worked for Willem III	Value because of relation with interior finishing. Defining of the location of the windows, historical value because of famous inhabitants
>1810	Empire windows, larger blown glass	Changes in the garden and house, white walls, landscape garden for the Brouwer family	Unity between garden and house, and De Voorst, sight lines. Garden design by Van Lunteren
1964	Reconstruction of the 'schuiframen'	Story of restoration, new uses for the building, and refinding of the different time layers in the brick facades	History of restoration, but loss of historic material and visual timelayers
2022	??		





# Interior example: room 01.06

## Timelayers and current situation

This room has gotten its current size and form only quite recently, around 2007. The room was formed by combining three existing rooms and the hallway in between. Probably, the main reason to create this larger room was the need for a meeting room for a larger group of people.

The finishing of this room is relatively simple, and a few different timelayers are present. The ceiling consists of 'moer- and kinderbalken' and is currently painted in a yellow color. These 'moer- en kinderbalken' are mostly from the oldest building period of this part of the building, before 1700. Nevertheless, it's quite likely that part of these beams are replaced later; among others 3 of the main beams (moerbalken) were replaced in the 1960's.

All walls are plastered, most likely replastering was done in 2007. The space has a double floor; about 12cm above the constructive flooring, an elevated floor has been made. Under this elevated floor is space for installations. The new floor is finished with a combination of oak wood and blue carpetting, as can be seen in the drawing at the next page.

There are 3 doors entering the space. Two of them are double double-layer doors, entering space 01.07. The other one is door placed in the 1960's, in what used to be a simple opening in the wall connecting the hallways of the two building volumes. In the space are two foldable walls, placed in 2007 in order to make it possible to split up the room into two smaller rooms and a hallway.

## Values

Most valuable in terms of (architectural) historical value in this space are the moer- en kinderbalken, the two doubled doors and the window shutters. They each show a relation with other parts of the building, and show the craftsmanship of the builders.

The space itself mainly has a use value - the fact that a larger space is introduced to the building adds makes it possible to accommodate a wider variety of different group sizes. The size of the space doesn't relate to the history and the story of the

building, since historically the spaces at the first floor were used as living or sleeping rooms for the inhabitants.

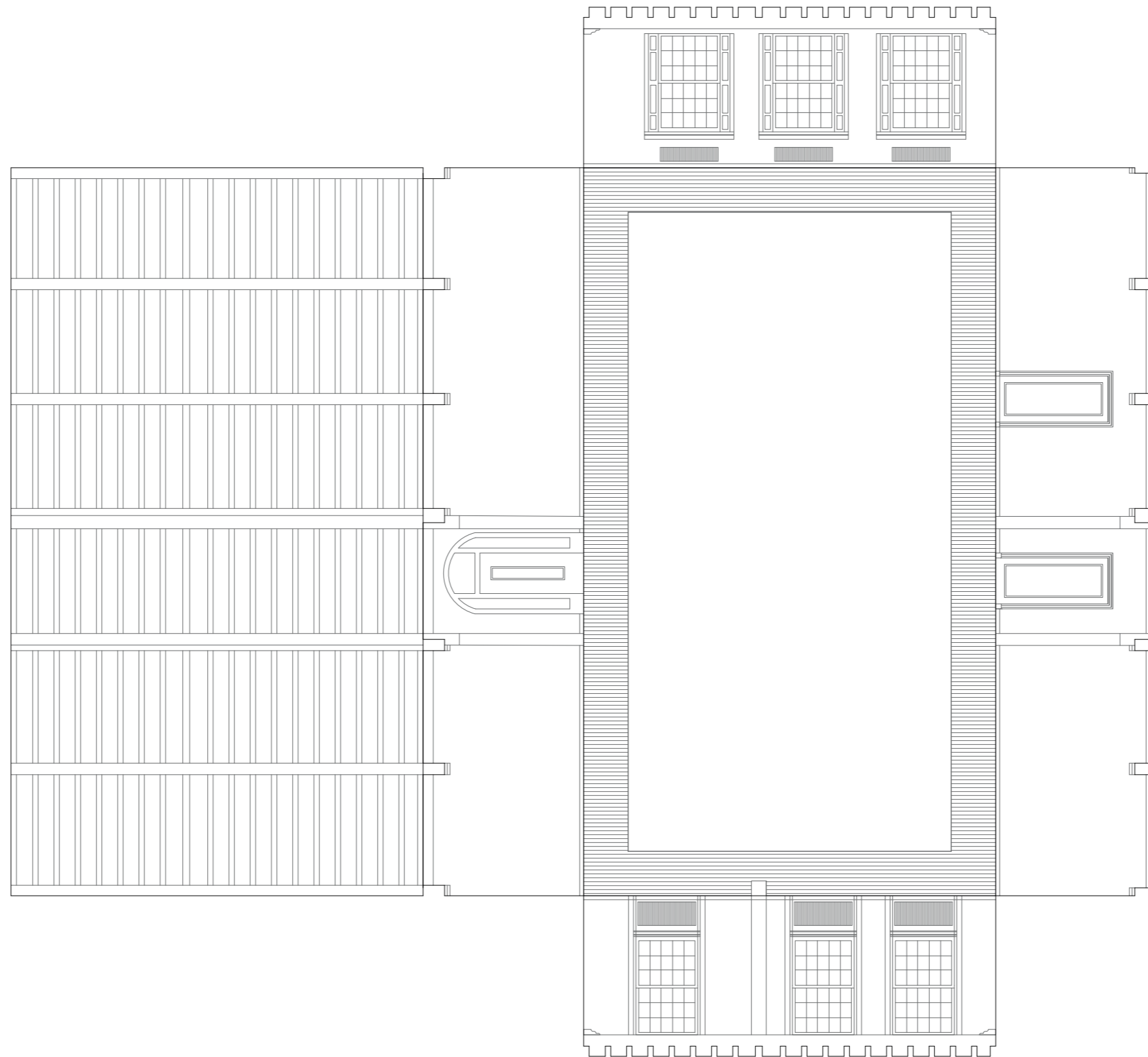
The wall and floor finishing have an indifferent value; they could be replaced by other finishing without losing much of the history of the space.

## Interventions

The biggest interventions that will take place in this room are the addition of a new heating system, and lowering the floor. Lowering the floor is necessary to make this part of the building accessible for wheelchair users.

Since the size of the room also offers more opportunities for the new function of the building, the larger space will be kept.








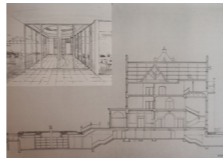


Timelayer	Stuff	Space plan	Skin	Structure	Story	Value
1538				'Moer- en kinderbalken' of the ceiling	First building parts, built by Willem Bentinck	Age value; building archeological value crucial parts of the h building structure
<1960	Fireplaces in each room	Three rooms, one larger and two smaller, hallway inbetween			use by several different inhabitants for living and sleeping	Age value, historical situation, house as u former inhabitants
1964	Fireplaces removed?	Two rooms used as staff bedrooms, one as recreation room	Stucco walls	Replacement of 3 'moerbalken'		Use value because o technical improvem
2007	screens, beamer, new furniture,	One large space with foldable walls, making it possible to split the room in two smaller ones and a hallway	New double floor, combination of wood and blue carpet. New stucco walls painted in yellow	Beams painted in yellow New double floor with space for installations	Functional adaptations for the police	Use value due to lar space

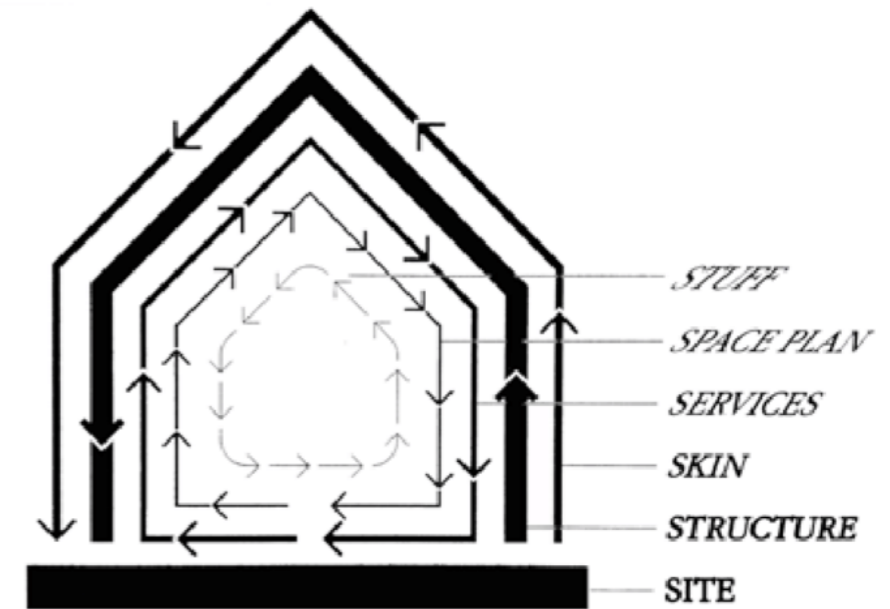


	<b>Design impact</b>
as historic	Shown as much as left from this timelayer; some things reconstructed.
sed by	
of ents	Technical improvements kept
ger	larger space kept because of functionality

# Matrices

Timelayers	Stuff	Space plan	Services	Skin	Structure	Site
<1845						Estates Duin en Berg and Kruidberg
1845						Construction of icehouse for storage of food 
1909	A.o. marble statue of the first owner and marble relievo, dressoirs (designed by the architect), chairs chimneys and other furniture for many different room. Japanese art bought by the owner. Sandstone relief in the entrance hall. 'goudleer' and other types of wallpapers. Statues in natural stone in the garden. 	Large building with shared rooms and private rooms for the owners and all of their quests. Formal rooms on the beletage, <b>bed- and bathrooms on the first floor and staff rooms in the souterrain and attic</b> 	House was equipped with progressive facilities such as a central heating system, hot running water, electric elevator and it's own water installations; many toilets and bathrooms in the quest rooms	Brick walls with ornamentation in natural stones 	Load-bearing brick walls, wooden floor and roof construction	Garden designed by the famous garden architect Leonard Springer in a combination of two styles; baroque and English landscape style. Symmetrical garden around the house, and more natural. Sever other houses for staff members in the surrounding area. Restoration of the icehouse
1940	Interior saved by family member of the owners					
1945		House used as educational institute for o.a. the red cross				
1961	New interior for the hotelrooms?	House used as holiday location by the Algemene Bank Nederland				
1975						Park around the country house sold to Vereniging tot Behoud van Natuurmonumenten
1994	Changes in the interior of the rooms at the first floor and attic; changed into 4- and 5-star hotel rooms; rooms on the ground floor still more or less original, partially restored, some changes in furniture and functions			Garden on top of the roof, brick wall on the waterside with hidden windows. Dome in the ceiling corresponds with garden design of Springer	Underground extension with concrete structure 	Garden in front of the house becomes roofgarden
2000		New wing added to the building, contains extra hotel rooms	Toilets and bathrooms for the new hotelrooms	Green roof on top of the new wing	new wing with concrete structure	
2008	Renovation of the hotel rooms; changes in the interior of the 1994 extension by Slanger Hulsken architects					
2015		Meeting and event rooms inside Koetshuis				Koetshuis opened for the public
		Addition of a spa in the new (2000) wing	Spa facilities; sauna, steam bath, infra-red sauna, foot bath			

Timelayers	Stuff	Space plan	Services	Skin	Structure	Site
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....						
....						
....						



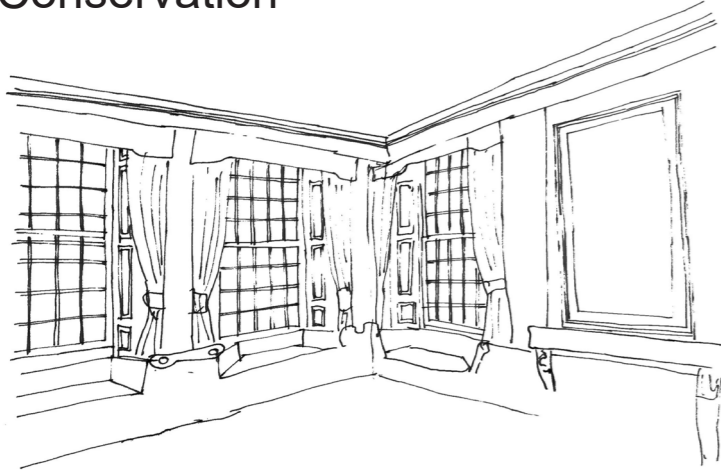


# Strategy's

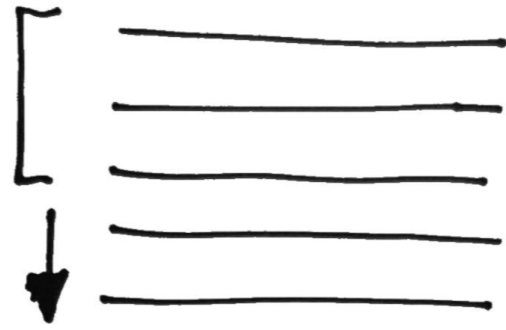
Added time layers



Conservation



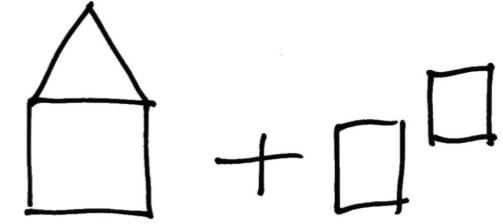
Reconstruction



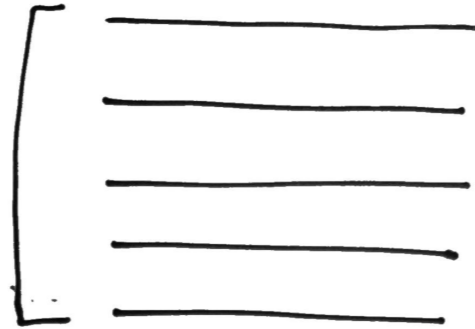
Existing timelayers are kept, new layers are being added



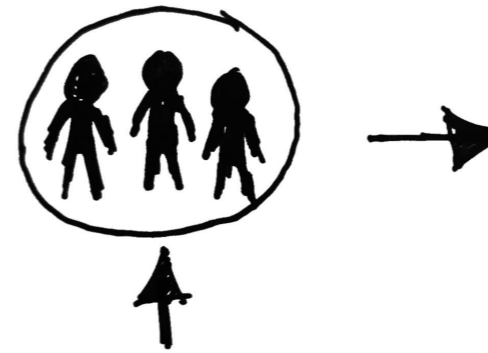
Continuation of use, and new functions added



Relatively large new additions to the exterior, more or less subordinate to the existing



Conservation of all timelayers, but focus on restoration of the oldest



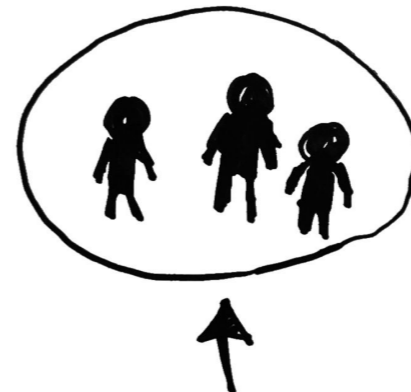
Past function and use is shown and a new function is added



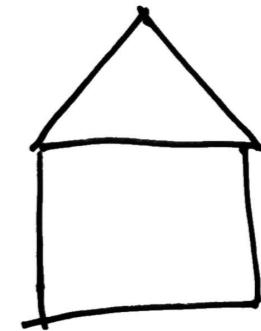
Small new additions in the interior, subordinate to the existing



Focus on a specific, important timelayer, others removed or hidden

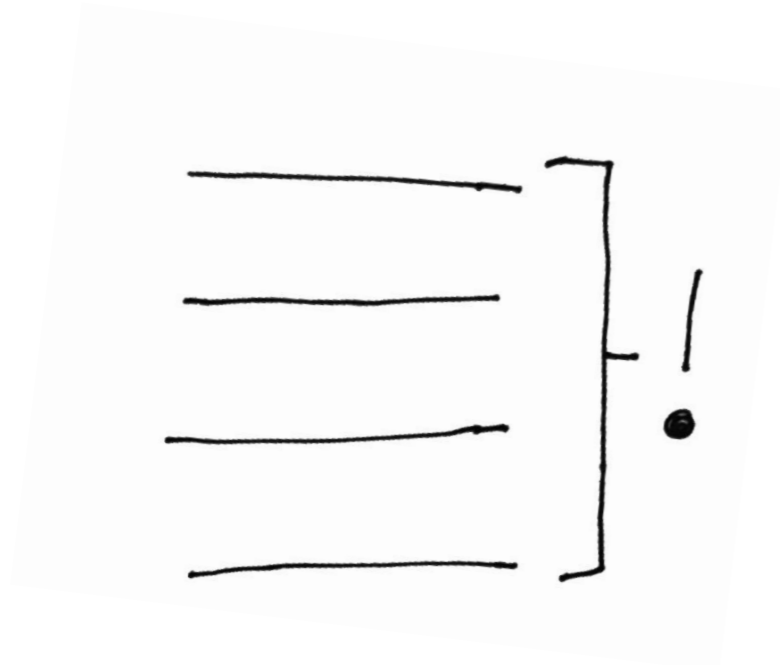


Focus on use and users in the past

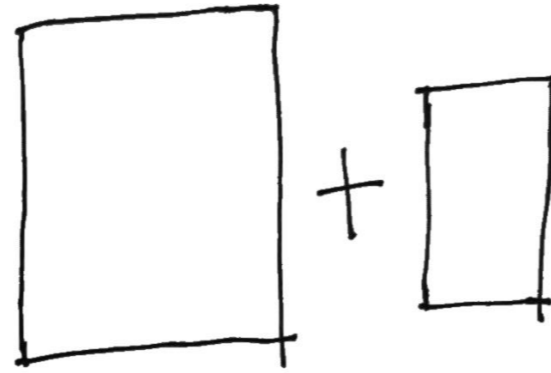


No visible new additions, reconstruction of the past

# Design starting points



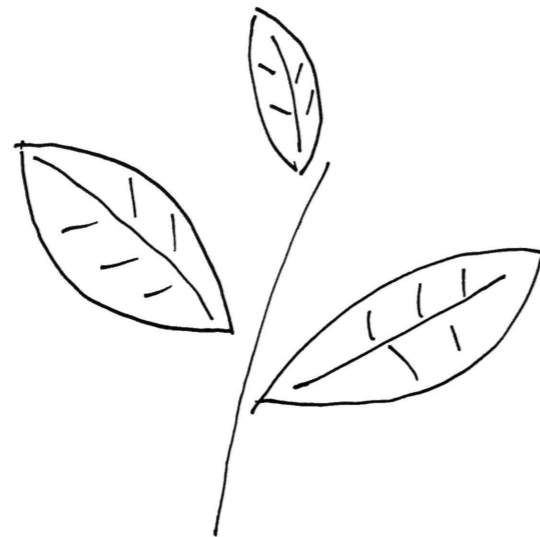
Conservation of the relevant existing time layers and enhanced experience



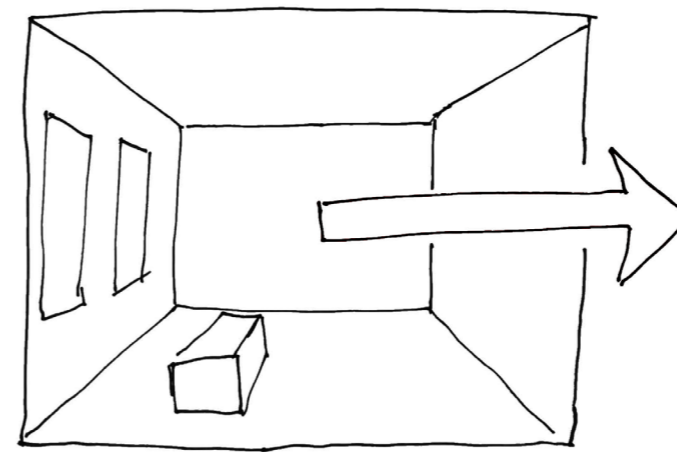
Extension forms a new time layer, with respect for the existing



Maintaining / enhancing unity of house, garden and landscape



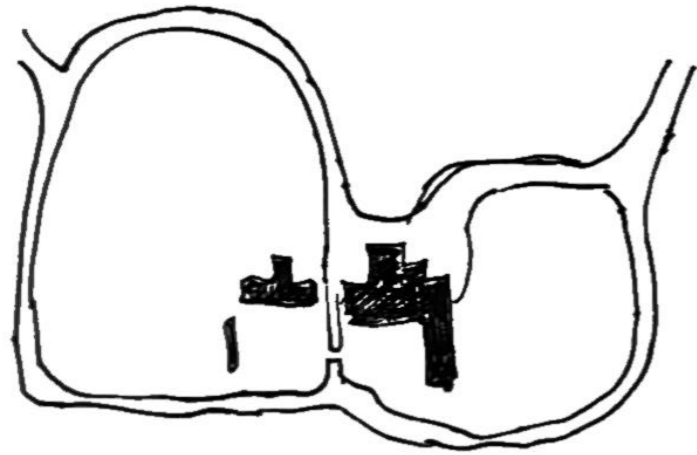
Improving sustainability of the complex



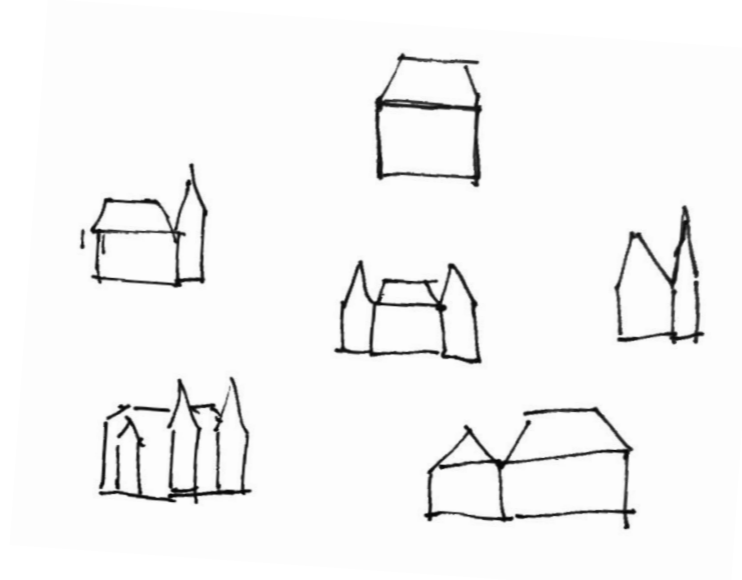
New functions based on existing spatial qualities



# Values: overview



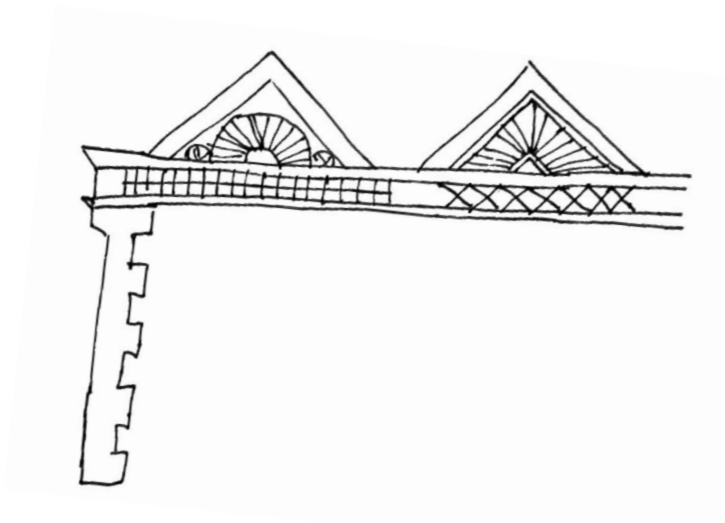
Ensemble of the buildings, garden and surrounding farmlands



Relation with other country houses ('havezathes') near Zutphen



Importance as a home of several important residents such as Arnold Joost van Keppel

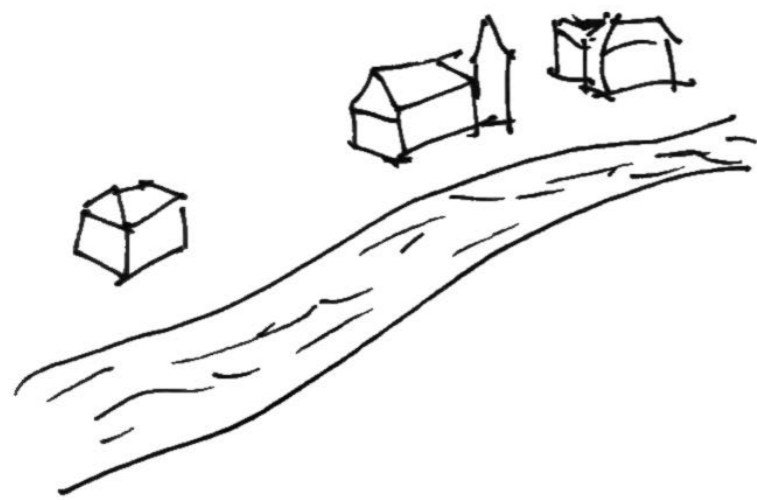


Presence of building traces from different periods (timelayers)

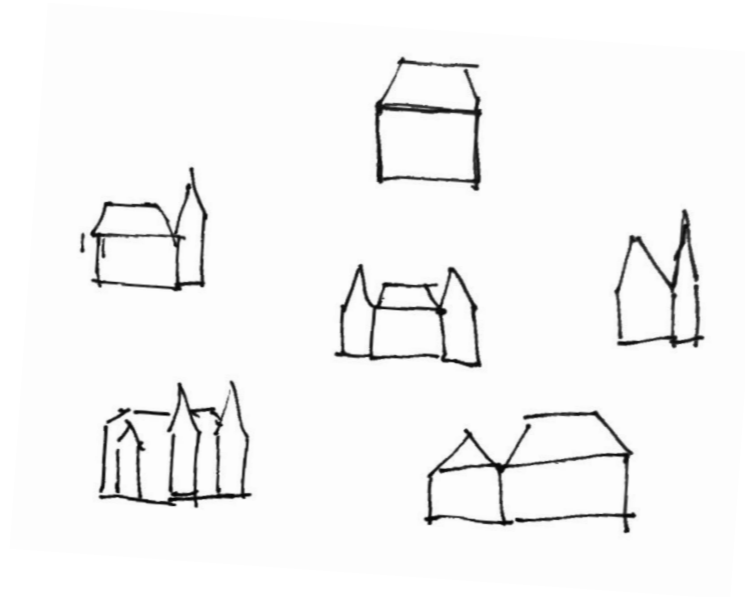


Importance because of its use by the police and the memorial garden

# General historical values



As a part of one of the Dutch country house landscapes



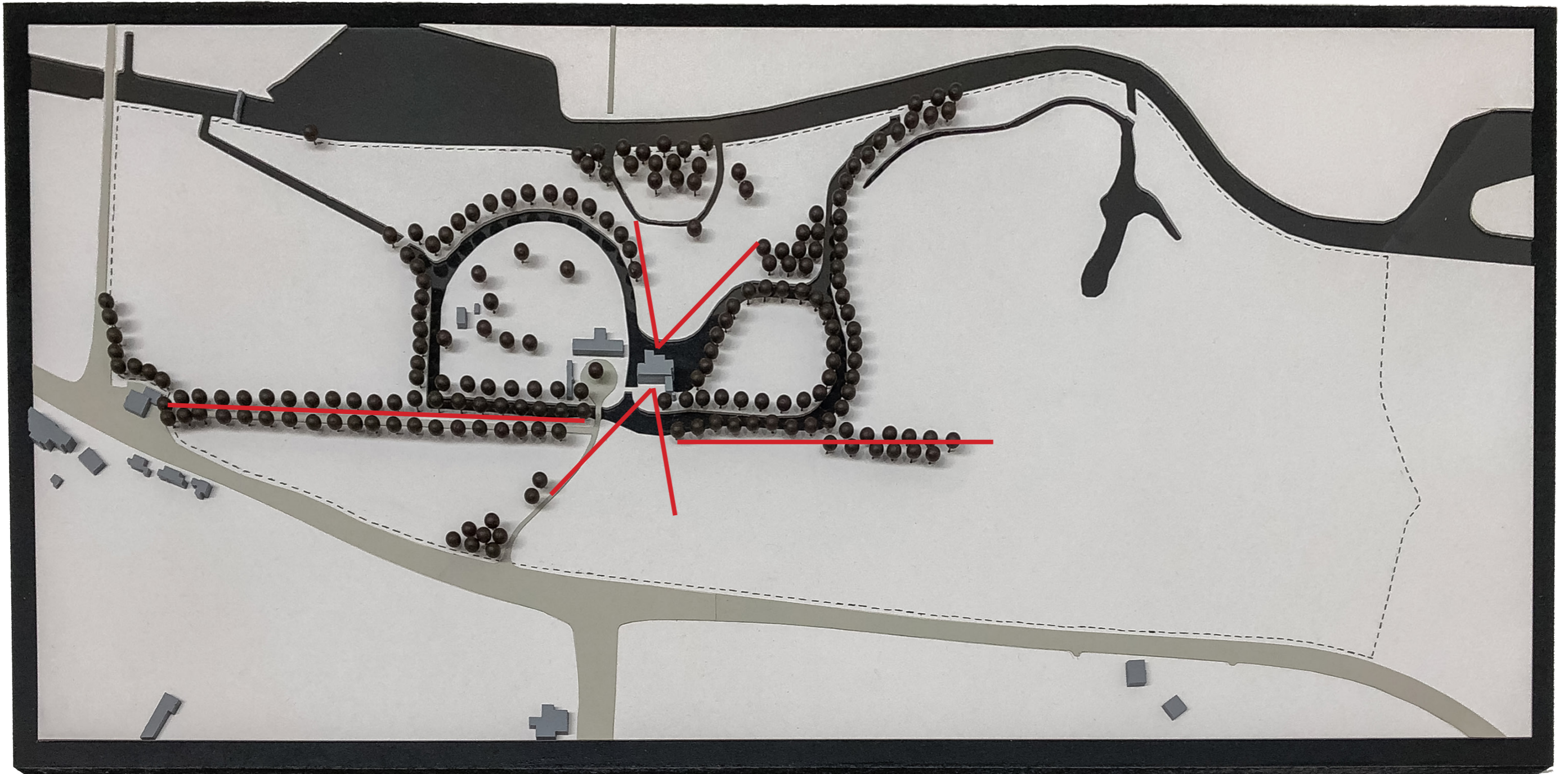
Relation with other country houses ('havezathes') near Zutphen



Because of it's important for the development of Warnsveld

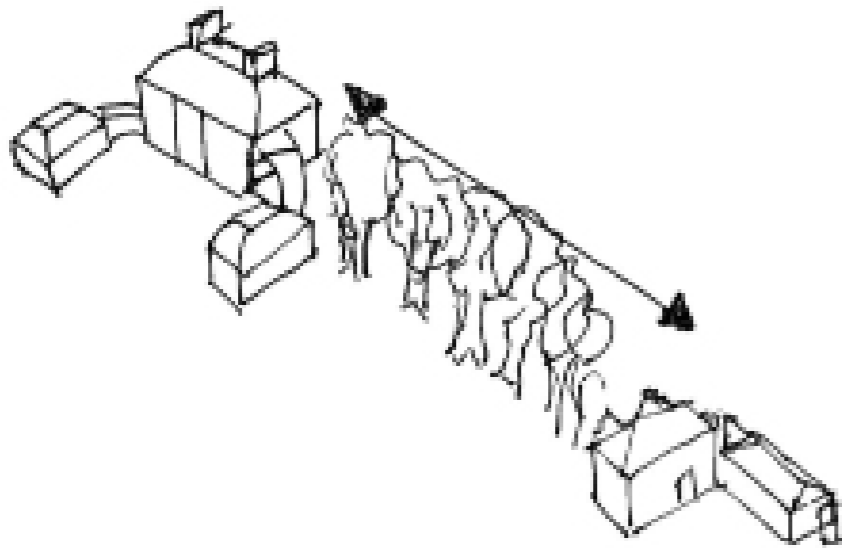


# Ensemble values and urbanistic values

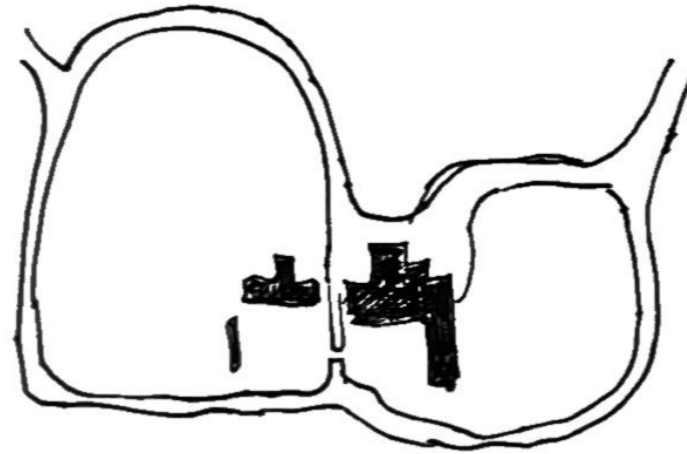


Sightlines connecting the house with the surroundings and the free location of the estate

# Ensemble values and urbanistic values



Relation with Huis Voorst



Unity between the house, garden and surrounding farmlands



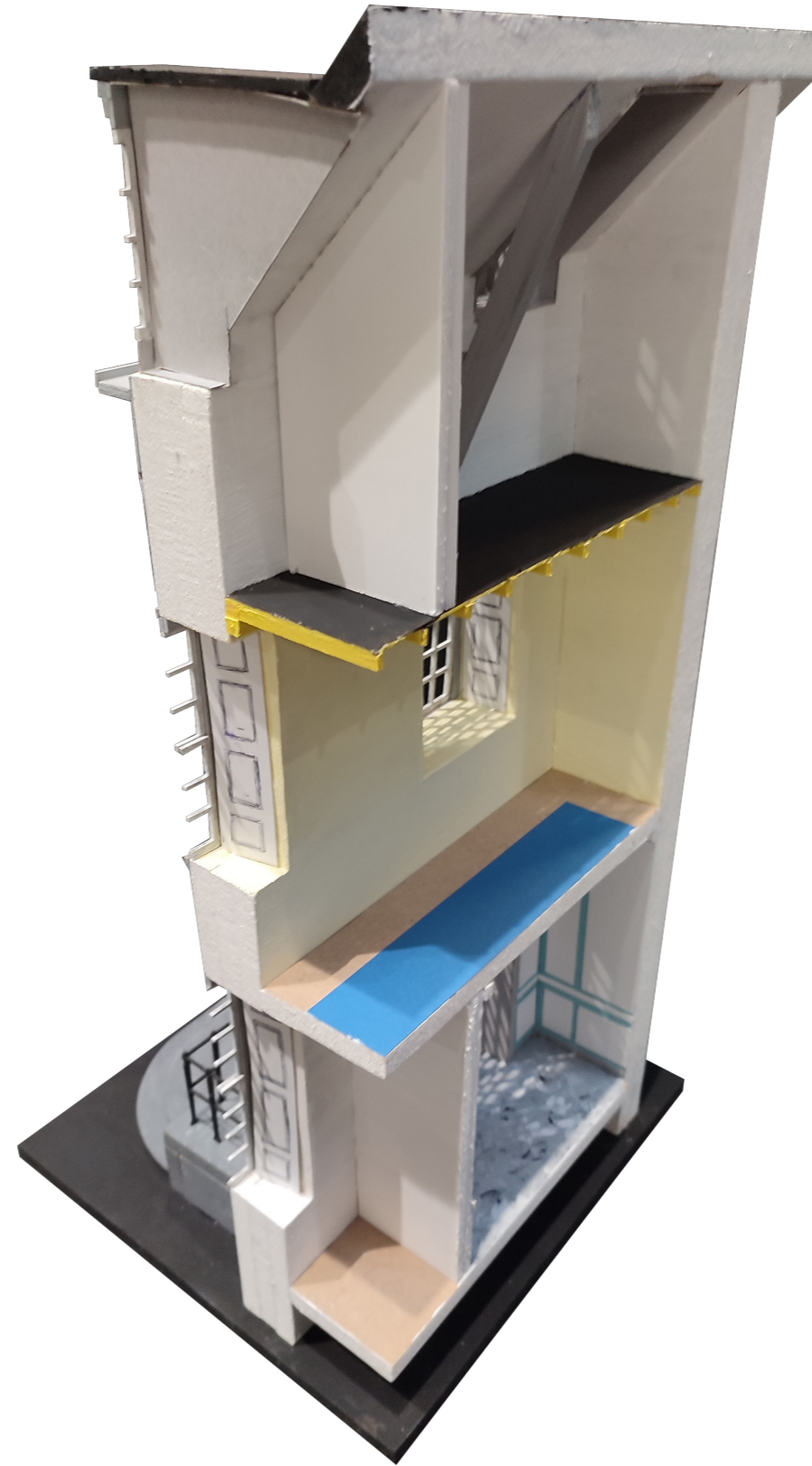
Ensemble consisting of house, carriage house and dovecote



# Architectural-historical values



Architecture and ornamentation of a.o. the entrance, which shows the relation with De Voorst



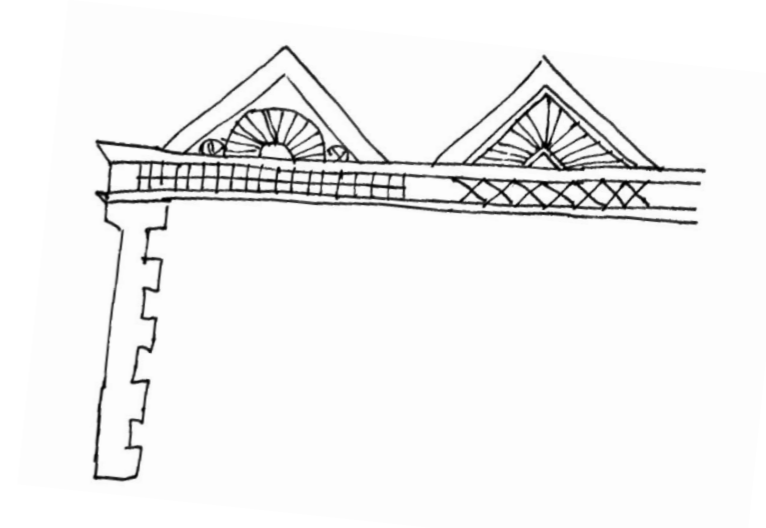
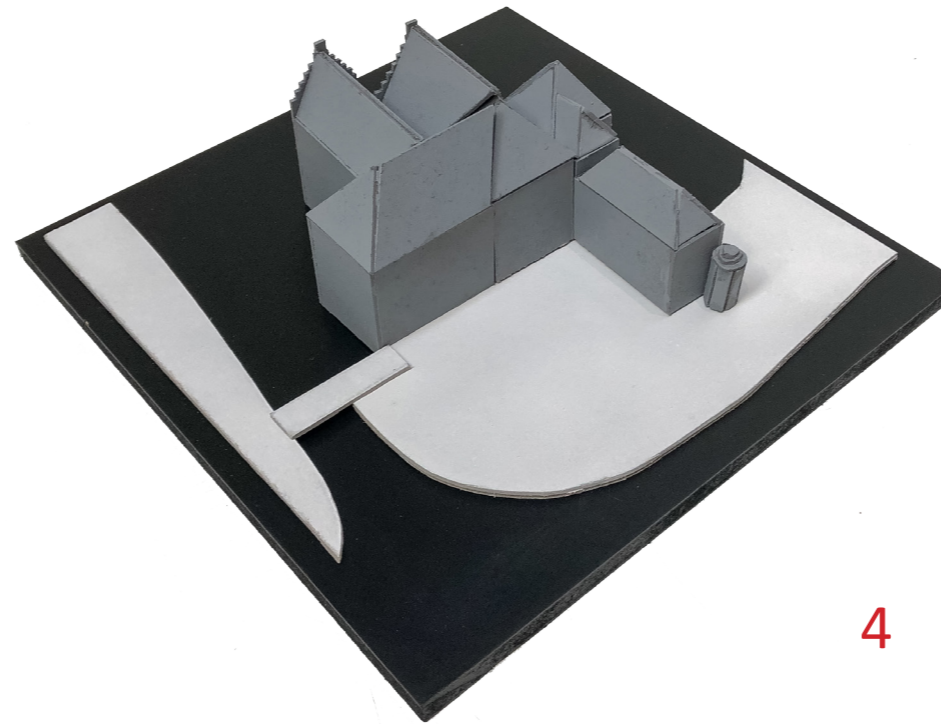
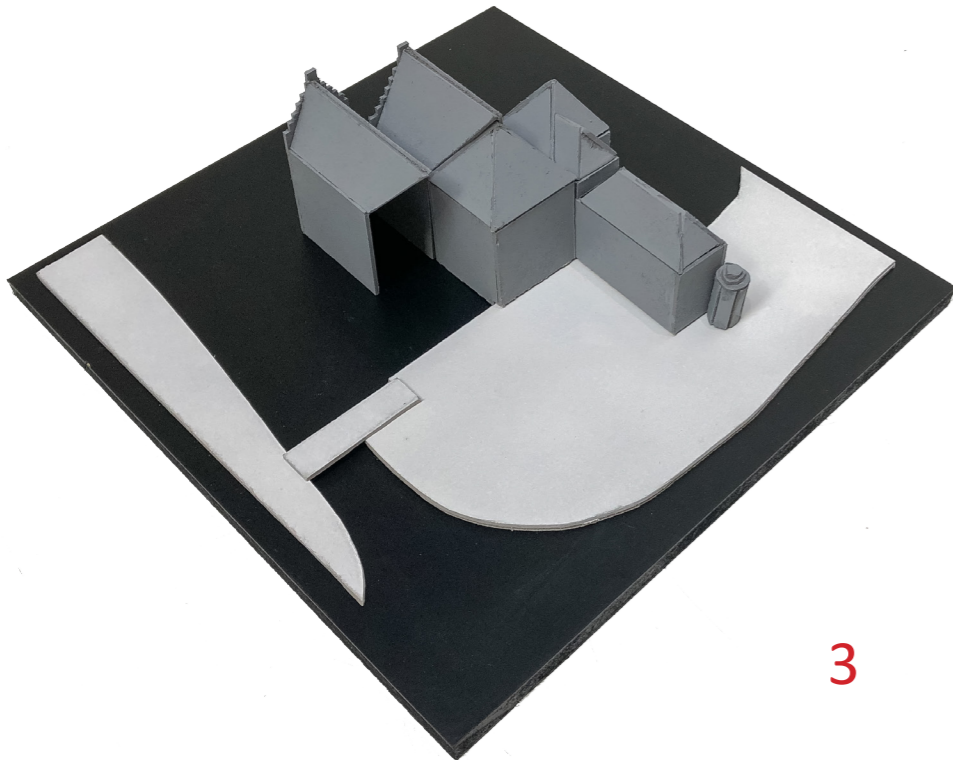
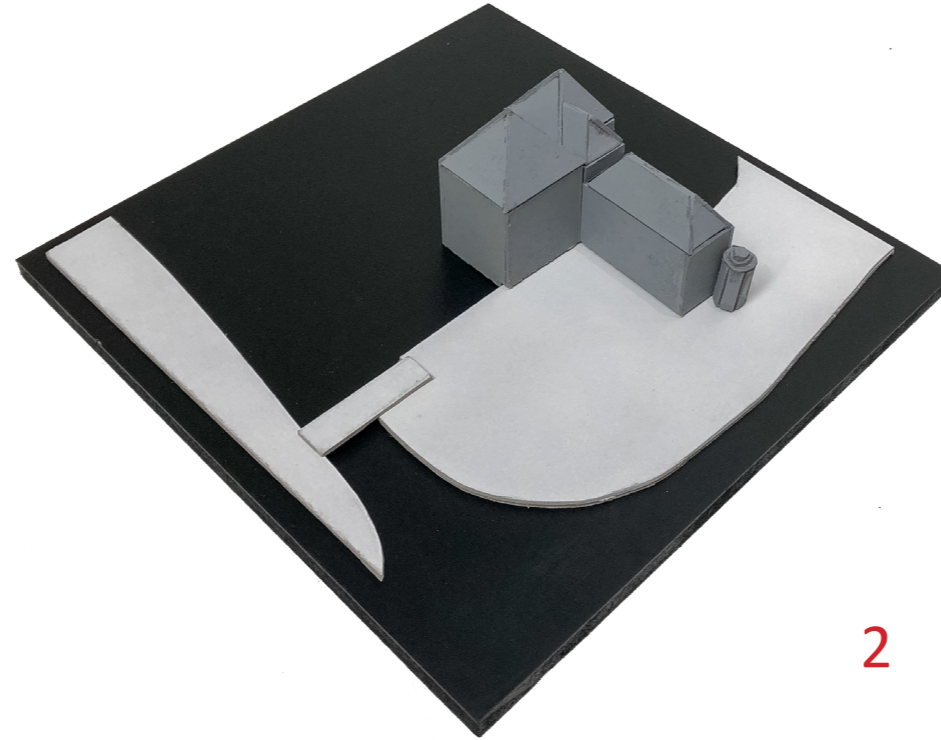
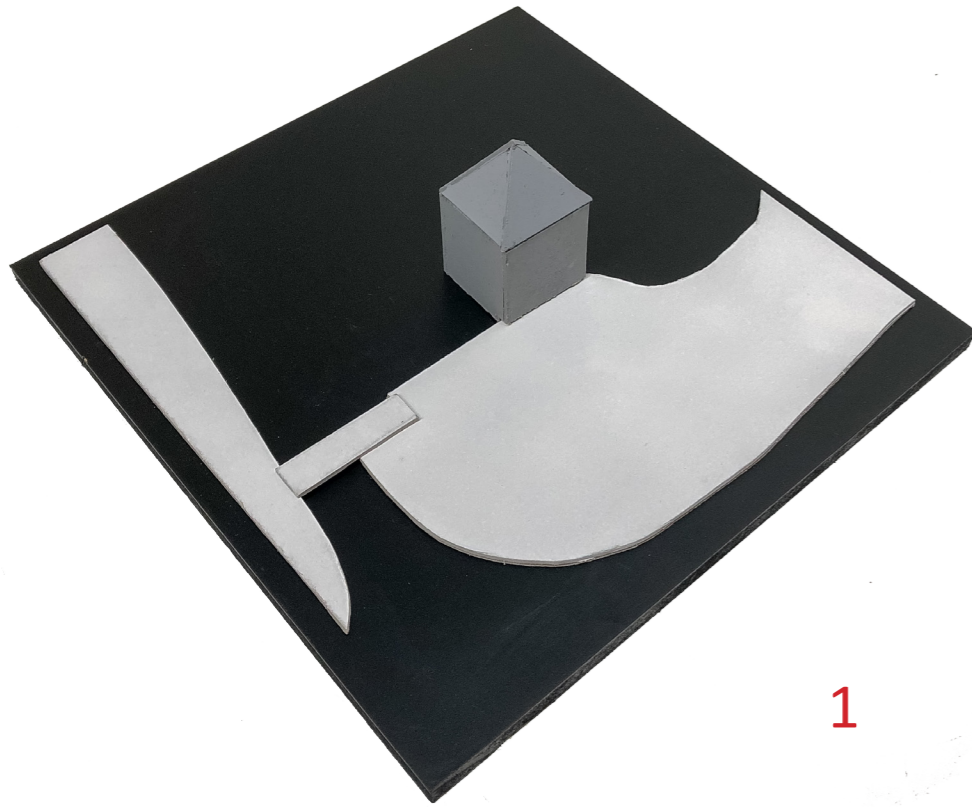
High degree of authenticity of the elements of the interior



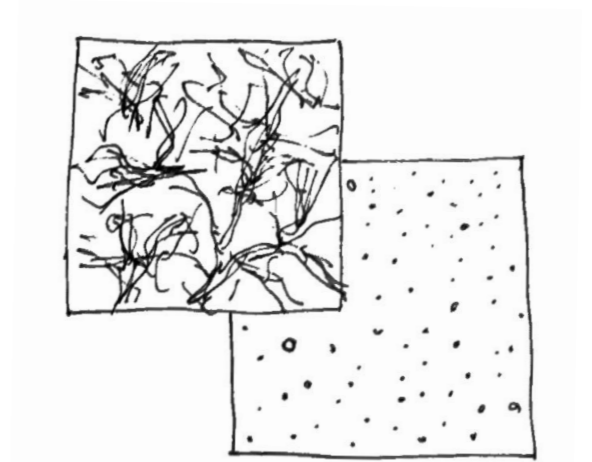
Place in the oeuvre of o.a. Daniel Marot



# Building archaeological values



Presence of building traces from different periods



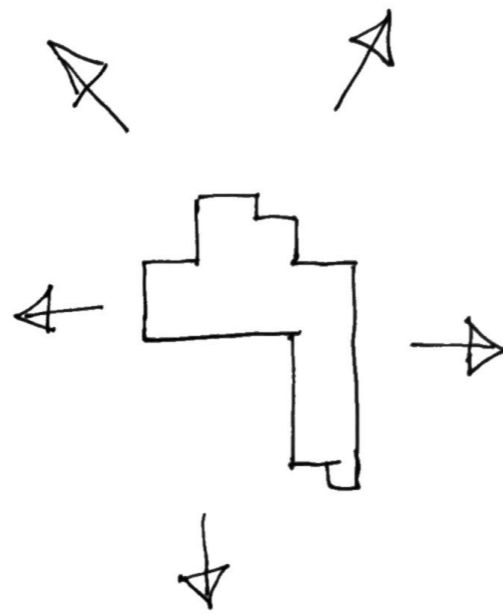
Use of special, high quality materials such as different types of natural stones



# Values on the basis of history of use



Importance as a home of several important residents such as Arnold Joost van Keppel

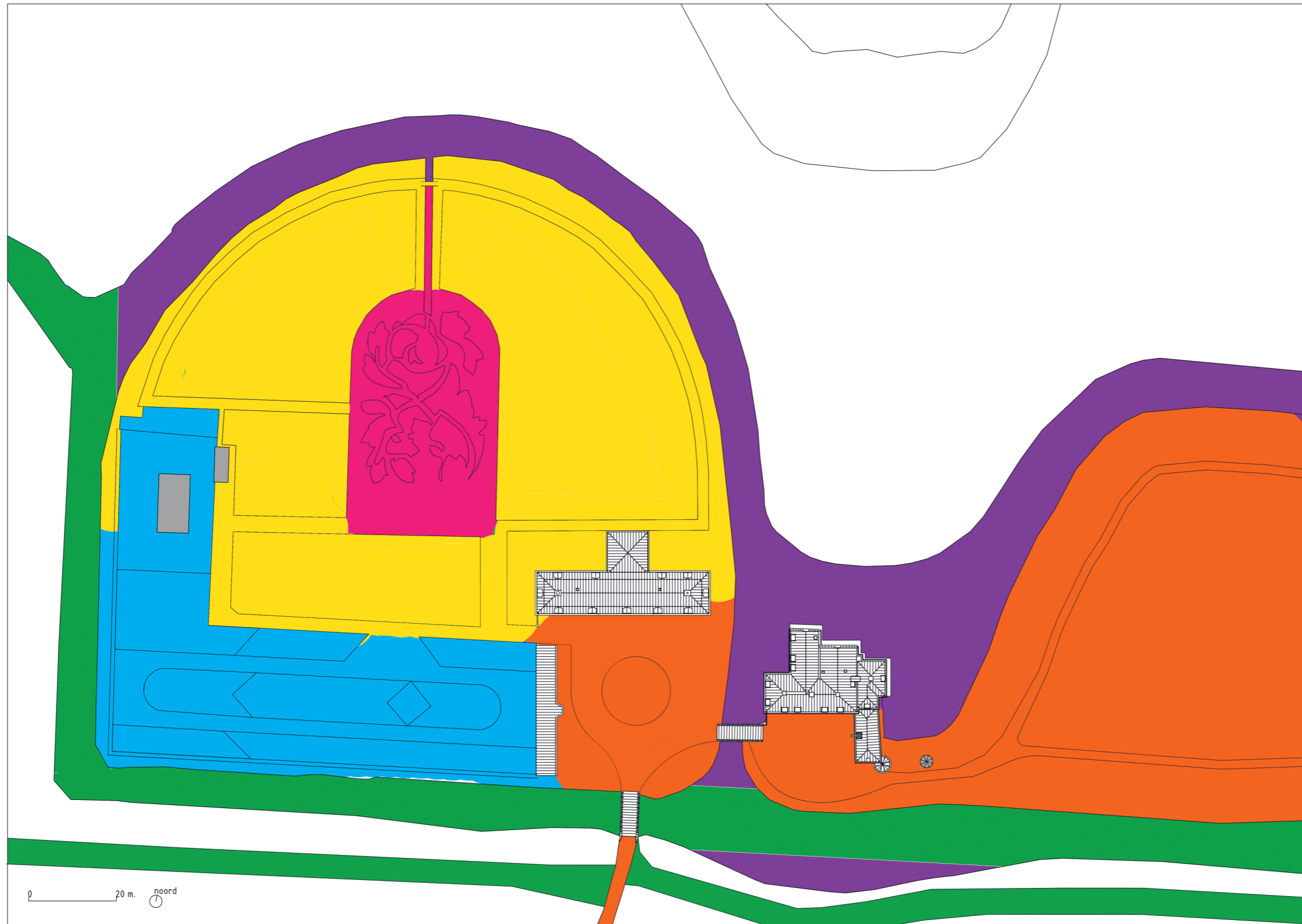


Importance as a guiding element in the development of the surrounding area



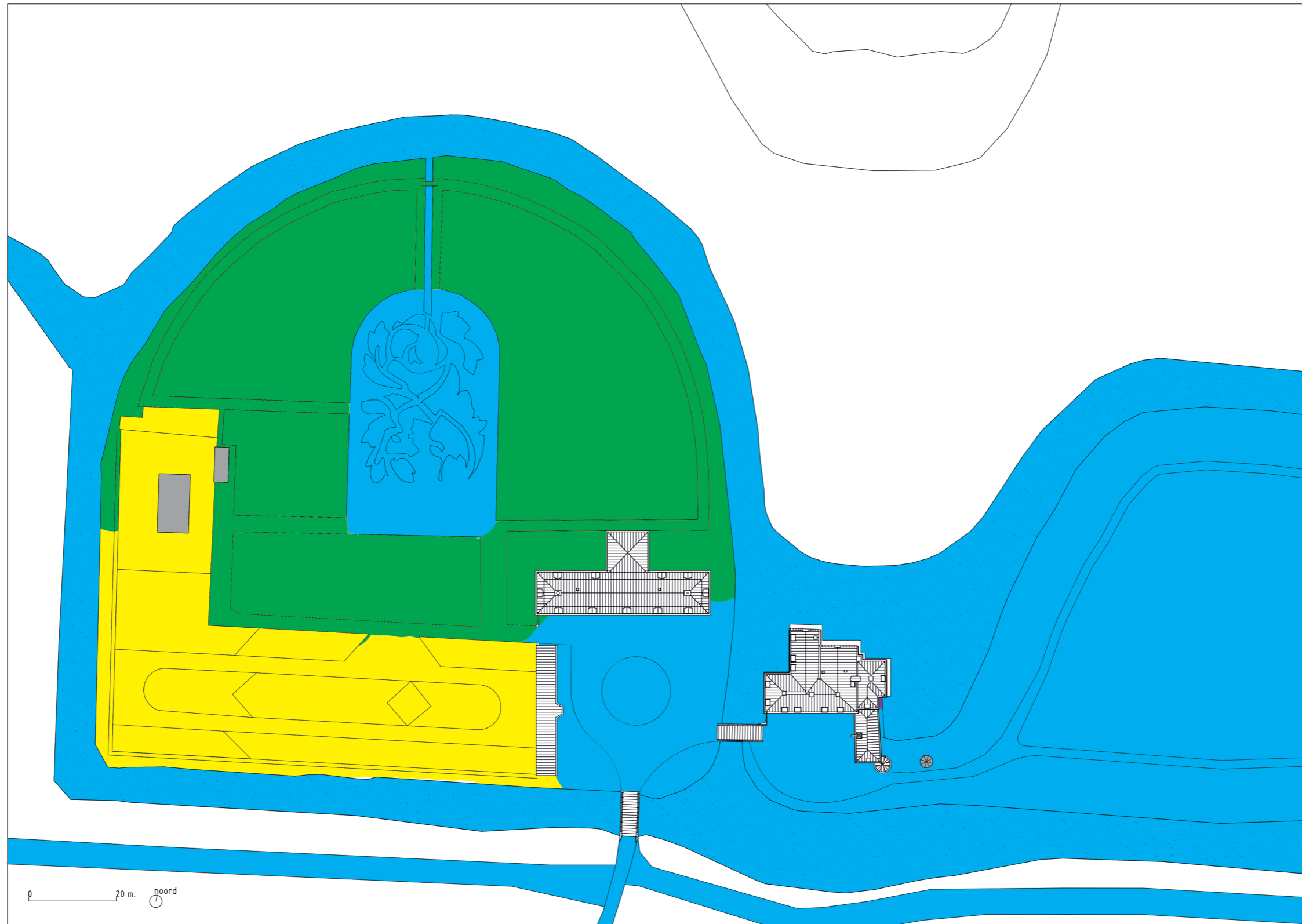
Importance because of its use by the police and the memorial garden

# Estate: timelayers

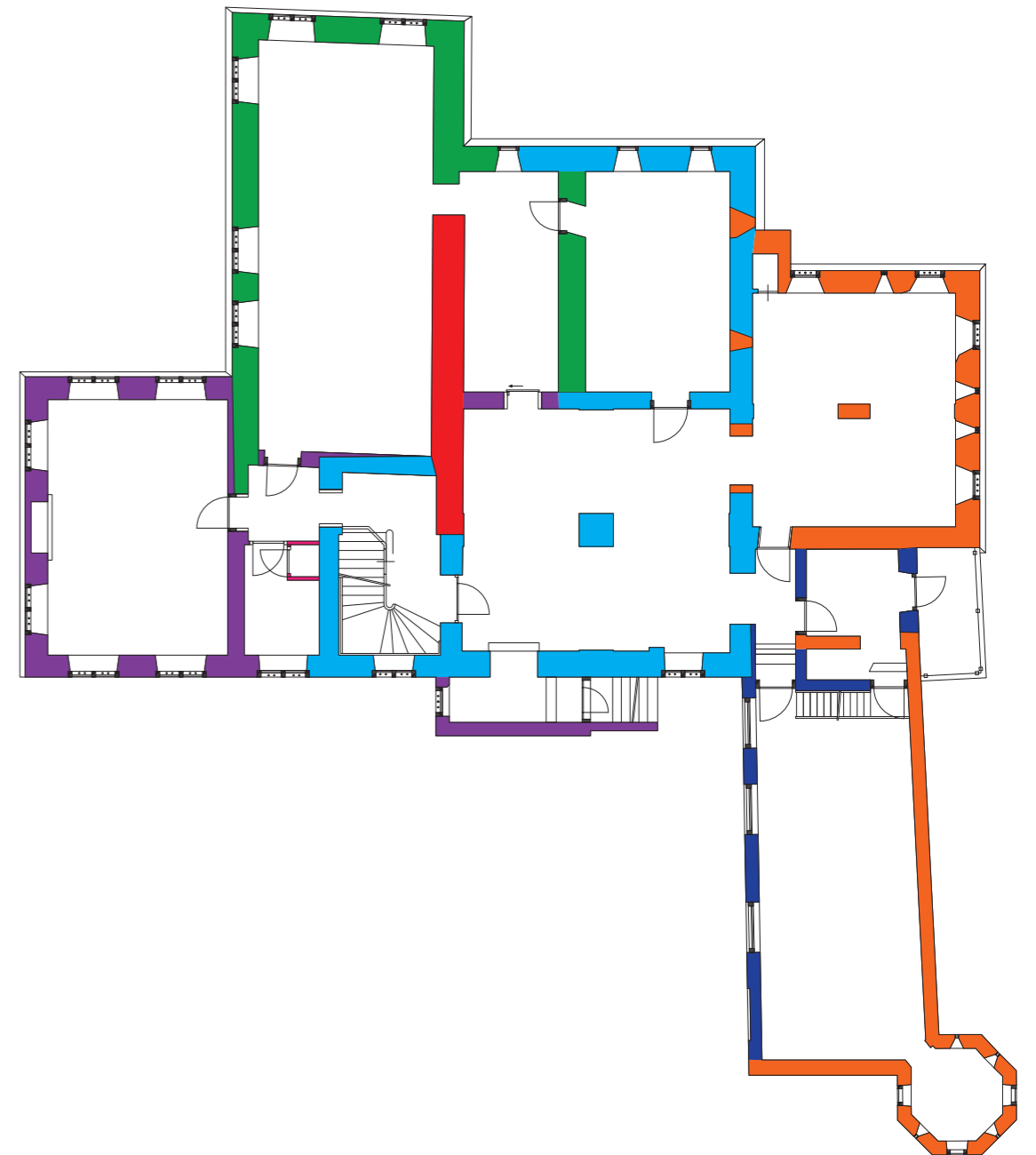




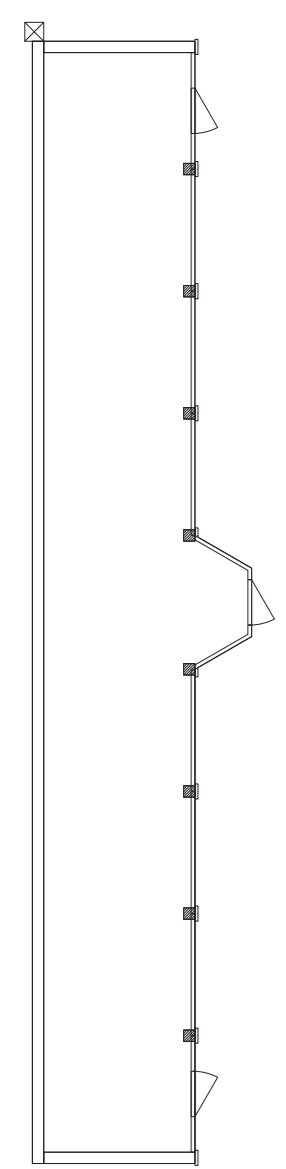
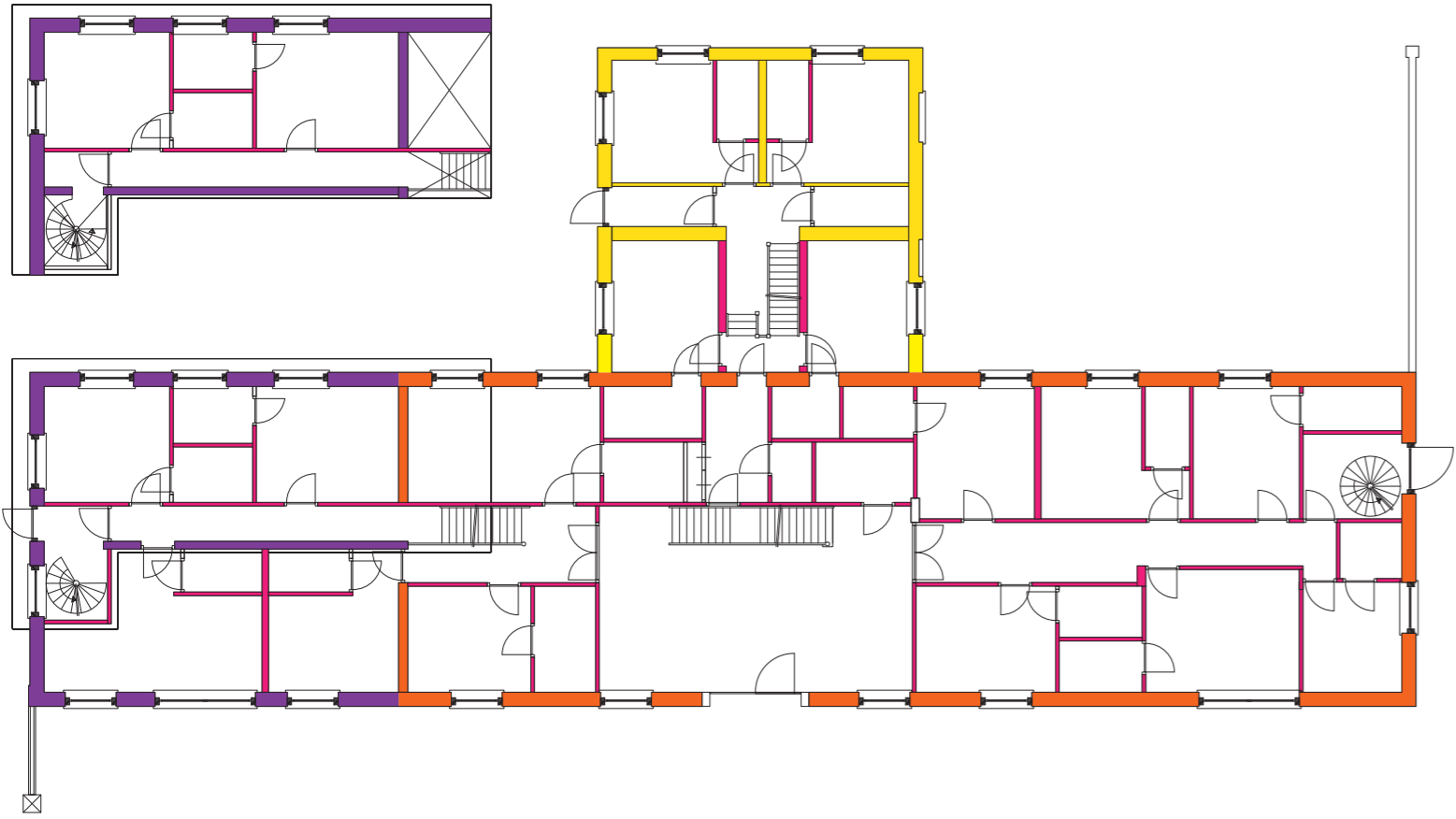
# Estate: values



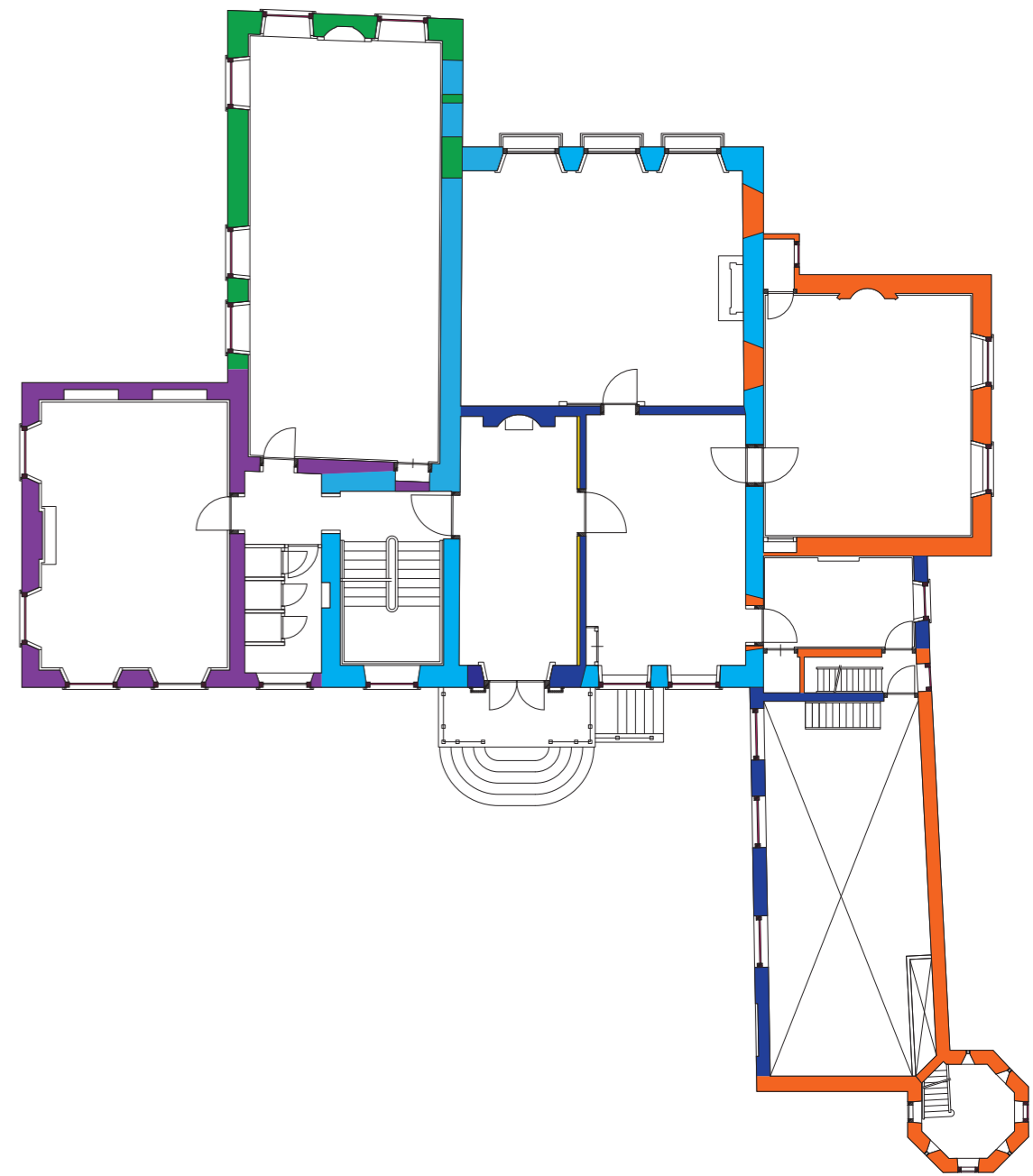
# Timelayers buildings



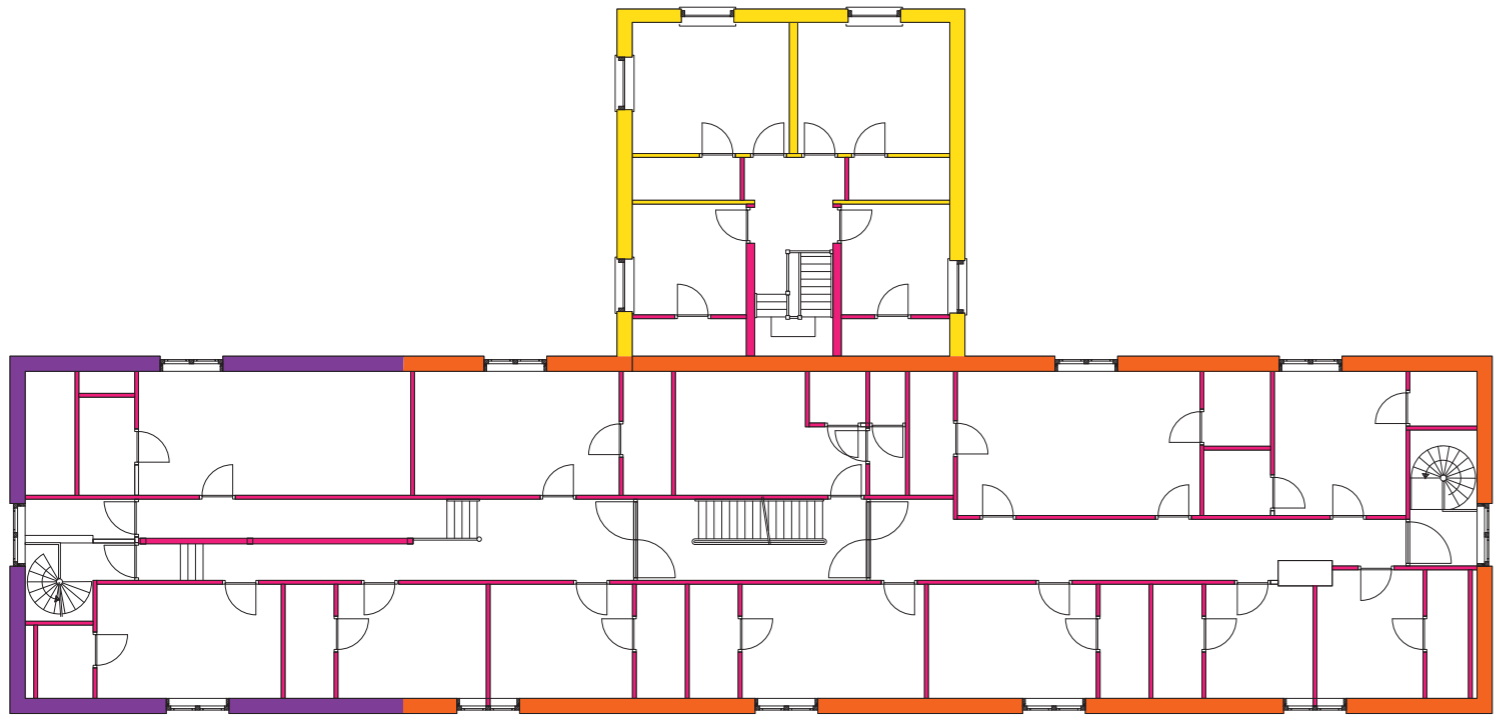




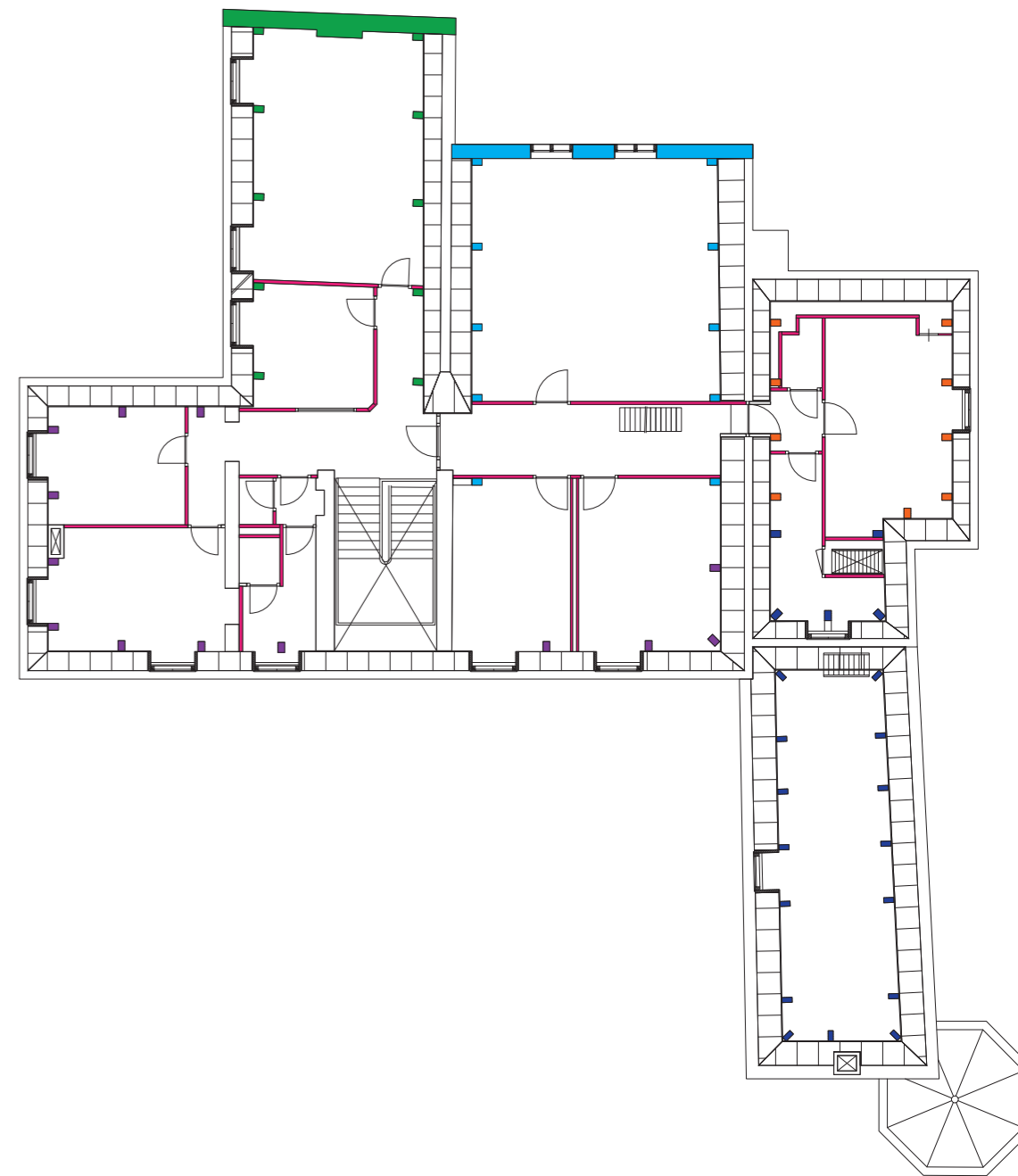
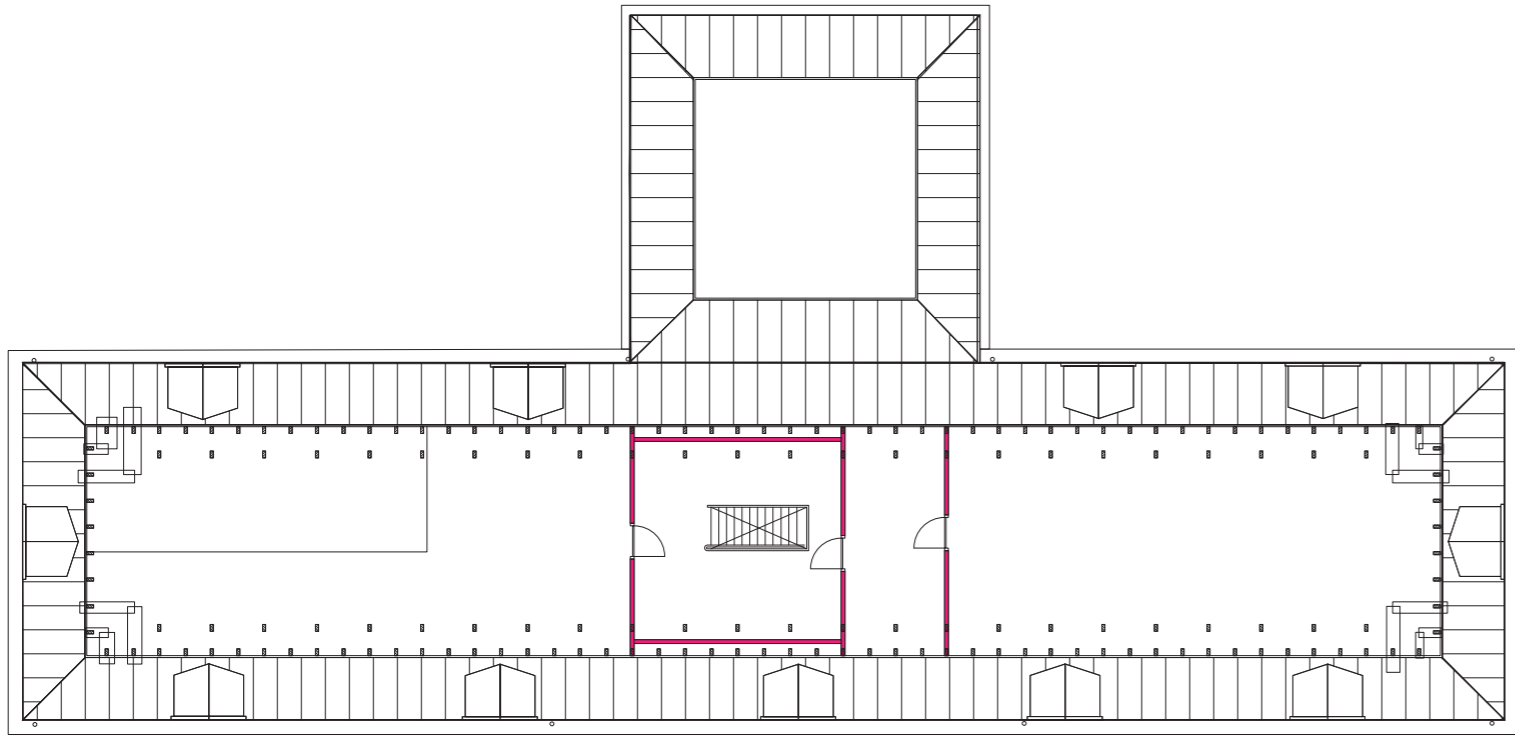
fluis t veide - warrisveid



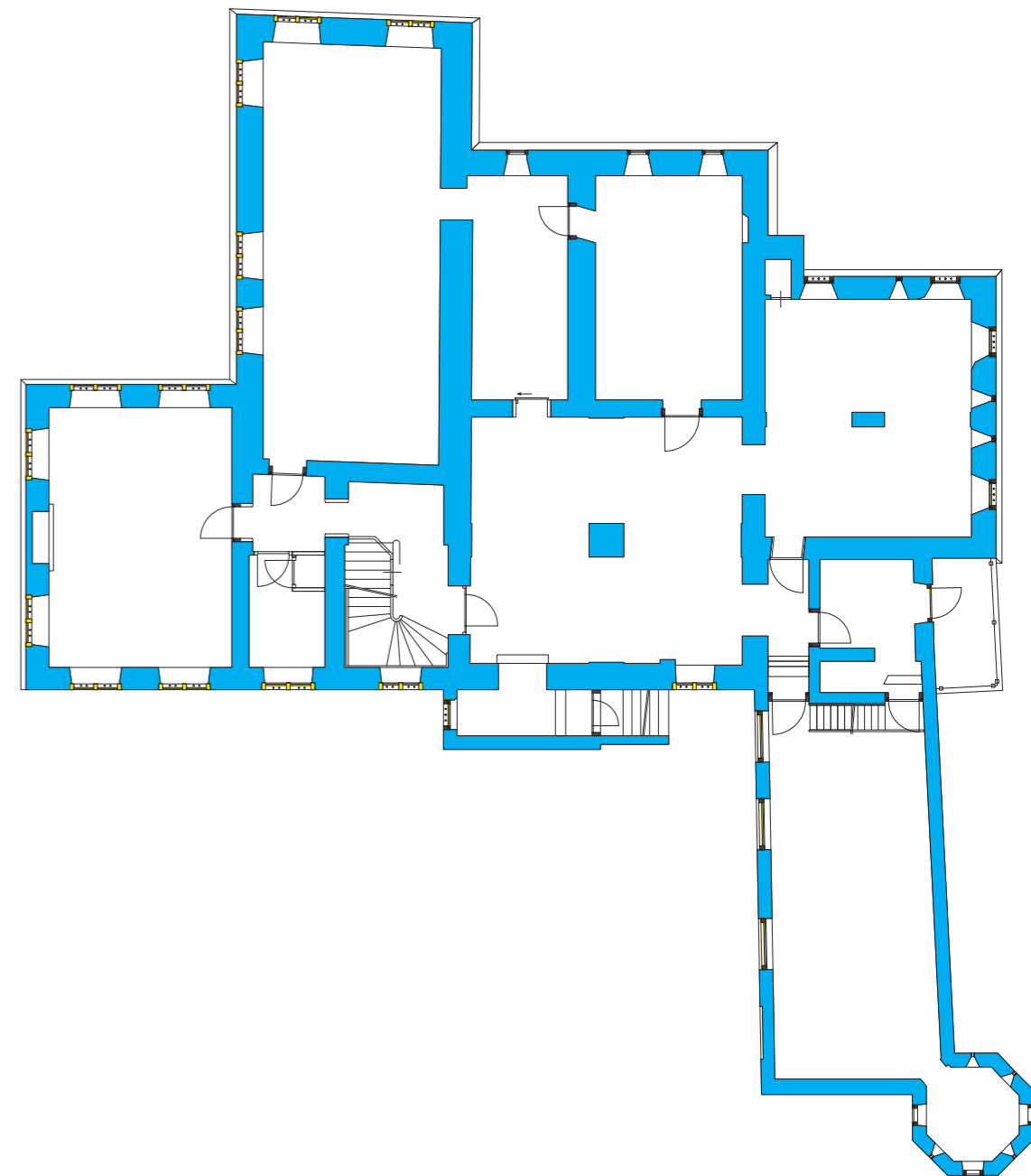
story-based adaptive reuse of an estate - 41



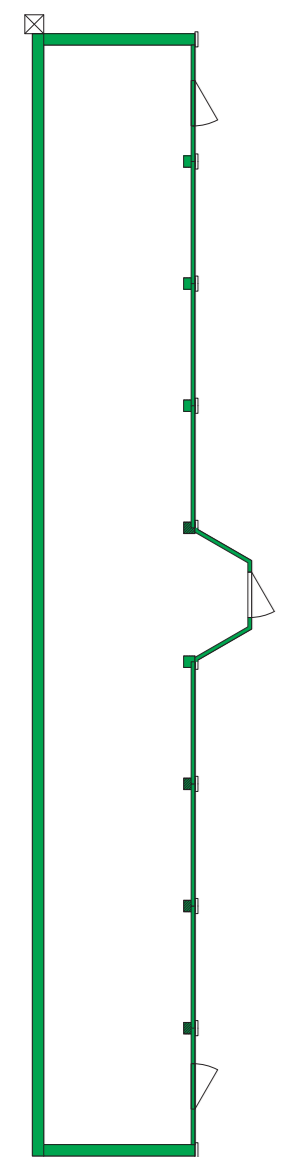
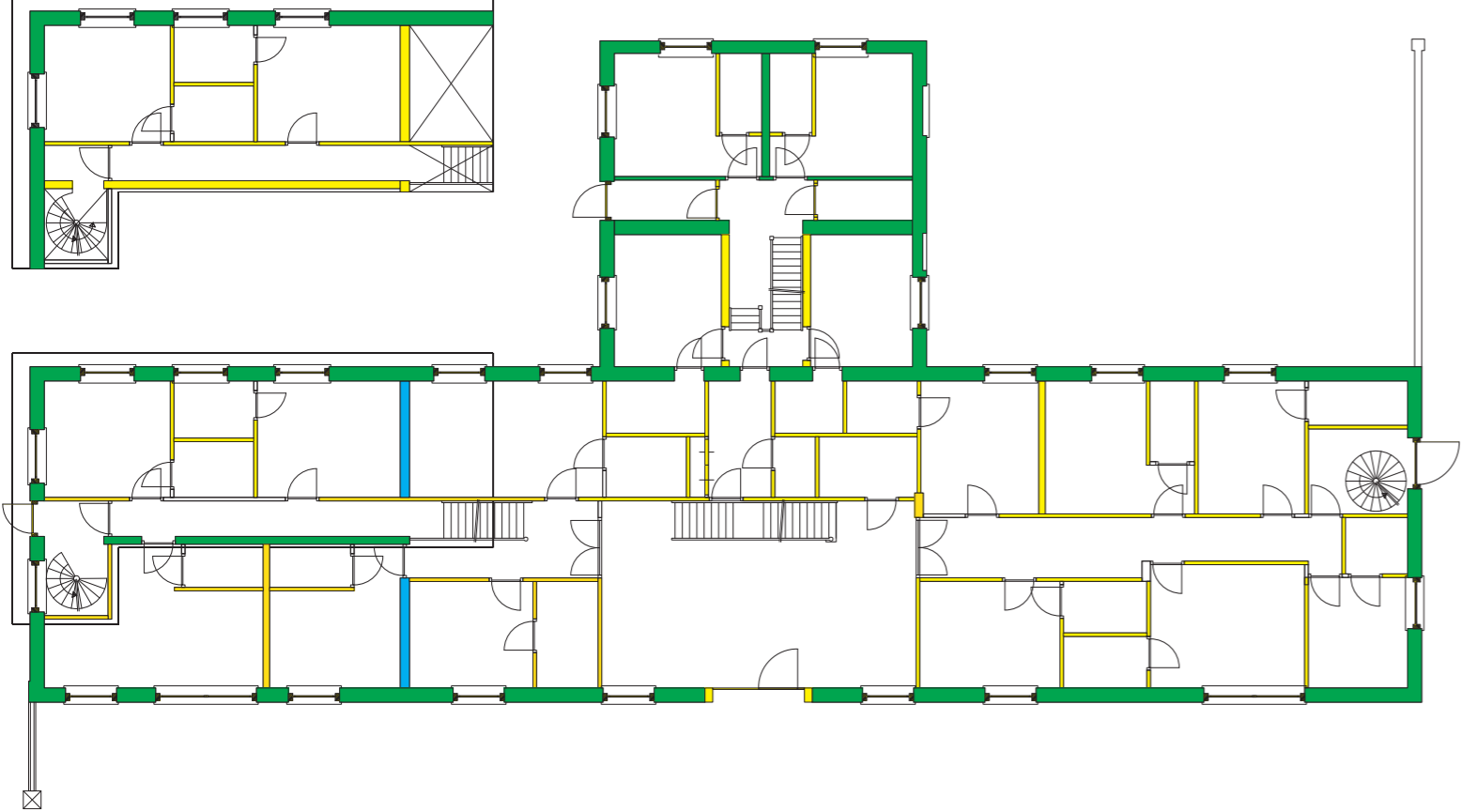




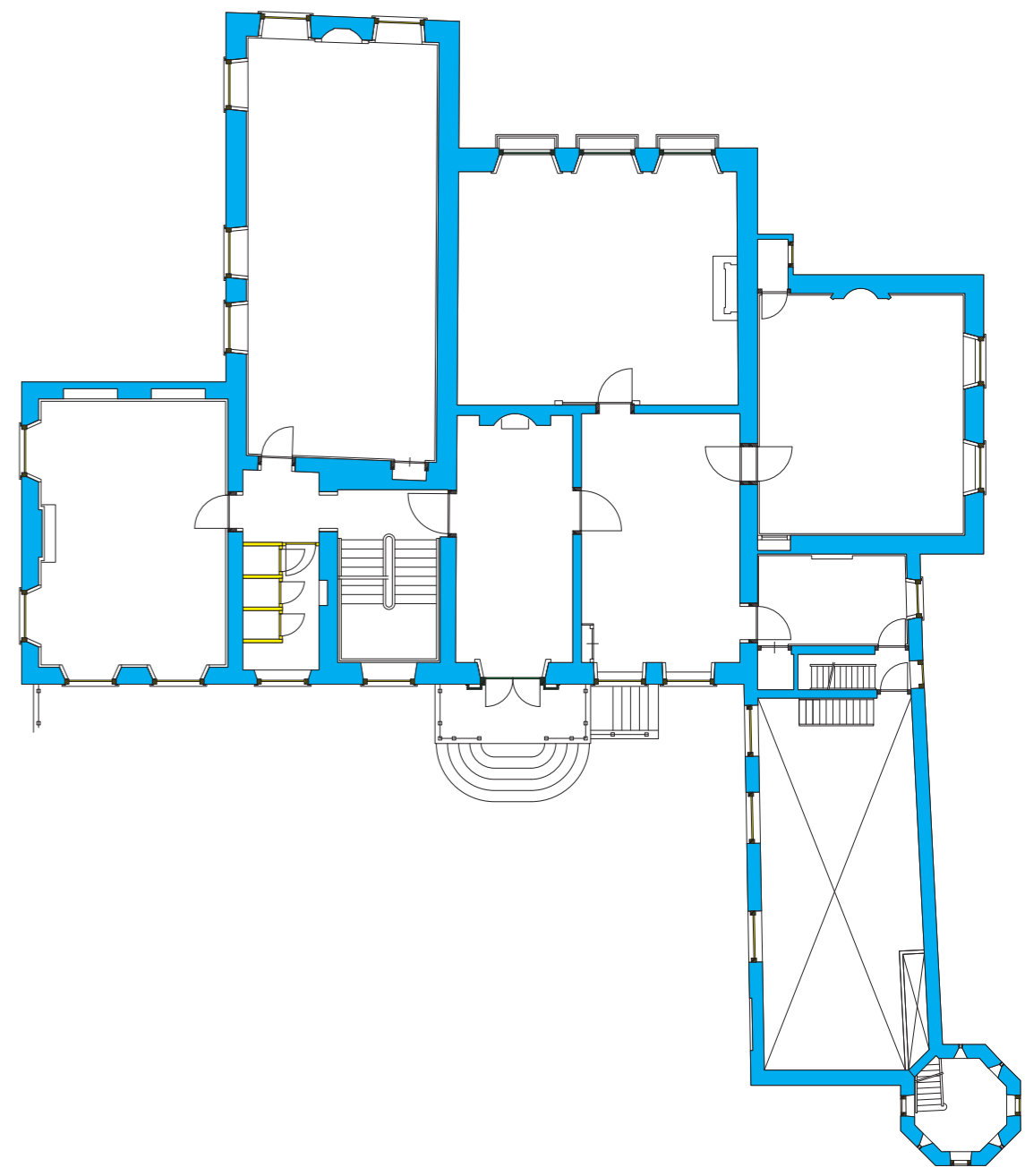
# Values buildings



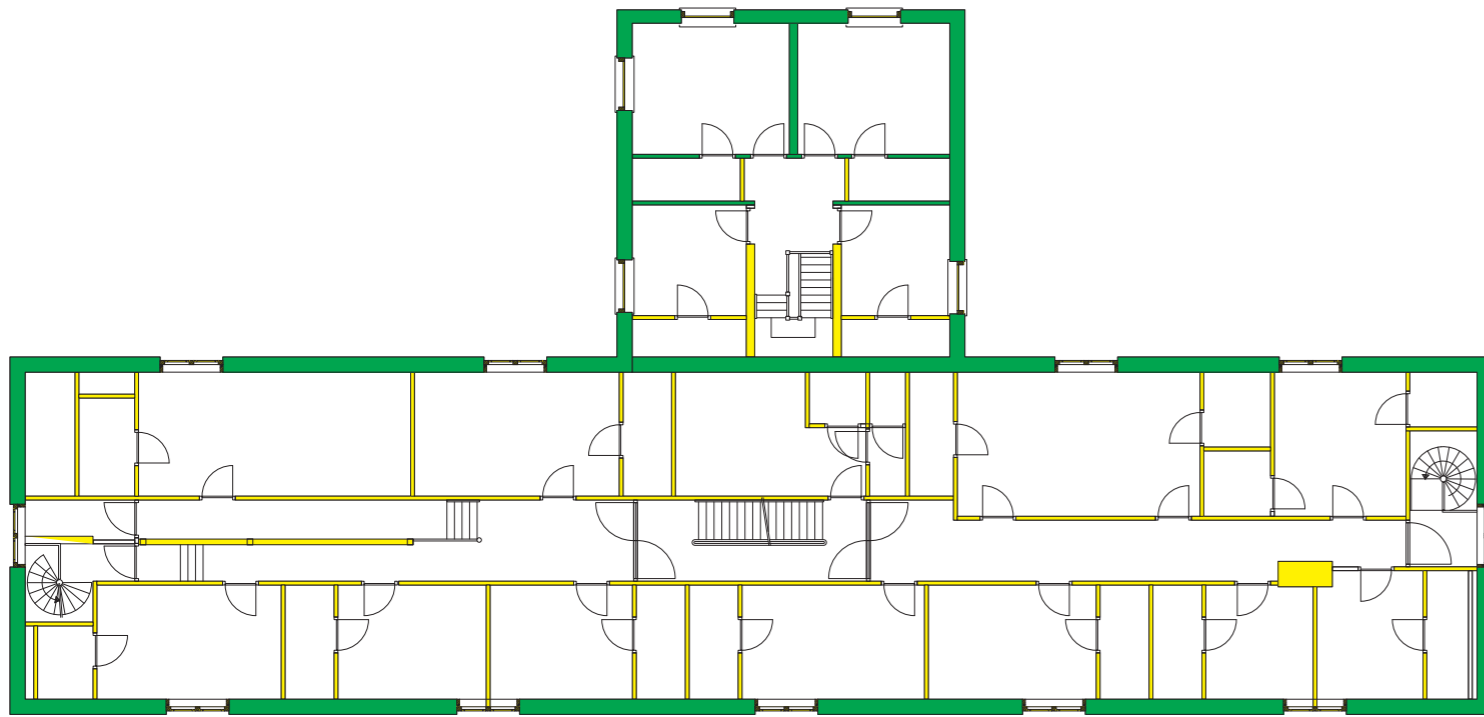




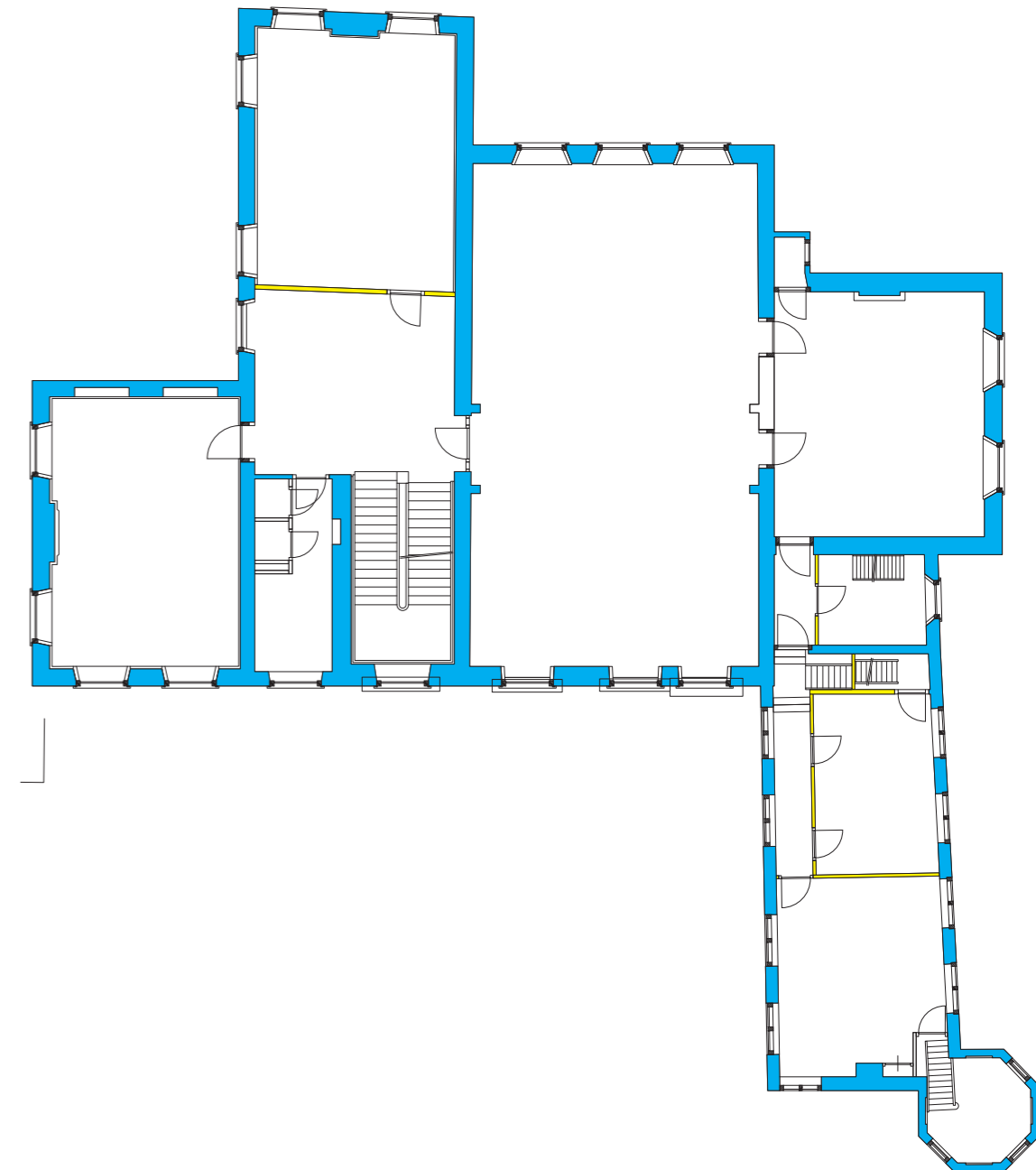
Huis 't veide - Warnsveld



Story-based adaptive reuse of an estate - 45

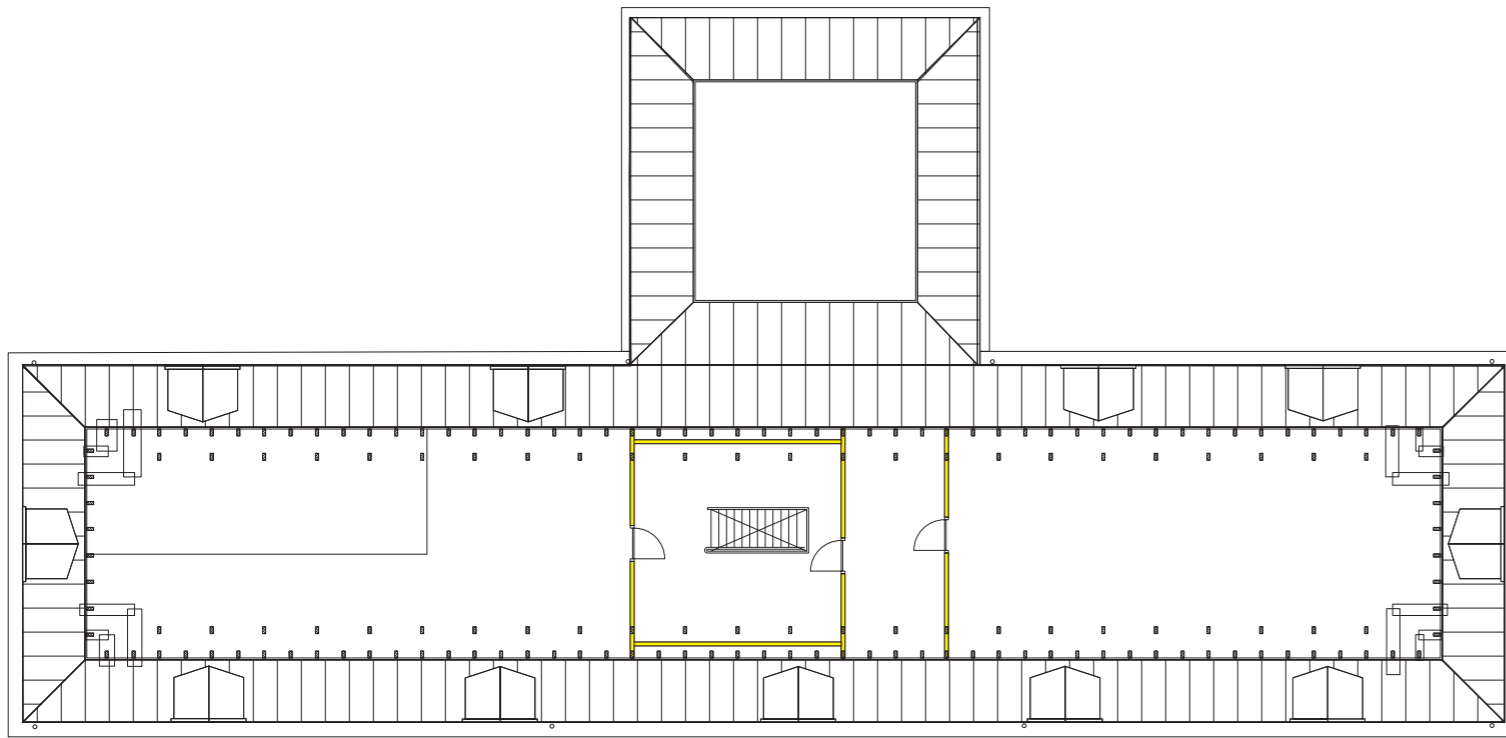


Huis 't Velde - Warnsveld

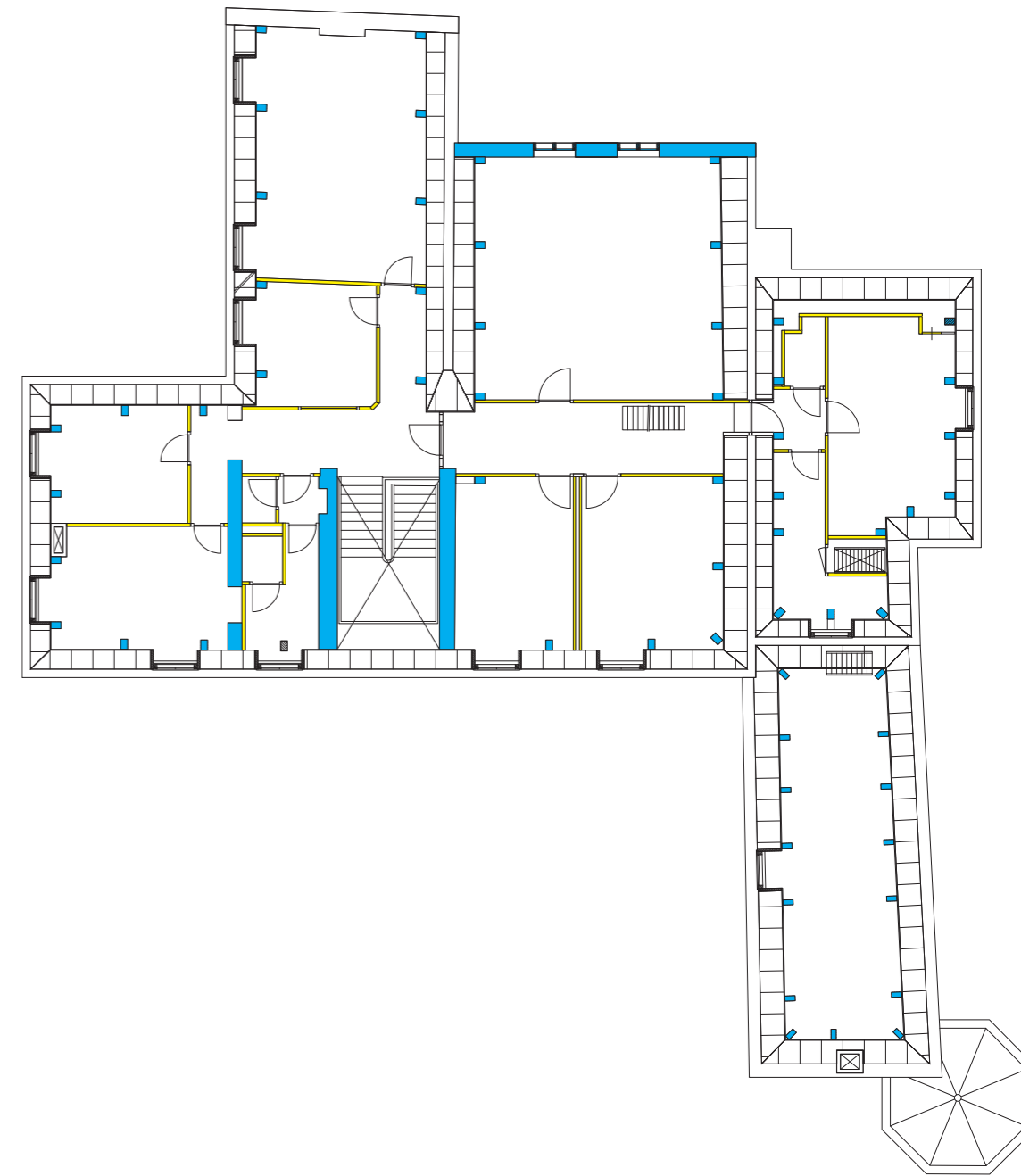


Story-based adaptive reuse of an estate - 46



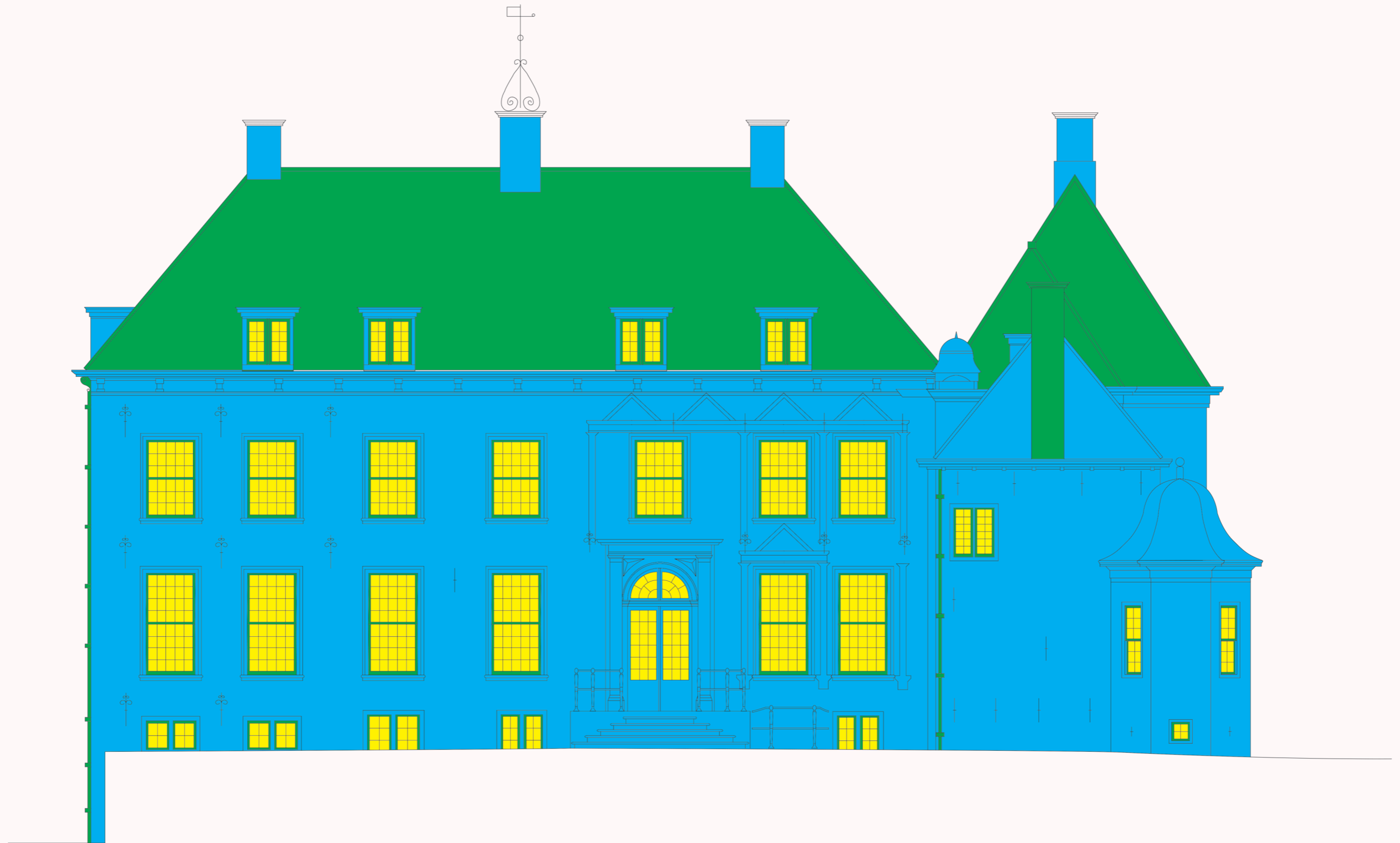


Huis 't veide - Warnsveld



Story-based adaptive reuse of an estate - 47

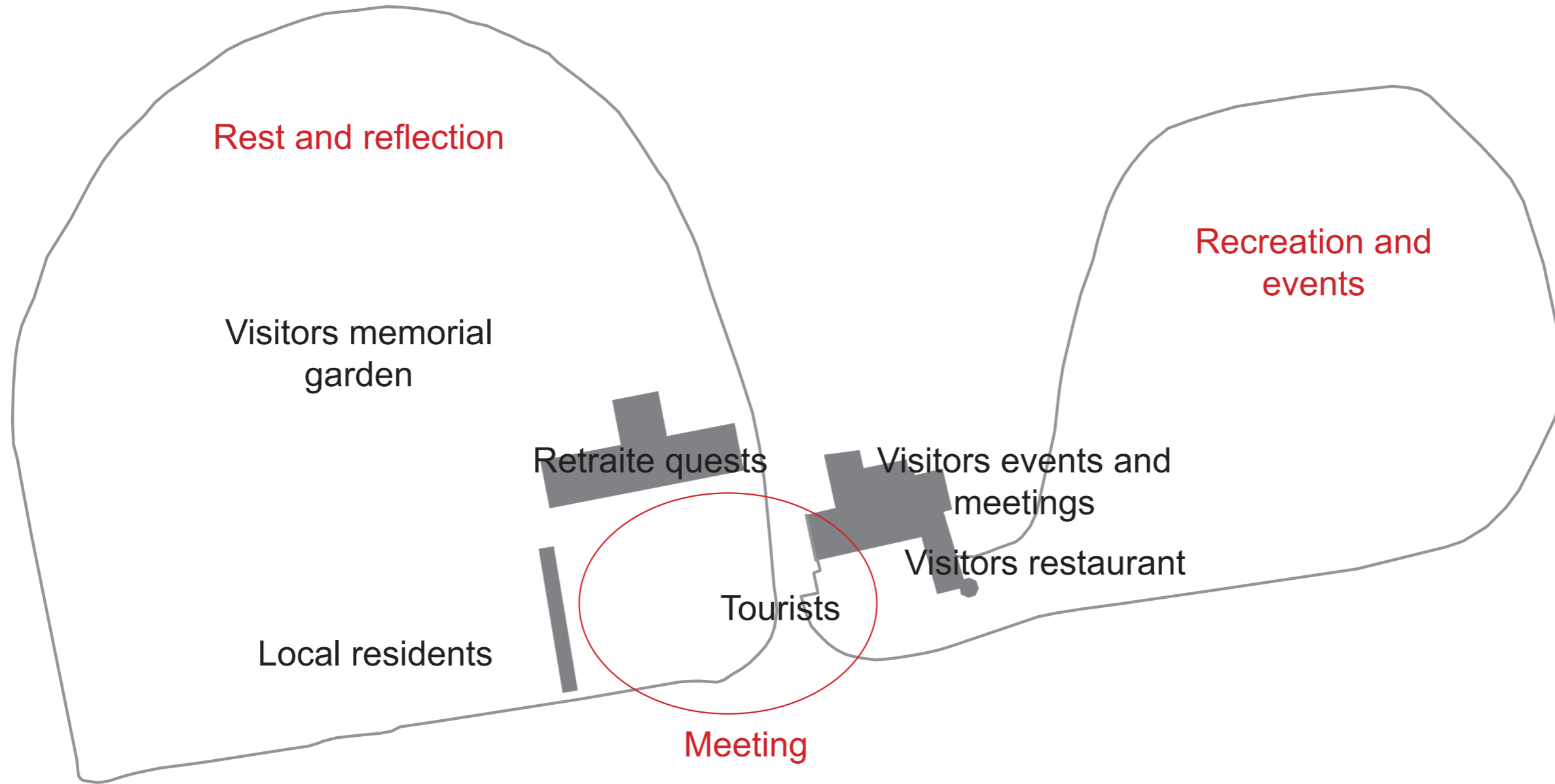
# Facades values







# Program and target groups



## Carriage house:

Individual retraite rooms

Shared spaces: living room, kitchen, meeting rooms

Separate group retraite accomodation

## Main house:

Restaurant and bar

Events

Meeting / conference rooms

Guided tours / open house

## Garden:

Vegetable garden

Memorial garden

Historic landscape garden

## Dove cote:

Tourist information point

# Variable use

## Variable use of the estate throughout the year



# Variable use

## Variable use of the estate throughout the week

Vegetable garden						
Growing plants						
					Maintenance	
Orangerie						
Growing plants						
					Meeting place	
Carriage house						
Retraites						
				Shop		
Main house						
Events						
Meetings / conferences						
					Guided tours / open house	
Dove cote						
Information point						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday



# Masterplan





# Main house



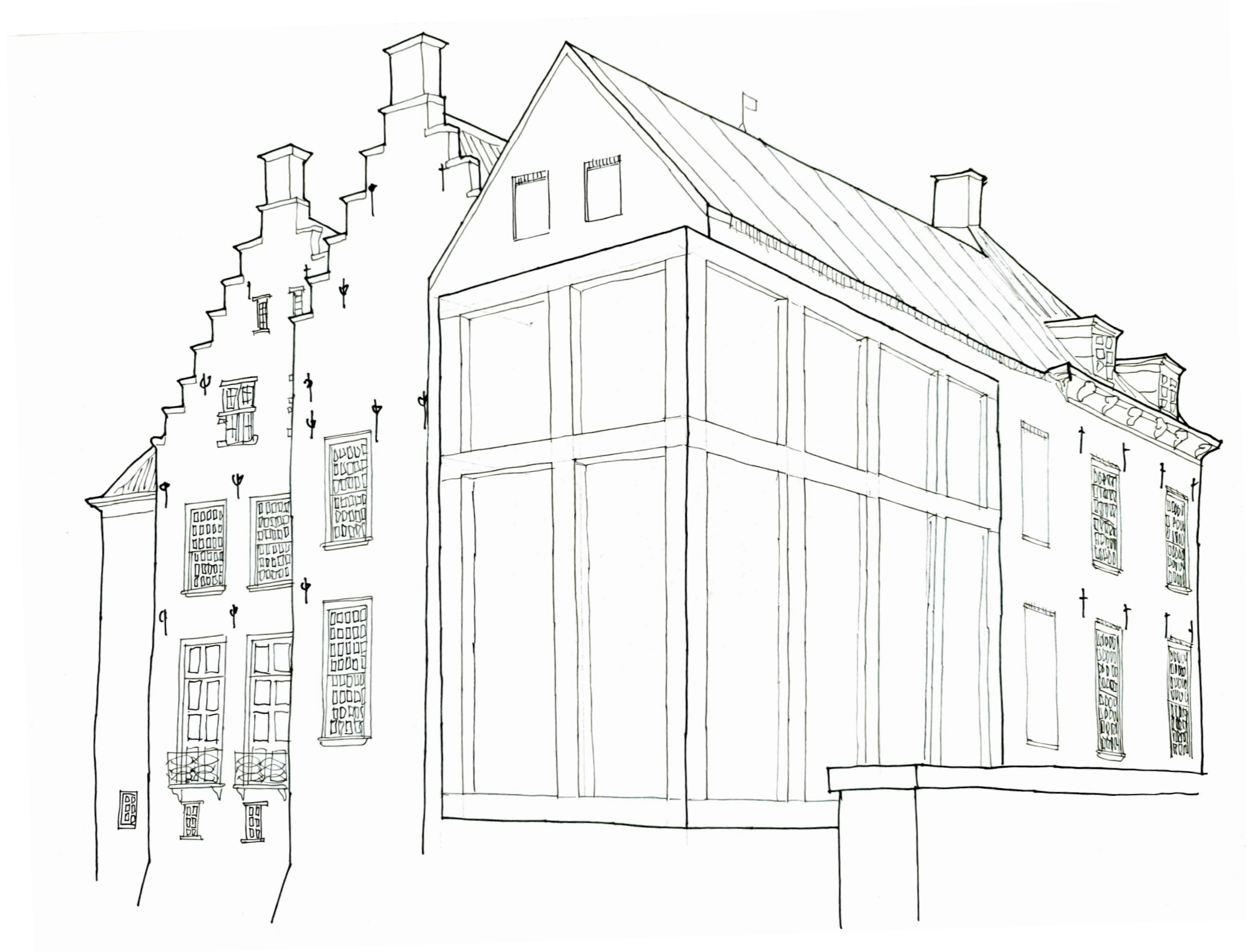


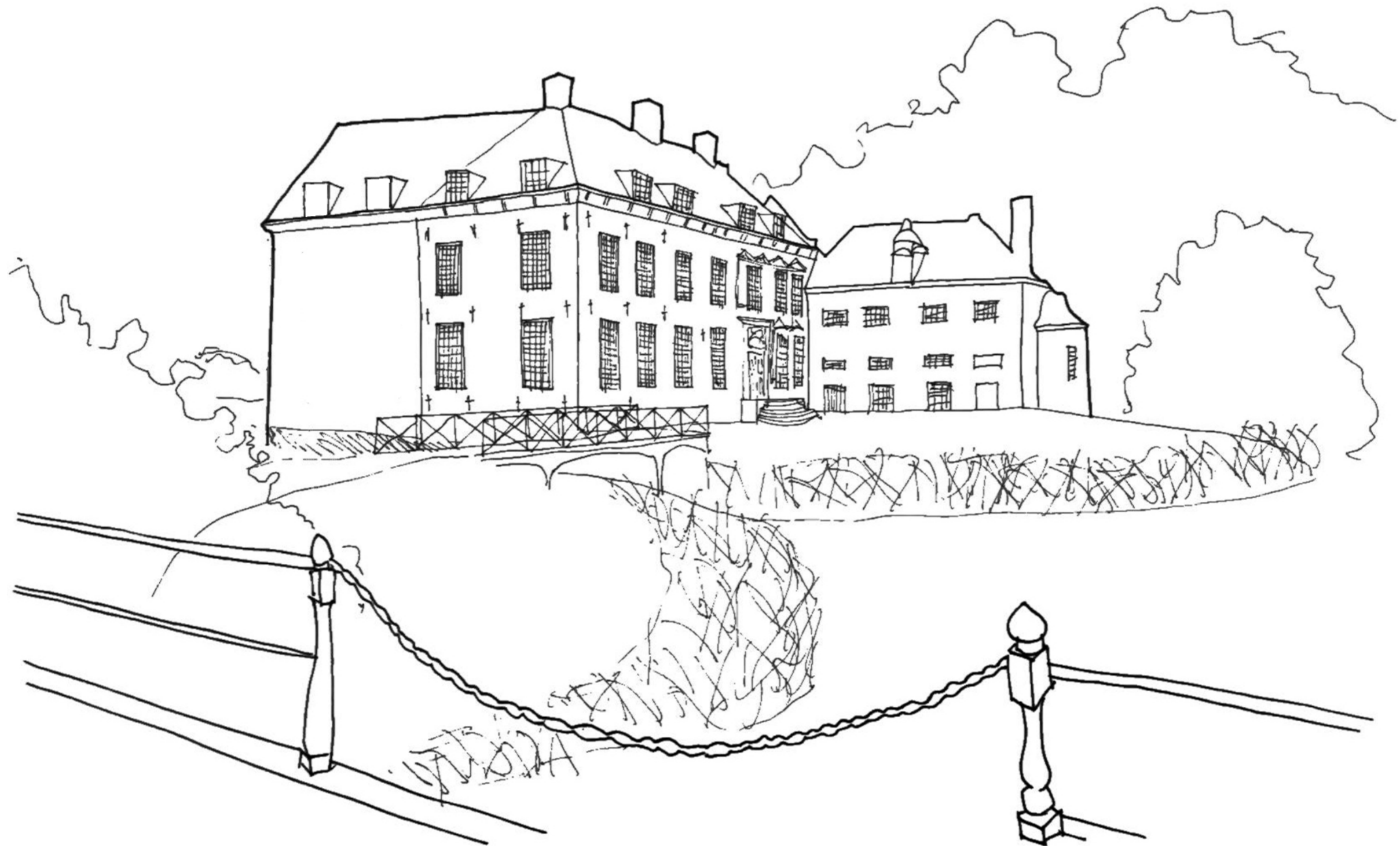
# Program





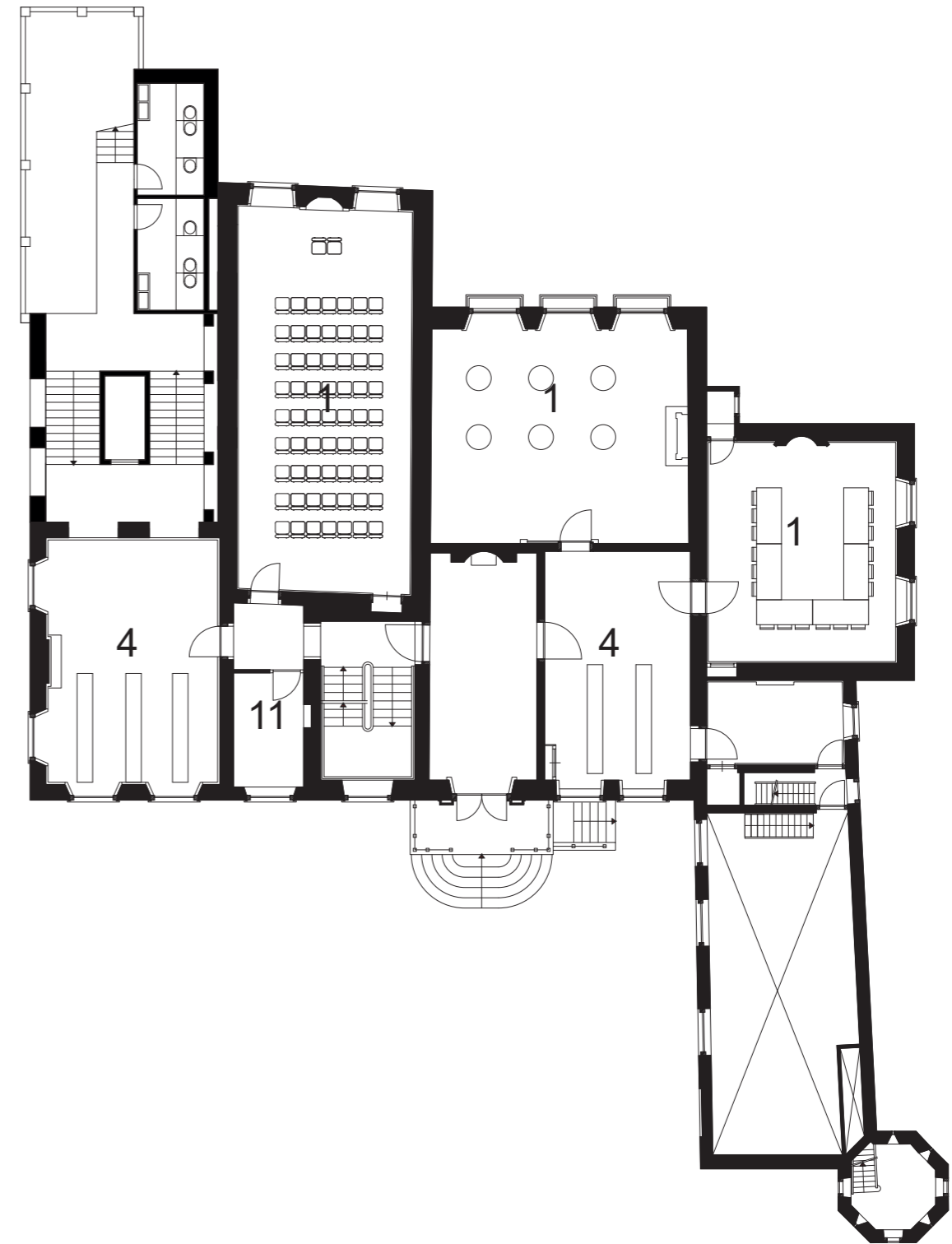
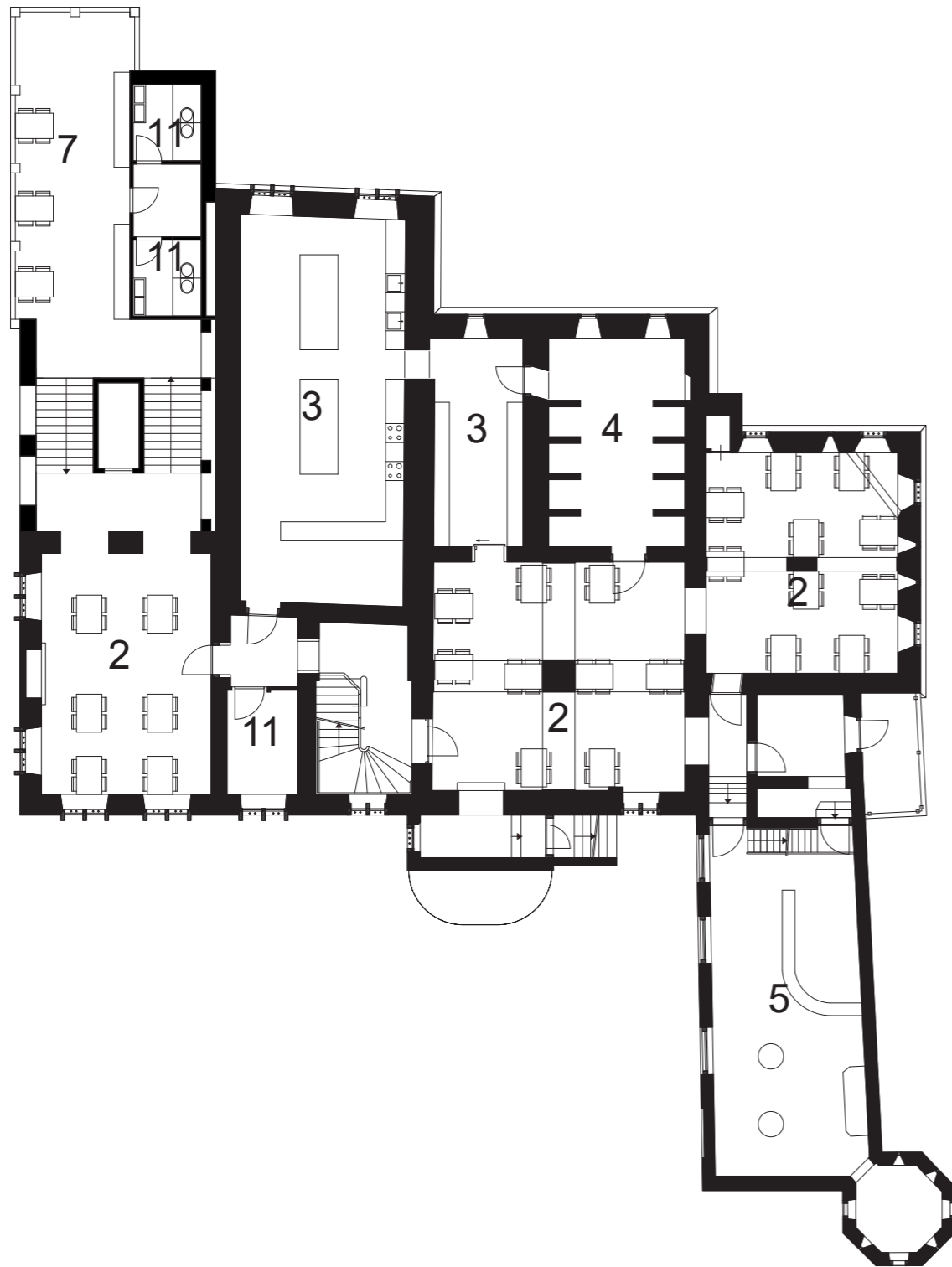
# House







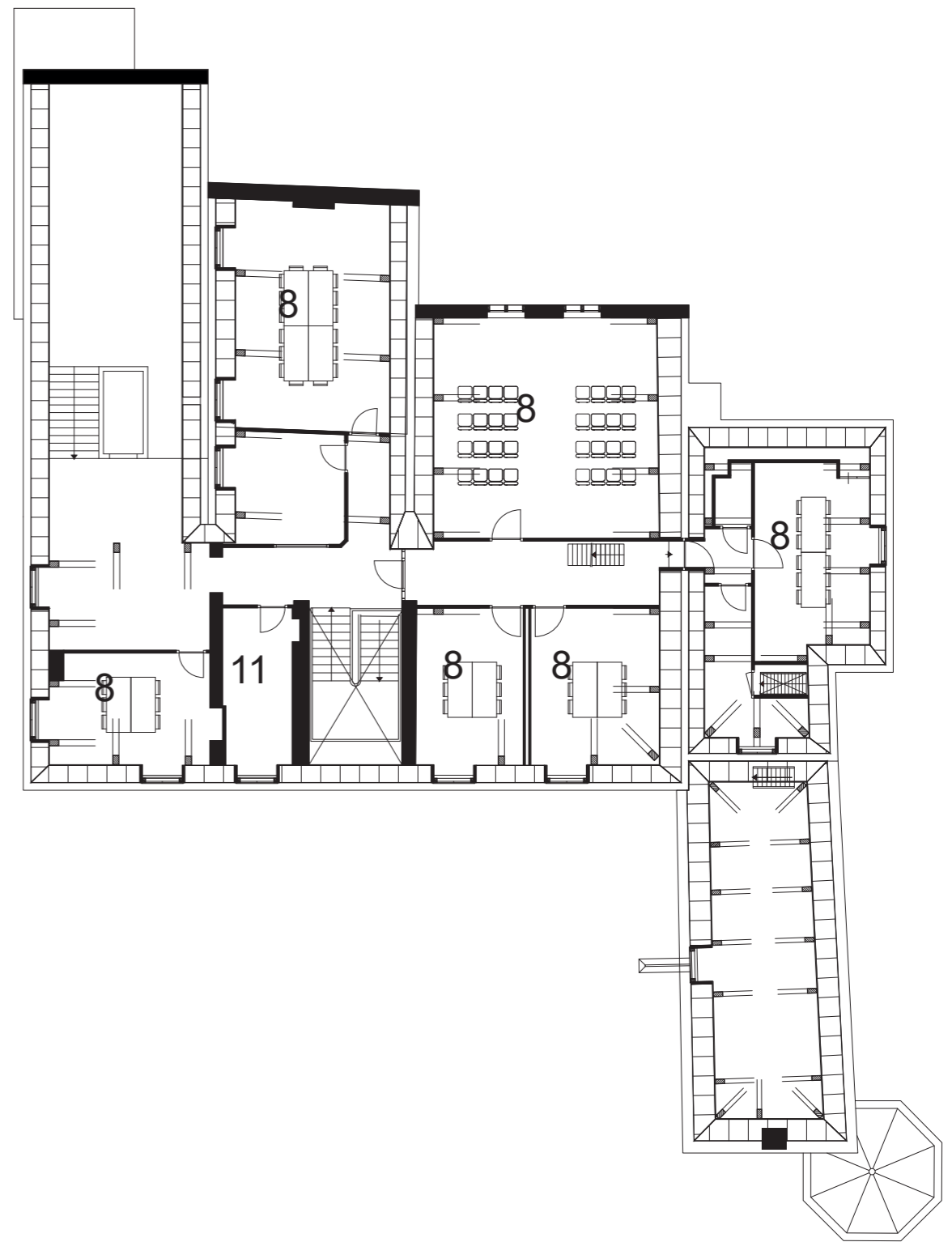
# Floorplans



- 1. Events
- 2. Restaurant
- 3. Kitchen
- 4. Wardrobe / reception
- 5. Bar
- 6. Storage
- 7. Shared meeting space
- 8. Conference / meeting

- 9. Office
- 10. Canteen
- 11. Toilet

# Floorplans



- |                         |                         |             |
|-------------------------|-------------------------|-------------|
| 1. Events               | 5. Bar                  | 9. Office   |
| 2. Restaurant           | 6. Storage              | 10. Canteen |
| 3. Kitchen              | 7. Shared meeting space | 11. Toilet  |
| 4. Wardrobe / reception | 8. Conference / meeting |             |



# Shutters



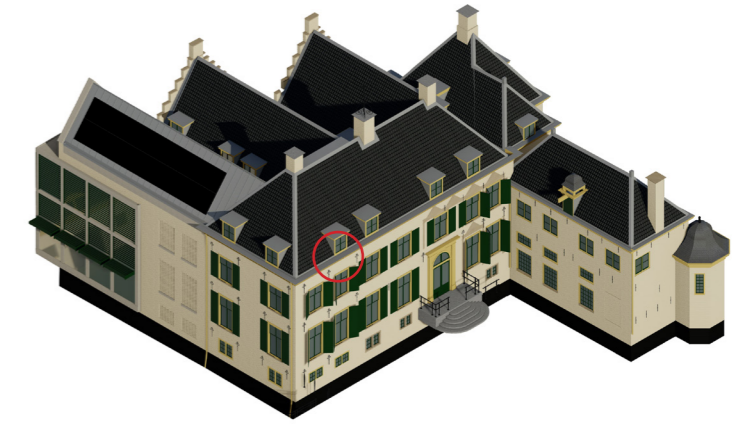


# Front facade

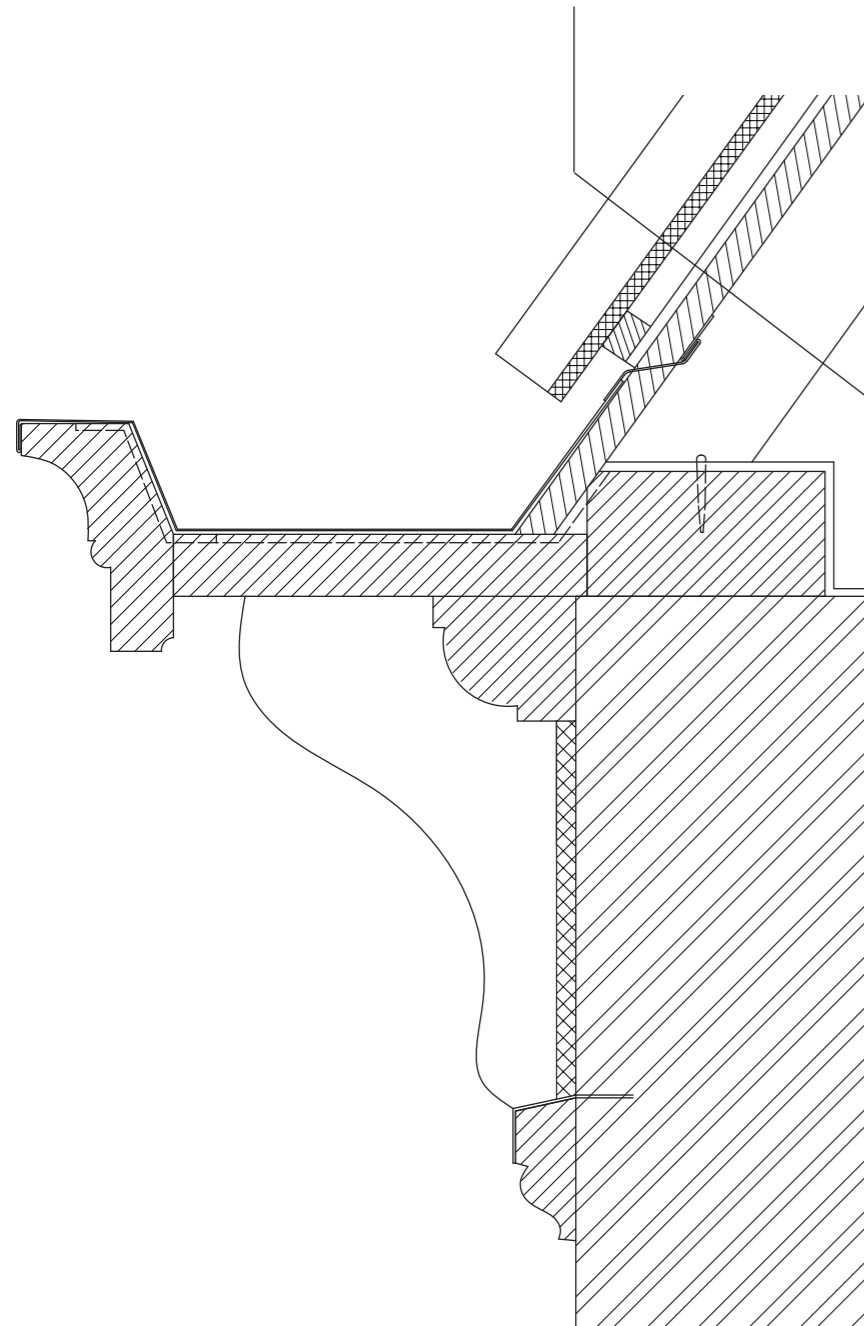




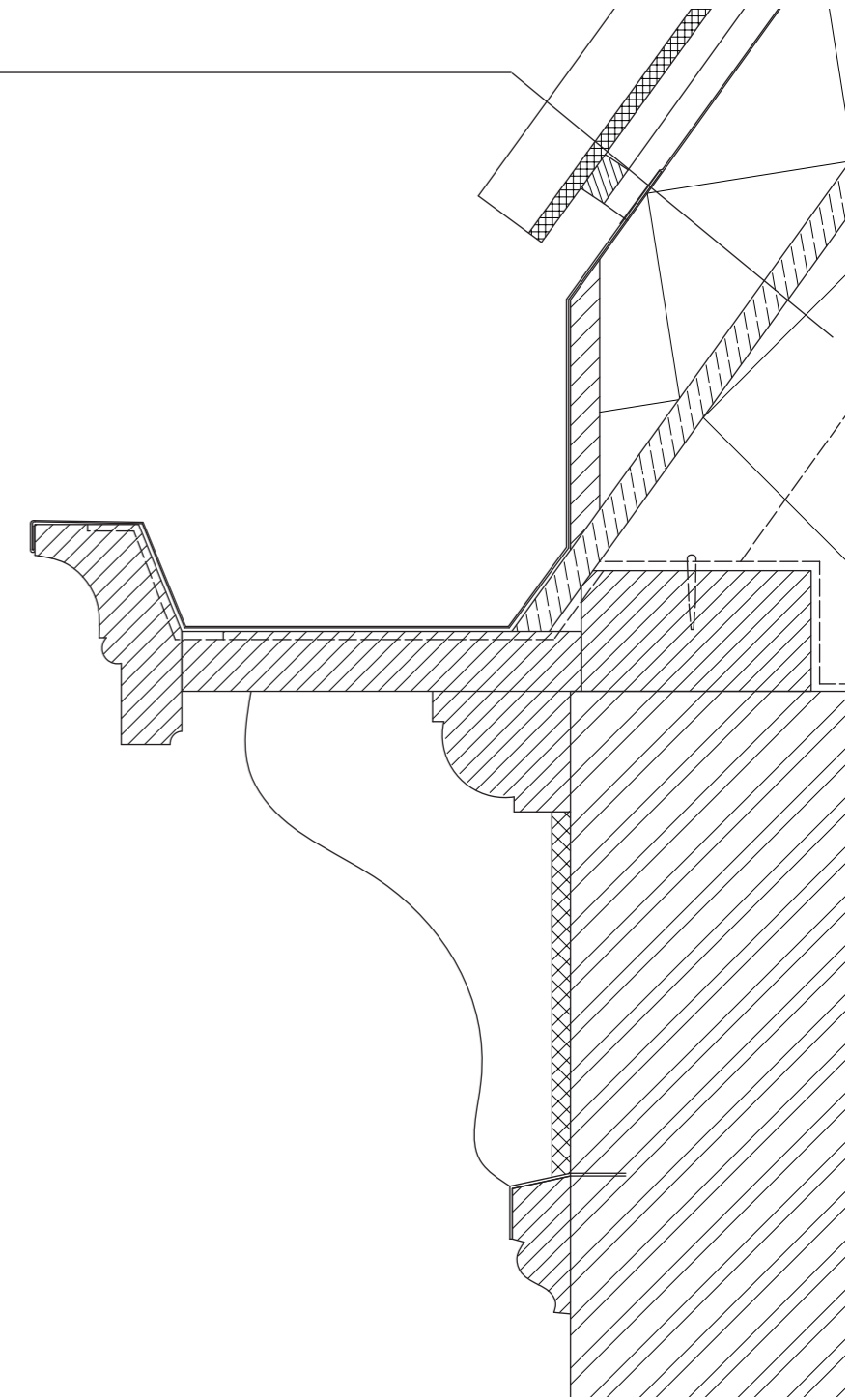
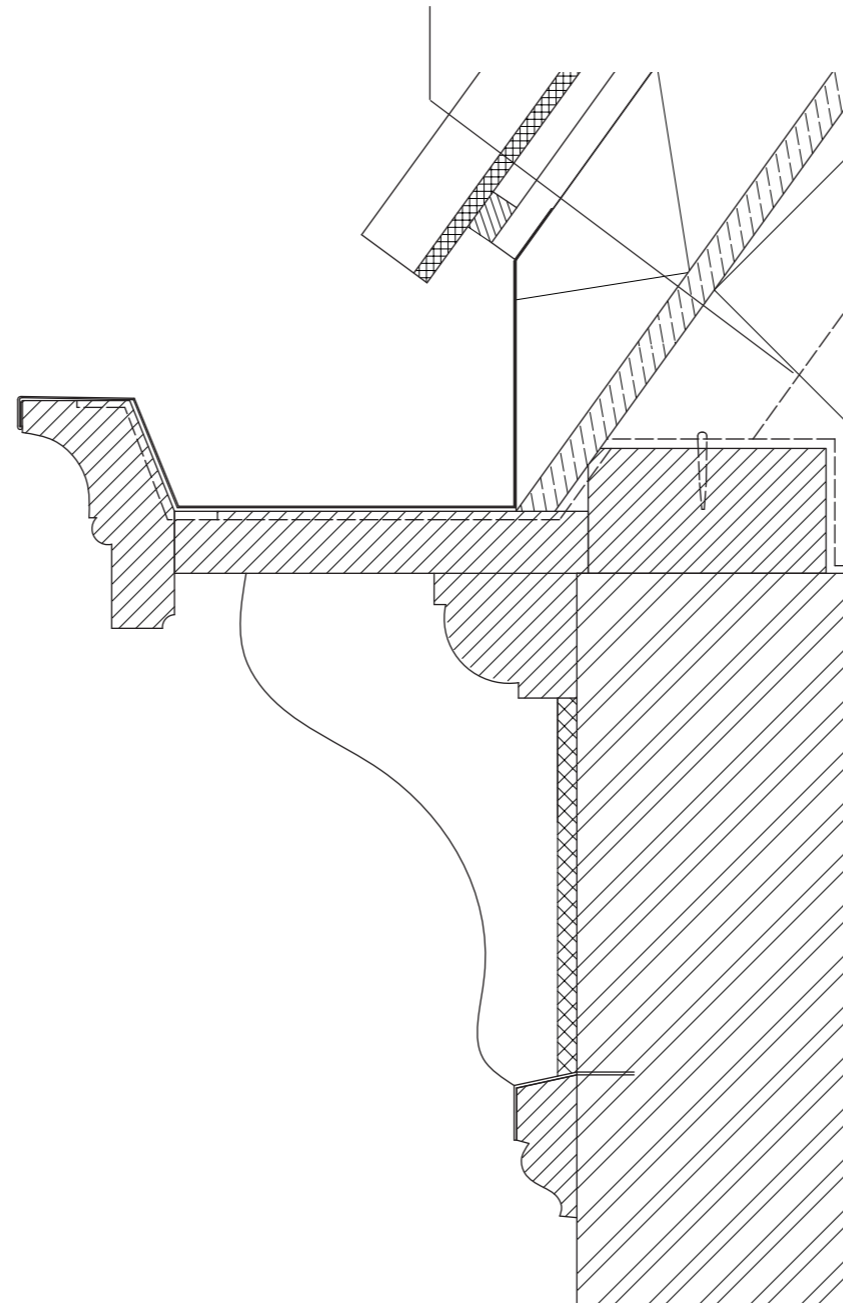
# Insulation: roof



Ceramic roof tiles (Oud-Hollands)  
Batten  
Air cavity (Counter batten)  
18mm pine planks



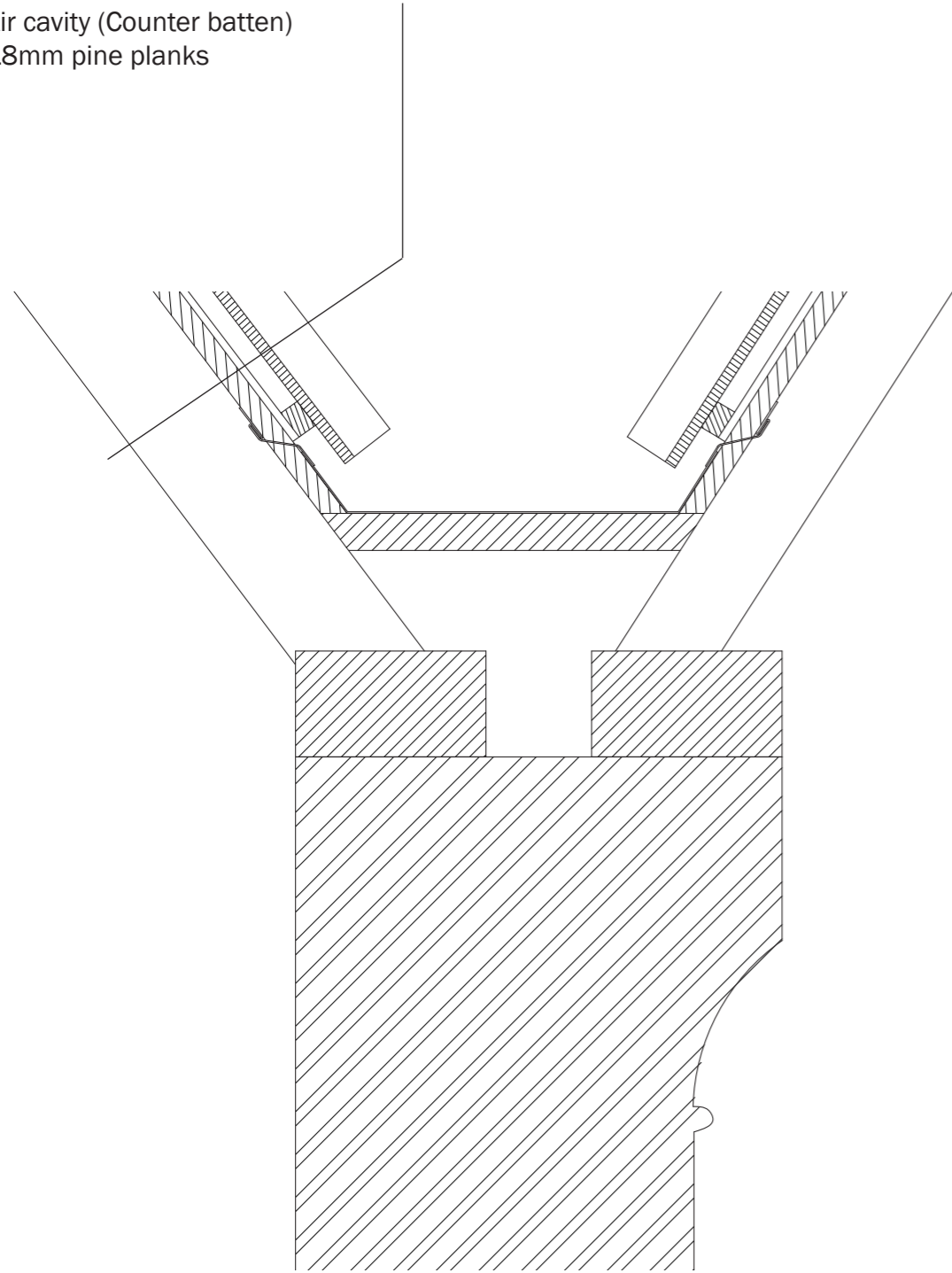
Ceramic roof tiles (Oud-Hollands)  
Batten 22x32mm  
Air cavity (Counter batten  
22x32mm)  
Damp open foil  
100mm Rockwool insulation  
18mm pine planks



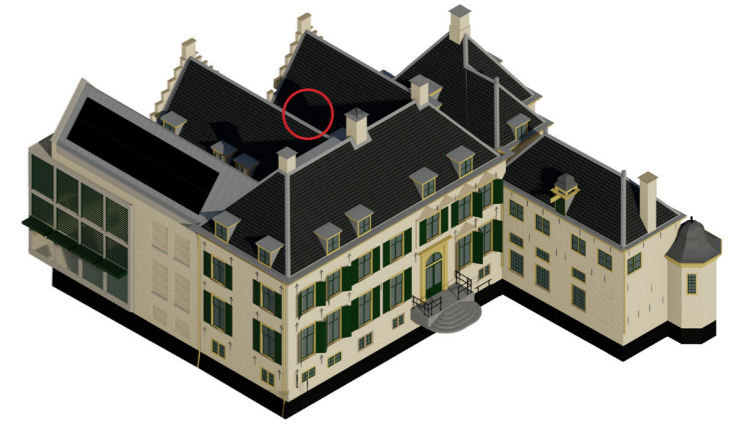
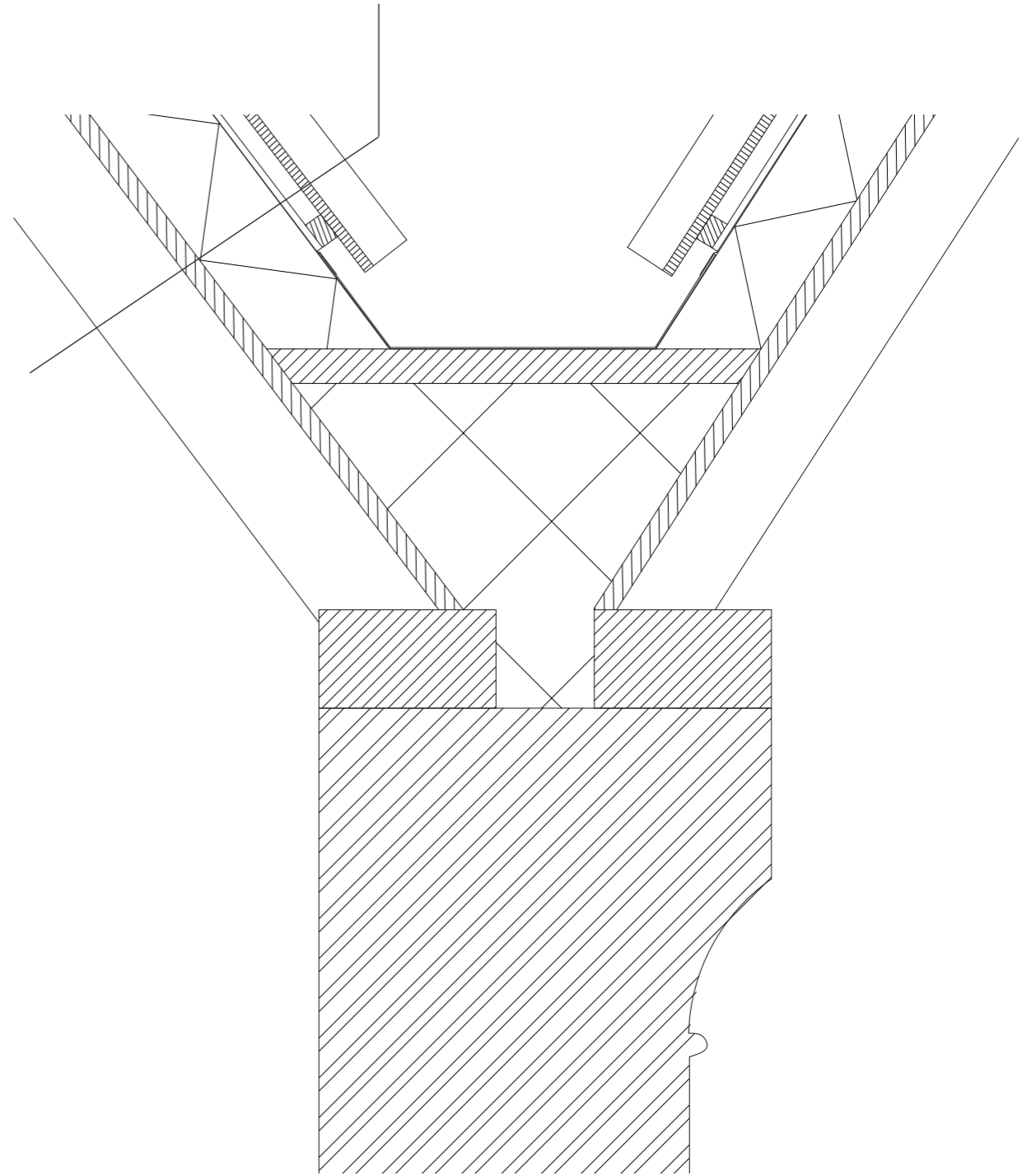


# Insulation: Roof

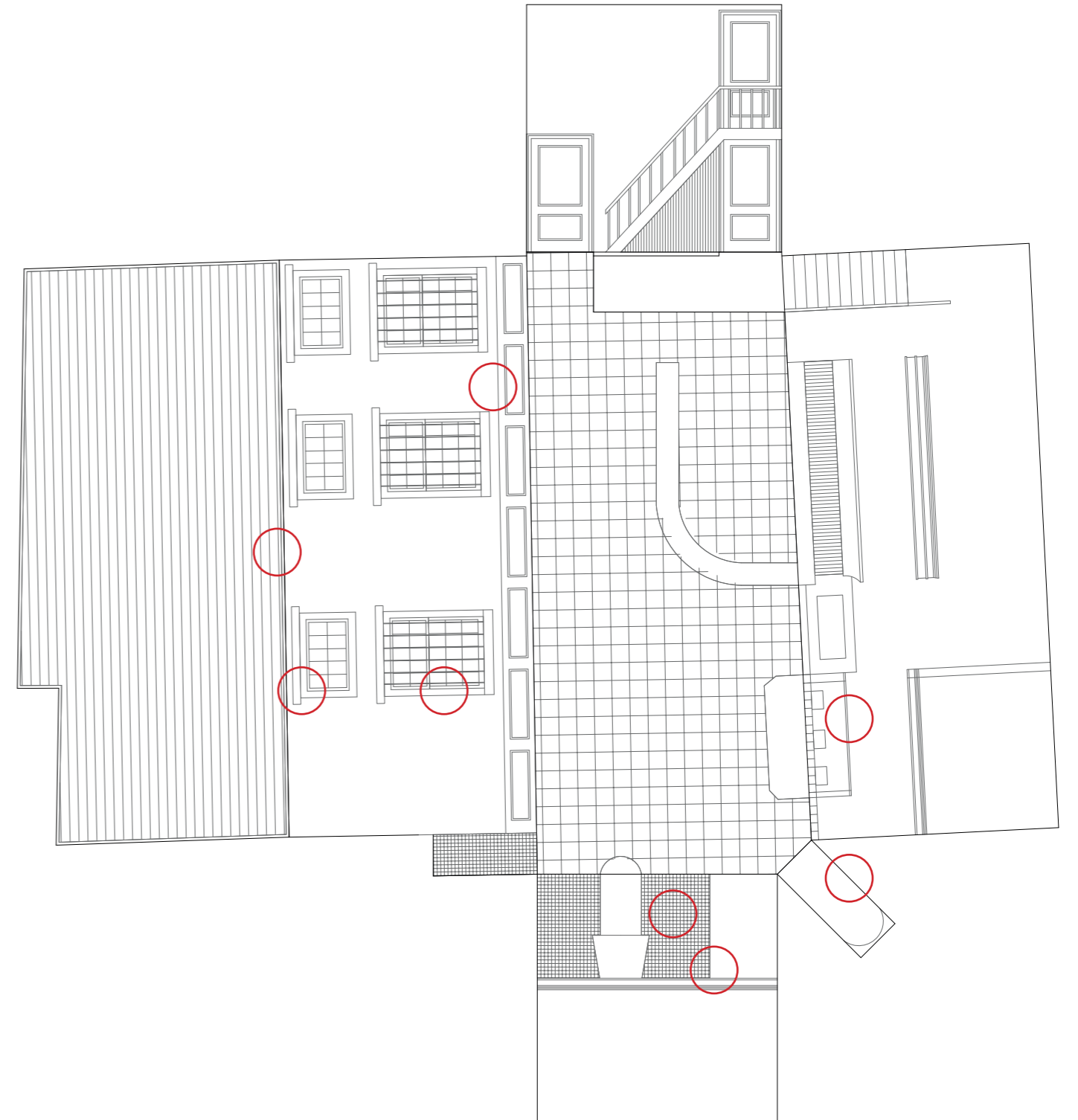
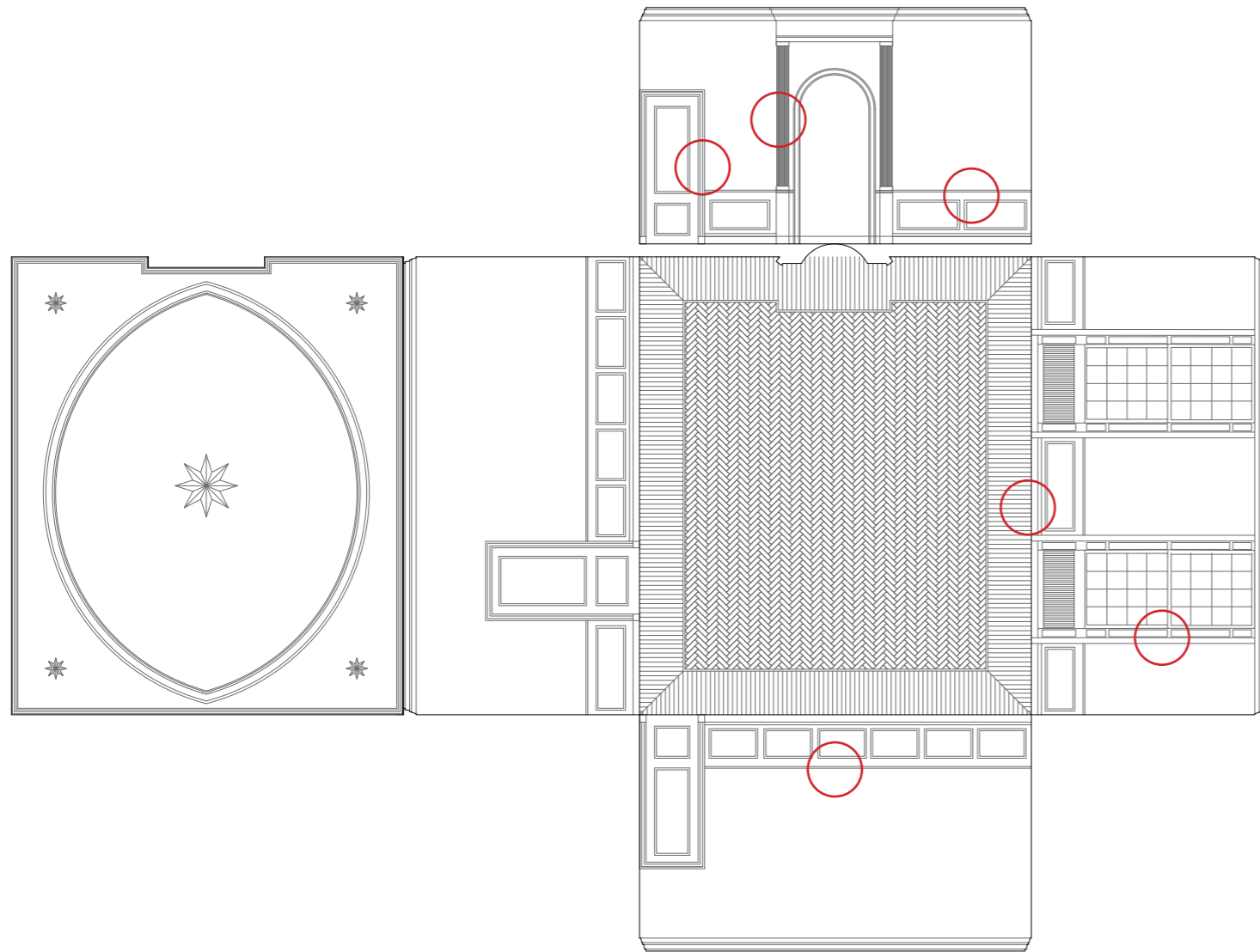
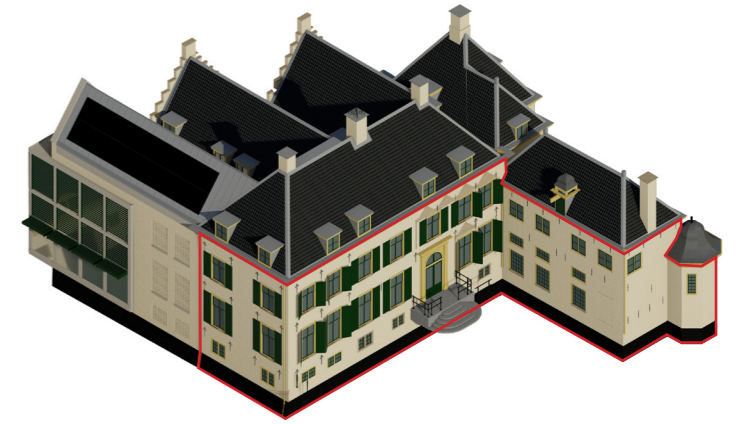
Ceramic roof tiles (Oud-Hollands)  
Batten  
Air cavity (Counter batten)  
18mm pine planks



Ceramic roof tiles (Oud-Hollands)  
Batten 22x32mm  
Air cavity (Counter batten 22x32mm)  
Damp open foil  
100mm Rockwool insulation  
18mm pine planks

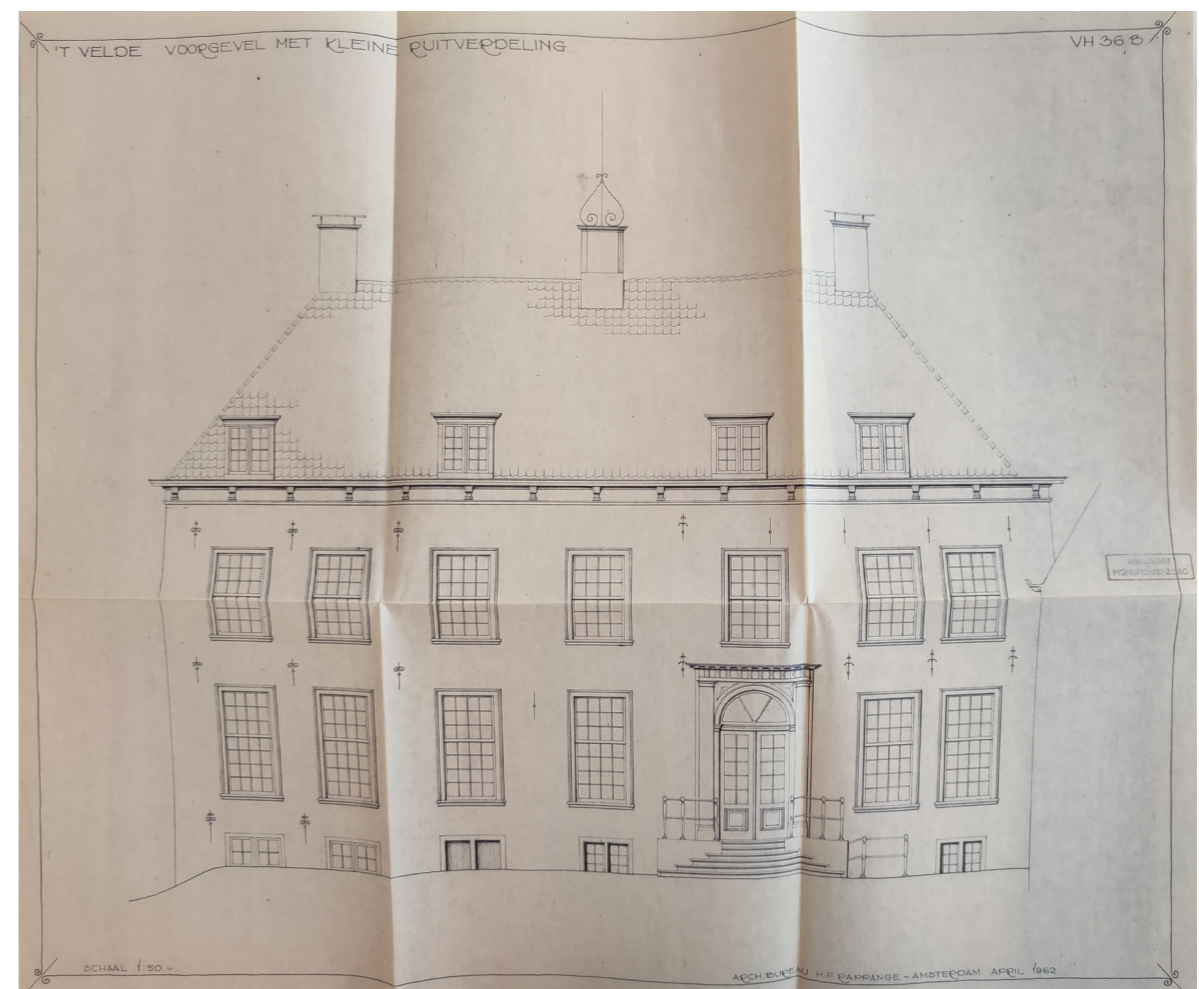


# Insulation: walls

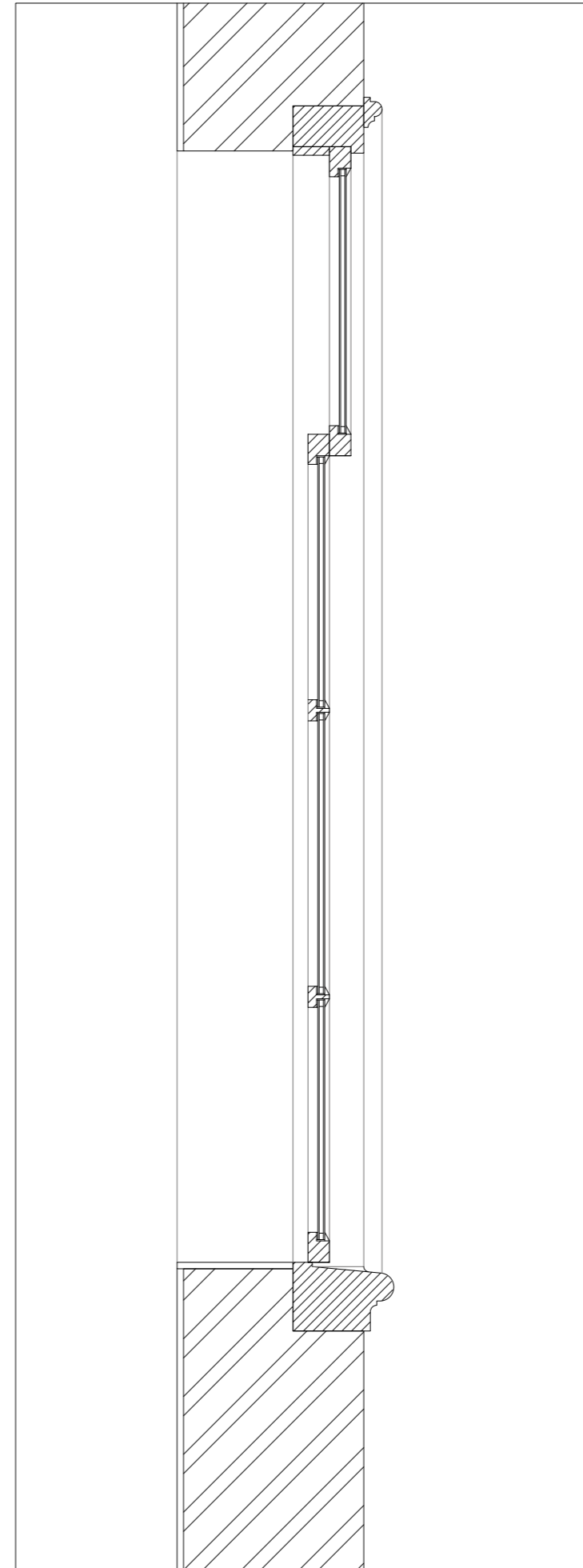
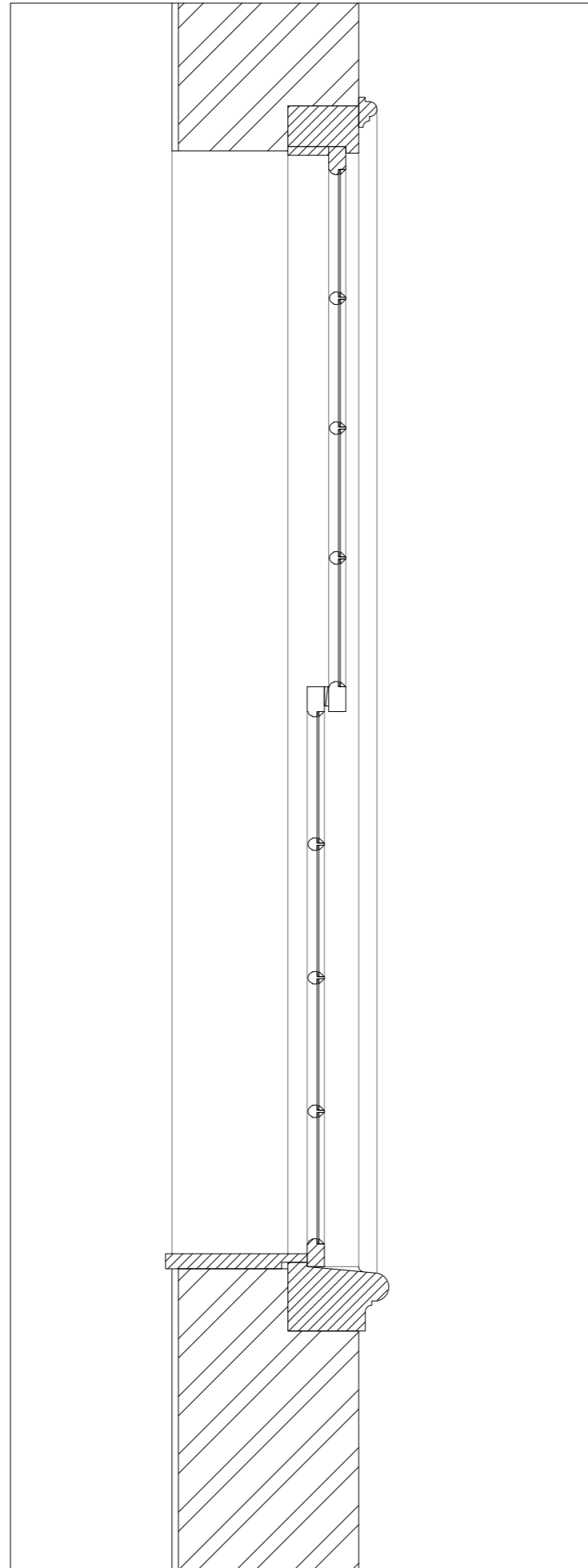




# Insulation: windows



# Insulation: windows





# Interior interventions

## 2 main types of rooms



### Formal rooms

Originally used by inhabitants and guests

Located mostly on beletage and 1st floor

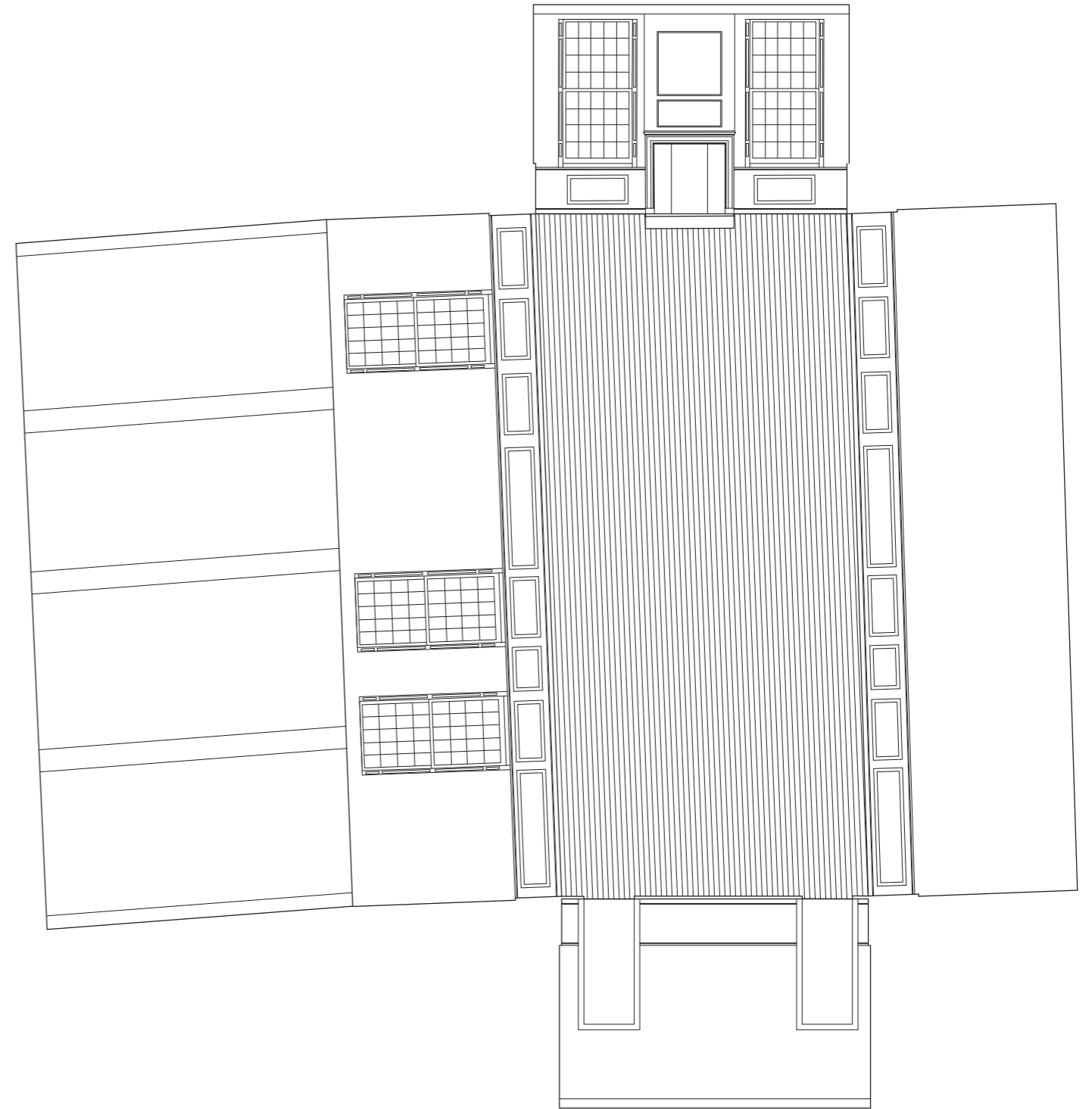


### Functional rooms

Originally used by staff members and for storage

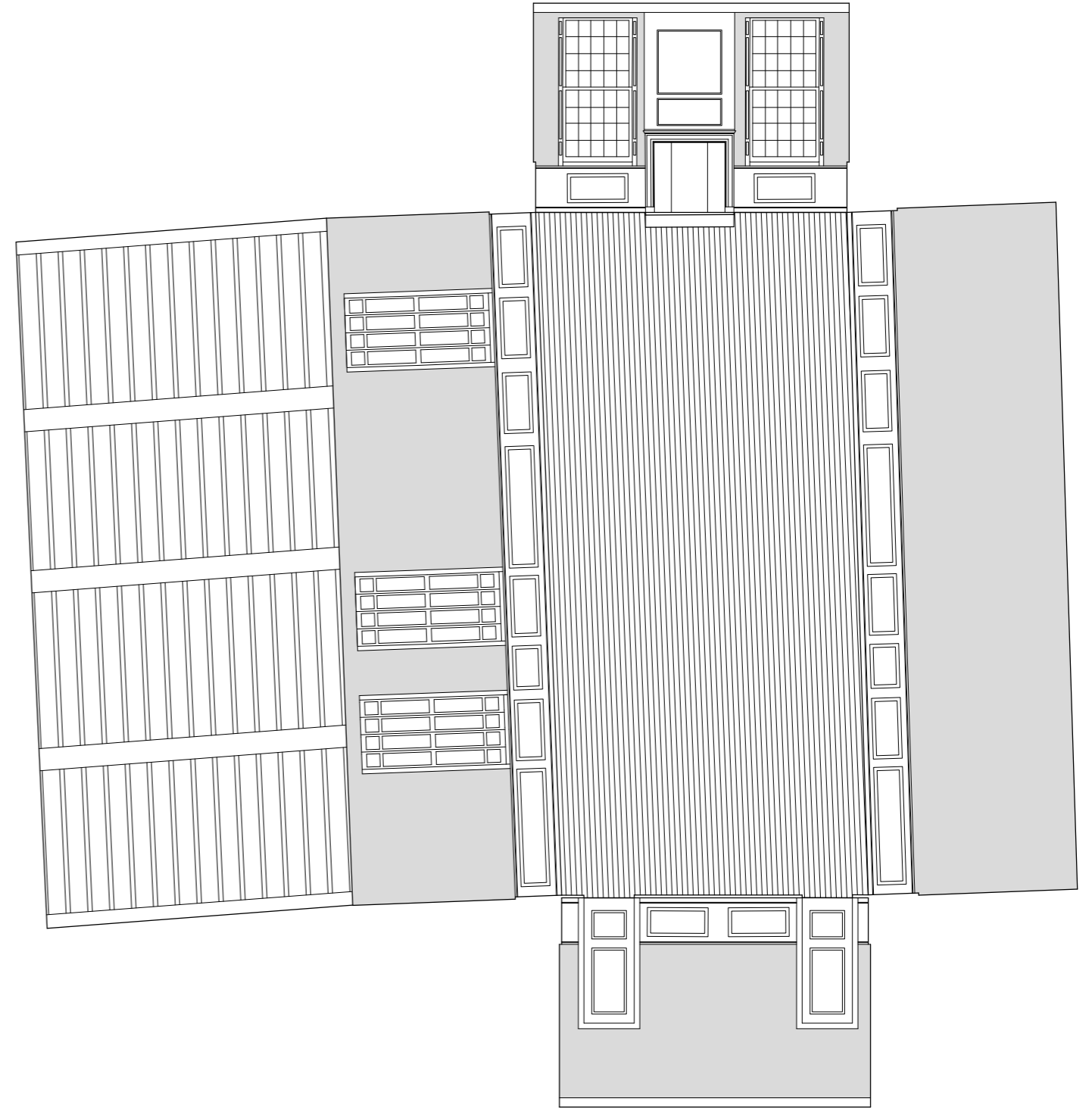
Located mostly in souterrain and 2nd floor

# Formal rooms



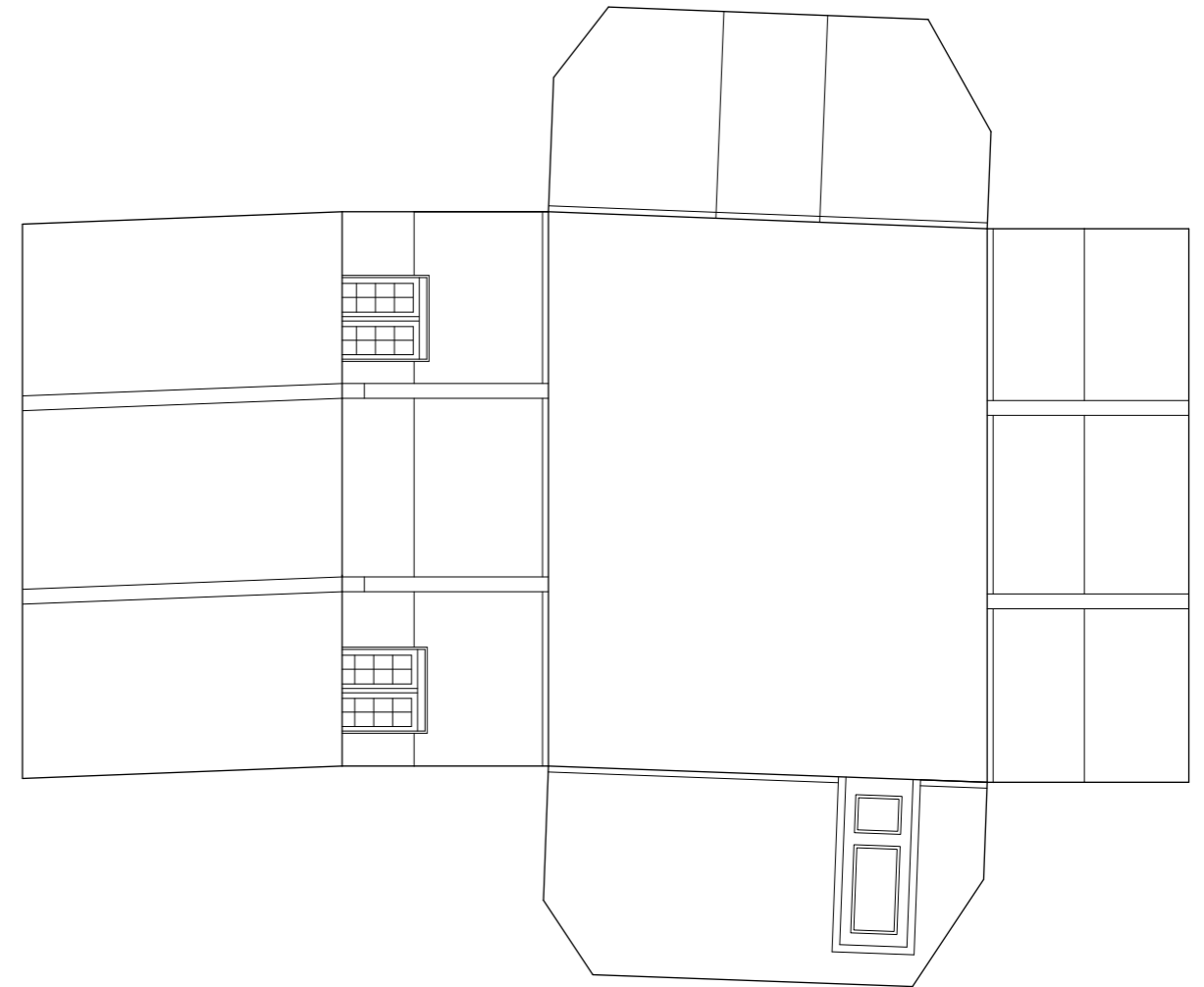


# Formal rooms



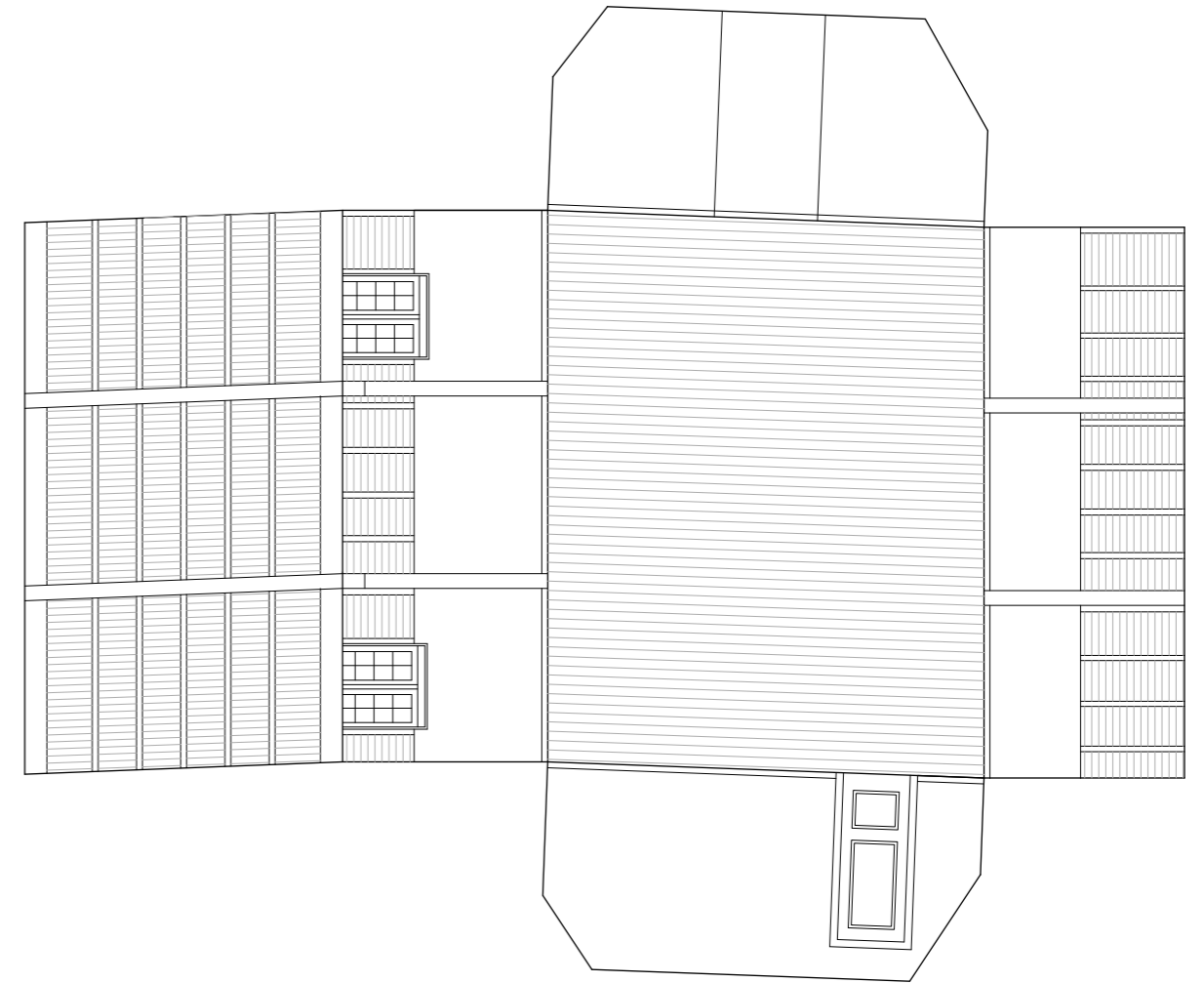


# Functional rooms

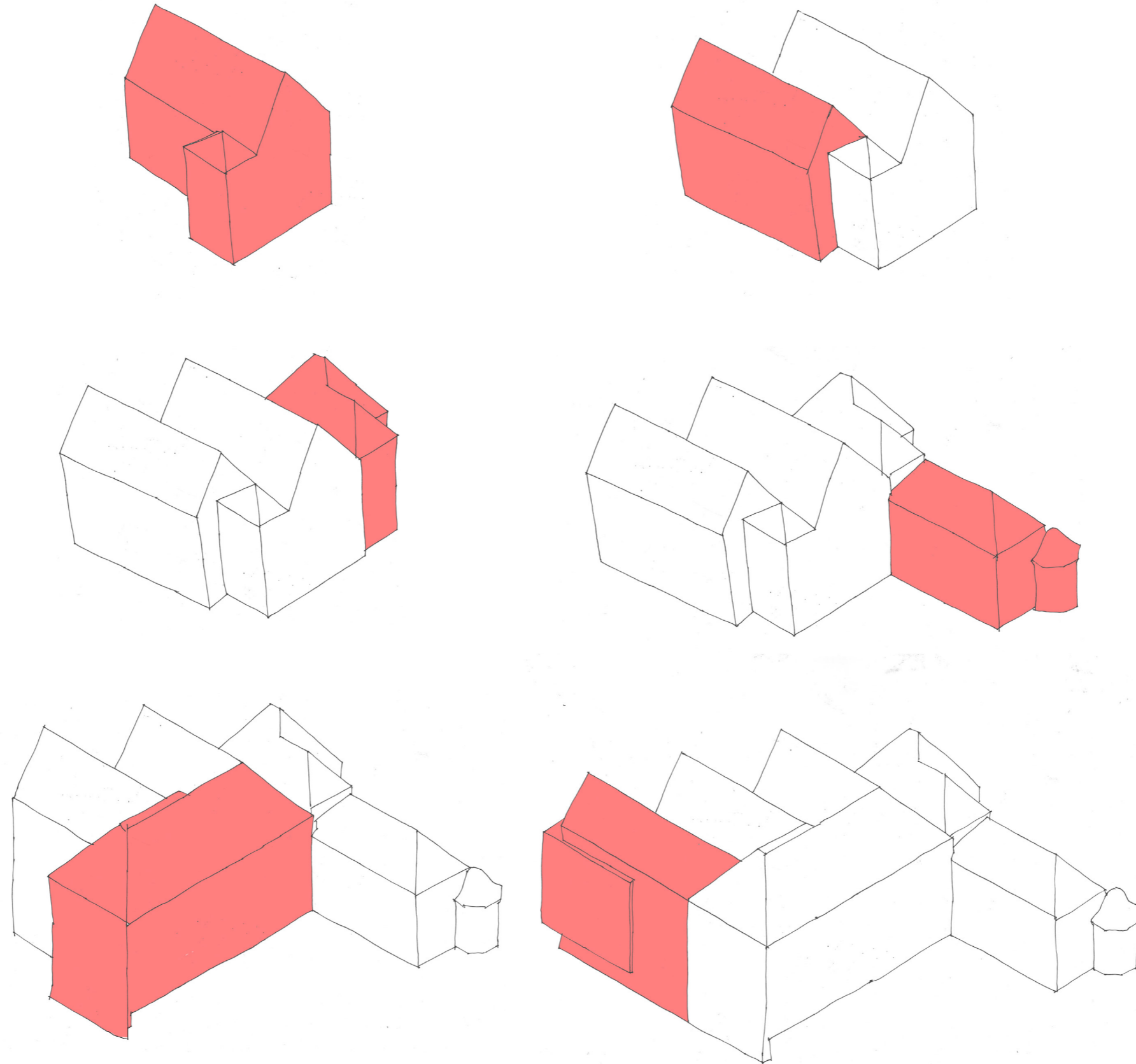




# Functional rooms



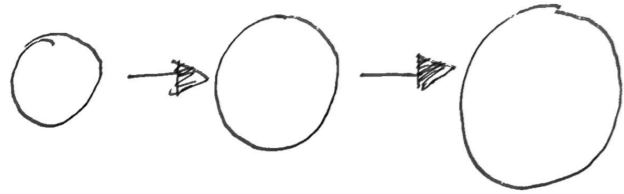
# Grammar



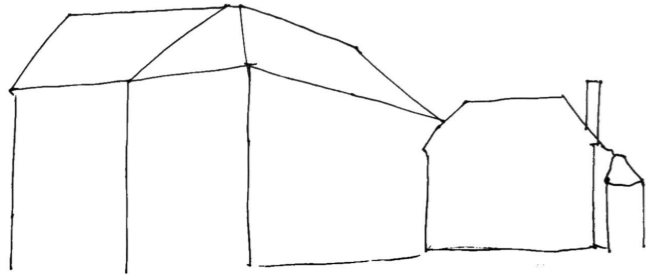
Principle of growth of the building



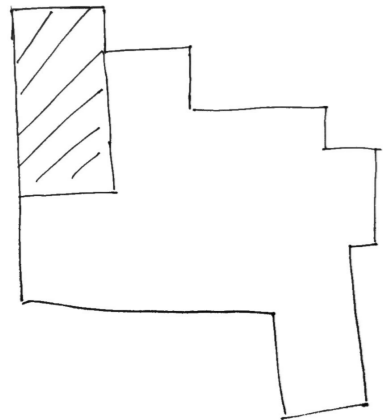
# Extension



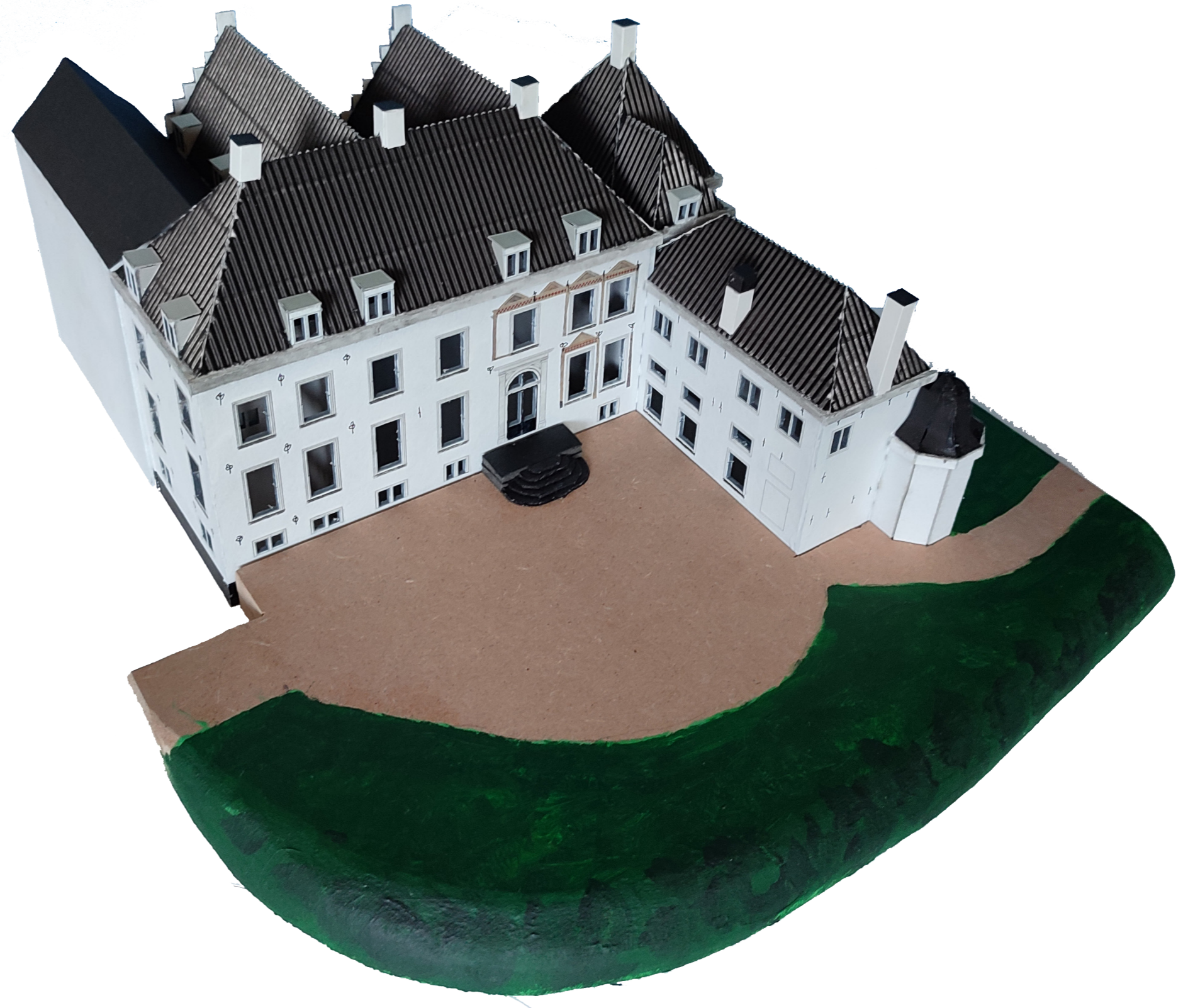
Logical continuation of growth of the building



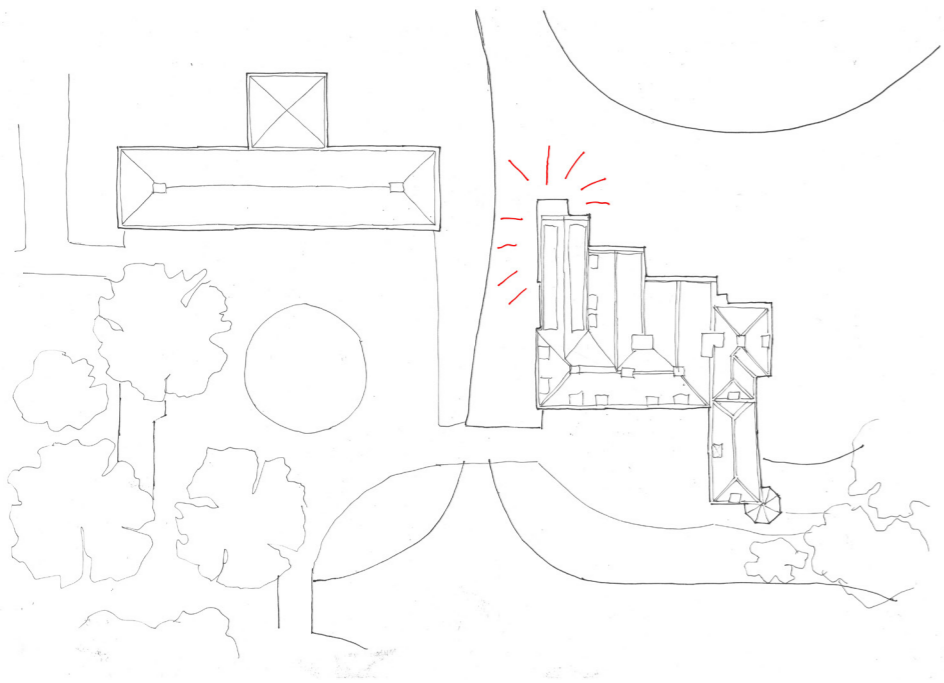
Relatively small impact on the experience of the existing building



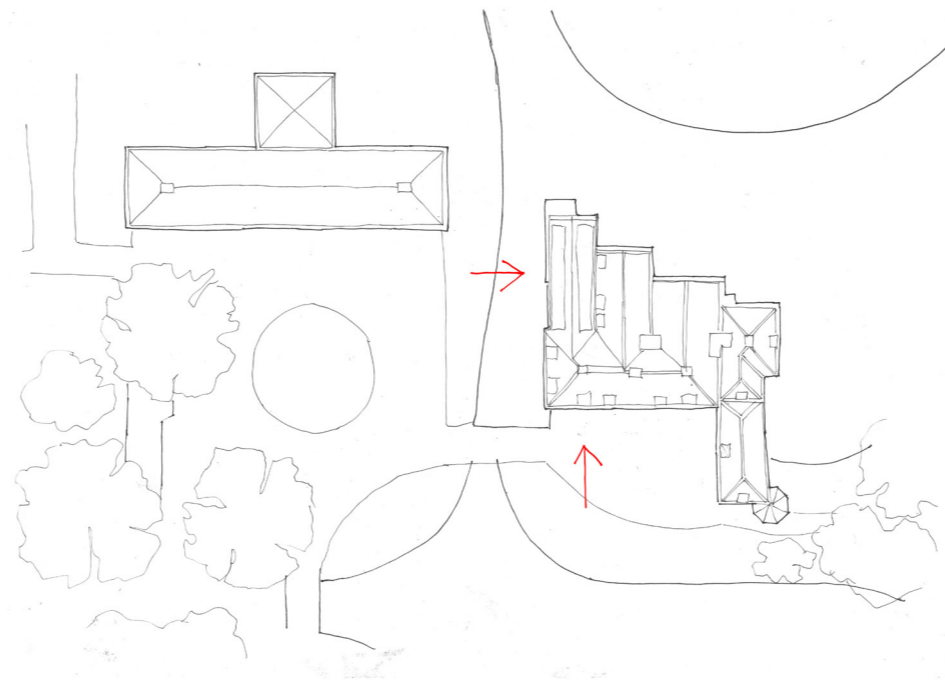
Size fits to the scale of the building



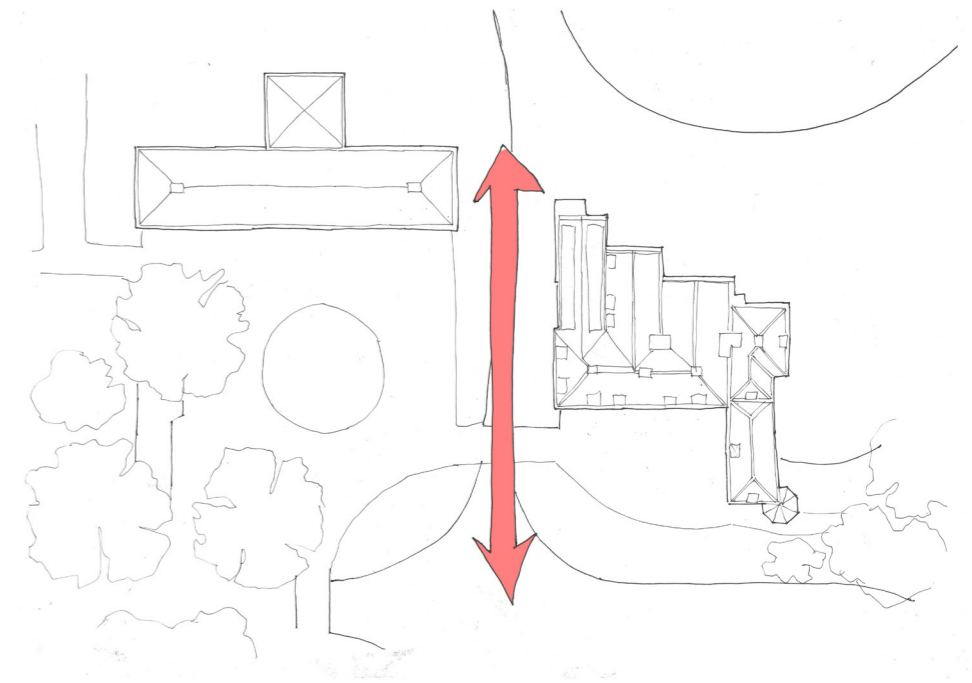
# Extension



View over the estate



Front facade remains recognizable



Connection to existing sight line

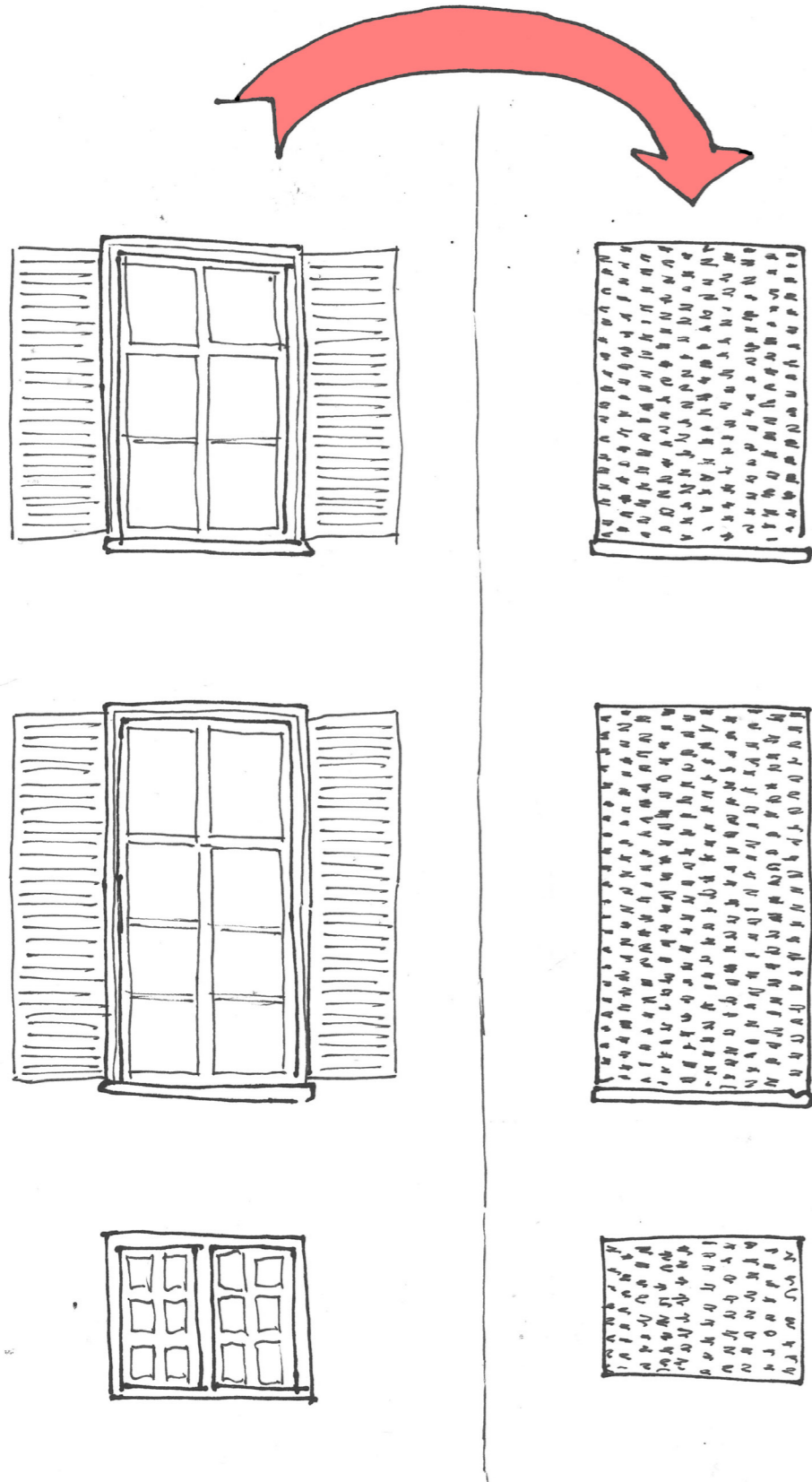


# Extension

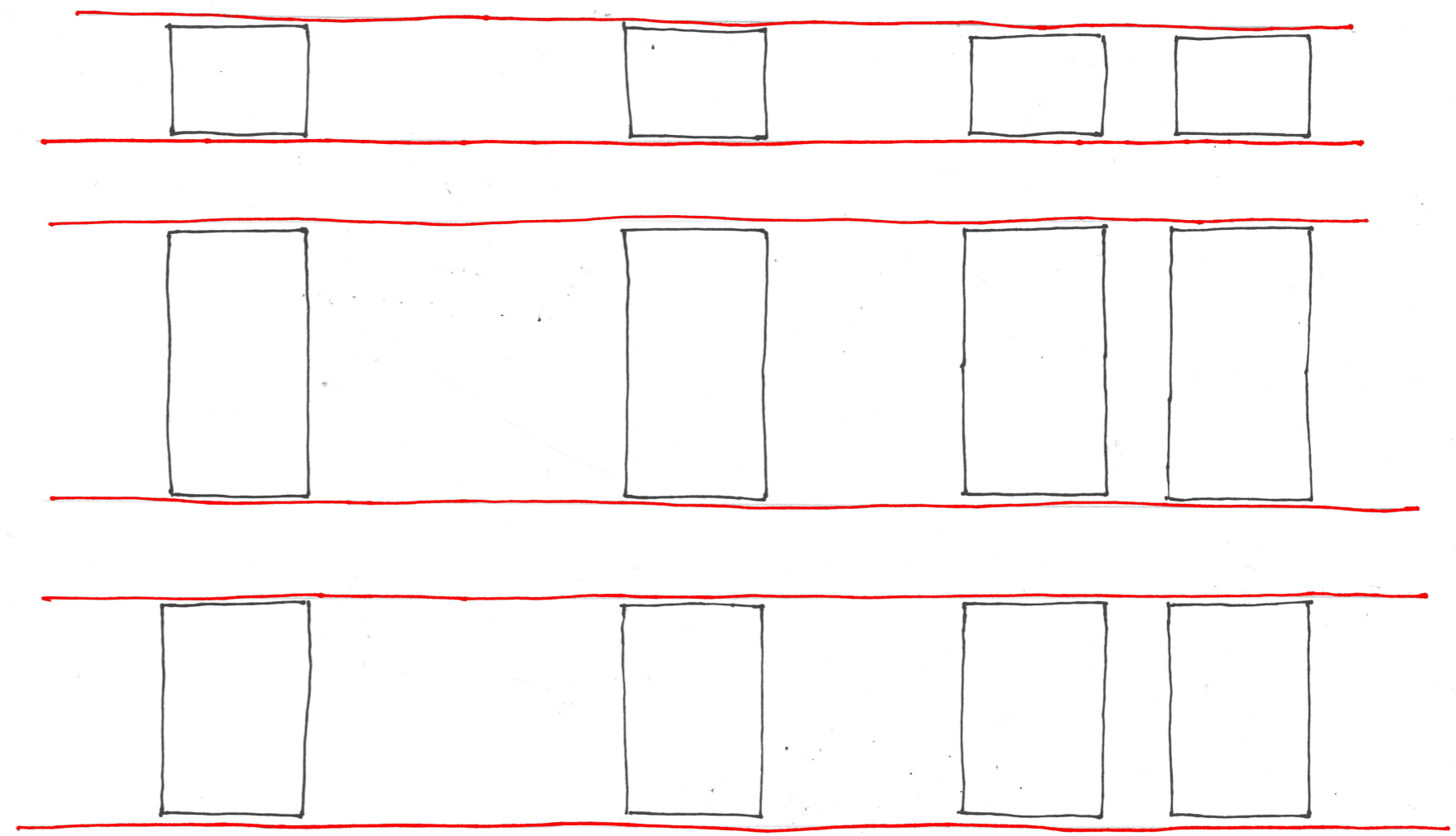




# Grammar



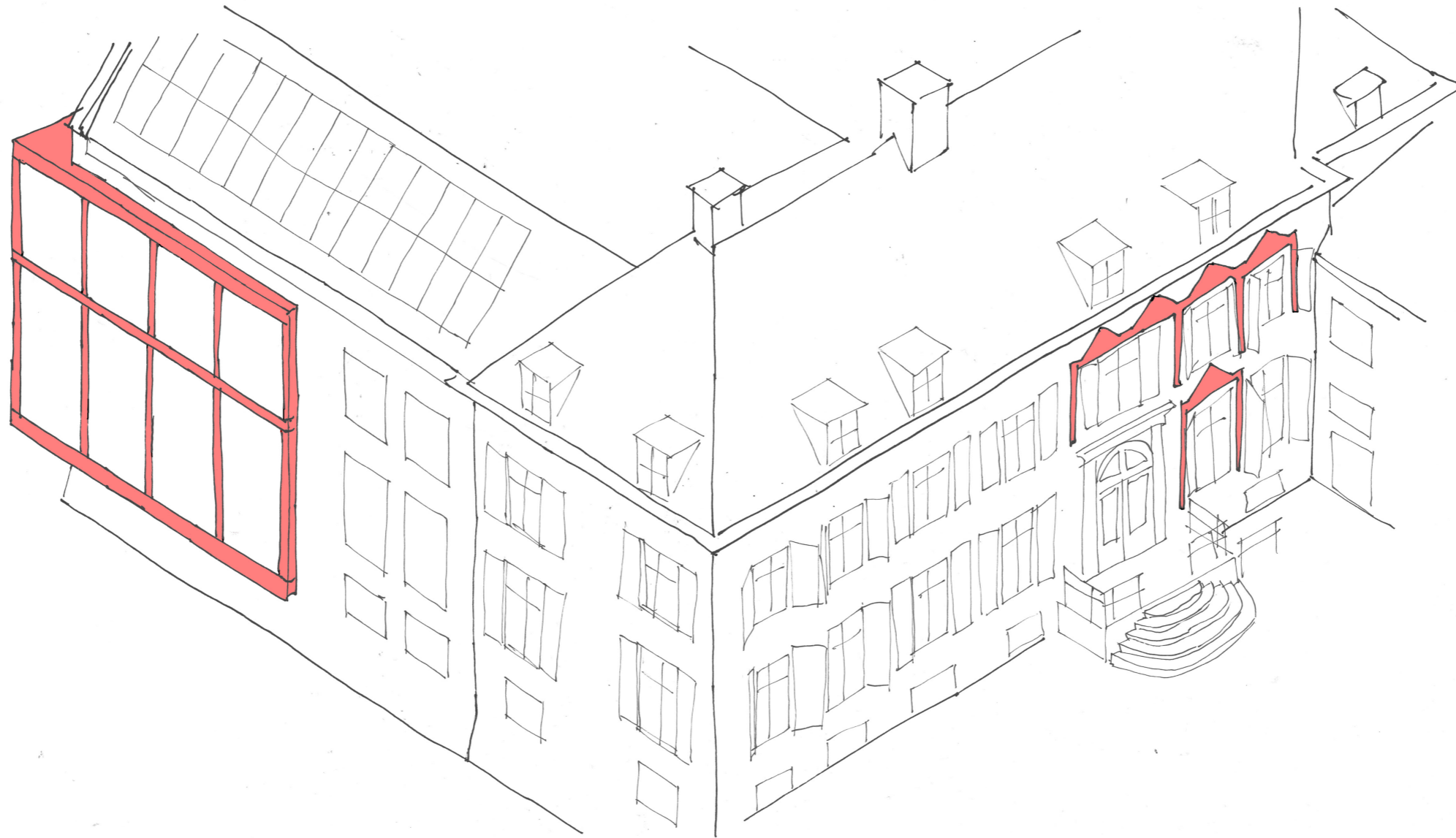
Abstraction of existing building elements



Use of the existing grid for facade openings



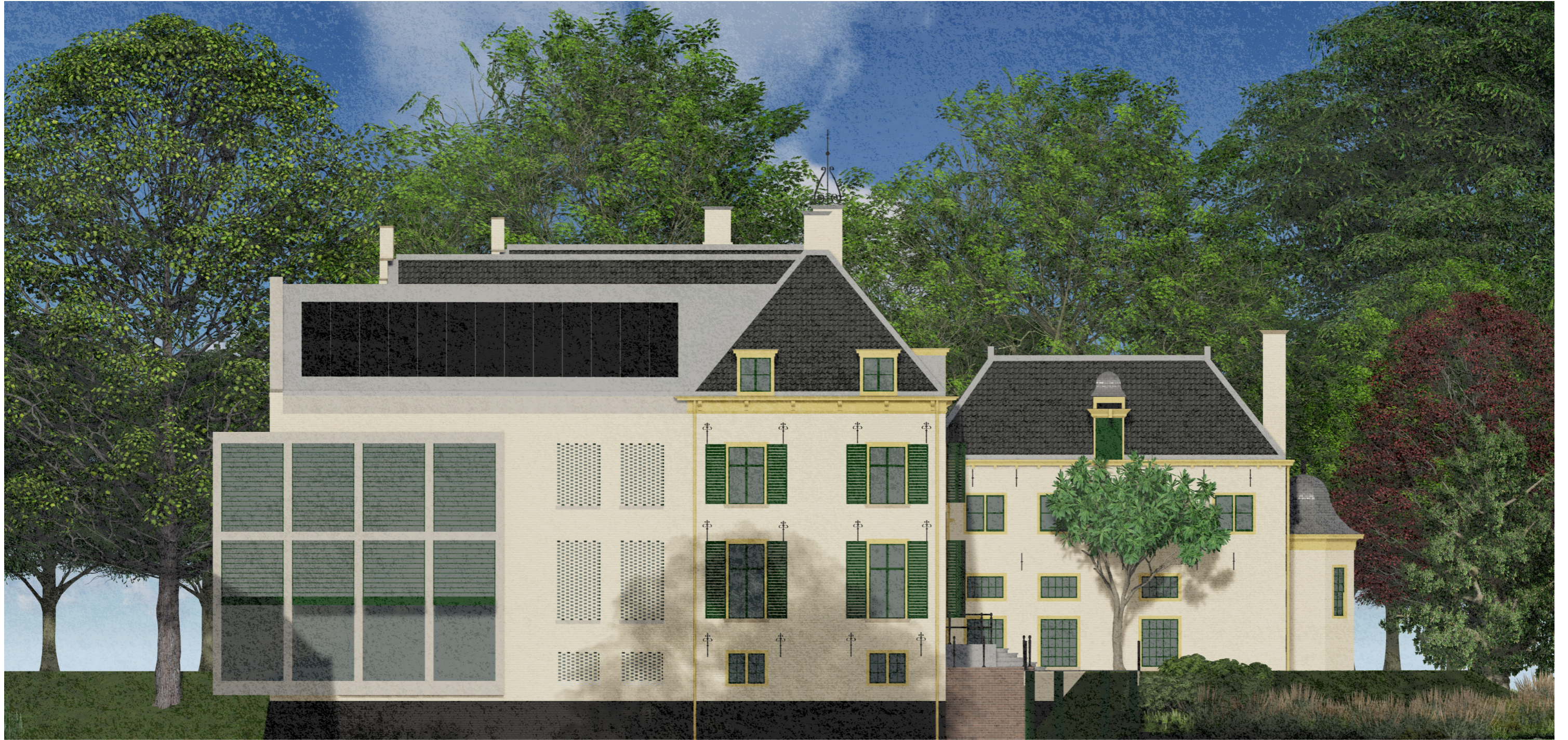
# Grammar



Reference to historic building traces of the oldest time layer



# Extension





# Extension



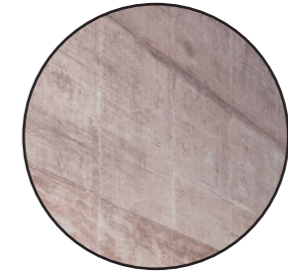
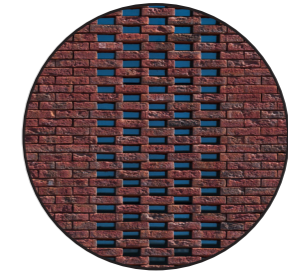
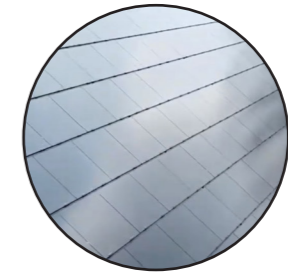


# Materialisation extension

References

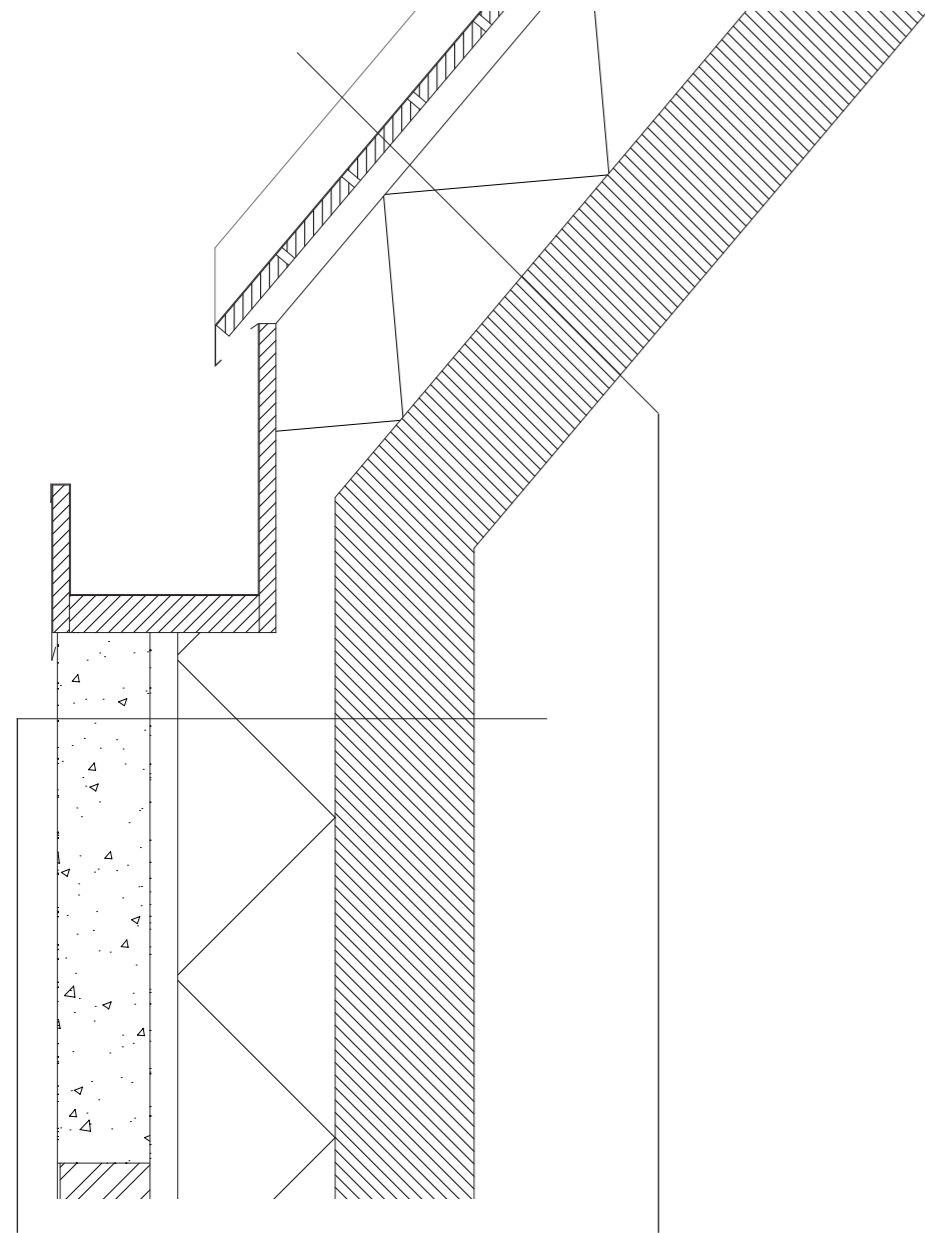


Materialisation



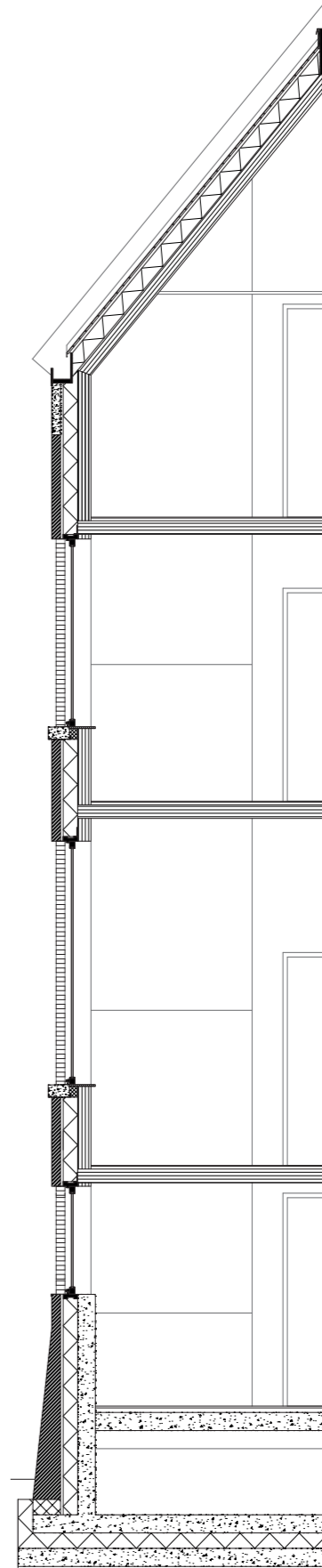


# Details extension



100mm prefab pigmented concrete element  
30mm air cavity  
170mm Rockwool insulation  
150mm CLT

Zinc (roevendak)  
Slats (18x69mm) with spacing for ventilation  
Air cavity (Counterbats 22x32mm)  
170mm Rockwool insulation  
150mm CLT

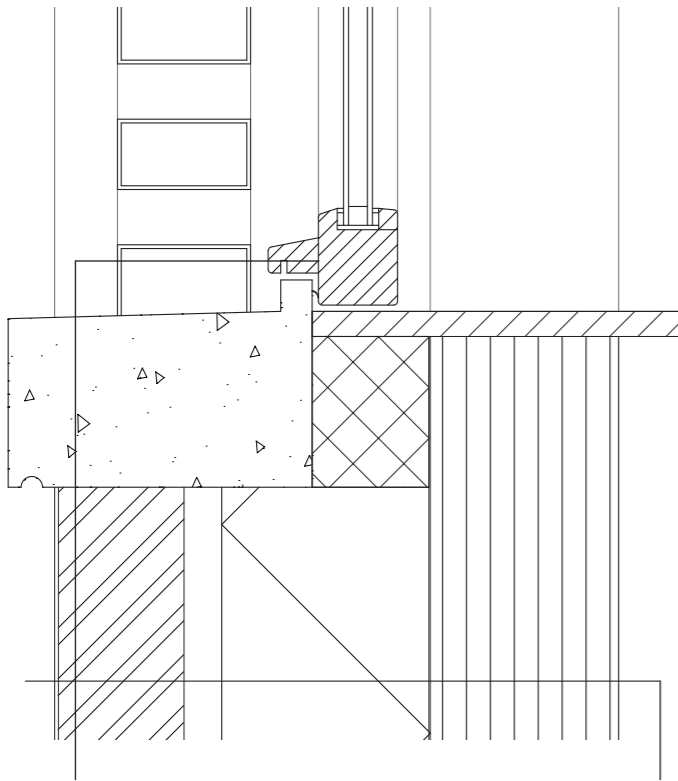
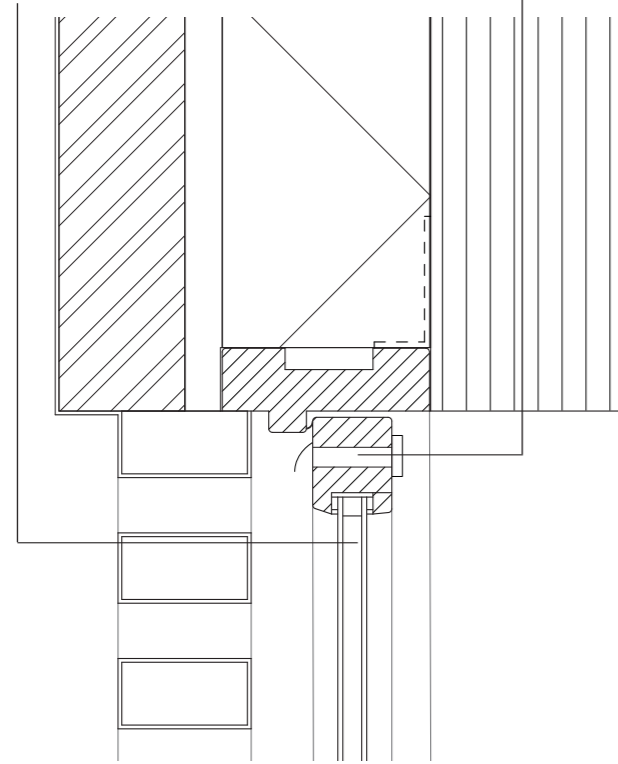




# Details extension

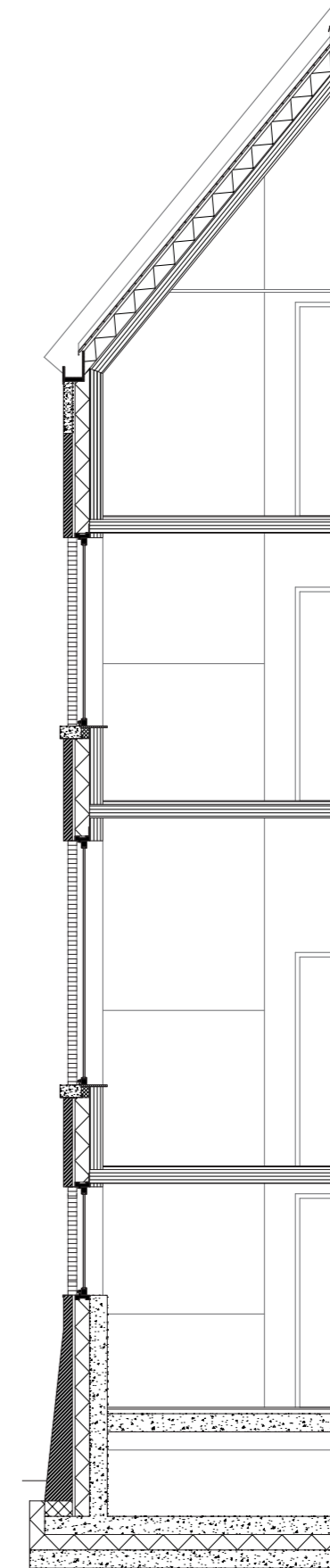
HR+++ double glazing

Ventilation slot



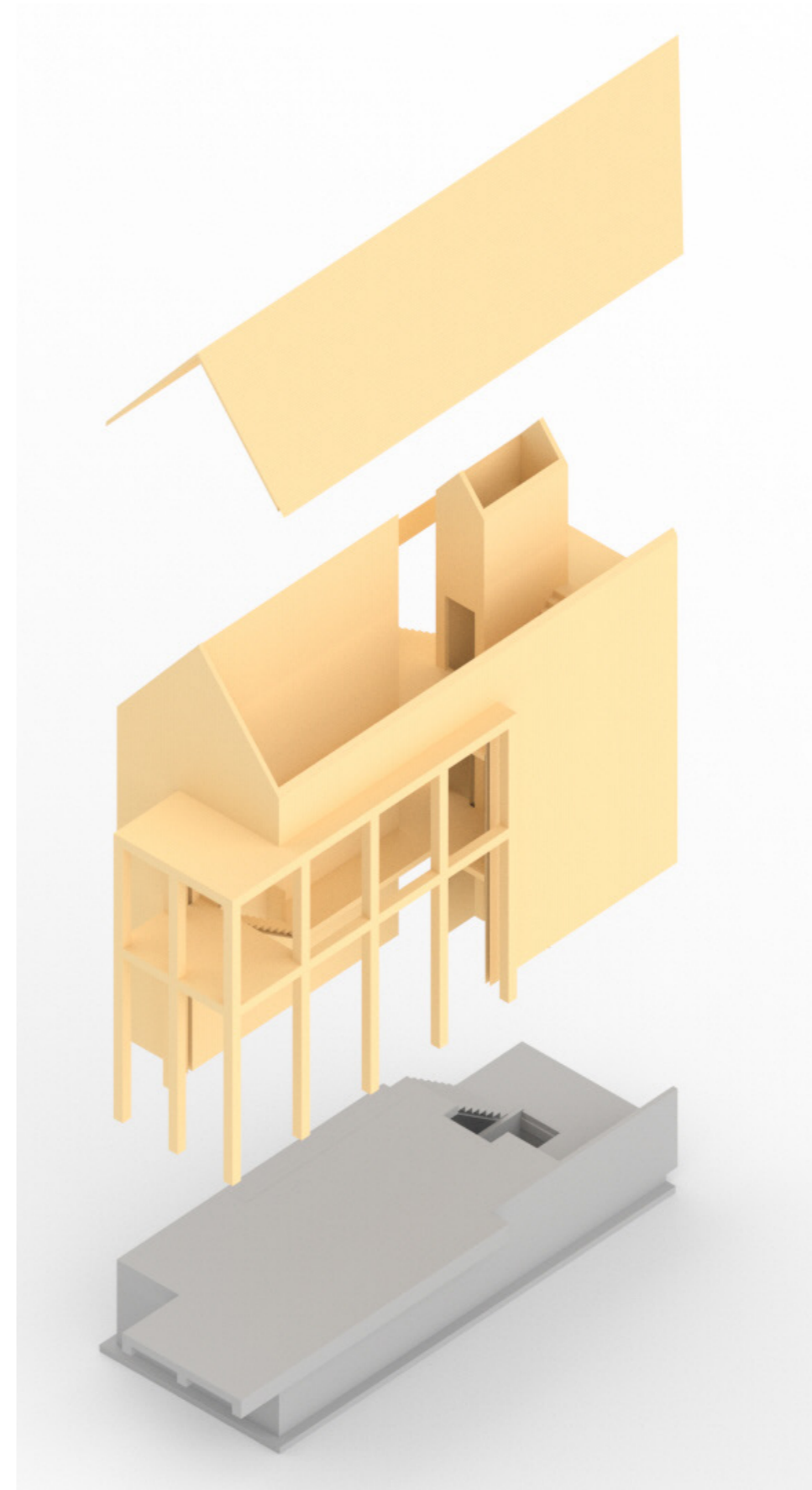
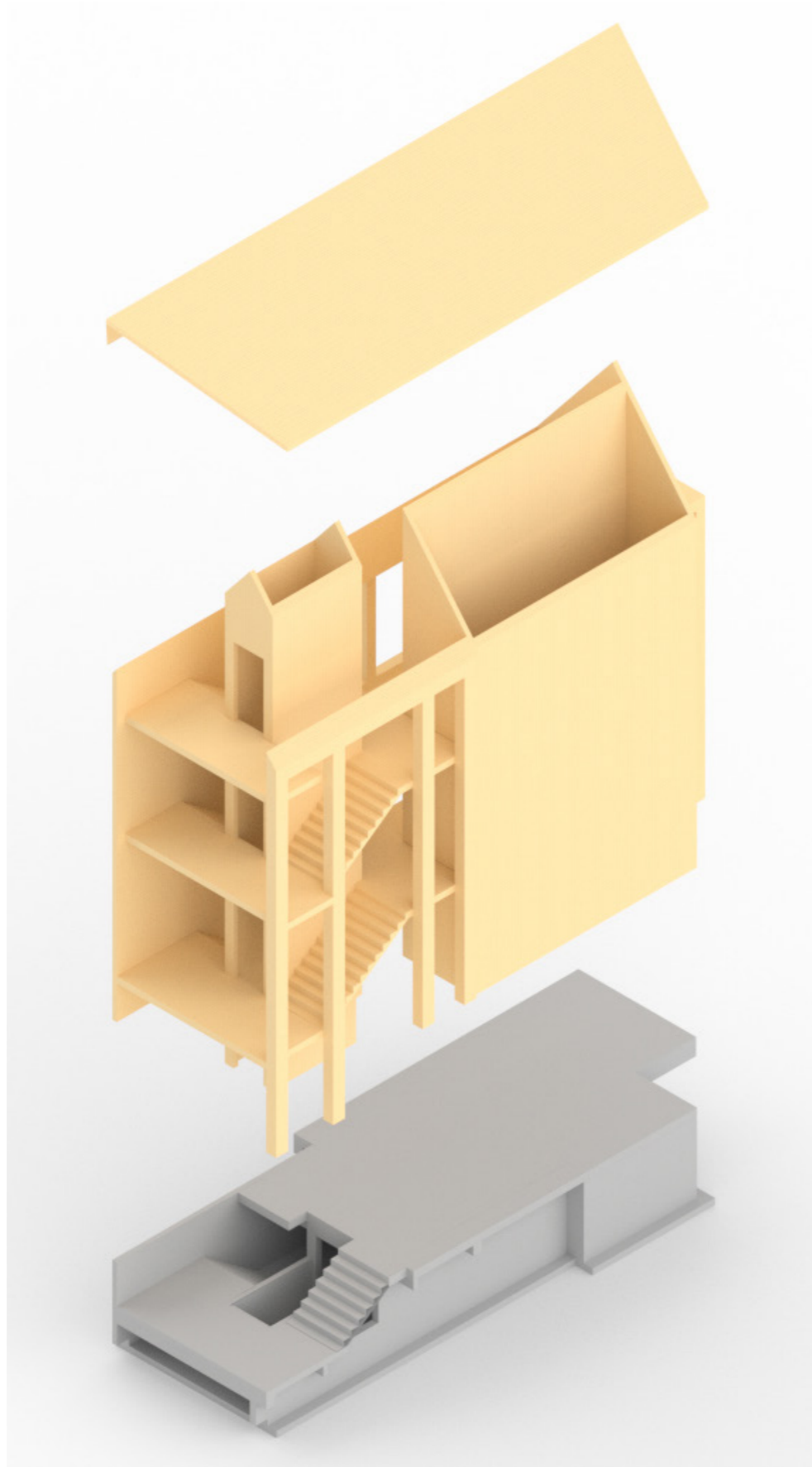
Meranti window frame

3mm kalei paint  
100mm brickwork  
30mm air cavity  
170mm Rockwool insulation  
150mm CLT

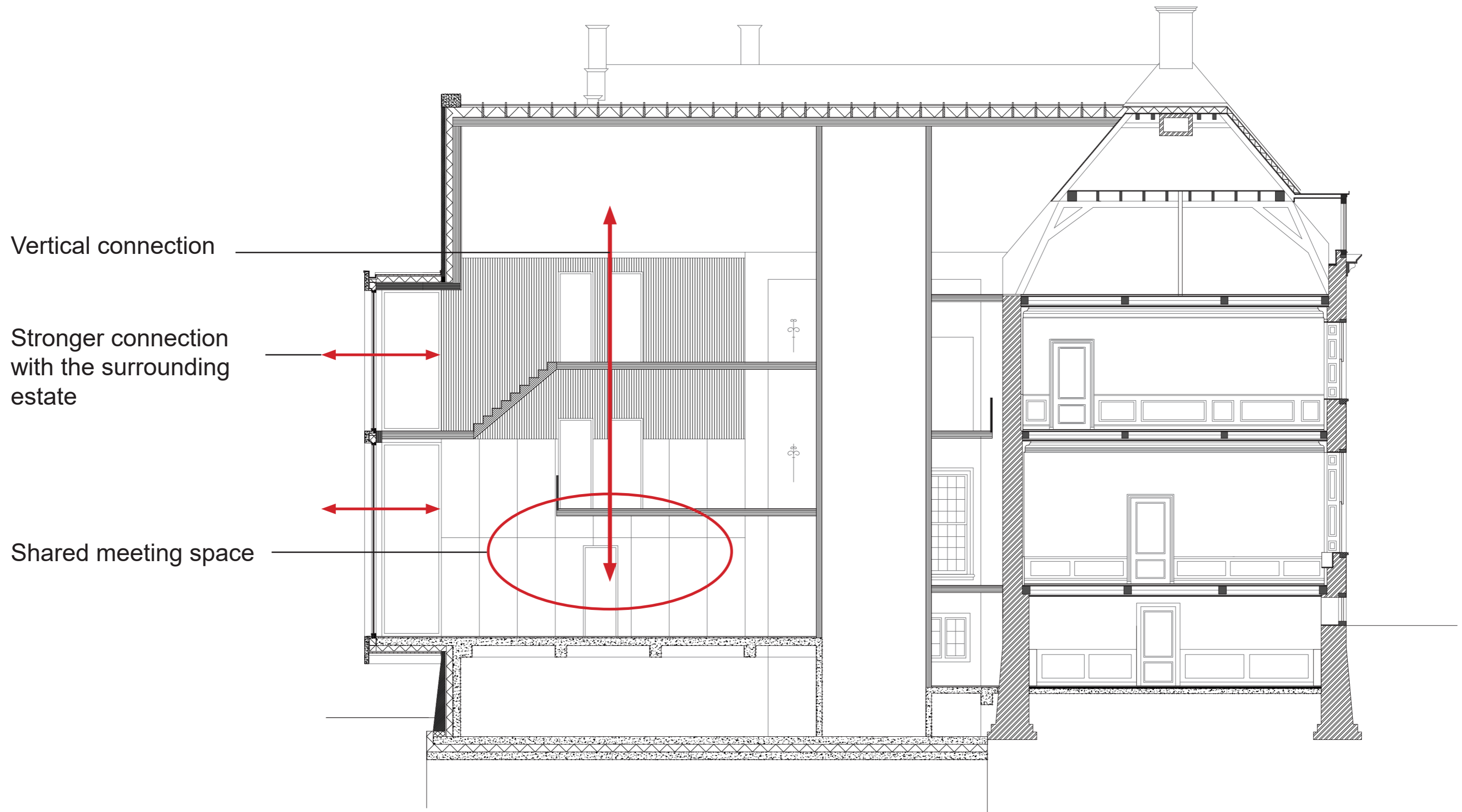




# Construction

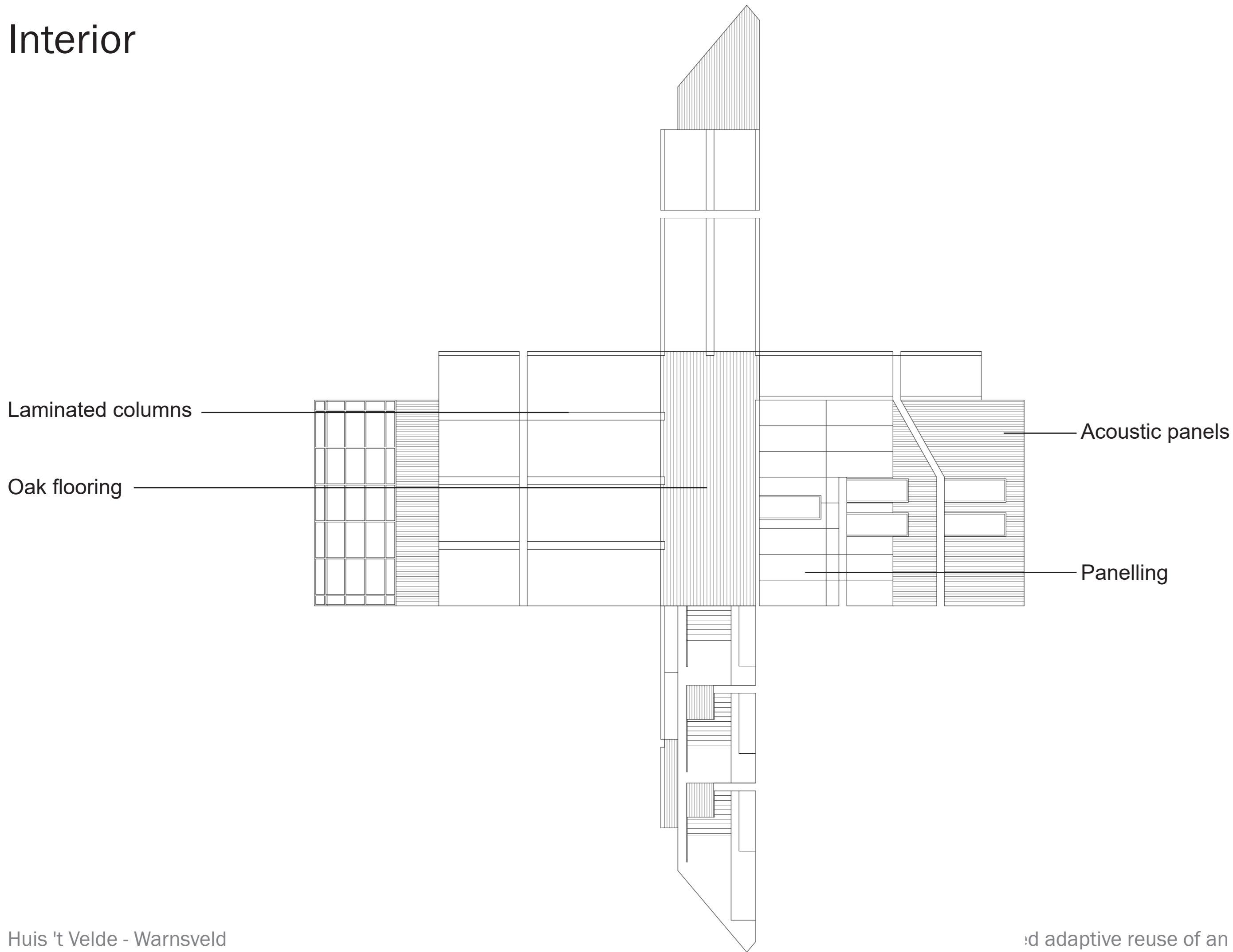


# Section





# Interior



# Heating/cooling: winter situation

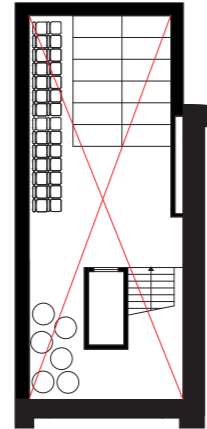




# Heating/cooling: summer situation

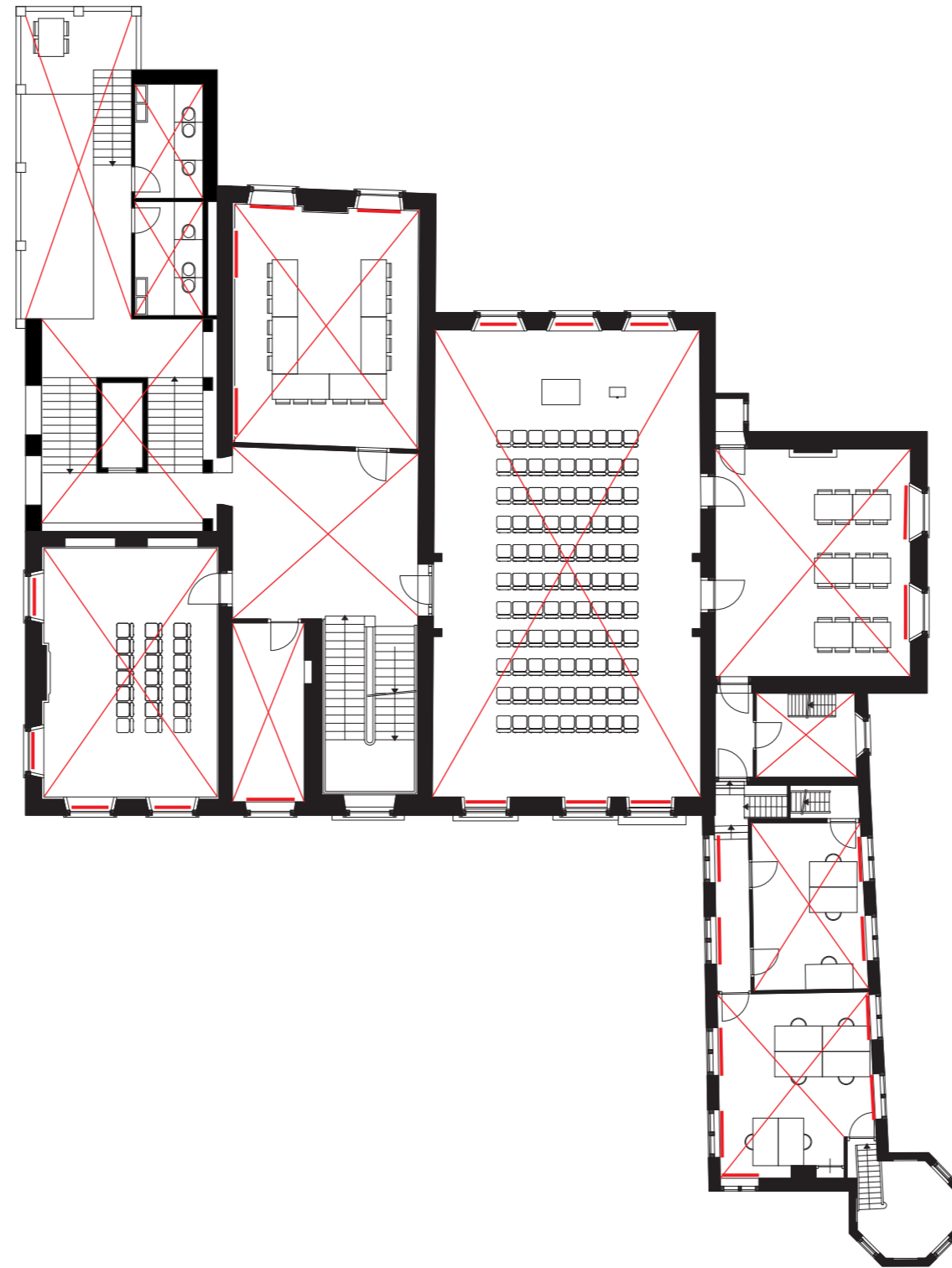


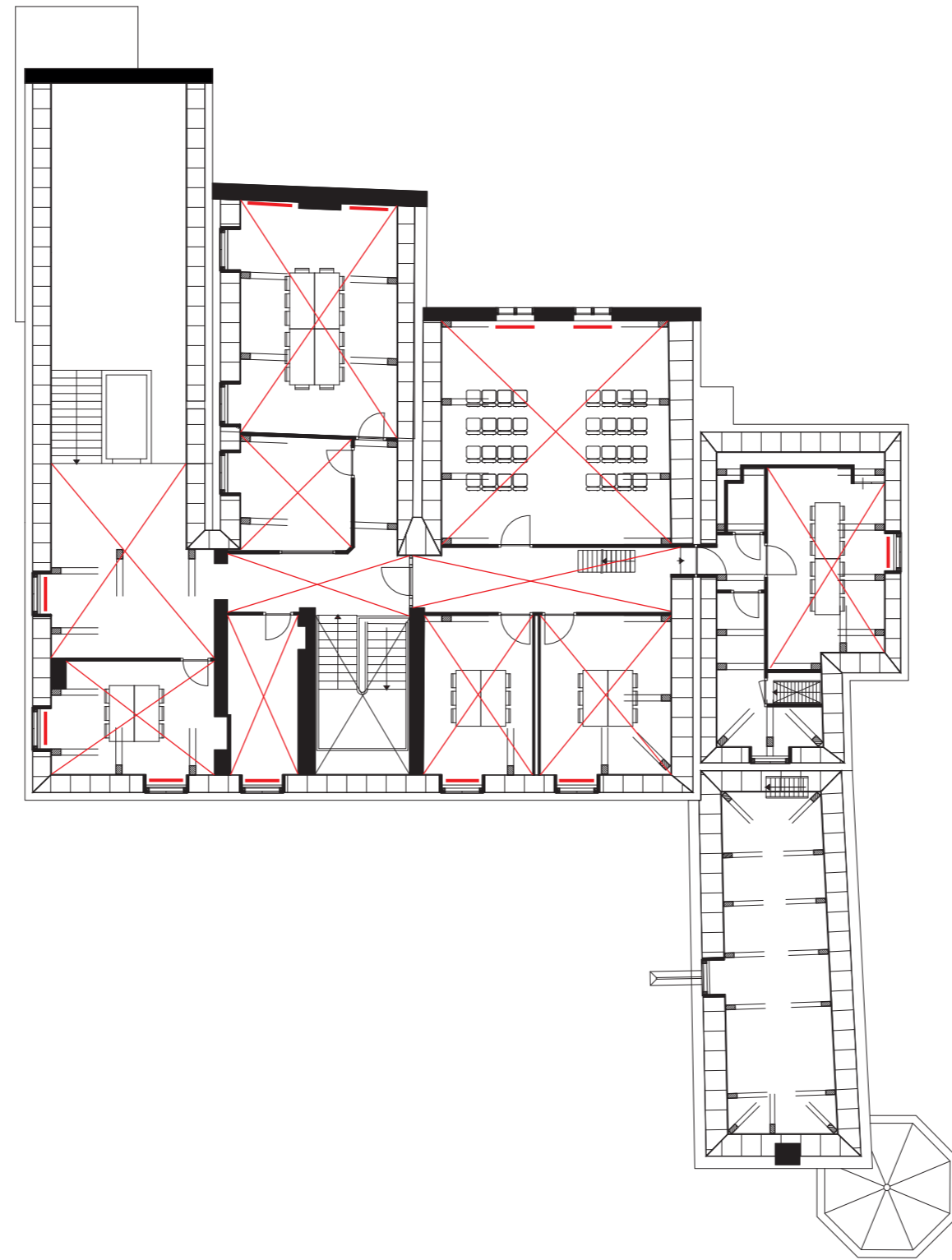
# Heating



- Wall heating
- Radiator/convector
- × Floor heating

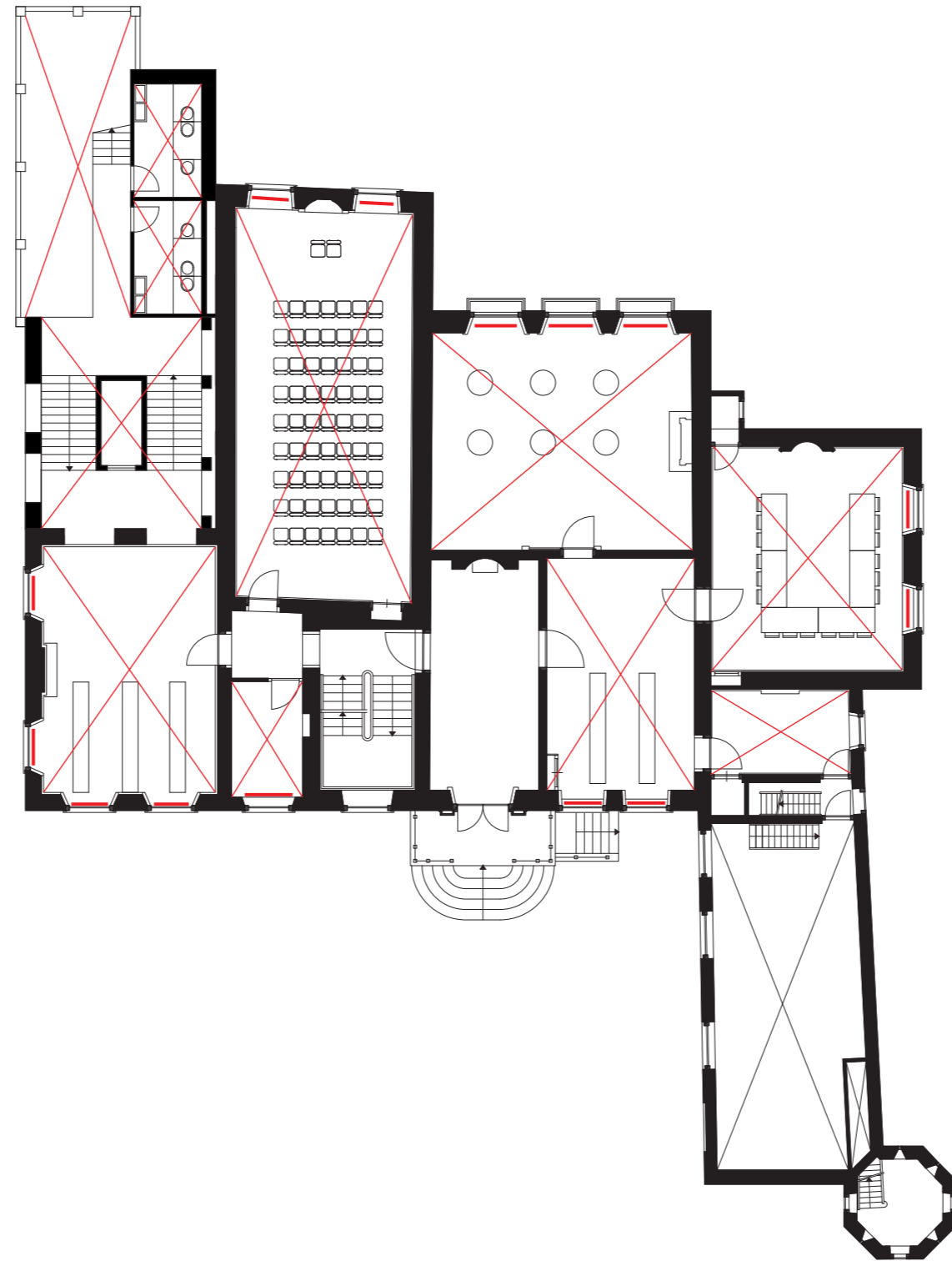








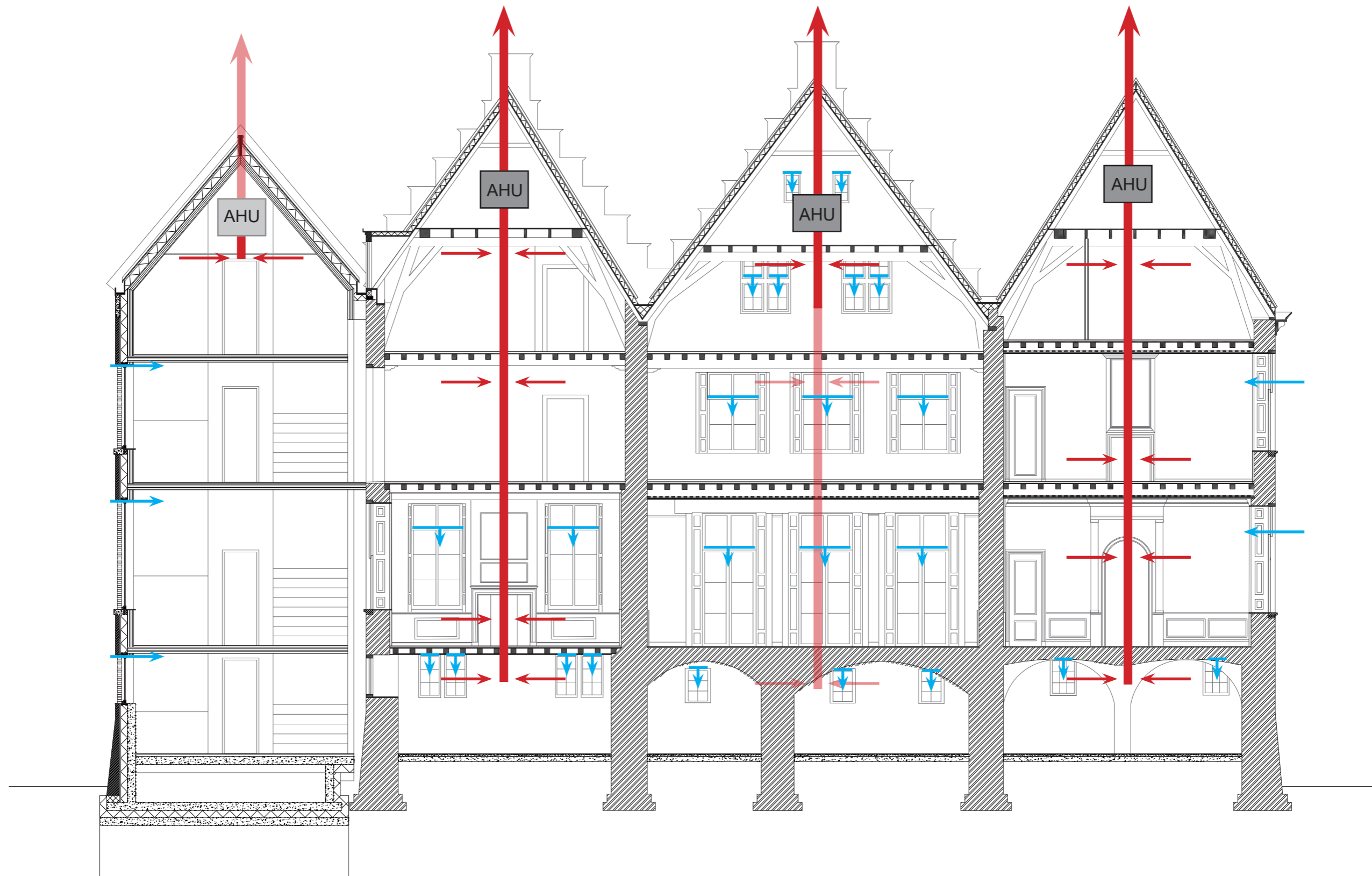








# Ventilation





# Result



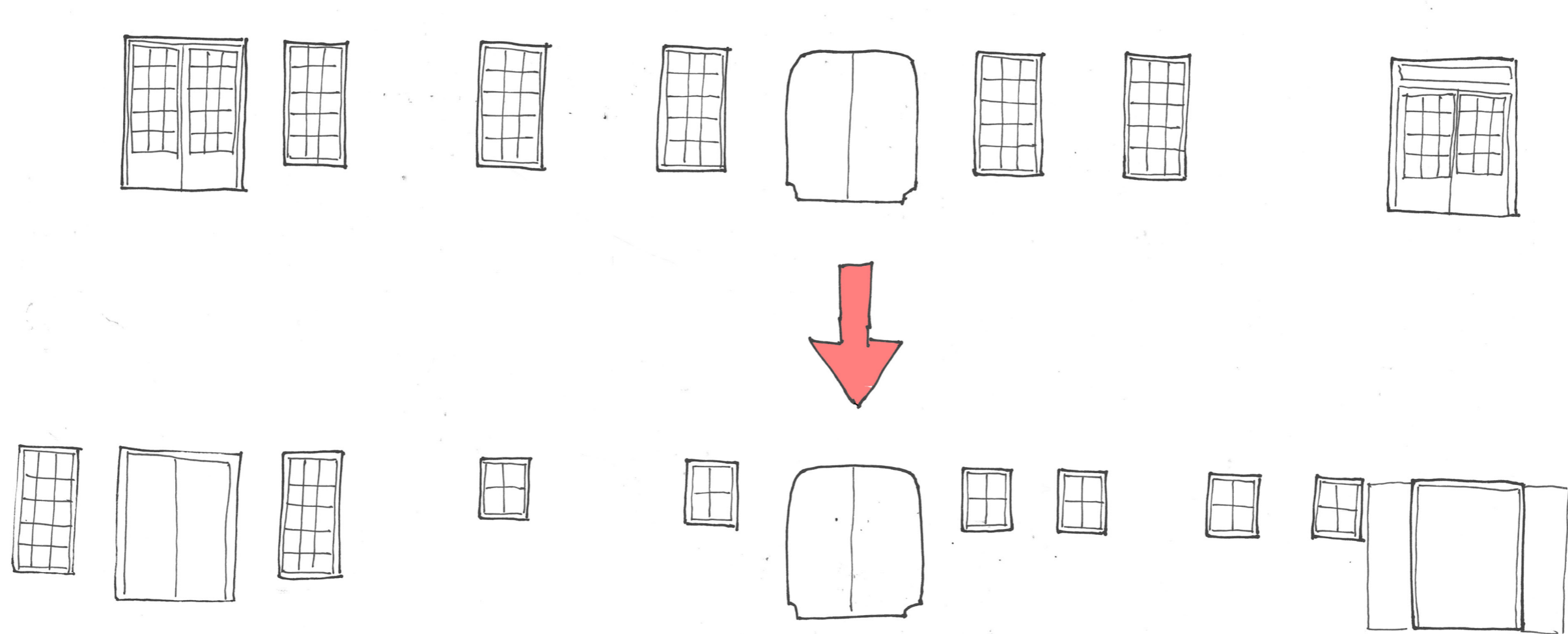


# Carriage house





# Intervention



Bringing back the historic characteristic of the building



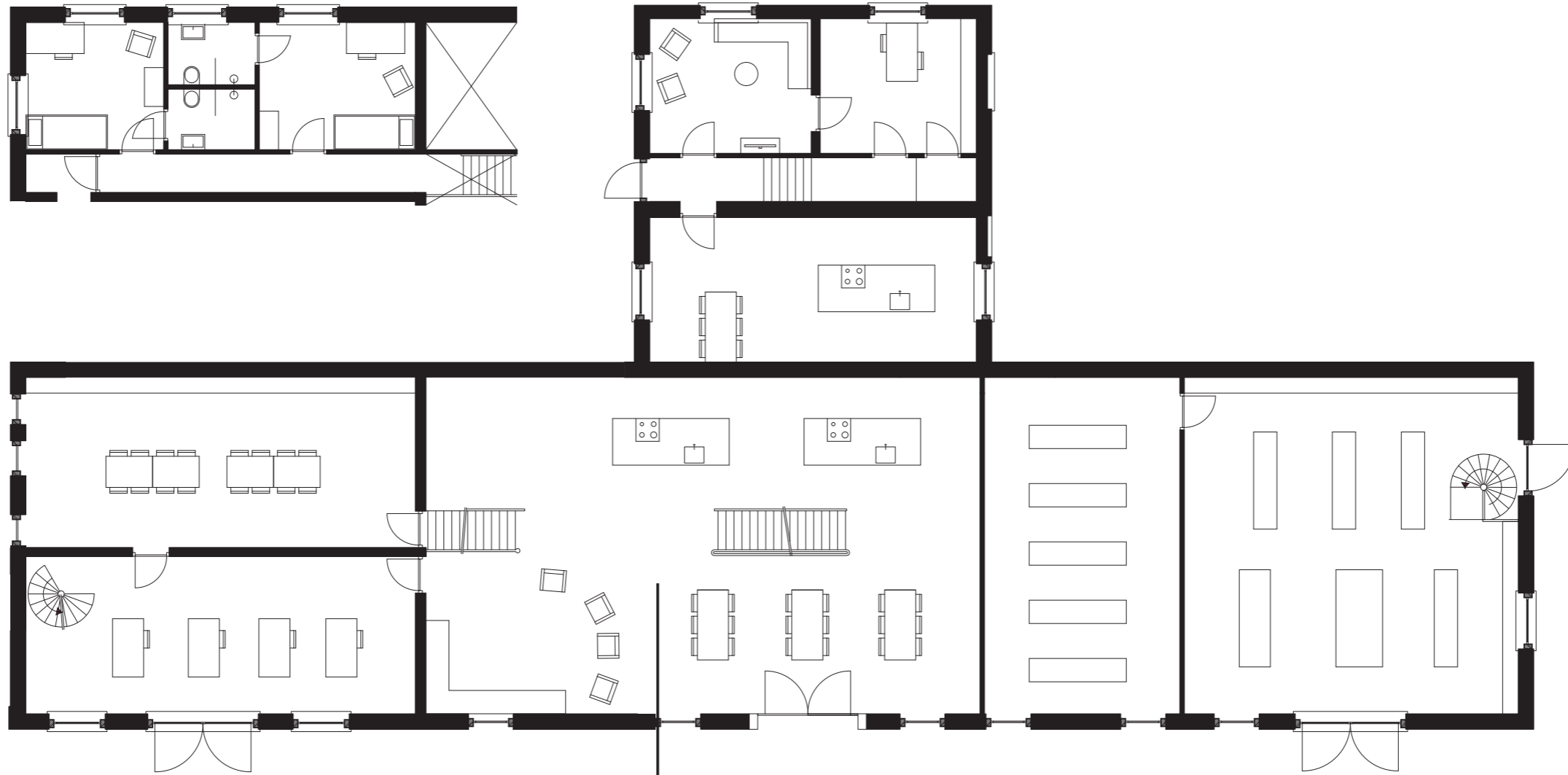
# Facade



Reconstruction of the facade



# Program



Reconstruction of the floorplan fitting to the character of the carriage house

# Ground floor



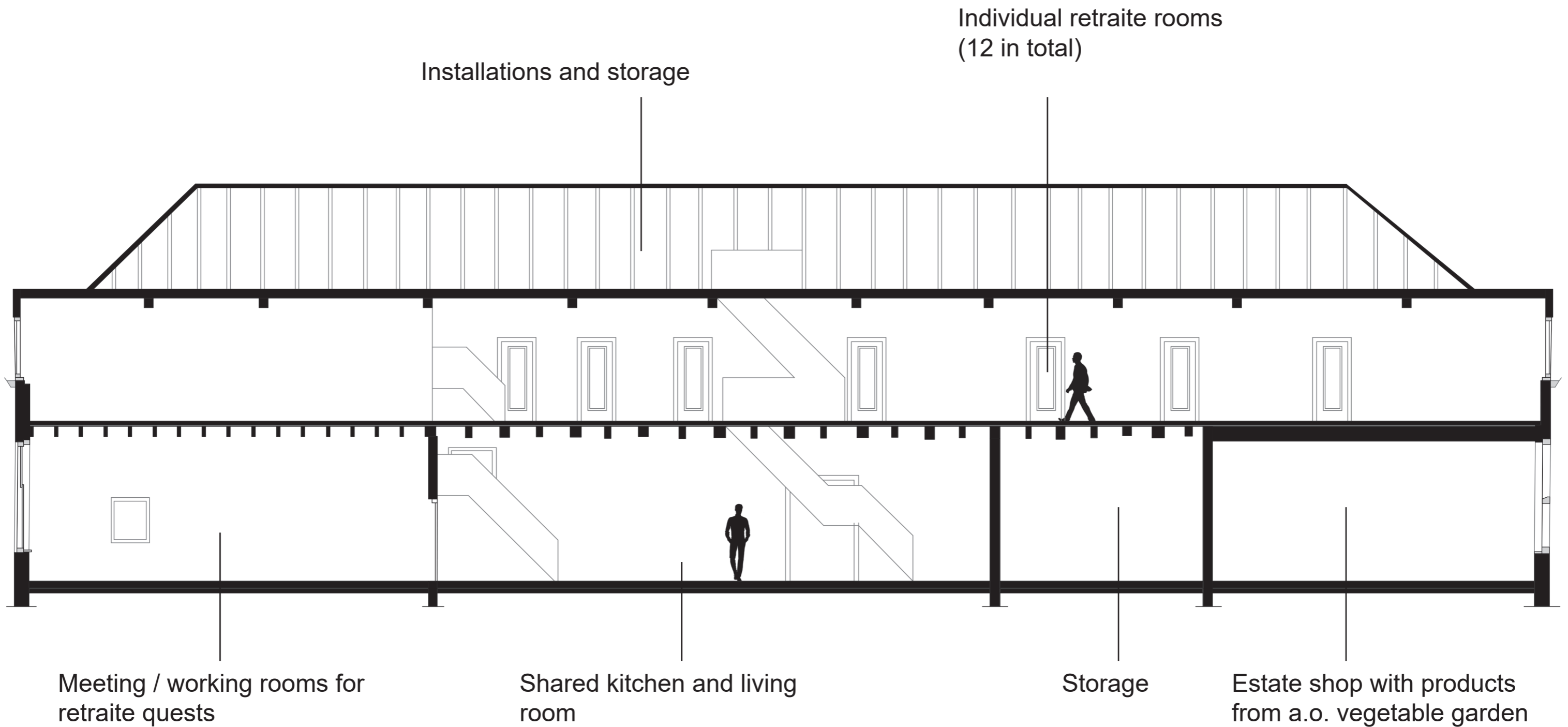


# First floor



- |                              |                                  |
|------------------------------|----------------------------------|
| 1. Events                    | 11. Toilet                       |
| 2. Restaurant                | 12. Individual retraite room     |
| 3. Kitchen                   | 13. Shared living room / kitchen |
| 4. Wardrobe / reception      | 14. Shop                         |
| 5. Bar                       | 15. Library / study room         |
| 6. Storage                   | 16. Bedroom                      |
| 7. Shared meeting space      | 17. Bathroom                     |
| 8. Conference / meeting room | 18. Laundry room                 |
| 9. Office                    | 19. Workshop / meeting room      |
| 10. Canteen                  | 20. Information point            |

# Carriage house



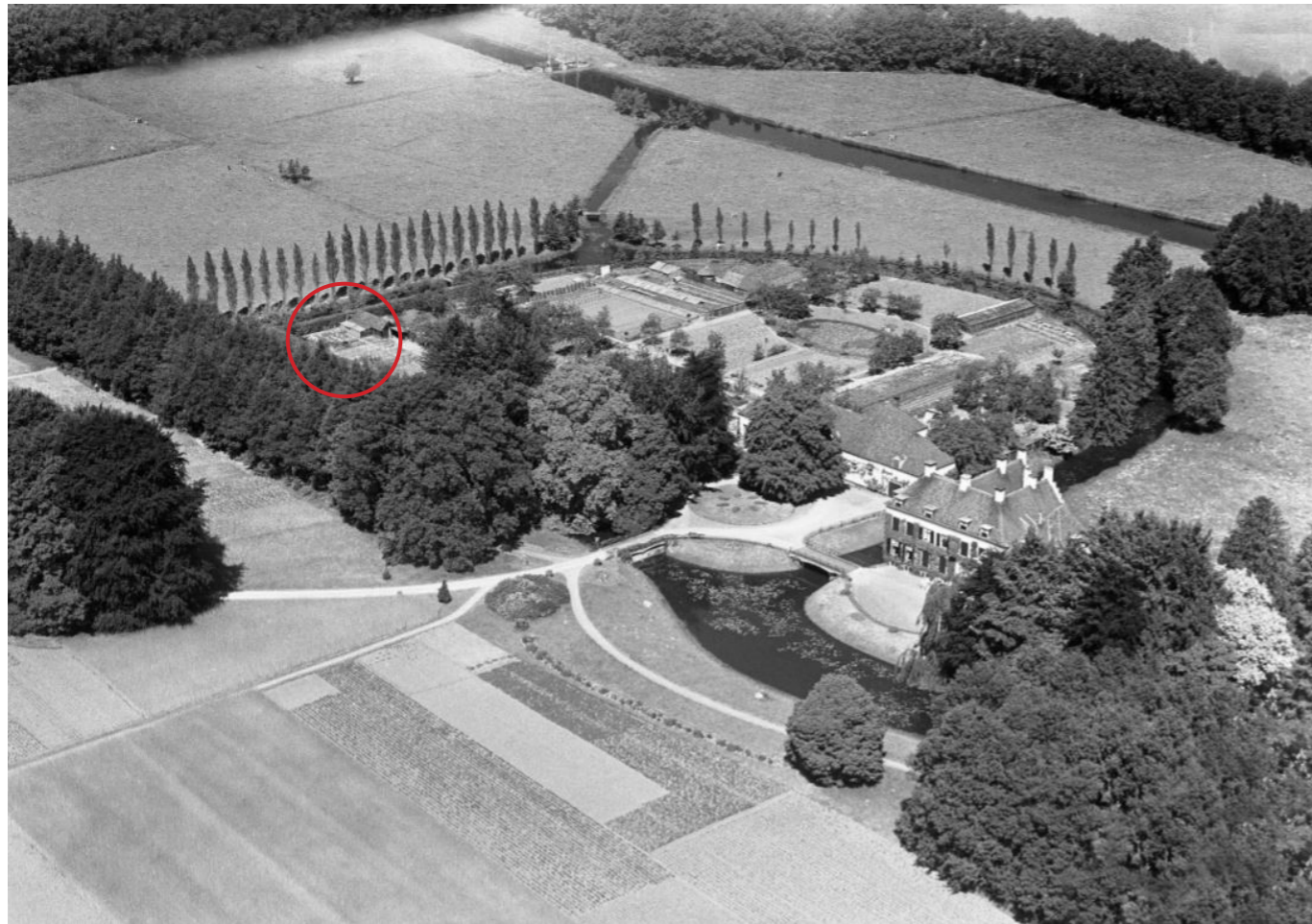


# Carriage house



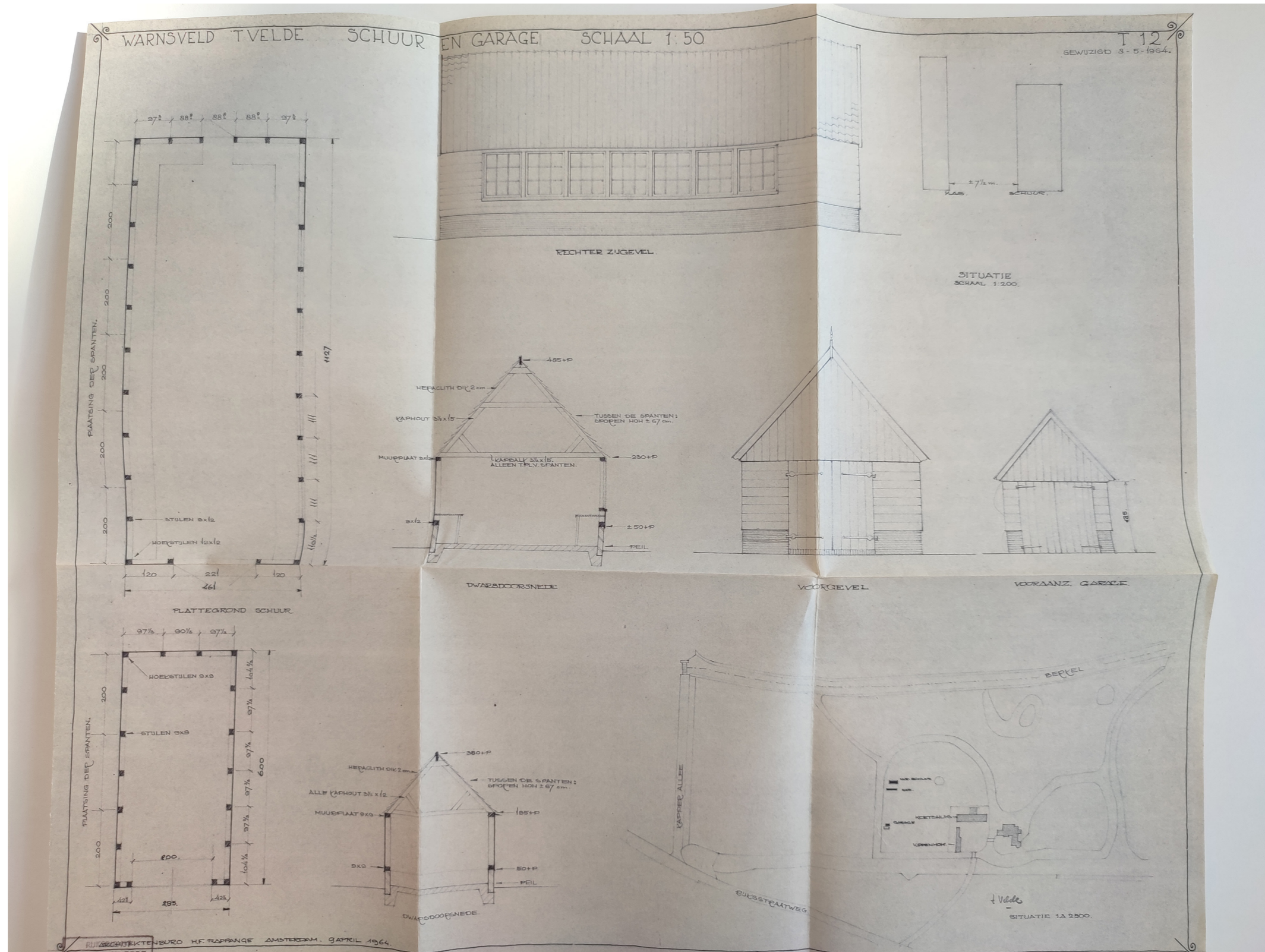


# Vegetable garden





# Vegetable garden



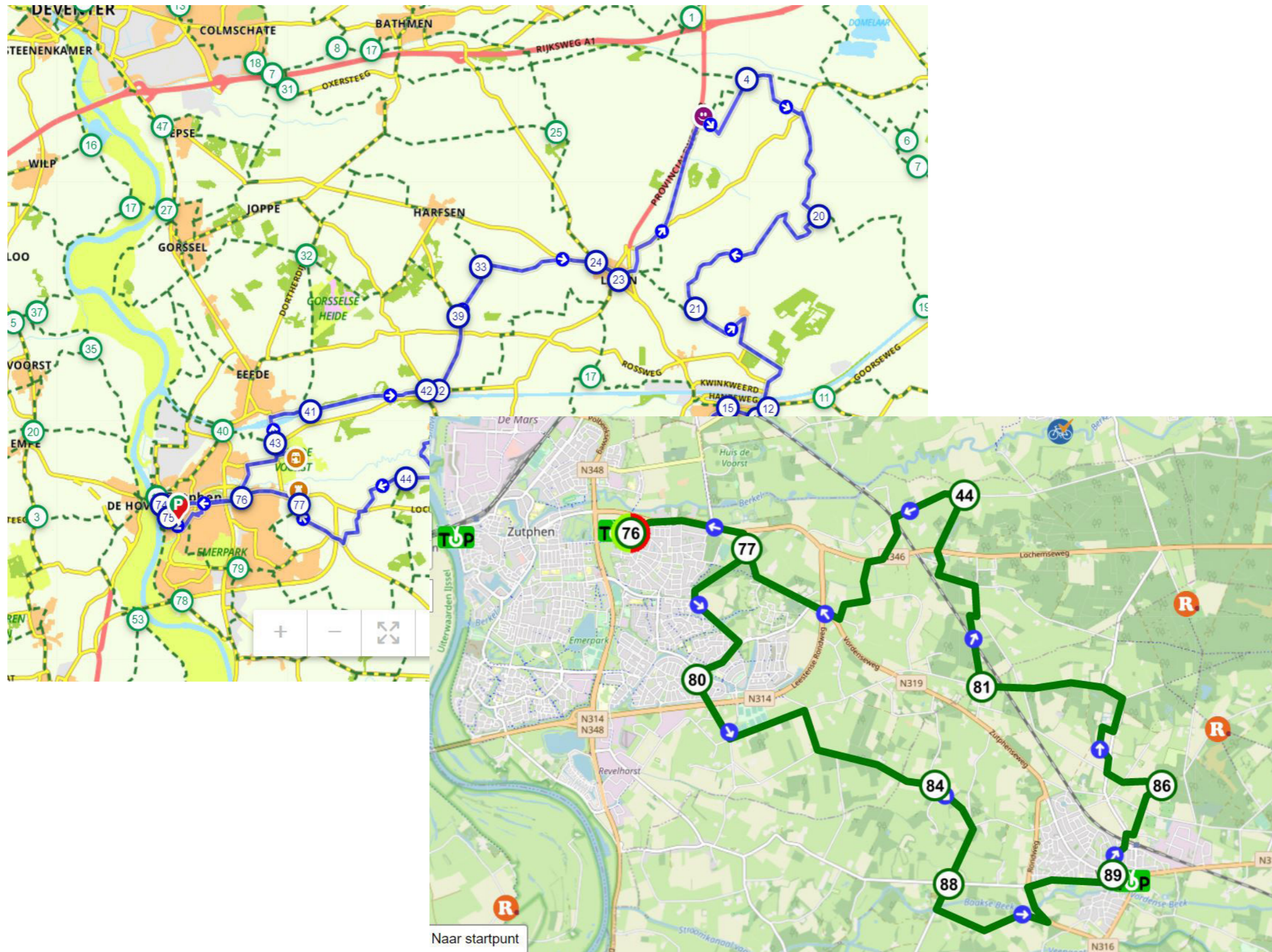


# Vegetable garden



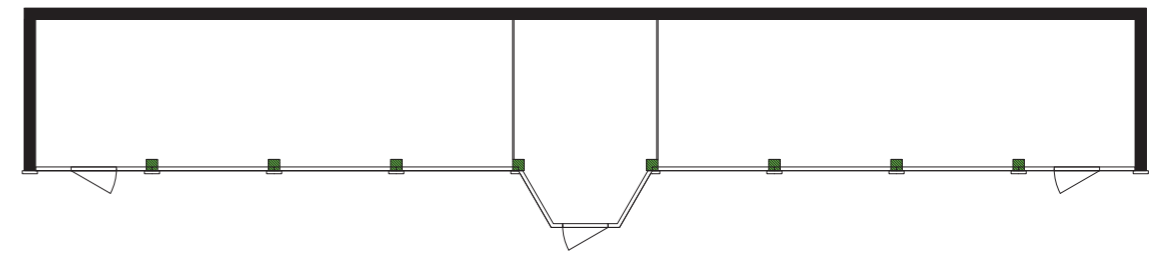
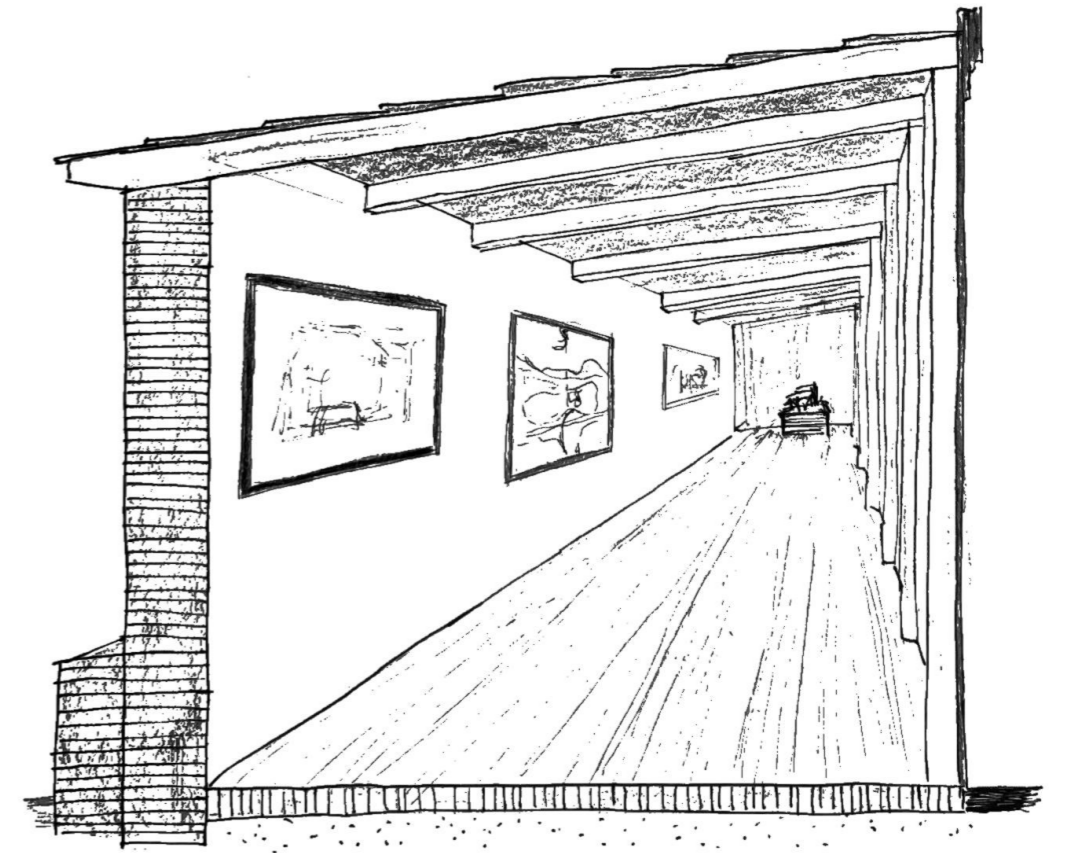


# Dove cote





# Dove cote





# Dove cote





# Main buildings

Dovecote

Carriage house

Main house





# Conclusion





# Section - existing





# Section - new

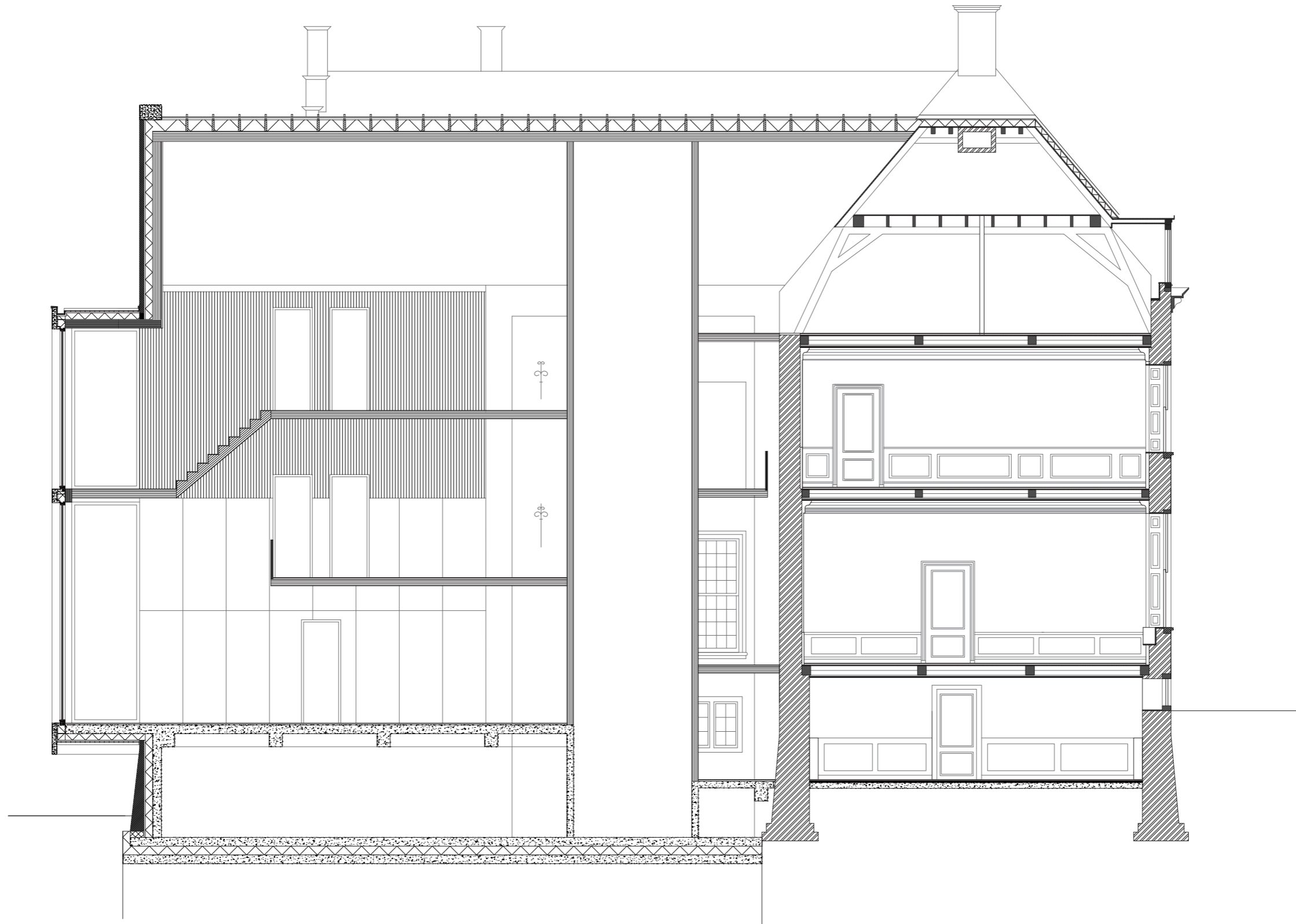


# Section - existing

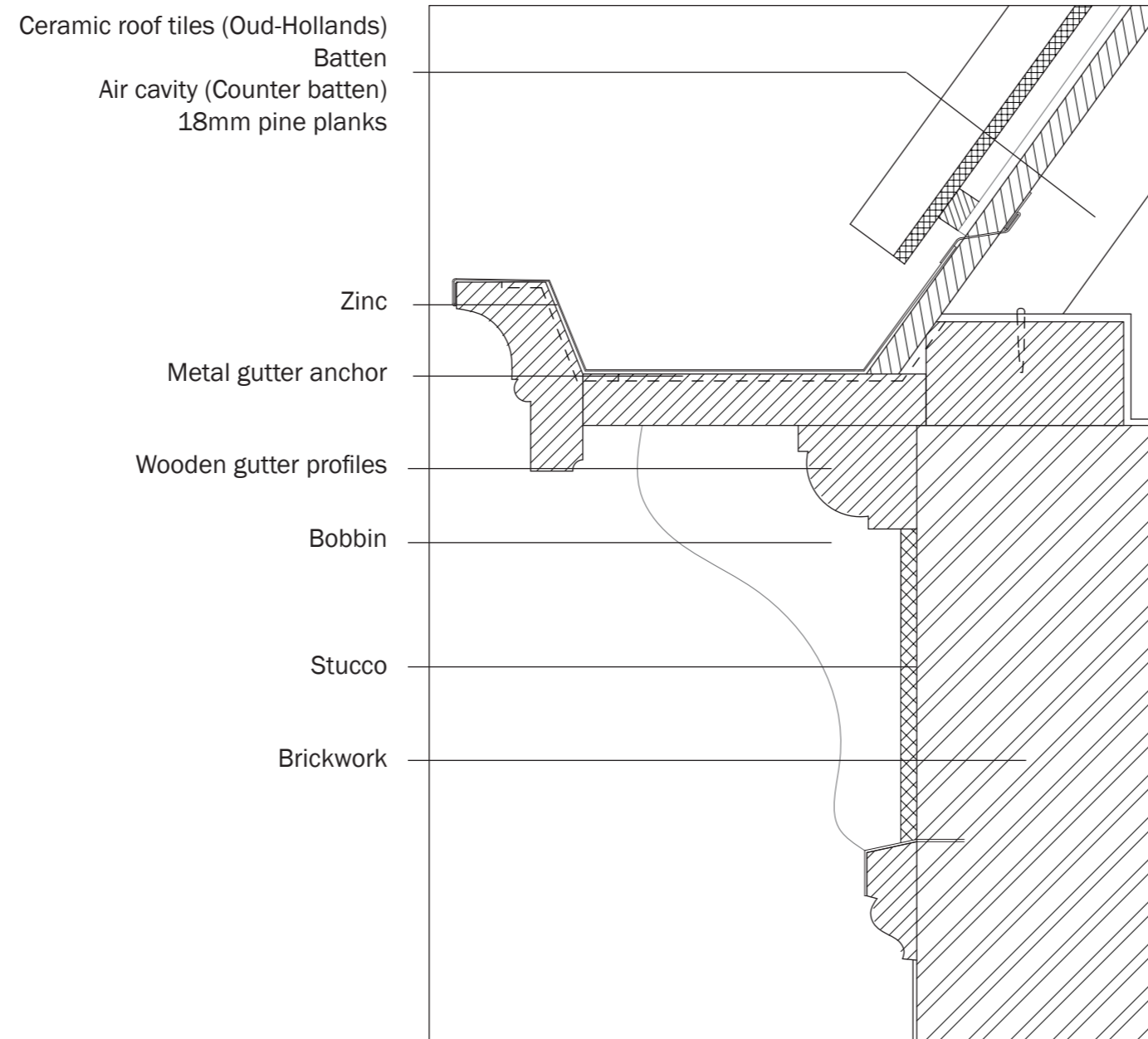
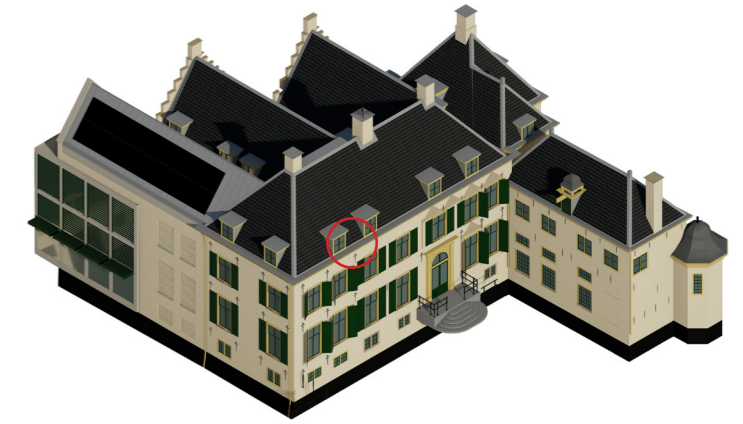




# Section - new

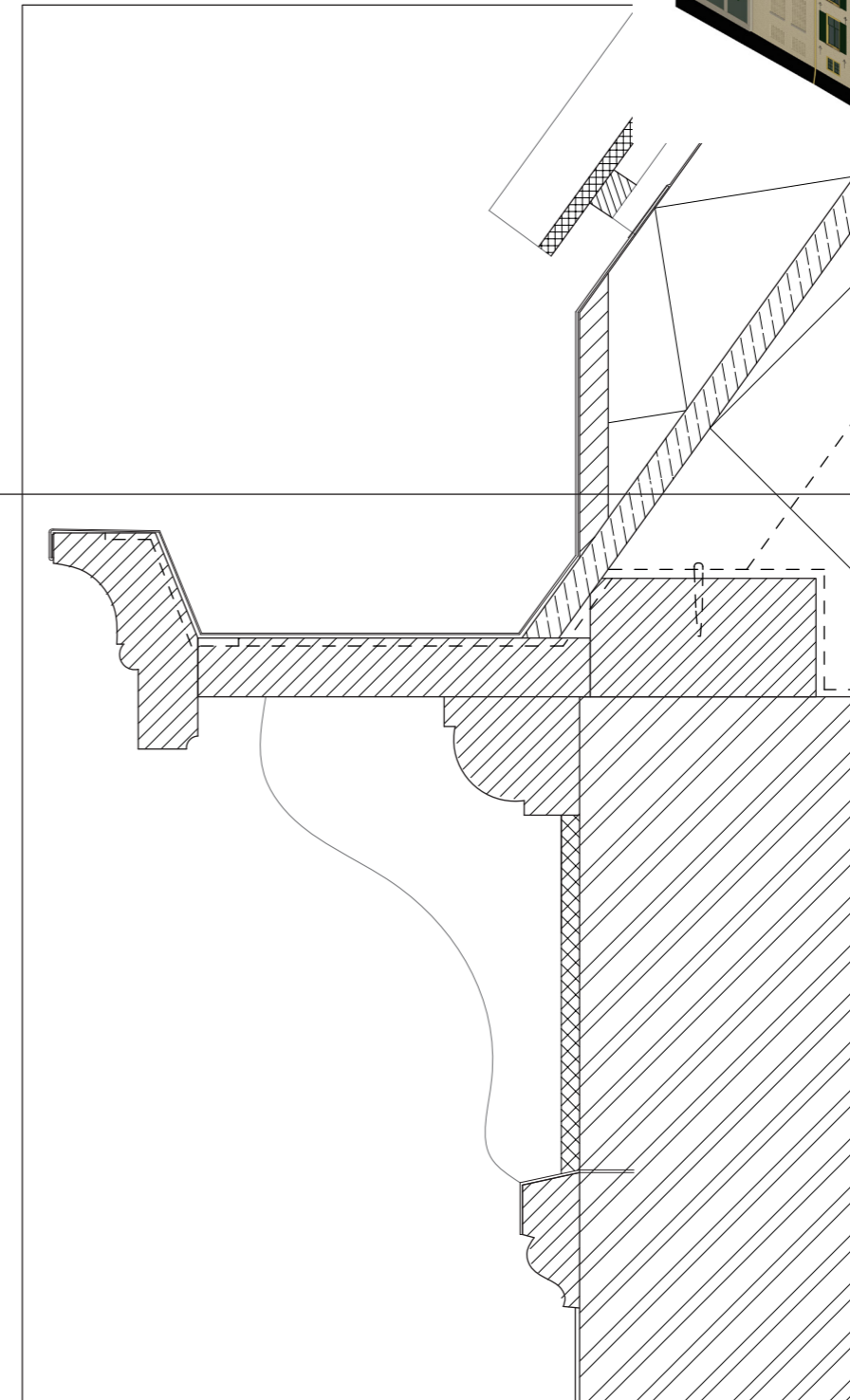
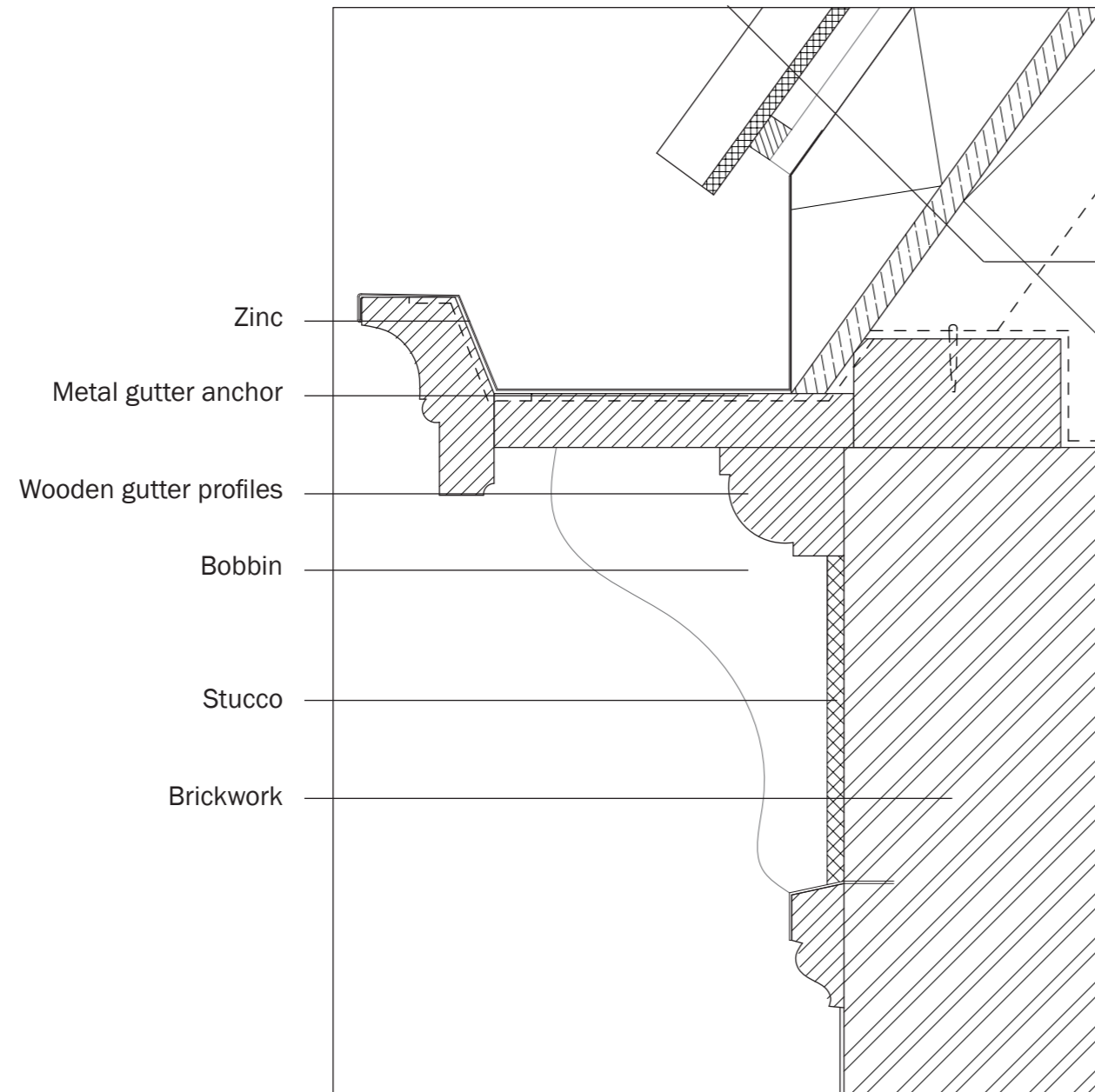
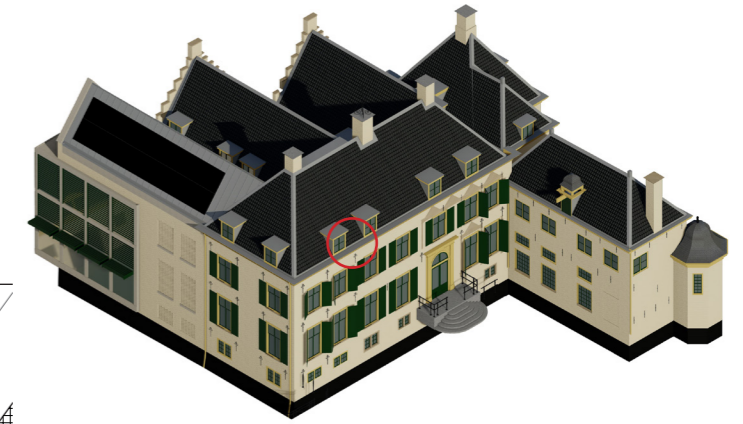


# Roof insulation - existing



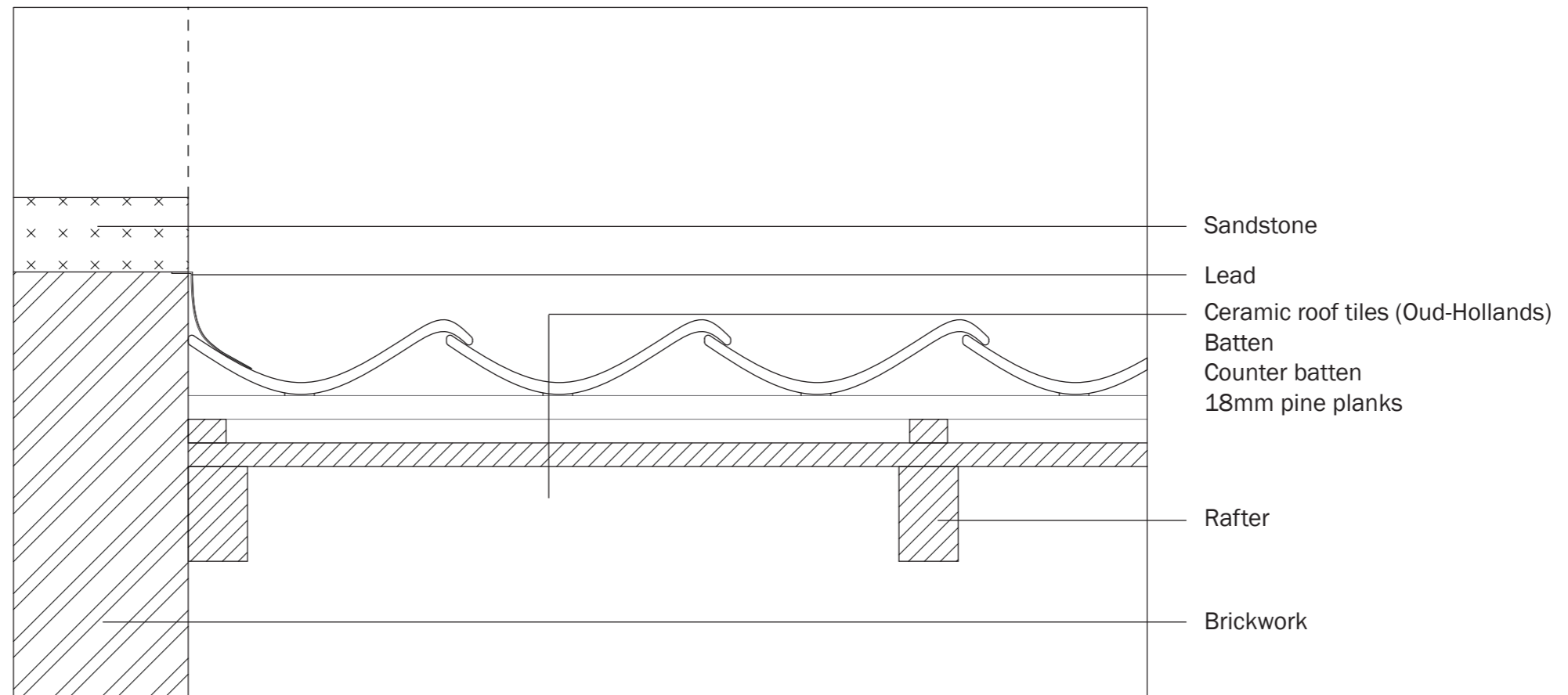
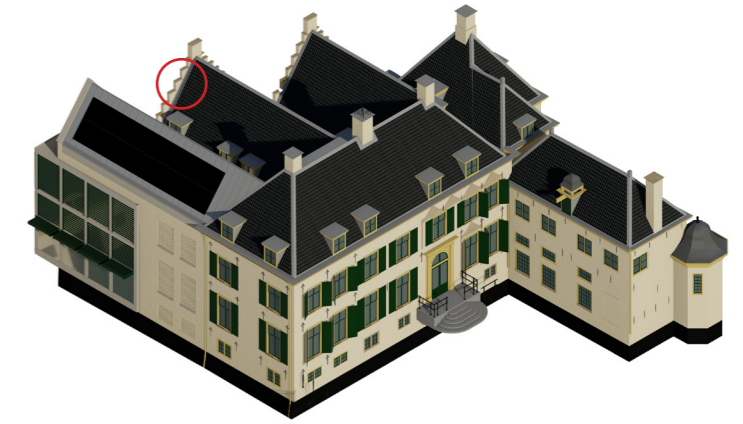


# Roof insulation - new



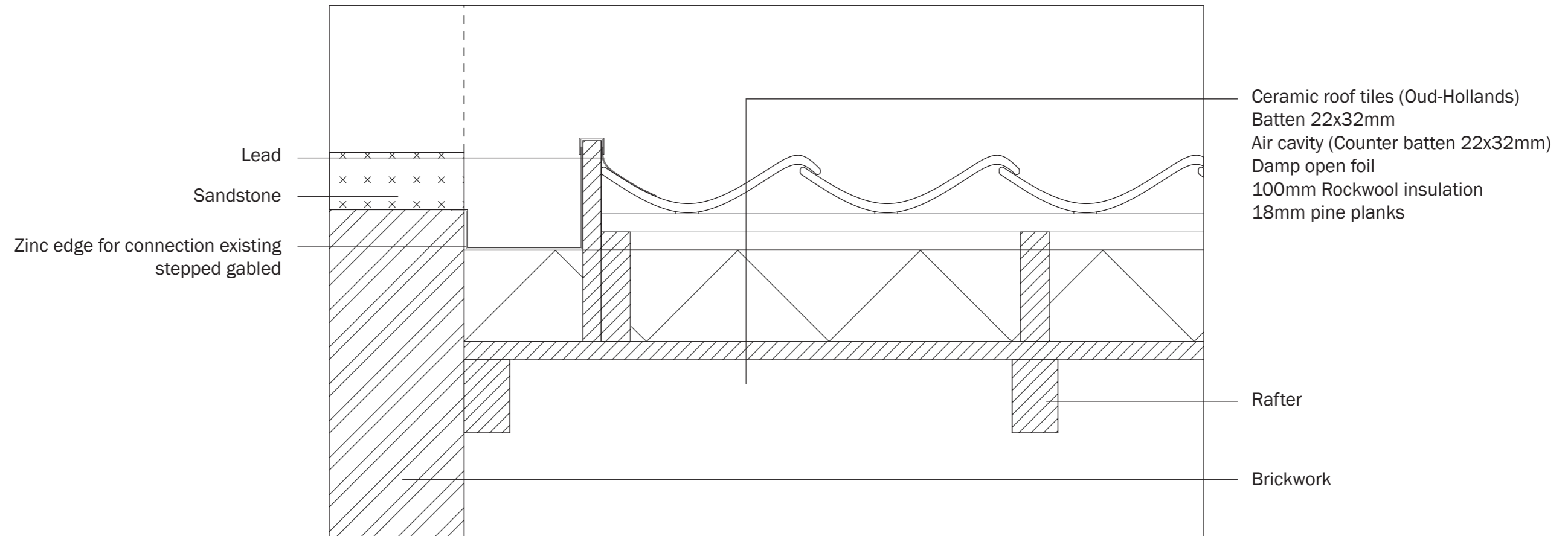
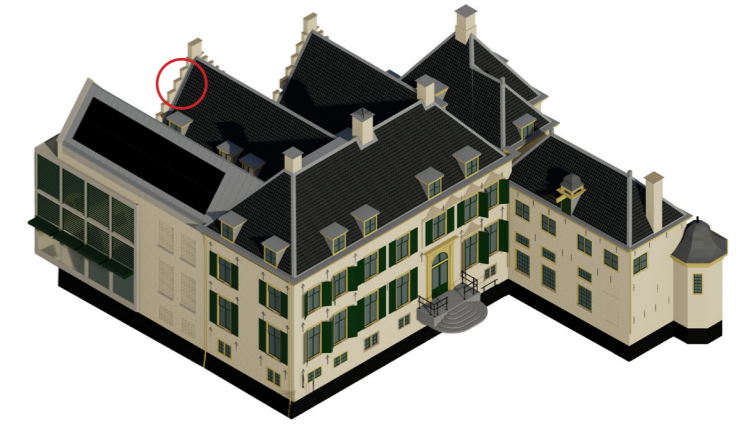
- Ceramic roof tiles (Oud-Hollands)
- Batten 22x32mm
- Air cavity (Counter batten 22x32mm)
- Damp open foil
- 100mm Rockwool insulation
- 18mm pine planks

# Connection roof - wall - existing

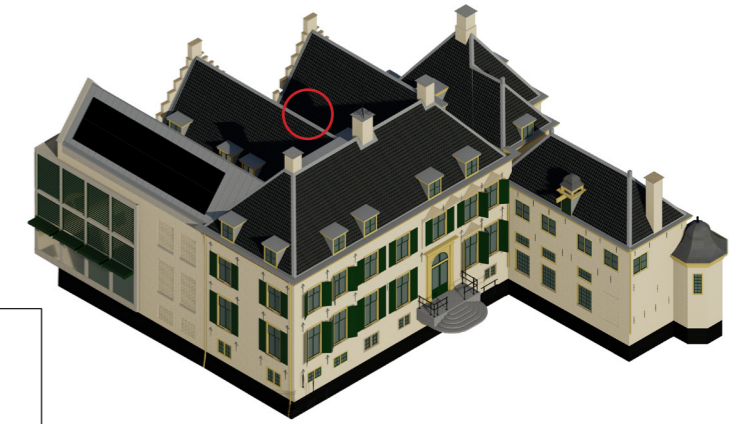




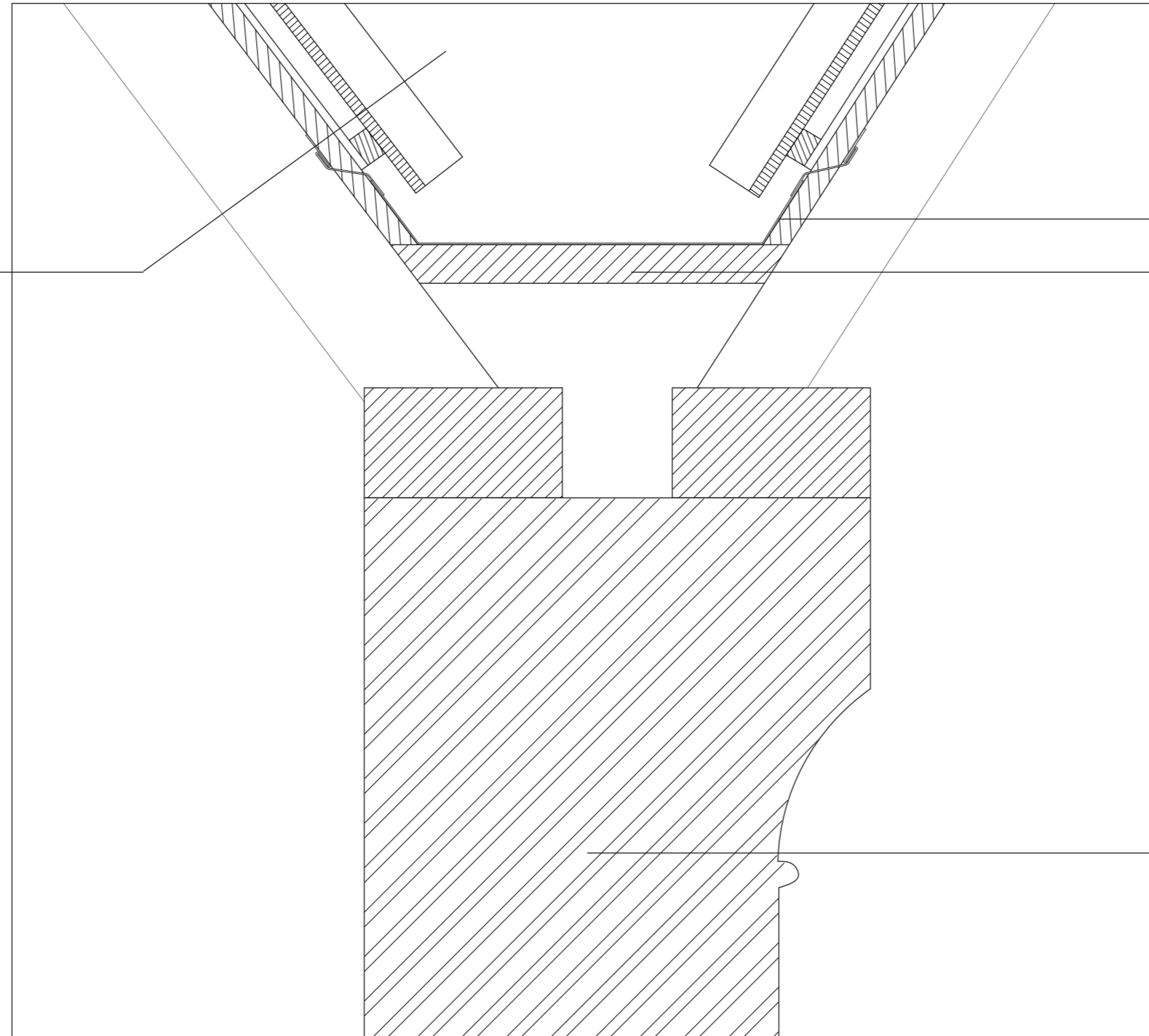
# Connection roof - wall - new



# Gutter - existing



Ceramic roof tiles (Oud-Hollands)  
Batten  
Air cavity (Counter batten)  
18mm pine planks



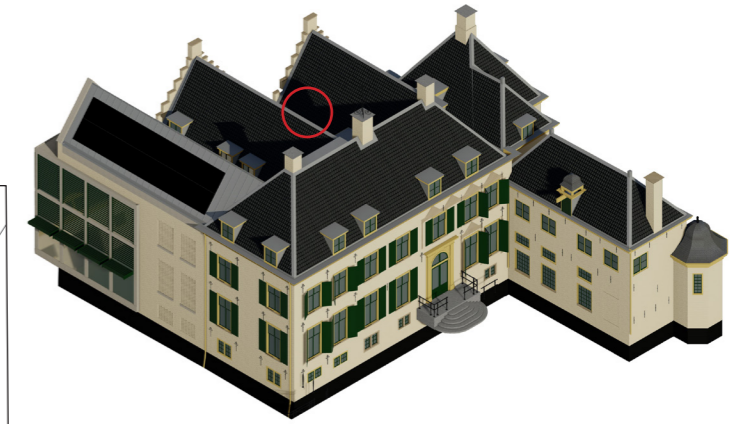
Lead

40mm pine gutter bottom

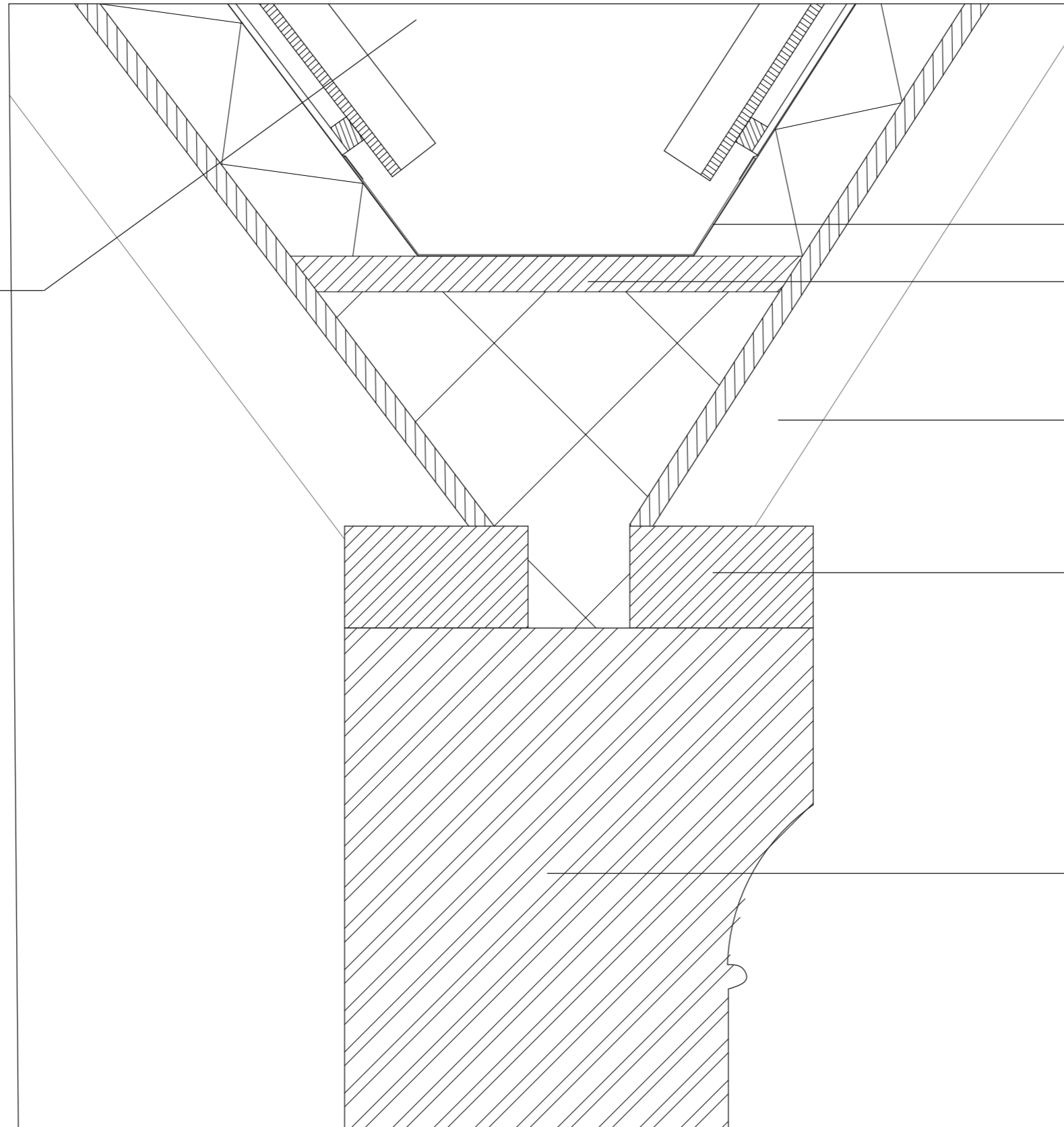
Brickwork



# Gutter - new

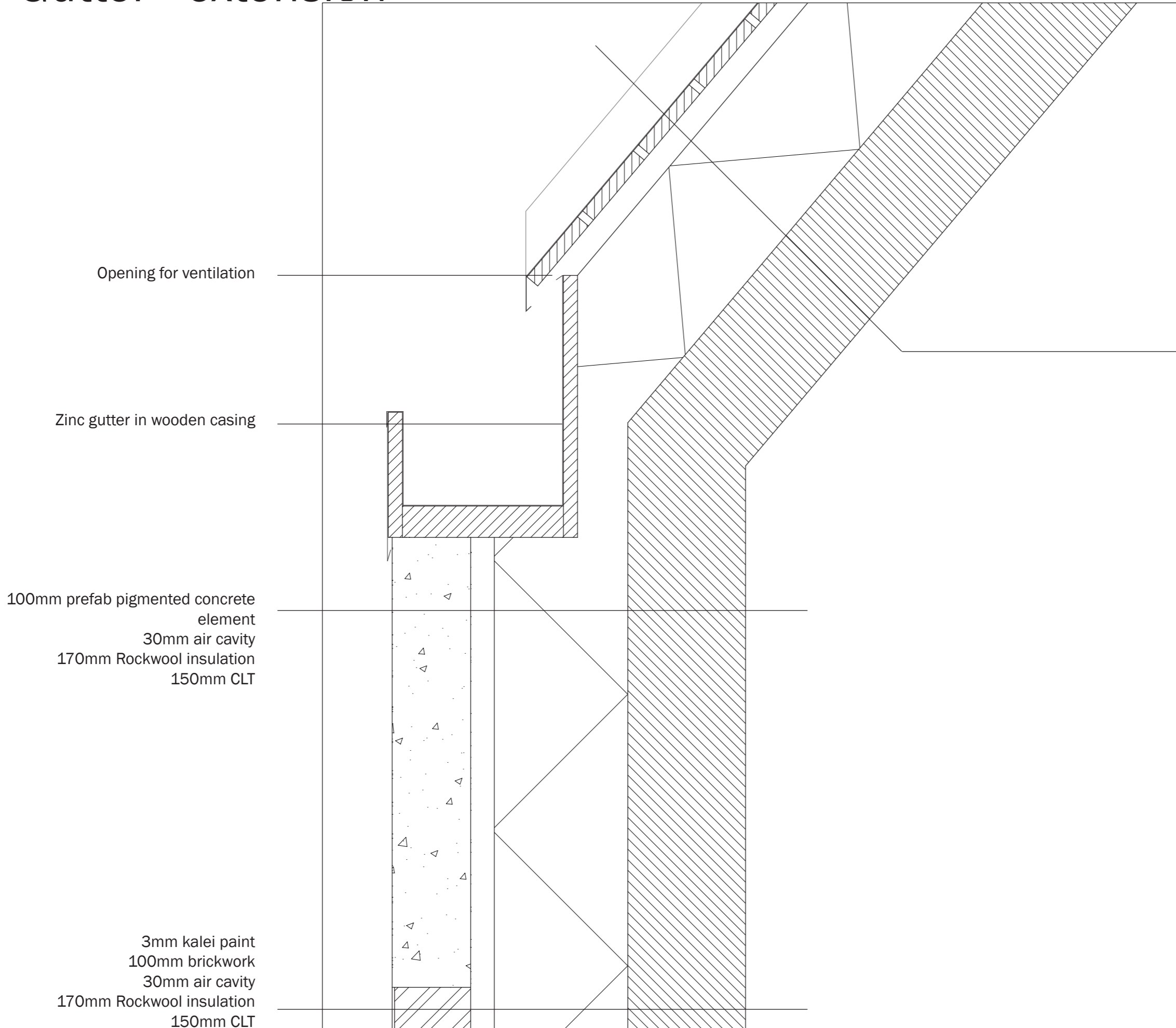
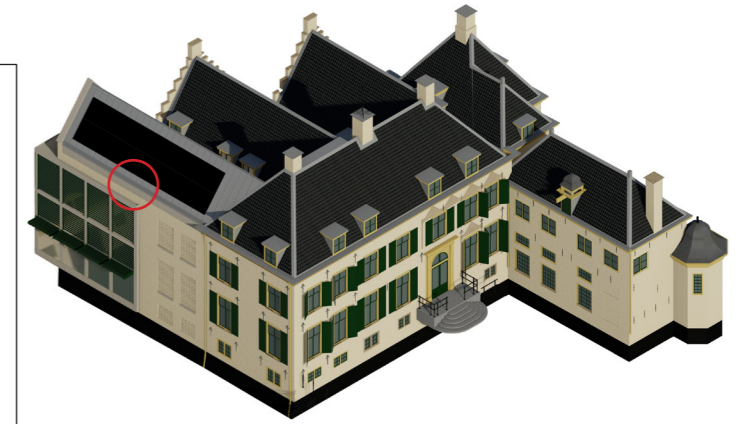


Ceramic roof tiles (Oud-Hollands)  
Batten 22x32mm  
Air cavity (Counter batten 22x32mm)  
Damp open foil  
100mm Rockwool insulation  
18mm pine planks



Lead  
40mm pine gutter bottom  
Rafter  
Wall plate  
Brickwork

# Gutter - extension



Opening for ventilation

Zinc gutter in wooden casing

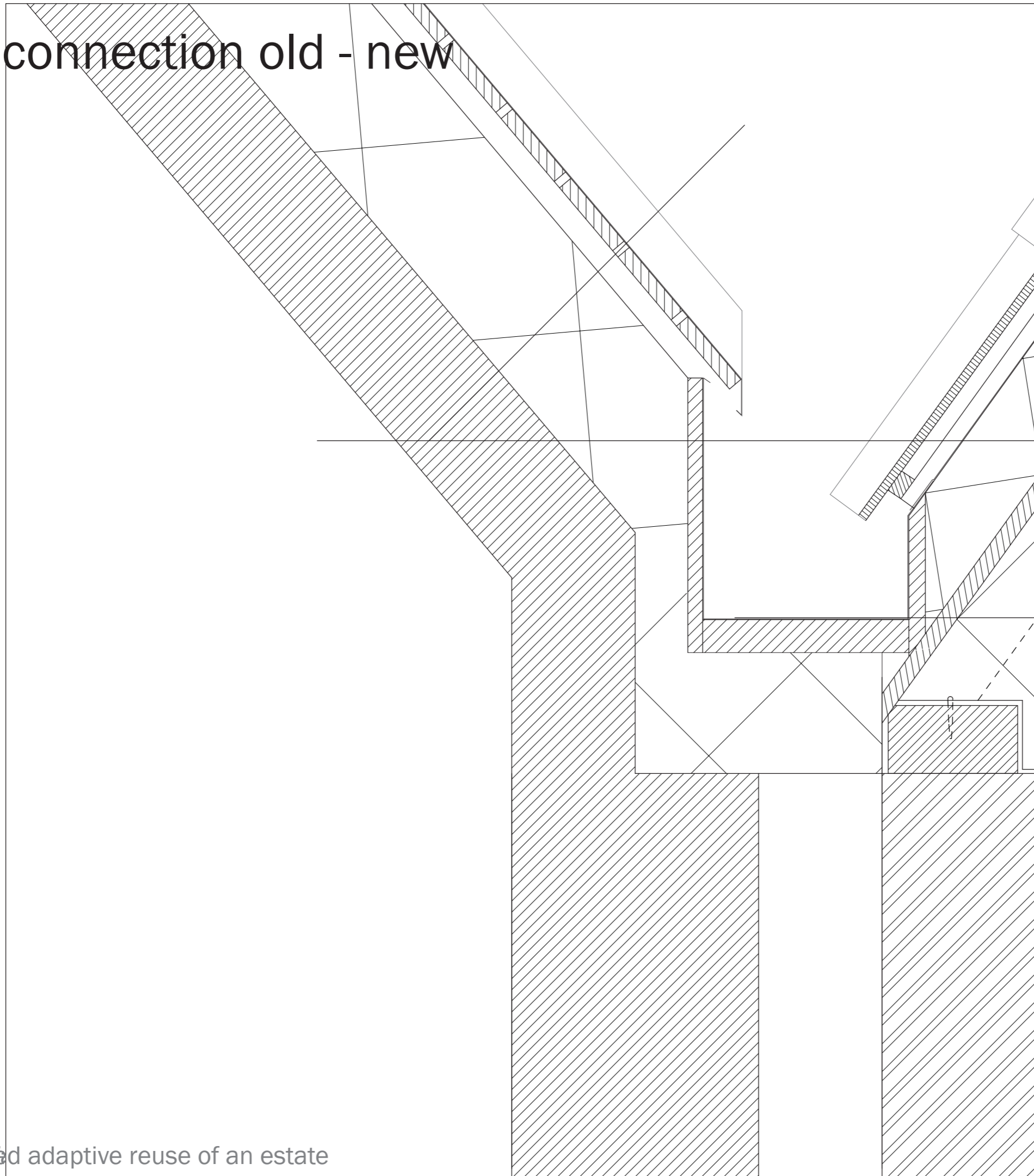
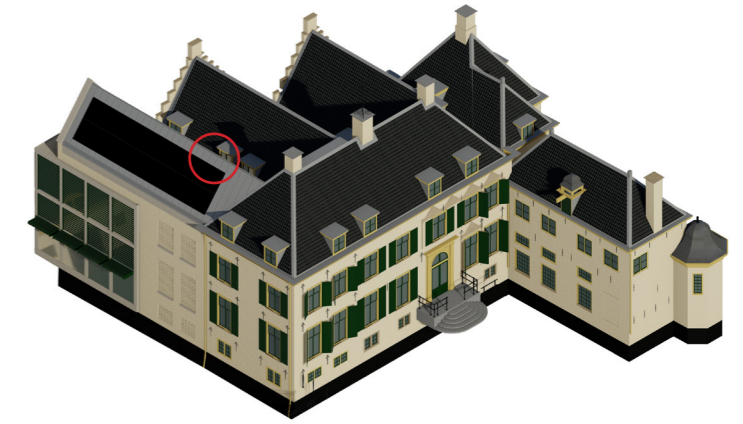
100mm prefab pigmented concrete element  
30mm air cavity  
170mm Rockwool insulation  
150mm CLT

3mm kalei paint  
100mm brickwork  
30mm air cavity  
170mm Rockwool insulation  
150mm CLT

Zinc (roevendak)  
Slats (18x69mm) with spacing for ventilation  
Air cavity (Counterbats 22x32mm)  
170mm Rockwool insulation  
150mm CLT



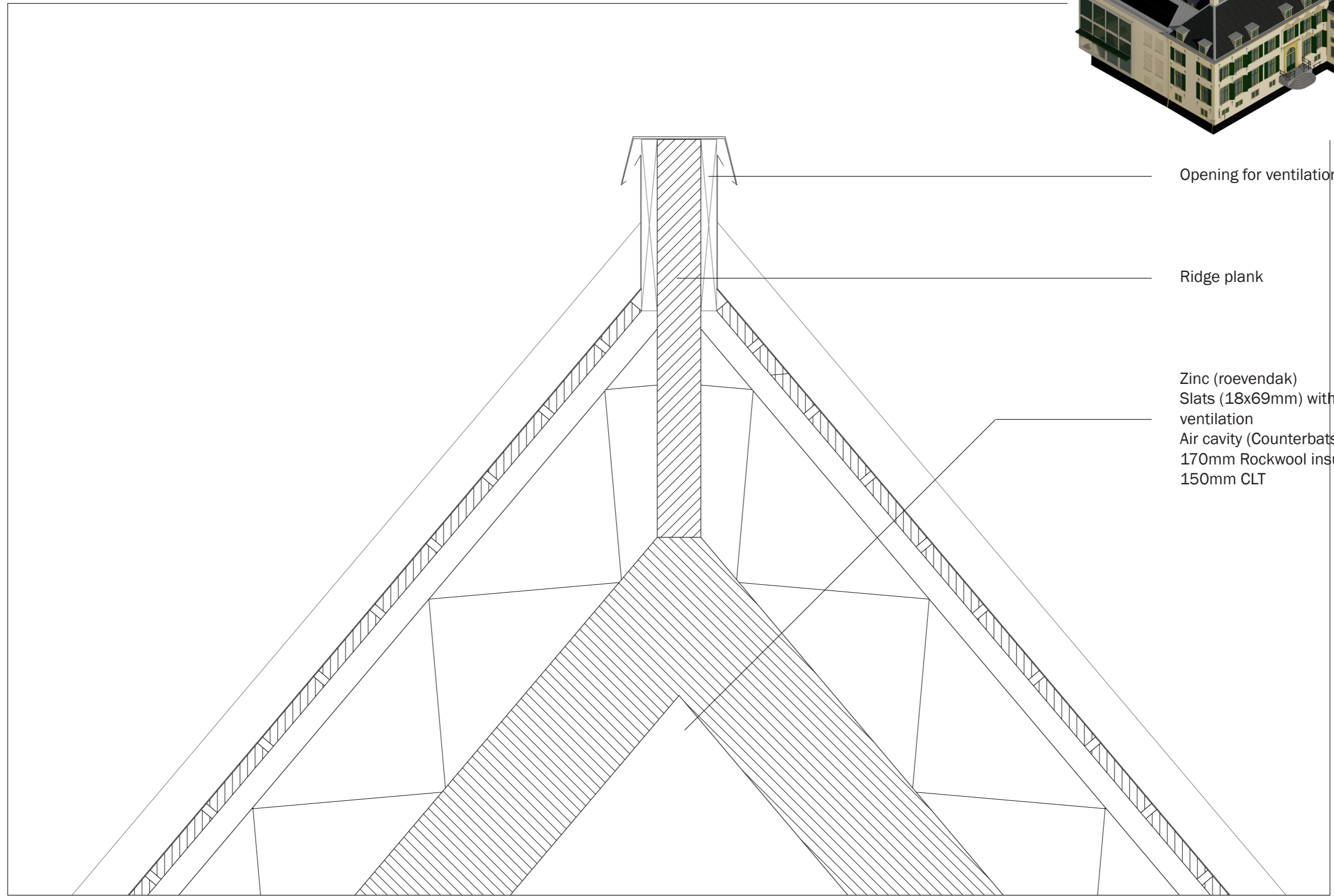
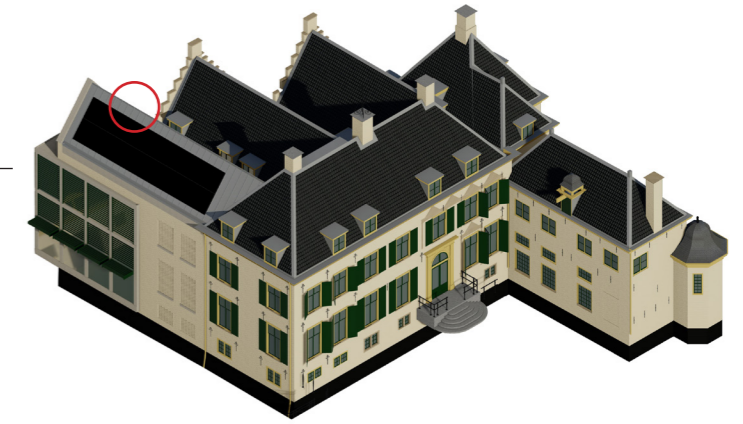
# Gutter - connection old - new



Zinc (roevendak)  
Slats (18x69mm) with spacing for ventilation  
Air cavity (Counterbats 22x32mm)  
170mm Rockwool insulation  
150mm CLT

Zinc gutter in wooden casing

# Ridge - extension



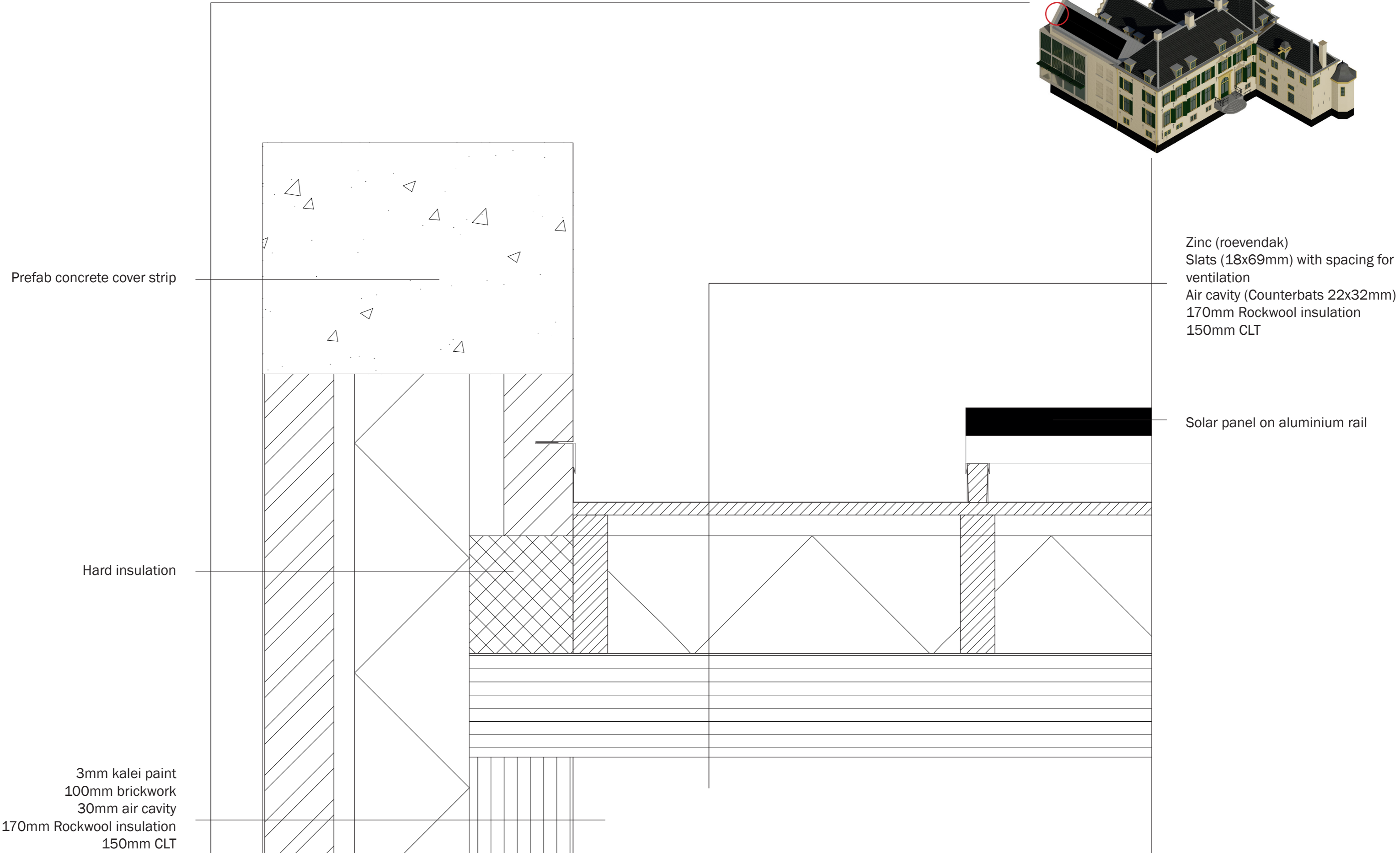
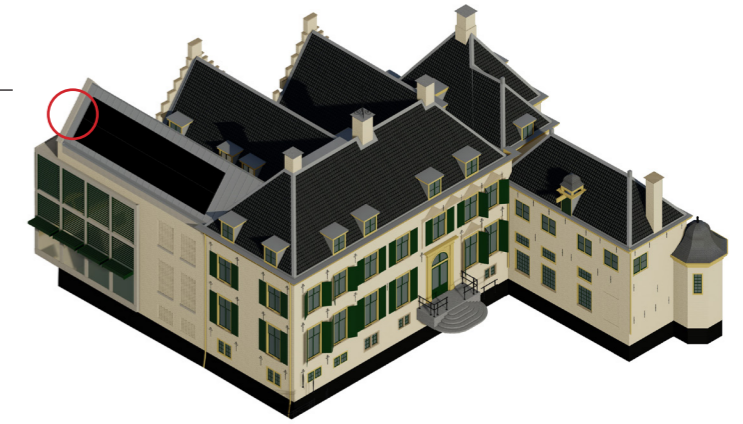
Opening for ventilation

Ridge plank

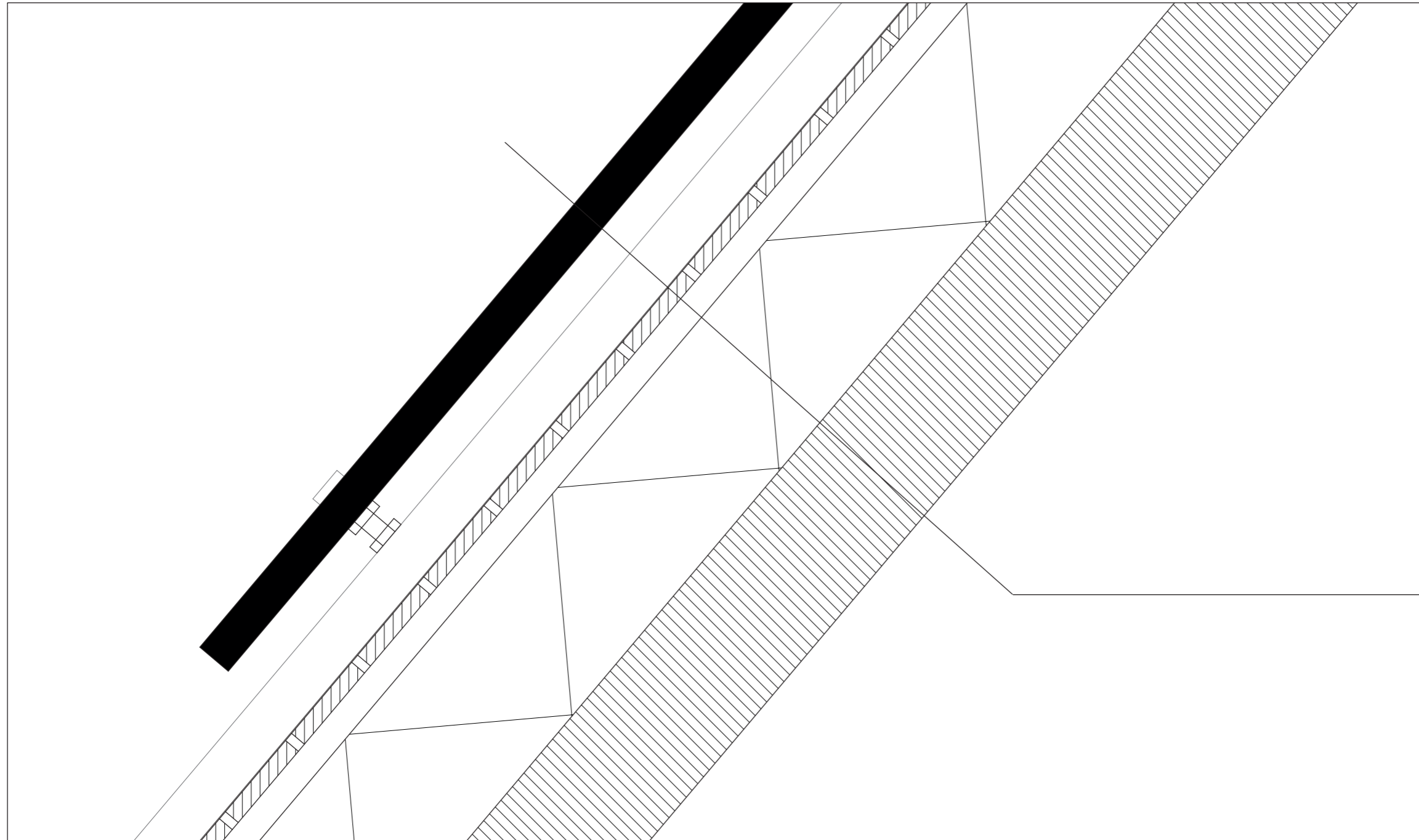
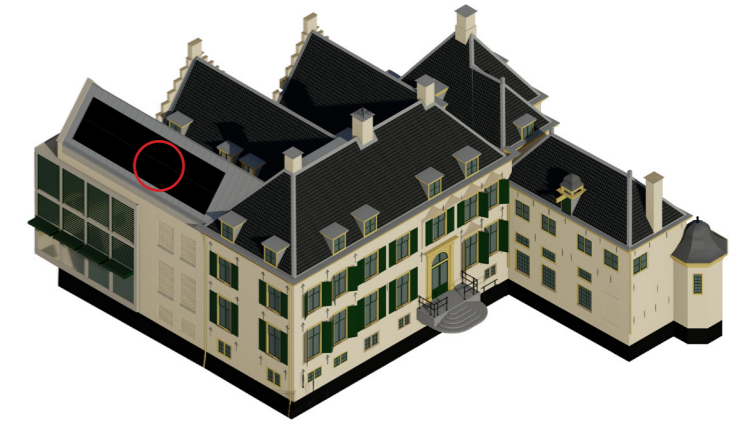
Zinc (roevendak)  
Slats (18x69mm) with spacing for ventilation  
Air cavity (Counterbats 22x32mm)  
170mm Rockwool insulation  
150mm CLT



# Connection roof and wall - extension



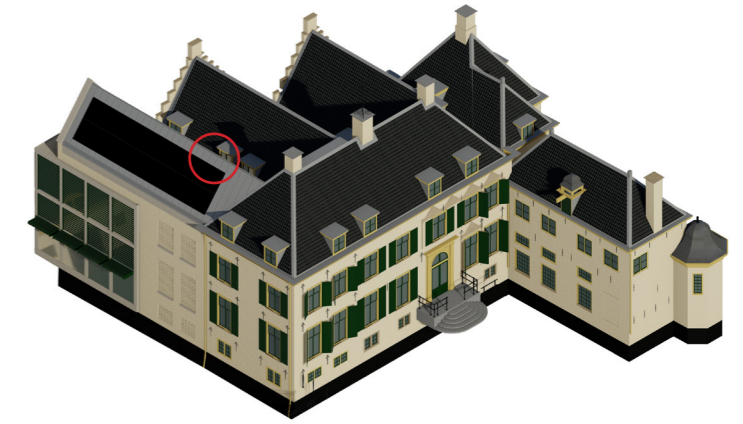
# Solar panel - extension



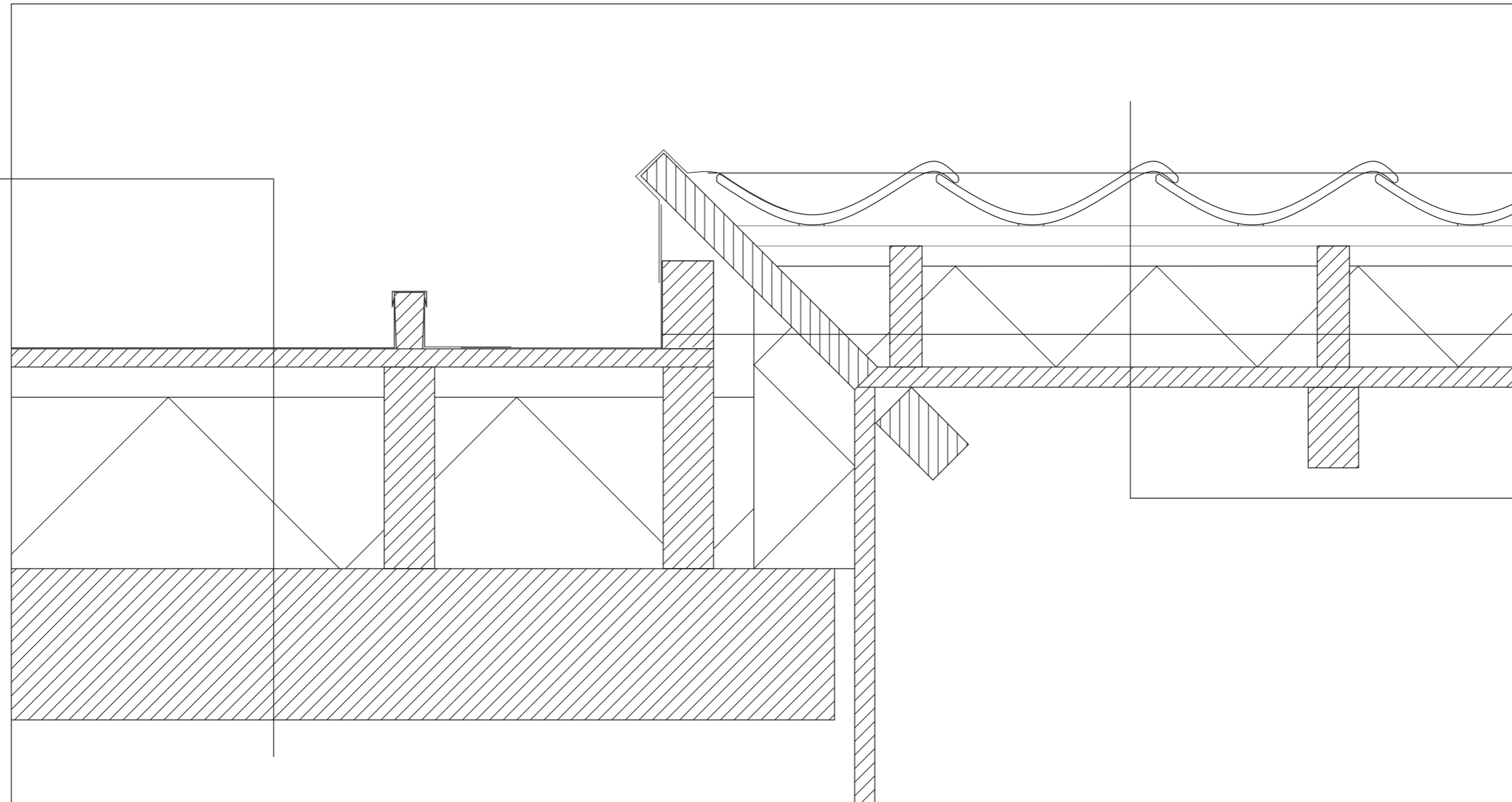
Solar panels on aluminium rail  
Zinc (roevendak)  
Slats (18x69mm) with spacing for  
ventilation  
Air cavity (Counterbats 22x32mm)  
170mm Rockwool insulation  
150mm CLT



# Connection existing - new roof



Zinc (roevendak)  
Slats (18x69mm) with  
spacing for ventilation  
Air cavity (Counterbats  
22x32mm)  
170mm Rockwool  
insulation  
150mm CLT

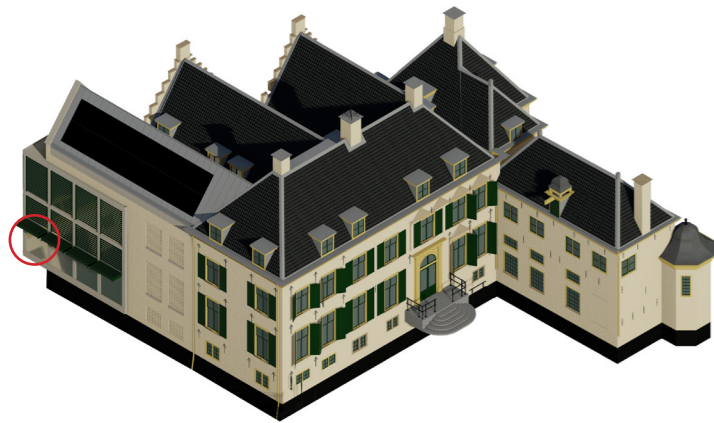


Lead

Zinc valley gutter

Ceramic roof tiles (Oud-  
Hollands)  
Batten 22x32mm  
Air cavity (Counter batten  
22x32mm)  
Damp open foil  
100mm Rockwool  
insulation  
18mm pine planks

# Facade/floor - extension



Laminated column

---

HR++ insulation glass 44/2

---

Meranti window frame

---

High quality insulation

---

Laminated column

---

Prefab pigmented concrete facade  
element

---

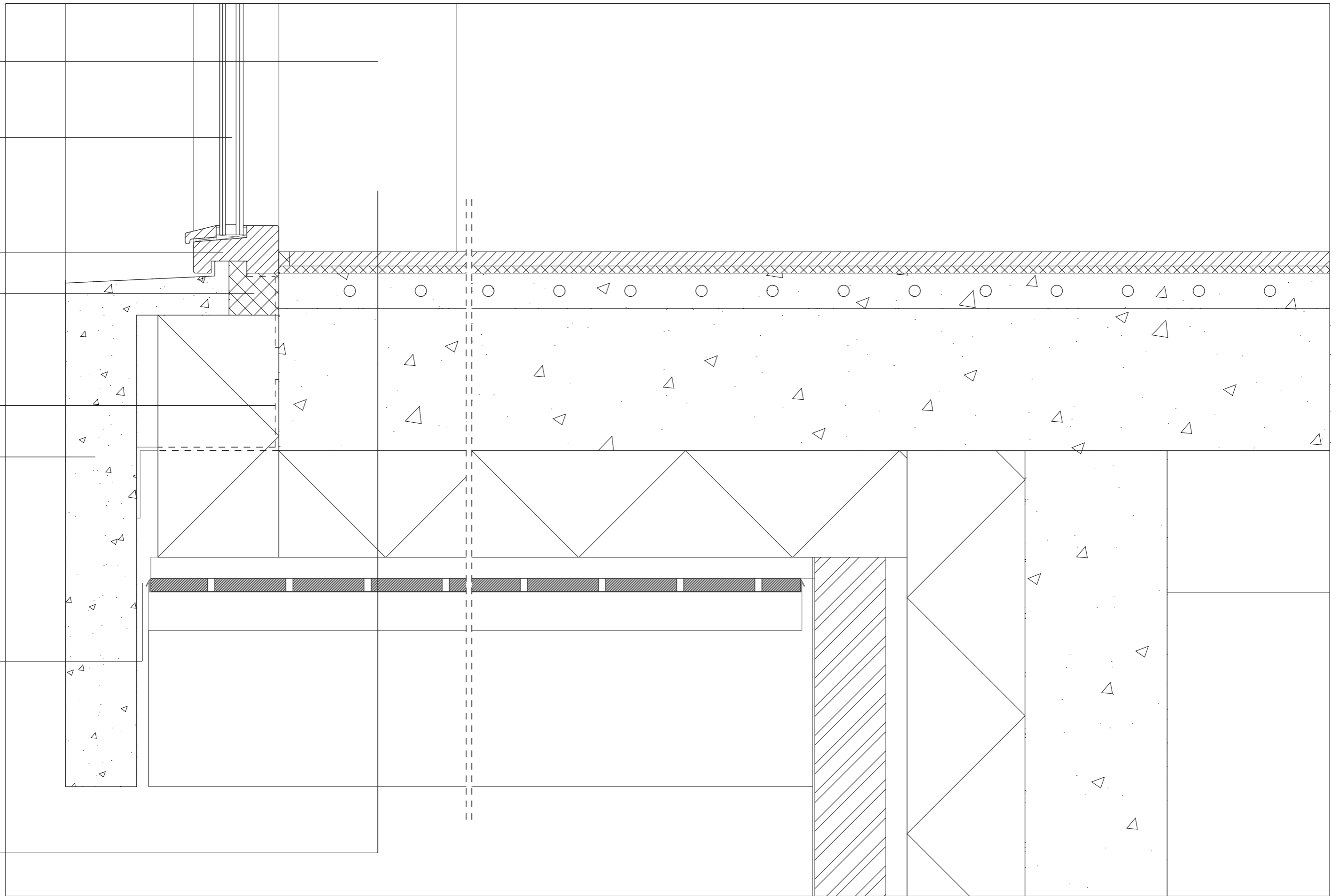
Ventilation opening

---

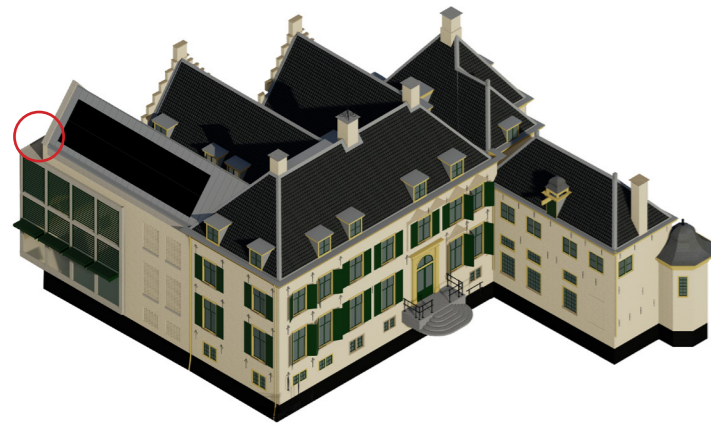
3mm kalei paint  
100mm brickwork  
30mm air cavity  
170mm Rockwool insulation  
150mm concrete

---





# Facade/roof - extension



3mm kalei paint  
100mm brickwork  
30mm air cavity  
170mm Rockwool insulation  
150mm CLT

Ventilation opening

Zinc gutter

Prefab pigmented concrete facade  
element

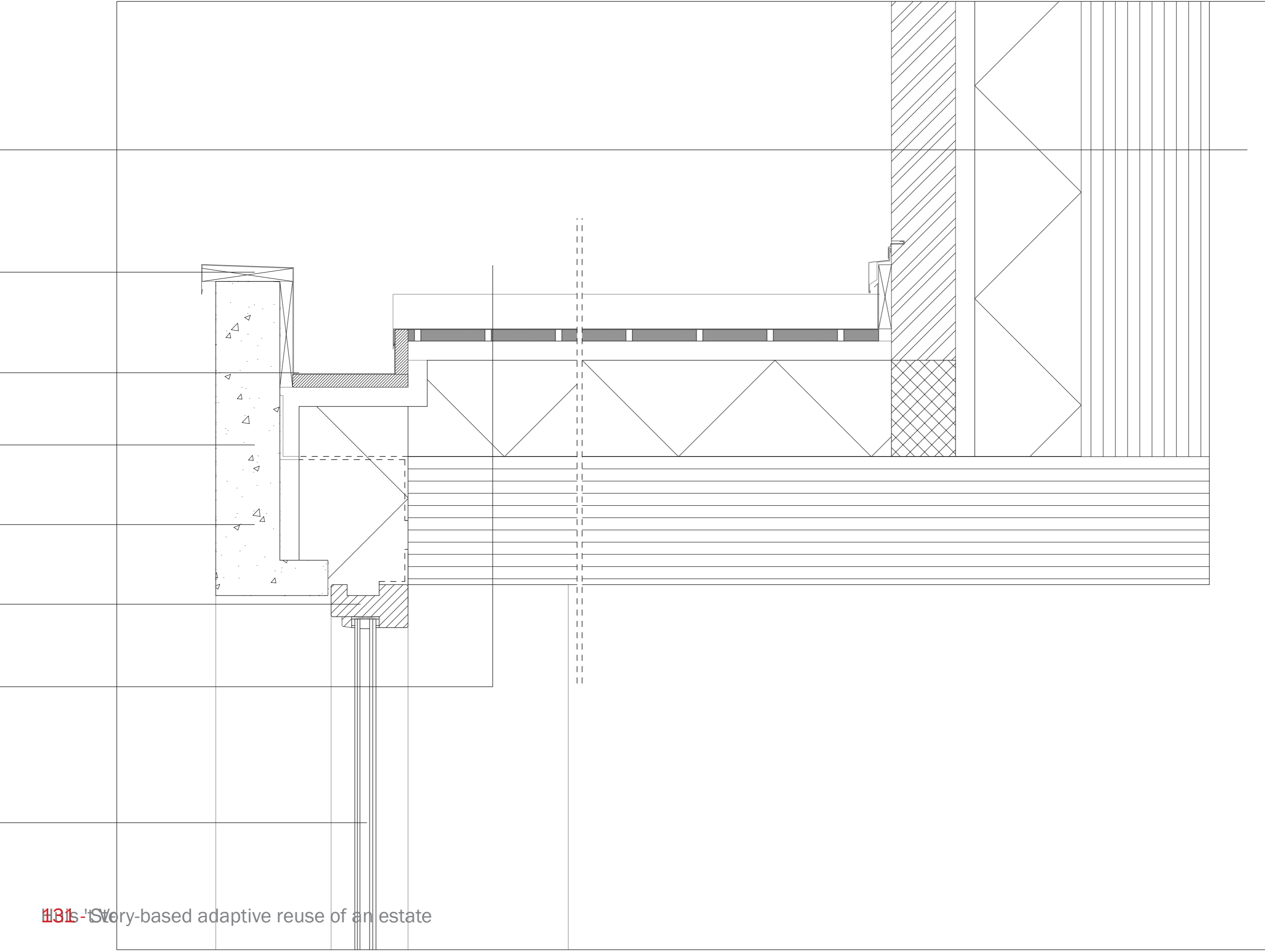
Prefab pigmented concrete facade  
element

Meranti window frame

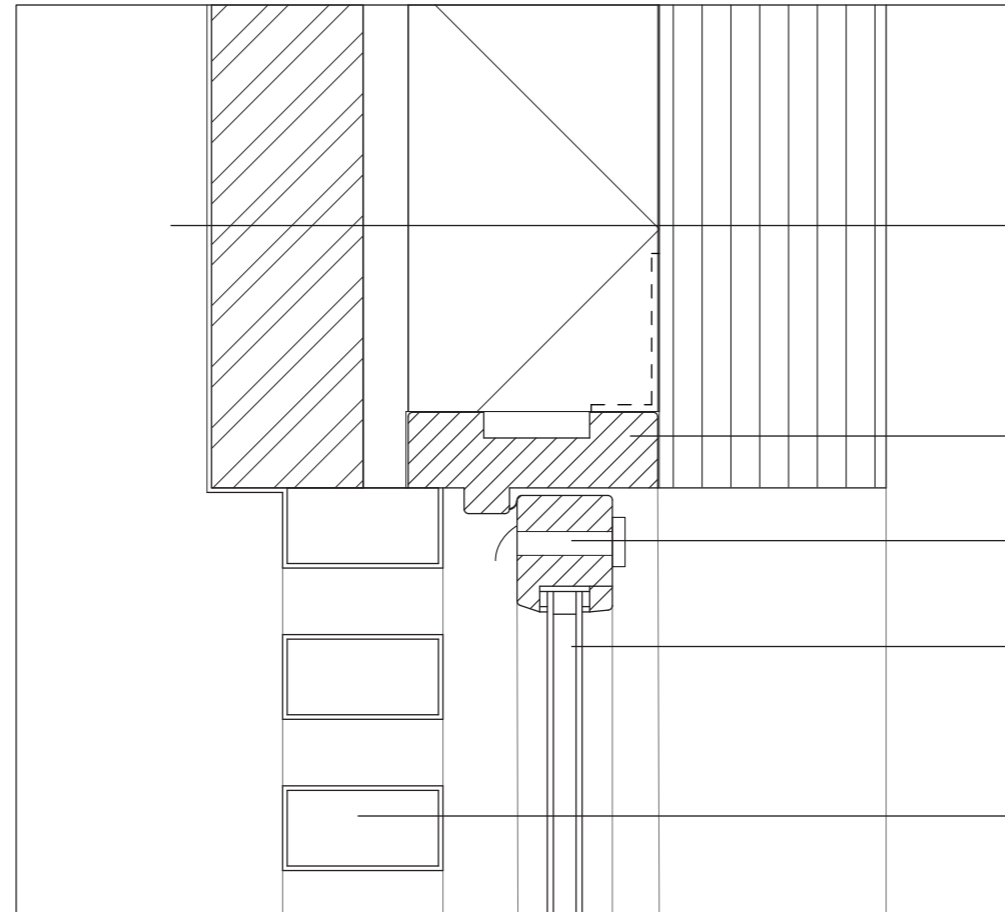
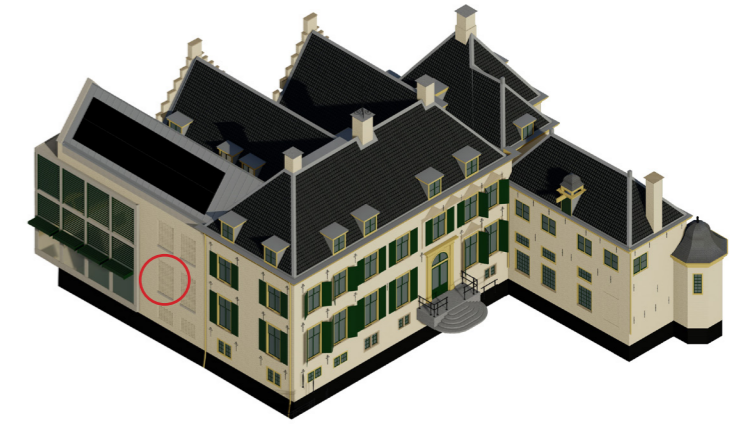
Zinc (roevendak, slightly sloped)  
Air cavity (counterbats 22x32mm)  
170mm insulation  
150mm CLT

HR++ insulation glass 44/2





# Window frames - extension



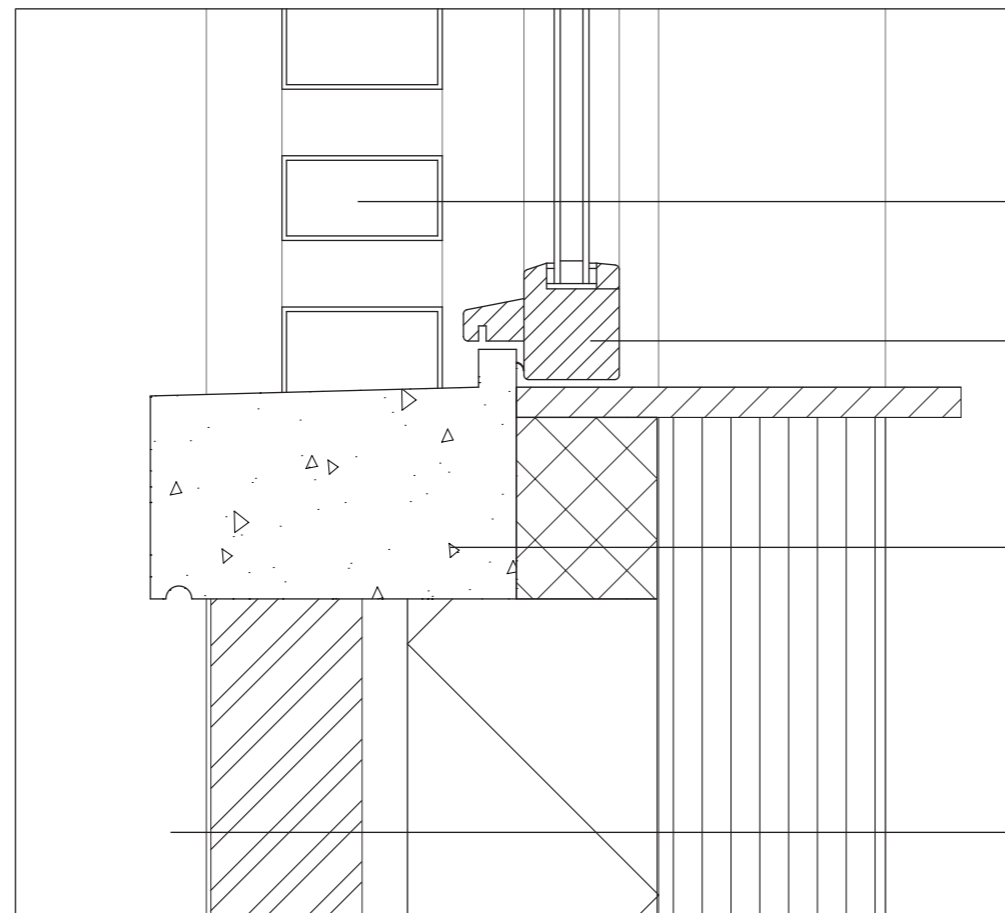
3mm kalei paint  
 100mm brickwork  
 30mm air cavity  
 170mm Rockwool insulation  
 150mm CLT

Meranti window frame

Ventilation slot

HR+++ double glazing

Half open masonry



Half open masonry

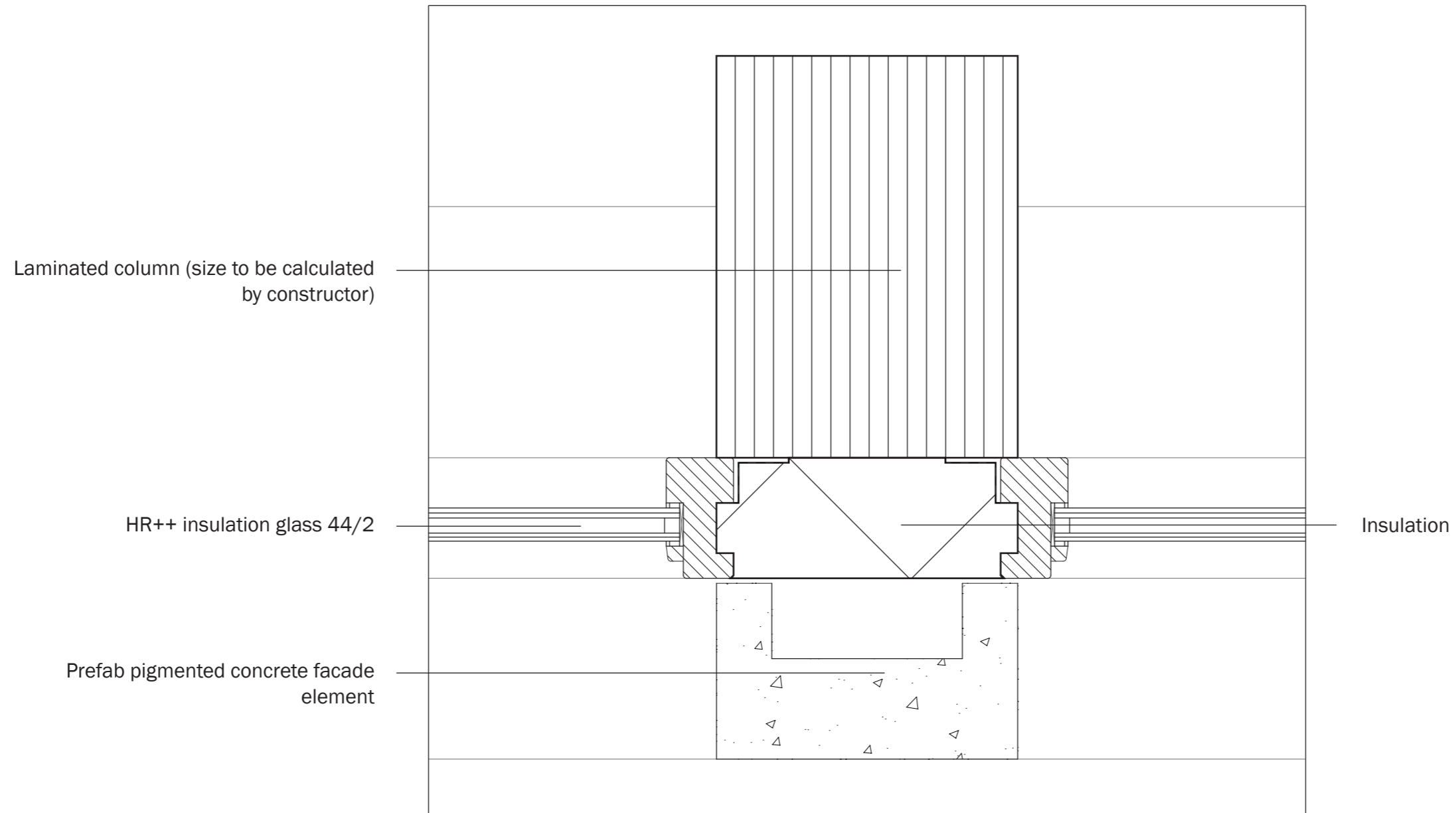
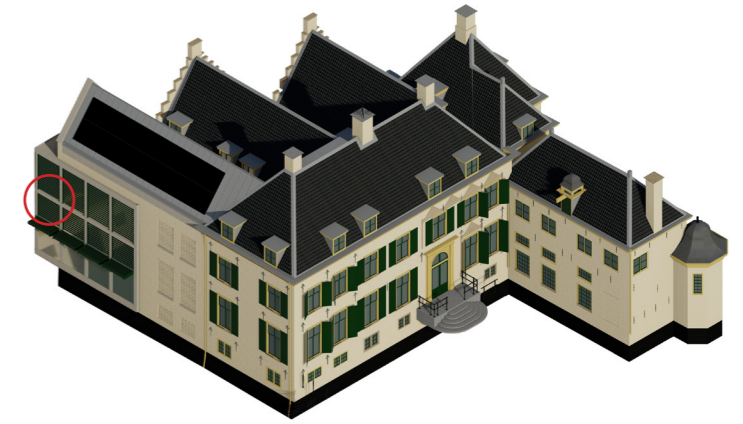
Meranti window frame

Prefab pigmented concrete window sill

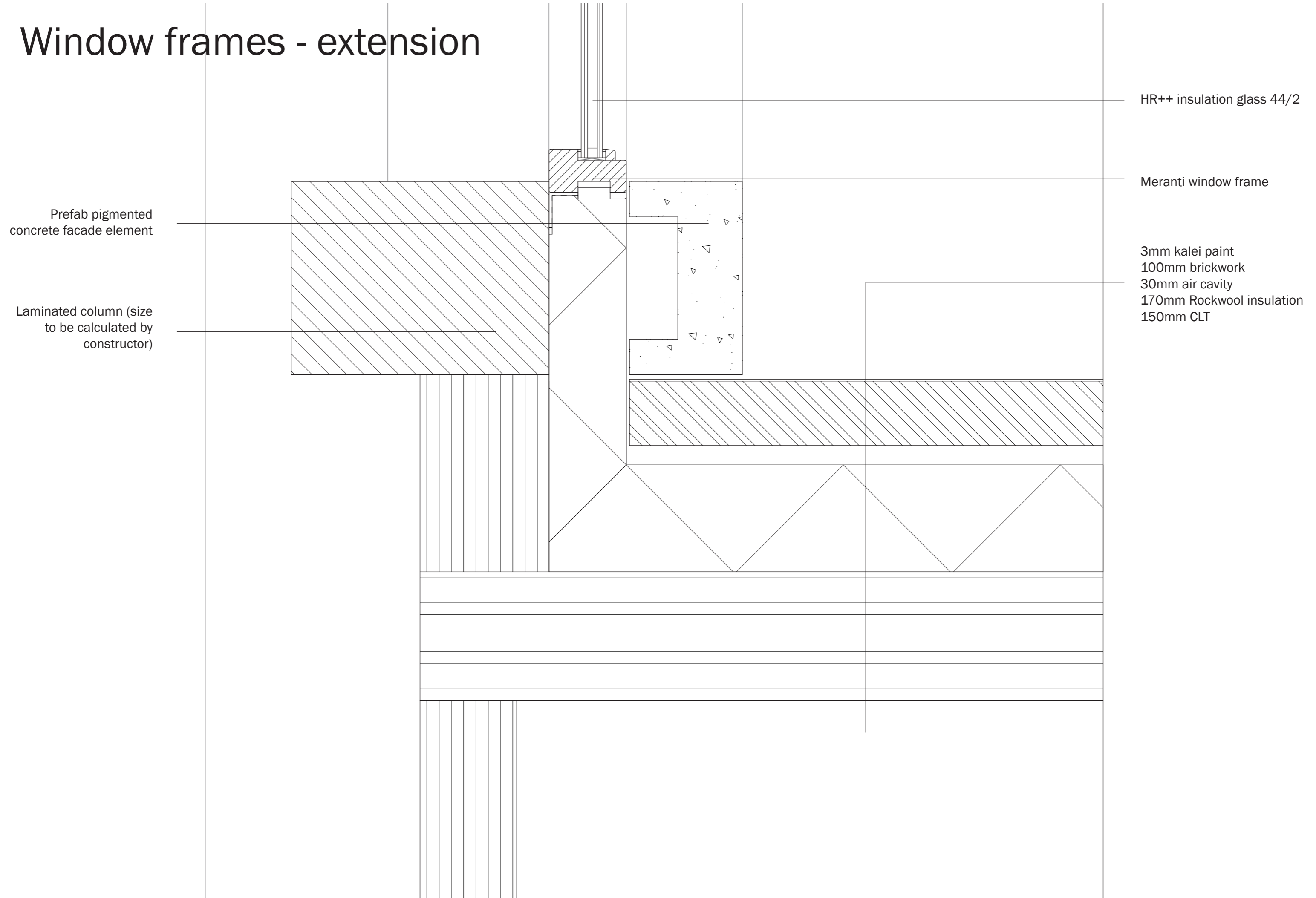
3mm kalei paint  
 100mm brickwork  
 30mm air cavity  
 170mm Rockwool insulation  
 150mm CLT



# Window frames - extension

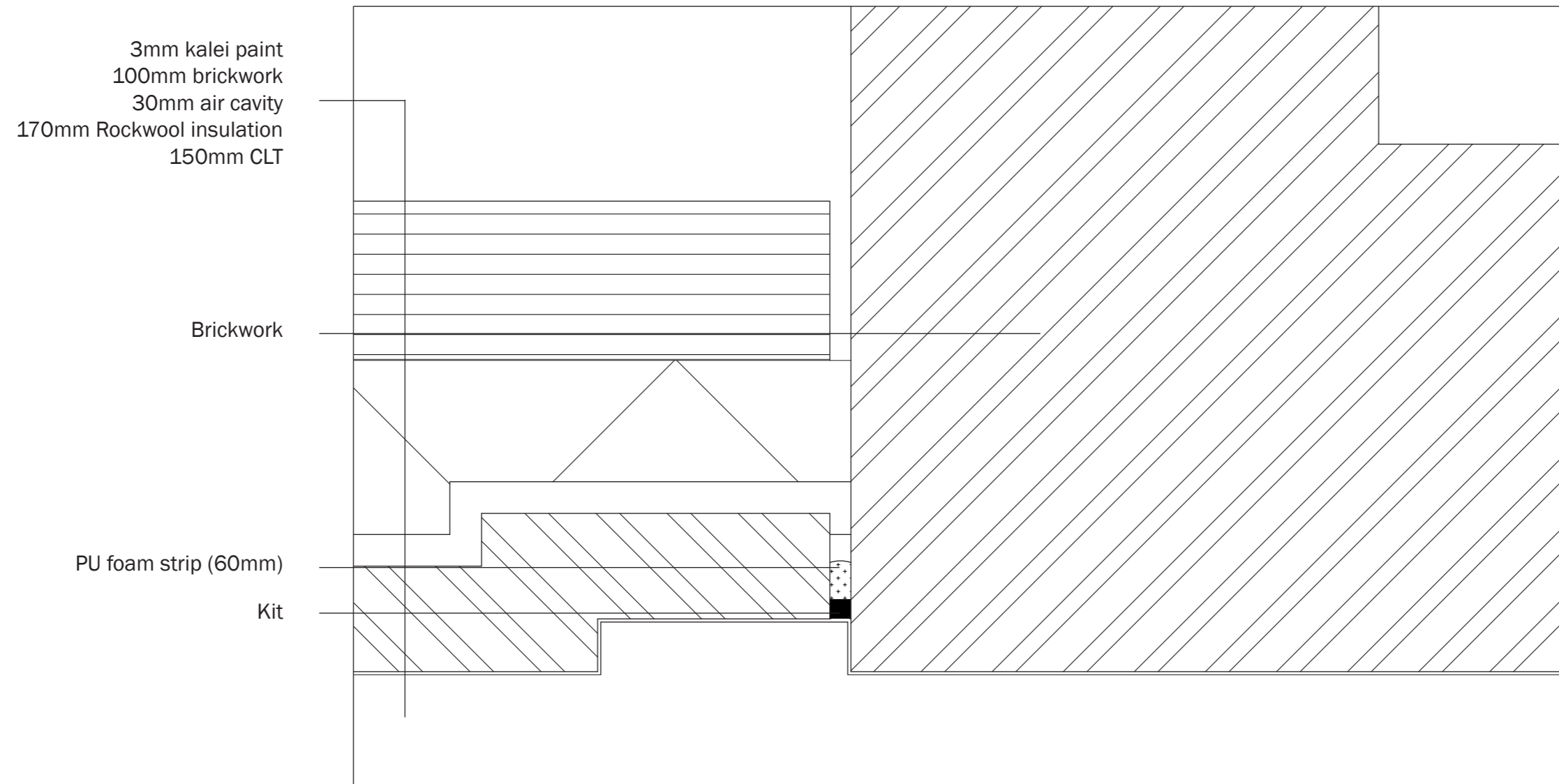
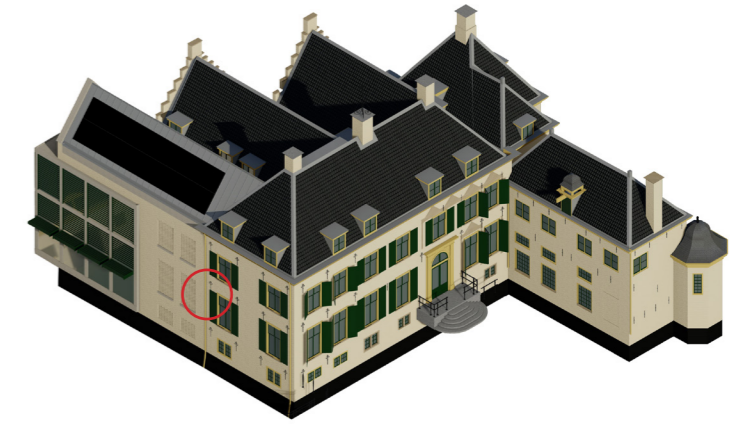


# Window frames - extension





# Walls existing - new



# Walls existing - new

