



Zevenaar in Vogelvlucht



Wittenburgstraat (2010)

PRODUCTIVE LANDSCAPE - URBAN GREEN LEARNING CENTRE

RMIT/ 2010-2011/ Intervention on Wittenburgstraat buildings in Zevenaar

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Tutors: Arnold Hermkens, Ferruccio Colautti



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Background

1. Problems for design
2. History of Zevenaar's Development
3. Idea for solution - Productive Landscape of Zevenaar

Scale

Masterplan design

4. Productive Landscape of Zevenaar
5. Productive Landscape Learning centre

Urban

Building Design

6. Existing/ Massing/ Programme /materialization/ structural/spatial/ installation
7. Intervention per session
 - existing values
 - spatial qualities
 - Materiality
 - Construction Details

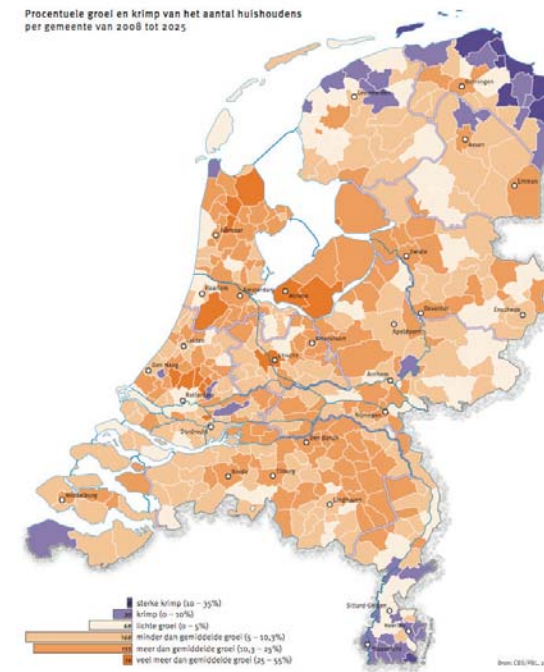
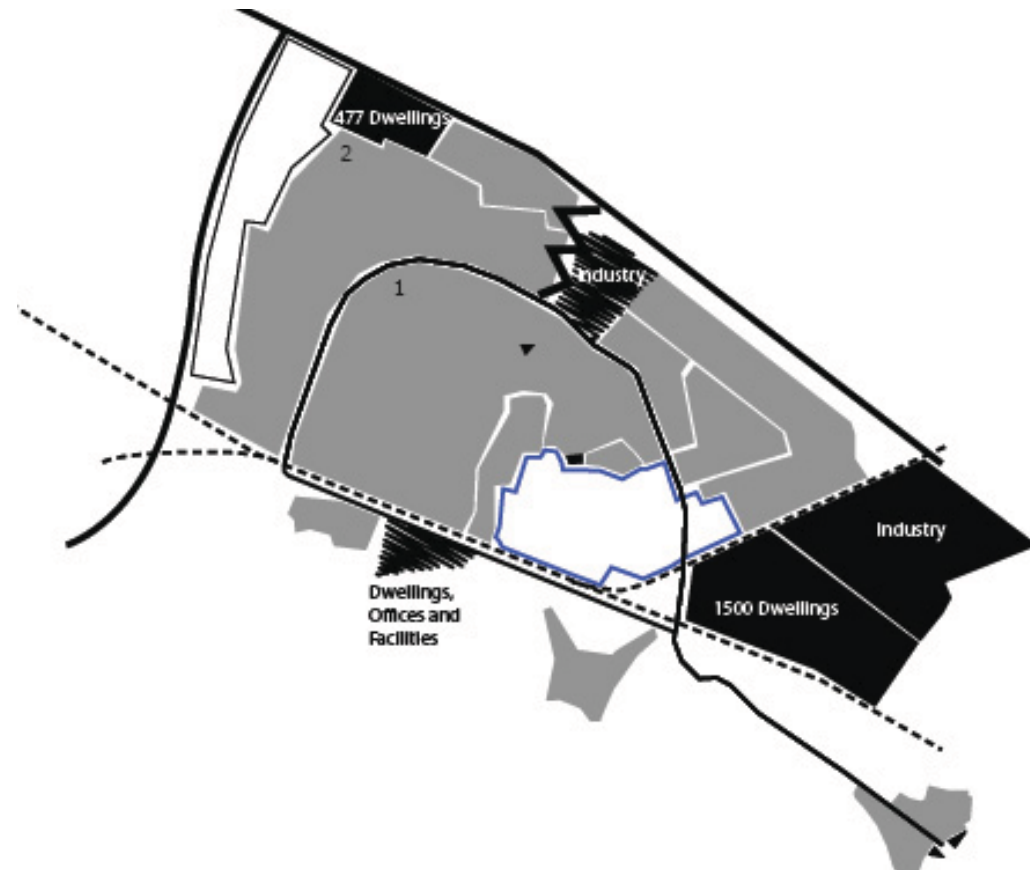
Building complex

Building

Technics

Problems for design

Future



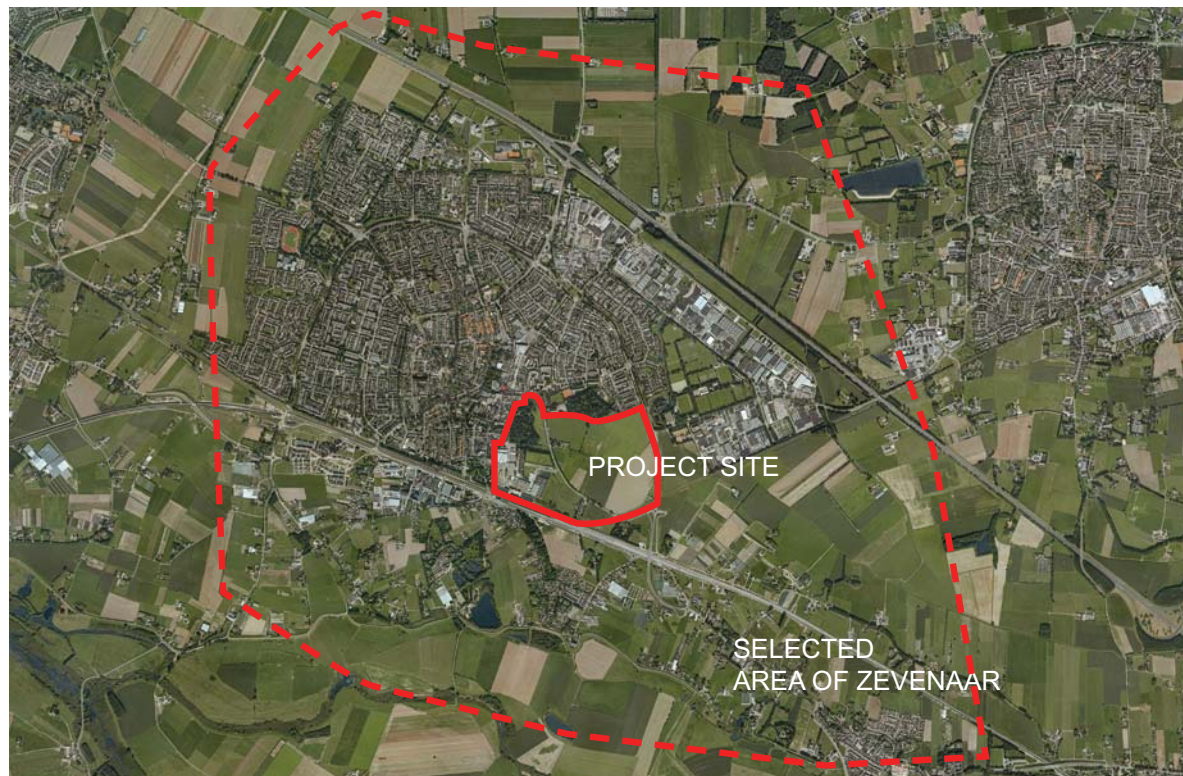
Zevenaar

A light population- shrinkage of 0% to 5% until 2025
A less than average growth of households of 10,3 to 25% until 2025



Ageing group expands

Current (2010)



Project site



Manorial Estate & its ecological forest

open agricultural land

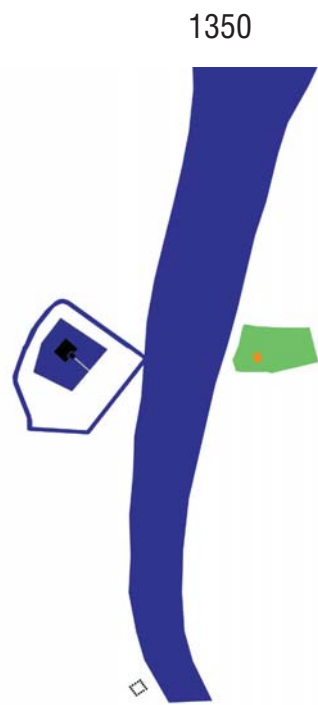


BAT Terrain

3 secluded entities

History of Zevenaar's development

Past



longitudinal development inherited from Levee Aa & Manorial Estate.

1866



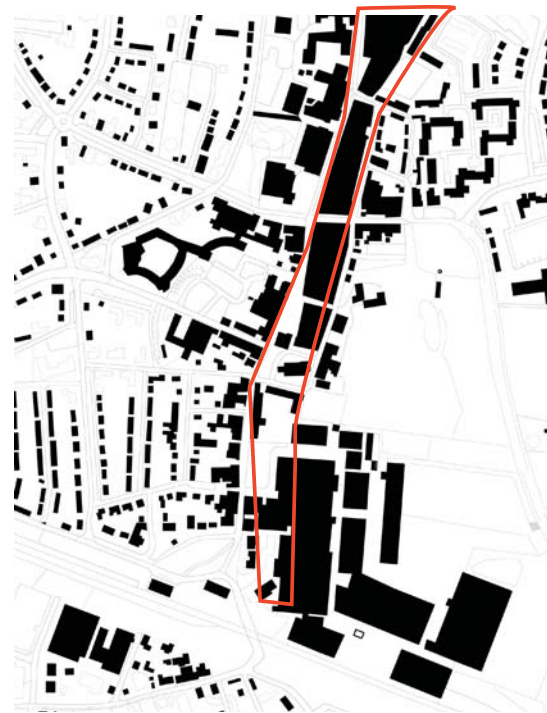
Early agricultural dominance with small farming lots (via: www.watwaswaar.nl)

1925 -1990



Turmac Tobacco Factory (now B.A.T.) - a significant industrial development in Zevenaar

Current (2010)



Current city axis in filled Levee Aa



A large piece of green land, mainly belonged to Jonker Huub van Nispen, is situated next to city axis



The halted tobacco production turned factory buildings into storage and rented out for other business

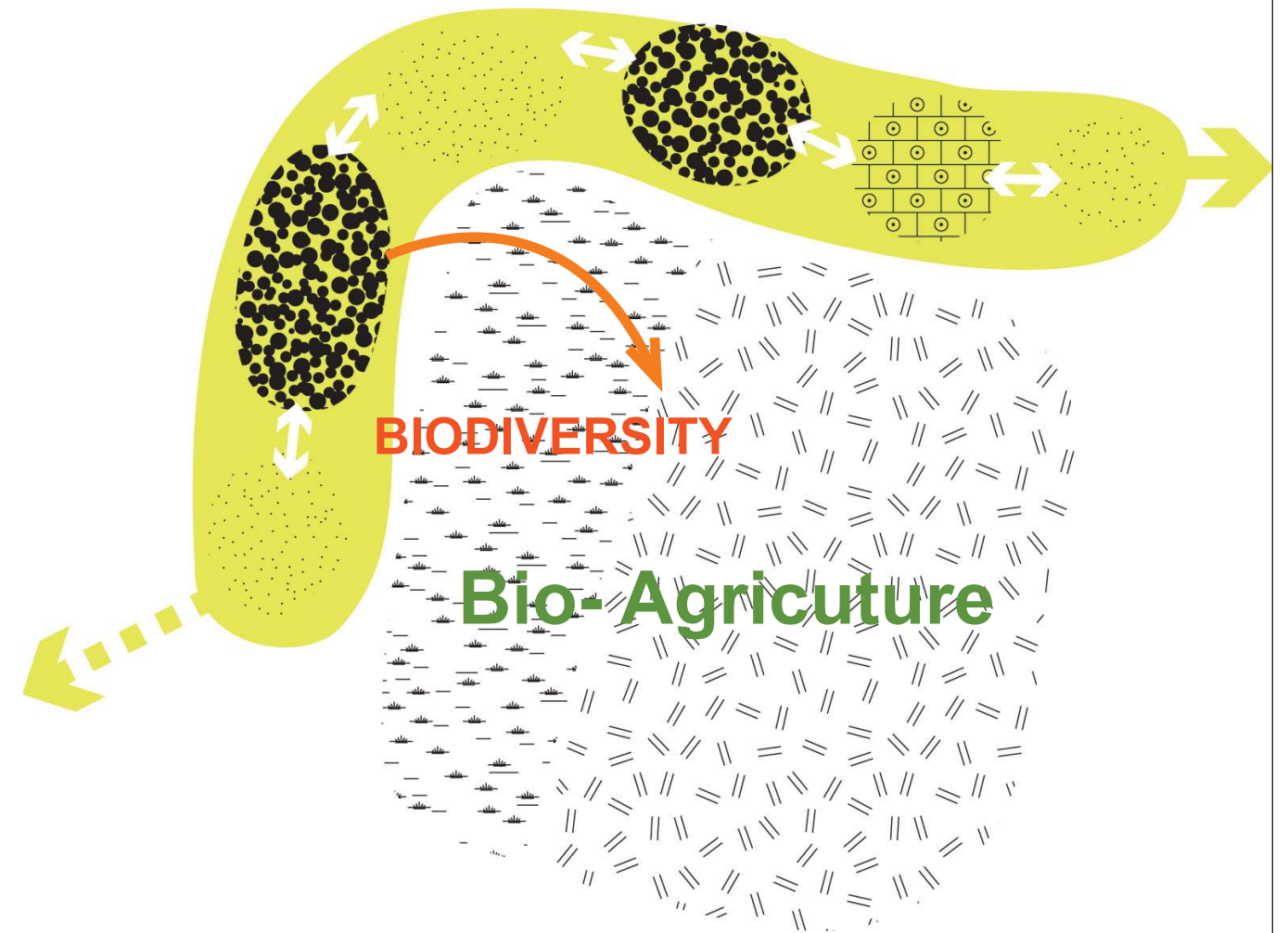
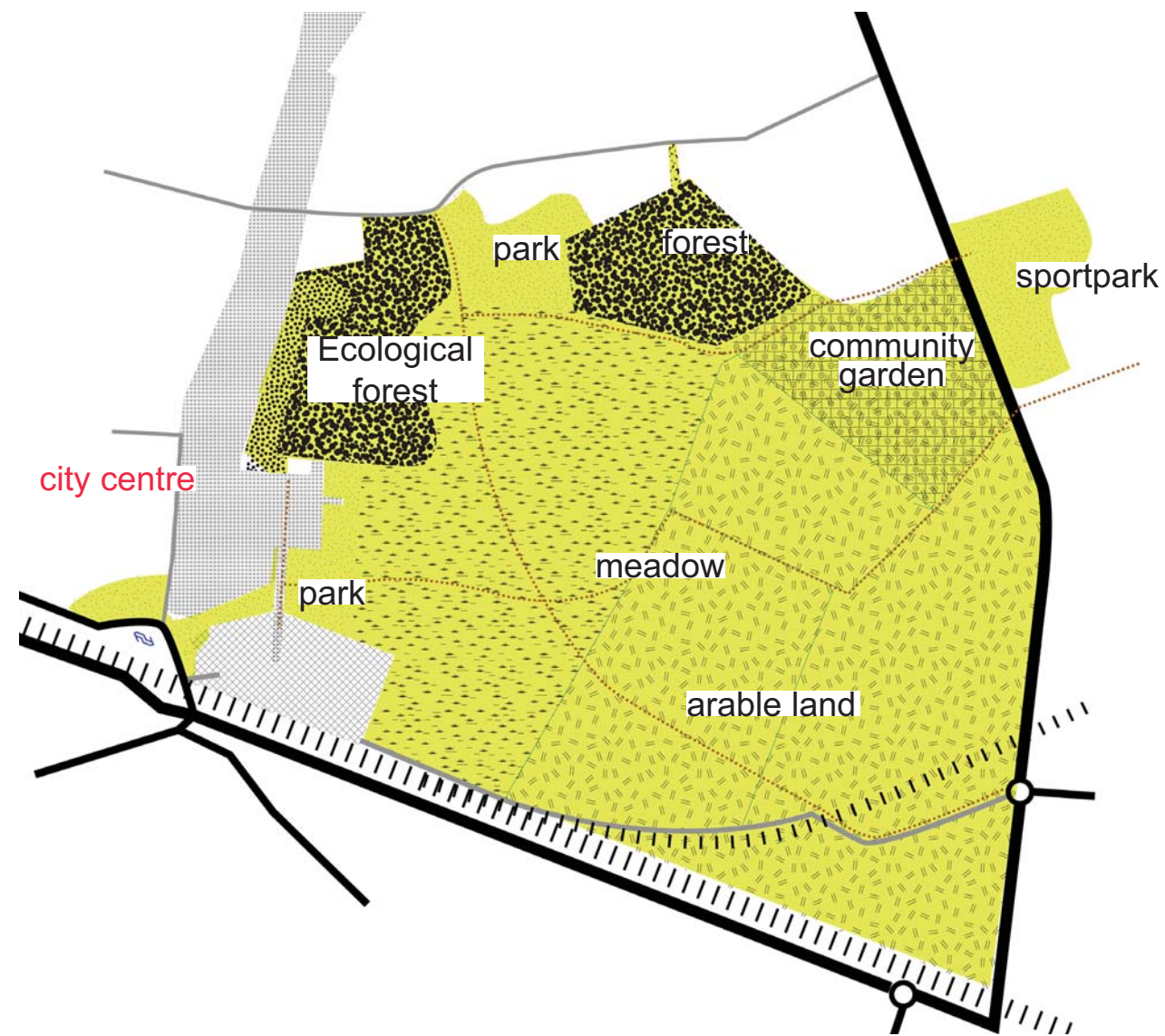
Idea for solutions

Opportunities

- preserved green land gives an unique open green quality next to the city central axis.

Proposed Ideas

- enhance the current diversity of green and propose a rather unique identity for Zevenaar
- benefits local aging population and bring a healthy living style for local dwellers and young families



Solution

Productive Landscape

As a form of Modern Arcadia provides not only quality that would be brought about by picturesque scenic park, but it integrates **food production and daily activities as visitor destination**. It takes care of human beings' welfare, but also those of species in nature. Productive Landscape helps to **create and maintain ecologically valuable habitats and landscapes, and providing opportunities for recreation, social and community activities.**

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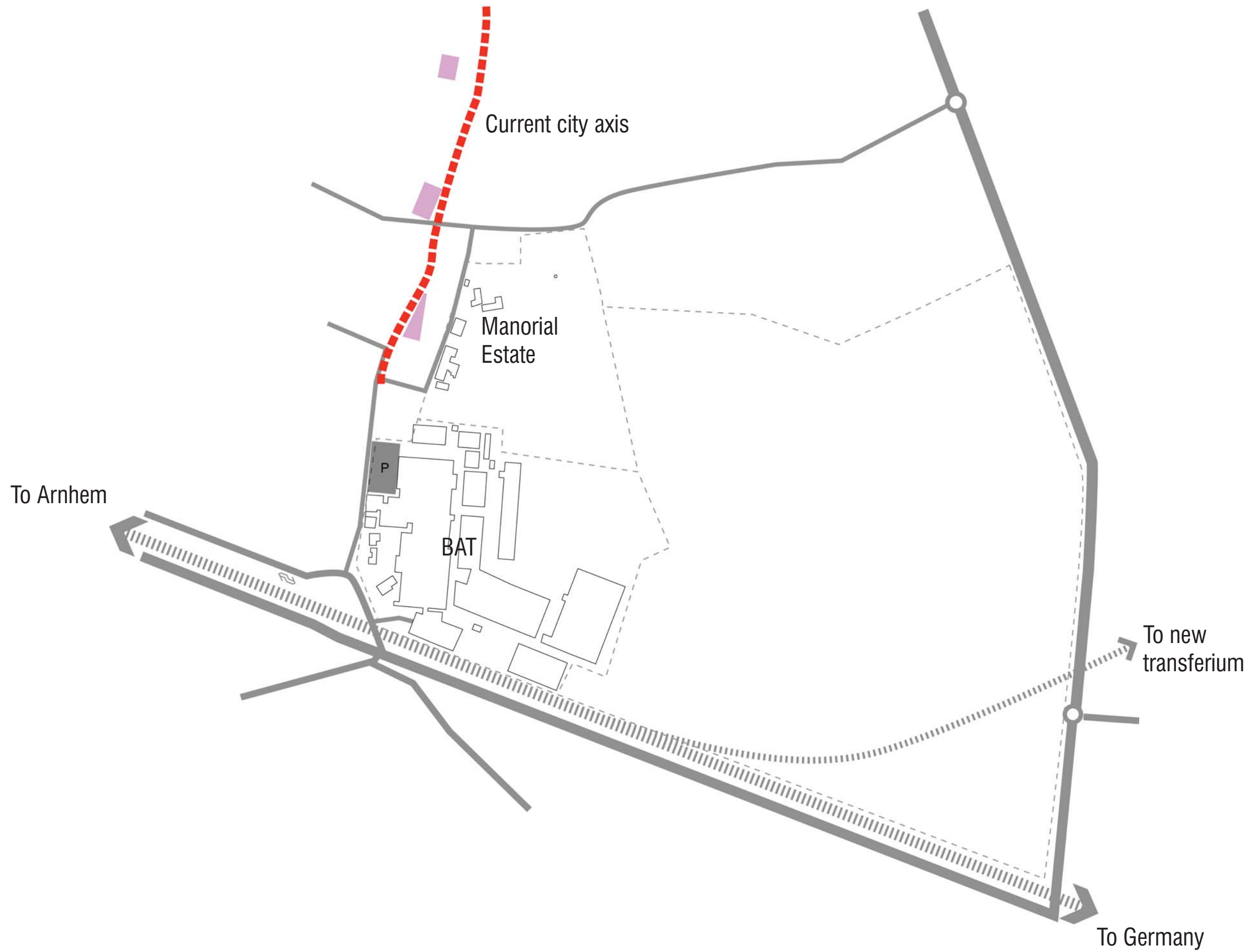
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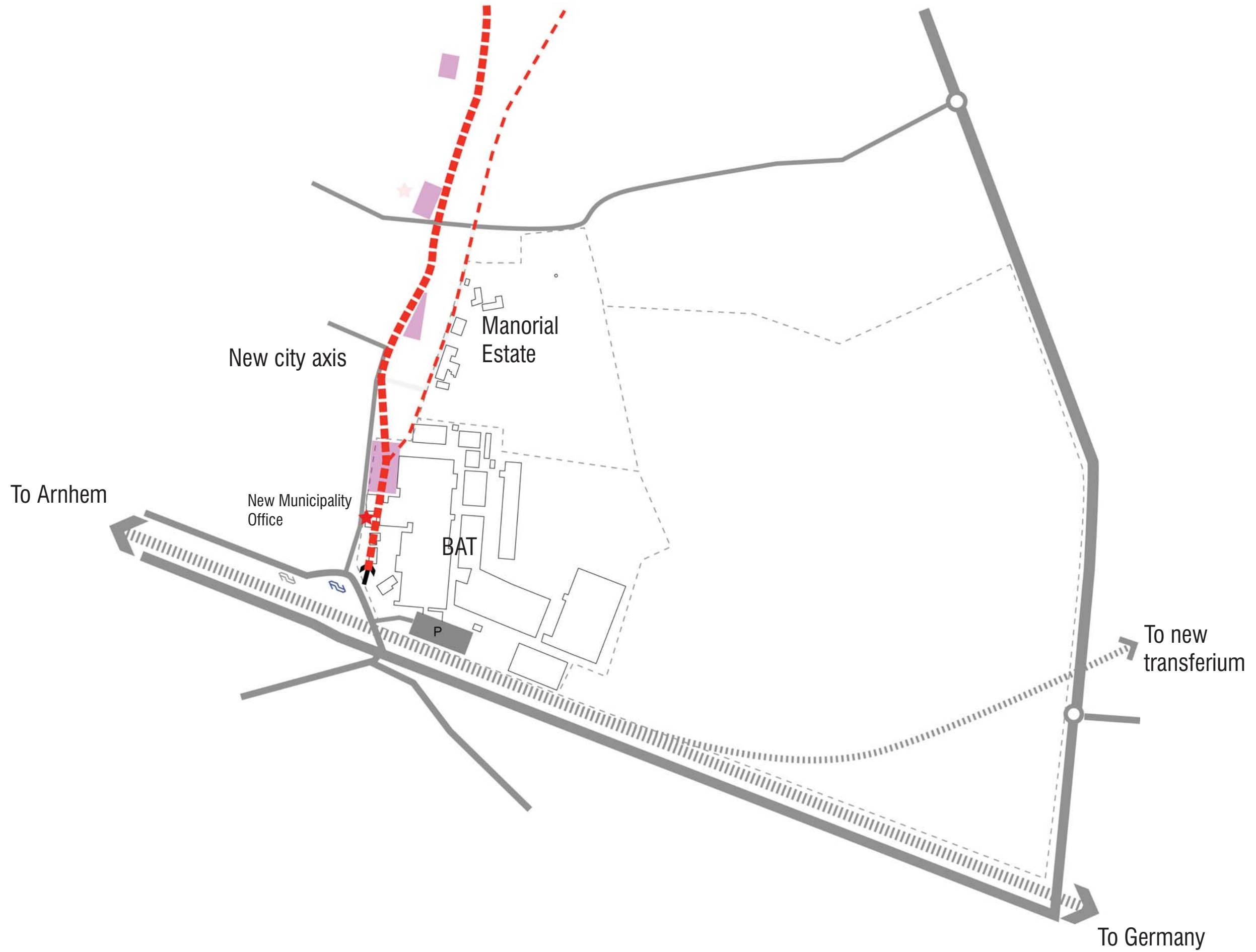
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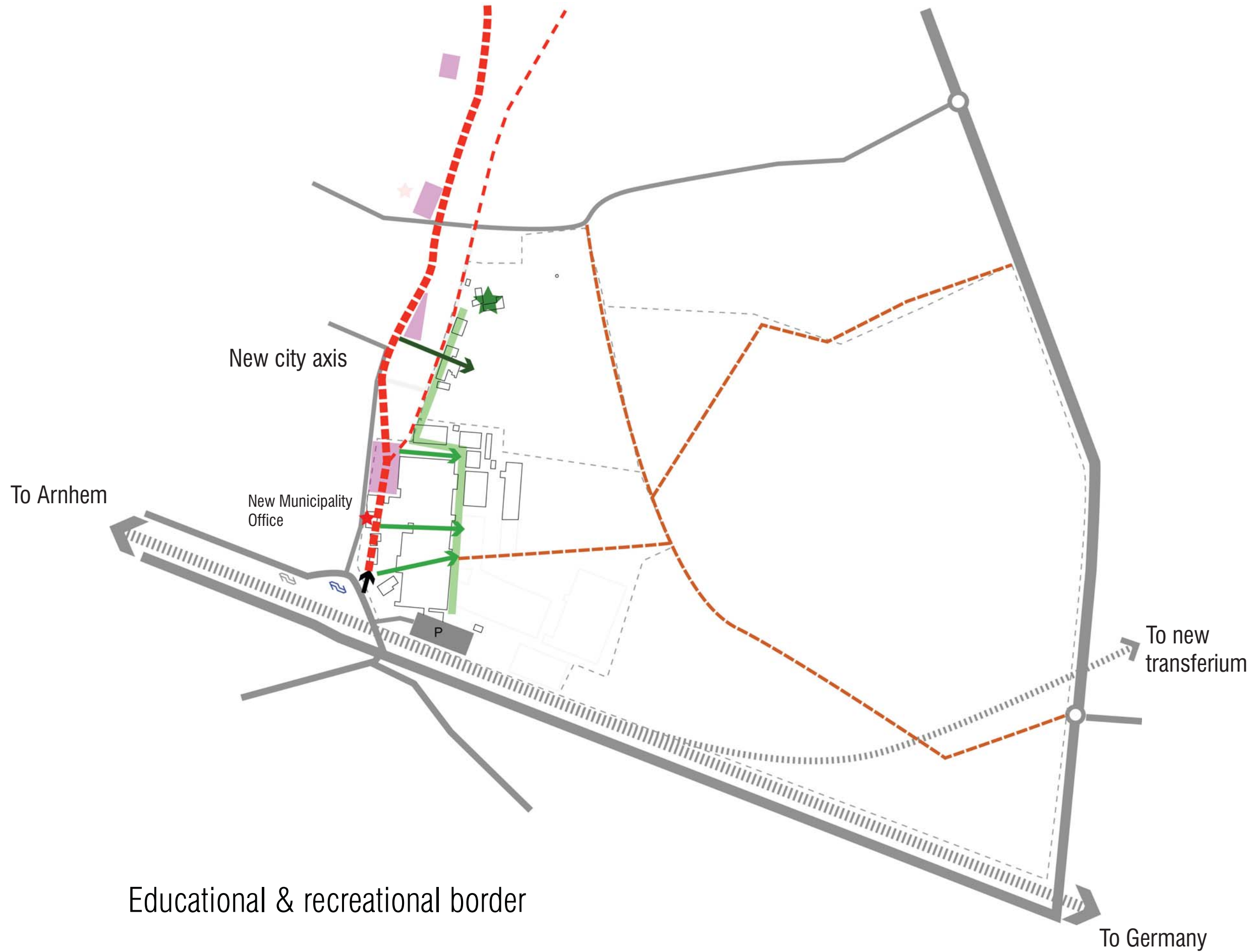
Masterplan for Productive Landscape of Zevenaar



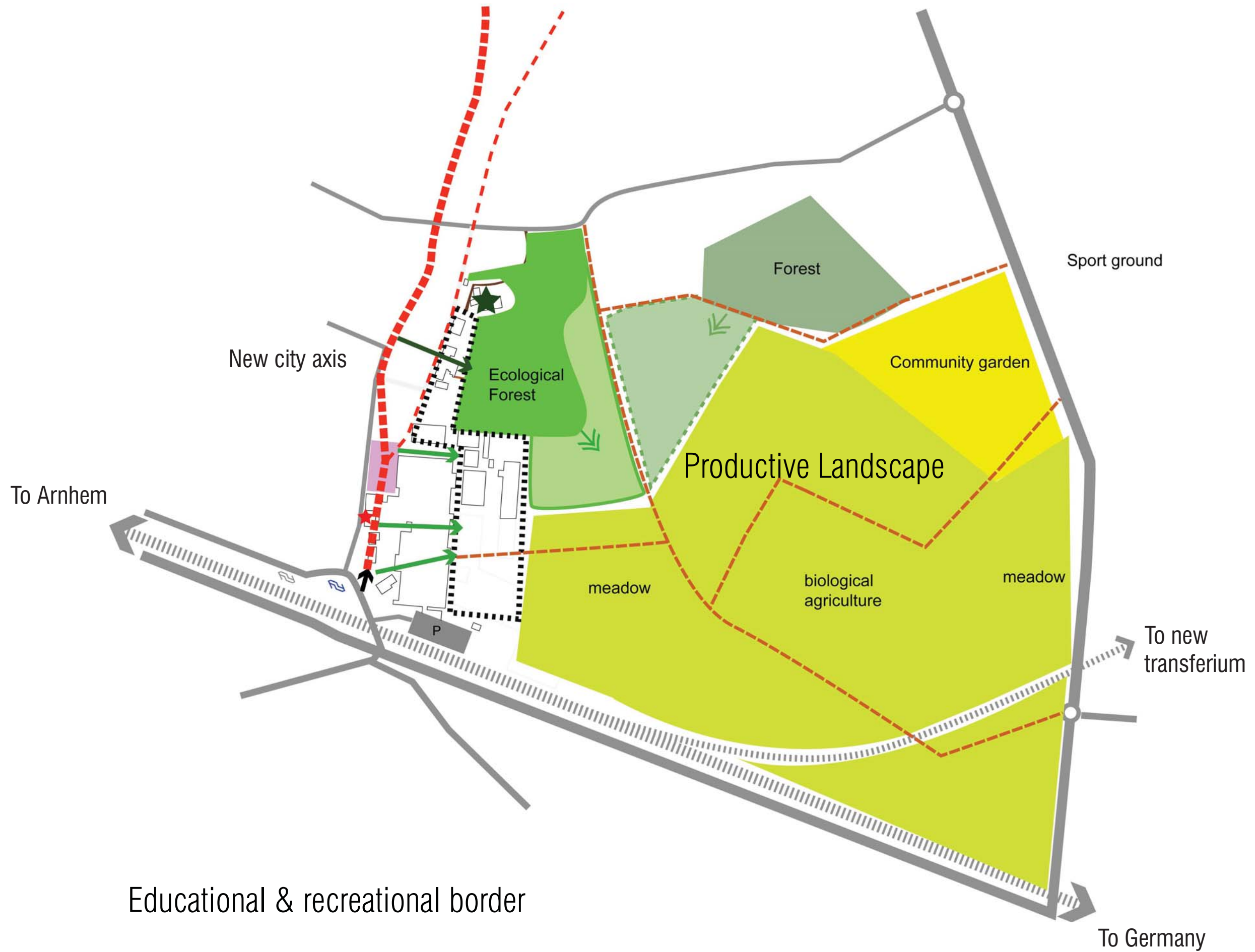
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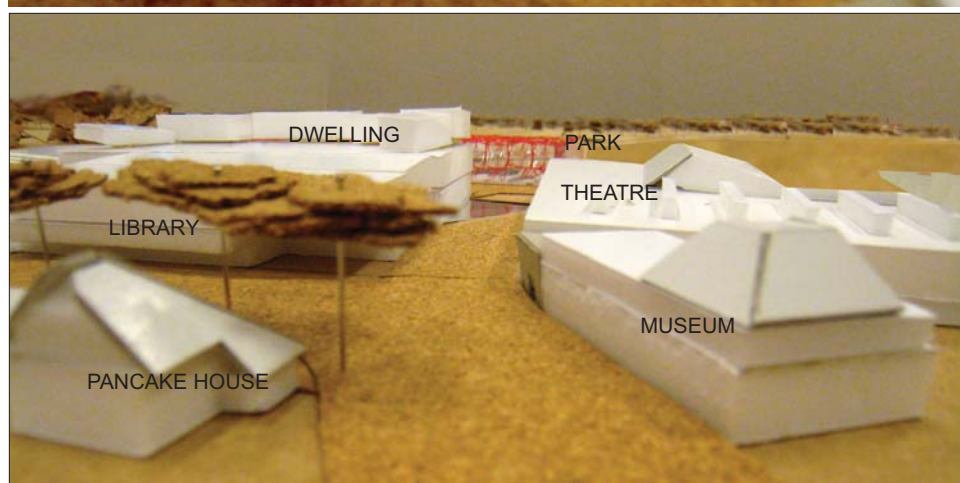
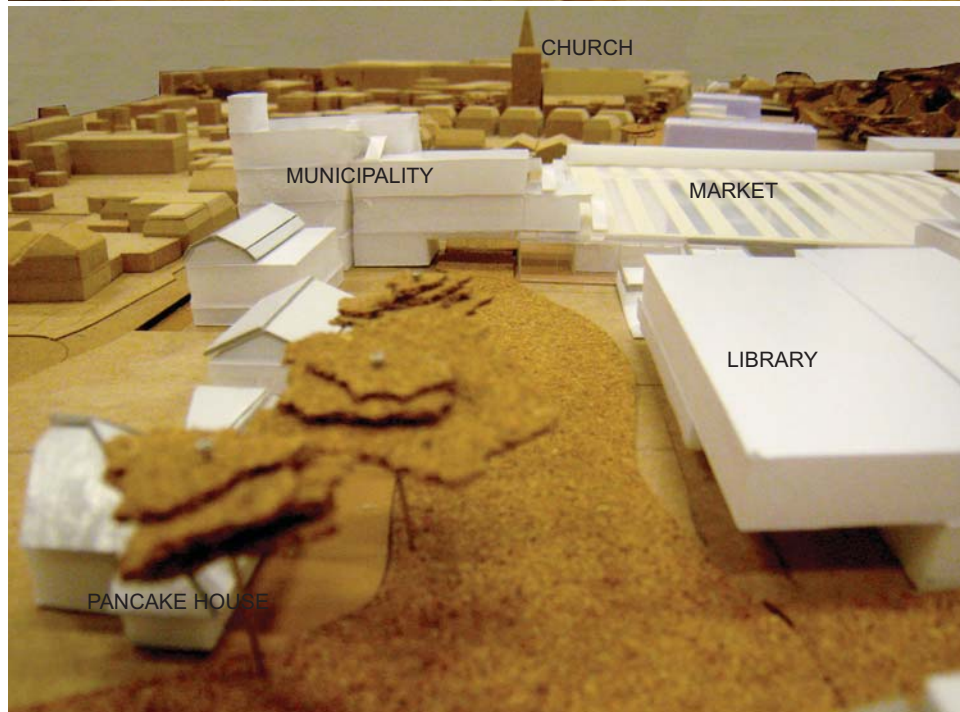


Masterplan for Productive Landscape of Zevenaar





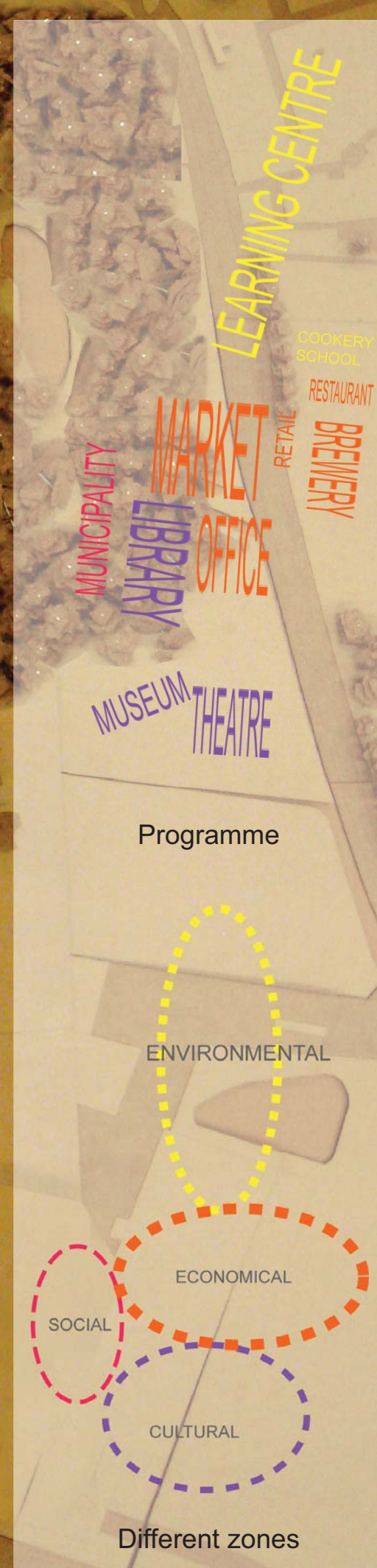
Masterplan for Productive Landscape of Zevenaar



New City Axis



Masterplan model 1:500



Masterplan for Productive Landscape Learning Centre



Masterplan for Productive Landscape Learning Centre



Masterplan for Productive Landscape Learning Centre





COMPOST WORKSHOP



GREENHOUSE



COOKERY SCHOOL



**BIOLOGICAL
FOOD STORE**



KITCHEN GARDEN



MEADOW



COMPOST WORKSHOP



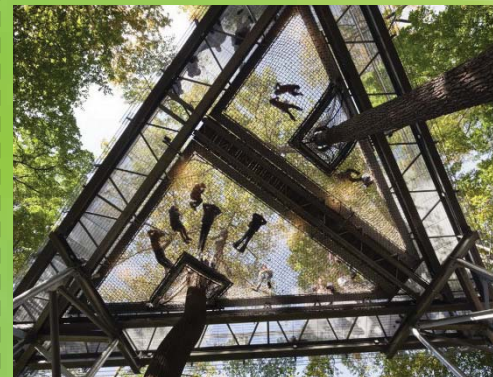
GREENHOUSE



COOKERY SCHOOL



NATURAL HABITAT



ARBORETUM



BIOLOGICAL FOOD STORE



KITCHEN GARDEN

“ The years of maintenance of landscape elements of the Estate House Sevenaar results in including the return of butterflies, great crested newt and amphibians. A unique development, so close to the center of the city.”

-- De Wekkant Newspaper



MEADOW



COMPOST WORKSHOP



GREENHOUSE



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KITCHEN GARDEN



PRODUCTIVE LANDSCAPE FOUNDATION

URBAN GREEN LEARNING CENTRE

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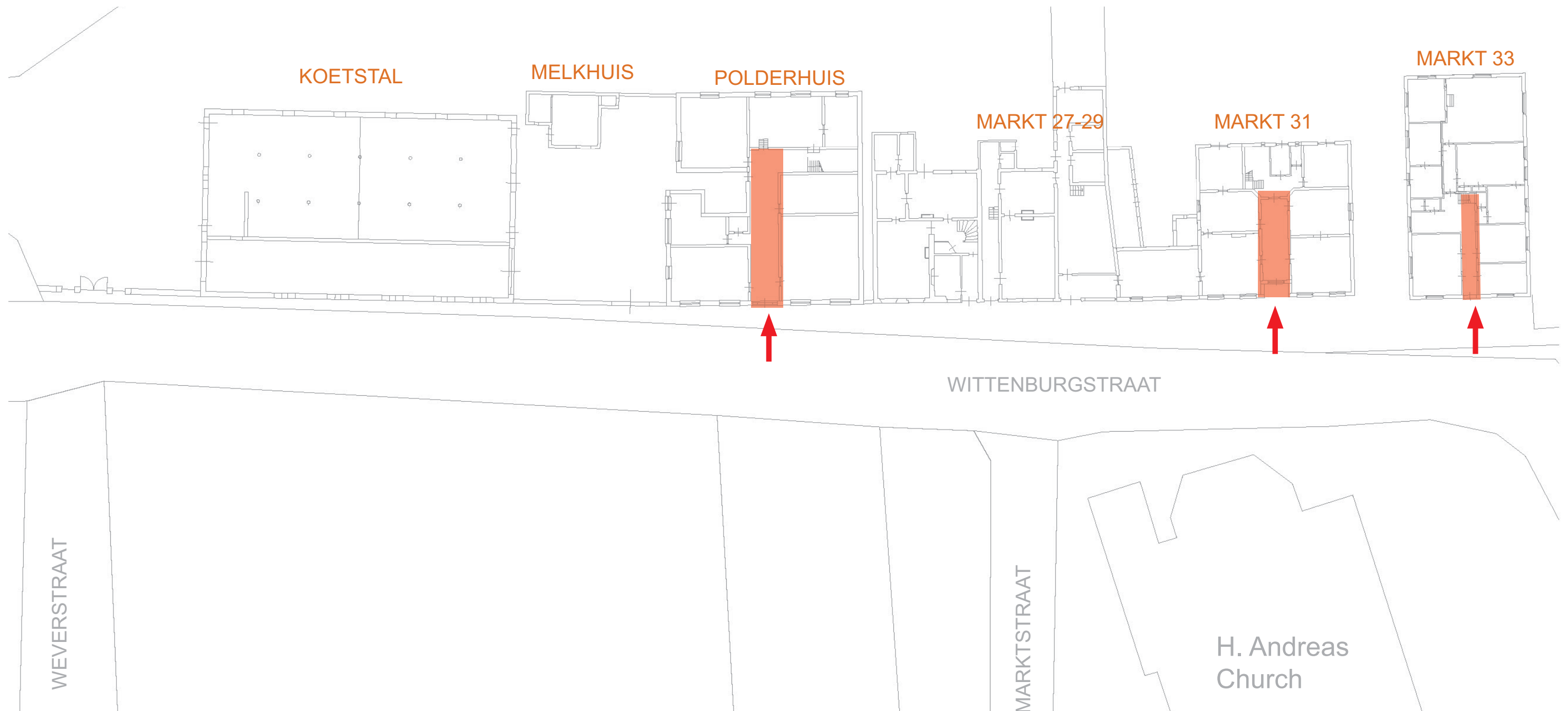
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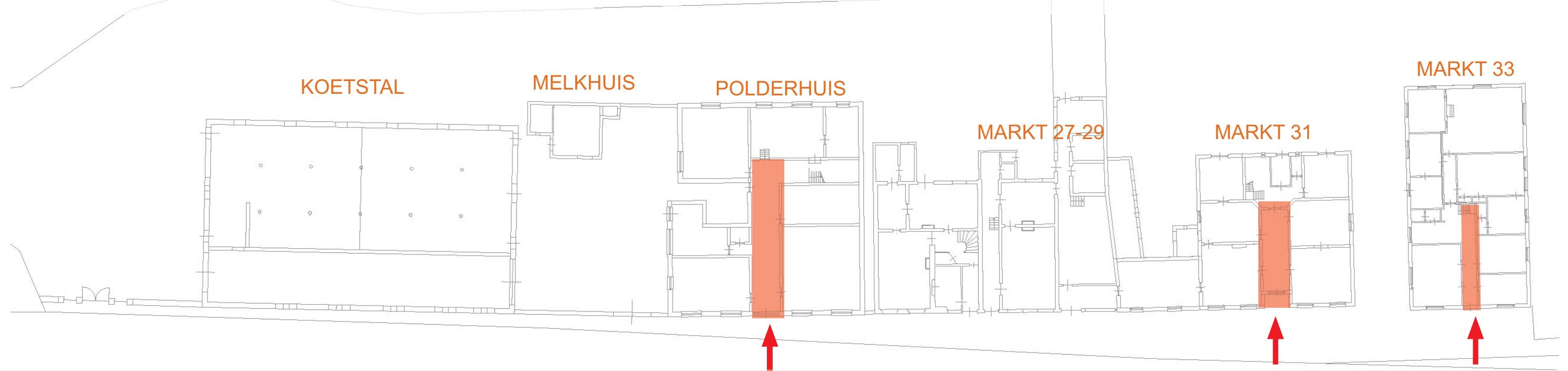
Existing



Existing

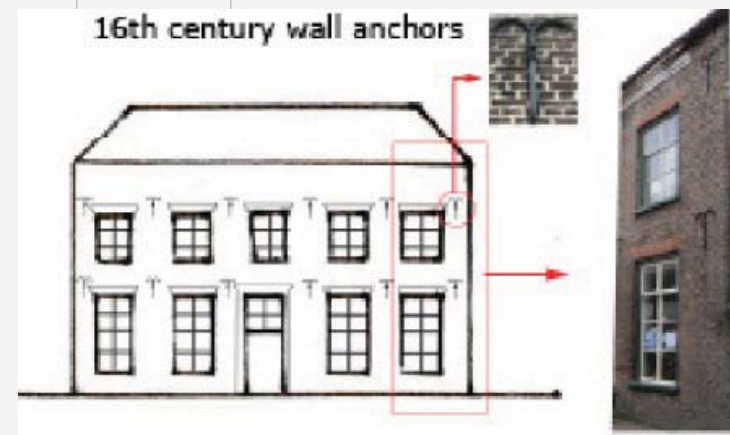


Existing



Values

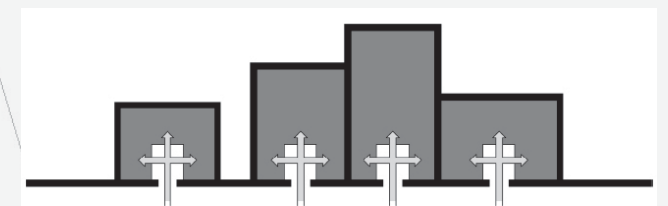
Polderhuis (Markt 25)



The Polderhuis is unique because of a few things:

- The construction dates back from the 16th century. Few houses in Zevenaar have this kind of floor construction.
- The oak floor determines the ambiance of the house greatly.
- The house is almost in original state from the 16th century and thereby a good example of Zevenaars history.

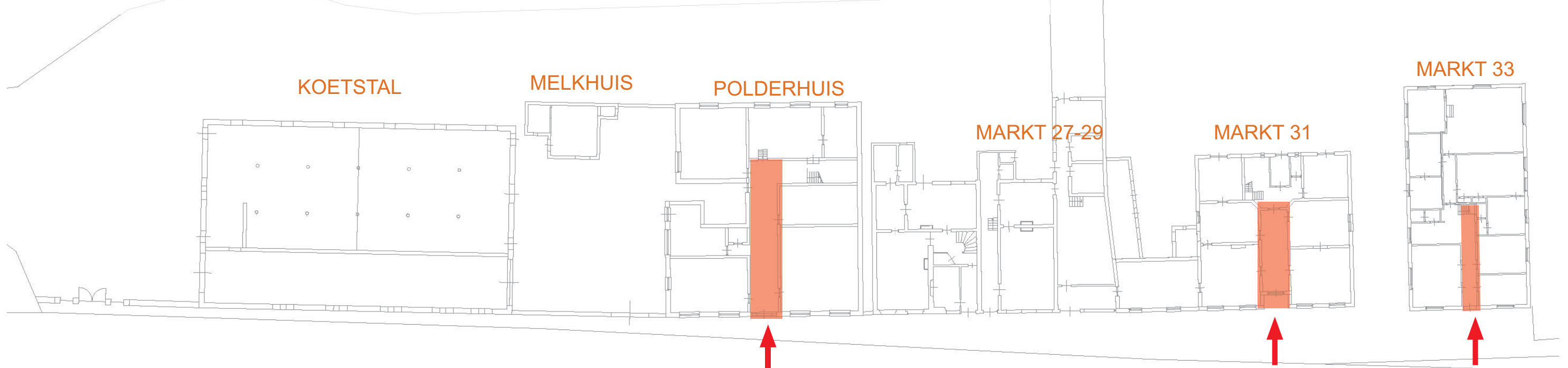
Overall Composition



- The layouts of all buildings are based around a formal entrance with a central hall which connects to rooms

H. Andreas Church

Existing



Values

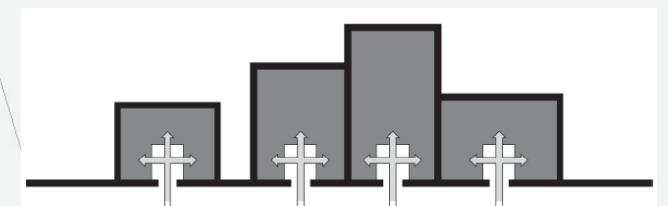
Market 31

- NO VALUE on facade. Fake crossbar window and shutters.



WITTENBURGSTRAAAT

Overall Composition

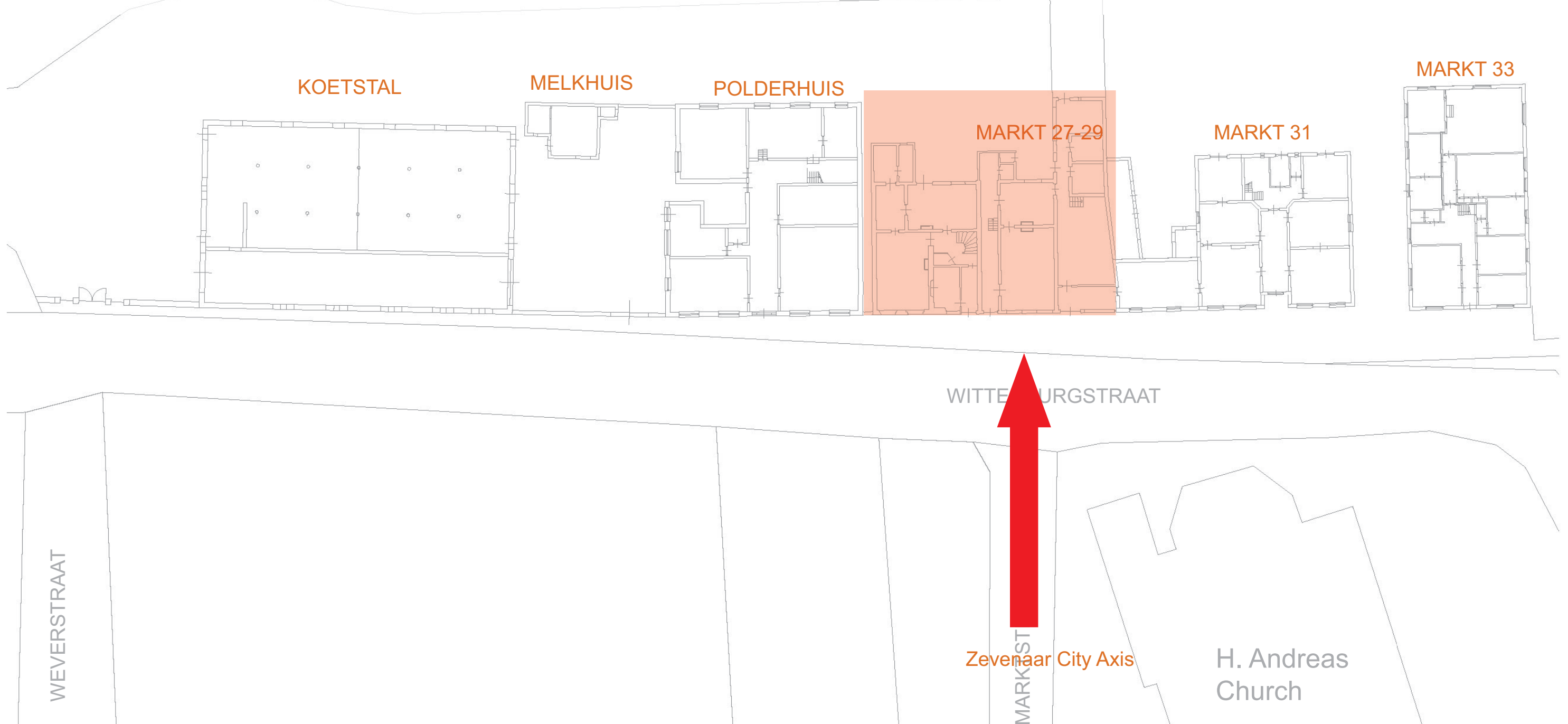


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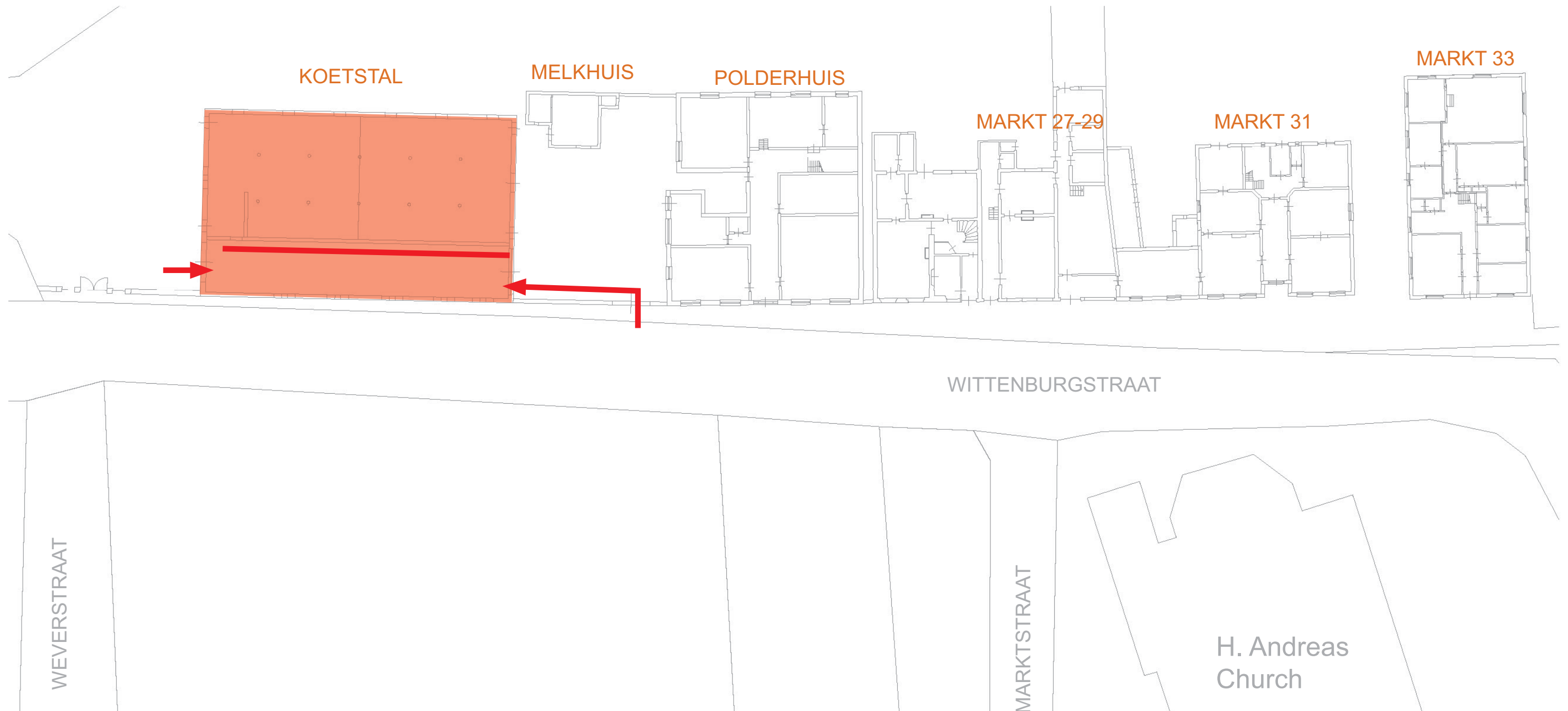
H. Andreas Church

MARKTSTRAAT

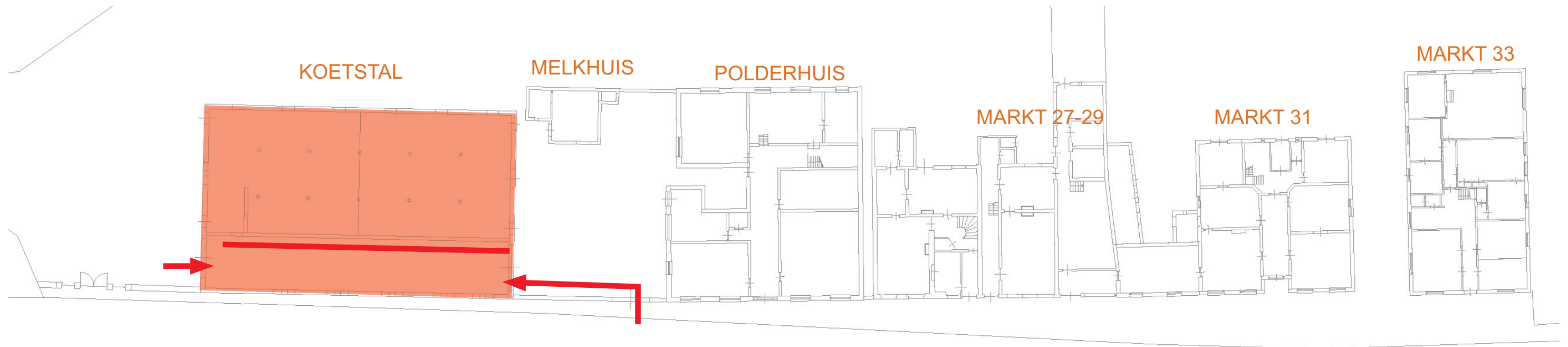
Existing



Existing



Existing



Values

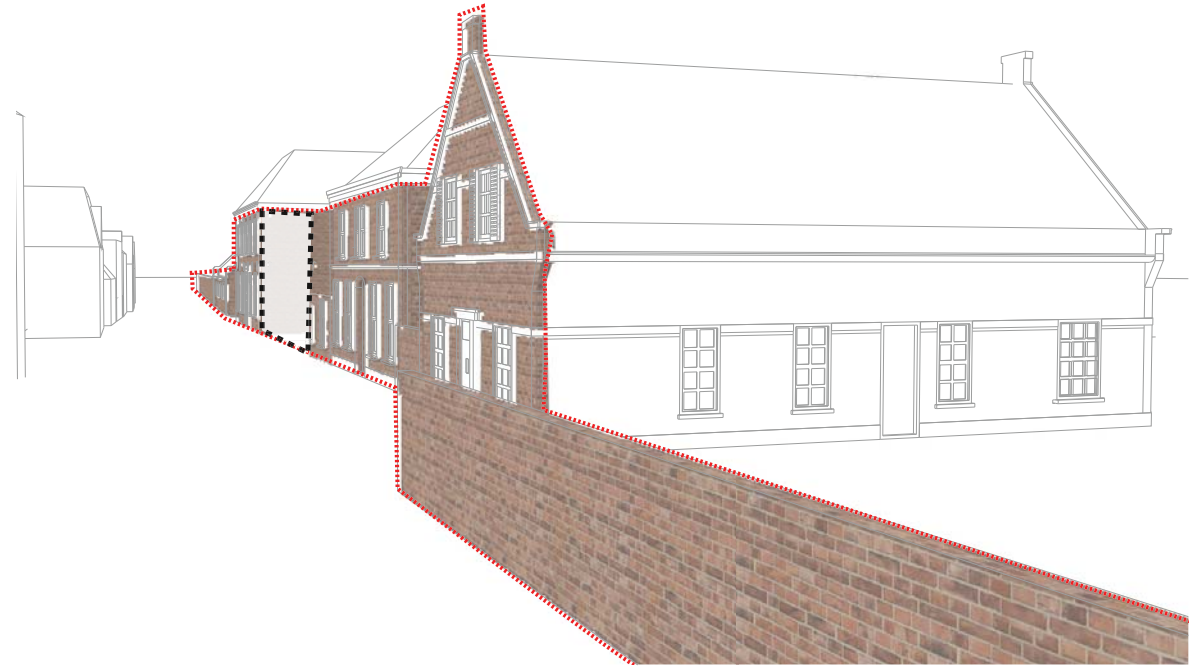
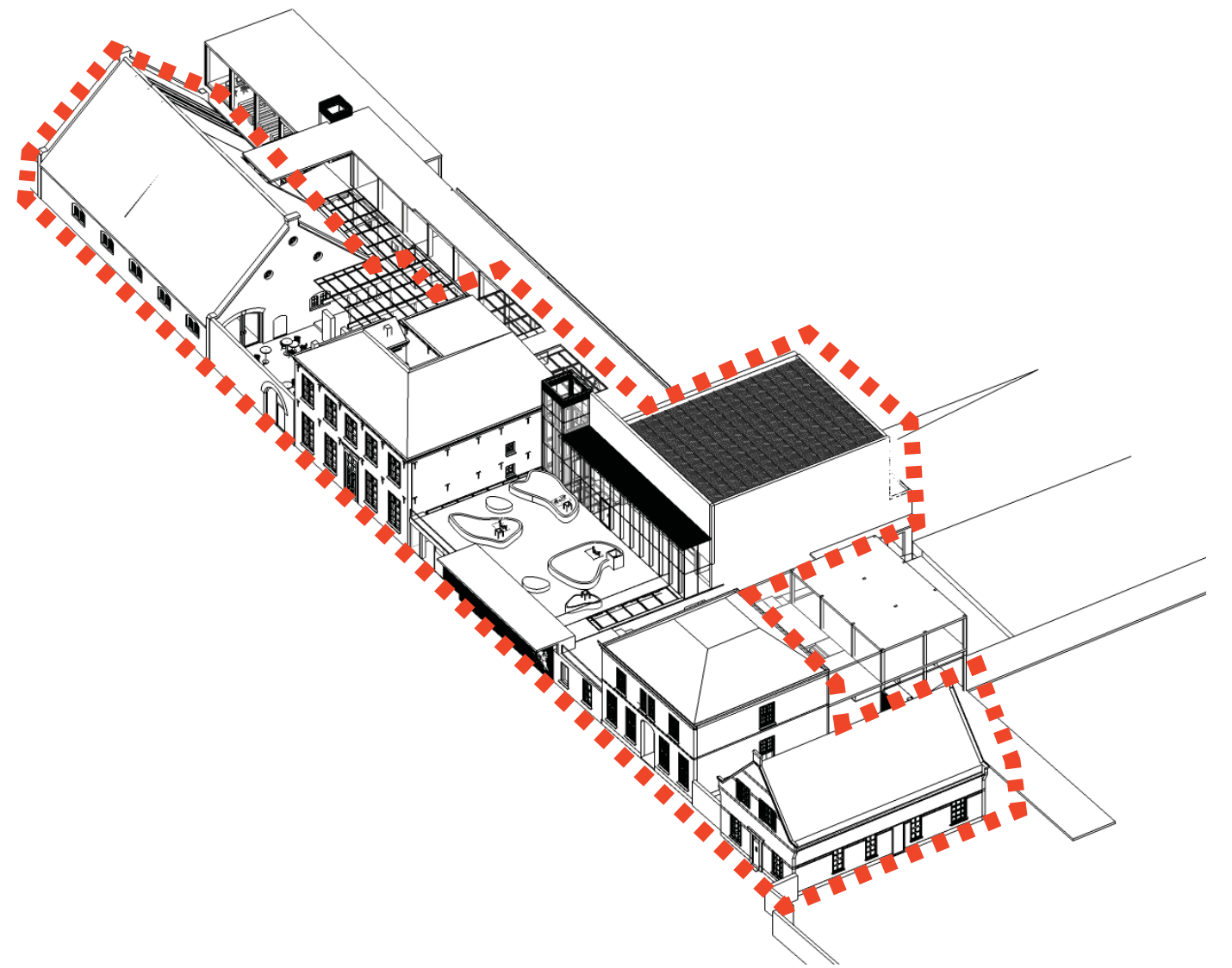
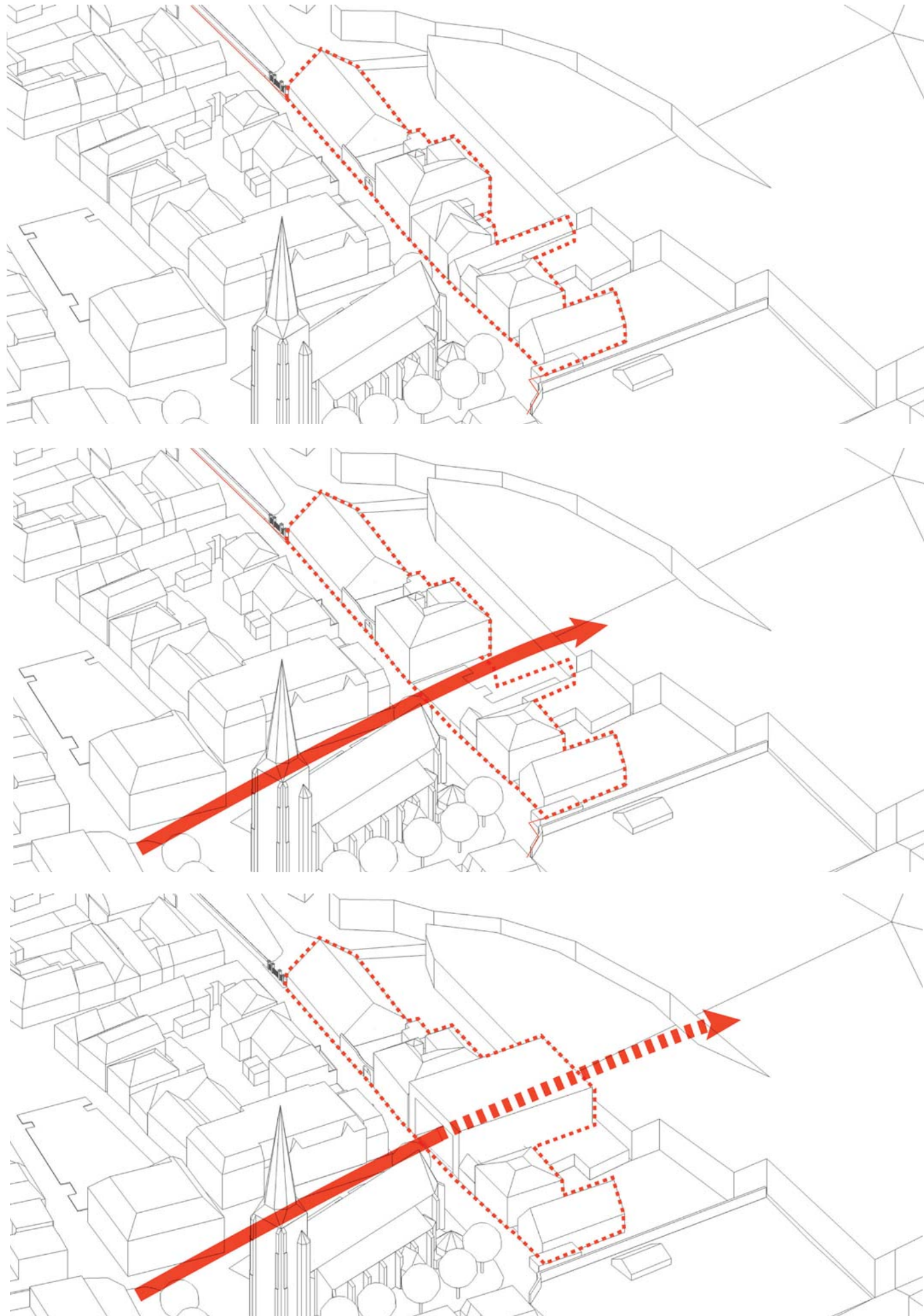
Koetstal (Cattle shed)



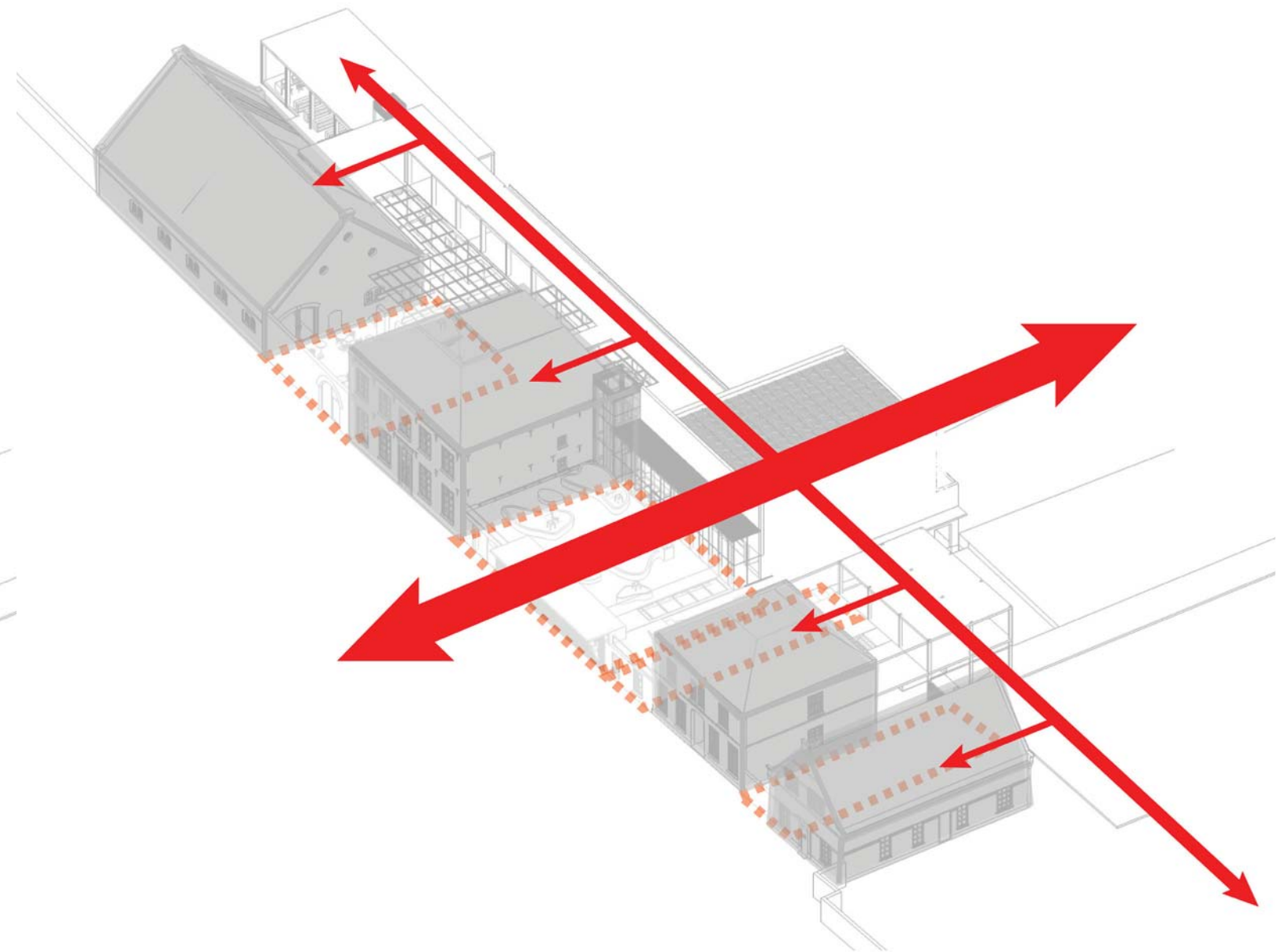
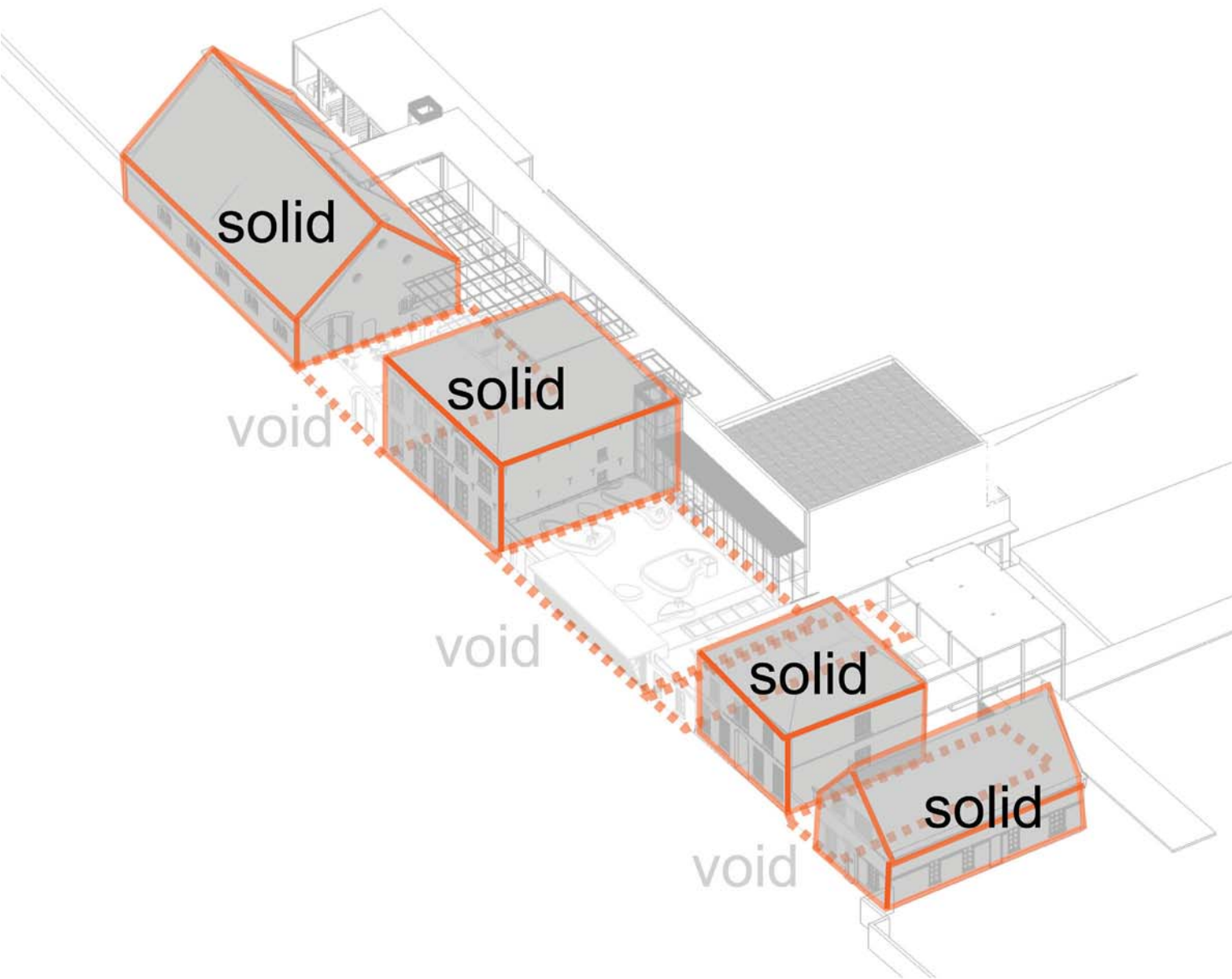
- facades with wall anchors and original openings
- 1868 construction marked on door lintel stone
- internal brick wall (originally an outside wall)
- Jack arch Floor construction

H. Andreas Church

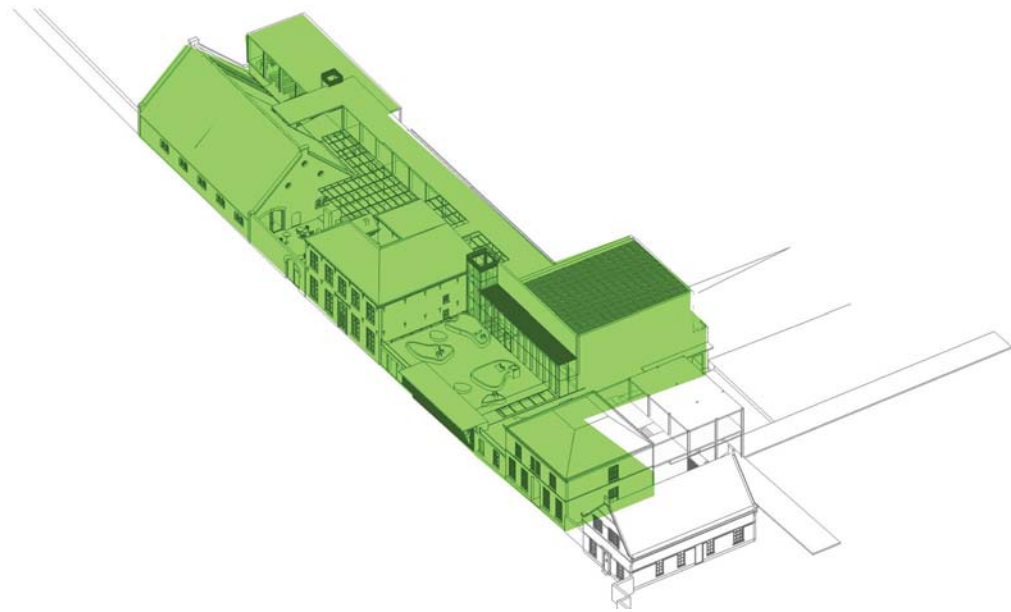
Massing



Spatial - solid & void / organization

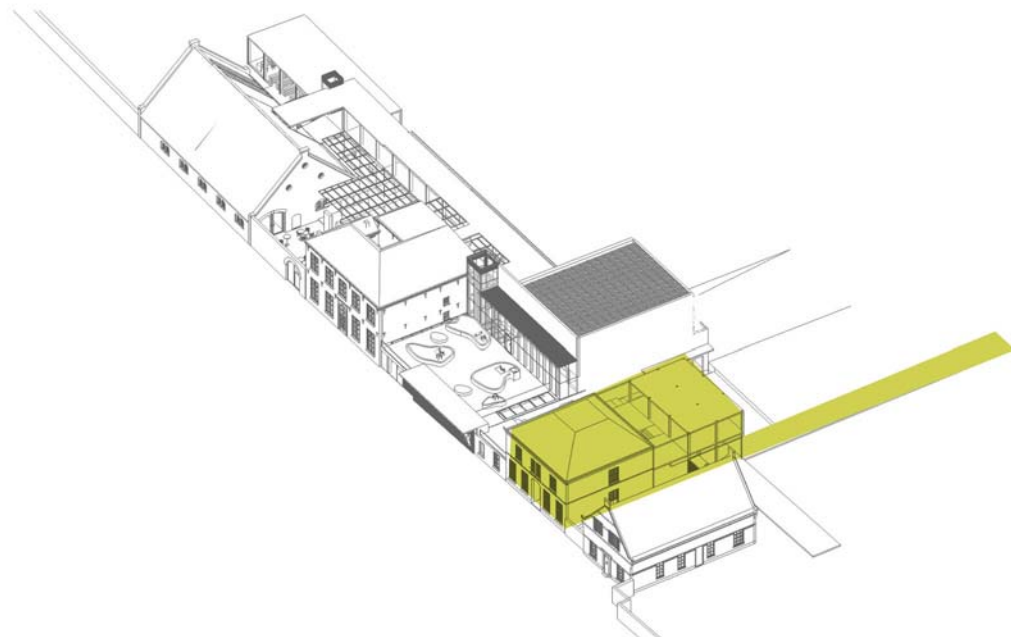


Program



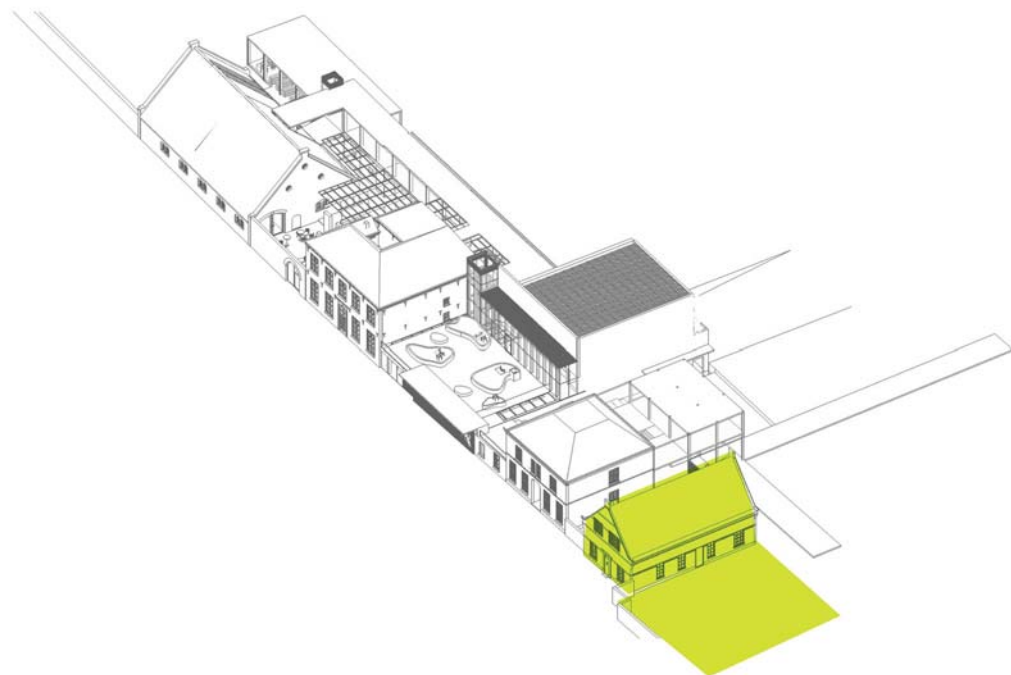
Urban Green
Learning Centre

reception
cloak room
exhibition gallery
green roof
outdoor classroom
workshop
temporary exhibition
auditorium
Library/ archive
museum shops
cafe (w kitchen)
Bio-business office
(for rent)



Natural Habitat
Arboretum

Research unit office
Arboretum info point

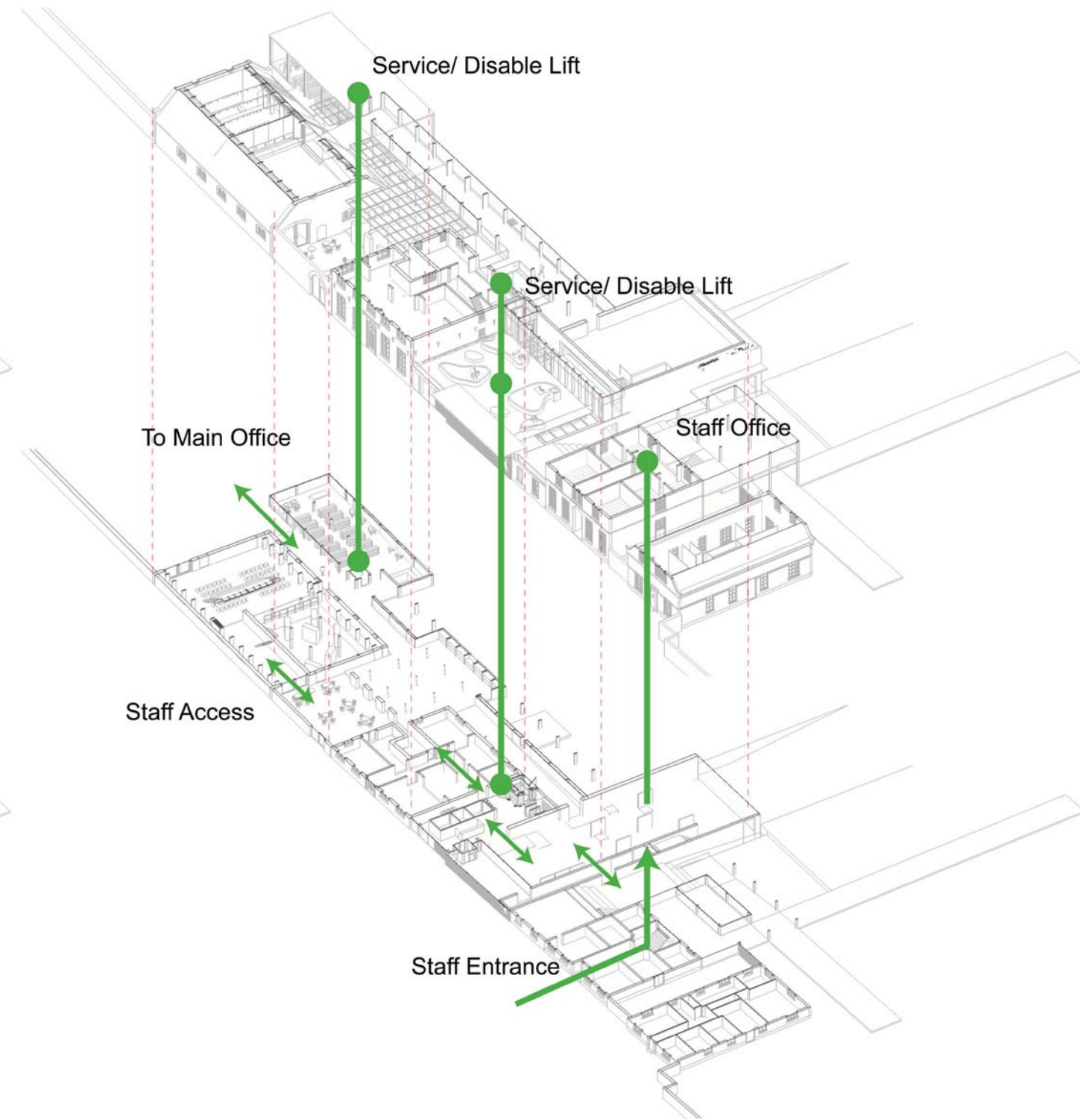
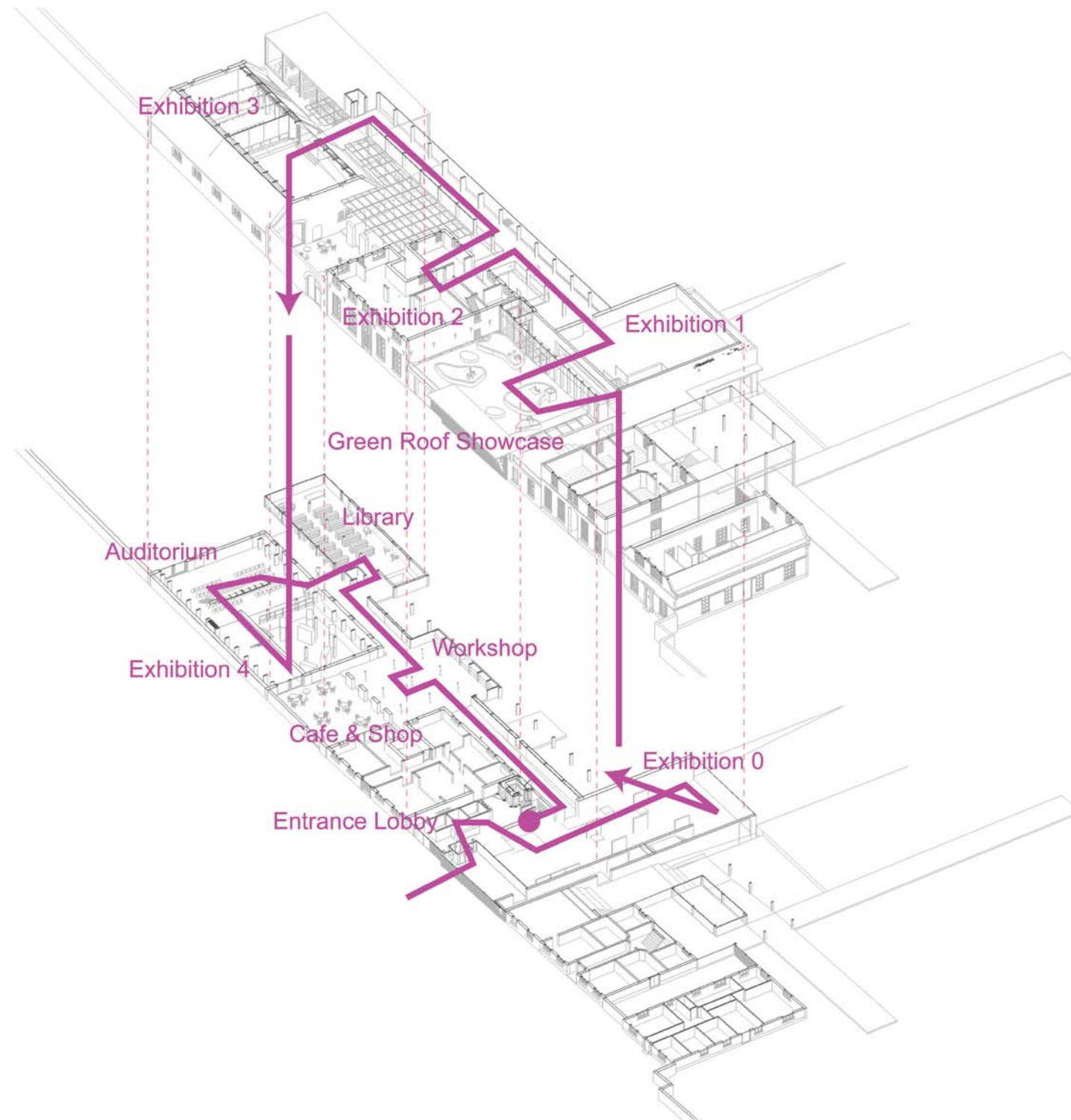


Agriculture
Kitchen Garden

Guest house
farm lots

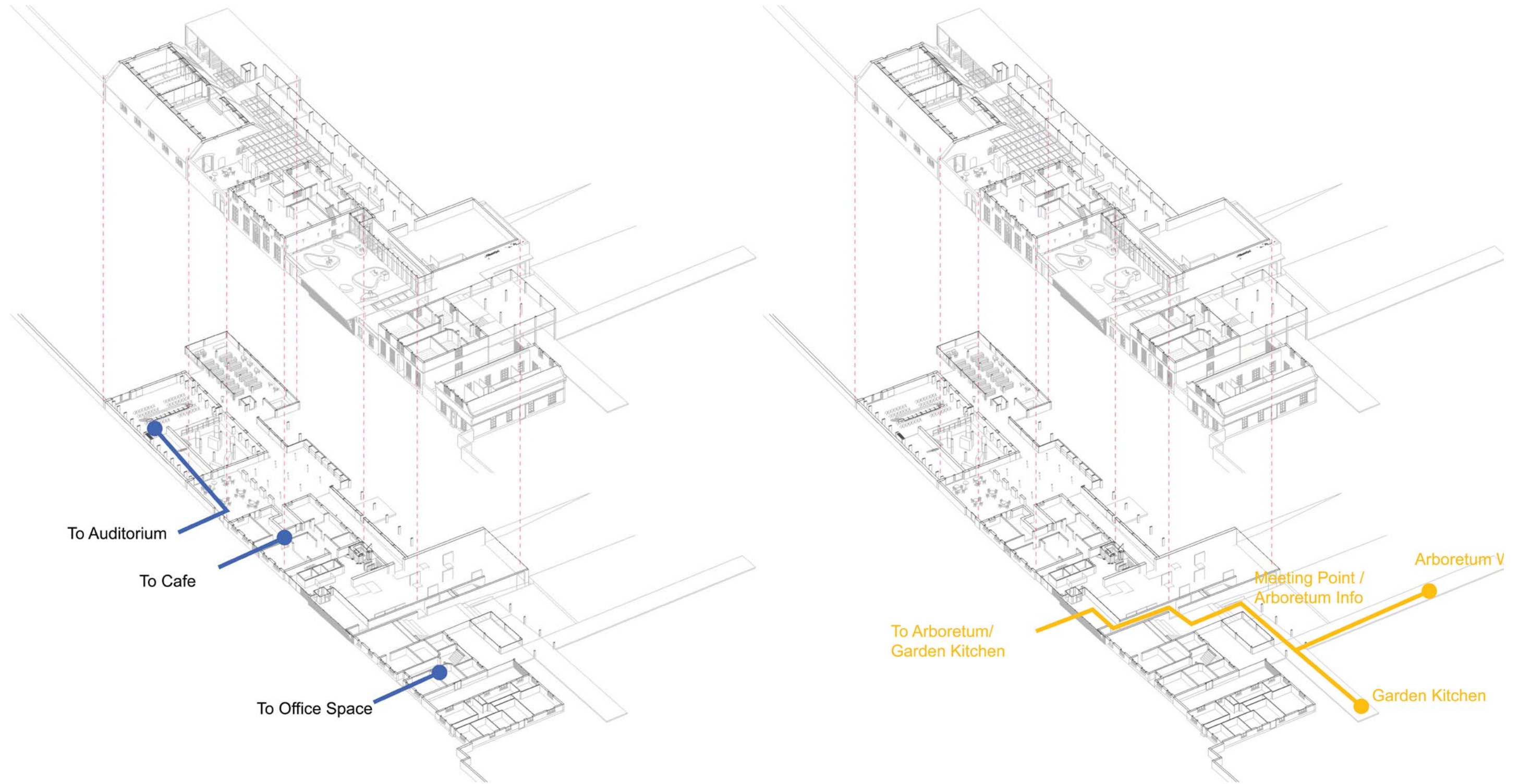
Routing of different user groups

- Visitors
- Staff
- Arboretum
- Business office

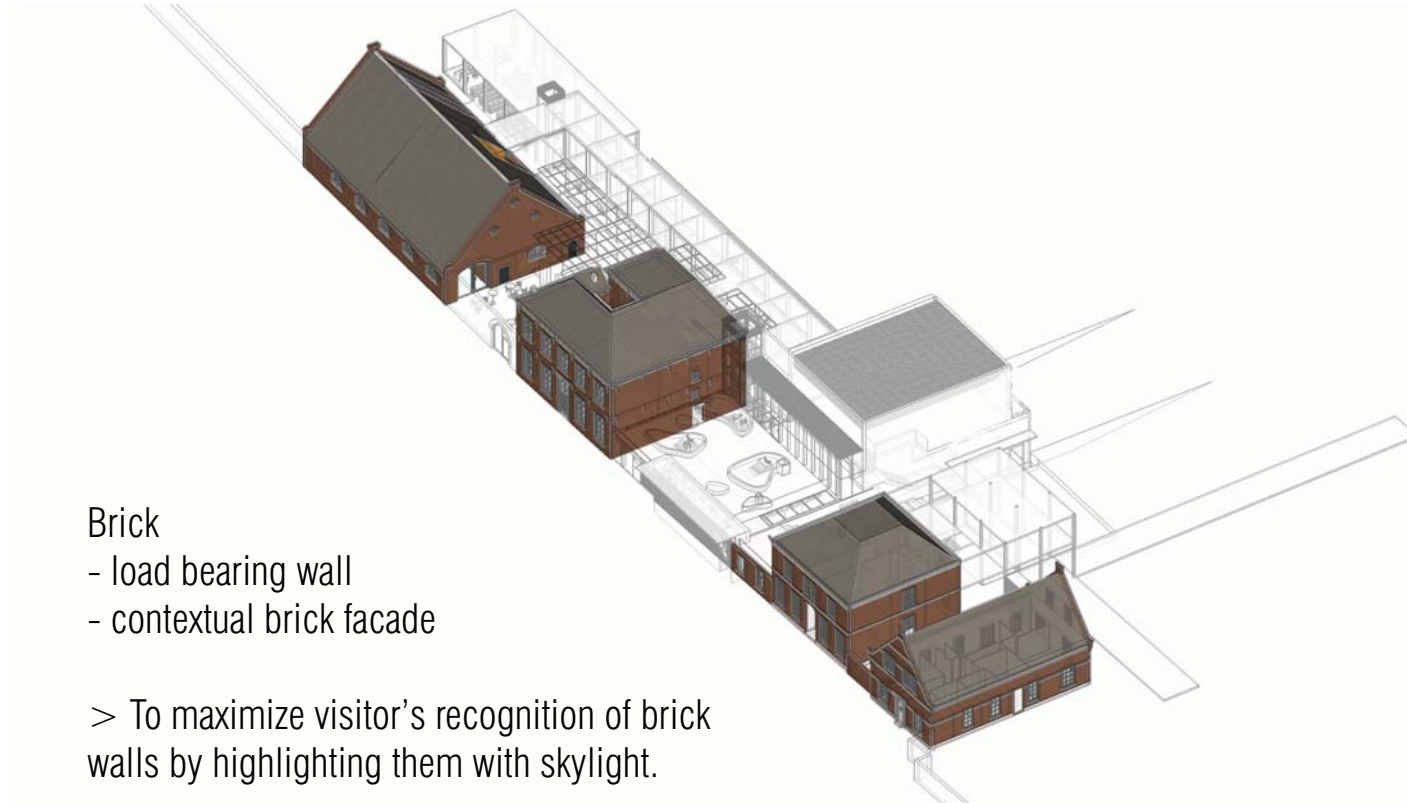


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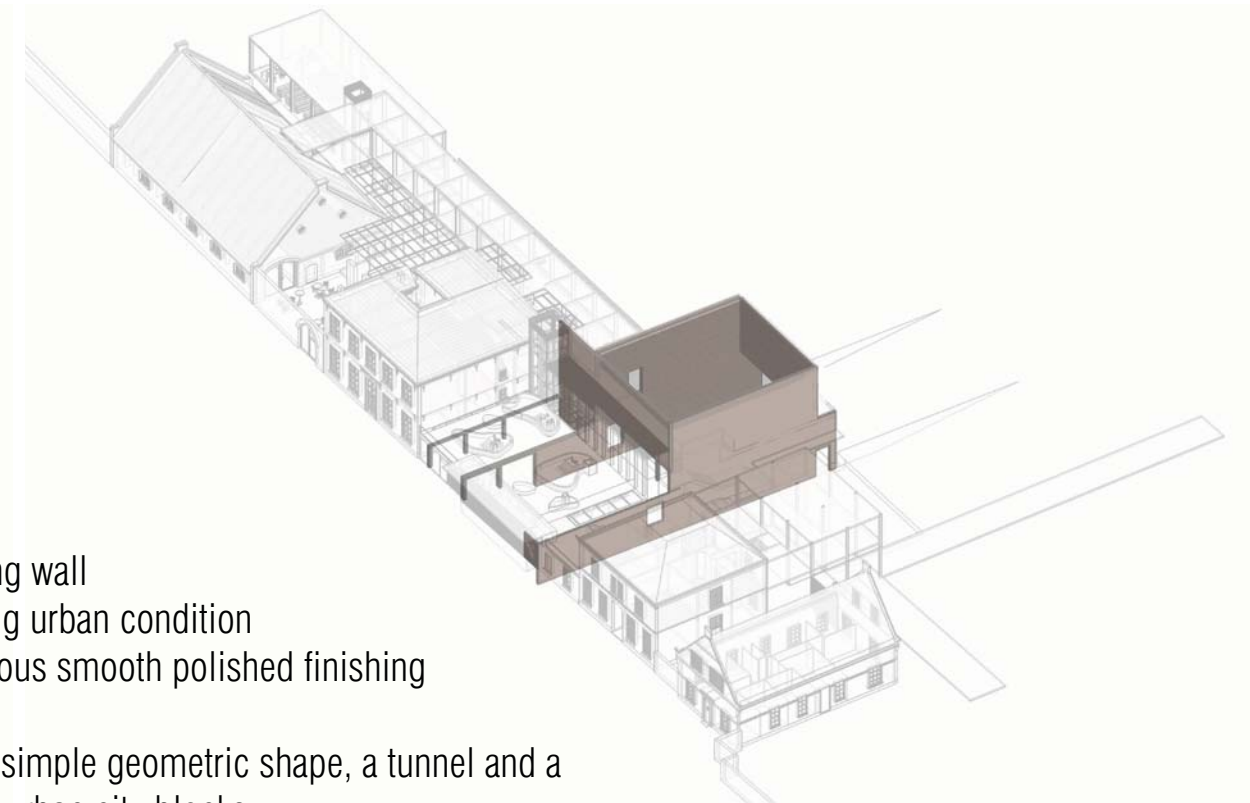


Structure



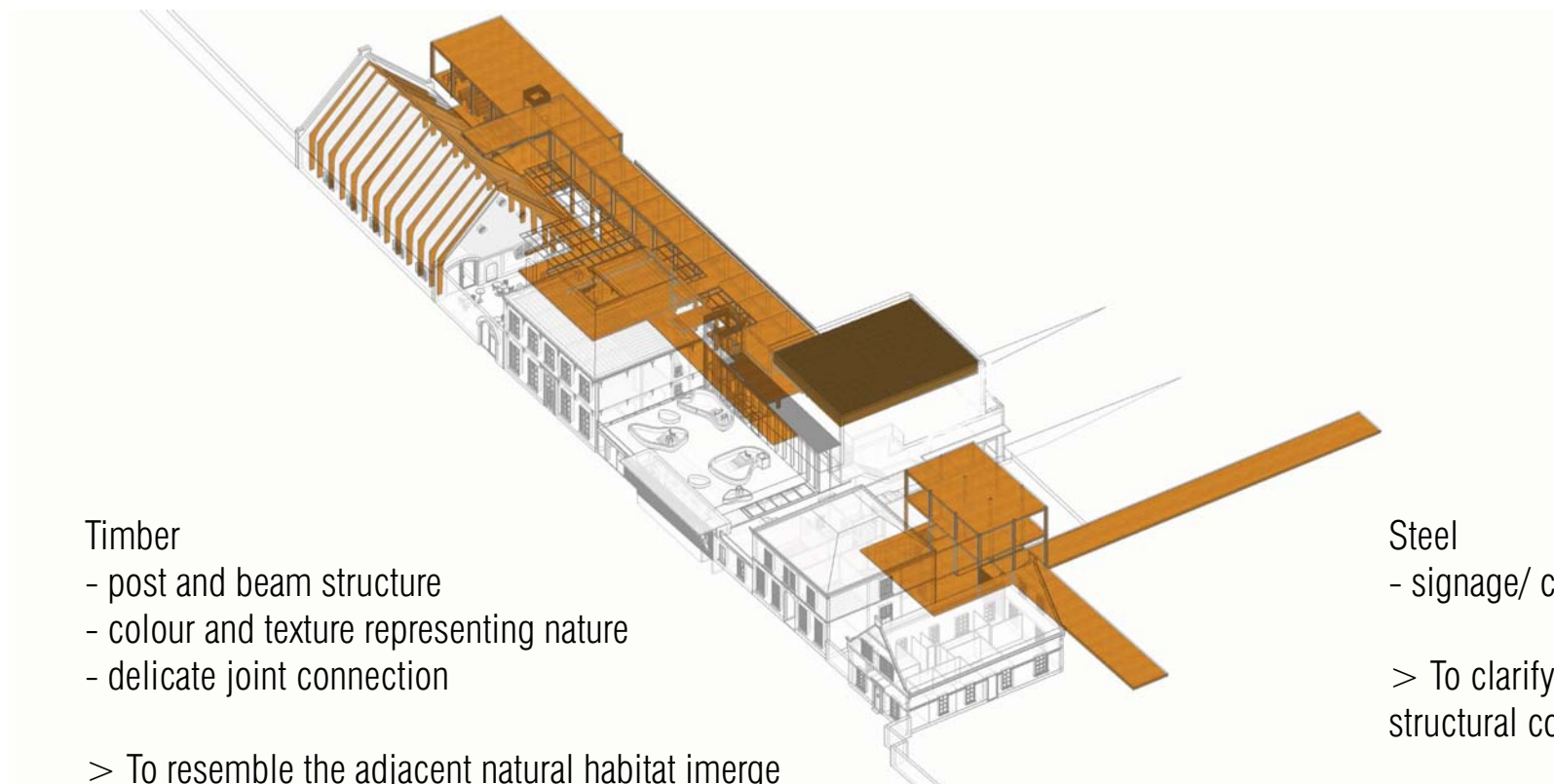
- Brick
- load bearing wall
 - contextual brick facade

> To maximize visitor's recognition of brick walls by highlighting them with skylight.



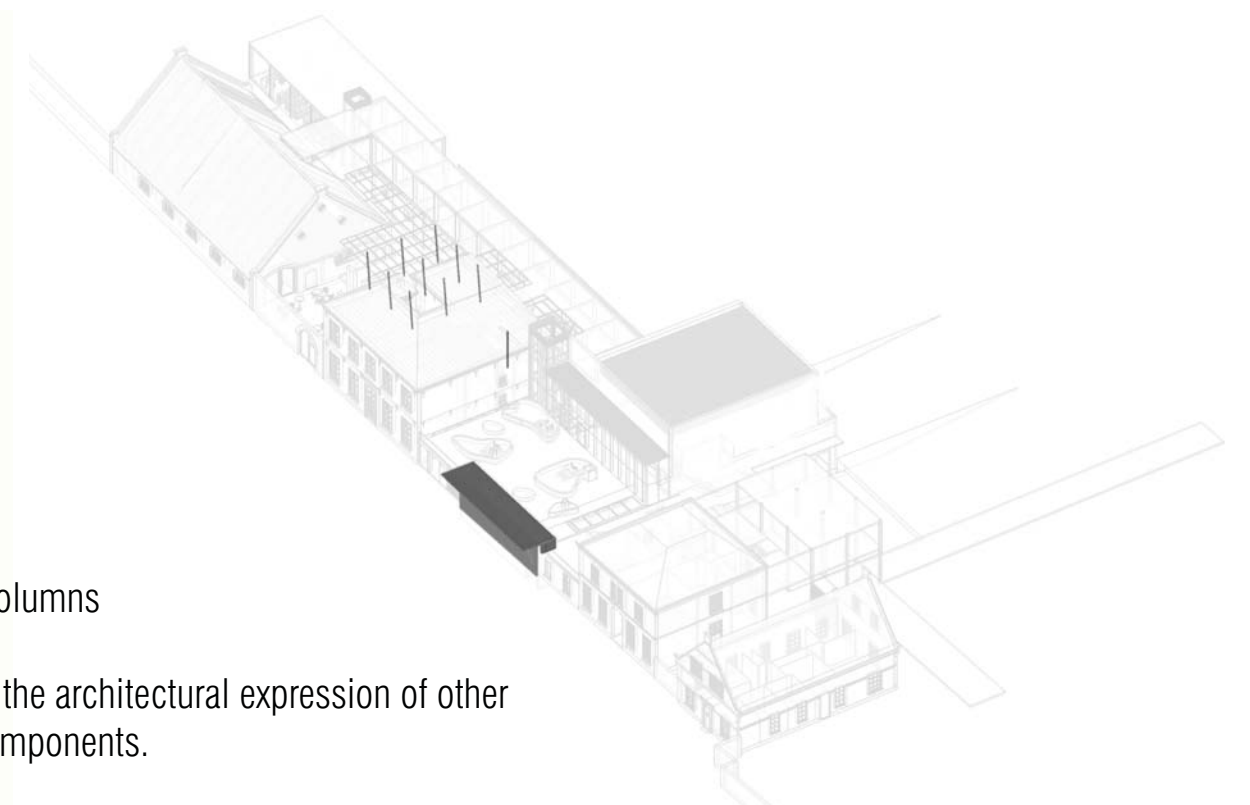
- Concrete
- load bearing wall
 - representing urban condition
 - homogeneous smooth polished finishing

> To create simple geometric shape, a tunnel and a box echoing urban city blocks



- Timber
- post and beam structure
 - colour and texture representing nature
 - delicate joint connection

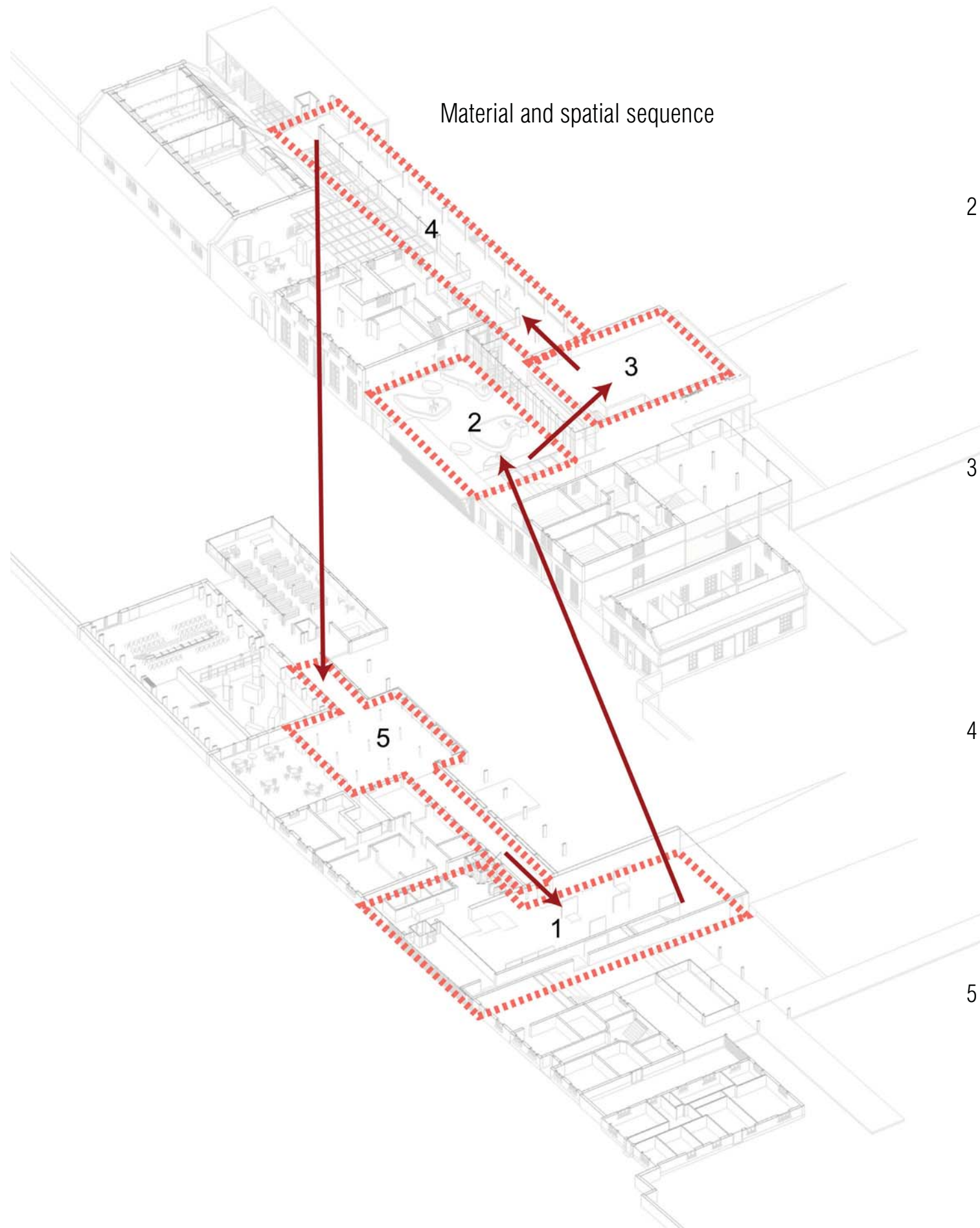
> To resemble the adjacent natural habitat immerge with the surrounding.



- Steel
- signage/ columns

> To clarify the architectural expression of other structural components.

Material



1



Two way mirror

> initiated by Artist Dan Graham's Pavilion which acts to 'overlap' on visitors, city and nature on a plane. The curious gaze brings up the theme by first evoking reflection both physically and mentally.

2



Green Roof

> Exhibits of current green in urban situation.

3



Timber open truss

> Visitors find themselves walking under a 'tree canopy' which is illuminated from above from sunlight.

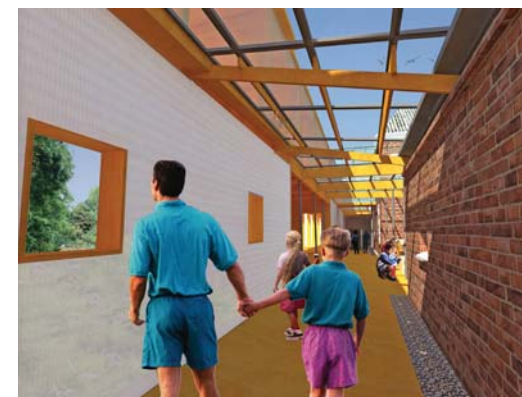
4



Glass

> Full view over the nature

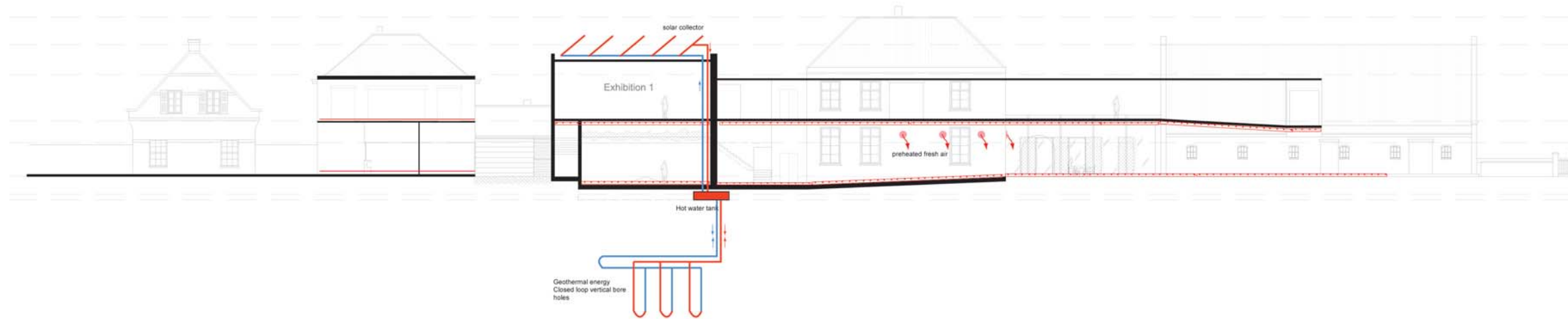
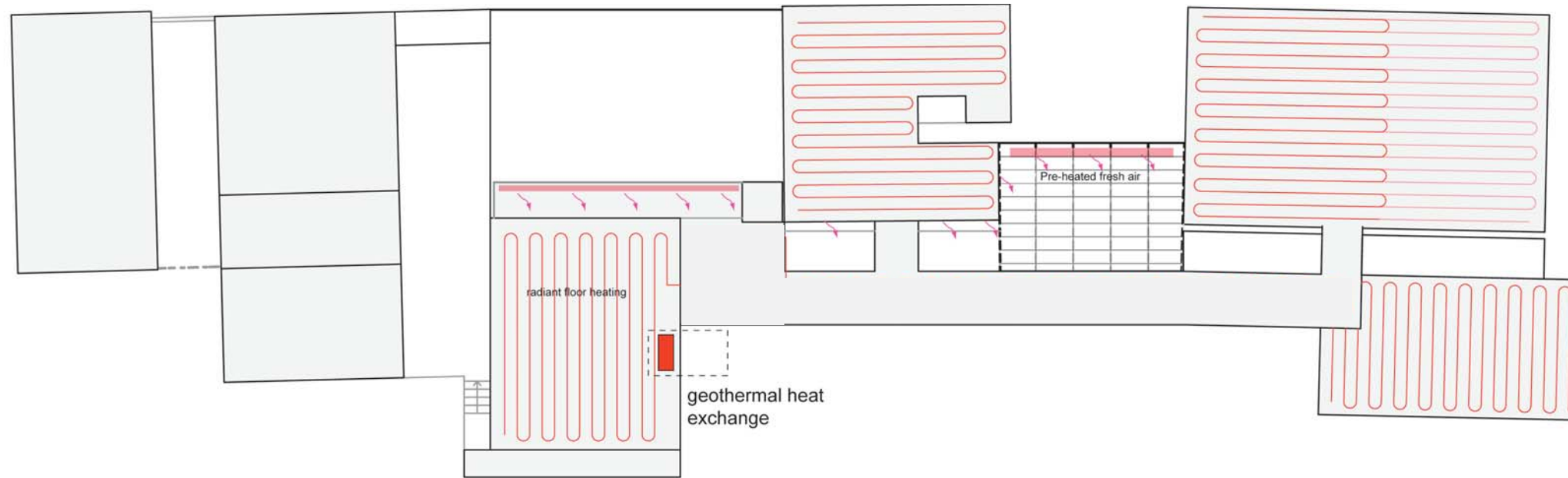
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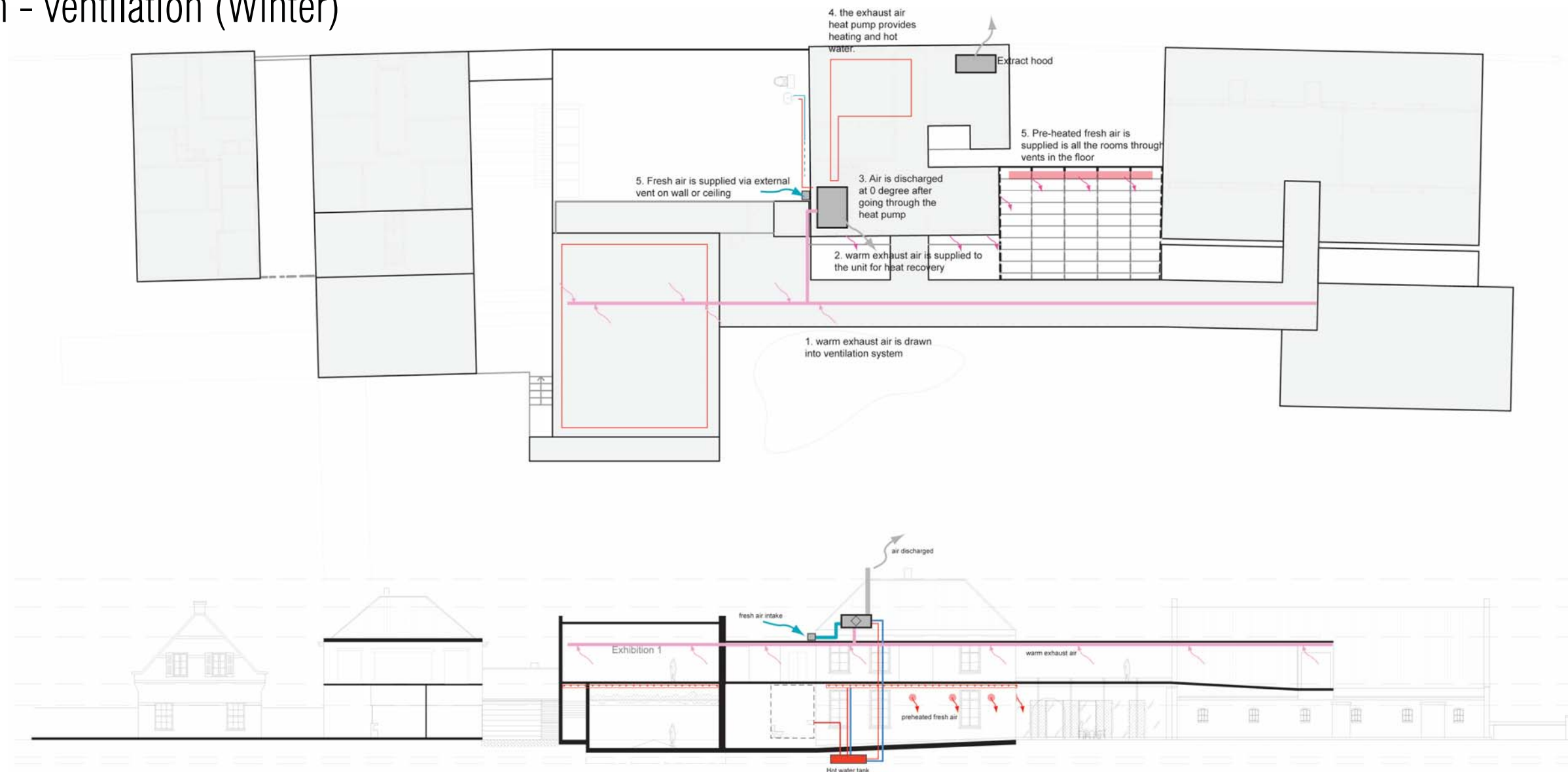
Polycarbonate

> The panels transform with changing opacity along with changing sunlight. Framed window brings limited view resemble urban situation.

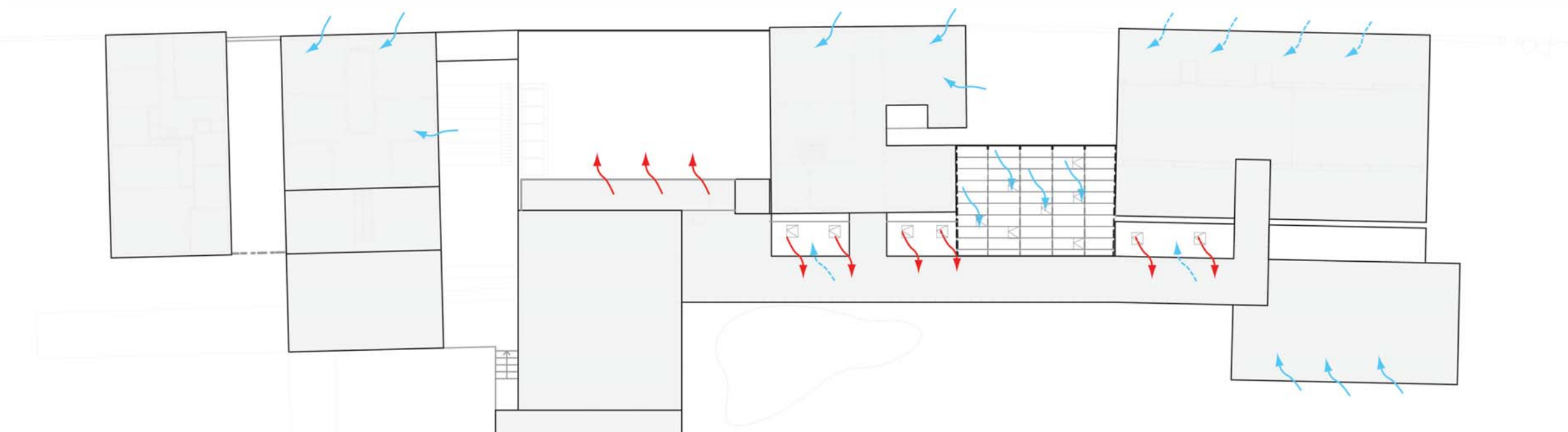
Installation - Heating



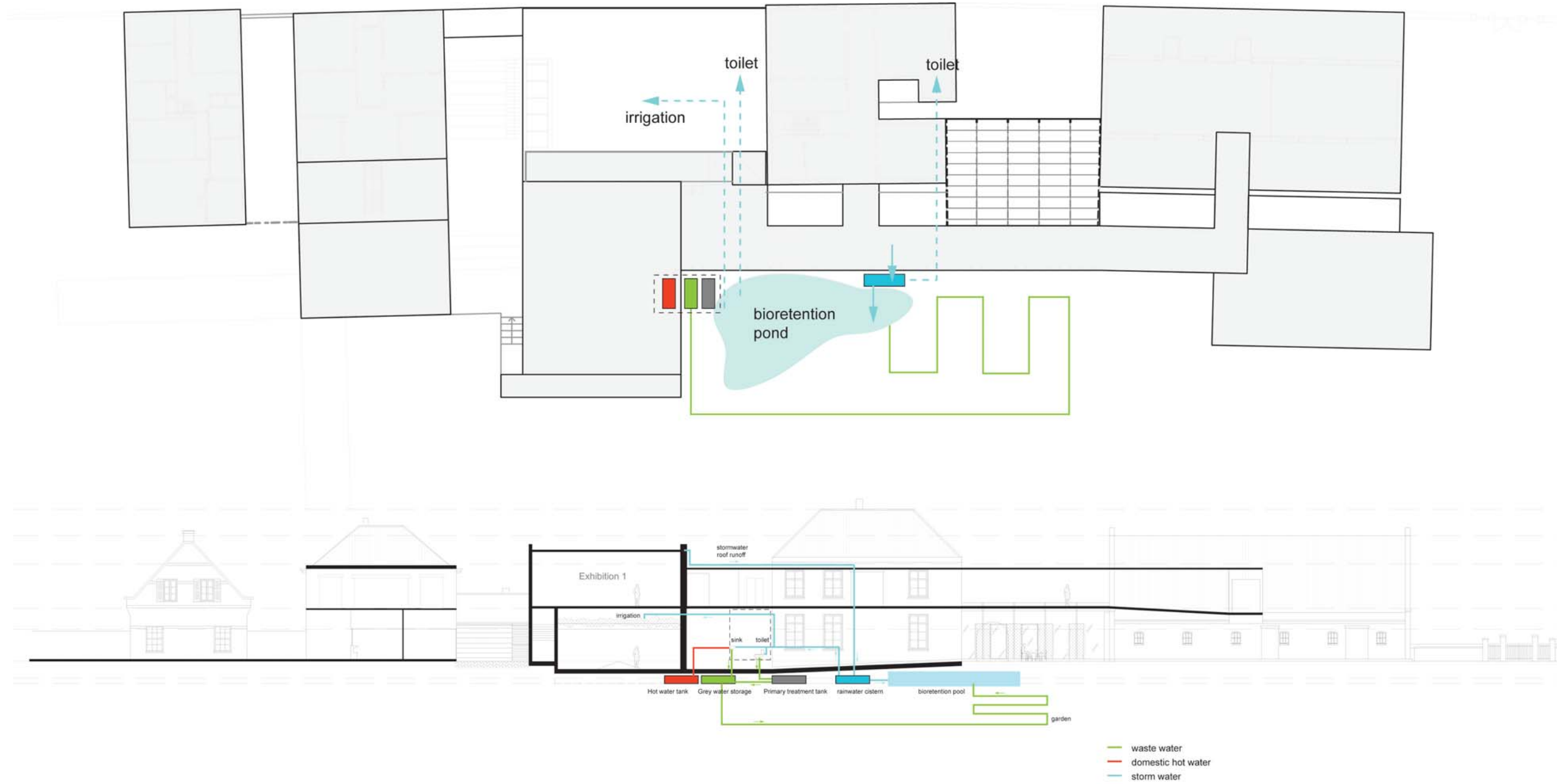
Installation - ventilation (Winter)



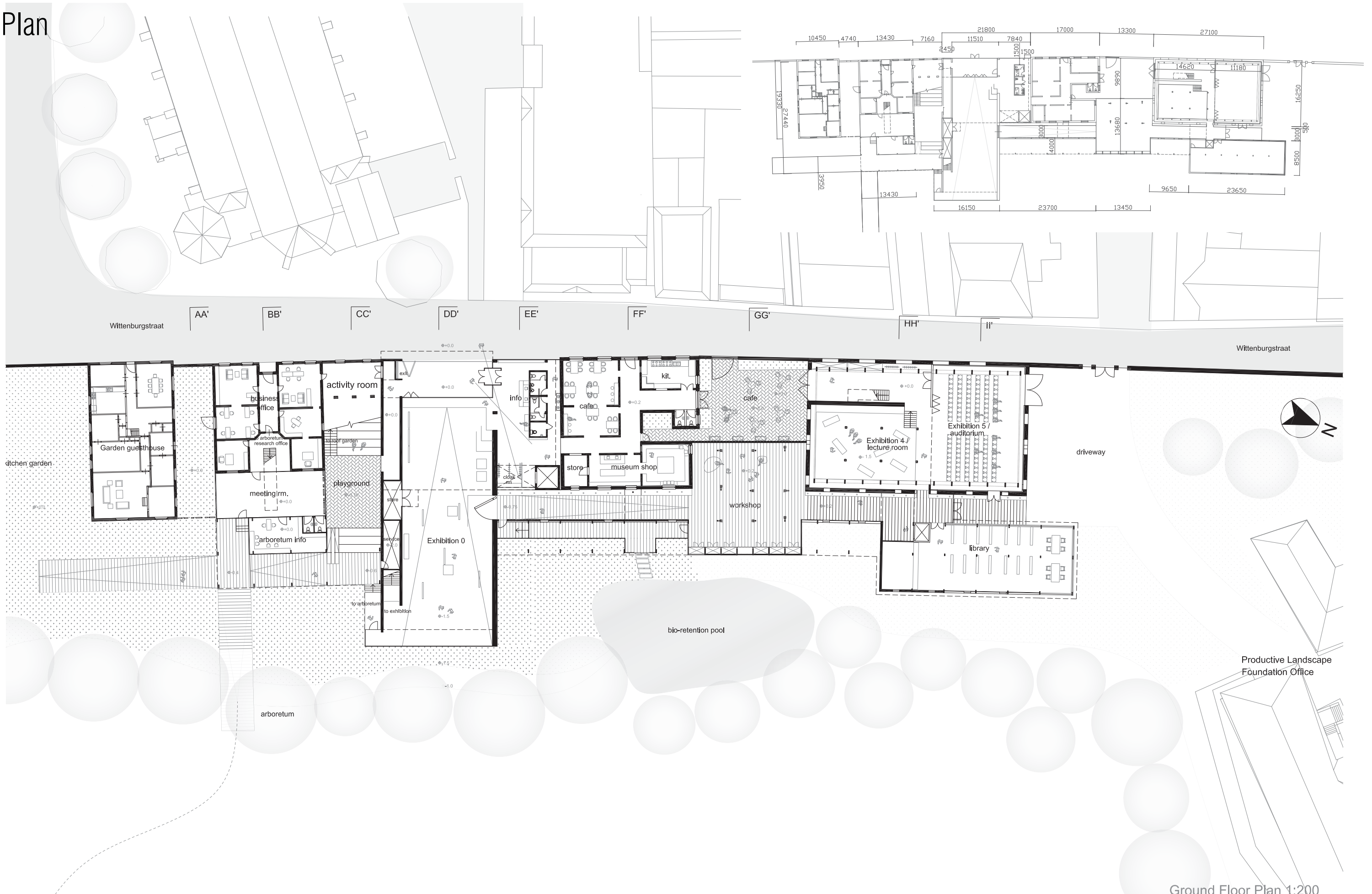
Installation - ventilation (Summer)



Installation - Water treatment



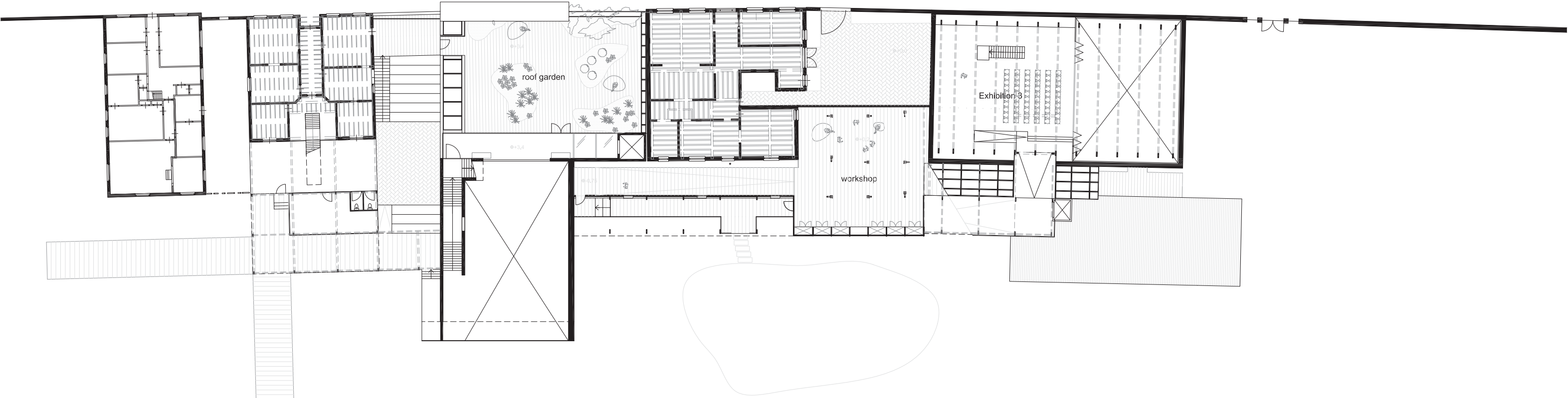
Plan



Ground Floor Plan 1:200

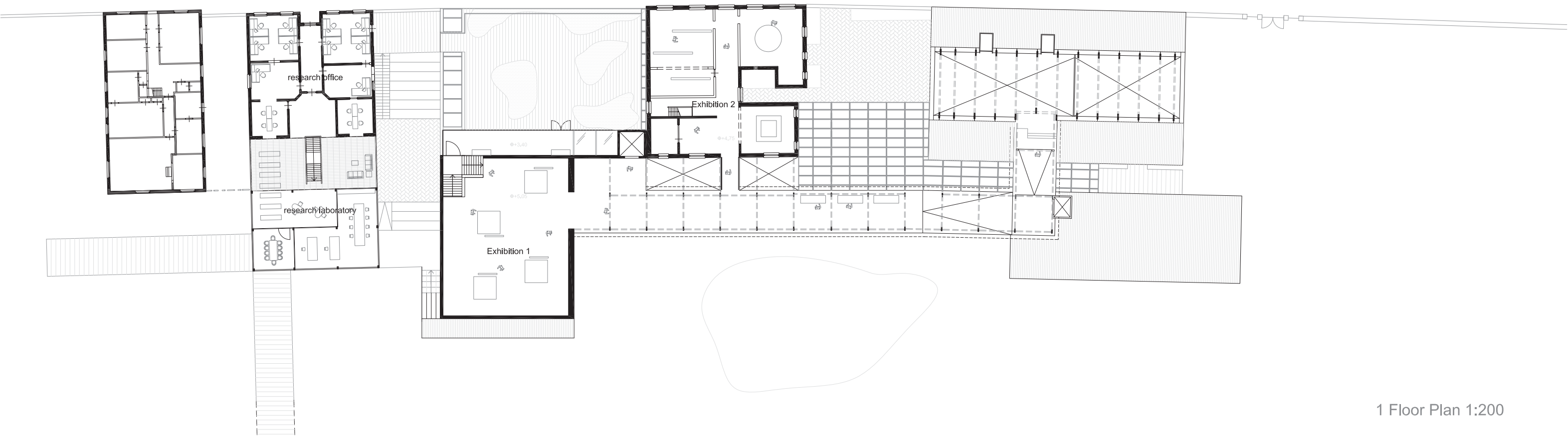
Plan

AA' BB' CC' DD' EE' FF' GG' HH' II'



0.5 Floor Plan 1:200

AA' BB' CC' DD'2 DD' EE' FF' GG' HH' II'



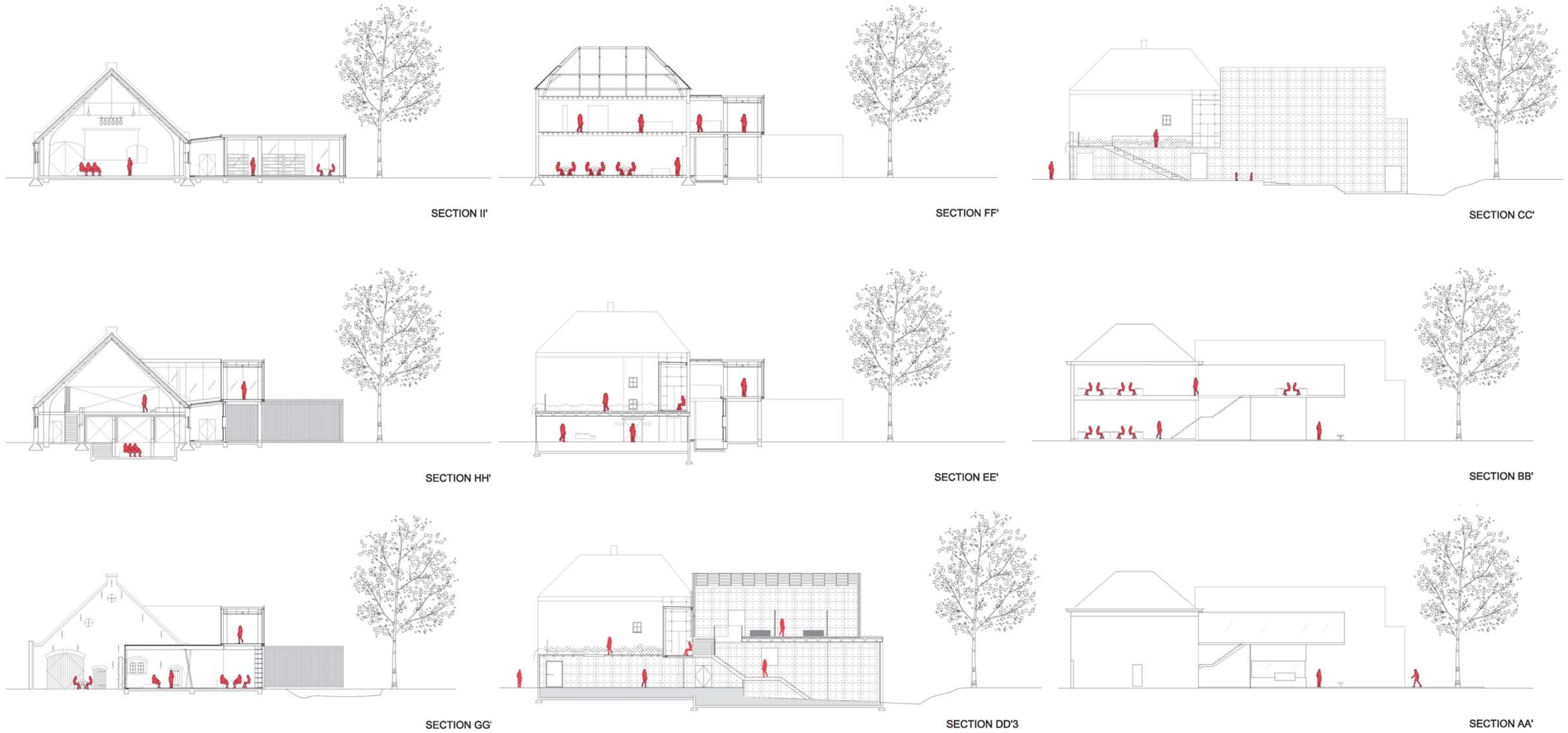
1 Floor Plan 1:200

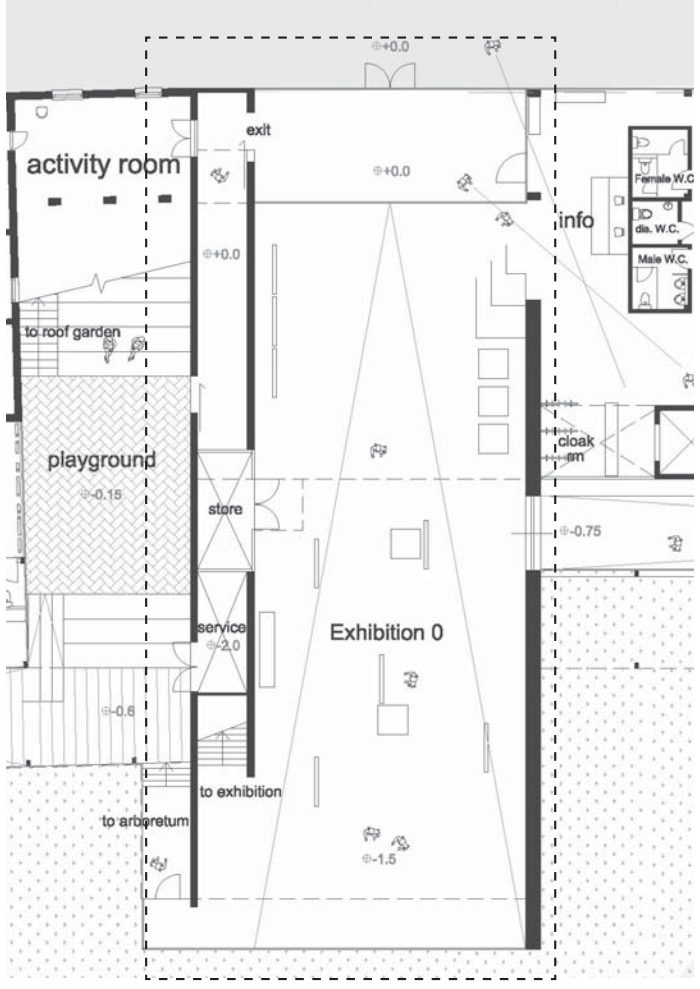
Elevation



West Elevation

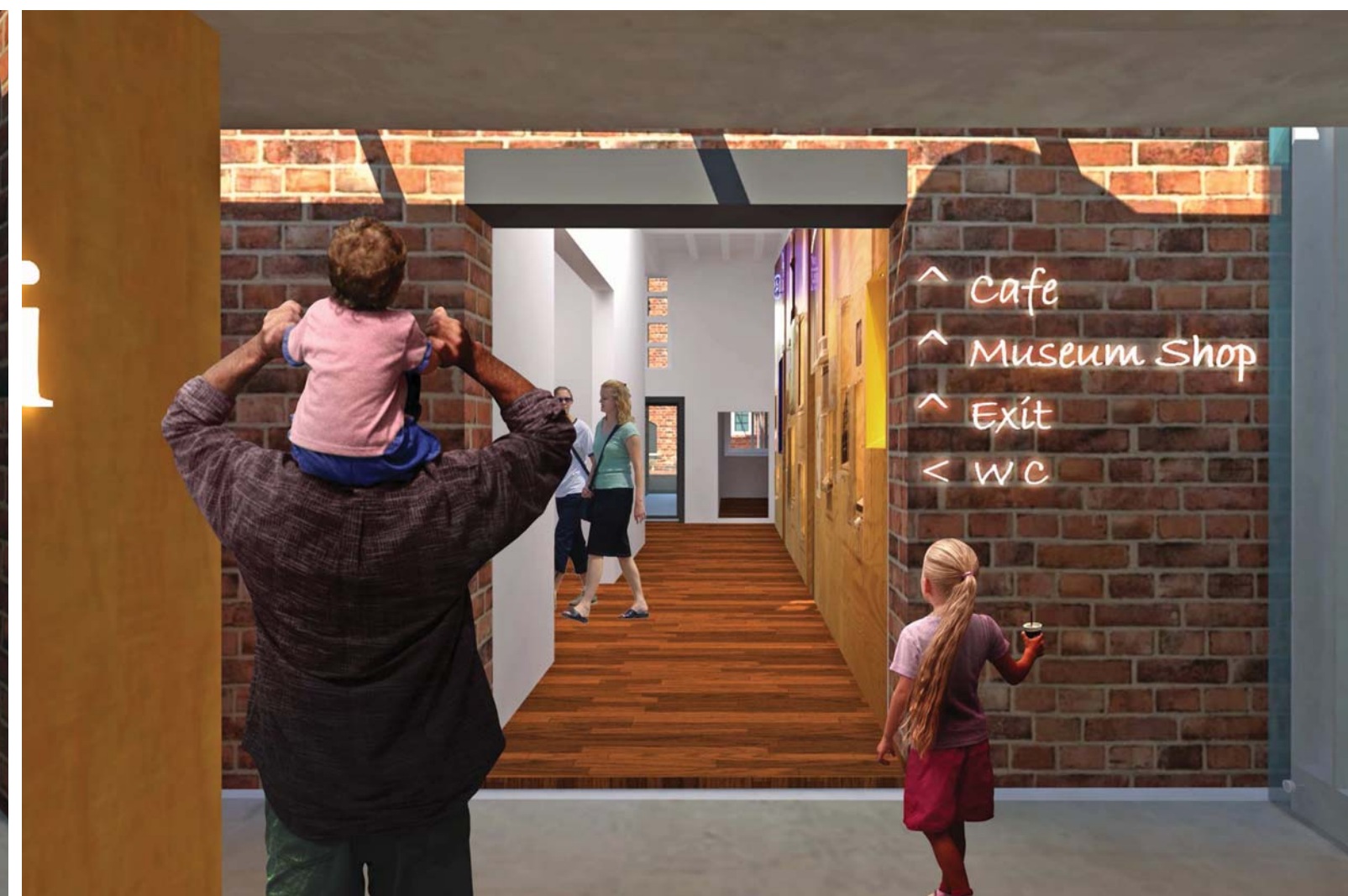
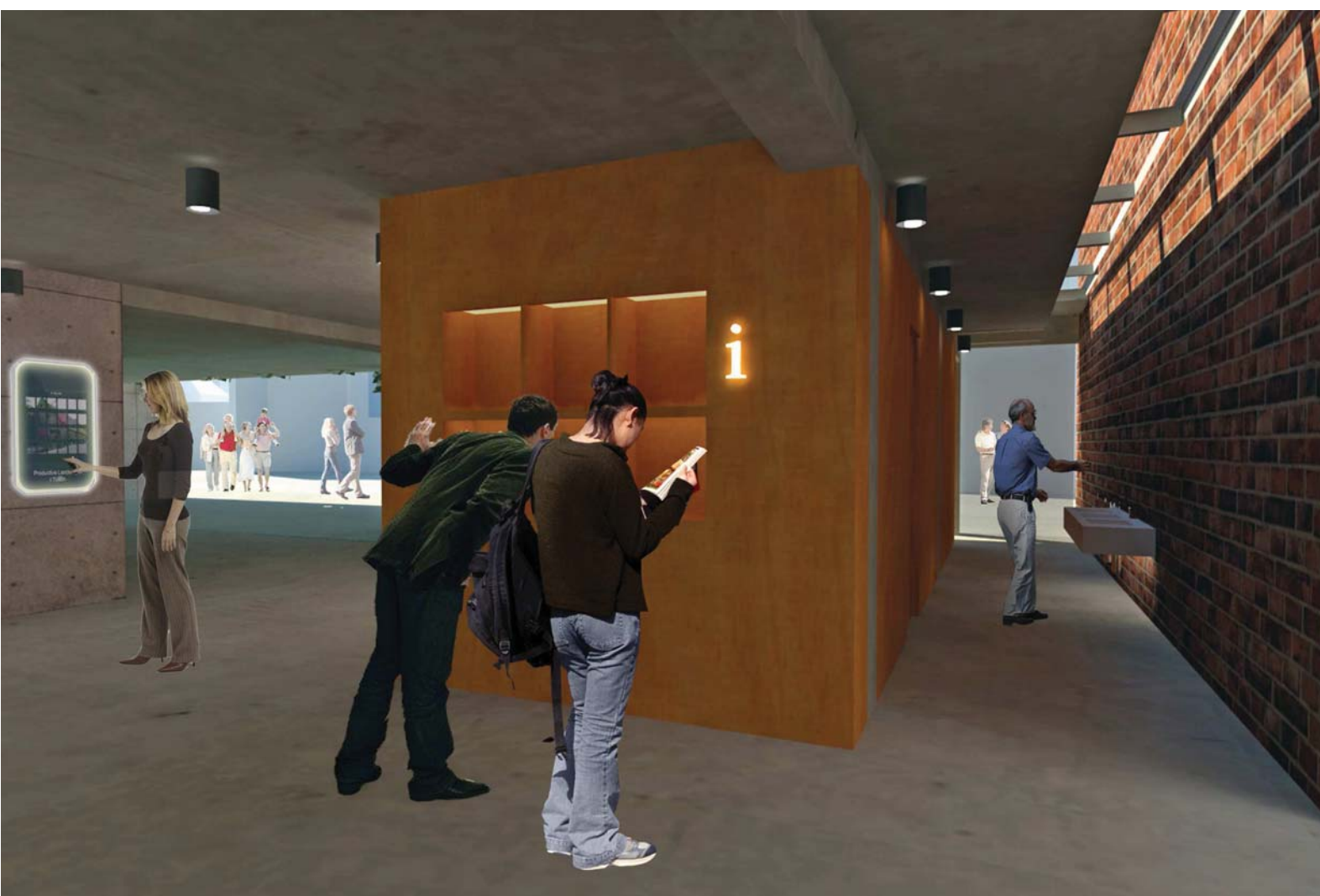
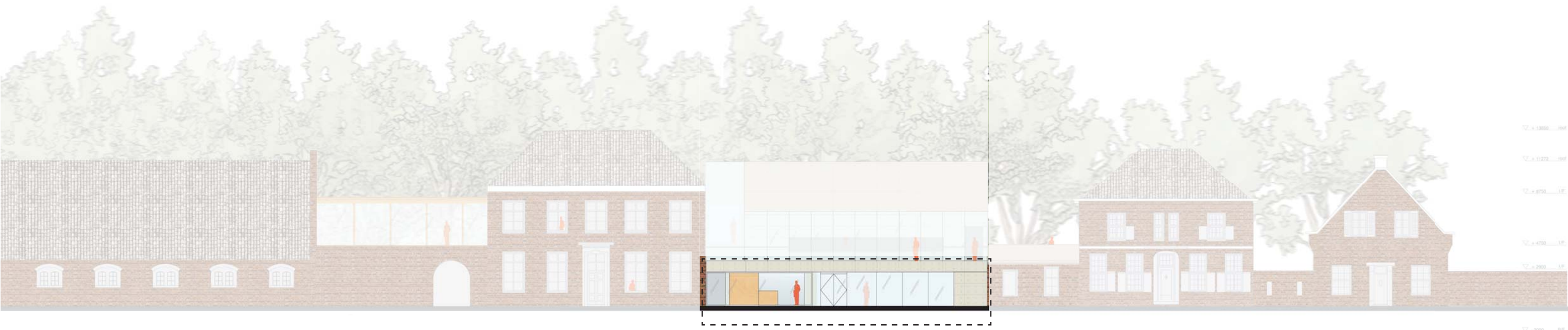
Sections



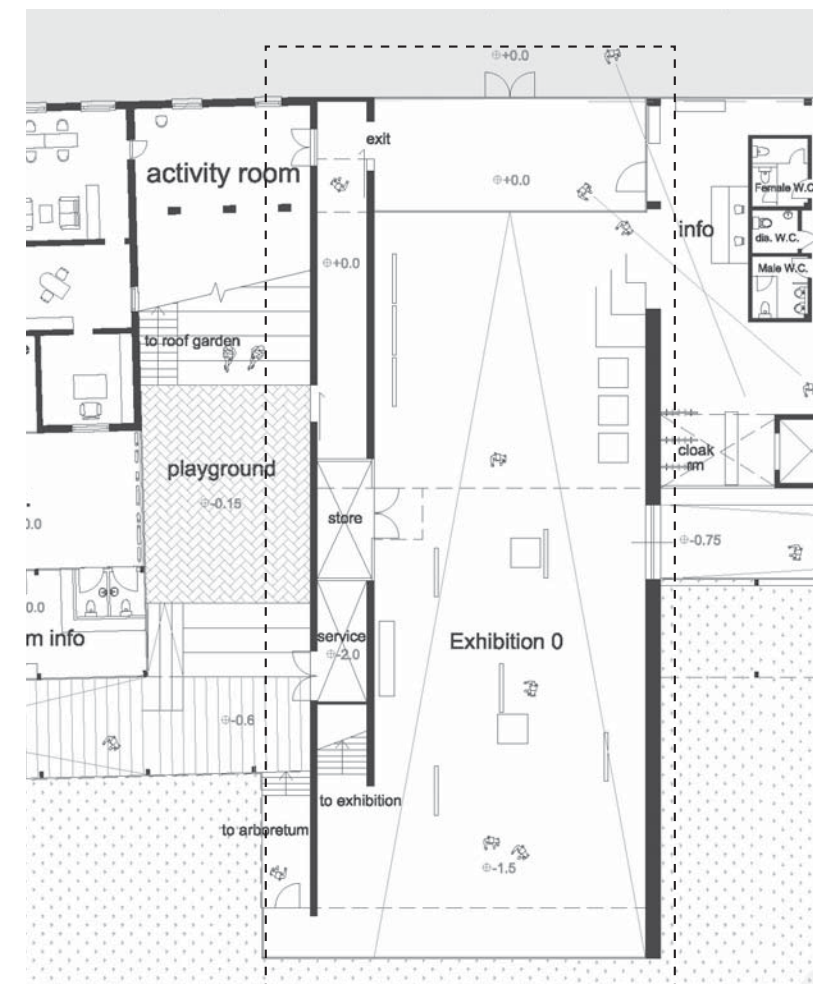
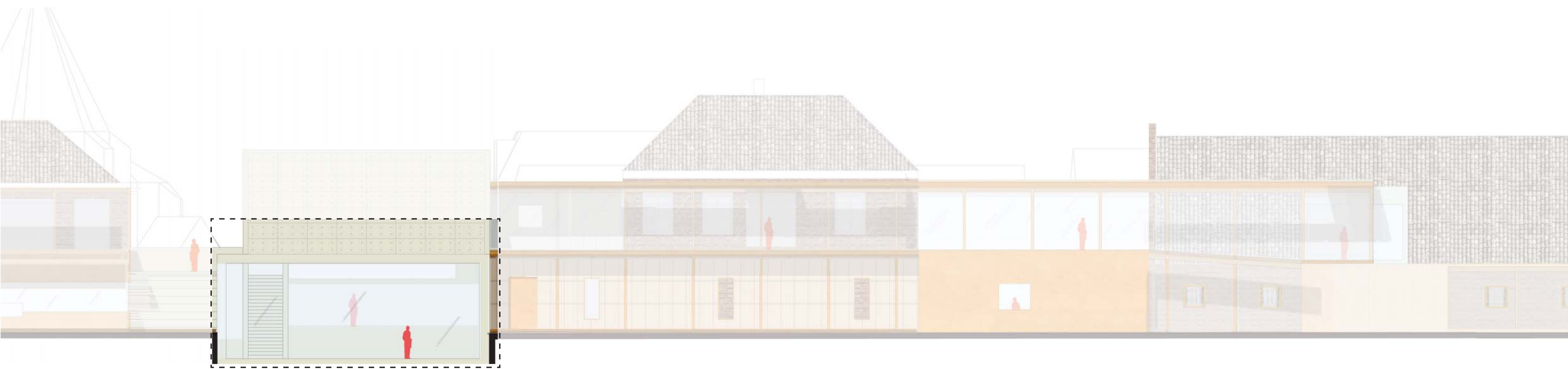


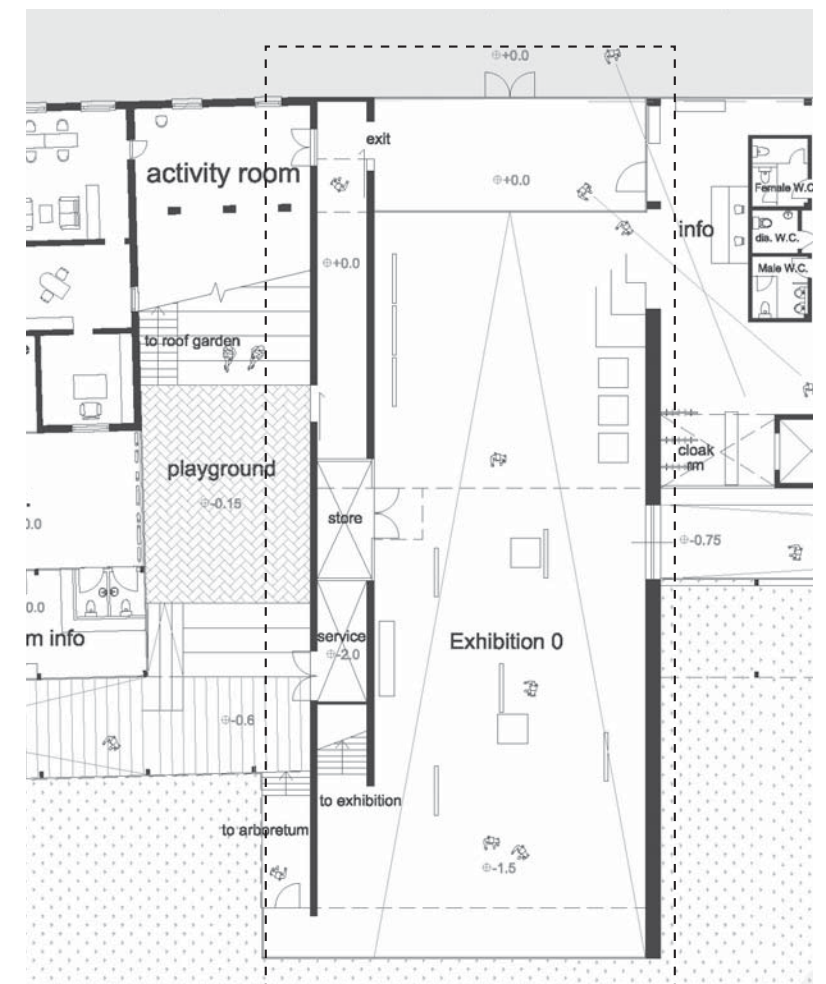
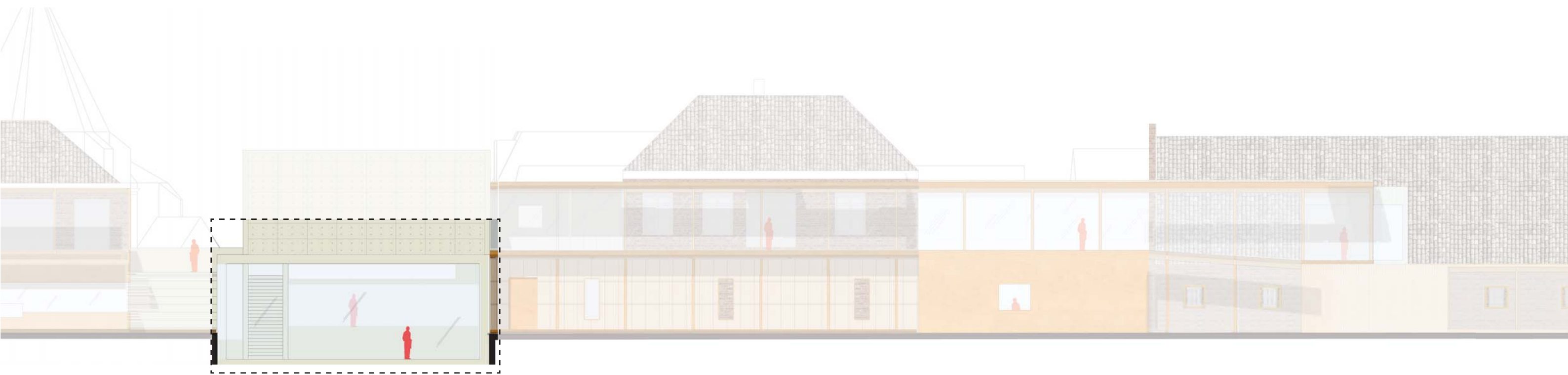


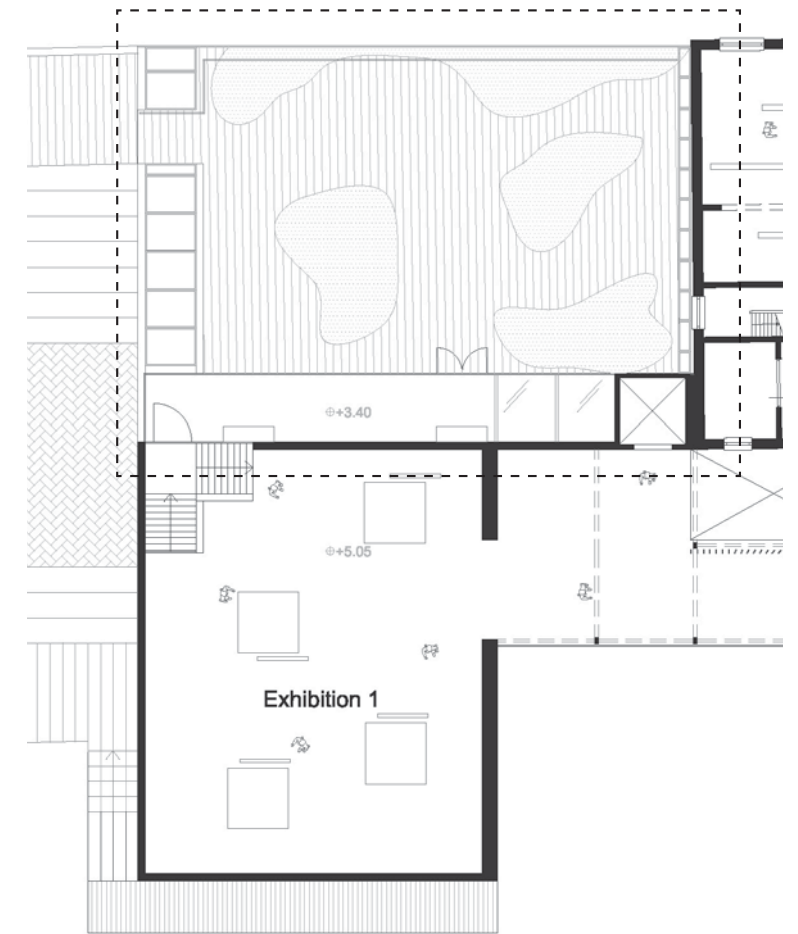
- Entrance as Pavilion
- The brick 'wall' is open up with a new entrance

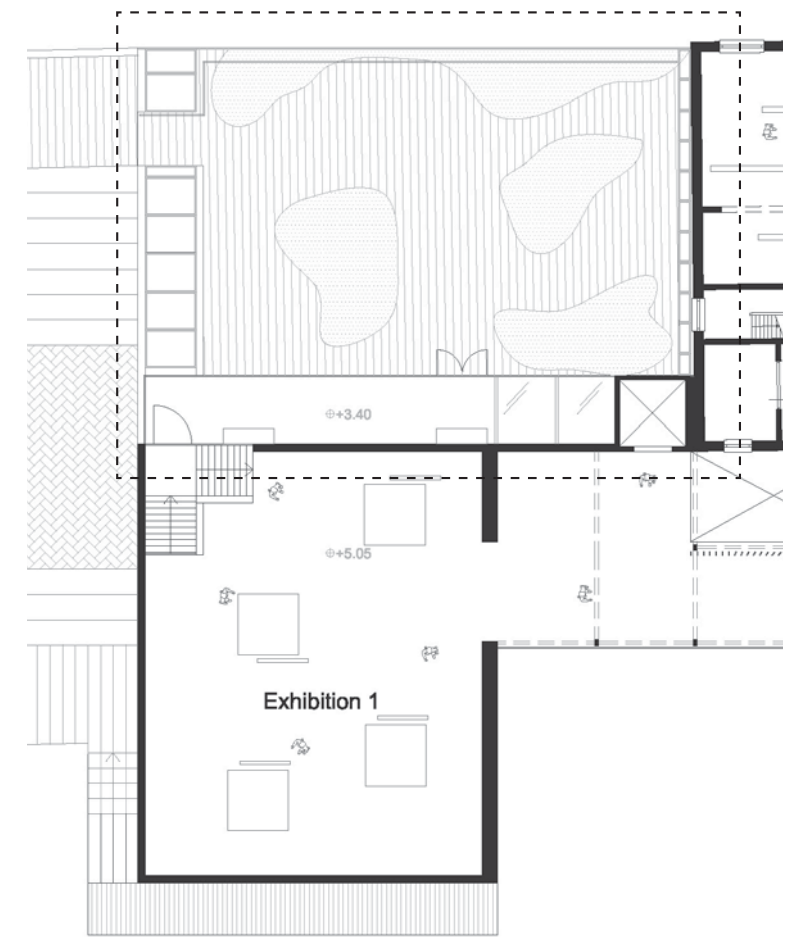


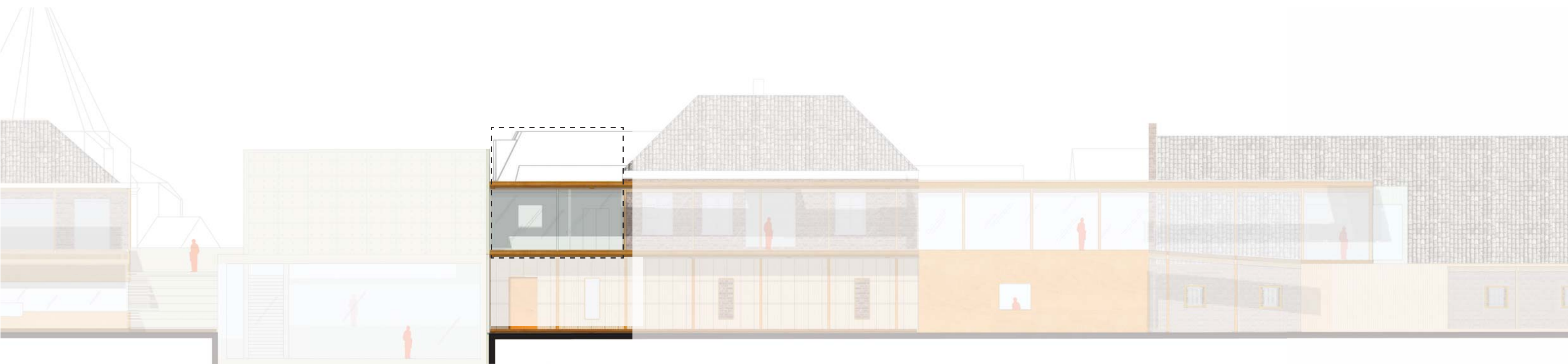


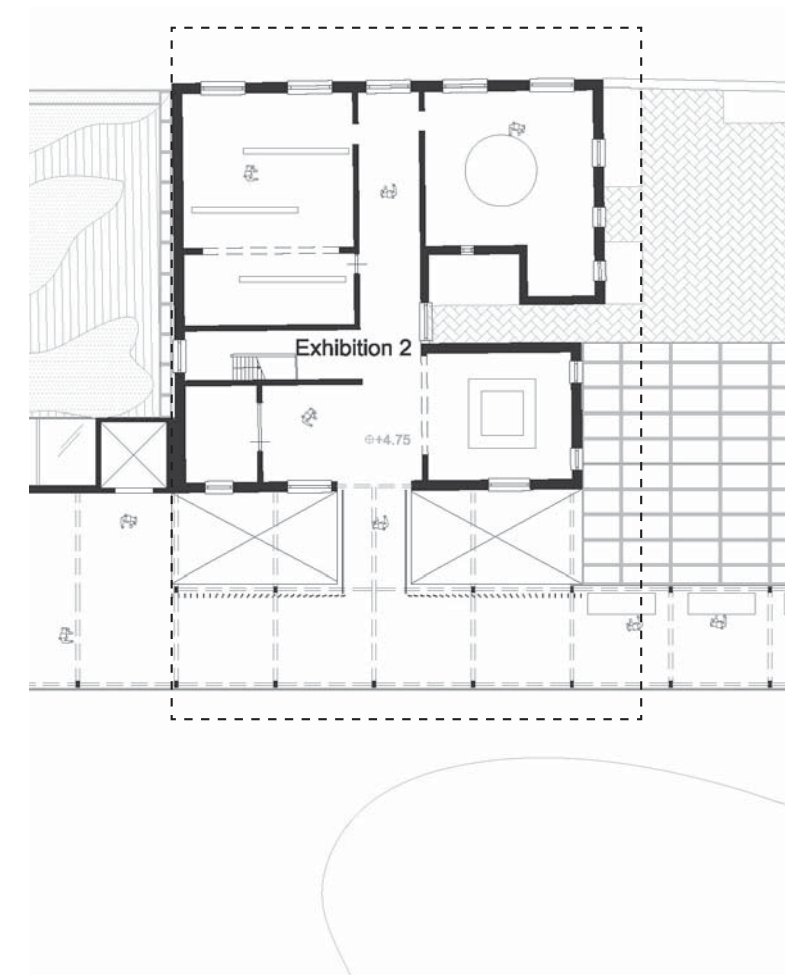
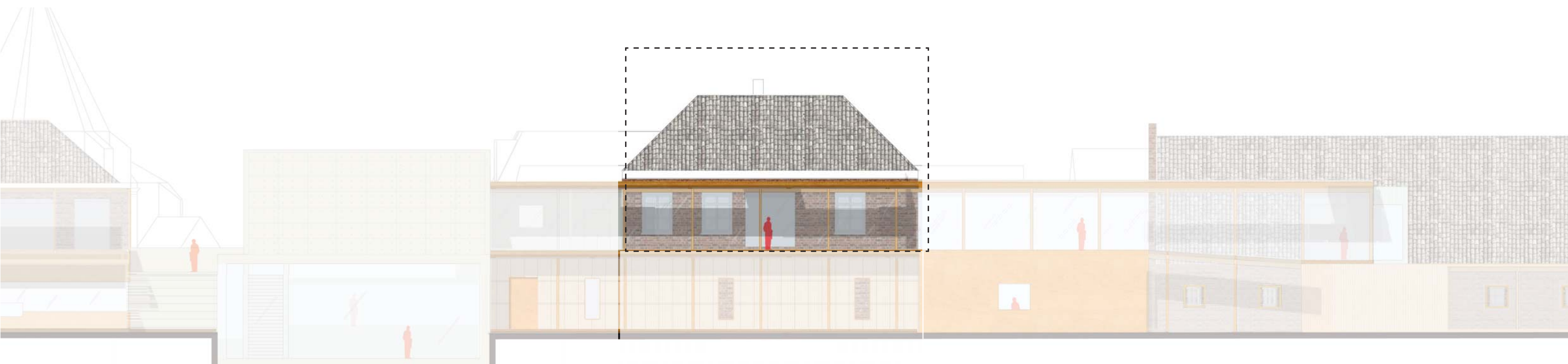


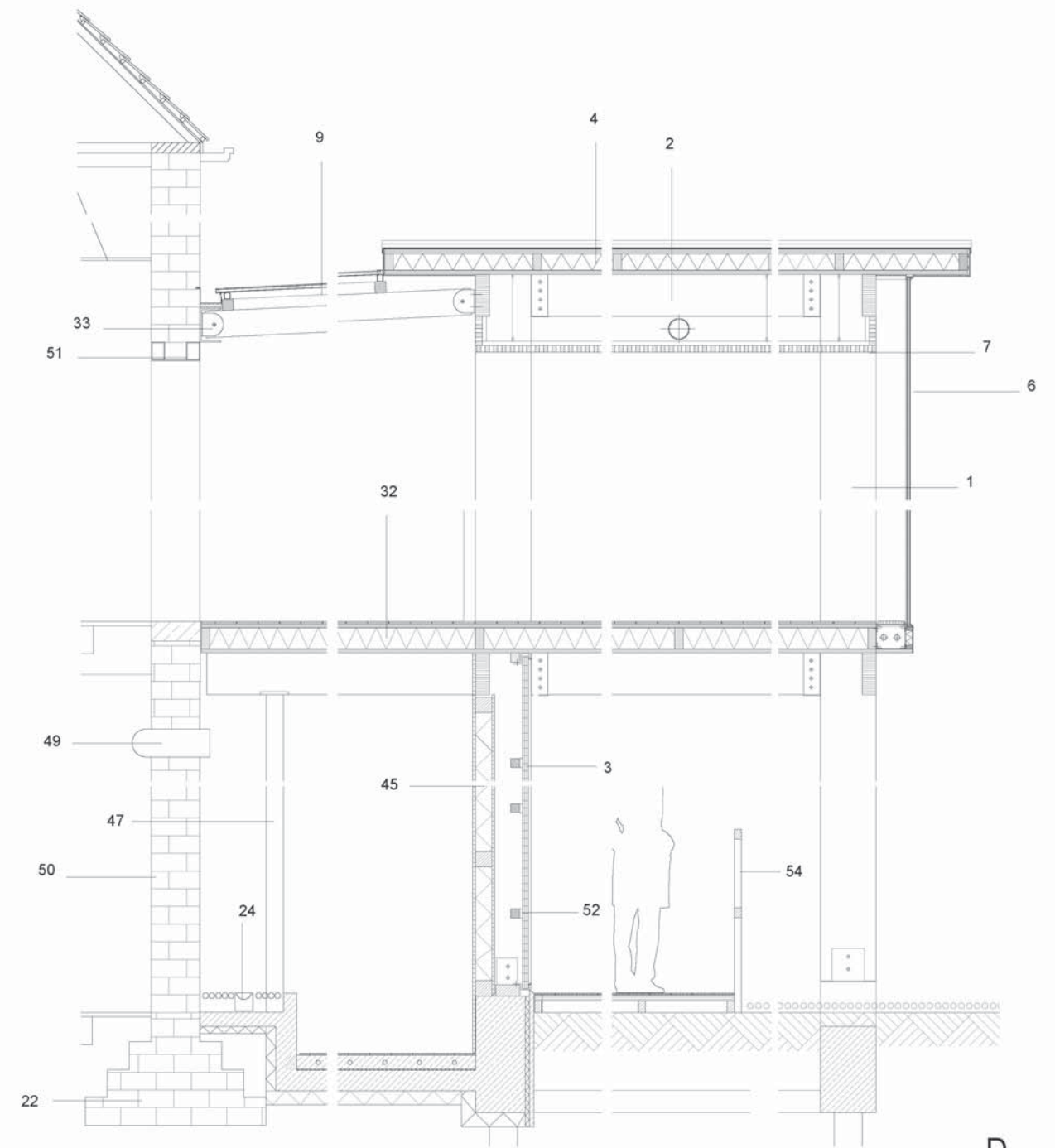
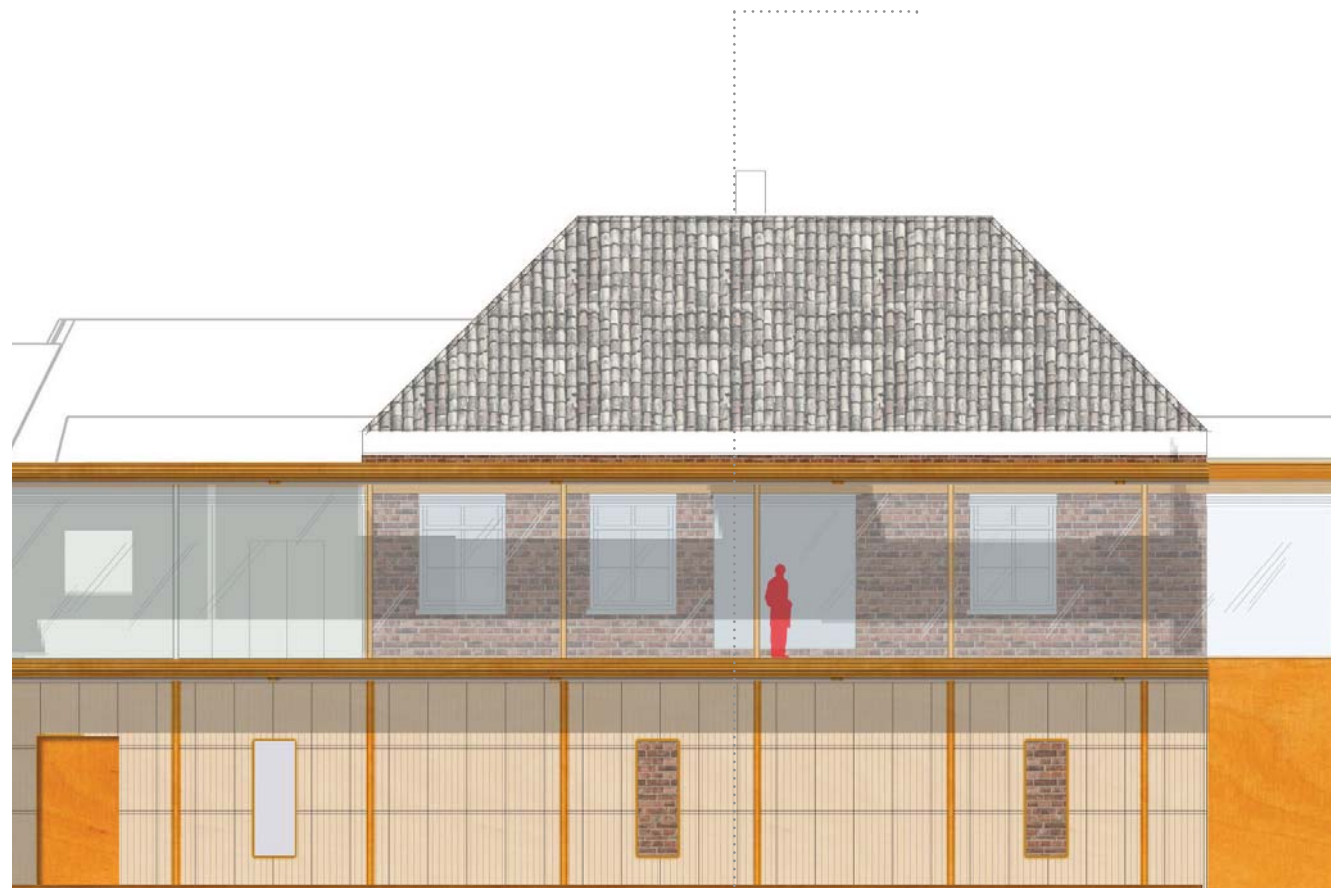




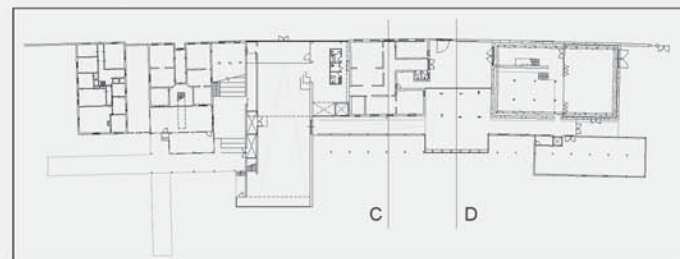




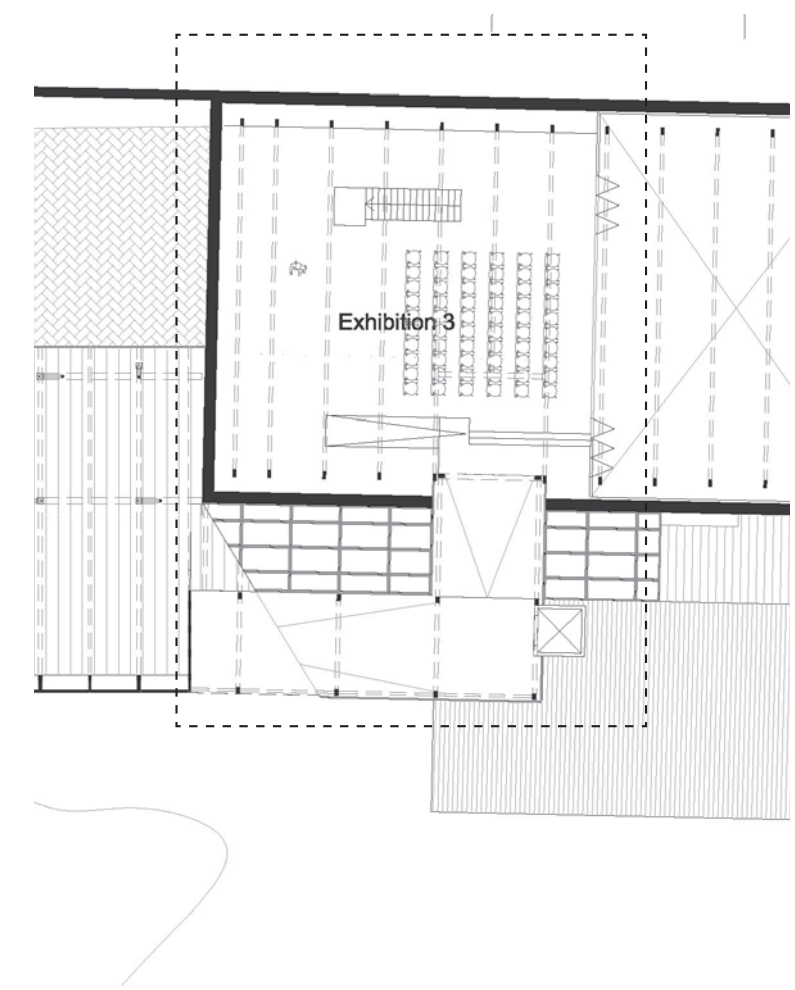
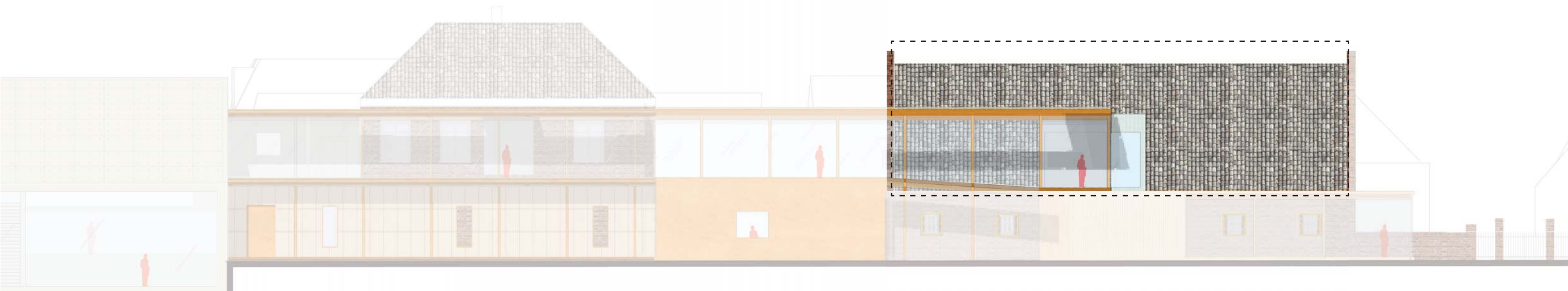


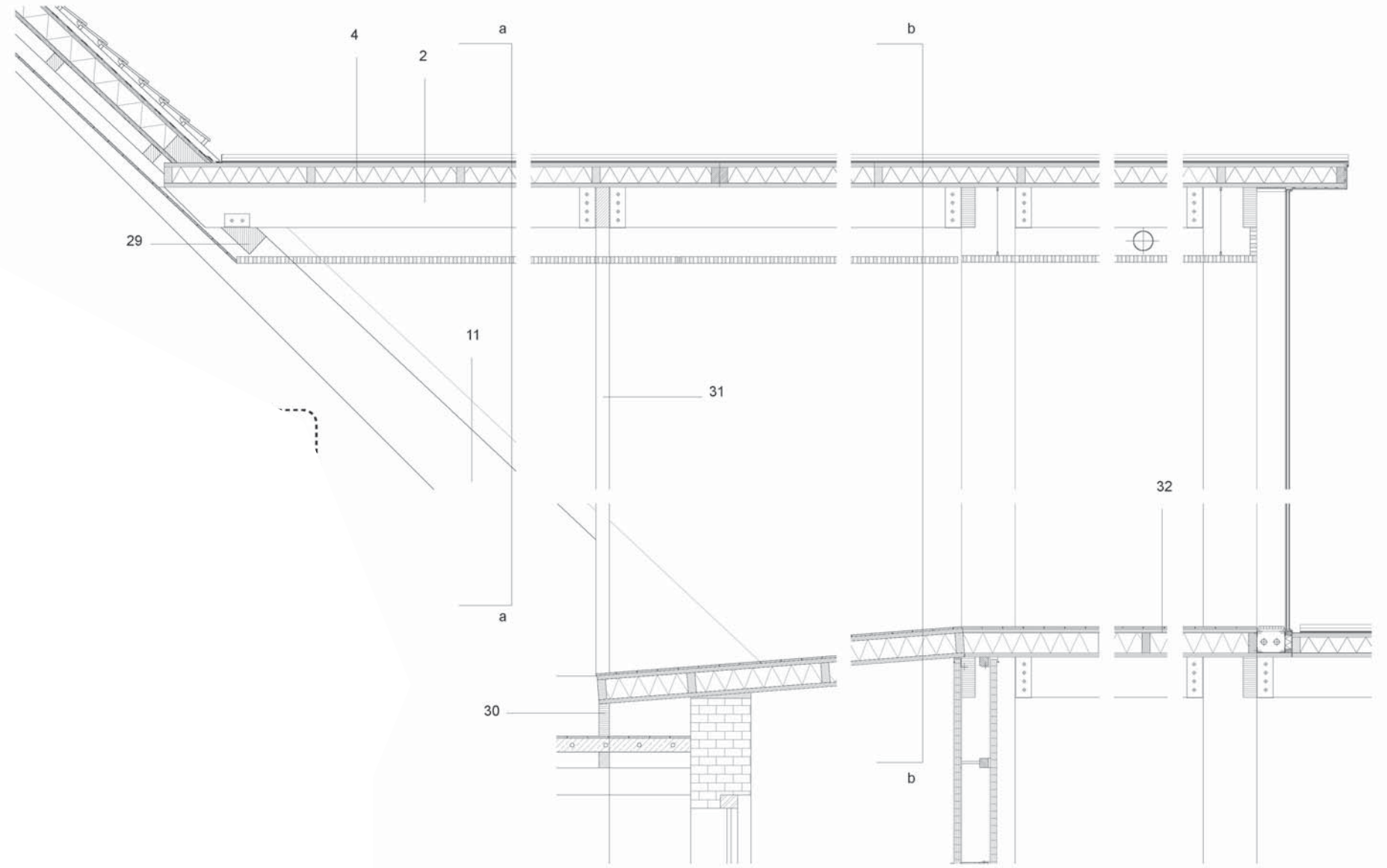
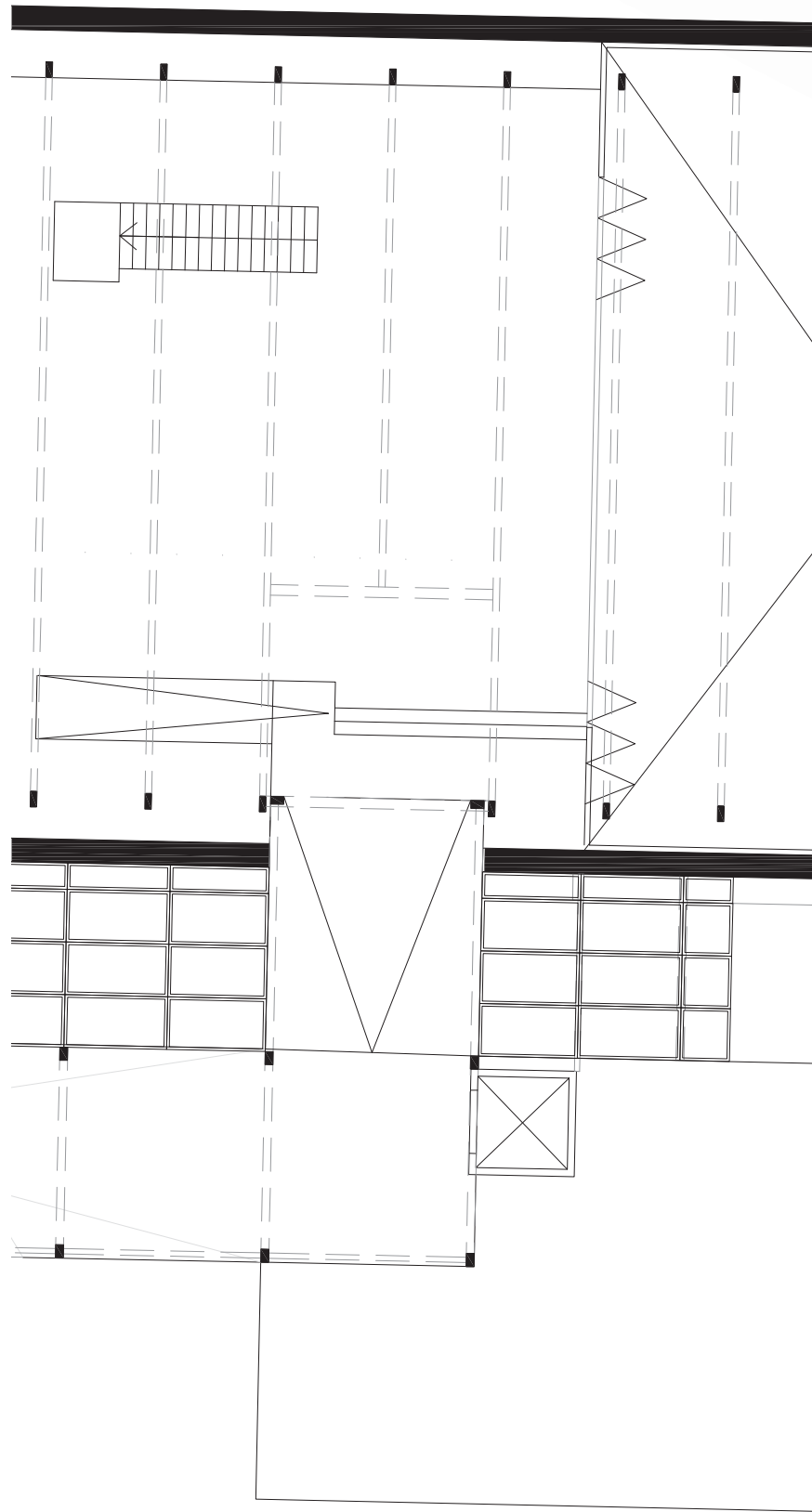


Vertical sections 1:20



- | | | | |
|----|---|----|---|
| 1 | 100/400mm laminated timber sheet column | 33 | Steel hinge connection for lam. timber beam |
| 2 | 100/300mm laminated timber sheet beam | 37 | double glazing (2 x 8 mm lam safety glass + 10 mm cavity) |
| 3 | Triple-walled polycarbonate panel | 44 | 33m lam. timber shelf |
| 4 | Prefabricated Birch plywood roofing panel, upper layer 9mm, lower layer 15mm and 120mm thermal insulation | 45 | 150 mm thermal insulation and 20mm lam. timber sheeting |
| 5 | heating pipes | 46 | 150/400 mm lam. timber beam |
| 6 | 18mm thk. structural glass | 47 | 100mm dia. steel column |
| 7 | wooden ceiling | 48 | floor construction: 160x24 mm sawn timber decking, screed, floor heating, waterproof membrane, thermal insulation |
| 9 | Double glass with low-E coating in steel frame (with openable window) | 49 | 200mm dia. pre-heated fresh air outlet |
| 20 | 60 x 60 mm counter battens | 50 | 350mm existing brick wall |
| 21 | 280 x 280 mm grey ceramic roof tiles | 51 | 150/350 mm steel lintel |
| 22 | Existing Shallow brick foundation | 52 | adhesive joint |
| 24 | lighting | 53 | gutter |
| 32 | Prefabricated Birch plywood floor panel, upper layer 9mm, lower layer 15mm and 150mm thermal insulation | 54 | wooden railing |

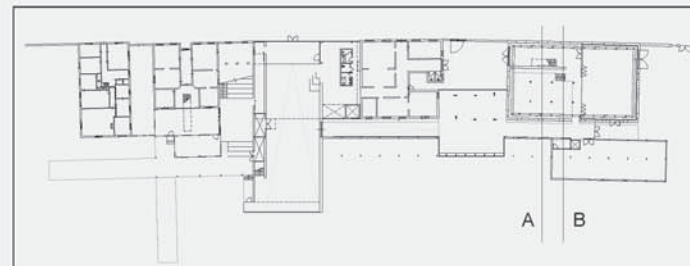


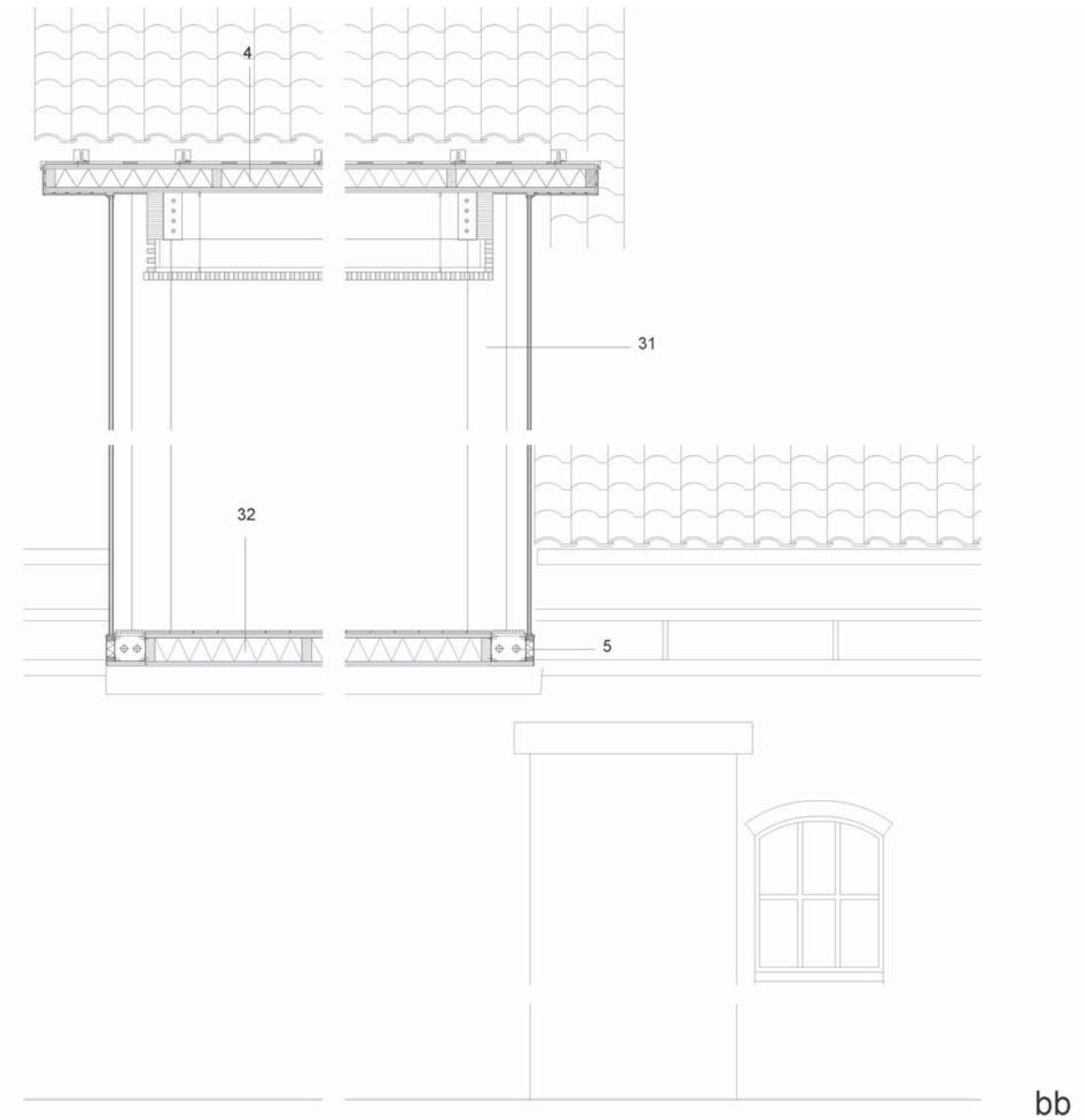
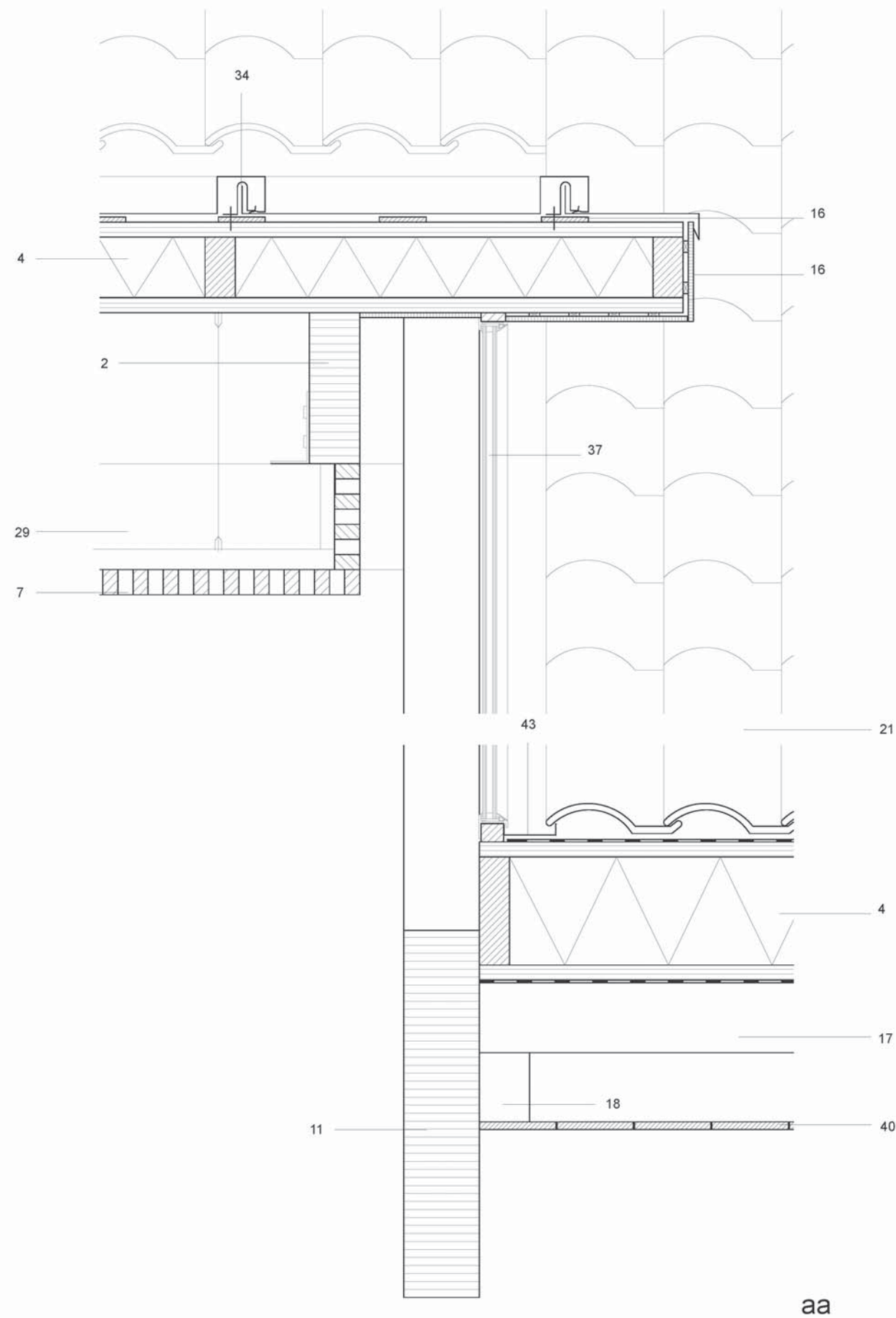


B

Vertical sections 1:20

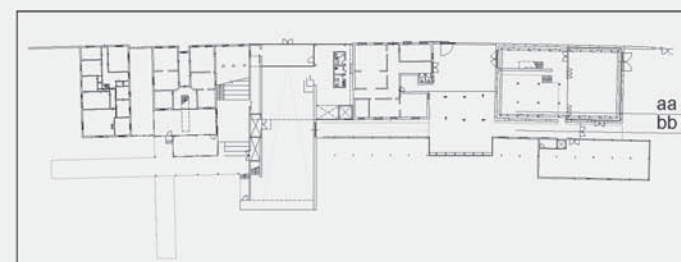
- | | |
|---|--|
| <ul style="list-style-type: none"> 1 100/400mm laminated timber sheet column 2 100/300mm laminated timber sheet beam 3 Triple-walled polycarbonate panel 4 Prefabricated Birch plywood roofing panel, upper layer 9mm, lower layer 15mm and 120mm thermal insulation 5 heating pipes 6 18mm thk. structural glass 7 wooden ceiling 8 100/180mm laminated timber sheet beam 9 Double glass with low-E coating in steel frame (with openable window) 10 120 x 330 mm titanium-zinc sheet rainwater gutter 11 125 x 300/800mm lam. timber 3-hinged arch | <ul style="list-style-type: none"> 12 floor construction: 160x24 mm sawn timber decking, screed, floor heating, timber raised floor 13 existing arch roof 14 existing timber column 15 250 x 250mm concrete columns 16 15mm birch plywood panel 17 80 x 80mm purlin 18 100 x 100mm rafter 19 Steel hinge joint for lam. timber arch 20 60 x 60 mm counter battens 21 280 x 280 mm grey ceramic roof tiles 22 Existing Shallow brick foundation 23 450mm Existing brick wall 24 lighting 25 100 mm thermal insulation 26 concrete pile foundation 27 concrete plinth 28 Steel lam. timber anchor 29 180 x 250 mm lam. timber 30 100 x 250 mm lam. timber 31 100/250mm laminated timber sheet column 32 Prefabricated Birch plywood floor panel, upper layer 9mm, lower layer 15mm and 150mm thermal insulation |
|---|--|

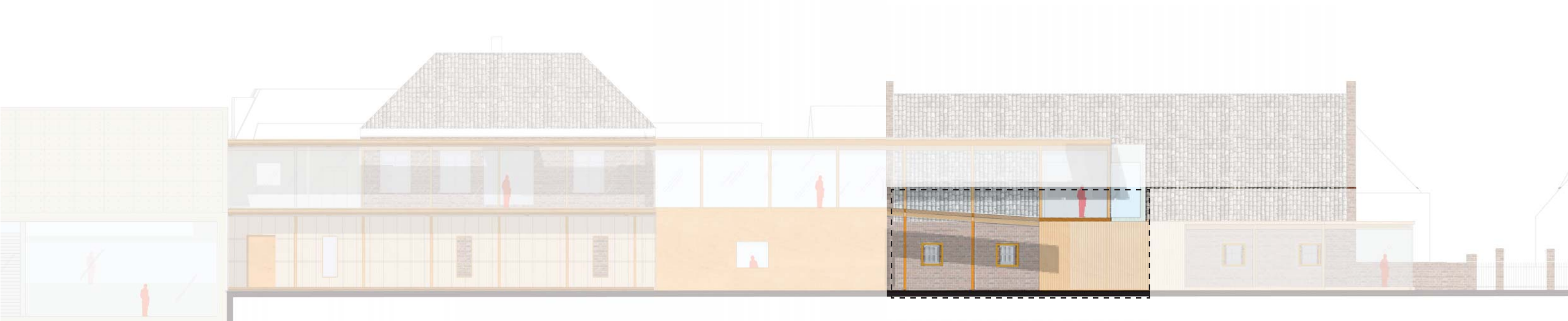




Vertical section aa 1:5/ bb 1:20

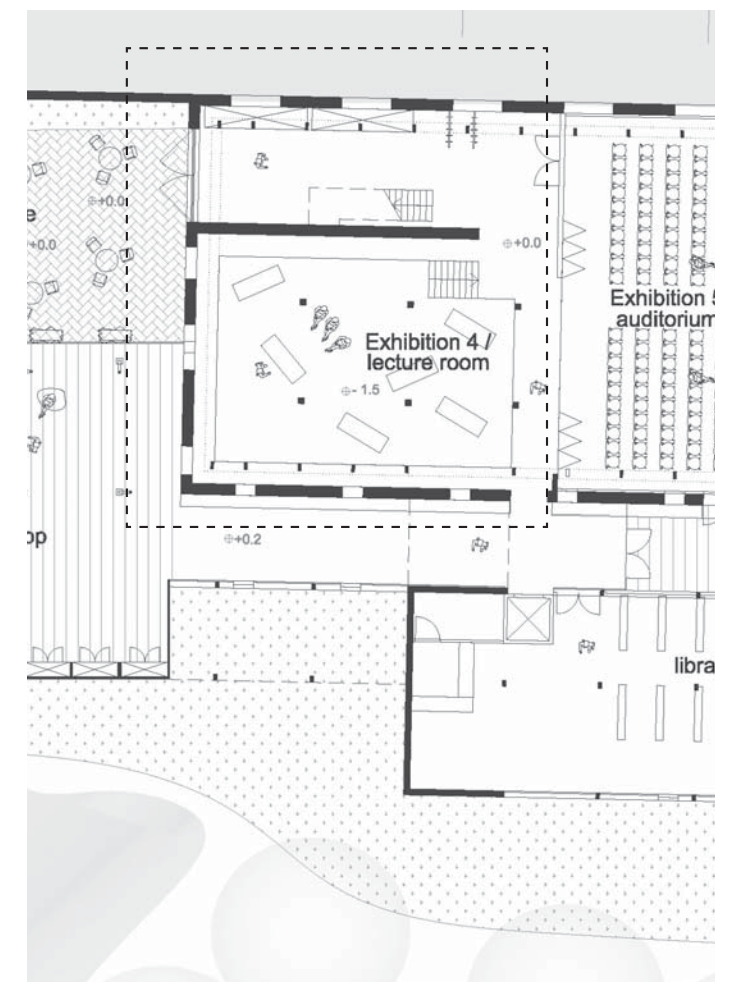
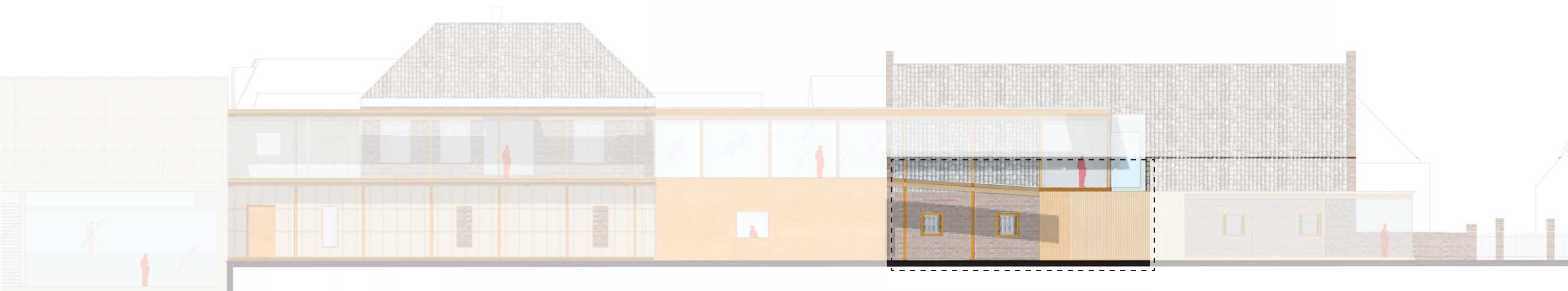
- | | | | |
|----|---|----|---|
| 2 | 100/300mm laminated timber sheet beam | 29 | 180 x 250 mm lam. timber |
| 4 | Prefabricated Birch plywood roofing panel, upper layer 9mm, lower layer 15mm and 120mm thermal insulation | 31 | 100/250mm laminated timber sheet column |
| 5 | heating pipes | 32 | Prefabricated Birch plywood floor panel, upper layer 9mm, lower layer 15mm and 150mm thermal insulation |
| 7 | wooden ceiling | 34 | Nedzink roofing |
| 11 | 125 x 300/800mm lam. timber 3-hinged arch | 35 | Wooden batten |
| 16 | 15mm birch plywood panel | 37 | double glazing (2 x 8 mm lam safety glass + 10 mm cavity) |
| 17 | 80 x 80mm purlin | 40 | 160x24 mm sawn timber decking |
| 18 | 100 x 100mm rafter | 43 | 50 x 100 mm titanium-zinc sheet rainwater gutter |
| 21 | 280 x 280 mm grey ceramic roof tiles | | |

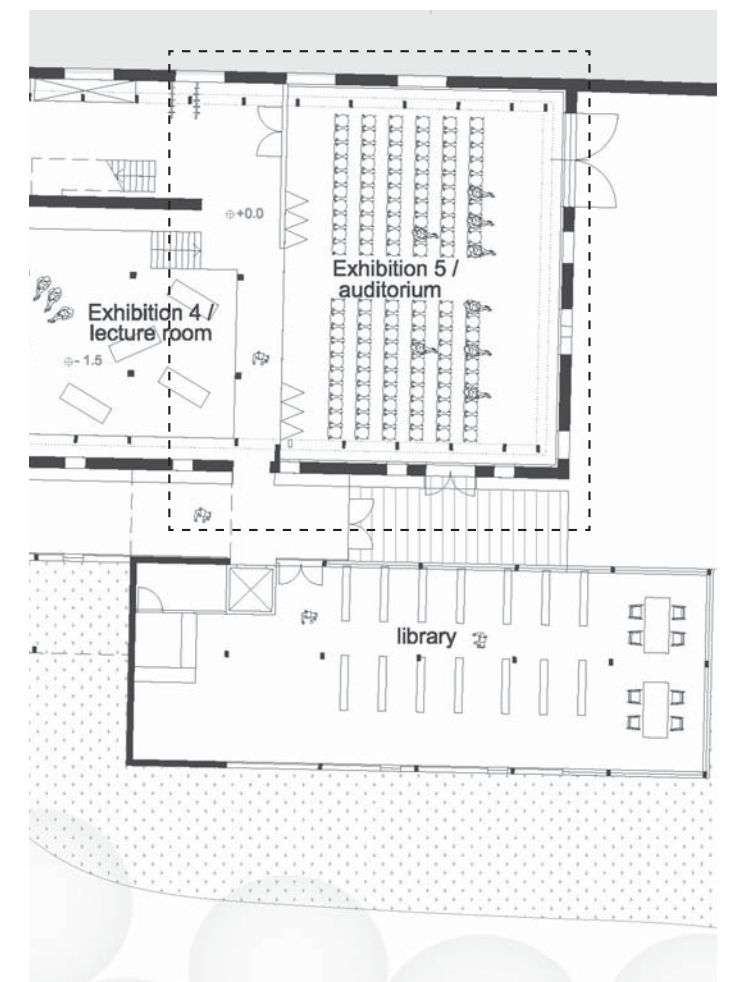
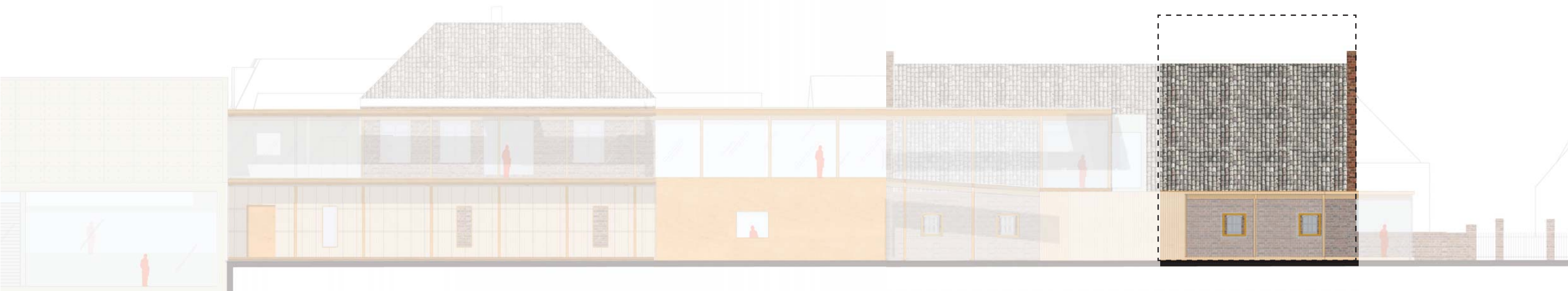


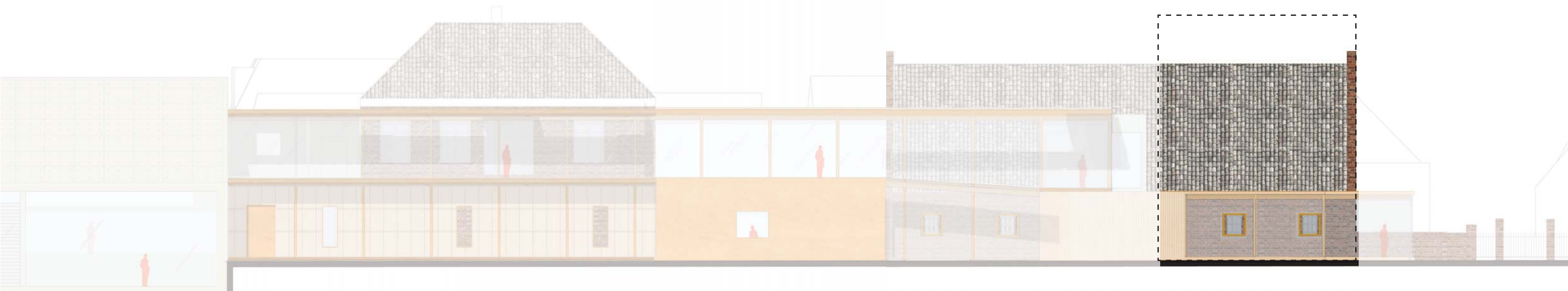


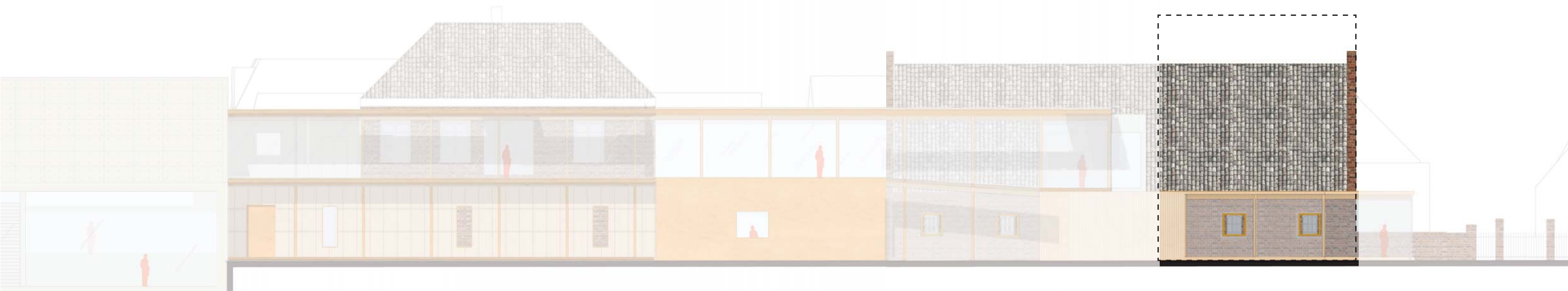
- Beautiful arch ceiling sitting on wooden columns at 2.9m



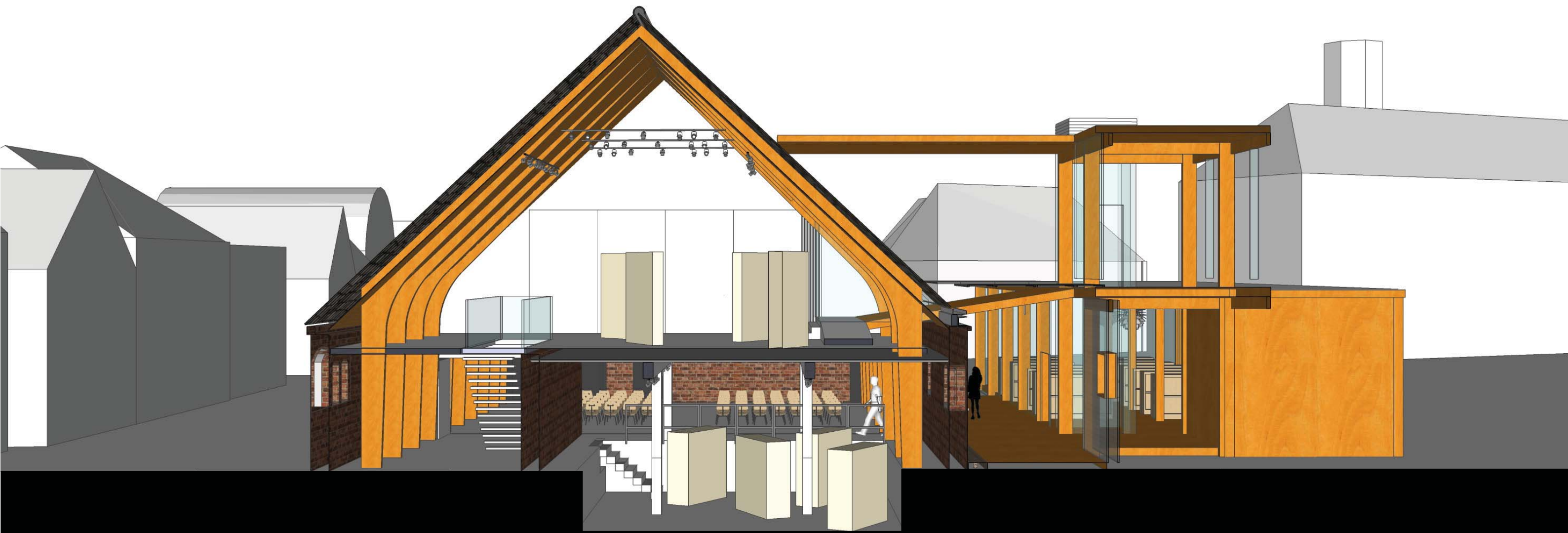




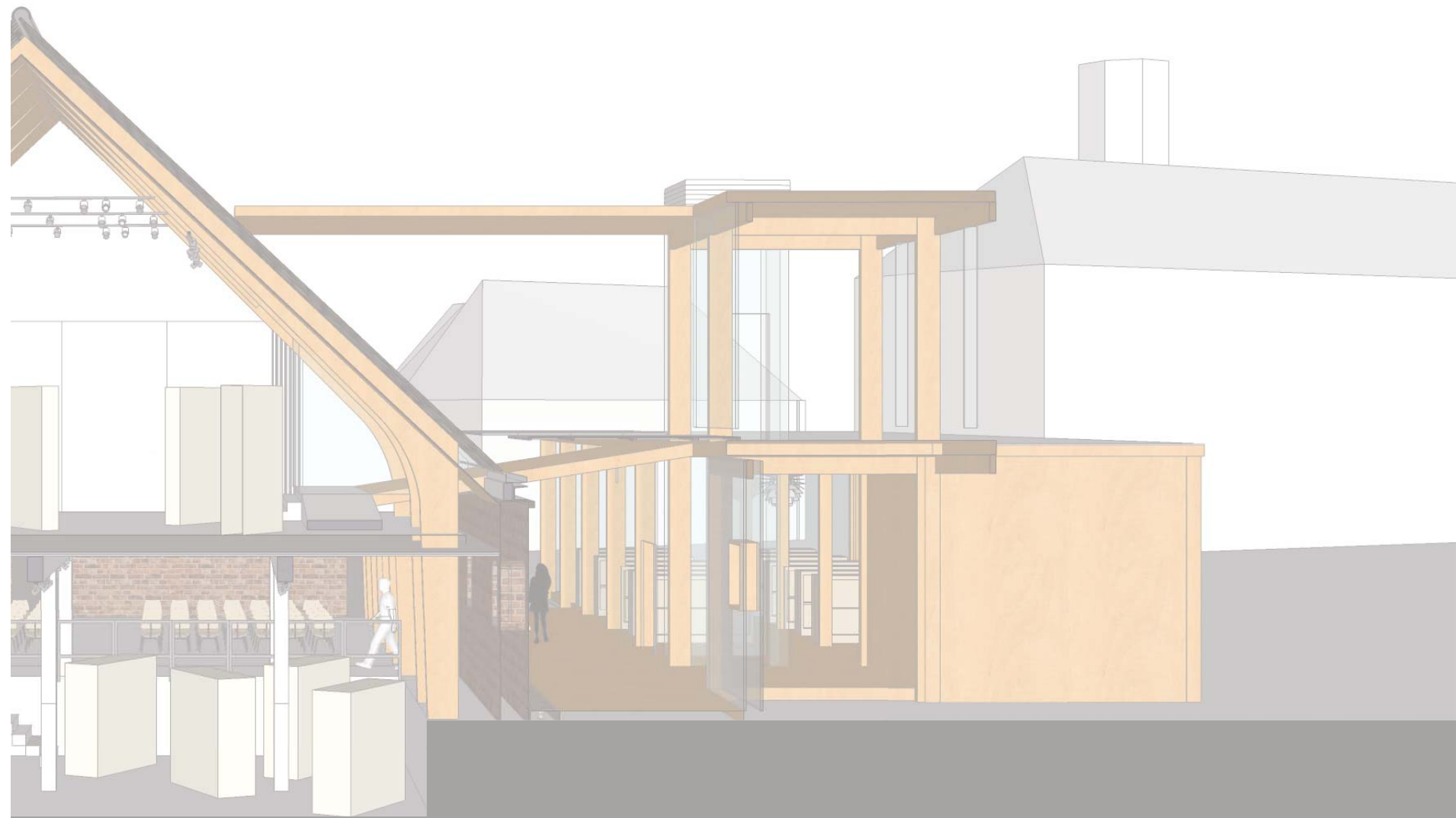
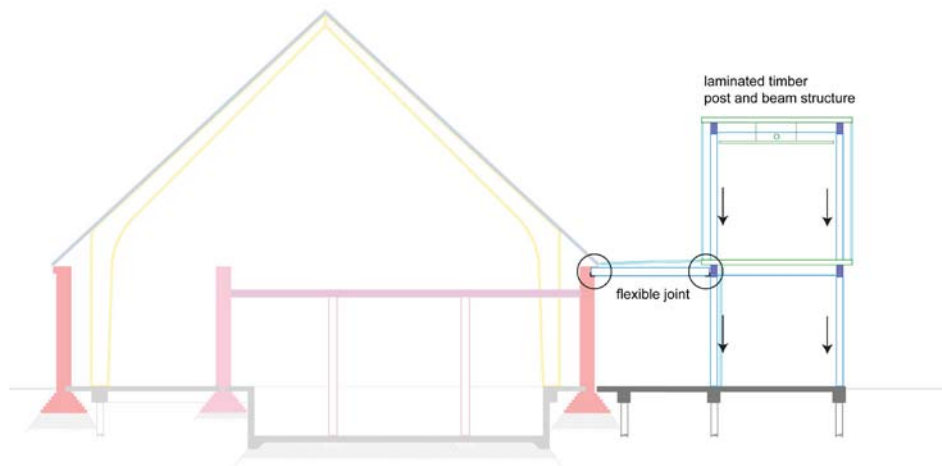
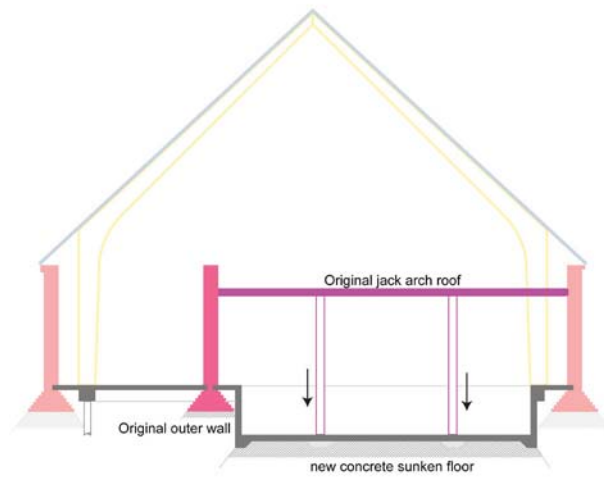
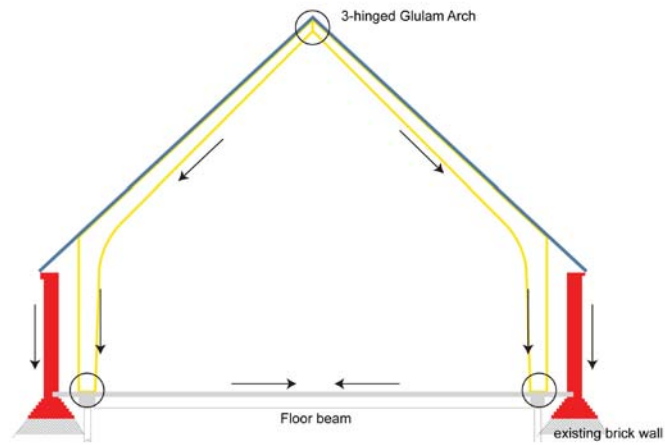


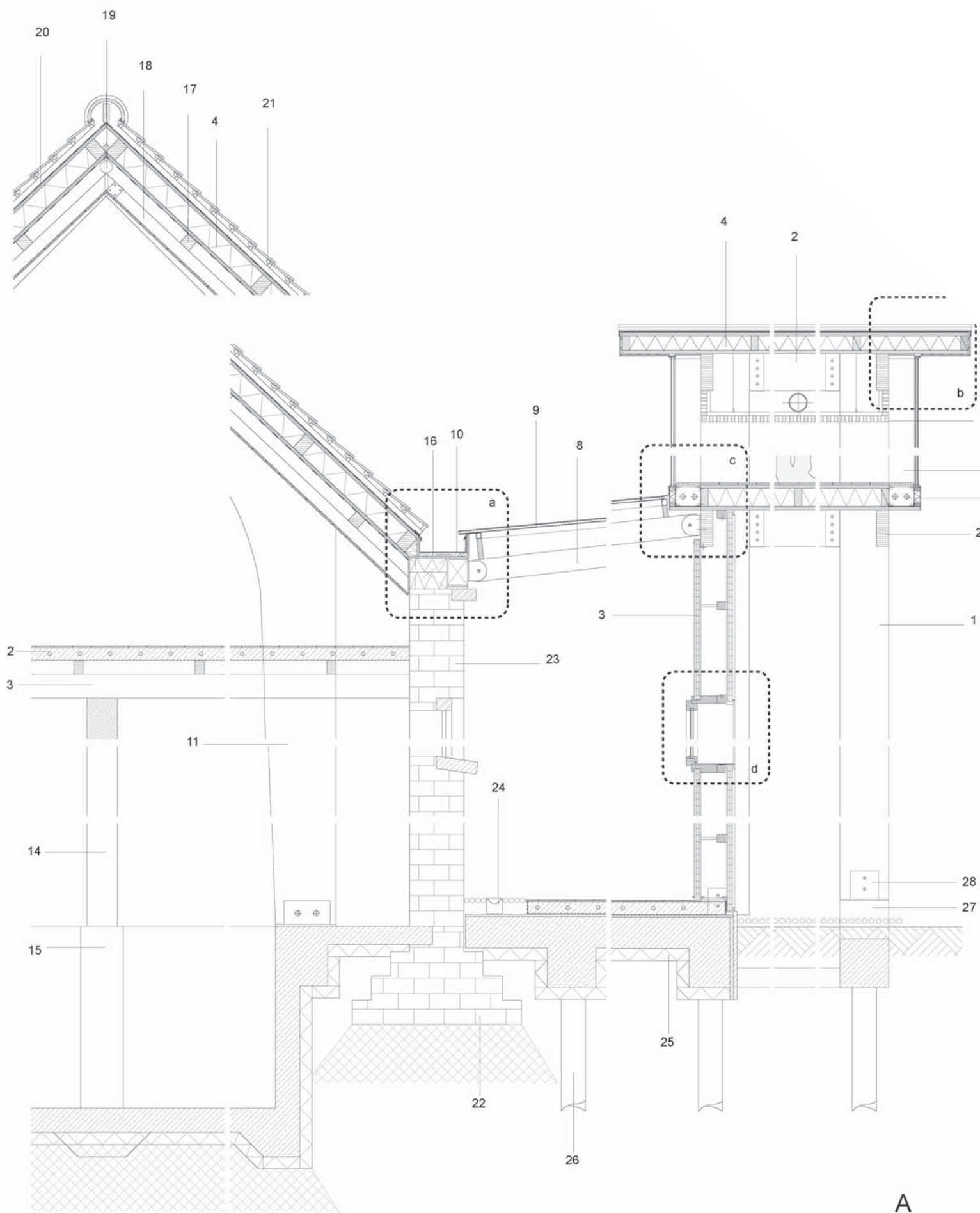


Auditorium used for special event like bio-conference/
symposium organized by business company or the Foundation



Structural Scheme

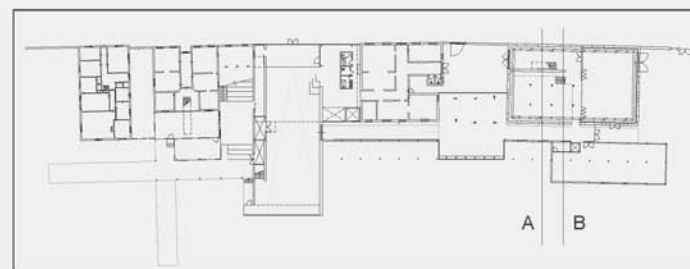


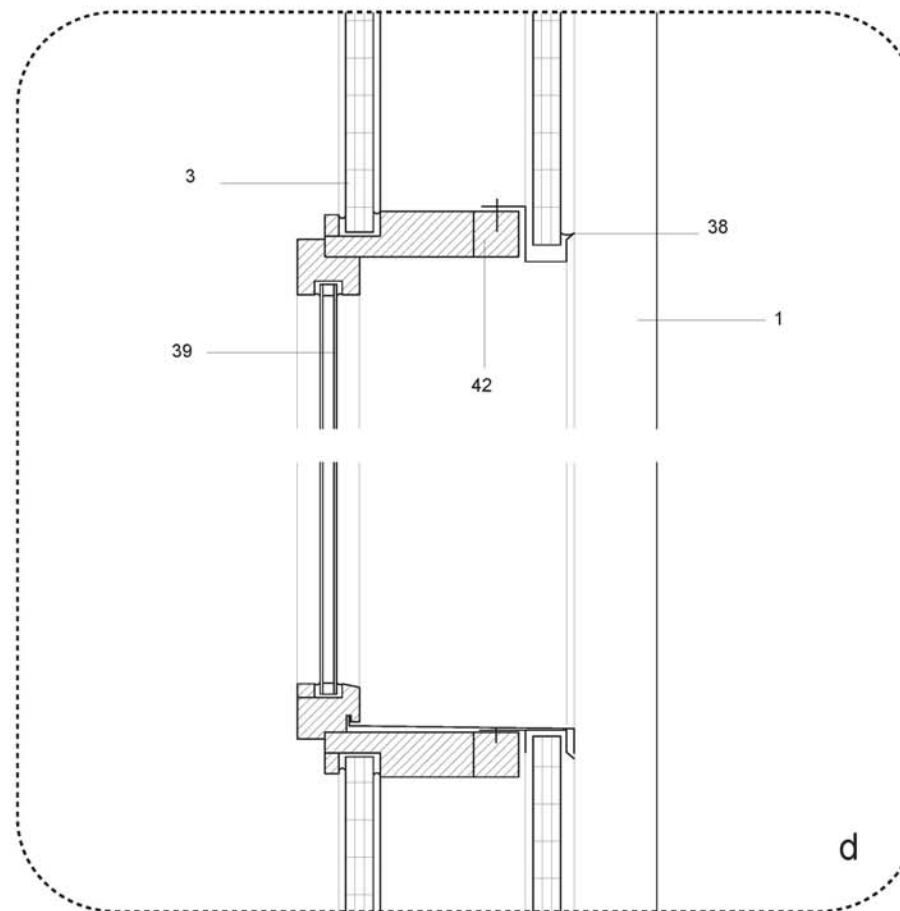
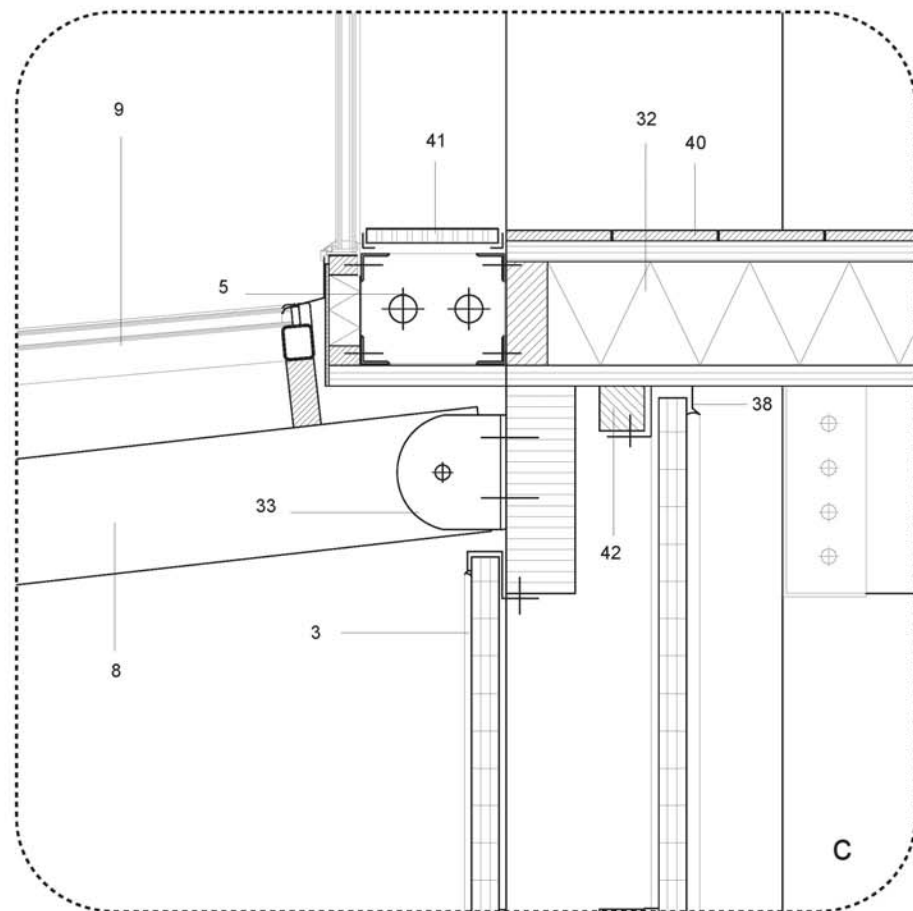
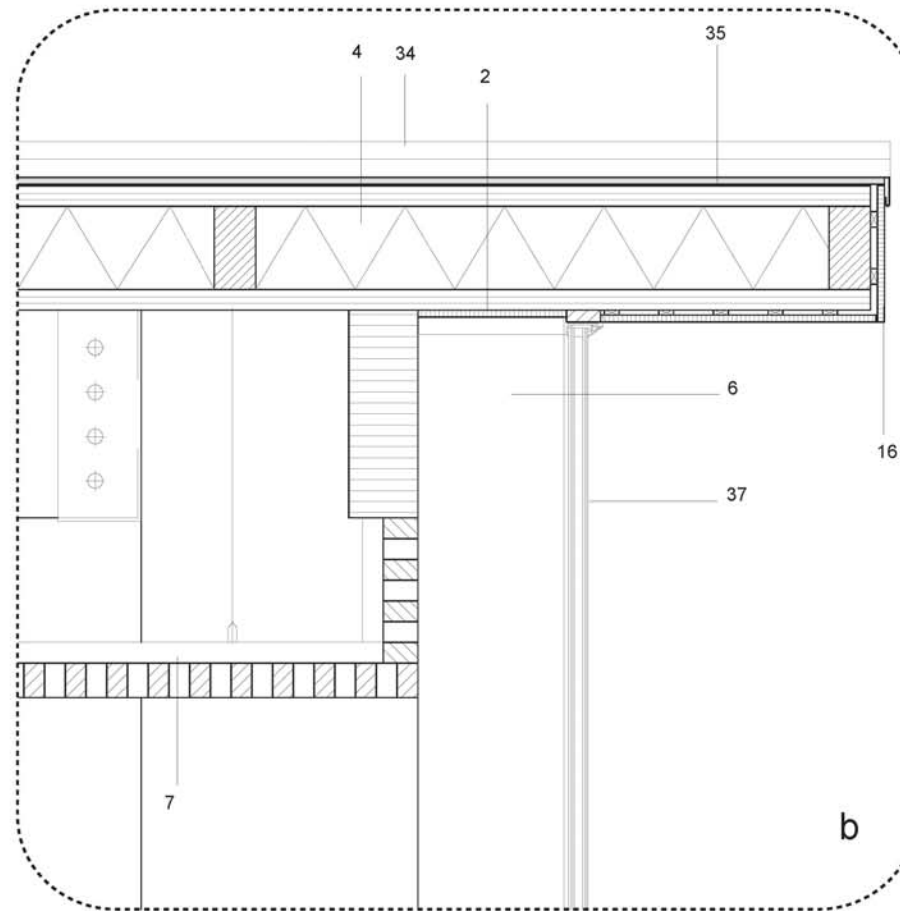
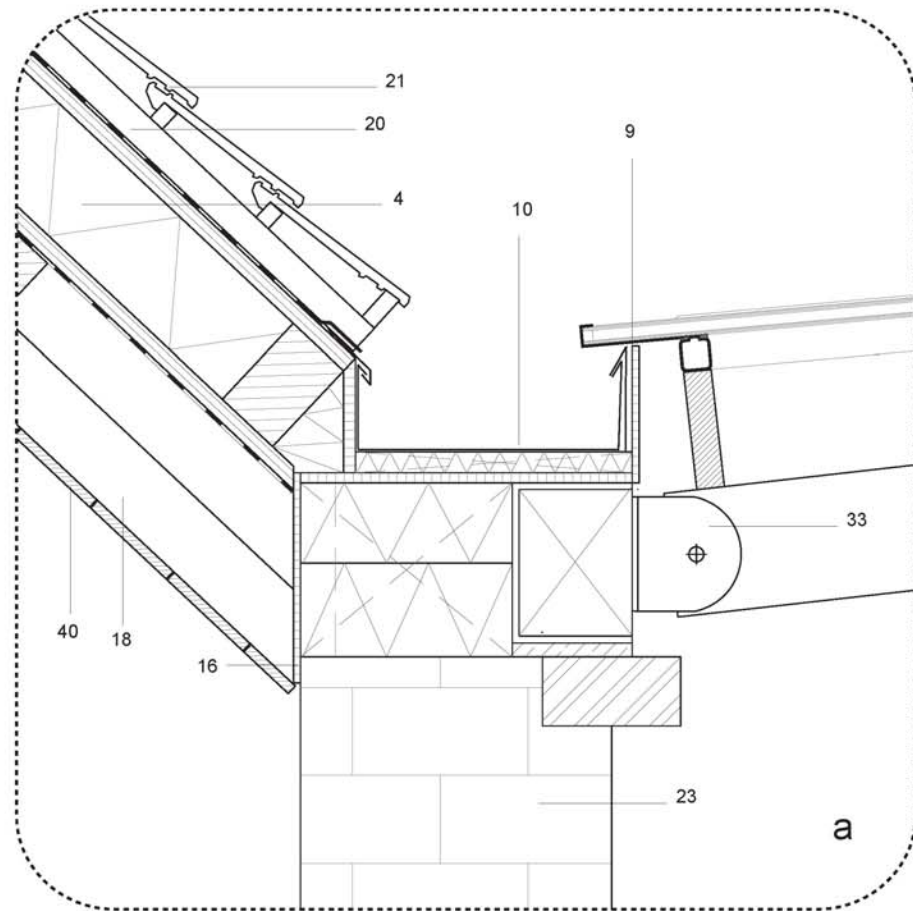


Vertical sections 1:20

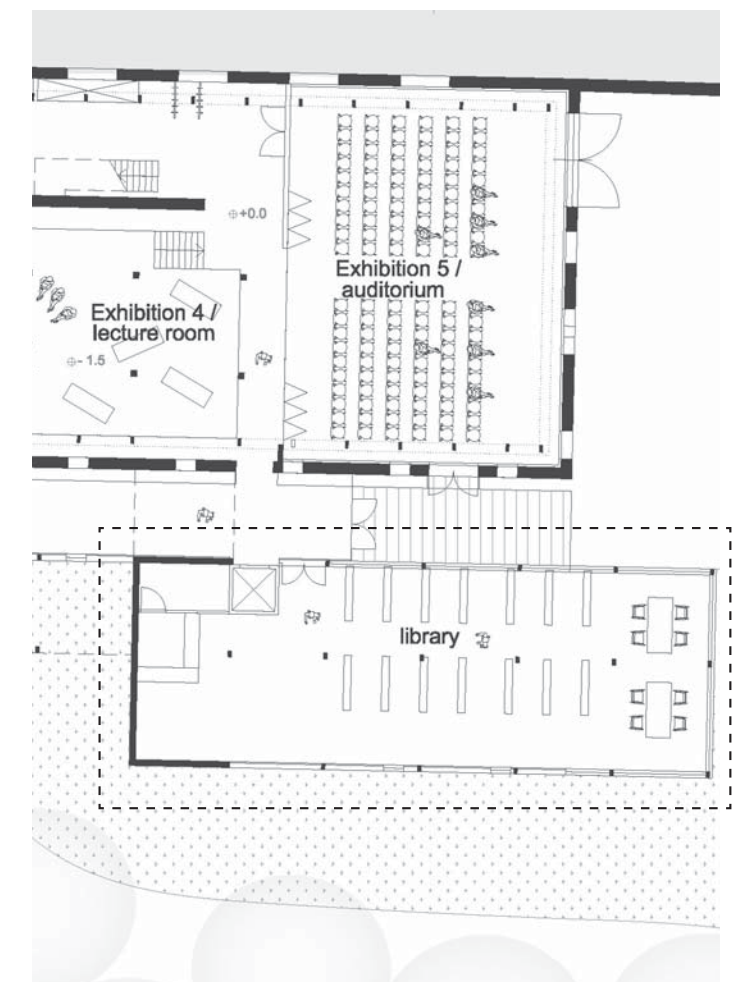
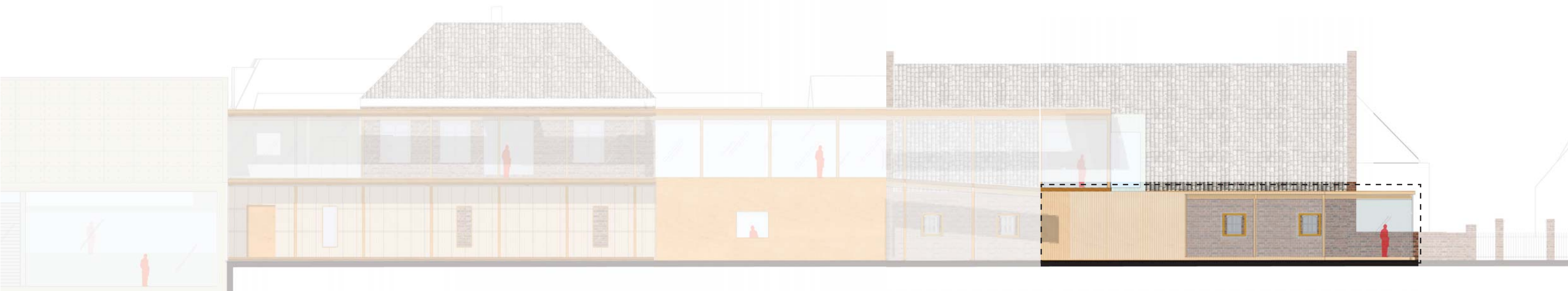
- 1 100/400mm laminated timber sheet column
- 2 100/300mm laminated timber sheet beam
- 3 Triple-walled polycarbonate panel
- 4 Prefabricated Birch plywood roofing panel, upper layer 9mm, lower layer 15mm and 120mm thermal insulation
- 5 heating pipes
- 6 18mm thk. structural glass
- 7 wooden ceiling
- 8 100/180mm laminated timber sheet beam
- 9 Double glass with low-E coating in steel frame (with openable window)
- 10 120 x 330 mm titanium-zinc sheet rainwater gutter
- 11 125 x 300/800mm lam. timber 3-hinged arch

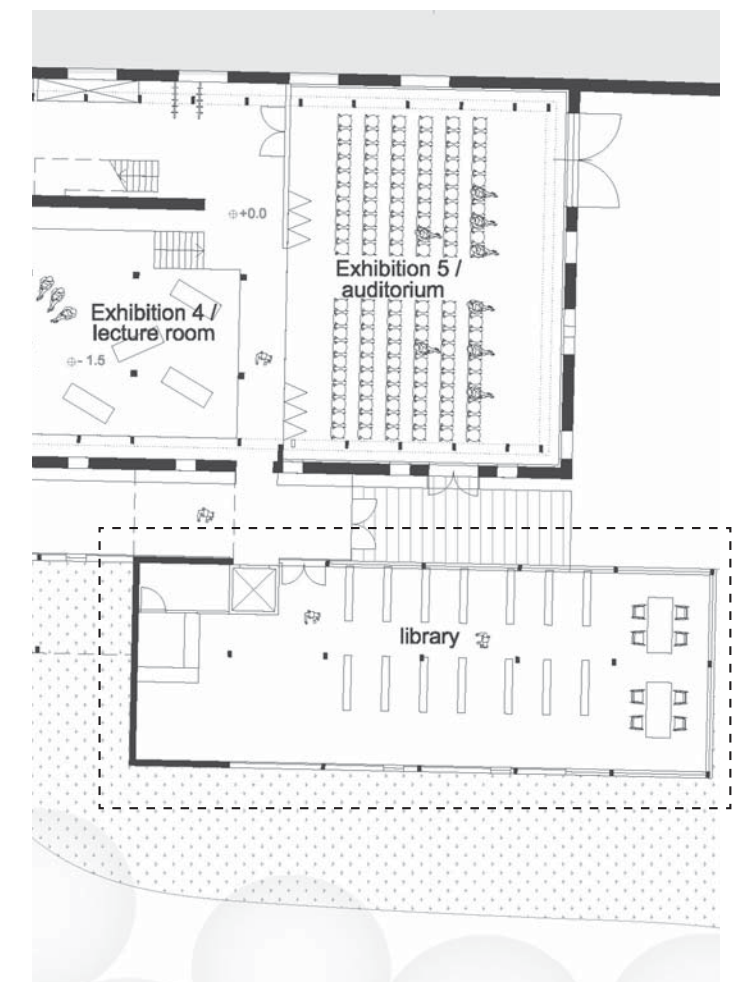
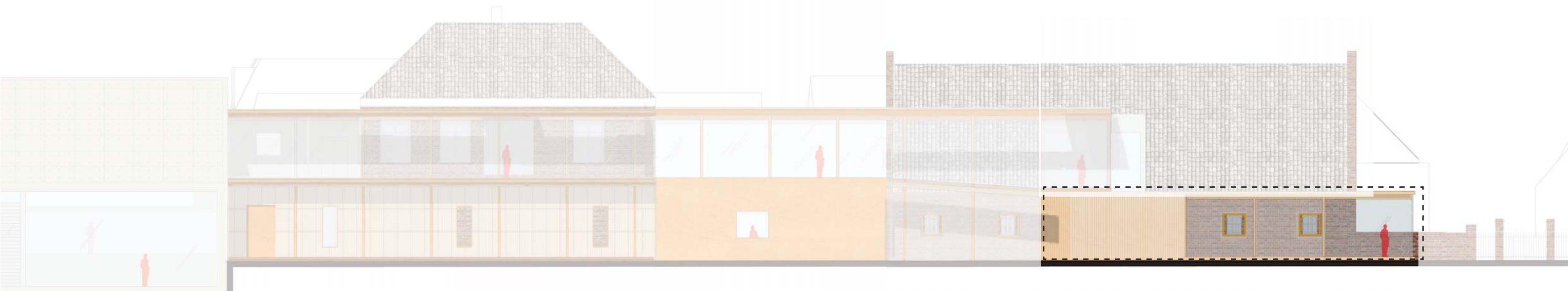
- 12 floor construction: 160x24 mm sawn timber decking, screed, floor heating, timber raised floor
- 13 existing arch roof
- 14 existing timber column
- 15 250 x 250mm concrete columns
- 16 15mm birch plywood panel
- 17 80 x 80mm purlin
- 18 100 x 100mm rafter
- 19 Steel hinge joint for lam. timber arch
- 20 60 x 60 mm counter battens
- 21 280 x 280 mm grey ceramic roof tiles
- 22 Existing shallow brick foundation
- 23 450mm Existing brick wall
- 24 lighting
- 25 100 mm thermal insulation
- 26 concrete pile foundation
- 27 concrete plinth
- 28 Steel lam. timber anchor
- 29 180 x 250 mm lam. timber
- 30 100 x 250 mm lam. timber
- 31 100/250mm laminated timber sheet column
- 32 Prefabricated Birch plywood floor panel, upper layer 9mm, lower layer 15mm and 150mm thermal insulation

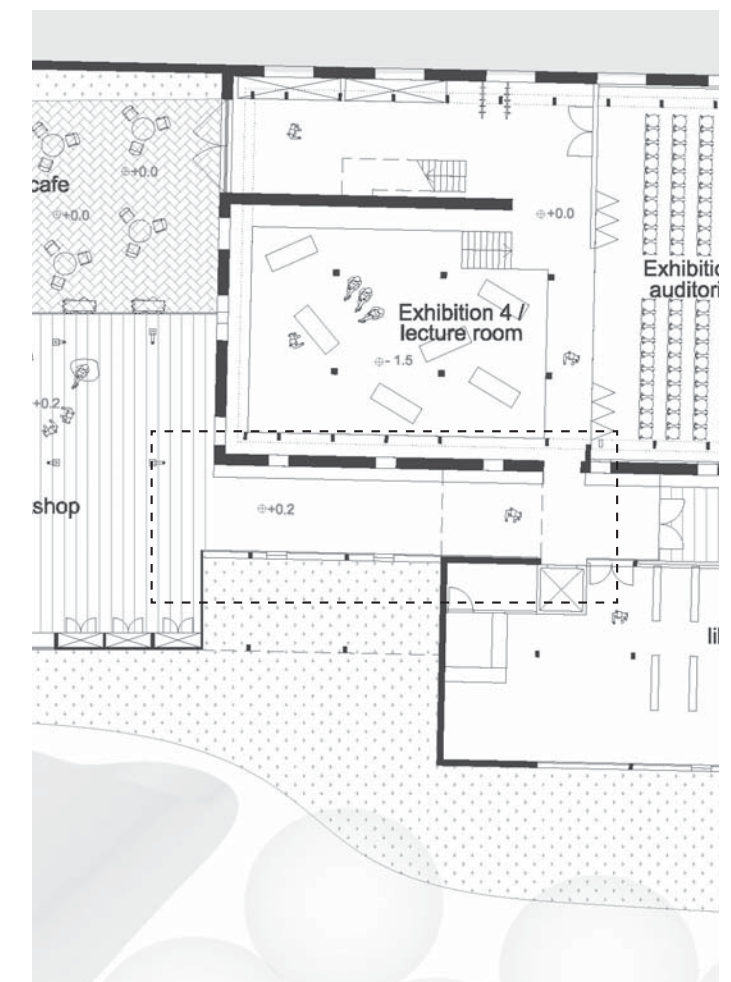
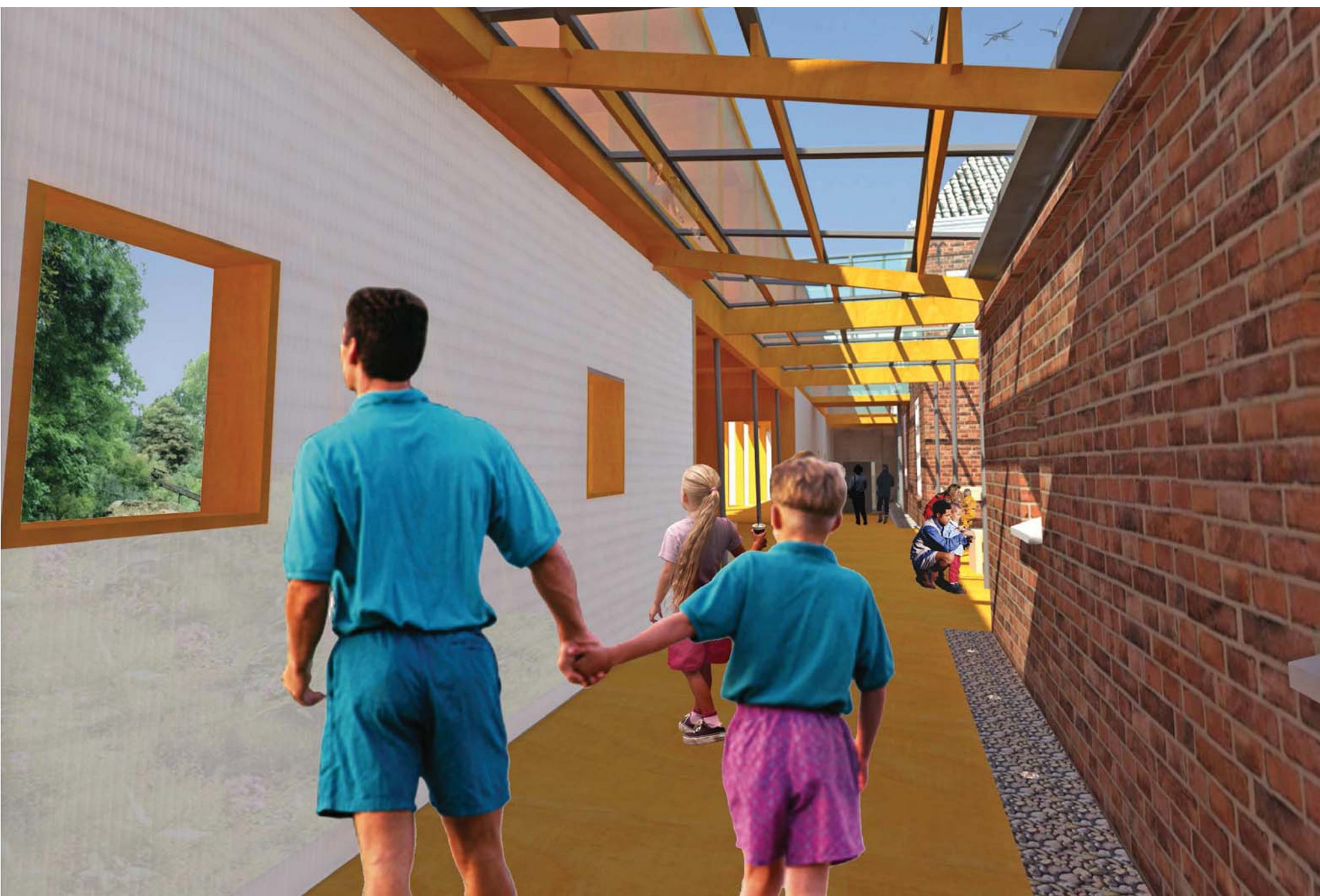
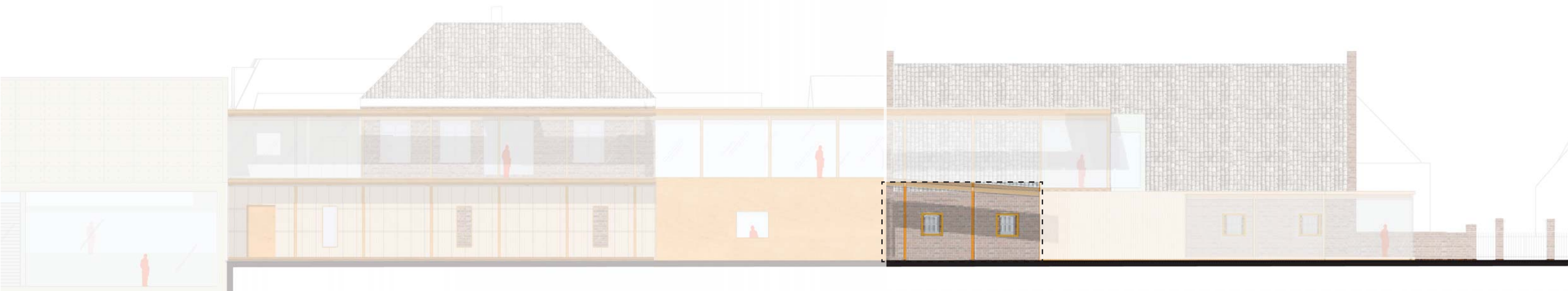


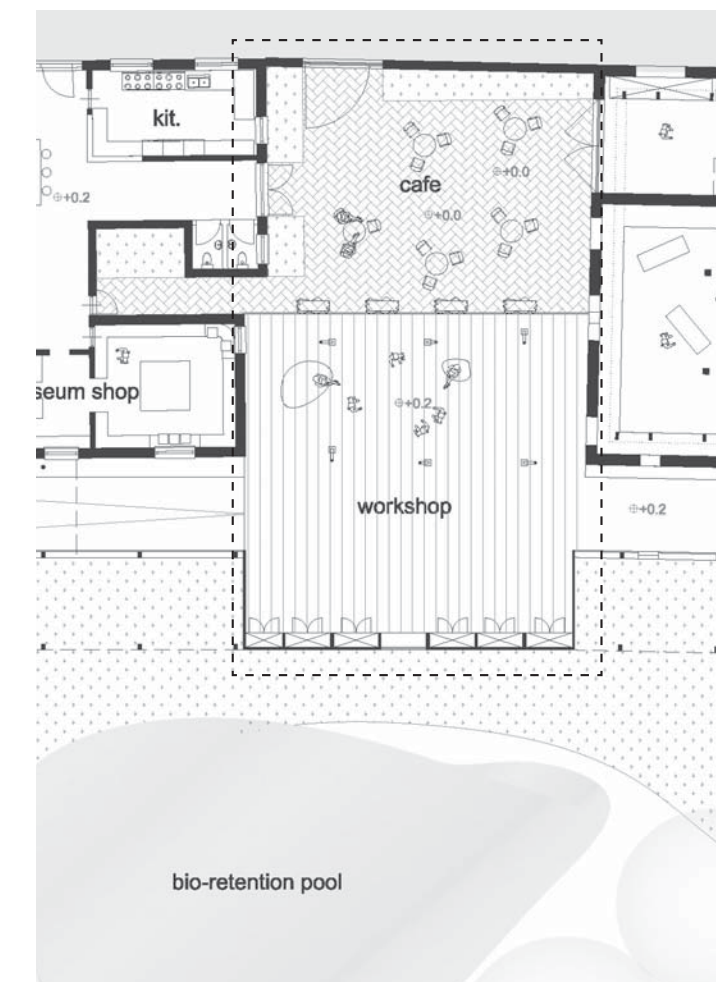
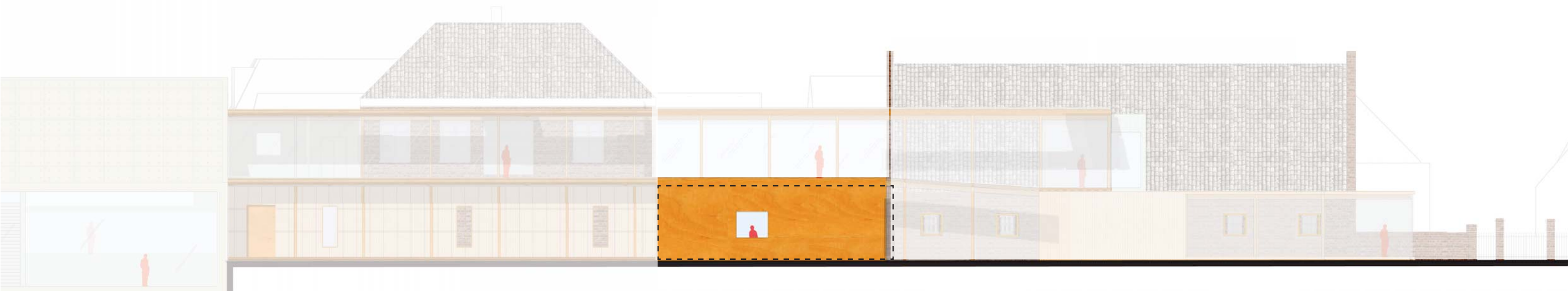


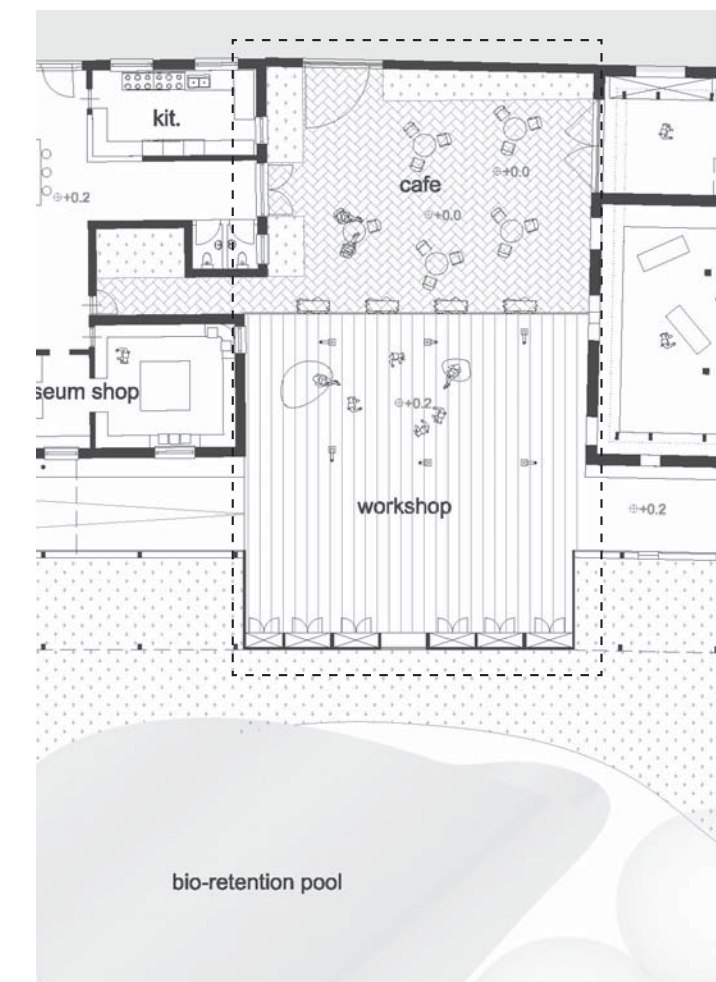
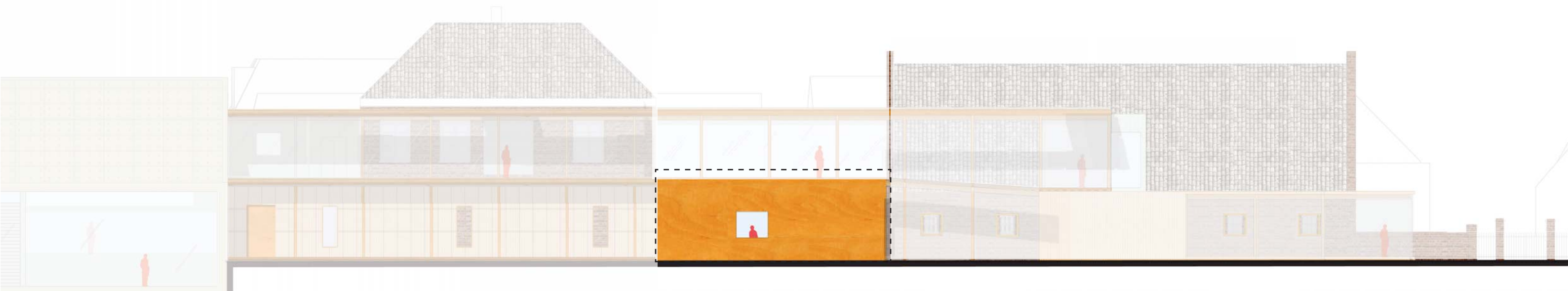
- Detail 1:5**
- 1 100/400mm laminated timber sheet column
 - 2 100/300mm laminated timber sheet beam
 - 3 Triple-walled polycarbonate panel
 - 4 Prefabricated Birch plywood roofing panel, upper layer 9mm, lower layer 15mm and 120mm mineral wool
 - 5 heating pipes
 - 6 18mm thk. structural glass
 - 7 wooden ceiling
 - 8 100/180mm laminated timber sheet beam
 - 9 Double glass with low-E coating in steel frame (with openable window)
 - 10 120 x 330 mm titanium-zinc sheet rainwater gutter
 - 16 15mm birch plywood panel
 - 18 100 x 100mm rafter
 - 20 60 x 60 mm counter battens
 - 21 280 x 280 mm grey ceramic roof tiles
 - 23 450mm Existing brick wall
 - 32 Prefabricated Birch plywood floor panel, upper layer 9mm, lower layer 15mm and 150mm mineral wool
 - 33 Steel hinge connection for lam. timber beam
 - 34 Nedzink roofing
 - 35 Wooden batten
 - 37 double glazing (2 x 8 mm lam safety glass + 10 mm cavity)
 - 38 Aluminium sheet, flexible for polycarbonate panel's deformation
 - 39 Manufactured timber window frame with thermal glass (openable)
 - 40 160x24 mm sawn timber decking
 - 41 2.5mm steel grating
 - 42 65 x 65 mm timber

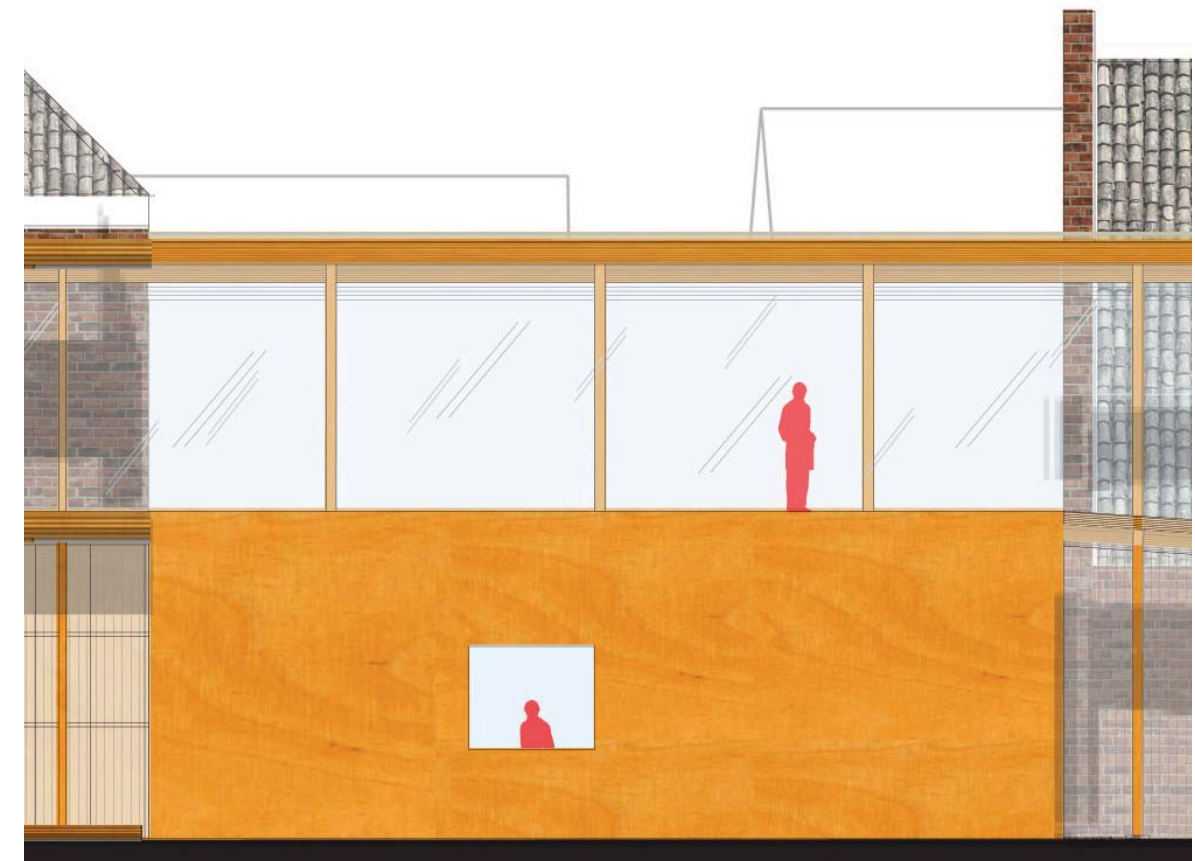
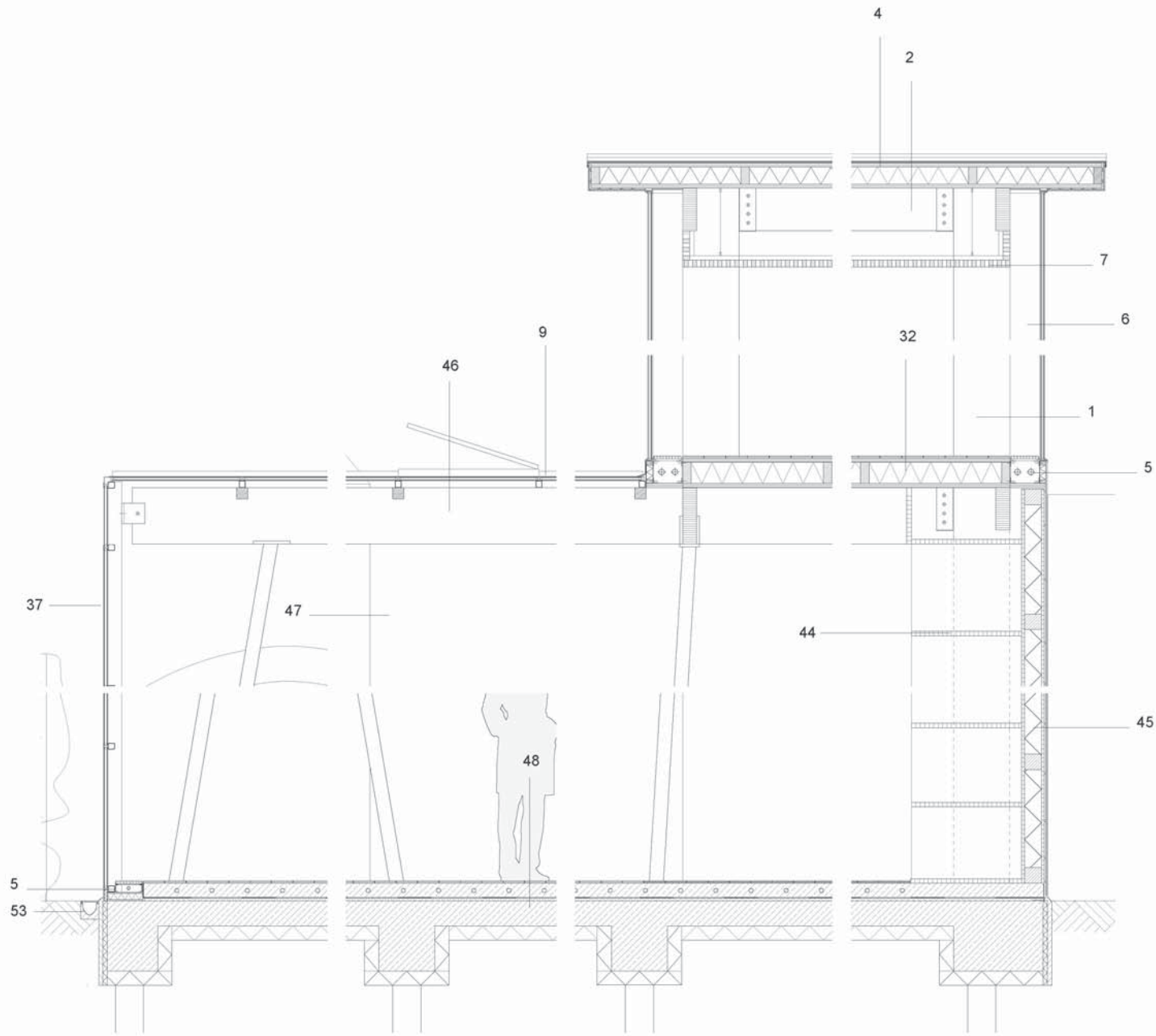






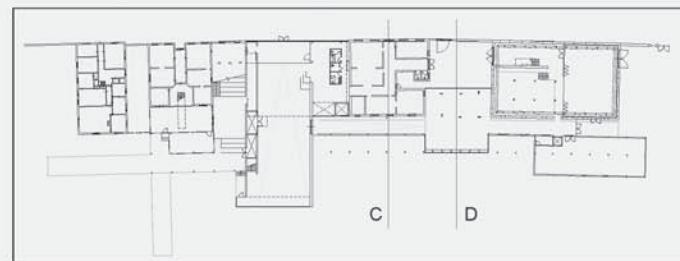






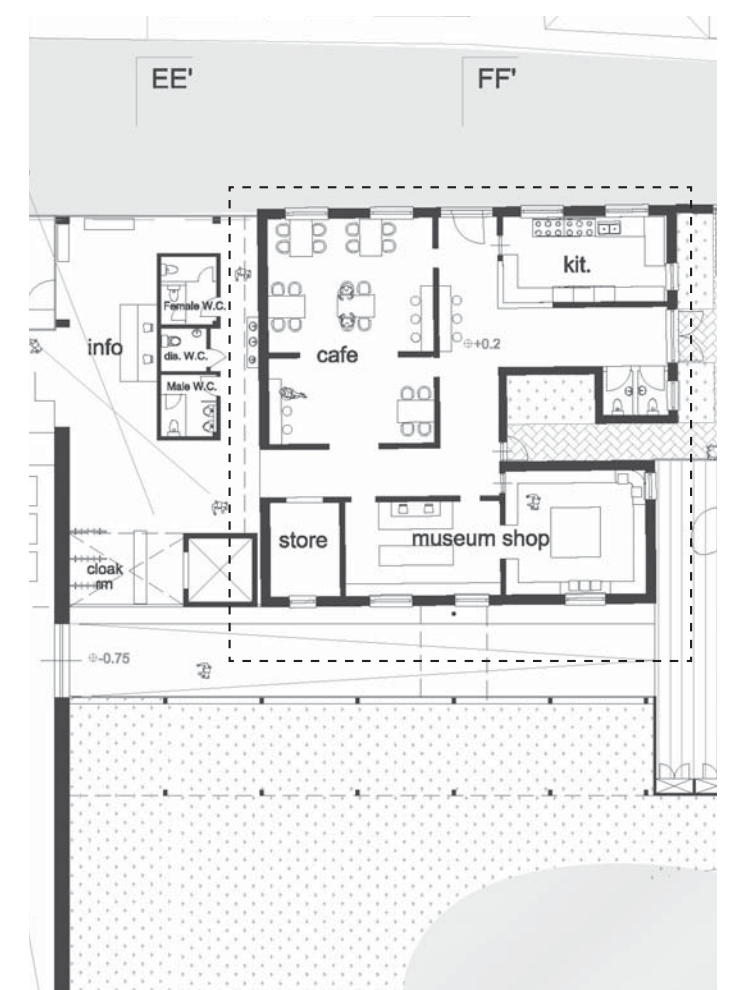
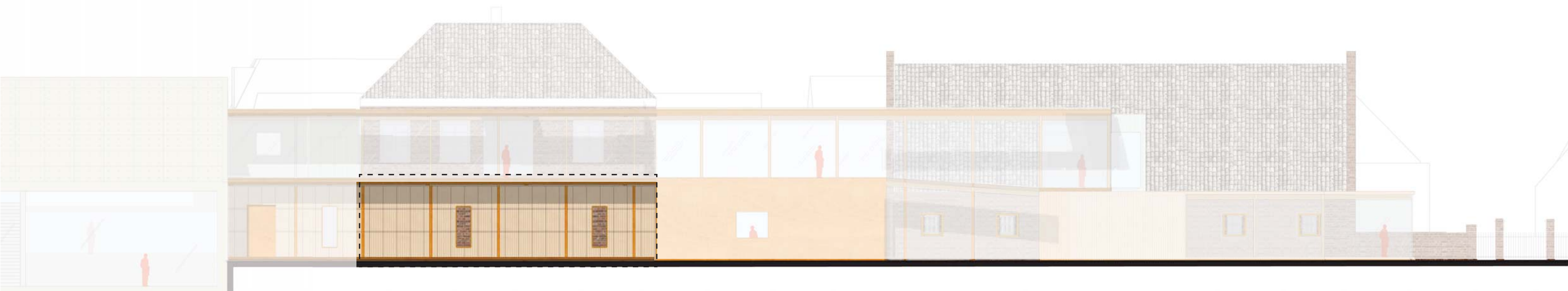
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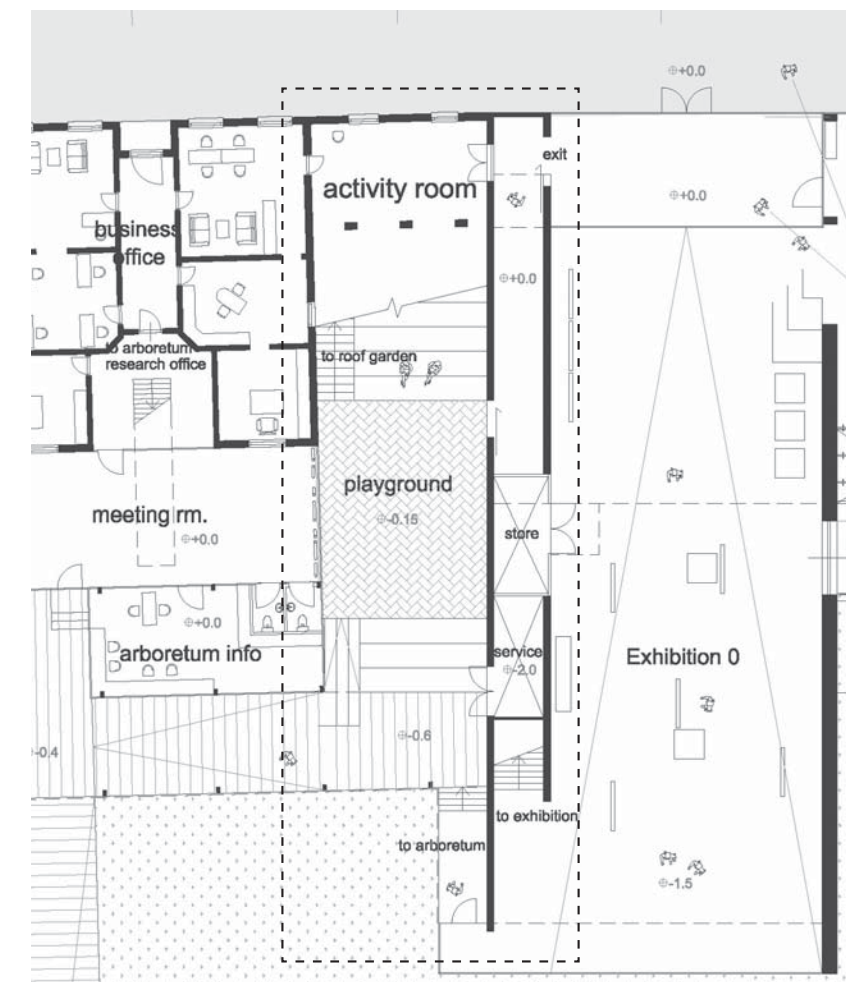
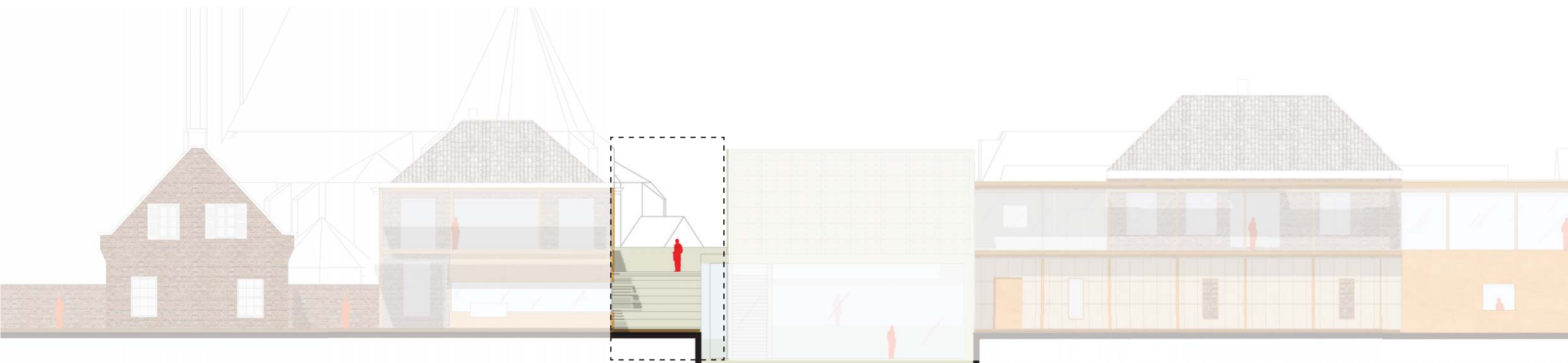
Vertical sections 1:20

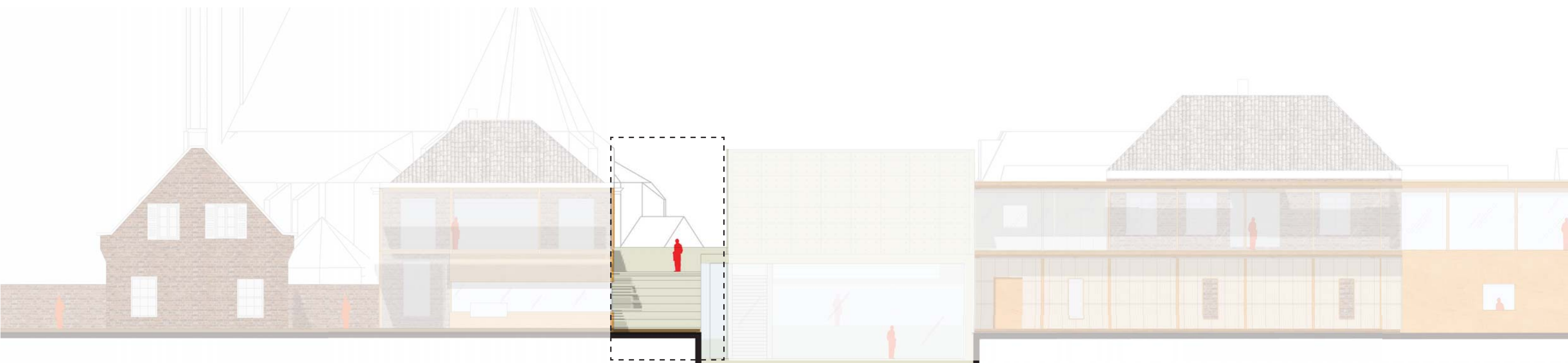


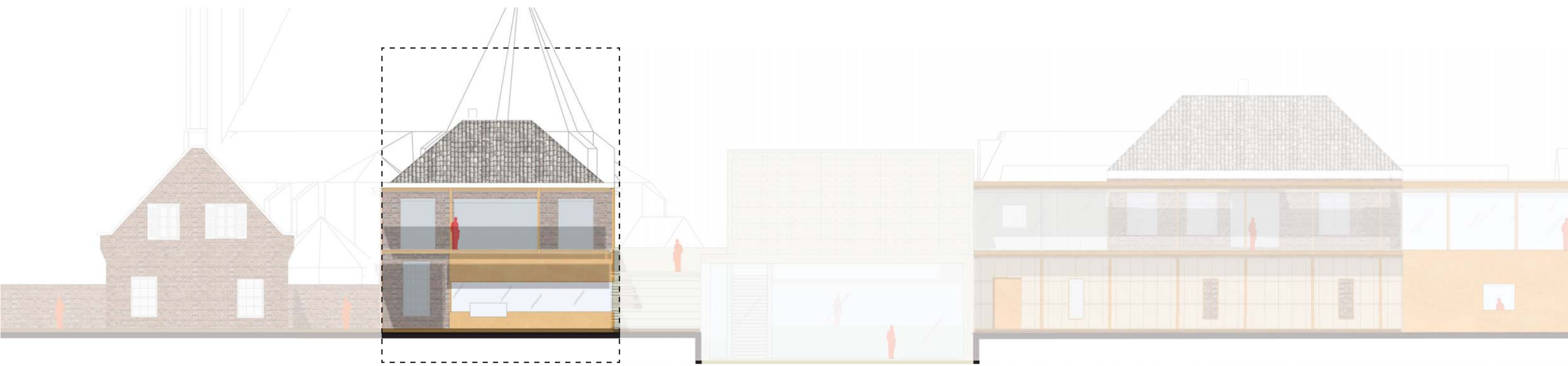
- | | | | |
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| 1 | 100/400mm laminated timber sheet column | 33 | Steel hinge connection for lam. timber beam |
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| 4 | Prefabricated Birch plywood roofing panel, upper layer 9mm, lower layer 15mm and 120mm thermal insulation | 45 | 150 mm thermal insulation and 20mm lam. timber sheeting |
| 5 | heating pipes | 46 | 150/400 mm lam. timber beam |
| 6 | 18mm thk. structural glass | 47 | 100mm dia. steel column |
| 7 | wooden ceiling | 48 | floor construction: 160x24 mm sawn timber decking, screed, floor heating, waterproof membrane, thermal insulation |
| 9 | Double glass with low-E coating in steel frame (with openable window) | 49 | 200mm dia. pre-heated fresh air outlet |
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| 24 | lighting | 53 | gutter |
| 32 | Prefabricated Birch plywood floor panel, upper layer 9mm, lower layer 15mm and 150mm thermal insulation | 54 | wooden railing |

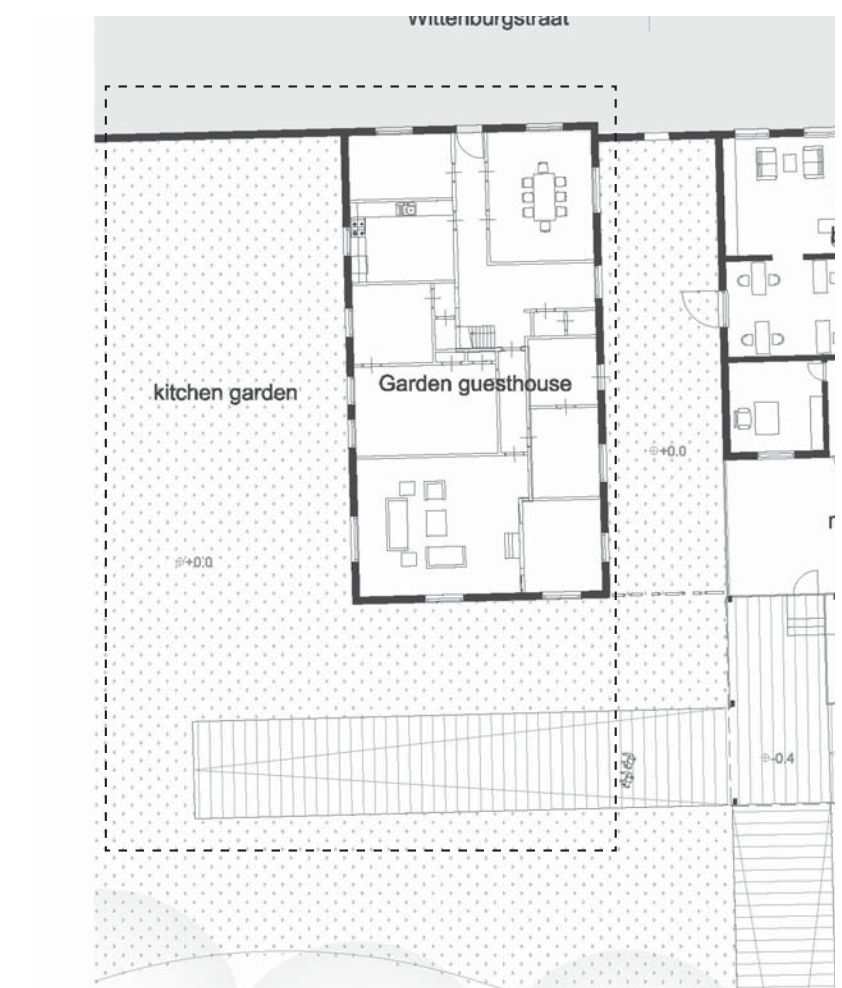
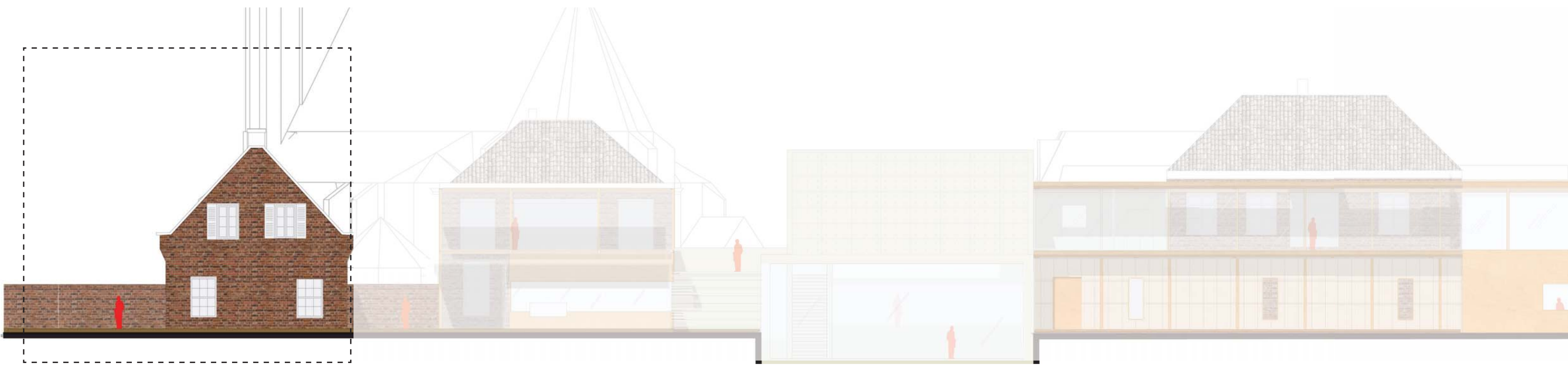


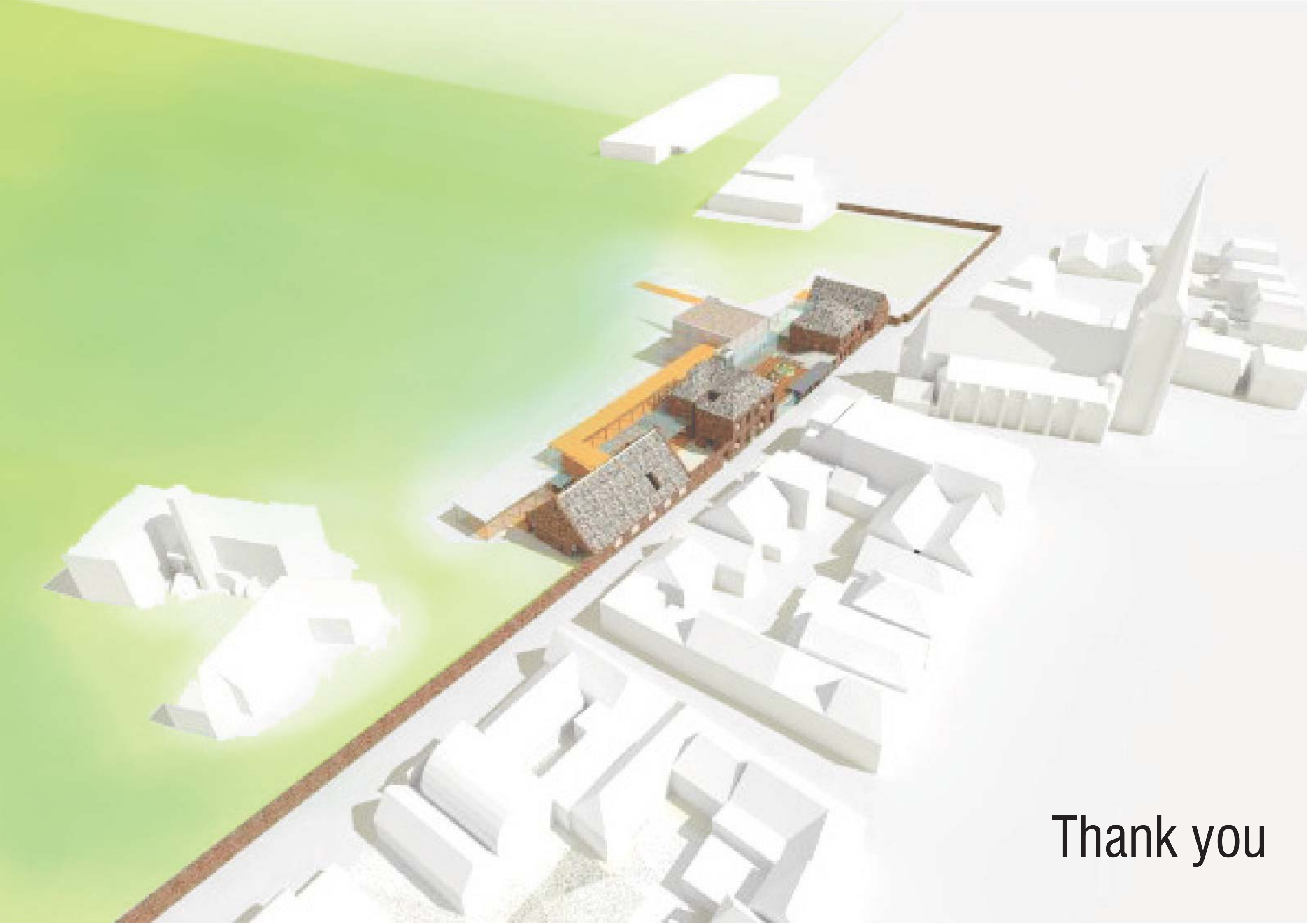












Thank you