

■ Sacred Care

The societal role of vacant churches in the elderly housing crisis



Presentation P5

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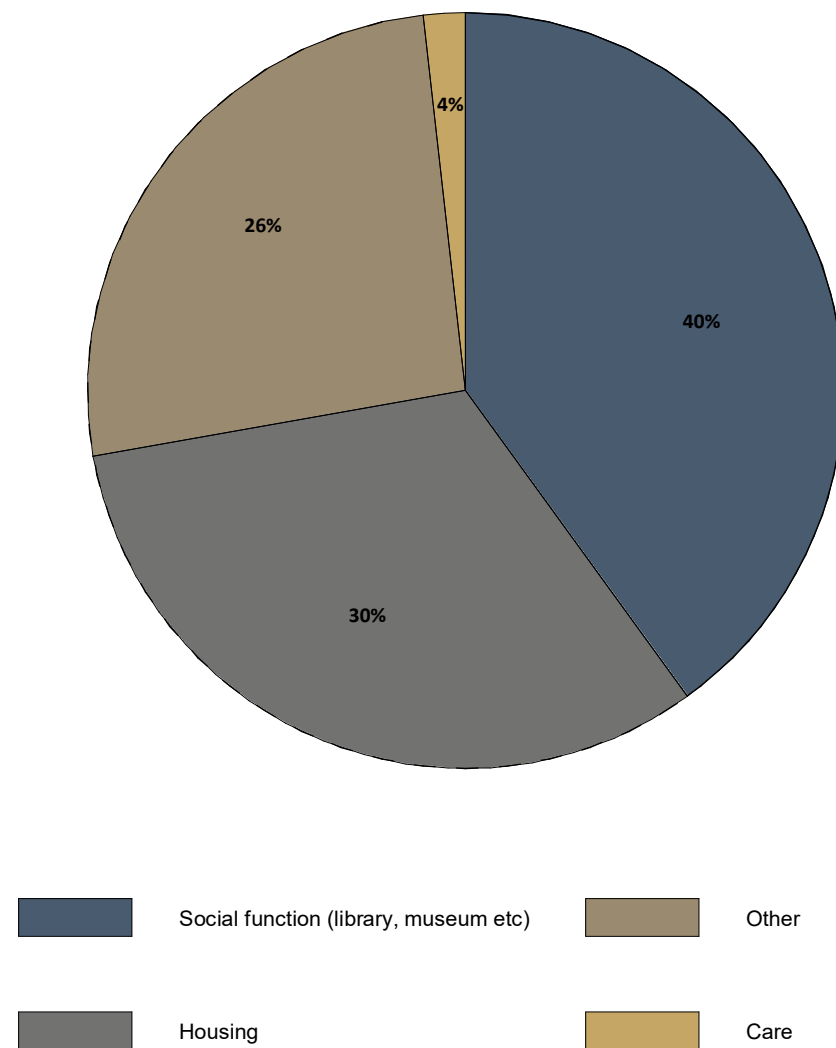
Research

The societal role of vacant churches in the elderly housing crisis

2. Vacant churches

- Four percent for care
- Secularisation
- More atheists
- Catholic and Protestant declining in particular
- Especially older people over 65 still attend church

Transformed churches



(Kerkgebouwen, 2020).

Number of believers in the Netherlands in percent

	2012	2013	2014	2015	2016	2017	2018	2019
Atheism	46,2	46,2	47,5	48,2	49,7	50,7	51,8	54,1
Roman Catholic	25,6	26,4	25,4	25,3	24,1	23,6	22,1	20,1
Protestant	17,2	16,8	16,5	15,4	15,6	15,0	16,0	14,8
Islam	4,5	4,7	4,7	4,6	5,1	5,1	4,9	5,0
Other	6,5	5,9	5,9	6,5	5,5	5,6	5,3	5,9

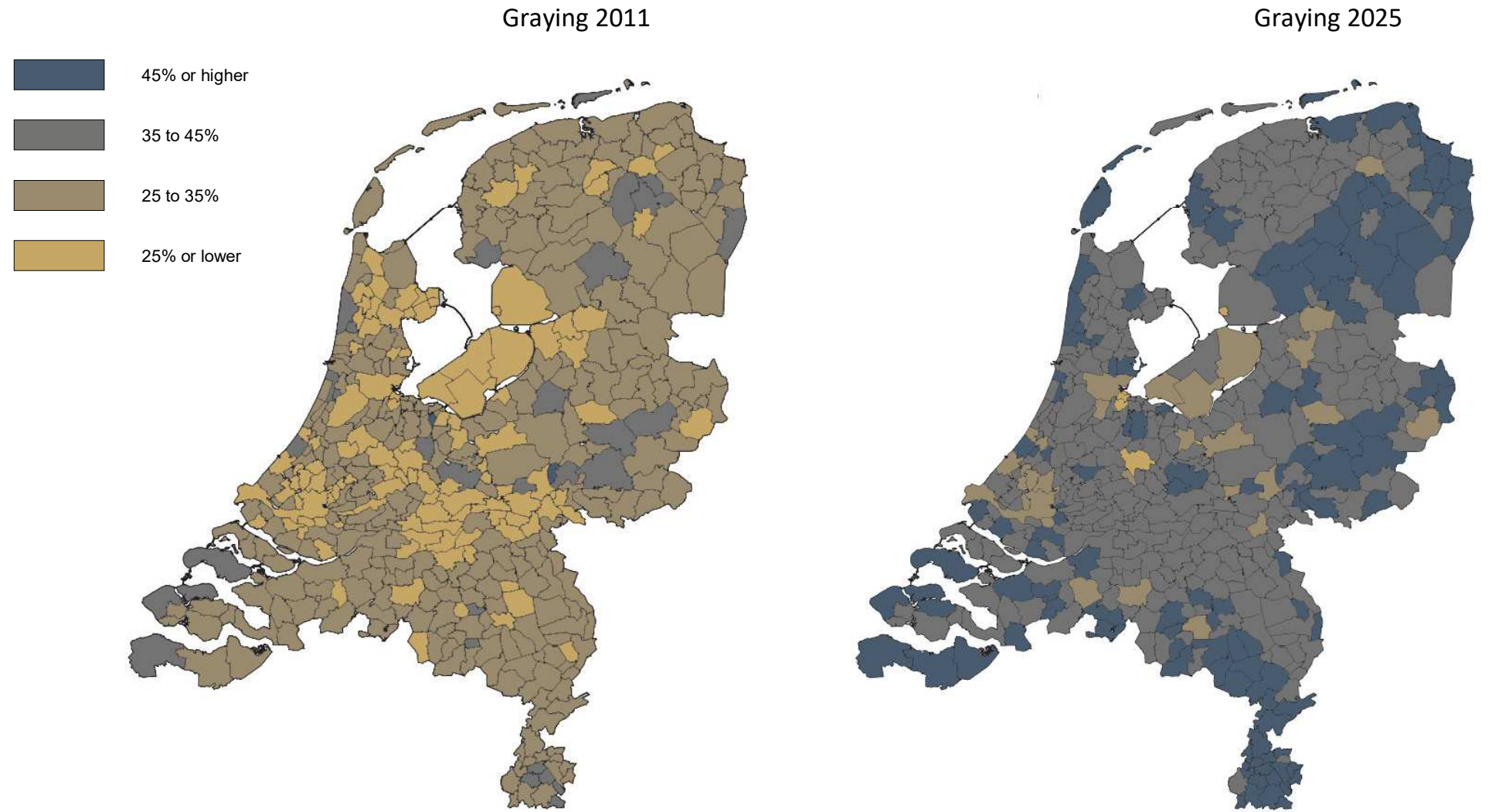
Religion broken down by age group in percent

	15 till 25	25 till 35	35 till 45	45 till 55	55 till 65	65 till 75	75 and higher
Atheism	64,3	64,5	60,2	58,9	47,3	42,6	31,7
Roman Catholic	11,5	11,1	13,1	17,8	26,8	30,2	37,6
Protestant	11,2	11,3	11,2	11,8	16,6	21,0	25,2
Islam	8,6	7,7	8,1	4,7	2,4	2,1	0,4
Other	4,5	5,4	7,4	6,8	6,8	4,8	5,1

(CBS, 2020).

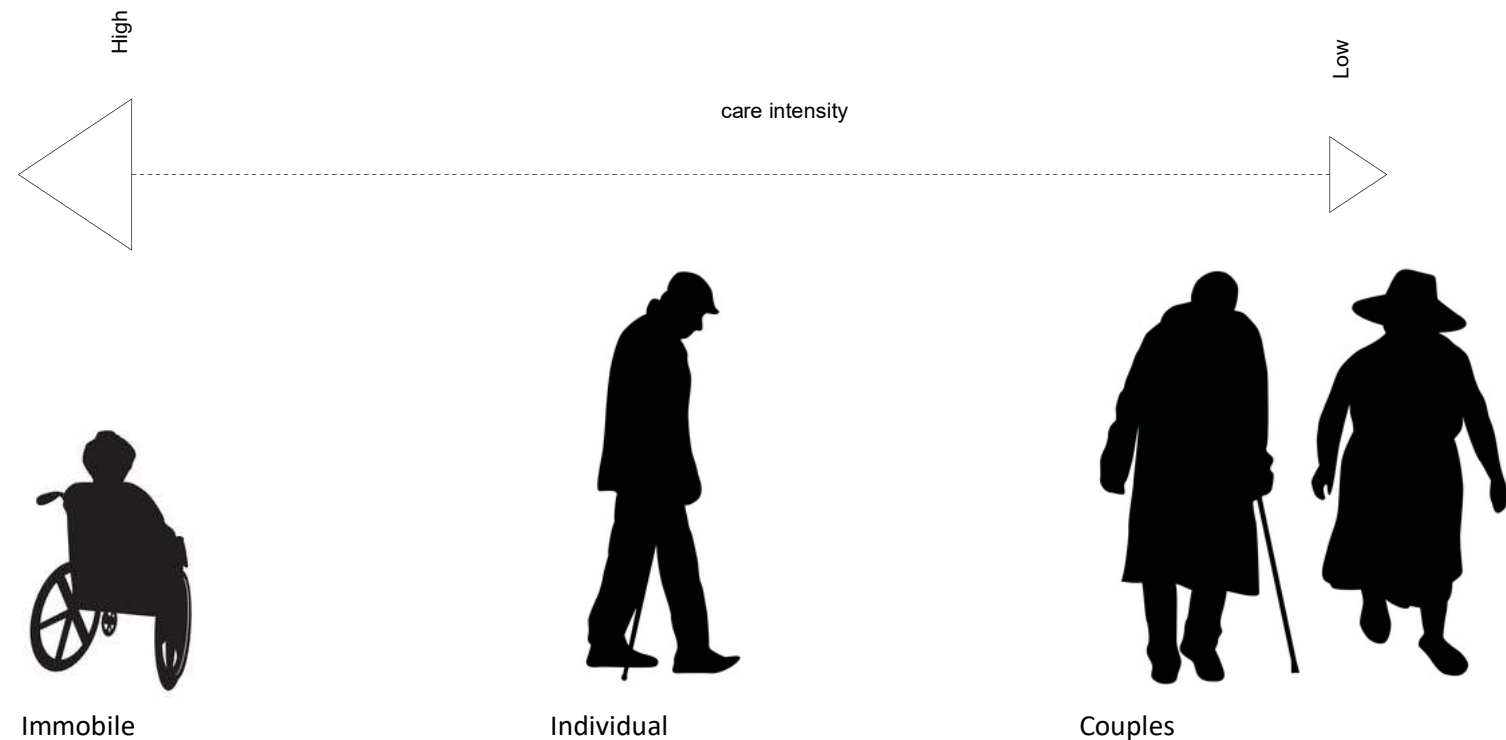
3. Ageing

- Four percent for care
- Secularisation
- More atheists
- Catholic and Protestant declining in particular
- Especially older people over 65 still attend church
- **Three targetgroups: Couples, individual and immobile**
- 92% of elderly people still can and want to live alone at age 75 (HEVO, 2020)

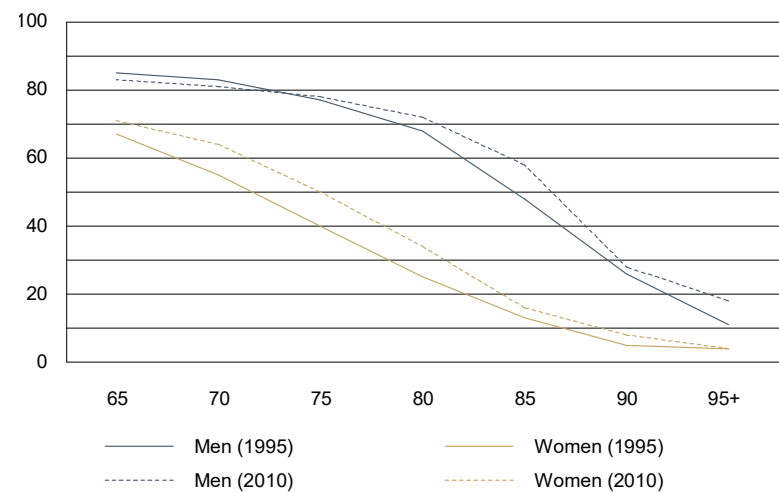


(CBS, 2011).

Targetgroups independent elderly



Proportion of over-65s living together in percent



(CBS, 2011).

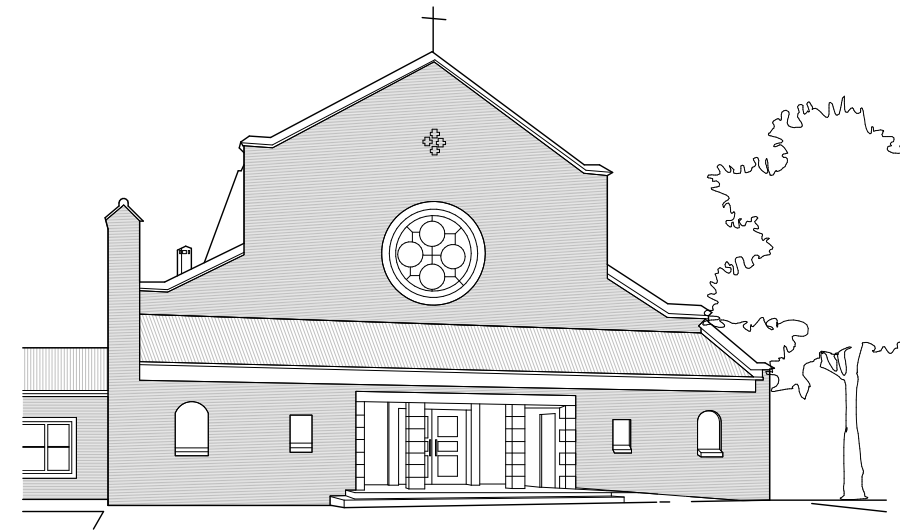
4. Research question

Main question:

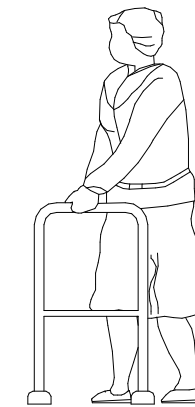
How can the growing vacancy of religious buildings help create a housing provision for independent elderly people?

Sub questions:

1. Why aren't very many churches being transformed into healthcare buildings?
2. What kind of architectural elements does an independent elderly person need to live in a home in which "light care"² can be provided?
3. How have existing churches been transformed into care buildings?
4. What can we learn from existing care buildings into redesigning churches?
5. How can architecture influence an individual's life and mindspan?



Vacant churches



Independent elderly



Elderly complex

5. Care is not attractive

- Relationship religion
- Thermal use
- Usage costs
- Ageing
- Aesthetics
- Ethical
- Regulations



(Bedaux de Brouwer, 2020).

6. Case studies

Churches:

- Oosterkerk (Aalten)
- Vredeskerk (Tilburg)
- Mariadal (Roosendaal)

Healthcare complex:

- De Ingelanden (Utrecht)
- Bartholomeus gasthuis (Utrecht)
- Haarendael (Haaren)



Oosterkerk



De Ingelanden



Vredeskerk



Bartholomeus gasthuis



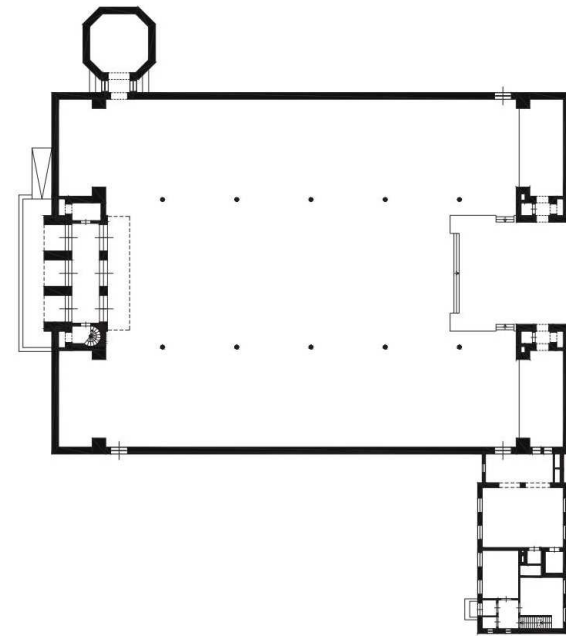
Mariadal



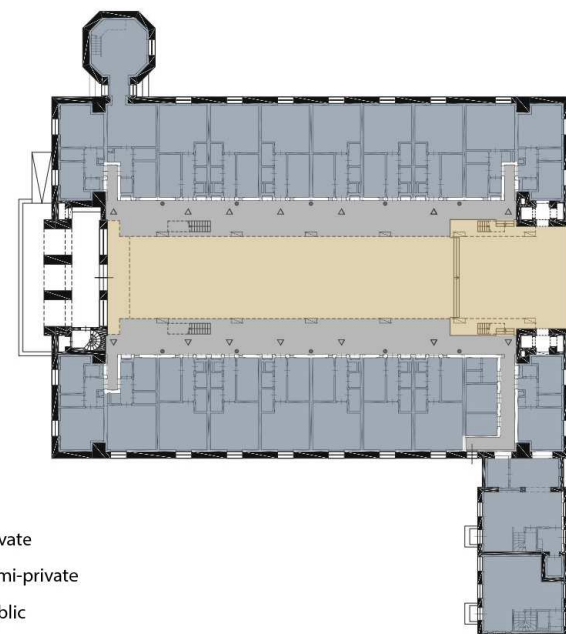
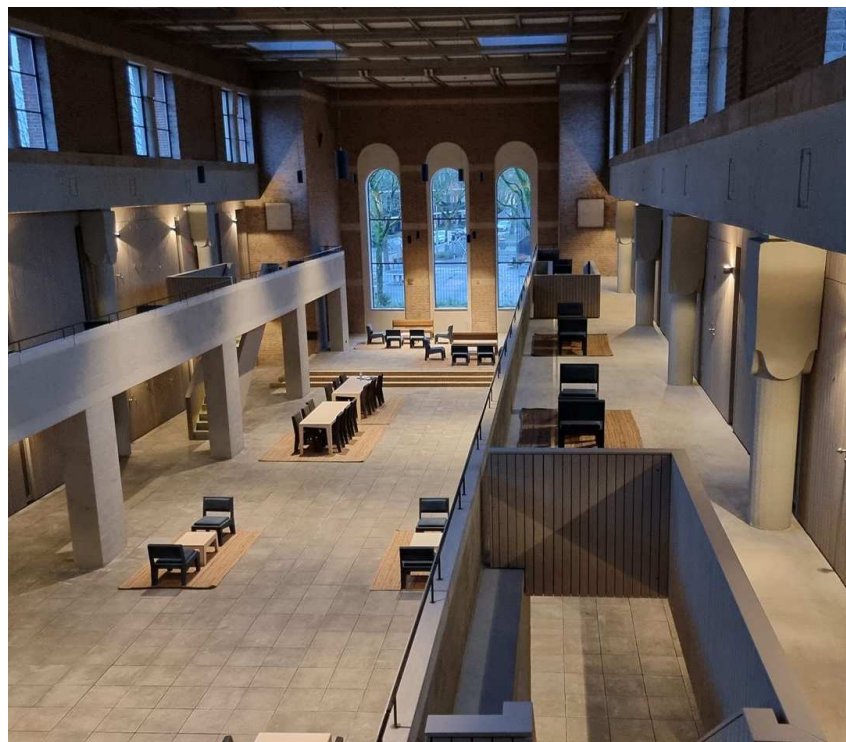
Haarendael

7. Reference projects (Vredeskerk)

- Transition zones
- Low impact on the existing structure
- Collective living
- Transcending of the human scale in the church

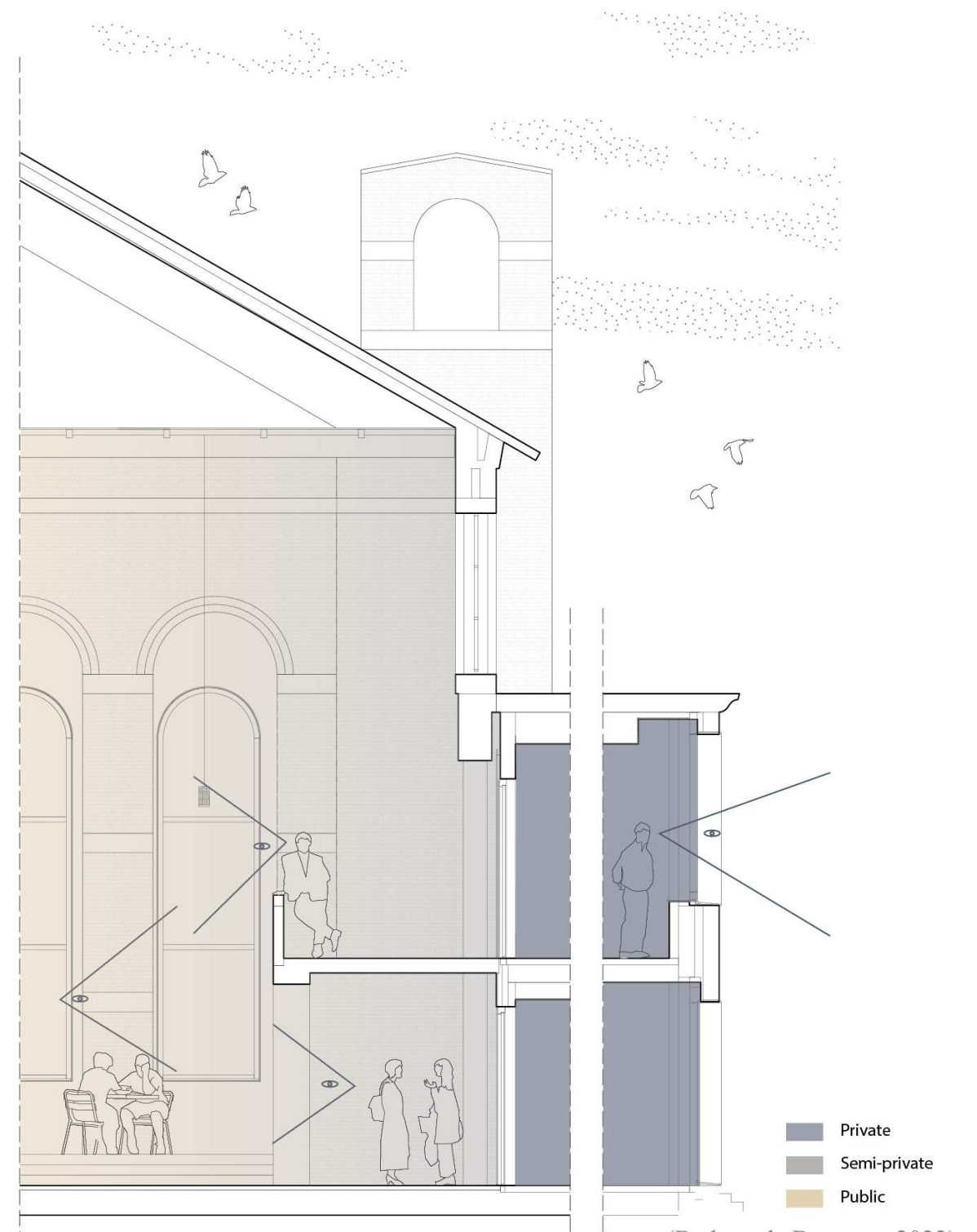


plattegrond oud



- Private
- Semi-private
- Public

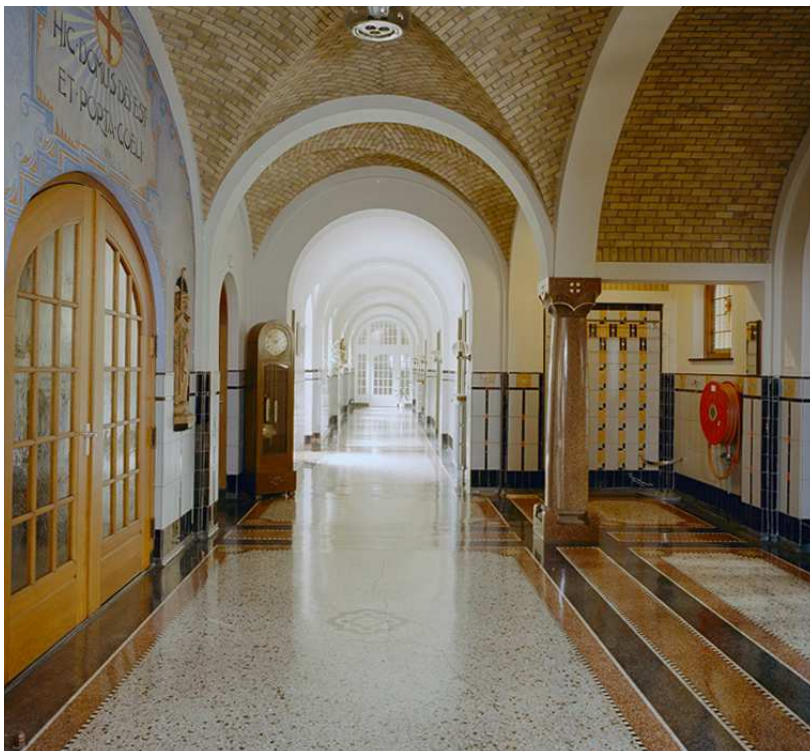
plattegrond nieuw



(Bedaux de Brouwer, 2022).

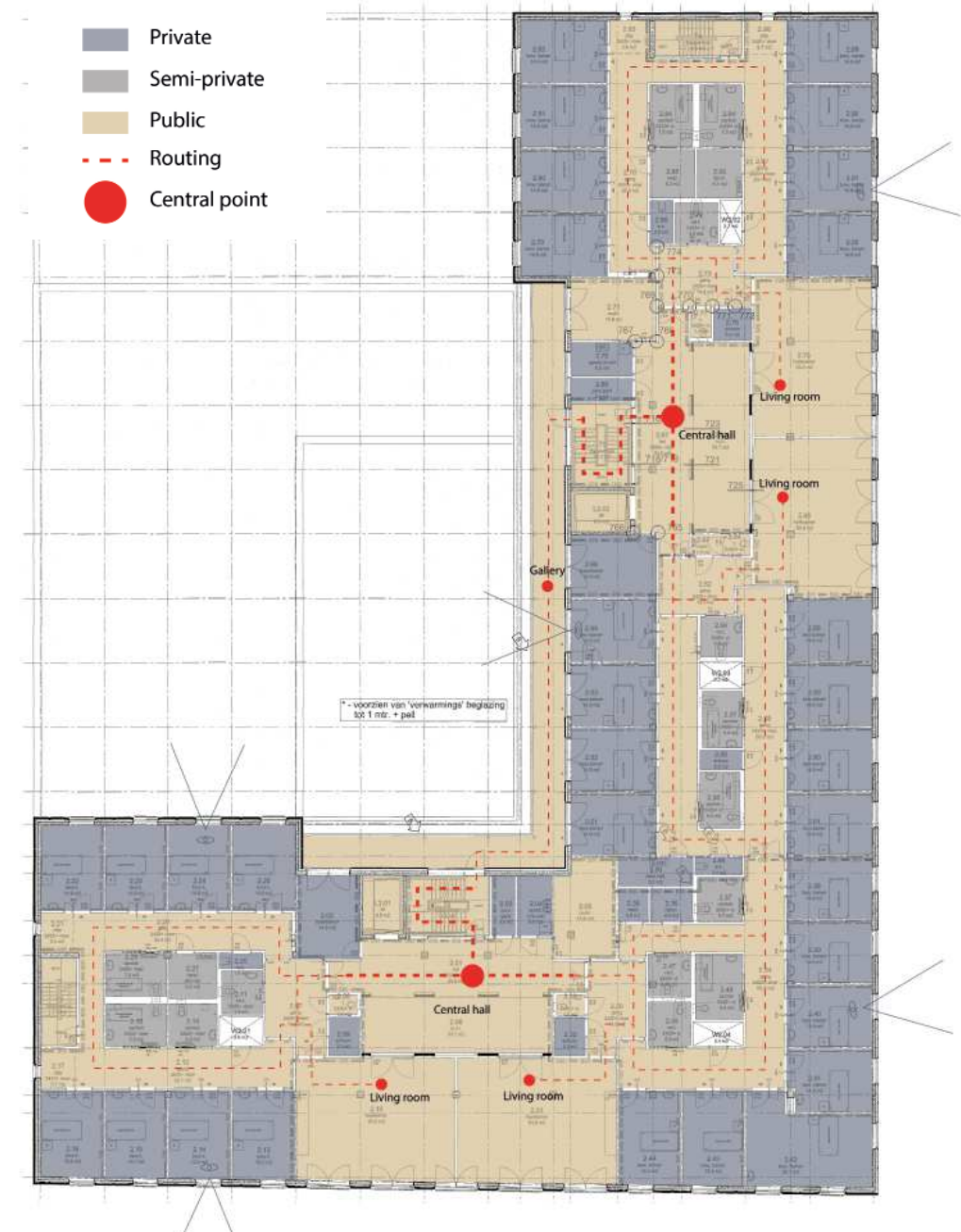
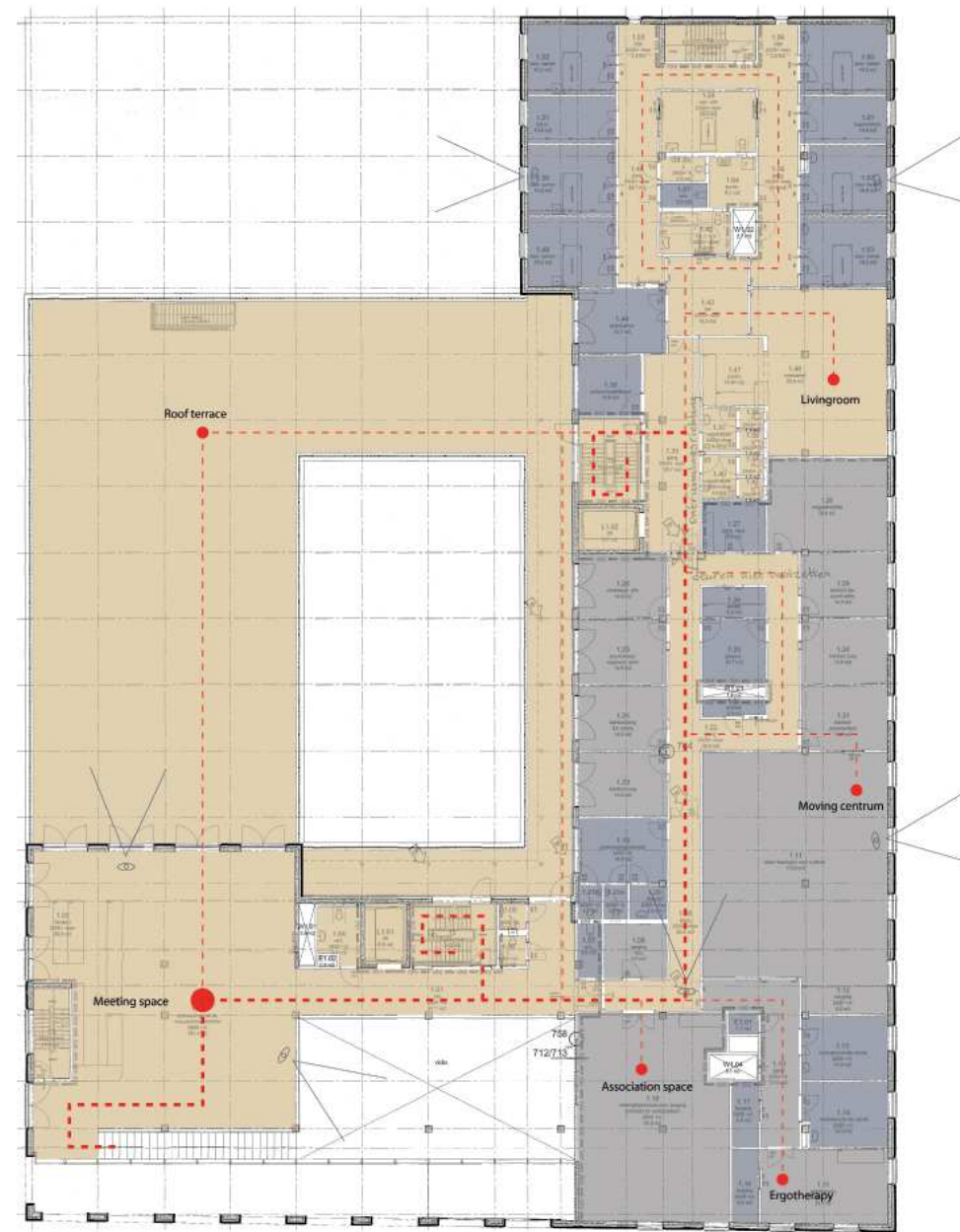
7. Reference projects (Mariadal)

- Zoning
- Care clashes with the rest of the functions
- Using existing structure as much as possible
- Efficient heating, compartmentalised heating
- Closed loops
- Courtyard



7. Reference projects (Ingelanden)

- Public ground floor
- Multiple shops
- Shared living room per 8 apartment
- Clear routing in floorplan
- Courtyard (privacy and safety)
- Light materials

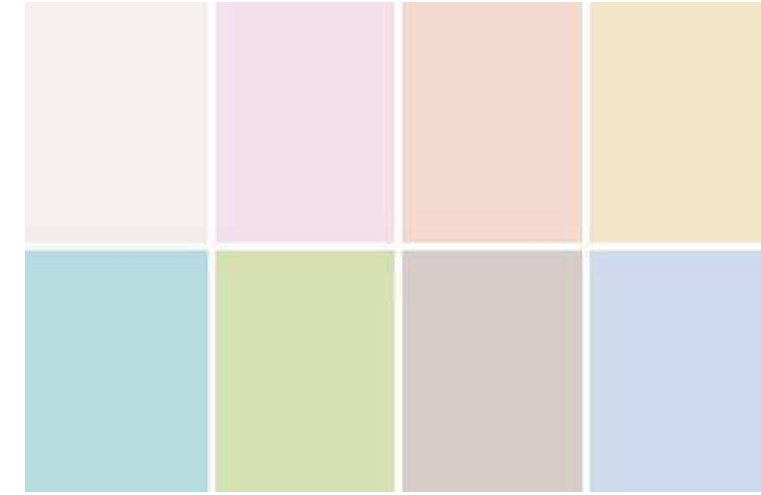


8. Mind and lifespan

- Mind and lifespan work together in harmony
- Vegetation
- Light colors
- Enough daylight
- Group activities against loneliness (especially individuals)
- The ability to arrange your own room
- Privacy and safety



Vegetation for health and vitality



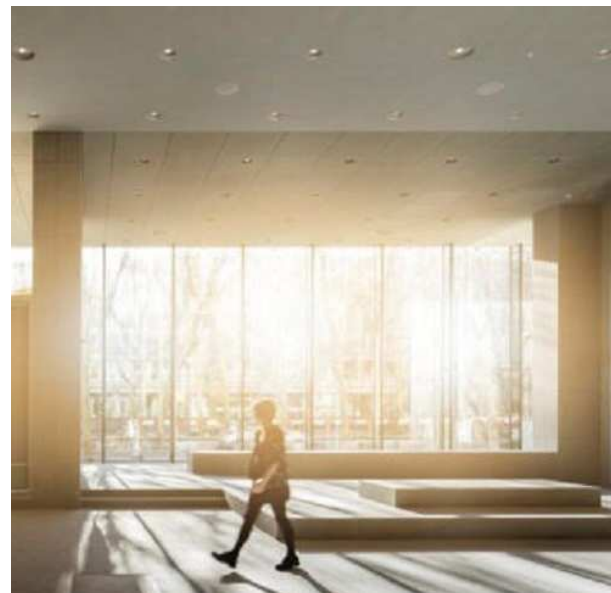
Light colors for wayfinding



Adaptability of their own room



Activities against loneliness



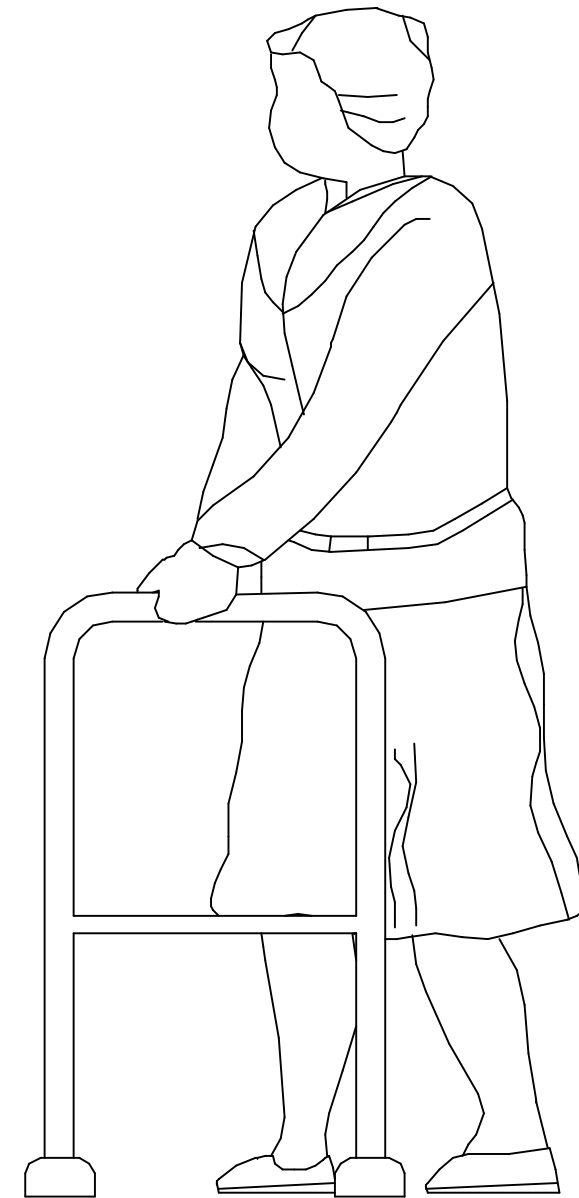
Enough daylight to boost their mind



Feeling safe in their own environment

9. The 10 design principles for elderly housing in a church

1. Clear structure with preferably closed routing
2. Use light materials and colours for wayfinding
3. Vegetation for mental well-being and vitality
4. Using enclosed courtyards for privacy and safety
5. Using the following four Rs: Reduce, re-use, repurpose, recycle
6. Three target groups: Cohabiting, individual and immobile elderly
7. Preservation of religious elements (such as the Mary Chapel)
8. Efficient use in energy though compartmentalised heating
9. Transcending of the human scale in the church
10. Separation between residential and public



Casestudy

The Sint Dominicus Church

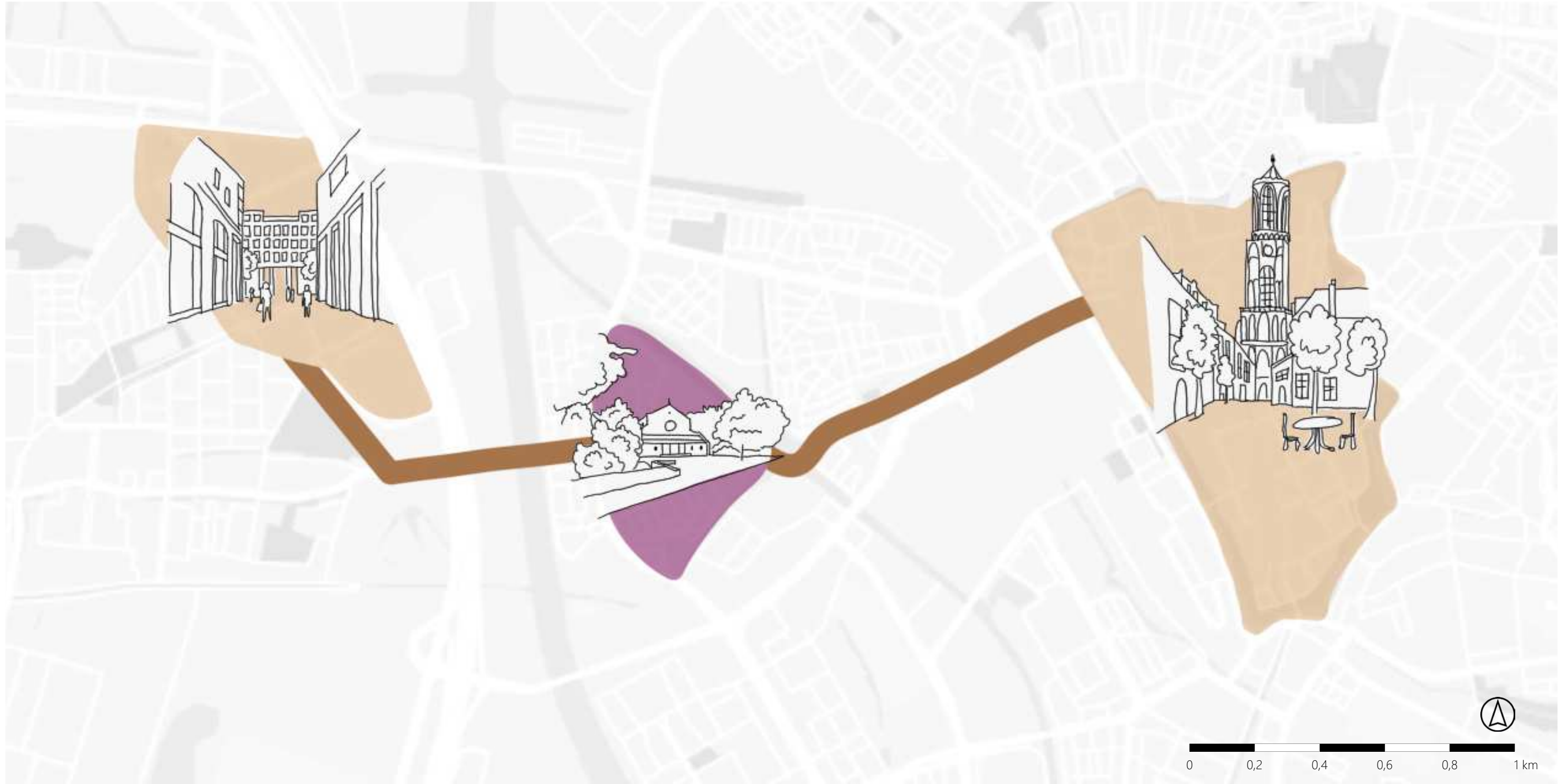
10. Sint Dominicus church

Impressions



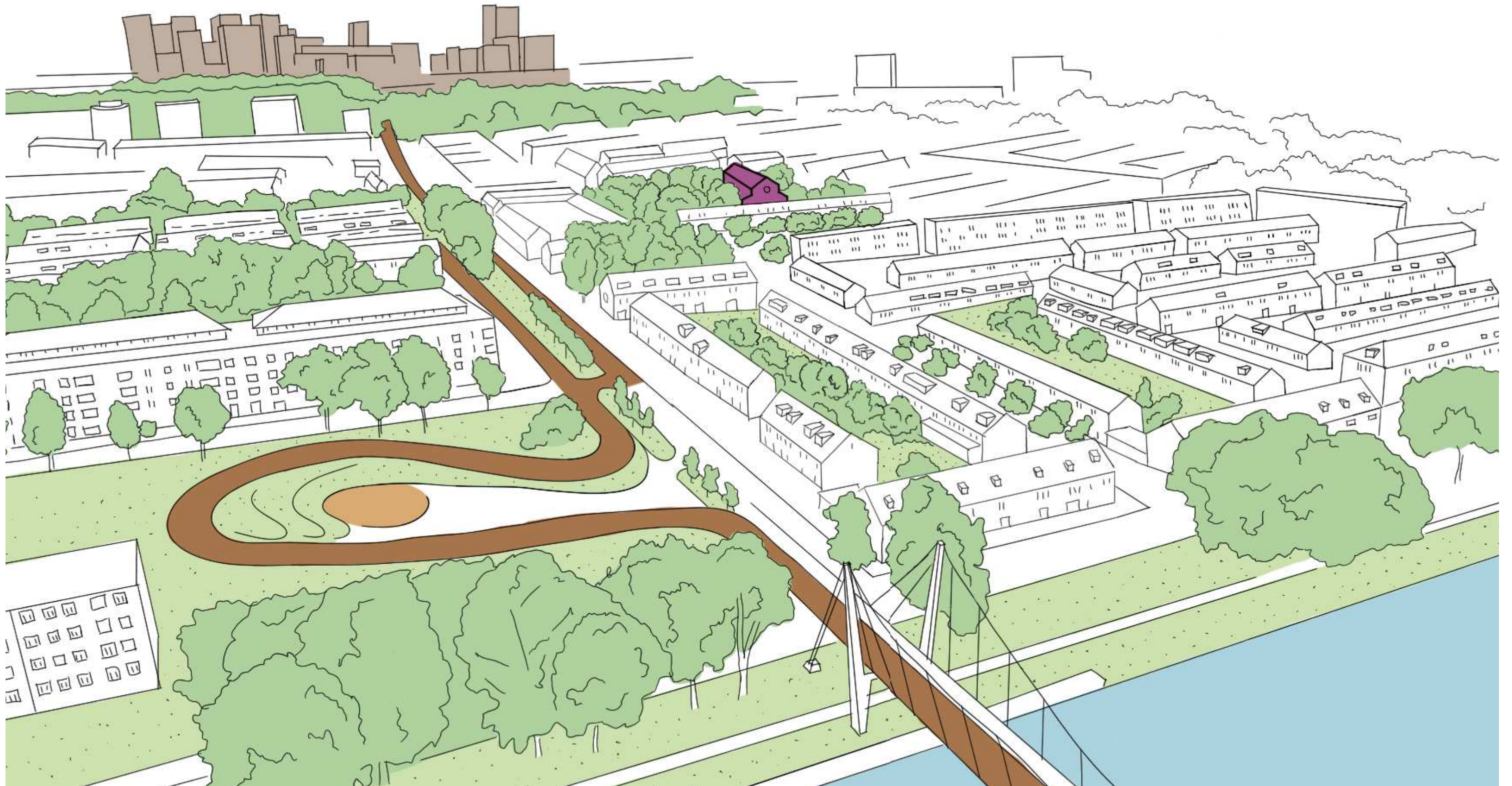
10. Sint Dominicus church

Relation to city center



10. Sint Dominicus church

Relation to city center



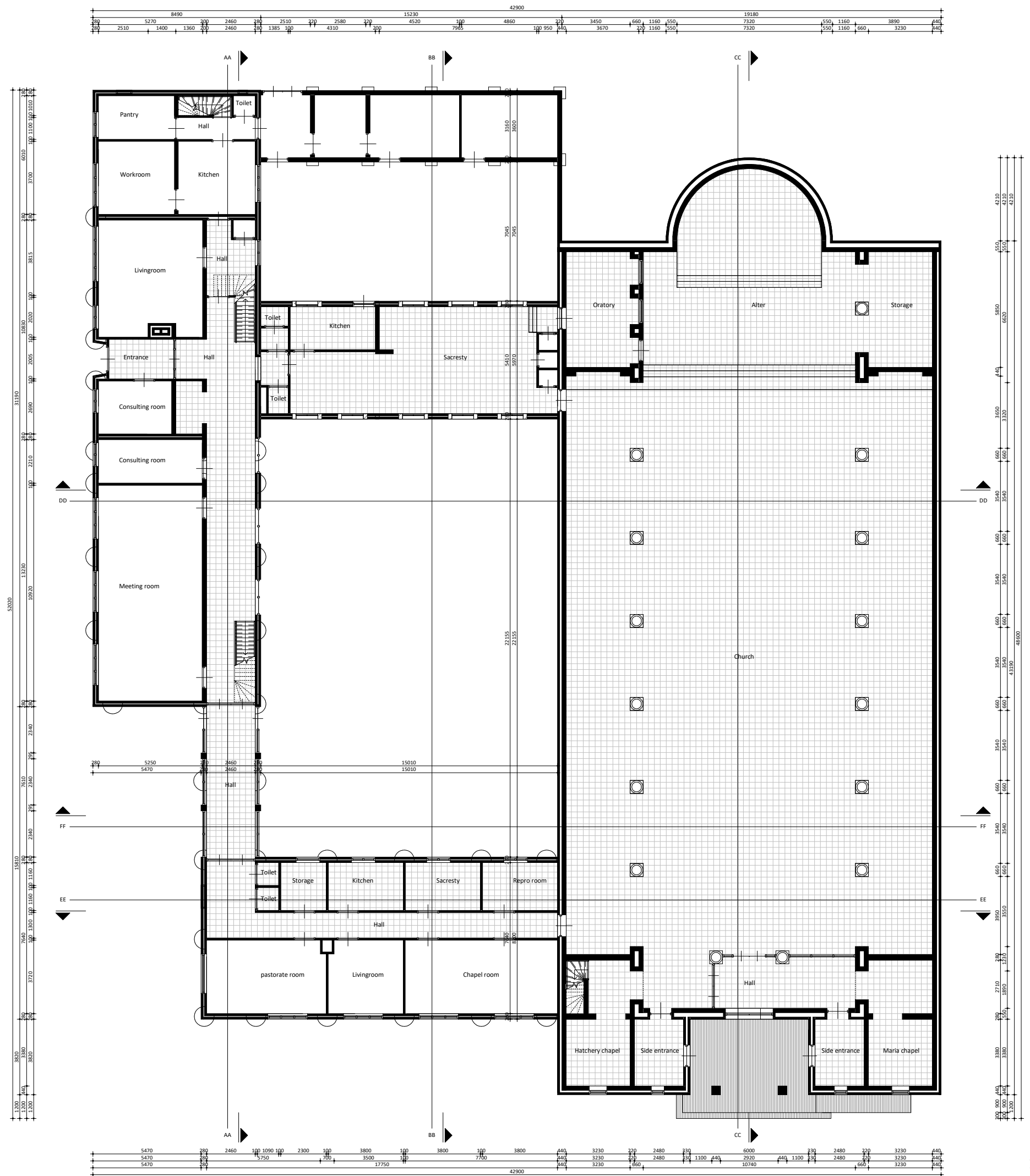
10. Sint Dominicus church

Situation 1:500



10. Sint Dominicus church

Ground floor 1:200

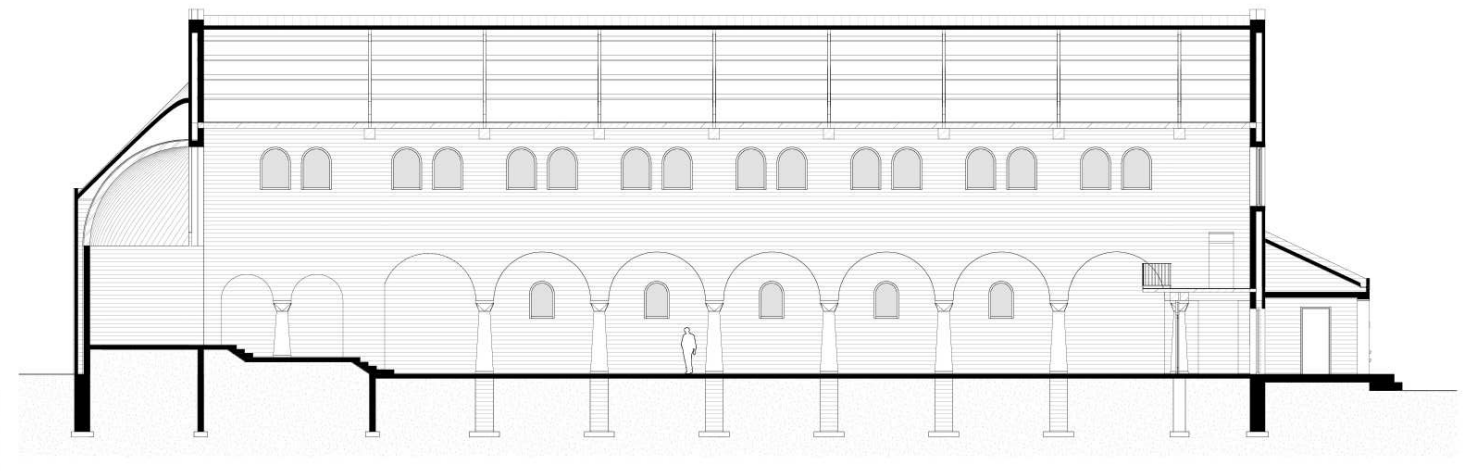


10. Sint Dominicus church

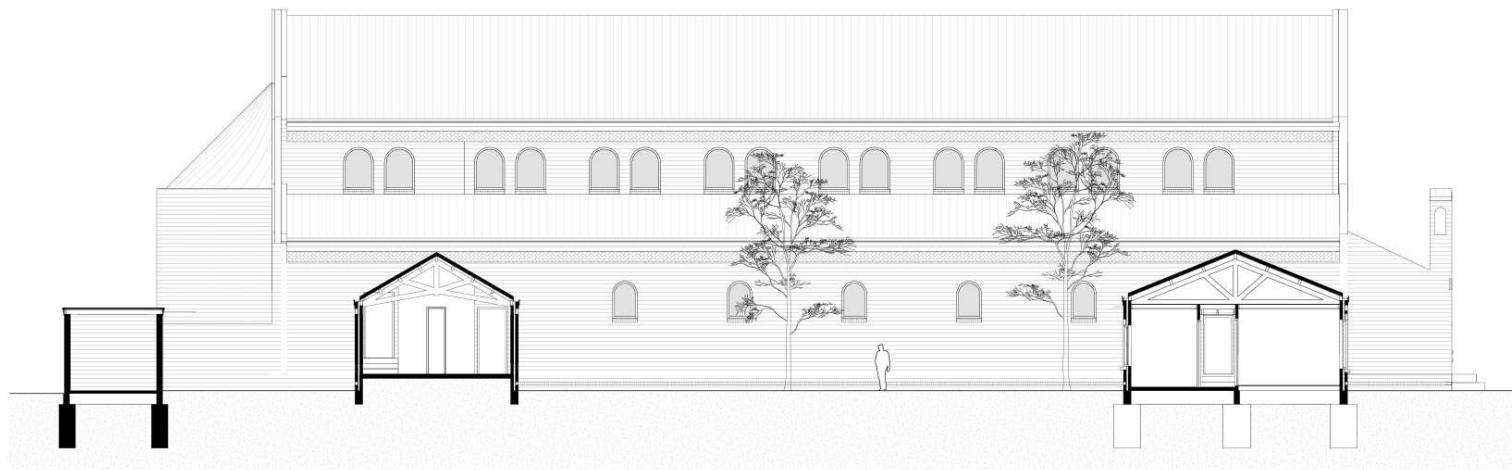
Sections



Section AA



Section CC



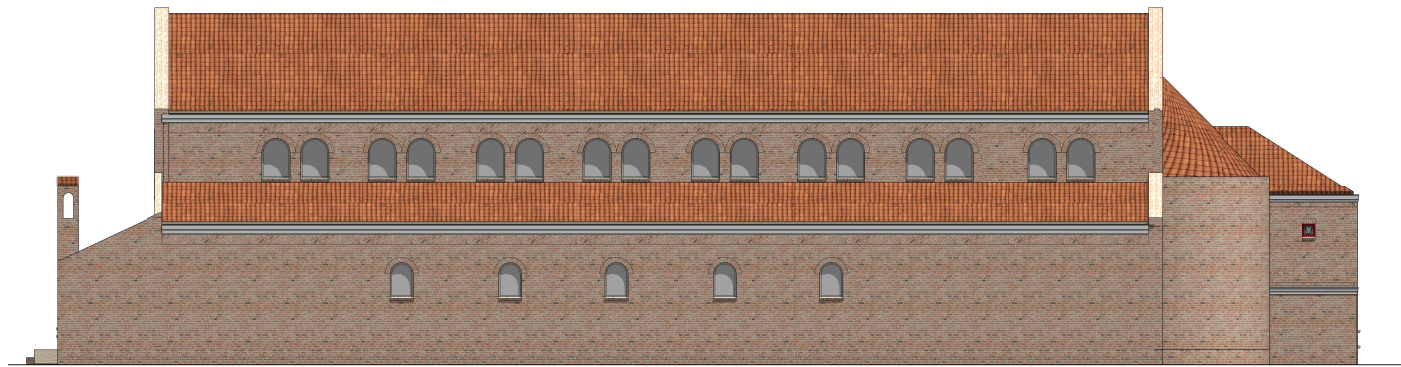
Section BB



Section DD

10. Sint Dominicus church

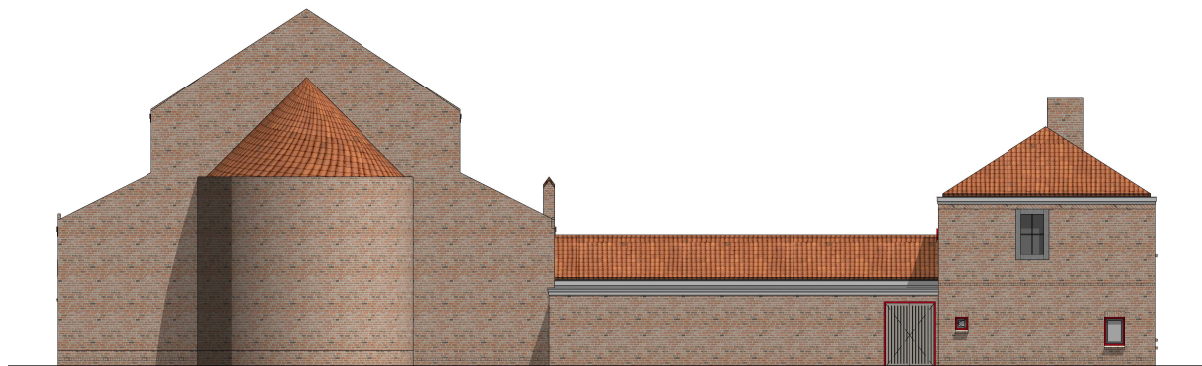
Facades



South facade



North facade



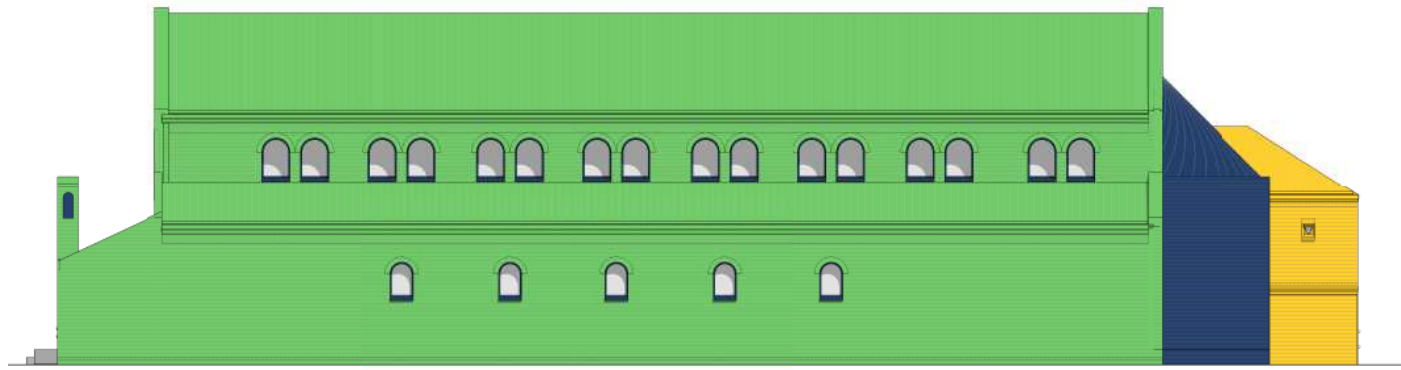
East facade



West facade

10. Sint Dominicus church

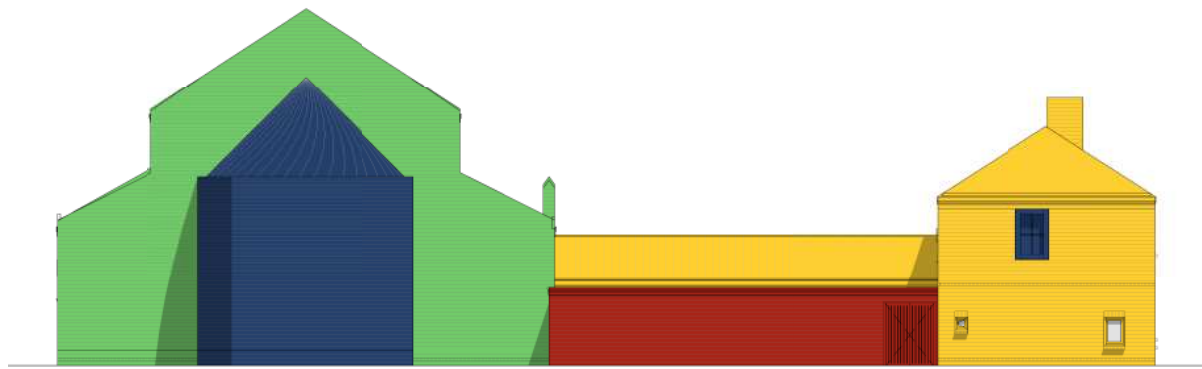
Facades (value assesment)



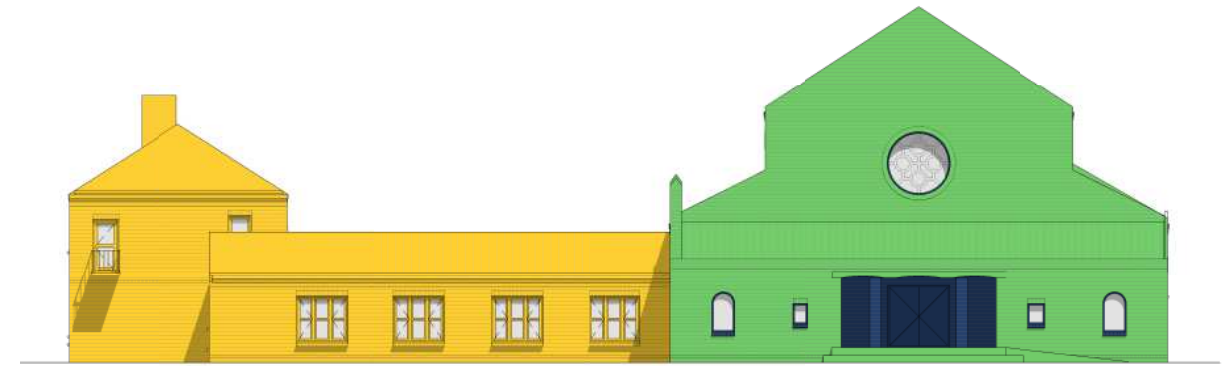
South facade







North facade



East facade



West facade

-  High monumental value
-  Positive monumental value
-  Indifferent monumental value
-  Negative monumental value

10. Sint Dominicus church

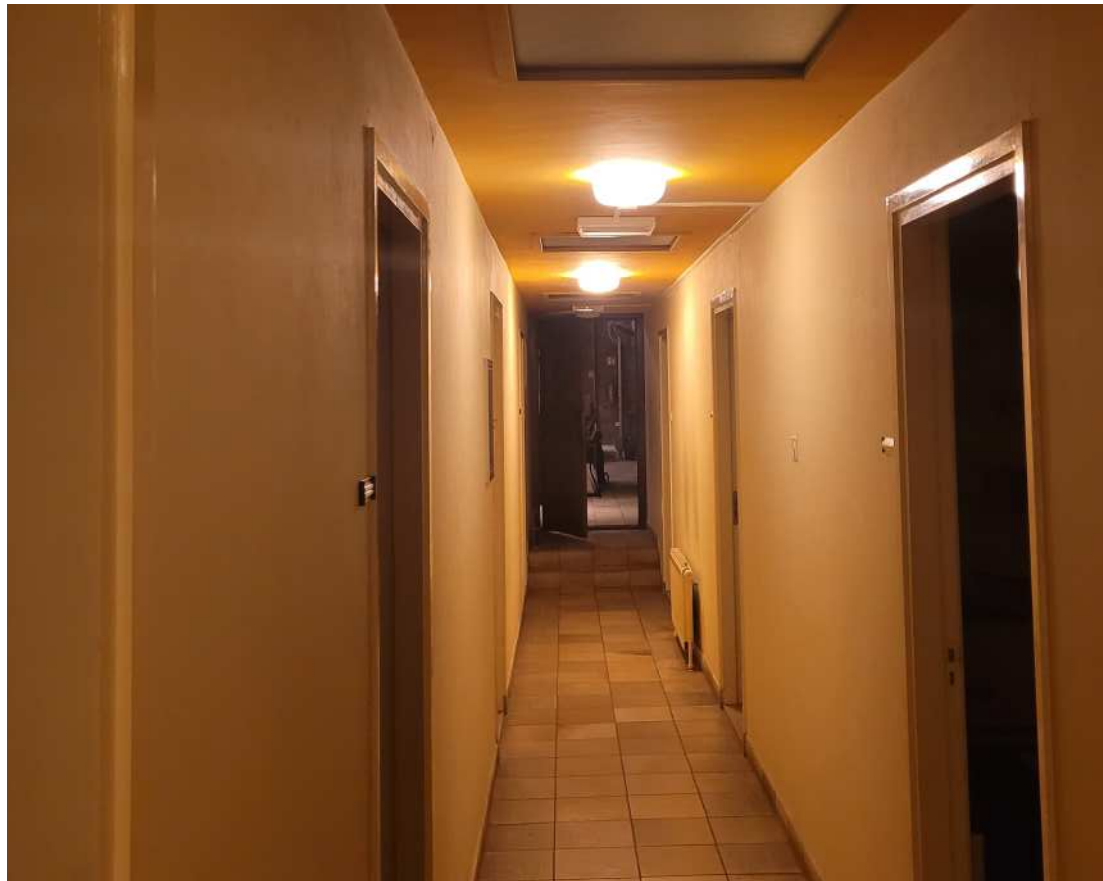
Richness in details



Sacresty



Ship



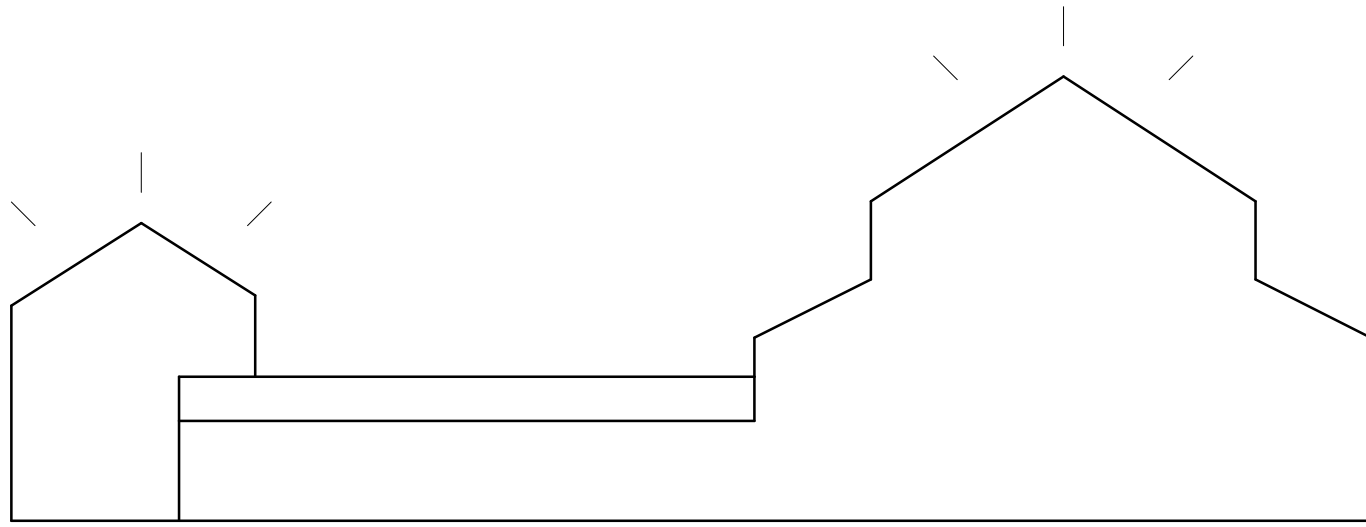
Rest of the annex building



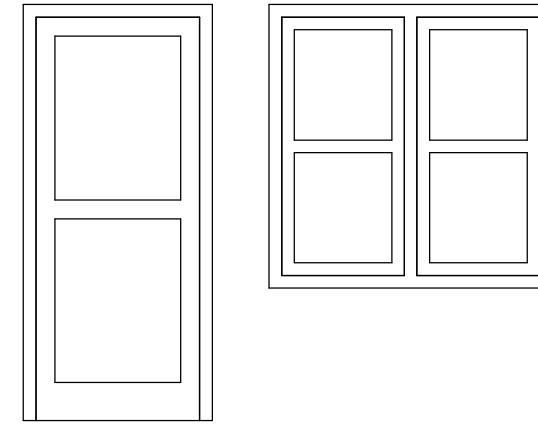
Courtyard

10. Sint Dominicus church

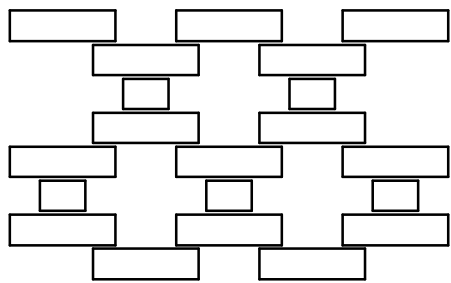
Important elements



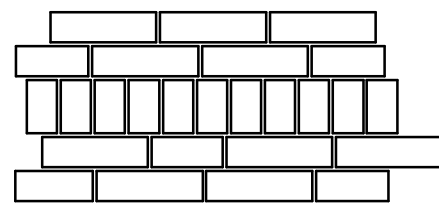
Height accents



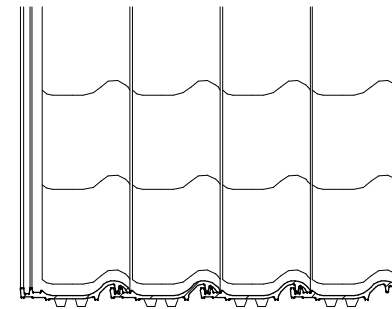
Door and window division



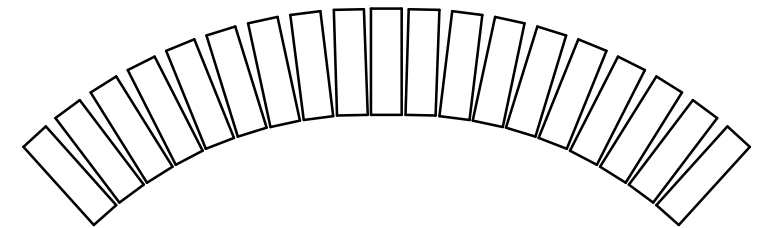
Cross details in brickwork



Roll layer to accentuate a level or end



Overlapping rooftiles



Round roll layer in the church to support the brick above window openings

10. Mass

Existing mass



Mass study

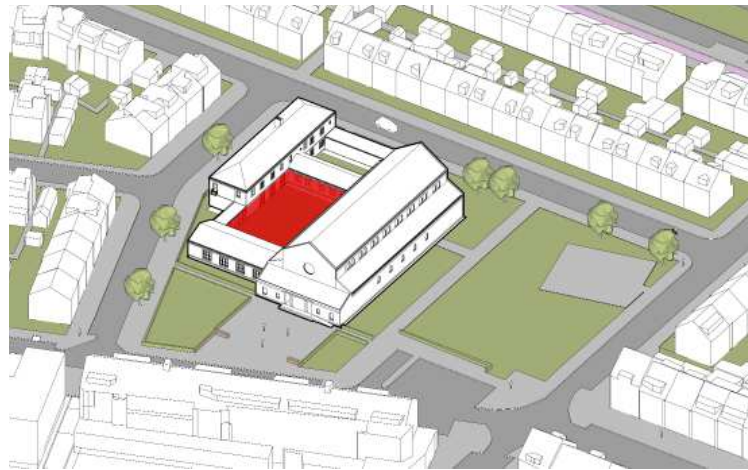
The Sint Dominicus Church

11. Mass studies

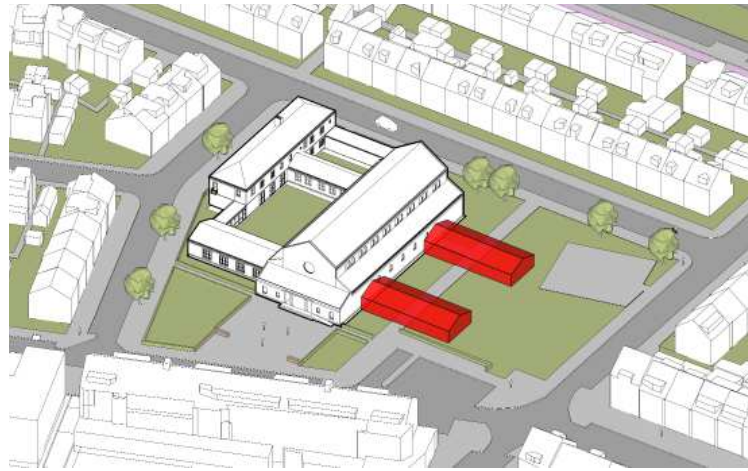
Void



Enclosed



Extrusion

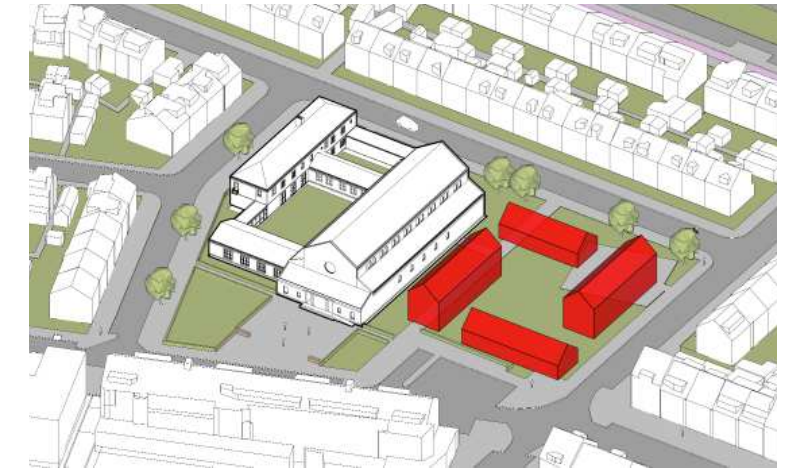
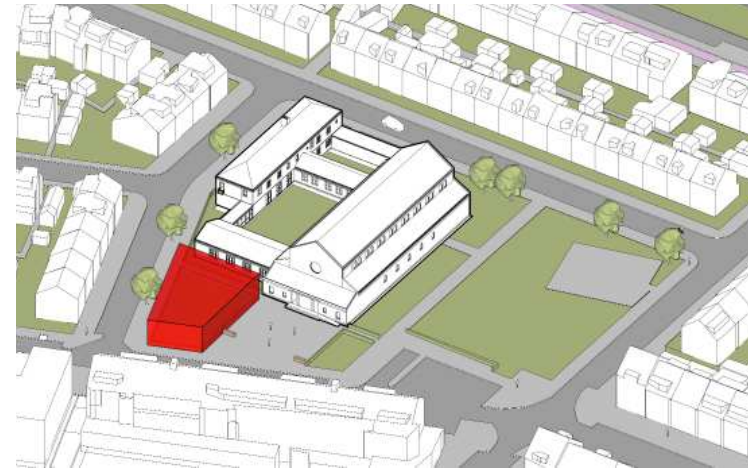


Rising

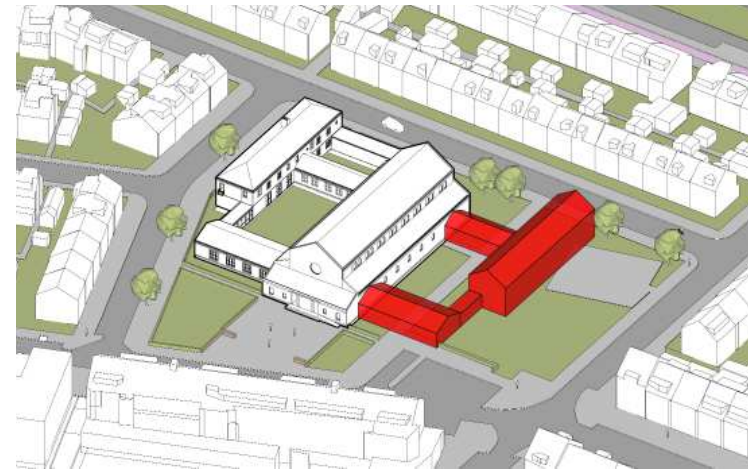
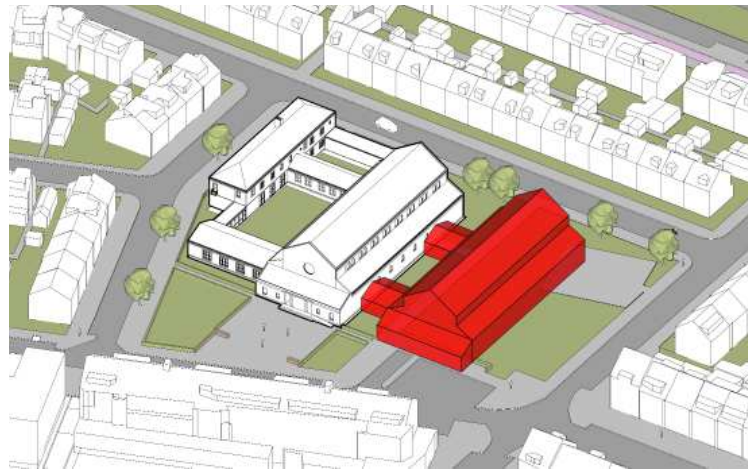


11. Mass studies

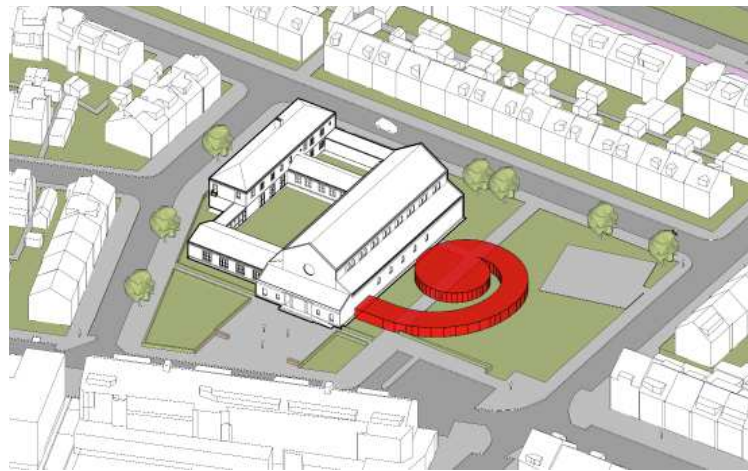
Ensemble



Clowning



Organic



12. Mass study



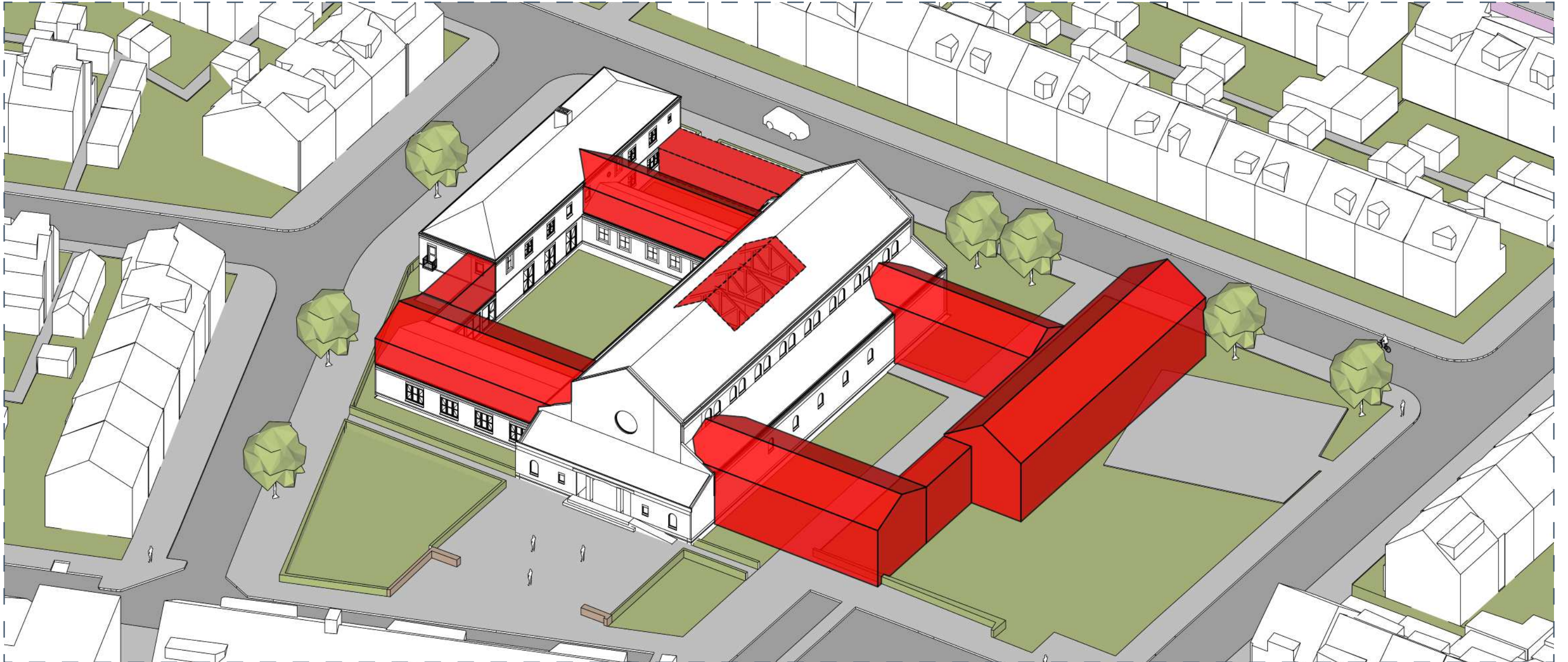
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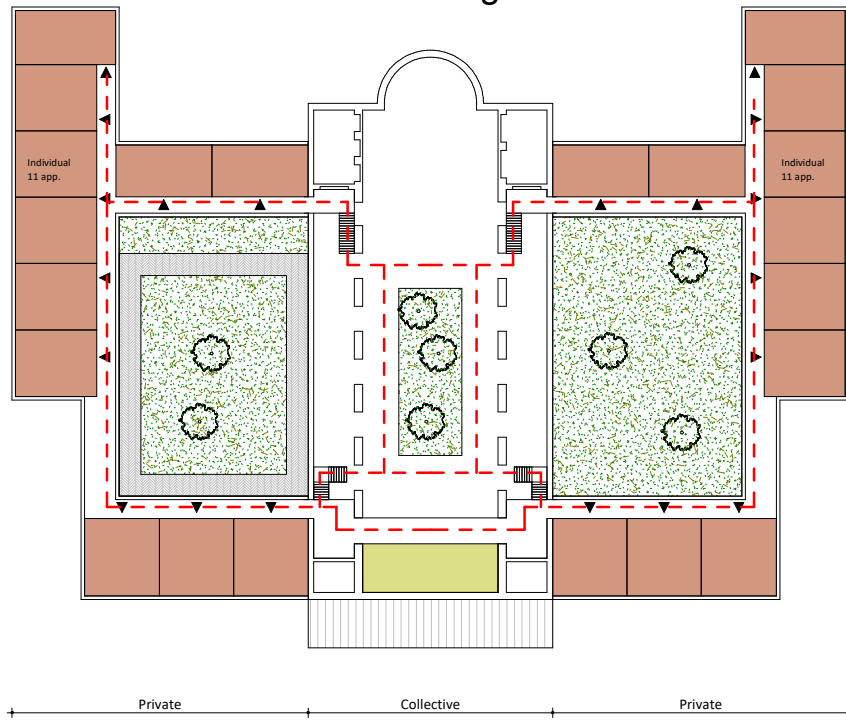
12. Mass study

New floorplans variant 1a and 1b

Variant 1a

22 woningen

- Living room
- Transition zone
- Activity room/entrance
- Ancillary function
- Maria Chapel
- Immobile elderly housing
- Couples elderly housing
- Dinerroom
- Individual elderly housing
- Walking path
- Primary routing
- Secondary routing

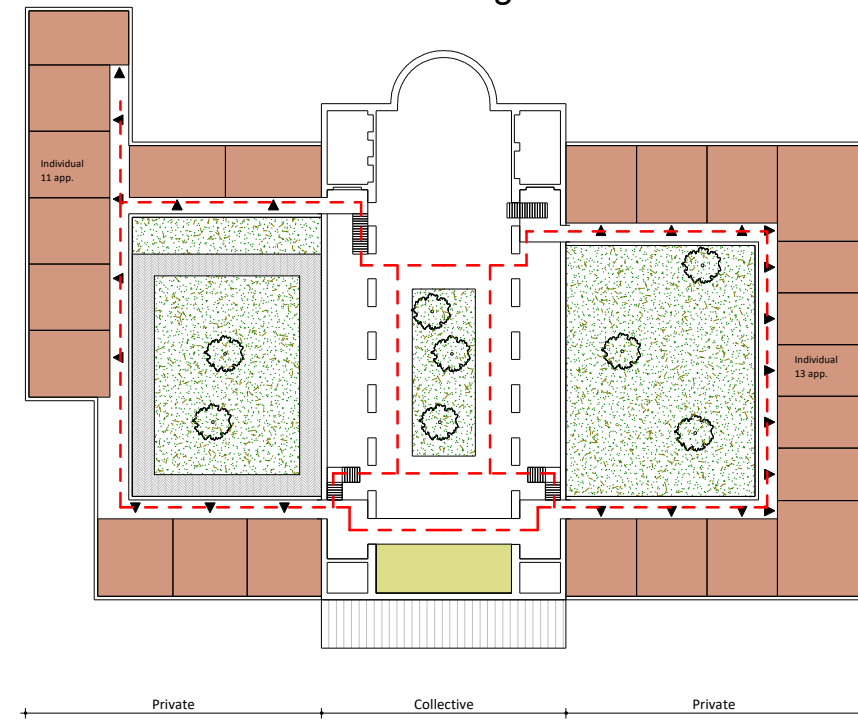


First floor

Variant 1b

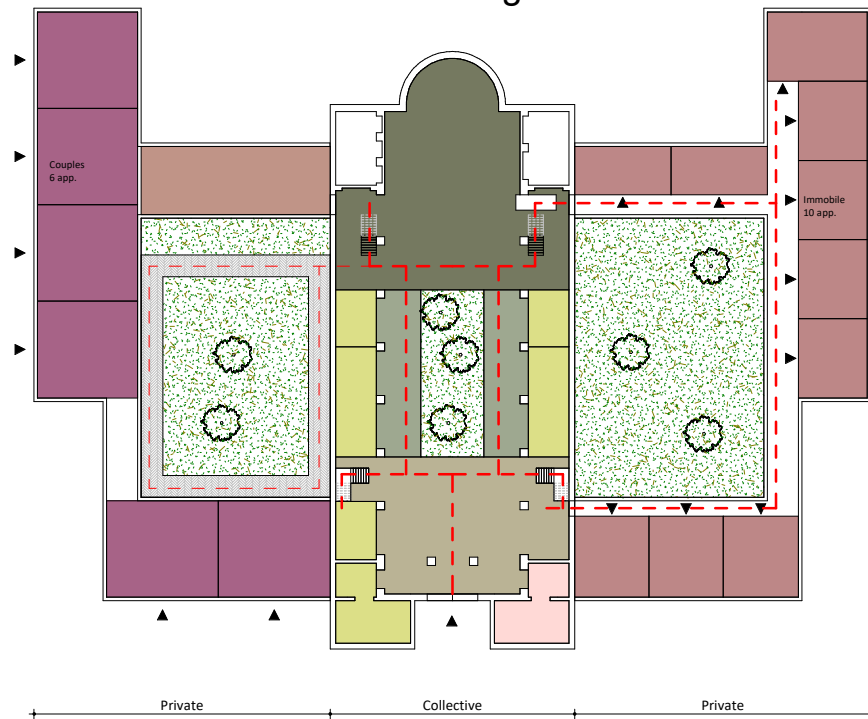
24 woningen

- Living room
- Transition zone
- Activity room/entrance
- Ancillary function
- Maria Chapel
- Immobile elderly housing
- Couples elderly housing
- Dinerroom
- Individual elderly housing
- Walking path
- Primary routing
- Secondary routing



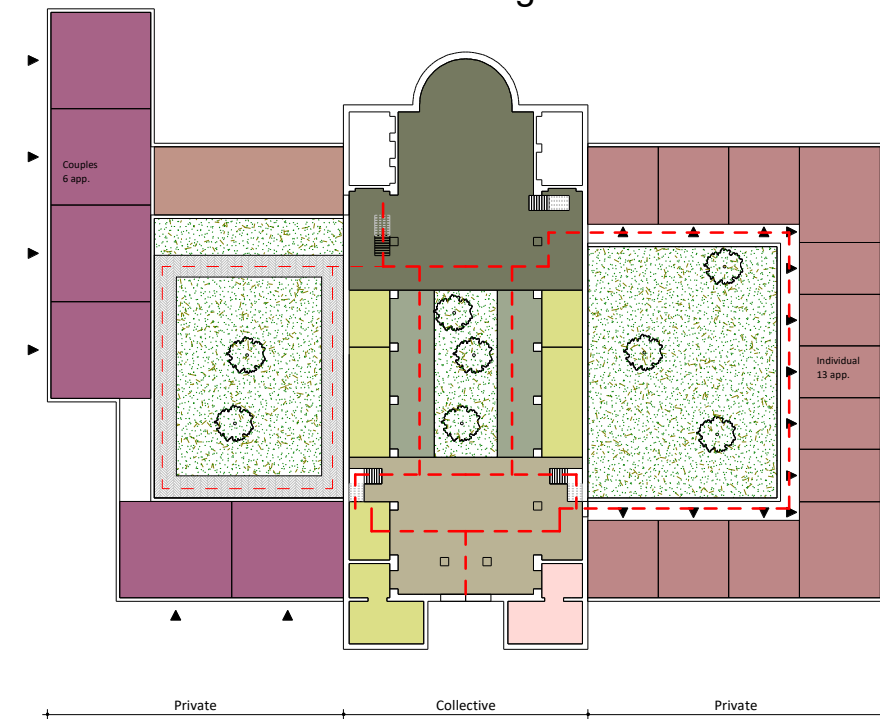
First floor

16 woningen



Groundfloor

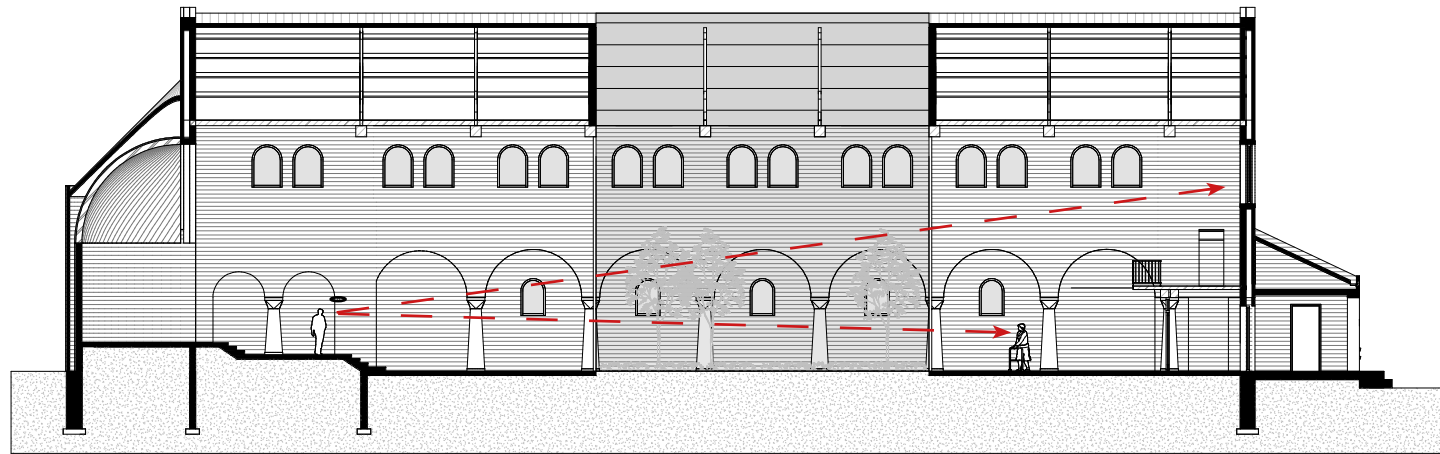
19 woningen



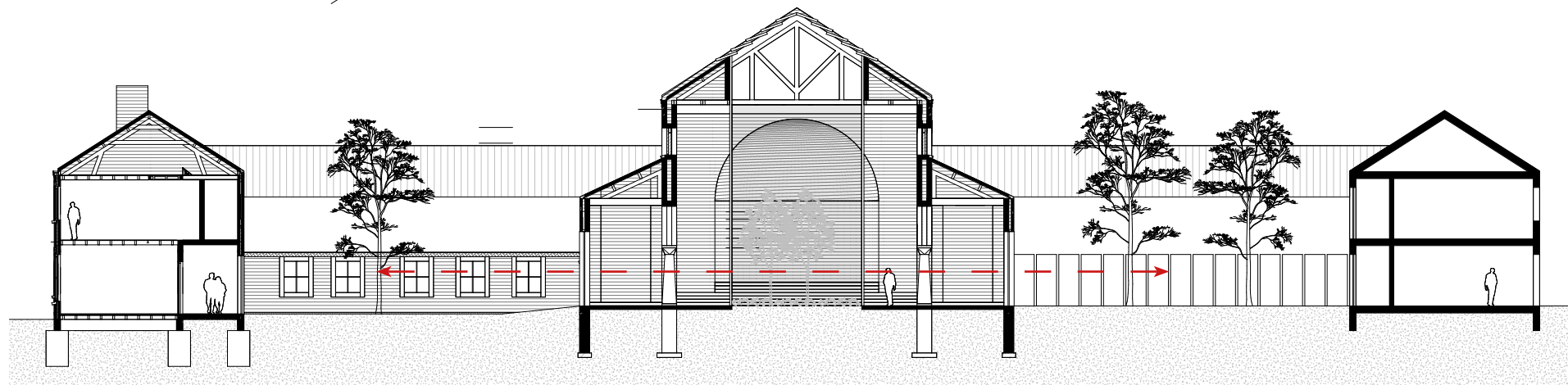
Groundfloor

12. Mass study

New section CC and DD



Section CC



Section DD

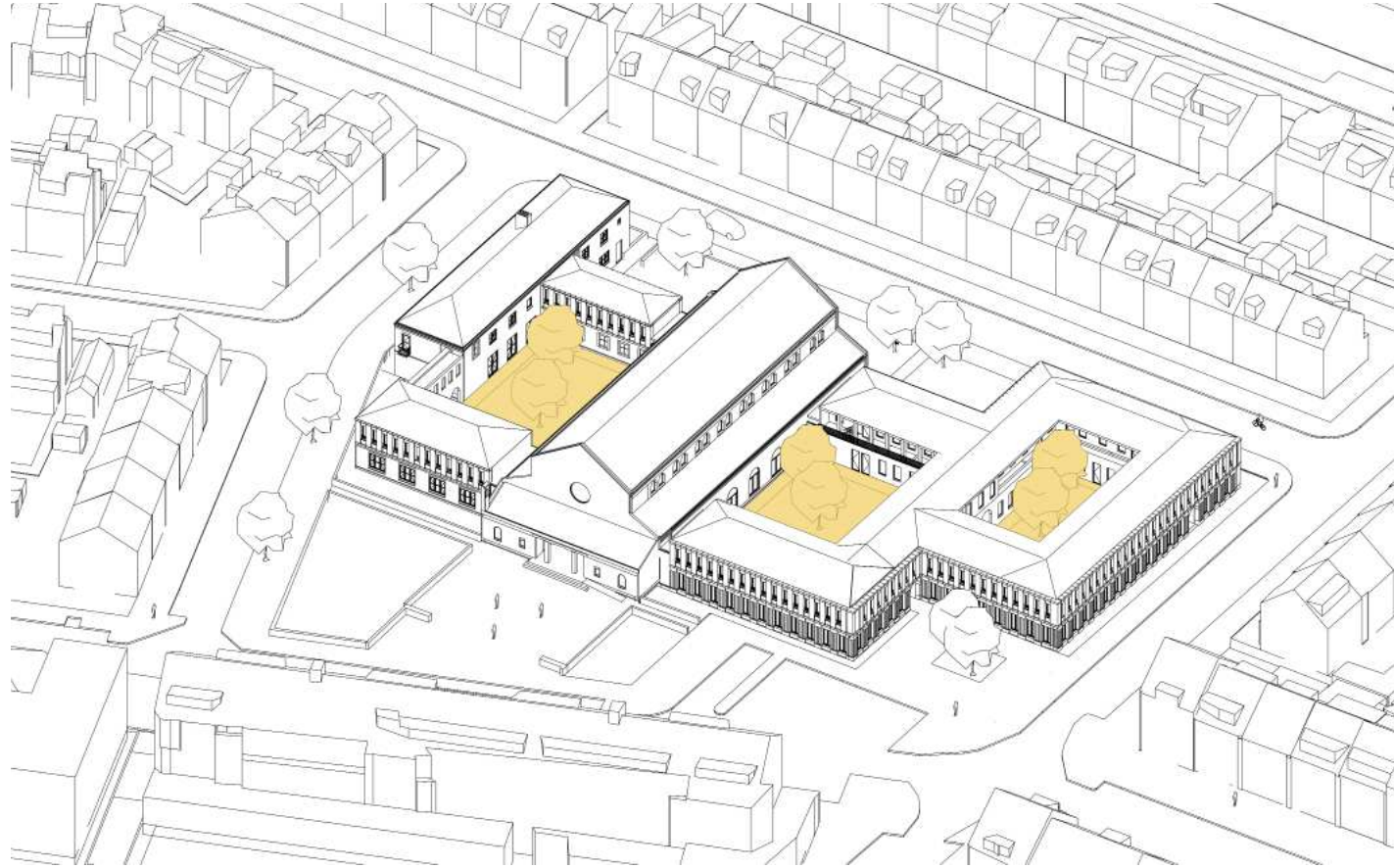
12. Proposal

New mass

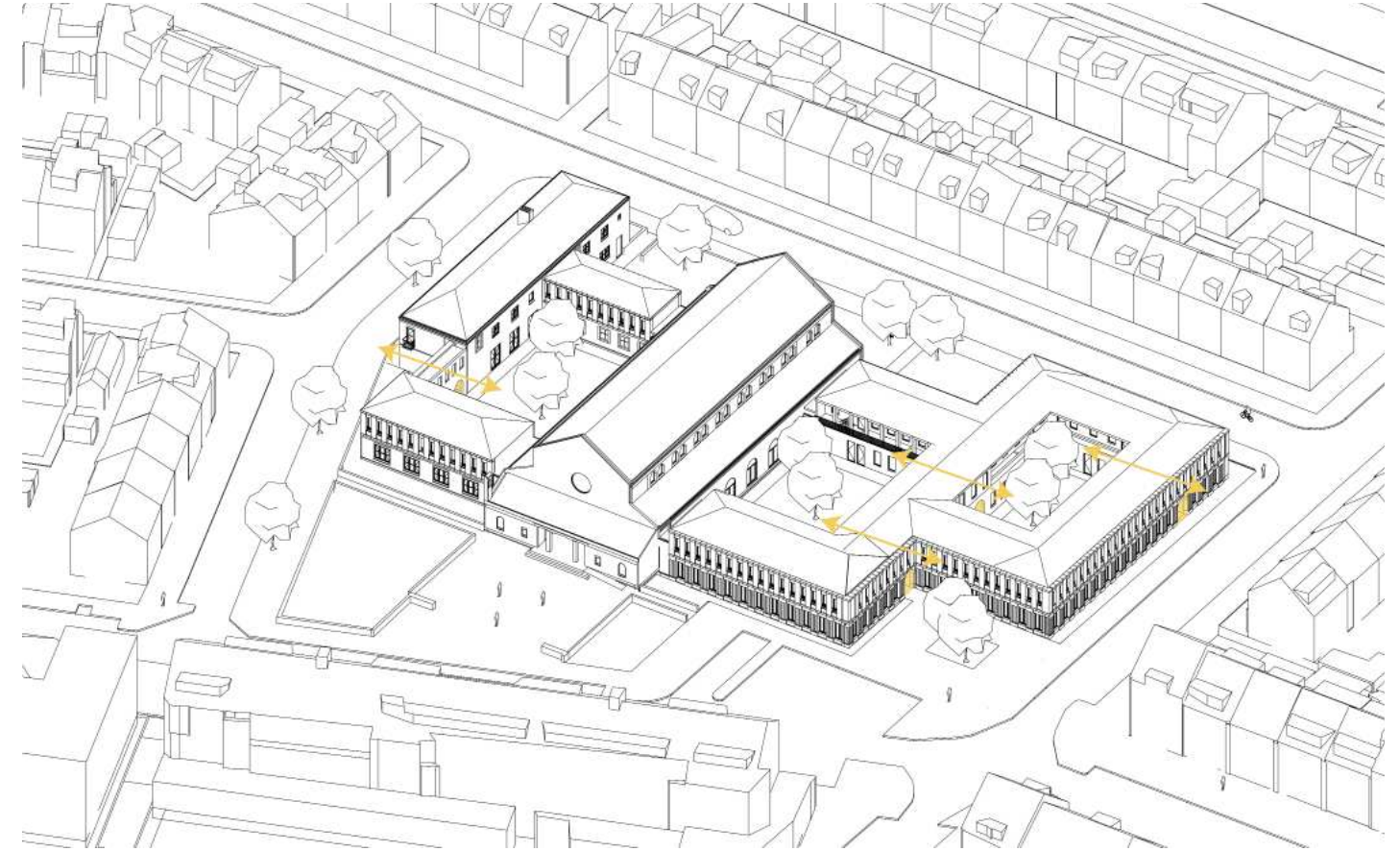


12. Proposal

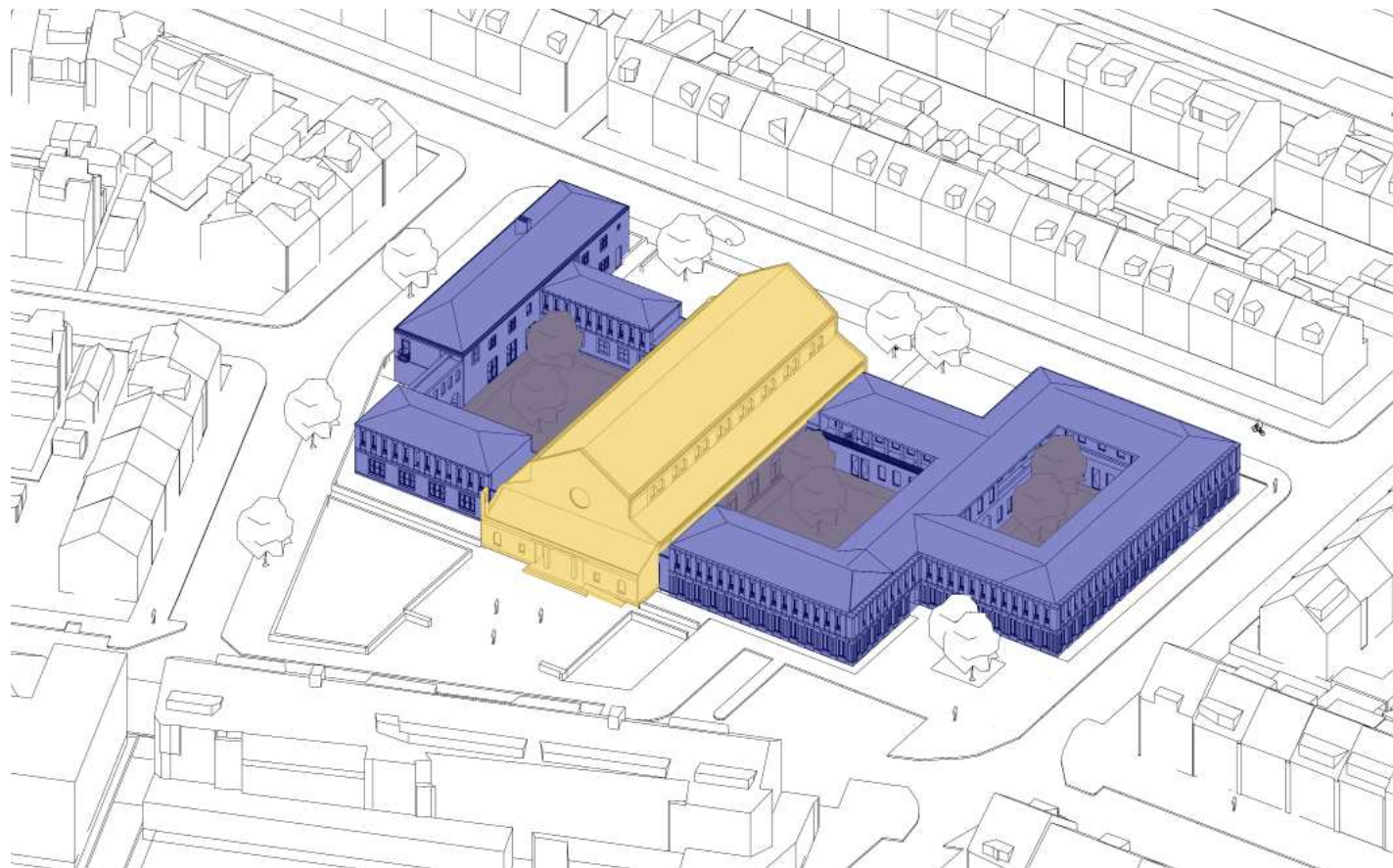
Diagrams



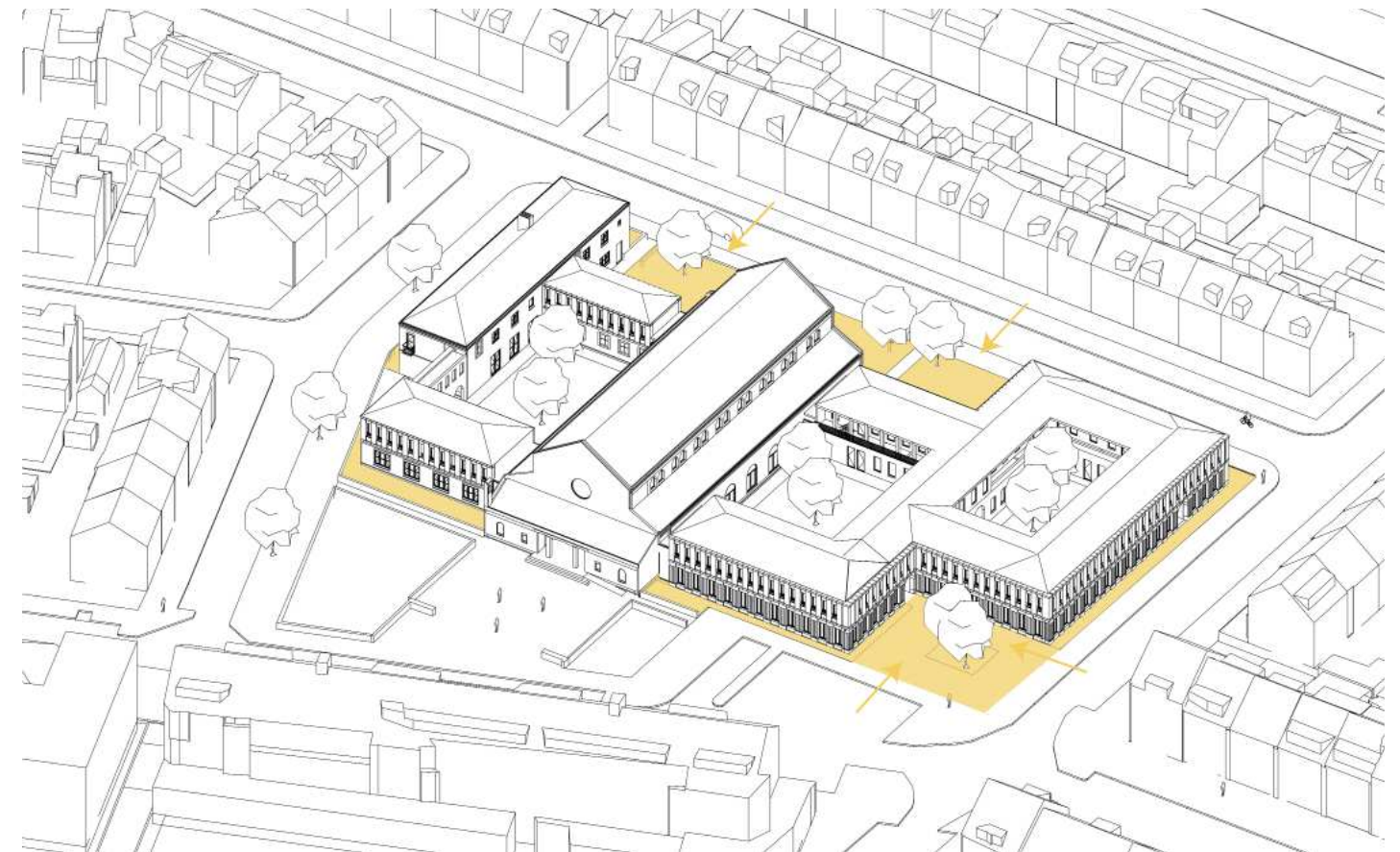
Courtyards



Gates to the courtyard



Private collective (yellow=collective, blue=private and grey=semi private)



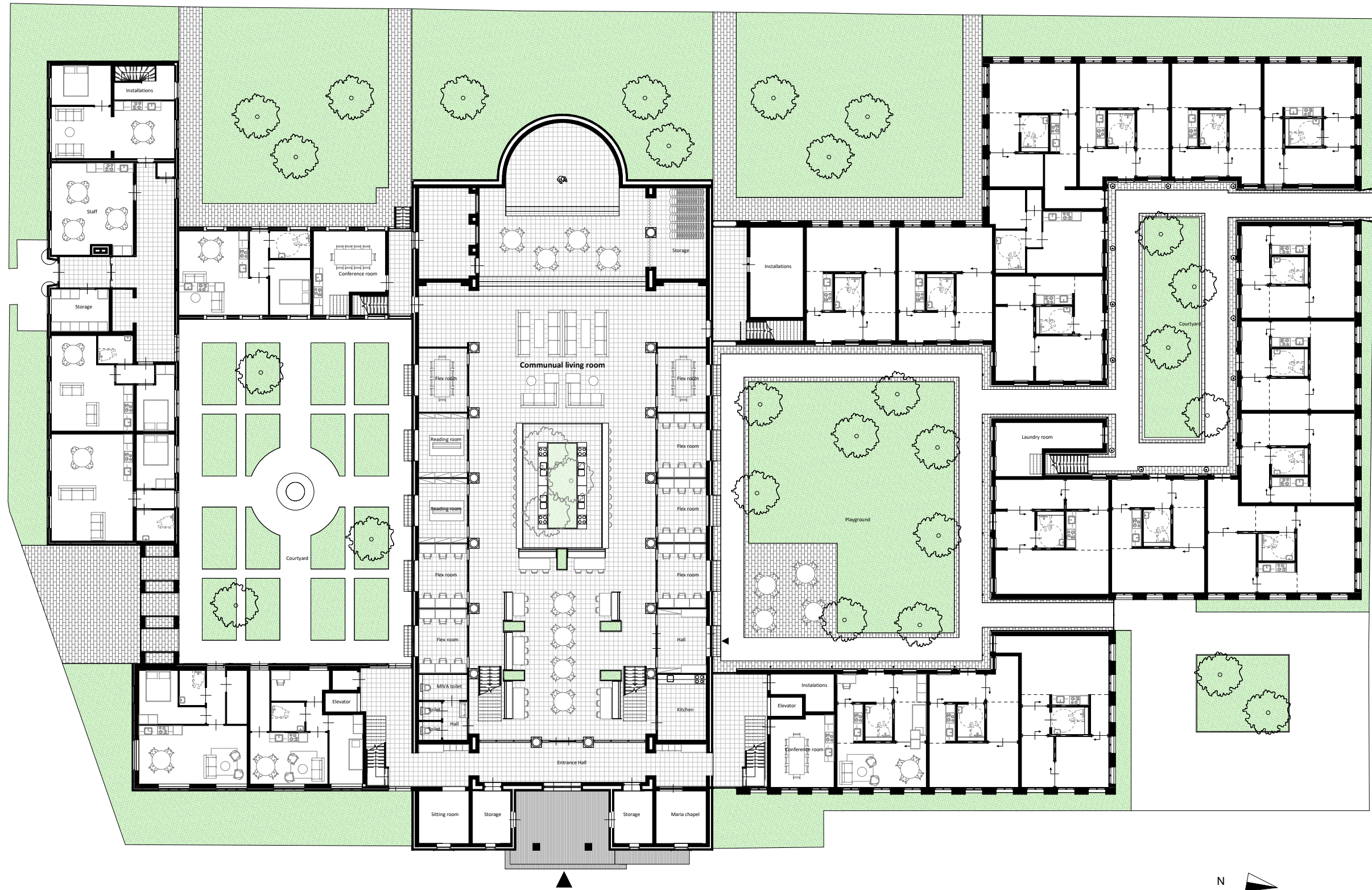
Transition zones

Proposal

The Sint Dominicus Church

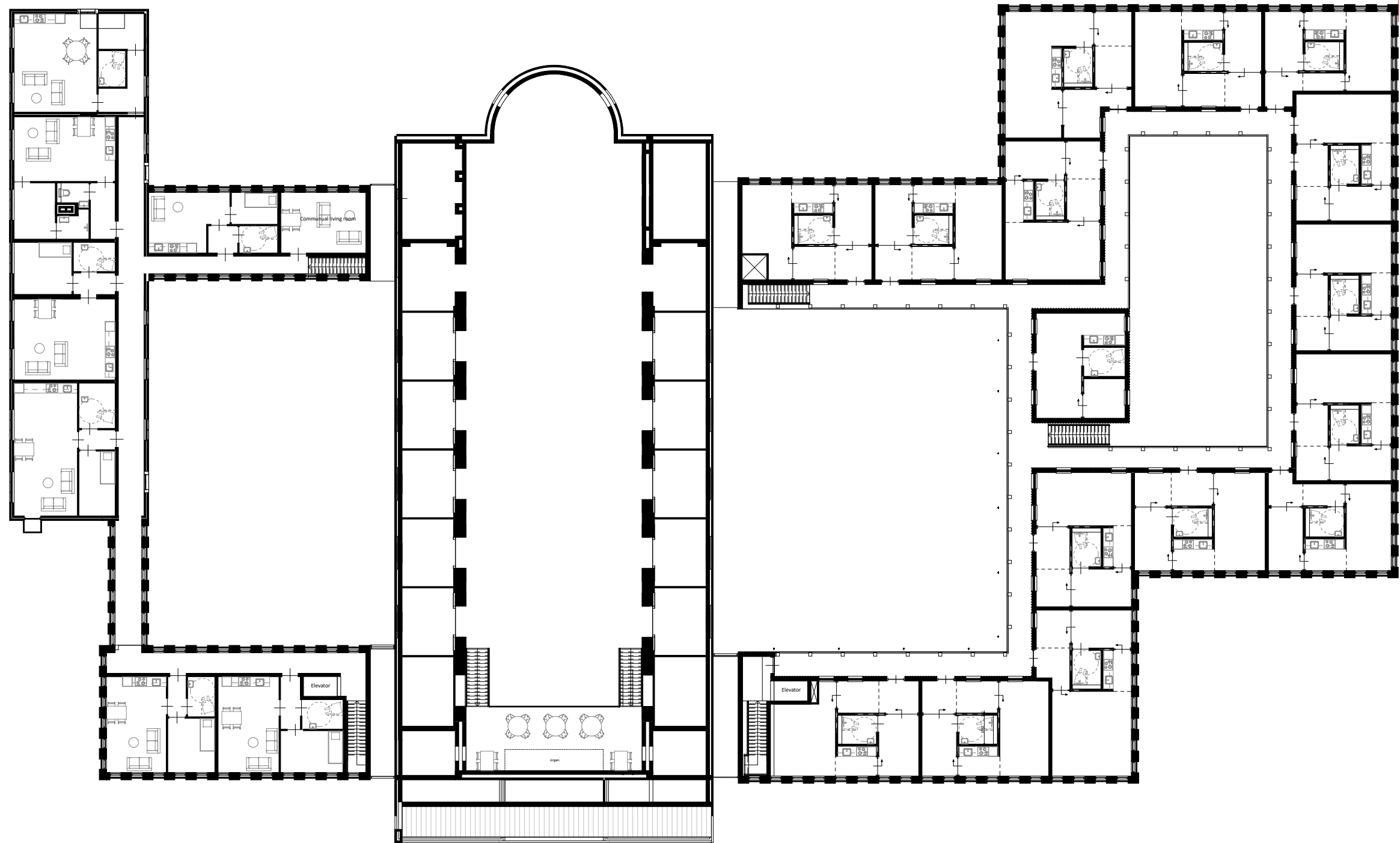
12. Proposal

Ground floor



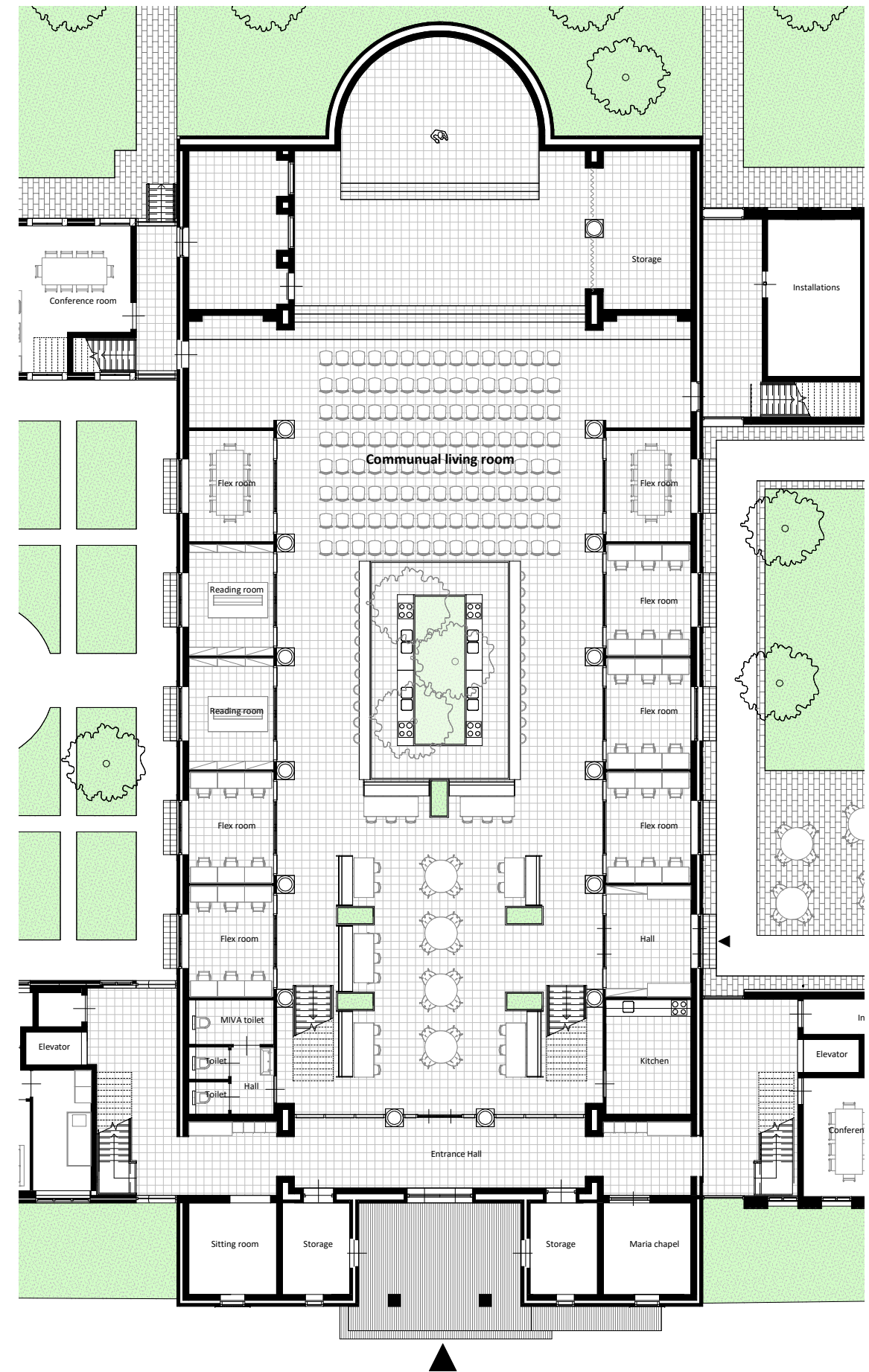
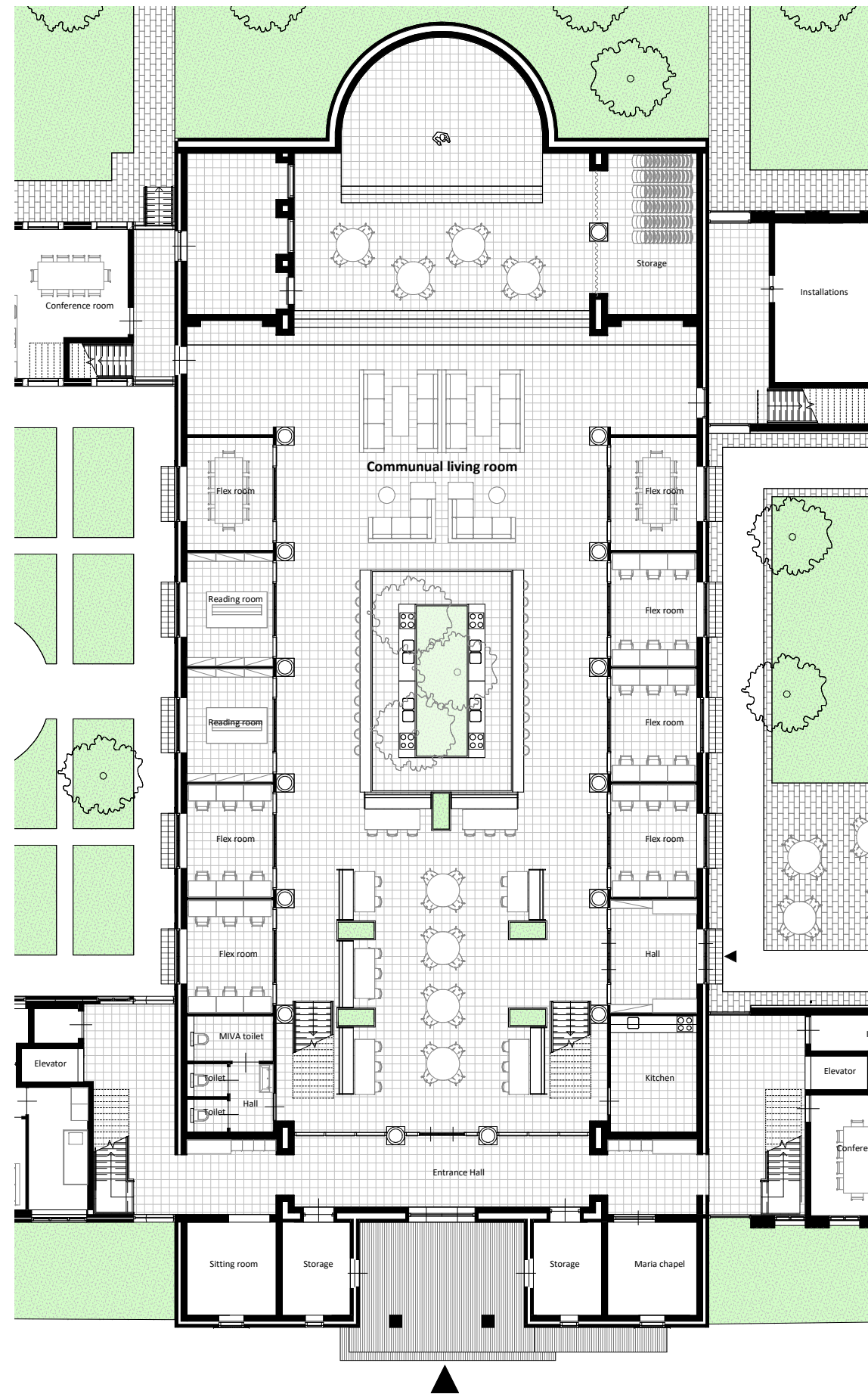
12. Proposal

First floor



12. Proposal

Communal livingroom



12. Proposal

Church interior

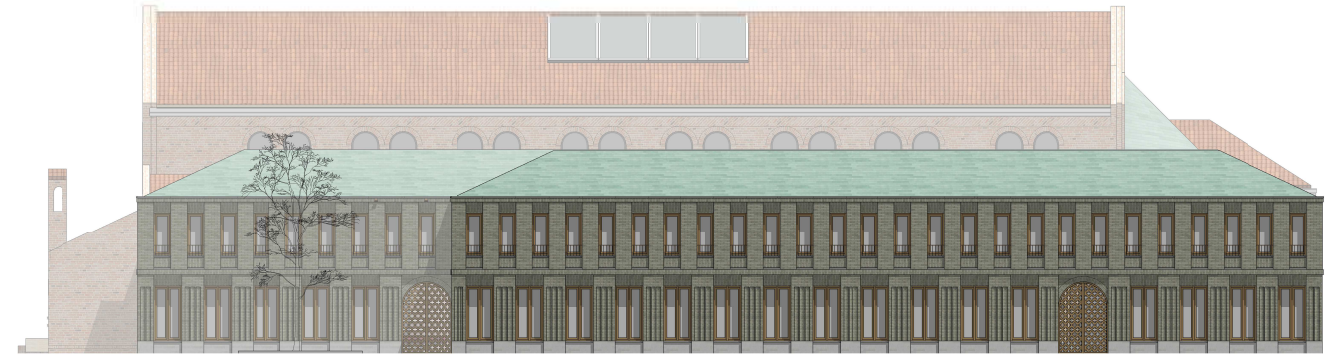


12. Proposal

New facades



North facade



South facade



West facade



East facade

12. Proposal

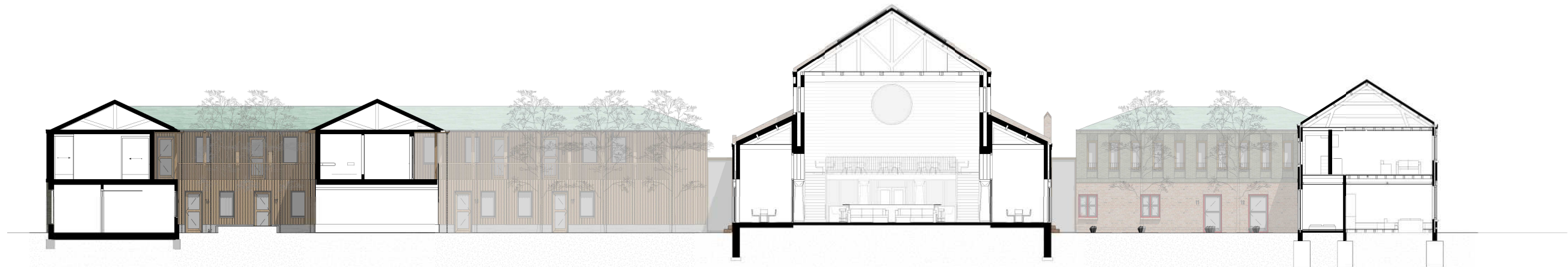
New sections



Monastery garden



Playground



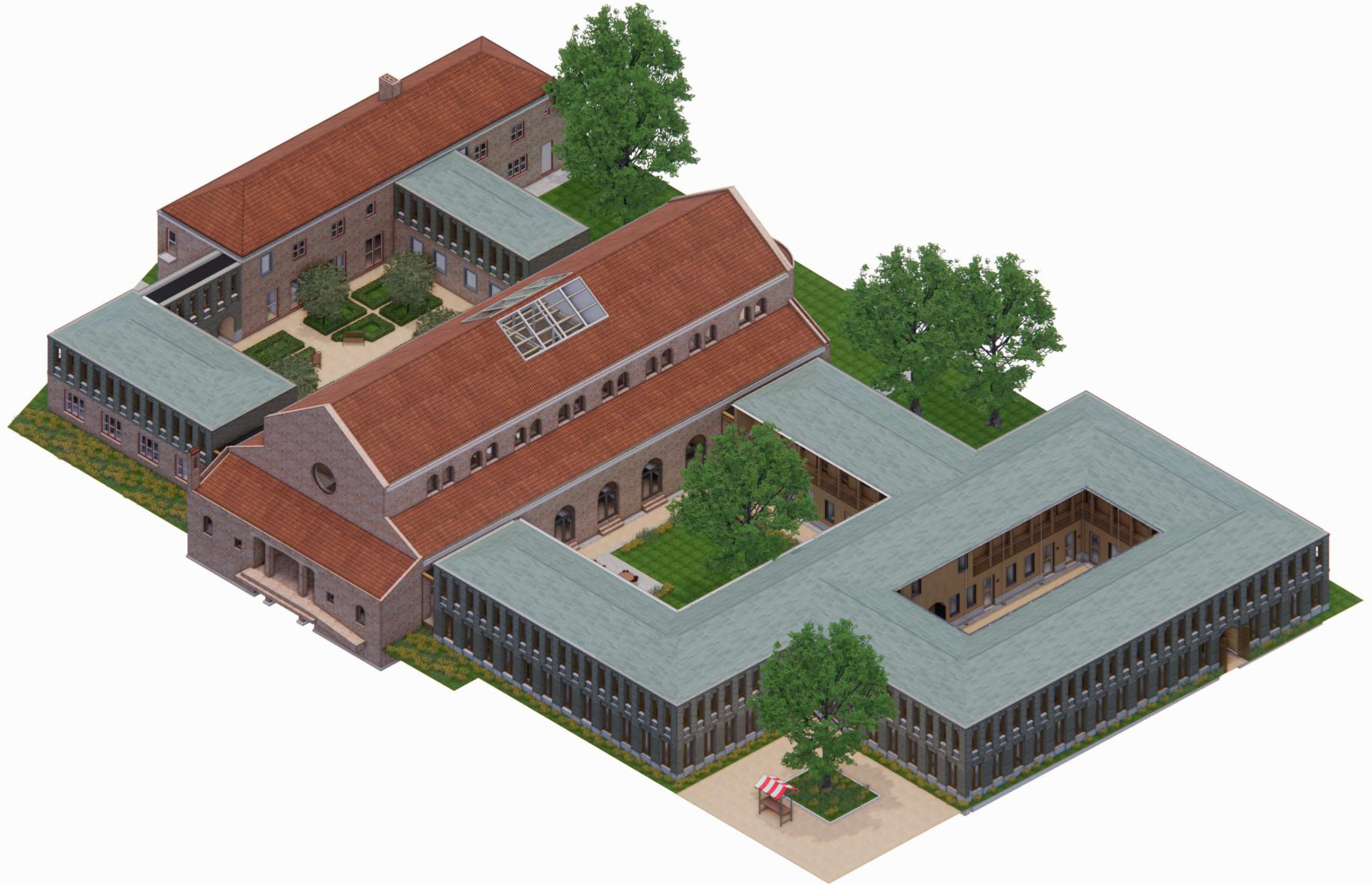
Forest garden

Playground

Monastery garden

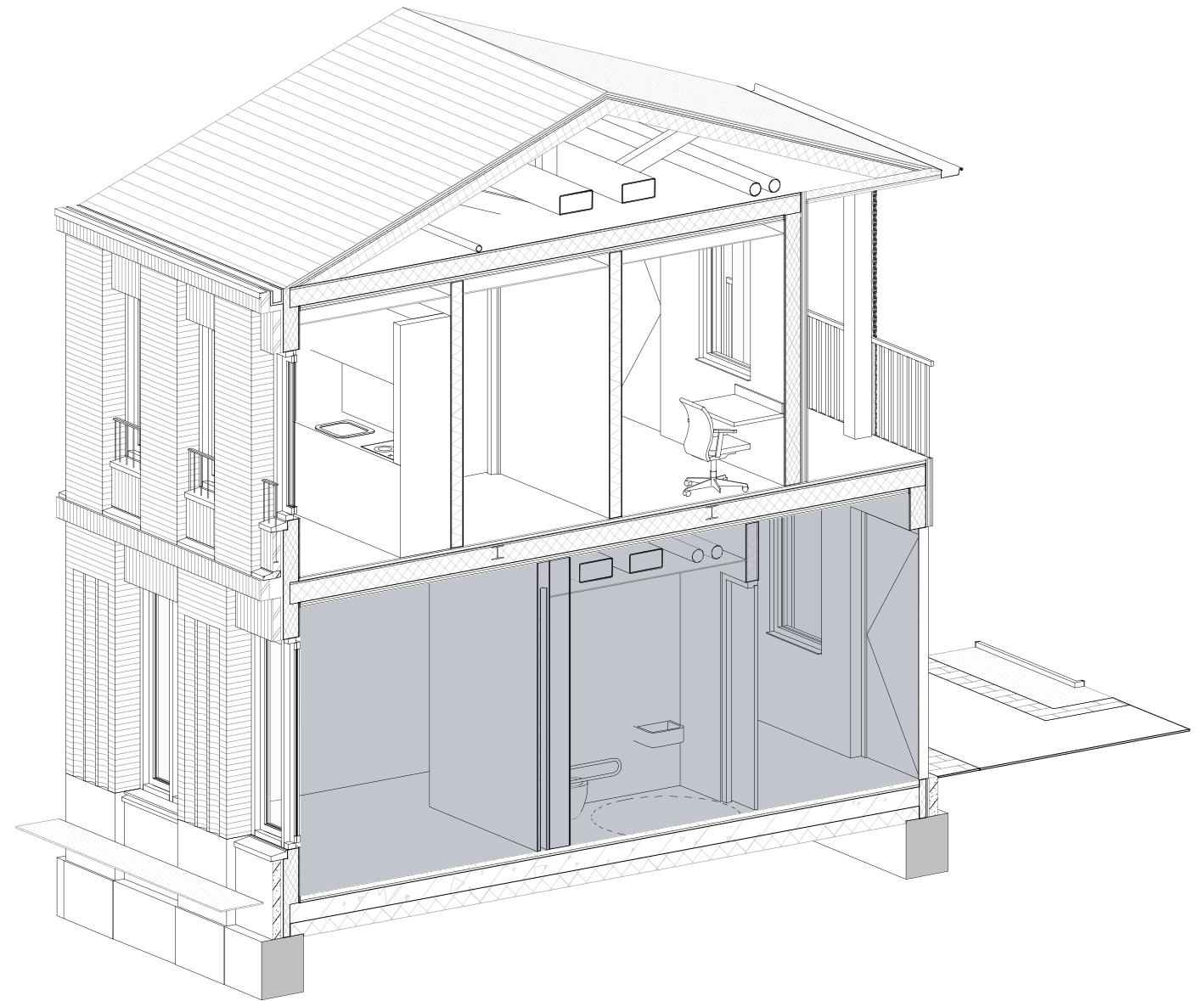
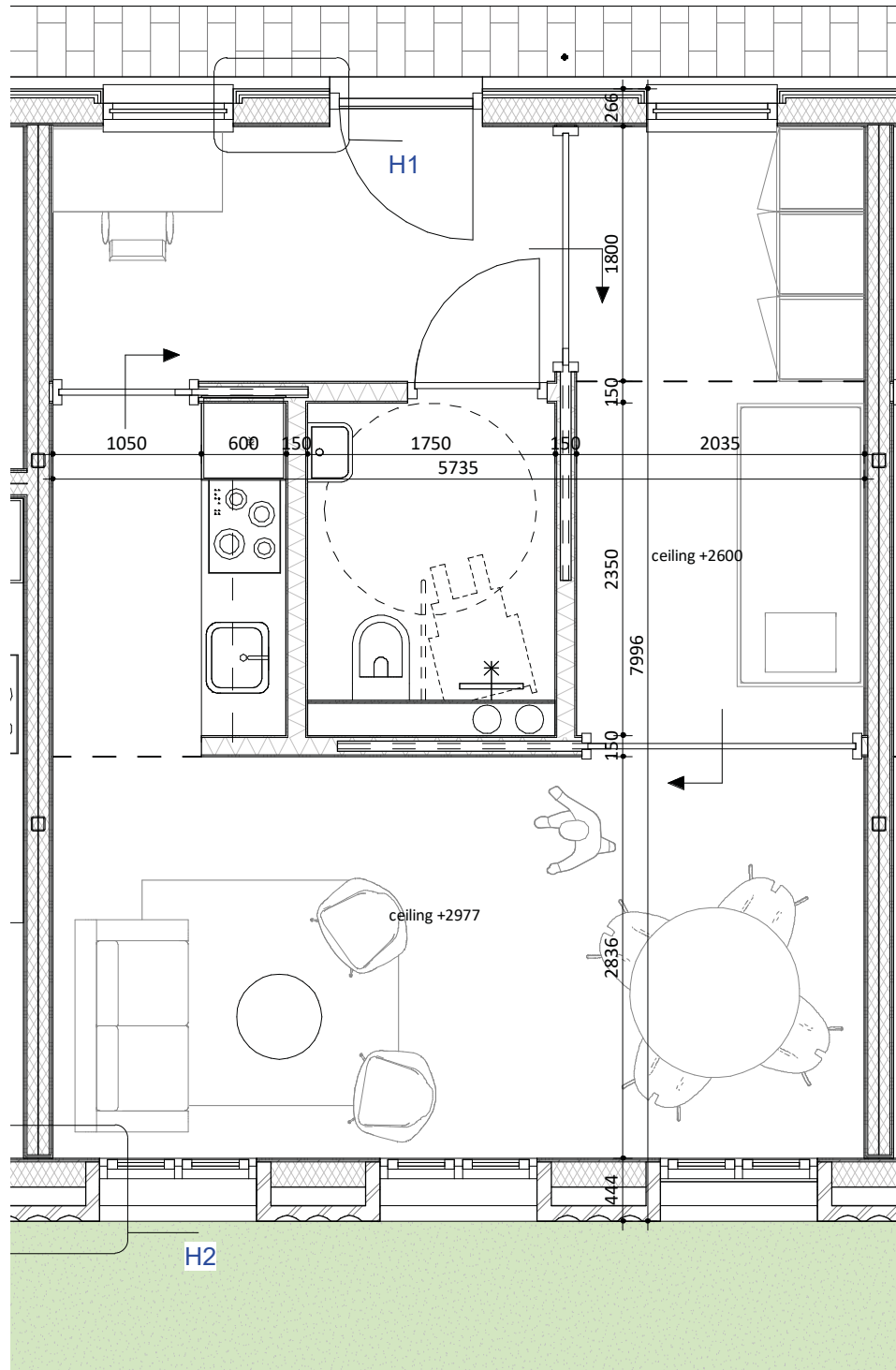
12. Proposal

Colored mass



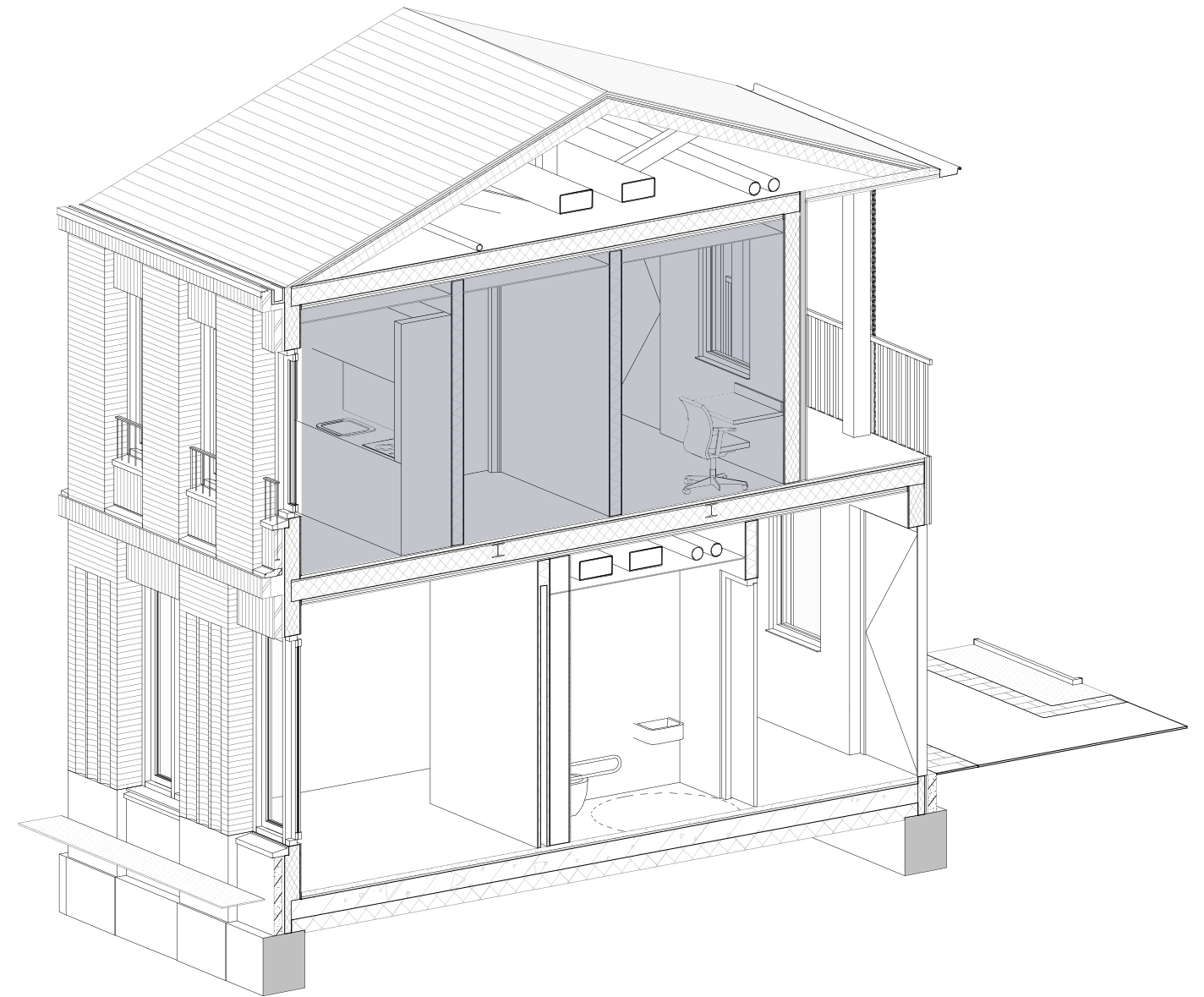
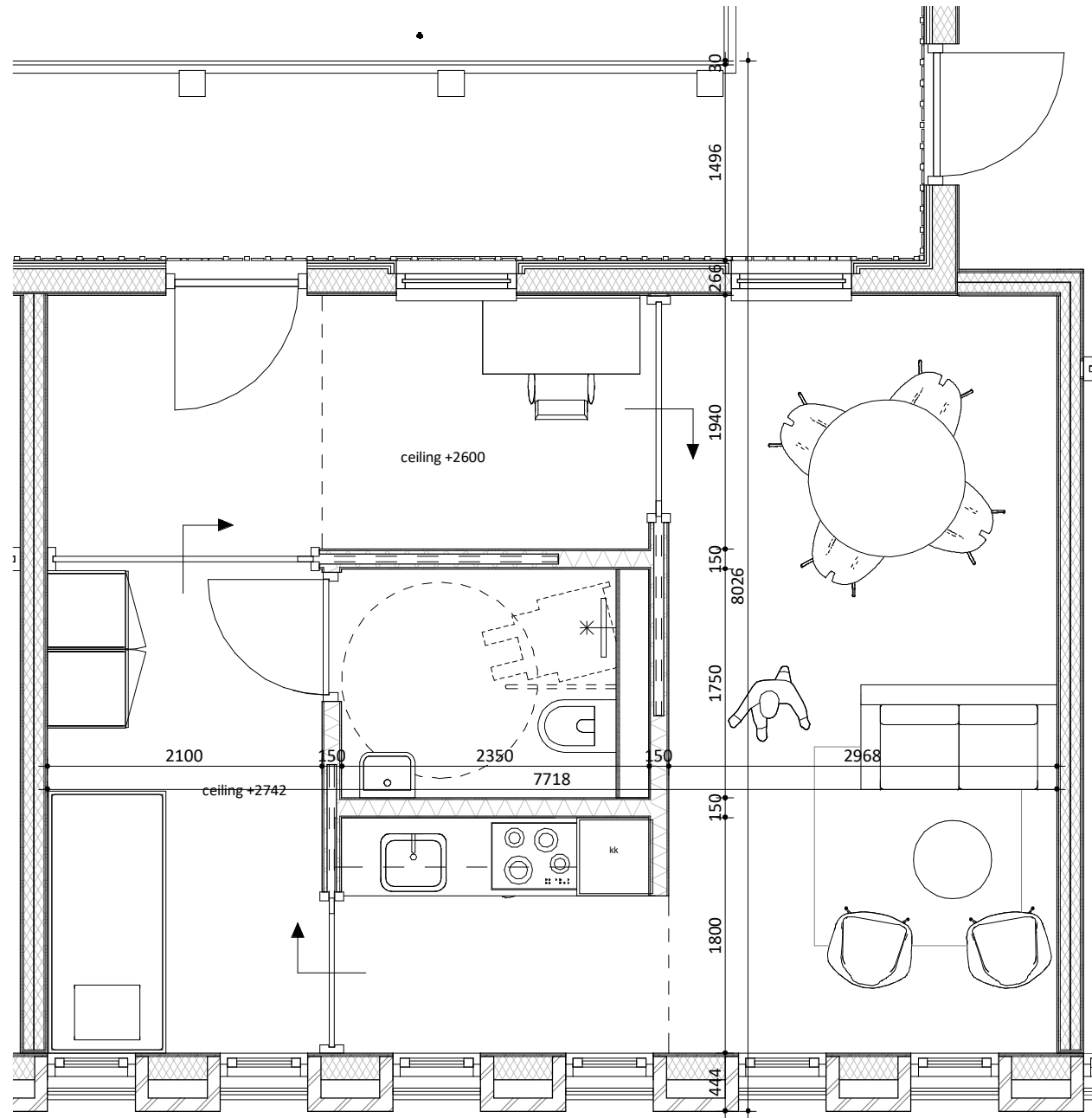
12. Proposal

Dwelling floorplan ground floor



12. Proposal

Dwelling floorplan first floor

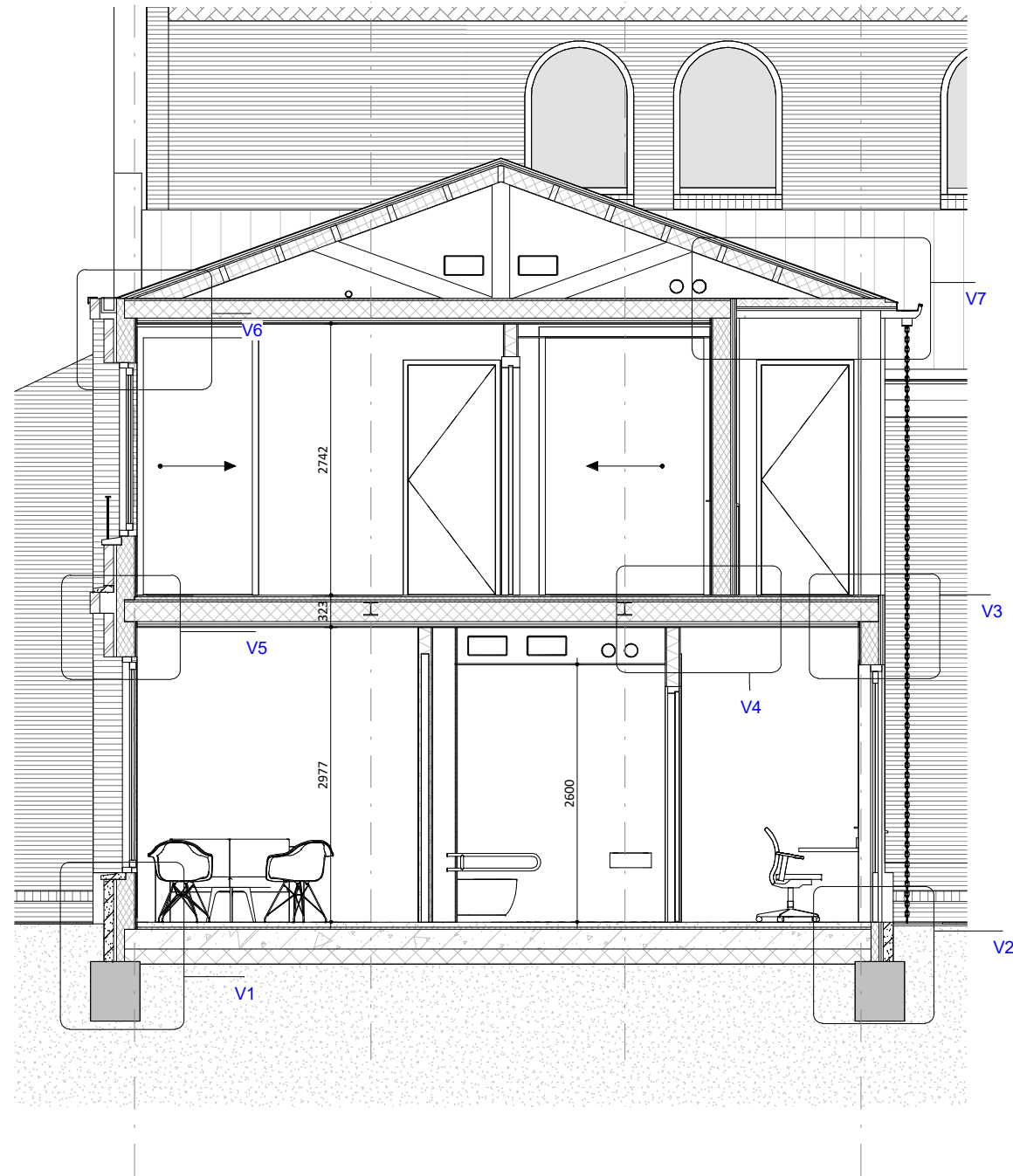


Fragments

The Sint Dominicus Church

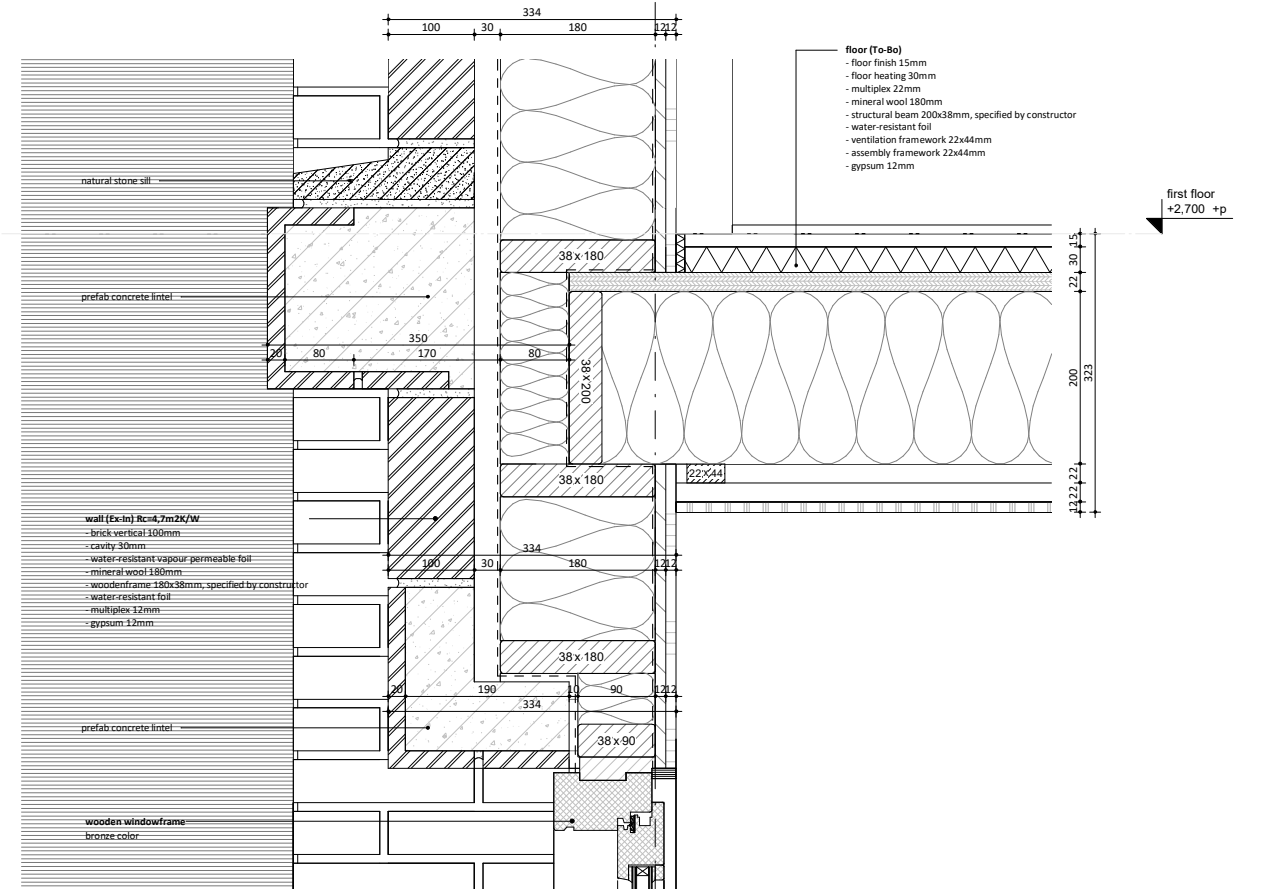
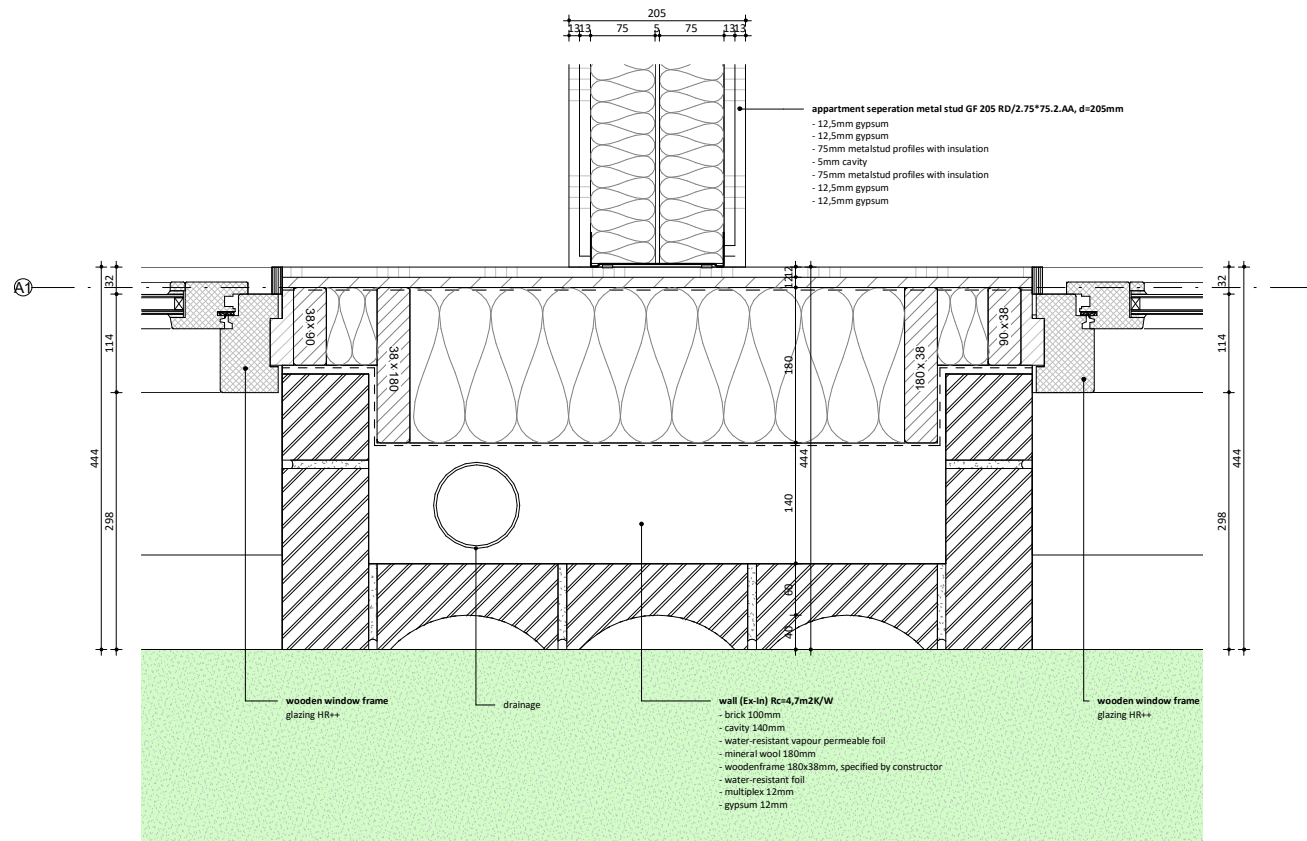
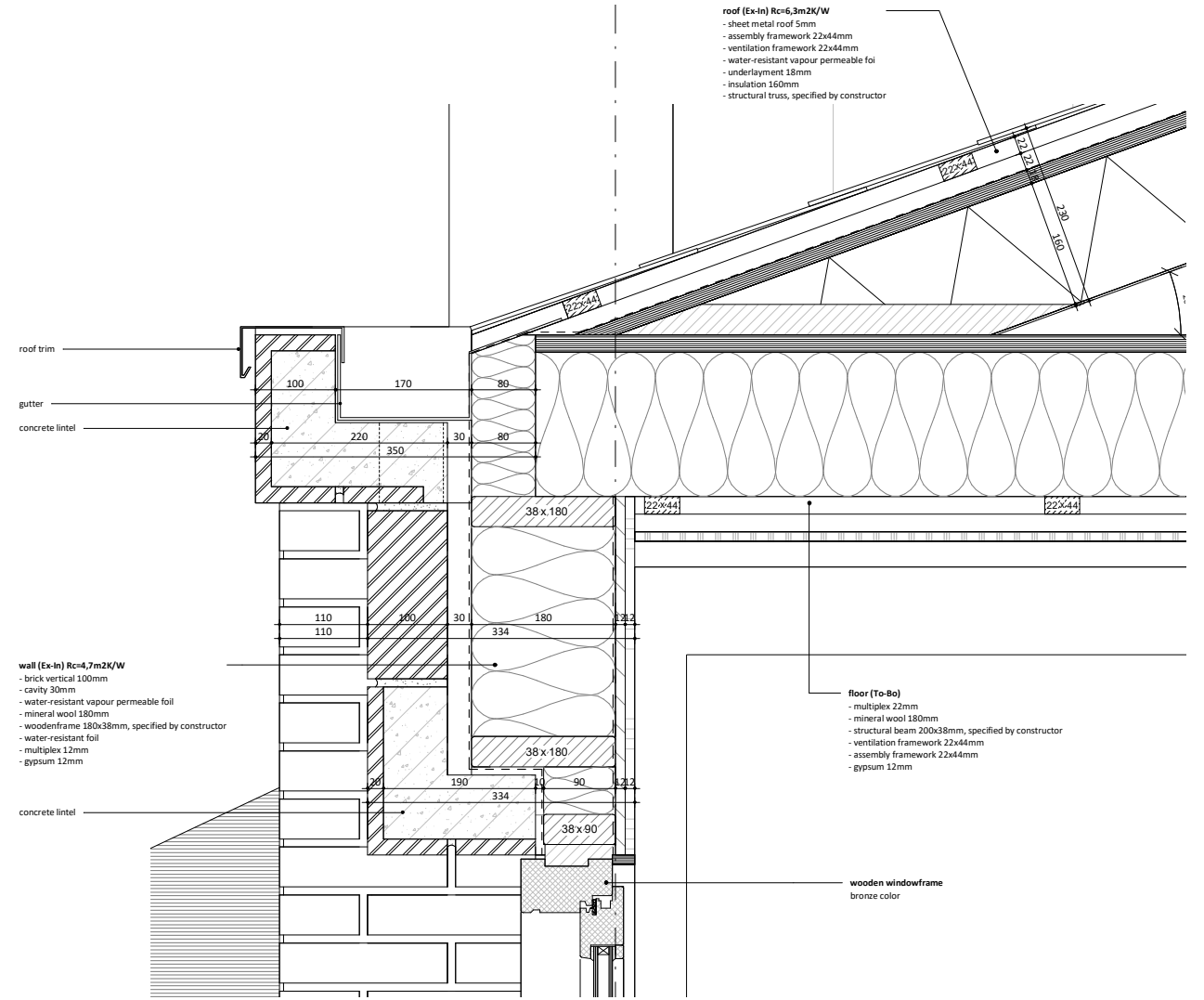
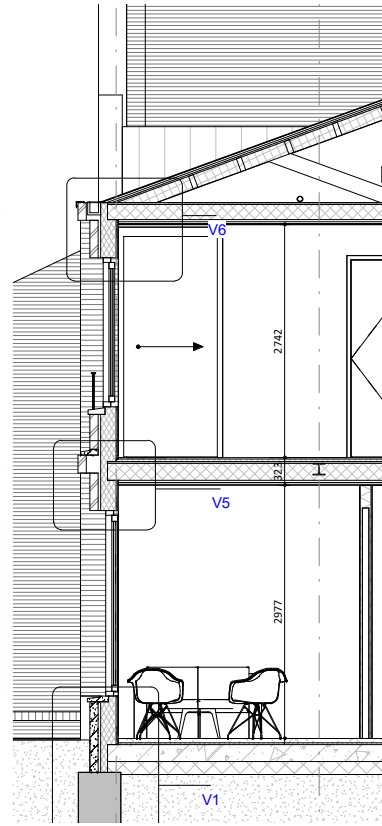
12. Proposal

Facade fragments with section (new)



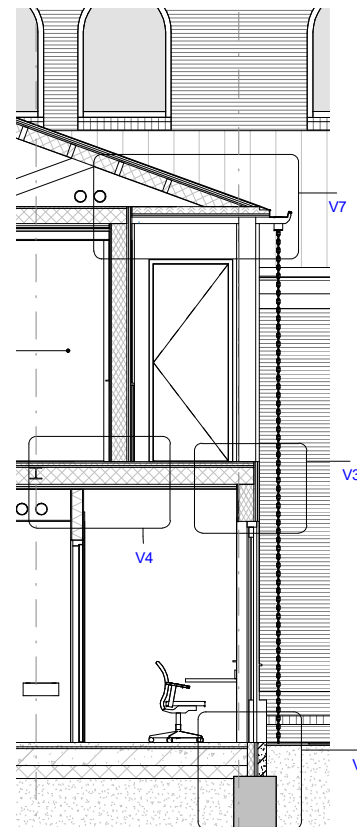
12. Proposal

Exterior facade (new)

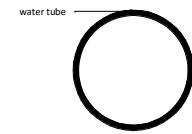


12. Proposal

Interior facade (new)



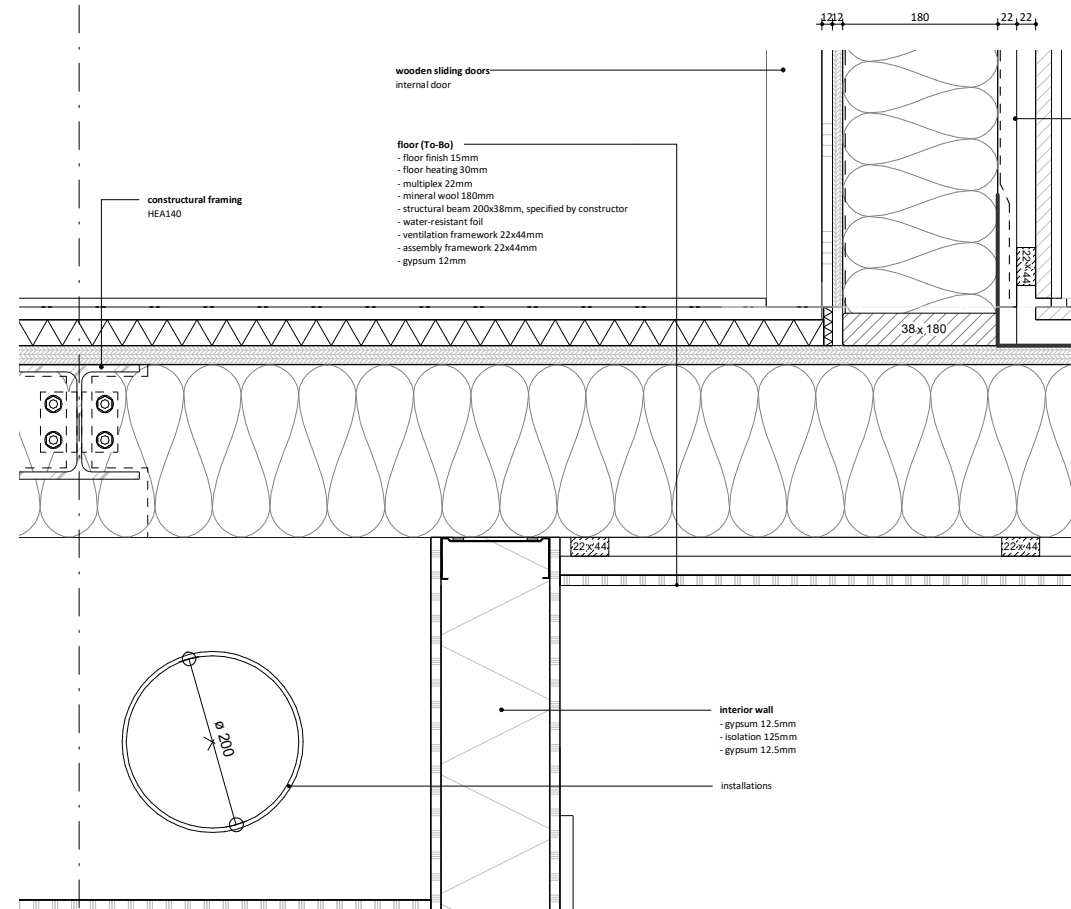
- floor (To-Bo)**
- multiplex 22mm
 - mineral wool 180mm
 - structural beam 200x38mm, specified by constructor
 - ventilation framework 22x44mm
 - assembly framework 22x44mm
 - gypsum 12mm



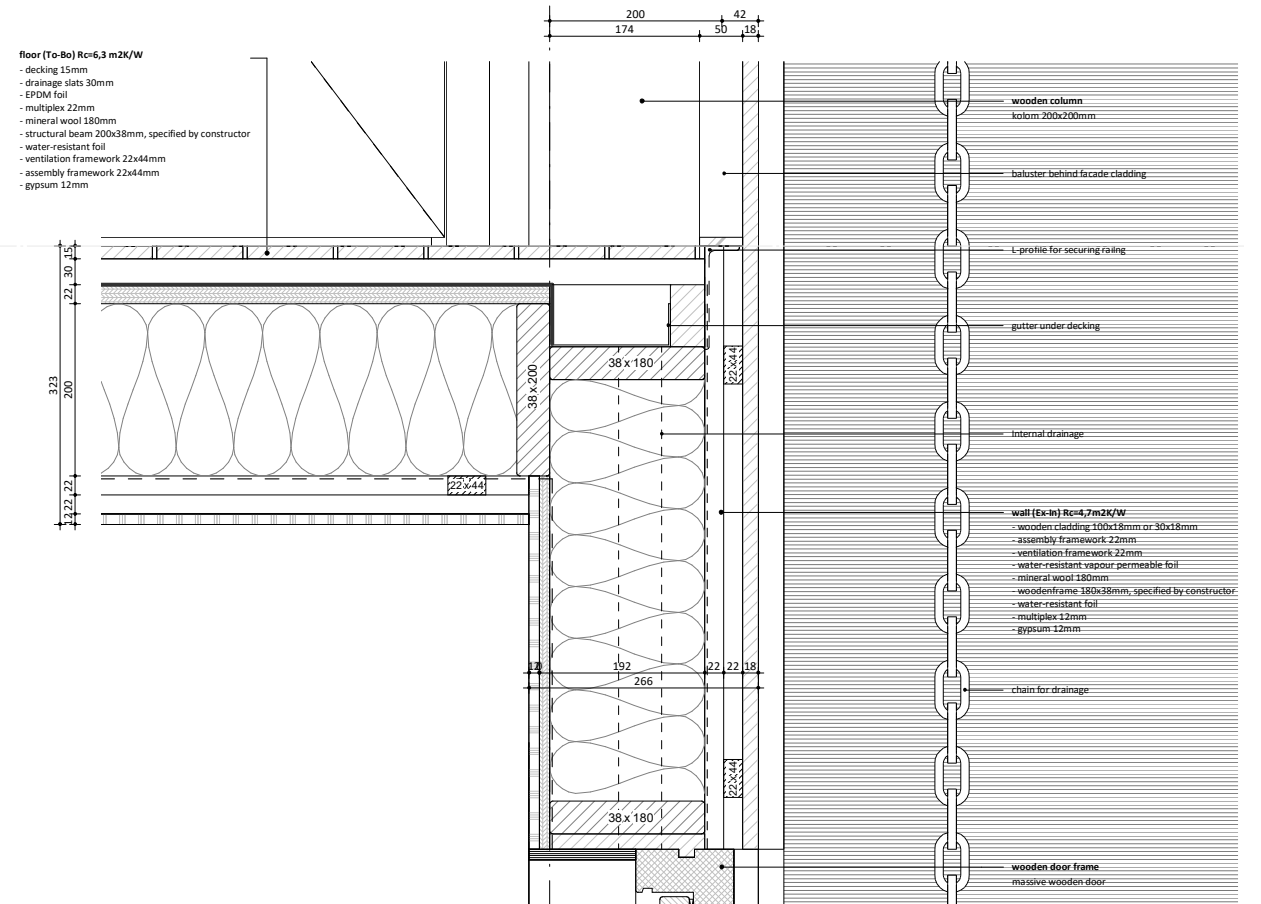
- floor (To-Bo) Rc=6,3 m2K/W**
- insulation 86mm
 - assembly framework 44x18mm

- wall (Ex-In) Rc=4,7m2K/W**
- wooden cladding 100x18mm or 30x18mm
 - assembly framework 22mm
 - ventilation framework 22mm
 - water-resistant vapour permeable foil
 - mineral wool 180mm
 - wooden frame 180x38mm, specified by constructor
 - water-resistant foil
 - multiplex 12mm
 - gypsum 12mm

- roof (Ex-In) Rc=6,3m2K/W**
- sheet metal roof 5mm
 - assembly framework 22x44mm
 - ventilation framework 22x44mm
 - water-resistant vapour permeable foil
 - underlayment 18mm
 - insulation 160mm
 - structural truss, specified by constructor

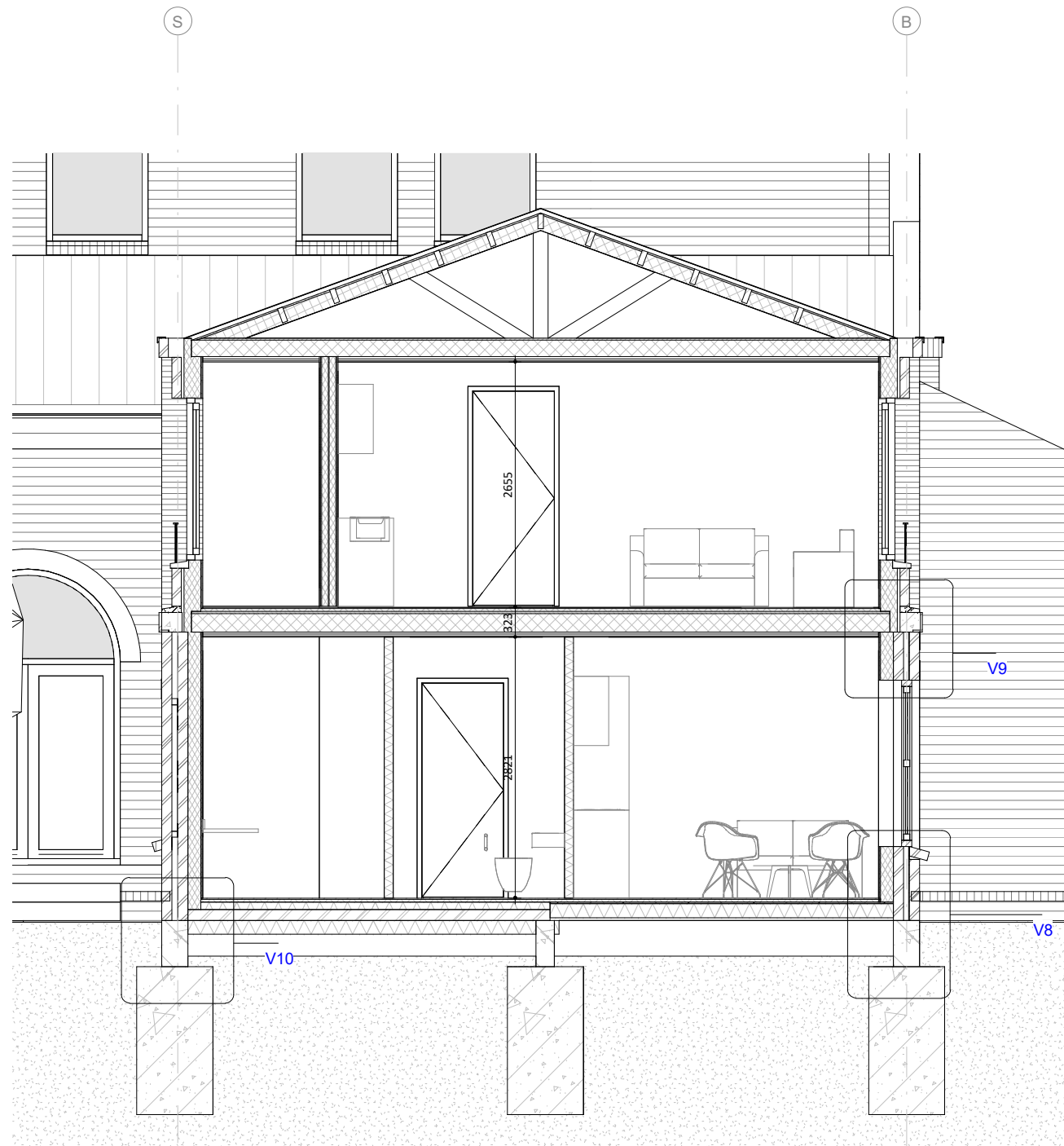


- floor (To-Bo) Rc=6,3 m2K/W**
- decking 15mm
 - drainage slats 30mm
 - EPDM foil
 - multiplex 22mm
 - mineral wool 180mm
 - structural beam 200x38mm, specified by constructor
 - water-resistant foil
 - ventilation framework 22x44mm
 - assembly framework 22x44mm
 - gypsum 12mm



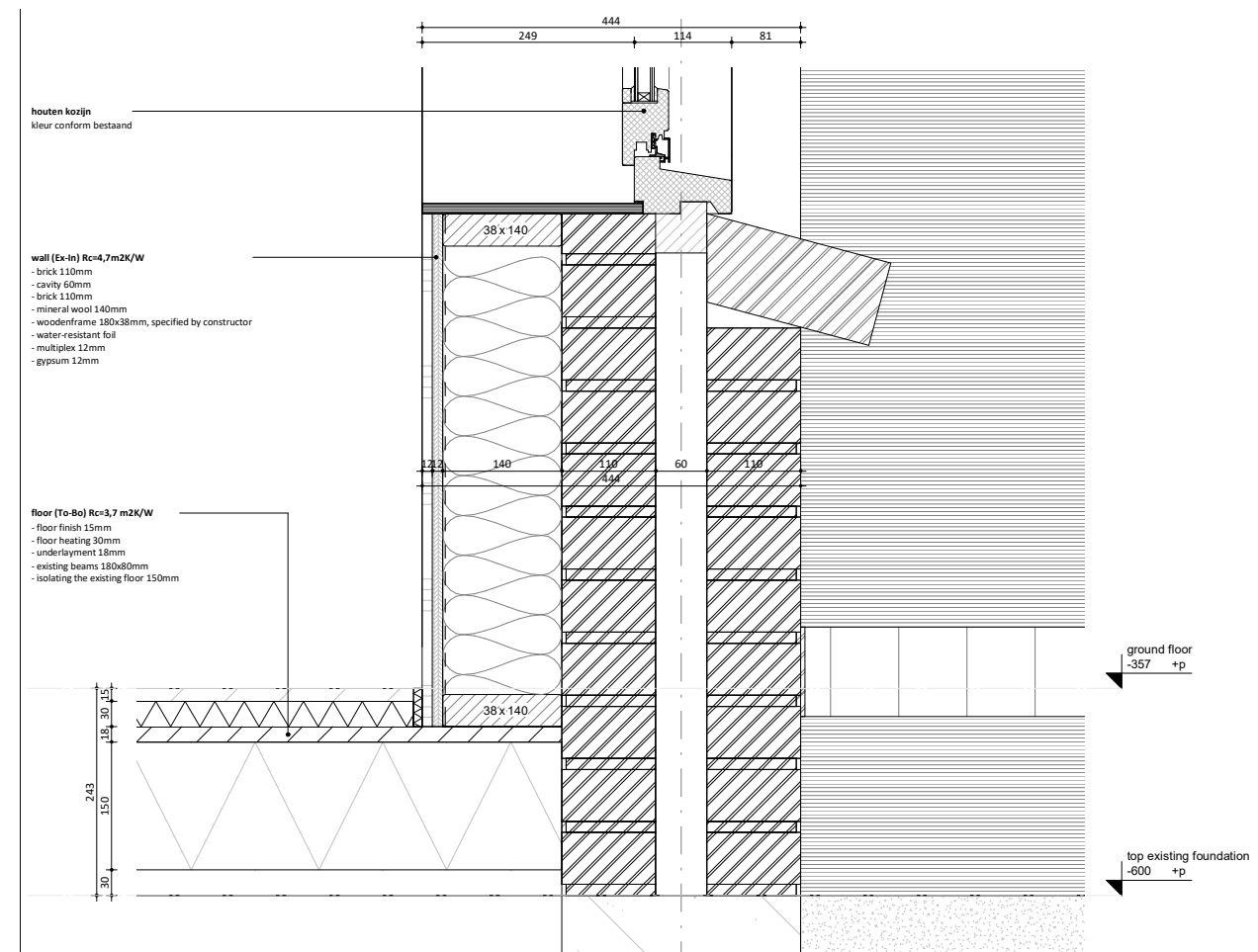
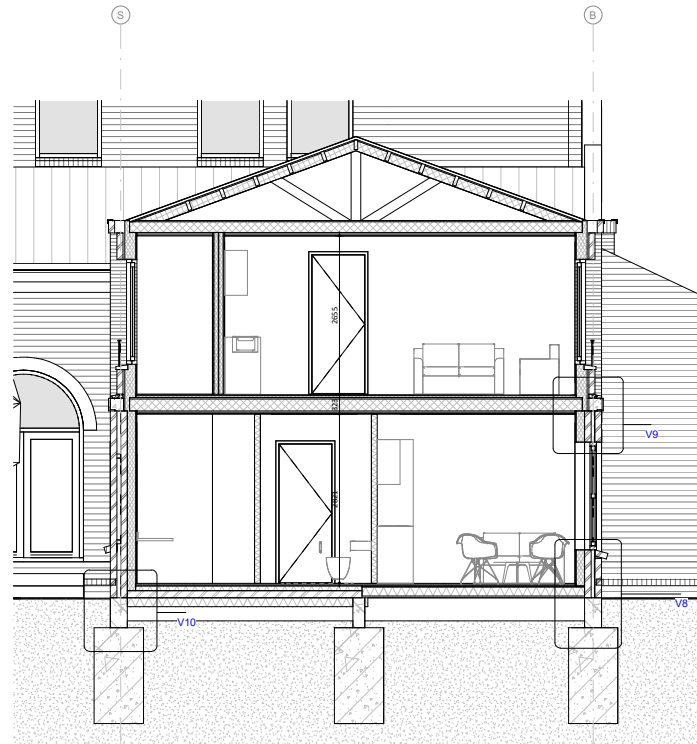
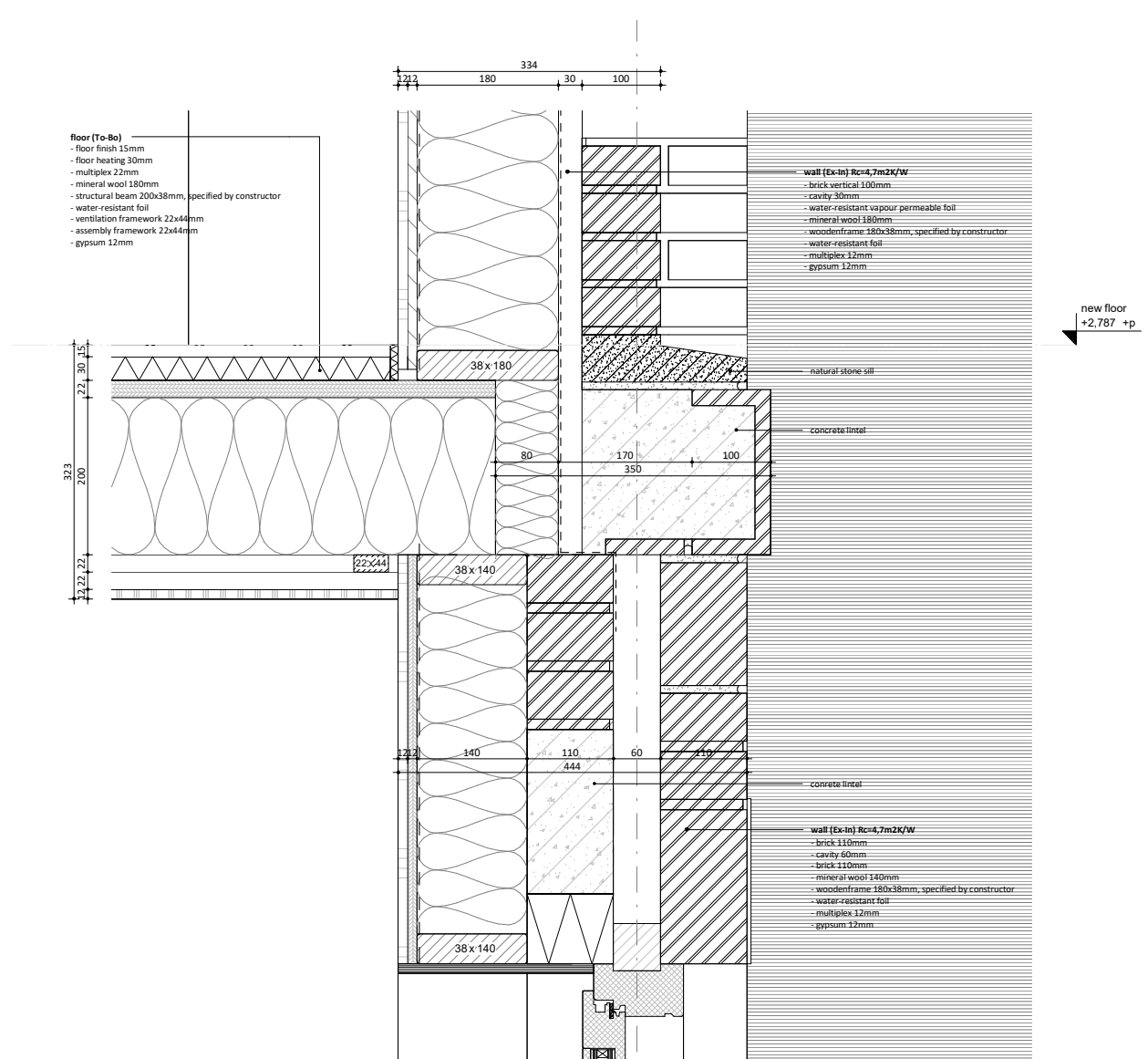
12. Proposal

Existing facade



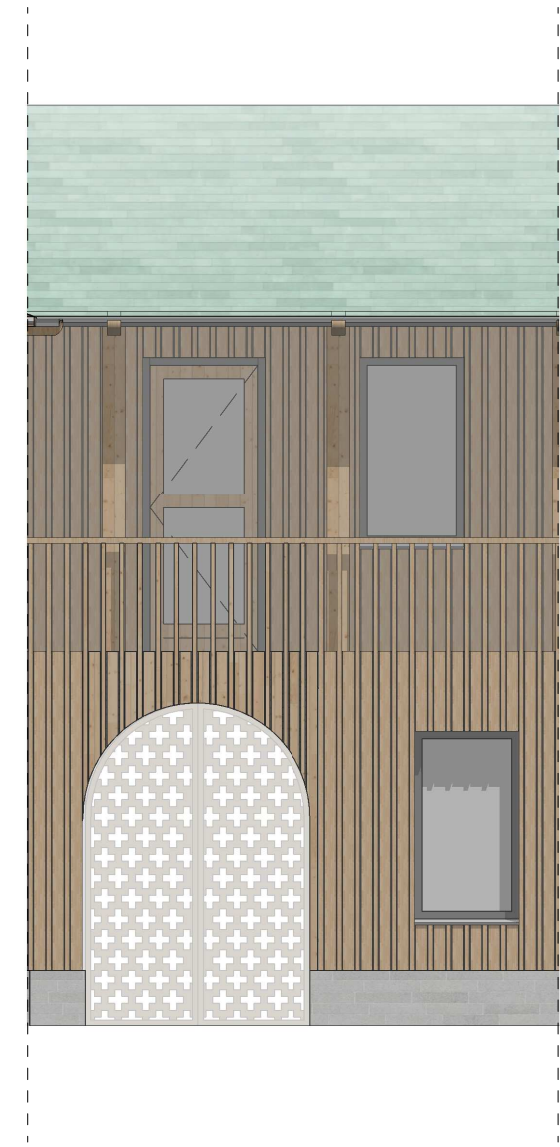
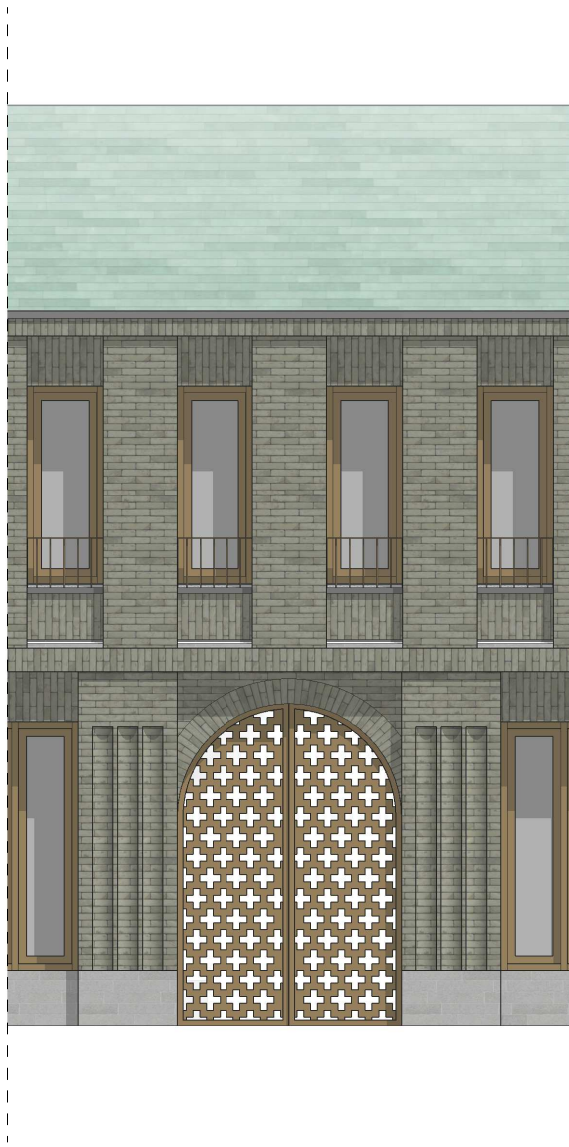
12. Proposal

Existing facade



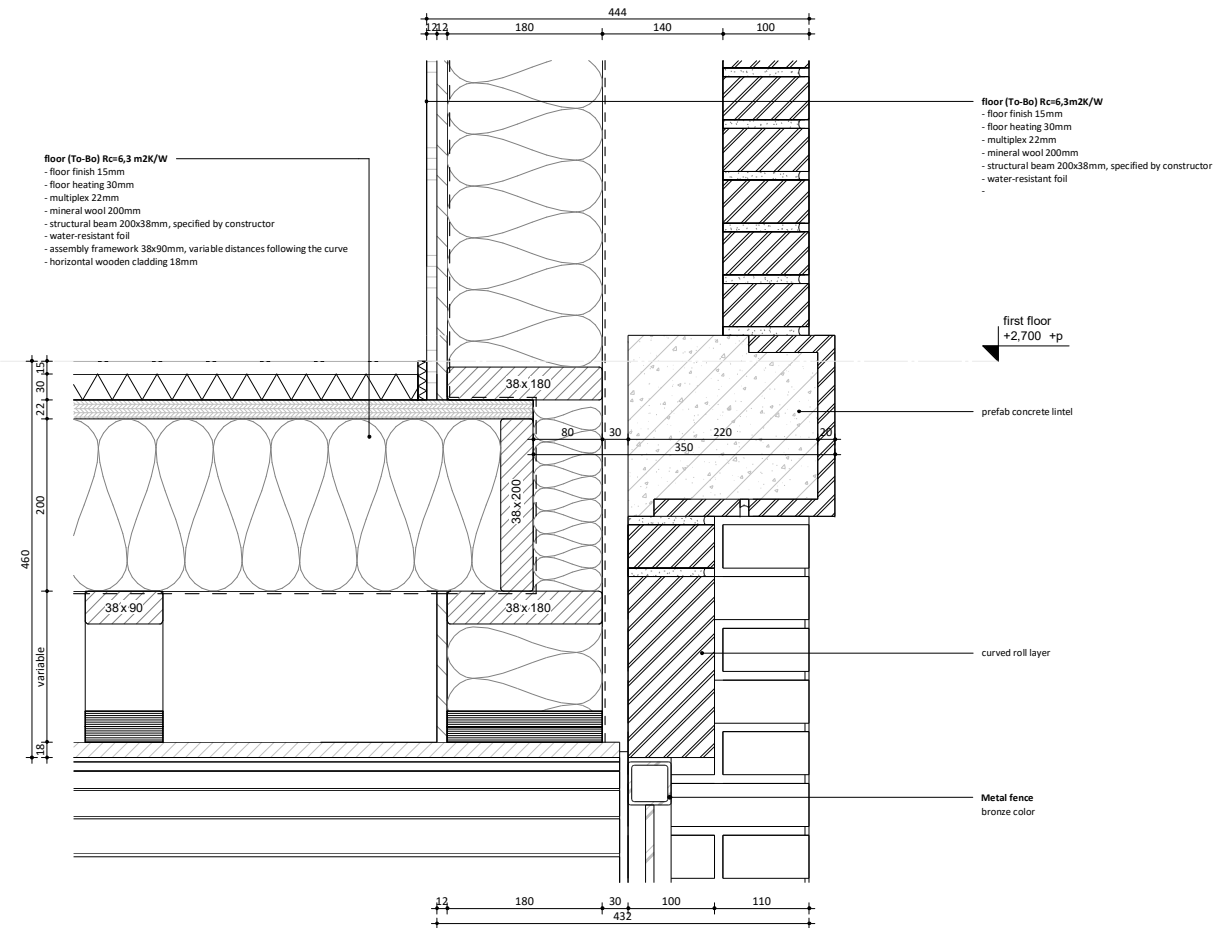
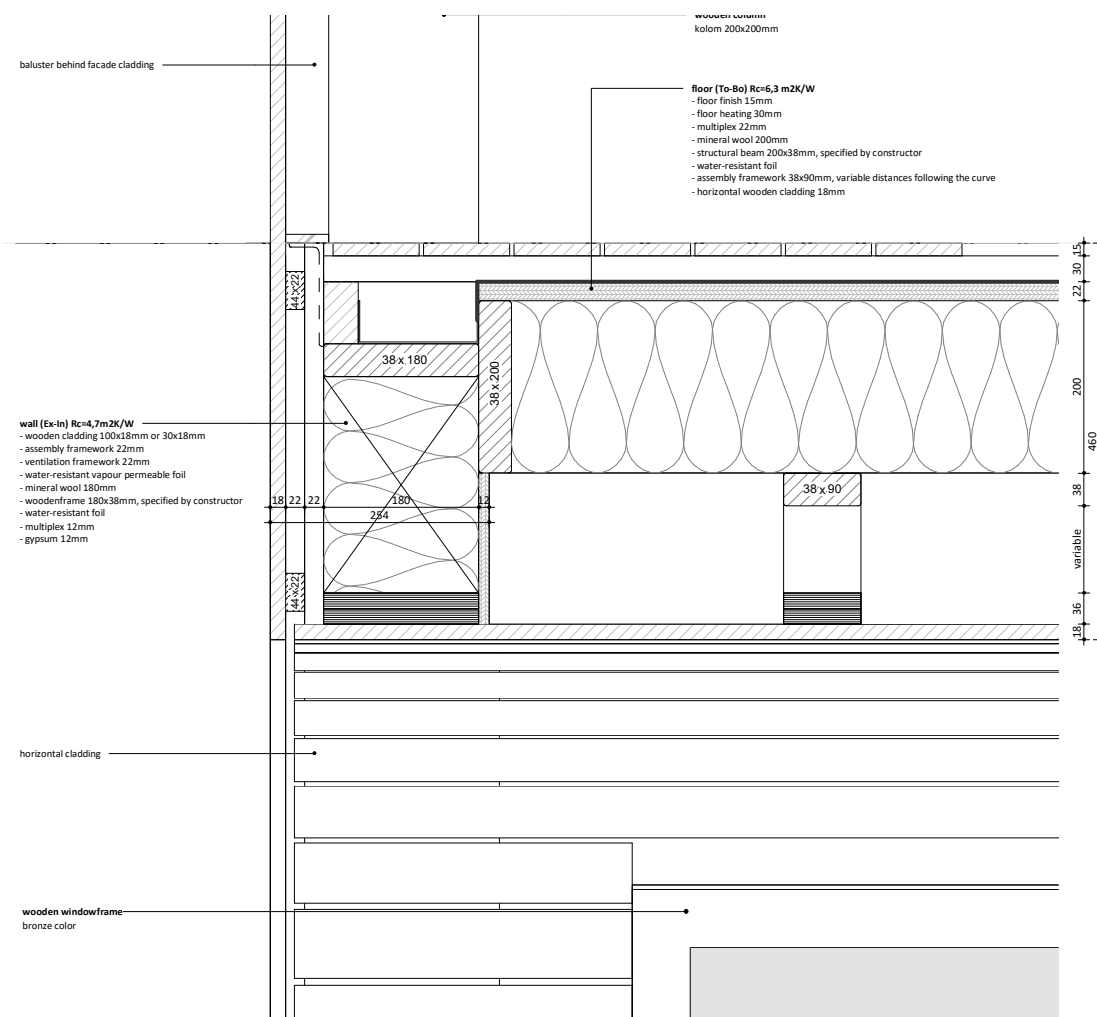
12. Proposal

Gate to the inner courtyard



12. Proposal

Gate to the inner courtyard



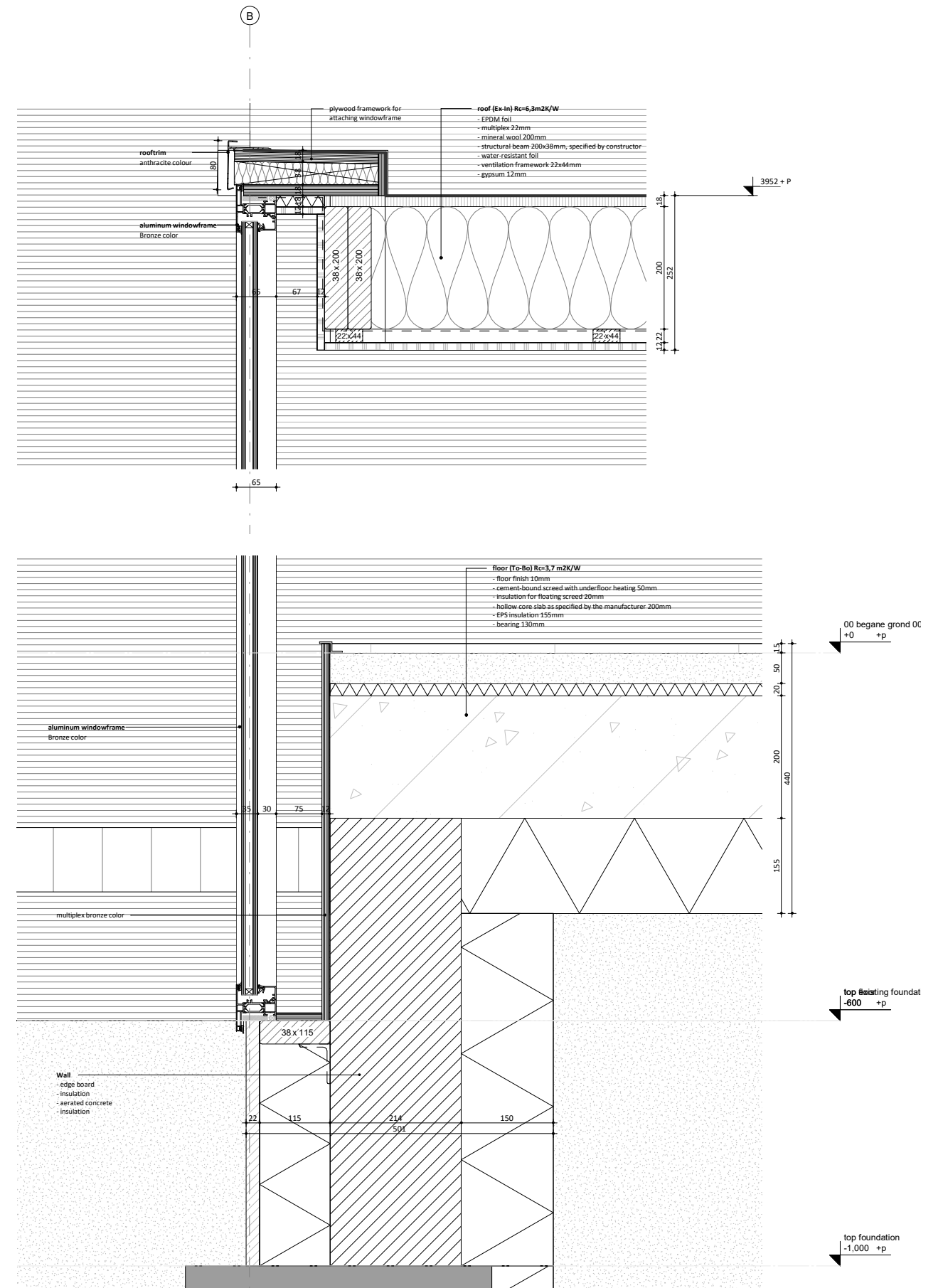
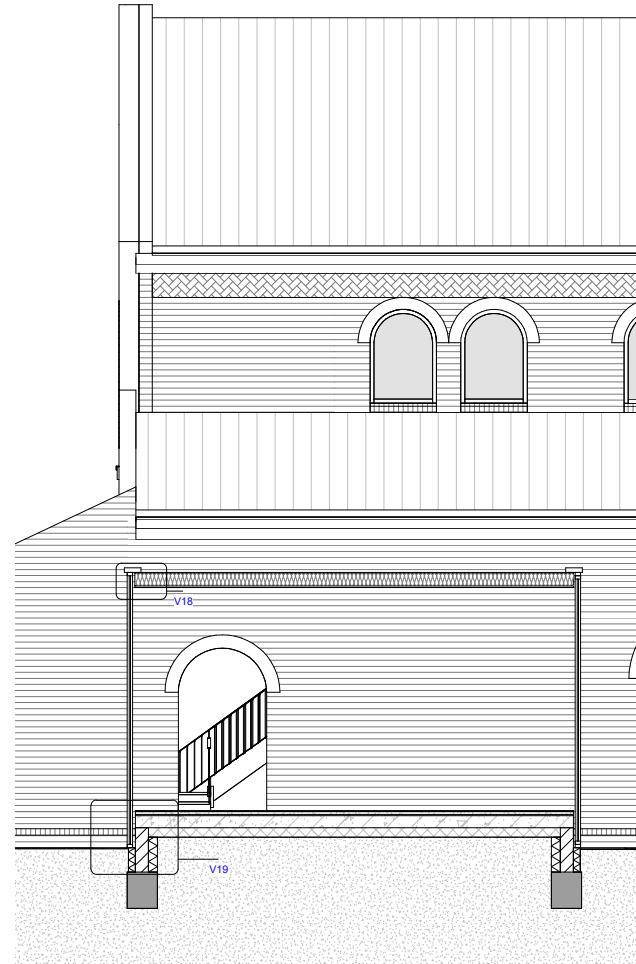
12. Proposal

Intermediate section



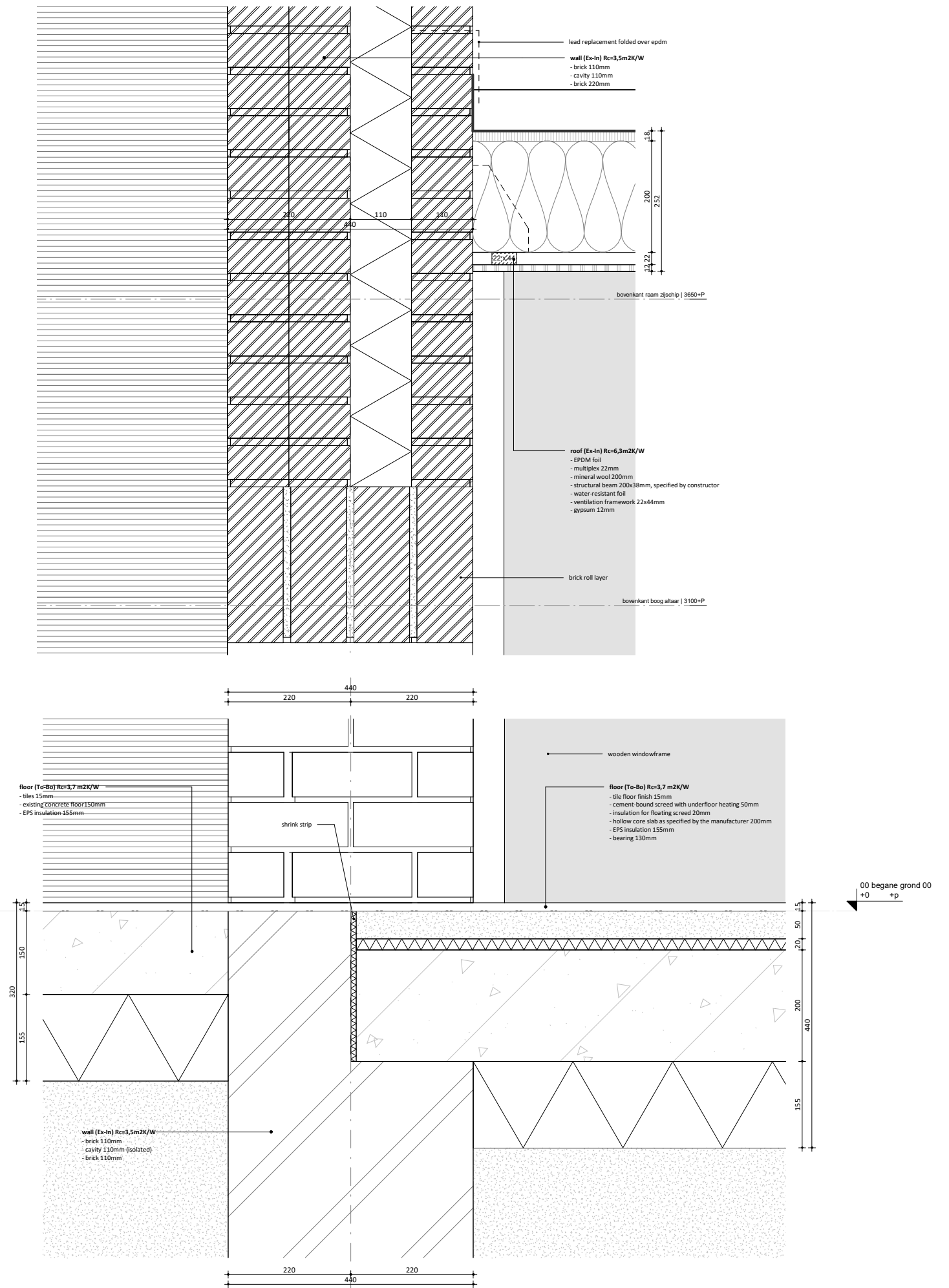
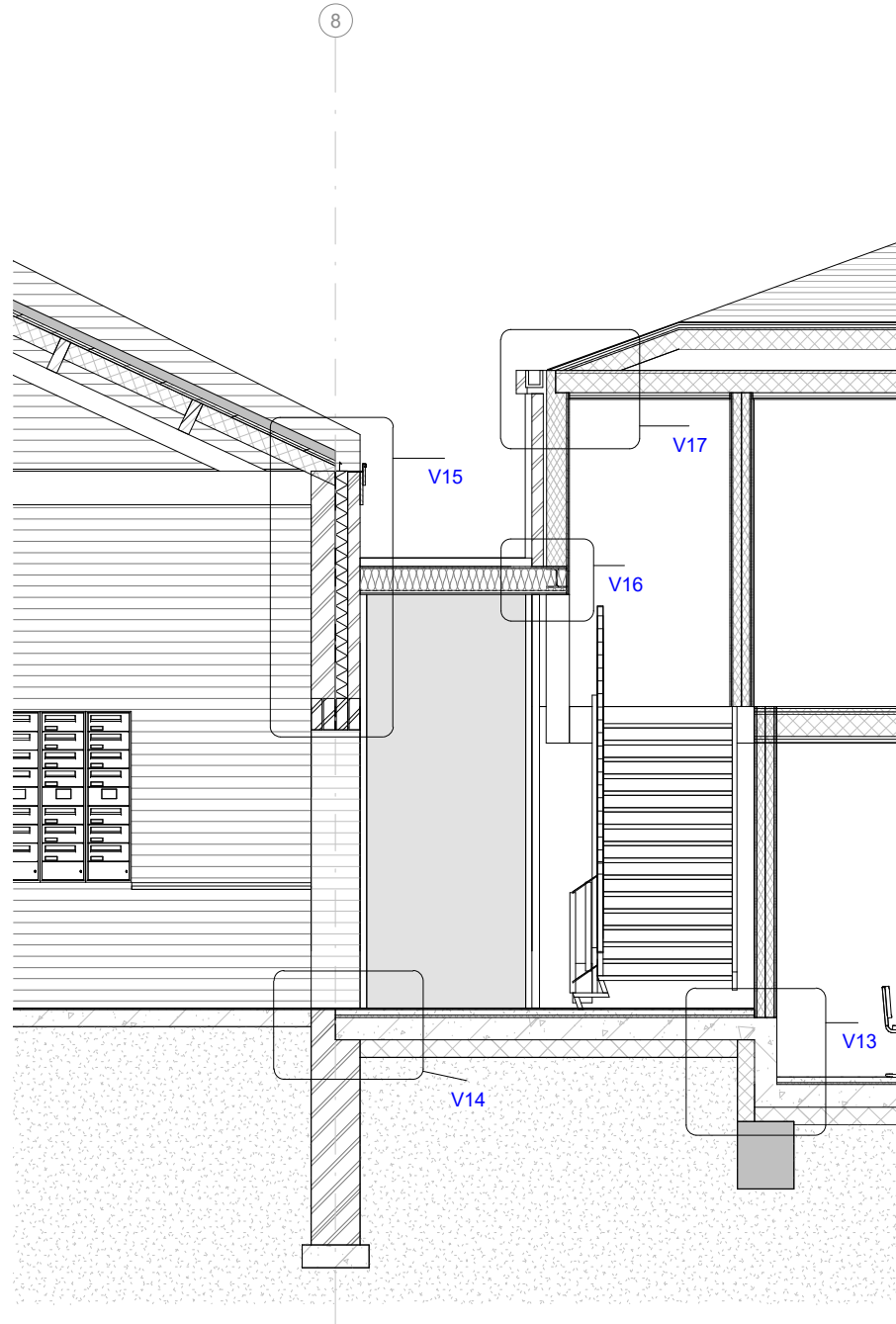
12. Proposal

Intermediate section



12. Proposal

Intermediate section



Material and climate

The Sint Dominicus Church

13. Zero waste

New/existing material analysis



Rooftiles



Brick



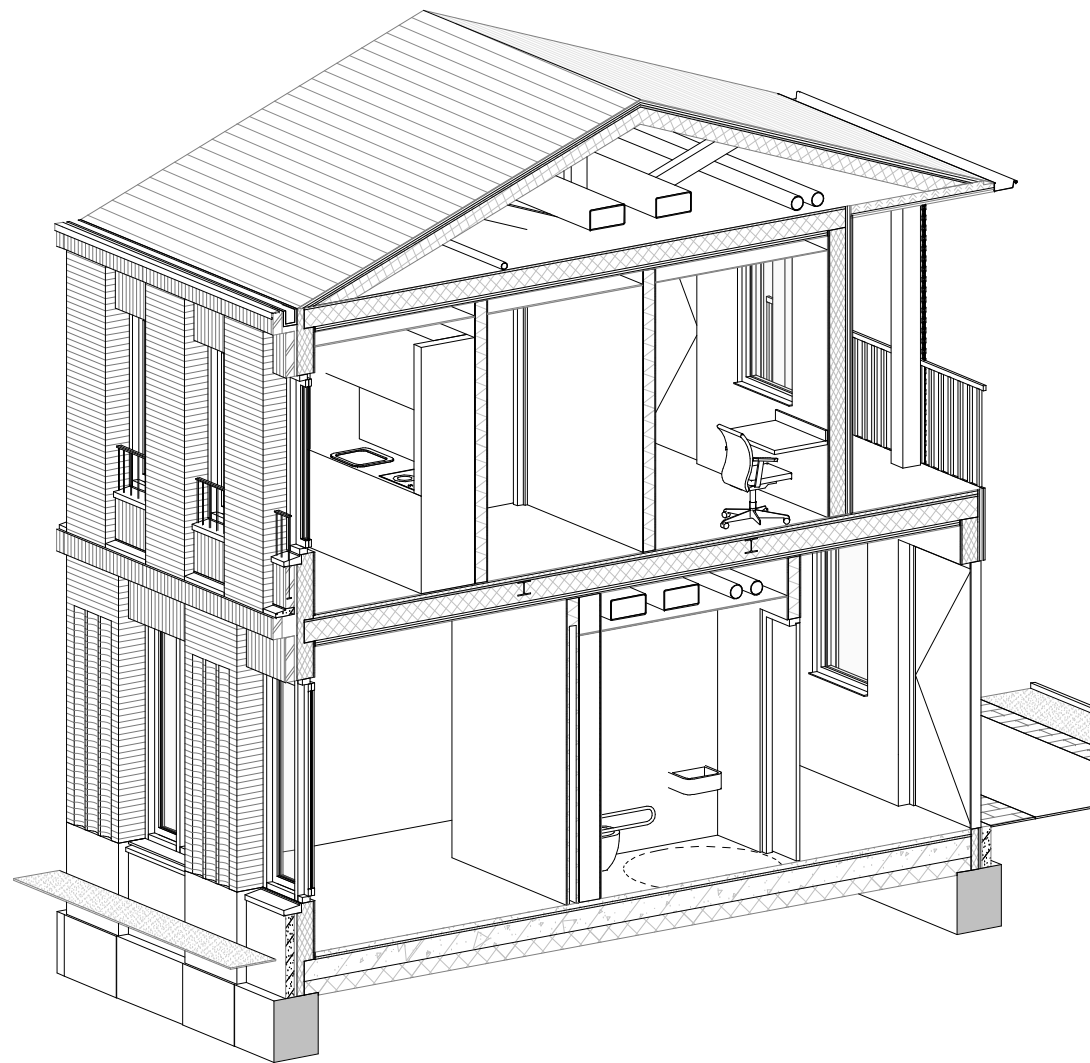
Stained windows



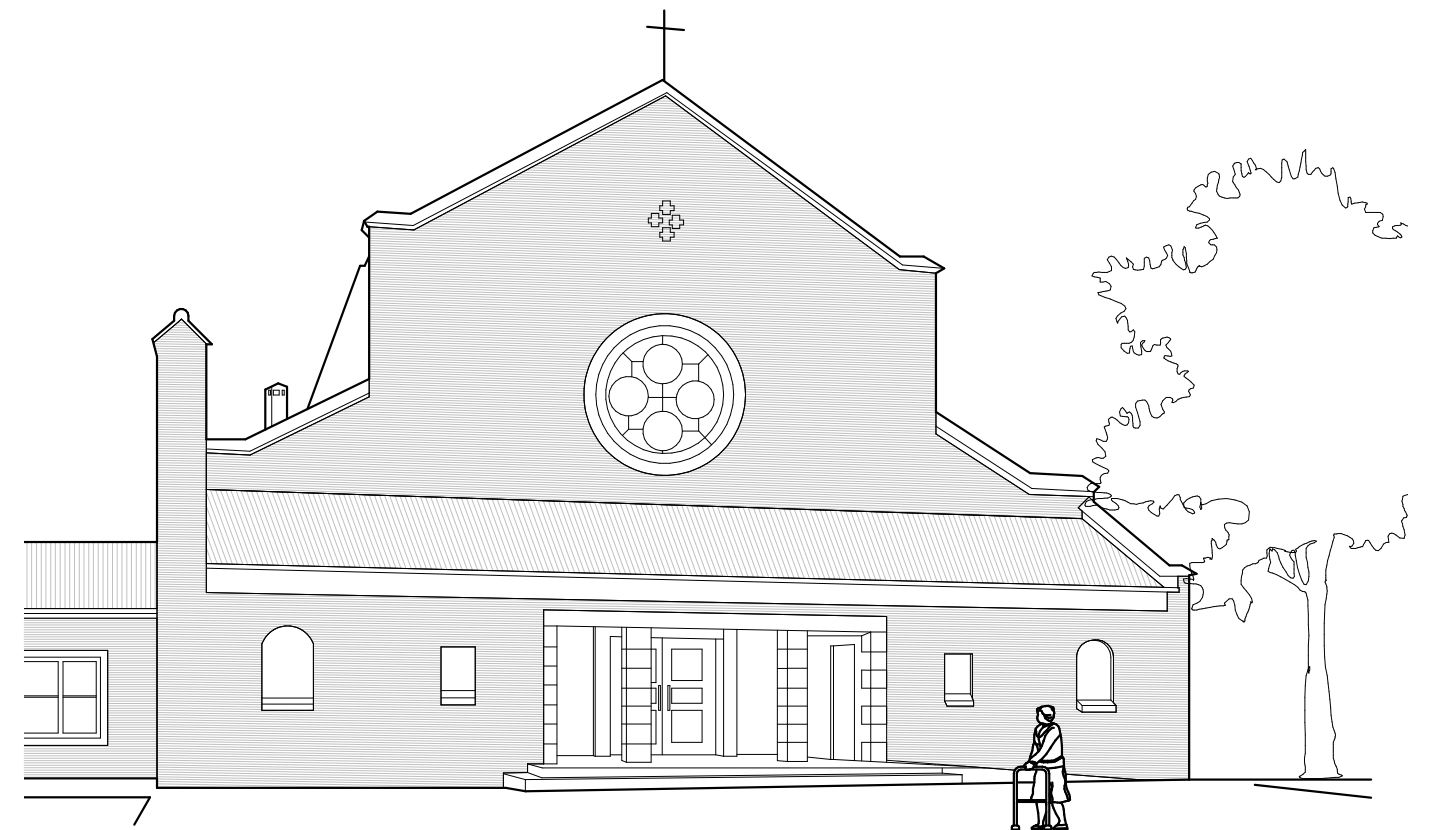
Wooden beams



Aluminum (patinated)



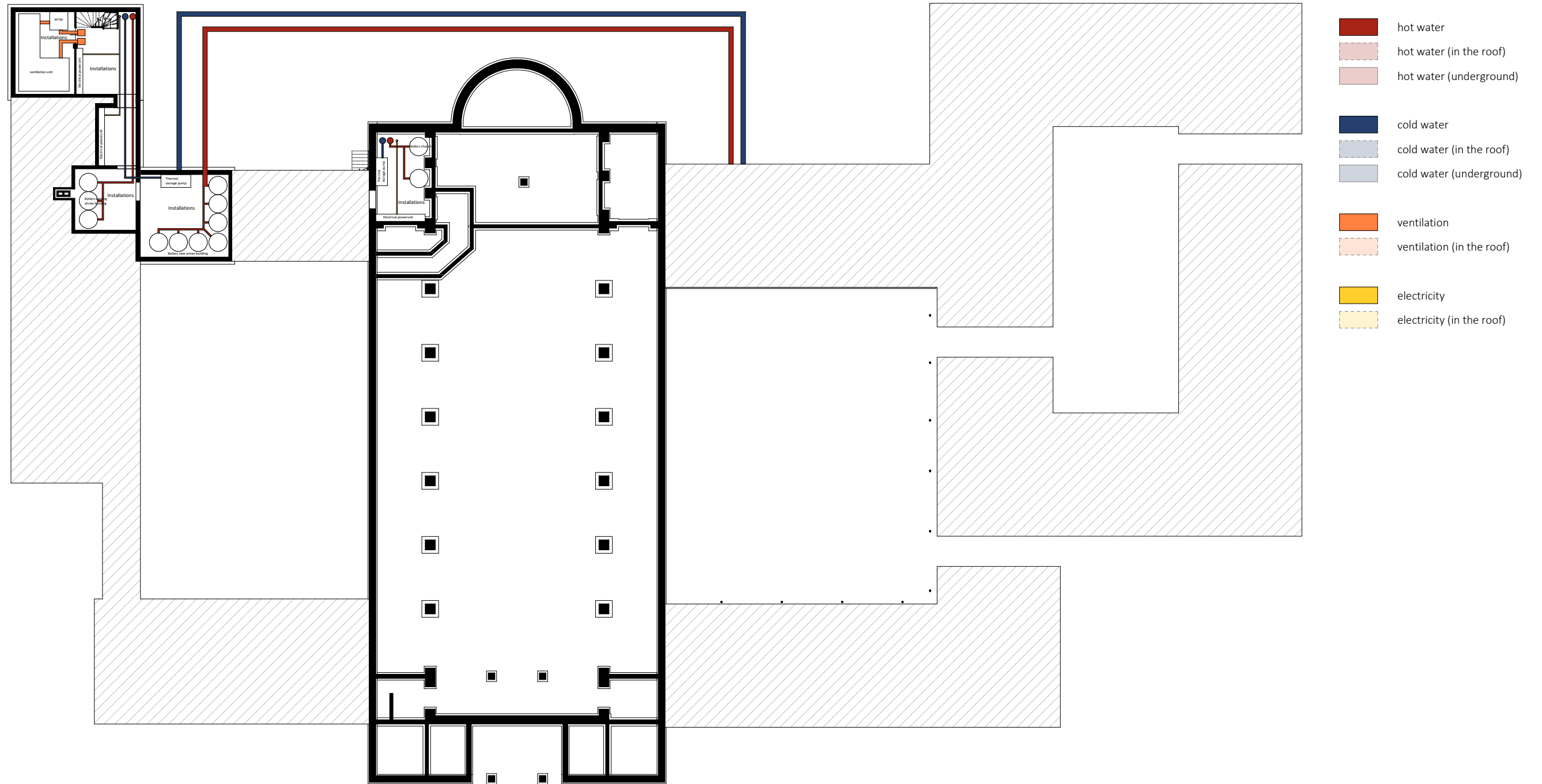
Wooden structure - dismantlable steel structure - woodfibre insulation and flexible floorplan



Keeping the identity of the church (social aspect of zero waste)

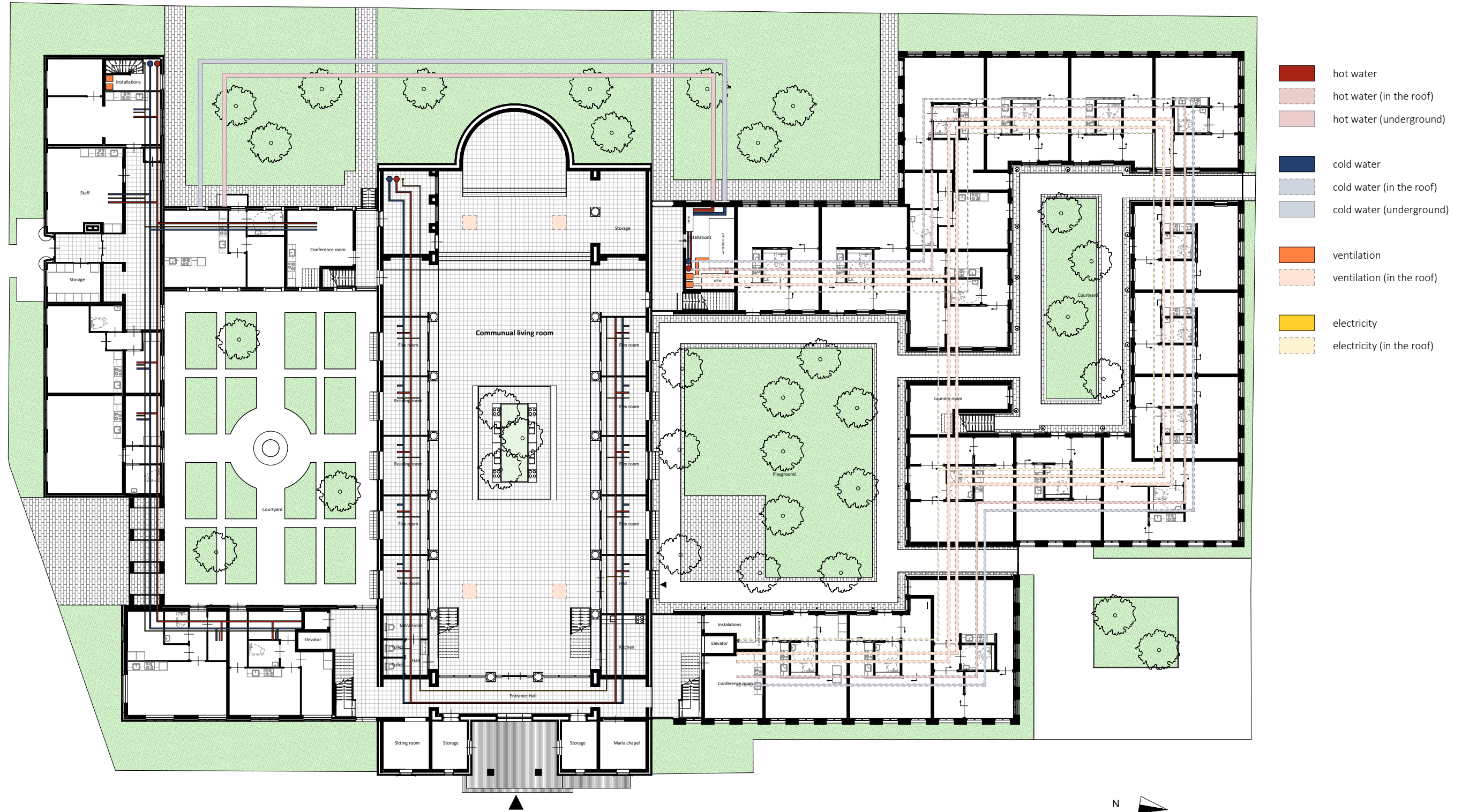
14. Climate

Climate concept basement



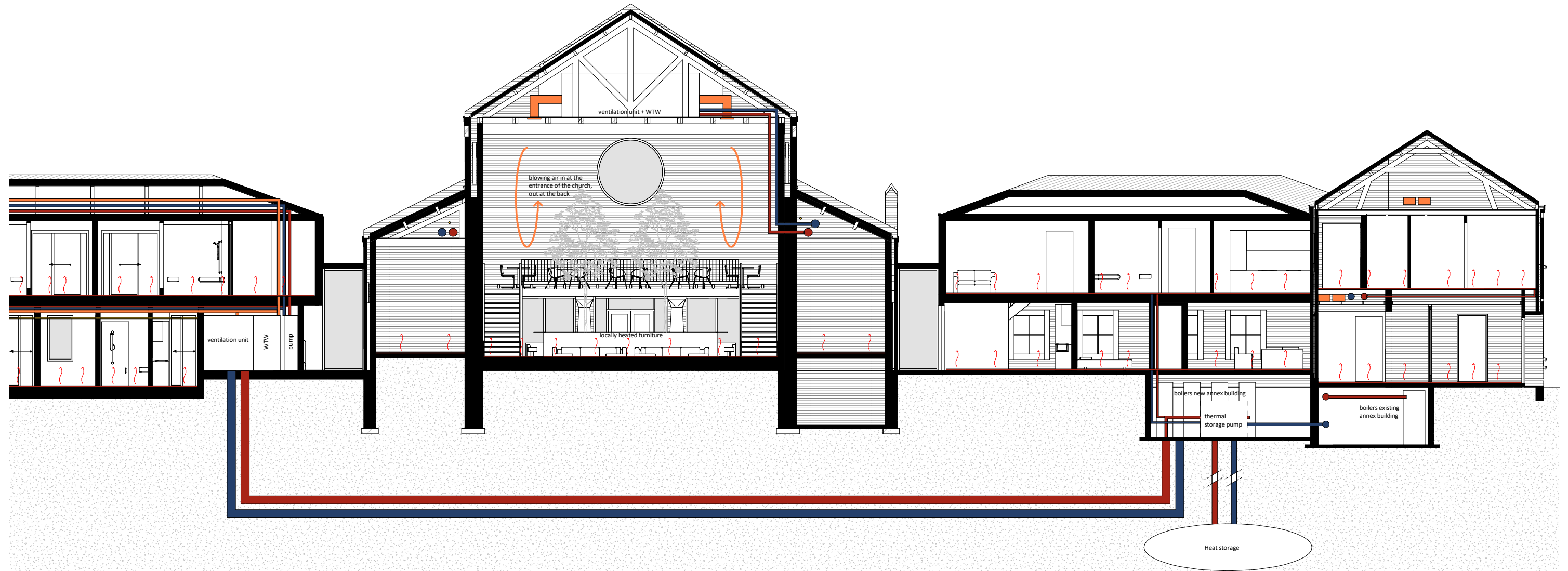
14. Climate

Climate concept ground floor



14. Climate

Climate concept section



Impressions

The Sint Dominicus Church

15. Impressions

Monastery garden



15. Impressions

Monastery garden



15. Impressions

Monastery garden



15. Impressions

Intermediate section



15. Impressions

Gate to inner courtyard



15. Impressions

Playground



15. Impressions

Forestry garden



15. Impressions

Market garden



15. Impressions

Interior church

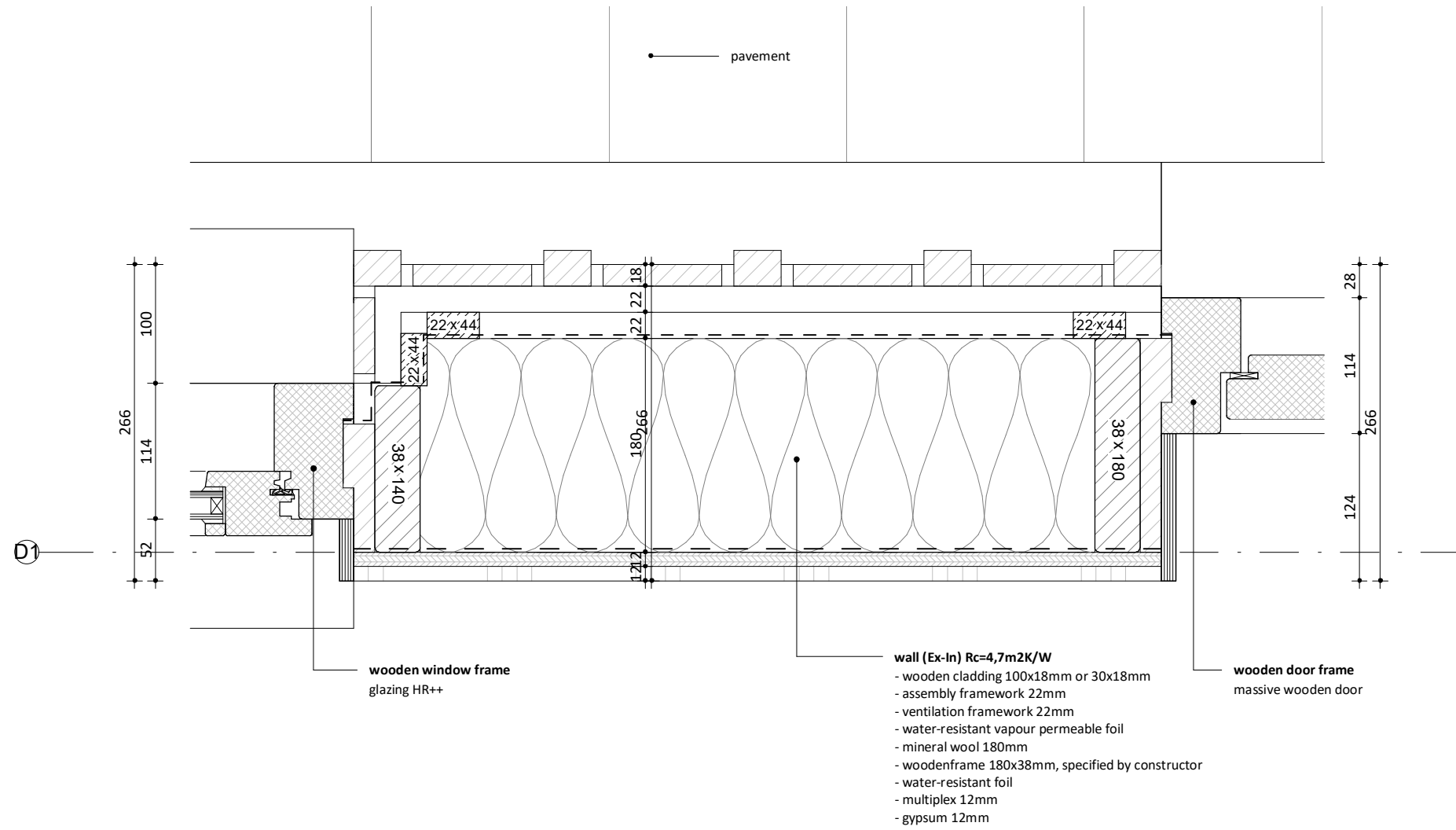


Detailing

The Sint Dominicus Church

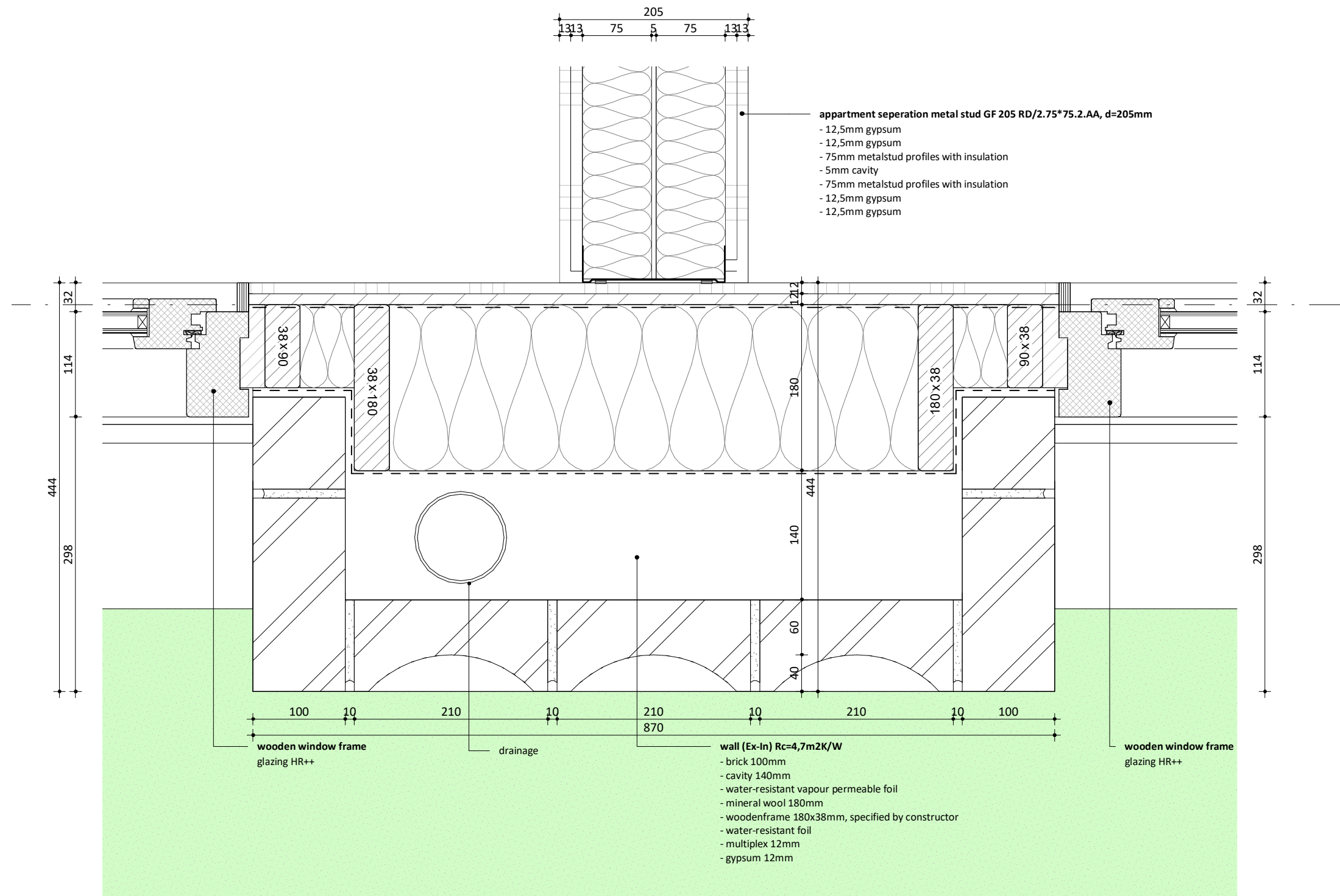
16. Details

Detail H1



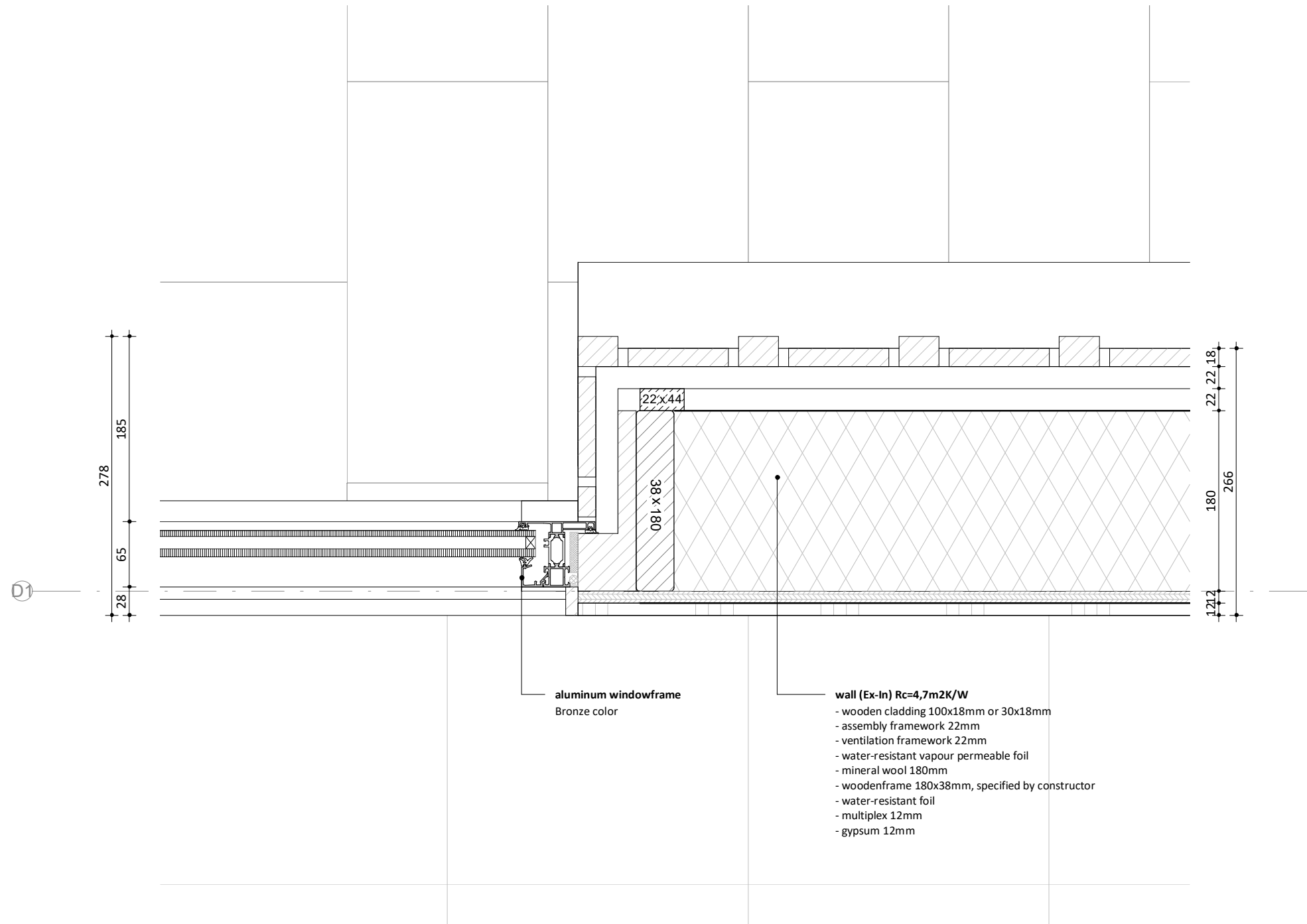
16. Details

Detail H2



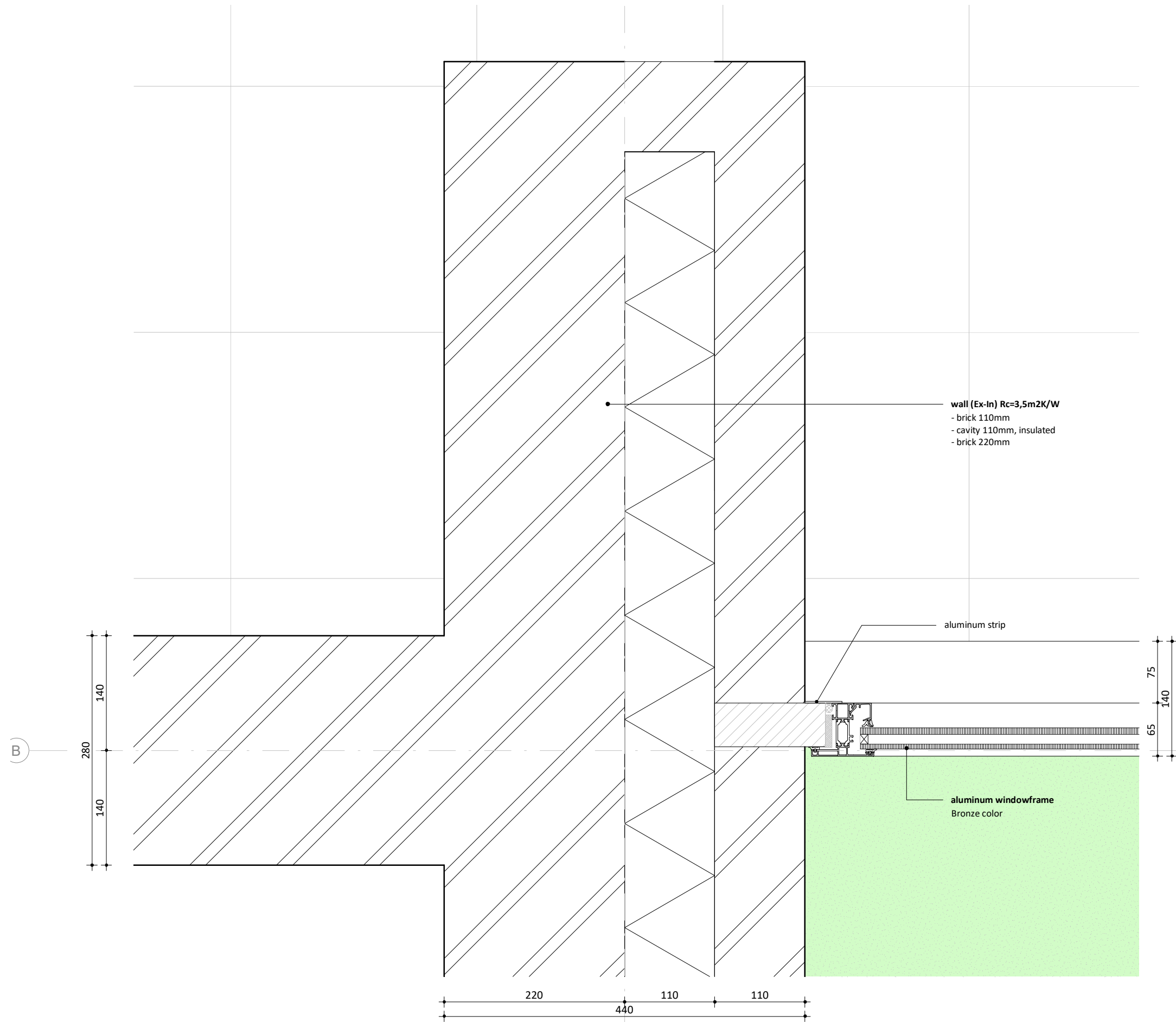
16. Details

Detail H3



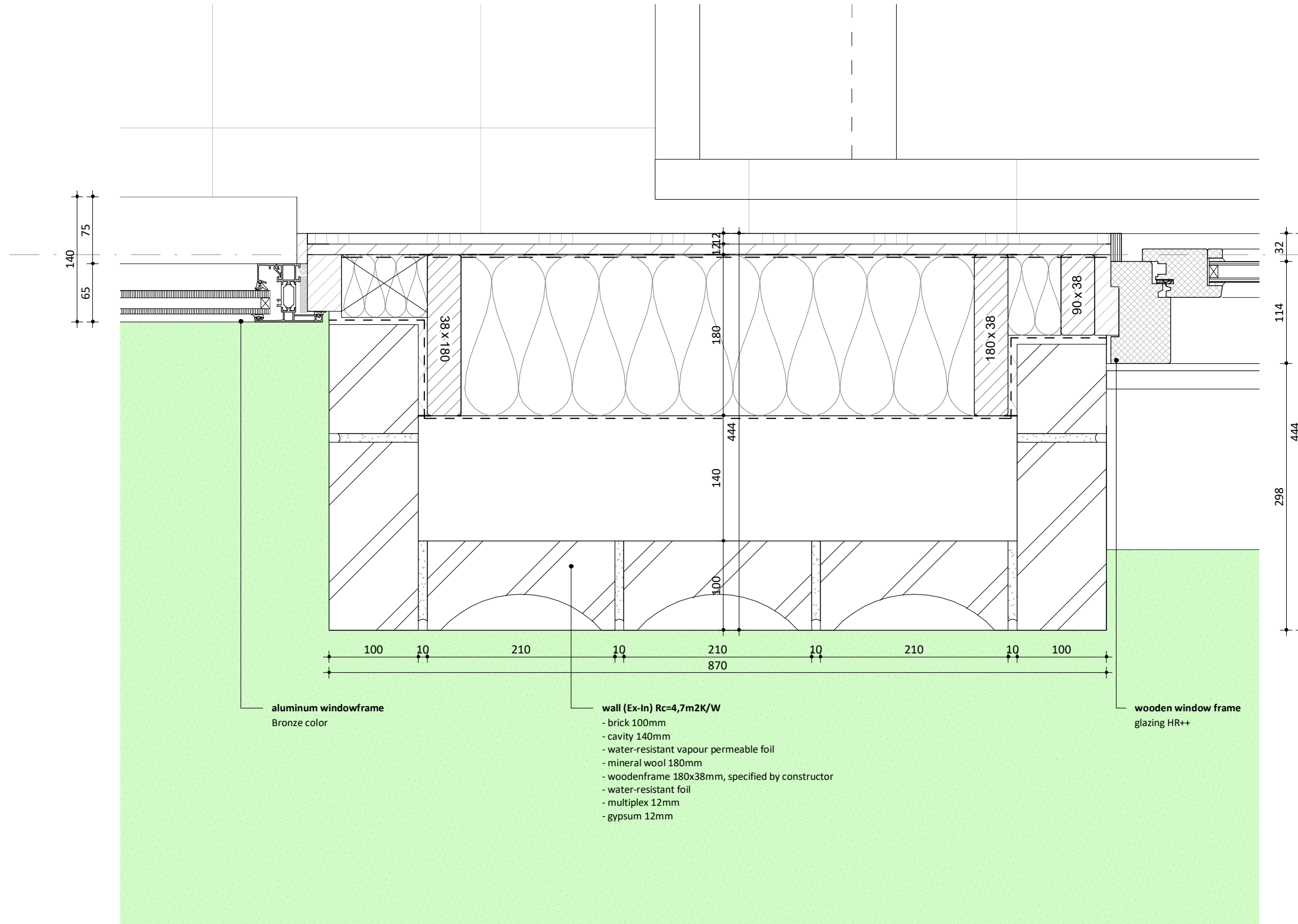
16. Details

Detail H4



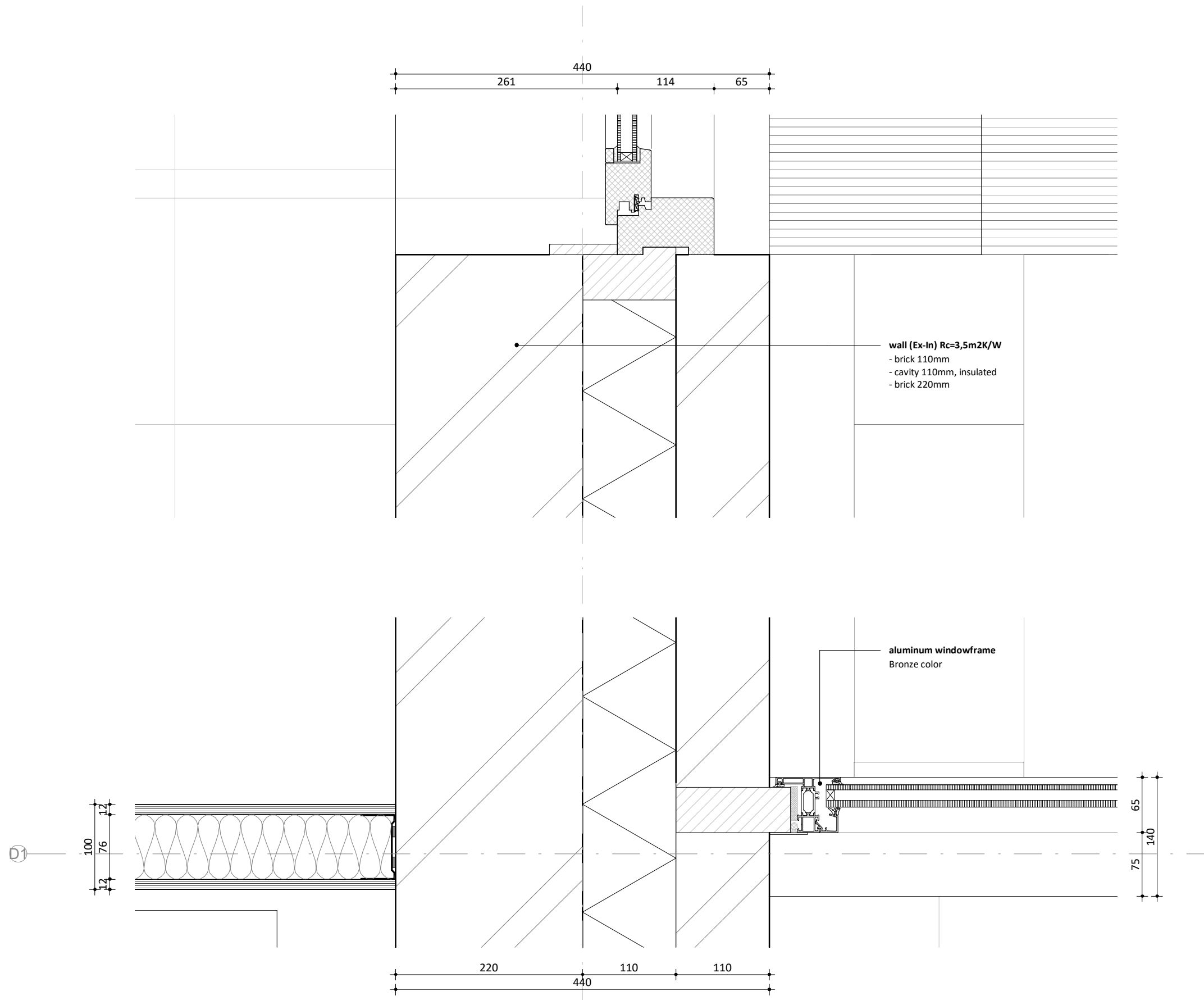
16. Details

Detail H5



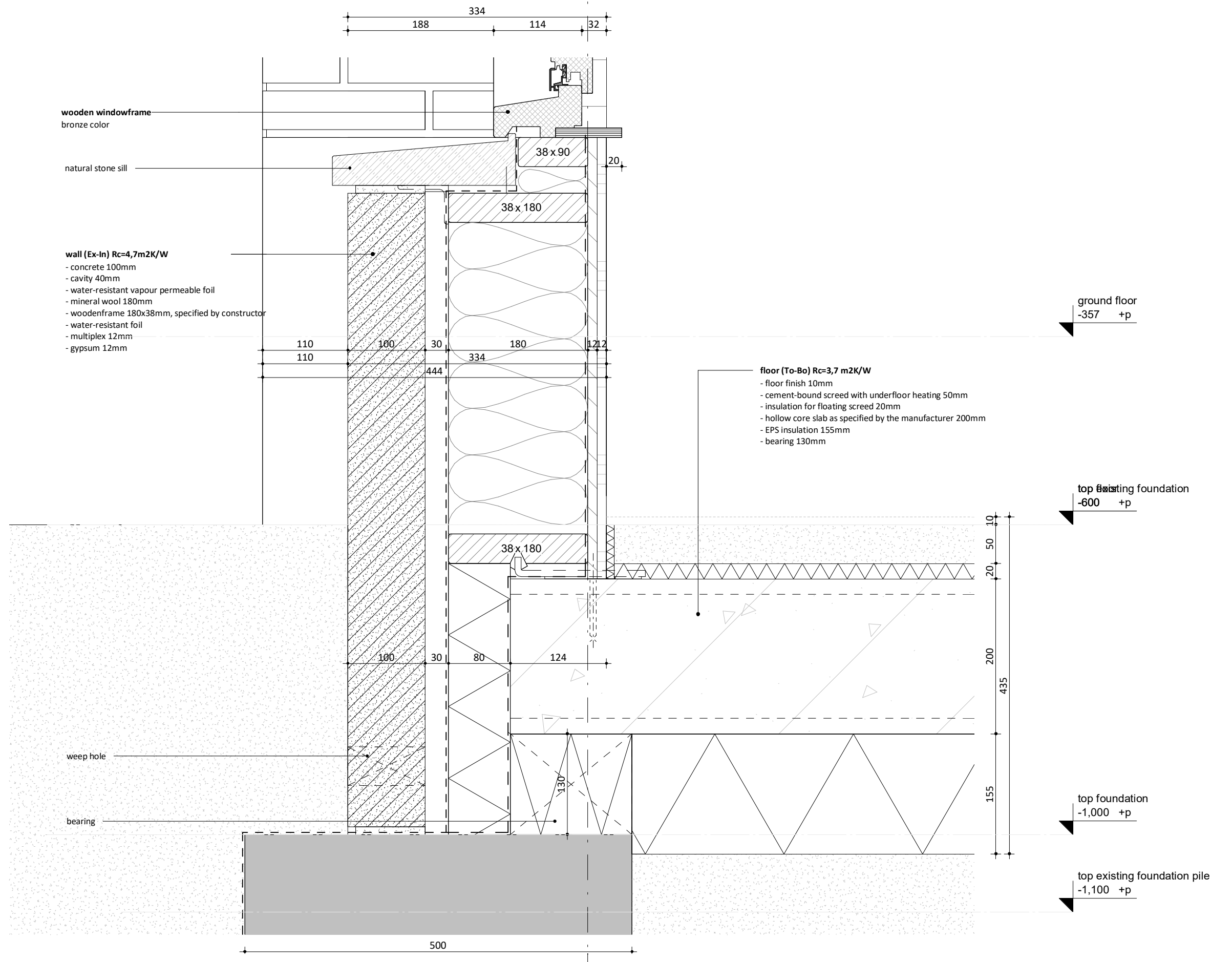
16. Details

Detail H6



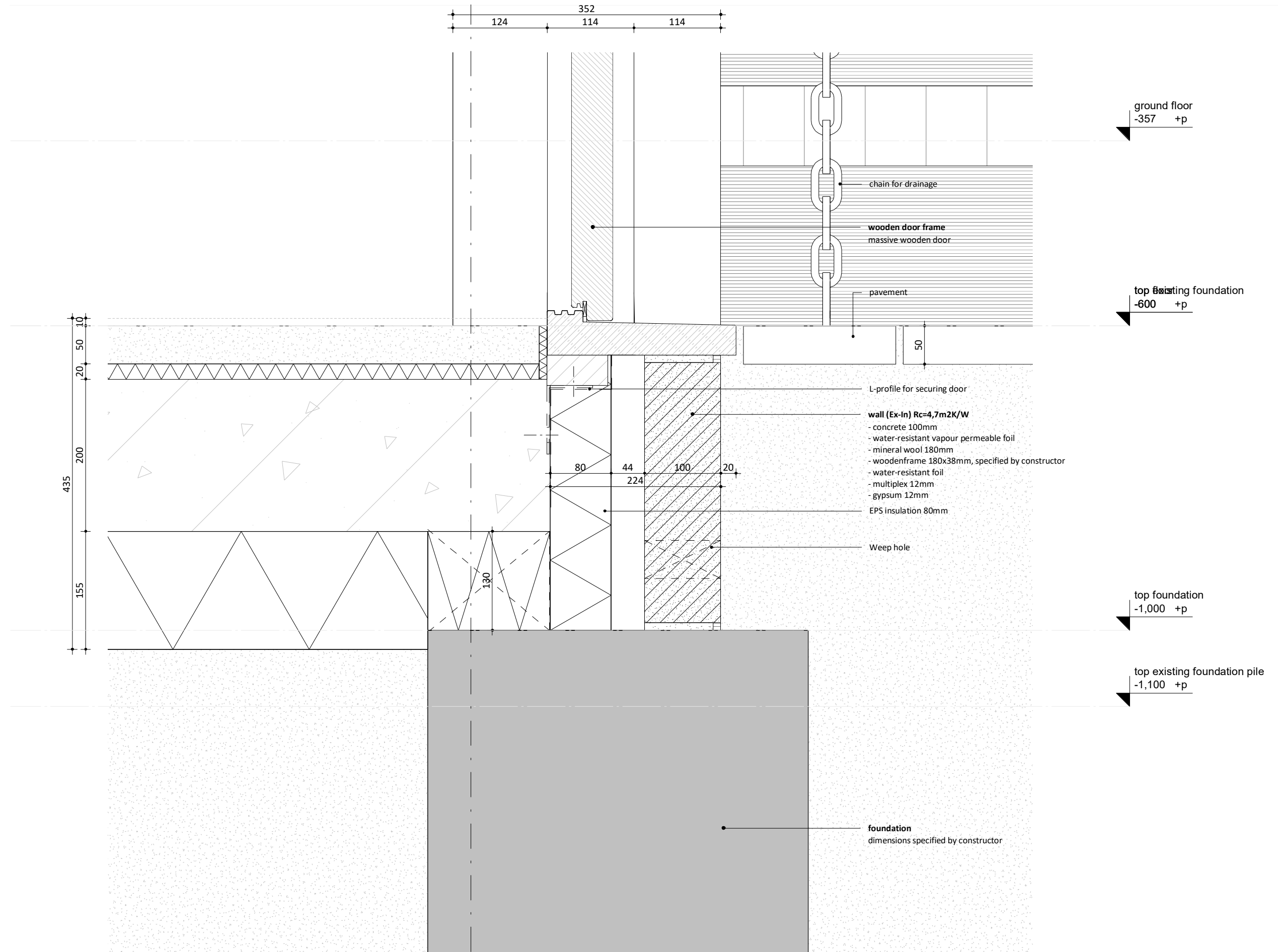
16. Details

Detail V1



16. Details

Detail V2

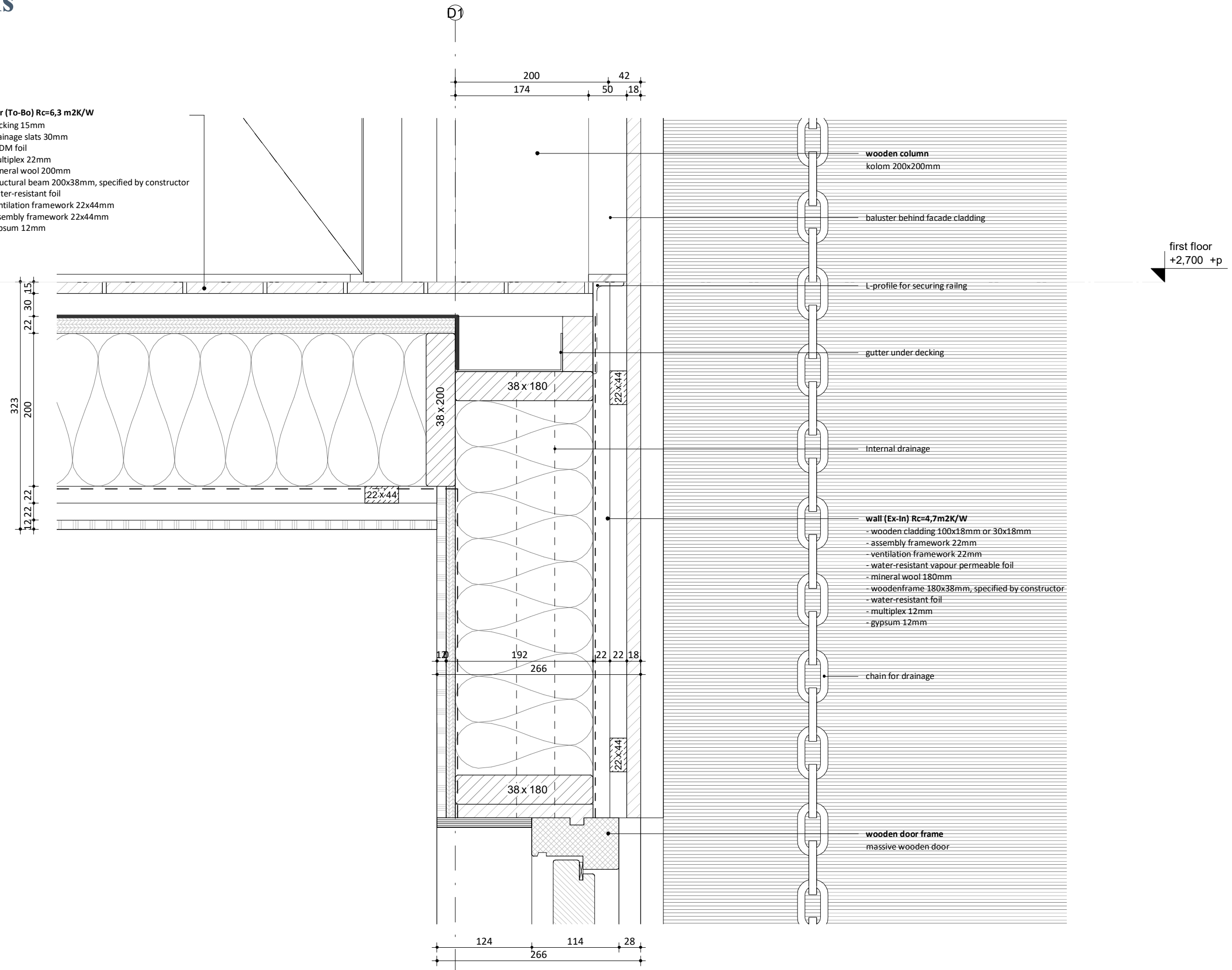


16. Details

Detail V3

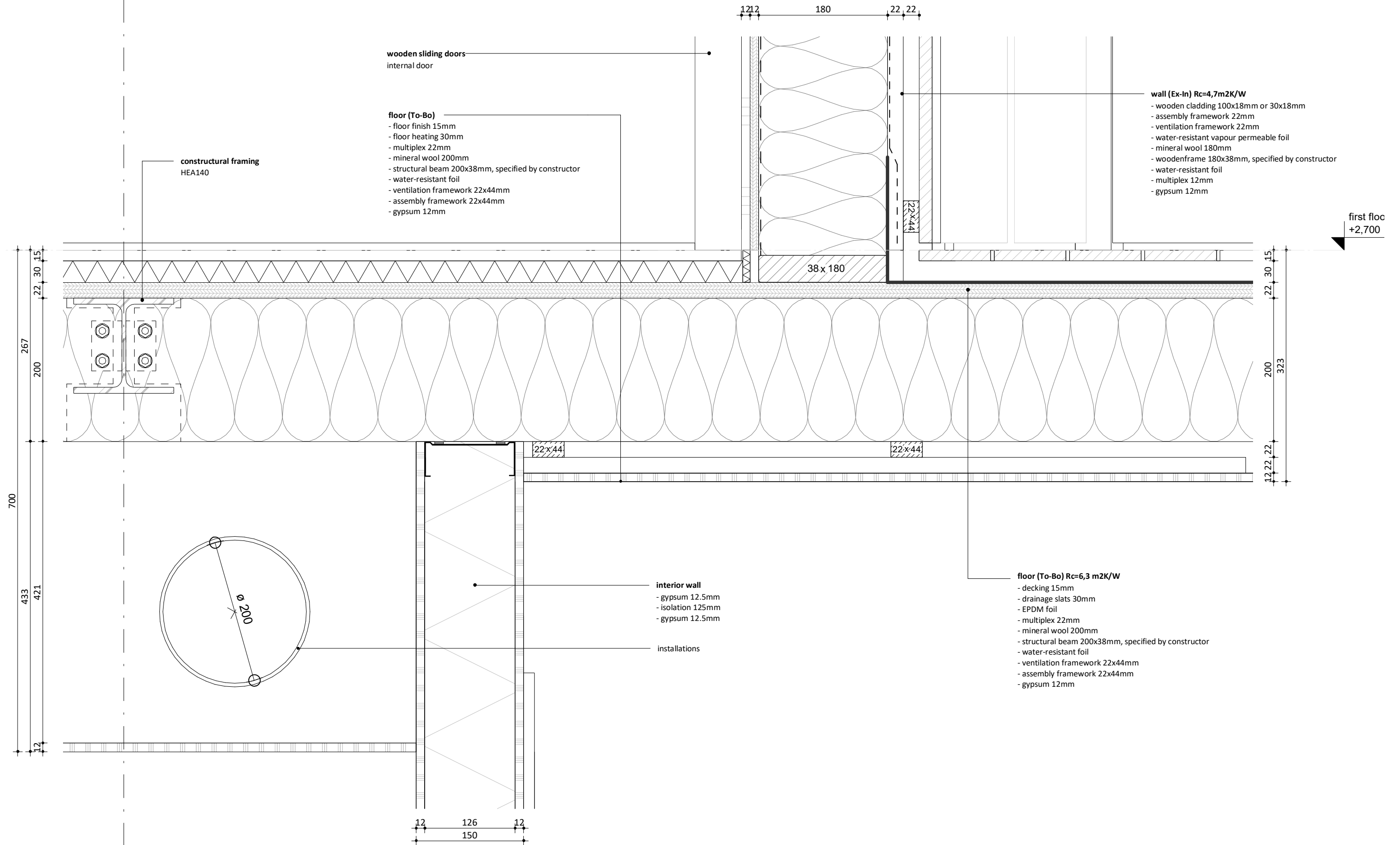
floor (To-Bo) Rc=6,3 m2K/W

- decking 15mm
- drainage slats 30mm
- EPDM foil
- multiplex 22mm
- mineral wool 200mm
- structural beam 200x38mm, specified by constructor
- water-resistant foil
- ventilation framework 22x44mm
- assembly framework 22x44mm
- gypsum 12mm



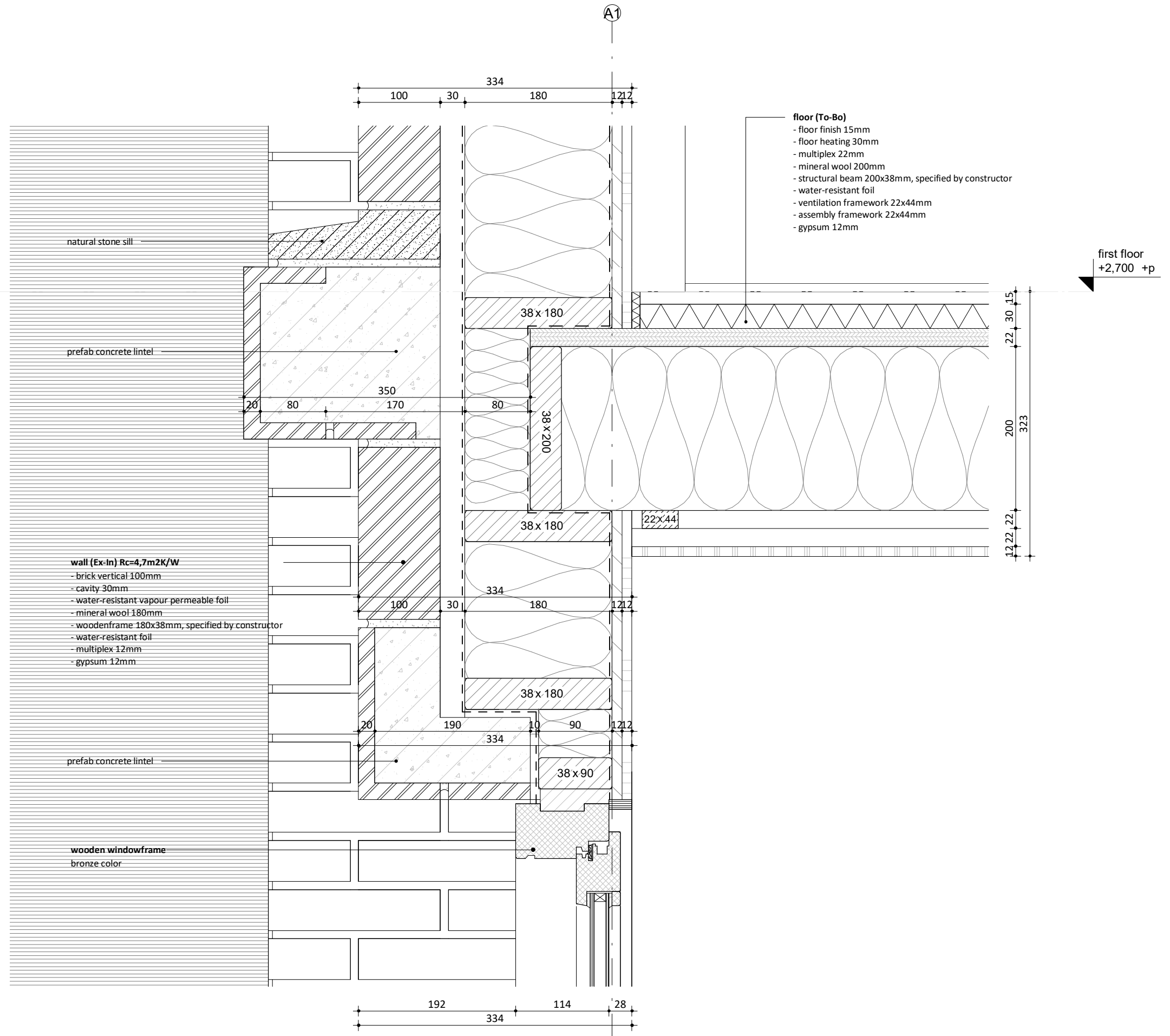
16. Details

Detail V4



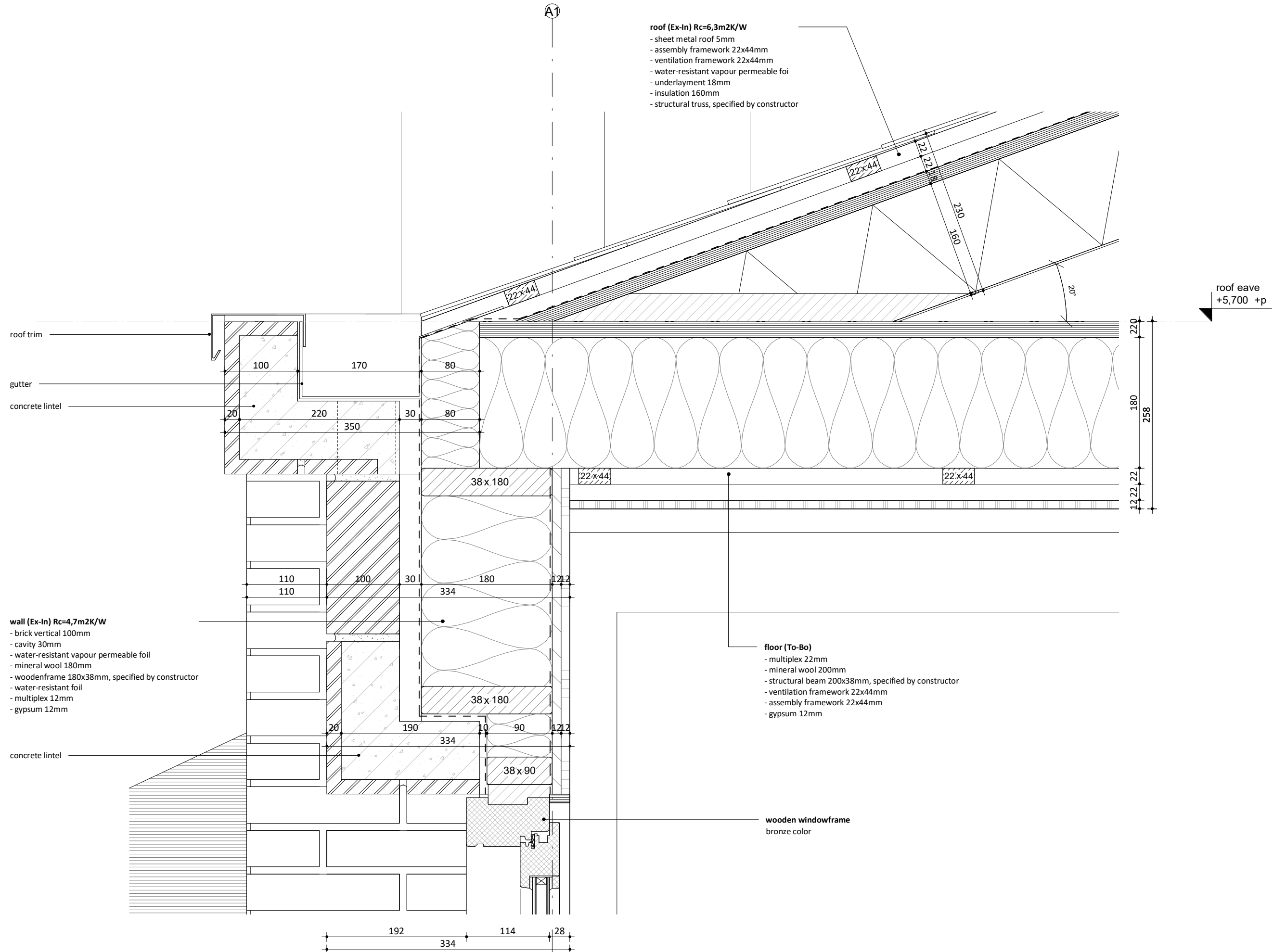
16. Details

Detail V5



16. Details

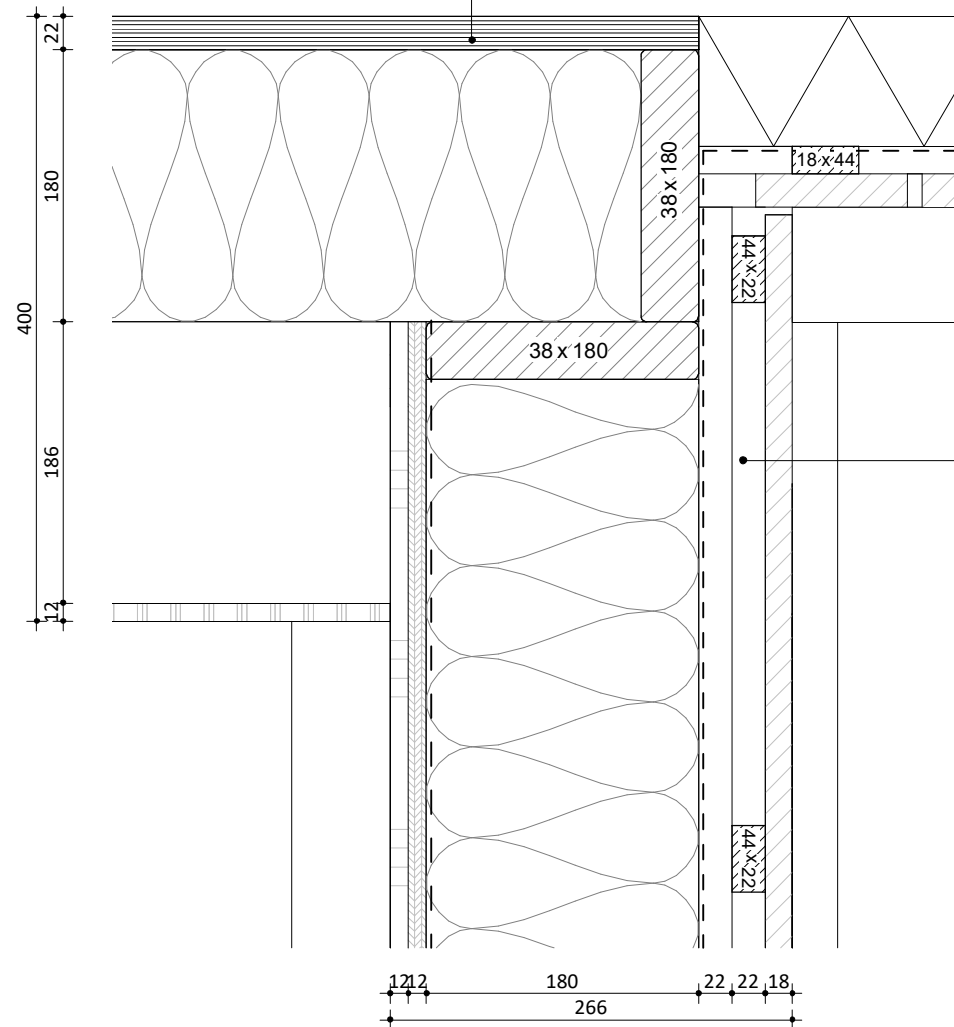
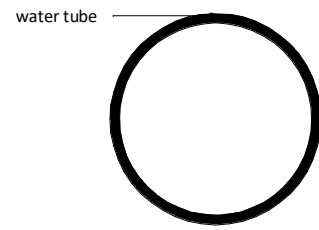
Detail V6



16. Details

Detail V7

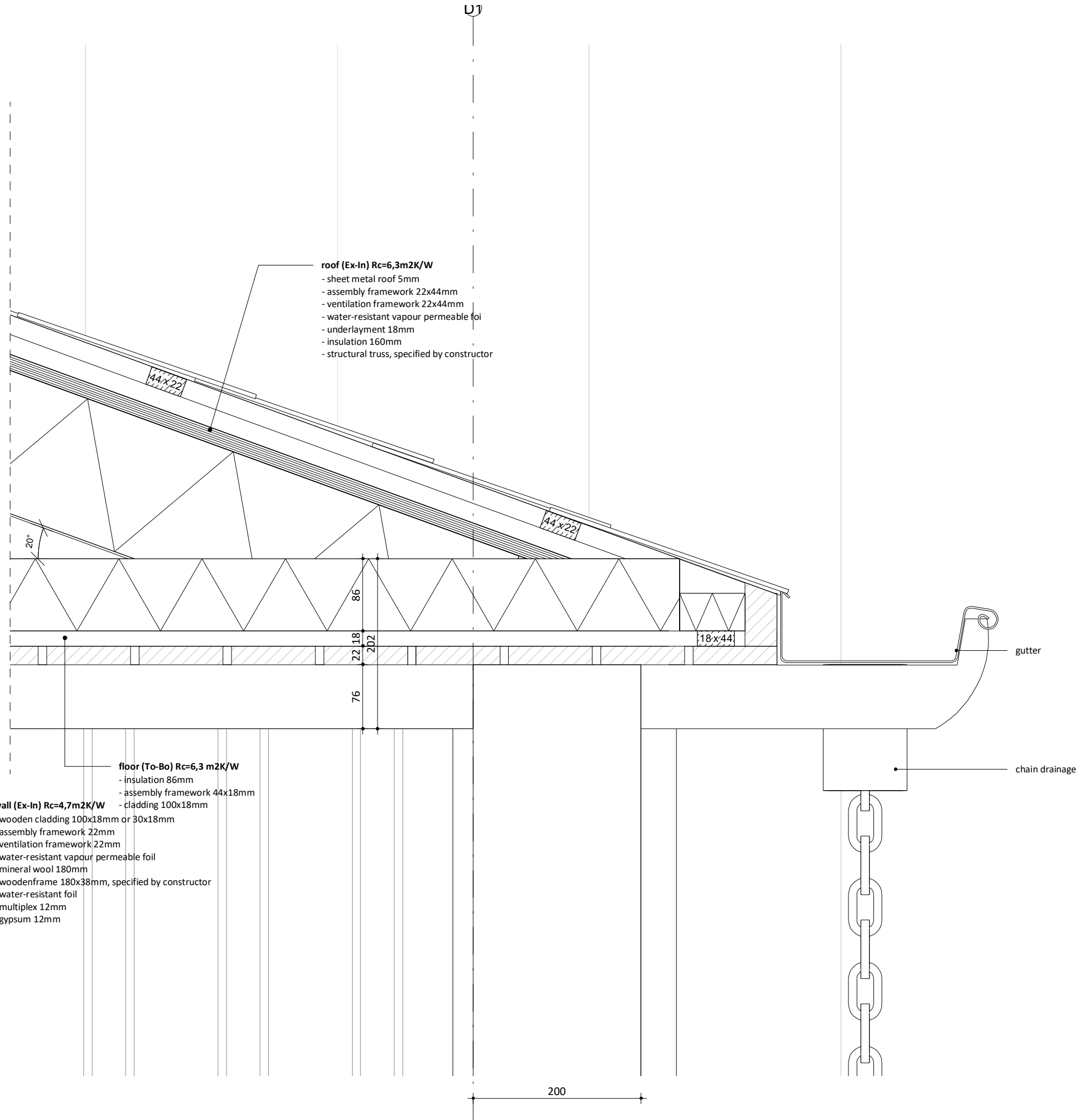
- floor (To-Bo)**
- multiplex 22mm
 - mineral wool 200mm
 - structural beam 200x38mm, specified by constructor
 - ventilation framework 22x44mm
 - assembly framework 22x44mm
 - gypsum 12mm



- wall (Ex-In) Rc=4,7m2K/W**
- wooden cladding 100x18mm or 30x18mm
 - assembly framework 22mm
 - ventilation framework 22mm
 - water-resistant vapour permeable foil
 - mineral wool 180mm
 - wooden frame 180x38mm, specified by constructor
 - water-resistant foil
 - multiplex 12mm
 - gypsum 12mm

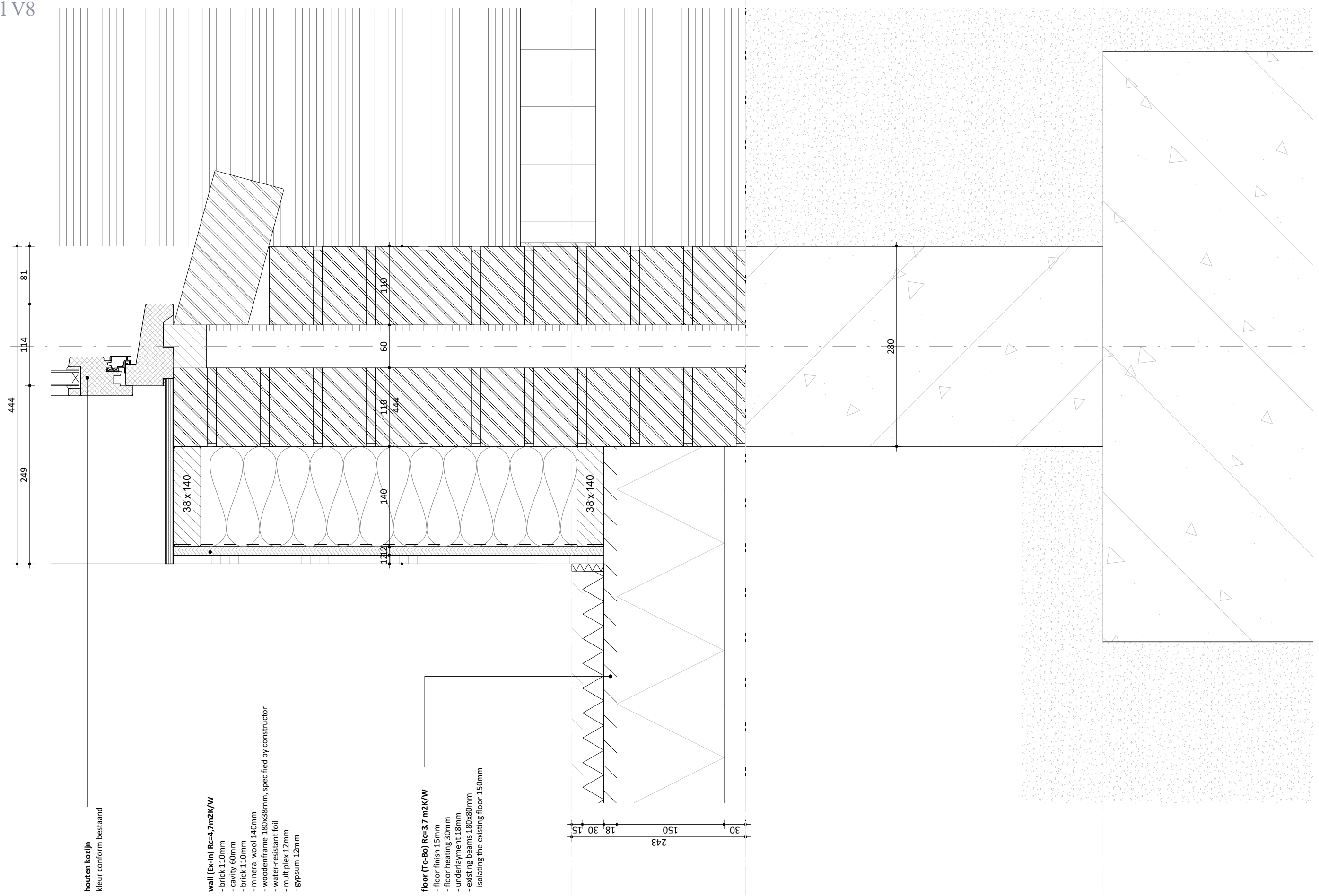
- floor (To-Bo) Rc=6,3 m2K/W**
- insulation 86mm
 - assembly framework 44x18mm
 - cladding 100x18mm

- roof (Ex-In) Rc=6,3m2K/W**
- sheet metal roof 5mm
 - assembly framework 22x44mm
 - ventilation framework 22x44mm
 - water-resistant vapour permeable foil
 - underlayment 18mm
 - insulation 160mm
 - structural truss, specified by constructor



16. Details

Detail V8

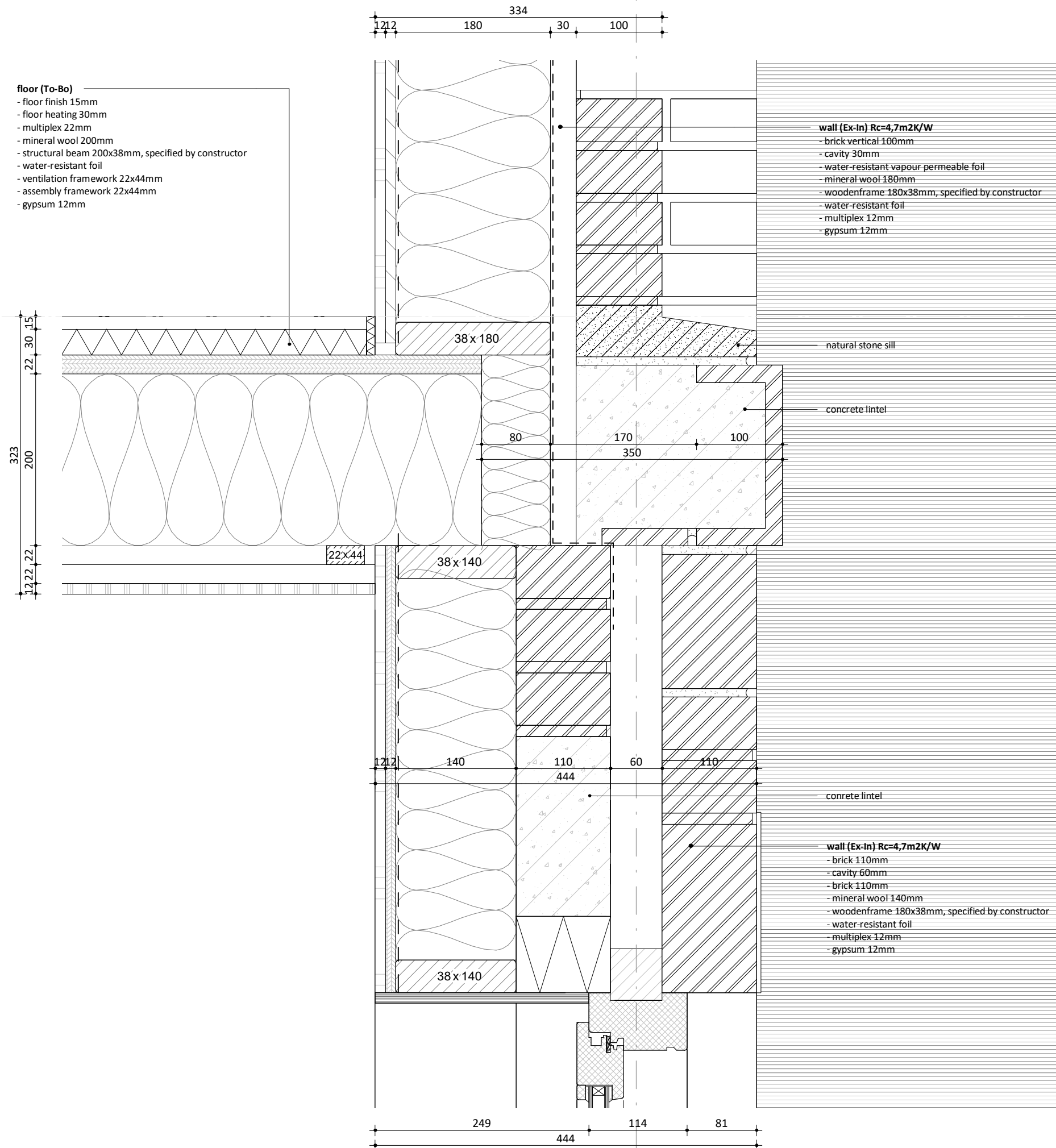


16. Details

Detail V9

floor (To-Bo)

- floor finish 15mm
- floor heating 30mm
- multiplex 22mm
- mineral wool 200mm
- structural beam 200x38mm, specified by constructor
- water-resistant foil
- ventilation framework 22x44mm
- assembly framework 22x44mm
- gypsum 12mm

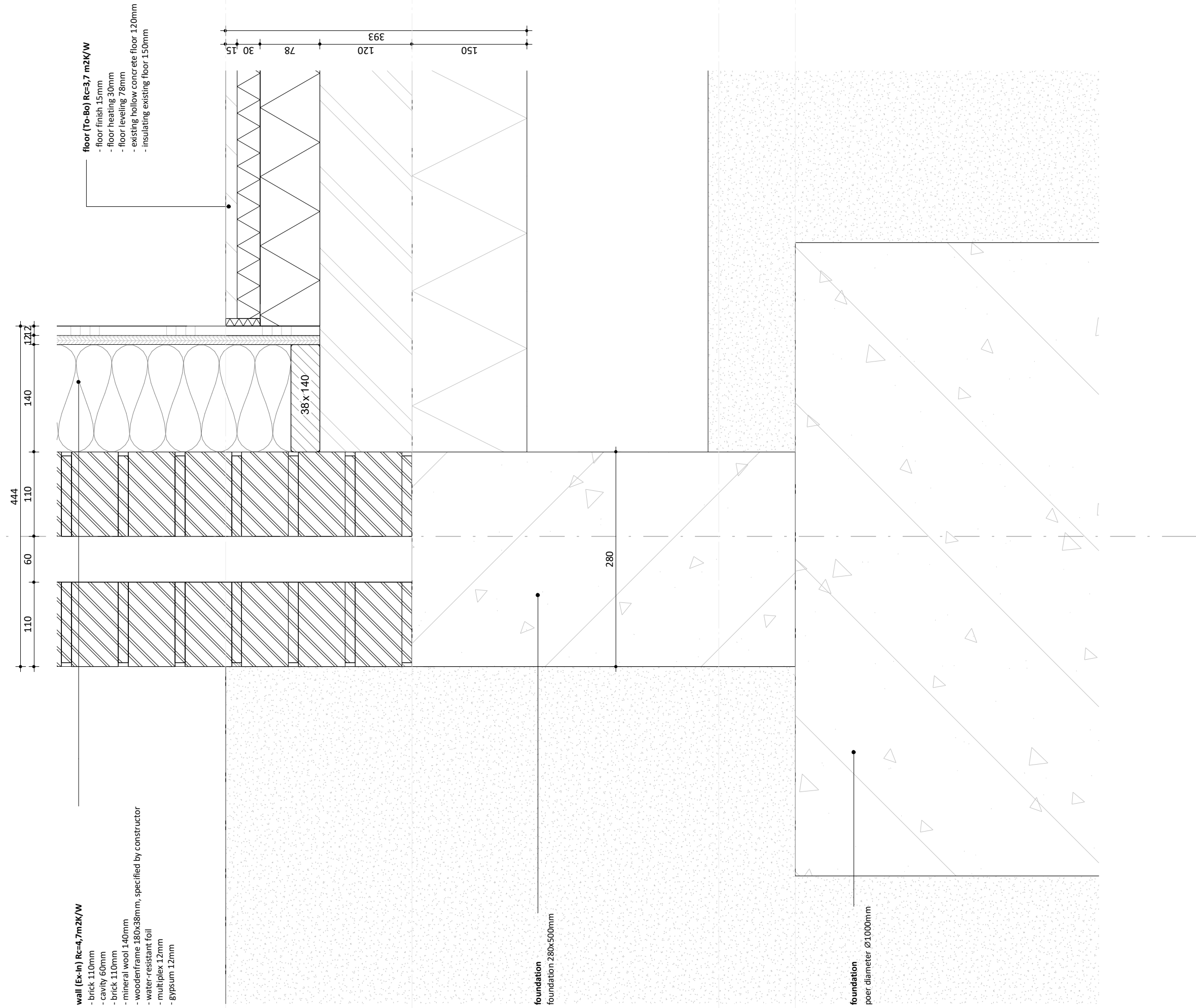


new floor
+2,787 +p

16. Details

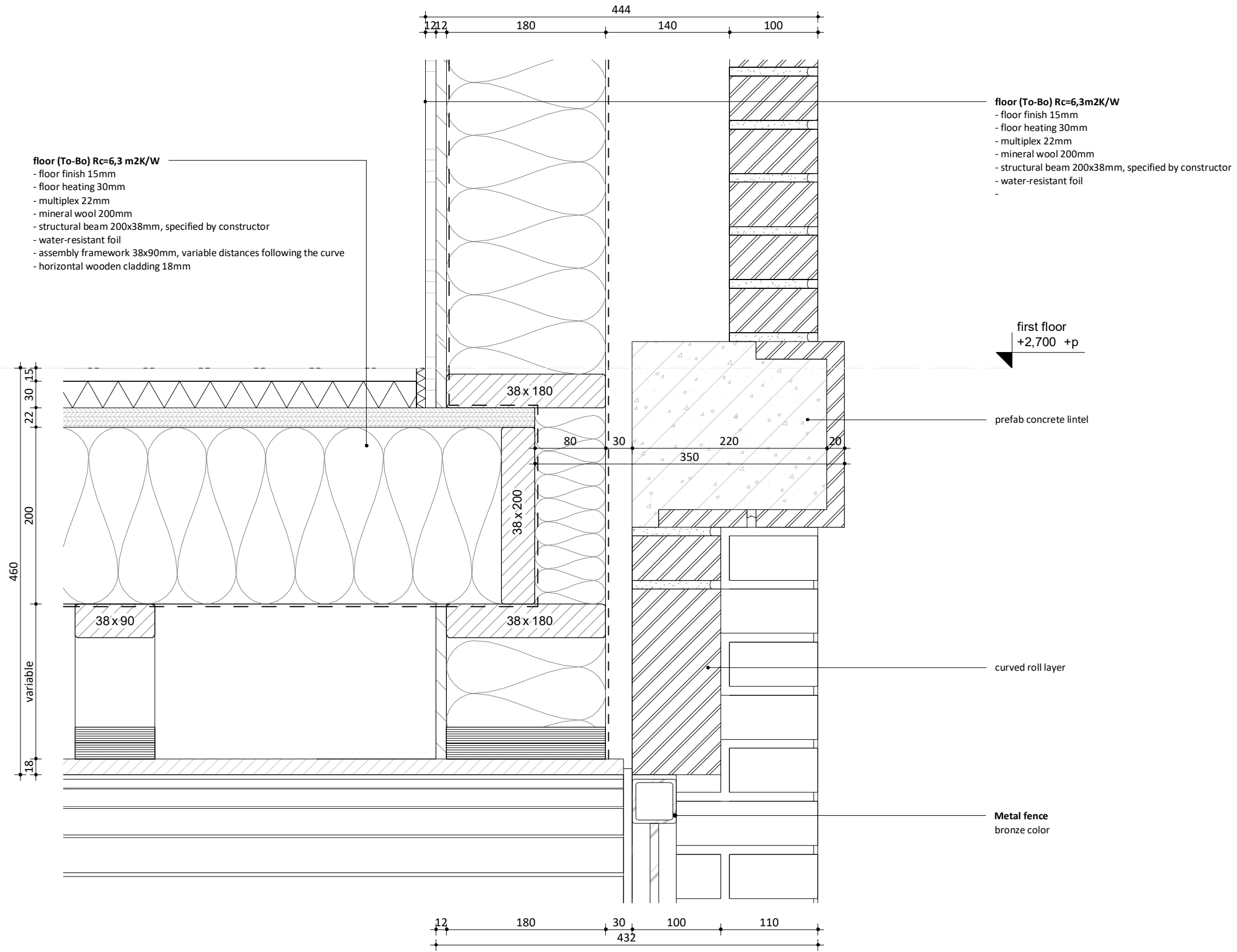
Detail V10

S



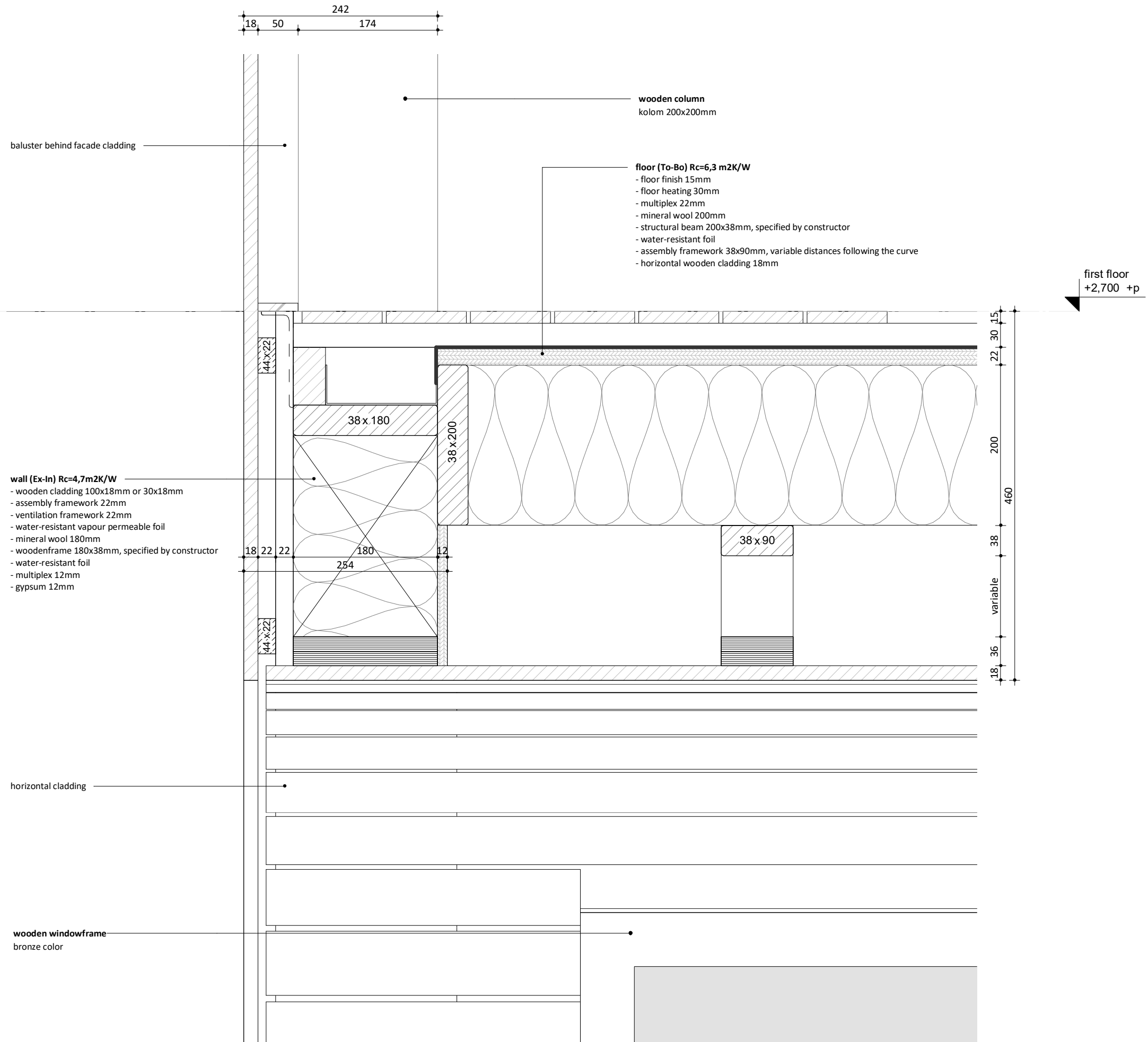
16. Details

Detail V11



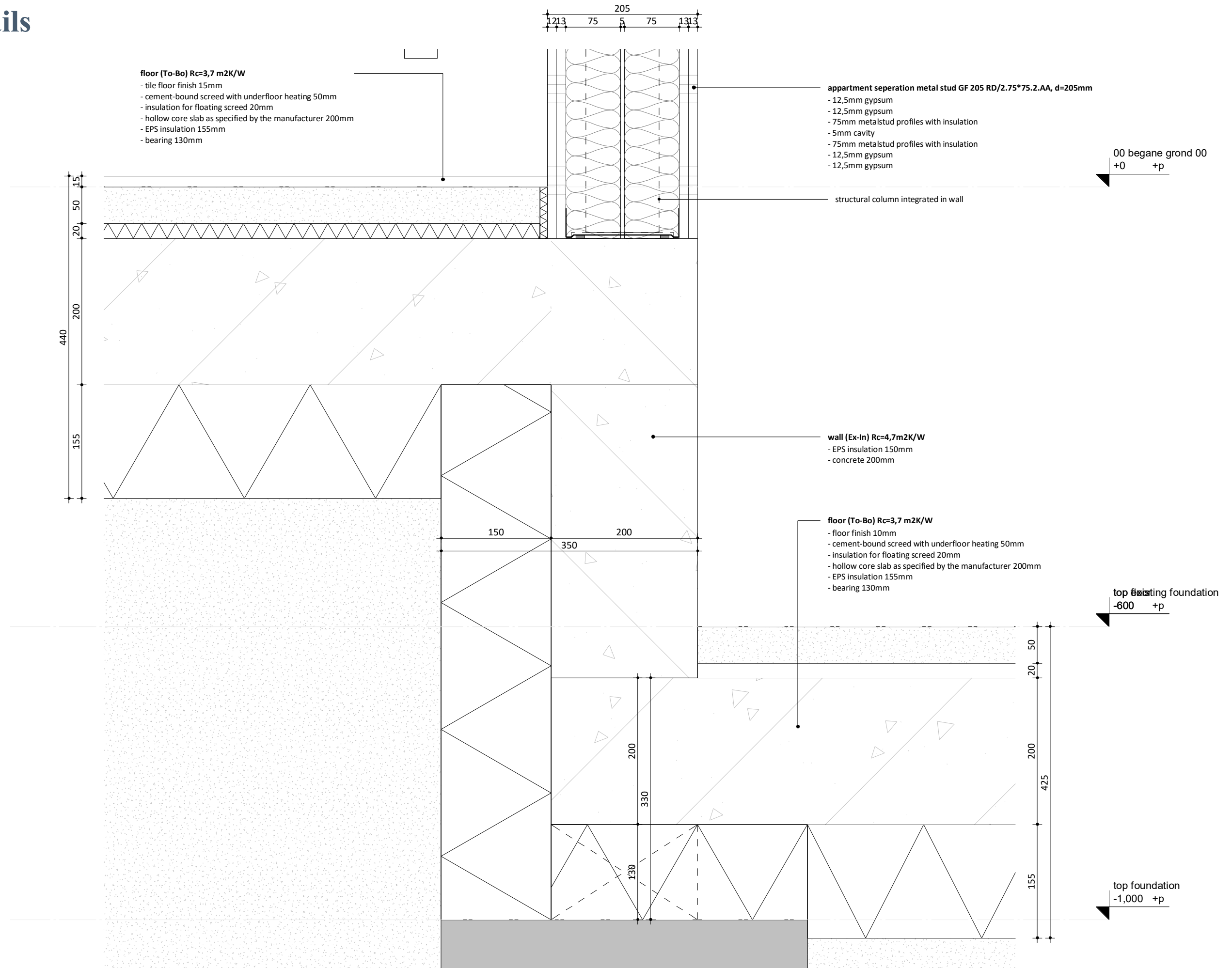
16. Details

Detail V12



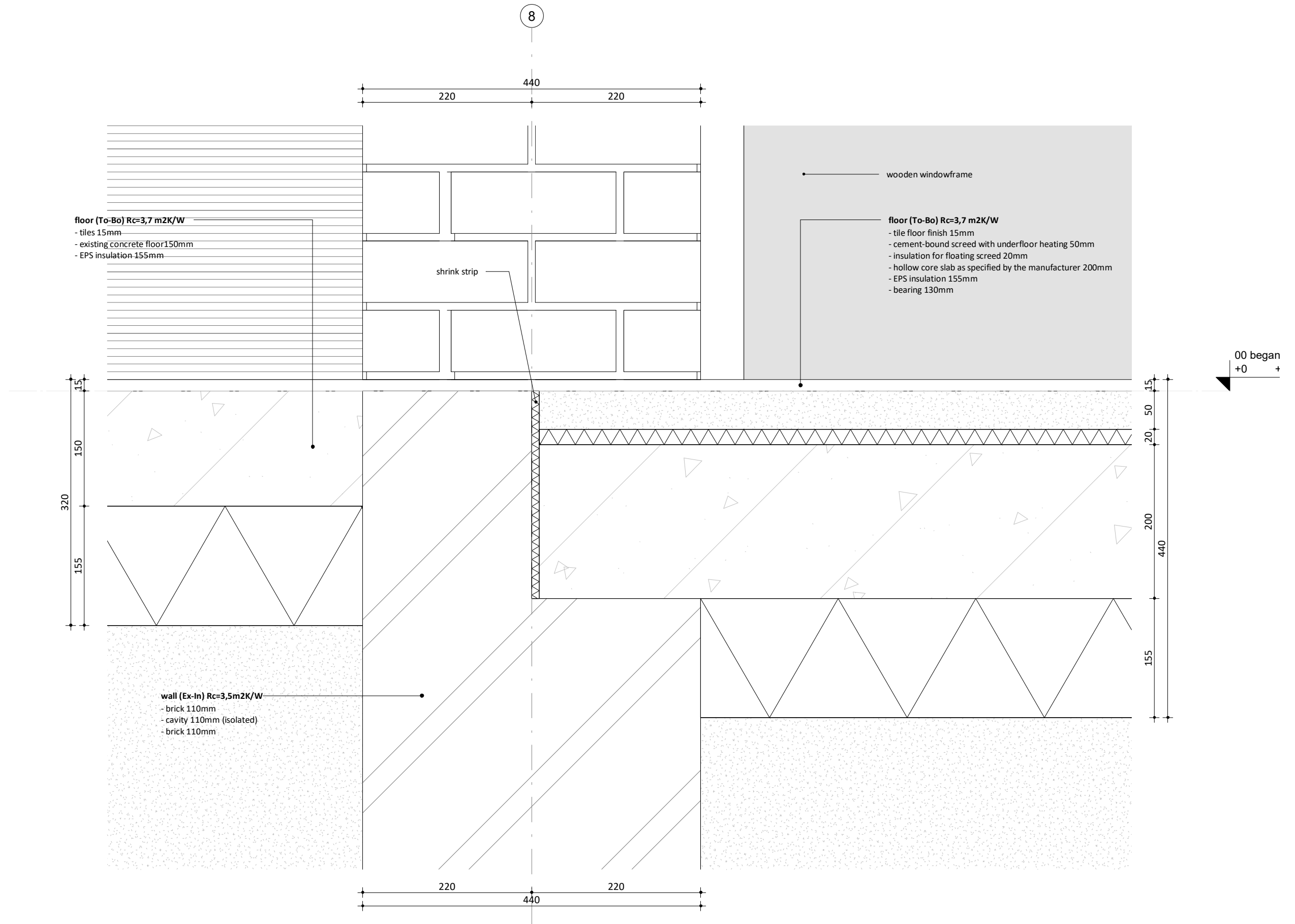
16. Details

Detail V13



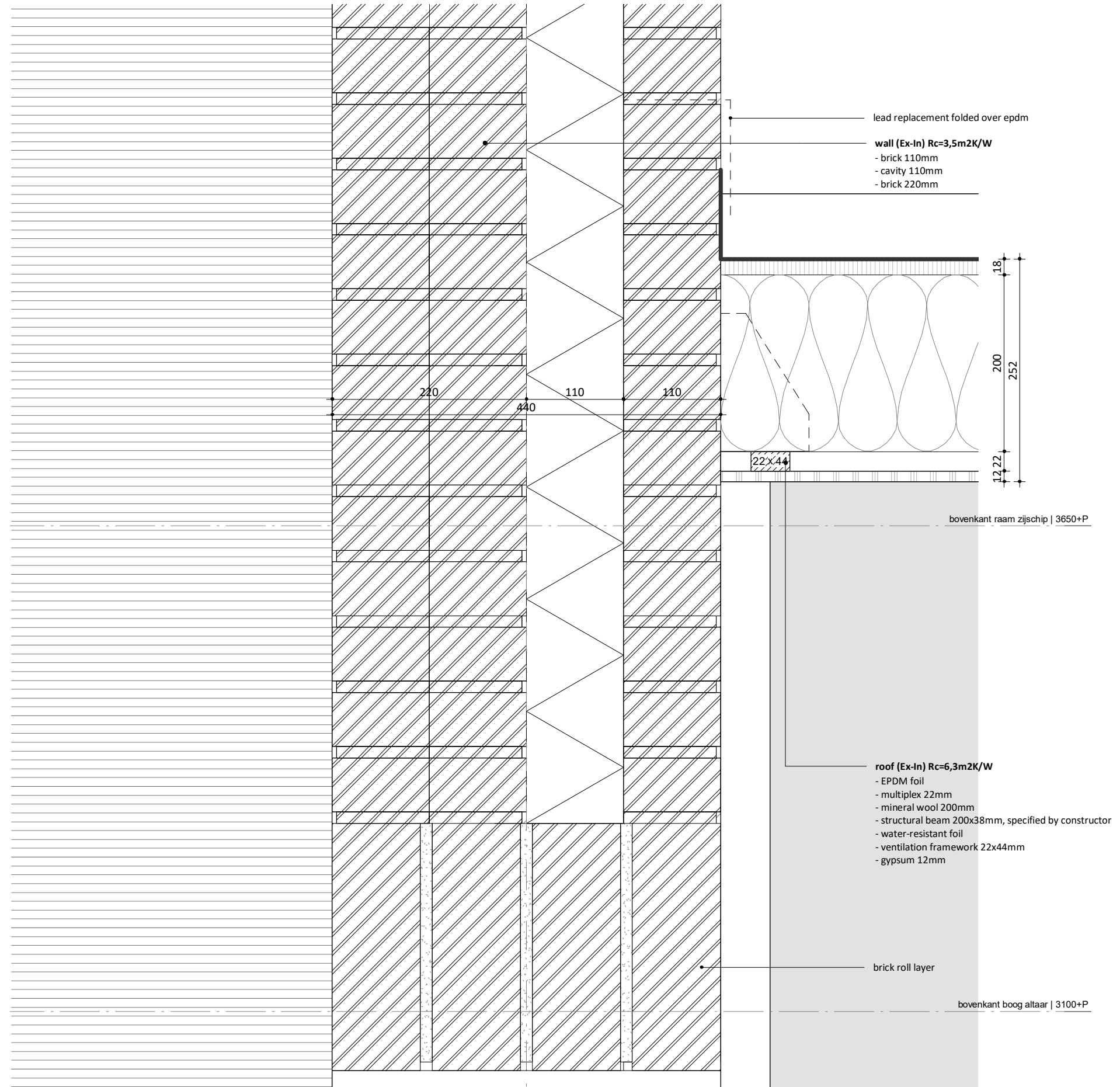
16. Details

Detail V14



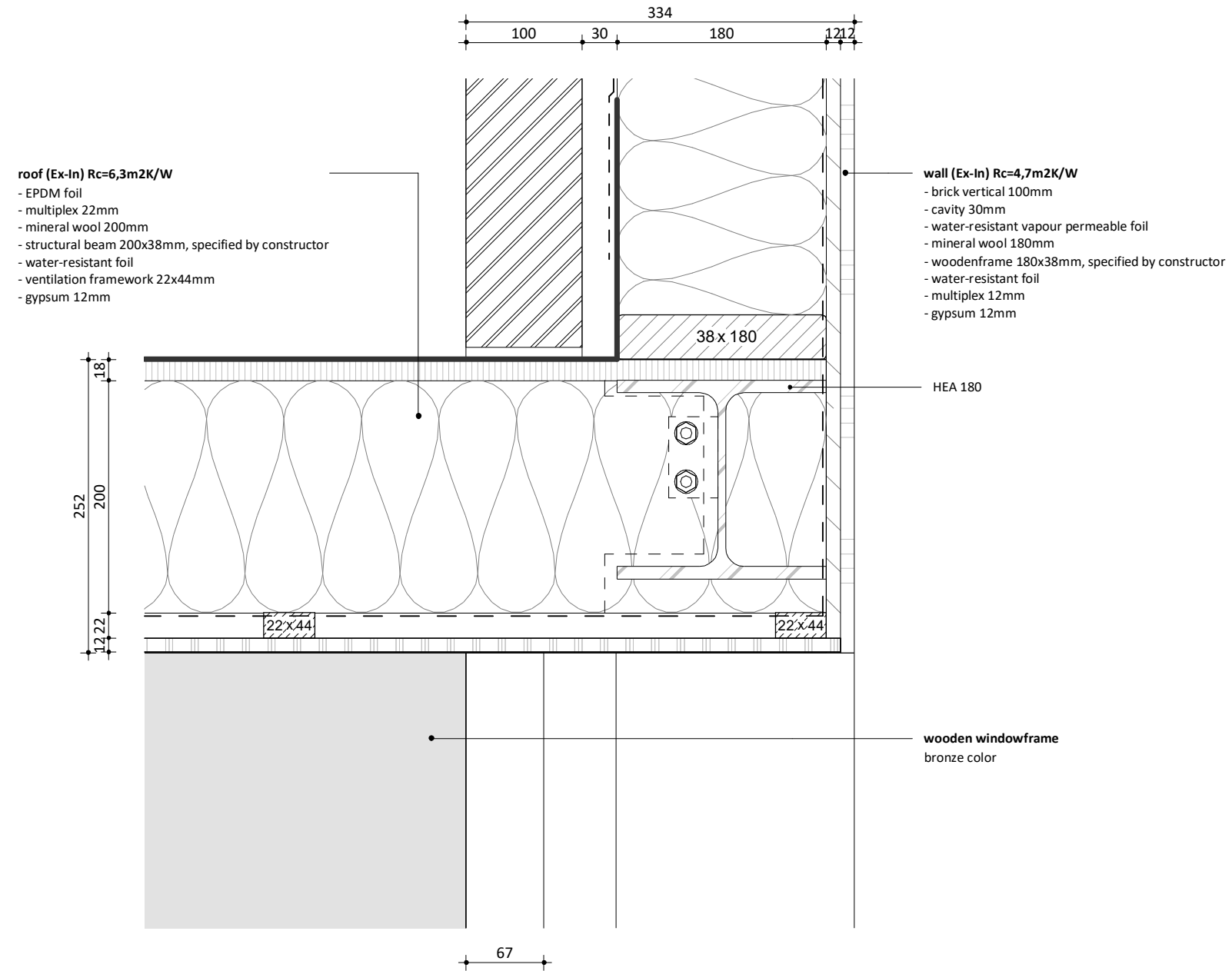
16. Details

Detail V15



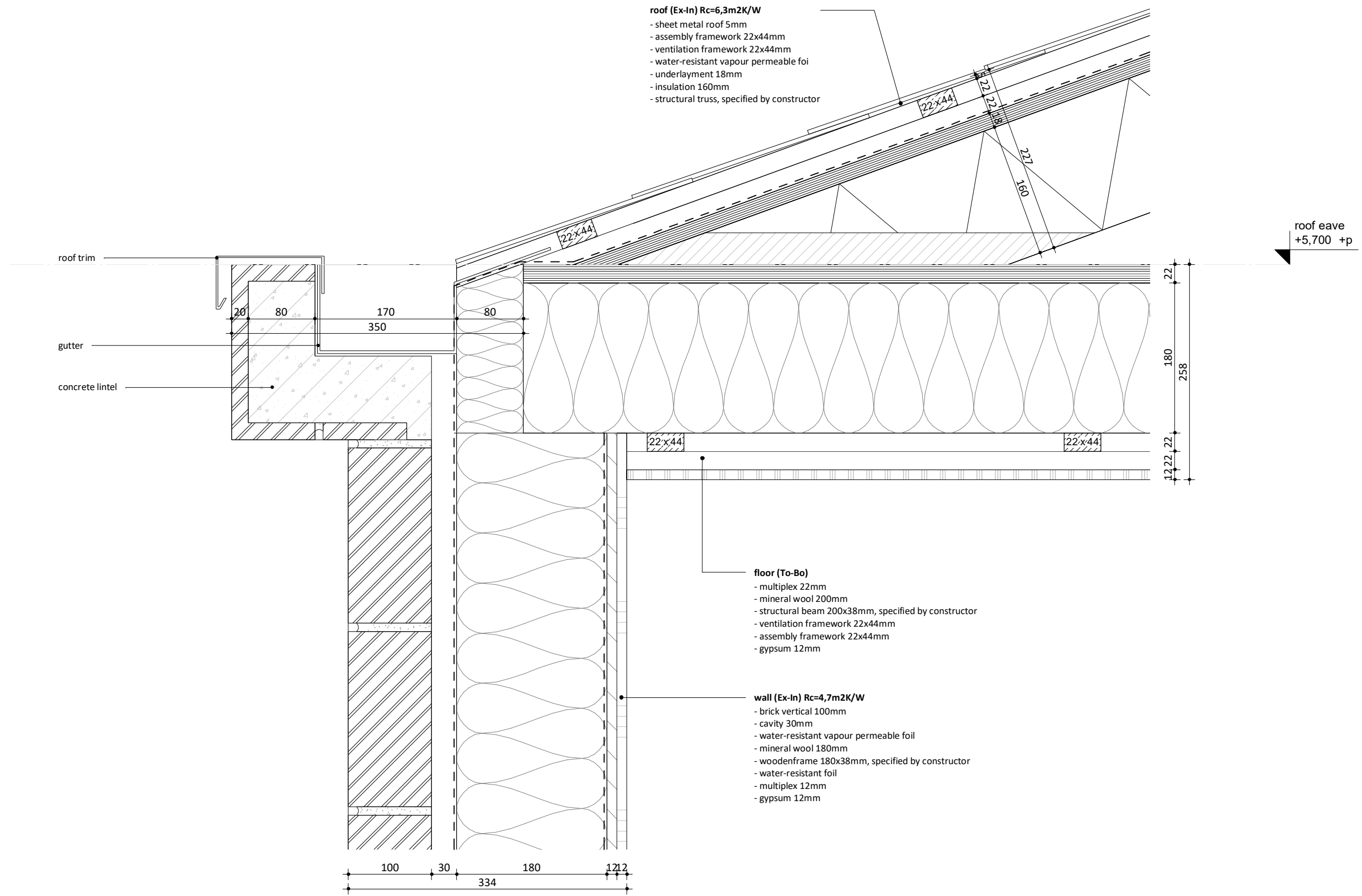
16. Details

Detail V16



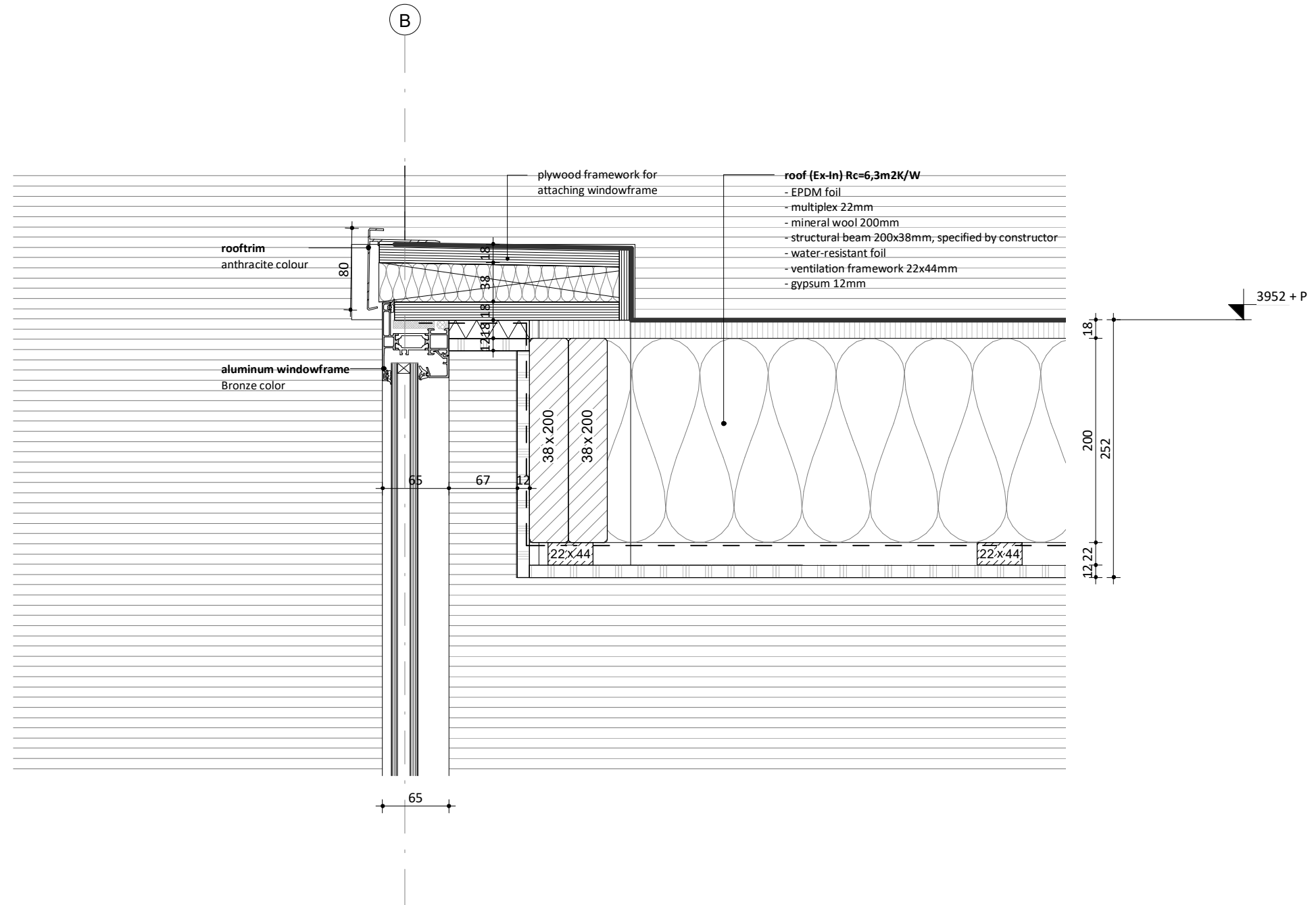
16. Details

Detail V17



16. Details

Detail V18



16. Details

Detail V19

