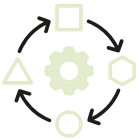
Design

Proteus

The building that I have designed for this studio is called Proteus. Proteus is the known in Greek mythology for his adaptiveness. This is what the building Proteus does aswell. With the usage of standardization and a wide variety Proteus consists of a buildingsystem that can provide housing in many different combinations. Due to its usage of standard modules in the facade this building can be built quicker and cheaper compared to traditional building methods without losing variety and inviduality.



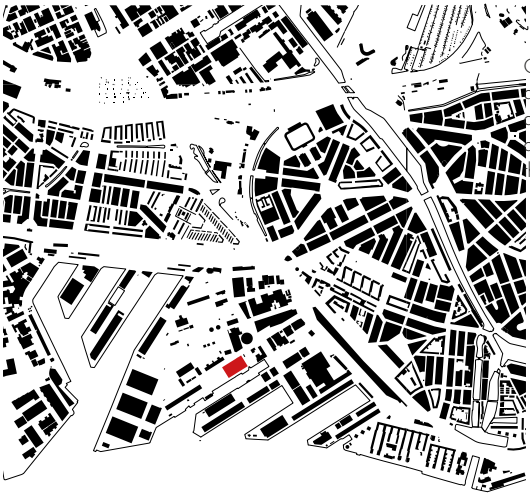
Adaptability

Affordable housing

Mixing production with living

Sustainability

Context and design



Location: Keileweg, Rotterdam

Design goal

Create a building that allows the mix of production and living while creating affordable housing for a wide array of target groups. This building is a prototype for an adaptable typology that could be helpfull in combatting the housing crisis.

Design brief

Site area: 9.298 m2

Plot area: 1.600m2

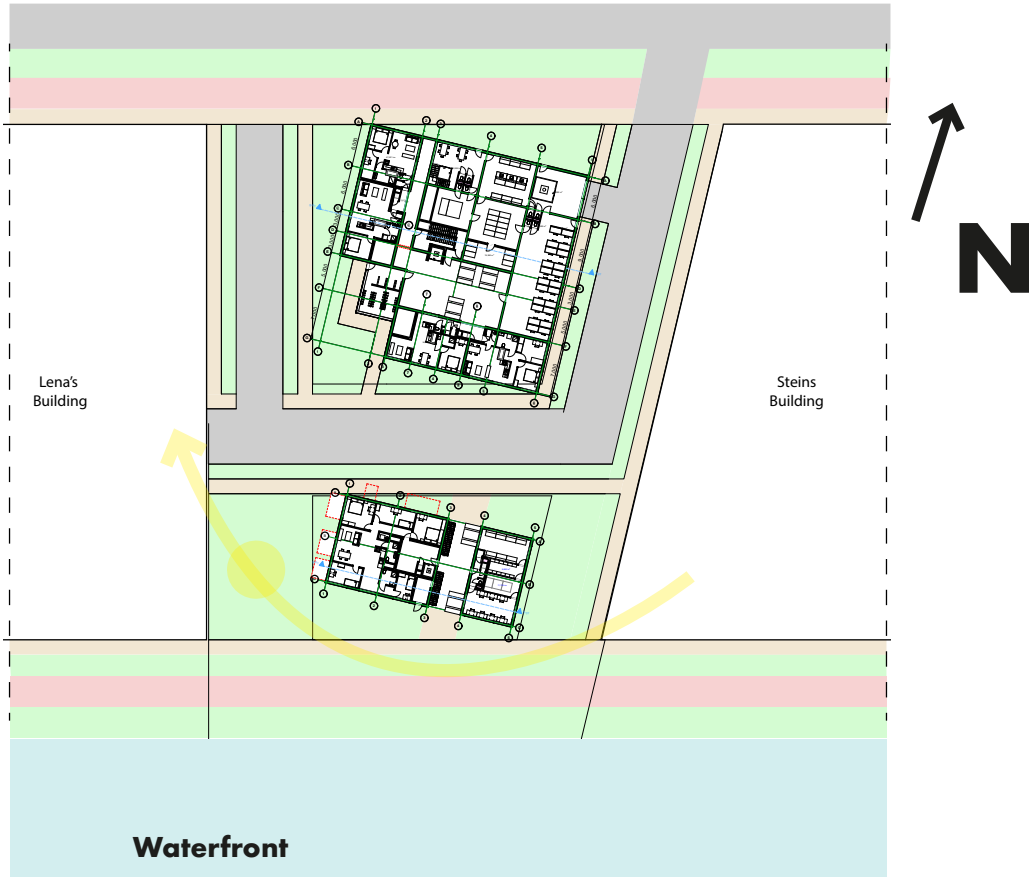
Production: 4600m2

Work spaces for approximately 308 people

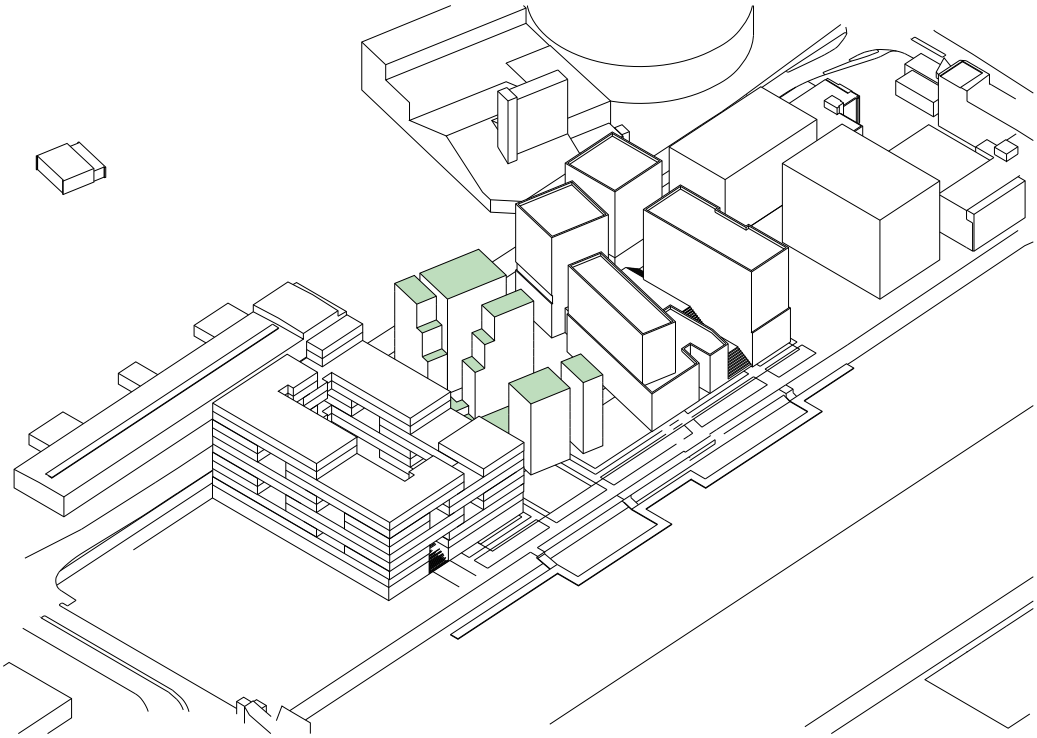
Living: 4.400m2

80 Dwellings for approximately 150 people

Urban Plan and strategy

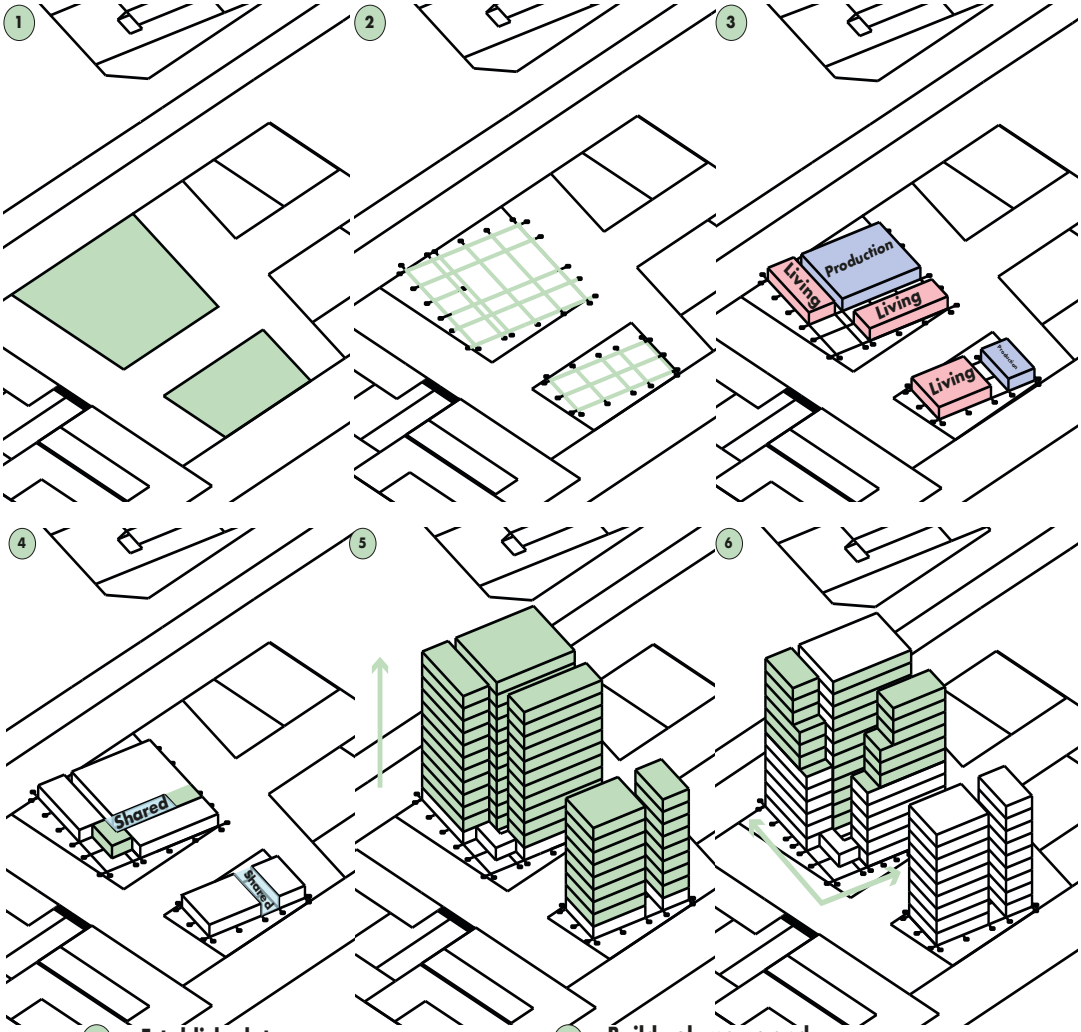


Aim		Strategy
- Reduce loneliness and isolation	→	Create spaces for interaction
- Create an inclusive neighbourhood	→	Design for a wide variety of residents
- Affordable housing	→	Standardization, cooperative ownership and large production companies.
- Future proof	→	Adaptable and modular design
- Low impact building	→	Passive design, Modular building techniques and natural materials



Size	Type	
Solo Dwellers 30-50 m2		Students, Elderly, Starters
Familie dwelling 50-90 m2		Starters, Families
Communal living 100-130 m2		Students, Elderly, Starters
Industrial 3D Printing 200-400 m2		Medical companies Nautical companies Automotive companies
Small scale production/working space 10-70 m2		Arts and crafts Prototyping(3d Printing) Communal working space

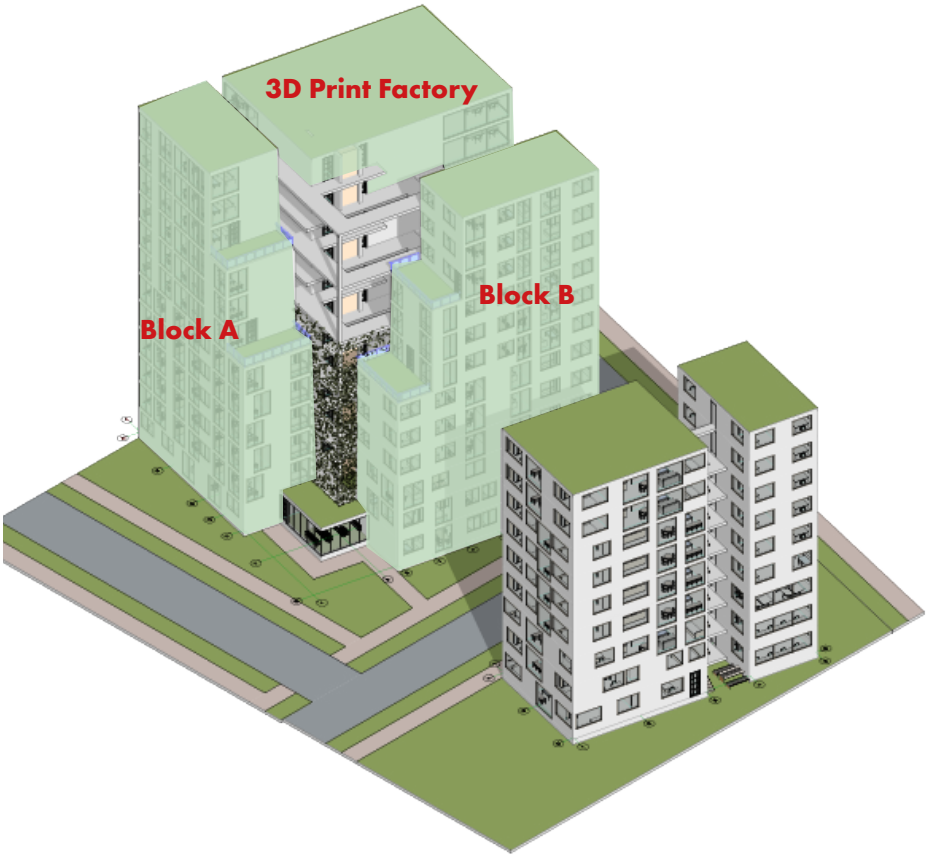
Urban Plan and strategy



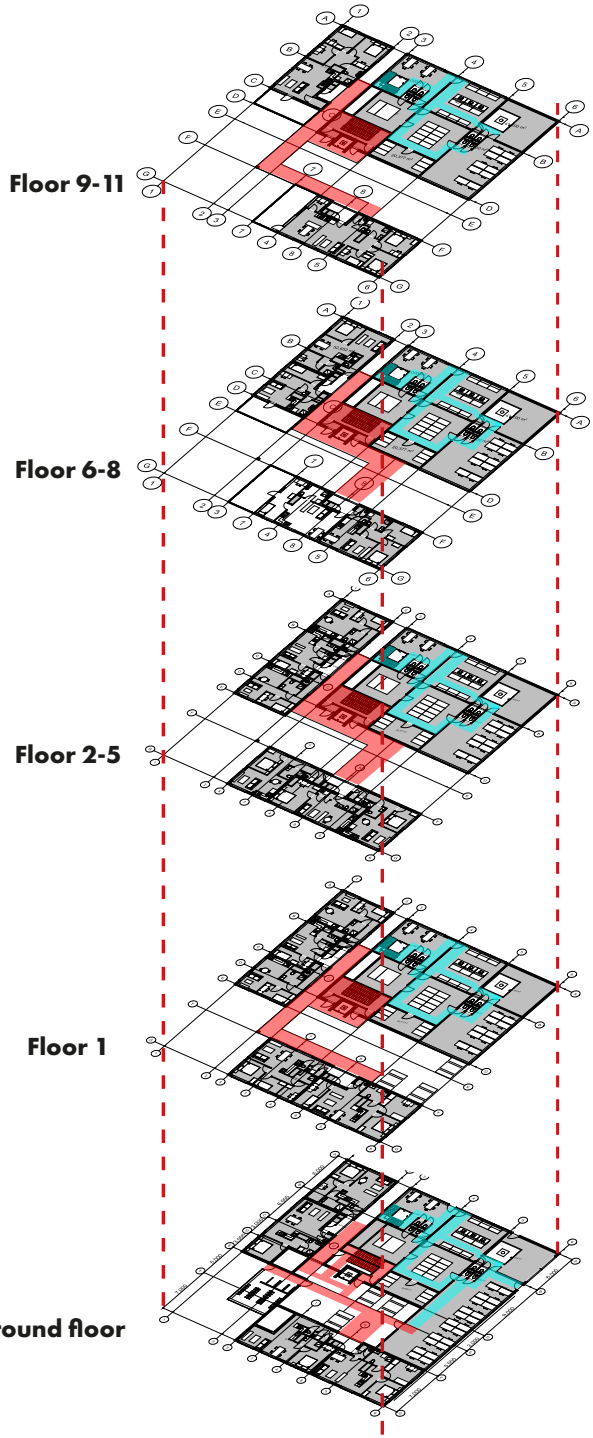
1. Establish plot
2. Create a grid for all functions
3. Determine programming based on orientation and logistics
4. Close plinth and create shared spaces
5. Build volume up and raise plinth
6. Adjust volume to solar orientation

Design Overview

Design Overview



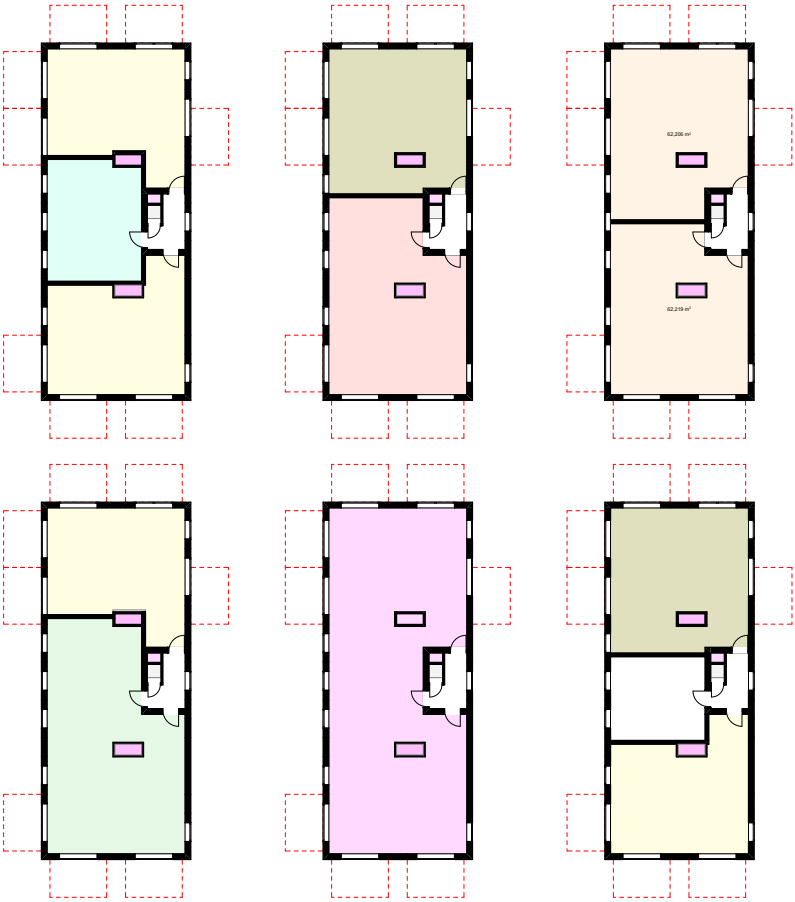
Circulation
Top building



Living

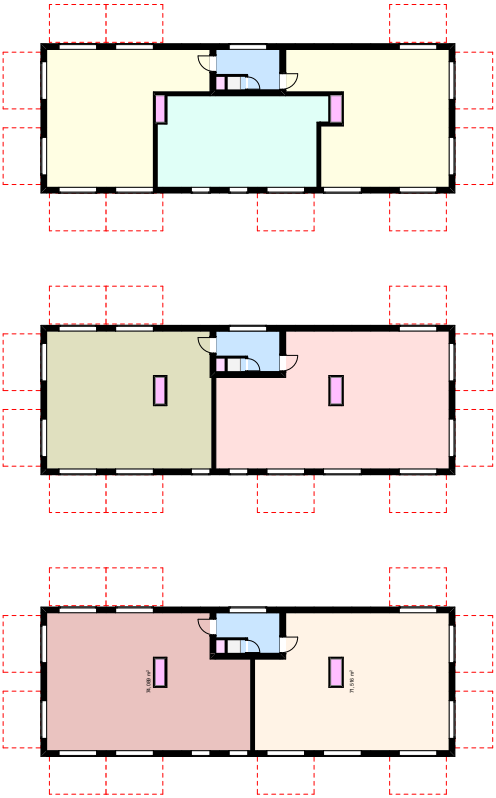
Production

Block A variations(1:400)

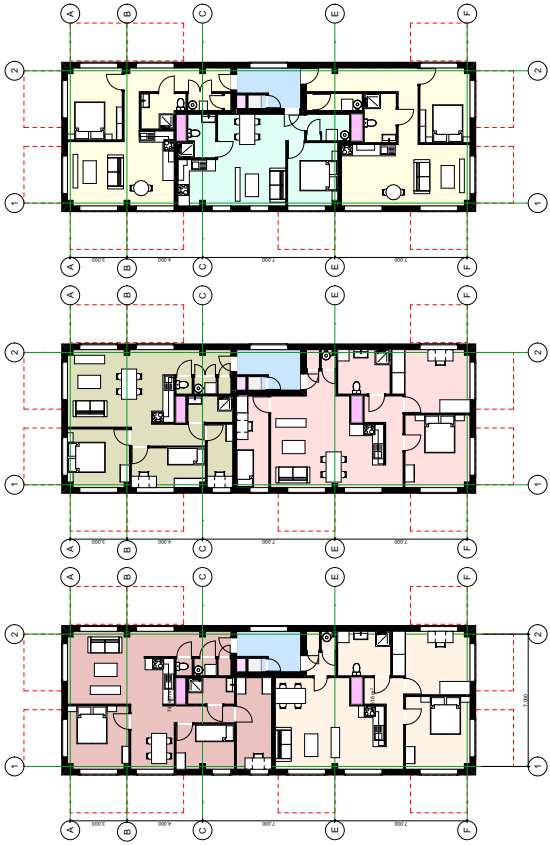


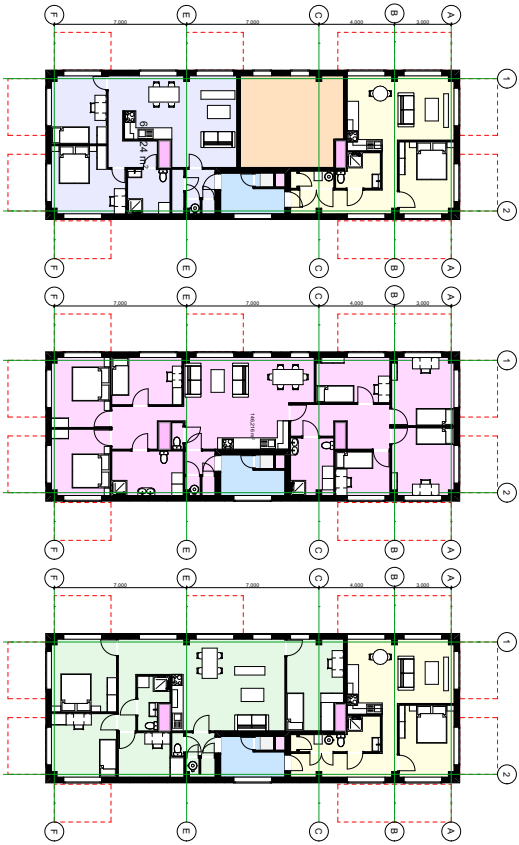
Block A variations(1:400)

Block B variations(1:400)



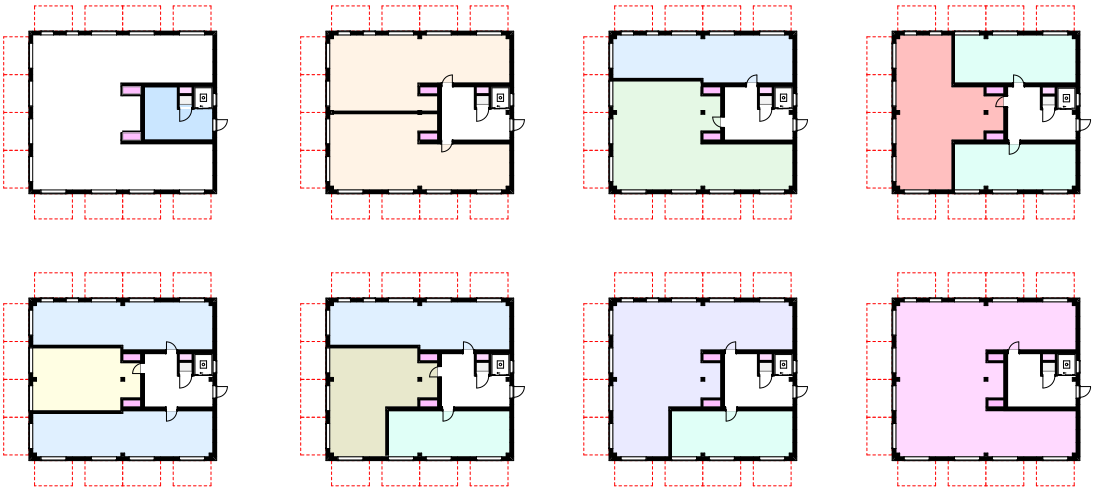
Block B variations(1:400)



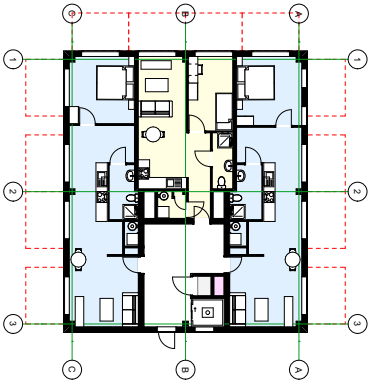


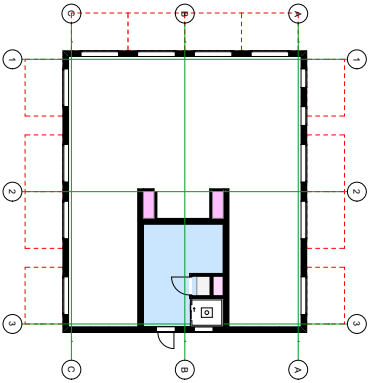
Design Overview

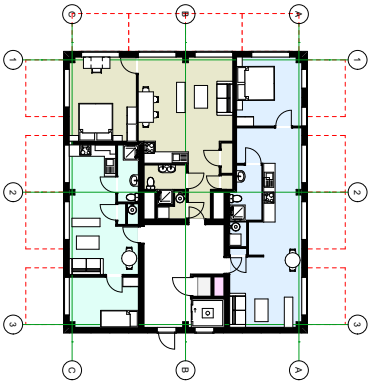
Block C variations

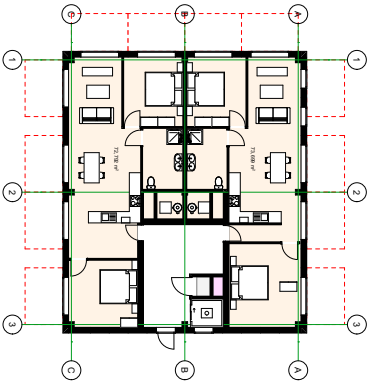


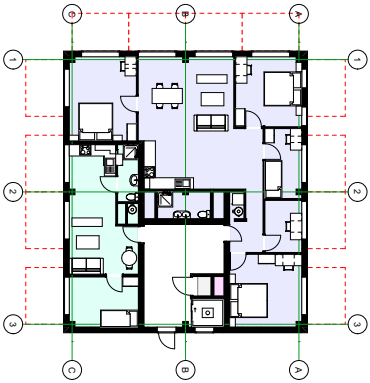
Block C variations(1:400)

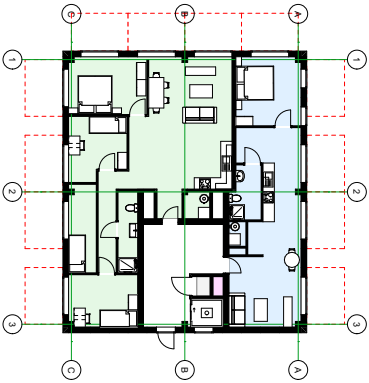




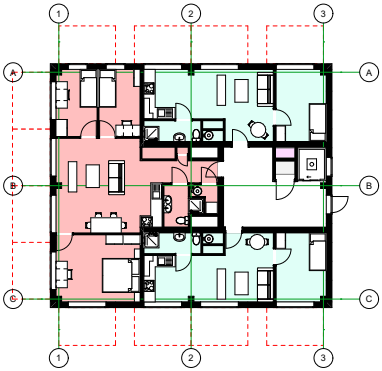


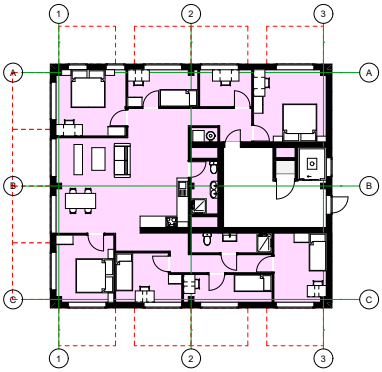




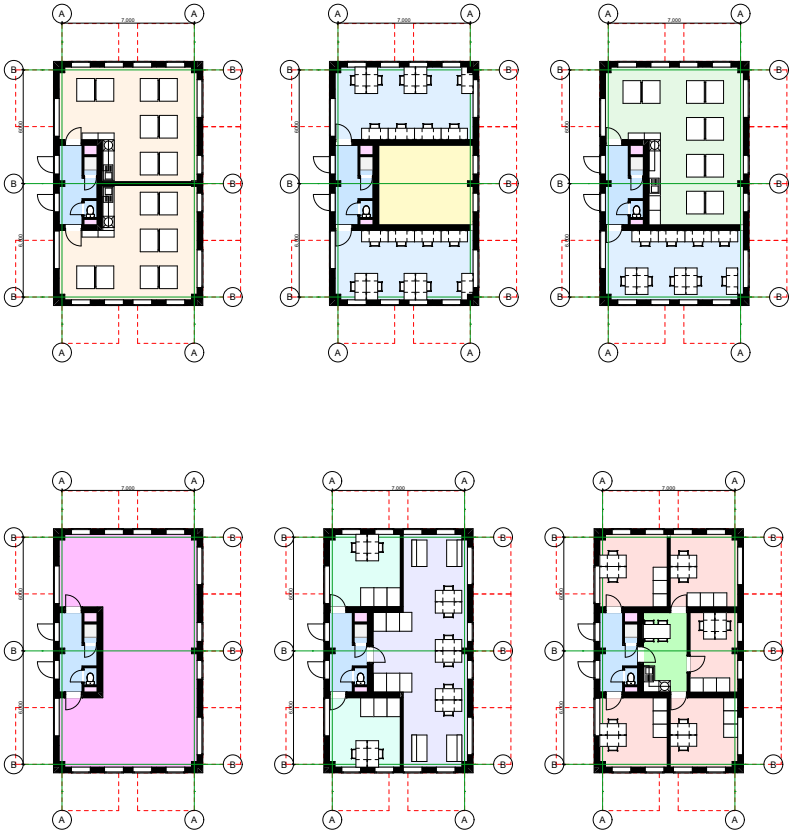


Block C variations(1:400)

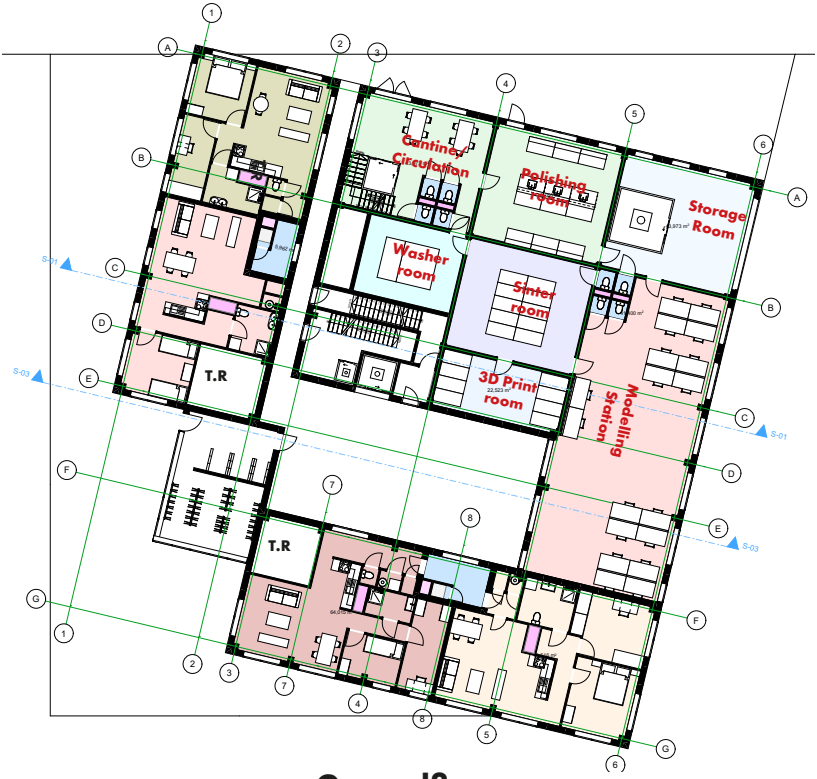




Block D variations(1:400)



Floorplans(1:400)

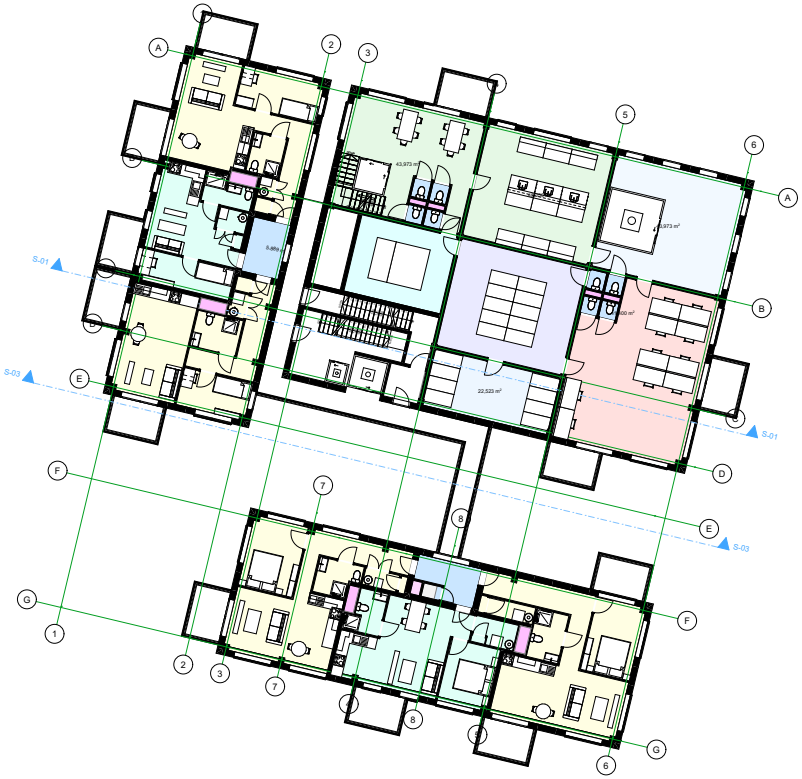


Groundfloor

Floorplans(1:400)

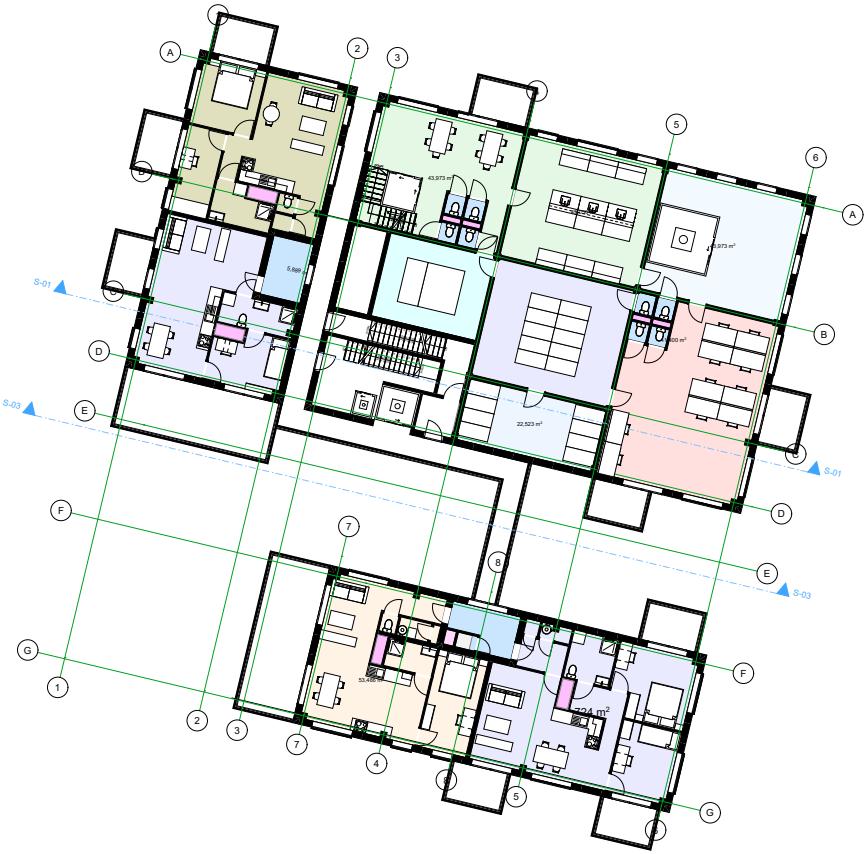
First floor (1st,3th,5th)

Floorplans(1:400)



Second floor(4th)

Floorplans(1:400)



6-8th floor

Floorplans(1:400)

9-11th floor

Floorplans(1:200 resized to fit)

Ground floor

Floorplans(1:200 resized to fit)

Ground floor

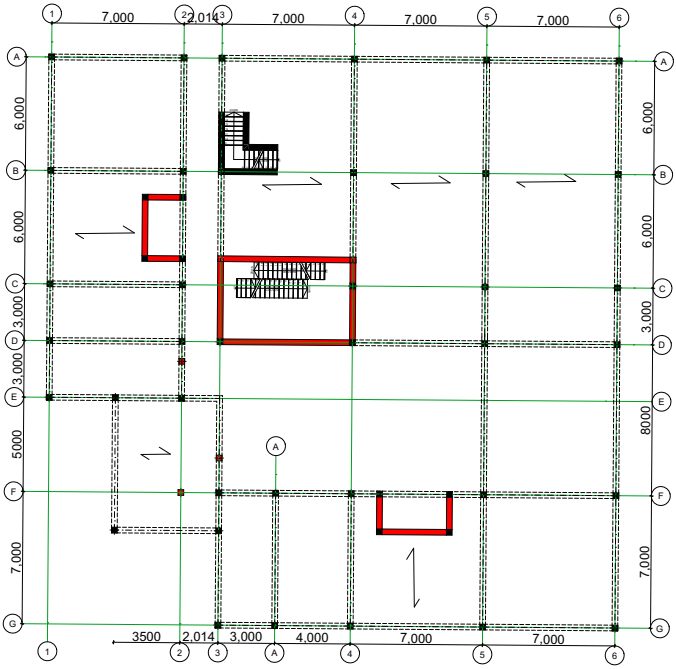
Floorplans(1:200 resized to fit)

Ground floor

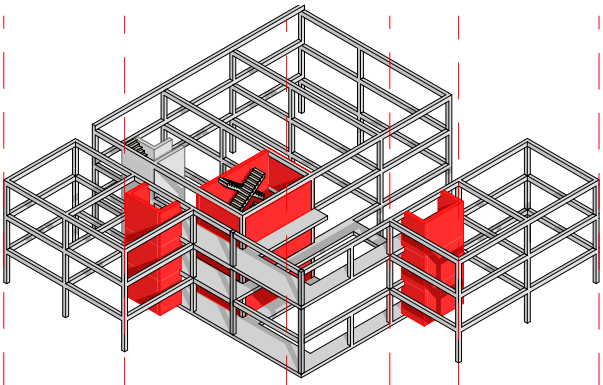
Floorplans(1:200 resized to fit)

Ground floor

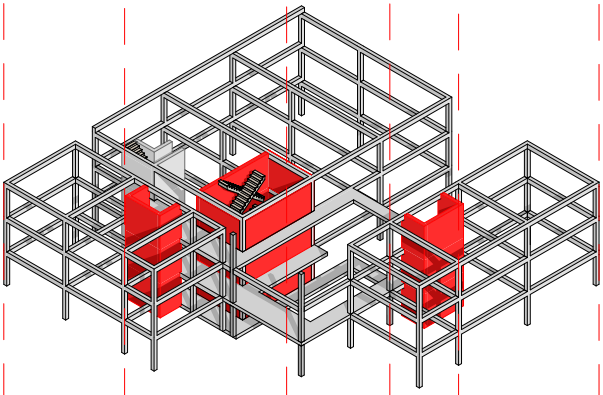
Structural Floorplan(1:400)



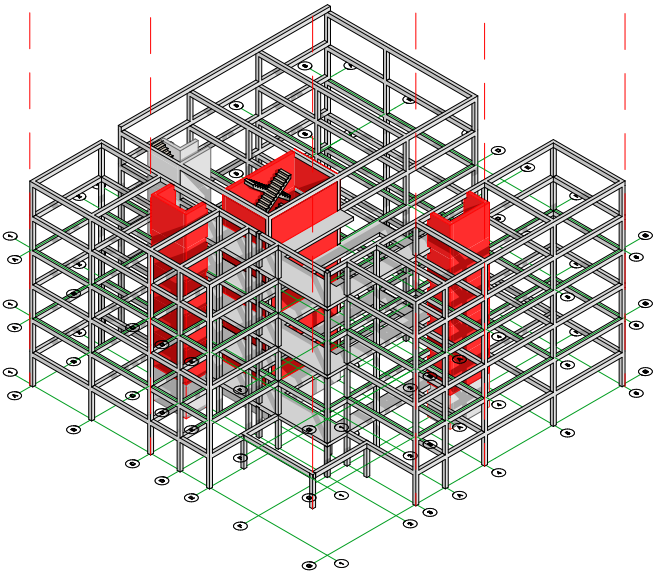
Floor 9-11



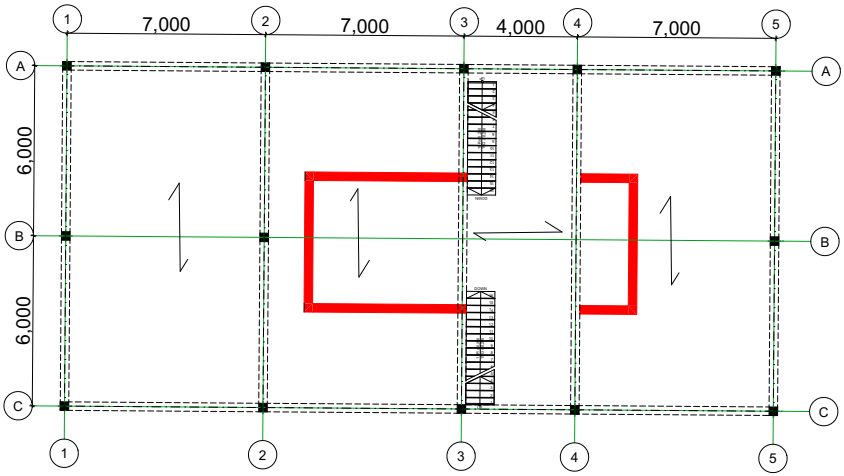
Floor 6-8

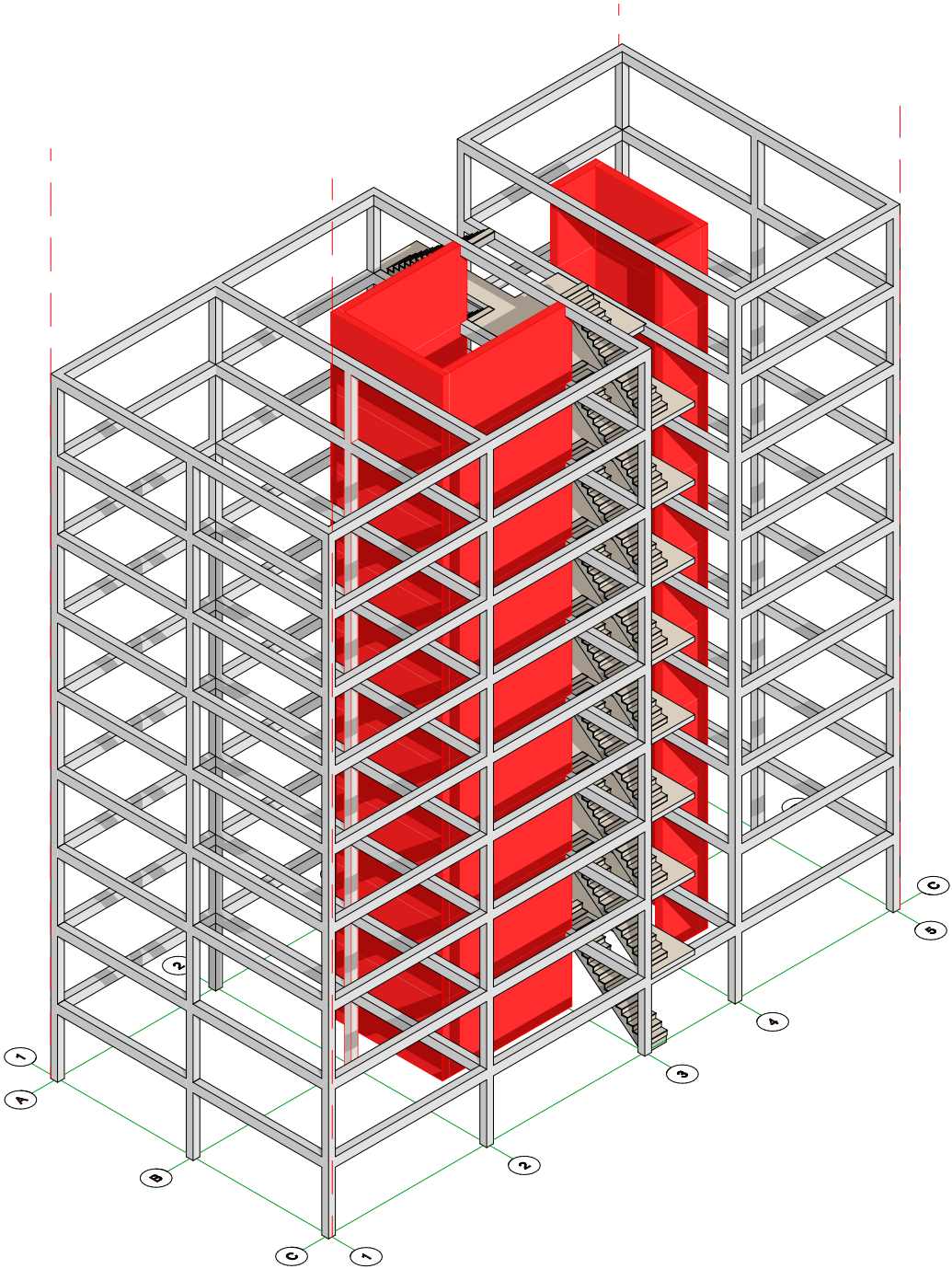


Floor 0-5

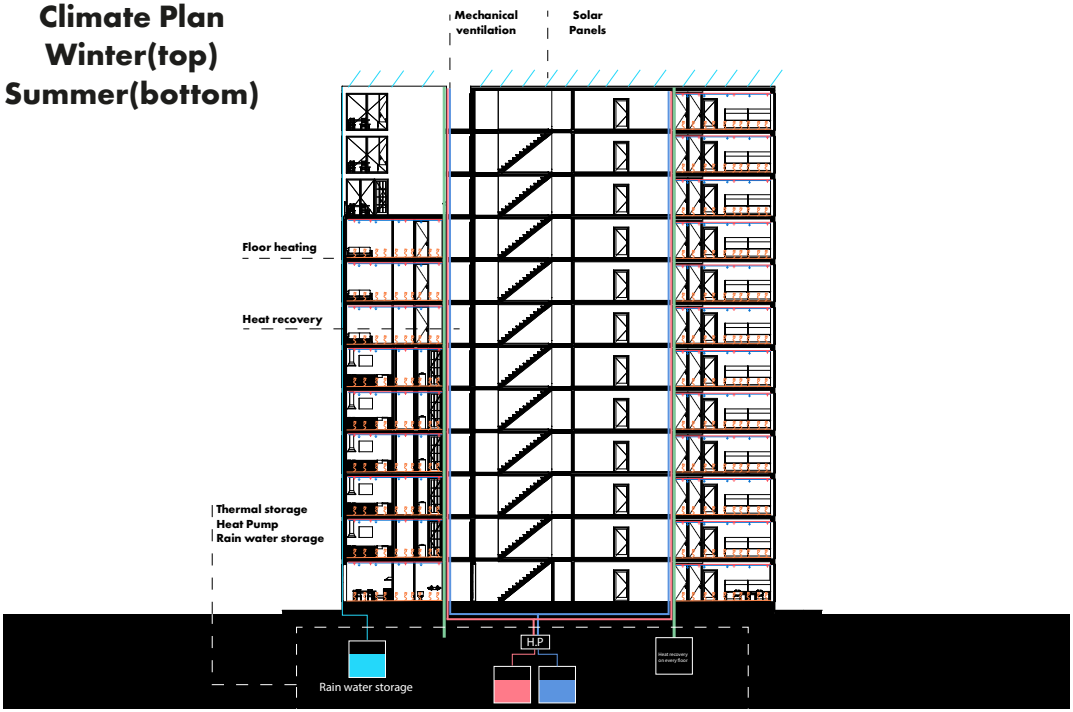


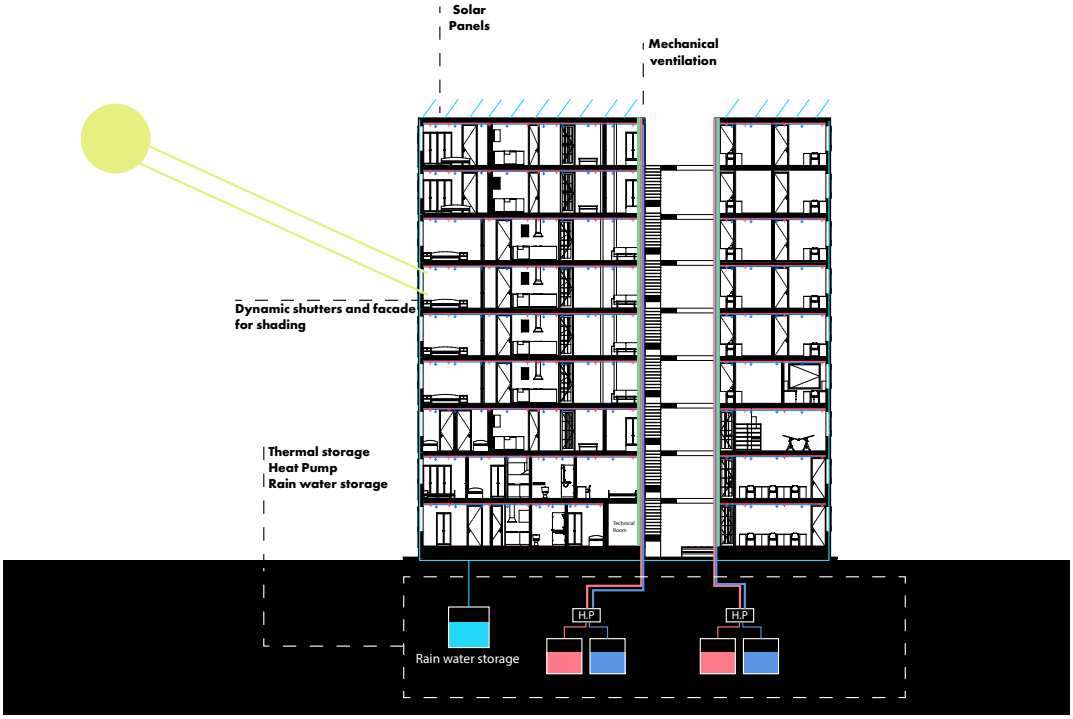
Structural Floorplan(1:200 resized to fit)



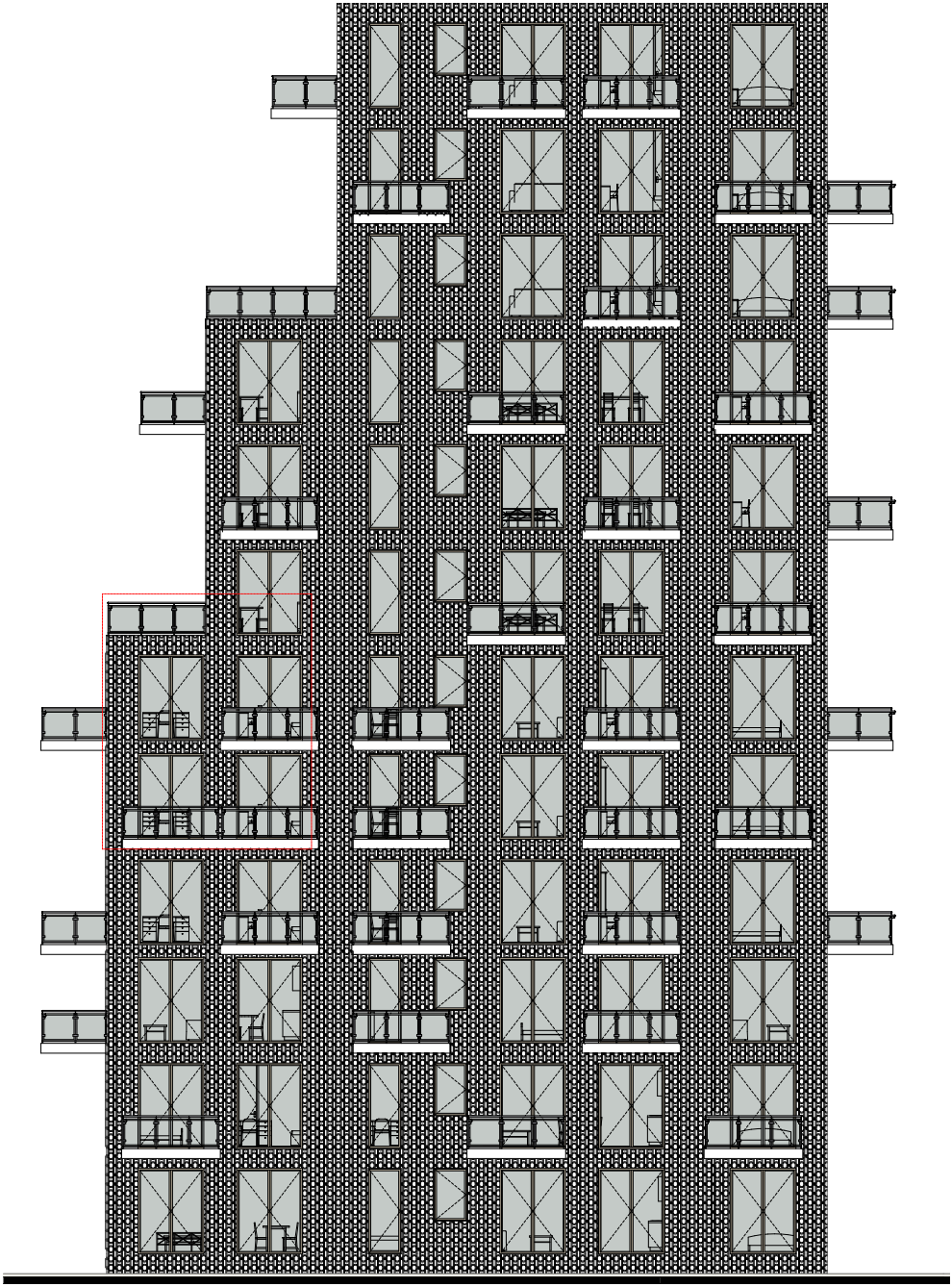

1
A
B
C
1
2
2
3
4
C
D

Climate Plan
Winter(top)
Summer(bottom)

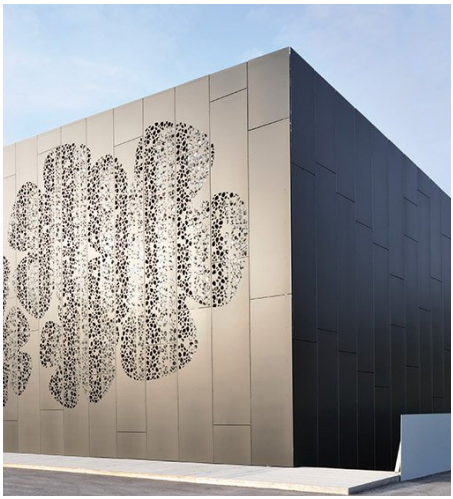




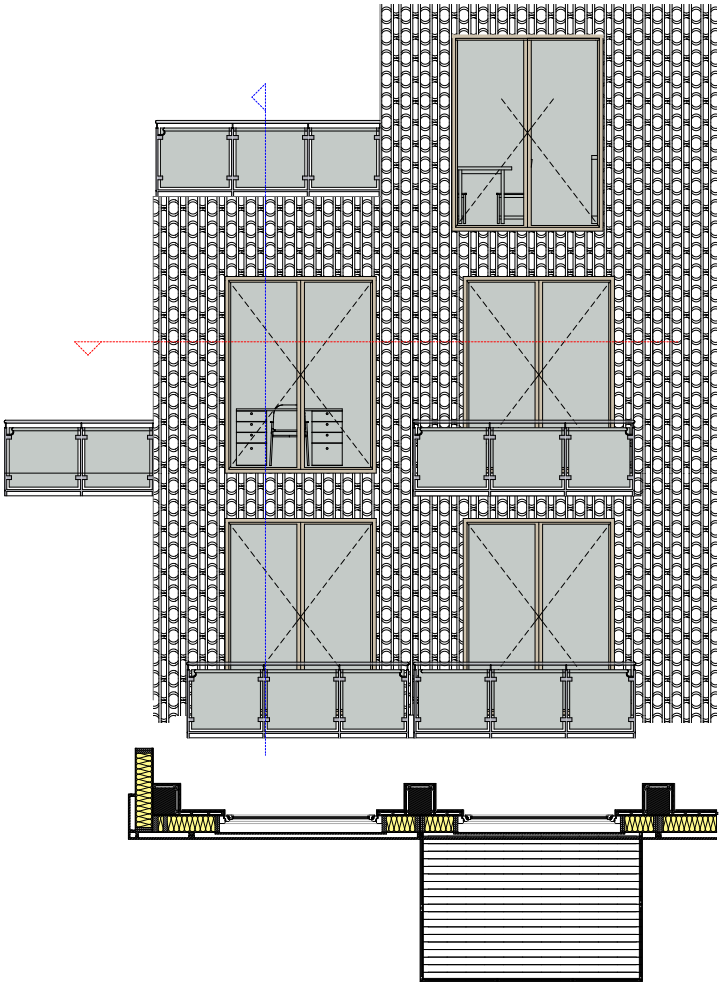
Elevation (resized to fit)

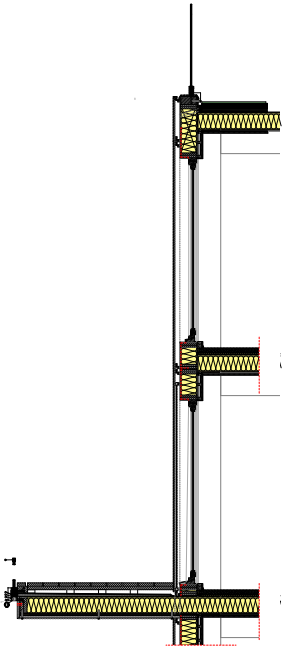


Elevation inspiration

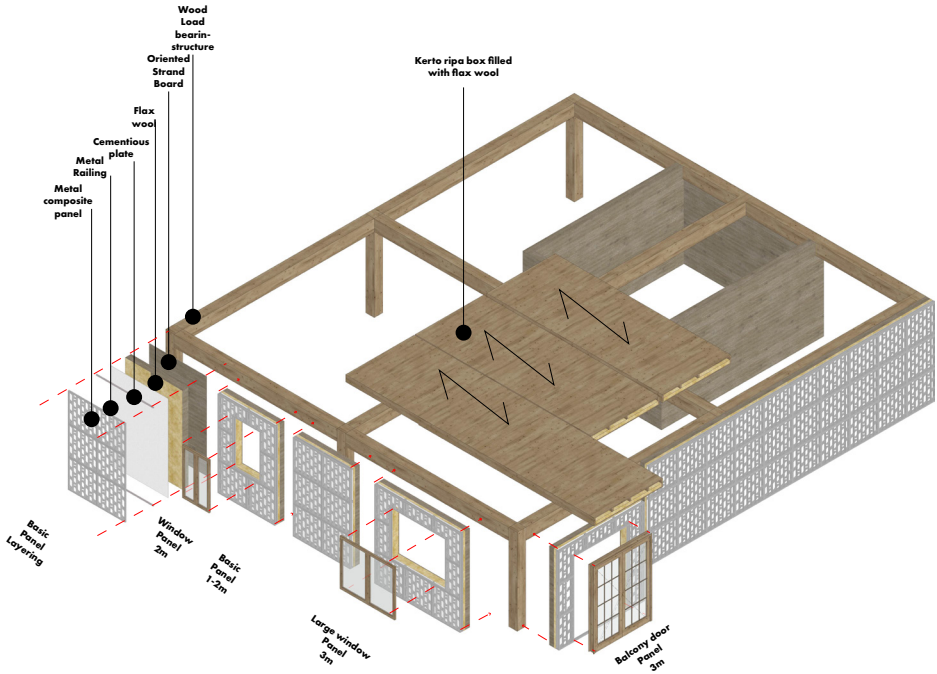


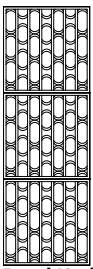
Facade fragment resized to fit



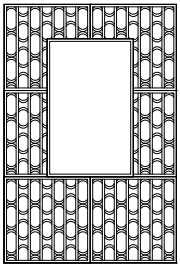


Materialisation principle

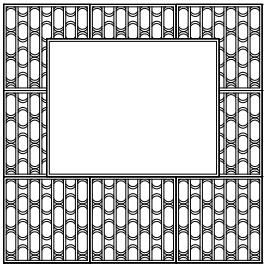




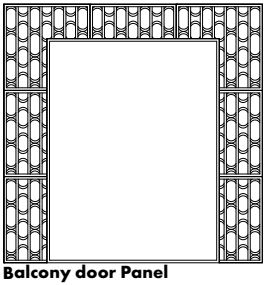
Panel Module
1m



Window Panel
2m

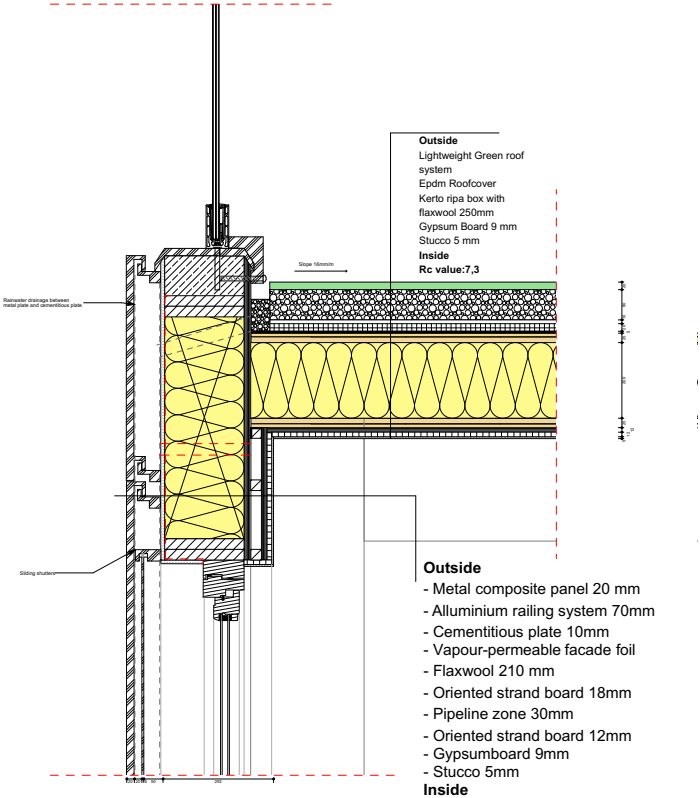


Large window Panel
3m



Balcony door Panel
3m

Roof detail 1:20



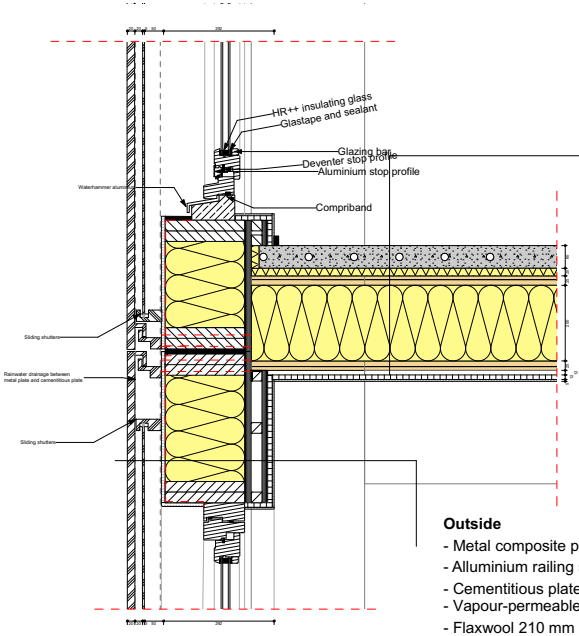
Outside

- Metal composite panel 20 mm
- Alluminium railing system 70mm
- Cementitious plate 10mm
- Vapour-permeable facade foil
- Flaxwool 210 mm
- Oriented strand board 18mm
- Pipeline zone 30mm
- Oriented strand board 12mm
- Gypsumboard 9mm
- Stucco 5mm

Inside

Rc Value: 6,9

Floor detail 1:20

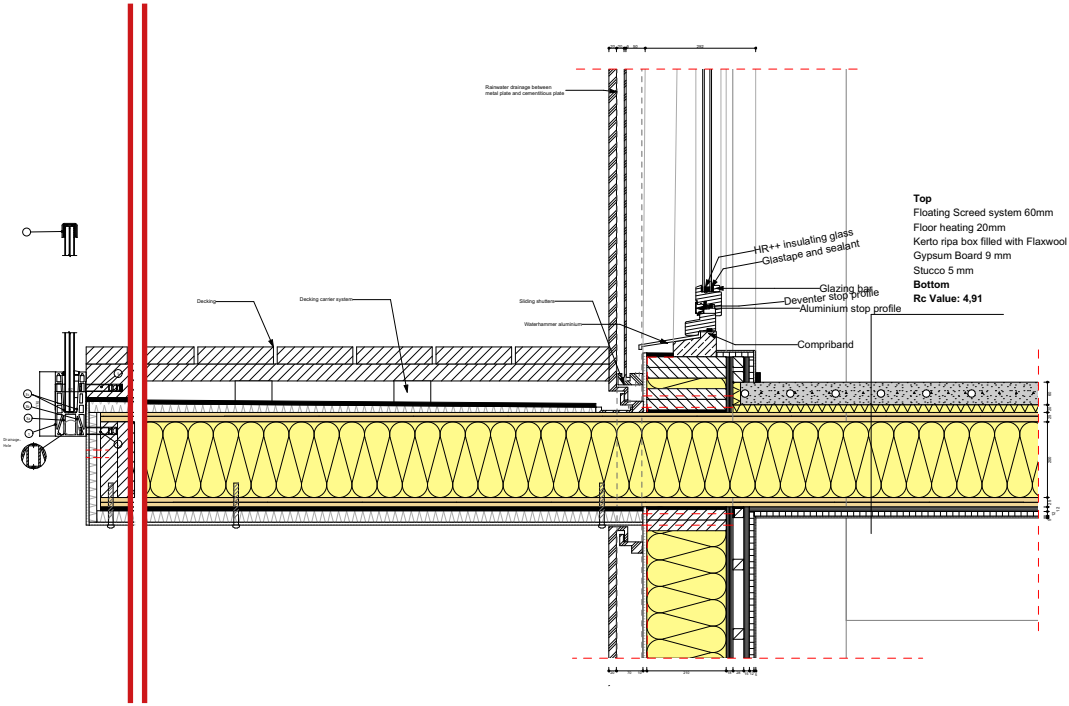


Top
Floating Screed system 60mm
Floor heating 20mm
Kerto ripa box filled with Flaxwool 250mm
Gypsum Board 9 mm
Stucco 5 mm
Bottom
Rc Value: 4,91

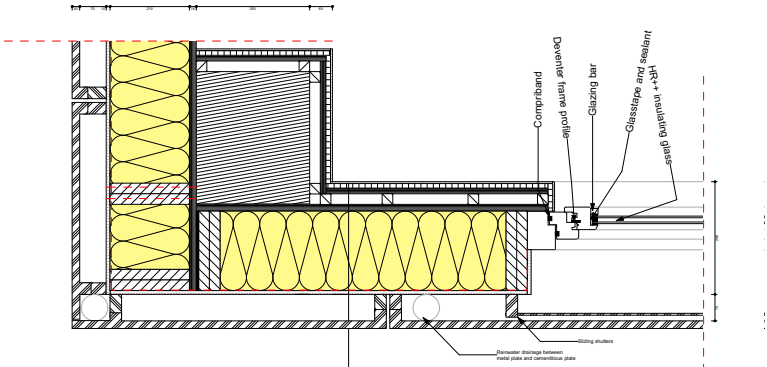
Outside
- Metal composite panel 20 mm
- Alluminium railing system 70mm
- Cementitious plate 10mm
- Vapour-permeable facade foil
- Flaxwool 210 mm
- Oriented strand board 18mm
- Pipeline zone 30mm
- Oriented strand board 12mm
- Gypsumboard 9mm
- Stucco 5mm

Inside
Rc Value: 6,9

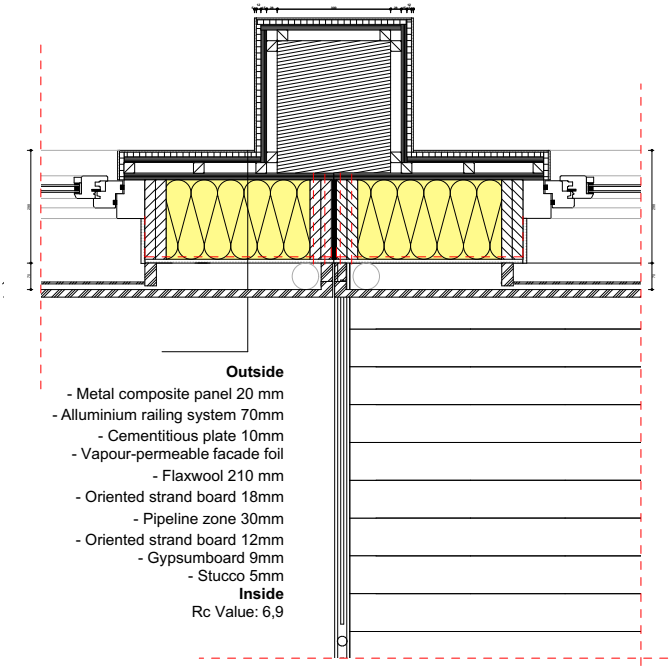
Balcony detail 1:20



Horizontal detail 1:20



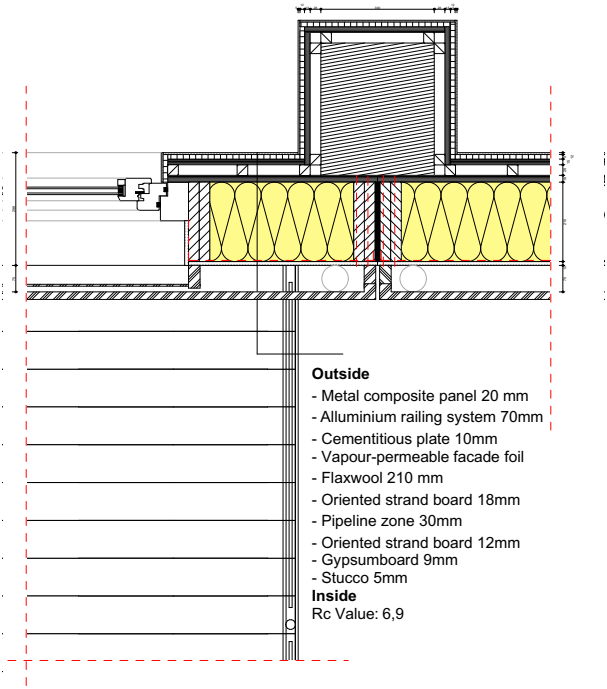
Outside
- Metal composite panel 20 mm
- Alluminium railing system 70mm
- Cementitious plate 10mm
- Vapour-permeable facade foil
- Flaxwool 210 mm
- Oriented strand board 18mm



Outside
- Metal composite panel 20 mm
- Alluminium railing system 70mm
- Cementitious plate 10mm
- Vapour-permeable facade foil
- Flaxwool 210 mm
- Oriented strand board 18mm
- Pipeline zone 30mm
- Oriented strand board 12mm
- Gypsumboard 9mm
- Stucco 5mm

Inside
Rc Value: 6,9

Horizontal detail 1:20



Outside
- Metal composite panel 20 mm
- Alluminium railing system 70mm
- Cementitious plate 10mm
- Vapour-permeable facade foil
- Flaxwool 210 mm
- Oriented strand board 18mm
- Pipeline zone 30mm
- Oriented strand board 12mm
- Gypsumboard 9mm
- Stucco 5mm

Inside

Rc Value: 6,9

Impressions

Impressions

Impressions