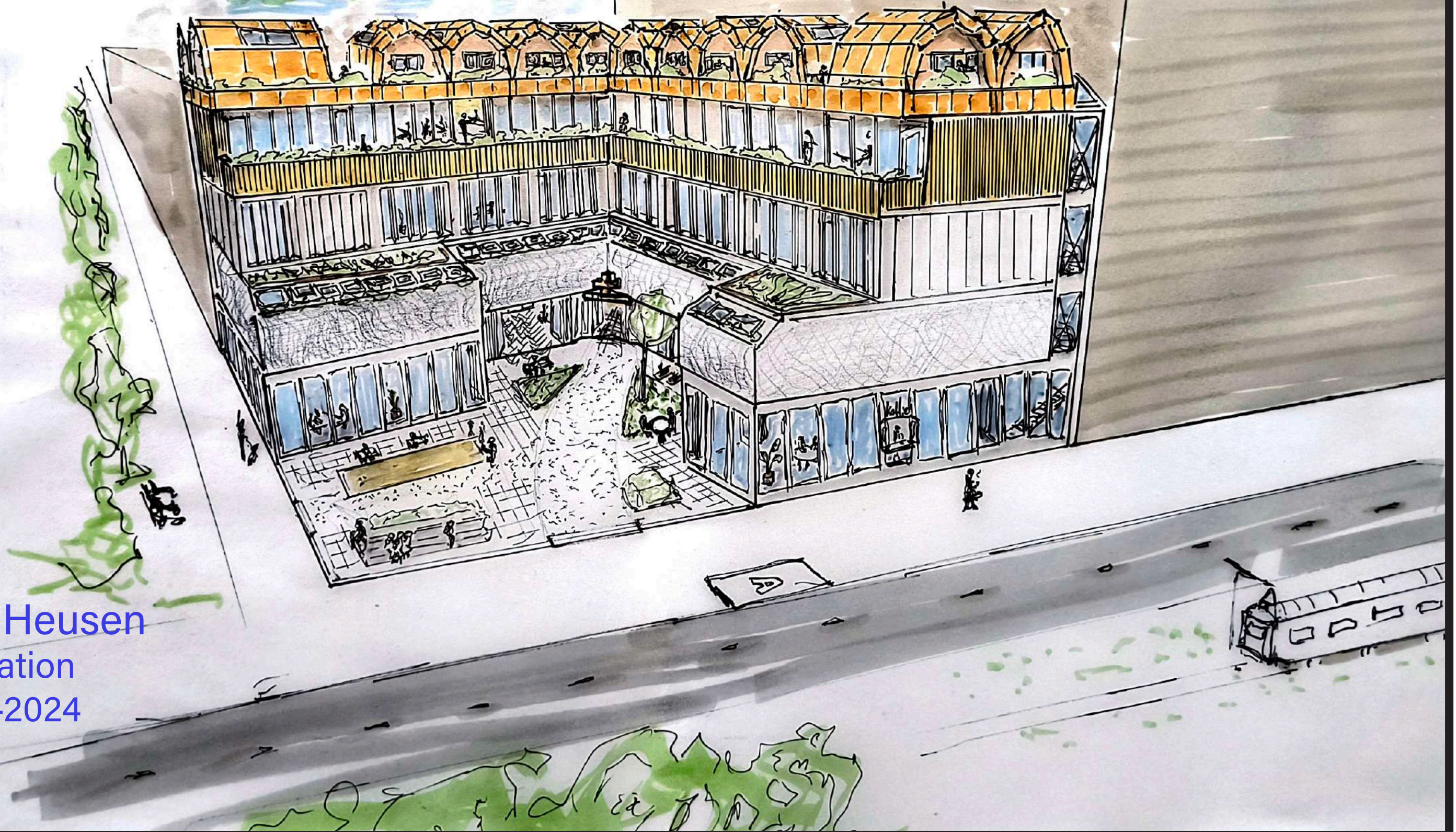


Healthcare Center Strandeiland, Amsterdam



Sybe Heusen
Graduation
28-06-2024

Topics

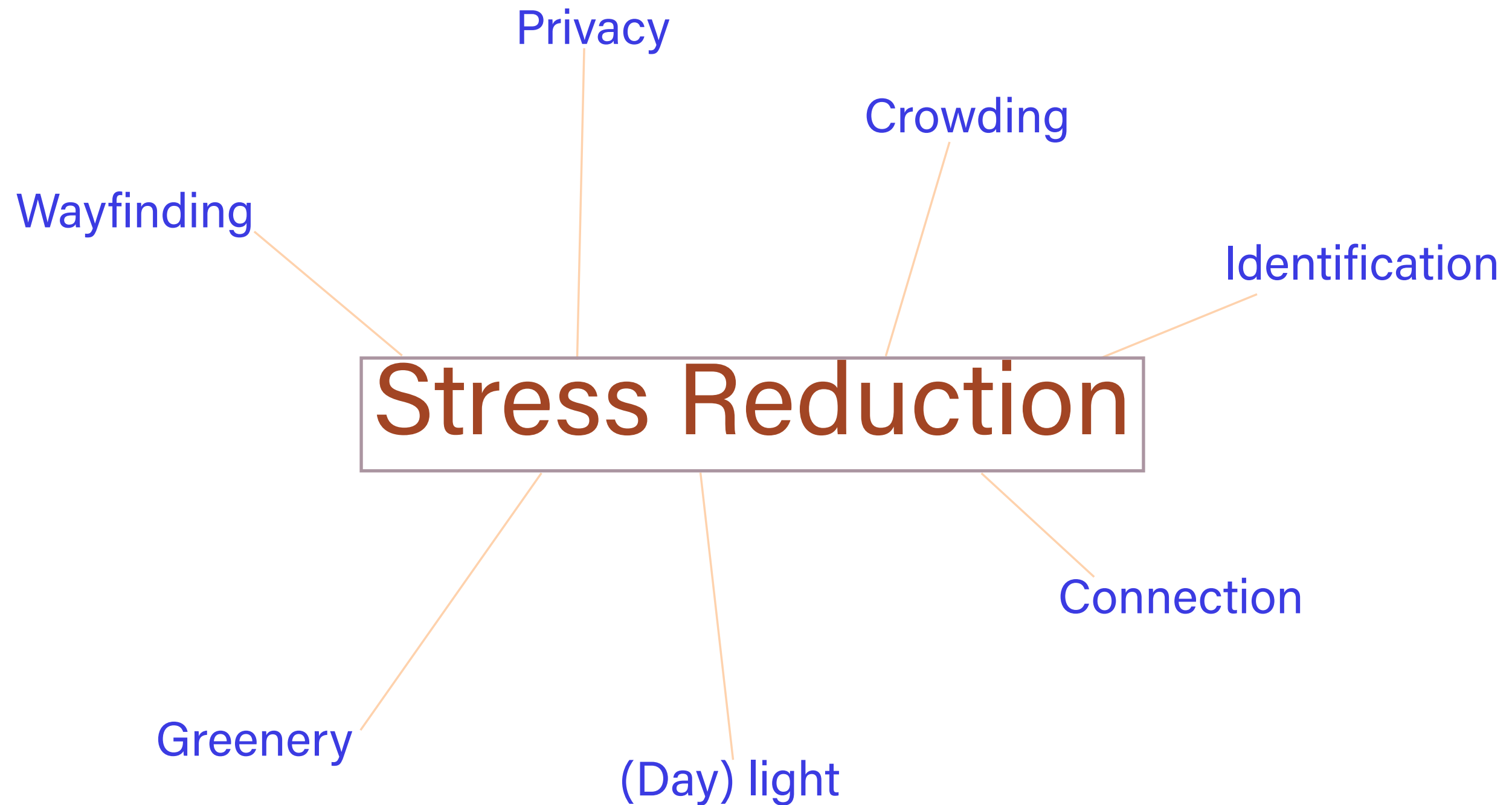
- Research
- Design brief
- Concept
- Design
- Development
- Reflection

Research Question

‘What architectural characteristics positively impact the users’ experience of stress and safety in a health-care centre?’

To improve the experience of a healthcare centre through architecture.

Factors in out patient care



Amsterdam, IJburg

Amsterdam



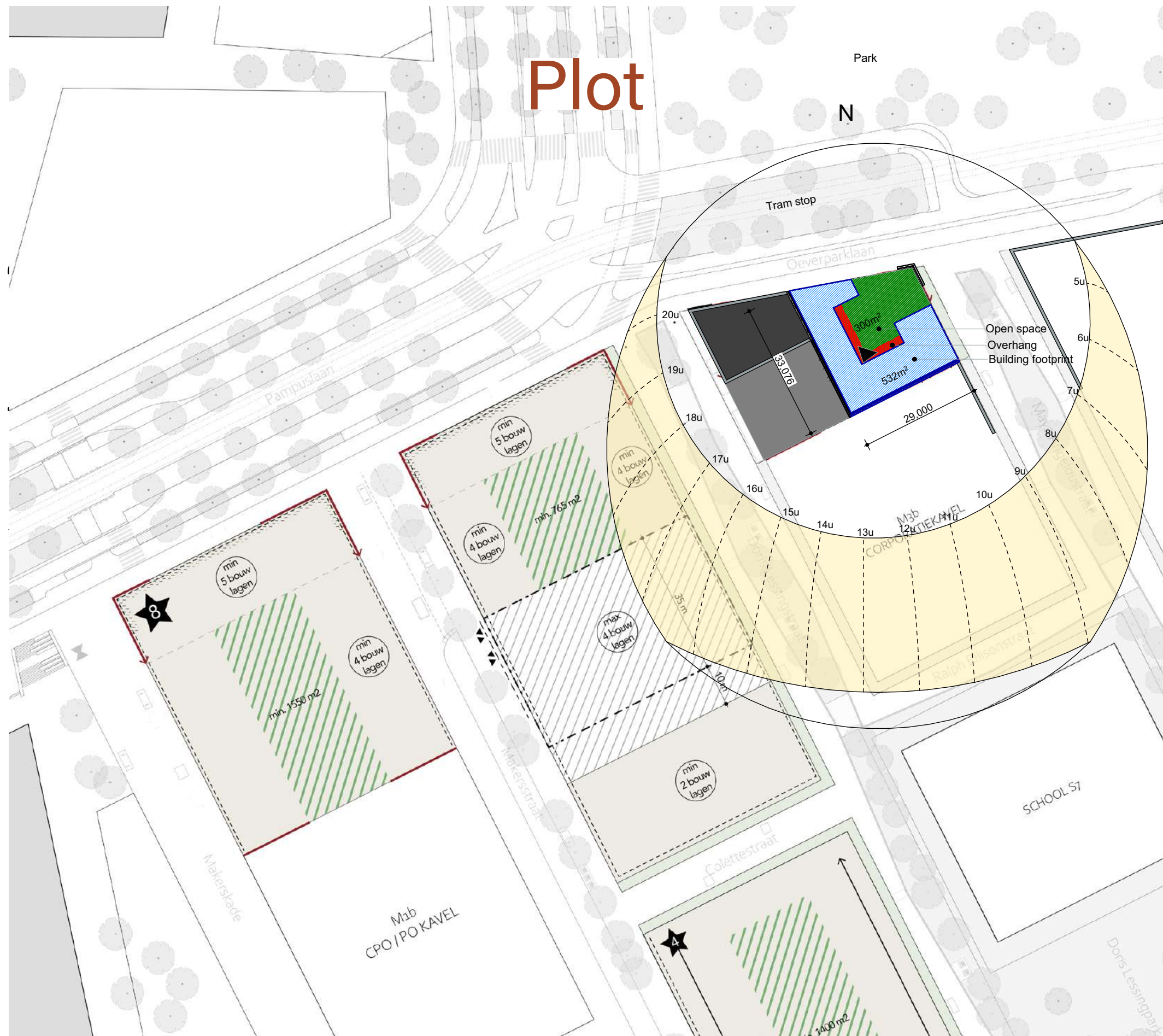
20 000 new residents of Amsterdam

Vibrant center on 'strandeiland'



Healthcare center serving 4000 - 6000 patients
(equal to 2 - 3 full time GPs)

Plot



1:1000

Begane grond

Design question

How to architecturally optimize a healthcare center to enhance patient experience, addressing amongst others patient wayfinding and stress mitigation based on data-driven insights, fitting with the 'patchwork' context of individually built Amsterdam?

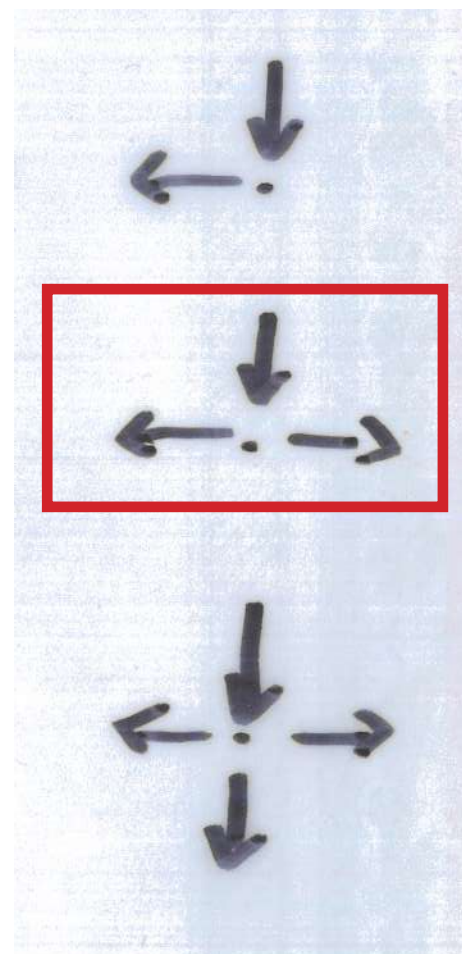
Design brief

General practisioner (Client space	-	250m2 135m2)
First line care	-	85m2
Drugstore	-	150m2
Neighbourhood team (Client space	-	250m2 79m2)
Commercial (Cafe sports Community center	-	0- 300m2 70m2 80m2 80m2)
Telehealth	-	25m2
Care hotel	-	250m2

Total functional space: 1240m2

Organisation plan

Wayfinding
Simple navigation

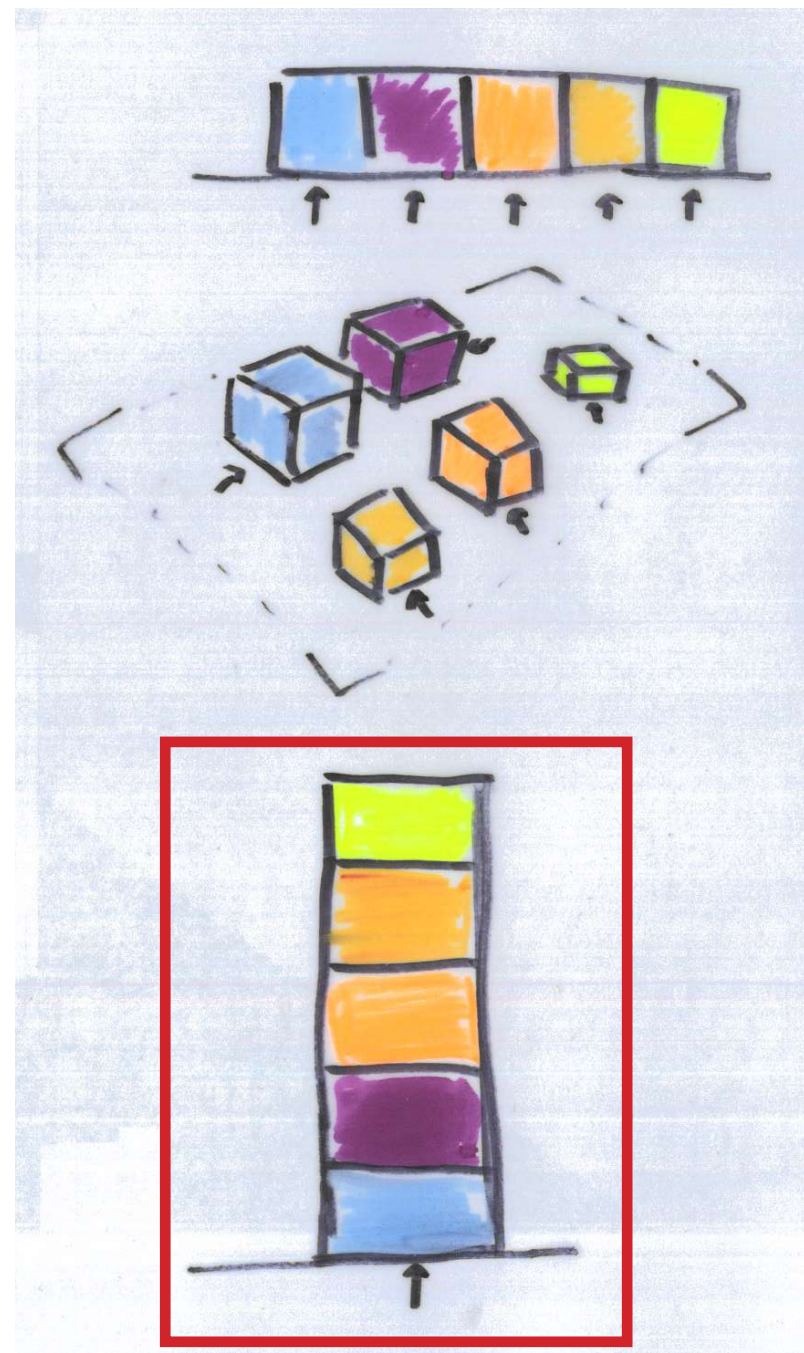


No option

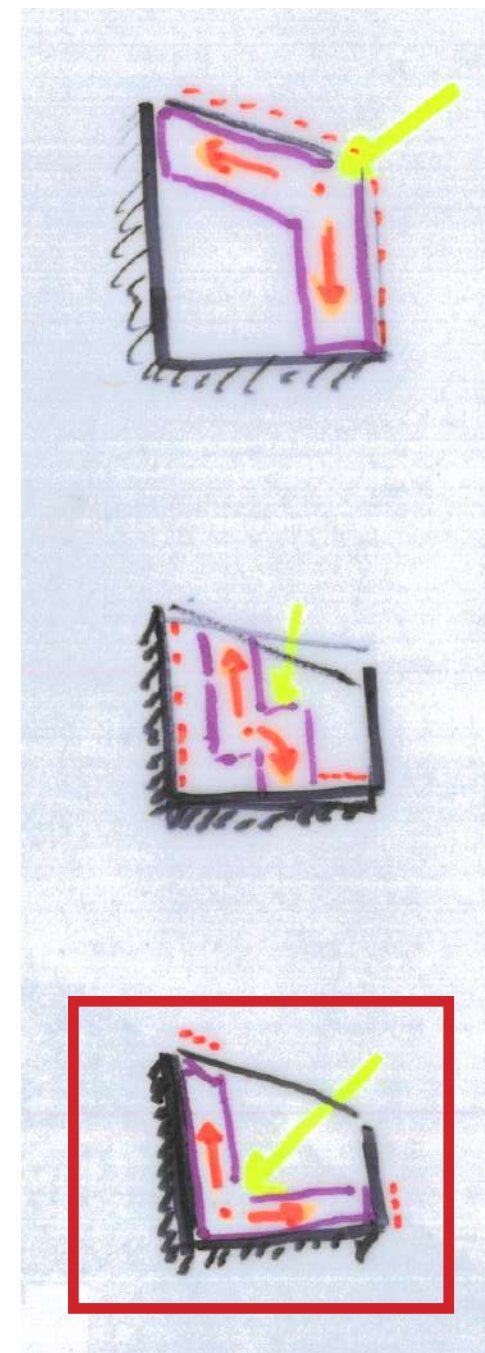
Simple

Increasing nodes

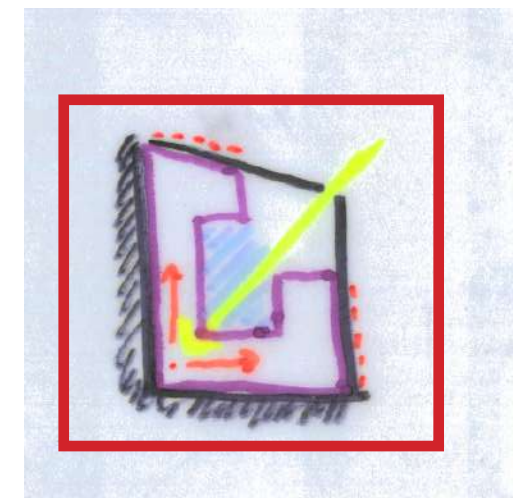
Functional needs
Compartments



Relation
Open/welcome



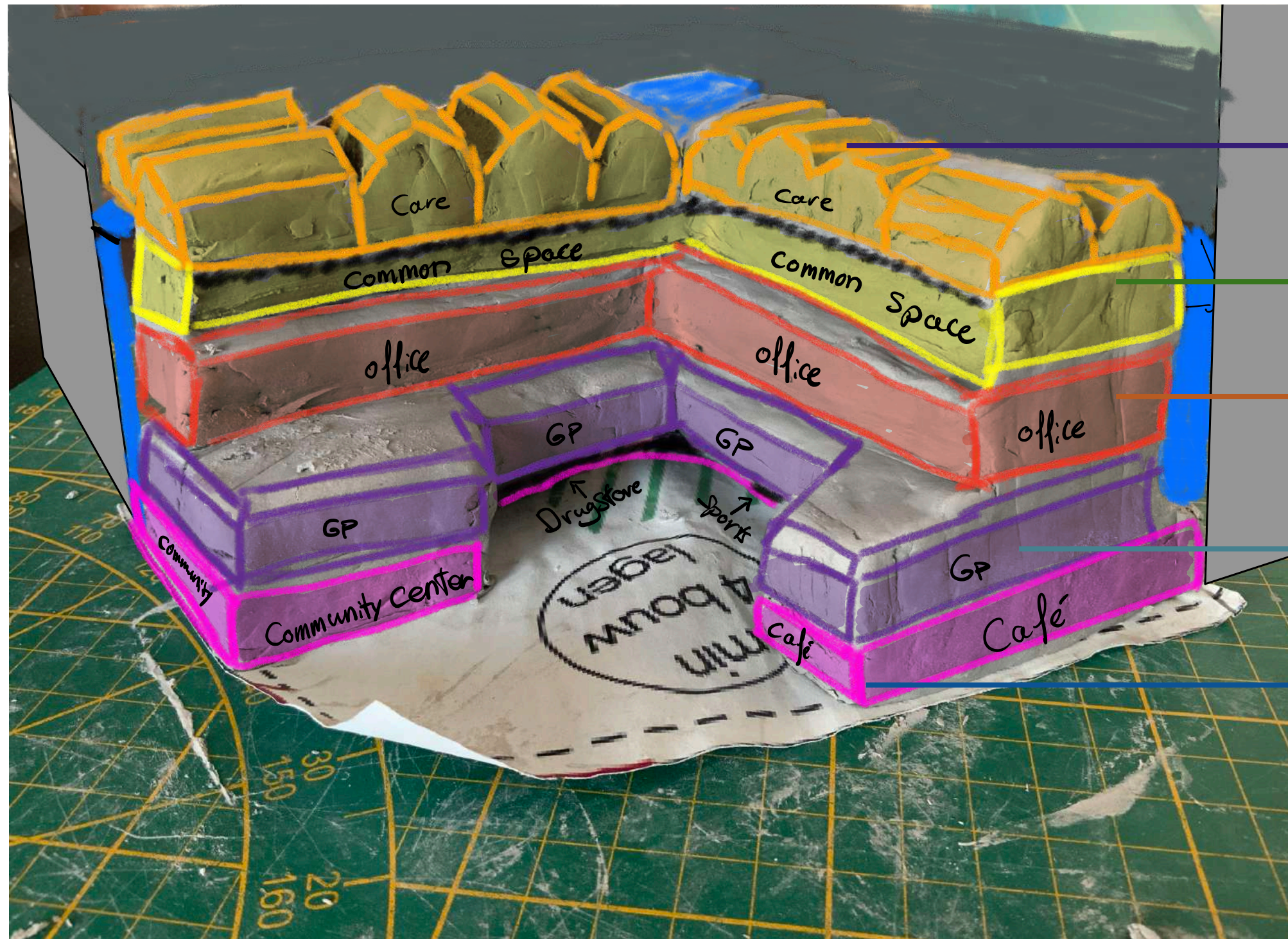
Experience
Safe embrace



Design process



Organisation concept



Type of program

Care program

Facilities program

'9 - 5' program

Client program

Public program

Concept layers

PROJECTTITEL	Healthcare center	BEDRIJFSNAAM	TU/Delft
PROJECTMANAGER	Sybe Heusen	Gradient:	1= Geen voorkeur; 2= N

Verdieping	Wat	Concept punten 1								
		Privacy			Greenery			Light		
		1	2	3	1	2	3	1	2	3
Type of program	Example									
0	Public program	Cafe								
		Sports								
		Neighbourhood center								
		Drugstore								
1	Client program	Consultation rooms								
		Waitingroom								
		Reception								
		Neighbourhood team								
		Group spaces								
2	'9 - 5' program	Office								
		Lab room								
		Controll room								
3	Facilities program	Food & drink facilities								
		Washing room								
		Common entertainment space								
4	Care program	Circulation space								
		Care units								

Every layer has characteristic requirements, but not every architectural function is the same.

Concept layers

PROJECTTITEL	Healthcare center
PROJECTMANAGER	Sybe Heusen

neutraal; 3= Voorkeur

Verdieping	Wat	
	Type of program	Example
0	Public program	Cafe Sports Neighbourhood center Drugstore
1	Client program	Consultation rooms Waitingroom Reception Neighbourhood team Group spaces
2	'9 - 5' program	Office Lab room Controll room
3	Facilities program	Food & drink facilities Washing room Common entertainment space
4	Care program	Circulation space Care units

[illegible]

Every layer has characteristic requirements, but not every architectural function is the same.

Concept layers

PROJECTTITEL	Healthcare center
PROJECTMANAGER	Sybe Heusen

Verdieping	Wat	
	Type of program	Example
0	Public program	Cafe Sports Neighbourhood center Drugstore
1	Client program	Consultation rooms Waitingroom Reception Neighbourhood team Group spaces
2	'9 - 5' program	Office Lab room Controll room
3	Facilities program	Food & drink facilities Washing room Common entertainment space
4	Care program	Circulation space Care units

Concept punten 3								
Viral safety			Crowding			Ambiance		
1	2	3	1	2	3	1	2	3
	■				■	Warm & inviting		
	■			■				
	■							
		■		■		Clean, fresh & comfortable		
		■		■				
	■				■			
	■			■		Professional & Comfortable		
	■							
	■				■	Open & cozy		
	■			■				
	■				■			
	■		■			Personal & Cozy		
	■		■					

Every layer has characteristic requirements, but not every architectural function is the same.

Concept layers

PROJECTTITEL	Healthcare center
PROJECTMANAGER	Sybe Heusen

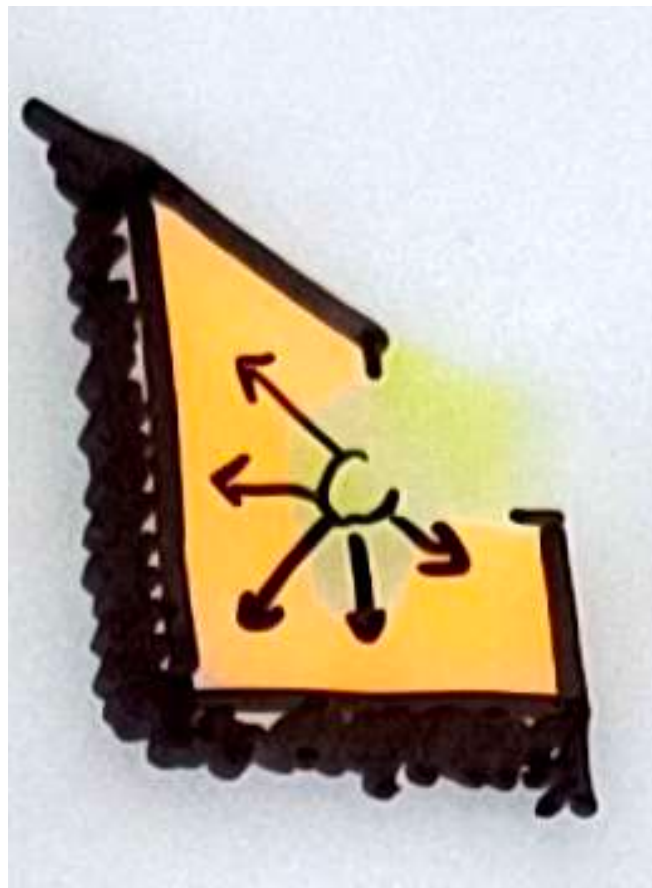
BEDRIJFSNAAM	TU/Delft
Gradient:	1= Geen voorkeur; 2= Neutraal; 3= Voorkeur

Verdieping		Wat	Concept punten 1									Concept punten 2									Concept punten 3									Concept uitwerking		
			Privacy			Greenery			Light			Connection			Identifiability			Wayfinding			Viral safety			Crowding			Ambiance			Circulation space	Facade density	Light/greenery
	Type of program	Example	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
0	Public program	Cafe																														
		Sports																														
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		Care units																														

Every layer has characteristic requirements, but not every architectural function is the same.

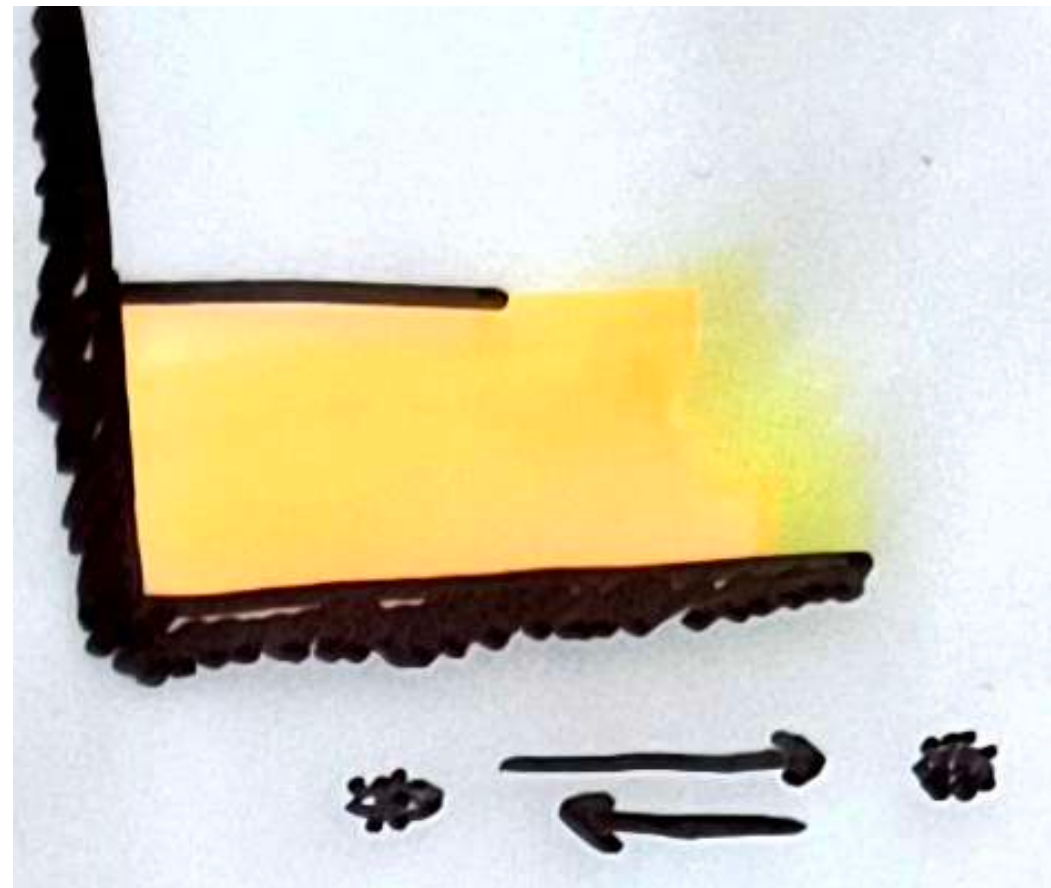
Public program

Wayfinding



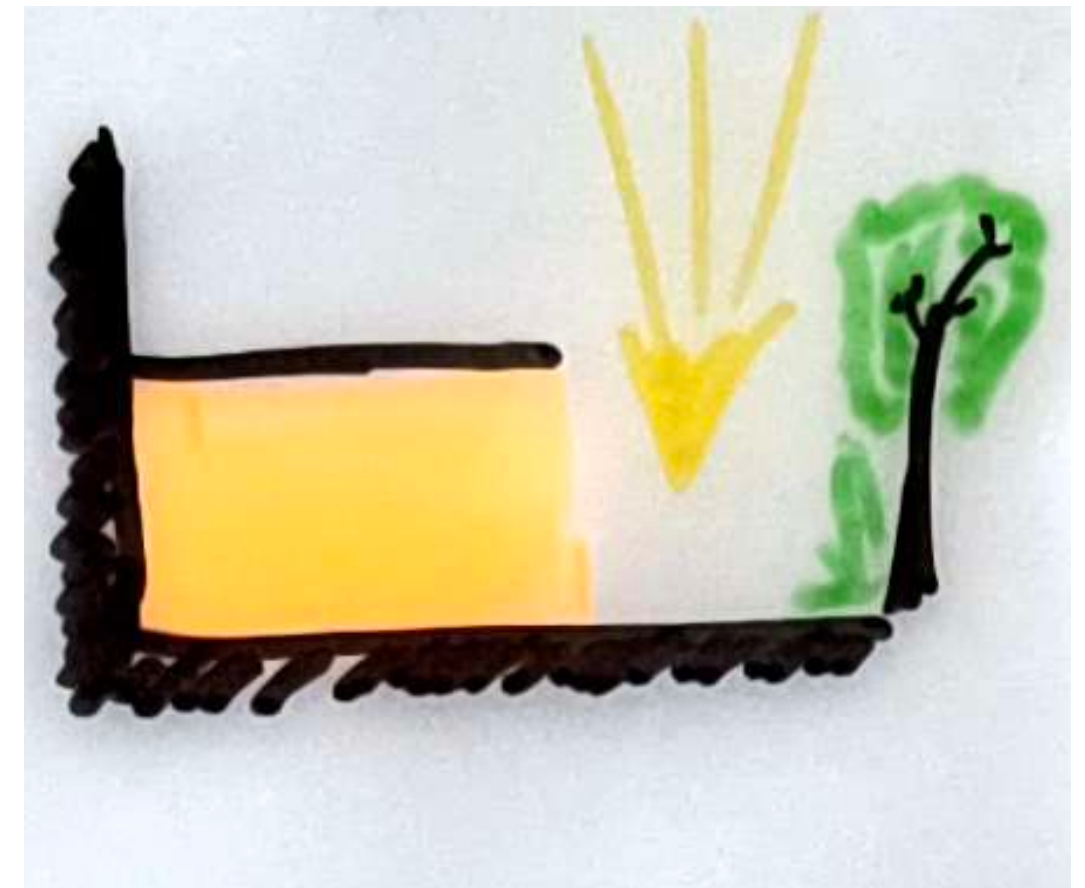
Seperately accesable
from central courtyard

Openness

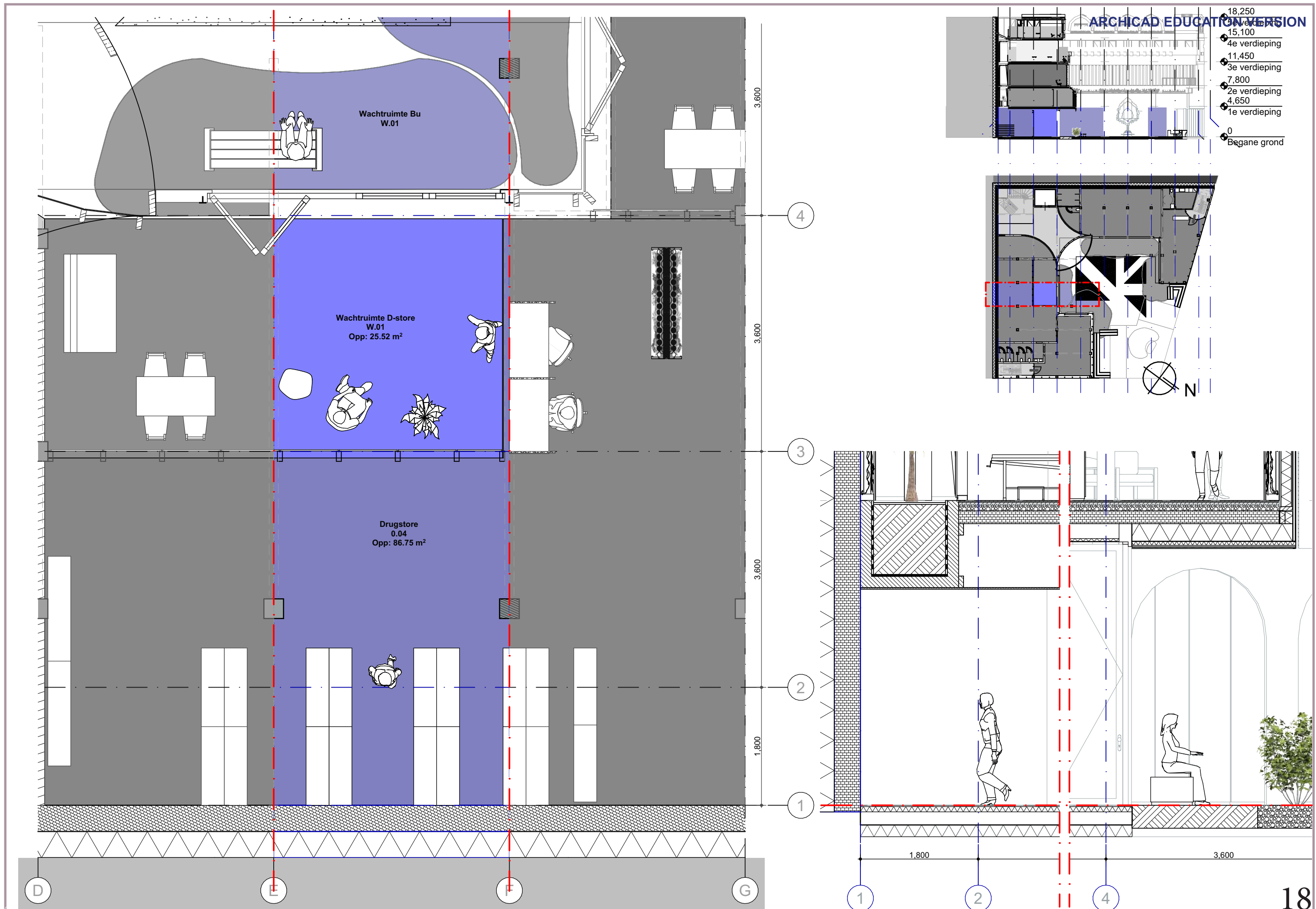


Blending public functions with the
courtyard

Light & Greenery



A courtyard gives acces to light and
greenery



Materialisation



Minimalistic &
reflective

Reference

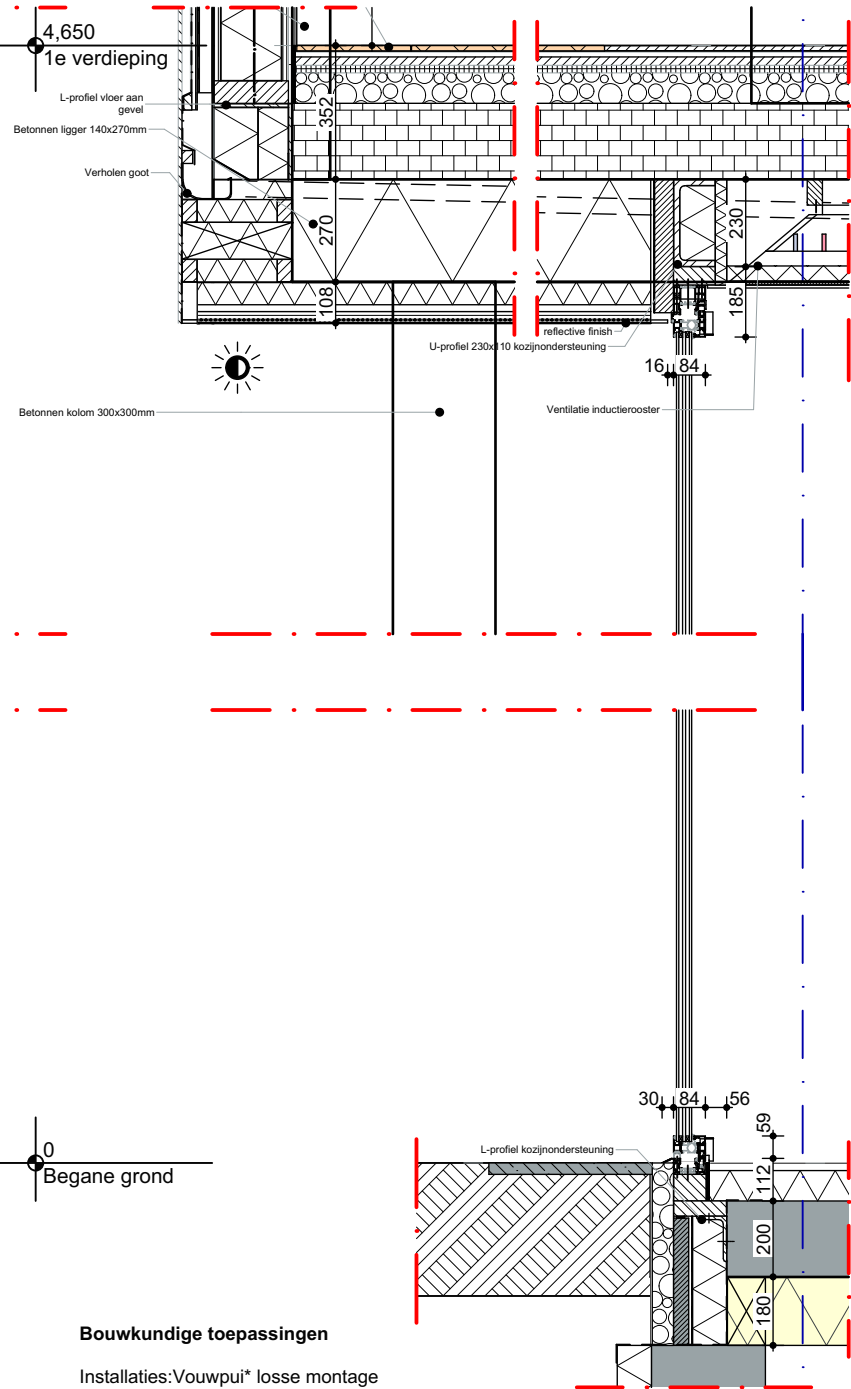
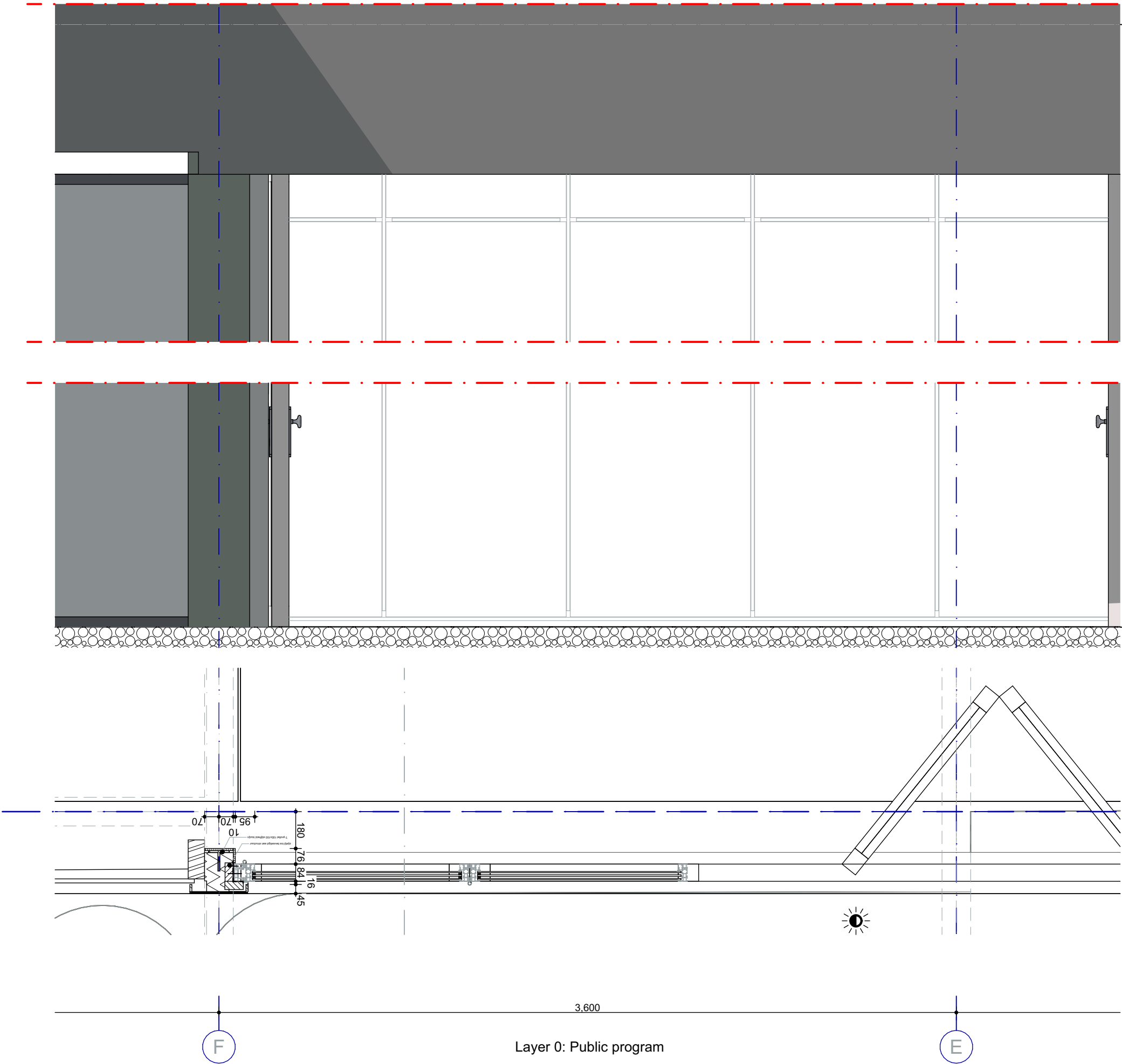


Open & transparent

Vibe

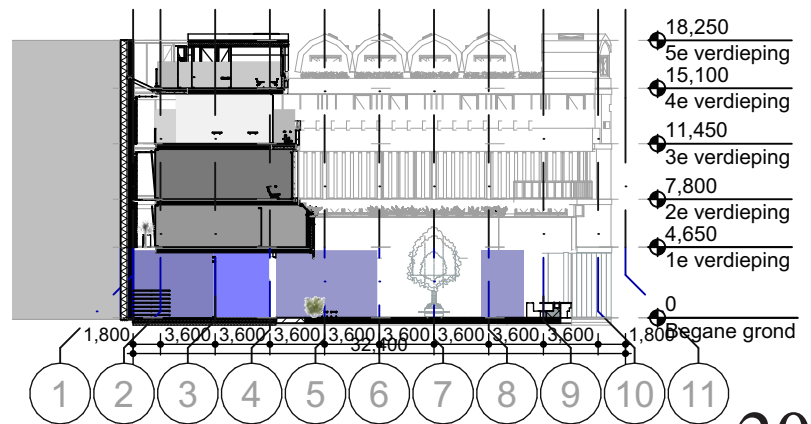


Connection with courtyard



Bouwkundige toepassingen

Installaties: Vouwpuil* losse montage
Toegepaste onderdelen: Overstek
Montagetechniek: Kozijnverankering
Montagetechniek:



4

Approaching Pharmacy



Pharmacy interior



Main entrance building

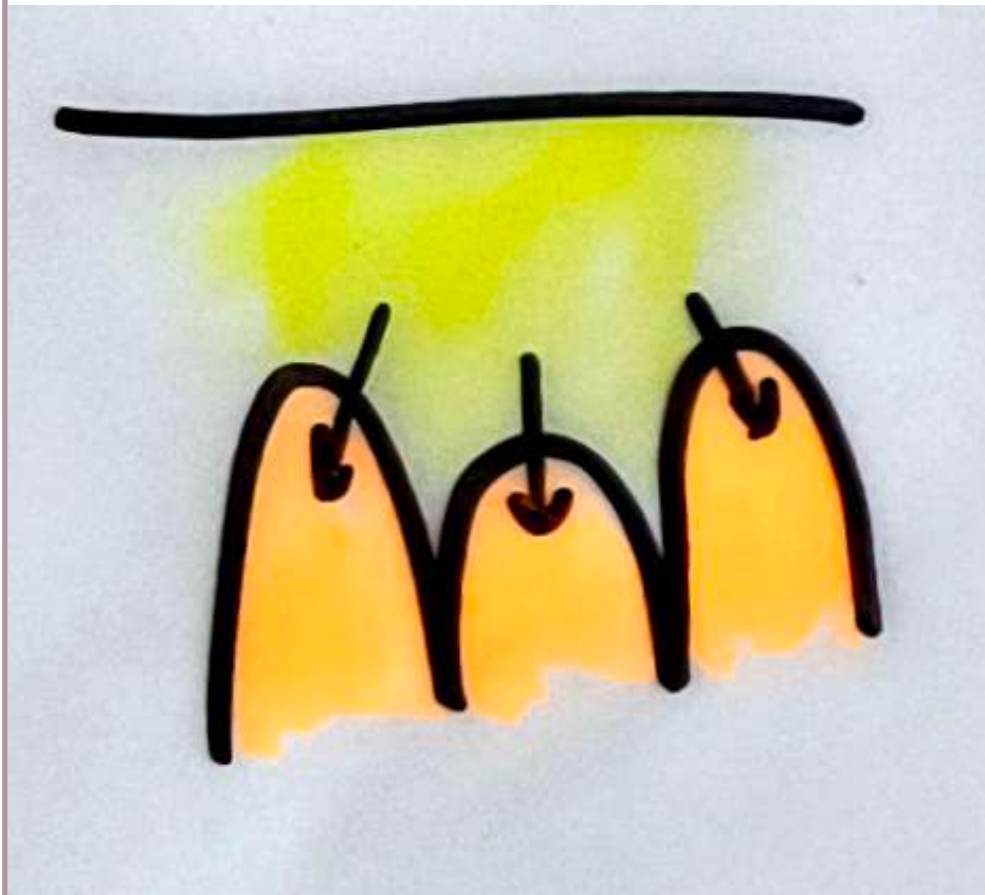


Landmark staircase



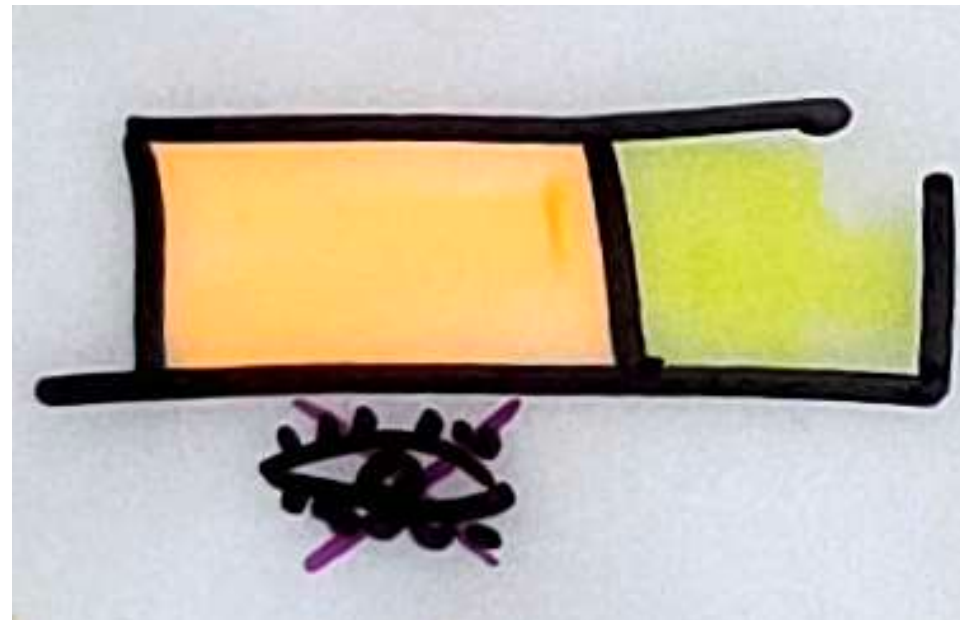
Client program

Wayfinding



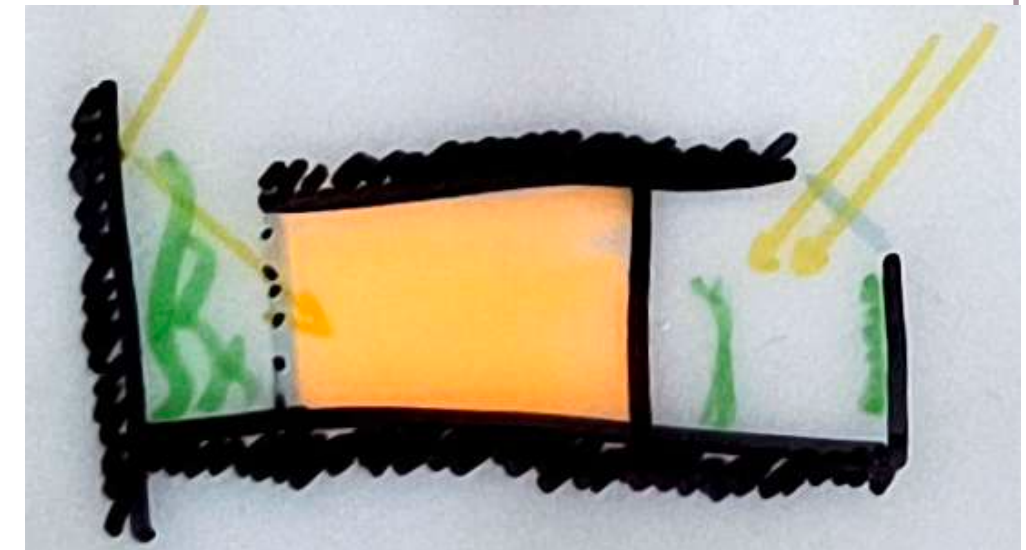
Give private spaces a distinct form, a 'cucoon' stimulates a private feeling

Openness

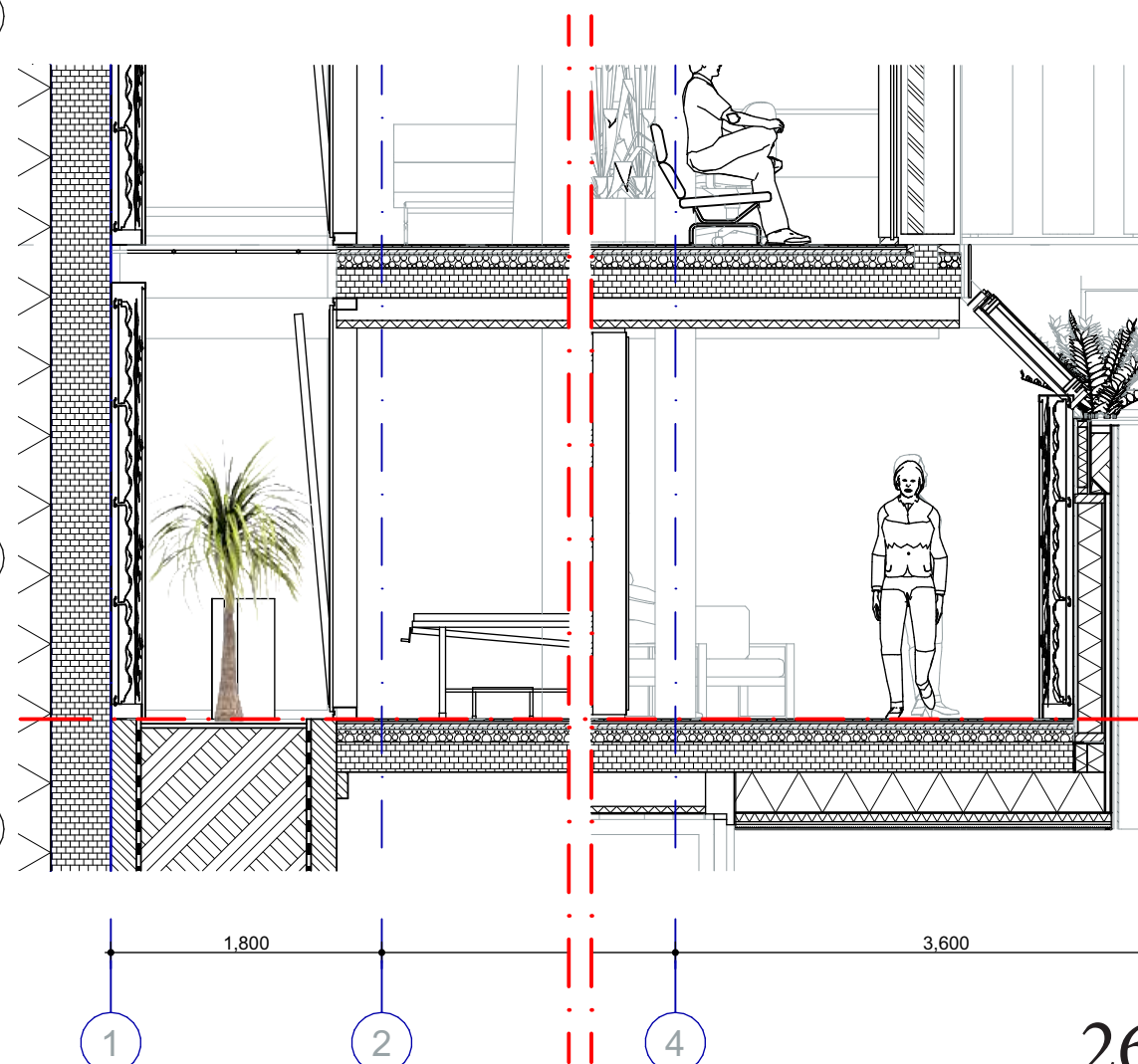
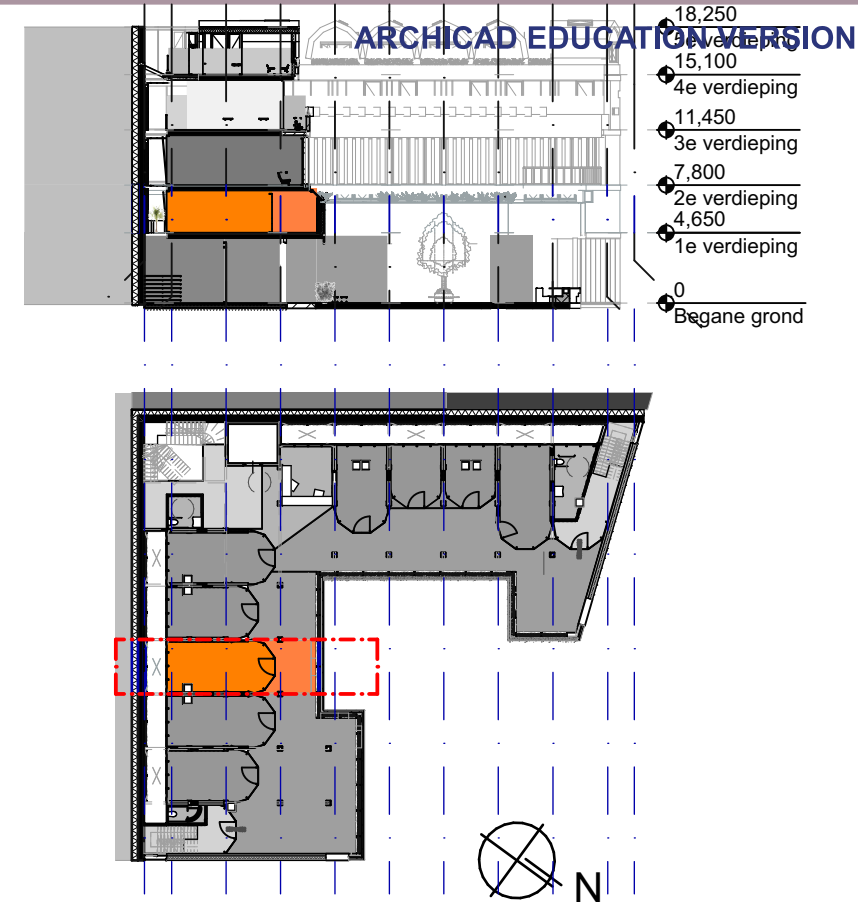


Make spaces private by reducing visual intrusion

Light & Greenery



Equip all spaces with abundant views of green and indirect light



Materialisation



Clean & cozy
Fabric & Tiles?

Reference

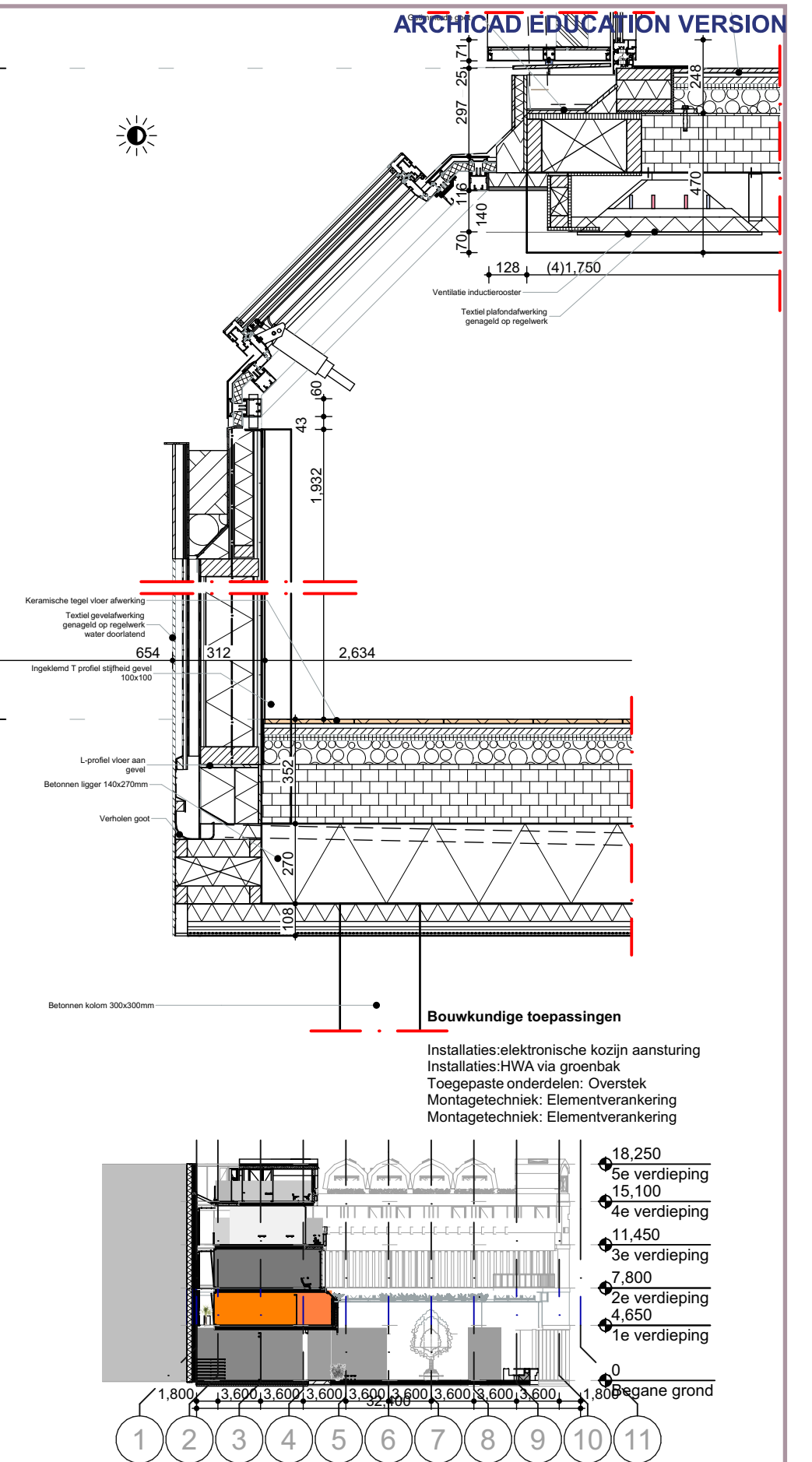
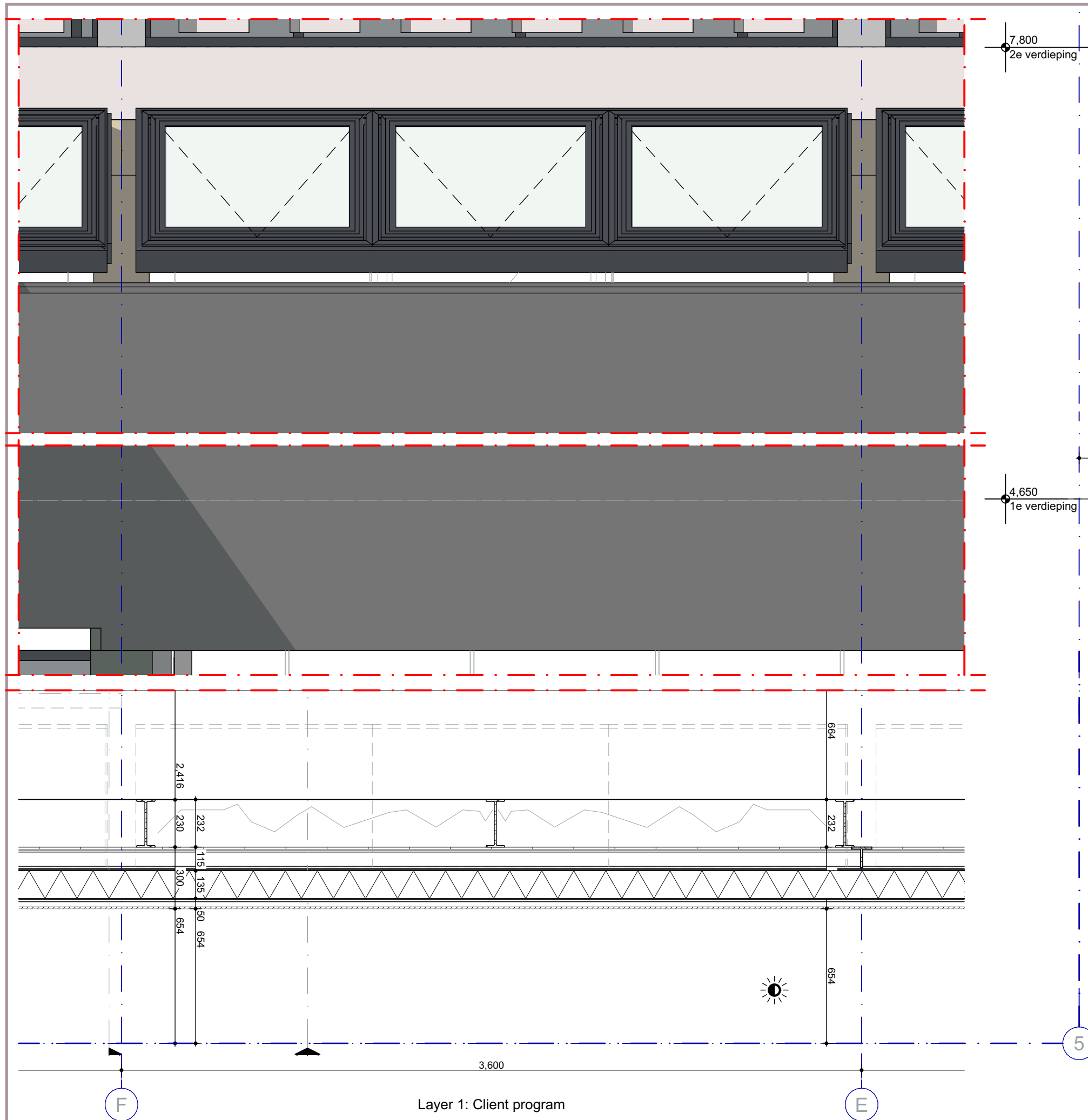


Textile facade

Vibe



Clean but warm



Waiting rooms GP



Consultroom



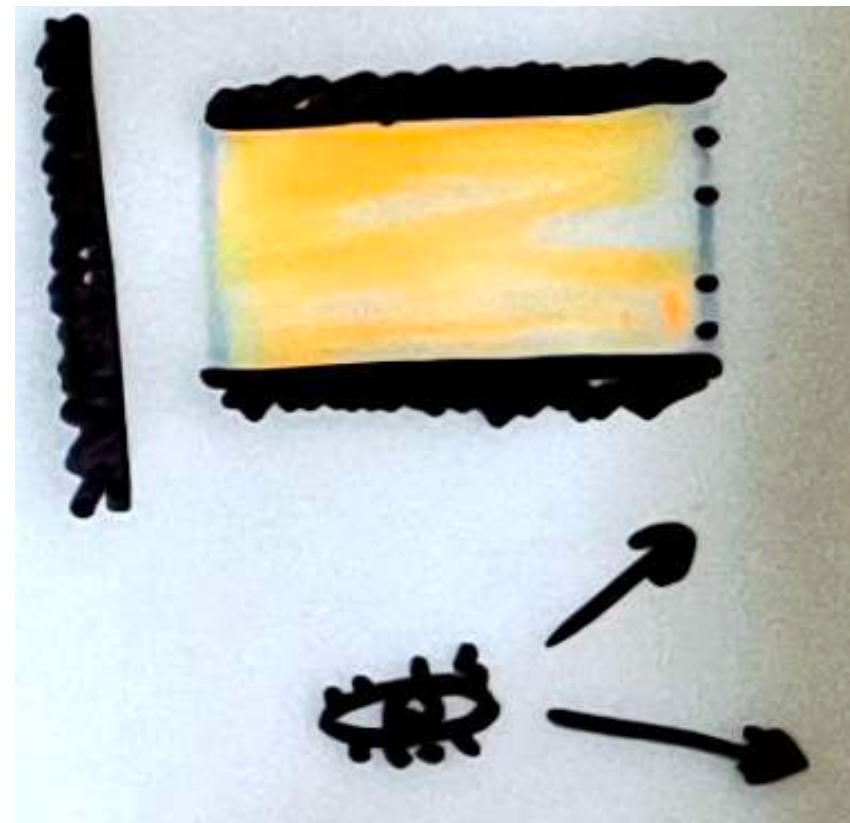
'office' program

Wayfinding



Open floor plan office space enhances collective qualities

Openness



Open and spacious workplace, reduce glare with shutters

Light & Greenery



Enough green and light provides a pleasant workspace

Materialisation



clean & open
wood & aluminium

Reference

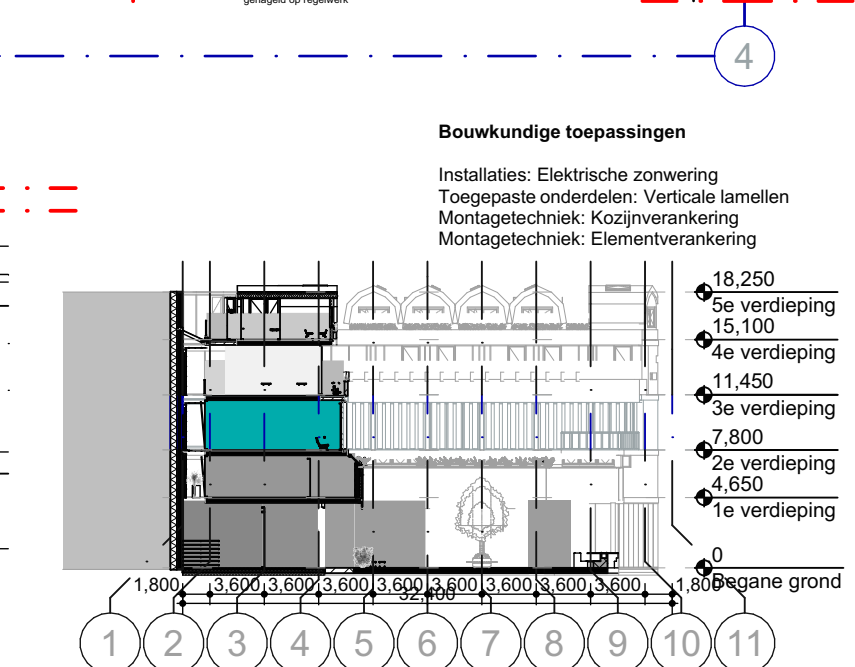
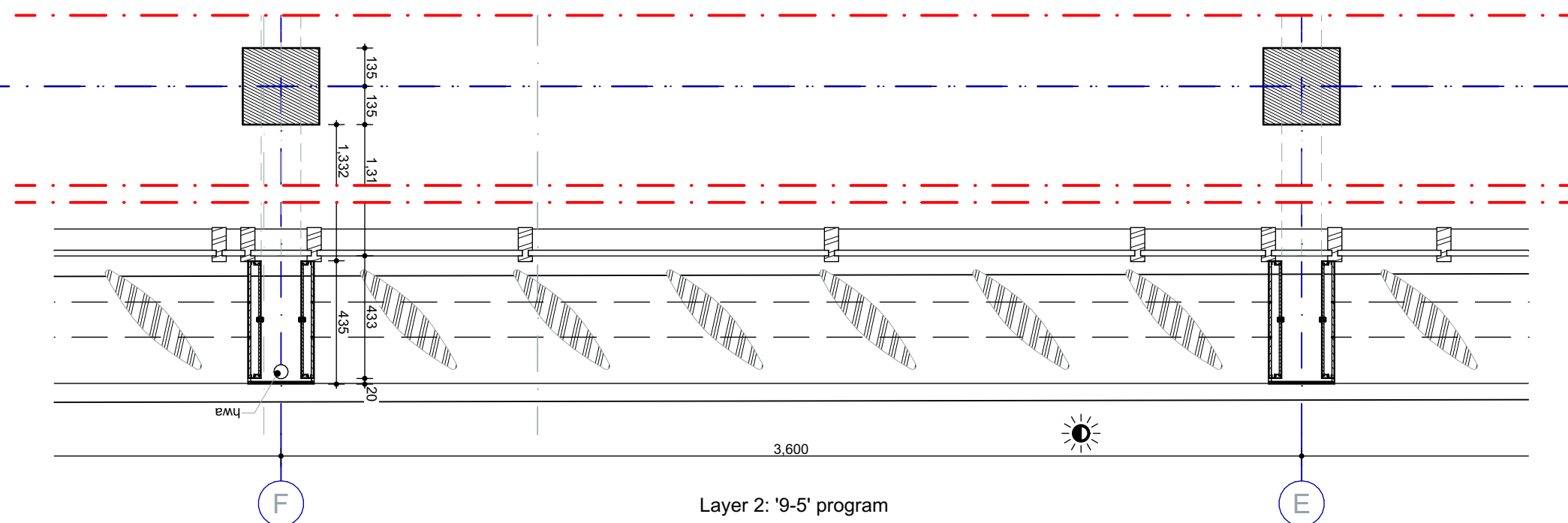
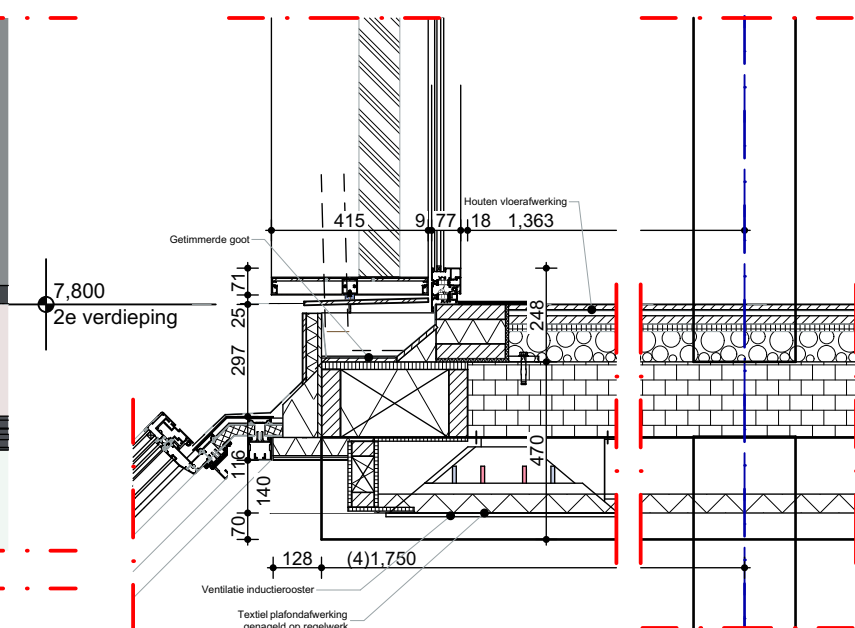
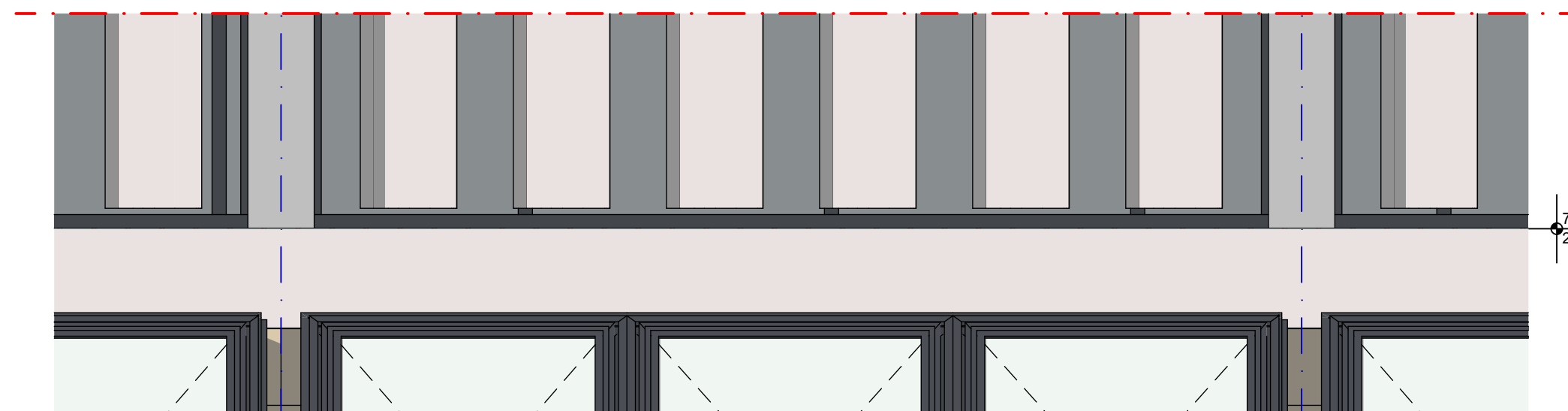
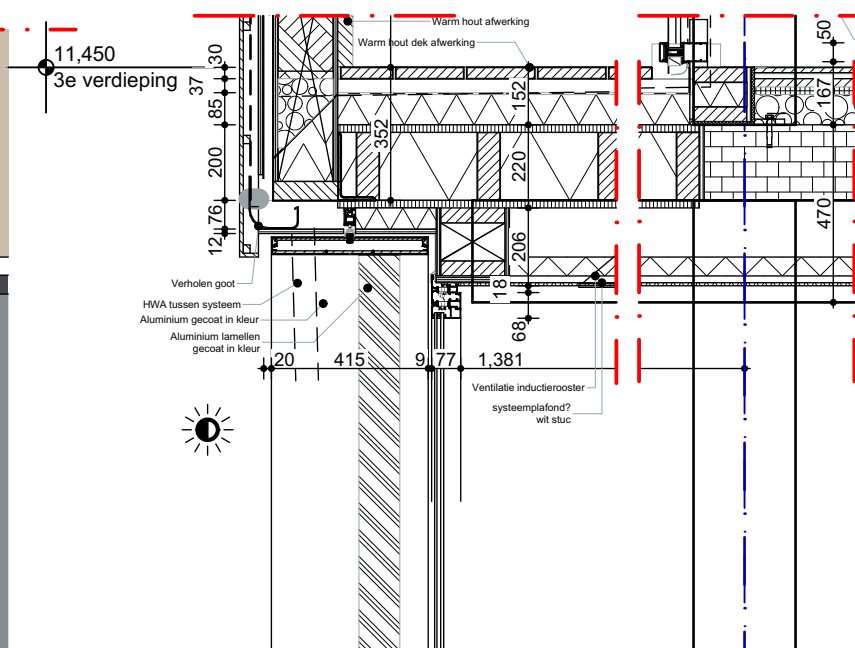
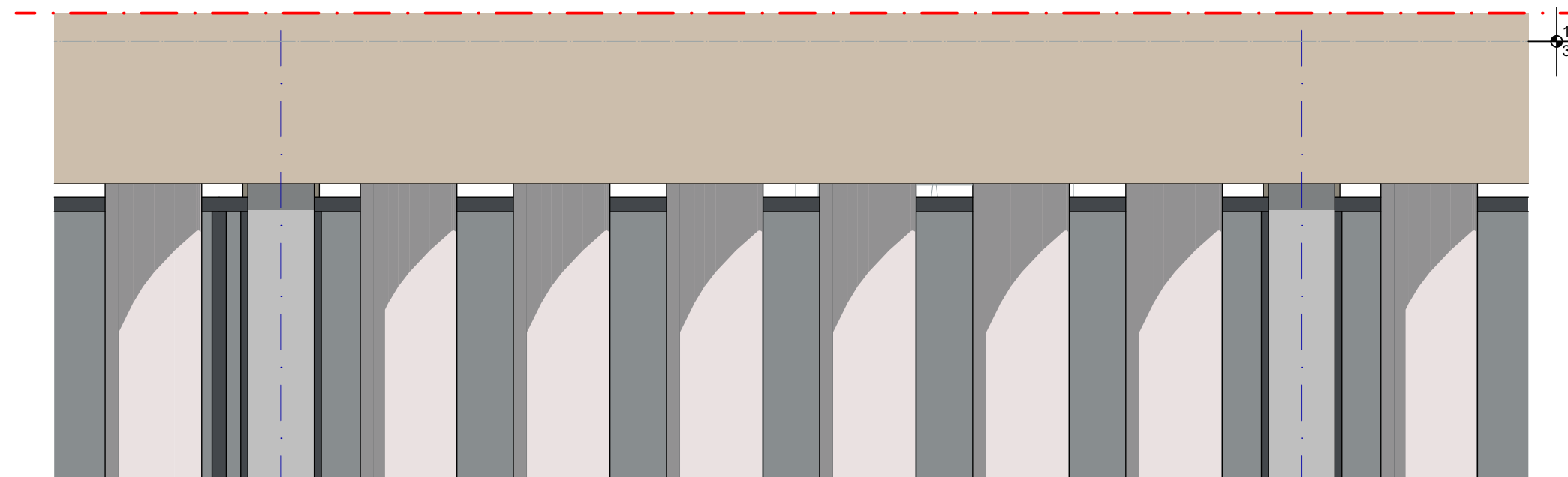


Rotatable shading: Storax

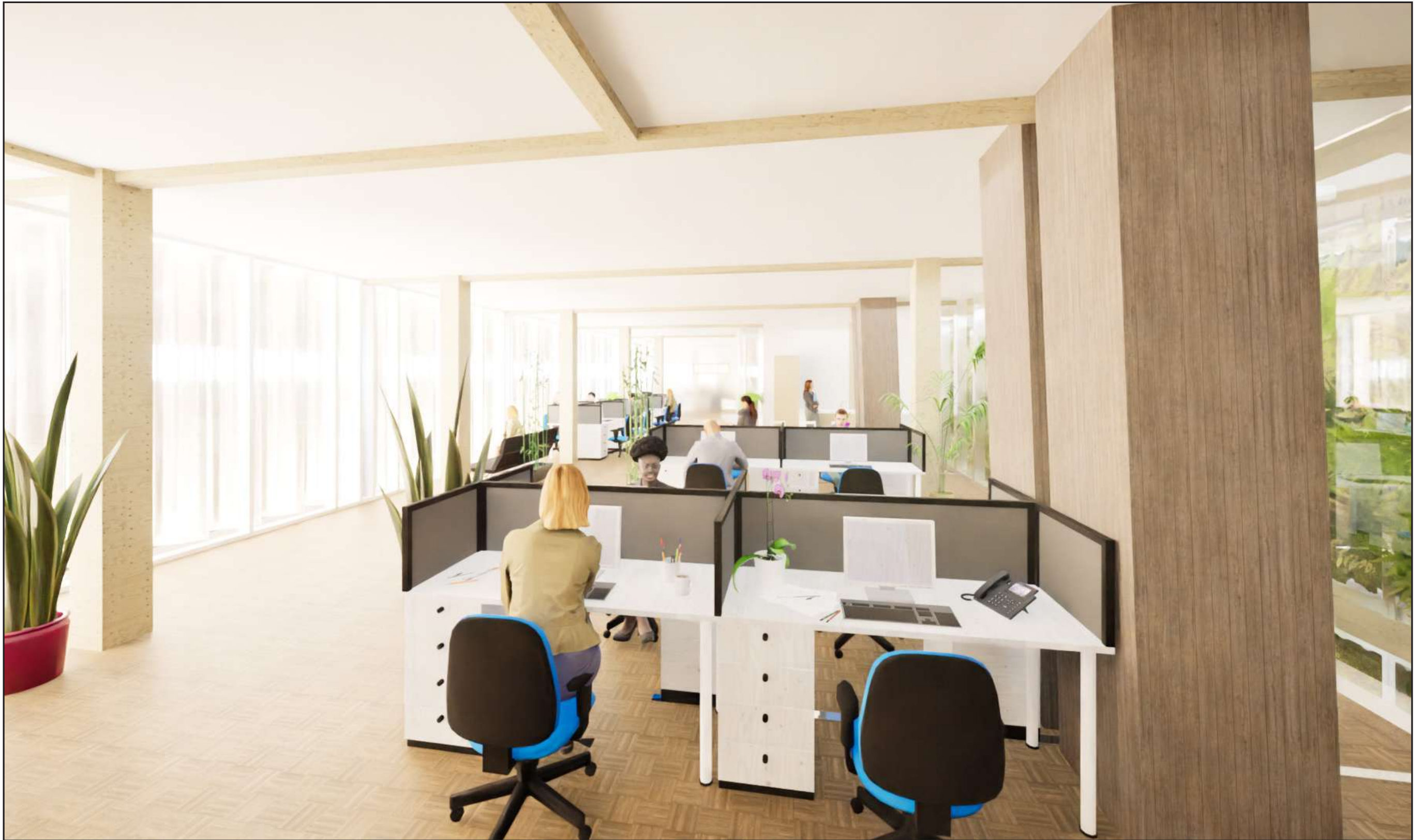
Vibe



Green & Clean office



Open officeplan

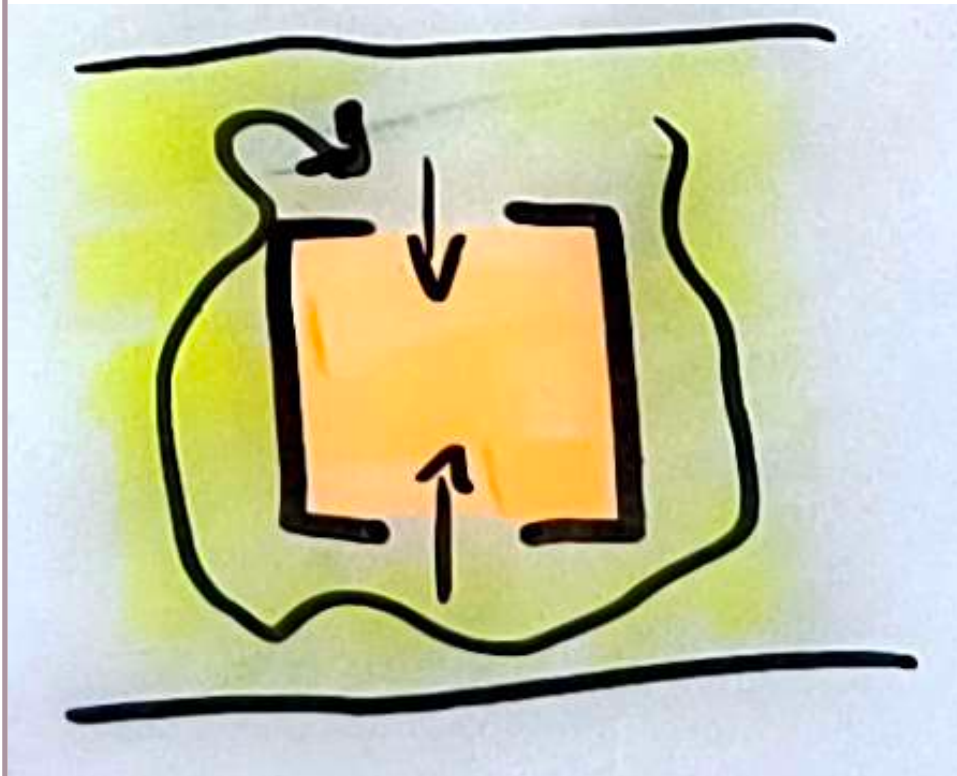


Office interaction



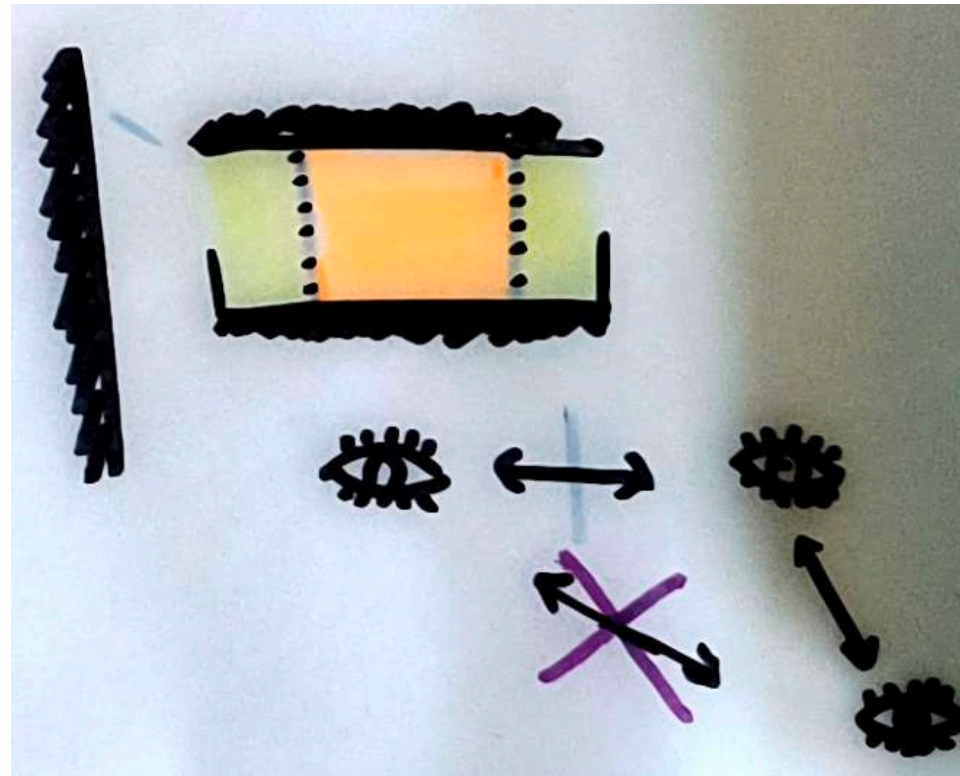
Facility program

Wayfinding



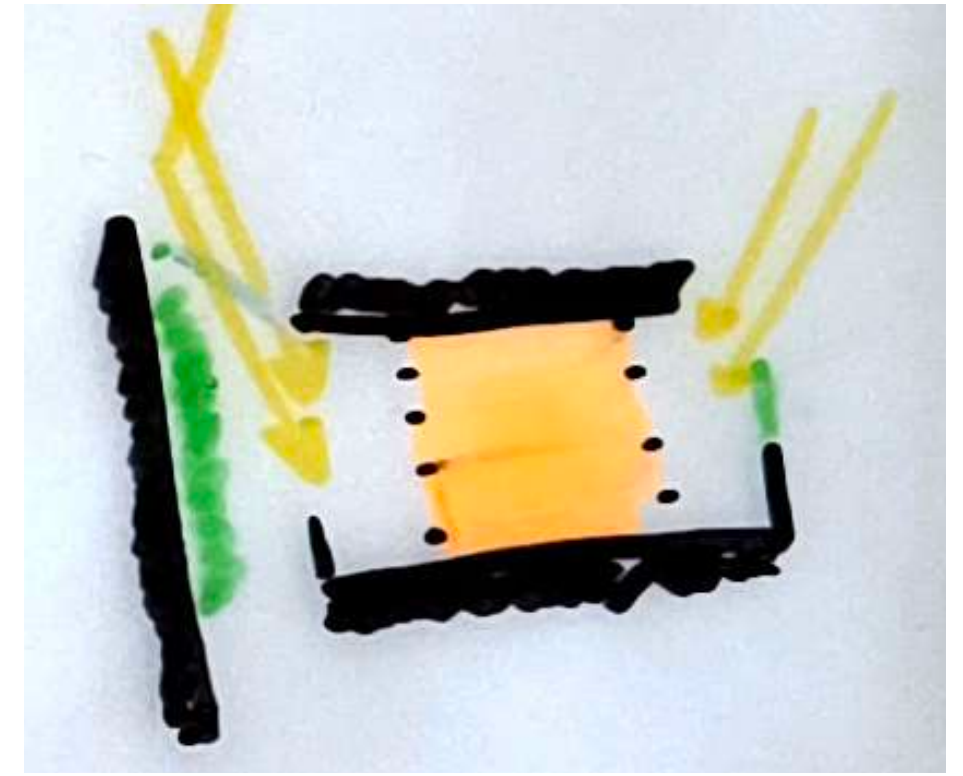
Distinct and separate functions allow clear identification of 'that' room

Openness

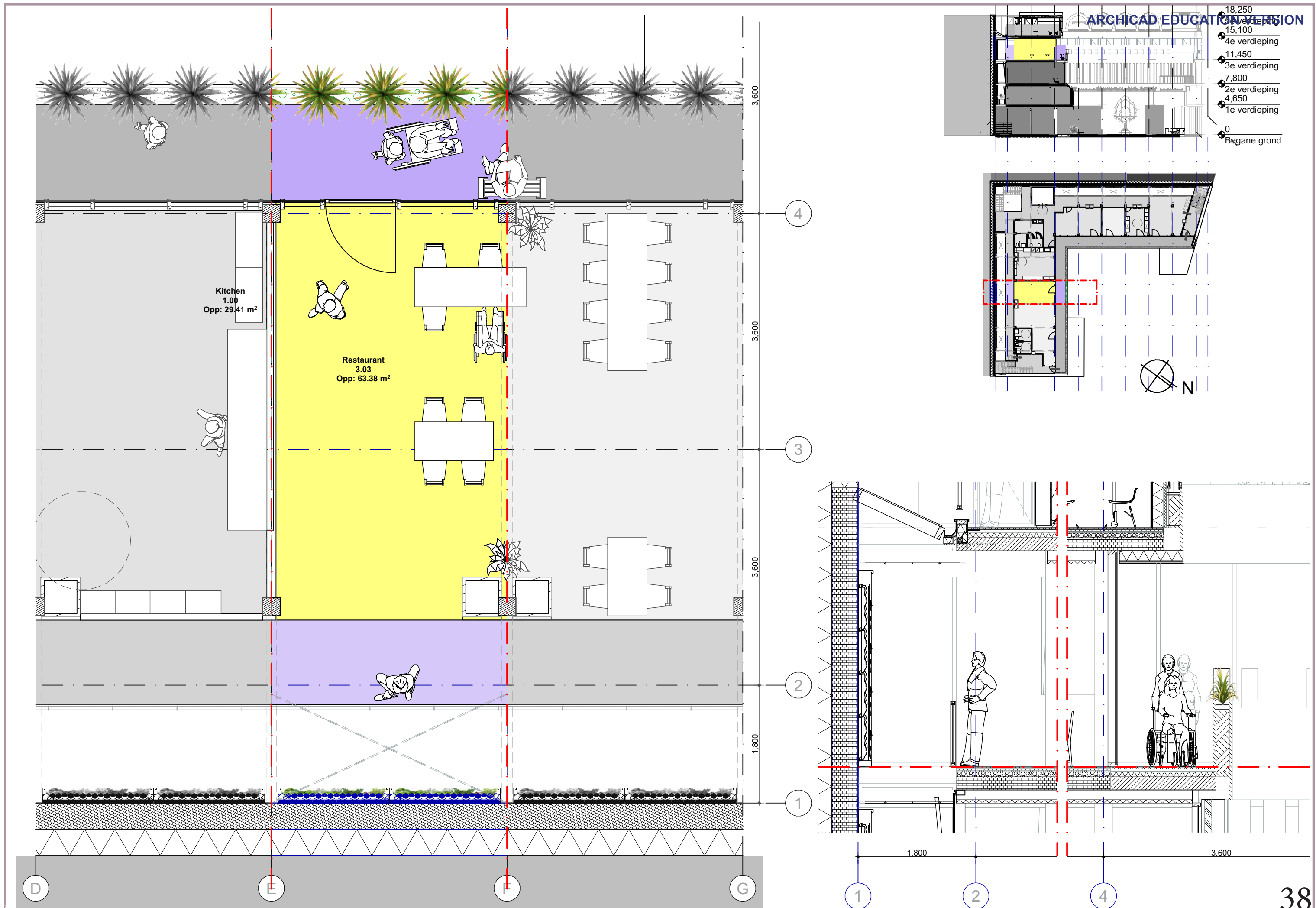


Stimulate contact on the floor by allowing contact with people that pass by

Light & Greenery



Light and greenery stimulates a communal vibe

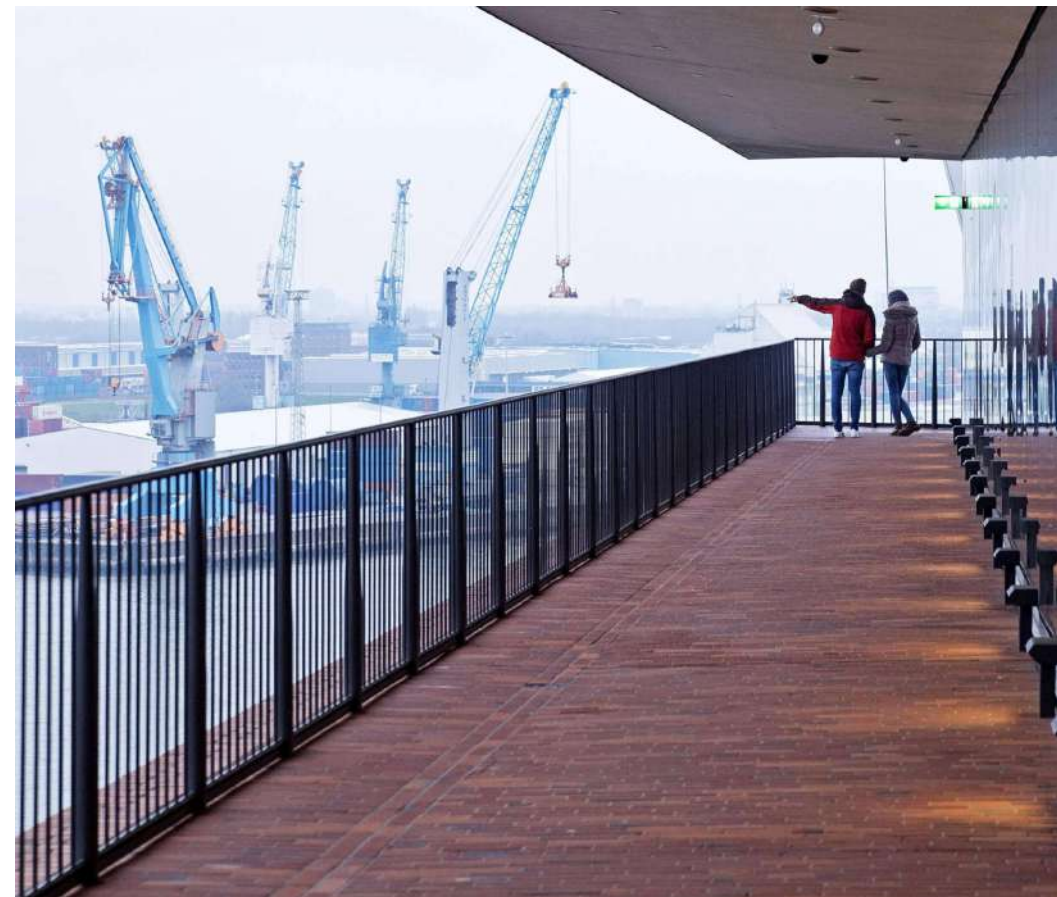


Materialisation



Wood & fabric

Reference

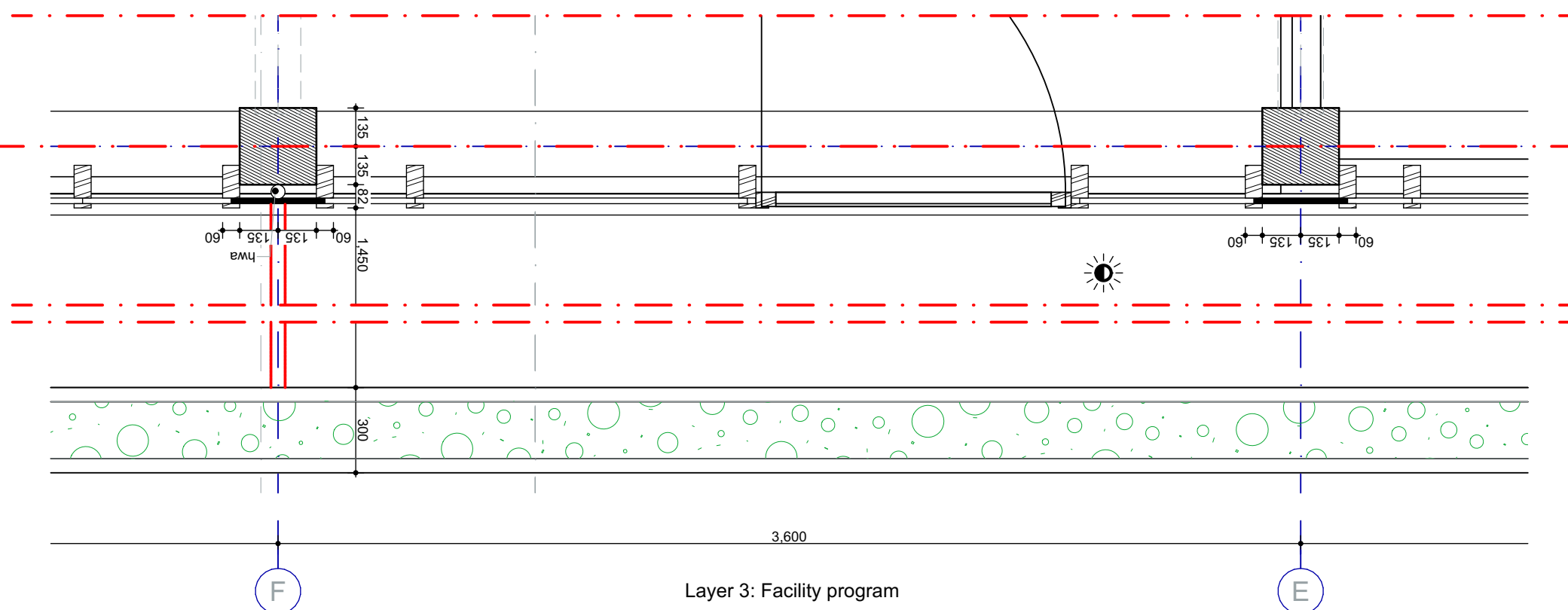
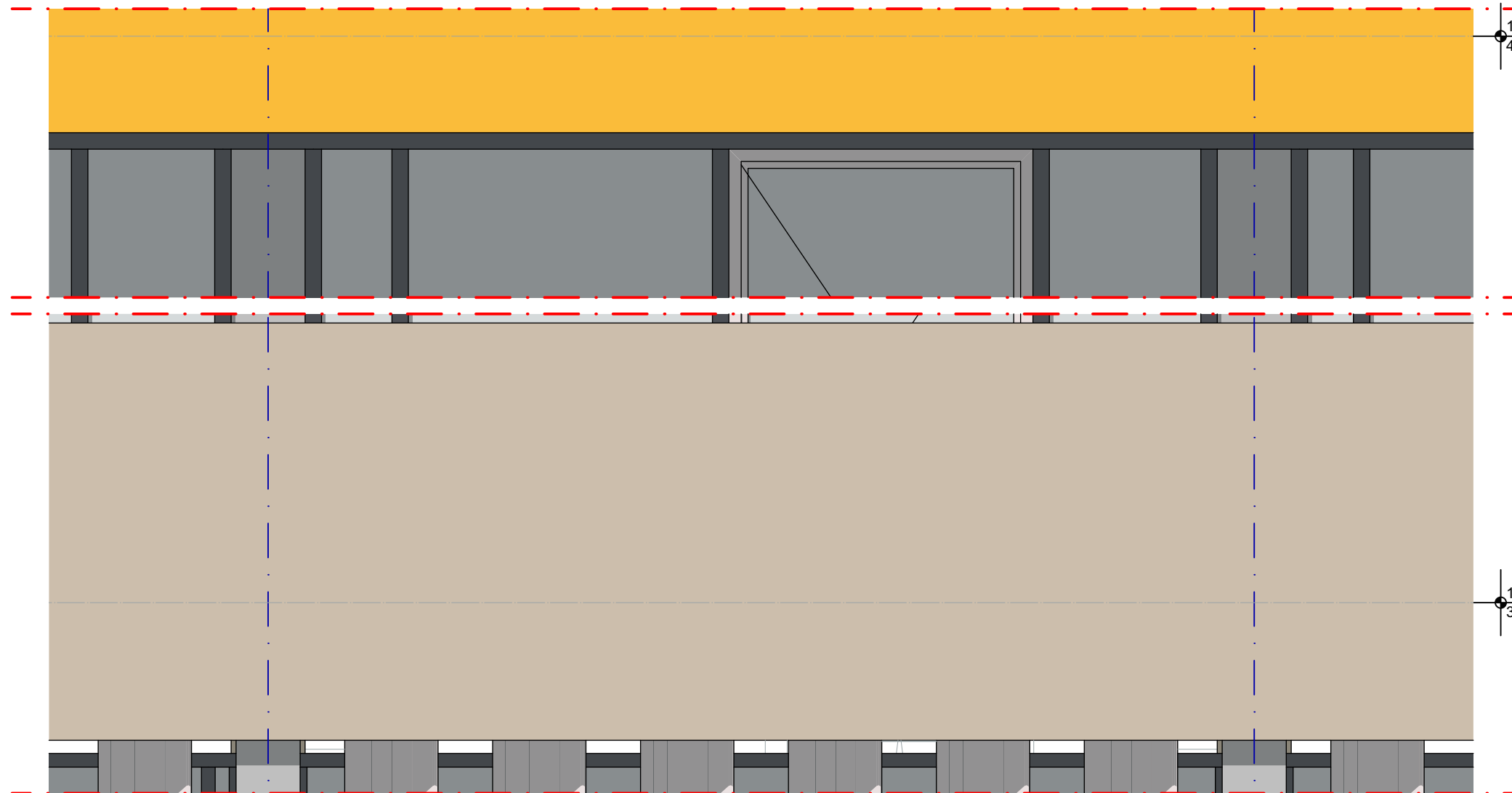


Open & connected

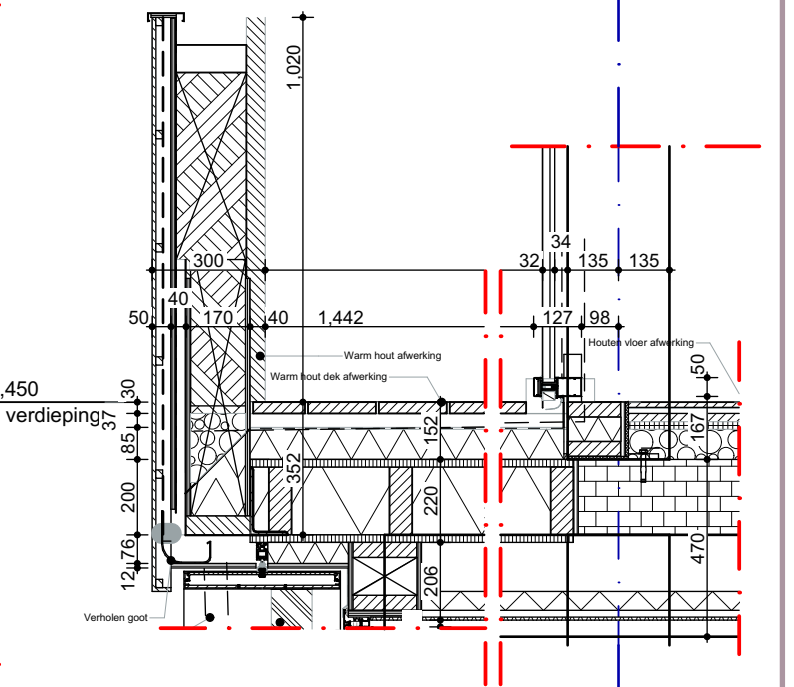
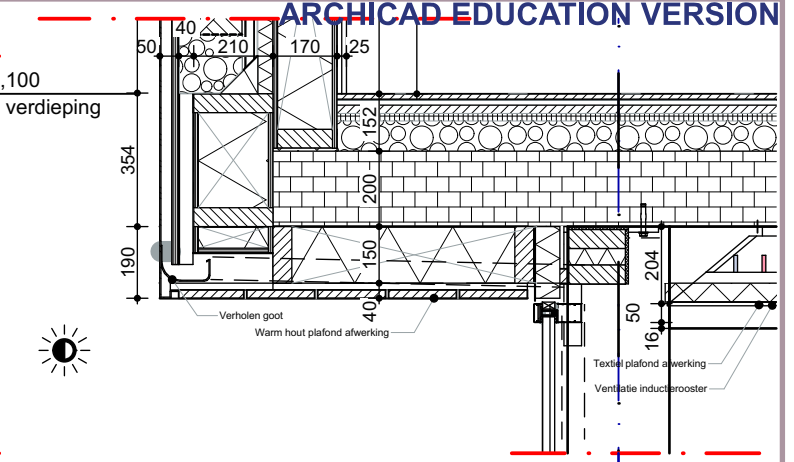
Vibe



acesable & cozy

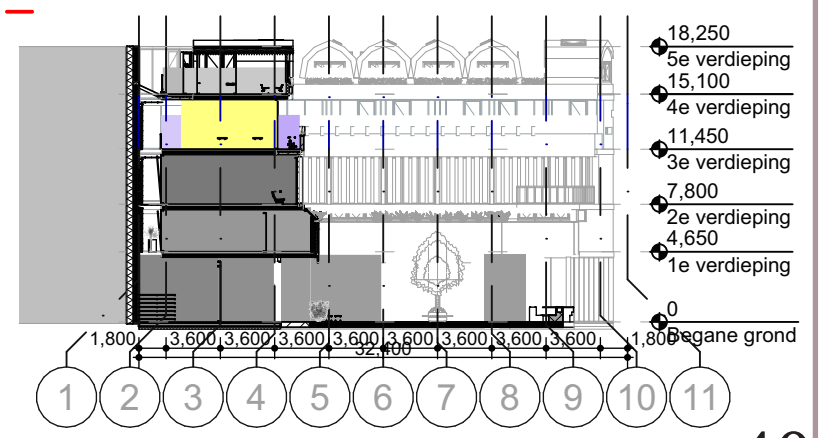


Layer 3: Facility program



Bouwkundige toepassingen

Installaties: HWA via groenbak
 Toegepaste onderdelen: Overstek
 Toegepaste onderdelen: Geïsoleerde vloer
 Montagetechniek: Elementverankering



Green wall vide



Outside connection gallery

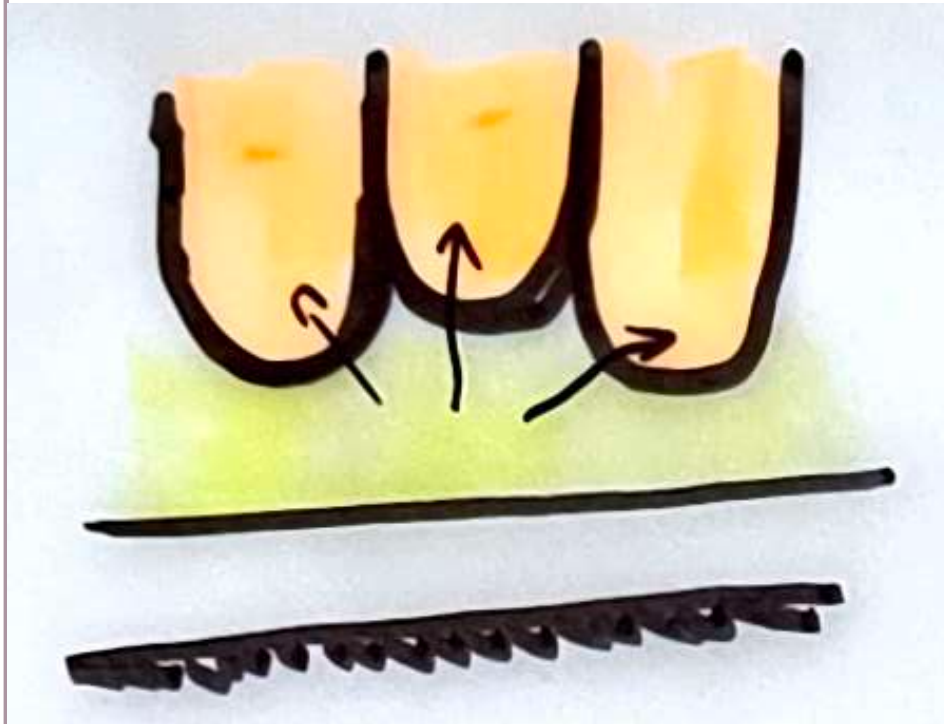


Connection to last floor



Care program

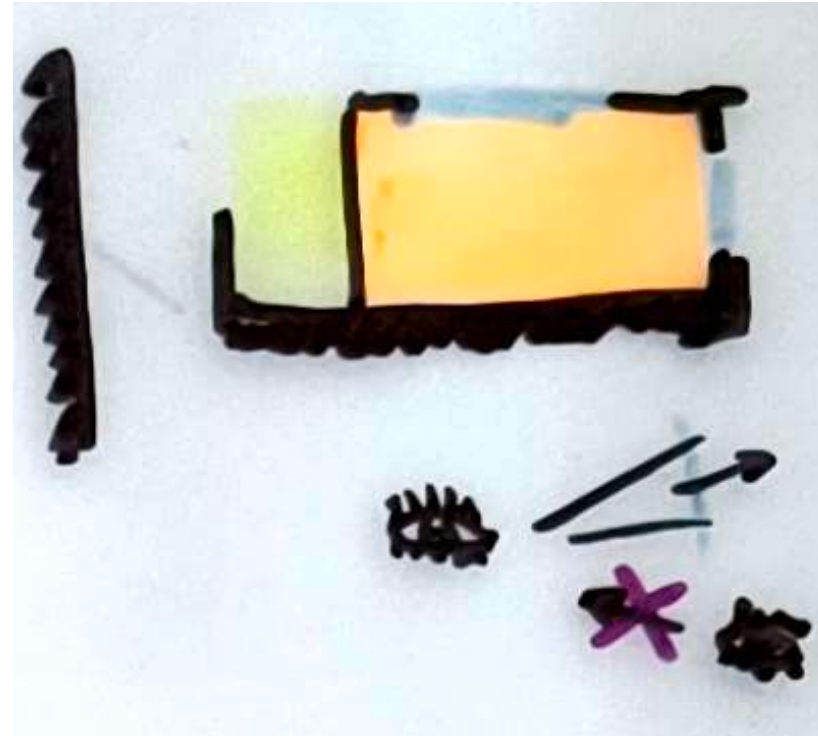
Wayfinding



Give private spaces a distinct form, a 'cocoon' stimulates a private feeling

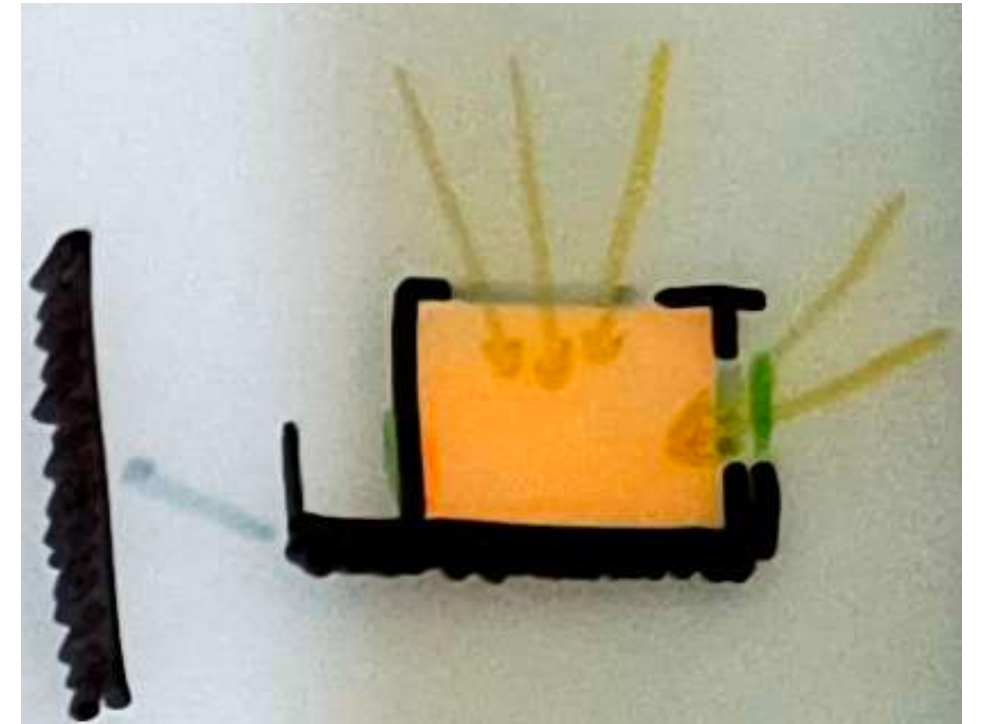
Communal entrance spaces stimulate contact between temporary residents

Openness

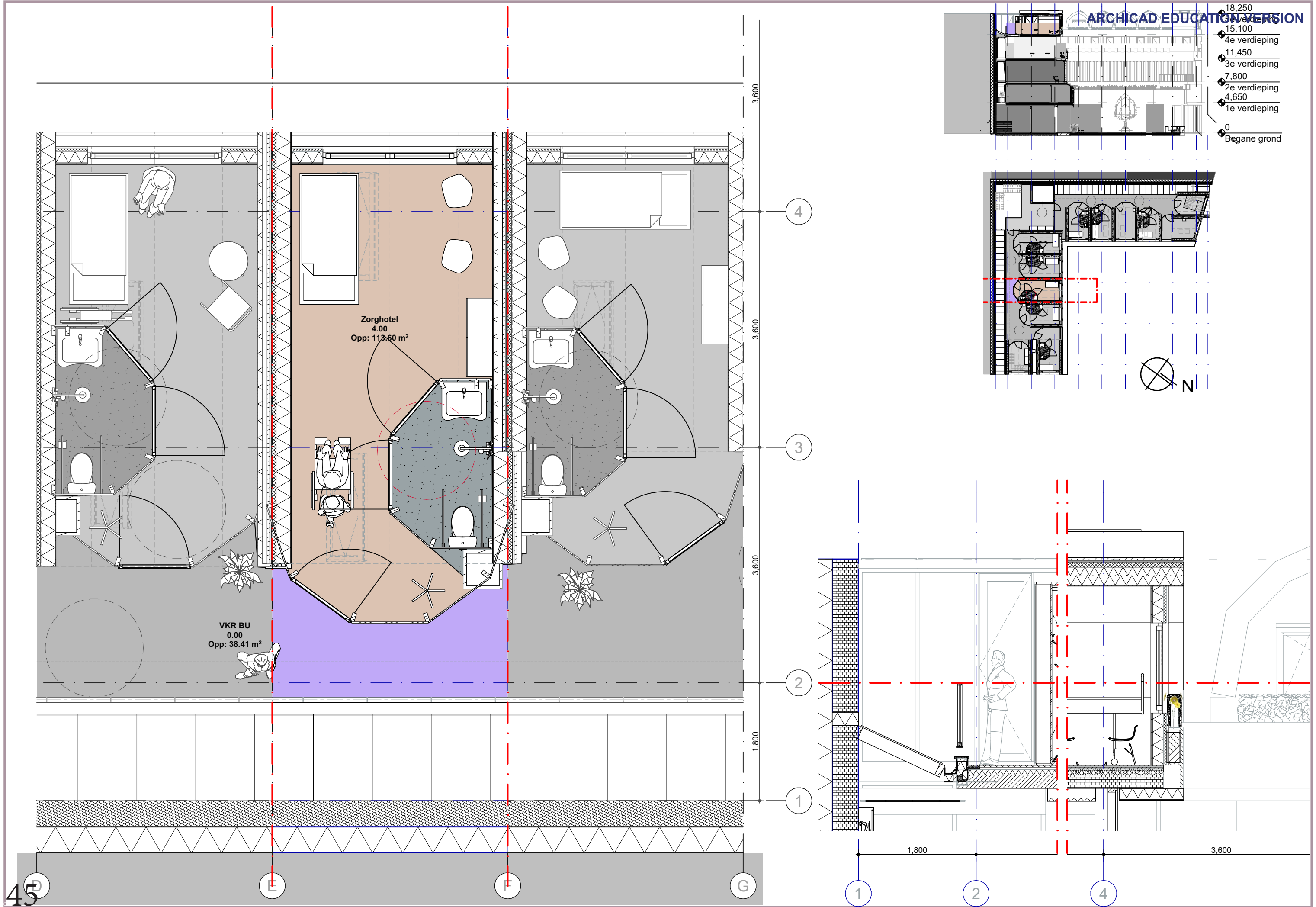


Entering from the open air creates a bigger contrast with the private bubble

Light & Greenery



Rooflights allow light and space without any visual intrusion. Bed high windows allow for a landscape view.



Materialisation



Identifyable & Homey
Aluminium & wood/
fabric

Reference

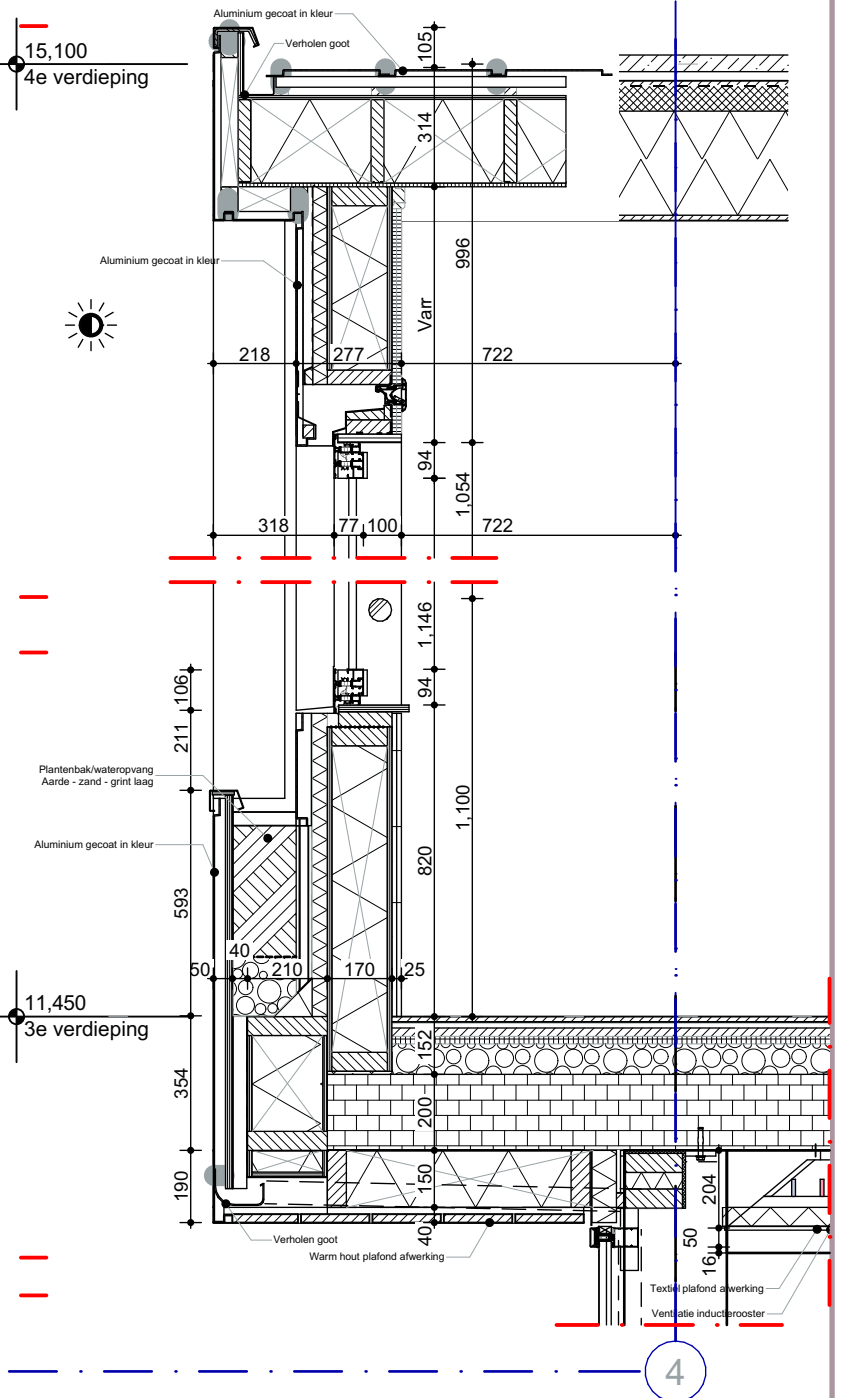
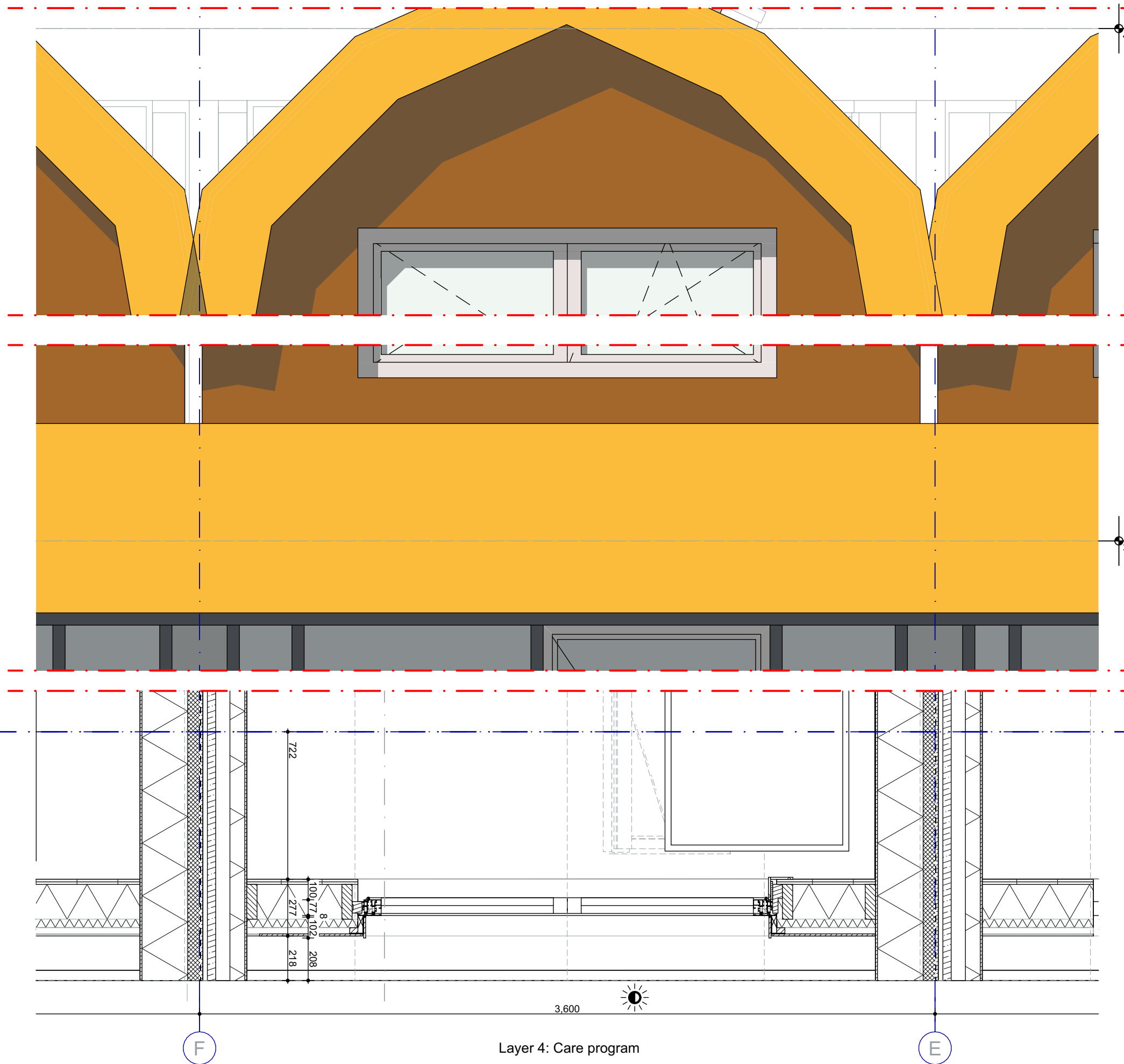


Personal recovery rooms

Vibe

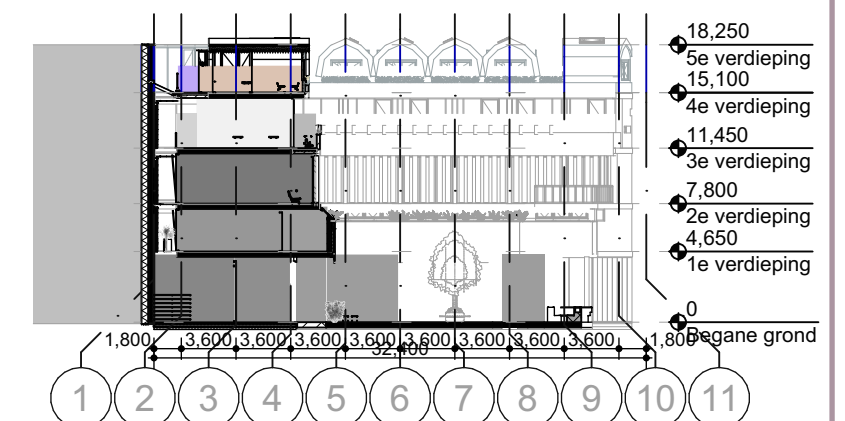


Protected & open



Bouwkundige toepassingen

Installaties: Ventilatie rooster
 Installaties: HWA via groenbak
 Toegepaste onderdelen: Waterslag
 Montagetechniek: Kozijnverankering



Open private gallery



Recovery rooms



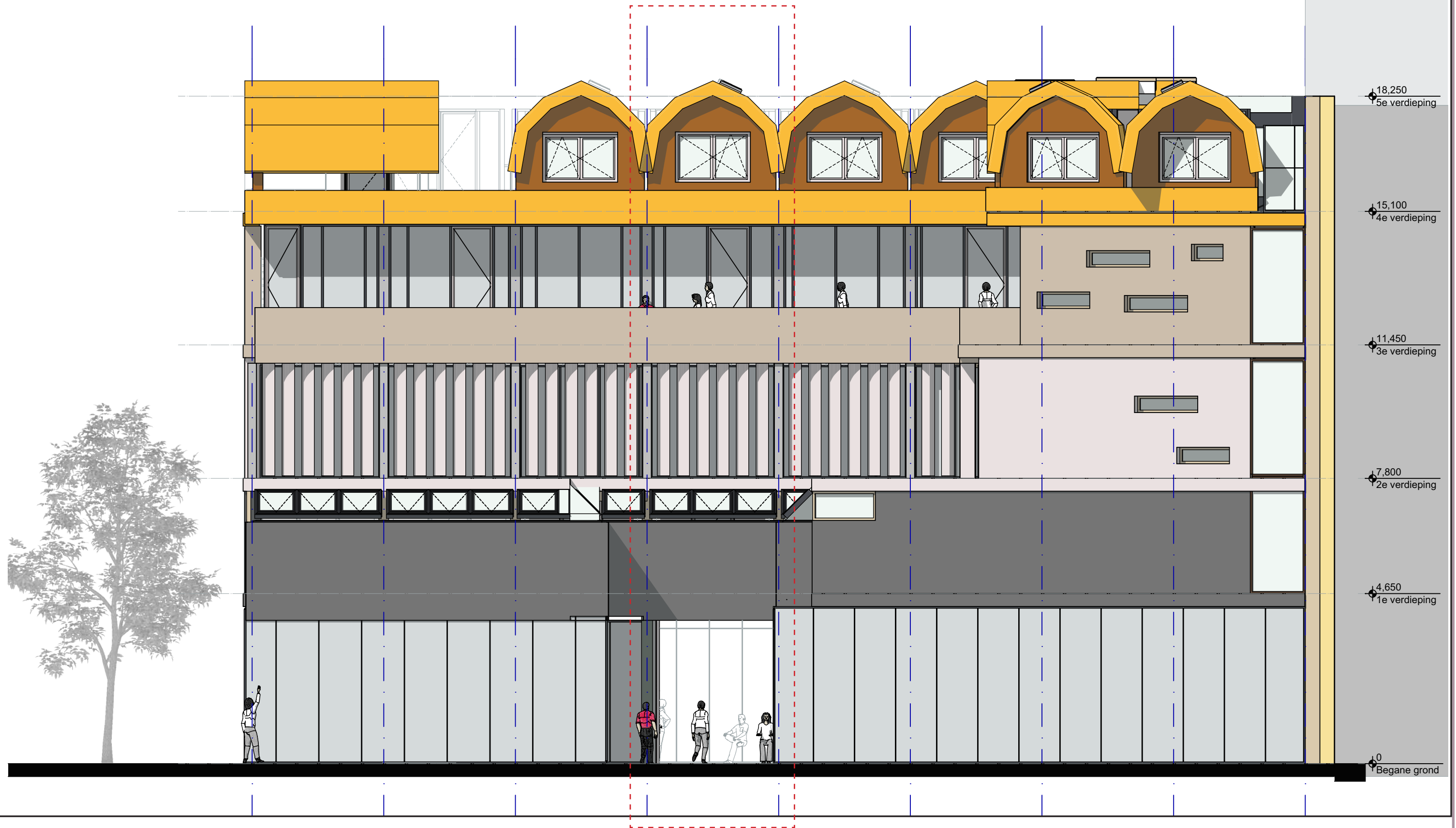
Landmark staircase going down



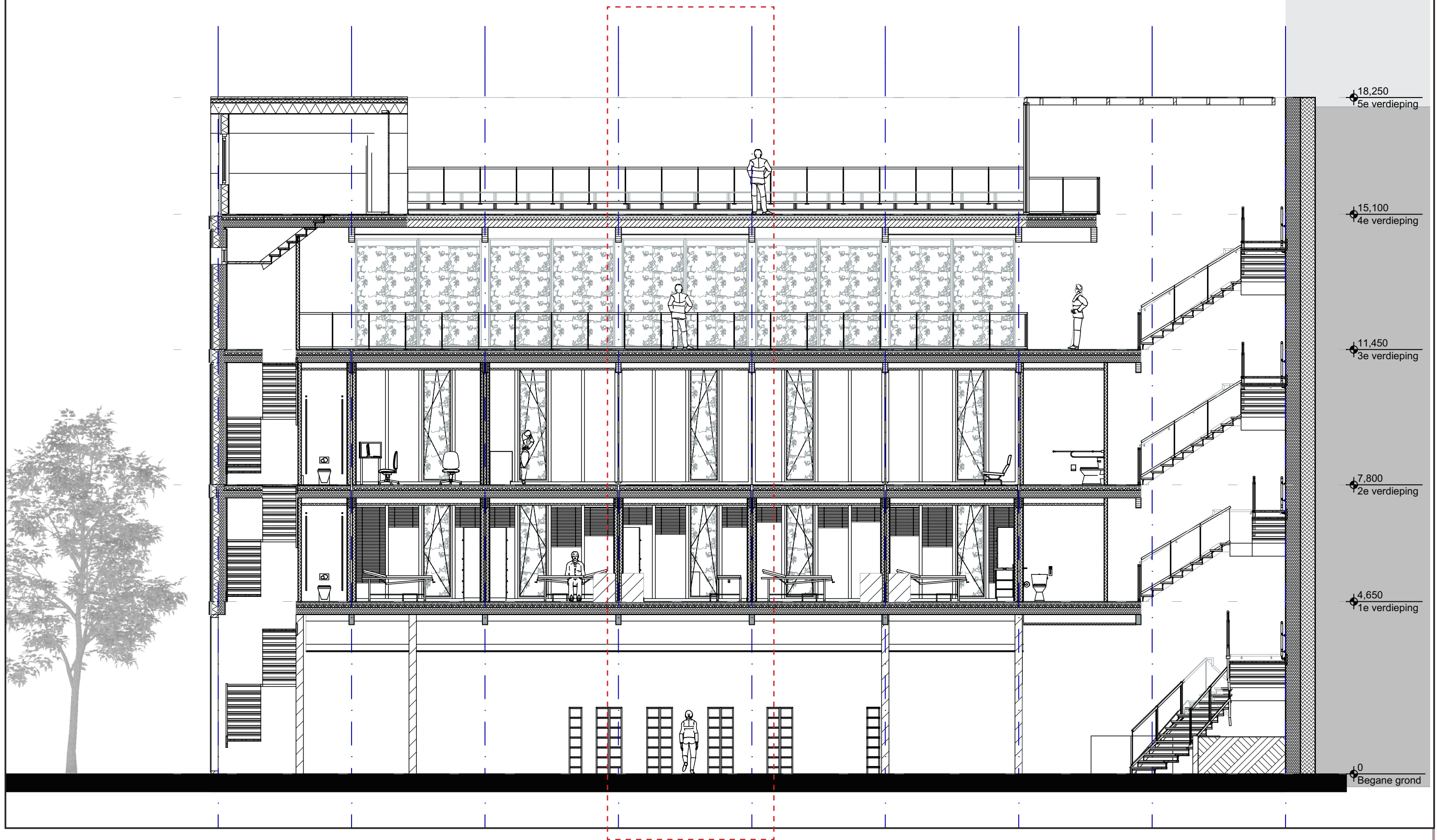
Architectural design



Right facade



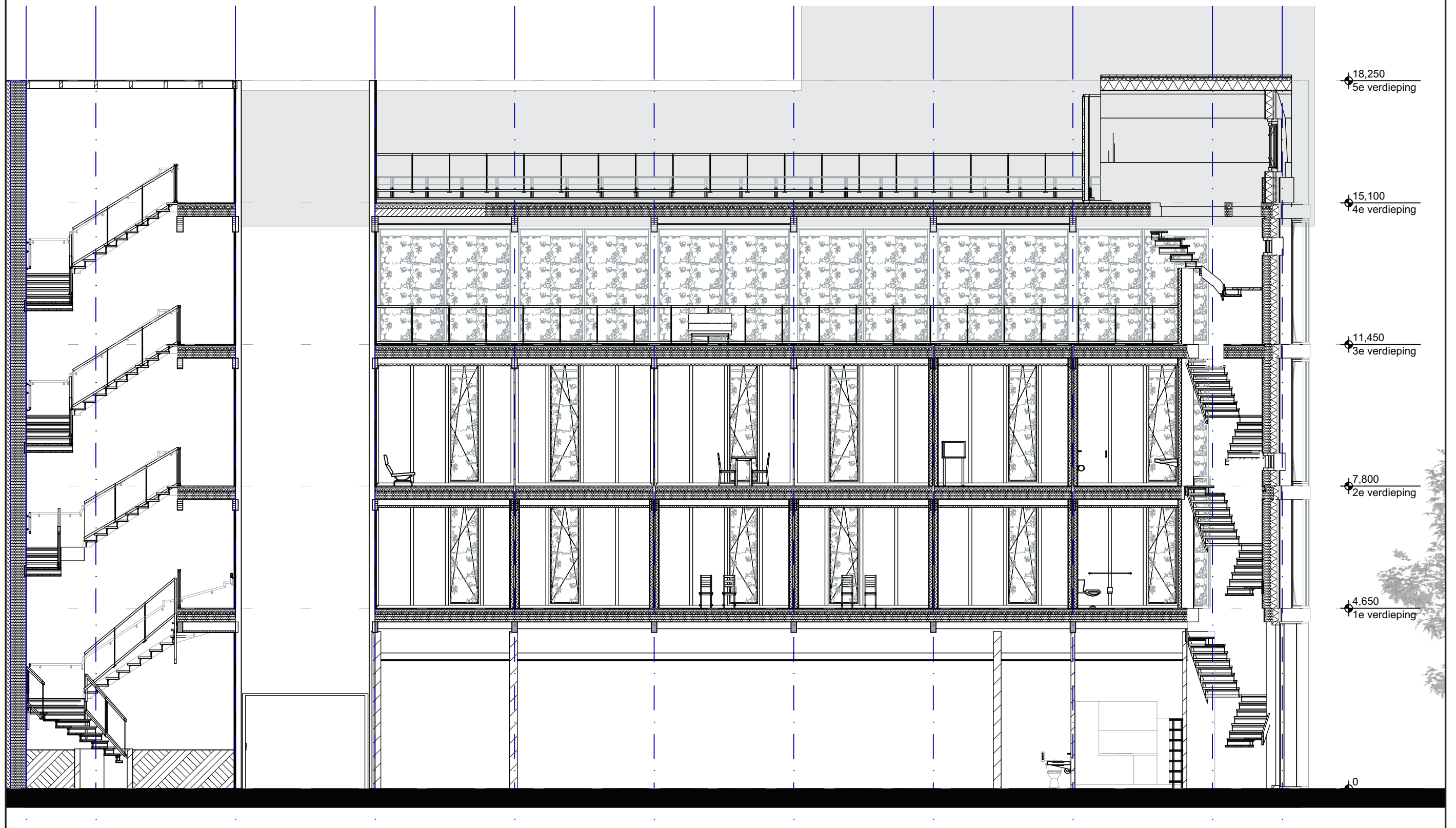
Right section



Left facade

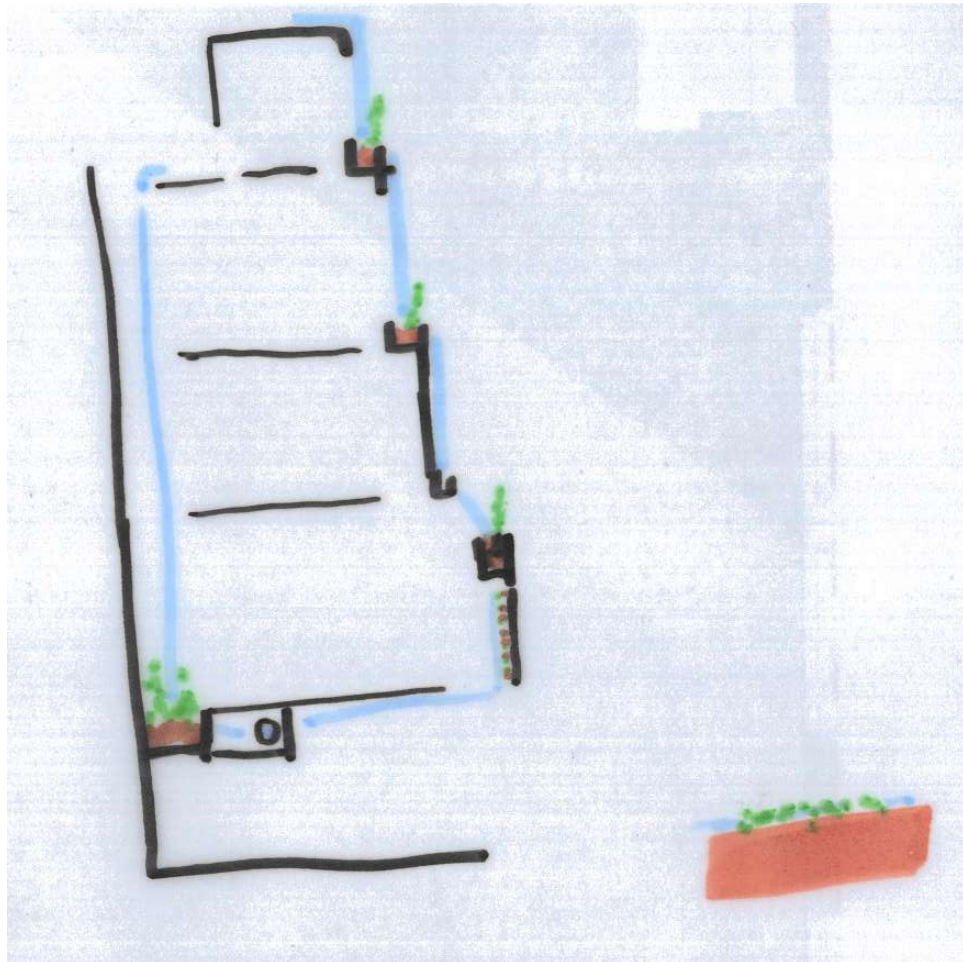


Left section



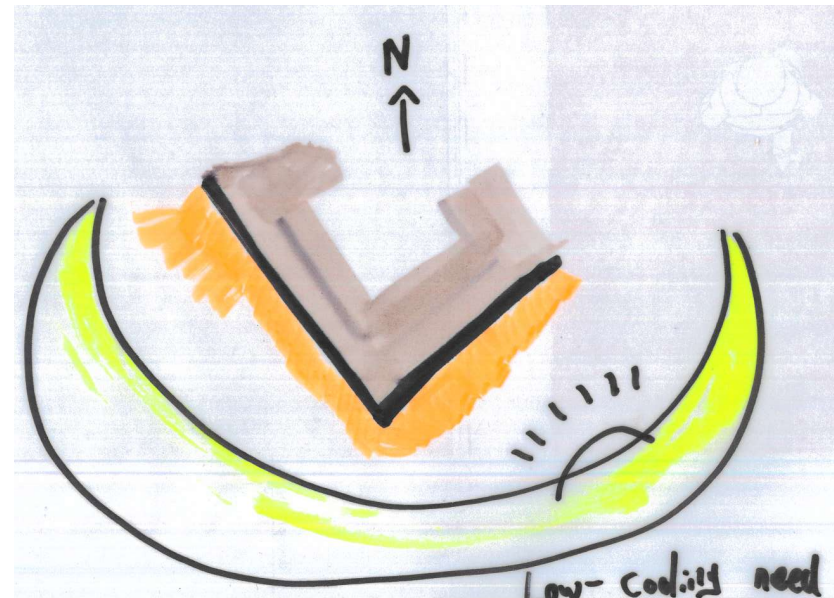
Climate design

Water retainment



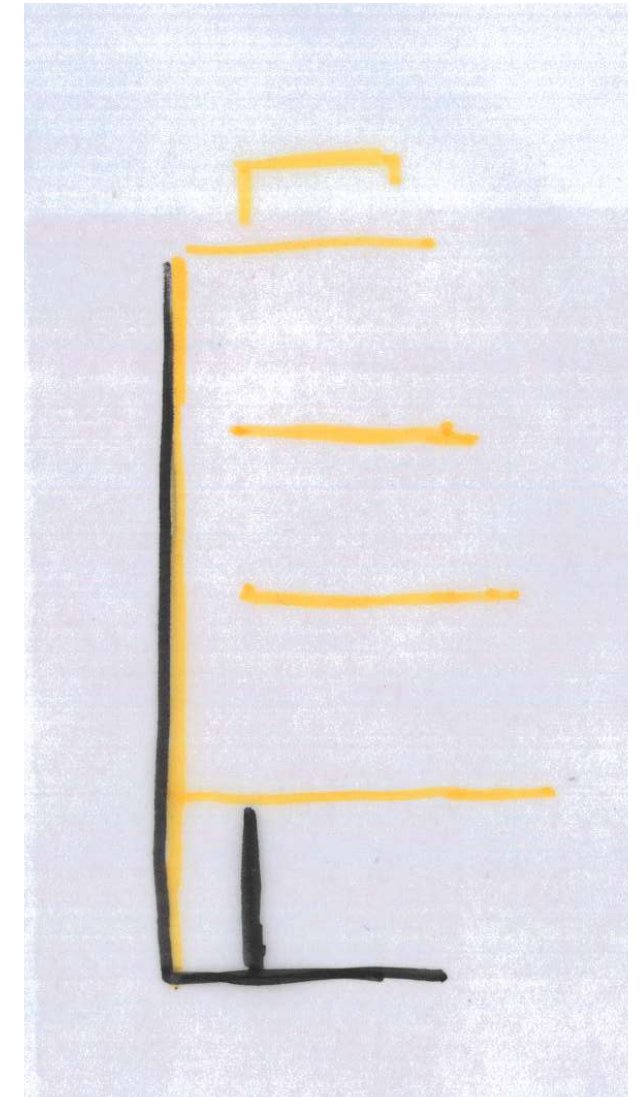
Water runs through planters and purification filters before being recycled for washing & flushing.

Orientation



The northern orientation reduces the need for cooling

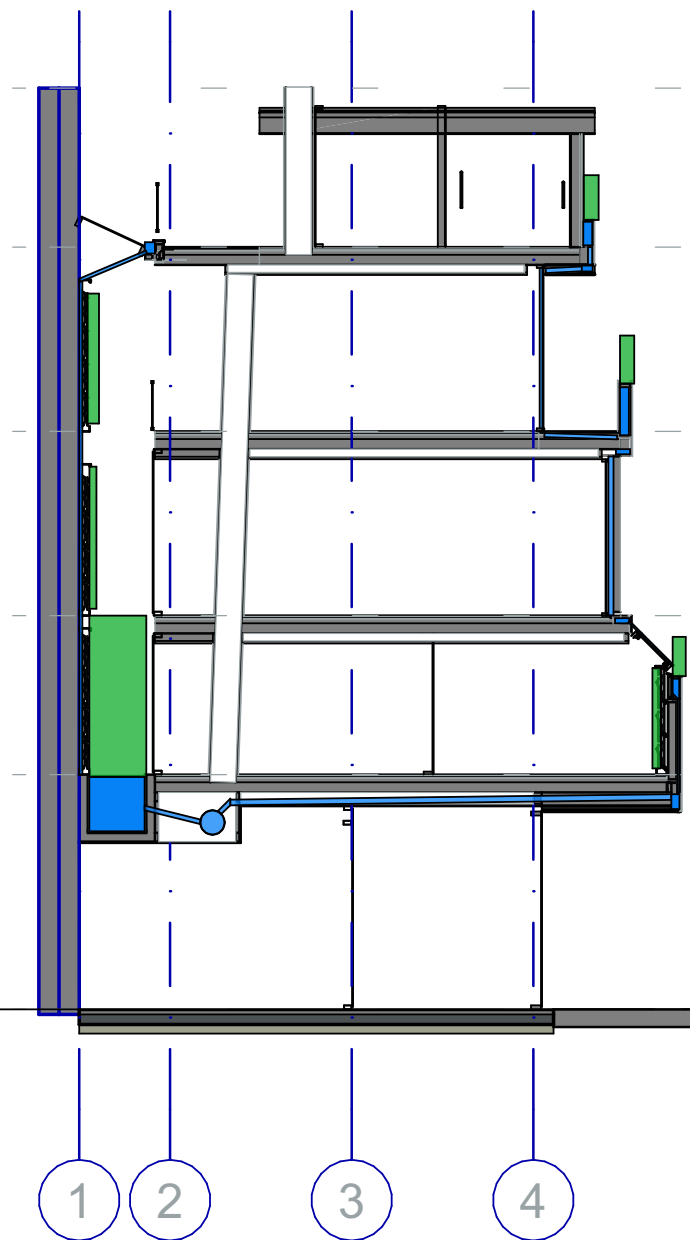
Thermal mass



A low thermal mass allows spaces to cool and warm quickly adding to flexible use

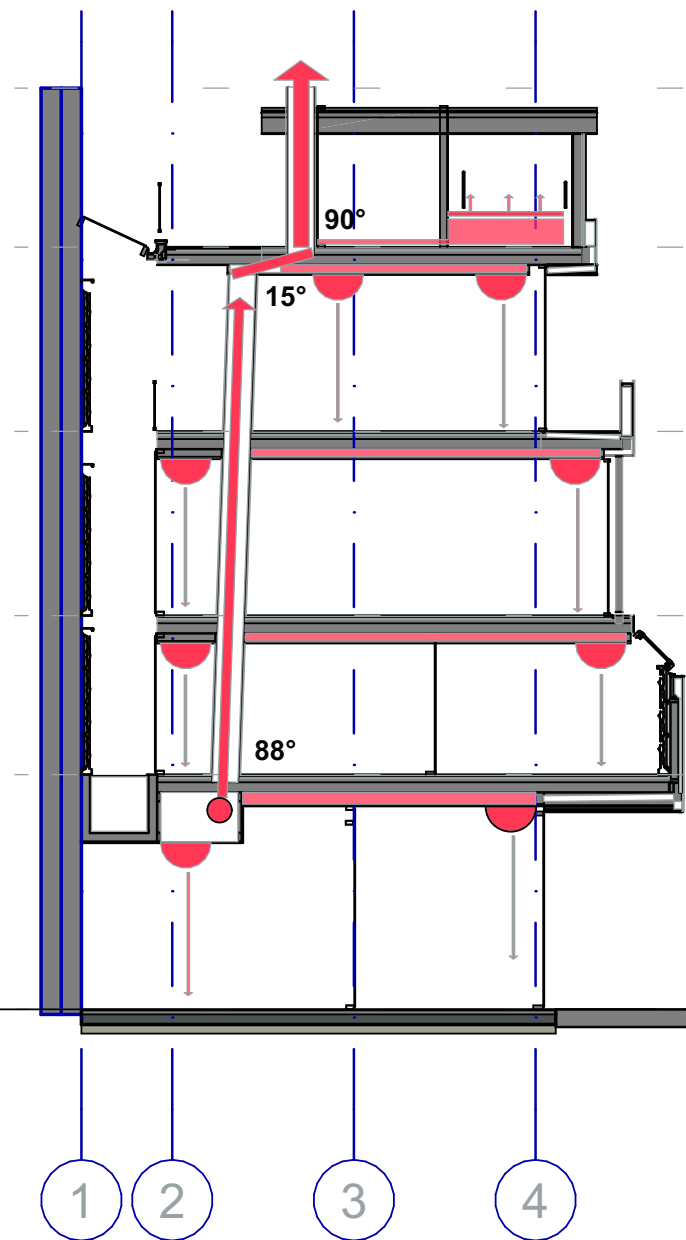
Climate design implemented

Water recovery



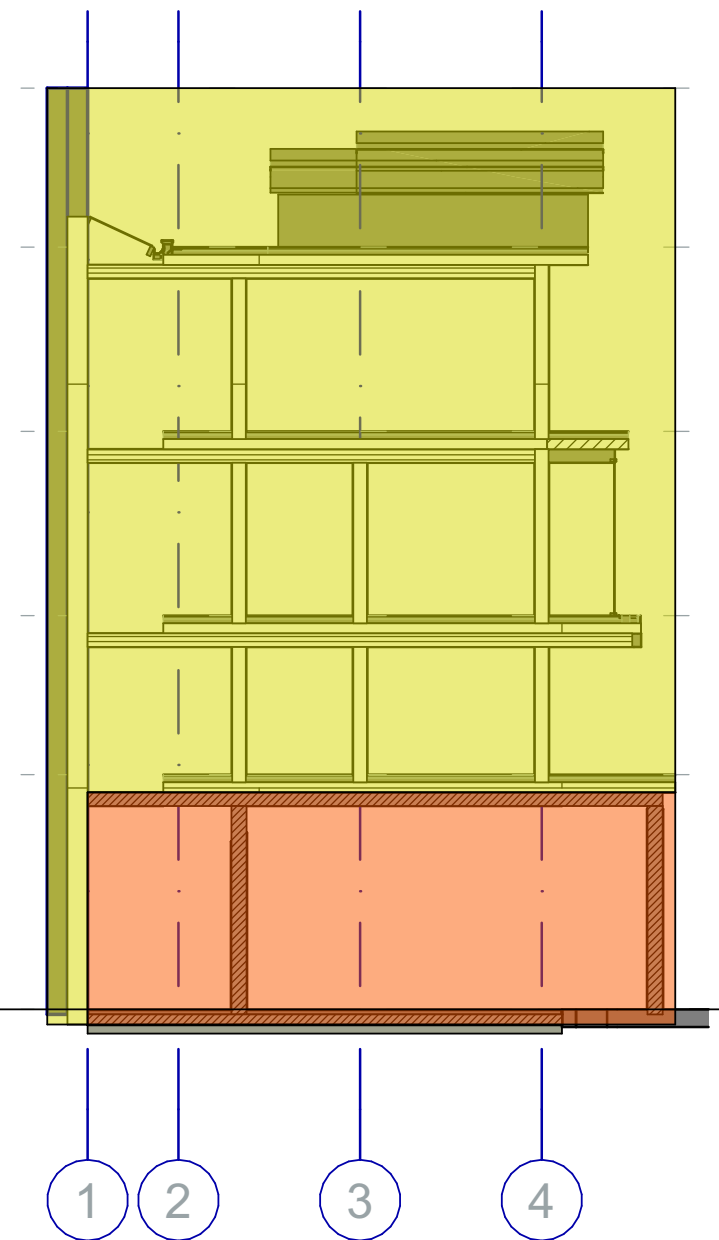
Retainment&reuse

heating



Ventilational heating

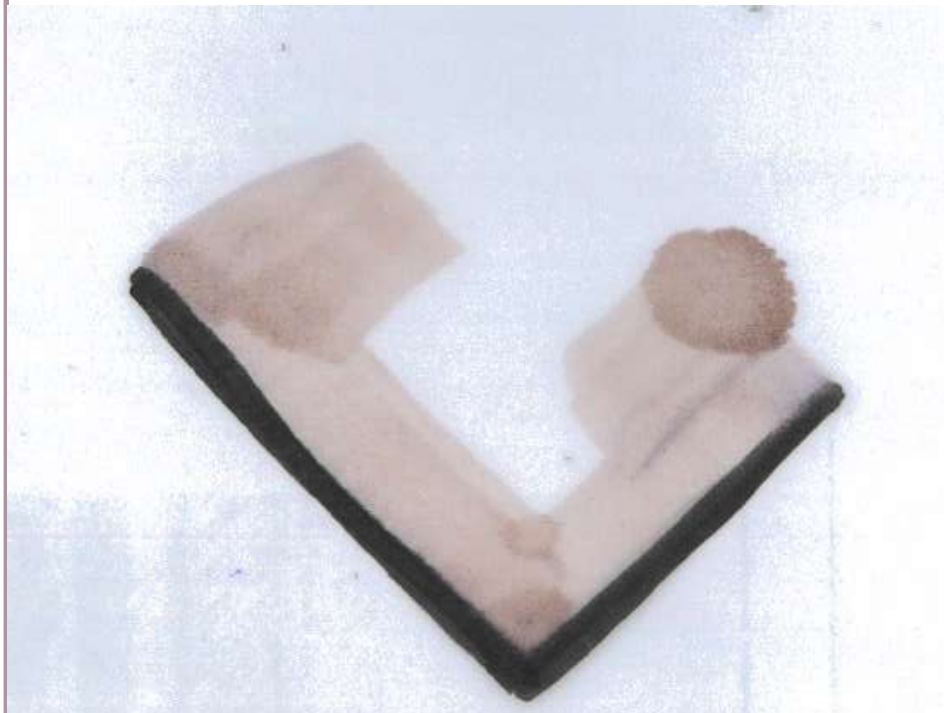
Thermal mass



Wood and concrete

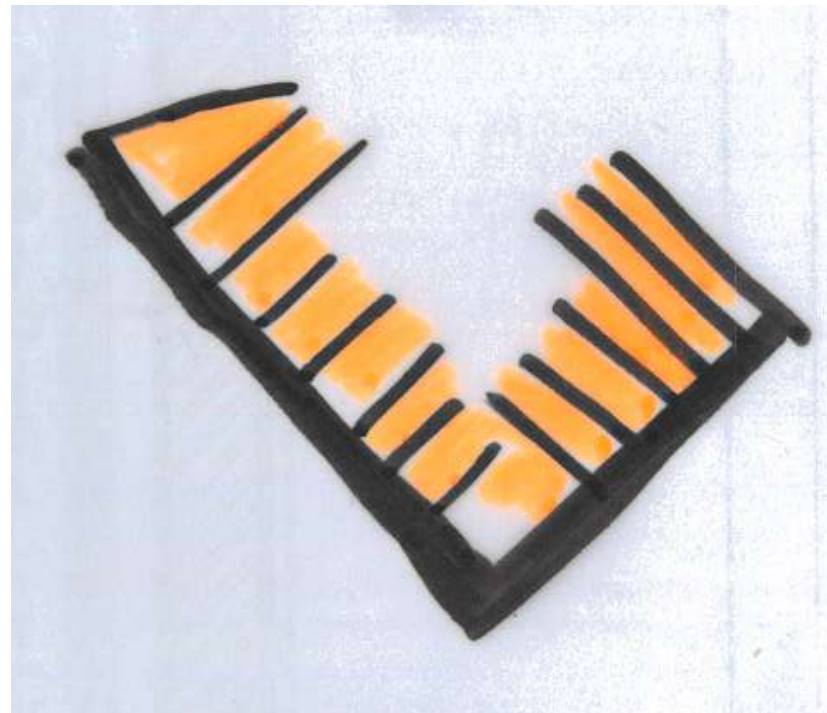
Structural design

Stability



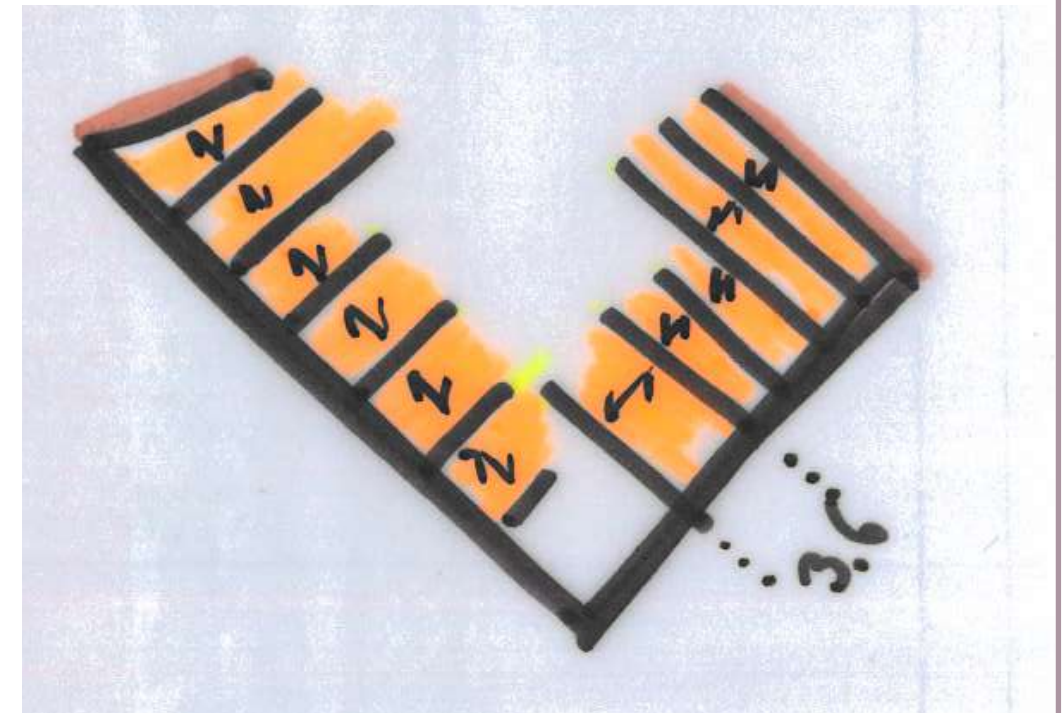
The corner allows for a fixed connection of structural elements in two directions

Floors



Beams fixed in the stability walls carry floors parallel to it also allowing cantilevers

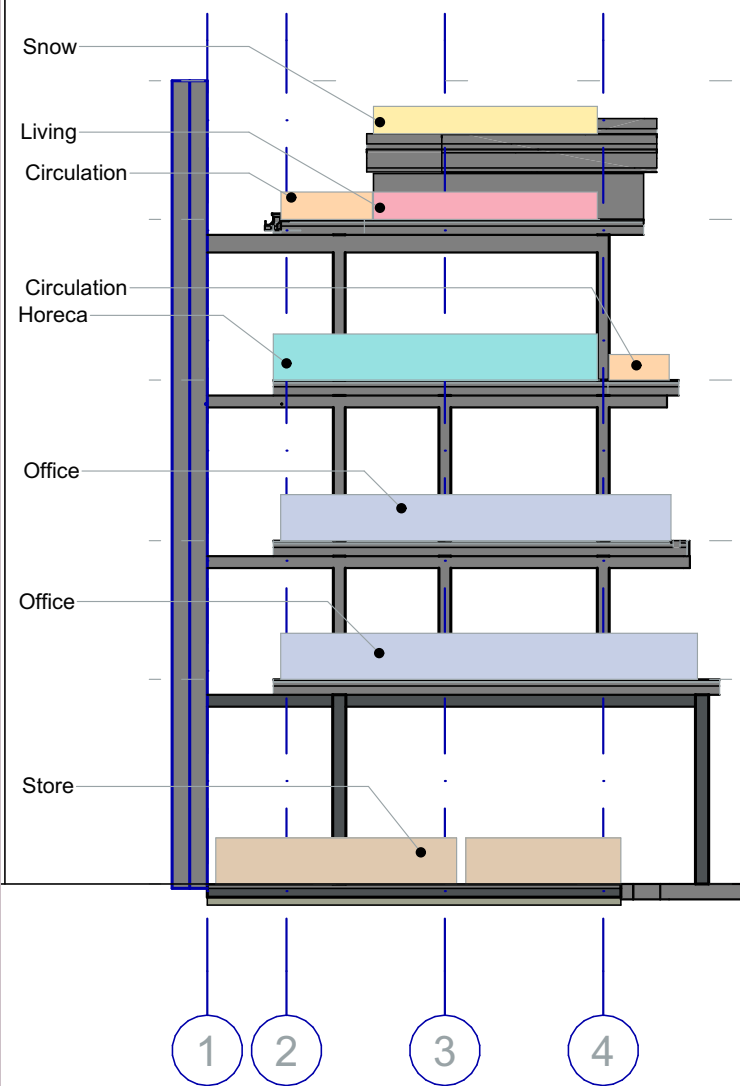
Columns, beams & Loadbearing walls



A grid of 3.6m makes wooden structural elements suffice in loadbearing qualities

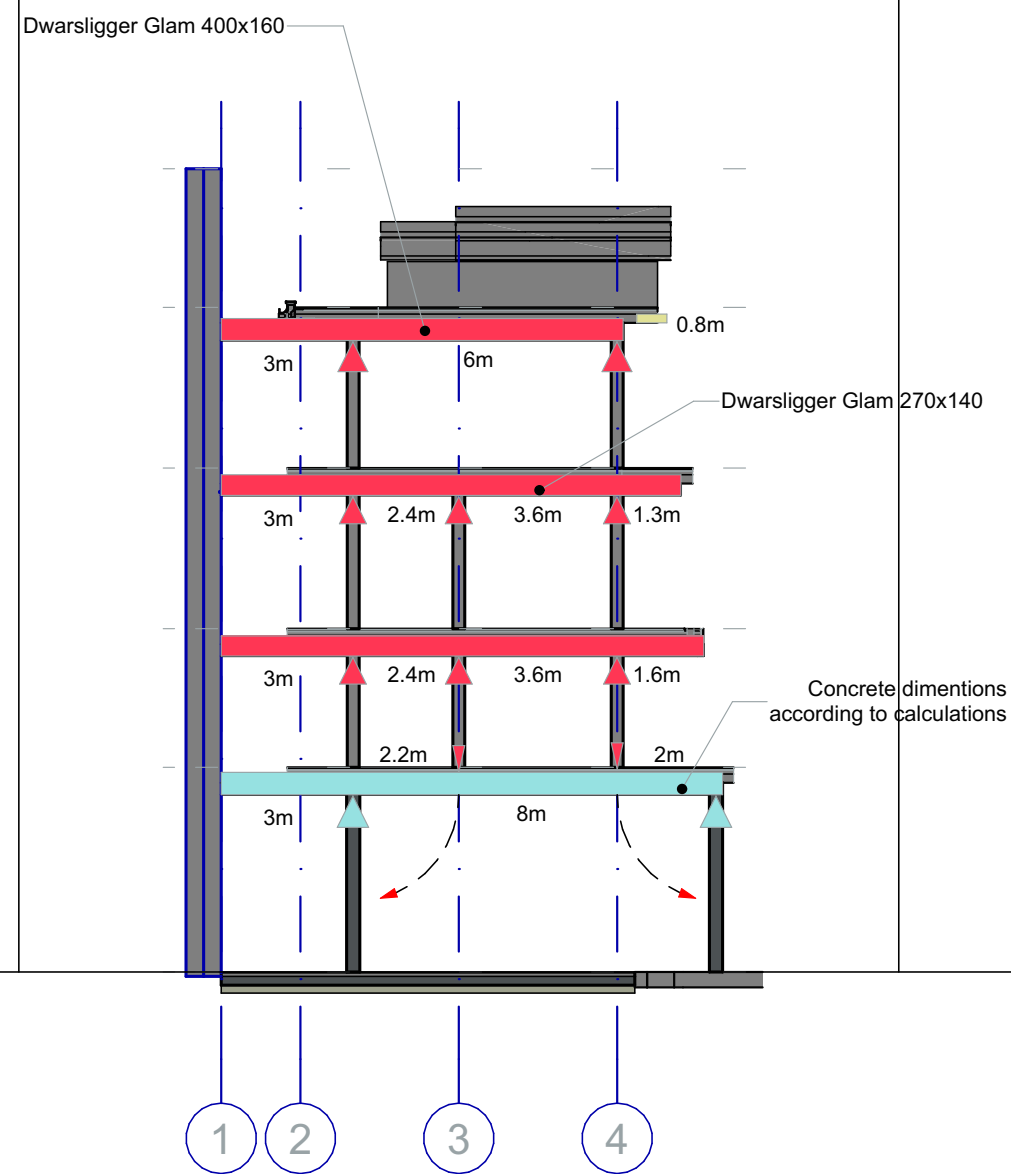
Structural design implemented

Variable loads



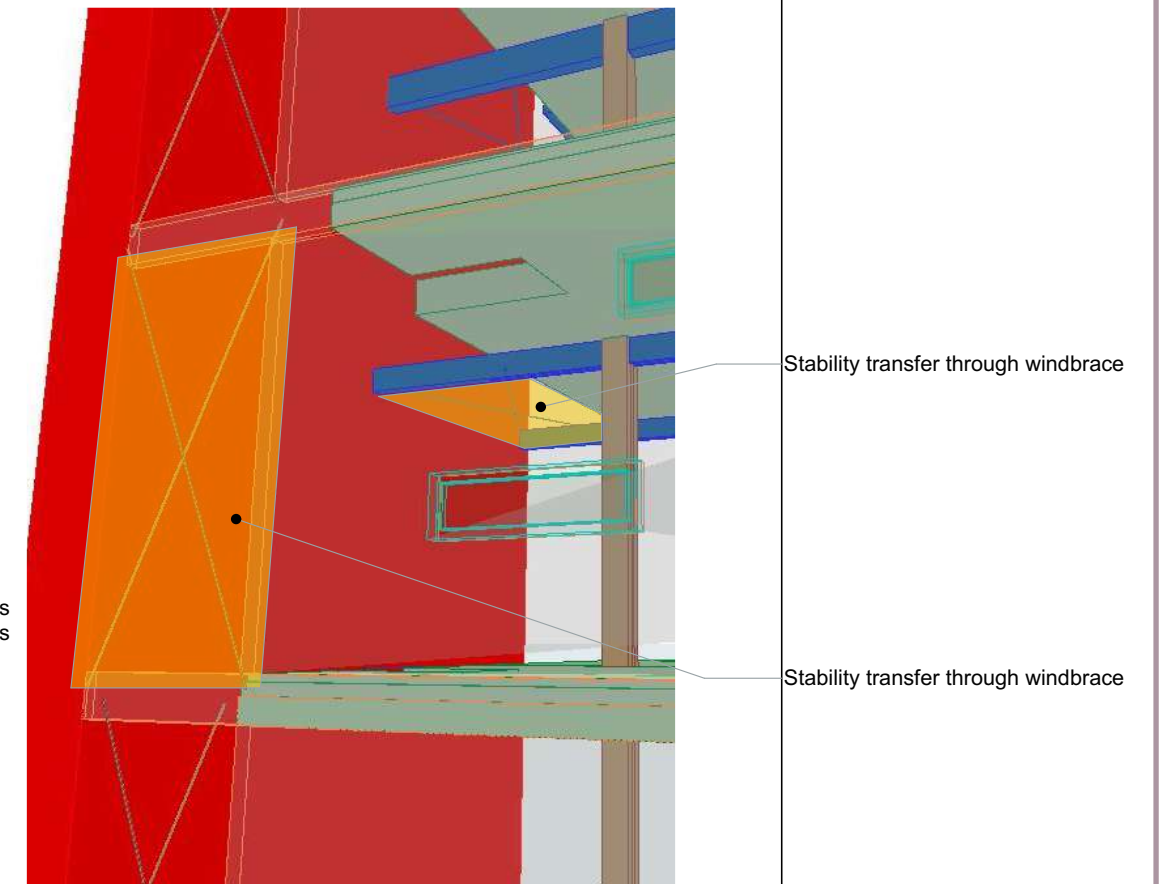
Different loads per floor

Beam span



Pointload on concrete beam creating momentum

Windbrace



Transferring structural integrity

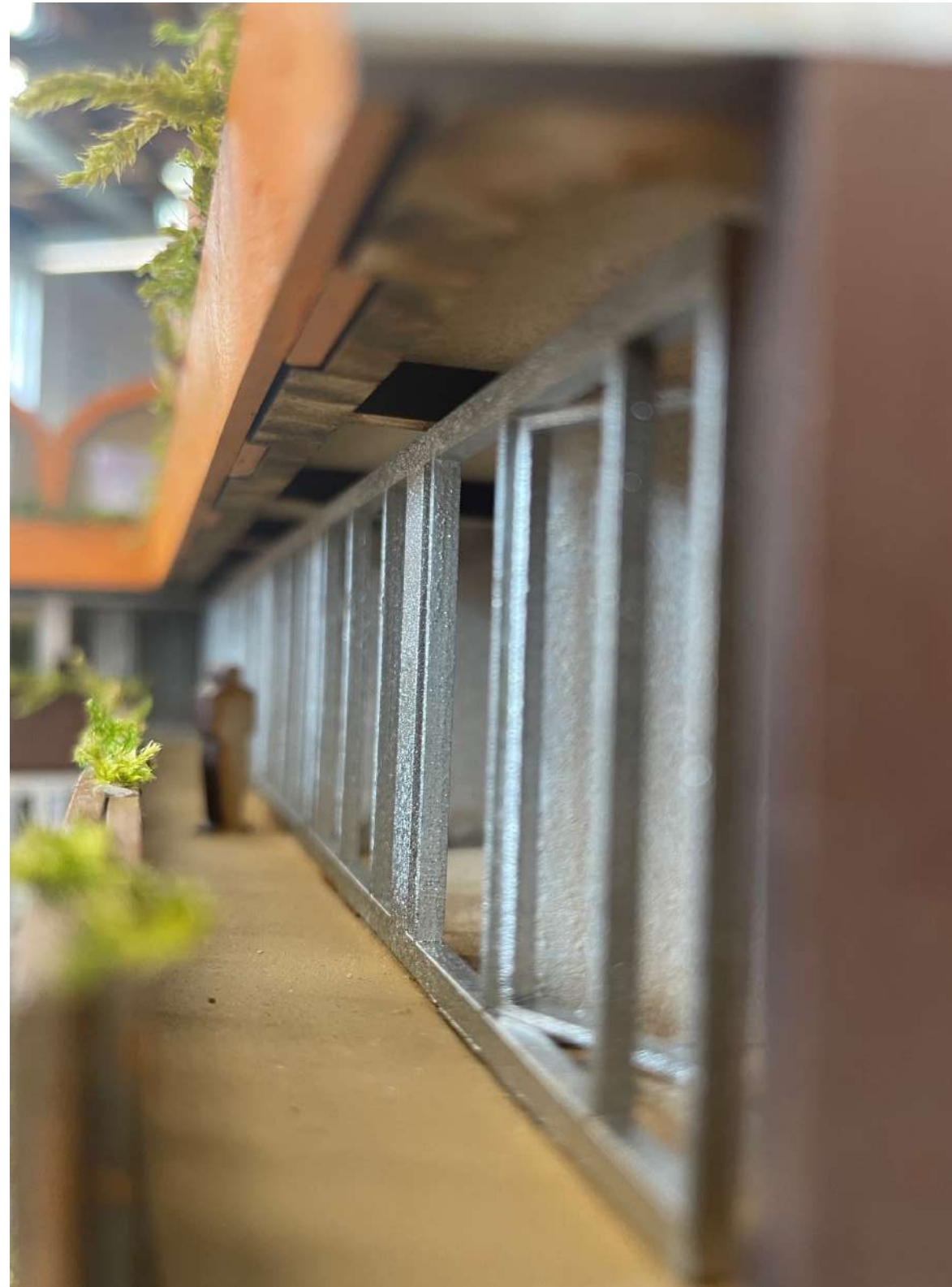
Structural entrapment beams in loadbearing walls



Green facade vide & windbraces



Scale model inside



Scale model facades



Total picture technical model



Reflection graduation process

Research

I set out on a difficult goal, translating literature research in to architectural qualities. The literature research itself went well, I was able to distill the qualities that I set out to find. While I was hoping to validate my research with VR interviews, this did not materialise yet. However, I have conducted small interviews with questionnaires. Involving a VR headset would be too intruding in the workspace of the healthcare center. The results of these small interviews have not yet been processed but will be before P5, strengthening my architectural design choices.

Architecture

The architectural process was not without hiccups, starting with the complicated outcome of my own literature research I found it hard to relate it to a simplistic architectural concept. I practiced a lot of trial and error, using several types of design process. Sketching left me with too few grip on scale, models were too unyielding. Eventually clay was my preferred method to puzzle the program together and synthesise a form. Combining this with a chart that materialised my research outcome I was able to create a well defined building.

Personal reflection

My goal was to learn as much as possible, while grounding my reasoning in empirical research. Following my ideas on architecture, the empirical background is based in environmental psychology research. The goal I set out for myself was difficult to achieve, but I believe I succeeded. I was unsure about this outcome till recently, but hindsight is 20/20.

End of student career

Early career

Starting out at special -ed I have always had a complicated relationship with the educational system and authority. In my mind I wanted to become a architect, but I would have to work my way up. A part of my journey felt as means to an end, hoops I had to jump through to prove my worth. Becasue certainly not everyone did.

Special thanks for everything:

Per Heusen

Grazia Visser

Hallie Echelman

Pelle Kuipers

Finding my way

I have always convinced myself that if I would find my place, it would be okay to stop my education and start working. After barely passing the mbo with minimum effort, I felt like I should atleast try the HBO. In my bachelors I found my place, working in teams and finding my niece, from architectural technology, to comfort, to eenvironmental psychology.

Special thanks for academic support:

Luc

Clarine

Pieter

Engbert

Pelle

Final phase

Completing the HBO gave me some confidence, I had a great time and maybe I should atleast try the math qualifications. I worked the whole summer, without succes. I found a job that was nice, but I missed the puzzle. I did the math exam 6 times, over and over till I made it. I heard the (pre)masters was though,and it was. I had to learn to do research, how to design, and many other things. I was not sure if I was going to make it. Not till only a few days before my P4.

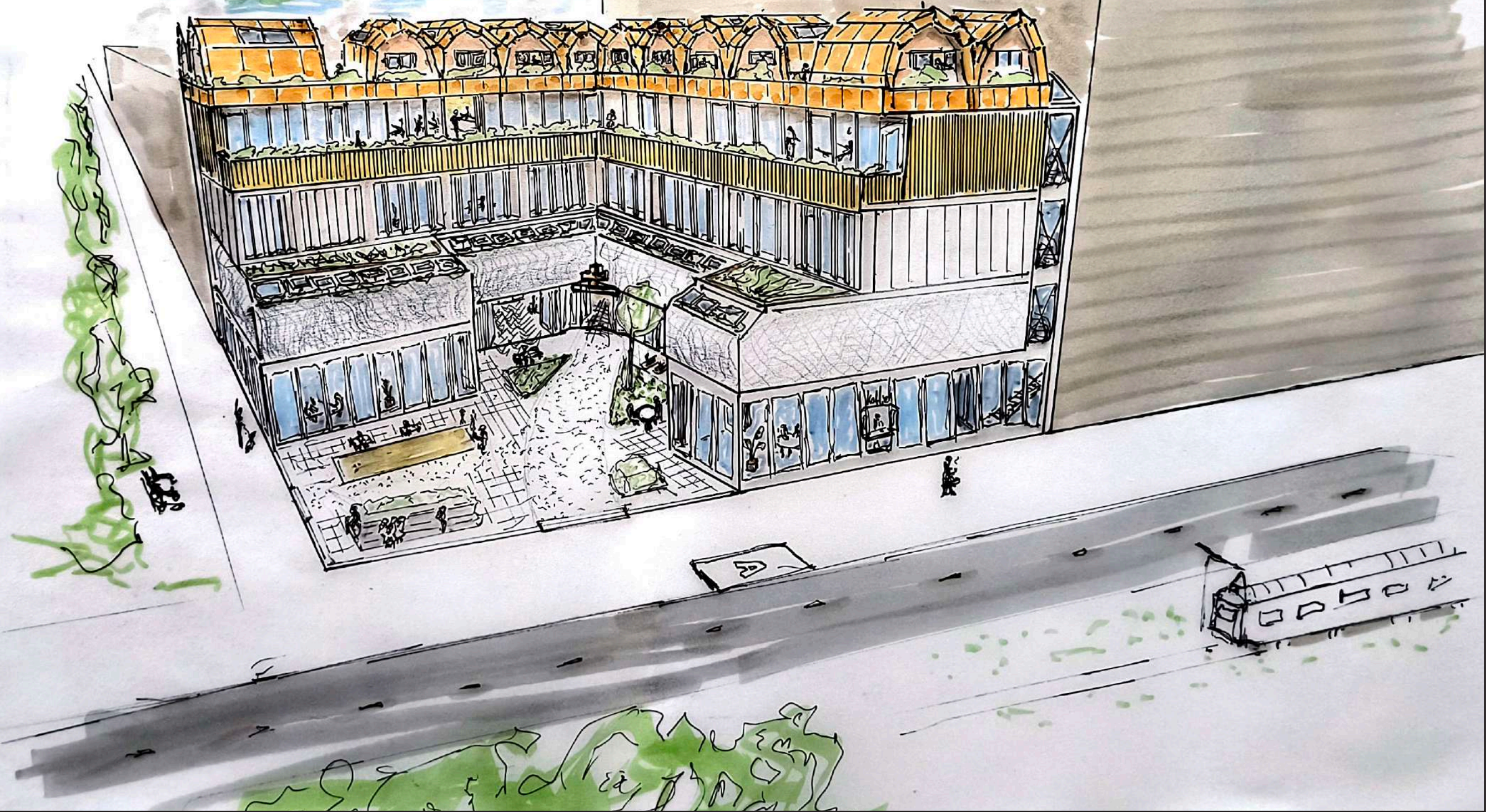
Special thanks for moral support:

The Family

"Borrelbende"

Past & present friends

Thank you for listening



[illegible]

Healthcare center:	
General practisioner	- 250m2
Client space	135m2

First line care - 85m2

Drugstore - 150m2

Neighbourhood team	-	250m2
Client space		79m2

Commercial	-	0- 300m2
Cafe		70m2
sports		80m2
Community center		80m2

Telehealth	-	25m2
Care hotel	-	250m2

Total functional space: 1240m²