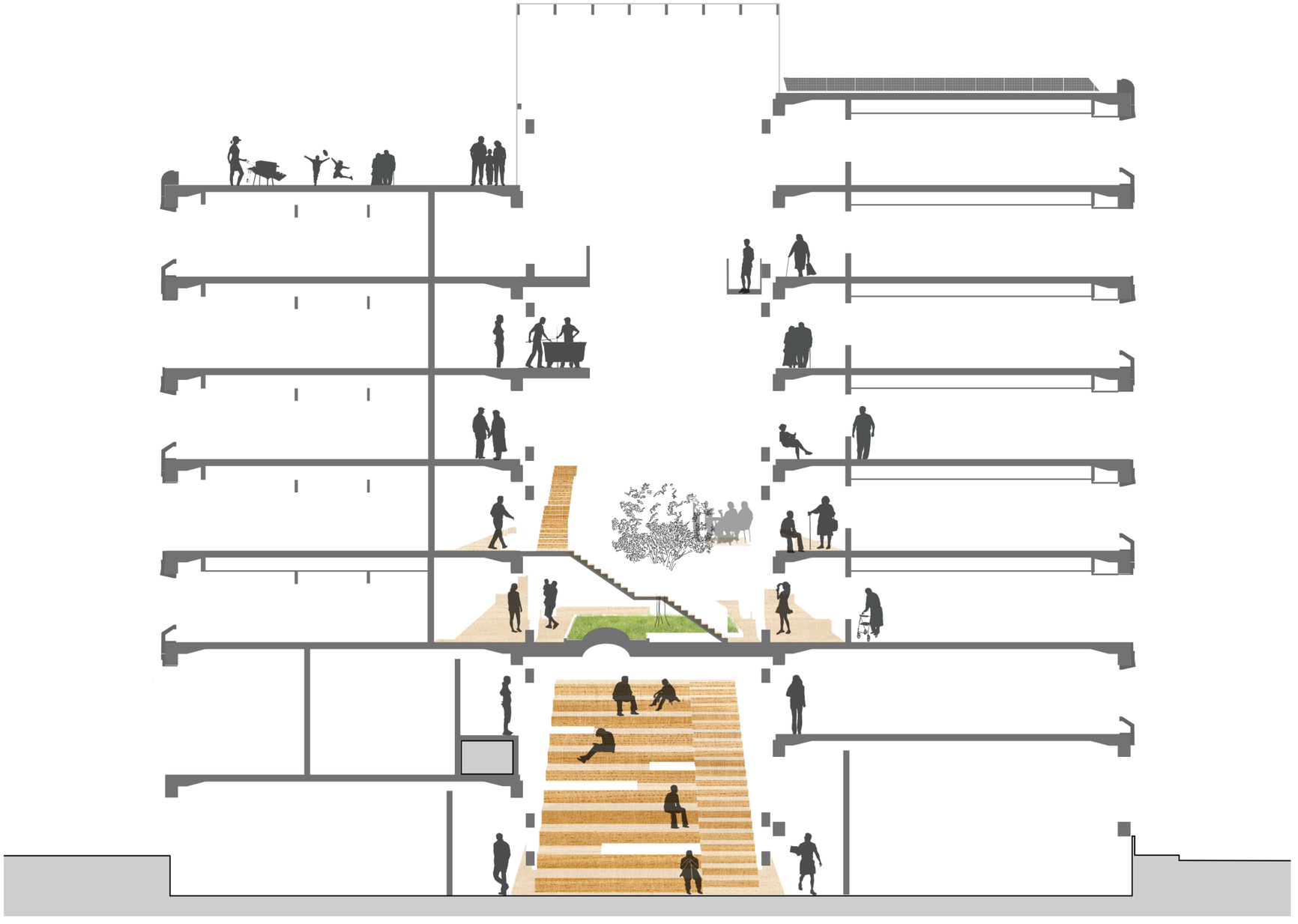


Beursgebouw as social platform

Re-interpreting communal spirit of Beursgebouw

Nan Xia

P5 Presentation

Contents

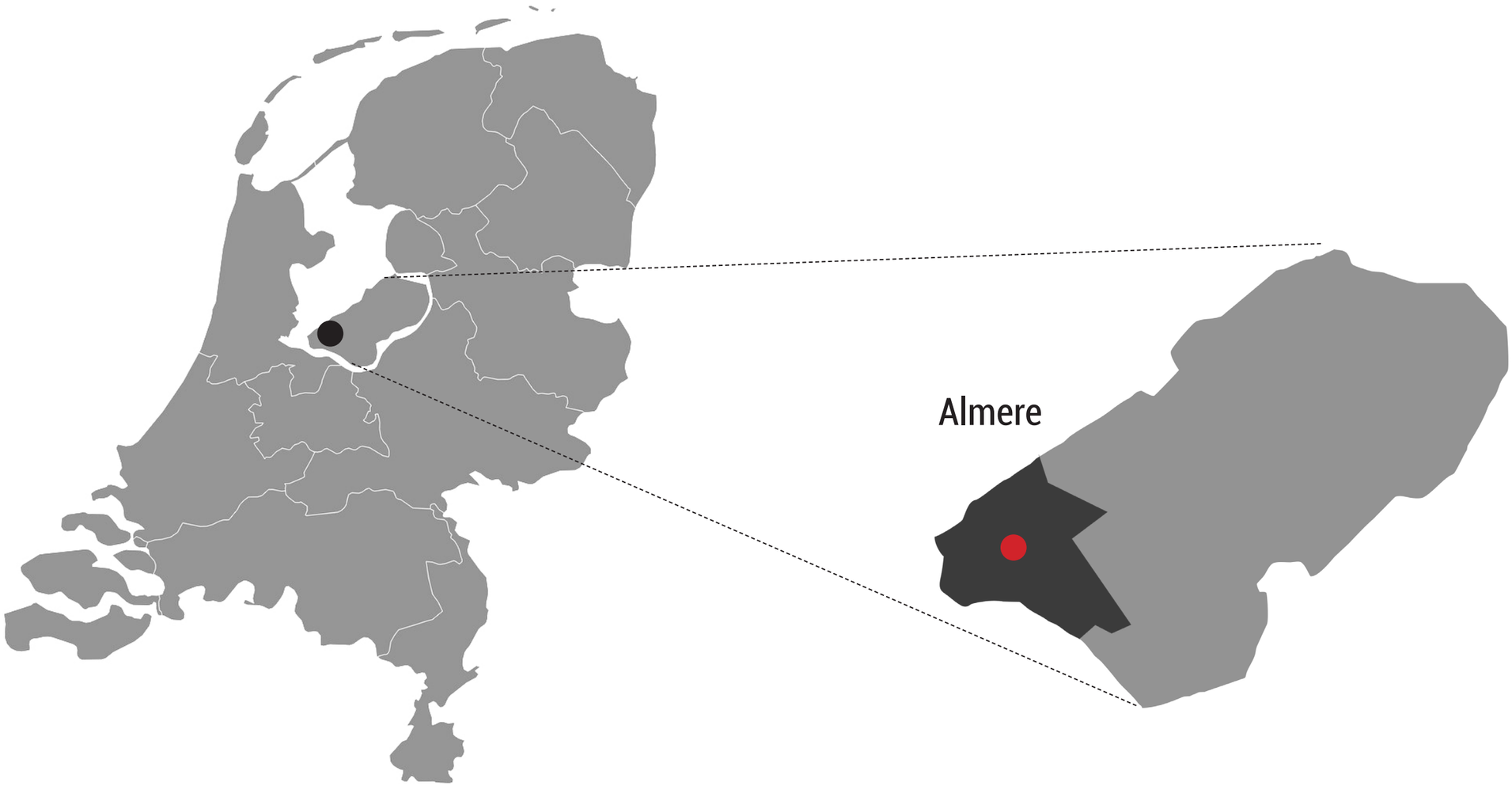
Introduction

Programme

Concept

Design

Comfort



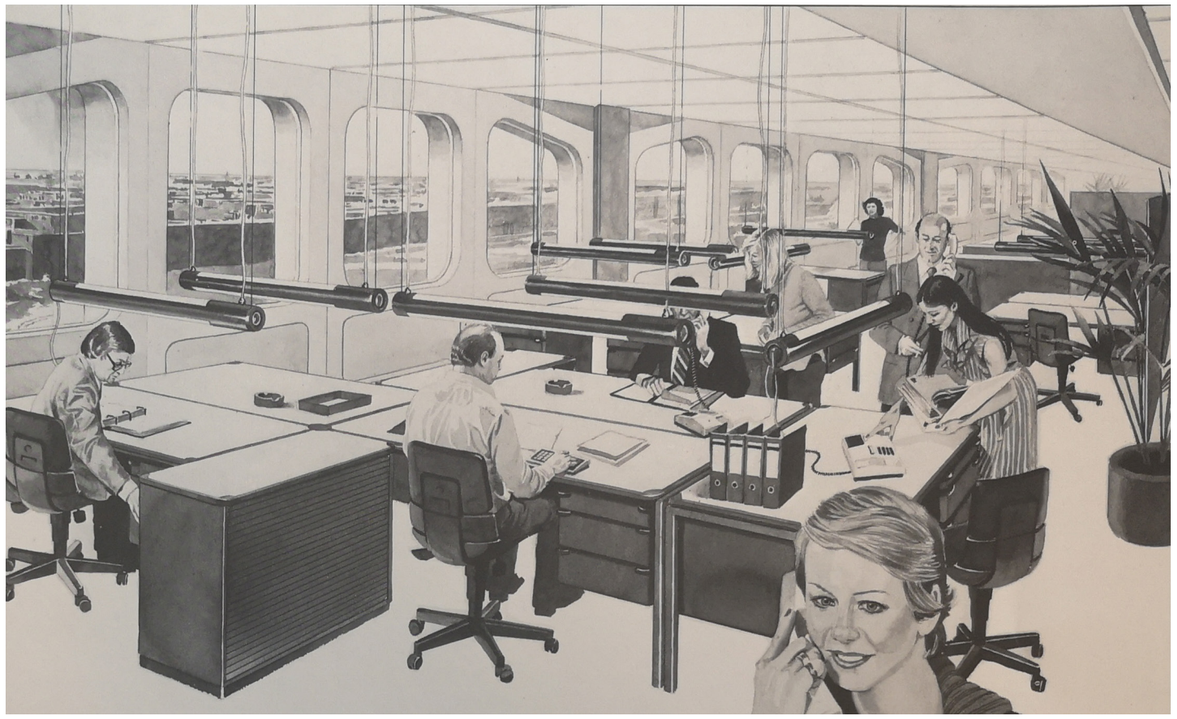
source: https://www.vectorstock.com/royalty-free-vector/map-of-thr-netherlands-vector-20161065



First office building in Almere Stad, 1981

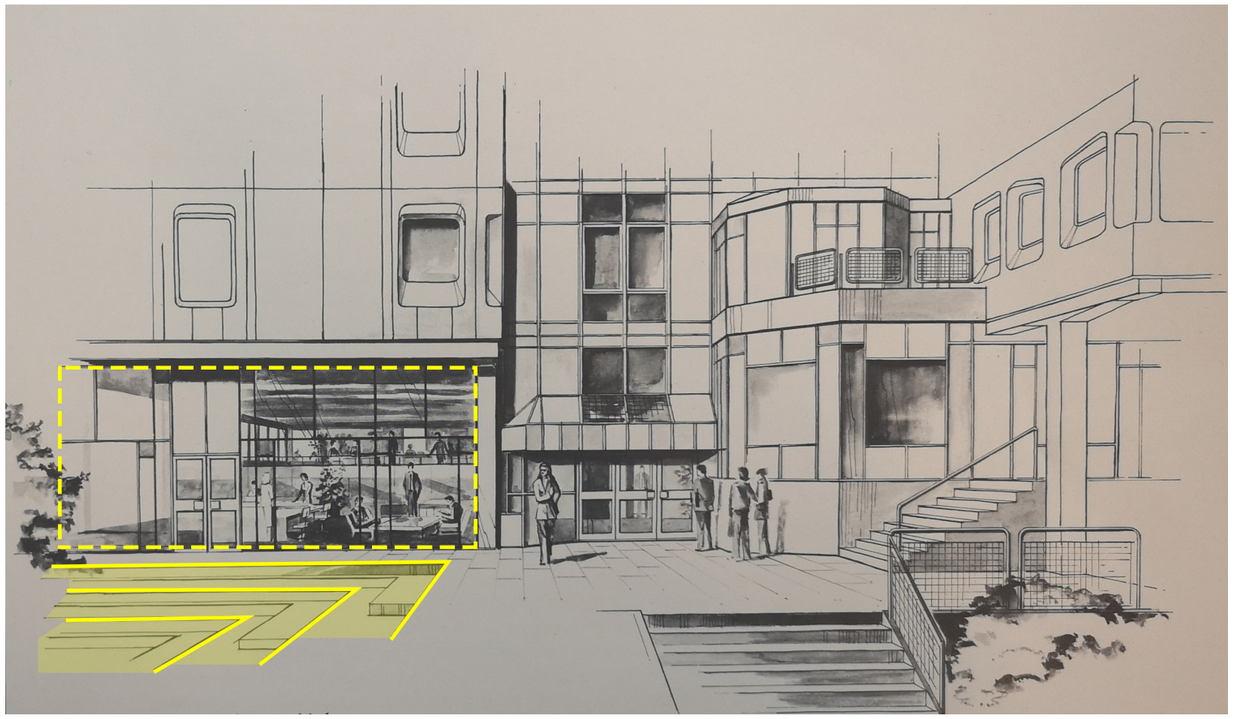
source: https://digitaalerfgoed.almere.nl/archief.aspx

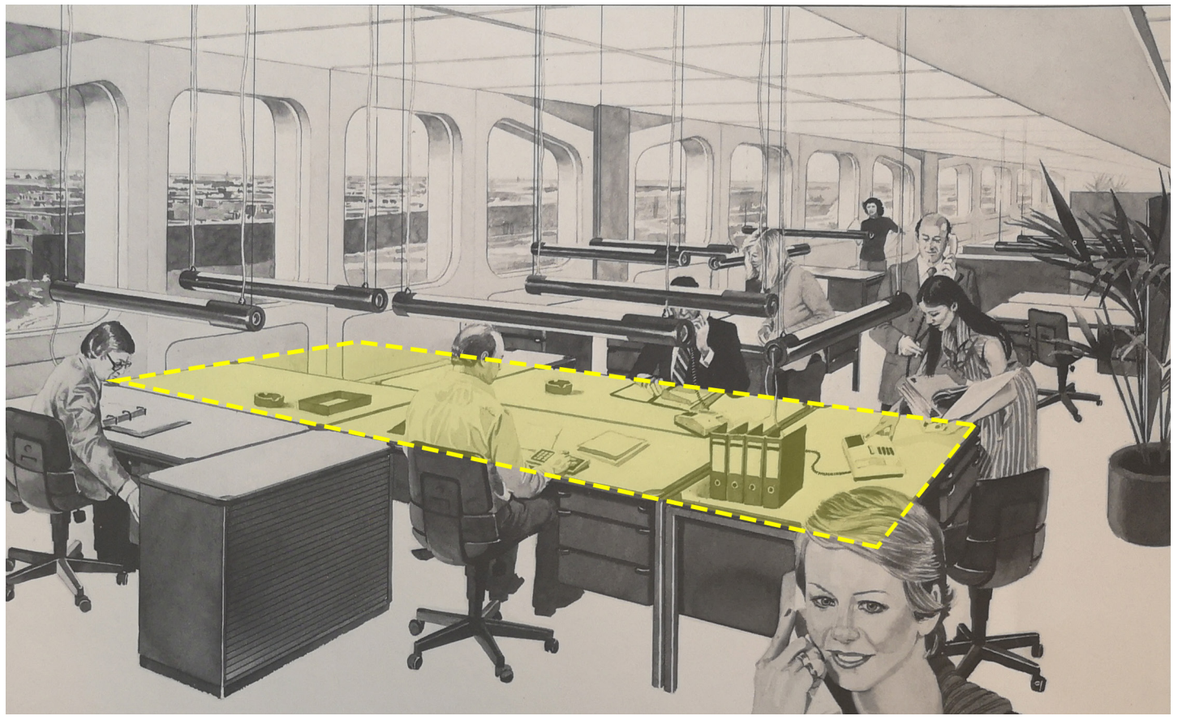




Original situation

source: Stichting Projektontwikkelings bureau. (n.d.). Kantoorgebouw in het hart van Almere-Stad. Retrieved from https://drive.google.com/drive/folders/1JVPKIh3rKipsnyzE6gZzE1qh0QDSxelYURBANBICYCLE





How people contact



Current situation

Contents

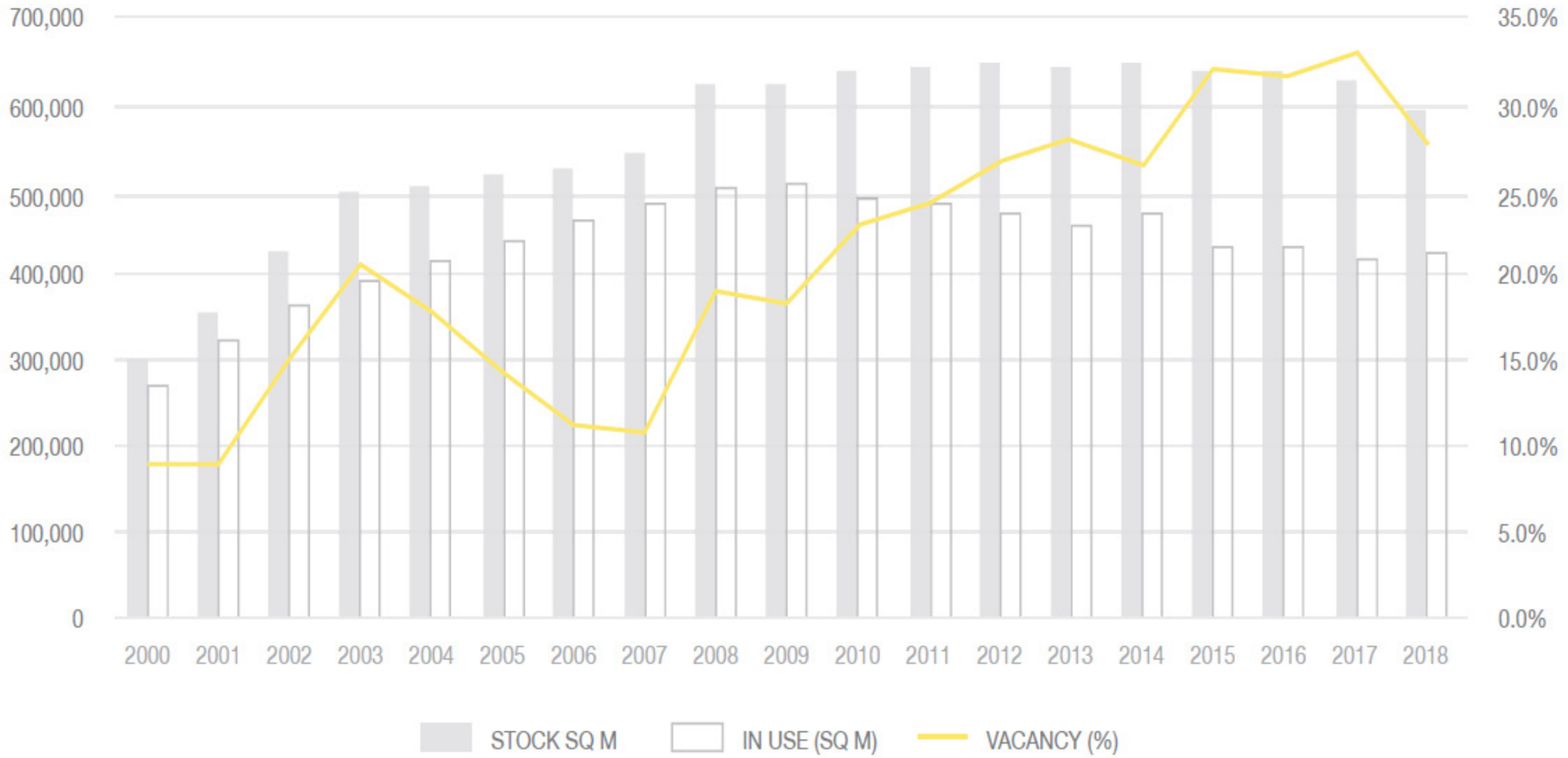
Introduction

Programme

Concept

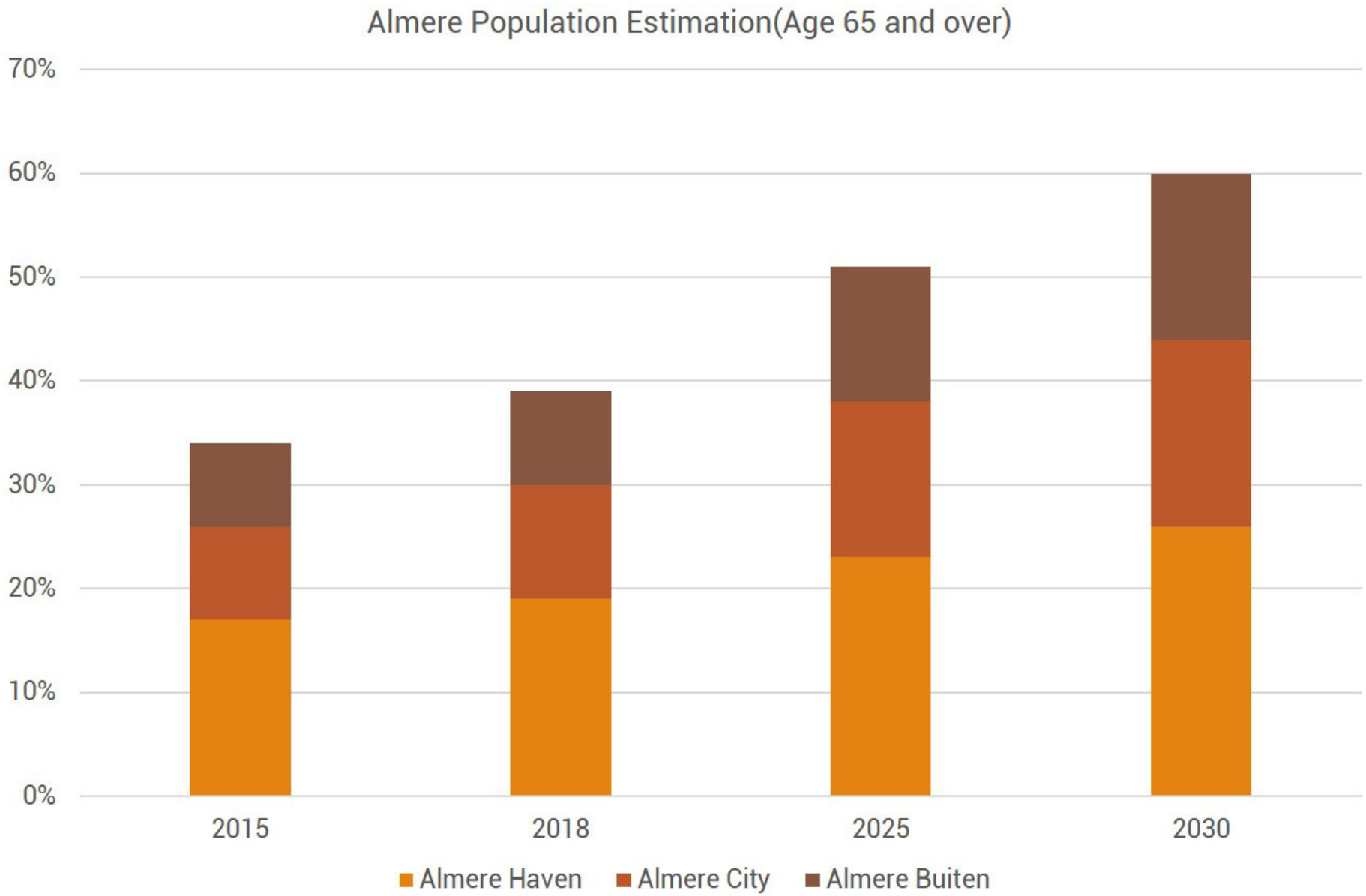
Design

Comfort



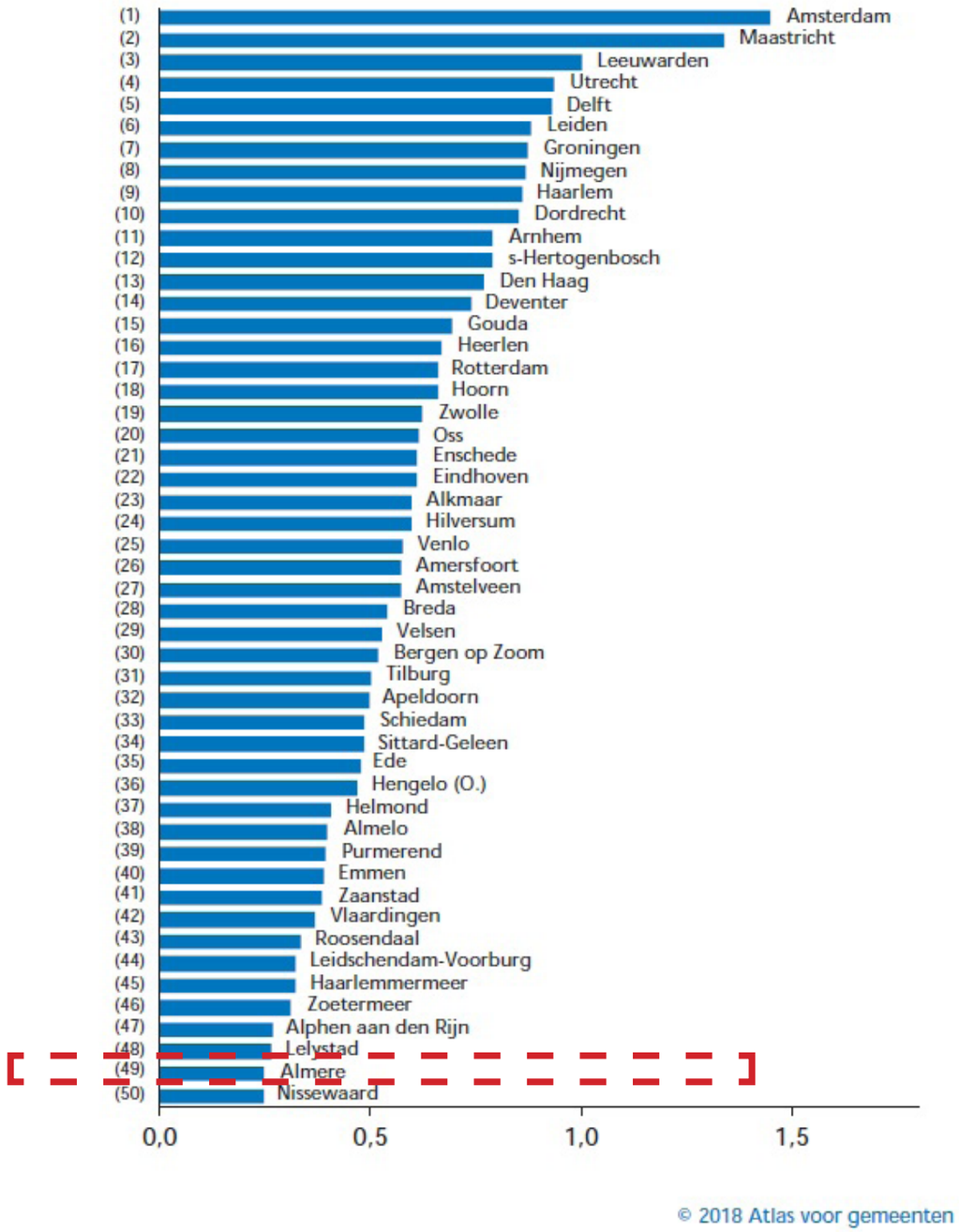
Office vacancy rate in Almere. (Savills world research)

source: Savills World Research. (2018). Almere's office market on track to lasting recovery. Retrieved from http://pdf.euro.savills.co.uk/the-netherlands/commercial---dutch-other/city-special-almere-eng-digital.pdf



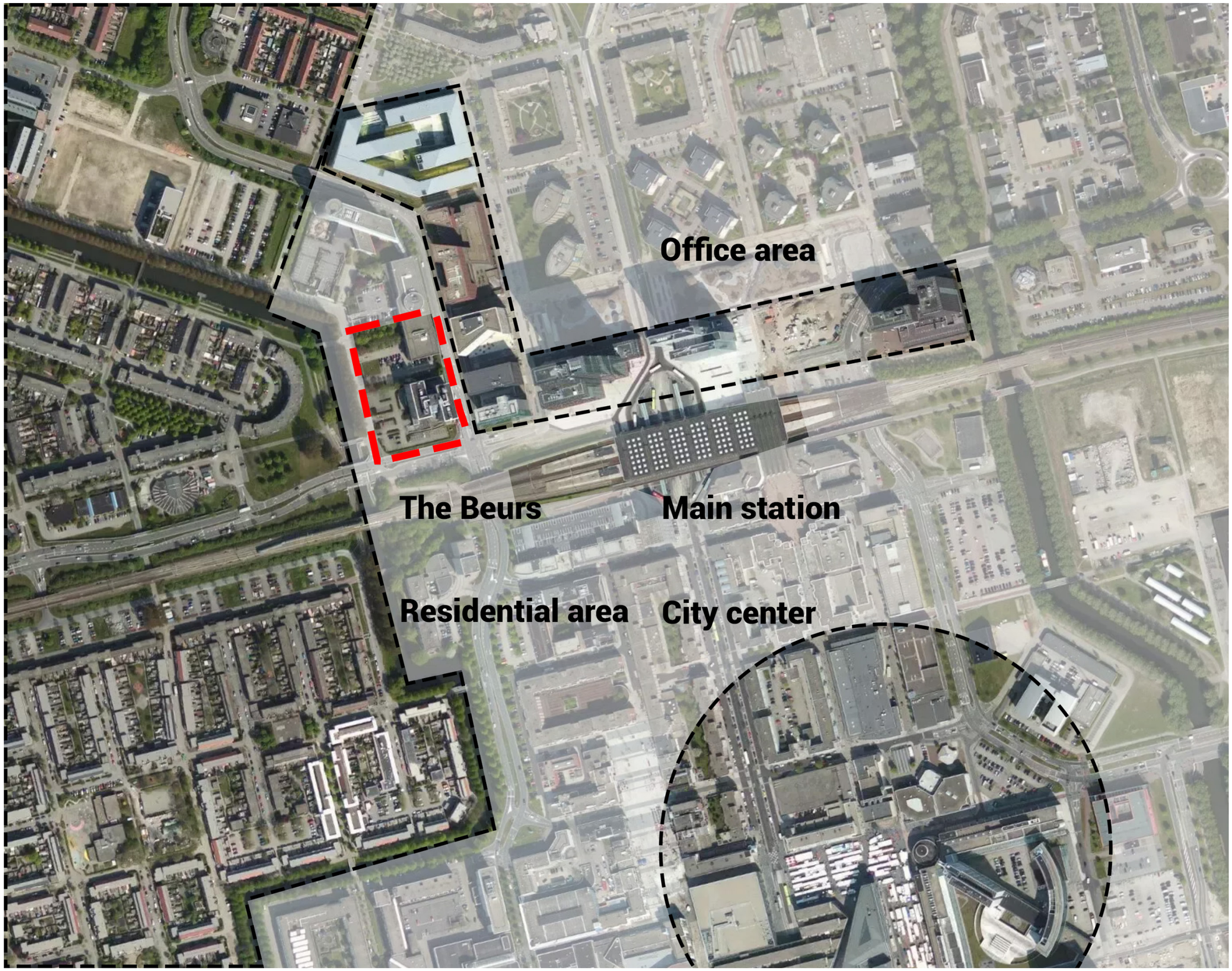
Number of elderly people estimated to double in Almere. (Almere government report)

source: Population . (nd). Consulted June 25, 2019, from https://english.almere.nl/the-city-of-almere/population/

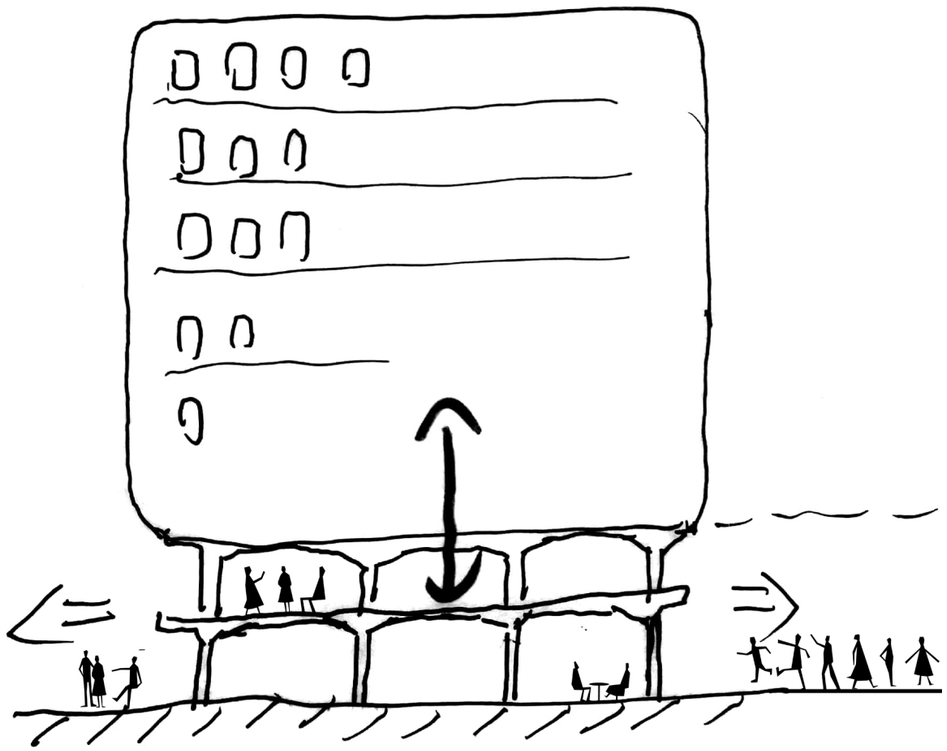


Low ranking on culture index list(2018 Atlas voor gemeenten)

source: https://www.c-care.ca/blog/elder-care/benefits-art-therapy-seniors/



Conjunction point in the city



Intergenerational
living



Art and culture
activity hub

Program Proposal



The aged

communal spaces



Family housing

Program Strategy



The aged

communal spaces

Art and culture activities



Family housing



Citizens

Program Strategy

Contents

Introduction

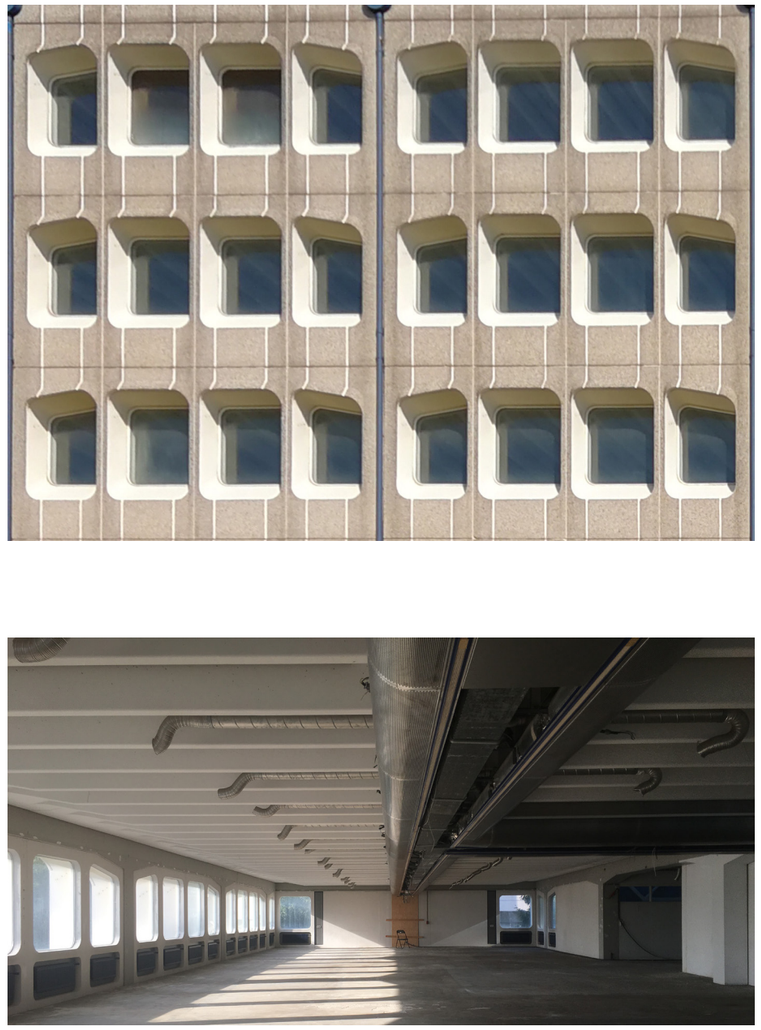
Programme

Concept

Design

Comfort

Essential qualities of the Beursgebouw



Esthetic value



Social value





Sustainability
(Architecture value)

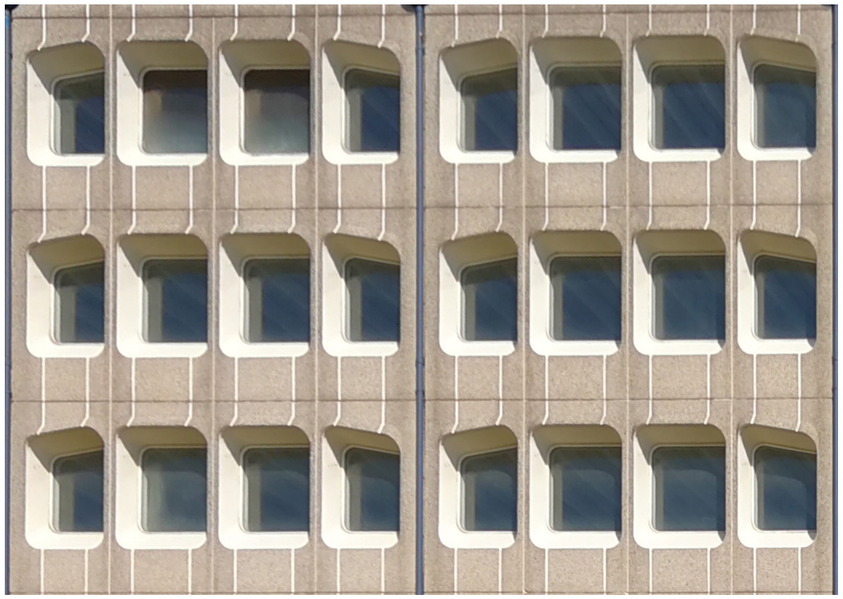
Maintaining -- Esthetic value

Reinterpreting -- Social value

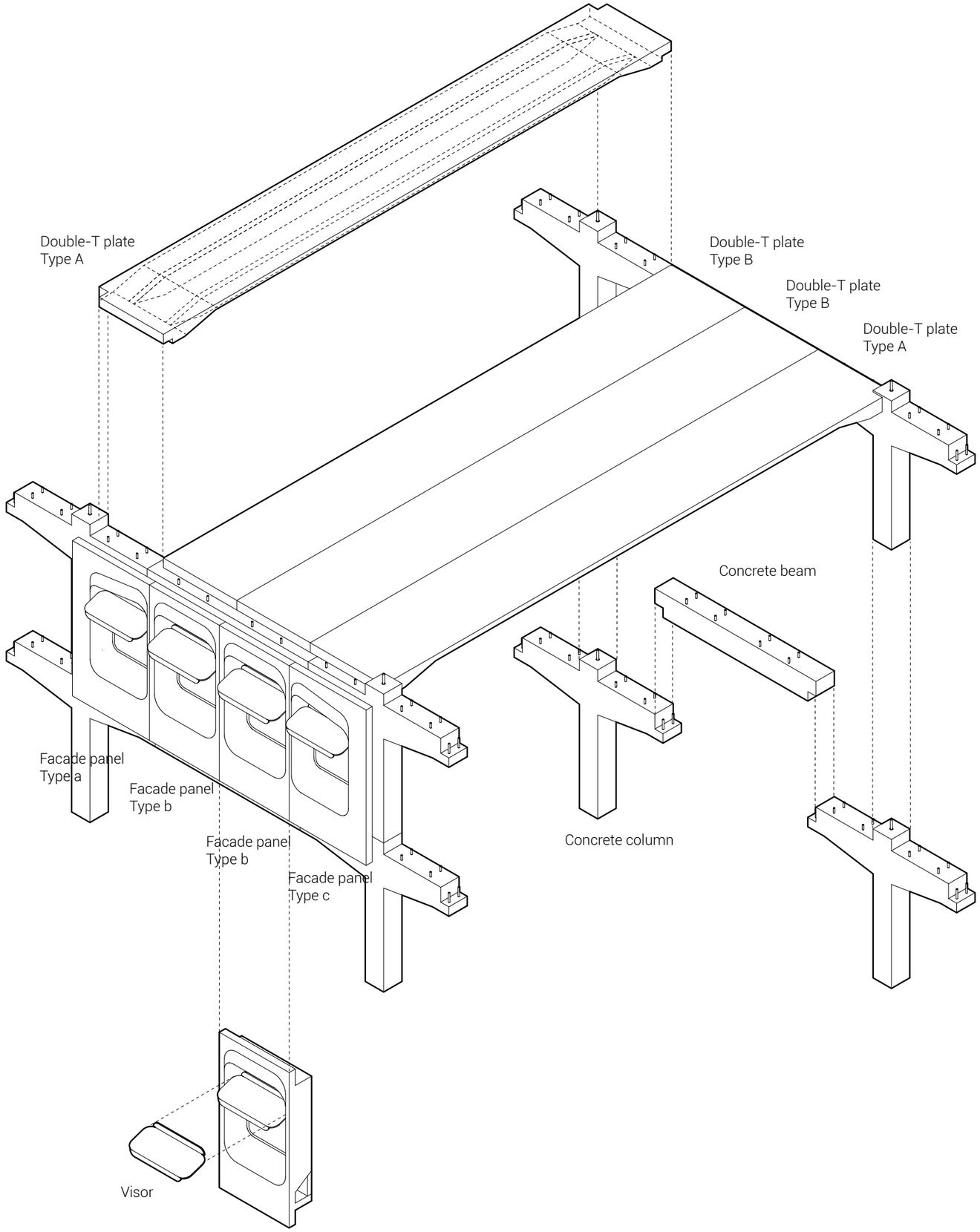
Improving -- Sustainability

Culture Value Strategy

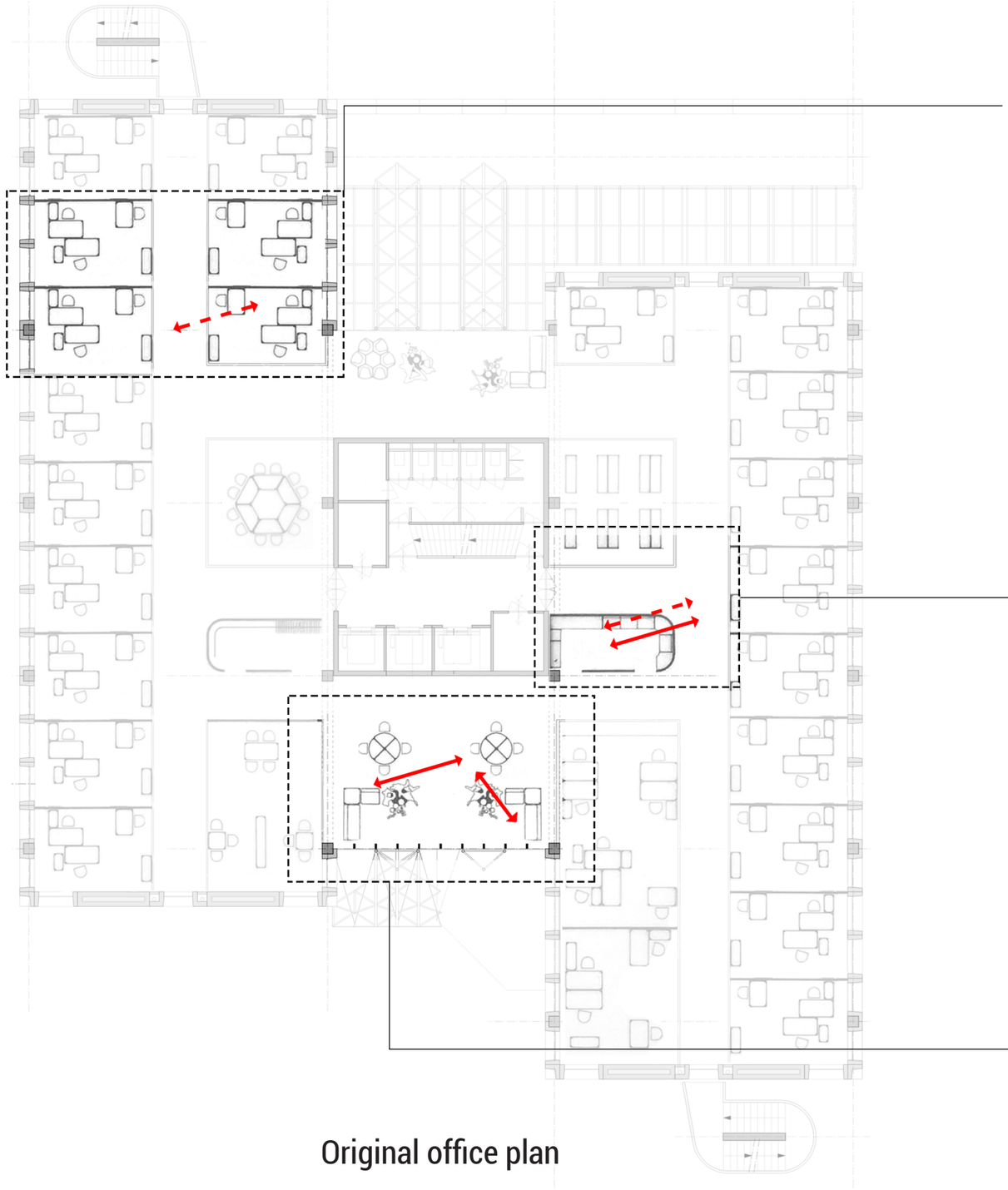
Maintaining esthetic value



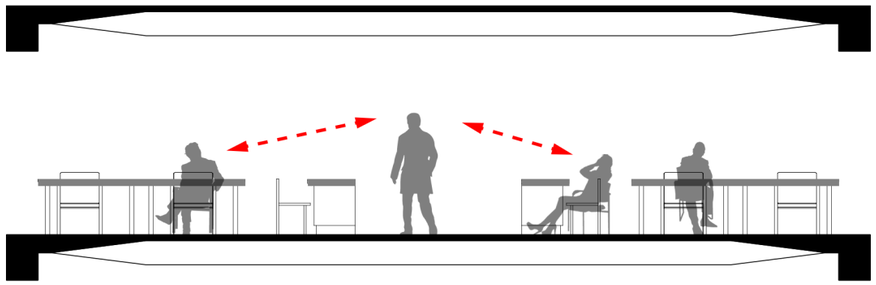




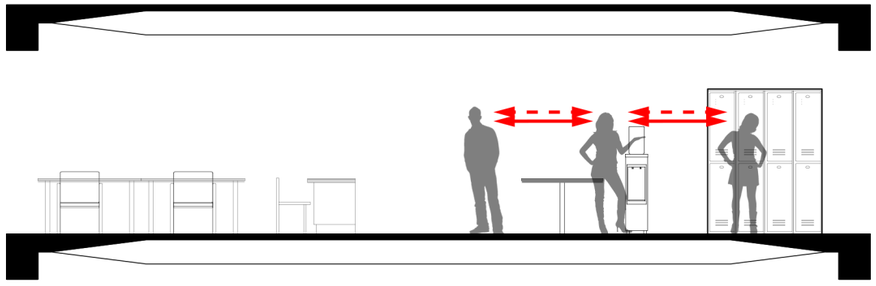
Reinterpreting social value
-- **Diverse patterns of social contact**



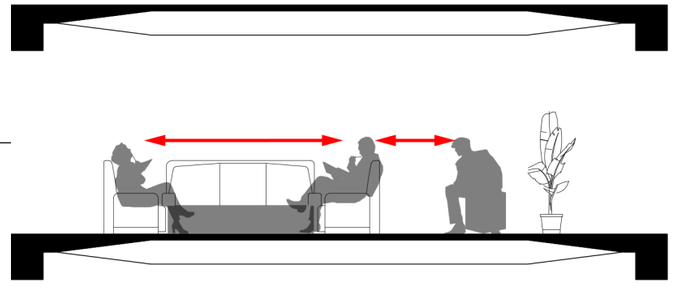
Original office plan



Passive contact



Chance contact

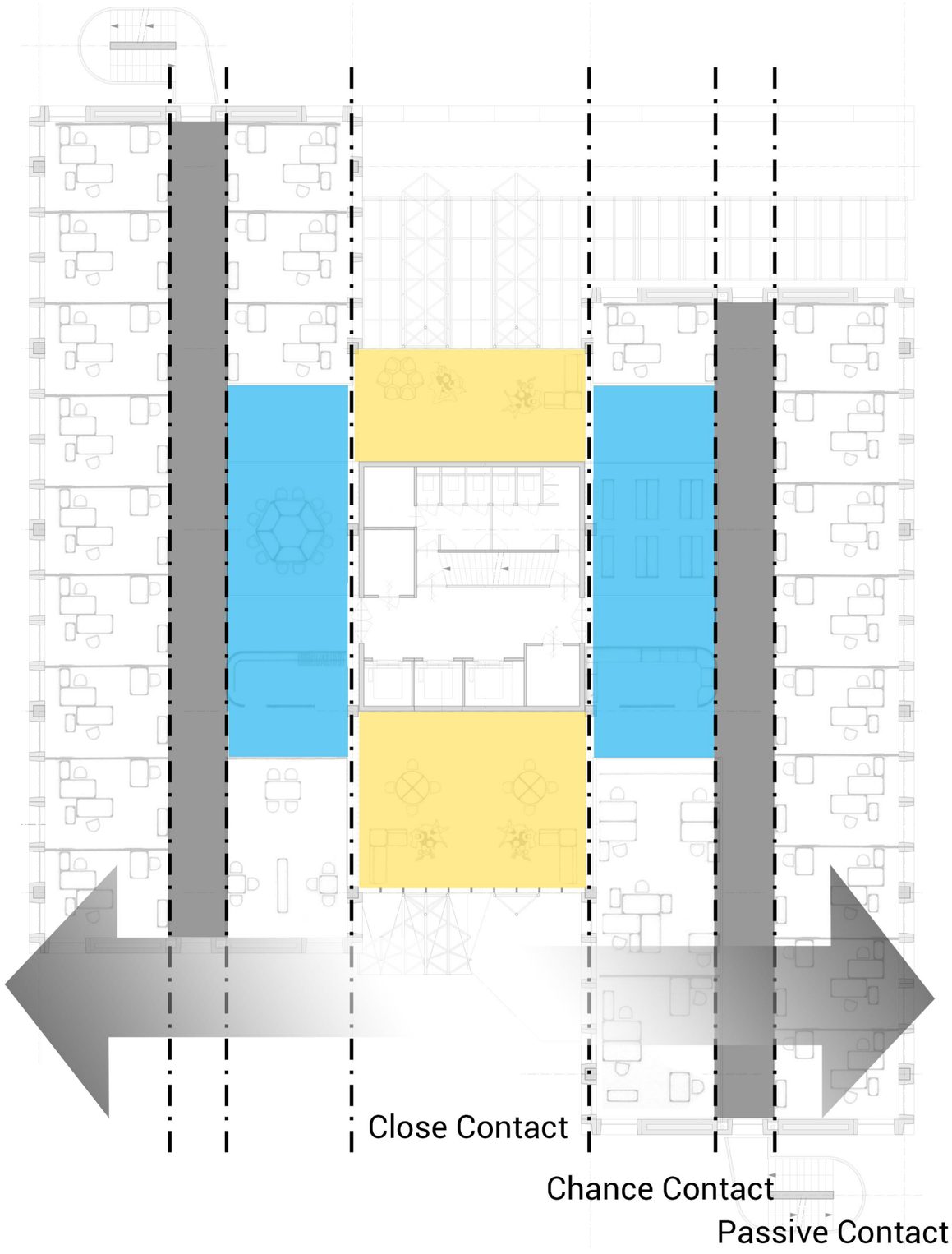


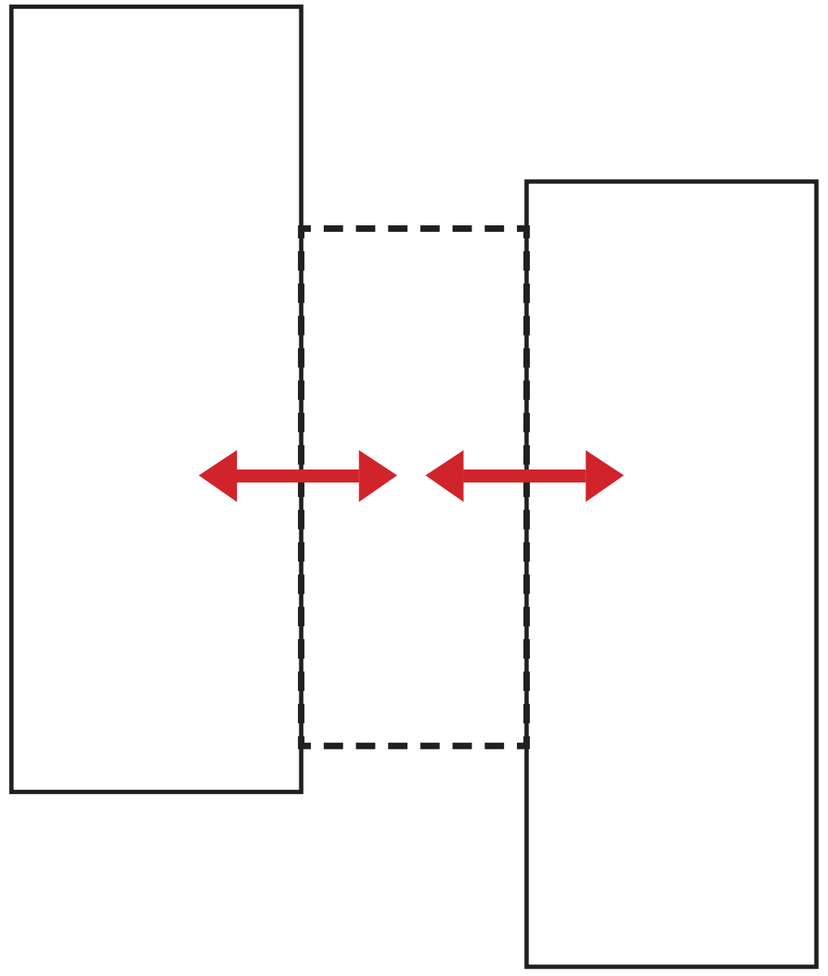
Close contact

Theory from Jan Gehl: *Cities for people, Life between buildings*

Reinterpreting social value

-- Clear and efficient structure of communal space





Constructive design

- - 60 to 70% lower energy consumption

Low energy consumption
Energy costs play an increasingly important role in the operation of offices. That is why high requirements were set with regard to architectural and technical details in order to reduce the energy costs as far as possible. The design by architectural design bureau Environmental Design (ED) and the installation consultancy firm Treffers B.V. is successful. The **energy consumption** in the office building will be at least **60 to 70% lower than in a comparable office building**.

Back in 1981

Energy neutral building

Today

Contents

Introduction

Programme

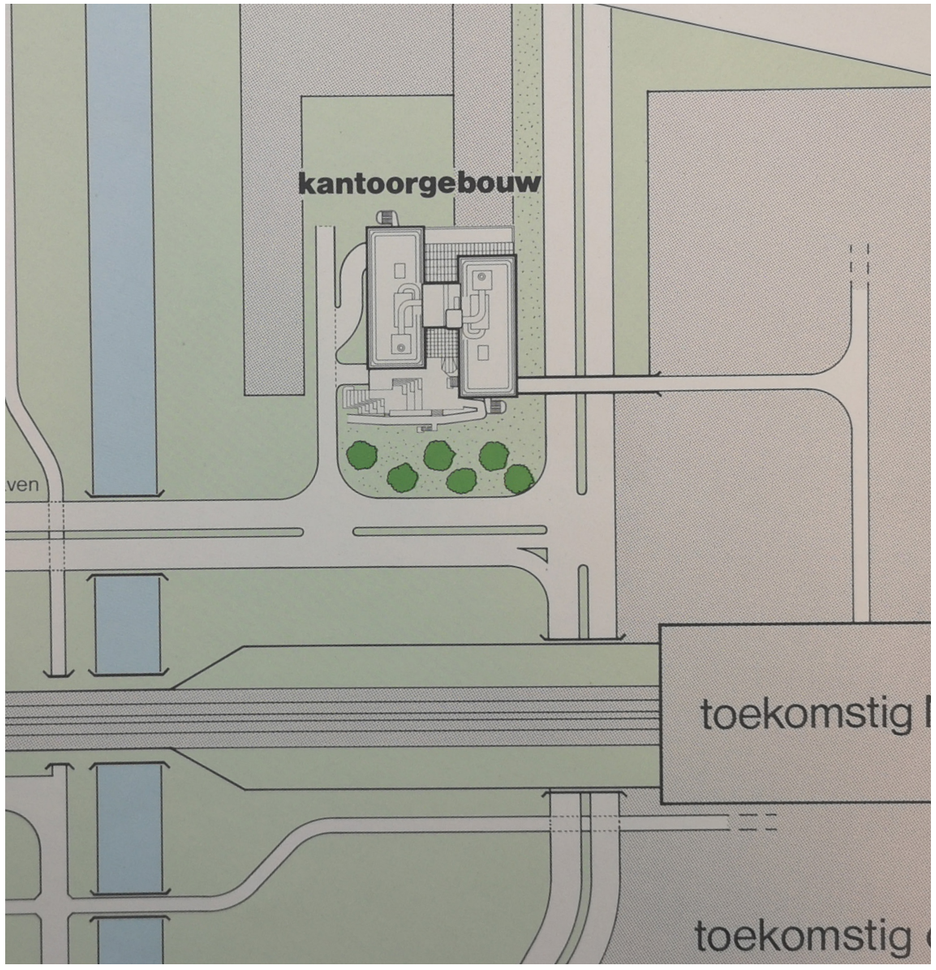
Concept

Design

Comfort

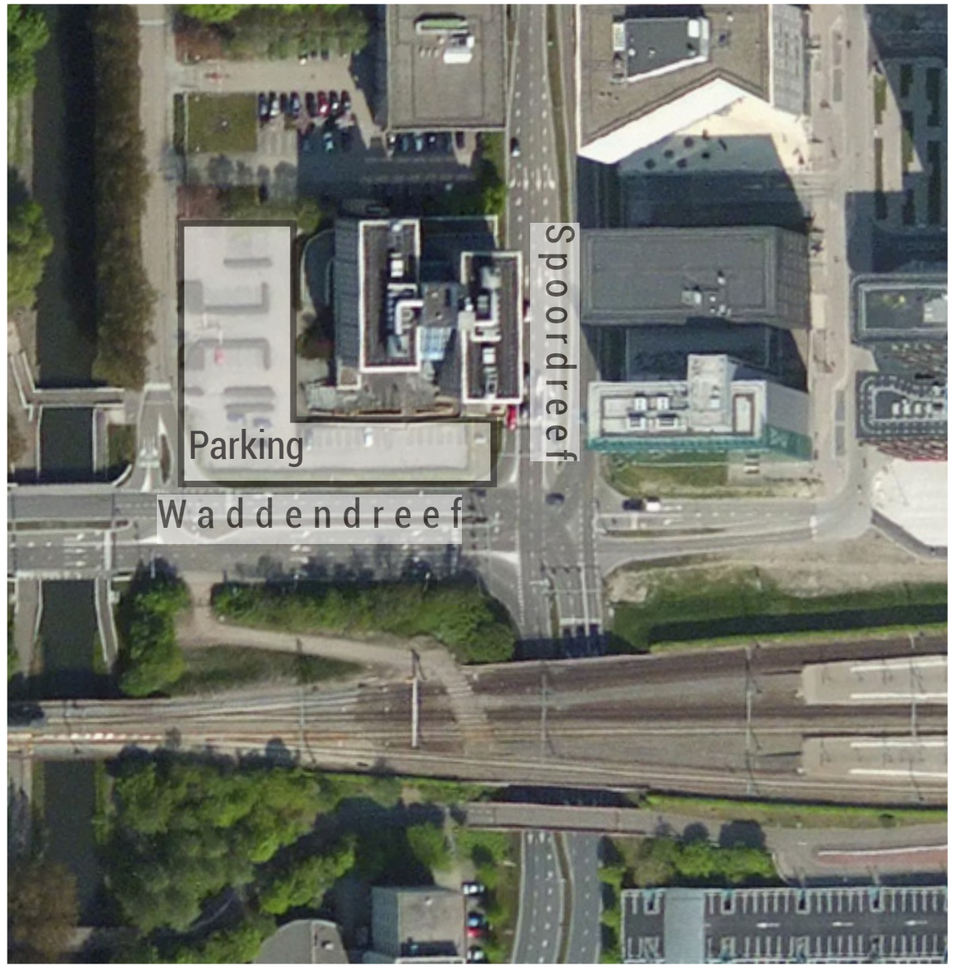
Urban Scale

Site change



1981

-- Part of city infrastructure system
-- Play an active role in the surrounding



Current situation

-- Connection blocked by city main road
-- Parking lot replacing public square
-- Isolated situation

Current situation

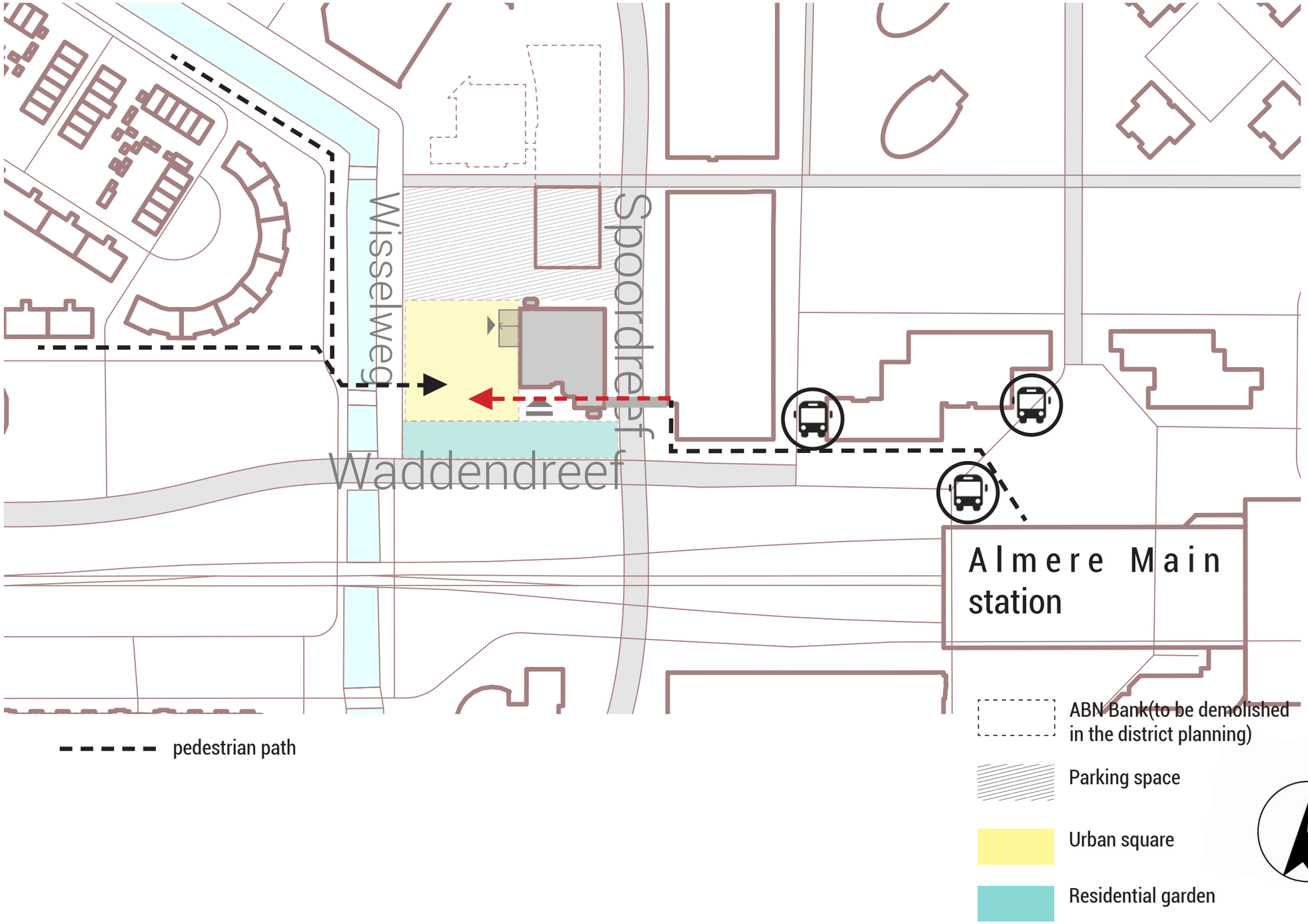


Unwelcoming entrance



Parking lots in the front

Connection with the surrounding



The bridge



Site as social platform

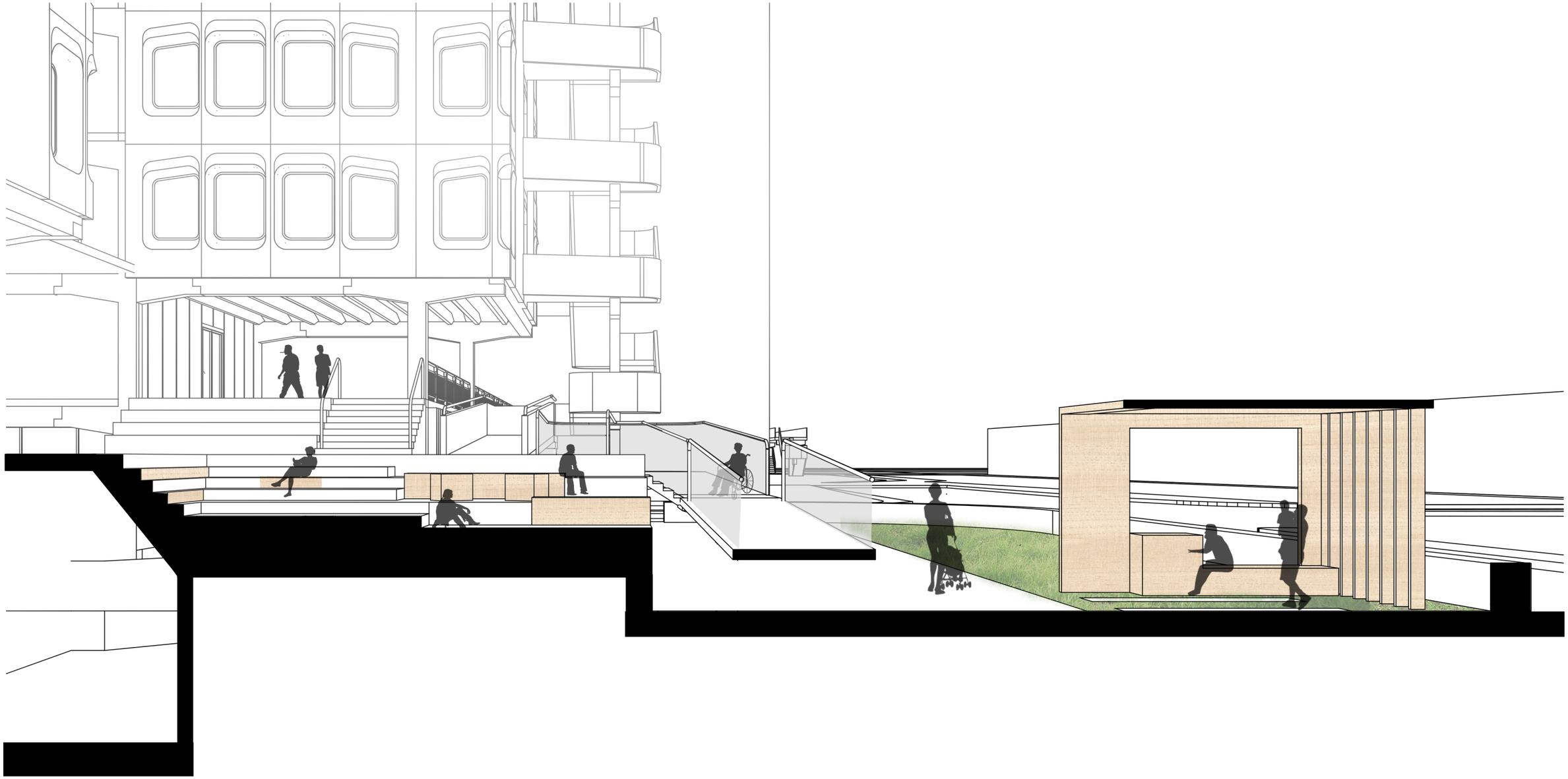


Site plan

Urban public space



New communal situation



New communal situation



Building Scale

Roof platform

Green roof

Solar power collection

Apartments

Communal space
& Common area

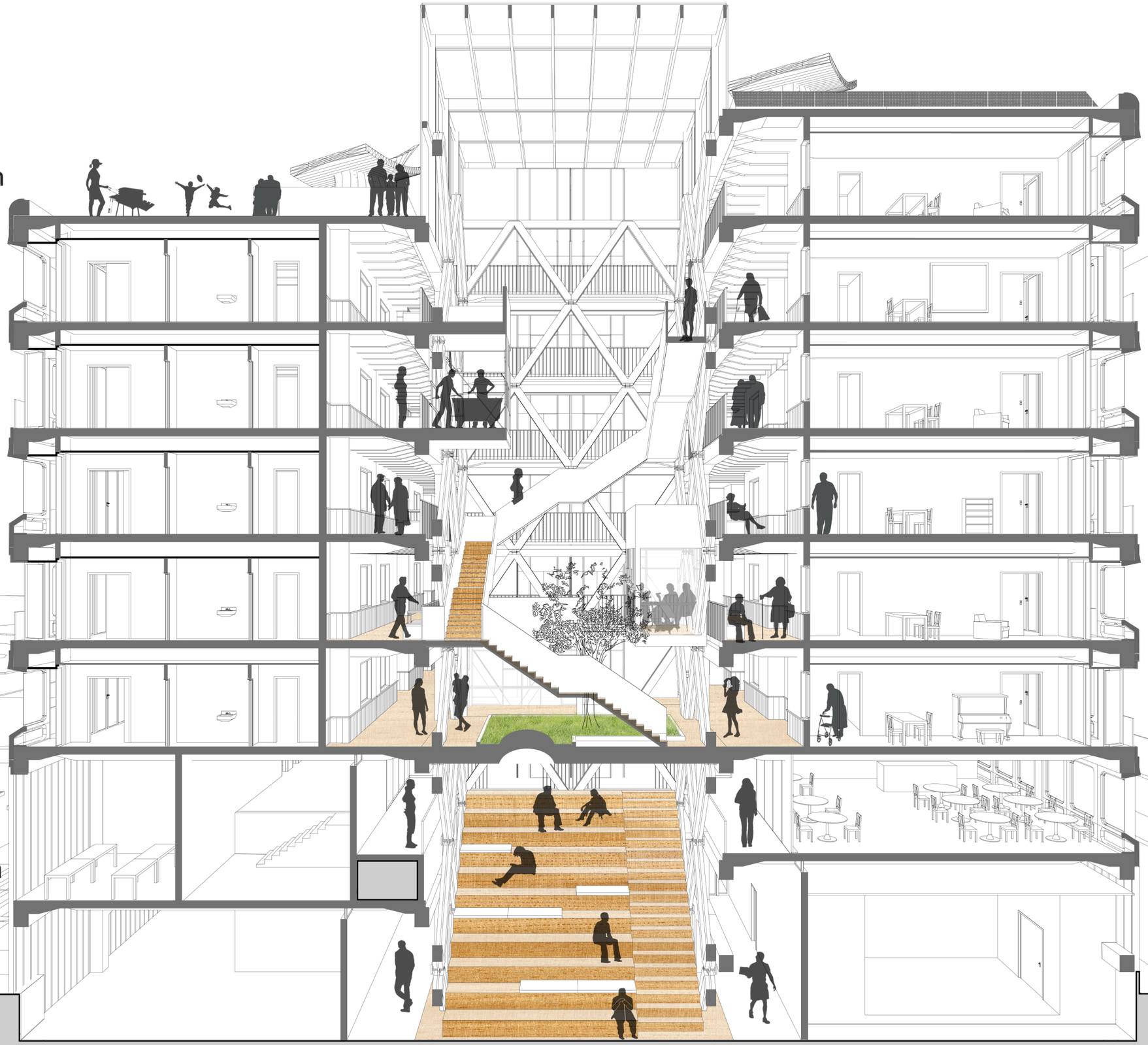
Cafe

Art & Craft studios

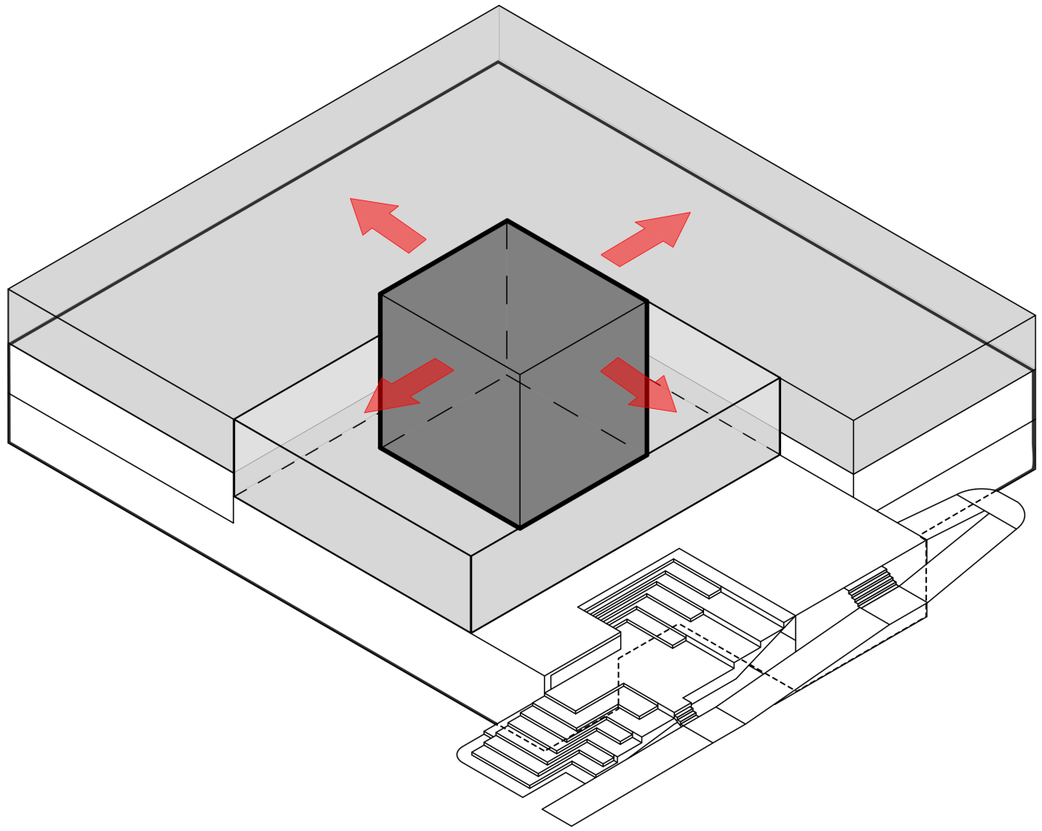
Hall & Relaxation area

Performance hall

Residential hall
& Services

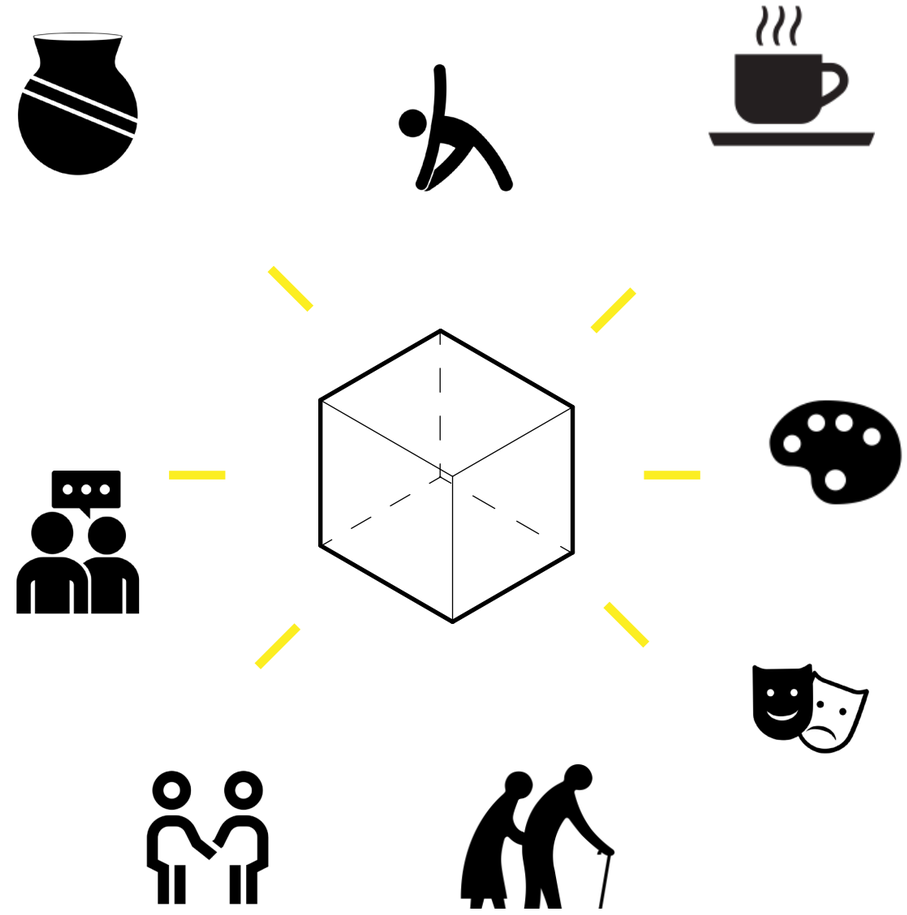


Art & Culture Hub



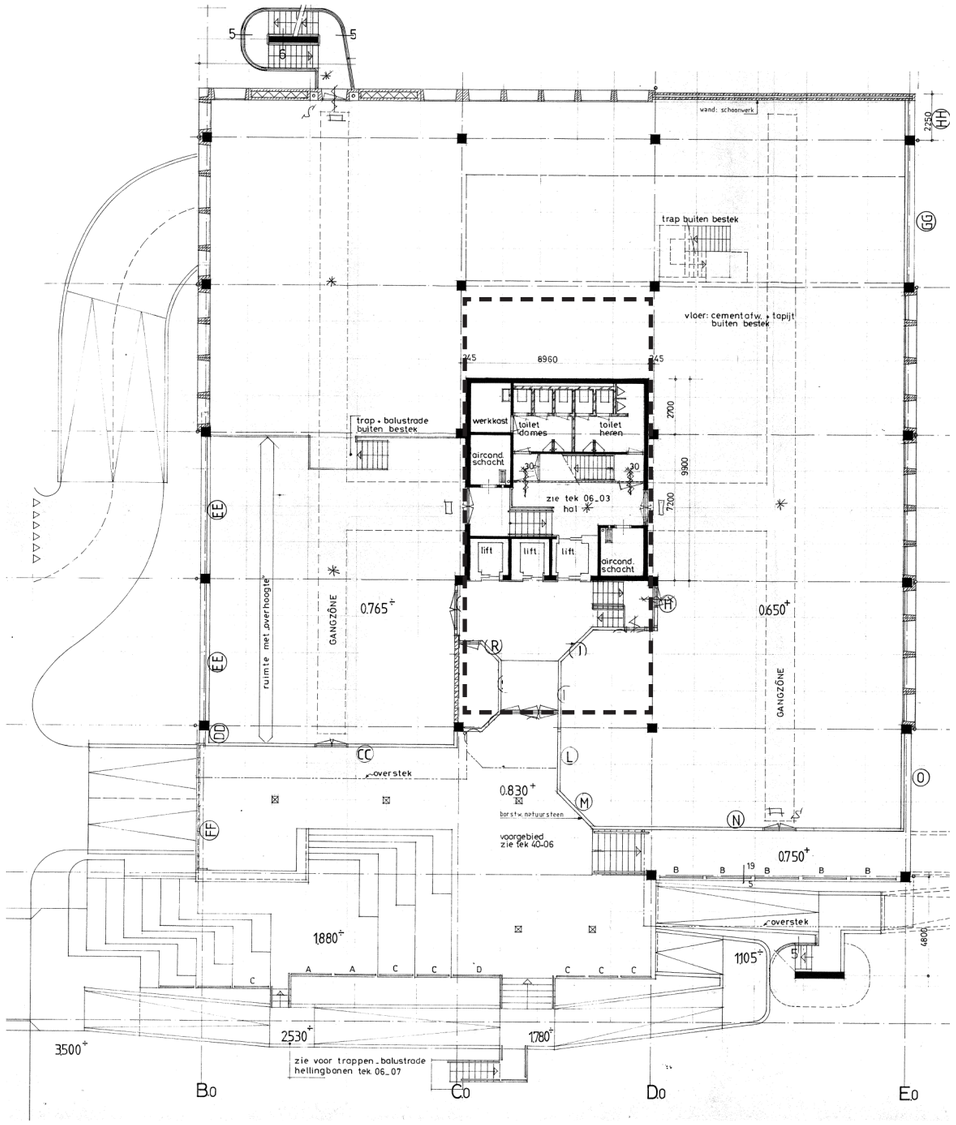
Current situation

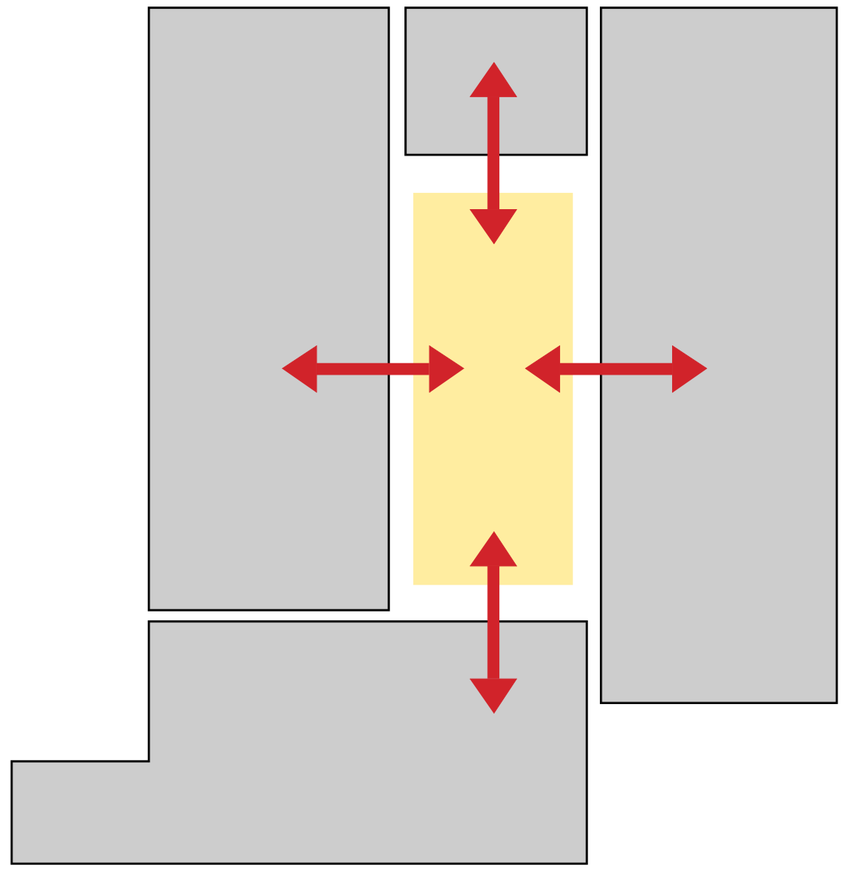
-- Concrete core occupying center zone



Spatial proposal

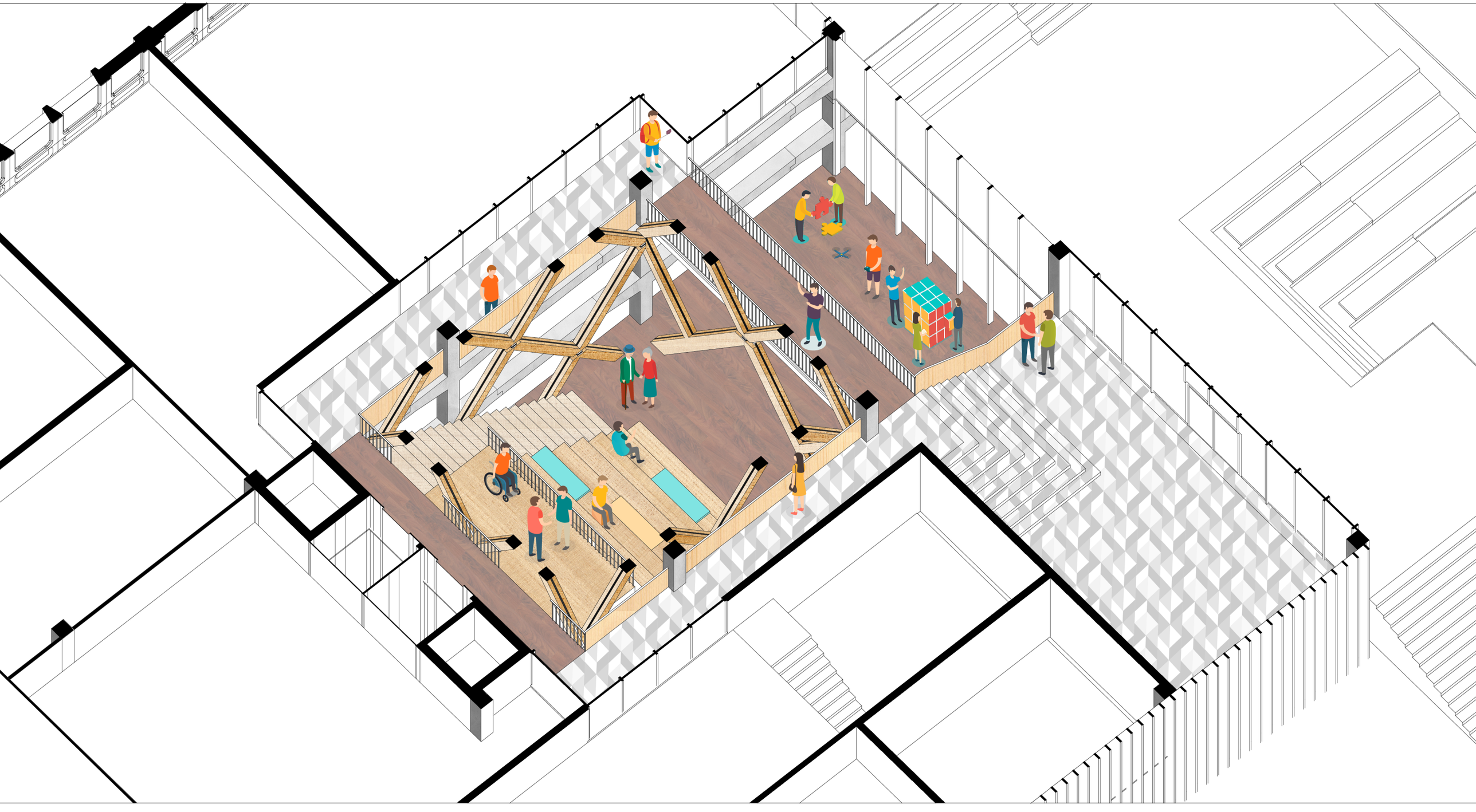
-- Creating attractive social platform
for all groups of people





Free the core !

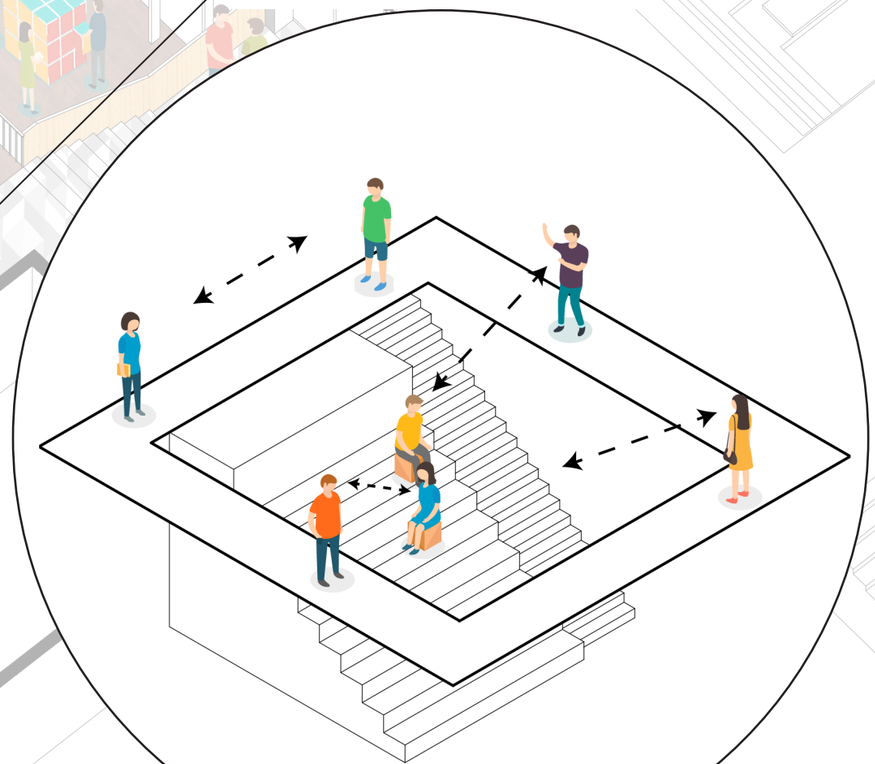
-- From functional core to social core

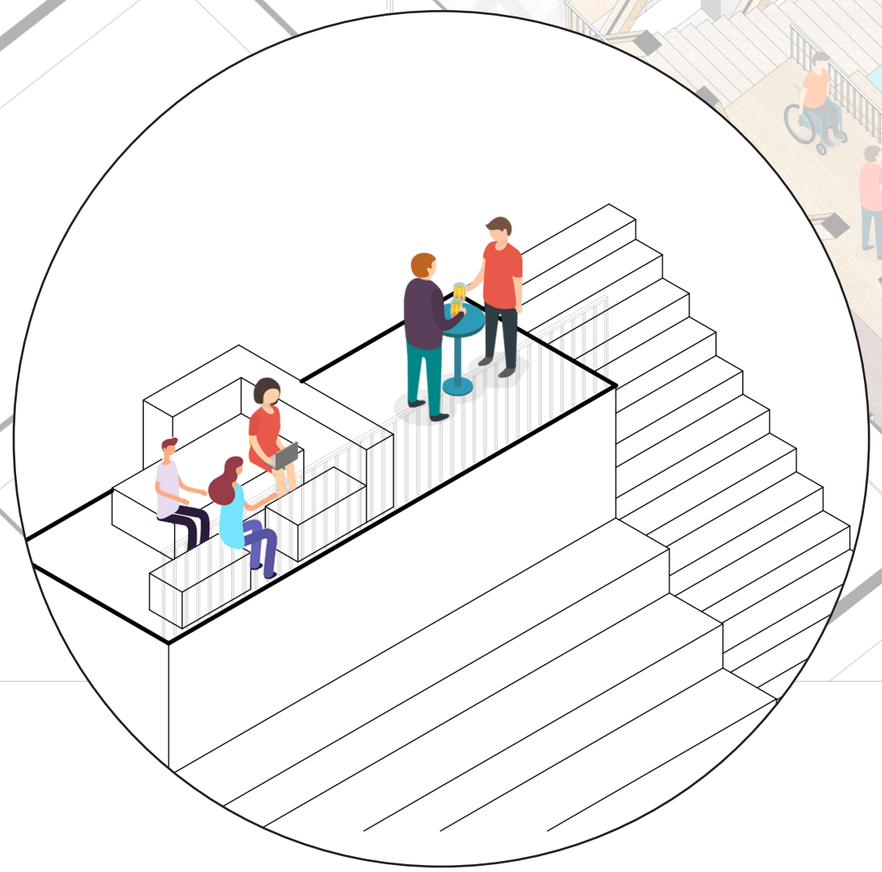




Chance contact

Passive contact



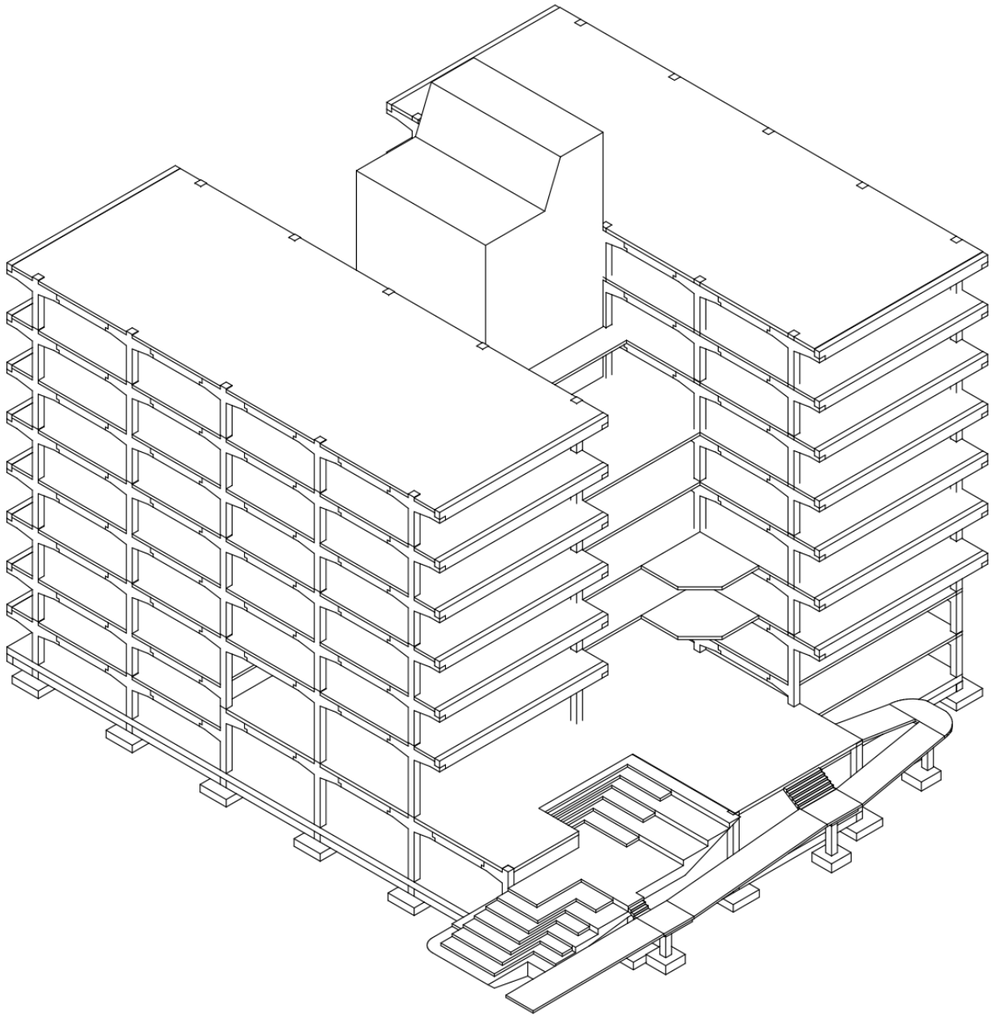


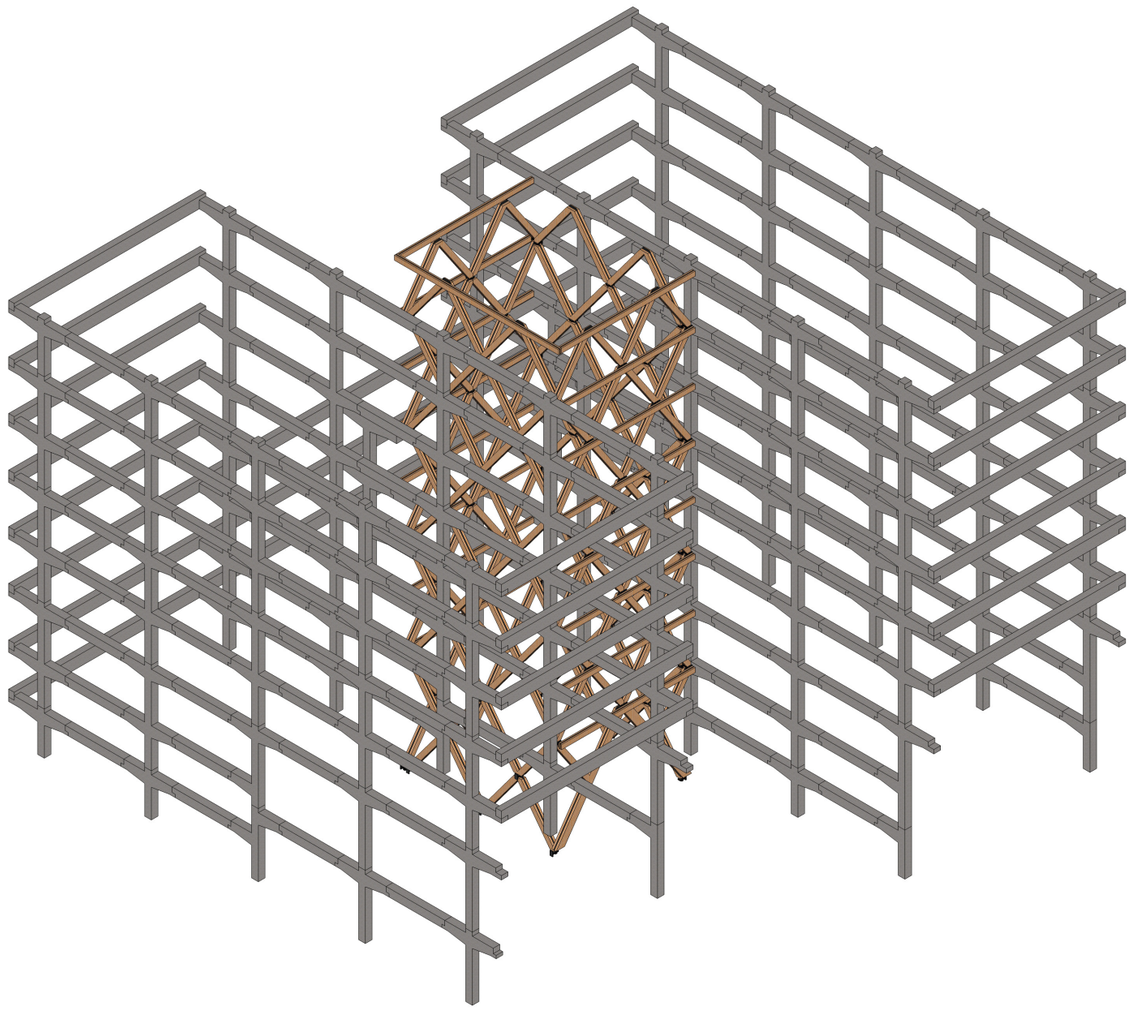
Close contact

The new social core

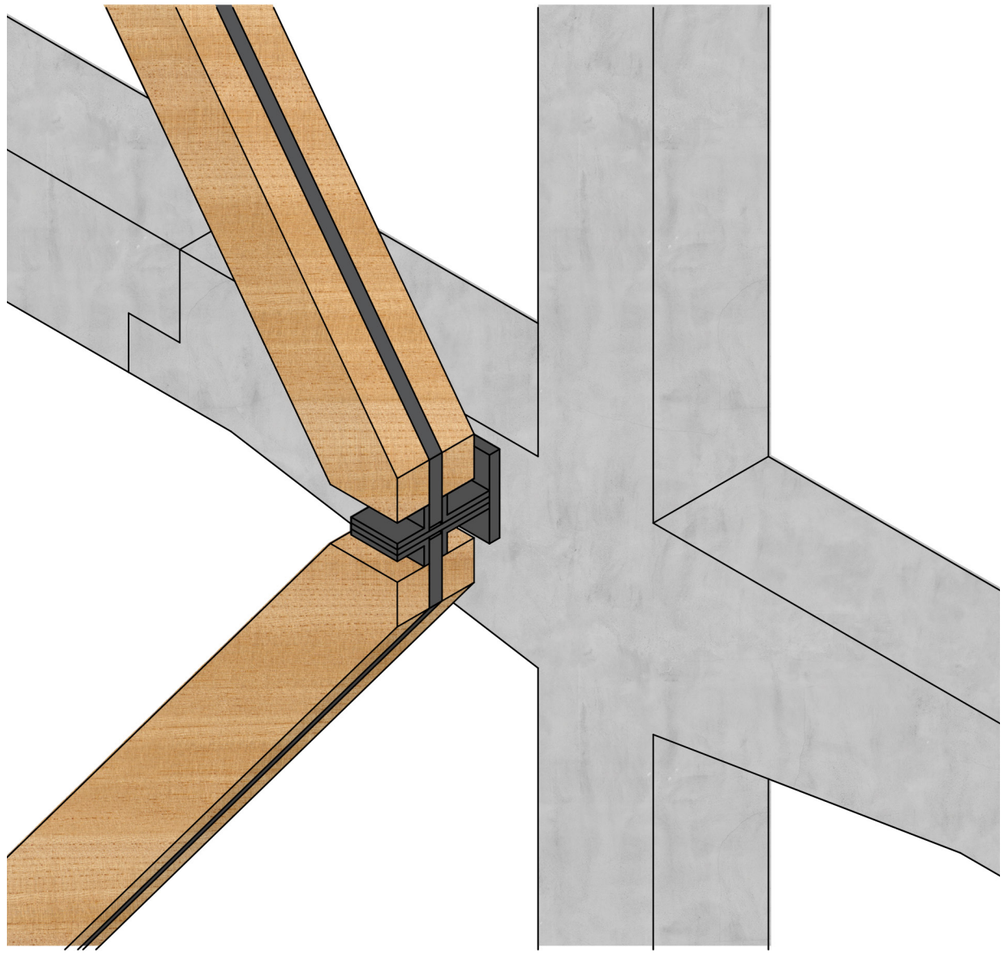
-- Diverse patterns of interaction

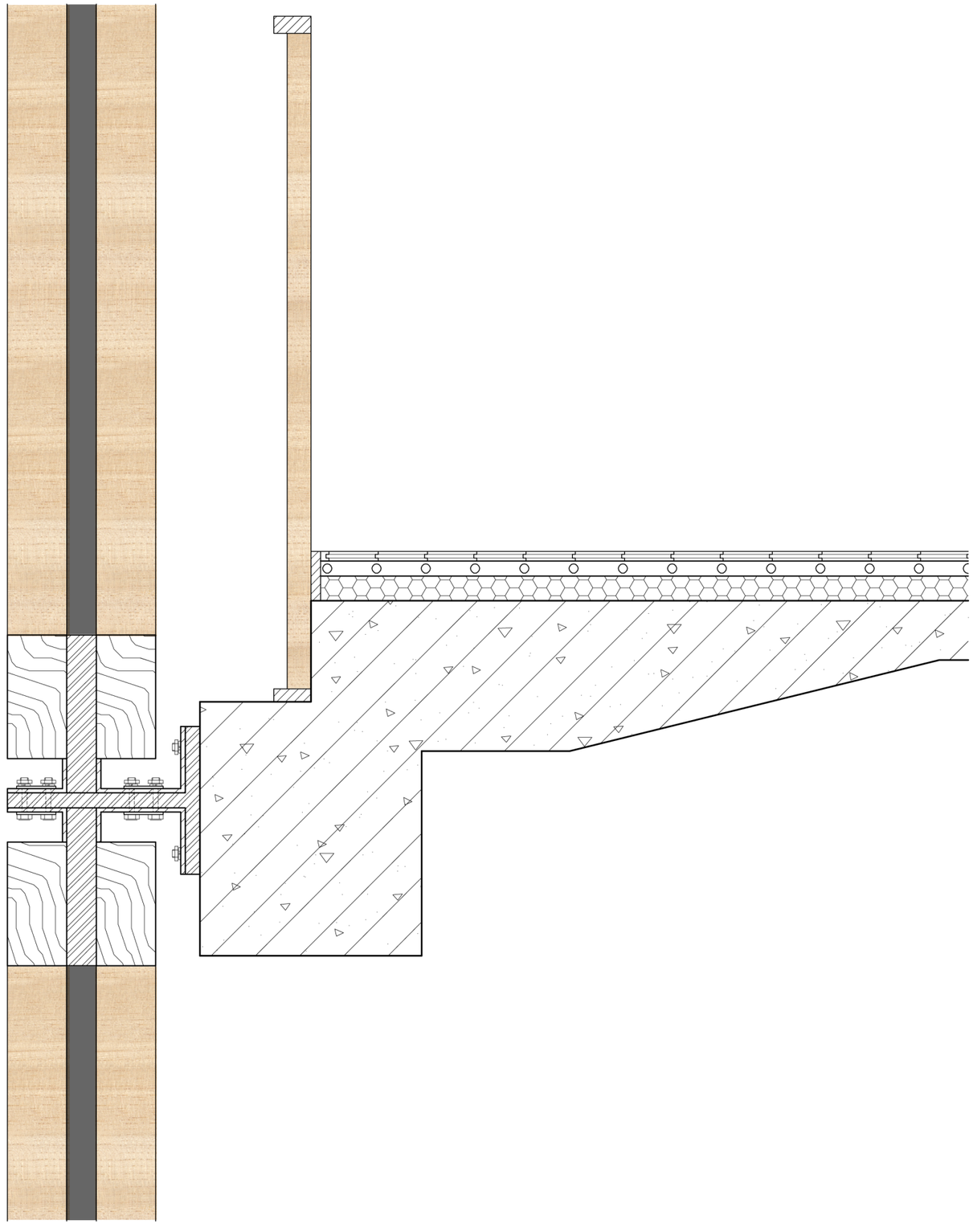
Structure strategy

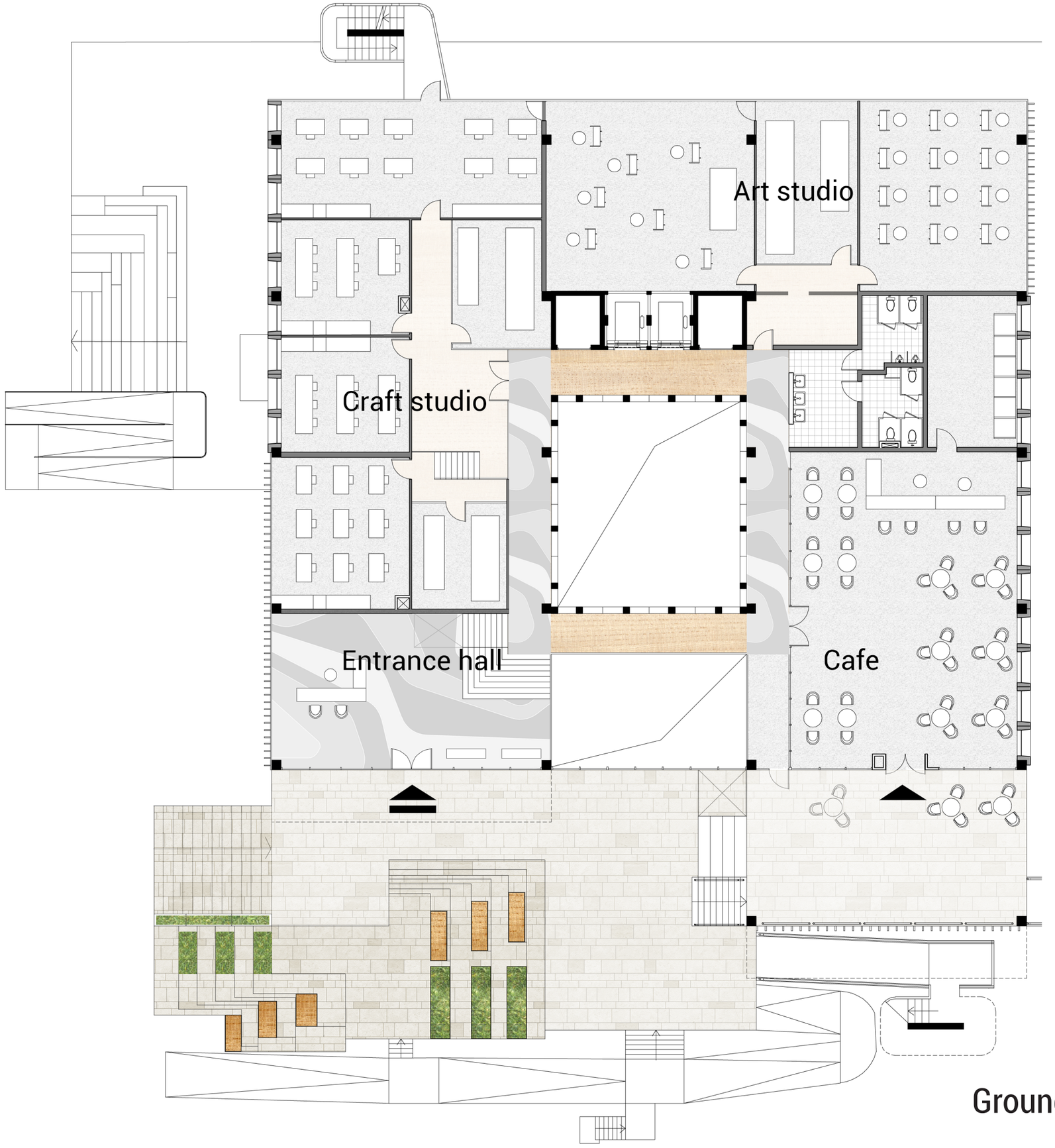




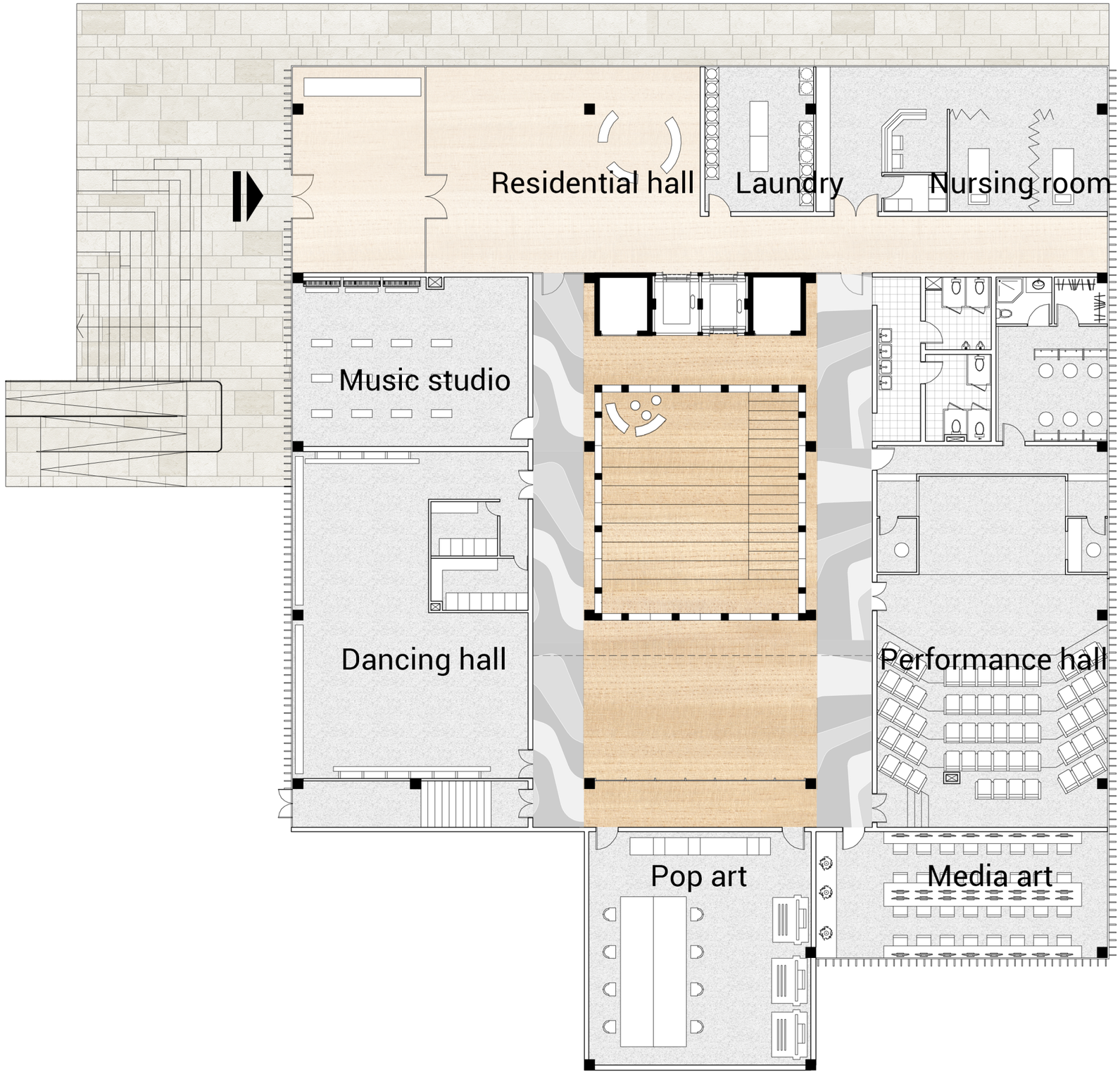
Structure detail







Ground floor plan

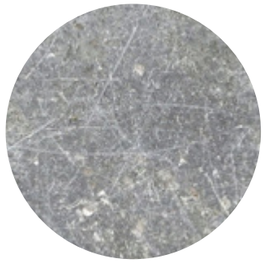

Residential hall
Laundry
Nursing room
Music studio
Dancing hall
Performance hall
Pop art
Media art
N

-1 Floor plan





Existing



Concrete

New



Engineered wood Flooring



Plywood



Glu-lam timber

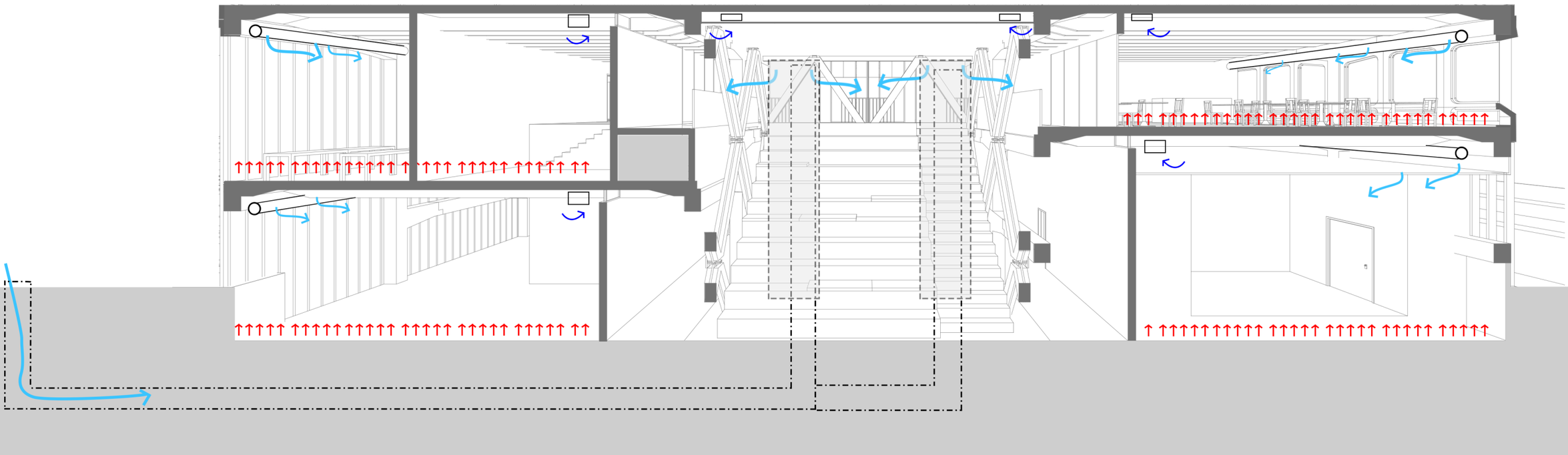


White plaster



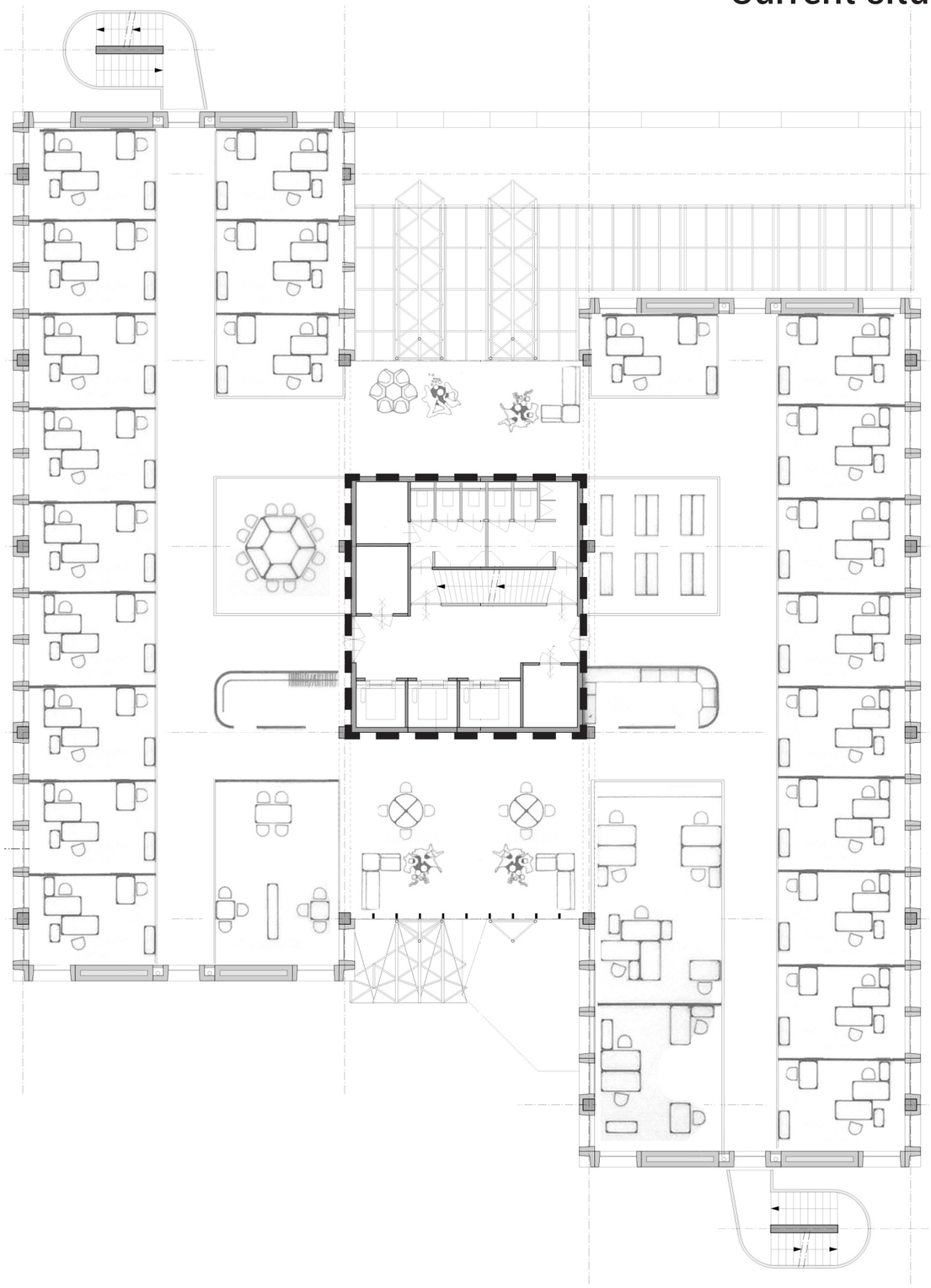
Seamless resin floor

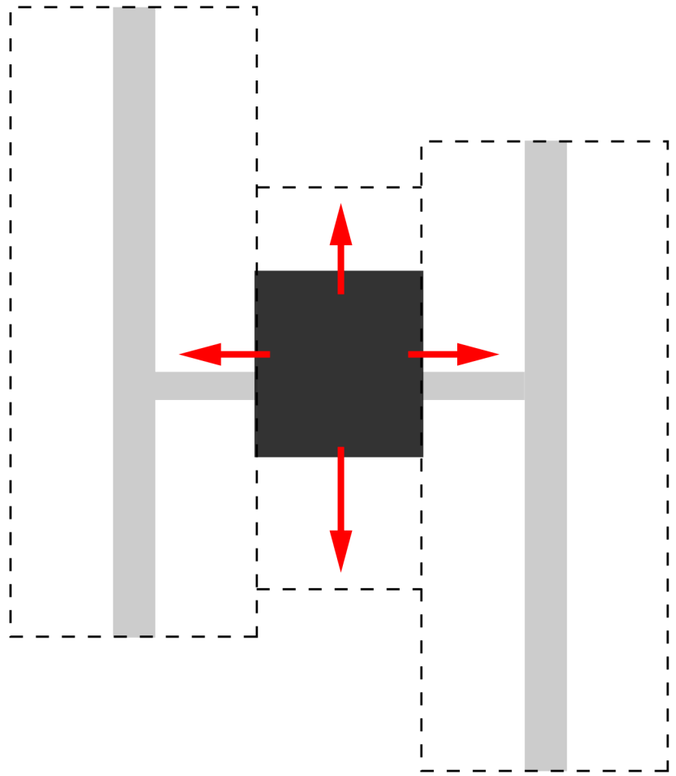
Climate scheme



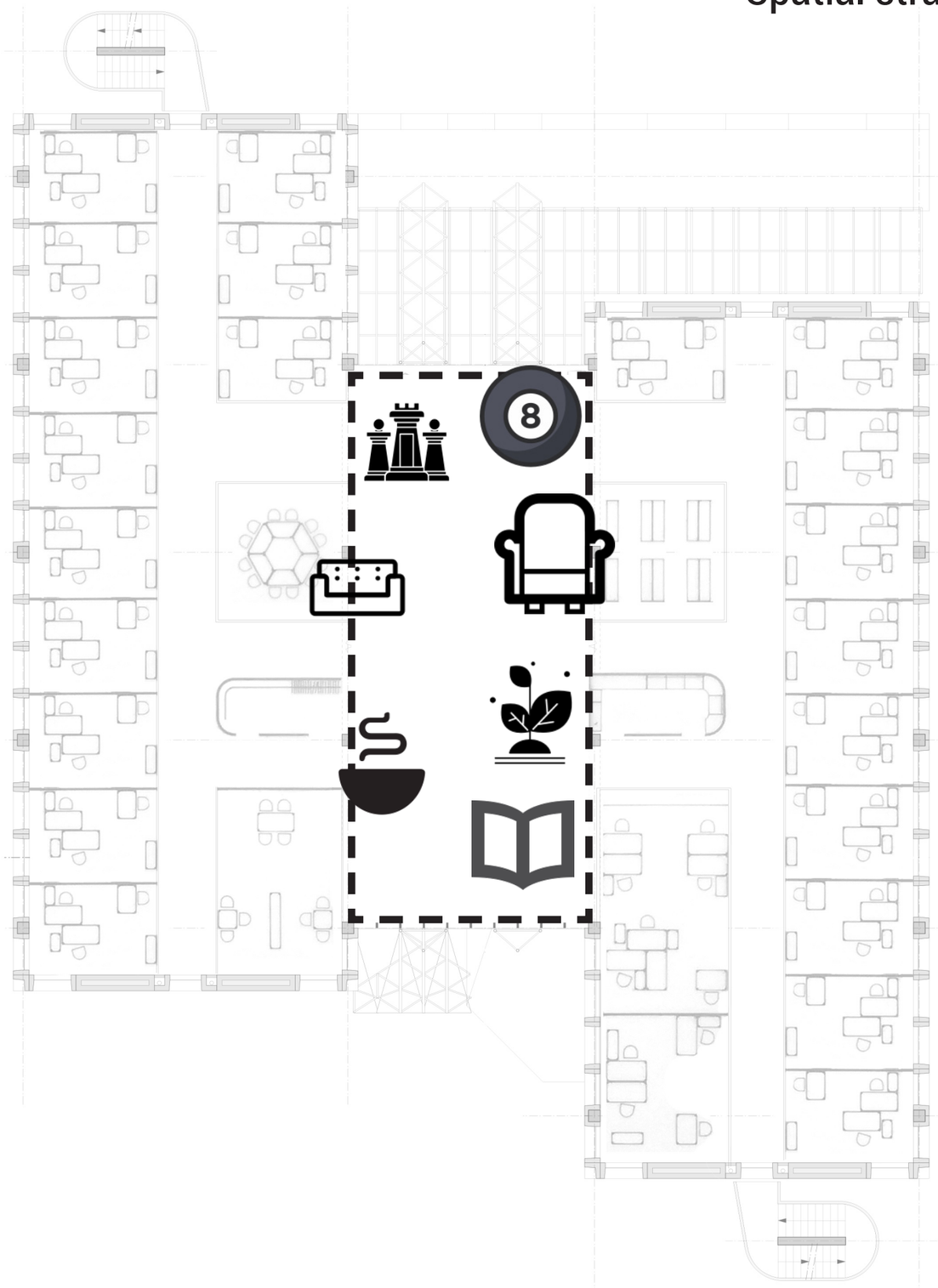
Housing

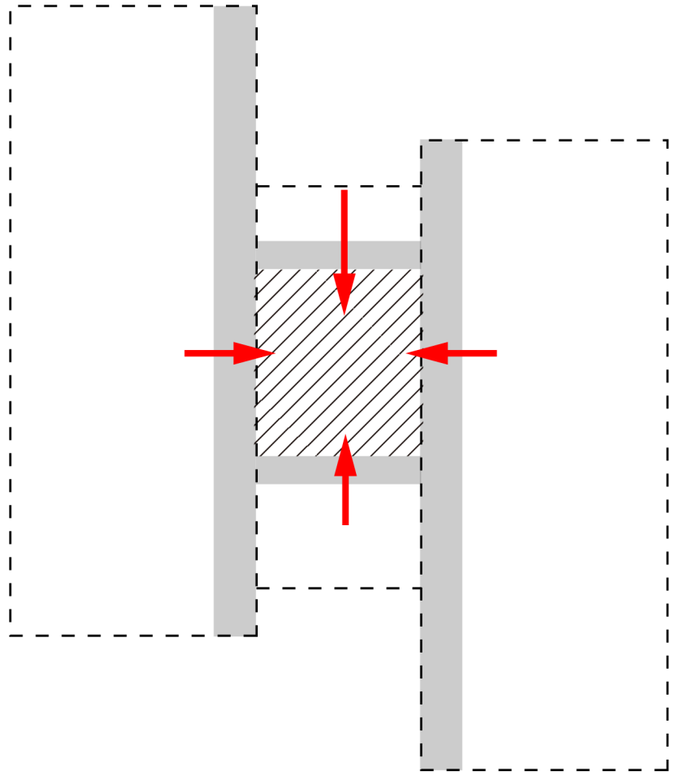
Current situation



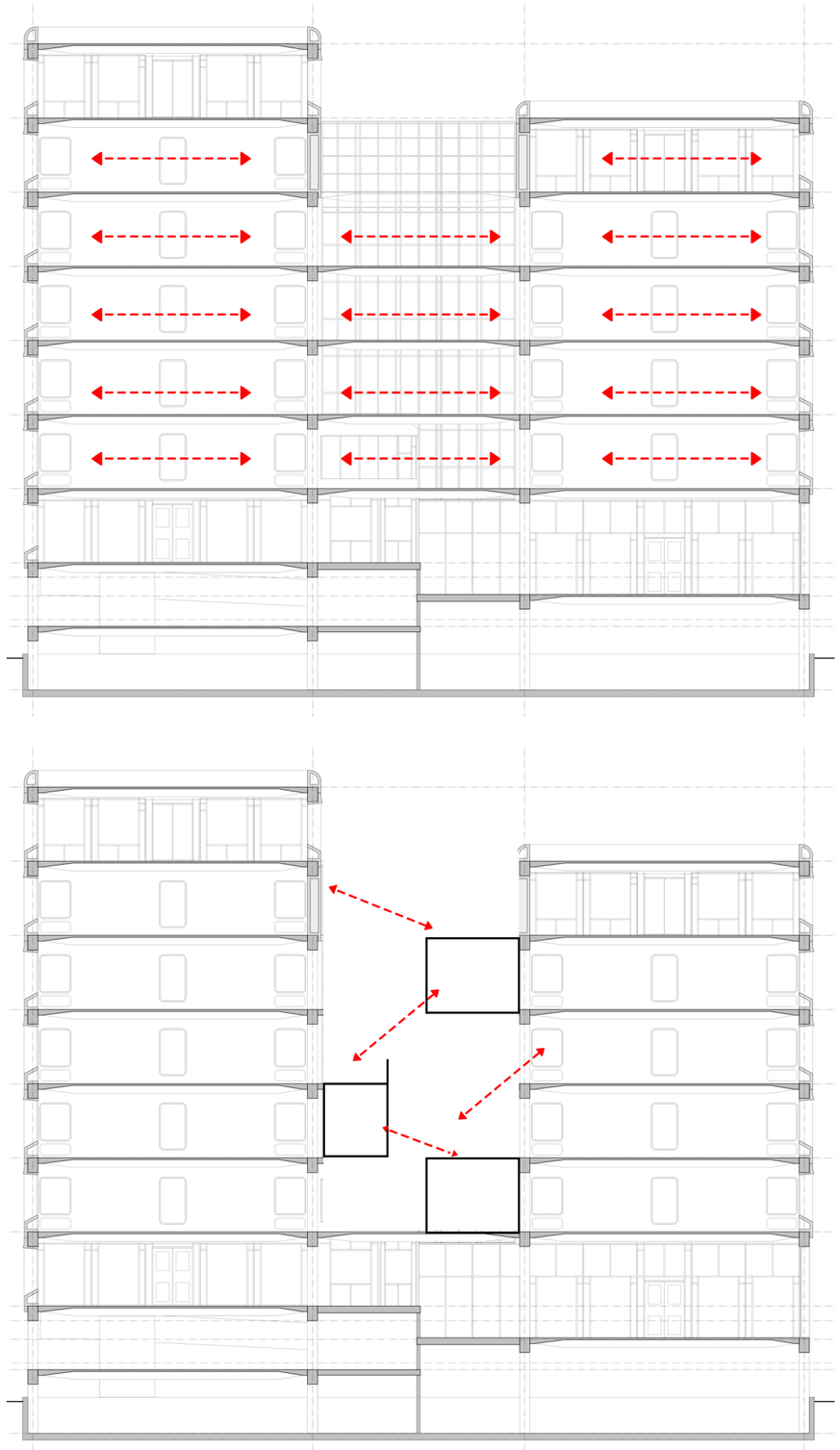


Spatial strategy

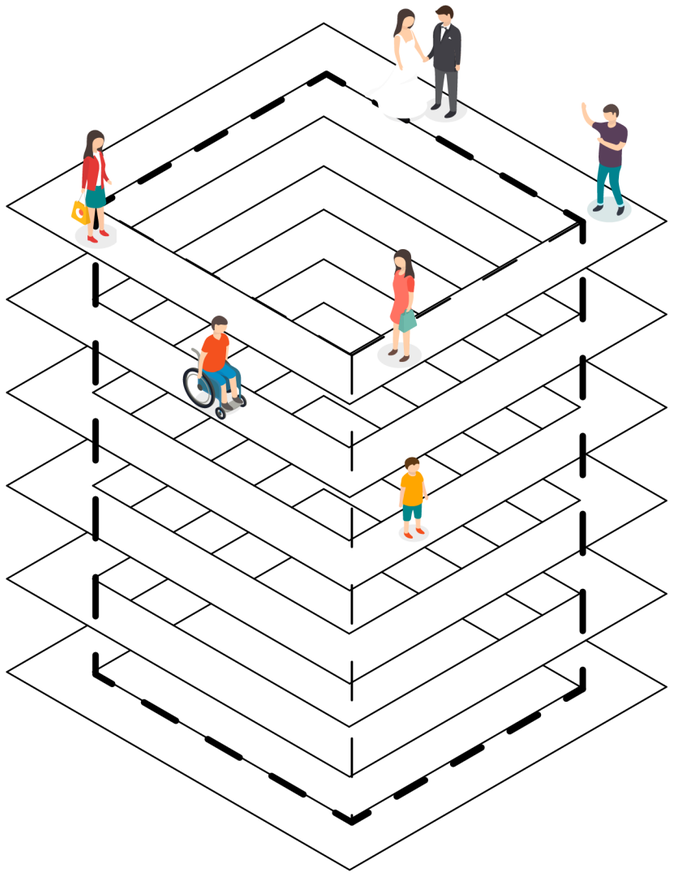




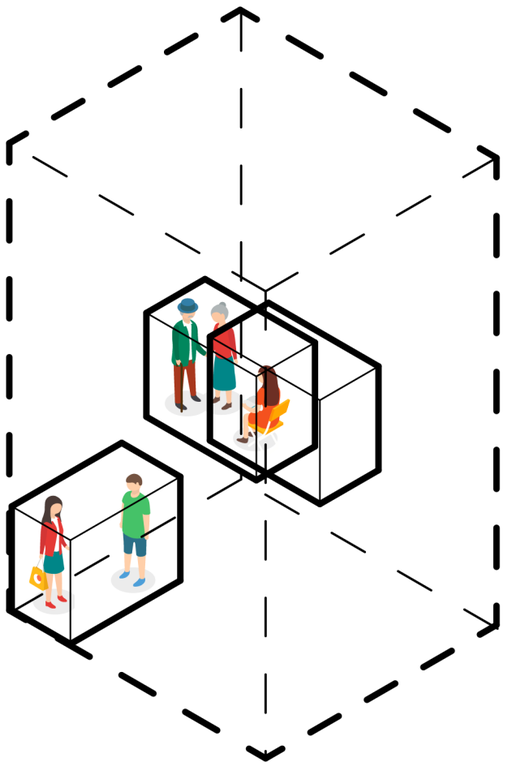
Spatial strategy



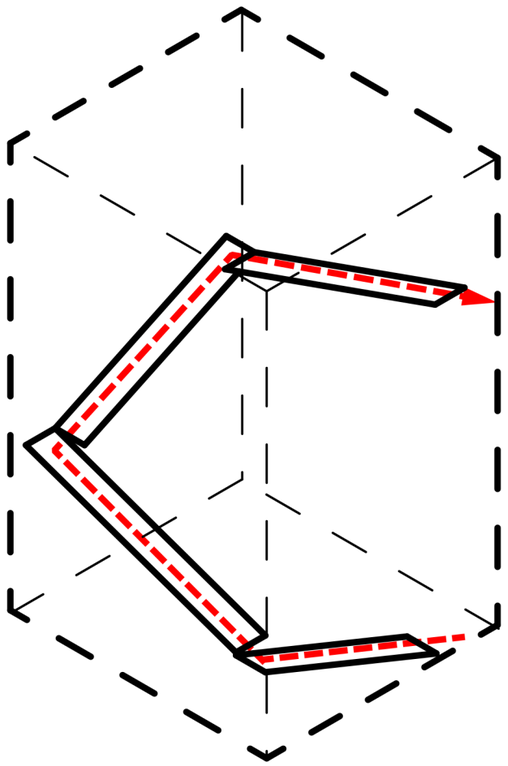
Spatial elements



Corridor

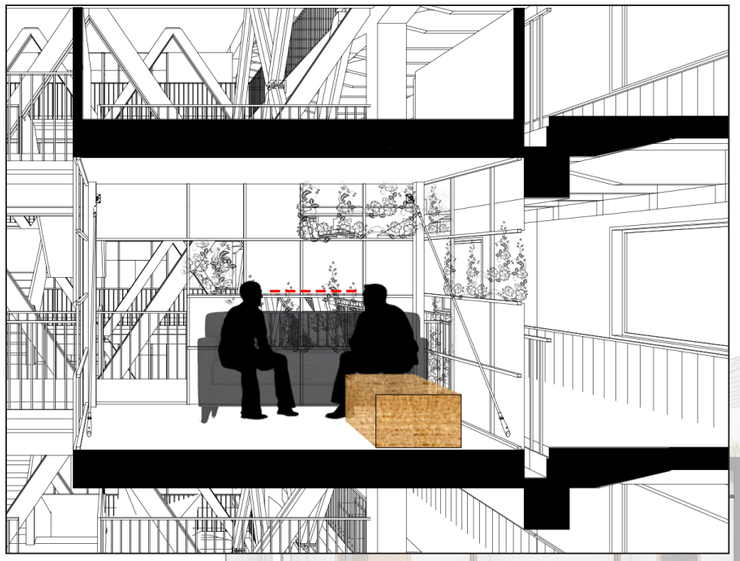


Communal box



Vertical connections

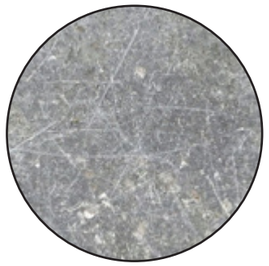




Close contact

Passive contact

Chance contact



Concrete



Glass roof
with BIPV



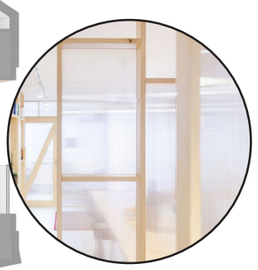
Engineered wood
Flooring



White plaster



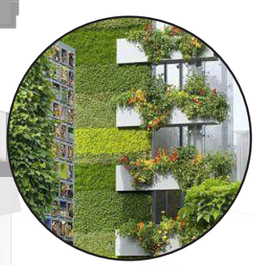
Plywood



semi-transparent
polycarbonate panels

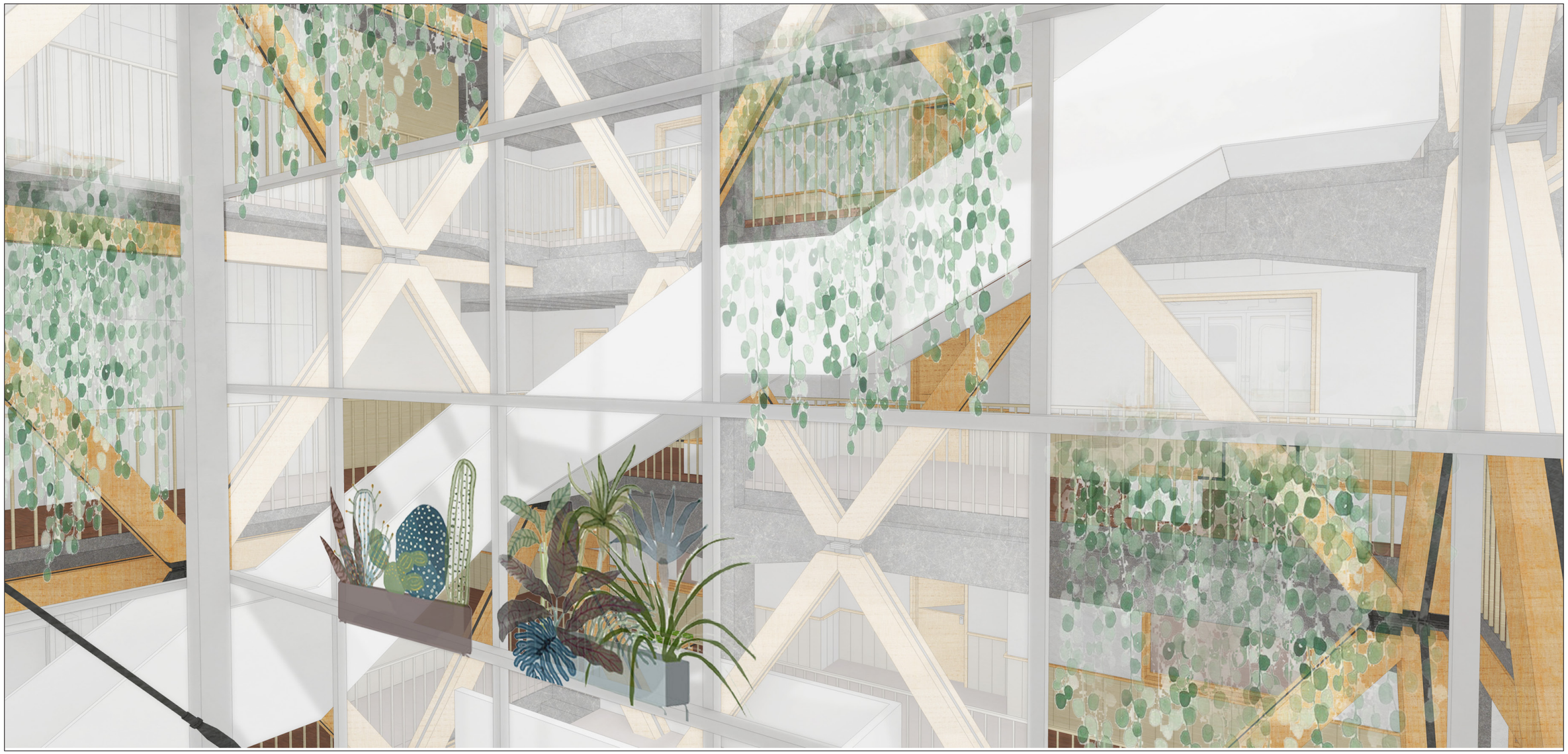


Glu-lam timber



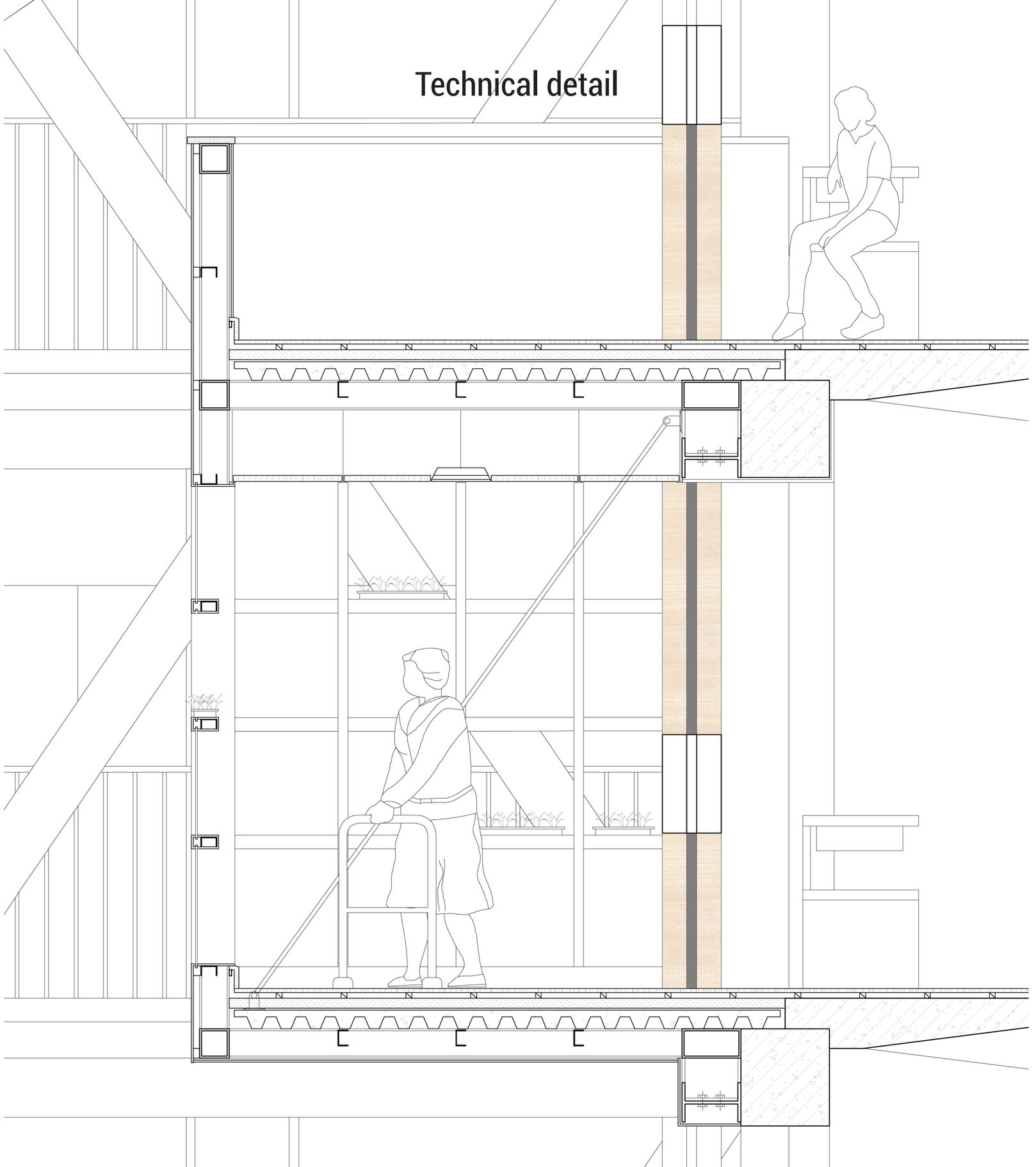
Vines and
plantings

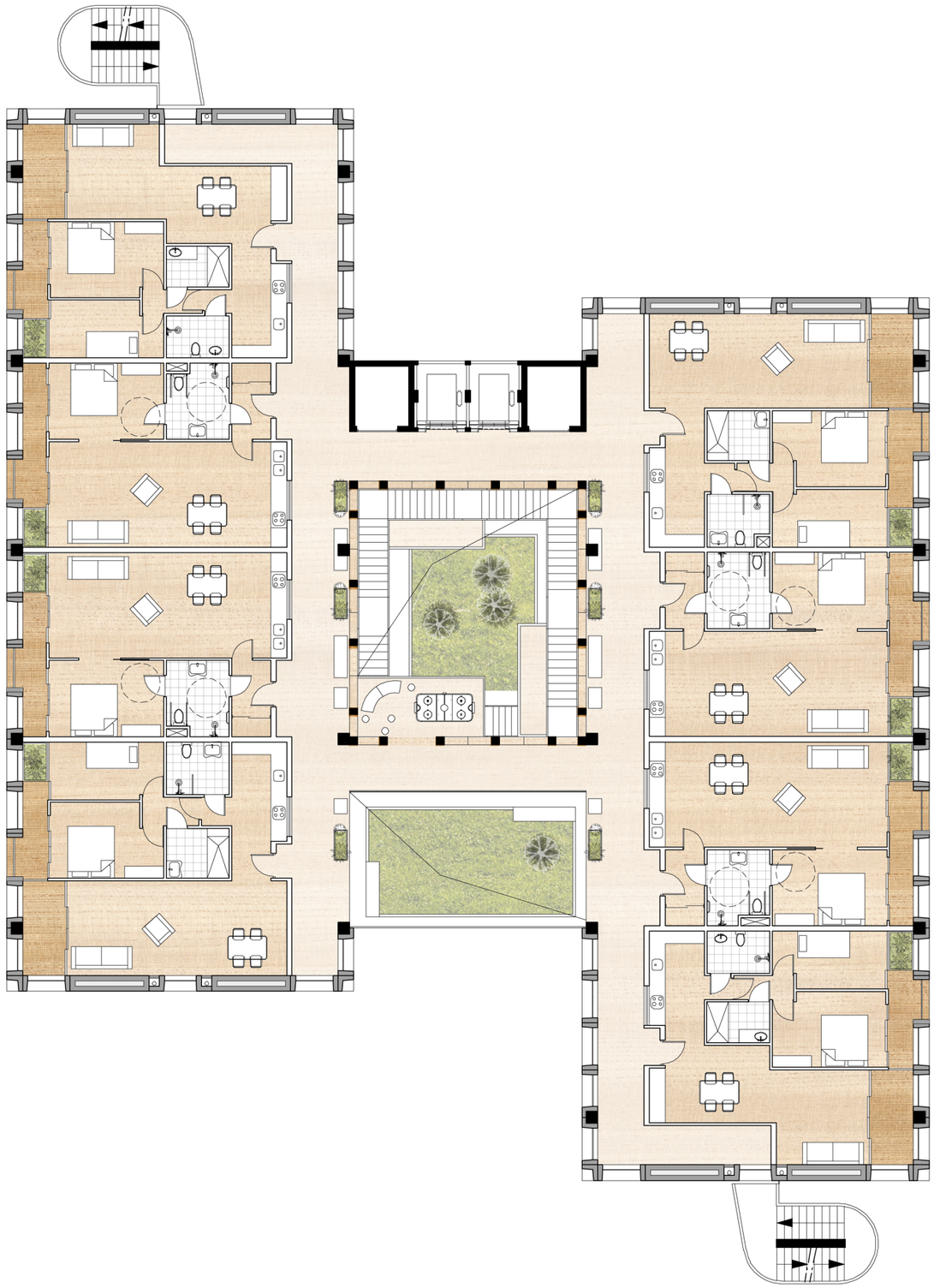




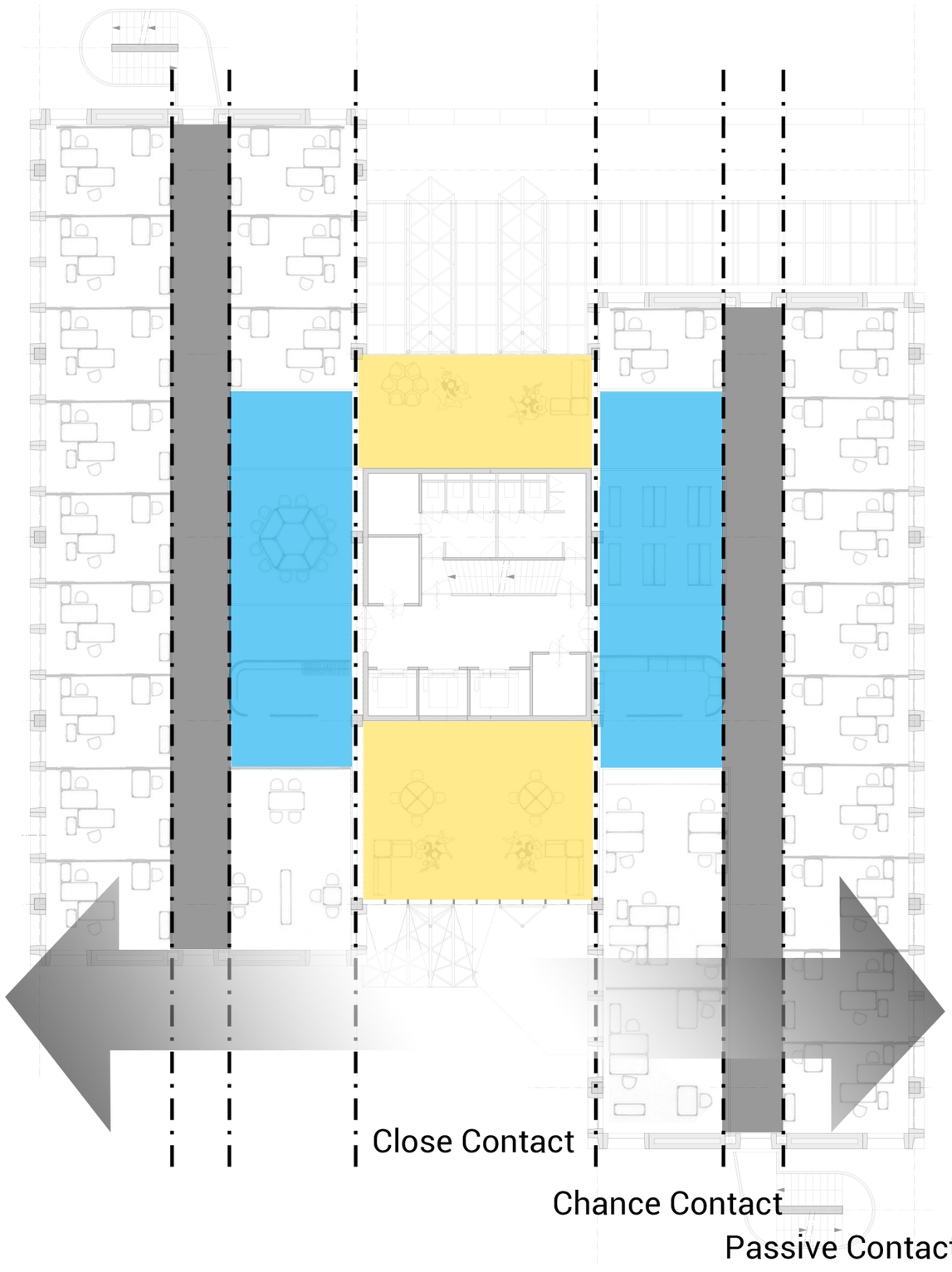


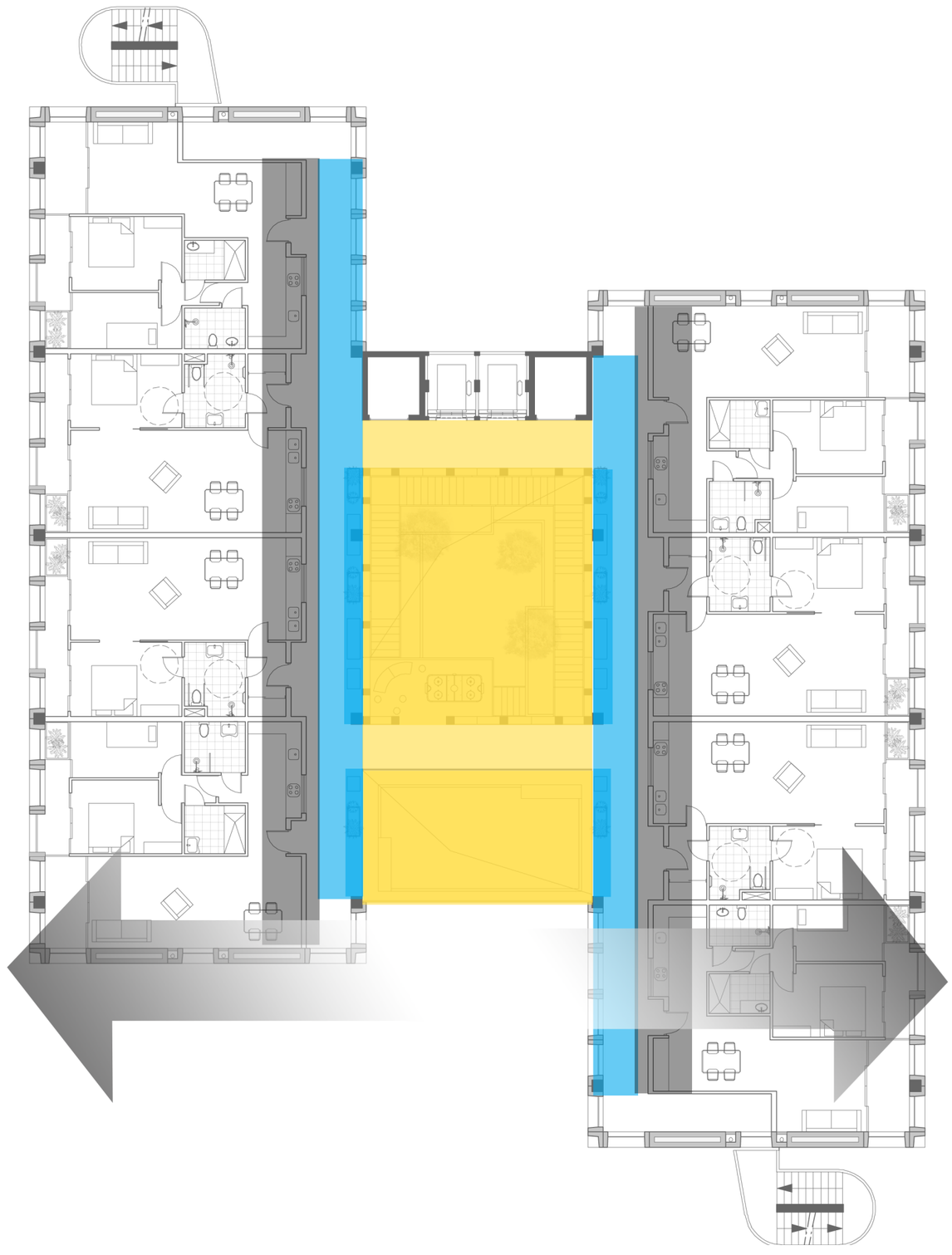
Technical detail

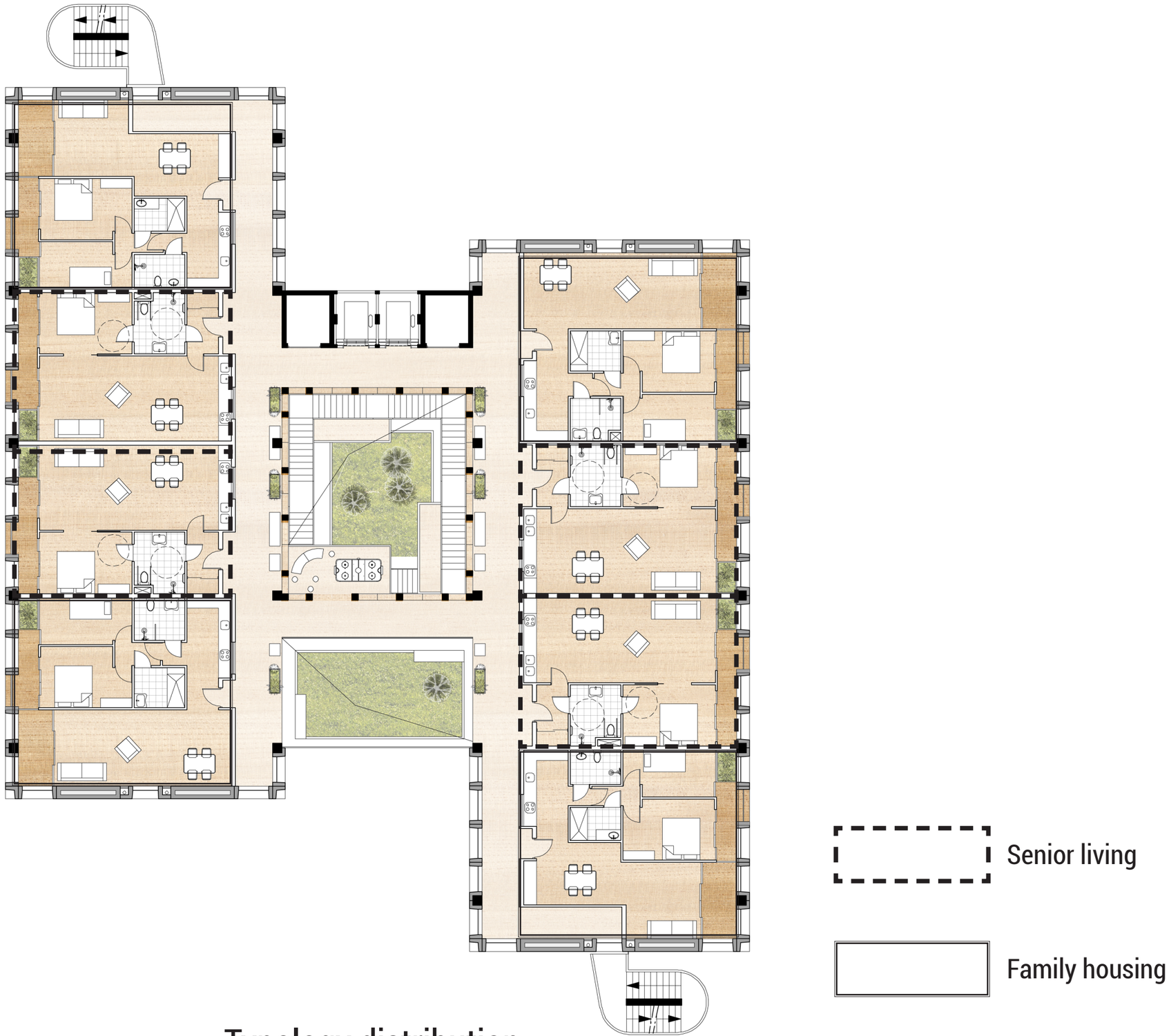




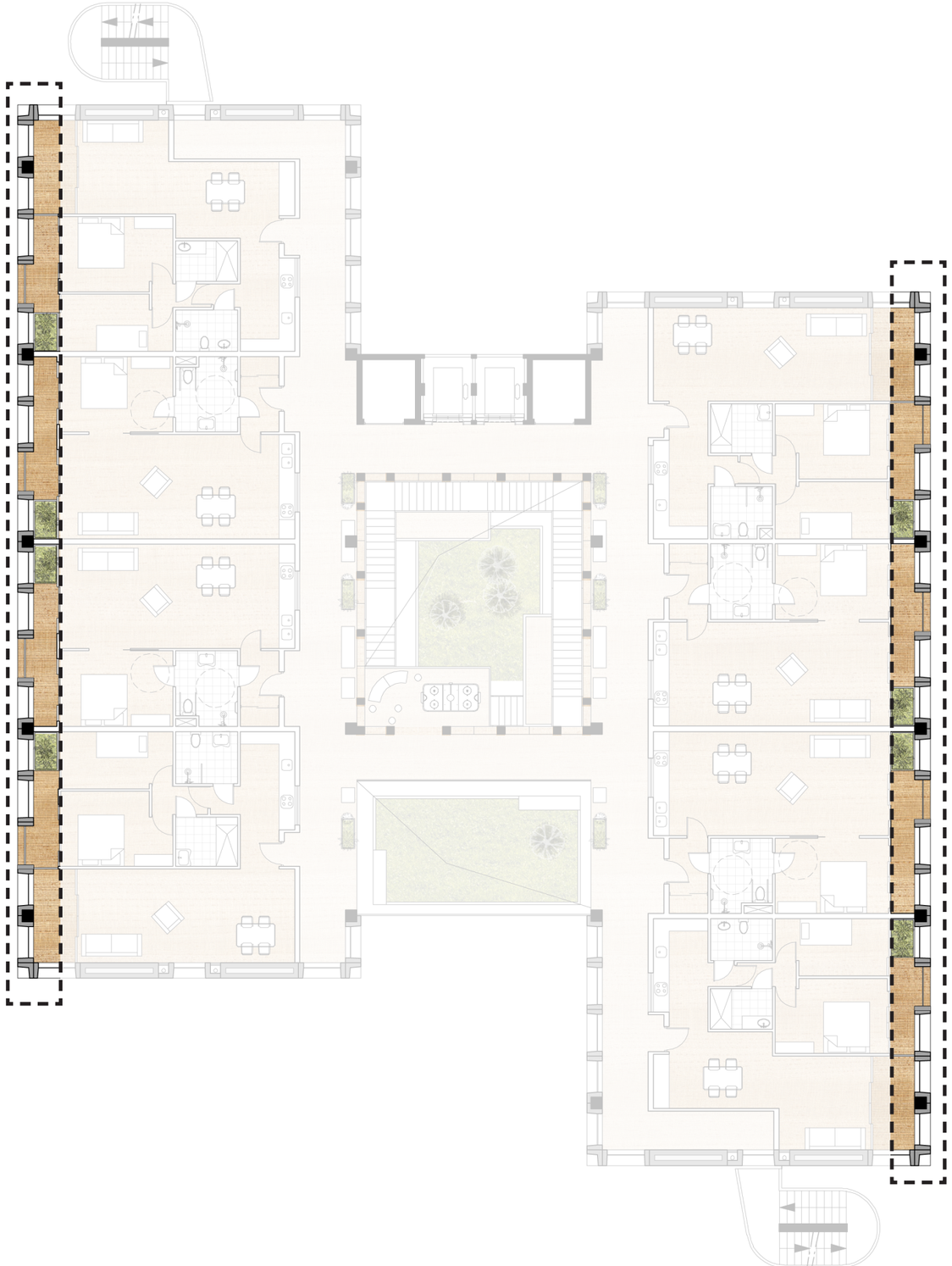
Standard floor plan


Close Contact
Chance Contact
Passive Contact





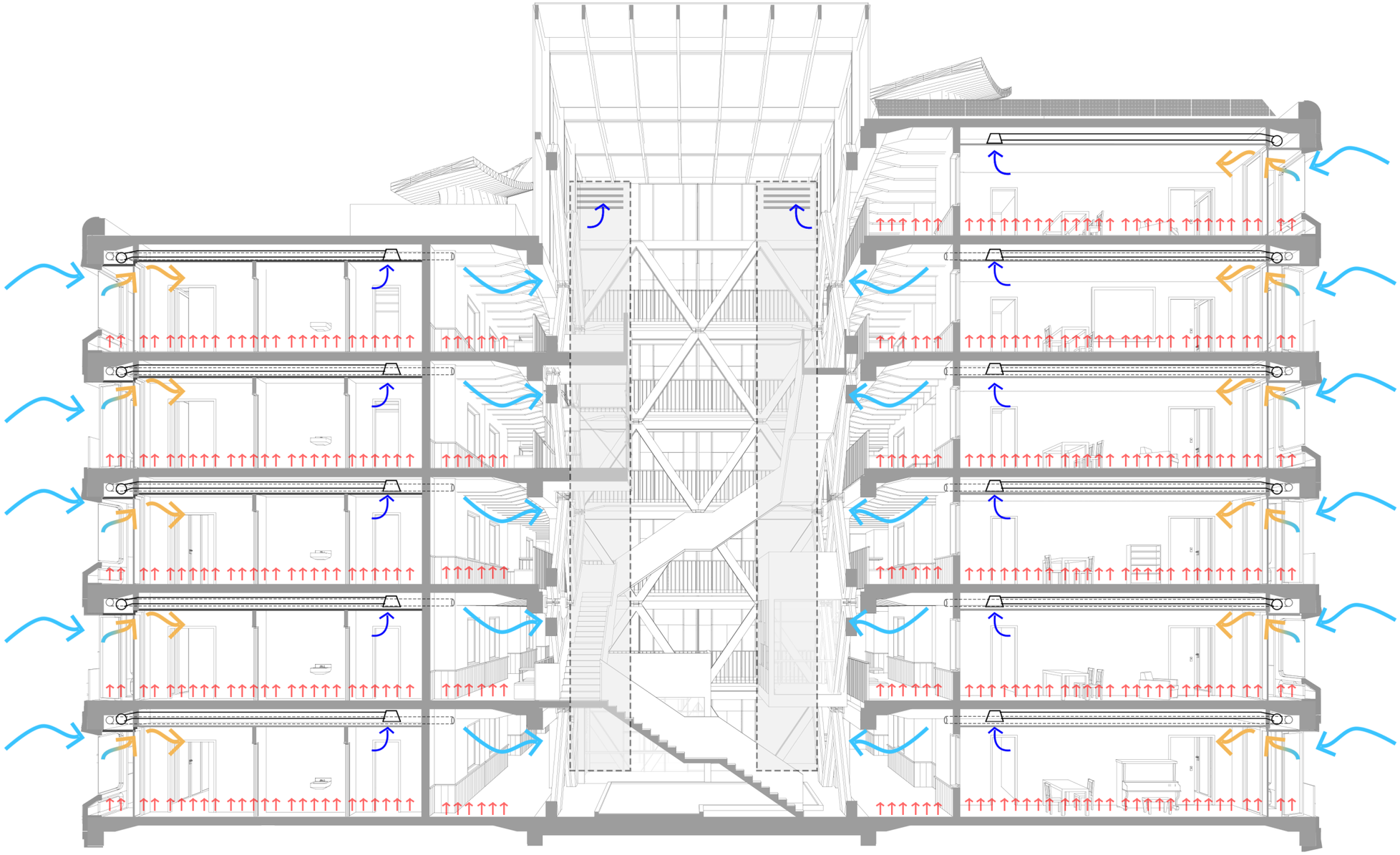
Typology distribution



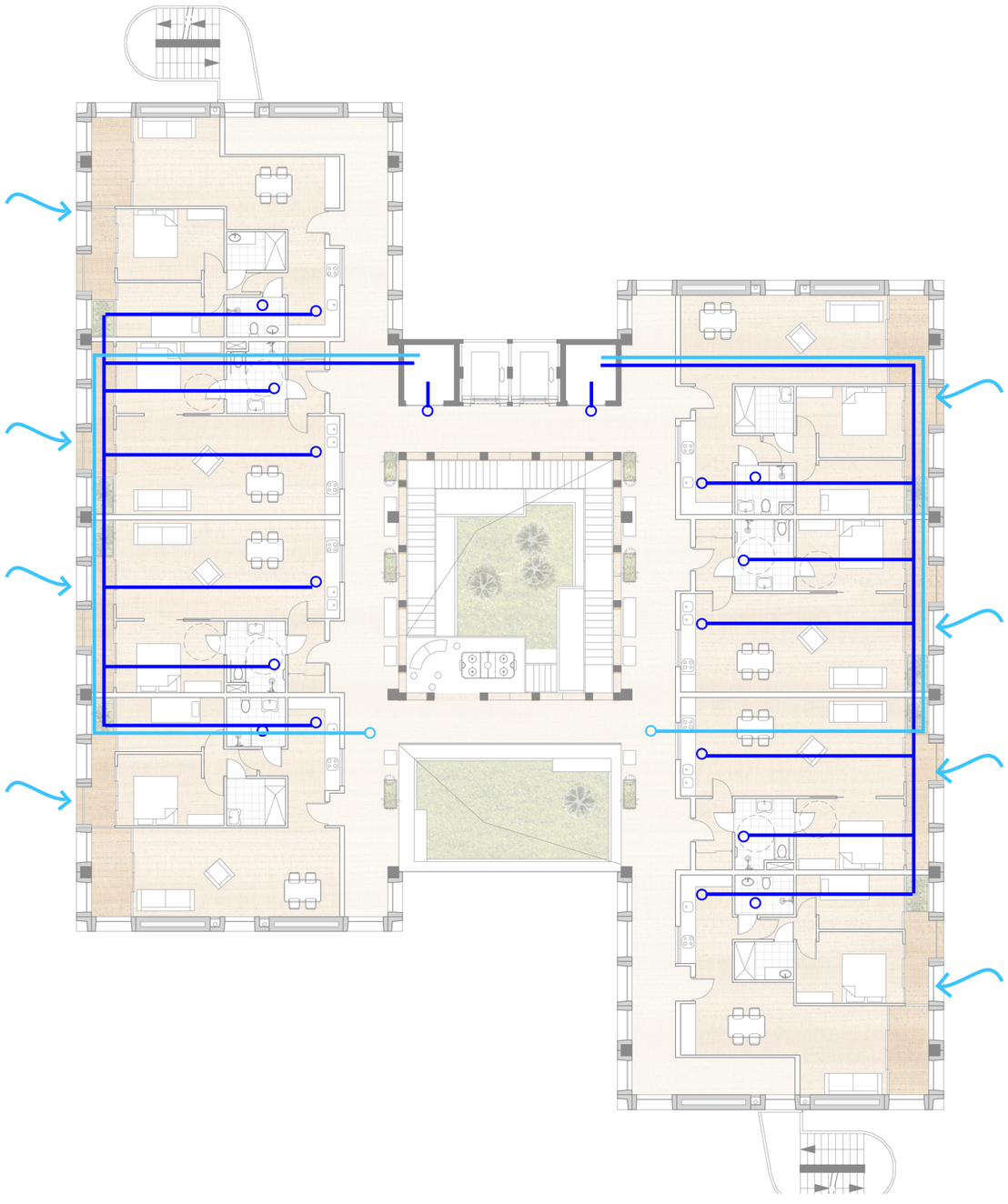




Climate scheme (Winter)



Ventilation Piping and space



Natural air supply

Mechanical air supply

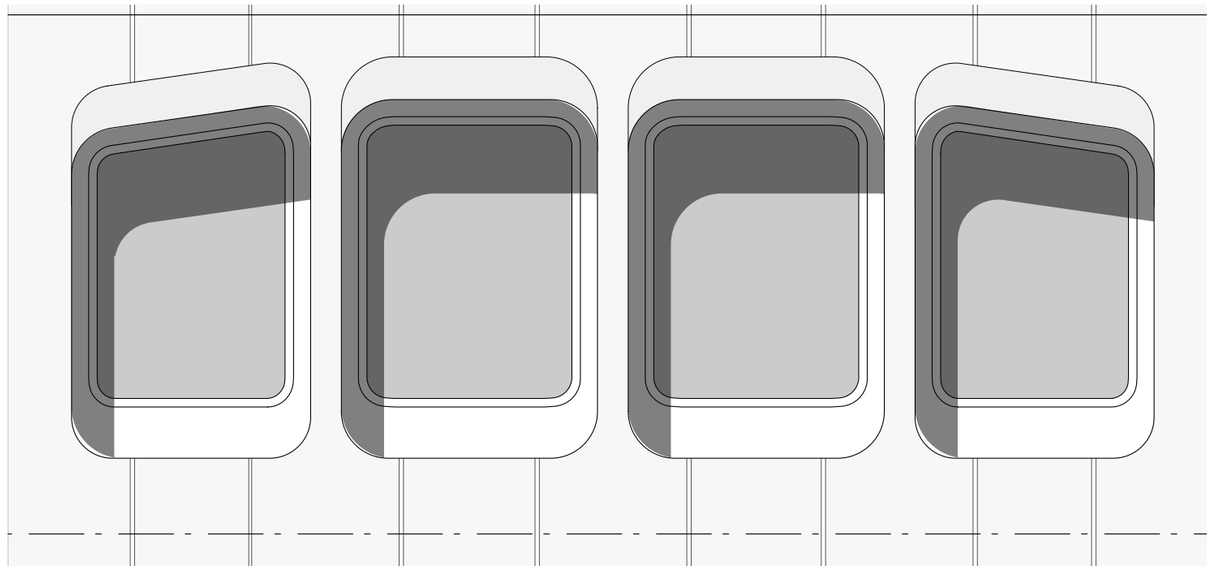
Mechanical air exhaustion



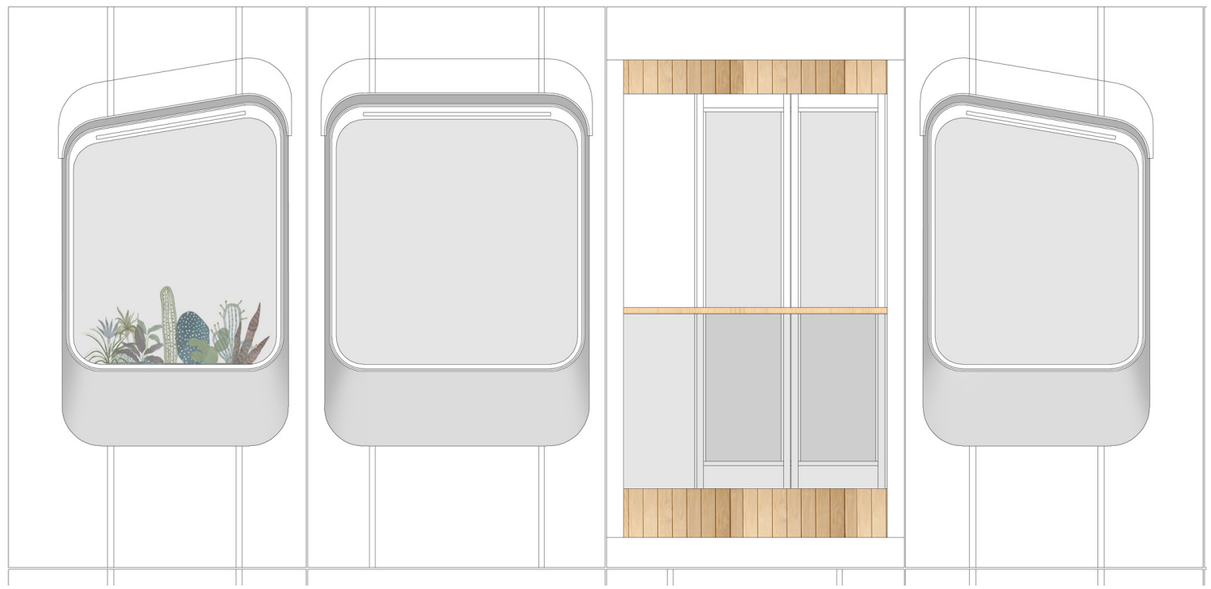

8
7
6
5
4
3
2
1
50400
7200
7200
7200
7200
7200
7200
7200
23750+
dak / installatie ruimte
3300
20450+
6e verdieping
3300
17150+
5e verdieping
3300
13850+
4e verdieping
3300
10550+
3e verdieping
3300
7250+
2e verdieping
3300
3950+
1e verdieping
3300
650+
begane grond half verhoogd
peil = 0
830-
begane grond
1880-
begane grond
parkeergarage 0
2180-
5010-
parkeergarage -1

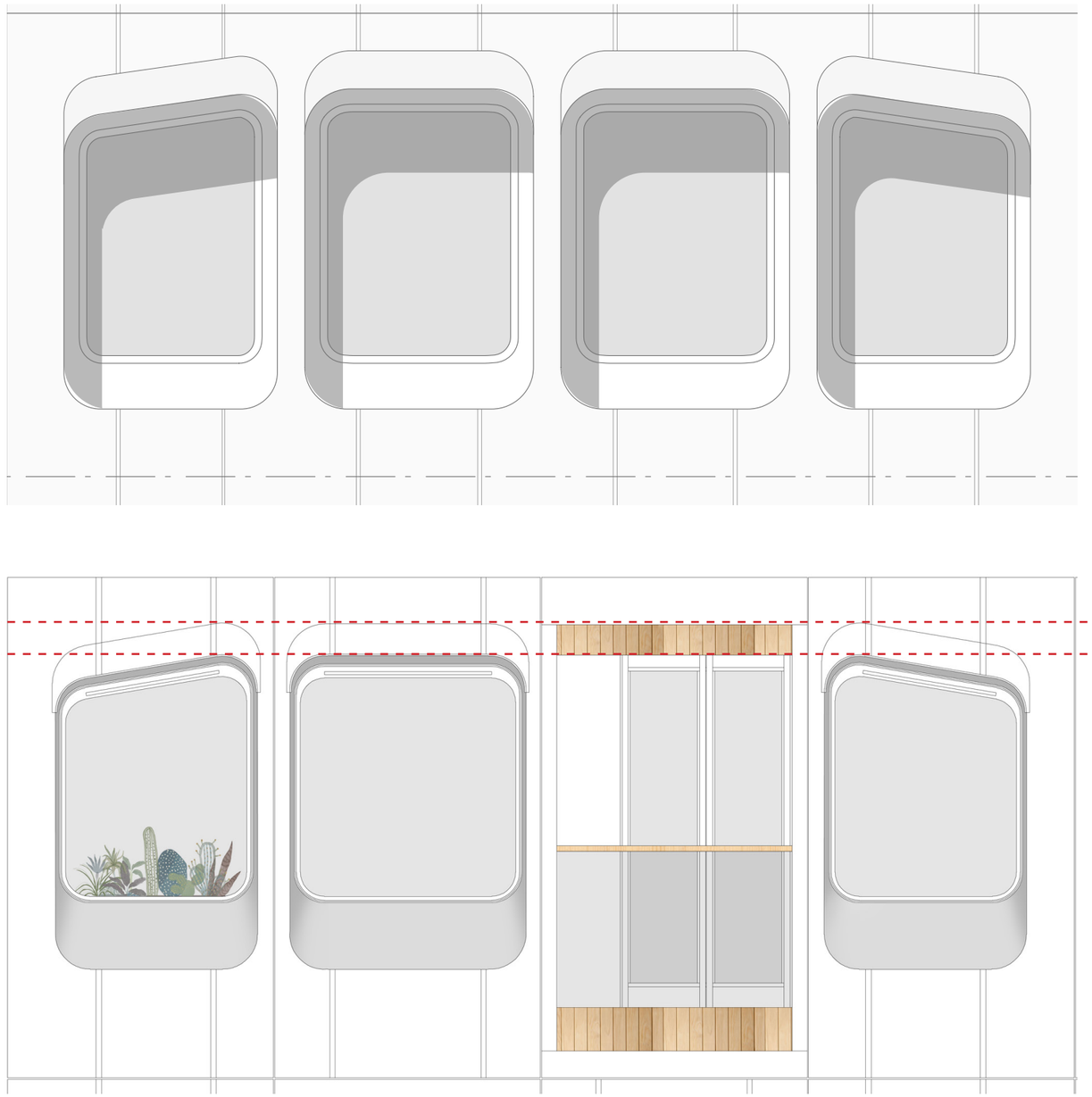
Rhythm and new quality -- facade

Current situation

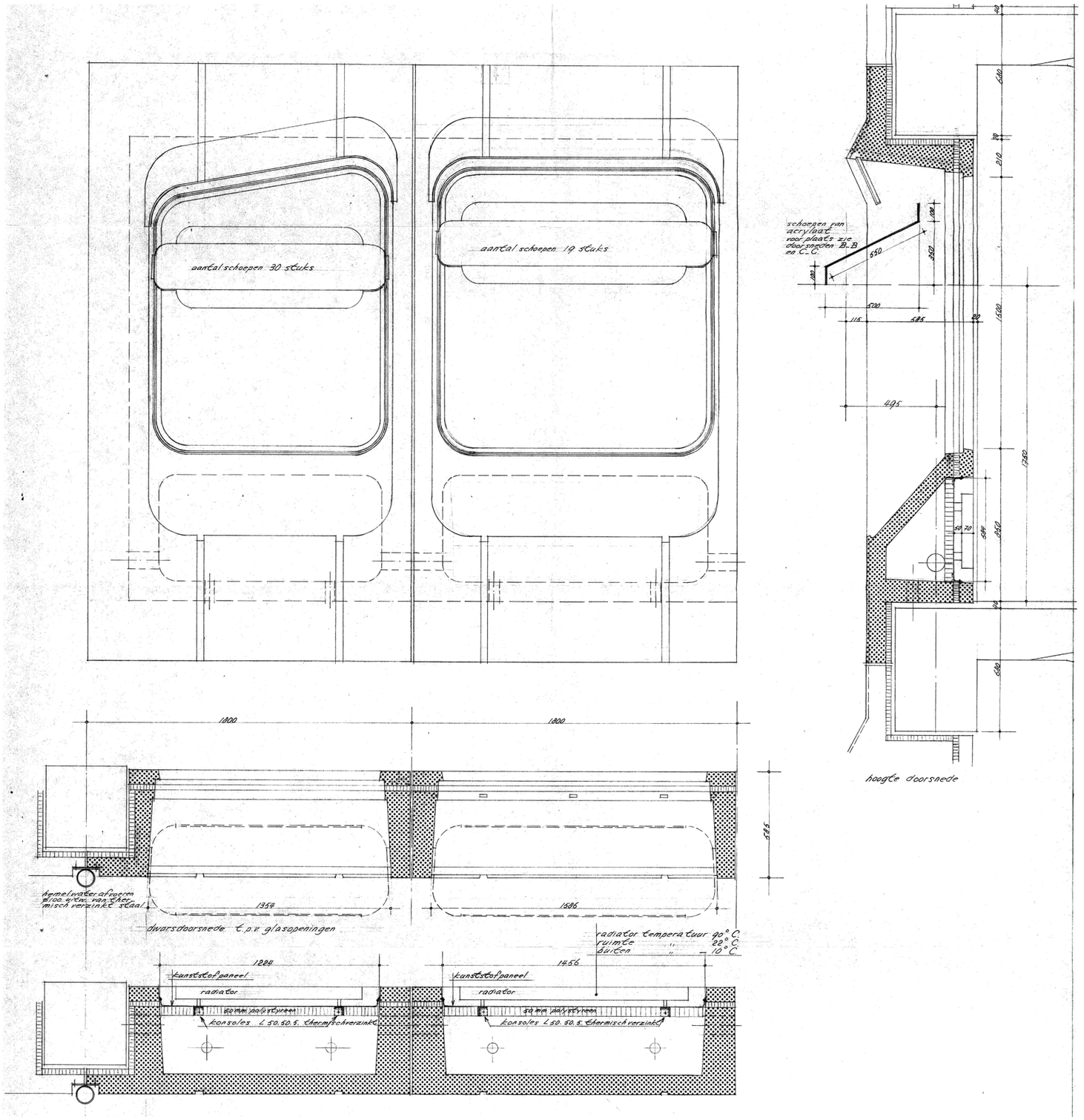


Proposal

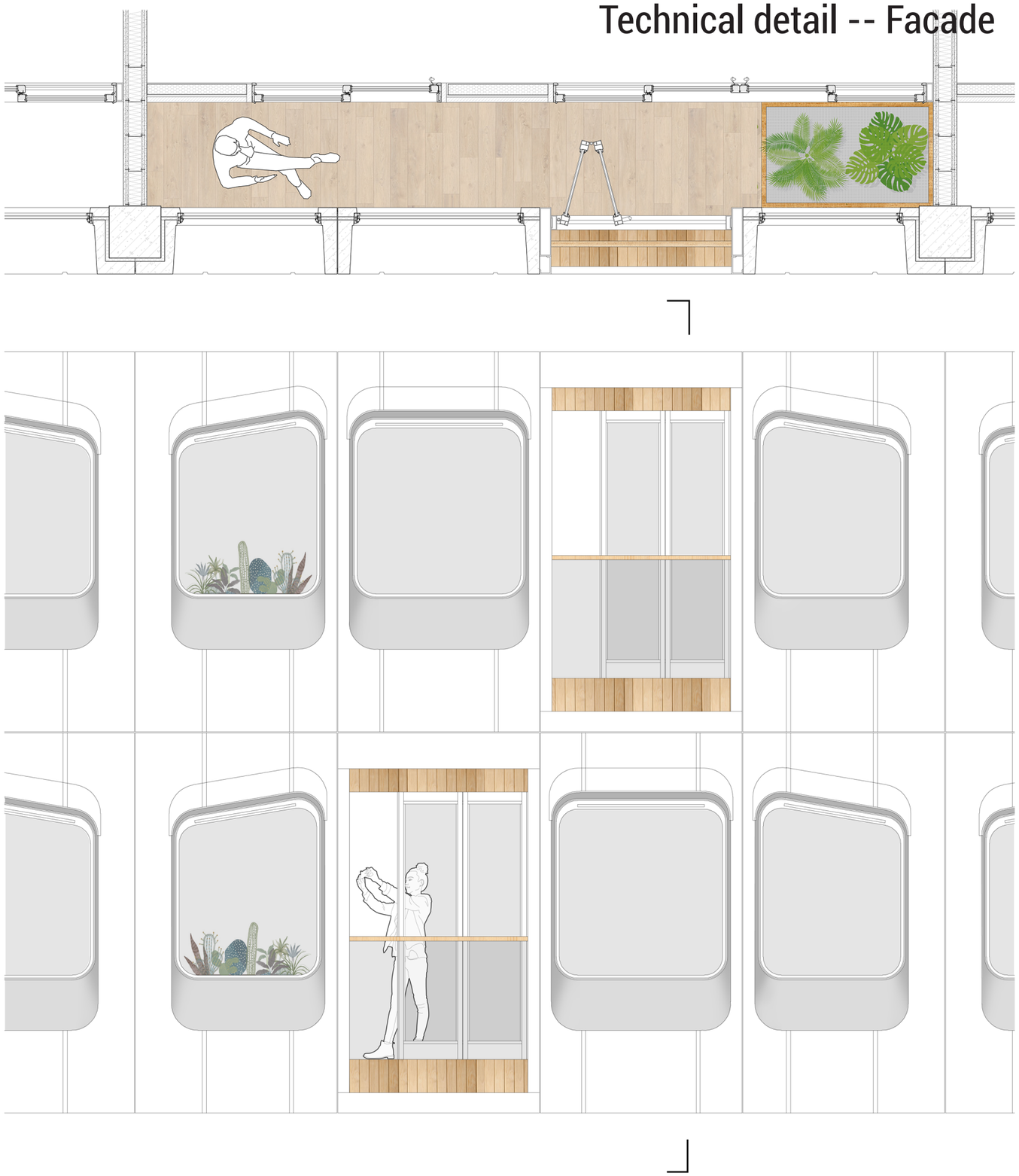


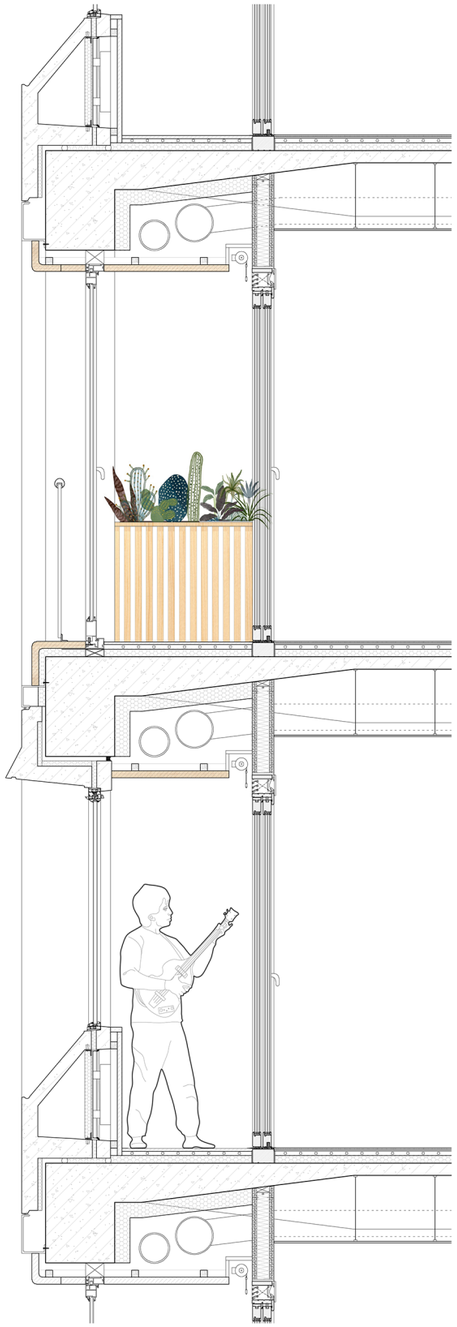


Current situation -- Facade

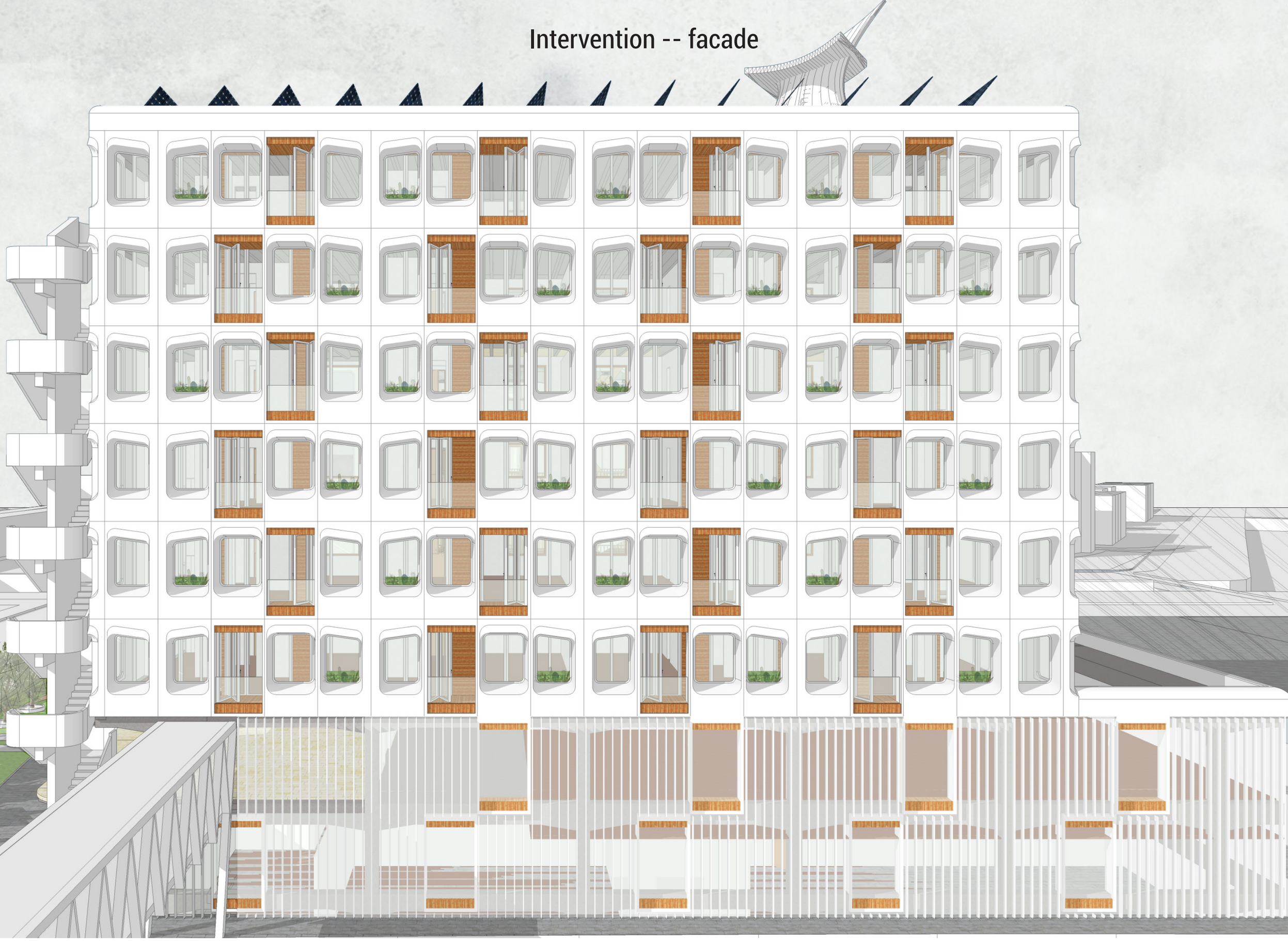


Technical detail -- Facade



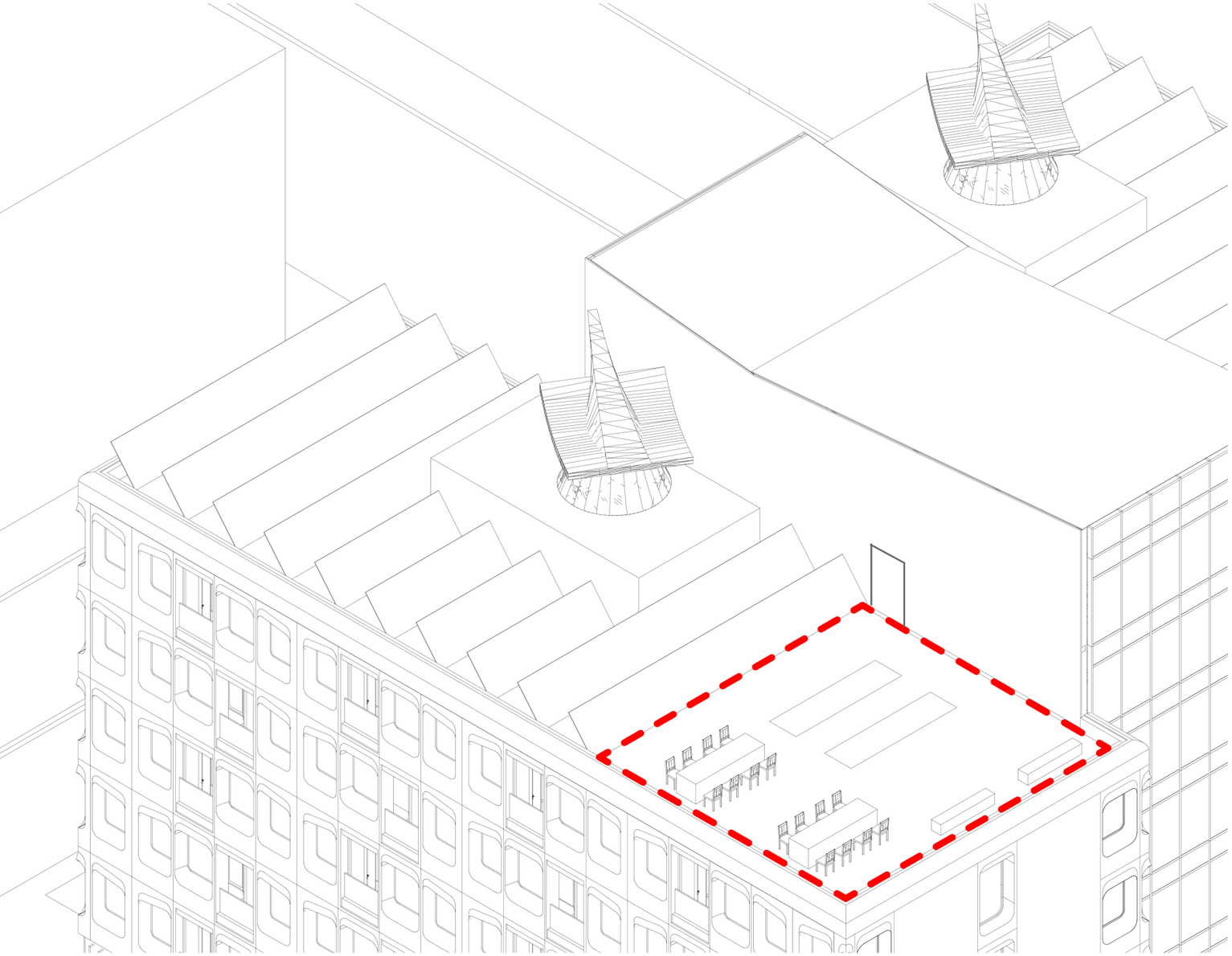


Intervention -- facade





Roof





Contents

Introduction

Programme

Concept

Design

Comfort

Climate

The overall climate system pursues energy neutral building. Firstly, facade and ventilation system are optimized as to reduce the demand for energy use. Secondly, there are systems for utilizing solar power and rainwater, thus producing some energy by the building itself.

Water Collection

1 Roof rainwater collection

Ventilation

4 Summer ventilation scheme

Passive Shading
Green plant evaporation for cooling
Natural ventilation

5 Winter ventilation scheme

Preheating cold air
Winter garden
Natural ventilation

6 Wingjetter

The wing Jetter works like the reversed wing principle with aerodynamic pressure differences, which utilizes natural airflow to promote air exhaustion.

7 Heat recovery

The residual heat of exhausted air is utilized by the air-water heat recovery machine, and thus stored in seasonal heat storage.

Heating/cooling

2 Heat pump

The system used is electrical hear pump, it utilizes the electricity produced by solar system. The compressor is connected to groundwater, whereat a lower temperature is converted into higher temperature.

3 Radiant Heating/cooling

The radiant heating/cooling system is combined with the flooring system.

8 Atrium as thermo buffer

Preheating in the **winter** with
evaporation for cooling in the **summer**

Solar system

9 PV-T panel combined with solar glass atrium roof

10 PV-T panel

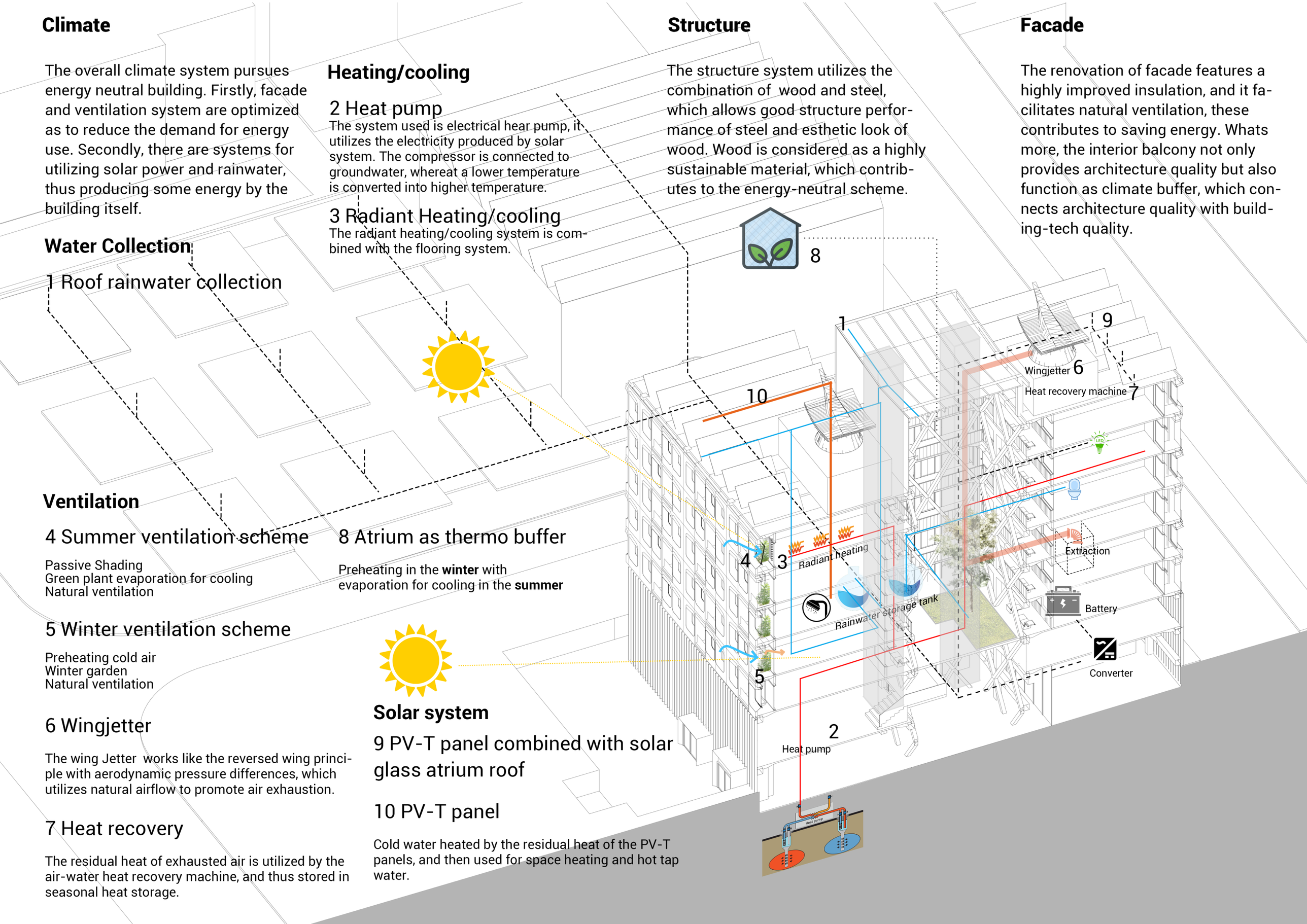
Cold water heated by the residual heat of the PV-T panels, and then used for space heating and hot tap water.

Structure

The structure system utilizes the combination of wood and steel, which allows good structure performance of steel and esthetic look of wood. Wood is considered as a highly sustainable material, which contributes to the energy-neutral scheme.

Facade

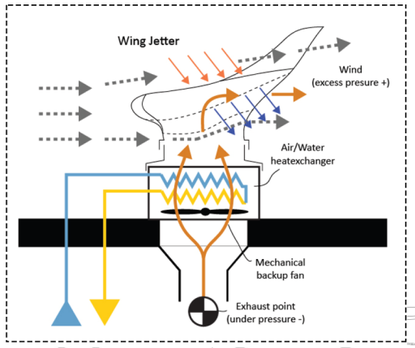
The renovation of facade features a highly improved insulation, and it facilitates natural ventilation, these contributes to saving energy. Whats more, the interior balcony not only provides architecture quality but also function as climate buffer, which connects architecture quality with building-tech quality.



Winter climate scheme

The system features a combination of natural air supply and mechanical air exhaustion, thus saving energy.

1 air supply preheated through the soil
2 atrium air supply
3 atrium air exhaustion
4 air exhaustion in cafe
5 air supply in cafe
6 natrural air supply for apartments
7 balcony preheating the air
8 apartment air exhaustion
9 atrium air supply
10 atrium air exhaustion
11 radiant heating
12 wing jetter
13 heat recovery machine

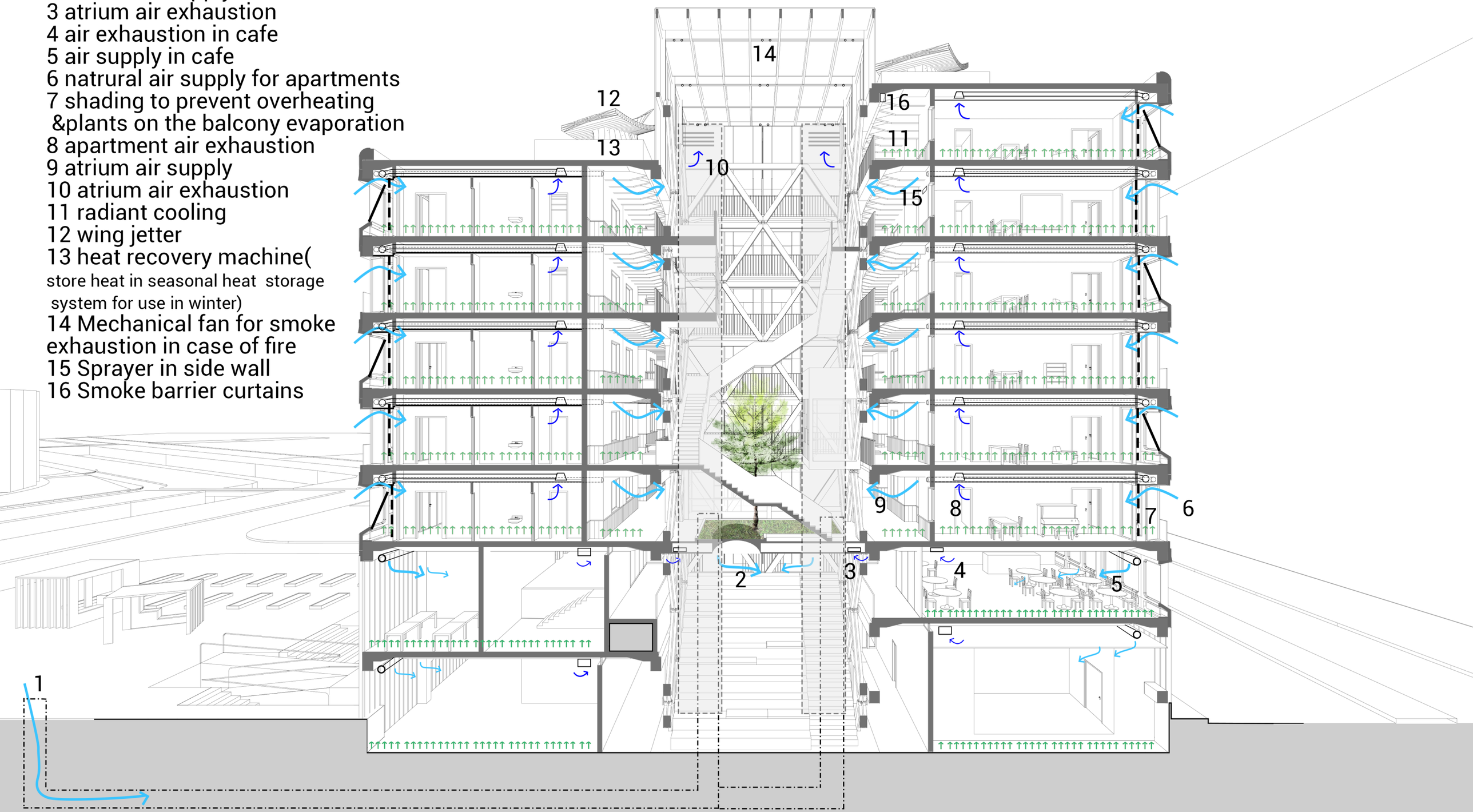


The wingjetter principle

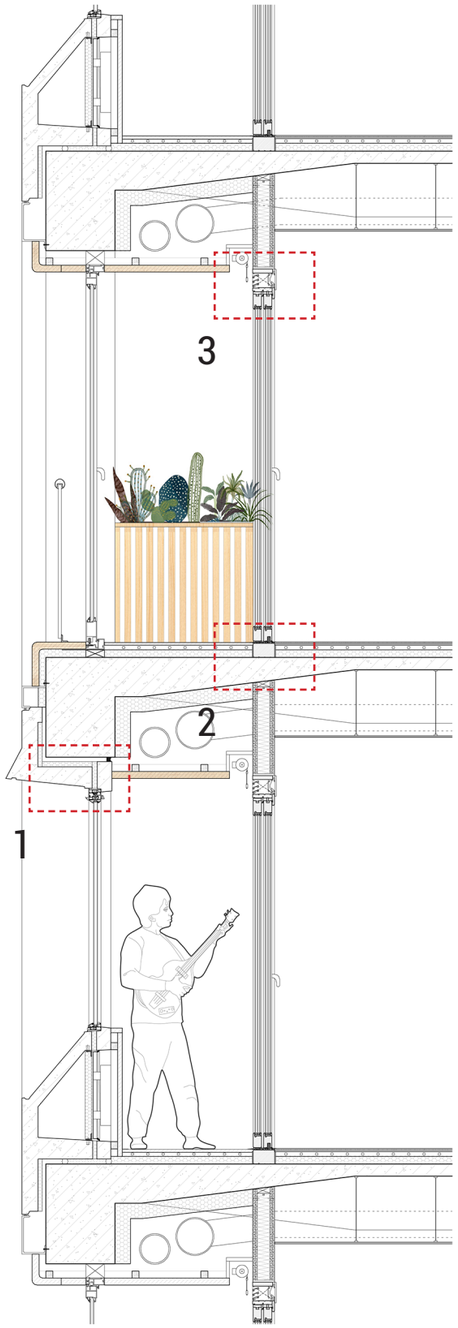
Summer climate scheme

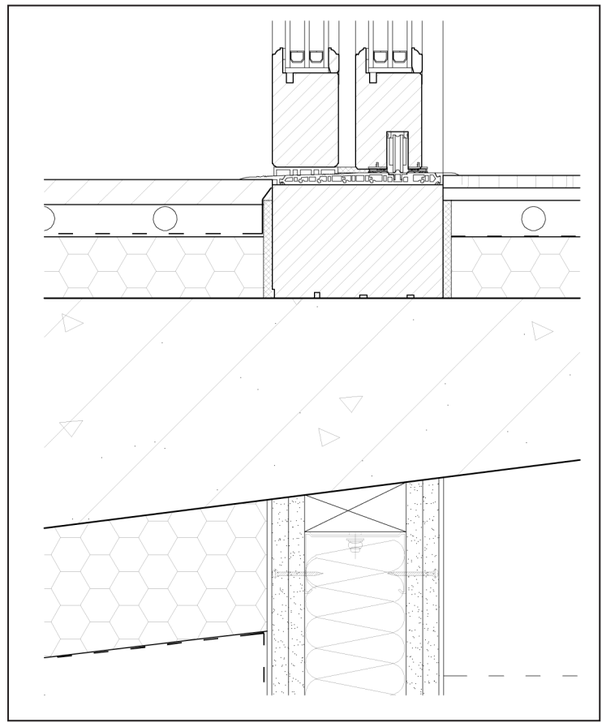
The system features a combination of natural air supply and mechanical air exhaustion, thus saving energy.

1 air supply pre-cooled through the soil
2 atrium air supply
3 atrium air exhaustion
4 air exhaustion in cafe
5 air supply in cafe
6 natrural air supply for apartments
7 shading to prevent overheating
&plants on the balcony evaporation
8 apartment air exhaustion
9 atrium air supply
10 atrium air exhaustion
11 radiant cooling
12 wing jetter
13 heat recovery machine(
store heat in seasonal heat storage system for use in winter)
14 Mechanical fan for smoke exhaustion in case of fire
15 Sprayer in side wall
16 Smoke barrier curtains

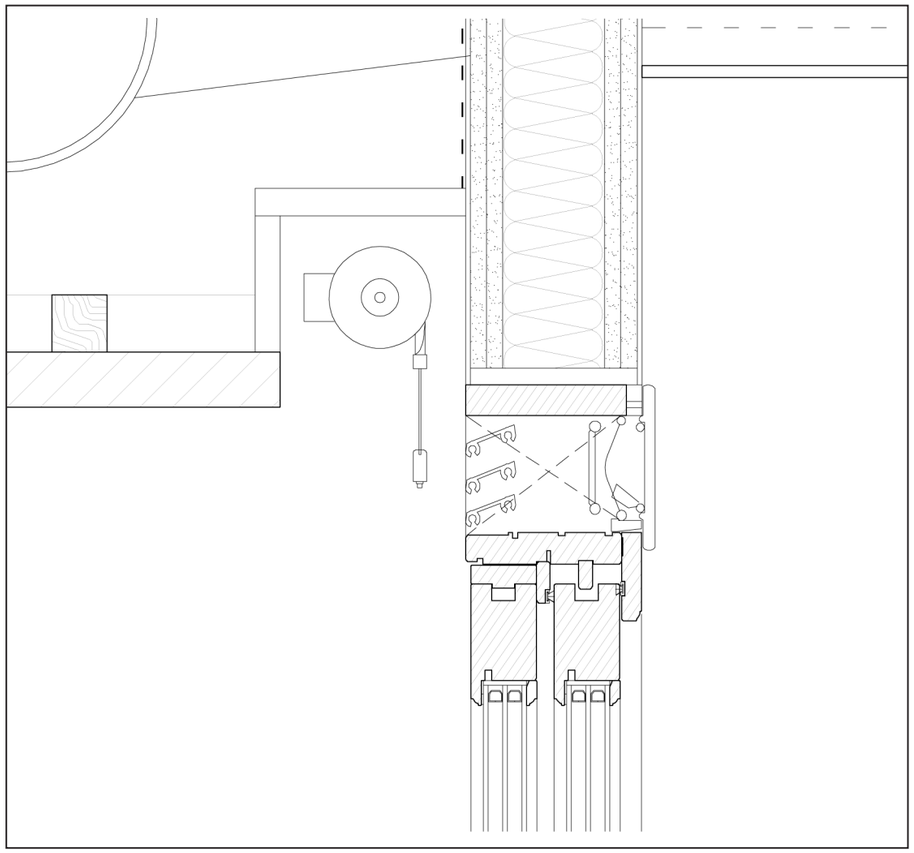


Technical detail -- facade

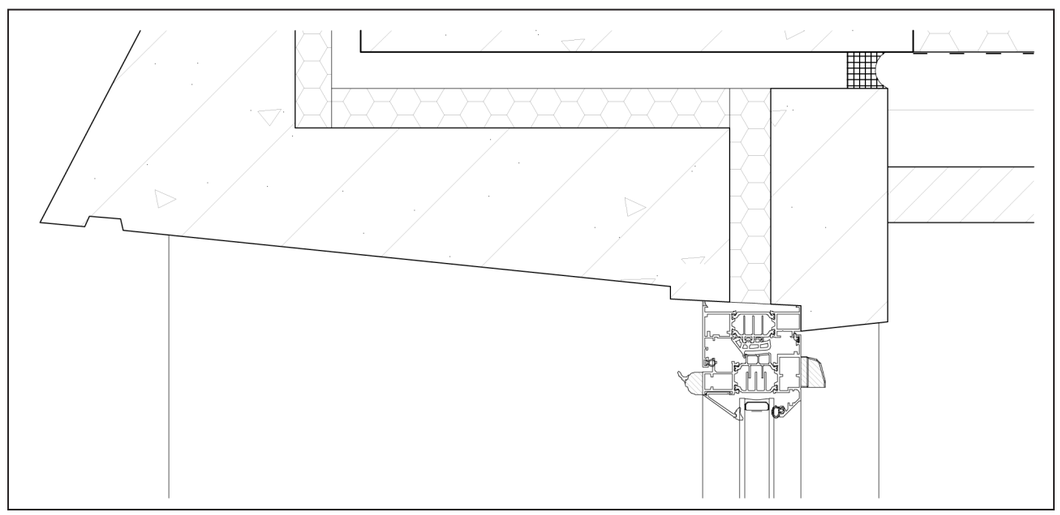




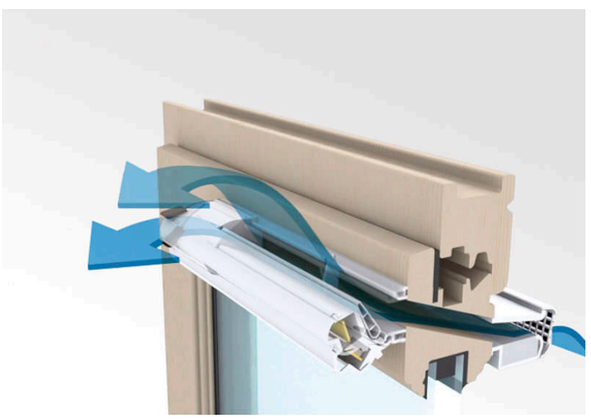
2



3



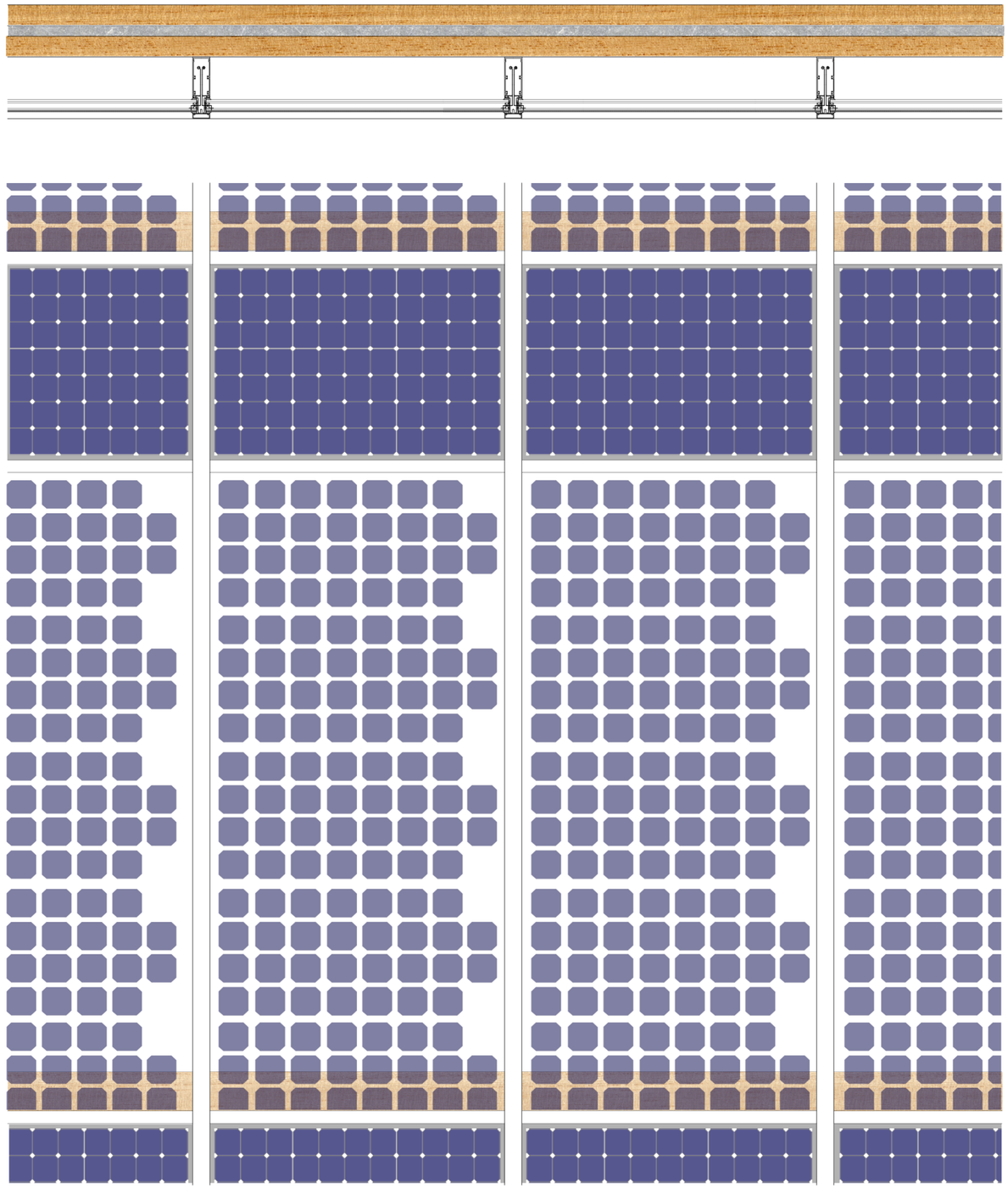
1

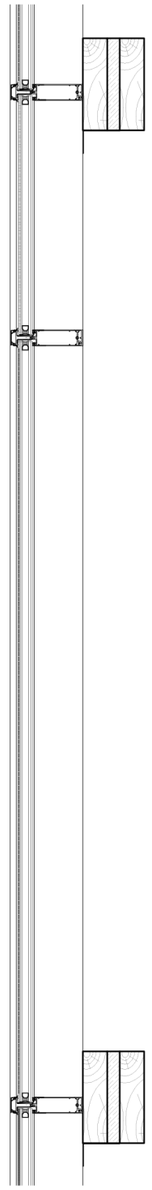


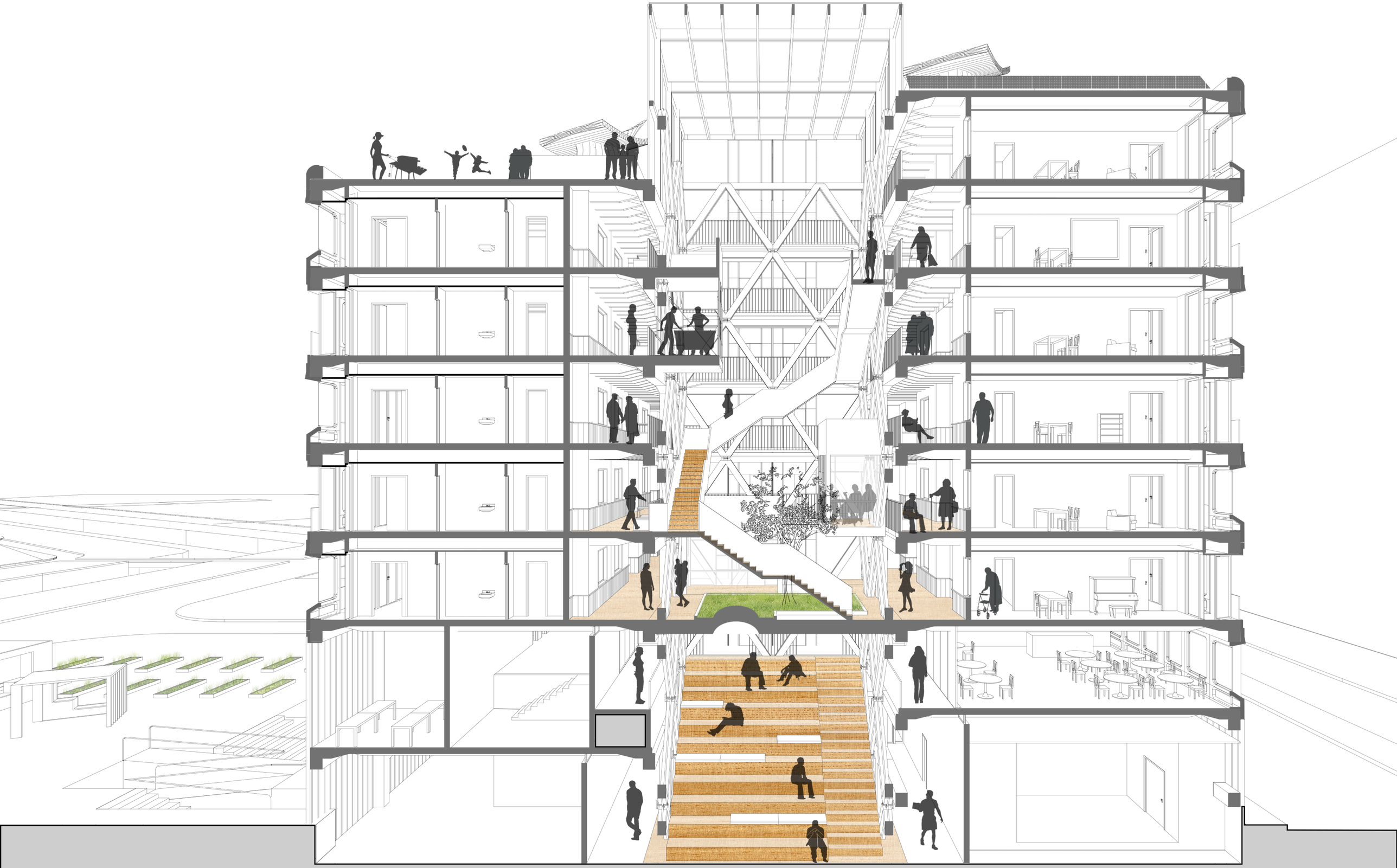
Trickle vent



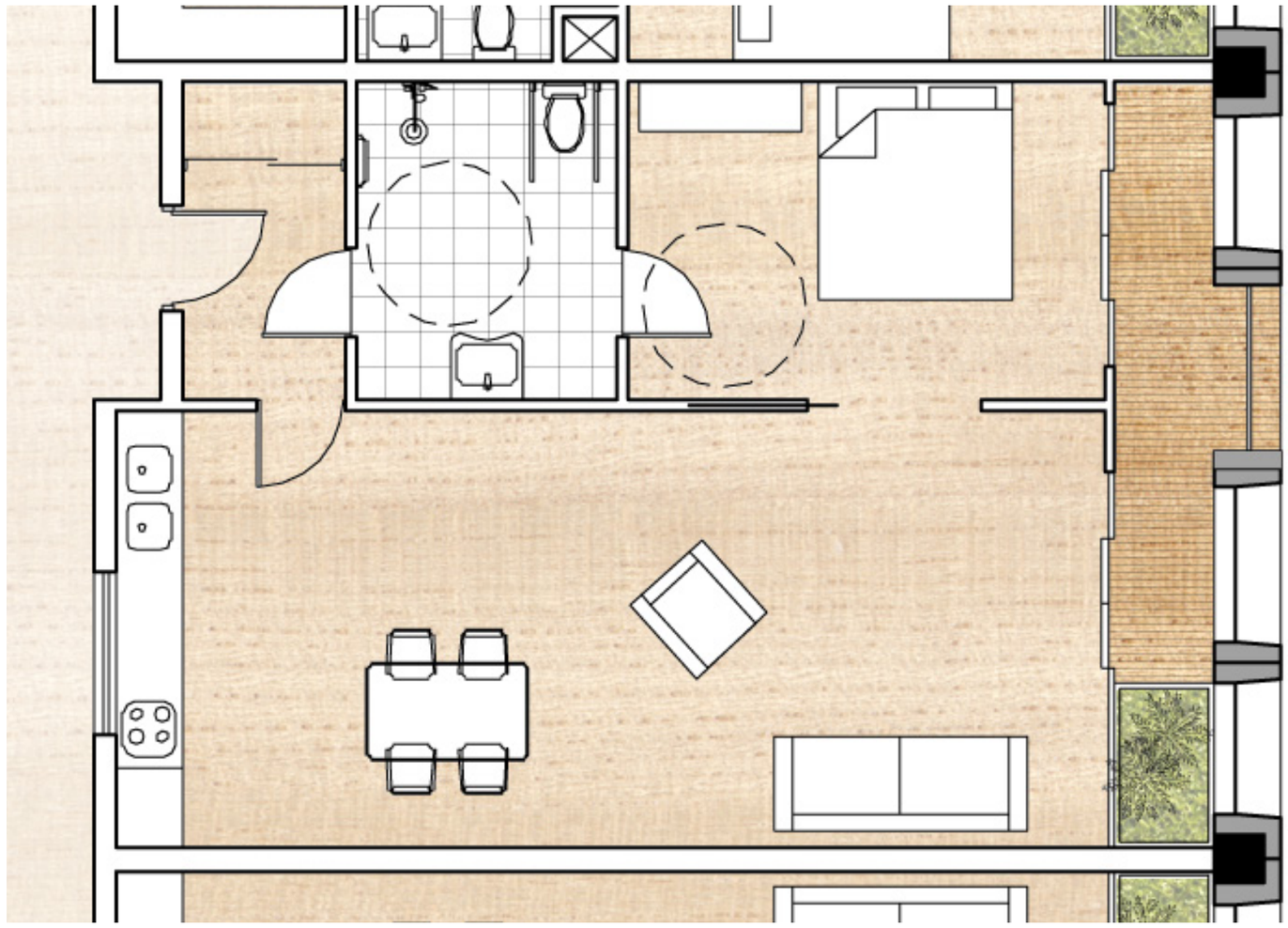
Technical detail -- atrium facade



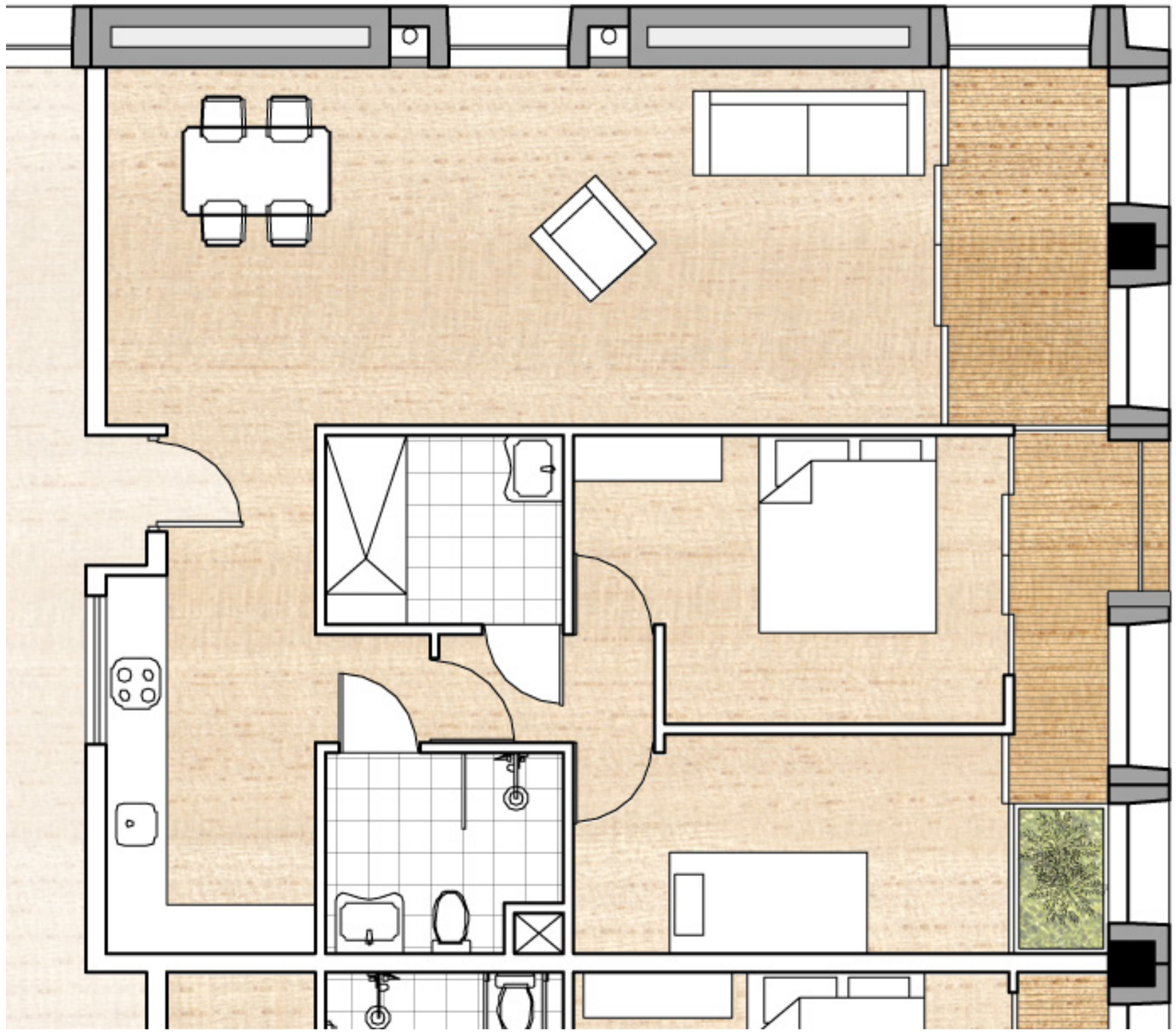




Typology

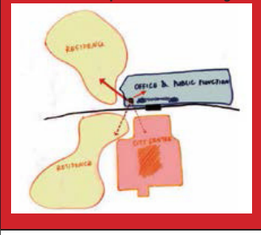
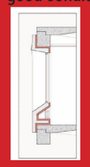
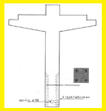
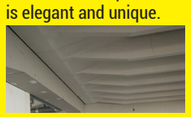
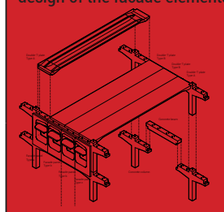
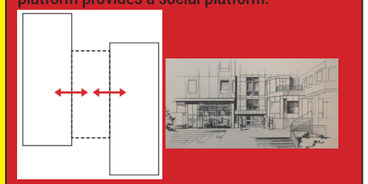


Elderly housing 70m2

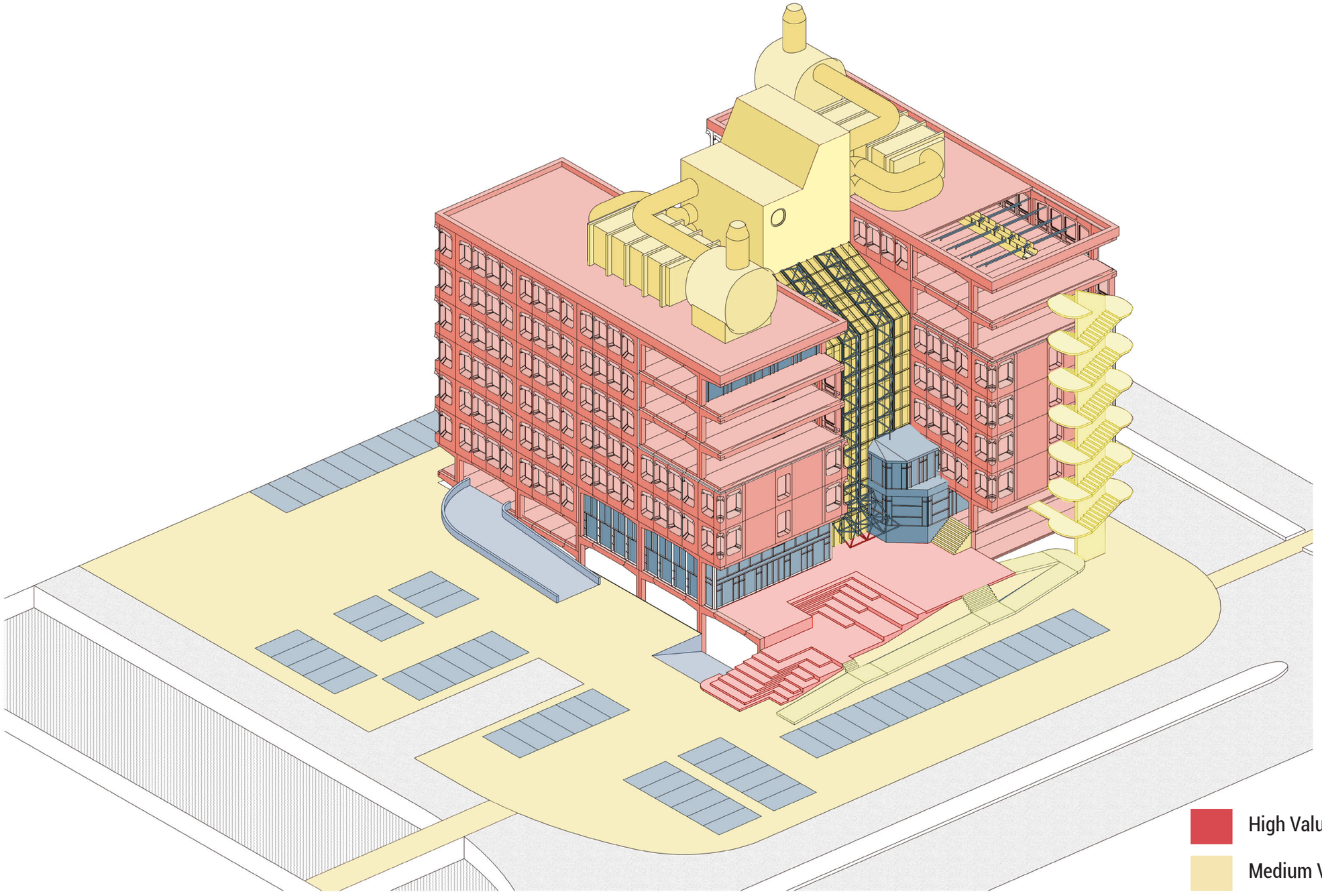


Family housing 88m2

Culture value assessment

	HISTORICAL VALUE	AESTHESTIC VALUE	USE VALUE	SOCIAL VALUE	NON-INTENTED COMMEMORATIVE VALUE	RARITY VALUE	ARCHITECTURE VALUE
SITE AND SURROUNDING	The Beursgebouw was one of the very first buildings in Almere Stad, and is a witness of Almere's growth. 		Ground floor parking lot at the site serves the nerighbourhood well. 	The site location makes it have high potential to be a social place for the neighbourhood. 	Because it was firstly built in Almere Stad, some people know this building a lot and it becomes a common memory of the city.		
SKIN	Unique deisgn language of facade pattern belongjing to the 70s-80s 	The form of the skin is unique and refined. It gives the sense of sculpture. Also, the pattern and thythm of facade is interesting. 	The prefabricated facade elements have good performance in lighting, acoustic and thermal aspects, and they are in good condition nowadays. 				The façade is accordance with inner function. It shows the authenticity of architecture.
STRUCTURE		The shape of column is tree-like and unique.  The refined shape of double-T floor plate is elegant and unique. 	Main structure still functions well nowadays, and the prefabricated elements can be easy to replace.  Stability core helps resisting lateral force. 				Structure system enables large span, and it influences the design of the facade elements. 
SPACE PLAN	Flexible office plan which shows the design trend of the time 		Column-free working space fit well the need for office. Space with different height and entrances offers use value as well.	The core-wing structure utilizes the middle part of building as collective space. The entrance platform provides a social platform. 			
SERVICE	The unhidden heat recovery devices on the building roof that already became the icon of De Beurs to remind people its presence.	The elegant shape of the heat wheels echoes the facade design language. 	The heating pipes and radiators are in good condition that have the potential to be reused. 			The original intention of integration of building and urban infrastructure. 	Heat wheels on the roof and the pipes in the space create mechanical sense of the building and highlight sustainability.
STUFF		The stuffs echo to each other's by using chamfers and circularities. 					

HIGH VALUE MEDIUM VALUE LOW VALUE



High Value

Medium Value

Low Value

Tangible elements

Facade elements

The unique and refined form of the facade elements gives the sense of sculpture. As the first office building in Almere-Stad, it is part of the city memory.
The sandwich construction and good insulation of facade has good energy performance.

Historical value, aesthetic value, use value.

The major part of facade elements should be preserved, it's also possible to further increase its sustainability.



Prefab structure elements

Main structure still functions well nowadays, and the prefabricated elements can be easy to replace. Structure system enables large span, and it influences the design of the facade elements.

Use value, architecture value.

The structure elements should be preserved and maintained.



Entrance platform

The unique pattern of staircase in the entrance provides chances for people to interact with each other, also, it's open to the city and is a social platform.

Historical value, aesthetic value, use value, social value.

The unique pattern of the platform will be preserved, further design aim at improving the social value.

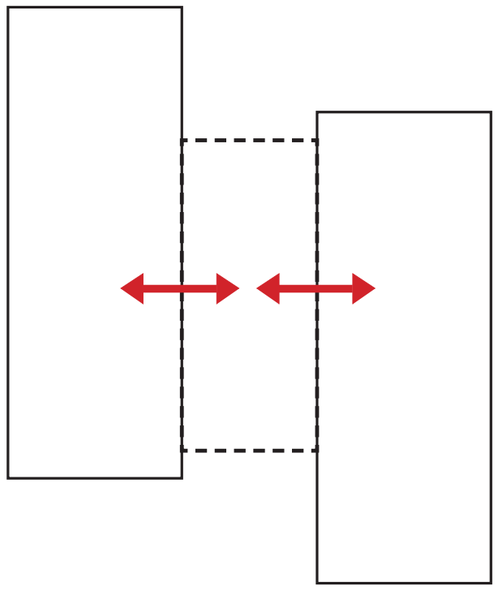
Prefab Floor plates

The refined shape of double-T floor plate is elegant and unique. The design of floor plates enable large span and ensure architectural quality. Floor plates are most important in structure system in terms of both lateral forces and vertical loads.

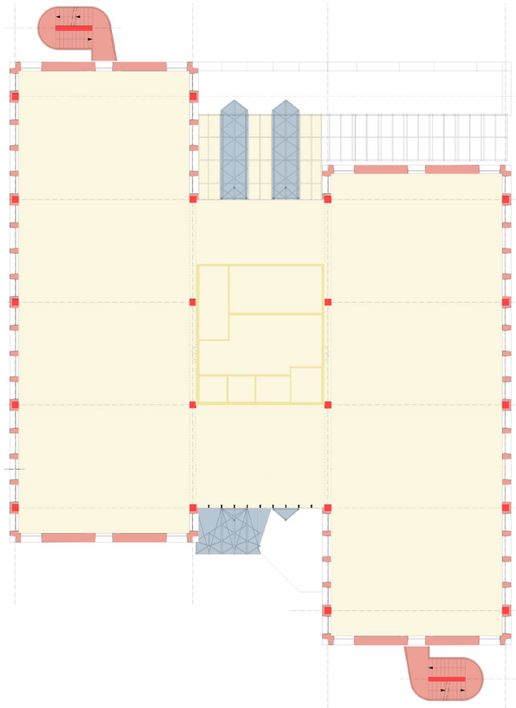
Aesthetic value, use value, architecture value.

The most parts of floor plates should be kept and maintained.
The beauty of the structure can be revealed where possible.

Intangible aspects



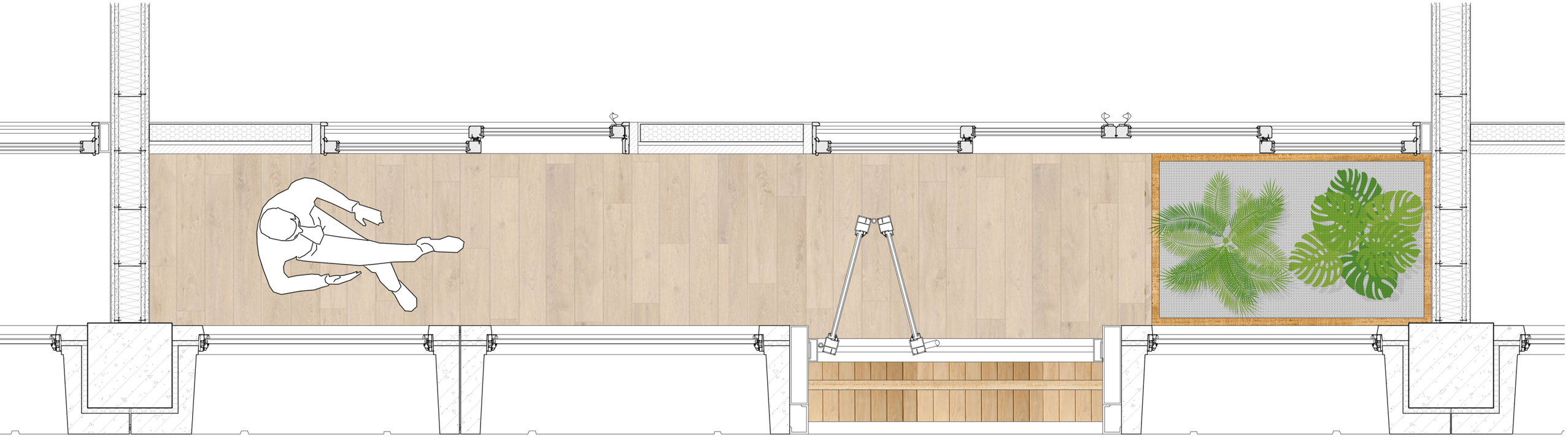
Centrality of the core



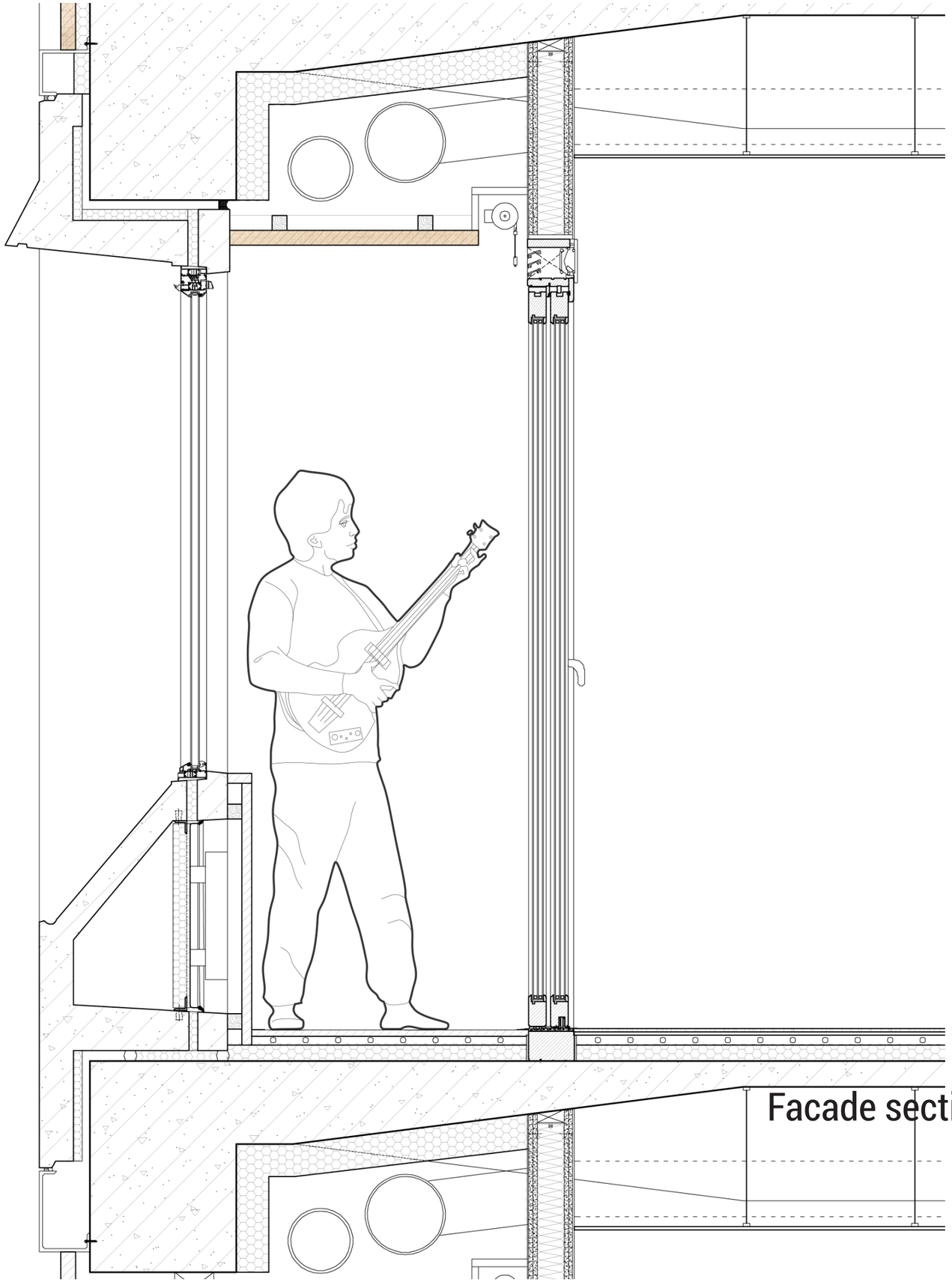


Ground floor as social basement

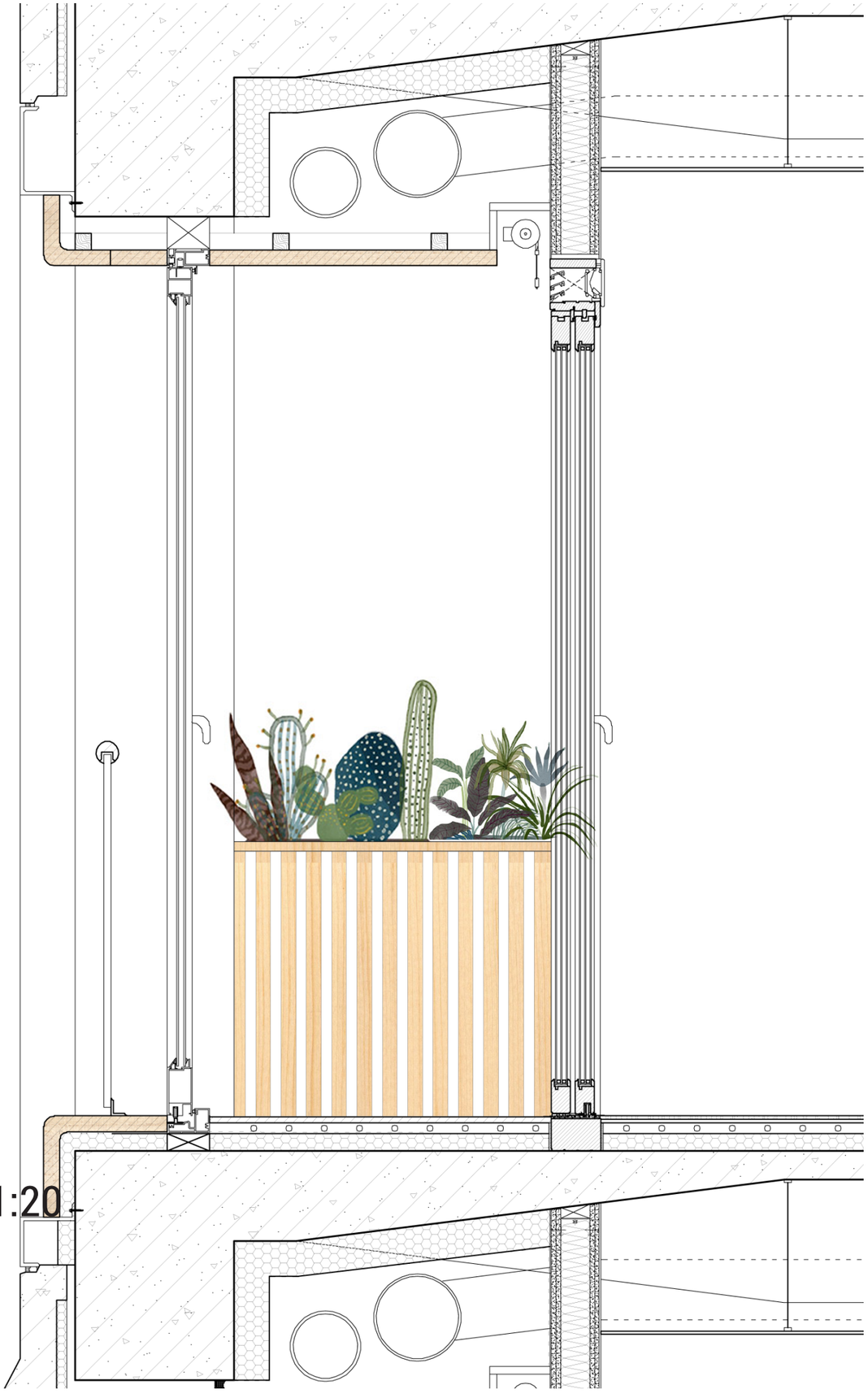
Detail

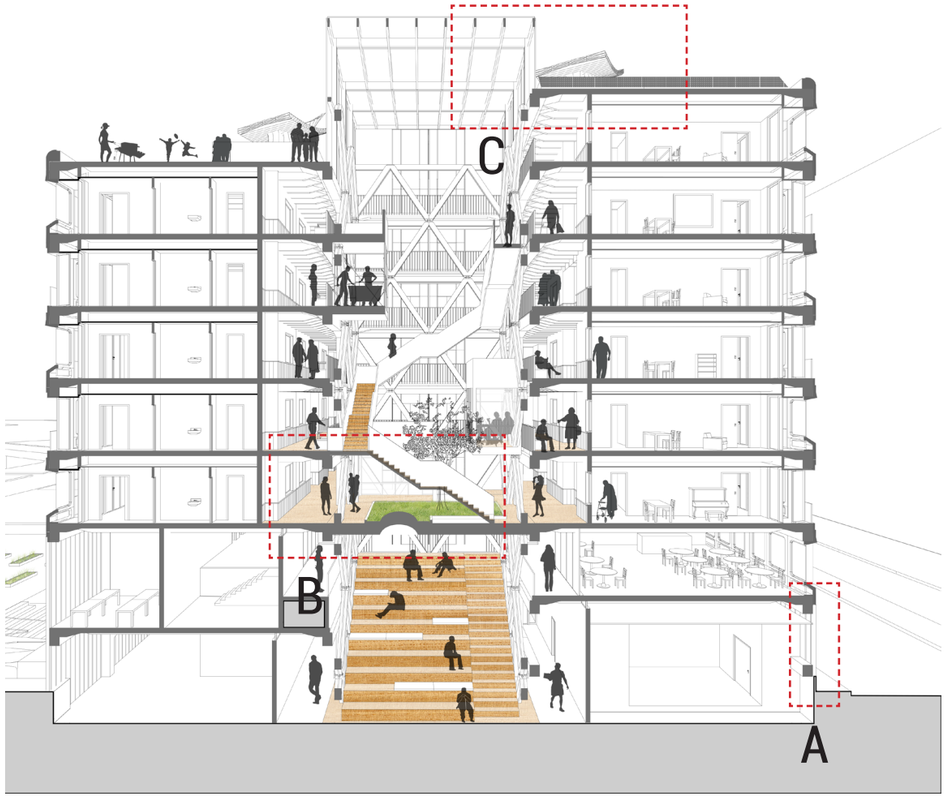


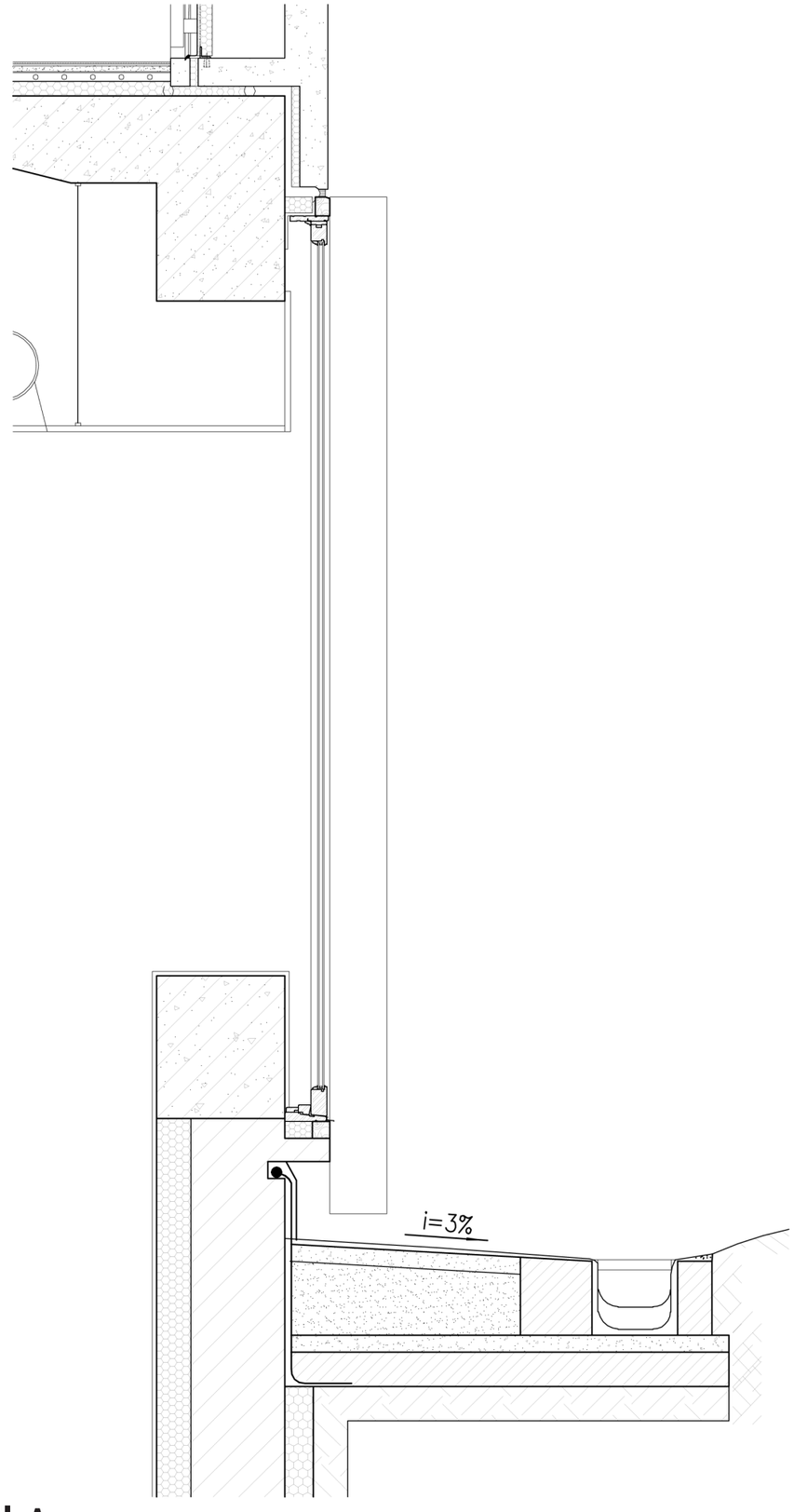
Facade horizontal section 1:20



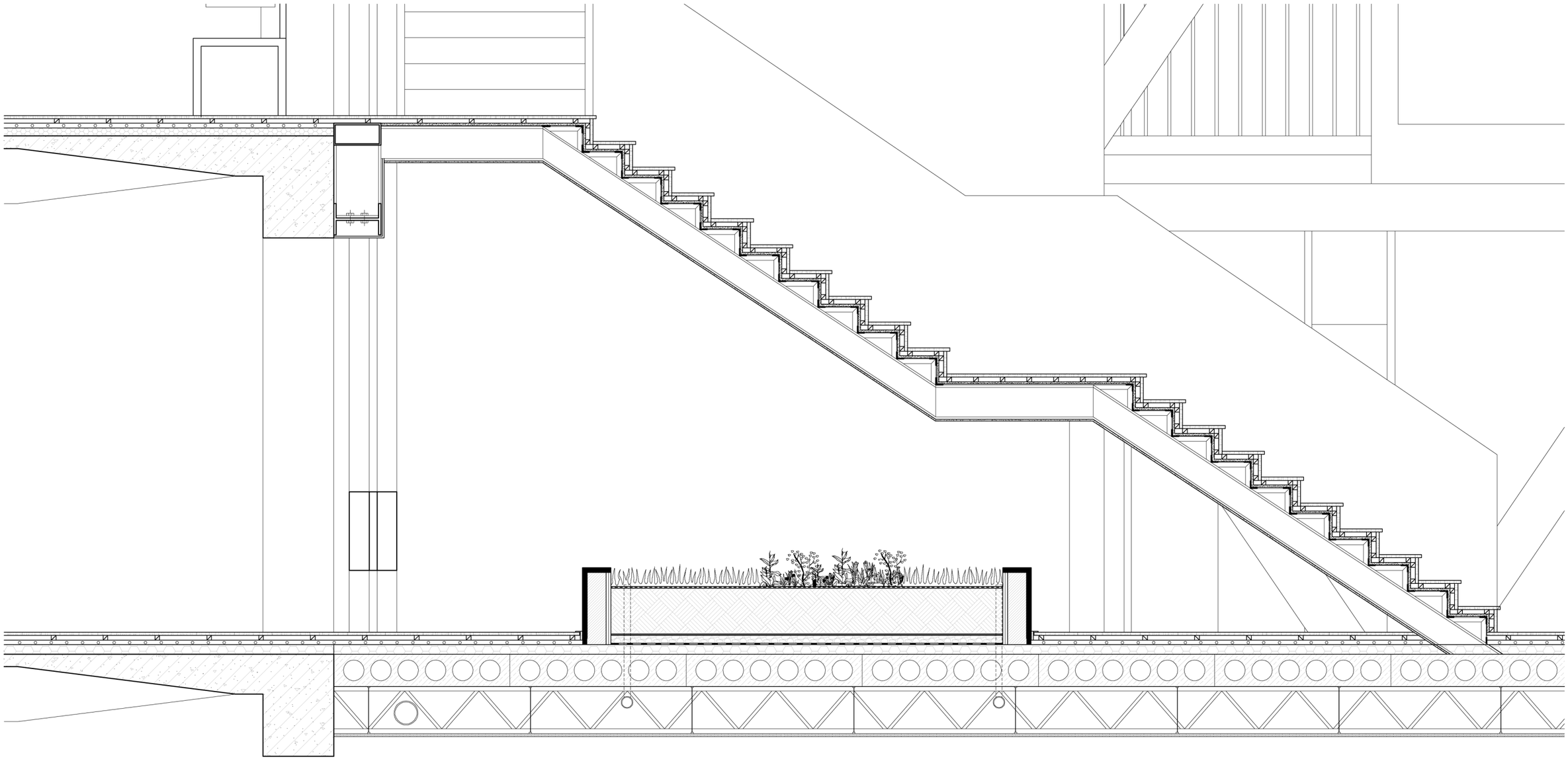
Facade section 1:20



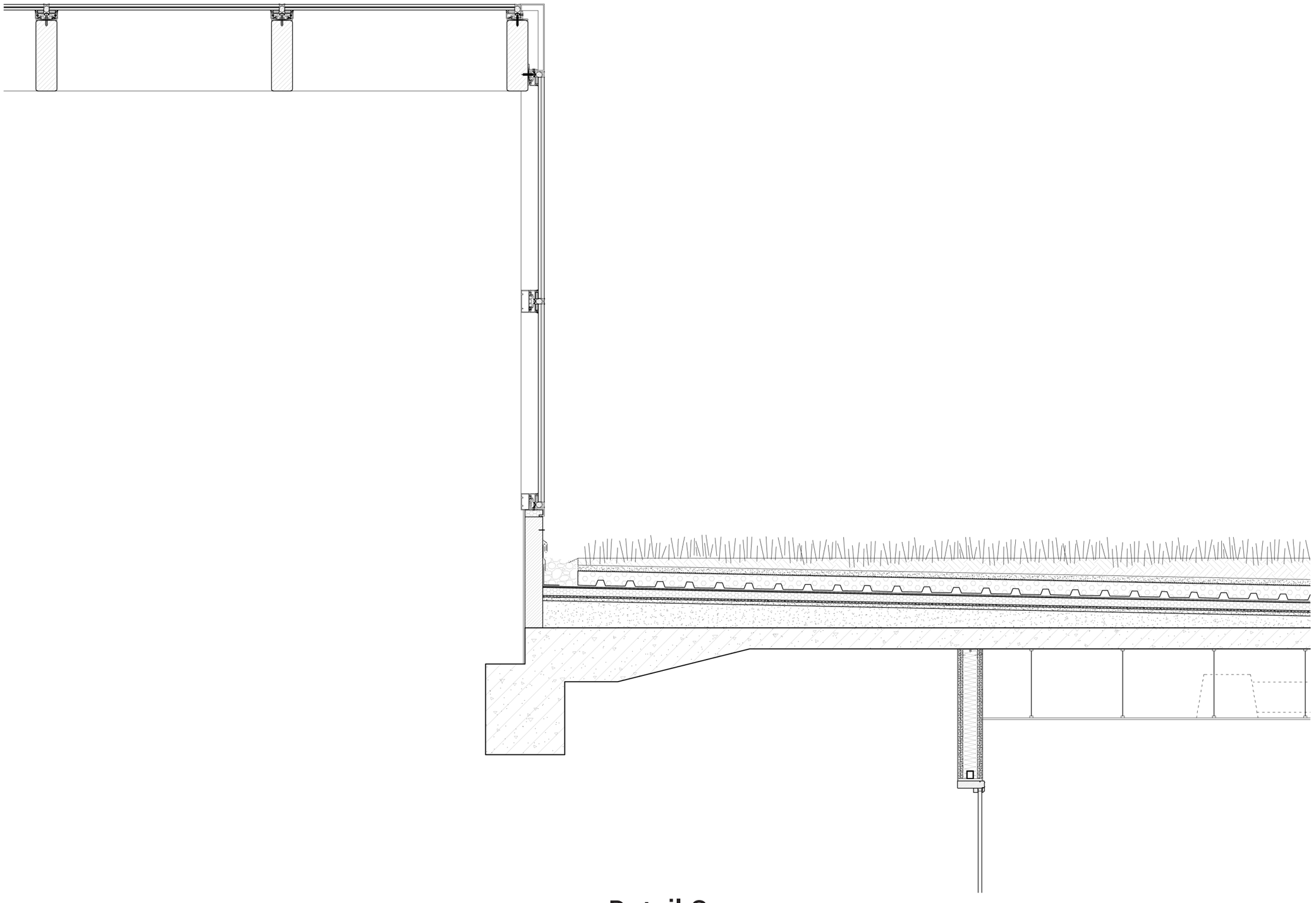




Detail A



Detail B



Detail C