ARTISANAT | FABRIEK

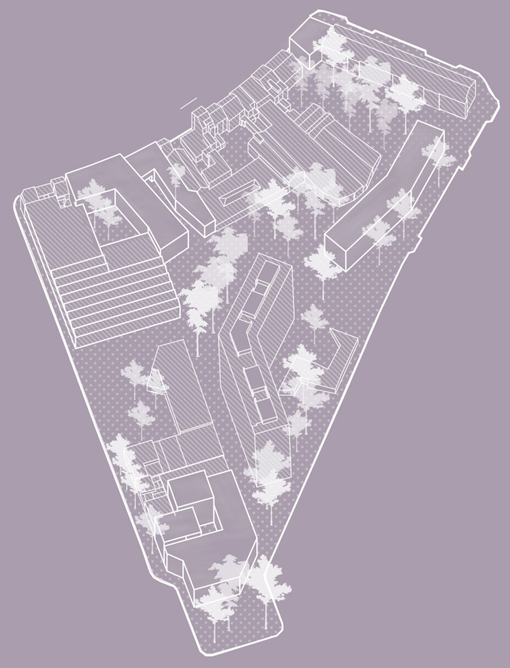
A centre for craft and education

Anderlecht

Sofia Montalti - Graduation Project - Urban Architecture

URBAN PROPOSAL

Revitalization of the area
as a community-based approach



The city
- Brussels -

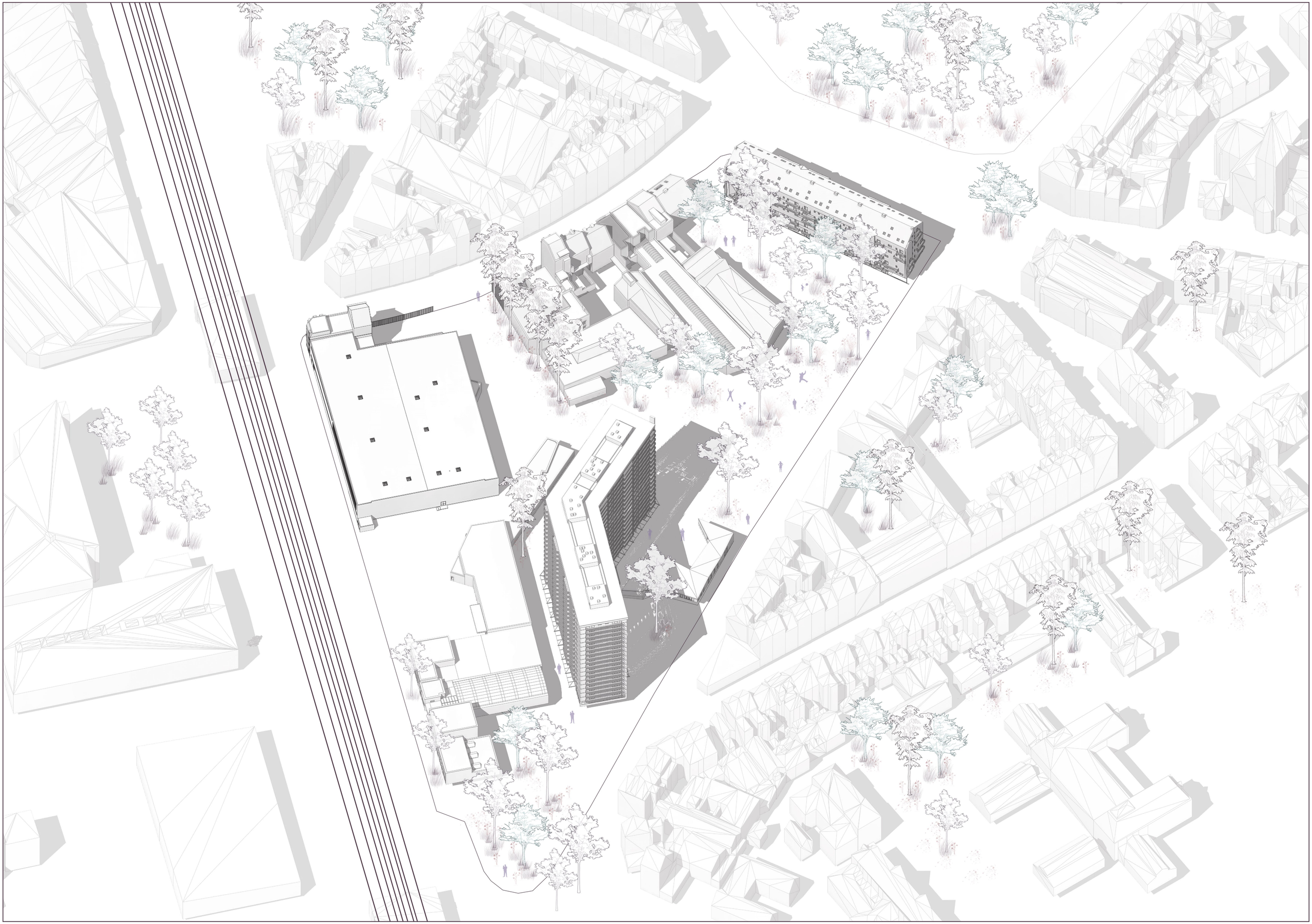


The region
- Anderlecht -



The site





The site
- Transformation through time -



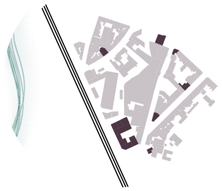
1930s

River splited the block, and the residential made up continuous boundary of the block



The site
- Transformation through time -





1930s

River splited the block, and the residential made up continuous boundary of the block

1970s

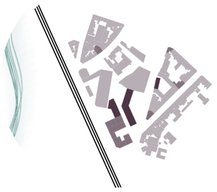
The river gradually disappeared and the new productive areas blured the seperation of the river. The collective housing replaced the residential on the west along the street and the part of industries.



The site
- Transformation through time -







1930s

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1980s

New industries inserted and replaced the old ones.

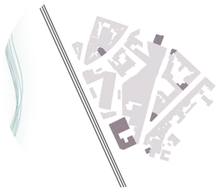


The site
- Transformation through time -



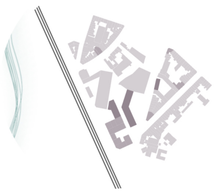
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1980s

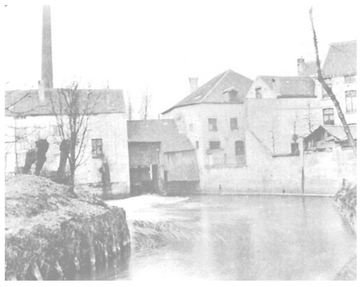
New industries inserted and replaced the old ones.



2020s

Productive area at the north of collective housing transfered into open space

TODAY

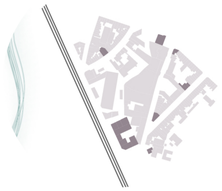


The site
- Transformation through time -



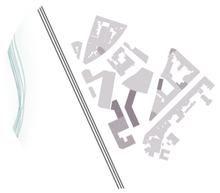
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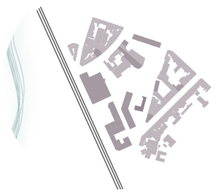
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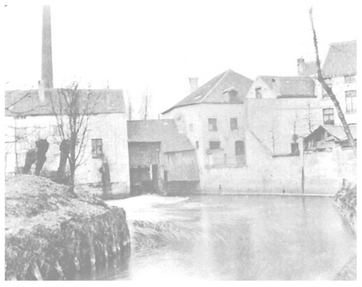


2030s

NEW REGENERATION PROJECTS

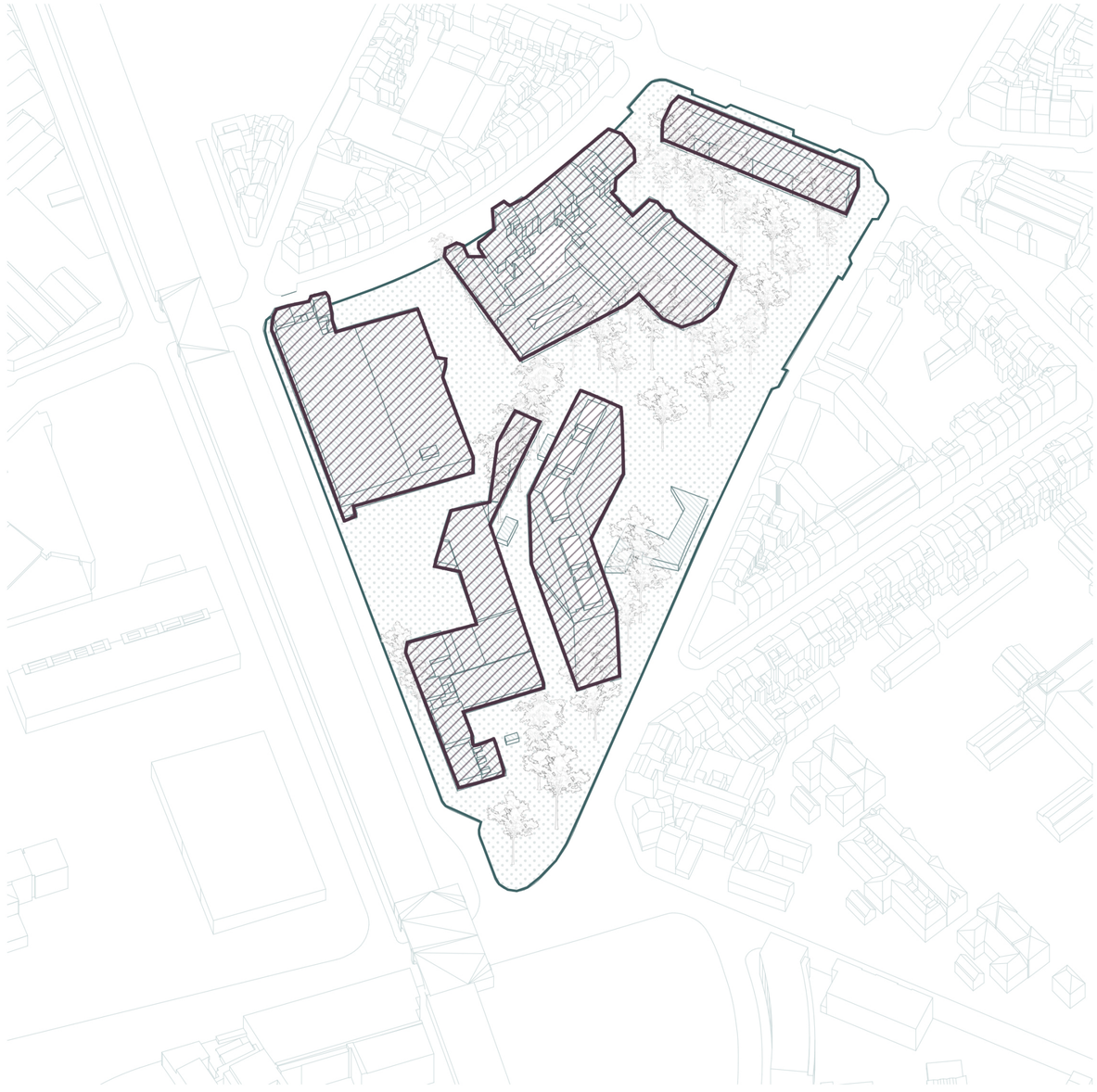
TODAY

FUTURE



1

BLOCK FRAGMENTATION



Detached urban blocks

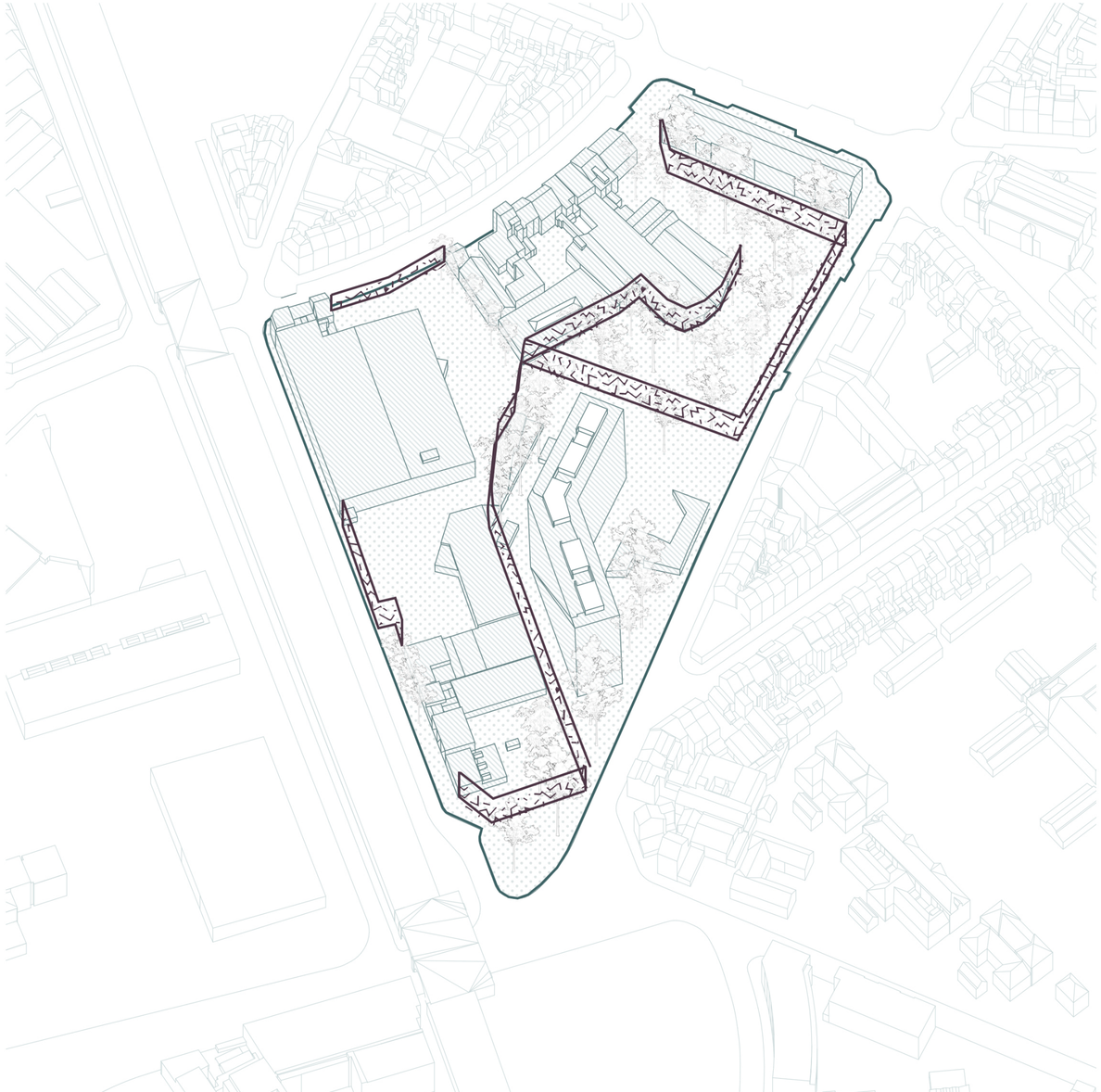
The site
- Main problematics as challenges -

1

BLOCK FRAGMENTATION

2

BARRIERS



Detached urban blocks

Physicial barriers
- WALLS AND GATES -
block the passage and view

The site
- Main problematics as challenges -

1

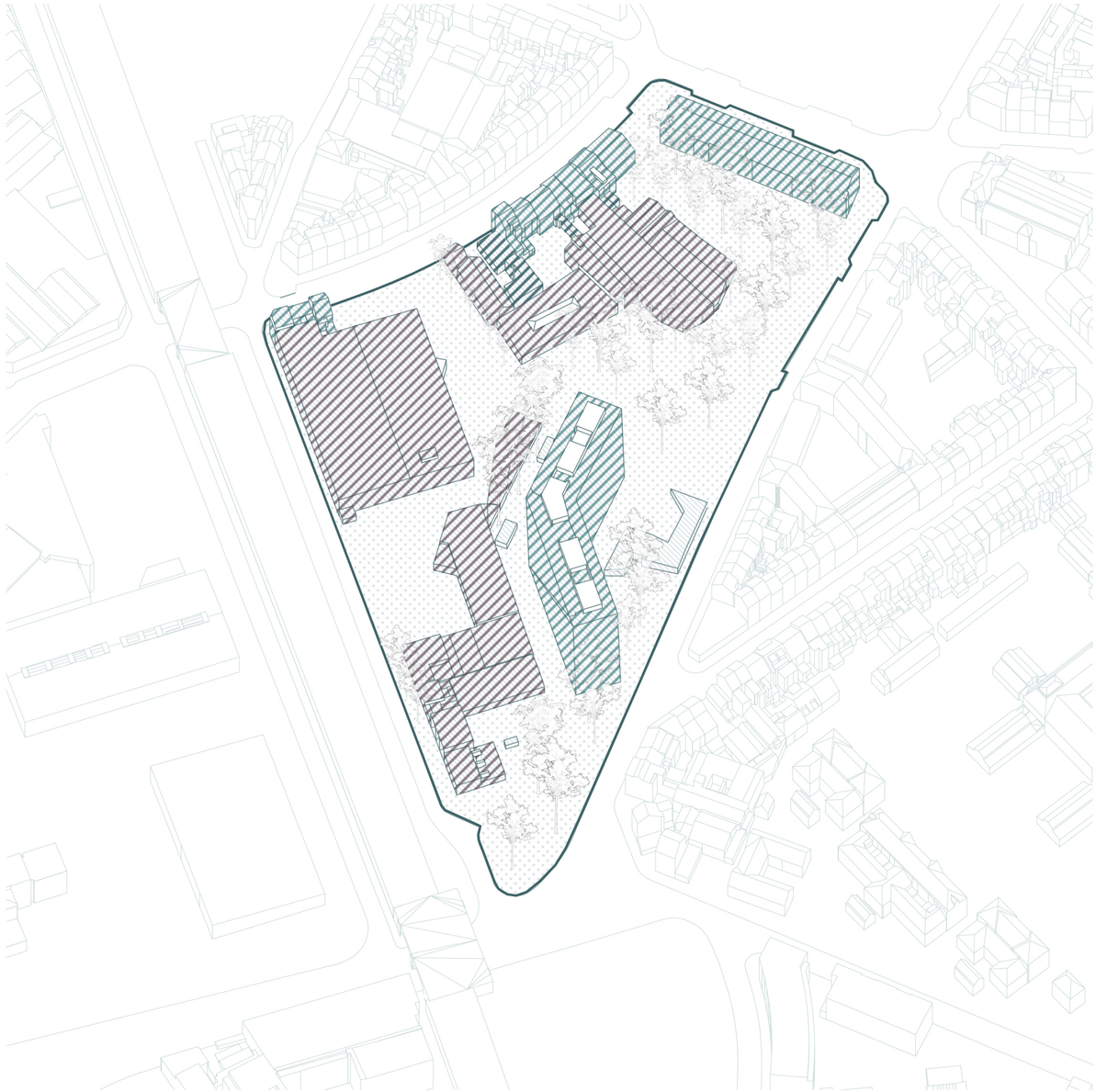
BLOCK FRAGMENTATION

2

BARRIERS

3

FUNCTION FRAGMENTATION



Detached urban blocks

Physicial barriers
- WALLS AND GATES -
block the passage and view

Productive and residential areas cohexist in the same site, but do not communicate

1

BLOCK FRAGMENTATION

2

BARRIERS

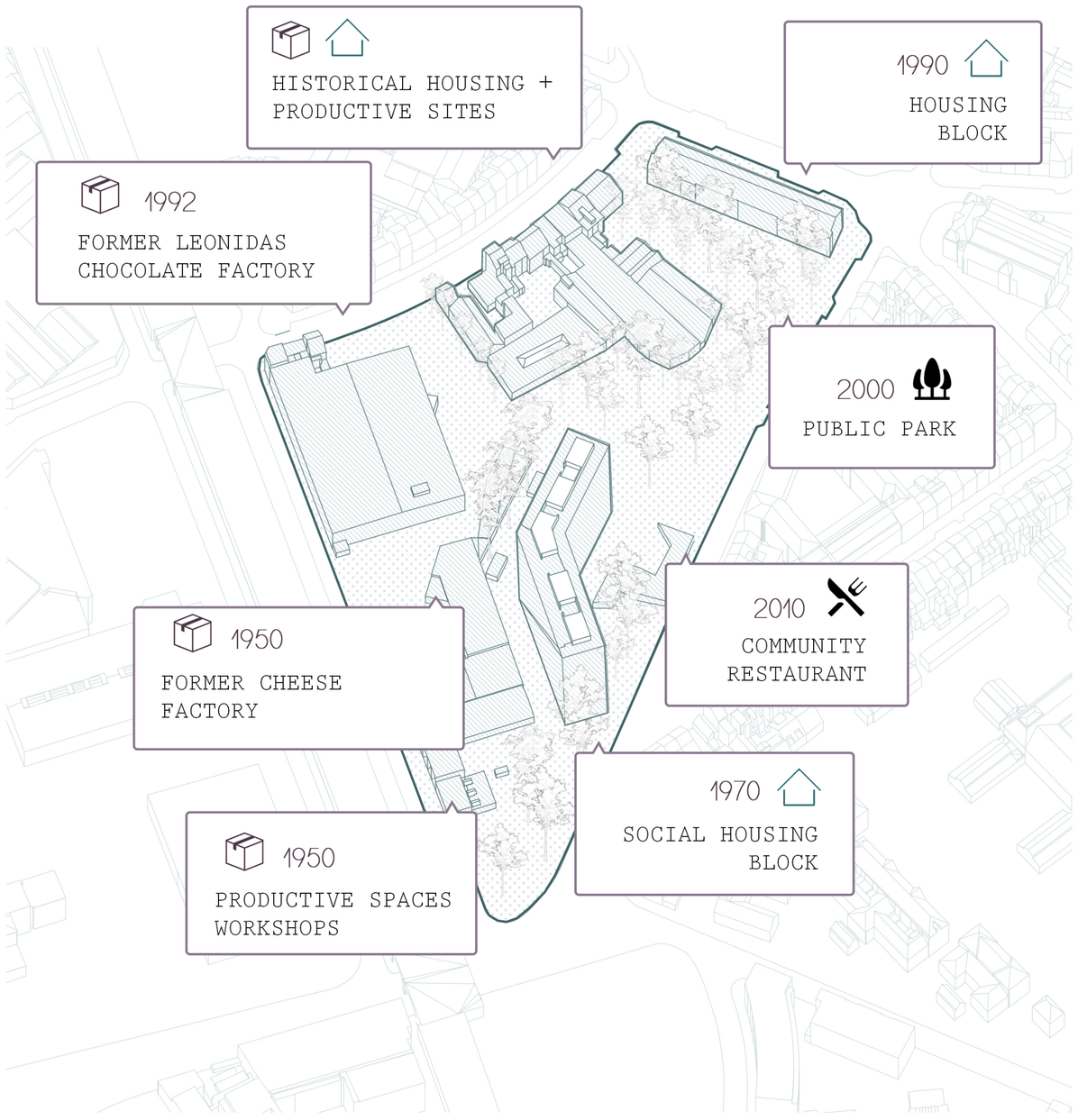
3

FUNCTION FRAGMENTATION

4

VARIETY OF
ARCHITECTURAL STYLES

The site
- Main problematics as challenges -



Detached urban blocks

Physicial barriers
- WALLS AND GATES -
block the passage and view

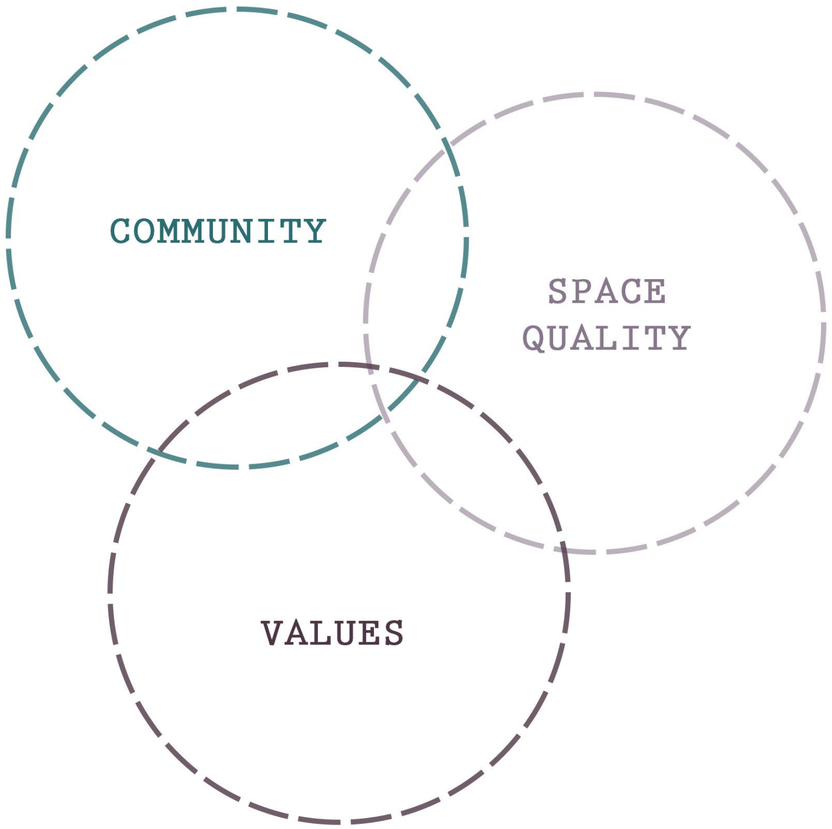
Productive and residential
areas cohexist in the same
site, but do not communicate

Historical layers

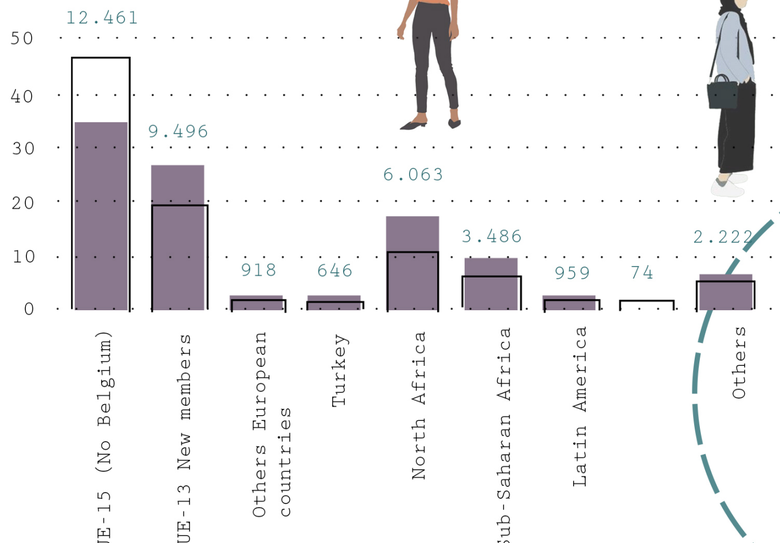
Urban Proposal

- Design Brief -

Urban proposal
- Design concepts -



MULTICULTURAL REGION





ON WELFARE ALLOWANCE

29 %

COMMUNITY



ELDERLY | SOCIAL HOUSING RESIDENTS | KIDS

TODAY

COMMUNITY

Bring new possibilites
for future generations



HOW ?

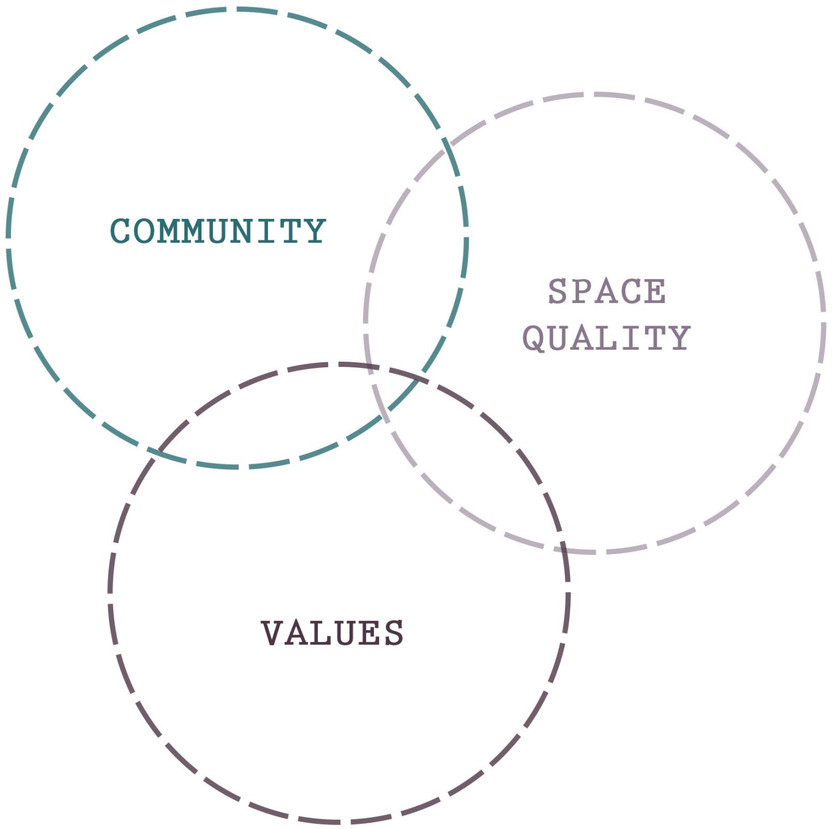
BUILD THE COMMUNITY AROUND A
NEW CREATIVE ENGINE



ENCOURAGE
EDUCATION

FUTURE

Urban proposal
- Design concepts -

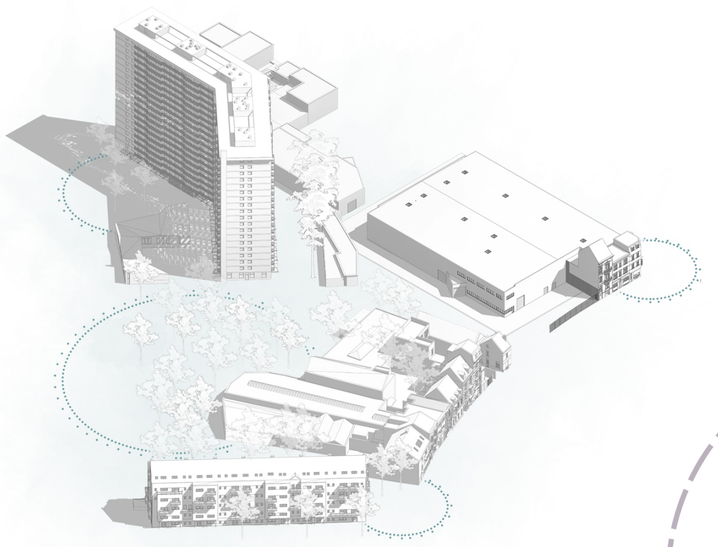


HYBRID PLOT
LIVING/WORKING

LOW QUALITY
of PUBLIC SPACES

Sense of alienation

No sense of belonging





People living the residual spaces

SPACE
QUALITY

TODAY

SPACE
QUALITY



PLACEMAKING STRATEGY

Re-establish a sense of belonging
by inspire the collectivity to
reinvent the public spaces as the
heart of the area

BRING VIBRANCY

+

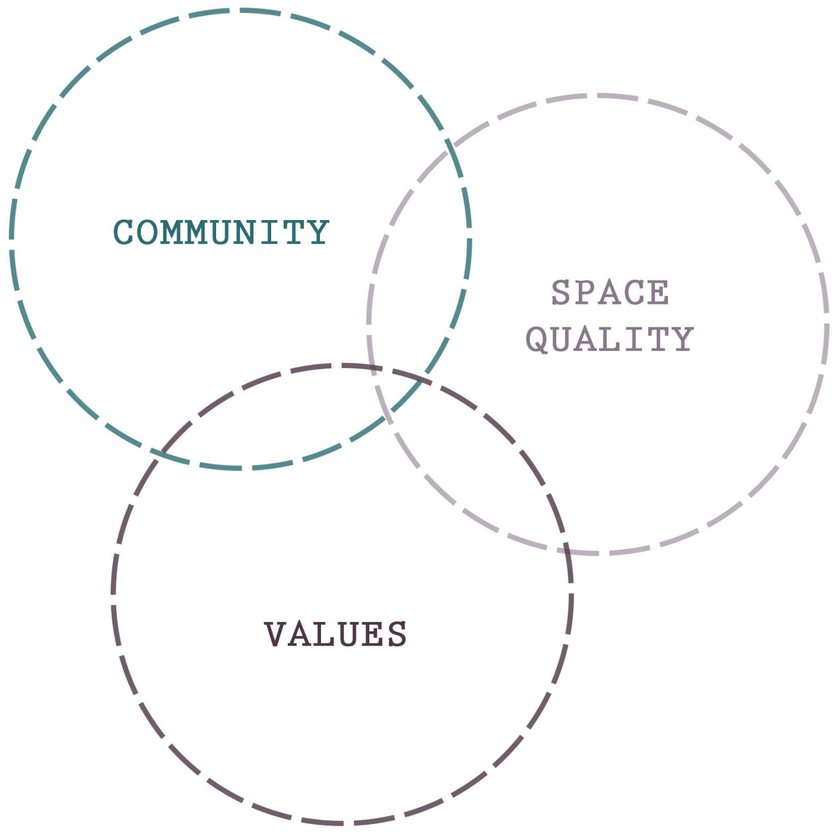


IMPROVE SPACE QUALITY

POSITIVE IMPACTS ON



FUTURE


COMMUNITY
SPACE
QUALITY
VALUES

Respect the existing
and its values





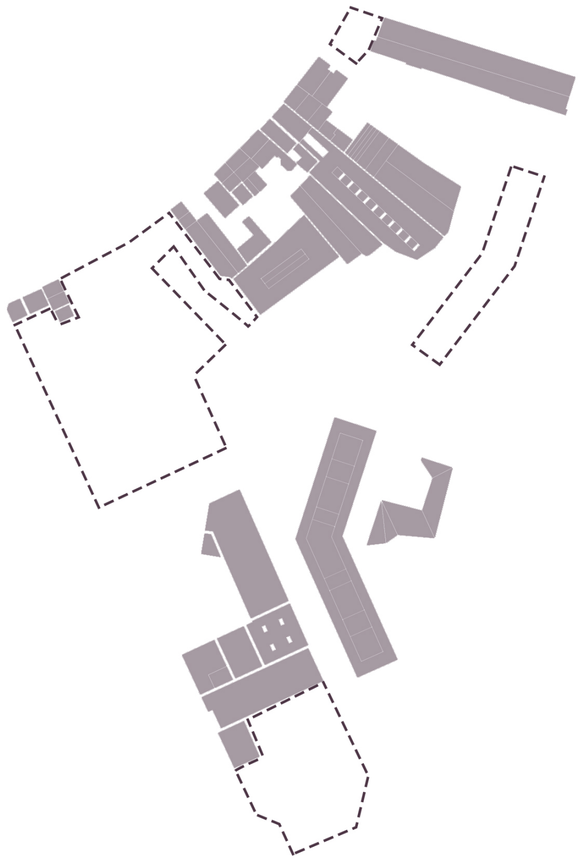
VALUES

By enhancing its
possibilities

FUTURE

Urban Proposal

- Strategy -



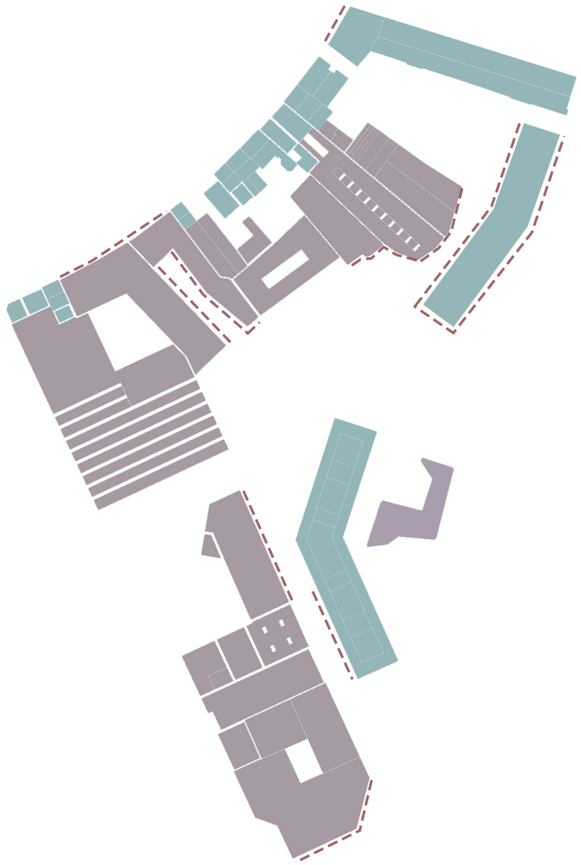
1



BLOCK CORRELATION

Give value to the
existing by improving its
possibilities

Urban proposal
- Architectural strategies -



1

BLOCK CORRELATION

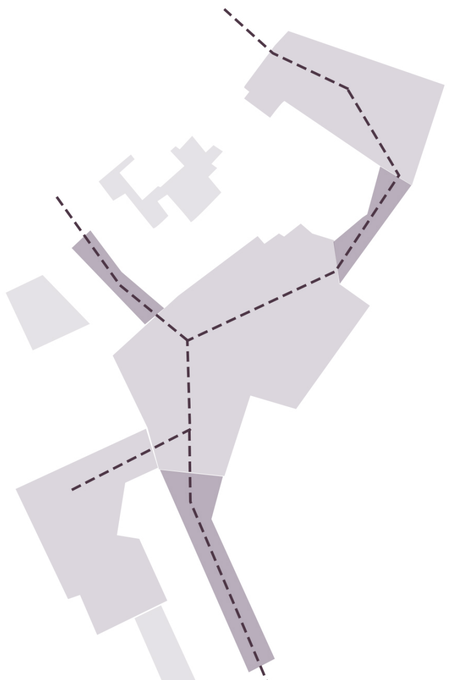
Give value to the existing by improving its possibilities

2

FUNCTION VARIETY

Production and residential areas cohexist and communicate thanks to new public functions that activate the area

Urban proposal
- Architectural strategies -



1



BLOCK CORRELATION

Give value to the existing by improving its possibilities

2



FUNCTION VARIETY

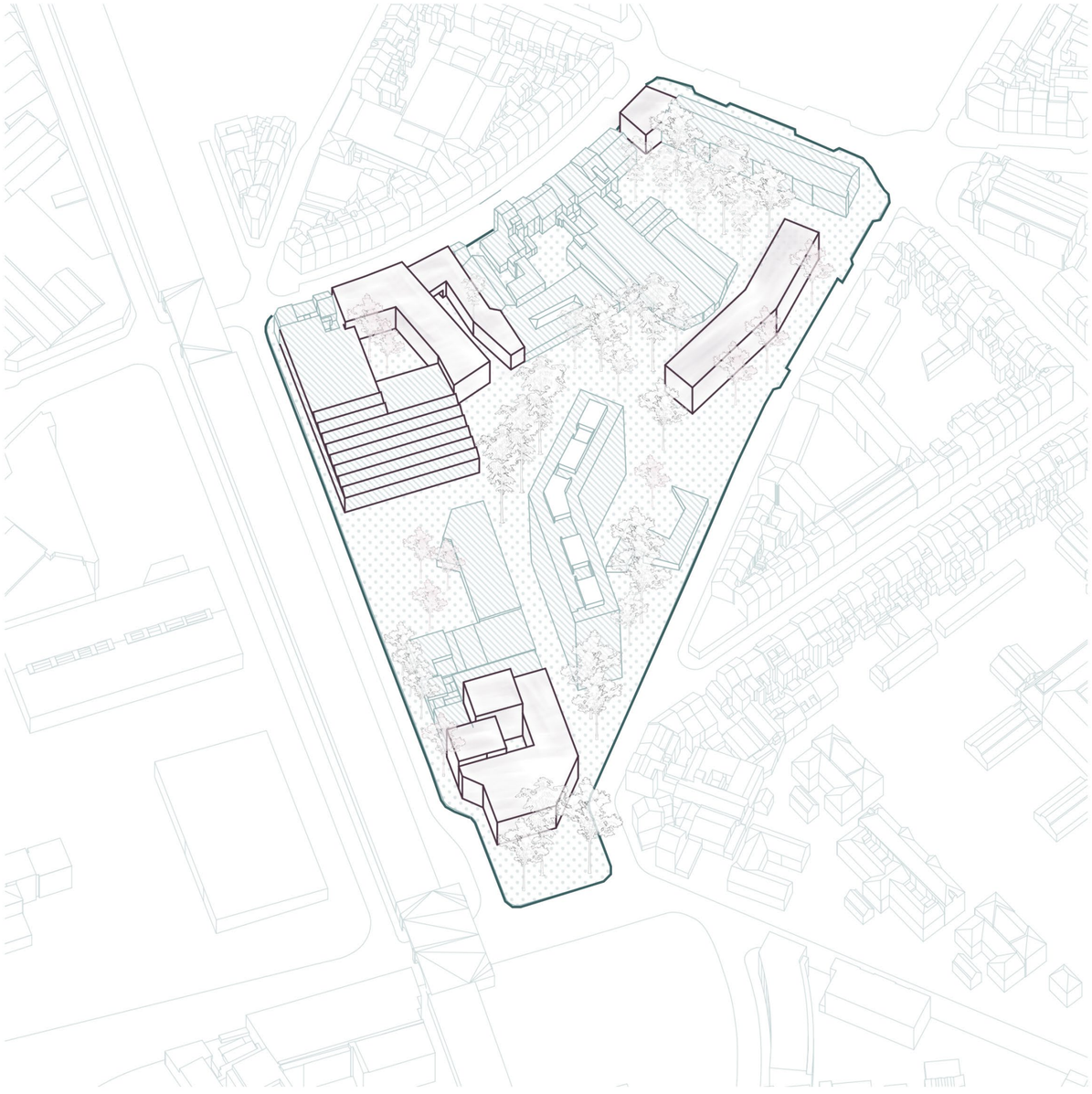
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3

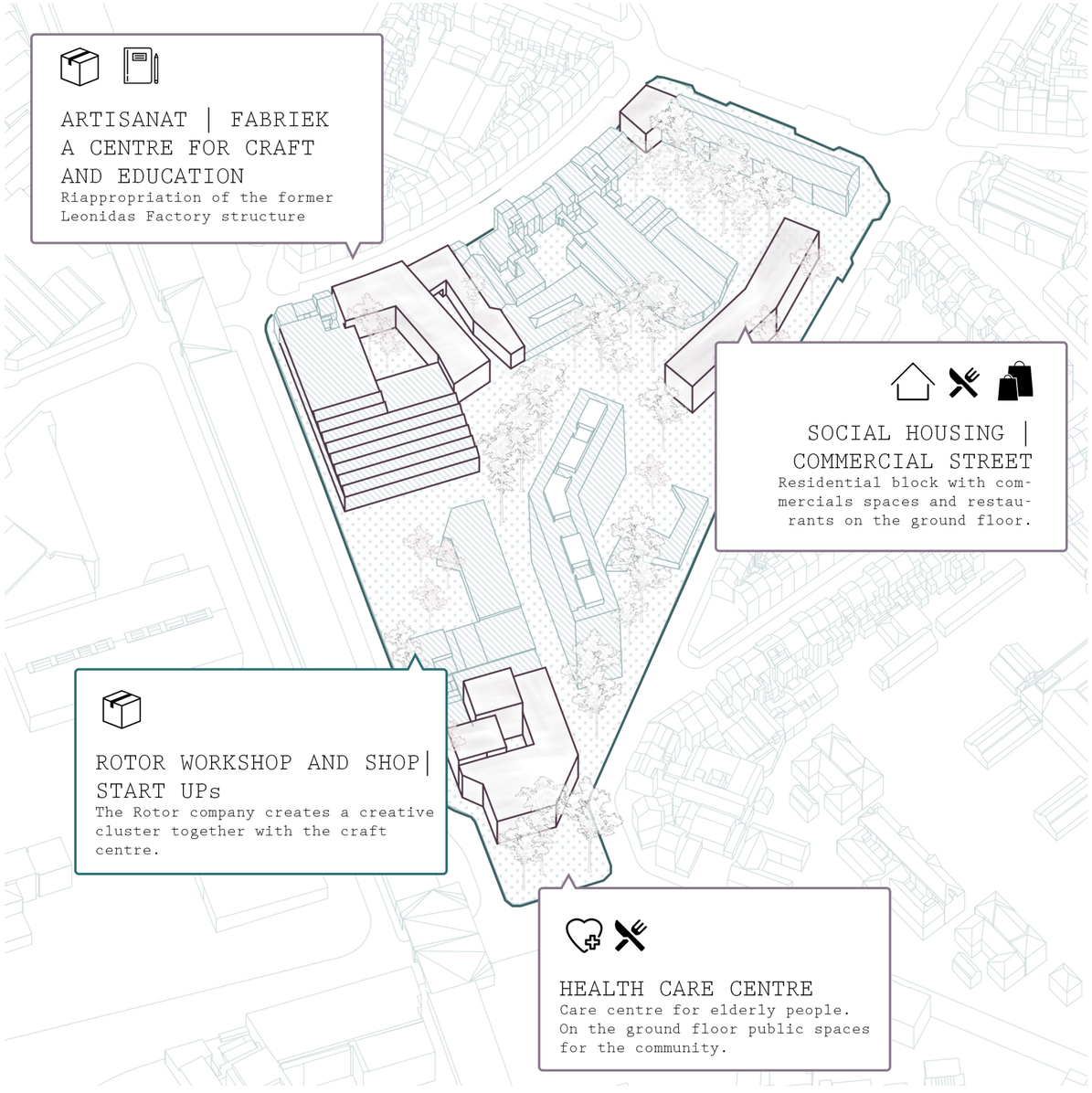


SEQUENCE OF PUBLIC SPACES

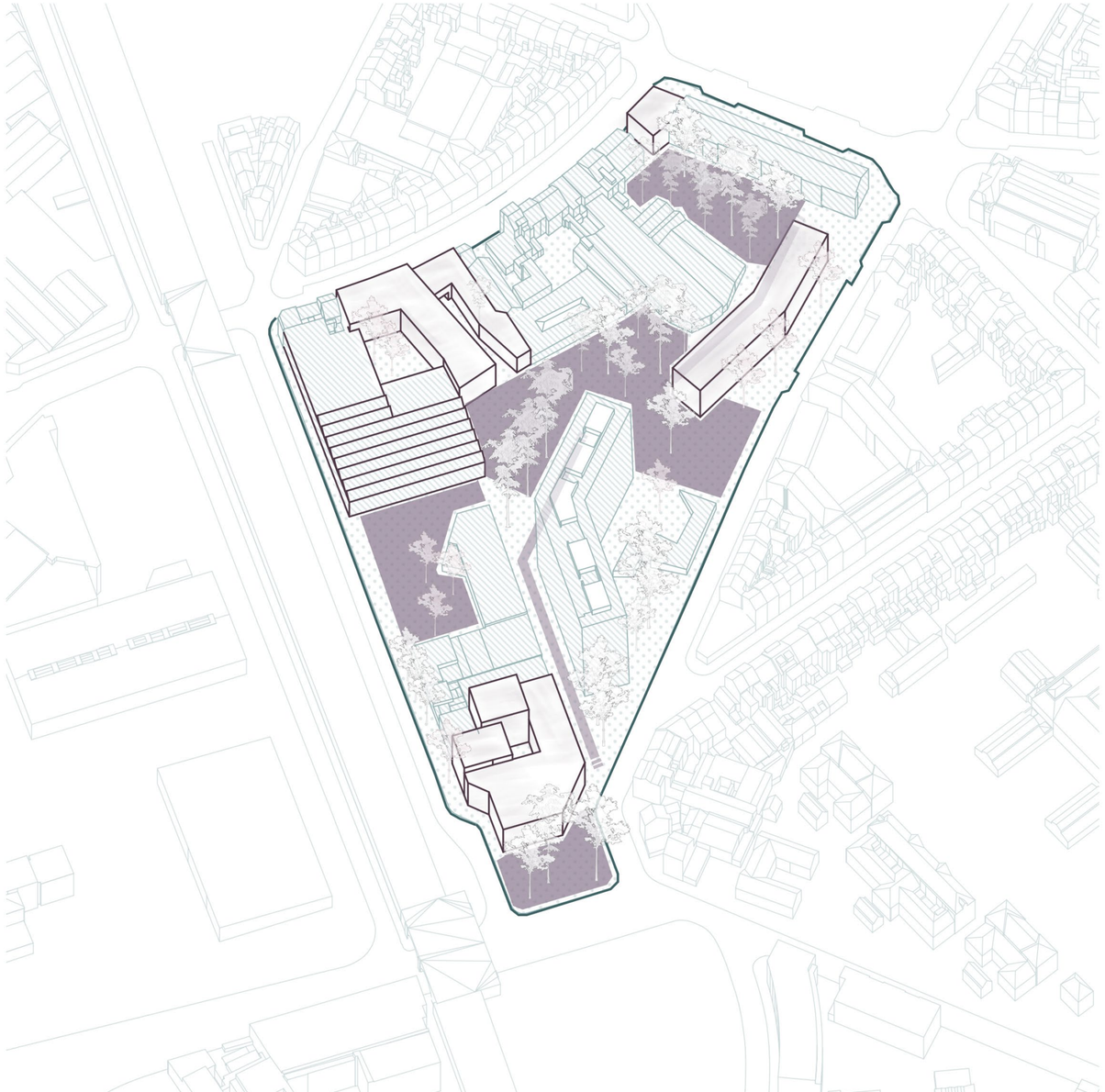
Each space is easily accessible and well-connected to the others



Urban Proposal



Urban Proposal
- Specific uses -



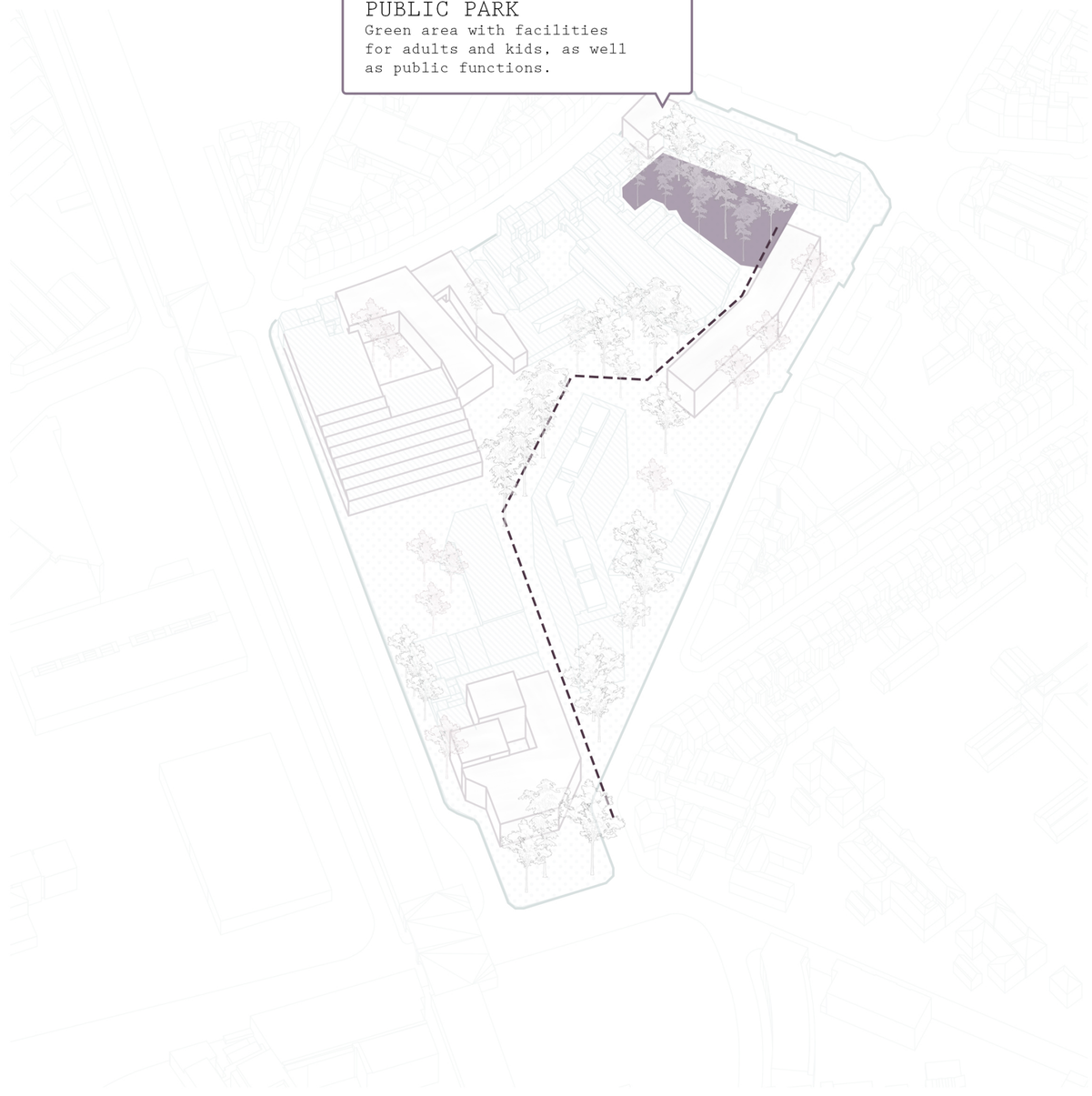
Urban Proposal
- Sequence of public rooms -

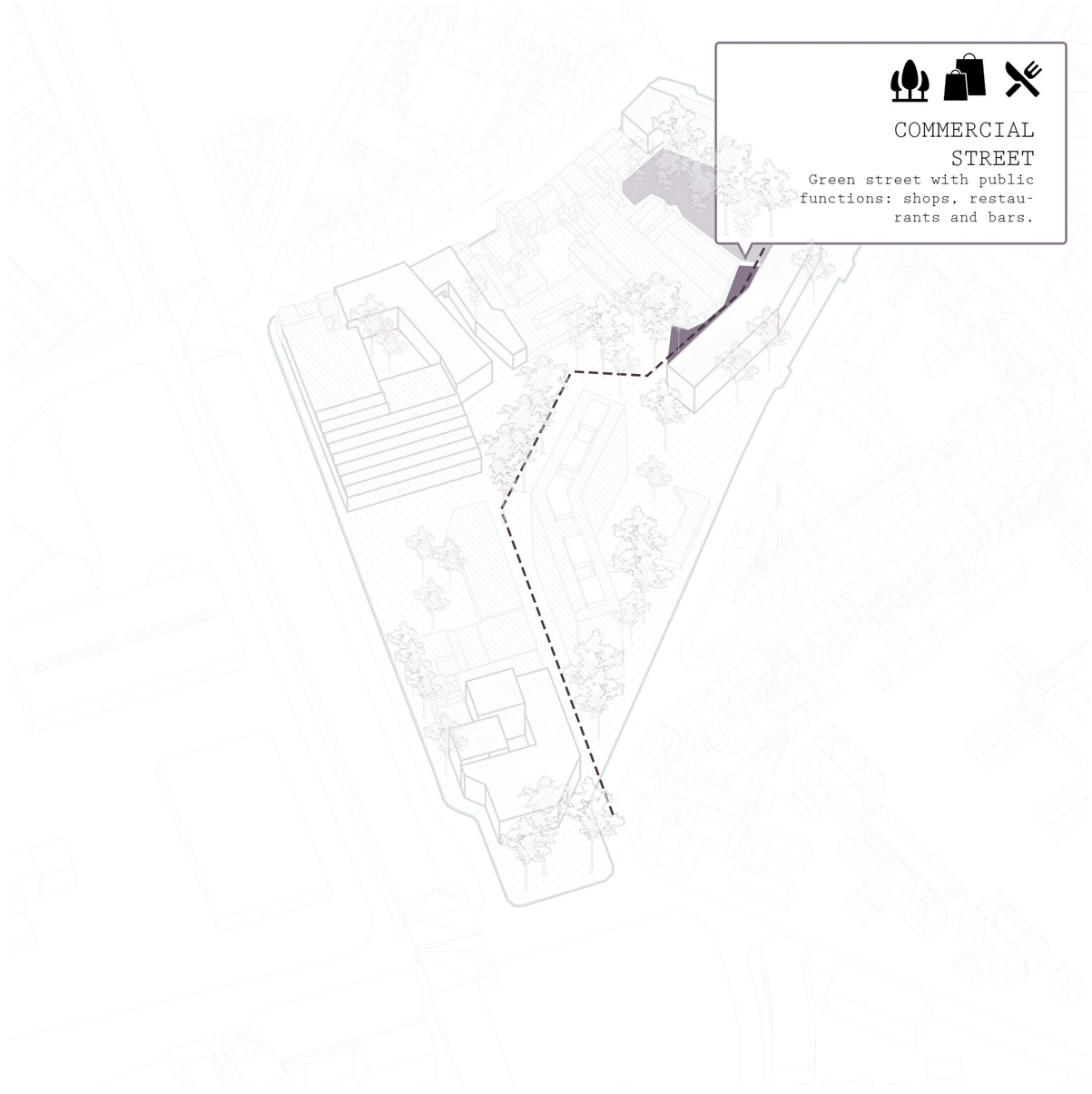


Urban Proposal
- Sequence of public rooms -

PUBLIC PARK

Green area with facilities
for adults and kids, as well
as public functions.




COMMERCIAL STREET
Green street with public functions: shops, restaurants and bars.





PUBLIC CIVIC PLAZA

Big public square with public functions and main public buildings facing on it.



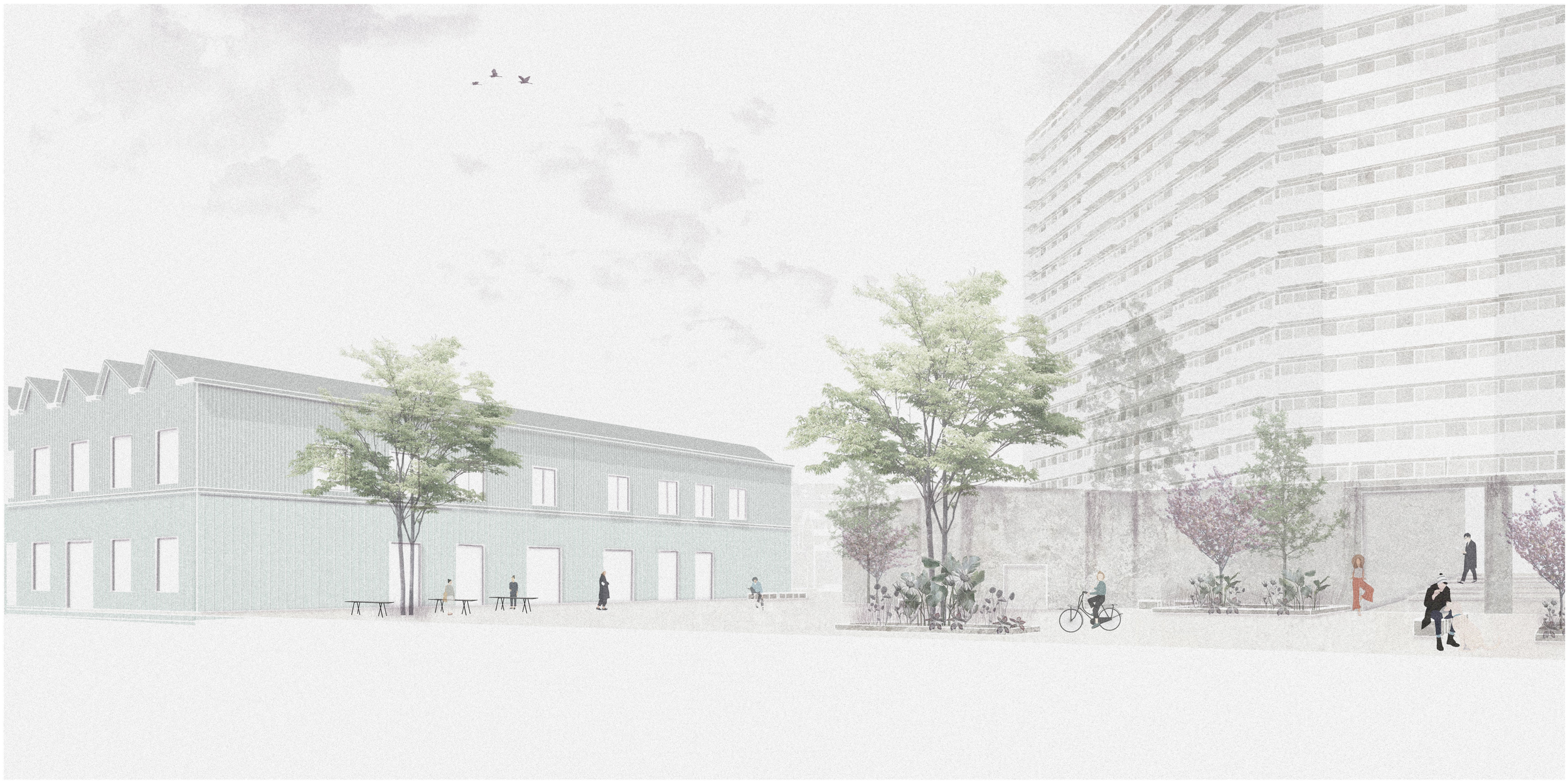


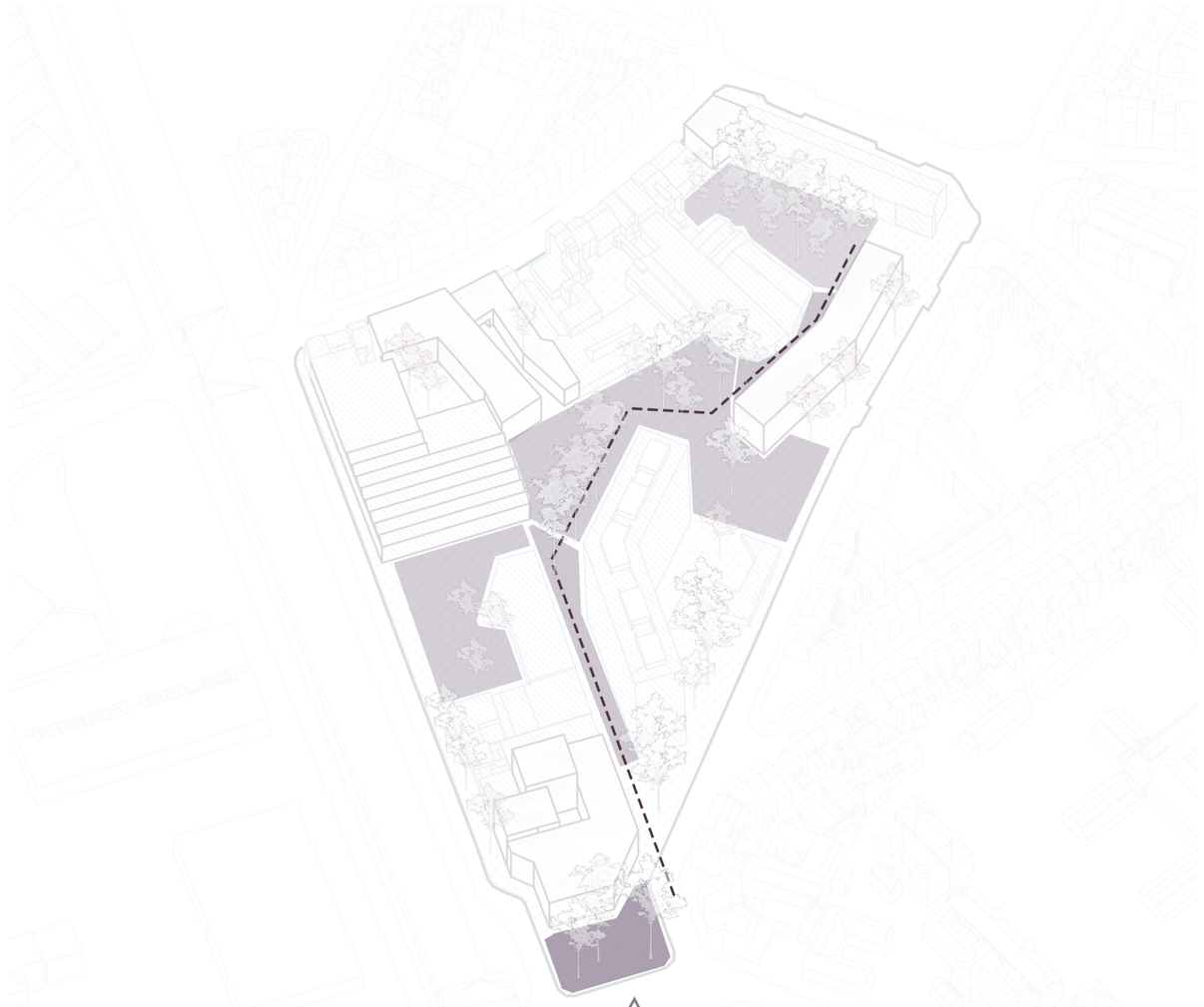
COMMERCIAL
STREET

Green street with public functions:
shops, restaurants and bars.




CREATIVE CLUTER |
LOGISTICS AREA
Public space for people to work
together and industry logistics.





PUBLIC PLAZA

Green area with public functions, meeting spaces for adults and kids.

Materialization



// Proposal Masterplan 1:1000

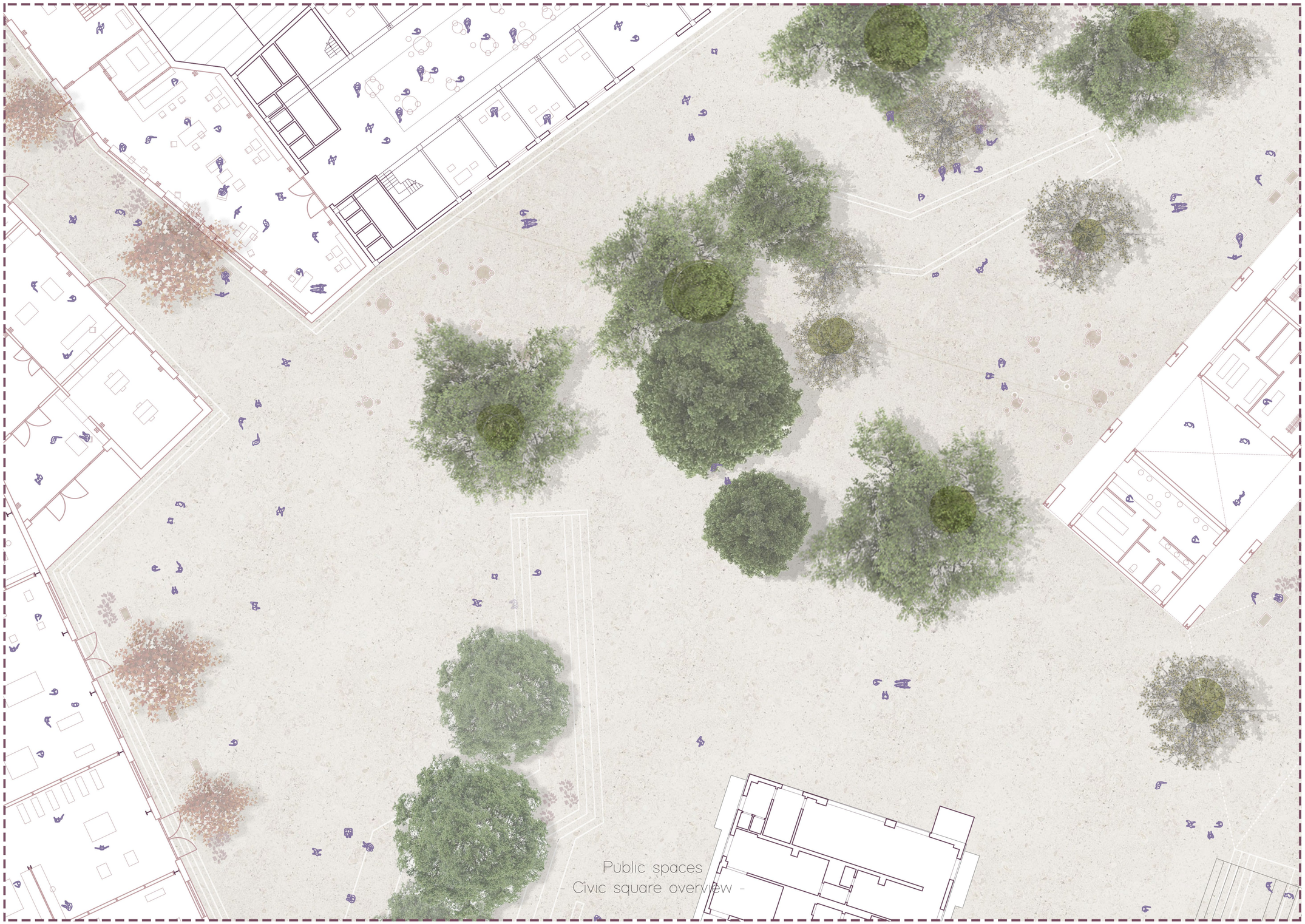
The masterplan proposal



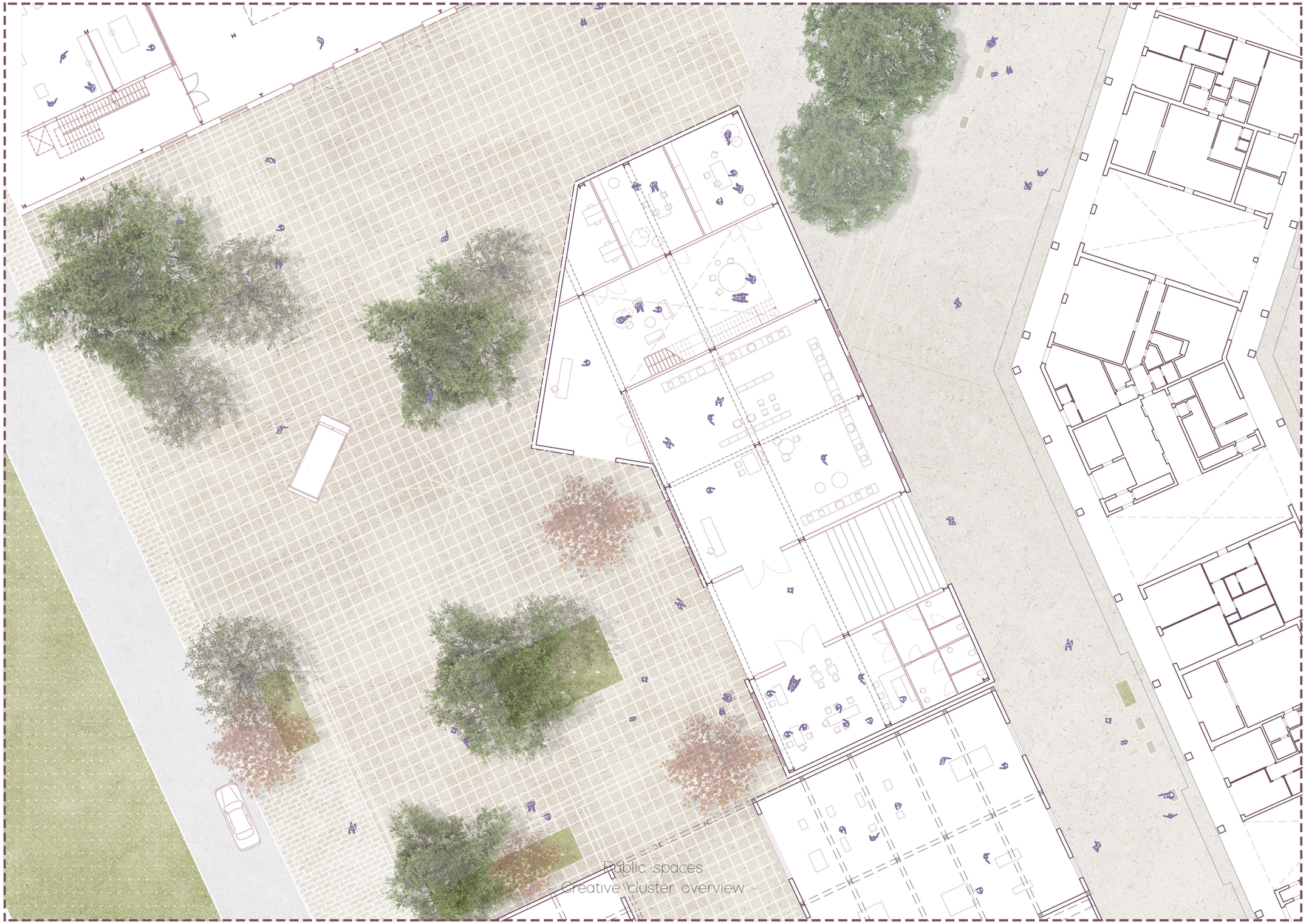
The masterplan proposal
- public uses -



Public spaces
- Internal public street overview -



Public spaces
- Civic square overview -

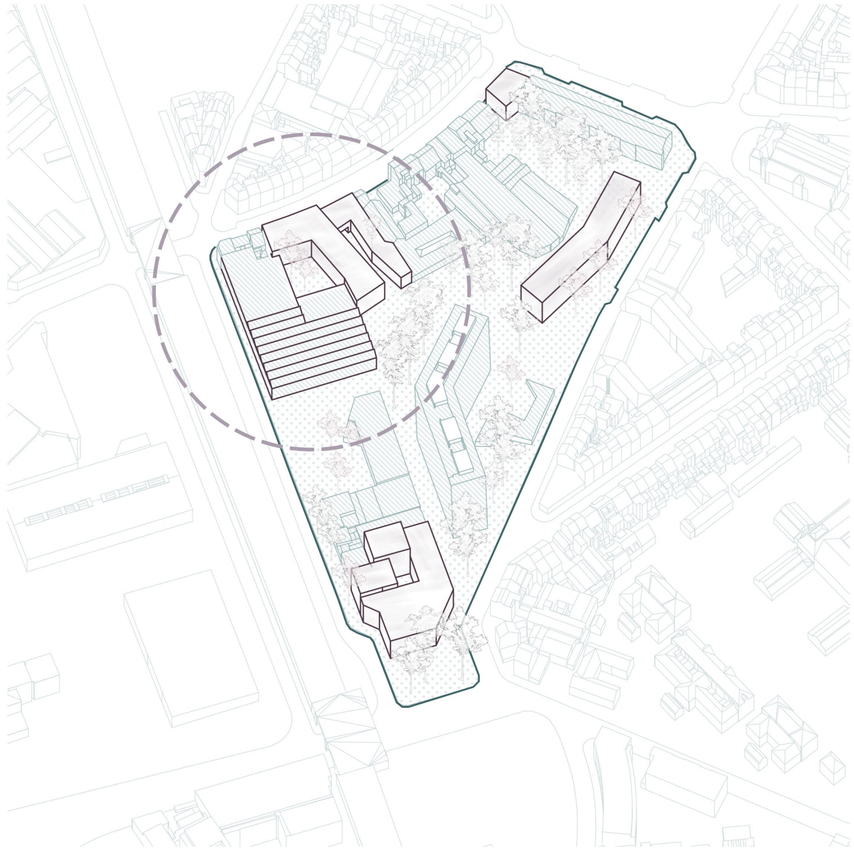


Public spaces
Creative cluster overview -

BUILDING PROPOSAL

ARTISANAT | FABRIEK

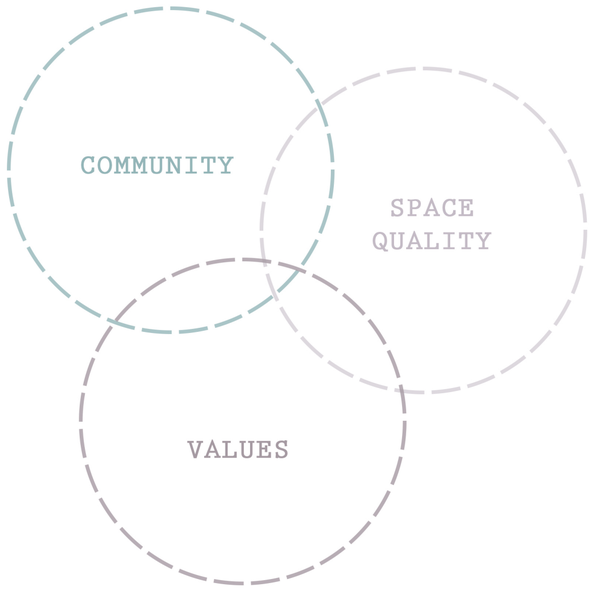




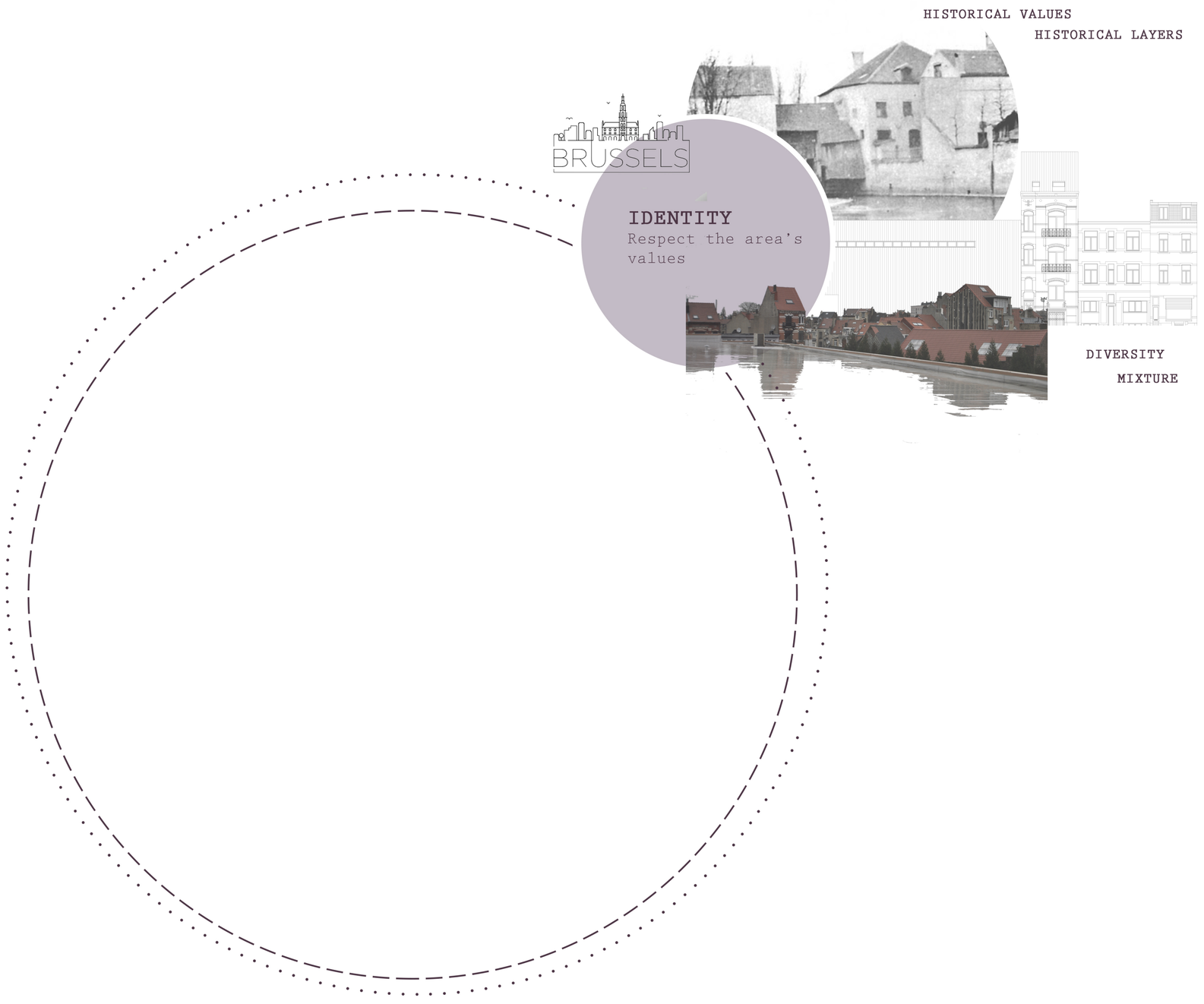
Design focus
- The former leonidas factory building -

RESEARCH QUESTION

How can a manufacture centre based on productive, educational and common spaces enhance the current possibilities of the Anderlecht's community?



Project aim


HISTORICAL VALUES
HISTORICAL LAYERS
BRUSSELS
IDENTITY
Respect the area's values
DIVERSITY
MIXTURE

Project aim

HISTORICAL VALUES

HISTORICAL LAYERS



BRUSSELS

IDENTITY

Respect the area's values





DIVERSITY

MIXTURE

TRANSFORM

the alienated industrial district into a space for the city



Project aim



HISTORICAL VALUES

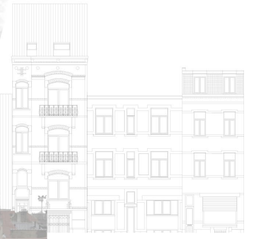
HISTORICAL LAYERS

BRUSSELS

IDENTITY

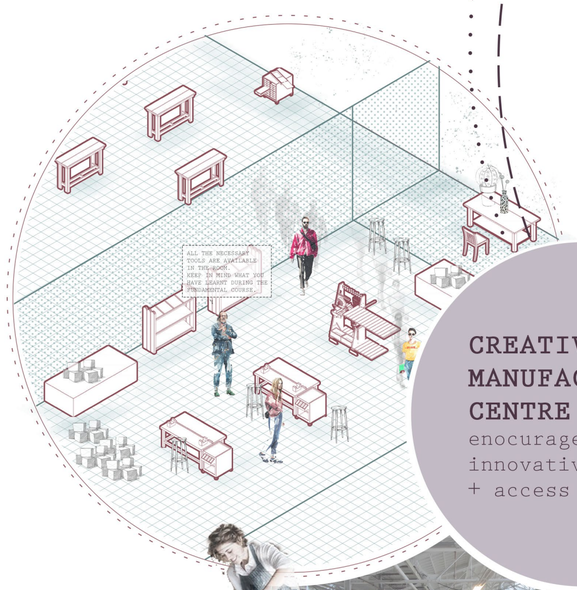
Respect the area's values





DIVERSITY

MIXTURE



EDUCATION

CREATIVE MANUFACTURE CENTRE

enocurage innovative working + access to culture



PRODUCTION

TRANSFORM

the alienated industrial district into a space for the city



Project aim



SOCIAL INCLUSION

NEW ACTIVITIES

COMMUNITY
Social benefits
+
Spatial benefits

HISTORICAL VALUES

HISTORICAL LAYERS

BRUSSELS

IDENTITY
Respect the area's values



DIVERSITY

MIXTURE



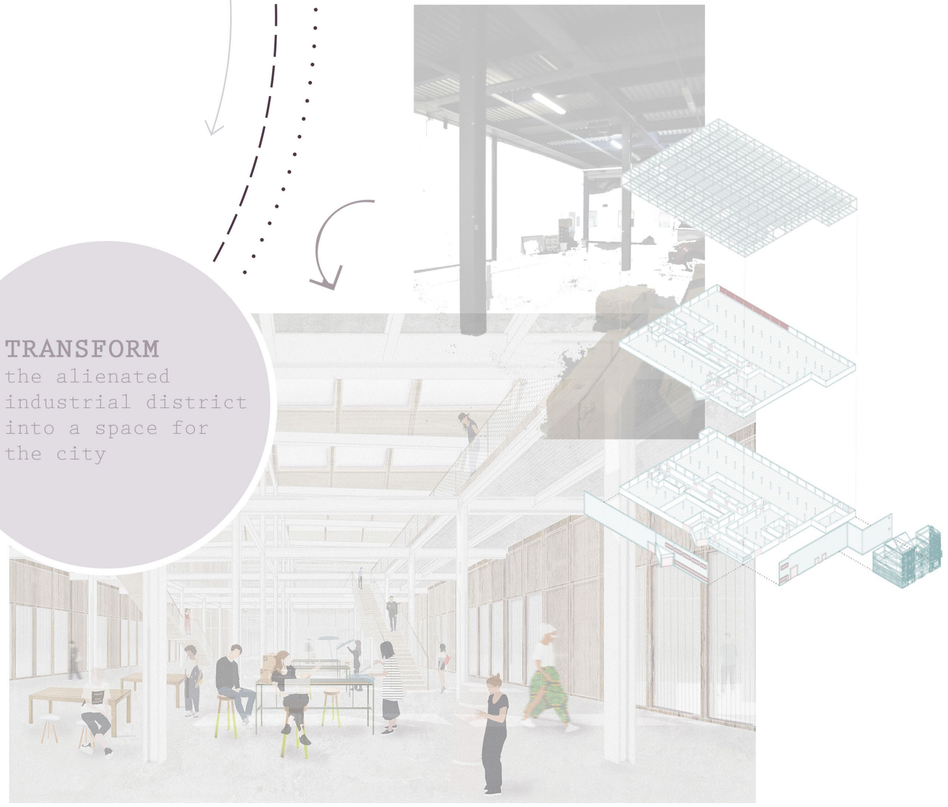
EDUCATION

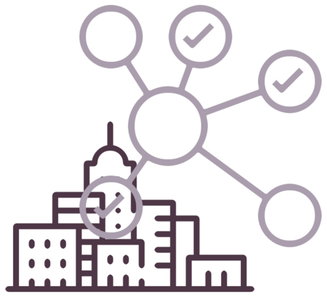
CREATIVE MANUFACTURE CENTRE
enocurage
innovative working
+ access to culture

PRODUCTION



TRANSFORM
the alienated
industrial district
into a space for
the city





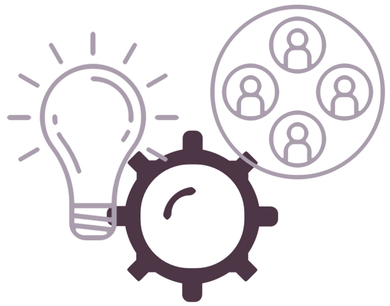
RESPONSE TO
THE CITY

+



RESPONSE TO
THE PREEXISTING BUILDING

+



RESPONSE TO
THE DIFFERENT USER’S NEEDS

Education
Promotion
Common space

Response to the site
The direct surroundings

Response to the site
- The direct surroundings challenges -

ALIENATED and FRAGMENTED STREET

Because of the cohexistence between reseidential and industrial areas

Very poor space quality

THE WALL

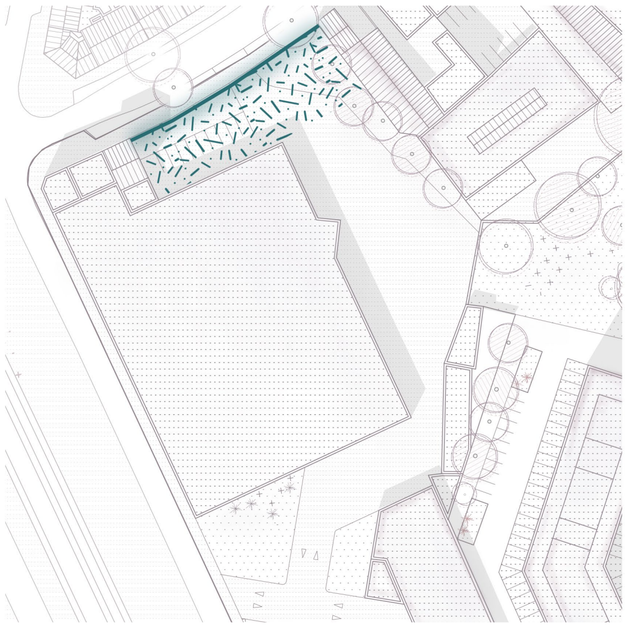
The existing wall that pass through the area does not allow permeability

OUTDOOR DEPOSIT AND TRUCK YARD

The space outside the Rotor building is used by the company as a working area/deposit area. Also, it is used by trucks for loading and unloading.

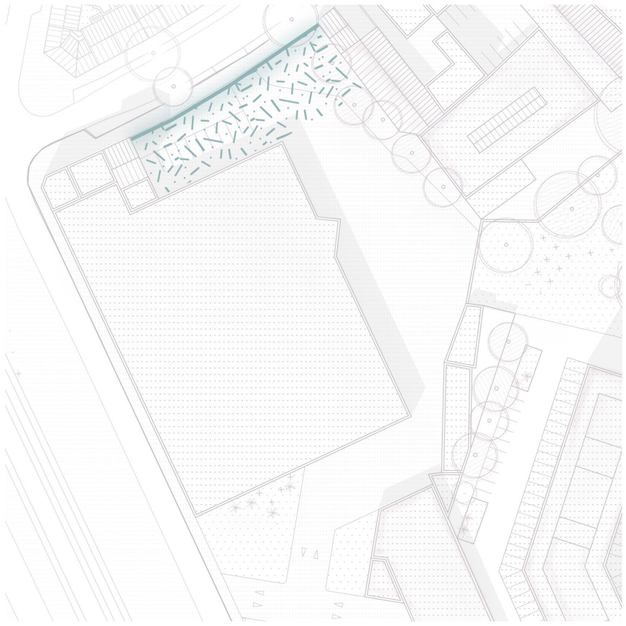
Poor space quality

Response to the site
- The aim -



STREET CONTINUITY

Response to the site
- The aim -

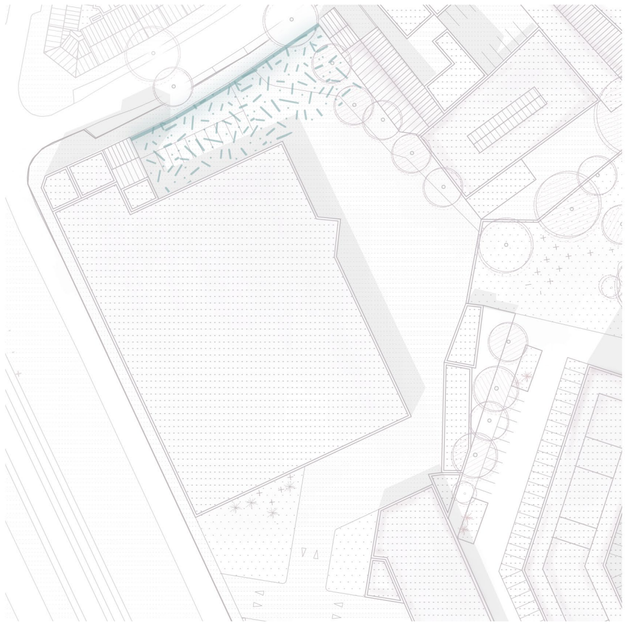


STREET CONTINUITY



PERMEABILITY

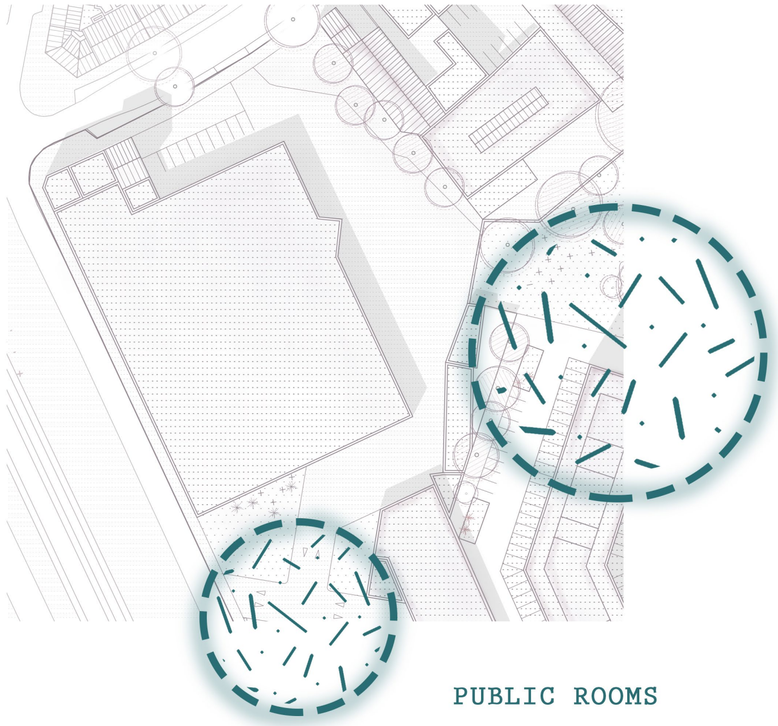
Response to the site
- The aim -



STREET CONTINUITY

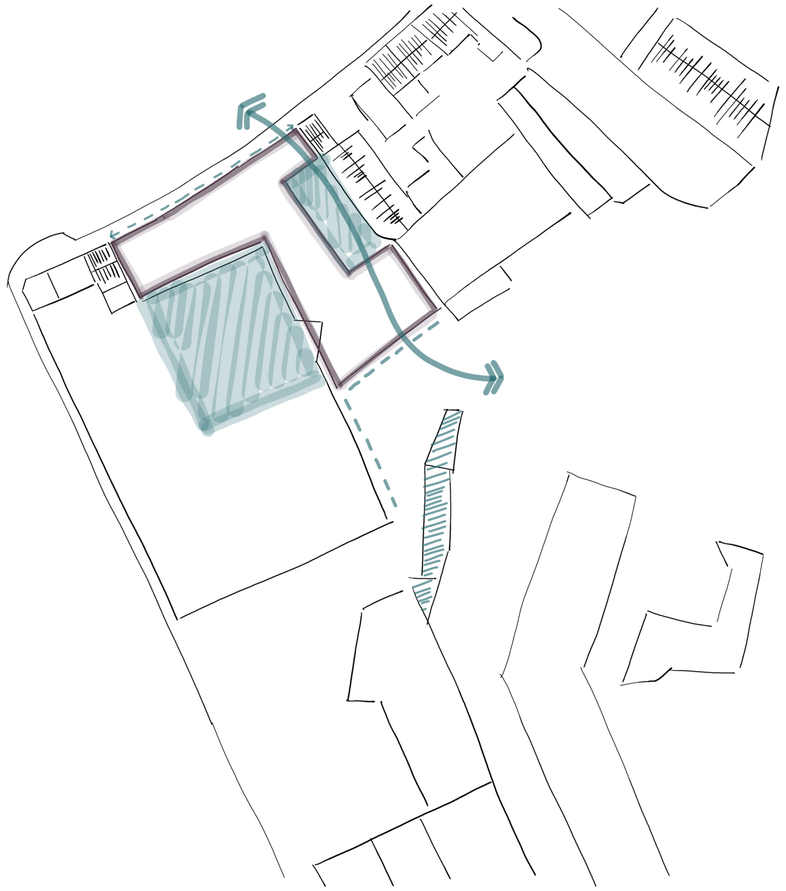


PERMEABILITY

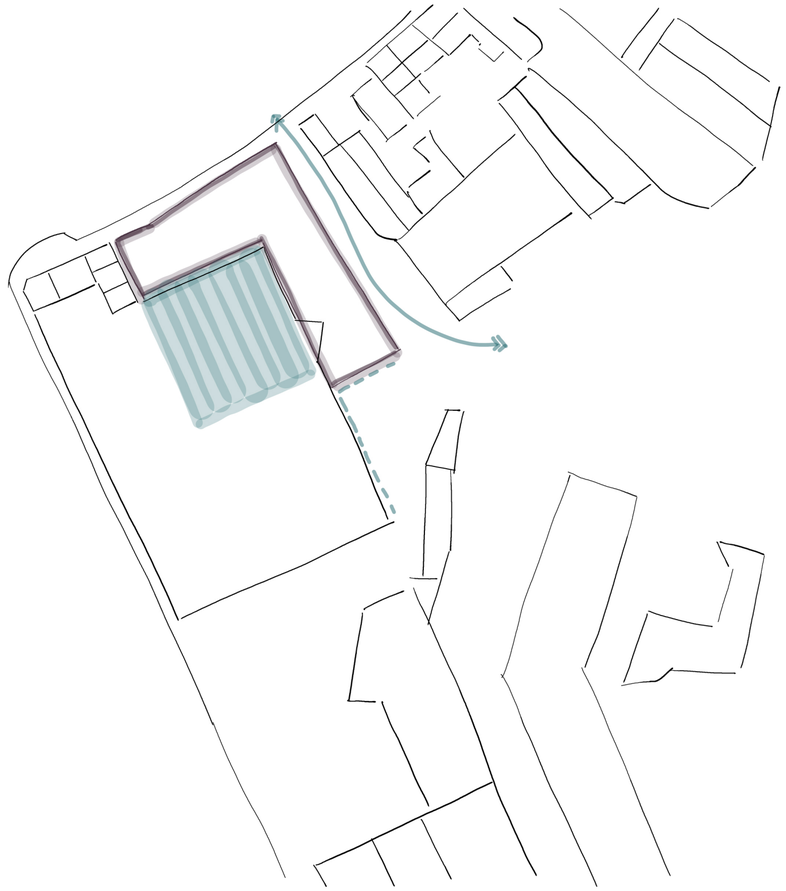


PUBLIC ROOMS

Response to the site
- First stages arrangements -



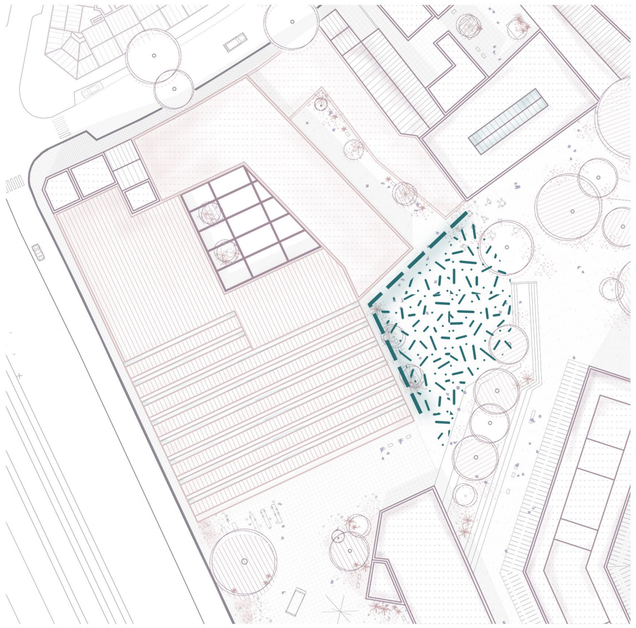
Arrangement 1



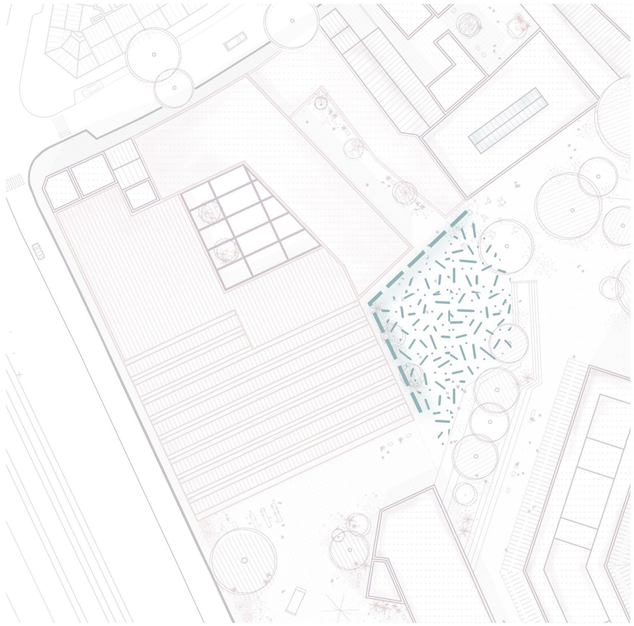
Arrangement 2

Response to the site
- The final arrangement -

Response to the site
- The strategy -



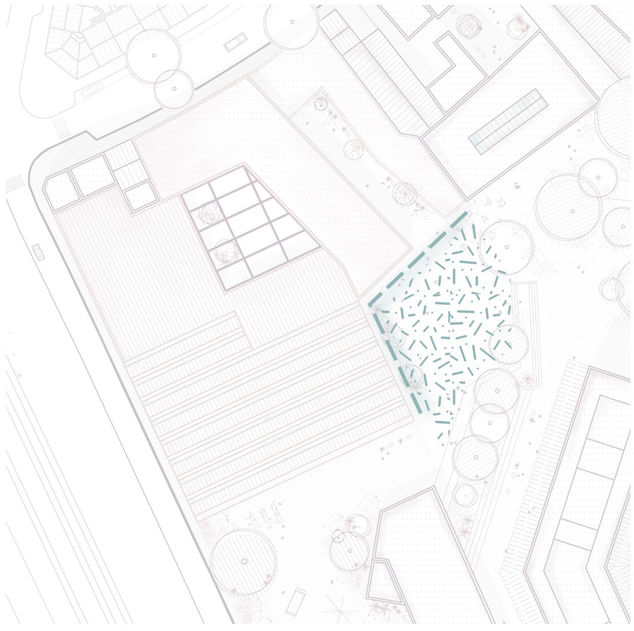
ENTRANCE ON THE SQUARE



ENTRANCE ON THE SQUARE



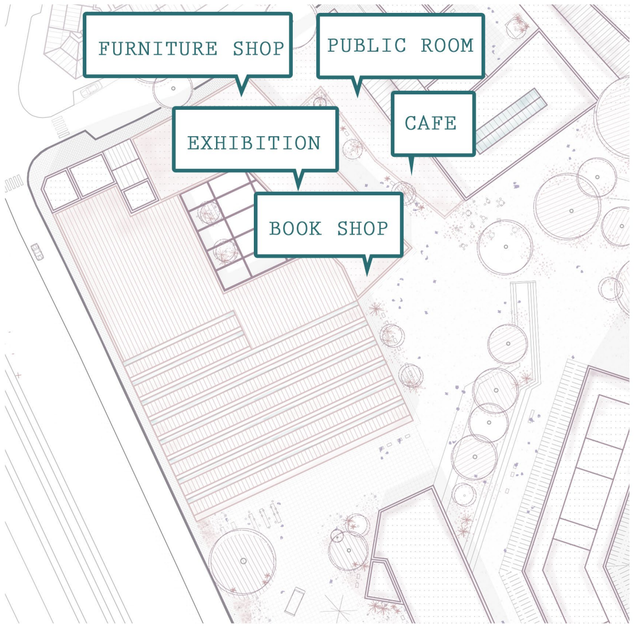
PUBLIC PASSAGE



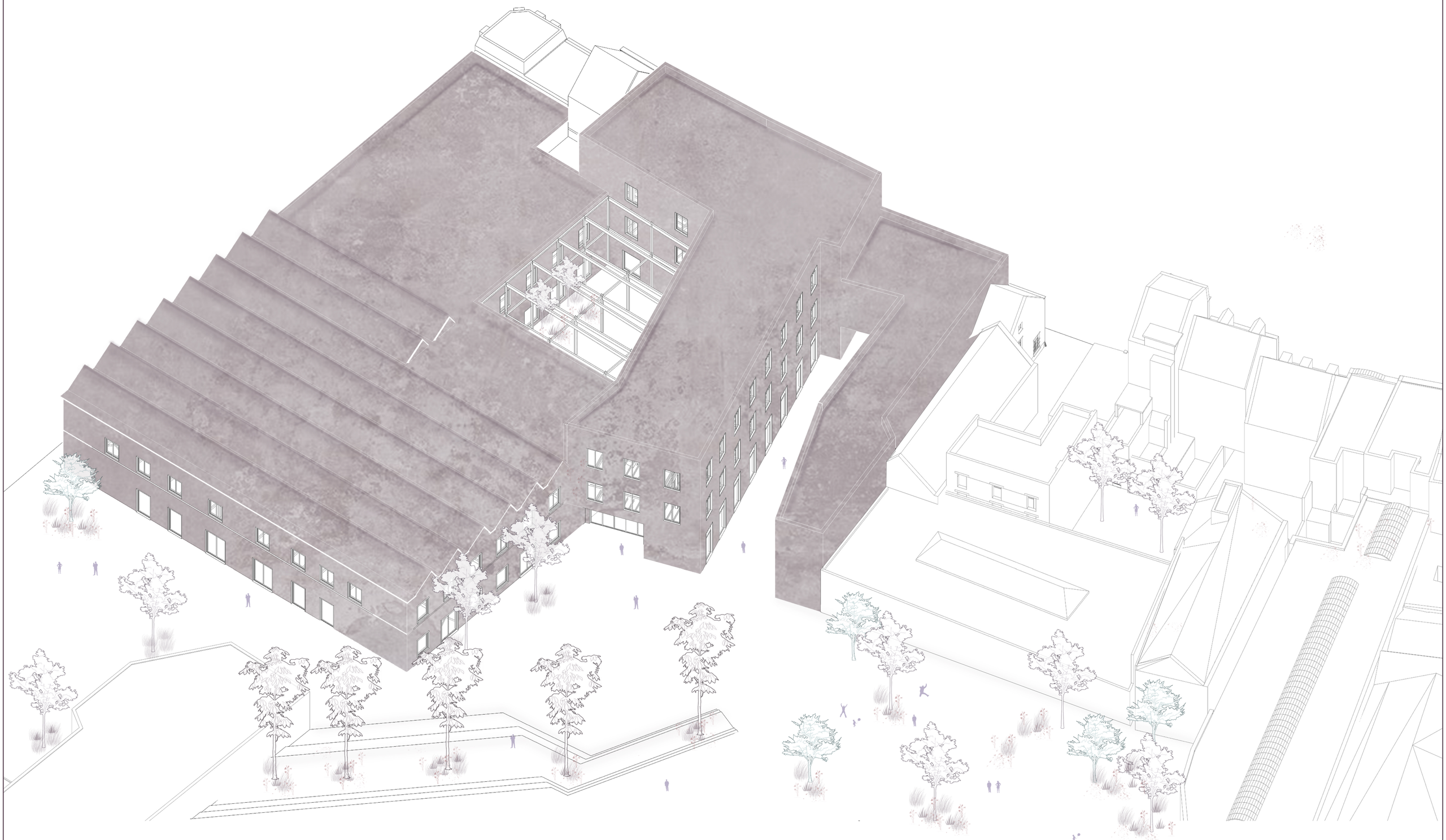
ENTRANCE ON THE SQUARE

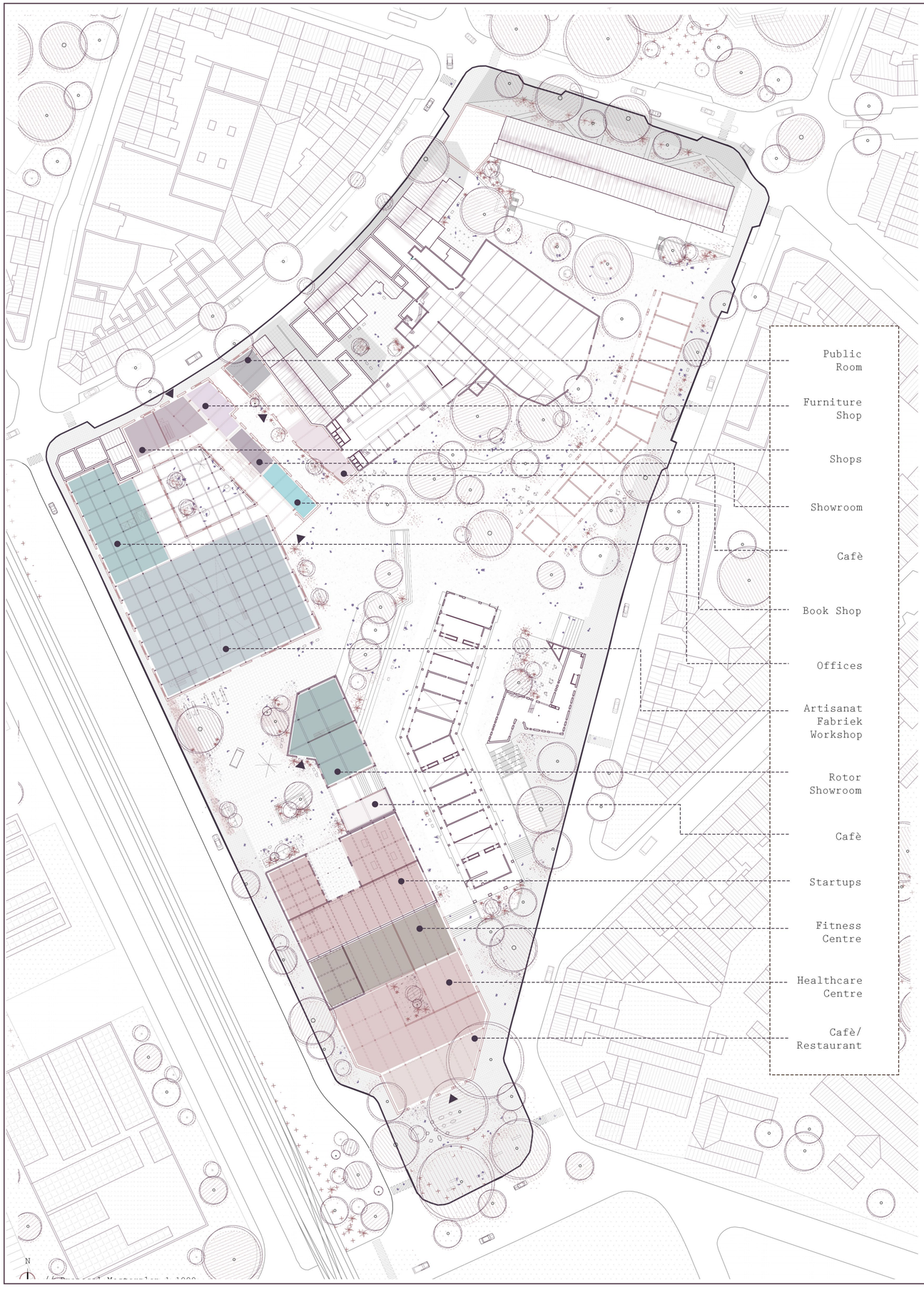


PUBLIC PASSAGE



PUBLIC FUNCTIONS

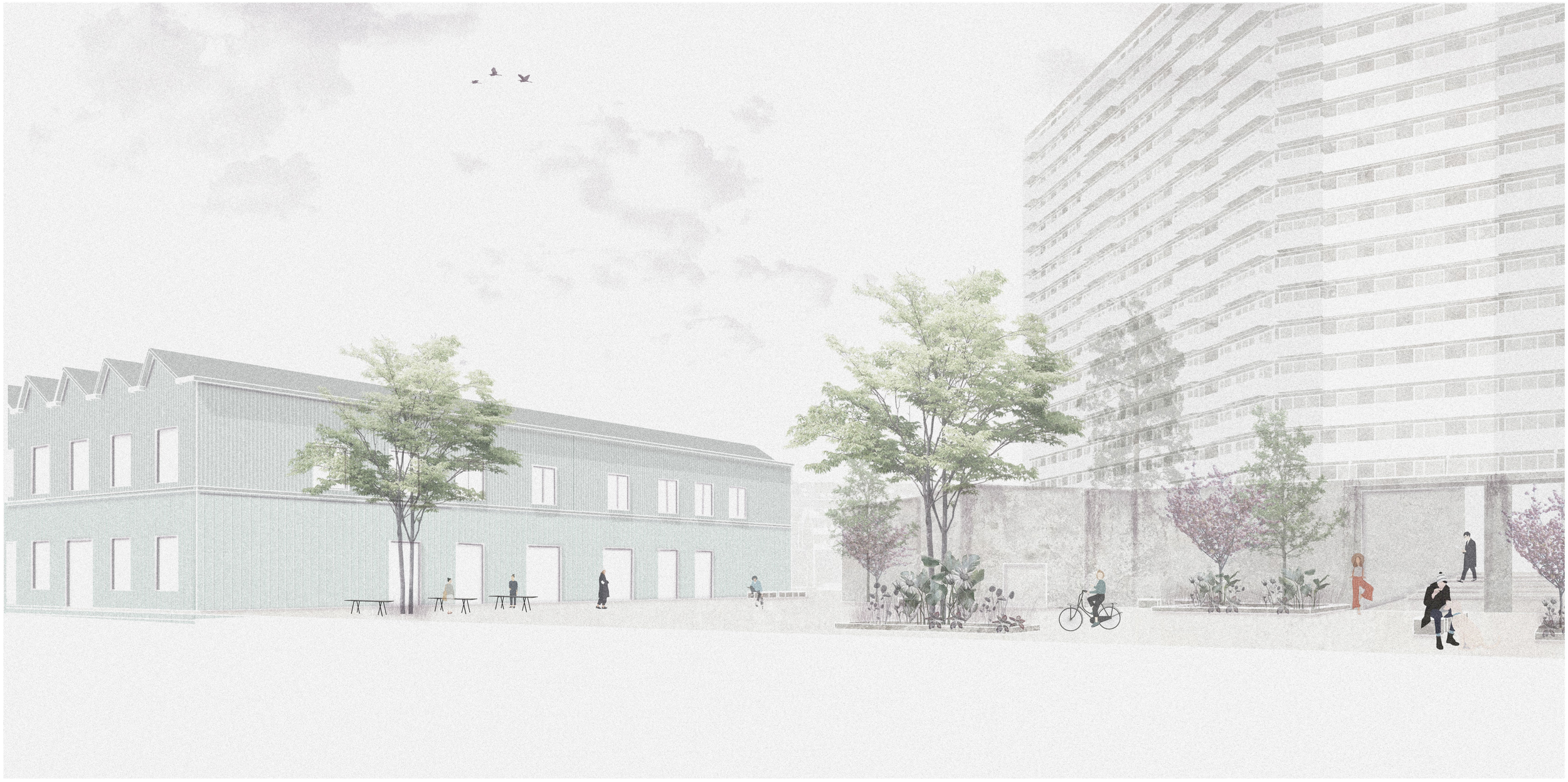




The masterplan proposal
- public uses -
creative district



Response to the site
- The public passage -



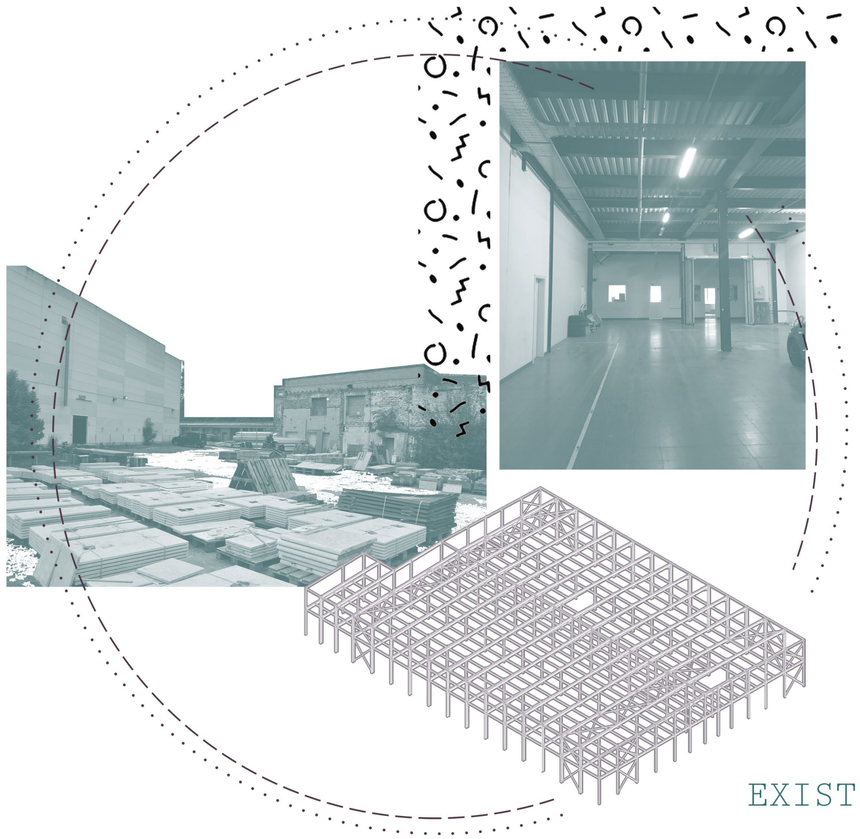
Response to the site
- The creative cluster -

Building Proposal

- Response to the pre-existing building -

Old vs. New

Response to the preexisting building
- The former leonidas factory -

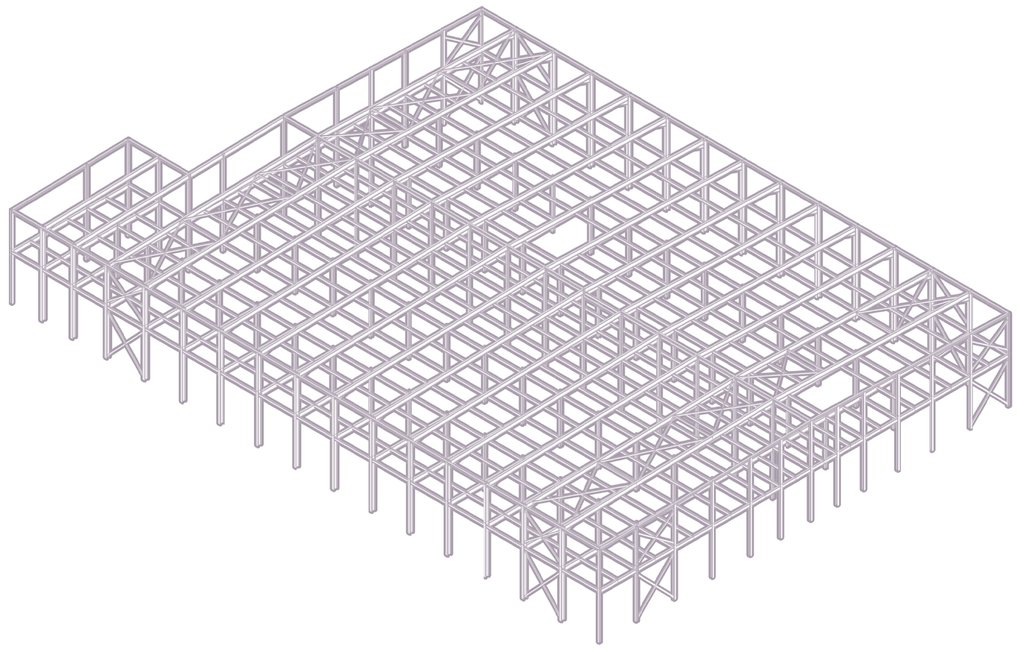


Bad space quality
Unattractive atmosphere

EXISTING STRUCTURE

Grid
Flexibility

Response to the preexisting building
- The existing structure -



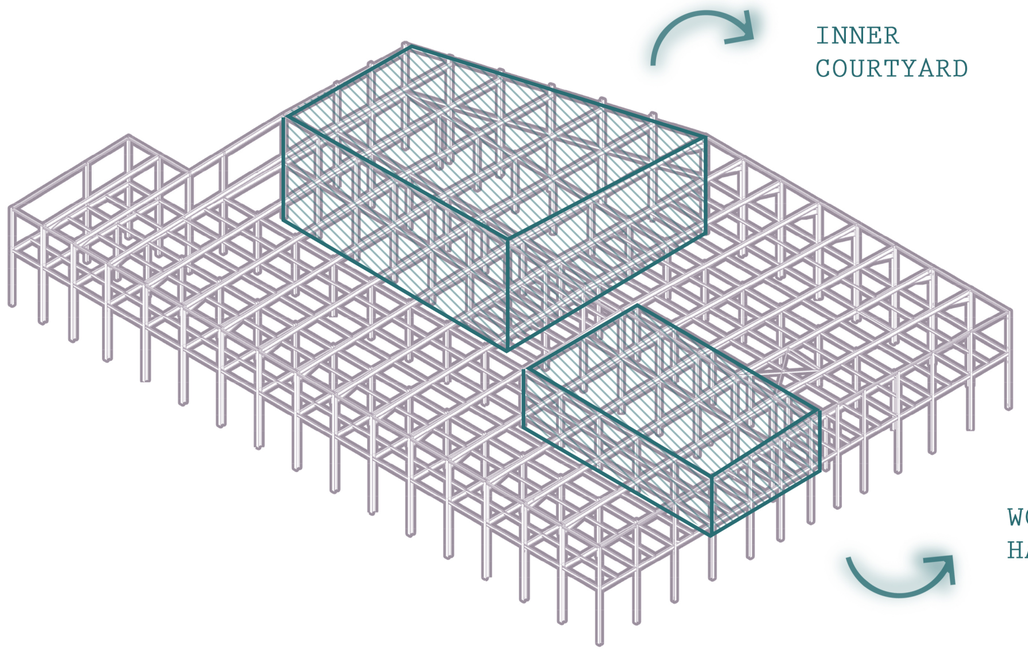
Existing
steel structure

- GRID -

OLD

NEW

Response to the preexisting building
- The existing structure -



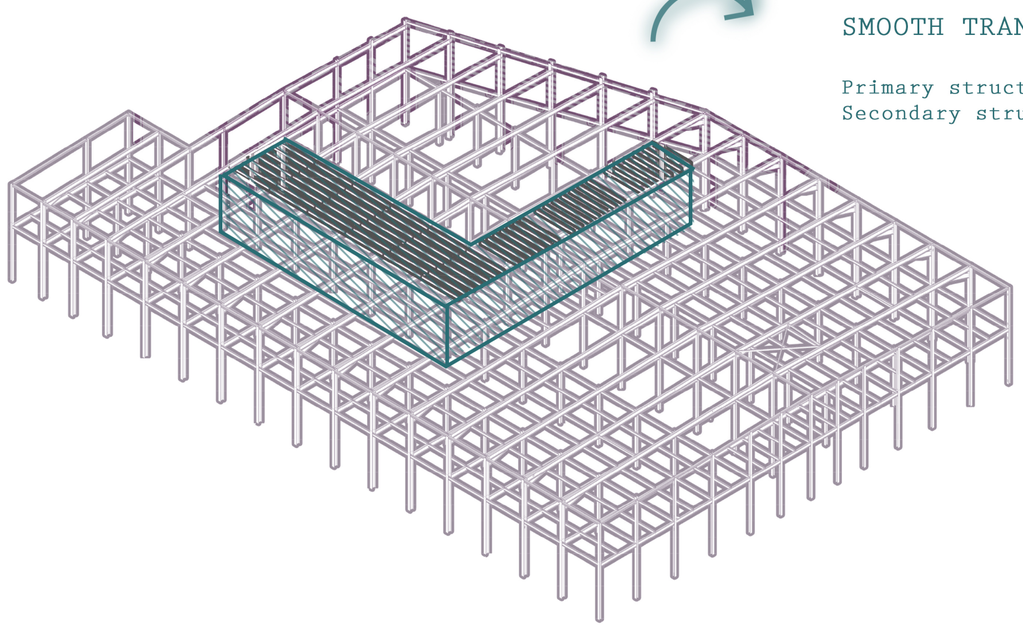
Adapt the Existing
steel structure
to new uses

- OPEN THE GRID -

OLD

NEW

Response to the preexisting building
- The existing structure -



CORRIDOR /
TRANSITIONAL SPACE

SMOOTH TRANSITION OLD/NEW

Primary structure - existing steel
Secondary structure - timber

Adapt the Existing
steel structure
to new uses

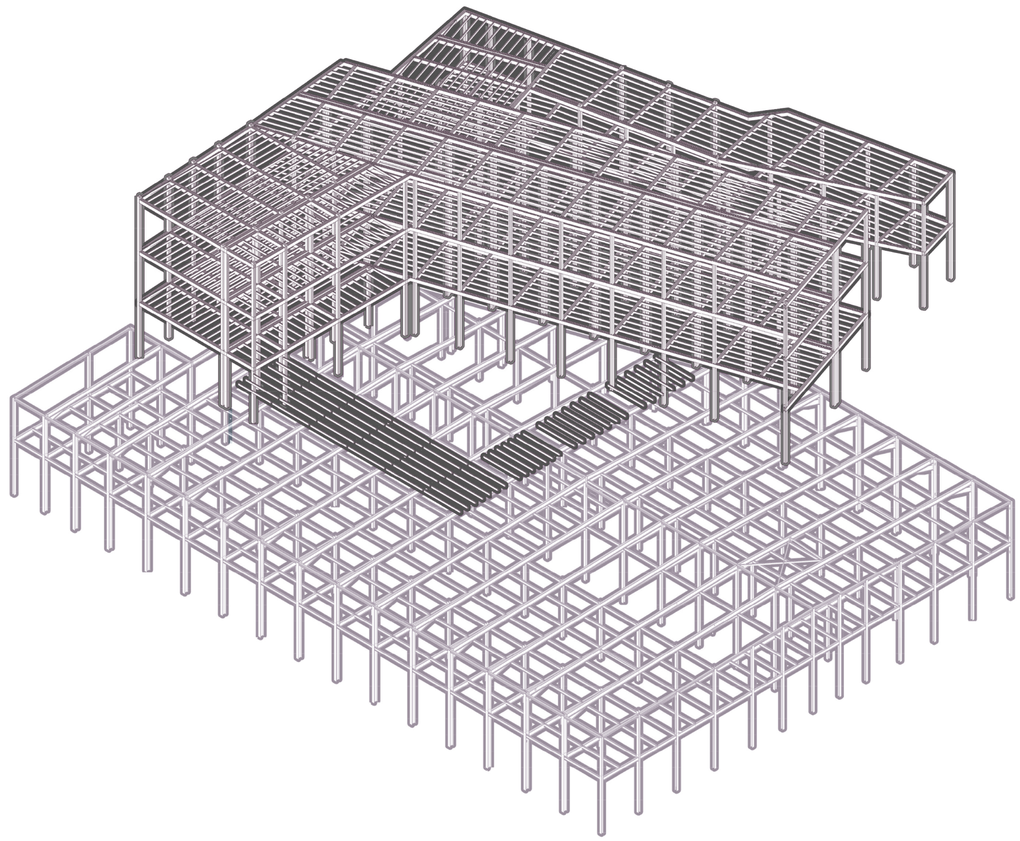
- OPEN THE GRID -

OLD

NEW

CORRIDOR

Response to the preexisting building
- The additional structure -

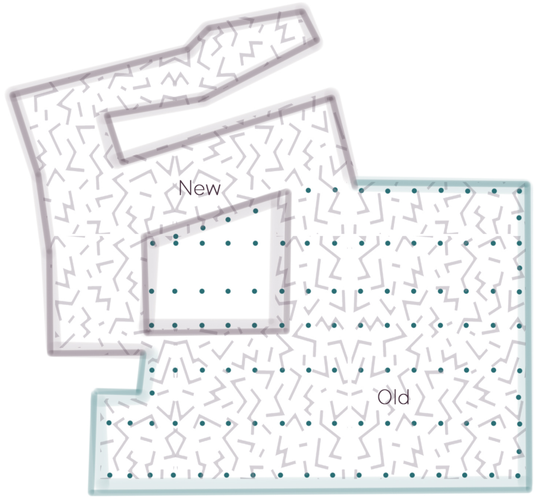


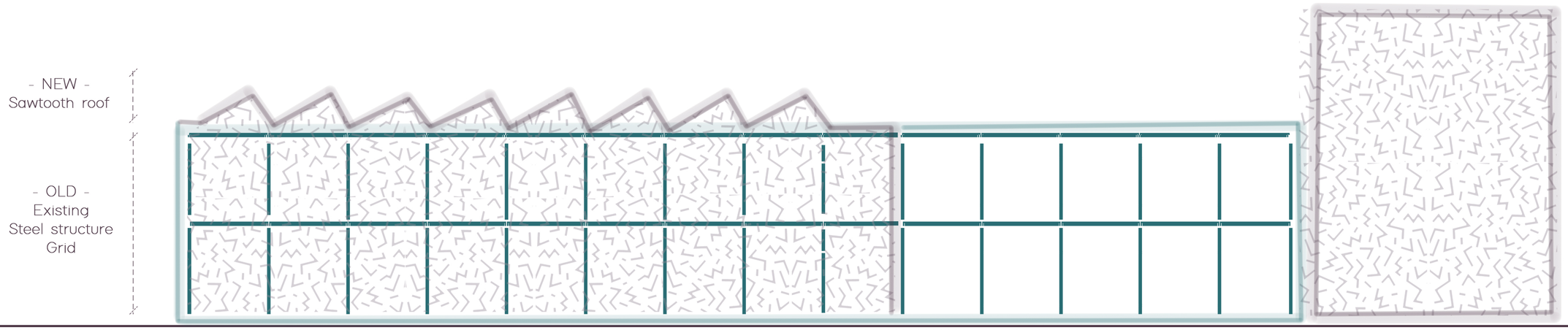
New timber structure
in relation with
the existing steel structure

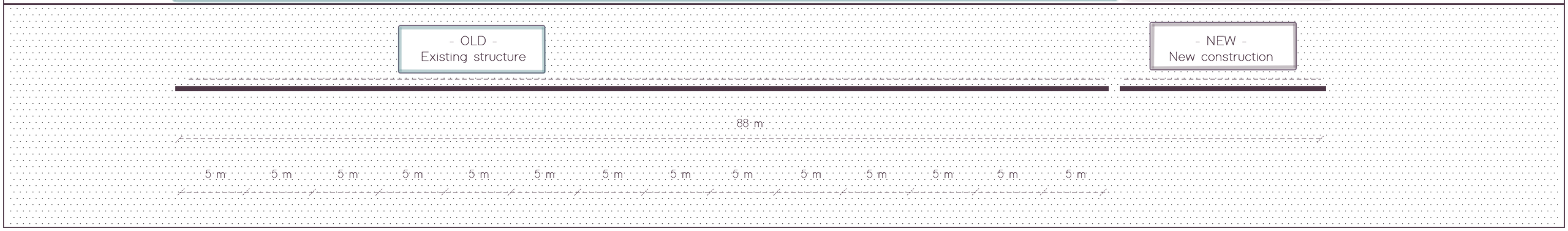
- OLD VS. NEW -



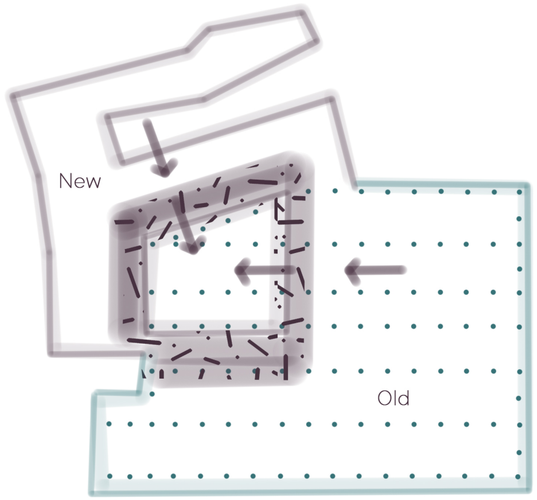
Response to the preexisting building
- Old vs New -

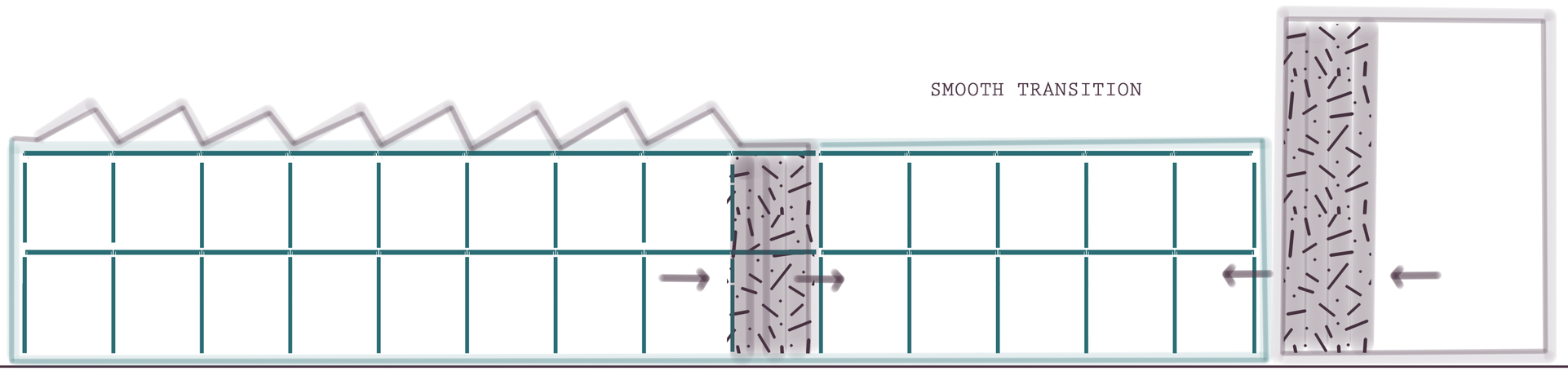






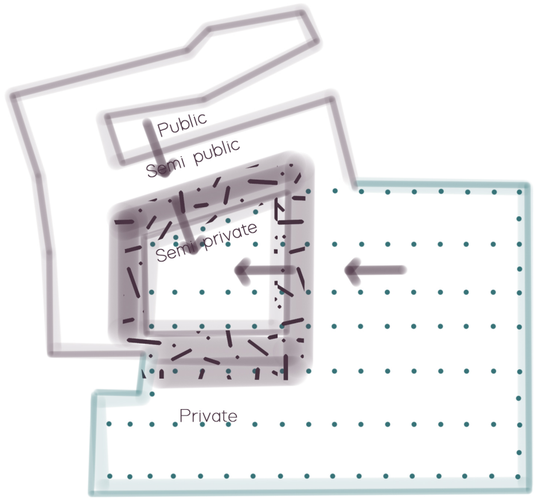
Response to the preexisting building
- Old vs New -

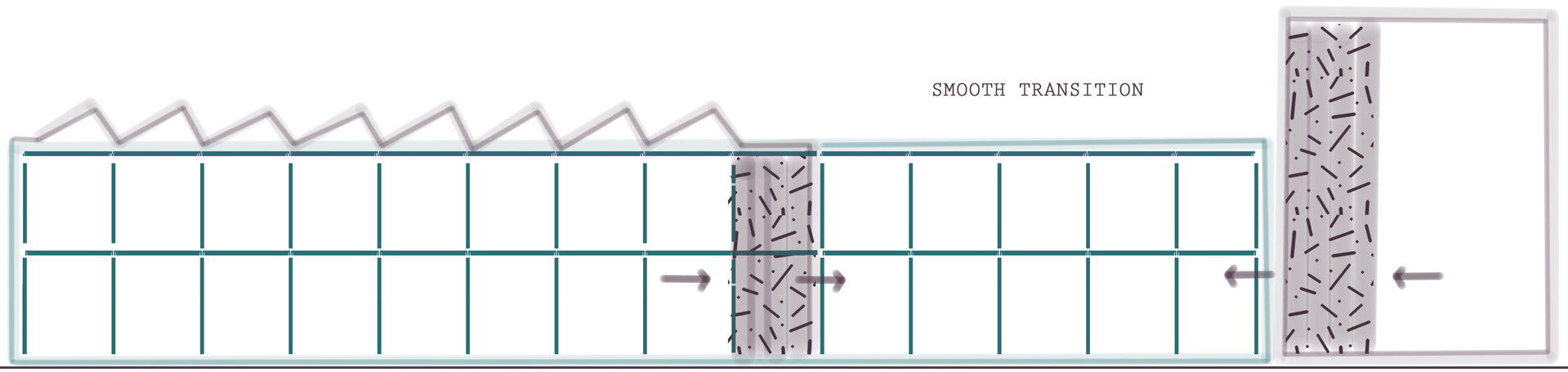






Response to the preexisting building
- Old vs New -







Building Proposal

- Response to the program's needs -

Space + Organization

- Why a city needs manufacture today ? -



DIVERSITY OF EMPLOYMENT

a robust urban economy
requires a city that offers
space and support to a diversity
of economic activities and jobs

TO CLOSE THE GAP BETWEEN
THINKERS AND MAKERS

LOCAL QUALITY AND CRAFT
IN DEMAND

recognized value and quality
revaluation of handicrafts,
métier and trade
from re-use to recycle

PROMISING CIRCULAR ECONOMY

residuals and waste will need
to become the resources of
tomorrow's economy

Response to the different users' needs
- The program -

PRODUCTION SPACE



MAKERS + STUDENTS

COLLABORATIVE ENVIRONMENT

collective sperimentation and production

EDUCATION SPACE



PUBLIC SPACE

Manufacturing exhibition + promotion

Inclusionary spaces

shop | exhibition | shop | shop

Response to the different users' needs
- Types of spaces -

PRODUCTION spaces

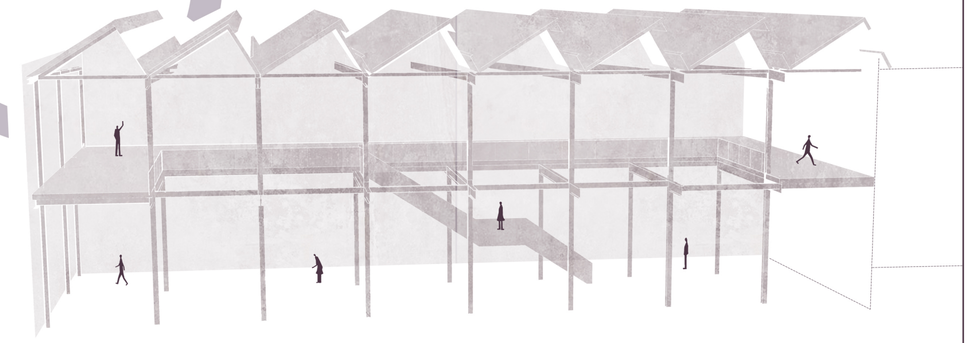
1. WORKSHOP

Wood
Metal
Ceramics

Space for workers and students

2. SINGLE ATELIERS

Rentable space for artists





Maker



Artist



Student

Response to the different users' needs
- Types of spaces -

PRODUCTION spaces

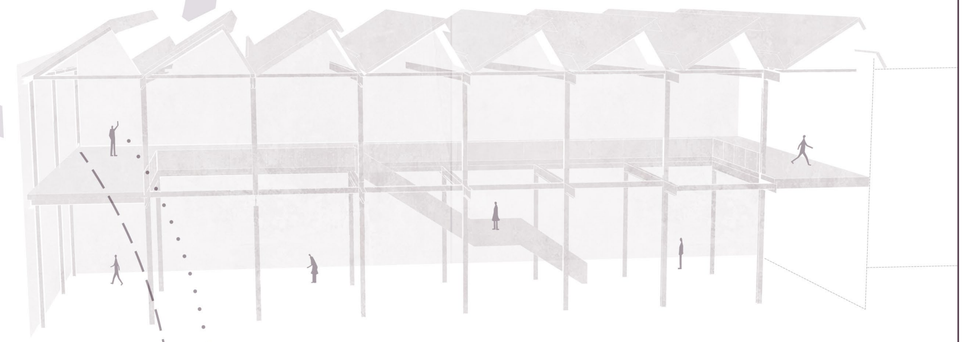
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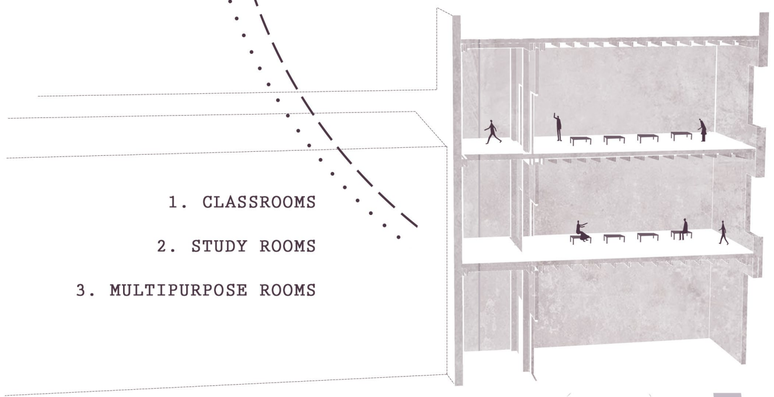
Student

space for EDUCATION

1. CLASSROOMS

2. STUDY ROOMS

3. MULTIPURPOSE ROOMS





Student



Teacher

Response to the different users' needs
- Types of spaces -



COMMON spaces

1. MEETING/RELAXING SPACE

Inner courtyard
Cafe

2. PROMOTION SPACES

Exhibition room
Shops
Auditorium

PRODUCTION spaces

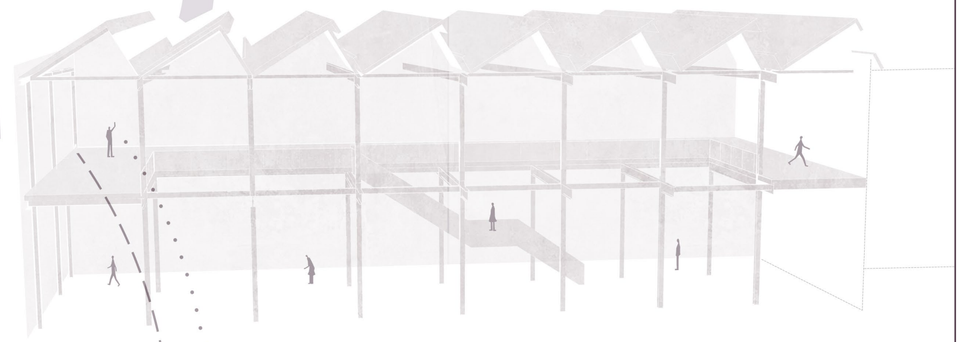
1. WORKSHOP

Wood
Metal
Ceramics

Space for workers and students

2. SINGLE ATELIERS

Rentable space for artists





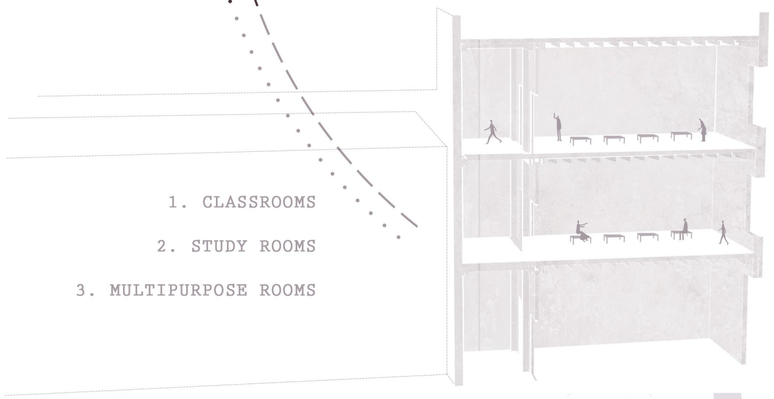
Maker



Artist



Student



1. CLASSROOMS

2. STUDY ROOMS

3. MULTIPURPOSE ROOMS

space for EDUCATION

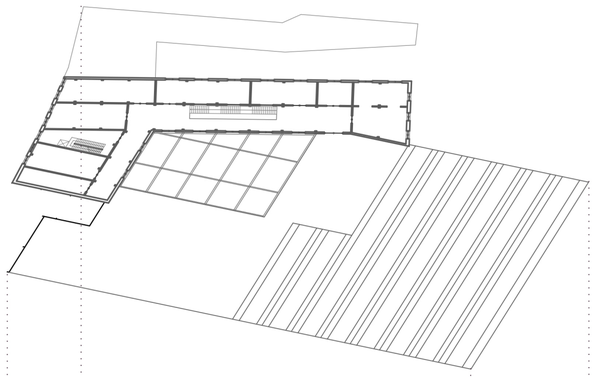


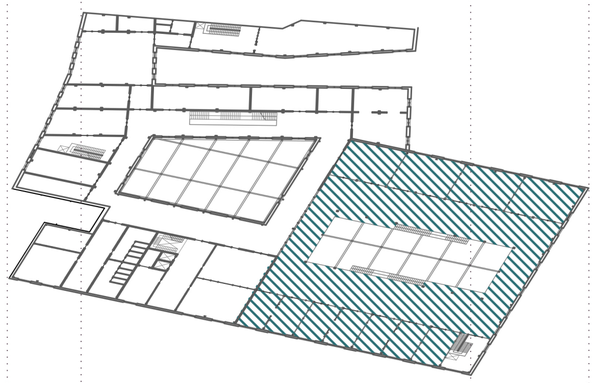
Student

Teacher

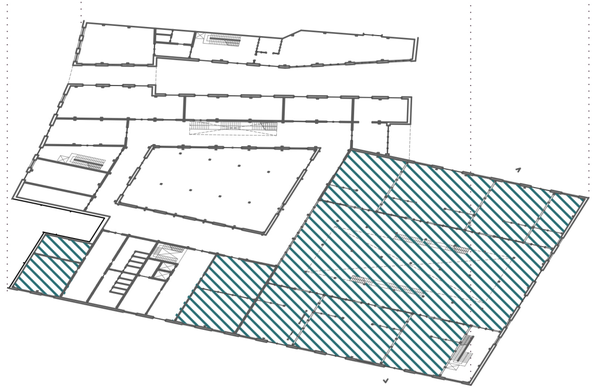
Response to the different users' needs
- Distribution of uses -

Second Floor





First Floor



Ground Floor

PRODUCTION

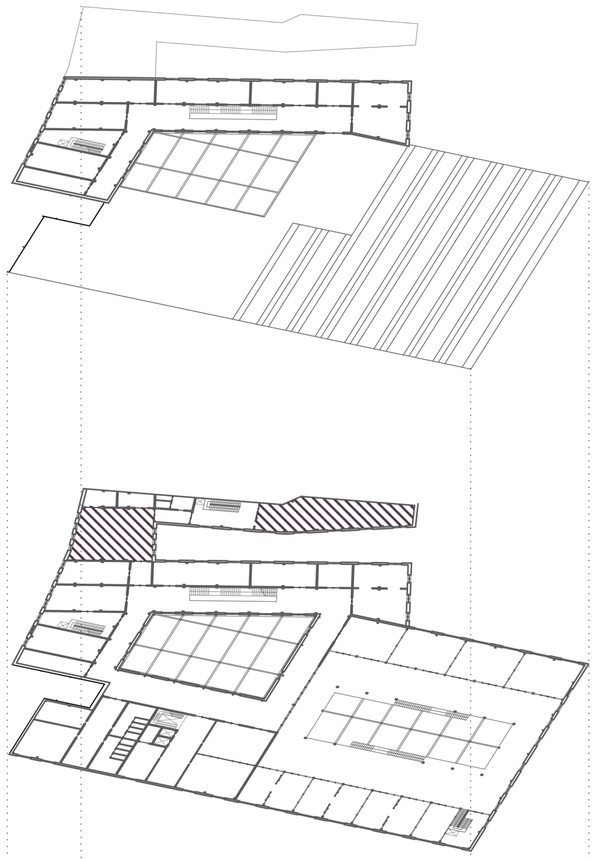
Workshop
- Multipurpose rooms (x4)
- Ateliers (x7)

Workshops
- Timber workshop (x2)
- Metal workshop (x1)
- Ceramic workshop (x1)
- Lasercut (x1)
- Painting room (x1)

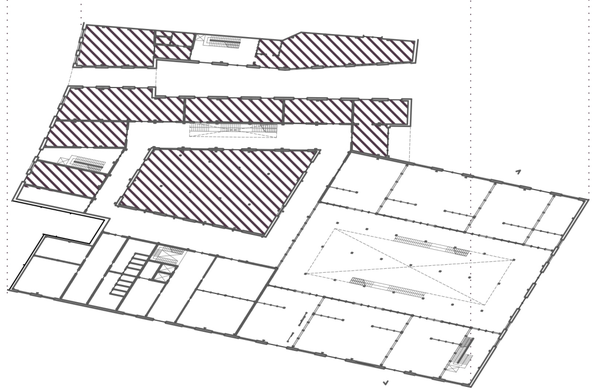
Multipurpose rooms (x2)
Staff rooms (x2)
Offices (x1)

Response to the different users' needs
- Distribution of uses -

Second Floor



First Floor



Ground Floor

COMMON/PUBLIC AREAS

Startups/Study room
Auditorium

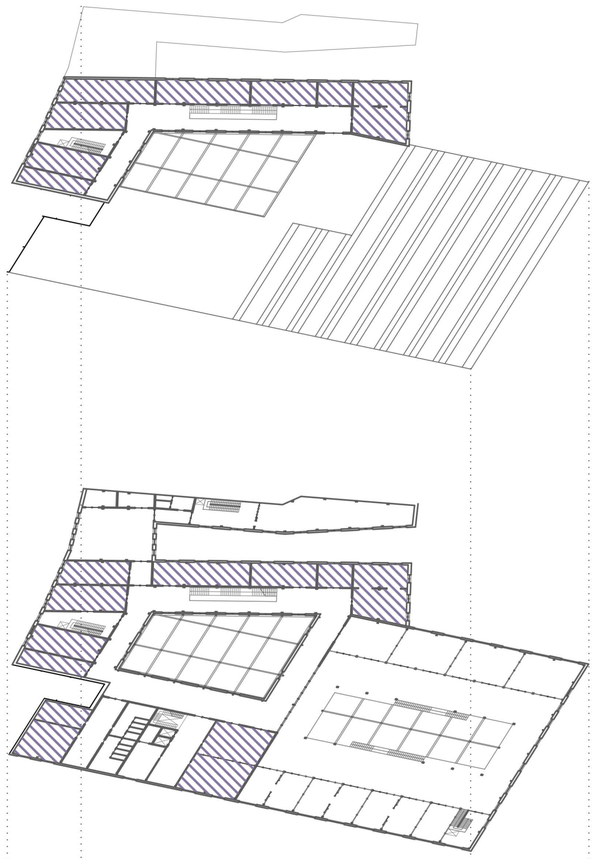
Cafe
Multipurpose room

Courtyard

Furniture shop
Book shop
Exhibition space
Reception
Main entrance

Response to the different users' needs
- Distribution of uses -

Second Floor



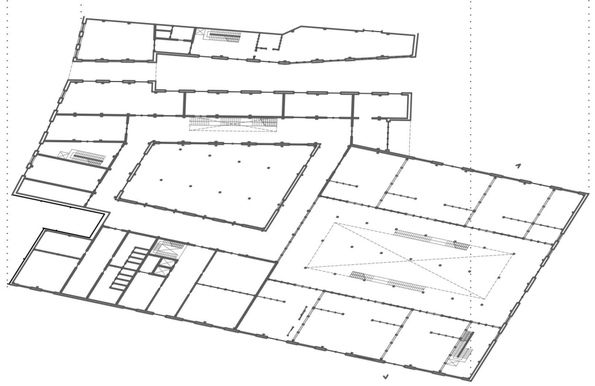
EDUCATION

Classrooms (x4)
Study rooms (4)

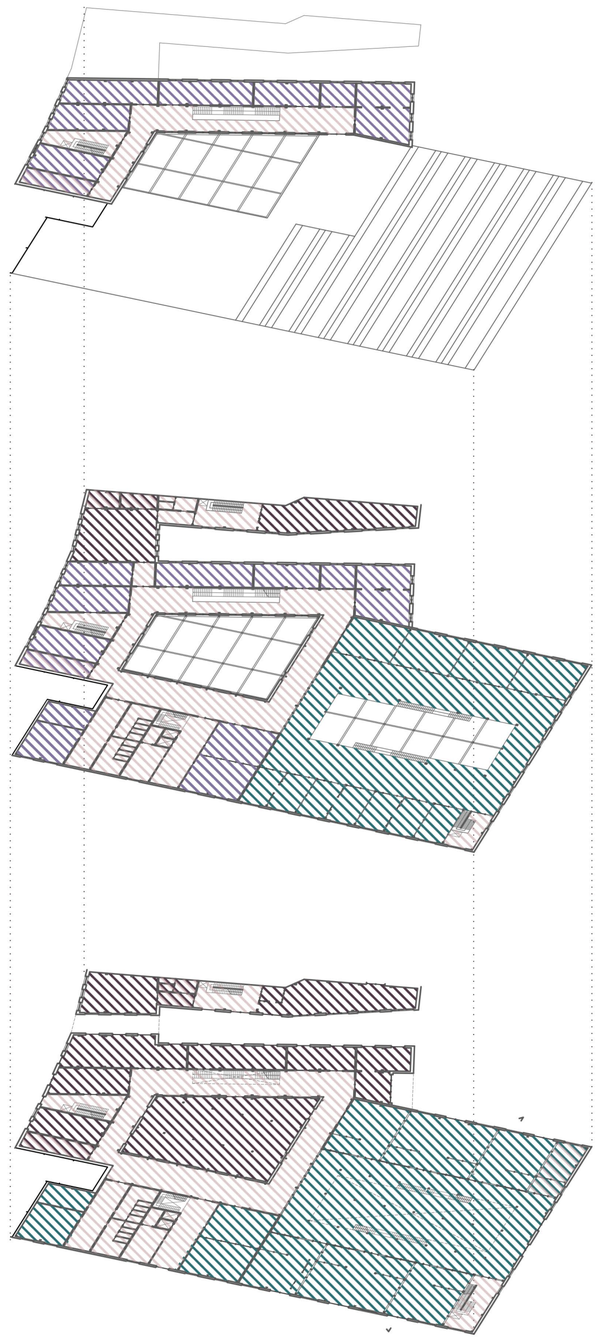
First Floor

Classrooms (x2)
Study rooms (x2)
Multipurpose rooms (x2)
Teachers rooms (x3)
Administration (x2)
Offices (x2)

Ground Floor



Response to the different users' needs
- Distribution of uses -



Second Floor

First Floor

Ground Floor

TOT. SQUARE METERS

10.800

DISTRIBUTION OF FUNCTIONS

40 % Production

15 % Common / pulic areas

15 % Education

30 % Ancillary spaces



Longitudinal section - BB'

C'

A'

B'

B

C

A

Groundfloor

N

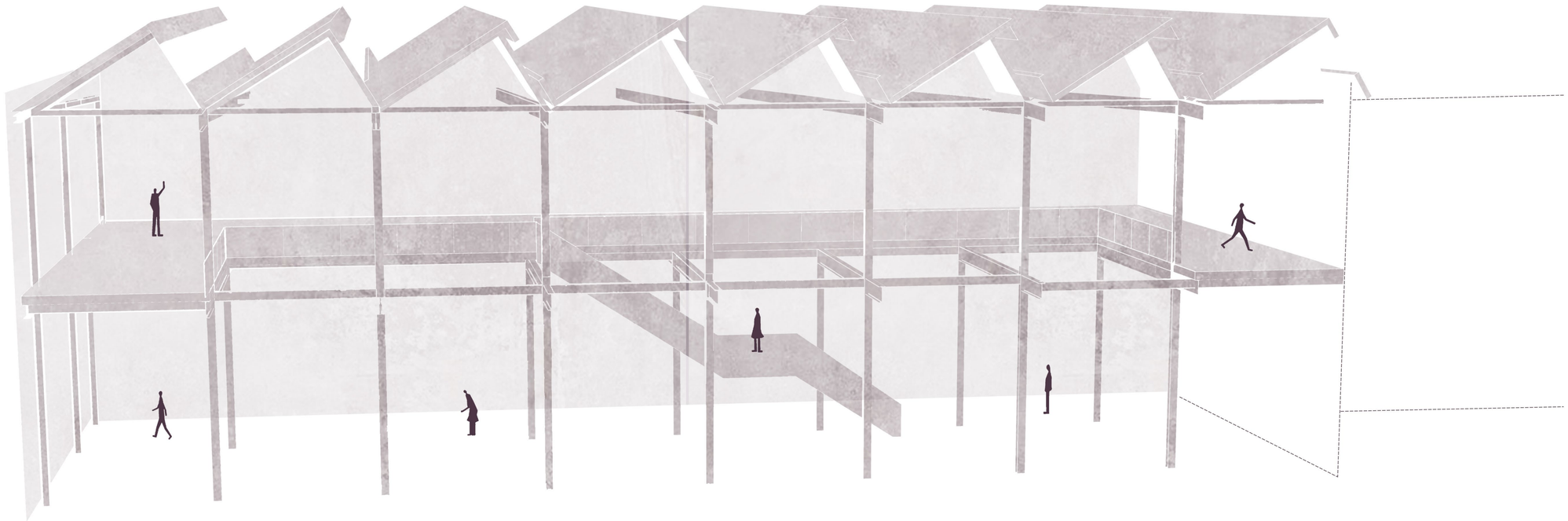
The workshop

Groundfloor
- The workshop focus -



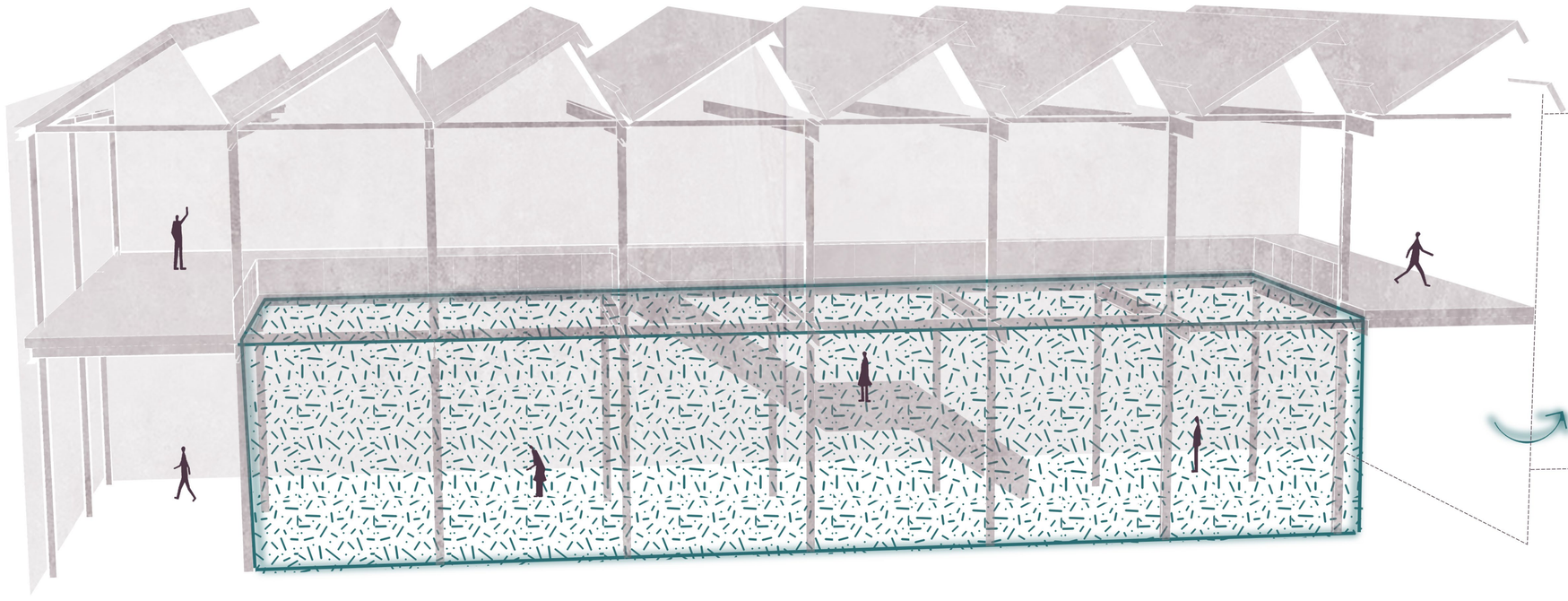
Cross section - AA’

Response to the different users' needs
- The workshop hall -



Response to the different users' needs
- The workshop hall -

Structure adaptations
+
additional features



1.

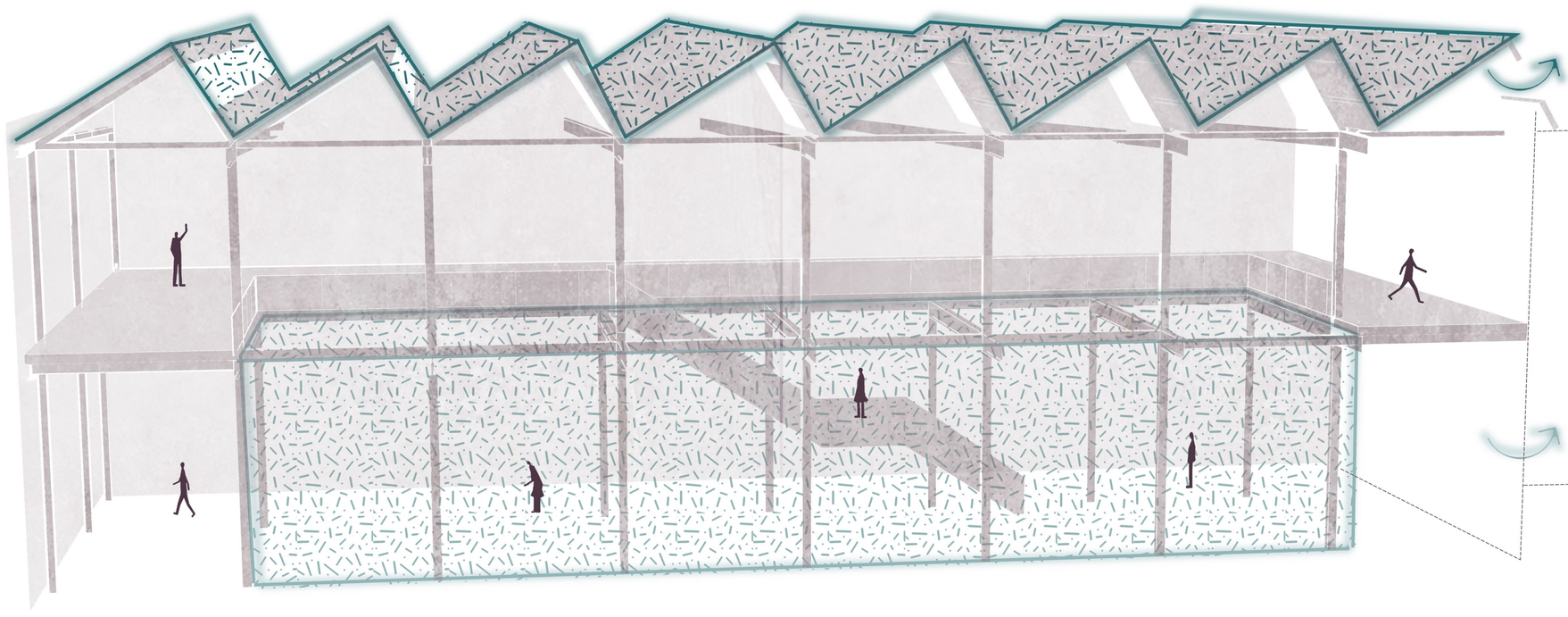
DOUBLE HEIGHT
WORKSHOP HALL

To bring more
light inside the
workspaces

To create a
collaborative
community among
the tudents and
makers

Response to the different users' needs
- The workshop hall -

Structure adaptations
+
additional features



2.

NEW SAWTOOTH ROOF STRUCTURE

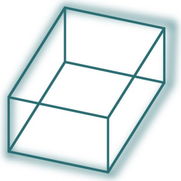
To bring more light and air inside the workshop spaces

1.

DOUBLE HEIGHT WORKSHOP HALL

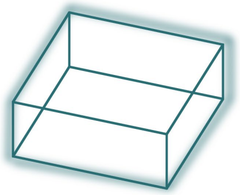
To bring more light inside the workspaces

To create a collaborative community among the tudents and makers



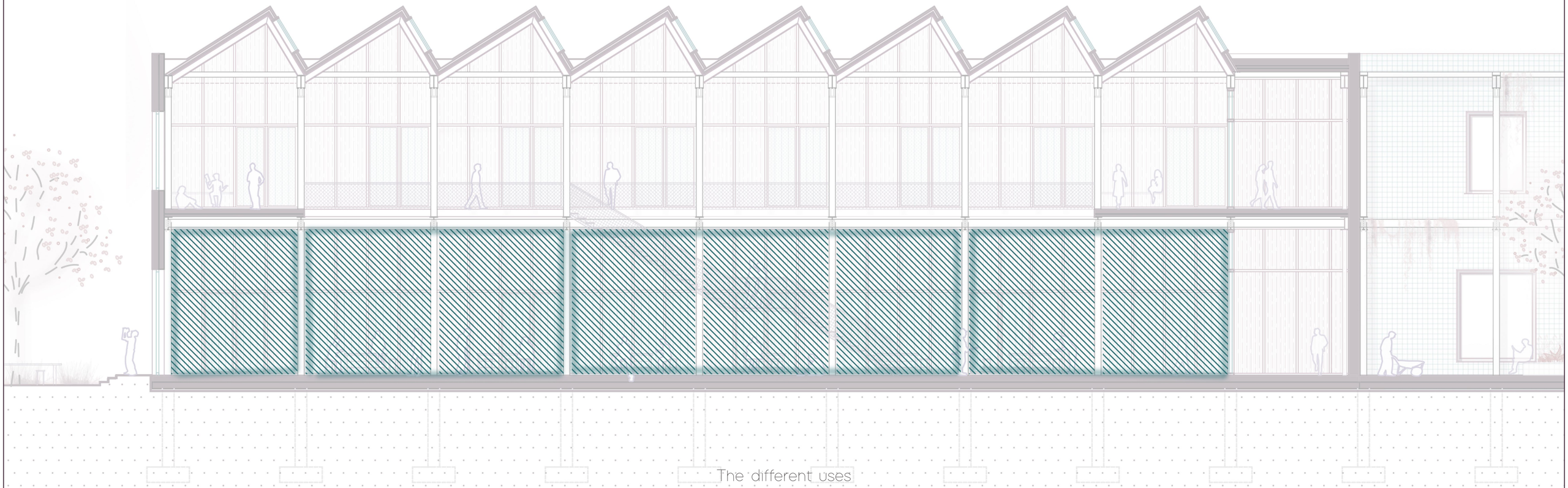
9.5 X 14.5 = 140 sqm (x4)

1. WOOD LAB
2. LASER ROOM
3. CERAMIC LAB
4. PAINTING ROOM

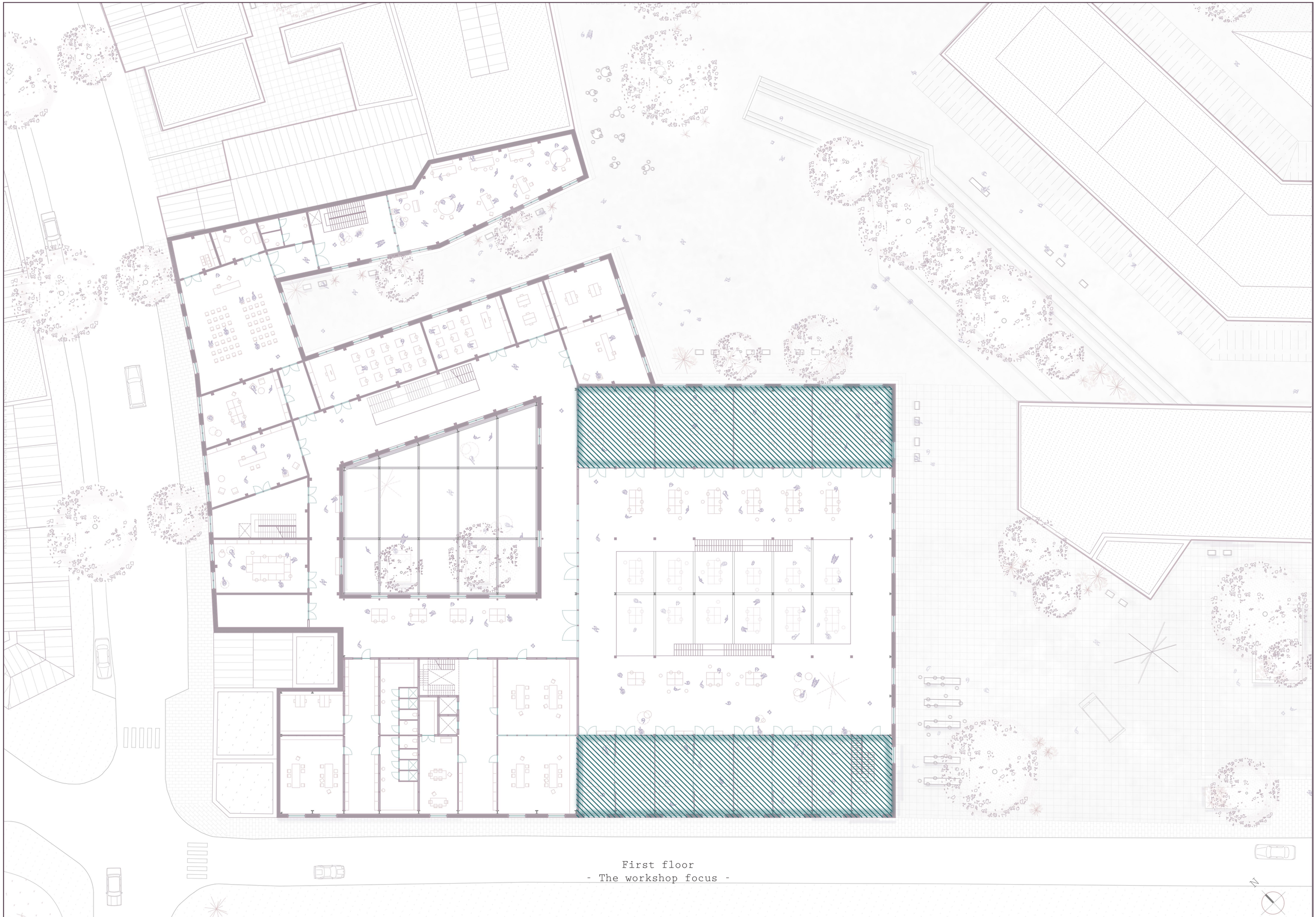


14.8 X 14.5 = 220 sqm (x2)

1. WOOD LAB
2. METAL LAB



The different uses
- Groundfloor level workshops -



First floor
- The workshop focus -



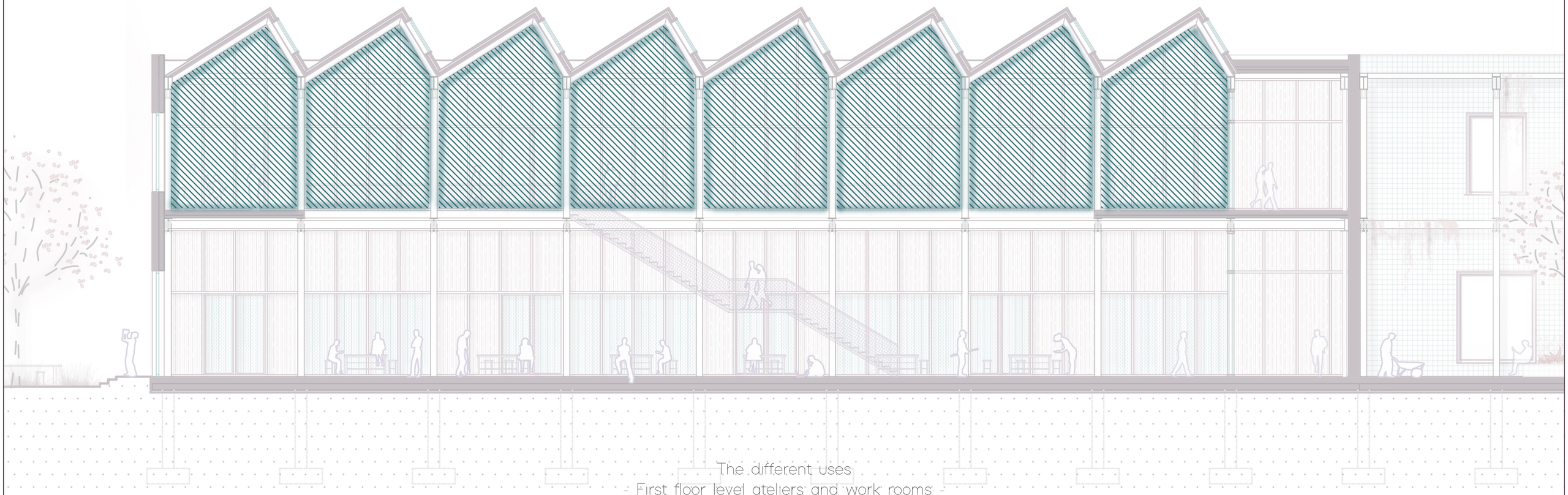
4.6 X 10 = 46 sqm (x4)

SINGLE RENTABLE ATELIERS
FOR ARTISTS



9.6 X 10 = 96 sqm (x4)

MULTIPURPOSE ROOMS
FOR STUDENTS

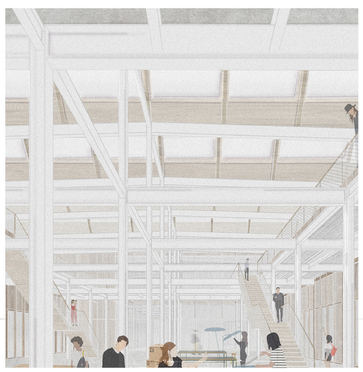


The different uses
- First floor level ateliers and work rooms -


PERDRÉ
DEEF-
HERONÉ

OLD

Structure



Existing steel structure
painted in white

+

Existing steel deck

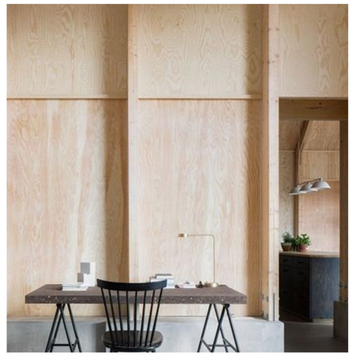
NEW

Structure



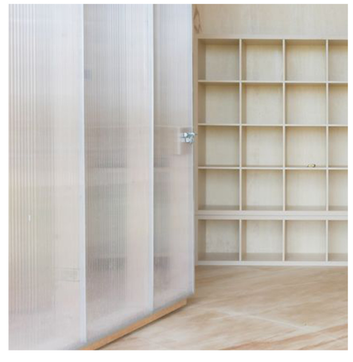
New steel
roof system

Interior partitions



Light reused timber
partitions

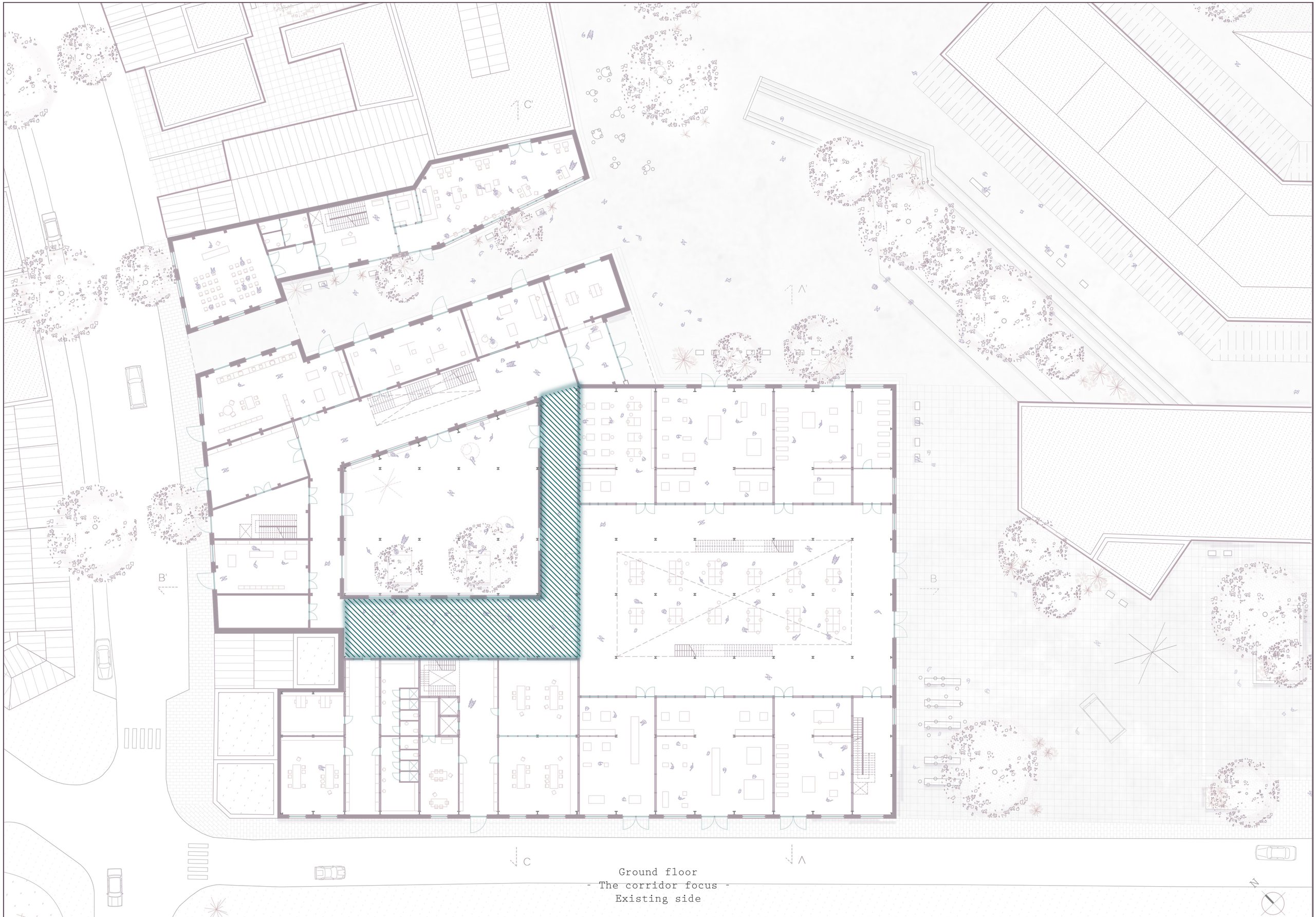
(independent)



polycarbonate

The transitional space

– corridor –

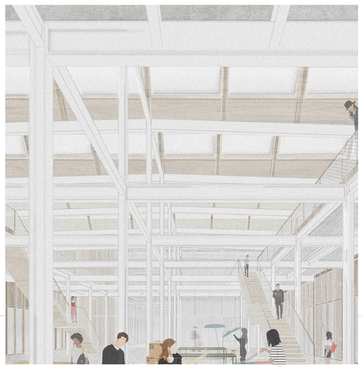


Ground floor
- The corridor focus -
Existing side



OLD

Structure



Existing steel structure
painted in white

+

Existing steel deck

NEW

Structure

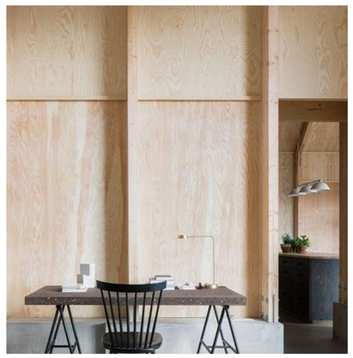


New white round column
+
beam



New secondary structure
timber beams

Interior partitions



Light reused timber
partitions

(independent)



polycarbonate

The inner courtyard

C'

A'

B'

B

C

A

Ground floor
- The courtyard focus -

N

Response to the different users' needs
- The inner courtyard -

Where old encounters new



Response to the different users' needs
- The inner courtyard -

Where old encounters new
Columns strategy



EXISTING
STEEL STRUCTURE

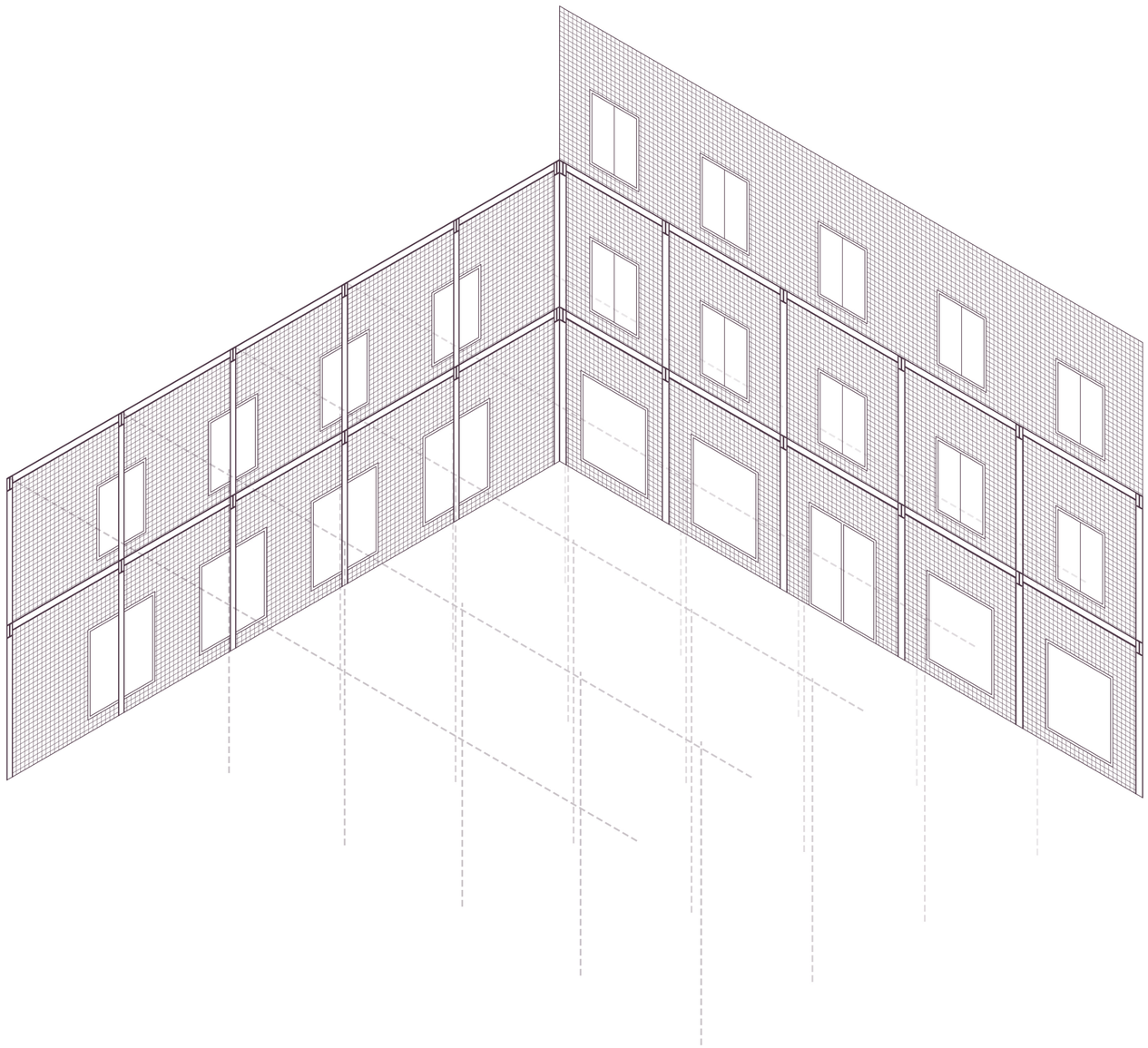
- CUT LOOSE -

as a mere spolia

Response to the different users' needs
- The inner courtyard -

Where old encounters new
Columns strategy

NEW

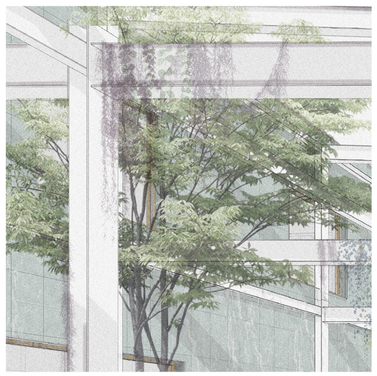


OLD



OLD

Structure

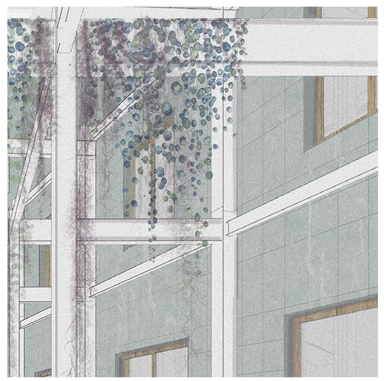


Existing steel structure
painted in white

+

Existing steel deck

+



Tiles

The transitional space

– corridor –

Ground floor
- The corridor focus -
Additional side



NEW

Structure



New Timber
structural system



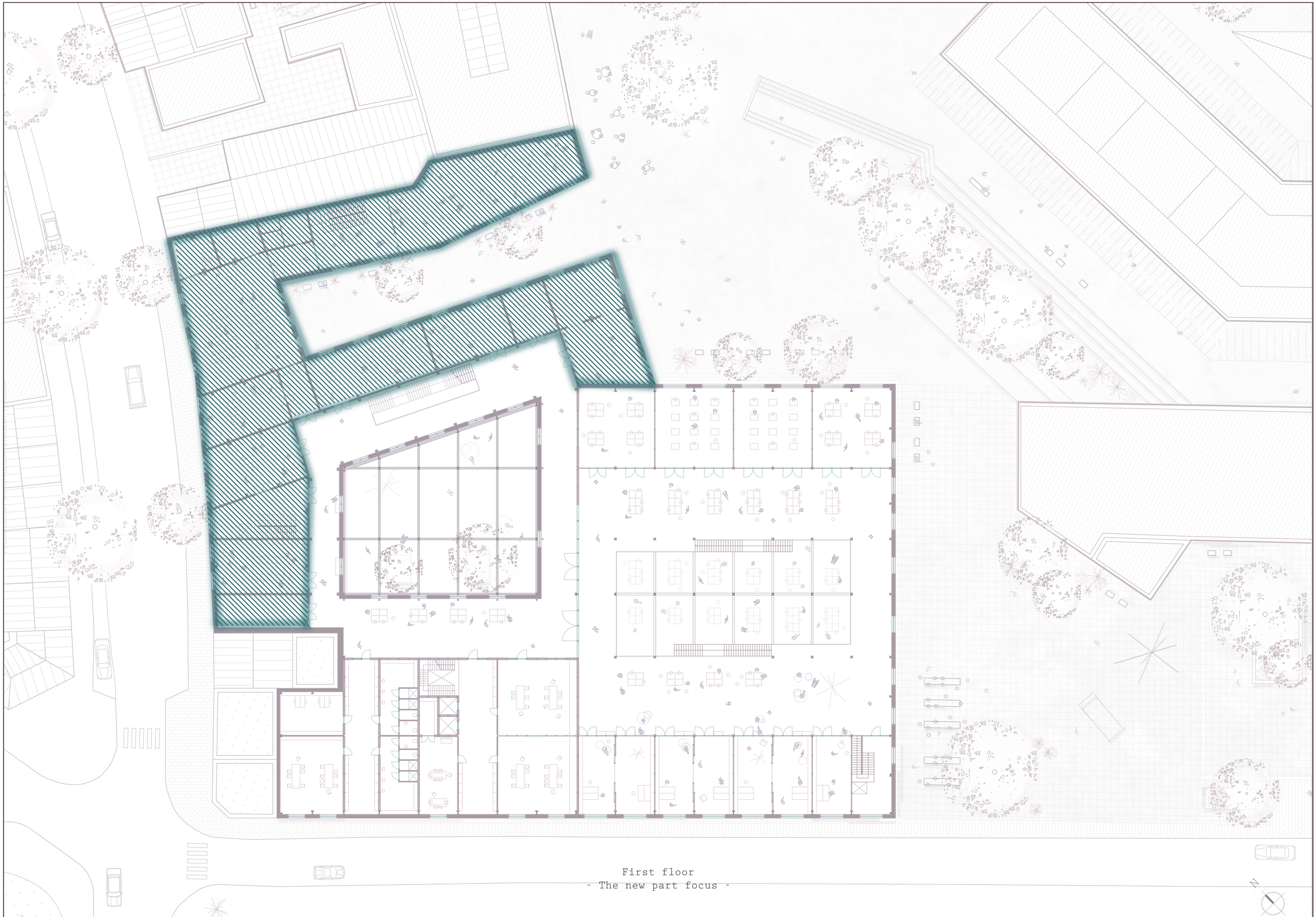
New secondary structure
timber beams

Interior partitions

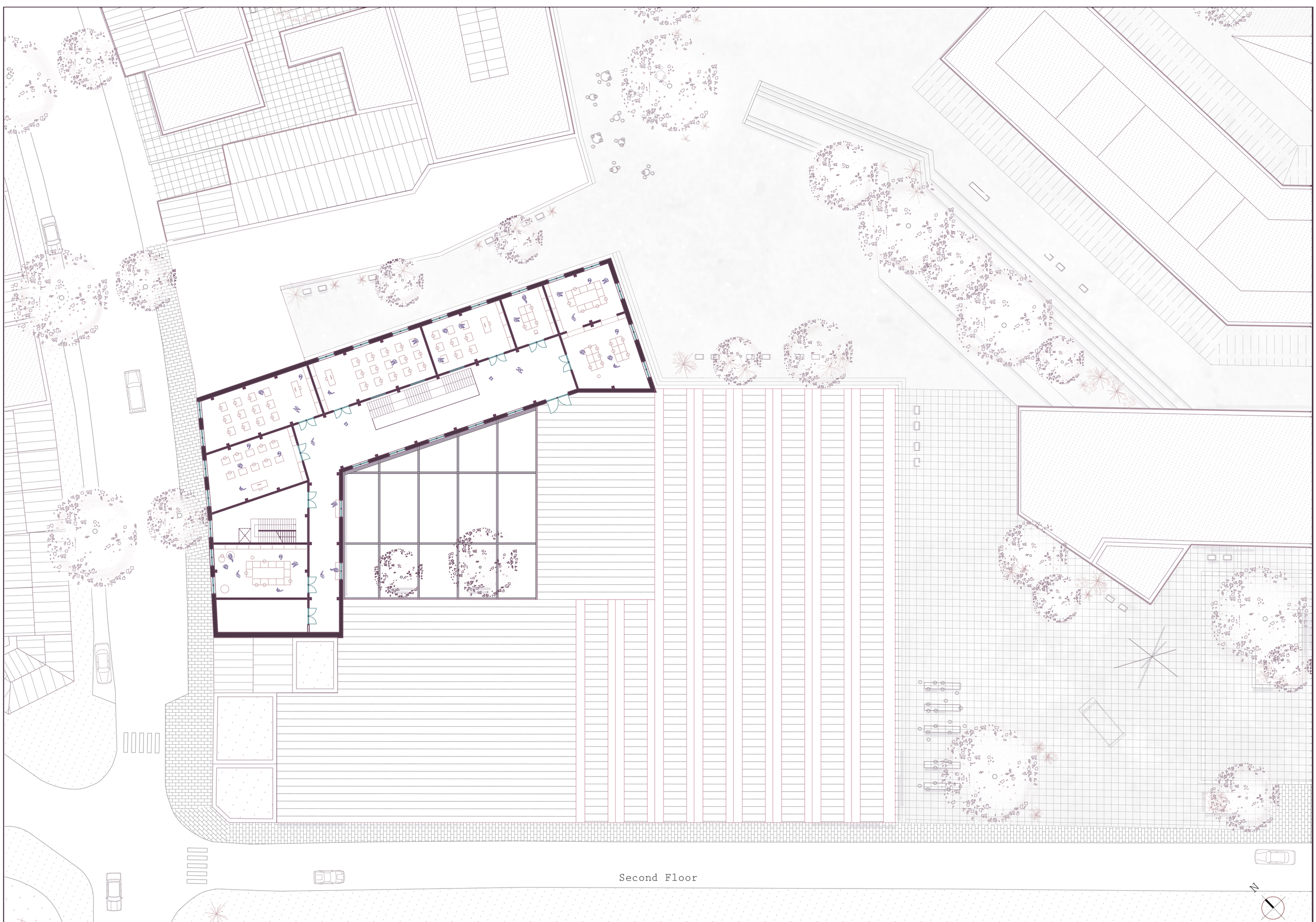


New lightweight
concrete bricks

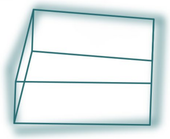
The new
school + common spaces



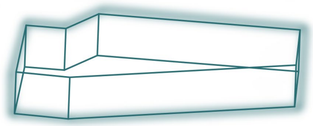
First floor
- The new part focus -



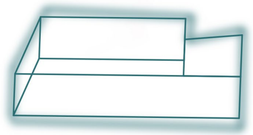
Second Floor



PUBLIC ROOM



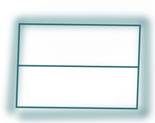
CAFE



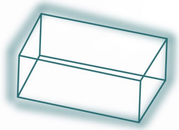
FURNITURE SHOP



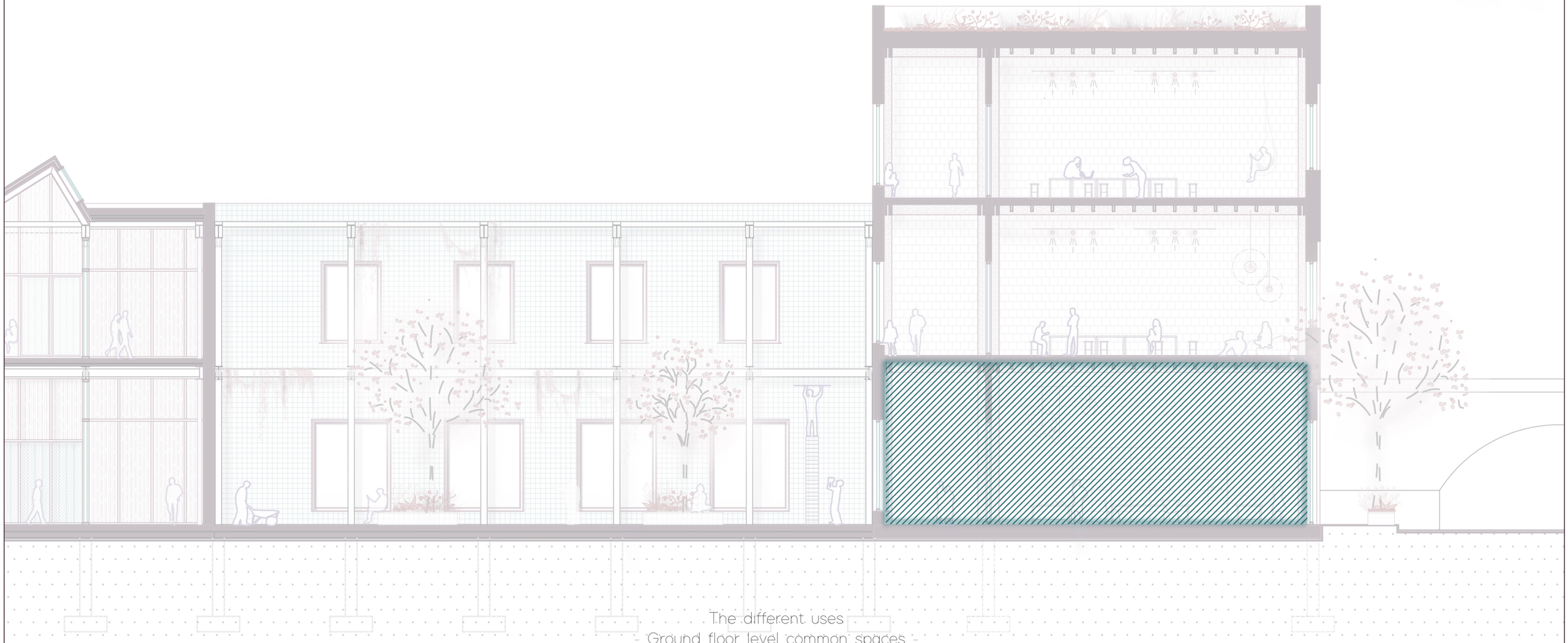
EXHIBITION



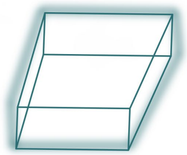
BOOK SHOP



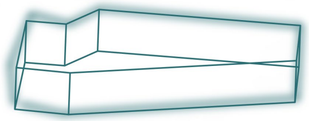
MATERIAL SHOP



The different uses
- Ground floor level common spaces -



AUDITORIUM



START UPS



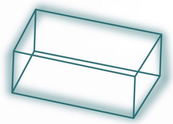
MULTIPURPOSE ROOMS
x2



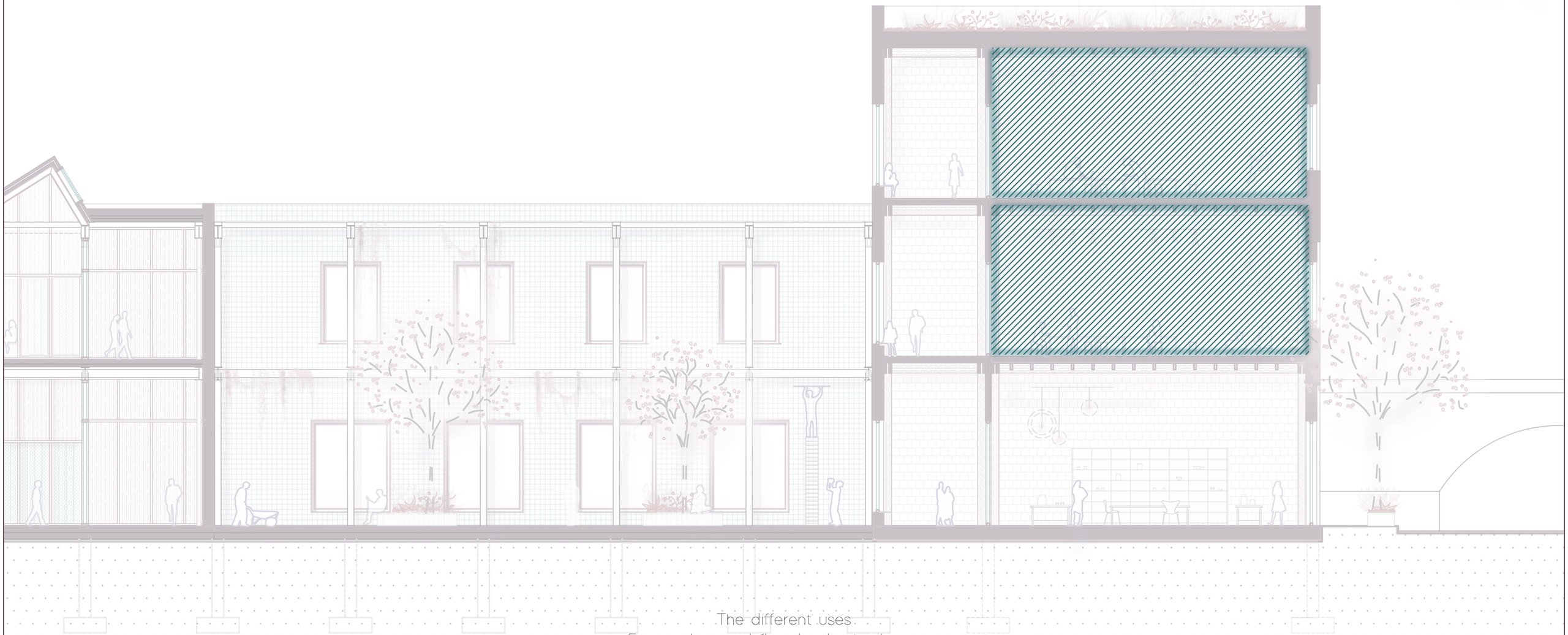
CLASSROOMS
x2



CLASSROOMS
x2



STUDY ROOMS
x2



The different uses
- First and second floor level school spaces -

NEW

Structure



New Timber
structural system



New secondary structure
timber beams

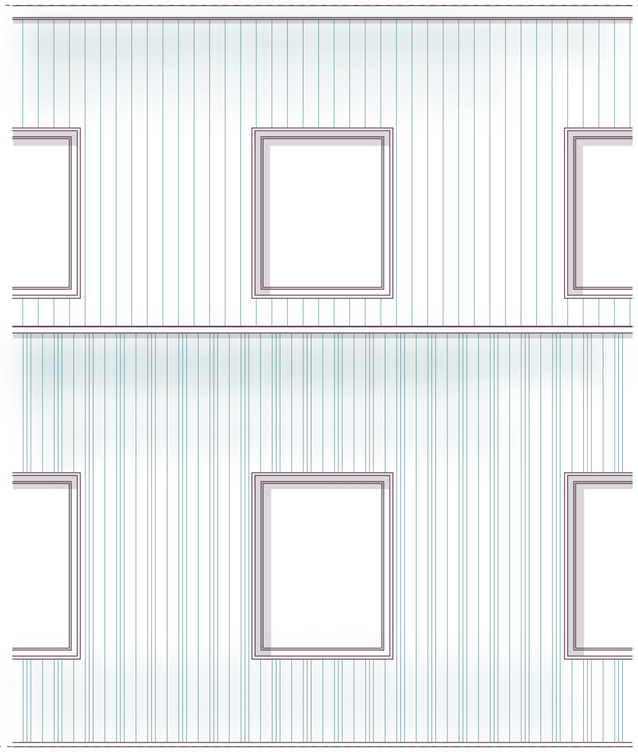
Interior partitions

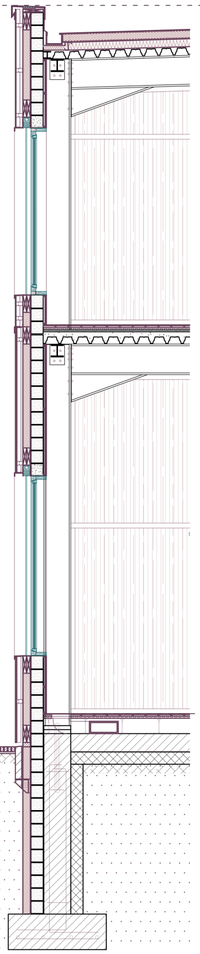


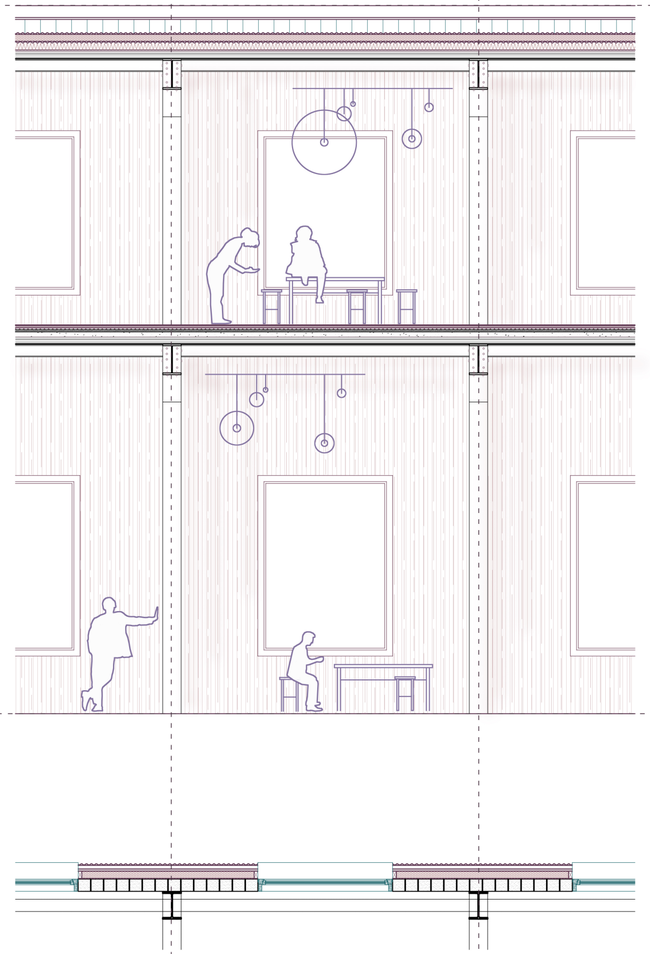
New lightweight
concrete bricks

Materialization

Existing side
Exterior / Interior



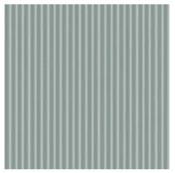




Existing side
Exterior / Interior

Materials used

NEW CORRUGATED
ALUMINIUM PANEL

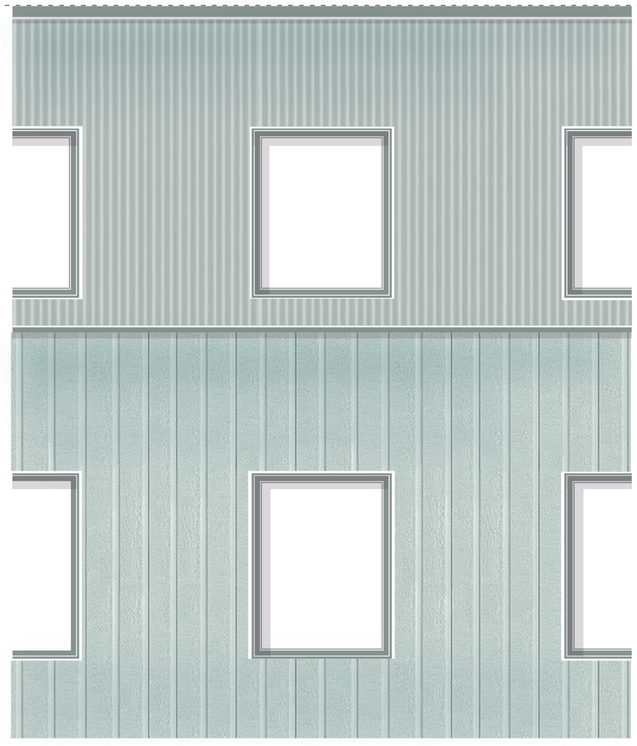


REUSED ALUMINIUM
CORRUGATED PANEL



Retained from
existing
building

Dimensions
1 mm



EXISTING
STEEL

Exposed structure
streated in white
paint

EXISTING
STEEL DECK

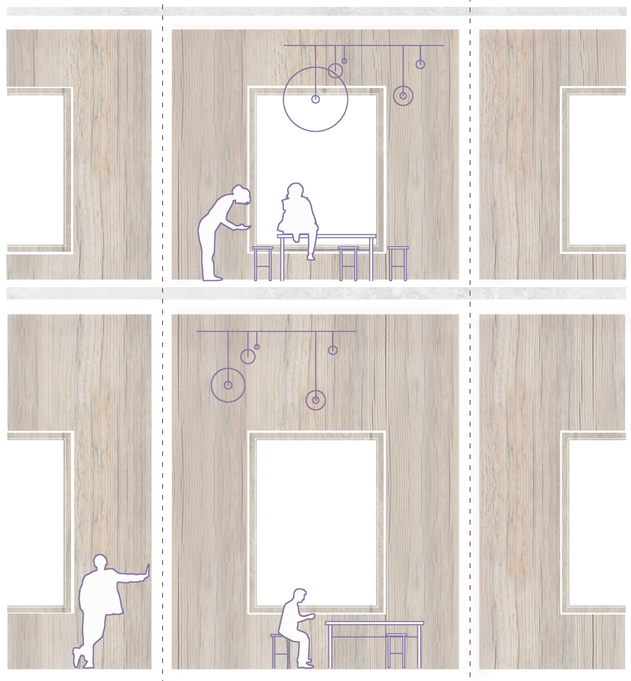


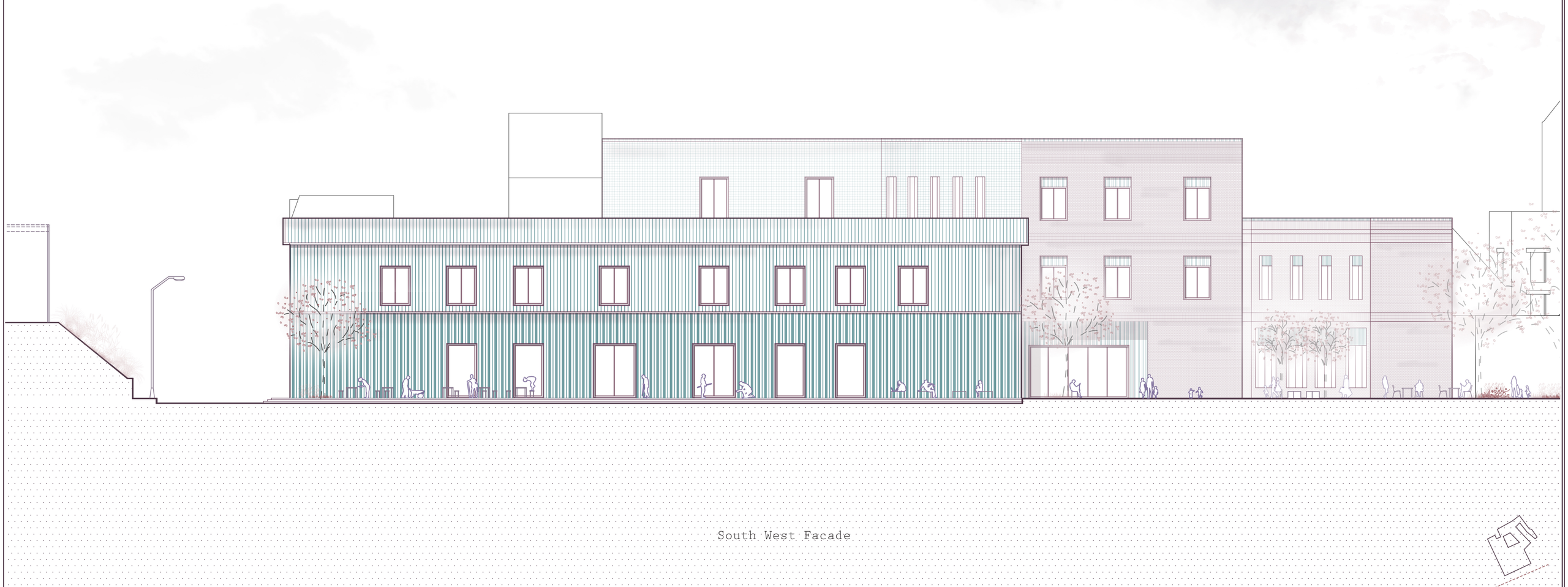
RETAINED TIMBER
PANELS



Producer
gebruiktebouw-
materialen

Dimensions
244x122x18 mm

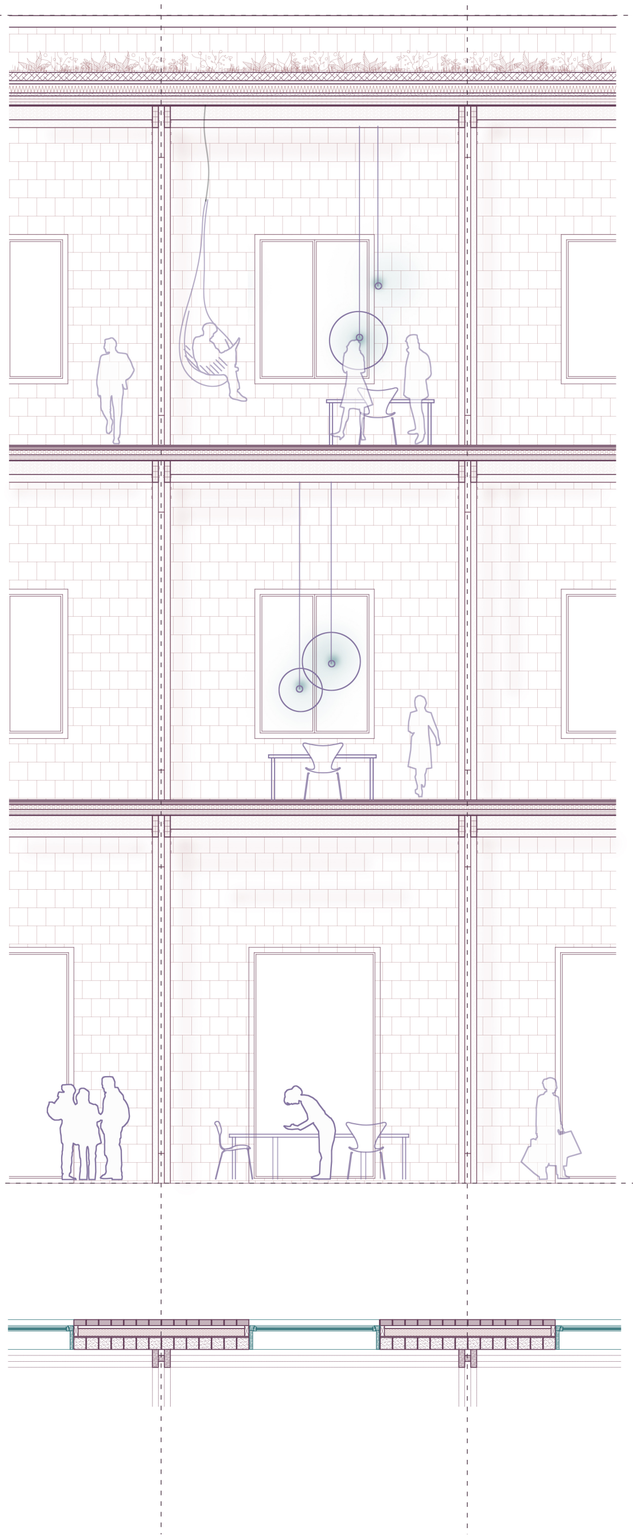


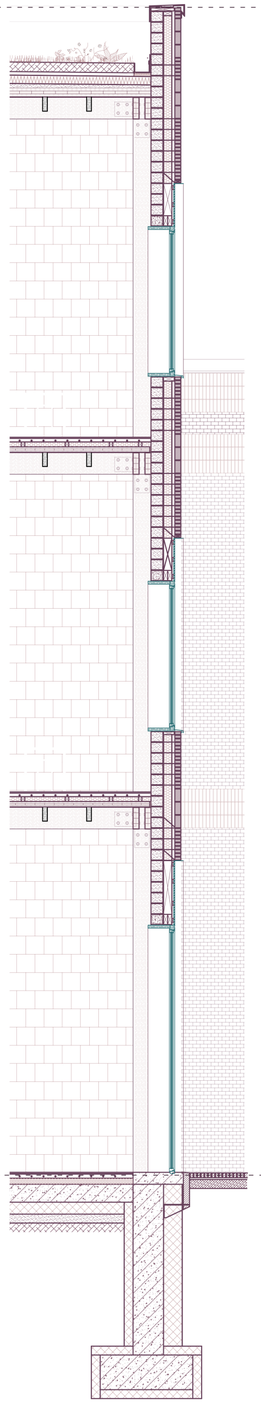


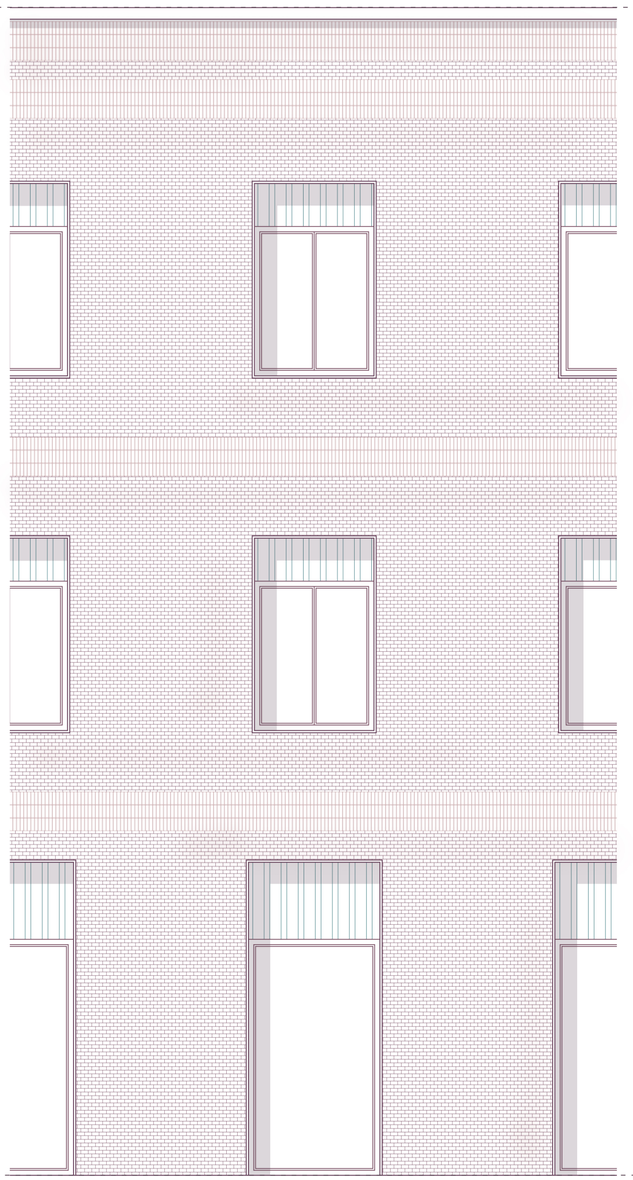
South West Facade

South East Facade

New side
Interior / Exterior







New side
Interior / Exterior

Materials used

NEW GLULAM BEAMS



Producer
SImonin

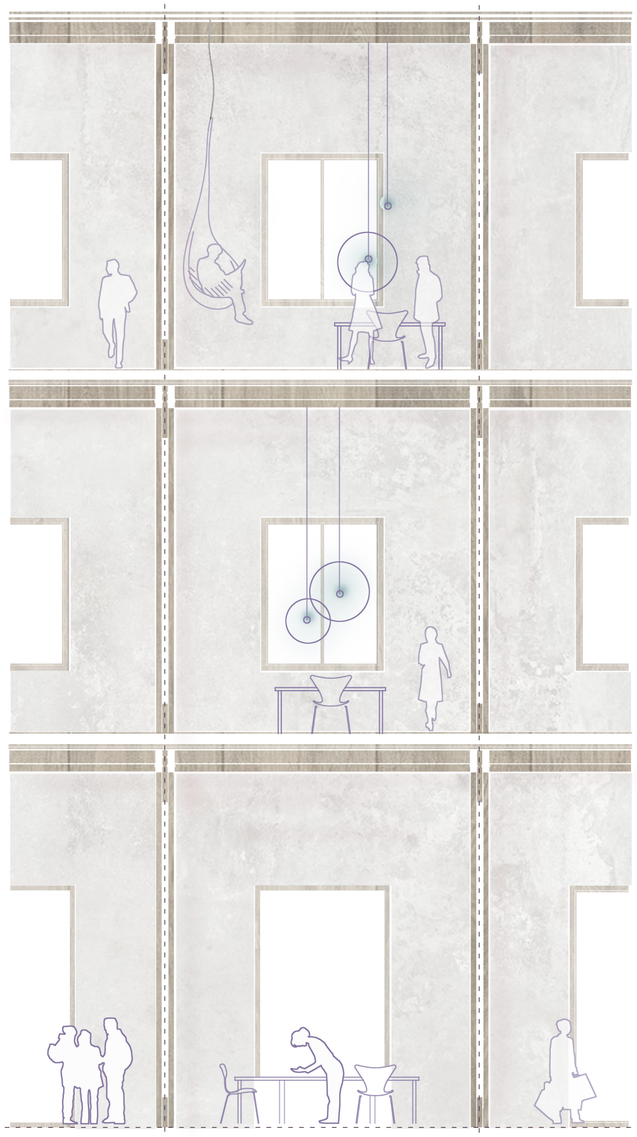
Dimensions
80x240 mm

LIGHTWEIGHT
CONCRETE BRICKS

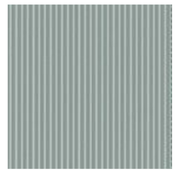


Producer
wiener-berger

Dimensions
200x200 mm



ALUMINIUM

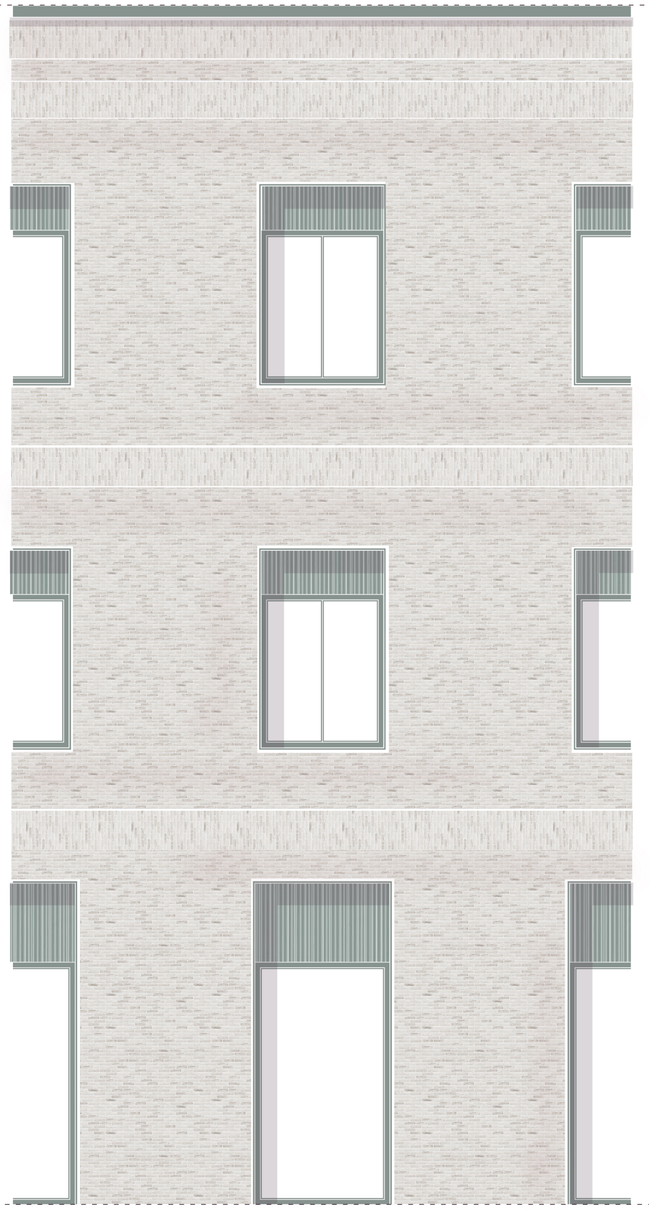


BRICKS



Producer
Westvlaamse
Steencentrale

Dimensions
210x100X50 mm



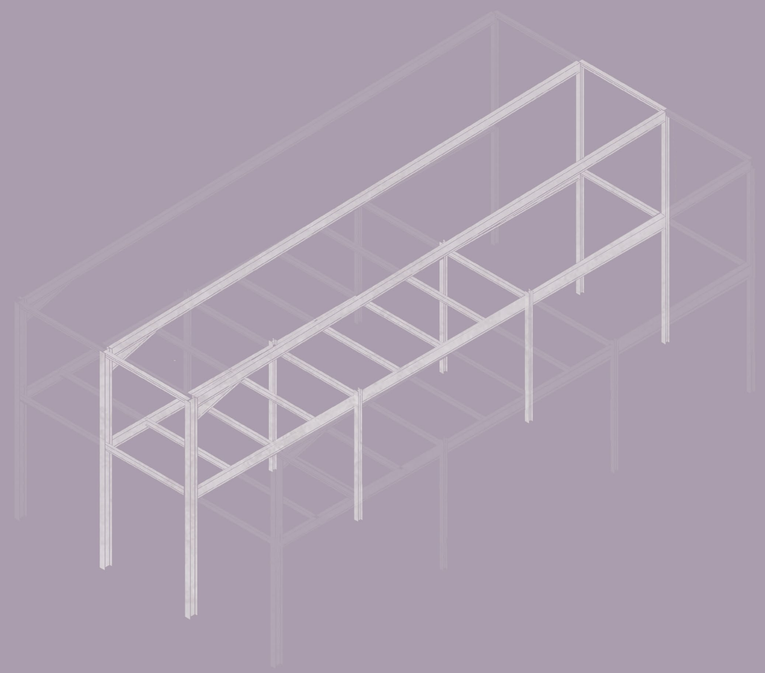


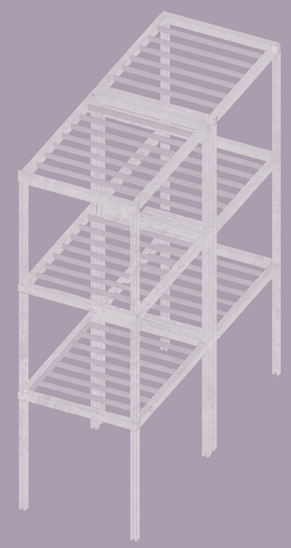
North East Facade



North West Facade

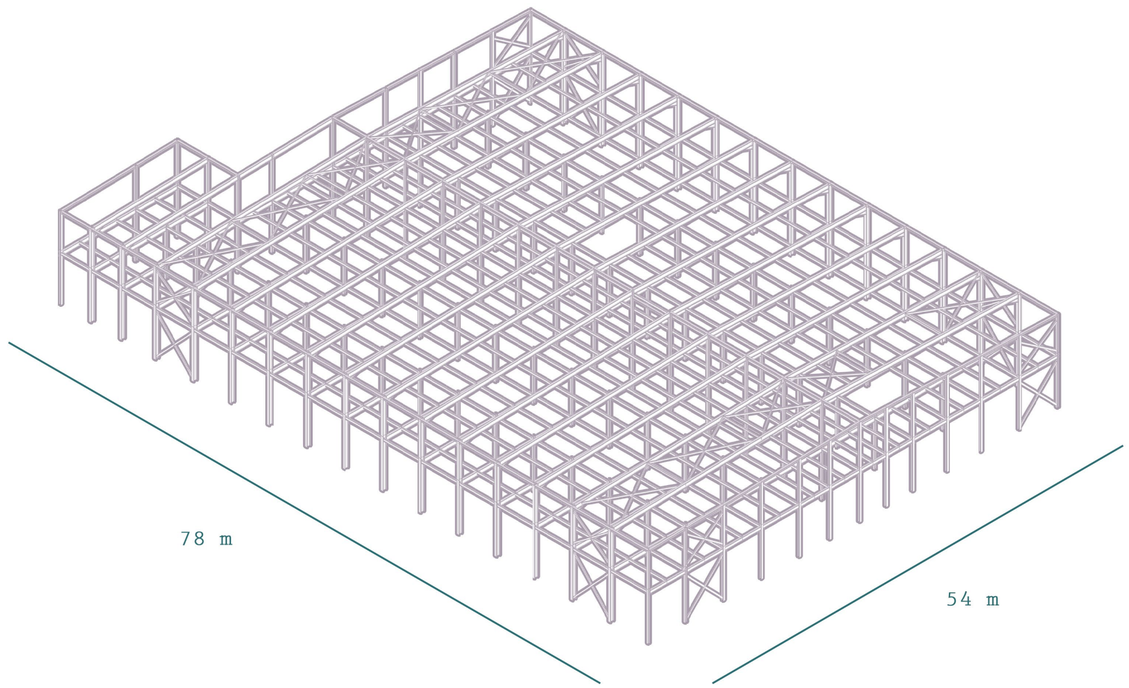
BUILDING TECHNOLOGY



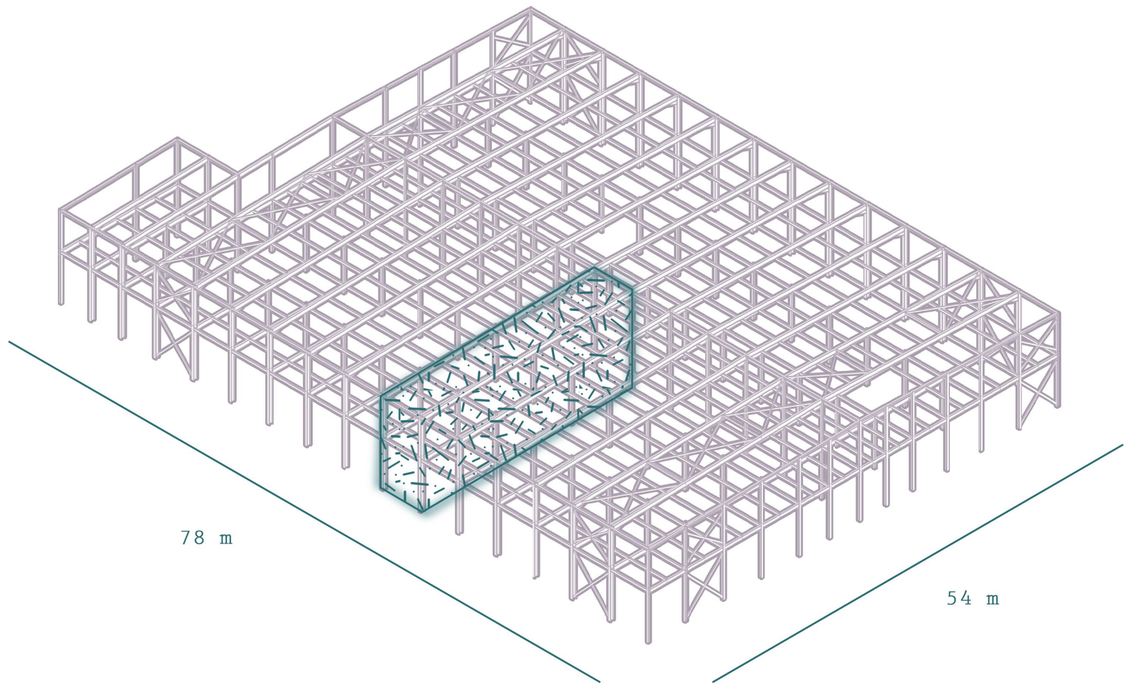


The structure

The old side

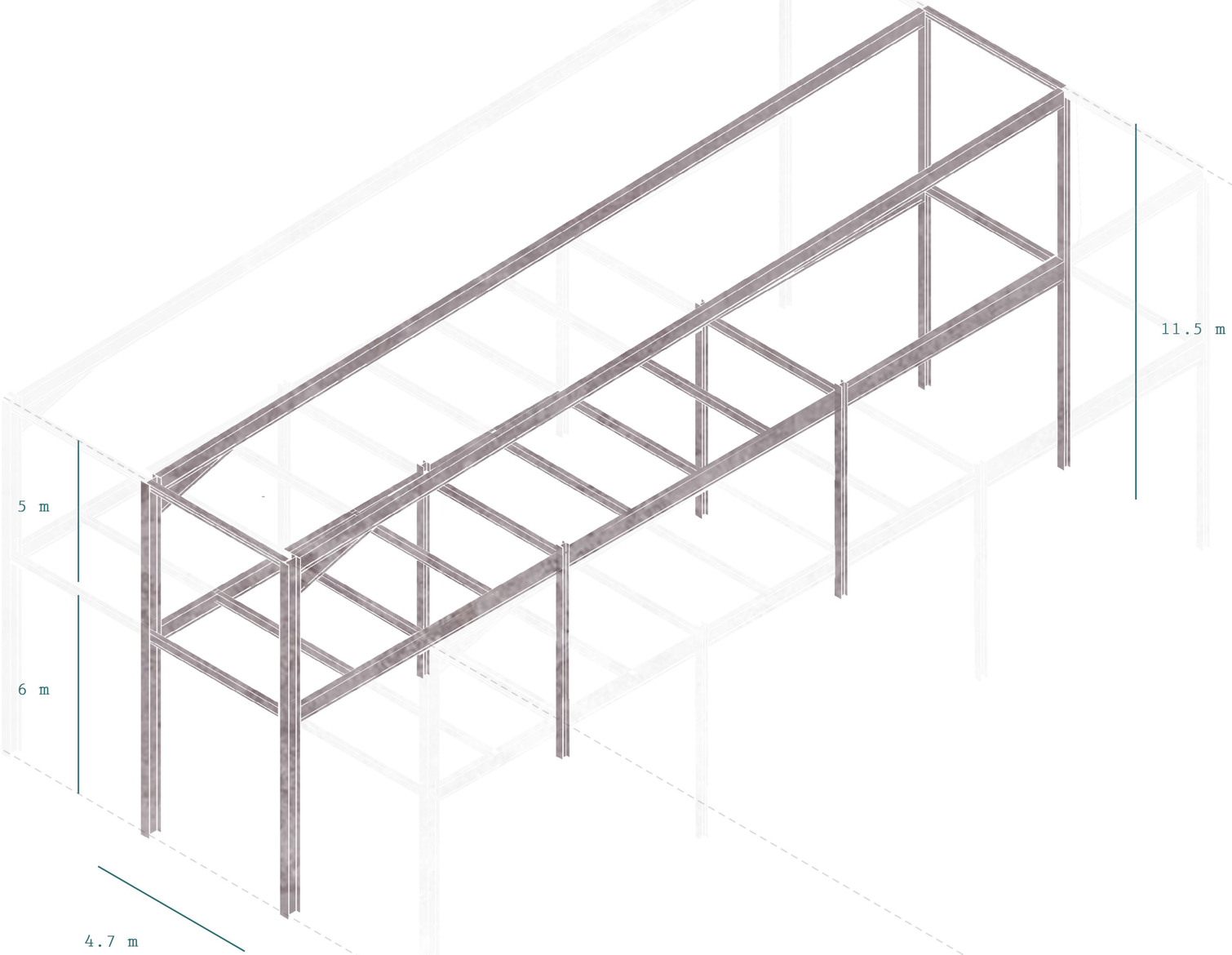


The old side
- structural module -



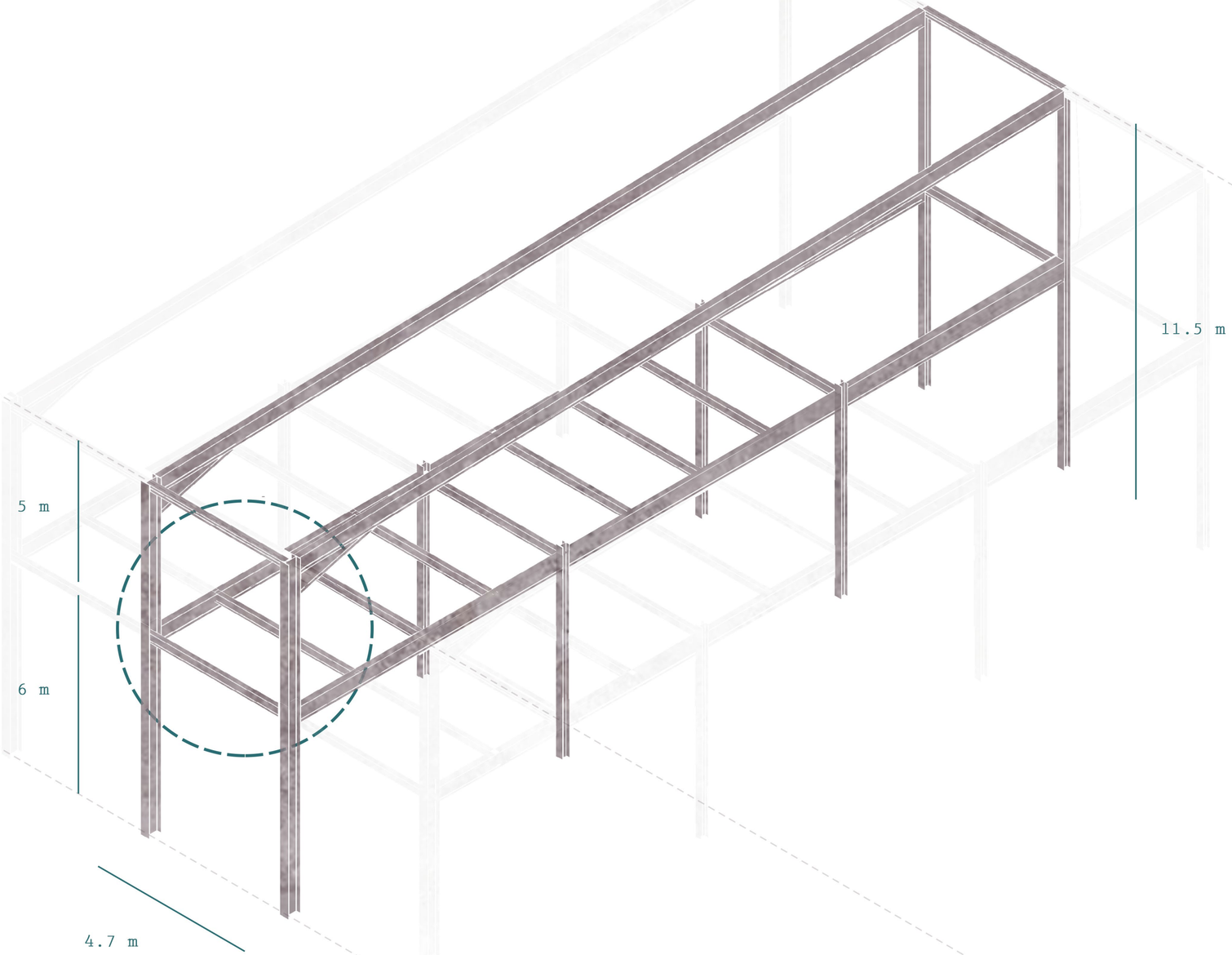
The old side
- structural module -

Existing steel structure
Columns+Beams

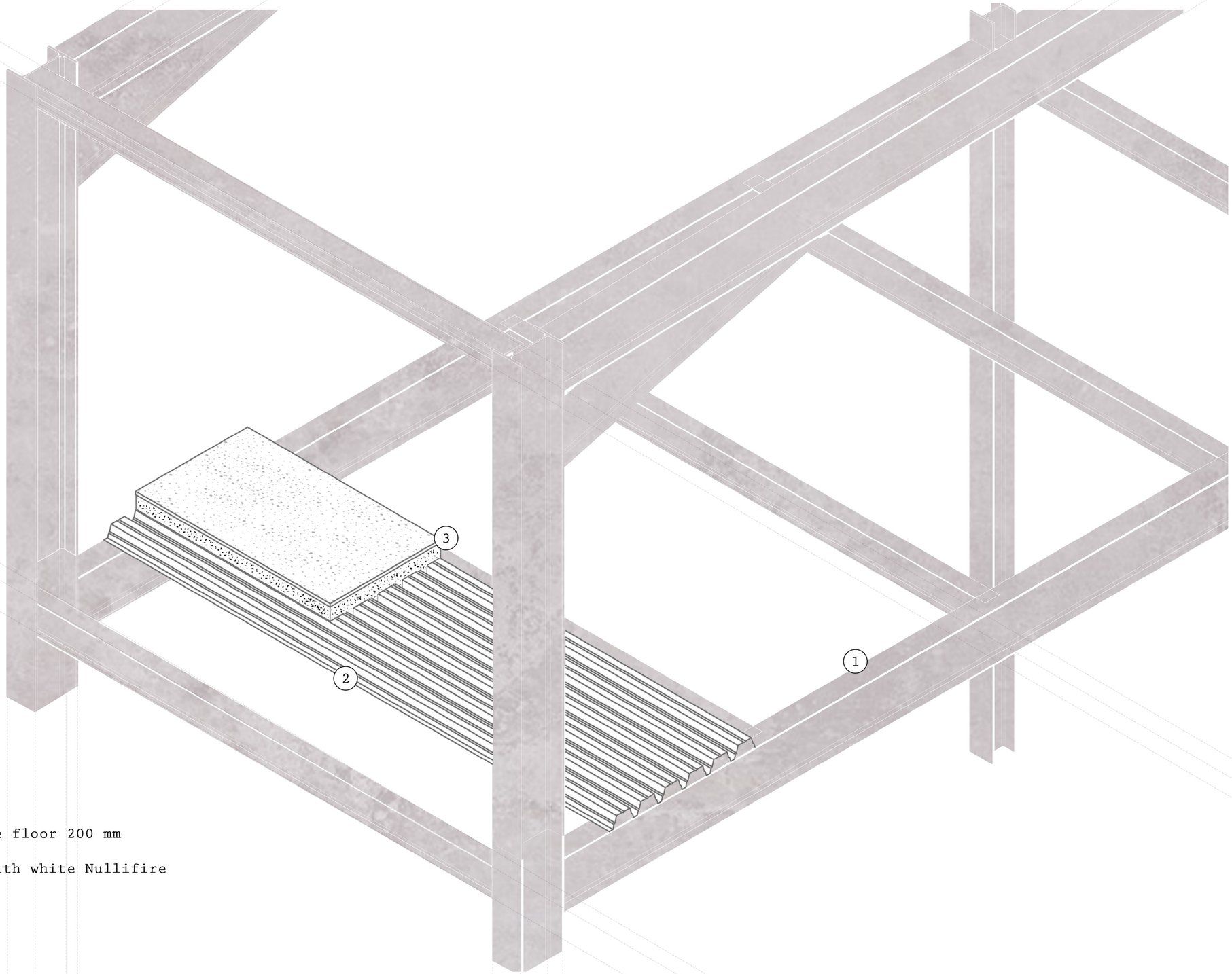


The old side
- structural module -

Existing steel structure
Columns+Beams



The old side
How to deal with the existing steel structure?



PRIMARY STRUCTURE

3. Sand bed 20 mm

2. Steel deck composite floor 200 mm

1. IPE 500 protected with white Nullifire intumescent coat

The old side
How to deal with the existing steel structure?

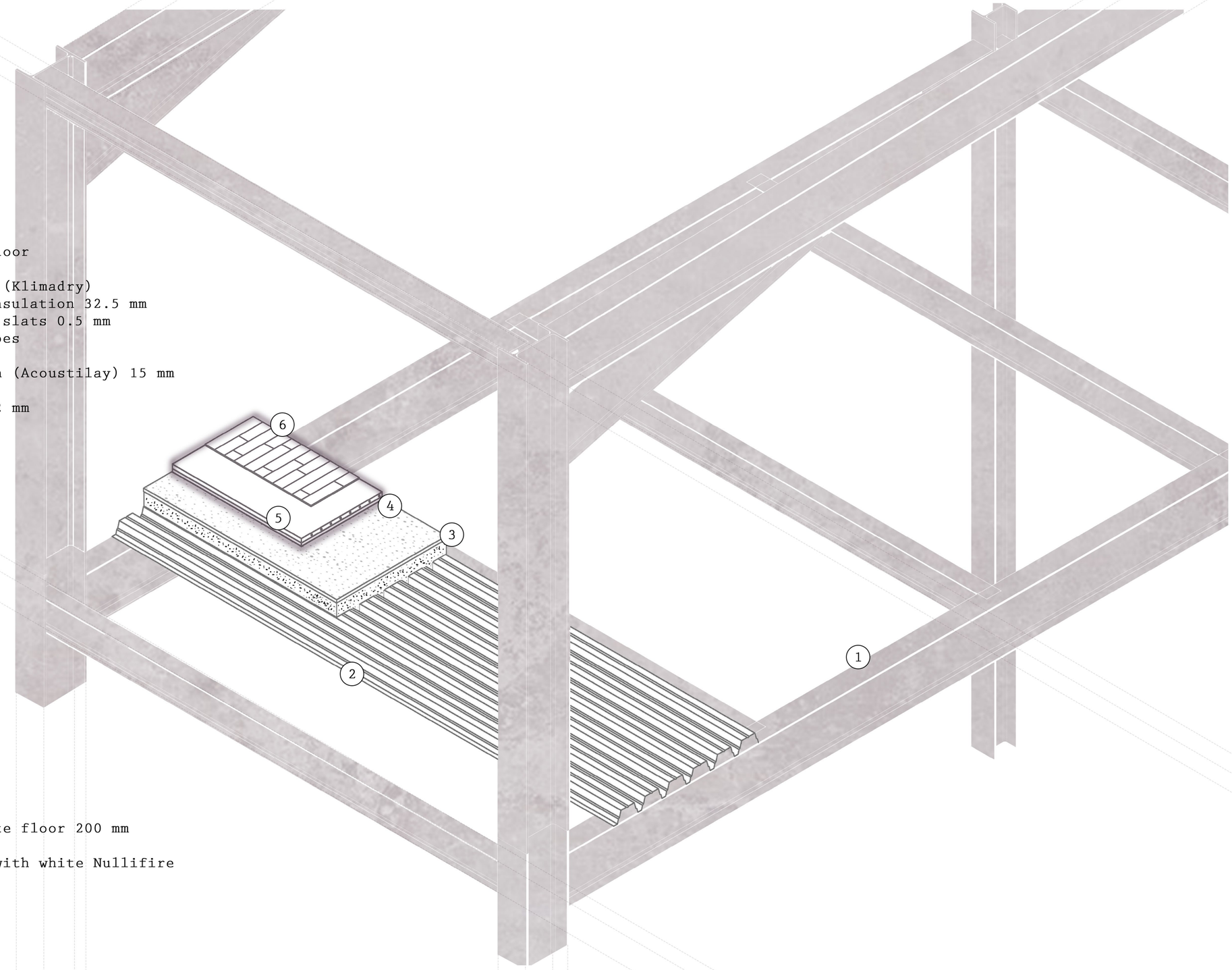
SECONDARY STRUCTURE

7. Retained parquet floor

6. Dry radiant system (Klimadry)
  -wood fibre rigid insulation 32.5 mm
  -U shaped aluminium slats 0.5 mm
  -16x2 mm heating pipes

5. Acoustic insulation (Acoustilay) 15 mm

4. Rigid insulation 32 mm



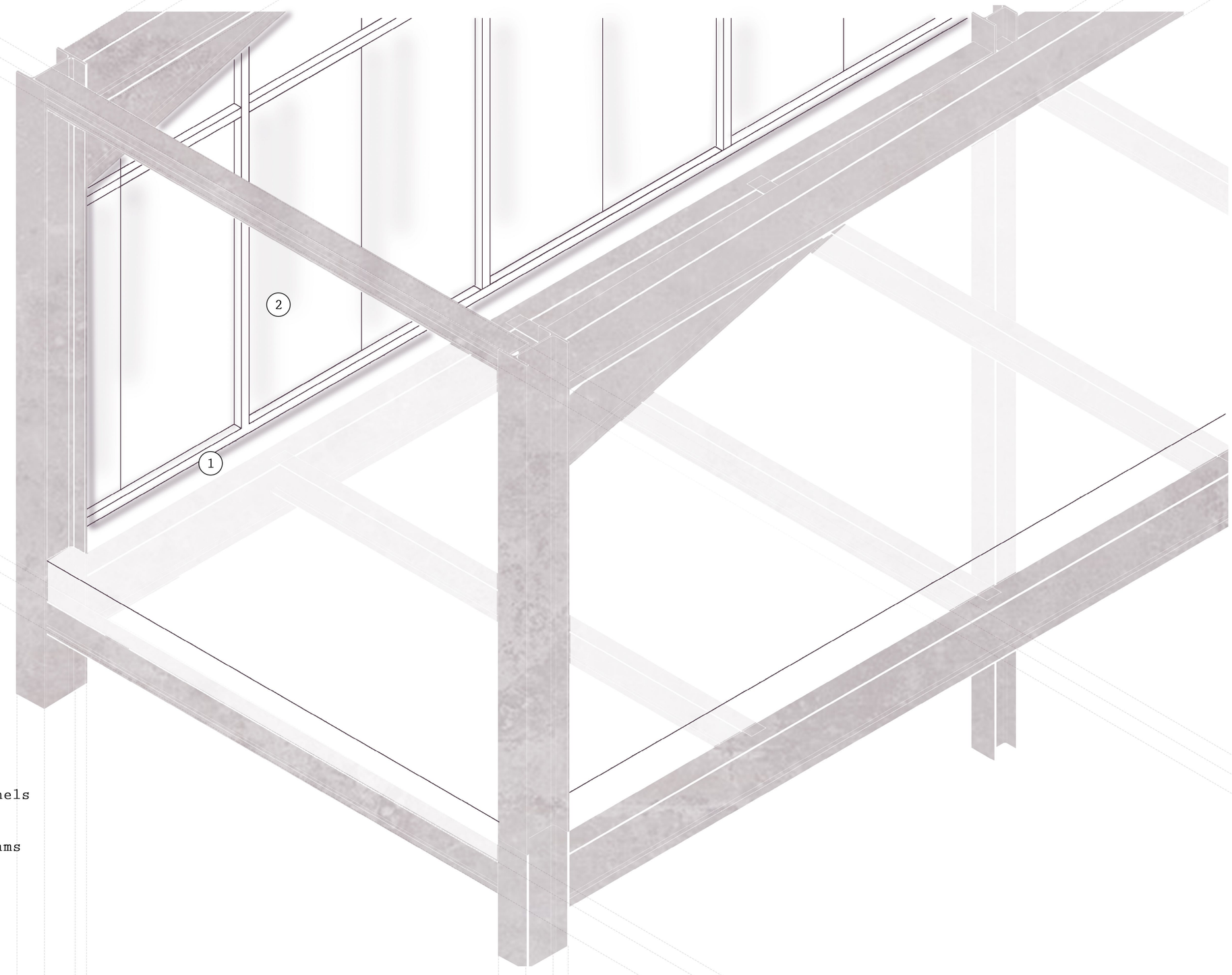
PRIMARY STRUCTURE

3. Sand bed 20 mm

2. Steel deck composite floor 200 mm

1. IPE 500 protected with white Nullifire intumescent coat

The old side
How to deal with the existing steel structure?

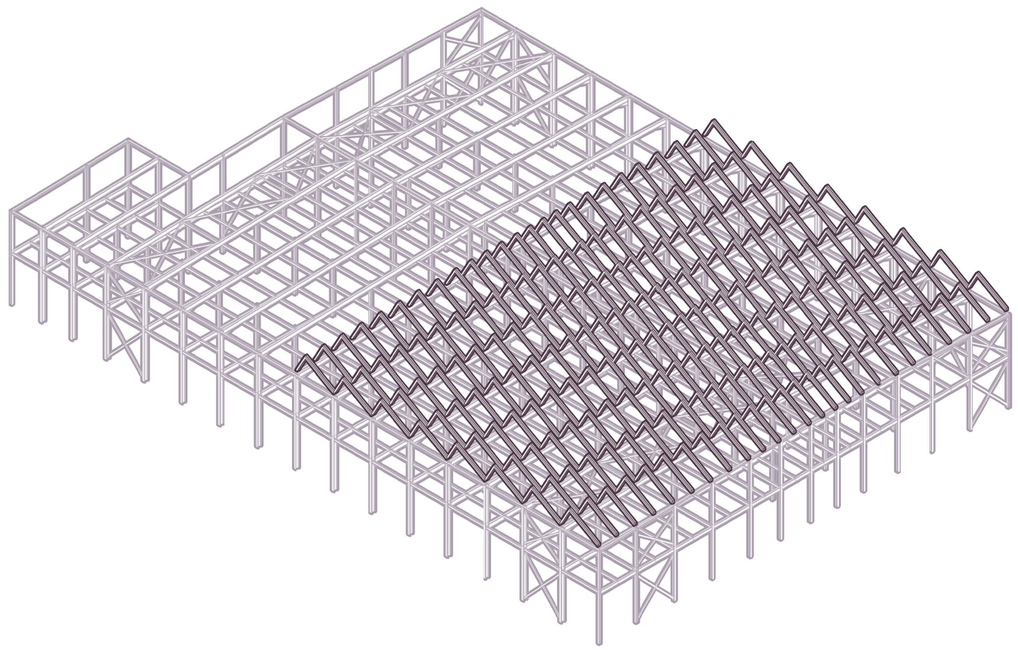


SECºNDARY STRUCTURE

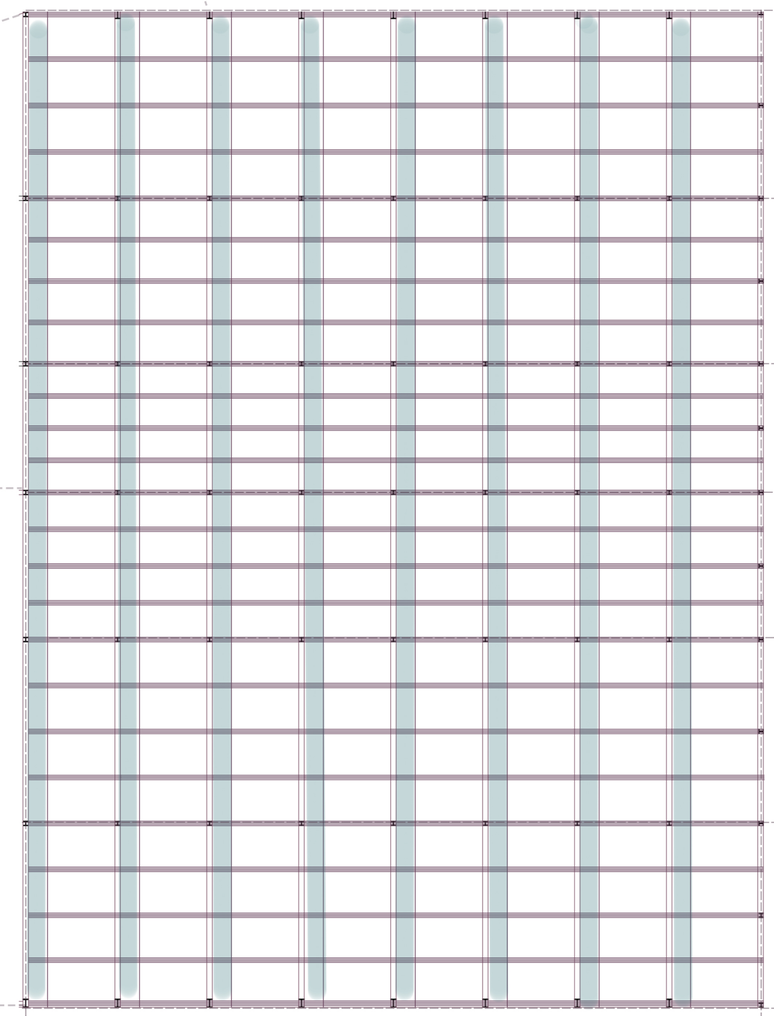
2. Retained timber panels
   244x122x18 mm

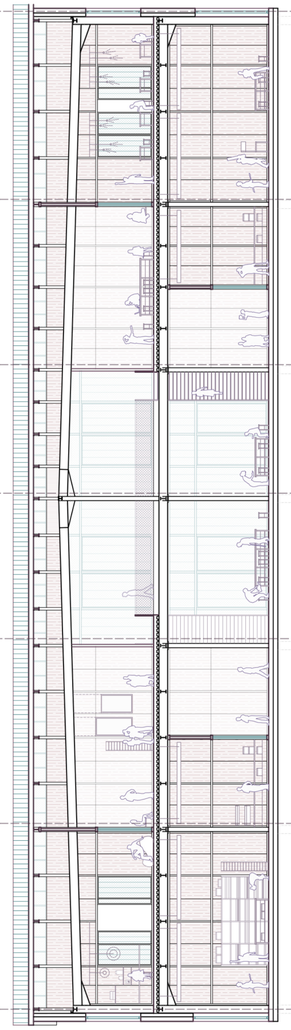
1. Retained timber beams
   80x200 mm

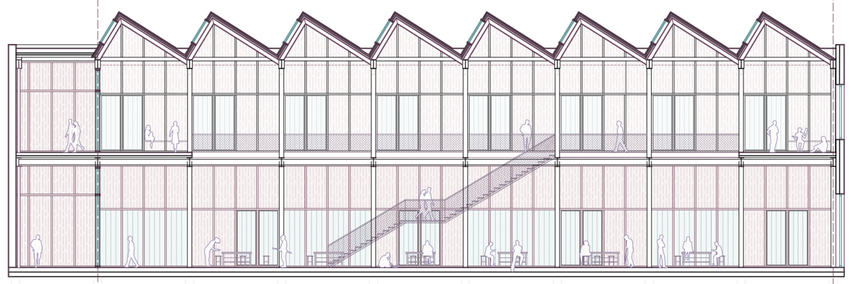
The old side
- New roof structure -



The old side
- New roof structure -







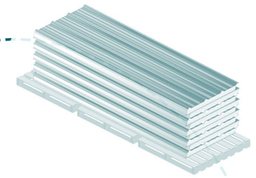
The old side
- New roof structure -
Assemblage

1

Packaging

The number of panels in each pack will vary with the length of the panel to ensure stability (see table left). Typically, panels are packed in stacks up to 1,100 mm high. The panels are protected at the base of the pack by timber pallets and are plastic wrapped in the factory.







2

Receipt of materials on-site

All materials arriving on-site must be checked promptly before off loading.

3

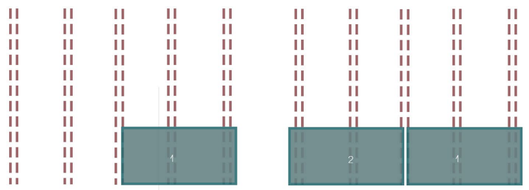
Off loading

The panels are off-loaded directly from the vehicle to the area where they will be used to reduce the risk of on-site damage. If loading directly on to a roof all packs are unwrapped at ground level, base pallets removed and pack re-strapped before lifting onto the roof.

4

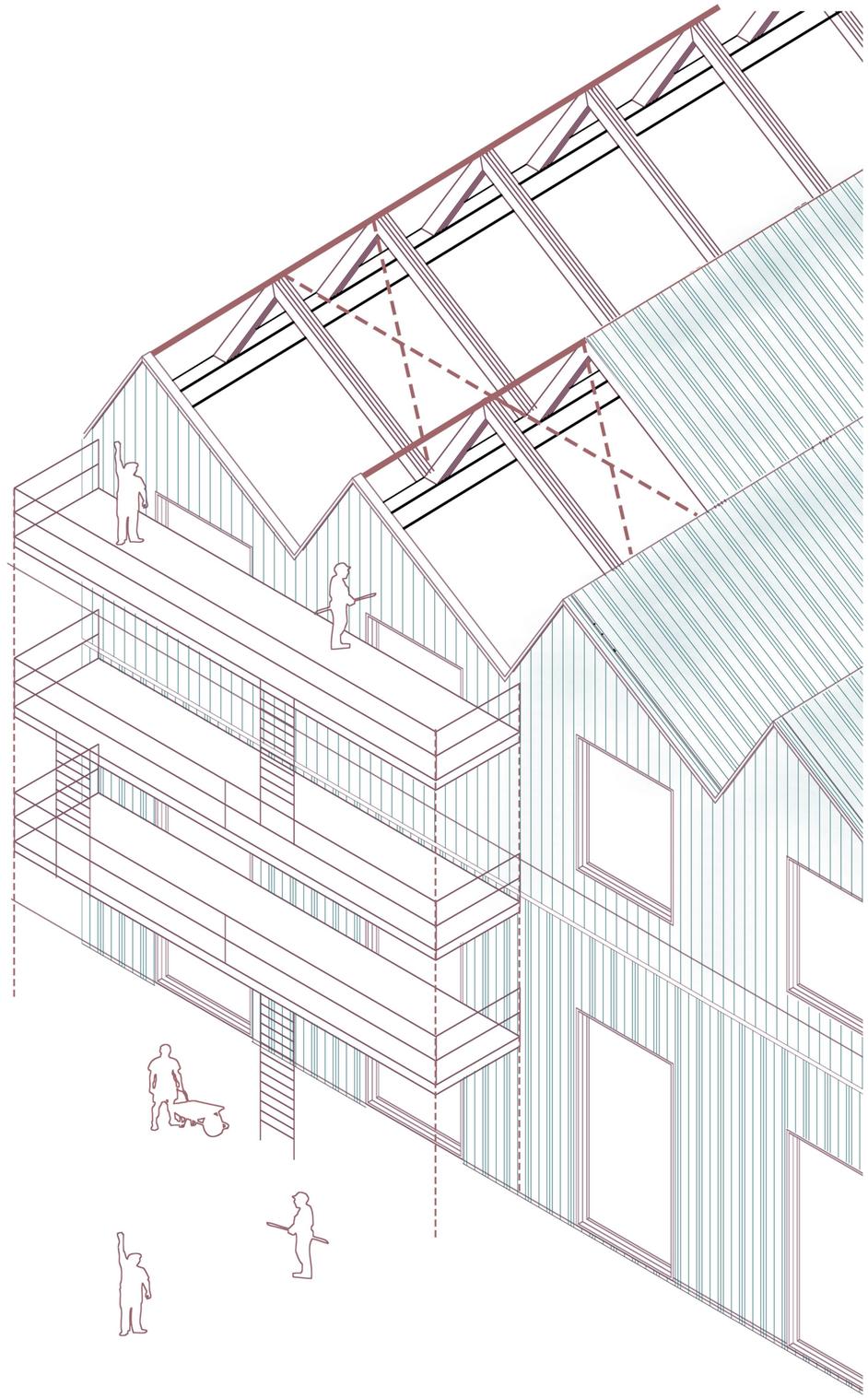
Assembling

The panels are off-loaded directly from the vehicle to the area where they will be used to reduce the risk of on-site damage. If loading directly on to a roof all packs are unwrapped at ground level, base pallets removed and pack re-strapped before lifting onto the roof.

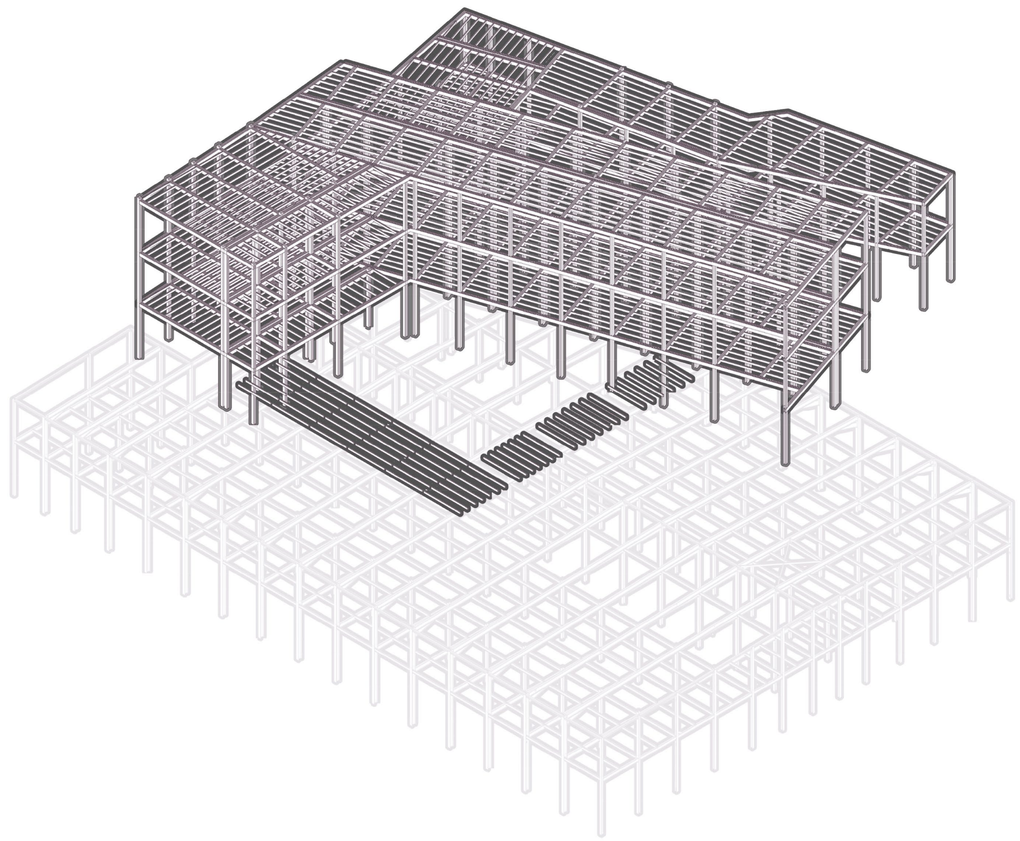


FIRST PANEL LAID

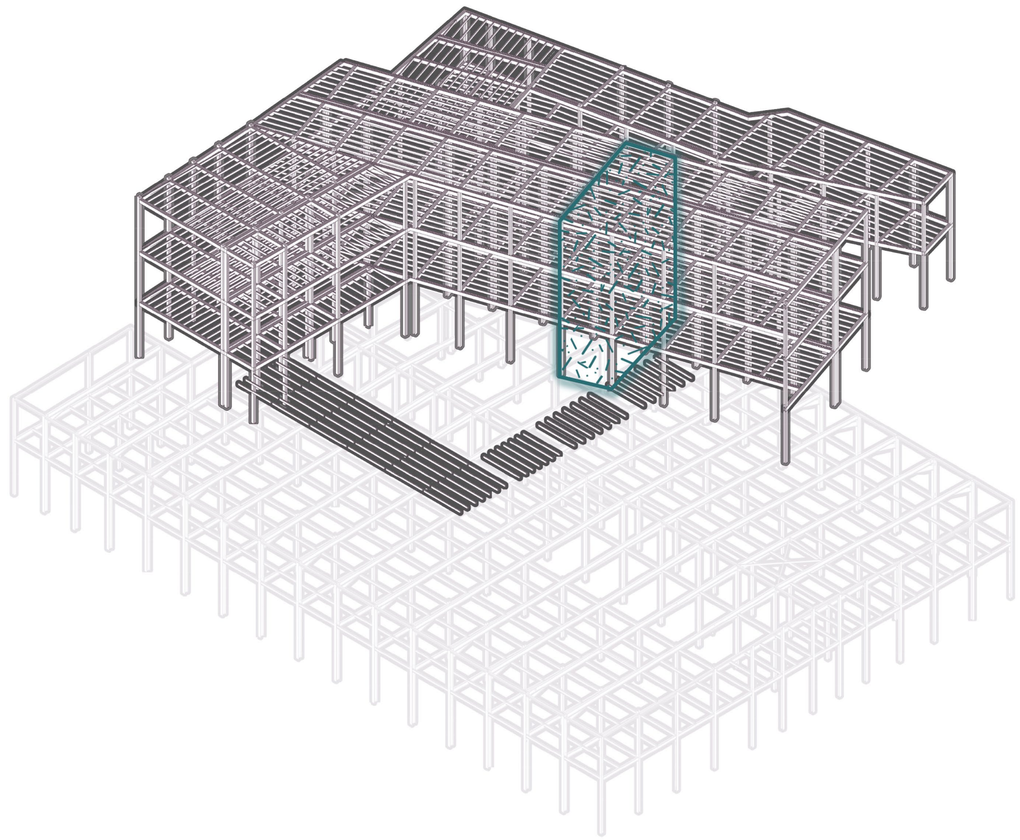
SECOND PANEL LAID



The new side

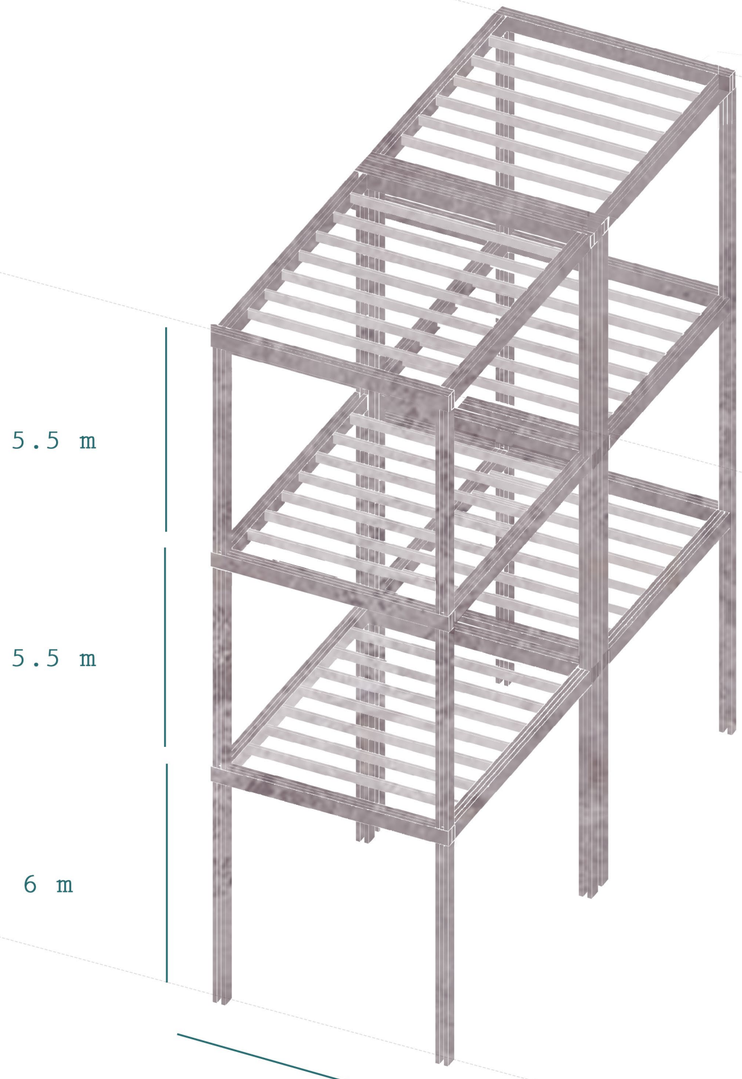


The new side
- structural module -



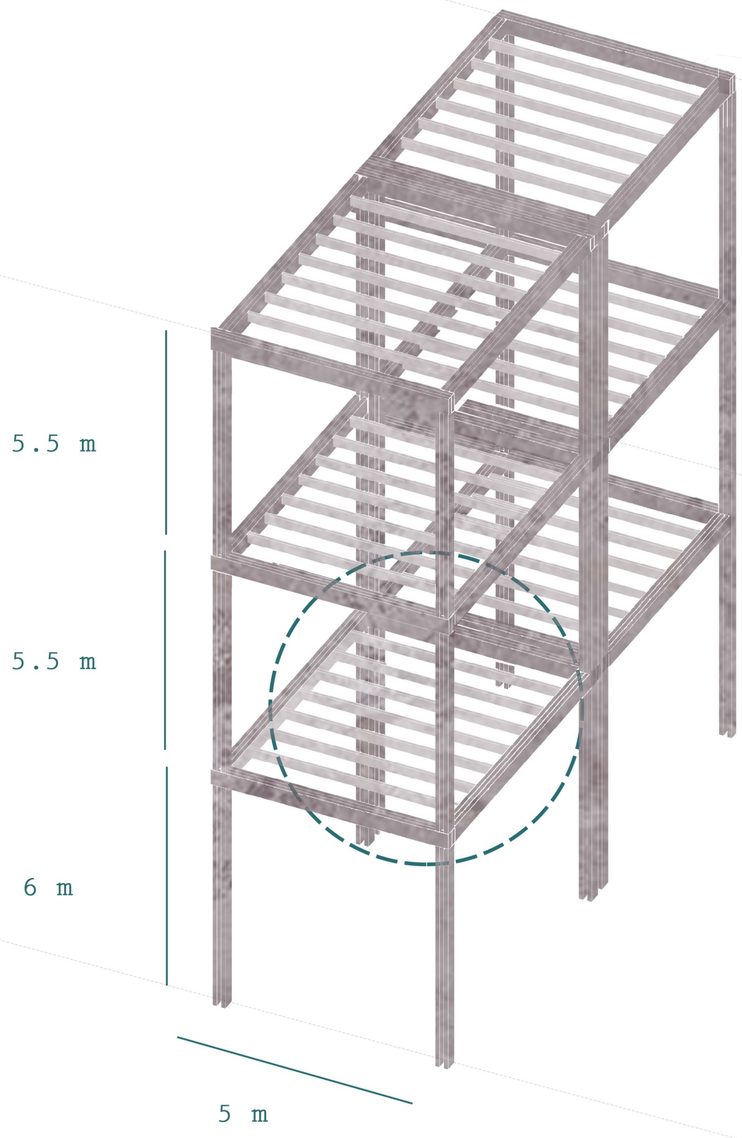
The new side
- structural module -

New timber structure

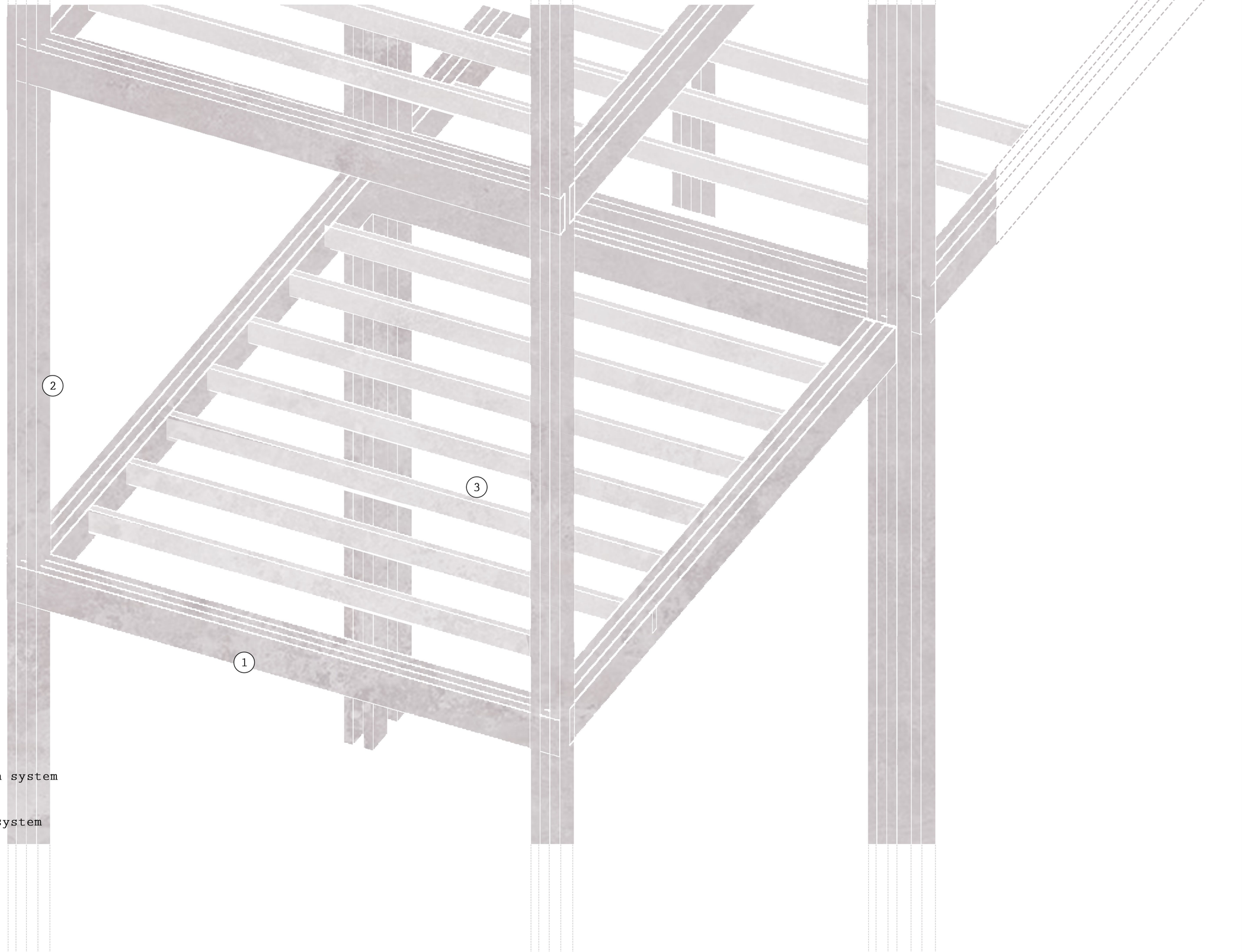


The new side
- structural module -

New timber structure



The new side



SECONDARY STRUCTURE

3. Single oak beams
   80 x 240 mm

PRIMARY STRUCTURE

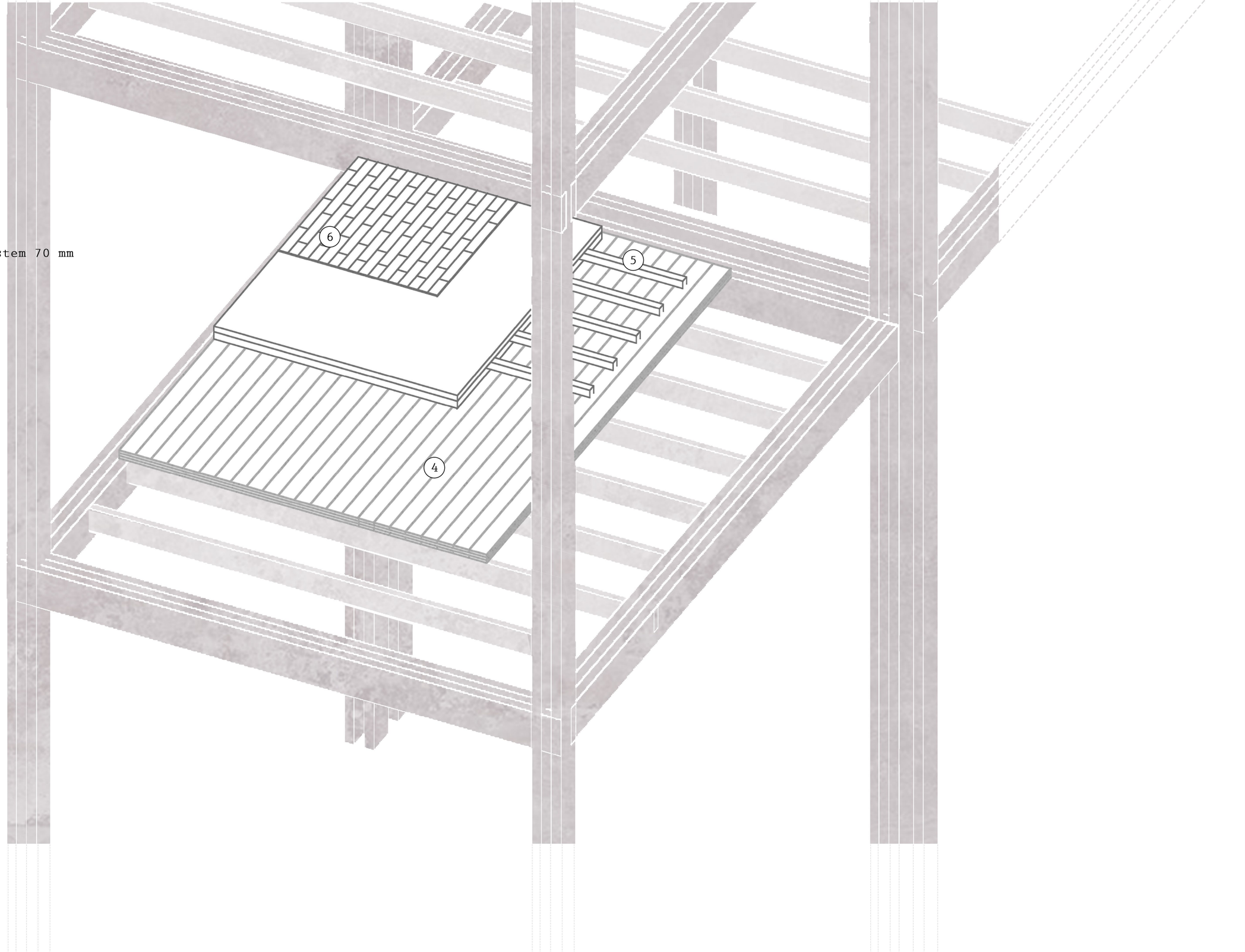
2. Double oak column system
   300 x 300 mm

1. Double oak beam system
   400 x 300 mm

6. Parquet floor

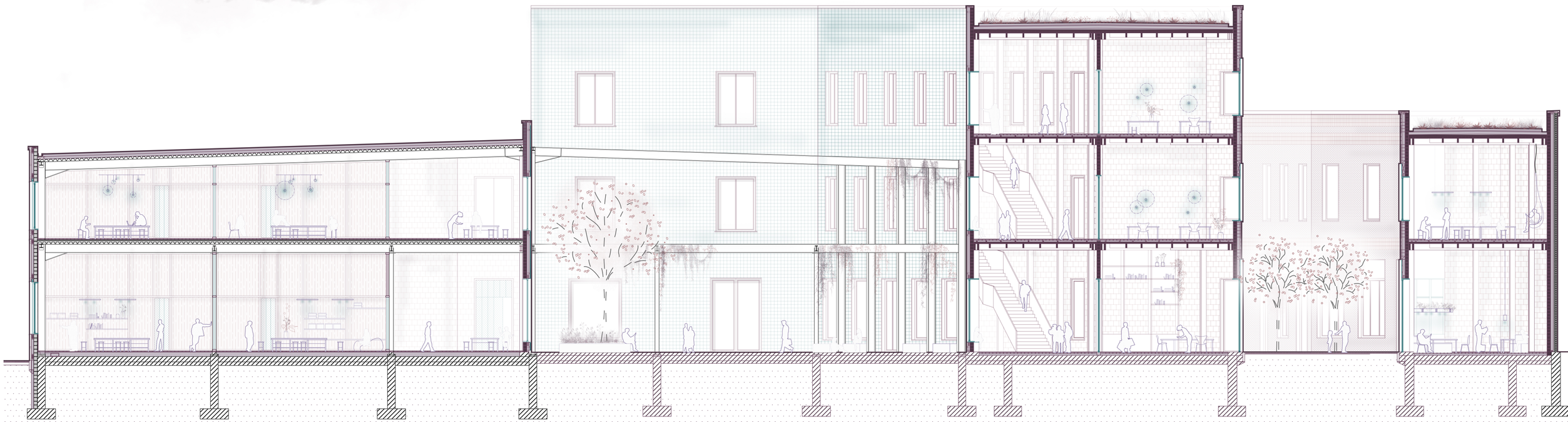
5. Radiant floor system 70 mm

4. CLT 100 mm



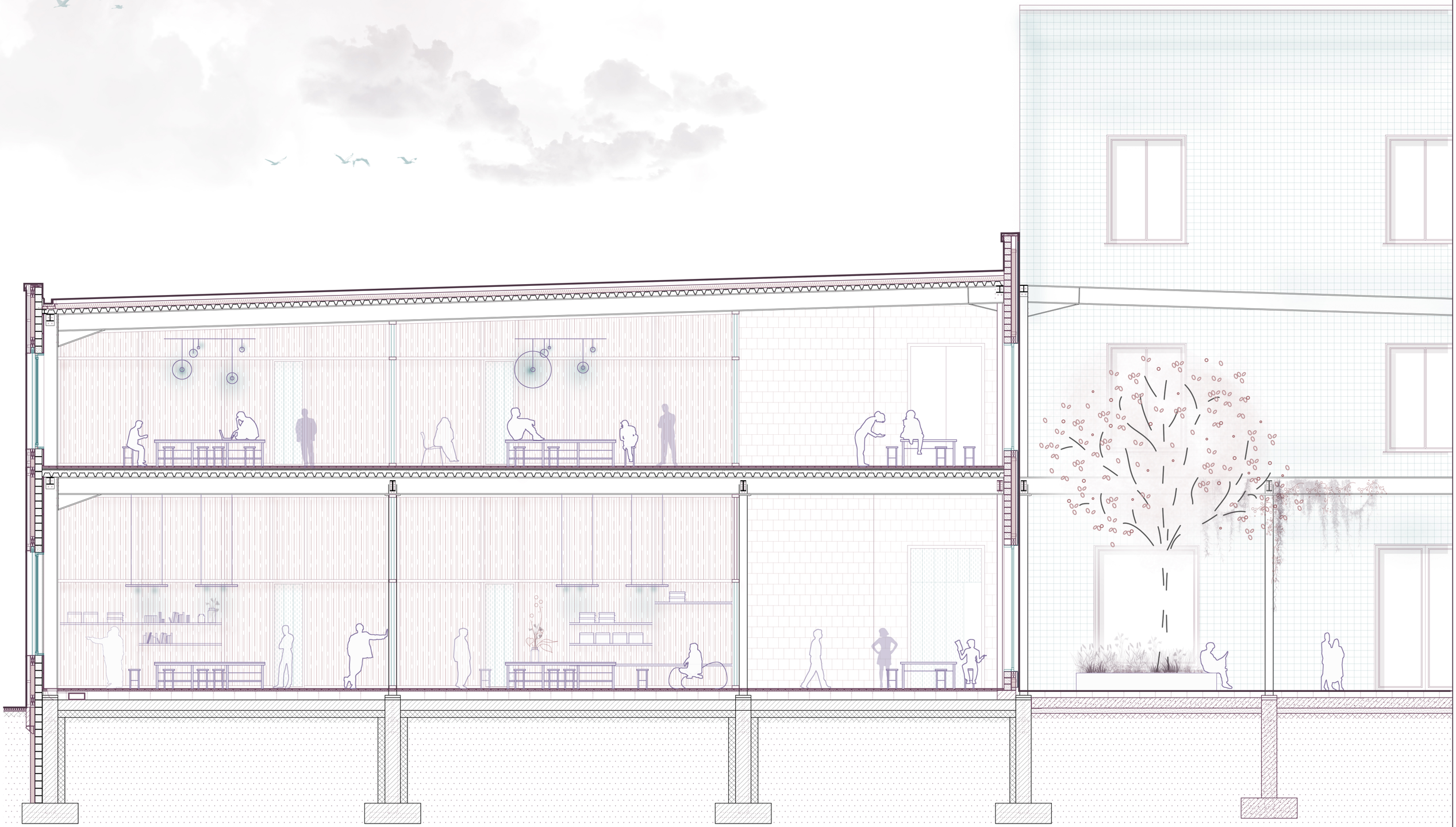
Detailings

Cross section
The Old / New relationship

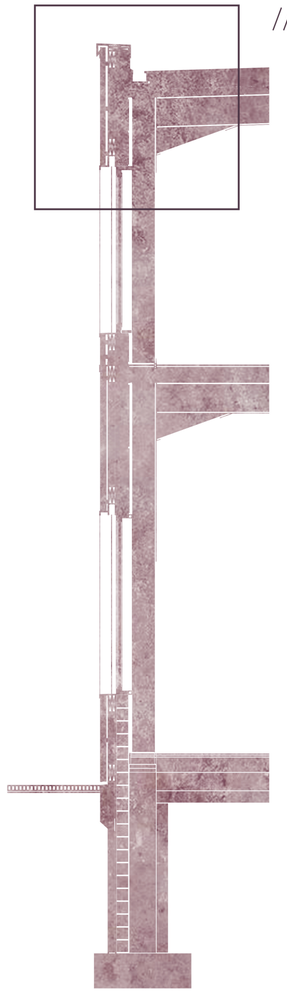


Cross section
Zoom on the old side

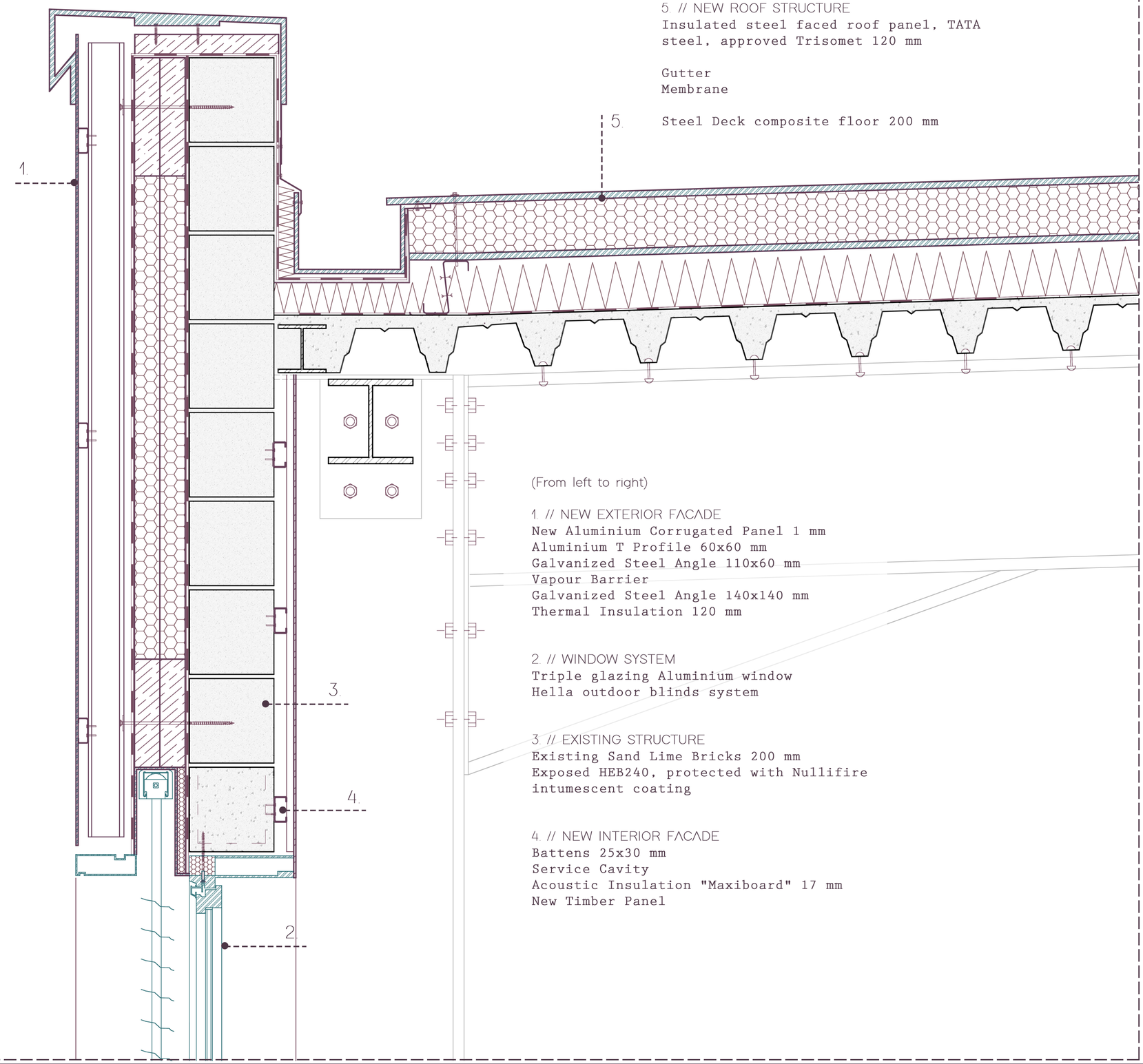
Multipurpose rooms | corricord | Courtyard



// DET. A



EXISTING DETAILS
Rooftop detail



(From top to bottom)

5 // NEW ROOF STRUCTURE
Insulated steel faced roof panel, TATA steel, approved Trisomet 120 mm

Gutter
Membrane

Steel Deck composite floor 200 mm

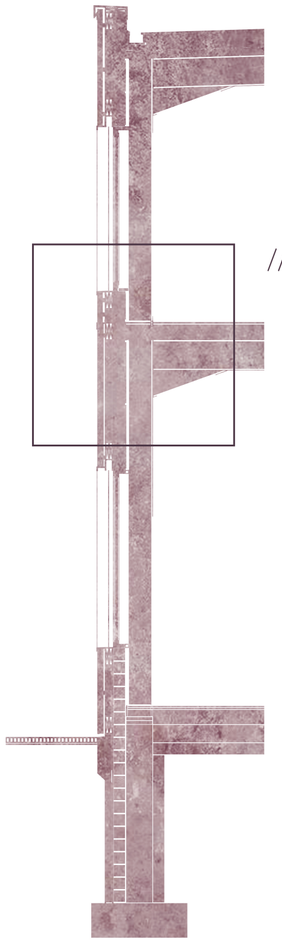
(From left to right)

1 // NEW EXTERIOR FACADE
New Aluminium Corrugated Panel 1 mm
Aluminium T Profile 60x60 mm
Galvanized Steel Angle 110x60 mm
Vapour Barrier
Galvanized Steel Angle 140x140 mm
Thermal Insulation 120 mm

2 // WINDOW SYSTEM
Triple glazing Aluminium window
Hella outdoor blinds system

3 // EXISTING STRUCTURE
Existing Sand Lime Bricks 200 mm
Exposed HEB240, protected with Nullifire intumescent coating

4 // NEW INTERIOR FACADE
Battens 25x30 mm
Service Cavity
Acoustic Insulation "Maxiboard" 17 mm
New Timber Panel



// DET. B

EXISTING DETAILS
Floor detail

(From top to bottom)

1 // NEW FLOOR

Reclaimed Tiles 10 mm
Dry radiant system "Klimadry" :
- Wood fibre rigid insulation 32,5 mm
- U shaped Aluminium slats 0,5 mm
- 16 x 2 mm heating pipes
Acoustic insulation with Acoustilay 15 mm
Rigid Insulation 32 mm

1.

2.

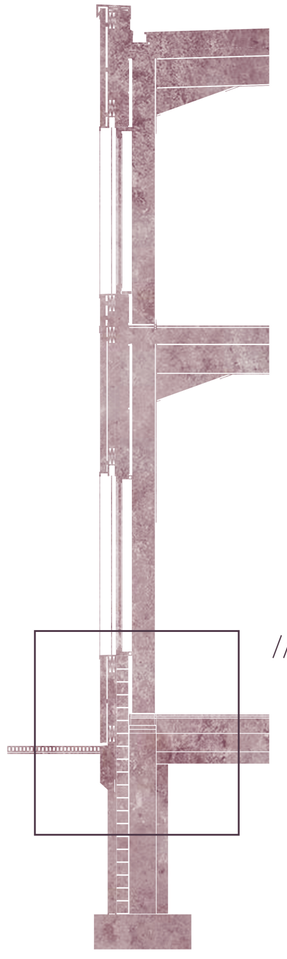
3.

(From top to bottom)

2 // EXISTING STRUCTURE

Sand Bed 20 mm
Steel Deck Composite Floor 200 mm
IPE 500, protected with Nullifire intumescent coating

3 // CEILING ACOUSTIC PANELS



// DET. C

EXISTING DETAILS
Foundation detail

(From top to bottom)

1. // NEW FLOOR

Reclaimed tiles 1 cm
Adhesive 7 mm
Dry radiant system "Klimadry" :
- Wood fibre rigid insulation 32,5 mm
- U shaped Aluminium slats 0,5 mm
- 16 x 2 mm heating pipes
Floating floor system 250 mm

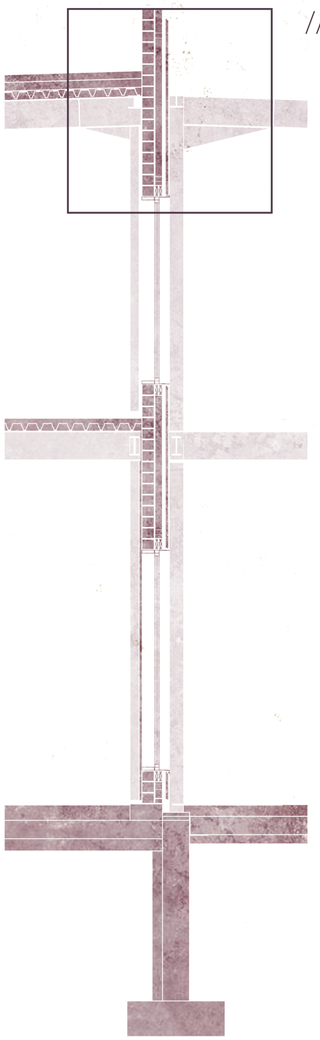
2. // EXISTING FLOOR

Concrete Slab 300 mm
Vapour - waterproof membrane
Rigid Insulation 200 mm
Compacted Gravel
Soil Layer

1.

2.

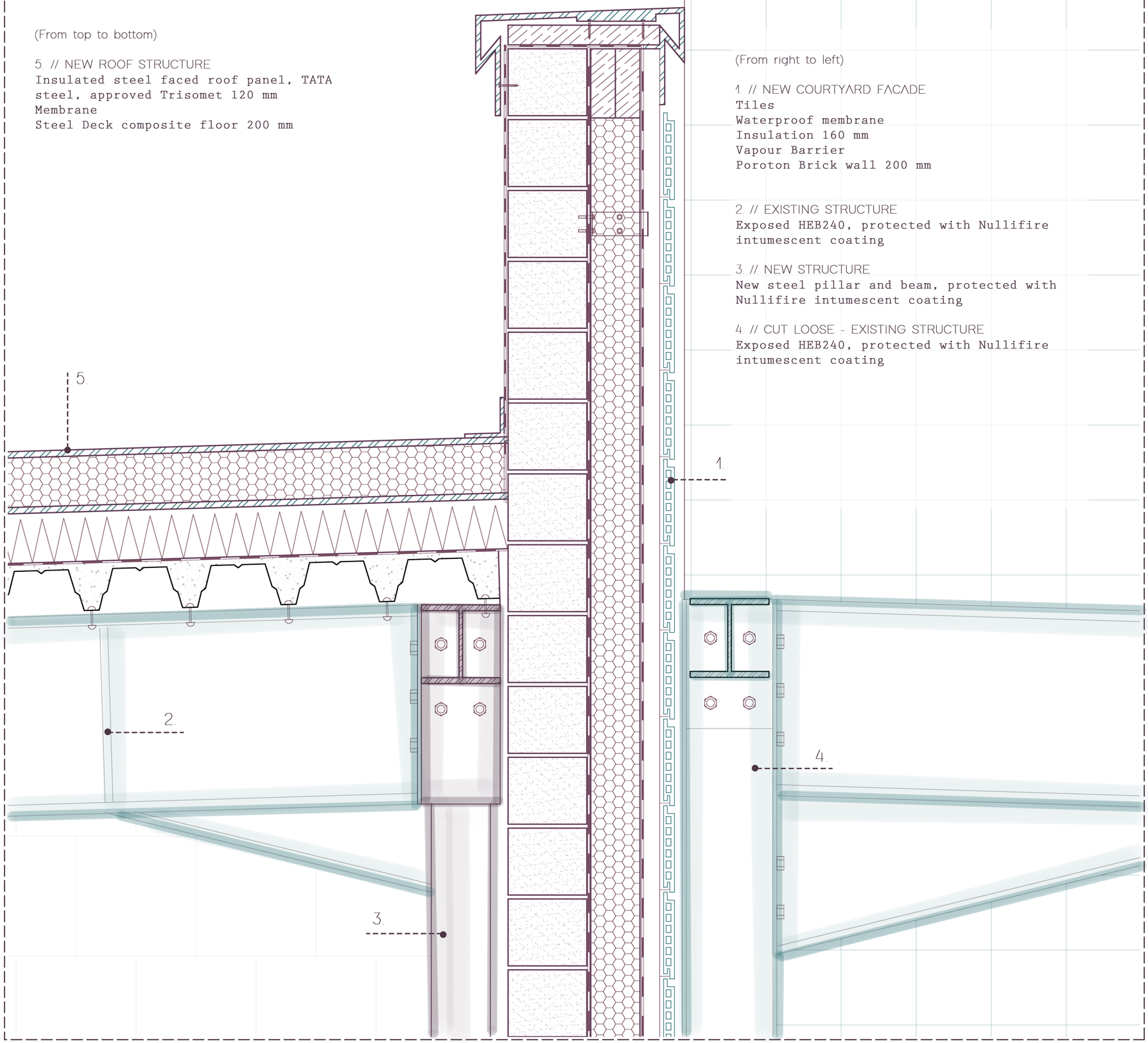
// DET. D



EXISTING and
ADDITION DETAILS
Rooftop detail

(From top to bottom)

5. // NEW ROOF STRUCTURE
Insulated steel faced roof panel, TATA steel, approved Trisomet 120 mm
Membrane
Steel Deck composite floor 200 mm



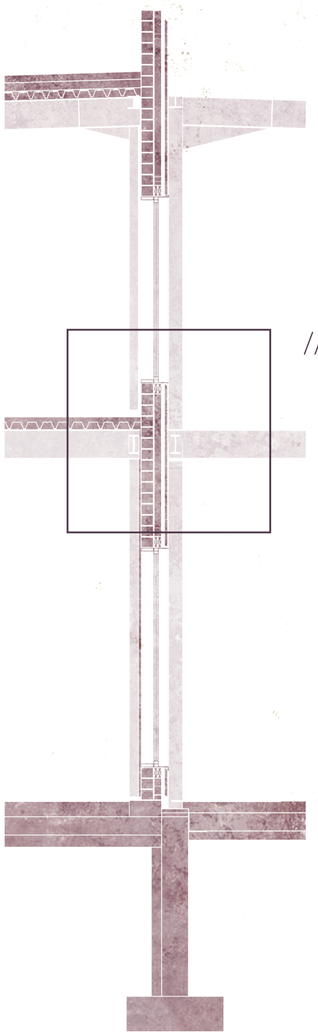
(From right to left)

1. // NEW COURTYARD FACADE
Tiles
Waterproof membrane
Insulation 160 mm
Vapour Barrier
Poroton Brick wall 200 mm

2. // EXISTING STRUCTURE
Exposed HEB240, protected with Nullifire intumescent coating

3. // NEW STRUCTURE
New steel pillar and beam, protected with Nullifire intumescent coating

4. // CUT LOOSE - EXISTING STRUCTURE
Exposed HEB240, protected with Nullifire intumescent coating



// DET. E

EXISTING and ADDITION DETAILS

Floor detail

(From top to bottom)

1 // NEW FLOOR

Reclaimed Tiles 10 mm
Dry radiant system "Klimadry" :
- Wood fibre rigid insulation 32,5 mm
- U shaped Aluminium slats 0,5 mm
- 16 x 2 mm heating pipes
Acoustic insulation with Acoustilay 15 mm
Rigid Insulation 32 mm

(From top to bottom)

2 // EXISTING STRUCTURE

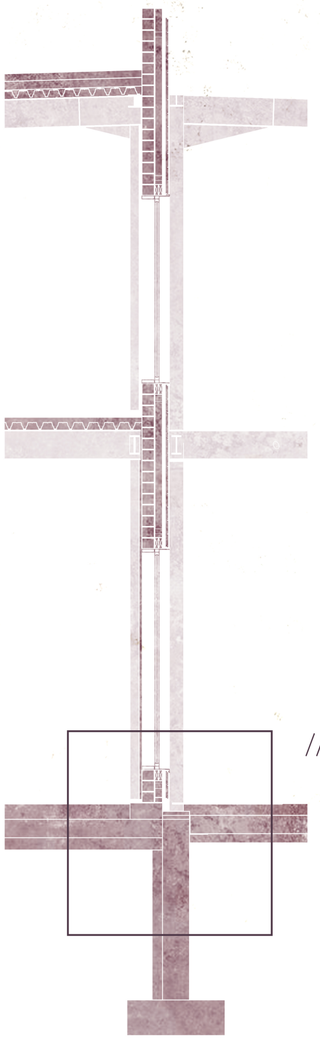
Sand Bed 20 mm
Steel Deck Composite Floor 200 mm
IPE 500, protected with Nullifire intumescent coating

3 // WINDOW SYSTEM
Triple glazing Timber window
Hella outdoor blinds system

4 // EXISTING STRUCTURE
Exposed HEB240, protected with Nullifire intumescent coating

5 // NEW STRUCTURE
New steel pillar and beam, protected with Nullifire intumescent coating

6 // CUT LOOSE - EXISTING STRUCTURE
Exposed HEB240, protected with Nullifire intumescent coating



// DET. F

EXISTING and
ADDITION DETAILS
Foundation detail

(From top to bottom)

1. // NEW FLOOR

Reclaimed tiles 1 cm
Adhesive 7 mm
Dry radiant system "Klimadry" :
- Wood fibre rigid insulation 32,5 mm
- U shaped Aluminium slats 0,5 mm
- 16 x 2 mm heating pipes
Floating floor system 250 mm

2. // EXISTING FLOOR

Concrete Slab 300 mm
Vapour - waterproof membrane
Rigid Insulation 200 mm
Compacted Gravel
Soil Layer

(From top to bottom)

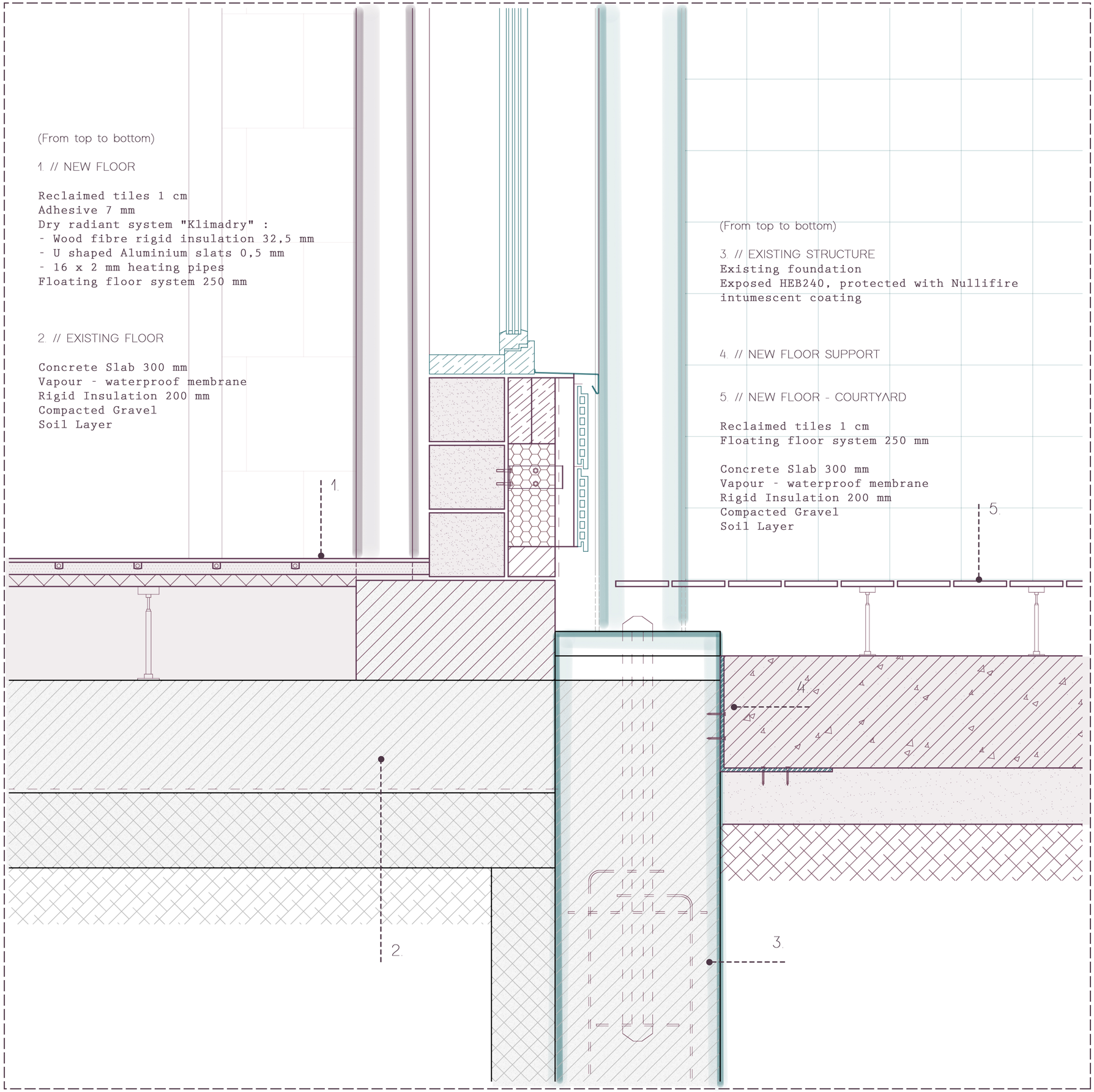
3. // EXISTING STRUCTURE
Existing foundation
Exposed HEB240, protected with Nullifire
intumescent coating

4. // NEW FLOOR SUPPORT

5. // NEW FLOOR - COURTYARD

Reclaimed tiles 1 cm
Floating floor system 250 mm

Concrete Slab 300 mm
Vapour - waterproof membrane
Rigid Insulation 200 mm
Compacted Gravel
Soil Layer



Cross section
Zoom on the new side

corridor | public spaces + classrooms | public passage | Cafe + Start ups



(From top to bottom)

1 // GREEN ROOF

Sump unit

Vegetation
Substrate 80/100 mm
Thermocompact layer
Drainage 30 mm
Waterproof membrane
Rigid insulation 240 mm
Vapour Barrier

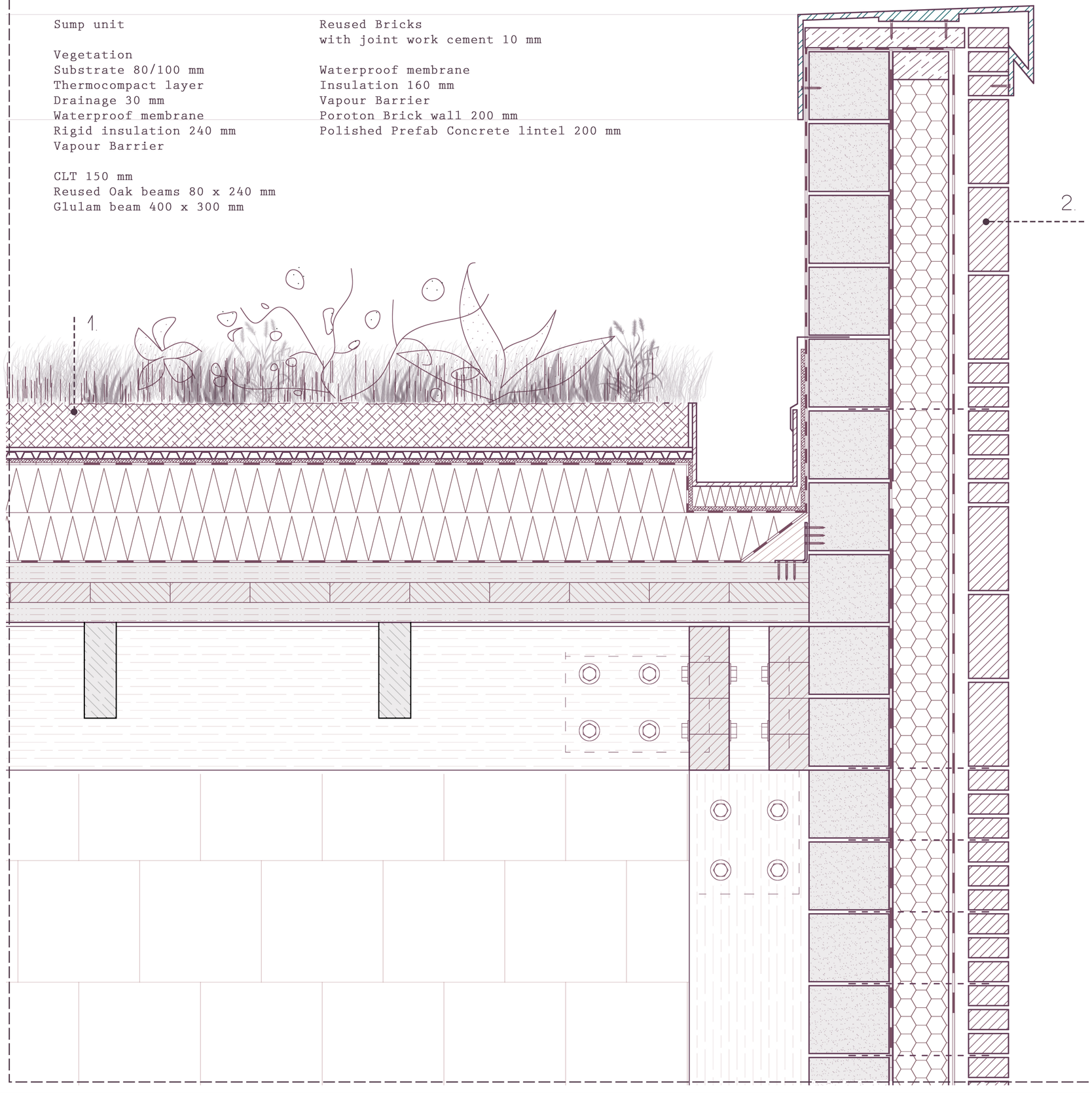
CLT 150 mm
Reused Oak beams 80 x 240 mm
Glulam beam 400 x 300 mm

(From right to left)

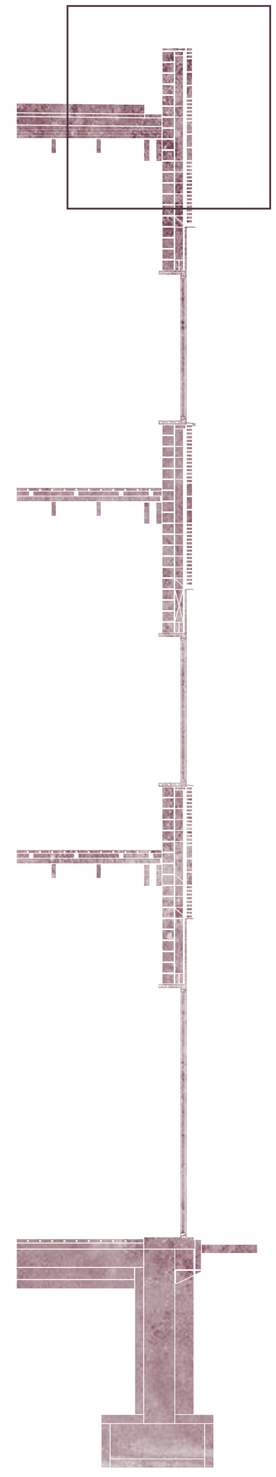
2 // BRICK FACADE

Reused Bricks
with joint work cement 10 mm

Waterproof membrane
Insulation 160 mm
Vapour Barrier
Poroton Brick wall 200 mm
Polished Prefab Concrete lintel 200 mm

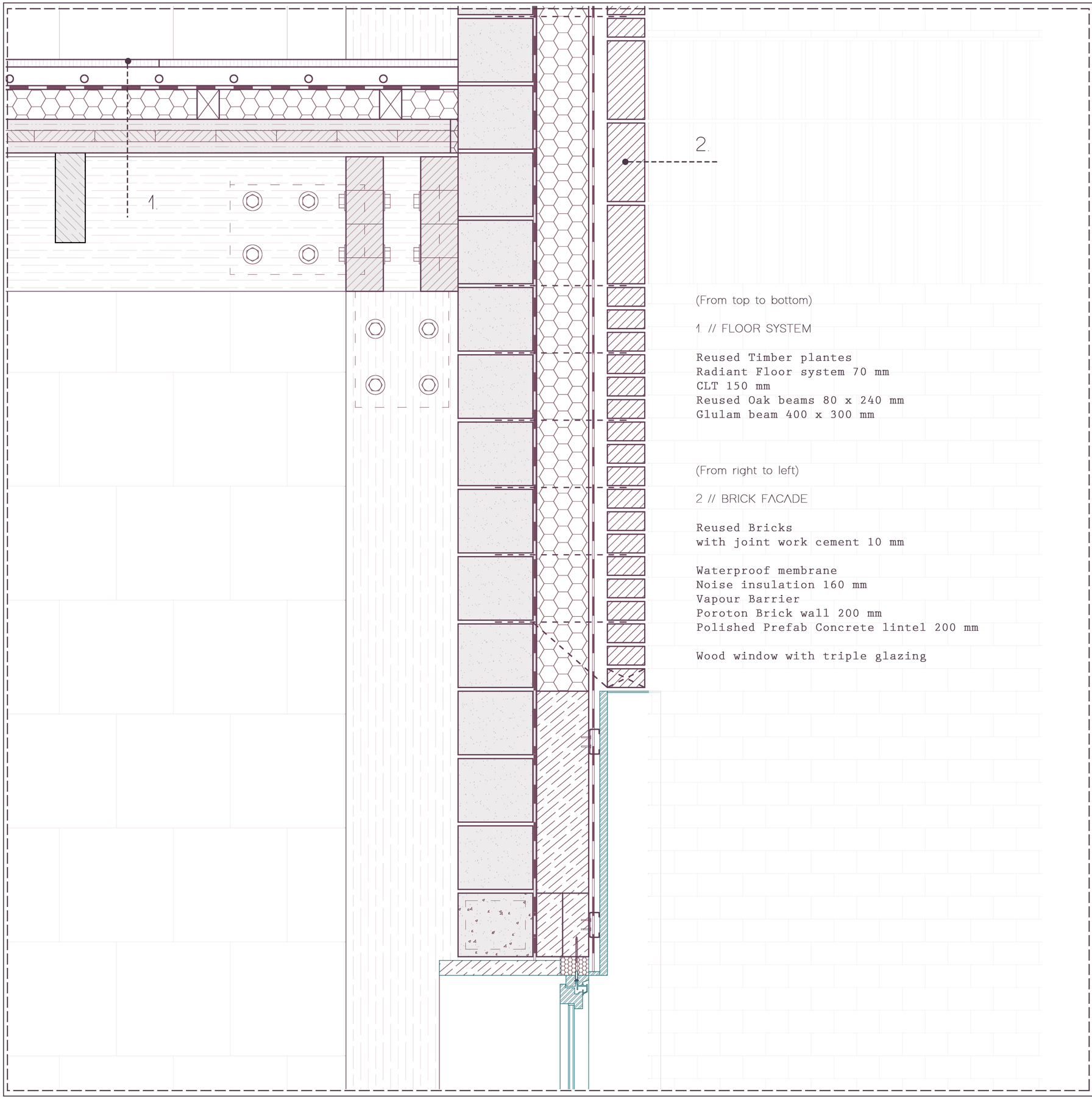


// DET. G



ADDITION DETAILS

Rooftop detail



(From top to bottom)

1. // FLOOR SYSTEM

Reused Timber plantes
Radiant Floor system 70 mm
CLT 150 mm
Reused Oak beams 80 x 240 mm
Glulam beam 400 x 300 mm

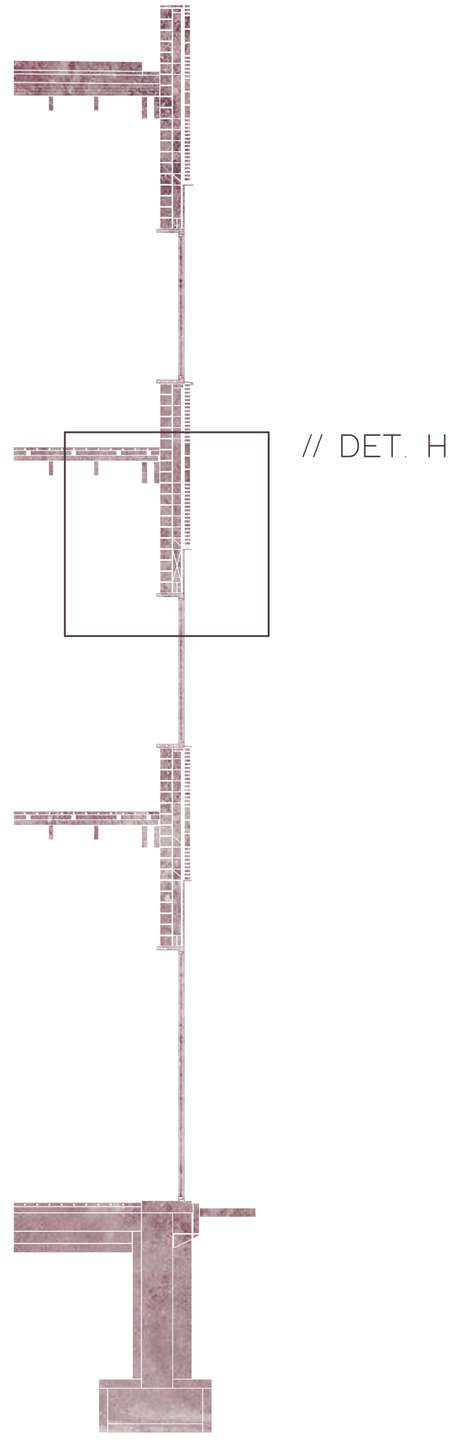
(From right to left)

2 // BRICK FACADE

Reused Bricks
with joint work cement 10 mm

Waterproof membrane
Noise insulation 160 mm
Vapour Barrier
Poroton Brick wall 200 mm
Polished Prefab Concrete lintel 200 mm

Wood window with triple glazing



ADDITION DETAILS

Window detail

Principles of sustainability

Principles of sustainability

- Readaptation of the existing steel structure
(No demolition)

+

- New timber system easy to reuse

=

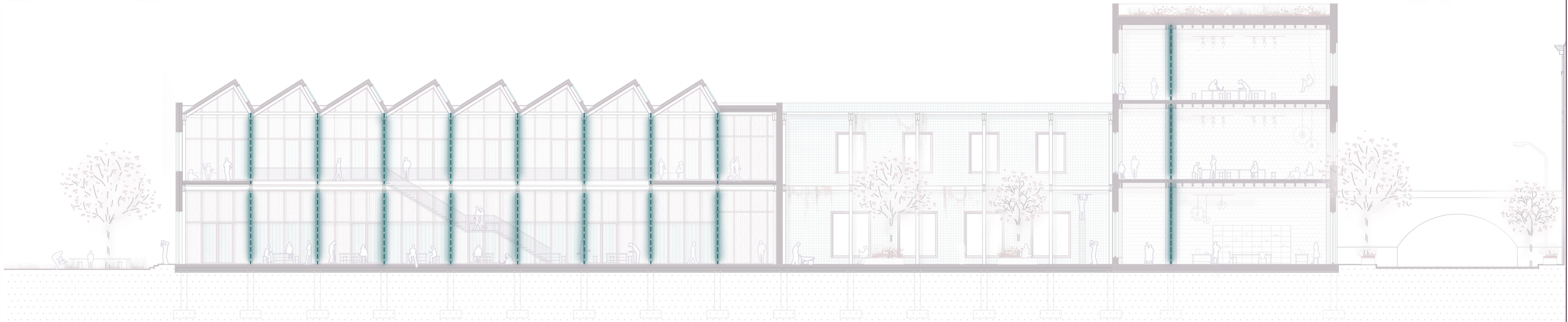
Modular systems for future adaptations



Principles of sustainability
- Interior partitions -

- Self supporting elements

- Use of light elements easy to adapt and reuse in the future





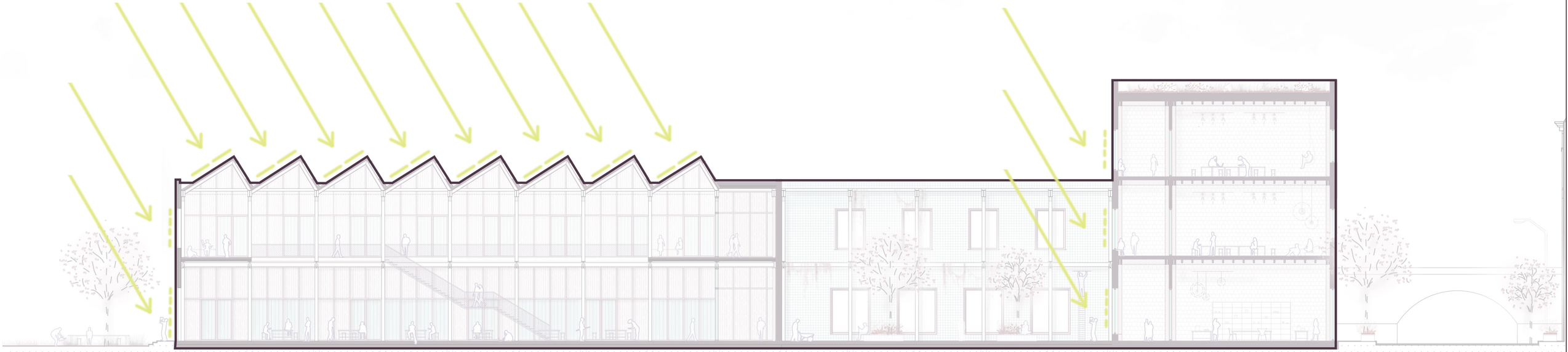


use of light materials

easy to assemble and disassemble

easy to reuse

Summer situation
- Sun exposure -

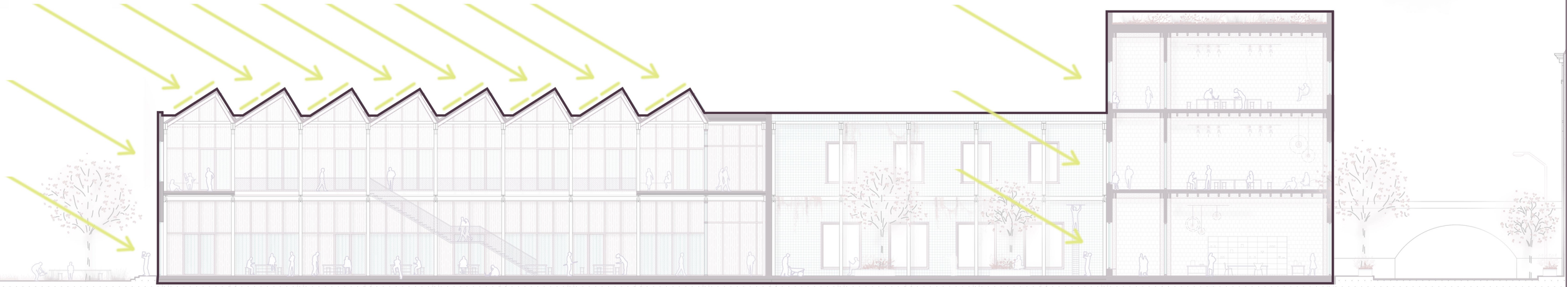


- Harmful heat of direct sun
exposure is blocked by the sawtooth roof

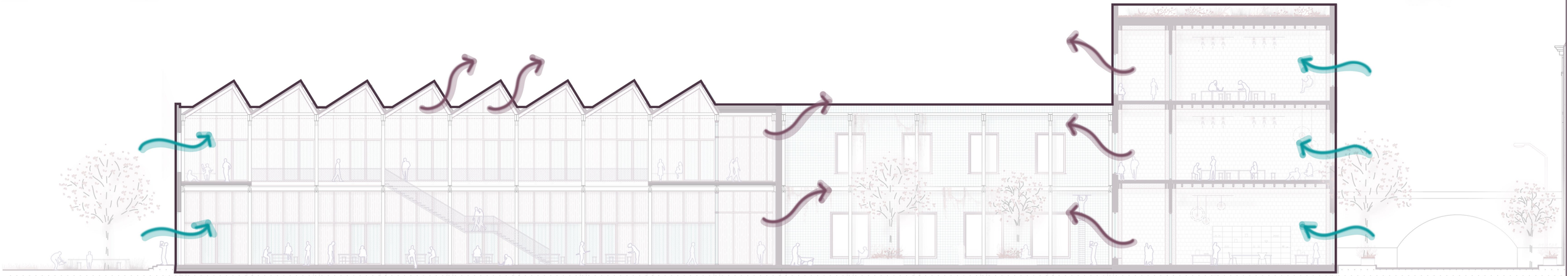
- The sawtooth roof provides the perfect platform
for solar panel installation

- Sun screening system protects the building from overheating.

Summer situation
- Winter exposure -

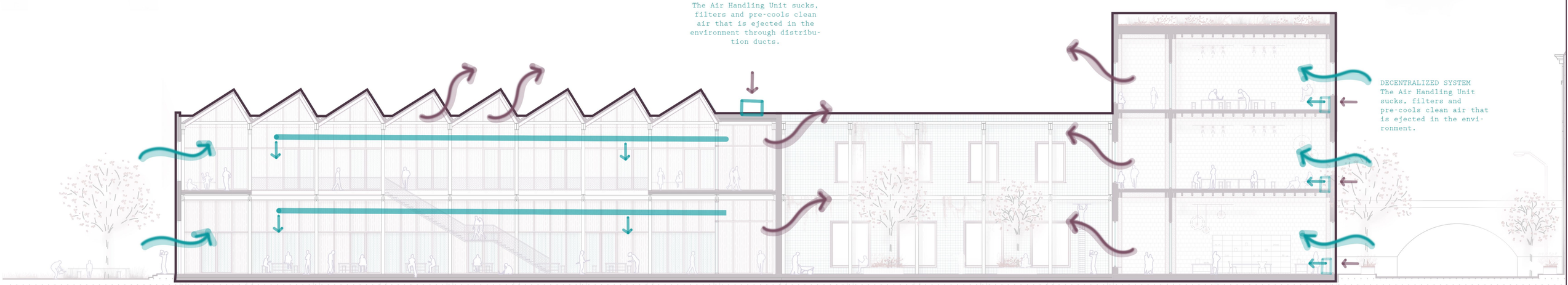


Summer situation
- ventilation -



Natural cross ventilation
through the openable windows and sawtooth roof
let the fresh air coming in and the warm one to go out

Summer situation
- ventilation -

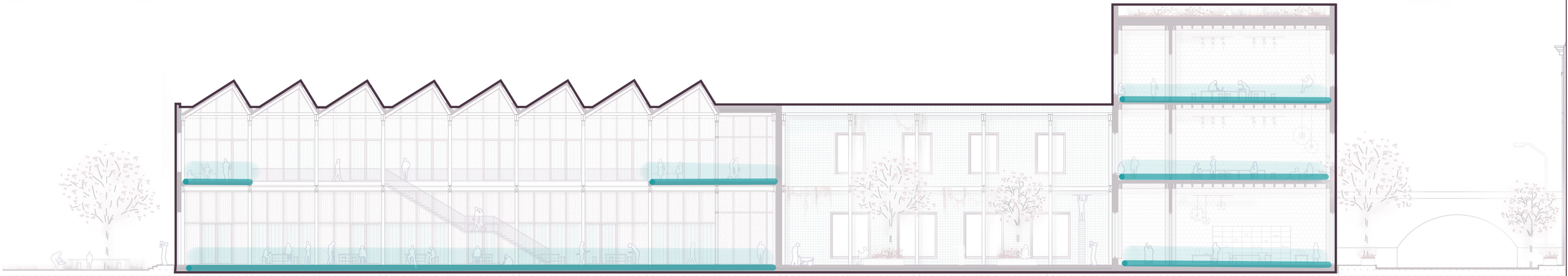


Natural cross ventilation
through the openable windows and sawtooth roof
let the fresh air coming in and the warm one to go out

- A hybrid ventilation strategy (mixed-mode ventilation) is designed
to assist the natural ventilation by mechanical systems
under peak heating or cooling conditions.

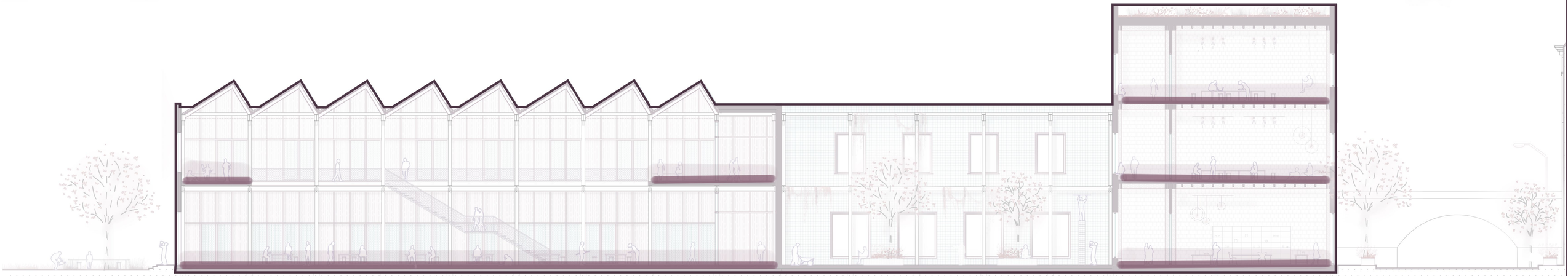
- A system of decentralized Air Handling Units
works in the school while a centralized system works in the Working Hall.

Summer situation
- cooling system -



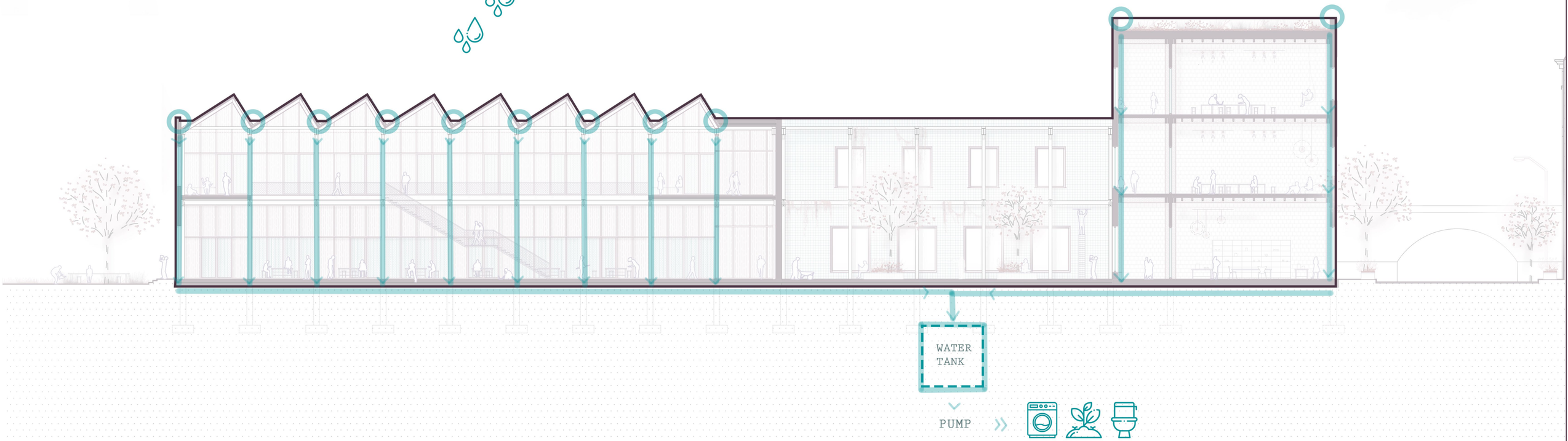
Underfloor cooling system
to create a comfortable and healthier environment than air conditioning.

Summer situation
- heating system -



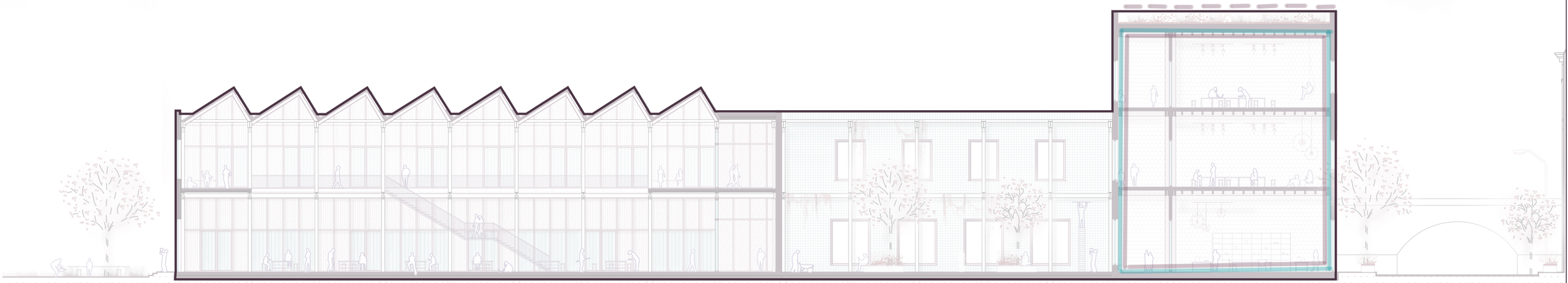
Underfloor heating system distributes heat evenly and consistently
around each room keeping a warm environment inside the building

- Rain water collection -



Rain water is collected on the roof
and then harvested in a water tank underground.
From there, trhough a pump, it is recycled for plants, wc and washing machines.

- Green roof advantages -



SUMMER

- The green roof protects the building from direct solar heat,
cooling the ambient inside the building
- Reduce energy consumption for cooling

WINTER

- - The green roof insulates the building against the cold

- It absorbs rain water and snow melt
so that the drainage systems are not overwhelmed.

- It protects the roof against the sudden temperature changes
that reduce the lifespan of waterproofing materials.

Thank you!

