

# SPOLIA

Library & Sports Center along the wall

Rongmin 08/07/2020

# 1 URBAN IDEA

“reuse of the wall”

# Wall collage

Urban idea

## What to keep as the “spolia”?

The wall is one of the few remnants of the buried river and a defining character in the sites social manifestation. As a result of interactions with the differing segments of wall, it was renovated again and again and the qualities are variant.



# Wall collage

Urban idea

## What to keep as the “spolia”?

The wall can acts as connection and separation, nature and built environment, protection and orientation, closure and openness.

1. Collage of different materials on one wall



2. Collage of multi-layers wall



3. Collage of the wall and natural elements



# Research on urban patterns

Urban idea

## What to keep as the “spolia”?

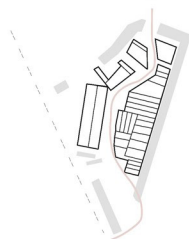
### Previous urban patterns

Vertical comparison of the plot in different times

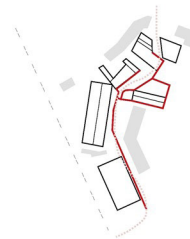
The research helps us aware that the history of the wall is important, because it reveals the relationship between local residence and industrial zoning: they are close to each other but not connected to each other. The wall works as a solid border shaped the separation of the whole plot.



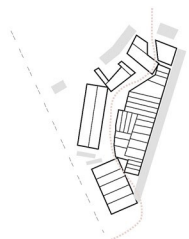
1930



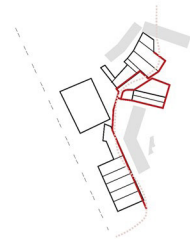
1967



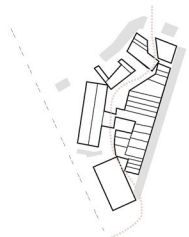
1961



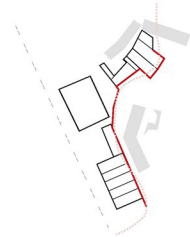
1990



1971



2010



Naturally divided by the river (trace) →

→ Artificially separated by the wall

# Research on urban patterns

Urban idea

## What to keep as the “spolia”?

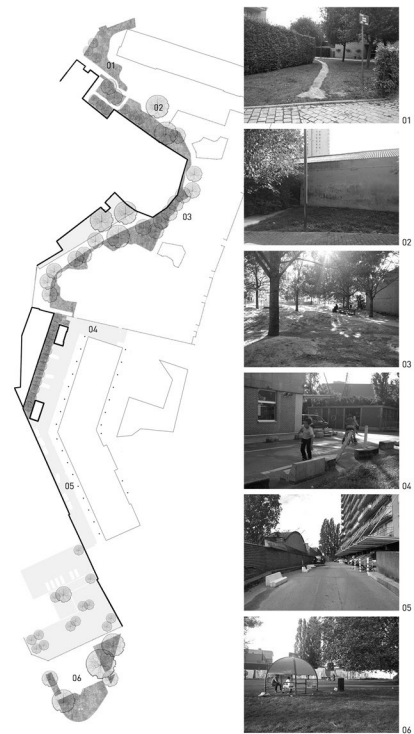
Previous urban patterns

Vertical comparison of the plot in different times

The research helps us aware that the history of the wall is important, because it reveals the relationship between local residence and industrial zoning: they are close to each other but not connected to each other. The wall works as a solid border shaped the separation of the whole plot.



Industrial part



Residential part

# Research on urban patterns

Urban idea

What to keep as the “spolia”?

Present urban pattern

Horizontal comparison between the plot and the traditional Brussels blocks at the surrounding

in urban design we reverse the traditional texture to make the inner part of the plot more accessible for people. The wall provides us an opportunity to intervene the plot and redefine the back and front.



# Research on urban patterns

Urban idea

What to keep as the “spolia”?

Present urban pattern

Horizontal comparison between the plot and the traditional Brussels blocks at the surrounding

in urban design we reverse the traditional texture to make the inner part of the plot more accessible for people. The wall provides us an opportunity to intervene the plot and redefine the back and front.



Traditional urban block



Activities happened in hidden islands



# Research on urban patterns

Urban idea

What to keep as the “spolia”?

Present urban pattern

Horizontal comparison between the plot and the traditional Brussels blocks at the surrounding

in urban design we reverse the traditional texture to make the inner part of the plot more accessible for people. The wall provides us an opportunity to intervene the plot and redefine the back and front.



Our plot



Permeable edges

# Master plan

Urban idea

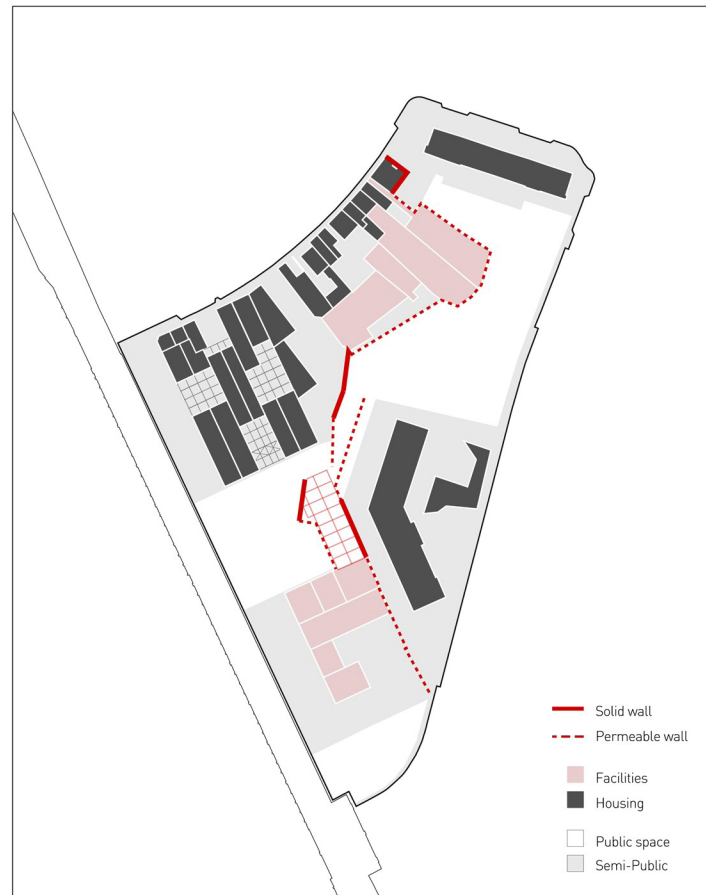
## What to keep as the “spolia”?

Our intention is to create a community oriented block, with the wall connect the newly added public facilities and form a linear landscape run through the whole block, thereby inverting the space along the wall from “back” to accessible “front” to serve the residents living in the neighborhood.

Previous wall : for separation



Renovated wall : for interaction

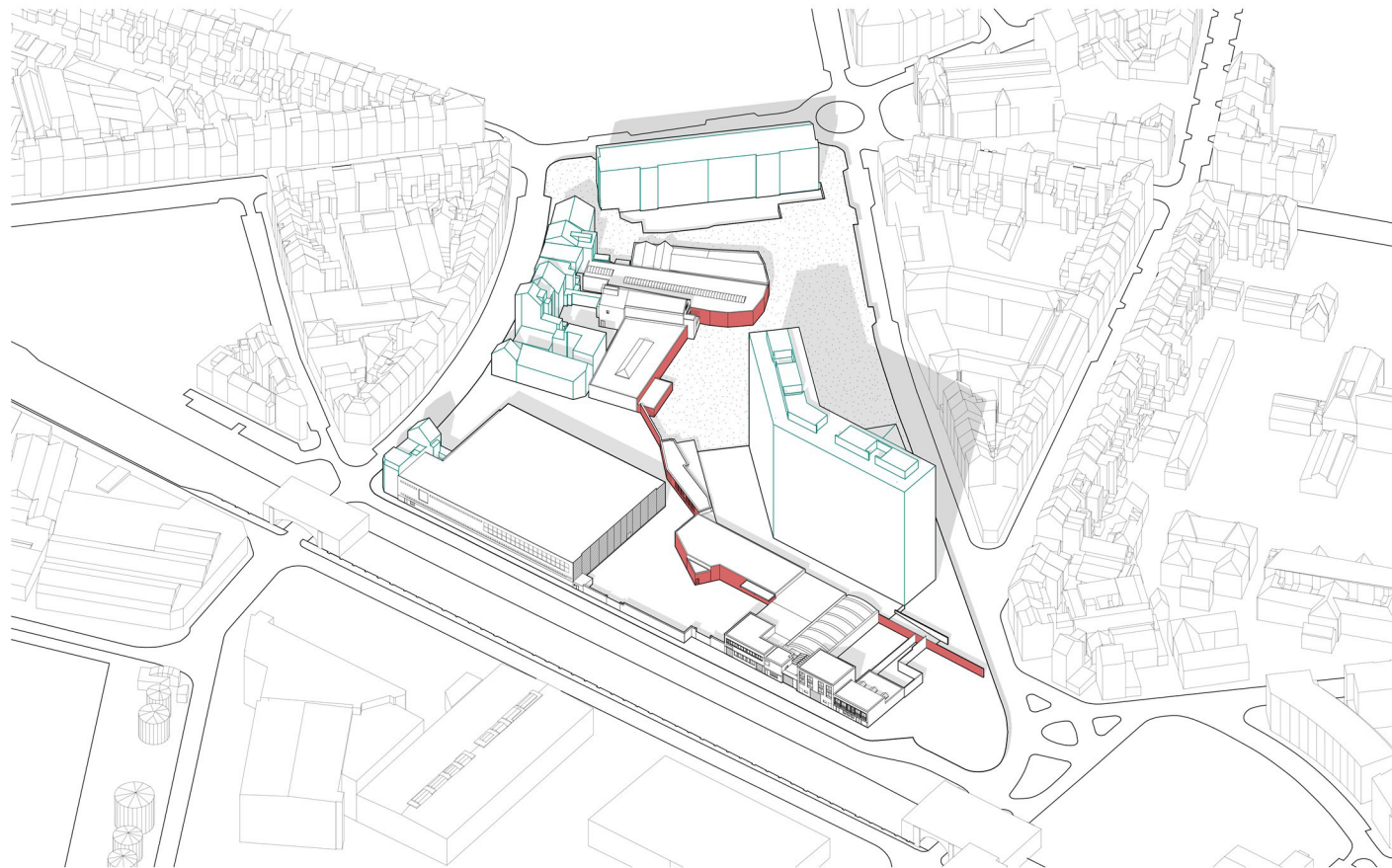


# Master plan

Urban idea

## Step 1

1. The wall and the structures attached to it are kept and reused as part of the newly added buildings or landscape elements.



# Master plan

Urban idea

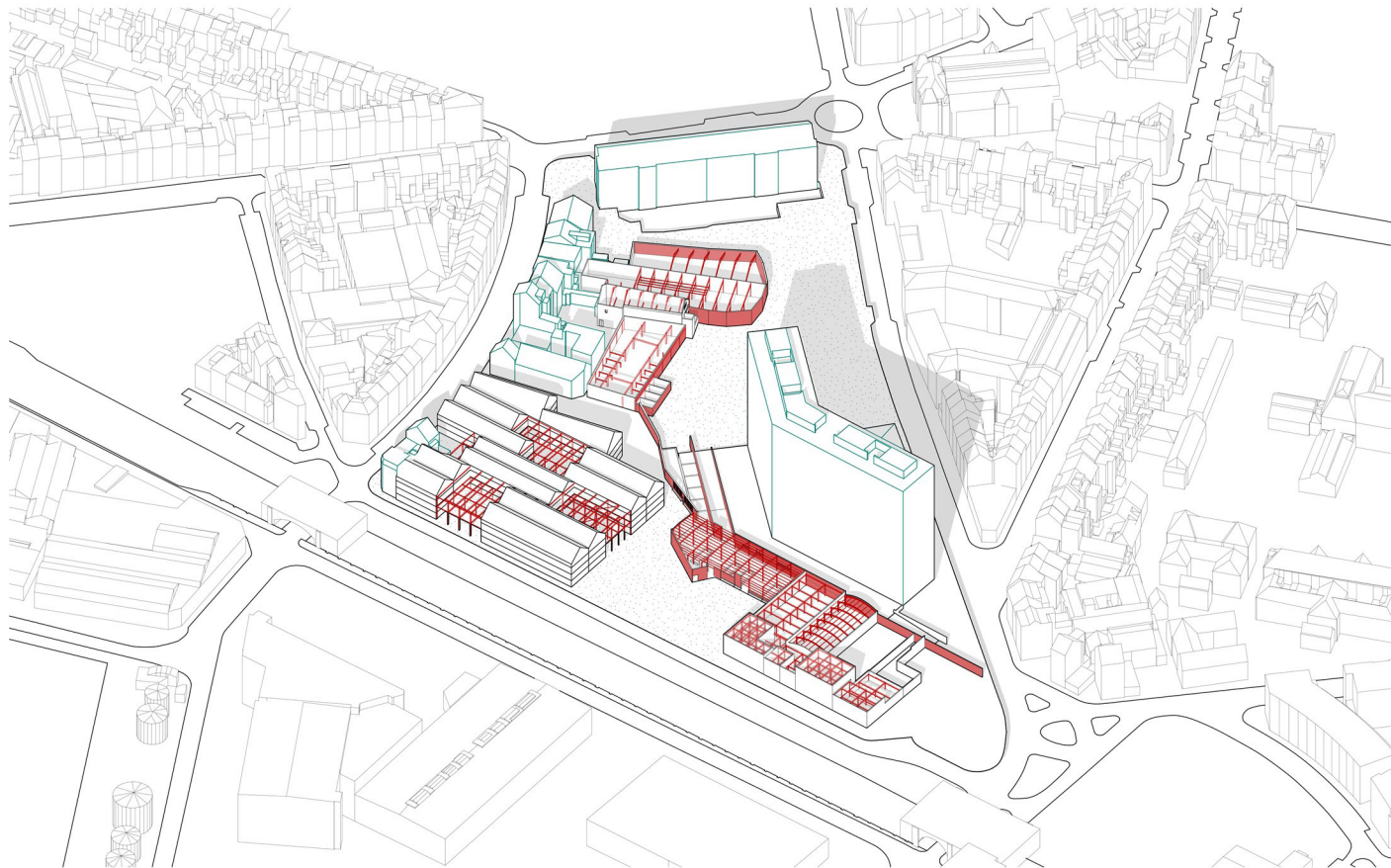
## Step 2

The structures behind the wall are taken into consideration:

The warehouses and wholesalers are removed while their structures are left for reuse or recycle, according to the architectural proposal.

These industrial buildings are not necessary since they are temporarily let out by different companies and most of them are spare. What's more, the industrial area is located on the other side of the railway so there is no need to keep some single buildings for production in the residential area.

Rotor is renovated into the housing to alleviate the housing shortage.

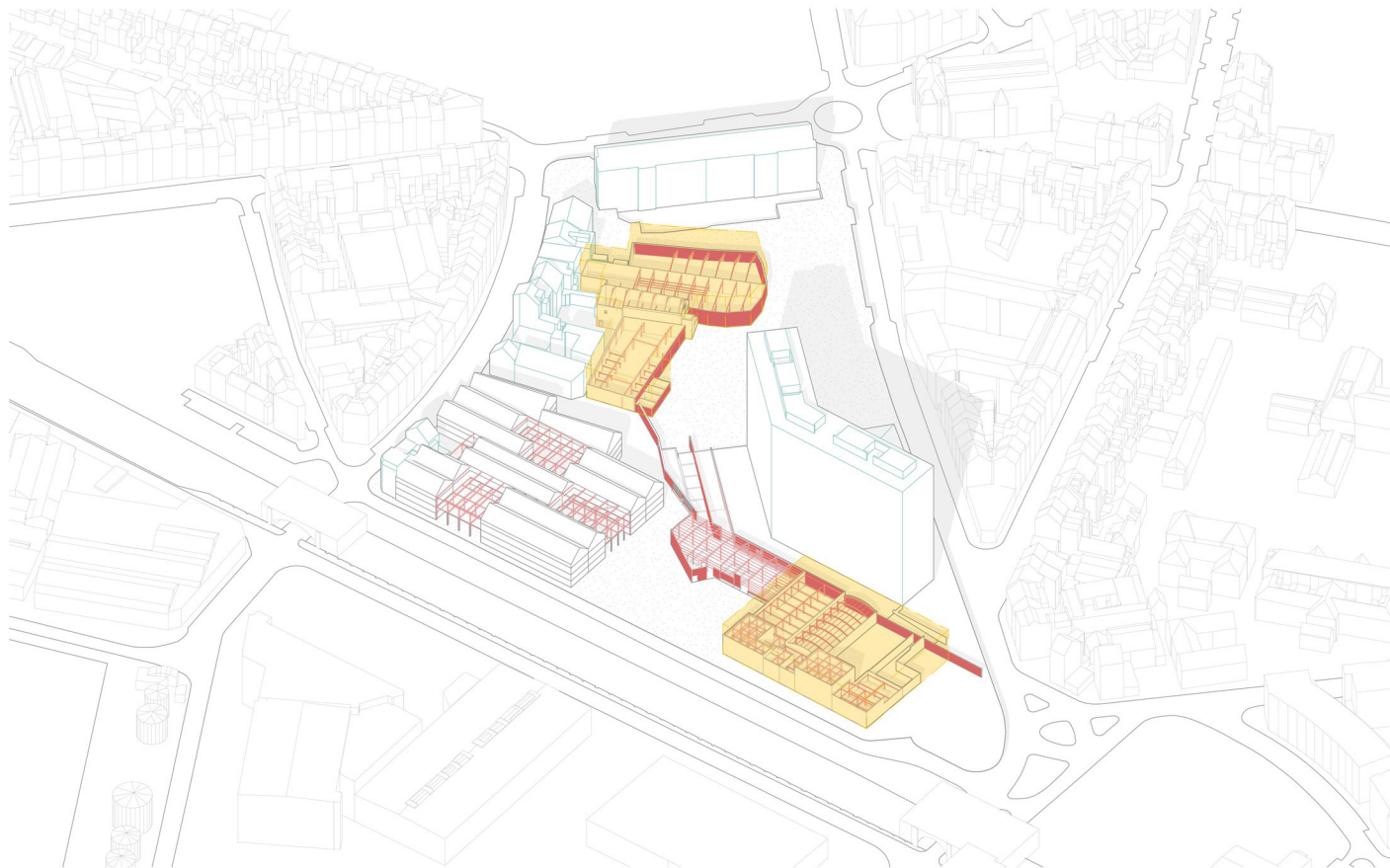


# Master plan

Urban idea

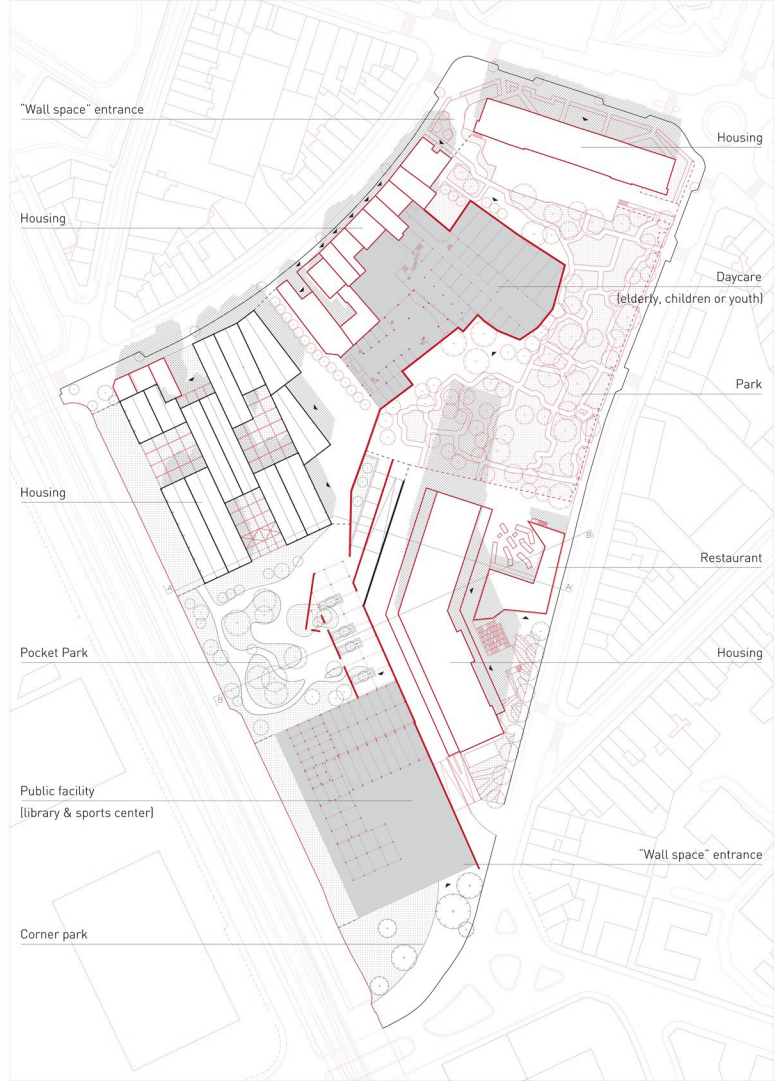
## Step 3

Public facilities are introduced to make up for the shortage of social space in this neighborhood, which is especially meaningful for low-income group.



# Master plan

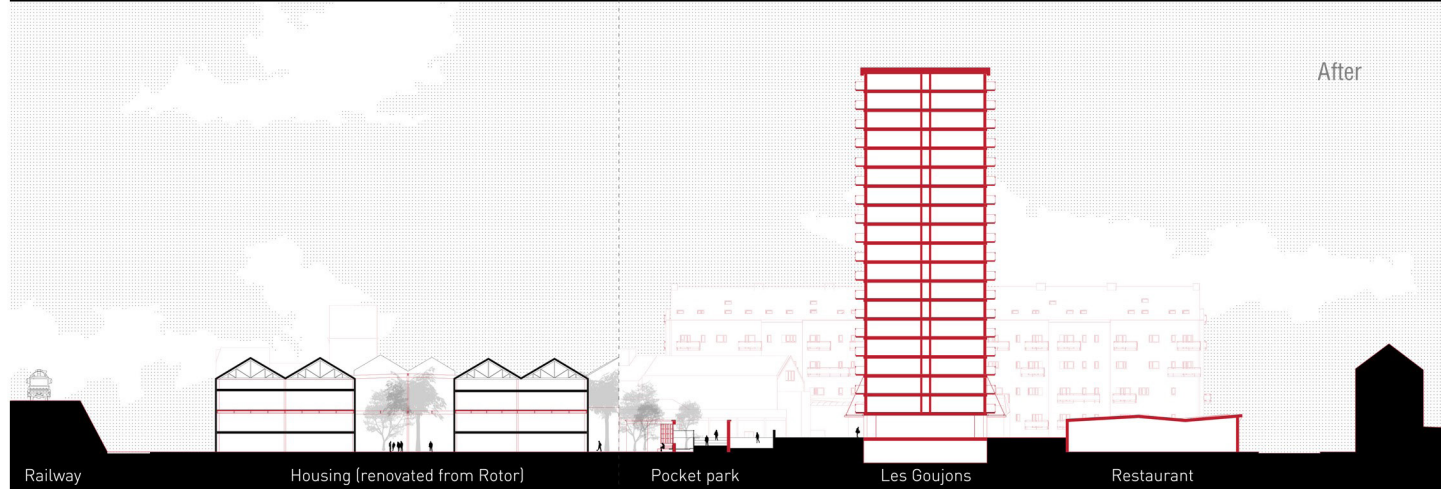
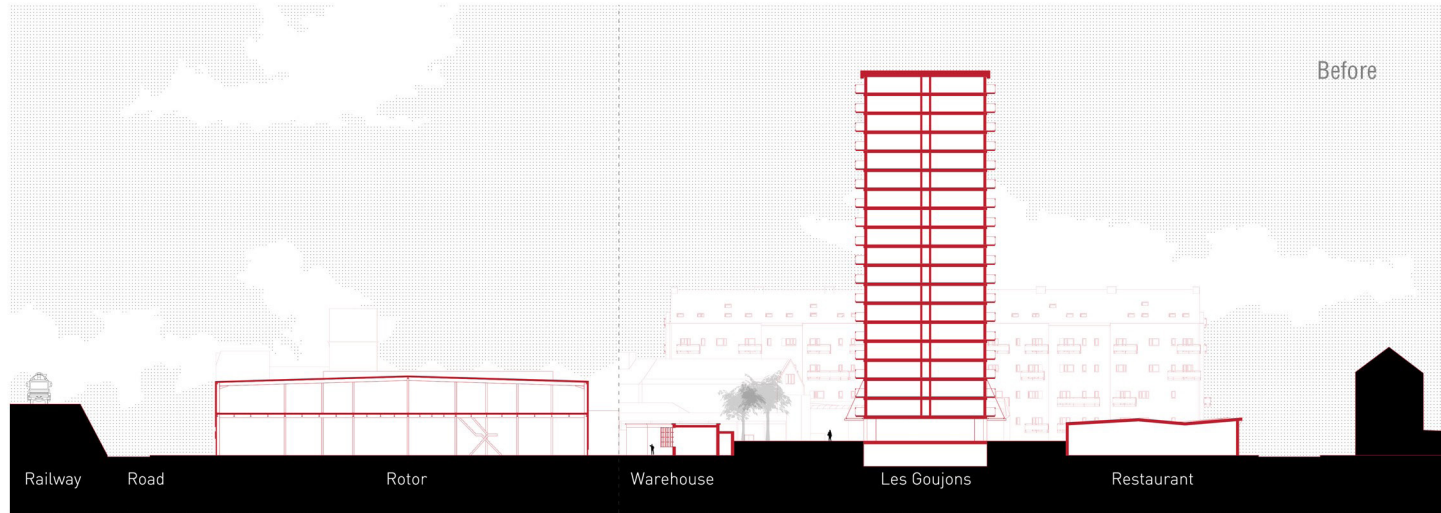
Urban idea



# Master plan

Urban idea

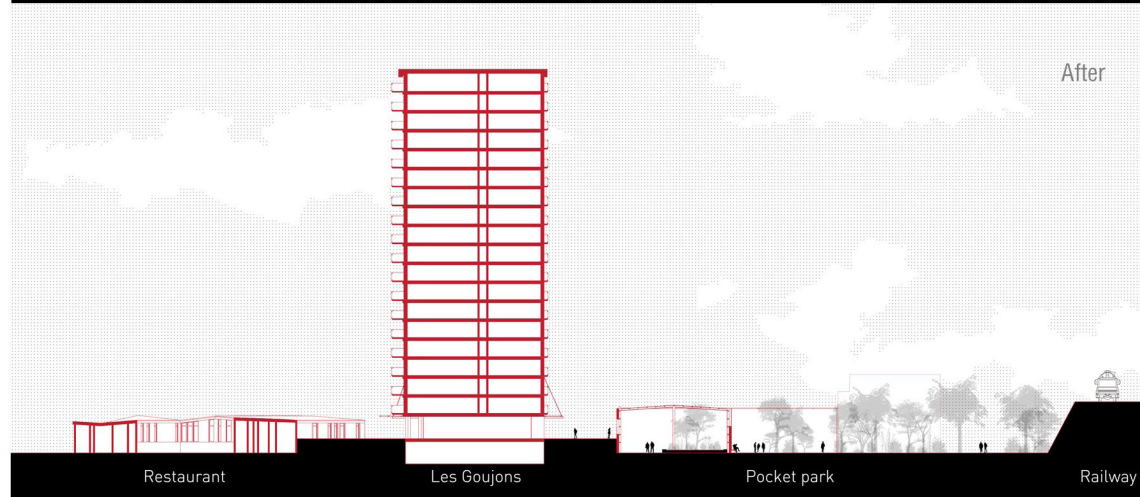
## Urban Sections



# Master plan

Urban idea

## Urban Sections





# Master plan

Urban idea

Middle part of the wall: a pocket park



Before



After

## 2 ARCHITECTURAL PROPOSAL

Community library and sports center at a street corner

# Program

Architectural proposal

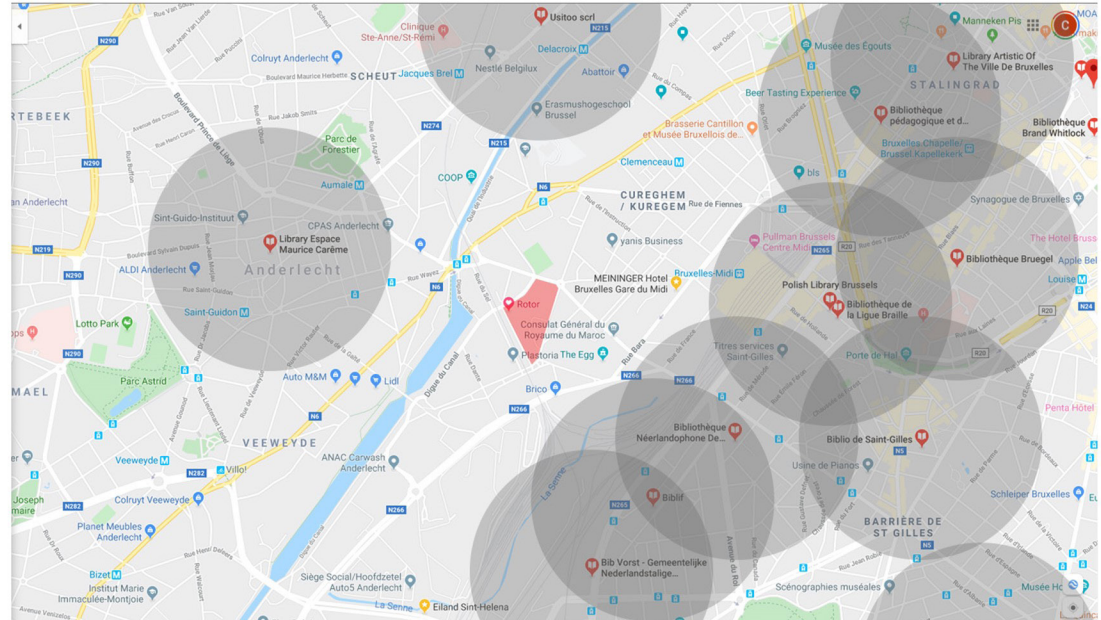
Program: a combination of a library and sports center

Public facilities owned by government can be beneficial to everyone especially those who are not rich.

Why is a combination of library & sports center?

1. The two programs can share the courtyard formed by the old wall as a common entrance.
2. An idea to have sight connection between silent activities and dynamic activities.

Library distribution in Anderlecht



Sports club in Rotor



# Street corner

Architectural proposal

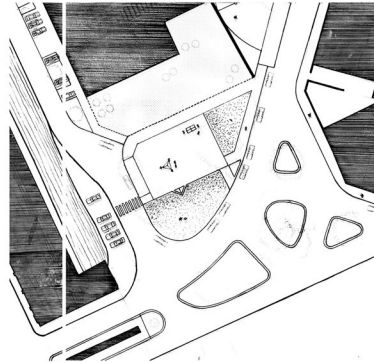
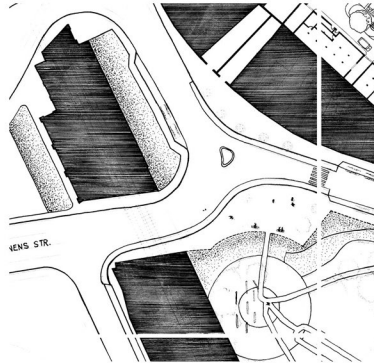
## What does a “street corner” mean?

The features of a corner:

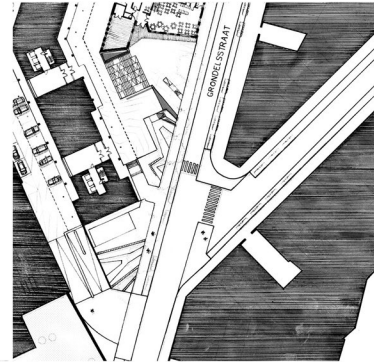
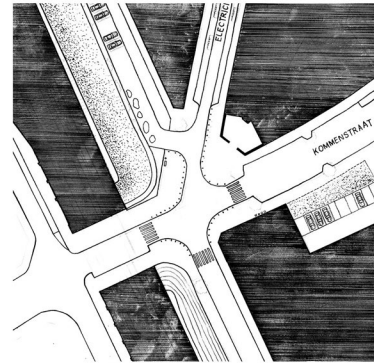
1. Enclosed by the surrounding buildings
2. Worked as an entrance/guidance to somewhere else
3. Social spaces such as small shops, bars and public buildings are always gathered at street corners

The street corner, a central place of urban life, serves as a social meeting place and represents the best opportunity to reorient the neighborhood. A well-designed urban corner creates an attractive vista and gives strong visual appeal to the streetscape.

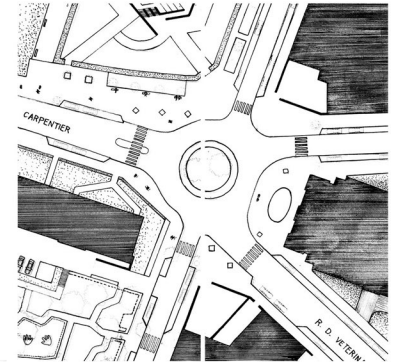
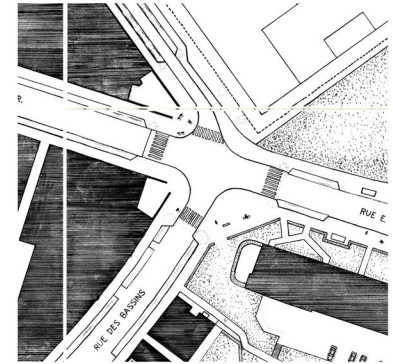
## Different types of street corner in the neighborhood



An entrance/guidance to a park



A joint in a residential area



A meeting place of shops and bars

# Street corner

Architectural proposal

## Perception of a street corner

A small shop / bar  
Continuity of the street facade

Different types of street corner in the neighborhood



An entrance/guidance to a park

A joint in a residential area

A meeting place of shops and bars

# Street corner

Architectural proposal

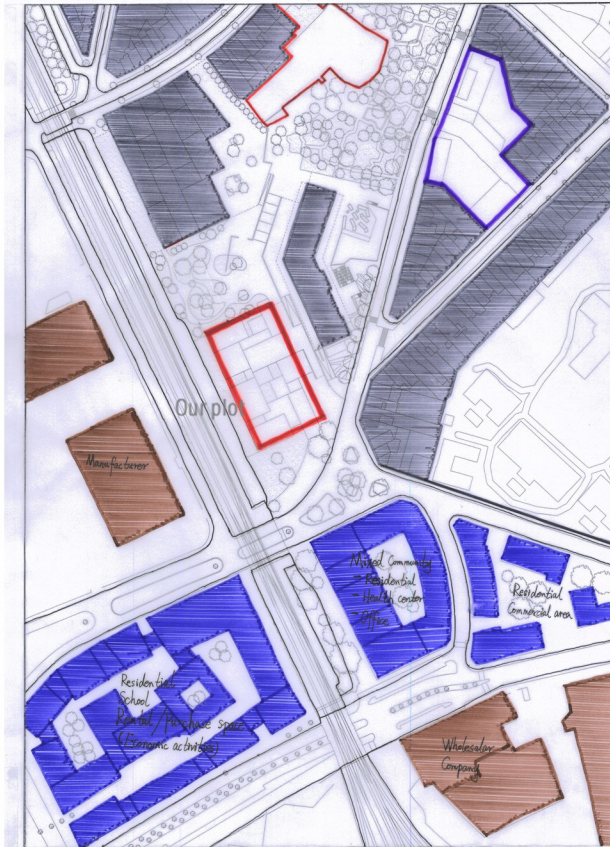
Why the “street corner” meaning is important?

It refers to the main users of the corner building.

The newly built complexes with various facilities inside: for rich people

My corner building as a public facility: mainly for residents living in our plot

Functions of the surrounding buildings



1. At current situation, the street corner is almost an end without street life.
2. Considering the future planning of the surrounding, the street corner will be front and facing a bustling street.
3. The potential of different groups of people who will use the street corner.

- Housing
- Mixed community
- Industry
- Public facility
- Newly added building



New residential complexes opposite the corner

Information source:

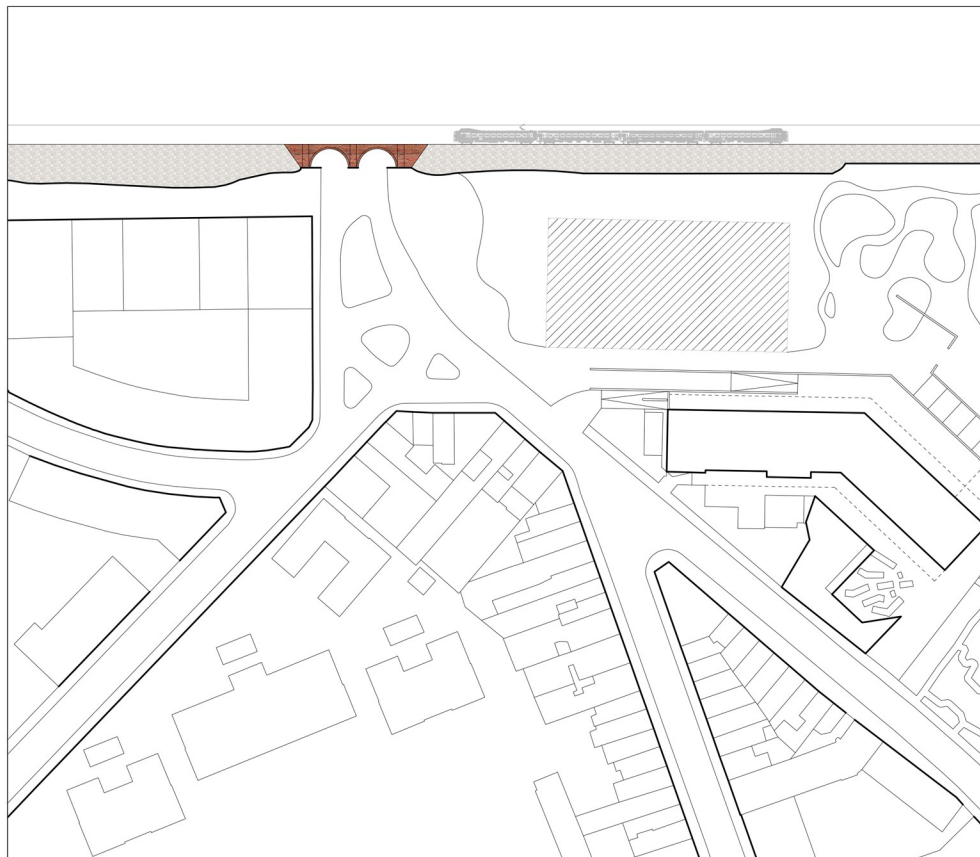
<https://www.citydev.brussels/nl>

# Street corner

Architectural proposal

Why the “street corner” meaning is important?

When look at the street corner in an urban context, it can be seen from many directions

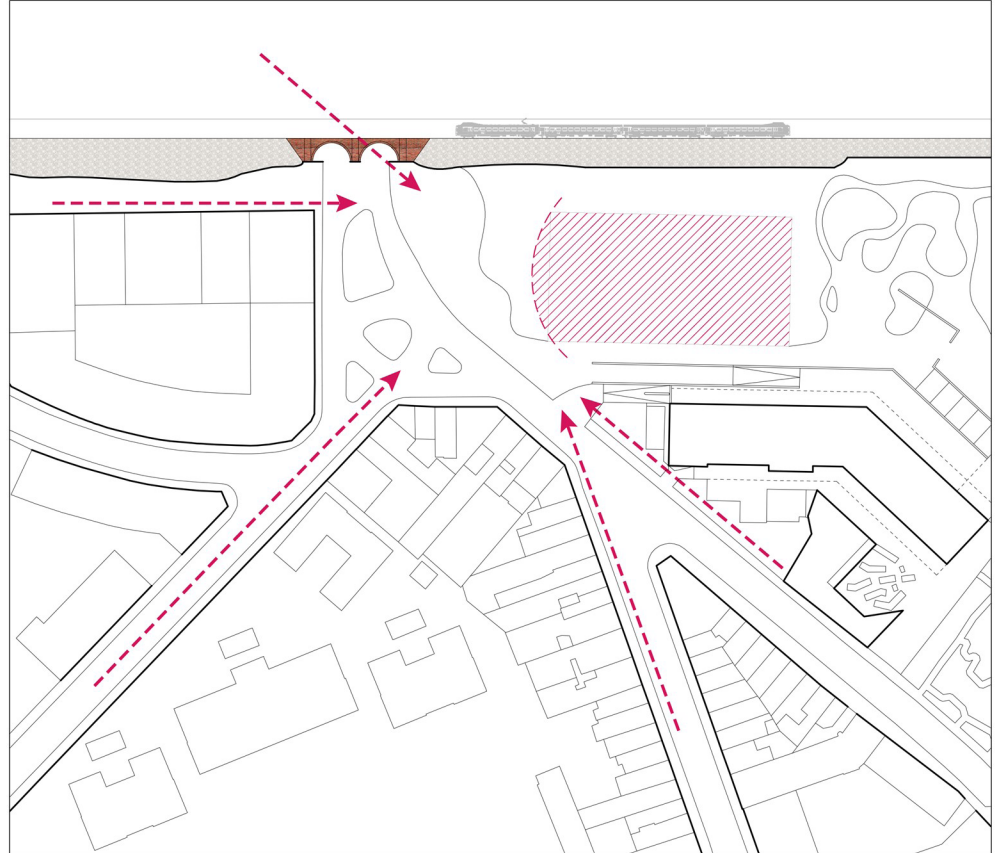


# Street corner

Architectural proposal

Why the “street corner” meaning is important?

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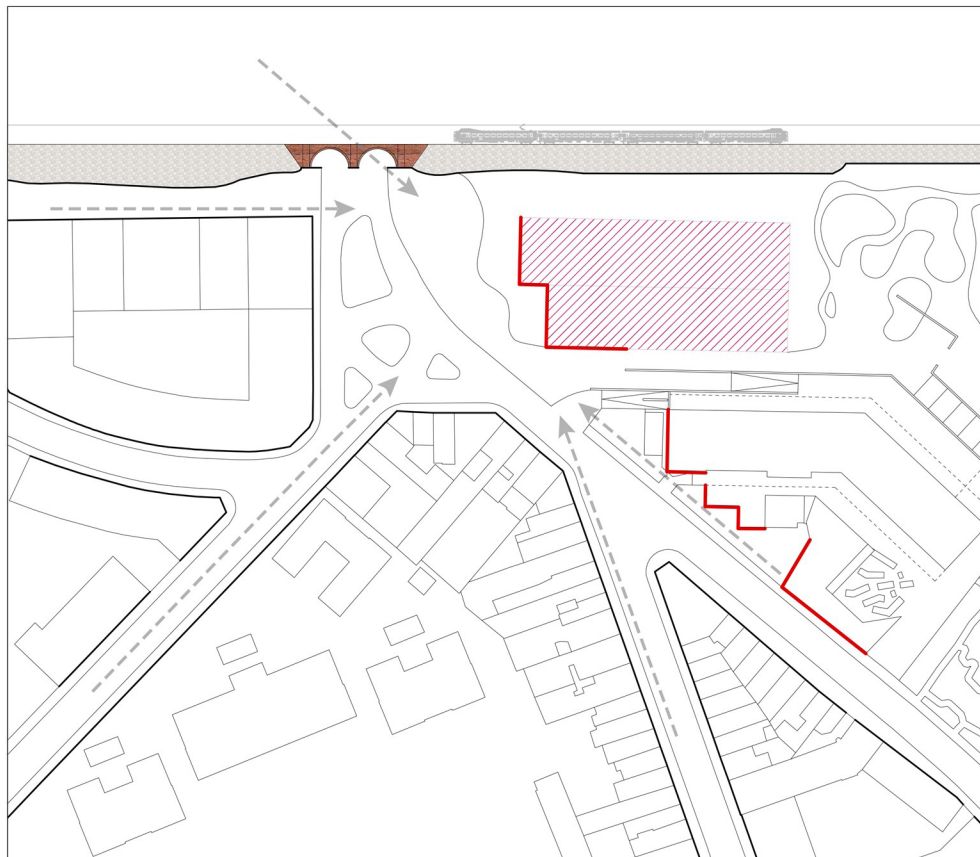


# Street corner

Architectural proposal

## Street corner in an urban context

Follow the serrate pattern from Les Goujons to keep a continuous streetscape.

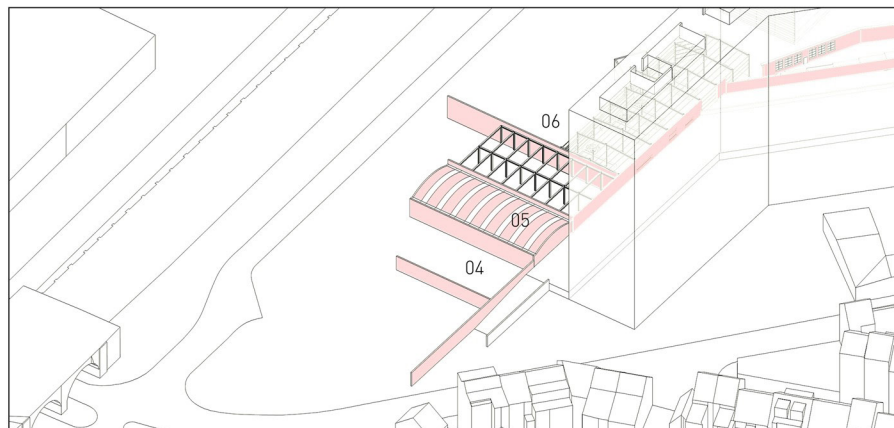
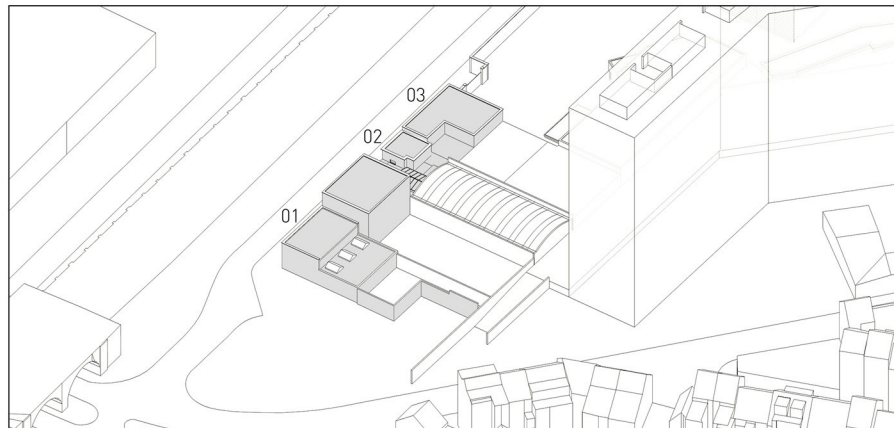


# Wall as spolia

Architectural proposal

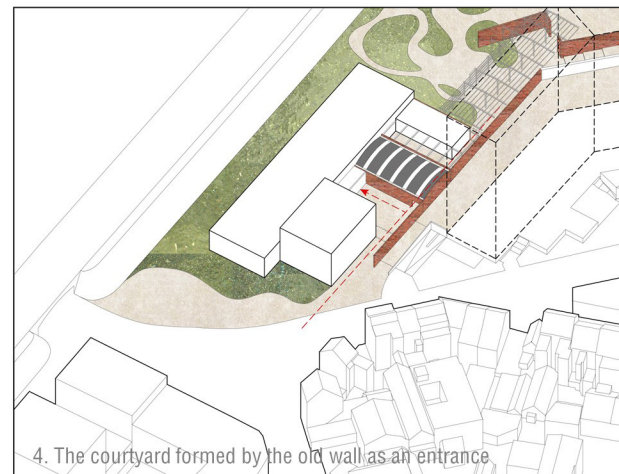
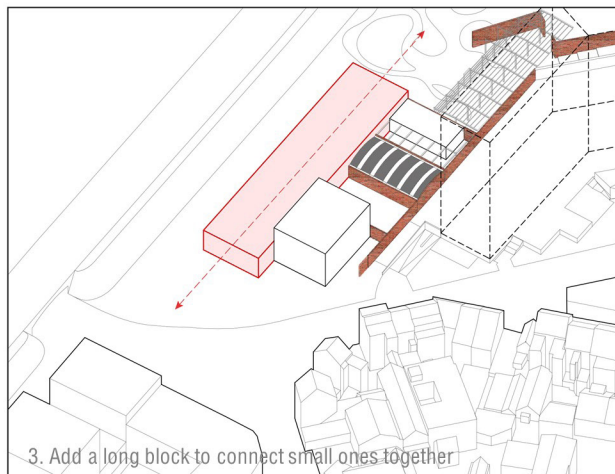
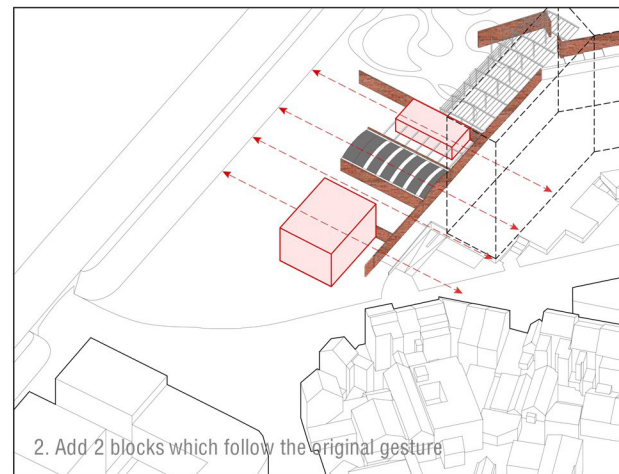
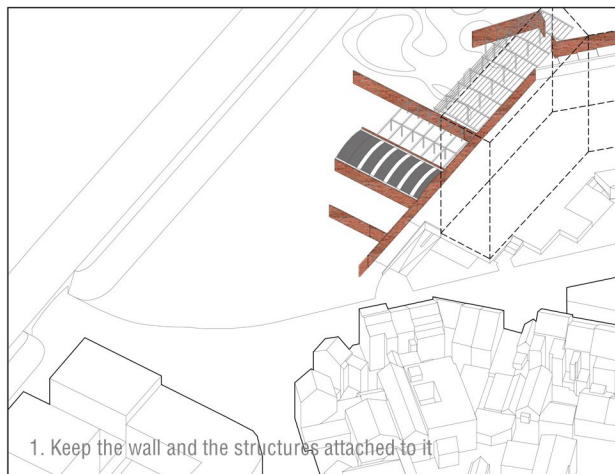
## Spolia in architectural level

Grey: demolished part  
Red: kept part



# Volume design

Architectural proposal



# Process draft model

Architectural proposal



Version1



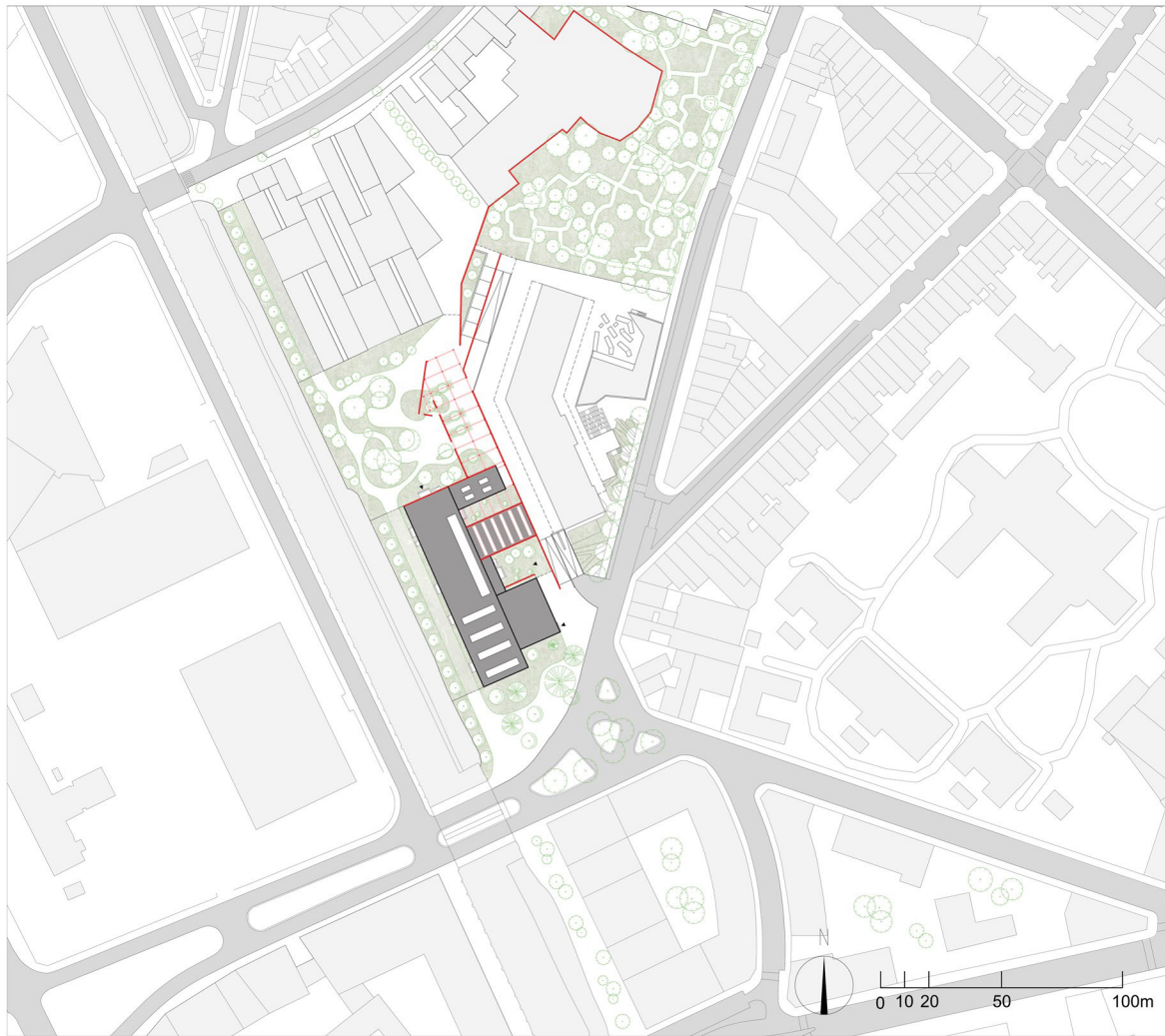
Version2



Version3

# General layout

Architectural drawings



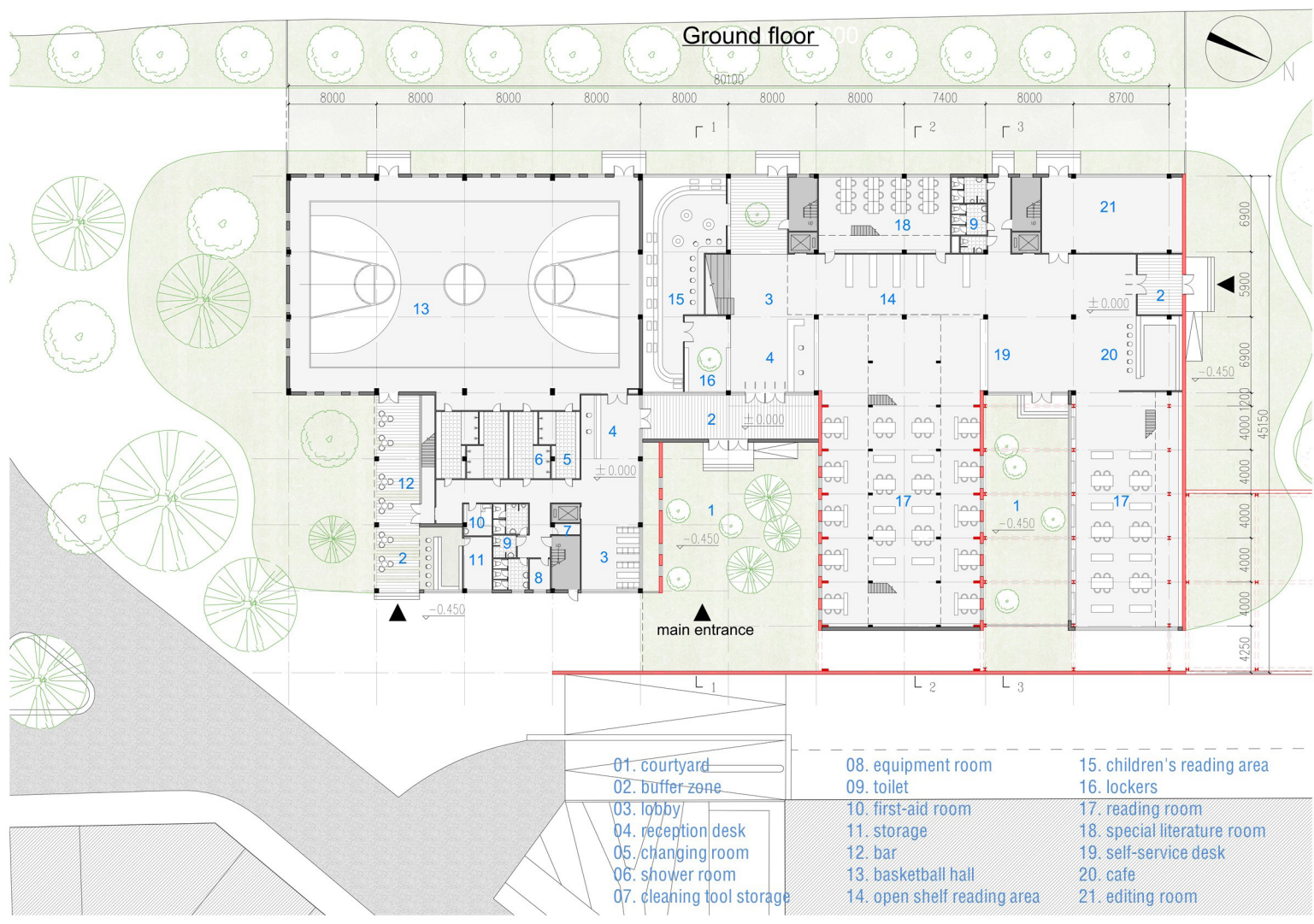
# Plan

Architectural drawings

## Logic of the plan

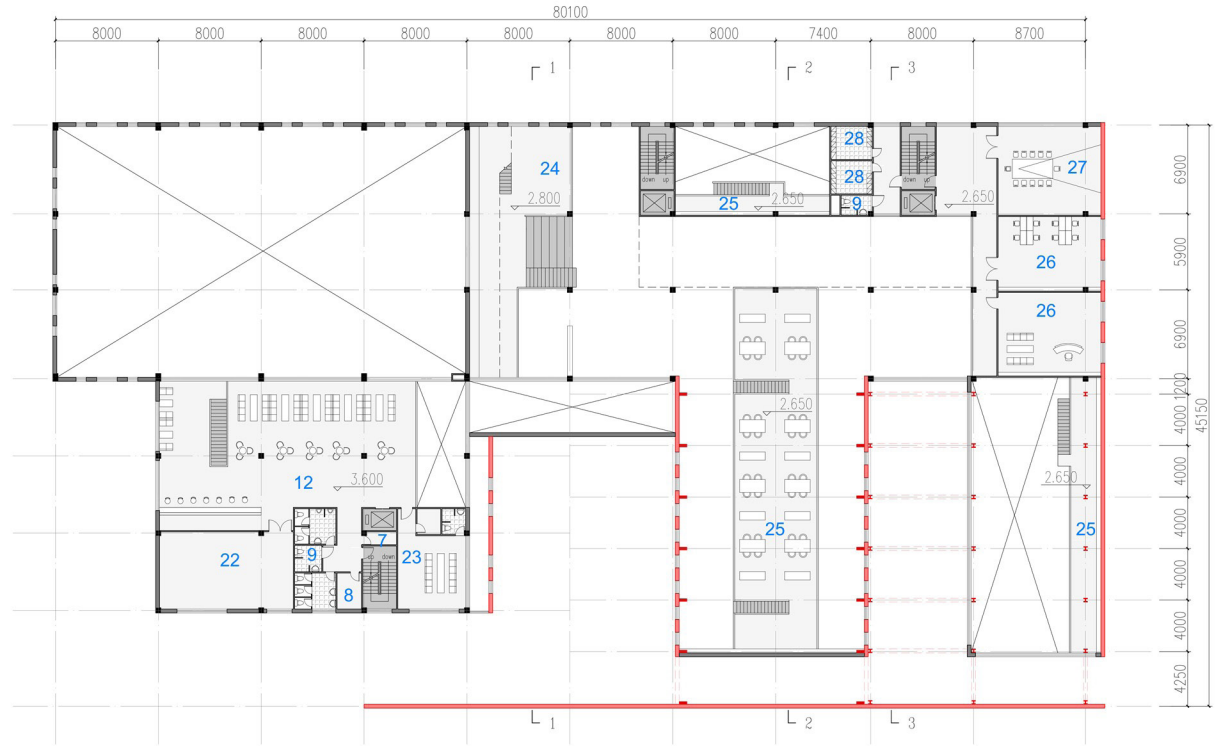
Red: the existing wall & structure  
 Black: new structure  
 Dark grey: the staircases and elevators

1. Entrance: A Courtyard works as the shared main entrance. Both the library and the sports center have its own secondary entrance so they can open separately.
2. Function arrangement: Reading areas, which have a higher requirement of silence, are placed near Les Goujons to avoid noise from the railway.
3. Sight connection between the 2 programs.



- |                           |                             |                             |
|---------------------------|-----------------------------|-----------------------------|
| 01. courtyard             | 08. equipment room          | 15. children's reading area |
| 02. buffer zone           | 09. toilet                  | 16. lockers                 |
| 03. lobby                 | 10. first-aid room          | 17. reading room            |
| 04. reception desk        | 11. storage                 | 18. special literature room |
| 05. changing room         | 12. bar                     | 19. self-service desk       |
| 06. shower room           | 13. basketball hall         | 20. cafe                    |
| 07. cleaning tool storage | 14. open shelf reading area | 21. editing room            |

## First floor



- |                           |                        |
|---------------------------|------------------------|
| 07. cleaning tool storage | 24. light reading area |
| 08. equipment room        | 25. mezzanine platform |
| 09. toilet                | 26. office             |
| 12. bar                   | 27. conference room    |
| 22. kitchen               | 28. staff locker room  |
| 23. private room          |                        |

**Second floor**

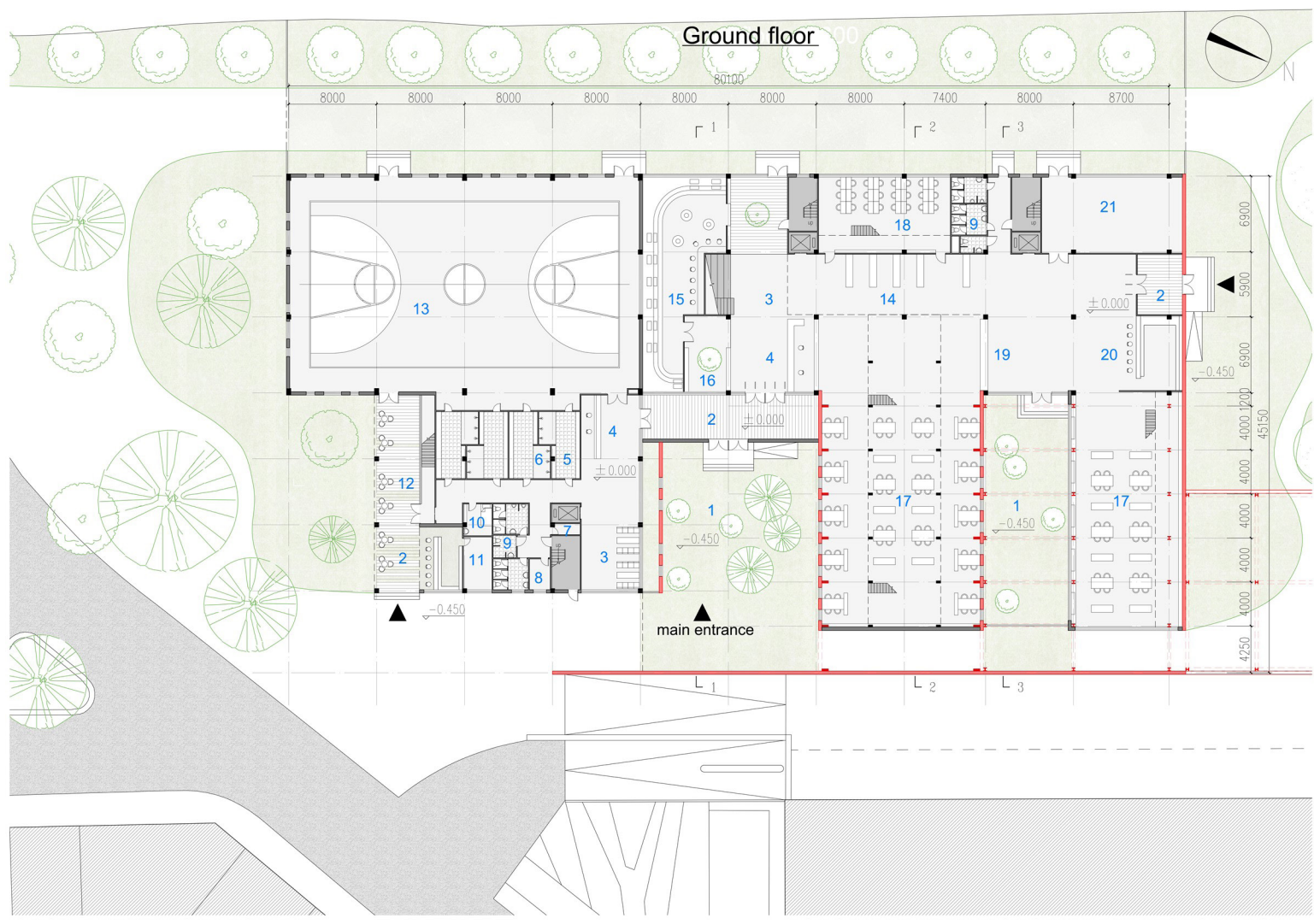


**Third floor**



# Plan

Architectural drawings



# Plan

Architectural drawings





archway of railway bridge



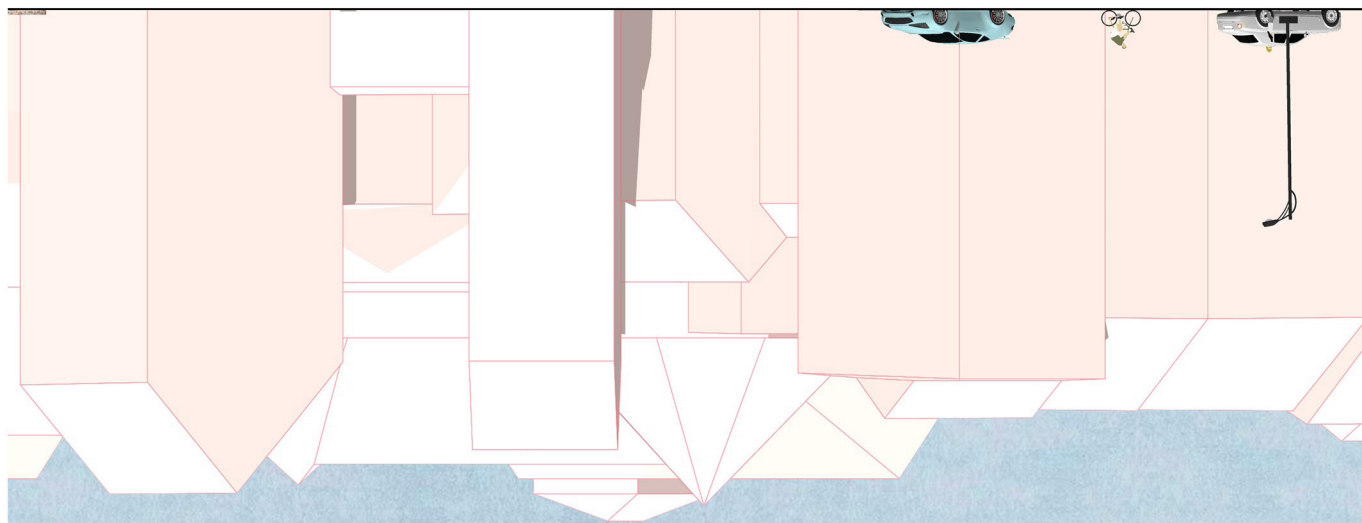
# Plan

Architectural drawings



corner park

corner bar



# Plan

Architectural drawings



corner park

corner bar

lobby on the ground floor

entrance garden



# Plan

Architectural drawings



lobby on the ground floor

entrance garden

poster wall

green plant wall



# Plan

Architectural drawings

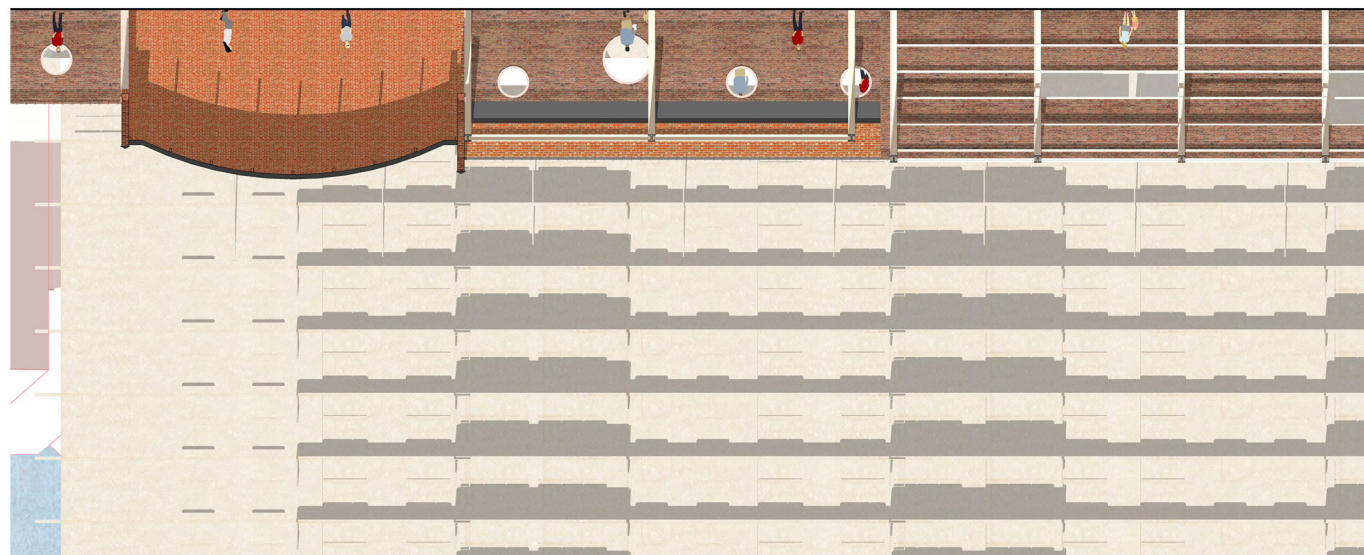


poster wall

green plant wall

reading room

pocket park (renovated)



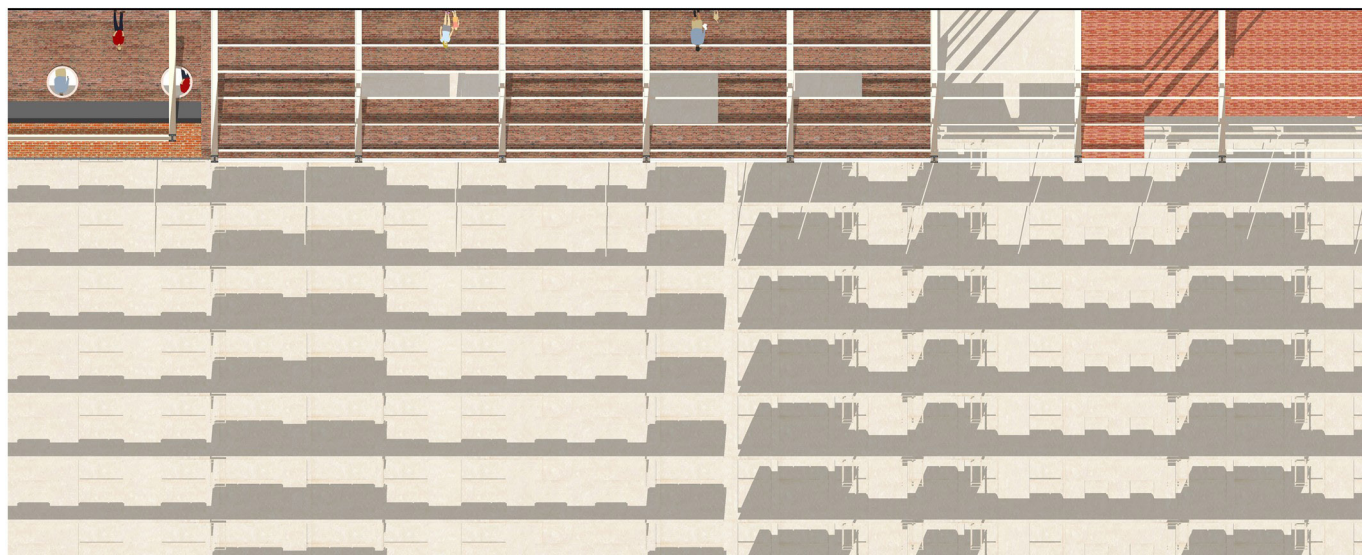
# Plan

Architectural drawings

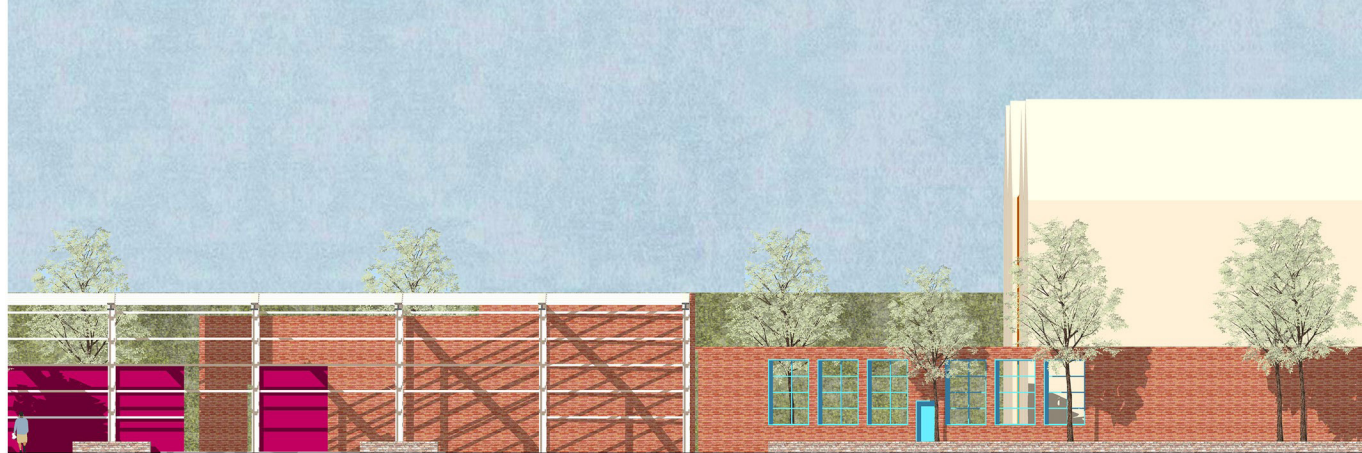


reading room

pocket park (renovated from the warehouse and the storage yard)

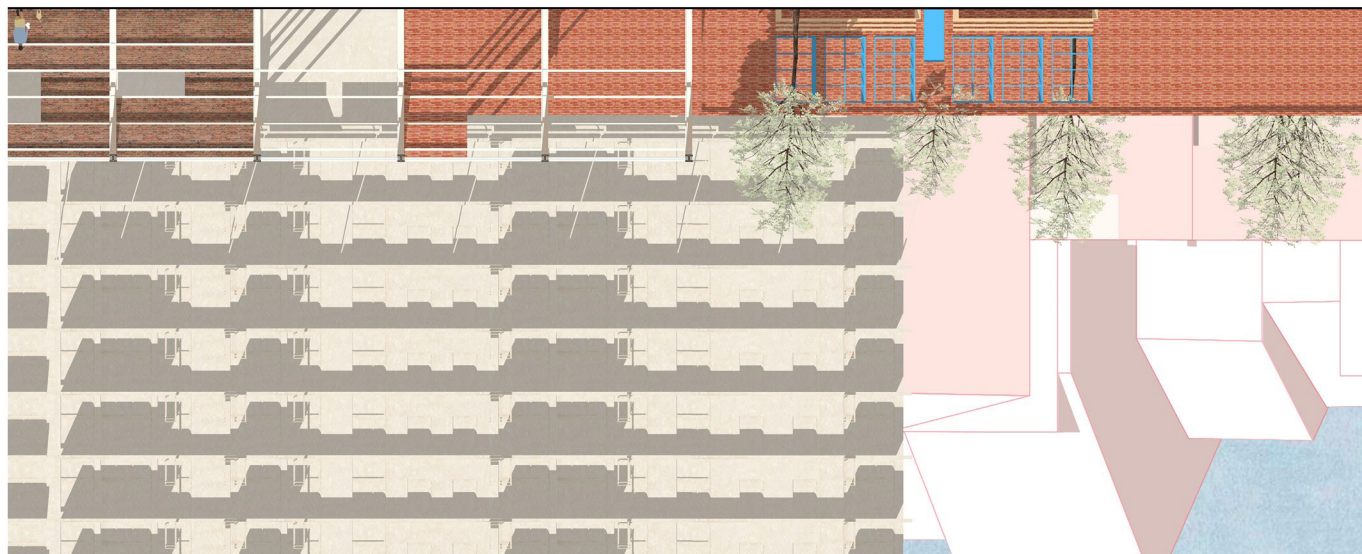






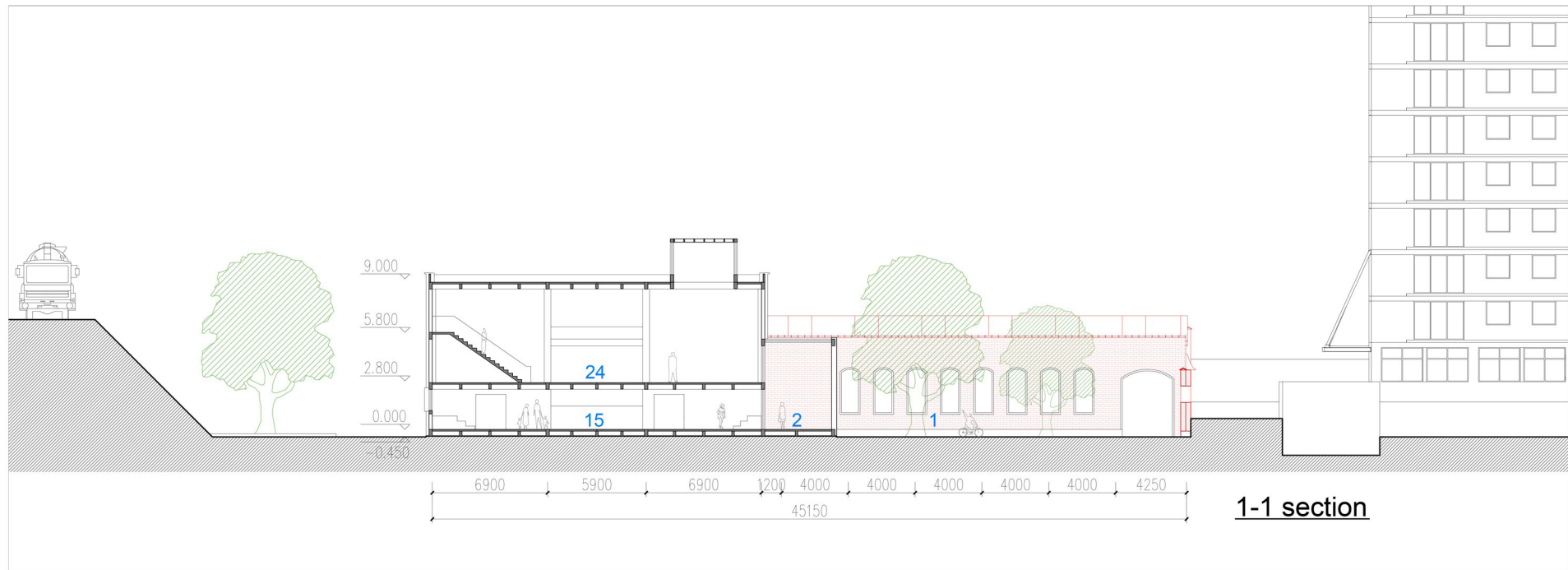
from the warehouse and the storage yard)

house (renovated from Rotor)

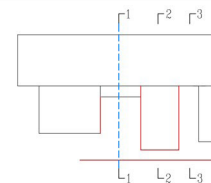


# Section

Architectural drawings

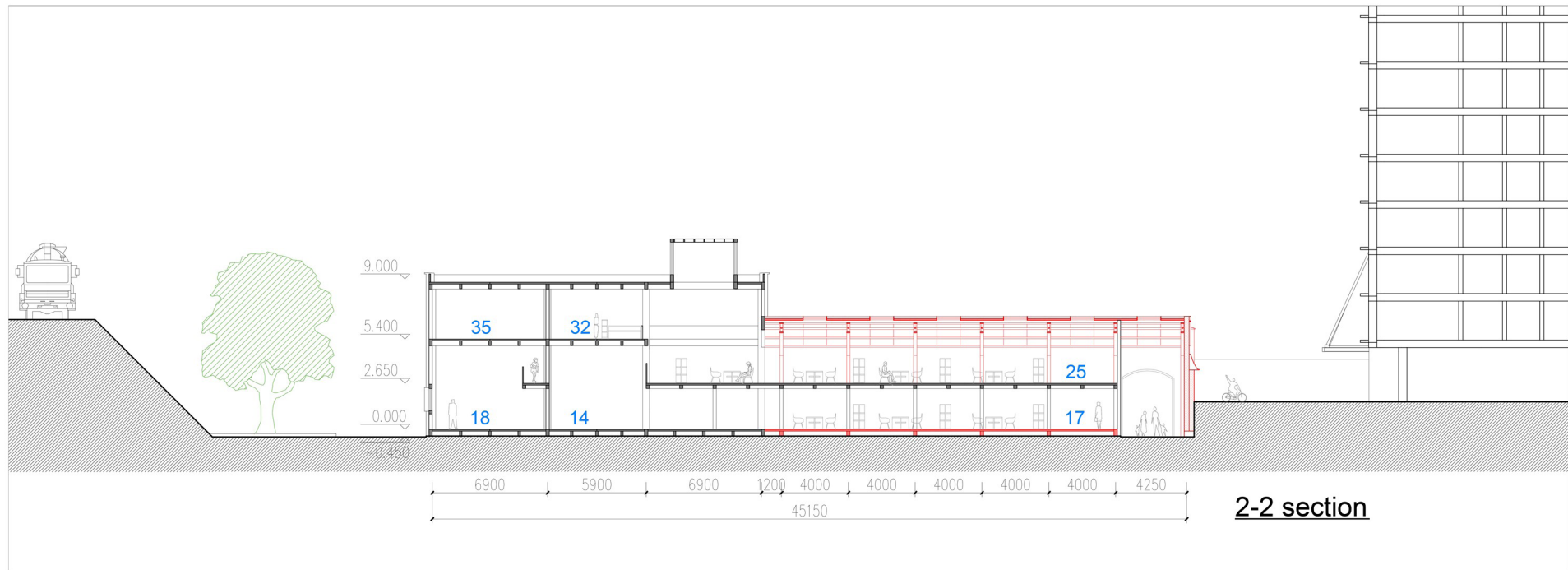


- 01. courtyard
- 02. buffer zone
- 15. children's reading area
- 24. light reading area



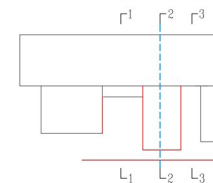
# Section

Architectural drawings



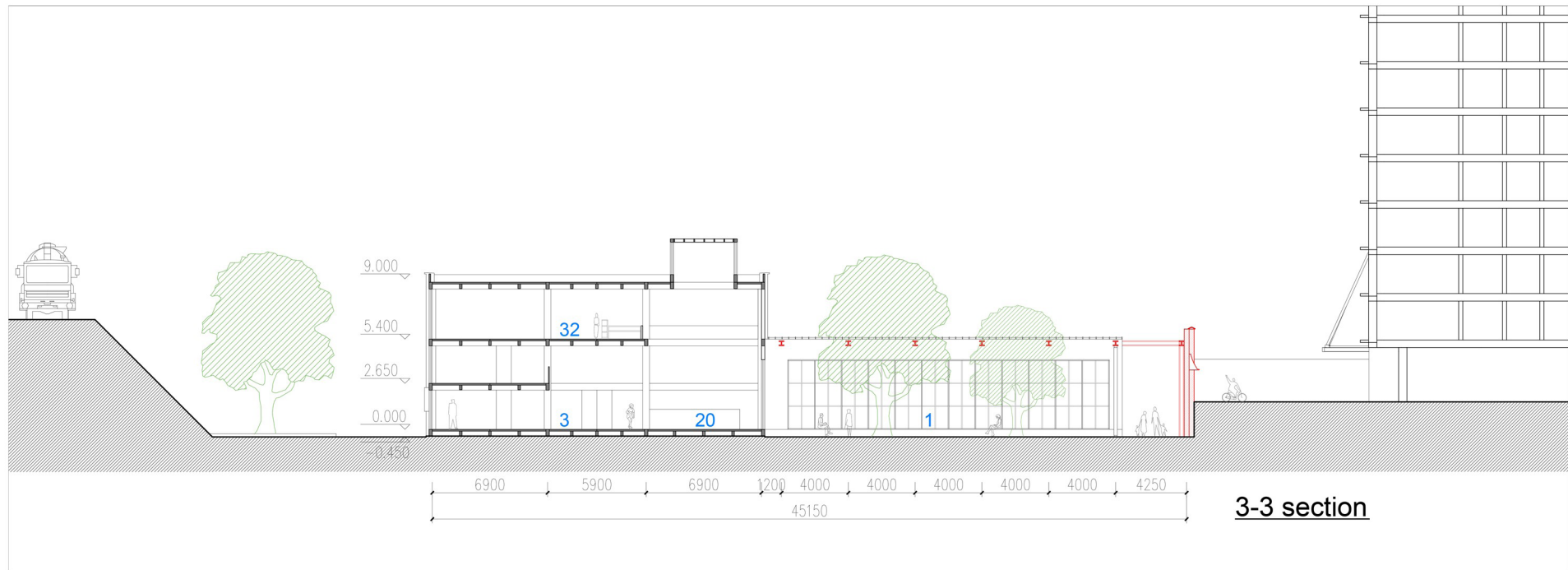
**2-2 section**

- 14. open shelf reading area
- 17. reading room
- 18. special literature room
- 25. mezzanine platform
- 32. self-study area
- 35. discussion room

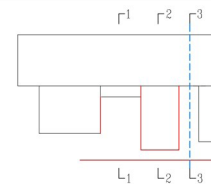


# Section

Architectural drawings



- 01. courtyard
- 03. lobby
- 20. Café
- 32. self-study area

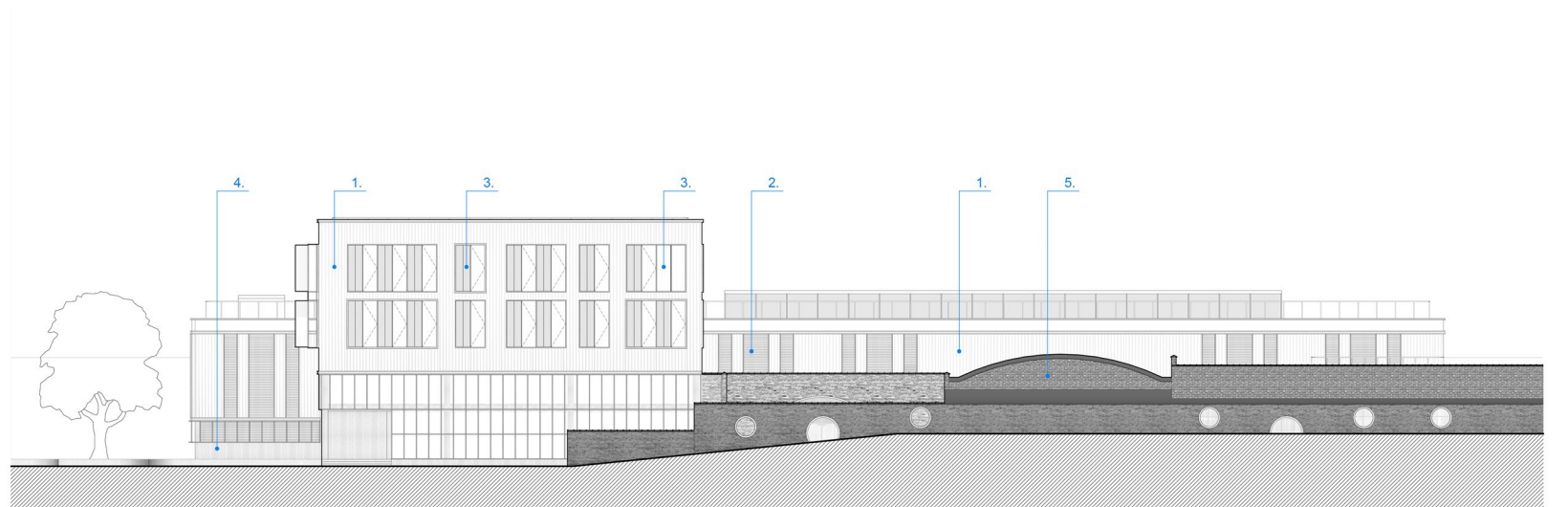


# 3 MATERIALISATION

Refurbishment of corrugated aluminum panel

# Facade

## Materialisation



0 5 10 20m

- 01. Corrugated aluminum panel (from Rotor)
- 02. Aluminum louver
- 03. Perforated aluminum panel
- 04. Wooden panel
- 05. Existing brick wall

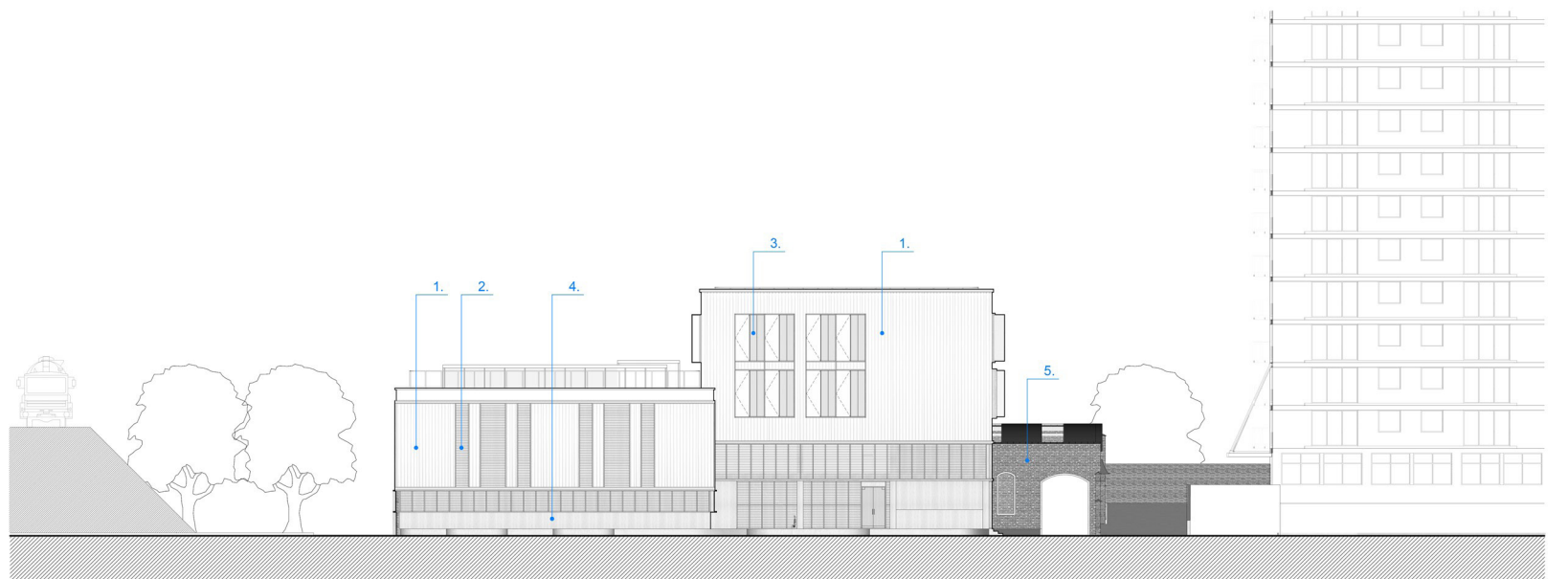
# Facade

## Materialisation



# Facade

## Materialisation



0 5 10 20m

- 01. Corrugated aluminum panel (from Rotor)
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# Facade

## Materialisation



# Refurbishment of aluminum panel

Materialisation

## New construction



Aluminum



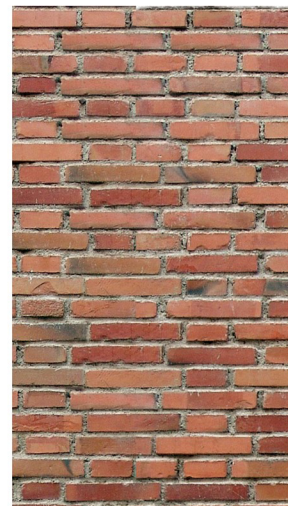
Facade

Wood



Frame structure  
Interior surface

## Existing construction



Brick



Old wall

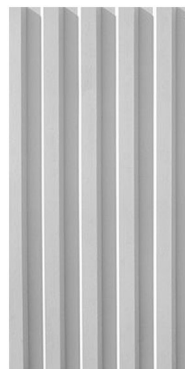


Steel

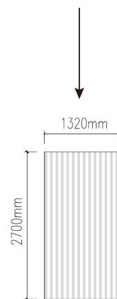


Existing structure

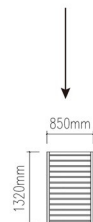
## Aluminum components



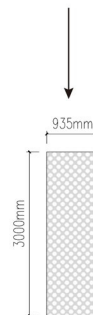
Corrugated aluminum panel



Aluminum louver

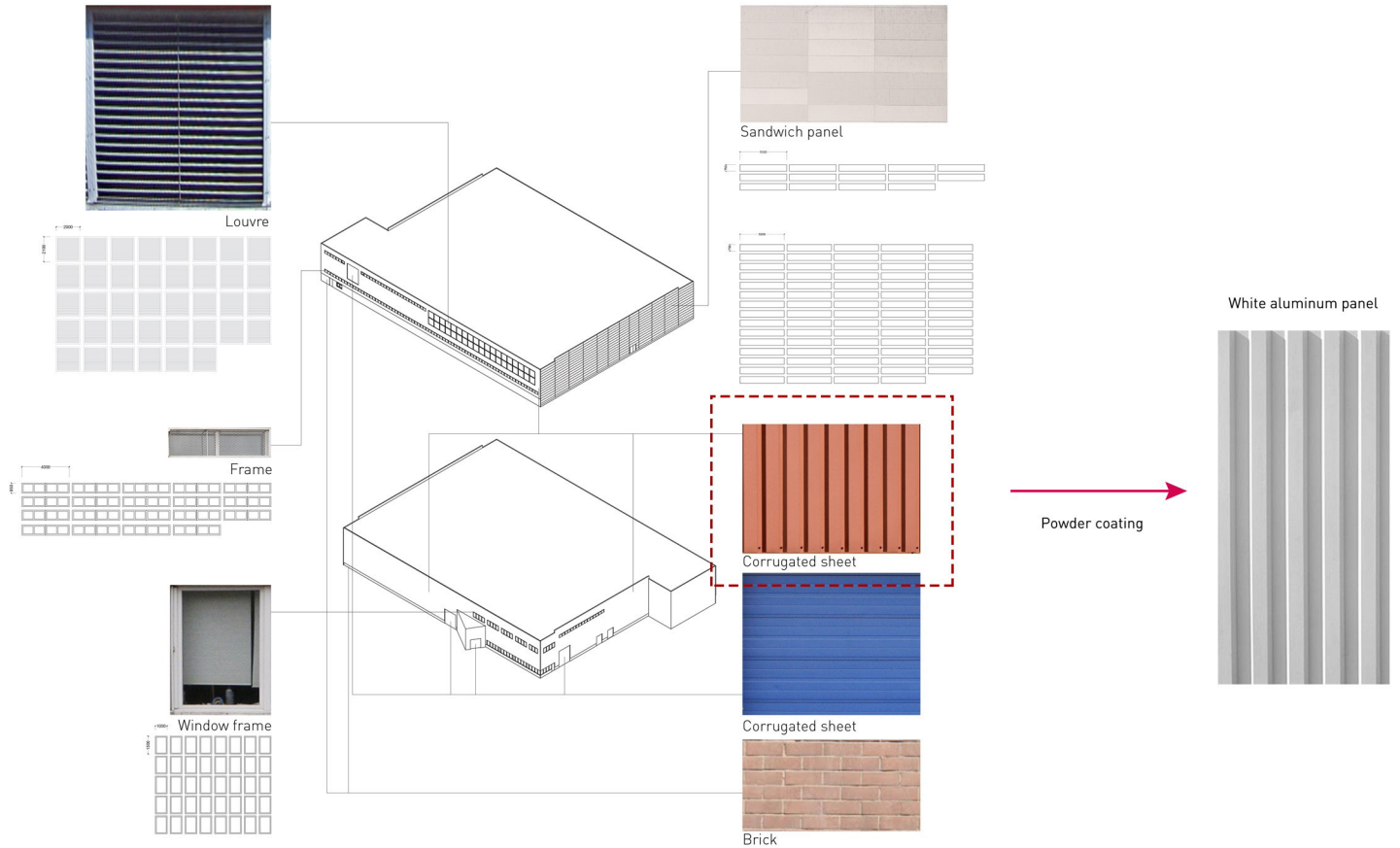


Perforated aluminum panel



- 01. Corrugated aluminum panel
- 02. Aluminum louver
- 03. Perforated aluminum panel

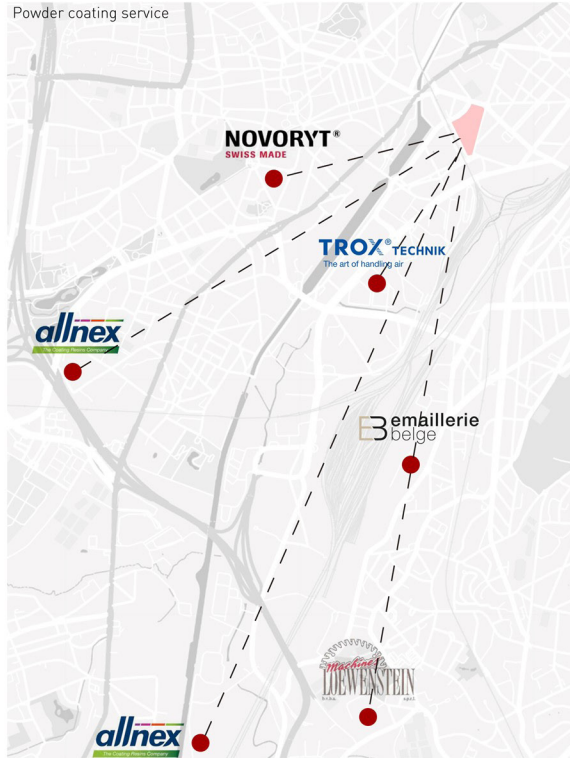
## Reuse corrugated aluminum panels from Rotor



## Process of refurbishment : powder coating

The reference photos are from Ritver Paints & Coatings Company and Fonnov Aluminum Company

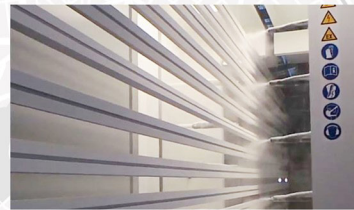
Powder coating service



1. Physically clean the surface



2. Dip pretreatment in water tank



3. Powder coating



4. Heat aluminum profiles in the curing oven



5. Dry and cool



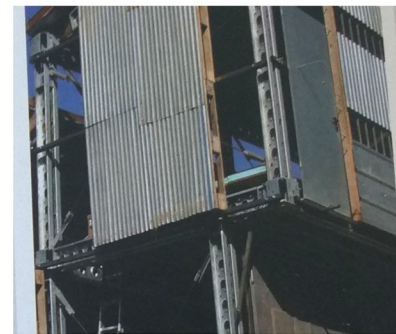
6. Cut and assemble in size

## Case: Cladding reused from industrial typologies

Headquarters of the asociación aula abierta, Granada, Spain

Source: Alejandro Bahamón, *rematerial: from waste to architecture*, p260-261

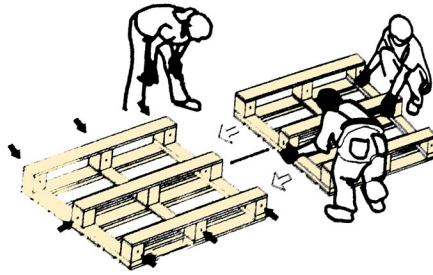
Reuse discarded "metal for plank molds + metal sheeting + doors + windows + plastic + steel edging + pallets" from a dismantled factory



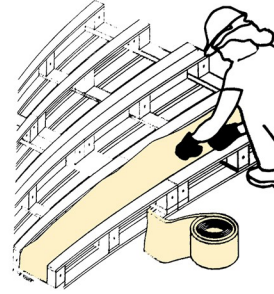
## Case: cladding reused from industrial typologies

Diagram of the recycling of the pallets and aluminum sheets.

Source: The diagram is redrawn from Alejandro Bahamón, *rematerial: from waste to architecture*, p260-261



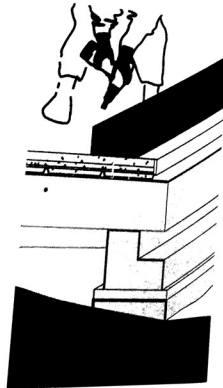
1. The pallets are grouped together with coiled rods to create the total area of the wall.



2. Rock-wool insulation is placed in the gaps in the pallets.



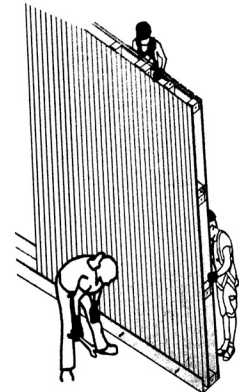
3. The corrugated aluminum sheeting is placed on top of the pallet structure.



4. Holes are drilled in order to insert a beam that acts as a support for the wall.



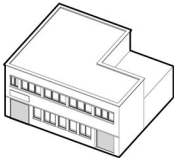

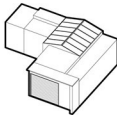

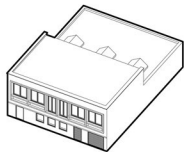



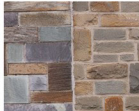

5. The walls are put up and placed in their new site.



### Reuse bricks from the demolished warehouses

The amount and size of those bricks from the demolished warehouses are various. They are suitable in reusing as the components of small landscape elements, such as pavement, flowerbed, benches and other infrastructures.



building					
material					



### Case: bricks reused for infrastructure and landscape elements

Bricks for reuse in a project that links infrastructure to public space, Parc Albert I. Reusable bricks ("klampsteen" hand-molded, 18 x 5cm): 60,000 pieces, from Van Huele.

Source: The photos is from <https://opalys.eu/fr/projets/parc-albert-i>

1. Barrier



2. Stages and pavement

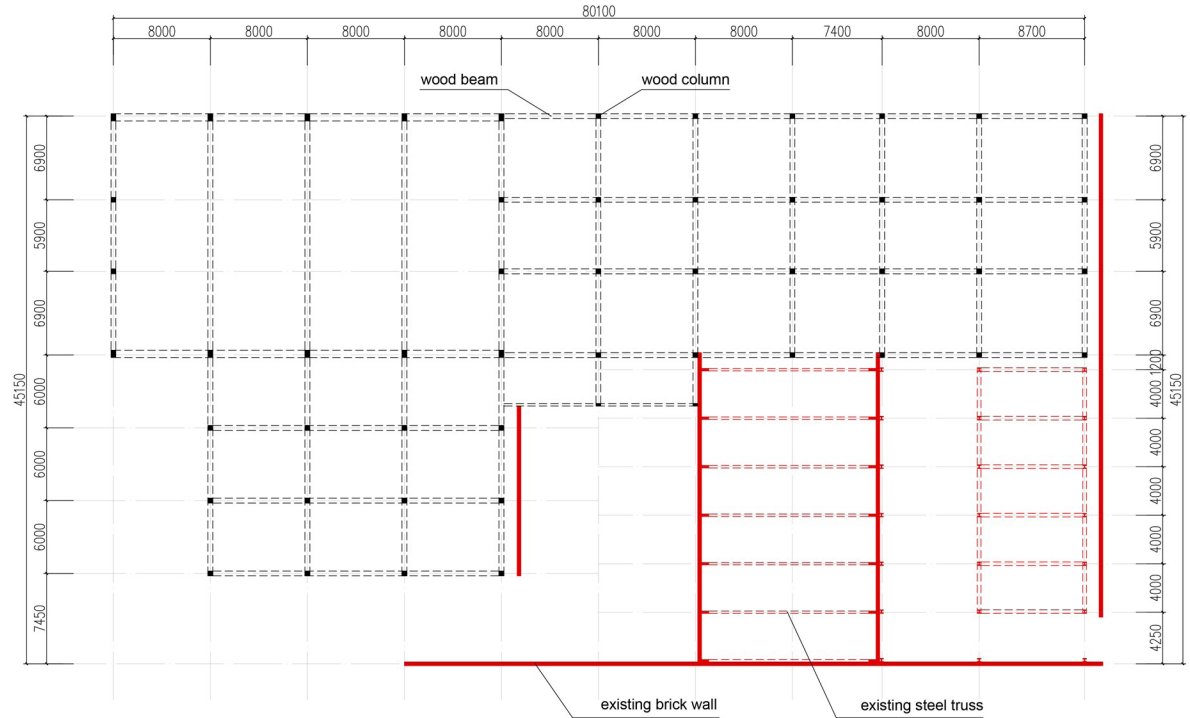


3. Flowerbed



# 4 BUILDING TECHNOLOGY

## Structure plan



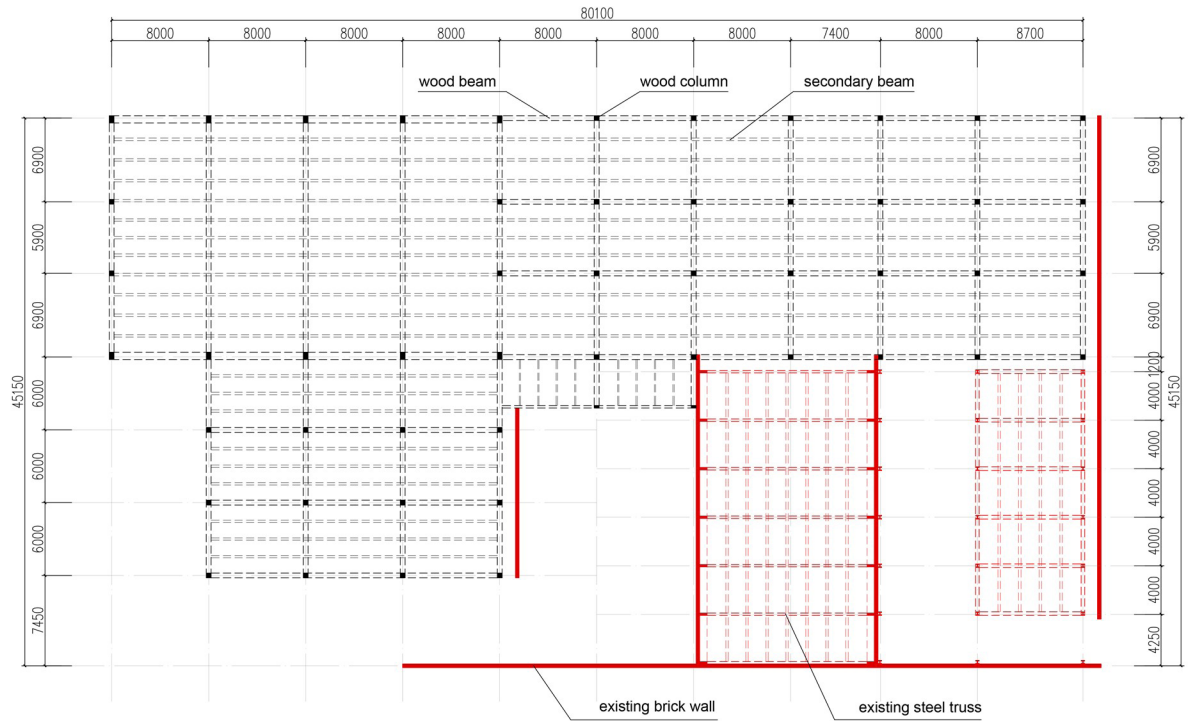
Black part: new wooden frame  
Span: 6-8m

Red part: old steel truss + old brick wall

# Structure

Building technology

Structure plan



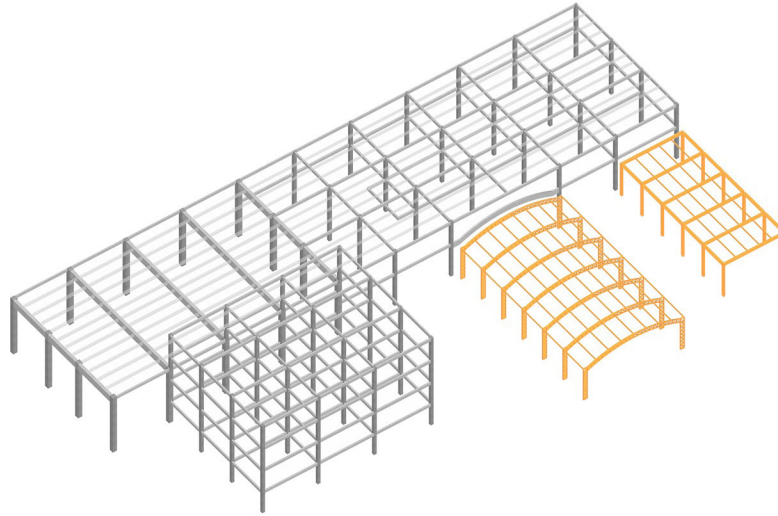
Black part: new wooden frame  
(with secondary beams)

Span: 6-8m

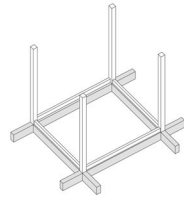
Red part: old steel truss + old brick wall  
(with secondary beams)

Diagrams of the assembling of a wooden frame unit:

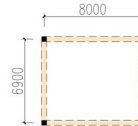
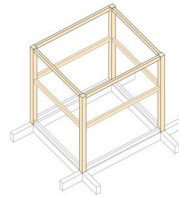
1. the concrete foundation as the base
2. the columns and main beams are connected through steel connectors and screws
3. secondary beams are added to support the laminated wooden floor
4. the nonbearing wall is attached to the frame structure



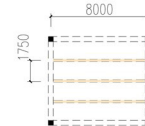
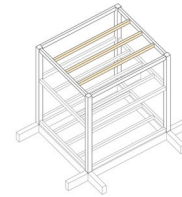
Concrete foundation



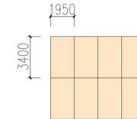
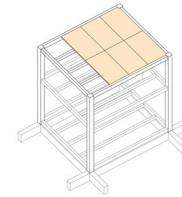
Main beam



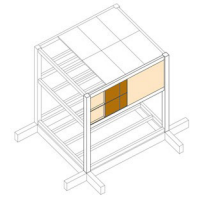
Secondary beam



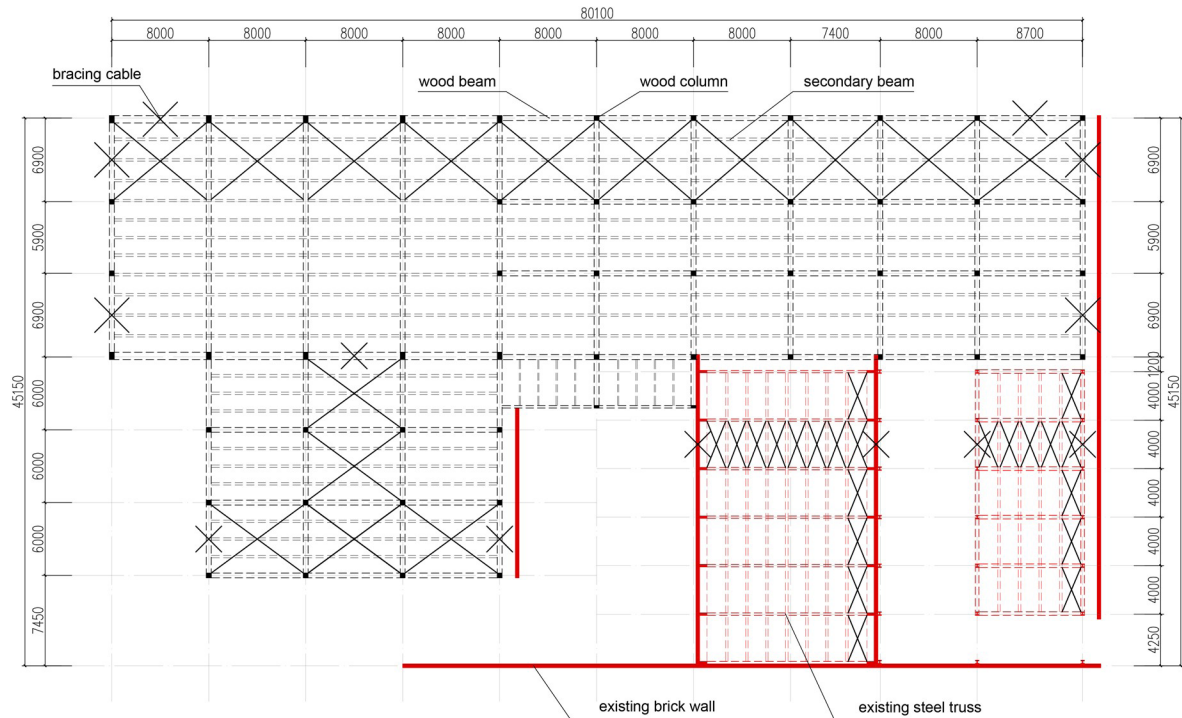
Laminated wooden floor



Nonbearing wall



## Structure plan



Stability:

Location of the bracing cables in plan

Logic of the bracing cables' location:

Divide the building into 4 parts(volumes) and consider them separately

# Structure

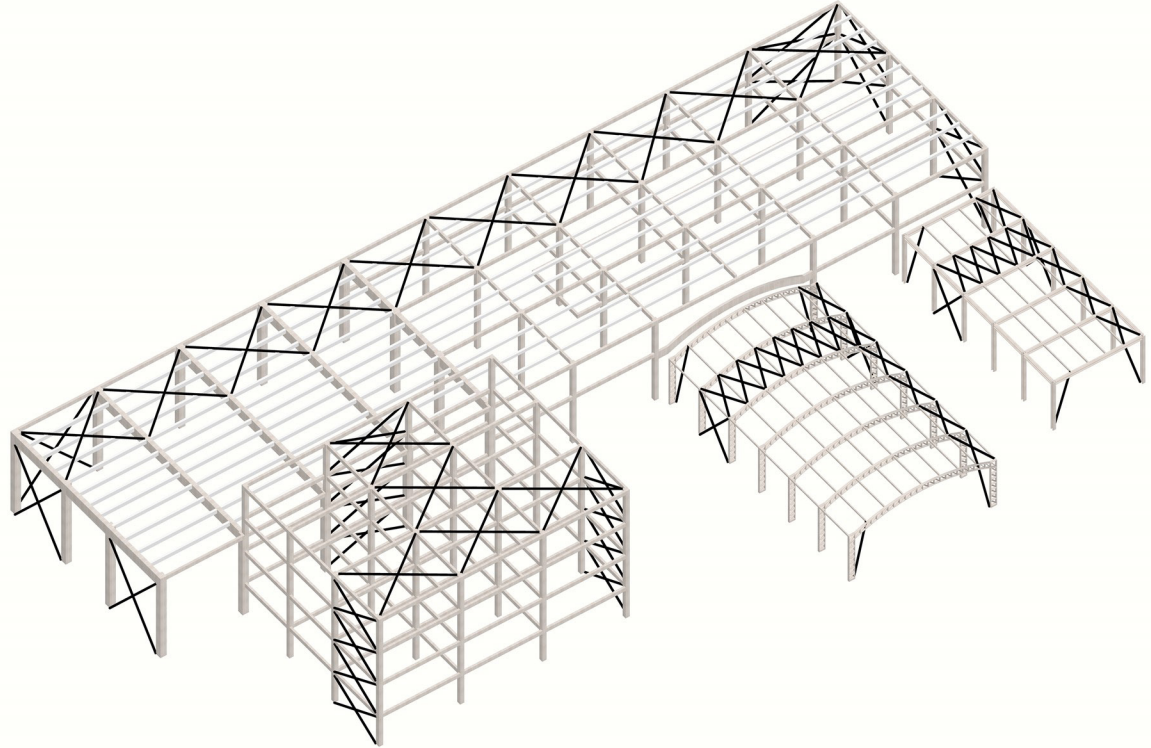
Building technology

Stability:

Location of the bracing cables in 3D model

Logic of the bracing cables' location:

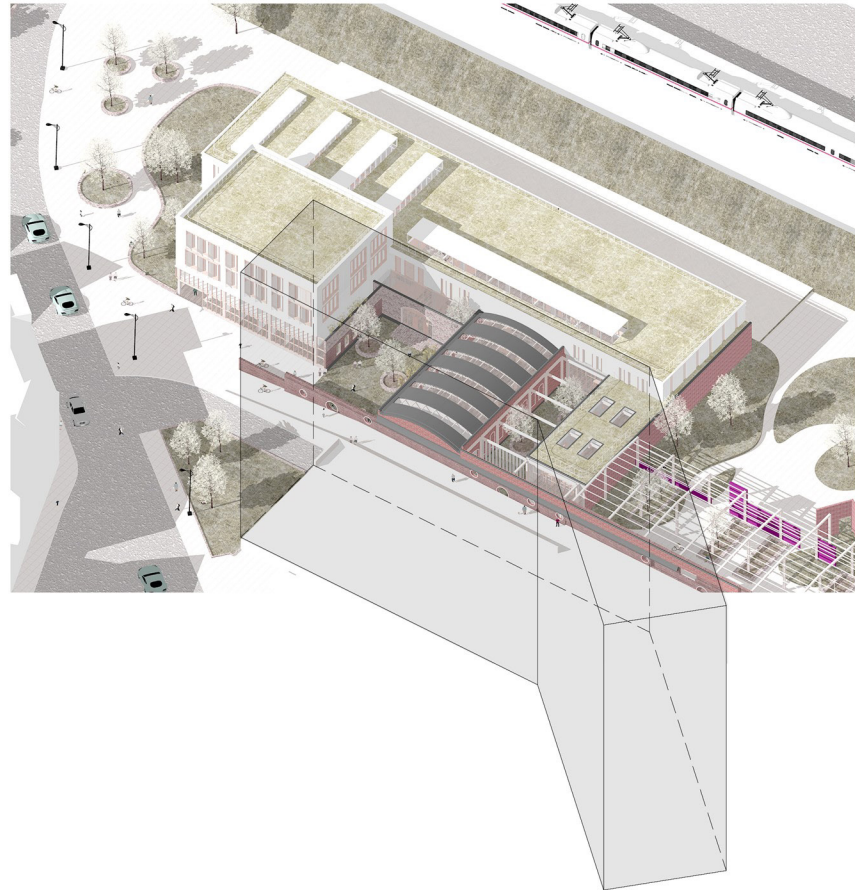
Divide the building into 4 parts(volumes) and consider them separately



### The roof: the fifth facade

#### Planting roof:

1. A lot of residents living in Les Goujons have sight accessibility to the roof of the building. The greenery (Ryegrass) on the roof can provide a comfortable view for them.
2. Plants on the roof can also help store rain water.
3. Improve the thermal insulation





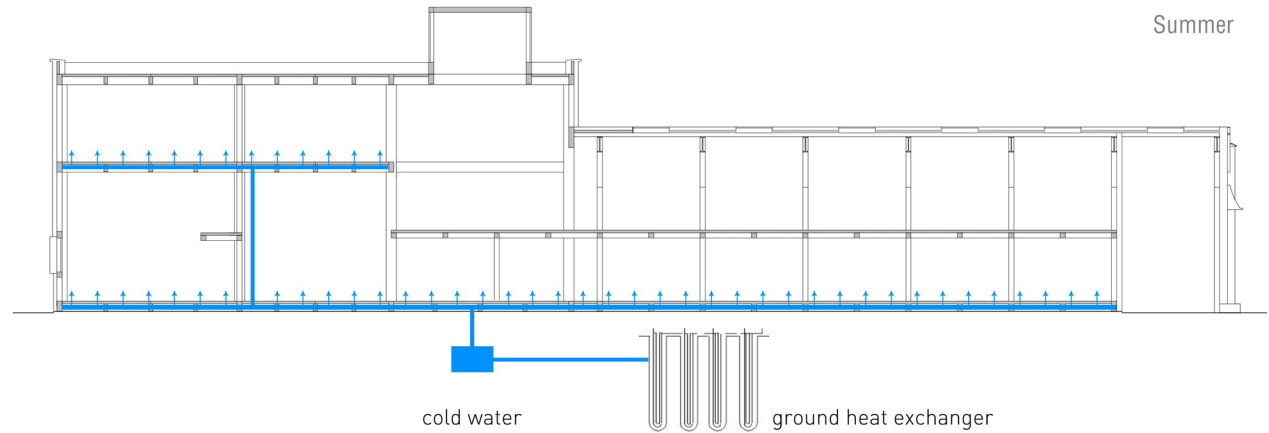
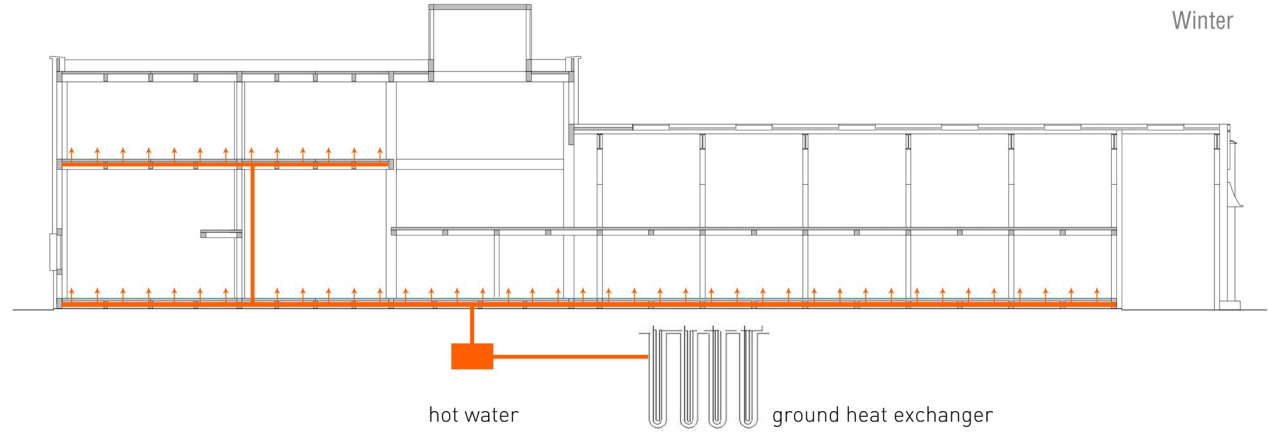
# Climate

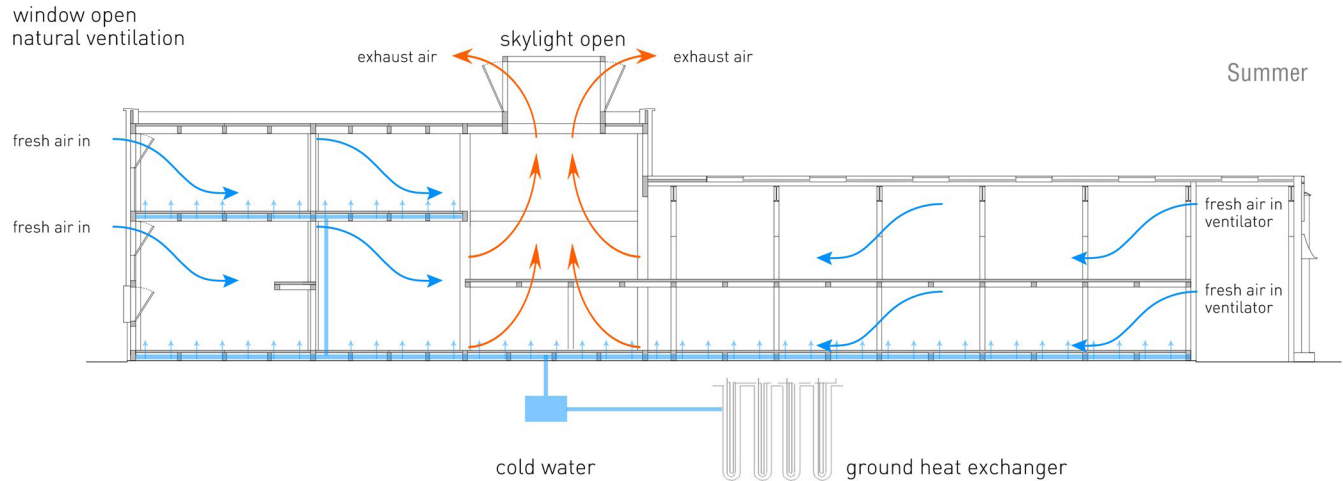
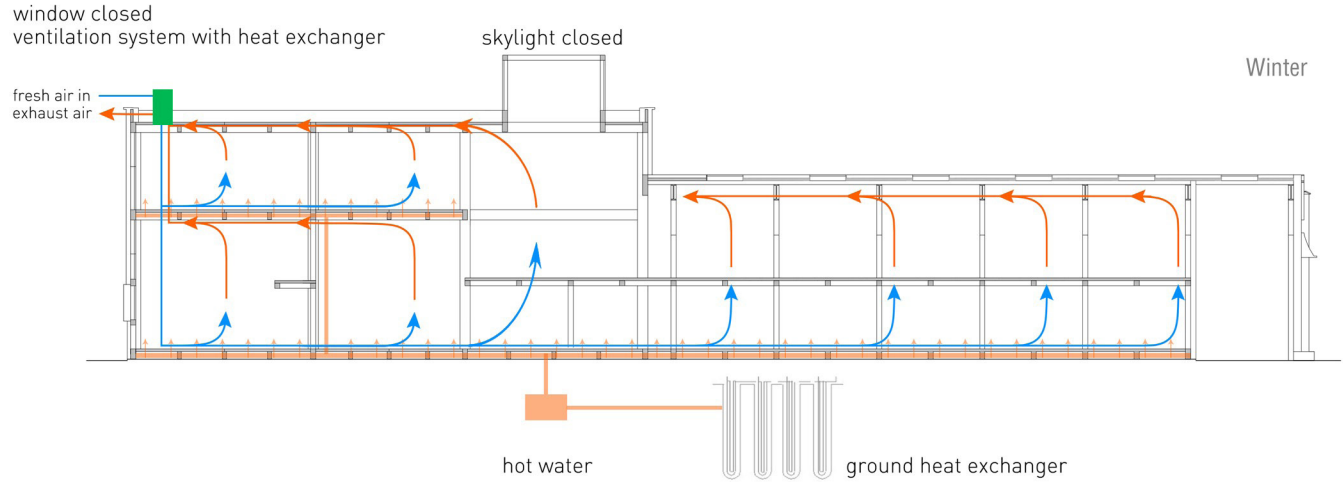
Building technology

## Heating and cooling

Geothermal heating water system:

1. Provide uniform heating
2. The water pipes can also provide cooling in summer if necessary





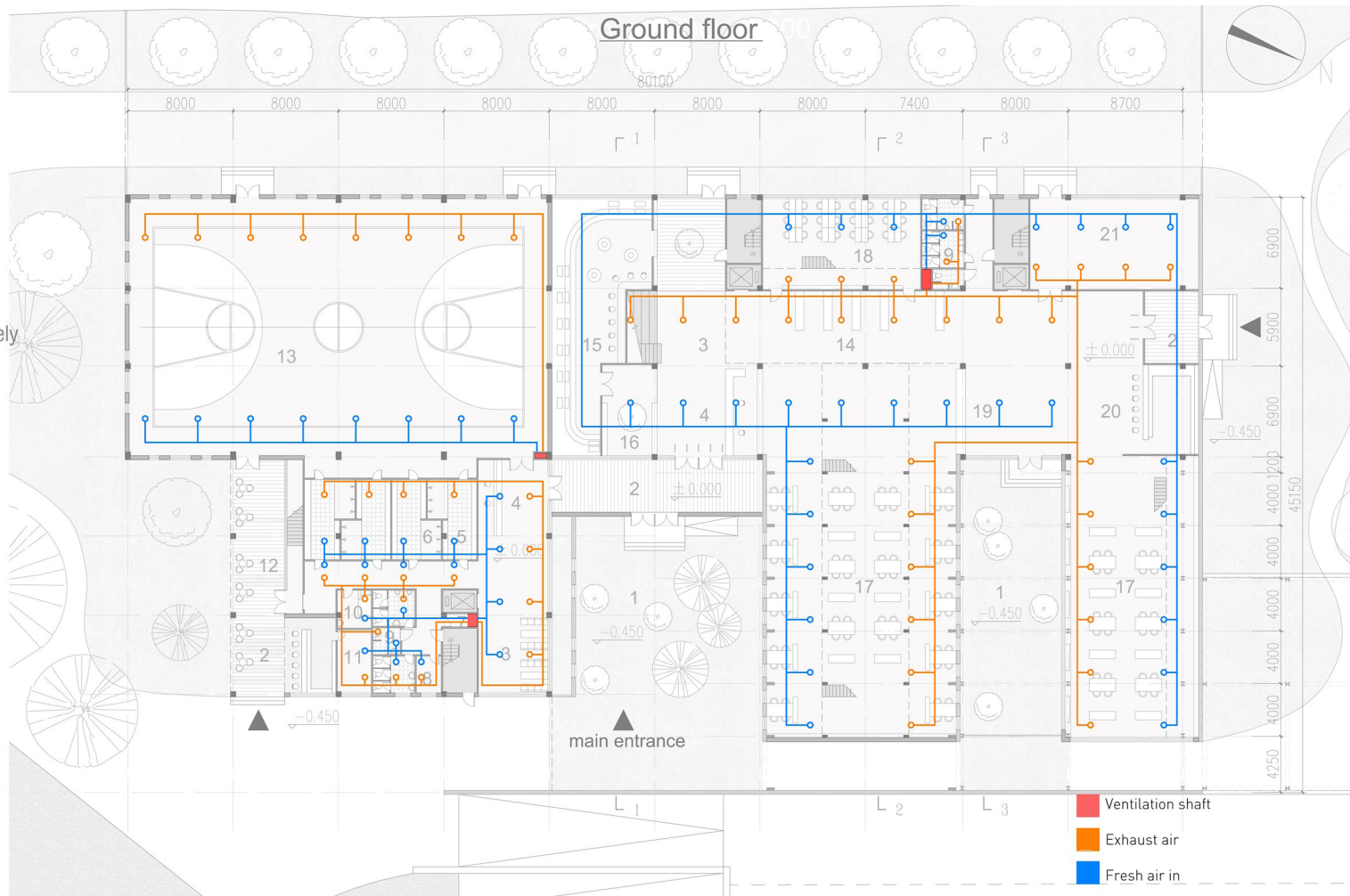
# Climate

Building technology

## Ventilation

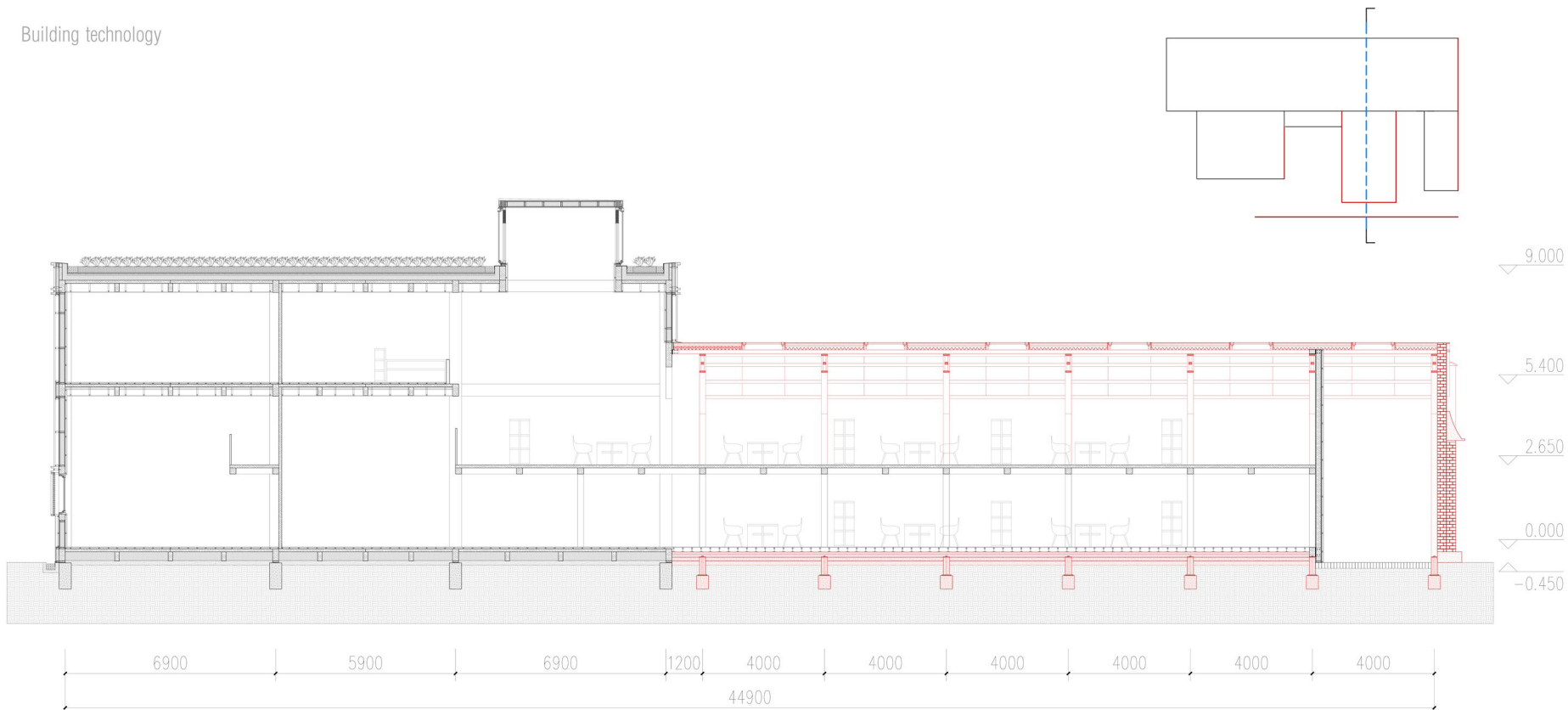
Plan of shafts and ducts

3 ventilation shafts worked separately



# 1:20 section

Building technology



# 1:20 section

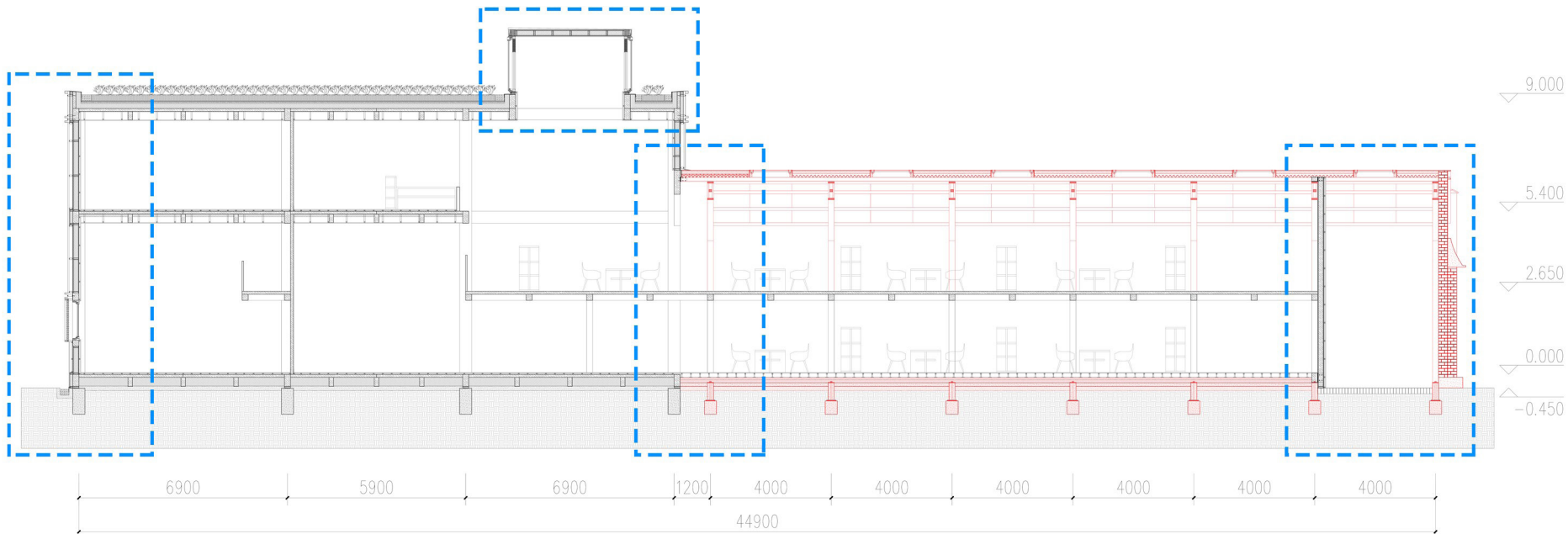
Building technology

01 Aluminum facade

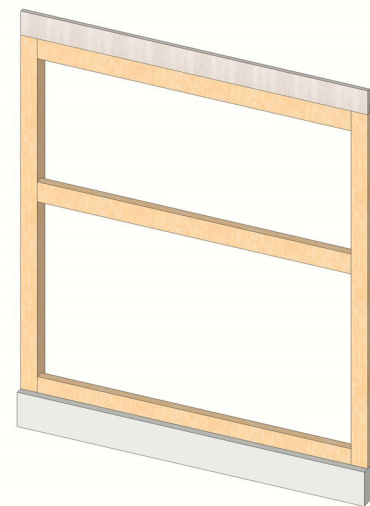
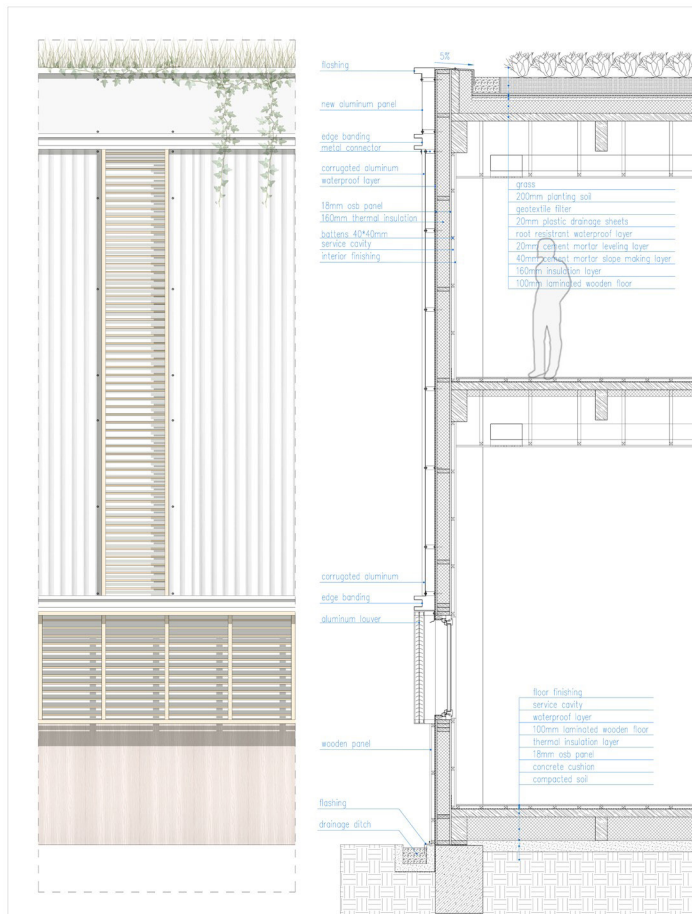
02 Skylight

03 Old & new connection

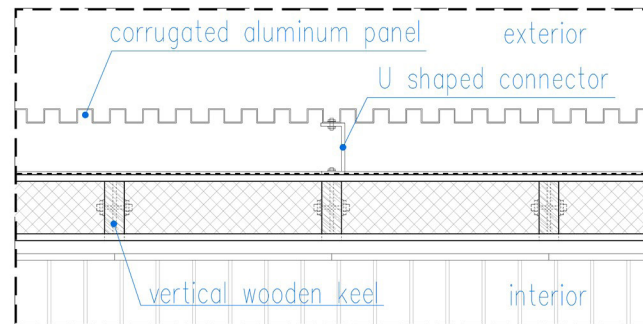
04 Old & new connection



Composition of the wall

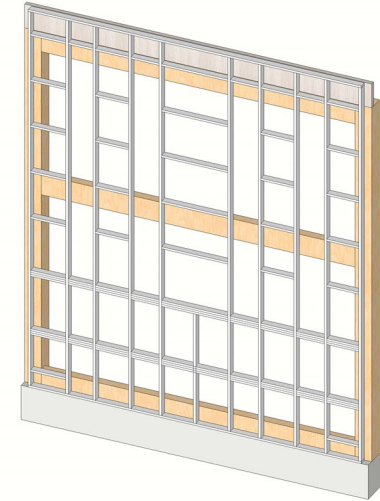
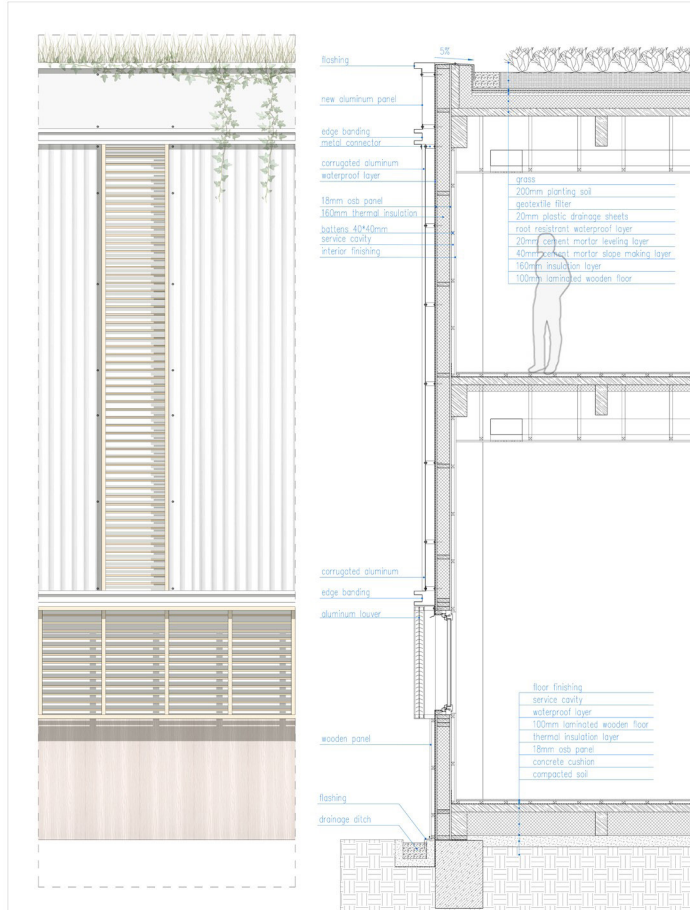


wooden frame

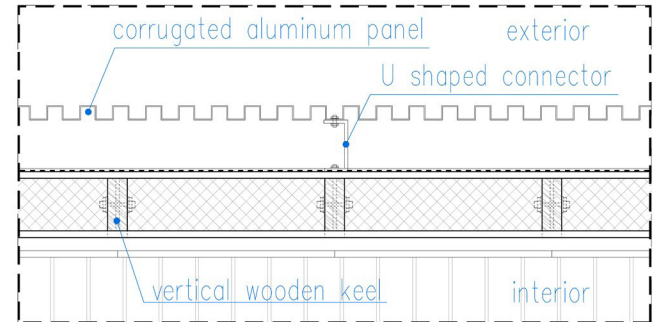


Horizontal section

Composition of the wall

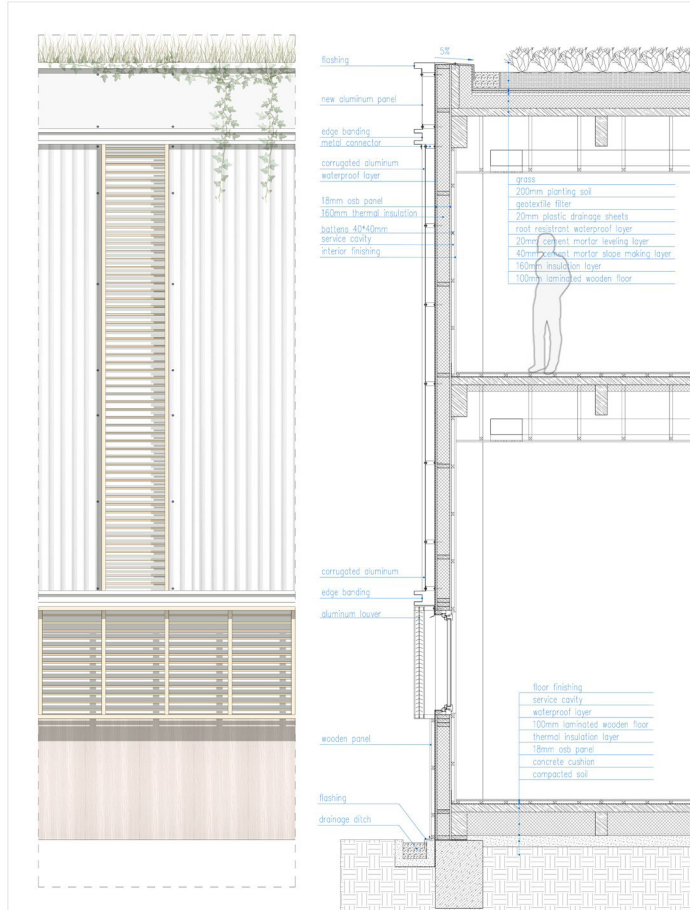


wooden keel

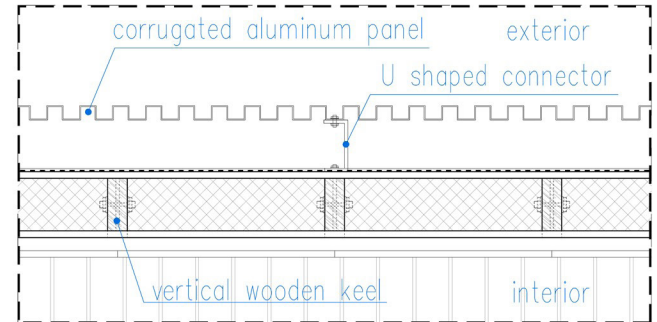


Horizontal section

Composition of the wall



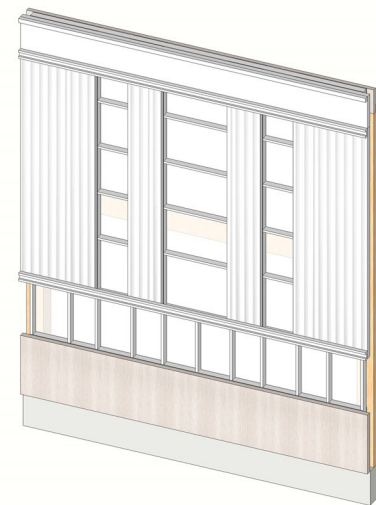
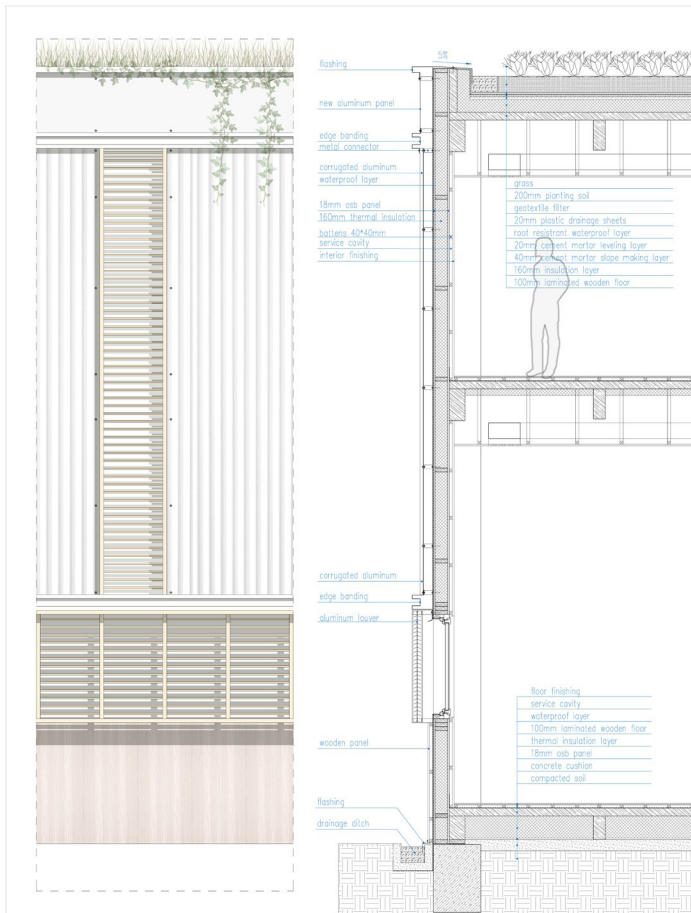
osb panel + thermal insulation material



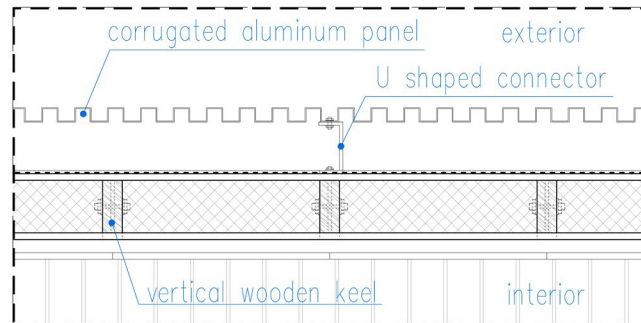
Horizontal section



Composition of the wall

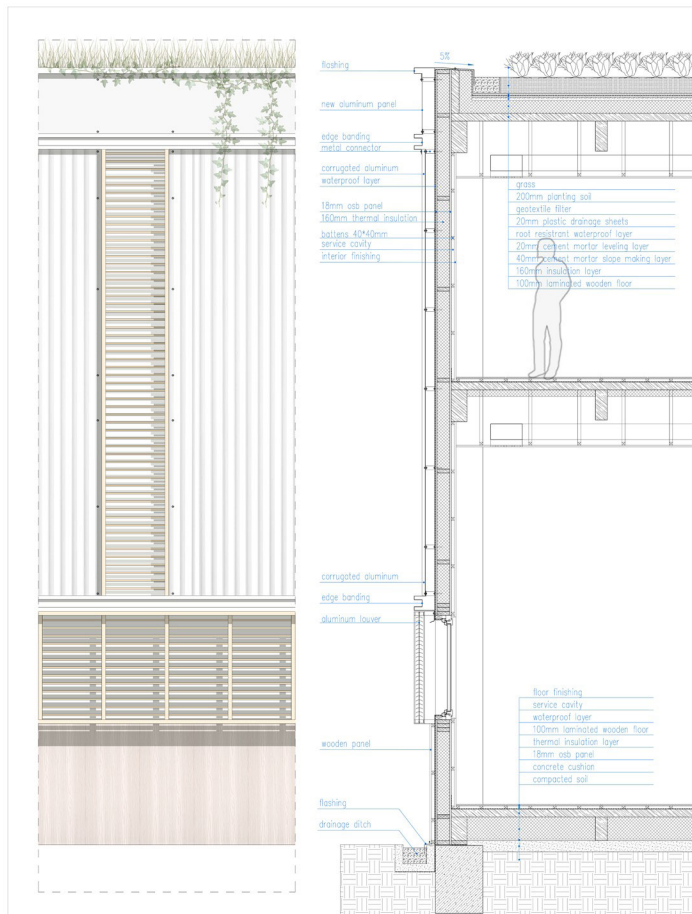


exterior cladding

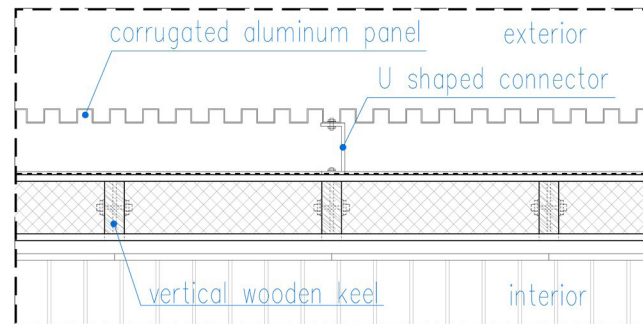


Horizontal section

Composition of the wall



shutter



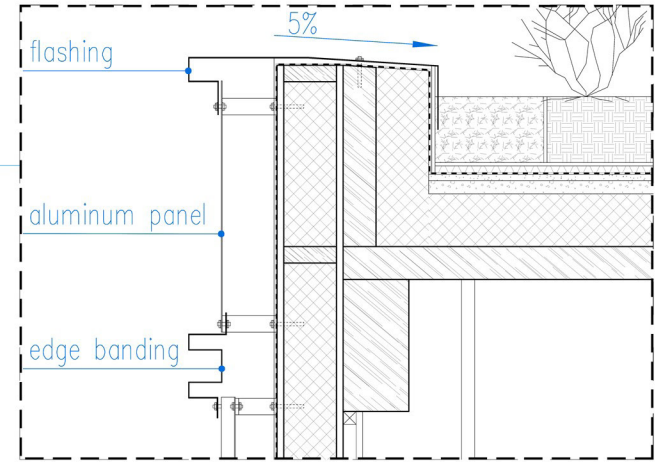
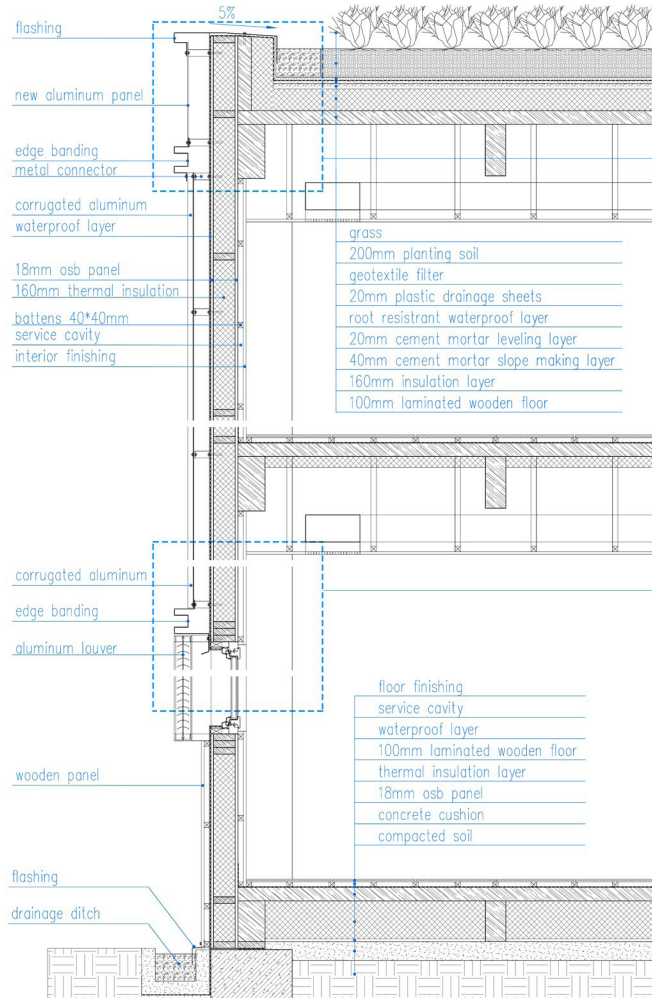
Horizontal section

# 1:5 detail

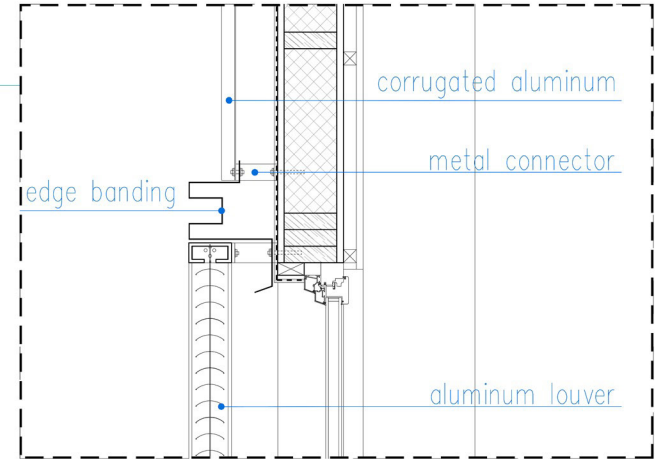
Building technology

Zoom in details of the aluminum cladding and louvers

## 01 Aluminum facade

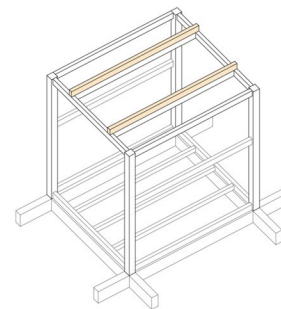
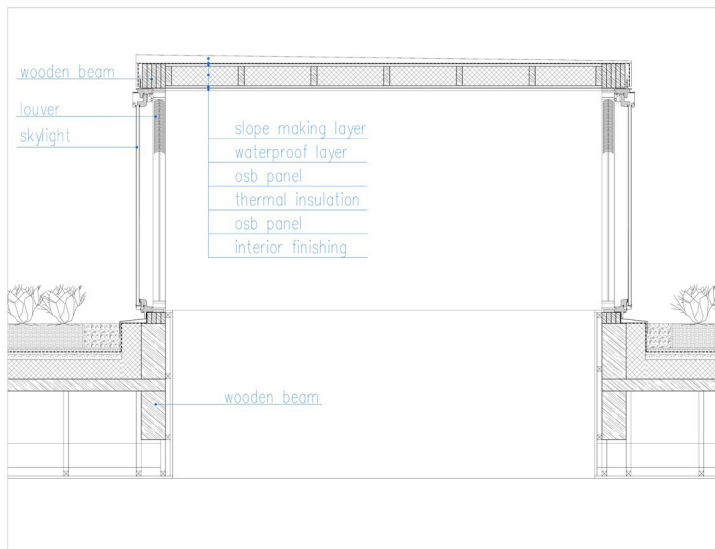


Detail of the aluminum cladding

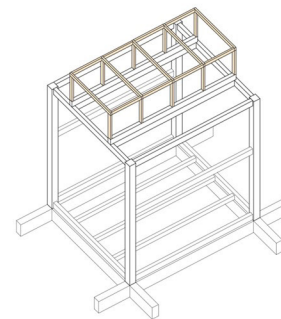


Detail of the aluminum louver

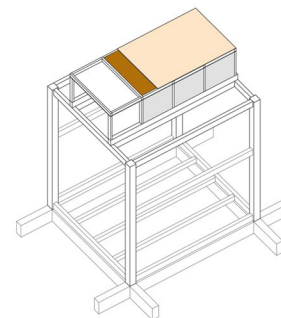
Structure of the skylight



base beam for supporting

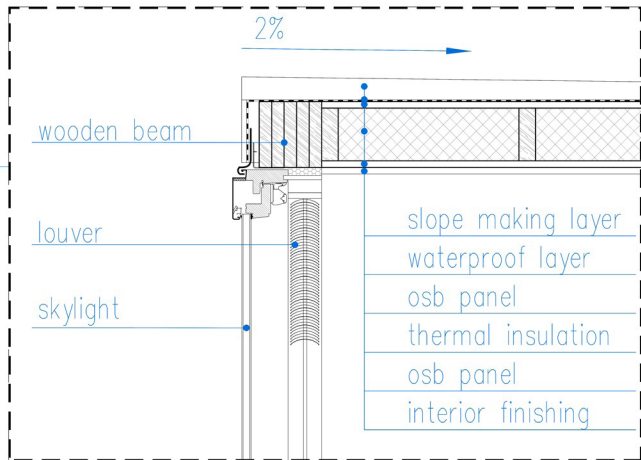
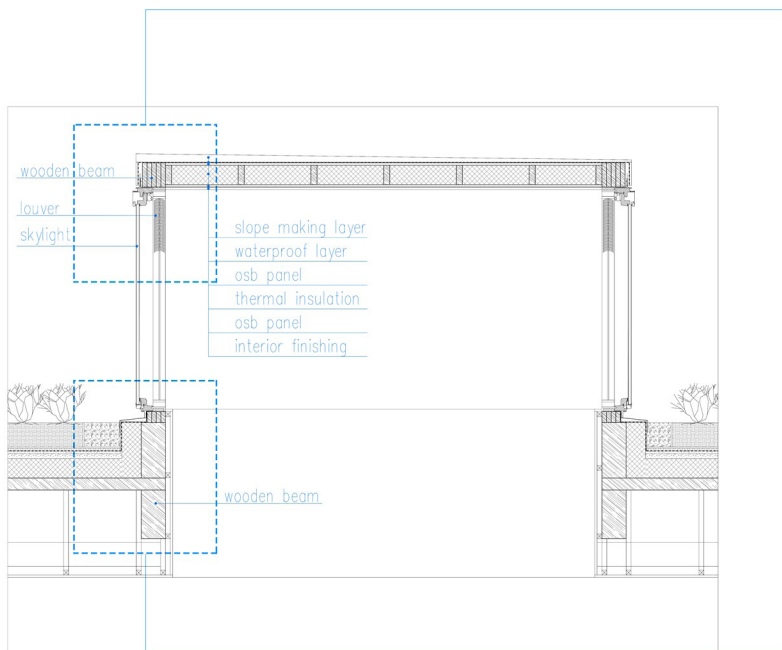


skylight frame

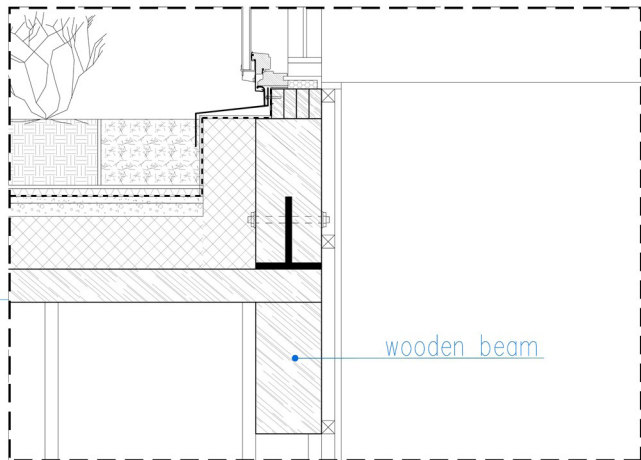


panel & insulation

Zoom in details of the joints which prevent rain water from entering the room



Detail of the roof layer of skylight



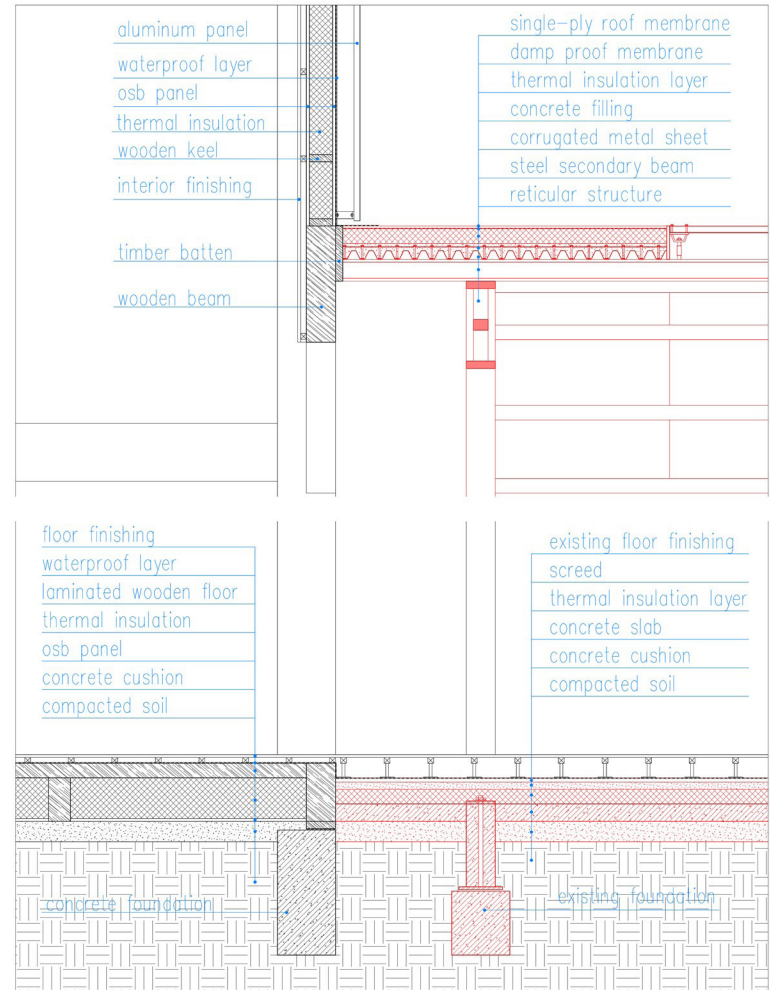
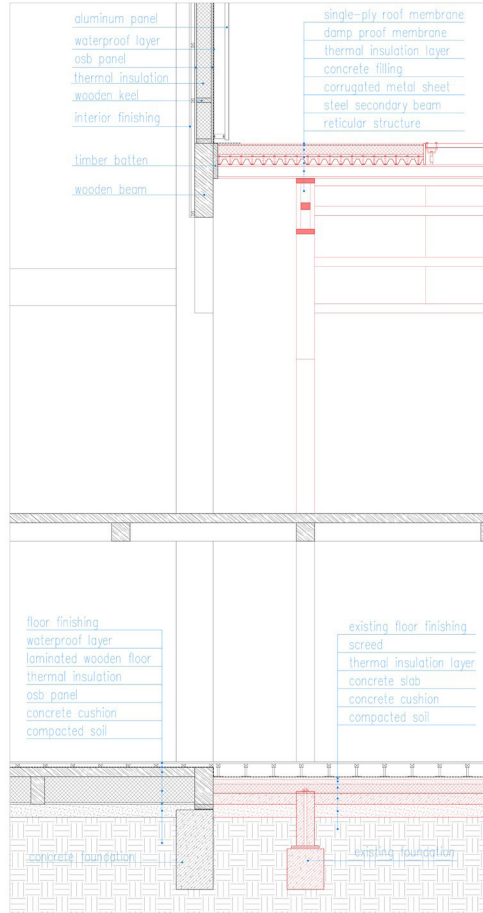
Detail of the connection between skylight and main structure

### 03 Old & new connection

1:20 section

Building technology

Composition of the roof and floor of the existing structure

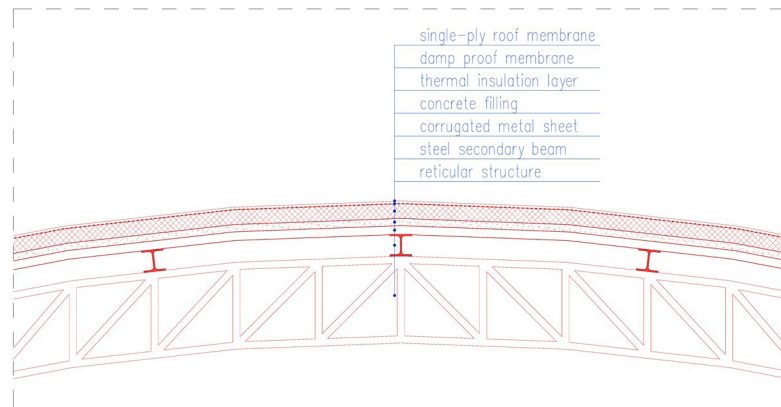
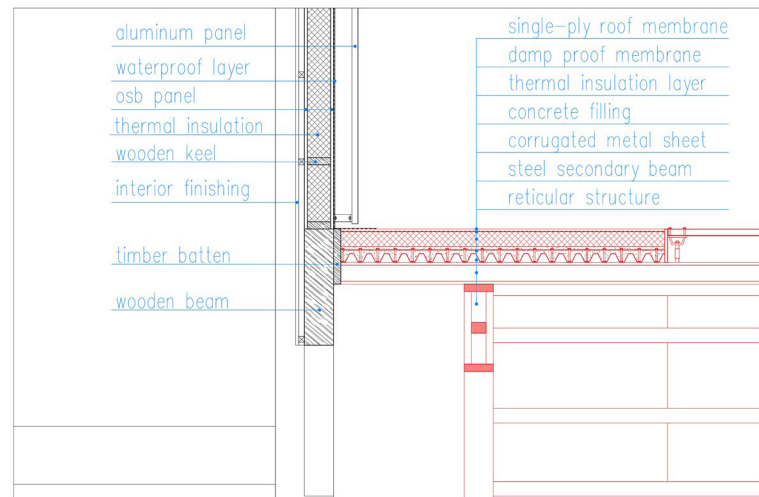
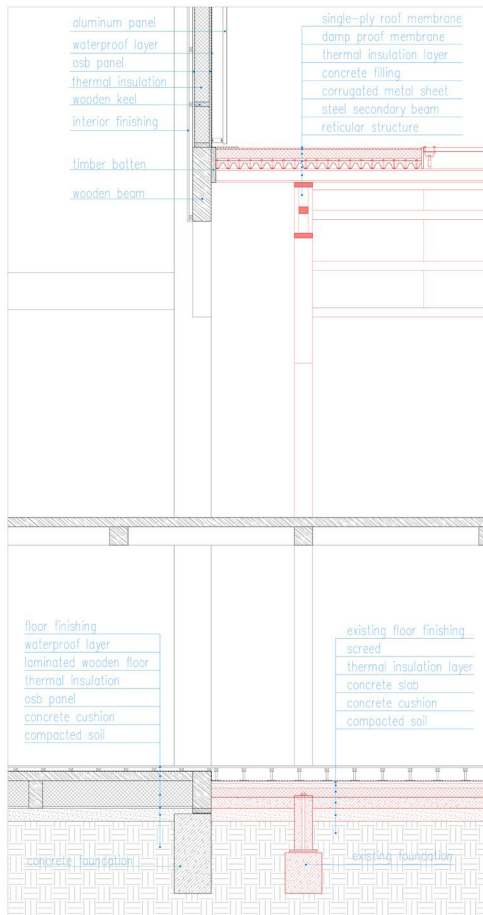


### 03 Old & new connection

1:20 section

Building technology

Composition of the roof and floor of the existing structure



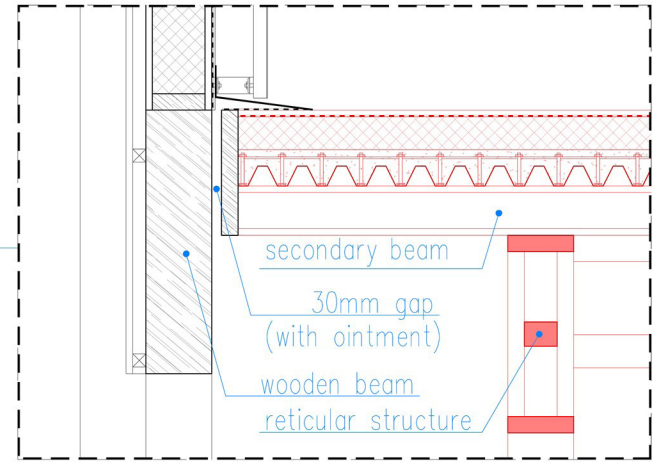
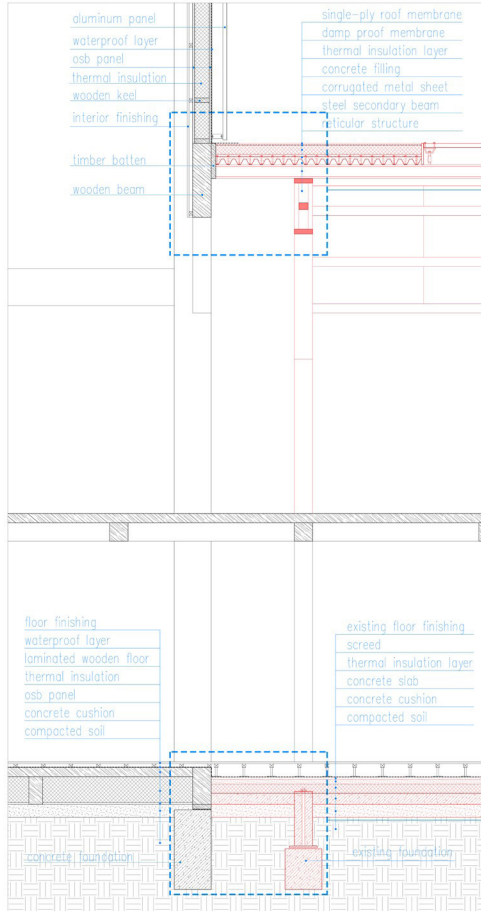
reference drawing: longitudinal section of the existing building

1:5 detail

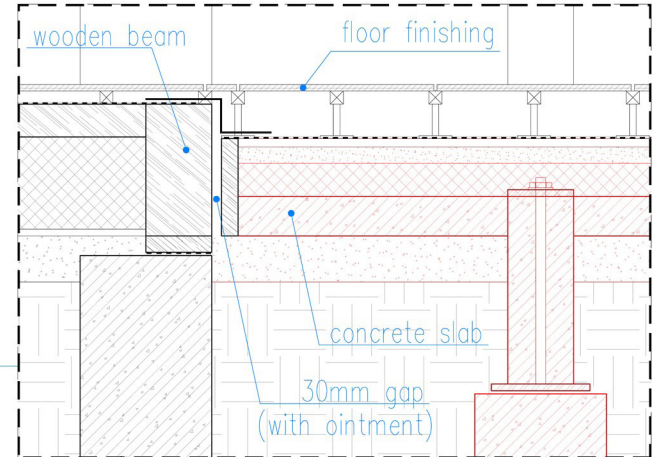
Building technology

Zoom in details of the settlement gap between the old structure and the new structure

Avoid differential settlements of the two foundations



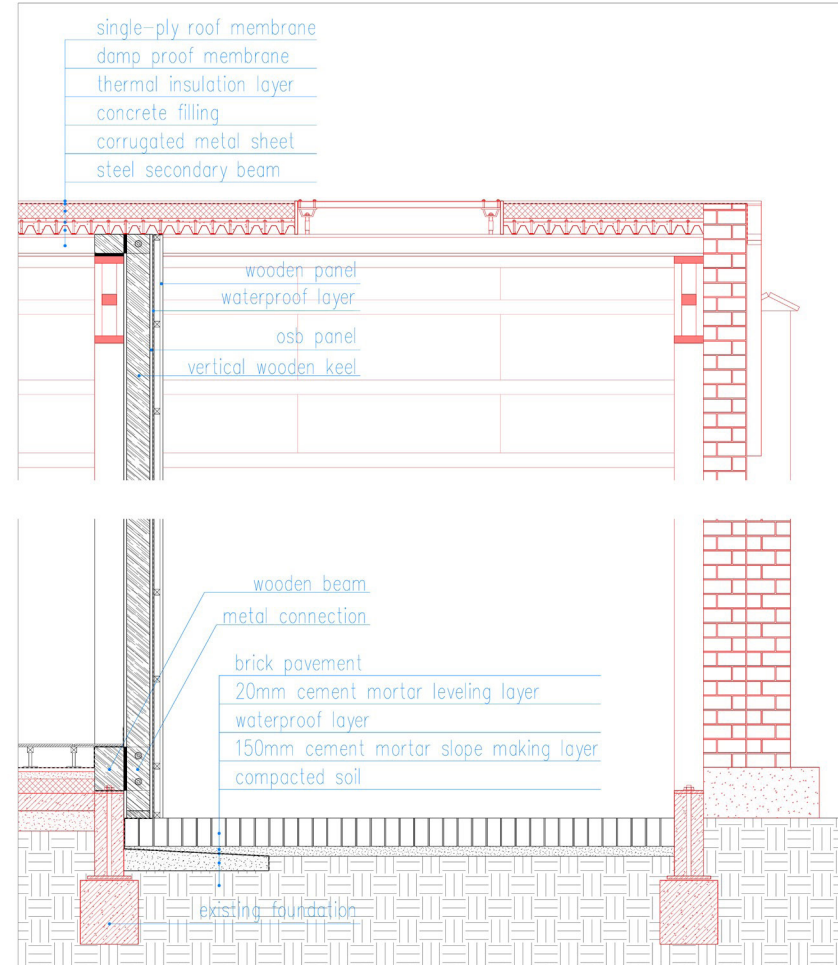
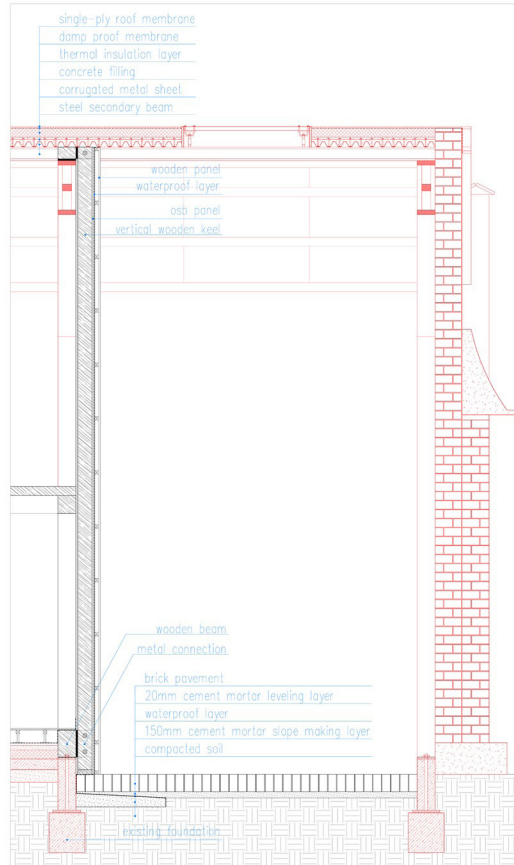
Detail of the connection between existing roof and new structure



Detail of the connection between existing floor and new structure

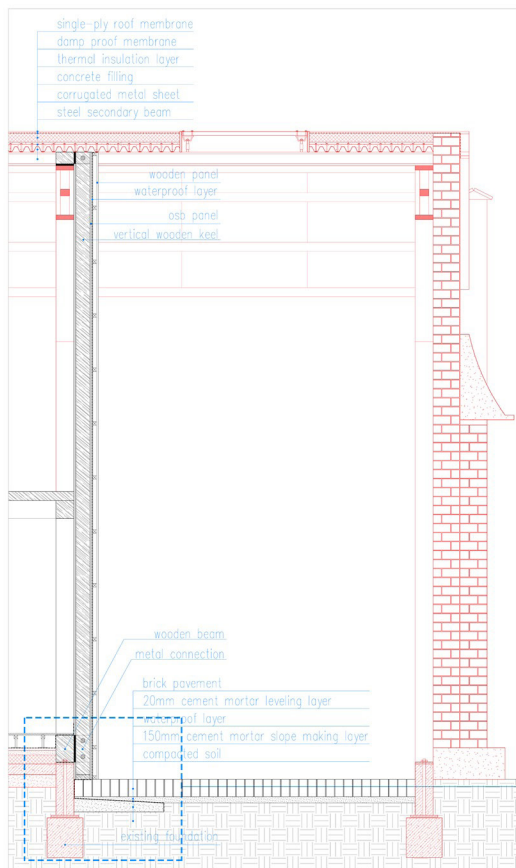


A nonbearing wall attached to the existing structure



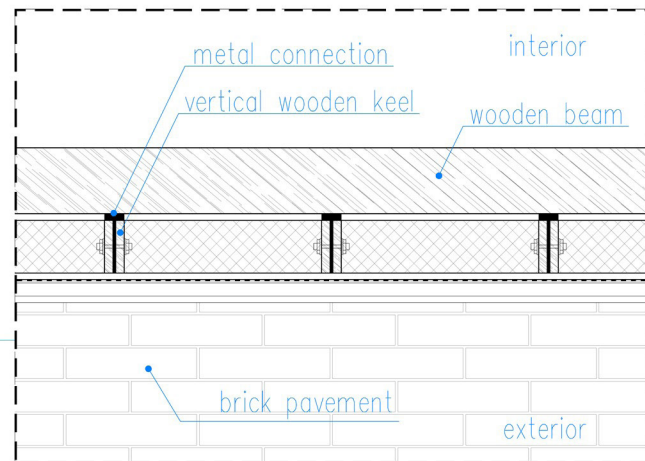
## 1:5 detail

Building technology

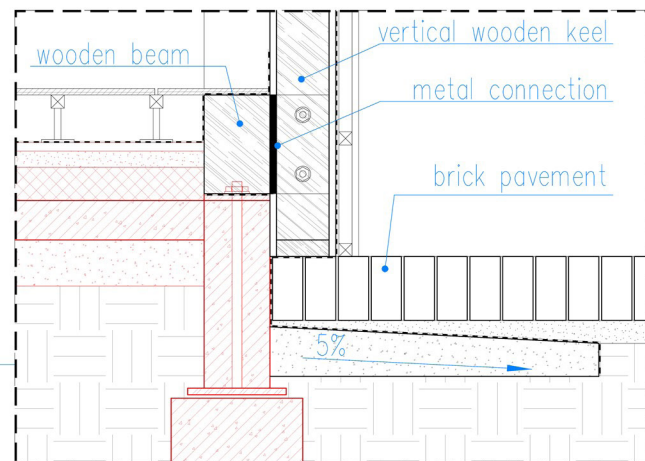


Zoom in details of the joints

1. Add a new beam on the existing foundation
2. Vertical wooden keels are connected to the beam through steel connectors
3. OSB panels are added at each side with thermal insulation filled in between
4. A small slope is added at the bottom to prevent water in



Horizontal section of the new wall



Detail of the connection between existing structure and new wall

# 5 INTERIOR & EXTERIOR

Response to the urban idea: “wall” and “street corner”

# Corner view

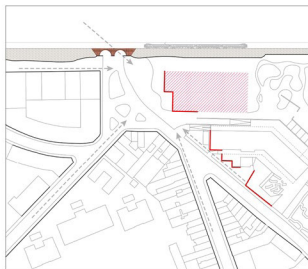
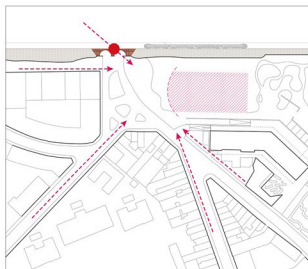
Interior & exterior

How does the corner look like from different street?

Corner view 1:

- From the archway under the railway bridge
- The scale comparison between Les Goujons, the traditional houses and the public building

corner view 1



# Corner view

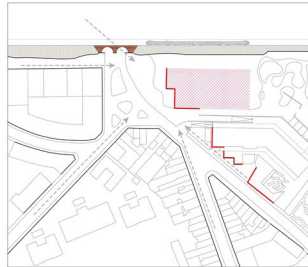
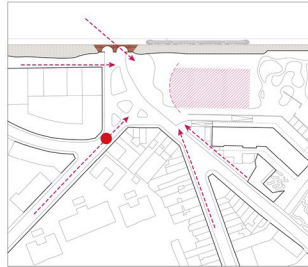
Interior & exterior

How does the corner look like from different street?

Corner view 2:

- From Rue Dr Kuborn where the new residential complex will be built
- The front façade and the corner park is fully visible

corner view 2



# Corner view

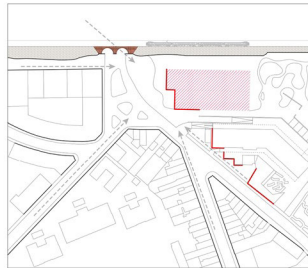
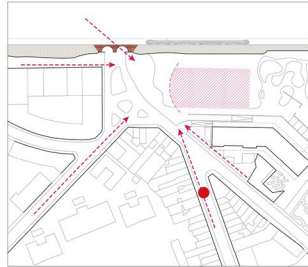
Interior & exterior

How does the corner look like from different street?

Corner view 3:

- From Rue Georges Moreau where traditional houses stand at each side
- Another front façade with the transparent and light ground floor can be seen and invite you to get closer

corner view 3



# Corner view

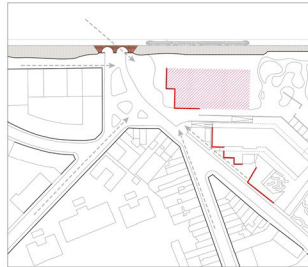
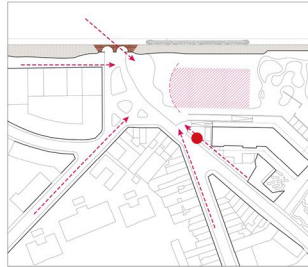
Interior & exterior

How does the corner look like from different street?

Corner view 4:

- From the foot of Les Goujons
- Compared with the existing situation, the corner is more complete by the enclosure of the railway bridge and the three buildings: the traditional houses, the residential complex(which will be built in next years), and my public building.
- The heights of the 3 buildings are similar and they stand face to face like they are having a dialogue

corner view 4

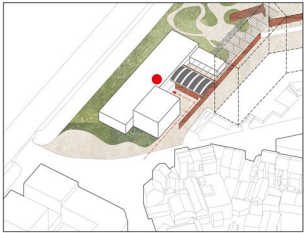


# Interior

Interior & exterior

What is the difference of the 2 different programs?

- Wood is the basic material inside the building
- More freedom in using wood



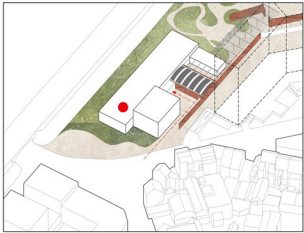


# Interior

Interior & exterior

What is the difference of the 2 different programs?

- Wood is the basic material inside the building
- Rough wood (the balls are flying around)
- Transparent PC panel at the first floor
- Light: from the high window and skylight

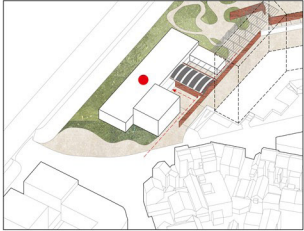


# Interior

Interior & exterior

What is the difference of the 2 different programs?

- PC panel

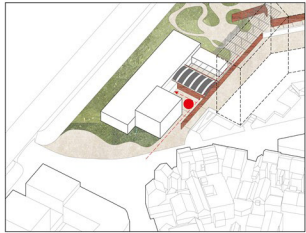


# Walls in the new context

Interior & exterior

What is the role of the reserved wall / building in the design?

- The structures behind the main wall are renovated to serve as a functional space in the facility
- The original parking lot → a shared entrance garden

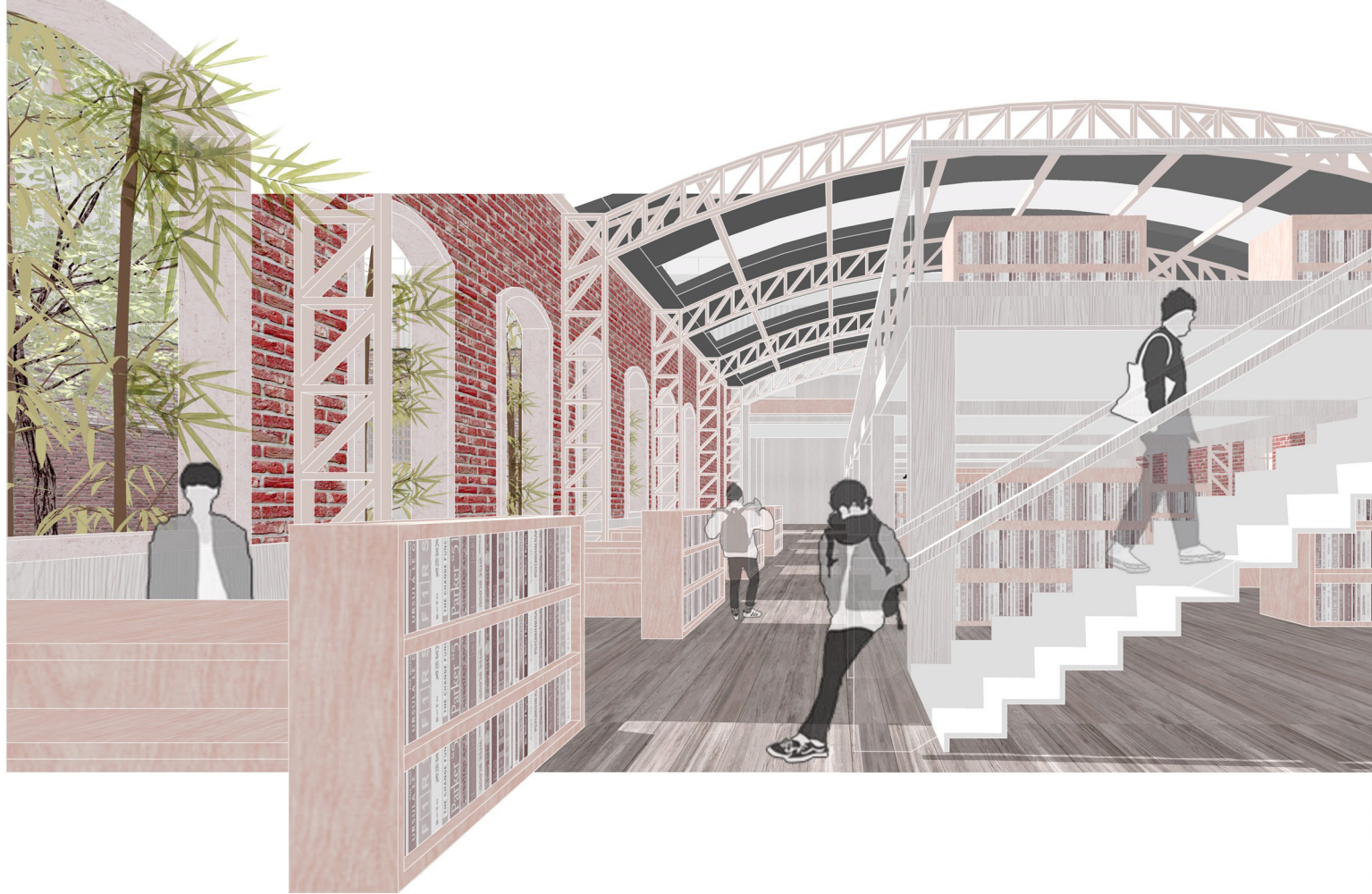
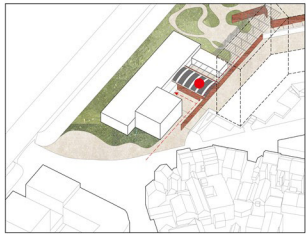


# Interior

Interior & exterior

What is the role of the reserved wall / building in the design?

- The structures behind the main wall are renovated to serve as a functional space in the facility
- The warehouse with skylights → a bright reading room

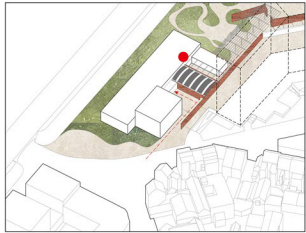


# Walls in the new context

Interior & exterior

What is the role of the reserved wall / building in the design?

- The structures behind the main wall are renovated to serve as a functional space in the facility
- Another warehouse next to it → inner courtyard with some

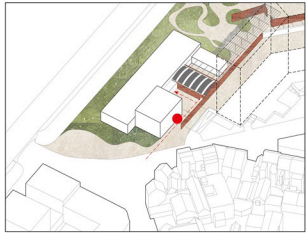


# Walls in the new context

Interior & exterior

What is the role of the reserved wall / structure in the design?

- The wall which follows senne river works as a guide of the public space we created in the block.
- It also creates an ambiguous relation between Les Goujons and the public facilities.

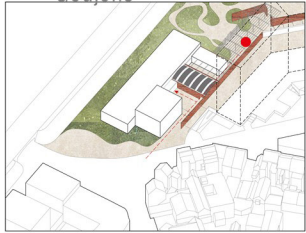


# Walls in the new context

Interior & exterior

What is the role of the reserved wall / structure in the design?

- The wall is neither completely closed to separate the 2 sides, nor completely open. It provides visual connection and easy access for the 2 sides while also leaves some privacy for the back entrance of Les Goujons



Thank you!

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Rongmin 08/07/2020