

AWAKENING TOWNS, TO REUSE THE UNUSED

A chain of recycling plastic clusters



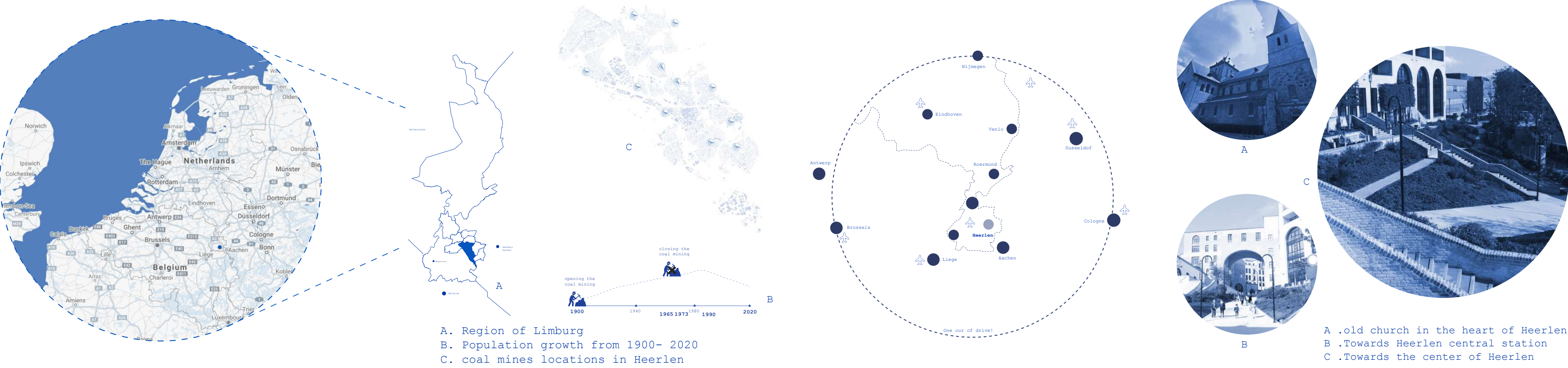
Master plan ,area of intervention

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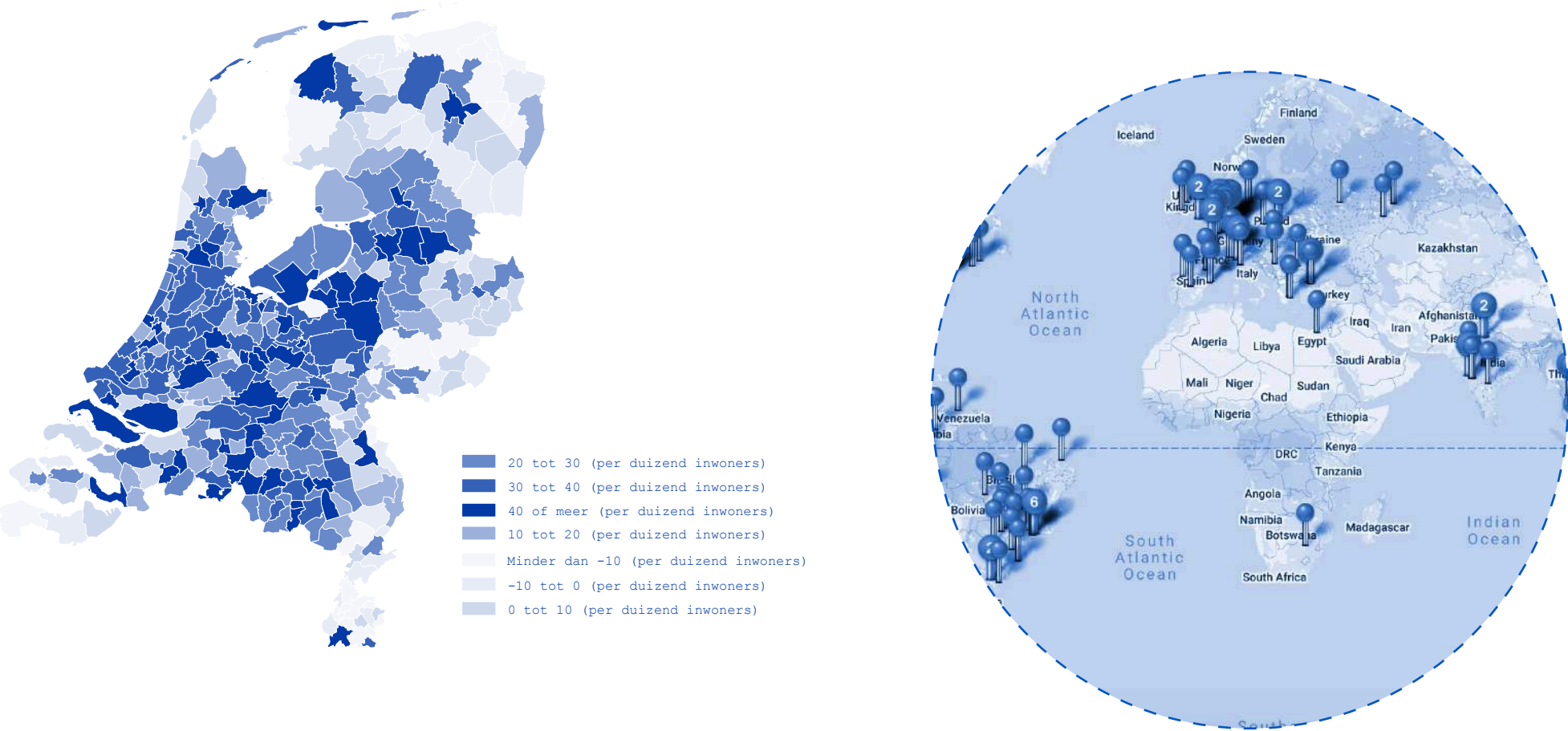
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STUDY CASE : Heerlen

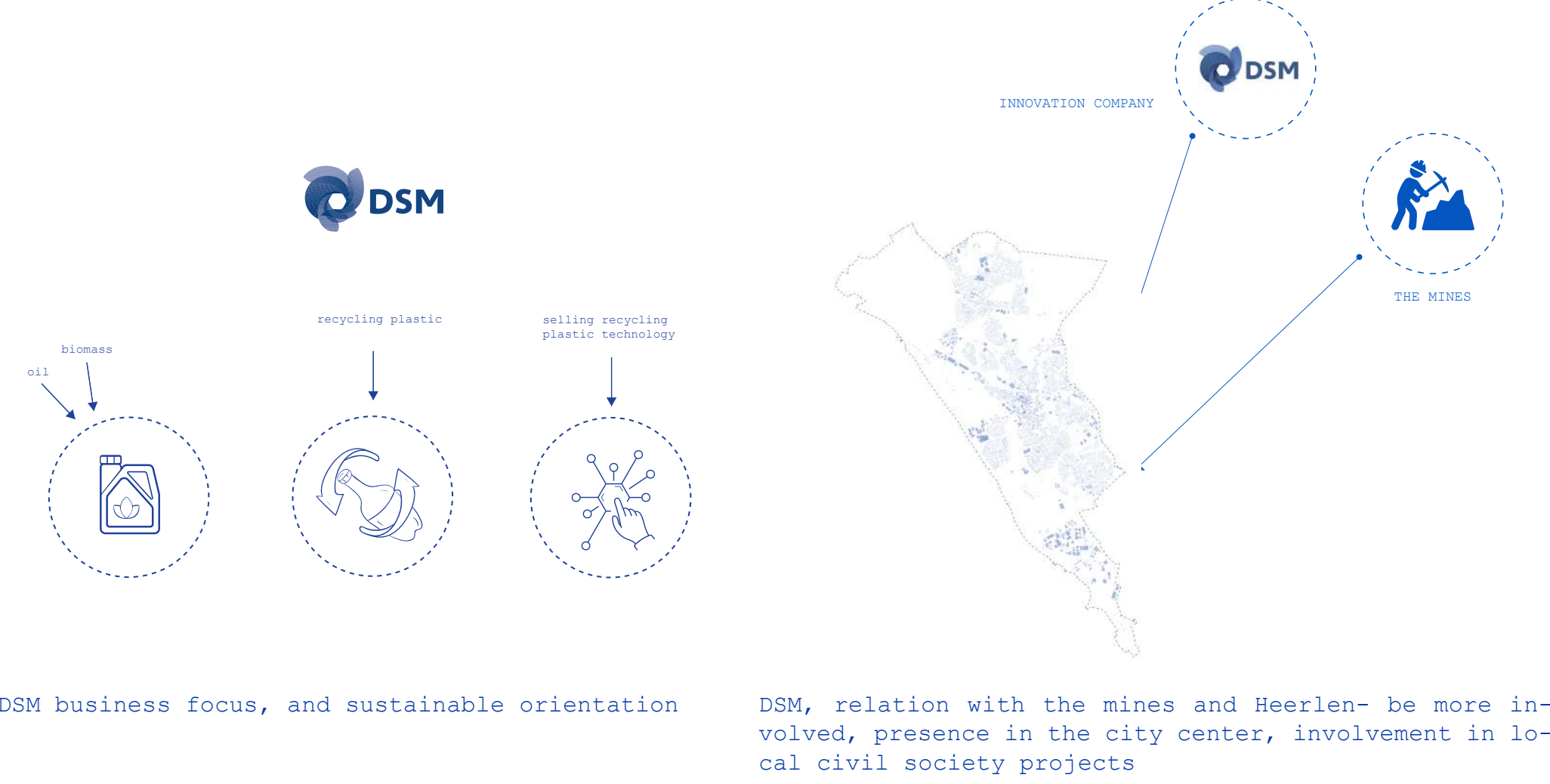
Due to closure of the coal mines industry in Heerlen, a lot of people lost their jobs, decided to flee Heerlen, and therefore the population starts to decrease as well as its economy where a lot of vacant buildings (housing and retail)pop up more and more resulting in a town gradually shrinking and putting aside its assets.



Limburg considered as the most shrinking area in the Netherlands - Heerlen is most shrinking town in the region.



Centrally located region (Heerlen surrounded by many international airport within 1h drive)



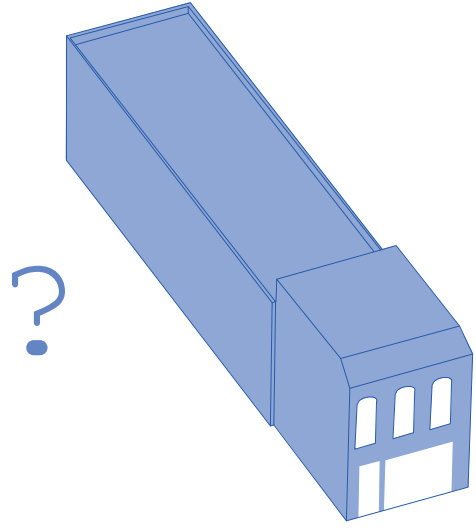
vacancy in central Heerlen



Current situation of shop vacancy in Heerlen (1521 vacant retail space - source Heerlen municipality).

I wish this place was a ..
I want this place to be a ..

Survey_ what do you want this place to be

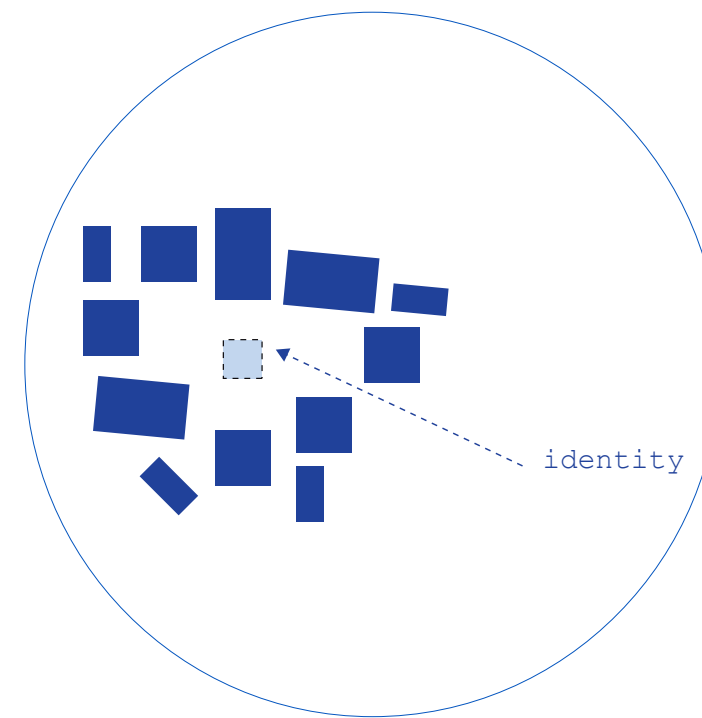
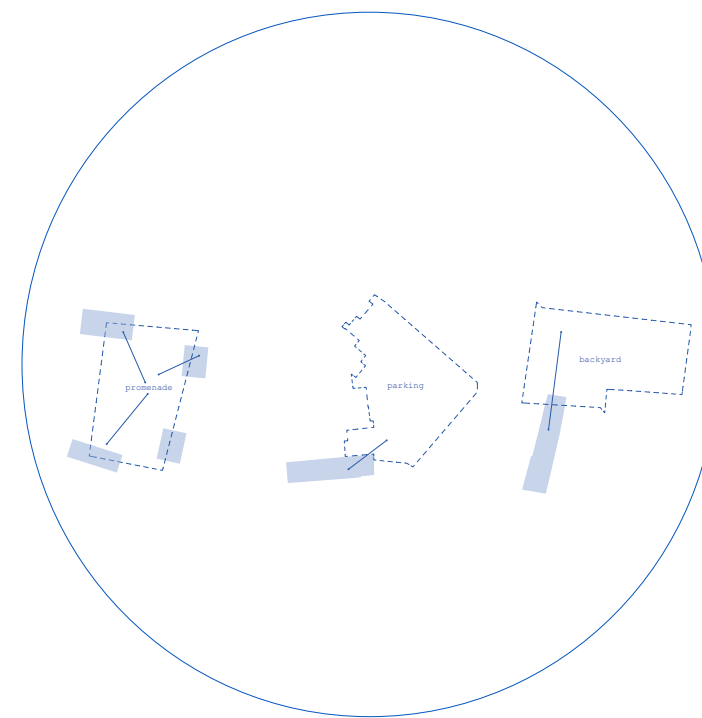
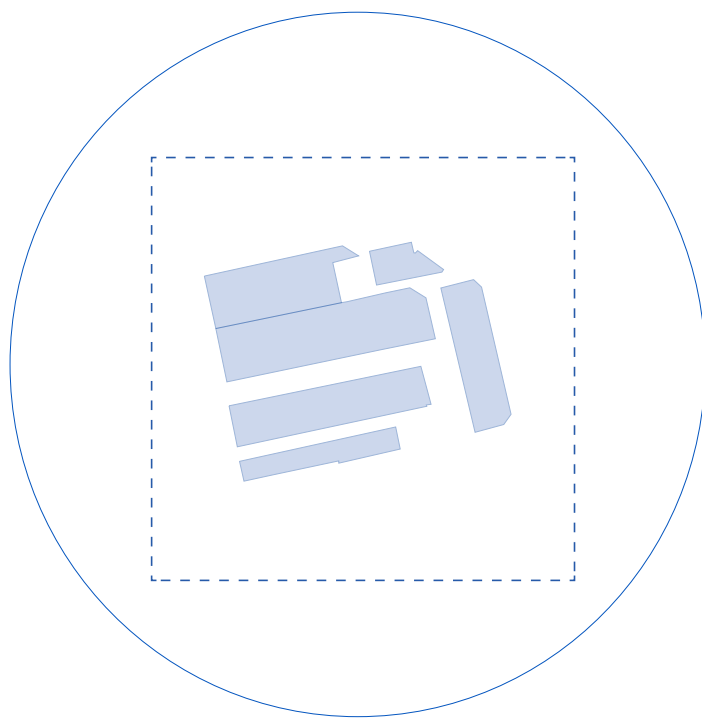
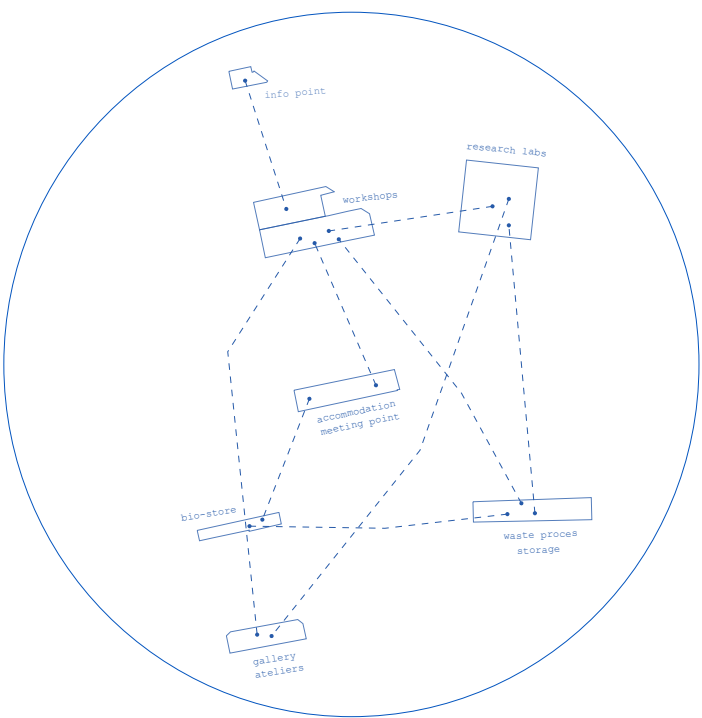
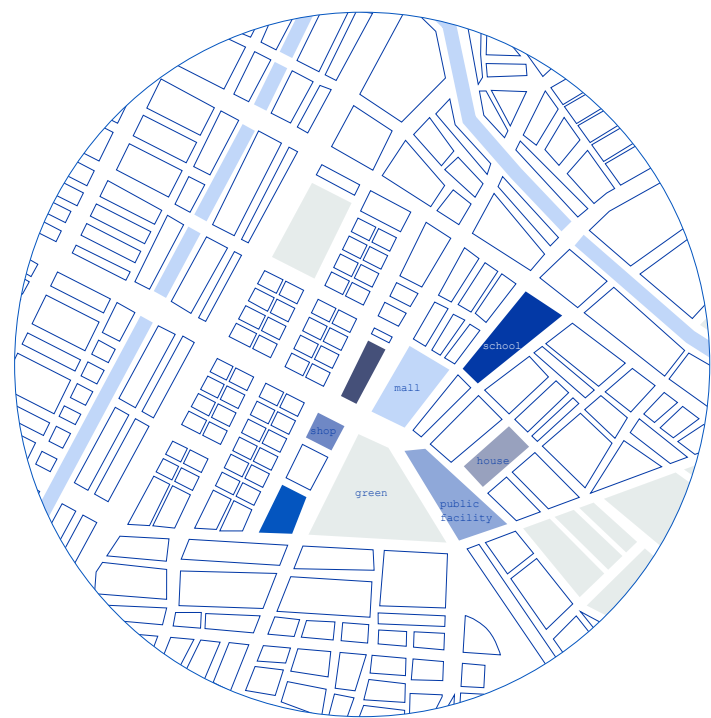


Some of the vacant shops in the town center of Heerlen

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Principles for urban revival



A better mix of uses in the center

Create connections - creates more life in the center than isolated interventions

A single organization taking over multiple smaller buildings - more different uses in the center, so more people. With so much vacancy, a big organization can help to fill them - there aren't enough small functions to do that.

Create connections between the buildings and surrounding public spaces - improving the quality of both.

To revive a shrinking city you need to build on its existing identity - with Heerlen this is industry.

.Experts.

Sandra Poelman : Urban designer expert in reviving vacant areas : Consulting her to help me for strategies to revive the center of Heerlen - as she already did a similar project in one of the neighborhoods in Eindhoven, She helped to ask the right question to find out what could help Heerlen to be alive, and structure my urban design thinking.

Bart the zwart : Architect expert in retail and shops, my consulting session with him helped me to understand more about the way vacant shops can be used, the relation between stakeholders and real estates but also giving reference on the reuse of vacant shops.

Roy Vischers : Expert in Sustainability in plastic (project leader of sustainability in DSM , my meeting with him was more about getting to know DSM better and how it would be possible to relate DSM to my project, but also I got more insight about recycling plastic, and reusing it.

Ronald Rietveld : Architect expert in vacant buildings, consulting him to get to know more about vacancies in the Netherlands.

Manon Souren : strategic advisor in the municipality of Heerlen, my meeting with her was about the future programs that the municipality is taking to solve the project of vacancy in Heerlen, I also discussed with her my project and its potential for Heerlen, My meeting with her helped me to frame my research, involve the inhabitants with my research and come up with quick solutions.

THE CONCEPT

This project transforms a series of existing vacant shops in Heerlen center.

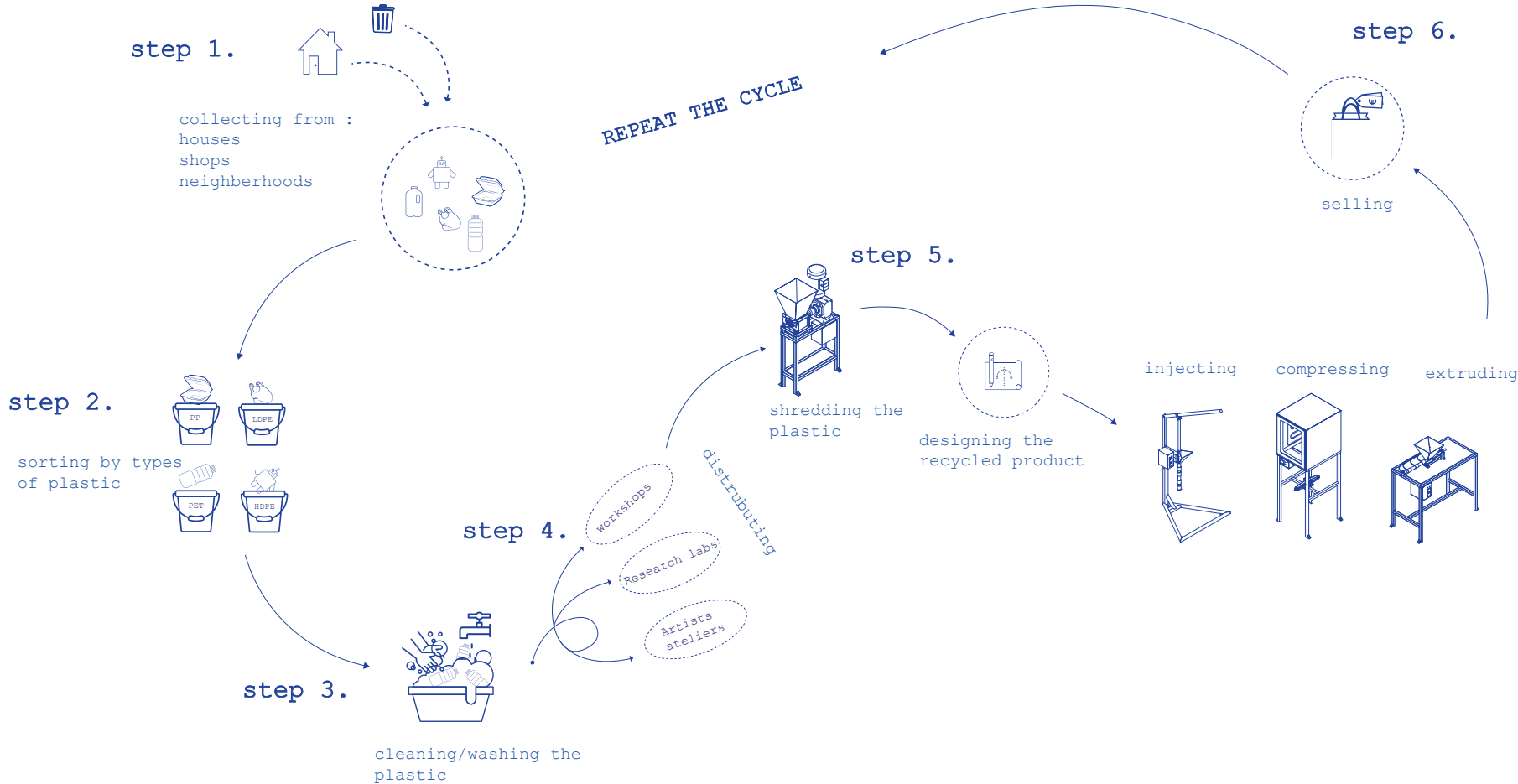


Support the recycling clusters with materials/machines



Share knowledge between the community and DSM as an innovative company in bio-based (products) plastic. Provide teaching programs/ invite scientists & engineers .

Create synergy between bigger and small scale industries.



The process of recycling plastic



Polycopylene found in cereal boxes, plastic bottles tops, chips bags.

polyethylene tenephalate : found in water bottles, packaging, pop bottles.

Low density polyethylene found in groceries bags.

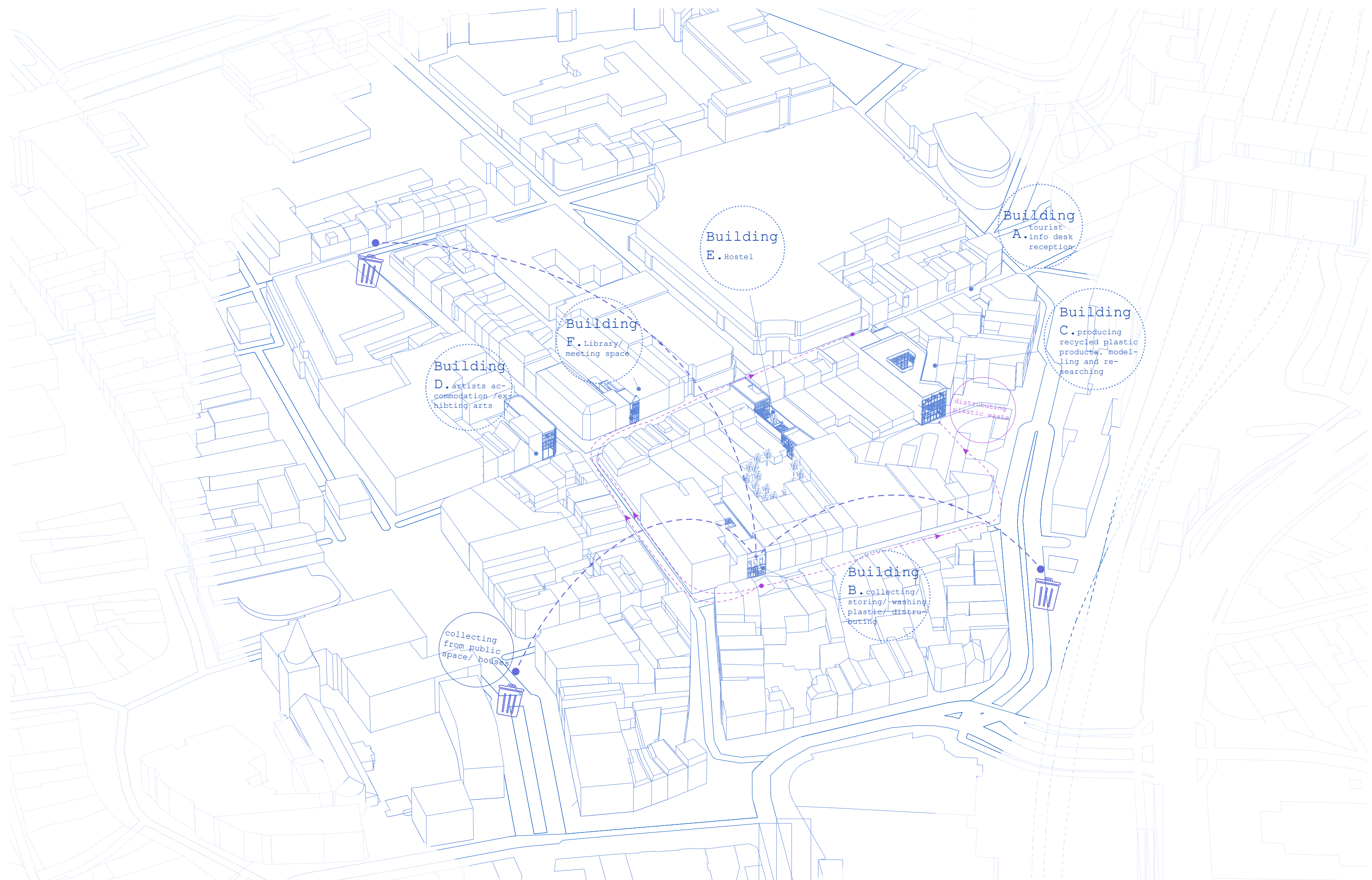
High density polyethylene found in milk bottles, toys, some plastic bags, oil bottles.

Types of plastic waste that is possible to recycle - (Collected from the neighborhoods in central Heerlen)

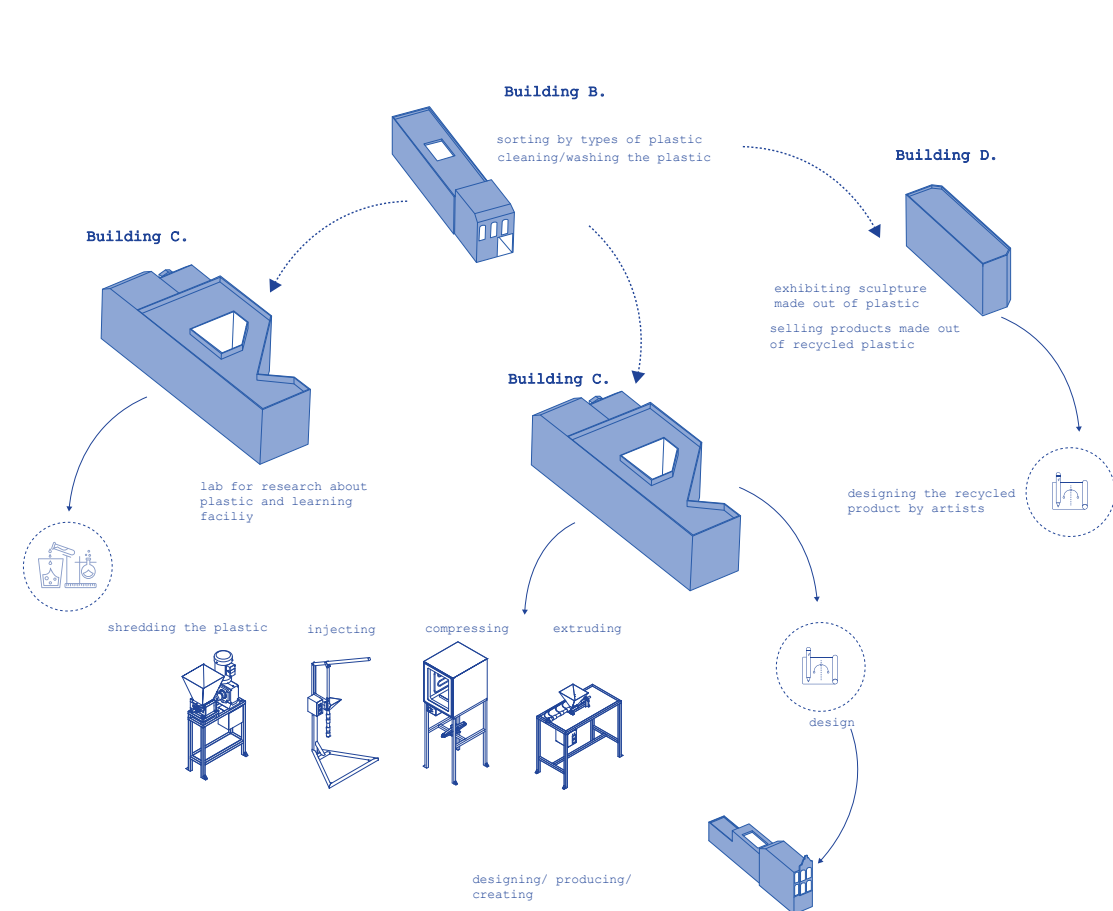
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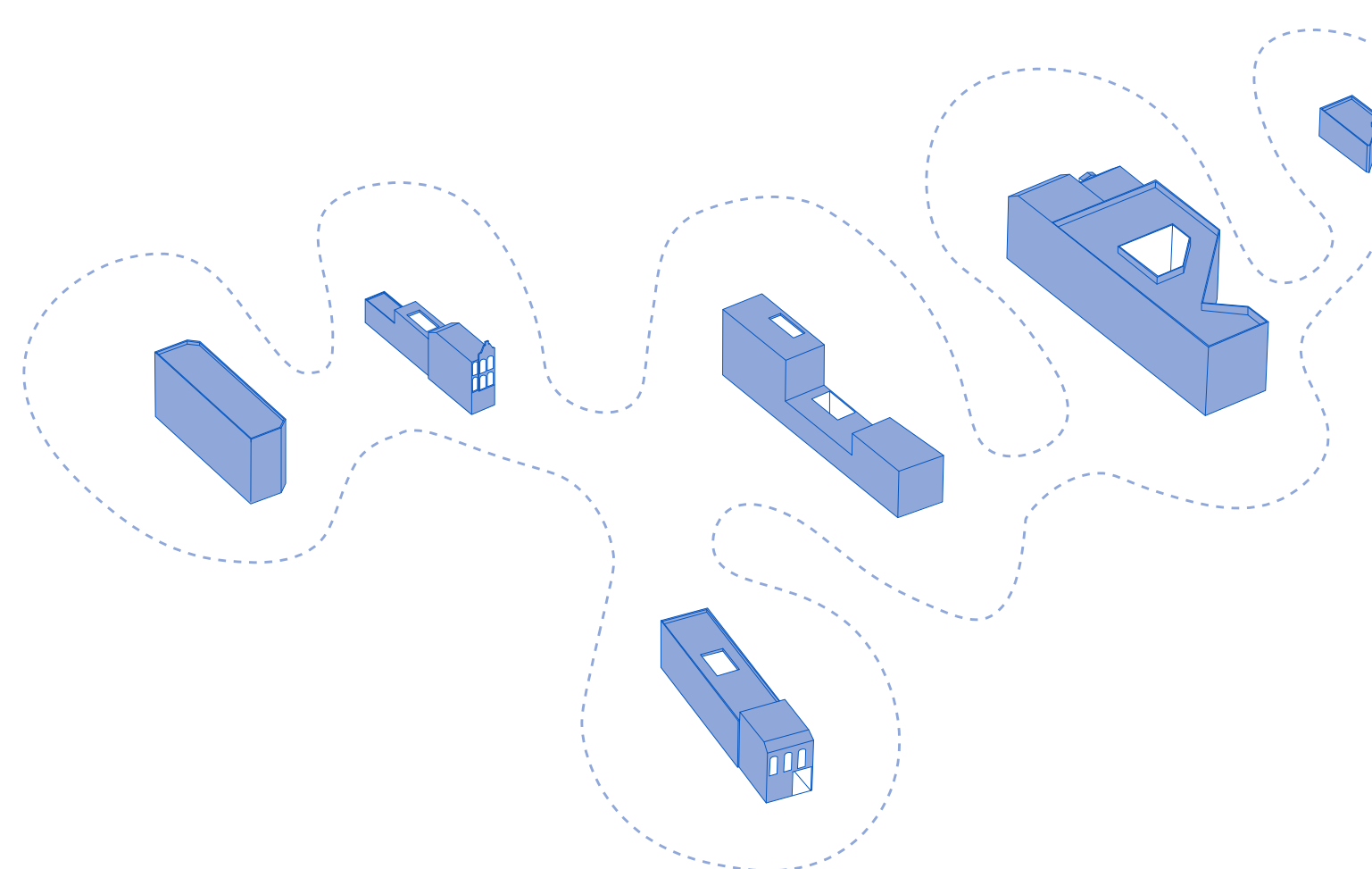
Overview of the plastic network in the city center



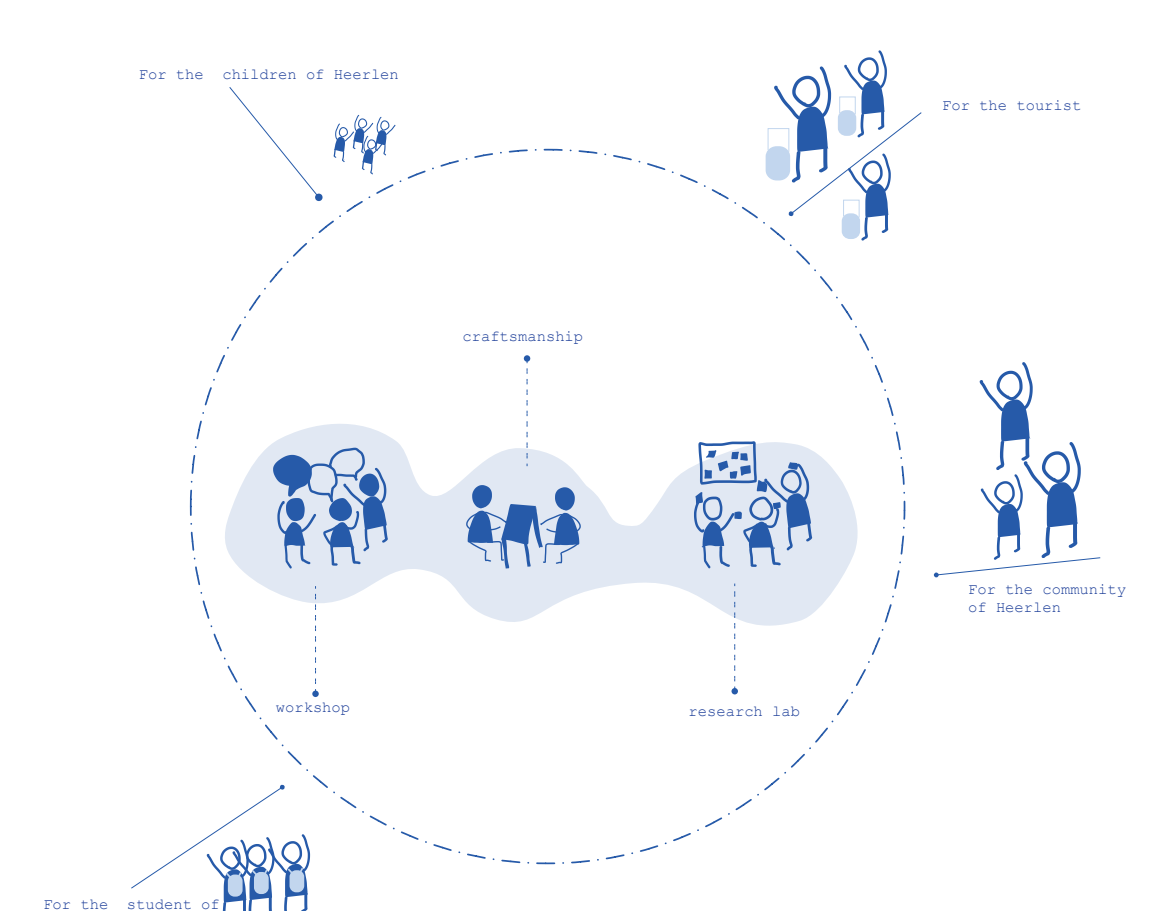
Inside the recycling chain



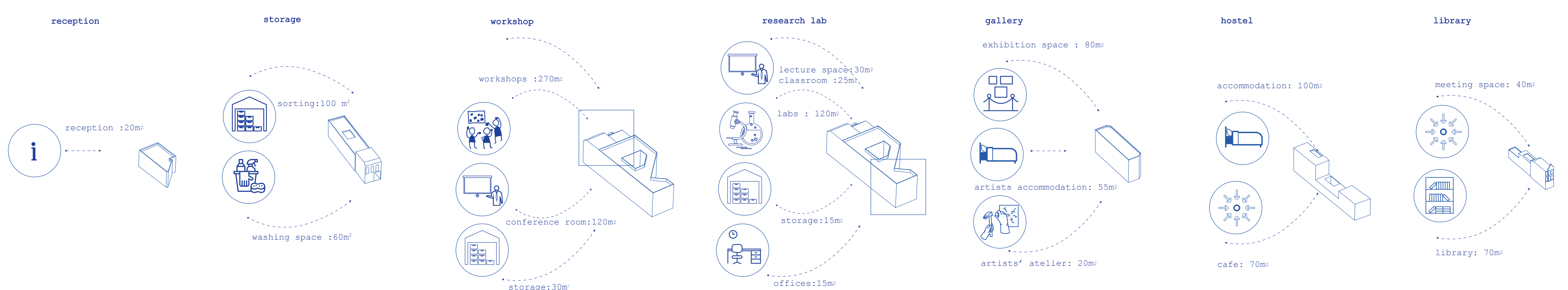
Recycling plastic inside the chain



The chain of recycling plastic clusters



People from the city should be involved, in the following ways

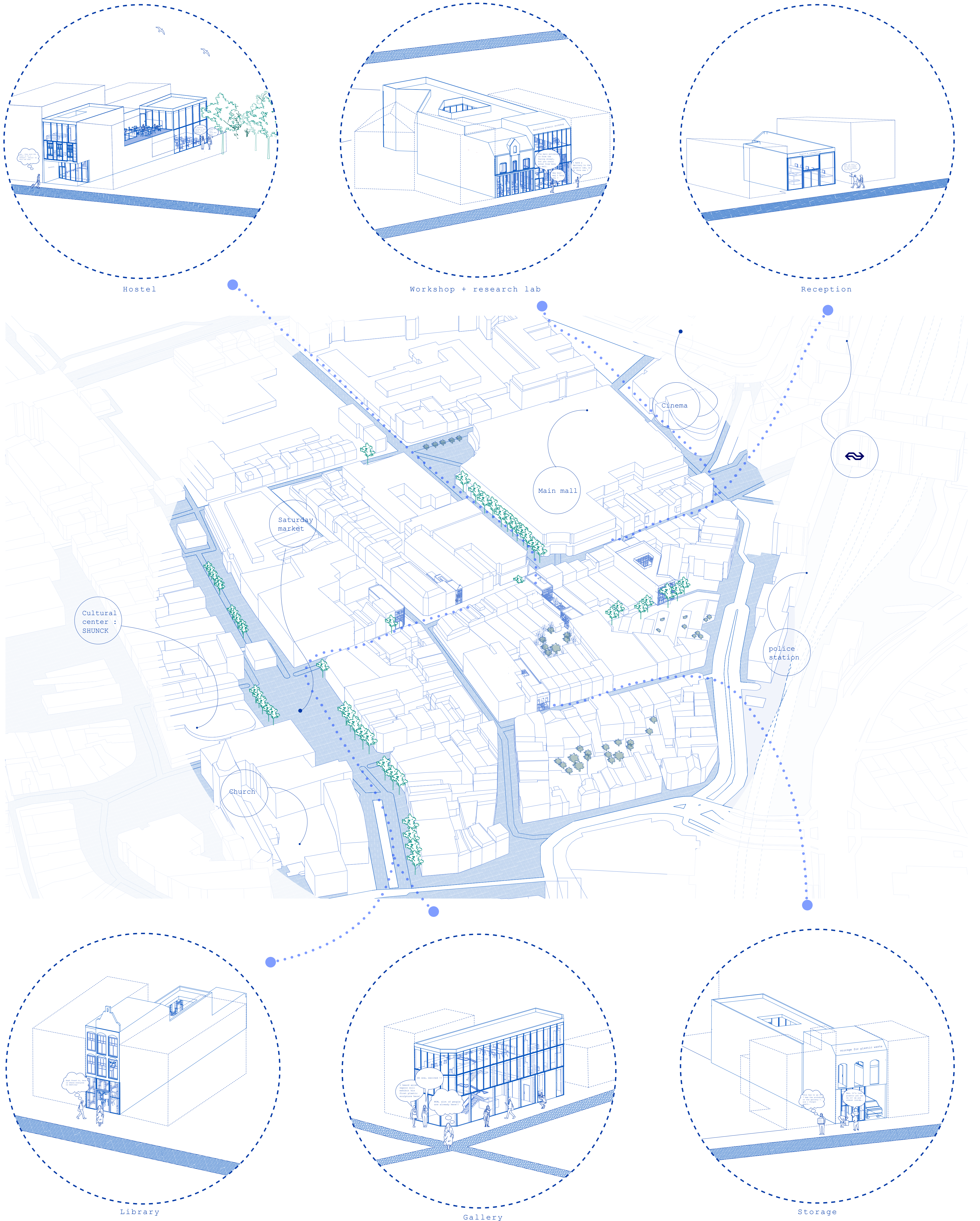


Program inside the chain

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The recycling plastic chain



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Spaces :

Introducing voids to bring more light into the buildings that are long and dark.

Service spaces hidden in the back of the buildings/located on the side to allow a smooth circulation inside the spaces.

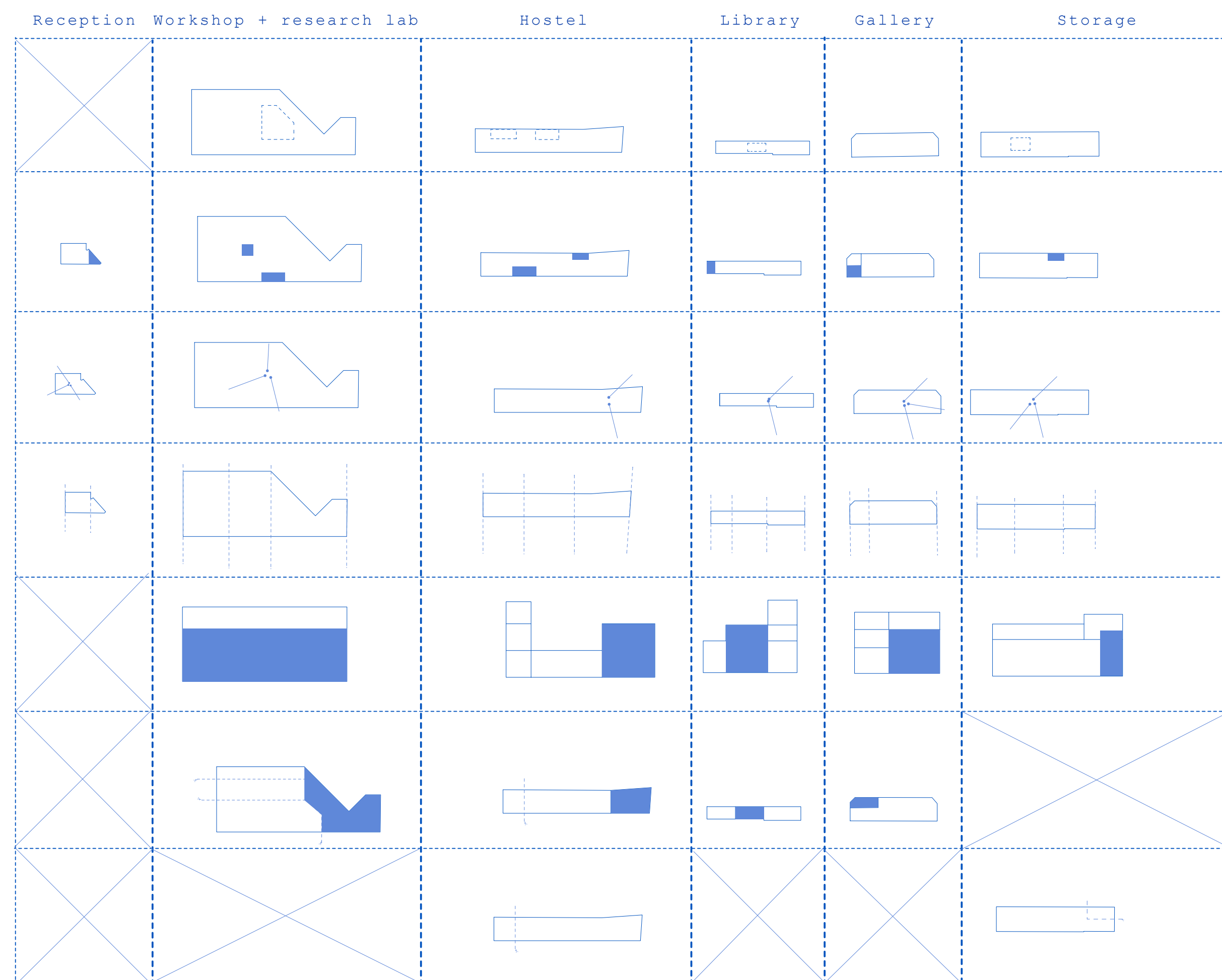
Each building has a central core , where users gather .

Sequences to break the monotony of long and narrow spaces, to create dynamic atmosphere.

Double height present in most of the buildings to bring more light to spaces, but also to have feeling of grandeur inside these narrow spaces.

The architectural intervention are mostly extension to connect part of the building, with a public space, a court yard, or simply because the functions requires it.

Other architectural intervention were based on setback of the facades, to create depth.

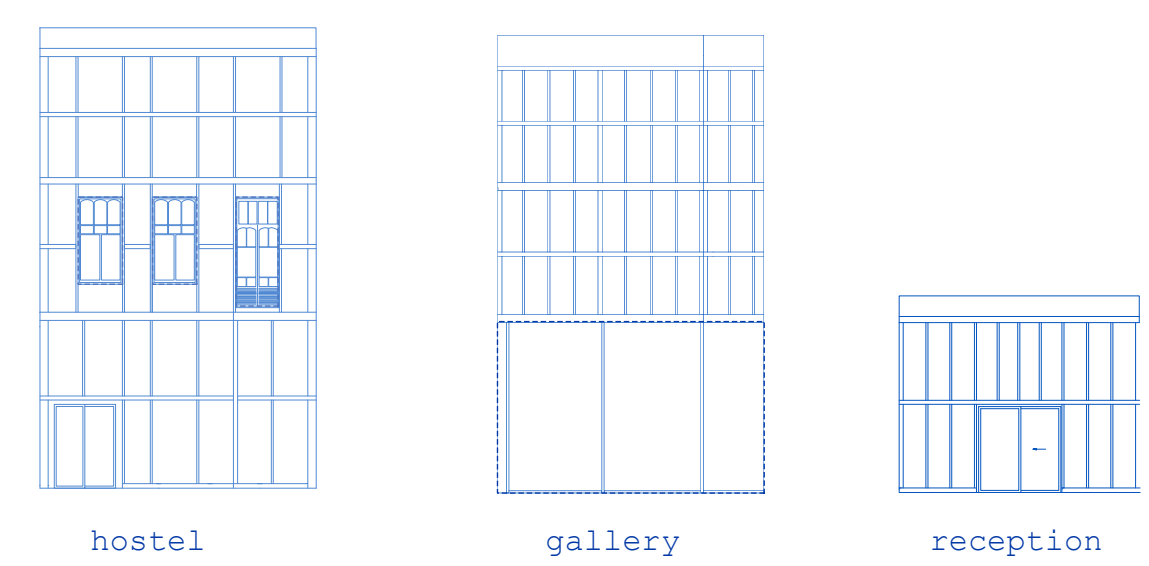


Facades :

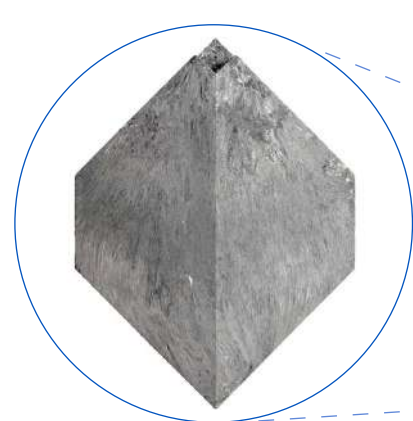


Keeping the old part, to maintain the character of the town center.

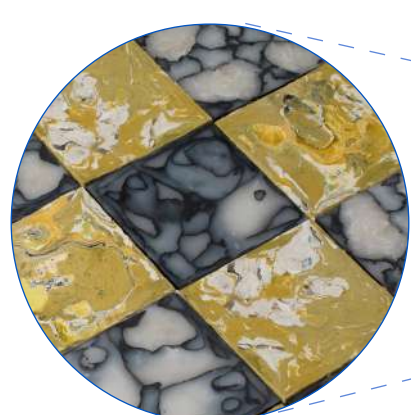
Replacing a low quality facades, run down old shop facades.



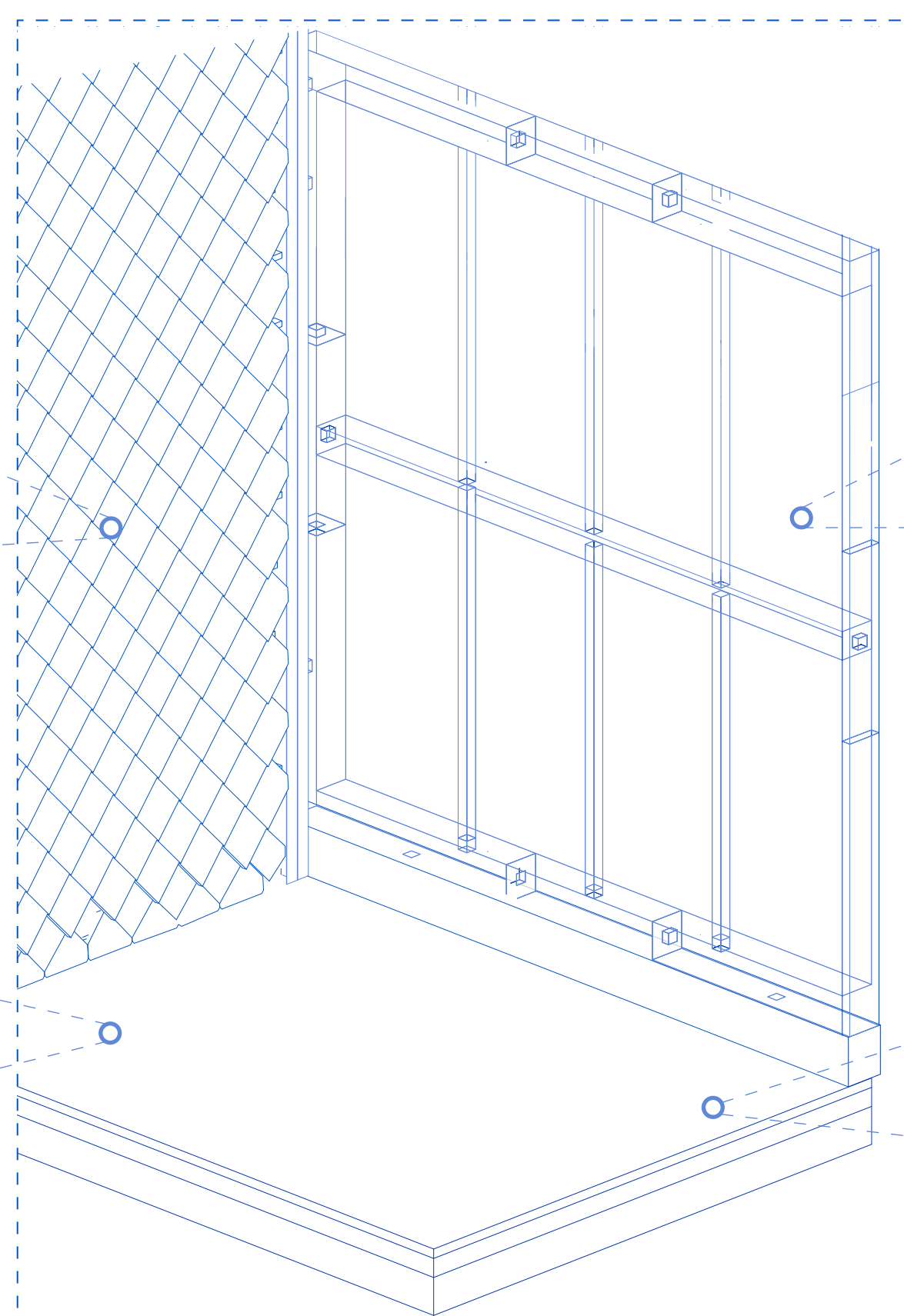
Materials:



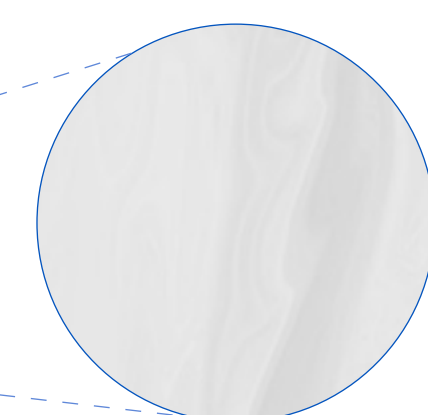
Plastic tiles, produced in the workshop, applied in most of the spaces - differ in color and size.



Floor tiles are used in Hostel, Library and Gallery spaces.



Honeycomb polycarbonate panels, bring a lot of light to the spaces and transparency.



Epoxy is used in spaces where machines, and manual work is taking places to avoid any damages.

Architectural principles

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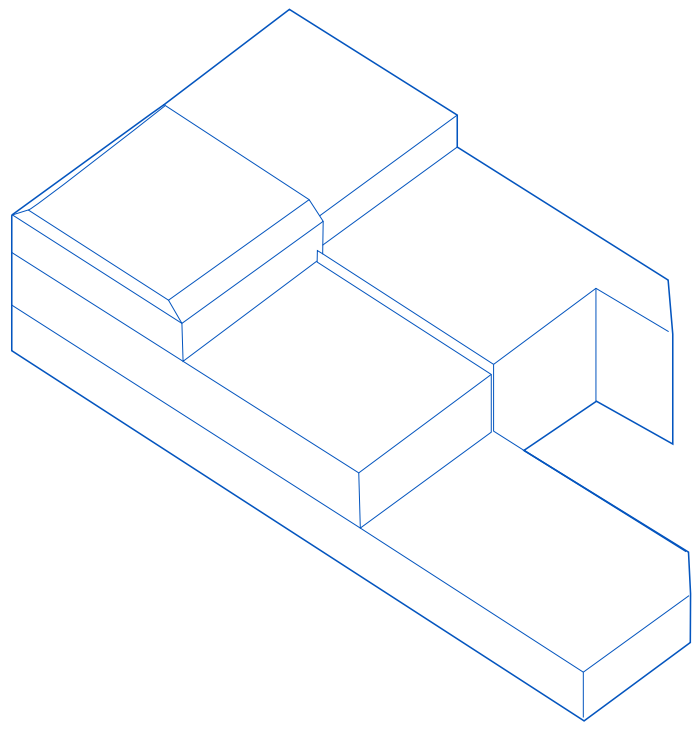
The workshop and research lab building



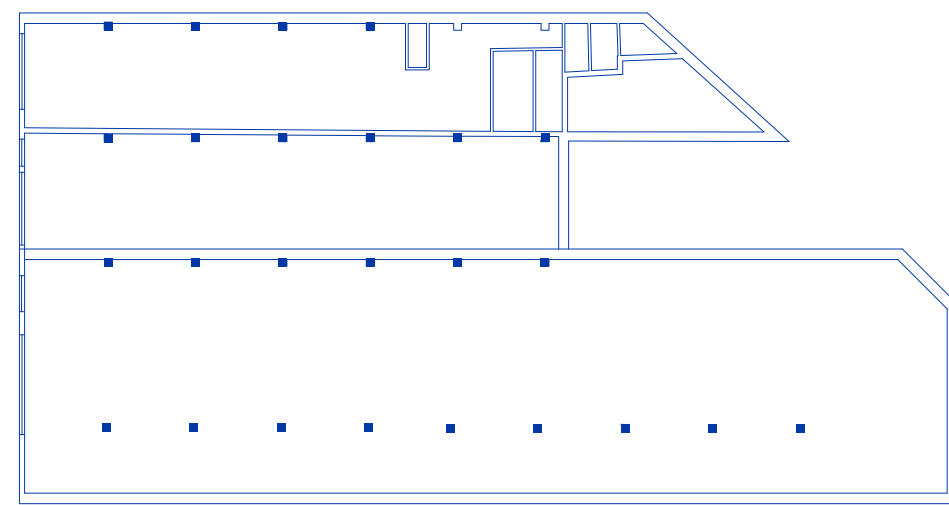
back of the two buildings



inside one of the buildings



.Existing volume of the two buildings

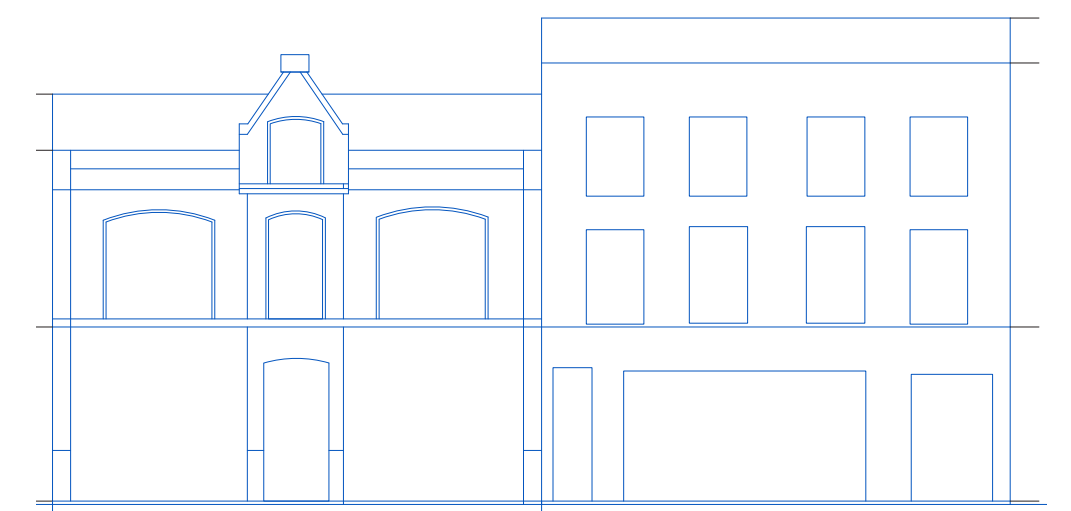


.Existing floor plan

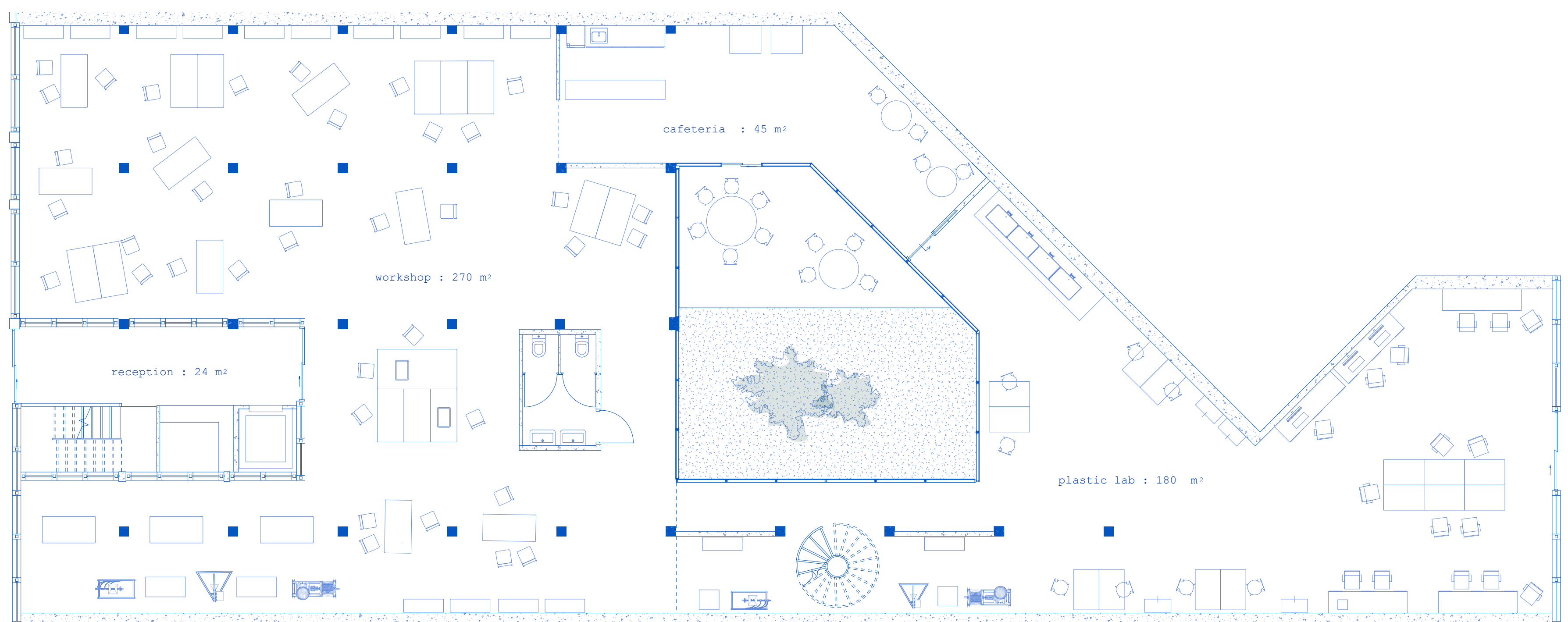
.Located in the shopping street of the center of Heerlen.

.The historical red brick shop vacant since 2015

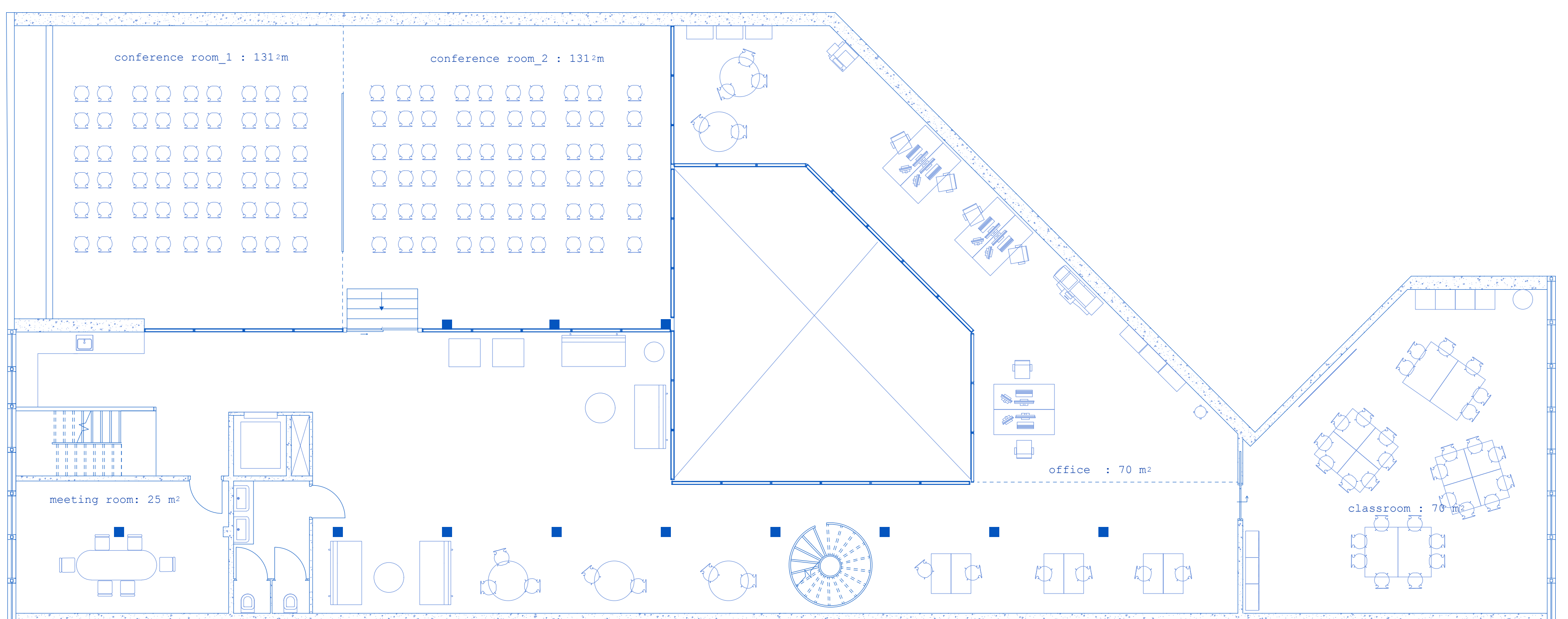
.Constructed in 1931-1944 with a surface of 100 m².



.Existing facades of the two buildings



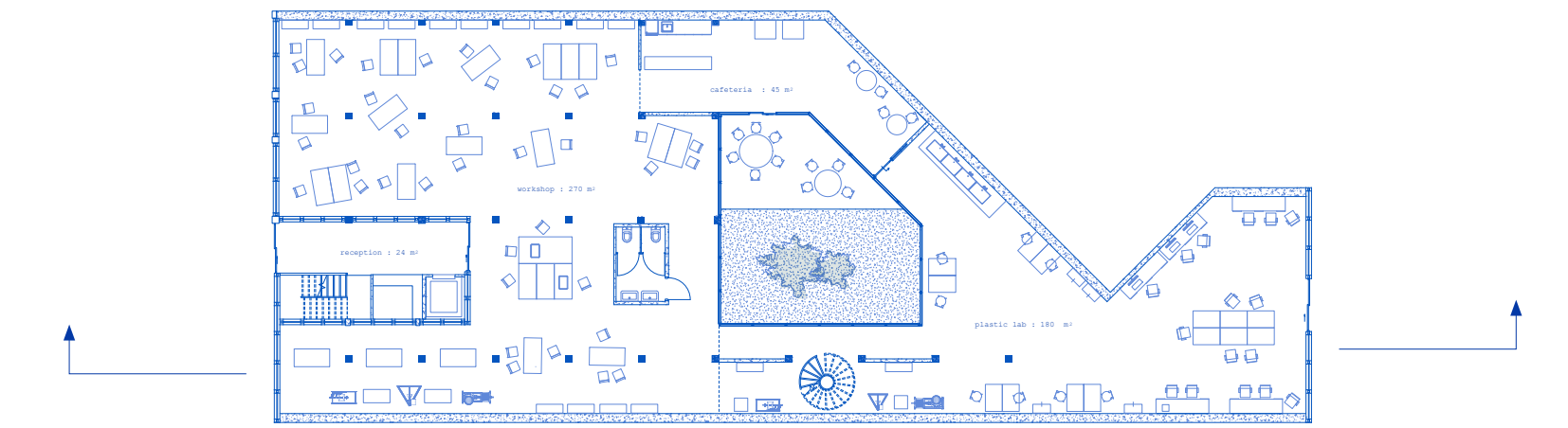
Ground floor 1:100



First floor 1:100

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section: scale 1:50

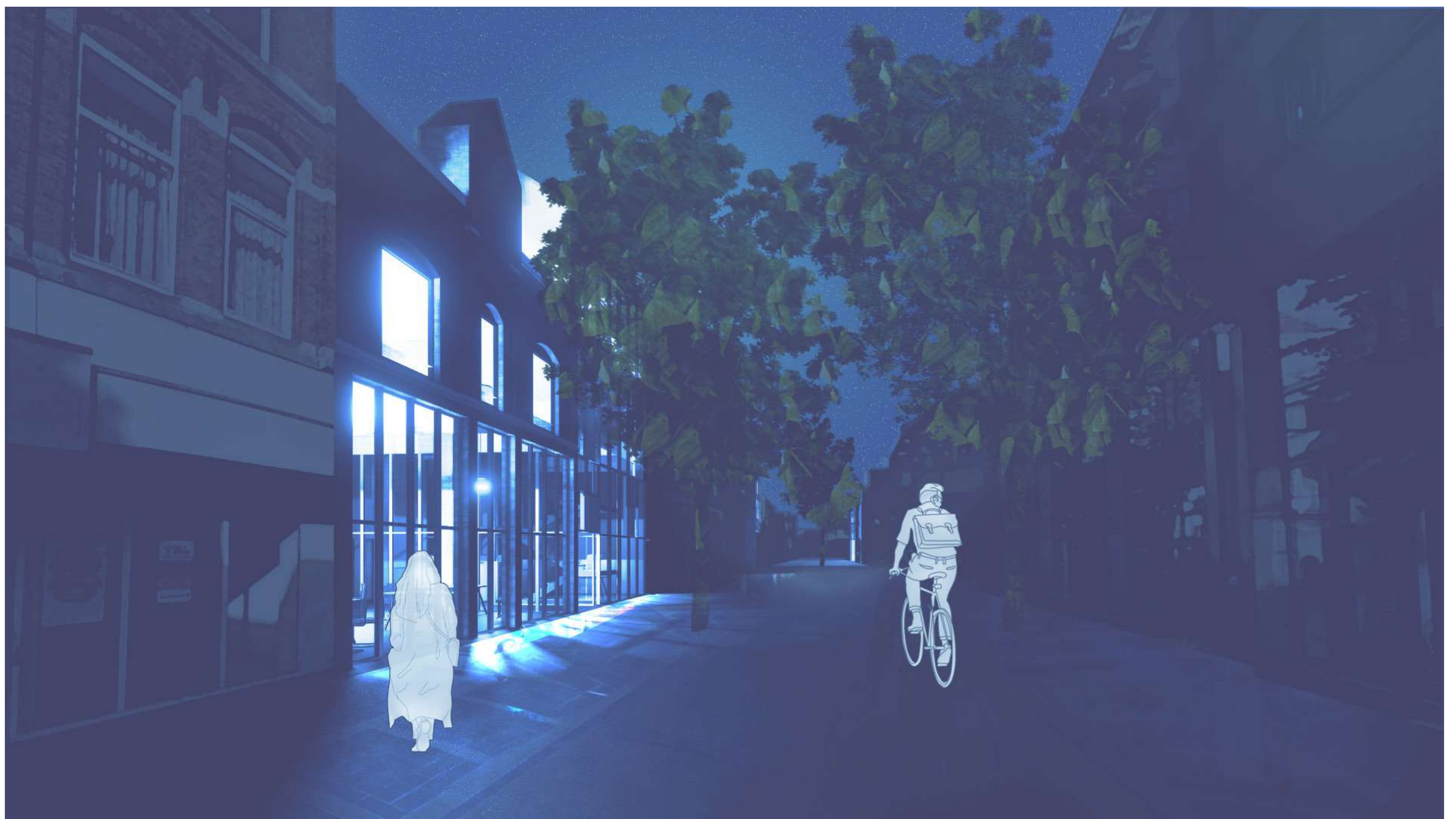
I design, I create, I share, and learn everyday from this community. We meet, we share and teach to each other. At the workshop and research lab for recycling plastic we work together to make our community better!

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WORKSHOP from inside



WORKSHOP from outside

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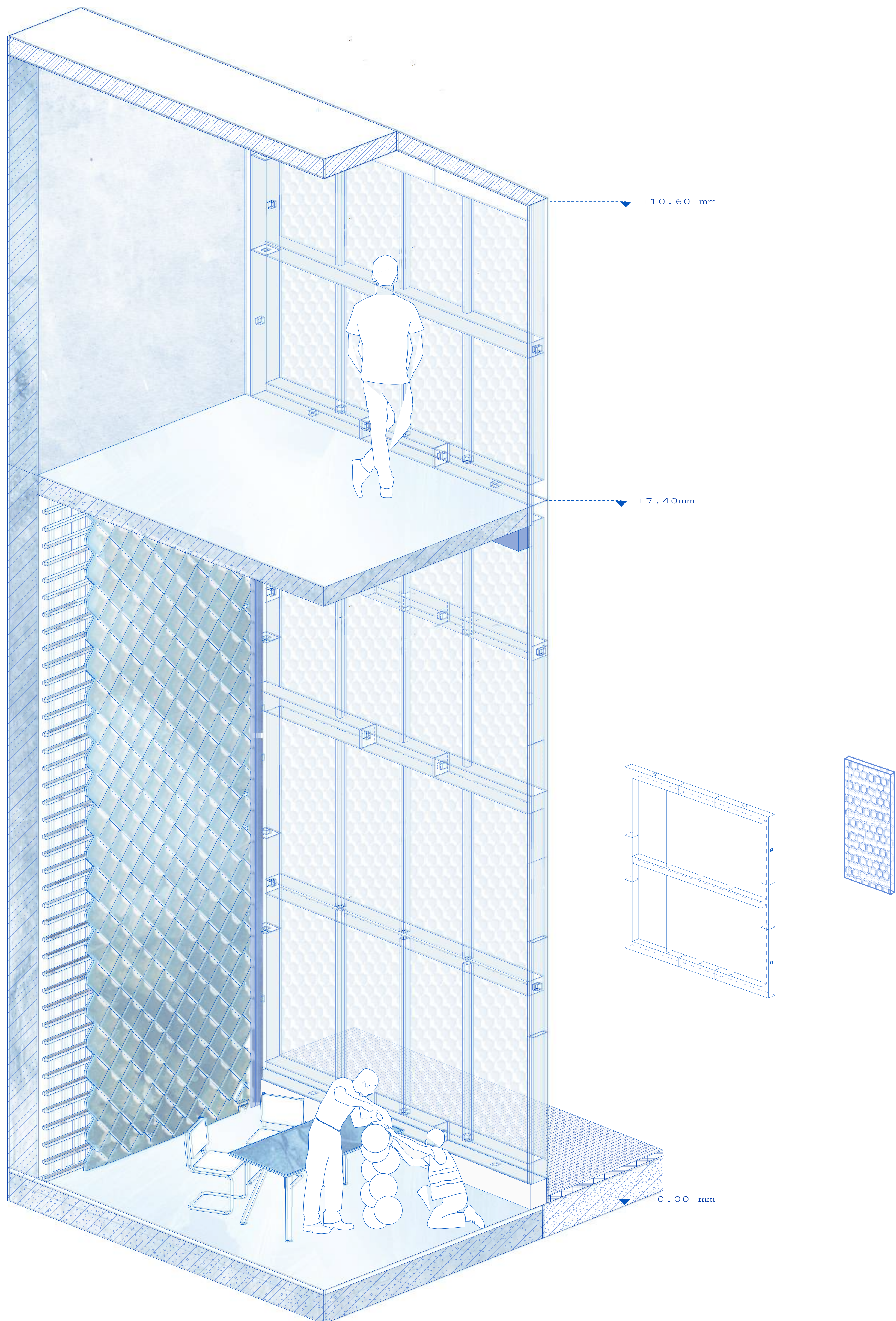


Research lab from inside



RESEARCH LAB from outside

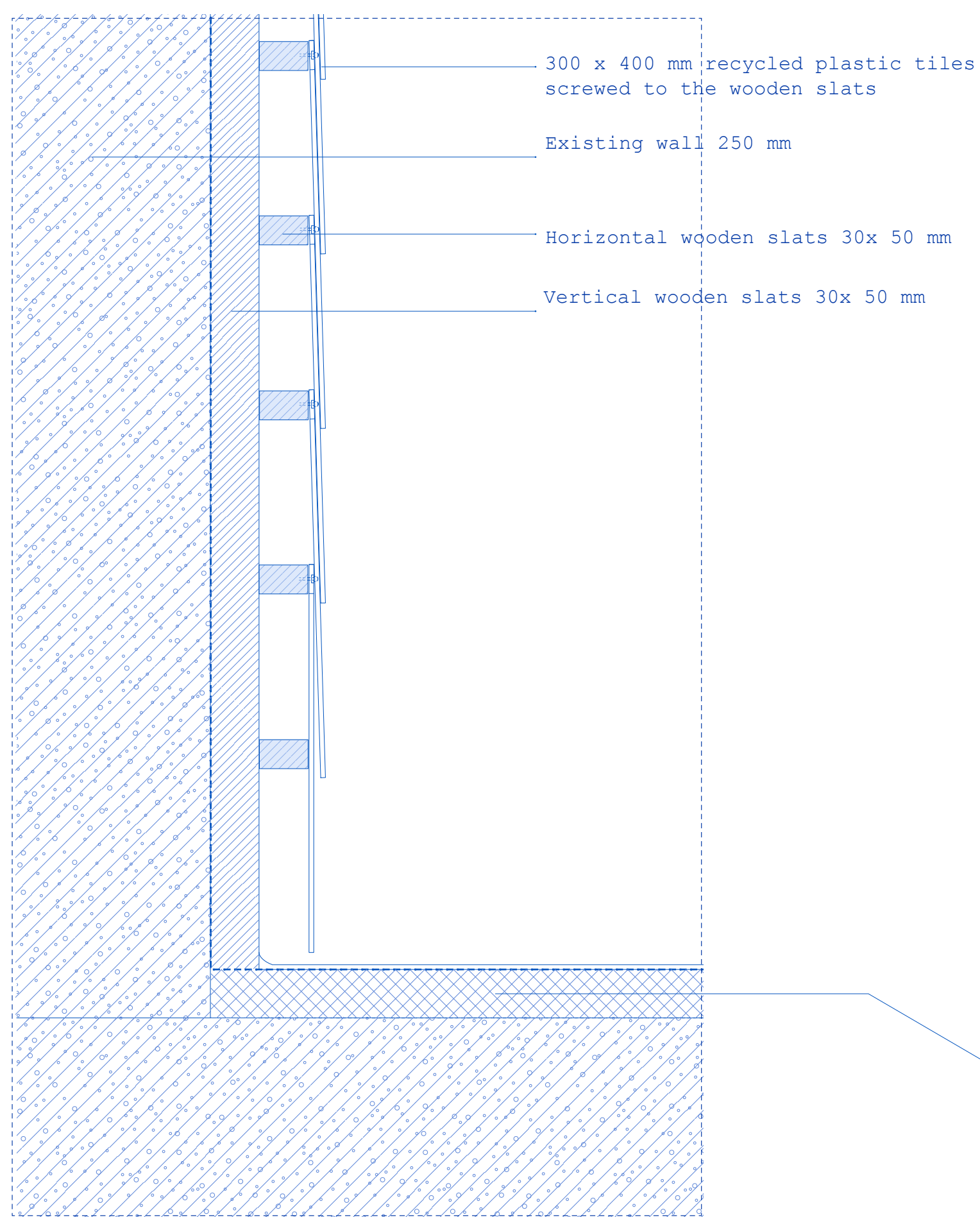
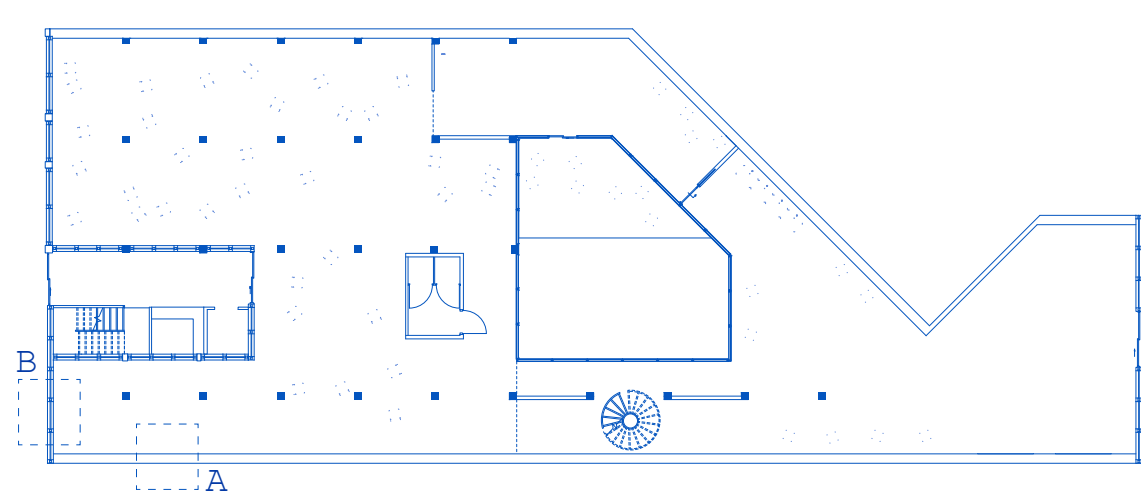
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Fragment Facade & plastic tiles 1:20

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Facade detail A _ 1:10

Epoxy glue 100 mm
Existing concrete floor
250 mm
Prefab concrete slab 250
IPE 220 profile beam
220x110 mm

Air-board UV polycarbonate
honeycomb patterns, cell
D= 12 mm transparent 30
mm, U- value 1.7[w/m²k]

Sliding windows plastic
frame.

polythylene facade frame
200mm, part 1

IPE 220 profile beam
220x110 mm

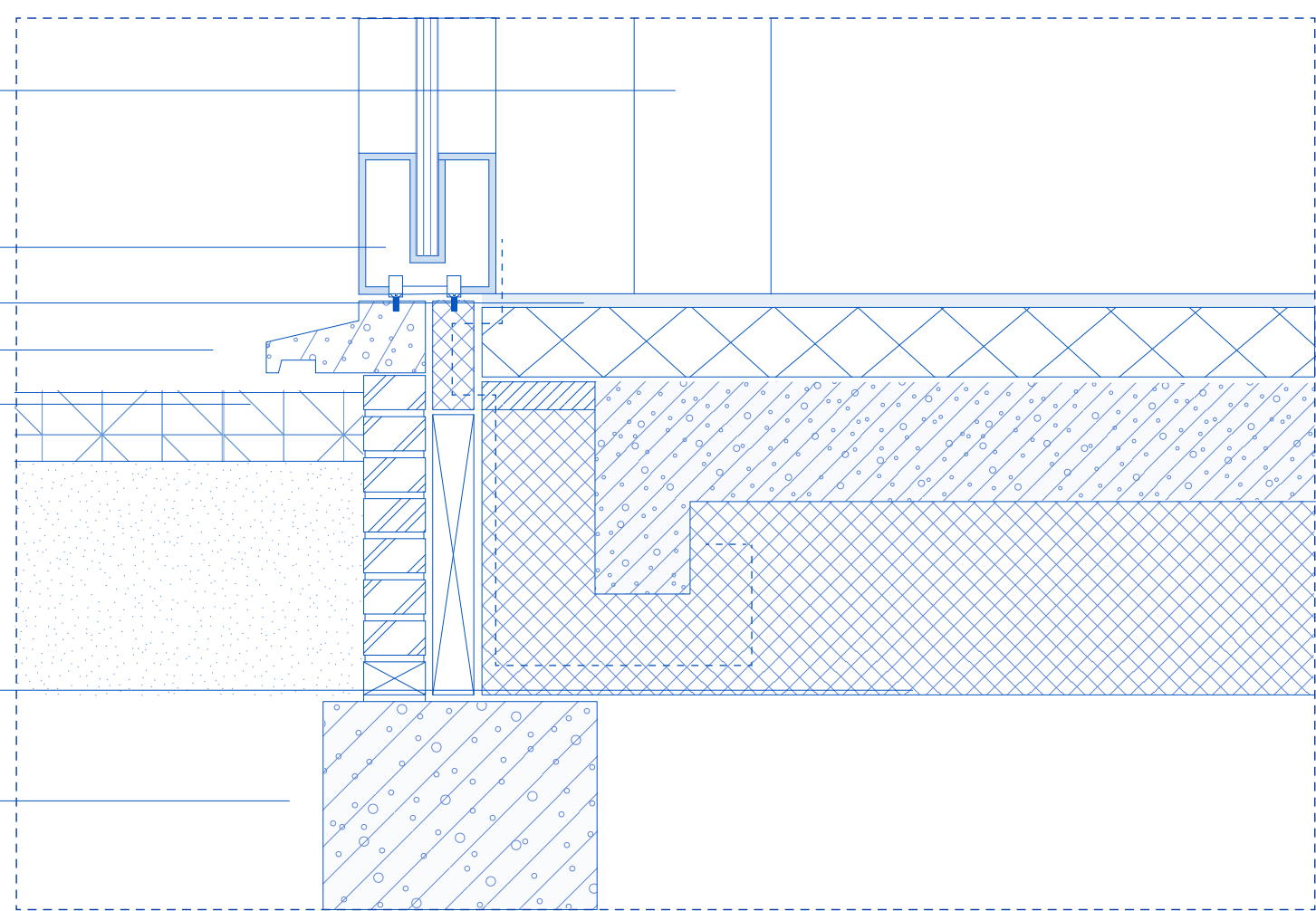
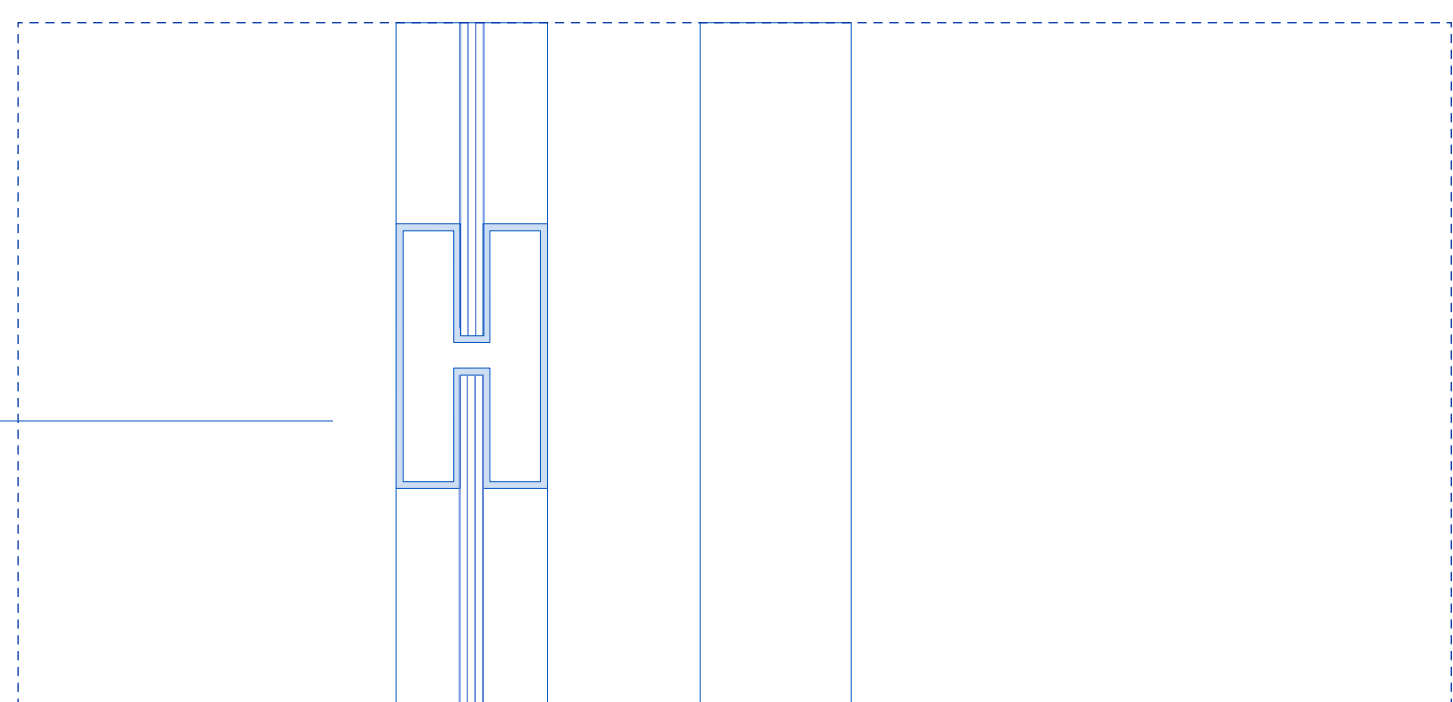
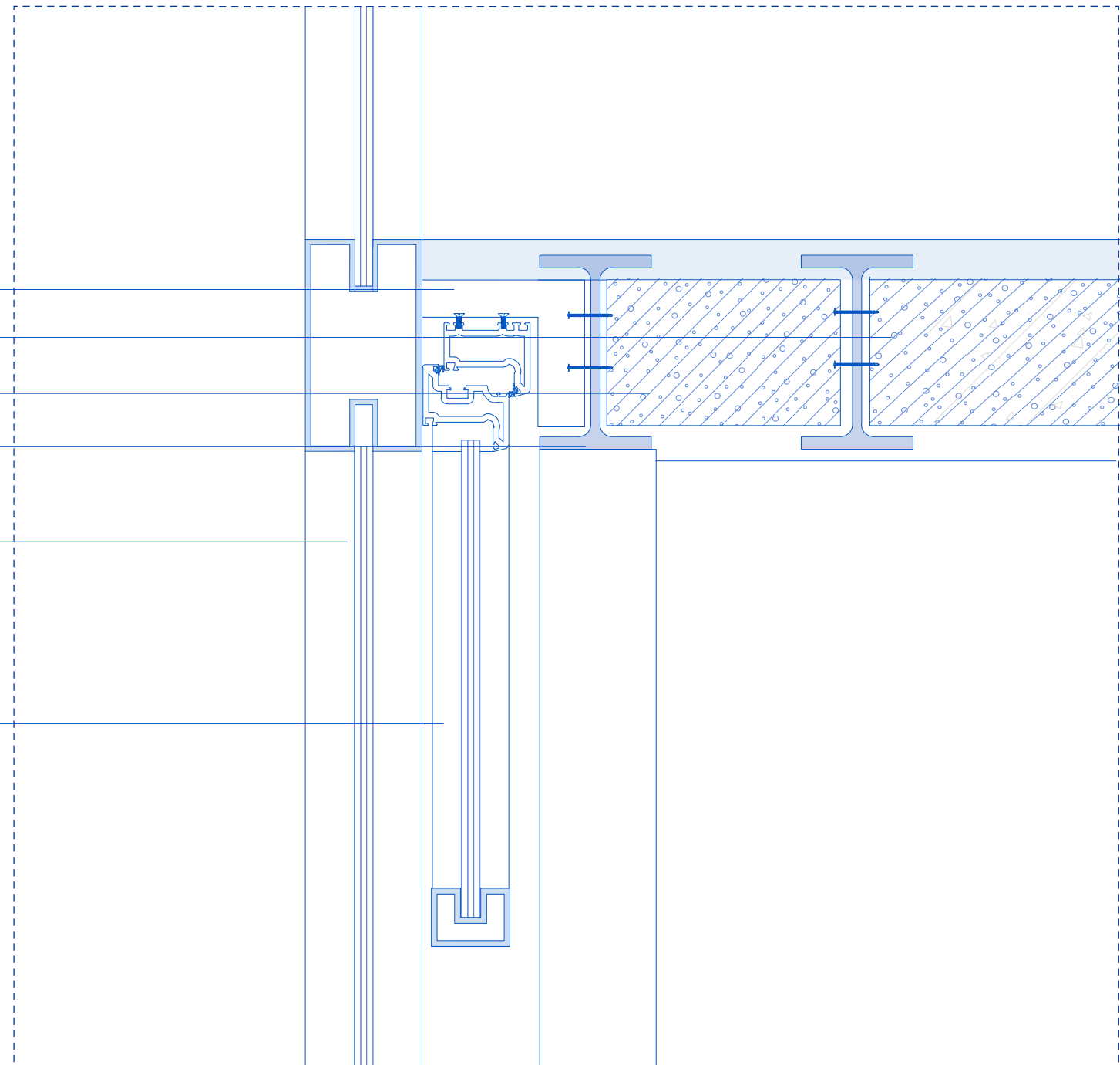
polythylene facade frame
200mm, part 3

Epoxy floor finish 5 mm
Concrete slab

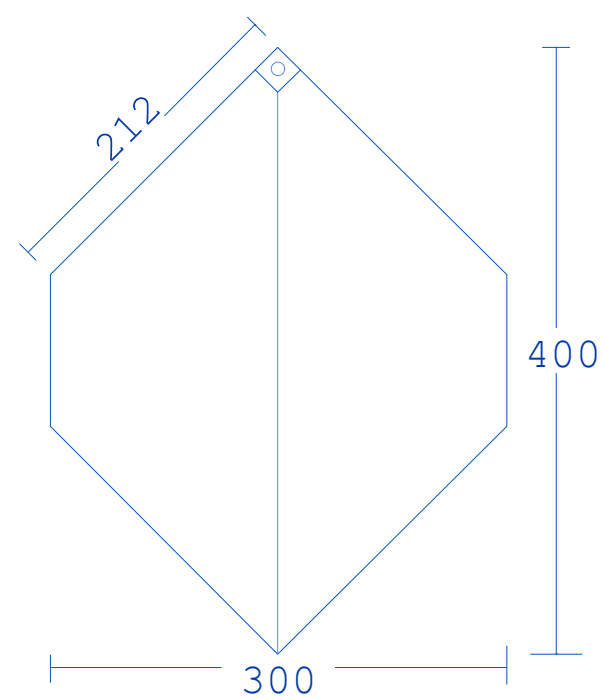
Existing ground + 0.00

Insulation XPS insulation
R-value = 5.0 100mm

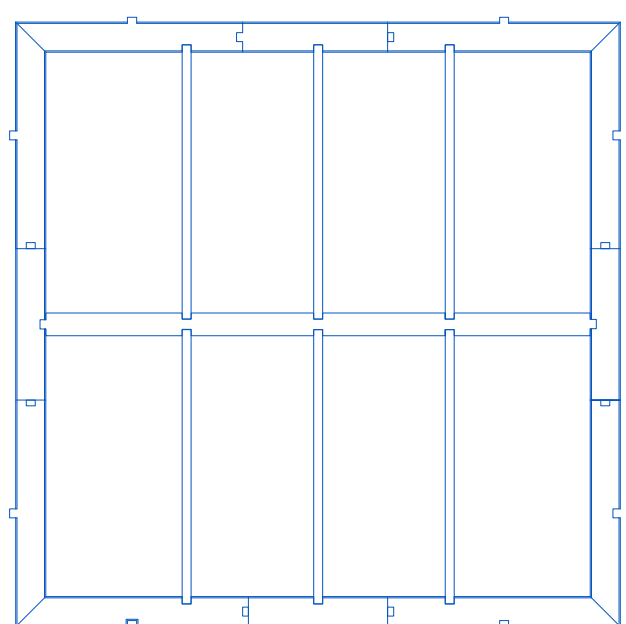
Fondation



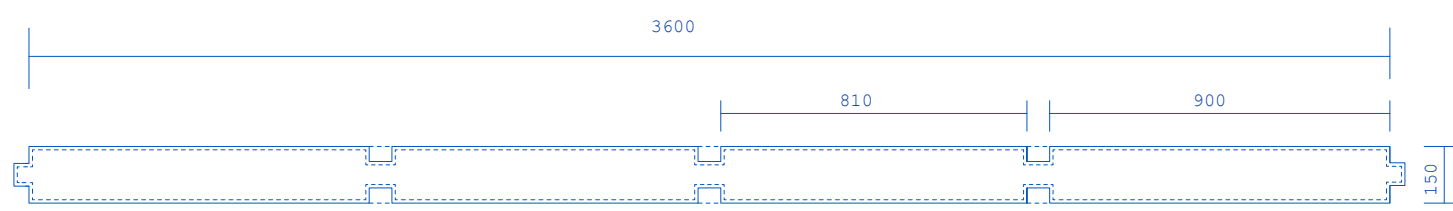
Facade detail B _ 1:10



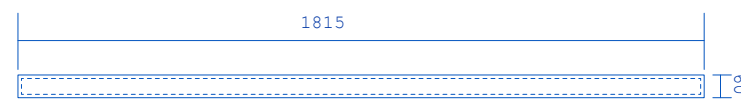
Plastic tiles 1:5



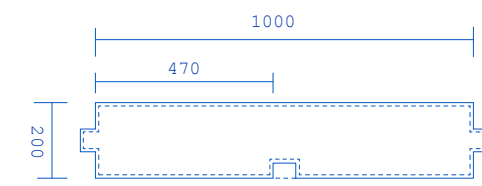
Fragment scale 1: 50



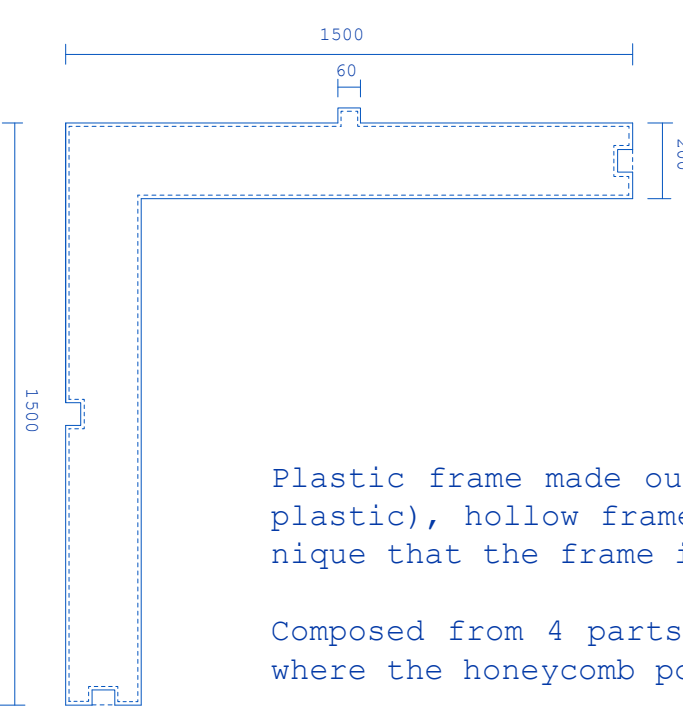
Part 1 scale 1: 20



Part 2 scale 1: 20



Part 4 scale 1: 20



part 3 scale 1: 20

Plastic frame made out of the polythylene powder (type of plastic), hollow frame thanks to the rotation molding technique that the frame is made from.

Composed from 4 parts that are stuck up, forming one frame, where the honeycomb polycarbonate sheets are inserted.

Details