

negotiating ways to intervene

transforming an existing warehouse
into a vocational school

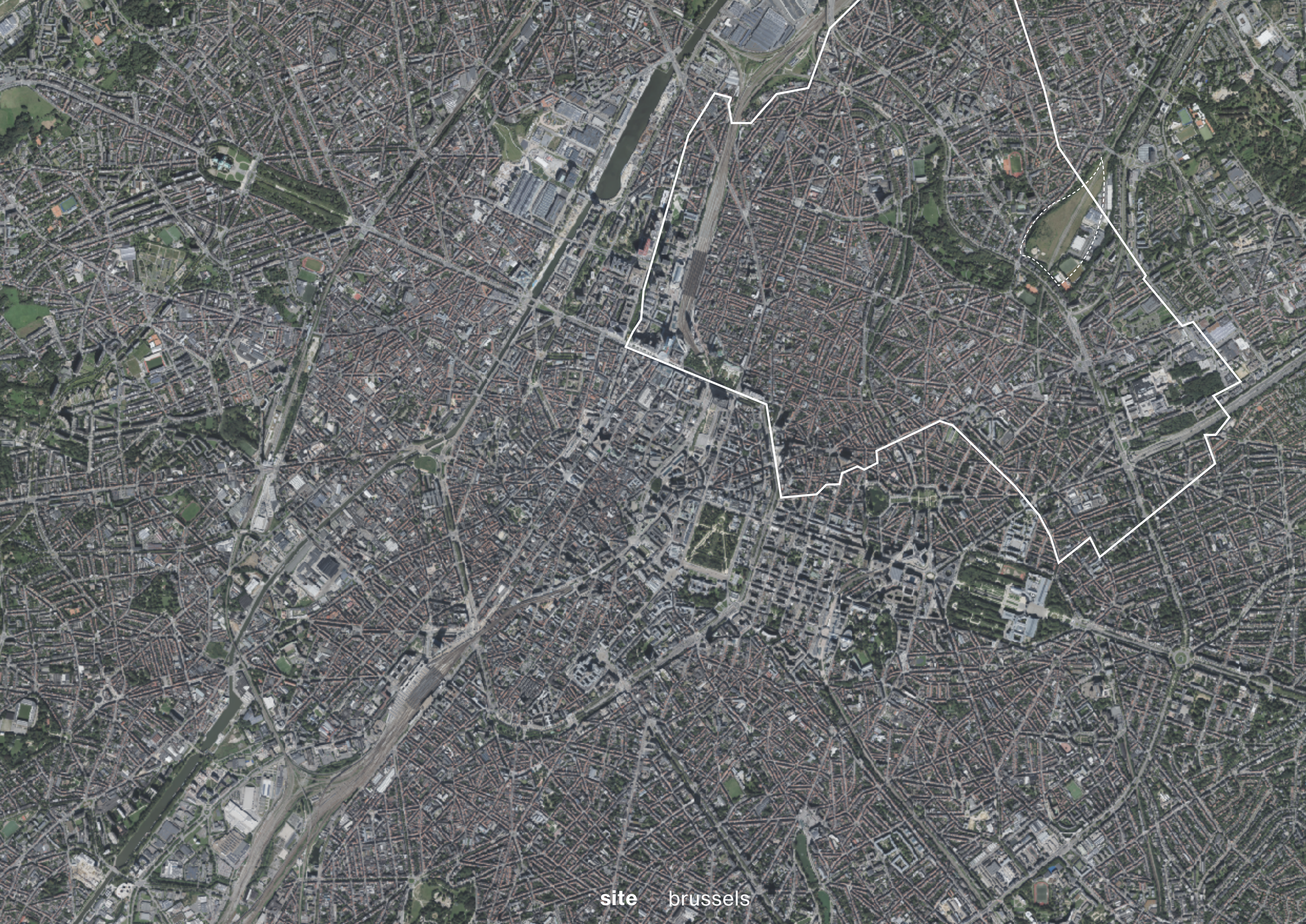
project booklet



Jaron smit
TU Delft
Architecture Urban
Architecture

tutors
Eireen Scheurs
Sam Stalker
Anet Meijer

26 06 2024



site brussels

marshalling yard

^
north



1930

first buildings

^
north



1971

removal marshalling yard

^
north



1996

new soil

^
north



2012

today

^
north



2023



isolated behind a dense tree line



2 to 8 metres lower than its surroundings

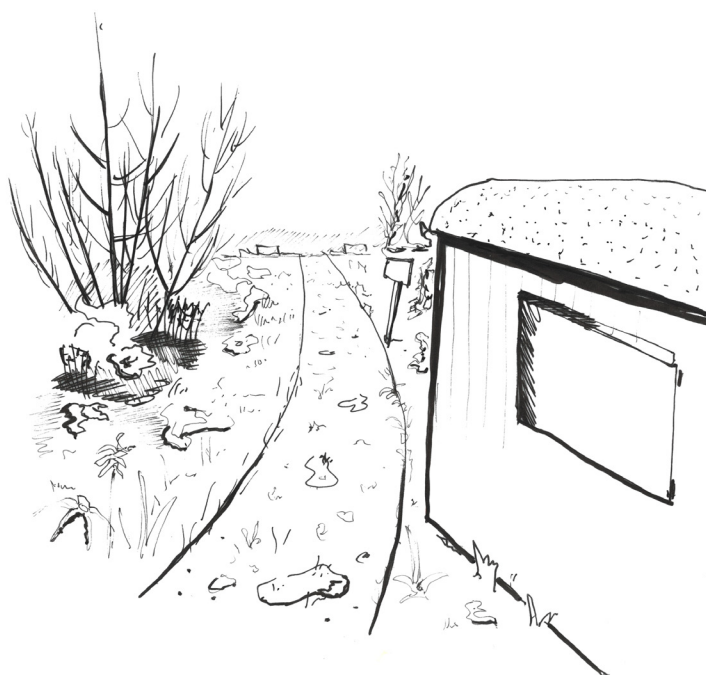


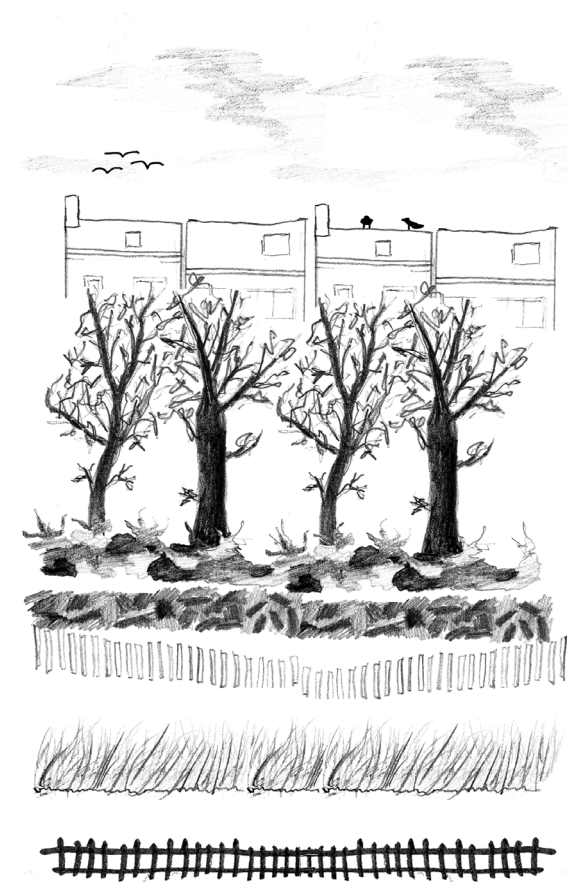
split by a train track



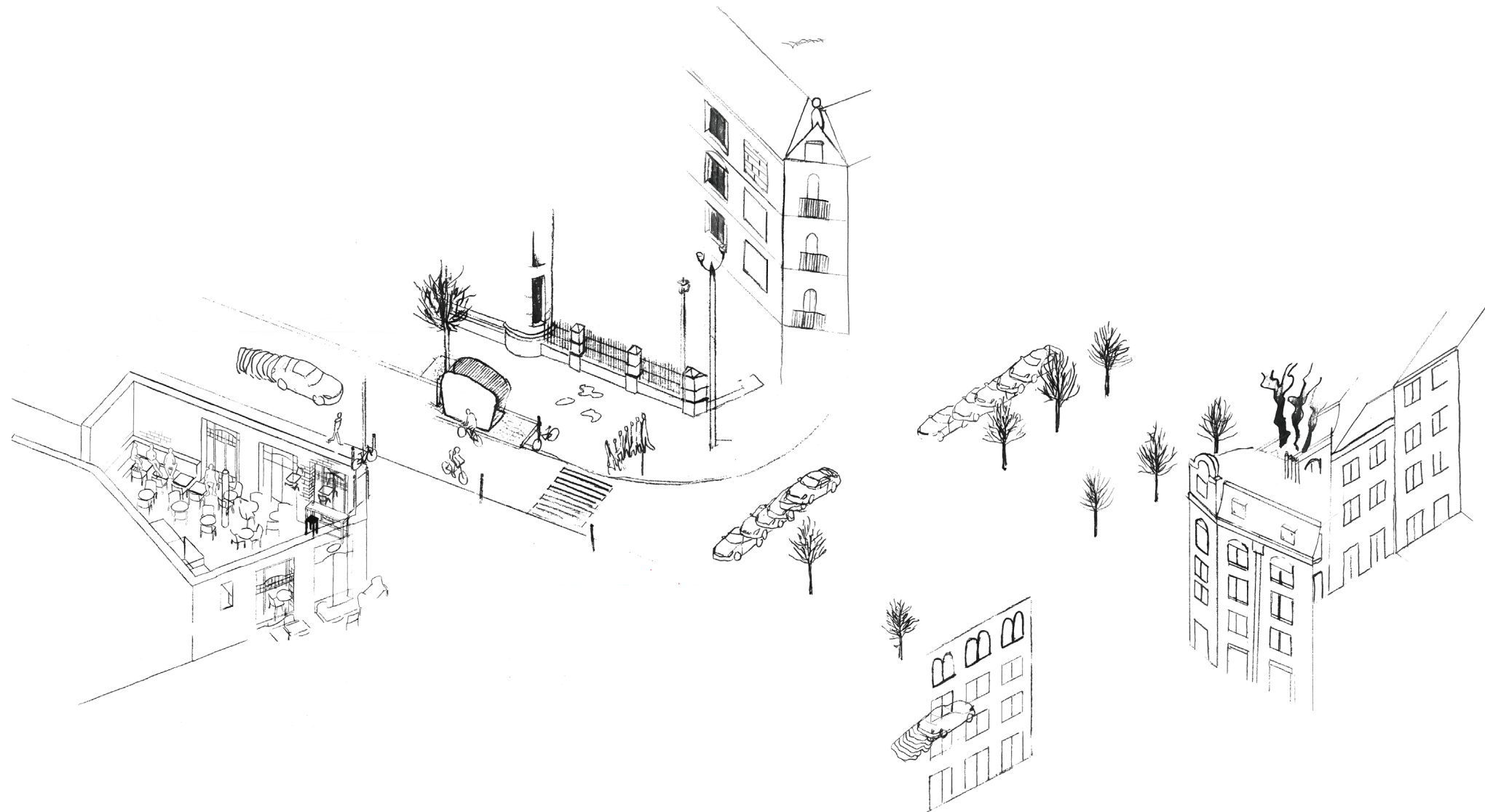
industry on the east side

La Friche Josaphat industry





stay





contested

^
north



preserve nature on the west side



^
north



densify existing constructors
and logistical functions



^
north



keep central 3 buildings



^
north



connect to surrounding
neighbourhoods



^
north



keep tree-line intact

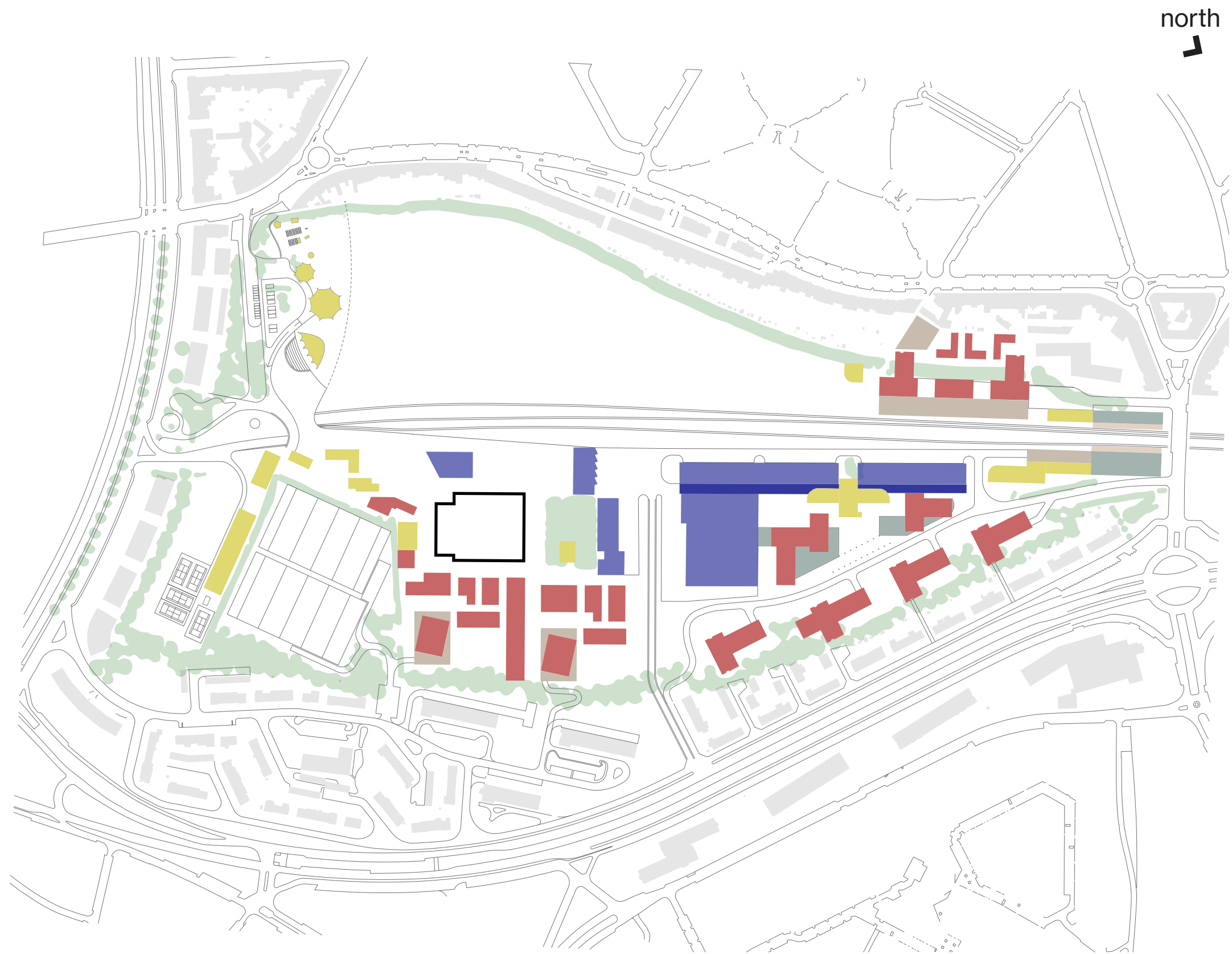


^
north



car free



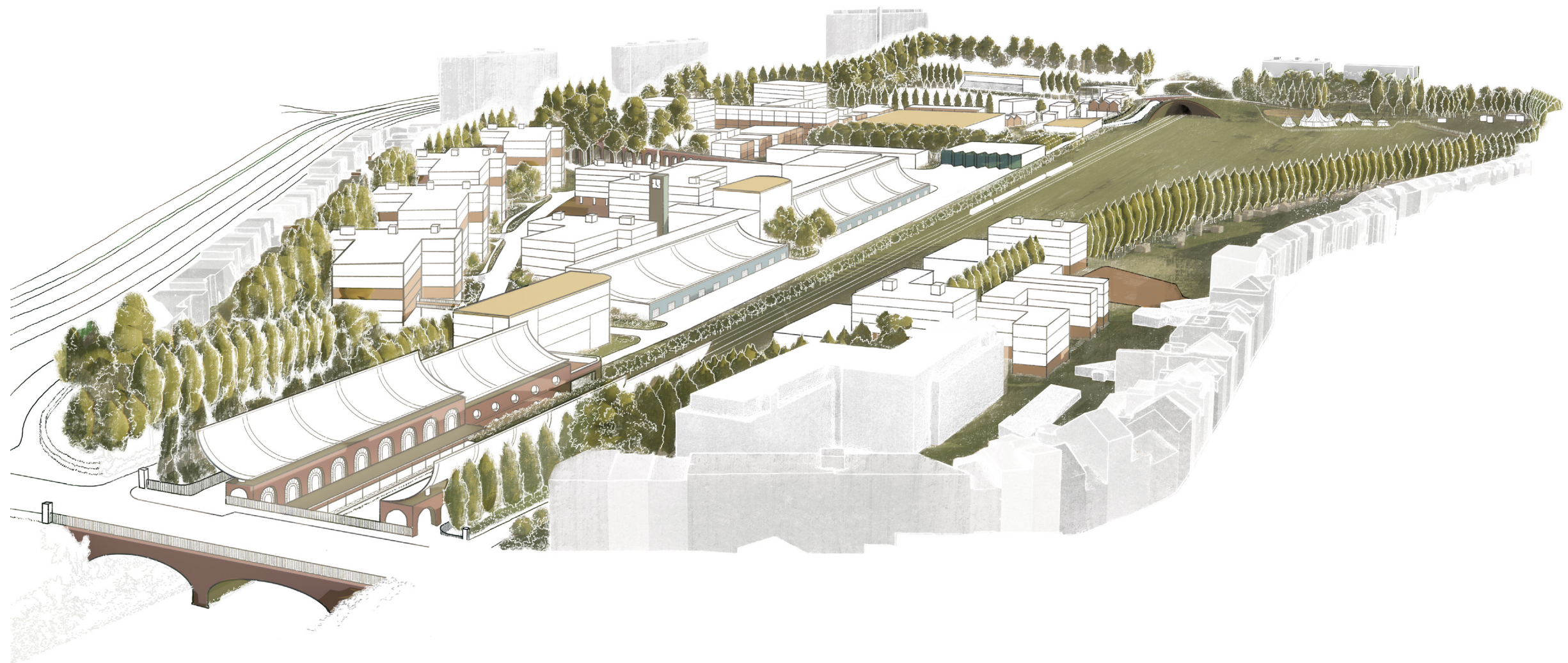


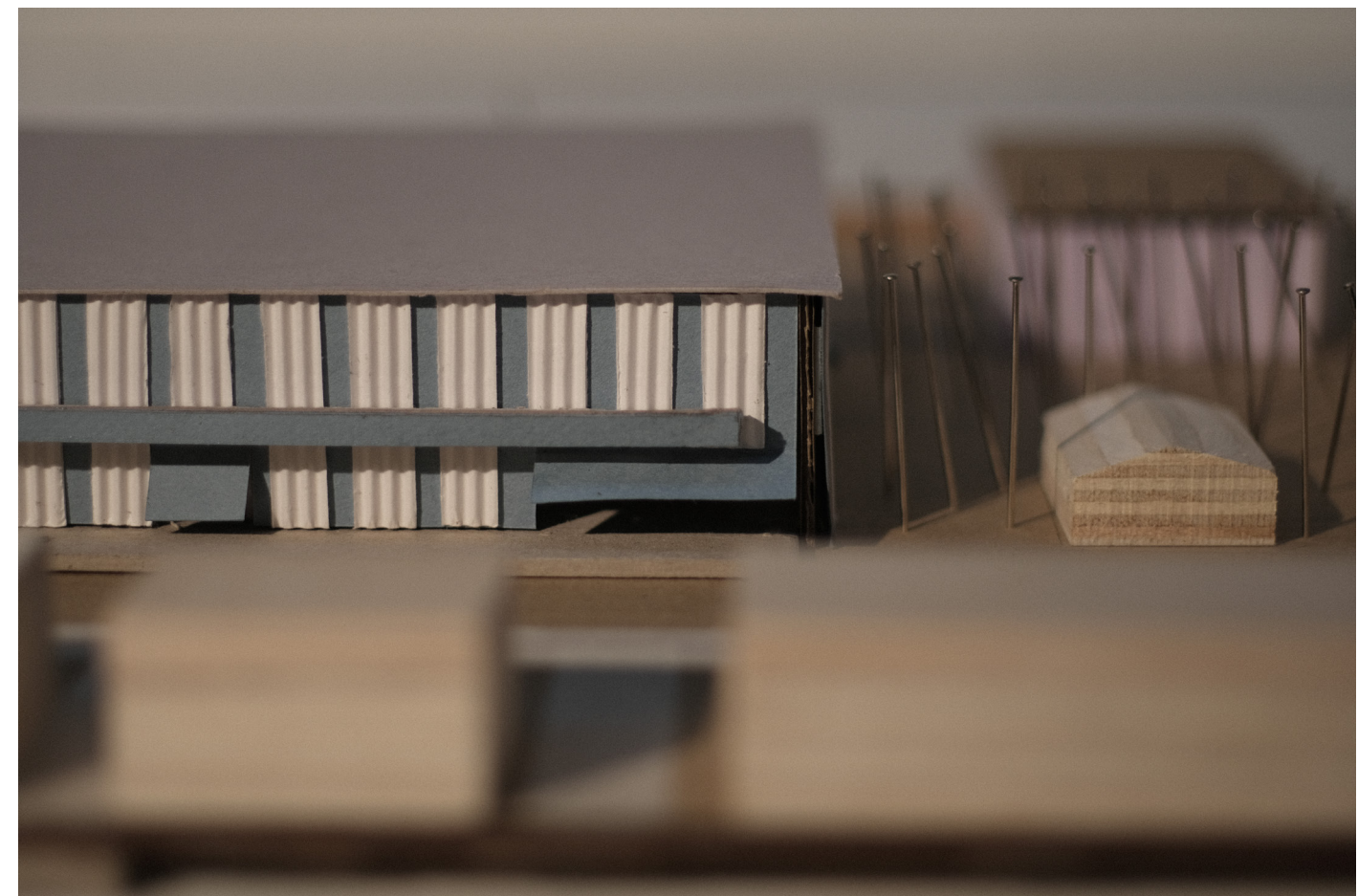
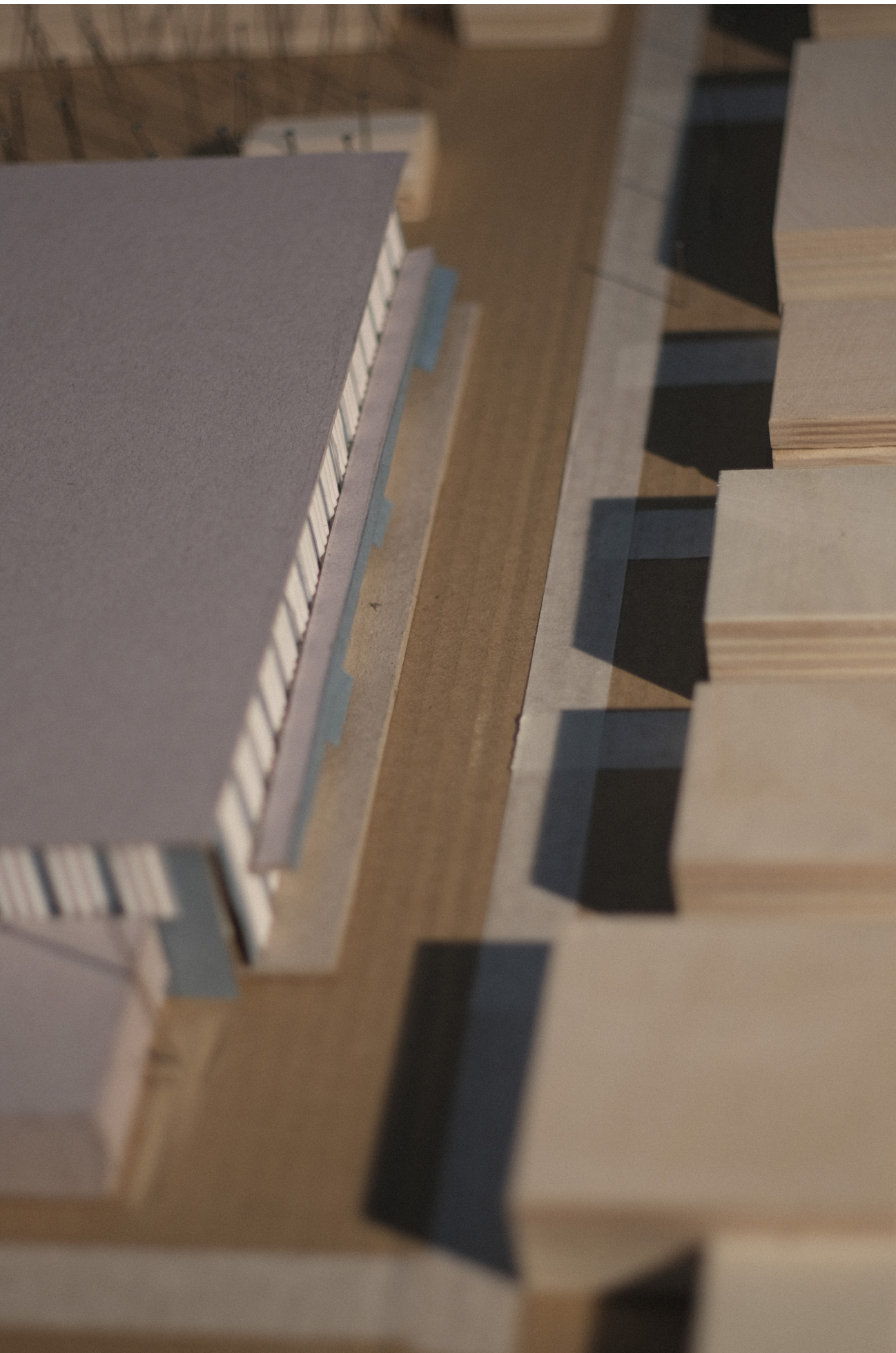
railway station **nature** **industrial** **residential** **sports, culture & education**

urban plan **masterplan**

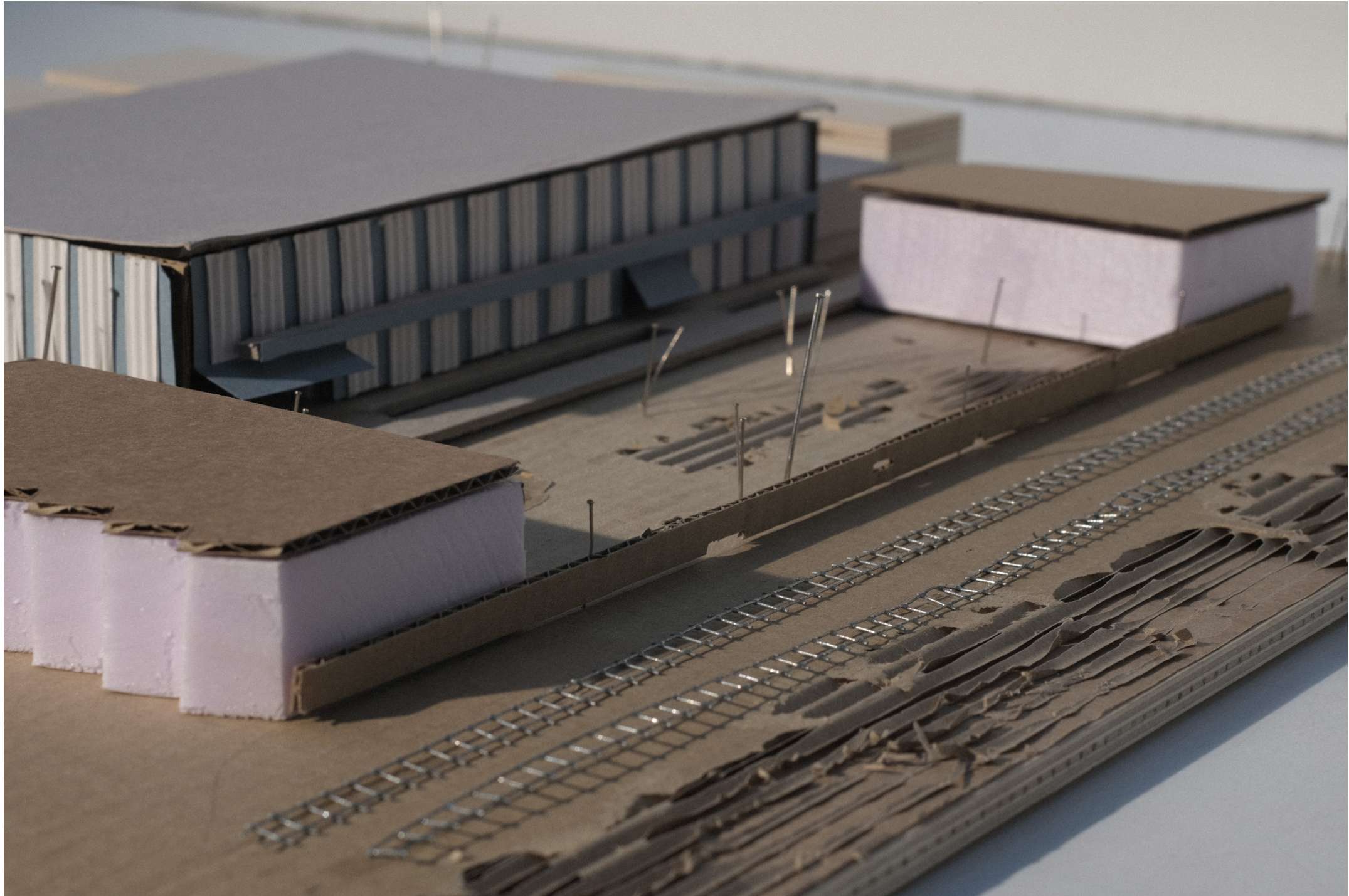


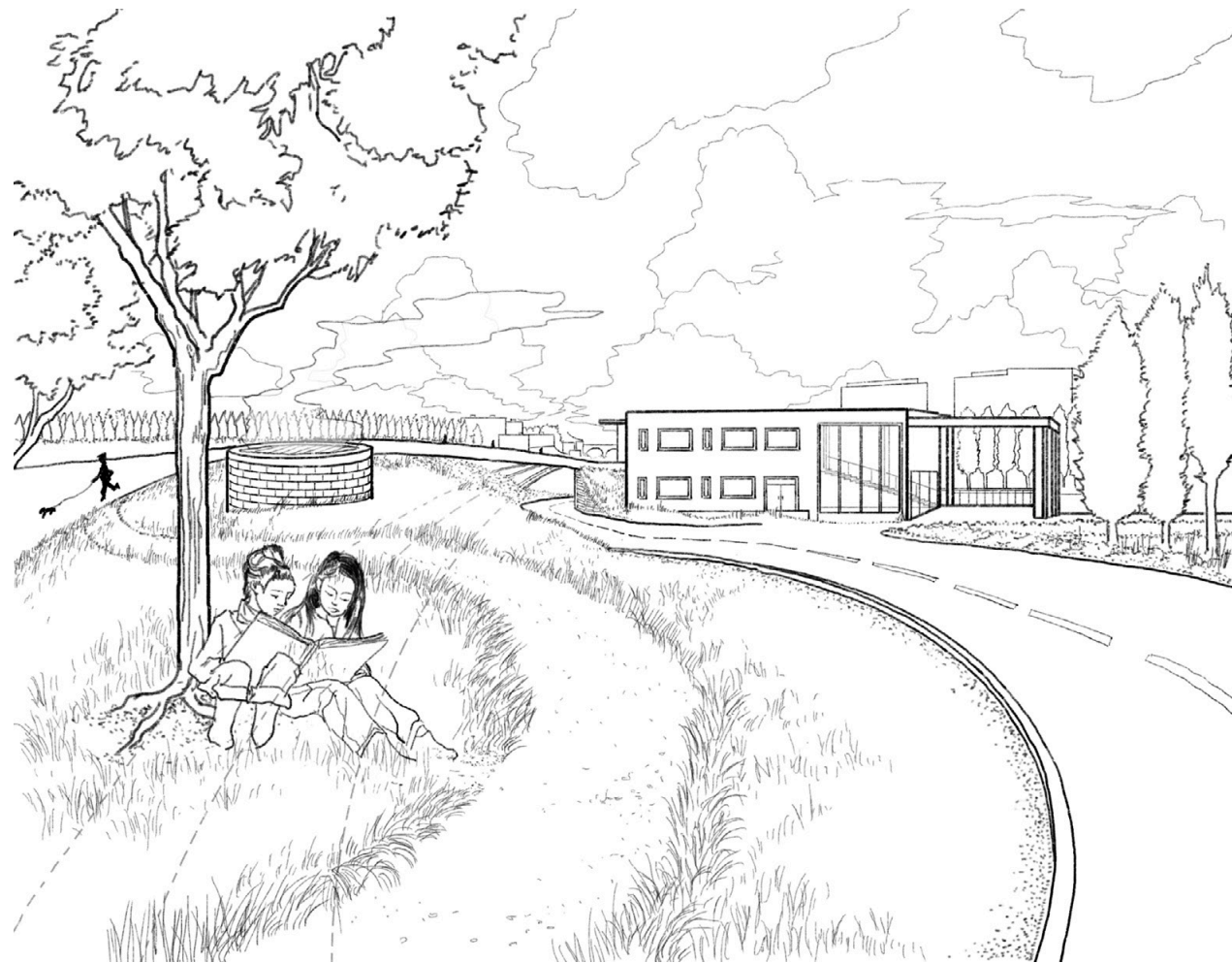
urban plan model





urban plan model

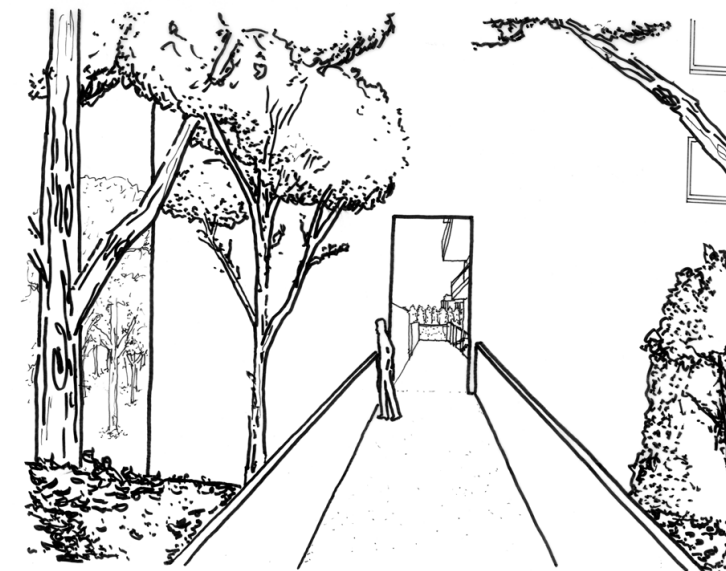




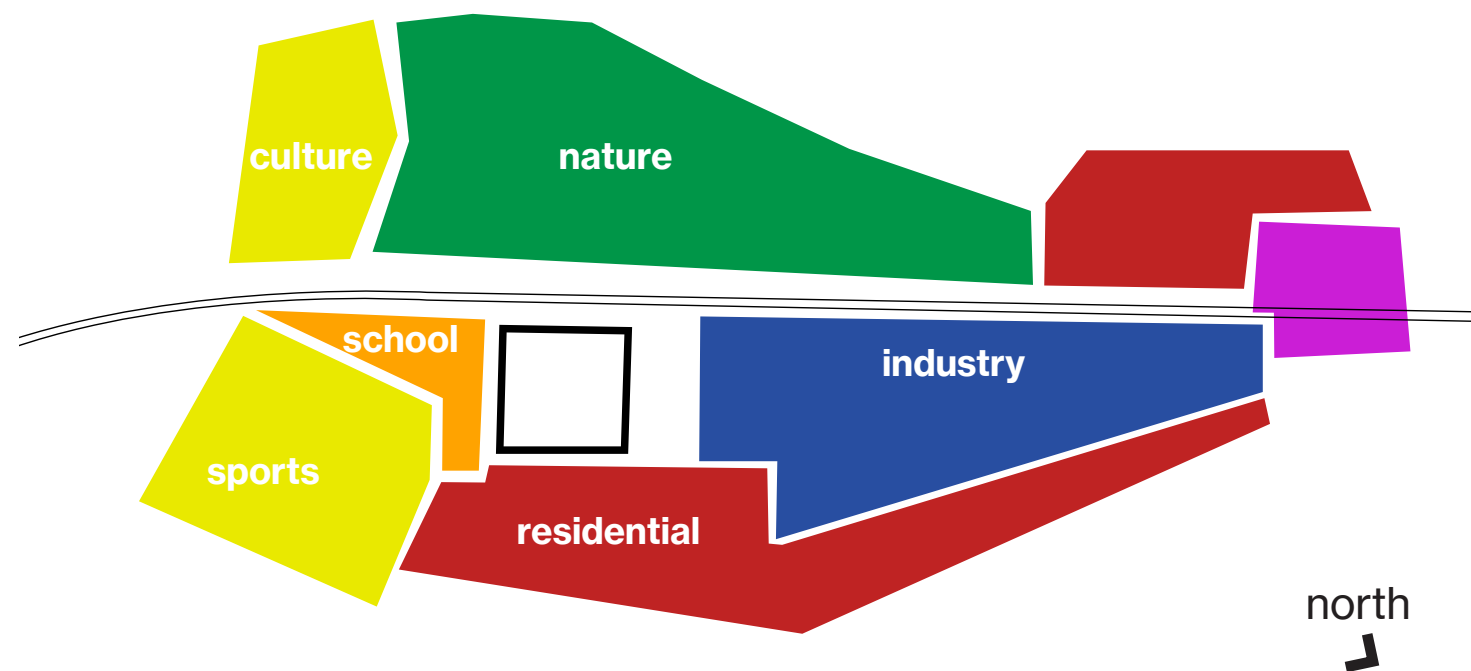
Jacky Lai



Jaron Smit



Jackie Ho



-> the programme should be robust enough to withstand noisy neighbours whilst simultaneously being friendly and inviting for the nearby school and residents.

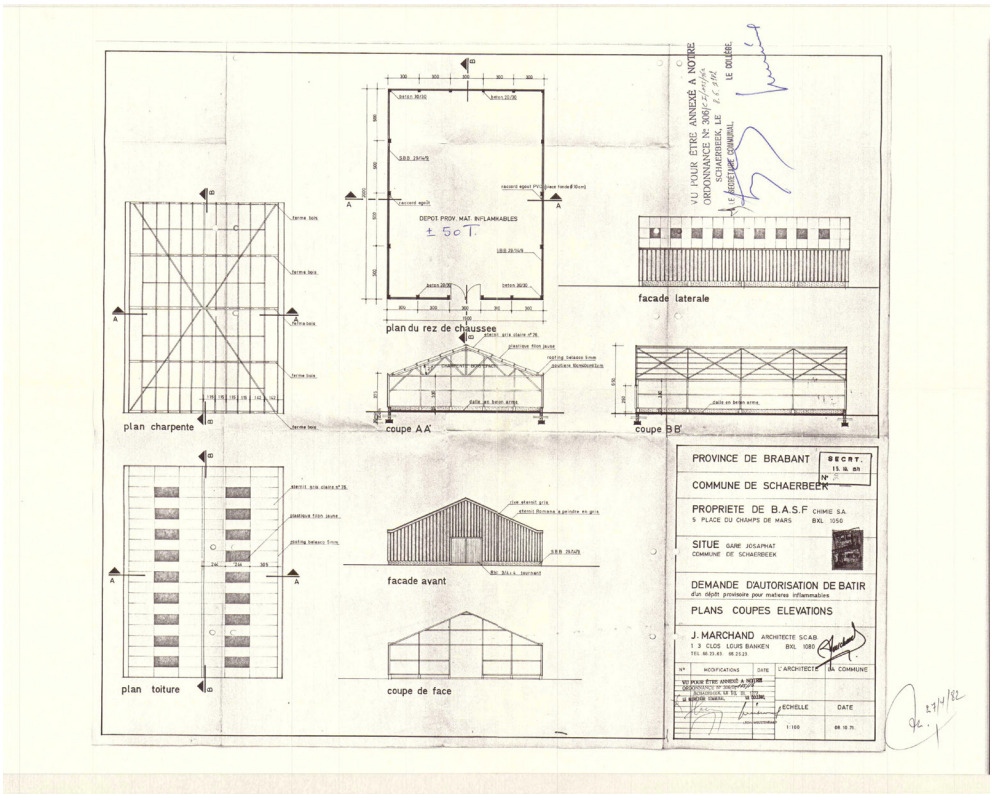


built in 1963



2

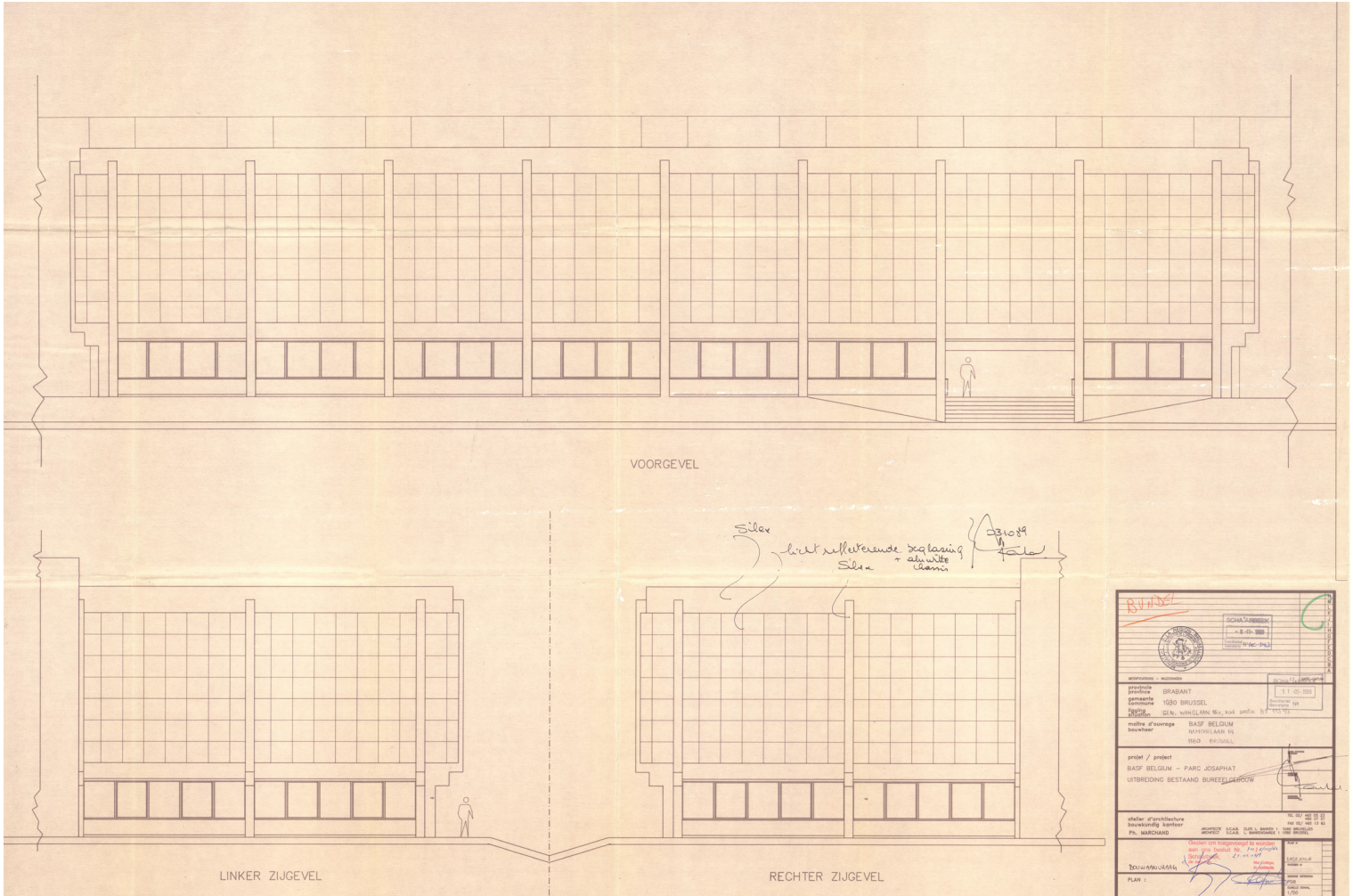




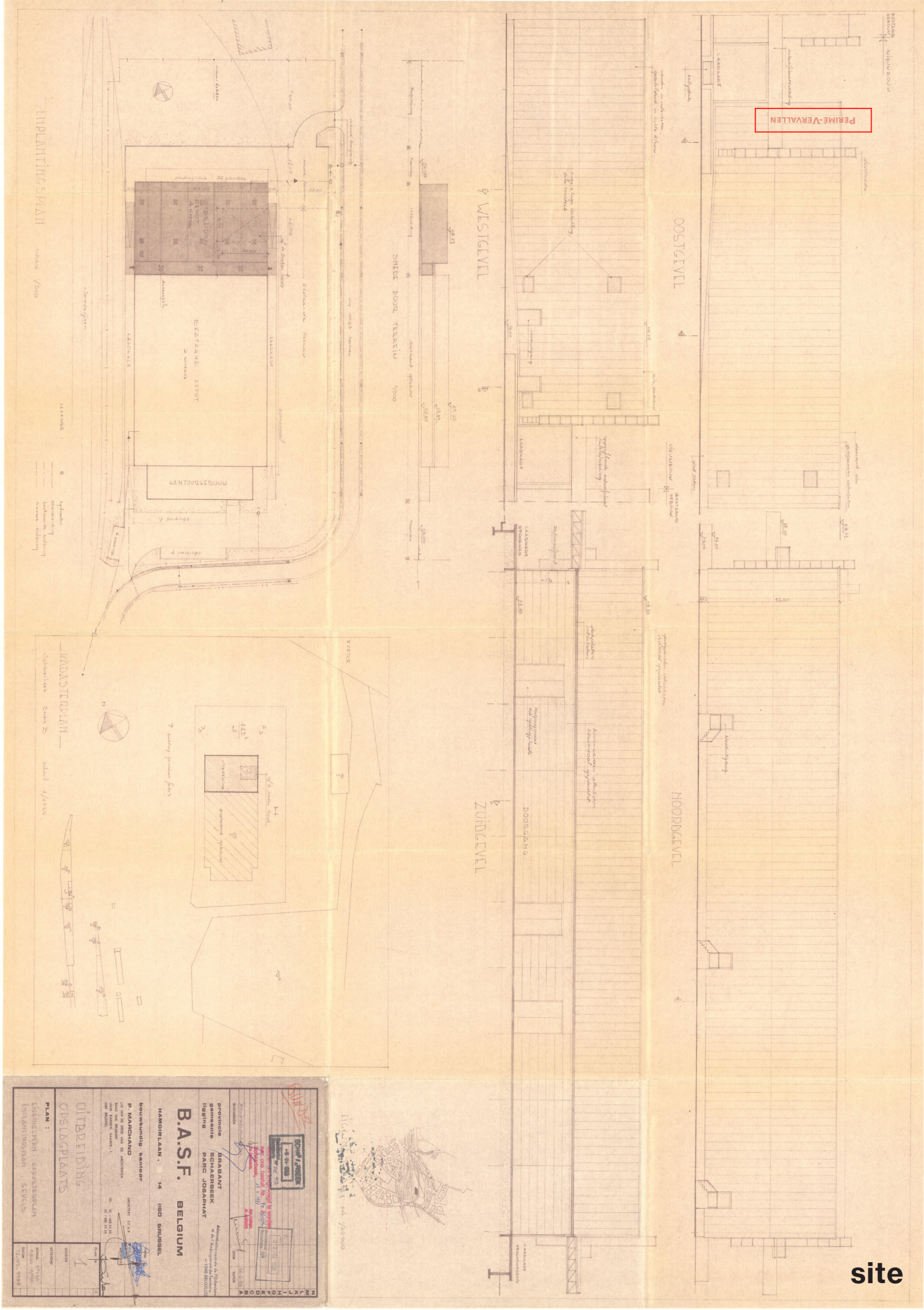
building permit for the shed

proposal for extension
warehouse

proposal for
extension office



warehouse



site

Bouwberoepen

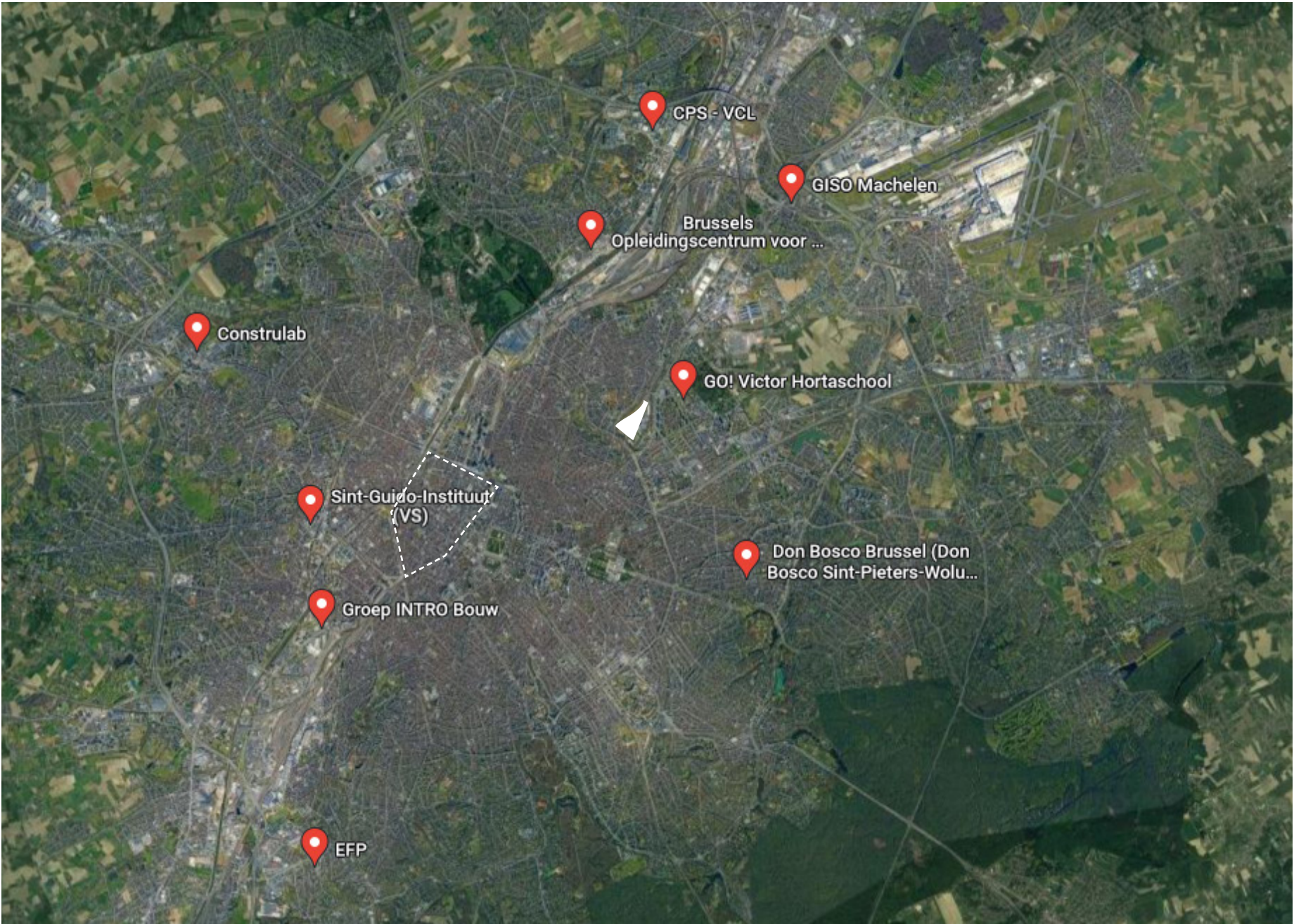
			
Meetkundigen			
Landmeter	X	X	X
Bouwtechnici			
Conducteur bouw	X	X	
Werfleider	X	X	
Calculator bouw	X	X	
Technicus studie bureau bouw	X	X	
Bodemonderzoeker	X	X	
Bouwarbeiders ruwbouw			
Bekister - ijzervlechter	X	X	X
Metselaar	X	X	
Houtskeletbouwer		X	
Daktimmerman			X
Dikwijls in combinatie met dakdekker			
Natuursteenbewerker	X		X
Bouwarbeiders ruwbouw			
Gevelrenoveerder-betonhersteller		X	X
Asbestverwijderaar			X
Handlanger bouw			X
Bouwarbeiders afwerking			
Stukadoor			X
Dekvloerlegger			X
Vloerder-tegelzetter	X	X	X
Dakdekker schuine daken	X		X
Dakdekker platte daken	X		X
Dakdekker industriële daken	X		X
Monteur van metalen gevel- en dakelementen	X		X
Binnenschrijnwerker		X	
Buitenschrijnwerker		X	
Monteur van interieurinrichtingen		X	
Bouwarbeiders afwerking			
Werkplaatschrijnwerker		X	
Glaswerker	X	X	
Schilder - decorateur		X	
Plaatser van vloerbekledingen	X	X	
Installateurs en elektriciens bouw			
Residentieel elektrotechnisch installateur	X	X	
Plaatser van boven- en ondergrondse kabels en leidingen			X
Installateur van datacommunicatienetwerken	X	X	
Installateur liften	X	X	
Sanitair installateur	X	X	
Monteur van centrale verwarmingsinstallaties	X	X	
Brandertechicus	X	X	
Plaatser van ventilatiesystemen		X	

Beroepsknelpunten 2021 looking at the shortages of employees there are many jobs in the construction where properly educated workers are missing.

In Brussels most of the construction oriented practical schools are located on the outside of the city.

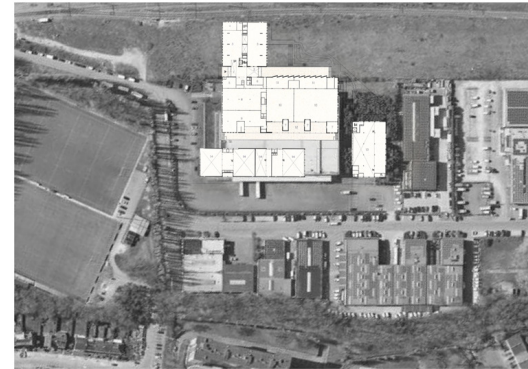
Victor Horta !GO this school is near the site and teaches practical logistics, care and construction courses. in their year reports they mention a lack of space and the need to use container classrooms. For the programme of the project I will use the programme of this school.

building schools
and training
centres Brussels





building crafts college, London, UK, 2001



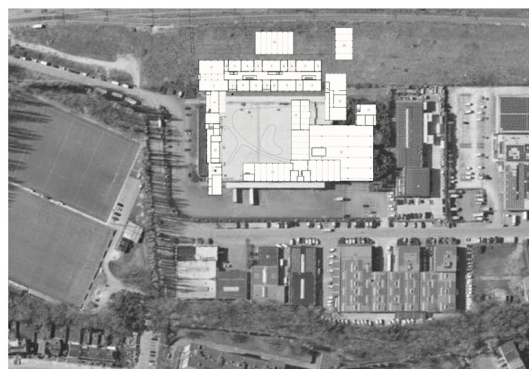
**techniekHuys, Veldhoven. the Netherlands, 2011*



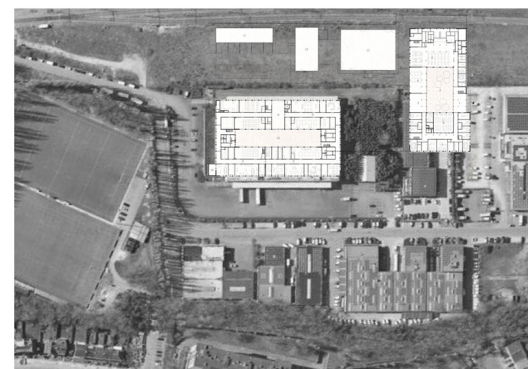
The campus of RDM, Rotterdam, the Netherlands, 2009



societa svizzera impresari costruttori, Gordola, Swiss, 2010



hochschule fur die holzwirtschaft, Biel, Swiss, 1999



OSZ Bautechnik II, Berlin, Germany, 2008

**source; The new
Craft School**



carpentry

then



now



timber framing

then

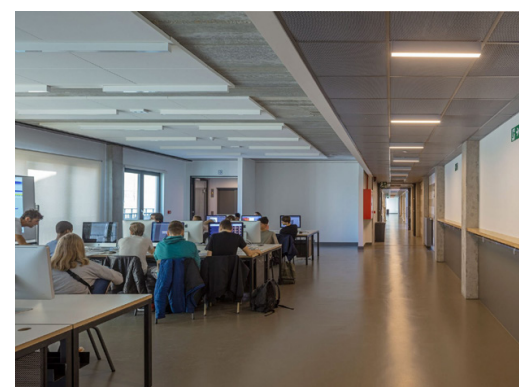


now



technical drawing

then



now



carpentry
painting

then



now



masonry

then



now



education

Victor Horta

care
construction
logistics

workshops

making

workshops as commons
workshops as public backdrop

local

community

use existing network and materials
recuperated building material depot



vocational school

types of spaces

wood workshop
steel workshop
masonry workshop
material depot
classrooms for logistics
classrooms for care



site visit

site visit measuring



backside railway tracks

canopy





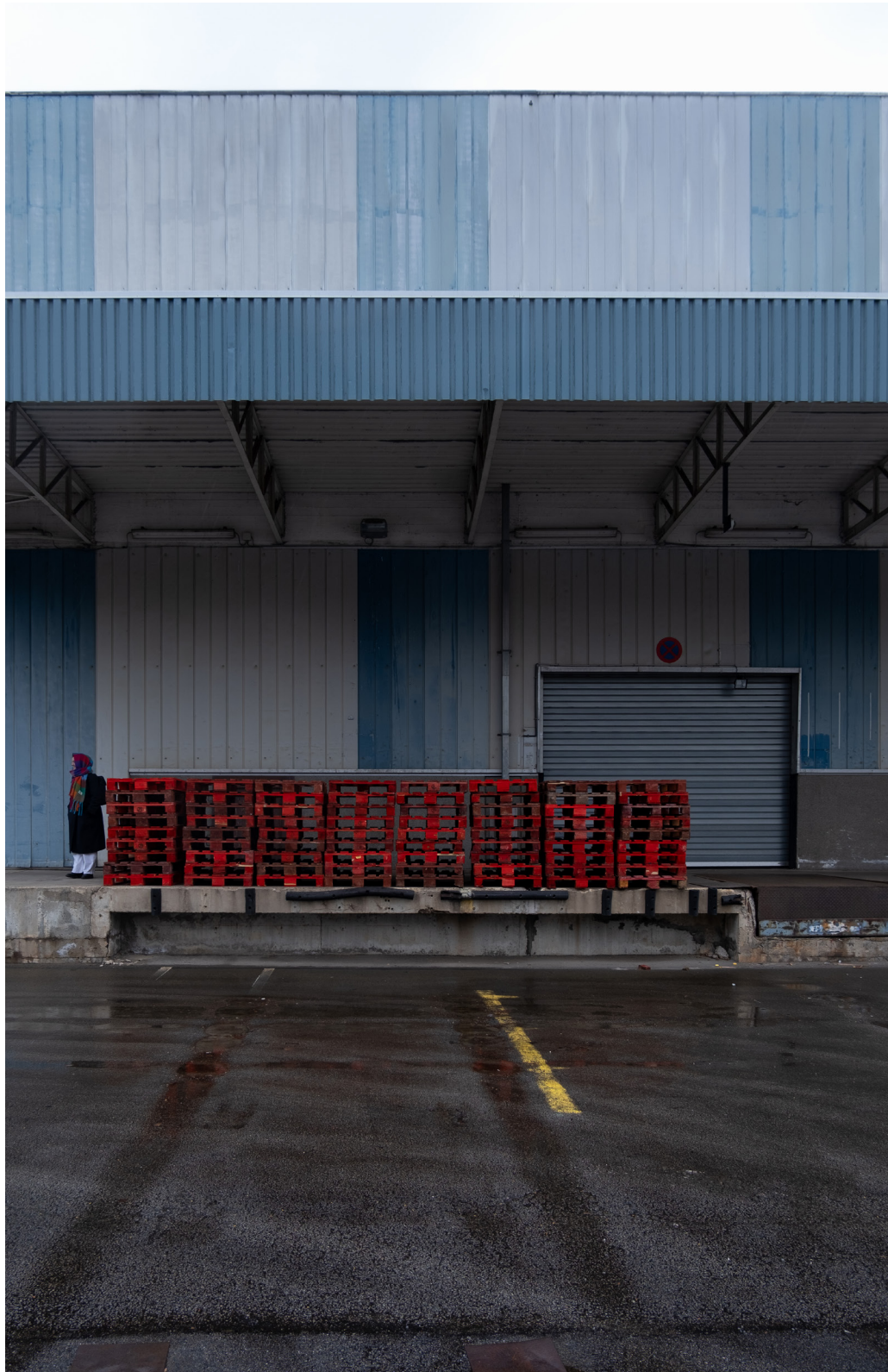
square windows



low ceiling



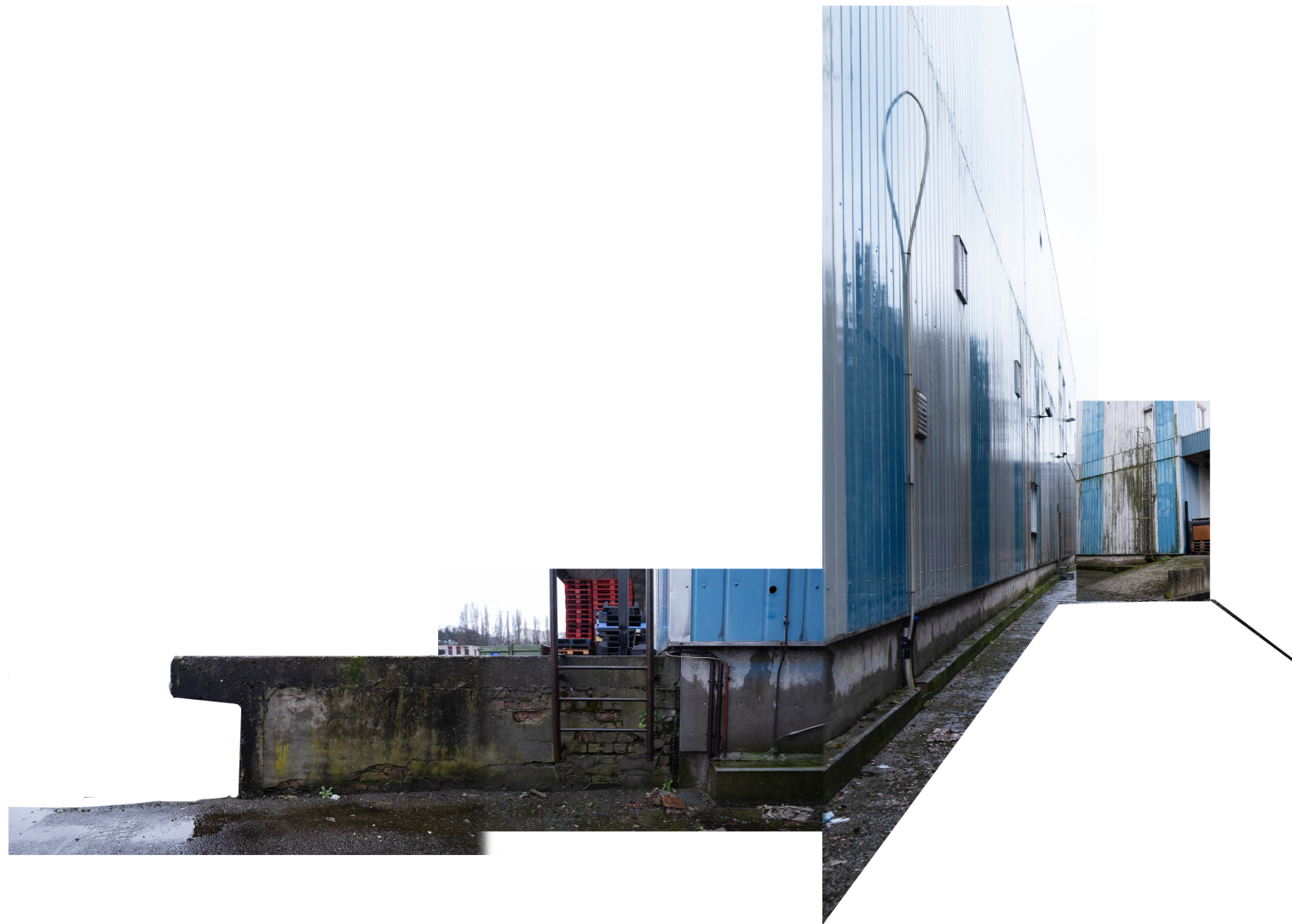
office & warehouse



overhead doors



warehouse





site visit



warehouse - ground floor

column size

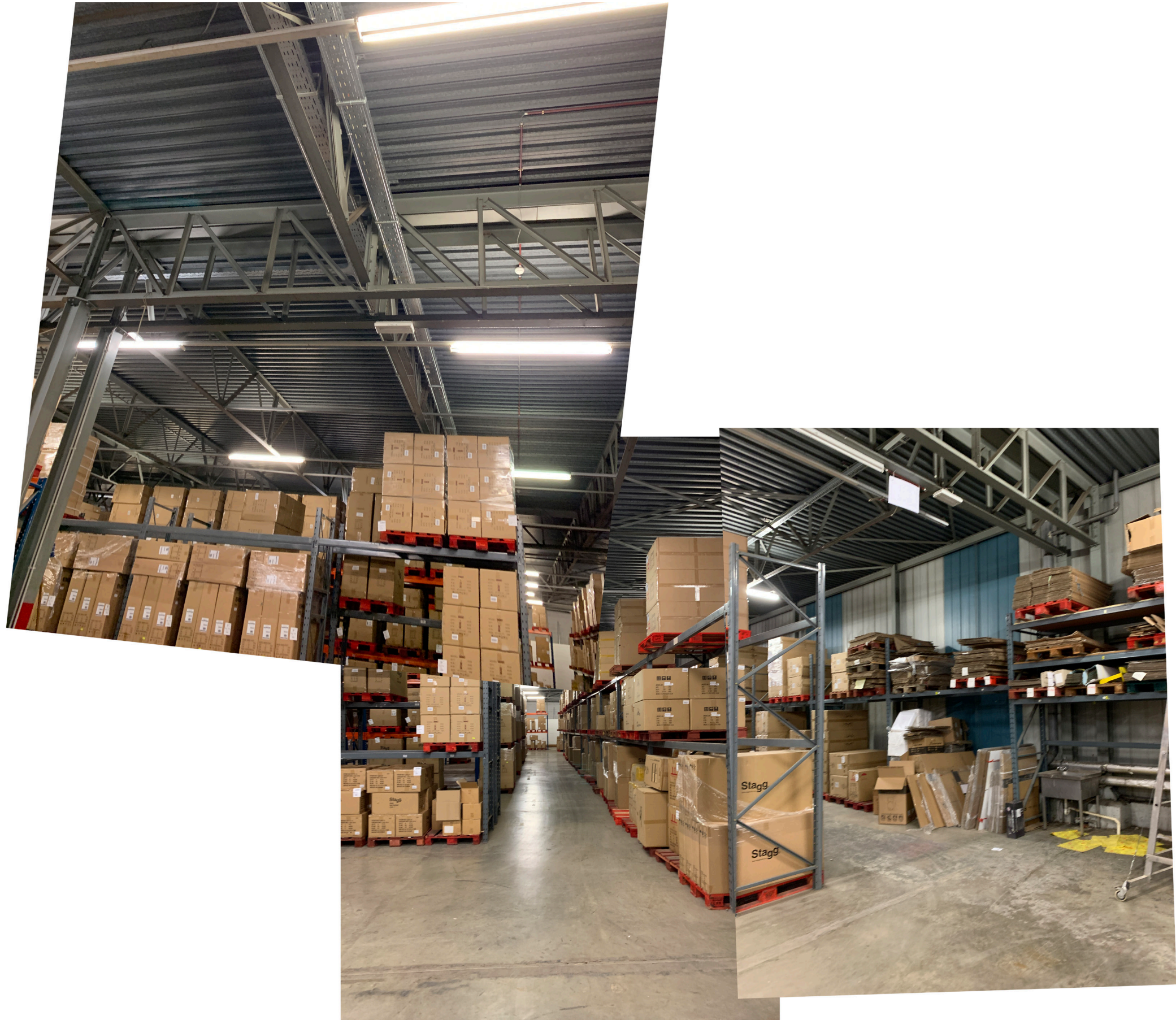
dilatation

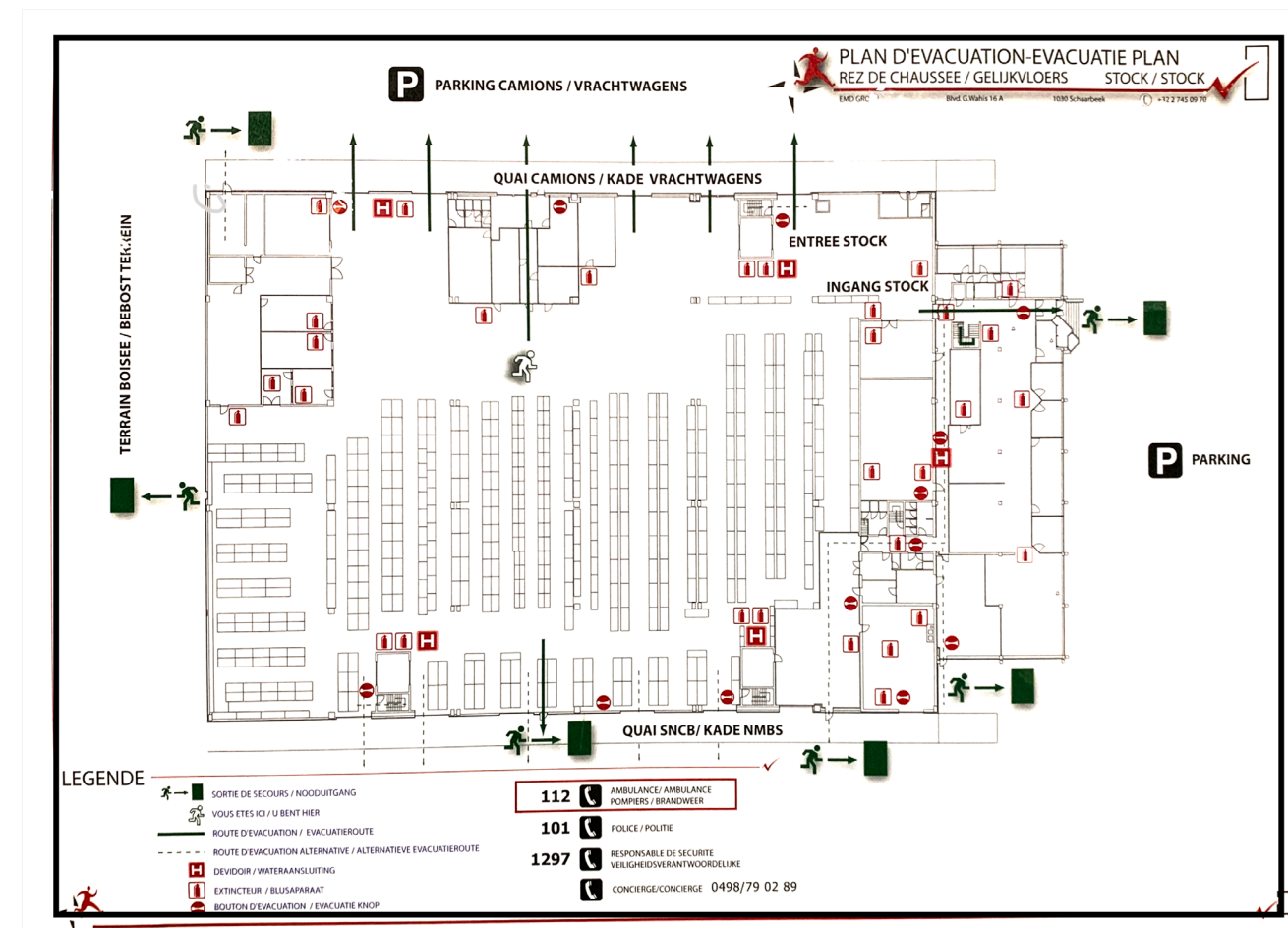


depth

open plan

no insulation





challenges

facade

light
organisation plan

big spans
big plan
high ceiling
robust structure

opportunities

strategy

potentialities

washed out
paint



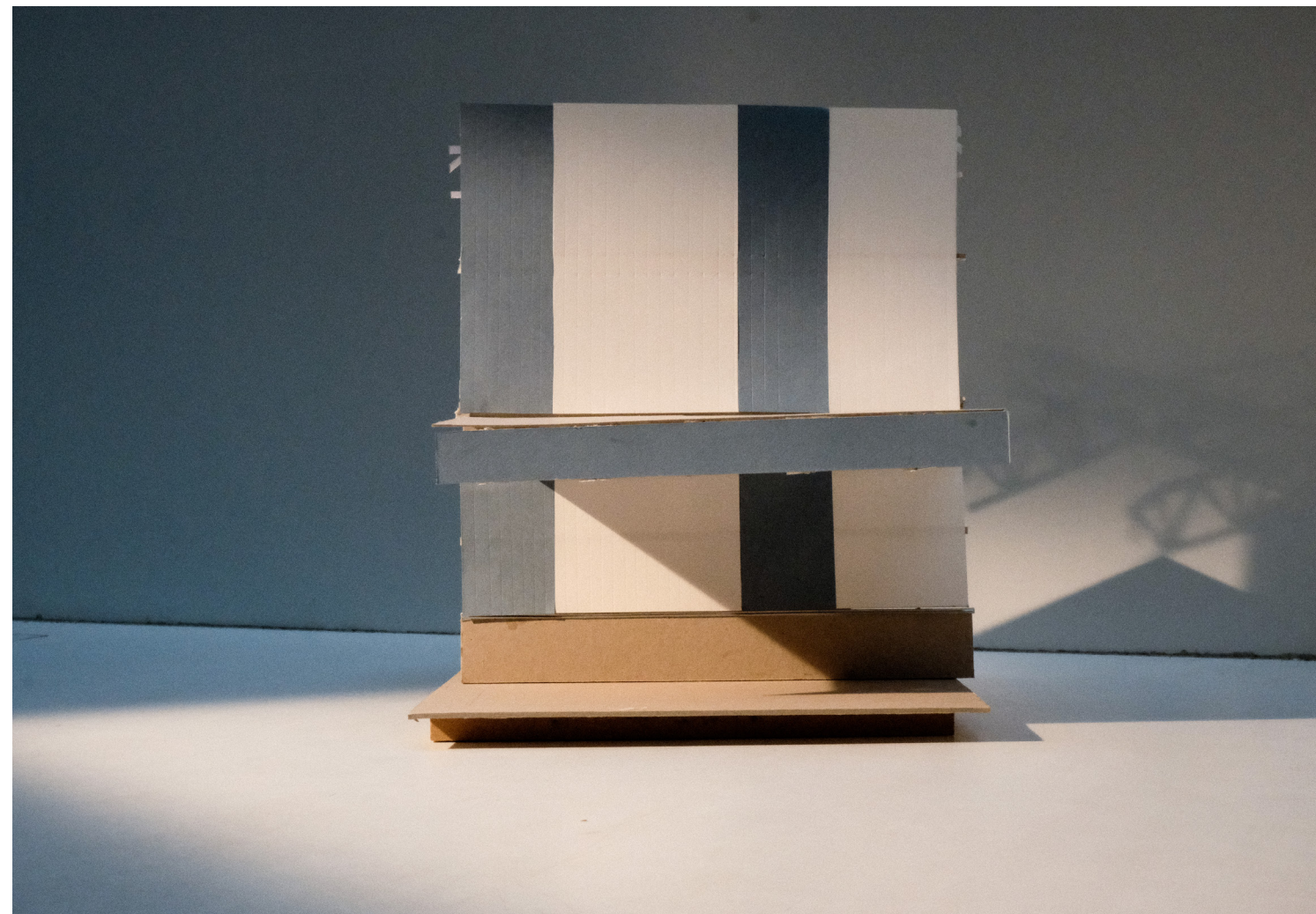
bumps



dents

moss



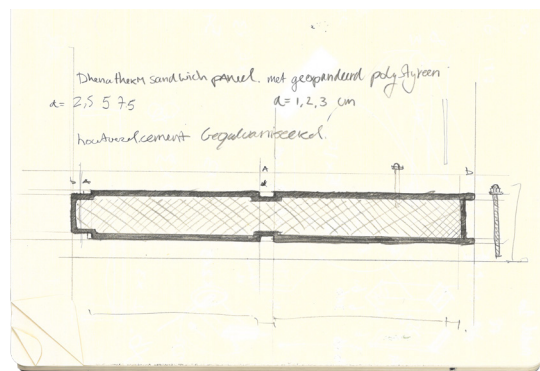


**maintain existing facade, intervene
where needed**

cut deteriorated facade plates

add windows

add insulation

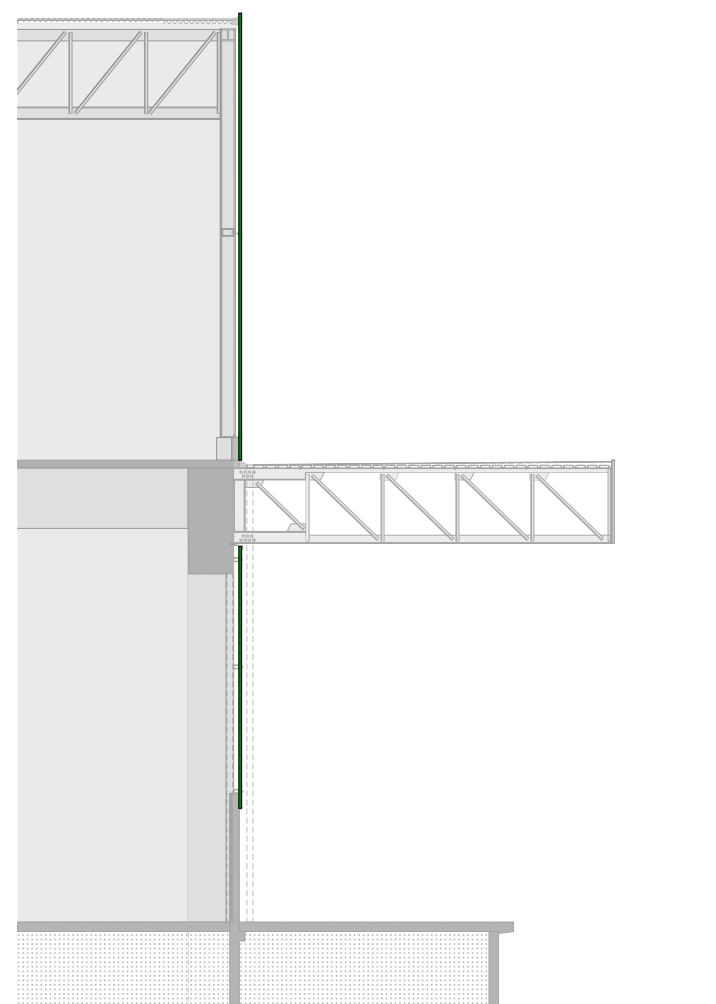


insulation inside

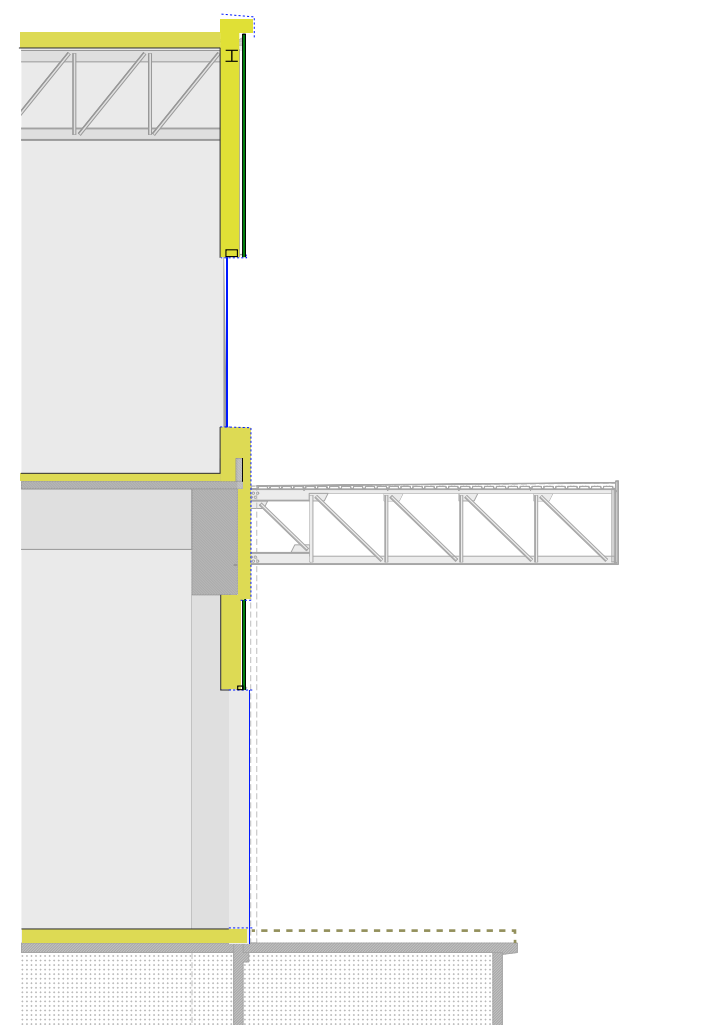
insulation on the outside >
deterioration

use existing sub-structure, to
keep panels attached >
window height

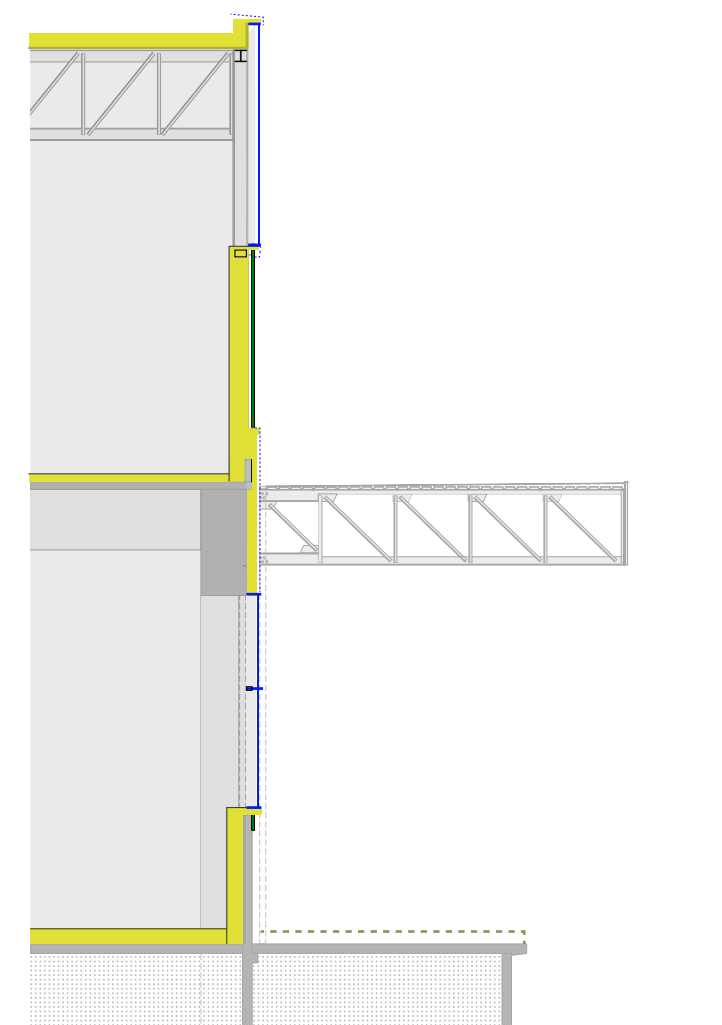
insulated sandwich panels
between canopy trusses



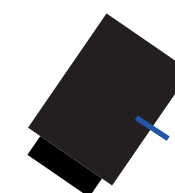
existing



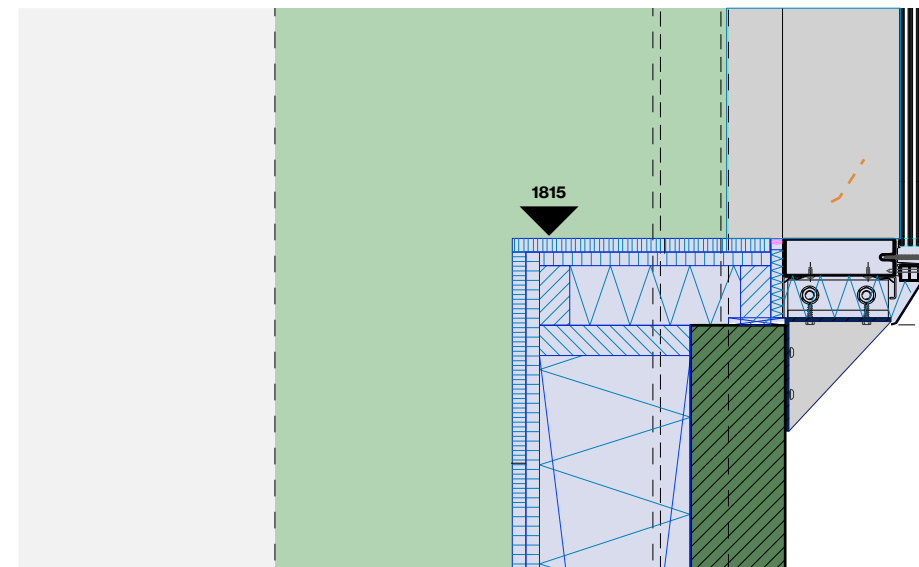
insulation on the inside



insulation on the outside



multiplex 18mm
 osb10mm
 hsb insulation 220mm
 existing concrete slab 125mm

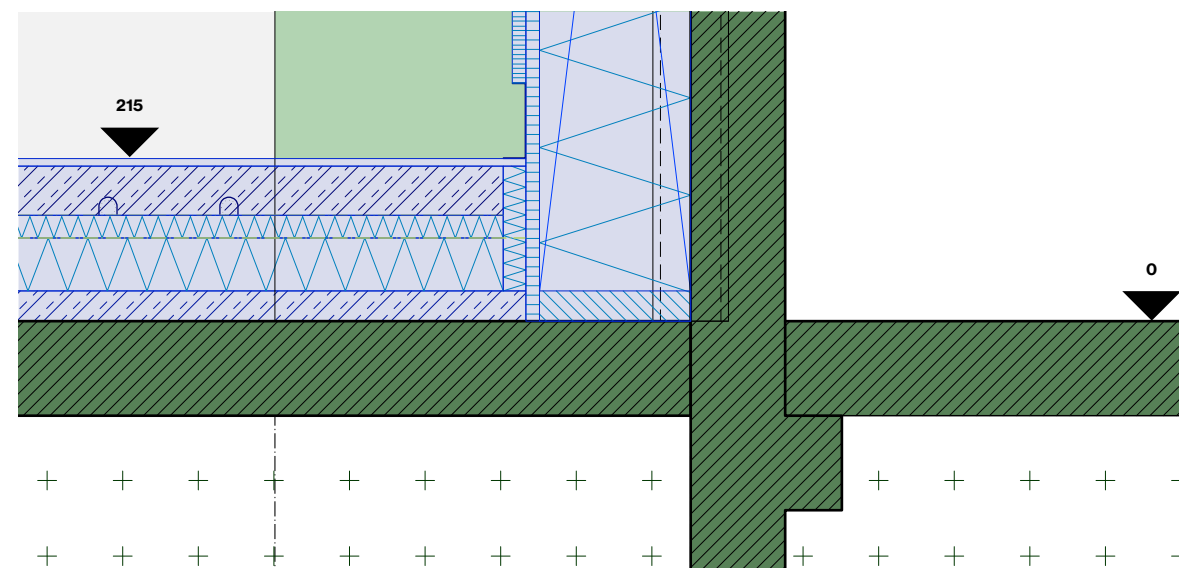


aluminium curtain wall
 triple glazing

steel L-profile
 150x150x10mm

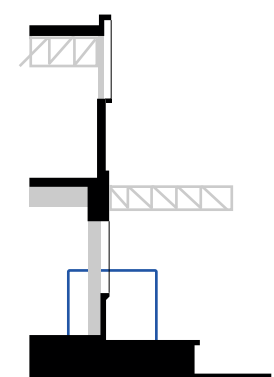
steel plinth h=100mm

finish 10mm
 heat elements in cement 65mm
 protective membrane
 xps insulation 30mm
 vapour barrier
 eps insulation 70mm
 equalising layer 40mm

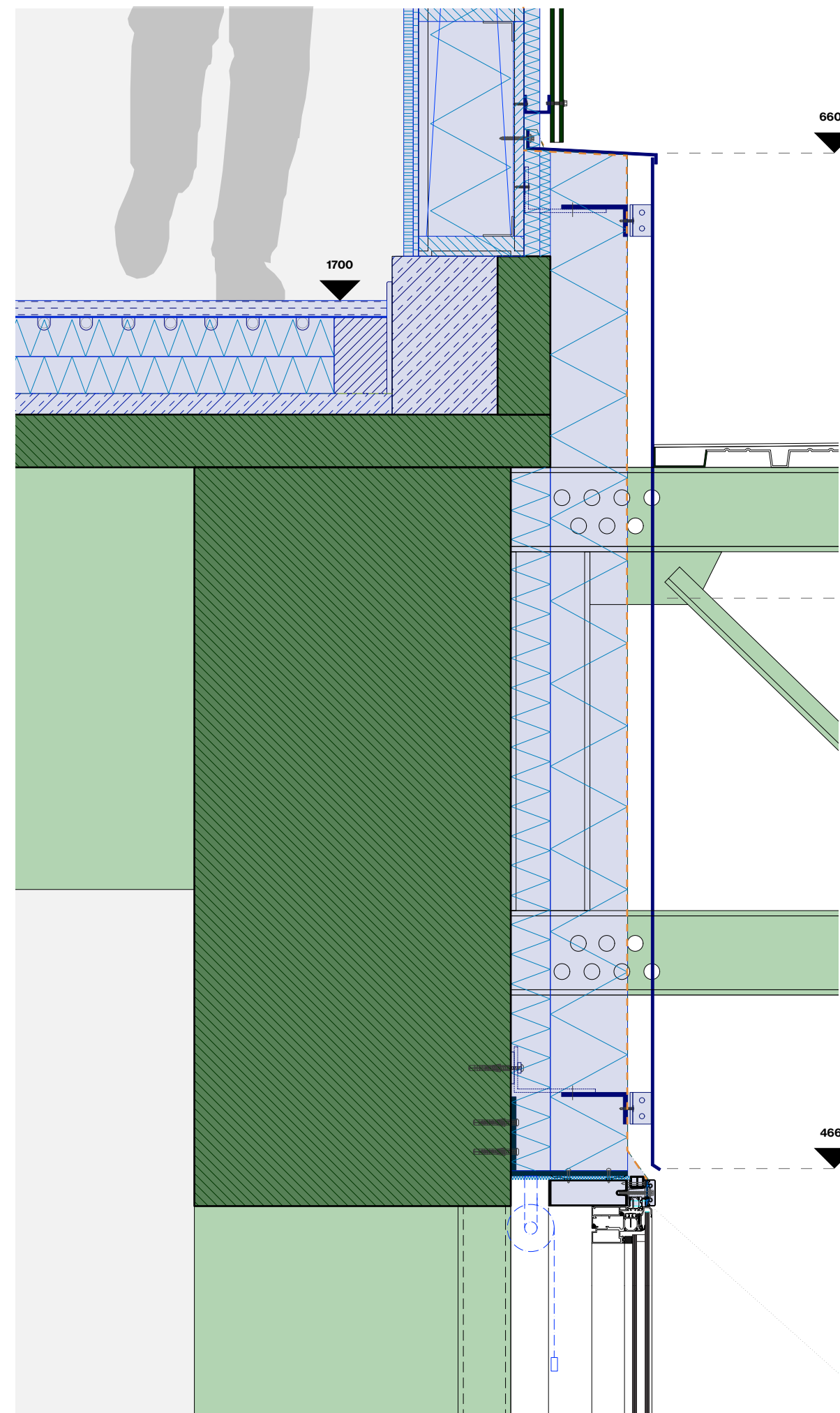


facade ground floor detail

1:10



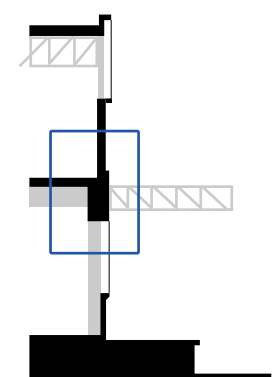
finish 10mm
 heat elements
 insulation plates 24 mm
 thermally inductive plates
 vapour barrier
 insulation 70 mm
 equalising layer 40 mm



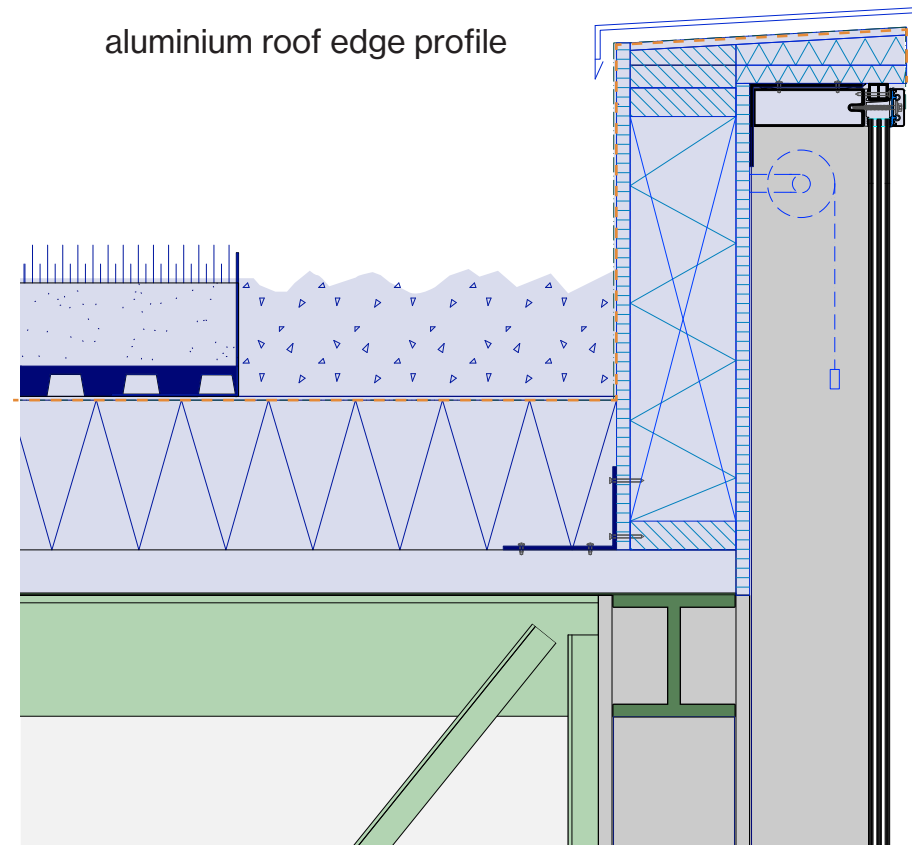
polished steel plate 5 mm
 water barrier, vapour open
 insulation 150 mm
 insulation plates 75 mm
 concrete structure

facade floor detail

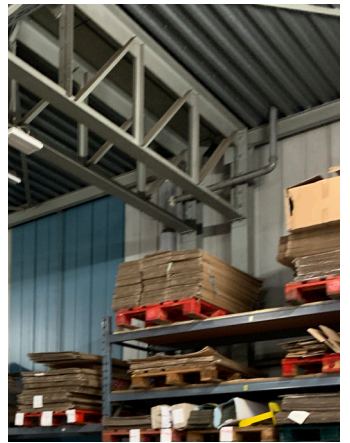
1:10



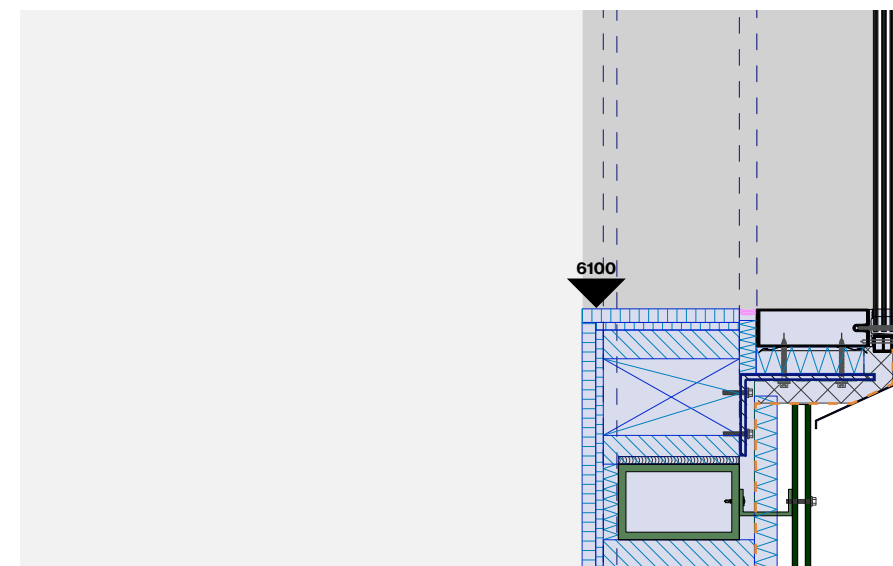
soil 70mm
 filter fabric 0.2mm
 moisture-retention layer 79mm
 aeration layer 10mm
 drainage layer 30mm
 root barrier 5mm
 membrane protection 0.2mm
 green roof waterproofing membrane 0.2mm
 thermal insulation 200mm
 trapezoidal sheet 60mm
 steel structure



steel L-profile
 110x150x10mm



multiplex 18mm
 osb 10mm
 hsb-insulation 220mm
 water barrier
 xps 30mm
 ventilation 45mm
 existing wood fibre cement
 (galvanized in steel panels) 25mm



aluminium curtain
 wall, triple glazing

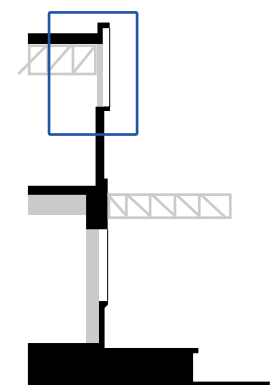
aluminium profile
 5mm

xps insulation

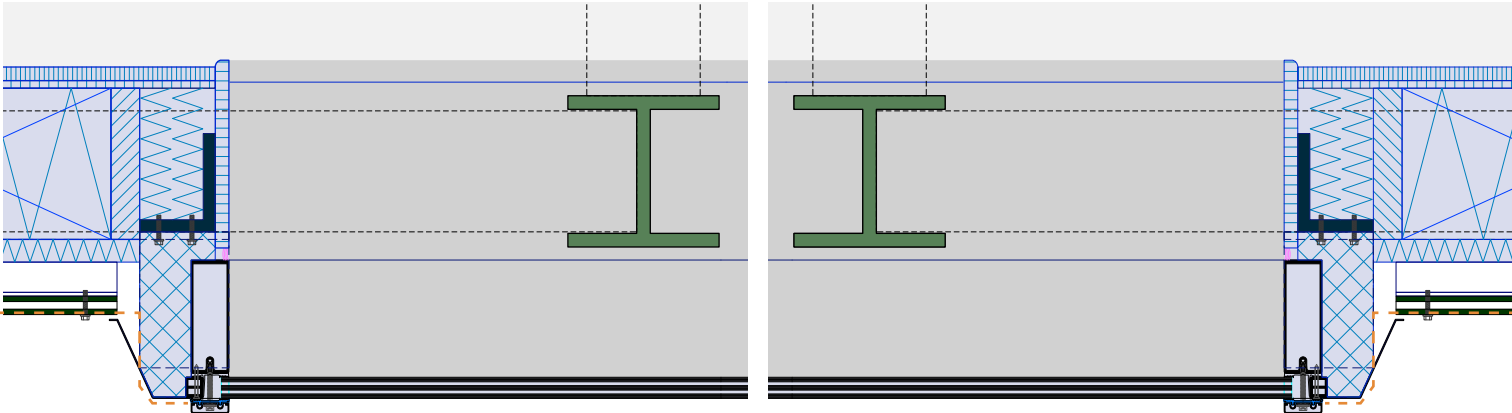
steel L-profile
 110x180x10mm

facade roof detail

1:10



multiplex 18mm
 osb10mm
 hsb-insulation 220mm
 water barrier
 xps 30mm
 ventilation 45mm
 existing wood fibre cement
 (galvanized in steel panels) 25mm

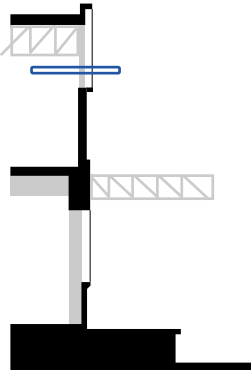


thermal line around the truss

aluminium curtain
 wall, triple glazing

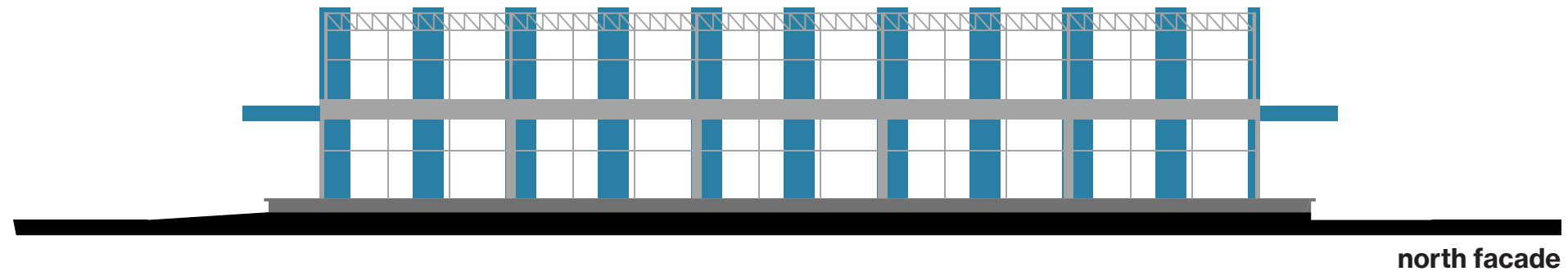
 aluminium profile
 5mm
 xps insulation

 steel L-profile
 110x180x10mm

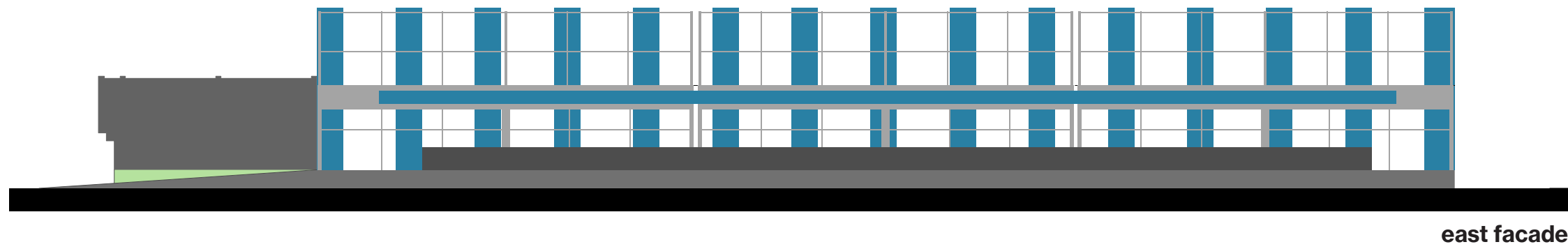




facade 1:33

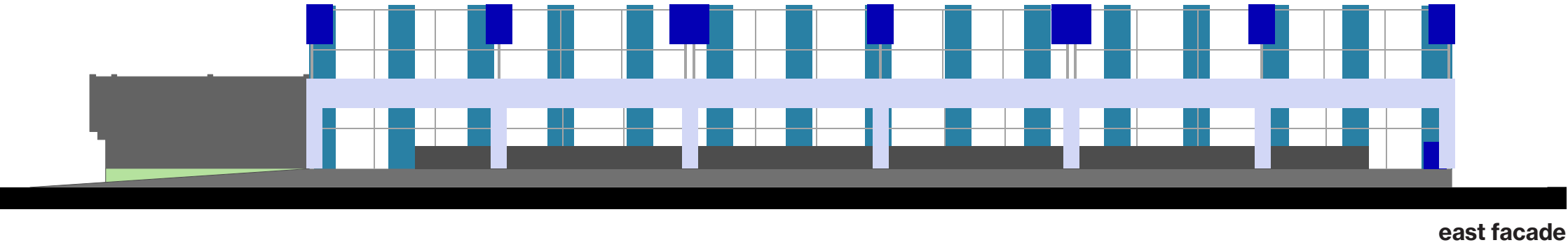
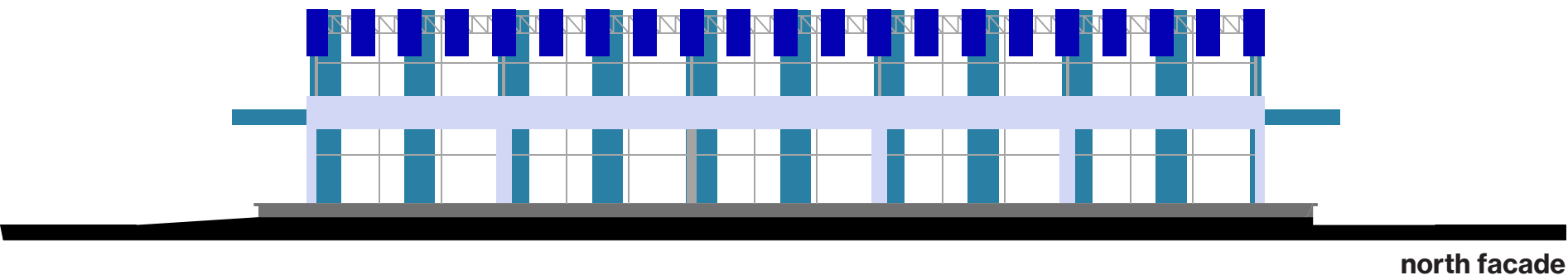


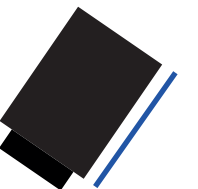
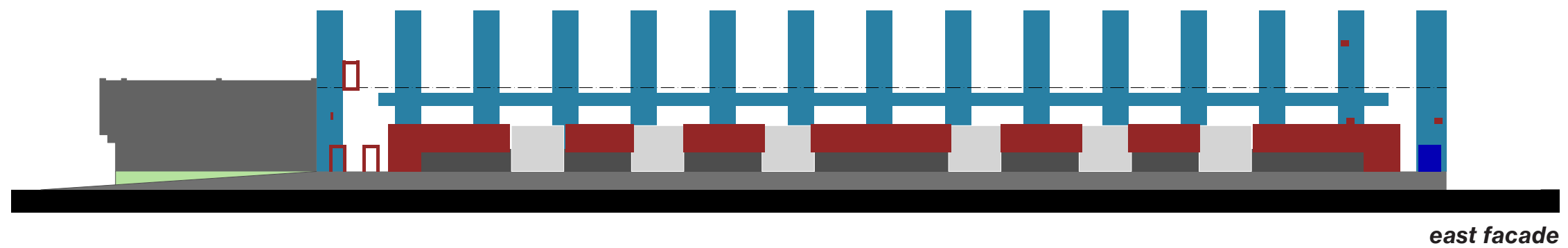
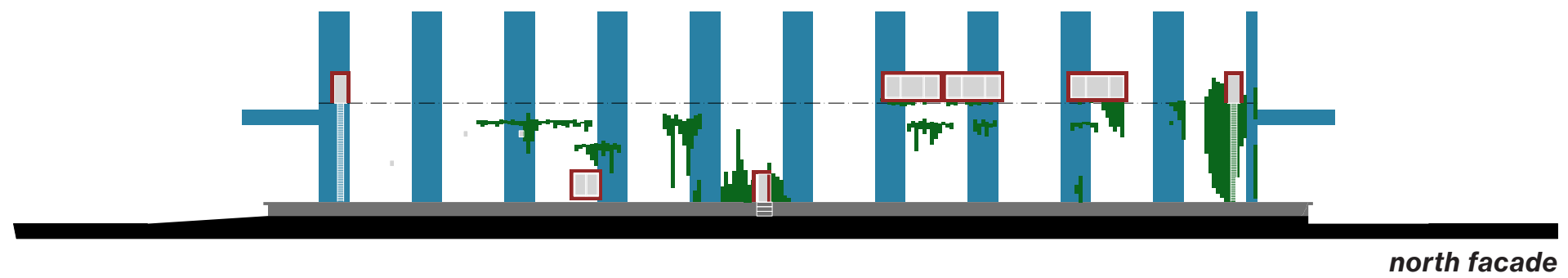
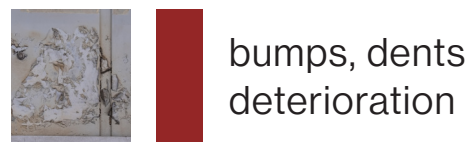
north facade



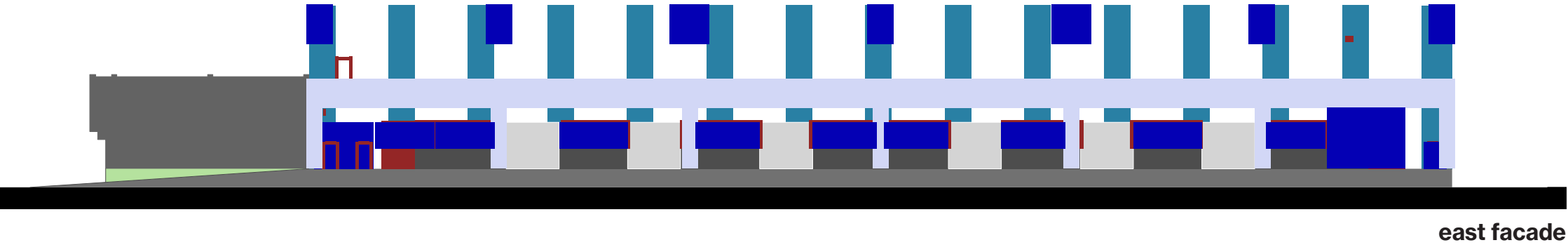
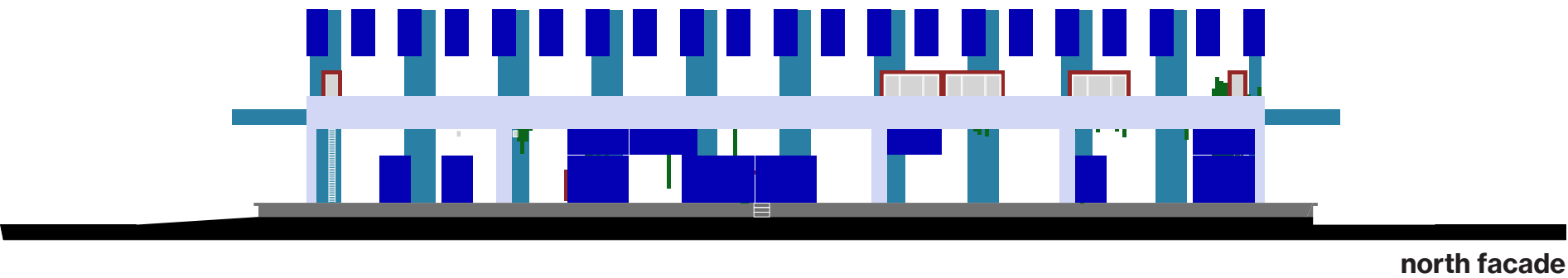
east facade

- extruded windows
- extruded metal sheet sandwich

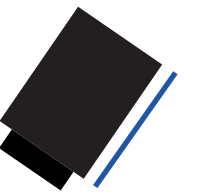
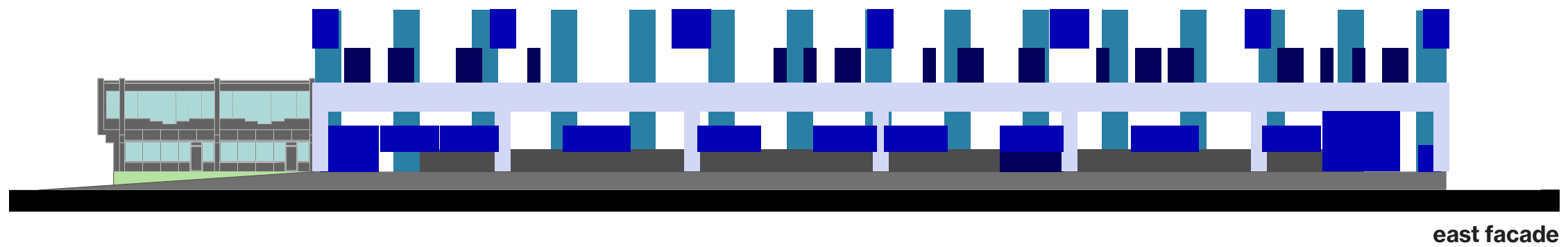
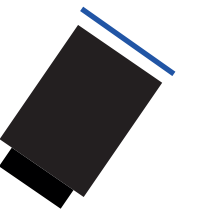
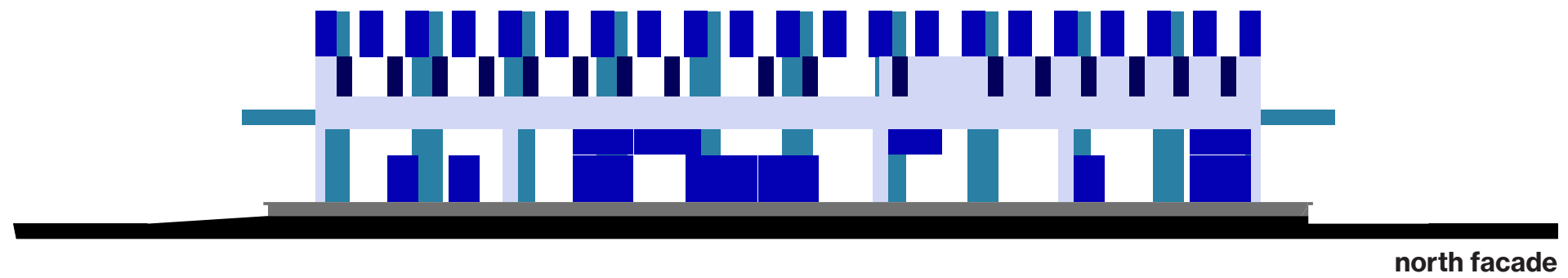




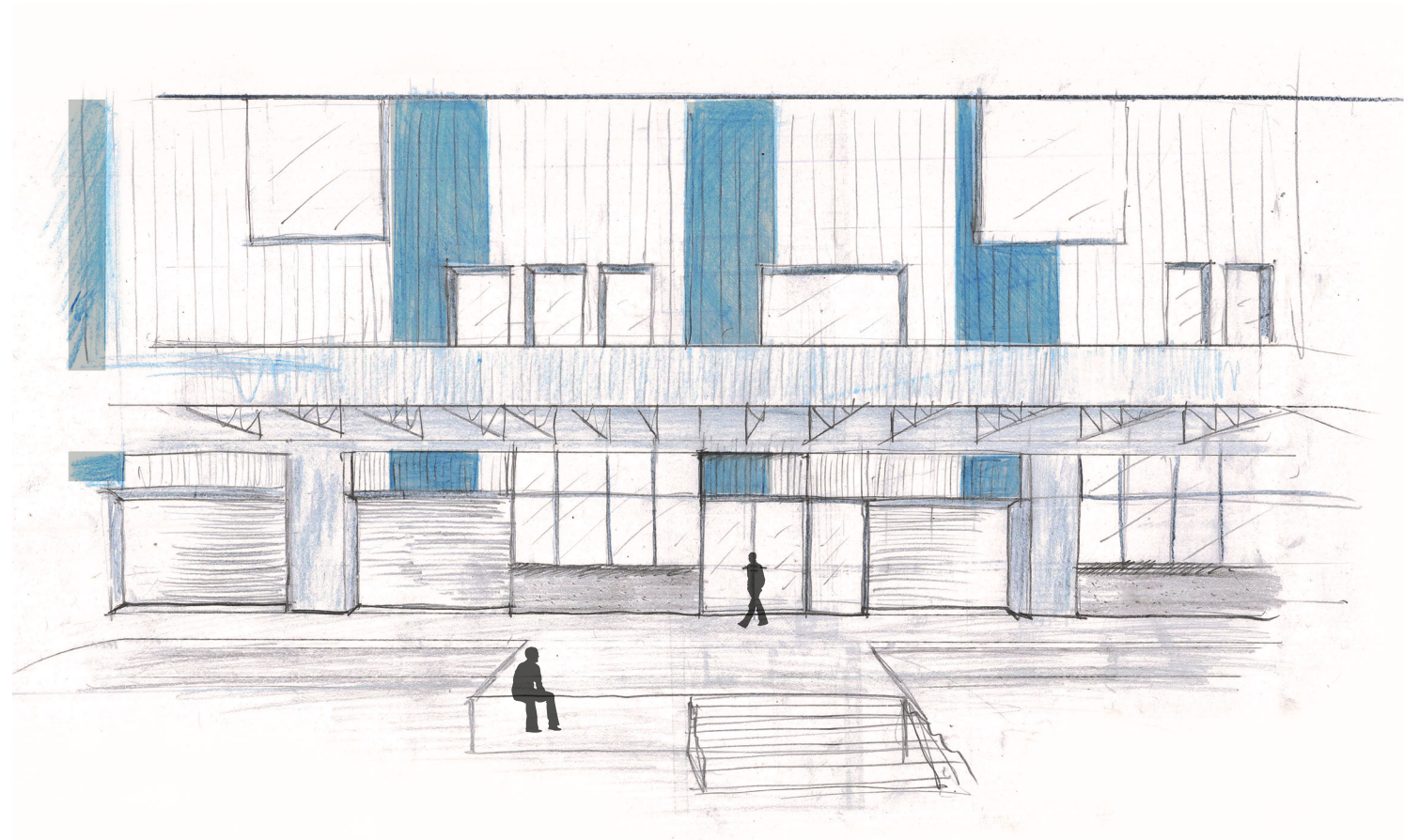
- extruded windows
- extruded metal sheet sandwich



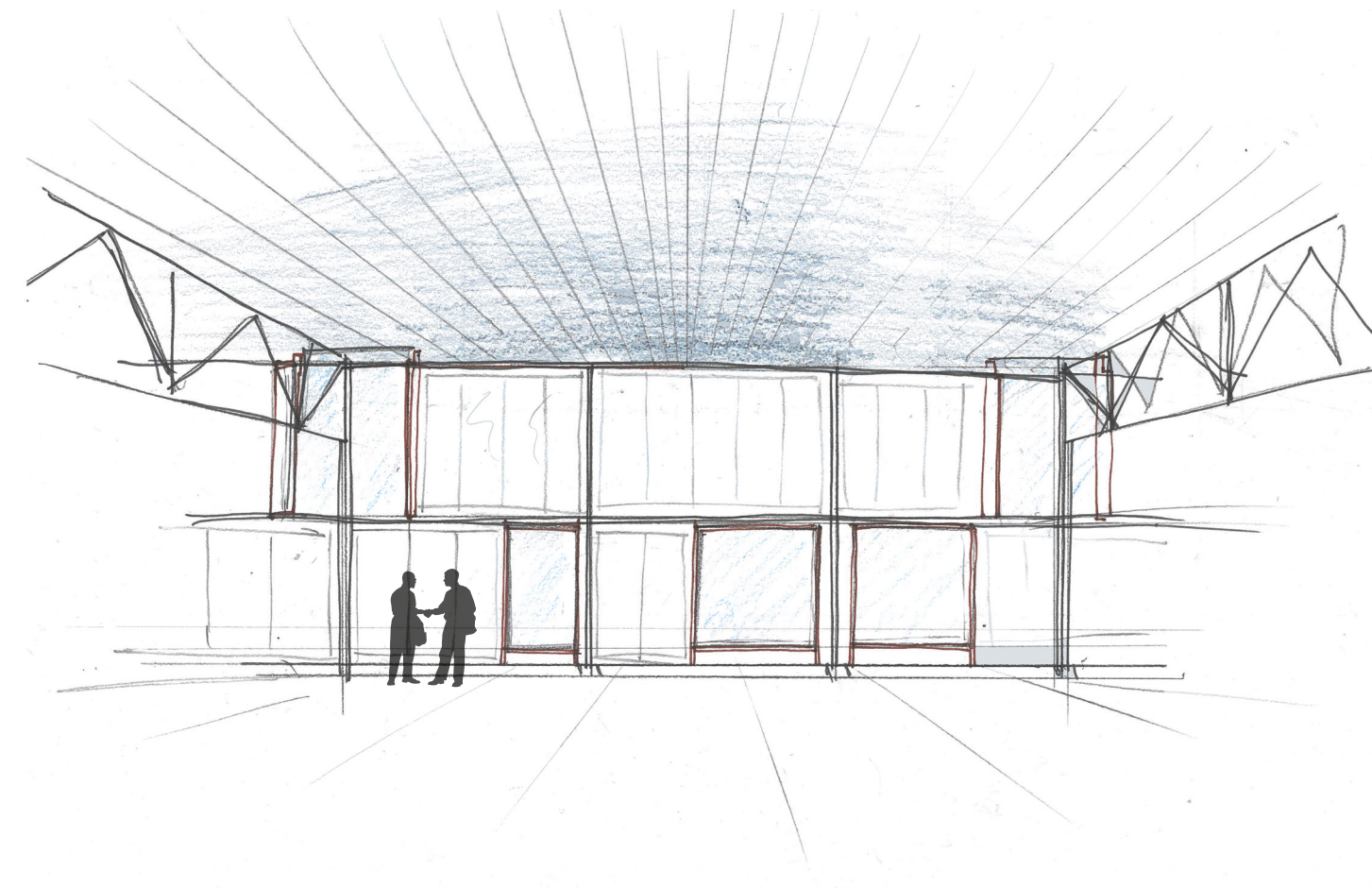
-  extruded windows
-  extruded metal sheet sandwich
-  intruded windows



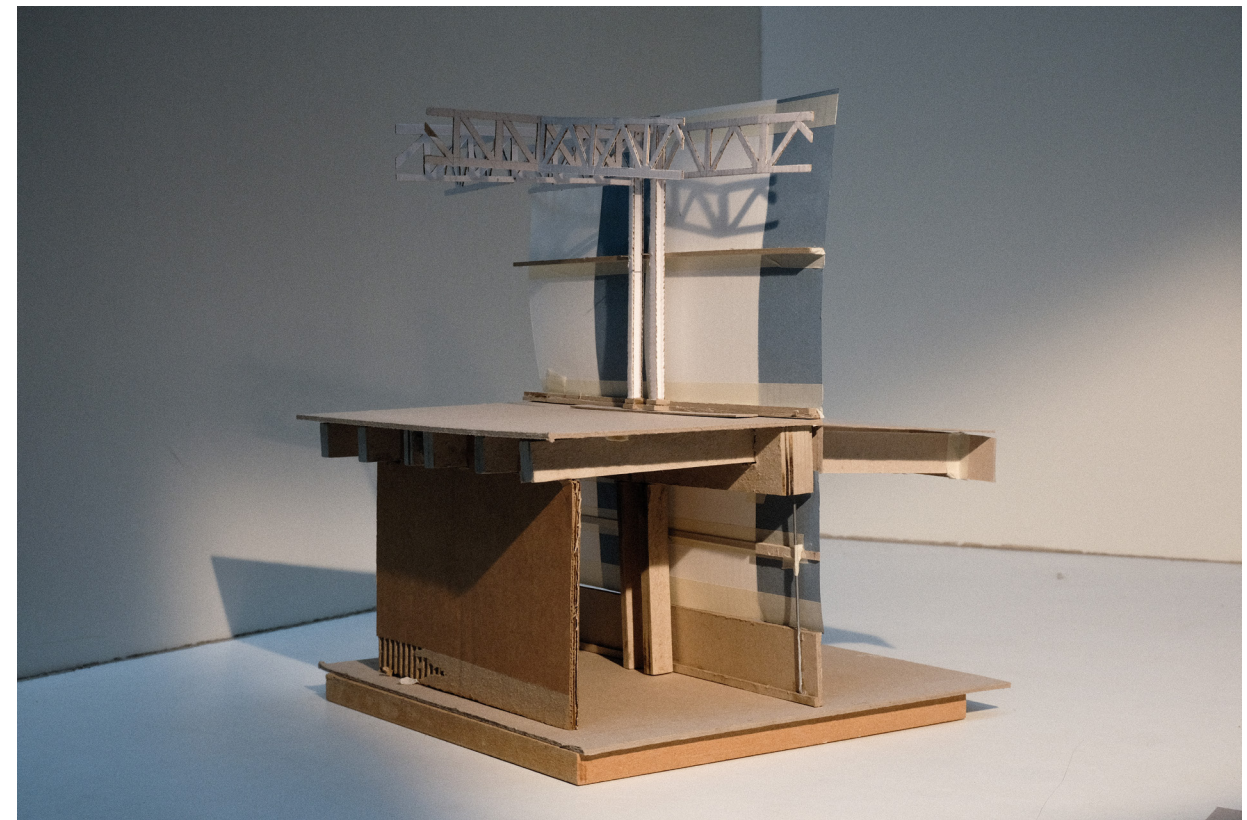
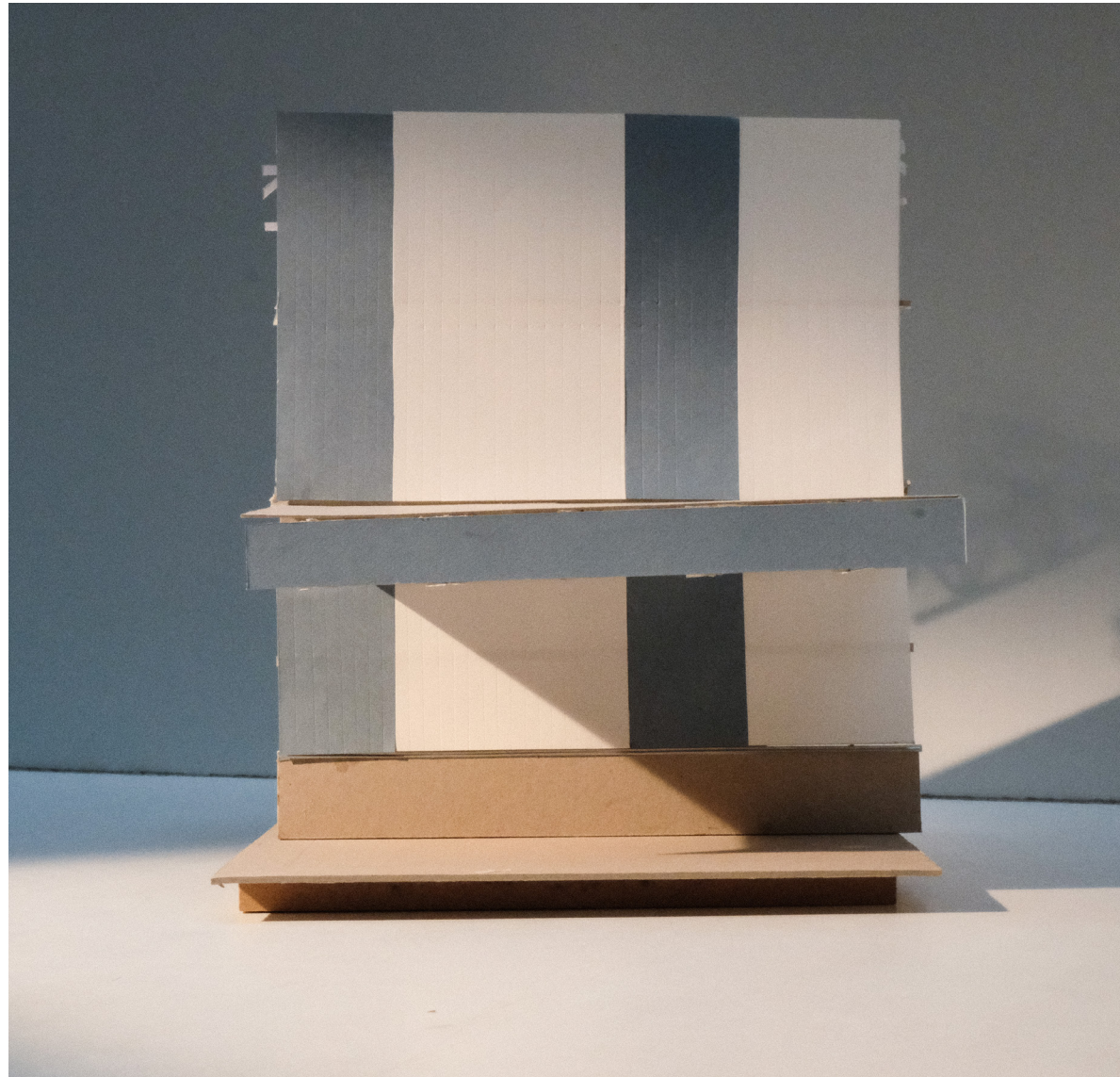
impression
exterior East
facade

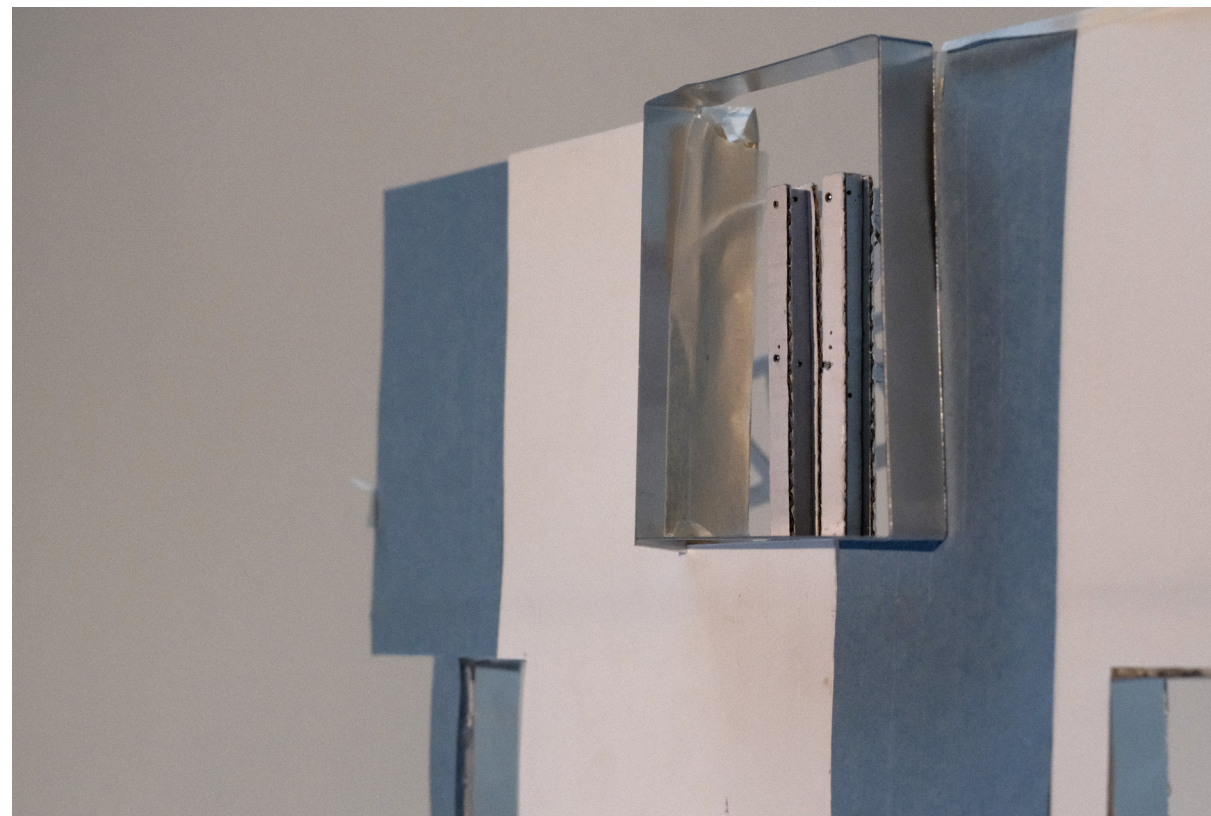
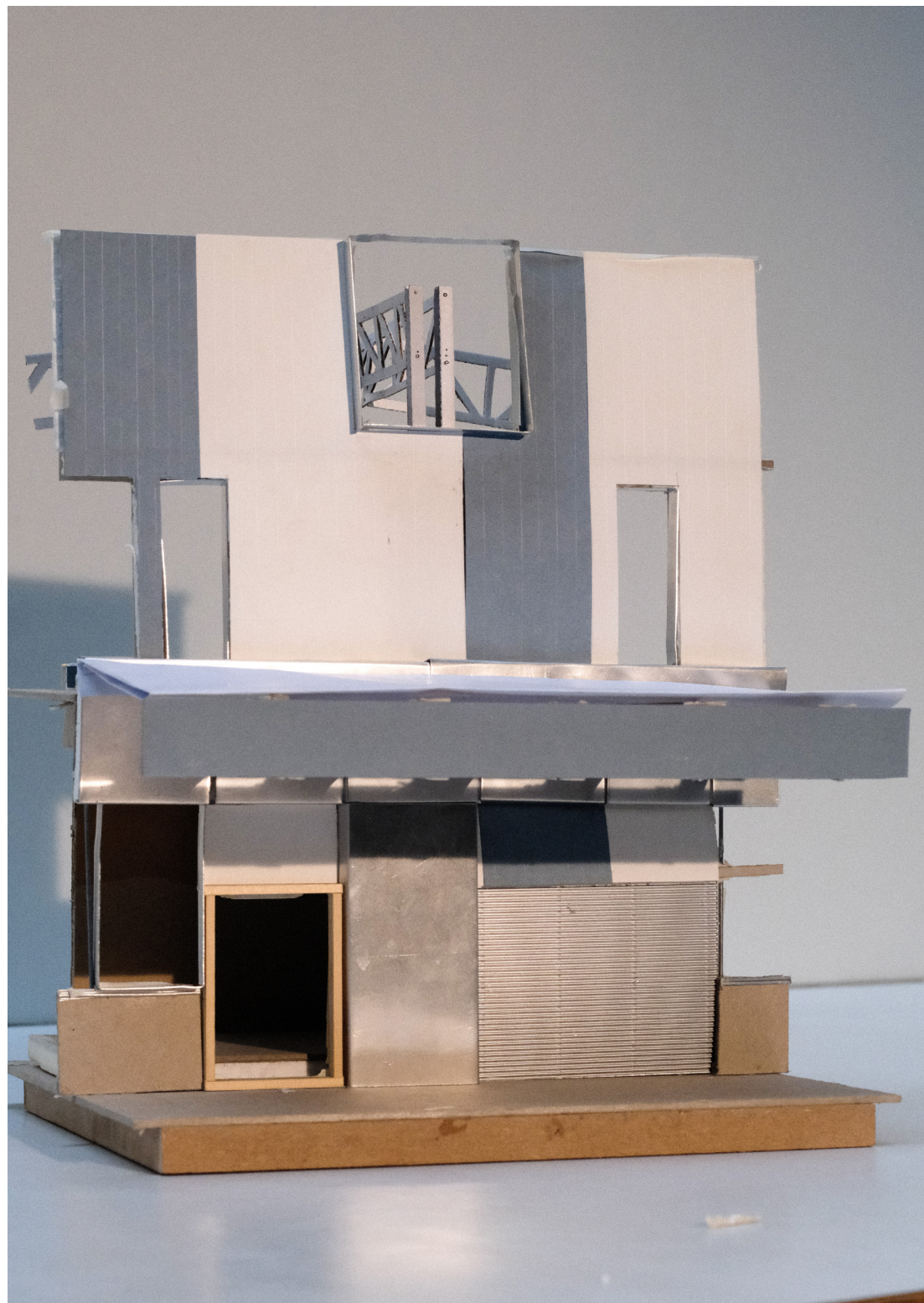


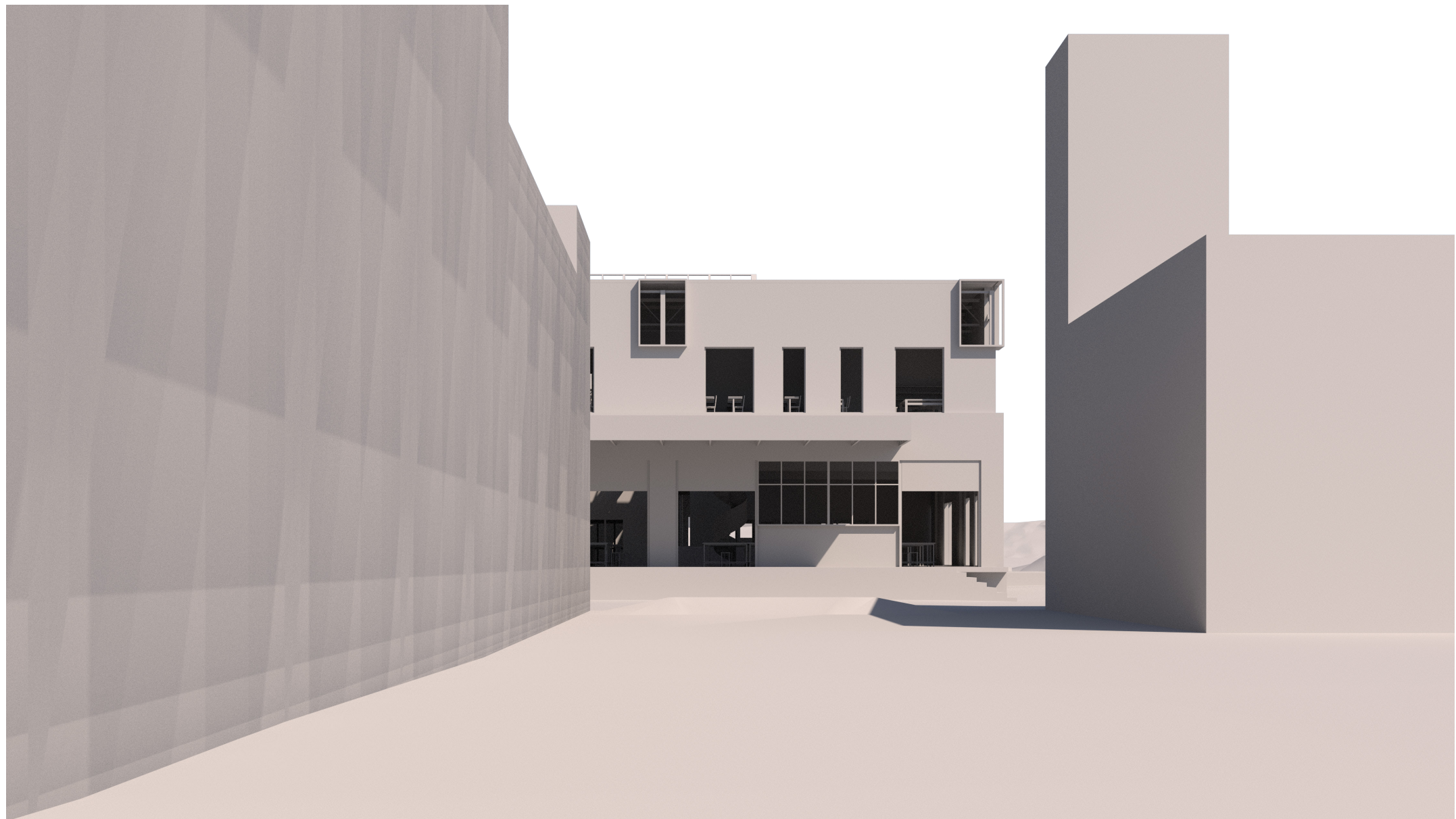
impression
interior facade



facade elevation







facade from the street

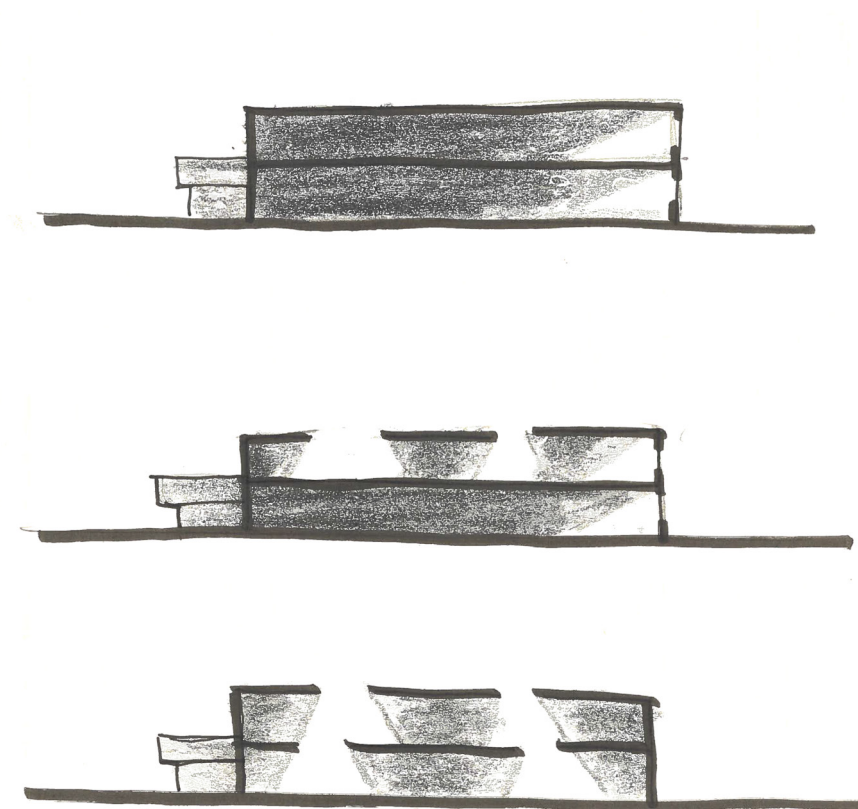
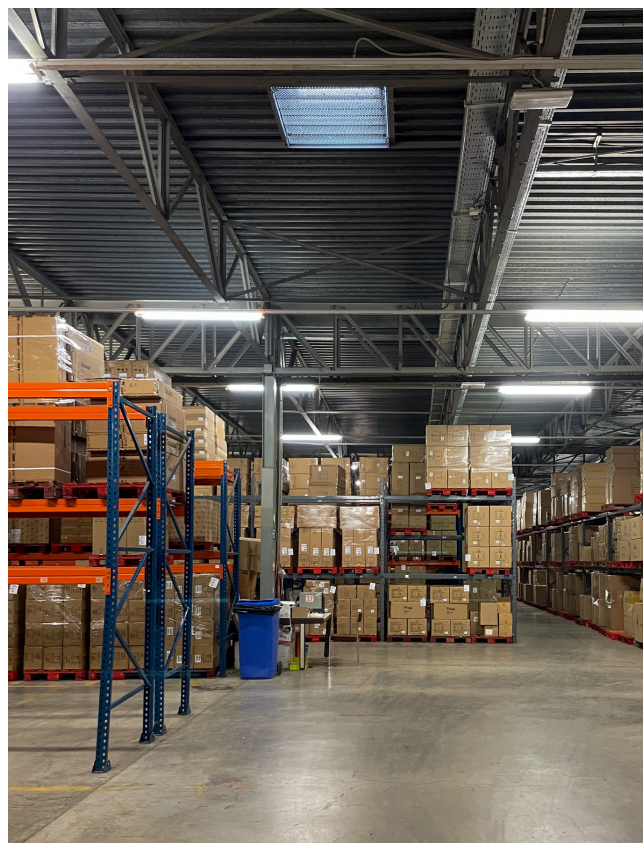
challenges

facade
light
organisation plan

long spans
big plan
high ceiling
robust structure

opportunities

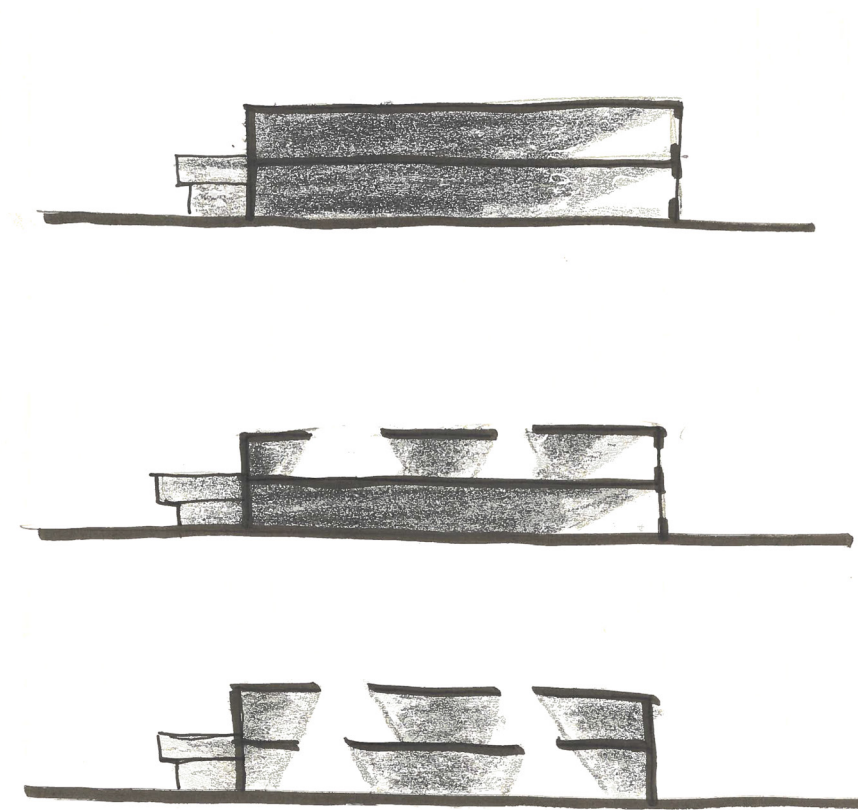
strategy possibilities



1. light from windows

2. **light from roof window**

3. light from roof window through floor



1. light from windows

2. light from roof window

3. **light from roof window through floor**



a lot of beams

perpendicular
with beams



parallel with
beams

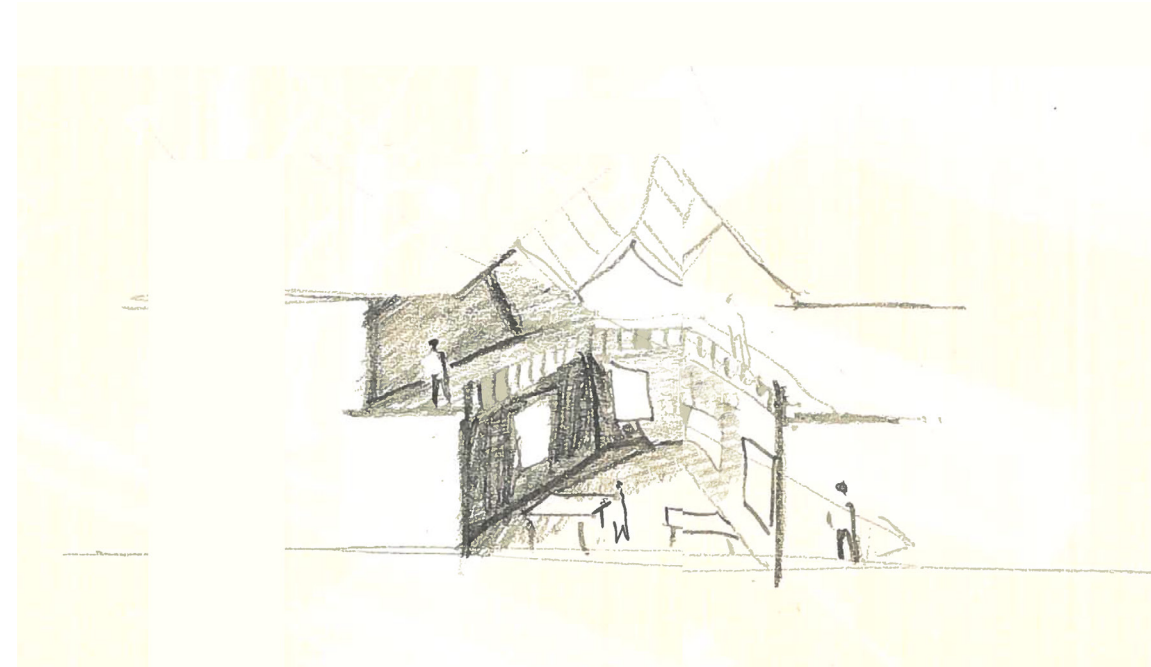


perpendicular
without beams

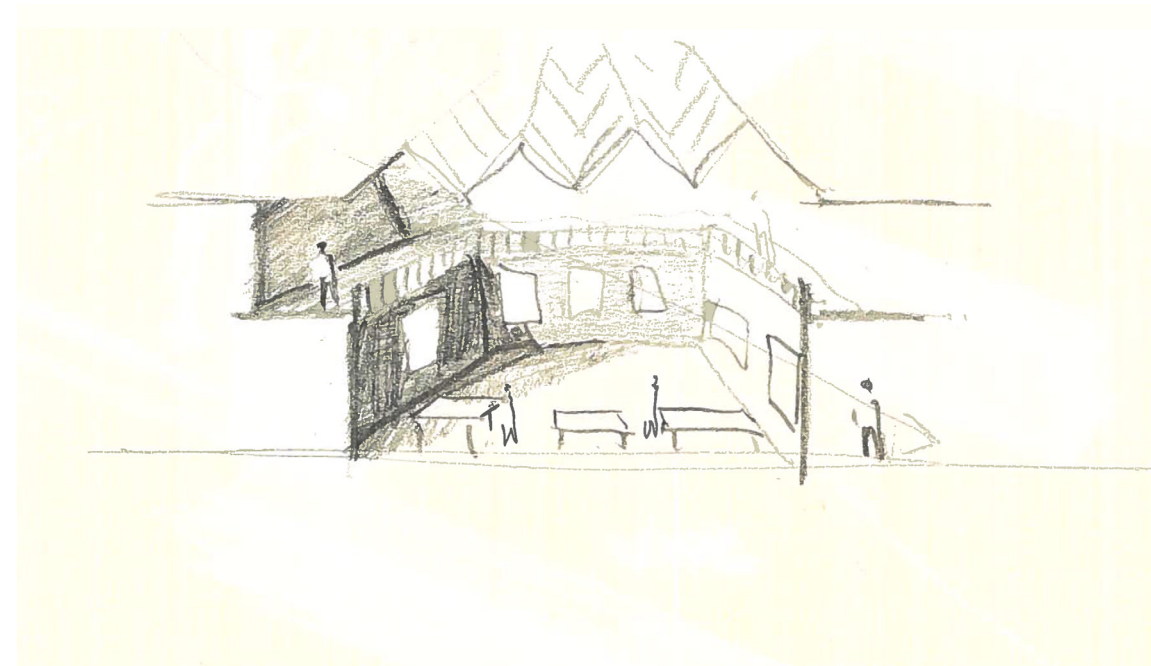


parallel without
beams





roof windows
and floor
openings



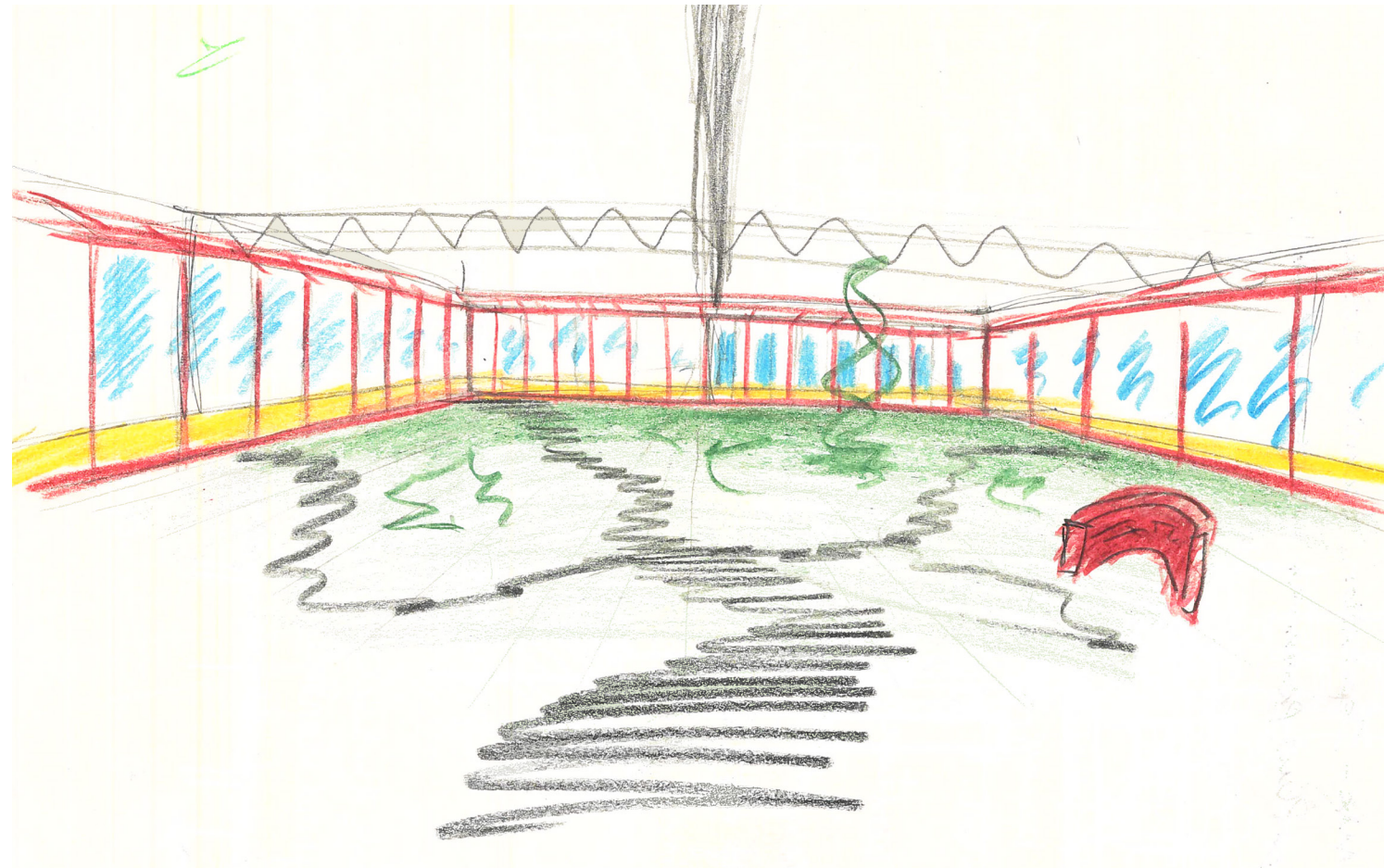
worth it?



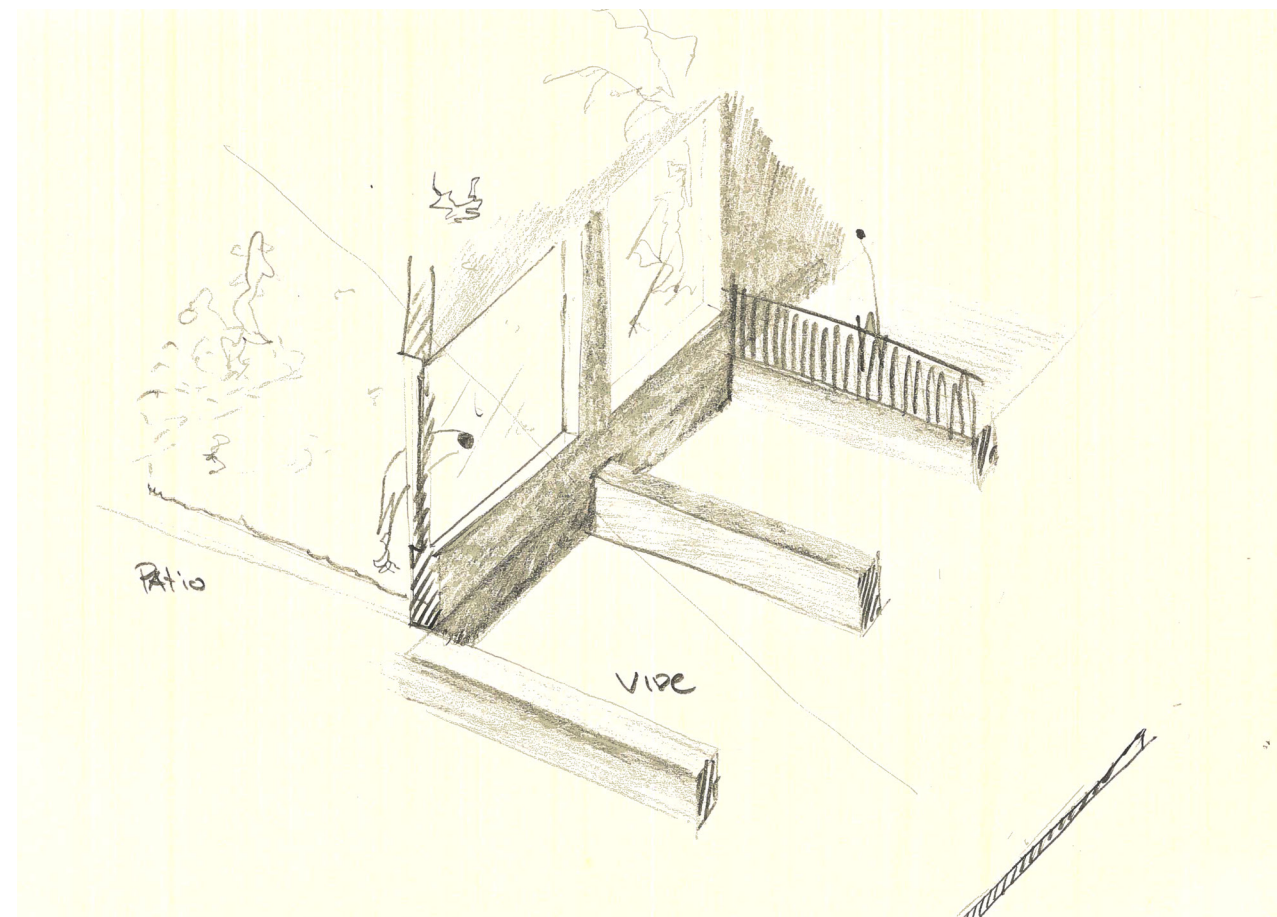
column in the
spotlight



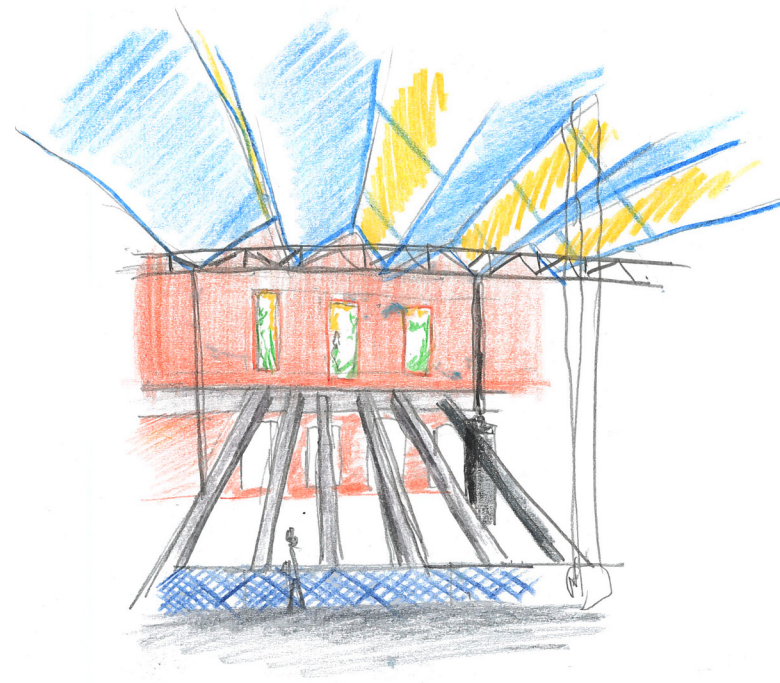
extending the
opening just
over the main
beam lightens up
the ceiling



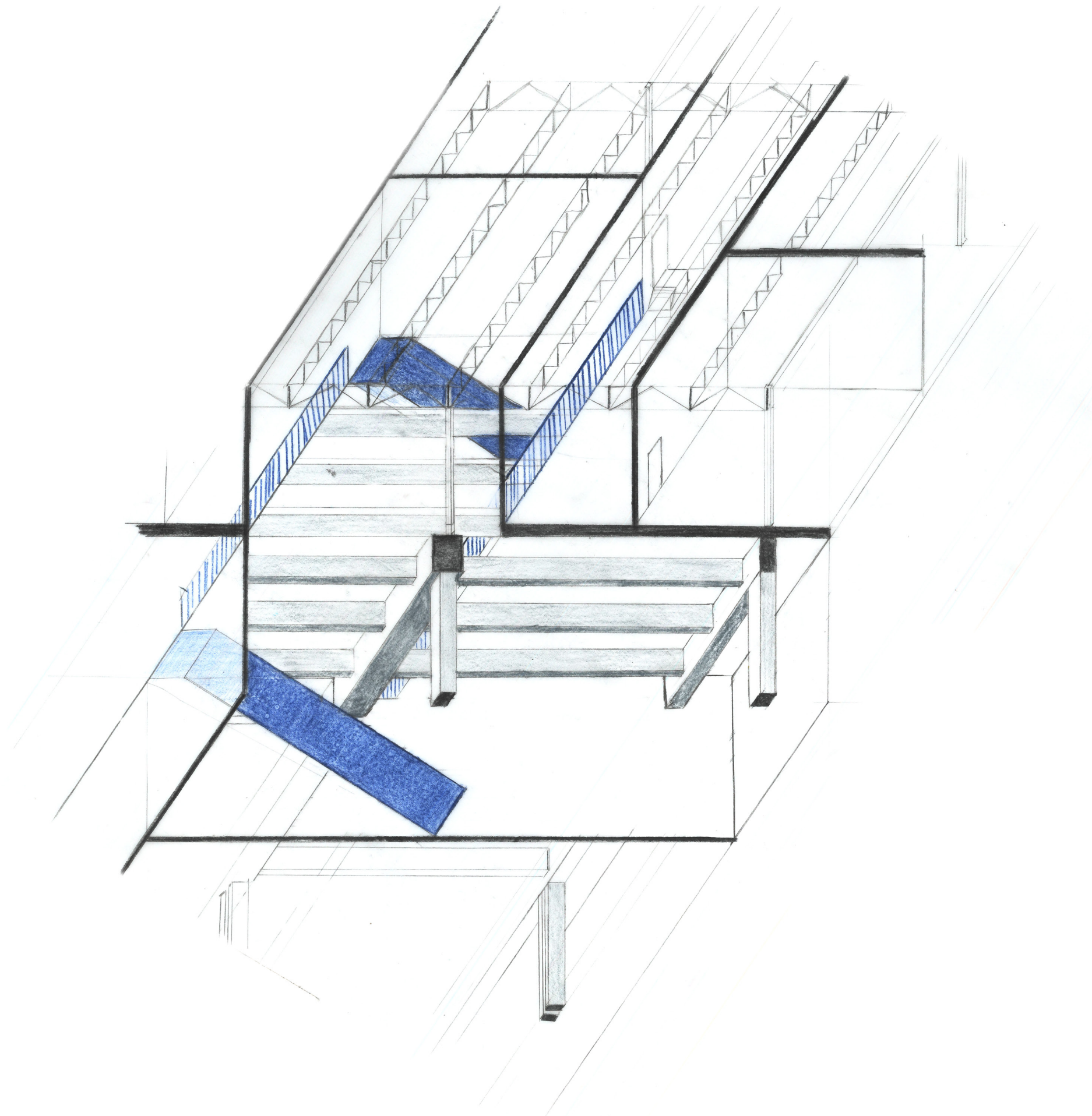
patios provides extra facade to place extra classrooms on the first floor

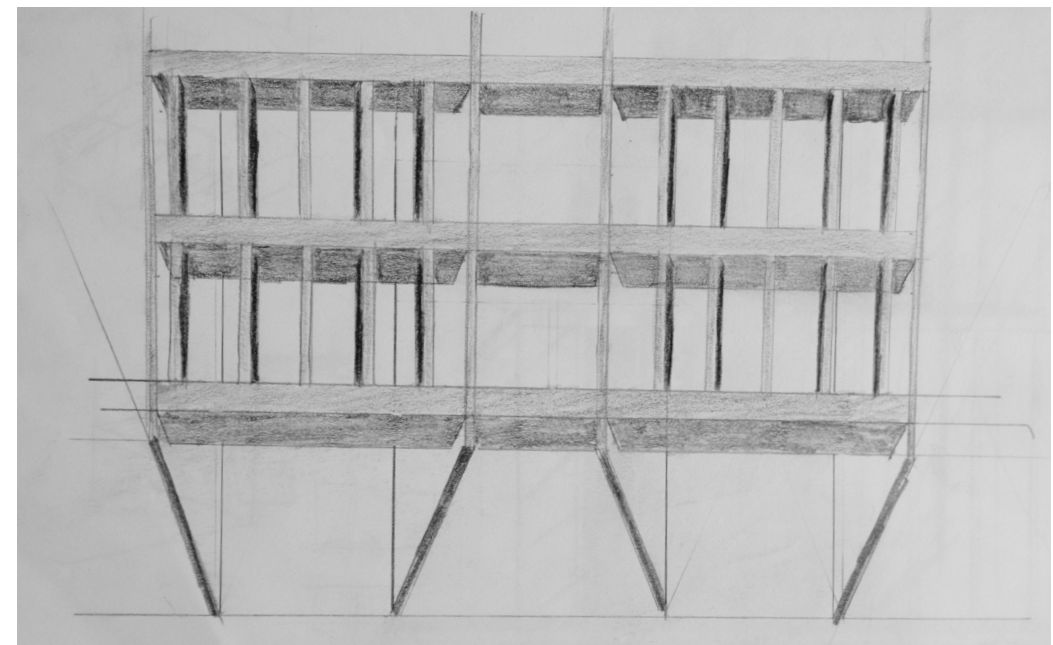
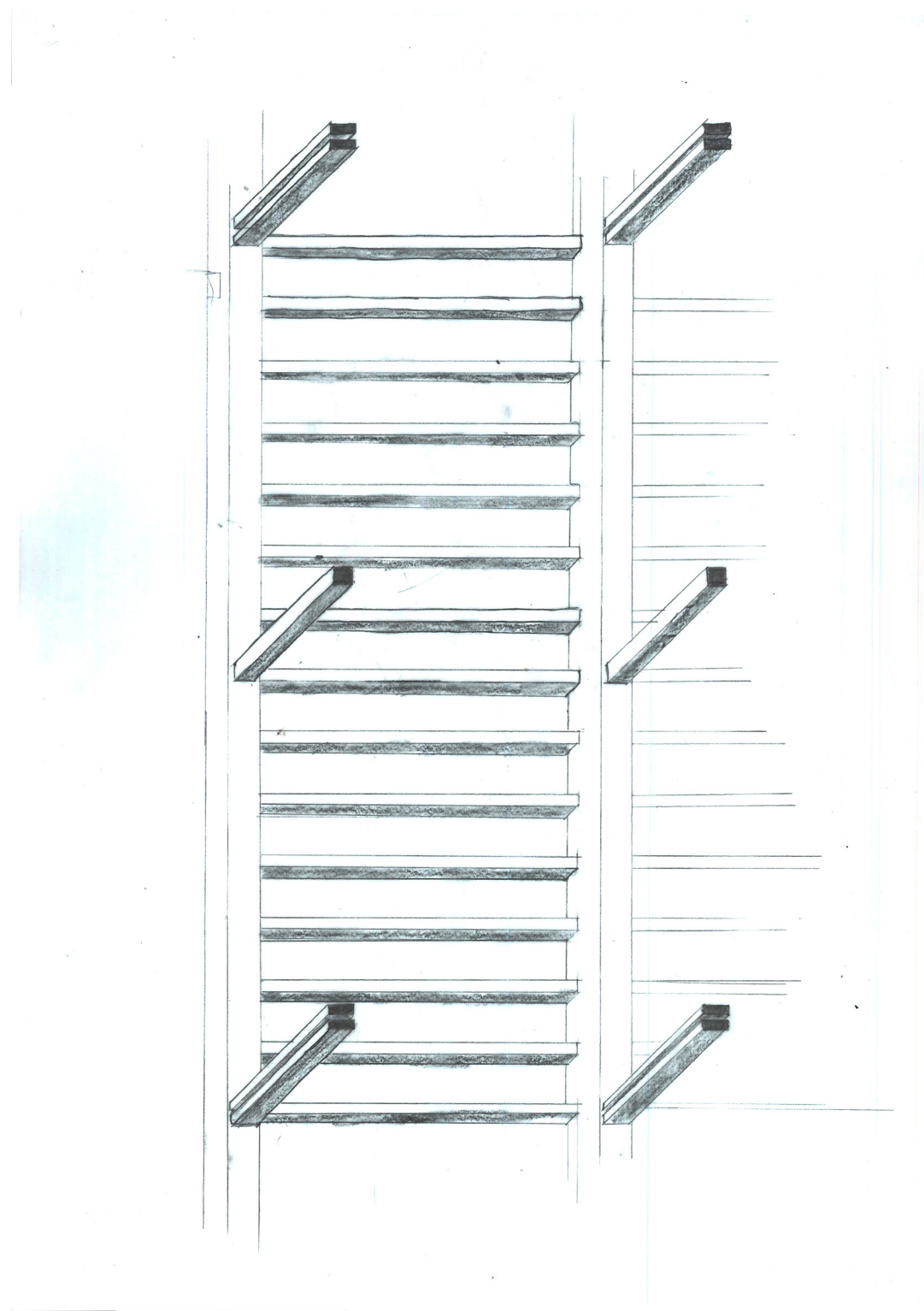


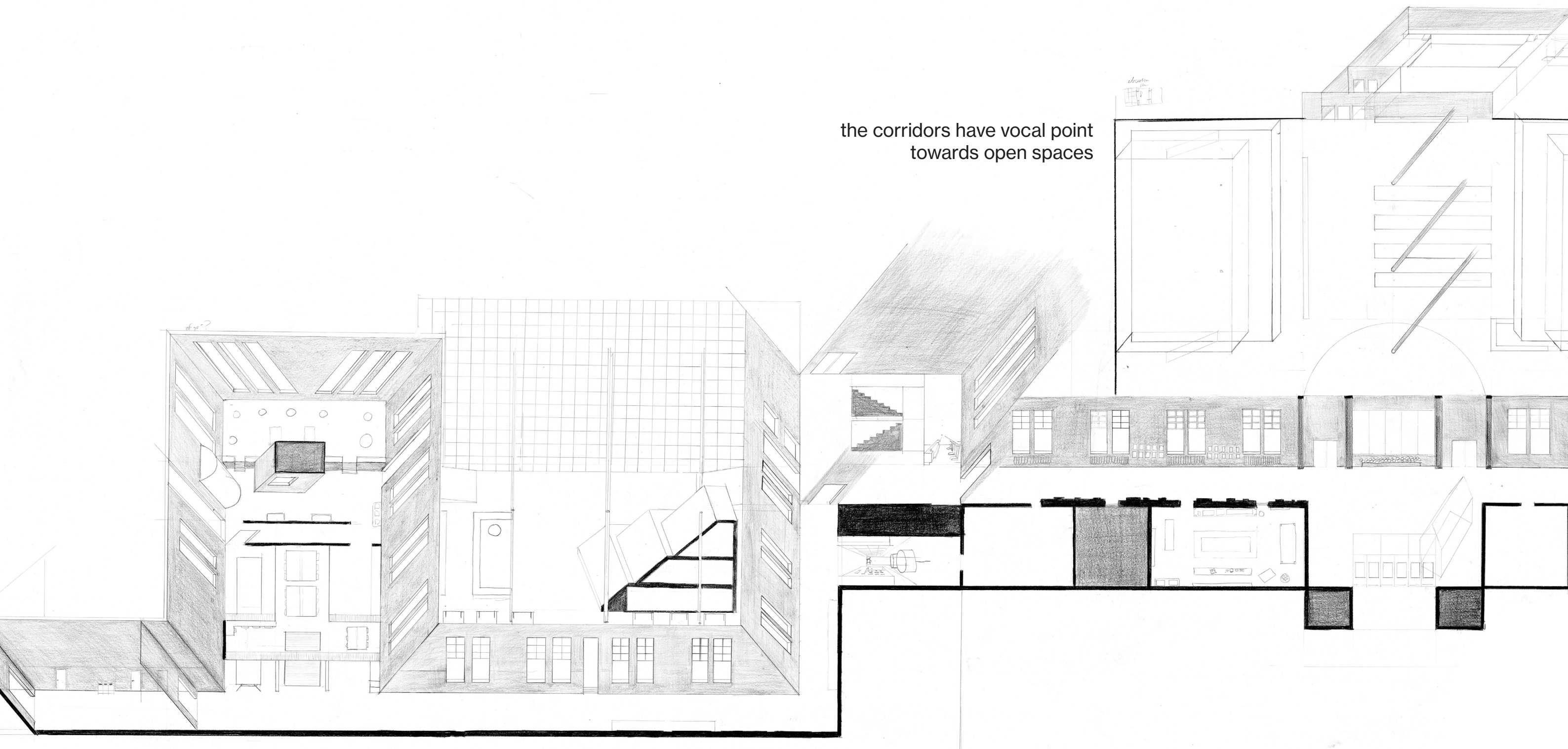
the windows of the patio serve as a roof light for ground floor



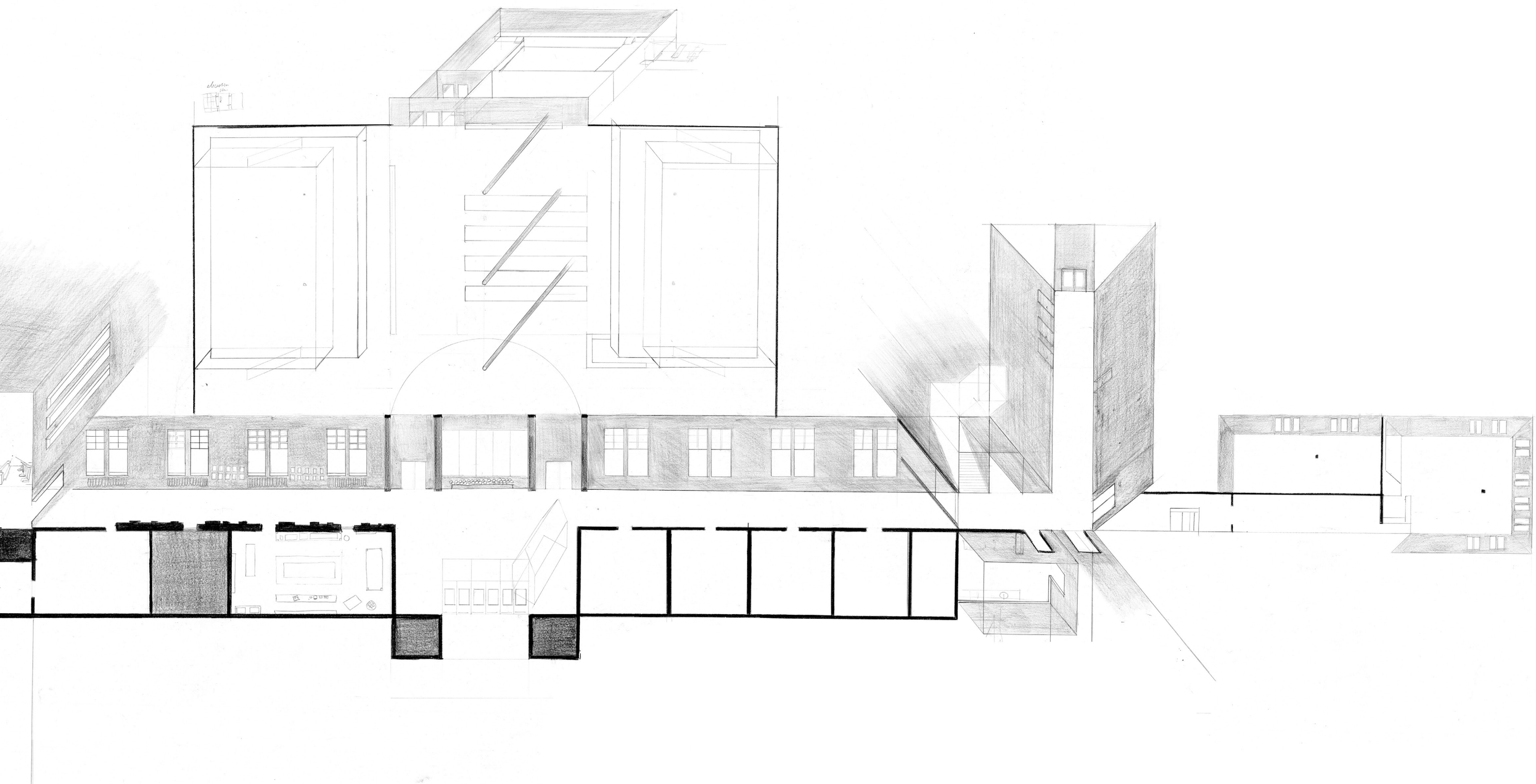
combine patio-vide-roof light to
get light deep into the building

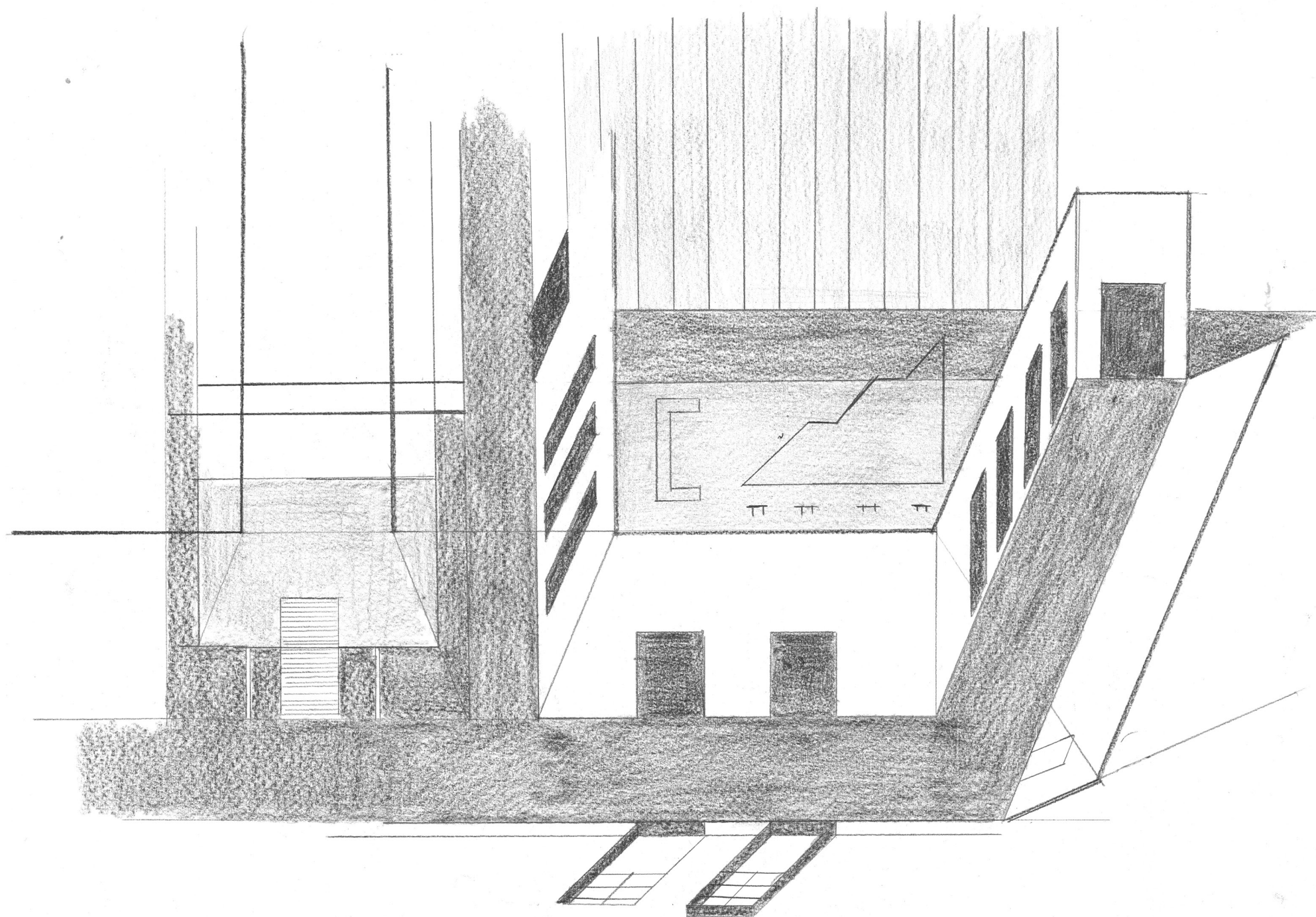


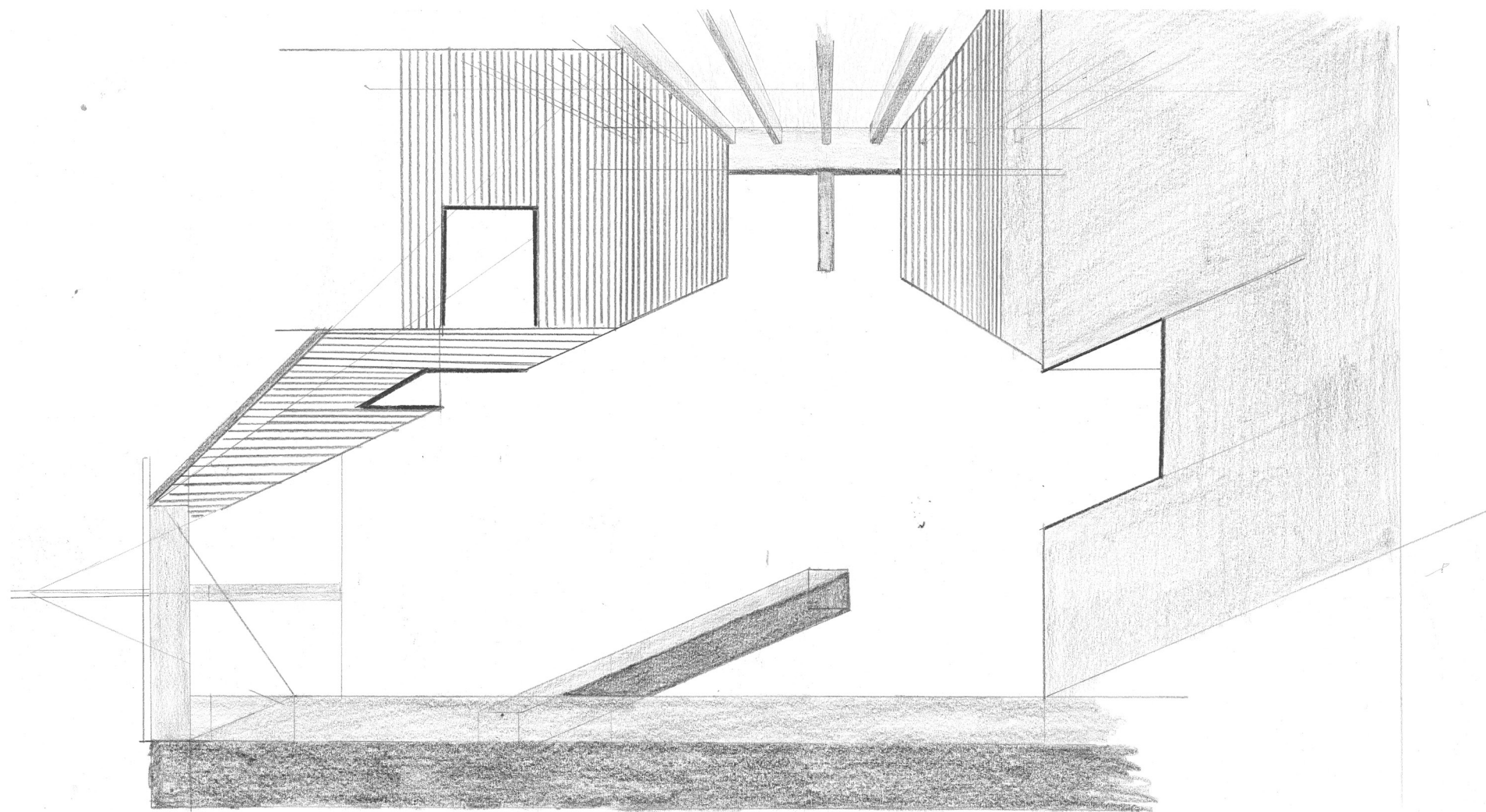


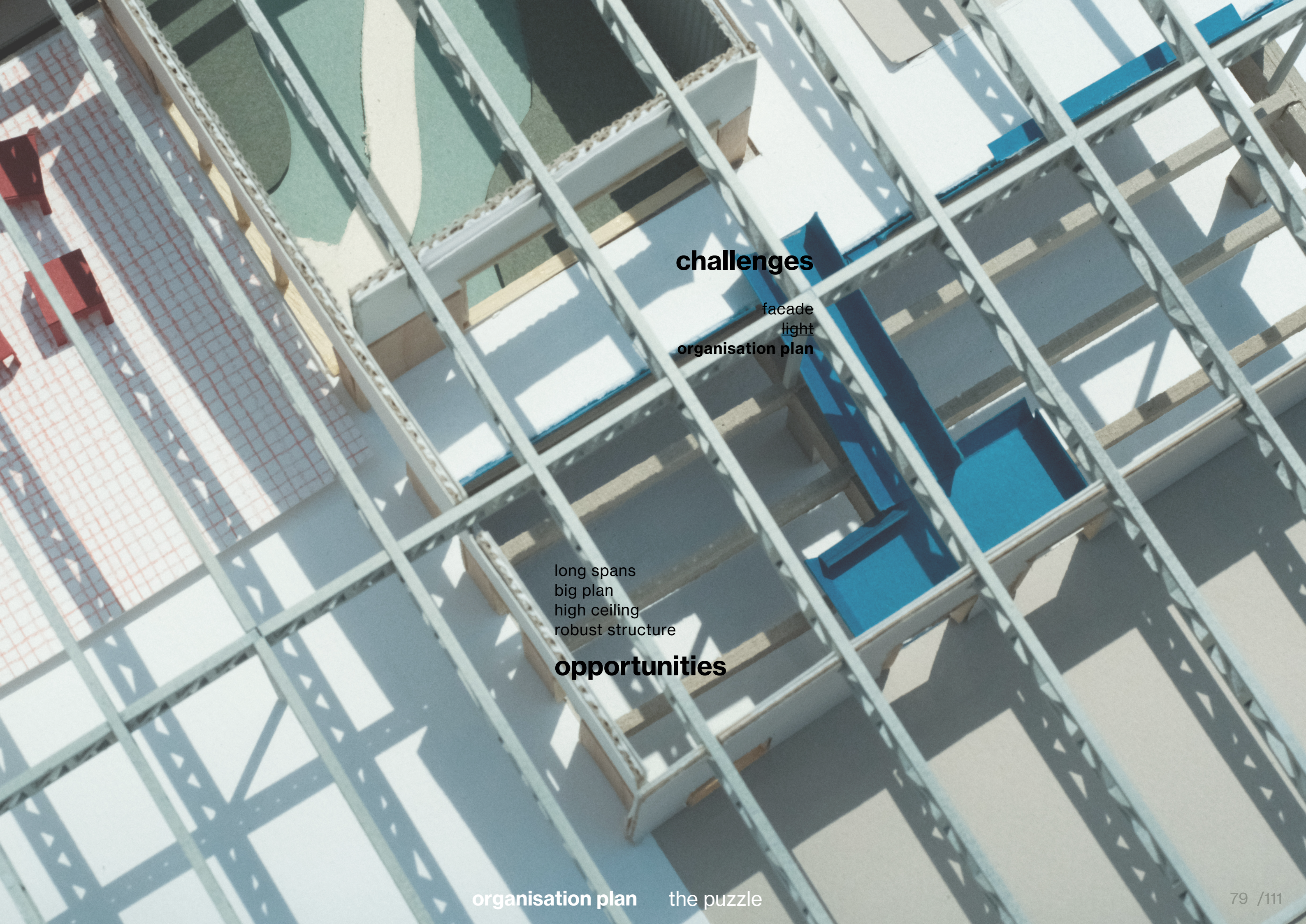


the corridors have vocal point
towards open spaces









challenges

facade
light
organisation plan

long spans
big plan
high ceiling
robust structure

opportunities

first floor



3 dimensional puzzle
between the ground and
first floor

red: core/service

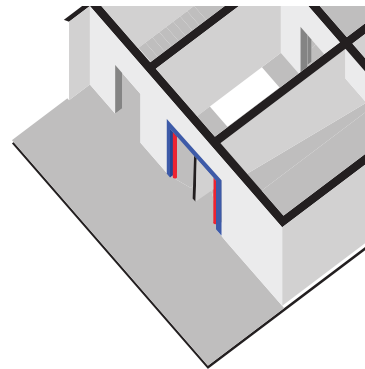
grey: classroom

white: corridor

blue: stair/bridge

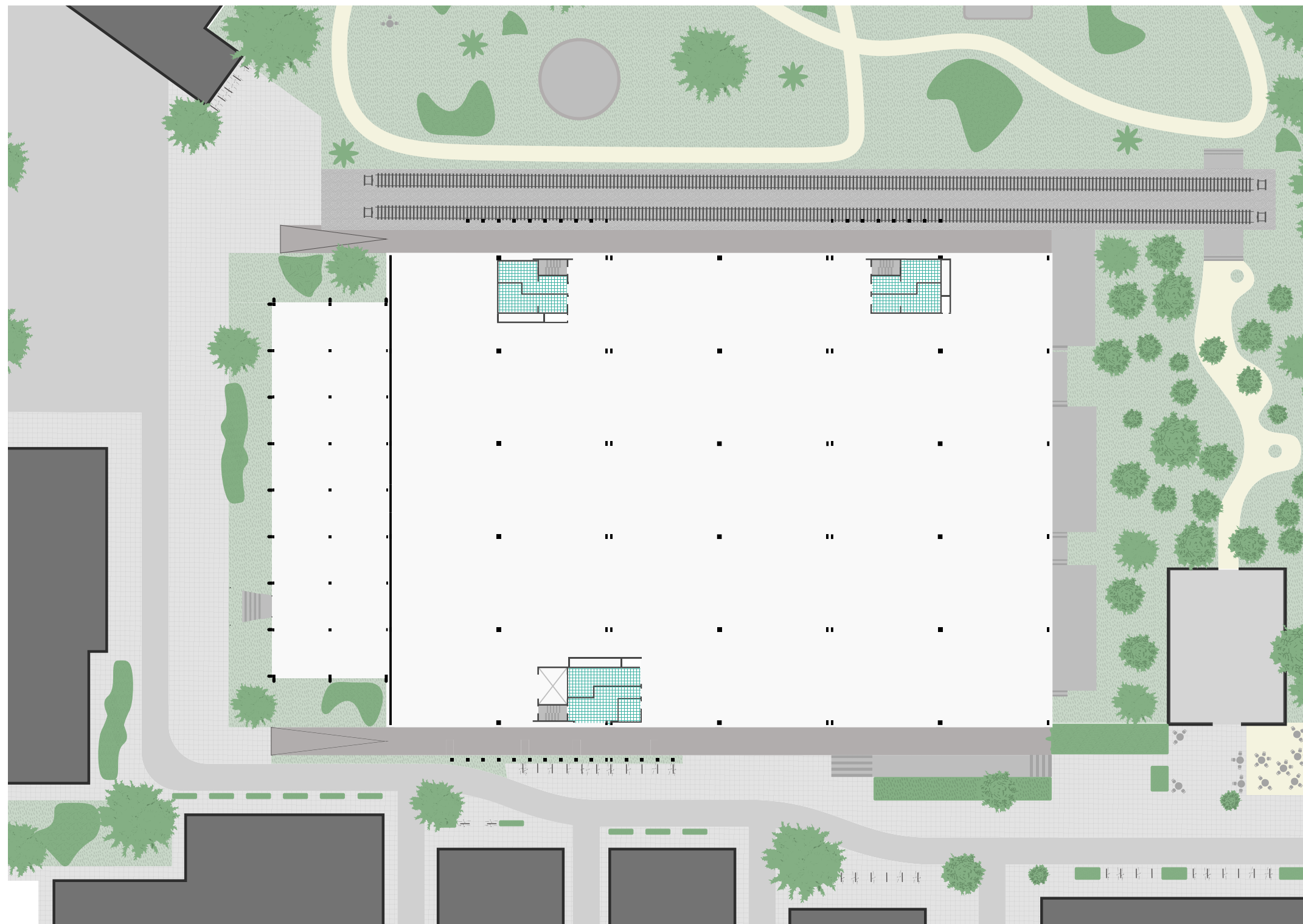
brown: patio

(not final design)



ground floor

north

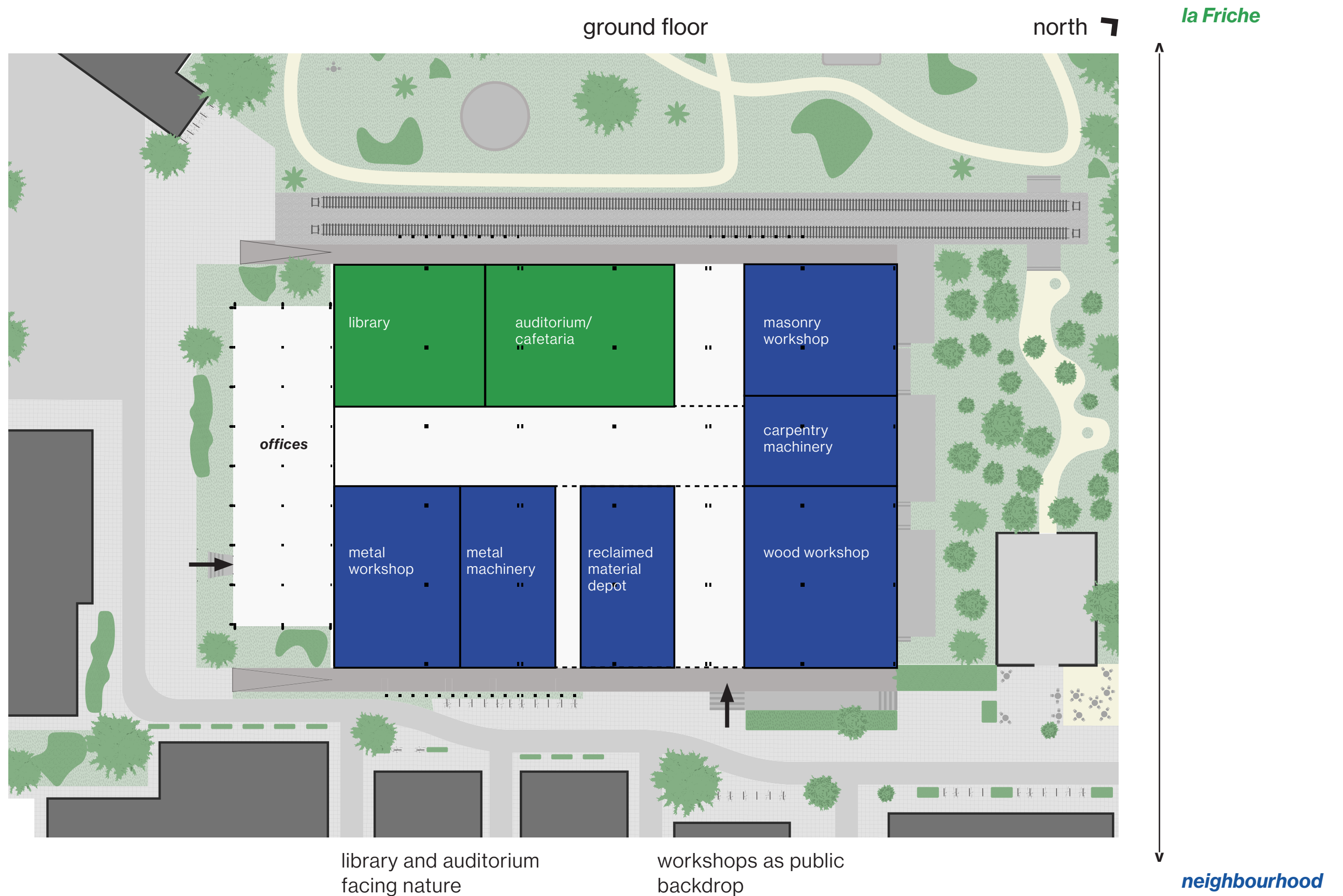


la friche

neighbourhood

open plan

organisation plan cores



ground floor

north 

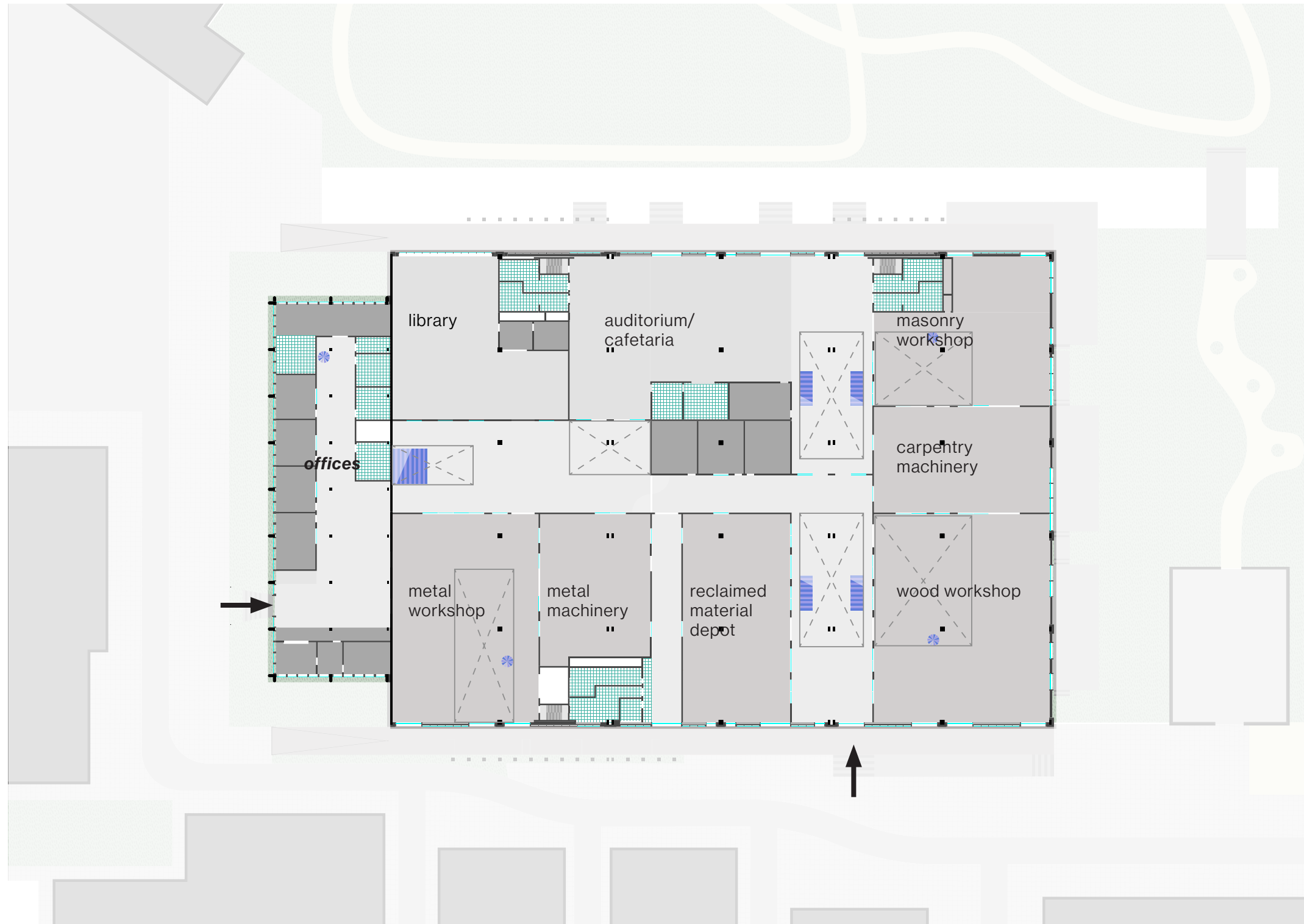


connect office and
warehouse

material depot at entrance

ground floor

north 

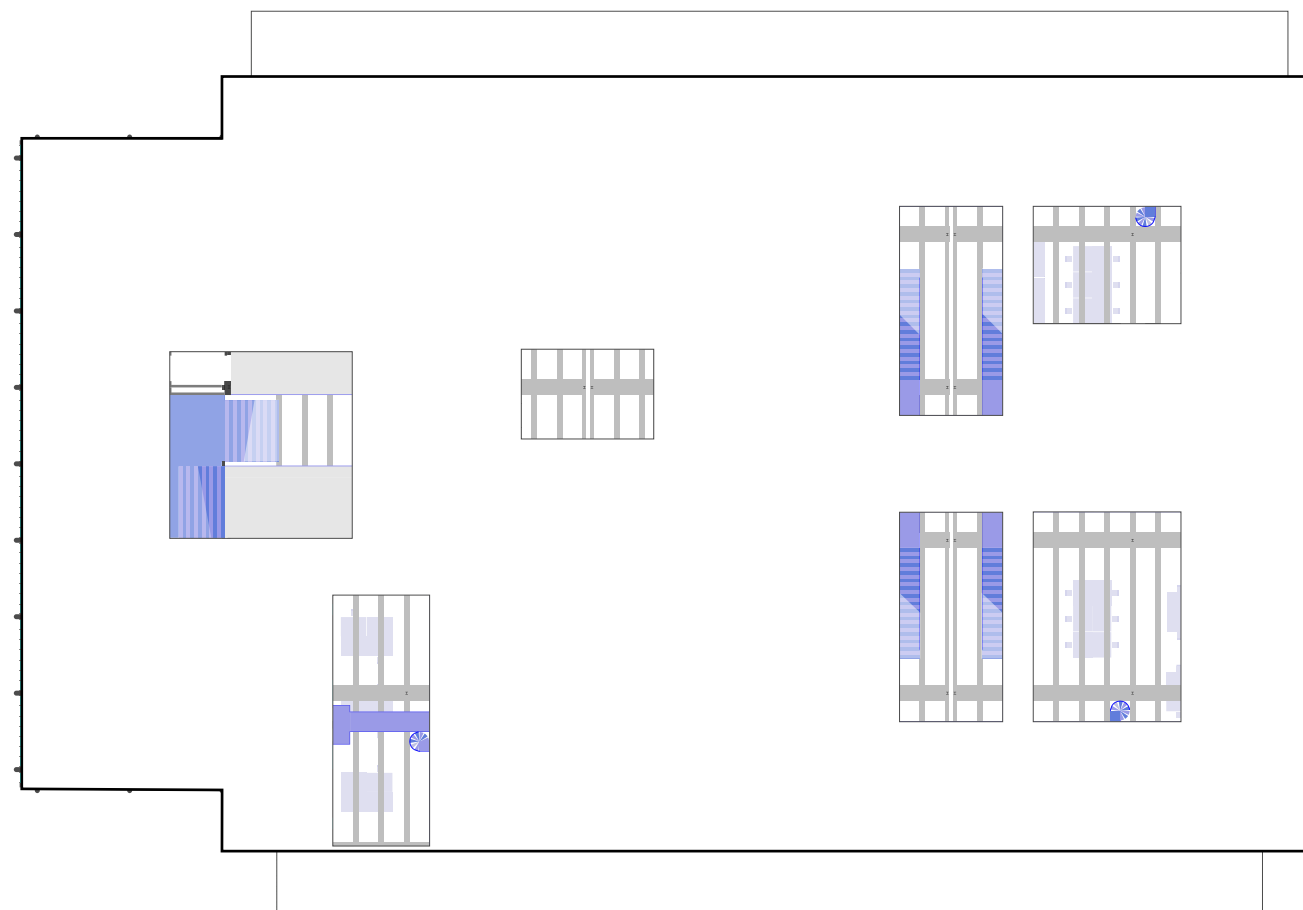


above workshops & corridors

organisation plan floor openings

first floor

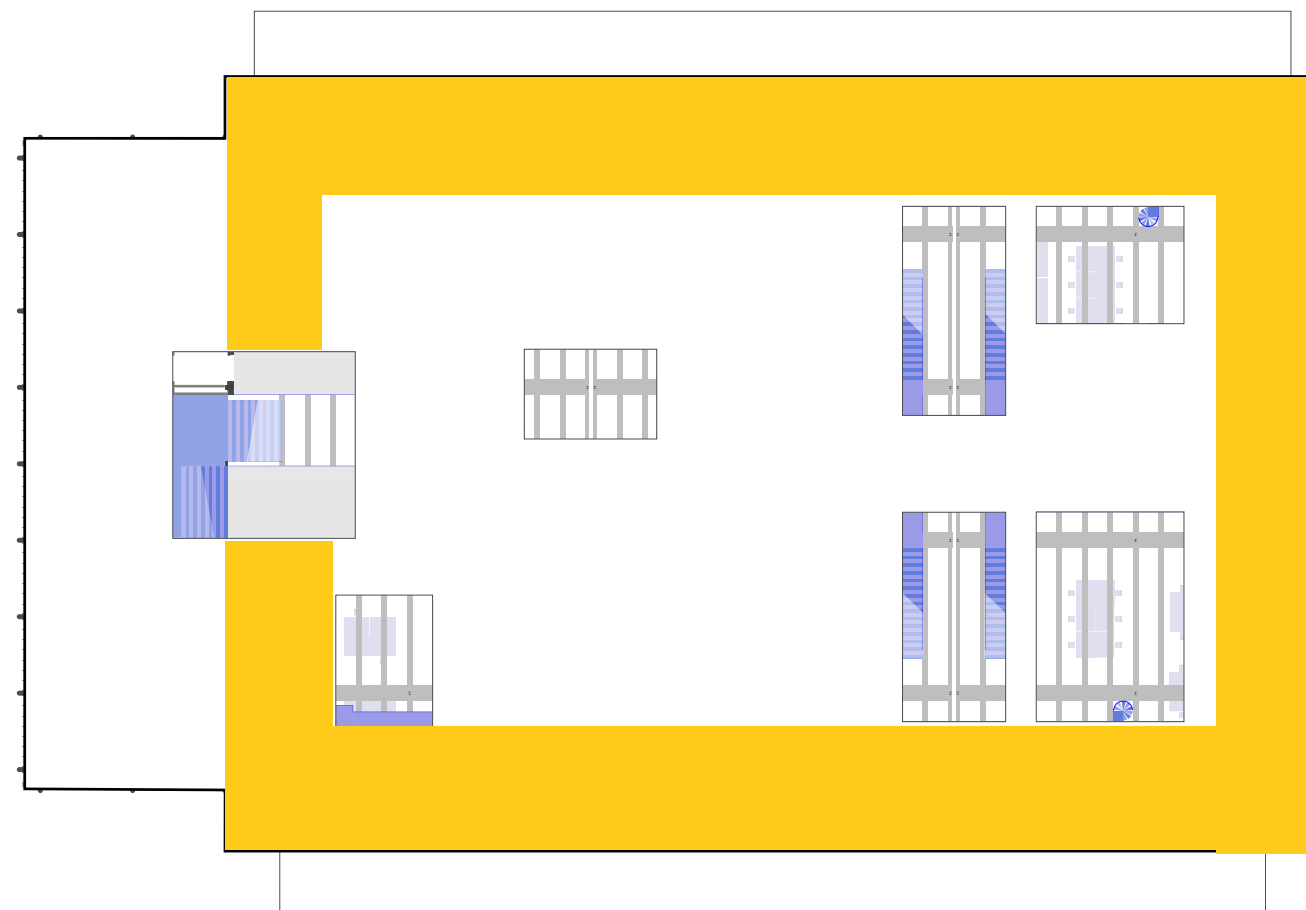
north 



floor opening

first floor

north 

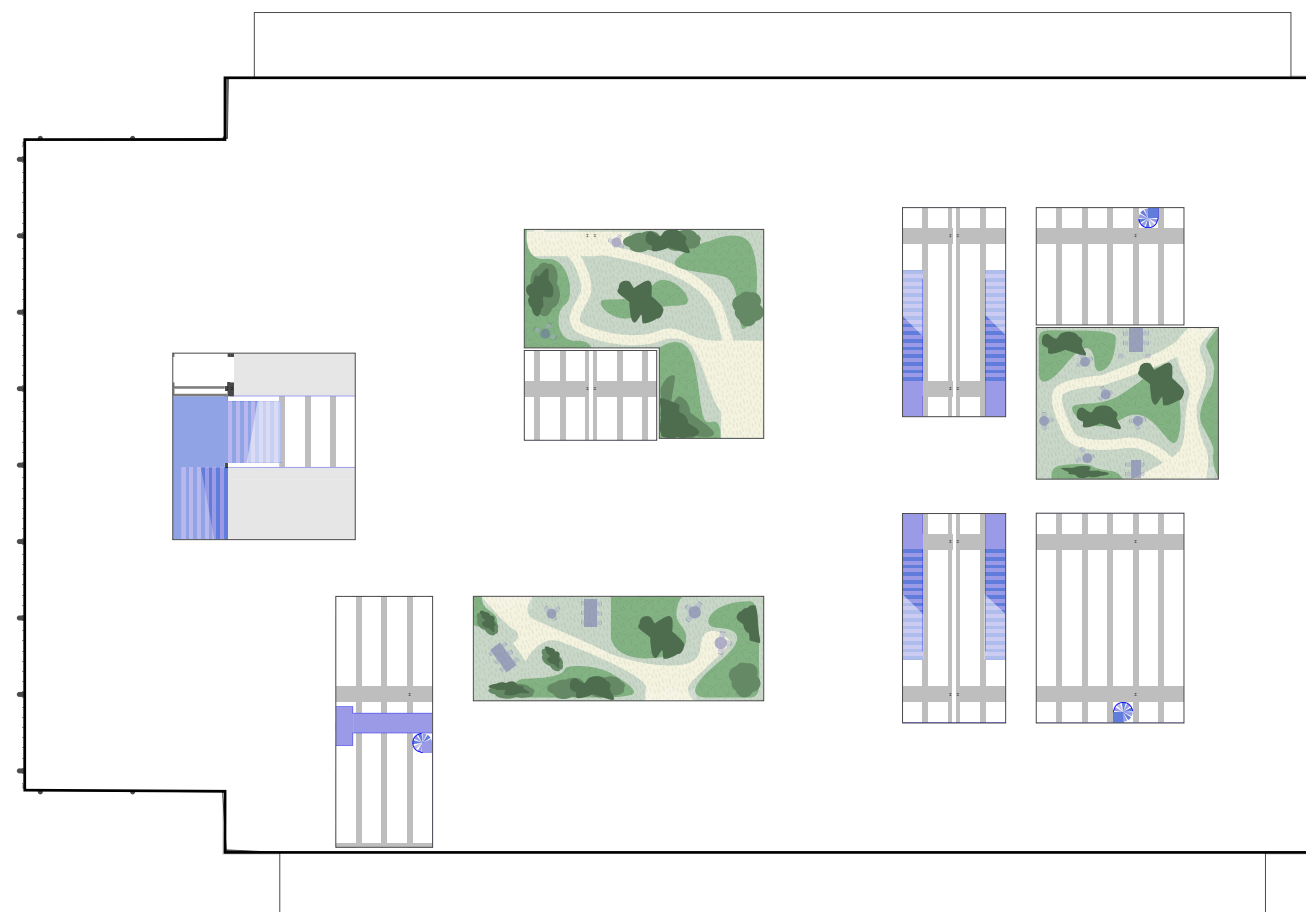


distance from facade

organisational plan build up

first floor

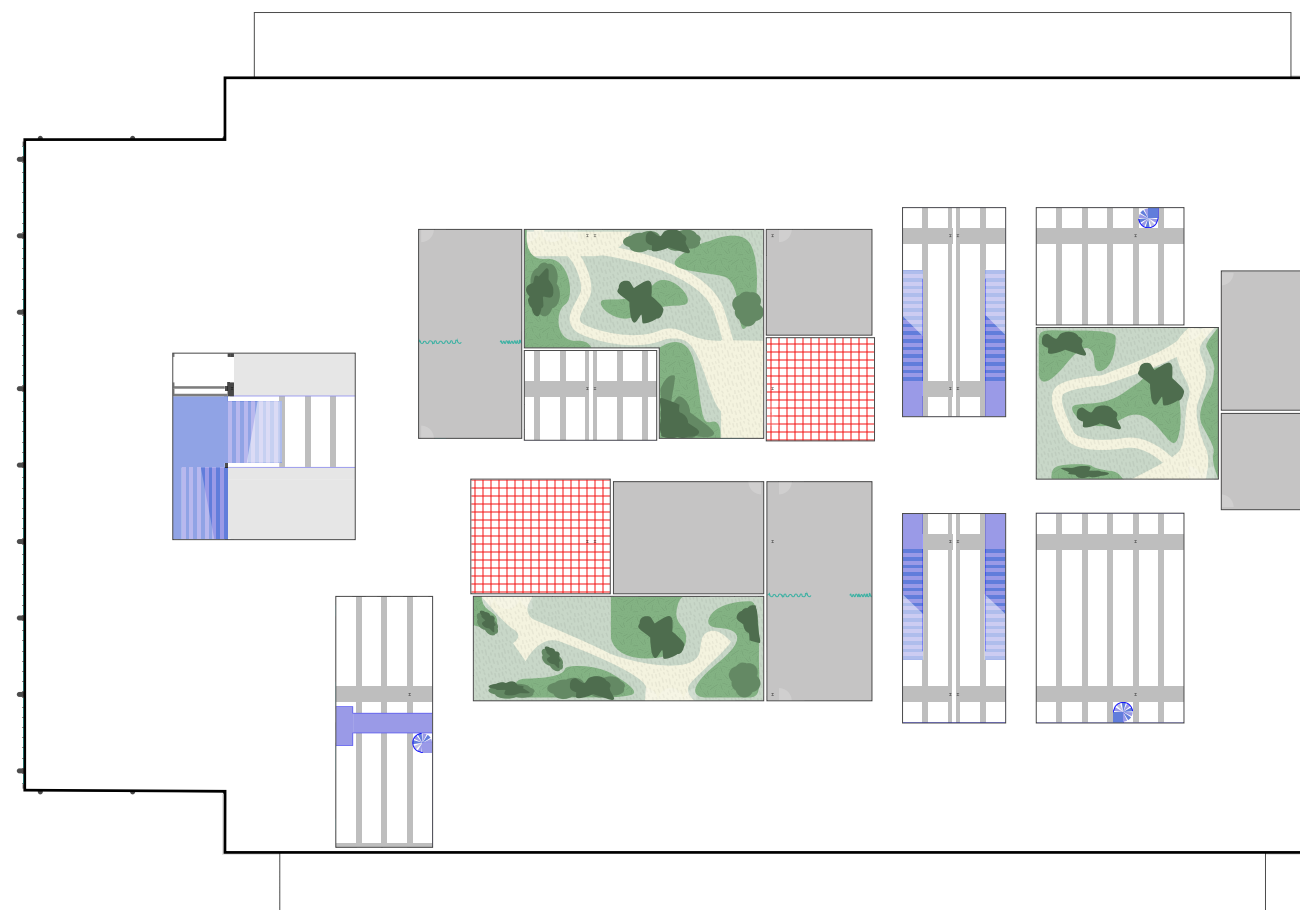
north 



vide - patio

first floor

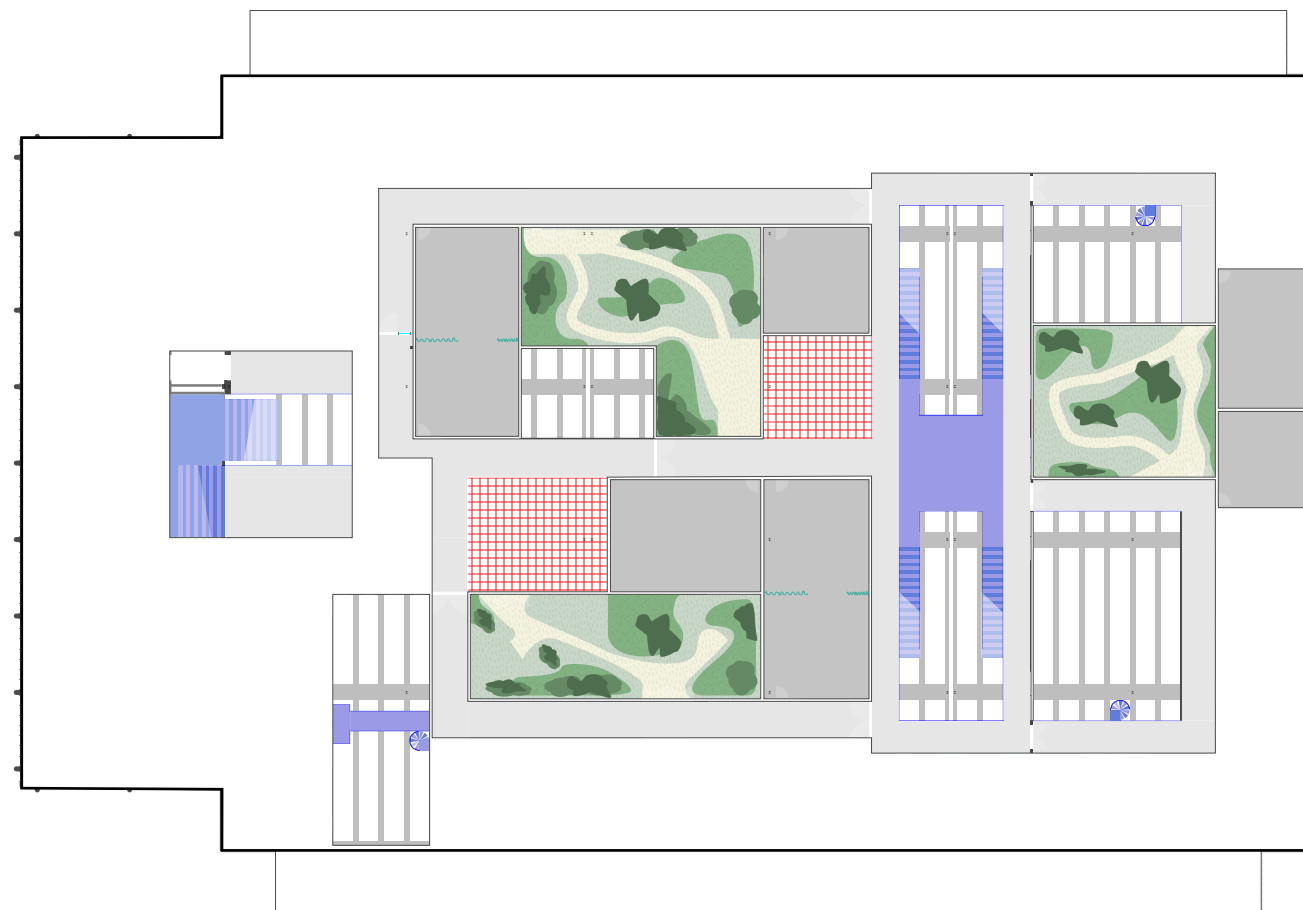
north 



vide - patio - classrooms

first floor

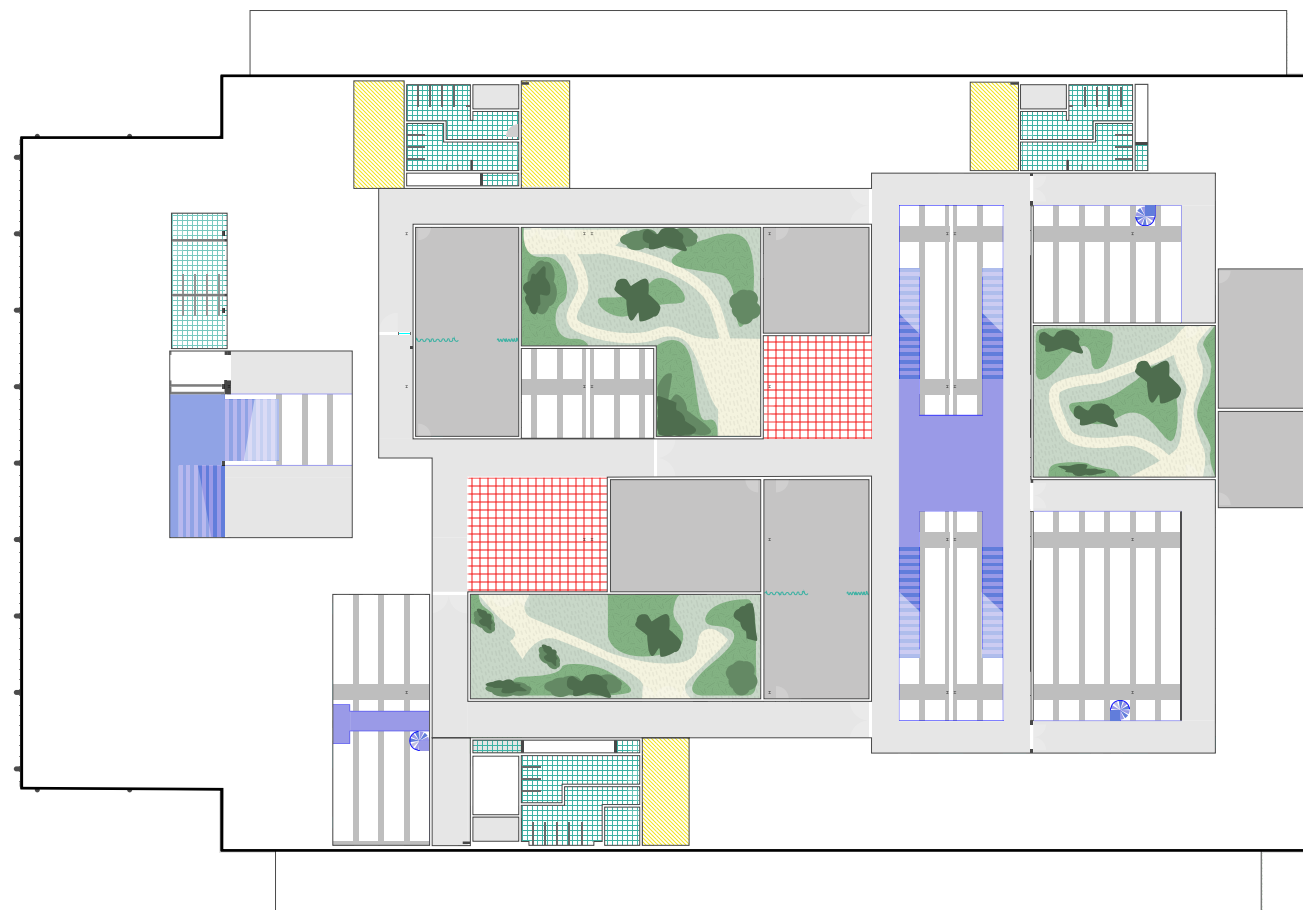
north 



vide - patio - classrooms - corridor

first floor

north 

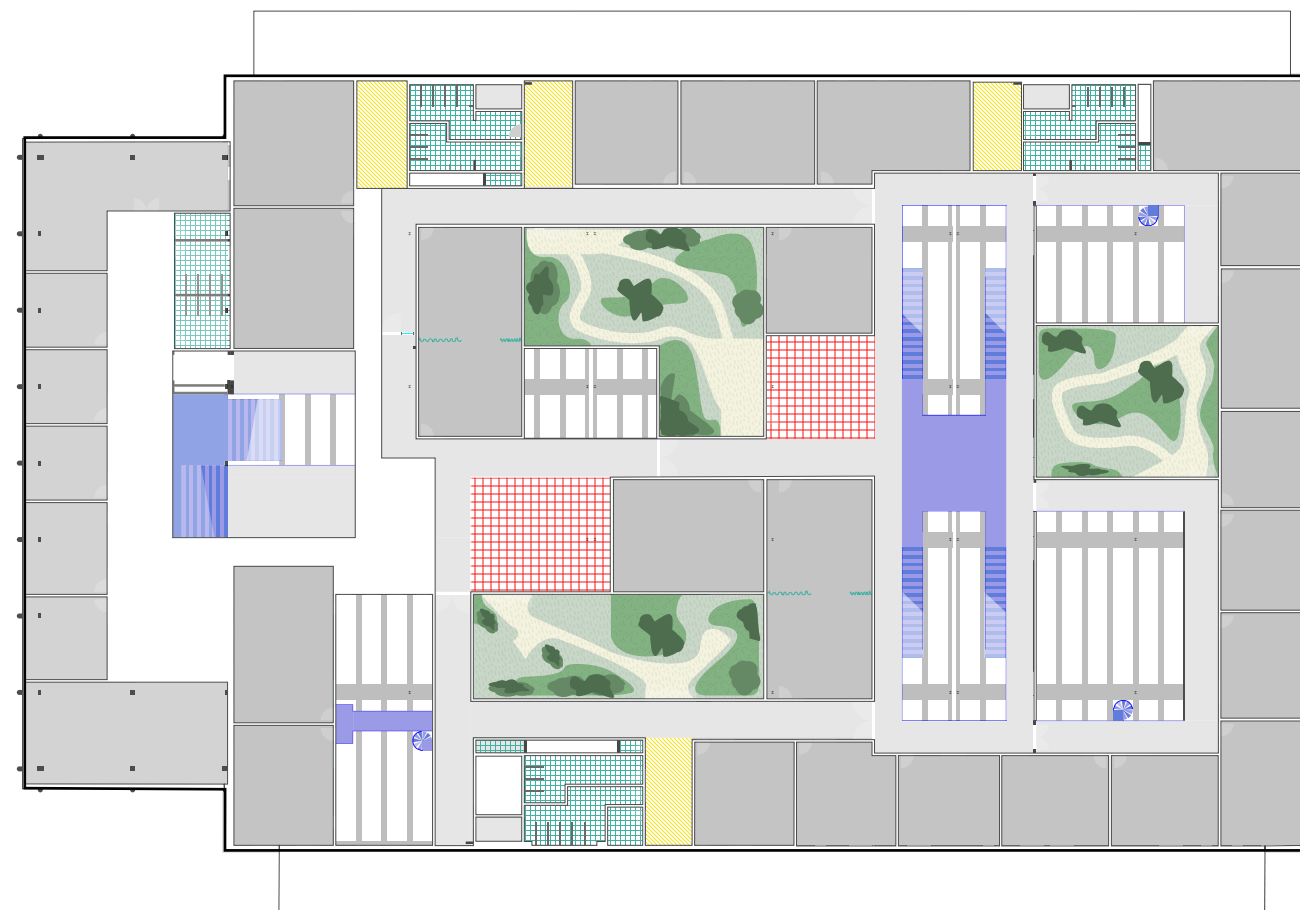


vide - patio - classrooms - corridor - cores

organisation plan build up

first floor

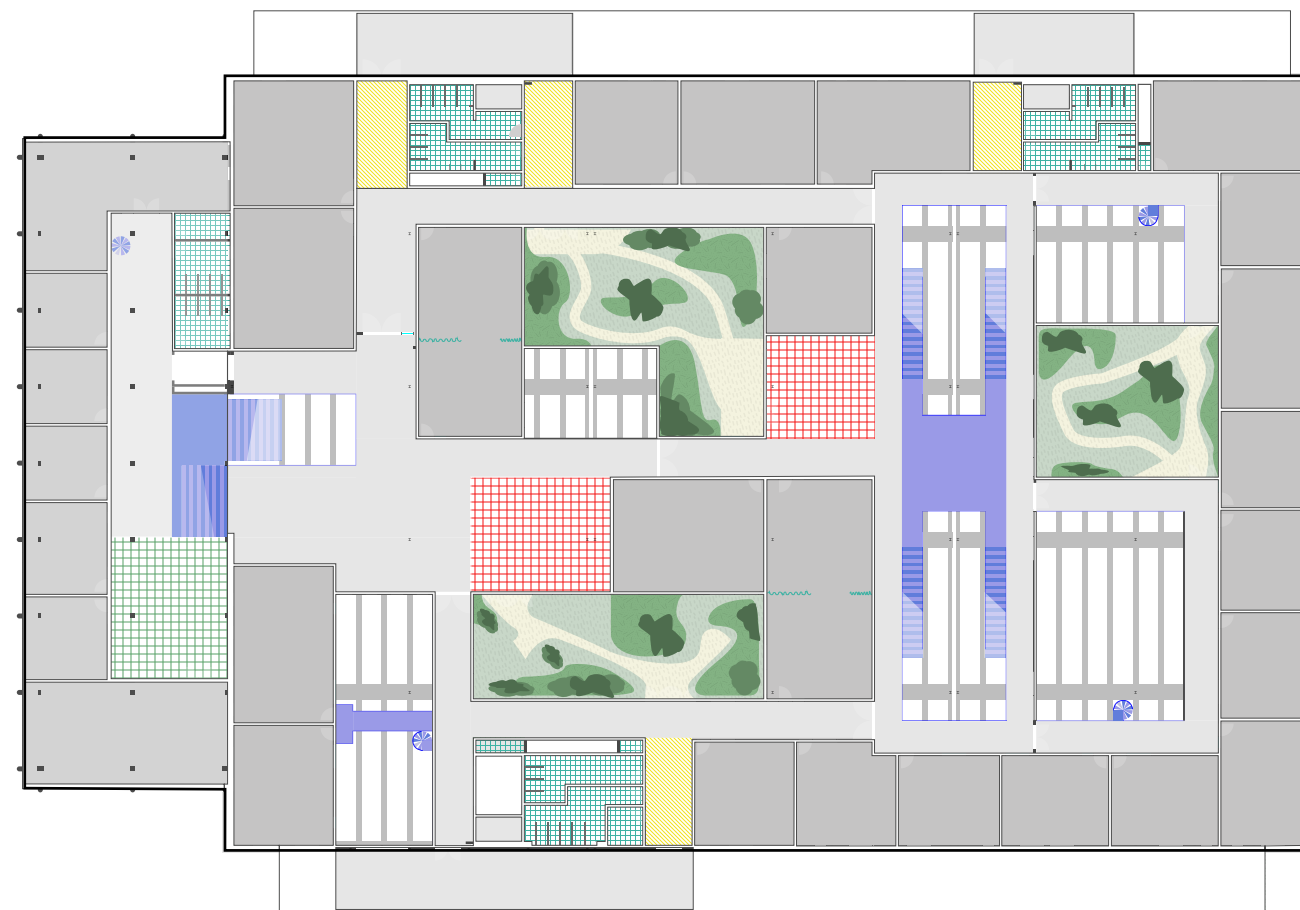
north 



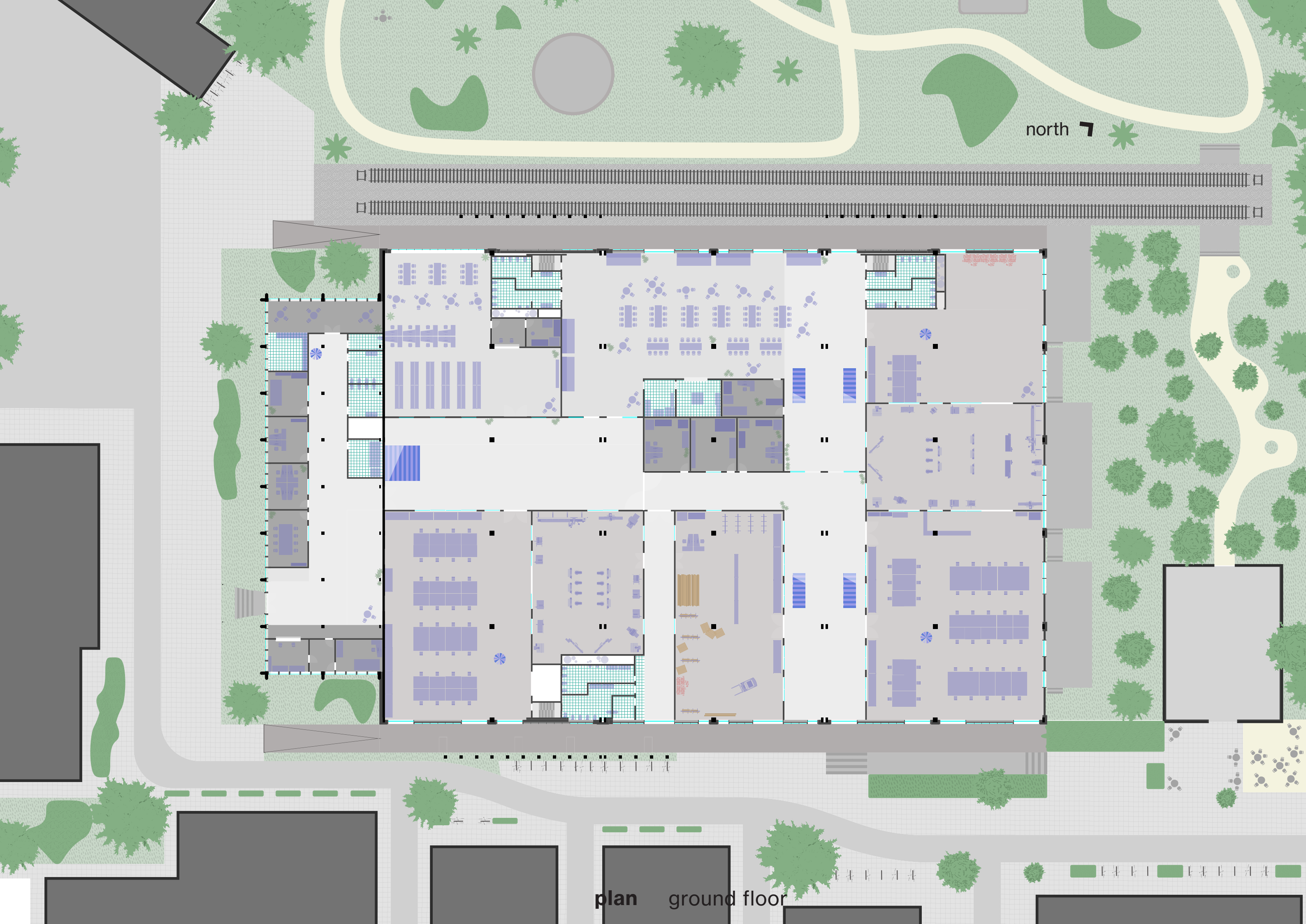
vide - patio - classrooms - corridor - cores - classrooms

first floor

north 



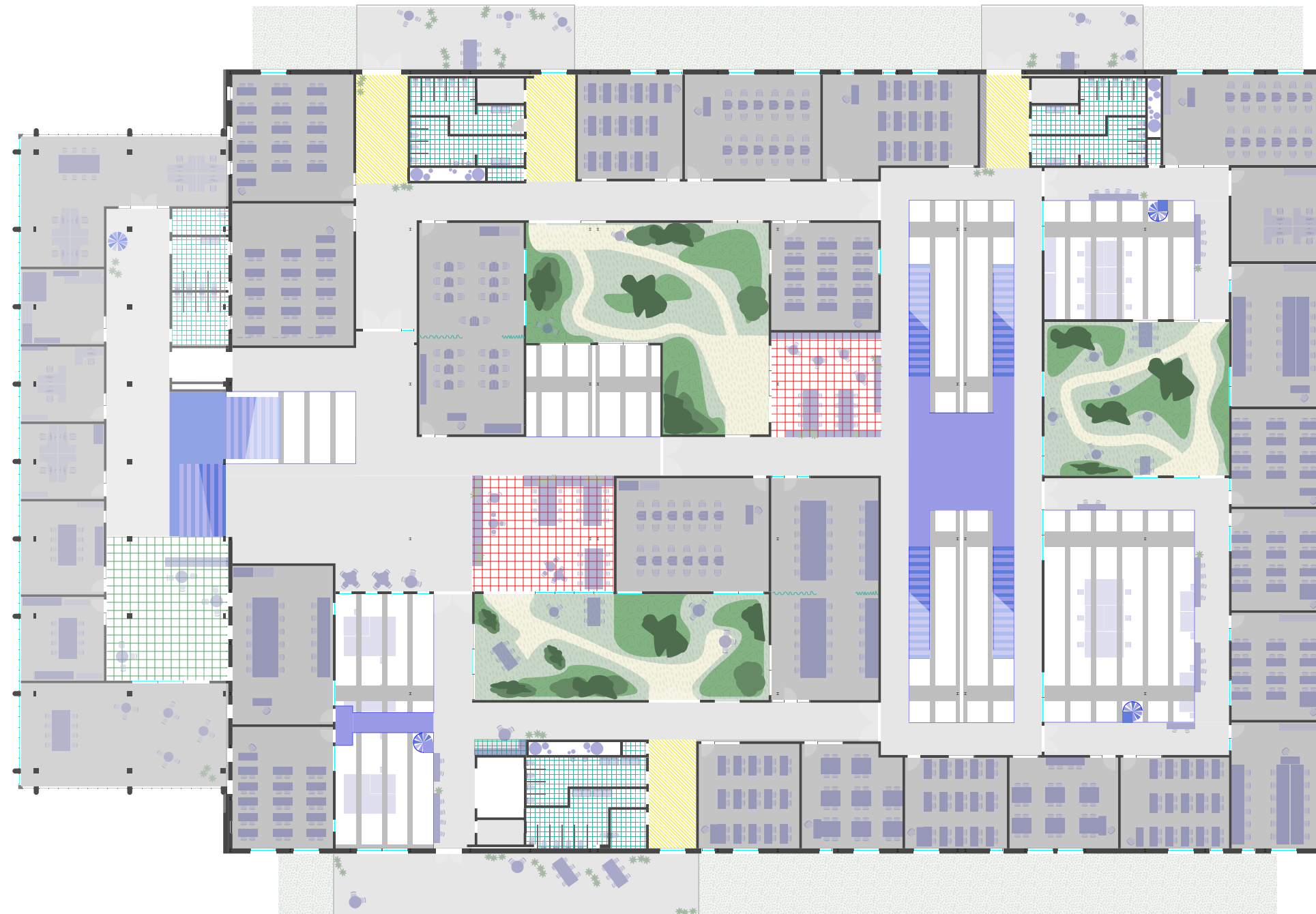
vide - patio - classrooms - corridor - cores - classrooms - the rest



north

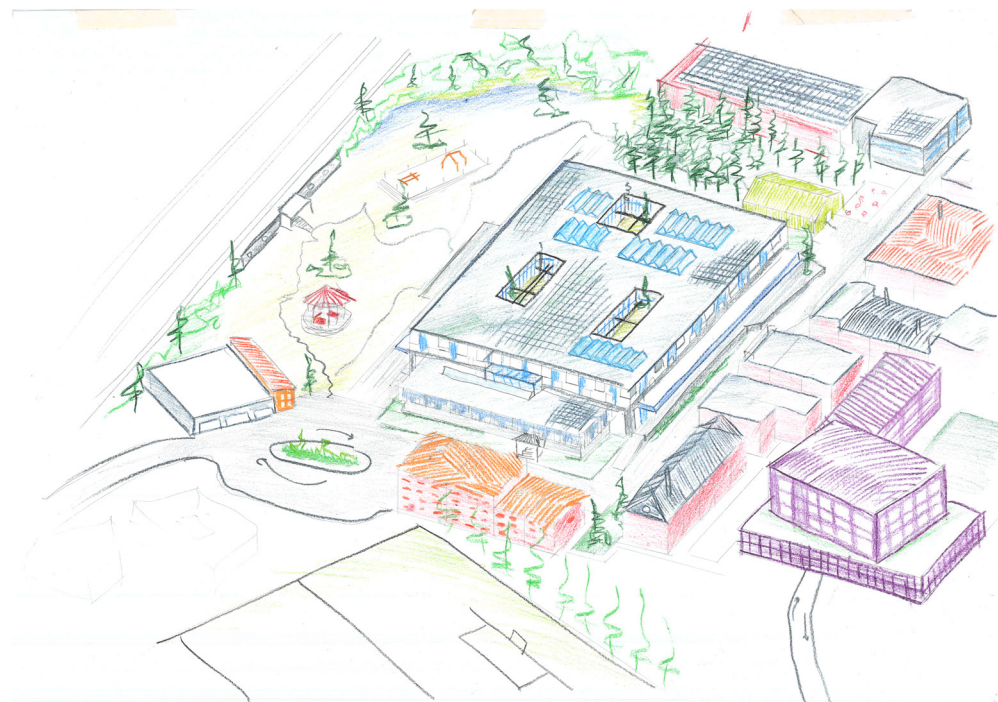
plan ground floor

north 



plan first floor

context

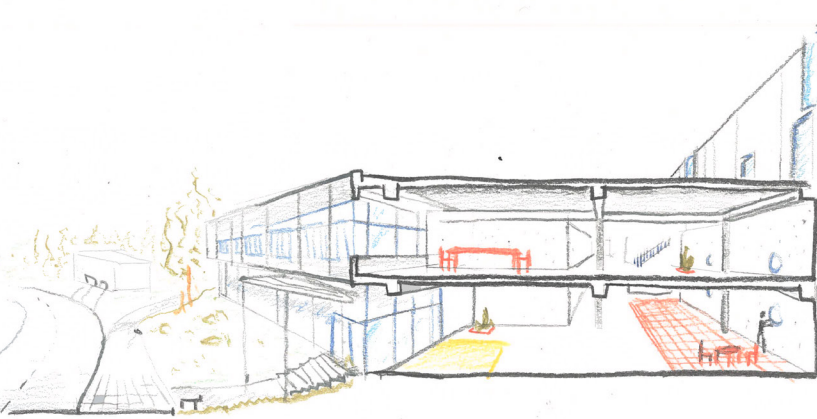


neighbours

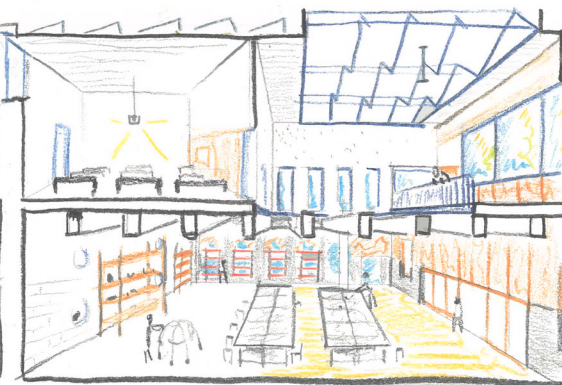


street

entrance



classroom



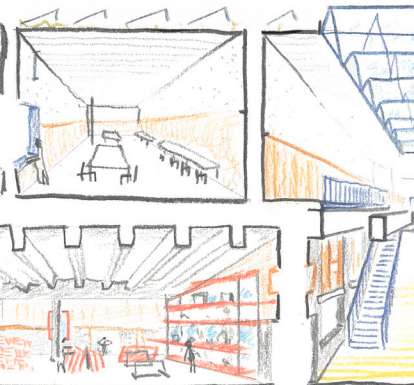
metal workshop

patio



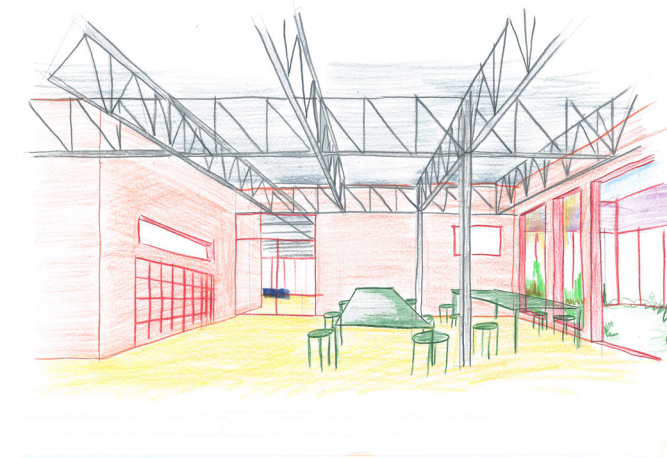
metal machinery

classroom



material depot





patio



break-out



classroom

patio

classroom

classroom



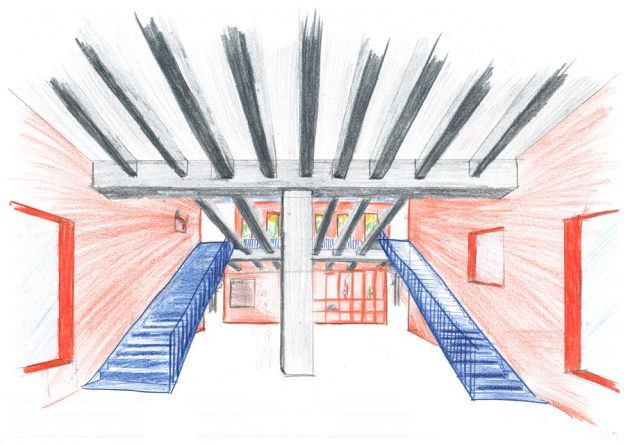
entrance

metal workshop

metal machinery

material depot

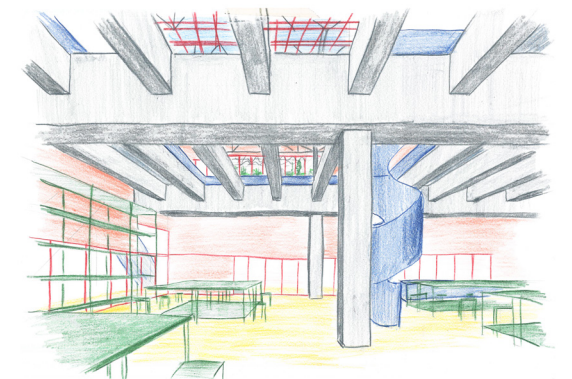
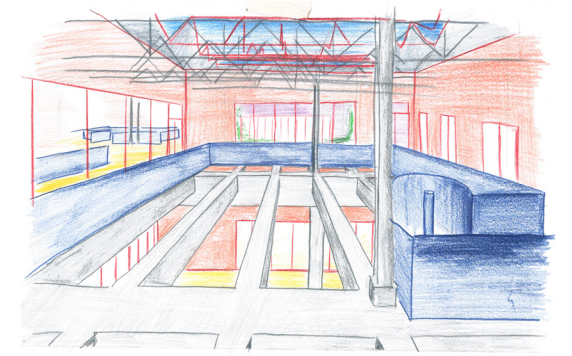
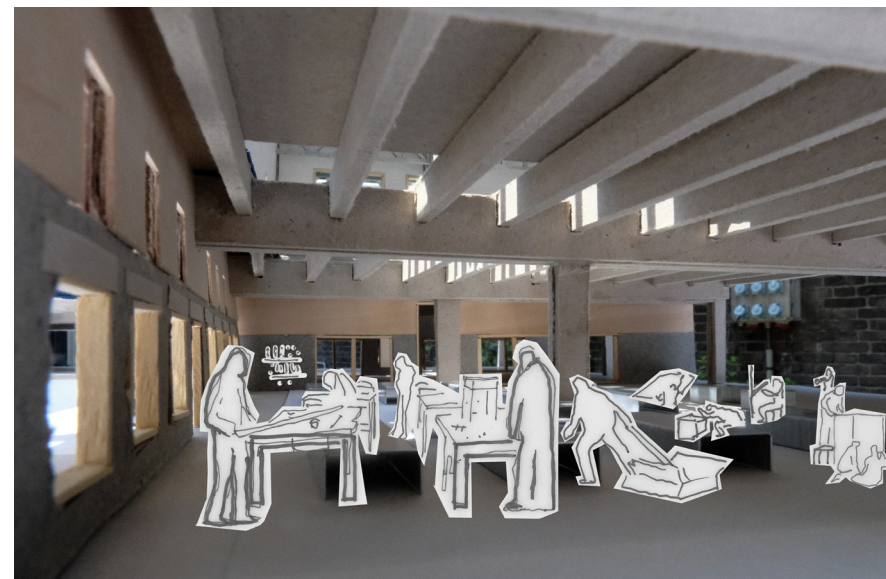
material depot



entrance



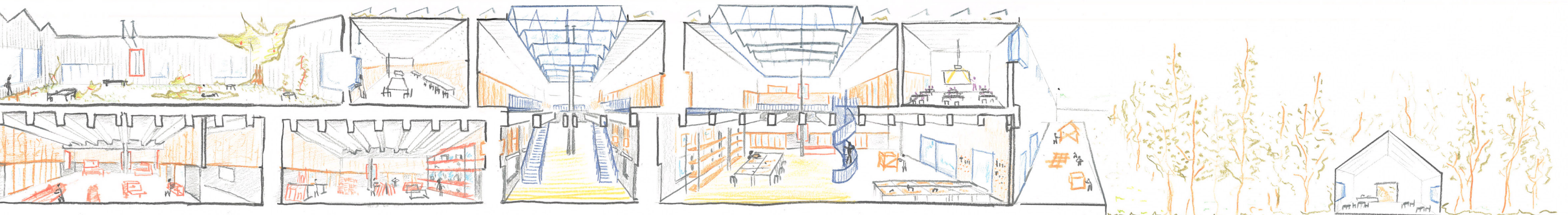
carpentry workshop



atio

classroom

classroom



etal machinery

material depot

entrance

wood workshop

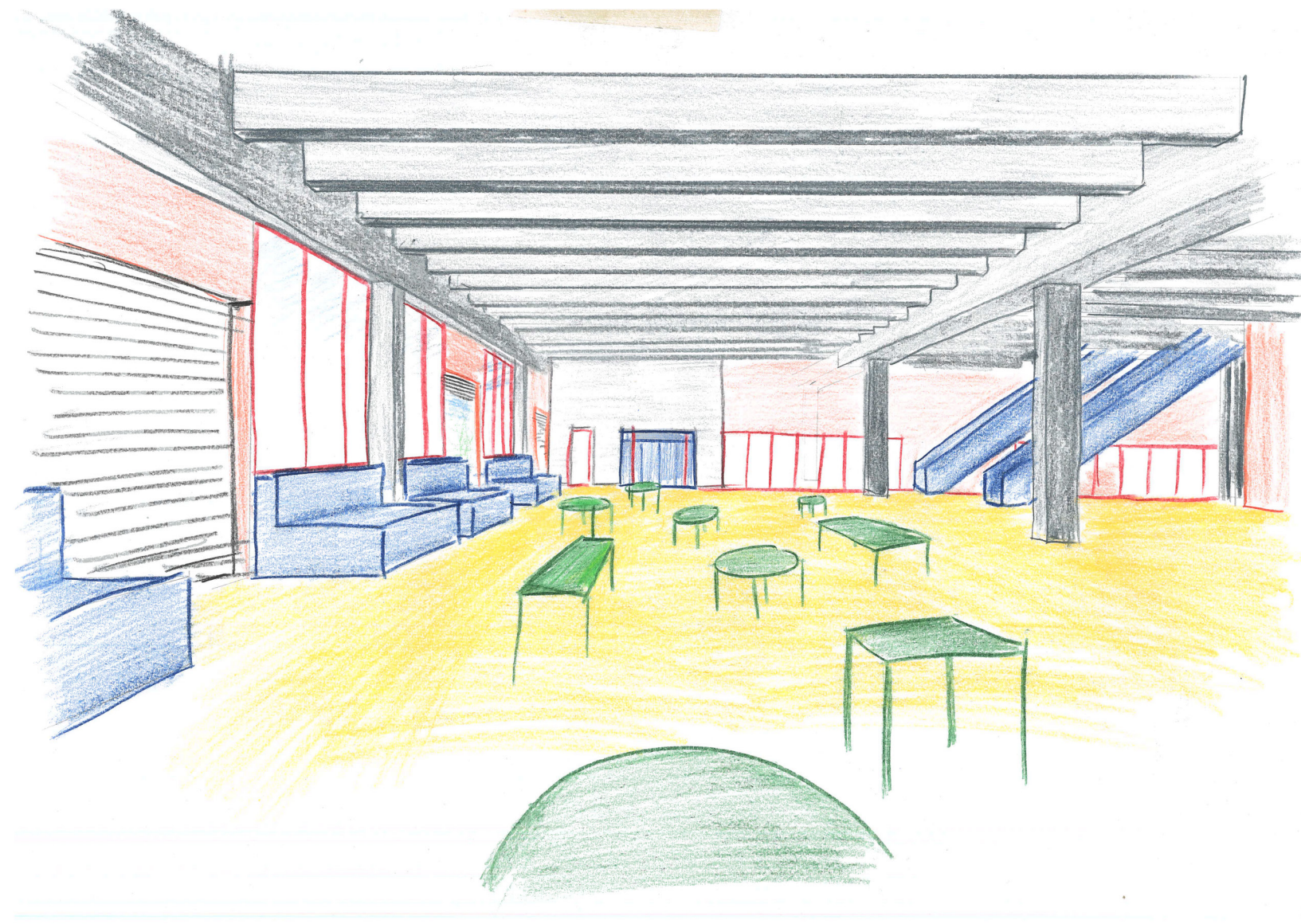
summer workshop extension

section walk trough





impression main stairway



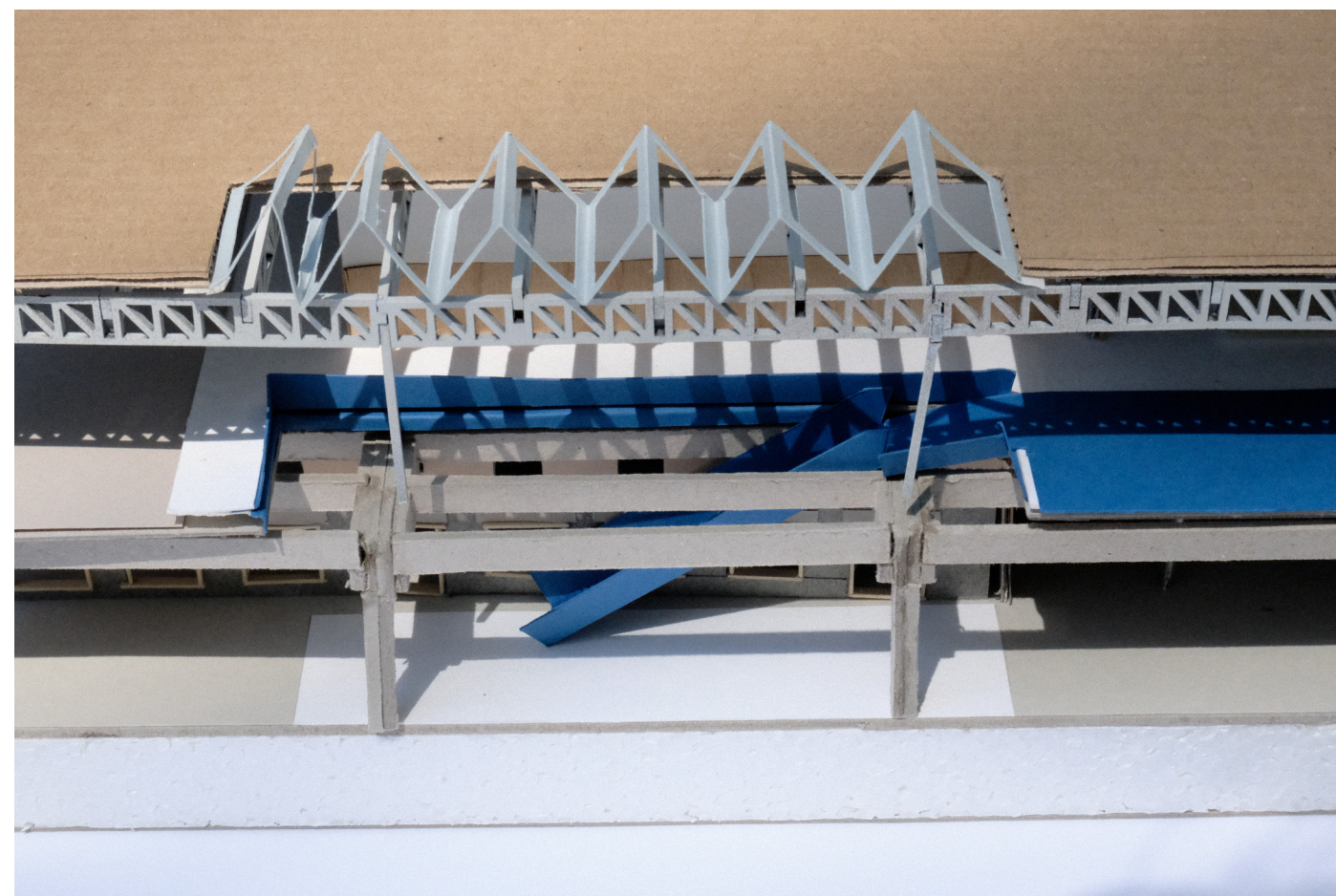
canteen



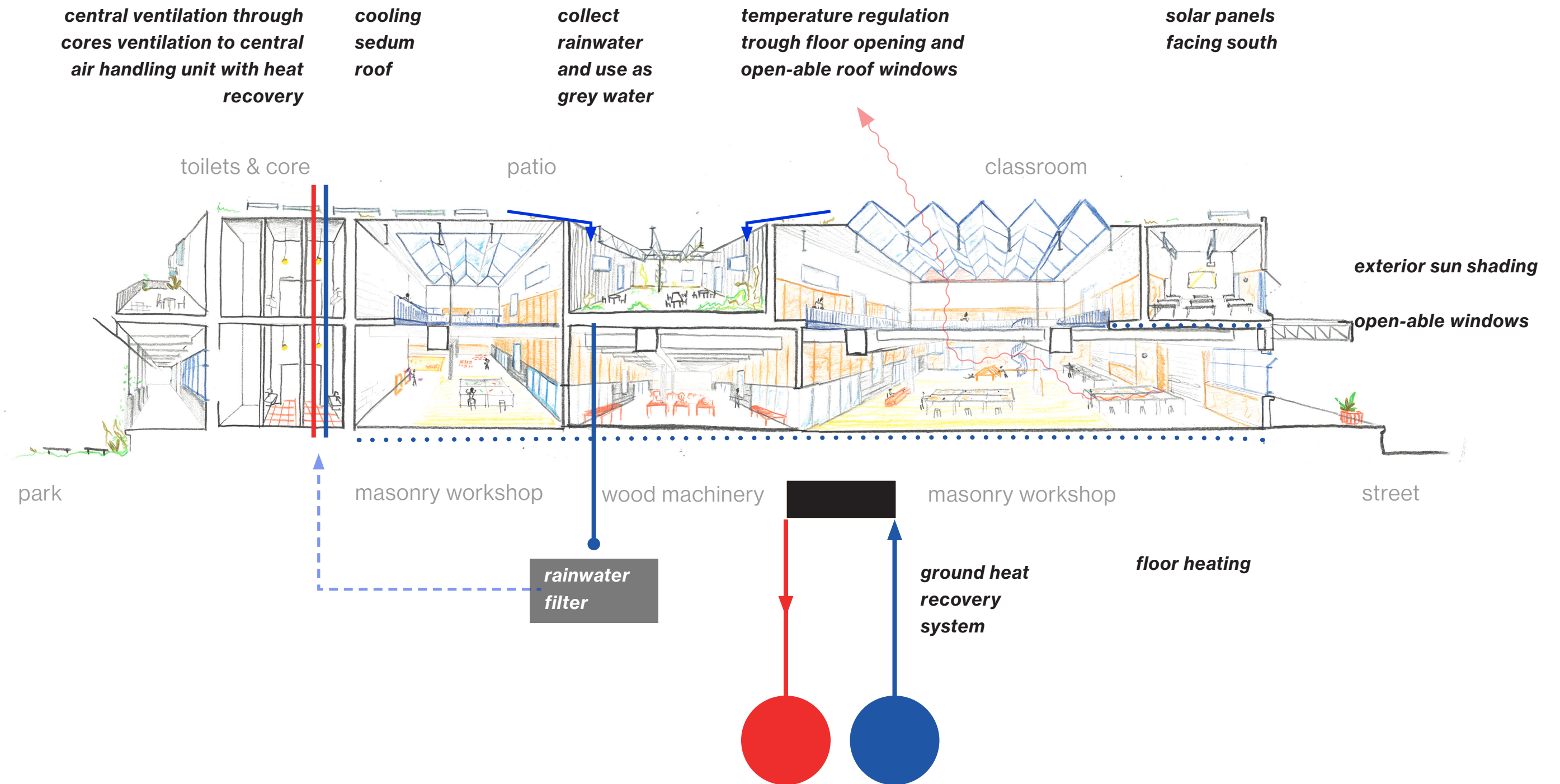
model impressions





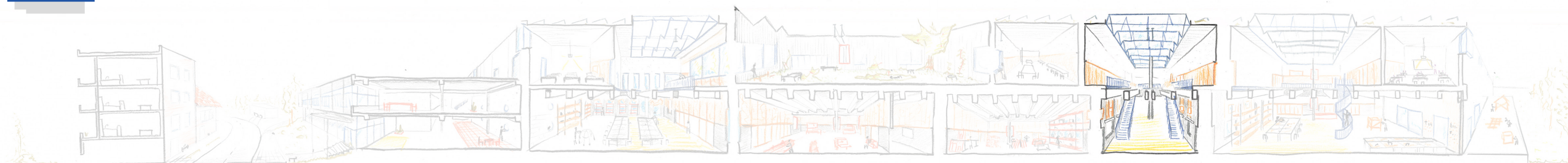
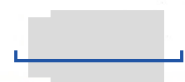


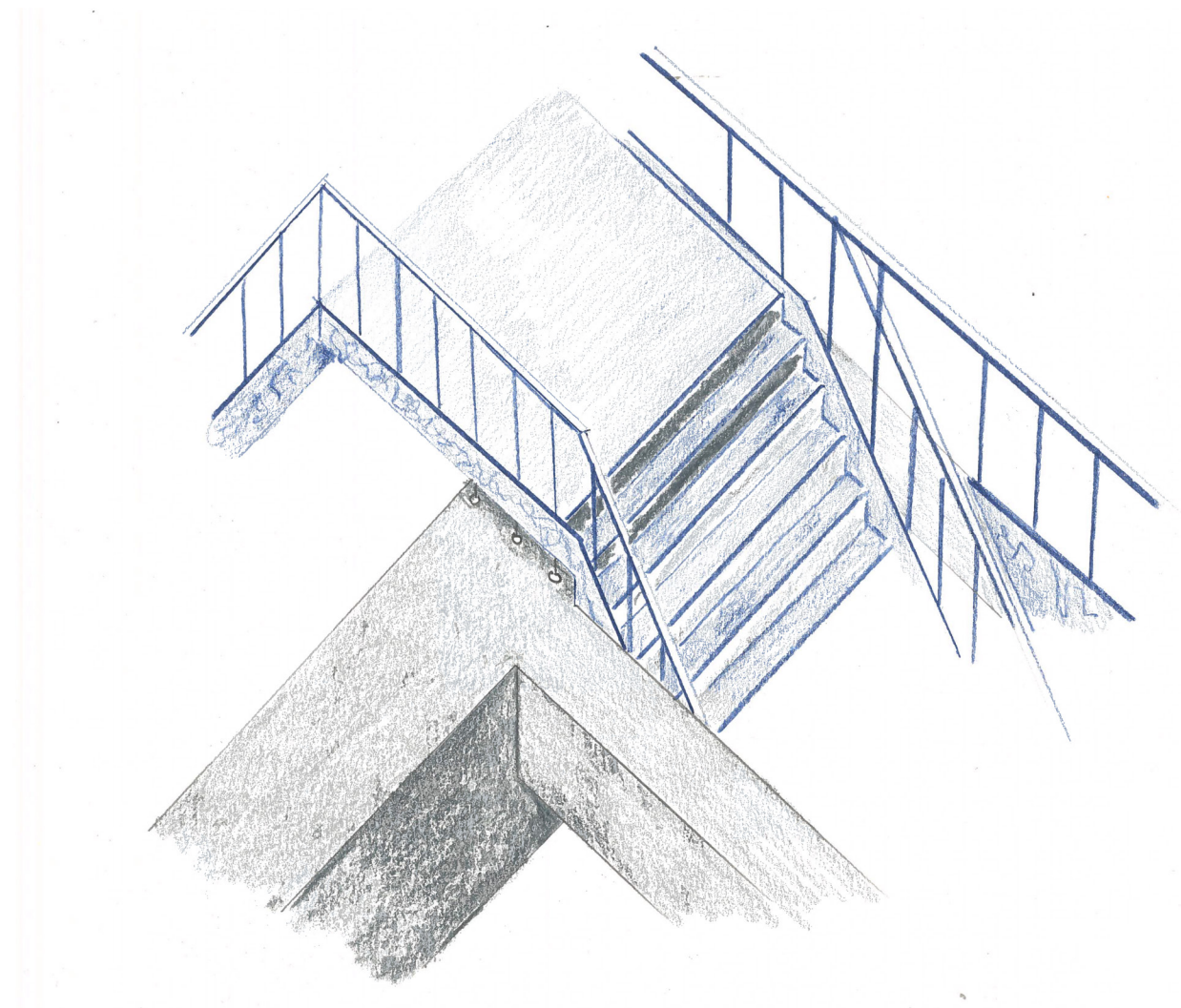




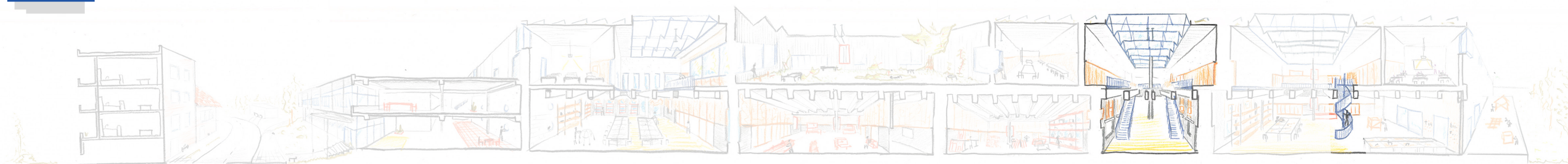
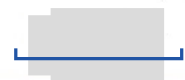


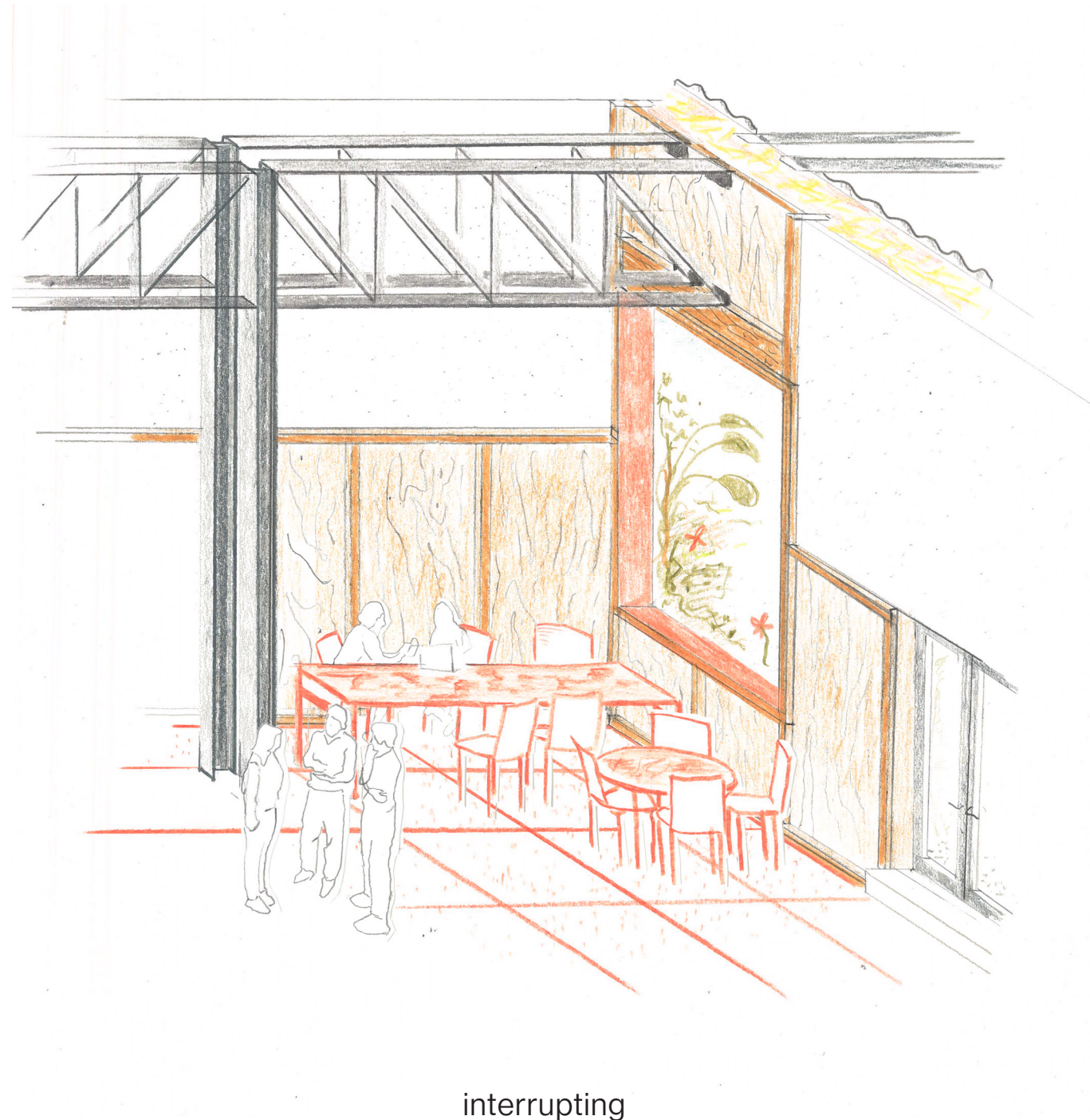
continuing



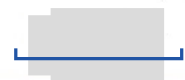


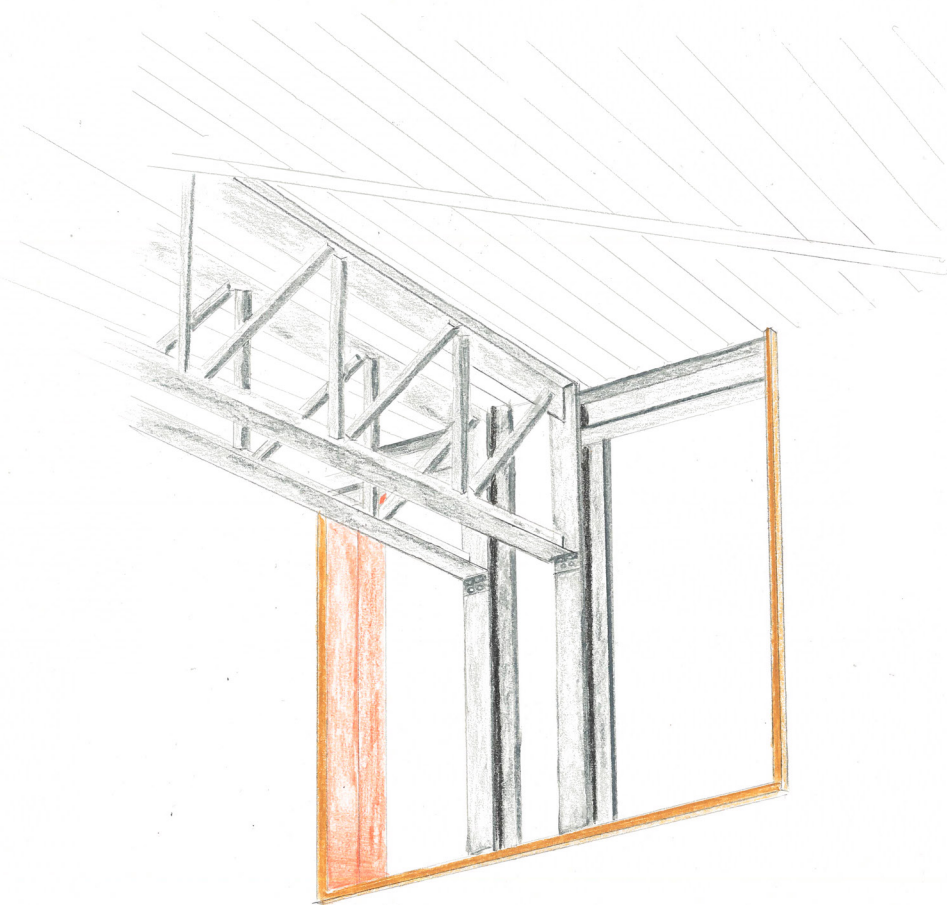
elevated



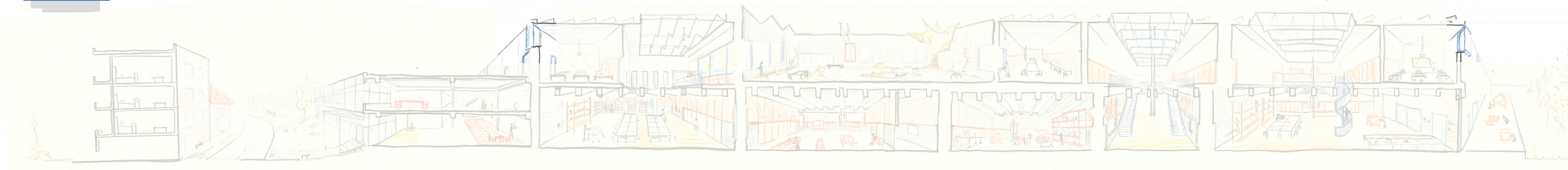


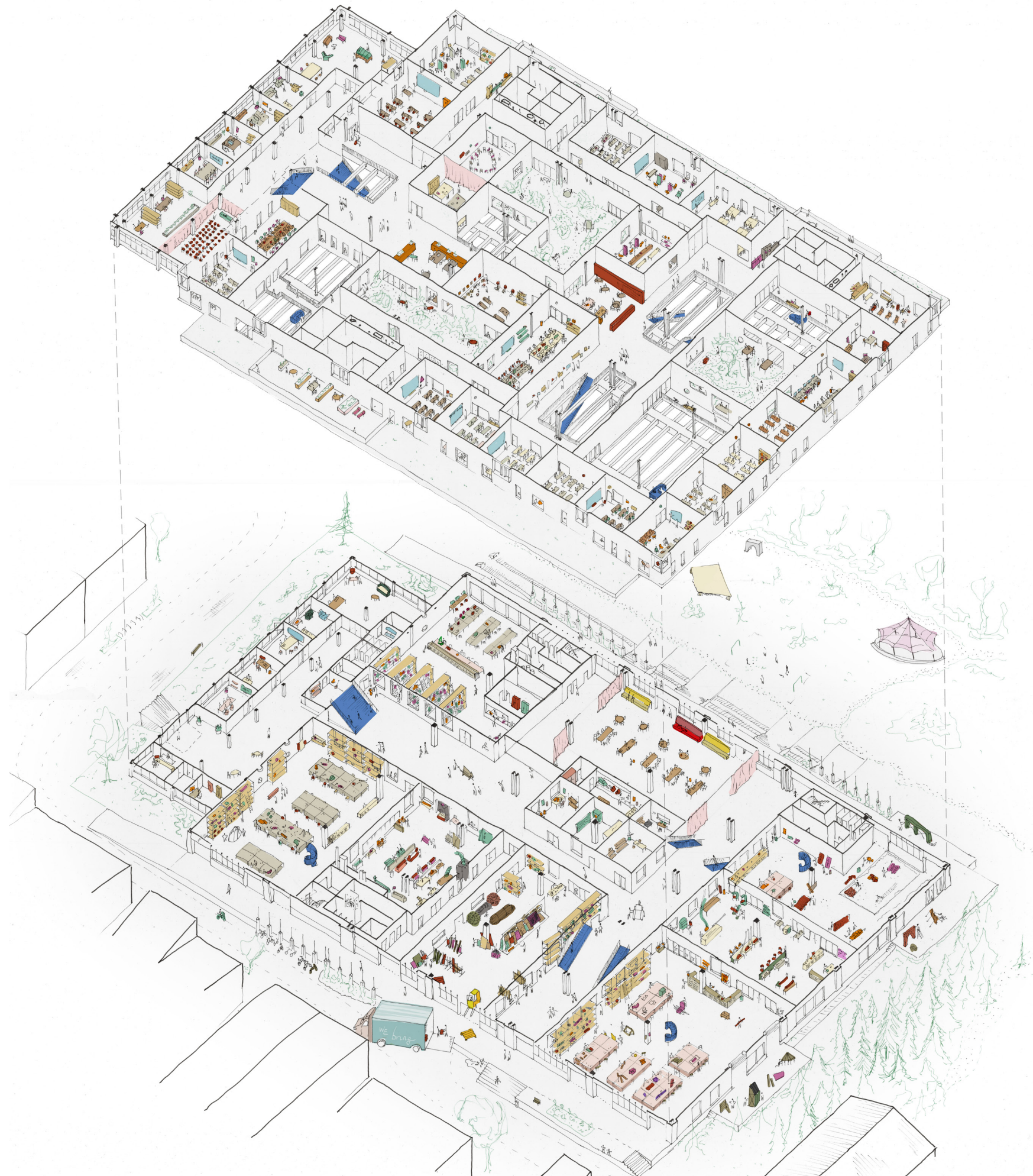
interrupting





poking through





reflection

My initial design approach focussed on showcasing these structural elements adding new walls and floors in such a way the structure had space to be admired. This architectural approach raised many problems later on, as it became difficult to justify my design choices. Later, my design approach shifted towards a method based approach; working with, and analysing the existing structure to try and find ways to intervene as efficiently as possible.

During this time I was also working on a research about solitude. I made multiple drawings each focusing on a different aspect of solitude. The end result was a little booklet with an incoherent set of drawings, each drawing with a different perspective and styles. Questioning the products themselves was very valuable as it revealed drawing was not a way to do the research, but it was the research itself. Each drawing focussed on a slightly different aspect of solitude. The drawing represents the logic of the space according to that specific aspect. In the second research I drew the TU Delft Faculty of Architecture, here the act of drawing

was a way to better understand how the circulation in this particular interior street works. Drawing the building following the logic of the corridor resulted in a 2 metre long drawing where the walls of the corridor wrap around multiple open spaces with a closed wall on the other side. Both researches (solitude & circulation) are based on observing a space and/or its activities, trying to draw it in such a way to represent how I interpreted the logic of that space.

While designing I can use this reflection to better understand my sketches and drawings on a conceptual level. As I was analysing the existing building I was constantly sketching and drawing the structure from different perspectives and in different ways with different colours. The first thing I always drew before anything else was the whole structure. Using the knowledge of all the little studies about utilising the structure, I continued my design drawing around what already was on paper resulting in a building in which the structure is very present but also carefully joins with the new elements.

**Arch
Urban Architecture
P5**

Jaron Smit
4719824

mentors
research Eireen Schreurs
design Sam Stalker
building technology Anet Meijer

Generally I start drawing and things unfold naturally. This process makes it difficult to reflect and realise what it precisely is I am trying to visualise. Now I realise reflection is very important in the process of drawing. Looking at the order in which things are drawn, the colours and the type of perspective can help me with this. I think the specific focus in a drawing and reflecting on that are something I can work on in the future.

Looking back at the design process, I realise the warehouse was with the same approach I had adopted: building as efficiently as possible. By using only the necessary elements the structure is visible and optimised: heavy concrete ground floor, light steel first floor, and a thin facade. The columns and beams are optimised in such a way that the side columns are smaller than the central columns. In a sense I continued the efficiency based approach used in the original construction of the warehouse. By aligning my design approach with that of the original warehouse I think the result showcases the features of the original building while complying with the demands of

the new programme. The beams are visible in the floor openings, the facade is punctured to make windows, eg. As a result my original vision of showcasing the structure has come to fruition but with a totally different approach.

Architecture has an important role in the climate crisis debate. Making new buildings or building parts generally have a big impact on the environment. This is not a sustainable way to move forward. A way to reduce the impact on the environment is by reusing. To normalise reuse it is important to assign a new value to the word “new”, one that regards new as a luxury and used as normal. This will influence the aesthetics of the objects and the built environment. I think trends such as vintage stores and second hand shops already show great promise to how this can change on a bigger scale. As such I think we should get used to another aesthetic, one that is not perfect, one that shows tear and wear and is maybe less comfortable but also has its own story, and its own unique texture, personally I am totally fine with that. It is up to designers and individuals to position themselves in this balance between aesthetics, functionality, energy and material.

On a more personal note I think the approach of efficiency and appreciating existing things (as I had done in my graduation project) also aligns with how I approach things in real life. Before I need something new I try to look at the things I already have at my disposal. I try to deconstruct the object to its basic properties, for example when i needed a little trash can in the bathroom; box, openable. Then I try to look in and around the house to see if I can find something that has the potential to match those properties with a simple adjustment. For example, an empty tin olive oil container which has been laying around for a while. By making a cut in the top part it opens up and it becomes a trash can. The solution is focussed on efficiency and functionality whereas the aesthetics have a low priority. (The same concept applies when I throw something away but in reverse.) By recontextualising and reusing objects they can gain value and longevity. Understanding problems this way opens up to many unexpected solutions

In this graduation project I have tried the same, except on a bigger scale. As the scale increases it becomes more difficult to recognise the properties and potentialities. By carefully examining what is there and what is needed it is possible to use the same approach. Resulting in unexpected, valuable or funny solutions that otherwise would not have been possible. In architecture I try to use the same approach, aesthetics are not the priority but a result.