

# THE SILOS

## A CULTURAL CATHEDRAL

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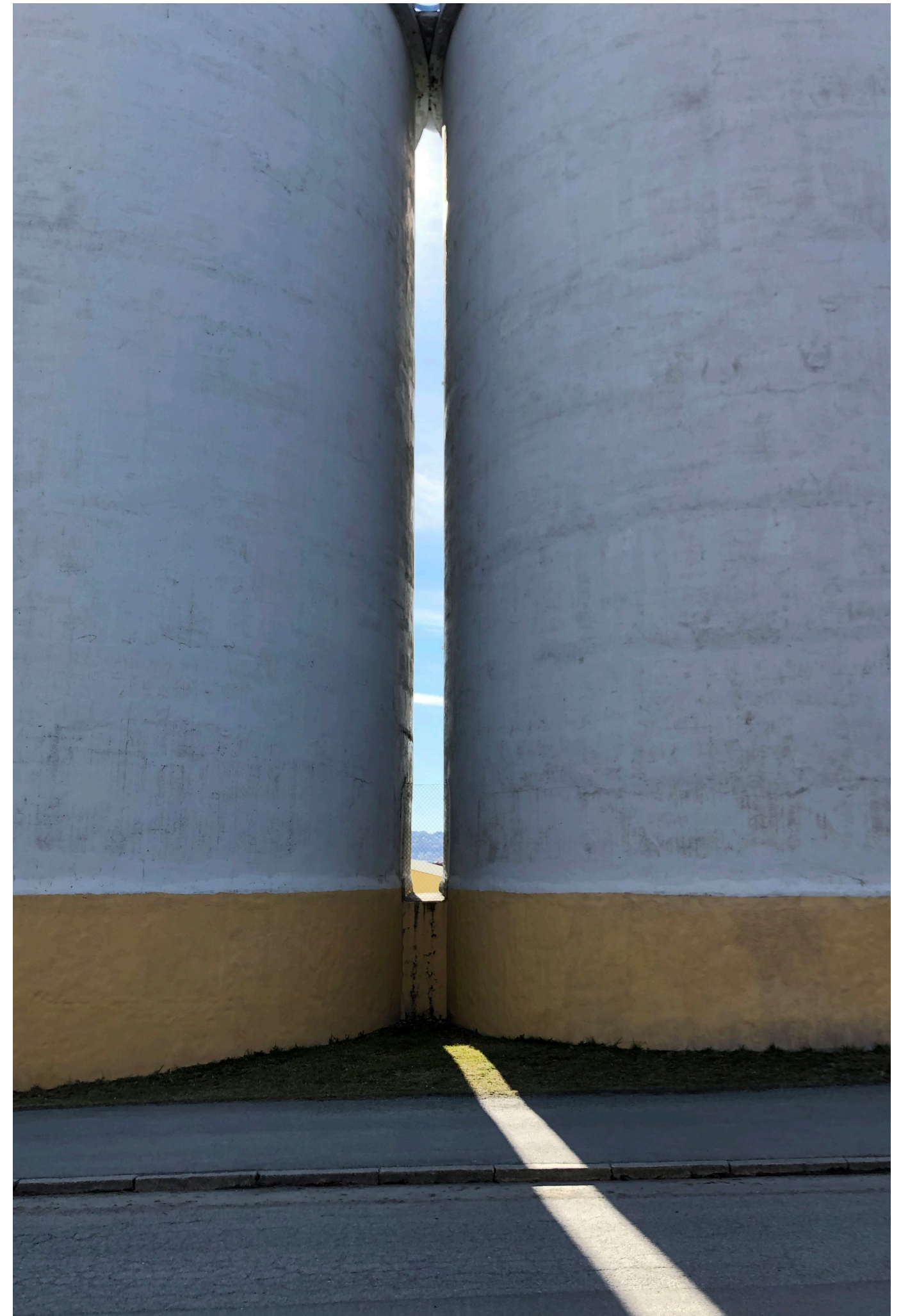


# INTRODUCTION

In our master thesis our aim is to transform cement silos from the 1960s, located at Nyhavna in Trondheim. We wanted to investigate what these unique buildings could be converted into and what program could benefit the public in such a key location. Our goal is to contribute to the debate surrounding Nyhavna and the issues regarding conservation of post-war industrial buildings.

We started our thesis by investigating the area Nyhavna and the site. We researched the buildings' history, phenomenology, construction and technical condition to have a better understanding of the site. This became our starting point for the design process and our final design proposal.

To go deeper into each of these subjects, the analysis, the process and the final design proposal, you can read the additional three booklets. This is a brief presentation of them all.





Our site is located at Nyhavna in Trondheim, an area east of the city centre.





# NYHAVNA

Nyhavna is a place where **cultural** initiatives meets **industry** and monuments from Trondheim at **war**.

**Ladestien**, a Sunday walk destination, starts at Nyhavna.

Being close to the city, it is increasingly popular with developers and will contain a lot of **housing** in the future.

City planners plan to make Nyhavna the new **cultural hub** of Trondheim.







### INDUSTRY AND INACCESSIBLE AREAS

Industrial buildings are marked in orange, inaccessible areas are marked in dark grey.



### GREEN AREAS TODAY

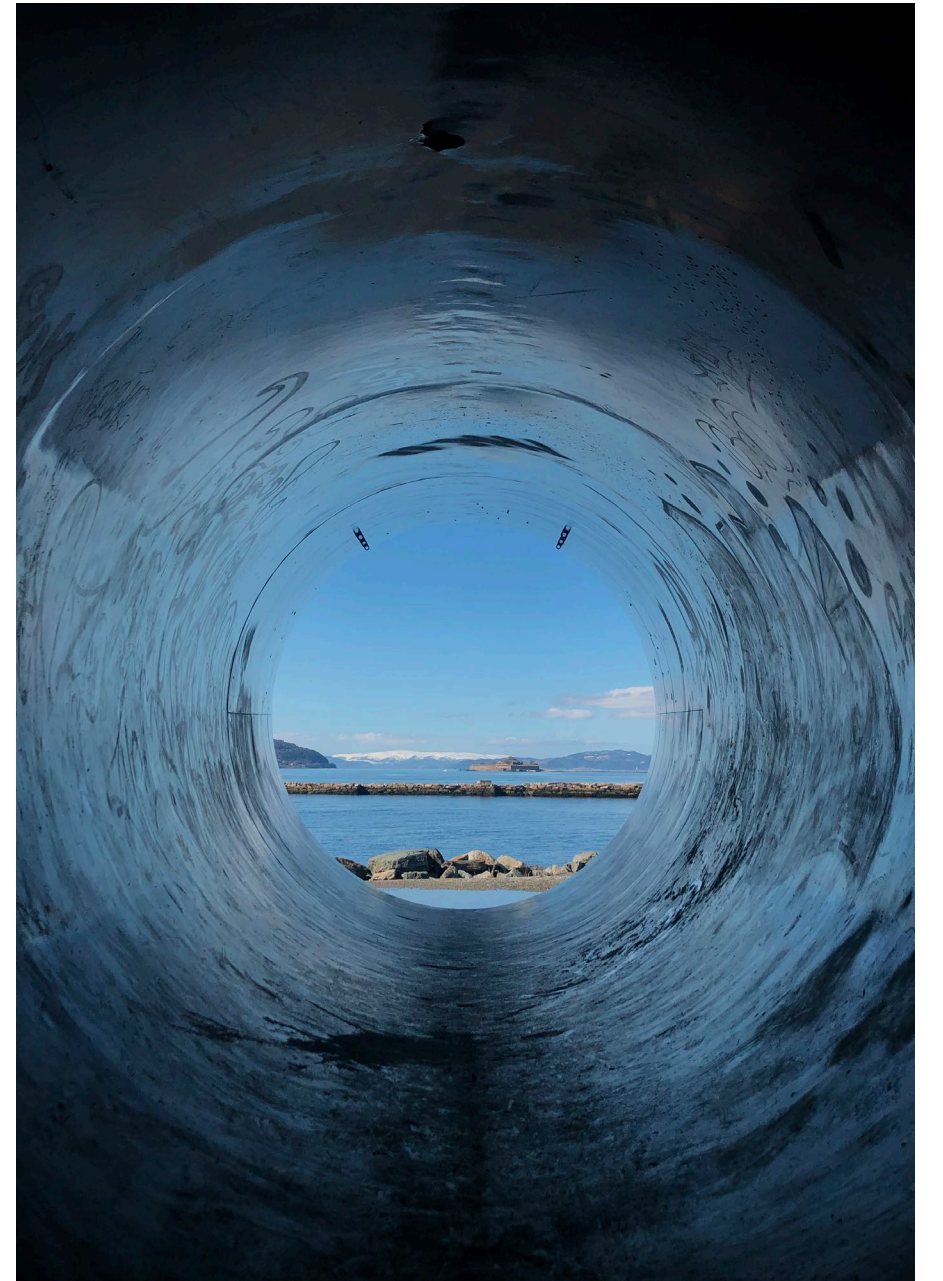
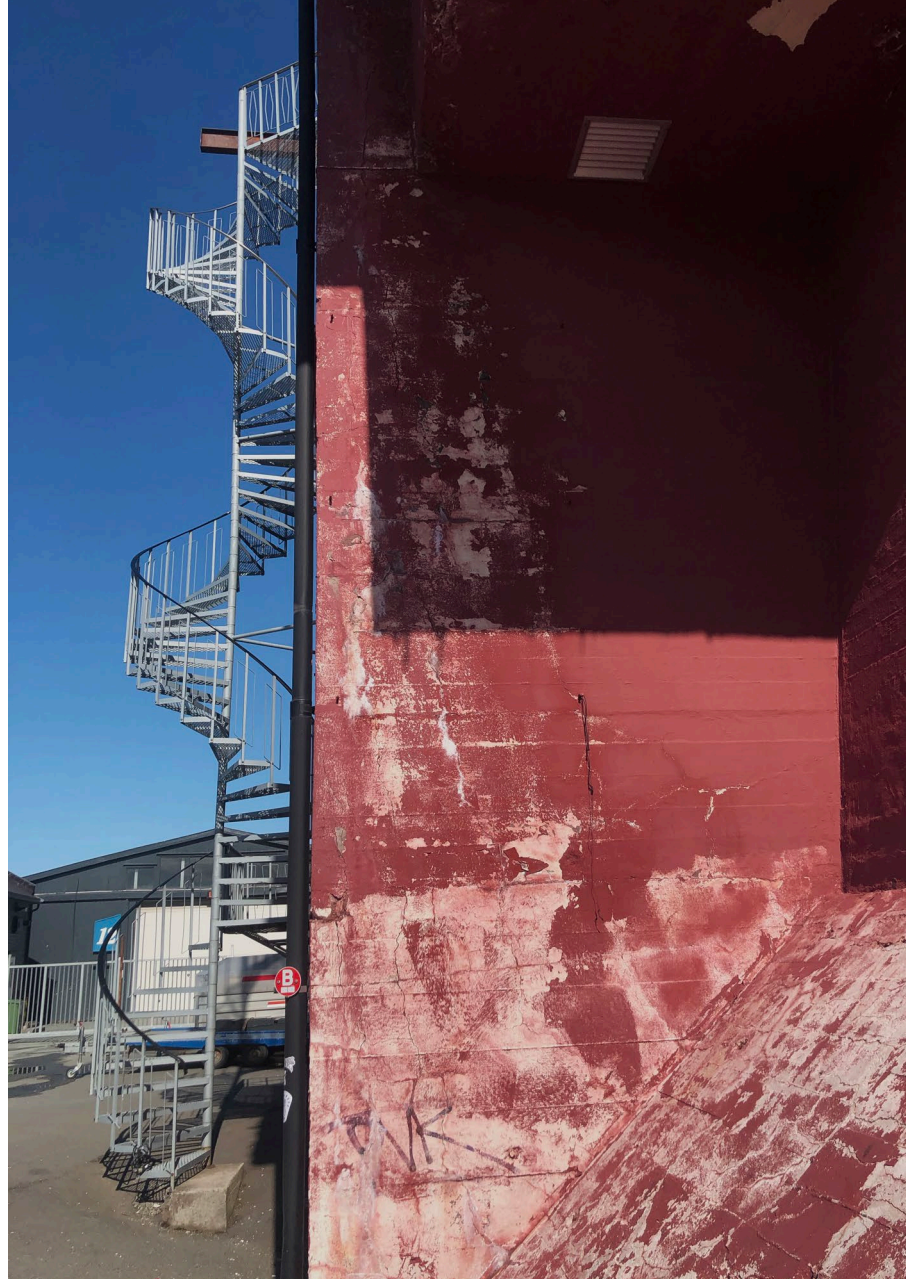
Public green areas are marked in dark green. Light green is private or unused green areas.



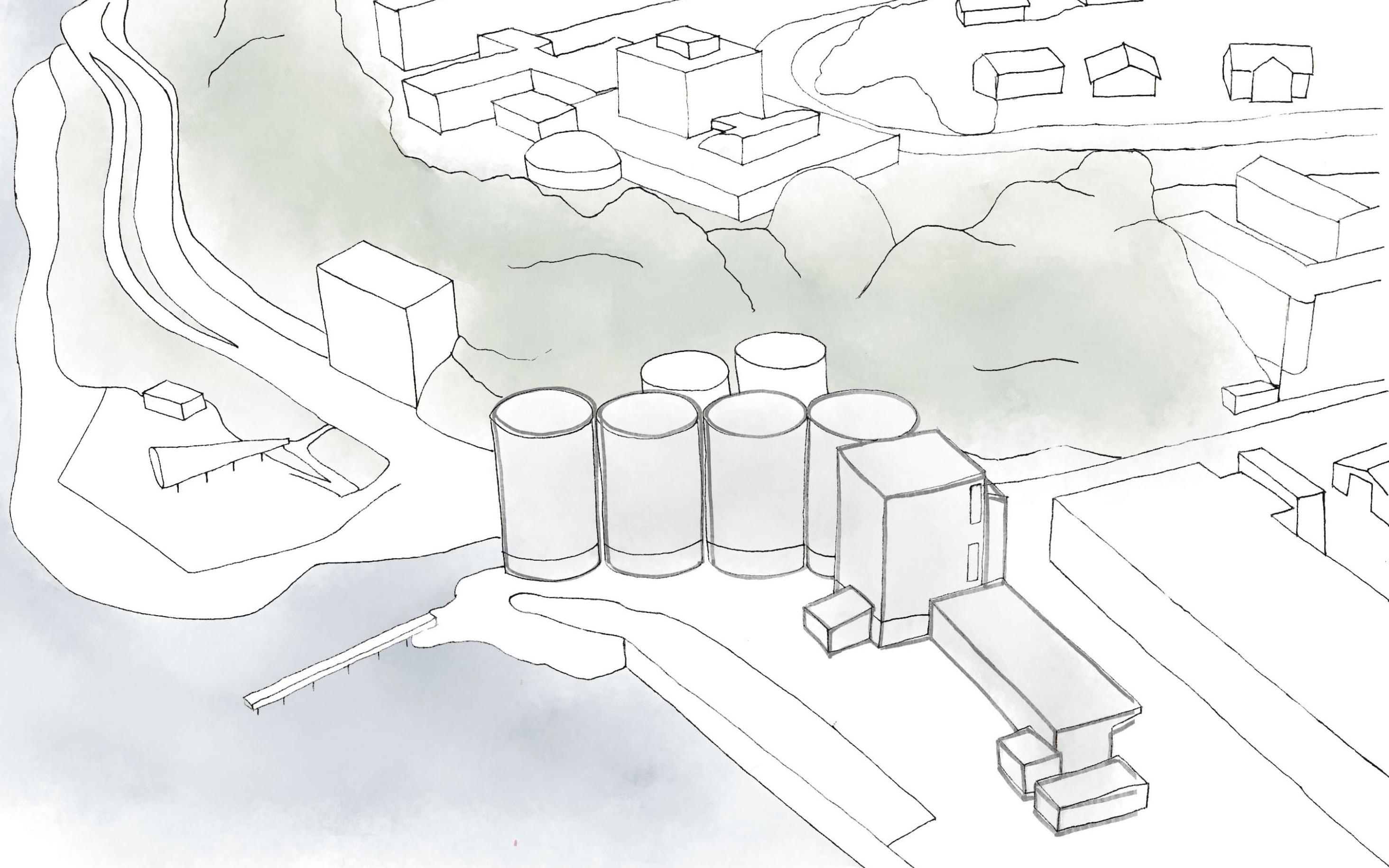
### FUTURE PROJECTS

The red line will be a key communication line for walkers, bikers and public transport. The dotted areas are future developments that are already underway. The blue buildings are conserved buildings according to the municipal master plan.









**THE EXISTING BUILDINGS**



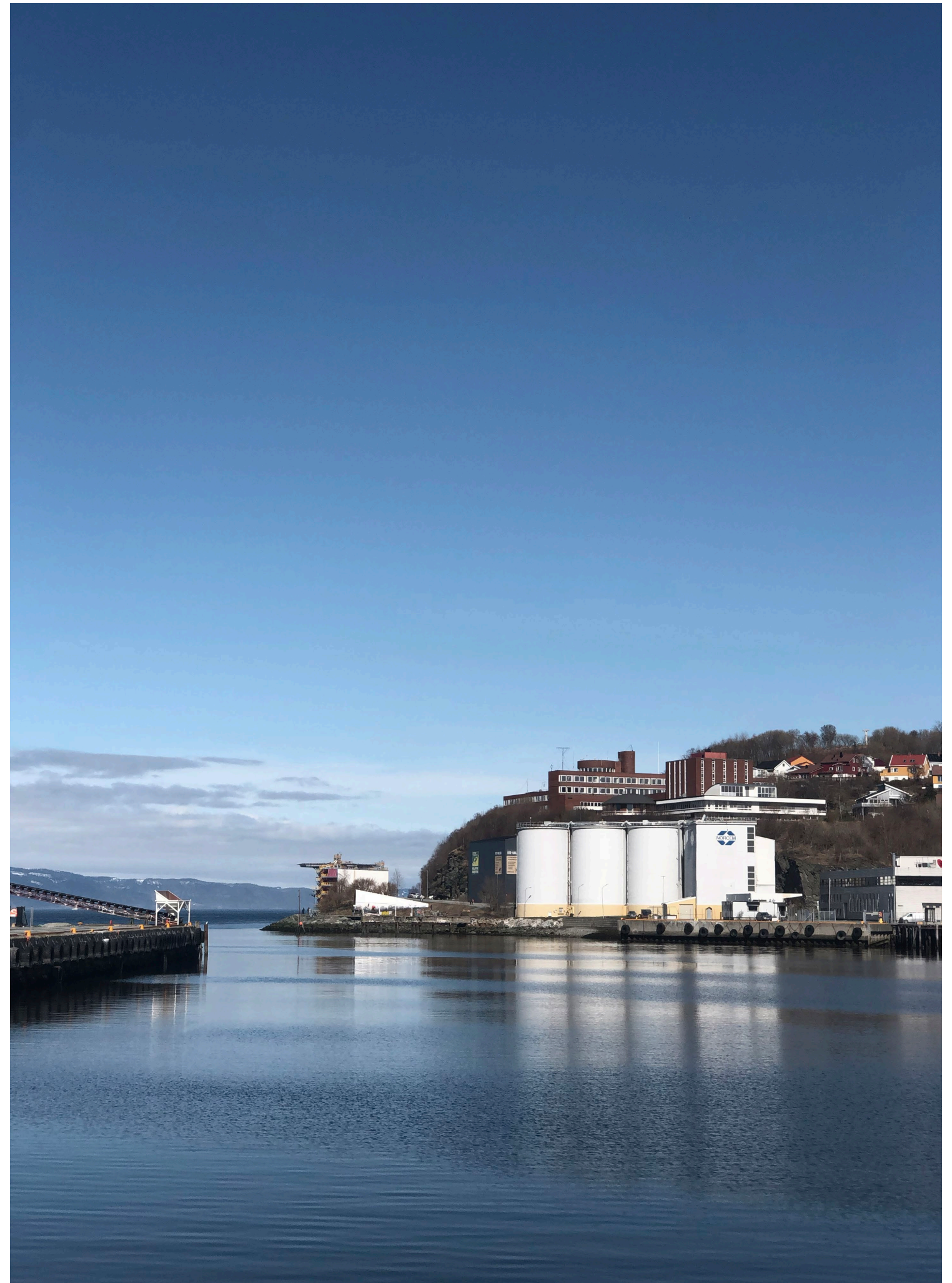
## THE SITE

The site lies in a **meeting point** between Nyhavna's industry and Ladestien's greenery.

**Ladehammeren** to the north gives shelter and a beautiful backdrop.

A **south facing plaza** is created in the space between the buildings.

**The sea** borders the site to the west and the south, a connection that goes back to the Viking age.





## HERITAGE

Nyhavna represent the history of the 20th Century **industrial era** in Trondheim.

The buildings´ unique shape showcases **industrial architecture** from this time period.

We felt that this is an opportunity to demonstrate how silos can be transformed, instead of **torn down**.



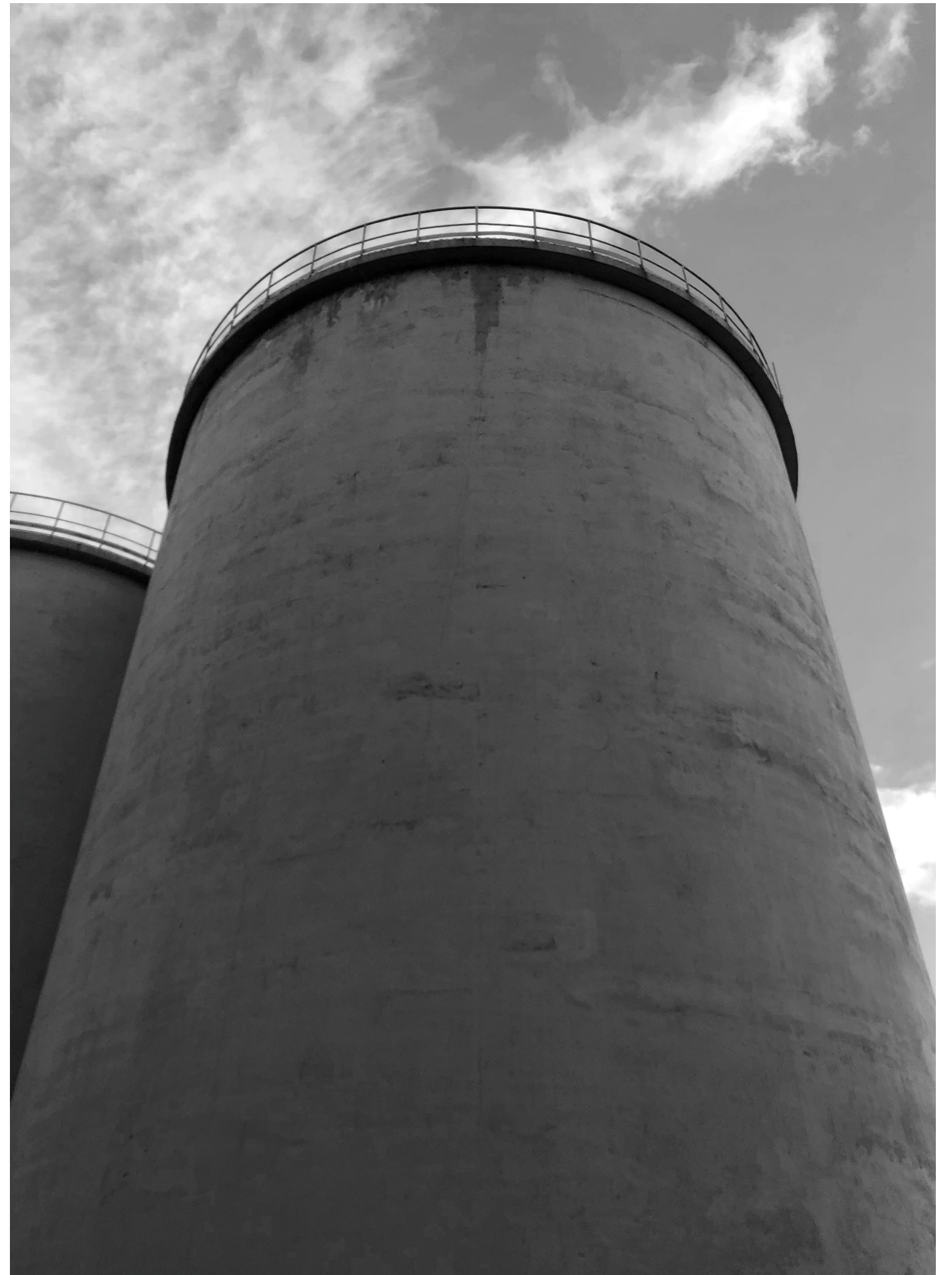


## ARCHITECTURE

The buildings are **tall and monumental**, with defined, geometric forms, giving a **Cathedral-like** feeling.

The view is beautifully framed in the **gaps** between the buildings.

The **footprint** has two nicely balanced sides, and an open and sunny space in between.





## THE INTERIORS

**Contrast** is a defining element in the interiors, both in materials and in spatial experiences.

The **rough concrete** gives a cold, but also authentic feeling to the buildings.

Some rooms are almost **claustrophobic**, while others are **monumental** with the light shining through church-like windows.

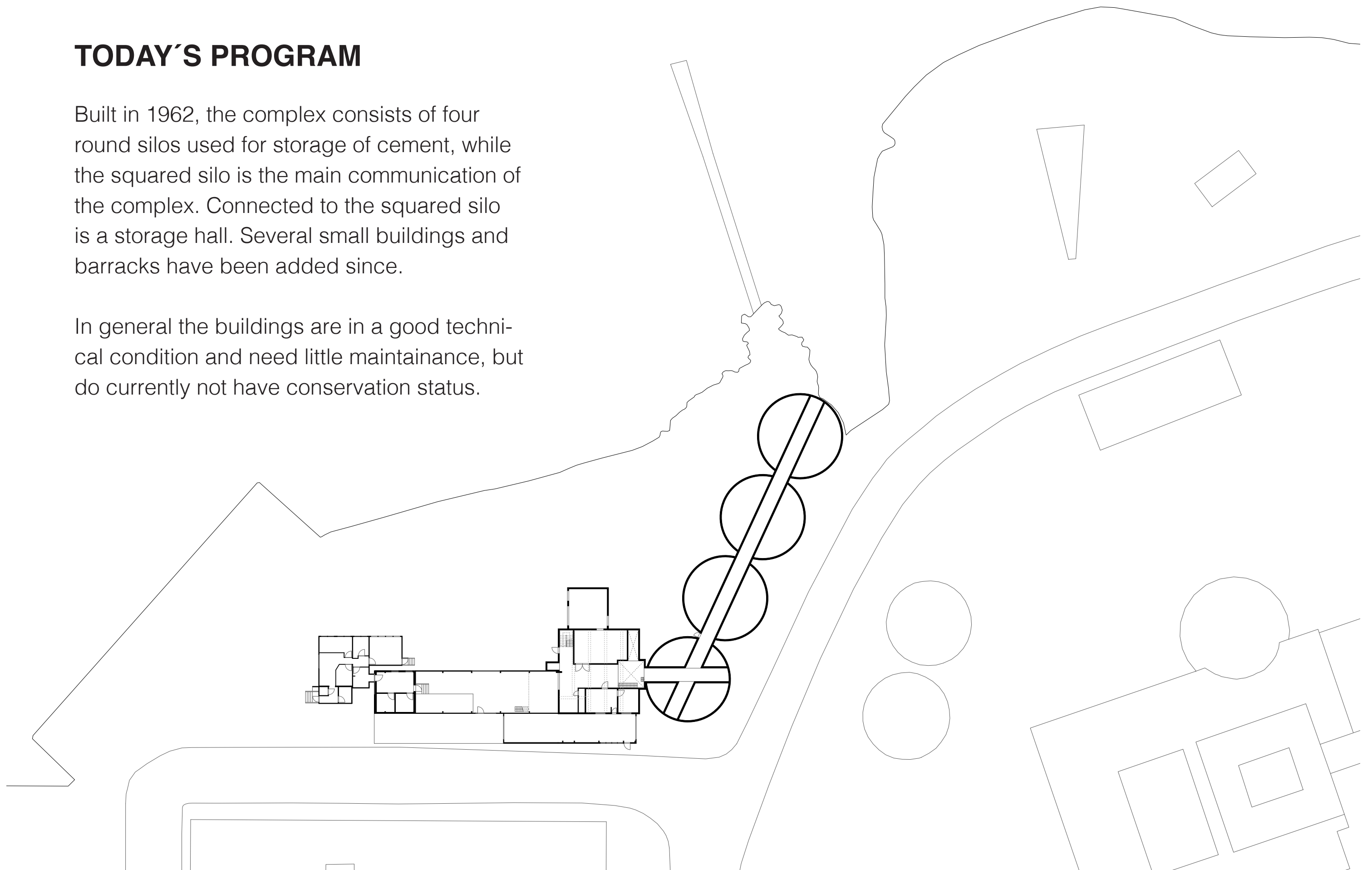




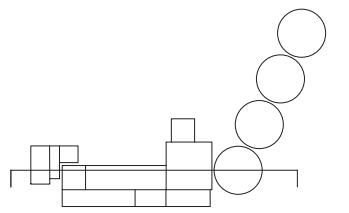
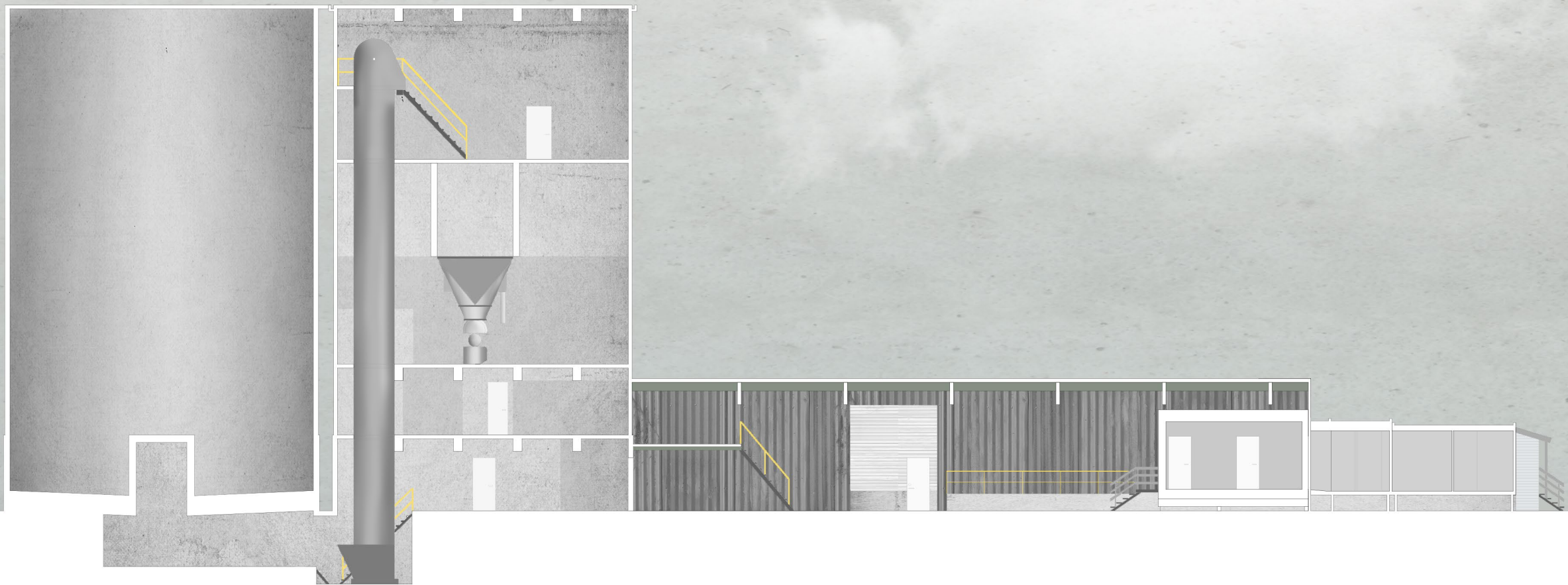
## TODAY'S PROGRAM

Built in 1962, the complex consists of four round silos used for storage of cement, while the squared silo is the main communication of the complex. Connected to the squared silo is a storage hall. Several small buildings and barracks have been added since.

In general the buildings are in a good technical condition and need little maintenance, but do currently not have conservation status.









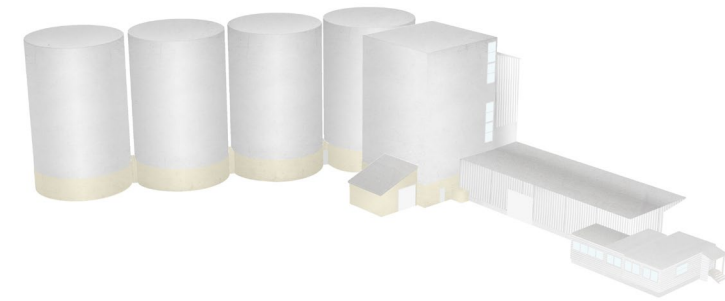
## SUMMARY

We see a big potential in the site, being in such a **strategic point**.

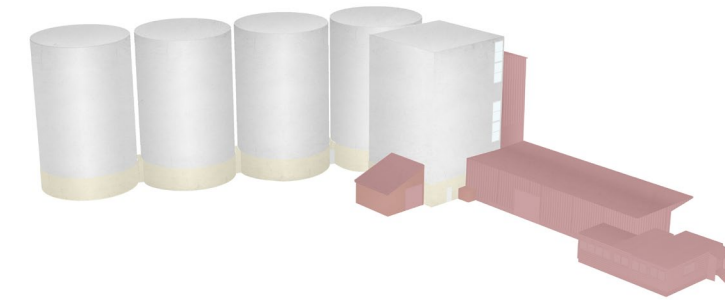
Creating a path from Nyhavna to Ladestien is something the city planners want to implement, and we therefore want to make our complex a **stopping point** along the way. It is then natural to give the buildings a **public program** so more people can benefit from it.

Today's **footprint** creates a nice place in between the buildings, but the barracks and other annexes have few spatial or technical qualities we want keep. We would like to **replace** their footprint with a new building of higher architectonic value.

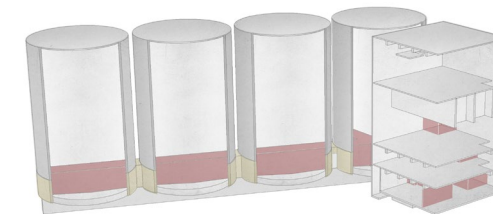
We have decided to **conserve and transform** the four round silos, the squared silo and the steel construction and concrete foundation of the storage hall. All are original parts of the buildings from 1962.



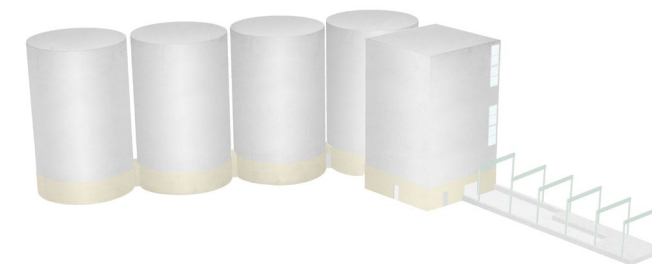
Today's buildings



What we tear down outside

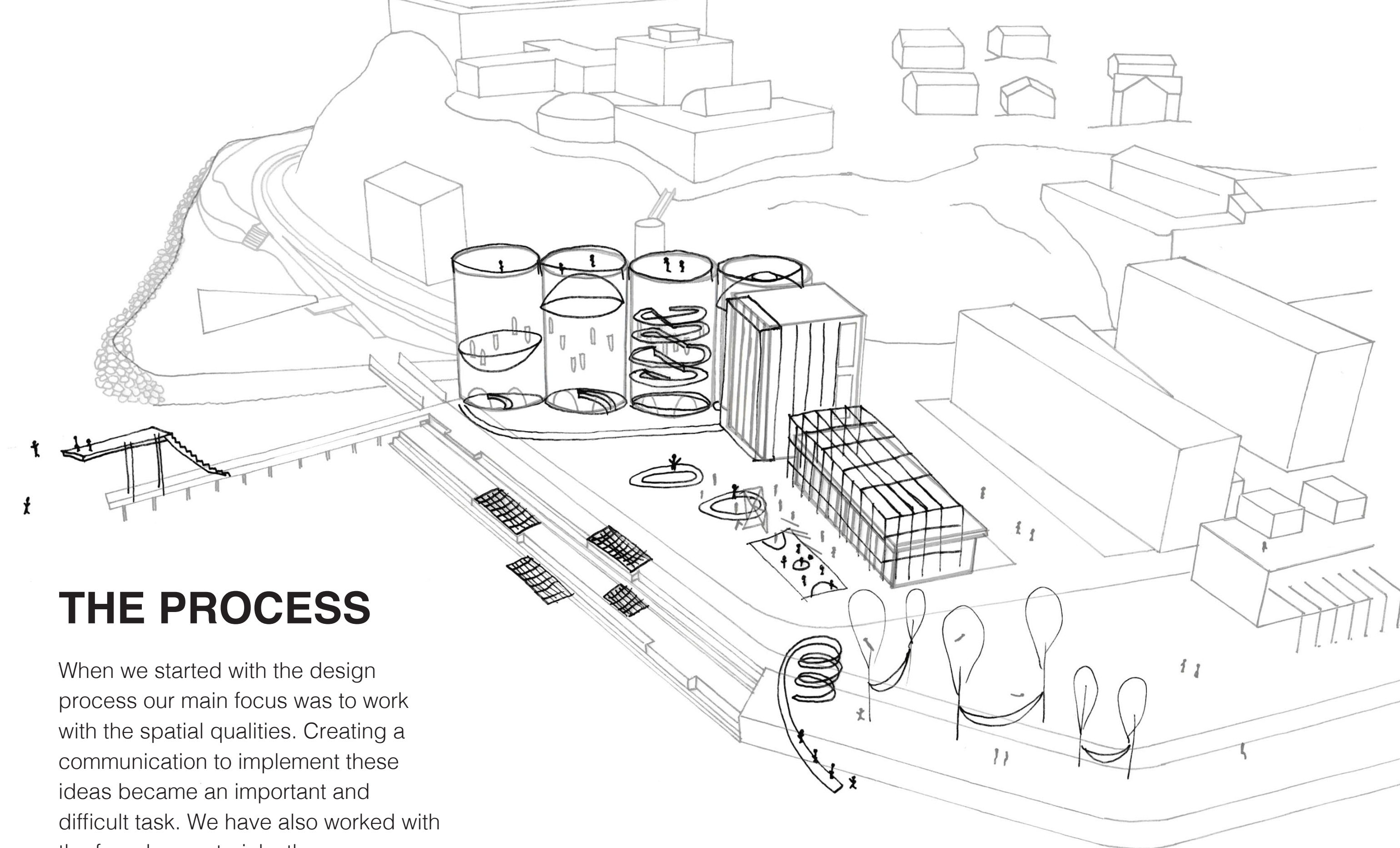


What we tear down inside



The remaining buildings





# THE PROCESS

When we started with the design process our main focus was to work with the spatial qualities. Creating a communication to implement these ideas became an important and difficult task. We have also worked with the façades, materials, the surroundings and the program as an important part of the project.

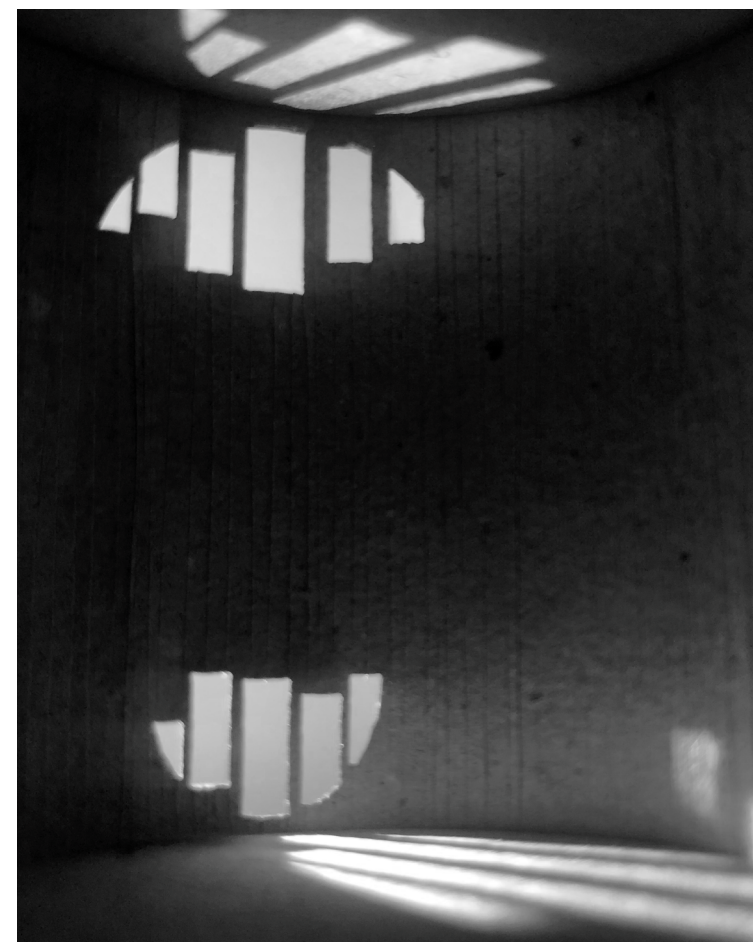


## SPATIAL STUDIES

**Making models** have been our main method for investigating the spatial possibilities in these buildings.

We have tested variations in slabs, ceiling and how the **light** can be an important part of the architecture.

We found out that **skylights, one-sided light, domes and inverted domes** were features we wanted to include in our final design proposal.



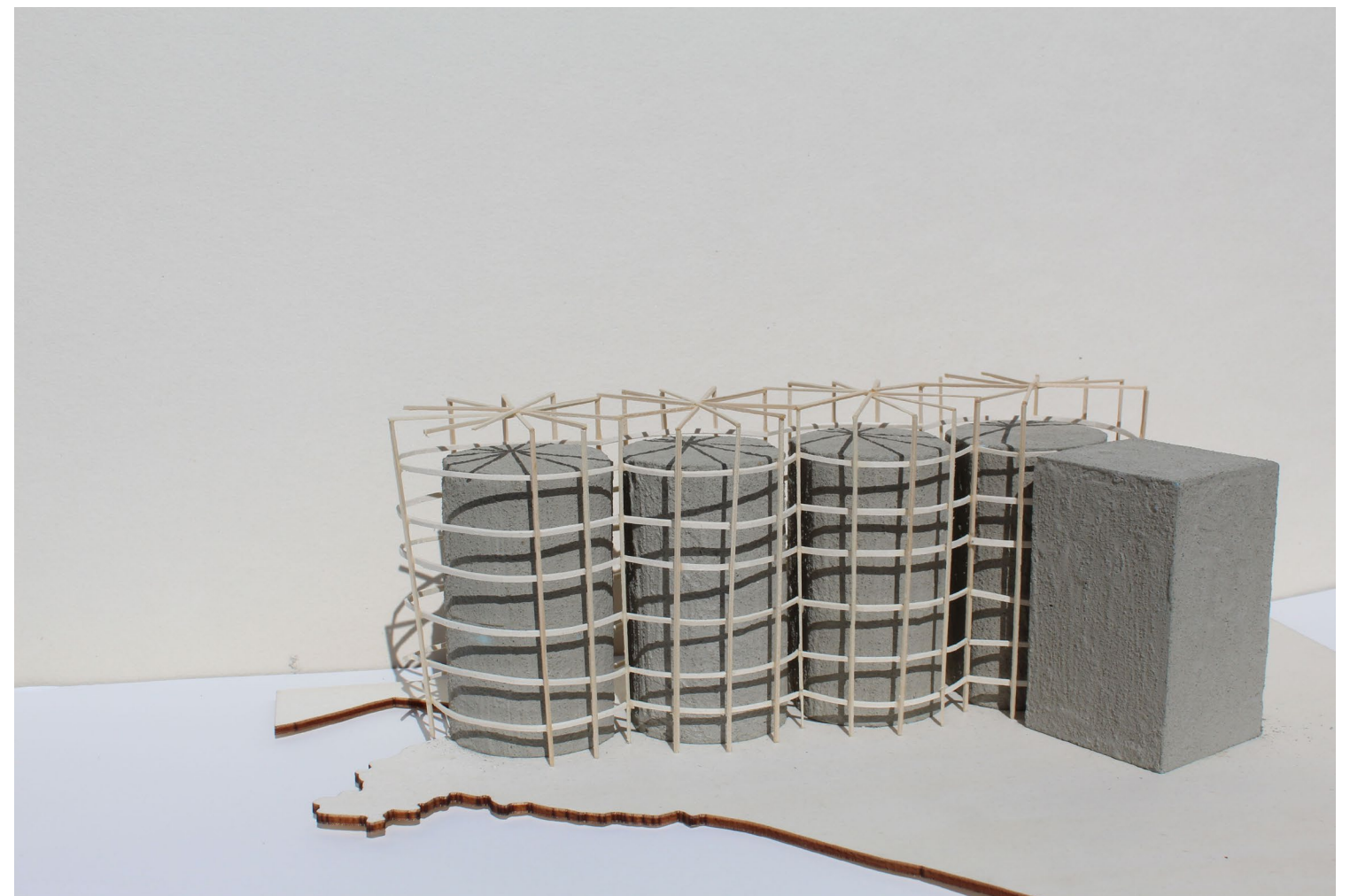
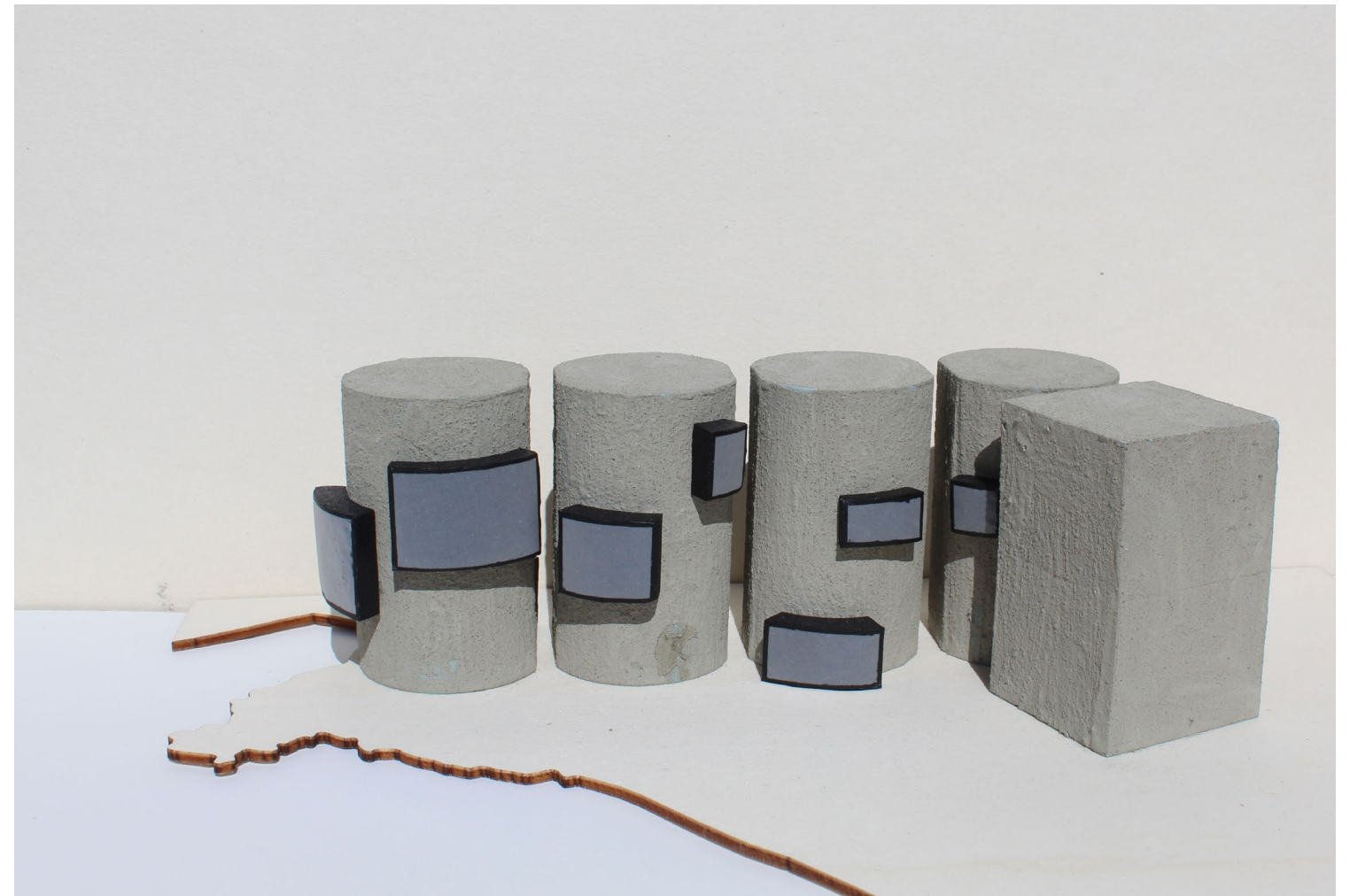


## COMMUNICATION AND PROGRAM

Getting around the complex is an important aspect of the project and is closely connected to the program.

We have been through many different options from putting the communication on the **outside, vertically, horizontally** and every other possible way.

We ended up turning the communication into a **spatial experience**, embracing the buildings' height and ability to create a lot of "hallway".





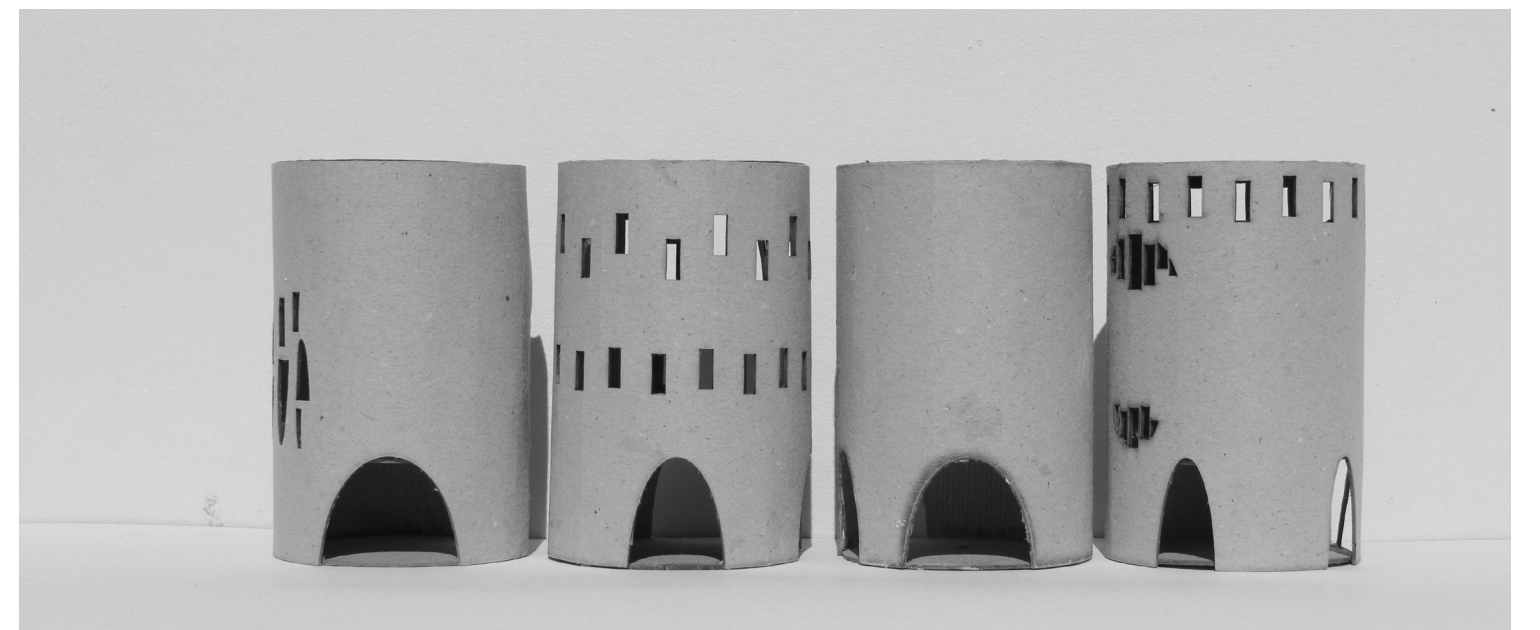
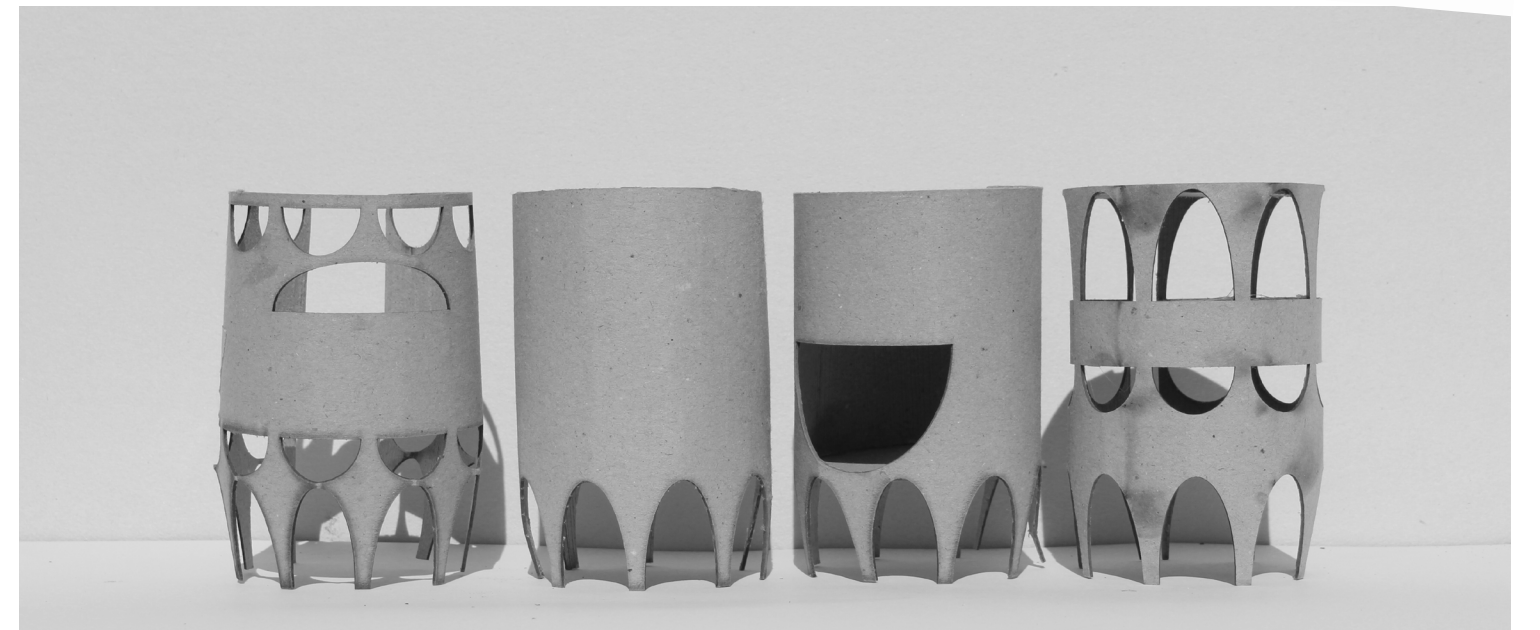
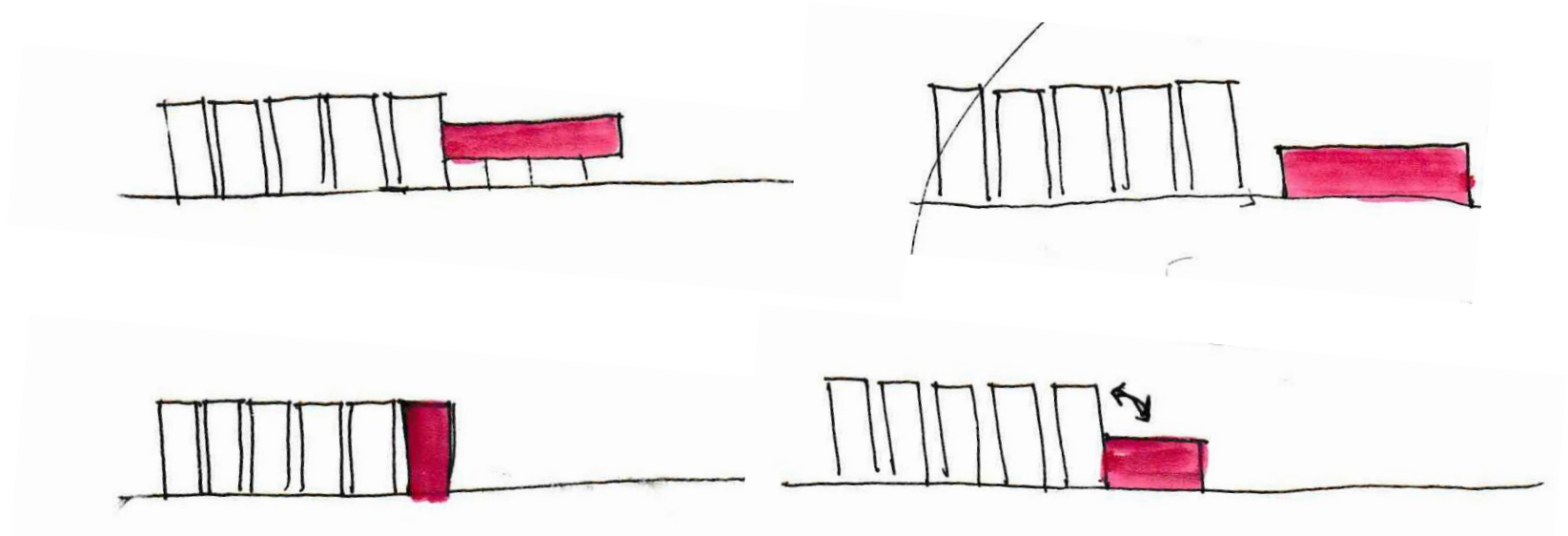
## THE SURROUNDINGS AND THE FACADES

As mentioned, we wanted to maintain the **footprint** of the storage hall and we tested adding an outdoor structure, a skating park, and a sixth silo, among others.

We ended up adding a two-storey **workshop hall**, by using the existing steel structure in the interior and creating a new façade of concrete and glass.

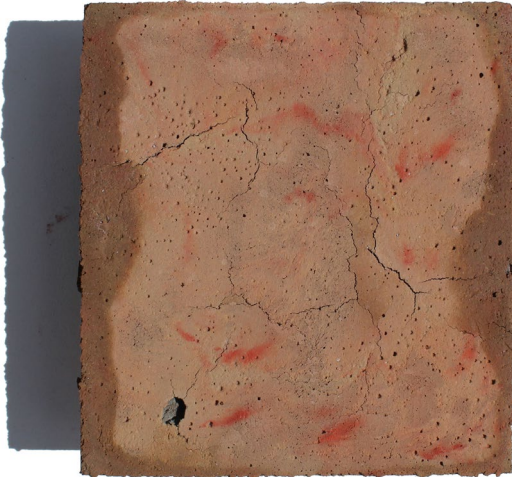
Working with the façades, it has been important that the buildings are visually appealing and maintain their **verticality**. The windows should therefore not be too big or steal too much attention.

We decided to make bigger openings in the bottom and smaller ones on the remaining floors.





**MATERIAL TESTS**







# THE DESIGN PROPOSAL

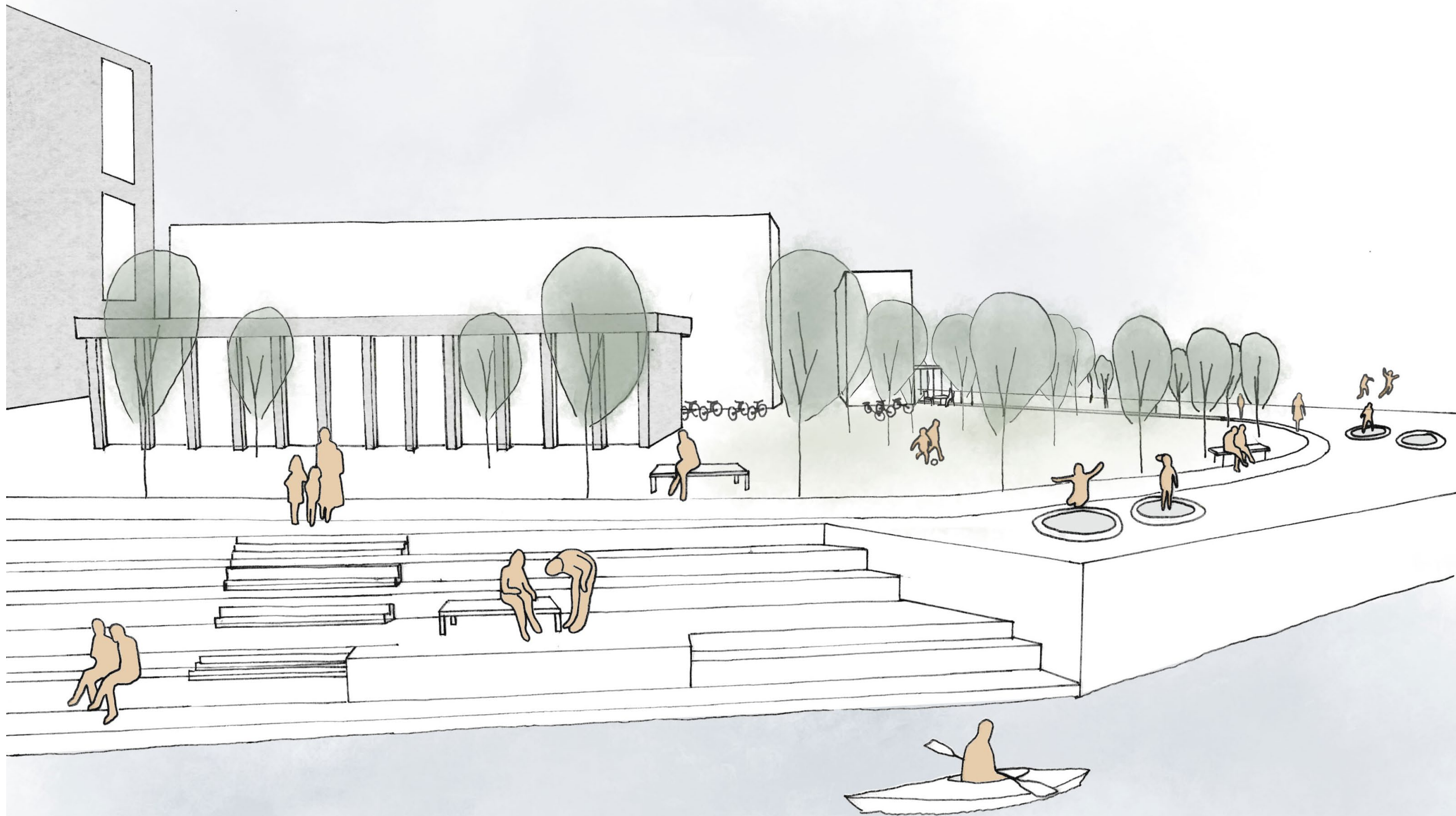




Working with the site, it has been important to consider what places lie in the immediate surroundings. Especially where you arrive from, where you go after visiting the site and what activities happen there.

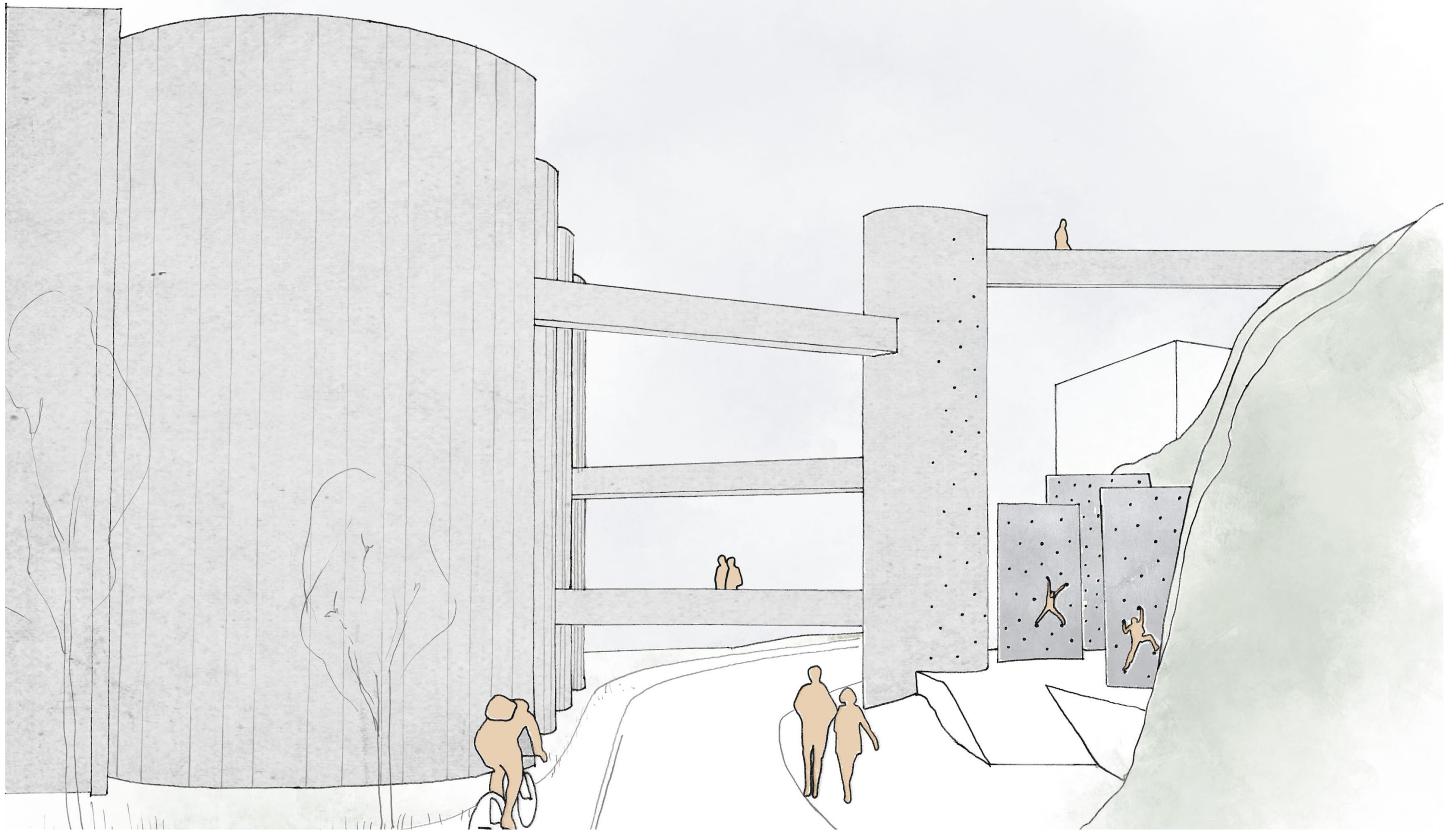






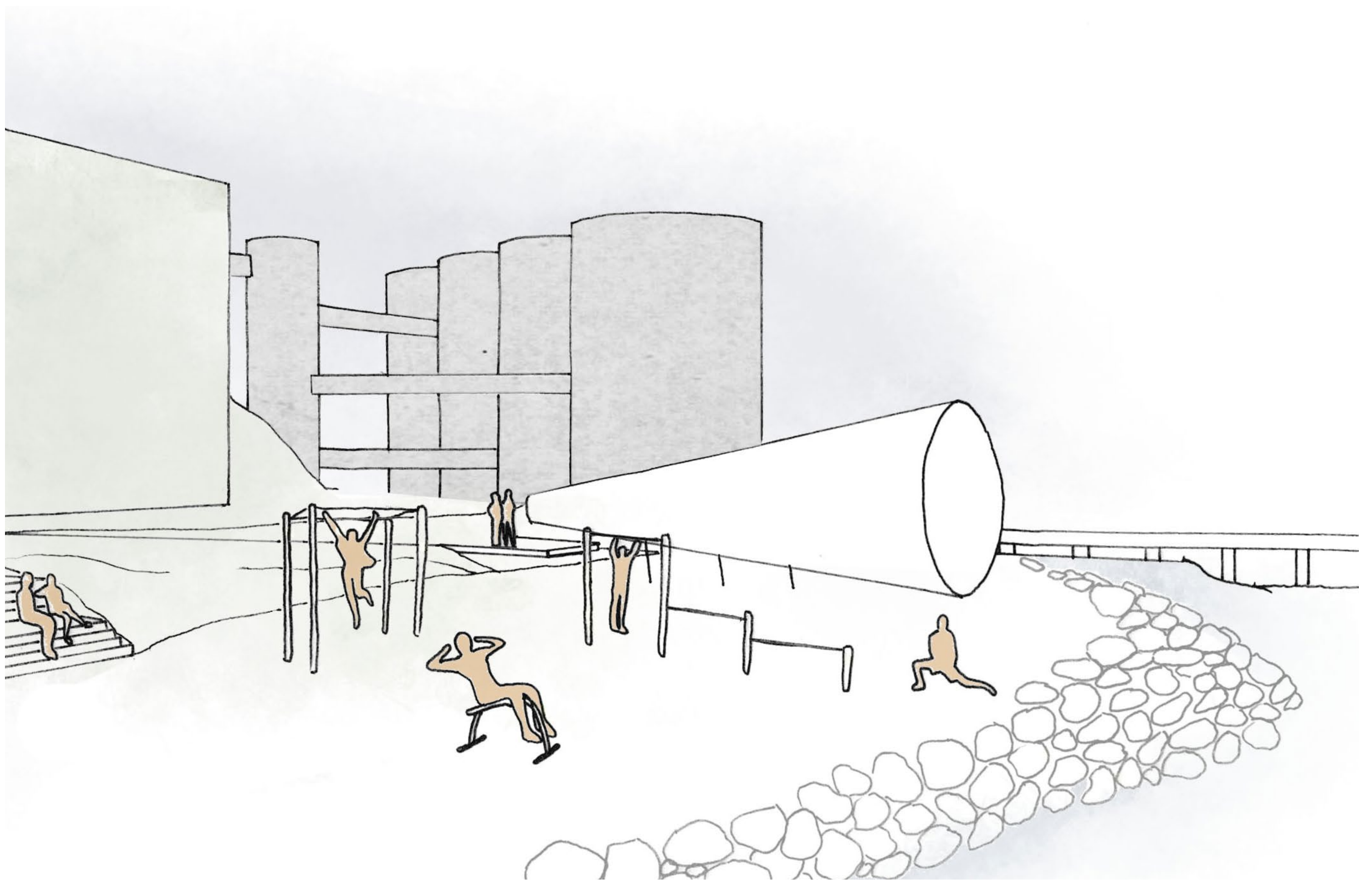
**THE PROMENADE - AN ACTIVE STROLL**





**THE FIRE ESCAPE** - OUTDOOR CLIMBING FACILITIES





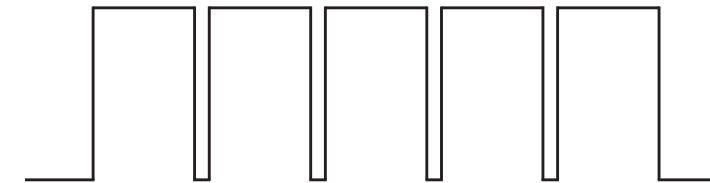
**TALERØRSPLASSEN - OUTDOOR GYM**



# ARCHITECTURAL IDEAS

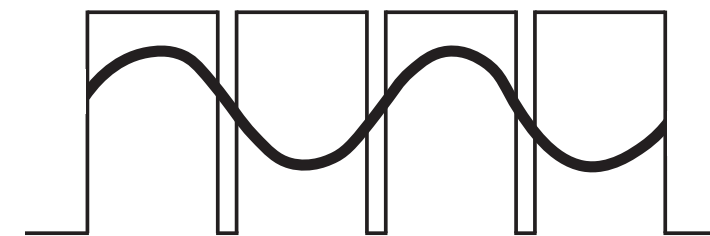
## KEEPING THE GAP BETWEEN THE SILOS

Protecting the view and the light, and avoiding that they melt together as one object



## THE INTERIOR WAVE

Creating interesting floors and ceilings by using domes and inverted domes. The wave is seen in the section and later reflected in the façade.



## OPEN AND CLOSED FACADE

Closing the façades towards the street and opening them up towards to the sea and the open space

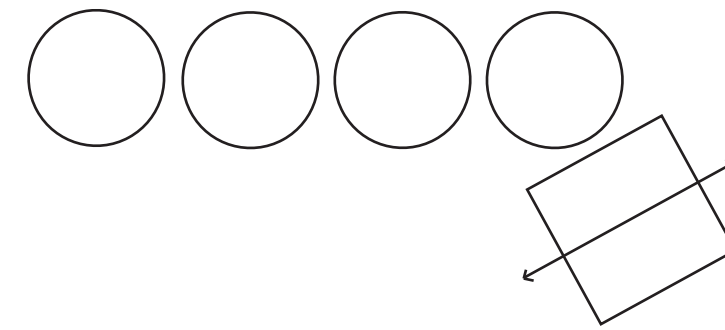




# COMMUNICATION

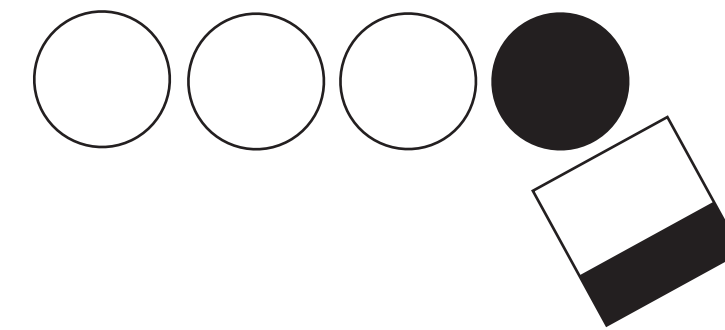
## THE ENTRANCE

The main entrance is in the squared silo



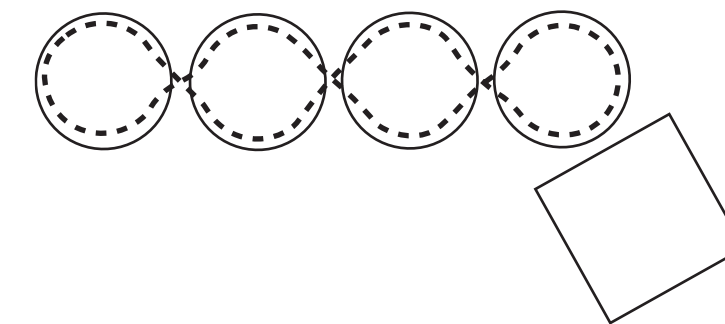
## VERTICAL COMMUNICATION

Main stairs and elevators



## MOVEMENT

An idea that people should move along the walls and keep the space in the middle open



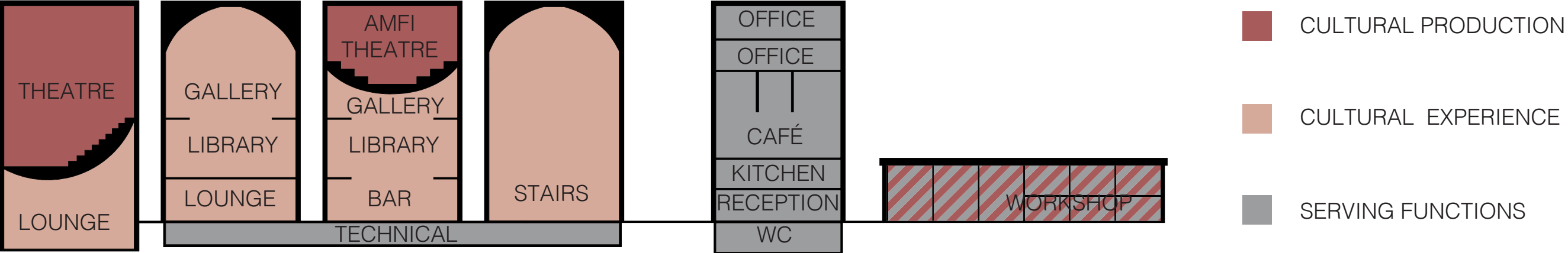


# THE CULTURAL CATHEDRAL - INSPIRATION AND PROGRAM

We have defined our buildings as a cultural cathedral. By cathedral we make a reference to projects we have taken inspiration from, like Pantheon, Nidarosdomen and St. Hallvards Church, who also have these monumental spaces, one-sided lights and grey tones. We want to give people the same sensation in our buildings as in these references.

We earlier defined that we wanted the program to be public, we therefore decided to make a complex dedicated to the cultural roots of Nyhavna. The buildings have spaces that are versatile and can have many different, cultural uses, while other rooms are there to serve and make the flexibility possible.

The complex can be divided into two main uses; the permanent use and the temporary use. The idea is that it has a permanent everyday program, but that it can be transformed for different events, festivals, etc.





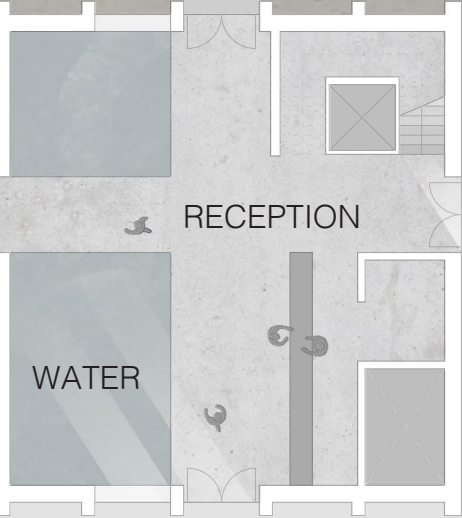


FIRE ESCAPE

BIKE LANE



GRAND STAIRCASE

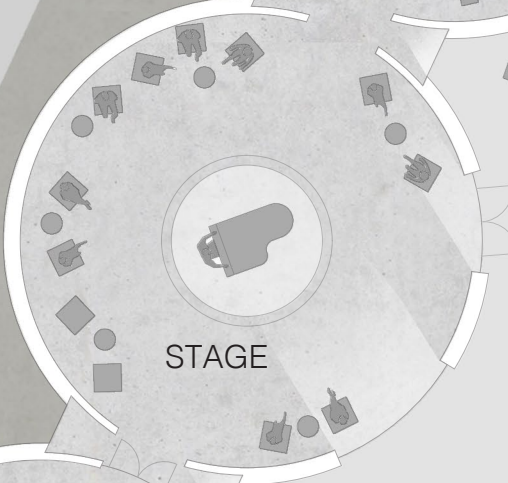


RECEPTION

WATER



BAR



STAGE

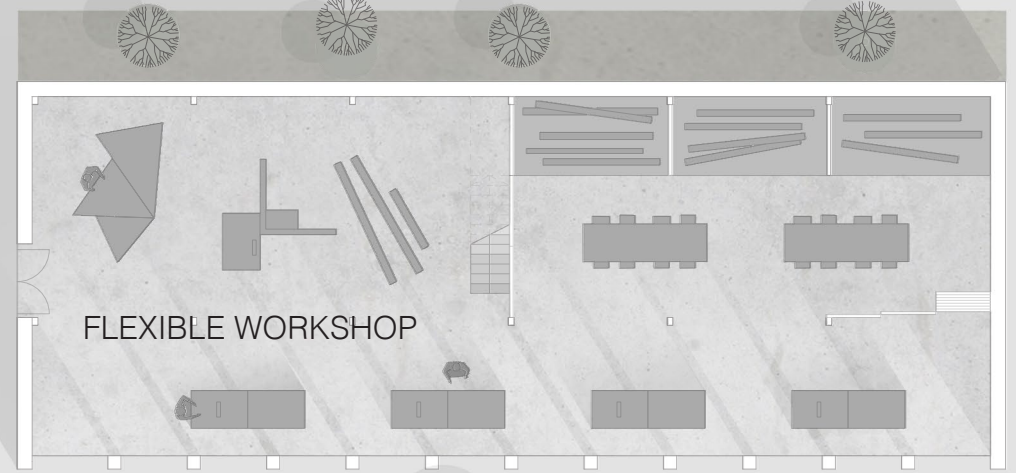


WATER

OPEN TO THE OUTSIDE



WATER FOUNTAINS

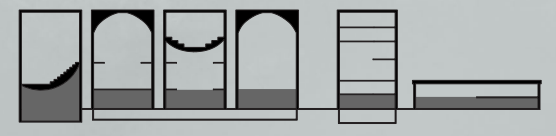


FLEXIBLE WORKSHOP

PEDESTRIAN ROAD

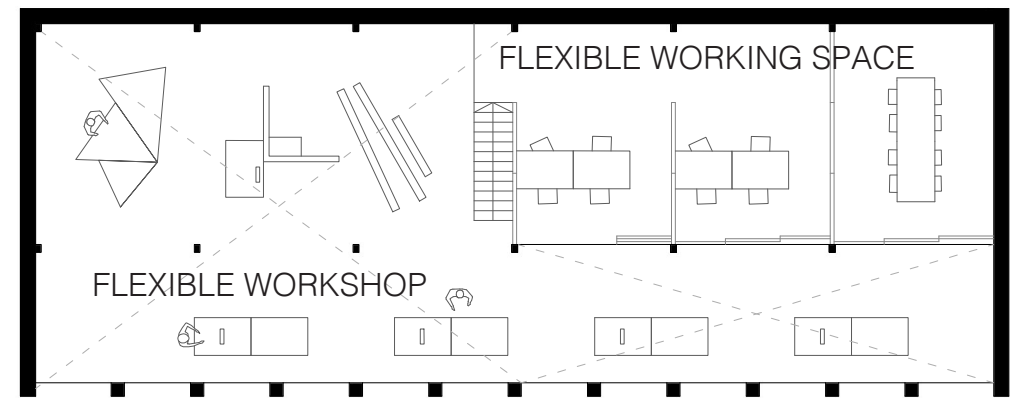
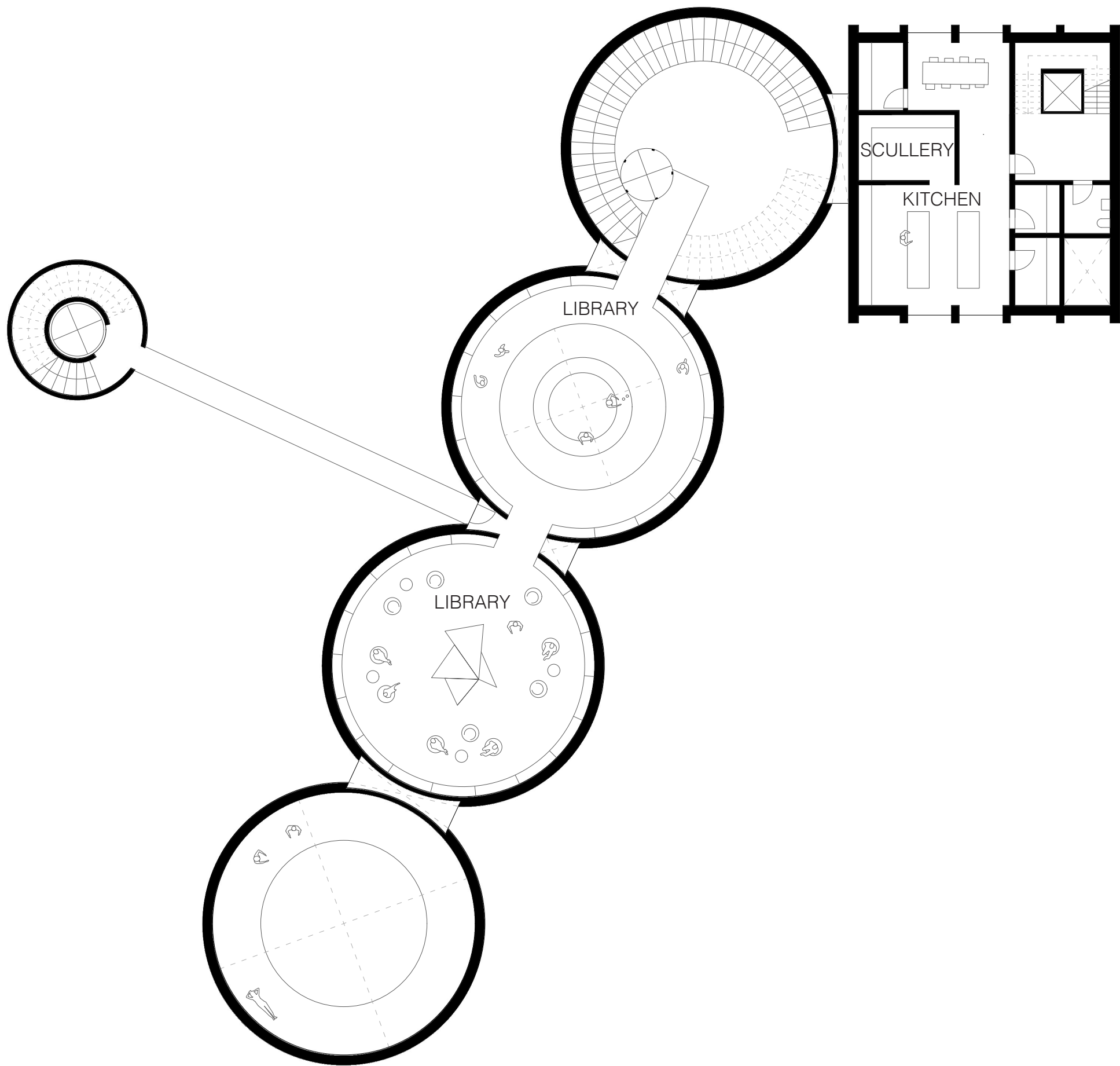
STEPS

ALL PLANS ARE ACCORDING TO THE STOREYS IN THE SQAURED SILO



GROUND FLOOR PLAN 1:200



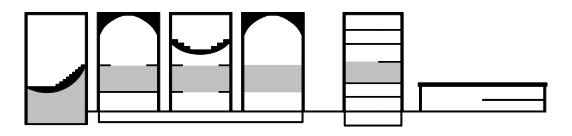
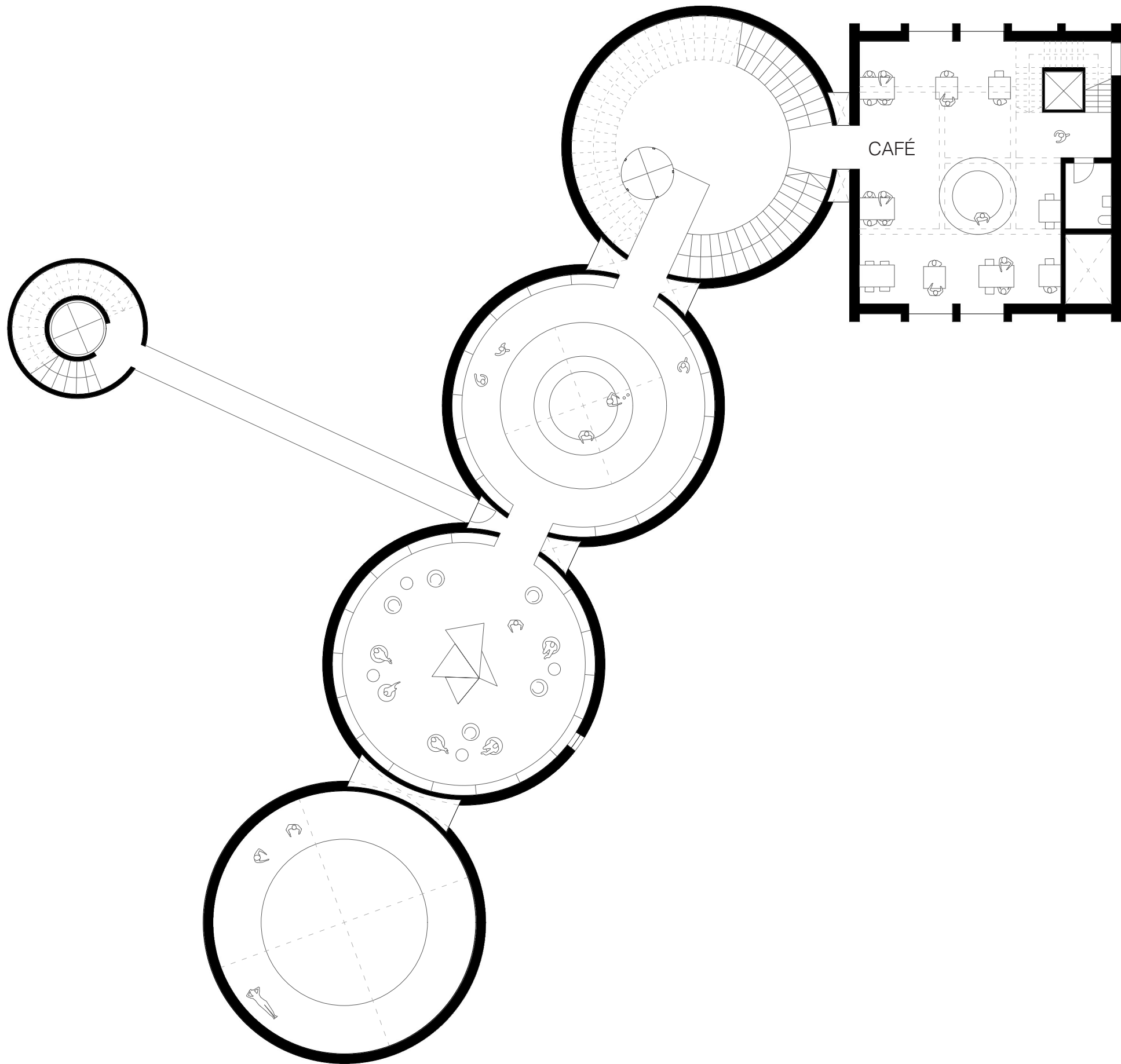


1ST FLOOR PLAN 1:200









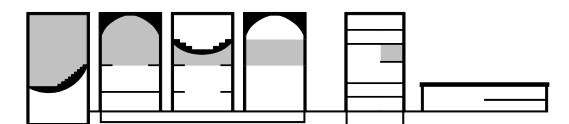
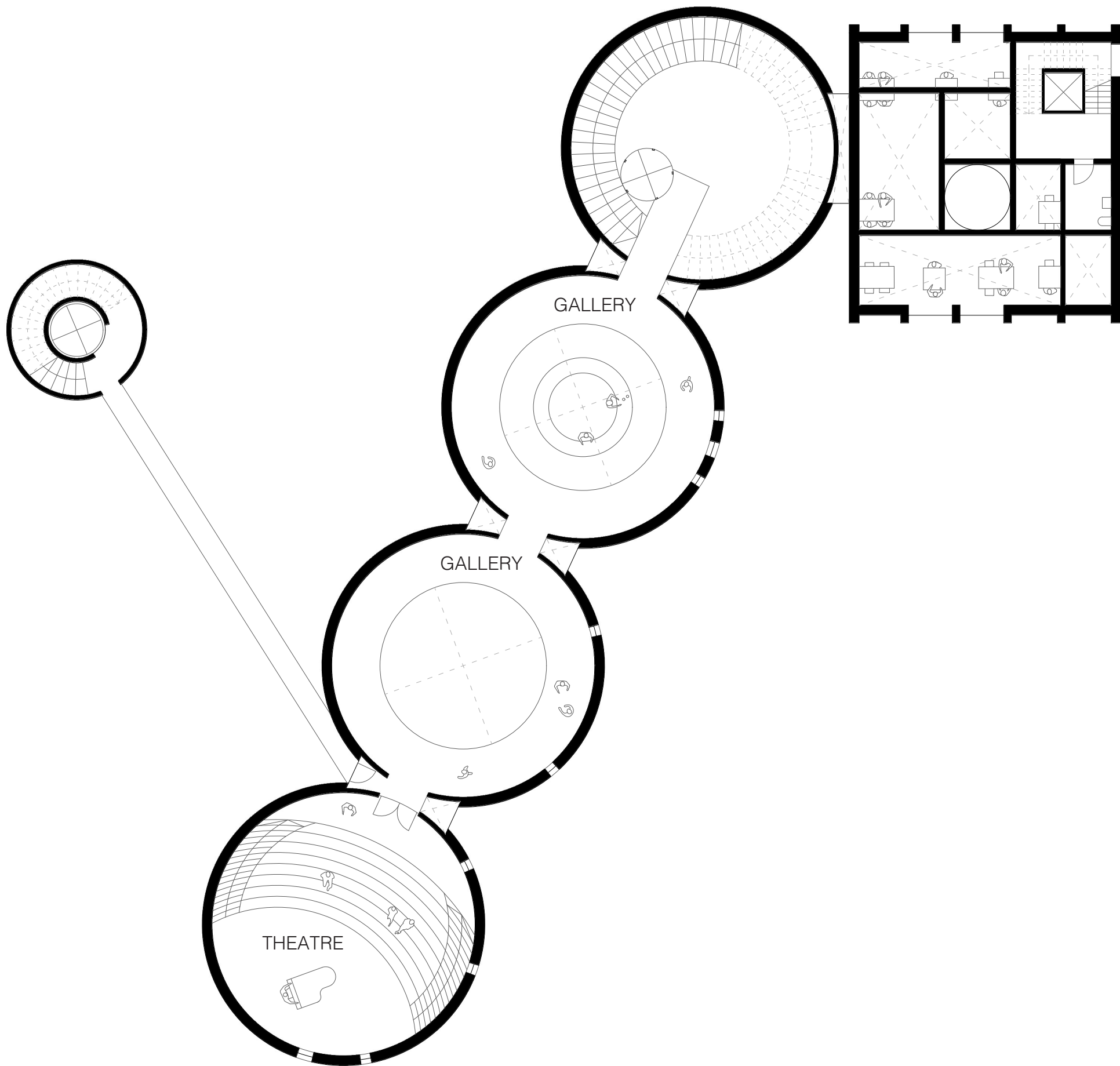
2ND FLOOR PLAN 1:200





THE EDWARDIANS





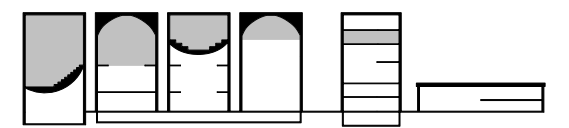
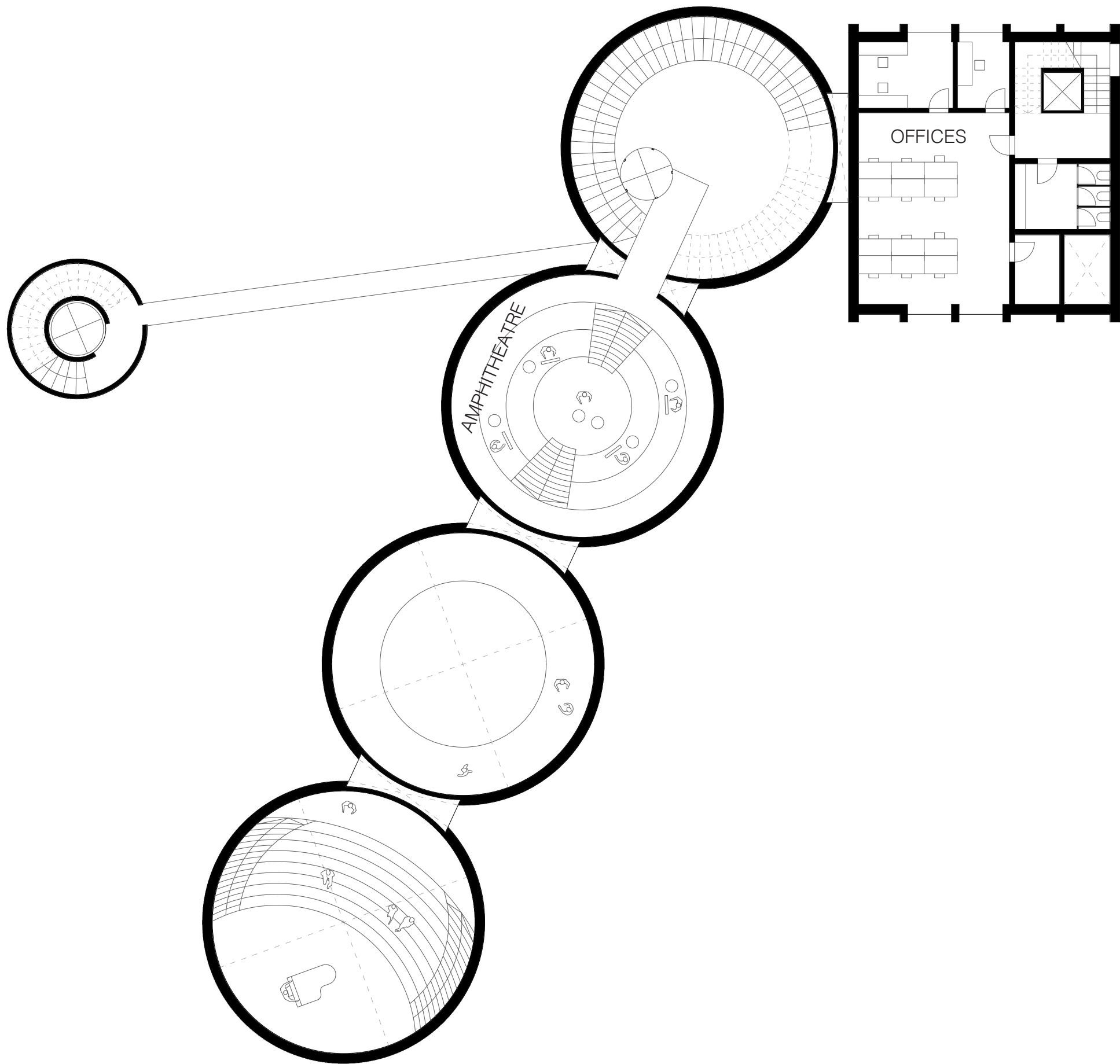
3RD FLOOR PLAN 1:200





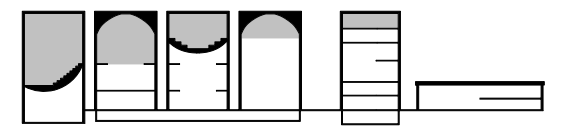
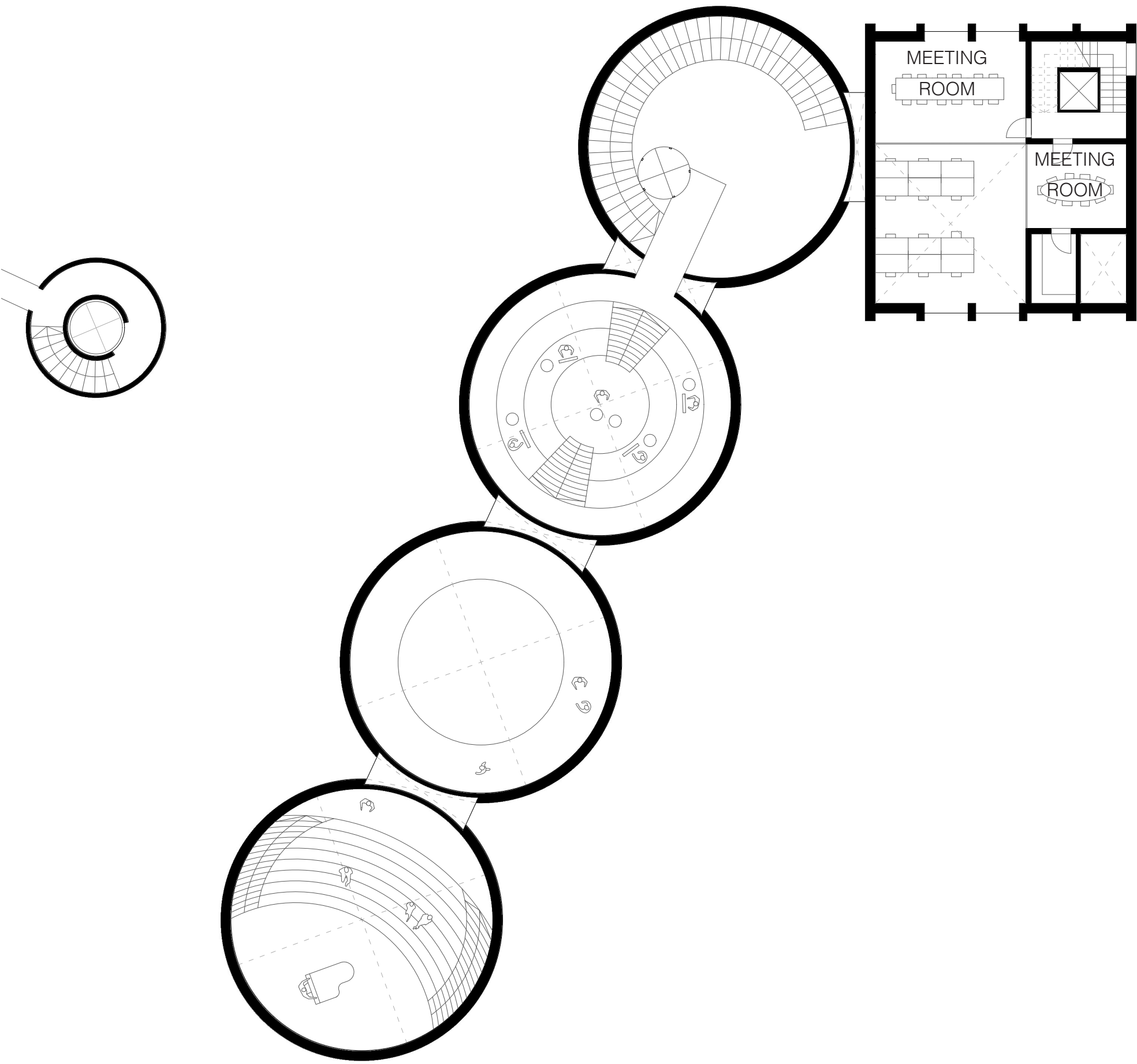
THE SIRENS





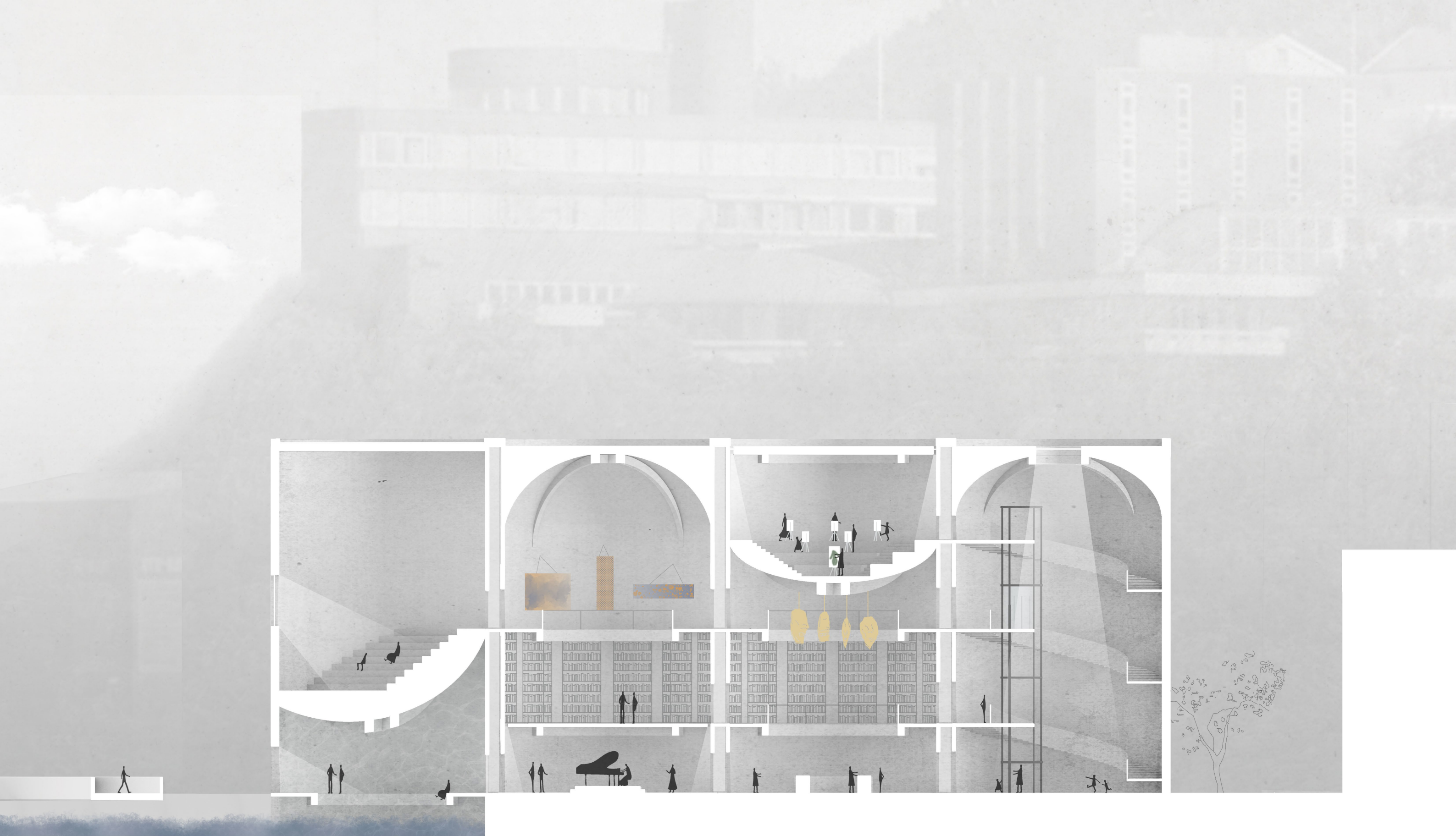
4TH FLOOR PLAN 1:200





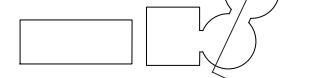
5TH FLOOR PLAN 1:200



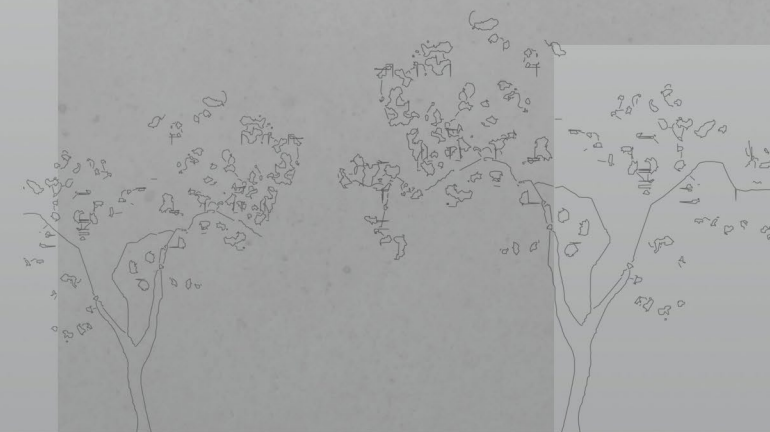
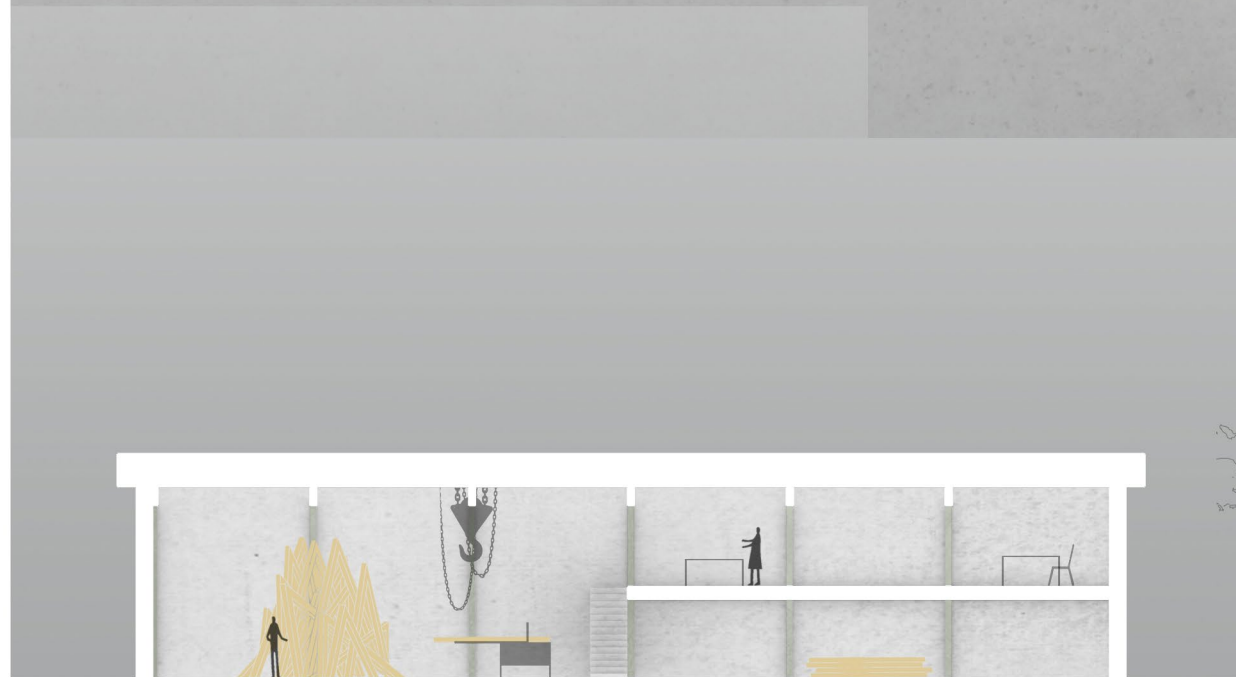
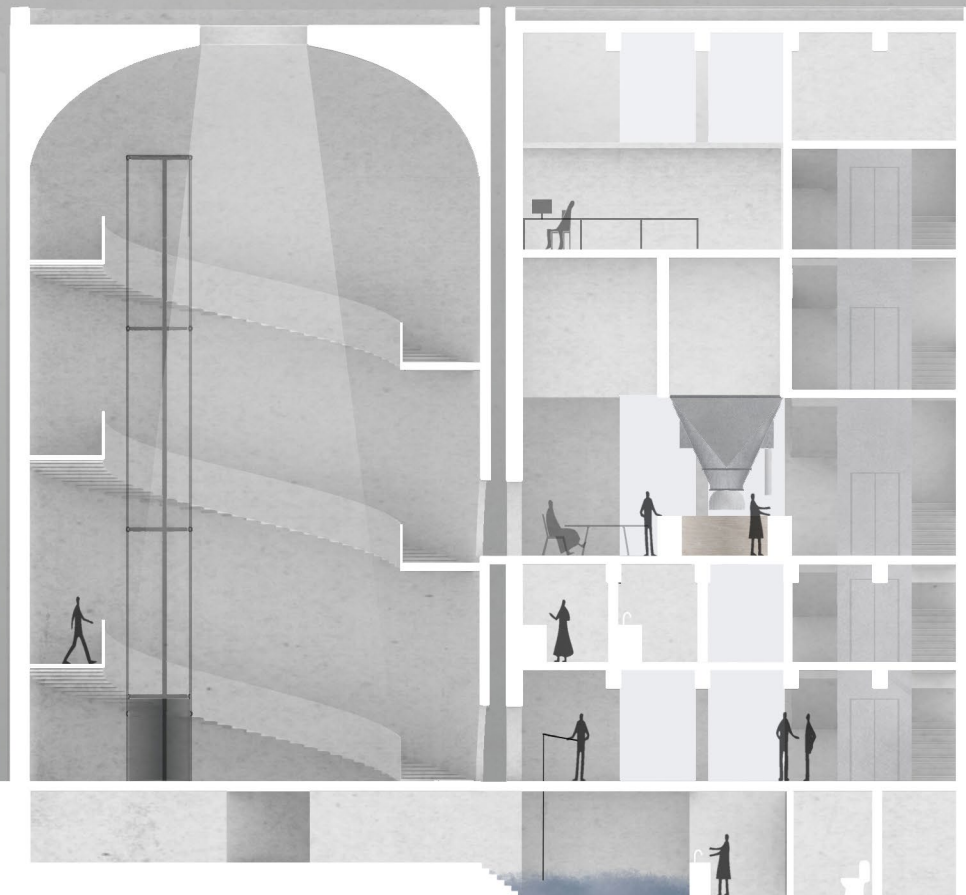


A SECTION WITH THE PERMANENT PROGRAM

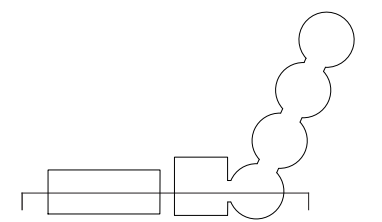
SECTION 1:200







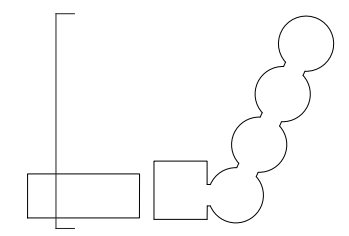
SECTION 1:200







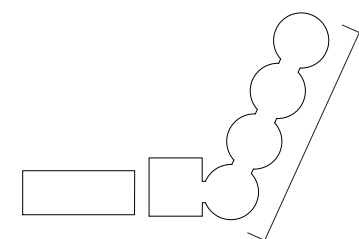
FACADE 1:200







FACADE 1:200

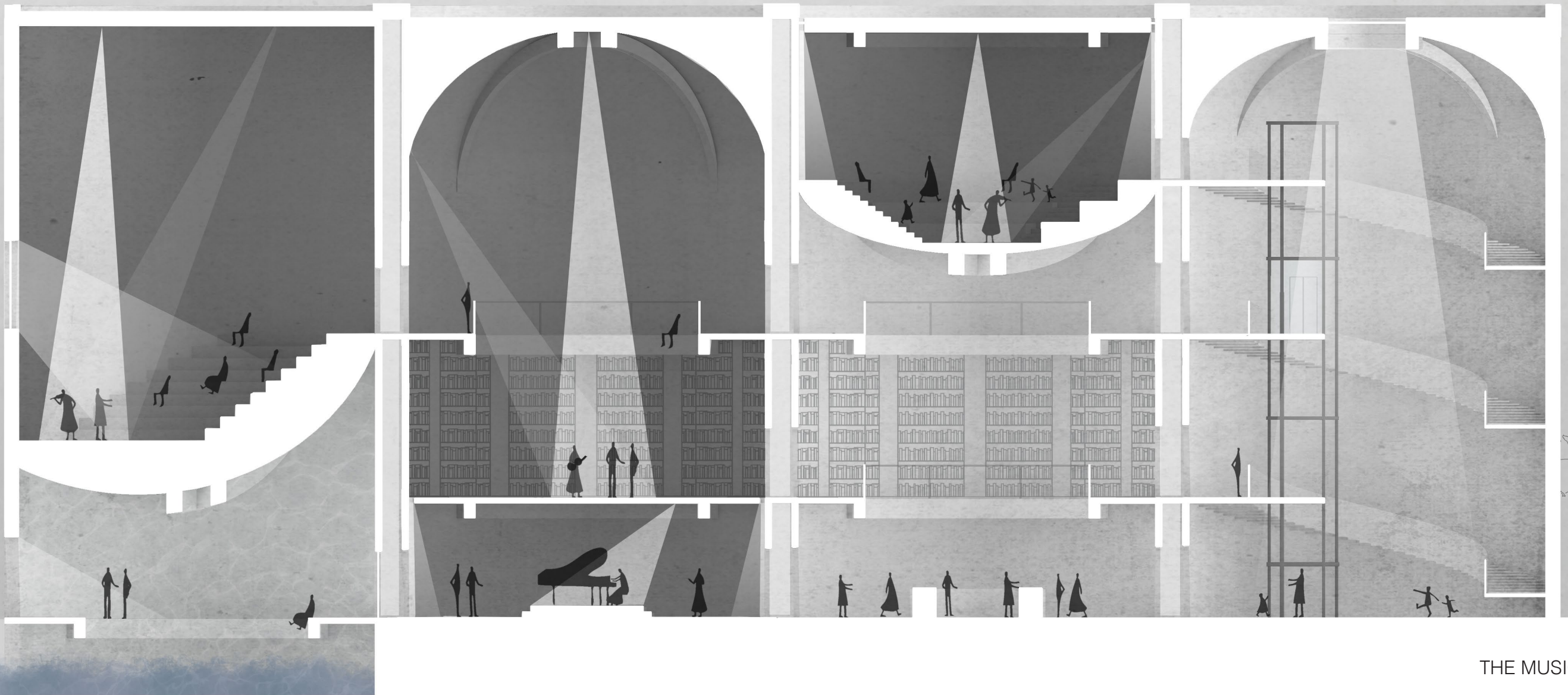






THE GREEK MUSEUM





THE MUSIC FESTIVAL





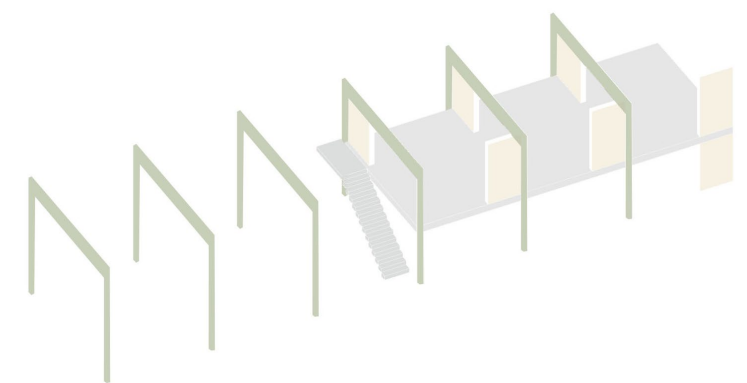
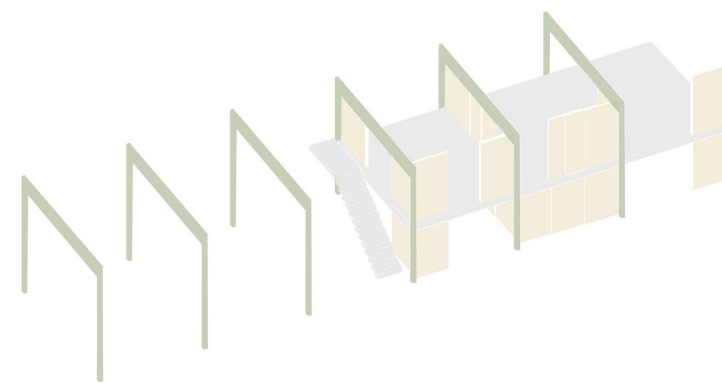
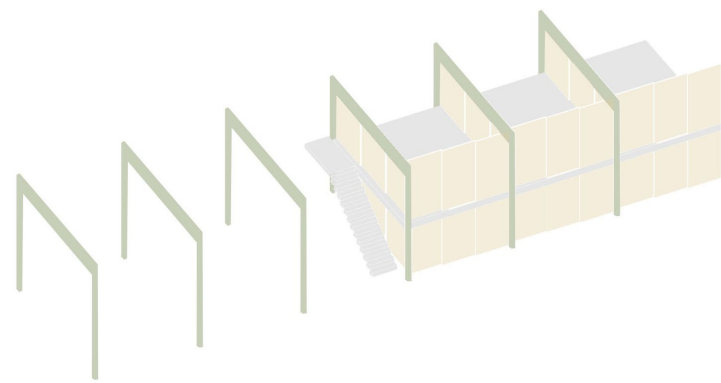
THE DIPLOMA EXHIBITION AND EXAMINATION



## THE WORKSHOP

Built in the footprint of the **storage hall**, maintaining the concrete foundation and steel structure, we have built a building that serves the silos.

With **flexible, Japanese-inspired sliding walls**, it can be turned into offices, storage, classroom or other uses needed at certain times.

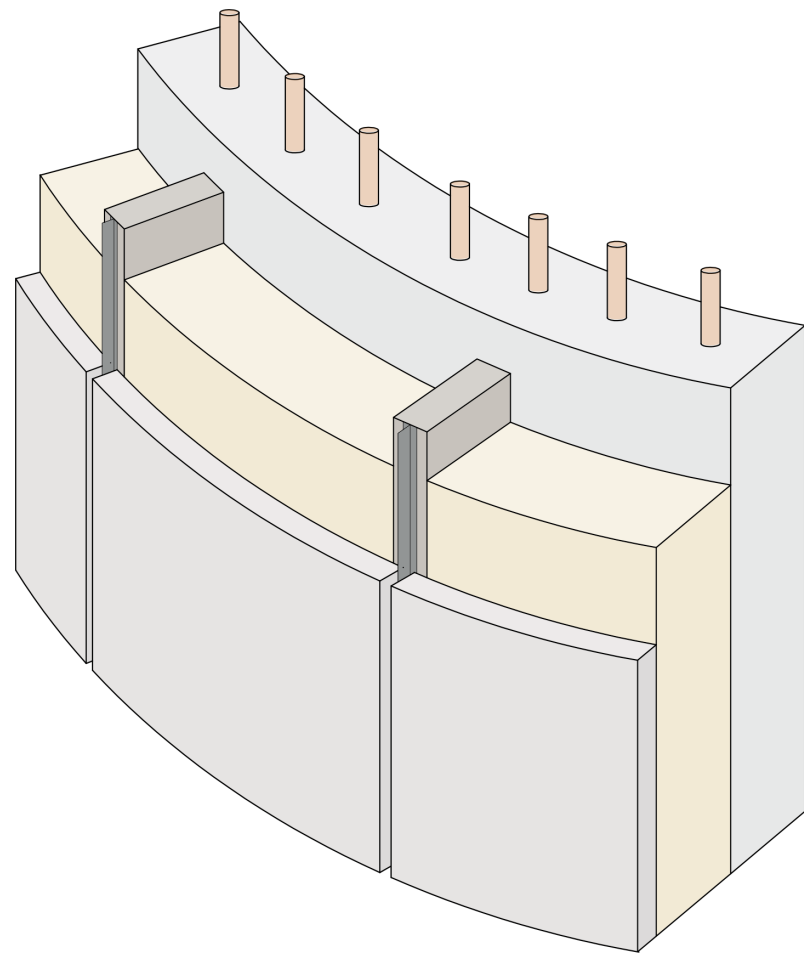




# MATERIALS AND CONSTRUCTION

The main material is **concrete**, and we have decided to insulate the buildings on the outside, creating a new façade. The new façade will be **prefabricated concrete elements**.

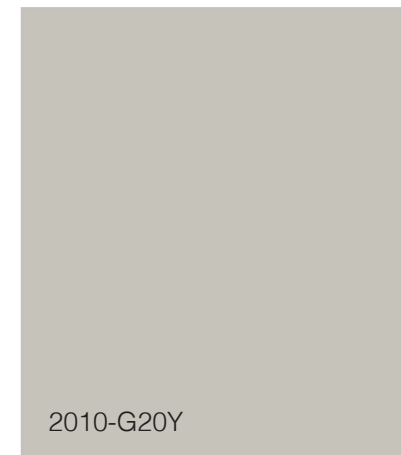
The interiors will be mainly concrete, with all the new beams and slabs in concrete, but with some details like window frames and railings in **wood and steel**.



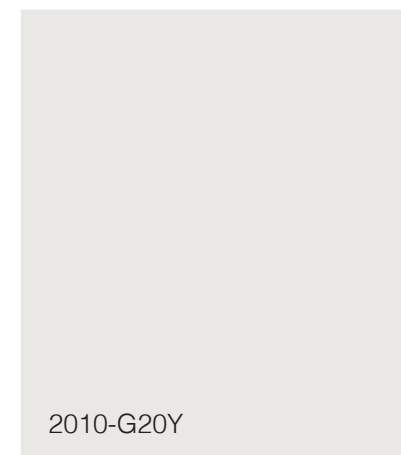
## NEW EXTERNAL FACADE



## THE OLD INTERIOR CONCRETE



## THE NEW INTERIOR CONCRETE







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Gjertsen, Andreas Grøntvedt

**ASSISTANT SUPERVISORS**  
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Brendeland, Geir  
Braaten, Bjørn Otto  
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