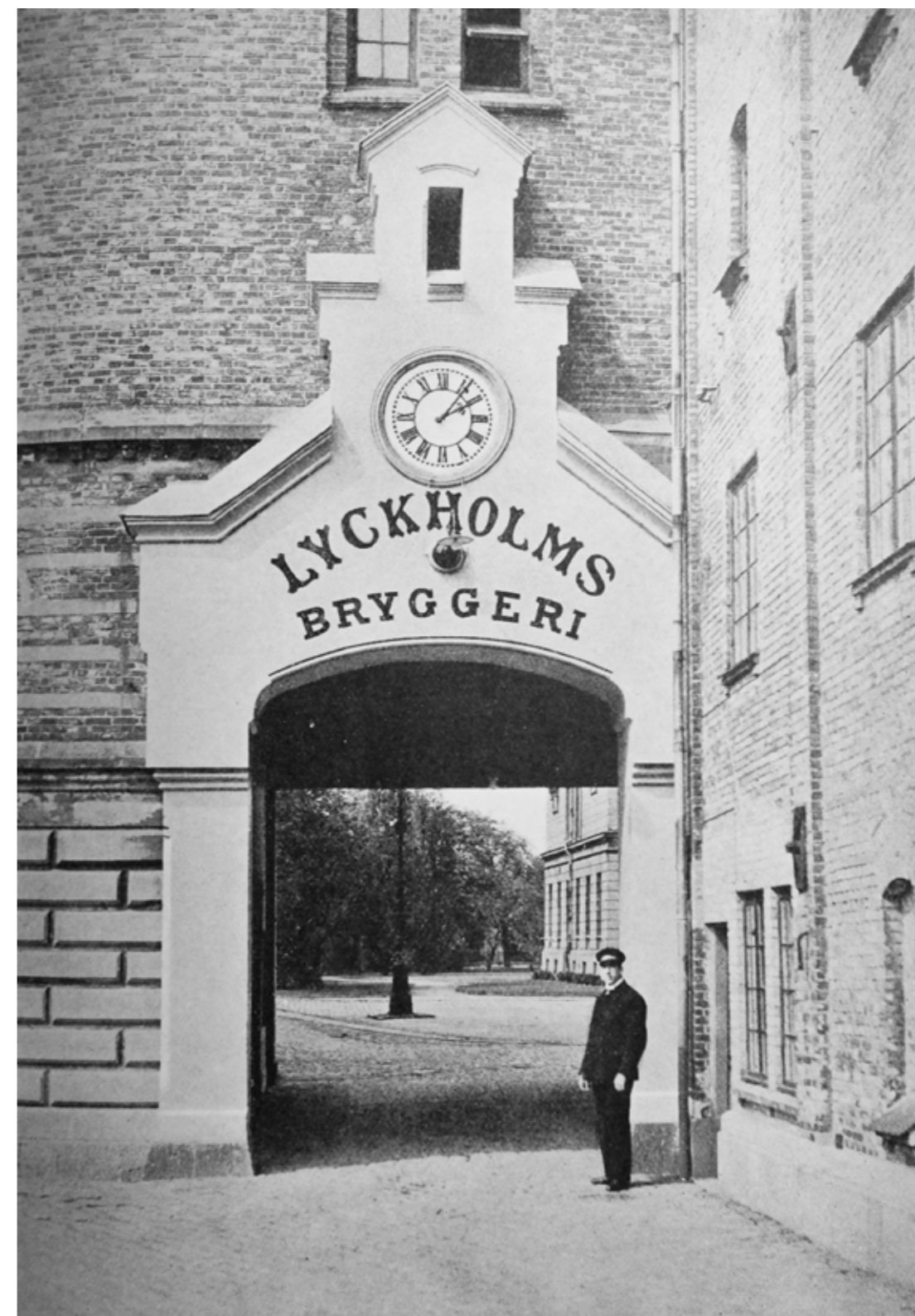


THE ADAPTIVE REUSE OF THE LYCKHOLMS BREWERY

-A Proposal For A Historic Industrial Building Site

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ABSTRACT

KEY WORDS:

CONSERVATION, TRANSFORMATION,
INDUSTRIAL HERITAGE, BREWING PROCESS,
IDENTITY PROTECTION

. This master thesis project discusses the conservation and transformation of a historic industrial building site - the Lyckholms Brewery in Gothenburg.

. It aims at reviving the old brewery buildings, making it an important piece in the urban fabric of Almedal.

. To reconsider its historical and cultural value, aesthetic value, ecological value and economic value for better reuse in a sustainable way.

. To intensively discuss the identity protection of industrial heritage in several ways, and try to maintain the previous values to its great extent at the meanwhile fit them for modern life during the process of reusing.

. It focusses on analysing the old buildings in order to find a promising conservation/transformation strategy for a successful design proposal.



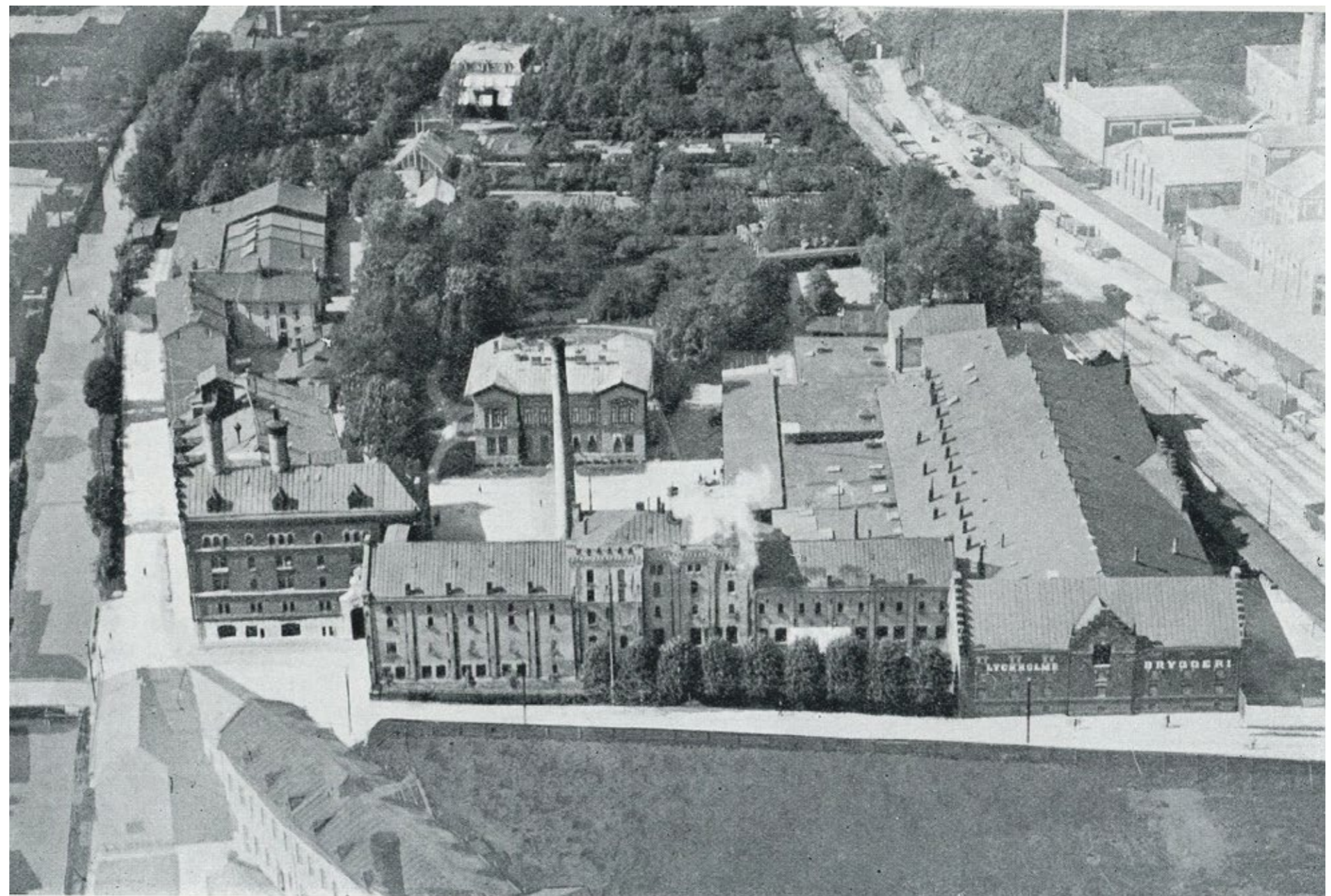
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INTRODUCTION

This master thesis is mainly to discuss a transformation project of Lyckholms brewery in Almedal, Göteborg. Like a small town or community, Lyckholms inhabited a green park, agriculture, farming with a greenhouse, mixed functions for work, life and leisure connected to Mölndalsån river during the 19th century.

After 1970s, along with the rapid updating of science and technology and the transition of the industrial chain around the world, the Sweden industrial structure is continual escalating and transforming step by step from the traditional production mode of raw material, to the advanced industrial production of high-tech. Following that change, the requirement of industrial buildings changed as well, that make many factory buildings cannot be used anymore and just derelict there. Lyckholms is just one among them. And also, the building is facing a series of other threats, such as flooding issue, lacking of care or maintenance during the years. All of these threats lead the buildings in a bad condition and risk to be demolished.

Based on our experience of urban analysis from master studio 'ARK347 Architectural Heritage and Urban Transformation', we would like to explore the unique value of Lyckholms which can maintain and become a necessary element for transformation use, to memory its history but also develop it in sustainable way.



Img. 1 Aerial View of Lyckholms Brewery in 1931

TOOLBOX OF CONSERVATION STRATEGIES

After literature and case study, some common values can be found in good transformation projects.

They paid more attention on reappearing the historical values on objects, but somehow to lead the space update for modern life. Furthermore, the exquisite detail designs can clearly reveal the strong clue of construction period, and the new techniques help the old building save more energy to meet environmental demands.

BASIC CATEGORY OF CONSERVATION:

"Decay— letting objects age naturally without intervention.¹

Maintenance— cleaning and caring. maintains the value and the function of the existing building.²

Conservation—conserving status quo.³

Refurbishment— saving and preserving original substance while trying to reconstitute an object to its original state or utility value.⁴

Restoration—trying to restore an object's original utility value by saving as much original substance as possible. however it is not the goal of an restoration to revert an object to its original state.⁵

Renovation— restitution an object's original appearance on the basis of genuine finding.⁶

Reconstruction— rebuilding of a structure that no longer exists. reconstruction means not only working through the available sources for the original structure but also that today's architects have to mimic the building style of a certain period. "⁷



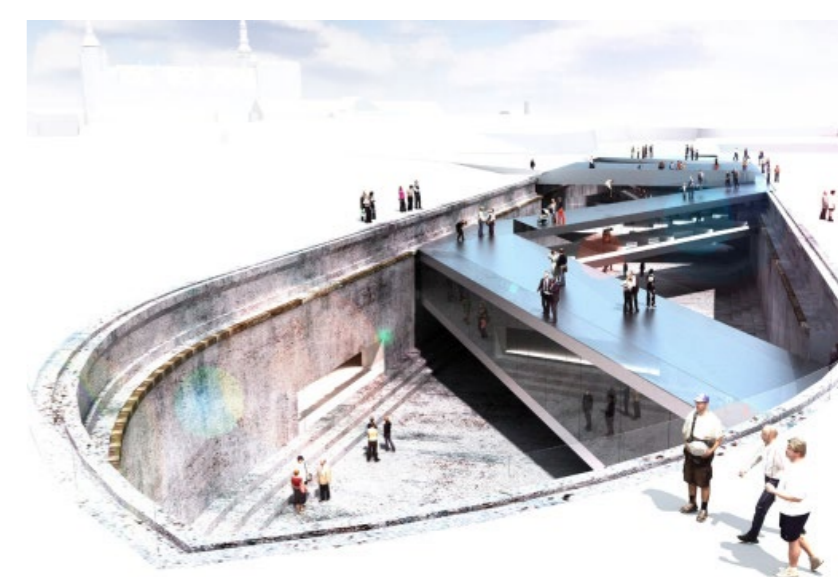
Img. 2 Walden Studios, USA



Img. 4 Kulturspeicher, Germany



Img. 3 Astley Castle, UK



Img. 5 Danish National Maritime Museum, Denmark

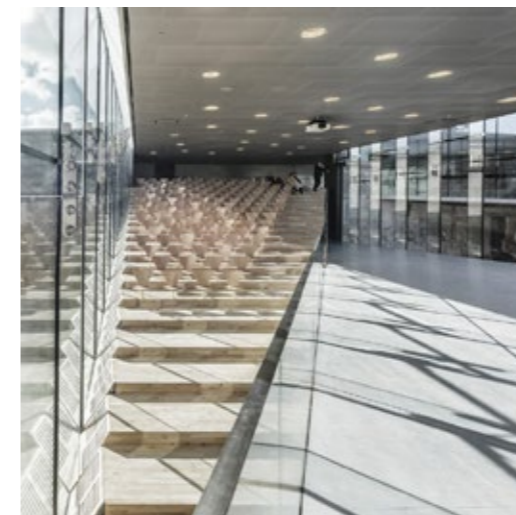
CASE STUDY – The Danish Maritime Museum



Img. 6



Img. 7



Img. 8



Img. 9

The Danish Maritime Museum had to find its place in an unique historic and spatial context: between one of Denmark's most important and famous buildings and a new, ambitious cultural centre.

'By wrapping the old dock with the museum program we simultaneously preserve the heritage structure while transforming it to a courtyard bringing daylight and air in to the heart of the submerged museum. turning the dock inside out resolved a big dilemma: out of respect for hamlet's castle we needed to remain completely invisible and underground – but to be able to attract visitors we needed a strong public presence. leaving the dock as an urban abyss provides the museum with an interior façade facing the void and at the same time offers the citizens of helsingør a new public space sunken 8 m (16 ft.) below the level of the sea.' says bjarke ingels.⁸

Just like Bjarke says, the way of its conservation/ transformation strategy shows the outstanding values of identity protection in the case. The different sections of time are skillfully overlapped together to arise the complicated and attractive feelings.



Img. 10 Danish National Maritime Museum, Denmark

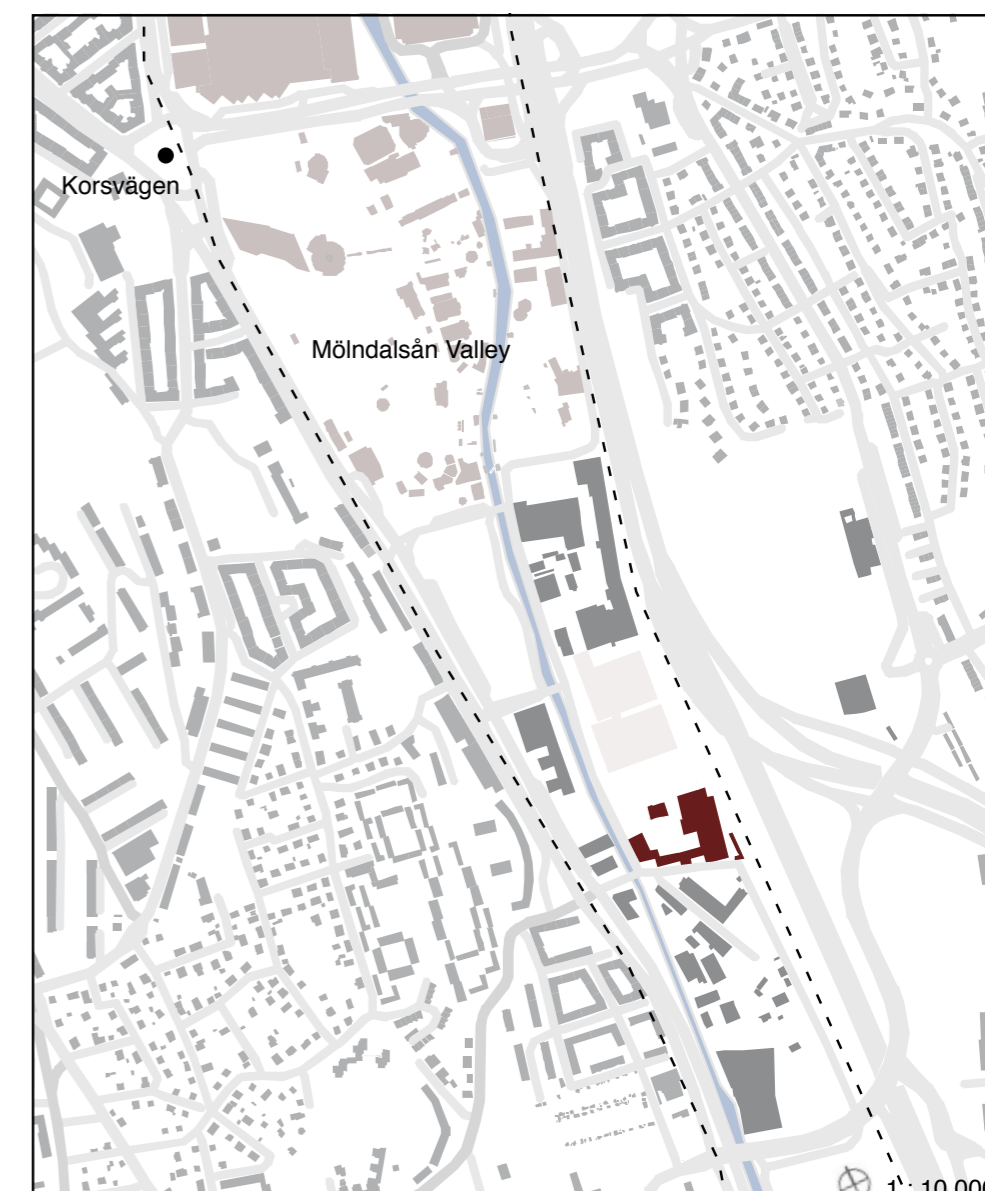
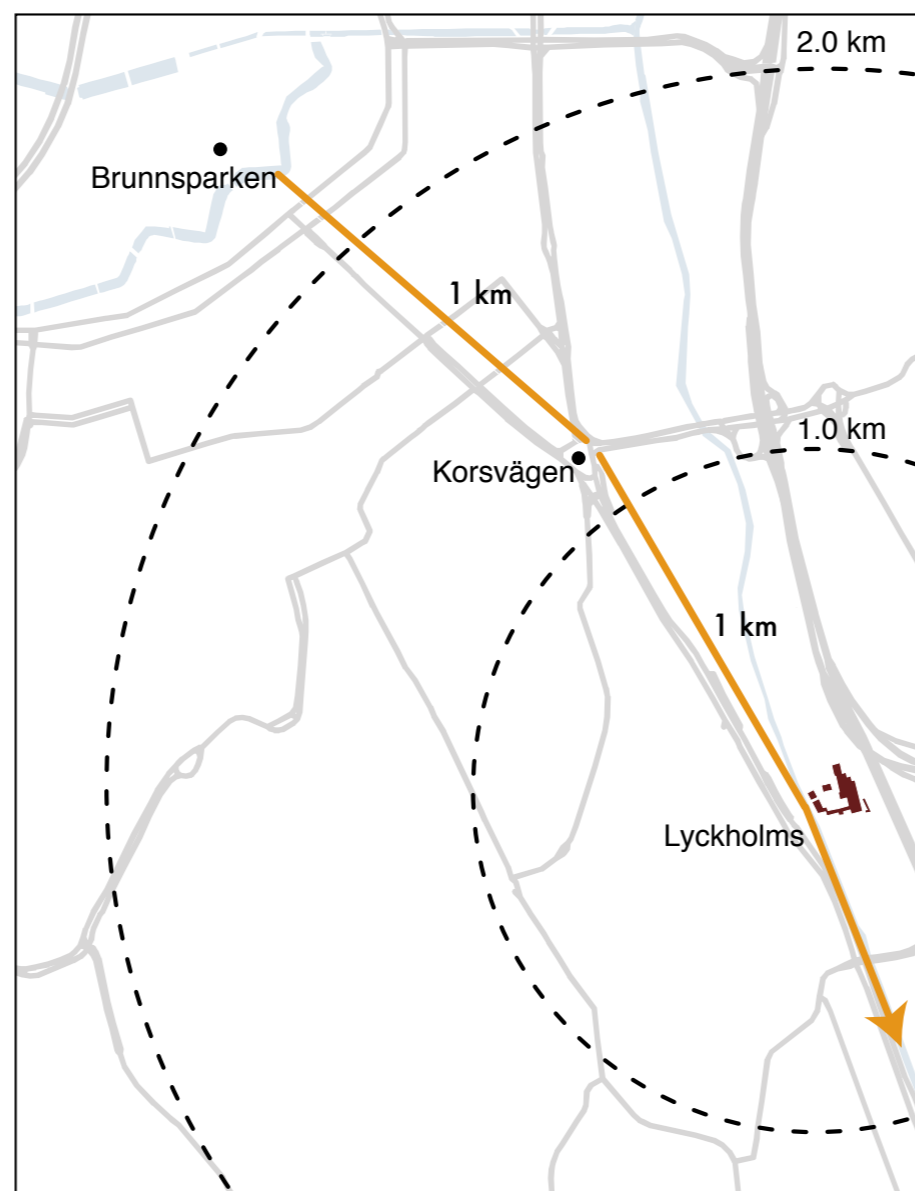
⁸ AVAILABLE FROM <http://www.designboom.com/architecture/big-completes-the-danish-national-maritime-museum-10-18-2013/>

DISTRICT ANALYSIS

The site located in the same distance from Korsvägen as Brunnsparken, and it is also well connected south Mölndal. On the east of Lyckholms, there are the E6 and the railway as big barriers.

The “Mölndalsån valley” was developed as industry corridor since 19th century and then expanded as “Event District” in Göteborg which offered a variation of attractions to the city, such as Liseberg, Svenska Mässan, Ullevi, Scandinavium, Universeum, Världskulturmusemet, Bergakungen movietheatre and more.

The actual closeness of Lyckholms to the center is just a 5 minutes’ bike ride or 10 minutes’ walk to Korsvägen. Besides, the good quantity of green areas is also clearly visible around the site. Lyckholms has the potential superiority to work as a community centre for surrounding residents or visitors. Therefore, it needs much better accessibility and visibility during the process of transformation.



DISTRICT ANALYSIS

If we look at the historical maps, it is obvious that all we need for an attractive, modern, sustainable urban environment, were just there! The urban development pattern around Lyckholms shows that the area has developed from a fairly well connected, mixed, independent and small scale structure to a car dependent, zoned and monofunctional district in over 100 years.

An interesting reminder of the past is the street names. Skårs led and Kallebäcksbron, situated just next to Lyckholms, help us remember where the road lead before it was cut off by the expanding E6 highway.

The position of Lyckholms, together with Almedals factory, between the Mölndal river and the railway is also a cultural-historical reminder of different times. The closeness to fresh flowing water was an essential factor for beer production and it was also a highly important transportation route. Even the Almedals train station situated right next to Lyckholms is still visible on the 1979 town map (but probably non-functioning by then), which tells us about the different meanings of delivering goods.

Lyckholms quarter was built there because this location had the most suitable preconditions for a brewery.



200m 1909 N



200m 1950 N



200m 1976 N



200m 2013 N

Development of Lyckholms quarter between 1909-2013



TIMELINE & FUNCTION

The Lyckholm brewery was founded by Johan Wilhelm Lyckholm in 1879. The architect of the first part was A. L. Thune and of the later main parts was the engineer Alwin Jacobi from Prussia. Alwin Jacobi made the larger plan, which was completed in 1891. In 1926 Lyckholm joined together with Pripps and formed Group Pripp & Lyckholms. The brewery was taken out of business in the 1970's.

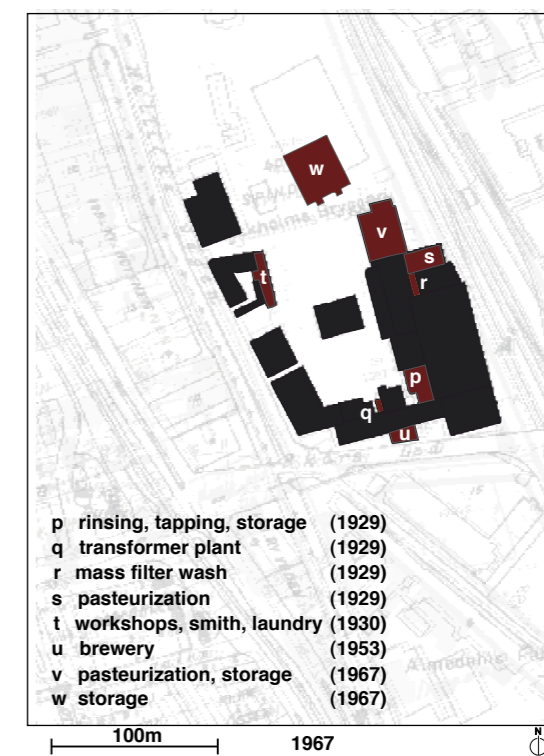
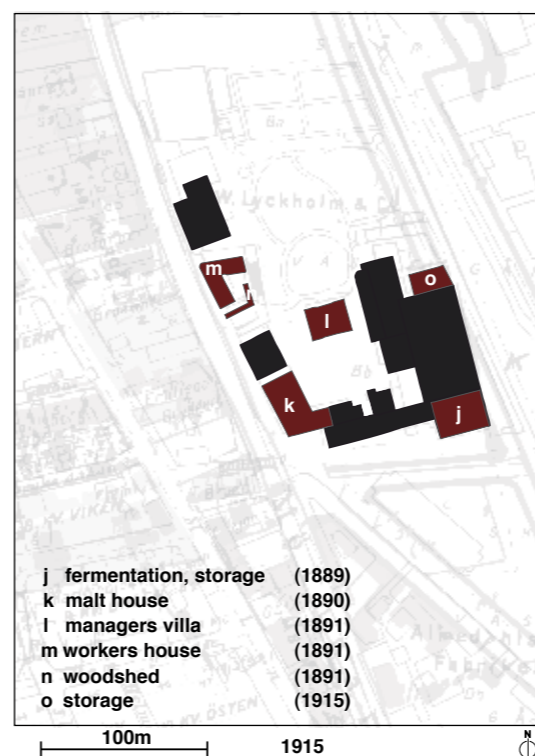
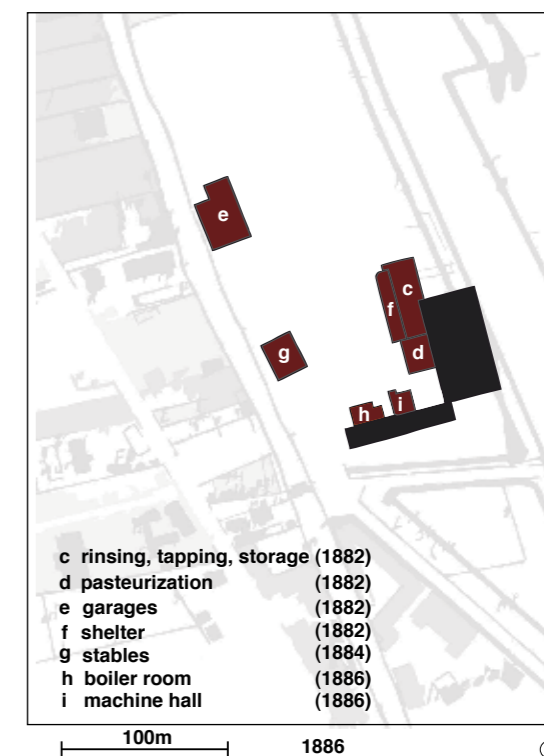
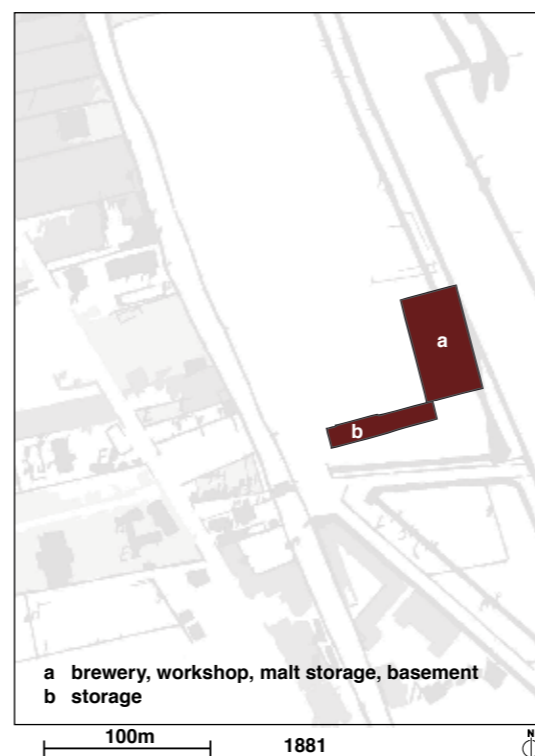
On 1881, founded by Johan Wilhelm Lyckholm, Lyckholms Brewery was starting to produce beer. By that fall, the beer proved to be a hit in the beer-market and the brewery had to expand. The extension started in February.

On 1882, the brewery was continuing to expand. More lands were bought, and new buildings and machineries were added in the following years. The constructor was F. O. Peterson.

On 1927, Lyckholms was one of the most important beer producers in Göteborg and in 1927 it merged with another big beer producer, AB J.A Pripps & Son, and formed Group Pripp & Lyckholm.

On 1964, the new company merged with AB Stockholms Breweries and formed AB Pripp Breweries.

On 1973, production was moved to a big brewery in Högsbo, Västra Frölunda. The following years the Lyckholms brewery was mostly standing empty, whilst some of the buildings were being used for various activities.



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HISTORY & CHARACTER

The beer culture in Sweden started early, with the Vikings and their celebration drink “mjöd”. During this period, the Mjöd became related to food, celebration and tradition. Between 1855 and 1903, due to urbanization and a growing population, the number of breweries exploded in Sweden. Many of them were situated along the “Event District” of the city.

The breweries were placed in urban settings and the buildings belonging to the brewery served different functions, from dwellings to storage. Many breweries have a highly aesthetic appearance due to the desire to bring prestige into the new society and also were designed to draw customers, which was important in this time full of competition from other breweries.

In the 1870s breweries were allowed to sell directly to restaurants, which led to a wider range of local breweries in Sweden. The 80s represented the peak period in Swedish brewery culture. Beer was also introduced in the kitchen and restaurants on the same level as wine.

Today the brewery business is still lively all over Sweden. In the old time, the functional technical demands on making beer strongly affected the design of the buildings.

As a result, many of the old brewer buildings have been demolished, or most rest of them have been transformed into other use. The number decline to around 50 breweries, compared with the past number of more than 500.

In Göteborg you can find several small breweries, selling to Systembolaget and local pubs. Lyckholms is one of the few “untouched” brewery areas still standing in Göteborg.

Lyckholms was one of the most important breweries in Göteborg. It was a leading, modern brewery with the latest techniques, and was the first brewery to use cooling equipment, pure yeast and filtering the beer.

While the architecture of Lyckholms was given an expression inspired from Romanticism, Gothicism and the Renaissance. It creates a monumental building, using an old style, and at the same time expressing modernity.

Lyckholm today is owned by property developer Peab AB who is building new office buildings on the site and also looking into how to reuse the historical buildings. In April 2013 Peab started building the first stage of their new office development in Lyckholm according to the current legal plan as below.



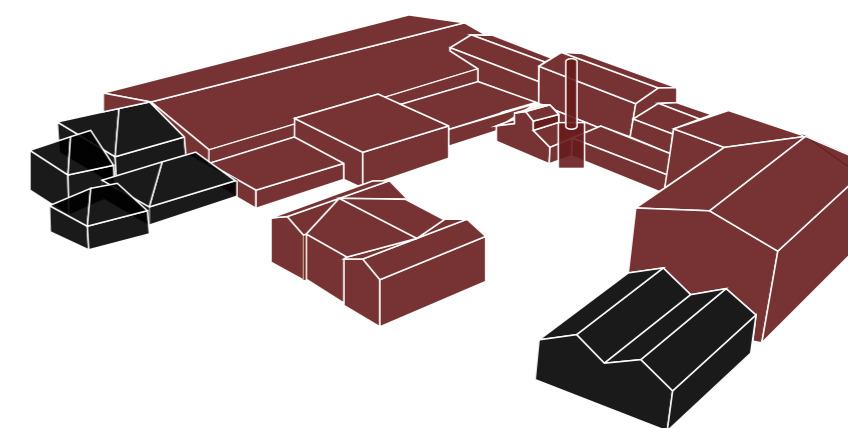
Img. 13 Current legal plan of PEAB



Img. 11 courtyard of Lyckholms early 1900s.



Img. 12 Lyckholms early 1900s.

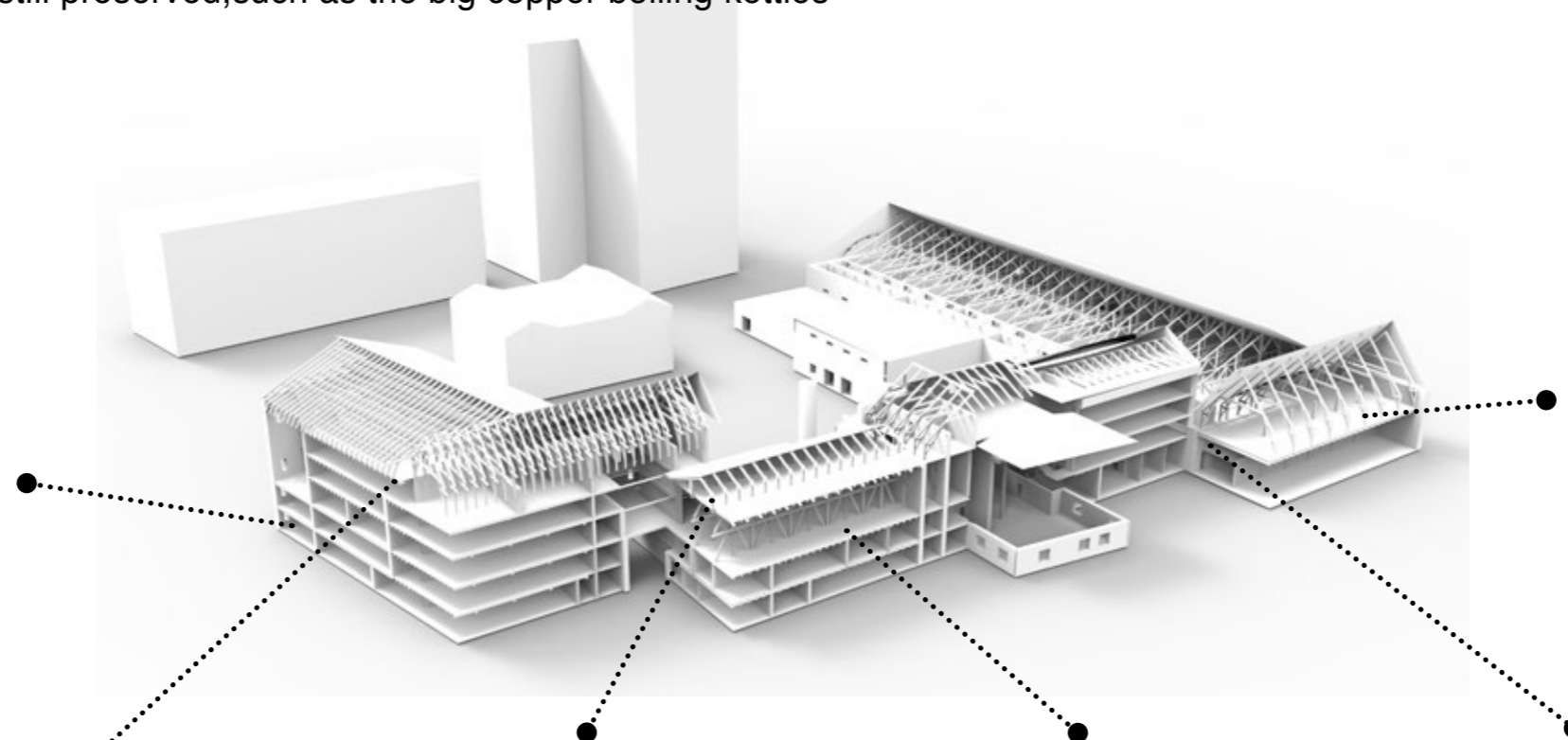


Condition of the Site 2013 / Black part has been demolished

HISTORY & CHARACTER

Original structure features sketch out the personality of Lyckholms. Following the technic development at that age, the first two floors are mainly structured by brick arch with the iron column and beam supported. The interior wooden structures in various shapes display on upper floors.

The pattern and size of raw space show the demands of beer production. Besides, a lot of the old brewery equipments are still preserved, such as the big copper boiling kettles and the mill for the malt.



BREWING PROCESS - 1

The unique quality of Lyckholms should be decided by the brewing process, because the whole space is used for making beer. All the production apartments are organized following the beer producing process. Through analysing the route of beer, we can understand the logic of the Lyckholms.

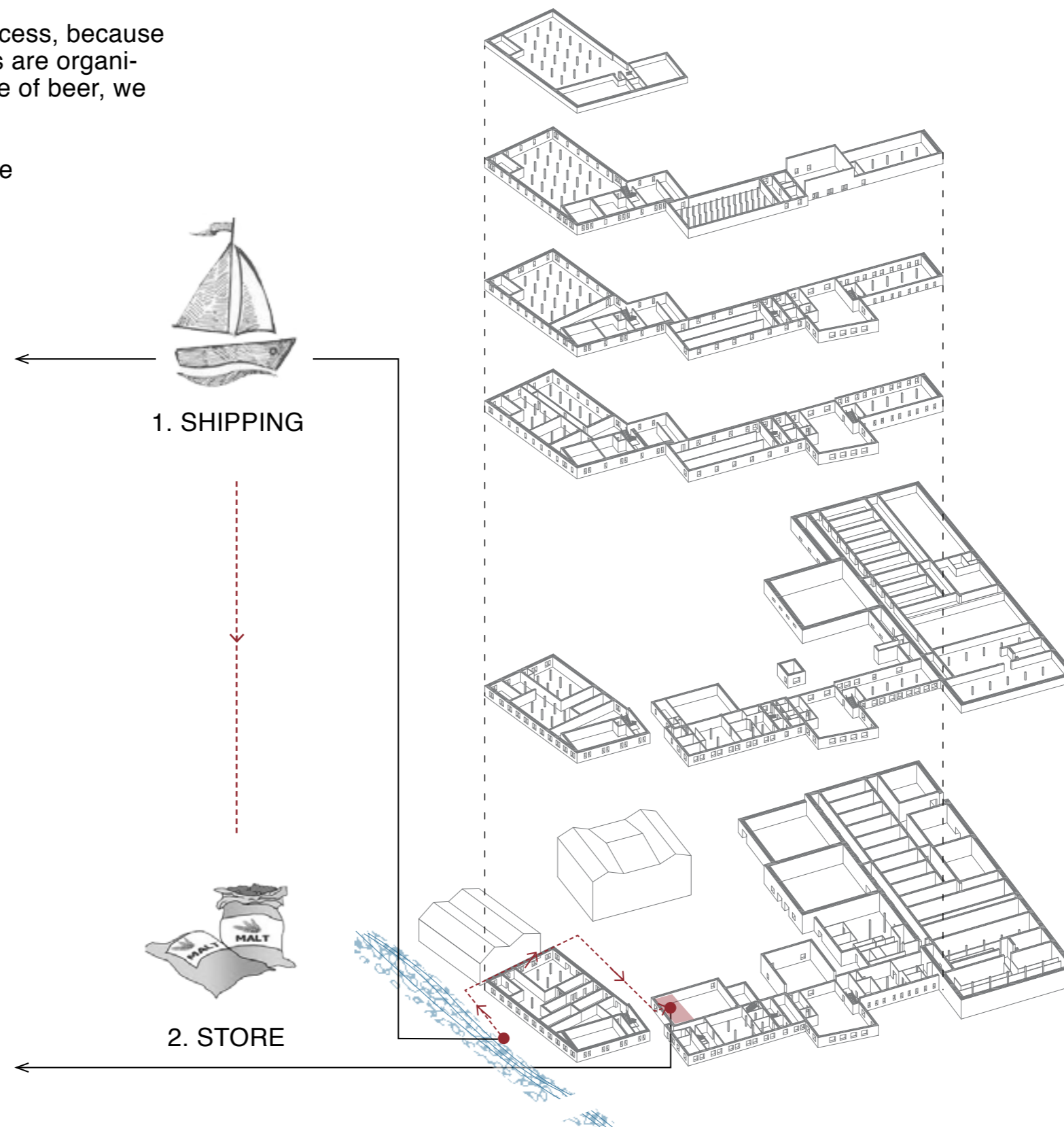
The whole process can be mainly divided into six stage, starting with the transportation of raw materials, and ending in delivering out.



Img. 14 The port for shipping material



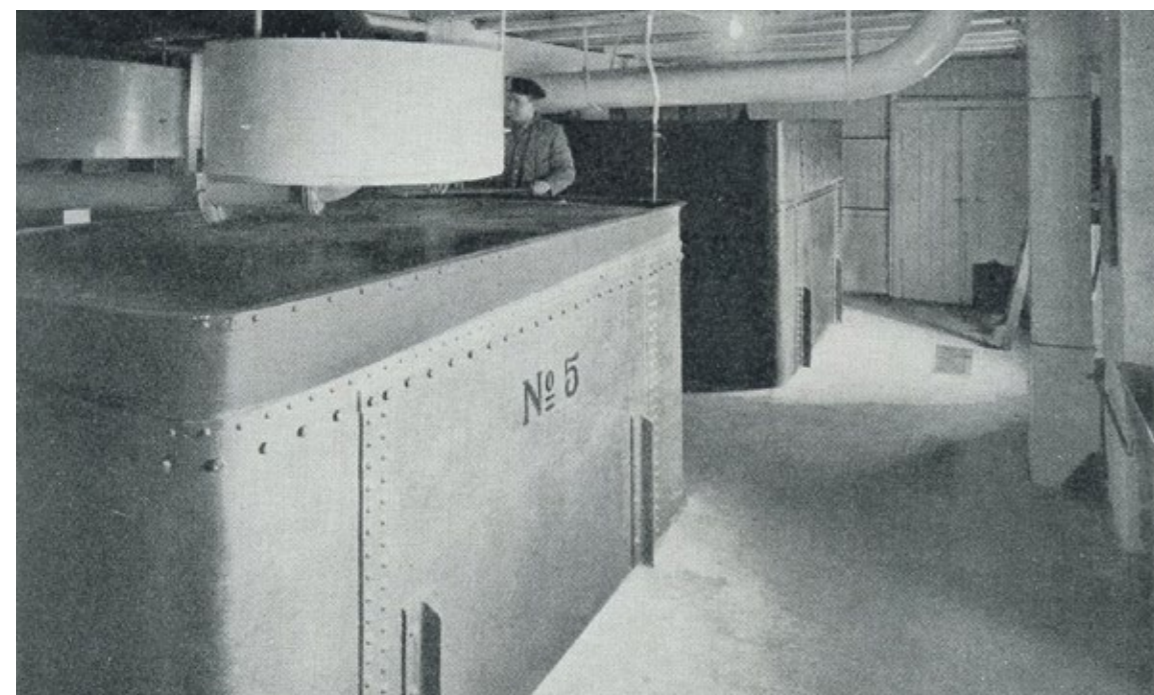
Img. 15 Entrance for raw materials



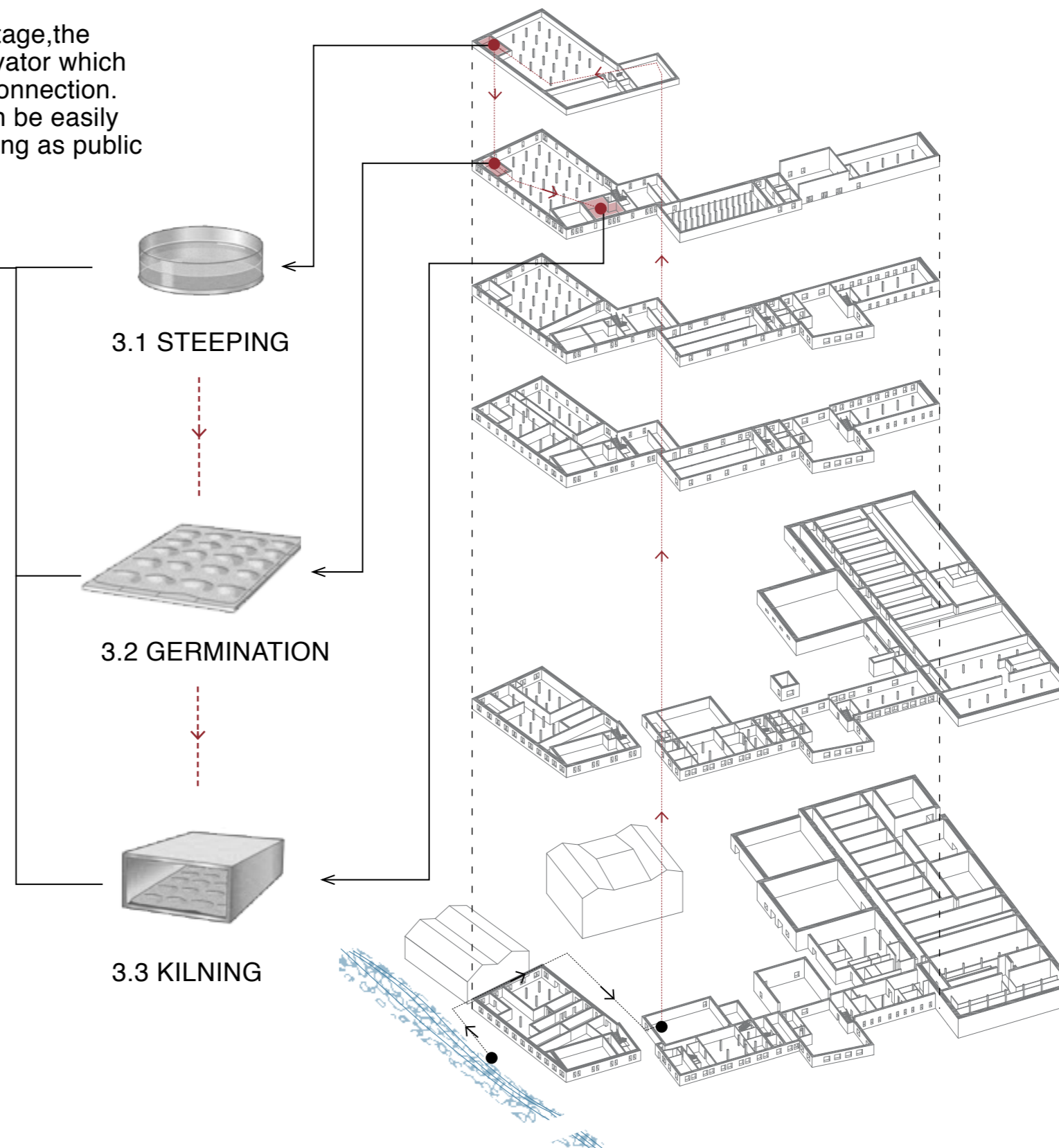
BREWING PROCESS - 2

Stage two happened in the malting house with six floors height. In this stage, the status of beer appeared as solid, and moved around by tailor-made elevator which was in pipe shape. Some space here offered the possibility for vertical connection. For example, the floor in steeping room was made by iron net, which can be easily removed. Also, two floor heights' space for kilning was potential for reusing as public or semi-public space.

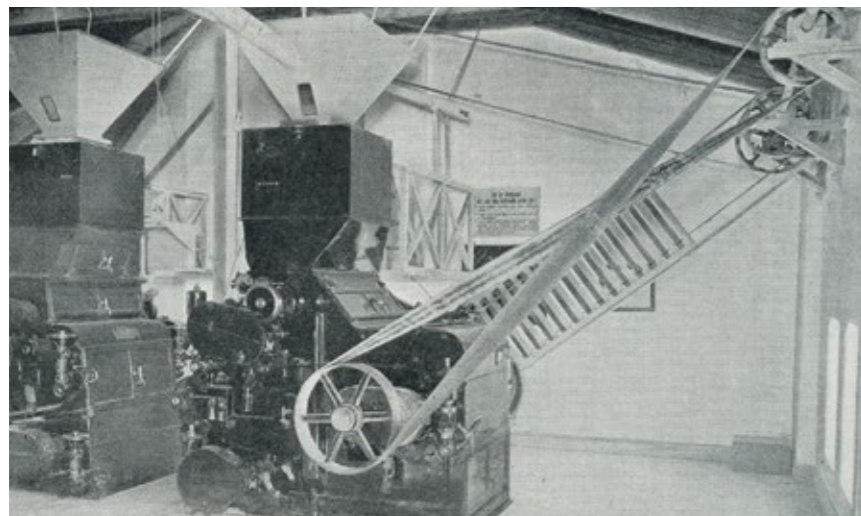
3. MALTING



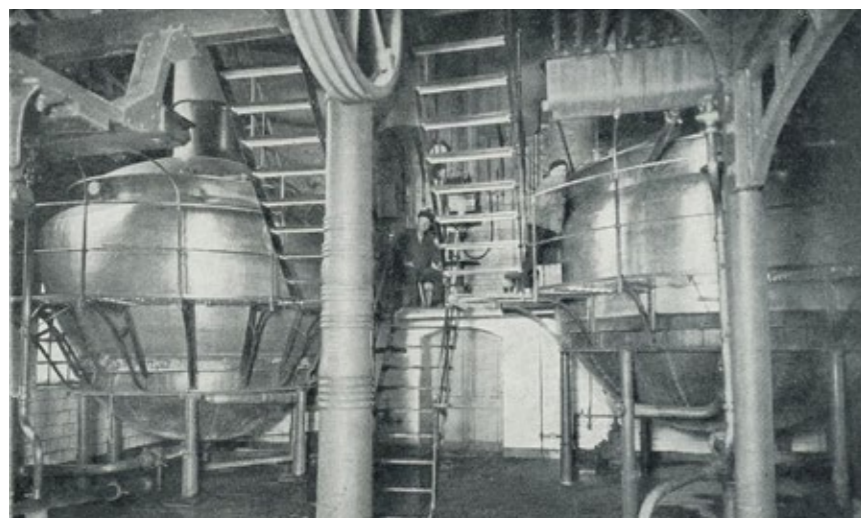
Img. 16 Silos for store the material



BREWING PROCESS - 3



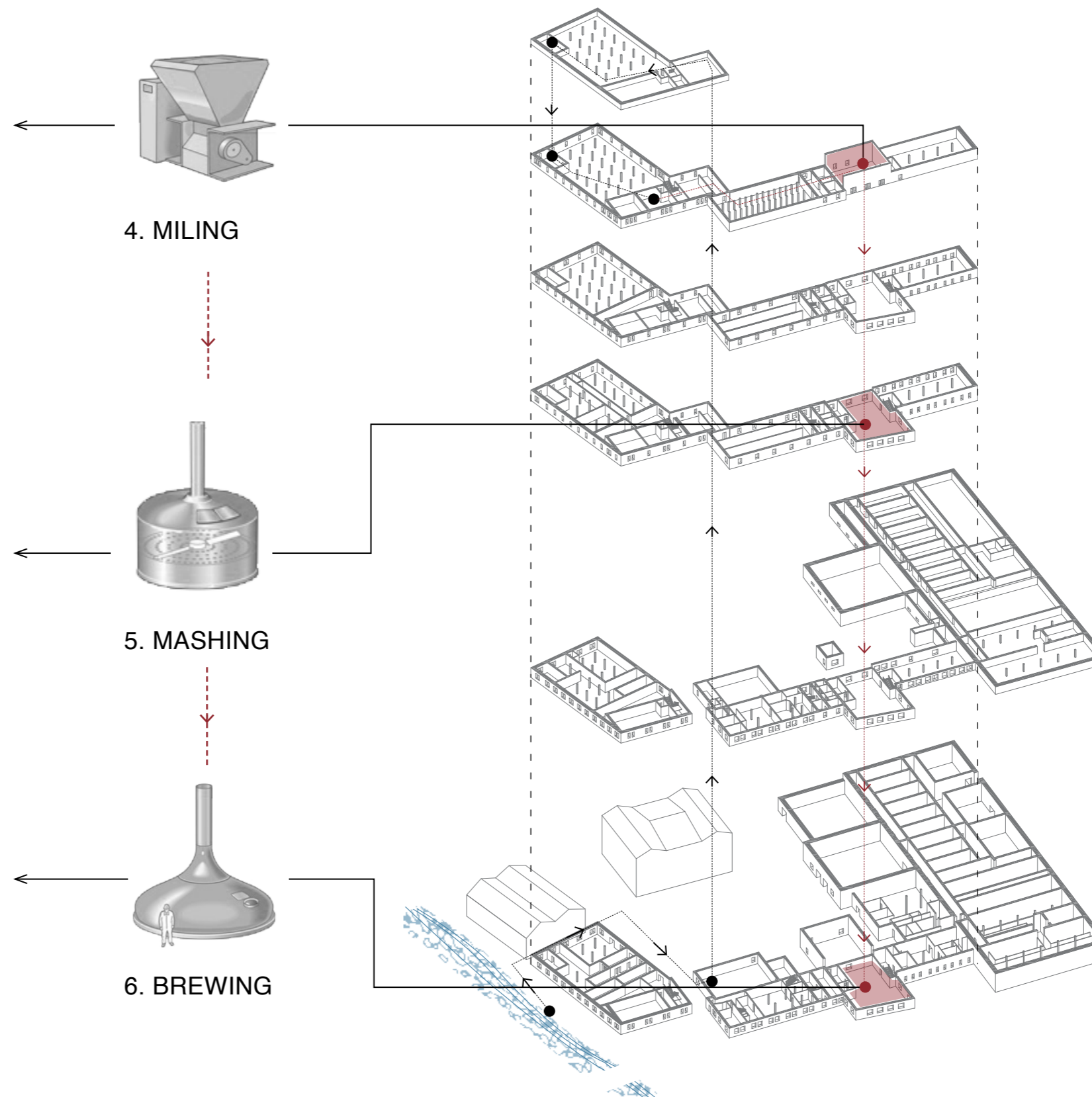
Img. 17 The loft room in the storage building



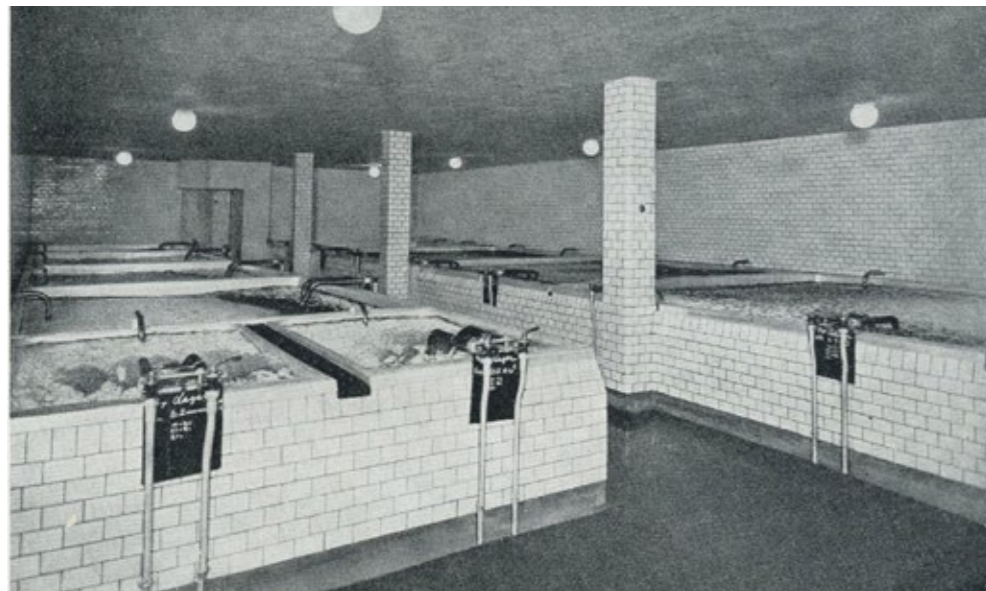
Img. 18 Central room in the brewhouse



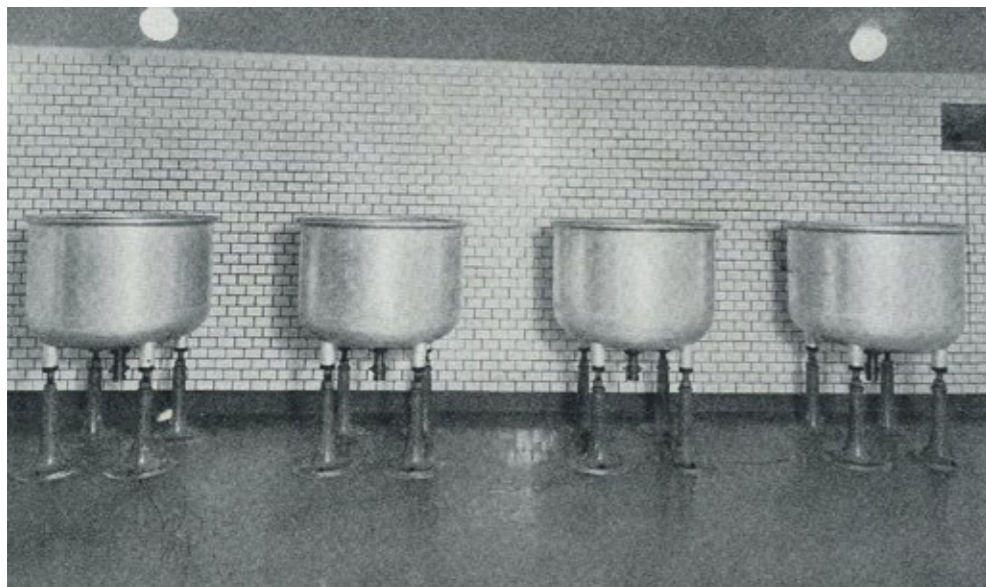
Img. 19 Central room in the brewhouse



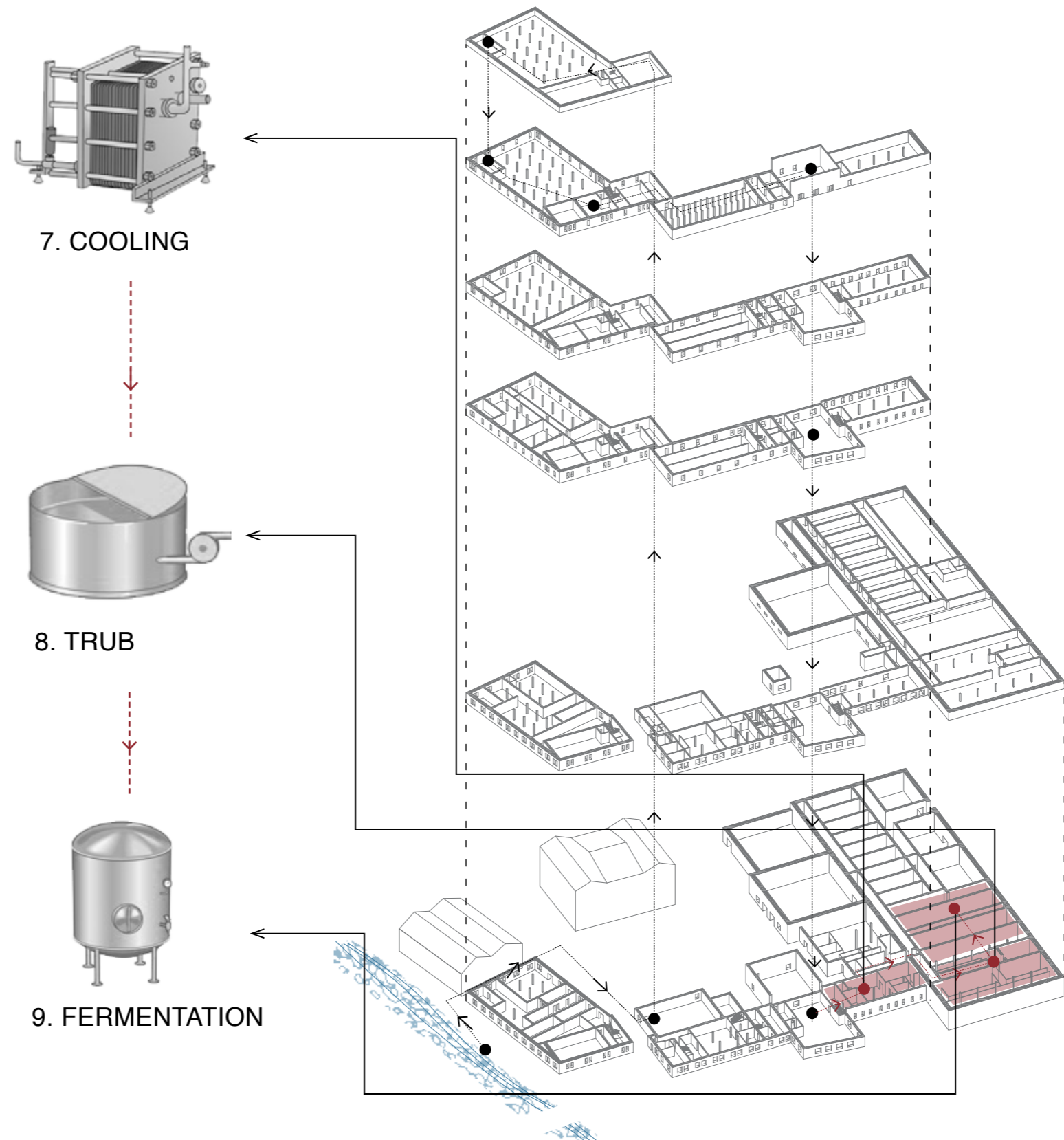
BREWING PROCESS - 4



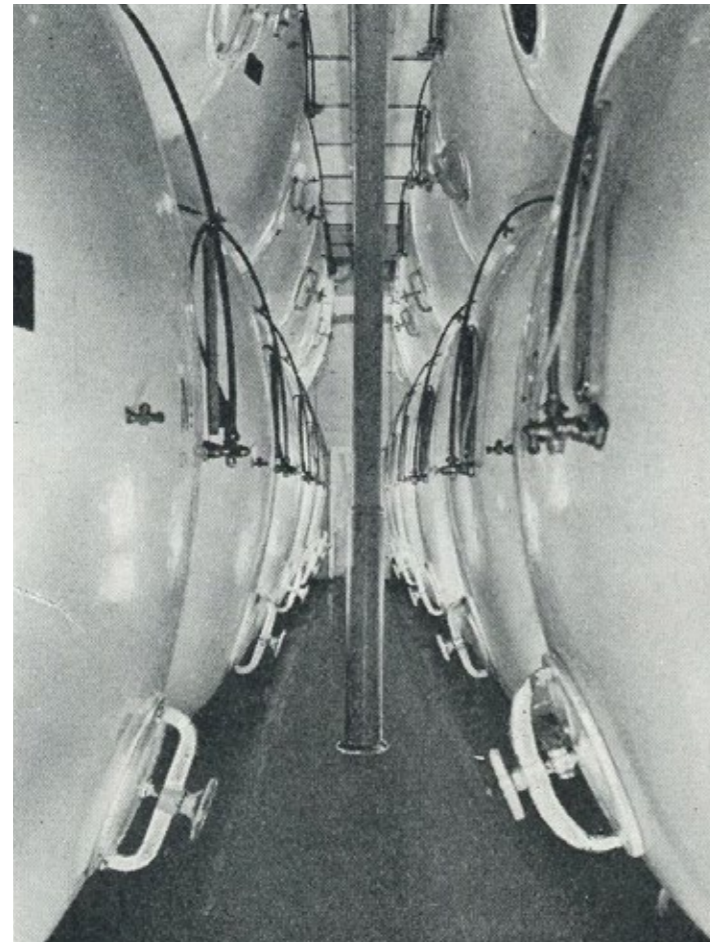
Img. 20 Fermentation pool for beer



Img. 21 Machines for trub use



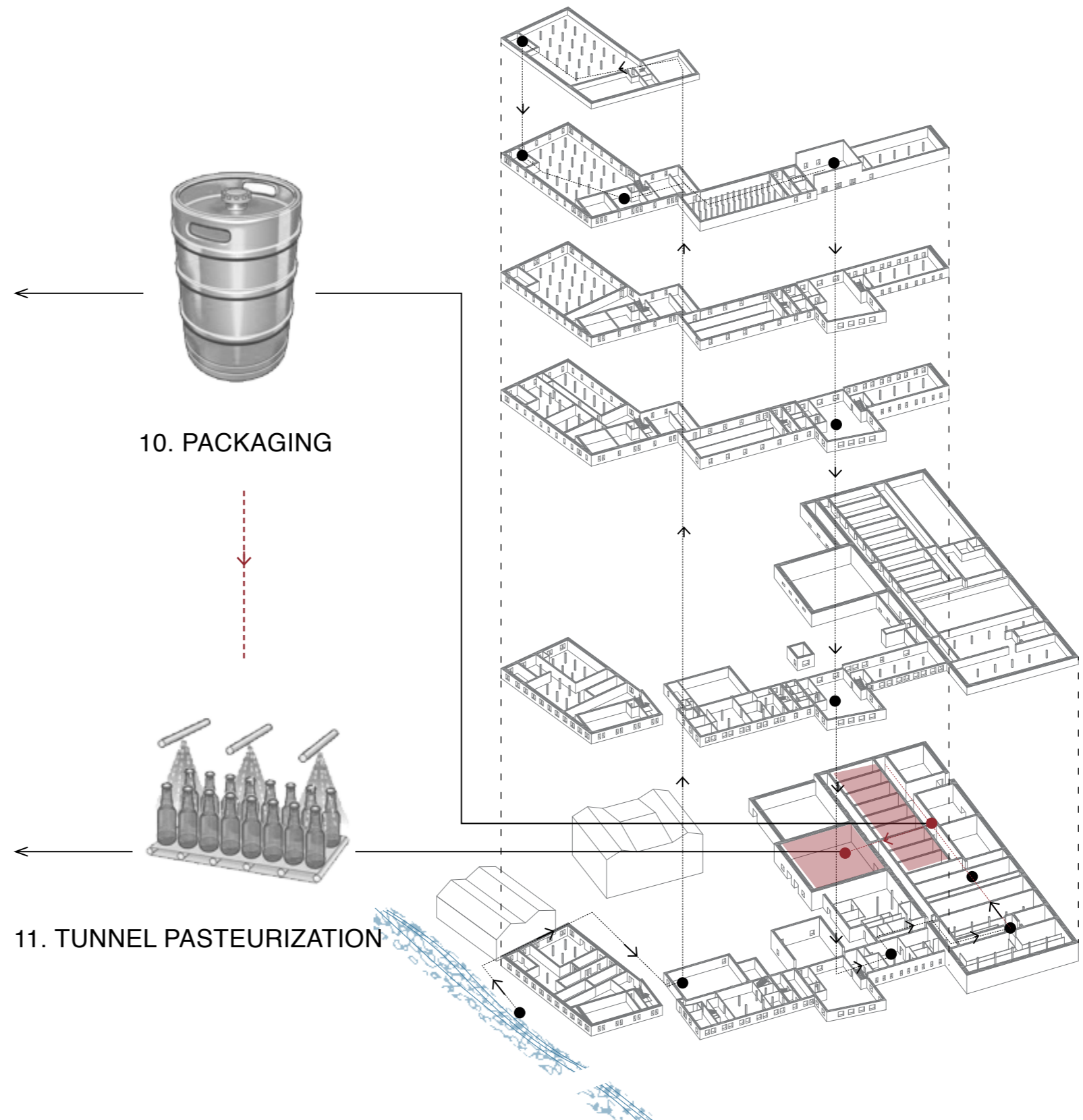
BREWING PROCESS - 5



Img. 22 Tanks for storing beer



Img. 23 Tunnel flow view of pasteurization



BREWING PROCESS - 6

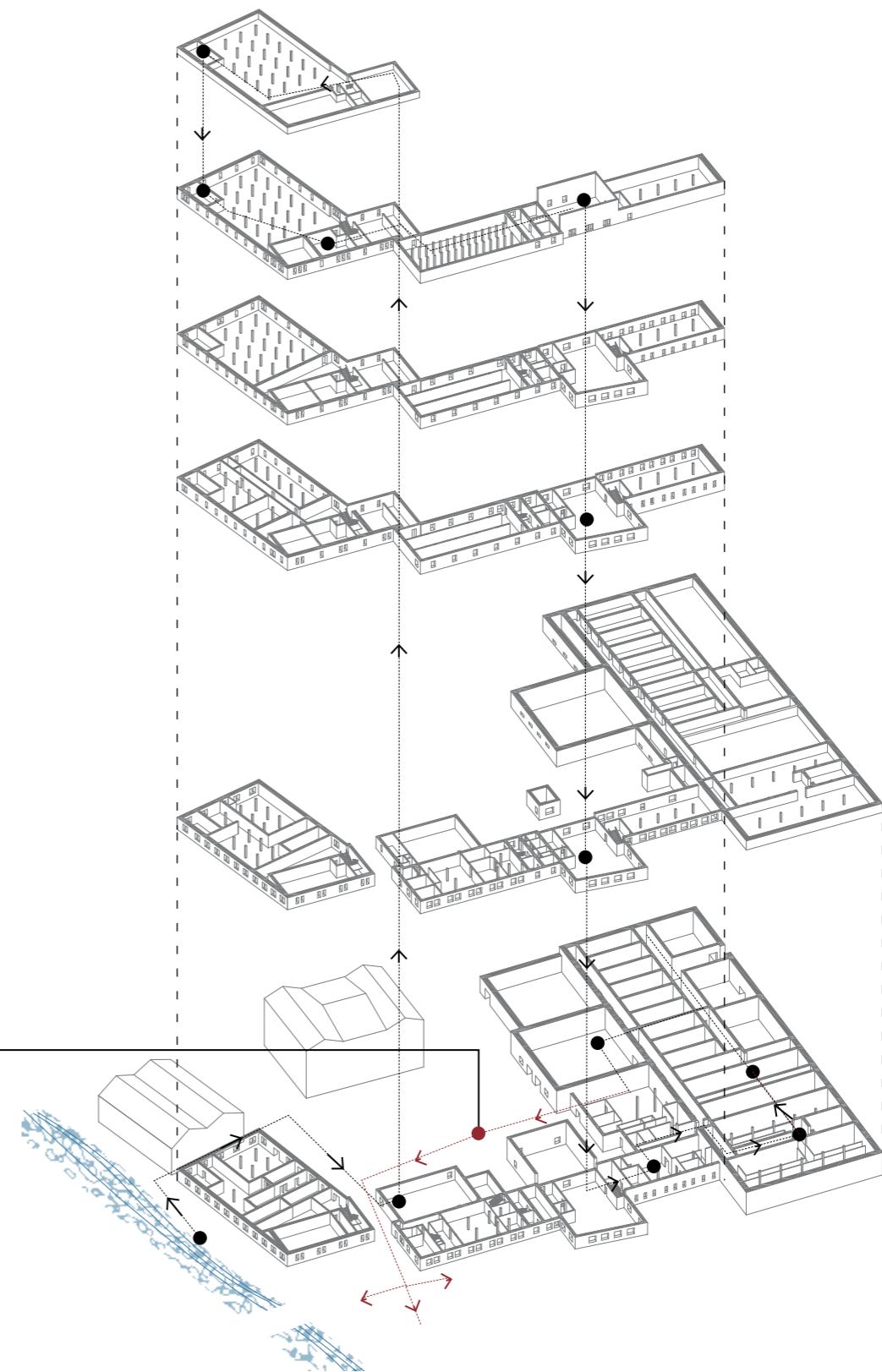


Img. 24 Courtyard view of delivery scene

The last stage was the preparation to deliver the beer out. Tunnel was inserted into the yard to arrange the whole space with gharries waiting beside. This scene shows the memory and value of the yard of Lyckholm in the past.



12. DISTRIBUTION



BREWING PROCESS - Pipe System

The beer pipe system which was existing in the site was the key element for Lyckholms. It seperated everywhere to connect each space for production use. As the vascellum meant to people, the tiny space created a mysterious and interesting world in the building. That is the precious memory, and also an important clew of the original space design for today's reuse.

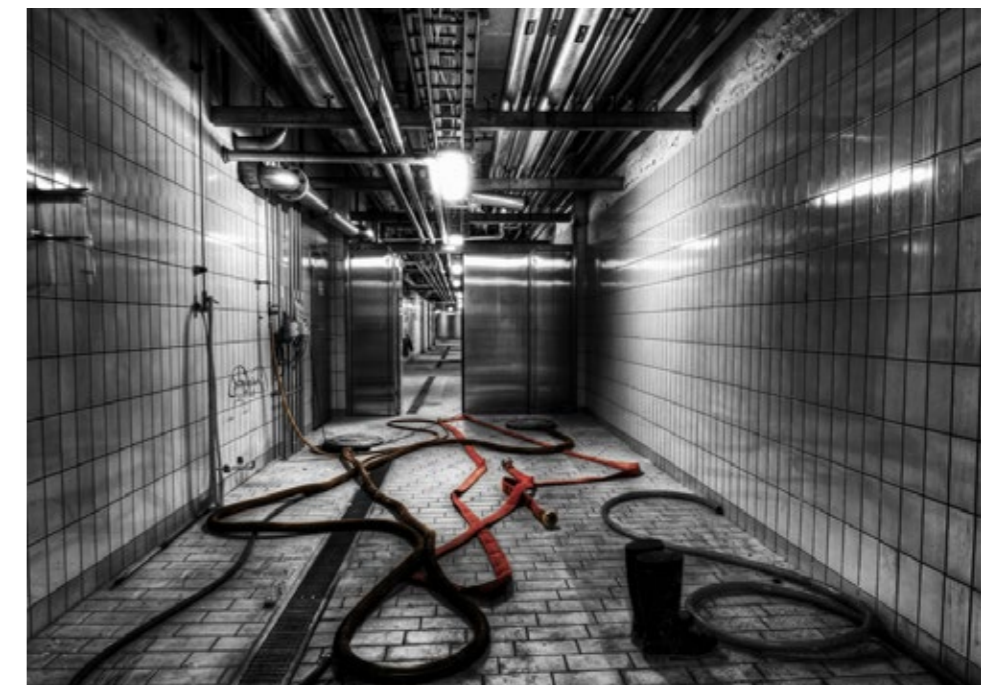
Besides, there is a series of detail designs in different sizes and shapes in this pipe system. The connections with the other space or various ways to connect with the other materials, give the outpourings of inspirations for the redesign.



Beer pipe , Malt house



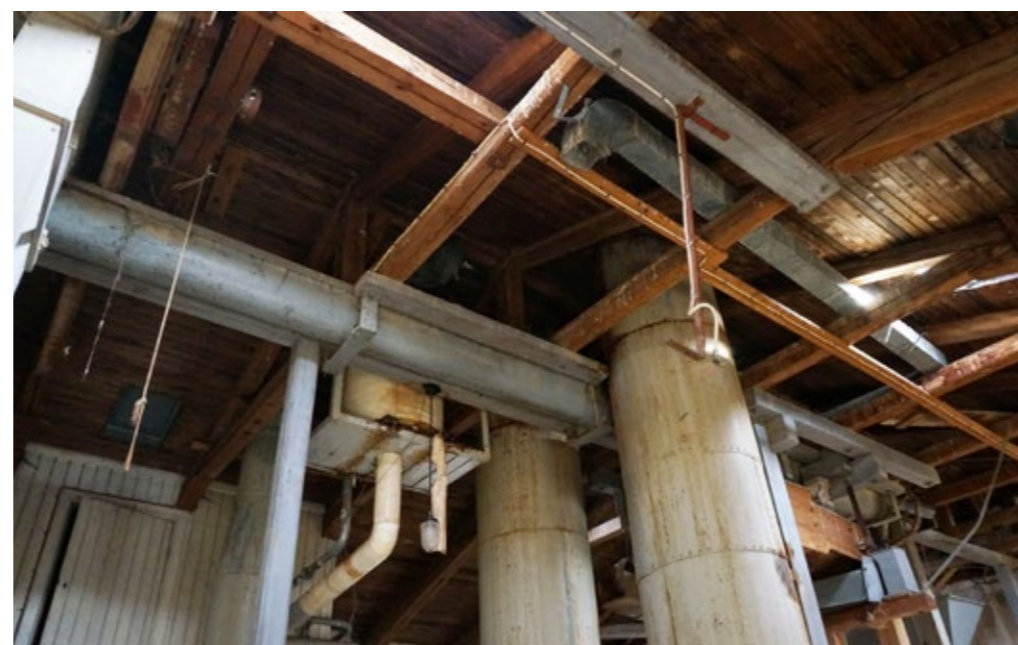
Beer pipe, Fermentation room



Img. 25 Carlsberg Brewery, Denmark



Beer pipe, Storage building



Beer pipe, Brewing house

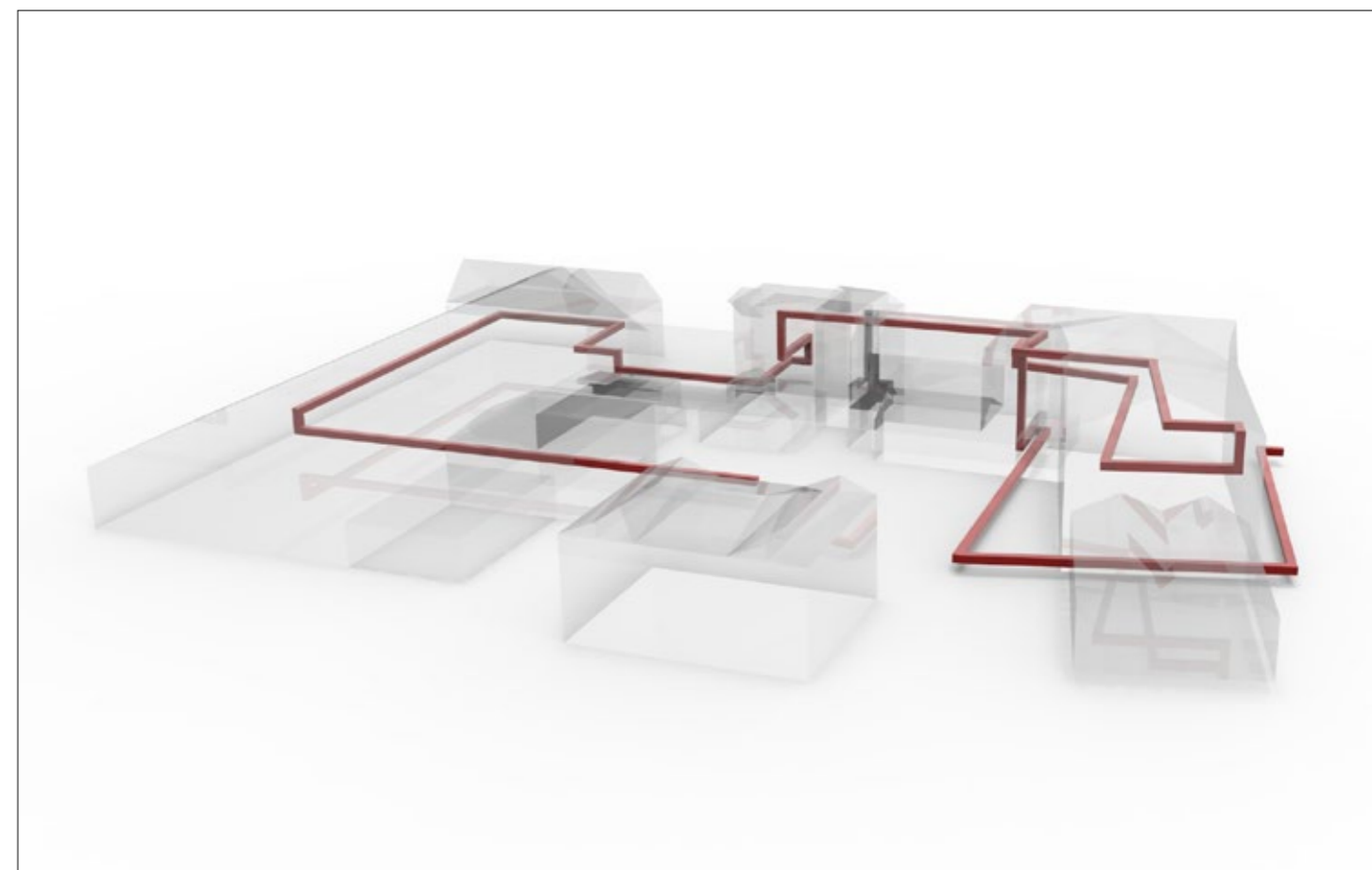
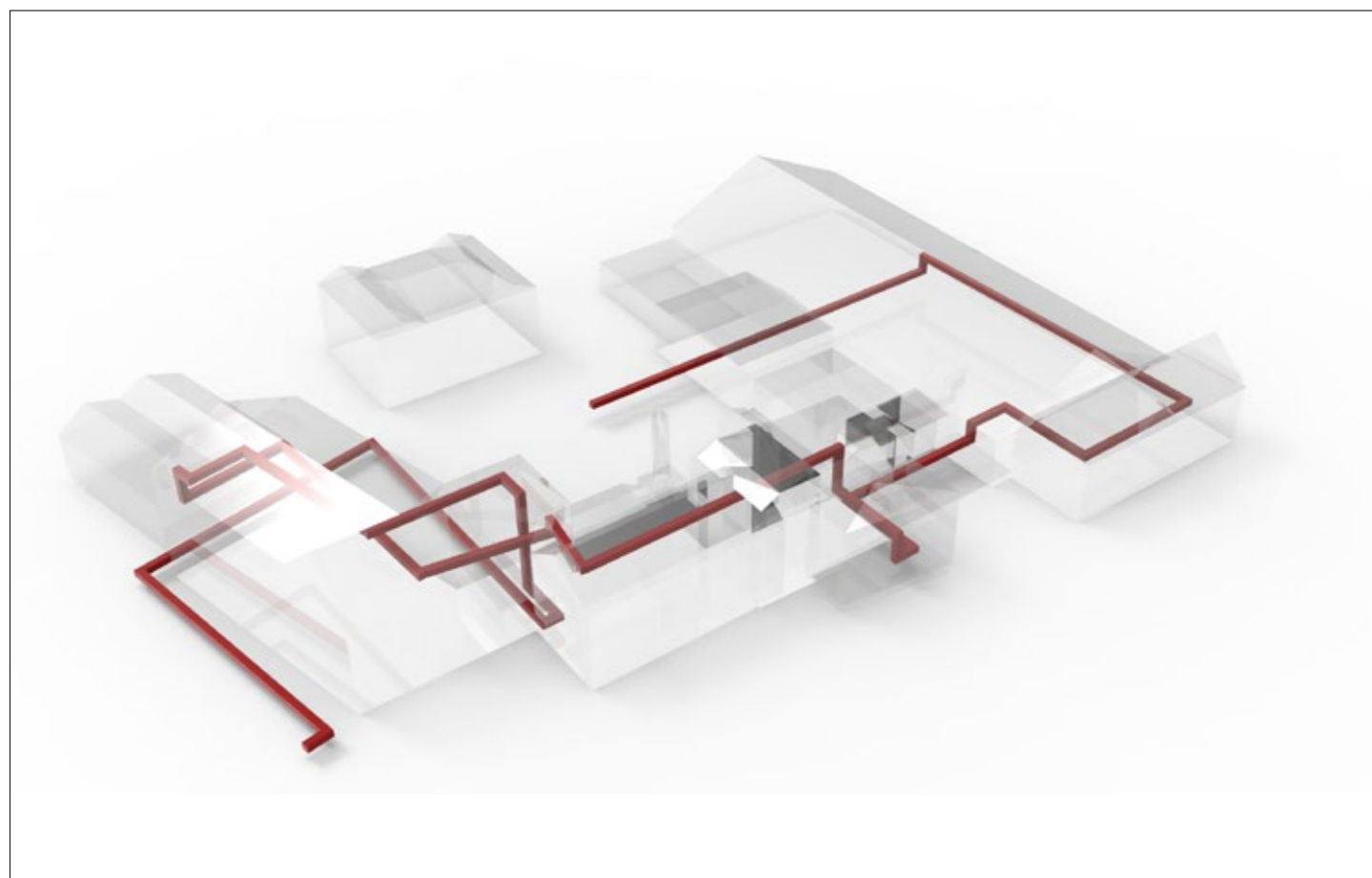
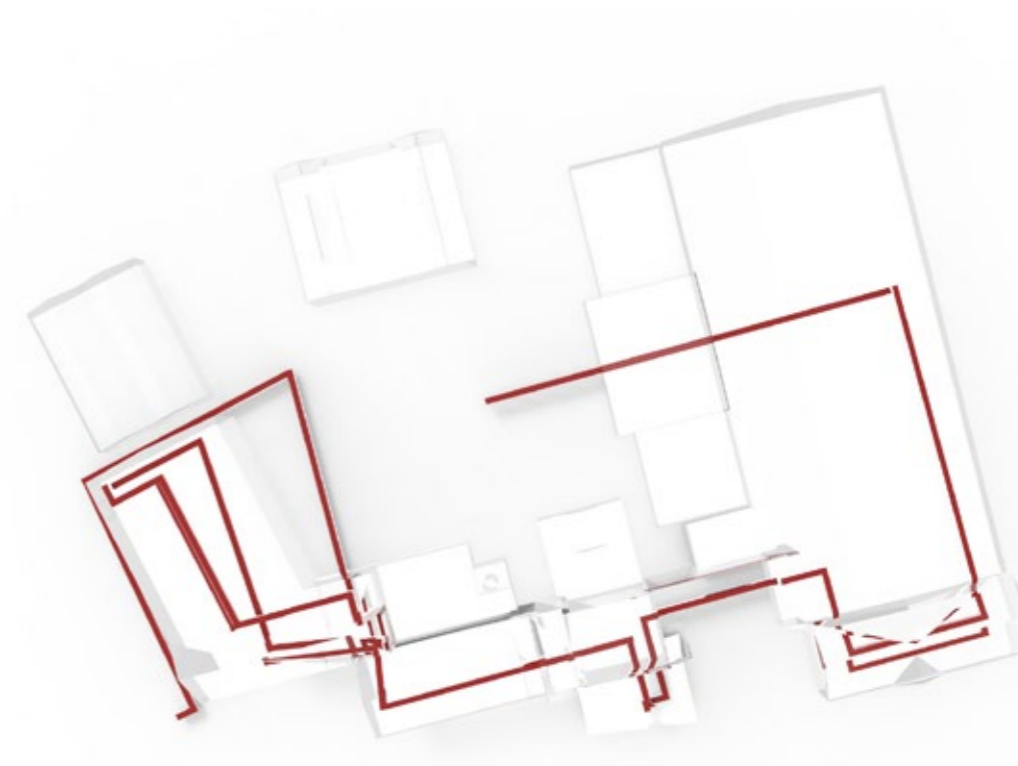


Img. 26 Carlsberg Brewery, Denmark

TRANSFORMATION CONCEPT

The whole brewery was operated together for the system of beer pipe. In another word, these pipes connect each space with different function use together. Whatever malting room or leisure space for workers, they all served for the common goal- producing beer. This should be the unique quality of the Lyckholms. For the reuse consideration, the "route" for beer should be always existing here. and once again, this "route" will connect each space, and rebuilt a new relationship with each other.

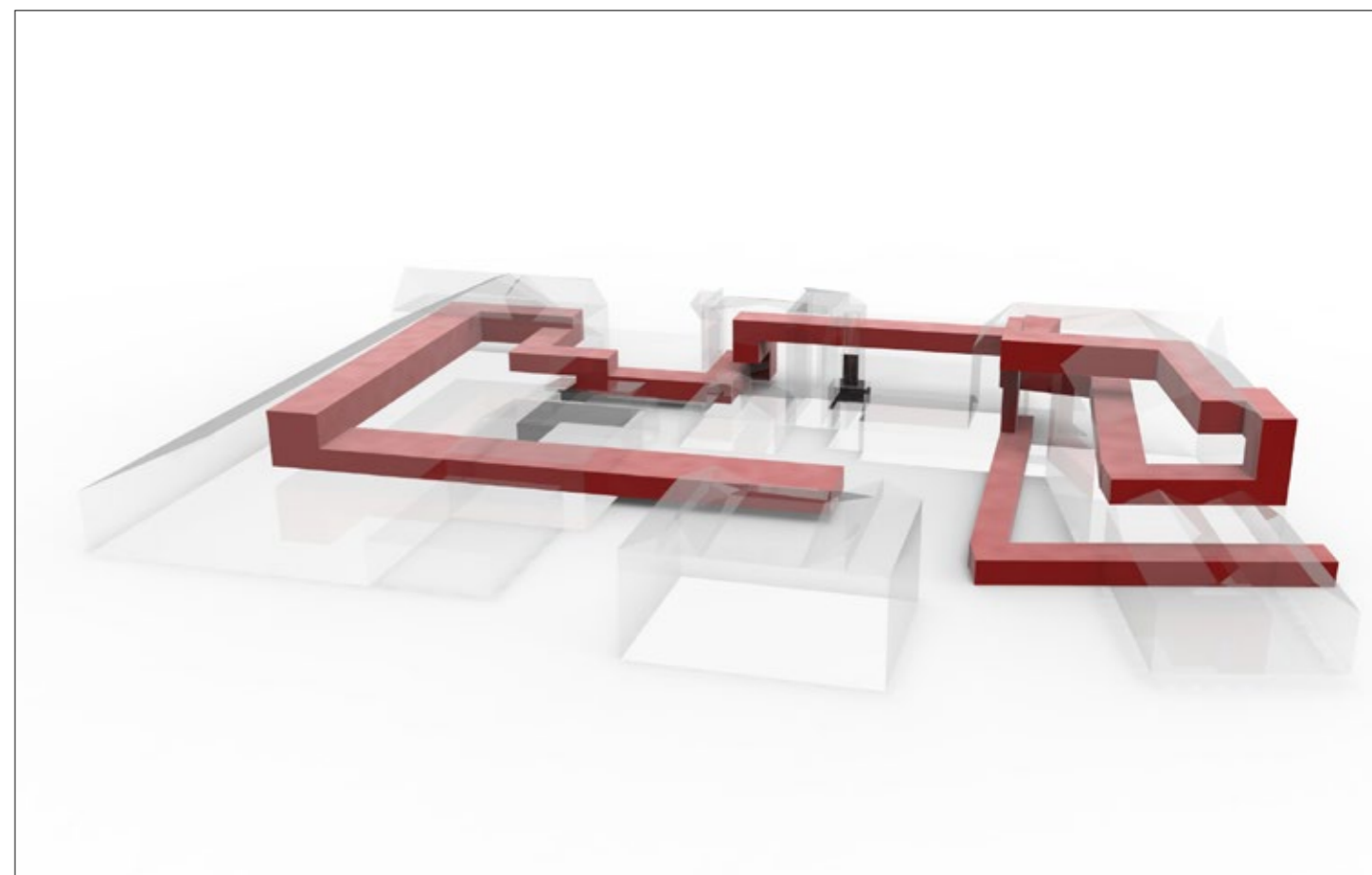
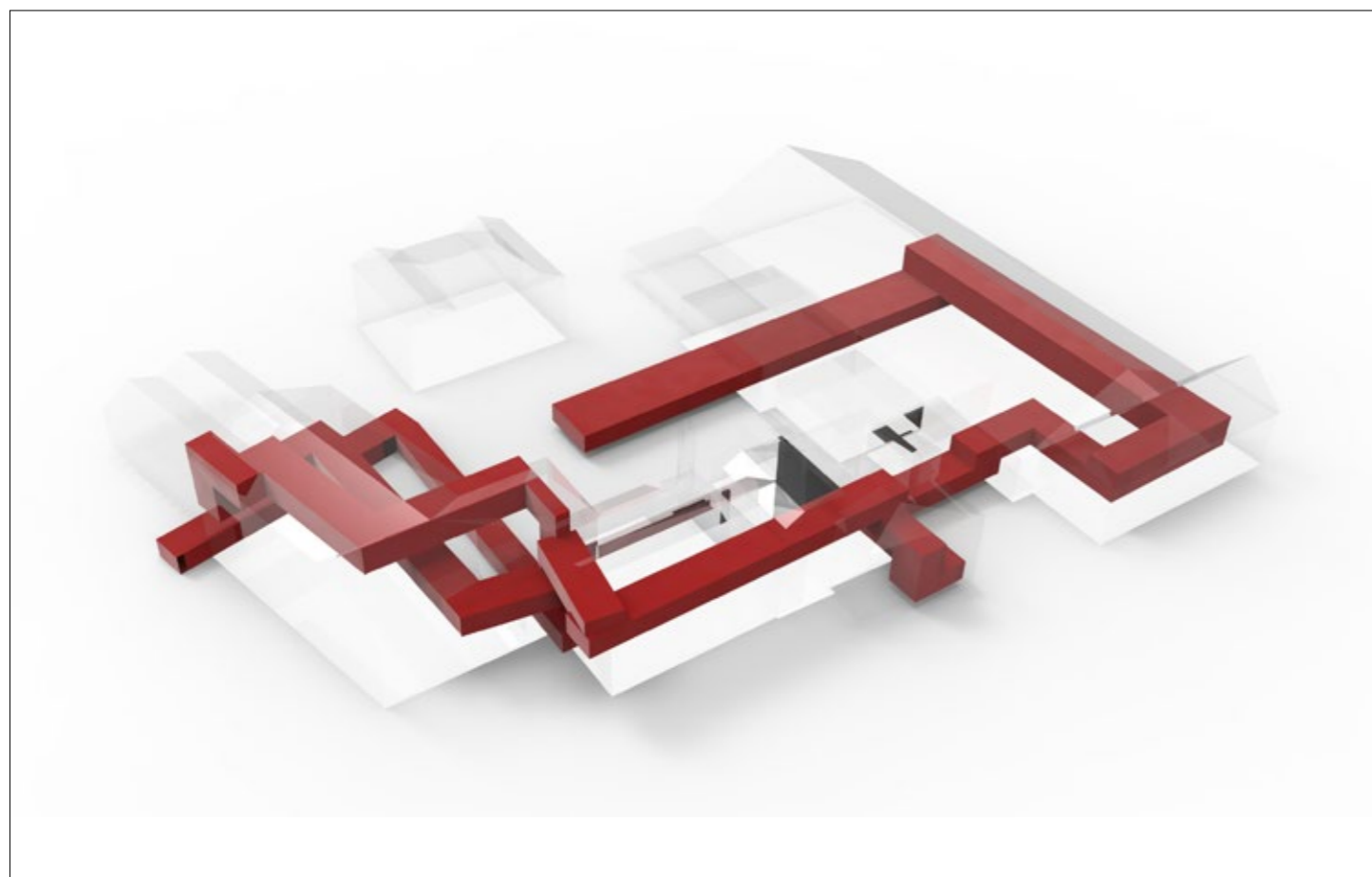
According to each spot of brewing beer, we abstract the whole pipe system into one. Then we enlarge the scale of the beer pipe for human use. We value the production route as the unique characteristic for Lyckholms, and try to keep it in the buildings.



TRANSFORMATION CONCEPT

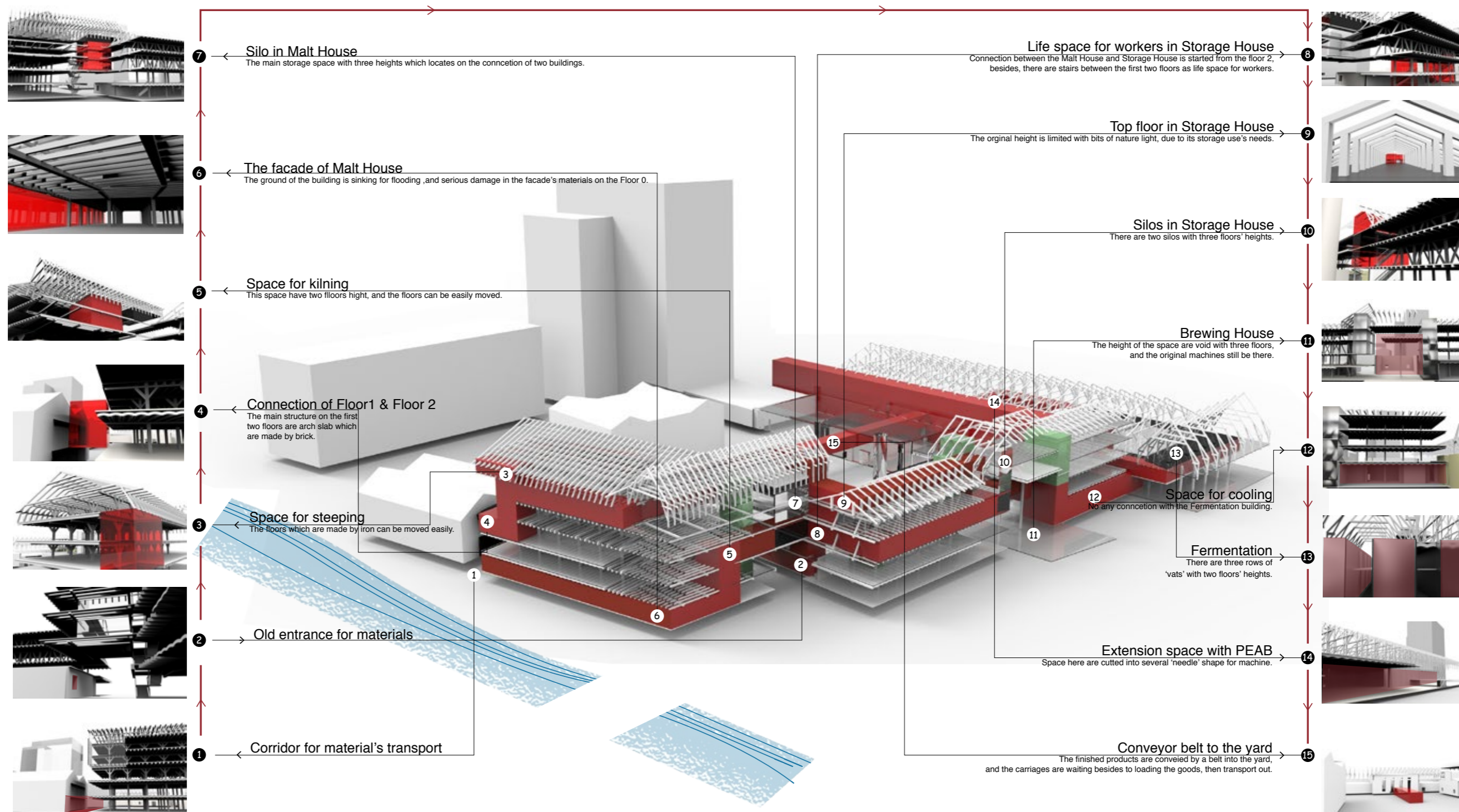
According to our concept, we want to inherit the logic of the building for reuse. By retracing the brewing process and enlarging it to human size, we can unlock the potential brewing process.

This new pipe will be supposed to contain necessary modern building systems such as ventilation, electronic, toilets or circulation elements. The dialectic contrast between the old building and the new "pipe" is depended on scale, structure and what these spaces can be used for--ranging from small scale private offices and lofts, to medium scale. This new pipe will turn for serving the rest of space, and active it as it used to be.



PRACTICAL RULES

- . Retain original part as much as possible
- . Remove less value part for reuse
- . Reconstruct valuable demolished part to shape the layout of whole site

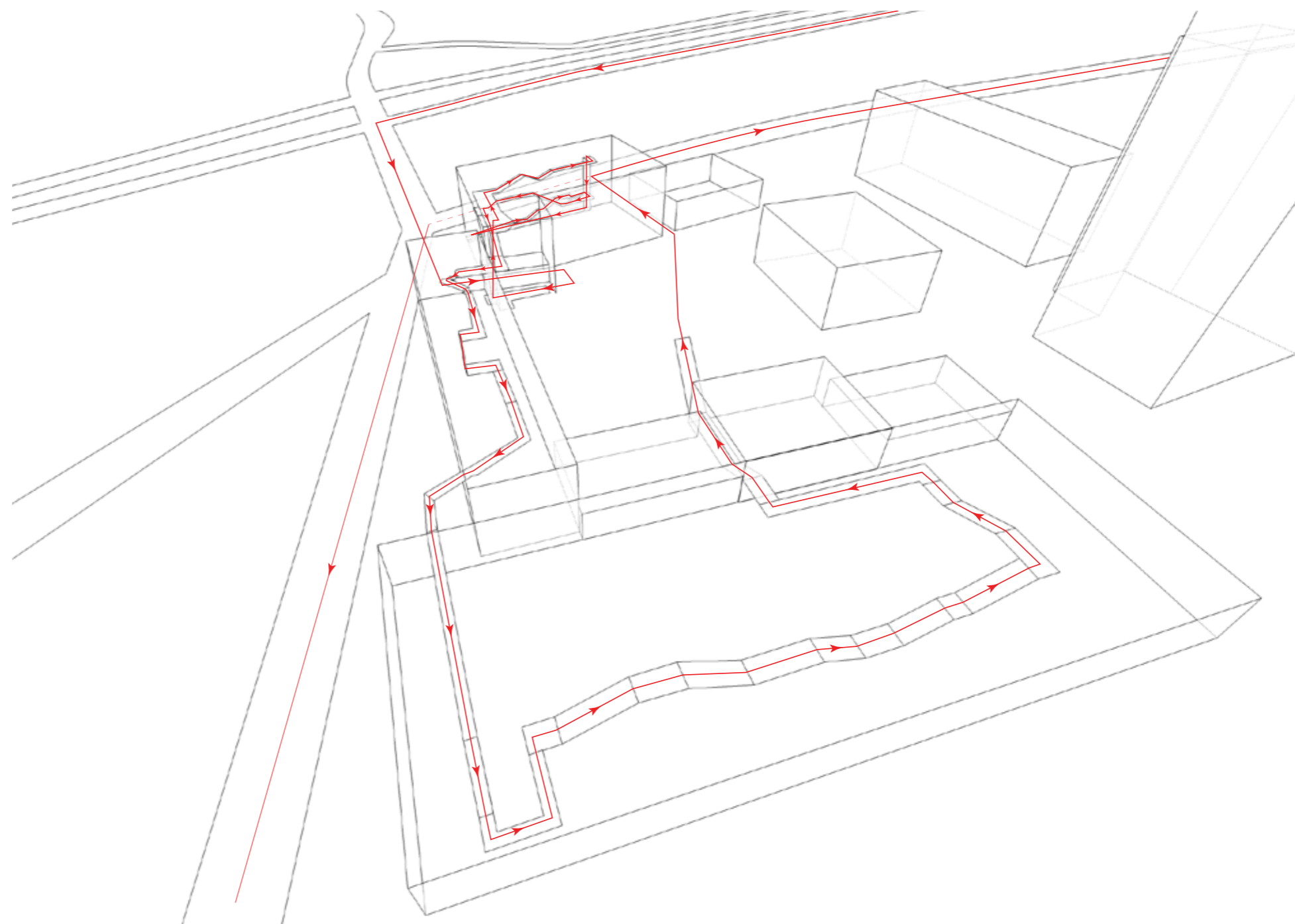


The Potential Possibility of 'New Pipe' in Lyckholms

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CONCEPT PROPOSAL



In the urban scale, the new pipe will respond to the surroundings. We maintain the original traffic system, and keep the new pipe as an option and independent route for the site.

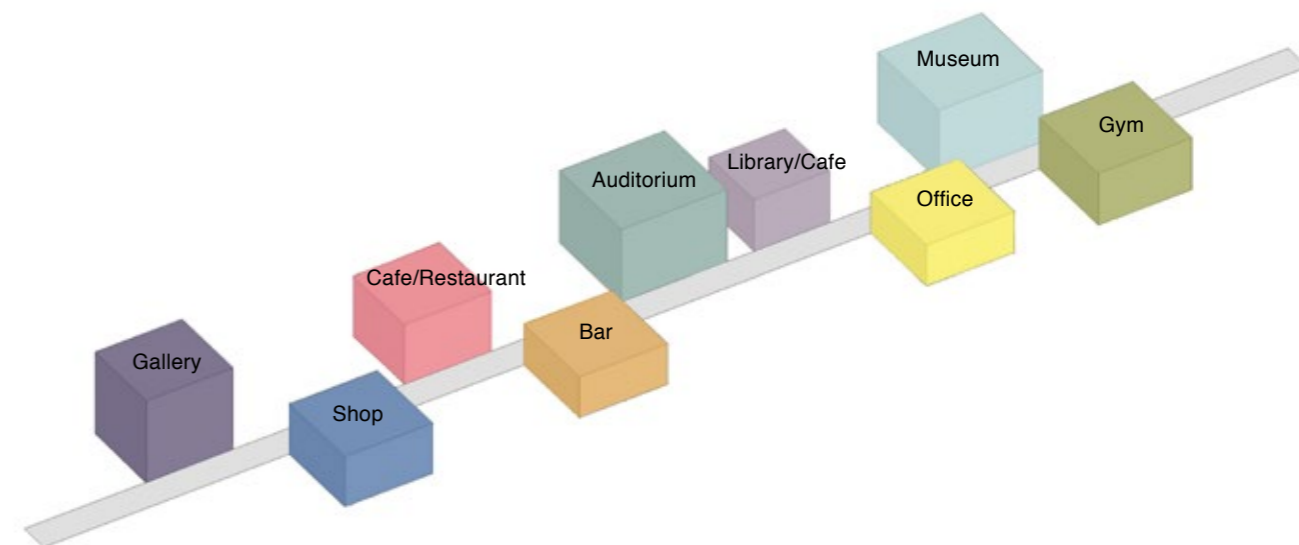
The new pipe will value the old main entrance to go into the yard and the corridor between malt house and stable(which has been tore down), and enhance them. It also has a 3D quality to pass through the whole site in different layout.

FUNCTION DIAGRAM

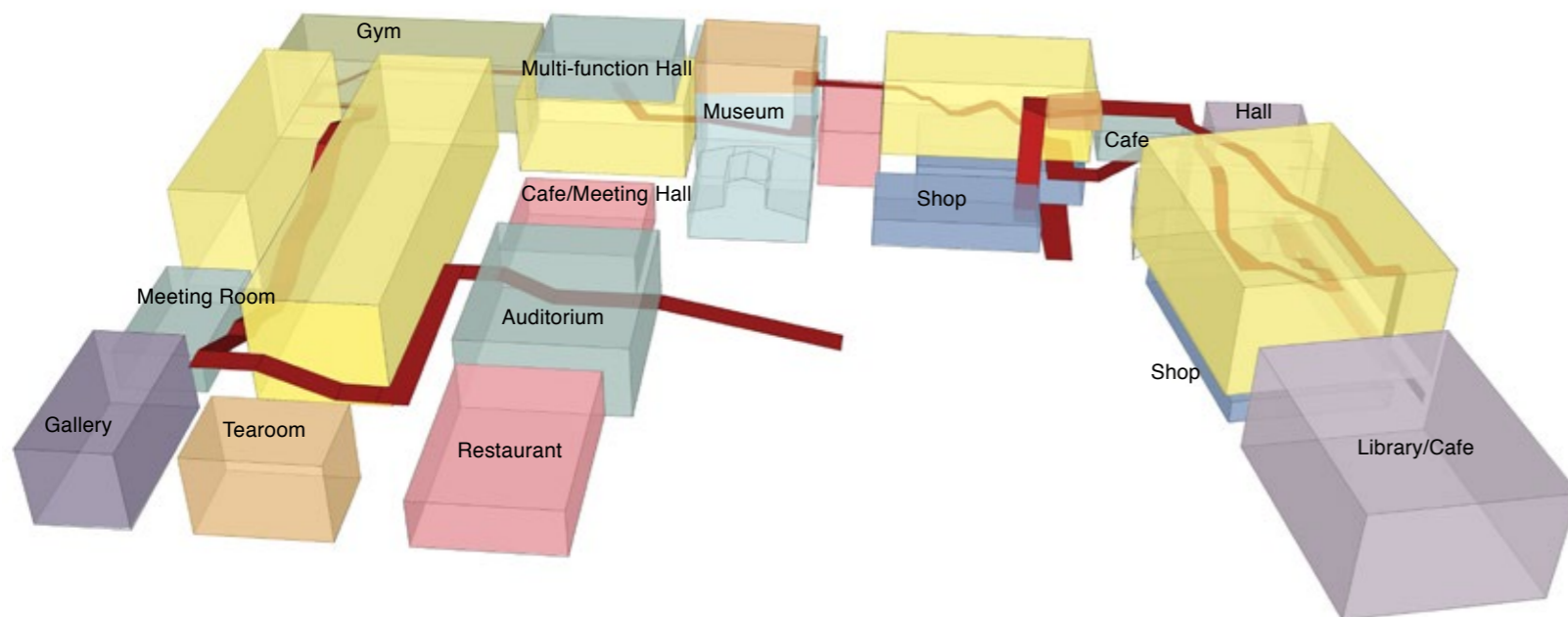
According to the former features of each space, we set several volumes which are suitable to be public space or semi-public.

The new pipe connects each public space like bookstore, gallery or museum together to work like a "street". By this arrangement, it not only can get new encounters and experiences, but also encourage to built up a new cooperant relationships between different tenants or tenants&visitors. And meanwhile, the original traffic system will be improved to form an independent way which can be always existing in the site.

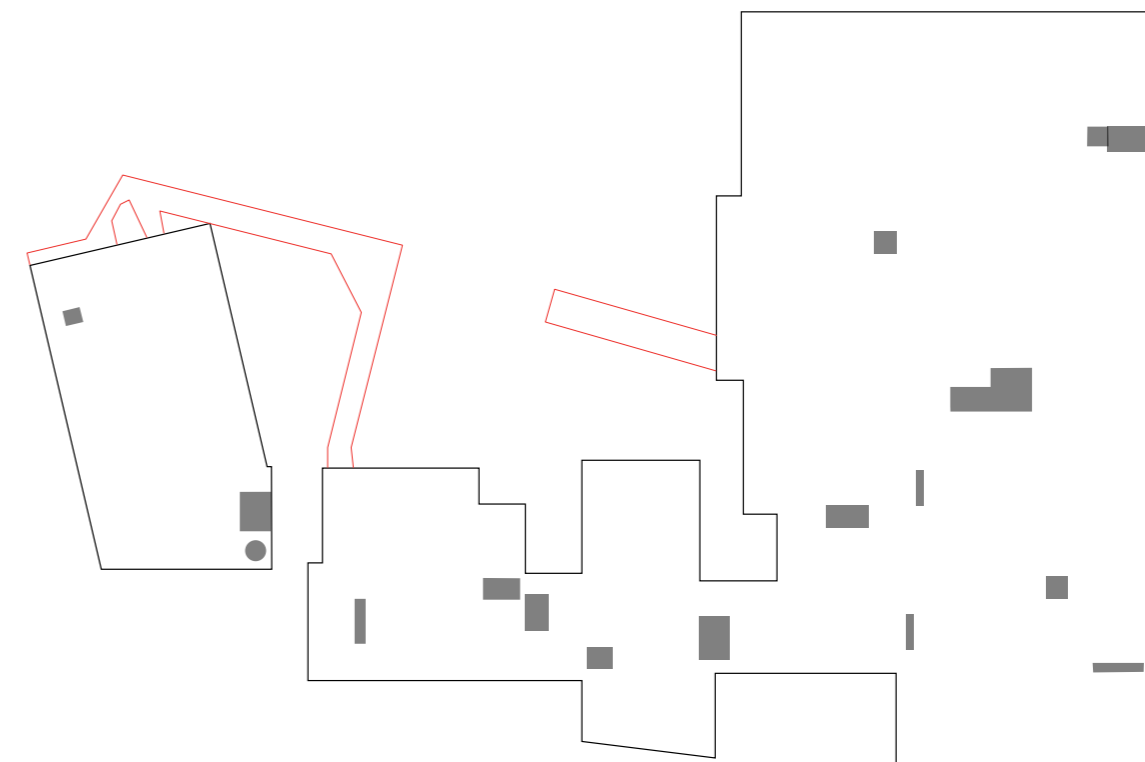
Therefore, new possibilities will continuously occur in the Lyckholms, and then continue to spread into urban surroundings.



FUNCTION LAYOUTS IN THE URBAN AREA



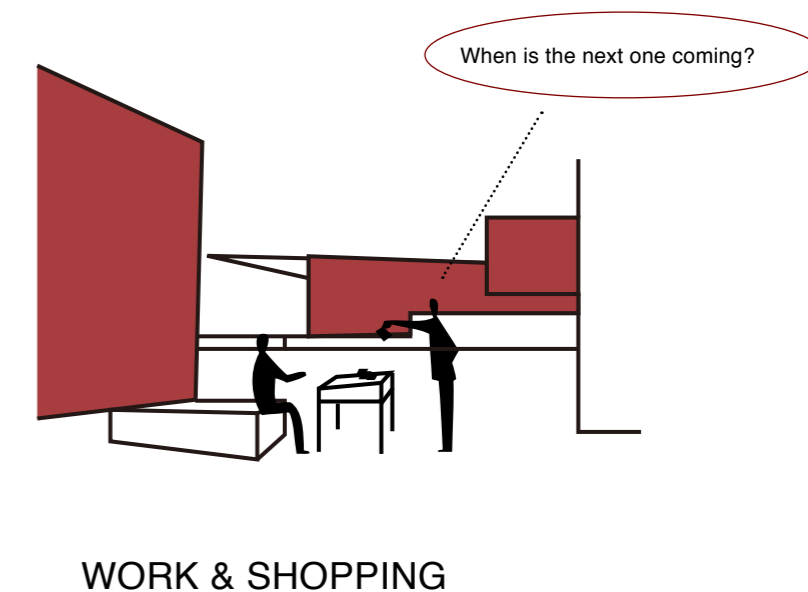
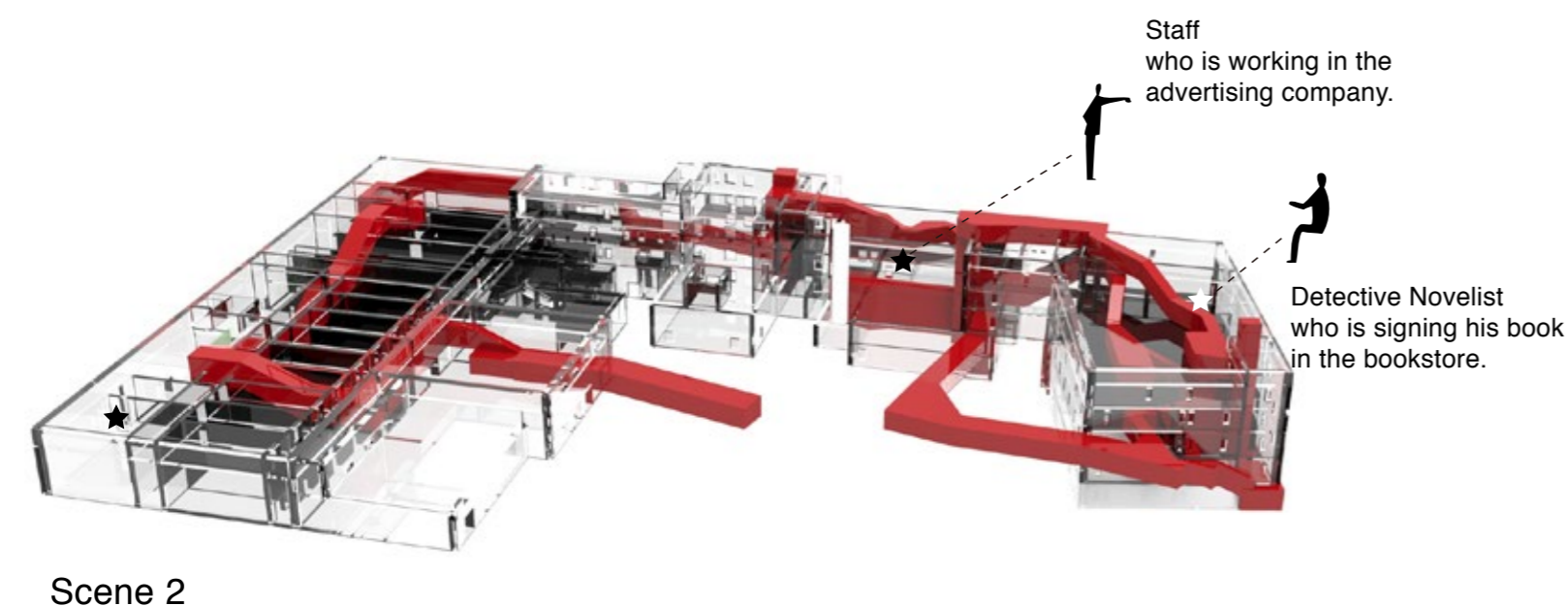
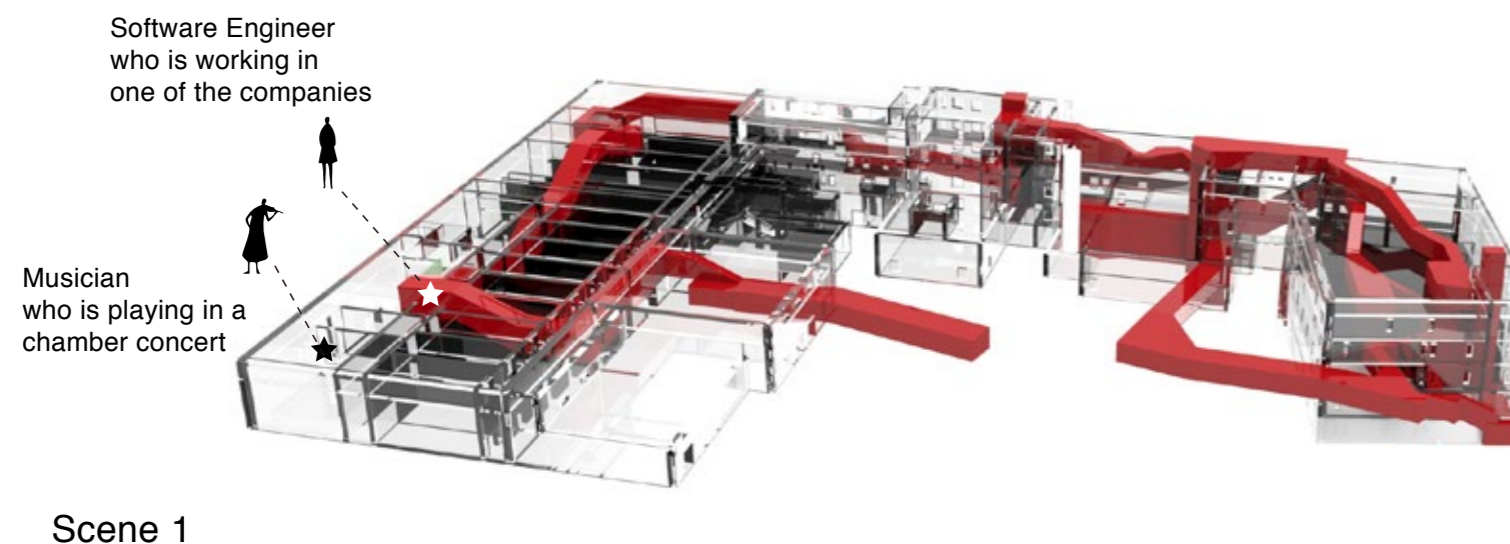
TOGETHER WITH DIFFERENT FUNCTIONAL VOLUMES AND NEW ROUTE



TRAFFIC CORES OUTSIDE THE NEW PIPE

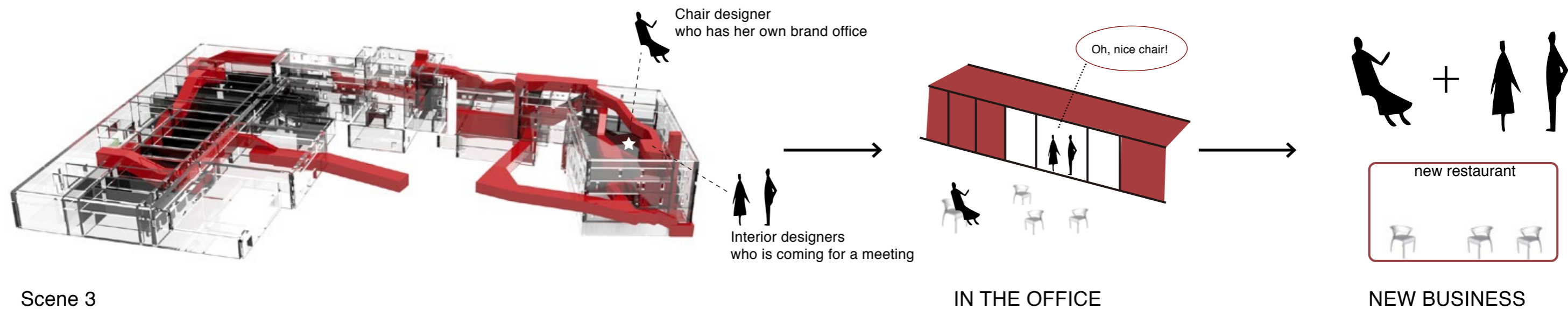
ACTIVIES DIAGRAM-TENANT

In recent years, communication and cooperation across different fields become more and more common. Furthermore, working time is continually blurred, it is difficult to define the boundary between work and life. The new pipe spread the whole site both in XYZ axis. It links not only all of the public volumes, such as library, shops, museum or bar in different height level, but also all the office space. That means it is possible to import more states while working. You can easily encounter various activities during the working time, and inspire more passions also improve the work efficiency.

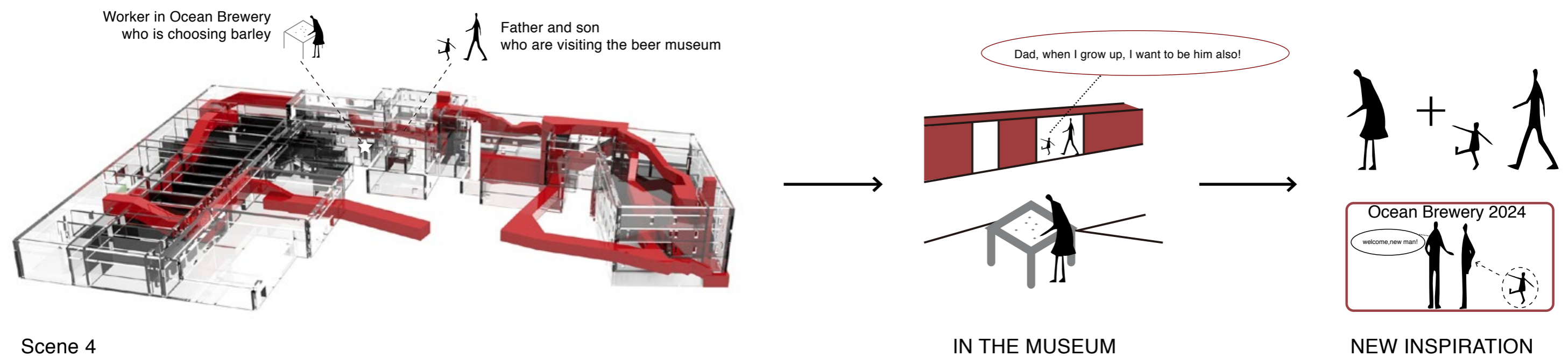


ACTIVIES DIAGRAM- VISITOR

Because a series of public space spread in every corner, this form of arrangement encourages deep communication between different fields. Besides, the new pipe starts on the ground floor and get connctted with the surroundings. People can freely wander in the pipe, and meanwhile, choose some place they love to stay. Therefore, the mysterious and solid interior of Lyckholms have a chance to show it off.

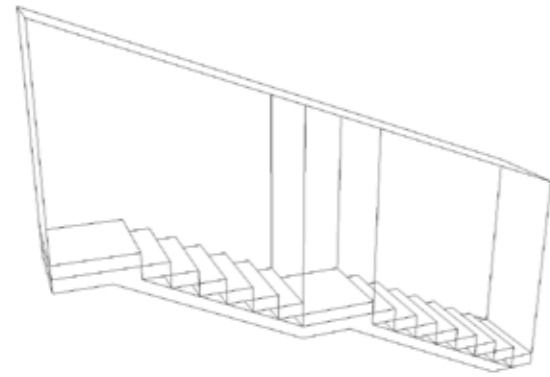


Scene 3

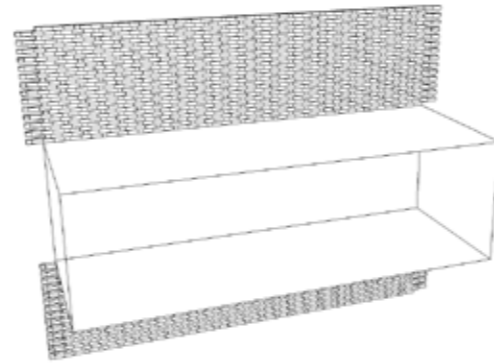


Scene 4

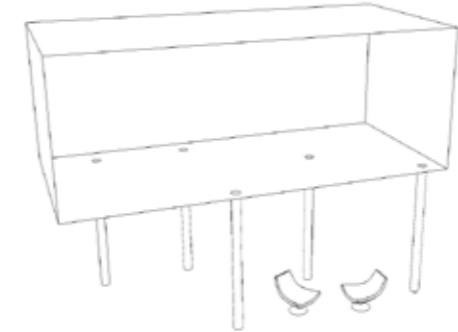
FUNCTION DIAGRAM



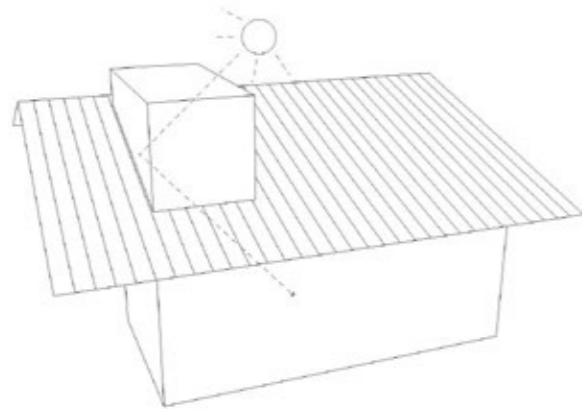
● CONNCETION



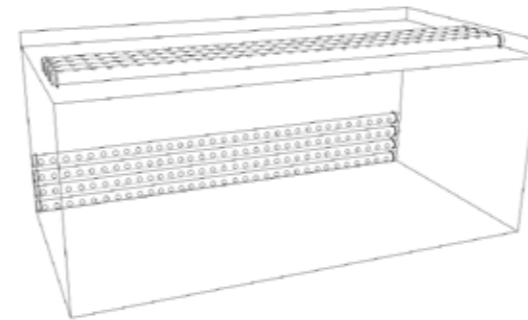
● REPLACE



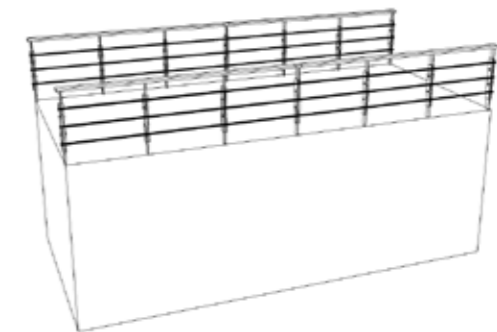
● DIVIDE SPACE



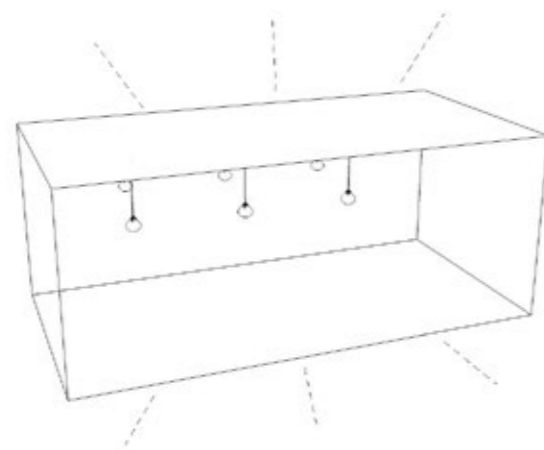
● SUN LIGHT



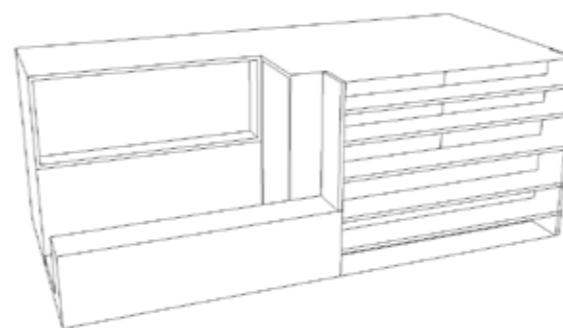
● MODERN SYSTEM



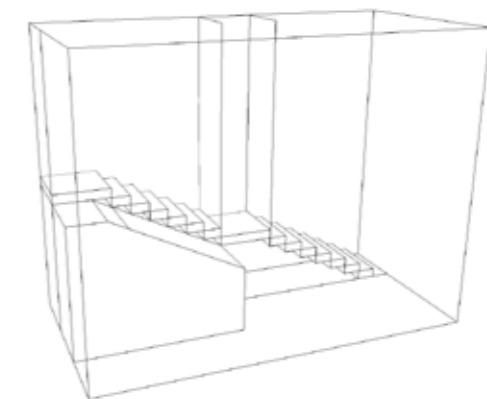
● BRIDGE



● ARTIFICIAL LIGHT



● FURNITURE



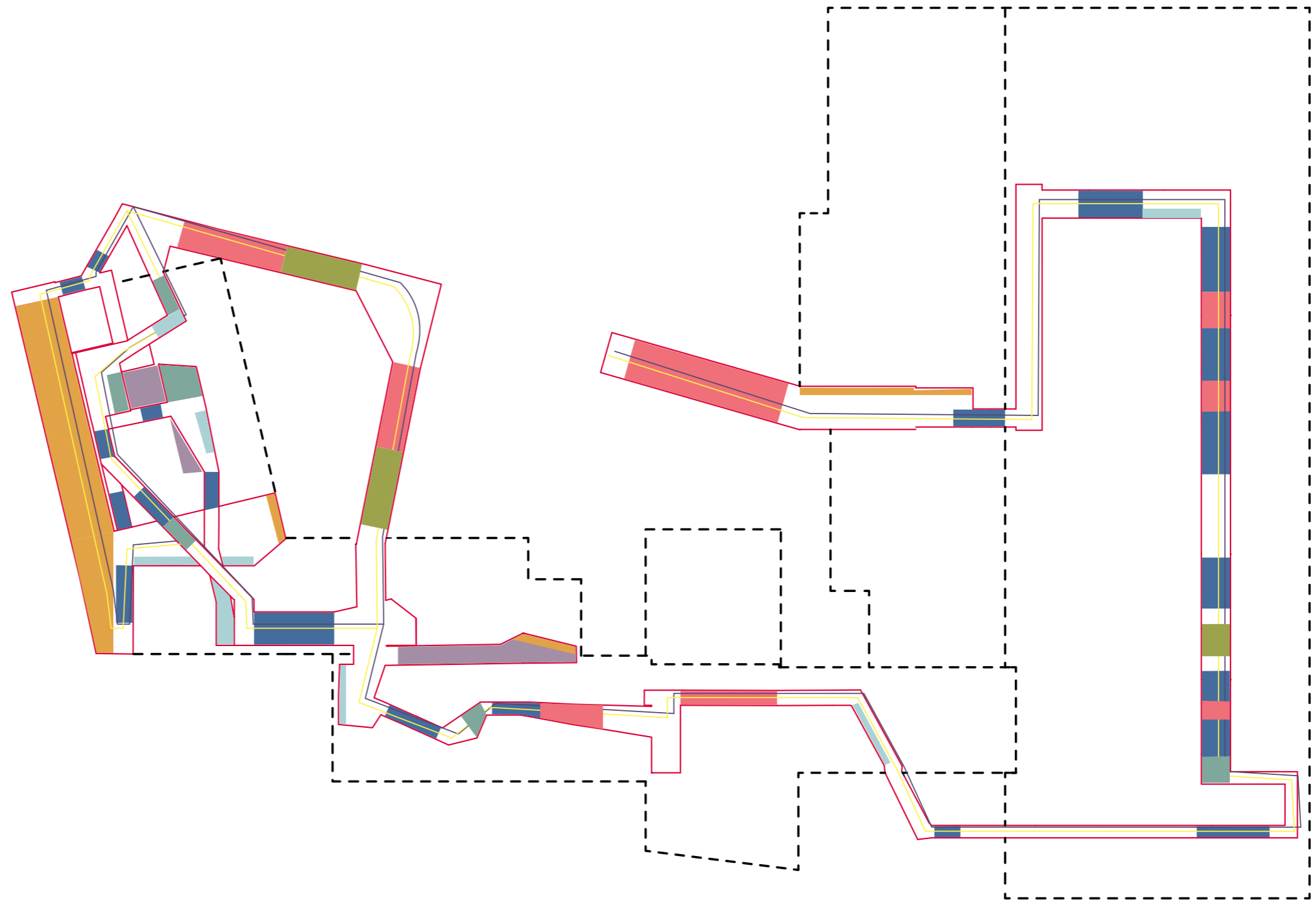
● PRIVATE SPACE

FUNCTION DIAGRAM

The new pipe can be changed in different ways for various use. Except always containing modern system, such as ventilation, heating or electricity, and artificial light by the glass facade, other types are separated along the whole route for it's specific use.

It creates void space to invite nature light, and also offer different qualities of space to specific occasion.

If the beer pipe was served by neighbouring space, the new pipe overturns its role to serve other space for modern life.



DISTRIBUTING TYPE OF NEW PIPE MAP

STRUCTURE DIAGRAM



STANDARD UNIT

The unite of pipe structure composed several I steel beams. Basically, it works as indenpendent structure, which holds its weight by itself. For some parts, it has to attach the wall to share the pressure.

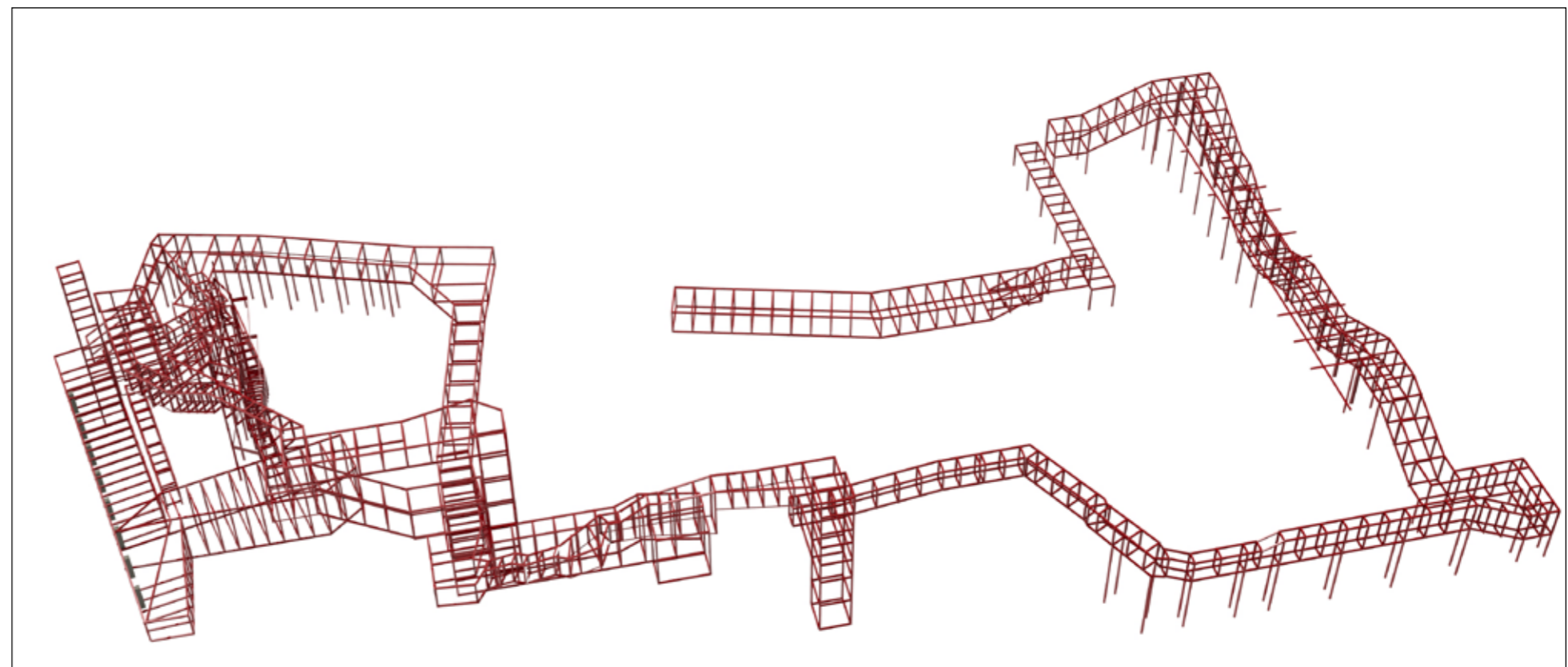
Besides, the original foundation of buildings needs to be enhanced. And for resisting sinking issue, new additional construction pieces need to be setteled.



VIEW TOWARDS TO MALT HOUSE



VIEW TOWARDS TO FERMENTATION ROOM



AERIAL VIEW OF WHOLE NEW PIPE

STRUCTURE DIAGRAM

The new pipe mainly use three ordinary material which is widely used in the modern architecture.

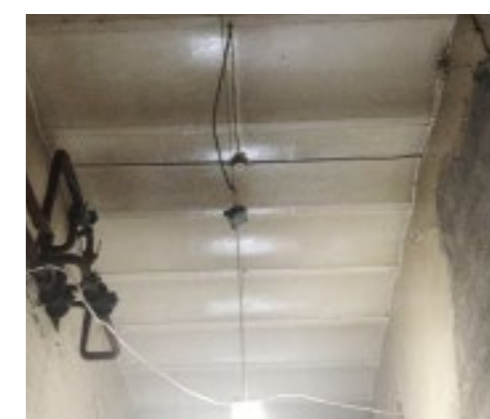
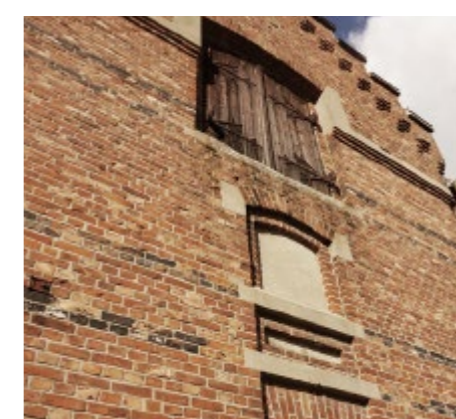
Steel structure, glass and metal board.
 Choose the glass as the main surface, by the consideration that the glasses bring the least impact to the texture of original material, and is also easier to install and remove.

Meanwhile, glass can reflect the old structure and transmit the light in, which can create a contrasty atmosphere to the past and improve the interior quality.

Furthermore, people whatever inside or outside the pipe get a free sight connction with the activities around.



SAMPLES OF PIPE'S MATERIALS



MATERIAL DETAILS IN LYCKHOLMS

4 . TECHNICAL DRAWING AND PERSPECTIVE

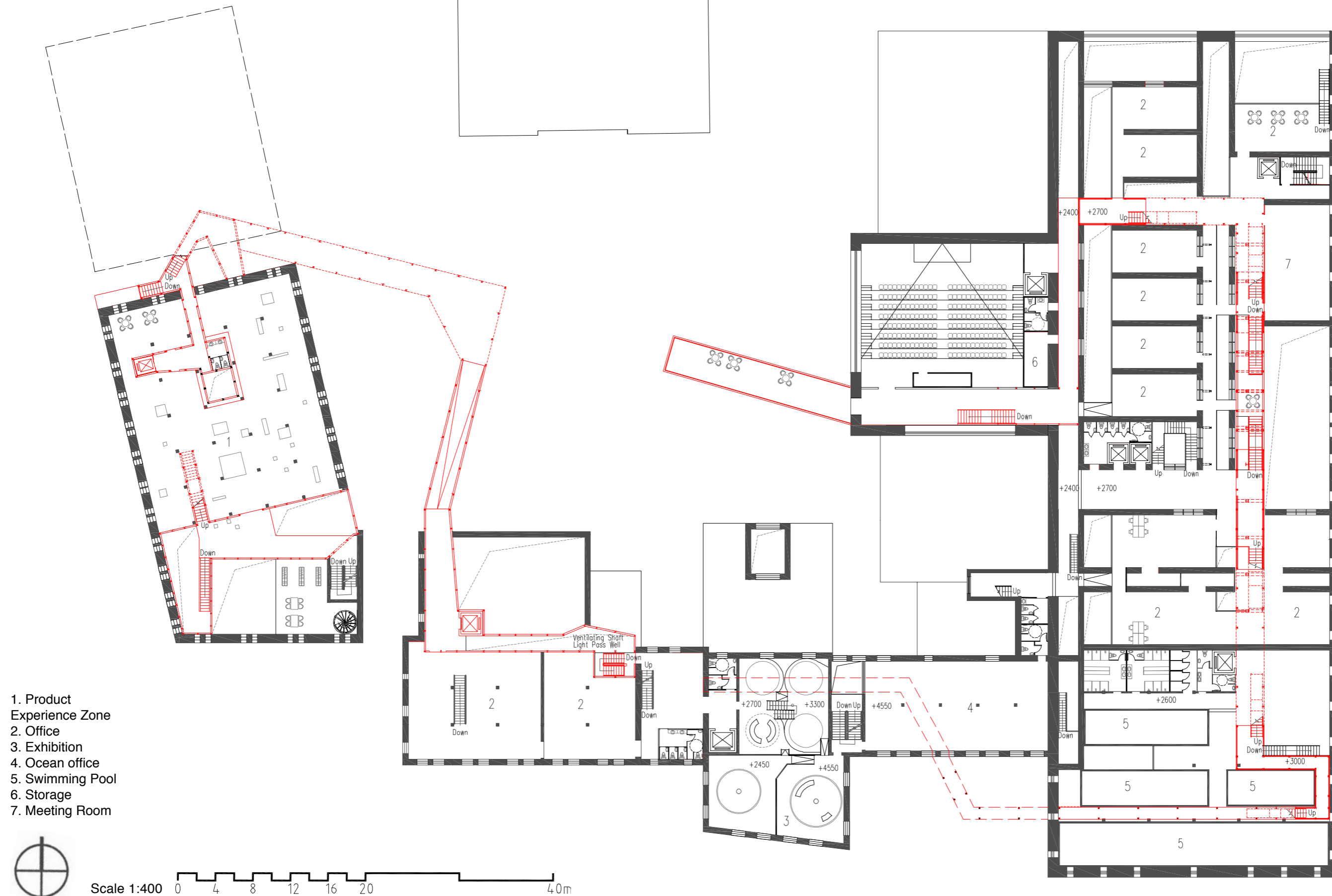
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. SECTION	38 - 42
. FACADE	43 - 47
. PERSPECTIVE	48 - 59



- 1. Cafe
- 2. Shop
- 3. Product Experience Zone
- 4. Reception
- 5. Bookstore
- 6. Meeting Hall
- 7. Exhibition
- 8. Cloakroom
- 9. Exhibition & Pub
- 10. Ocean Production
- 11. Storage
- 12. Equipment
- 13. Office
- 14. Auditorium
- 15. Gallery
- 16. Tea Room
- 17. Kitchen



FLOOR PLAN - F 1

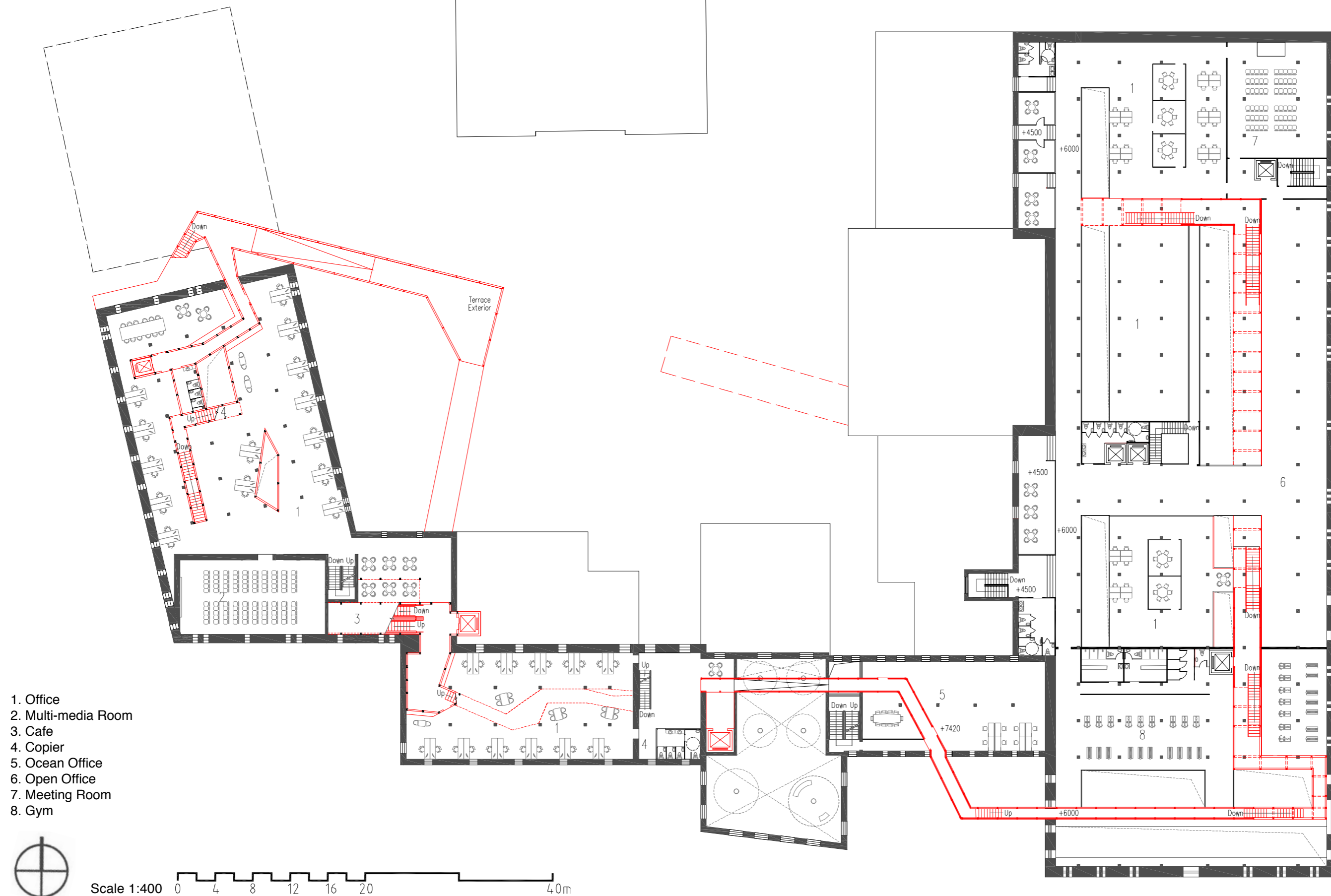


- 1. Product Experience Zone
- 2. Office
- 3. Exhibition
- 4. Ocean office
- 5. Swimming Pool
- 6. Storage
- 7. Meeting Room



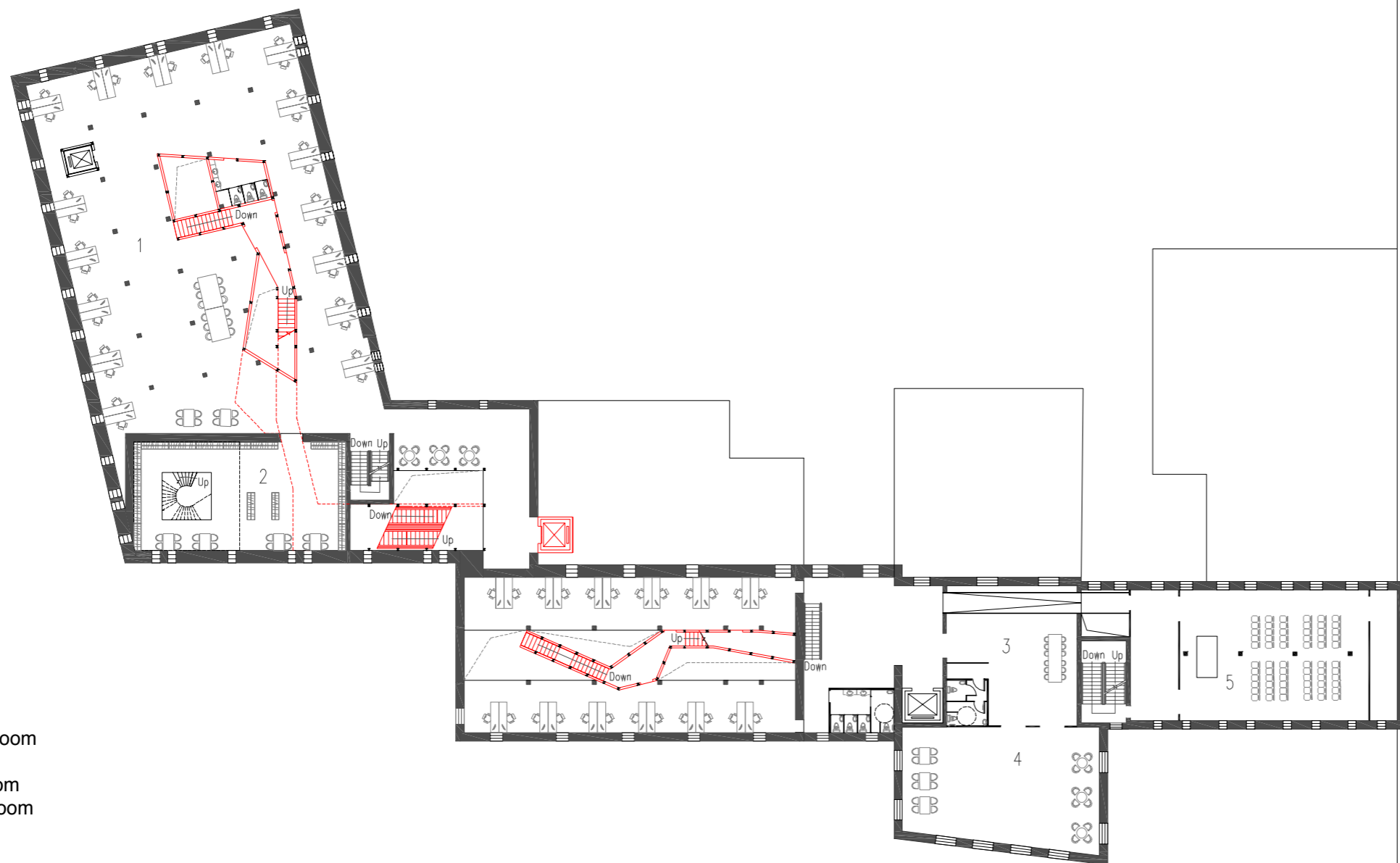
Scale 1:400 0 4 8 12 16 20 40m

FLOOR PLAN - F 2



- 1. Office
- 2. Multi-media Room
- 3. Cafe
- 4. Copier
- 5. Ocean Office
- 6. Open Office
- 7. Meeting Room
- 8. Gym

FLOOR PLAN - F 3

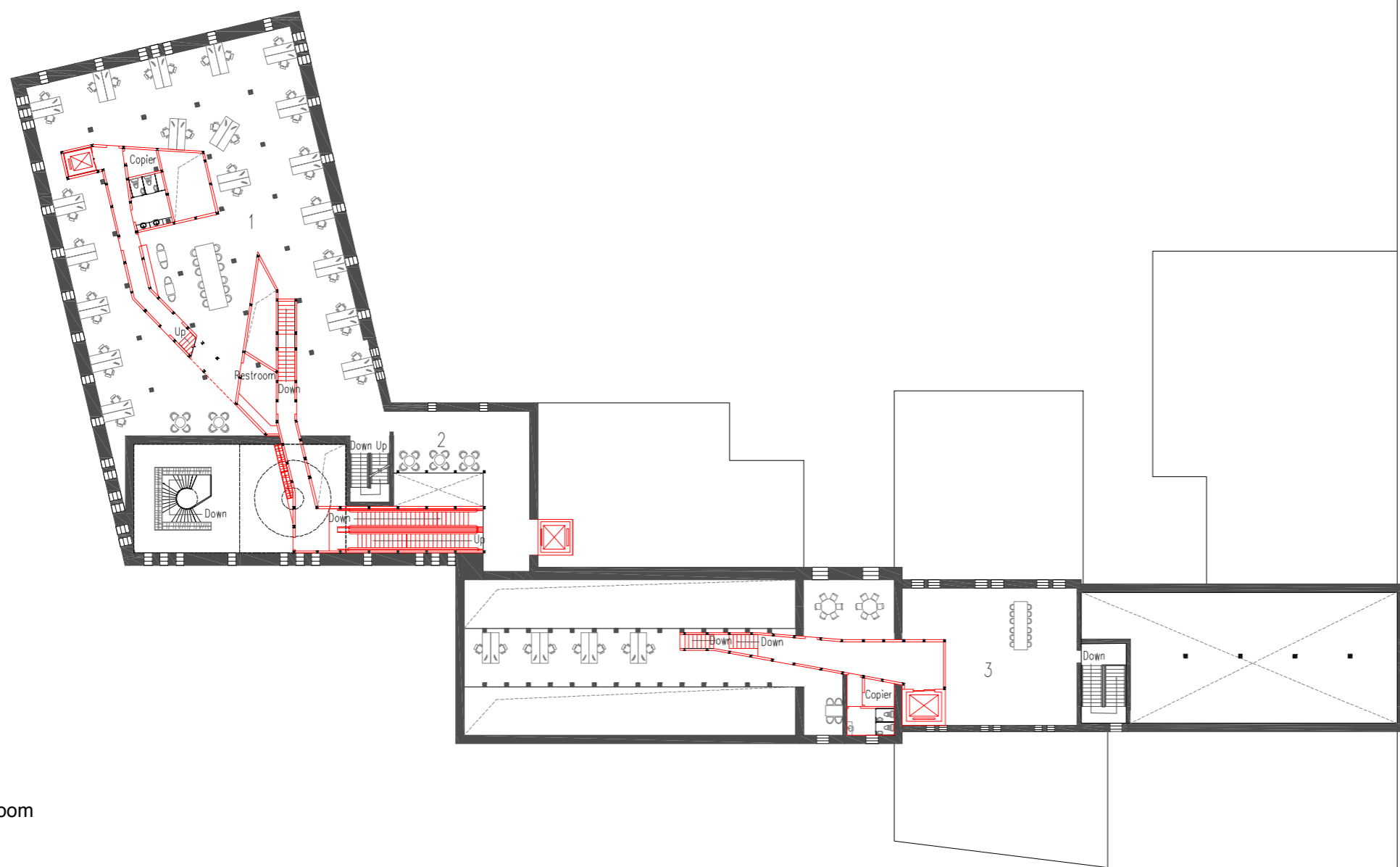


- 1. Office
- 2. Reading Room
- 3. Kitchen
- 4. Dining Room
- 5. Meeting Room



Scale 1:400 0 4 8 12 16 20 40m

FLOOR PLAN - F 4

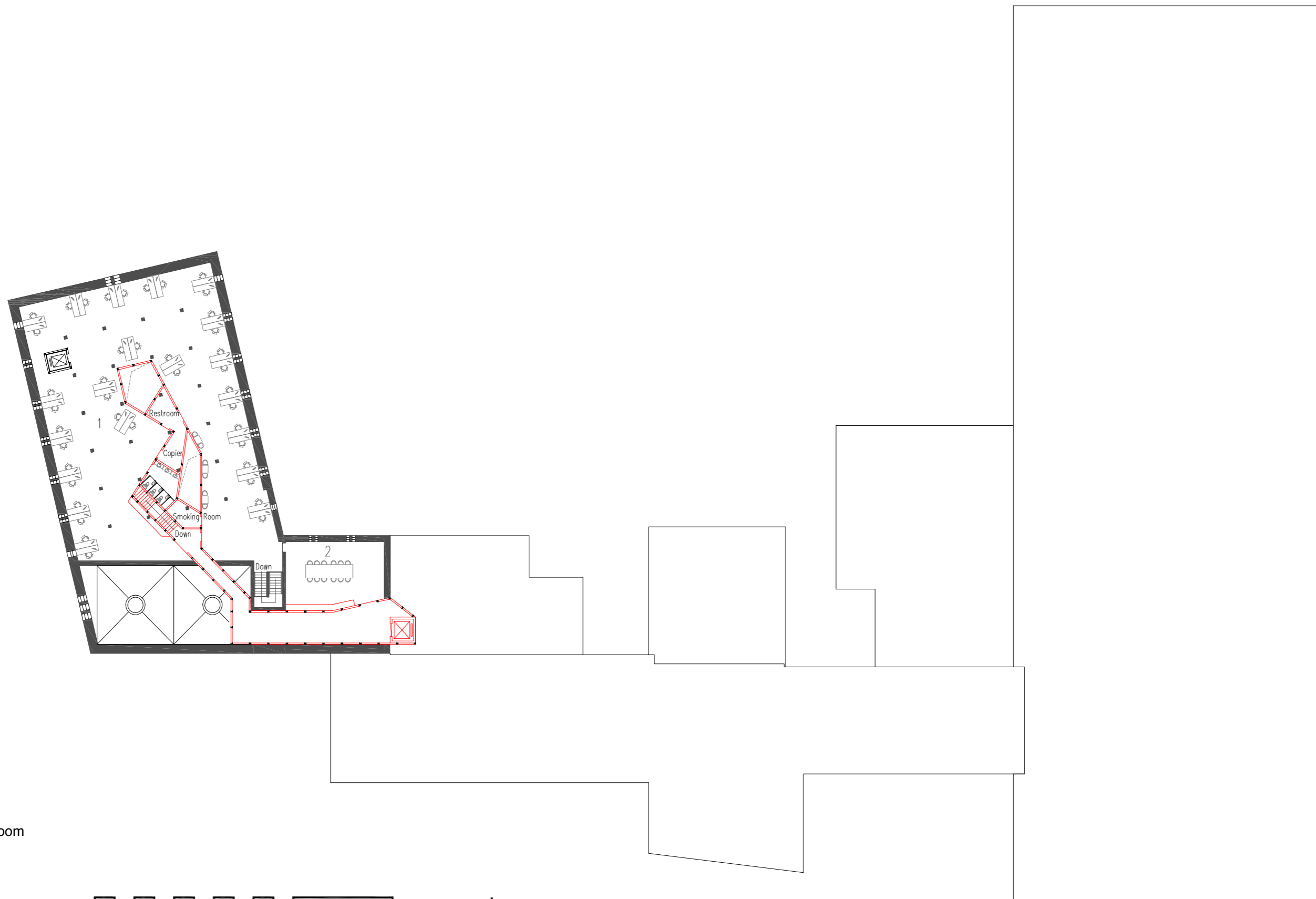


- 1. Office
- 2. Tea Room
- 3. Meeting Room



Scale 1:400 0 4 8 12 16 20 40m

FLOOR PLAN - F 5

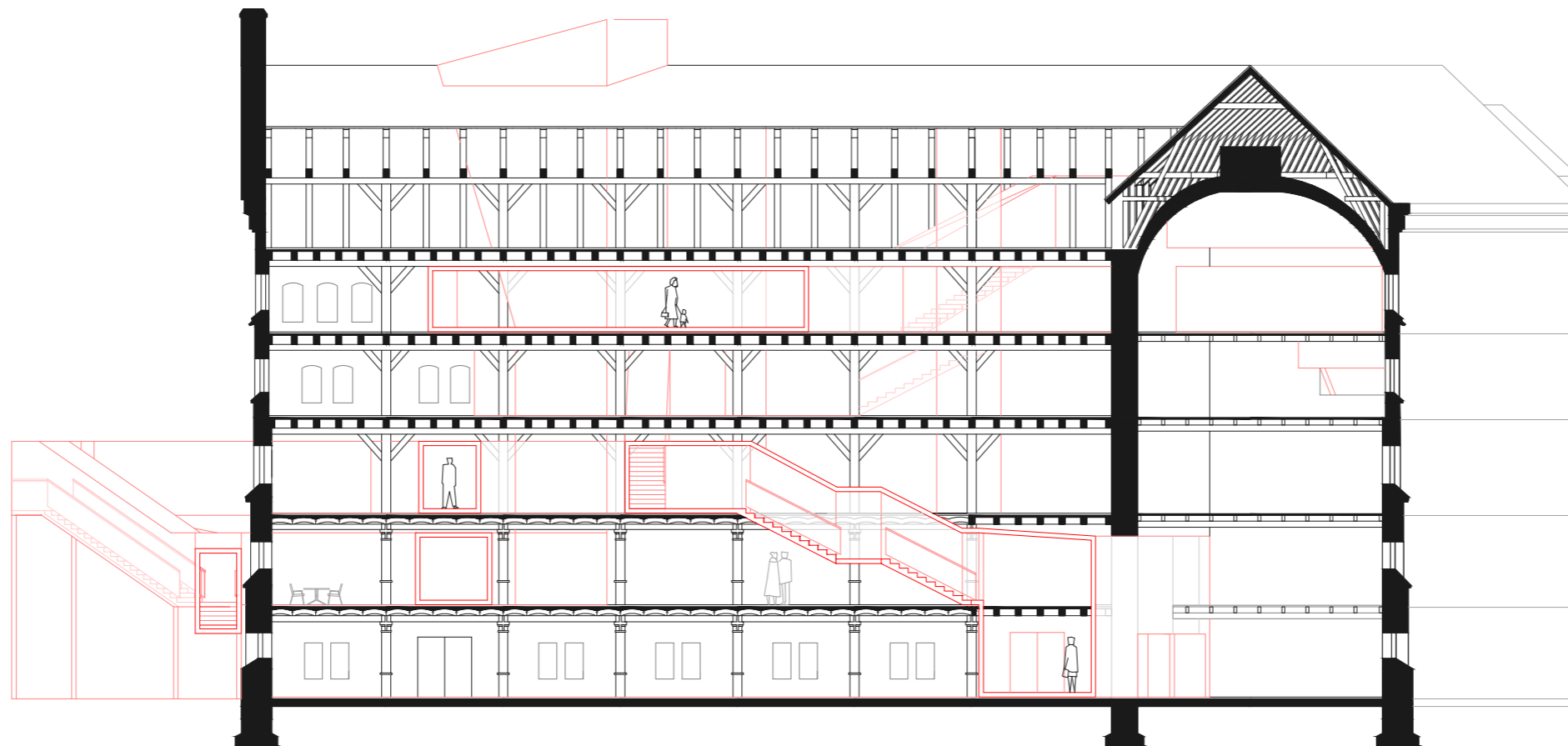
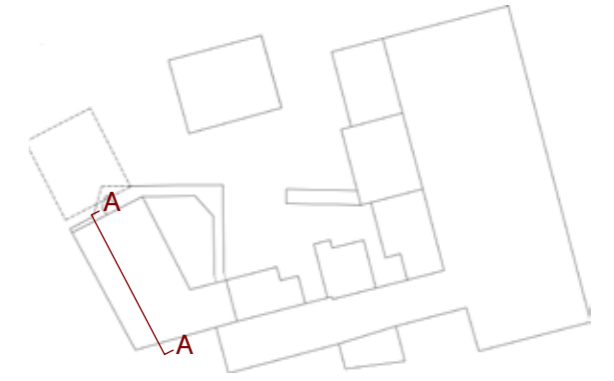


- 1. Office
- 2. Meeting Room



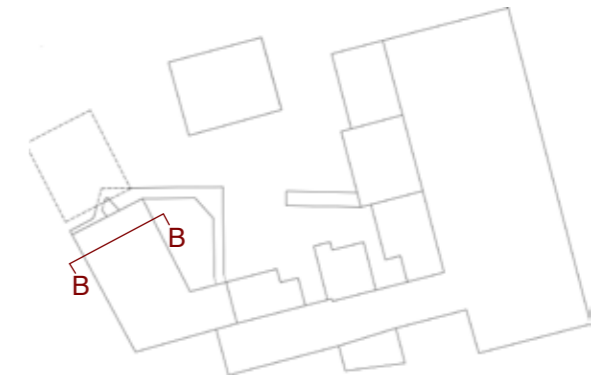
Scale 1:400 0 4 8 12 16 20 40m

SECTION A-A

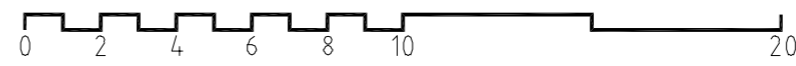


SECTION A-A 1:200 0 2 4 6 8 10 20m

SECTION B-B

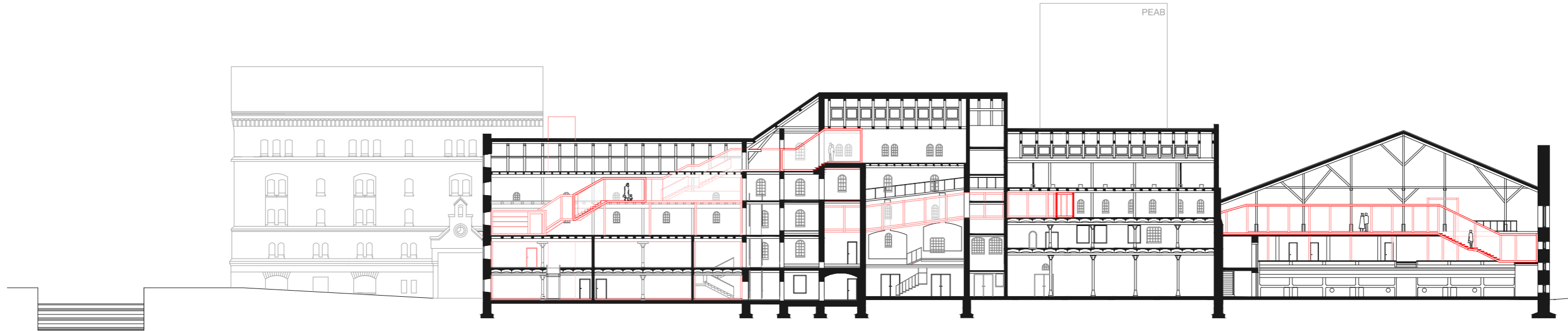
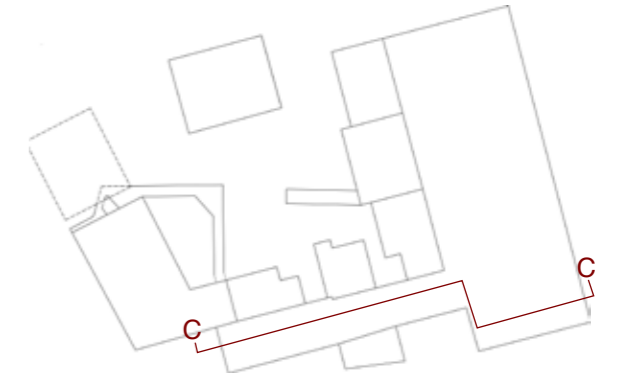


SECTION B-B 1:200



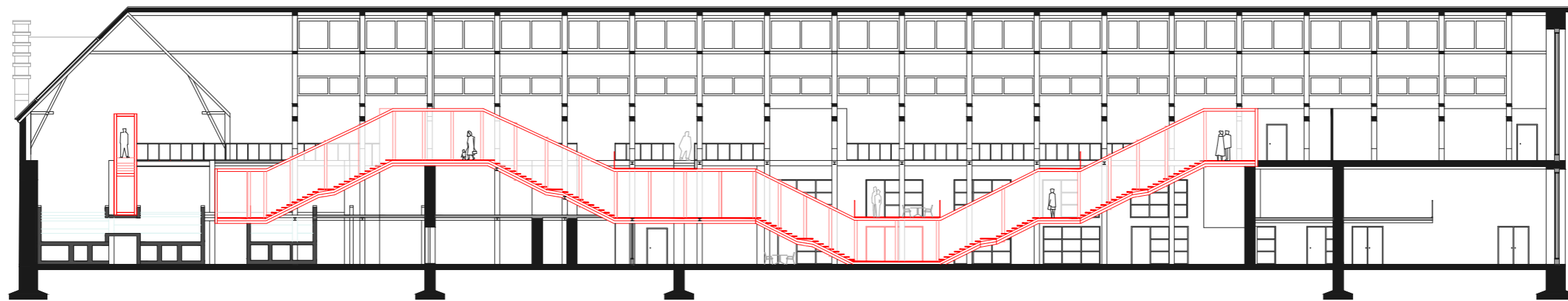
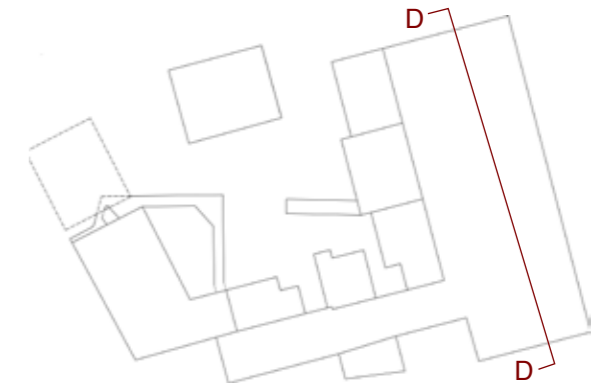
A scale bar showing a length of 20 meters, with markings at 0, 2, 4, 6, 8, 10, and 20m.

SECTION C-C



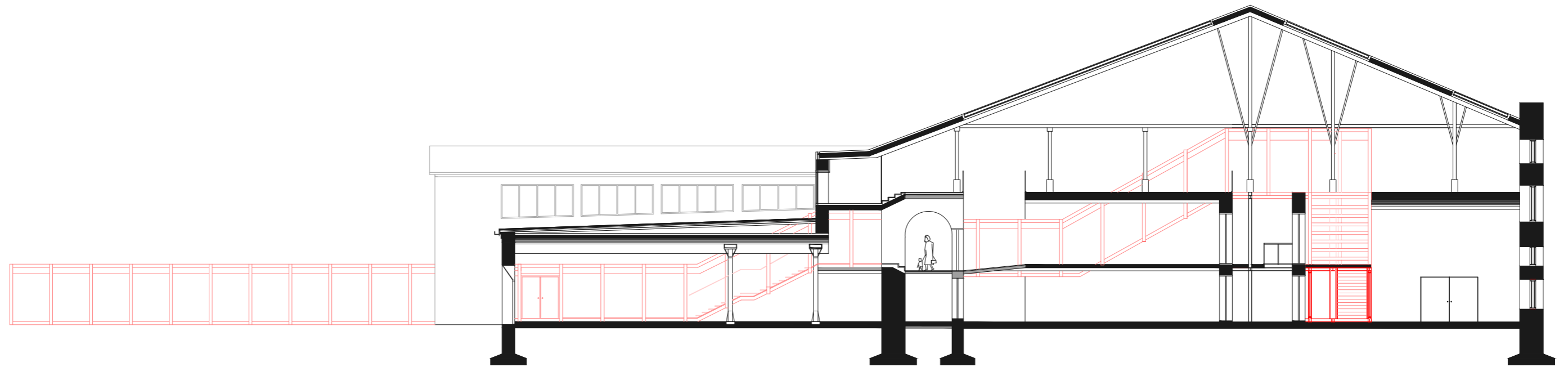
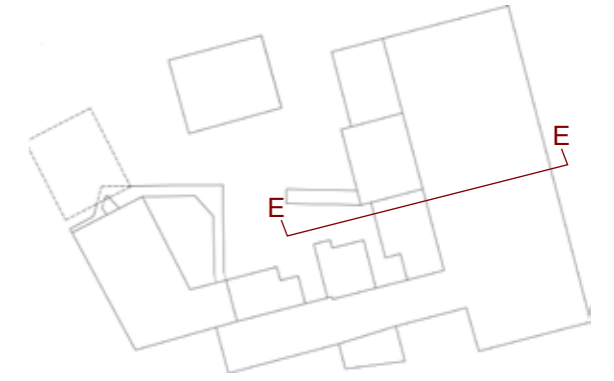
SECTION C-C 1:400 0 4 8 12 16 20 40m

SECTION D-D



SECTION D-D 1:300 0 3 6 9 12 15 30m

SECTION E-E



SECTION E-E 1:200 0 2 4 6 8 10 20m

FACADE 1-1

On the western part of facade, the new pipe replaces the part of the ground floor with a small gap between ground floor and the first floor, which can form slight shadow to show the differences.



FACADE WEST 1-1 1:400 0 4 8 12 16 20 40m

FACADE 2-1

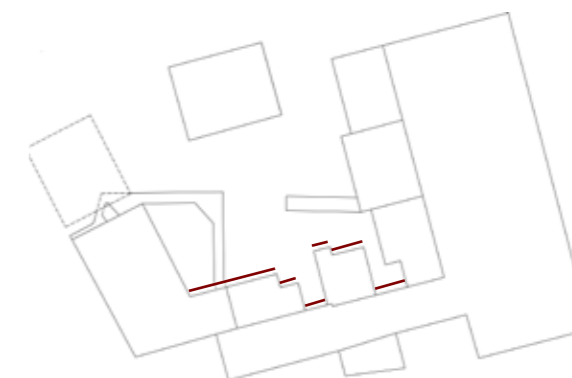
The new pipe becomes a bridge in some part of the southern facade to connect the storage house with fermentation room.



FACADE SOUTH 2-1 1:400 0 4 8 12 16 20 40m

FACADE 2-2

Basically, we keep the original scale of this part of facade, and add a scenic elevator in glass, not only for the new entrance use, but also for exploring a new vision to enjoy the graceful facade in a closer way.



FACADE SOUTH INNER COURTYARD 2-2 1:200 0 2 4 6 8 10 20m

FACADE 3-1

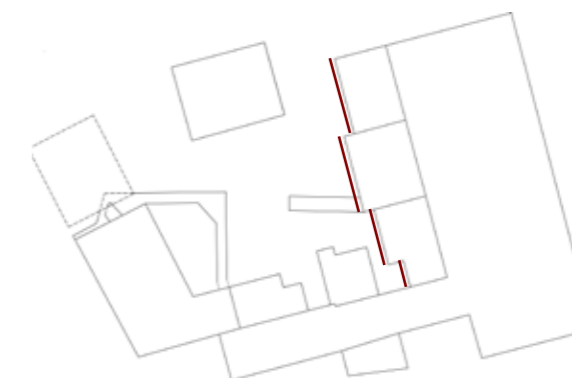
The facade along the train lines was hurt by several purposeless reuse in the past time, such as the oversized door or window. We want to keep the sizes of these scars to leave a clew for its development history in the natural way.



FACADE EAST 3-1 1:300 0 3 6 9 12 15 30m

FACADE 3-2

The volume of the entrance part is too obvious in the whole site in the courtyard of this facade. A certain part of the solid wall is expected to be replaced by some more transparent materials to reduce the negative effect of the original scales.



FACADE EAST INNER COURTYARD 3-2 1:200 0 2 4 6 8 10 20m

PERSPECTIVE

The corridor between malt house and stable was the delivery way of raw materials. It is an important clew for conservation historical memory.

In this scene, one reason for the new pipe going out of the malt house is to protect the first two floors' brick arch ceilings. Furthermore, it will connect these two buildings and active this gap.



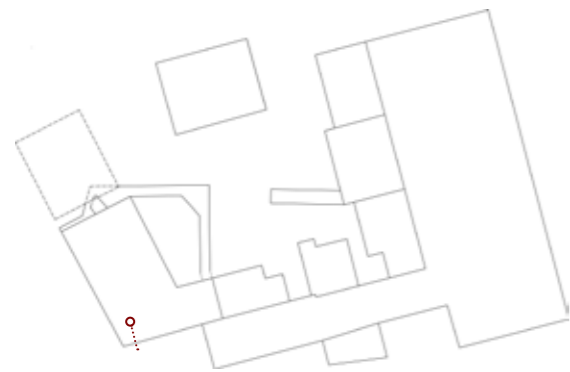
VIEW TOWARDS THE GAP BETWEEN MALT HOUSE AND STABLE

PERSPECTIVE

The malt house is in bad condition. Previous floodings have damaged this building's foundation. The portland cement used in the building has been severely damaged by water and freezing, and is therefore falling off.

The new pipe replaces part of its damage facade and also strengthen the foundation with concrete and steel structure.

We tore down part of the ceilings of wood structure on the ground floor and keep the brick arch part, show it directly from the entrance. The space here can be taken as meeting hall for public use (such as retail business or exhibition use) for the surroundings.

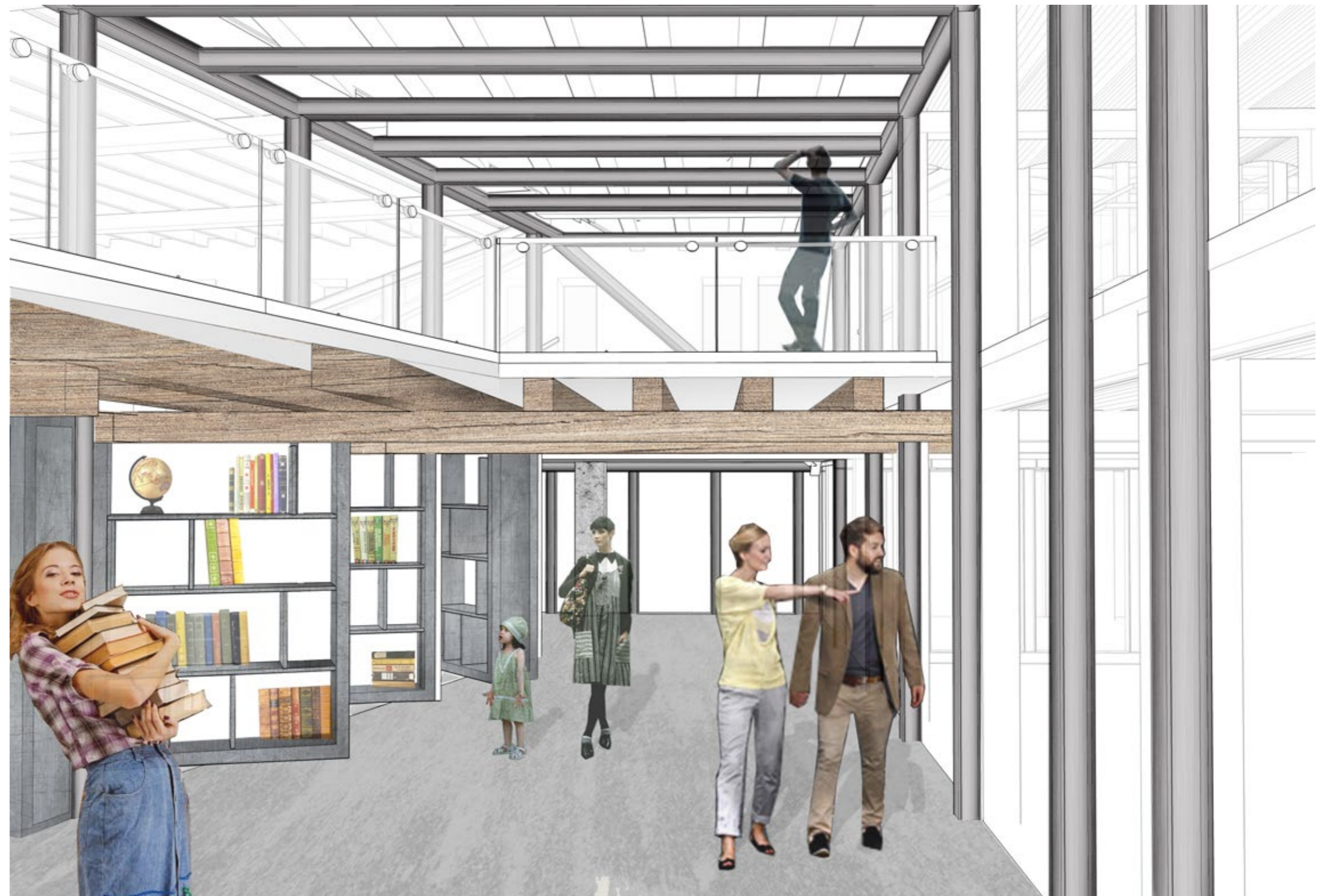
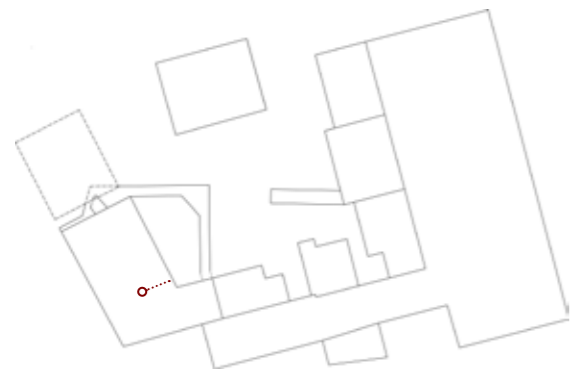


VIEW FROM ENTRANCE TO THE BOOKSTORE

PERSPECTIVE

The boundary layer of the new pipe can be used as furniture or facade for the surrounding space. As a result, there are always a public or semi-public space for each part of the Lyckholms on different floors.

The structure of new and old twists together to show the visual contrast.



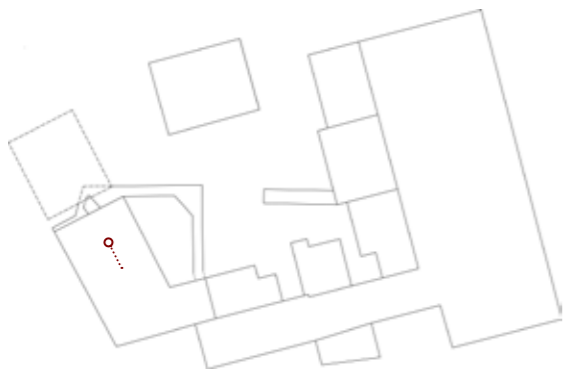
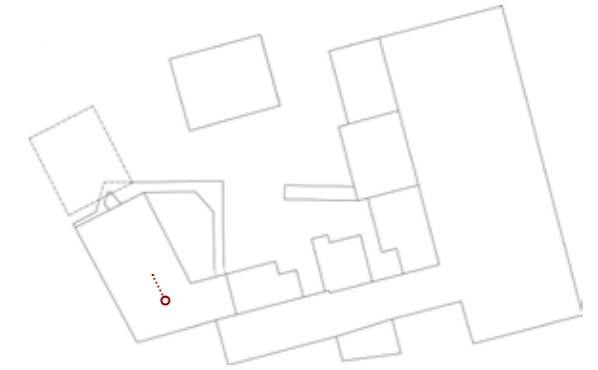
VIEW FROM THE ENTRANCE FROM YARD TO MALT HOUSE

PERSPECTIVE



VIEW FROM THE INTERIOR OFFICE SPACE

When the new pipe goes through the floors, it can naturally divide the plan and create some private space.



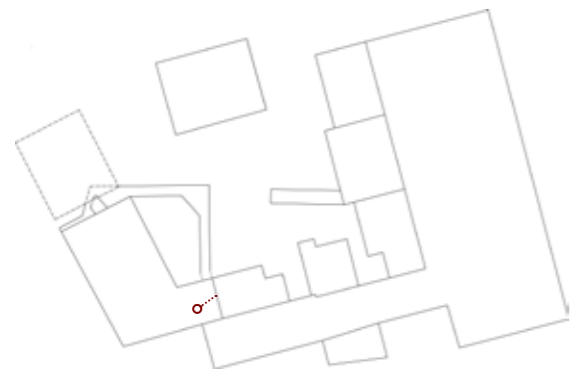
The new pipe is inserted into the upper floors, not only for the connection, but also for twisting around the void atrium to bring the nature light from the roof to downstairs for the surrounding working space.



VIEW FROM THE INTERIOR OFFICE SPACE

PERSPECTIVE

On the south of malt house part, the original space is used for kilning. So the floors there are made by iron net, and can be easily moved away. The new pipe goes down directly to the next building besides.



VIEW FROM UPPER FLOORS OF THE ORIGINAL MAIN ENTRANCE

PERSPECTIVE

This part of new pipe works as a bridge upside off the courtyard to offer leisure space for more light and get a better view to enjoy the featured facades.

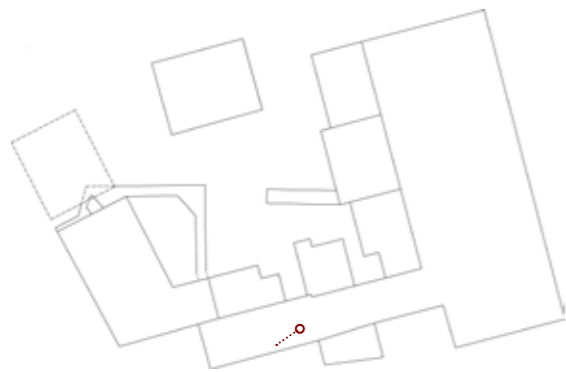


VIEW FROM THE INTERIOR PIPE UPPER THE COURTYARD

PERSPECTIVE

The upper three floors are combined together with the pipe in the storage building.

The original size of the window is not enough for the light coming in. We remove part of slabs and add new windows on the roof surface. In this way, the new pipe can reflect the nature light to the lower floors.



VIEW FROM LOFT FLOOR OF STORAGE BUILDING

PERSPECTIVE

There is fermentation pool before. We prefer to transform it into some similar functions (such as swimming pool), so that it can keep the pool existing there.

The new pipe goes across this space to get the depth feeling of the part of building, and also enclose some private space for gym use.



VIEW FROM OLD FERMENTATION ROOM

PERSPECTIVE



VIEW FROM BACK ENTRANCE TO THE MEETING HALL

Because of the 3 dimension of the new pipe, the space of pipe can be maximum used on different levels, such like on the top surface of pipe it can be used as a small balcony for upper floor.



The space here was with the close and dense wall, We install a series of windows to invite the sight go through. The new pipe offers the traffic use, and give the signs to each space.

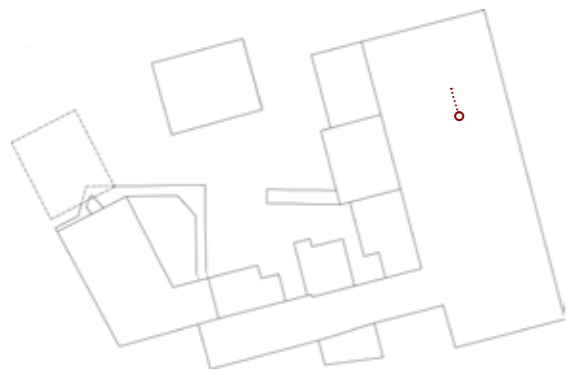


VIEW FROM BACK MAIN ENTRANCE

PERSPECTIVE

We open part of the third floor to expose the underneath walls and lead in the nature light. The wood columns on the third floor are extended by the new steel column to the ground floor, and part of them are beneficial for holding the structure of new pipe.

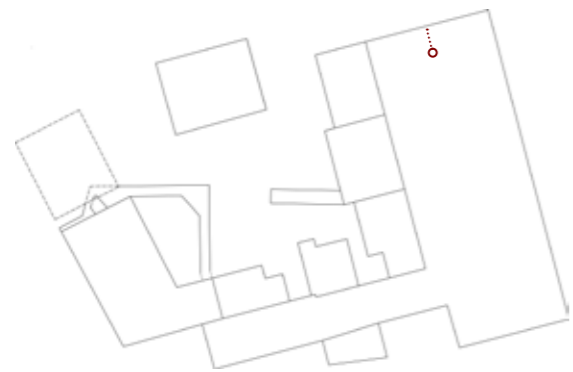
The original space was two floor heights, so we decide to add a new floor to increase more levels in the space and make it more human-sized.



VIEW FROM NEW PIPE TO SEE THE NEW ATRIUM

PERSPECTIVE

The new glass surface open the old and dark corridor up. We still maintain the old structure of the layout, only changing with the new pipe passing through.

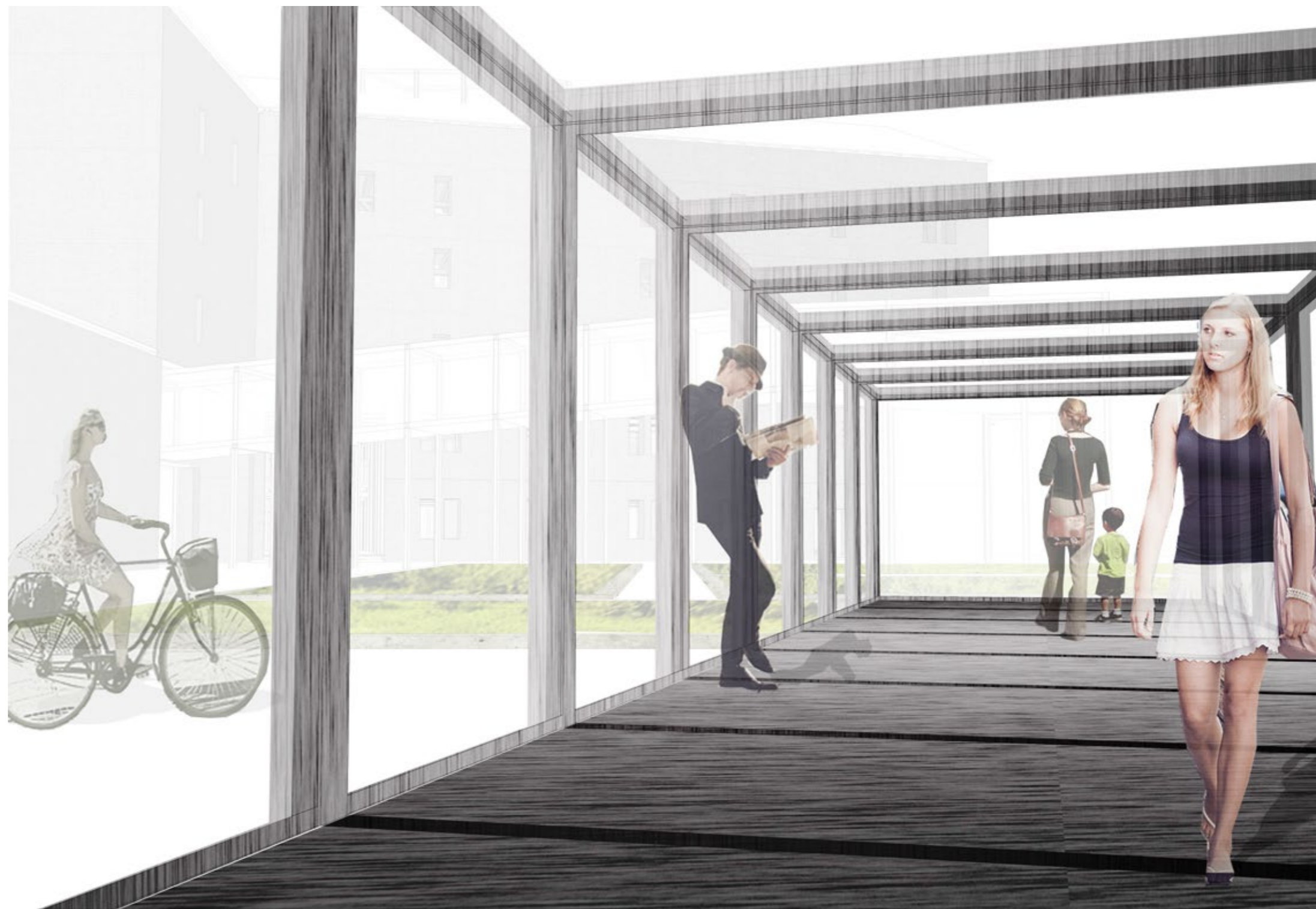
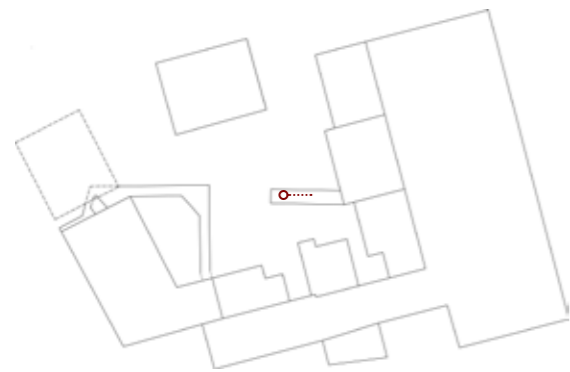


VIEW FROM CORRIDOR OF OLD STORAGE SPACE

PERSPECTIVE

The end of the pipe is inserted into the middle of the courtyard. It reminds the memory of great prosperity which was happened in this yard.

It offers a peaceful entrance space to occasionally read the gharry's routes and breath with the vicissitudes of facades as its background.



VIEW FROM THE INTERIOR PIPE TO SEE THE COURTYARD

5	. IN DEPTH	
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	. LIGHT DIAGRAM	62
	. DETAIL DESIGN	63 - 65
	. MODEL	66

LIGHT ANALYSIS

From the lightstudies below we saw how the sun effected the site. It is clearly visible that the new PEAB tower and lowrise building is going to cast extensive shadows, especially to the space around the courtyard.

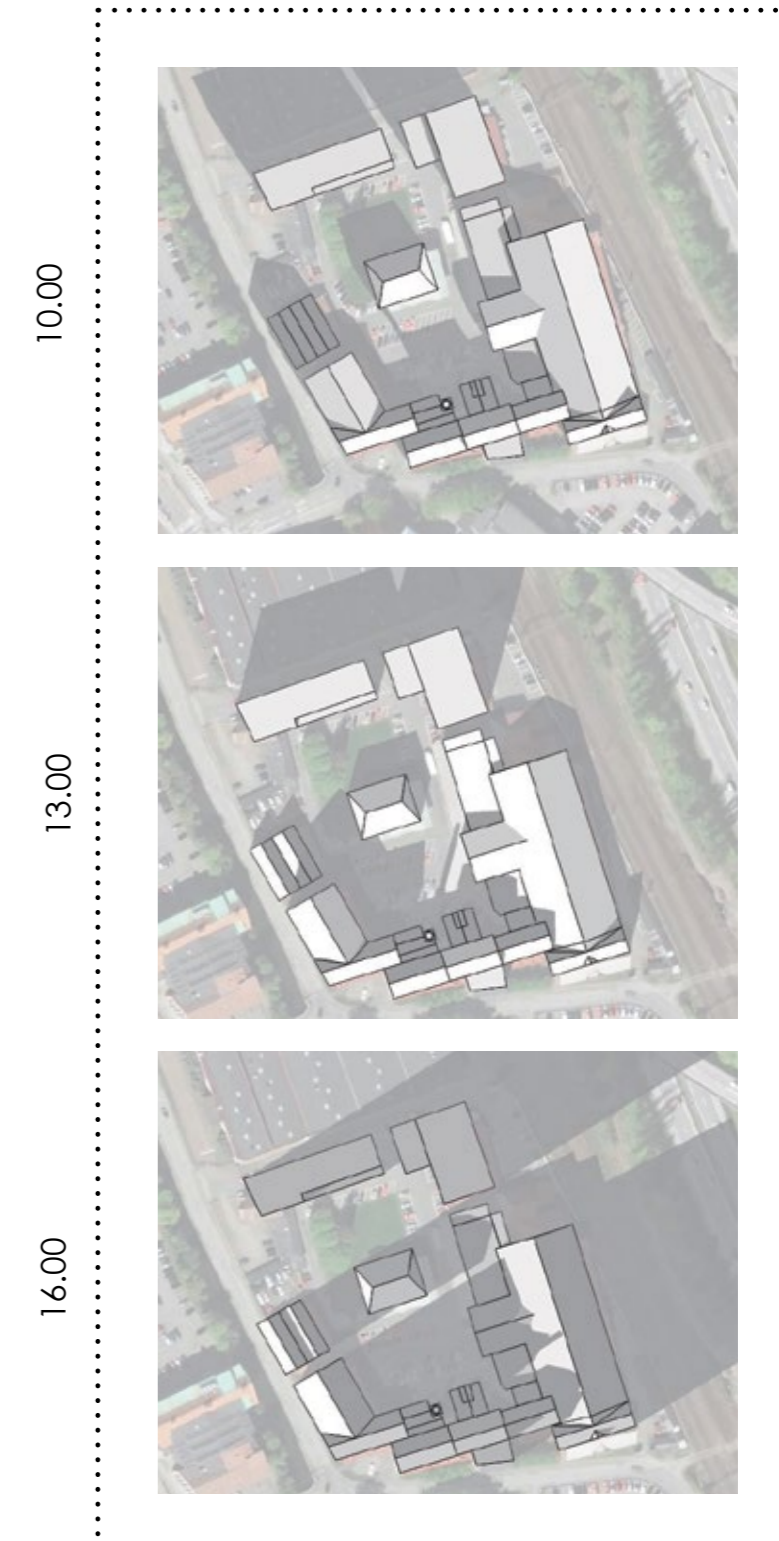
March 15th



June 15th

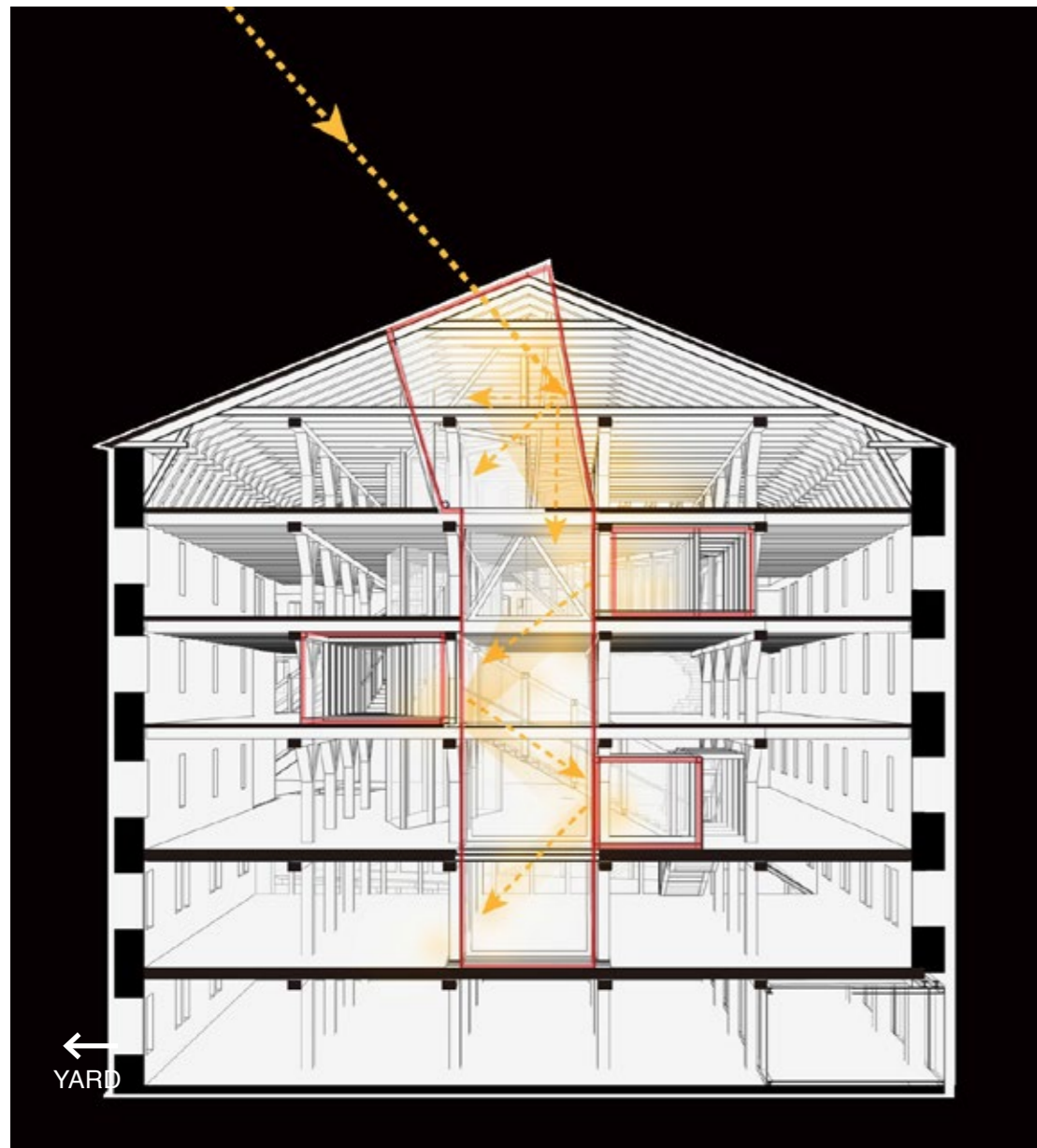


November 15th



LIGHT DIAGRAM

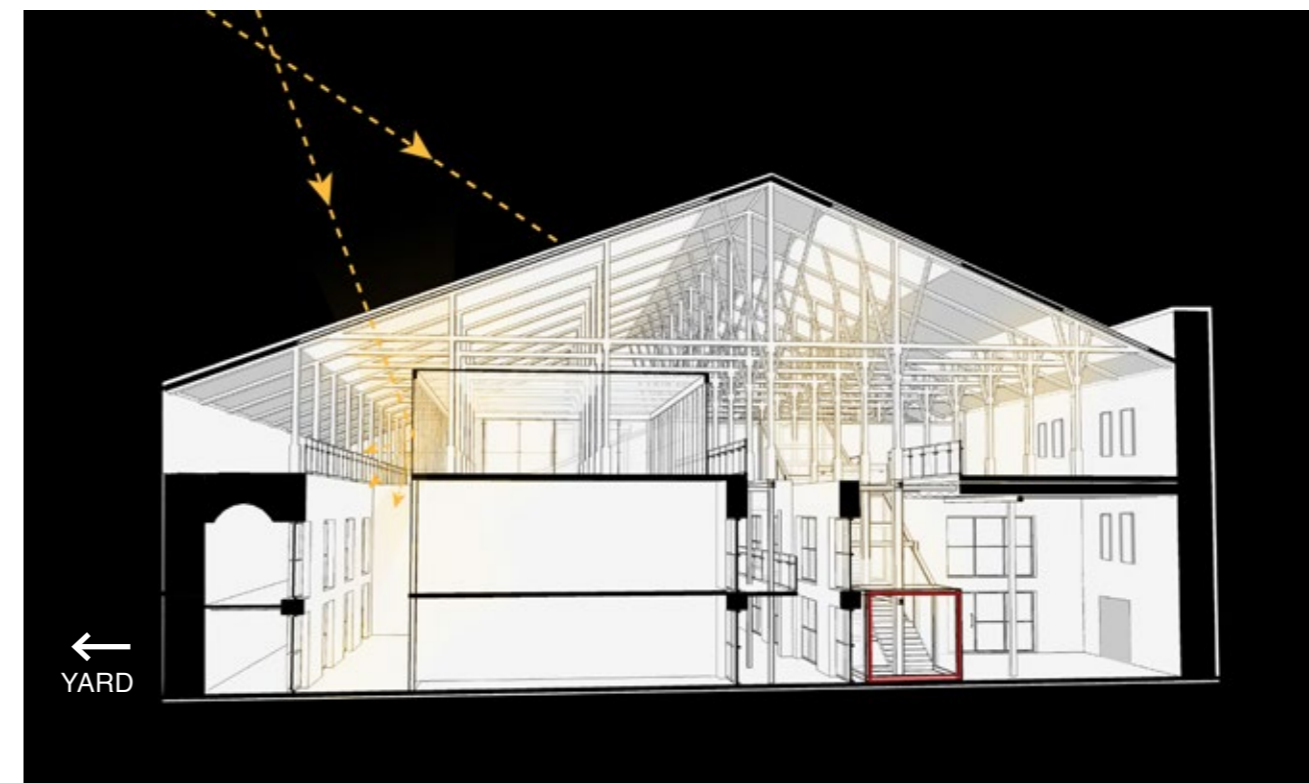
From the light studies, we know there's not enough nature light for the courtyard, especially the interior space surrounding it. The new pipe offers several different shapes as followings to lead the limit light in as much as possible.



LIGHT DIAGRAM OF MALT HOUSE

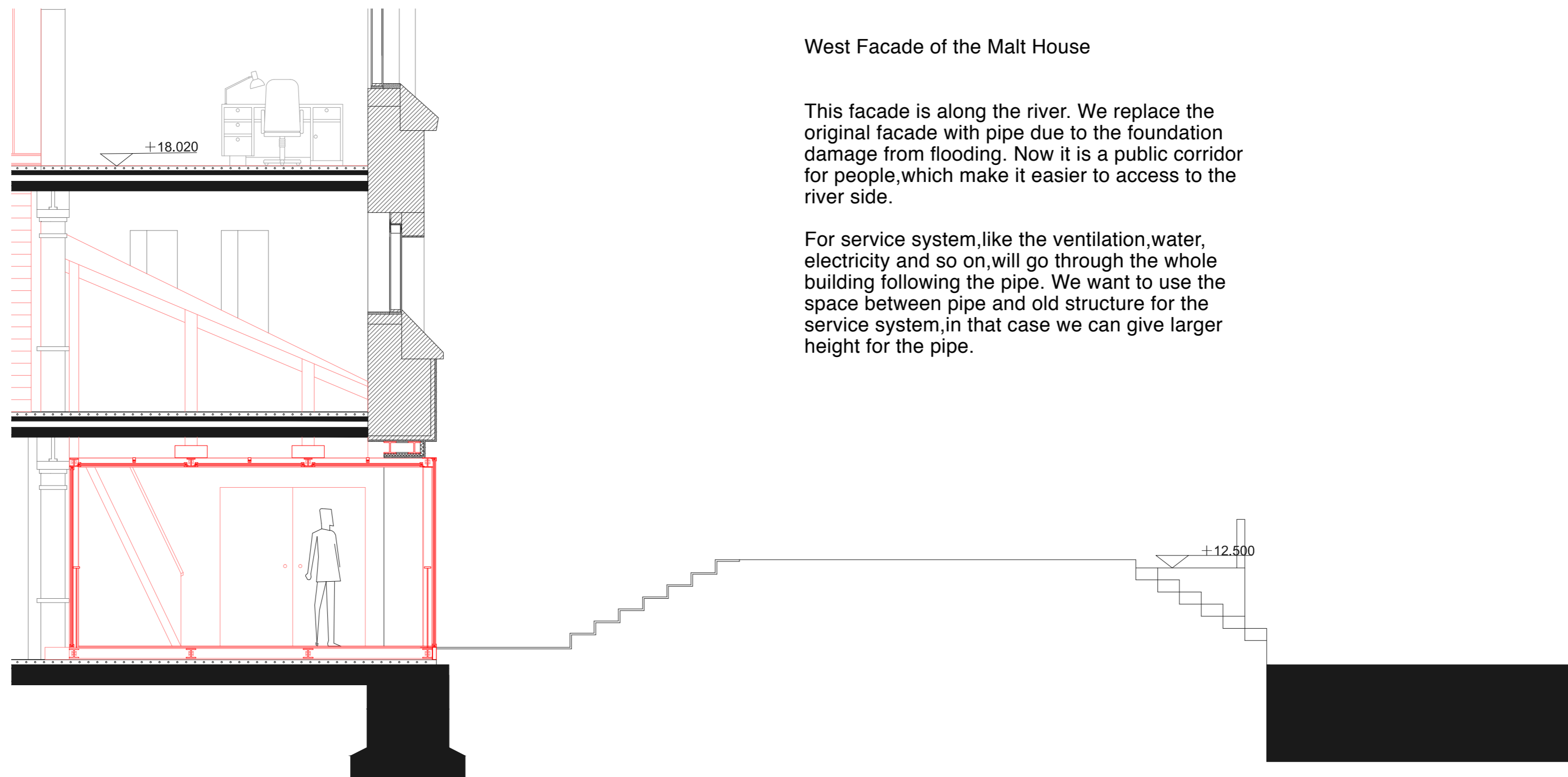


LIGHT DIAGRAM OF STORAGE BUILDING



LIGHT DIAGRAM OF FERMENTATION BUILDING

DETAIL DESIGN



West Facade of the Malt House

This facade is along the river. We replace the original facade with pipe due to the foundation damage from flooding. Now it is a public corridor for people, which makes it easier to access to the river side.

For service system, like the ventilation, water, electricity and so on, will go through the whole building following the pipe. We want to use the space between pipe and old structure for the service system, in that case we can give larger height for the pipe.

SECTION 1:50 0 0.5 1.0 1.5 2.0 2.5 5.0m

DETAIL DESIGN

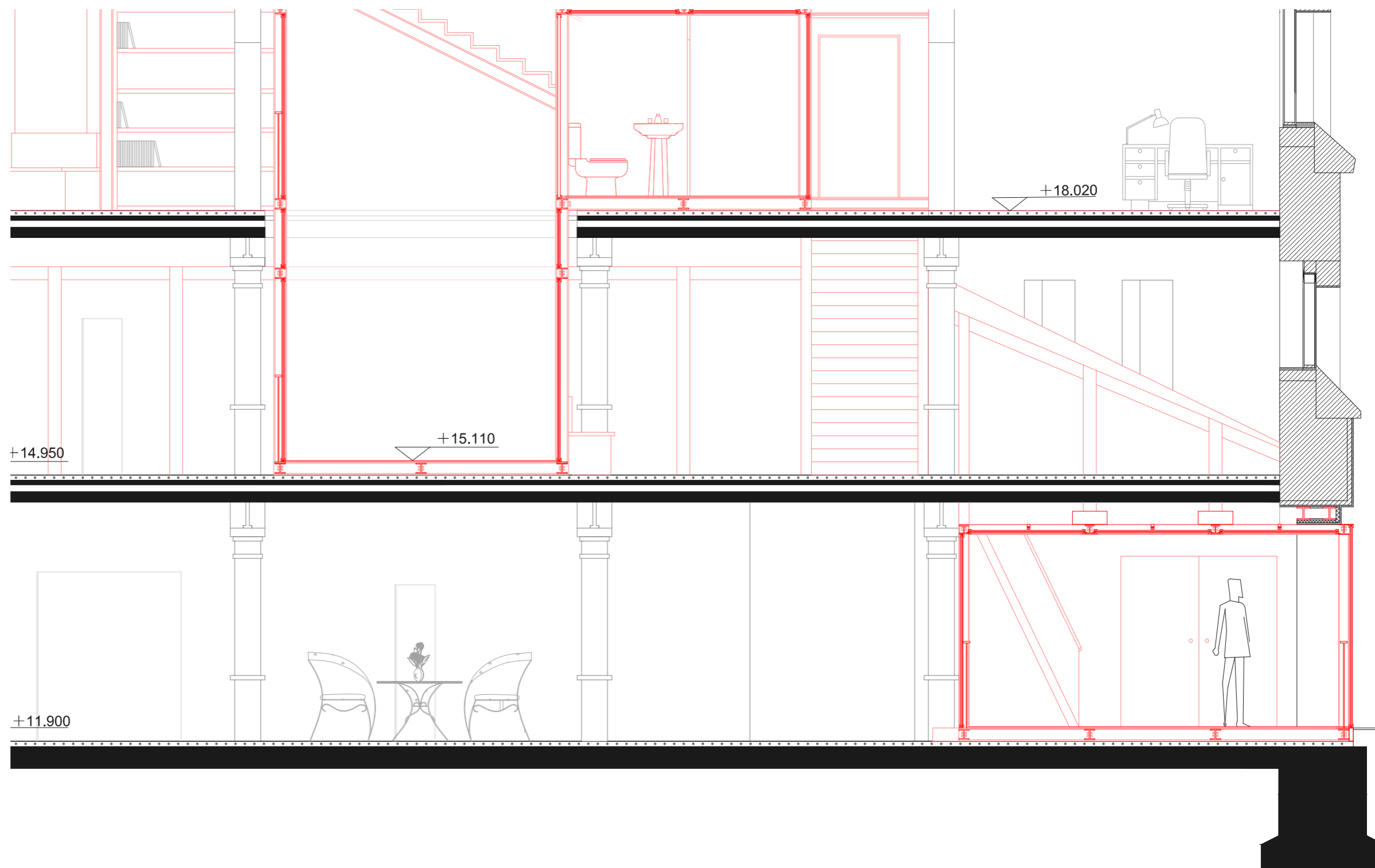
Detail Section in the Malt House

We tore down part of the wooden slab for the light pipe. There is a small gap between the new steel pipe structure and the rest slabs. Through that you can see the obvious difference between the various materials and various times.

Bookshelves, chairs, toilet, smoking room, ventilation, electricity, light pipe are all part of the whole pipe.

Shuttle in the pipe, occasionally meet someone or interesting things you never expect.

For the new staircase in the pipe, we forge one piece of steel board to make the step tablet as a whole piece, which means more concise and light.

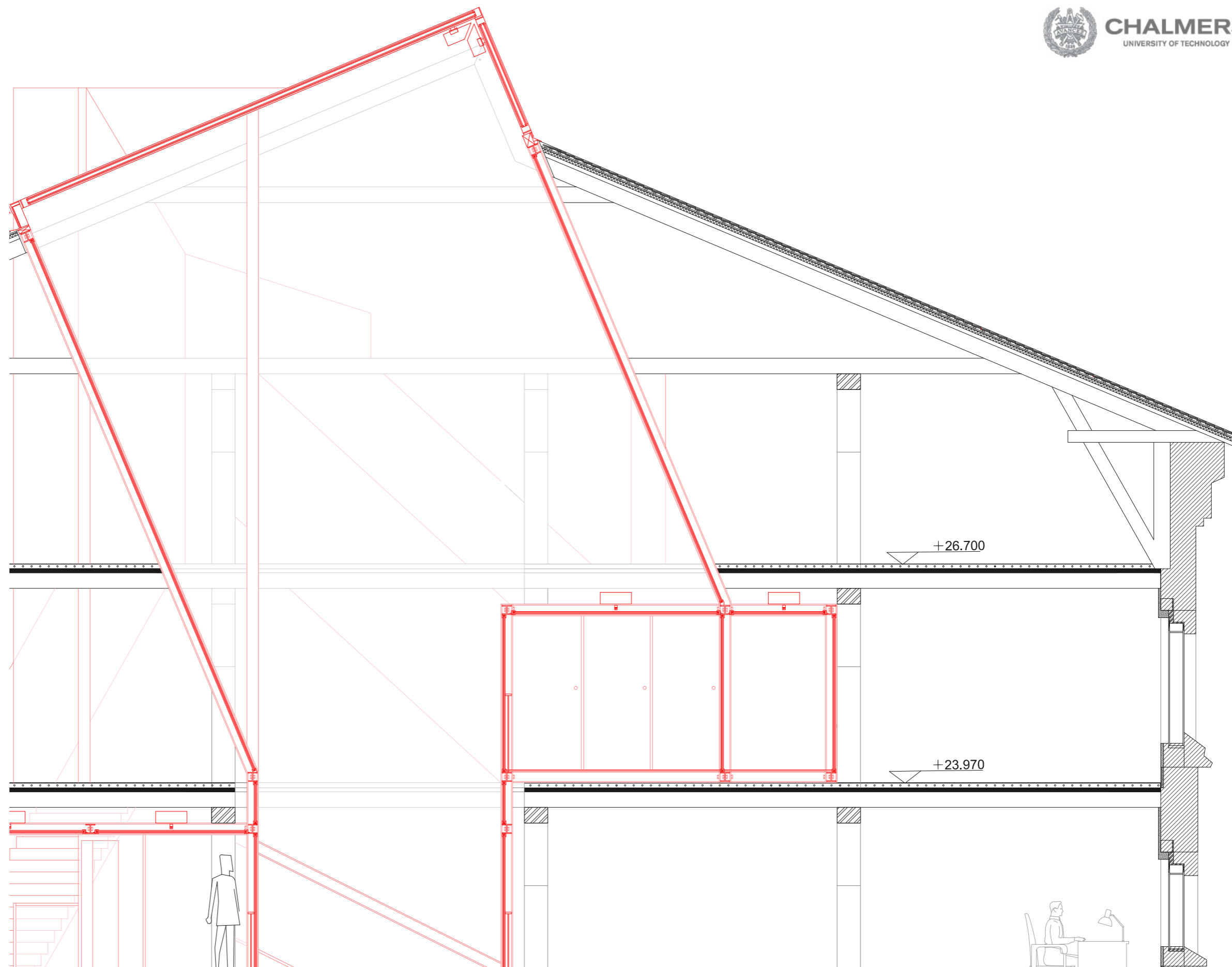


SECTION 1:50 0 0.5 1.0 1.5 2.0 2.5 5.0m

DETAIL DESIGN

Roof Detail Design

Considering the interior quality and the daylight analysis of the site and building, we rolled the top of the light pipe to a certain angle for more natural light. The top of the light pipe can also be opened to take the air in and assist nature ventilation, to reduce the mechanical ventilation to its great extent.



SECTION 1:50 0 0.5 1.0 1.5 2.0 2.5 50m

MODEL



CLOSURE

During the whole process of master thesis, we always thinking about what on earth the adaptivity reuse of building is for future perspective? New structure should assist with the old one to generate maximum possibility of easily changing of services and usages without changing structure in a long term. Only with the space which lost its remarkable and specific personality, the activities happen there can gain the potential flexibility and adaptivity.

However, it is far from enough for the project of historical buildings which is labeled with its unique identity appearance or important social meaning. The conservation and transformation proposal should try to keep its essential qualities and develop them more with some architectonic language. Re-use will lose meaning and purpose if there is too much imposed changes; if too much of the original is lost then what is there to retain?

Lyckholms was formed its own structure and social meaning with urban area during the past time. Conservation is about more than simply preserving its past history. More fundamentally, it is about continuously revising and arousing suitable states of it in the urban context. There is the unique relationship between different parts of Lyckholms which should be enhanced and brought to today's life.

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Friederike von Rauch, David Chipperfield, Neues Museum. Interview mit David Chipperfield, Ostfildern (Hatje Cantz) 2009.

IMAGES

All photos taken by Xingni Li and Chenfei Mao

img. 1 Aerial view of Lyckholms brewery in 1931. From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

img. 2 Walden Studios, USA available: <http://www.archdaily.com/121320/walden-studios-jensen-architectsjensen-macy-architects/>

img. 3 Astley Castle, UK available: <http://lifestyleetc.co.uk/2013/10/04/places-spaces-astley-castle/>

img. 4 Kulturspeicher, Germany available: <http://www.bavaria.us/30860de4-686b-ab12-e1c2-7a9b00c1af42>

img. 5 Danish National Maritime Museum, Denmark available: <http://michitecture.com/2013/10/28/dream-project-danish-national-maritime-museum-by-big/>

img. 6 - 10 Danish National Maritime Museum, Denmark available: <http://www.designboom.com/architecture/big-completes-the-danish-national-maritime-museum-10-18-2013/>

Img. 11 Courtyard of Lyckholms early 1900s. From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 12 Lyckholms early 1900s available: http://www.geocaching.com/geocache/GC21VW6_breweries-02-lyckholms?guid=1d2f2787-4846-458d-a1c3-94e29fdd832d

Img. 13 Current legal plan of PEAB available: <http://www.fastighetssverige.se/artikel/peab-flyttar-till-lyckholms-fabriker-12806/>

Img. 14 The port for shipping material From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 15 Entrance for raw materials From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 16 Silos for store the material From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 17 The loft room in the storage building. From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 18 Central room in the brewhouse From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 19 Central room in the brewhouse From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 20 Fermentation pool for beer From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 21 Machines for trub use From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 22 Tanks for storing beer From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 23 Tunnel flow view of pasteurization From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 24 Courtyard view of delivery scene From <Lyckholms bryggeri 1881-1931 : minnesskrift i anledning av femti>

Img. 25,26 Carlsberg Brewery, Denmark available: http://www.flickr.com/photos/lens_adventurer/with/4747276030/