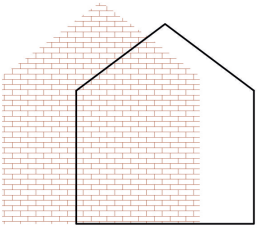

BAKSTEENFABRIEK | TEGELSTENSFABRIK

Exploring Boundaries in an Old Brickfactory

Louise Vanderlinden

Master Thesis
Chalmers School of Architecture
Spring 2015

Examiner: Morten Lund
Supervisor: Jonas Carlson

CHALMERS

"Cities need old buildings so badly it is probably impossible for vigorous streets and districts to grow without them.... for really new ideas of any kind—no matter how ultimately profitable or otherwise successful some of them might prove to be—there is no leeway for such chancy trial, error and experimentation in the high-overhead economy of new construction. Old ideas can sometimes use new buildings. New ideas must use old buildings." [1]

Urban Analyst Jane Jacobs, 1961

Abstract

Sharing spaces and communal living are widely discussed topics nowadays. There is less space available and therefore new living typologies have evolved. Or perhaps, old living typologies are being reused; typologies where people live together, work together and share spaces.
Looking at the past, one can notice that these typologies have come back multiple times. In this thesis an old living typology will be reused, revisited and improved by housing 14 families in an old brick factory. Not only the housing typology will be investigated but also the connections between ‘the old’ and ‘the new’. The history of the old building will be reused and re-interprets in a new way, both literally and figuratively.

Aiming at creating living space for 14 families in a beautiful old brick factory located in Boom, Belgium, both residents and visitors should still be able to walk through and experience the old spaces. To achieve this, transparent volumes are added within or over the old volume. In every volume two families live together and share spaces. Depending on how the volumes are placed, the old walls get captured in the new and the new in the old. Old exteriors become new interiors.

The result of this thesis is a system that offers the residents private, shared, communal and public spaces by combining the old structure with new structures. The private and shared spaces, are situated in the transparent volumes, the communal and public spaces take mainly place in the old building. This system creates a transparency that brings both residents and visitors in contact with each other while experiencing different spaces. Families live together in a public-private and old-new gradient system.

Thank You

First of all I would like to thank my examiner Morten Lund, not only for his great ideas and advices, but also for his support and enthousiasm during the whole process. He has been one of the most inpiring teachers I had during my architectural school career.
Jonas Carlson (CaseStudio), my supervisor, thank you for pushing my ideas all the way through and assisting me every week in my process. Your support, knowledge and thoughts have been very important for this thesis.
Maja Kovacs, for learning me about confidence and standing up for my ideas.
Tabita Nilsson and Pether Lindblom for all the tips and assistance in the wood workshop whenever I needed it.

Roland Piffet (Lezze Architects), for telling me about this amazing old brickfactory that became the context for my thesis.
The municipality of Boom and especially Pamela Piters (town planning official), for giving me all the information I needed to start up this project. Alex Ramael (cultural coordinator), for bringing me in contact with the right people.
Eddy Stuer (secretary New Belgica) and Flor Buggenhout (Ceramist Noeveren), for inviting me on the site.

Bernice Raes (KULeuven - Faculty of Architecture), for your help with finding the drawings and plans I needed.

All my fellow master thesis students, for the never ending support and laughs during the whole semester.

And at last, Johan Vanderlinden, Hilde Daeleman, Marie Vanderlinden and Giulio Giori for the love, care and support.

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Introduction

A Personal Story

I always had a love for old buildings. As a child I grew up in a very old house, in the center of a tiny Belgian village called Winksele, next to the church. It is a house with a lot of problems; it's very noisy and you can hear almost everything that happens in the house. When a bus drives through the street you can feel the house moving and shaking. In my parents bedroom there is a tiny hole in the floor in between the wood and when I was a kid I could spy through that hole on what was happening in the living room underneath me. For some time, in the very early stages of the renovation, we even had a mice plague.

As you can see there are a lot of defects in that house, and there is almost always something that needs to be fixed, repaired or upgraded. But we as a family don't mind this at all, in contrary; we love the house because of its defects and its history.

The house is full of history; it survived both World Wars. During that time it was a farm and afterwards it became a local café where people could have a drink after they went to church. When my parents bought the house, during the renovations they found an old bottle opener with the name of the café on it. Today it is still in one of the shelves in our kitchen and whenever my dad drinks a beer he uses that bottle opener.

I think my interest for renovation and restoration is for one part a result of growing up in this house. On the other hand, it's all about the history they tell. Those buildings are like an old book, you can read them and learn how people used to use and live in them. They reveal a part of the history of man and are therefore very important to us. Although, not everybody always appreciates the beauty they contain. Most of the old buildings become useless after some time because of de-modernization and the only people who truly feel connected to them are the ones that left the traces inside.

From my point of view, it is a challenge to give those buildings a second life and add a new layer of traces. Not only out of love for old buildings but also from a sustainable point of view, I think it's very interesting to deal with old structures and try to adapt them to the contemporary life.

The Value of Old Historical Buildings

"In 'The History of the City', Leonardo Benevolo defines the transition from village to city as being the point at which people started to practice different professions - in other words, the point at which complex networks emerged. A thousand years later, we might now define our own concept of urbanity analogously, as being the point at which new and unexpected networks are starting to arise out of combinations of old ones" [2]

What is the value of an historical building nowadays? Often they are considered worthless and eventually they get demolished.
I've been looking for a good answer to this question, and in a lot of texts I found as a main reason that they give a certain character to a neighborhood that new buildings could never give. In most of the cases, it is this cultural value that is most important.[3] Old buildings refer to the past and are rooted in the city structure, in contrast to the characterless cityscapes nowadays. The buildings are part of each location's identity. However, the location's identity is not only shaped by the more prestige buildings, but also by the everyday buildings used for residential purposes, trading and production. They all relate to the context and are anchored in the collective memory and culture of the people living in the city. Often, people gave those buildings a name and so they can identify with them. And besides these cultural values and the influence they have on the city's character, they also have many important social values. Old buildings contain spaces full of potential and they are perfectly adaptable to our current needs. They can accommodate new uses and improve the urban variety and qualities.[4]
What I can conclude from these texts is that we don't necessarily preserve buildings because they relate to people, like I thought before I did this research. But we preserve buildings because they relate to and structure an environment. They are the perfect starting point for the further development of an urban environment. This environment does not only contain the surrounding buildings, it is the whole complex of streets, public spaces, people, nature, transportation, ...

which is shaped by old buildings. These cultural and social values of old historical buildings are some of the main reasons why we should preserve and refurbish them.
Besides these cultural and social values, there are also some economic values. I didn't quite consider them first but I bumped into them in one of the articles I read.
By refurbishment and conservation of historical buildings, one can make areas of market failure and deprivation more attractive again. It can revitalize the area and provide low-cost floor space, which makes it attractive for the young, creative business and young families to move there.[5]
We see this happening in a lot of cities around the world. A good example is Amsterdam-Nord, its previous vacant and industrial warehouses are now used as locations for art galleries, skate parks, pop-up restaurants and festivals. It became one of the most popular areas to live. Vesterbro in Copenhagen is also an example of a revitalized area. There were a lot of problems with prostitution and drug dealing but after the renewal, the neighborhood became much more attractive again.[6] Of course there is also another side to the story. Because of this gentrification, areas become very popular and the first low-cost floor space price rises because more people find themselves attracted by this specific neighborhood. This is resulting in an urban community shift; the residents that lived there, mostly young low-income artists who created the more attractive neighborhood, need to move out because the property in that area became unaffordable. New (higher class) residents move in and take their place. It is important to keep this shift in mind while talking about revitalizing areas of market failure and deprivation, we should always be aware of the possible consequences.
One of the most important economic values of reusing old historical buildings and which is also generally known, is the sustainable value. By renovating and conserving we avoid the use and waste of scarce resources and try to reuse as much as possible. This is resulting in a reduced use of materials and more need of skilled labor. In this way there is an investment in local economies with higher levels of pay.[7]

"The economic value of new buildings is replaceable in cities. It is replaceable by the spending of more construction money. But the economic value of old buildings is irreplaceable at will. It is created by time. This economic requisite for diversity is a requisite that vital city neighborhoods can only inherit, and then sustain over the years." [8]

Adaptive Reuse

"The process of adapting old structures for new purposes." [9]

Adaptive reuse means to renovate the building and use it in another way then it was used before. The function of the building will change because of the renovation. We adapt the building for new uses but maintain the historical value. This is one of the most effective ways for the reduction of urban sprawl and the environmental impact. We try to prolong the period from cradle-to-grave by trying to reuse as much as elements as possible.[10] Many old buildings ask for adaptive reuse, because very often they were occupied by functions that nowadays are not that common anymore or during the life of the building, it wasn't updated for its original function.

There is a very blurred line between adaptive reuse, renovation, facadism,... But I would like to see it as a compromise between historic preservation and demolition. I choose this topic because it can raise many questions and provoke more interesting discussions about how to deal with the history of a building, even if we don't restore that history. One of the main questions I want to focus on is:

'Can we still embrace the history of a building even if we use it in a total different way? How can we do this? And are there good and bad examples?'

The Community

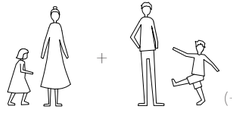
This thesis started with defining a target group. The goal is to create a shared living environment for families with different stories and backgrounds. These families will live together and share spaces in between old and new structures.

The community works like a baugemeinschaft. This means that the initial idea of the project came from the future residents themselves. Families with the same ideas about living and sharing spaces gathered and decided to live together and start up a communal, shared living project like this. The funding and financing of the project comes from the families themself. This means that it is a private initiative and investment. To achieve this they work together with an architect and in some cases the architect is already a part of the group of families that want to start up this project.

For this thesis, 15 fictional families were created.
Including nuclear families, cross-generational families, same-sex families, single parent families and couples, the group of residents becomes very various and interesting to work with.
The family types are defined very detailed. In this way I could experiment with different combinations and situations of living together. It gives me the opportunity to design homes for specific people with specific needs.

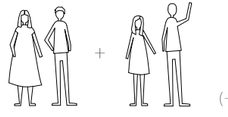
The families illustrated in this drawing were used as a starting point for the project. The final design proposal will be a housing proposal for the families you see here but other future family scenarios were always kept in mind during the design process. The homes will be designed in a flexible way, in which many different family types and compositions are possible.

HOUSE 1
Two single parent families

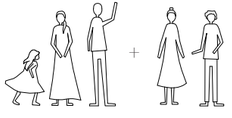


HOUSE 2
Young couple and same-sex family

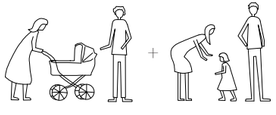
HOUSE 3
Two young couples



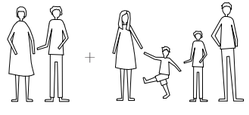
HOUSE 4
Cross-generational family



HOUSE 5
Two nuclear families

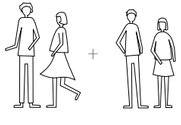


HOUSE 6
Cross-generational family



HOUSE 7
nuclear family

HOUSE 8
Two couples



The Site

Fig. 01: Ferraris, Gouvernment map of the Austrian Netherlands and the Principality Luik, 1777.

Boom, Belgium

Starting from 15 different families I did a lot of research to find the perfect site for my project and topic. After contacting many people, an architecture firm from Belgium called ‘Lezze Architects’ recommended me an old abandoned brick factory in Boom.

Between Antwerp and Brussels one can find the town called Boom. Boom is located next to the Rupel, a river that connects the site to Antwerp. This connection is very important because of its history. The whole area, called the Rupel region, is famous for brick production. Brick is one of the main building materials in Belgium. This is because most of the soil contains clay and that is the main material to produce bricks. The Rupel region consists of the villages Hemiksem, Schelle, Niel, Boom, Terhagen and Rumst. It was the most active region in Belgium during many years.[11]

The first signs of brick production in this region date from the 13th century. During that time, brickfactories were a very local industry. Only when there was a city close by, this could evolve in a pre-industrial activity. From the mid 19th century, we can speak from mass brick production. The inducement for this mass production was the start of huge building constructions in the surounding cities.
Between 1970 and 1980 the number of brickfactories who were active increased from 33 to 14. This was due to the aging state of the factories and the new automation machinery that took over the market. In 2009, there is only one active brickfactory left in the Rupel region.[12]

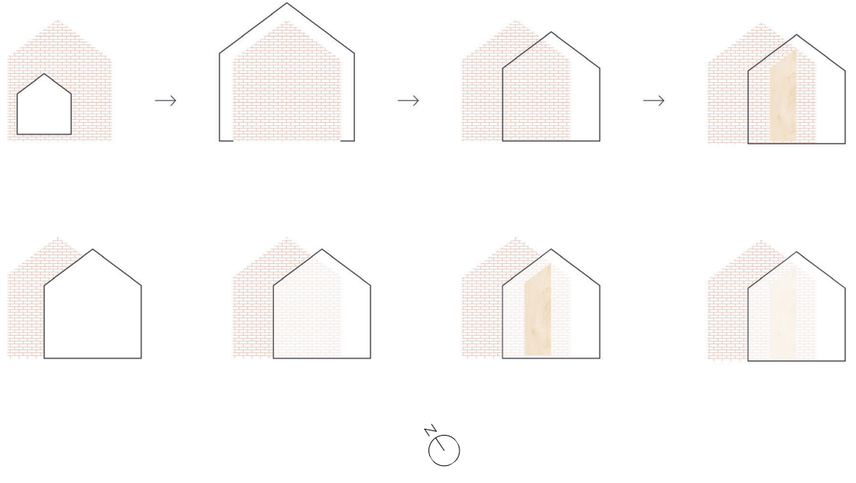
The old brick factory I will work with is situated in Noeveren, which is a small part of Boom. What makes this place so interesting and unique for my project is the history of the site and what happens there today.

Masterplan Boom
scale 1:40 000

Noeveren

The most known brick production area in the Rupel region is called Noeveren. Noeveren is a protected part of Boom where three historically famous brick factories are located. The three brick factories are connected by one main street parrallel to the Rupel. Each factory is not only connected to that street but also to the river. This offered an optimal connection between the factory and the tranportation of the goods.
Today, Noeveren's main function is tourism. Besides housing and a playground, the majority of the old factory buildings today belong to the museum. This museum is about the history of the site and the brick production. It is about the local living and working situation in the past. Not only the history and museum, but also the beautiful walks and bike routes along the Rupel attract many people from all over Belgium.

The first factory is called Peeters - Van Mechelen and is located next to the border with Niel (another town). This factory is not a part of the museum. It houses 5 families and an architecture firm, the architecture firm that recommended me this site. Here, 5 families live together and some are part of the architecture firm.
The second factory, situated in between the other two factories, is called Frateur. This factory is because of its special and very well preserved architecture completely part of the museum. The guided tour organised by the museum includes not only the exteriors but also the interiors of the frateur factory.
The third and last factory is called Novobric - Lauwers. It is located the most close to the centre of Boom and is the first one you see when you enter Noeveren. The factory excists of two main parts. One part is part of the Museum, it functions as the start of the guided tours. And the other part, on the other side of the street, are abandoned dry and machine halls. These halls will be the context for this research.



Masterplan Noeveren
no scale

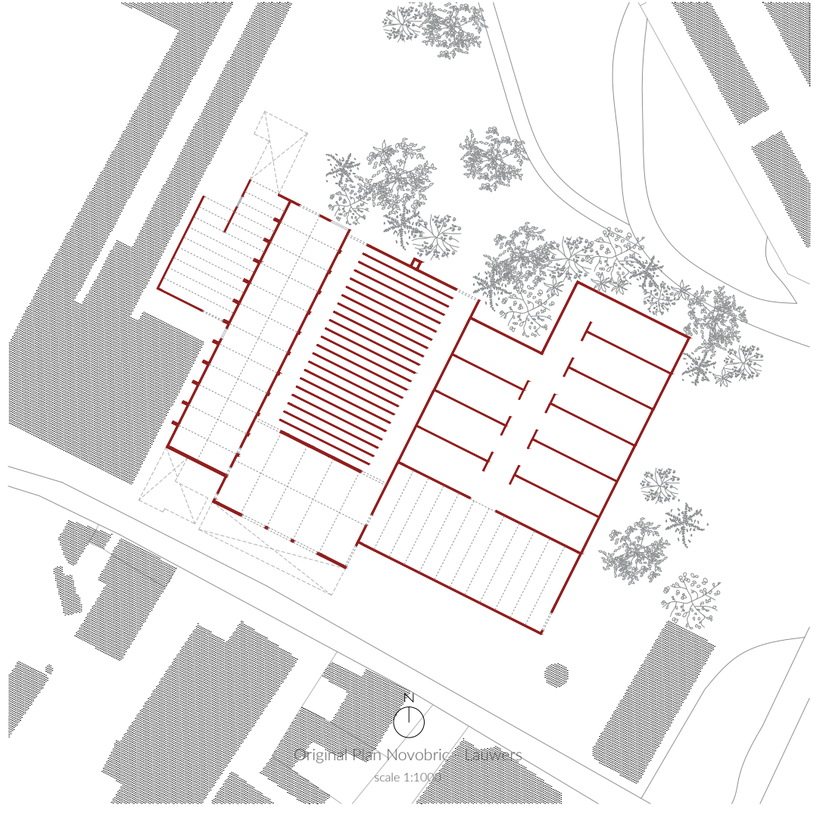
The Novobric - Lauwers Factory

The part of the Novobric - Lauwers factory that I will work with consists of 5 halls. These 5 halls were built in 1961 when the Lauwers brothers took over this factory. They were build as machine and dry halls in addition to the old factory on the opposite side of the street.

The building is surrounded by protected heritage but is not protected itself. Although, the halls are still considered from high value. That is why there will be some changes in the spatial implementation plan (called RUP in Belgium) of this area for the future. Today, the area is located in an industrial zone, most of this site consists of a combination between industry and living. Now they want to introduce a RUP proposal to change and rezone the industrial parts into historical and cultural functions and sometimes mix them with living functions. This RUP was withdrawn due to an appeal to the Council of States.[13]

The municipality of Boom has stated that because of the great potential of the big, open spaces, the halls could be the key to attract new functions to the site. The new functions have to be implemented with a maximum of respect for the history of the building. It is important to know that changes can be made but the main structure and industrial look and feeling of the building has to be maintained. The roof structures and scars of the past have to be reused and highlighted. And at last, the outdoor brick facade has to be maintained and the entrances of the building have to be revisited.

Today, the halls are not included in the museum tour, but in the future they could be used as a starting point or reception for the museum. They could also include other public functions like clay ateliers to support the museum and attract more visitors. The open space surrounding the old halls will be used as a communal meeting point/ garden for the neighbouring houses and for parking space.



An Inspiring Site

This site was a great inspiration because of many reasons. First of all, it offered a very free and interesting context for my thesis. Not only because the building was not protected heritage, but also the flexibility and freedom of the big and open halls was decisive for the choice of this site. In this way I didn't had too many limitations and I could put all the focus on exploring and experimenting with new ways of living and dealing with the old and new.

A second remarkeable feature of the site was how an old way of living was reflected in the old buildings. I recognized an old living typology on the site, the living typology of the working class living next to the factory and the chief of the factory living in a bigger house. They all live together and share spaces. This old living typology that was already present on site inspired me to experiment with new living typologies. One can say I reused, revisited and improved this old living typology that was already present on the site and converted it into a new living typology adapted to the contemporary life.

When I visited the site, I captured some elements of the excisting site. Initially because they intrigued me, but during my process they started to influence my design more and more. You can see the most important ones in the pictures on the next page. I will explain them from the top to the bottom.

The first element I called the element of large apertures. It mosly inspired me on how to cut in the excisting building. The big opening allowed the light to enter the building and framed the outdoor spaces in a abrupt but clear way. It felt as a moment of relief as I walked through the big, enclosed and abandoned spaces.

The second element is the element of time. I called this the element of time because I had the feeling the halls were built in different periods of time. They are connected to eachother in strange ways and completley disorganised. It feels like they were built in times of urgent need for more space. Not only from the way they are places together but also from the difference in materials depending on the hall.

The next element is called the element of connections. With connections I mean the connections between the halls, in this case visually. Every hall is connected to another one in a different way. One hall gives a hint of the next one through different openings.

The last element is the element of rythm. The rythm of the old structure is a beautiful element of the site and was in a way a guide in my design process.

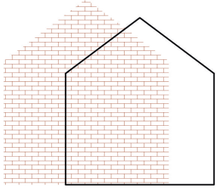
Fig. 02: Element 1

Fig. 03: Element 2

Fig. 04: Element 3

Fig. 05: Element 4

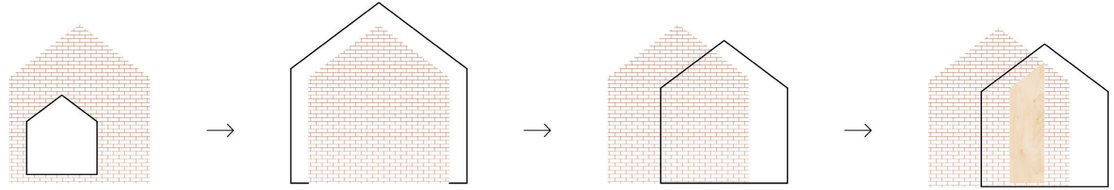
The Concept



In this thesis two main ideas guided the whole process. The idea of how to deal with old and new, and the idea of how to define and work with the public - private gradient. These ideas slightly turned into two main concepts. A third concept evolved out of connecting the first two concepts with eachother and make them relate and work together.

Old - New

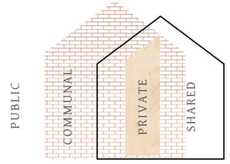
The first concept is about how to deal with old and new. The idea and goal from the start was to include the existing museum in this project. This is why I didn't want to fill up the building with walls and floors. I wanted to leave parts untouched so residents and visitors can still explore the spaces the way they are today. This is why I started working with the concept 'a building inside a building'.
I started to explore the concept of the old capturing the new. Here I discovered that it allowed me to leave parts untouched but it limited me in the way of letting light into the new volumes and also playing with the exterior. The next step was testing the opposite, how the new could capture the old. This still allowed me to leave parts untouched but it limited me in space and creativity. Finally I combined them both. In this way I could create the most interesting situations between old and new. Where sometimes, old exterior walls become new interiors and vise versa.
Inside of the new volumes a wooden core was added to define and create the interiors.



Public - Private

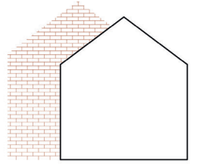
The second concept is about the boundary between public and private. After testing how I could make these families live together in a way that they also have the possibility to have enough privacy, I placed 8 volumes in the old building. According to where they are placed, sometimes the new captures the old and the old the new. In every volume two families will live together and share spaces.
The strategy that was used for this project works with 4 levels of the public- private gradient. On the outside of the building, the majority of the spaces are public and open for everybody. As soon as you enter the building, you enter the communal spaces, which are covered multi-purpose terraces. In the old complex 8 new house blocks are located. In each block, 2 families will live together, everytime in a slightly different way according to their family type and wishes. The most private, and also 'wet' spaces are located in a wooden core inside every house block. This concept was used to organise the whole masterplan.

PUBLIC - COMMUNAL - SHARED - PRIVATE

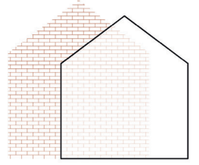


Materiality

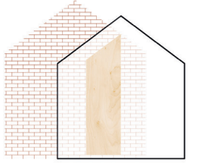
The third concept that was created mainly supports the previous two and helps to connect and relate them to each other. This concept is about the materiality. The 8 volumes that were placed in the building are made out of a simple steel skeleton construction. This steel construction is covered in polycarbonate façade panels.
The desicion to use this material was based on the discovery of several features and advantages of the material.
A first remarkable feature is that these panels do not only allow the light to enter the homes but they also create an interesting contrast between the old and new structures. I discovered that by placing the polycarbonate material close to the old brick wall the brick can enter the new interiors and the wall can still be insulated. This offered a lot of playfullness and possibilities when combining all the different kinds of materials. When we look at the combination of materials, one can notice that the polycarbonate also works as a good transition between the cold, industrial feeling of the bricks and the warm, homy feeling of the wooden cores. I decided to work with the wooden core mainly because this will add a warm feeling to the old industrial building. A last advantage of the polycarbonate is that it does not only connect the new spaces with the old spaces, but it also connects the public and communal spaces with the shared and private spaces.
After all these observations I concluded that ploycarbonate façade panels were the perfect material to support and complete the whole project. Adding this one material helped me in connecting all my ideas and concepts to eachother.



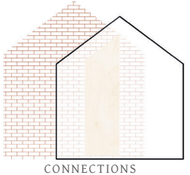
CONTRAST
old brick
><
ew transparent polycarbonate



TRANSPARENCY
allows the old brick to en-
ter the new interiors



TEXTURES
the wooden core gives the
industrial building a warm
feeling



CONNECTIONS
The translucent shell connects
all the spaces

The Design Proposal

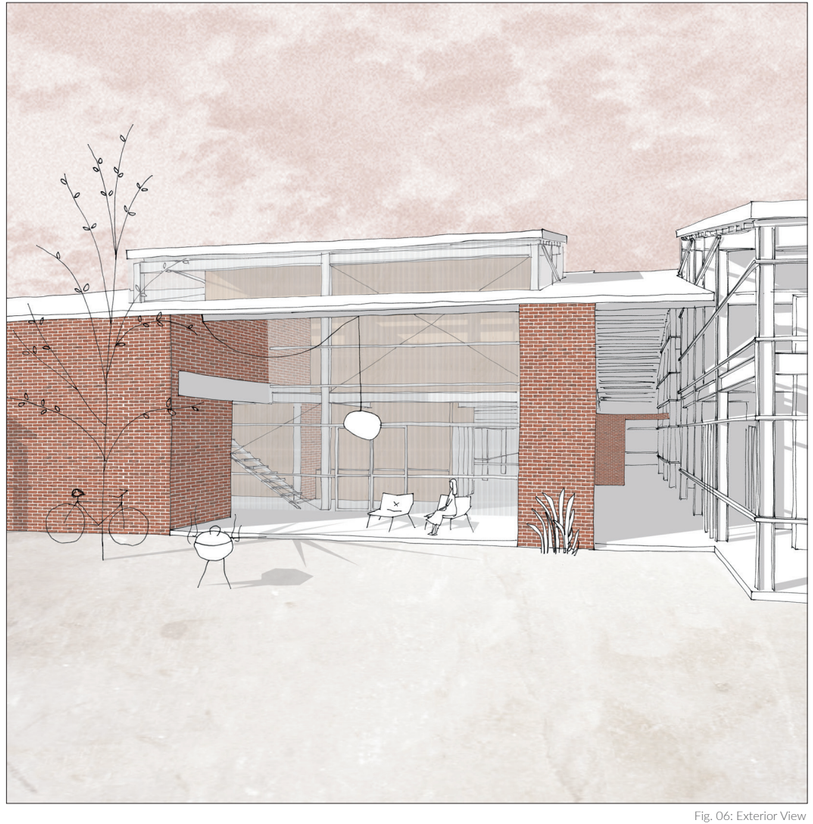


Fig. 06: Exterior View

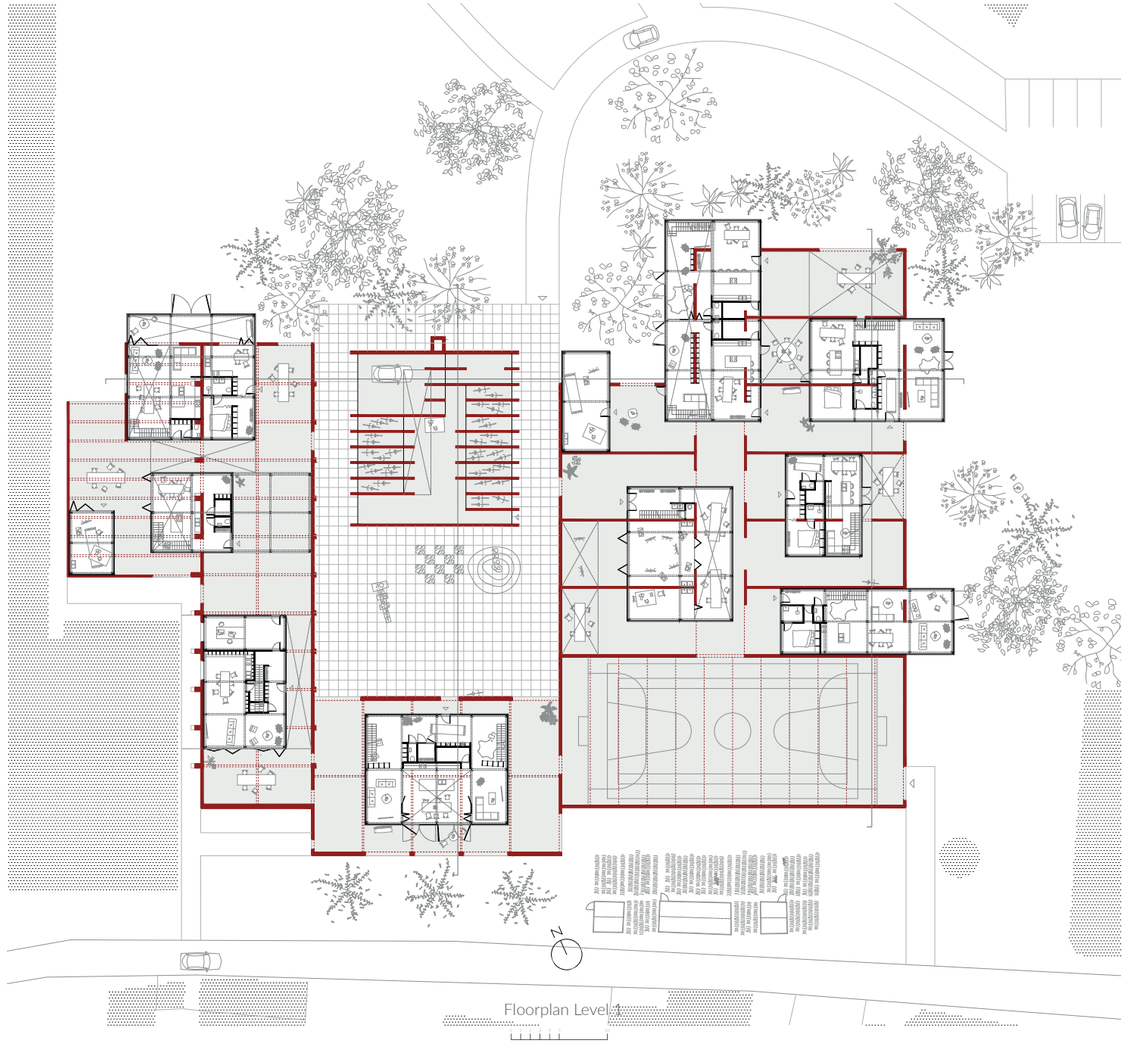
Masterplan Novobric - Lauwers Factory

The final master plan of the project illustrates the new volumes that were added in the old building. As I explained before with the concept, 8 of these volumes are house blocks. In every volume 2 families live together and share spaces.

The public – private strategy is clearly reflected in this floor plan. The light grey spaces in between the new volumes are the communal spaces. The new volumes pop out and you can see how they sometimes capture old walls (red) in their new interiors. You can recognize the wooden core inside of every volume by the more massive structure compared to the light polycarbonate outer walls of the volume.

The three remaining new volumes contain ateliers whereof two private ateliers that belong to the houses and one public atelier that belongs to the museum.

Another remarkable design decision that was made is to open up the central hall and create a communal inner courtyard. By doing this, light can enter the core of the building and people can meet and come together in a central space. This space is connected to the gardens by two passages. The result of these new openings and cuts is not only a central courtyard, but also a new independent pavilion that connects the houses and inhabitants to the gardens and open spaces surrounding the existing building.



Historical monuments and landmarks surround the whole building, therefore it is neccesary to also integrate and include them in the new design proposal.

An important design issue was how to approach the new building. Today, there is no clear entrance to the building. This is mainly because it was an industrial building and therefore they used a different kind of entrance then for public or residential buildings. Because of the fact that the new building houses two new functions, I also decided to create two main entrances, one entrance for the residents and one for the visitors. Both entrances start from existing parking spaces which I slightly enlarged a bit.
The residents enter the building from the north-east side, they can park their car and from there walk to their homes or they can enter the courtyard by car. This possibility to enter the courtyard by car is only for special occasions when there is the need to come closer to drop-off goods or people.
For the visitors, the parking is located close to the entrance of the museum and to the most public functions of the building. It is also located at a crossroads that connects the two most important streets to each other. This specific location of the parking also creates a very clear starting point, visible from many directions for everybody who wants to visit the historical site and museum.

The museum tour starts on the opposite side of the street, where people can gather in front of the oldest part of the Novobric – Lauwers factory. After crossing the street, they will enter the building through the multi-use open space. This space is very well accessible from the street and parking and can be used for many public activities. Indoor markets, sports, exhibitions, parties and events can all take place in this particular hall. When the tour continues, the visitors pass through the open courtyard and furtheron through the building towards the old ovens where they stop to get more information. From there on, they can walk back to the street and continue their tour to the other factories or go for a Belgian beer in the local pub on the opposite side of the street.

Another extra facility that was not included in the museum before is the clay workshop and ateliers located close to the multi-use space and easily accessible from the parking and street side. Along with the museum tour, big groups and schools visiting the old brick factories can now also participate in a clay workshop. In this way, young and old can have a direct contact with the material of the site. They can explore it and use the material for their own creations.

As I said before, a new independent garden pavilion was created by cutting the central hall open. This pavilion creates a connection between the homes and the surrounding. It houses multiple functions, which bring the residents closer to the nature around the building. In this pavilion, every family has its own bike storage, this storage can also be used as extra storage space for other goods. The communal garbage room where the families can sort and recycle their garbage is also located here. Besides bike storage and a garbage room, there is also a big repair workshop. Not only for furniture, bikes or other goods, but even for cars. At last, the pavilion is also the place where the residents can pick up their post.

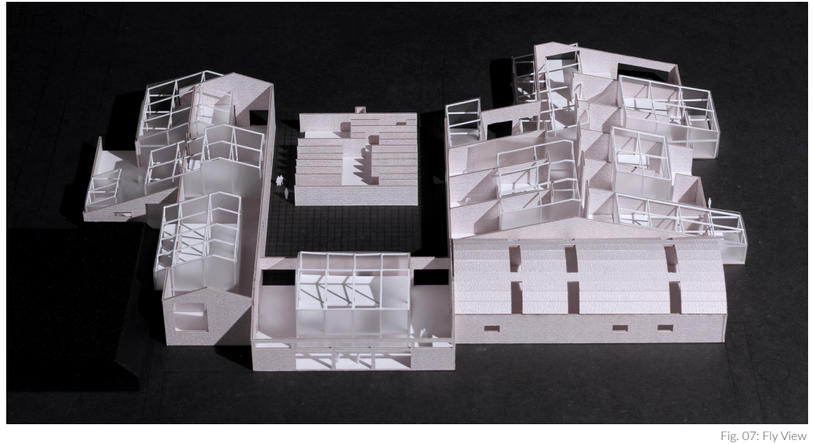


Fig. 07: Fly View

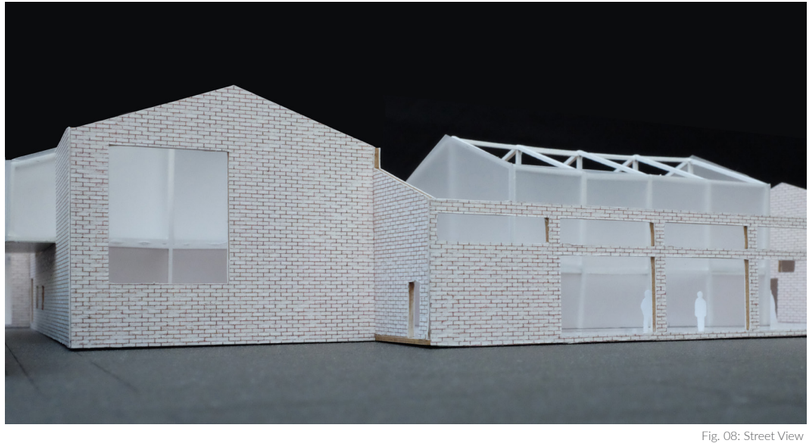


Fig. 08: Street View

Fig. 09: Backyard View

Sections

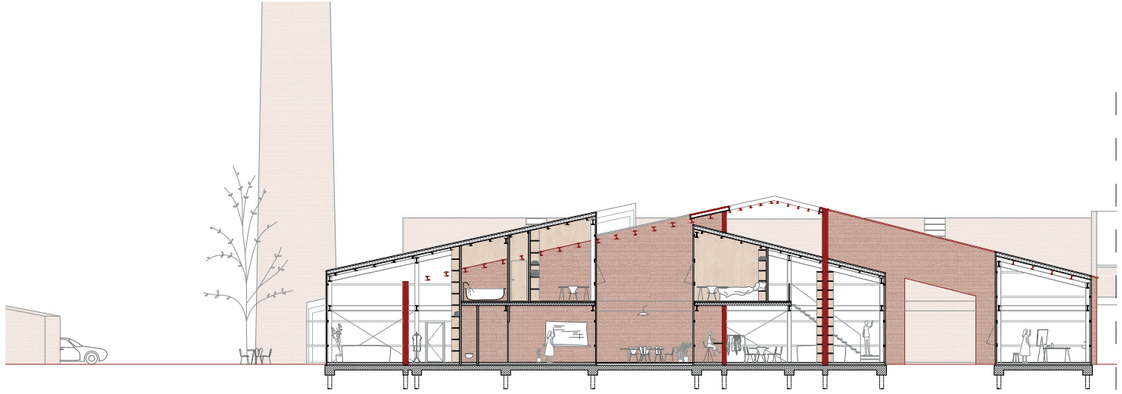
The sections that were made show the concept in the best way, they explain and illustrate everything in a way that you will understand the project better. Therefore, they are a very important communication tool.
In the sections you can see how the old meets the new and how the different materials work together.

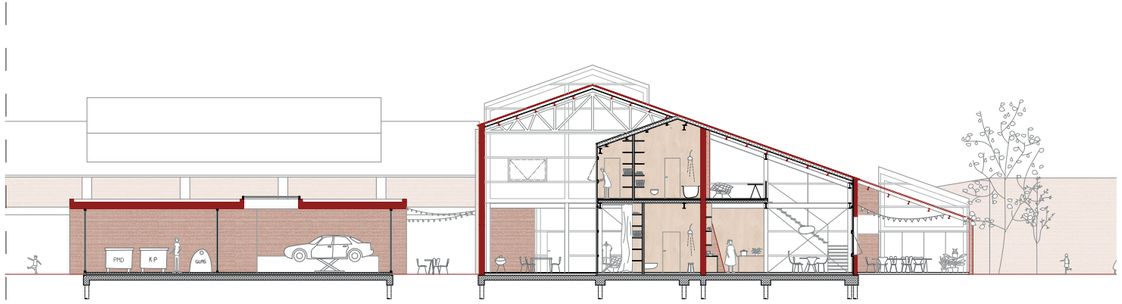
The first section cuts through house 6, house 5 and house 4. It also cuts through the atelier that belongs to house 5 and the communal central pavilion.

The second section makes a cut through the multi-purpose hall that was left empty so it could adapt to different ways of ussage. Furtheron it cuts through house 7 and house 6.

The third and last section cuts through house number one and again through the communal central pavilion, this time in a different direction. What is important in this section is that is also shows how the central open space works in connection to the surrounding houses and buildings.

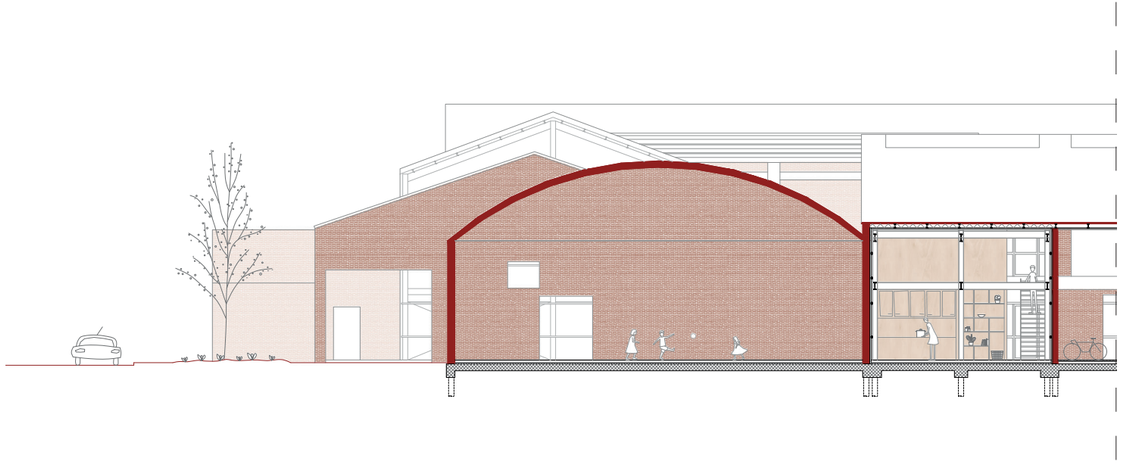
Fig. 10: Exterior View

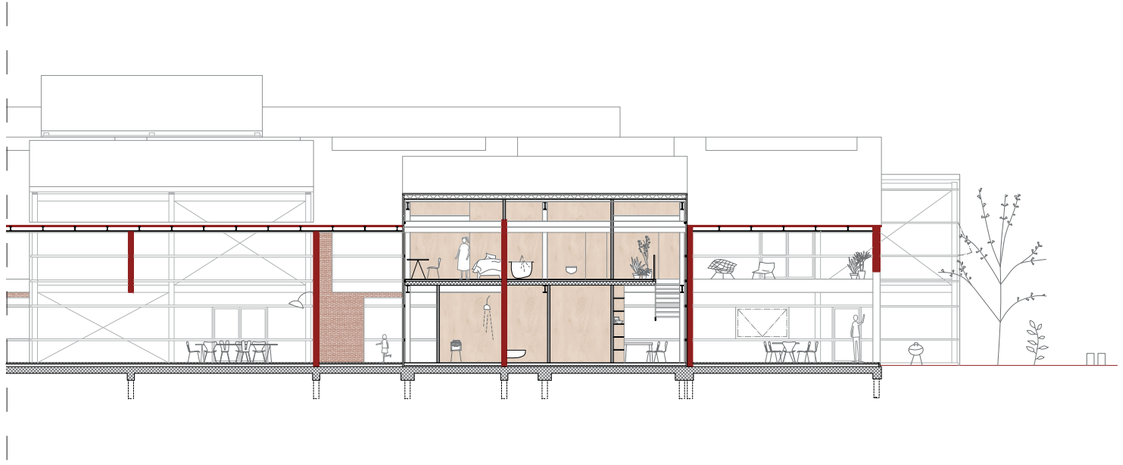




0 1 2 3 4 5 10

Section 1





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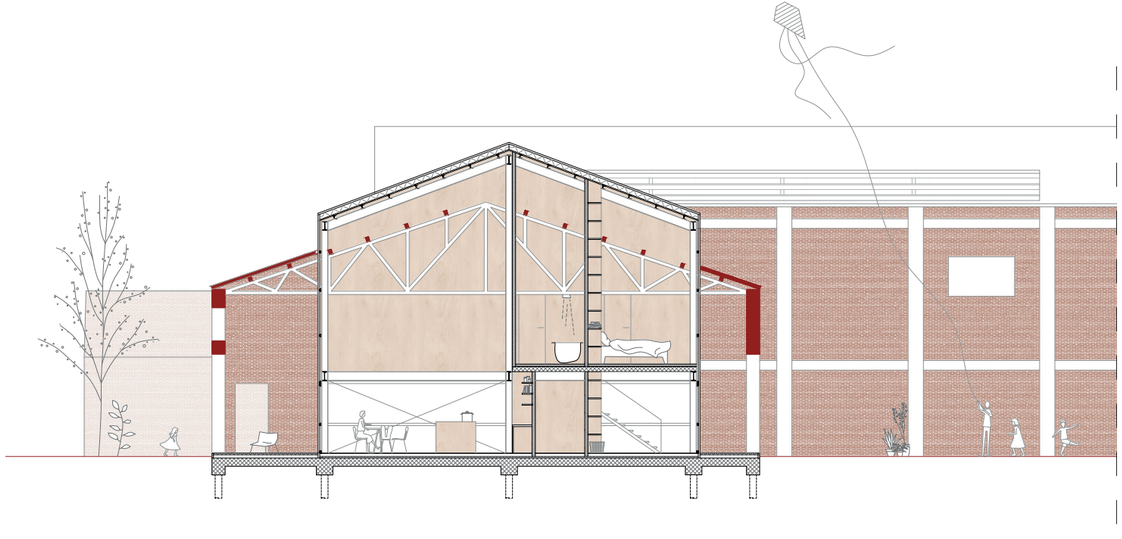
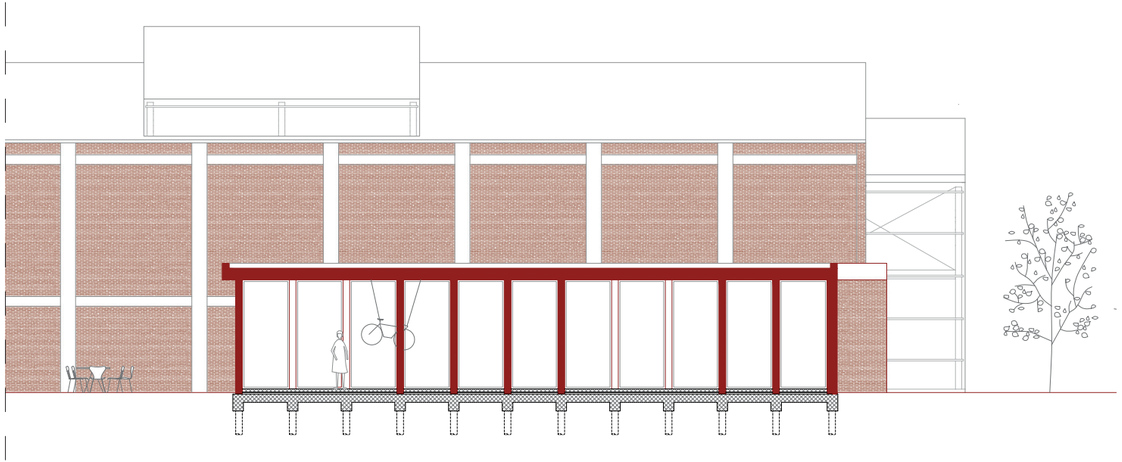
Section 2





Section 3

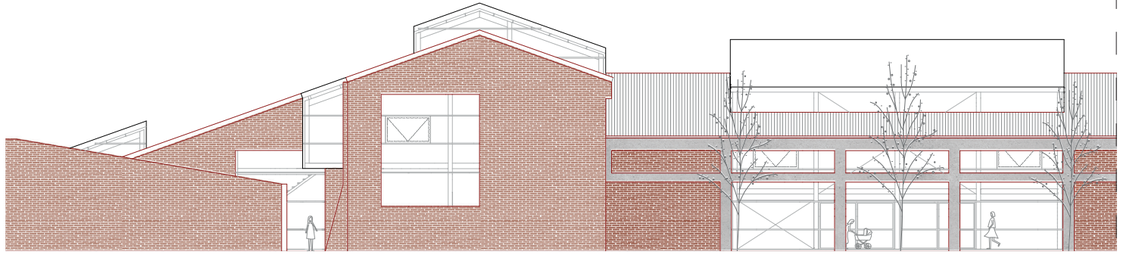
Facade

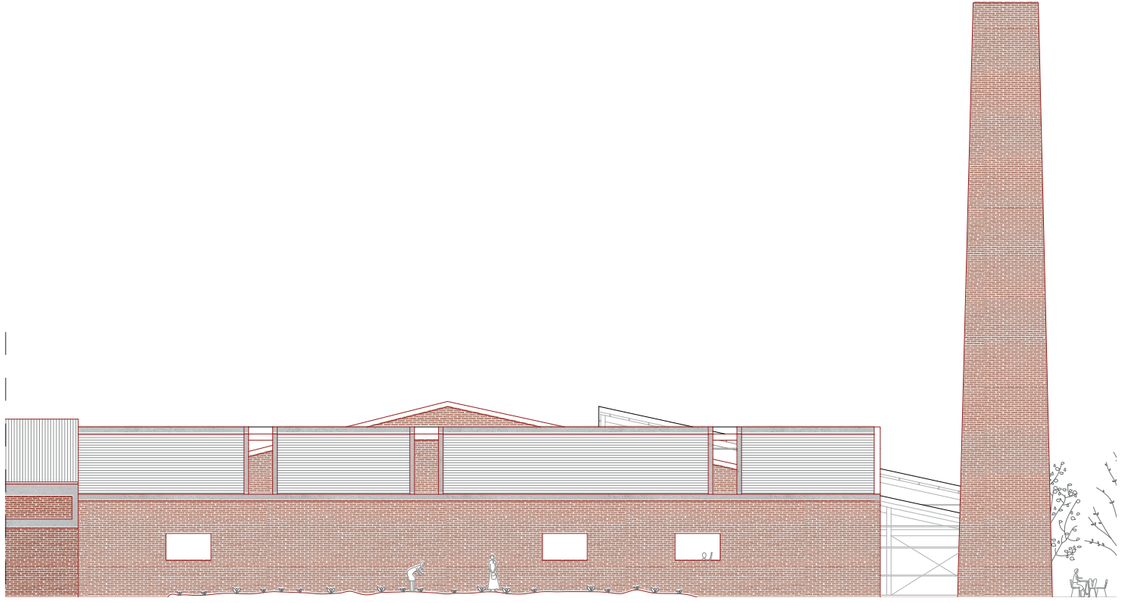
At the start of this thesis, the idea was to leave parts of the building untouched. This idea is clearly reflected in the facade. The old facade is almost completely the way it was besides some new openings that were made. The only big difference is that now you can see where exactly the new intervened with the old. The new volumes pop out of the old in different ways and in different places. This creates a very various facade that looks different from every angle.

Fig. 11: Chimney Novobric - Lauwers Factory

Fig. 12: Facade Novobric - Lauwers Factory

Fig. 13: Facade Novobric - Lauwers Factory





Facade

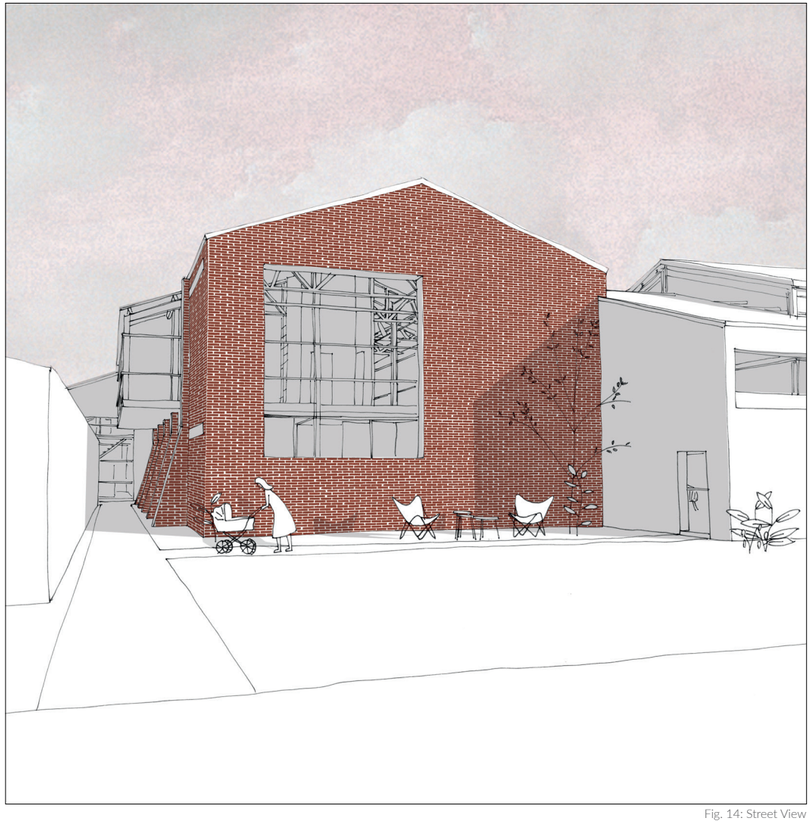


Fig. 14: Street View

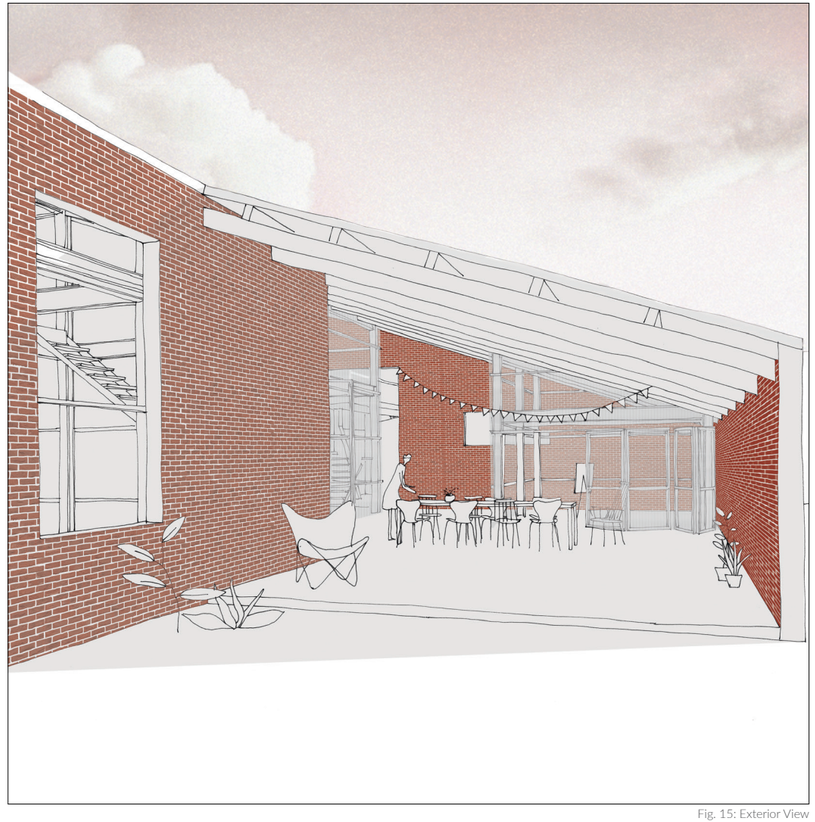
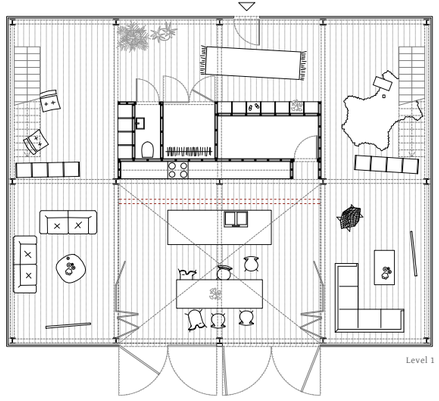


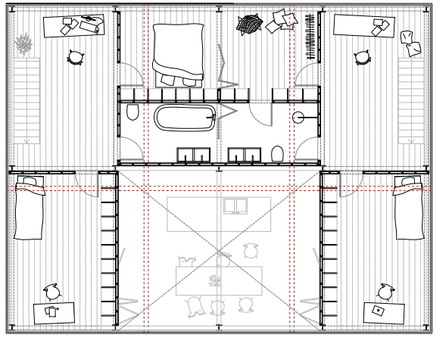
Fig. 15: Exterior View

House 1, Two Single Parent Families

In this multi-family home two families can live together. On the ground floor, they enter through the same entrance, but have separate living spaces. The central space in this house is the kitchen, where both families cook and eat together. On the second floor they are connected through one (or two) bedrooms and the bathroom. The bathroom can be one big bathroom, or two separate bathrooms. The bedroom can be used as a big room for the children, two smaller rooms for the parents or a big bedroom with dressing if there is only one couple. This house can be used by maximum 6 people, depending on the family situation there are many combinations possible.
The whole house offers the possibility to live as two separate families, but also to open up all the spaces and live as one big family.



Level 1



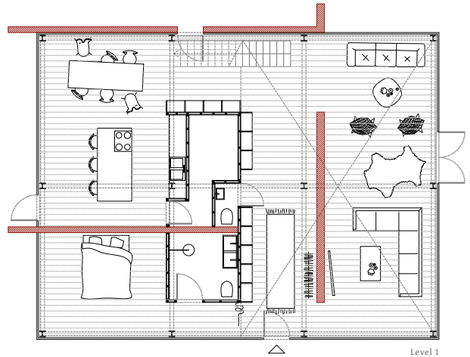
Level 2

House 1
scale 1:200

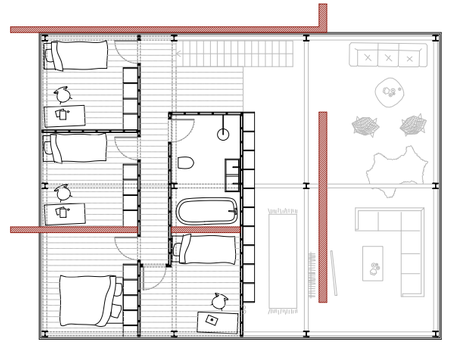
House 6, Cross-generational Family

This home was designed for a cross- generational family. This means that different generations of the same family live together and share spaces. In this case, there is the possibility that grandparents can move in on the ground floor. Besides their own private bathroom, they share all the spaces on the ground floor with the rest of the family. The second floor contains of sleeping rooms and a bathroom for the other part of the family.

This house can not only be used by a cross-generational family but it also offers a lot of different possibilities for different kinds of families. It could also be suitable for bigger families with 4 children or for a family that wants to rent out a room in their house.



Level 1



Level 2

House 6

scale 1:200

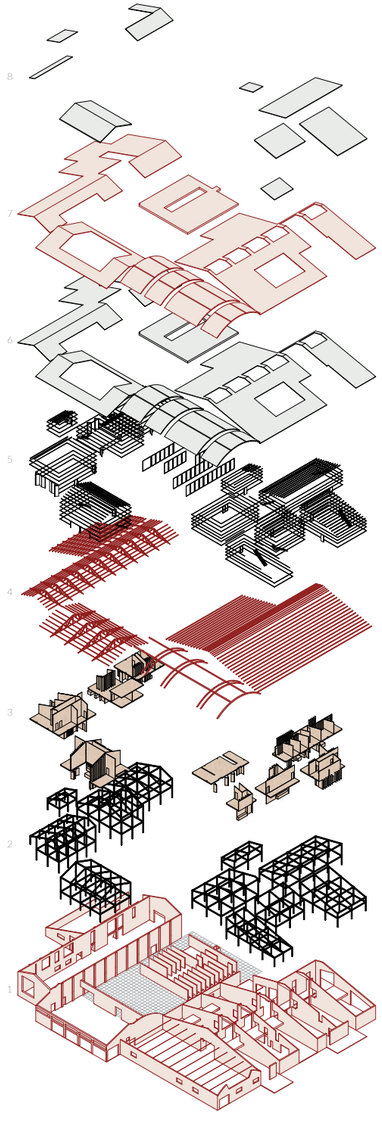
Fig. 16: Interior View

Fig. 17: Interior View

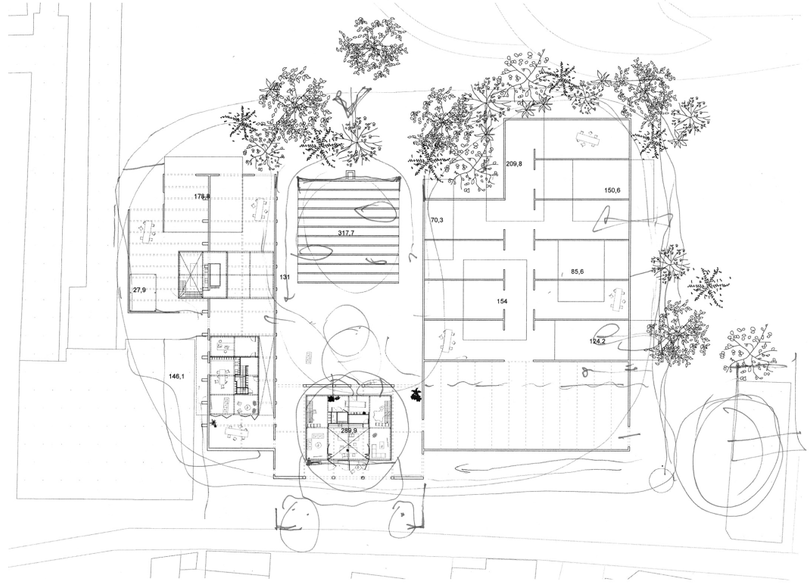
Exploded Axonometric View

This drawing is very important to fully understand the project. It illustrates the different construction layers of the old and the new and shows how they relate to eachother.
To completely support the initial concept of the project where the old captures the new and the new captures the old, it was very important to make the old structures visible and untouched in the interiors of the new volumes. To achieve this, a solution for solving the cold bridges had to be found.
After testing different solutions, one option turned out to be the best. By adding a new insulation layer (nr. 6) on top of the old roof structure (nr. 4), a compromise between the concept and the cold bridges was made. Not only because of the number of solved cold bridges, but also because this option allowed me to take the concept of old and new all the way through the project.

1. Old brick walls
2. New main structure: HEB 200 columns and IPE 270 beams
3. Concrete slab + plywood core
4. Old roof structure
5. New secondary structure + polycarbonate facade panels
6. New insulation layer in sandwich construction
7. Old fibre cement roofing (grey)
8. New roofing: insulation layer in sandwich construction
   + new fibre cement roofing (white)



Appendix 1 - Process


178,8
317,7
209,8
150,6
70,3
85,6
154
124,2
131
27,9
146,1
289,9

03/02/2015

Fig. 18: First Interpretations

First Impression of the building, first ideas, first brainstorm. How can the building be used? What can happen inside? What are the possibilities? What can I do with the spaces I have? How do I want to approach the building? Do I want to fill it up or do I want to work with one part?

25/02/2015

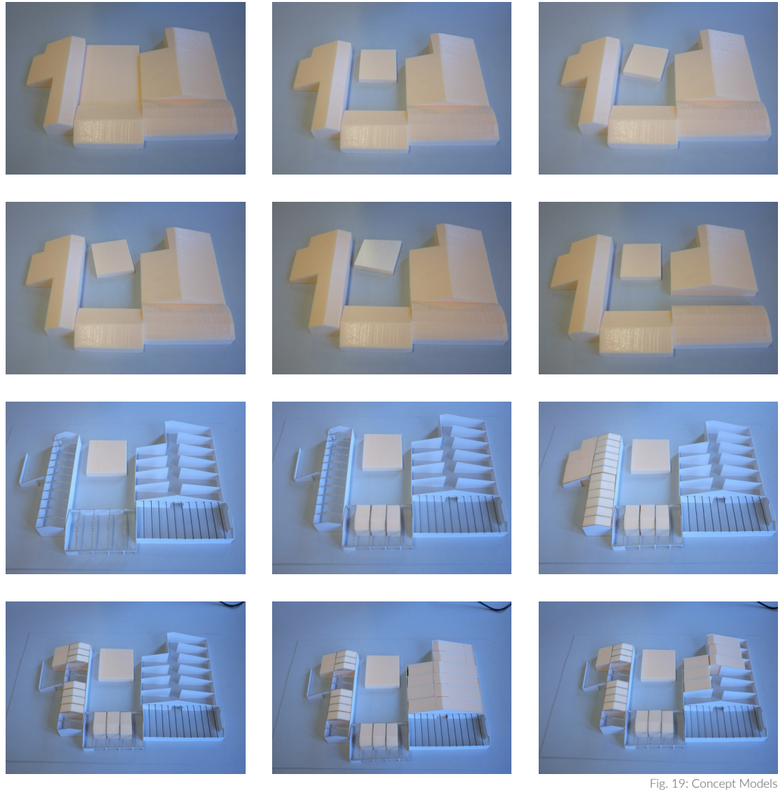
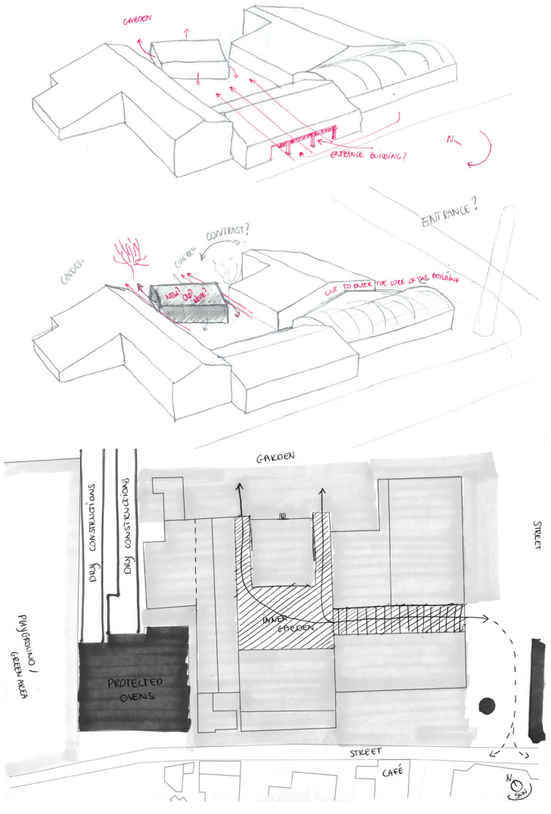


Fig. 19: Concept Models

How to reorganize this building? Where do I make cuts? Is a central open space needed? What value could this open space add to the building? How can the open space relate to the gardens? Idea of a building inside a building. How will I add volumes? Do I follow a grid? Do I follow the original structure of the building? Where do I place the volumes?



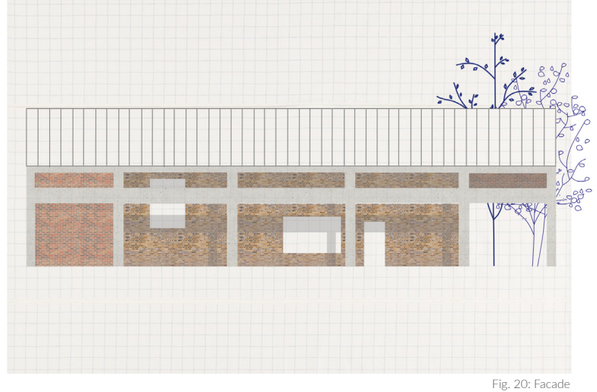


Fig. 20: Facade

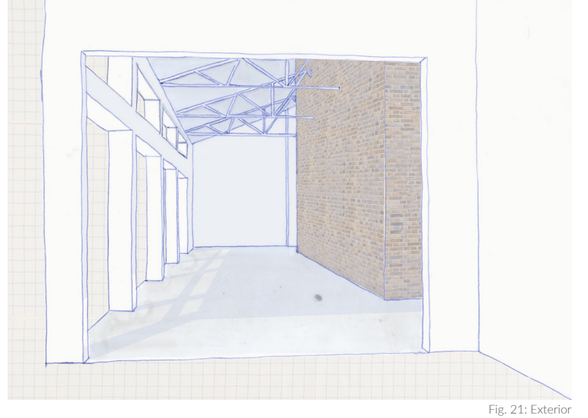
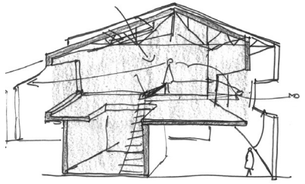


Fig. 21: Exterior

In what kind of materials can the volumes be? How will the contrast between the old building and the new volumes look like? Do I want a contrast between old and new?



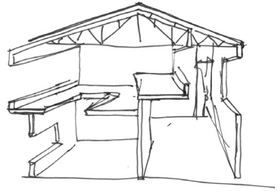
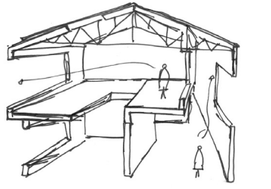
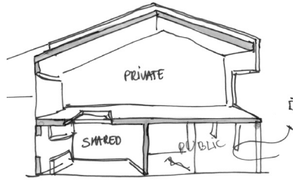
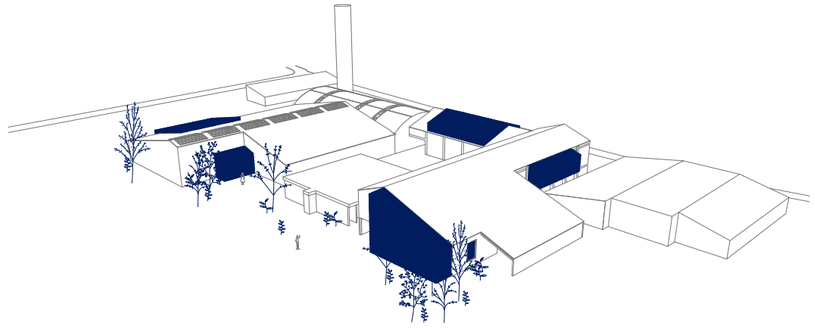


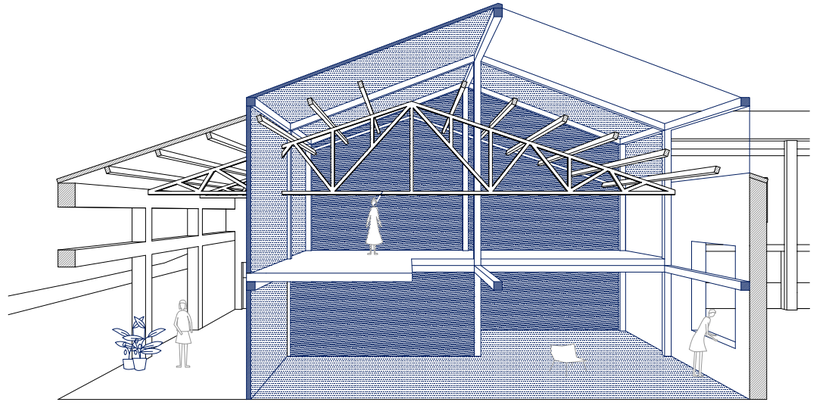
Fig. 22: Exterior
Fig. 23: Exterior



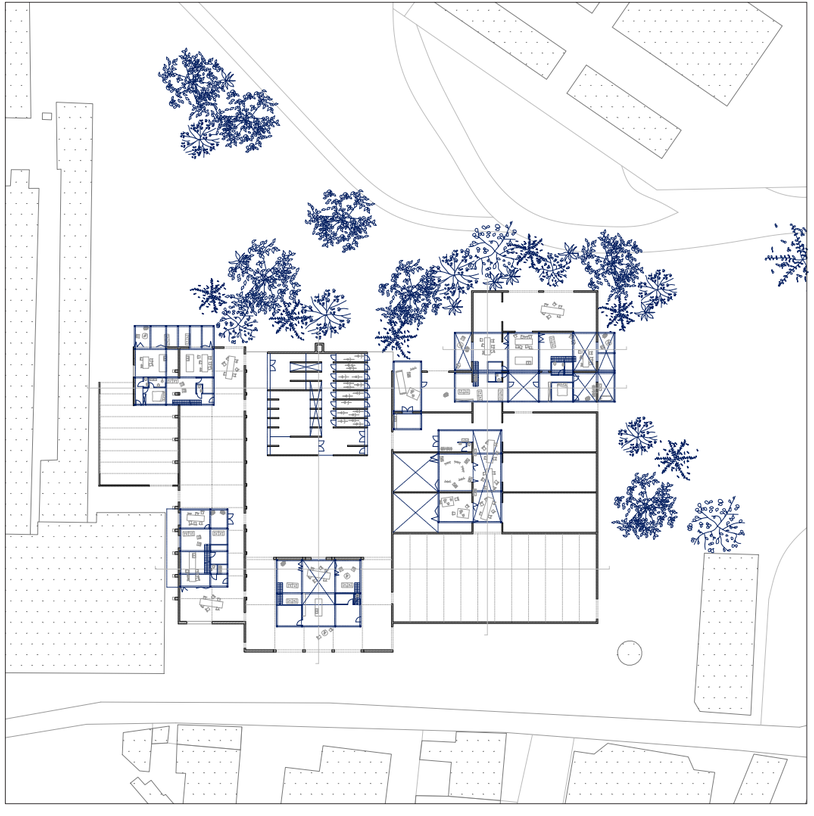


The concept starts to work completely but I am still struggling with the materials.





The volumes expand outside of the borders of the old building. The new captures the old and the old captures the new.



Also the density of the volumes I placed in the old building is not enough. More volumes will make my concept stronger.

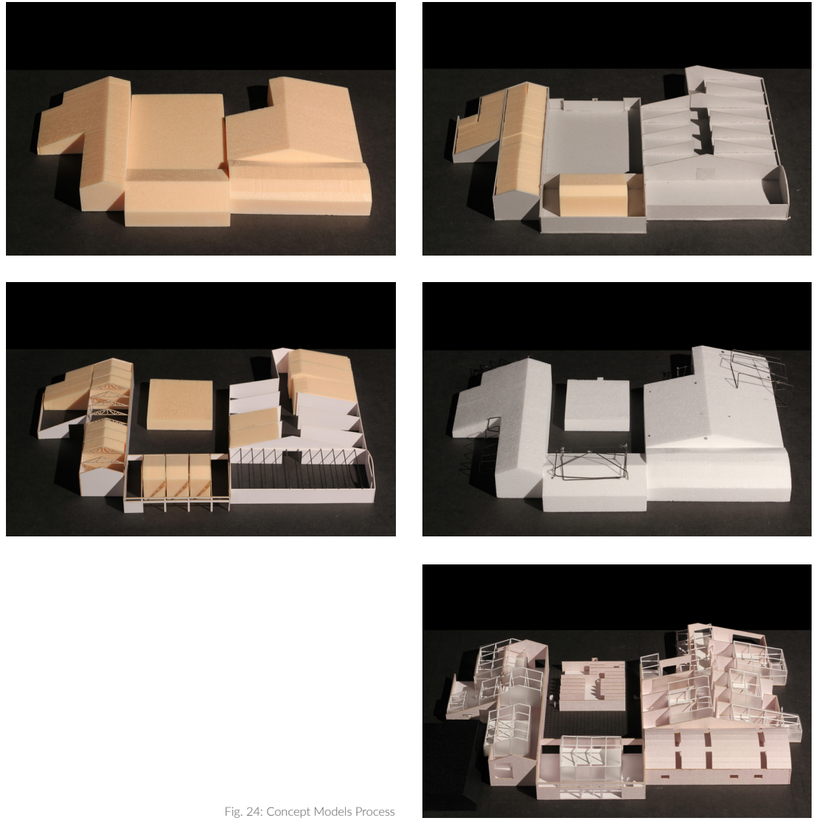


Fig. 24: Concept Models Process

Appendix 2 - References

Besides projects from Lacaton & Vassal, Architecten Devylder Vinck Tallieu, Indra Janda, Naruse Inokuma Architects and many more, from the very beginning I got inspired by two special projects. These projects helped me decide and finalize the topic of my master thesis. The first project is Grindbakken, a project in Belgium by ROTOR. And the second project is called Hedmarksmuseet by Sverre Fehn in Norway. Both projects made me think about how to approach and deal with an old building. They fascinated, inspired and helped me while developing my thesis.

Grindbakken, Belgium – ROTOR

The first reference is a project in my home country, Belgium. More specifically, it is located in Ghent. The 160 meters complex of concrete bunkers is located next to the canal side and was used to store sand and gravel (grind in dutch). During the last decade the harbor of Ghent moved further away from the city center and these docks became abandoned.

A renovation project by architect Sarah Melsens and artist Roberta Gigante turned these docks into a multi-purpose public space, a space that can be shaped by the users. They invited the Brussels-based architecture firm ROTOR to collaborate in the process. Melsens and Gigante proposed two radical changes. First, they wanted to make cuts in between the bunkers so the public could circulate easily through the public space, the architectural promenade is a very important aspect in this project. Second, they wanted to paint the whole complex white and put the grindbakken in the 'light'. ROTOR mostly influenced this last intervention. They suggested instead of painting the whole complex white, to keep some parts as they were, depending on what they revealed. By whitewashing the old structure, they can shine light on specific parts and the space can tell a story and give a history lesson.

Together with an engineer, a botanist and a former worker at the complex, they defined 36 areas that they were going to leave untouched. These areas all show traces of the history of the building. The time that past is always very visible in the behavior of concrete. Boundary's between one pour and the next one, color changes due to water and corrodes. Not only they framed the behavior of concrete, but also the behavior of nature, the botanical traces plants and minerals left in the spaces. Another trace, which is very common in abandoned buildings, is graffiti. The docks were covered in graffiti and so they became a part of the history.

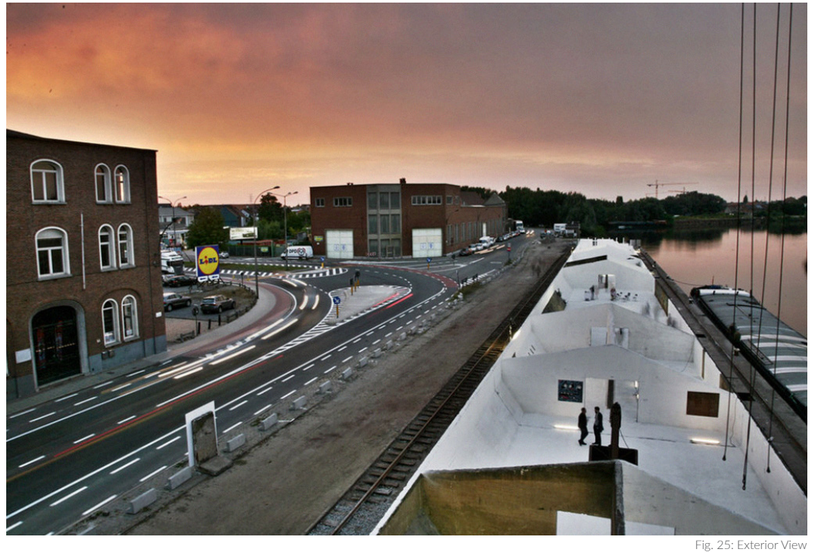


Fig. 25: Exterior View

The bunkers are all equipped with water and electricity, therefore activities and events can take place. They work as a canvas for future activities like theater, markets, expositions, sport games, picnics, concerts and many more.[14]
Something funny to notice is that the originally renovation of the project stayed intact for about 3 to 4 weeks, after that new layers of graffiti were added.
The area around this public space will become a new residential area in the near future and renovating these old docks was a first step towards the development.

"The bunkers are a reminder to always think twice before obliterating traces of history, making buildings more mute."[15]

I have to say, this project became a big success in Belgium. I think it is mainly because of it's simplicity. The minimal changes they made resulted in a very legible and accessible project for everybody. It is a project that attracts every kind of person; families with children, elderly, even people without any cultural knowledge or interest. The only thing I'm afraid will happen, is that the success will fade after some time. The original purpose of the project was to create a multi-purpose public space. In some way they succeeded in their intent, but on the other hand I feel this project much more as an exhibition space. They lost a bit their focus on the multi-purpose aspect of the project. All the people that visited the project didn't went there for one of the purposes the spaces are actually designed for, they went there to read the story of the old building. They literally added a new layer to prepare the building for new traces, without erasing the old ones. I think the balance between old and new in this project is perfectly thought trough. It is also some kind of poetic way to deal with the old that I feel very attracted to.

Fig. 26: Interior View

Hedmarksmuseet, Norway – Sverre Fehn

The Hedmarksmuseet is a medieval museum that was created around and with pieces of the ruins of the former Hamar Cathedral. The Cathedral lies on the headland of Domkirkeodden just north of the modern town Hamar. It is located on the highest point of the headland and so the cathedral became a mighty landmark, visible from long distances when sailing at the lake Mjøsa.
This project deals with the old in a very special way. The primary use of the museum today is to represent the original use. It is a museum about what was already there but still, it has a different function. It has never been a museum before.

The building process started in 1152, when the first bishop of the ancient Hamar Diocese was appointed, and was completed about the time of bishop Paul, between 1232 and 1252.[16] The Cathedral was built in Romanesque architecture and later converted into Gothic architecture. After the reformation in Norway in the first half of the sixteenth century, the structure was renamed Hamarus Fortress and became the residence of the sheriff. During the Northern Seven Years' War, Swedish forces attacked Northern Norway and destroyed the Hamar Cathedral and the Hamarus Fortress.[17] The bishop's manor has been used as a barn until 1967. It was in such bad shape that they decided to demolish it if it did not receive immediate repairs. A former student of Fehn proposed a plan to save the ruin. Fehn went to visit the site and at that moment, a long process of transformation began.
The museum today, consists of 4 different parts: the ruins of the bishop's palace/the Storhamar barn, the ruins of the medieval Cathedral, the Open-Air Museum and the Herb Garden.[18]

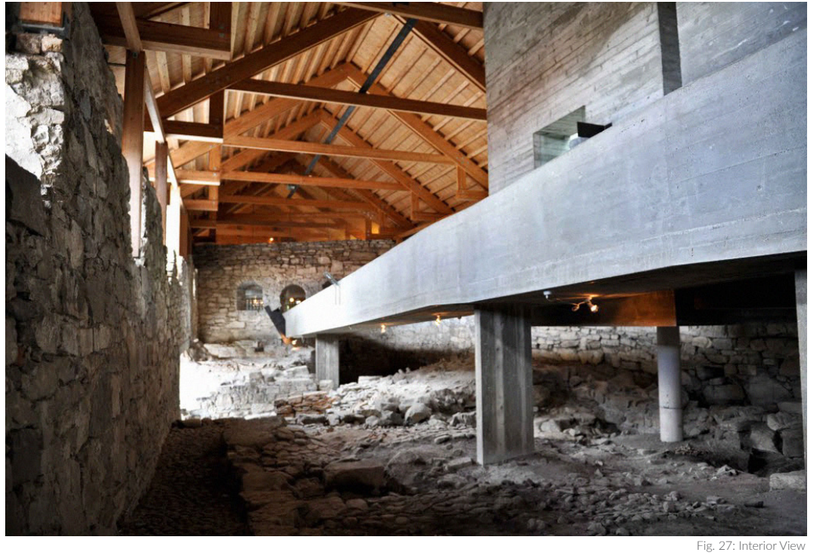


Fig. 27: Interior View

The most important part of the museum for my study is the bishop's palace or Storhamar barn. This is also the part that Sverre Fehn renovated. In this project, the horizon becomes a tool to understand spatial concepts. By placing objects above and below the horizon, people can move from one horizon to another. It is a very conceptual approach where "the horizon is everywhere". Through the whole project, there is a ramp circulating that almost never touches the ground. Because of the fact that the ramp leaves the ground clear, there is still a possibility for archeological research. The horizon of the ramp is constantly changing. This capacity to move the horizon is very important in this project; it places the visitor somewhere between heaven and earth. Fehn has always been very fascinated by the horizon. Everything we build is in relation with the ground, so the horizon becomes a very important aspect. One of the questions that he always kept in mind was "Where to put man in relation to the horizon in a built environment?" During his career he always kept looking for different interpretations of the horizon.

What is very noticeable and makes this project different from others is how Fehn leaves all the old structures untouched. Even the openings in the massive stonewall are closed very carefully by adding a glass layer to the exterior. Each new structure respects the buildings origin and allows it to continue the transformations of time. We can clearly see that there is no attempt to repair or restore anything. Instead of working with history as information, Fehn approaches history as memory. [19] He embraces history in, for me, the most complete way. It even feels a bit unbalanced but I think it works fine in this case. The use of the barn today gives the architect this kind of freedom, a freedom a lot of other refurbishment projects would never give.

"My interest is not to continue destroying what is already destroyed. The barn was rotten, a sad creature, this enormous barn that still had something of the bishop's manor in its spirit. ... When things die, new ideas are born. The tree's leaves fall, rot, and disappear. For me, this building's history, all the marks on the ground that should not be touched, were what should be emphasized, and it was this thought that gave birth to the ramps and the bridge."[20]

Fig. 28: Exterior View

The Conclusion

Debate

Because my project has two main focuses, different discussions can take place and different questions can be asked.
An important question is, can this system of shared living really work? How does the ownership work of a place like this? These are important and very relevant questions to ask, but it was not something I've been working with a lot. In this project I mainly focused on the architecture and how the people can live together. What are the possibilities to live together and share spaces? How can I still offer privacy and a home for each family while also creating a good communal living atmosphere? These are the questions I've been thinking about every day. My goal was to create an environment for all these very different families with very different backgrounds, without sacrificing the need for some privacy (which in my opinion, everybody and every family needs from time to time.). And eventually I think I succeeded in this. Not only will it meet the needs of the families that I've designed for now, it will also meet the needs of any possible family that wants to move in in the future. The houses are all different, so every kind of family can find a house that fits with their lifestyle and ideas. Different family combinations in one house are possible but also different house combinations for one family. It is a matter of needs, and this building can fulfill any need of any family. Even for families who prefer to have more privacy.
Another critical question I asked myself is, is my way of dealing with the old a sustainable and economical interesting way? I mainly asked myself this question because I don't use the maximum of space in an economical way. In a building like this, you could place much more apartments and houses than the 16 homes in my project. So can you build a design like this? Is it sustainable to not occupy and use the maximum of space? And when I ask myself this question I always explain how I started this project and what my first impression was. I think this building is from great value, although it is not protected. It doesn't belong to the museum yet but in a way It should, it all belongs together. To not create a dead part of the city during the closing hours of the museum, I decided to put life in this building. The decision to combine shared housing with a museum made me think a lot about how to approach the old building. My way of dealing with the old is a way to explore other possibilities and to completely respect the building and it's history, it is a wy in which people are able to read the traces. Only by leaving parts of the building untouched, I was able to reach this goal.

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Louise Vanderlinden
louise_vanderlinden@hotmail.com

THANK YOU