

DE TIMMERFABRIEK

Research Report



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Graduation Studio
Heritage & Architecture

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**RESEARCH REPORT
DE TIMMERFABRIEK**

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Cover: West facade of De Timmerfabriek, seen from the Boschstraat (source: RCE. 2006).

Table of content

01 Introduction

Introduction	04
Motivation	05
Methods	06
Planning	08

02 Analysis

Urban analysis / Maastricht	10
Urban transformations [0-2014]	12
Future plans	16
Landscape	18
Infrastructure	22
Demographic	24
Image of the city	26
Conclusion	33
Urban analysis / De Kop van Sphinx	34
Urban transformations [1824-2015]	36
Future plans	42
Mass and space	46
Environmental characters	47
Area experience	48
Conclusion	54
Architectural analysis / De Timmerfabriek	56
Typology	58
Functions	59
Spatial organisation	60
Facades	62
Interior	66
Conclusion	70
Technical analysis / The office	72
Construction principles	74
Wall and foundation	76
Floor	77
Roof	78

Technical analysis / The warehouse	80
Construction principles	82
Wall and Foundation	84
Column and floor	85
Roof	86
Conclusion	89

03 Conclusion

Cultural Value	90
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04 Additional

Program requirements	93
Function selection	94
Target group	95
Functions	95
User requirements	95
Spatial requirements	96
Bibliography	97



Interior of De Timmerfabriek, Ground floor before the restoration of 2008 (source: RCE. 2006).

Introduction

What

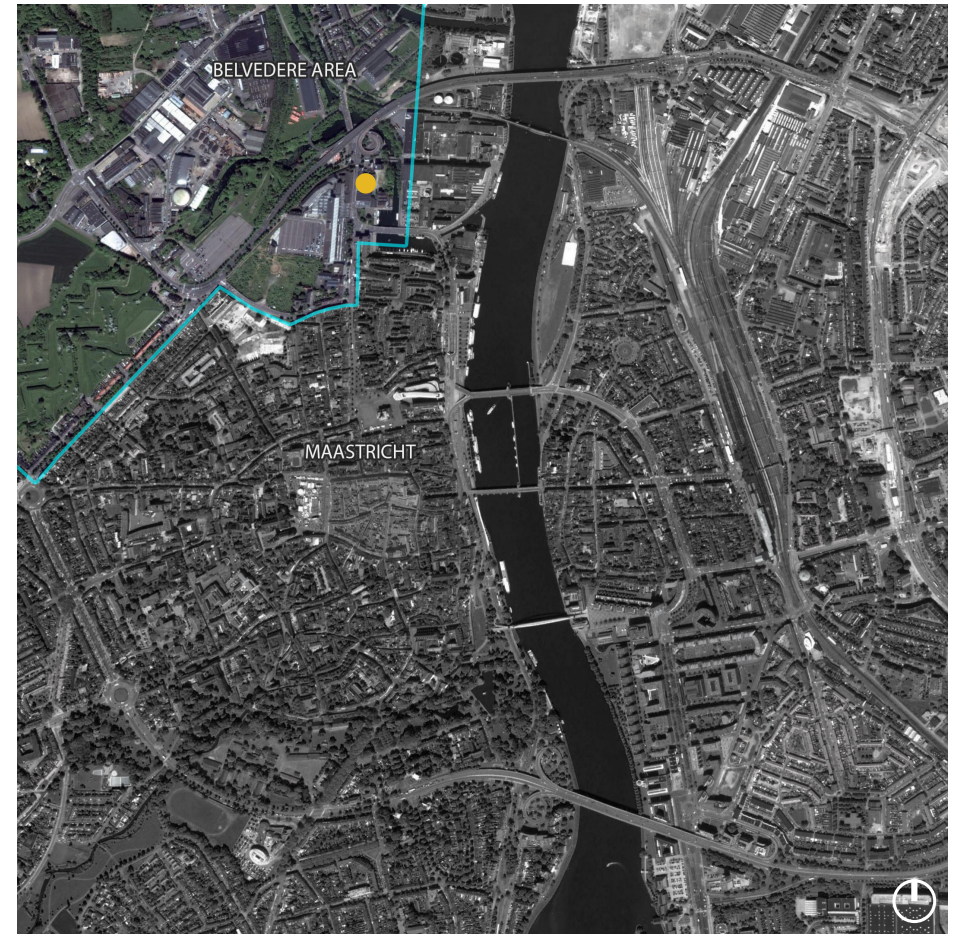
The research in this studio of Heritage & Architecture takes place in Maastricht, an European city with a historic urban fabric. In the north of this city lies Belvédère. Belvédère is an area of infrastructure, industry, vacancy and historical artefacts, mostly developed from the second half of the 19th century. The site stretches out from East to West, from the Lage Fronten to the Maas. The municipality of Maastricht has opened the challenge to revitalize this area where the focus lies in finding the balance between preservation and development.

In this booklet I present De Timmerfabriek, a specific buildings in the area of the Belvédère area, situated along the Boschstraat and the Bassin. This industrial artefact cooperates with this issue of transformation in the historical layers of the industry. De Timmerfabriek and its site will be fundamentally researched on the levels of the urban context, urban historical development, architecture and history and building technological, structural level. This leads to analyses of the different research levels, which form the basis for the formulation of a value assessment.

With this booklet I will formulate the essential qualities of the building complex. This forms, together with the individual starting points and the formulated program of demands the outlines for new design. My final goal in this assignment is to create an understanding of the spatial, programmatic, and symbolic links between an intervention, its surroundings and architectural theoretical aspects that finds its form in an architectural design. In the end this architectural design will be elaborated in minimal the following products:

- Theoretic and thematic support of research and design + reflection on architectonic and social relevance.
- Site 1:5000 / 1:1000
- Plan ground level 1:500
- Elevations 1:200 / 1:100
- Sections 1:200 / 1:100
- Part of the building, plan and drawings 1:50
- Façade fragment with horizontal and vertical cross-cut 1:20
- Details 1:5
- Reflection based on template (see appendix 3)

The focus in this booklet will be on creating an understanding of the building, discover its problems, its qualities and values. This will be done with analysis, from the bigger to the smaller scale, starting with the urban analysis of Maastricht to create a better understanding of the bigger context. After analysing the history, future, landscape, infrastructure, demographic and others, I will zoom into our area of De Timmerfabriek, De Kop van Sphinx. Its history, future, environment and character will be studied. When the site is analysed, we will dive into the architectural aspects of the building. Elaborating on typology, spatial, facades and interior. Our last analysis will be focusing on the technical aspects of the building. The basic principles as the more details information about structures and materials will be discussed. This information will support me in formulating the cultural value of the building, exploring the most valuable and essential elements of the project. In the end of this document you will find ideas for the future development. When done reading you will be familiar with the project and my graduation plan.



Earth map of Maastricht and Belvédère area in 2015 with the location of De Timmerfabriek marked in the north (source: Google Earth).

Motivation

Why

First of all I choose the studio Heritage & Architecture, namely because it balance between the old and the new. The transformation of the existing city and buildings into something new is a contemporary theme in the architectural discourse. Moreover, the studio deals with different levels of scale and is involved with all the disciplines, urban, architecture as in building technology. An other interesting element in these projects is the involvement of cultural value. Buildings often contain a specific character, created by time. It is more than just the form, space, materials, function, site and structure. For me it are these element together with the story that attracts to me and motivated my choice for the project of Maastricht Belvédère. The history of the city and the industrial area results in a fascinating context. It is to discover the memory of the place. It is this that I have chosen for De Timmerfabriek. De Timmerfabriek is situated at a interesting location and reveals a remarkable appearance. There is a story behind this and I want to find out what this is and make these essential tangible and intangible aspects vivid again. What are the essential characteristics of the site and building and what are the reasons for doing so?



Interior of De Timmerfabriek, First floor before the restoration of 2008 (source: RCE. 2006).

Methods

How

To come to a tailored suited design solution it is necessary to take the past, present and the future into account. Heritage offers a story on which the new design can continue. Having all the understanding and knowledge of what the place was, is and can be, should help in the support of the new design. This will start with analysing the project on different scales, from city to detail. Furthermore, a research will be done into a specific theme to create a theoretic framework. Eventually the new accumulated knowledge will provide the fundamentals for the design. More details about the specific phases:

Site analysis

This analysis deals with the past, present and future developments of the city and project area. Every site has a specific history, morphology, infrastructure, society and functions which needs to be investigated thoroughly. This information will be translated into drawings and will give us the essentials which will help to continue the story of the place.

Building analysis

The next scale deals with analysing the existing building. In this part, structure, materials, atmosphere and functions are elements which can provide new insight. The goal of this analysis is to get a grip and understanding of the building. These findings will result in strengths and weaknesses of the building and create guidelines and starting points for the design.

Theme research

A theme research is used to get grip and elaborate on a specific question. This research will act into the specific theme of localized architecture and will provide helpful

information on making a new design. Focusing on the question of how to use the context to improve and create a new function. This will be done with the use of different literature and case studies into localized architecture, focusing on heritage.

Design

The main design research starts when the site and building research are reaching its final form, but it basically started in the first weeks as architectural methodology is overlapping in every phase. With the finalization of the analysis, cultural values and other starting point will become clear. With this, a new function and a program of requirements can be formulated. The formulated guidelines will be used in order to create a masterplan, preliminary design, and eventually a developed design.

To give structure to my process I have summed up all the general design steps possible in my graduation process. These steps are based on the requirements and personal experience/expectations. I will use this as a basic structure for my process and I will reflect upon it in the end to see if this working method works. Does it follow this structure one after the other or is it more iterative.

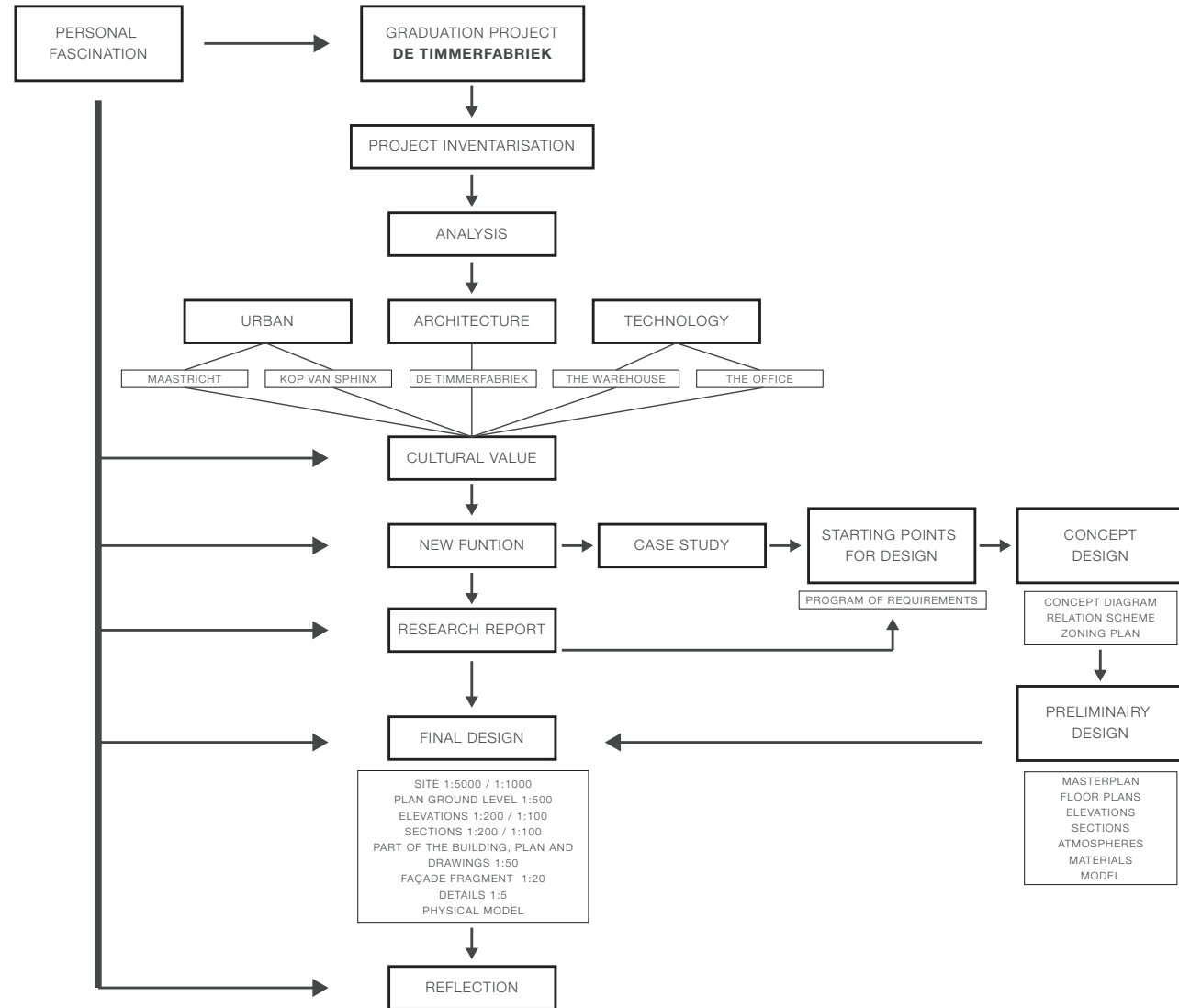
The process is illustrated on the next page.



Interior of De Timmerfabriek, First floor before the restoration of 2008 (source: RCE, 2006).

Steps in the relation scheme:

- Formulating the project description and personal interests.
- Inventarisation of the available information to get a grasp on the project by going to the archive and literature investigation.
- Analysing the urban context, architectural appearance and technical elements to understand the assignment by using the knowledge of the tutors and literature.
- Making a cultural value of the building by conclude the most important analysis aspects.
- Formulating starting points, with the use of the cultural value, observed problems and reference projects.
- Formulating a function, program requirements and concepts (climate, structure and architecture).
- Compose an relation scheme, based on the program requirements.
- Design an urban masterplan, based on the program requirement.
- Design a zoning plan (floorplan and section), based on the program requirements.
- Develop a preliminary design with floorplans, sections and elevations.
- Develop a Definite design, with floorplans, sections, elevations, details, schemes.



Planning

When

To hold control over the project, we have divided the project in five deadlines, chronologic: P1,P2,P3,P4 and P5. These deadlines termine the planning on the big scale. These deadlines aks for specific products, which are illustrated on the page before and can be planned in time. This is done in a schedule wich you can find on the next page. Here you will see an overview of the products in time.

P1

P2

P3

P4

P5

	September	October	November	December	January	February	March	April	May	June	July
Research	Research question										
	Theoretical research										
		Historical research									
			Position paper								
				Graduation plan							
Analysis	Urban analysis										
		Architectural analysis									
			Technical analysis								
Design			Program								
		Urban masterplan									
				Concept							
				Architectural design							
							Technical design				
									Final building design		



Earth map of South Limburg with surrounding countries in 2015 with the location of Maastricht marked in south-west (source: Google Earth).

Urban Analysis / Maastricht

Maastricht is known as one of the most ancient cities of the Netherlands, situated in the far south of the Netherlands in the Province of Limburg (see image on the left). In order to understand this historic city it is important to reconstruct the urban developments in time so we will understand the historic context in which we intervene, what are the roots of the city and what are the plans for the future. After understanding the developments in time, it is interesting to understand the configuration of the city on different layers. How is the morphology of the city placed in its surrounding landscape and how does one enter and move in the city by car, by public traffic or by walking. Together with an analysis of the inhabitants and shaping an image of the city will give us an impression of the character of the city.

Central question: What is the character of Maastricht?

Urban analysis / Maastricht

Urban transformations [0-2013]

Q. What is the historic story of the city?

Maas crossing

Maastricht originated at a crossing of the river Maas (1) and a Roman route between Tongers and Köln. A wooden bridge was constructed north of the mouth of the river Jeker (2), where the water was shallow. Such a fordable place of a river was called a tricht, so the town which emerged at the crossing was called Maastricht.

Fortification

3th century. On the west bank a fort (1) is built measuring 95 by 175 meters. There might have also been a smaller fort on the east riverbank.

4th century. The wooden bridge is destroyed and rebuilt in stone century later.

Establishment of the church

4th century. The bishop of Tongers Sint Servatius was one of the first spreaders of the Christian religion in the Maas region. He moved to Maastricht where he was protected by the fort walls. After his death, he was buried along the Roman route.

550. A wooden chapel on the grave was replaced by a stone church. As Christianity spread throughout the region the grave church attracted many pilgrims and the city became a center of religious activity and power.

1000. The Roman fort is broken down. The stones are reused for new constructions like the base of the Onze-Lieve-Vrouwe church.

New markets

International trade over land flourished. Maastricht attracted commercial activity because of its advantageous position on the crossing of trade routes over land and over water. Many markets came to the city.

City walls

1229. The people of Maastricht are granted the right to build a city wall as protection from attacks. 13th century. A city wall (1) encloses the city. The new Maas bridge is constructed in stone. 14th century. Space inside the city wall is scarce, so right after completion a second wall (2) is built around 350 meters from the first. The growth of the city slows down however, leaving most of the space in between unbuilt.



Spanish occupation

1579-1632. The duke of Parma takes the city. The Spanish garrison is located in Maastricht. Ravelins are built at the city gates for better defence. 1632-1644. After the Netherlands take over the city again, the defensive works are extended along the whole city wall as protection against foreign invaders.

French occupation

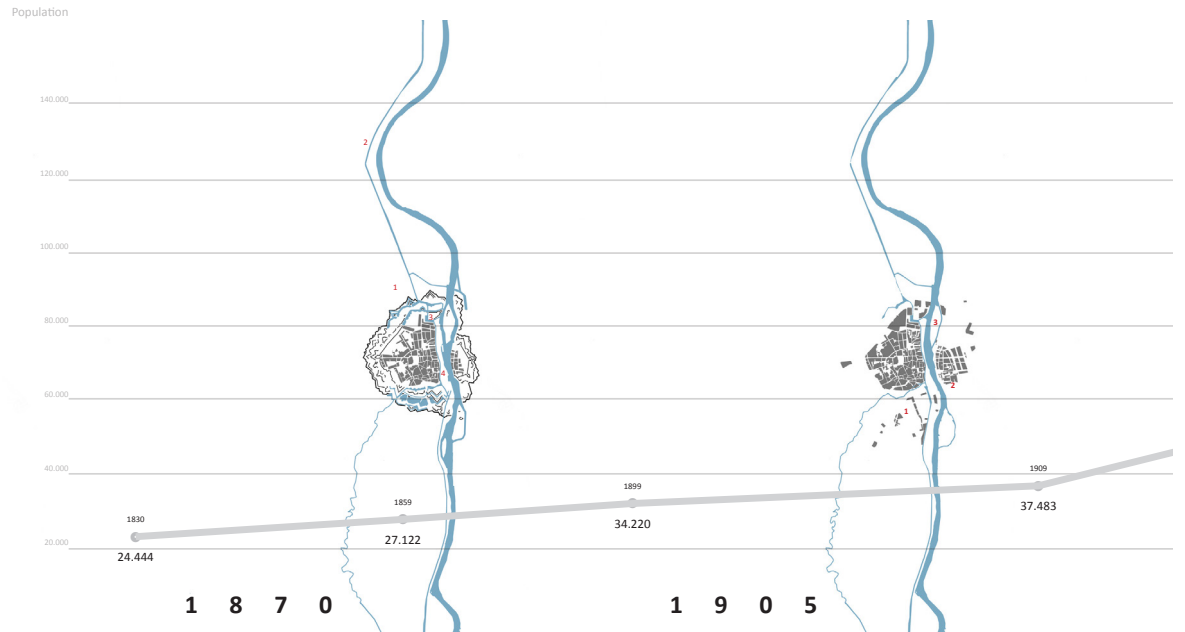
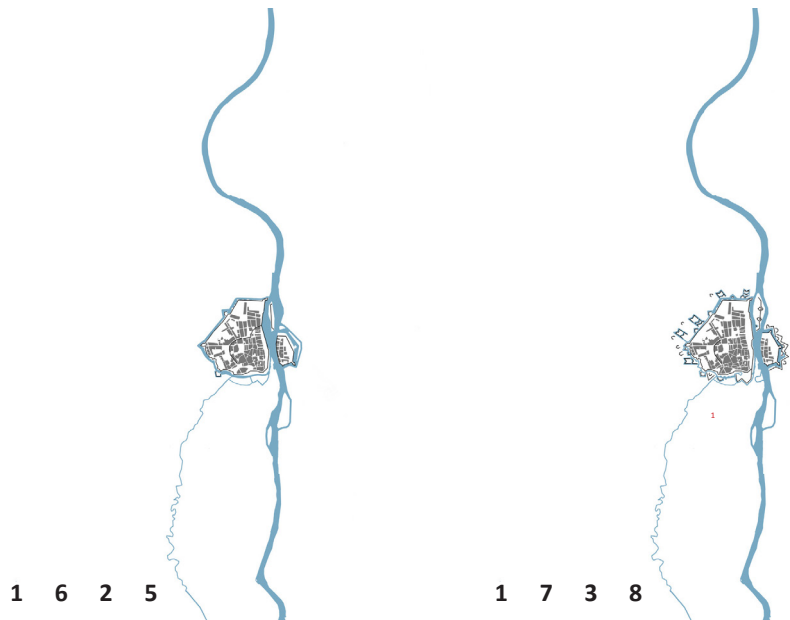
1673-1678. The French occupy the city and further develop the defensive works according to the plan of Sebastien Vauban. 1688-1690. At the start of the Nine Years' War against the French, four new bastions are built south-west of the city designed by Daniël van Dopff. 1701-1702. Construction of Fort Sint Pieter (1). 1794. Maastricht is taken by the French again, the city becomes the capital of the Nedermaas region. The monasteries are closed and the land becomes state property. The defensive works lose their function and fall into neglect. Plans are made to better connect Maastricht to the region. 1815. The fall of Napoleon led to the unification of The Netherlands. Start of the construction of Fort Willem north of the city to keep out the French.

Improved infrastructure

1823-1826. Construction of a new canal to Den Bosch (2) and a new harbor (3), following the plans of the French. The harbor, the Bassin, is dug north of the city center between the first and second city walls. First industrialization 1830-1850. The secession of Belgium from The Netherlands slowed down trade, so import was replaced by new industries which emerged around the Bassin. In the following decades the trade with Belgium was gradually reestablished, leading to the construction of a new canal to Leige (4) to avoid dependence of shipment on rainfall. The canal ran parallel to the river on the west bank. For the construction a whole street had to be demolished.

Dismantled defensive works

1867. Maastricht loses its status as fortification. The city gates are demolished to improve accessibility. 1870-1890. The defensive works are dismantled according to the plan of Frits van Gendt. On both riverbanks the second city walls are turned into boulevards and the main city gates into traffic nodes. A new train track runs north and east around the boulevard. The city expands southwards; on the west bank a villa park (1) was built and on the east bank the pottery factory of Société Céramique (2). Housing for the working class was mainly concentrated around the industries and often had poor living conditions. Canalization of the Maas 1895. To better control the flow of the Maas the Sint Antonius Island (3) is joined with the east bank.



Annexation and expansion

1905. An attempt was made to improve housing by passing the Housing Law. Many housing associations were established and new neighborhoods of around 150 houses were constructed both east and west of the boulevards. The city still had a housing shortage and lacked space to expand. 1920. The adjacent municipalities of Oud-Vroenhoven (1) and Sint-Pieter (2) were joined with Maastricht, enabling the construction of new neighborhoods of around 600 houses according to the plan of Jos Cuypers. After this rapid expansion, construction slowed down from the midtwenties.

Improved infrastructure

1930-1932. Traffic in the city had intensified, so a new bridge across the Maas was built, the Wilhelminabrug. During the war all bridges were partly destroyed and rebuilt several times. 1930-1939. Construction of the Belgian Albert canal (1) connecting Leige, Hassalt and Antwerp. 1935. To better control the flow of the Maas for shipment, a new canal called the Julianakanaal (2) was opened.

Densification and expansion

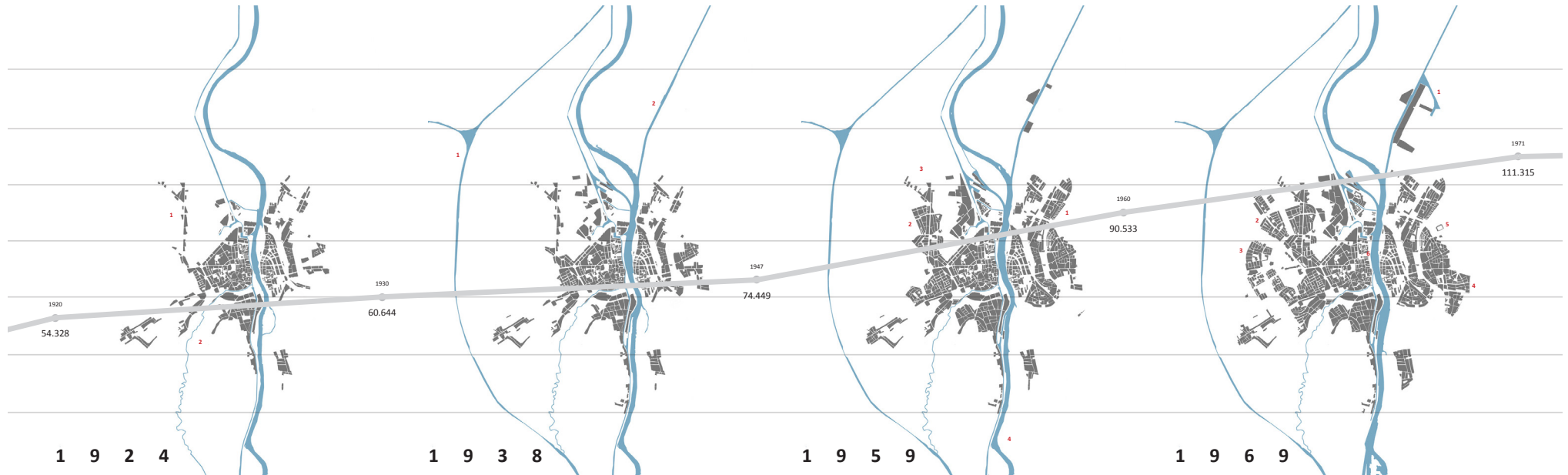
1941-1954. During the Second World War several neighborhoods had been destroyed, and many others were dilapidated. Even though a plan was made in 1941 by Jos Klijnen to expand the city eastwards, construction did not start until the end of the decade. The new neighborhoods of around 1000 houses, were planned in the form of the traditional parish; a community sharing several facilities. The first expansion was Nazareth (1), followed by construction in former villages west to the city like Caberg (2). The areas northwest and southeast of the city were reserved for a new canal (3) and a floodplain for the Maas (4) respectively.

Expansion

1950-1960. Along the Julianakanaal the new Beatrixharbor (1) is dug to accommodate the growing industries. 1959-1962. Construction of the neighborhoods in Malpertuis (2) and Pottenburg (3). 1962. To enable further expansion, multiple towns like Heer (4) and Amby (5) east of Maastricht were joined with the city.

Improved infrastructure

1960-1970. North of the city a new highway connects Maastricht to other Dutch cities. Two bridges are planned; one south and one north to the old center. The canal to Leige (6) is filled up and turned into a boulevard to connect the two bridges. The canal had become redundant because improvements to the Maas for shipment and because of new Belgian canals.



City center projects

1960-1970. Sanitation of the Boschstraat area (1). Except for the monuments, the dilapidated buildings were demolished and the area was redeveloped. 1960-1973. Renovation of monumental buildings in the Stokstraat area (2). 1975. The University of Maastricht is established. The faculties move into former monasteries and other renovated monuments in the south of the old city center.

South east expansion

1980-1990. After Sphinx had taken over Société Céramique (1), the factory buildings were demolished to be redeveloped. 1989-1992. Construction of the medical faculty (2) in an undeveloped area southeast of the city and Céramique. The faculty was first housed in the hospital, but was in need of a new modernized facility.

Expansion

1987-1995. Céramique is redeveloped according to the plan of Jo Coenen. In the new neighborhood housing, offices and public functions are combined along a new avenue. Around the new medical faculty buildings more larger educational and institutional buildings emerged. The floodplain of the Maas reaches the city.

Improved infrastructure

2001-2005. The area between the Markt on the west bank and the Maas is redeveloped to improve the connection to the east bank for pedestrians. Along the new plaza new buildings like municipal offices, shops and apartments are constructed. 2011-2016. Construction of the A2 tunnel. The highway running through the east part of Maastricht had become a major route between The Netherlands and France. A new tunnel will lead the A2 through a tunnel underneath the city.

Moving industries

2006-2014. The industry moves more towards the Beatrixhaven. Sphinx leaves its location in the city center, leaving many buildings empty.



Urban analysis / Maastricht

Future plans

Q. What are the future plans for Maastricht?

Maastricht deals with a decreasing population since 1993 (the death-rate is higher than the birth-rate). In the first years this was compromised by an immigration surplus. From 2004 this situation changed and deals the city with an population decline due to an emigration surplus. To create a vital city in the future and ensure economic growth Maastricht has set up several focal points, focussing on knowledge, culture and dwelling (Gemeente Maastricht, 2008).

Knowledge

In the past, Maastricht was known for its traditional craft industry. In the course of time, the industry moved out of the city and the city needs to anticipate. The city wants to change from traditional craft to services, innovative and creative industry. Knowledge is the driving force in this. Universities play a big role in this transition, and need to profile the city as an international city of knowledge. Furthermore the city wants to profile its knowledge image by attracting new companies and industries.

Culture

By making Maastricht into a city of culture, they hope to increase the immigration of knowledge employers, innovative companies en tourism. Aiming on culture will create more jobs and forming one of the most important economic boosters. The city wants give the youth a key role in this culture making city. By combining culture and knowledge and creating cultural meeting points, the city aims to keep the youth in the city and stimulate the amateur as professional arts.

Dwelling

Maastricht has always been a commuter town (living-working) and want to keep this. But a good place to live is under pressure. Housing is an important location factor for new companies. Dwelling therefore needs

to be more a leader in urban development. Due to an emigration surplus the fight for space is decreasing and the stifling entrapment of the compact city decreases. This offers the possibility for creating good living space in the city and preserving undeveloped area on the perimeter of the city. These spots can be occupied by the creative vanguard, with little financial power and without strict regulations can contribute to the cultural image of the city.

Belvédère

Belvédère is the new to develop area in the north of the city and is seen as the opportunity to transform Maastricht into an regional knowledge economie. For this they want to connect several function so that they can stimulate each other. Firstly they want to revitalise the business area in Bosscherveld into a big scale retail area. Next they want to combine the Hoge Fronten and the Lage Fronten in order to create a big big park embracing the city from the north. Possible due to the relocation of the Noorderbrug to the north. Thirthly they want to create a vital area at the Sphinx area. Youth, vital, livly, trendy are key atmospheres. The buildings fo the former Sphinx company will be transformed into dwellings, small buisnisses and culture attracting new people and forming new activities. The Timmerfabriek functions as cultural hub and needs to support en enhance the cultural cluster together with lumiere and the Pathé cinema (Gemeente Maastricht, 2013).



Overview future developments Maastricht (source: D. Verhoeven & L. Vijgen, edited by B. Dessens, 2015).

Urban analysis / Maastricht

Landscape

Q. In what kind of landscape is the city situated?

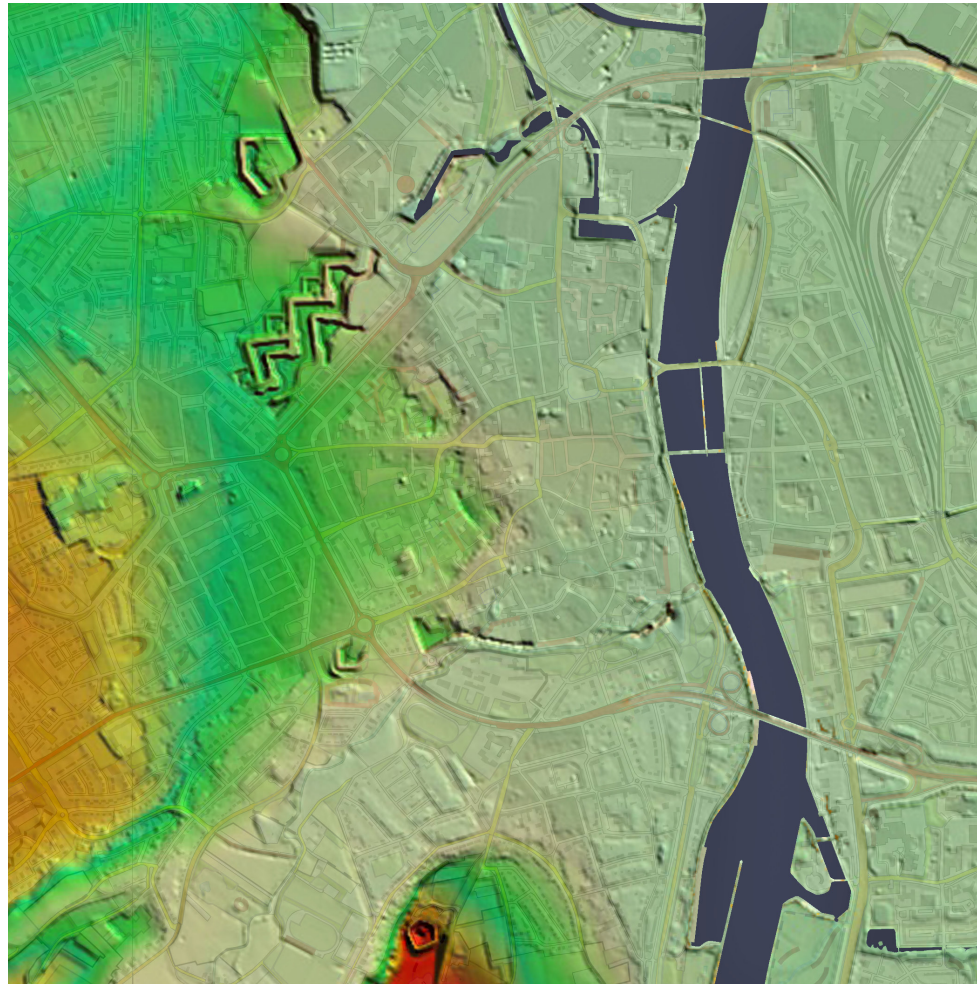
Maastricht itself is situated more than 40 meters above sea level. Characteristic for Maastricht are the hills surrounding the city center. Especially in the western part of Maastricht hills are part of the city ground.

The steep pointy hill in the southern part of the city (red area on the map) contains remains of the important fortification-system of Maastricht. Other human made fortifications are clearly visible as well in the north-west part of the city.

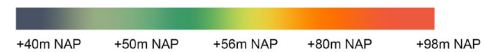
In the south-west of Maastricht you will find a valley shaped by a small river called the Jeker. This river has also a lot of influence on the greenery of the city. Along the river Jeker you will find many parks which reaches almost the center of the city.

Another irregularity in the landscape of the city is the cut out of the river 'Maas', the human made channel 'Zuid-Willemsvaart' with the 'Bassin' and a remain of the 'Kazematten' which are remnants of the historic fortifications.

This map on the right shows only the terrain heights and structures like buildings etc. have been omitted. Notable are the sand bodies in the eastern part of the city which already betray how the infrastructure of Maastricht is organized.



Terrain heights of Maastricht (source: <http://www.ahn.nl/pagina/viewer.html>, edited by M.Beumer)





Interior of first floor, showing the big open space and the high amount of daylight (2006, RCE).

Landscape

In and around Maastricht different green- and water structures can be found. This map shows public green, water and buildings. Noticeable is the lack of public green, like parks, in the city center. However, the further away from the city center you get, the more green the surroundings become.

The name of the city Maastricht has a direct relation with the river running through the city: the Maas. This river has also a historic value as the city originated along the banks of the Maas. Furthermore the erosion by the river formed the characteristic hills and valley in which Maastricht is located.

In the south-west of Maastricht is a green valley carved out by a small river, called the Jeker. This river has a lot of influence on the greenery of the city. Along Jeker you can find many parks, merging into one another, which almost reach the city center. Other water structures are man-made, like the 'Zuid-Willemsvaart', the 'Bassin' and the remains of the 19th century fortification.

The lack of green recreation zones inside the inner city is compensated with urban squares. These big squares create a nice contrast with the dense building structure of the inner city. Here are narrow alleys, closed building blocks and public squares dominant. This is in contrast with the perimeter, which is characterized by a more open morphology and its nature.



Nature zones in relation to the building mass in Maastricht (source: S. schuijt, edited by B. Dessens)



Building mass in relation to the open space in between (source: W. Dragt, edited by B. Dessens)



Nature zones (green) and public squares (red) in relation to the inner city area (source: S. Schuijt, edited by B. Dessens)

Urban analysis / Maastricht

Infrastructure

Q. How does one enters the city and moves in the city?

When analysing the infrastructure of Maastricht there are several important observations. First of all the A2 highway is the main road of the city which flows into a beltway around the inner city centre. The beltway has connections in the west to Hasselt and Tongeren and in the east with Aken, Valkenburg and Roermond. The beltway has four main streets that connect the traffic from east to west into the city. These primary city routes provide the most traffic in the city. Notable is the primary road in the belvedere area which runs straight across the area, dividing it. This is in contrast with the rest of the roads which run more reserved along the Maas.

The car free zone clearly illustrates the main center, intended for the pedestrian. Our area is outside this area and therefore lacks this pedestrian connection although it is only five minutes walk from the market square.

Within this circulations, the distances are relatively close to each other. As well by car as by walk. A walk from the station to the Belvedere takes only 22 minutes and you can walk the entire city within half an hour which makes the city relative small scale and good accessible by feet. Finally the city, and especially area belvedere, seems to have sufficient amount of parking lots.



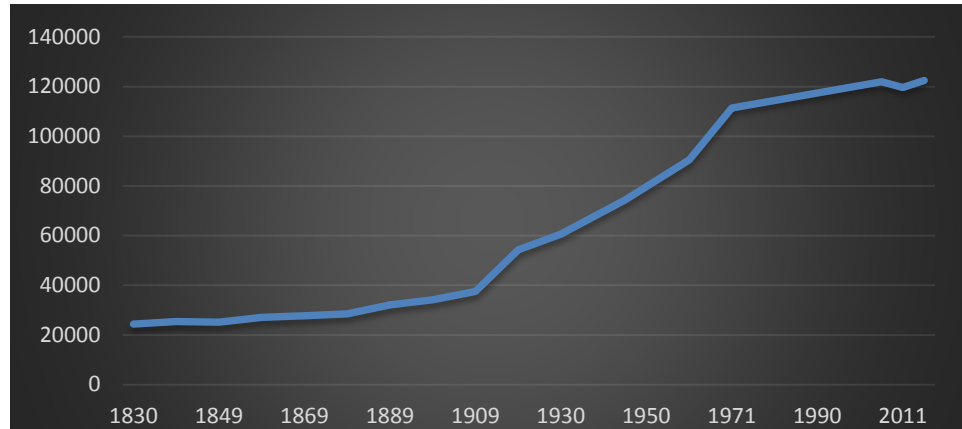
Most relevant infrastructuur Maastricht (source: Google Earth 2015, edited by B. Dessens).

Urban analysis / Maastricht

Demographic

Q. For whom am I designing?

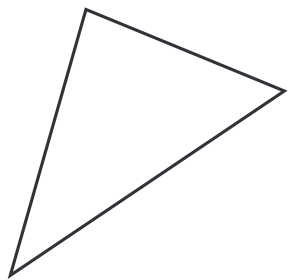
The city of Maastricht knows a long period of population growth. This changed with the closure of the mines in Limburg around 1970 which resulted in a decrease of the population growth. The city nowadays has around 122 thousand inhabitants but the prognose is that this will drop due to aging and emigration of young educated people. The inhabitants of the city are now mainly 45+ but has a high amount of students due to the nearby university and Scenic City center. The tourism is also a remarkable factor with a high amount of overnight staying in comparison with other tourist cities. Maastricht know furthermore a lot of nationalities because its location nearby Luik (Belgium) and Aken (Germany), also known as the regional triangle.



Scheme of the city grow in population (source: CBS, 2015)

Year	Amount
1830	24444
1849	25140
1859	27122
1869	27808
1879	28538
1889	32078
1909	37483
1920	54328
1930	60644
1947	74449
1960	90533
1971	111315
2003	121982
2011	119664
2014	122488

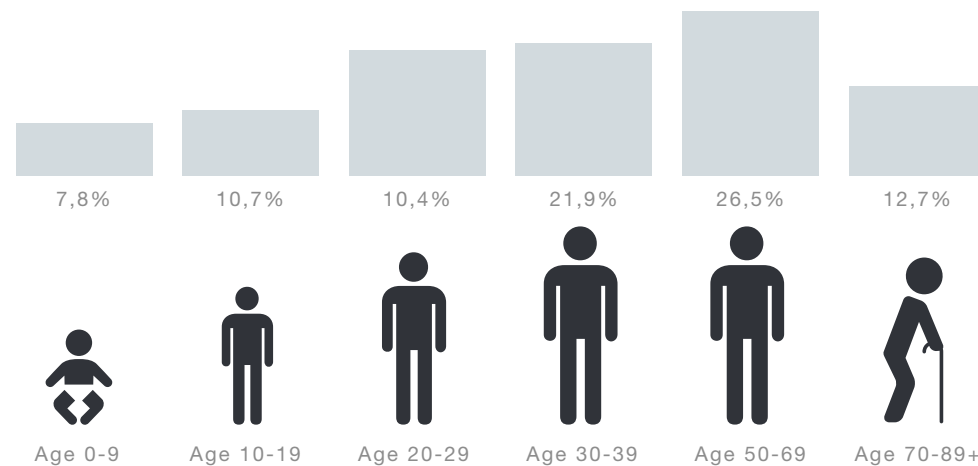
Maastricht (NL)



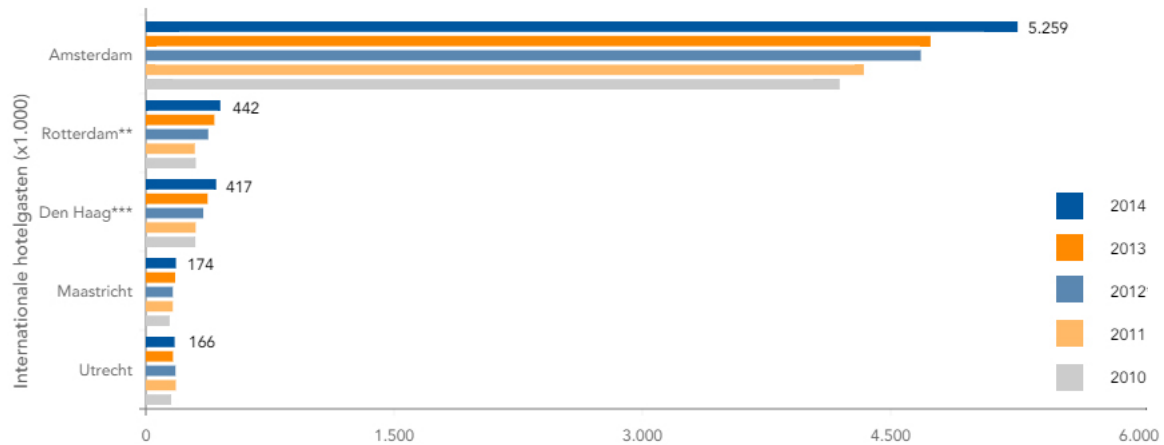
Aken (D)

Luik (B)

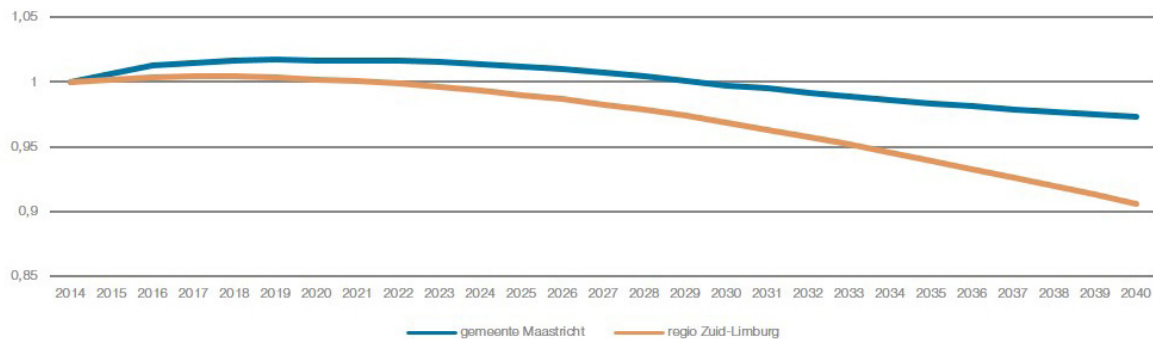
Regional triangle of close cities.



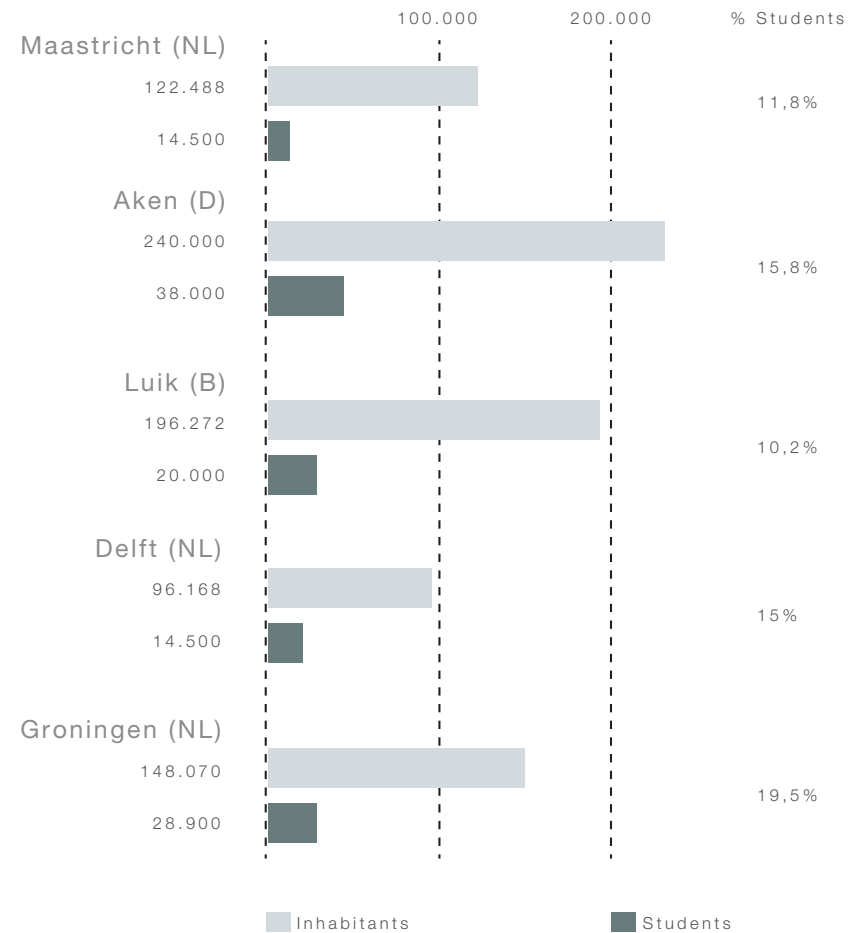
Scheme of inhabitants (source: CBS, 2015)



Internatioani hoteltourist (source: CBS, 2015)



Prognose of population Maastricht (source: Stec groep, 2014).



Comparisson inhabitants and students (source: CBS, 2015).

Urban analysis / Maastricht

Image of the city



The many shops and alleys gives the inner city a intimate and liveable atmosphere. The architecture style and use of natural stone gives the city a foreign character.



The river Maas gives orientation and a gives the city a romantic atmosphere.



Big square 'Vrijthof' forms a place for activity, gives orientation and a city feeling.



The market square creates a center in the city and a place with activity. It gives orientation and a city feeling.

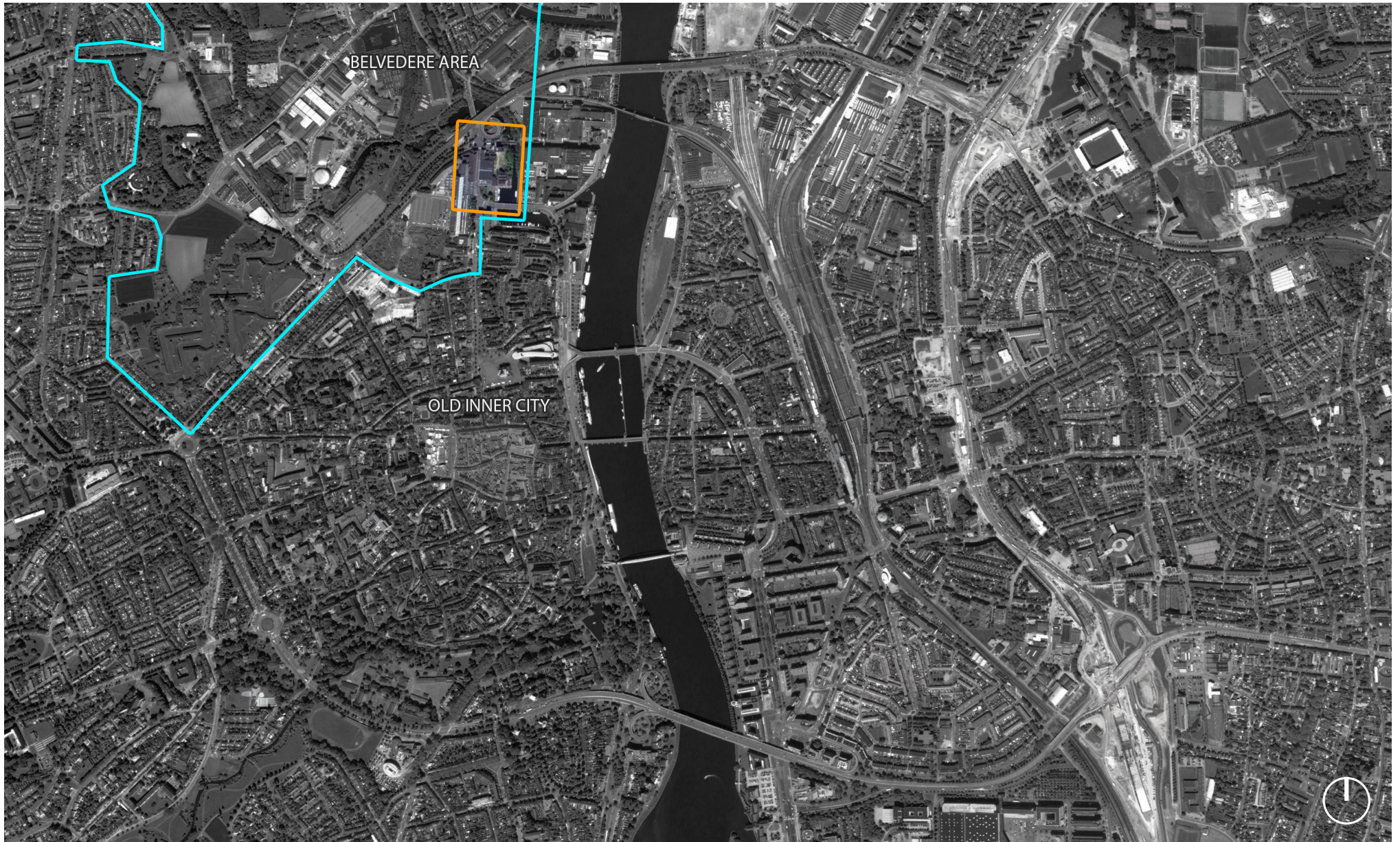


Market on the street brings (near the market square) life to the Boschstraat.



There are a lot of terraces and bars in Maastricht.

Maastricht is surrounded by hills and originated along the river de Maas as one of the oldest cities of the Netherlands. In the past the city developed itself as trade center due to its good reachability and connections with surrounded cities in Belgium, Germany and France. Nowadays the city is still good accessible by car as by train. You can enter the city by car from several directions and within 30 minutes you can be in one of the surrounding cities (Hasselt, Tongeren, Luik Aken, Sittard and Valkenburg). Also as an pedestrian you have good access to the city. You can walk from east to west within half an hour due to the small scale of the inner city which is orientated around the Maas. The inner city is constructed with narrow alleys, closed building blocks and public squares. This is in contrast with the perimeter, which is characterized by its nature (a result of the fortifications of the city) forming a green belt between the old inner city and the new housing expansions from the twentieth century. The city is characterized by adult above 45 and students (age 20-29) as the city has the University of Maastricht (alpha orientated) but also elderly people of the age of 50-64 dominate the city, especially in the future as aging occurs. Despite the great growth of student the city suffers from decreasing population as students leave the city after graduation. The city is characterized a lot of museums cafés and shopping areas but lacks a cultural center. This is also the aim of the municipality for Maastricht. They want to promote maastricht as a city of culture and knowledge by creating collective area's. As a Dutch tourist you will experience the city as a foreign country. The ancient city with its different languages, cultures built up out of natural stone, narrow alleys create an intimate liveable environment.



Earth map of Maastricht in 2015 with the location of De Kop van Sphinx marked in the north (orange), situated between the old inner city and the Belvédère area (source: Google Earth).

Urban Analysis ./De Kop van Sphinx

De Timmerfabriek is situated on 'De Kop van Sphinx' area. This area is located in the north of Maastricht, along the Boschstraat, interfering between the inner city and the project area Belvédère (see map on the left). We know the characteristics of the city, but in order to understand the place of the building, we need to analyse this area into more detail. First there will be an historic reconstruction of the built environment, what, when and why are these buildings built here. Also future developments will be taken into account. Next we will analyse the main characteristics of the site, how does one enter the area and how is the relation between the mass and open space (urban fabric). The analysis will be followed by analysis of the environment, what kind of 'worlds' are present and how does one experience the space are questions that will be handled.

Central question: What is the character of De Kop van Sphinx?

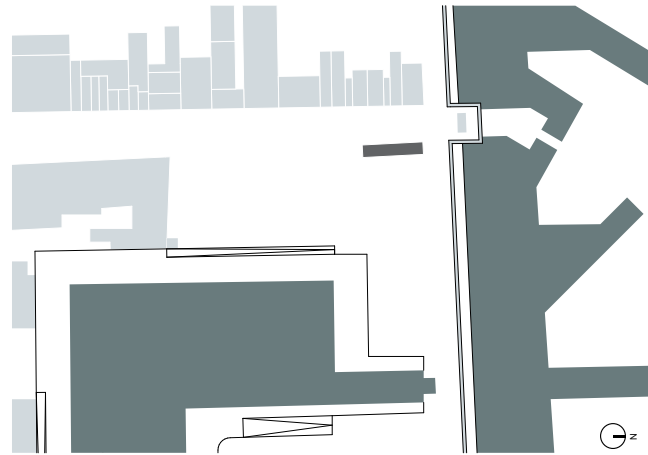
Urban analysis / De Kop van Sphinx

Urban transformations [1824-2015]

Q. When is what built on De Kop van Sphinx and why did they built it here?

1824

The Bassin is excavated out of an orchard (de tuin van de Duitse Orde) between 1824 and 1826 on initiative of Koning Willem I. The aim of this harbor was to establish a safe trading area within the city fortifications. The harbor is accessible from the north through the Zuid-Willemsvaart and in the east through a sluice connected with the Maas. Four slopes on the qua give access to the Bassin from land. On the site of De Timmerfabriek was at that time only a waiting and porter house located. In the same period (1827) Petrus Regout settled in a house located at the Boschstraat and started his first crystal grinding shop. This shop marked the beginning of a great empire that would gradually expand in the course of time.



Map of Maastricht in 1748, drawn by the France army, L'archerd'Aubancour. In the left our area as a orchard (source: RCE).

1850

The industrial growth of Maastricht experienced a struggling start in compare with its surrounding countries. Due to the Belgian revolution (1830-1839) the city falls in a trade isolation and it was not until 1834 that this chained situation changed. Restrictions were lifted and Maastricht was from now on allowed to sell raw materials and intermediates. Regout seized this opportunity and bought more houses and plots on the west side of the Boschstraat to expand his industrial empire. Furthermore, the infrastructure of the Bassin changed between 1846 and 1850. A new connection with Liège is created in the southeast corner. This channel was intended to from a continuous connection between 's Hertogenbosch and Liège to facilitate trade.



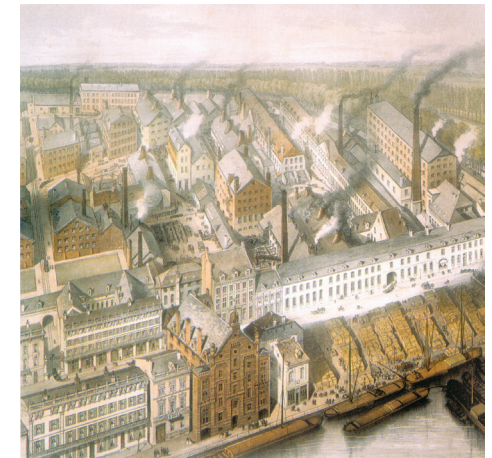
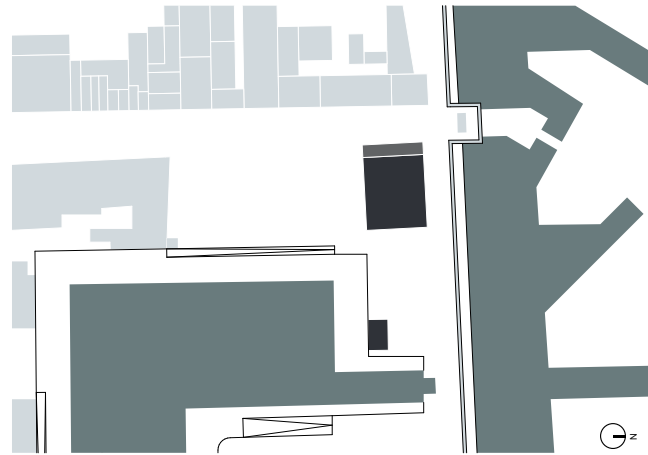
Cadastral map of 1849, showing the Bassin and the new canal Maastricht-Luik (source: Prentencollectie TU Delft).



View on the Bassin in 1848. Painted by Ph. van Gulpen. The vacant area on the downright side is currently the area of the Kop van Sphinx (source: RCE).

1865

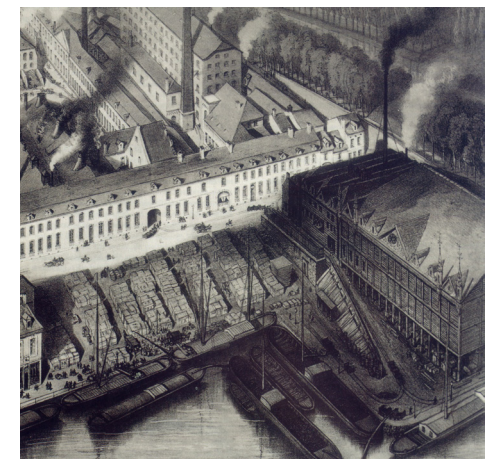
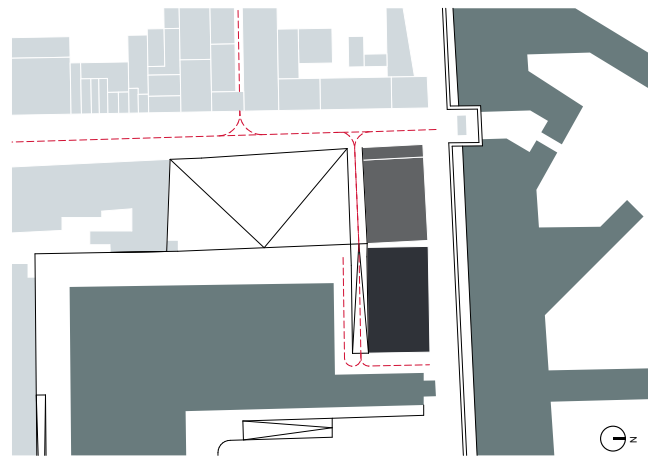
Due to the continuing growth of Petrus Regout industries he bought more land, this time at the northwest corner of the Bassin. In 1859-1860 they placed a steam mill at the guard house which served as sawmill for creating wood for packaging. On the southeast corner of the site emerged in 1865 a small building used as storage. Furthermore there were few developments.



Painting of the factory of Petrus Regout around 1865 (source: RCE).

1868

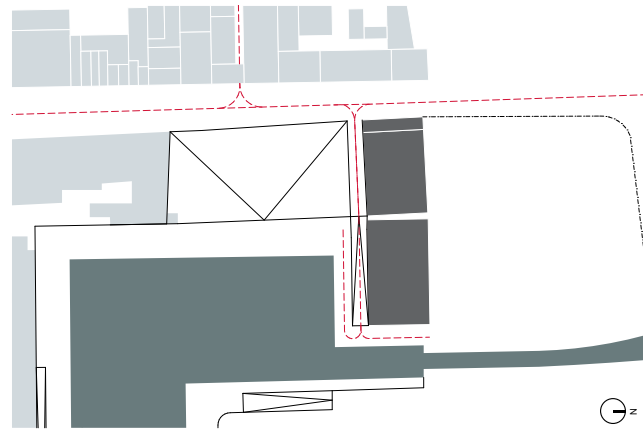
The storage was demolished within a few years to make place for a large woodshed, constructed between 1865 and 1868. The three level high woodshed was built along the slope and consists of a wooden construction. With the construction of the woodshed they also modified the slope (see figure). This adjustment made it possible to use the west quay as storage place. Moreover, it made it possible to establish a narrow-gauge railway along the buildings. This addition connected the boats, the buildings and the western factories with each other, drastically improving the logistics of the area.



Painting around 1865 of the sawmill and wood storage with the quay as storage area. All connected with a narrow-gauge railway (source: RCE).

1878

Through continuous improvements in the scope and resilience of the artillery, fortifications gradually lost their function. This puts the use of the walls in 1876 to an end and were decommissioned. This gave Regout the possibility to expand its activities to the north and west. First the walls and the former vaulted tunnels which served as entrance to the harbor were demolished.



1880

The woodshed from 1865 is largely replaced between 1875-1880 by a new building, which is mostly constructed out of brick. Also the slope and narrow-gauge railway disappear with this modification. To preserve good transportation on the site they construct a new building east of the woodshed. This rectangular block is like a bridge with arches and holds a crane. This bridge serves as a new railroad and made it possible to load and unload the boats and distribute the products over the factory site.

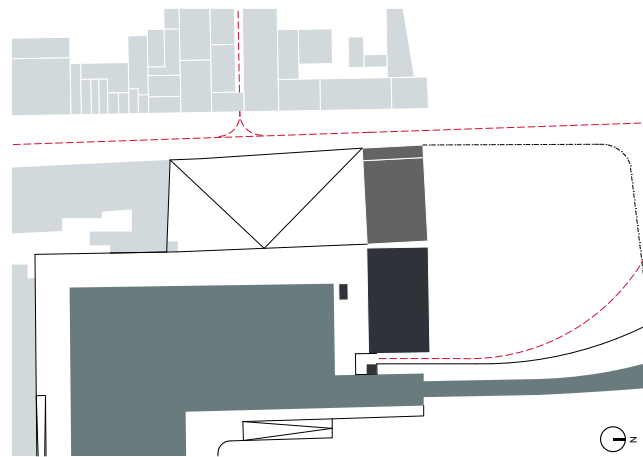


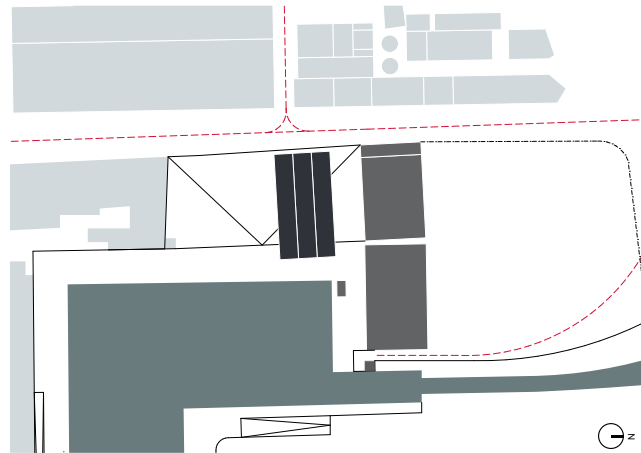
Photo of the bridge to Sappi, seen from the north, date unknown (source: srhclimborg).



Postcard, with view on the rebuilt timber-yard (left), the railway crane (center) and the Sappi area (right) (source: Wikipedia, Timmerfabriek).

1887

In 1887, a big rectangular volume is placed southeast of the sawmill. This volume consists of three wooden sheds which serve as a sheltered storage for the products. The two southern sheds are for the storage of pottery, the northern for the storage of glass (green and orange colored). Also a small tower emerges on the north side of the quay, its function is unknown.



Picture of the three storage sheds after 1887 (source: S. Krusinga, Het Sphinxterrein)

1889

In 1888 they began building on the large vacant plot behind the woodshed and sawmill. Within a year emerged three new buildings (from north to the south) : hotel De Ossenkop, café and a remise. These are all different in architectural form and have a messy appearance because of the involvement of three different owners.

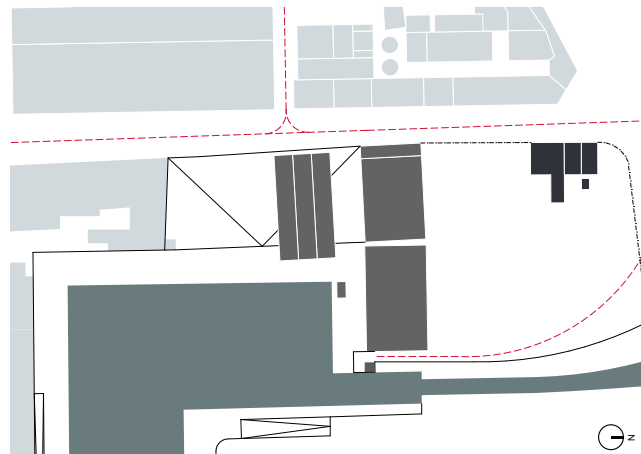
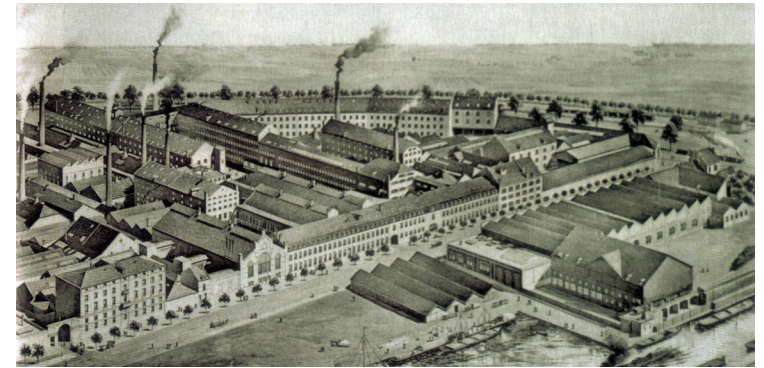
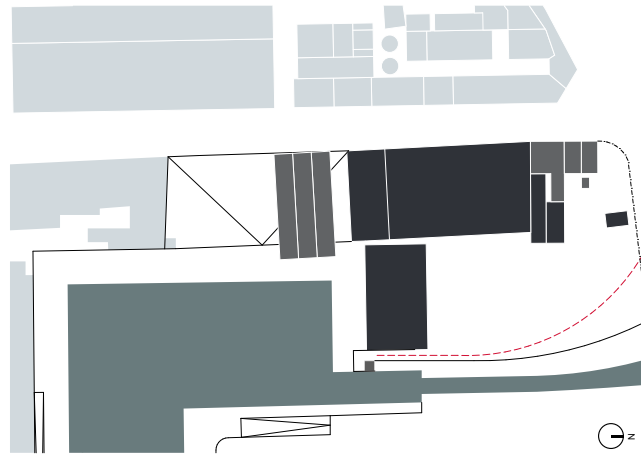


Photo seen from the Boschstraat with (from left to right): Hotel de Ossekop, Café and remise, date unknown (source: <http://www.mijnalbum.nl/Foto-BBACSIVW.jpg>).

1906

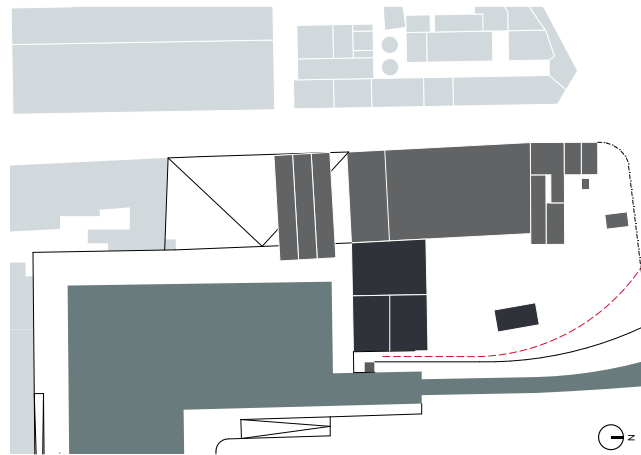
In 1899 the Company Peter Regout is converted into the company of Crystal, Glass and pottery, The Sphinx and expanded even more. The old steam sawmill and the guard house were demolished and replaced in 1905 by a large warehouse and office building (De Timmerfabriek). The woodshed has increased the width on the south side, thereby losing contact with the quay. In the same period the owner of the hotel probably built a similar building east of the hotel and also the remise doubled in size and formed a small inner courtyard.



Picture of the factory of Petrus Regout around 1906, with 'het magazijn' and 'de timmerfabriek' on the right side situated. (source: Capita Selecta, p. 59).

1913

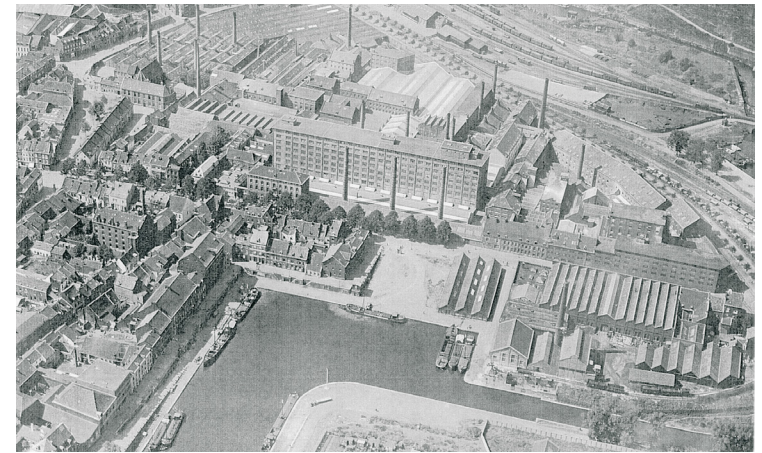
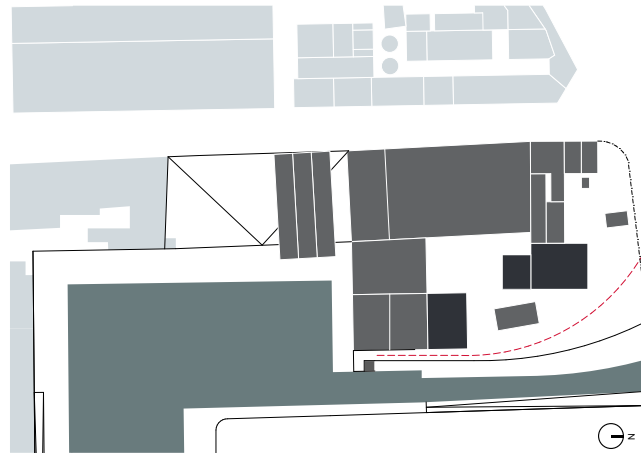
Between 1907 and 1913 three new buildings appear on the location. First of all the woodshed is demolished and in 1911 replaced with a sawmill, constructed out of reinforced concrete. A powerhouse is built in the same year to provide the Sphinx of electricity instead of steam power. The powerhouse consists out two buildings, the actual machine room and a boiler house located behind it. The third new constructed building is in the open field behind the boiler house. This simple rectangular volume probably served as storage.



Historic photo of 'het ketelhuis' around 1920 with on the foreground the railway crane (source: srhclimborg).

1930

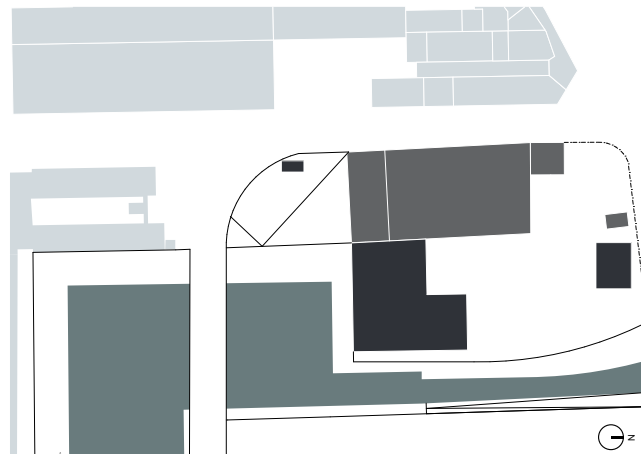
In 1925 ended the manufacture of glass and crystal, and two years later a division was created for the manufacturing of ceramic sanitary fixtures (sinks, bathtubs, toilets, etc.). The old glass factories on the west side of the Boschstraat were demolished to make in 1929 way for a modern sanitary factory constructed out of reinforced concrete, the Eiffel. At the courtyard of De Kop van Sphinx emerged four rectangular buildings between 1924 and 1927. Later on two small sheds were added in front. Most prominently in this period is the expansion of the powerhouse, on the north side with a second boiler.



Picture of the area around 1930, with the new Eiffel building and more storage on the Kop van Sphinx. (source: tibaert.com/2014/02/22/gesloopt-maastricht).

2015

Little has been changed between 1930 and 2006. Most significant is the construction of the Noorderbridge (not visible on the map) and the bridge over the basin in the 1980. Most houses around the Bassin are demolished to make place for new complexes. With the translocation of the Sphinx towards Beatrixhaven in 2006, the area became empty. Vacant buildings are demolished to make place for new plans for example the Pathe cinema. Hotel De Ossenkop and café are completely demolished and also the remise is largely demolished, preserving only the oldest house. The powerhouse and Kistenmakerij are now completely under construction to make way for Lumiere.



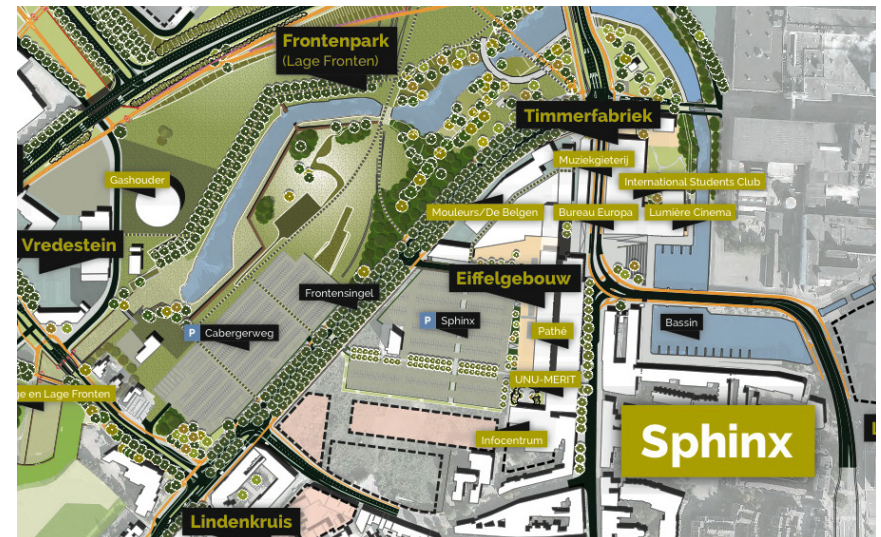
Aerial view on the area in 2015. A new bridge has appeared and a lot of buildings have been demolished (source: Blackboard TU Delft).

Urban analysis / De Kop van Sphinx

Future plans

Q. What are the spatial and functional future plans for De Kop van Sphinx location?

The ambitions of the municipality for further development of the city resulted in a new urban masterplan for the northern part of the city, Belvedere. The biggest intervention consist the displacement of the Noorderbrug. This will reshape the area to one whole, resulting in big green belt, Frontenpark. One of the most important areas of this project is the Sphinx area. This area is located between the old city center en the new to develop Belvedere area en can therefore be seen as the key to connect these two areas. The future of this will hold several new situations according to the masterplan of Palmbout and the already ongoing developments. The aim of the masterplan is to create a lively city area with a 24-hour economy, focussing on knowledge and culture. The new added Pathe cinema is currently under construction and will soon open its doors to the public. Same is the case for the Lumiere cinema, which is located in the former powerstation at the Bassin. The Eiffel building is currently renovated with the idea to house a student hotel and offices in the future. Important is the breaktrough of the building at the ground floor to create a passage to the parking area. (source: www.belvedere-maastricht.nl)



Overview of the Belvedere masterplan of Palmbout at the Sphinx area (source:www.belvedere-maastricht.nl).



Impression of the new situation at the Boschstraat (source:Peter de Ronde, Belvedere presentation, 2015).



Overview of the Belvedere masterplan of Palm Beach.

Urban analysis / De Kop van Sphinx

Infrastructure

Q. How does one enter the area of De Kop van Sphinx and how does one move?

Analysing the infrastructure on the scale of De Kop van Sphinx shows the movement of people in the area.

The ring road (blue) is clearly providing the most traffic and gives access to the Boschstraat. Analysing the history of the area already showed the importance of this street as the northern entrance of the city and it still is. The Boschstraat leads along De Timmerfabriek and over the Bassin and allows a lot of traffic to enter the city. This ring road and secondary roads divide the area into three parts: The Sphinx in the center, Sappi/Timmerfabriek in the east and the Vredestein area in the west. With the displacement of the ring road to the north (purple) the municipality aims to unite these areas to one whole. The new road will reduce the traffic on the roads and connect the Vredestein area with the Eiffel, but the secondary road over the Bassin will still cut the area into two. Furthermore the parking area generates a lot of people and movement in the area. Most of the people now walk to the south to the inner city instead of to the north. A new route through the Eiffel building can change this. There will also be a new walking route along De Timmerfabriek and the Bassin canal, aiming to make a connection with the new to develop Frontenpark. Lastly it is remarkable that there are now no bus stops near De Timmerfabriek. The new railway stop in front of De Timmerfabriek will therefore be a good impulse for the accessibility of the area.



- New ring road
- Ring road
- Primary city roads
- Secondary city roads
- New railway
- Existing walking route
- New walking route
- Parking >600
- Parking 400-600
- Bus stop

Most relevant infrastructuur at De Kop van Sphinx (source: Google Earth 2015, edited by B. Dessens).

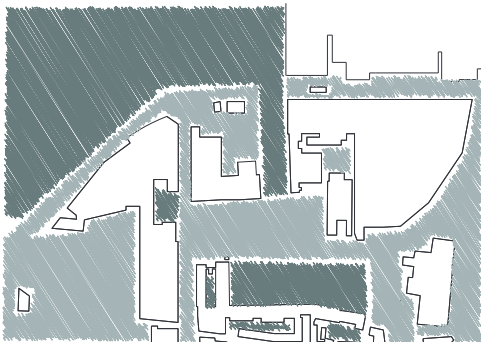
Urban analysis / De Kop van Sphinx

Mass and space

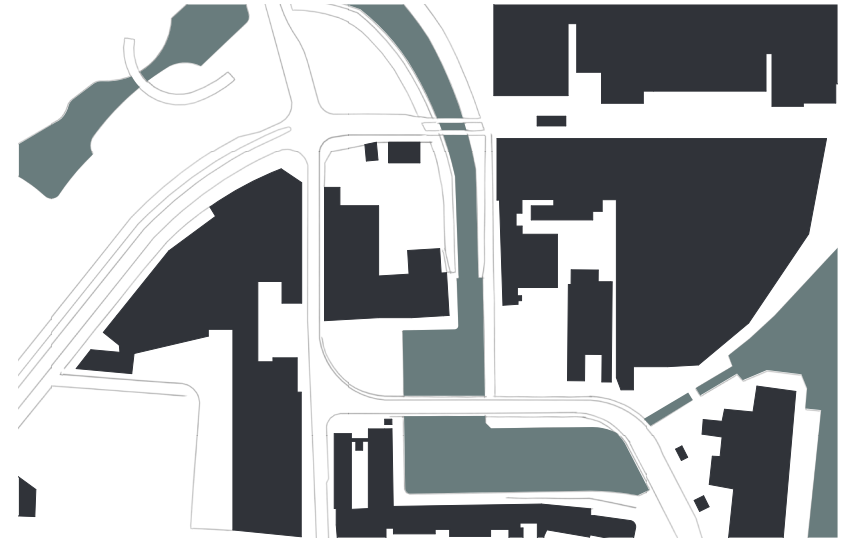
Q. What is relation between the mass and the space?

The map shows the mass in relation to the open spaces. It can be said that there is not a clear urban fabric as one can find in the inner city (illustrated on the right page). Masses differ a lot from each other in the Sphinx area and the emptiness orchestrates. The fabric consists of isolated industrial buildings surrounded by voids. These voids are no man's lands and are recognisable by the lack of boundaries and can be seen as transition space. Unfortunately the area has a lot of big open space which are barely enclosed. In the south area we find some small spaces serving as an inner courtyard for the housing blocks. With the new development of the Fronten Park in the north they create a new living area and with the new Pathe cinema they have created an urban square in the center.

■ Voids/transition space ■ Living space



Voids and living space scheme.



Morphology map of the Sphinx area illustrates an open industrial fabric of mass and a lot of voids, scale ±1:12000.



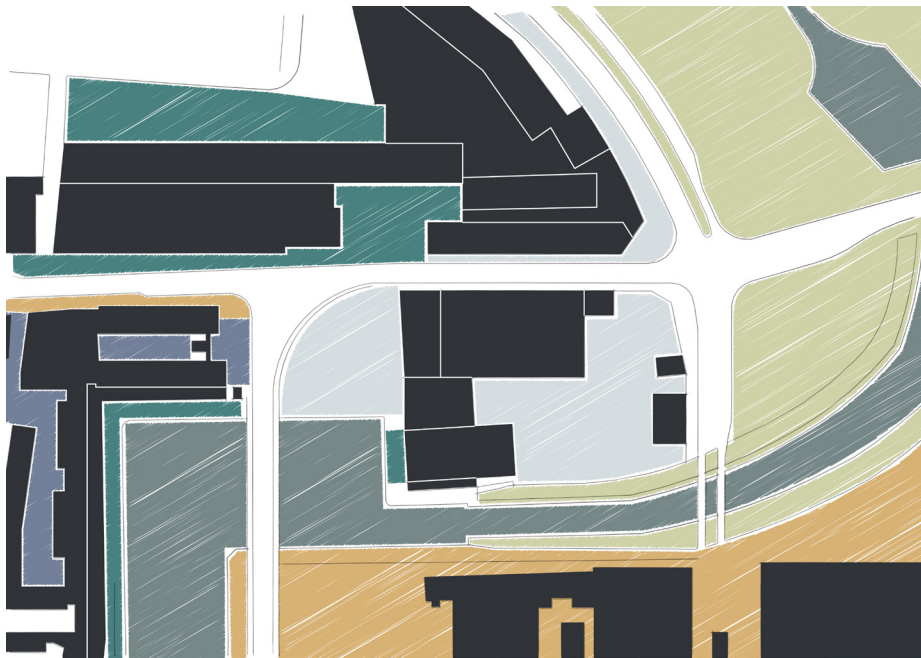
The morphology map of the inner city of Maastricht illustrates a dense urban fabric of mass and a lot of variation in open spaces, scale ±1:12000. (source: D. Wieringa and A. de Vos, edited by B. Dessens).

Urban analysis / De Kop van Sphinx

Environmental characters

Q. What environmental qualities can be found in the surrounding of De Kop van Sphinx?

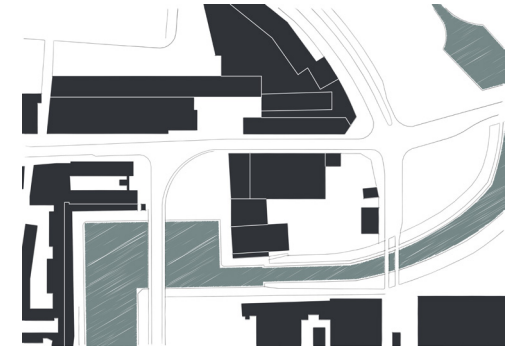
It is important to discover the existing environmental qualities. With visiting the site and map analysis 6 different worlds have been discovered. Also the possible qualities in the future (due to the revitalization of the Eiffel) are taken into account. The environmental characters are illustrated in the maps on this page. It shows the water as center world with a lot of undeveloped and industrial area around. The redevelopment of the Eiffel will raise the urban life in the area which it now leaks.



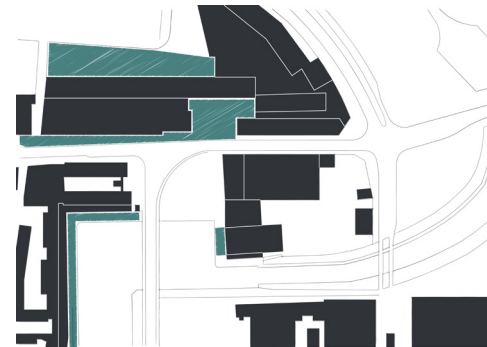
All the worlds together.



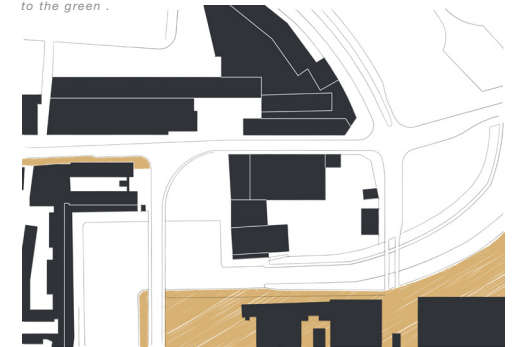
The green world, lying at the perimeter of the industrial area.



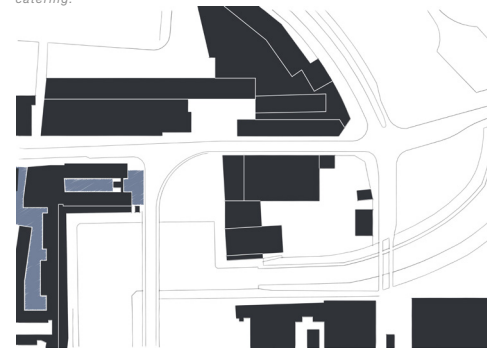
The water world, lying at the center of the industrial area and leading to the green .



The urban world, lively and active area for recreation shopping and catering.



The industrial world, sober and mostly lifeless area, dominated by business.



The housing world, mostly abandoned but brings life to the surrounding during the morning, evening and weekend.



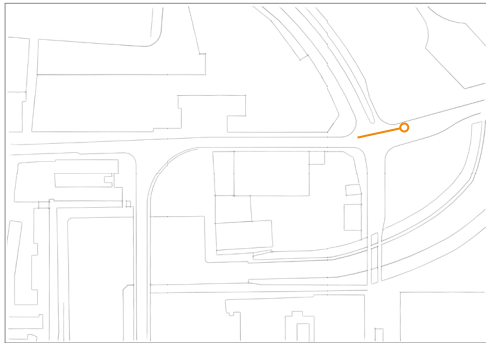
The undeveloped world, sober and lifeless area, dominated by vacant buildings and transition space.

Urban analysis / De Kop van Sphinx

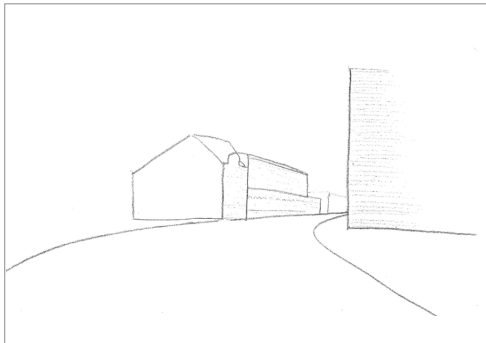
Area experience

Q. What are the experience of the area?

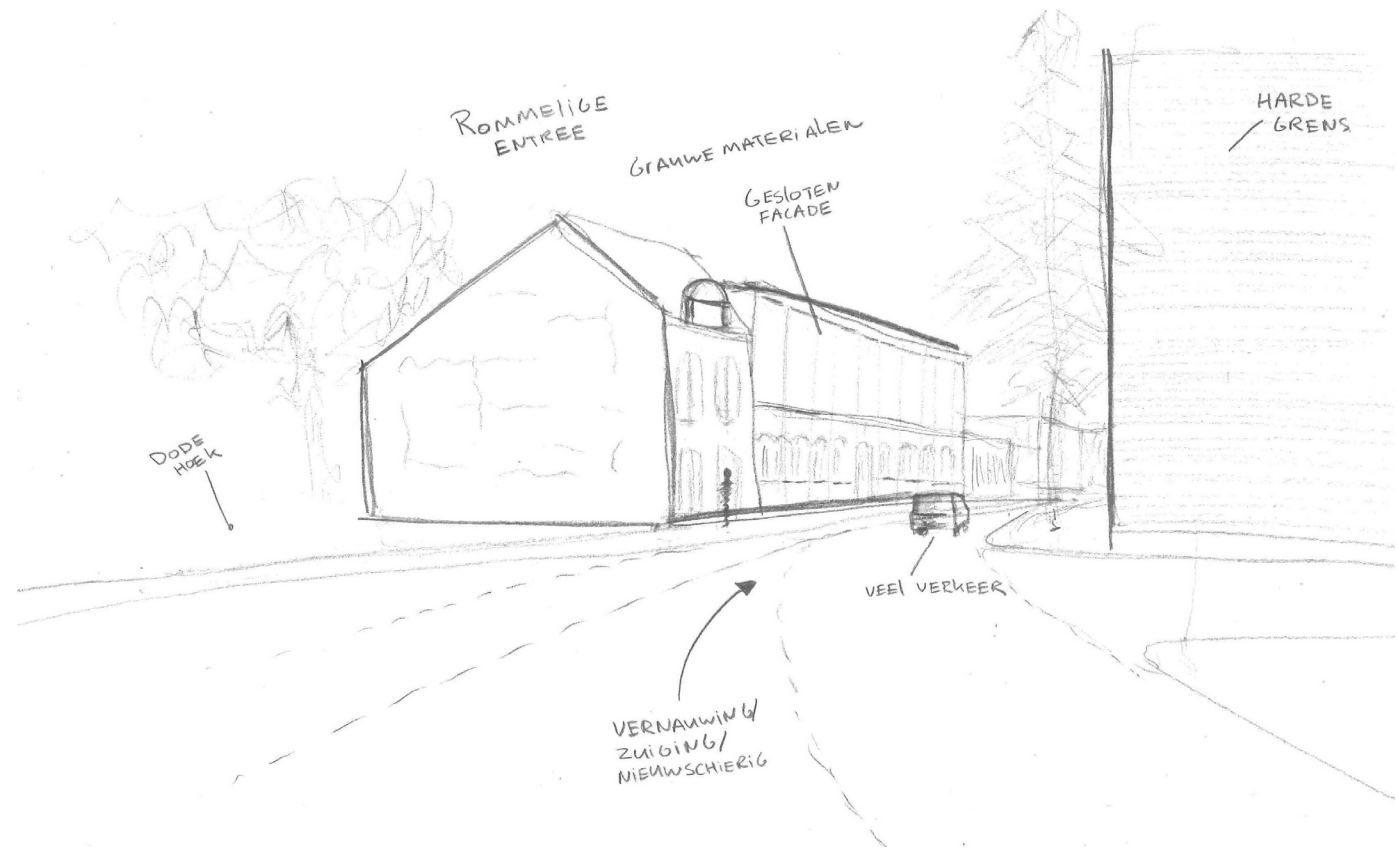
Approaching De Kop van Sphinx from the north arouses curiosity. There is a 'here and there' where 'there' is unknown. This feeling is created by the curved road, slanting buildings (left) and the hard brick wall of the building complex Sphinx Noord (right). Beside the closed rational facades seen from here, is the empty plot on the left side of the road striking for this view. This is also a bustling area through the high amount of traffic transport.



Abstract map of the area, scale ±1:3000.

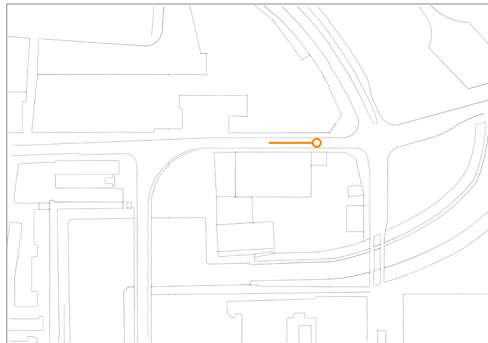


Abstract sketch of the view.

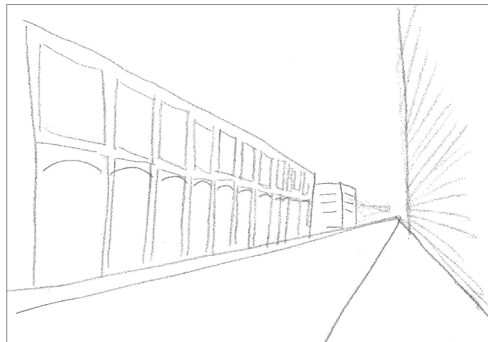


Sketch of the view, entering De Timmerfabriek from the north.

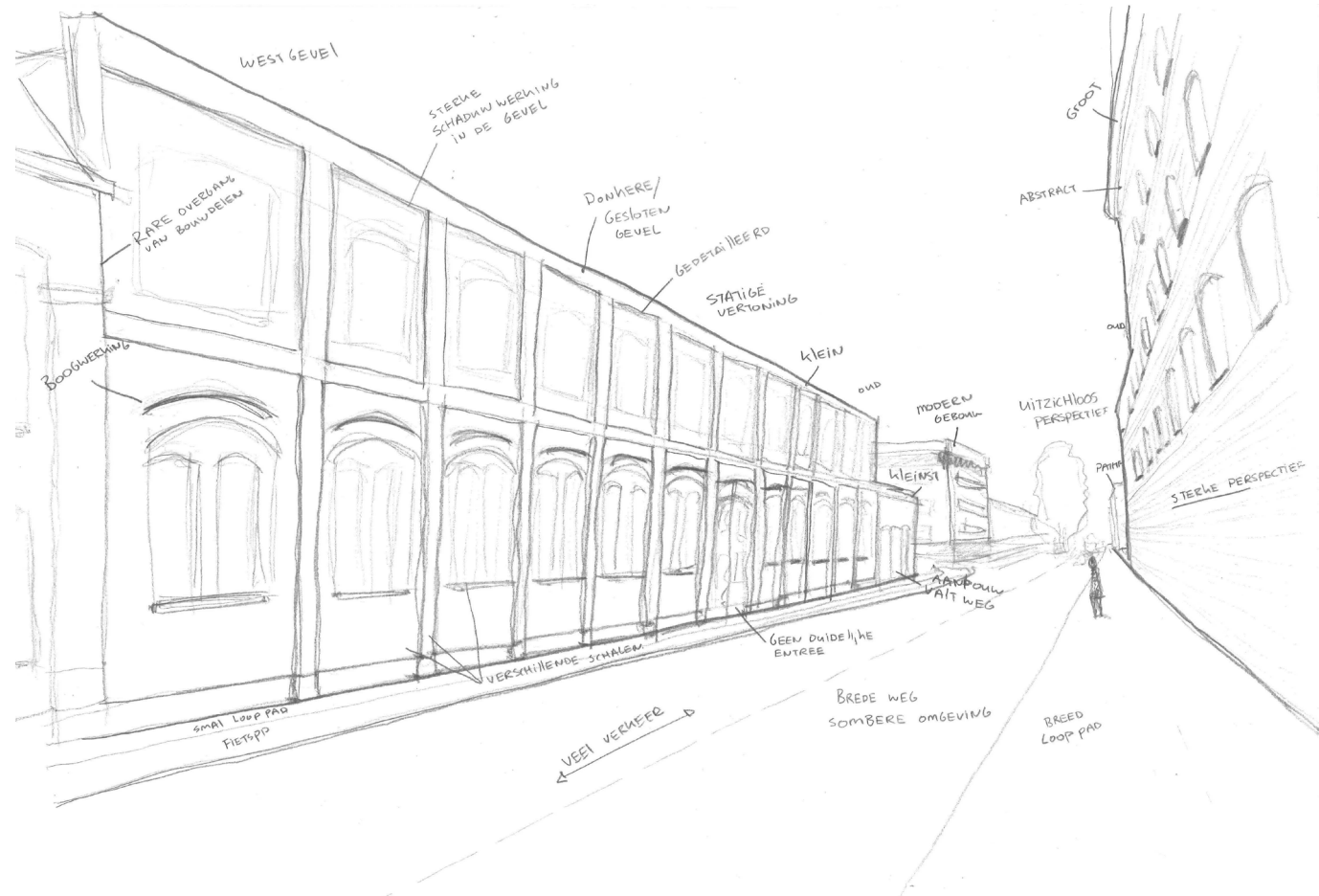
Entering the Boschstraat shows a strong perspective, formed by the two adjacent industrial buildings. The Sphinx Noord (seen on the right) is high and has an impenetrable rough look. De Timmerfabriek (seen on the left) is also dominated by a closed appearance. Though, this building is far more detailed and characterized by its rigid structure and curved window ornaments. The Boschstraat appears as an impressive old industrial street, but also dark and severe and abandoned.



Abstract map of the area, scale 1:3000.

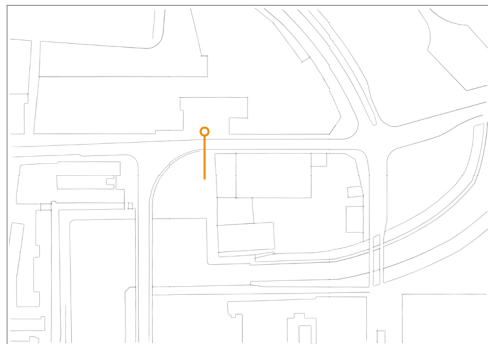


Abstract sketch of the view.

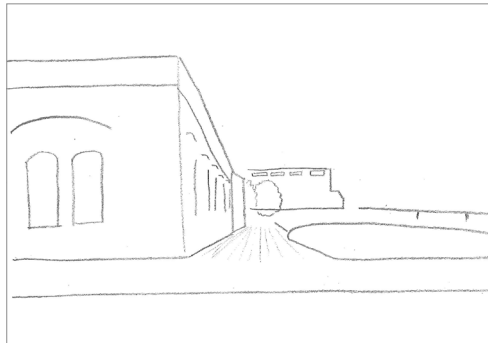


Sketch of the view, standing in the Boschstraat looking to the south.

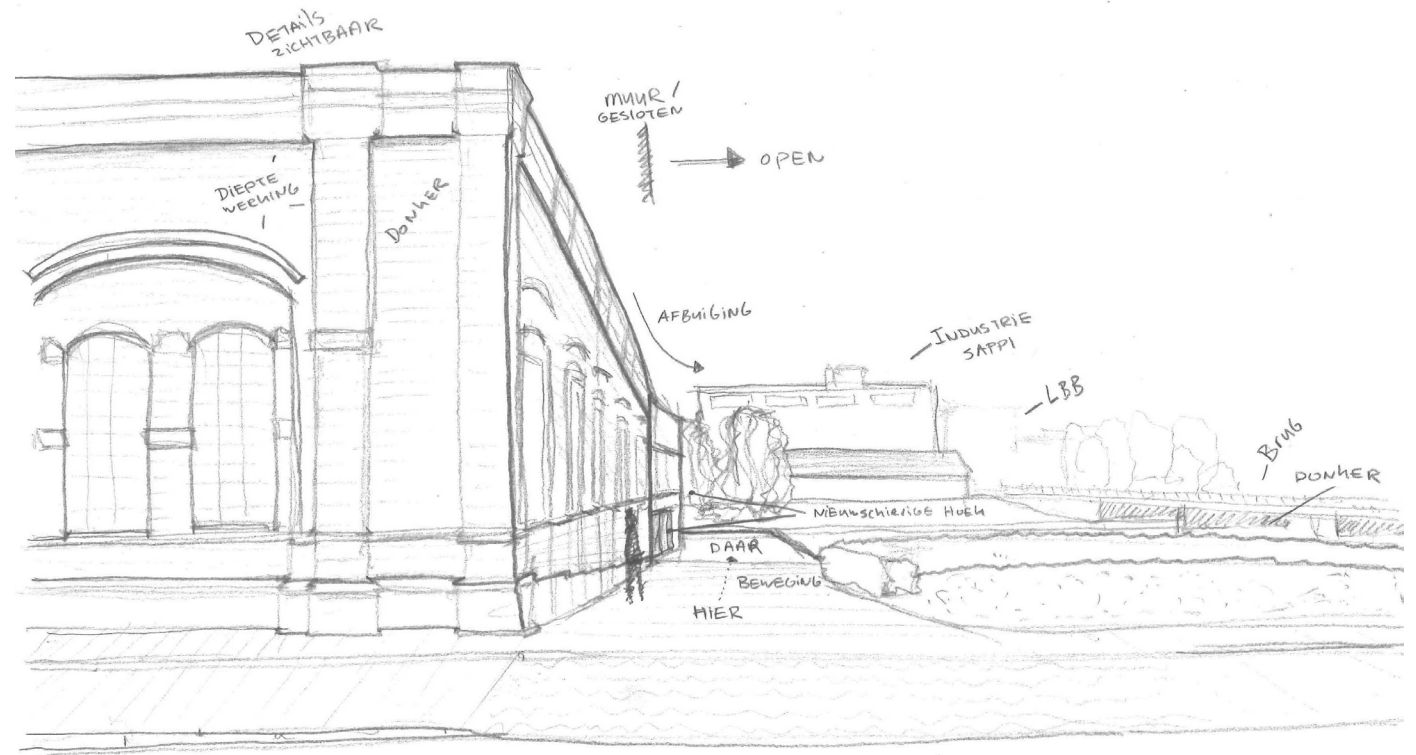
Entering the Bassin from the Eifel building (west) shows the dark brick wall of De Timmerfabriek and De Kistemakerij laying further down. The buildings are slightly angled which unconsciously bends our view to the right showing the buzzy traffic bridge. We also experience a downdraft toward the bassin trough the sloped road. It creates a 'here and there' which lets us create space and movement. Another characteristic object is the white industrial building in front, forming a wall in the view.



Abstract map of the area, scale ±1:3000.



Abstract sketch of the view.

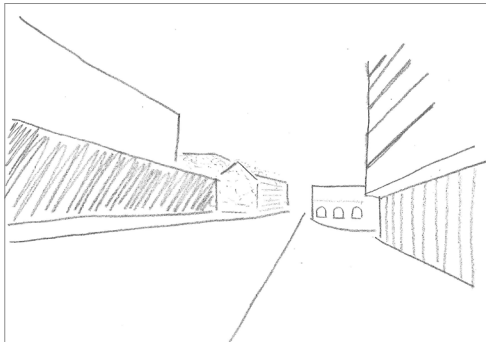


Sketch of the view, the Bassin from the west, looking to the east.

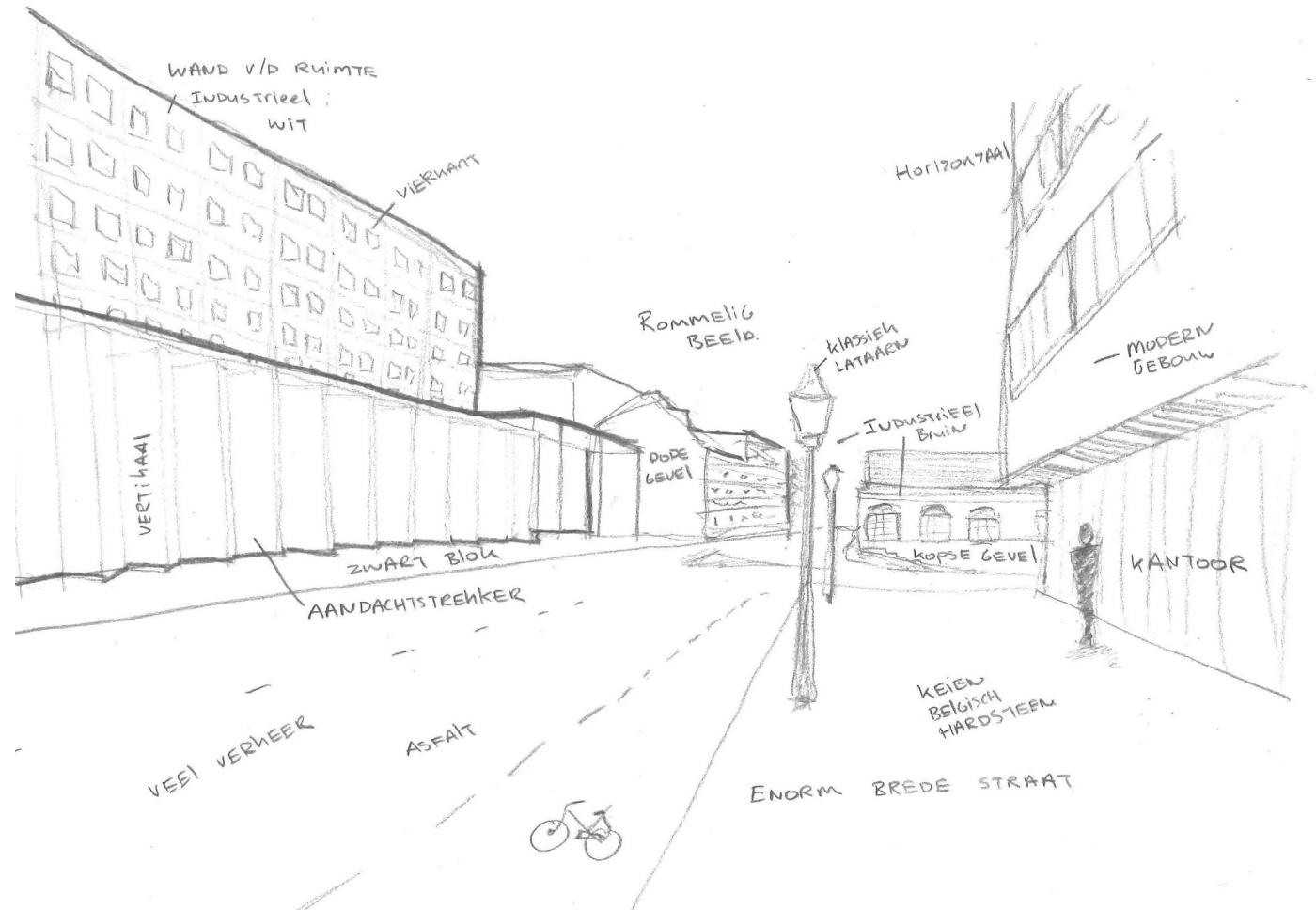
We are struck by several characteristic objects when approaching De Timmerfabriek from the south. The black box on the right side with its triangular facade, forms a big contrast with the big white rational building behind (the Eiffel). The view appears most of all messy, created by the appearance of different building styles and forms. De Timmerfabriek seems a bit hidden and the wide streets feels as a transit space rather than a place to stay.



Abstract map of the area, scale 1:3000.

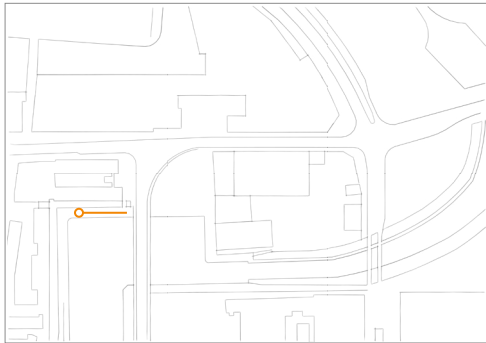


Abstract sketch of the view.

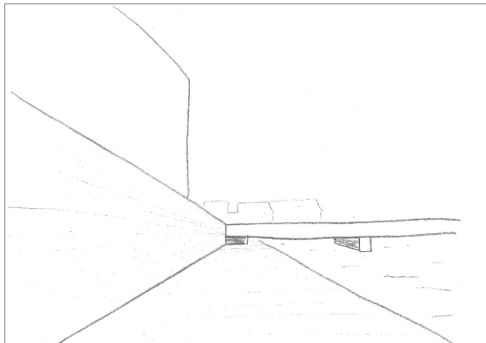


Sketch of the view, standing in the Boschstraat looking to the north.

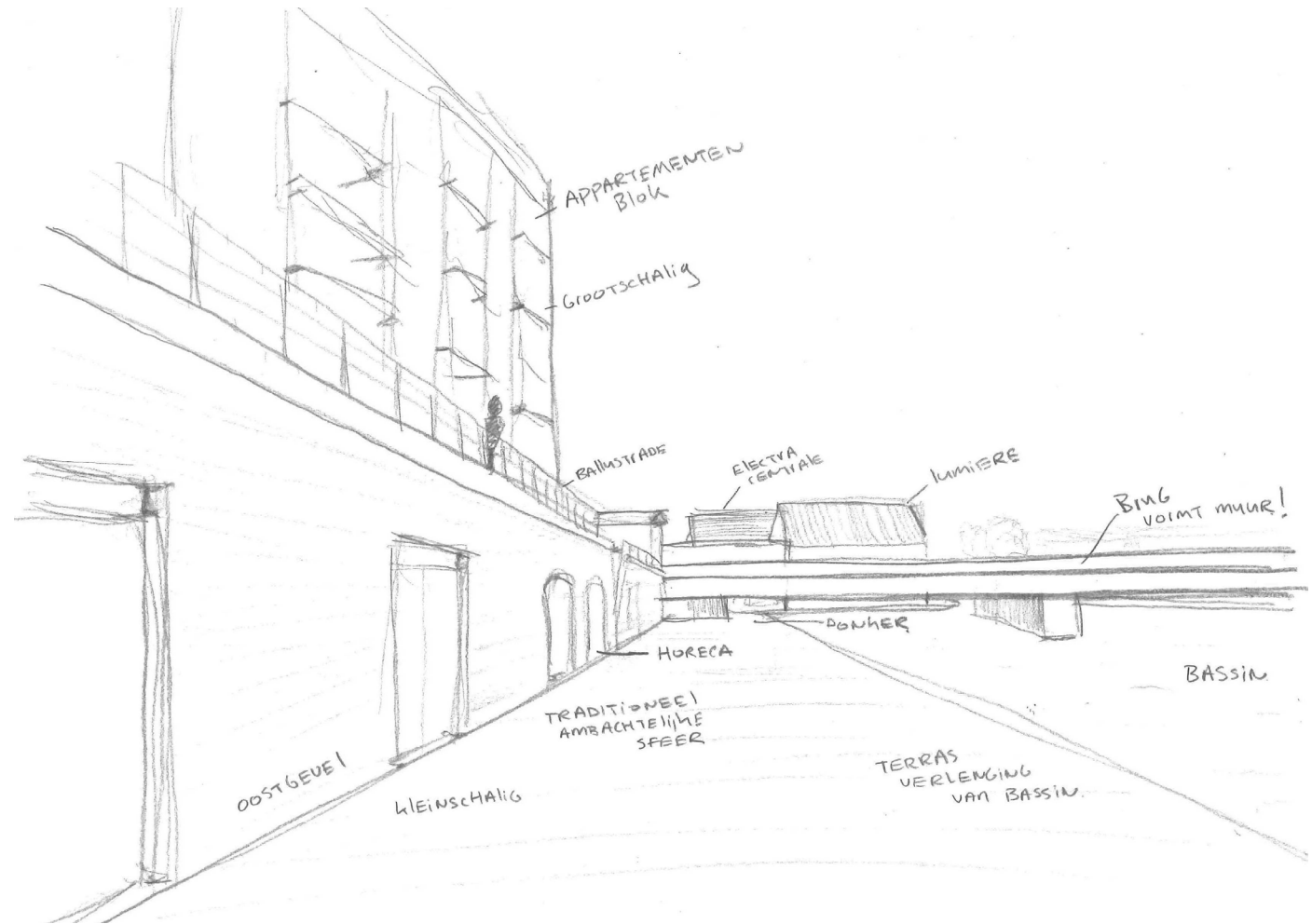
Characteristic is the strong perspective toward De Kop van Sphinx, unfortunately these buildings are barely visible due to the bridge. There is a strong harbor feeling through the use of traditional craftsmanship in the doors and materials. Because of the corner it focusses on the relation with the water of the Bassin. The modern apartment block on the left is slightly disturbing this atmosphere as well as the dirty dark bridge. This does not stimulate movement toward De Kop van Sphinx.



Abstract map of the area, scale ±1:3000.

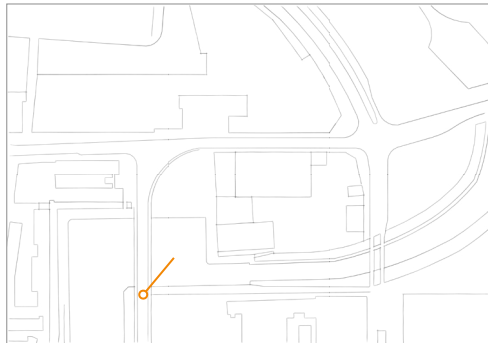


Abstract sketch of the view.

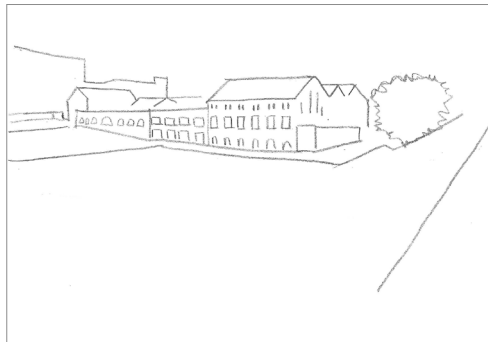


Sketch of the view, entering De Timmerfabriek from the south via the Bassin.

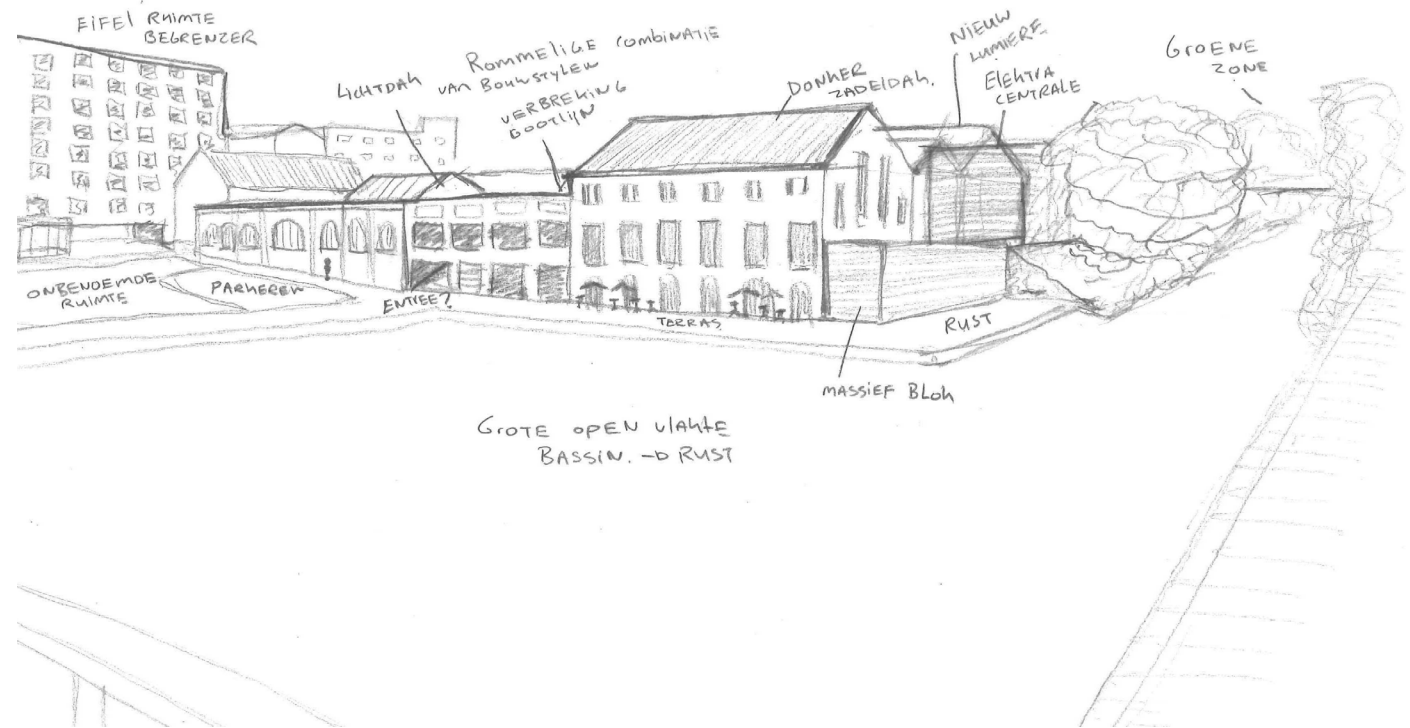
Entering from the west via the bridge over the Bassin gives a good overview of the buildings on the site. Characteristic is the calm experience of the water and the several building styles and forms. The perspective is enhanced by the sloped road along De Timmerfabriek and leads the view to the entrance below the Eiffel building. Also the openings in De Kistenmakerij attract our attention. De Timmerfabriek is notable because of its dark brick facade in contrast to the white surrounding buildings.



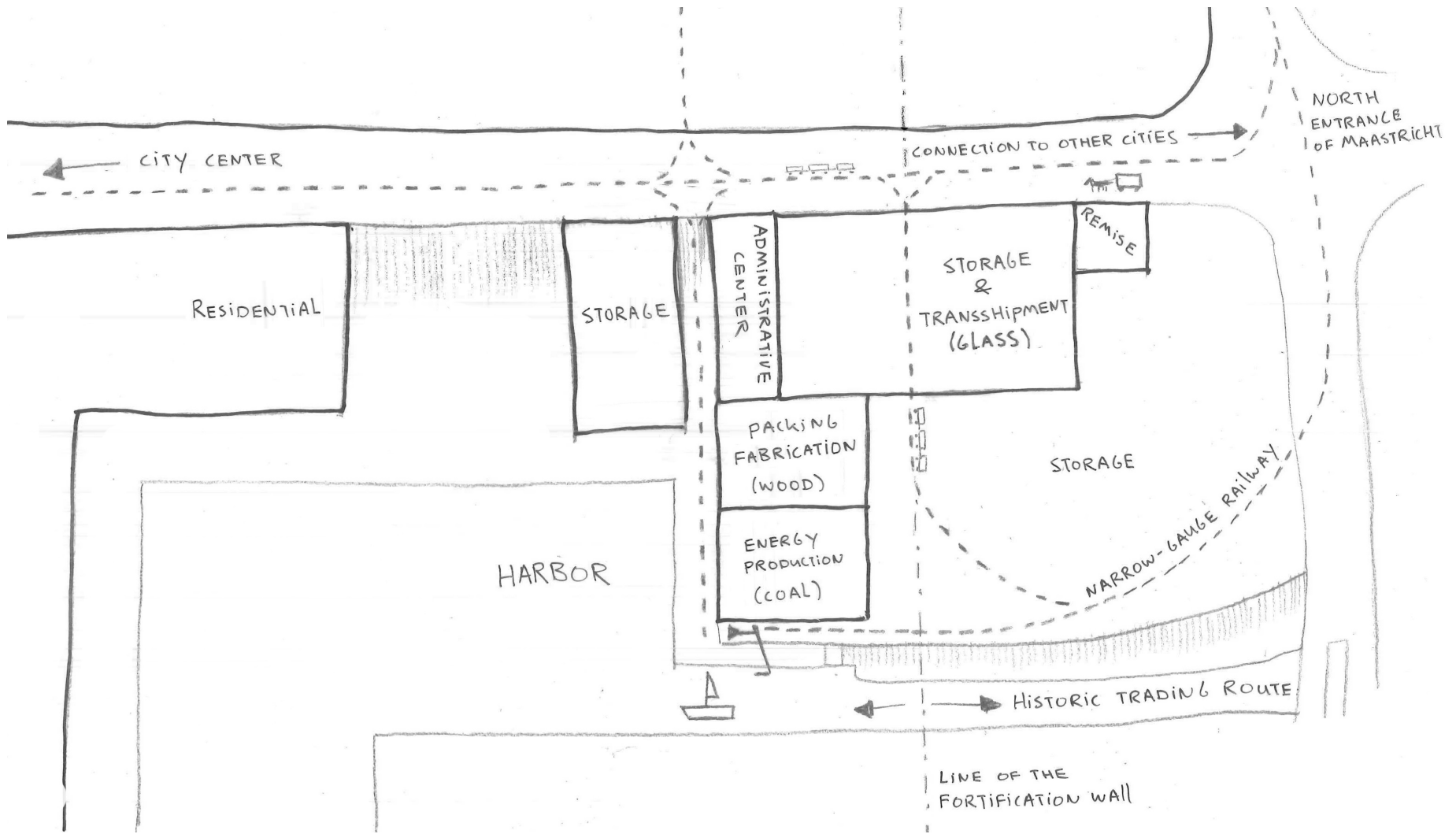
Abstract map of the area, scale 1:3000.



Abstract sketch of the view.



Sketch of the view, standing on the bridge over the Bassin looking to the quay of De Kop van Sphinx.



A conclusion sketch of the urban use of the site. The historic layers are still visible. Water, railway and roads are interwoven as a distribution area.

The construction of the Bassin in 1824, radically changed the situated along the Boschstraat, the northern entrance of the city. With this harbour they establish a safe trading area within the city walls. This resulted in the construction of new factories primarily focusing on glass, crystal and pottery. De Kop van Sphinx formed the central distribution area of the Sphinx. The site was supported with narrow-gauge railway, harbour, storage space, a steam driven sawmill and timber-yard to create crates and pallets. Later on the latter two buildings were demolished to make space for an office and warehouse, forming De Timmerfabriek (1905). This transformed De Kop van Sphinx in to a more organizing area, supporting the start and end phases of the production process, developing an important urban area.

The history resulted in an accumulation of industrial buildings with different forms and building styles. Most of the buildings appear as closed entities which are surrounded by open space. The traffic and temporary orchestrate and the site lacks liveable space. Future developments aim to revitalize this area with new functions and a big park in the north, but it now is primarily characterized by a messy incoherent area with historic industrial artefacts.



Earth map of De Kop van Sphinx in 2015 with the location of De Timmerfabriek marked in the center (source: Bing Maps).

Architectural analysis / De Timmerfabriek

Throughout the following part of the analysis the aspects which define the architectural character of the existing structure, focusing on the building scale, will be investigated. The analysis will first concentrate on the typology of the building and the internal organisation of functions and spaces. This will be followed by an analysis of the exterior. How does the building appear from the outside? Finally is an analysis of the interior space qualities. Materiality, colours and daylight are some of the factors that form the interior atmosphere and understanding them will help in defining the characteristics of De Timmerfabriek.

Central question: What is the character of De Timmerfabriek?

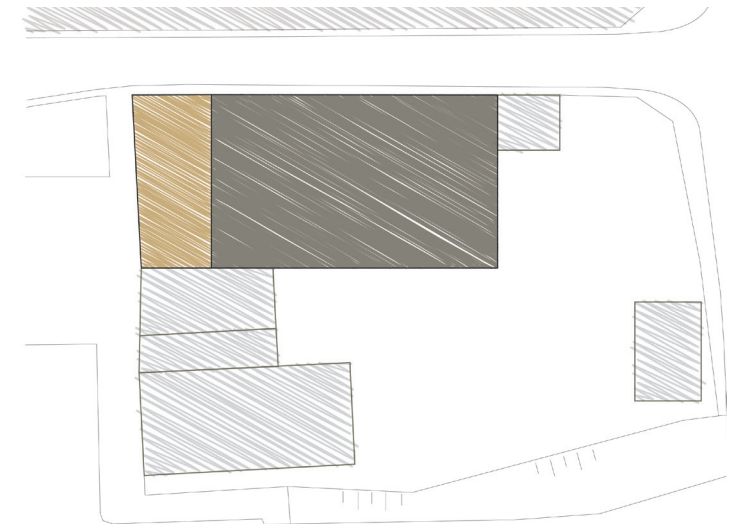
Architectural analysis / De Timmerfabriek

Typology

Q. How can the building be classified based on one or more common characteristics?

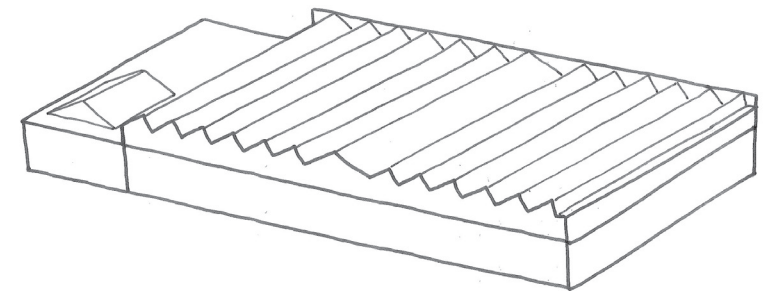
De Timmerfabriek built in 1905 combines two archetypes of the utility buildings from that period, an office building and warehouse. The floor plans are rectangular and geometric of form. The office is built up with a basement and ground floor and has a big skylight above the showroom. The warehouse is a low rise building with two stories above ground level and primarily horizontal orientated. The warehouse is covered with a shed roof structure allowing light from above and reflects in this way industrial architecture. The typology of office with a showroom and warehouse are in this combination rarely seen according to Res Nova (Res Nova, prima vista, 2006, p.12)

The warehouse is one story high and the warehouse has two spaces of approximately 5,5 meters high. The height of the first floor is divided in 3 and 2,5 meter, as a result of the shed roof construction. Therefore the ground floor seems to be much higher. This is also caused by the use of vides in the warehouse. These create long views and opens up the space. The space seems to be in balance because of the steady rhythm of construction. The delicate steel structure is organised in a grid of 4,64 by 5,68 meter and does not interfere the openness.



■ Office building ■ Warehouse building ■ Surrounding buildings

Function typology in urban context.



Abstract building form of De Timmerfabriek.

Architectural analysis / De Timmerfabriek

Functions

Q. What kind of functions does the building house.

The office was used for the attracting consumers and receiving new clients. For this they used the big showroom to exhibit their companies products. Furthermore the building inhabited offices for organising the production process of the Sphinx. Nowadays the office building is inhabited by Bureau Europa, an architecture organisation. Bureau Europa began as a subsidiary of what was then the NAI in Rotterdam (Het Nieuwe Instituut). Since April 2009 the NAI Maastricht functioned independently and since 2013 it operates for architecture and design under the name of Bureau Europe. founded in 2009. The office offers presentations, exhibitions and other activities in the field of architecture (www.bureau-europa.nl).

The warehouse was used as storage for glass, crystals and pottery. It served as a distribution center from which the products were delivered, packed and shipped /transported. For this they mainly used wide open spaces and some service space/small offices for the workers. Nowadays the warehouse functions as flexible music area, managed by the Muziekgieterij, since 2013. Organizing small concerts and other music events for approximately 550 people (www.wikipedia.org/wiki/Muziekgieterij).



Functions ground floor



Functions first floor

■ Showroom ■ Office ■ Service space ■ Warehouse

Architectural analysis / De Timmerfabriek

Spatial organisation

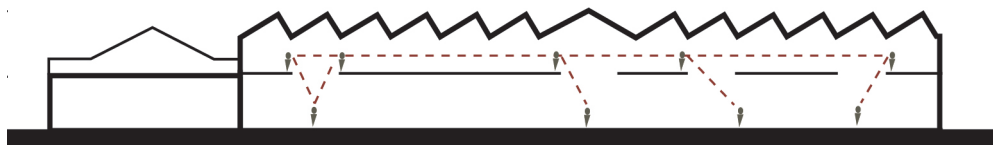
Q. What are the spatial characteristics?

The office is arranged with a linear guided organisation of spaces. There is one main corridor functioning as main axis and connecting all the spaces to each other. Offices adjacent and the big hall at the end of it. This severe organisation of space reflects in this way the use of the building, namely presenting the formal attitude of the firm, presenting its quality and housing the organisation.

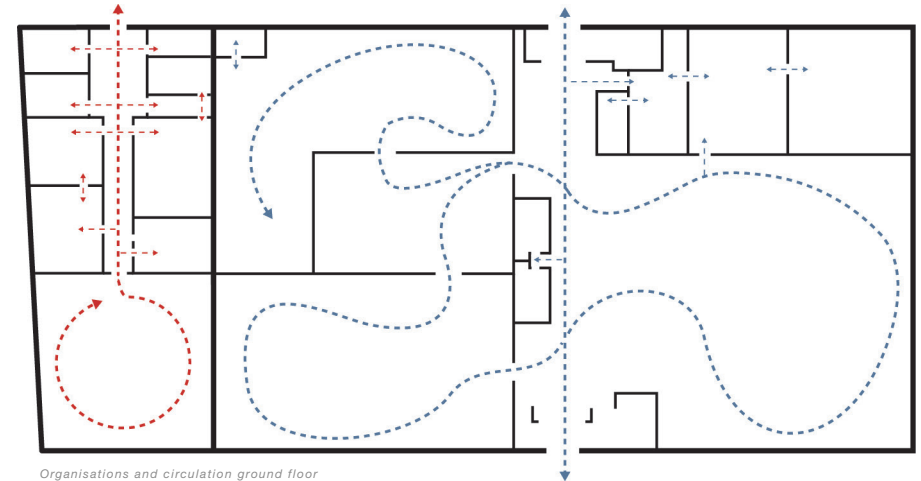
The warehouse is in contrast with this. Here a more open and free flowing organisation of space dominates. There is one main axis on the ground floor surrounded by a horizontal arrangement of spaces, providing a more open circulation. This is even more visible on the first floor, where there is one open space, creating an optimal

loose circulation. This is a result of the industrial use of the building. Heavy machinery and new horizontal production processes demanded this structure (Res Nova, Capita Selecta, 2006, p.80). It furthermore allowed good internal transport and additions to the building could be done without a lot of effort, because only one wall needed to be removed in order to do so.

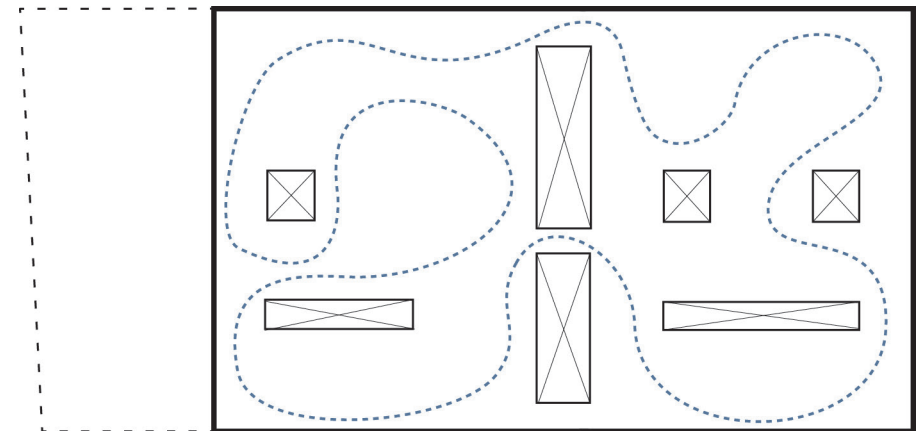
The voids in the warehouse create long views and opens up the space. The space seems to be in balance because of the steady rhythm of construction. The delicate steel structure is organised in a grid of 4,64 by 5,68 meter and does not interfere the opened.



Spatial relation between ground and first floor (section)



Organisations and circulation ground floor



Organisations and circulation first floor



First floor. Vides creating look through into the building and brings light to the ground floor.



Ground Floor. Structure creates rythem in space (source: www.exaedes.nl, retrieved Oktober 2015)

Architectural analysis / De Timmerfabriek

Facades / office

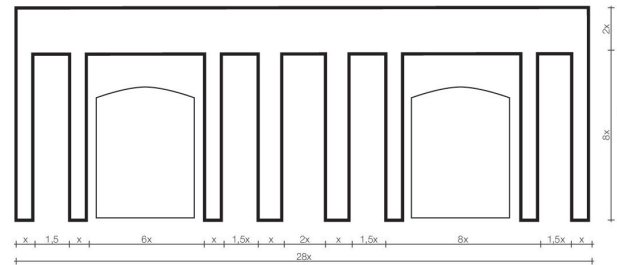
Q. How does the building presents itself from the outside?

The office has two facades toward the city one at the Boschstraat facing west and one at the Bassin facing south. Both facade are an protected image of the city (Timmerfabriek, 2014). The facades are dominated by dark red/brown brickwork with a cut to shape joint (snijvoeg). Remarkable are the horizontal and vertical layout express through extracted ribbons, which in most cases correspond with the underlying structure. The window sills are constructed out of stone and form a continues band along the building. This continuation is also expressed in the cement plastered plinth. On the south side this plinth is used to enhances the slope. The roof edge is also ornamented by extruded bricks and a 'muizentandlijst'. Both the facades are characterized by its symmetric appearance with a distinct center. Analysis shows a proportion system which uses a module 'x'. This results in a classical and balanced layout which presents itself together wiith ornamentations as a formal and severe building.

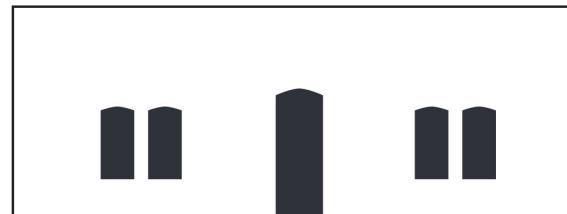
In the course of time, small interventions have been made. Most striking is the addition of windows in the last three windows on the south facade. Original these windows were closed of with brickwork to allow only light from above in the showroom.



West facade office, photograph.



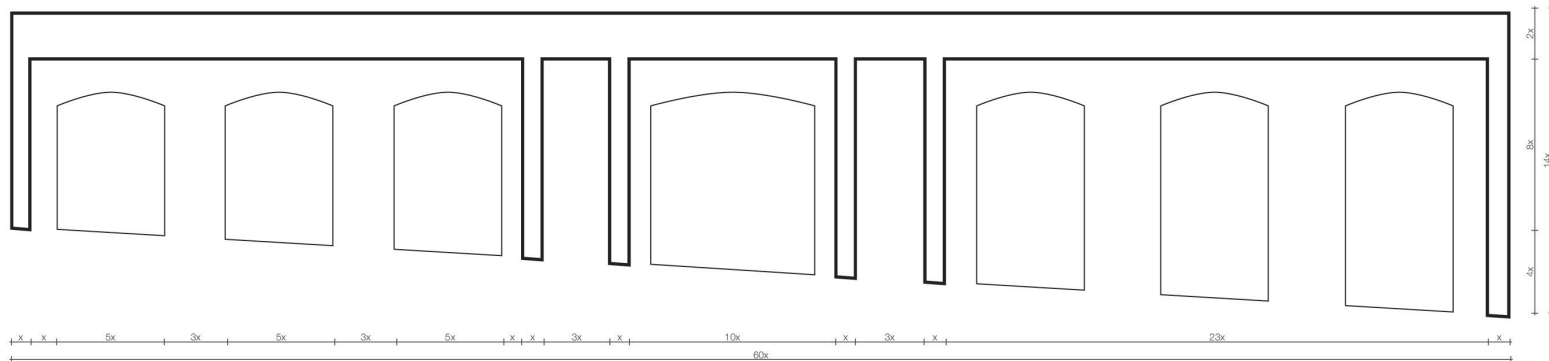
West facade office, resessed (thin) and extruded brick (thick).



West facade office, wall openings.



South facade office, photograph.



South facade office, ressed (thin) and extruded brick (thick).



South facade office, wall openings.

Architectural analysis / De Timmerfabriek

Facades / warehouse

The facade of the warehouse has three facades, one at the inner courtyard facing east and two at the Boschstraat, one facing west and one facing north. The north facade was a construction wall between two buildings and does not have any architectural quality now these adjacent buildings have been demolished. The facade on the Boschstraat facing west is the most ornamented of all and is an protected image of the city (Timmerfabriek, 2014). It has a symmetric layout and is divided in 13 planes, one prominent entrance in the center and 6 on both sides. Analysis shows a proportion system which uses a module 'x'. This results in a classical and balanced layout which presents itself together with ornamentalations as a formal and severe building. The planes based on this proportion are characterized by its extruded and recessed brickwork, creating a more sculptural appearance. Also here the brick ribbons expresses the inner structure. Per plane are on the ground floor two windows located and decorated with a cement plastered arced ornament and a stone sill. The first floor has no openings but does makes a suggestion with shadows and depth difference. Behind the formal and severe facade lies the a shed roof construction, which this facade tries to hide. This roof is clearly visible from the east inner courtyard and clearly has less ornamentation. Here the industrial typology orchestrate and makes a nice contrast with the west facade. This clearly illustrates the idea of a building that is representative and functional at the same time. Beside replacement of some iron windows no further adjustments have been done.



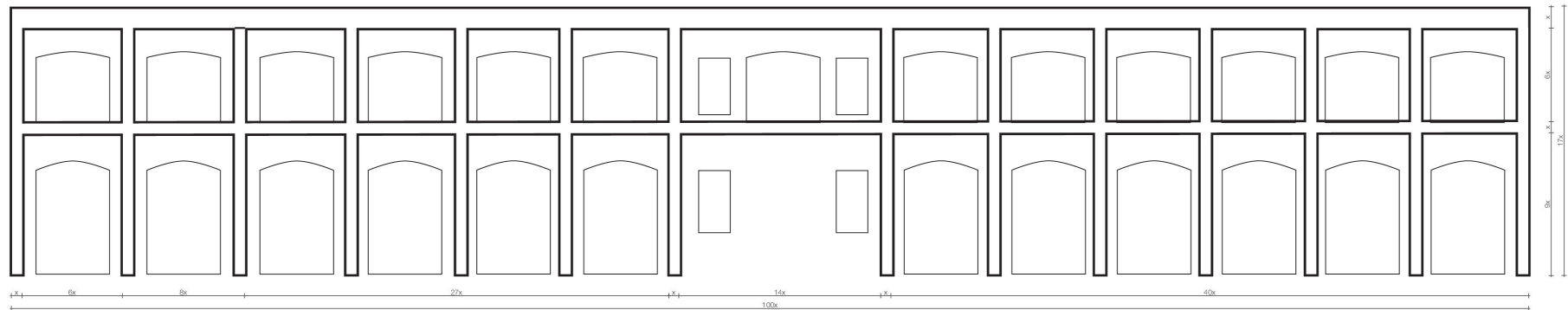
East facade warehouse, photograph from the inner court (2006, RCE).



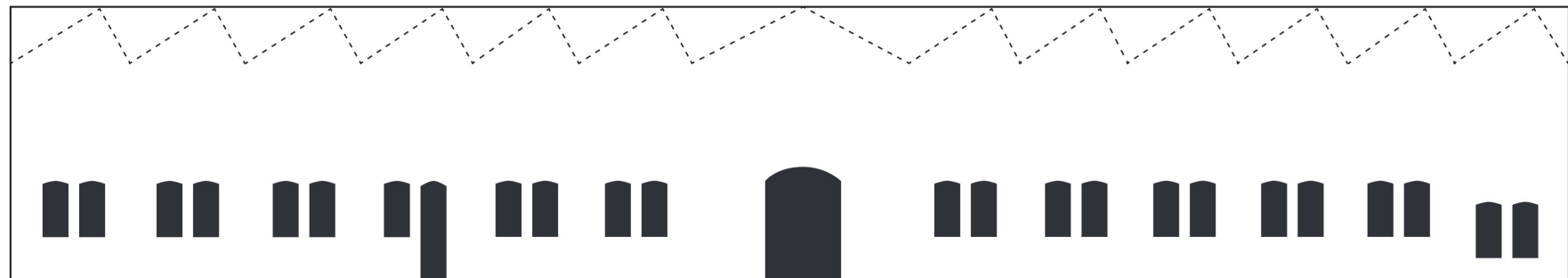
North facade warehouse, photograph.



West facade warehouse, photograph.



West facade warehouse, resessed (thin) and extruded brick (thick).



West facade warehouse, wall openings and underlying shedroof construction.

Architectural analysis / De Timmerfabriek

Interior / office

Q. What is the interior atmosphere?

The interior of the office is characterized by high walls and light from above through skylights. Strong spatial hierarchy, colours and details creates a formal atmosphere. When entering the office one arrives in a small hall which leads to the central hall and immediately draws your attention to the door where the big hall is situated. The big hall is the most prestigious space in the building and was used to exhibit the products of the company. A big skylight (formally covered with frosted glass to create diffuse daylight) allows a lot of daylight into the space. This together with the wooden parquet floor creates a prestigious space and openness. Furthermore the building has some offices which are well decorated with plasters and wooden floors and have a nice view to the historic Bassin.



Main corridor in the office



Interior of the showroom in the office, showing the big light space and delicate steel structure.



Detail of the ornamentation used in the ceiling of the office



Interior of an office in the office building

Architectural analysis / De Timmerfabriek

Interior / warehouse

Q. What is the interior atmosphere?

The interior is dominated by a delicate steel structure which allows a lot of daylight inside the building. The space is dominated by a high, dark interior space on the ground floor and a light and open space on the first floor. Everywhere are the constructive materials visible brick is brick, wood is wood and steel is steel. The atmosphere of the interior is most noticeable in the main street. This street situated at the center of the building, going from east to west was used as loading and unloading center. The big voids, historic train rails and hoist crane are evident for this. Here one can see the delicate steel roofstructure, incidence of light and historic attributes as the white raised chief office.

The first floor consists out of one big open through the absence of any wall and forms a wide spectacle where light and delicate structures dominate.



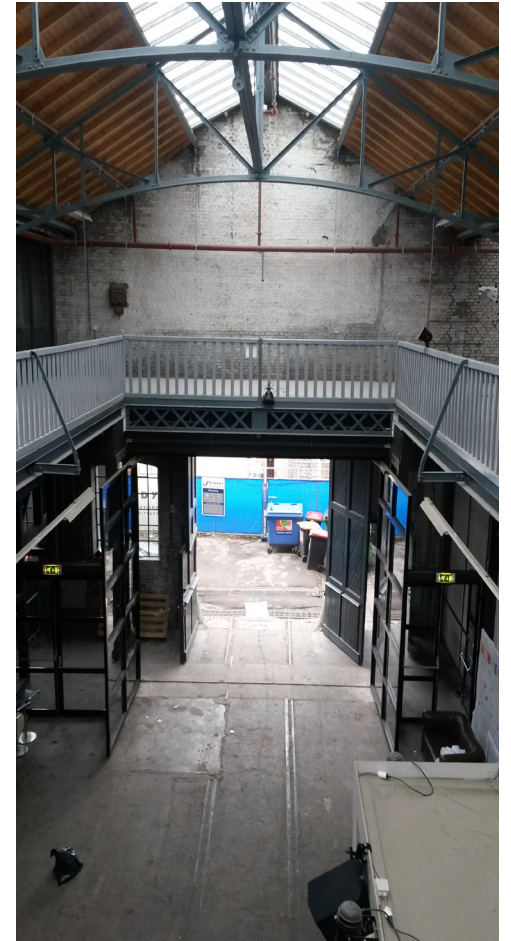
Looking perpendicular on the mainstreet to the chief office. and hoist crane, showing the industrial use of space.



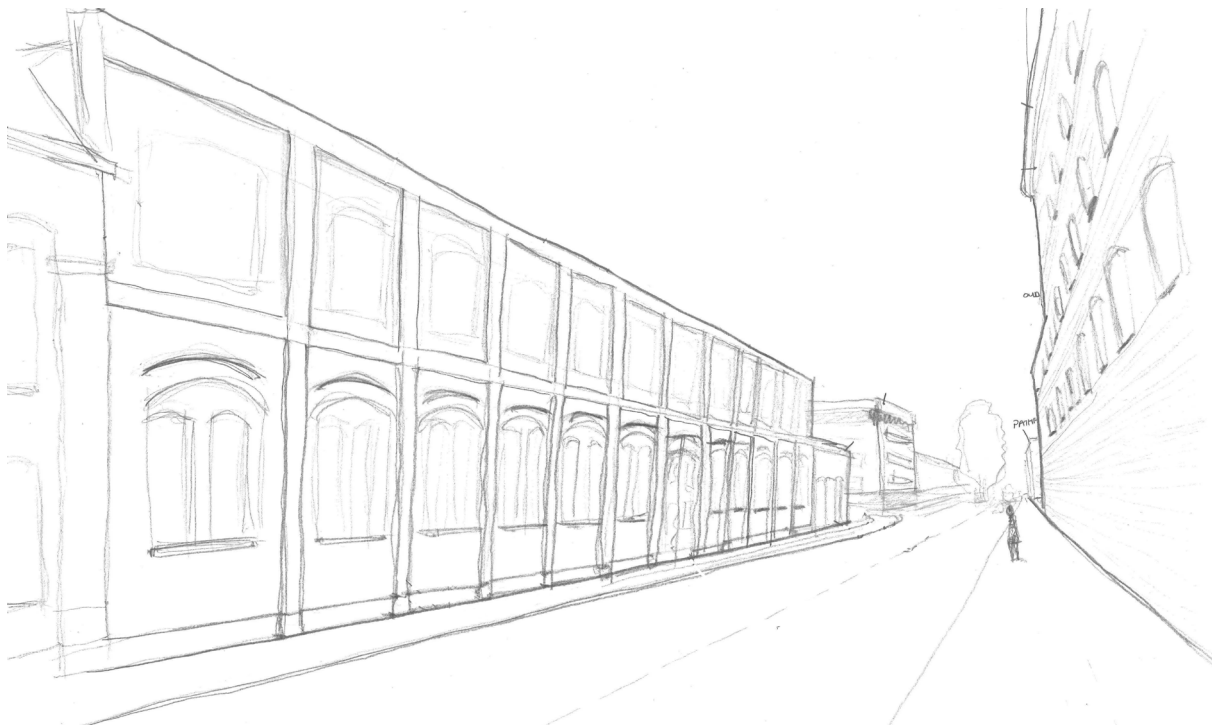
Looking to the north at the big hall on the ground floor, showing the high space, visible structure, voids and daylight..



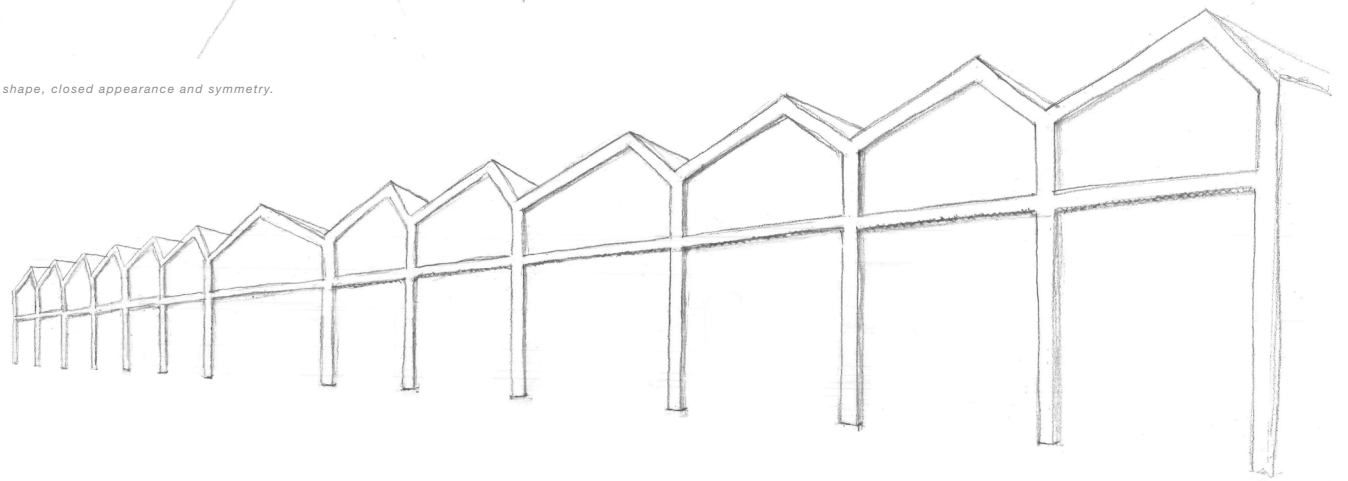
Looking down to the main street, showing the wide open space, raw materials and delicate steel structure.



Looking down to the main street, showing the remnants of the railway track.



The west facade reflects the formal and representative character of the Sphinx by its strong rectangular shape, closed appearance and symmetry.



The east facade clearly illustrates the industrial character due to the shed roof construction.

Architectural analysis / De Timmerfabriek

Conclusion



The main street in the warehouse expresses all the values of the building. Rough materials, delicate steel structure, incidence of light, shed roofs and the wide open space with its historic use illustrates the essential characteristics.

The building shows a closed rational and severe exterior due to the symmetrical facade layout and the use of a typical industrial brick framework. But it is the ornamentation that make this building more prestigious and valuable in compare with other industrial buildings of the Sphinx. The ornamentation of the facades with the recessed bricks show the more sculptural architectonic quality of the building, it brings the inner structure of columns, floors and roof to the outside, making the building more tangible. Also interesting is the difference between the east and west facade. The facade on the Boschstraat illustrates the more prestigious, formal side of the building with its harmonious layout. This is in contrary with the inner courtyard, where an industrial, structural facade expresses a more informal building. This clearly illustrated the idea of the building as one that is representative and functional at the same time.

The atmosphere inside the two buildings is two folded. Firstly, the warehouse, which has a fantastic industrial expression. The rough materials and the high space height are responsible for this. Also the vides, which bring daylight to the ground floor has architectural qualities. An interesting alternation of openness and closeness arises and the building becomes a three dimensional assemble of spaces. One level instead of two. The steel structure enhances this industrial expression even more. It's repetitive rhythm reinforces the functional attitude and the delicate design of the roofspans opens up the space. Secondly, the office which has a prestigious formal atmosphere. The one story high interior creates direct contact with the light transmitted through the roof. The high walls and guided space organization makes the space very formal. Most special is the hall at the end of the building. The combination of openness, light and delicate steel roof construction creates an impressive effect.



Earth map of De Kop van Sphinx in 2015 with the location of the office marked in the center (source: Bing Maps).

Technical analysis / The office

The last part of the analysis, transposes the focus of the research to the most tangible dimensions of the structure. A thorough investigation of the main construction principles, as well as the expression of materials and textures defining also the impression of space, will be analysed. Focusing more on the important construction details gives insight to the small scale of the substance. This chapter will start with an analysis of the office (see map on the left). First giving a general explanation of the structure followed by a more detailed elaboration of the specific elements. Wall, foundation, floor and roof constructions will be analysed on their materialisation and construction principles. After the of the office the analysis will continue with the technical elaboration of the warehouse.

Technical analysis / The office

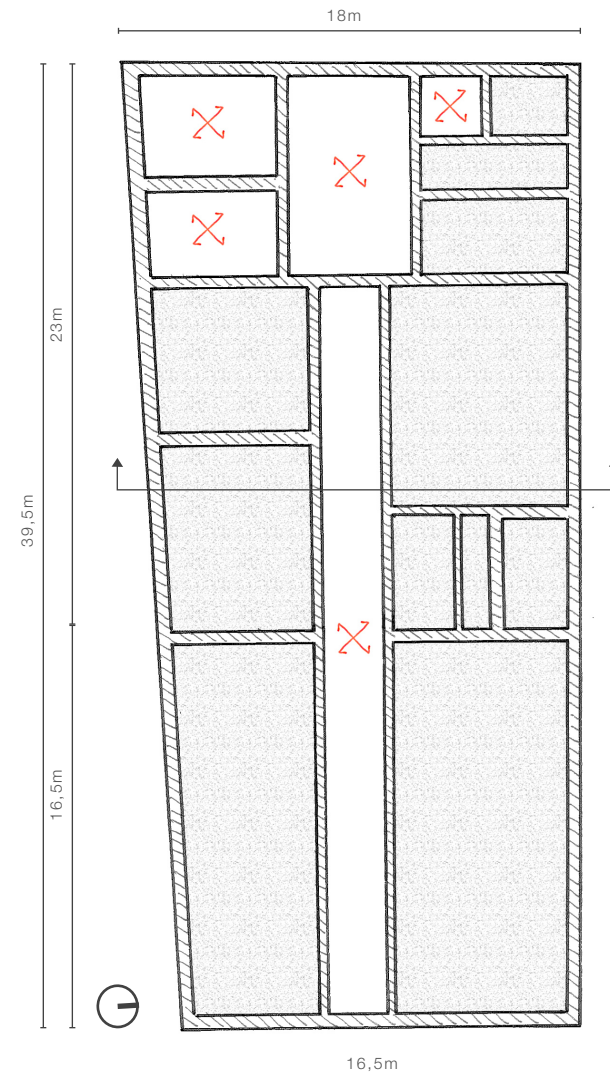
Construction principles overview

Vertical forces

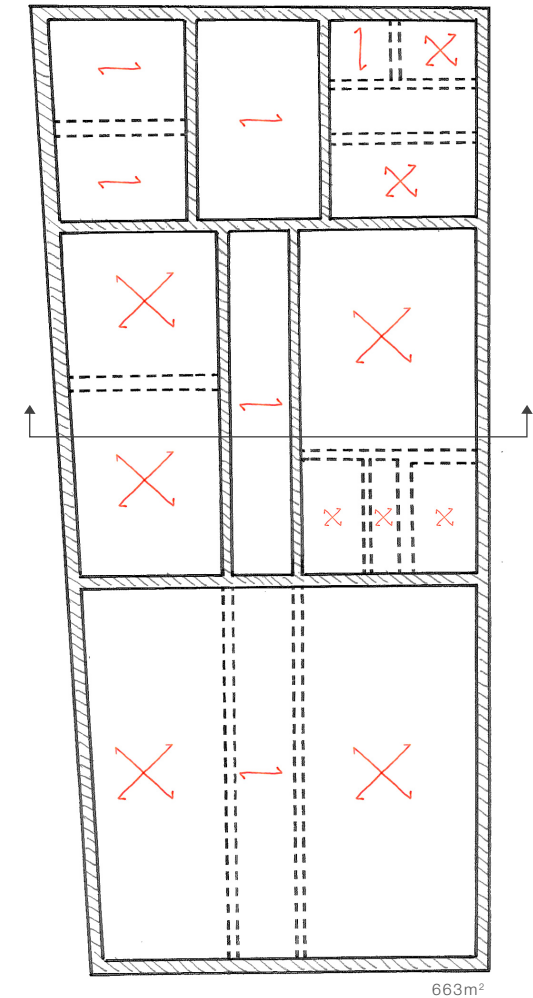
The construction drawing of the floorplans shows the span direction and load bearing elements. Here the closed and structured interior organisation of the office is clearly visible. The vertical construction principle involves load bearing brick walls with concrete floors in between and a wooden structure as roof on top. The floor slabs of the basement are founded on grade (op steal gefundeerd) and are made from concrete. Most of the ground floor is constructed in the same way except for the covered spaces in the basement. Here the floors are constructed with brick arched vaults (troggewelfen) between steel beams. The roof is constructed out of wooden beams.

Stability

The rigid rational structure is also responsible for the stability. The office derives its stability from the stiff walls and roof construction. Furthermore the office is connected with the warehouse which reduces the horizontal forces on the facades and make the building stand stable.

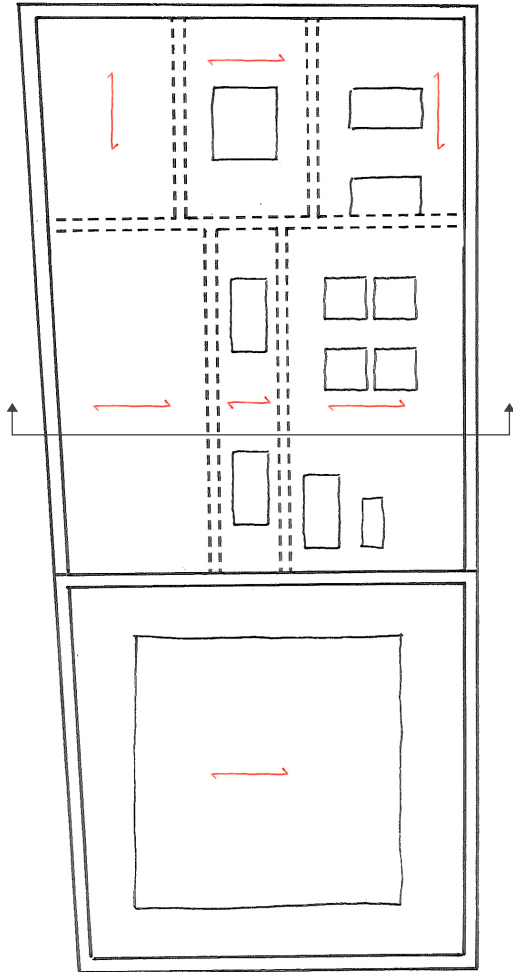


Basement, load bearing walls (brick) and floor span (concrete).

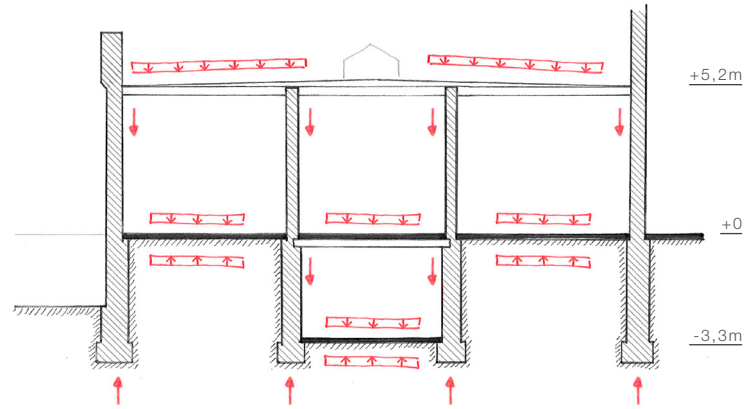


663m²

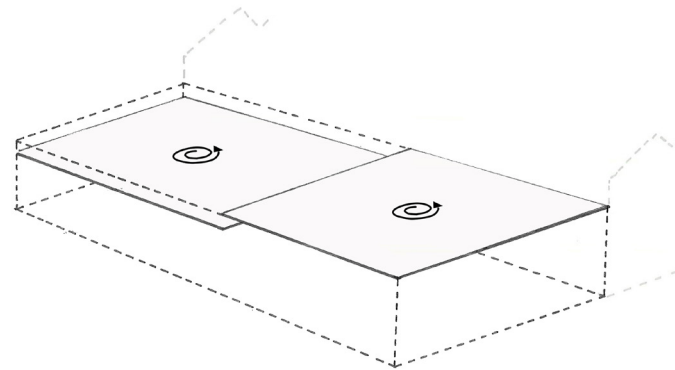
Ground floor, load bearing walls (brick) and floor span (concrete).



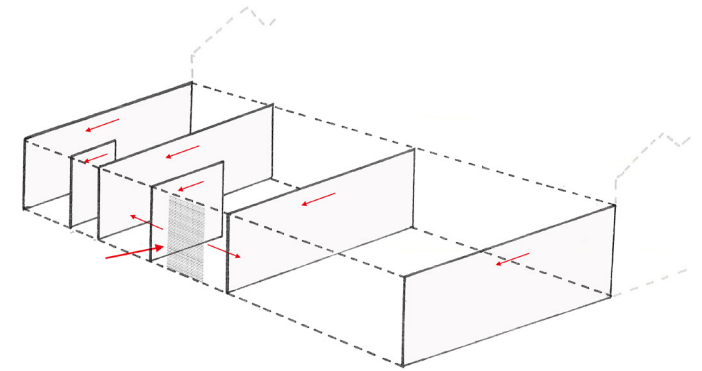
Roof plan, load bearing walls (brick) and floor span (wood).



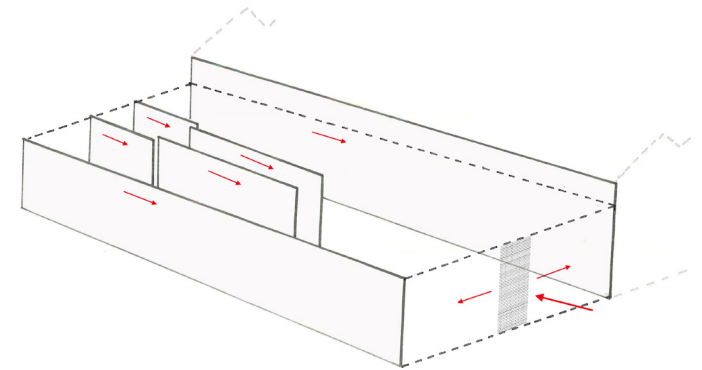
Section of the office with the load bearing elements and transmission of forces.



Wooden floor providing stability against rotation.



Stiff walls providing stability in the north-south direction.

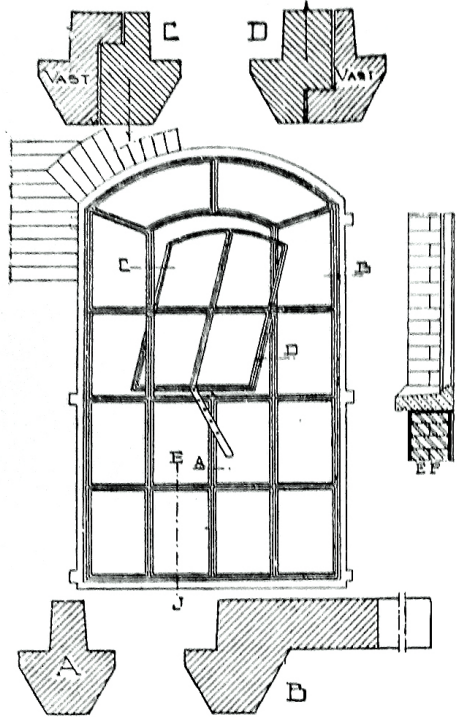


Stiff walls providing stability in the east-west direction.

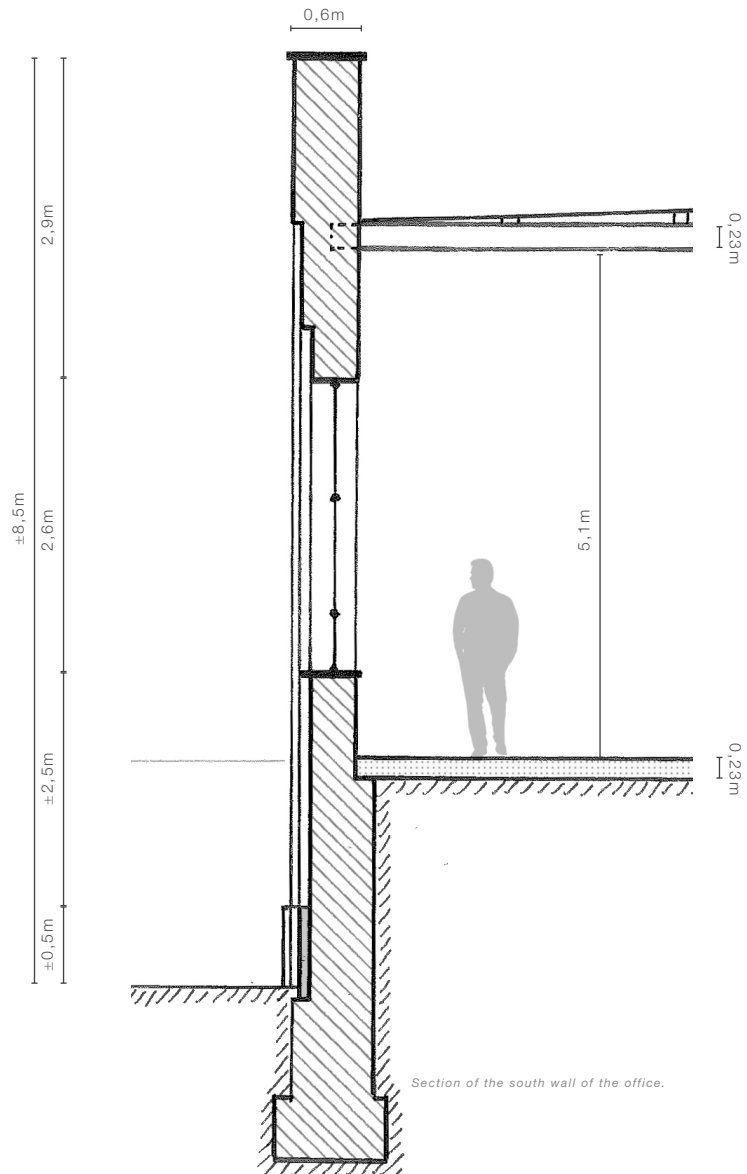
Technical analysis / The office

Wall and foundation

The brickwork show a crossbond pattern with a shape joint (snijvoeg) of 5mm. The brickwork has a brown colour and is 215x105x55mm in size (LxWxH). The wall is approximately 60cm thick, the concrete floor 23cm and the wooden beams in the roof 9x23cm in size and have a heart to hearth distance of 40cm. The window frame is made of cast iron has single glass and is connected to the masonry through mortar. The wall height changes as a result of the adjacent slope.



Cast iron window details (source: Wattjes (1930), Deel IV, p.272)

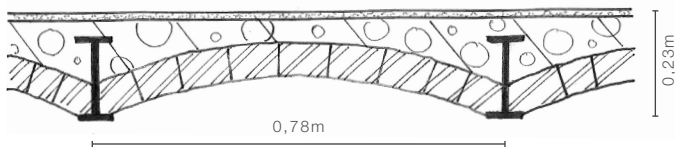


Technical analysis / The office Floor

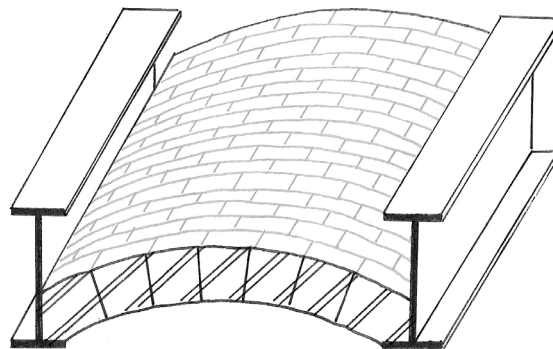
The floor slabs of the basement are founded on grade (op staal gefundeerd) and are made from concrete. Most of the ground floor is constructed in the same way except for the covered spaces in the basement. Here the floors are constructed with brick arched vaults (troggewelfen) between steel beams. This is an early version of the Dutch 'broodjesvloer'. The steel beams are the main bearing elements. In between the beam is a brick vault which is filled up with concrete and covered with a mortar which forms the top layer.



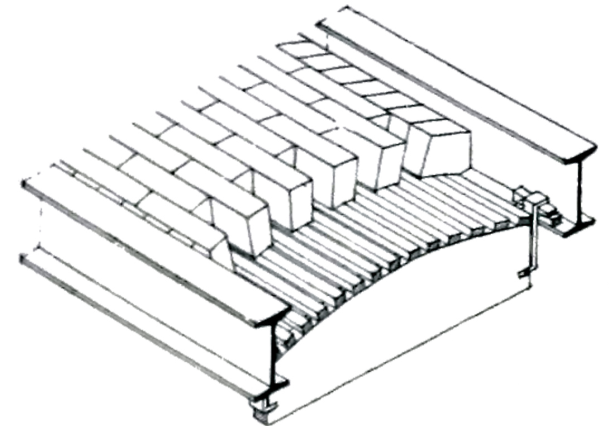
Photograph of the ground floor, taken from the basement.



Section of the floor construction. Brickwork filled up with concrete and covered with a mortar.



Perspective sketch of the vault construction.

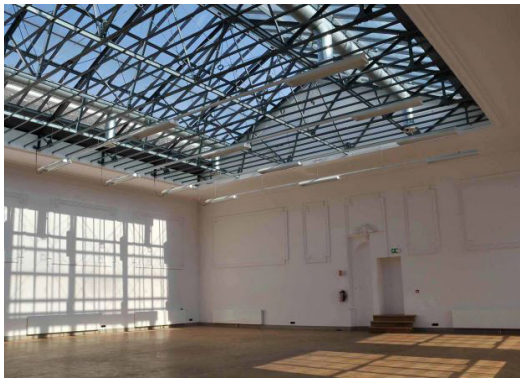


Possible construction method of the floor (source: Wattjes (1925, Deel V, P.8)

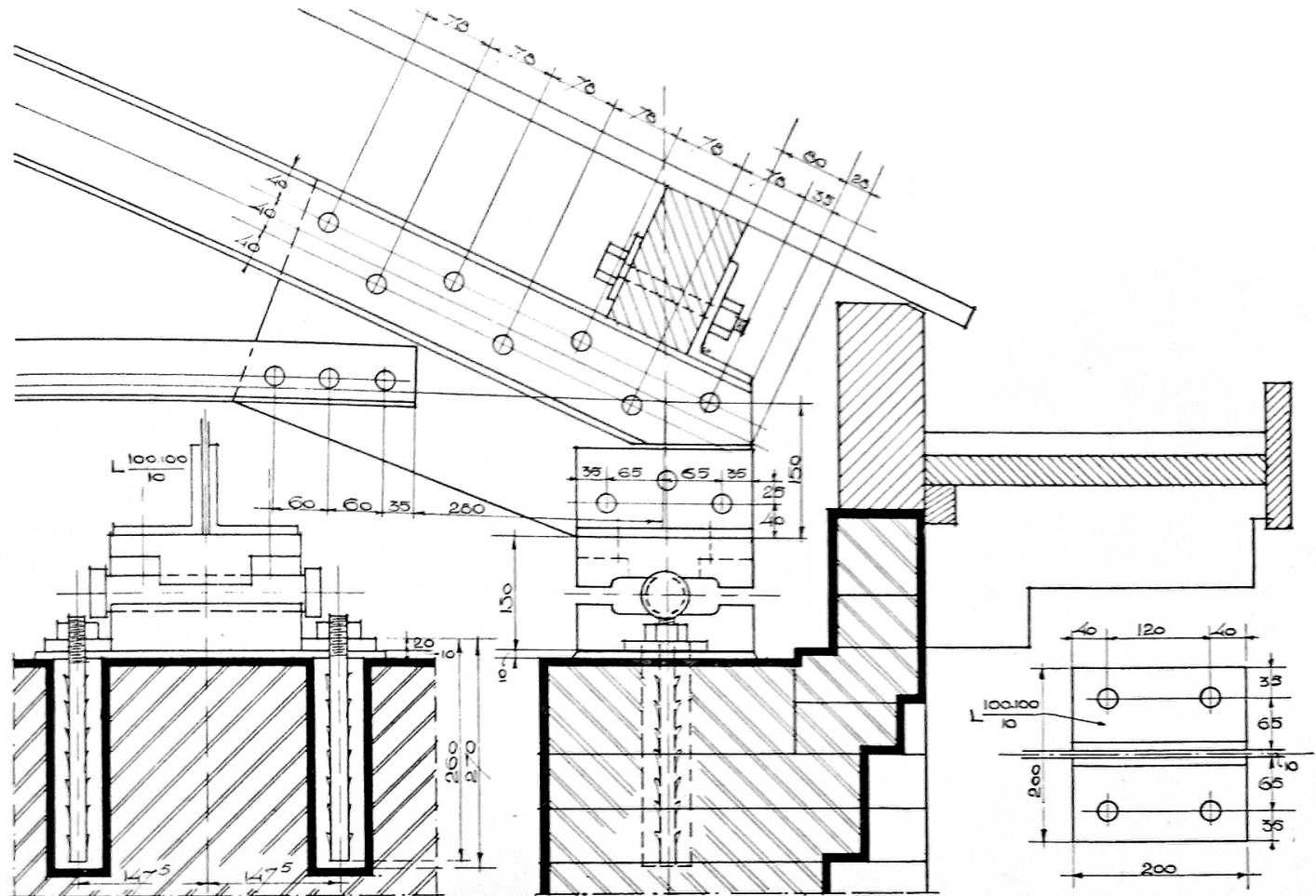
Technical analysis / The office

Roof

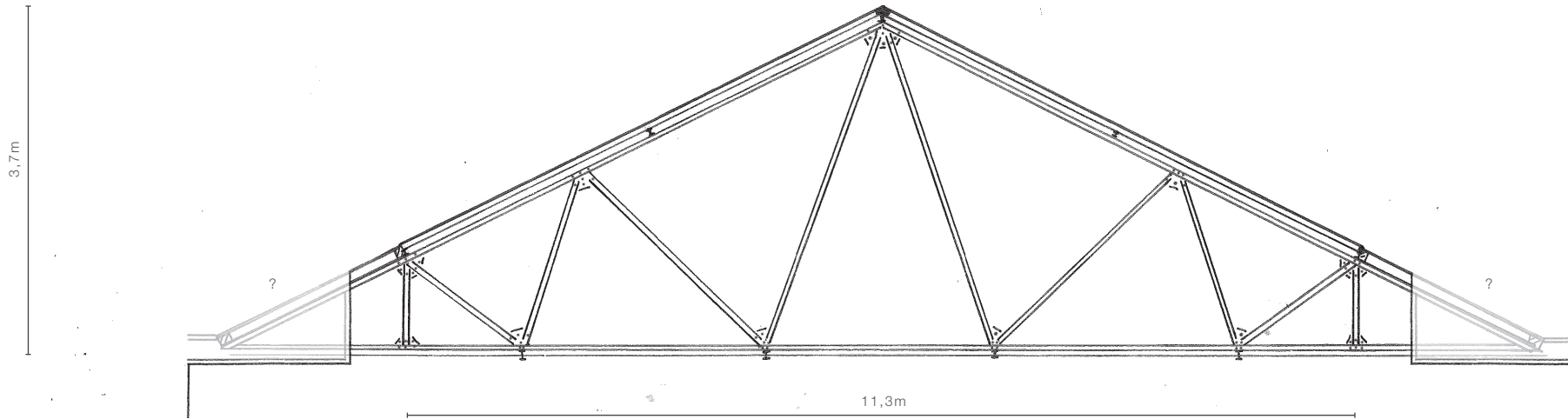
The roof of the big hall is constructed with a steel gable roof structure. This structure made it possible to have daylight from above which made the showroom bigger and lighter to increase the imposing atmosphere. From origin the roof structure was hidden behind frosted glass panels. These panels ensured nice diffuse light and did let the observer focussing on the objects in the space. This is also the reason why there are so many beams in the roof, they carried the panels. A lot of these beams are therefore useless know. The structure is covered around the perimeter and further analyses is therefore needed to understand these details.



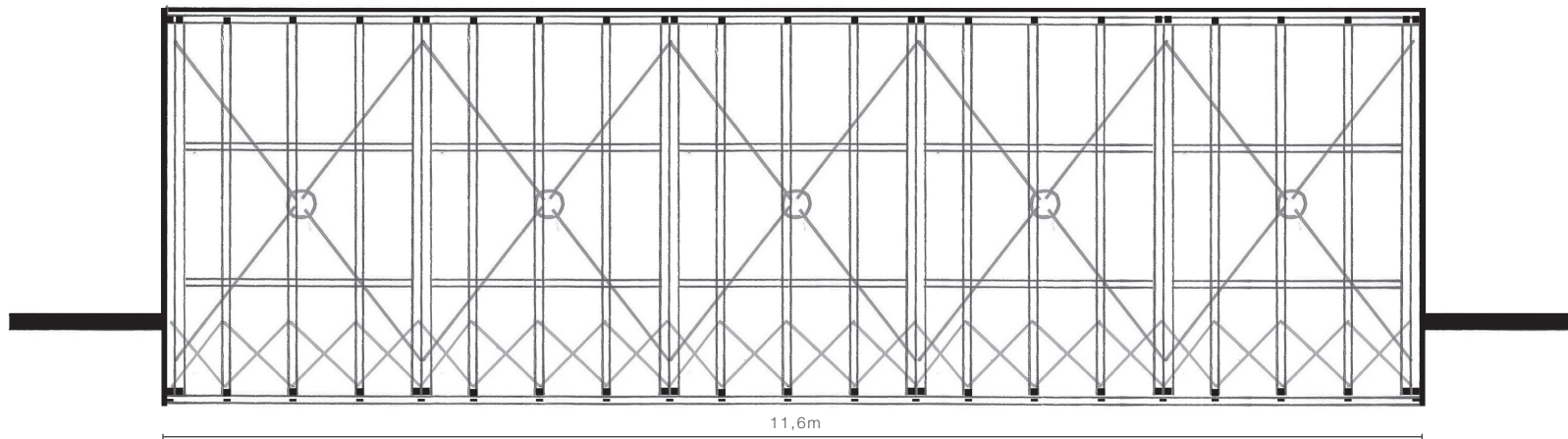
Big hall with roof construction



Possible roof-wall connection. (source: Wattjes (1931, Deel X, P.105)



Overview of the shed roof structure, the structure in the corners is unknown.



Longitude section of the roof structure with stability elements.



Earth map of De Kop van Sphinx in 2015 with the location of the warehouse marked in the center (source: Bing Maps).

Technical analysis / The warehouse

This chapter is the continuation of the technical analysis. Here the focus will be on the warehouse. Researching the tangible elements of the structure as we did with the office. Again, a general explanation of the construction principles will be shown, followed by a more detailed elaboration of the specific elements. Wall, foundation, floor and roof constructions will be analysed on their materialisation and construction principles.

Technical analysis / The warehouse

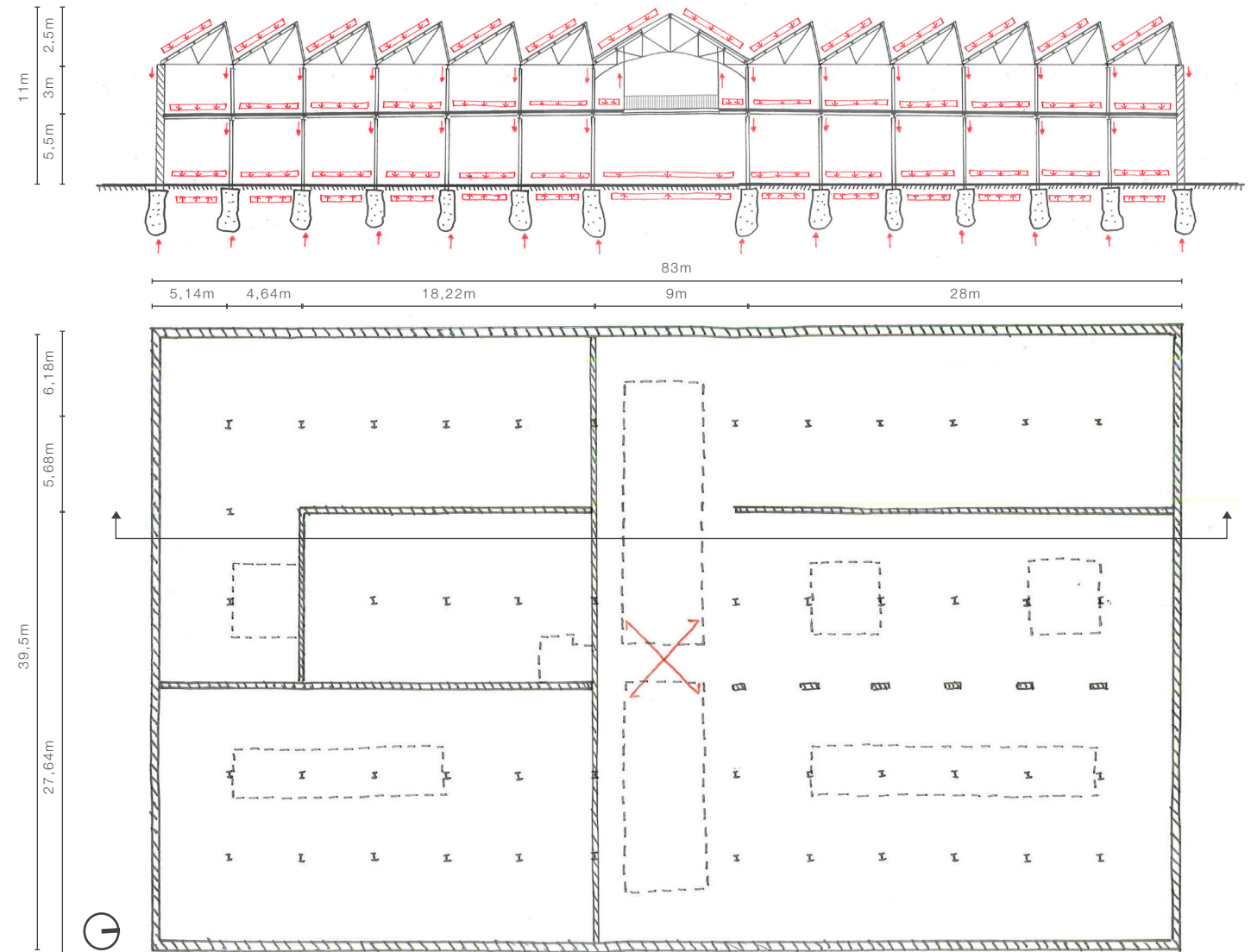
Construction principle overview

Vertical forces

Vertical forces can be decomposed in permanent and variable loads. Permanent load consist of the buildings own weight, floors columns and other structures. Variable loads consist of snow or rain loads, people and furniture. All the vertical forces are combined in the drawing on the right. As this section illustrates, vertical forces comes from the roof floors, walls and columns. These are all transported to the foundation. The floor plan elaborates on this. The construction drawing of the first floor shows span direction of the concrete floors in east-west direction. The floors are supported by a steel beam construction which transports the loads to the wall and steel column, illustrated on the plan of the ground floor on the next page.

Stability

Stability must be provided in several directions. First of all in the north west axis. This is provided with the use of stiff walls on the ground floor and the exterior walls. The floor transports the horizontal forces to these walls and makes sure that the building does not collapse. Next the building must be stable in the east-west axis. This is done in the same way as explain above. The floor will divide the horizontal forces over three walls parallel to the wind direction and provide the needed counterforce. Lastly the building must be able to withstand rotation. A stiff floor of concrete and steel provide the needed stability for this. Finally there are 3 wind shore constructions in the roof which don't have a direct link with the stability of the building, but can be of use for the stability of the roof. Further analysing is needed.

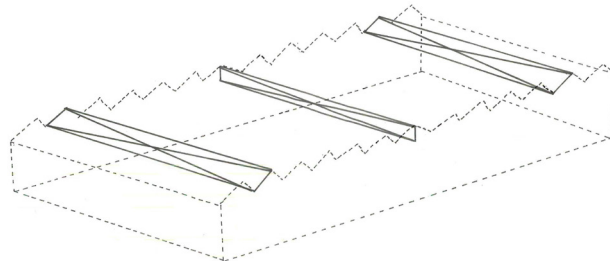


Top: Longitude section of the warehouse, illustrating the construction principles and vertical load transportation.

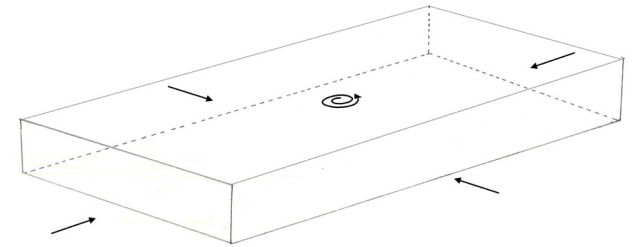
Bottom: Construction plan of the ground floor of the warehouse, illustrating the span direction of the floor, the upper floor voids (dotted) and columns.

2567m²

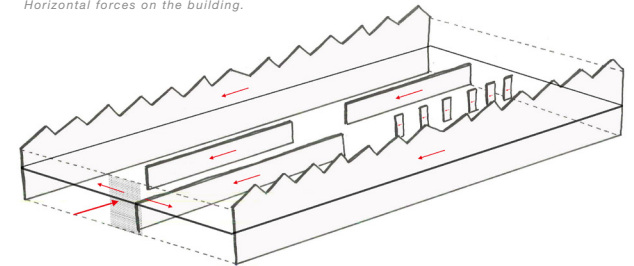
Construction principle overview



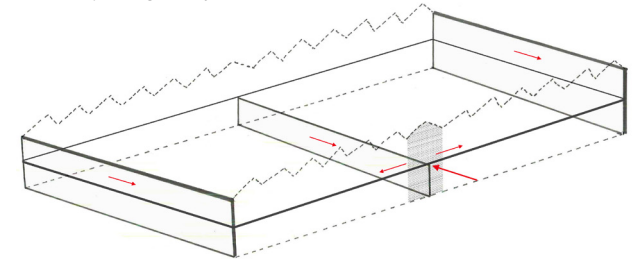
Stability shores in the roof construction.



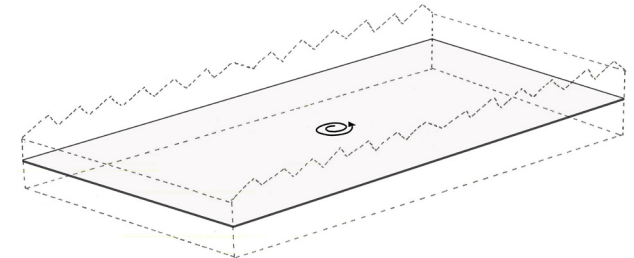
Horizontal forces on the building.



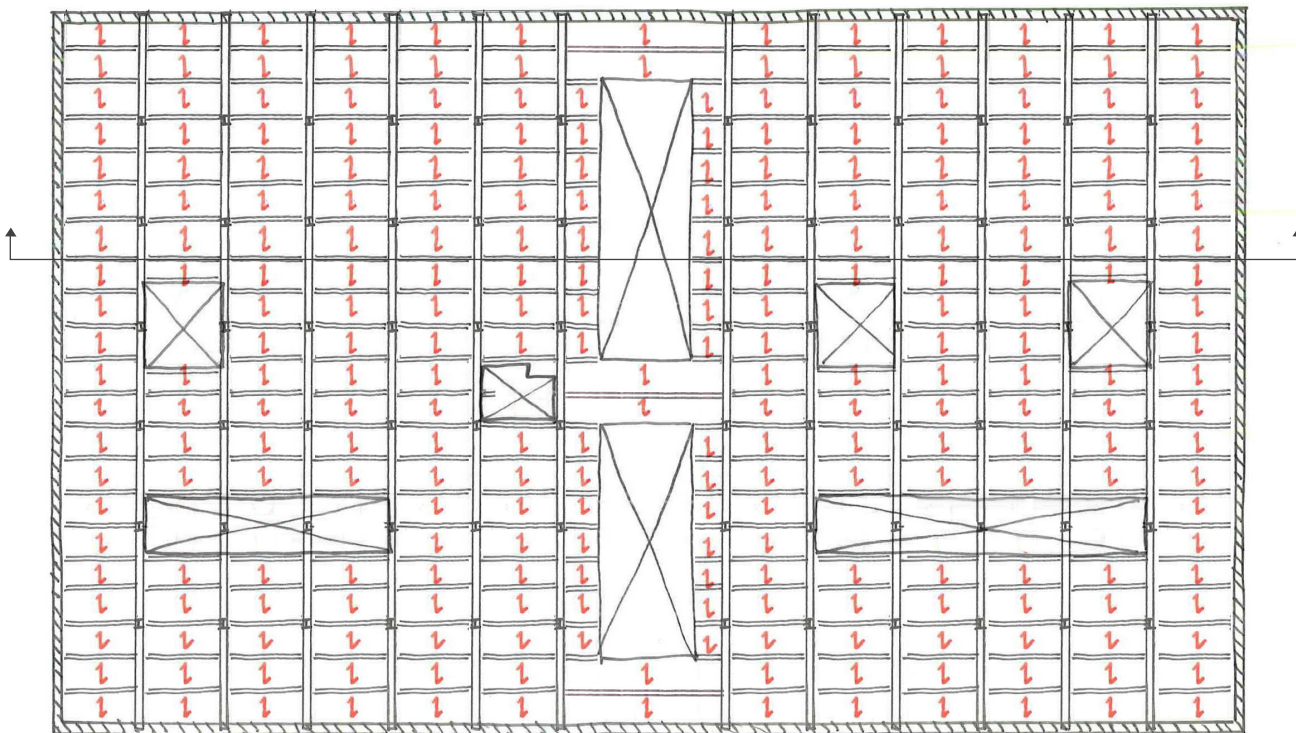
Stiff walls providing stability in the north-south direction.



Stiff walls providing stability in the east-west direction.



Stiff floor providing stability against rotation.



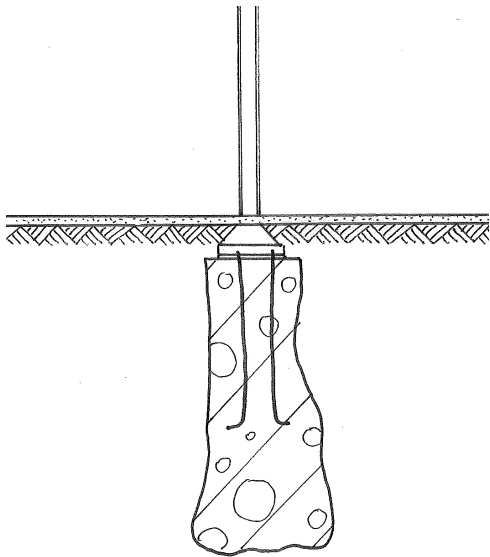
Construction plan of the first floor of the warehouse, illustrating the span direction of the floor, the floor voids, beam structure and columns.

2227m²

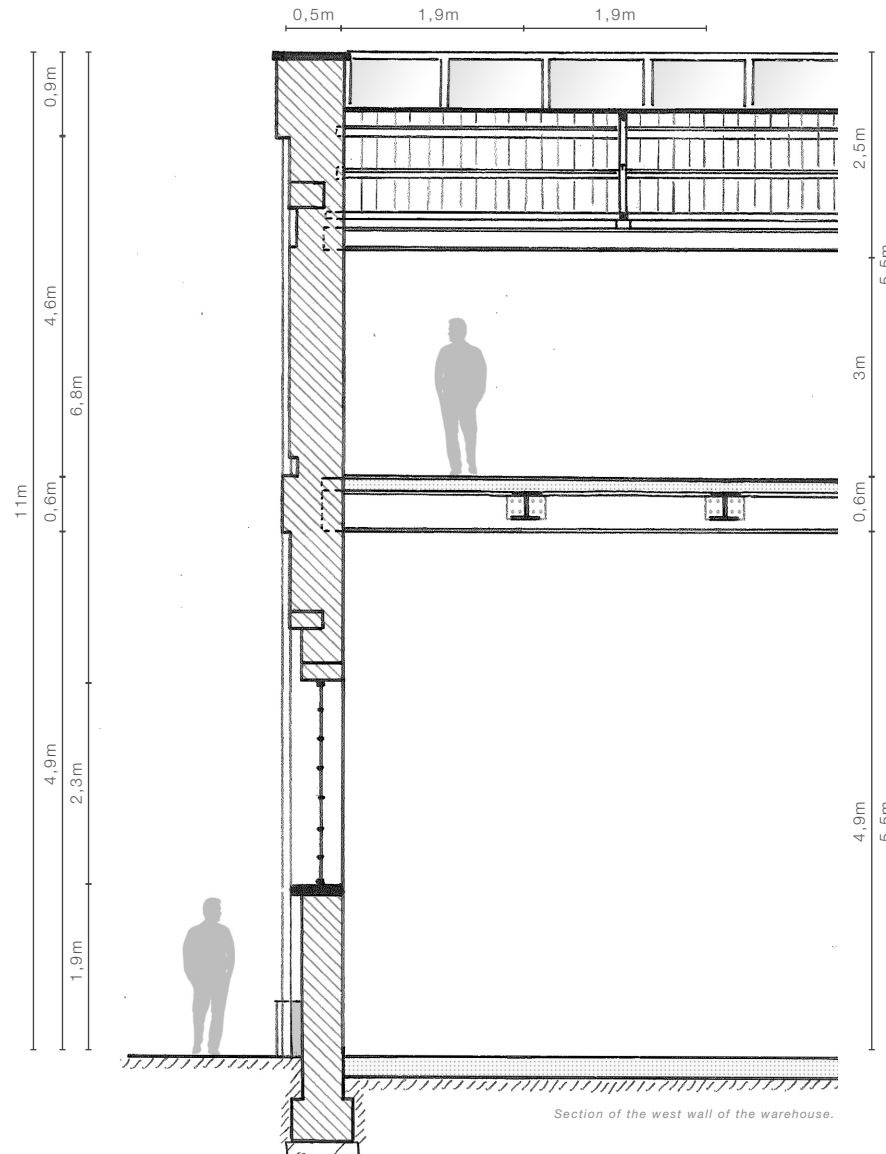
Technical analysis / The warehouse

Wall and foundation

The brickwork shows a crossbond pattern with a shape joint (snijvoeg) of 5mm. The brickwork has a brown colour and is 210x100x50mm in size (LxWxH) in accordance with waalformaat. The wall is approximately 50cm thick. The concrete ground floor is founded on grade and is approximately 100cm thick. The first floor is constructed with primary steel beams of 450x170x10mm and secondary beams of 300x125x9mm. The roof is constructed with a steel shed roof construction. One side is covered with wood and zinc and the other side with double glazed panels in aluminium panels. With the appearance of concrete in the 19th and beginning 20th century they began constructing the foundation from it. A hole was excavated and filled up with concrete to form. Brick facades of steel columns were constructed on these concrete footings.



Foundation principle with steel column.



Section of the west wall of the warehouse.



Fragment of the west facade of the warehouse (2015, B.Dessens).

Technical analysis / The warehouse

Column and floor

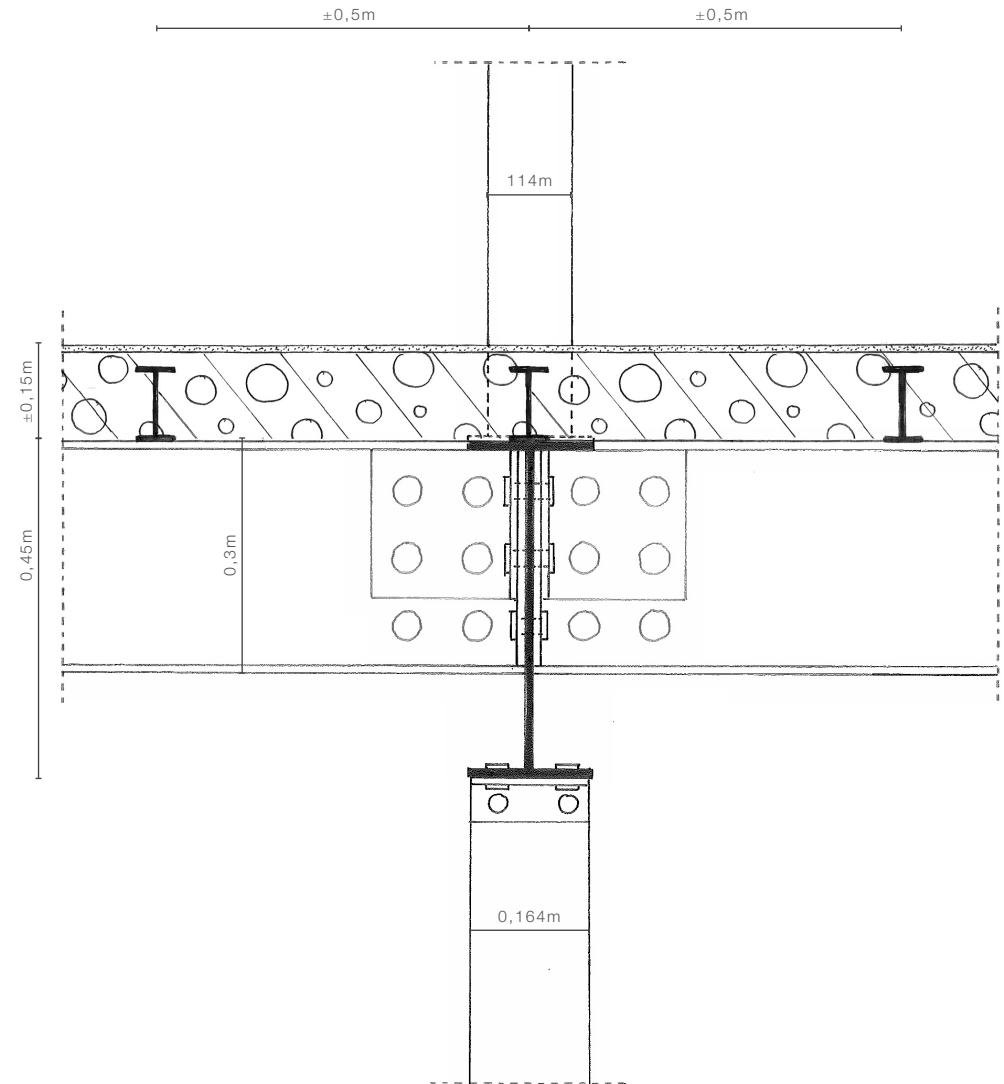
The ground floor is approximately 200 mm thick and is founded on grade (gefundeerd op staal). The concrete floors of the first floor are constructed with steel beams and concrete infill, carried by a primary and secondary steel construction on columns. The concrete floors are spanned in the east-west direction and on some place interrupted by a vide. The steel columns are in a rational grid of 5,68x4,64m and carry the primary beams of 450x170x10mm. The secondary beams are 300x125x9mm. The concrete floors are approximately 150 mm thick with steel beams of 100x50x5,5mm. The columns on the ground floor are 228x164x18mm and the columns on the first floor are 127x114x8mm. The steel construction is connected with bolts.



Close up of column, beam and floor connection.



View from the big hall on the ground floor, showing the primary, secondary and floor construction.

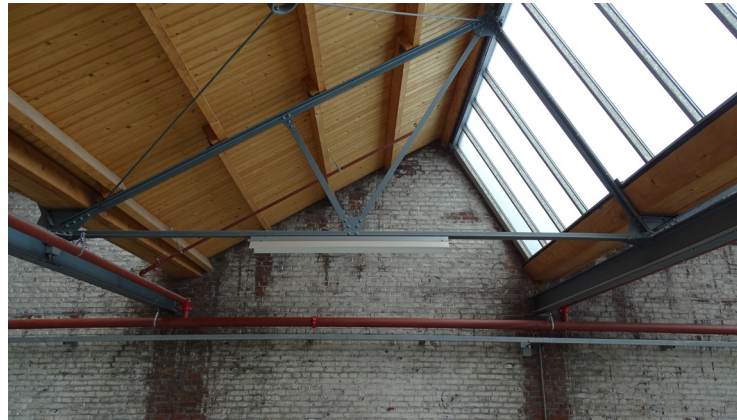


Detail of the first floor construction.

Technical analysis / The warehouse

Roof

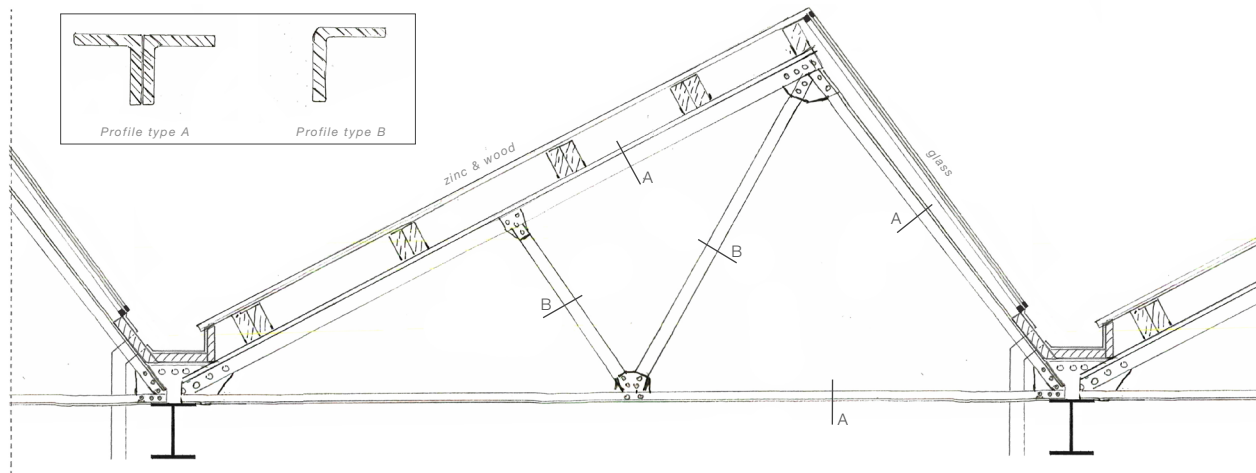
The magazine is covered with a shed roof construction, constructed with iron L-shaped cast iron and connected together with rivets (dutch: 'geklonken staal verbinding'). The delicate steel structure is covered with a wooden roof which is covered with zinc. The north orientated double glazed curtain wall is probably constructed from aluminium. In between the structure is the gutter located, water is transported from the gutter into the building to the ground. The roof is renovated in 2006 and is therefore not original, the construction on the other hand still is. The shed roof is in the middle interrupted by a gable roof, which is also constructed out of delicate L-shaped profiles. This structure also carries the overhanging floor above the main street with pullbars.



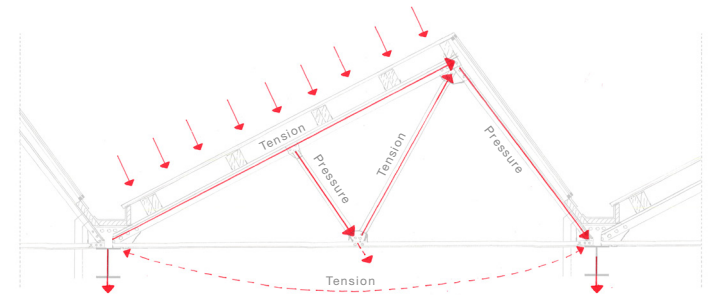
Shed roof structure on the first floor.



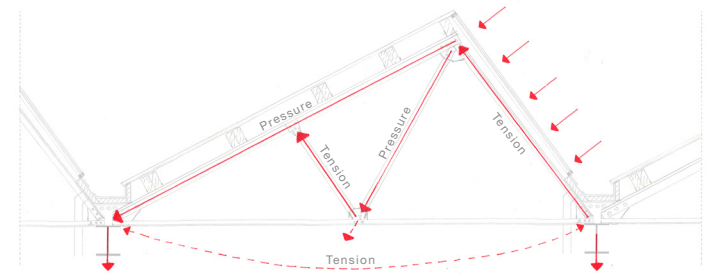
Close up of rainwater drainage system.



Overview of the shed roof structure.



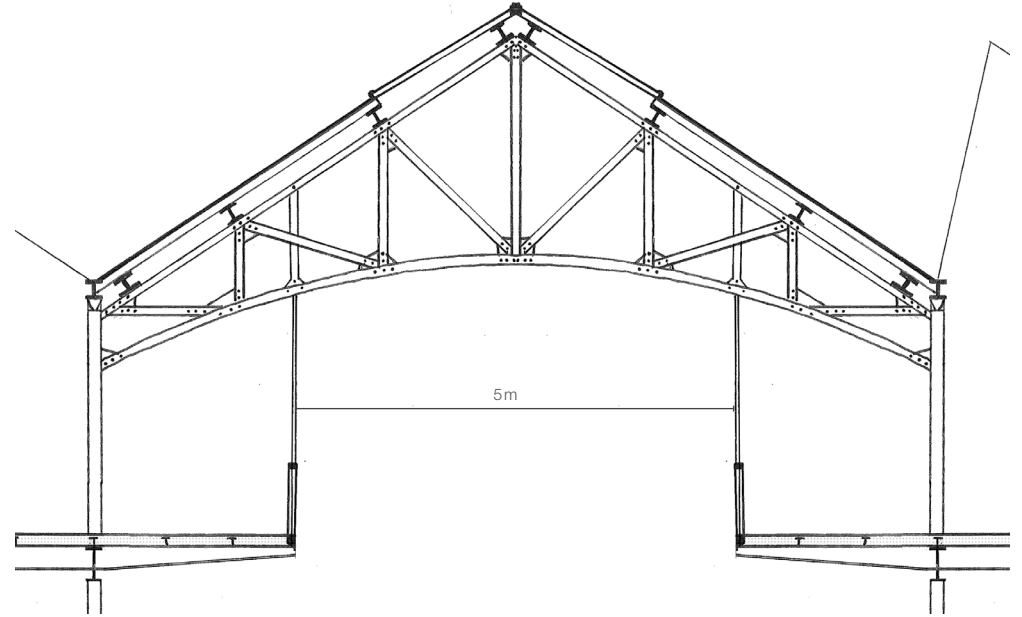
Load transportation in the construction.



Load transportation in the construction.



Photograph of gable roof structure above the main street.



Overview of the gable roof structure.



Connection detail of gable roof structure on the first floor.



Connection detail of shed roof structure on the first floor.

Technical analysis

Conclusion

Analysis shows that the construction is based on a rational grid that is built up out of a steel column structure and load bearing brick walls, all founded on grade. The walls are relative thick and their ornamentation corresponds in most cases with the underlying structure. The steel columns in the building are organized in a repetitive grid and give rhythm in the building. The small grid size of $\pm 5 \times 5$ can however form restrictions in the design. Nevertheless the columns don't obtain any high rarity and therefore hold less value. This is in contrast with the delicate roof structure, presented in the showroom of the office and in the shed roof of the warehouse. The almost sculptural frames are made of small profiles and make the space light and open. In the course of time is the roof of the warehouse replaced with a new roof cover (2008) and are some windows on the ground floor replaced by new ones.

Cultural Value

Urban context / Building history / Architectural appearance / Cultural history

De Timmerfabriek is situated in Maastricht, one of the oldest and most exceptional cities of the Netherlands. The city is surrounded by hills and originated along the river de Maas. The first settlements of Maastricht started around the first centuries AD, when the Romans constructed a passage over the river for trade and military transport. When time passed by, the city developed itself as trade center due to its good reachability and connections with surrounded cities in Belgium, Germany and France. This made Maastricht also desired and vulnerable for sieges. Impressive fortifications were needed for protecting the city which determined the city boundaries for centuries.

As important as these fortifications were in the 16th 17th and 18th century, they were also limiting the expansion of the city. It was bounded to restriction of the government and limited the trade and industrial revolution. This changed with the construction of the Bassin in 1824, situated along the Boschstraat, the northern entrance of the city. This harbour was excavated out of an orchard and was designed to establish a safe trading area within the city walls.

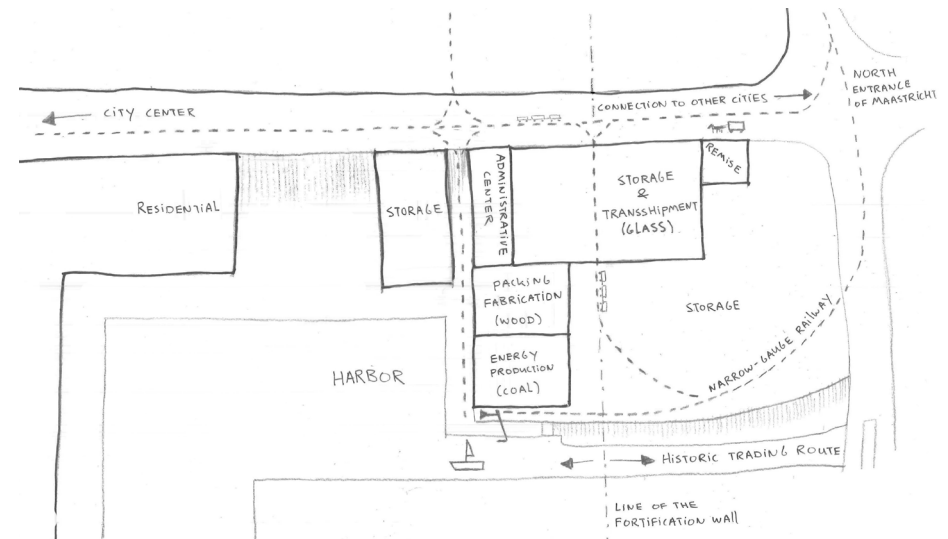
It is this harbor that was fundamental for the developments of the area of De Timmerfabriek. The proximity of raw materials, low-cost labour and the new trade center stimulated the industrial revolution. New factories appeared and Maastricht became again an important trading city. The first and most important initiator of this economic renewal was Pierre Regout. He took the initiative to establish a lot of new factories, primarily focusing on glass, crystal and pottery (1834), all situated on the west side of the Boschstraat.

The ongoing industrial growth of Regout business, resulted in more expansions over time. With the demolishing of the fortifications (1876) he rapidly enlarged his empire by transforming the area north of

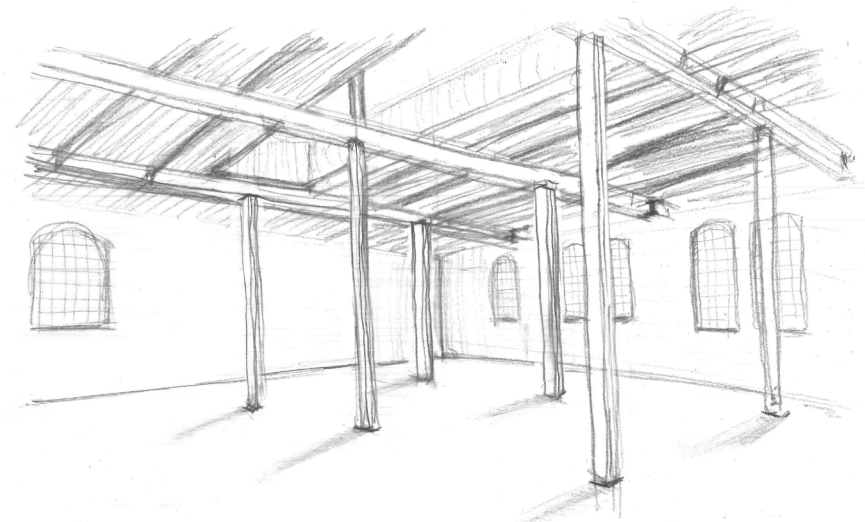
the basin into De Kop van Sphinx. From 1860 on, several new buildings appeared here, creating a distribution area. The site was supported with narrow-gauge railway, harbor, storage space, a steam driven sawmill and timber-yard to create crates and pallets. Later on the latter two buildings were demolished to make space for an office and warehouse, forming De Timmerfabriek (1905). This transformed De Kop van Sphinx in to a more organizing area, supporting the start and end phases of the production process, developing an important urban area.

The office and warehouse together forms De Timmerfabriek. This name is misleading, cause this building is originally founded as 'house, erf en glasfabriek' which indicates a building primarily used for the glass department of the Sphinx. There used to be a small carpentry workshop in the warehouse which probably caused this name (Res Nova, 2006, p.91). The fusion of these two building typology resulted in an extraordinary combination because it is a combination of a formal with an informal building. These are brought together in a rational building mass of an orthogonal forms. Significant through its typological industrial shed roof structure.

The office is structured with a linear guided organisation of spaces. There is one main corridor functioning as main axis and connecting all the spaces to each other. Offices adjacent and the big hall at the end of it. This severe organisation of space reflects in this way the use of the building, namely presenting the formal attitude of the firm, presenting its status and showing the quality. The warehouse is in contrast with this. Here a more open and free flowing organisation of space dominates. There is one main axis on the ground floor surrounded by a horizontal arrangement of spaces, providing a more open circulation. This is even more visible on the first



A conclusion sketch of the urban use of the site. Water, railway and roads are interwoven with the distribution area.



Steel columns give the high open space of the warehouse rhythm and emphasizes the functional atmosphere inside.

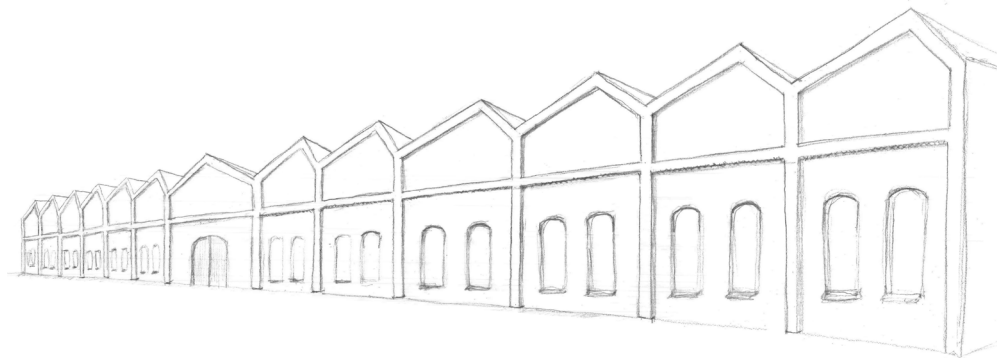
floor, where there is one open space, creating an optimal loose circulation, needed for the distribution of products.

The atmosphere inside the buildings is two folded. Firstly, the warehouse, which has a fantastic industrial expression. The rough materials and the high space height are responsible for this. Also the voids, which were needed for loading and unloading of the products brings architectural qualities. They bring daylight to the ground floor and opens up the space. An interesting alternation of openness and closeness arises and the building becomes a three dimensional assemble of spaces. One level instead of two. The steel structure enhances this industrial expression even more. It's repetitive rhythm reinforces the functional attitude and the delicate design of the roofspans opens up the space.

Secondly, the office which has a prestigious formal atmosphere. The one story high interior creates direct contact with the light transmitted through the roof. The high walls and guided space organization makes the space very formal. Most special is the hall at the end of the building. The combination of openness, light and delicate steel roof construction creates an impressive effect.

The building shows a rational and severe exterior due to the symmetrical facade layout and the use of a typical industrial brick framework. But it is the ornamentation that make this building more prestigious and valuable in compare with other industrial buildings of the Sphinx. The ornamentation of the facades with the recessed bricks show the more sculptural architectonic quality of the building, it brings the inner structure of columns, floors and roof to the outside, making the building more tangible. Also interesting is the difference between the east and west facade. The facade on the Boschstraat illustrates the more prestigious, formal side of the building with its harmonious layout. This is in contrary with the inner courtyard, where an industrial, structural facade expresses a more informal building. This clearly illustrated the idea of the building as one that is representative and functional at the same time.

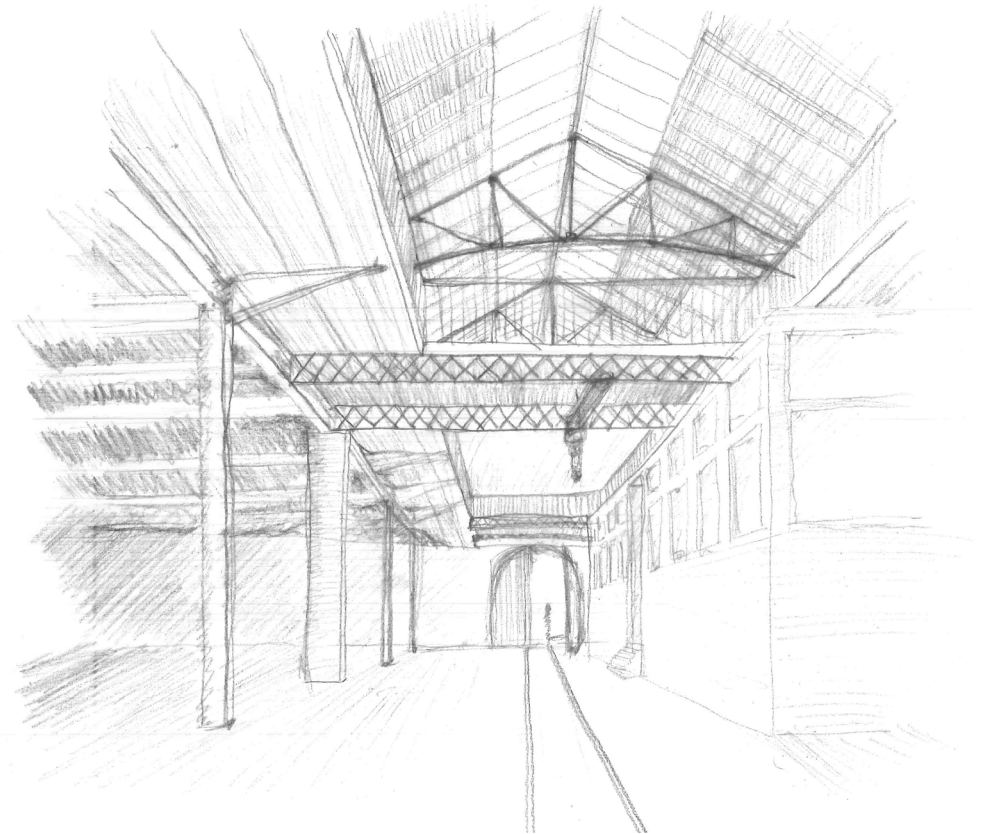
In concluding the valuable aspects of De Timmerfabriek it becomes evident that the building gives a snapshot in the history of Maastricht. The construction of the Bassin resulted in a new industrial culture with the Sphinx that transformed Maastricht again into a trade center, with glass, crystal and pottery as a trademark of the city. De Timmerfabriek functioned as a key component in this firm. Its ability to present the trademark of the city to the



The industrial character is also expressed in the informal east facade with the use of the shedroof construction.

public as well as organizing the logistics of the products, make this building valuable in the urban context. The urban role of the building is further reflected in the interior design. The wide open horizontal organization, main street through the warehouse and floor voids illustrates its former use as distribution space. Beside its functional organization, are the architectonic elements that represent its significant industrial atmosphere. The rational orthogonal building mass with its monolith

brick facades and typological shed roof structure are evident to this severe appearance. Nevertheless it is a building which has been designed with care. The details of the facade make the building more tangible and also the delicate organic steel structures visible in the interior contributes to this. Together with the different perceptions of light and space makes this building into an interesting industrial heritage. A function design with a prestigious edged.



The Main street in the warehouse expresses all the values of the building. Rough materials, delicate steel structure, incidence of light, shed roofs and the wide open space with its historic use illustrates the essential characteristics.

Additional

- Program of requirements
- Bibliography

Program of requirements

With the knowledge of the analysis we formulate a program of requirements or design brief. The requirements in this booklet is a draft version and will be adjusted later on in the project as further research is needed for making a well founded program. This chapter will start with the choice for the new function for the building. This will be done based on the future plans and discovered problems analysis. The function will be specified in a program of requirements, what kind of spaces are needed and what are the preconditions for the design.

Program of requirements

Function selection

Maastricht deals from 2004 a population decline due to an emigration surplus. To create a vital city in the future and ensure economic growth Maastricht needs to develop and stay attractive to different target groups. For this the city is focussing on the development of knowledge, culture and dwelling (Gemeente Maastricht, 2008).

Belvédère is an urban undeveloped area which gives the possibilities for Maastricht to grow and promote the city. For this the municipality already developed some plans by which they want to create a vital area at the Sphinx location. Youth, vital, lively, trendy are key atmospheres. The buildings of the former Sphinx company will be transformed into dwellings, small business and culture attracting new people and forming new activities. The Timmerfabriek functions as cultural hub and needs to support en enhance the cultural cluster together with Lumière and the Pathé cinema (Gemeente Maastricht, 2013). The Timmerfabriek is therefore an essential element is this project. The building is situated in the north of Maastricht and fitted in a very interesting urban context. Located at the northern entrance of the city, interfering between the inner city and the project area Belvédère and situated at the historic Bassin. Unfortunately the area is abounded and can still, despite the small interventions, be seen as a transit space, an area where the provisional and transitory orchestrate and where people don't have a relationships with other people or the place. This creates a non-place. If no change will come, the building and this area with its history will fade away and Maastricht will lose a potential urban hotspot.

I therefore want to focus on a new design that will revitalize this area and connect the place to the city.

The function

It seems to be predestined, an beautiful industrial area near the old historic city center of Maastricht, a city that wants to profile itself with culture, a city with a lot of youth, a city with a music culture with the conservatorium theatre academy and festivals as Bruis, Jazz Masters, Dj Tour and Andre Rieu, a city and region with a lack of a pop-podium. The nearest pop-podiums is Sittard (650 people) and Heerlen (350 people). But a regional podium for a large public (1000 people) is lacking. The city want to transform the area of the timmerfabriek into a vital cultural cluster, making the area of Belvédère into a meaningful place instead of a transition space. I want to make De Timmerfabriek a catalyst for the urban renewal of this area. The need for a pop-podium is therefore indisputable. De Timmerfabriek will be the pop temple of Maastricht and surroundings and will strengthen Maastricht as a city of culture. De Timmerfabriek will create a place for the city for music lovers.

Program of requirements

Target group

The building will primarily house a pop podium, which will orientate on the students of Maastricht. It will be a place where they can meet and enjoy. But beside the students all music lovers are welcome in the building. The building wants to connect to the city and therefore aims to a wider range of public starting from the high school age where small bands originate to the adult who is fan of a specific band.

The building will also have a multiregional scope because of the absence of any other mid scale (400-1000 people) pop-podium in the region (Iersel&Dassen, 2011).

The target group is therefore primarily orientated on men and women from the age 12-30 living within multiple countries a range of 45 minutes traffic time resulting in a multicultural public from the Netherlands, Germany and Belgium.

Functions

Main functions

De Timmerfabriek has as an assembly function (bijeenkomst functie). It will provide space to house a podium where artists and bands can perform for an audience. For this a big hall for approximately 1100 people and a small hall for approximately 350 people will be needed. The big hall will be able to receive big artists and popular newcomers. This hall will be the last step before they will perform in stadiums or the return of the big stars to a relative more intimate environment. The small hall will be a place for intimate concerts or club parties. This will be a breeding ground for new artists which can later perform in the big hall. But this space is also suited for more extraordinary performance which serve a specific public.

Additional functions

There is more that the building will provide beside its podiums. Function that will strengthen the assembly function and will turn the building into a more vital and hotspot and will connect the building more to the city.

Pop Cafe

A building where people come together and stay need a place where they can have a drink or a small meal. The Pop cafe will be this place and creates a place where people meet and gather each other. The cafe will also provide space for a performing band.

Rehearsal rooms

In order to bring life to the building during daytime, rehearsal rooms will be created. Everyone can hire a space and instruments to practice individually or with their band.

Recording studio

The building will provide a recording studio where one can record their sound. A live-room (where one performs) and a record room (mix table and record devices) will

give the possibility to make your demo, single or album.

Offices

Offices will be needed to manage the building.

Backstage

Area for the artist where they can dress up and retreat from the public life.

Logistic space

Loading and unloading area for supplies.

See table on the next page for the required floor space and more detailed space requirements.

Use requirements

Occupation

- The big pop hall will serve for a maximum of 1000 people, mainly used during the evening.
- The small pop hall will serve for a maximum of 350 people, mainly used during the evening.
- There will be five rehearsal spaces for approximately 5 people, mainly used during day time.
- There will be one recording studio for approximately 10 people.
- There will be an office for approximately 10 people.
- The Pop Cafe will give space to approximately 150 people.

In total there can be a maximum of approximately 1500 people in the building.

Building

The building is open from noon to moon.
The building must connect to ground level.
The building must guide the visitor.
The building should be logistically good.

Location

De Timmerfabriek must facilitate enough parking lots and enough bicycle storage for the visitors based on the requirements below (Iersel&Dassen, 2011).

- On average 50 tot 55 % comes by bike.
- On average 20 tot 25 % comes by car.
- On average 5 tot 20 % comes walking
- On average 10 % comes with public traffic.

See table on the next page for the required numbers.

Program of requirements

Spatial requirements

	FNO (functional useful area) m ²	BVO (gross area) m ²	Height m	Volume m ³
Cash desk	18	25	3	100
EHBO	15	21	3	84
Cloakroom	60	84	3	336
Foyer	250	350	8	2800
Bar Foyer	20	28	8	224
Load and unloading area	300	420	6	2940
Cafe	200	280	8	2520
Utility space (Nuts ruimte)	25	35	3	105
Kitchen	150	210	4	840
Dressing rooms/backstage	400	560	6	3920
Office/meeting space	400	560	4	1680
Storage	250	350	5	1400
Toilets	80	112	3	336
Small hall	235	329	8	2632
Big hall (excl balcony 200m ²)	450	630	15	9450
Technical space	300	420	6	2100
5 Rehearsal spaces	100	140	4	560
Record studio	40	56	4	224
Smoking area	60	84	3	252
Total	3353	4694		32503
Of which is circulation area		1341		

Amount of persons	1450
Comming by bicycle (50%)	725
By feet (20%)	290
By public transport (15%)	217,5
By car (25%)	362,5

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