Verkade Study Factory

A Catalyst for the urban regeneration of Zaandam-Verkadebuurt
Dear reader,

This report in front of you is my graduation report.

I followed my MSc 3/4 graduation project at the studio of Hybrid Buildings - Zaanlijn - an urban artifact - started in February 2012. My thesis is called ‘Verkade Study Factory, a Catalyst for urban regeneration in Zaandam-Verkadebuurt’.

I hope you’ll enjoy reading.
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1. Introduction

The graduation studio of Hybrid Buildings - Zaanlijn, an urban artifact is about densification around station areas in the municipality of Zaanstad. The reason for research is the prospected grow of Zaanstads population and the prospected decrease in size of an average household, which together will lead to a need for 20,000 extra dwellings in 2030. This graduation project sets a point on the horizon on how the municipality of Zaanstad can approach its future spatially. My graduation project knew three main scale levels of design. By making a masterplan for the municipality of Zaanstad I set the priority areas to be redeveloped. In my masterplan the areas of redevelopment are mainly industrial areas within station areas. Station areas are point of focus because Zaanstad is the third municipality with the most commuters of the Netherlands, thus are really important for a sustainable future and for citizens to stay connected. Industrial terrains are point of focus because the industry is located within the urban boundaries and causes a lot of nuisance. Therefor the industrial terrains in my masterplan are moved to the Noordzeekanaal. By zooming in on one of those industrial areas in one of those station areas (in my case the Verkade terrain near a projected station Zaandam-Verkadebuurt) and making an urban design for this quarter I had a case study area to test the idea of the masterplan on an urban scale. My urban design re-uses Verkades factories for (regional-) educational functions and are surrounded by mostly student housing, together forming a campus. By zooming in on one of the critical architectural projects of this urban plan, in my case the re-use and refurbishment of Verkades Beschuitfabriek into a faculty of Agriculture and Food Sciences, I was able to test the urban plan on an architectural and technical level. On every scale level I followed a specific path; from a problem statement, via a method of analysis to a design solution, in the following chapters I’ll guide you through the process.
2. Zaanstad 2030; A Masterplan

2.1 Motivation

With the expected drop of the average size of a household of 2.29 in 2010 to 2.13 in 2030 and the expected growth of the population of the municipality of Zaanstad the housing stock in Zaanstad will have to be enlarged by approximately 20,000 units in 2030.

To be short, A masterplan for Zaanstad is needed. Specific strategic areas should be chosen to restructure. Only in this way other existing potentials in Zaanstad could be exploited. This assignment of urban acupuncture needs a lot of knowledge about the city in which we intervene. That’s why an extensive analysis of the history of the Zaanstreek and the current condition of the municipality is needed, this follows in the next paragraphs.

2.2 An Analysis

Zaanstad is a municipality that consists of multiple ribbon villages along the Zaan, that grew together in history. It forms now one urban strip along the Zaan and forms an urban finger of Amsterdam, that’s why the first part of the analysis is about the relation between the Zaanstreek and Amsterdam. A couple of elements are really important for the Zaanstreek: the river Zaan, its comb structures perpendicular to the Zaan, the railway and the historic and present importance of the food industries.

Historical Analysis of the relation between Amsterdam and the Zaanstreek

Amsterdam and the Zaanstreek throughout history grew in a different way. Amsterdam really grew concentric on the southern side of the IJ, but later on also to the northern side of the IJ. The Zaanstreek however grew from different settlements along the Zaan point to point linear to each other until a ribbon along the Zaan developed. Later on this ribbon widened to both the eastern as the western side of the Zaan. Both ‘cities’ Amsterdam and the Zaanstreek grew together in time, until the Zaanstreek became one of the urban fingers of Amsterdam.

The urban structure was defined by the morphology of the landscape, in close relation to the main rivers: the IJ and the Zaan.

Before 19th century the main connection between the different settlements
was through an extensive network of waterways, the IJ, the Zaan, which served the trade of goods, but the transport of materials and people as well. Later on, the system of land pathways was developed as a parallel connection among the settlements.

In the mid 19th century, the railway system was developed and connected Amsterdam with areas such as the Zaanstreek. In the beginning it was not the most popular means of transport, but nowadays it is one of the main connections of these areas. Spatial connection among the settlements was possible through the system of water pathways and the land pathways followed.

Analysis of the relation between Amsterdam and the Zaanstreek nowadays

Zaanstad nowadays forms part of the Amsterdam metropolitan area. In the structural vision 2040 of Amsterdam the municipality considers Zaanstad as one of the urban fingers of Amsterdam and this connection will become more and more distinguished.¹ Spatially and functionally Zaanstad and Amsterdam are divided by the IJ and its huge harbour front on the IJ. The distance between Zaanstad and Amsterdam is 6 to 18 kilometers, but the proximity is dependant on the infrastructure between the two cities. At the moment there is a large pressure on the infrastructure between the two cities, because of the many commuters in Amsterdam and Zaanstad. By train it’s faster to get from Krommenie-Assendelft to Amsterdam Central station or Sloterdijk than by car. Future plans will improve not only the public transport connection between Amsterdam and Zaanstad, like the high frequency transport line and the high quality public transport, but also road networks, like the second Coentunnel to prevent the many current traffic jams.

¹ Gemeente Amsterdam (2010) ‘Structuurvisie Amsterdam 2040’. Amsterdam

The main connection of the urban areas is through the railway and road network that serve mostly people who live and work in the various areas of Amsterdam metropolitan area.

Spatial connection with Zaanstad is not currently visible, as the harbour area along the IJ, currently forms a physical border that has to do also with the function of the harbor itself.
**Historical analysis of the Zaanstreek**

The different villages of Zaanstad grew together in time. Their main structure is different in the beginning of their growth. The railway influenced the direction of their expansions to the west. The main connection was through the waterway system of dikes that were perpendicular to the Zaan. Spatial connection among the settlements was achieved indirectly through a network of ditches within the landscape.

In most of the Zaanstreek villages, the water with the various dikes provided the pattern for development and urban growth. The pattern of development also provides a great representation of the different uses that were incorporated by the city, such as the sawmills, the shipyards and the industries.²

In history train tracks were often put on the edge of the village or the city. This is the reason why they are poorly embedded in the urban fabric. The same counts for the stations along the Zaanlijn. The train track is constructed in 1868 on the western side of the old village cores, which were situated on the western bank of the river Zaan. That’s why most of the stations are still oriented only to the east. During the years the space between the Zaan and the train track is filled up with dwellings or industries. Between 1970 and 2000 most new housing areas were realised on the ‘other’ side, the western side of the train track. In most of the cases there isn’t even a decent passing over or under the train track. The provincialeweg, running close along the station, is broadened in time, and forms together with the train track a border between the eastern part of the track and the western part of the track.³

Throughout history the Zaanstreek has always been an industrial area. It was even the first industrial area of the world. Different types of mills and ship-building was the main industrial activity in the seventeenth century. Little factories arose when the steam machine was invented at the end of the eighteenth century. These little factories grew into huge factories in the nineteenth and the twentieth century, the mills were replaced into silo’s, warehouses, water towers and other industrial buildings. A lot of residential areas were being built for the labourers at that time.⁴

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² Kleij, P. ‘Zaanstreek, architectuur en stedenbouw 1850 – 1940’. Waanders, Zwolle.
⁴ Wever, M. ‘Ruimte voor verhalen: de Zaan als
Analysis of the Zaanstreek in its current status

Currently, the different municipalities are merged into one and have expanded so much that it is difficult to distinguish the borders of the different parts. On the contrary, Zaanstad has a border of nature that forms its external boundary and makes a clear distinction between urban and natural environment.

The character of the infrastructure is divided in local and interlocal, so it connects the villages themselves (primary and secondary roads) and the villages to Amsterdam through the highway and the railway.

The industrial functions are mostly concentrated parallel to the water, the mixed functions too and most of the time housing is situated on the second line, behind the mixed functions. The industry in Zaanstad is most of the time really surrounded by living quarters, which is quite characteristic for this area.

In the last decades the industrialisation in the Zaanstreek has stopped. Existing companies try to maintain by specialisation and fusion and there is no increase of heavy industries anymore.

You could say that the Zaanstreek changed focus. From mainly industrial area where labourers work to mainly dwelling area, that is being disturbed by industries. Factories are now in use in between dwelling areas. The Zaanstreek has a new motto regarding the industries: they want to be ‘First in Foods’. Food-industries are throughout history the most important industries of the Zaanstreek and its identity, think of the famous food-industries like Albert Heijn, Duyvis, Honig and Verkade. Some of the factories are doing a great job in this new motto, like the ADM, one of the biggest actors on the cacao-market. We can’t neglect the industries in the Zaanstreek, because the industries mean a lot of employment for the residents in the area and the industries provide the strong identity that the Zaanstreek in history formed and nowadays still has. However, these industries form a lot of nuisance for the surrounding residents, like odor and sound nuisance, but also soil pollution. Large industrial areas could also act as an autonomous block in the urban fabric.
2.3 Problem Statement

With the current tendency of inner-city intensification the municipality of Zaanstad only wants densification within the urban boundaries, so the assignment for coming 20 years is to increase density by redeveloping existing locations. The municipality doesn’t want their urban expansion to lead to urban sprawl, so that the surrounding area can keep its rural character.¹

The analysis I did on the municipality scale showed two main spatial problematics / potentials for the municipality of Zaanstad. These two are the railway in the city (that’s going to be intensified with more trains and that splits the city in two parts) and the industry (that’s located within the city borders and produces a lot of nuisance to the inhabitants). I treat them independently in underlying part of the chapter:

**Zaanlijn problematic**

The Zaanlijn, a railway that runs from Amsterdam-Sloterdijk to Uitgeest, will in the near future be acting as a high frequency trainline. The sprinters on this line will run 6 times an hour instead of the 4 times an hour it runs now. The municipality of Zaanstad is the third municipality with the most commuters of the Netherlands and tries to let the citizens of the Zaanstad take the train instead of the car to their work.² This is part of the reason why the trains will run more frequently. For such a high frequency of trains passing by these stations, the station areas should have at least enough passengers to fill the trains. The municipality wants to increase density in the station areas,³ because the closer residents live to the station, the better the possibility for them to take the train.

Furthermore, train stations and the railways are poorly embedded in the urban fabric, In most of the cases there isn’t even a decent passing over or under the train track. The provincialeweg, running close along the station, is broadened in time, and forms together with the train track a border between the eastern part of the track and the western part of the track. This is with a restructuring something to look at.

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Industry problematic

The conditions that the settled industries require from the environment conflict with the living quality, tourism and recreation of the area. In Zaanstad there is a lot of heavy industry that gives sound nuisance, odor nuisance and causes soil pollution. The question rises now whether to remove these industries or to keep them. We don’t consider industry in the city as a quality, but some of the industrial real estate is of a great quality, so if we want to improve the city, then we have to turn this industry from the source of nuisance in the city into a quality, for example through re-use. If we choose to remove the industries, the industries have to move to another location (most likely to the outskirts of the city, but how can we prevent urban sprawl then?) and we have to find a way how the Zaanstreek can keep its character despite of losing its specific function, for example by reusing the industrial buildings?

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4 La4sale ‘De toekomst van het industrieel erfgoed’ Project identiteit Noord-Holland Zuid. Amsterdam, 2001

Helicopter photo of the railway in Zaanstad (Zaanstad municipality)

Industry along housing (Zaanstad municipality)

Nuisance and pollution maps (Zaanstad municipality)
2.4 A Masterplan

The masterplan of Zaanstad 2030 lies its focus on restructuring its station areas. Now there are 6 stations in Zaanstad, from which one has already been restructured (Zaandam). A lot more residents could be served by the train if there are more stations planned along the line. When building a new station this could, when situated on a strategic point, provoke a major increase of citizens that are living in 800 meters (10-minute walk) distance of the train station and the municipality has more areas within the station areas to be possibly developed. ¹ that’s why this masterplan has projected two more stations on strategic spots to cover more of the population of Zaanstad. To be able to accomplish this urban densification and to be able to get best benefits for the area with the developments of the high frequency public transport it’s a logical choice to use these public transport nodes as plots for (re) development. The station areas are in that sense the best options for strategic urban acupuncture in densification, especially if we look at the plans of Zaanstad to stimulate more people to go by train.

By using wastelands, sports fields, but most important; industrial areas for densification of these station areas an amount of 7,000 extra dwellings will be realised in this masterplan. The masterplan has decided to move the heavy industry within the 800 m radius of the station to the Noordzeekanaal, so space which used to be industry terrain will become available for housing and public functions. This will improve the local scale very much, not only because the nuisance is gone, but also because industries in most of the situations in Zaanstad are quit autonomous in the urban fabric and space has become vacant for other activities, cultural / intellectual / sports.

Every station area gets its own identity more exaggerated along the Zaanlijn, thanks to the redevelopment. From north to south: Rural living, working & living, warehouse living, Water Living, Strip along the Water, University Quarter, Superblock Community and Commercial Center.

Industries move to the Noordzeekanaal (own)

Masterplan for Zaanstad (Own)
3. Zaandam-Verkadebuurt; an Urban Plan

3.1 Motivation

By zooming in on one of the industrial areas in one of those station areas (in my case the Verkade terrain near a projected station Zaandam-Verkadebuurt) of the masterplan for Zaanstad and making an urban design for this quarter I had a case study area to test the idea of the masterplan on an urban scale.

With the choice of my individual design and research location I posed three criteria the plot had to meet.

1. The plot should connect to a (future) train station, so my intervention can deal with the problematic of the railway in the inner city.
2. The plot should include a factory, that’s characteristic for the Zaanstad, that’s still active, so my intervention can deal with the problematic of the industry.
3. The plot should have potential to include some public functions or public routes to be able to regenerate the area. The train stop should have some relevance for existing or future facilities instead of only serving dwellings around the station.

The station area of the future station between Zaandam and Koog-Bloemwijk is the best plot in my eyes answering the three posed criteria. The plot connects to the train track and to a future train station. This new station could act as a transfer station, since there are two different tracks splitting right at this point. It could also provide under- or overpasses from the east to the westside of the train track, since there is only a single bike pass in the current situation.

However, the aspect that attracted me most at this specific station area is the potential of the already partly re-used Verkade factory terrain. This particular part of the future station area has a lot of potential, because of the Chocoladefabriek, the part of the Verkade factory that already has been refurbished. Now there are some cultural facilities, like a library and some creative industries situated in the former factory. This attracts local people and this success is for me a reason to build further on this development.

There are three main Verkade factory buildings, all characteristic and full of potential:
- the Chocoladefabriek (already refurbished)
- the Beschuitfabriek (empty)
the Biscuitfabriek (still in use
Plans for densification are already
there, Inverdan, the big masterplan,
that’s being realised right now planned
dwellings for the wasteland along the
railway already.

An analysis of history and current
status is needed to be able to see local
problems of this area, which we can
solve later on in the (re)design of the
urban situation
3.2 an Analysis

_Historical analysis of the quarter_

The historical maps of the hypothetical station area of Zaandam-Verkadebuurt (image 22 - 27) show that this part of Zaandam is really on the border of the city, the Verkade factory forms the end of the typical city structure of Zaandam with its comb structures. The dyke along the Zaan went on an actually has always been there in history, but the area between the Westzijde and the railway had never been developed until the map of 1981, when an important entrance road to Zaandam appeared, the final destination of the A8. The hypothetical station area of Zaandam-Verkadebuurt became better connected and more scattered buildings began to evolve. When there was an enormous need for housing in Zaandam the city has built expansions on the western side of the railway. The Vinex neighbourhood called Westerwatering appeared, so now the part between the railway and the Zaan was not only encapsuled by the northern and southern side with its typical combstructural streets perpendicular to the Zaan, but also at the western side, behind te railway. ¹

Verkade started its brood and beschuitfactory on the quay between the Westzijde and the Zaan. This factory is created in phases between 1885 and 1968. Verkade needed another factory in 1916: the Biscuitfabriek on the eastern side began to evolve, which consists of building parts that are ensembled between 1916 and 1977. In 1927 the factory needed so much space, that Verkade decided not to expand the current factories, but to build a new one between the biscuitfabriek and the factory along the Zaan.² The peculiar thing is that the Verkade terrain, in contrast to other factories along the Zaan expanded landward. The reason for that is that Verkade was a really social employer and built housing for the employees of Verkade next to the factory, also along the Zaan. This blocked the further expansion of the factory itself along the Zaan. All three factory buildings have in history always been oriented to the Westzijde.

_Analysis of the current situation of the quarter._

The railway in the current situation of hypothetical station area of Zaandam-Verkadebuurt is splitting the eastern and the western side of the railway. The western side, the Vinex neighbourhood called the Westerwatering is clearly

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² rijksmonumenten.nl
defined, but the eastern side, the part between the triangle of the Zaan, the railway and the abrupt end of the Zaandams typical combstructure, is not defined at all. At first sight it looks like scattered objects, that are randomly placed in the field, where the Verkade factory is an autonomous block in the urban pattern. This is on the one hand a disadvantage, but on the other hand this side is ready for densification. I considered this area in my research already as a station area to see what has to happen in this specific area to make a well-working station here. I can conclude after having studied the book of Luisa Calabrese\(^3\) that the infrastructure is totally disconnected from the urban context. This is because there is only one single cross-connection, that’s only available for bikes. For cars there is in four kilometres no possibility to cross the railway. This could be improved by making better crossconnections under or over the railway.

Right now the Verkade factory between the Westzijde and the Zaan is renovated and lost its function. The beschuifactory, the factory in the middle also lost its function, but is empty right now. The Biscuitfactory is the only building that’s still in use. All three factory buildings are state monuments. The Verkade factory that’s still in use causes smell pollution for the living area. Besides, but no sound pollution.

3.3 Problem statement

The site is dealing with a couple of problems I think are possible to solve with an intervention, but more important: this site has a big potential and is a spot where Zaandam can raise density with new possible facilities to be able to trigger the area. The following problems occur on this specific site, where I think my design proposal can and has to intervene. I’ll explain the problems and potentials of this site in this part:

The urban fabric

The urban fabric around the Verkade terrain is quite fragmented / scattered, there is much difference in types and functions of the buildings around. Along the Zaan and to the south of the Verkade terrain the building type and the urban lay-out is obvious, clear and uniform; on the dyke it’s mostly typical houses and industry, to the south of the Verkade terrain there is a strong comb-structure with typical two-storey Zaanse houses. To the north and west of the Verkade terrain are all distinct objects projected in space that doesn’t have a unified use nor appearance: a single sports field, a single social housing block, a single secondary school and one block of offices with leftover spaces in between.

I think this undefined structure comes from the fact that two villages, Zaandam and Koog aan de Zaan, grew together along the Zaan. The Verkade terrain and its surroundings is exactly the spot where both villages came together, so the villages also treated this as left-over space, fortunately the architects of the Verkade factories did not.

This has one big advantage and I see a big potential here, because there’s a lot of this so-called left over space that we can (re)develop and where we can use densification to improve this fragmented part of the city.

The connectivity of the place

Because this part of the city grew in between the two villages of Zaandam and Koog aan de Zaan it became a site that’s not really well connected. Whole the site and its surroundings are accessed through the Westzijde: trucks, cars, bikes and pedestrians. This has to do with the grown comb structures from the history of dehydrating peat land through canals and building upon these dykes.

Here I see a big potential for this area to get connected and design a cross connection from the Westzijde all the way west to the railway and to get even
more connected there is a possibility to project a station on this spot in between Zaandam and Koog aan de Zaan.

The accessibility of industrial area

The Verkade terrain is now quite oversized for the land it uses, not really land-use efficient so to say. The Verkade factory that’s now in use is non-accessible space. This is not per se a problem, but I think it’s a pity, because Zaandam could in my eyes use quality public space for example in the form of a park or something quite well. Especially these Verkade monuments could strengthen the quality of this potential future public space together with the public accessible facilities that could be inside the industrial heritage.

Industry in the urban context

Food industries most of the time provide nuisance, so does the Verkade factory, the typical smell of Verkade is something that the neighborhood smells. The Verkade soil, like the soil in almost whole Zaanstad, is light polluted, but it doesn’t give any ecological or human risks. There is no sound pollution whatsoever of the Verkade factory.4

The three factories on the Verkade terrain became all three national monuments, because of its architecture. This gives a big potential to make something public accessible that was private before and to re-use a building like this can trigger the surrounding area as well as increase land value.

4 Themakaarten Zaanstad, Hans Staller
3.4 An Urban Plan

The urban plan of future station area Zaandam-Verkadebuurt builds further on the successful redevelopment of Verkades Chocolate factory, by moving the other Verkades industry to the Noordzeekanaal. The factories that will be left behind will take an important role in this urban plan. They are going to be refurbished, but what kind of function do they need to have? These buildings will stay close to the food industry; both factories will have an educational function for food studies to keep a close relation to the history of the Zaanstreek.

The Zaanstreek is an area that has always been famous for its food industries, like Duijvis, Albert Heijn, Verkade, Lassie, ADM Cacao etc., but the municipality of Zaanstad still has the food-topic now called ‘First-in-Foods’ high on the agenda. We could say that in history nothing really changed in the industriality of Zaanstad: the Zaanstreek has always been an industrial area, mostly in foods and nowadays it still is, except the technique to fabricate products changed and big factories took over the task of the relatively small windmills. The history of the Zaanstreek in its food industries is for me a reason to work with the first-in-food theme in the Zaanstreek, it suits the empty Verkade factories very well to become educational buildings for food studies.

The urban redevelopment not only consists of these educational functions, but also dwelling (that’s what densification finally is about), a new station, student housing and public functions, like cafés and a supermarket.

The new trainstation I placed on a strategic location, that infrastructure on the western side of the railway can connect to the infrastructure at the eastern side of the railway, like the Vincent van Goghweg and Papenpad.

The station provides two new rare cross connections between the eastern and western part of the railway, one for pedestrians, crossing the platforms and the other for cars. At the end of the ‘papenpad’ in front of the station is a station square planned.

From this station square a route directly to the Westzijde is planned, to connect the Westzijde better to the Provincialeweg, but also to connect the route of the campus through this broad allee.

On the former Verkade terrain a public study campus is planned, which will transform from a source of nuisance to a catalyst for Zaandam-Noord. The campus is a terrain with a sequence of
public spaces, connecting the complex’ building volumes. This campus has narrow entrances, but wide public spaces inside that gives the experience of relief. The campus both connects the three Verkade factories as the Verkade terrain to the station. This goal I reach by connecting this sequence of different public spaces by a broad axis / backbone from the station to the Zaan (Tilburg university).

Industrial heritage could be experienced monumental, when situated in a specific way, with large public space in front. Tate Modern proves this, facing a park. Such a park I planned between the Beschuit and the Biscuitfabriek and this forms the central square of the campus. Mixed functions, primarily combined with housing, like a supermarket and cafes are placed in the other volumes around the park (yellow). A pedestrian and bikers axis is laid through the campus from east to west, beneath the new road connection along the papenpad. This pedestrian and biker route is designed as a wide route that connects the Verkade terrain with the station through its sequence of public squares.

The whole route along the Zaan is urbanised, and that’s a quality I want in this design to embrace, but there lacks green space to breathe, and this is what the campus should be, on the one hand a place to hide from the urban character, on the other hand fit in the urban context. Because this idea the buildings belonging to the campus have an opened character to the park and a more closed character to the streets surrounding. Therefor My design gave the different public spaces different identities. The central square of the campus is primarily a green public space, connecting the biscuit- and beschuitfabriek, surrounded by Mixed functions and student housing. The square on the westzijde in front of the Beschuitfabriek belongs more to the city, so is designed as an urban front square. Student housing blocks surround the campus, and form the buffer between the merely living area and the campus. These student housing blocks have an enclosed shared garden to use and come together in summer times, this has a semi-public character, like the Siedlungen, see Bruno Tauts example.

Beneath the planned station square and the campus a wasteland is situated, that is totally destined for dwellings. Along the provincialeweg relatively high housing blocks are situated with an inner courtyard to block the quarter from the provincialeweg and behind this stroke lower opened dwelling blocks are placed with a green opened communal courtyard directed to the campus.
4. Verkade Study Factory, an Architectural Design

4.1 Motivation

By zooming in on one of the critical architectural projects for the urban redevelopment plan, I was able to test this plan on an architectural and technical level. The architectural design further defines the ambition for the area, since it’s a large function and has to prove that the principles from the very beginning were right.

I chose Verkades Beschuitfabriek for further elaboration not only because the Beschuitfabriek is a beautiful building, but it has a great central location in the urban plan and has an extension as well, so it deals with a couple of problematics I was very interested in.

The building for almost three years now and it’s situated on the other side of the Westzijde than the Chocolatefactory, so this will definitely be the next in the order of Verkade buildings up for redevelopment. Especially because it’s a state monument the building can’t be demolished. I think that’s a good clue to decide to work on this architectural project.

What can former factories be used for? When finding a right allocation for this heritage the historical significance of the complex for the environment of the factory is crucial, states Cerutti. A combination of local attractiveness with an international ambition seems to be the perfect match for the function of the to re-use object, with a high quality of exterior space around the object. In my design for the faculty of food sciences I will design with respect to the existing building and with a high sensitivity for the qualities of the place. I want to use the corporate identity of Verkade to use for the ‘international’ image of creativity, sustainability and authenticity and in my design it will function as a catalyst for the urban area development, which re-use of industrial heritage can often accomplish.

To improve the connection between Amsterdam and Zaanstad I suggest an annex faculty in food-studies of the UvA in Zaandam. Why faculty of UvA? The Wageningen University is the only university in Holland that provides sciences related to food. These studies have gained popularity last years. The amount of students and employees

doubled in the last five years.\footnote{\url{http://www.wur.nl/}} This for me a motivation to introduce a ‘competitor’ for these green studies in the Randstad, especially when we see that there isn’t any possibility in the Zaanstad to study (HBO or WO) after secondary school (image 35).

Zaanstad nowadays forms part of the Amsterdam metropolitan area. In the structural vision 2040 of Amsterdam the municipality considers Zaanstad as one of the urban fingers of Amsterdam and this connection will become more and more distinguished. Spatially and functionally Zaanstad and Amsterdam are divided by the IJ and its huge harbour front on the IJ. The distance between Zaandam and Amsterdam city centre is about 10 kilometers, but the proximity is dependent on the infrastructure between the two cities. At the moment there is a large pressure on the infrastructure between the two cities, because of the many commuters in Amsterdam and Zaanstad. Future plans will improve not only the public transport connection between Amsterdam and Zaanstad, like the high frequency transport line and the high quality public transport, but also road networks, like the second Coentunnel to prevent the many current traffic jams. We could say that the physical connection between Amsterdam and

Zaanstad is already there. With my project I will try to lay the functional relation between Zaanstad and Amsterdam, because I think the two cities can profit from each other.

The UvA –buildings are spread over the whole city of Amsterdam, two university campuses are located in the city centre ( Roeterseiland and Binnengasthuis for alfa and gamma studies), one university campus in Amsterdam East ( Science park for beta studies ) and one in the south ( Holendrecht for medical studies ). I now suggest one food-related campus in Zaandam, it is quite far, it is, but it isn’t further away from the Dam square than Holendrecht is. The former Beschuitfabriek will turn into a faculty building of the UvA. The UvA will broaden its spectrum and won’t focus just on the city centre of Amsterdam anymore, but spreads its urban fingers towards its outskirts. will serve Life Science studies in Zaandam, because it belongs in Zaandam, and in particular in the Verkade heritage.

The program of requirements for the faculty of agriculture and food sciences I retrieved from the new faculty building in Wageningen University and shaped it a bit.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Size (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>1000</td>
</tr>
<tr>
<td>Laboratory entrance</td>
<td>80</td>
</tr>
<tr>
<td>Laboratory storage</td>
<td>120</td>
</tr>
<tr>
<td>Greenhouse</td>
<td>1000</td>
</tr>
<tr>
<td>Greenhouse entrance</td>
<td>40</td>
</tr>
<tr>
<td>Greenhouse storage</td>
<td>60</td>
</tr>
<tr>
<td>Crop gardens</td>
<td>1000</td>
</tr>
<tr>
<td>Garden entrance</td>
<td>40</td>
</tr>
<tr>
<td>Garden storage</td>
<td>60</td>
</tr>
<tr>
<td>Offices</td>
<td>600</td>
</tr>
<tr>
<td>Canteen</td>
<td>700</td>
</tr>
<tr>
<td>Kitchen</td>
<td>70</td>
</tr>
<tr>
<td>2 lecture rooms</td>
<td>800</td>
</tr>
<tr>
<td>Library</td>
<td>800</td>
</tr>
<tr>
<td>Study spaces</td>
<td>600</td>
</tr>
<tr>
<td>Exhibition space</td>
<td>400</td>
</tr>
<tr>
<td>Conference rooms</td>
<td>150</td>
</tr>
<tr>
<td>Coffeebar</td>
<td>100</td>
</tr>
<tr>
<td>Bathrooms</td>
<td>180</td>
</tr>
<tr>
<td>Student association space</td>
<td>75</td>
</tr>
<tr>
<td>Class rooms x 4</td>
<td>300</td>
</tr>
<tr>
<td>Student bar</td>
<td>120</td>
</tr>
<tr>
<td>E-point</td>
<td>120</td>
</tr>
<tr>
<td>Book store</td>
<td>75</td>
</tr>
<tr>
<td>Vegetable store</td>
<td>75</td>
</tr>
<tr>
<td>Verkade store</td>
<td>90</td>
</tr>
<tr>
<td>Infodesk</td>
<td>35</td>
</tr>
</tbody>
</table>

Program of requirements (own)
4.2 an Analysis

General

The Beschuitfabriek is constructed in 1927 on the plot between the Westzijde and the Vaart. The biscuit factory was built by a design of P. Molenaar in a zakelijk-expressionistische, Amsterdamse School related architectural style. The elongated shape of the site and the factory - sandwiched between the Hollandsepad and the Reigerstraat reflects and recalls the typical Zaanse river paths perpendicular to the river oriented structure, where the Ossepad is part of. The Beschuitfabriek extends westward behind the buildings on the west side. The eastern facade is located on the so-called Ruyter Square, the north facade is located along the Jan Rotstraat, the southern facade adjacent to the backside of the dwellings on the Reigerstraat and the west wall connects to an open field. In 1936 the headquarters were moved to the upper floor of the Beschuitfabriek.

Mass

The Beschuitfabriek has a rectangular floor plan of 140 by 38 m., consisting of two storeys under a flat roof, with at some parts a shed roof. The building has a representative part on the north side for the purpose of the entrance and the stairwell. This middle section has three floors. On the backside (the southside) the building has a single storey shed roof on both sides of a two story center office part under a shed roof. The floor to floor height in whole the building is 4,5 m. The building has a height of 9,5 meters high on the front side, except the chimneys and the entrance part. The building has of a height of 5 meters at the backside, excluding the shedroofs. The building has a total surface of 9.000 m2.

Structure

The structure of the building has a repetitive grid of 6 m. x 6,25 m. and consists of circular cast-iron columns of 225 mm. diameters. The columns are connected to the concrete ribbed floor of 25 centimeters and this is carried by concrete foundation beams on wooden circular foundation poles. The first floor has a ribbed concrete floor on concrete beams and the roof is constructed of steel beams and a roof package. The facades play an important role in the structure of the building, because it’s not only partly carrying the floors and roof, but it also acts as a stabilizing plane, so do the three interior walls perpendicular to the long northern facade. The beams span in perpendicular direction from the northern facade, except from the eastern two-storey part.
Facade

The building is carried out with plastic molded brick facades, concrete detailing, and sets of broad rectangular steel window frames. This is where it derives its horizontal orientation from. The masonry was carried out in three brick colors: mainly yellow brick with red brick for the masonry in the plinth and purple bricks were used in the parapet, all with another masonry bond, the one with a thickness of 33 cm. and the other with a facade thickness of 44 cm. The masonry of the quite flat façade is partly decorated with indented lines to make some depth. Continuous concrete frames directly above the windows mark the floors, these frames contain concrete reservoirs for rain. Beneath the windows is a continuous sill in tiles. The facade is closed with a notched concrete cornice, which in several places (corner accents) is broken by bricked, high rising chimneys with concrete covering pieces.

On the eastern facade is a concrete loading platform situated under a wireglazed shed. On the left of this platform is a small semicircular extension, the bathroom, with rounded concrete cornice. The right corner of this same facade has an edge with rounded corners with a narrow rectangular, high chimney. This loading platform is provided with a semi-circular iron guard rail, which continues up to the rounded right corner.

The long northern façade has on both the floors a long series of windows as written before. In the middle of this facade is the beforementioned plastic shaped entrance with heavy brick cornerparts and a spacious cantilevered concrete roof and canopy over a double portico. On the left side of the entrance a chimney with flagpole rises. Before both porticos lead a stone pavement of four steps to a double steel door. This double door has curved sides and in the middle a narrow gap. Above the canopy are three steel skylights. Above the window series is the name VERKADE projected on the wall. Directly under the roof overhang a series of four horizontal steel windows. The top floor has a small semicircular extension on the right side. The right corner of the north façade is accentuated by a high chimney.

Importance

The Beschuitfabriek is of general interest because of its cultural and architectural historical value as a well designed and well preserved example of industrial architecture from the interbellum in zakelijk-expressionist style. The Beschuitfabriek also has ensemble value as a historical-functional part of the factory complex of Verkade.
4.3 Problem Statement

The program of requirements of the faculty of agriculture and food sciences and the plot with the Beschuitfabriek on to it together forms the architectural assignment.

new versus old

The program of requirements of 13,000 m² doesn’t fit completely in the Beschuitfabriek, which now has a surface of 9,000 m², so an extension of the building is part of the project as well. This makes the assignment even more interesting, on an urban and architectural scale. The new building part and the existing part will be an important tension in the design and brings some problems and potentials; How does the new design react to the old design? How is the new part connected to the old? How does the old and the new form a unity, not only in layout of the plan, but also in materiality and appearance? And how do the two pieces connect?

The Beschuitfabriek has one main entrance and a couple of side-entrances. What are the side-entrances in the front facade used for? Because of the length of the plot the building definitely needs more entrances than the main one. How could that be made clear in the elevation? What role fulfills the new building part in this?

The urban situation tells something about the outlines of the building. But what’s happening inside is not given yet. Does it continue on the functional layout of the floorplan or does it have to do something totally different? Is the facade a continuation of the existing structure or is it providing the contrast by having an own identity? Does it contain clues to the existing facade?

re-use

In the design I deal with a state monument, so I’m not free to demolish or change the structure without a really good reason. “In the most general terms, architectural conservation deals with three questions: why, what and how can we protect buildings?” 1 Rögic also states that in Holland it’s difficult to get beyond conservation and really transform specific monuments, like Koolhaas did for example in Essen with the Kohlenwascherei. 2 This means that I can’t expect that I can really transform the building, but use the structure and facade that the building has right now. The analysis of the Beschuitfabriek showed that the existing building has

an almost entirely free floor plan, so this gives a lot of potential. Important questions are how can we intervene to cope with the requirements of the new user, while in the same time not harm the existing building?

The program of requirements needs a lot of different spaces and the current beschuitfabriek only has a couple of internal walls with very large spaces over the entire depth of the building. This means this space has to be divided in smaller functional spaces and a horizontal and vertical transportation system has to be added. This needs a strategic approach and a clear vision on the functional layout. Strategic and good spaces regarding day-light and location have to be distributed among all the different functions. Important questions are how readable is the space when it has been divided? How do the partition walls stand in relation to the columns? What material and what appearance do they have and is that in contrast with the existing interior?

The beschuitfabriek has a clear orientation towards the northern side, where the park is situated in the urban context. How can the new function keep this orientation to the northern part?

The facade of the Beschuitfabriek consists of 44 cm of masonry with steel windows. This doesn’t have a very good U-value. Because of the Dutch climate and the new users of the building the U-value has to be improved. Do we insulate the building from the inside, from the outside or do we build a greenhouse around? What’s the approach of insulating the building? Is there enough sunlight passing through the existing facade or does it require a transformation? If so, how is that transformation possible, with the monumental state of the building.

The floors of the Beschuitfabriek are thick concrete floors, they could serve most of the new functions as well. Problematic could be the extra forces on the lecture halls, the floors could need some strengthening in these parts.

A climate system for ventilation and heating and cooling is needed for the new user of the building. Ventilation systems not only require space for its Air Handling Units, but also for its shafts. How are these shafts integrated? Are these shafts in or out of sight? What kind of heating and cooling system fits best for the lay-out of the building, floor cooling and heating, radiator heating or heating and cooling through ventilation? Is there a difference between the approach in the existing part and the new part? How many air handling units does the building need? How can smart sustainable solutions be utilized?
4.4 an Architectural Design

The aim for the design assignment on this scale was to transform the private, industrial factory into a (semi-)public faculty for food sciences with a clear internal organisation of spaces, embedded in the urban surroundings.

Urban integration

The redesign of Tate Modern inspired me during the process, especially the way it’s situated in the context, which makes the building stand out very monumental. In order to achieve an enclosed square between the beschuit- and biscuitfabriek in the new urban proposal I added a volume to the western side of the beschuitfabriek. The new mass forms the visual connection between the beschuit- and the biscuitfabriek. The entrances are emphasized by shaping paved routes towards these entrances. The greenery is elevated and its concrete edge could be used as a bench. The entrance in the new building part is marked by a lifted platform, roofed by a bridge. The elevation of the new part followed out of the rigid structuring grid of the Beschuitfabriek and is also horizontally oriented by emphasizing the floor and the roof line. The closed volume, resting on pilotes refers back to the entrance party of the existing beschuitfabriek.

This volume stretches from the front to the back, it really wants to show itself to shout that despite the relatively small expansion, it is there and exaggerates the line the urban axis makes. The square on the east side connects to the Westzijde, this square has a more urban character.

Organisational

For the organisation of the Study Factory I was inspired by other renovation projects; the Caballerofabriek and the RDM campus, both successful industrial renovation projects. Both dealt with designing an interior organisation out of large factory halls. The other building that inspired me a lot in programmatical sense is this faculty of architecture.

I consider the beschuitfabriek as a good structure with a representative facade, but new internal organization is required for the new educational function. I approach the beschuitfabriek, together with the western extension as the framework for my design. The beschuitfabriek has a lifted ground floor, which I pursue into the new building part. This results in a 55 cm. high platform and will ensure that the old and the new can be experienced as a whole. There is a whole in the platform, that marks the crop garden and makes it an enclosed outdoor
space. In the beschuitfabriek I placed flexible boxes for different functions. These boxes are thermally adjustable. The large programmatical parts, like the laboratory, greenhouse, library and canteen are situated in the bigger spaces on the backside of the building. The laboratory has a shedroof where natural lighting can enter from the ceiling. So does the greenhouse, with both parts of the shedroof, made of glass. The small programmatical parts, like stores, classrooms and meeting rooms are situated in the smaller boxes on the front façade, with an important connection to the public square. These smaller boxes continue outside on the platform. The contraform of these boxes forms the horizontal organization. We can distinguish one long, continuous hallway, from where all functions can be accessed. This axis is designed like a gallery with columns on both sides, achieved by recessing the walls of the boxes. The typical yellow Verkade tiles are remained in this hallway. The columns are pursued outside as being a continuation of the gallery. The border between in- and outside fades by using such a public axis; the outside gallery becomes semi-inside. The offices are situated at the end of this outside underpass, big open spaces with primarily glass. There are three important entrances to the building, the left one facing the foyer is attached to the urban square in a former loading dock. The middle one currently is the main entrance and stays the main entrance. And there are two entrances from the added platform, one to the beschuitfabriek on the left and one to the offices on the right. On the backside of the beschuitfabriek the service zones are situated. Four Stairs, located along the axis, take us to the first floor. Three in the existing building and one in the new building. Here the route continues along the same line. A wide space, which is the exposition space is bridging the new entrance part and is a continuation of the hallway on the first floor. Both lecture rooms can be accessed from this hallway, one in the new part and the other in the existing part. To create a visual connection between the ground and first floor in the hallway some floor parts have been removed. This way natural light also reaches the ground floor. On top of the smaller boxes the study spaces are situated, which you can reach by the little bridges.

So I added a building part to embed the building better to the surroundings, making use of contrasting façade materials, while continuing the rhythm of the factories façade and its elevated plinth. I designed a double height axis gallery, where all different functions are accessed along as well as the extension.
and I placed strategic entrances both connecting the urban situation as the internal organisation.

By working with this axis with functions related to it, the design emphasizes the reference to building perpendicular to the combs of the Zaan. The internal organisation lets the hallway function as a street and the boxes as individual buildings along this street.

Technical

Beschuitfabriek

Starting point in the redesign of the beschuitfabriek was to maintain the characteristic structural elements. The cast iron columns, the beams, floors and stiff walls will remain. I remove small parts of the existing floor for natural lighting and visual connection. The shed roofs on top of the library and the laboratories are replaced with better insulated double glazed panels and get solar panels on the southern side. The steel truss structure of the shed roofs remain, as being one of the most important building characteristics. The boxes and other partition walls are constructed of timber frames with sound and thermal insulation and a porous finish for the acoustics. The boxes have their own climate control system. These are the only spots where the existing façade has an extra layer of insulation and an extra layer of glass behind the existing windows. These windows have operable, thin steel window frames. The spaces around the boxes aren’t extra insulated and profit from the existing 440 mm. thick masonry walls.

Expansion

The new building part structurally follows the rhythm of the existing structure with its grid of 6.25 x 6 m. It consists of two separately found building parts, both constructed out of concrete columns, concrete beams and hollow core slabs. The left building part has braces in the long direction and momentum fixed connections from columns to beams in the short direction for stability reasons. The right building part has braces in the long direction and concrete slabs in the other direction to ensure stability. Because hollow core slabs cannot transfer the horizontal loads an extra layer of concrete is poured. The lecture hall needs to be columnless, so I put steel trusses of 1800 mm. between the stiff walls, to bear the roof. This way there is a strip of light getting in the lecture hall.

The facade of the new building part has prefabricated concrete sandwich panels
as cladding attached to the structure. The ground floor has a recessed curtain wall on the inside of the structure, so we still experience the façade and the loadbearing structure as separate elements, where in the first floor this can be experienced from the inside, because the structure is placed inside the façade. The new building parts have a suspended ceiling and wooden finish to give to emphasize the contemporary appearance.

Climate principals

In the building there is a greenhouse, which produces a lot of heat in summer times whereas it needs a lot of heat in winter times. I apply heat recovery here, like this we can recover a lot of heat and store this in aquifers in the ground. The stored cold the building can recollect in summer times and vice versa. This system needs two aquifers in the ground, a heat pump and a heat exchanger.

The building needs a climate system for ventilation, heating and cooling. Floor heating and cooling is applied in the entire building and the building uses mechanical ventilation through air ducts. Because the building is so stretched and to save shaft volume in the total building I use a decentralised system for ventilation. Three air handling units are placed, one covers the new building, one covers the left part of the beschuitfabriek and one covers the right part of the beschuitfabriek. Fresh air comes from the outer shafts and exhaust air will be transported again to the air handling units, Shafts in the existing building are left in sight, but shafts in the new building parts are located in the suspended ceilings.
5. Methods and Techniques

In this final chapter I’ll explain what methods and techniques I used for which goal in my research and design process.

In order to find an answer to my research questions and even in order to formulate these research questions I needed to know more about the site-specific urban and architectural conditions in different scales and different time-frames. Why did I use different scales? My project is of an architectural assignment, so the smaller scale is useful to react on local problematics and possibilities. I used the larger scale as well, because at first I wanted to know how Zaanstad is related to its context. I was searching for a broader vision towards Zaanstad where it isn’t only going to affect its direct local surroundings, but also could improve the connection to its further surroundings, for example by infrastructure, since our studio has a clear connection to infrastructure. Why did I use different time-frames? I researched the history of these scales, because as architects we design future cities. For us it’s good to look for recurrent development patterns of the city in history to be able to predict the future a little bit. Researching history of urbanism and architecture is also useful to explain specific current structures in the city and to be able to see the city as a whole, like Aldo Rossi states: ‘From the point of urban structure, urban history seems more useful than any other form of research on the city, because one must remember that the difference between past and future, from the point of view of the theory of knowledge, in large measure reflects the fact that the past is partly being experienced now, and this may be then meaning to give permanences: they are a past that we are still experiencing.’¹ The current situation is important to study to explore possible alterations for the future, actually being one time-frame in history, since the city is always in transformation Rossi would say. This is why I introduced the scheme showed on the left to chronologically step by step go through my research. The research I did was a wide-scoped research on multiple scale levels and from different time periods as I wrote before. I quantified the studies I did in 8 boxes: from a research on Amsterdam as a metropolitan area to the very architectural research of the Verkade factory itself via two scales in between: The municipality of Zaanstad and the station area of ‘hypothetical south’. These studies I did were studies for both

the present situation as for historical situations.

I will explain in the coming paragraphs what tools I used in my research to achieve what goal with later on a reflection of my used epistem. For the site specific analyses I did, I only used literature, maps and my own observations.

1. In my historical analysis of the relation between Zaanstad and Amsterdam I used several historical maps of maps+motion to be able to see the growth of the cities/villages and the upcoming infrastructure.

2. In my research on Amsterdam as a metropolitan area and the relation to Zaanstad in the current situation I used current maps and the structural vision of Amsterdam 2040 to see how Amsterdam interprets the relation between Zaanstad and Amsterdam.

3. In my analysis on the history of Zaanstad municipality I used mostly historical maps to explore changes in municipality borders and to be able to explain unlogical current structures.

4. In my analysis of the current situation of the Zaanstad municipality I used existing drawings of the report on 22 stationslocaties in Noord-Holland of Engel and de Waaijer to map the function distribution in Zaanstad and other maps to see the current hierarchy in infrastructures and the relation to my future station area. We also used methods of how we perceive the city in these studies, by mapping the main structuring elements of the municipality (image 19). Kevin Lynch states that stationary physical parts (read: architecture) are ‘as important as moving elements in the city, in particular the people and their activities for the image of the city.’ So not only the urban form is important for the perception of the city, but other influences as well. We didn’t do the research with interviewing inhabitants to see how they perceive the city, like Lynch did in his book ‘the image of the city’, but we used our own observations to perceive the city and mapped it in that way and saw the structuring elements as handholds or landmarks.

5. For my study to the history of the future station area I used all kinds of historical maps (image 22-27) to see how this specific city part of Zaandam developed over time and why the structure in this area is so scattered. I conceived the building forms as elements that shape the city, because

its built form, instead of its function will persist according to Rossi: ‘The value of artifacts often resides solely in their form, which is integral to the general form of the city.’

6. I used maps to find out the different building types and I made schemes of my own observations to distinguish important structures for the inhabitants for my study to the current situation of the future station area of Zaandam-Verkadebuurt

7. In my research to the history of the factory of Verkade I used literature, the archive of Zaanstad and rijksmonumenten.nl to make clear what’s the monumental value of the Beschuitfabriek building, how the whole Verkade factory developed and grew over time and why it grew inland instead of along the quay. I think this way of researching fits best with the approach of the young Italian group of architects called Tendenza, who defined the field of typological and morphological research.

8. In my research to the current status of the factory of Verkade I used maps, an interview with an employee of Verkade and the archive of Zaanstad to get a clear grip on how the different buildings relate to each other, how the factory works, its future plans and what area they use on their terrain nowadays. For the research of the beschuitfabriek I used floorplans and sections of the archive and my own visits to the factory.

Besides this urban and architectural studies I did another more iterative research on the function my architectural intervention has to have. Therefore I used the functional maps I made of the Zaanstad, but I was especially looking for a (couple of) function(s) that can improve the city dynamics, (partly) fits in the factory to be re-used and is able to trigger this particular area in Zaandam.

I can conclude that I used different methods and techniques in my research process to achieve different goals.

On the larger scales I primarily used morphological studies using maps to get a grip on the urban form of Zaanstad and how for example the Zaanstad or Zaandam relates to surrounding cities or villages (image 16). Later on I used means of perception for example to research the main characteristics and the main structuring elements of the area (image 19).

On the smaller scales I primarily used

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typological analyses to be aware of the different typologies of public space around the design location, to get grip on the local conditions to be able to design an architectural proposal that fits the context, but also to explore the different possibilities of the area that’s to be redeveloped itself. But the typological way of studying is not the only episteme I used for this smaller scale, I also used the notion of perception, which would be the episteme of phenomenology, where the city is perceived from a human perspective.

I used typomorphological research through analysing the city as an artifact, as it is composed of architectural elements, where the relation between the built and the unbuilt space is really important. Historical development forms an important factor in this way of working for the growth of the city, especially in my project it’s important, since my design location was on the edge of the city before, but is encapsuled by the different villages in time, so is now becoming quite central, especially if we look to the plan of the station. Contemporary research about cities, the form and the physical character of cities are considered as the result of societal factors, but Aymonino, Rossi and Muratori, with their morphological and typological approach of research considered the city as an artifact that’s part of the urban culture and that implies that it is a factor of urban development in itself. Kevin Lynch on the other hand, with his phenomenological approach of research, states that the ‘image of the city’ is composed of five different elements: Paths, Edges, Districts, Nodes and Landmarks. All these elements are perceived from eye-perspective.

The perception of the user of the city is important to be able to know what residents perceive, because we are partly designing for them. They can perceive objects differently, because of memories or associations of the object for example. To really do this research proper we should use the methodology of Lynch by interviewing inhabitants, but that wasn’t feasible. Instead of interviewing the actual residents we used our own observations to make such conclusions.

I think the typological approach of perceiving the city can work together quite well with the phenomenological approach of perceiving the city in the sense that they are not contradictory, but complementary, that’s why I used them next to each other.

6. Reflection

product, process, planning

The research I've done was on multiple scale levels, from metropolitan to municipal to local to architectural, which lead to different design products: a masterplan for Zaanstad, an urban plan for the new station area of Zaandam-Verkadebuurt and an architectural re-use design of a state-monumental factory.

In my research and design process I worked on these projects chronologically from the large scale to the small scale. I think this worked quite well in the process, because it is structured and organised. From every scale level I learned a lot about different problems and solutions by researching and designing. This structured process have brought me from the design of a masterplan to the design of a facade detail, so I think I’ve got a clear vision on the things playing in our field on all possible scales now.

The problem with the approach of researching and designing with such a scale difference I think is that on the one scale specific kind of problems occur, which don’t have anything to do with problems on the other scale level, and that makes the coherence of the different chapters in the research a bit unclear in my eyes.

The chronological approach was not working that good for me planningwise, because my design can always be improved and I always hesitated to take one step further, because the former step wasn’t finished yet. This caused that I continuously was behind schedule. That’s what I’ve learned from this project, that taking a next step doesn’t have to mean that the previous step or the previous two steps are finished, but you can use these steps to have a new or better motivation for this previous one.

Relation between research and design

With the design of the urban plan I did a typomorphological research on the area through history and that gives me knowledge about the importance and relevance of different elements or structures and sometimes it gives a clue for a possible logical solution for the design. With the architectural design I had to research a lot about the Beschuitfabriek to be able to interveine, so here the research and design were a bit more linked I think. I've also researched precedent redevelopment projects, and that gives design clues,
but no guarantees. In the further development phase I researched by designing and making the link between them even closer, but the process becomes more iterative.

relation between studio and subject

The subject of the studio is densification in station areas of the municipality of Zaanstad and my case study is a re-use project of industrial heritage in a one of the station areas in Zaanstad. This case-study project is closely related to the studio theme, because this intervention should be the catalyst for the planned surrounding dwellings and the heavy industry within the urban boundaries is a real threat in the municipality of Zaanstad.

relation between studio’s method and mine

The studio believes that the design of buildings should reflect on their urban significance and on the position they take in the historical development of the place. Research on cities therefor is considered as an important component. Architectural interventions within existing urban environments require a conscious understanding of urban transformation processes. These transformation processes are often researched by typomorphological analyses, and that is the main method the studio uses. That same method is what I began to understand better every day. I learned to look through this lense to architecture and the city, and I think the method I used this project of using historical knowledge to anticipate future transformations relates to the studio’s method very well. My method of designing an experiencing could have conflicted with the studio’s method of first setting up a ‘system’ to be able to be consequent in the steps, and I think this helped me very much.

relation between project and wider social context

The project relates to the wider social context through how the project approaches the monument: as an opportunity object to be exploited, by making use of its cultural historical and its memorial value. In my projects case its cultural value is used to help the urban regeneration of a specific area, but industrial heritage could be exploited for other purposes as well. This project questions how we as humans approach our cultural heritage, in particular monuments. How do we perceive them? Is it more than just a historic building or did it really become a landmark?

I think also the way I approached the industrial building, perceived as a framework, where multiple functions could be housed along an introduced hallway, the axis of the building, which fades the borders between in- and outside.
7. Bibliography

Literature

Methods


Site specific

- Kleij, P. ‘Zaanstreek, architectuur en stedenbouw 1850 – 1940’. Waanders, Zwolle,

Kind of design


Documents

Site specific

- Engel, H. en Waaijer, A. de (2011) ’22 stationslocaties in Hollands Noorderkwartier’ Delft
- Rijksmonumenten.nl
Lectures

Methods

- Henk Engel
- Roberto Cavallo

Site specific

- Hans Staller
- Jan Goedhart

Kind of design

- Tamara Rogic
- Jan Goedhart

Maps and drawings

Site specific

- Verkade factory drawings: plans, sections, elevations
- Themakaarten Zaanstad
- Google maps
- Bing maps
- Top 10 vector
- Historical maps
  - Bonnenmap
  - Militaire kaart
- Maps + motion
- Atlas 1868
- Kadastrale kaart