P4 report

The Lassie factory; a hybrid foodcenter in the Zaanstreek

Master course: MSC 4 AR3AUH20 Hybrid Buildings Graduation Studio
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Preface

The following publication contain the results of an intensive research endeavours for the Msc. graduation studio of Hybrid Buildings. This graduation studio is being part of the faculty of Architecture of Delft University of Technology. The main topic of this report will be about the reuse of industrial heritage and its influence for urban regeneration within the architectural discourse of architectural conservation. A well-grounded problem statement followed by clear formulated research questions will eventually be tackled by research and design. The content of this graduation project will result in a design of an existing factory that lost its function and will be reused for a new purpose. The formation of the design derives from an intensive research and literature related theory where methods will be adopted and applied in the design process.
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1.0 INTRODUCTION
1.0 Introduction

1.1 Introduction of the general course contents

The graduation studio of Hybrid Buildings focuses on how architectural interventions can activate and contribute to the process of urban transformation. Territorial and urban infrastructures, urban analysis and scenarios, programmatic and typological hybrids and the mutation of the built environment form the input for architectural thinking and design. In this framework design as well as research must be seen as an opportunity to strategically involve our discipline in the regeneration and redevelopment of urban areas.

The students work on urban areas with interesting potential not yet or not fully exploited. The areas of investigation, although well located in the city, are often inadequate in terms of public space, sometimes disconnected to urban fabric and therefore frequently unattractive. The aim of the studio is to understand how architecture, by reacting on the physical as well as the cultural context, can improve the performances of these spaces. During the MSc 3 students develop design guidelines for the area wherein a building proposal can be formulated and worked out. The activities will be organized in two steps. First research activities in groups in order to define theoretical and operative frameworks. And secondly, by testing and improving the formulated ideas, developing a preliminary design proposal within the given urban scenario in groups or individually. The design research of the studio is supported with the seminars Architecture and Urban Analysis as well as the Architectural Research seminar.1

Besides the studio instructor for architecture, an instructor from the department of Building Technology will join the studio in this semester.

The Masters programme Hybrid Buildings studies design methods, typologies and architectural languages that have the power to anticipate the contemporary urban networks. Attention is focused on urban transformation in Dutch cities where large-scale buildings have to be realized that can improve the performances of these spaces. During the MSc 3 students develop design guidelines for the area wherein a building proposal can be formulated and worked out. The activities will be organized in two steps. First research activities in groups in order to define theoretical and operative frameworks. And secondly, by testing and improving the formulated ideas, developing a preliminary design proposal within the given urban scenario in groups or individually. The design research of the studio is supported with the seminars Architecture and Urban Analysis as well as the Architectural Research seminar.1

1.2 Introduction of the hybrid building as the answer for urban regeneration

Hybrid Buildings are receiving increasing attention in contemporary architectural debates and practices, showing the attempt to escape the traditional but arid binomial form-function by addressing buildings with multiple performances. They combine different programs into a "hybrid" whole and show new ways of organizing space. Therefore, rather than looking for mere programmatic solutions, hybrid buildings offer up to date answers to our way of living, working and entertaining. The scope of the program is to bring up different combinations of types of space, functions and constructive systems in order to create opportunities for alternative social and urban dynamics.3

Hybrid buildings are distinguishable from most building types because of the complex combination and intertwining of different functions, types of space and constructive systems. They allow for open up the possibility of creating a network of new relationships and connections and by doing so they play on the culture of changing coalitions between a range of social functions and organizations. Hybrid buildings generate room for any unpredictable changes – the unplanned element – and housing requirements.4

Personally I think that this hybridism is the key for revitalizing an urban area. I expect that this need of hybridism will even extrapolate in the very near future due to the fact that a hybrid has the power to reach a large public and can react on the needs of society. This is why I want to stress the possibilities of the so-called ‘hybrid’ building and its influence on the urban fabric.

1.0 Introduction

1.3 Introduction of the graduation studio ‘The Zaanlijn; an urban artefact in the Zaanstreek’

The studio ‘The Zaanlijn; an urban artefact in the Zaanstreek’ is a sequel of the earlier studies made by Henk Engel and Arnout de Waaijer in the report 22 stationslocaties in Hollands Noorderkwartier commissioned by the province Noord-Holland. The assignment was to deliver maps from the station locations regarding the densification around public transport nodes in the province Noord Holland. The maps are constructed according a certain developed method called ‘Randstad Holland in kaart’. The method is especially focusing to reveal the developments regarding the network of Dutch cities. The main conclusions of the report are: since approximately 1970 a tendency of declination of the housing occupation and the declination of inhabitants pro hectare around public transport nodes is raising. Although the prospect is that the need of dwellings in the Zaanstreek will raise in the near future.5

From the study of Engel and de Waaijer it become clear that not only the determination for the chances of investing in developments of urban activities are important, also investments in station locations that on forehand doesn’t seem to have so many opportunities are going to be developed for the purpose of the accessibility and the improvement of the public transport. In that sense, densification, improvement and the accessibility around all the station areas should be stimulated and maybe it is even necessary to add new stations in between. The goal of the studio is to study the possibilities to improve and densify around the station areas in the Zaanstreek. Zaandam-Kogerveld, Koog Bloemwijk, Koog Zaandijk, Wormerveer, Krommenie-Assendelft and two possible hypothetical stations are the stations where it is about. The main conclusions are the starting points of the studio and will be stressed and explored even further. The graduation studio set the goal - with the help of the outcome of the report of Engel and de Waaijer - to study possible intervention locations around the station areas that can either lead to densification or improvement of the stations. Within a radius of 800 meter the student is requested to formulate his own design assignment. The distance of 800 meter is equal with approximately a seven-minute walk. Three groups made three different masterplans for the entire Zaanlijn, the student should pick one and defend his choices with a good argumentation. Special attention is paid to the significant building patterns and the existing cultural heritage that is present. Those can be points of departure for further developments around the station areas. Especially the maintenance and reuse of industrial heritage is for the Zaanstreek of explicit interest. This is an important factor that truly determines the identity of the region.

5 Summary of the conclusion distracted from the report Engel, H. J. and de Waaijer, D. A; 22 Stationslocaties in Hollands Noorderkwartier. (Delft, TU Delft 2010)
1.4 Introduction of the region Zaanstreek

The region Zaanstreek is an agglomeration of the municipalities Zaanstad, Wormerland and Oostzaan. The region has a rich and unique history with specific characteristics what results in a strong distinguishable identity. This identity is for example determined by the employment along the river the Zaan, the open air museum ‘the Zaanse schans’ the cultural landscape, the intensive mix of living and working, the richness of cultural- and industrial heritage and the social strong- and relatively safe neighbourhoods. The region is a true work city where living and working coexist next to each other. The food production and the craftsmanship of the region are traditionally the driving forces of the economy. Zaanstad has almost 147,000 inhabitants and is very close to the capital city Amsterdam. The region is very well located due to closeness of big traffic nodes, the harbours of Amsterdam, the Northseacanal and in just 20 minutes you are at the Amsterdam Airport Schiphol. The Zaanstreek is as close from Amsterdam central as the new living district IJburg. Ten trains an our running to- and from Amsterdam and within only 18 minutes you are in the village Wormerveer. The train track is originally constructed around the year 1860. In that time the train track most of the time only serves to travel people instead of the transport of goods. The transport of goods still continues via boats on the river. In the 20th century the provincial road N203 is planned and function as an important regional connector over land between north and south. The road runs parallel to the river and the train track. The three infrastructural elements - that runs parallel to each other - forms nowadays a barrier between east and west. The problem of the barrier started when the municipality started decided in the seven- and eighties to build westwards of the train track.

As said before, the region has a long and rich history. To understand a bit more of this history the following phrases are dedicated for clarification of the origin of the cultural historical landscape. The river the Zaan is the true vein of the Zaanstreek. Between the 17th and 18th century this is where the first industrial area of Europe was born. Hundreds of mills and dockyards settled along the river the Zaan. They stand right next to the small-scale houses of the employees where the backyards directly stand to the water and with their front facing the dike. Ever since the dikes were built, the expansions of the houses were planned along paths- and small canals that run perpendicular to the dikes. Originally this functioned as the connection between the dikes and the mills in the field. Along these paths the typical wooden houses found their origin. The riverbanks, the dikes and the paths- and small canals that runs perpendicular to the dikes, forms together a morphological pattern that determines the character of the whole region.

Due to the beginning of the steam era around the 19th century another expansion of the industry was started. Solid industrial complexes made out of brick rise directly along the water and turns into a big contrast with the small-scale, low wooden houses. Ever since, the relation with the river decreases because of these privatized big industries that stand along the water and occupy the waterfront. The water landscape petrified, gradually the city turns her back towards the river the Zaan. Also the water paths perpendicular to the dikes turns into streets where more houses were built. This is how the villages gradually grew to each other. Around the sixties of the twentieth century a lot of factories moved elsewhere, most of the time the factories moved to the Northseacanal. In the nineties of the twentieth century the abandoned factory complexes were rediscovered by investors as potential dwelling areas and therefore these areas become part of the public domain again. Also the municipality of Zaanstad become aware of the richness of their cultural history along the river and the numerous of industrial heritage. This awareness translates into the first redevelopments of the riverbanks to popular living areas.

Who nowadays sail over the Zaan, experience an exiting contrast of factory complexes, 19th century industrial monuments, typical small-scale wooden houses and the open polder landscape. At one moment you pass dense building blocks along the river, followed by open green fields. This authentic Dutch cultural landscape provides unique opportunities for development of characterfull living- and working areas to the water.
2.0 PROBLEM STATEMENT
2.0 Problem statement

2.1 Structure of the research
The sections 2, 3, 4 and 5 of the research are basically affecting each other. The order of the sections in this report will be a consistent, logical consequence of each others outcome. Although the order of sections seem to be a linear process, in practice it turned out that the process went back and forth. The research can be distinguished in three main phases that are related to each other but require their own approach of research. The first phase of the research will be about the general characteristics and problematics of the Zaanstreek. The second phase of the research will go more deeply into the research of the site-specific research questions that are formulated for the design assignment. The formulated site-specific research questions already lead to a certain direction. It shouldn’t be misunderstood that the formulation of the site-specific research questions came out of the blue but rather as the result of an intensive analytical exploration of the Zaanstreek. The third phase relates to research questions that deal with all sort of issues that occur with the re-use of an existing building. The formulation of the research questions can be considered as phases in the process that are derived from all the information that is gathered during the previous phases in the process. These three phases runs parallel in each section and will be clarified by argumentation, analysis and design.

2.2 General problem statement
As already mentioned in the previous section, the Zaanstreek has a long and rich history. The historical identity of the region is still perceivable. To discover what exactly determine this historical identity a research to the main structuring elements of the entire Zaanstreek should illuminate what this is. First central research question in this report is: what are the main structuring elements that determine the unique identity of the Zaanstreek?

The main assignment of this studio is the densification and the improvement of the station locations along the entire Zaanzijn to solve the issue of urban declination in the Zaanstreek. Due to the scale of the region and the limited time to come up with a new masterplan that copes with densification, of special interest is than how to approach this assignment. This result in the second research question: how to set up a masterplan of densification for an entire region on an abstract and analytical level?
The industry in the region has a dominant position that truly determines the character of the Zaanstreek. Due to the fact that the assignment is to densify the entire region, the position of the industry is questioned: Will the function of the industry still be as dominant as it is, can the existing and desired quality of living be maintained with the presence of the industry in the station areas? The third general research question on this report will therefore be: what is the current functional character of the industry and can it stay in case of densification around the station areas?

2.3 Hypothesis
The historical identity of the Zaanstreek is close connected with the industrial developments of the region. The from origin positioned factories along the Zaan are still an important source of employment in the region but cause also a lot of friction with the surrounded living areas. The industrial heritage along the river has some quite unique and characterful buildings that are worthwhile for future development. Since approximately 1990 there is already a re-interest for the qualities along the Zaan and her cultural heritage. A lot of attention goes out to the industrial monuments where the industries make place for qualitative apartments. Due to the strict environmental requirements and the need for densification around the station area, the assumption is that the industry should unavoidably move elsewhere. This provides some unique possibilities for the redevelopment of the industrial heritage and the additional waterfront.


2.0 Problem statement

2.4 Site specific problem statement

The last few years a lot of future visions and developments around the Zaanstreek were – and still is - going on. The region is apparently searching for new impulses to put the Zaanstreek back on the map. Around 2000 the municipality came up with a masterplan called ‘Inverdan’. This masterplan for the centre of Zaandam should give the entire region a new impulse. A renewed shopping centre, a cinema, a hotel and many dwellings should do the job and is currently in construction. The plan brings a lot of discussion and passed several times the media. Especially the discussion around the outspoken architectural language of the new hotel and town hall is what cause the discussion. I do agree with the municipality that the region should have a new impulse but I’m not convinced that this is the right way to do it. The architecture of masterplan ‘Inverdan’ should refer to the historical identity of the Zaanstreek and contain many ‘original’ details. I really doubt the honesty of this gesture. Does this really refer to the historical identity of the Zaanstreek? Robert Venturi classifies this embodiment of iconography in his book Learning from Las Vegas as a ‘decorated shed’. To me the real historical identity is embodied in the already existing urban artefacts. The industrial heritage along the river really determines the image of the riverbank and at the same time the unique identity of the Zaanstreek. The industrial monuments are generally scattered along the river the Zaan. Nevertheless, there can some clusters of industrial milestones pointed out that determine the spirit and identity of the place. One of these industrial milestones are positioned around the station area Wormerveer, on the opposite side of the river there a series of warehouses are present. Some of them are already reused, others are still in use. To understand how this place is evolved through history the following site specific research question is formulated: What are the characteristics of the station location of intervention and how did it evolve through history to its current state?

The potential design location around the station of Wormerveer should fulfil three important criteria, the site should be an industrial area, the site should contain some industrial monuments that can be reused and the site should be positioned along the water to stress the potentials of the water. These criteria derive from the urge to give a new meaning to the existing historical identity where industry was and still is of major importance. So the choice of location depends on these criteria and not on the magnitude of problematics. This is also emphasized in the report of H. Engel and A. de Waajier, they also proclaim that every station area should be improved no matter what the exact problematics are. It could be stated than that the choice of a location around any station area is justifiable. Though the choice of location should be clearly justified. The personal requirements mentioned above, personal preference and interest is what brought me to the design location of the Lassie terrain in Wormer that fulfil the mentioned criteria.

The second research question that directly derives is: What is the current state of the industrial heritage and what is already known about it? Off course not every industrial building has the same value and should be preserved. Essential by the decision to preserve industrial heritage are the criteria where these are based. To be more precise the following research question applies: Why is the industrial monument worthwhile to preserve and what is the exact quality of the architectural object then?
Photoshoped interpretation of the architectural gesture of the town hall

Current situation of town hall (soetersvaneidonk.nl)
2.0 Problem statement

2.5 Additional site-specific questions

In the above mentioned phrases about the introduction of the Zaanstreek it become clear that the history of the industry takes an important position for the regional identity of the place. The identity of the region was even so known that ships travelled from all over the world to the Zaanstreek for the products they fabricated. The food production – where the region is so notorious from - was initially produced by mills and later on replaced by factories. What was characteristic for that time was the strong relation between the industry and her inhabitants. Most of the time the employees of the factories were the inhabitants of the environment and lived in worker houses in the near surrounding. Nevertheless, during the history of the Zaanstreek she gradually lost the relation between her inhabitants and the industry. Nowadays living and industry (working) within the Zaanstreek still exist, but separately. They become two separate entities instead of a mixed entity as it used to be. This graduation project attempts to heal the relation between the inhabitants and their environment and will have meaning on a local/regional scale. An additional question would be: how can the relation between the industrial sites and the inhabitants be restored?

What is quite typical for the region is the contrast between small-scale housing and the big solid industrial buildings. Most of the factories are composed out of several simple volumes. The complexes gradually grew by adding new volumes to the existing factory what results in big sculptural compositions. Between the factories sight lines towards the water are provided but public waterfronts are very rare and are only positioned next to special locations such as bridges, locks and public buildings. The few public places that are located next to the water are most of the time used as traffic road or parking. Due to the strict environmental requirements and the need for densification around the station area, the function of the industry should unavoidably move elsewhere. This provide some unique possibilities for the redevelopment of the industrial heritage and the additional waterfront. This brings us to the second additional question: how can the industrial heritage turned into meaningful public areas?

The proposed solution of densification to stop urban declination can in itself be a proper solution. An additional question will be - if with the come of so many new inhabitants - the region will be vital enough? Does the region have enough facilities to offer the new inhabitants attractive public spaces, facilities and program? The last additional question will be: Can the quality of living be maintained by densifying every possible location or is something more desired?

2.6 Building specific research questions

The hypothesis is that the function of the former factory building should unavoidably move elsewhere due to environmental inconveniences. This provides unique opportunities to reuse and reprogram a piece of cultural and industrial heritage. The physical conditions of the former factory were truly dedicated to the needs and requirements of a factory building. Low ceilings, dark spaces, un-insulated rooms are very common in such factory buildings. They were pure, simple and efficient. One of the major challenges with reprogramming the buildings is to deal with these issues in the new design. By reusing these existing buildings, the needs and requirements of the new program should correspond with the existing conditions of the factory. Two approaches are thinkable to bring these two together. Either you find a program that suits the conditions of the existing buildings or you transform the existing buildings in such a way that it eventually will obey the needs and requirements of the desired program. Whether it will be one or another approach, clearly is that the existing conditions and new requirements should eventually come together in a clear position, approach and strategy. This brings us to the following building specific research question: How do the physical conditions of the existing buildings meet the requirements of the new program?
2.0 Problem statement

The previous research question is pretty much about the possibility whether or not a certain program is able to perform in the planned space/building. Factors as the dimensions of space, height, amount of daylight etc. determines if the desired program will be suitable for the space. If not, interventions should improve the space to fulfil the needs anyway. Next to the requirements of a program in spatial terms, the program demands also some requirements in terms of technical performances. Performances considering safety, health, usability and energy consumption need technical installations and solutions. Without doing so, the buildings will definitely be experienced as uncomfortable. Around the end of the 19th century - when most of the factory buildings were constructed - there weren’t many requirements as we have nowadays. Nowadays we have to obey all kind of requirements to make a building comfortable and energy efficient, this means that in case of reusing a building we have to undergo many actions to improve the performances of the building. Together with the architectural concept, the demands and needs of the program, the building needs a clear climate concept as well. A climate concept that contains smart and energy efficient systems that combines forces and communicates with each other. The climate and architectural concept should be an integrated entity that support each others aim of presence. The additional research question to this problem statement would be: What are the technical consequences of intervening in an existing building and housing a new program?

As mentioned before, the Lassie complex consists out of smaller volumes that together forms the assemblage of the factory complex. Buildings that are constructed over time forms together one solid factory complex that has diverge expressions. Along the waterfront large brick warehouses determine the image of the factory. The factory buildings that are positioned behind the brick warehouses forms on the contrary a white plastered unity. The buildings are more or less of same height and can be seen as similar building types. Within the assemblage of volumes there can be one distinctive volume pointed out. This volume distinct itself due to its height, monumentality and plasticity. The volume where we are talking about is the silo building where the storage of the rice take place. Besides the distinctive presence of the silo building, the silo has a remarkable floor plan that is very characteristic for the typology of the silo. The silo building is assembled of 27 silo cells that are attached to each other in a 3x9 configuration. The cells have an octagonal floor plan and stand on a concrete construction that consists out of beams and columns. The silo building is one of the earliest examples of an entire solid concrete construction. Due to its remarkable floor plan, the choice of program should be well considered. Not every program can be housed in the cell structure of the silos without harming the existing construction of the silos. Nevertheless there are examples known where such silo buildings are reprogrammed. So the following research question applies in case of taking a position towards reprogramming the silo building: Which strategies/approaches towards silo buildings are already known?

By reusing an existing building and by giving the buildings a new program, the buildings undergo without any doubt some transformations to fulfill the needs of modern society. This is unquestionable. The question though is how to do this. Ever since something new had to be built - where an existing building was involved - a position had to be taken towards the existing situation. This counts pretty much on every scale of transformation. If we take the existing factory as an example we already see some differences in style between the brick warehouses and the white plastered factory buildings just behind them. Although the buildings were constructed in different times the vision was apparently quite clear, brick along the waterfront, white plaster on the other side. So the new building that had to be constructed for the extension of the factory, had to follow this vision. It can be stated that this is done quite consistent and maybe thanks to this consistency it became an appreciated peace of cultural heritage. On the other side, when this complex was built there wasn’t much differences in style and building methods as we have nowadays. Perhaps the builders weren’t that much aware of a position that had to be taken towards the existing and it was just common sense to refer to what was already there. Nowadays we have unlimited possibilities. Almost everything what we can imagine can be realised. Because of the endless possibilities it is even more important to take a clear position
in case of reusing and transforming an existing building. What is the role of the new interventions/extensions towards the existing building and vice versa. The reuse of existing buildings becomes a common and challenging assignment within the profession. We have many examples around us of successful and less successful transformations. Interesting would be to distillate the positions regarding the relation between old and new. The additional research question would than be: Which positions in the profession are noticeable considering the relation between old and new?

From out the analysis to architectural quality it becomes clear that the building contain very rich themes that will be explained in section 4.0. Although the building complex is an appreciated monument among the local inhabitants and tourists, the building opposes functional problems by reprogramming the former factory buildings. The appreciation of the monument is purely based on an outside experience. Nevertheless, the internal experience of the building complex is a complete other story. Low ceilings, dark spaces, limited length of sight lines and confusion due to the organization of the spaces forms together the main problematics for the internal experience of the building complex. A clear spatial strategy should tackle the problems and improve the internal experience, which turn the complex into a pleasant and comfortable complex. The additional research question to this problem statement is: How to improve the internal spatial quality within the building complex?

The following problem statement is a quite specific one. From out the analysis of the buildings it become clear that not every building mass has the same measurement system. Again a distinction can be made between the brick warehouses along the waterfront, the white plastered factory buildings behind them and the silo building. To make it more clear we classify this distinction into three types. 1) the warehouse type 2) the factory type and 3) the silo type. The warehouse- and factory type consist out of several building masses that all have there own building height with in some cases an additional rooftop. Even the rhythm of the construction axis differs from each other. The silo type is one building and thus has just one measurement system although this is another one than the other two types. What the types do share with each other are the floor heights. This is in every building mass the same. As a spatial strategy a decision is taken to connect the building masses with a new element. An element that connects the volumes with each other. It is an element that can be seen as a new guiding element that is planned between the existing volumes. This means that this new element should bring several measurement systems together. This brings us to the following challenging research question: How to bring several existing measurement systems together in one new system?
3.0 METHODS AND TECHNIQUES
Industrial areas were already one of the criteria where the main structural elements were selected on. And indeed, the industry is very dominant in the area. Especially along the water there are very big industrial sites that occupy many open space of the urban tissue. To tackle the question what the functional character is of the industry, a precise analysis to the origin of the function of the industries is done. To establish such an analysis there are actually two sources of input. One is the observation of the group and the second is the data that is gathered. The output of the input are maps where only the information is transferred in the drawing. By mapping the functional character of the industry it becomes clear that the majority operates in the food industry. Later in the process it turns out that this was an important discovery that directs the main idea of setting up a hybrid network that operates in the food industry. For the decision whether the industry can stay or move in the case of the densification around the station areas, only data is collected that should demonstrate the taken position. The criteria are selected regarding environmental issues such as noise, smell and soil pollution. The source of the data is required by the maps of the municipality of Zaanstad.

To tackle the second research question: how to set up a masterplan of densification for an entire region on an abstract and analytical level, an abstract study and a masterplan for densification in the Zaanstreek are made to cope with this issue. The main assignment of the abstract study to densification is to densify an area of 600x500 meter with 1000 dwellings with an average of 40 dwellings pro hectare. The only context that there is, is a zone in the middle of 100 meter wide that is reserved for infrastructural purposes. The methods that are utilised for this assignment are a combination of a few. The first studies that are made are really typological studies to possible building typologies that fulfil the need of 40 dwellings pro hectare. Slabs, single houses, ribbons etc. are tested to reach the numbers of 1000 dwellings. Each typology has its own numbers in terms of FSI, GSI and OSR and results in diverge urban models. These were just dry calculations of the possible typologies. For the assignment itself we as a group decided to
use the phenomena of the scenario. The scenario can be a really strong instrument to direct a powerful concept. The office of Rem Koolhaas use this instrument very often to make their ideas clear. The scenario started with the position of the trainstation in relation with its context. The ‘kam’, ‘heart’ and ‘barrier’ scenarios were the basis of the plans. For the elaboration of the three scenarios we assembled a toolbox that we used to make decisions, order the design and be clear of what we were doing. The tools or urban elements to design the scenarios are: network, districts, islands, parcels and building typologies. By studying precedents and literature we were able to recognize some similarities and this is how we were able to select the tools for our toolbox.

The outcomes of the abstract study are very fruitful for the following assignment of designing a masterplan for the densification of the Zaanlijn. Again the scenario and the calculations were the basis of the division of dwellings over the different station locations. The only difference with the abstract study is that the method really is applied on a context. Therefore we gave some architectural guidelines that should be taken into account in case of any intervention in one of the selected locations of the masterplan. The methods used for the abstract study and the masterplan stresses very much the episteme of typology and partly the episteme of phenomenology due to the fact that there are some guidelines formulated that determine the eventual perception of the place.

3.2 Methods utilised for the site-specific research questions

After the more general analysis where some starting points were found that are elaborated further, a deliberately choice of the design location of the Lassie factory in Wormer is made. Besides, the formulation of clear specific research questions can from now of on be addressed. The research questions are: What are the characteristics of the station location of intervention and how did it evolve from history to its current state? To tackle this question, basically the same approach made with the urban analysis of the entire Zaanstreek can be applied only more specific on the things you want to discover in detail. The second research question is: What is the current state of the industrial heritage and what is already known about it?

Dealing with industrial heritage is dealing with something what is already present. Important for the selection of the methods is that the main goal should be to gather as much as information as possible about the existing situation. Observing is one of the most effective methods for the understanding of the current situation. Besides, by observing you’ll discover how the area is actually being used by the people. I am in the advantage that my house stands approximately 100 meters from the Lassie factory and therefore is really easy to visit the site several times. Also the inside of the factory is observed and explored due to an appointment with the director of the factory. Another useful method to use to gather information is interviewing related parties. Examples of parties that are interviewed are: the users, the home architect of the factory and the municipality. A proper documentation of the existing situation is almost essential for the further design process. This really set the base where will be continued on. Map and documentate the state as it is know but also how the building historically is developed.

The last site-specific research question is: Why is the industrial monument worthwhile to preserve and what is the exact quality then of the architectural object? The former government architect Tjeerd Dijkstra wrote a book named Architectonische kwaliteit; een notitie over architectuurbeleid and can be considered as an attempt to define architectural quality. He selected five criteria to determine architectural quality. The criteria he writes about are form, function and construction, object and context, clarity and complexity, associative meaning and architectural devices. I used the theory of this book to turn into a method for the determination of architectural quality of the existing buildings. The method is used to set up some secondary research questions around the criteria. It eventually results in an analysis of the existing buildings. Essential to mention is that the final result is an interpretation of the theory and not an application of the theory. For the analysis of the criteria the techniques of Roger H. Clark and Michael Pause in their book Precedents in architecture, analytical diagrams formative ideas and partis and Francis D.K. Ching in the book Architecture, form,space and order are carfully studied and in many side analysis applied.
3.0 Methods and techniques

3.3 Methods utilised for the building-specific research questions

This phase of the process requires a more detailed and precise approach towards the research questions that are formulated in the building specific problem statement and has to do with the smaller scale of the phase. Also the comprehensive methods and techniques require a more sensitive approach towards the research questions although the episteme can be of the same order as previous phases. The first two formulated research questions in this phase can basically approached in the same way and are of the same order. The first research question is: How do the physical conditions of the existing buildings meet the requirements of the new program? The second research question is: What are the technical consequences of intervening in an existing building and housing a new program? Both research questions address the possible consequences of changing the existing conditions of the buildings. Though the research questions are of the same order, the scale and purpose of each research question differ. The first question is more about the spatial conditions of the buildings where the second question is about the technical conditions. Both need their own research although the approach of method can be the same. In both cases it is essential to map the existing conditions, sum up the desired conditions and eventually determine whether or not these conditions can come together. If not, what will be the consequences than to succeed anyway. Actually the research question: How to bring several existing measurement systems together in one new system? can be approached in the exact same way. First precise drawings have to be made of the existing conditions to determine the different measurement systems where after the desired conditions of the new system is formulated. Where the desired conditions of the first two research questions mostly is set by rules and laws, the requirements for the new system is set by ambition, purpose and aspirations.

To solve the first research question, drawings of the existing conditions with information of the ceiling heights, dimensions of floor plan and size of windows are drawn to map the existing situation of the buildings. Again a distinction is made for the three building types. Next to the drawings, the new requirements for the desired program are summed up to test whether or not the existing spaces obey the strict requirements of the program. One of the biggest problems with these types of buildings is the limited amount of daylight that falls in the spaces. Therefore precise daylight calculations are made to see what is needed to fulfil the strict requirements. Studies with possible interventions in the façade are drawn and calculated again to see the consequences of these interventions on the calculations.

Also a precise list of the existing technical conditions is made to see where the problems occur. Again the existing conditions and required conditions are compared where the consequences are carefully studied. Issues like thermal insulation (façade, roof, floors and windows) sound insulation (walls, floors), fire protection (construction) ventilation, heating and cooling systems are necessary to improve the existing conditions of the buildings and thus make the building comfortable and safe. Coincidentally an inventarisation of systems is studied to see how these issues can be solved.

Already utilised in the methods and techniques section to solve the general research questions is the episteme typology. As mentioned before the epistemess can be used in different phases of the project. Where the episteme typology was used in the phase of the general research questions for classification of the main structural elements of the region, the very same episteme can be used in the phase of the building specific research questions to set up a typological analysis on silo buildings. Each case study is approached in the same way and are analysed on the same criteria. Criteria like the determination of the new program and in particular the strategy towards the existing silo structure is of special interest in this analysis. Case studies are very fruitful to analyse a certain theme, to see the difference solutions already explored and how successful these solutions actually are in reality. Such case studies can perfectly be used to tackle the research question: Which positions in the profession are noticeable considering the relation between old and new? By analysing projects that cope with the same issues, different solutions and possibilities will be explored and addressed. By analysing other projects an own position towards this specific topic will gradually grow. Together with related theory a well-grounded argumentation will eventually be constructed.
4.0 ANALYSIS AND ARGUMENTATION
Structuring elements

Legend
- Water
- Nature
- Industrial area
- Monument
- Provincial road
- Highway
- Cross connection
- Railway
4.1 Urban analysis of the region

4.1.1 Main structural elements - theme 5

Goal of this analysis is to map the structural elements that give the Zaanstreek its unique identity. By mapping water, nature, industrial areas, monuments, provincial roads, highways, cross-connections and railway stations, it should become clear what the elements are that make together the composition of the region. The above mentioned criteria to determine the structuring elements, are selected on the themes scale - in terms of length, height, size, amount – and the theme of temporality in terms of time- and life span.

The map on the left side gives a clear overview of the structural elements all together. The right additional schemes are an abstraction of the gathered data. Highlighted is the built area of the entire region, the historical ribbons and the landmarks.
4.1 Urban analysis of the region

4.1.2 Functional character of the Zaan

Industrial areas were already one of the criteria where the main structural elements were selected on. And indeed, the industry is very dominant in the area. Especially along the water there are very big industrial sites that occupy many open space of the urban tissue. To tackle the question what the functional character is of the industry, a precise analysis to the origin of the function of the industries is done. The map on the left gives an overview of the functions of the industries. Almost any industrial area positioned along the water seems to operate in the food production.

As said before the industries gradually occupied the waterfront. In the map right in the bottom it can be seen that there aren’t many public waterfronts anymore. The map above it visualizes the network right next to the water. The historical ribbons that are one of the main structural elements are apparently also very important roads that connect north to south.
Map of the reach of smell of the factories (from the municipality of Zaanstad H.Staller)
4.1 Urban analysis of the region

4.2.3 Environmental consequences of the industry

The industry in the region has a dominant position that truly determines the character of the Zaanstreek. Due to the fact that the assignment is to densify the entire region, the position of the industry is questioned. Will the function of the industry still be as dominant as it is, can the existing and desired quality of living be maintained with the presence of the industry in the station areas? The maps left of this page show the environmental consequences of the industry. The map on the left illustrate the inconvenience of smell in the near surroundings. The map in the bottom illustrate the inconvenience of sound. Both maps are required from data of the municipality of Zaanstad.
Image | Conceptual scheme of the kam scenario

Image | Start situation

Image | Network
4.2  Abstract typological study

4.2.1  Studio Assignment
The main assignment of the abstract study was to densify an area of 600x500 meter with 1000 dwellings with an average of 40 dwellings per hectare. The only context that there is, is a zone in the middle of 100 meter wide that is reserved for infrastructural purposes.

4.2.2  Kam scenario
In the case of the kam scenario, the role of the station was to extend the station with a kam structure into the surrounded neighbourhood. The kam structure was inspired on the historical morphology of the Zaanstreek. Instead of water as was the case in the Zaanstreek, we decided that roads were more useful for the connection of the neighbourhood and station.
Conceptual scheme of the heart scenario

Start situation

Network
4.2 Abstract typological study

4.2.3 Heart scenario

In case of the heart scenario the station had a more central role. Around the station programme was added to create a small village centre where the inhabitants of the village can profit from. Local program such as a supermarket, a kindergarten and some commercial functions should do the job. Due to the fact that the station has a more central position, the two fields next to the station area are exactly the same. None of them are more dominant than the other. Around the centre the amount of dwellings rise and fade out towards the borders.
Conceptual scheme of the barrier scenario

Start situation

Network
4.2 Abstract typological study

4.2.4 Barrier scenario

In the previous two scenarios the achievement for the position of the stations was to connect the neighbourhood with the station. In this scenario the complete opposite is established. Instead of solving the problem of the barrier, this scenario enforce the idea of a barrier. The idea is that the barrier isn’t a negative fact but that it can be turned into something positive. By increasing the wideness of the station platform and adding program to it, the role of the platform can transform into a street where local program is complementary. Both sides of the station can profit from this barrier.
4.3 Collective masterplan

4.3.1 Masterplan 2

In the masterplan groups should make a collective masterplan of the Zaanlijn. We have stated that in order to improve the usefulness of the ‘Zaanlijn’, all existing station areas and the two hypothetical station areas need urban densification. The general assumption is that with a housing density of 40 dwelling pro hectare in each station area the ‘Zaanlijn’ will reach its former usefulness.\textsuperscript{11} This means an average of 1000 extra dwellings per area so in total 7000 dwellings along the entire Zaanlijn. The groups should determine in which locations densification is possible (presumed demolishing of the existing building stock is allowed only in the present industrial areas). Goal is to explore per chosen location(s) different spatial models of dwellings by using the results of assignment II.\textsuperscript{12}

The graduation studio set the goal - with the help of the outcome of the report of Engel and de Waaijer - to study possible intervention location around the station areas that can either lead to densification or improvement of the stations.\textsuperscript{13} Within a radius of 800 meter the student is requested to formulate his own design assignment. The distance of 800 meter is equal with approximately a seven-minute walk. Three groups made three different masterplans for the entire Zaanlijn, the student should pick one and defend his choices with good argumentation.

Together with, Arthur Cuber, Patriek Duisdecker, George Kramer, Maria Selkou Maarten Timmermans, Harm Jan Velten and Rick Zwerver we are responsible for masterplan 2.

\textsuperscript{11} Gramsbergen, E and Rogic, T.; Assignment III (Delft, March, 2012)
\textsuperscript{12} ibid.
\textsuperscript{13} Engel, H. J. and de Waaijer, D. A; 22 Stationslocaties in Hollands Noorderkwartier. (Delft, TU Delft 2010)
Map of all the potential densification areas
<table>
<thead>
<tr>
<th>Scenario</th>
<th>Empty</th>
<th>Industrial</th>
<th>Sport</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 dwellings/ha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empty</td>
<td>437870</td>
<td>0</td>
<td>430370</td>
<td>430370</td>
</tr>
<tr>
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<td>149240</td>
<td>505430</td>
<td>62315</td>
<td>718720</td>
</tr>
<tr>
<td>Empty</td>
<td>18000</td>
<td>3600</td>
<td>0</td>
<td>21600</td>
</tr>
<tr>
<td>Empty+industrial</td>
<td>65900</td>
<td>182575</td>
<td>24300</td>
<td>405725</td>
</tr>
<tr>
<td>Empty</td>
<td>4587.5</td>
<td>127449</td>
<td>2612</td>
<td>31763,5</td>
</tr>
<tr>
<td>Empty+industrial</td>
<td>8370</td>
<td>109803</td>
<td>8261</td>
<td>195864</td>
</tr>
<tr>
<td>Empty</td>
<td>160000</td>
<td>79000</td>
<td>0</td>
<td>239000</td>
</tr>
<tr>
<td>Empty+industrial</td>
<td>963046,5</td>
<td>768000</td>
<td>76,8</td>
<td>1738846</td>
</tr>
<tr>
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<td>96,30465</td>
</tr>
<tr>
<td>Empty+industrial</td>
<td>96,30465</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Empty</td>
<td>96,30465</td>
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<tr>
<td>Empty+industrial</td>
<td>96,30465</td>
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<tr>
<td>Empty</td>
<td>96,30465</td>
<td>0</td>
<td>0</td>
<td>96,30465</td>
</tr>
<tr>
<td>Empty+industrial</td>
<td>96,30465</td>
<td>0</td>
<td>0</td>
<td>96,30465</td>
</tr>
</tbody>
</table>

| 40 dwellings/ha | | | | |
| Empty | 325140 | 10225 | 37500 | 362915 |
| Empty+industrial | 176935 | 34000 | 0 | 552130 |
| Empty | 290 | 0 | 0 | 290 |
| Empty+industrial | 811 | 1150 | 0 | 1962 |
| Empty | 64 | 0 | 0 | 64 |
| Empty+industrial | 127 | 0 | 0 | 127 |
| Empty | 489 | 0 | 0 | 489 |
| Empty+industrial | 489 | 0 | 0 | 489 |
| Empty | 489 | 0 | 0 | 489 |
| Empty+industrial | 489 | 0 | 0 | 489 |

| 60 dwellings/ha | | | | |
| Empty | 215800 | 331343 | 163500 | 525454 |
| Empty+industrial | 173782 | 1467 | 0 | 175259 |
| Empty | 811 | 1623 | 972 | 2434 |
| Empty+industrial | 1217 | 204 | 58 | 158 |
| Empty | 64 | 164 | 18 | 201 |
| Empty+industrial | 765 | 640 | 640 | 2129 |

| 80 dwellings/ha | | | | |
| Empty | 150545 | 1956 | 1280 | 20074 |
| Empty+industrial | 150545 | 1956 | 1280 | 20074 |
| Empty | 59 | 1431 | 1772 | 4733 |
| Empty+industrial | 59 | 1431 | 1772 | 4733 |
4.3 Collective masterplan

4.3.2 Approach

The previous maps illustrate all the potential plots that can be densified. Industrial areas, empty plots and sport fields are distinguished for possible densification. Red is representative for the empty plots, blue for the industry and green for the sport fields. The chart on the left page gives an overview of the amounts of dwellings with some simple calculations. Again the scenario was a useful instrument that we also used for this assignment.

The red, blue and green rows in the first part of the chart are the calculations of the total square meters of each potential plot for all the station areas. The vertical cells are the amounts for each station. Eventually the total square meters are the input for the scenarios. The second part of the chart with all the grey tones illustrate calculations of four possible scenarios 1) densify all the plots 2) densify all the empty plots + the industrial plots 3) densify all the empty plots 4) densify all the industrial plots. Within these four scenarios we also tested the possibilities of increasement and decreasement of the densification. From 20 dwellings pro hectare up to even 80 dwellings pro hectare. The last part show the calculations of the plots that are excluded from densification due to special exceptions. A selection for the desired density for each station area is made in an agreement and is illustrated in the last part of this chart.
**TOTAL AMOUNT OF DWELLINGS ALONG THE ZAANLIJN**

includes: empty plots, sportfields, industrial areas

- **20 d/ha = 876**
- **40 d/ha = 1751**
- **60 d/ha = 2627**
- **80 d/ha = 3503**

**Hypothetical station 1 71.9 ha.**

- **20 d/ha = 1437**
- **40 d/ha = 2874**
- **60 d/ha = 4312**
- **80 d/ha = 5750**

**Wormerveer 14.5 ha.**

- **20 d/ha = 290**
- **40 d/ha = 581**
- **60 d/ha = 871**
- **80 d/ha = 1162**

**Koog-Zaandijk 40.6 ha.**

- **20 d/ha = 811**
- **40 d/ha = 1623**
- **60 d/ha = 2434**
- **80 d/ha = 3246**

**Zaandam-Kogerveld 52.5 ha.**

- **20 d/ha = 1051**
- **40 d/ha = 2102**
- **60 d/ha = 3153**
- **80 d/ha = 4204**

**Hypothetical station 2 24.5 ha.**

- **20 d/ha = 489**
- **40 d/ha = 978**
- **60 d/ha = 1467**
- **80 d/ha = 1956**

**Koommenie-Assendelft 43.8 ha.**

- **20 d/ha = 5018**
- **40 d/ha = 10037**
- **60 d/ha = 15055**
- **80 d/ha = 20074**

**Koog-Bloemwijk 3.2 ha.**

- **20 d/ha = 64**
- **40 d/ha = 127**
- **60 d/ha = 191**
- **80 d/ha = 254**

**Image | Map of scenario 1**
TOTAL AMOUNT OF DWELLINGS ALONG THE ZAANLIJN

includes: empty plots
industrial areas
excludes: sportfields

20 d/ha = 4293
40 d/ha = 8585
60 d/ha = 12878
80 d/ha = 17171

Hypothetical station 1  71.9 ha.
20 d/ha = 1309
40 d/ha = 2619
60 d/ha = 3928
80 d/ha = 5237

Hypothetical station 2  24.5 ha.
20 d/ha = 489
40 d/ha = 978
60 d/ha = 1467
80 d/ha = 1956

Krommenie-Assendelft  43.8 ha.
20 d/ha = 876
40 d/ha = 1751
60 d/ha = 2627
80 d/ha = 3503

Wormerveer  14.5 ha.
20 d/ha = 248
40 d/ha = 497
60 d/ha = 745
80 d/ha = 994

Koog-Zaandijk  40.6 ha.
20 d/ha = 609
40 d/ha = 1217
60 d/ha = 1826
80 d/ha = 2435

Koog-Bloemwijk  3.2 ha.
20 d/ha = 64
40 d/ha = 127
60 d/ha = 191
80 d/ha = 254

Zaandam-Kogerveld  52.5 ha.
20 d/ha = 698
40 d/ha = 1396
60 d/ha = 2094
80 d/ha = 2792

Koog-Zaandijk  40.6 ha.
20 d/ha = 609
40 d/ha = 1217
60 d/ha = 1826
80 d/ha = 2435

Hypothetical station 2  24.5 ha.
20 d/ha = 489
40 d/ha = 978
60 d/ha = 1467
80 d/ha = 1956

Krommenie-Assendelft  43.8 ha.
20 d/ha = 876
40 d/ha = 1751
60 d/ha = 2627
80 d/ha = 3503

Wormerveer  14.5 ha.
20 d/ha = 248
40 d/ha = 497
60 d/ha = 745
80 d/ha = 994

Koog-Zaandijk  40.6 ha.
20 d/ha = 609
40 d/ha = 1217
60 d/ha = 1826
80 d/ha = 2435

Koog-Bloemwijk  3.2 ha.
20 d/ha = 64
40 d/ha = 127
60 d/ha = 191
80 d/ha = 254

Zaandam-Kogerveld  52.5 ha.
20 d/ha = 698
40 d/ha = 1396
60 d/ha = 2094
80 d/ha = 2792

Hypothetical station 2  24.5 ha.
20 d/ha = 489
40 d/ha = 978
60 d/ha = 1467
80 d/ha = 1956
SCENARIO 3

TOTAL AMOUNT OF DWELLINGS
ALONG THE ZAANLIJN

includes:  empty plots
excludes:  sportfields
industrial areas

Hypothetical station 1  71.9 ha.
20 d/ha = 298
40 d/ha = 597
60 d/ha = 895
80 d/ha = 1194

Wormerveer  14.5 ha.
20 d/ha = 36
40 d/ha = 72
60 d/ha = 108
80 d/ha = 144

Koog-Zaandijk  40.6 ha.
20 d/ha = 132
40 d/ha = 264
60 d/ha = 395
80 d/ha = 527

Zaandam-Kogerveld  52.5 ha.
20 d/ha = 255
40 d/ha = 510
60 d/ha = 765
80 d/ha = 1020

Koog-Bloemwijk  3.2 ha.
20 d/ha = 9
40 d/ha = 18
60 d/ha = 28
80 d/ha = 37

Hypothetical station 2  24.5 ha.
20 d/ha = 320
40 d/ha = 640
60 d/ha = 960
80 d/ha = 1280

Krommenie-Assendelft  43.8 ha.
20 d/ha = 876
40 d/ha = 1751
60 d/ha = 2627
80 d/ha = 3503

TOTAL: 375.525 m² = 37 HA.

20 d/ha = 20.900 m²
37.475 m²
3.940 m²
28.975 m²
86.925 m²

20 d/ha = 375.525 m²
200x90 m
180x110 m
135x180 m
24300 m²
190x20 m
38000 m²
60x60 m
3600 m²
38x59
2242 m²
20x18
370 m²
22.5x15
337.5 m²
63x26
1638 m²
55x190
10450 m²
500x800
400000 m²

Totals
18000 m²
200 x 90 m
17646 m²
8261 m²
101542 m²
90 x 83
7500 m²
26 x 113
2940 m²
65 x 106
6900 m²
28 x 360
10080 m²
55 x 190
10450 m²
500 x 800
400000 m²

Krommenie-Assendelft  43.8 ha.
20 d/ha = 876
40 d/ha = 1751
60 d/ha = 2627
80 d/ha = 3503

Koog-Zaandijk  40.6 ha.
20 d/ha = 132
40 d/ha = 264
60 d/ha = 395
80 d/ha = 527

Total amount of dwellings along the Zaanlijn includes: empty plots, industrial areas, sportfields.
ANALYSIS AND ARGUMENTATION

TOTAL AMOUNT OF DWELLINGS ALONG THE ZAANLIJN

includes: industrial areas
excludes: sportfields empty plots

20 d/ha = 2367
40 d/ha = 4733
60 d/ha = 7100
80 d/ha = 9466

Hypothetical station 1 71.9 ha.
20 d/ha = 1011
40 d/ha = 2022
60 d/ha = 3033
80 d/ha = 4044

Wormerveer 14.5 ha.
20 d/ha = 212
40 d/ha = 425
60 d/ha = 637
80 d/ha = 850

Krommenie-Assendelft 43.8 ha.
20 d/ha = 0
40 d/ha = 0
60 d/ha = 0
80 d/ha = 0

Koog-Zaandijk 40.6 ha.
20 d/ha = 477
40 d/ha = 954
60 d/ha = 1431
80 d/ha = 1907

Koog-Bloemwijk 3.2 ha.
20 d/ha = 54
40 d/ha = 109
60 d/ha = 163
80 d/ha = 217

Zaandam-Kogerveld 52.5 ha.
20 d/ha = 443
40 d/ha = 886
60 d/ha = 1329
80 d/ha = 1772

Hypothetical station 2 24.5 ha.
20 d/ha = 169
40 d/ha = 338
60 d/ha = 507
80 d/ha = 676
CURRENT DENSITY

22.2
25
18.4
23.9
27.6
29.6
15.3
24.5
14.9
26
30
16
9.2
46
43.4
26.2
16.8
18.1
8.3
2.6
5.8

HOUSES PER STATION AREA

Krommenie-Assendelft
43 ha.

Hypothetical station 1
55.2 ha.

Wormerveer
12.4 ha.

Koog-Zaandijk
24.8 ha.

Koog-Bloemwijk
3 ha.

Zaandam-Kogerveld
33.1 ha.

Hypothetical station 2
9.9 ha.

DESIRED DENSITY

60
80
60
60
40
20
80
60

Image | Scheme of the current density

Image | Scheme of the desired density

Image | Scheme of the total amount of dwellings (scenario 5)
### 4.3 Collective masterplan

#### 4.3.3 Desired density

A selection of the desired density for each station area is made in an agreement and is illustrated on the left page with the green bubbles. The numbers in it illustrate the amount of dwellings pro hectare. Next to the bubbles the existing density numbers are mentioned. The scheme in the bottom on the left page show the total amount of dwellings for each station area and is composed with the last definitive scenario. Scenario 5 is the outcome and combination of exceptions and previous mentioned scenarios. An example, we as a group stated that the sport is of such importance for the villages that they definitely should be kept.

The chart on this page show the differences in numbers of each scenario in comparison with the minimal density of 7000 dwellings in total.

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>INCLUDES</th>
<th>20 D/HA.</th>
<th>40 D/HA.</th>
<th>60 D/HA.</th>
<th>80 D/HA.</th>
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<td>10037</td>
<td>15055</td>
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<td>+8055</td>
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<td>17171</td>
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<td></td>
<td>industrial areas</td>
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<tr>
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<td>+1585</td>
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<tr>
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<td>-2267</td>
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<tr>
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<td>sc. 1</td>
<td>-2651</td>
<td>-5304</td>
<td>-7955</td>
<td>-10608</td>
</tr>
</tbody>
</table>
Krommenie-Assendelft 43 ha
60 d/ha = 2582

Opportunities:
- adequate connections with station, four storey dwellings, greater presence, educational function

Weaknesses:
- no central public space between Krommenie and Assendelft, nature barrier of railway, process road, early weathering

Opportunities:
- expansion to west, more facilities related to education

Qualities:
- adequate connection with station, low rise dwellings, private gardens, educational function

Koog-Zaandijk 24.8 ha
60 d/ha = 994

Opportunities:
- reuse the Verkade factory for dwelling and/or other functions

Opportunities:
- big barrier (elevated tracks, tracks, water, provincial road, side road)
- multiple facilities in the area, on both sides of the tracks
- wateraxis running through, connecting both sides of the tracks

Qualities Hypothetical Station South
- green building blocks, buildings, water, provincial road, side road
- half-open factory

Opportunities:
- use the water for creating a high quality dwelling area
- make-up connections between both sides of the tracks, improving rail connections

Weaknesses:
- no connection to the Zaan, no suitable connection between new areas, no identity
- station is too small, hardly better than station A, no direct rail link

Hypothetical station 2 9.9 ha
60 d/ha = 591

Opportunities:
- development of small connection between the test areas

Opportunities:
- no connection to the Zaan, no suitable connection between new areas, no identity

Koog-Zaandijk 24.8 ha
60 d/ha = 994

Weaknesses:
- the area contains a lot of typical Zaanse houses (small houses)

Opportunities:
- improvements towards the railway station and platforms, track extension
- connections between the tracks, tracks, water, provincial road, side road

Weaknesses:
- the area contains a lot of typical Zaanse houses (small houses)

Opportunities:
- no connection to the Zaan, no suitable connection between new areas, no identity

Koog Blommert 3 ha
20 d/ha = 60

Opportunities:
- Woronow ledge, over the building blocks, buildings, water, provincial road, side road

Opportunities:
- use the water for creating a high quality dwelling area
- make-up connections between both sides of the tracks, improving rail connections

Opportunities:
- reuse the Verkade factory for dwelling and/or other functions

Qualities:
- connections to the Zaan, None connections to the Zaan, No connections to the Zaan, No connections to the Zaan

Opportunities:
- connections to the Zaan, None connections to the Zaan, No connections to the Zaan, No connections to the Zaan

Qualities:
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Opportunities:
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Qualities:
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Opportunities:
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Opportunities:
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Opportunities:
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Opportunities:
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Qualities:
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Opportunities:
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Qualities:
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Opportunities:
- connections to the Zaan, None connections to the Zaan, No connections to the Zaan, No connections to the Zaan

Qualities:
- connections to the Zaan, None connections to the Zaan, No connections to the Zaan, No connections to the Zaan
4.3 Collective masterplan

4.3.4 Scenario 5

On the left page the conclusion map is represented and is based on scenario 5. Scenario 5 is composed due to the determination of the qualities, weaknesses and opportunities. The outcome is used to decide which plots should be developed and which desired density is desired. The right schemes are supportive abstractions. With the demarcation of the prospective developments and the total amounts for each station area and plots.

Image | Scheme of the plots for densification

Image | Scheme of the total amounts for each station area

Image | Conclusion map of scenario 5

Image | Scheme of the total amounts for each plot
01 Connect with the existing water qualities

02 Connect with the existing green qualities

03 Heal existing urban patterns to connect neighbourhoods

04 Historical buildings as qualitative urban artefacts that can regenerate an area

05 Historical ribbons as structural elements for connection

06 Improve the main east-west connection

07 Heal existing urban pattern for connection

08 Continuing with the building scale along the river

09 Benefit from the existing sport areas to attract people

10 Benefit from the existing water qualities

11 Historical buildings as qualitative urban artefacts

12 Historical ribbons as structural elements for connection

13 Benefit from the existing sport areas to attract people

14 Improve the main east-west connection

15 Continuing the building scale along the river
4.3 Collective masterplan

4.3.5 Architectural guidelines

Already noticed in the conclusion map are the qualities, weaknesses and opportunities for each station area. We as a group discovered that there are some shared values and characteristics that count for the entire region. With the architectural guidelines that are illustrated on the left page, we set some shared values that should be maintained when intervening in one of the locations in this masterplan.
4.4 Urban analysis of station location Wormerveer

4.4.1 Station location Wormerveer as location of intervention.

The industrial heritage along the river really determines the image of the riverbank and at the same time the unique identity of the Zaanstreek. The industrial monuments are generally scattered along the river the Zaan. Nevertheless, there can some clusters of industrial milestones pointed out that determine the spirit and identity of the place. One of these industrial milestones are positioned around the station area Wormerveer. The potential design location within the station of Wormerveer should fulfill three important criteria, the site should be an industrial area that contain some industrial monuments that can be reused and the site should be positioned along the water to stress the potentials of the water. These criteria are a selection of the architectural guidelines made during the collective masterplan. The personal requirements mentioned above, personal preference and interest is what brought me to the design location of the Lassie terrain in Wormer that meets the mentioned requirements.

4.4.2 History of the village Wormerveer


In het begin van de 16e eeuw was ’t Saen gegroeid tot een kleine handels- en visserijplaats die behoefde had aan een eigen gebedshuis. In 1503 kregen de inwoners toestemming voor het bouwen van een eigen rooms katholieke kapel; dit jaar wordt dan ook aangehouden als de officiële stichtingsdatum van het dorp. In 1536 kreeg Wormerveer haar eerste (meel)molen. Daarnaast ontstond in deze periode de stijfsmakerij in het dorp. Beide ondernemingen kunnen gezien worden als de eerste, plaatselijke industriële activiteiten. In 1574 werd het gehele dorp, evenals grote delen van de buurgemeentes aan de streek, verwoest door de Spanjaarden. [...] In 1586 werd in omgeving van het veer een meelmolen gebouwd terwijl drie jaar later de in 1574 verwoeste meelmolen werd herbouwd. Ook de stijfsmakerij werd weer opgezet. Vanaf begin 1600 had het droogmaken van de grote Noord Hollandse meren grote gevolgen voor Wormerveer.

Er kwam een gigantische hoeveelheid koolzaad uit de nieuwe polders op de markt en in Wormerveer, strategisch gelegen aan het grote vaarwater de Zaan, verrees de ene na de andere oliemolen. In totaal werden op rekening van Wormerveerders 47 oliemolens gebouwd waarvan een aantal buiten het dorp. Ook de Noord Hollandse veestapel groeide enorm; er kwamen immers honderden hectaren landbouw- en weidegrond bij. Wormerveerse handelaren grepen hun kans en er ontstond snel een levendige en omvangrijke kaashandel in het dorp. Halverwege de 17e eeuw kwam de papierindustrie sterk op; liefst negen papiermolens telde Wormerveer ooit. Als gevolg van al deze activiteiten nam de bevolking sterk toe en de gehele Zaanstreek werd bebouwd terwijl rond 1650 ook de eerste zijpaden ontstonden. Uit de concentratie van olie-, papier- en later ook onder meer vetafzetting van olie- en rooilagen en cacaomolens ontstonden in de 18e en 19e eeuw enkele grote bedrijven als Wessanen & Laan (olie, meel, rijst en cacao), Crok & Laan (olie) Bloemendaal & Laan (rijst en olie), Jan Dekker (zeep) en Van Gelder (papier). In diezelfde periode groeiden ook enkele cacaobonen en chocoladefabrieken uit tot omvangrijke bedrijven (Erve de Jong, Pette en Boon).

In de 20e eeuw kwam de grafische industrie sterk op waaruit o.a. de gerenommeerde bedrijven Meijer en Mercurius ontsloten. Hoewel veel van de genoemde industrie is verdwenen of in multinationals is opgegaan is in Wormerveer nog steeds veel industrie te vinden. Molens telt Wormerveer al lang niet meer; in 1930 verbrandde ’t Jonge Vool, de laatste oliemolen in het dorp. Overige resten van de omvangrijke 17e en 18e eeuwse handel in industrie bestaan uit enkele historische kaas- en graanpakhuizen. Van de industriële revolutie resteren onder meer de fraai gerestaureerde cacaotoren van Pette, zeepfabriek De Adelaar en het ensemble fabrikantenwoningen aan de Zaanweg. Het dorp telt veel monumenten waaronder het voormalig gemeentehuis van Herman Gorter, de Nederlands hervormde kerk en de fraaie doopsgezinde kerk. Ook de schrijvers Dick Laan (o.a. Pinkeltje) en Cor Bruijn (o.a. Sil de strandjutter) zijn in Wormerveer geboren. Wormerveer telt anno 2010 plm. 11.000 inwoners.
4.4 Urban analysis of station location Wormerveer

4.4.3 Historical development of Wormerveer

De cirkels op de linker pagina geven de historische groei van Wormerveer weer over een periode van ruim 250 jaar. Het begon met de voor de Zaanstreek zo kenmerkende lint bebouwing welk zich concentreerde rond de veer over de Zaan en de belangrijkste gebouwen in het gebied. In de periode van 1850-1910 heeft voornamelijk de industrie een aanzienlijke groei doorgemaakt. Daarna was er sprake van een meer landinwaardse verdichting in de vorm van eenvoudige arbeiderswoningen. Ten slotte is de nieuwe industrie in Wormer ontstaan en is het onderbroken oude lint van industrie aan de Zaan, gedeeltelijk ingevuld met vier woontorens. Verder is het merkwaardig te noemen dat beide dorpen een verschillende manier van groei hebben doorgemaakt. Wormerveer concentreerde zich voornamelijk (in de begin jaren) als lintbouwing langs de Zaan en Wormer groeide juist vanaf het binnenland naar de Zaan toe. Dit zijn aspecten die met de economische welvaart te maken hebben.

De diagrammen onder aan deze pagina geven de groei van Wormer en Wormerveer weer in infrastructureel opzicht. Zo rond 1725 was er eigenlijk maar een belangrijke weg welke Wormer verbond aan de Zaan, namelijk de Zandweg. Nadat de molens plaats gemaakt hadden voor de kleinere fabrieken, begon de infrastructuur zich ook aanzienlijk te ontwikkelen en waren er veren nodig die arbeiders van de ene kant van de Zaan naar de andere kant moesten vervoeren. Voor een meer solide verbinding werd rond 1890 toen er een brug werd gebouwd. De verbinding met het noorden van Wormerveer werd rond 1993 gemaakt in de vorm van de Prins Clausbrug.15

Image | Map of the public transport around the station area

Image | Functions around the station area
4.4 Urban analysis of station location Wormerveer

4.4.5 Functional character

De bedrijven langs de Zaan hadden geen eigen spoorwegaansluiting. Mogelijke verklaring is dat de bedrijven te klein waren voor een eigen spoorwegverbinding, te ver van de spoorweg lagen of te weinig gebruik maakten van het spoorvervoer. De Zaanse stations hadden hun eigen goederenemplacement met goed-erenloodsen en laad- en losperrons. Bij de goederenemplacementen van de stations Zaandam en Koog-Zaandijk was er een rechtstreekse overslag mogelijk op binnenvaart. Vanaf de goederenloods vertrokken veel bodediensten naar de bedrijven om goederen te brengen en te halen. De enige losplaats aan de Zaan was in Wormerveer. In 1898 heeft de HIJSM (Hollandsche IJzeren Spoorweg-Maatschappij) een verbindingsspoor gemaakt naar de Zaan. Voor het station was een draaischijf en door en paard werden goederenwagons over een rails door de Spoorstraat (de huidige Stationsstraat) naar de Zaanweg getrokken waar er een tweede draaischijf was. Van deze draaischijf konden de wagens naar de spoorwegpier of twee losporen aan de Zaanweg. Bij een van deze losporen was een hijskraan.16

Map of the water structure
Map of the green structure
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.1 Lassie terrain in Wormer

The industrial activities along the Zaan increased enormously thanks to the new Northseacanal in 1877. The Zaanstreek was ever since - seen from the Northsea - good to reach for transportation of wood, rice and grain. Especially the rice- and groat husking grew enormously at the end of the 19th century. This resulted to the intensification of factories and warehouses along the river the Zaan.\(^\text{17}\) The Lassie factory in Wormer is such an example of a rice factory with characterful warehouses along the river. The village Wormer is not being part of the municipality of Zaanstad but the municipality of Wormerland. The division is exactly in the middle of the river the Zaan. The names on the warehouses refer to the countries where the goods were imported from. The warehouses truly determine the image of the riverbanks of Wormer. The factory is still in use but due to the fictitious assignment of densification around the station areas the industry should be replaced for the enhancement of the quality of the living areas. In 1893 the brothers Albert and Jacob Adriaan Laan decided to start up their own rice factory. With the acquisition of some parcels along the Veerdijk in Wormer they came in possession of the already existing warehouse Koningsbergen. They initiated to husk rice what eventually will be sold. Behind this existing warehouse they decided to built the new rice factory. The first machines to husk rice were driven by steam. This is where the current Lassie factory in Wormer found its origin. In the 18th and 19th century groat was a common food source for society. Until 1950 groat and oat were the most important products that were made by Lassie. In 1954 the name Lassie was introduced. Due to the fact the factory started to sell their products internationally the name should be catchy and easy to announce. Therefore Lassie is chosen what is actually a pet name for a girl. Nowadays approximately 60 people work at the Lassie factory.\(^\text{18}\) In former times this was even more but due to the automatization process it become more efficient. Another consequence of this process is that most of the warehouses are empty nowadays.

\(^{17}\) Translation out Lassie factory; Spreekbeurt informatiepakker (Wormer, December, 2011)

\(^{18}\) ibid.
Wormerveer

1. Pellerij Mercurius
2. Graanpakhuis Donau
3. Pakhuis Koningsbergen
4. Graanpakhuis Silo
5. Graansilo Lassie
6. Fabriekspand Mercurius
Photo of warehouse Koningsbergen

Photo of the warehouses along the Zaan
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.2.1 Warehouse Koningsbergen


In de eerste bouwlaag zijn de rondboogvensters met uitwaaierende ijzeren roedes, in de tweede laag de negen-ruiters-vensters met getoogde strek weer terug gebracht. Met het verwijderen van de sporen van de voormalige luchtbrug naar Mercurius zijn de laatste banden met dit pand verbroken. Door handhaving van de gave hoofdvorm, door herstel van de gevelindeling, met name door het vrijkomen van de rechter zijgevel, waarbij materiaalgebruik en detailering gelijkwaardig aan het bestaande is toegepast, is de beeldbepalende situering van Koningsbergen langs de Zaan, uiteraard in samenhang met andere monumentale fabrieksgebouwen, pakhuisen en silo’s versterkt. Hiermede is de waarde van de sociaal-historische betekenis van het gebouw als element uit de geschiedenis van de handel en industrie in de Zaanstreek verhoogd.

Bouwtekening van pakhuis Koningsbergen uit 1897 met de voorgevel en een doorsnede. Het gebouw heeft enkele kleine wijzigingen aan het uiterlijk gekregen. De sierlijke bekroningen van de tweede, vijfde en achtste travee zijn in de loop der jaren vervangen door rechte borstweringen. Tekening: Gemeente Archief Zaanstad

De begane grond en de eerste verdieping van pakhuis Koningsbergen. De draagconstructie in Koningsbergen bestaat uit ijzeren kolommen en onderslagers. De houten vloeren hebben tegenwoordig een nieuwe, brandwerende toplaag. Het gehele pakhuis maakt een verlaten indruk. De grondstof rijst wordt opgeslagen in de grote betonnen silo achter het complex en de eindprodukten van de rijstfabriek worden onmiddellijk afgevoerd naar het distributie centrum in Zeeuwolde. Er is dus geen behoefte meer aan de opslagruimte in de vroegere pakhuizen.19

19 Orginal text from zaans-industrieel-erfgoed.nl (Document: Restauratie Lassie-monumenten aan de Veerdijk Met Stoom Nr. 31 - September 1998)
Image | Photo of the warehouses along the Zaan

Image | Photo of warehouse Donau
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.2.2 Warehouse Donau

Donau, pakhuis gebouwd in 1895. Het pakhuis op de rechthoekige plattegrond is drie bouwlagen hoog, onder een zadeldak bedekt met rode pannen. De nokrichting is dwars op de Zaan georiënteerd. Het pand is gebouwd rond een skelet van Amerikaans grenenhout. De muren zijn opgetrokken uit rode baksteen in kruisverband en verlevendigd op het niveau van de strekken, met rollagen van grauwwitte siersteen, één van de eerste producties van kalkzandsteen. Kenmerkend is de afschuining van de voorgevel. De schuine gevel vormde toenmaals de begrenzing van het terrein, alhoewel velen beweren dat dit te maken had met de windkracht van de molen die op het naburige perceel stond.

De voorgevel van Donau heeft lange tijd ter discussie gestaan om geheel te slopen en weer op te bouwen of dusdanig te versterken dat tijdens gedeeltelijke sloop de gevel alsnog niet zou instorten. De stalen balken achter de voorgevel, ter opvanging van de verdiepingsvloeren, hadden door roestvorming veel schade aangericht. Tenslotte werd besloten tot versterking van de gevel door middel van een drietal stalen jukken en deze vormvast te verbinden aan de hoofdconstructie. De voorzijde is in traveeën breed, een indeling door vensters, hersteld. De eerste en tweede bouwlagen hebben beide dubbele deuren met licht getoogde strek weer terug, evenals acht-ruit-vensters. De noodzakelijk te handhaven losinstallatie is hier zorgvuldig ingepast. De overige zijgevels zijn grotendeels ingebouwd in het hele complex van fabrieken en pakhuizen. Ook voor Donau geldt dat door restauratie de architectuurhistorische betekenis is toegenomen, uiteraard in samenhang met de andere monumentale gebouwen.

Via deze installatie aan de voorgevel van pakhuis Donau wordt een bijprodukt van Lassie, de rijstmeel, in vrachtwagens gestort. Op de zolder van het pakhuis is de metalen koker met transportschroef weer terug te vinden waardoor deze rijstmeel wordt aangevoerd.

De constructie met houten standvinken en korbelen op de begane grond van pakhuis Donau (foto links) komt nauwkeurig overeen met de constructie van pakhuis Wormerveer (foto rechts). Beide gebouwen zijn gebouwd door de Gebr. Gorter uit Wormerveer. In pakhuis Donau zijn ijzeren dwarsliggers toegepast.20

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20 Orginal text from zaans-industrieel-erfgoed.nl (Document: Restauratie Lassie-monumenten aan de Veerdijk Met Stoom Nr. 31 - September 1998)
Image | Photo of the warehouses along the Zaan

Image | Photo of warehouse Donau
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.2.3 Warehouse Silo 1

Silo, pakhuis, gebouwd in 1907. Het pakhuis, gebouwd op rechthoekige plattegrond met uitbouw (oude lostoren) aan de westzijde, telt vijf bouwlagen onder een plat dak. Het geheel kent een geraamte van zware pijlers in Amerikaans grenen voor de bovenste drie bouwlagen; de onderste twee bouwlagen zijn van beton. De wanden zijn opgetrokken uit donkerrode baksteen in kruisverband, verlevendigd met doorlopende banden van gele siersteen in de voor- en achtergevel, en onderbroken banden in de zijgevels. De drie hoofdtraveeën bevatten één doorlopend spaarveld met één vensterbalk, op de bovenste drie bouwlagen bestaand uit gekoppelde vensteropeningen. Evenals Koningsbergen bevatten de eerste twee bouwlagen deuren met getoogde strek. Hierboven twee lagen met smalle gekoppelde rondboogvensteropeningen, die bekroond worden door een kroonboog in steen. De vijfde bouwlaag toont twee gekoppelde vensteropeningen met rechte strek en in de centrale travee het naambord SILO. De drie traveeën worden afgesloten door een sierlijst in baksteen-geel en rood-, in blokvormige decoraties, waarbij de centrale travee onderste vensterindeling van glas vanwege de achtergelegen slijperij. De overige traveeën bevatten op de eerste bouwlaag rondboogvensters met afzaal; op de tweede bouwlaag rechthoekige negen-ruit-vensters; de overige drie bouwlagen hebben vierkante vensteropeningen met rechte strek, voorbeeld geblindeerd, na restauratie voorzien van afzet van glas (oost) en de bovenste drie bouwlagen zijn van beton (oost) en debovenste drie bovenste drie bouwlagen zijn van beton. Het voegenwerk daarvan is nog oorspronkelijk gelaten. De achterzijde van de uitbouw heeft eenzelfde vensterindeling als de voor- en achterzijde, alleen in het midden nog zes deuren achter een ijzeren balustrade. De rechter zijgevel (noord) is slechts zichtbaar vanaf de tweede bouwlaag en bevat vier blinde spaarvelden, gescheiden door lisenen. De laatste travee was nog geheel gaaf, zonder gebreken. Het voegwerk daarvan is nog oorspronkelijk gelaten. De achterzijde (voor) kent grotendeels dezelfde vensterindeling als de voorgaande; deze is hersteld met nieuwe vensters. Ook voor SILO geldt dat door grondige restauratie de architectuurhistorische betekenis is toegenomen, eveneens in samenhang met andere monumentale gebouwen.


Het interne transport van de rijst van de silo’s naar de diverse bewerkingstations geschiedt via een stelsel metalen buizen en, in metalen kokers aangebrachte, transportbanden. Alle kleppen en motoren worden op afstand, vanaf een controle paneel, bediend. De kleppen worden via een pneumatisch systeem geopend en gesloten.21

21 Orginal text from zaans-industrieel-erfgoed.nl (Document: Restauratie Lassie-monumenten aan de Veerdijk Met Stoom Nr. 31 - September 1998)
Photo of warehouse Silo

Photo of the warehouses along the Zaan
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.2.4 Silo Lassie


Oorspronkelijk hebben zich op de zolderverdieping naast elkaar alternerend één en twee vensters bevonden, maar deze zijn dichtgezet en aan de buitenzijde aangegeven met grijze verf. Vensters hebben zich ook nog aan de westzijde bij het liftschachttcompartiment bevonden, over de gehele hoogte trapsgewijs oplopend, maar ook deze zijn dichtgezet en nu grijis.

Op zichzelf is de Lassie-silo van algemeen architectonisch belang, omdat het één van de oudste betonnen silo’s in Nederland is en als zeldzaam voorbeeld van een betonnen silo uit het tweede decennium van de 20e eeuw geldt. Bovendien wordt in samenhang met andere monumentale gebouwen de beeldbepalende situering langs de Zaan versterkt. Het gebouw is van sociaal-historisch belang als een, mede door de ruimtelijk historisch samenhangende context ervan, zeldzaam geworden element uit de geschiedenis van de handel en industrie, in casu de graanverwerking in de Zaanstreek.22

22 Original text from zaans-industrieel-erfgoed.nl (Document: Restauratie Lassie-monumenten aan de Veerdijk Met Stoom Nr. 31 - September 1998)
Image | Photo of the factory complex

Image | Photo of the factory Mercurius
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.2.5 Factory buildings Mercurius

De pellerij, opgericht door de gebroeders Laan, bestaat uit vijf gekoppelde onderdelen: de stoomgotspellerij uit 1893, de gerspellerij uit 1900, het gebouw voor gerstreiniging uit 1906, de gerstsilo uit 1908 en de havermoutfabriek uit 1910. Alle bouwlichamen van het ensemble zijn gepleisterd en hebben een uniforme gevelgeleding over vijf verdiepingen. De constructie bestaat ijzeren kolommen, met aangegoten consoles, waarover houten balken en vloerhout.\textsuperscript{23}

Vanuit de nok van pakhuis Koningsbergen werd een doorsteek gemaakt naar de bovenste verdieping van de stoomrijspellerij Mercurius. Zeer opvallend in deze fabriek zijn de bijzonder lange gietijzeren kolommen die het dak ondersteunen. Zeer bijzonder is combinatie van moderne produktie machines in de, zeer vakkundig gerestaureerde, authentieke fabrieksomgeving uit het begin van de vorige eeuw.\textsuperscript{24}

\textsuperscript{23} Original text from zaans-industrieel-erfgoed.nl (Document: Restauratie Lassie-monumenten aan de Veerdijk Met Stoom Nr. 31 - September 1998)

\textsuperscript{24} Ibid.
Image | Map the date of the built masses

Image | Historical photo around 1905 (source Beeldbank municipality of Zaanstad)

Image | Historical photo around 1910 (source Beeldbank municipality of Zaanstad)

Image | Historical photo around 1912 (source Beeldbank municipality of Zaanstad)

Image | Historical photo around 1915 (source Beeldbank municipality of Zaanstad)

Image | Historical photo around 1920 (source Beeldbank municipality of Zaanstad)
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.3 Historical growth

The Lassie factory is composed out of several simple volumes. They gradually grew by adding new volumes to the existing factory what results in the big sculptural composition.
Drawing of the current situation

Drawing of the floor plan (existing)
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.4 Documentation of the current state

The following documentation of the existing drawings of the current situation are reconstructed by historical drawings from the archives of the municipality, except the floor plans 1 until 5, these are received from the Lassie factory. By drawing the existing state of the buildings, a good understanding of how the buildings are composed is derived. What is immediately visible is the interconnected relation between the building masses and the relatively big open space on the terrain. Also the octagonal form of the big white silo is clearly visible on the floor plans of the factory. Each building is unique in its own kind and will be further analyses with the analysis to architectural quality.
Drawings of the current sections (existing)
ANALYSIS AND ARGUMENTATION

Image | Impressions of the existing state
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.5 Methodical research to architectural quality

The former government architect Tjeerd Dijkstra wrote a book called Architectonische kwaliteit; een notitie over architectuurbeleid and can be considered as an attempt to define architectural quality. He selected five criteria to determine architectural quality. The criteria he writes about are form, function and construction, object and context, clarity and complexity, associative meaning and architectural devices. I used the theory of this book to turn into a method for the determination of the architectural quality of the existing buildings. Quality in terms of, compositional, visual, spatial, organisational, functional and physical qualities. The method is used to set up some secondary research questions around the criteria. It eventually results in an analysis of the existing buildings. Essential to mention is that the final result is an interpretation of the theory and not an application of the theory. For the analysis of the criteria the techniques of Roger H. Clark and Michael Pause in their book Precedents in architecture, analytical diagrams formative ideas and partis and Francis D.K. Ching in the book Architecture, form, space and order are carefully studied and in some cases applied. What will be illustrated in the following analysis is only a concised version. The conclusion of each drawing will not be discussed to deeply. It will be more about the intentions of the consistent approach to discover the true architectural quality of the object.
THE VOLUMES HAVE THEIR OWN ARCHITECTURAL EXPRESSION WITH UNIQUE CHARACTERISTICS, RESULTING IN DISTINCTIVE OBJECTS?

valuable additions?

01 = Load supply  
02 = Ablution of the rice  
03 = Technical quality control of the rice  
04 = Rice goes in the storage silo's  
05 = Polishing the rice  
06 = Steaming-drying-abluting-colorchecking the rice  
07 = Packing the rice  
08 = Distribute the rice
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.5.1 Form, function and construction

This section is about the analysis of the relation between form, function and construction. Many drawings are about the composition of the object, the elements that make composition of the object. Also the function will be explored, how is the process of the factory actually working and can this be experienced in the internal logic of the floor plans? Does the architectural expression of the object reveal the function that is in it?
THE ARCHITECTURE OF THE FACADES ON ALL SIDES, DETERMINE IT AS AN OBJECT WHERE IS NO FRONT- OR BACKSIDE

THE WATERSTRUCTURE IN THE PLOT PROVIDE SIGHTLINES TOWARDS THE OBJECT.

THE PLOT ITSELF IS QUITE INTROVERT AND ISOLATED FROM ITS CONTEXT.

THE LASSIE BUILDING AS A LANDMARK

RELATION BETWEEN BUILT AND UNBUILT

ISOLATED PLOT

CONTINUATION OF QUALITATIVE FACADE

SIGHT LINES TO THE OBJECT BY WATER STRUCTURE

THE UNIQUE UNESS OF EACH OBJECT IS EXPLICITLY EMphasIZED BY GIVING NAMES TO IT. THE OBJECTS ARE ESPECIALLY ORIENTATED TOWARDS THE RIVER WHERE THEY ARE BEST PERCEIVEABLE.
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.5.2 Object and context

This section will stress the relation between architectural object and the context. The context can be understood as a term that works on several scales. What is the position of the architectural object in the context of the region, the context of the neighbourhood. This can even go to the scale of a chair that has the enclosed space as context. I concentrated more on the relation between object and the context as the physical surroundings.
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.5.3 Clarity and complexity

This section is about the perception of the object. Is the object easy to recognize and to remember by seeing it? Themes like, rhythm, silhouette, proportions, planes, symmetry, colour, tactility and tectonics will be analysed. This is why the analysis is concentrated on the facade of the object. The clarity and complexity should be illuminated by pull out apart the architectural themes that can be distinguished in the facade.

It can be stated that the architectural themes in the facade are in itself quite clear, though when the architectural themes appears in one facade, complexity appears. The architect can play with these theme and decide what should have the upper hand.

CLARITY IN SILHOUETTE, EASY TO RECOGNIZE AND REMEMBER
CHARACTERISTICS OF THE WAREHOUSE TYPOLOGY:
- Doors and steel beam
- Grid of columns and flexible floor plans
- Limited natural daylight
- Limited story heights
- Brick solid objects
- Dutch neo-renaissance characteristics

DIFFERENCES OF THE FACTORY TYPOLOGY:
- White plastered objects
- Relatively many and large windows
- Visually more a unity
- Modernistic style characteristics
- Neo classicistic characteristics
4.5 Site specific analysis of Lassie terrain in Wormer

4.5.5.4 Associative meaning

The criteria associative meaning is about the association of the object when the object is perceived. Does it refer to something, does it raise memories? This section has a lot to do with typology, how recognizable is the typology of the object and what are the elements that make this recognizable?
Floor plan of warehouse type 01

Section of warehouse type 01
4.6 Building specific analysis of Lassie terrain in Wormer

4.6.1 Ceiling heights type 01

The following images show that the warehouse type 01 exist of three building masses that have more or less the same building principle. According to the requirements the minimal ceiling height should be at least 2.100 mm high. The lowest ceiling height of this type is 2.425 mm and thus every space is suitable to house a program.
Image | South elevation of warehouse type 01 with glass areas

Image | West elevation of warehouse type 01 with glass areas
4.6 Building specific analysis of Lassie terrain in Wormer

4.6.1.1 Daylight calculations type 01

Following calculations are basic daylight calculations to see if and what function can be housed in the existing spaces without any intervention.

Daglichtberekening voor pakhuis type 01, begane grond.
\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = 10,8 \times (1,35 \times 8) \times 0,86 \times 1 \] (geen belemmering)
\[ Ae = 9,3 \text{ m}^2 \]

Percentage daglichtoppervlakte
\[ 9,3/520 \times 100 = 1,8 \% = < 2,5 \% \text{ (voldoet niet)} \]

Daglichtberekening voor pakhuis type 01, elevatortoren
\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = 7,4 \times (1,85 \times 4) \times 0,86 \times 1 \] (geen belemmering)
\[ Ae = 6,3 \text{ m}^2 \]

Percentage daglichtoppervlakte
\[ 6,3/40 \times 100 = 15,7 \% = > 10\% \text{ (alles voldoet)} \]

Daglichtberekening voor pakhuis type 01, 3e verdieping.
\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = 14,4 \times (0,9 \times 8 + 1,2 \times 6) \times 0,86 \times 1 \] (geen belemmering)
\[ Ae = 12,4 \text{ m}^2 \]

Percentage daglichtoppervlakte
\[ 12,4/520 \times 100 = 2,4 \% = < 2,5 \% \text{ (voldoet niet)} \]

Daglichtberekening voor pakhuis type 01, 3e verd. + elevator.
\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = 24 \times (0,9 \times 8 + 1,2 \times 6 + 1,6 \times 6) \times 0,86 \times 1 \] (geen belemmering)
\[ Ae = 20,6 \text{ m}^2 \]

Percentage daglichtoppervlakte
\[ 20,6/560 \times 100 = 3,7 \% = > 3\% \text{ (voldoet voor kantoor- en celfunctie)} \]

De formule voor het berekenen van de equivalente daglichtoppervlakte:
\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = \text{ equivalente daglichtoppervlakte} \]
\[ Ad = \text{ de oppervlakte van de doorlaat van de daglichtopening} \]
\[ Cb = \text{ de belemmeringsfactor (die aan de hand van tabellen in NEN 2057 kan worden afgelezen), en} \]
\[ Cu = \text{ de uitwendige reductiefactor (die alleen van belang is bij een daglichtopening in een inwendige scheidingsconstructie).} \]
4.6 Building specific analysis of Lassie terrain in Wormer

4.6.1.2 Daylight calculations type 01
Following calculations are calculations to see how much floor area can be used in case of the existing amount of daylight. These calculations are being done for a dwelling function as well for education. These functions require a lot of daylight.

Daglichtberekening voor pakhuis type 01, begane grond.

\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = 10,8 \times (1,35\times8) \times 0,86 \times (\text{standaard getal}) \times 1 \]
\[ Ae = 9,3 \text{ m}^2 \]

Percentage van 10% (woonfunctie) daglichtoppervlakte

\[ \frac{9,3}{10} \times 100 = 93 \text{ m}^2 \]
\[ \frac{93}{36,5} = 2.55 \text{ m}^1 \]

Percentage van 5% (onderwijsfunctie/bijeenkomst) daglichtoppervlakte

\[ \frac{9,3}{5} \times 100 = 186 \text{ m}^2 \]
\[ \frac{186}{36,5} = 5.10 \text{ m}^1 \]

Aantal m² gebruiksoppervlakte voor 1 raam

\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = 1,35 \times 0,86 \times (\text{standaard getal}) \times 1 \]
\[ Ae = 1,16 \text{ m}^2 \]

10 % (woningfunctie) = 11,6 m² per raam
5 % (onderwijs- bijeenkomstfunctie) 23,2 m² per raam

Image | Zones for minimal amount floor area that can be used with existing window openings.
Solution 1

Oppervlakte van glas = 3,5 m²
Aantal interventies = 3x3,5 = 10,5 m²
Resterend glasoppervlakte = 49,7-10,5 = 39,2 m²

Solution 2

Oppervlakte van glas = 7,2 m²
Aantal interventies = 3x7,2 = 21,6 m²
Resterend glasoppervlakte = 49,7-21,6 = 28,1 m²

Solution 3

Oppervlakte van glas = (10,8) + 8x1,4= 11,2 m²
Resterend glasoppervlakte = 49,7-11,2 = 38,6 m²
4.6 Building specific analysis of Lassie terrain in Wormer

4.6.1.3 Daylight calculations with new interventions

Berekening vereiste oppervlakte inkomend daglicht in geval van een percentage van 10%

\[ Ae = Ad \times Cb \times Cu \]
\[ Ae = 10 \% \text{ van } 520 = 52 \text{ m}^2 \]

\[ 52 = Ad \times 0,86 \text{ (standaard getal)} \times 1 \text{ (geen belemmering)} \]

\[ Ad = 52 : 0,86 = 60,5 \]

\[ 60,5 - 10,8 \text{ (aanwezige kozijnen)} = 49,7 \text{ m}^2 \]
\[ (49,7 \text{ m}^2 = \text{oppervlakte van nieuwe raamopeningen}) \]

Solution 4

Oppervlakte van glas = 17,6 m²
Aantal interventies = 3x17,6 = 52,8 m²
Resterend glasoppervlakte = 52,8 > 49,7

Solution 5

Oppervlakte van glas = 12,3 m²
Aantal interventies = 3x36,9 = 36,9 m²
Resterend glasoppervlakte = 49,7 - 36,9 = 12,8 m²
Image | Floor plan of factory type 02

Image | Section of factory type 02
4.6 Building specific analysis of Lassie terrain in Wormer

4.6.2 Ceiling heights type 02

The following images show that the factory type 02 exist of four building masses that has more or less the same building principle. According to the requirements the minimal ceiling height should be at least 2.100 mm height. The lowest ceiling height of this type is 2.728mm and thus every space is suitable to house a program.
4.6 Building specific analysis of Lassie terrain in Wormer

4.6.2.1 Daylight calculations type 02

Following calculations are basic daylight calculations to see if and what function can be housed in the existing spaces without any intervention.

Daglichtberekening voor pakhuis type 02, hoek pakhuis begane grond.

\[ Ae = Ad \times Cb \times Cu \]

\[ Ae = 24,5 (2,3^9 + 1,9^2) \times 0,86 \text{ (standaard getal)} \times 1 \text{ (geen belemmering)} \]

\[ Ae = 21,1 \text{ m}^2 \]

Percentage daglichtoppervlakte

\[ \frac{21,1}{175} \times 100 = 12 \% = > 10 \% \text{ (alles voldoet)} \]

Daglichtberekening voor pakhuis type 02, pakhuis ingesloten

\[ Ae = Ad \times Cb \times Cu \]

\[ Ae = 11,5 (2,3^5) \times 0,86 \text{ (standaard getal)} \times 1 \text{ (geen belemmering)} \]

\[ Ae = 10 \text{ m}^2 \]

Percentage daglichtoppervlakte

\[ \frac{10}{178} \times 100 = 5,6 \% = > 5\% \text{ (voldoet voor bijeenkomst, cel, gezondheidszorg, kantooren onderwijsfunctie)} \]

---

De formule voor het berekenen van de equivalente daglichtoppervlakte:

\[ Ae = Ad \times Cb \times Cu \]

\[ Ad = \text{ de oppervlakte van de doorlaat van de daglichtopening} \]

\[ Cb = \text{ de belemmeringsfactor (die aan de hand van tabellen in NEN 2057 kan worden afgelezen), en} \]

\[ Cu = \text{ de uitwendige reductiefactor (die alleen van belang is bij een daglichtopening in een inwendige scheidingsconstructie).} \]
4.6 Building specific analysis of Lassie terrain in Wormer

4.6.3 Previous approaches

Search for the most compatible combination between the requirements of the new program and the existing physical conditions. Daylight is thereby the most dominant criterion that determines the compatibility.

Approach towards the silo’s

Not daylight but the characterful silo structure determines the most suitable program for the silo’s.
4.6 Building specific analysis of Lassie terrain in Wormer

4.7.1 Typological analysis on silo buildings

<table>
<thead>
<tr>
<th>Project</th>
<th>Korthals Altes</th>
</tr>
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<tr>
<td>Location</td>
<td>Amsterdam</td>
</tr>
<tr>
<td>Year of construction</td>
<td>1897 and 1950</td>
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<tr>
<td>Year of renovation</td>
<td>2000</td>
</tr>
<tr>
<td>Renovation Architect</td>
<td>Andre van Stigt</td>
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<tr>
<td>New Program</td>
<td>Housing, offices and recreation</td>
</tr>
<tr>
<td>Strategy towards existing</td>
<td>Cut into existing structure with respect of the structural logic.</td>
</tr>
</tbody>
</table>

strategy with the silo's, remove parts of the silo to connect them

Photographs of before and after intervention

Schematic sections of existing and new situation
Image | Artist impressions of new situation

Image | Floor plan of existing and new situation + example of dwelling type
4.6 Building specific analysis of Lassie terrain in Wormer

4.7.1 Typological analysis on silo buildings

<table>
<thead>
<tr>
<th>Project</th>
<th>De Meelfabriek</th>
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<td>Location</td>
<td>Leiden</td>
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<tr>
<td>Year of construction</td>
<td>1896/1904</td>
</tr>
<tr>
<td>Year of renovation</td>
<td>2012</td>
</tr>
<tr>
<td>Renovation Architect</td>
<td>Peter Zumthor</td>
</tr>
<tr>
<td>New Program</td>
<td>Housing, exhibition, wellnesscentre, offices, horeca and hotel</td>
</tr>
<tr>
<td>Strategy towards existing</td>
<td>Peal of the existing facade where the structure will be remained.</td>
</tr>
</tbody>
</table>

strategy with the silo’s, remove outer shell and make a new facade
new situation of the Meelfabriek in Leiden

Image | Photographs of before and after intervention
Image | Fragment of old and new facade
Image | Fragment of old and new facade
Image | Schematic sections of existing and new situation
### 4.6 Building specific analysis of Lassie terrain in Wormer

#### 4.7.1 Typological analysis on silo buildings

<table>
<thead>
<tr>
<th>Project</th>
<th>Graansilo Maashaven</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Rotterdam</td>
</tr>
<tr>
<td>Year of construction</td>
<td>1906, 1919, 1929 and 1951</td>
</tr>
<tr>
<td>Year of renovation</td>
<td>2012</td>
</tr>
<tr>
<td>Renovation Architect</td>
<td>Several</td>
</tr>
<tr>
<td>New Program</td>
<td>Creative industry, cultural program, events, extreme sports, restaurant and horeca</td>
</tr>
</tbody>
</table>

Strategy towards existing

Removing some silo’s to stress the potentials of the building.

1) transform cells into columns

2) make big open space by removing cells

Image | Photographs of before and after intervention

Image | Schematic sections of existing and new situation
4.6 Building specific analysis of Lassie terrain in Wormer

4.7.1 Typological analysis on silo buildings

<table>
<thead>
<tr>
<th>Project</th>
<th>Kanaal Vervoortd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Wijnegem (Belgium)</td>
</tr>
<tr>
<td>Year of construction</td>
<td>Unknown</td>
</tr>
<tr>
<td>Year of renovation</td>
<td>2012</td>
</tr>
<tr>
<td>Renovation Architect</td>
<td>Stephane Beel</td>
</tr>
<tr>
<td>New Program</td>
<td>Dwellings, offices, cultural</td>
</tr>
<tr>
<td></td>
<td>program, healthcare</td>
</tr>
<tr>
<td>Strategy towards existing</td>
<td>Removing some silo’s to</td>
</tr>
<tr>
<td></td>
<td>add new volumes to the existing</td>
</tr>
<tr>
<td></td>
<td>building.</td>
</tr>
</tbody>
</table>

strategy with the silo’s, replace parts of silo for transparent ones

![Photographs of before and after intervention](image)

![Fragment of old and new facade](image)

![Schematic sections of existing and new situation](image)

![Fragment of old and new facade](image)

![Image](image)
Image | Schematic drawing of old and new facade

Image | Floor plan of existing and new situation
### 4.6 Building specific analysis of Lassie terrain in Wormer

#### 4.7.1 Typological analysis on silo buildings

<table>
<thead>
<tr>
<th>Project</th>
<th>Silo Weijers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Deventer</td>
</tr>
<tr>
<td>Year of construction</td>
<td>1899</td>
</tr>
<tr>
<td>Year of renovation</td>
<td>2005</td>
</tr>
<tr>
<td>Renovation Architect</td>
<td>Lafour en Wijk Architecten</td>
</tr>
<tr>
<td>New Program</td>
<td>Storage for archaeological finds, offices</td>
</tr>
</tbody>
</table>

**Strategy towards existing**

Keep the former introvert character of the building and find a suitable program that fits best.

---

![Image 1](image1.png)

strategy with the silo’s, keep the silo’s as they are

![Image 2](image2.png)

Photographs of before and after intervention

![Image 3](image3.png)

Schematic sections of existing and new situation
Image | Schematic drawing of old and new section

Image | Floor plan of existing and new situation
4.6 Building specific analysis of Lassie terrain in Wormer

4.7.1 Typological analysis on silo buildings

<table>
<thead>
<tr>
<th></th>
<th>Havenkwartier Deventer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Deventer</td>
</tr>
<tr>
<td>Location</td>
<td>Deventer</td>
</tr>
<tr>
<td>Year of construction</td>
<td>1899 and 1961</td>
</tr>
<tr>
<td>Year of renovation</td>
<td>Competition (Europan 2011)</td>
</tr>
<tr>
<td>Architect of proposal</td>
<td>Ferrarifrongia</td>
</tr>
<tr>
<td>New Program</td>
<td>Differ</td>
</tr>
</tbody>
</table>

Strategy towards existing: Each floor plan has other left over walls of the existing silos.

strategy with the silo’s, keep some silowalls for new floor plan

Photographs of before and after intervention
Schematic drawing of old and new section

Floor plan of existing and new situation
4.6 Building specific analysis of Lassie terrain in Wormer

4.7.1 Typological analysis on silo buildings

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<thead>
<tr>
<th>Project</th>
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<td>1899 and 1961</td>
</tr>
<tr>
<td>Year of renovation</td>
<td>Competition (Europan 2011)</td>
</tr>
<tr>
<td>Architect of proposal</td>
<td>Jarrik Ouburg</td>
</tr>
<tr>
<td>New Program</td>
<td>Differ</td>
</tr>
<tr>
<td>Strategy towards existing</td>
<td>Keep randomly some silo walls to create a new spatial experience</td>
</tr>
</tbody>
</table>

strategy with the silo’s, keep some silowalls for new floor plan.
### 4.6 Building specific analysis of Lassie terrain in Wormer

#### 4.7.1 Typological analysis on silo buildings

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<tr>
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<tr>
<td>Year of construction</td>
<td>1899 and 1961</td>
</tr>
<tr>
<td>Year of renovation</td>
<td>Competition (Europan 2011)</td>
</tr>
<tr>
<td>Renovation Architect</td>
<td>Erwin Schot, Eloi Koster, Bas Meijerman and Elmar Hammers</td>
</tr>
<tr>
<td>New Program</td>
<td>Differ</td>
</tr>
</tbody>
</table>

strategy with the silo’s, make connections through silo’s
4.6  Building specific analysis of Lassie terrain in Wormer

4.7.1  Typological analysis on silo buildings

- Project: Imagine the Missisipi
- Location: Mississippi
- Year of construction: -
- Year of renovation: Study by University of Minnesota Students
- Renovation Architect: -
- New Program: -
- Strategy towards existing: -

strategy with the silo’s, introduce new volume trough silo’s

Image | Sections of old and new situation
A clear distinction can be made between the existing windows and the new additions in the facade.

New glass facade follows the existing form of the building.
4.6 Building specific analysis of Lassie terrain in Wormer

4.8 Case studies towards positions of relation between old and new

The following case studies are a selection of examples how other architects approached their projects in case of coping with the relation between old and new. The aim of this side analysis is to see whether or not similarities of approach can be discovered to eventually distillate clear positions within the profession. The examples that are selected are selected on the scale of interventions in existing buildings.

Image | Water tower where a big cut is made to emphasize the entrance.

Image | The existing windows become important elements within the new interior concept.
Existing building is cut in half whereby a new facade covers the cut and a new plinth is added.

New patio is made by cut the floors out, new glass facade covers the gap. A new layer of plaster and new types of windows are added to the existing brick facade.
4.6 Building specific analysis of Lassie terrain in Wormer

Image | Existing stone surface is replaced by glass panels.

Image | New vertical cuts are made in the concrete silo to put new windows in. In the other silo, brick planes are replaced by new windows.
Existing beam and columns already indicate a sort of entrance, together with new the new glass addition this is even more emphasized.

New routing trough the building is emphasized by painting it yellow, whether it is existing or new, everything that is positioned within this routing has the colour yellow. This is in contrast with the existing brick walls.
4.6 Building specific analysis of Lassie terrain in Wormer

Image | New glass addition is put for the existing facade. Some doors/windows are removed, others are added. New and old are truly in a dialogue with each other.

Image | New glass elements are put for the existing volumes as a new layer.
1) existing situation, assemblage of volumes

2) characteristic for the complex are the internal corridors

3) break open the existing corridors over the entire height

4) enlarge the corridors into passages (integrate existing walls)

5) emphasize the buildings as individual masses

6) set new visual relations between the volumes
4.6 Building specific analysis of Lassie terrain in Wormer

4.9 Spatial strategy to improve internal spatial quality

The internal experience of the existing building complex doesn’t have as much quality as the external experience. Low ceilings, dark spaces, limited length of sight lines and confusion due to the organization of the spaces forms together the main problematics for the internal experience of the building complex. A clear spatial strategy should tackle the spatial weaknesses and improve the internal experience of the buildings, which turn the complex into a pleasant and comfortable complex. The physical achievements for improving these spatial weaknesses are:

1) increase the experience of height
2) bring in natural daylight
3) set new visual relations between the buildings
4) improve the organisational scheme
4.6 Building specific analysis of Lassie terrain in Wormer

4.9 Spatial strategy to improve internal spatial quality

The schemes and diagrams give an overview of the spatial strategy that is utilised to improve the spatial weaknesses of the existing building complex.
The same colours have the same floor heights

Passage in between existing measurement systems, experienced as one element
4.6 Building specific analysis of Lassie terrain in Wormer

4.10 Measurement systems

The previous section shows that there are two passages introduced as a spatial strategy to improve the spatial weaknesses of the building complex. This section will go more deeply into how the passage is constructed and how it fit in between the existing buildings and measurement systems.

Image | Along the volumes, the passage has an entire new glass facade. Around the silo, the passage has partly a new glass facade that is positioned between the octagonal silo structure.

Image | Each colour represents a grid system.
To combine the horizontal divisions of height Y and Z, every building can be reached with one system.

The coloured planes can contain openings that correspond with floor heights Z.

The coloured planes can contain openings that correspond with floor heights Y.
4.6 Building specific analysis of Lassie terrain in Wormer

Image 1: Construction of passage follows the grid system of adjacent building.

Image 2: Vertical division of internal facade, follows adjacent construction.

Image 3: Horizontal division of internal facade determined by floor heights Z, can only reach coloured buildings on key map.

Image 4: Horizontal division of internal facade determined by floor heights Y, can only reach coloured buildings on key map.
Planes increase height to the middle to emphasize the shared public character of the building.

Principle of the juxtaposition of the passage and the silo structure.
4.6 Building specific analysis of Lassie terrain in Wormer

Image 8: Vertical division in big planes along the plinth to a smaller division for the stories above. Division of plinth merge with division above.

Image 9: Double high planes adjacent to floor height Z.

Image 10: Double high planes adjacent to floor height Y.
Fragment of the internal facade of the passage
Image | Fragment of the juxtaposition of the passage with the silo
5.0 CONCLUSION
5.0 Conclusion

5.1 ANALYSIS AND ARGUMENTATION

5.1.1 Urban analysis

5.1.1.1 Main structuring elements
The Zaan formed the very first backbone of the region and truly has some unique qualities. The river the Zaan is the true vein of the Zaanstreek. Due to the beginning of the steam era around the 19th century another expansion of the industry was started along the river. The yellow hatches on the map of the main structural show this very explicitly. Solid industrial complexes made out of brick rise directly along the water. Ever since, the relation with the water decreases because of these privatized big industries that stand along the water and claim the waterfront. The water landscape petrified, gradually the city turns her back towards the Zaan. Also the relation with its inhabitants is ever since lost and has to do with the occupation of land and privatization of the industry, the industrial areas aren’t accessible anymore. Most of the time the industry are privatized areas with a big fence around it and thus result in a physical barrier with the environment. The consequence of these two separate entities result in the detachment of the environment with her inhabitants. Because of the detachment between inhabitants and the environment you might say that the inhabitants are also partly detached from their very own identity, they don’t have access to it anymore and aren’t being a part of it anymore. Though the industrial monuments determine the image of the riverbanks and are quite unique and worthwhile to keep and protect. This is why special attention is paid to the significance of the existing cultural heritage that is present. Those can be points of departure for further developments around the station areas. Especially the maintenance and reuse of industrial heritage is for the Zaanstreek of explicit interest. This is an important factor that truly determines the identity of the region. This graduation project attempt to heal the relation between the inhabitants and their environment and will have meaning on a local/regional scale.

As a contrast of the heavy industries, nature is very well represented in the region. Especially the big open landscape next to the station of Wormerveer is quite characteristic. Although it isn’t accessible for the public it does have some qualities. Because of the open character of the natural landscape, landmarks become very good visible and therefore function as orientation points to navigate on. These orientation points already embody a certain collective memory among the local inhabitants and can therefore establish a strong cultural meaning.

Instead of the river the Zaan that was the former backbone of the region, nowadays the current provincial road and the railway are the two infrastructural elements that determine the new backbone of the area. The three infrastructural elements - that runs parallel to each other - forms a barrier between east and west. The problem of the barrier started when the municipality decided during the seventies and eighties to build westwards of the train track. The abstract map of the built area shows explicitly that the rail track is most of the time enclosed with buildings. Despite the fact that the three infrastructural elements form a barrier nowadays, it also result that the region has a very good connection with Amsterdam. Next to the infrastructural roads that is well connected with Amsterdam, the train track is as important. The region can benefit from this unique opportunity. Commuters can live in the Zaanstreek and work in Amsterdam.

The riverbanks, the historical ribbons, the industrial monuments, the landmarks and the natural landscape forms together a morphological pattern that truly determine the character and identity of the whole region. The richness of the cultural historical landscape are embodied in these structural elements.

5.1.1.2 Functional character of the Zaan
For me the food industry in the Zaanstreek is an aspect that embodies the real identity of the region. This is what is so characteristic for the region and where the Zaanstreek is notorious from as can be seen in the showed maps. Most of the industries along the river the Zaan are operating in the food industry. My intention of this graduation project is to reuse such an industrial building and give it a new function with a new meaning but in a way still refer to the historical identity of the region. The industrial heritage already embodies a certain collective memory among the local inhabitants and can therefore establish a strong cultural meaning. This cultural meaning will be even strengthened.
Setting up a hybrid food programme

Setting up a hybrid food centre
5.0 Conclusion

when a meaningful program is offered to the public. The new program should reevaluate the past and gives a new meaning to the building. This eventually result in a design assignment where the industrial heritage is going to be reused and where the area become public again. As showed in the map where the publicness of the waterfronts were analysed, it become clear that public waterfronts are quite rare along the entire Zaan. The riverbanks of the Zaan as an additional qualitative public space will be stressed and improved. Essential by making the waterfront public is the program that is complementary to its function as a public waterfront. By making the area accessible for the public, attention is paid to the assembling of the program for reaching as many users as possible and to connect the site as good as possible with the existing urban fabric. Also the map of the network is showing some missing links. The network can be improved in same cases for a better connection. By improving the network, the accessibility of these industrial milestones will also be improved and become therefore even more significant. The industrial milestones become the centrepiece of several networks such as bicycle- ferry and sail networks. The general program for the reuse of the industrial heritage will be a hybrid one where food is central. To me this is what referring to the true historical identity of the region.

The essence of this vision is not to impose a new identity but rather improving the existing historical identity by connecting the past with the present and future. Explore the new potentials of it. The inhabitants will be reunited with the historical heritage that is already present but most of the time not fully appreciated yet. By setting up a hybrid program where food is central, a very diverse public will be reached where the relation with the environment will be restored. Companies, visitors, tourists, inhabitants and even students will be attracted to this place for working, learning or just recreating here. A big network between these parties is one of the main achievements. The project tends to be a project where many users will be brought closer together, a project where new relations will be set. Relations between, companies, inhabitants, visitors and students that can benefit from each others expertise and can even enforce this by working closer together. A very diverse program within the food sector will be come together on one site, you might call it a new food centre. A food centre that contains an abundance of program. The location has therefore many, purposes, values, activities, users and has therefore multiple meanings, such as local, regional, economical, political as well as social meanings. This project can be considered as an example of a project that is making use of the historical identity, and transforms this historical identity into something new, something that reevaluate the past. In a scientific sense, this project can be considered as an exploration towards the upgrading of an industrial area where the function of the industry lost its relevance and where a new hybrid program that fulfil the needs of modern society.

5.1.1.3 Environmental consequences of the industry

The historical identity of the Zaanstreek is close connected with the industrial developments of the region. The from origin positioned factories along the Zaan are still an important source of employment in the region but cause also a lot of friction with the surrounded living areas. The industrial heritage along the river has some quite unique and characterful buildings that are worthwhile for future development. Due to the strict environmental requirements and the need for densification around the station area, the assumption was that the industry should unavoidably move elsewhere. According the gathered data the conclusion is that the industry that are positioned in a circle of 800 meter around the station locations should unavoidably move elsewhere (the circle of 800 meter correspond with the diameter of densification and coincidingly with a seven minute walk). This provides some unique possibilities for the redevelopment of the industrial heritage and the additional waterfront.
5.0 Conclusion

5.1.2 Abstract typological study

The second assignment was a more abstract one. The main design questions that play a role in the assignment for densification of the station areas in the Zaanstreek will be studied in an abstract way. The main objective was to develop a ‘tool box’ for design interventions in the Zaanstreek. Different typological models will be compared, discussed and tested. Asked was to develop a series of building studies for a residential area with a density of 40 dwellings pro hectare connected with a railway station. The imaginary site plan exists of an area of 600 x 500 meter. This area is in the middle divided by a zone of 100 meter, reserved for rail track, train station and roadway. The total amount of dwellings to be realized on this imaginary site plan is 1000. The number of 40 dwellings pro hectare was the reference because it is counted to be the minimum density in the station areas to guarantee sufficient use of public transport.

The ‘kam’, ‘heart’ and ‘barrier’ scenarios were the basis of the plans. For the elaboration of the three scenarios we assembled a toolbox that we used to make decisions, order the design and be clear of what we were doing. The tools or urban elements to design the scenarios are: network, districts, islands, parcels and building typologies.

It was really searching in an abstract way to suitable typological models that fulfil the desired numbers. But it did something more than just that. The toolbox proved to be a very useful architectural instrument to design with. Together with two other students we assembled such a toolbox and designed with this instrument three diverge variants. The instruments we used were the same, though the outcome was very different. By making use of the phenomena of the scenario we could justify our main decisions in our design and at the same time we were able to make these diverge variants. This turned out to be another very fruitful device that can be further exploited in our own architectural project.

5.1.3 Collective masterplan

The outcomes of the abstract study were very fruitful for the following assignment of designing a masterplan for the densification of the Zaanlijn. The abstract thinking was really useful for making decisions on a big scale. This was necessary because in the phase of this design we didn’t know every specific place and therefore weren’t able to make a masterplan that was perfectly sensitive to the place. Although we discovered some shared values and characteristics that resulted into architectural guidelines. Again the scenario was a useful instrument that we also used for this assignment.

In some station locations the desired density is going beyond the 40 dwellings pro hectare. Others like Koog Bloemwijk are less than the desired density but isn’t possible to achieve.

Off course the studio assignment is to densify the station areas but to me something more is desired for the achievement of a vital city. Instead of only focusing on densifying and solve the problem in this way, this graduation project will concentrate more on the improvement of the local qualities that serve the inhabitants. . Next to densification I consider intensification as important. Intensification in terms of program and activities and therefore should mean something for the local qualities.
5.0 Conclusion

5.1.4 Urban analysis of station location Wormerveer

The material of the presented analysis are initially made by other group members and are a summary of the most important data. Due to the fact I am living myself in Wormerveer I already knew a lot about it but by analysing even further into the history I also discovered things that I didn’t know before. Wormerveer contain some unique characteristics that determine a strong identity in the region and is therefore distinguishable from other station location. Industrial milestones, the strong relation with the waterfronts and the natural landscape are the elements that make this place so special. Especially the industrial monuments are quite special and in good condition. These industrial milestones also attract many tourists to Wormerveer and is part of several touristic tours. Wormerveer and Wormer has historically a strong connection with each other and still react on each other. The relation of the water are on both sides of the water perfectly sensible and in combination with the cultural historical heritage, makes this place so unique.

5.1.5 Site specific analysis of Lassie terrain in Wormer

The site specific analysis delivered me a lot of information of the Lassie factory. The factory really has a strong internal relation due to the manufacturing process. During the years of automatization most of the warehouses are empty know what can be seen as a pity. The architectural quality is off course always discussable but at least it can be said that the condition of the buildings are very good and authentic. The factory can be seen as the physical remaining of a certain time. The cultural historical value is truly tangible in the near surrounding, even street names are dedicated to the names of the buildings what gives the factory a certain importance. During the visit of the Lassie I was really amazed of the spatial qualities of the different buildings. Though there will be some problems when the factory will be reprogrammed. Especially problems concerning daylight is what should further be researched. Nevertheless, by giving the factory a new program, the meaning of the factory will be revalued and the life span of the factory will be even extended. This is why one of the conclusions is that by reusing the existing factory, architectural concessions should be made to obey the functional requirements of the programme. The unique location of the factory can be further developed by making the waterfront public. Supportive public functions should complementate the publicness of the area. By making the waterfront public again a connection all the way to the Zaanse Schans can be established. In a way this heal the historical dike.

I consider the former factory as such an important building that has such an importance for the entire region that everything that will be added should be done in a respectful way. To be more concrete, the new is secondary to the existing. Though I think that a new program can regenerate this place and can have a great meaning for the environment where a new meeting point can be established. Especially with the come of 7000 new dwellings this place can mean something for the local qualities.
5.0 Conclusion

5.1.6 Building specific analysis of Lassie terrain in Wormer

5.1.6.1 How do the physical conditions of the existing buildings meet the requirements of the new program?

The configuration of the factory is basically assembled with volumes that are attached to each other. Though a distinction can be made in three types of buildings. 1) the warehouse type 2) the factory type and 3) the silo type. According to the requirements the ceiling heights of the warehouse- and factory type obey the minimal ceiling height of 2.100 mm and thus can house at least a program. Also the construction principals that consist in both types of a rigid beam and column structure are beneficial to the flexibility of future floor plans. Thanks to this flexibility it make it also possible to house diverge programs. Due to the former function of the factory and warehouse type, the construction of the buildings are quite solid and in many cases over dimensioned what is an advantage in case of increasing loads. What truly determines whether or not a program can be housed in the former building types is the amount of daylight coming in. By making some basic daylight calculations it becomes clear that for the most programs interventions should bring in more daylight. Complementary to this analysis, a side study is done to see the consequences of possible interventions in the façade and how this affects the numbers. Coinciding with the calculations, façade studies are done to see what are the most appropriate solutions without harming the architectural language of the existing façade and to see what suits the existing buildings best. The craftsmanship of the monuments is clearly tangible in the rich details that are embodied in the facades and so a position is taken to minimize the interventions in the façade. Most of the interventions that are done take place in the plinth. Already in the existing facades the plinth distinguish itself from the middle section by doors and therefore allows qualitative interventions that enrich the monument in positive sense. This is one approach, making interventions to obey the requirements of the new program. The other way around is also thinkable, search for a suitable program that obeys the already existing conditions. This approach is applied by organizing the offices. The offices are situated on the floor plans where the least daylight comes in but still comply the required amount of daylight. With such an approach interventions can me minimized. The very same approach is applied to find an appropriate program for the characteristic silo structure. Not the new program defines the interventions in the silo structure but the structure of the building itself defines what program suits best.

5.1.6.2 What are the technical consequences of intervening in an existing building and housing a new program?

Next to the requirements of a program in spatial terms, the program demands also requirements in terms of technical performances. Performances considering safety, health, usability and energy consumption need technical installations and solutions. Without doing so, the buildings will definitely be experienced as uncomfortable. Improvements like thermal insulation (façade, roof, floors and windows) sound insulation (walls, floors), fire protection (construction) ventilation, heating and cooling systems are necessary to make the building comfortable and safe. To reduce the energy loss the buildings should be insulated. Facades and roofs are therefore necessary to insulate. Two possibilities are thinkable, either insulation on the outside, or insulation on the inside of the construction is desirable. Since the position is taken to minimize the interventions in the façade to keep the façade as authentic as possible, the choice to insulate on the inside of the construction is well grounded. The windows have to be insulated as well. New windows are placed behind the existing windows will improve the performances dramatically. Basically an entire new thermal layer is placed behind the existing façade. However, the silo building will be insulated on the outside due to the concrete floors that otherwise transmitted the cold anyway. In that case insulation on the bottom and the top of the floor is necessary to keep the warmth inside but problems with moist occur. Therefore the choice is made to insulate the silo from outside to give the silo a nice warm jacket. In case of the silo building the authenticity of the façade will neither be harmed. Though insulation plates with a cover of plaster will be attached on the silo, this isn’t noticeable in terms of presence and experience. In order to minimize sound transmission between two programs the inner walls and separation floors have to be insulated as well. At the same time
5.0 Conclusion

This enhances the required fire protection between two programs. On the bottom of the separation floors, insulation will be placed, on the top a new cover floor will increase the mass of the floor what is beneficial for further sound reduction. This new cover floor embodies as well a floor heating system that can cool as well. Another important aspect of improving the performance of spaces is ventilation. The buildings will be mechanical ventilated with a balance system that brings in fresh air and transport it back again.

5.1.6.3 Which strategies/approaches towards silo buildings are already known?

First some short conclusions of the case studies will be discussed to distillate the strategies towards the silos, where after the conclusion of the own approach will be discussed.

**Conclusion silo Korthals Altes:**
Program; The new program for the silo’s are mainly dwellings with the exception of a few working ateliers. Many dwelling typologies are fitted in the silo’s like a game of tetris.

Vertical solution; Making new floors in the silo’s with standard dwelling heights. The typologies of the concrete silo’s has along the facade also voids.

Vertical transport; Cells reserved for vertical transport, two types per staircase. The dwellings in the concrete silo has a corridor with on both sides staircases.

Construction; Remove parts of the cells to create new spaces.

Facade/daylight; By vertical cuttings into the existing facade, a new transparent facade could be realized. Big glass facades provide the dwellings from daylight.

Perceivement silo’s: Except on the ground floor of the concrete silo the existing siloheads are perceivable, furthermore are the cells barely noticeable.

**Conclusion Meelfabriek Leiden:**
Program; Many public program to attract the public to this area, each building has its own theme, hotel-spa/wellness-offices-cultural.

Vertical solution; Introducing just new floors in between. In case of the air bridges the height of the silo’s are emphasized by voids from bottom to top of the silo.

Vertical transport; On two sides of the hotel building staircases and elevators are planned.

Construction; In any situation the construction is exposed and kept to emphasize the history and story of the buildings. Incidentally openings trough baring walls are established for the sake of the usefulness of the space.

Facade/daylight; The entire existing facade is pealed of, a new one is proposed. Most of the new facades are transparent.

Perceivement silo’s: The silo’s are perceivable by the exposement of the siloheads in the hotel lobby and the experience of height by walking on the air bridges.

**Conclusion silo Maashaven:**
Program; Variety of public program, program for the city

Vertical solution; introducing new floorslabs. The requirements of the new program is leading and truly determine the dimensions of the spaces instead of the existing silo’s that are leading.

Vertical transport; Spread throughout the building, staircases and elevators are located in between the existing construction system.

Construction; By cutting the former cell structure into rank columns, the construction is turned into a general beam and columns construction. In some spaces, entire cells are removed to obey the needs of the new program.

Facade/daylight; On the place of the existing windows, the windows are enlarged. To get more daylight inside.

Perceivement silo’s: Again the siloheads are untouch and visible on the bottom of the silo’s. By making a big passage trough the building, the heights of the existing silo’s can be perceived.
5.0 Conclusion

Conclusion Kanaal Vervoordt:
Program; The silo’s are exclusively planned for housing which makes the silo’s private property.

Vertical solution; New floors in the silo’s divide the building into multiple floors.

Vertical transport; The building next to the silo’s contain the vertical transport to reach the new residents within the silo’s.

Construction; By making openings in the construction it was able to connect the silo’s with each other. The silo itself bears its own load. The new addition is a combination of columns and load bearing walls.

Facade/daylight; Small openings provides the residents from daylight. The new transparent addition is quite transparent and thus the living rooms are located over here.

Perceivement silo’s: The silo’s are from the outside still recognizable as former silo’s. Also from the inside is the form of the silo very dominant and leading for its floor plan.

Conclusion silo Weijers:
Program; The wooden silo’s were left as they are and a new program was searched for that required no daylight. Eventually the archives of the archaeological founds seemed to be a proper solution.

Vertical solution; To emphasize the height of the silo’s and still store the archives there is chosen for stainless steel raster-floors. Visibility to the roof of the silos is still guaranteed.

Vertical transport; The archives are accessible via the vertical transport system of the warehouse/offices that is attached to the silos.

Construction; Assumable a new construction is attached to the brick bearing walls that load the new stainless steel raster-floors.

Facade/daylight; In terms of daylight or new openings, totally nothing is changed. Though a new layer of plaster is added as a sort of new relation between the former silo building and the warehouse.

Perceivement silo’s: Especially the height of the silos are still perceivable.

Conclusion Havenkwartier, proposal 1:
Program; In this proposal the architect chose to reprogram the silo’s with dwellings. The entire building becomes a living tower.

Vertical solution; New floors in the silo’s divide the building into multiple floors.

Vertical transport; The tower that stands next to the silo’s will house the vertical transport of the new living tower.

Construction; Most of the silo walls are removed to optimise the floor plan for the new dwellings.

Facade/daylight; New windows are placed in the existing concrete silo walls to provide the residents from natural daylight. Also the tower where the vertical transport is solved is proposed as a transparent volume by cutting vertical holes.

Perceivement silo’s: In this proposal the silo’s aren’t kept as they were. To obey the needs of housing, a lot of interventions should be done regarding daylight and construction.

Conclusion Havenkwartier, proposal 2:
Program; The new program for the silo building will be dedicated to exhibition space.

Vertical solution; New floors in the silo’s divide the building into multiple floors. Also big voids are planned to experience the height of the silos.

Vertical transport; The tower that stands next to the silos will house the vertical transport of the new exhibition tower.

Construction; Each floor plan is different, walls seems randomly be removed. Each floor plan contain at least a few silo walls that are remained.

Facade/daylight; Due to the introvert character of the new program, none interventions should be made in the facade. Only the new addition on top of the silo will be completely from glass.
5.0 Conclusion

Perceivement silo’s: A new spatial spectacle is achieved to remove some silo walls. Also the height of the former silo’s are emphasized.

Conclusion Havenkwartier, proposal 3:
Program; Also in this proposal the architect suggest a function that doesn’t require natural daylight. Vertical gardening will take place in the silos. A new sky restaurant will be added in a new volume on top of the existing building.

Vertical solution; New floors in the silo’s divide the building into multiple floors.

Vertical transport; The tower that stands next to the silos will house the vertical transport of the new exhibition tower.

Construction; Parts of the former silo walls will be removed.

Facade/daylight; A new glass volume on top will house the new restaurant.

Perceivement silo’s: From the outside the silos look exactly the same as they were, with the exception of the tower where the vertical transport takes place.

Conclusion Imagine the Missisipi:
Program; cultural program

Vertical solution; New boxes are carved out of the silo cells.

Vertical transport; Simple staircases connect all the spaces with each other.

Construction; Parts of the silo are removed.

Facade/daylight; The new boxes in silo’s are also exposed in the exterior. Coloured glass boxes pop out the white silo building.

Perceivement silo’s: By making big open spaces that are carved out the silo structure, the cells become extremely good visible.

Conclusion Lassie Silo in Wormer:
Program; The silos will house a museum that will tell the story of the history of the Lassie. A museum doesn’t necessarily need daylight and thus interventions in the silos can be avoided. By offering a public program such as a museum, people can enter the silos and simply experience them.

Vertical solution; Three big exhibition spaces will be planned in the silos. The top floor was already there, a glass floor on the first level and a new floor in between will divide the silo building into three new spaces.

Vertical transport; Two silos on each side of the silo are reserved for two round stairs that will lead the crowds to the museum floors. Also two glass elevators are planned in the already existing concrete cores of the silos.

Construction; By making openings in the silo walls it is able to connect the silo cells with each other. The silo itself bears its own load.

Facade/daylight; On the top floor, former windows were replaced by closed panels. By making another exhibition space on this floor it is desirable to go back to the original situation where windows provide the space from natural daylight. Also a spectacular view over the Zaanstreek is offered to the public.

Perceivement silo’s: The experience of the silos is being part of the Lassie museum. The characteristic octagonal form of the silos will not be destroyed or harmed from the outside and will be kept as it is. From the inside, the silo heads can be seen by walking trough the Food market underneath. By making gaps in the silo walls, the cells will be connected with each other where the typical octagonal cell structure of the silo can be experienced. Also the height of the silos will be experienced due to three cells in the building where the entire height of the silo can be experienced. The former rice storage that took place in the silos will be another theme for the experience of the building. One vertical silo will be reserved for an original rice silo where the storage of rice take place. By making openings in the silo, the people can see what is happening inside the silo. The rice will be also noticed by walking on a glass floor where the rice is under the glass and the people almost literally walk over the rice.
5.0 Conclusion

5.1.6.4 Which positions in the profession are noticeable considering the relation between old and new?

After the analysis to positions around the relation between the old and new, some distinctive attitudes are noticeable. The case studies points out that there are many ways to intervene in the existing situation, from very gentle and minimal interventions to brutal and daring interventions. Some are more successful than others but each of them has a clear strategy and position. A strategy that is quite popular at the moment and often used is the strategy of contrast. Leave what is old, old and make the new explicitly new with contrast as a strategy. Contrasts can occur in many appearances: colour, form, texture, material, size etc. The strategy of contrast is a clear position where the difference between new and old is easy to recognize. New and old exist separately. Another strategy within the relation between the old and new is the one of imitation. Everything what will be added or wherever an intervention takes place will be either a replica of what is already there or an imitation of previous situations. Within this strategy the new and old blend into something new where the existing situation is leading for the new. The last strategy is actually a concession between the first two where any intervention can be done in a modern way with contemporary techniques but still is in harmony with the logic and language of the existing building. To make each strategy more clear an example will be given to emphasize the differences in approach. As an example the assignment is to make a new window in an existing façade for the need of daylight. The strategy of contrast could design a window that has another order in the façade and where the new window could have an entire other form than the existing windows. The strategy of imitation would probably make a replica of the existing window and just add the new window as if it was always there. The last strategy allows itself to make a window that fit in the existing logic and rhythm of the building but still distinguishes itself due to a different expression. Which strategy will be applied isn’t that important, important is that this strategy will be applied consequent and consistent in each intervention to give clarity in the taken position towards the relation between old and new.

5.1.6.5 How to improve the internal spatial quality within the building complex?

The internal experience of the existing building complex doesn’t have as much quality as the external experience. Low ceilings, dark spaces, limited length of sight lines and confusion due to the organization of the spaces, forms together the main problematics for the internal experience of the building complex. The physical achievements for improving these spatial weaknesses are: 1) increase the experience of height 2) bring in natural daylight 3) set new visual relations between the buildings 4) improve the organisational scheme of the complex. In the existing situation of the factory complex a small corridor separates the silo from the warehouse- and factory buildings. In the new design this small corridor is stretched in horizontal as well in vertical direction. This spatial strategy has the aim to visually connect the building masses with each other. At the same time it will bring in more daylight and increases the feeling of height what improves the internal spatial quality of the complex. It can be classified as a passage that is placed between the existing buildings and guide the people trough the complex. The idea of the passage is that it should be perceived as one new element that is placed between the existing buildings and connect them with each other.

5.1.6.6 How to improve the internal spatial quality within the building complex?

To improve the spatial weaknesses of the complex a new element is introduced to cope with these weaknesses. As a spatial strategy two passages are proposed. This part of the conclusion will focus on the public passage around the silo building. The passage is placed between the existing volumes. Each volume has its own measurement system where the passage should react on. Along the volumes, the passage has an entire new glass facade. Along the silo, the passage has partly a new glass facade that is positioned between the octagonal silo structure. The passage is a self-supportive construction that follows the adjacent grid system of the building. The horizontal division of the passage is a combination of the floor heights of the warehouse- and factory type, these two differ from each other but is brought together in the new passage system. By combining the two different floor heights within the new passage system, every floor of each building can be reached within one system. The result is a new element that is experienced as one, though the system is the outcome of the present measurement systems.
6.0 DISCUSSION
6.0 Discussion

6.1 Discussion/reflection Msc 3

This section will be a critical reflection of the work that has been done so far and the process that is preceded. Actually in this report a clear distinction can be made between a more general phase and the phase where the design location is chosen. The first part of the research is basically to documentate all sort of information that is known about the context, the site, the object, topic and approaches. The studio together with the support of the lecture series, the seminar Architectural and Urban analysis and the seminar research and design methods should be support this. The seminars, lecture series and the studio should be intertwined and should enforce each other. To be honest in the beginning I didn’t see this relation. The lecture series as additional input for this report and the understanding of the approaches towards research methods was clear to me. The studio expectations were clear. The Architectural and Urban analysis were clear. What wasn’t clear to me in the beginning was the seminar of research and design methods.

In a substantially late phase of the process I began to appreciate and understand the value of this seminar although I think this could be even more valuable by guiding even more the structure of this report. As I see it, this report is in itself explained well but there isn’t any control or possibly any feedback on the content of the sections. I do understand that some of these sections couldn’t be written in an early stage, though I think that at least the first three sections perfectly can be guided whereby the content will be even more powerful. The seminar Architectural and Urban analysis were very useful as a supportive seminar. The content of the analysis become even sharper during these hours. What I think is a pity is that there is a possibility that the outcome of the analysis isn’t useful for the student because he or she chose a different location. This was in my occasion the case. I put a lot of effort in the analysis and I believe that the outcomes are very valuable for other students, although I regret that I cannot profit from myself from these outcomes. Now the usefulness of the analysis depends on the accuracy of others. Of course you will get a grade for it but this is only a meaningless number. The outcome is much more useful for the entire research and design process. In the case of the seminar would be continued until the P2 the urban analysis of the chosen location can be even more guided and therefore become more use- and powerful.

What I do experienced as really comfortable is the clarity of the expectations of what we as students should deliver in the studio. As mention before, there were some studio assignments formulated that should stimulate the understanding of the characteristics of the Zaanstreek. These assignments were very clear formulated and also in approach it was clear how we should do it. Here the seminar of research and design methods was very useful.

What I see as an often maken mistake is that analysis, theory and design are separate outcomes of the process without any intertwining in the project. Actually an issue I see during the process is the fact that practice and theory were two complete different worlds that suppose to fuse in this report. Honestly I really doubt this. Though the connection between analysis, theory and design is for me essential. I think that in my case there is a strong relation between practice and analysis but a less strong relation with theory and practice. Last semester I read the book of Aldo Rossi, the Architecture of the city. What I discovered is that this really influenced my thinking about the city. The title of this studio already determine the railroad the Zaanlijn as an urban artefact. This really intrigues me and afterwards I could had intertwine this theory perfectly with practice because there are a lot of similarities of approach towards the city as an urban artefact.

After the more general analysis where some starting points were found that could elaborate further, a deliberately choice of the design location could be made. Besides, the formulation of clear specific research questions could from now on be addressed. From the very first beginning it was clear that I decided to reuse the existing Lassic factory. I am really amazed and excited by the appearance of the factory as an urban artefact. Maybe I’m also a bit too much obsessed with the building. I think this also has to do that fromout my very own bedroom I can look to the Lassic factory. Every morning I open up the curtains, this is the first think I see. So for me this a quite unique opportunity to design on something I’m so close related to.
Besides the obsession of this building there was enough gathered scientifically evidence why this industrial monument can have a more glorious future where many parties can benefit from.

Due to the fact this assignment deals with the reuse of an industrial monument, or better known in the discipline as architectural conservation, the design assignment was since the very first beginning clear and concrete. This is what I experienced as pleasant and this is also why I was able to set a clear direction and formulate clear goals with clear methodologies that can be adopted. I think that my approach towards this existing building is very precise and conscious of what has to be done and how to achieve it. By interviewing related parties, visiting the building several times (externally and internally), make a proper documentation of the current state, making precise analysis of the problematics and potentials this design assignment is at least to me clear. Hopefully this report transfer the main intentions.
6.0 Discussion

6.3 Relevance of methods and theory

One of the most essential things to define properly is the problem statement. The problem statement more or less determine the direction the project is heading to and is also quite essential for the formulation of the design assignment. There are many approaches to come to a problem statement. My approach to define a proper problem statement starts with an investigation of the site and context. This investigation can be described as an urban analysis of the location and its surroundings and should be done as precise as possible. Most of the time we as architects are asked to intervene in an existing context that is already there and is a given fact. A given fact that most of the time we don’t know anything about. You need to understand this context as it is now but also how it is formed during history. What are the characteristics, what can you use of your findings and what are the potentials that can be developed even further. Literature and information about the site and its context can also help and is crucial for understanding what is so typical for this site. You might say that it is an investigation to the ‘genius loci’ of the area. This is an aspect what I think is really important by intervening somewhere. Whatever is going to be there shouldn’t be something that stands on its own (unless it is explicitly asked for) but rather is being part of the existing context. To be clearer, it shouldn’t be a screaming autistic that wants all the attention for its own.

After the general exploration of what is so characteristic and typical of this place, a selection of the main issues and findings are becoming the starting points for the formulation of the design assignment. Important for formulating the design assignment is the consciousness of what kind of project intent to be designed and in which field to operate in. The formulation of the design assignment and the secondary goals are partly based on personal interest but should also be argumentated according a scientific framework. What is the relevance of the project in a broader scientific sense but also the relevance for the discipline? To answer this question literature and theory is needed to discover the relevance and to discover in which debate the project is in. Theory can be extremely useful to underpin and legitimacy the argumentation and choices that are made during the process. Theory as the backbone of the project. The theoretical framework of the project become almost scientifically essential and is also important for the understanding of the own position within a specific debate. Theory can be used in many ways and for many purposes, it reach a large public and is easy accessible for transferring ideas, positions, visions or whatever should be transferred.

I think this is one of the most beautiful aspects of using theory, they are open for interpretation and just because of that it has the power to give us some new insights. We all can look to the very same object and see a variety of things. Reading theory will also help to discover what is already known about a certain topic. This probably raises some questions where research will help to discover what is currently not known yet but definitely bring the design further and give answers. To summarize; theory is to discover what is already known, research is to discover what is not. Besides reading literature and theories it is as important to write about the project. By writing, the thoughts and ideas will be organized, ordered and the true intentions become clearer. Writing can also strengthen and enforce first ideas into strong concepts. At the same time writing function as a kind of self-reflection within the process where consistency should be present. This very same report can also be considered as a technique to become consciousness about the process and methods adopted within the design.

Besides the theoretical framework what is really important for the design, framing the project is as important as well. Framing in the sense that the project limits the field of operation. By framing the project, the wideness of the field of investigation will narrow down. This result in a more specific approach. It will help to select the needed theory but also to find an appropriate methodology for analyzing and designing. This framing can be called a thought frame or even an episteme and can be considered as an instrument for analyzing. Actually it is just a device to cope with a certain issue that reduce the complexity. Examples of epistemes are typology (Jean Nicolas Louis Durand), phenomenology (Kevin Lynch), semiology (Robert Venturi and Denise Scott Brown) and praxeology (Bruno Taut).

Most of the architectural projects start with a visit of the area where the intervention takes place. It all starts with the first observations, the very first impression and an attempt to discover the spirit of the place. For a lot of architects this first visit is the leading force for the formulation of the architectural concept of the project. There are several techniques for documenting this first experience. Some of them are for example: photography, writing, sketching or videotaping. Most of the time I prefer the combination of photography with an additional declaration of the first impressions.
7.0 BIBLIOGRAPHY
7.0 Bibliography

Literature

Arpa, Javier with Mozas, Javier; *This is Hybrid* (Vitoria-Gasteiz.Spain a+t architecture publishers, 2005)


Bell, D.; *Guide to international conservation charters* (Edinburgh, 1997)

Cerutti, Vera; *Creatieve fabrieken, waardecreatie met herbestemming van industrieel erfgoed* (Utrecht, 2001)


Kleij, P.; *ZAANSTREEK architectuur en stedenbouw 1850-1940* (Zwolle: Waanders Uitgevers, 2003)

Clark, Roger H. and Pause, Michael; *Precedents in architecture, analytical diagrams formative ideas and parts* (New York, 1985)

Claessen, Francois and Duin, van Leen; *OverHolland 7, 5x5 projects for the Dutch city* (SUN Amsterdam, 2008)

Claessen, Francois and Engel, Henk and Kavanaugh, Leslie; *OverHolland 5, 5x5 spoorzones in de Hollandse stad* (SUN Amsterdam, 2007)

Claessens, Francois; *‘Hybrid Buildings for the Dutch City, in: Masterbook 2007-2008* (Delft, TU Delft.)

Dijkstra, Tjeerd; *Architectonische kwaliteit, een notitie over architectuurbeleid* (Rotterdam, 2010)

Engel, H. J. and de Waaijer, D. A; *22 Stationslocaties in Hollands Noorderkwartier* (Delft, TU Delft 2010)


Nijhof, Peter with Schulte, Ed; *Herbestemming industrieel erfgoed in Nederland* (Zutphen, 2000)


Post, Kees; *Portret van de Zaan* (Zutphen, 1984)

Documents

Gemeente Zaanstad; *Ontwerp ruimtelijke structuurvisie. Zichtbaar Zaans* (April, 2011)

Gemeente Zaanstad; *Zaan/IJ; ambities an mogelijkheden* (2011)

Palmbout Urban Landscapes; *Ruimteplan Zaan/IJ* (October, 2010)

Lassie factory; *Spreekbeurt informatiepakker* (Wormer. December, 2011)

Rapport Goudappel Coffeng (December. 2010)


Wever, M.; *Ruimte voor verhalen: de Zaan als identiteitsdrager* (September, 2007)
7.0 Bibliography

Websites
www.zaans-industrieel-erfgoed.nl
Document: Restauratie Lassie-monumenten aan de Veerdijk
Met Stoom Nr. 31 - September 1998
Document: Lassiecomplex heeft een voorbeeld functie
Leden van VZE kregen rondleiding door gerestaureerde panden van rijstpellerij ‘Mercurius’
www.hvwormerveer.nl

Presentations
Goedhart, J (2012, 12 April) [Presentation about the historical identity of the Zaanstreek]
Engel, H.J. (2011, 19 August) [Studio introduction]

Spoke with related parties
Jan Goedhart (architect)
Bas van Winden (director of the factory)
Simon Bukman (municipality)