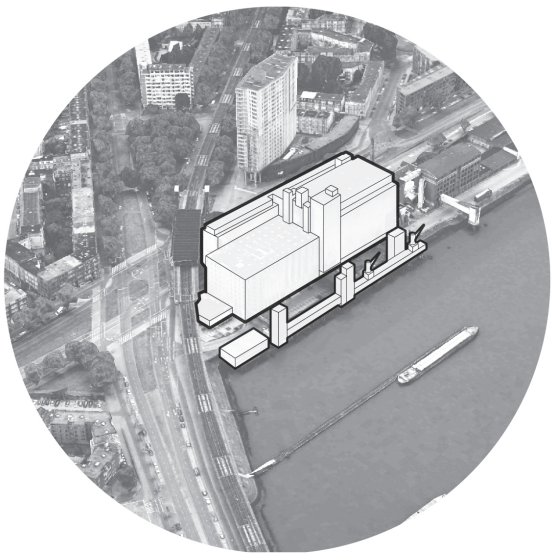

MAASSILO

P1 - REPORT 22.12.2016
AR3AR111 Heritage and Architecture Graduation Studio
: Conservation-Modification-Intervention-Transformation

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Technical University of Delft - Faculty of Architecture
Chair of Heritage and Architecture

Tutors
Lidy Meijers
Suzanne Fischer
Frank Koopman

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Chapter I
Introduction

Personal Information

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Studio Information

Theme	Heritage & Architecture
Mentors	
Main mentor Architecture	Lidy Meijers
Cultural mentor	Suzanne Fischer
Building technology mentor	Frank Koopman

Argumentation of choice of the studio

My interest of heritage architecture started from my practice in architecture firm in Thailand. On that time there were lots of renovation projects but most of them were designed mainly followed the requirement of the client, little amount of narrative of the buildings remain. I started to see the essential of the anecdote and wonder how the building could be developing in sustainable way. I believe past is the element of the future, without the understanding of the story of the past and present somehow the future wouldn't powerful enough. I found it very interesting and challenging trying to deal with the life of the building, should the story continue or change or freezing in time.

Site selection

The studio provided me eight optional sites to choose which all in Rotterdam port area. After considering, I chose Maassilo building to be the subject for my graduation project. The character of the building with the area of Maashaven drives my interest with the potential of the building as the junction dif ferent aspects such as the intersection between two districts, Feijenoord and Charlois also the transition between industrial port area and dwelling area together with the past and future plan. What make Maassilo different from another project is the context around the building. There is not much public space outside the building but still left the sense of industrial complex. Then the focus came to the massive solid concrete character that made me wonder what is inside and how the building use to work, why the building is important. This is what fascinated and made me what to investigate further.

Goal

The intention of the research analysis and design project is to find out and develop my skill in critical, analytical and abstract thinking also a better understanding of how to integrate the new chapter of the project with the current situation using historical narrative as the binder and how we and architecture perceive these aspects and what is the consequence. The goal of the design is to utilize the data for enhance the above mentioned skills and observe how the narrative help in architectural development, how architecture could engender and unify intrinsic perception. With this project I hope to be able to create a humble and harmonize story of architecture and ensemble that is collaborate with the life of the building and context to have more than an average and develop alternative in debate on architectural position and continue this knowledge to the practice.

Problem statement

Maashaven almost suddenly after the construction of the basin was completed also in the intersection of changing position of the port of Rotterdam from transit to industrial port. There was a rich relationship between this industrial district, it is essential to consider the industrial as the cultural value which results in the character of the building. In contrary, with the development plan of the city of that period, the city expanded into the south of Rotterdam and Maashaven area. In consequence, the community started to combine with the industrial. Furthermore, the sustainable also the significant issue that should be introduce since the water level from Nieuw Maas keep increasing every year due to the world global heat problem. This subject is not only for the building but city scale, however how the building adapt to the ecological plan, this problem should be address.

In the past and future plan, the south part of Rotterdam was planned to be another city center apart from the north. These will change the position of Maassilo again after the first change from industrial building to community building of its event and office function. The same thing happen to Maashaven, even though, there are some industrial building that still function but with the plan of the city to transform Rotterdam in to water city with more biodiversity and floating community are the aspects that I have to keep in mind.

he story above is more focusing on the ensemble, yet in the building scale Maassilo contains three main parts including the building, the office building and the steel crane structure that used to be the grain elevators processing to transfer the grain from the ships to the building. Apart from Maassilo building itself, the connection between these elements should be investigate and count in design strategy within its industrial indentity, historical function and in term of construction. These elements will be play as the big role to consider which will lead to the futher question of the research about objects, mass and volume.

Research question

Combining the identity of the site and personal goal drive me to the research question with the followed sub question.

'What is the essential context that conduce to the character of the mass and volume of Maassilo ?'

Sub question

- What is the character of the mass and volume of Maassilo?

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- What are the effect of the changing and developing of the context of port area and the industrial to Maashven and Maassilo?

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- What is the present relationship of the building with community and the position of industrial with living district?

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- How the mass of Maassilo related to the volume and ephemeral substance?

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- What is the position of the building in present and future situation and how it develop through time?

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- Should the building have more connection to the surrounding or should it retain the enclose and introvert character?

.

- How much inside-outside connection the building need without destroy the presence of the building?

Method

The methods intended to be use to answer the questions are mainly research analysis and literature research. The group analysis provided lots of materials to use as the research foundation. The knowledge from analysis and theory will collaborate with the framework to be in a complement relationship through the process of research and design. The first I'm going to look into basically will be the historical issue parallel with the group analysis and trying to match the relevant data that suitable for the research questions. Moreover, the data can also be found from city map from period to period to understand the develop and relationship on urban and neighborhood scale. These aspects will led to the step of value assessment that would be the real starting point for the design. More data can also be found from research on site from the physical substance such as the damage of the building and the use of material also personal expression of the ephemeral substance concerning the connection of volume, space, function and movement of the current users for both people who works there and temporary users that come for the events. Spatial experiment in the form of models and drawings will be utilized to explore research concepts and ideas developed from literature research. These will be related back to the value assessment research to the more understanding of the position and give the unify insight by the shifting of looking forward and backward.

This report consists of the selective information from Maassilo group analysis that suitable for my research question together with my interpretation of the project and question.

Chapter II and III will elaborate the historical background with theoretical support related to the considerable issue of the present context and the relationship with Maassilo with the future planning.

Chapter IV will present the story of Maassilo, how the building developed, the present situation of the complex with the subject followed the research question about context, maas and volume.

Chapter V will provide a study of the function and the typical plan of silos and elaborate the organization of the silo and how the process of Maassilo is working.

Chapter VI will show the intepretation of the value assessment of the building.

Chapter II
The city of Rotterdam

Development of Port city

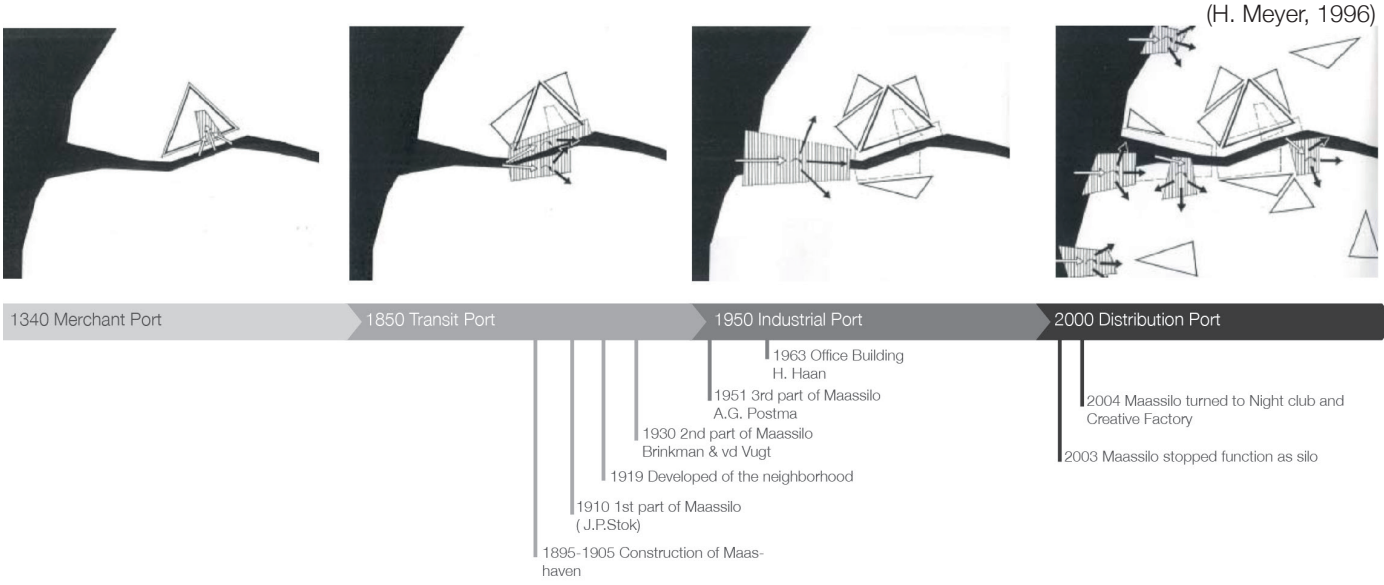
The harbor of Rotterdam can be divided in four periods in which it served a different basic purpose. These periods determine what the needs are for the harbor, the way it expands and what supporting industries are attracted by the harbor activities.

The changes in the use of the harbor also Reflects the ever ongoing adaptation of the city, having to do with much bigger historical changes than just the harbor itself

- merchant port >1340
- transit port >1850
- industrial port >1950
- distribution port >2000

(H. Meyer, 1997)

(H. Meyer, 1996)



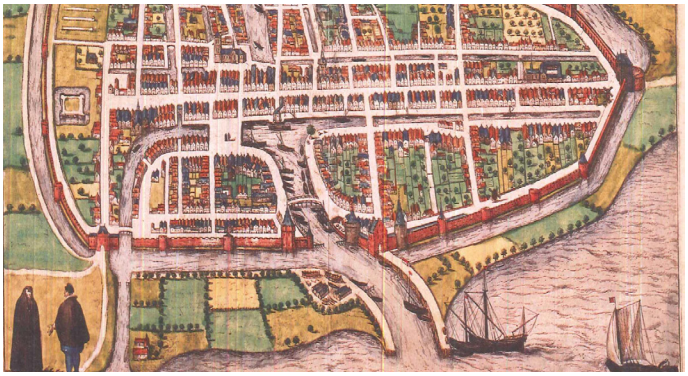
Merchant port/ closed city

The merchant port refers to the beginning period of the Rotterdam harbor. Transshipment of goods creates a place for merchants to trade goods. This trade takes place within the walls of the closed city with goods from surrounding areas. Trade between Rotterdam and other ports close-by becomes part of the merchant port around the 16th century. During this period, Rotterdam was slowly developed. The merchants lived nearby the harbor in the same house where goods were stored. Usually directly in front of the place where the goods were transshipped. With the latest expansions of the city the same urban principle towards harbor architecture was upheld.

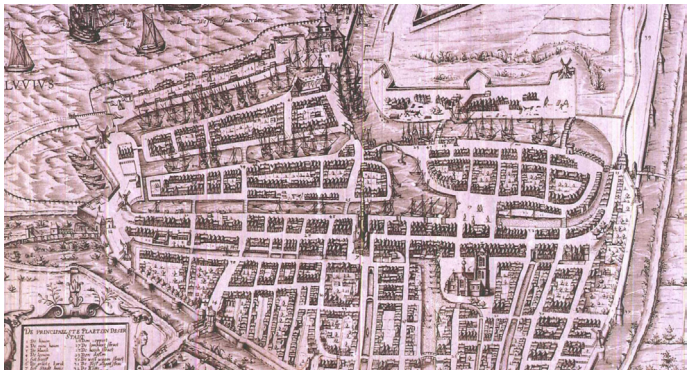
Transit port/ open city

The Ruhr region in Germany becomes rapidly industrialized in the 19th century. This is a catalyst for the Rotterdam harbor to become a transit port. Goods are transported by sea to Rotterdam, transshipped to inland ships then carried to Germany. Rotterdam harbor transform to a transit port to benefit from the need of supplies like steel and raw material then rapidly growth to stay ahead of the competition of other seaports like Amsterdam, Antwerp and Hamburg. In this period, the development generated lots of harbors with warehouses to stored goods including Maashaven. The use of warehouses was for temporary to stored and waiting for shipment and inland infrastructure were advanced for domestic and international route which became significant part of the city urban fabric.

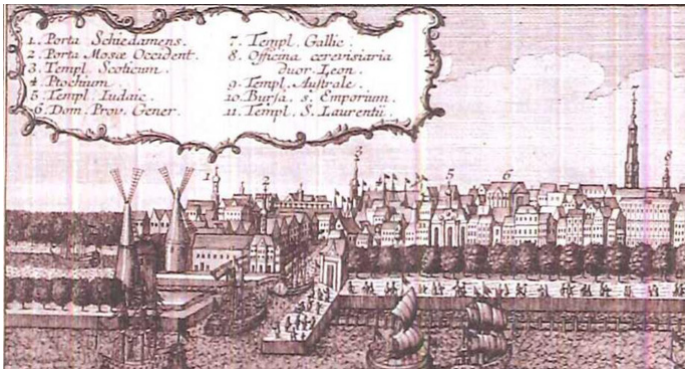
The port of Rotterdam became easier to enter after the finishing of ‘Nieuwe Waterweg’ (New Waterway) 1889. With the expansion of the harbor the city broke with the traditional merchant setup. Transshipment and storage of goods scaled- up and outgrew the merchants house. Ships had bigger loads, inland ships grew in size and amount.



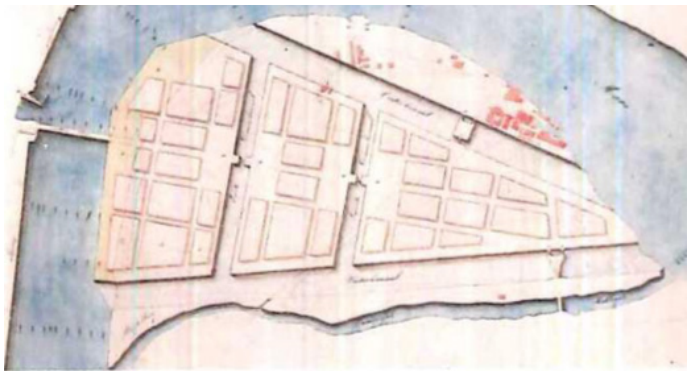
Map from the 'City book' of Braun en Hogenberg 1560 (P.T. Laar, 2006)



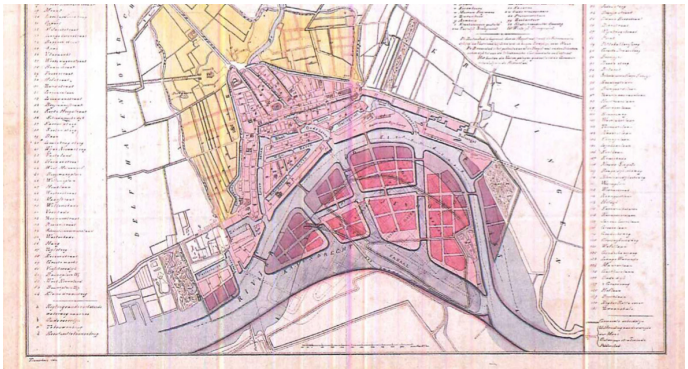
City plans of Hendrik Haestens 1599 (P.T. Laar, 2006)



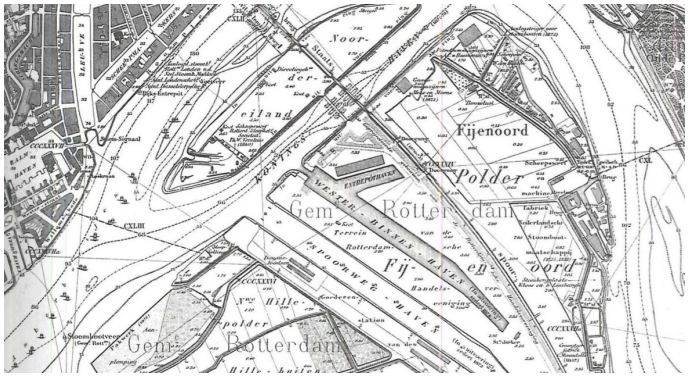
Drawing of Rotterdam featuring 'De Boompjes' of Matthaus Seutter 1740 (P.T. Laar, 2006)



Early proposal for expansion of the harbor in 1843. Clearly visible is the traditional merchant setup of the plan by city-planner Rose. (P.T. Laar, 2006)



later plans of Rose 1864. Still clinging to the traditional merchant setup for the expansion to the south bank. (P.T. Laar, 2006)



River map from 1880 showing how Feyenoord was transformed to accommodate the expansion of the harbor. (P.T. Laar, 2006)

Industrial port/ functional city

The international trade of the transit port makes enormous profits and gets Rotterdam to industrialize on a large scale. This makes the Rotterdam harbor a major provider of work and the motor of the Dutch economy. During this period the harbor grows rapidly. Large scale international networks of trade are established and the harbor grows faster than Rotterdam and it expands outside the city. Transshipment and storage of goods and raw materials is still the main trade. Now almost the whole of Europe is the hinterland of the harbor and goods come in from all continents. Competition is intercontinental. Because of the bombing of the city in W.W.II the city completely changes and adapts to the 20th century and it's demands of functionality.

The industrialization of Rotterdam meant there was a lot of work and people flocked to the city. There was a rapidly increase of population. This was a massive pressure on the cities housing and infrastructure. To accommodate these people new housing projects aimed at the working-class popped up all over the city.

With the bombing of Rotterdam on May 14th 1940 the whole of the city center is bombed and destroyed. This completely changed the city and left it with a void in the middle. The bombing also destroyed the harbor and therefore the economical heart of Holland. The reconstruction plan included 10.000 dwellings back in the city center compared to the 25.000 before the war in a still growing city. This made it possible to have a more modern infrastructure in the city center and help the flow of traffic. To boost the national economy huge unprecedented expansions of the harbor where planed. All these expansions where to the west of the city towards the North Sea.

Distribution port/ network city

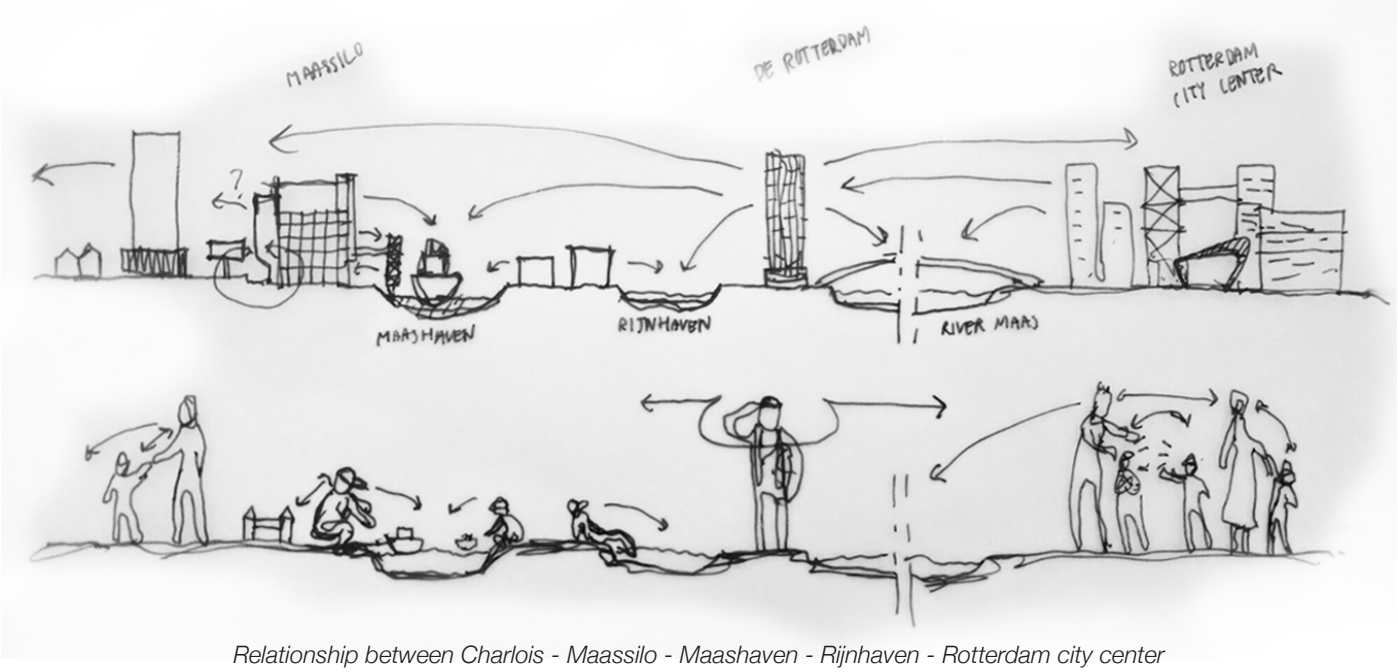
Collaboration with other international ports in the area is crucial to stay comparative on the world stage against economical influx. Rotterdam, Amsterdam, Antwerp, Utrecht and The Hague form a network of cities act like one global business hub. This creates a local network of trade and business between these cities making the region stronger economically and makes it possible to compete with other global business hubs in Asia and America.

Nowadays the port is the largest distribution port of the world. Products come and go to all continents and employs more than 94.000 people. The port functions as a distribution port, focusing on transshipment and temporary storage of goods in a network system. Because the harbors growth potential is smaller compared to it's main competitors in Asia the Rotterdam harbor now works with close-by harbors and supporting infrastructures to accommodate this growth. The city of Rotterdam has become a network city creating a business hub. Supporting this system of the port and in return stimulating trade and business inside the network itself. The port functions as a distribution port, focusing on transshipment and temporary storage of goods in a network system.

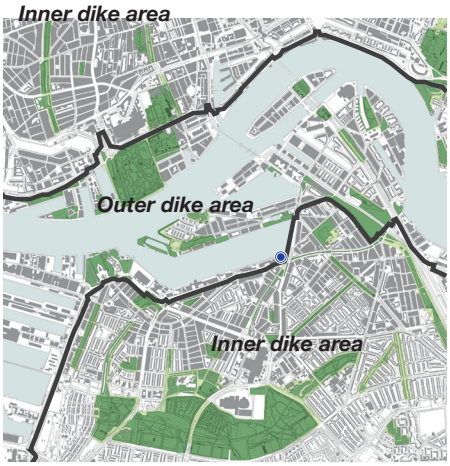
Rotterdam and Maassilo

The sketch below explains the relationship between Rotterdam and Maassilo from my point of view. Maassilo metaphor as the big boy playing with his steel ship toy in the Maashaven with no relation with others while De Rotterdam act as a security that scout around two side of the river. From the social issue, Maassilo does not have strong co-relation with another building except the neighborhood factory that still left at the harbor.

The relationship is more visible in urban fabric. From the past, the city developed to the south which result in the high quality of infrastructure. The building of Maassilo is very easy to access from the close metro station and tram for the public transportation. The approach by car is even easier since the building located next to the main street directed from city center passing Erasmus bridge. In ecological issue, the building located in outer dike area which in the future architect should keep in mind for the increasing level of the river that effect directly to the building.



Relationship between Charlois - Maassilo - Maashaven - Rijnhaven - Rotterdam city center



Green structure and dike line

Main road and bridge

Public transport: Metro line

Future prospect

The future plan and challenge for Rotterdam is mostly related to the ecological system of the land and sea level. Rotterdam being the lowest point of the country. World wide sea levels are rising and Rotterdam needs to prepare itself for that. This means mayor changes to the quay walls and giving rivers more room to flow and having emergency basins of water as overflow areas.

The Port of Rotterdam tells about adapting by becoming flexible focusing on 6676industrialization and infrastructure. Steenhuis points out that unlike airports harbors are not setup in a generic way all over the world. This is partly because of local conditions in climate, position and government. It is important that the Port of Rotterdam company has huge interests in ports and waterworks all over the world. Giving a different perspective on the whole concept of competition.

A problem particular to the Rotterdam harbor is that almost the whole city harbor is situated outside the sea dikes. Implying that in a case of flooding the harbor will be the first to suffer. Also chances of housing in the area create a risk in the future concerning the rising sea levels. (H. Meyer 2016)

Conclusion

Observing the historical context of the city of Rotterdam, the most precious element that deeply intertwine in every period with the city is the river. The mass and communities of the city developed using water for domestic usage such as living and international communication connected the city to other regions. The port city and industrial development were the issue that address the evolution of the city. The river and mass of the people and building rapidly growth from the construction of the new waterway and city as the transition port. However, the void started to take an account after the bomb in 1940. The void became one of the biggest subject for remembering for the lost and state as the transition event that forever change the way of developing the city. Rotterdam still continued improve the city as port city and became network city as the transition hub for many aspects such as goods transshipment and business. Nowadays, Rotterdam began to be the proper city for living and leisure from the fact that the port area was shifted within the city center to the west nearby the sea and some of the planning as garden city. In this aspects, the industrial atmosphere in the city area were dropped and the communities charge into account but there are still lots of factories and warehouses remain spread in almost every harbor to remind the sense of industrial.

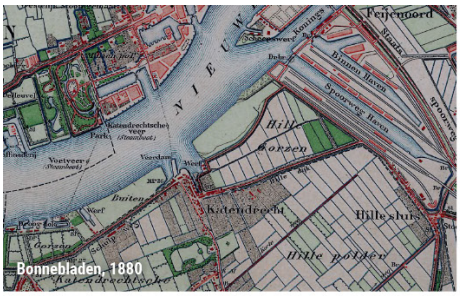
Chapter III
Maashaven

Development

Before 1850 south of the Nieuwe Maas was cultivated farmland behind a sea dike. The construction on the Maas-harbor began in 1898 to use as transshipment doc support the growth of the port industry and completed ten years later in 1908. The harbor located next to Feijenoord district which used to be the small worker's village of Katendrecht surrounded by the municipality of Charlois. Later, the South of Rotterdam was the ideal location to create housing because of the infrastructural situation which was much more favorable than that of the old city. To create the Maashaven 35.000 people needed to move. 700 houses, two schools and a church had to be demolished. As mentioned above, the function of the Maas-harbor was for transshipment of goods from sea-ships to inland vessels. For this transshipment elevators and cranes were needed. This was done with elevators on boats as well as with fixed elevators on the quay like the elevator that is still on display at the Maassilo. This industry of transshipment on the water industrialized the quay as well. Warehouses and storage facilities happened on the north and south quay after the completion of the harbor. The east quay never industrialized but use as infrastructure, the harbor stopped at a road later from the previous period later the metro was constructed in 1968 made Maashaven the transition between city center and south of Rotterdam. The harbor was used as a dry-dock situated floating in the harbor. It was the third dry-dock in the port of Rotterdam which owned by the municipality.

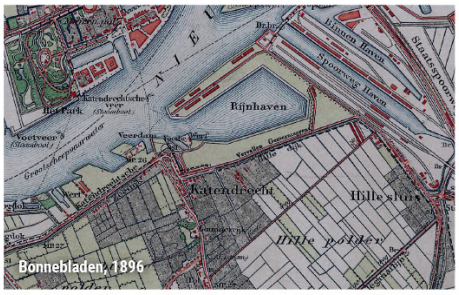
After the first part of Maassilo was completed in 1910, city began to expand to the south with dwelling and infrastructure. The mass of Maassilo was growing with the demand of the storage, in consequence, the building even became the landmark of the industrial in the area. The advancement of the city made the change of the atmosphere of the area by integrate the communities for the growth of the city also for the easy access of the workers. Maashaven became place for people with provided activities, for example, the market, this resulted in the progress of infrastructure of the area. However, in the present situation, with the scale and mass, the building of Maassilo still remain as the landmark of the harbor with more connection to water and less talking with the dwelling.

Drawing of E. Hesmert 1904. Showing the area of Kadendretch and the newly constructed of Maashaven and Rijnhaven (P.T. Laar, 2006)



Bonnebladen, 1880

The original south bank which was an empty agriculture landscape changed halfway the 19th century. At first the Noorderhaven, Koningshaven and Spoorweghaven got developed by the Rotterdamse Handels Verenigings (RHV).

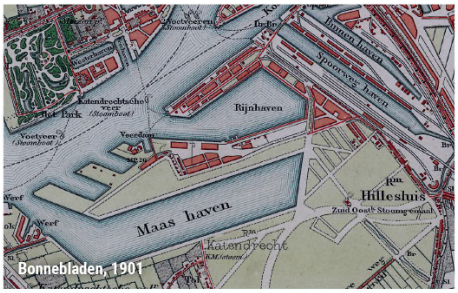


Bonnebladen, 1896

The Rijnhaven got completed in 1894 which formed a new type of harbour for the newly developed steam-driven transhipment of goods.

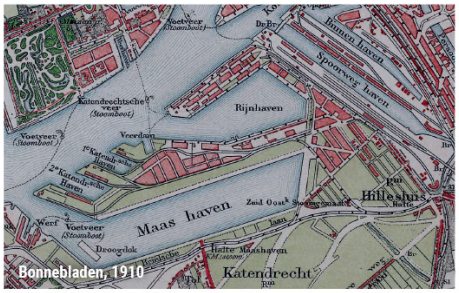

De Ingenieur 1913

Digging Maashaven



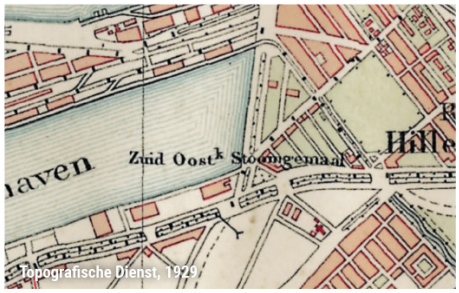
Bonnebladen, 1901

The Maashaven got completed in 1905 and was even bigger than the previous Rijnhaven.



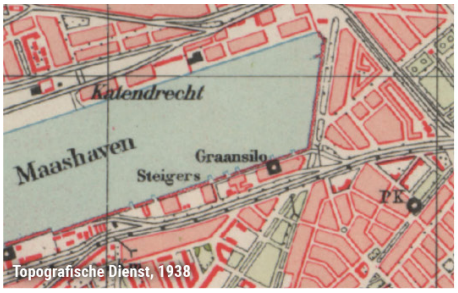
Bonnebladen, 1910

South and South East of the Maassilo roads and neighbourhoods developed slowly.



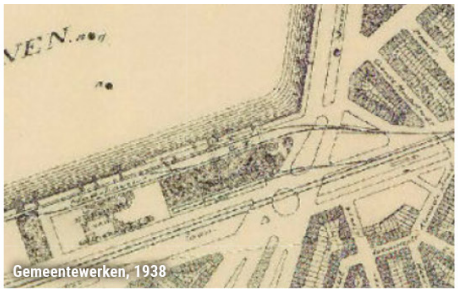
Topografische Dienst, 1929

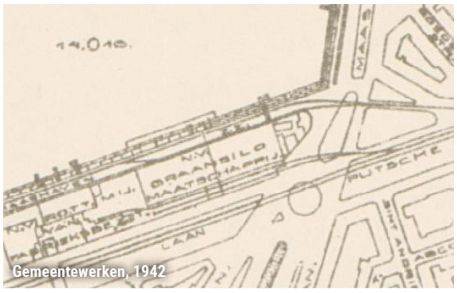
The South quay of the Maashaven got industrialized.



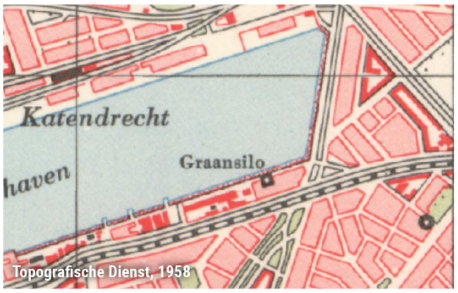
Topografische Dienst, 1938

The neighborhoods around the Maashaven have been fully developed.

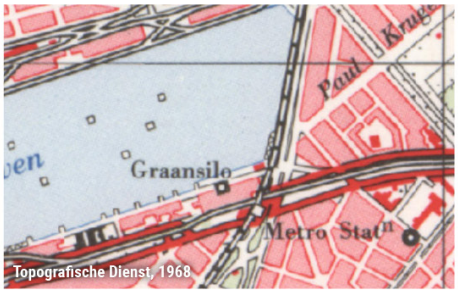

Gemeentewerken, 1938


Gemeentewerken, 1942

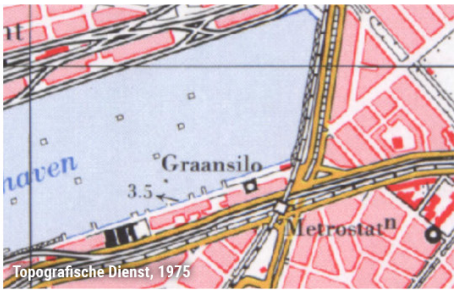
The train tracks next to the Maassilo, which have been there from 1910, are clearly visible on this map.



Topografische Dienst, 1958

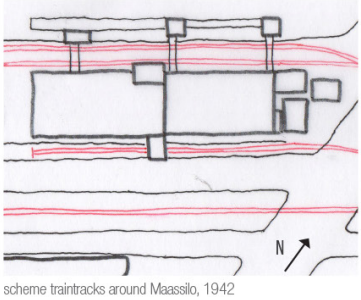


Topografische Dienst, 1968



Topografische Dienst, 1975

On the map op 1958 it looks like that the train tracks on the quay have been removed. It is possible that the tracks have been removed because of the construction of the metro line in 1963. There are also no tracks visible in a picture of 1965. We do know for sure is the tracks were not there anymore in 1974 (Het Vrije Volk, 1974).

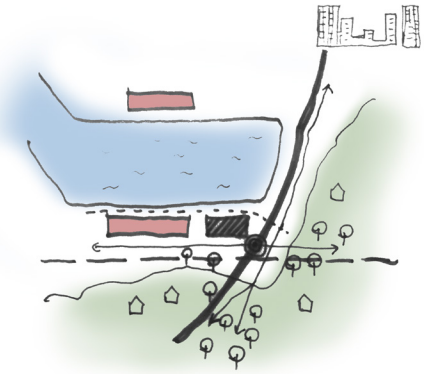


scheme traintracks around Maassilo, 1942

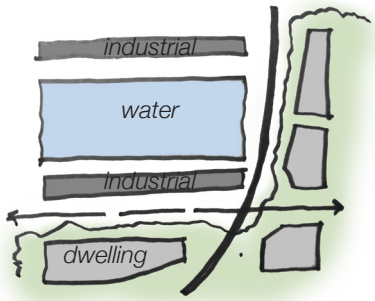

Cees Schultz, 1965

Maashaven and Maassilo

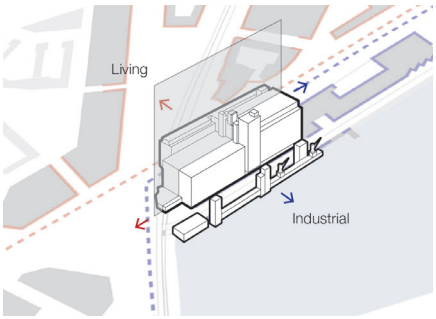
Maassilo located at the end of Maashaven as an intersection between industrial and living function. This urban area also consist of the green structure that spread in every direction use the junction of Maassilo as the starting point. Look at the pattern of the area, there is a clear pattern of industrial-water-industrial with the living communities on the opposite side with street and metro as the boundary. The building act as the landmark represent the industrial presence of the area. However, from the community view, the massive of the building is blurred due to the high rise hotel opposit the building and the density of the area.



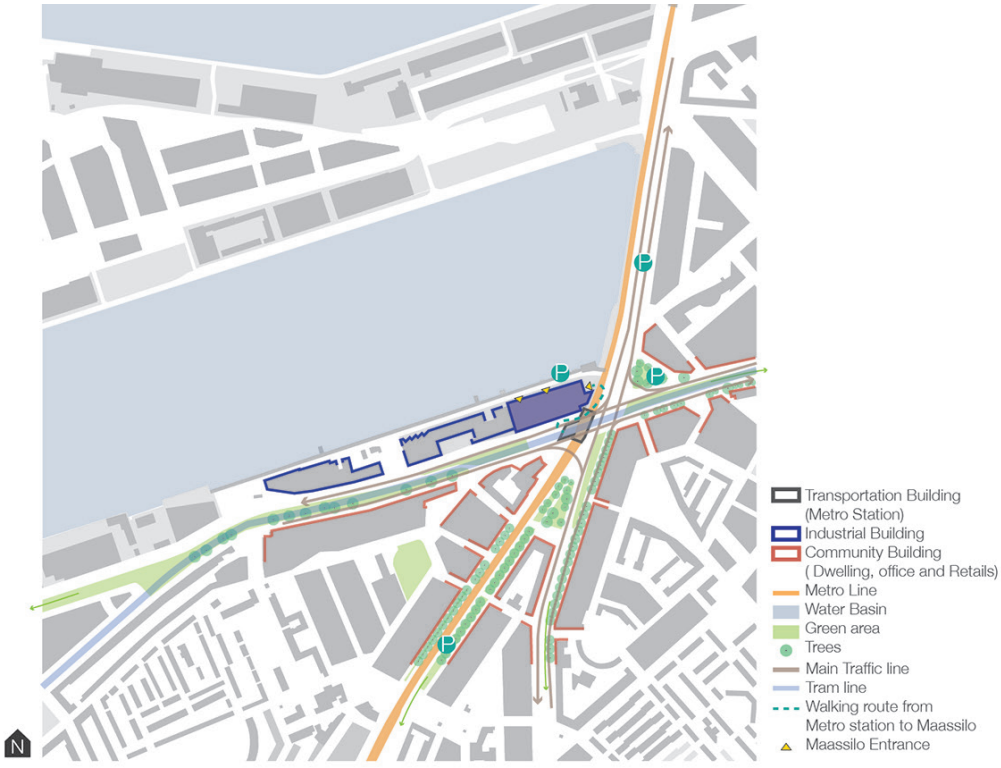
Relation ship between Maassilo and surrounding



Pattern of Maashaven area

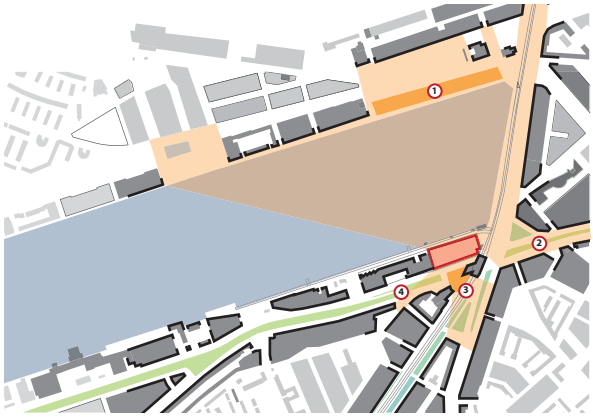


Maassilo as intersection of living-industrial and water-land

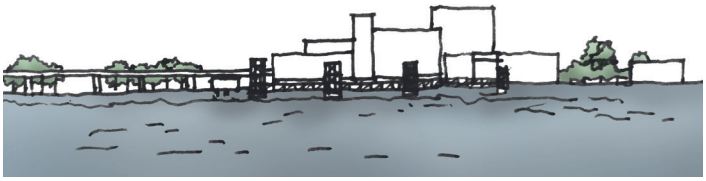


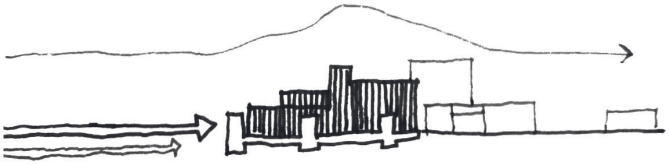
Lay out of Maashaven

Maassilo from ensemble view

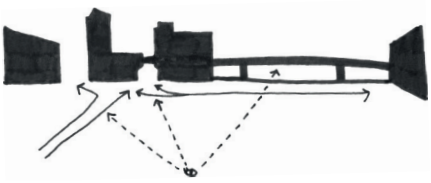


google streetview May 2016





google streetview April 2014

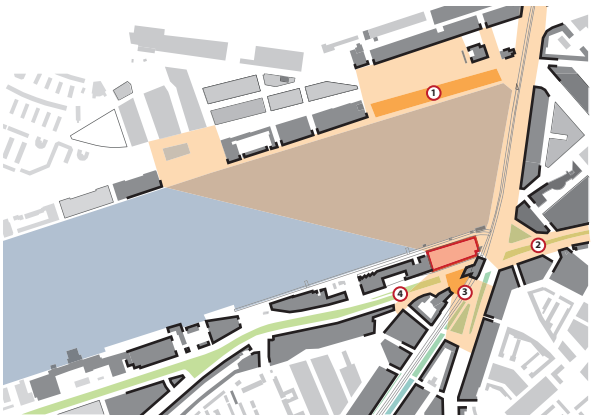


1. View from Maashaven Noordzijde

From the opposite site of the basin, the Metro line create the direction line lead the eyesight to Maassilo buildings. The industrial buildings play a role as the background for Maashaven basin and also as the icon of the starting of the southern area.

2. View from Putselaan

From Putselaan street, the green structure is one of the element of the urban fabric provided the real community feeling together with the low rise building. The mass here together with Metro line state as the positive form create the visual gate to the water.



google streetview May 2016

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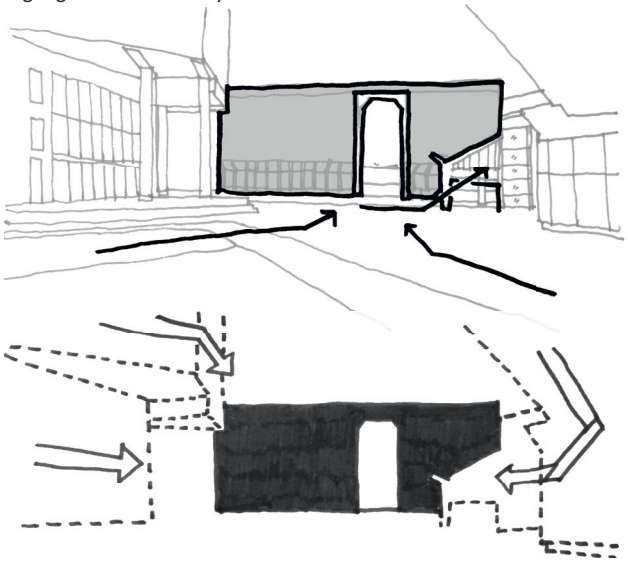


3. Public space

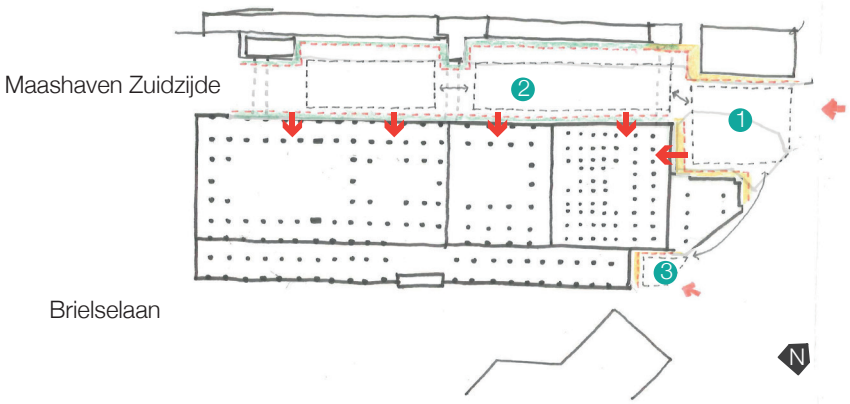
At the public space between Maashaven metro station and Art Hotel Rotterdam, the mass represent as the gate direct the vision to the building as the main entrance. The solid massive of the building disconnect the community with harbor while the gate and ornament at the ground floor help reducing the massive scale of the building.

4. View from Brielselaan

Eventhough Maassilo is the massive but comparing to the high rise of Art Hotel Rotterdam the building itself somehow lose in the vertical solid scale. The green structure act as the clear transition divide the feeling of industrial and living area

Public space of the Maassilo

The building is not accessible from the side of Brielselaan but the main access by walking of the building to the creative factory office is on the east facade and the entrance to night club is on the Maashaven Zuidzijde, the waterside street. This force people to get the industrial feeling before go into the building.



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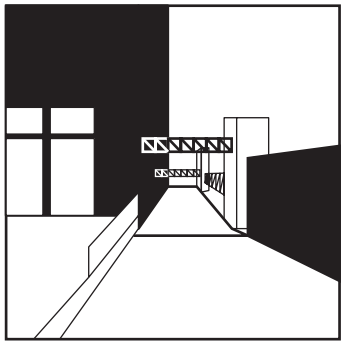
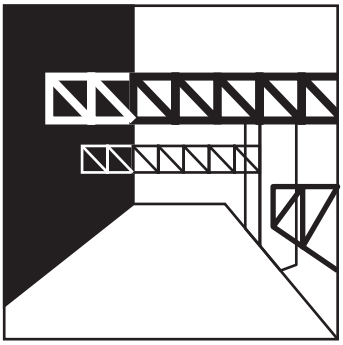


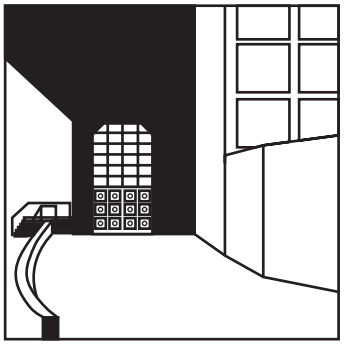
The public space in front of the Maassilo and office building have a great potential to develop into the meeting area but in the present there are different in the level divided the space into circulation.

2



The space between building and steel elevators presently using as the parking lot and assemble point for night club. The steel bridge provided the sense of above head space dividing but connected in horizontal vision.

3

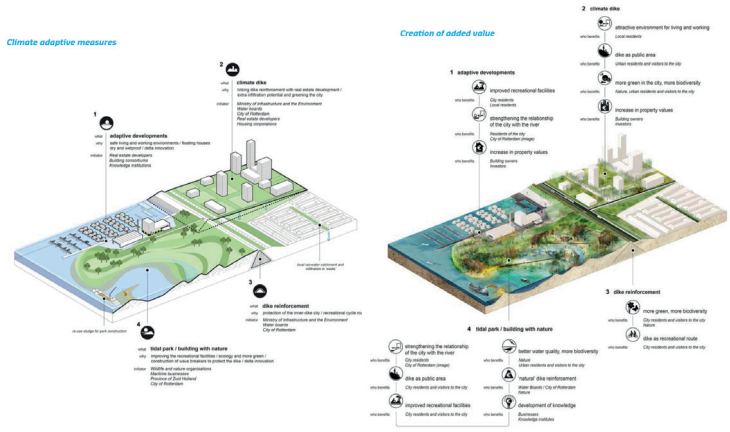


Small and curvy shape space now use as bicycle parking used to be the entrance of the building of the 3rd extension with the end point as the special steel door. This space also have potential connection to Mettro station.

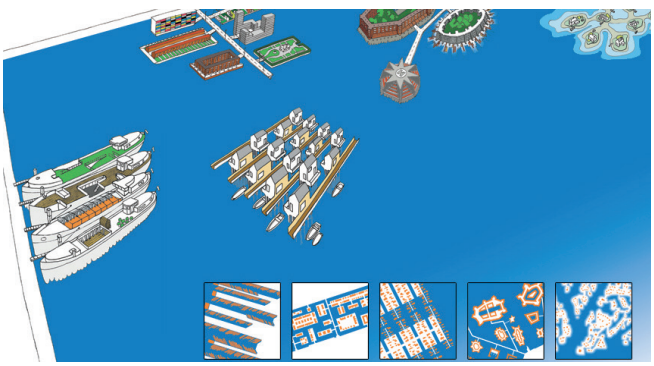
Future prospect

Rotterdam South plans are in place for ‘Hart van Zuid’. A plan supported by the city council and major contractors to revitalize the South by creating new city center with all the functions needed to support this like, recreation facilities like hotels, restaurants, shops and sports. This plan is centered around the Ahoy building and the nearby Zuidplein. Zuidplein is only 800 meters from the Maassilo and by making that the center of the south the Maassilo is well situated to accommodate supporting facilities. The original integrated plan for the south of Rotterdam was to be a city on it’s own which somehow the part of future plan but this does not appear in the present time.

Rotterdam continue the principal that the city developing together with the port. The future harbor activities do not have to leave the Maashaven. The Port authority and the municipality are planning a new setup for the inland ships in the Maas-harbor to accommodate more ships. The city has an aim to construct a bridge crossing the harbor connecting the center of Katendrecht to the south bank of the Maashaven. This plan is combined with a tidal park on the eastern quay of the harbor to support the city to provide more ecological system to the area and make the Maas river more space to counter the flooding of the future. The park will have a grass beach stretching all the way to the subway line with a dune like park visible only at low tide. At high tide people can walk on a walking bridge to see the park, trying to make people aware of the effect of rising water levels.



‘The river as a tidal park’
The research project by Rotterdam Climate Initiative



Rotterdam Water City 2035
The study bt Studio Marcovermeulen with City of Rotterdam

Conslusion

The development of Maashaven started for the principal as the industrial harbor. The building of Maassilo was the significant object of the context in that period as the massive concrete factory that represent the industrial feeling of the harbor. The interesting fact in this area was the industrial building only dominant the north and south part of the harbor and left the east to be the street and leisure.

In the future, the approach of the building will be become even more appealing from the plan to connect Maashaven to Rijnhaven on foot and bike by making the bridge together with the floating community. This might be the test area for the floating living to study if it can solve the future problem of the increasing water level, in terms of urban, some of the voids will be filled. The area will become more massive with activities but it is also interesting to look on the reason of the growth from the ecological issue. This involve into the more invasion of the living and leisure in the harbor.

Chapter IV
Maassilo

Development

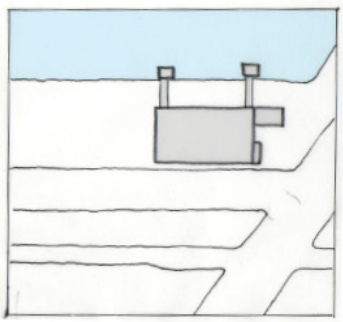
The construction of the first part of building by J.P. Stok finished in 1910 after the permission in 1906. In the first period the newly silo contained seven floor of factory part and space for 20,000 tons of grain with 20 meters high and two grains elevators and two small office building in front of the east facade. It was one of the first largest concrete silo in Rotterdam and one of the biggest silos of Europe at the time. The building was constructed in silo design principal with three parts of three functions, machinery space on the attic to collected grains, silo, and the packaging process at the ground floor. On photographs from 1917 a third elevator is already visible. In 1925 these traditional elevators where replaced with more advanced pneumatic systems. In 1927 the three towers where connected by bridges. On top of these bridges, portable elevators where placed to better being able to reach the ships.

In 1930, the second part of the building was completed by Architect Brinkman & van der Vlugt because the changing vision of the company which they decided to provide extra storage capacity for the harbor. The result was a 4,000 tons' extra storage which is three times of the existing storage amount expand along the harbor to the west. The silos are cantilevering over the street to maximize the capacity of the building and to ensure that the columns on the outer side are centrally loaded. However, the new part had to connect its transport system to the existing part then the another masses of the building were added on top of the first part where the grain was transported to the different silos using conveyors. With the extension of the building the existing transport system had to be improved as well. A new 65.5 meters long bridge was built, to increase the range of the portable pneumatic elevators. To make room for the new and longer bridge, the third tower had to be moved backwards onto the quay. The bridge is made of steel beams and columns covered with corrugated sheets of metal.

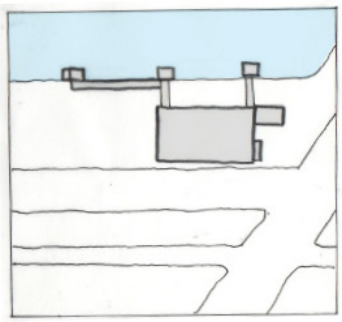
The third part of the building was built for the more demanding of storage. The building completed in 1951 by A.G. & J.D. Postma. The second extension was placed at the south façade at Brielselaan street covered the existing of the first and second part. Two silos nearly 40 meters high are placed on both sides of the existing transformer building. The extensions were 100 meters long and had a capacity of 22 tons separated from the rest of the building to increase the flexibility during storms. The services of this part connect in horizontal way from the second part directed from Brinkman elevator. To increase the transport capacity, an extra elevator was designed by Postma in 1958. The elevator transports grain from the basement to the 10th floor. Later in 1963, the office of Maassilo had to moved for the construction of metro station. The new office located over the harbor next to the first steel grain elevator because there was not enough space on the quay.

The latest development happened after the silo stop using as the storage in 2003 and the company moved to the Botlek. The Renovation was to be the nightclub using the ground floor area and later in 2008 the Creative Factory started to rent the building in the first part of Stok from second to seventh floor to made start up office.

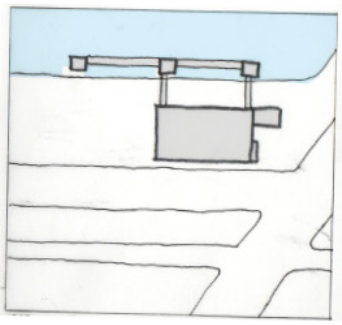
1910
Part 1: J.P. Stok



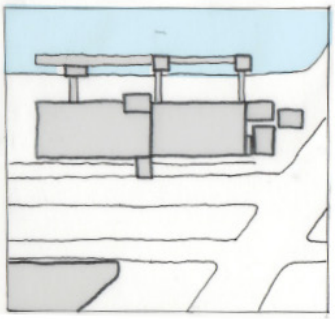
1917
Connecting structure quay



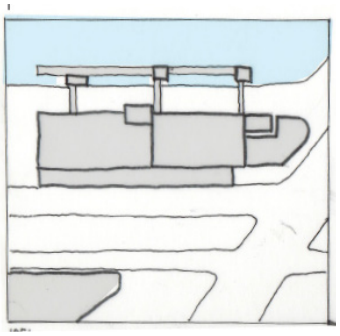
1925
Bridge above water



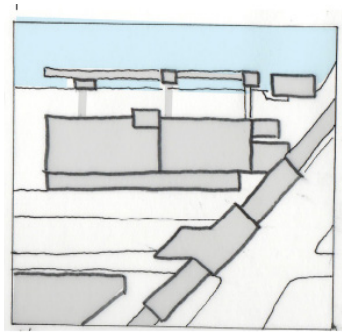
1930
Part 2: Brinkman-van der Vlugt



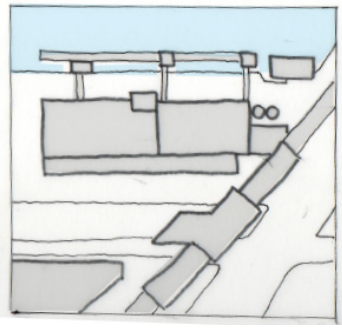
1951
Part 3: A.D.&J.D Postma



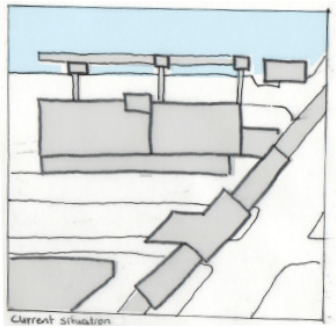
1963
Office-Dwelling: H.Haan



1980
Dwelling->Office



2008-present
Creative Factory&Night club



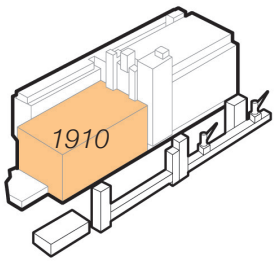
Drawing by B.Bronswijk, 2016

The first building by J.P.Stok: 1910

To begin with, the most significant part in industrial history of the building, the first part of Maassilo. The first building consists of three parts that visible from outside over each other, the lowest working space at ground floor, the silo in the middle and the distribution floor on top. However, the building again separates in three parts with vertical cut which will be elaborate in the section of construction and this result in the grid pattern of nine which all of them have the purify sense of the construction and express in the outside surfaces. The sense of mass can be defining by the separation of the differentiate of the shape of the silo and opening.

Look on the surfaces of the mass, one element has to be notice is the small canopy. In the past, the canopy used to be cantilever out of the building around 1 meter. This canopy prevented the building to result in complete box. The reason for making was not mentioned from the logical sense it might be used to prevent some light for the attic and protect the corner of the building from the rain. Later the canopy was cut to the less length in the second expansion by A.G. & J.D. Postma otherwise the gap between two building to reduce the cavity be two building. The presence of adding and removing masses also present in the public space in front of the east façade. There are always building there started together with the construction of the first phase but had been demolishing and introducing new function that fits for the organization of the building in each periods. However, we can say that the building somehow lost its sense of complete mass form from the extension especially in the second extension that covered two of three parts of the building in the façade of Brielselaan. The intrinsic of mass can still be found in north and east façade.

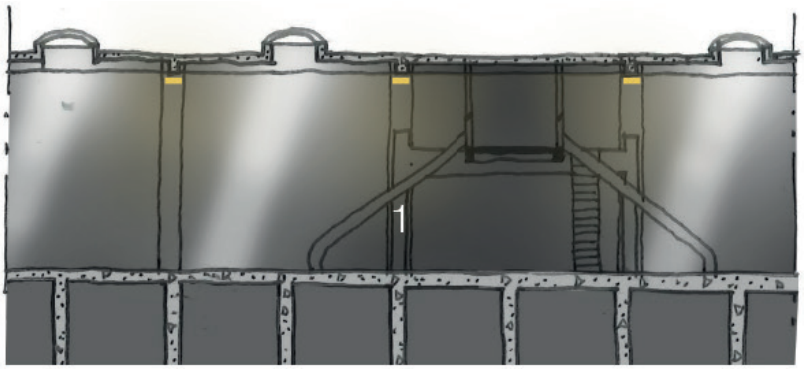
Move in to the building, the volume of the first building separate in four different feeling, the high ceiling with funnels on the ground floor, the typical ceiling height for working space, super high/deep feeling for silos, and the high ceiling with mezzanine for machinery at the attic. The ephemeral substance that take an account for dividing the feeling of space here is light. The wall at the ground floor in some part are presently replaced by window bringing lots of light for the café. In contrary the third part of the nightclub, the wall still remains. This provides the contrast of light and dark with no connection in between. The second to seventh floor of the first part, the natural light is invited by the typical windows replaced on the old small windows and natural light is used again for the attic with the roof skylight. The movement in the building happen in horizontal axis, only elevator at the east façade. With this aspect, the building should be easy to orientate but in the present situation with adding the wall separate the space make people easy to get lost in the building. The elements that can help to location the position as a guidance for access are the conveyor and pipe system that go along east and west direction which still present in the building.

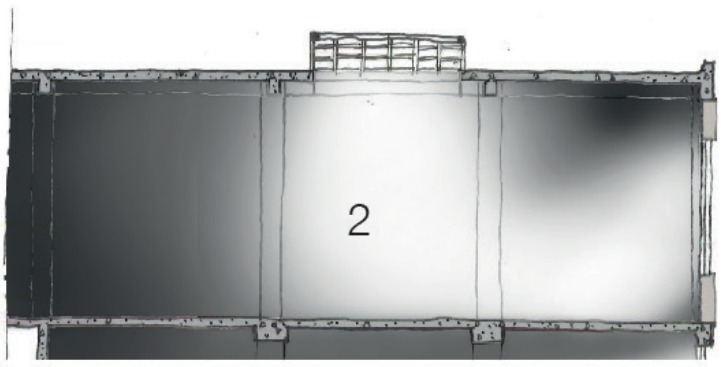


Maassilo

Maassilo: 1st building in old state with canopy

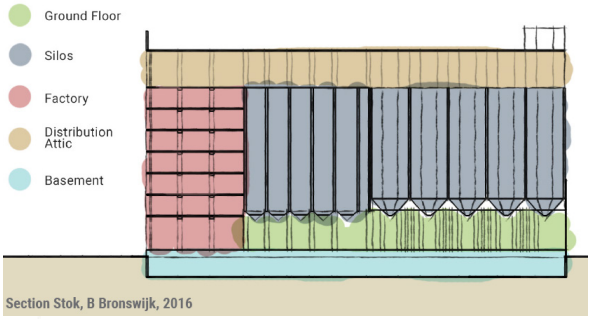
Maassilo: 1st building in present situation





The presence of light and volume in the attic.

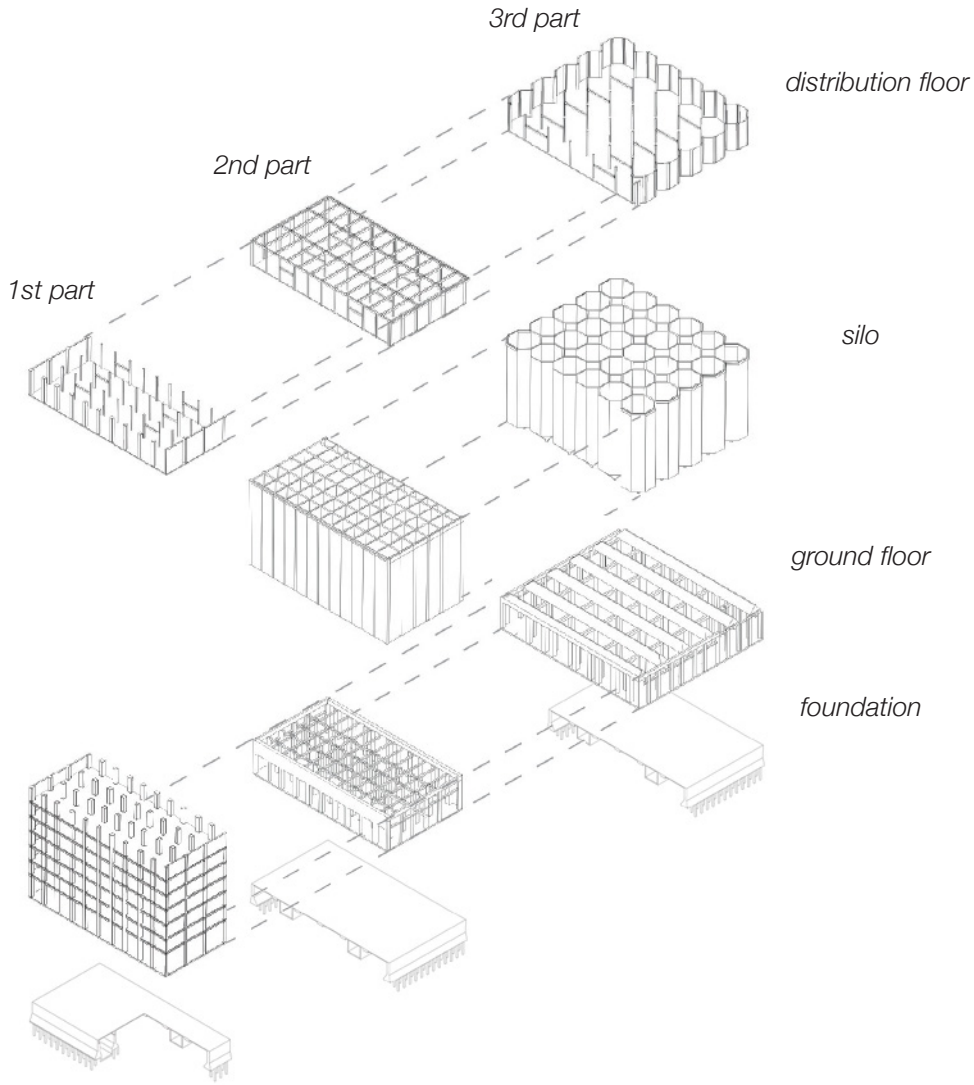
Top floor - unused space



Section of the first part

Structure

The order of the building using structure as guidance contain three parts. Firstly, the typical concrete column and beam system with concrete floor which visible from outside. The structure in this part was followed the load of mass which resulted in the functional column that getter smaller when they go higher. The second part has the basic three type division such as shown in the section (ground floor-silo cells-lighter top structure) of the the typical silo. The cell walls are thick and that the dimensions of the supporting beams are small due to small span supported with the big square columns at the ground floor. The third part also contains function as silos but with different shape from the second part. The silos here have octagonal shape to supported the need of bigger silos. In exchange, the columns on the ground floor get bigger with also octagonal shape. The attic of the second and third part use the concrete column and beam system for the need of mezzanine space for grain transportation and filling walls in between to reduce loads to concrete structure. The grid structure aligns in the same line for the first and third part but little shift for the middle part due to the less span for smaller silo. All parts of the building came with the continue concrete foundation with piles that be able to access with corridor for basement use to transport grain.



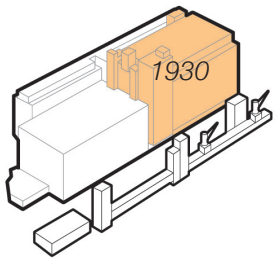
Structural diagram drawn by A.Belulaj, 2016

The second building by Brinkman & van der Vlugt: 1930

The second building located in the west side attached to the first building with the simplest appearance of all three parts from the street viewpoint. In contrary, the complex happens in the presence of the masses and volumes at attic floor. This building phase consist of three different type of masses that visible from outside, functional mass, circulation mass, and connecting mass for grain transportation. The functional mass has the principal of silo for the three part of working-silo-distribution floor. The silo in this phrase was constructed in purpose to maximize the storage area which result in the cantilever silo off the columns that visible in waterfront street. The second building (first extension), nowadays can be seen clearly only in north façade or the view from harbor. In north façade, the vertical mass was introduced for circulation of the grains and also human, this vertical box together with the opening on the skin makes one can notice that something is happening inside that was not silo and make overview of the façade divided into two parts. The south façade became inside the building from the extension of the third phase, only one part that can be seen from the opening between two building of the third phrase. Apart from the opening in the circulation building, the panoramic windows were introduced on the attic floor to maximum the light for the workers. Except from this two aspect of windows, other part of the building is the massive solid concrete.

Look deeply into the building, the perception of the volume is different in every work places. On the ground floor, the interior has the same content and experience as the part three of the first building with the high ceiling and many big columns. Here, the renovation of the night club makes the intervention of the area by removing some columns and replace with light steel columns. At the attic, the character of the volume followed the function and maximize the silo space with no waste space under the conveyor and the pipe system instead of putting the machine on the mezzanine space as the first building here was vice versa, the mezzanine is for workers. This result in more division of space with different levels. After the third building was built, the attic was reorganized for the better slope that suite for the machine as it had to transport the grain across the building, this provide the secret volume which the mass is followed this aspect. In consequence, there is the different height of the roof and the attic get the new mass that results to the complex character for the exterior of the building. In the past, the light used to be the essential part of the attic but later after the renovation of the night club, the interior walls were constructed for noise protection which change the presence of the interior from light to dark and address the building to even more introvert character.

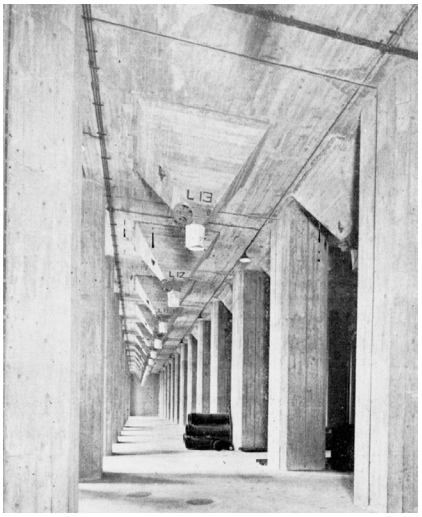
The vertical transportation mass, after the building stopped process, floors and machine were removed and the volume became high space if all the floors are all open we can sense the height of silo in this part. At present date, some floors are added but still we can notice the presence of height from the opening on the floor, basically this vertical box has the highest volume of all building.



Maassilo

Maassilo: 2nd part after completion

The changing perception in attic floor: after interior wall were placed



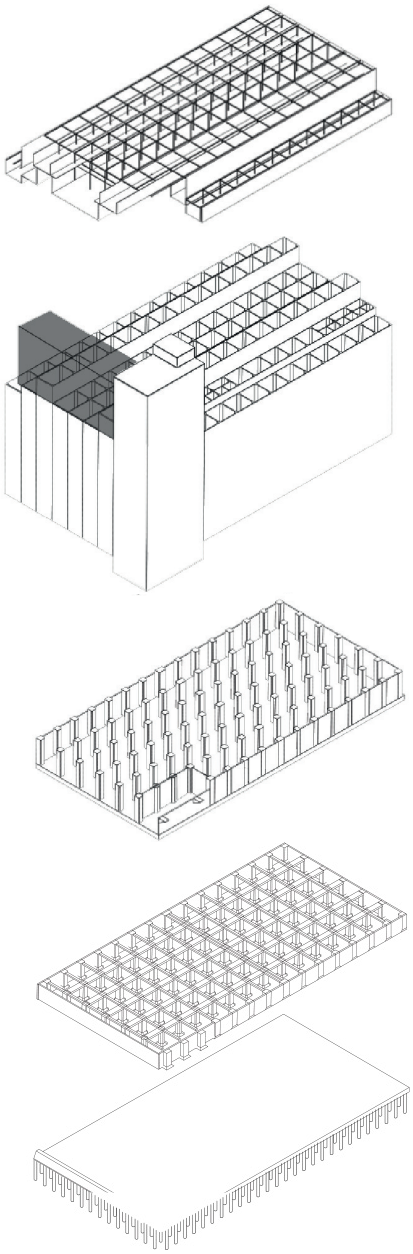
The sense of big column before and after the renovation to nightclub

S.Chittavanich, 2016

The complex of mass on the attic as the connection between buildngi

Structure

The structure of this phase use the same principal and grid line from the first phase. The massive size columns on the ground floor are in the square shape with corner filleted only octagonal column left on the connection area with vertical mass. Although, there is no clear indication why these columns differ from the other ones, one hypothesis could really on the fact that it was built first and adapted the columns of the first part. There is a big waffle concrete beams to support the silo instead of normal beams, here the construction state as the transition of masses. The foundation consists of one-meter concrete slab which rest on the pillars. The use of the Mc Donald system made the beams and bottom of silos are interconnected and act as one. There is a variety in cell sizes and also there is a structural reinforcement in the corners. In the top floor some of the silos are developed higher than others resulting in a deviation of the heights of the floors. In order to create a light structure, the structural elements are mainly steel columns and beams.



distribution floor

silo

ground floor

foundation

Structural diagram drawn by A.Belulaj, 2016

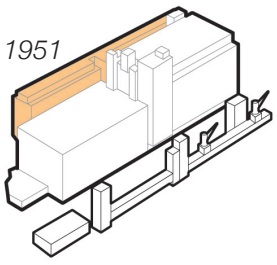
The third building by A.G. & J.D. Postma: 1951

The appearance of the mass of the third building results in two masses that almost symmetrical with the gap as the gate in between from the existing of the transformer house but still connected at the top floor for the distribution of the grains. The construction of the third phase destroy the purify sense of the first and second building but also create new value of the continuity of mass from very long façade and make the vision of the building from this side unity with its strong character. The same as other side, the function of the silo express in the façade. With the gap between two buildings, the sense of mass changes the first noticeable element not the division of the function but the the vertical gate shape then secondary perception is the function.

The building is trying to reacted with surrounding and city than the second that focus on maximum of the storage, the diagonal silo and column provide more friendly feeling with harmonize gradation feeling unlike the north façade from the second phase.

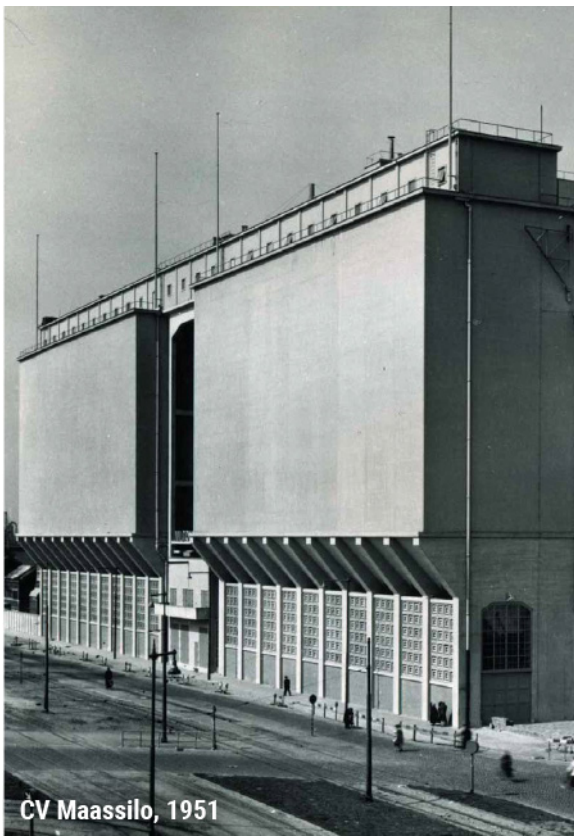
In order to made the process suitable for the new silo, an extra elevator was added in the second building which nowadays was left and the steel cladding was removed showing the transparent steel structure. The distribution attic floor was designed to step back a little bit from the perimeter of the silo because there was no need for that space and the machine here was placed on the floor and the silo infill state at the middle of the floor.

On the ground floor, same as another part of the building, the floor level is split for the shipment of the truck. In this space, the concrete block ornament was introduced to allowed natural light and vision in the building. The atmosphere is more concern of human experience with more connection to the outside but still stay as private space. The using of the concrete block also not allow all light because it located at the south direction. Unfortunately, nowadays the open of the concrete blocks were closed for noise protection of the night club which made the building lost the connection to the community and even more introvert and enclosed. However, at the end of the east façade, there is a big steel door for truck that invites lots of light to the interior. We can see that light used to be main substance of the volume. With the organization of the building, the top floor is free of secondary structure as the distribution zone in the past was located on floor level which contrast to the other top floors of the previous silos.

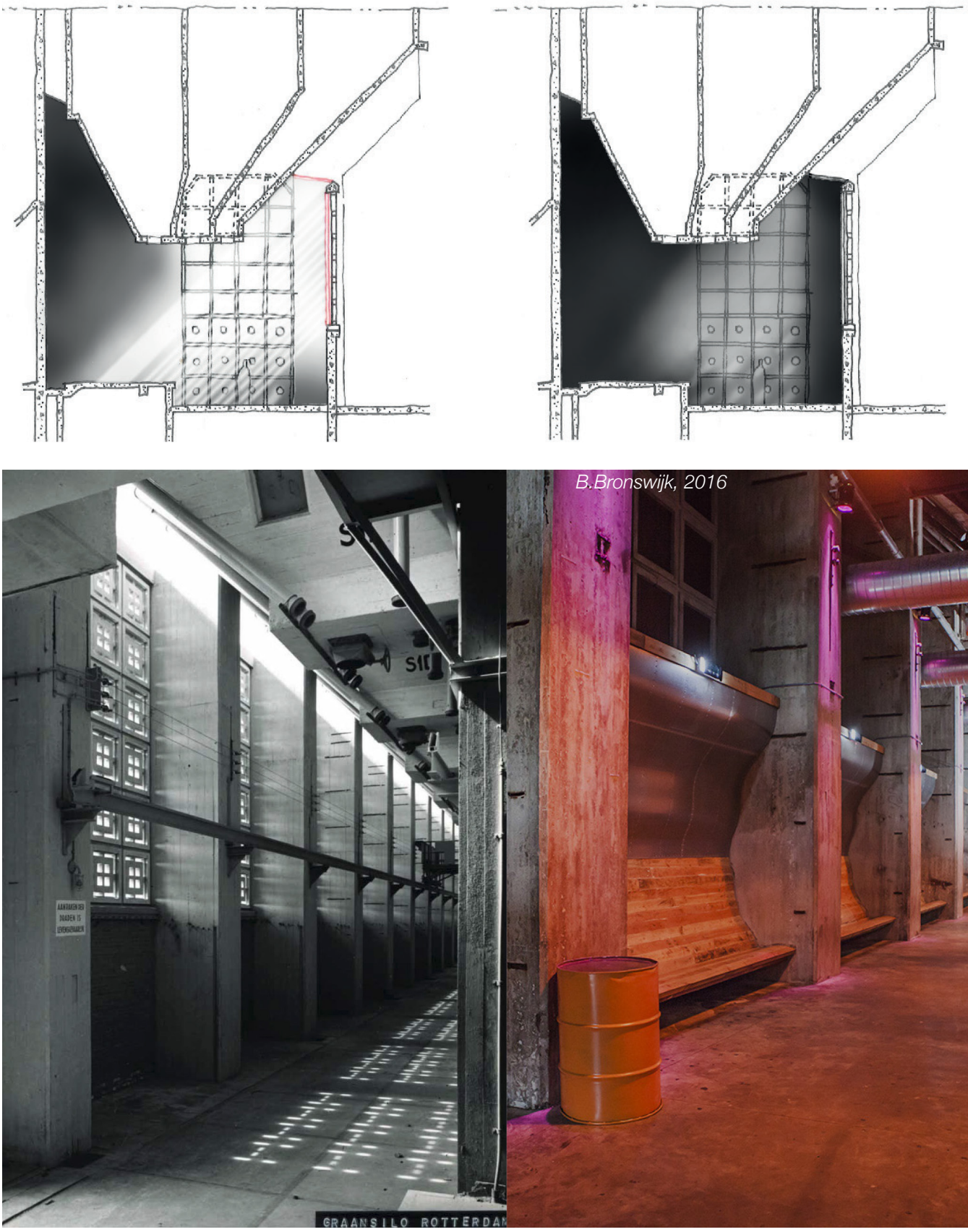


S.Chittavanich, 2016

S.Chittavanich, 2016



The mass and ornament of the third part

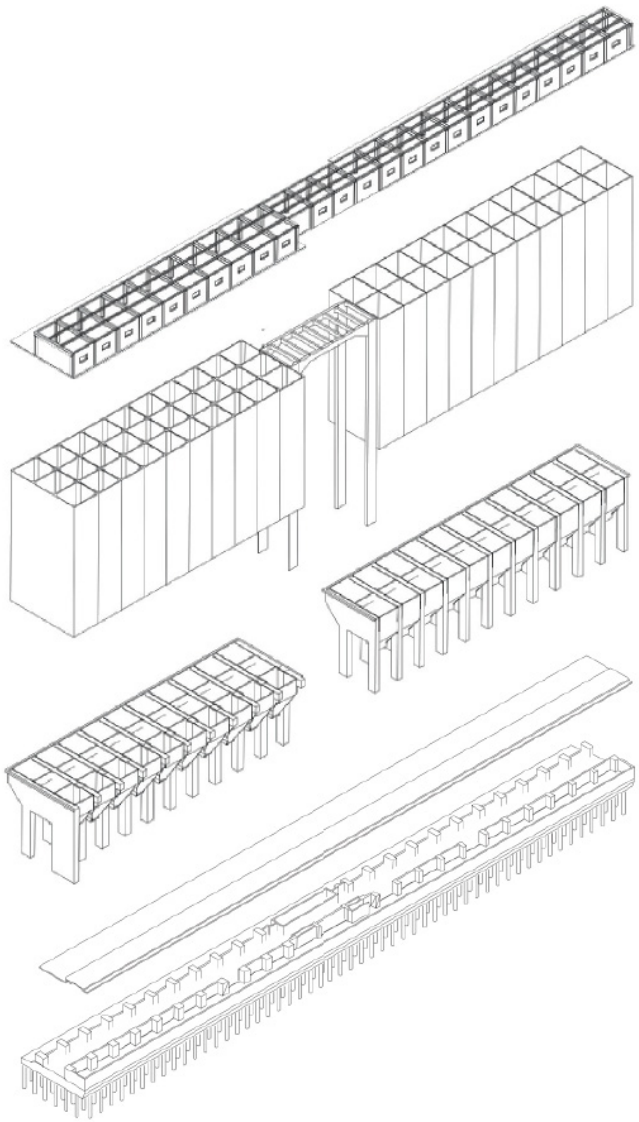


The changing of presence of light on the ground floor: before and after.

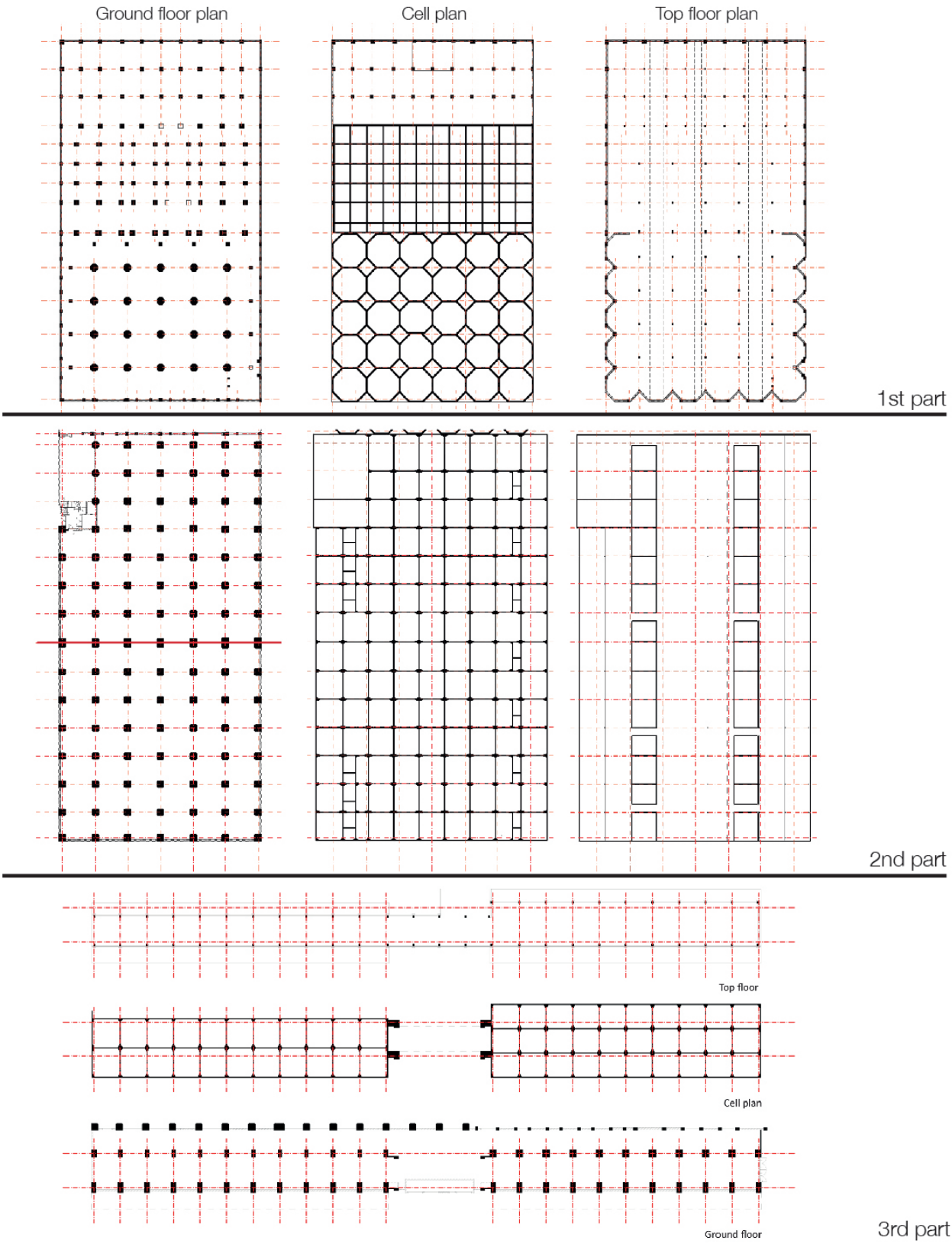
Structure

This silo is again made of reinforced concrete supported on 474 piles covered with a baseplate. The silo consists of two parts, which are developed along the rail line and are supported by can levers along the existing ones. The third part of the silos follows the same three part divisions. The two parts of this phase are connected on the upper level with concrete beams. There is expansion gap between the new building and the old parts which are connected through cantilevers. The foundation consists of pillars and a heavy concrete slab with the columns resting on top. There are beams only along the width of the structure, with extension supporting the exterior south part of the silos

What is interesting about these silos is that despite the heavy load that they have to carry, they were made in a rectangular shape. We can assume that they did not choose to make them octagonal or cylindrical due to the advancement in the building technology, which increased the quality of concrete and reinforcement. Thus, this technological development probably enabled the rectangular silos to be constructed.



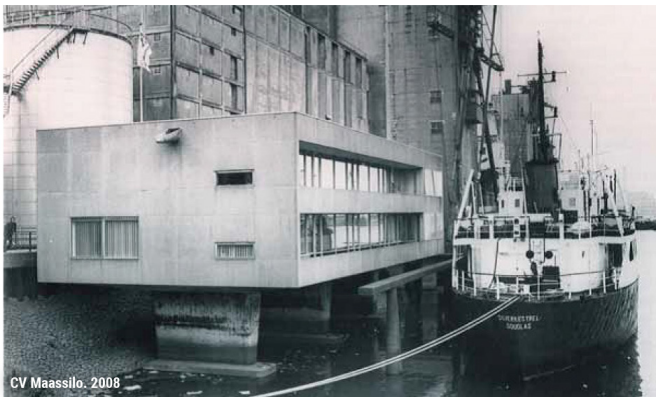
Structural diagram drawn by A.Belulaj, 2016



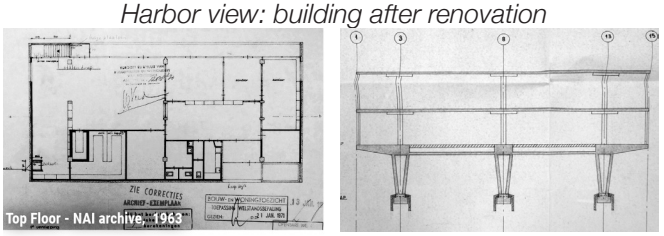
Structural plan drawn by A.Belulaj, 2016

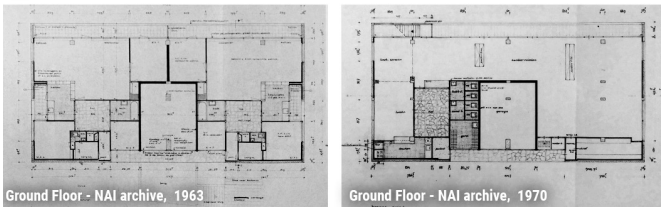
Office building by H.Haan: 1963

The office building as mentioned in the development of Maassilo that have to state over the water, the building state on three concrete pillars with the bottom up concrete floor to get crawl space under the lower floor. The building consists of two floor which use as office, before the lower used to be residential area for people who work above. The office building is cladded with precast concrete panels and anodized aluminum frames with the complete rectangular shape. The building invites high amount of light from the floor to ceiling windows but still keep its privacy with solid railing. The big opening located at the north façade face to the harbor while in the south using small windows for the service function such as toilet, kitchen and garage to keep the privacy of the building. The office building lost its authentic character from one of the renovation that want to connect two floors together by add the staircase at the water façade which had been removed later. However, the changing of mass reflects to the exterior, the intrinsic of the horizontal line with the pushing of mass inside is somehow can be notice but not beautiful as it uses to be. The building is connected with Maassilo with the using of concrete material, the rectangular mass, and with the sharing public space in front of both building but little distract with the street.

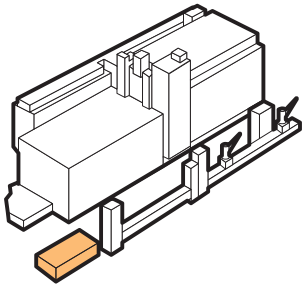


Harbor view: building after renovation





Drawing from different period



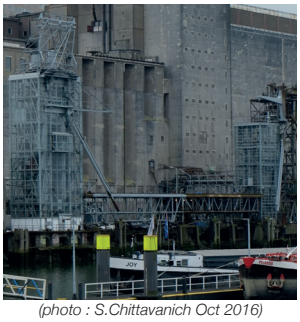
Maassilo

Water grain elevators

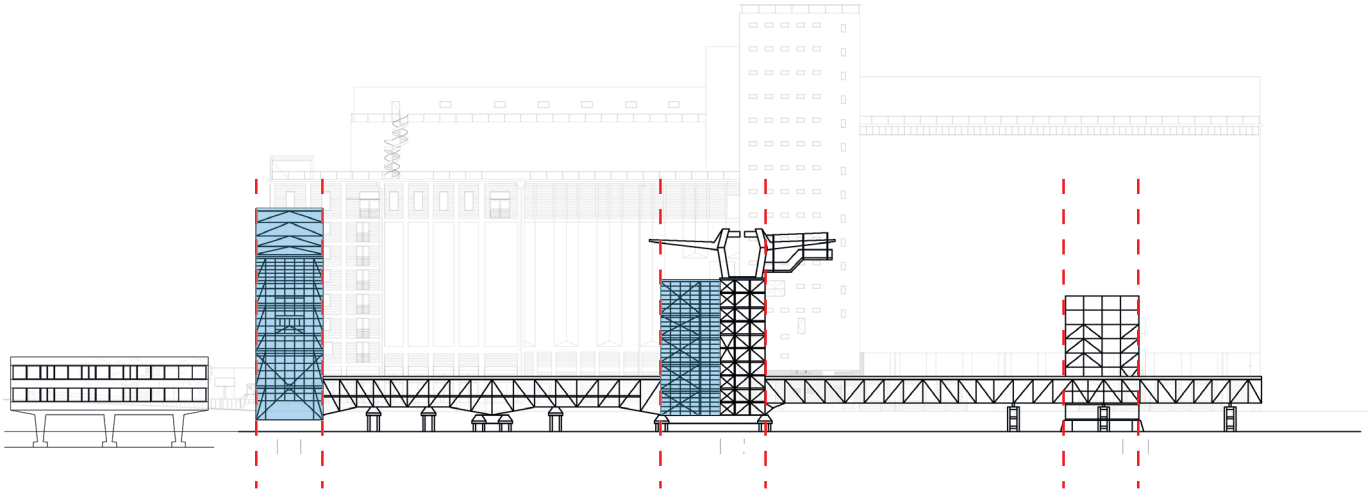
The water elevators are essential in the history of the Maassilo as it was built at the same period with the building. Nowadays, the structure become monumental through it reflects the industrial value of the Maashaven. The water grain elevators contain three elevators, two portable machine, and all connected with steel bridge stated on concrete foundation and piles. At every elevator, there is the steel bridge structure link the elevators to the building for grain transportation. After Maassilo stopped function as the silo, the character of the water elevators changes from the solid to transparent because the Maassilo in collaboration with cultural foundation want to preserve them as the cultural industrial heritage. At the present situation, the process of renovation is still ongoing by cover the steel structure again with glass and repaint the steel bridge. One to be concern for the renovation is the structure of both elevators and bridges was designed for grains not for large amount of people, the structure might need new support if the new intervention is function for human.

Photo: Gemeentearchief Rotterdam, 1913

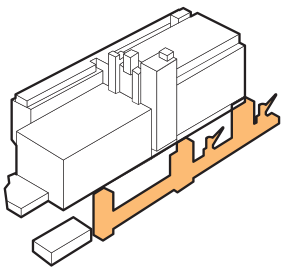
Stichting Renovatie, Cultureel Industrieel Erfgoed Elevatoren Maashaven Rotterdam, mei 2015



(photo : S.Chittavanich Oct 2016)



North elevation



Maassilo

Conclusion

From the analysis, we can clearly see that Maassilo is the very straight building. All of the development of the building were intrinsic in terms of construction, architecture, organization, and function.

Architecture

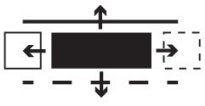
The concrete structure together with the function of the silo resulted in the enclose massive mass that cut out the connection with surrounding only some part left connected such as floor to ceiling window on the ground floor at east façade and opening on the roof. This was the consequence of the combining workspace of human and machine. The overall massing of the building is the combination of simply and complex. From the human eye view, the huge of the mass makes the building easy to read and understand with the clear plain wall, from the perception of human, the simple massive gives the strong, stable, mysterious but unfriendly experience. On the other hand, the complicated happened in the attic with the combination of many masses from the height requirement of the machine and also when they tried to connect the organization of the second part to the silo of the first part. This complex situation can be clearly seen from far away and on the top floor of the building, the reorganization of the mass and connection should be address for the design. The pattern on the surface together with the age of the building give the readability to notice the different of masses and their character of the building. The function of each masses also different in every pattern. These aspects show that Maassilo actually try to reveal itself. The building is more transparent than how its look and very straightforward through its introvert character. However, with the development to the night club, the building is more introvert and the presence of dark was enlarged from the close of openings.

From the outside of solid to the inside of void, the connection of the opening provided the differentiate character of the space followed the location of the windows. Ground floor used to have the natural light from the side by the historical function packing the grain before shipment while the attic invites the light from above using skylight, this is the result from the explosion issue which is better to let it explode to the sky instead of horizontal axis to the community. The building still remains the atmosphere of industrial with original machinery such as conveyor, pipe line and funnels. The volumes of the building have the longitudinal space in horizontal axis. There is barely vertical connection if not include the silo area, only vertical movement allowed at the side of the building and only two points one in 1st part another in 2nd part. The massive perception from outside cannot be sense from inside and with the differentiate of the building period, it is hard to notice the direction in the building. We can assume the presence of the volume as the dungeon with the machine as the clue to orientation yourself.

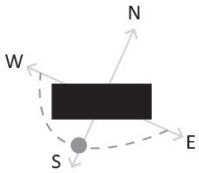
Apart from the main building, more need to be concern is the connection between the main building, steel grain elevators and office building. These three share the public space together in the east part of the building perimeter. All buildings together provided the sense of industrial complex and connection with the harbour. The steel elevators acted as the transition between massive concrete and voids over the water by its transparent glass covered with steel structure. The hierarchy of the ensemble is important to mention as the in-between feeling of mass and void.

Construction

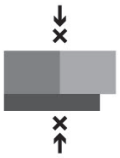
The size of the silos is different in every area for various kind of grain and the evolution of construction technique. The building is actually not complex from the structure but more in terms of volume that had to be serve different dimension of machinery. The structure has the high value in this terms of construction technique and historical aspect especially the first part of Stok which was the first concrete silo in Netherlands which also functional as the special length platform of the foundation. The construction divided in three part followed the typology of the silo, the enormous column at the ground floor the concrete wall bearing in silo part and light steel structure at the attic. This shows the reasonably organization of the structure that getting lighter until the top floor with the thin roof in case of explosion.



Building as the junction

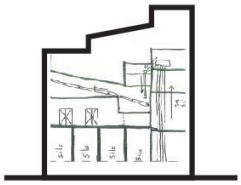


Building orient to the east-west direction

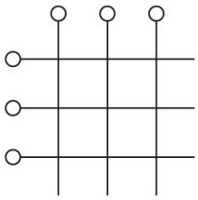


Enclose and introvert growth

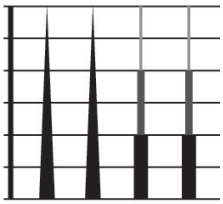
The outside massive scale cannot be feel from inside



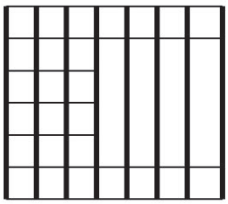
Maas and volume followed historical function and proces



A clear repetition of the grid lines visible in construction

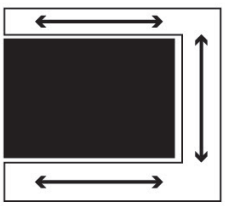


Construction becomes thinner towards the top



Construction visible in facades

Historical function related to facade rhythm and usable space



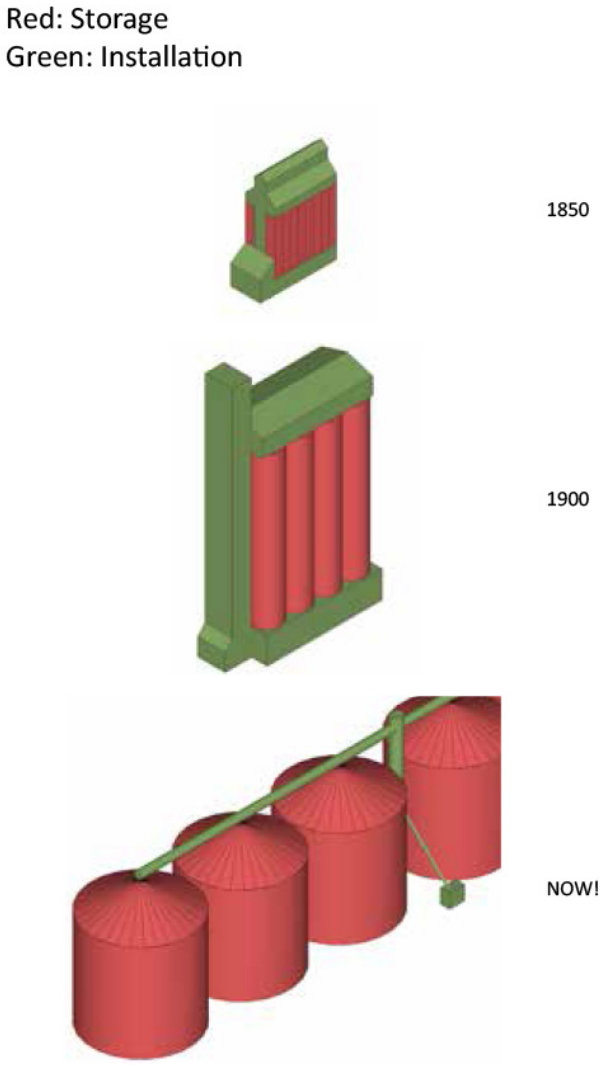
Vertical circulation apply only on the side

Chapter V
Silo

Typology of silo

Silos are a typical typology in the industrial building history. this building type is common in the Netherlands. Silos are build everywhere, in the city, on the country side, near the water, train-tracks and highways. The character of a silo are blind facades, vertical orientated, consist of shafts and at the top and bottom activities are experienced.

A silo is installation on to store and to adapt a resource. These resources can be everything from grain to oil. A silo is not intended to be beautiful, it accommodates technology and results from technical developments. These technical developments define the form. Still these buildings are hiding a beauty and architecture, they are also part of the landscape or urban plan. Also the social aspect scan be very important. Silos are place where people worked, it was a kind of a symbol for the community. Silos are telling also a story of technical development during the centuries.



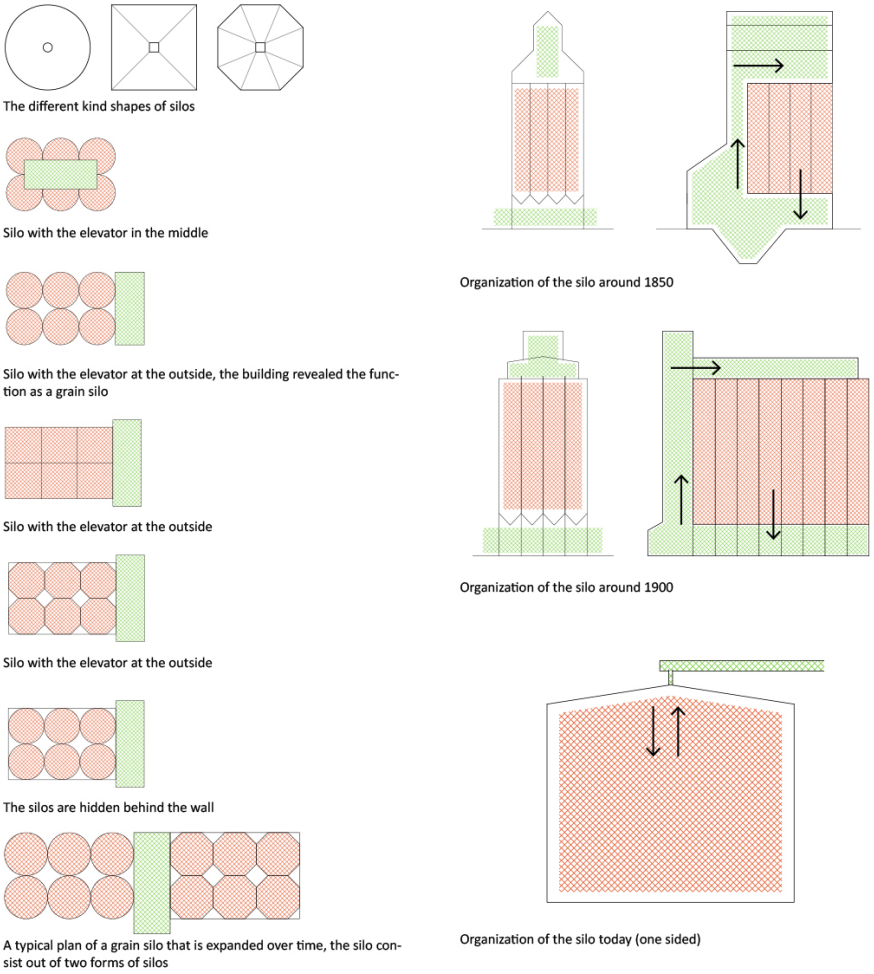
Schematic change of the appearance of the "modern" silo
Drawing by G.Leunissen, 2016

The appearence of the silo building

Plan
The plan of a grain-silo consists of two components namely: the cells and the installation/ transportation of the goods. Mostly the cells are a repetition of several cells. The installation/transportation can be positioned next to or above the cells.

Form follows function,
The appearance of a silo depends a lot on the kind of installation because a silo is just an installation it exists out of machines. The discussion about the appearance change much overtime from an industrial castle to a functional machine. Globally you can separate two types of silo in history.
1. The silos are hidden behind a facade so the function of the building is not immediately visible.
2. The Silos are visible, the building revealed the function as industrial installation.

Concrete
Reinforced concrete is the most used material for silo buildings. The advantage of concrete is that the dimensions are almost limitless. The pressure can be incorporated by the concrete and the tensile strength by the reinforcement. Yet another advantage is the speed of construction, through the use of '' sliding formwork ''.



Drawing by G.Leunissen, 2016

How silo work?

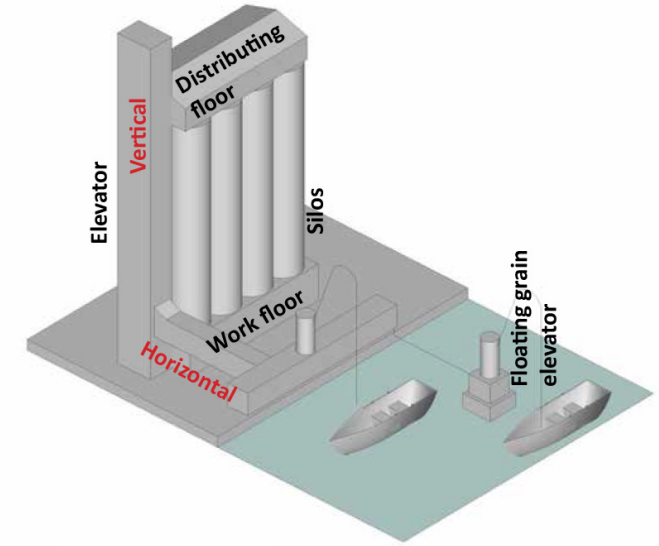
A silo building exist out of two parts. Part one, the elevator shaft and installation. Part two, the silo as storage space. In the design process the architect starts with a scheme of the installation and the storage space after that the envelope of the building, the appearance of the silo depends a lot of the time it is build. The evolution of the grain installation has also a great impact of the appearance of a silo building. The silo that which I will describe is a bulk silo for grain. With bulk is meant as goods that is loaded in the hold of the ship, so not per piece, container or on pallets.

When the ship arrived the goods will transport through a pipe, steel screw or elevator leg. This pipe system can also be a floating grain elevator.
The grain can transport horizontal and vertical on several ways, with a “elevator leg,” rolling tire (only horizontal) and with a pneumatic pipe that causes a suction force. The first elevators in America had a wooden screw.

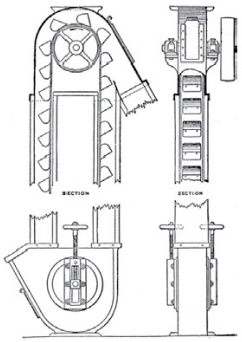
The elevator leg is still used today, so you could not date a silo with this equipment. Especially in smaller businesses it still be used today because it is easy to maintain.

When the grain is inside the silo building, the grain will be weight and cleaned. These actions create a lot of dust. This substance can be discharged again through a ventilation hole or by a purely installation. This substance is hazardous to health and the risk of tire or explosion is present.

At the distributing floor the grain can be transported into the silos directly or put on an other horizontal transportation for the bigger silo. This transportation can be a rolling tire, elevator leg or a pneumatic system. This system is placed at a higher level and can through a pipe enter the silo to store finally the grain.

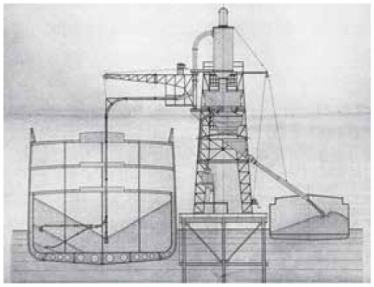


The components of a silo at the waterside



Elevator leg (Clipart.com/grainsilo elevator leg)

The components of a silo at the waterside



A floating grain elevator that transported the goods into smaller boats (rapport CV graansilo maashaven)


1. The grain sucked out the boat

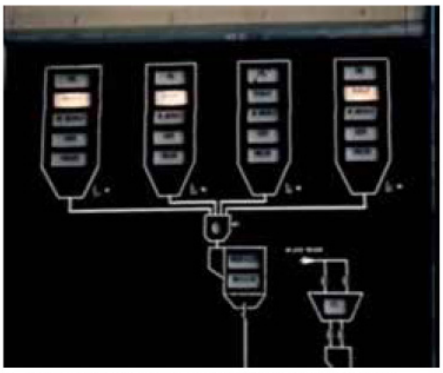

2. The elevator leg transport the grain to the distributing floor


3. The grain is weighed and cleaned before it goes into the silos


4. At the distribution floor the grain is transported to the tube that goes into the silos


5. The distribution floor with the pipes that let the grain into the silos


6. Inspector goes (rarely) into the silo


7. In the inspection room they can see which silos are full or empty


8. At the top of the work floor you see the funnels of the silo


9. At the work floor the grain can be transported to an other place where it can be further processed


10. An option is that the company can put the grain in sacks


11. The grain put in a sack


12. The grain loaded on a truck

The organization of Maassilo

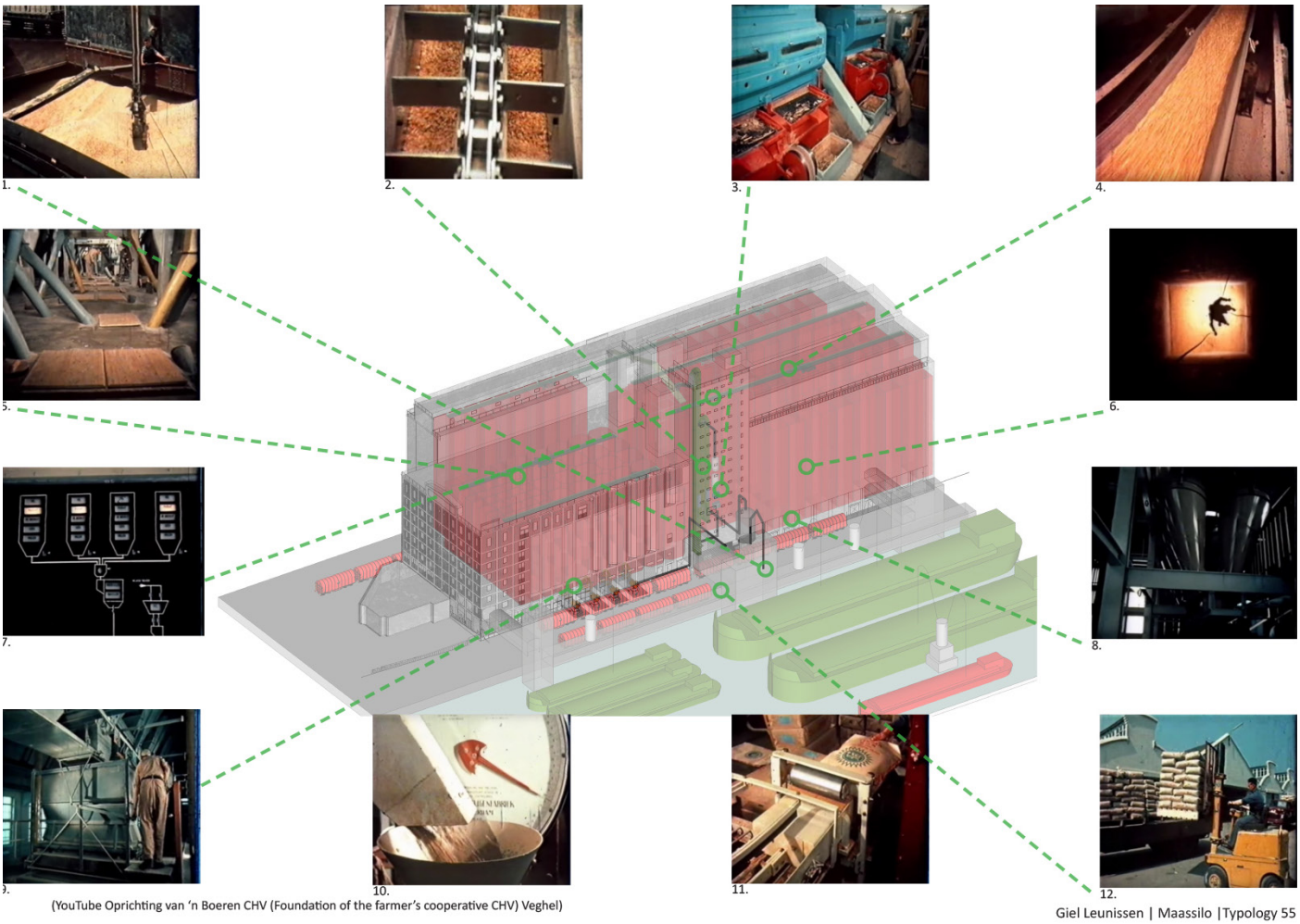
At the beginning, there were two grain elevators positioned at the quay used for load and unload the grain from the ships. The grain elevator at the east side unloaded the grain from the ships and put it into bags. After that the bags were dropped from the transport bridge over the tracks into train wagons. From this elevator the bags got loaded into the ships as well. The tower at the west was specifically used to transport the grain from the ships into the silo and the other way around. Using a grain elevator, the ships got unloaded and the grain was dropped onto conveyors which connected to the silo building through a transport bridge. From here the grain was transported to one of the main vertical grain elevators inside the building. The attic houses two conveyors which distribute the grain into the different silos. The horizontal transportation process also happened in the basement from the east to the west side of the building.

The third elevator is already visible in 1917. Later, the three towers were connected by bridges with portable elevators on top for better to reach the ships. Inside the grain elevators, there were belts with a row of cups attached to it. The grain is vertically transported in the cups. On the top of the elevator, the grain was dropped into a separate canal. This simple system was probably very cheap and is still often being used in the industry. The system in Maassilo used the mechanic and pneumatic systems that were used next to each other. The different systems can be recognized by the square canals for the mechanical elevators and round tubes for the pneumatic ones.

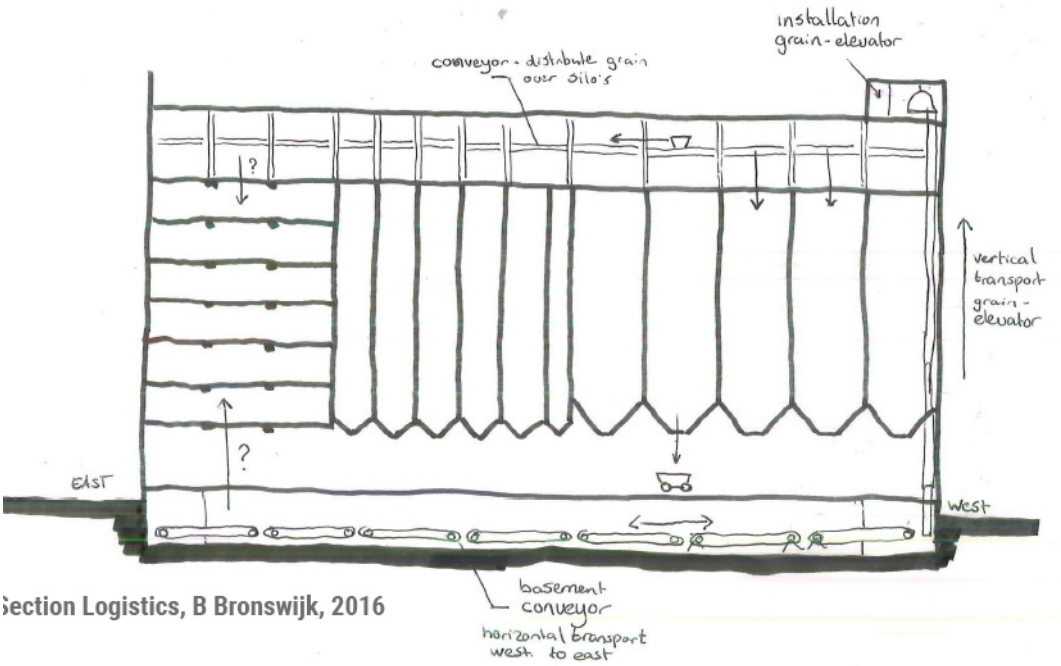
With the extension of the third building, the existing transport system had to be improved as well. A new 65.5 meters long bridge was built to increase the range of the portable pneumatic elevators. The bridge made with steel beams and columns covered with corrugated sheets of metal.

There are two conveyor covers the total length of the bridge. One transported the grain to the second static elevator tower while another transported the grain to the third tower. From here is was transported into the building. The incoming grain was transported by conveyors in the basement to the central tower of the new silo. In the tower, the grain was transported to the top floor. On top of the silos the transport attic is located. Using horizontal conveyors and tubes the grain is dropped into the different silos. The floor of the attic varies in height, because of the varying height of the silos underneath. The silos are variety in height to maximize the storage capacity. The conveyors are located on top of the highest silos.

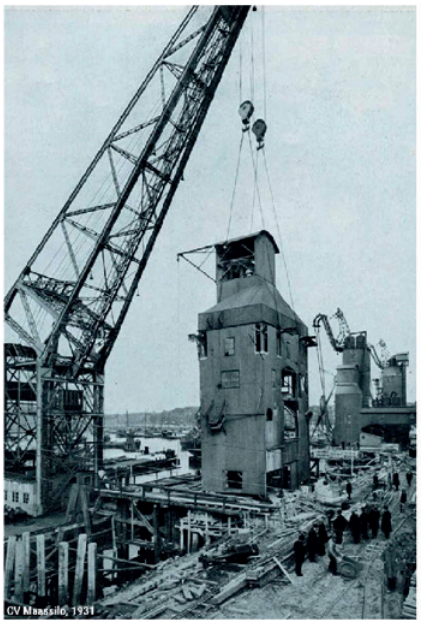
The services of the third part are very straight forward. The existing horizontal conveyor perpendicular to the Brinkman elevator was extended and the grain was dropped onto one of the two new horizontal conveyor. Each conveyor covered one side of the Postma silo. From this conveyor the grain was dropped into the silos below.

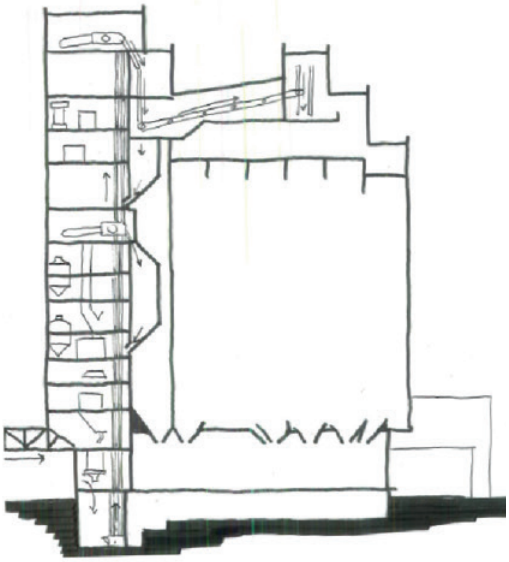


Drawing by G.Leunissen, 2016



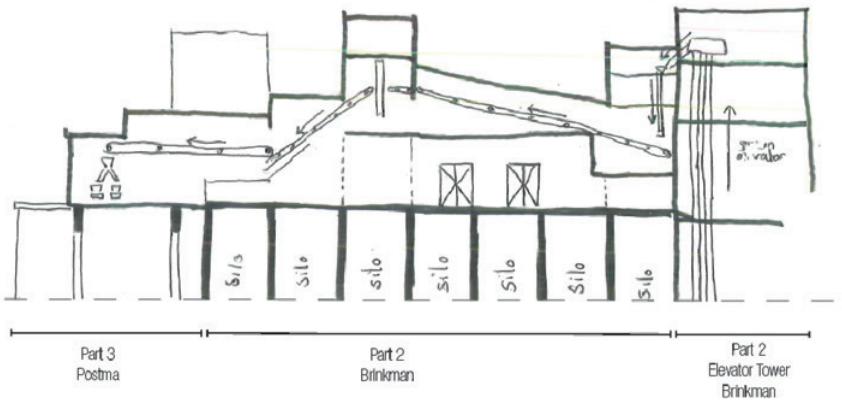
Logistic section: the first building (B.Bronswijk, 2016)

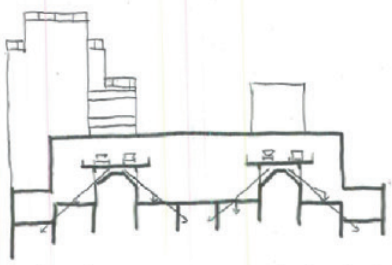




A conveyor perpendicular to the tower drops the grain onto one of the two other convevors

Logistic section: the second building (B.Bronswijk, 2016)





In the attic two conveyor cover the length of the building and distribute the grain.

Logistic section: horizontal transportation to third bilding (B.Bronswijk, 2016)

Conclusion

From the building type like silo, the function and organization are significant issue that are the best explanation of the building. Moreover, with the context that located nearby the water, the organization provided the strong connection between inside and outside with the activities of the machine. Maassilo was well calculated for the number of water elevators to fit the amount of the storage in efficiency.

The organization of Maassilo used the typical principal of silo, basically unloaded grains from the ship transported into the building then shifting to the top floor to keep in the silos. The complex of the process happened when the extension buildings were added in both second and third phase using the existing space and the progress needed to be apply for every area of the building. This results in the adding and changing of mass and volume which needed to be fit with the dimension and requirement of the machine. It is clear that function especially in the industrial building has high relationship that will define the space of the building follow the idea of form followed function.

With this statement, the organization is considered as the high value of the building in historical term for the development of the building and architectural terms for the use of space and the movement in the building for human and non human. Moreover, it also reflects the spirit of the building as the industrial expression.

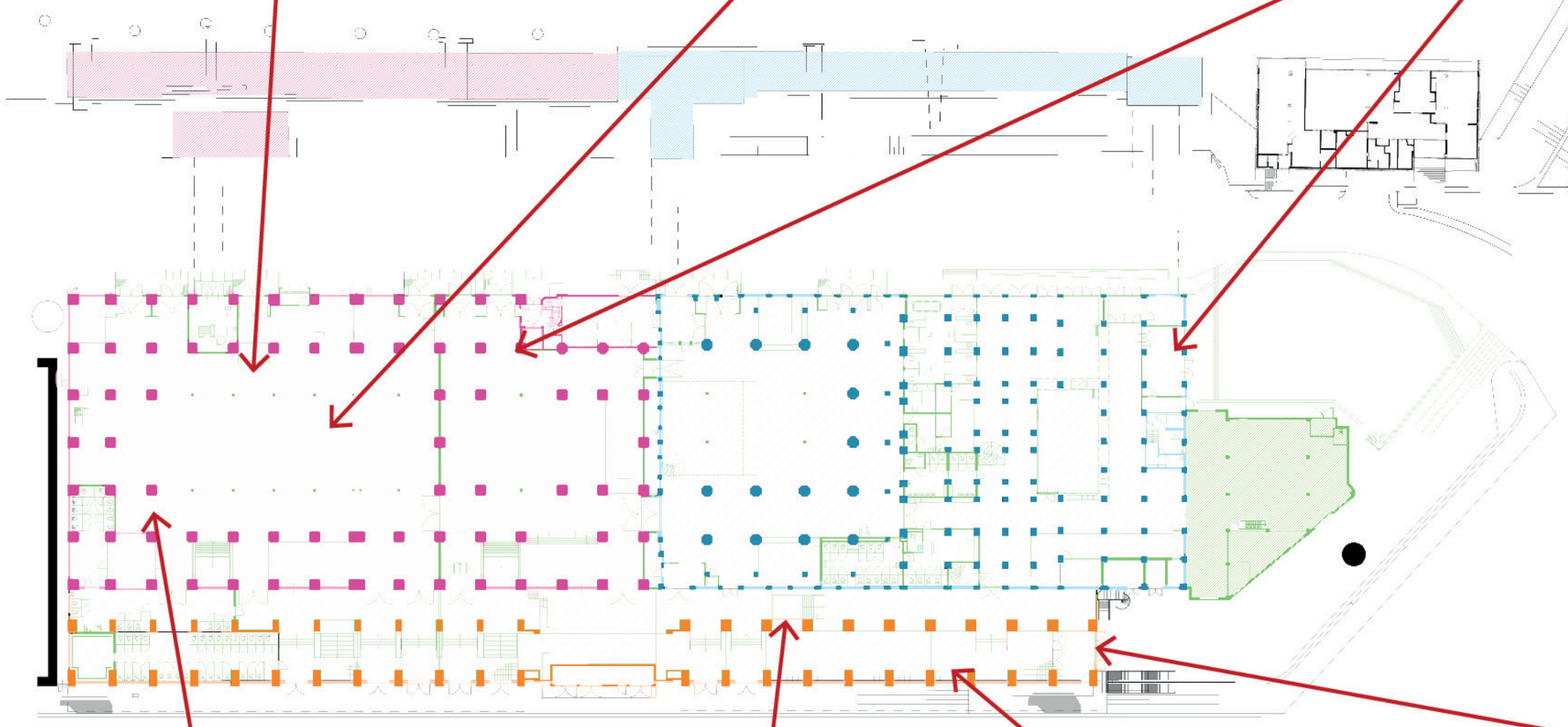
Chapter VI
Value of the building

<-Conflict 01

The original concrete columns was cut and replaced by cylindrical steel column.

Conflict 02->

Some elements (funnels) are integrated into the new intervention (walls).



<-Hints

The number on funnels and walls help people to notice your position in the building.

<-Original ornaments

The original elements of concrete blocks that are closed by steel plate.

Lighting->

Natural light is the original substance provided human friendly feeling.

Traffic light
(redevelopment + office)

high value medium value low value

Historical mapping
(high value- low value)

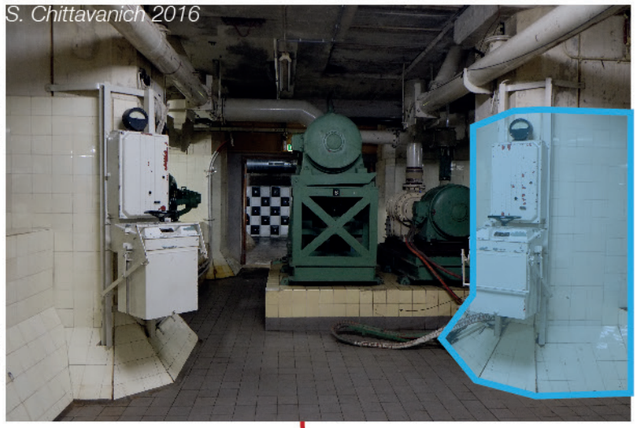
1951-high 1951-low 1930-high 1930-low 1910-high 1910-low

<-Machinery space

The area for original machine with the changing of material of the use of tiles for easy cleaning.

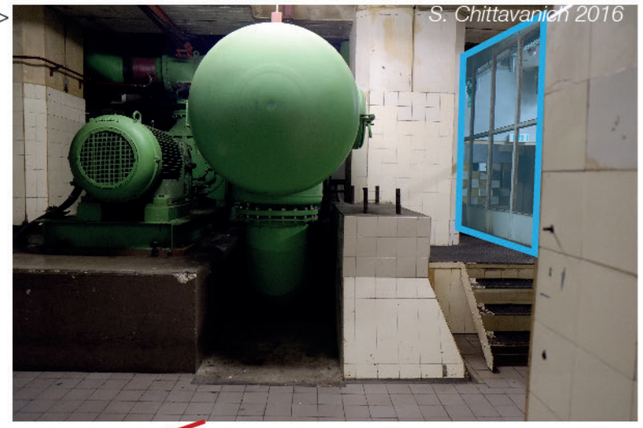
Column tiles->

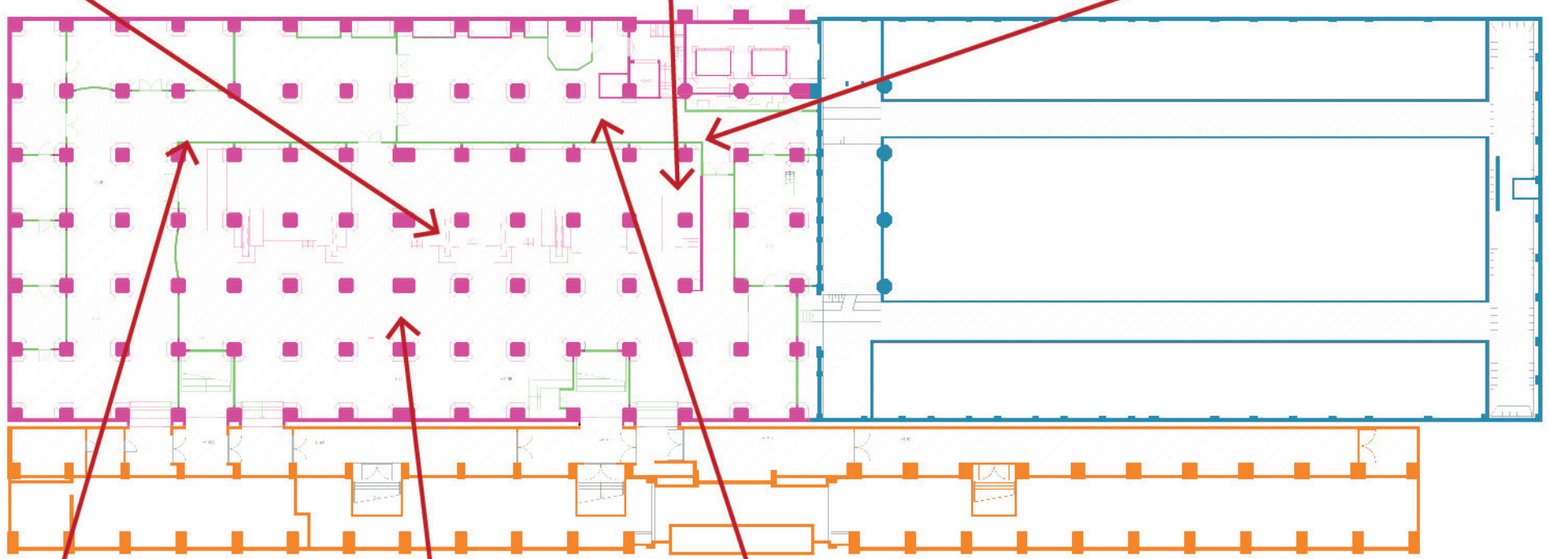
The column also claded with tiles but only half of all height.

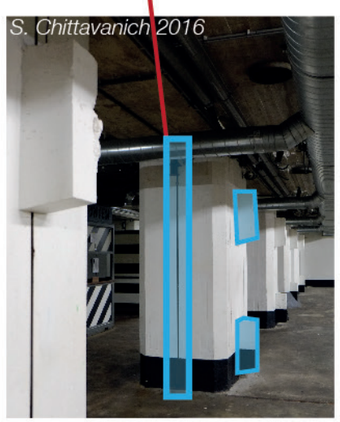


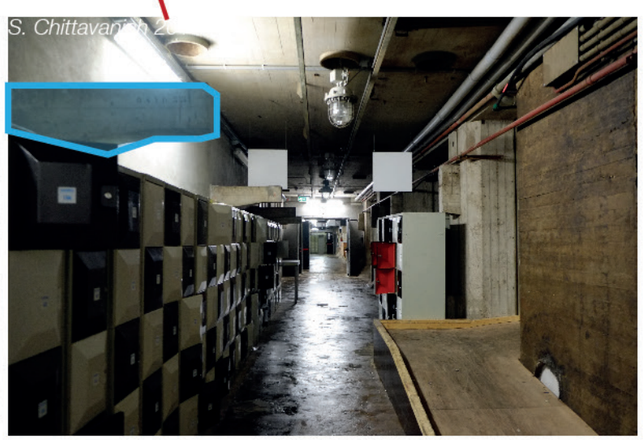
Separation walls->

Apart from floor material, the light walls also help in dividing space of the machine and human circulation









<-Functional column

The elements that cantelieve out of the column used to use for the function of the grain transportation.

At the center of the column, there are steel stripes use for sticht the machine or walls.

Traffic light
(redevelopment + office)

high value medium value low value

Historical mapping
(high value- low value)

1951-high 1951-low 1930-high 1930-low 1910-high 1910-low

S. Chittavanich 2016

<-Original elevator and staircase

Space for machine->

The structure of the original conveyor belts run through the building. This is only part in the attic that left unused and well preserved. These have great value.

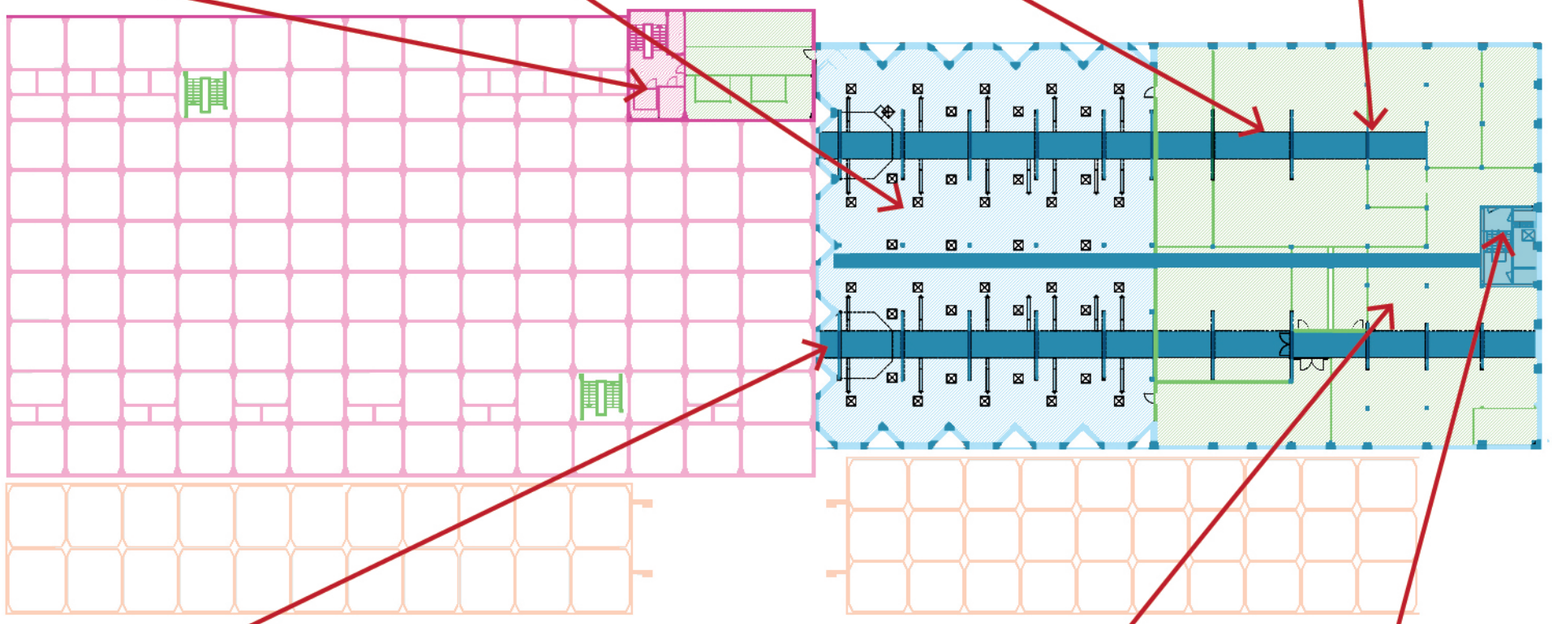

S. Chittavanich 2016


S. Chittavanich 2016

<-Conveyor mezanine

Original element->

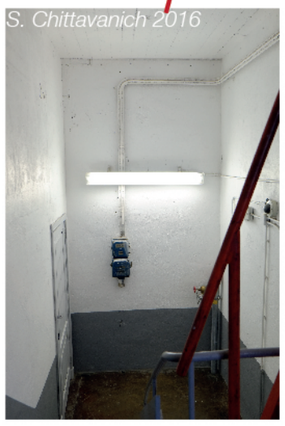

S. Chittavanich 2016



<- Elevator tubes ->

The elevator tubes distributed the grain through the silo show the Maassilo functioned as a machine.


S. Chittavanich 2016


S. Chittavanich 2016

<-Original staircase

The staircase is still original and display the orignal logistics of the building and the only vertical circulation in the first building of J.P.Stok.

Traffic light
(redevelopment + office)

high value | medium value | low value

Historical mapping
(high value- low value)

1951-high | 1951-low | 1930-high | 1930-low | 1910-high | 1910-low

<-Splited level

The different levels represent the original organization of the building with the essence of the light.

Distribution space->

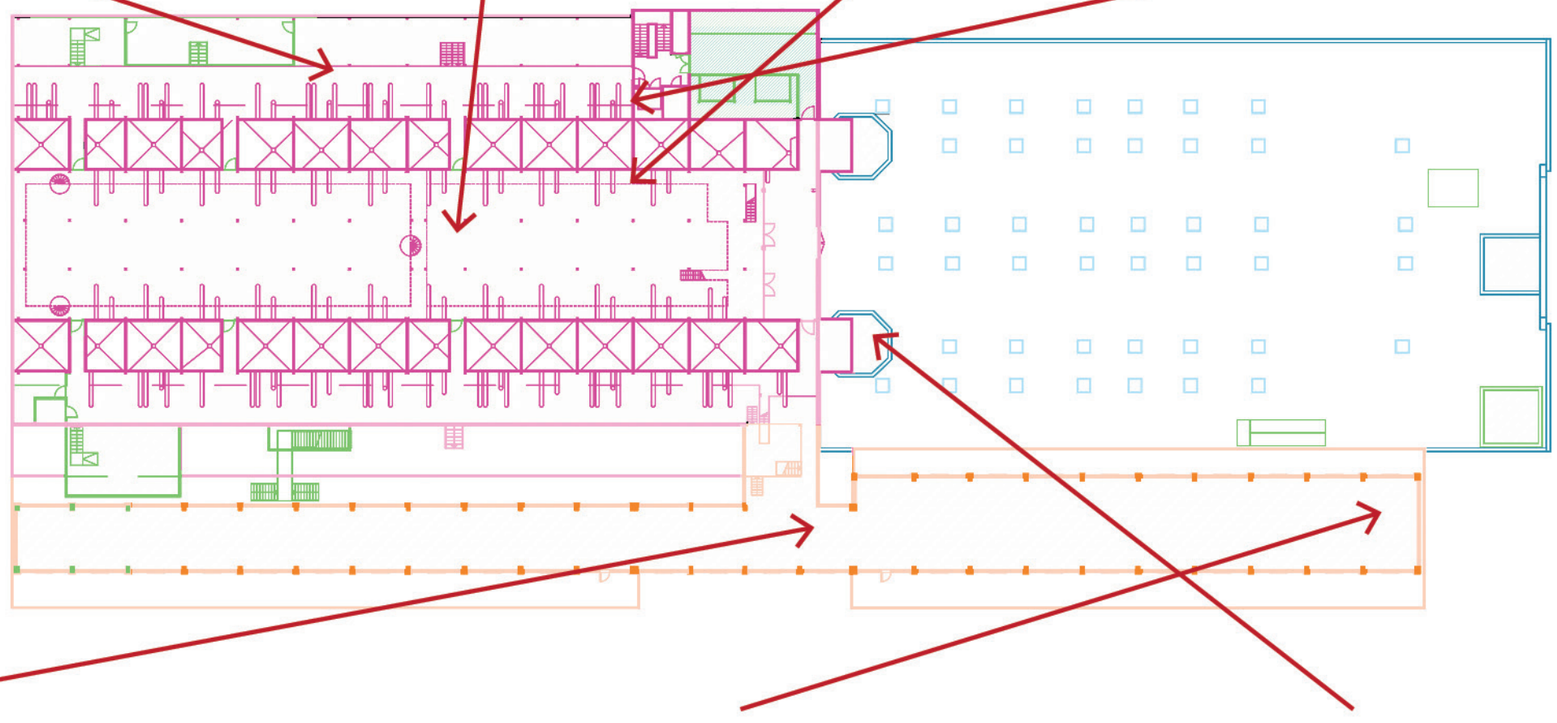
The longitudinal space for working with mezzanine as for conveyor.

<-Pipe

Original ornament show the industrial feeling.

Service spaces->

The transition as service space between big hall represent how the system work that pass through the wall.



<- Machinery ornament ->

The original machine that still remain show how the grain storage process go.

Complex of mass->

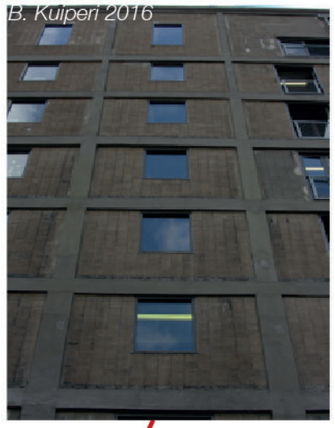
The complex of connection, different masses link between the first and second building integrate with the transparent box that use to be in the grain transportation process from second to third building.

Traffic light
(redevelopment + office)

high value medium value low value

Historical mapping
(high value- low value)

1951-high 1951-low 1930-high 1930-low 1910-high 1910-low

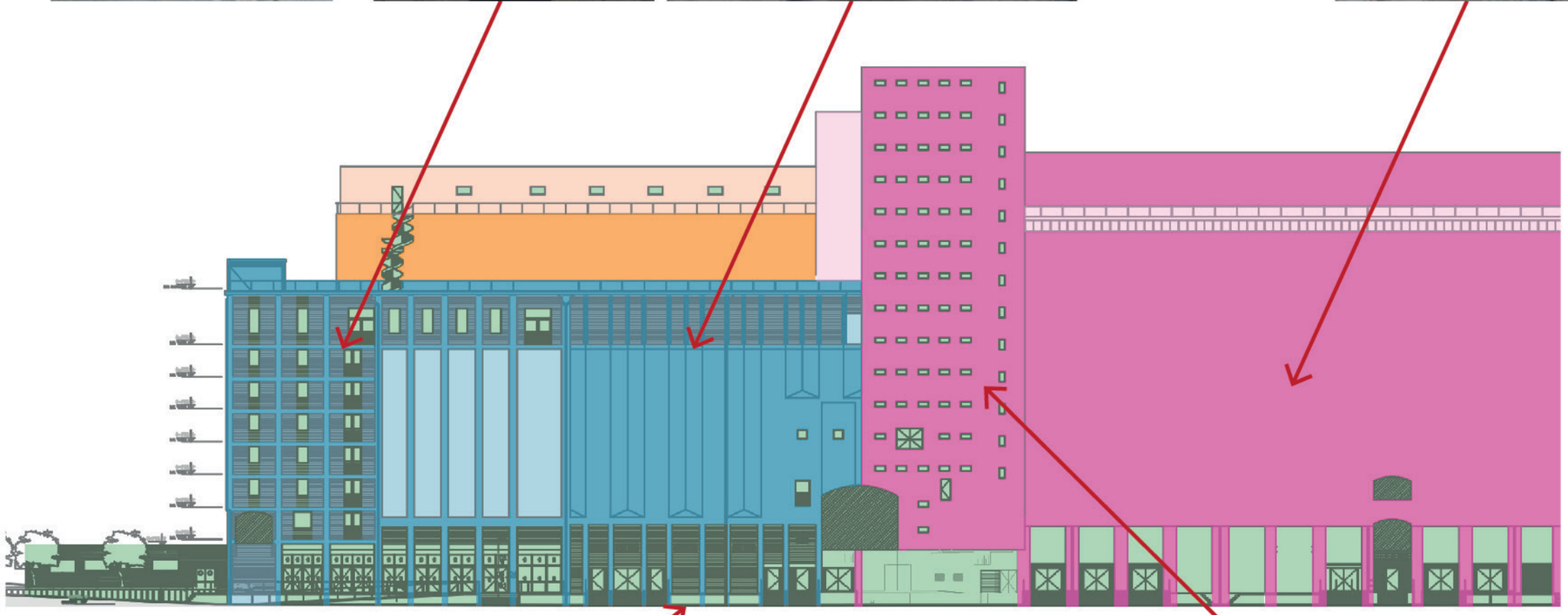


<-Concrete & block

Octagonal shape from functional silo, and the use of concrete (pumice) block.

Ages->

Traces of the concrete on the surfaces and visible construction line of Mc Donald system



<-Inbetween space

The space use as circulation which used to have rails for train.

Circulration building->

Only vertical circulation in the second building with the rhythm of original windows.

Traffic light
(redevelopment + office)

high value medium value low value

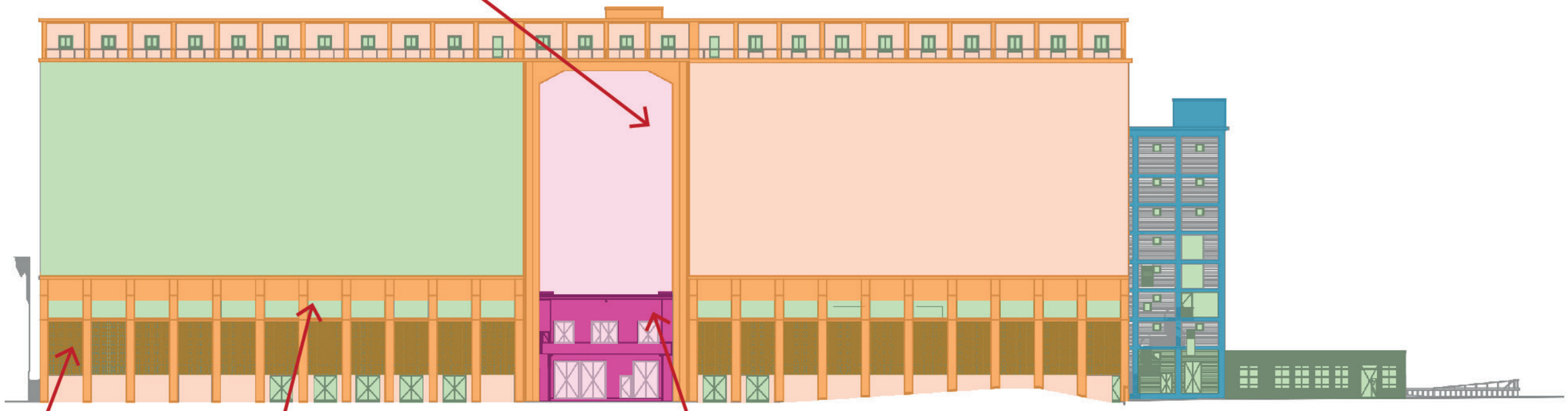
Historical mapping
(high value- low value)

1951-high 1951-low 1930-high 1930-low 1910-high 1910-low

S. Chittavanich 2016

<-Gate

Only one space left in south facade that the first and second building are visible.



S. Chittavanich 2016

S. Chittavanich 2016

<-Column and blocks

The column and ornaments that provide human friendly atmosphere with light and vision in the past.

Transformer house->

The existing of this building is the reason why the silot of the third part separate into two parts.

B. Kuiperi 2016

Traffic light
(redevelopment + office)

high value | medium value | low value

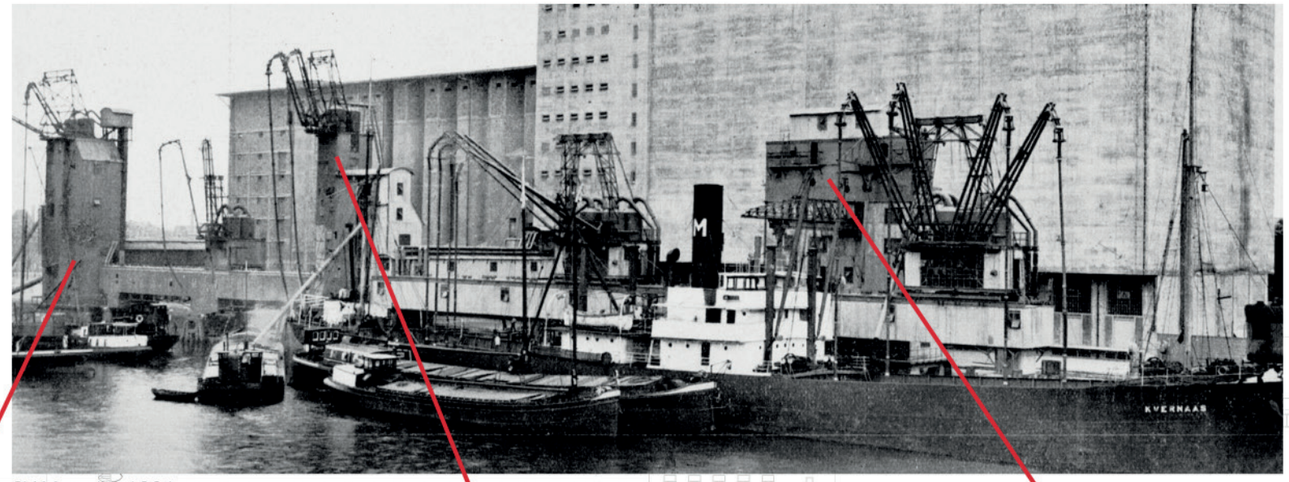
Historical mapping
(high value- low value)

1951-high | 1951-low | 1930-high | 1930-low | 1910-high | 1910-low

Grain Elevator Towers

The grain elevator structures has kept changing over the year. We are able to pinpoint the year of construction of the main structure for each separate part. However the machinery in the towers have been replaced many times over the years. The structure of towers themselves would probably have changed a bit to fit these new services.

Because of the great cultural historical value we have valued these structure of the grain elevator as a high value. We all thought removing the corrugated steel sheets (2010) of the grain elevators was a good intervention.

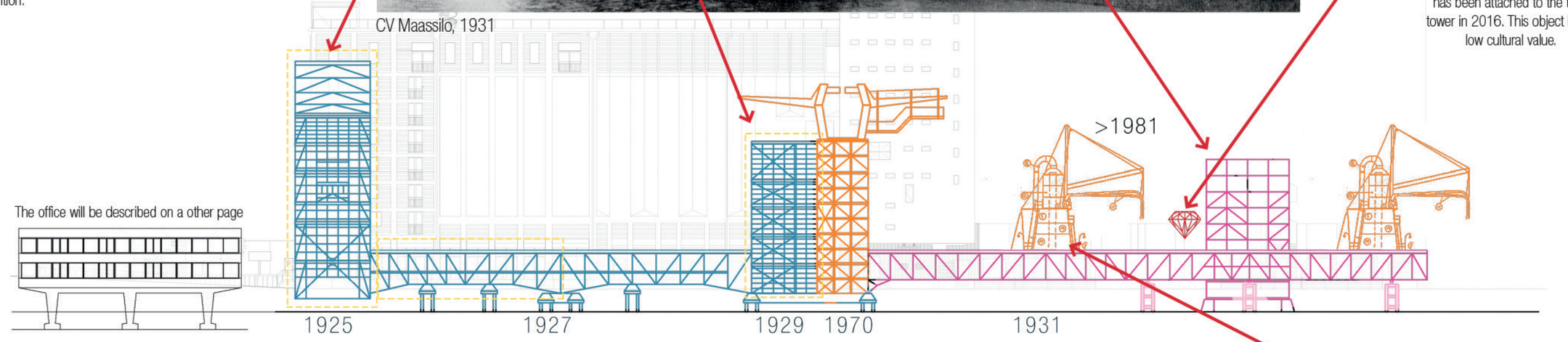


CV Maassilo, 1931

TVR Rijnmond, 2016

Diamond

A diamond, designed by artists, has been attached to the third tower in 2016. This object has a low cultural value.



The office will be described on a other page

B. Bronswijk, 2016

Tower 1

The original tower has been constructed in 1925. From 2015 the structures are being redeveloped and the tower has gotten a new curtain wall. This intervention is colored yellow because we felt that this was possibly a good idea

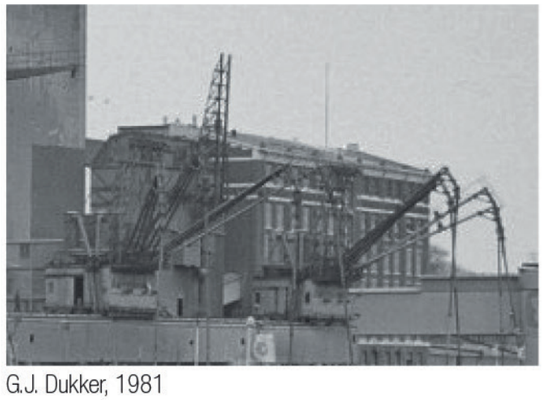
Bridge 1

The bridge was constructed in 1927 connecting the first and the second tower. Have of the bridge has been renovated and painted to conserve the steel of the structure.

B. Bronswijk, 2016

Tower 2

The second tower has been constructed in 1929 when a pneumatic system was integrated. In 1960 a new tower was constructed next to the original tower. This part was extended in 1970. In 2016 the original tower from 1929 has been redeveloped.



G.J. Dukker, 1981

Bridge 2 + Tower 3

The original bridge from 1927 was replaced in 1931 with a new and longer bridge. With the construction of this new bridge the third tower was rebuild as well.

Portable elevators

The portable elevators have been changed multiple times. There are no historical photos of the current portable elevators. The latest historical photos we have are of the year 1981. We only know that these elevators have been replaced in the 20 years after that.

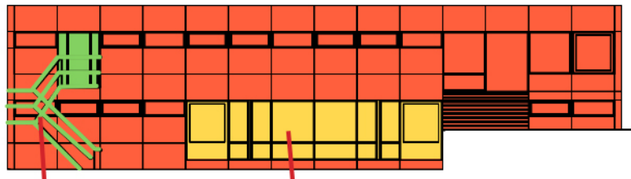
B. Bronswijk, 2016

Traffic light
(redevelopment + office)

high value · medium value · low value

Historical mapping
(high value- low value)

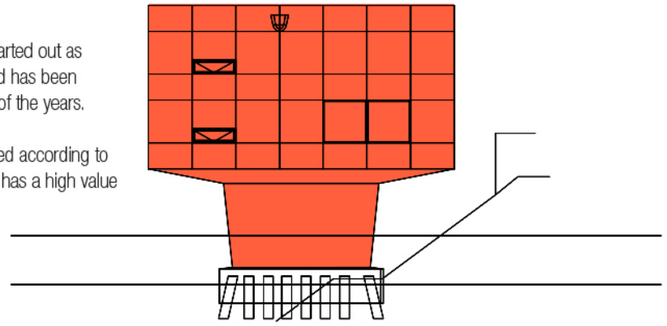
1951-high · 1951-low · 1930-high · 1930-low · 1910-high · 1910-low

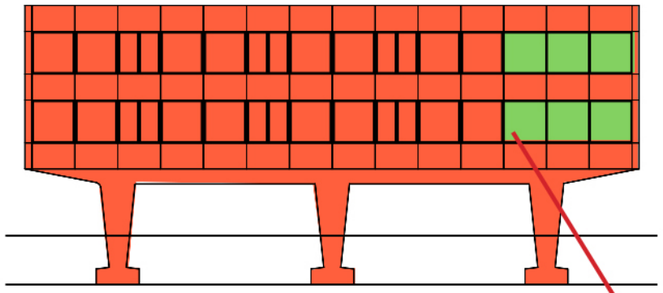


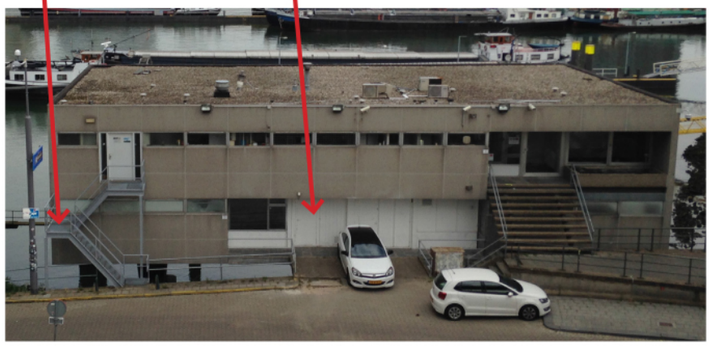
Office building

The building on the quay started out as an office annex dwelling and has been transformed multiple times of the years.

This building has been valued according to the traffic light system. Red has a high value and green a low value.







B. Bronswijk, 2016

Facade

The prefab concrete panels which cover the total building have the same colour as the façade of the Maassilo and are still original. The material of the facade has a high historical value. Some camera's and street lighting have been attached on the façade, which give the façade a messy appearance.

The original garage doors on the groundf loor have been replaced after 1971 and the windows on the left side has been covered. The setback in the facade has been preserved therefore we valued this part of the building as a medium value.

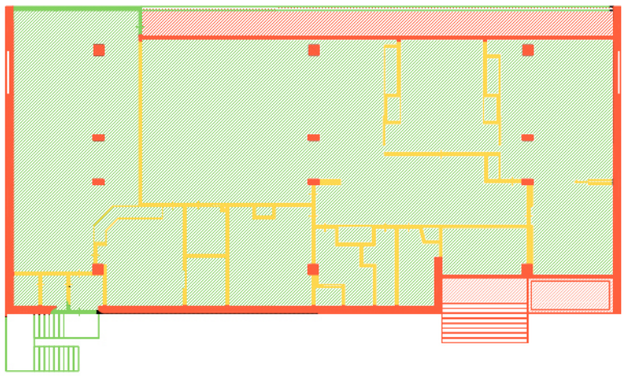
North facade

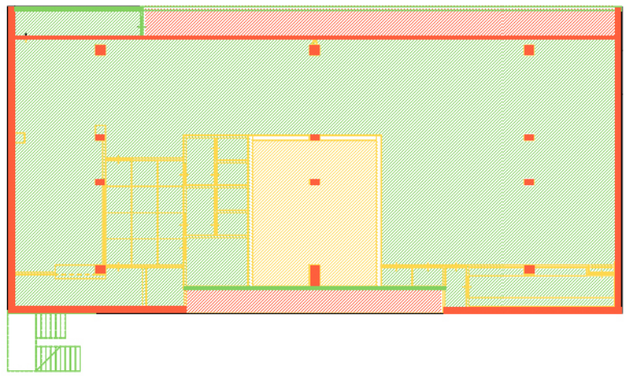
Part of the terrace of the north side has been replaces with an internal staircase. The addition of this staircase compromised the symmetrical character of the north façade. This interventions has a low value.

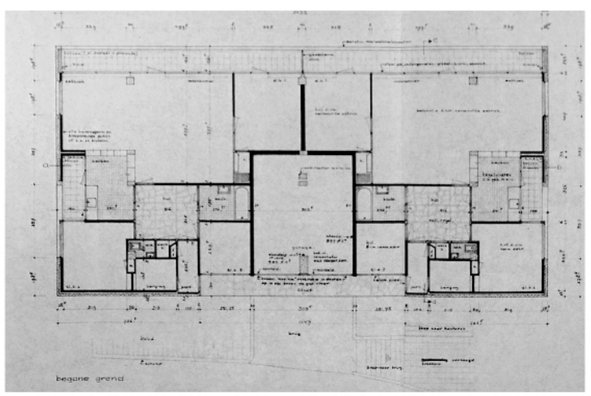
CV Maassilo, 1980

Interior walls

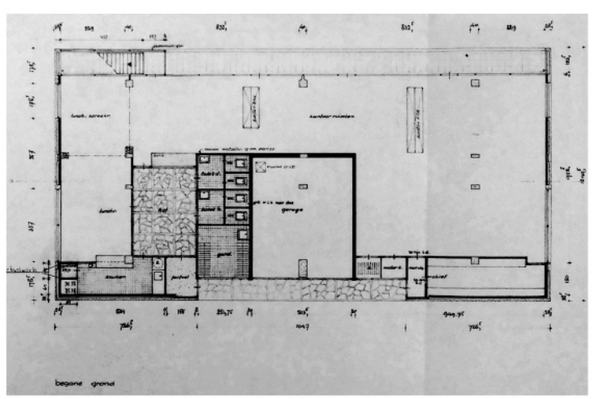
The two original dwellings were transformed into a office in 1971. At the same time top floor office got transformed as well. The interior walls are not original and therefor we valued them as medium valuable.







Achive NAI, 1963 - Plan dwellings ground floor



Achive NAI, 1970 - Plan office ground floor

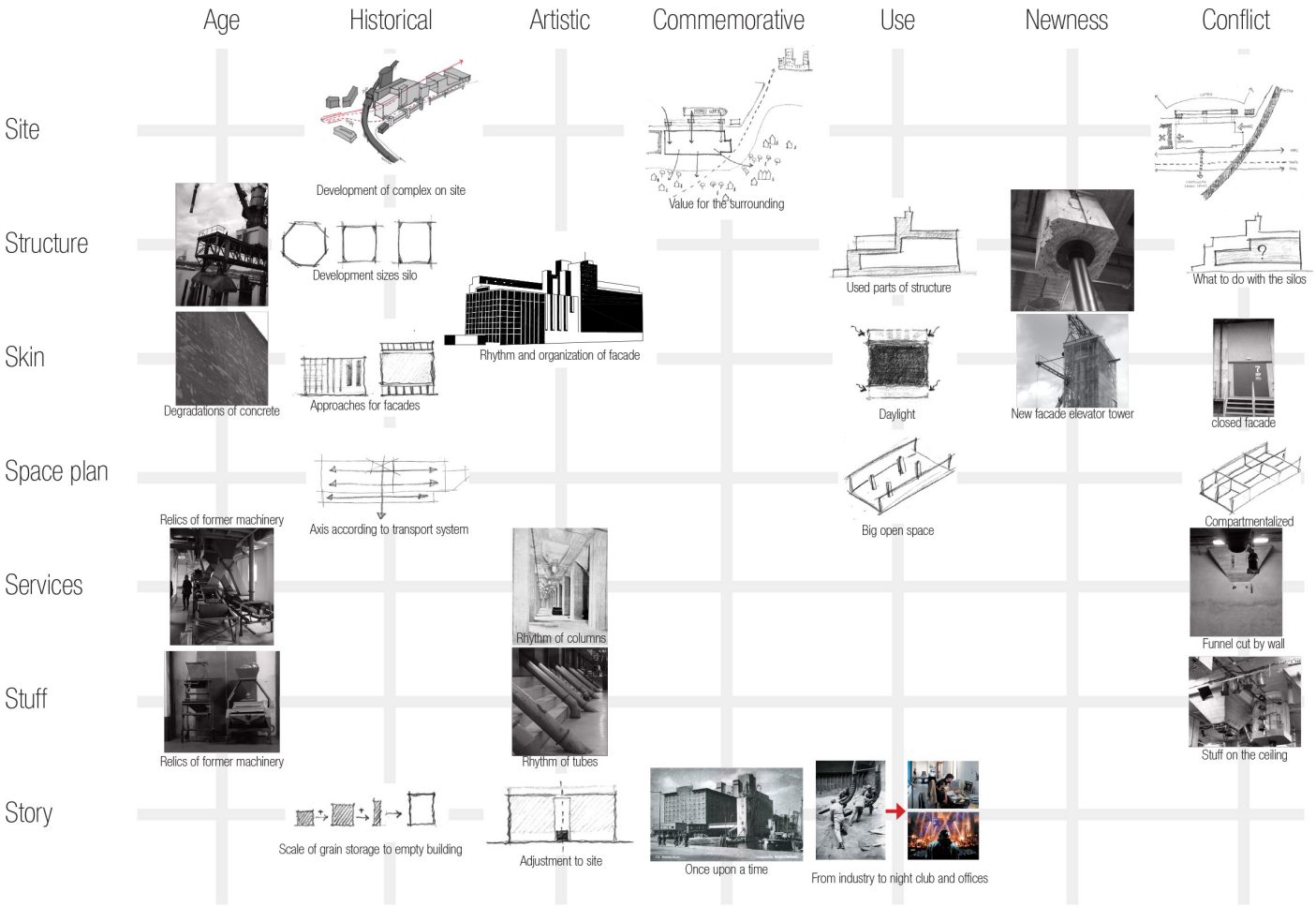
CV Maassilo, 1971 - Office ground floor

Traffic light
(redevelopment + office)

high value · medium value · low value

Historical mapping
(high value- low value)

1951-high · 1951-low · 1930-high · 1930-low · 1910-high · 1910-low



Value matrix

Chapter VII
Conclusion

Research question

This report is trying to address to the starting question of

'What is the essential context that conduce to the character of the mass and volume of Maassilo?'

From looking through the research, in urban terms, the character of the mass of Maassilo had change in times by its function, the increasing of the dwelling community and the development of the infrastructure of the city. The position as the industrial still remained but rapidly decreased when the function as grain storage stopped but actually in the theoretical way the building started to lose its function since the grain process stopped and move to another harbor area. One has to be aware that from the past, the position of Maassilo already change from international as transshipment silo to domestic function of nightclub. This has to be reconsidered, should we brng the building back to the international scale or continue in domestic function. In the future, the position of the building in urban scale again will shift if the south part of the city advance into another city center. Even in the present period, Maassilo already receive the position as the transition between industrial-living, water-green structure and the intersection of the transportation.

Looking on the project scale of the three building, the strong connection between Maassilo and steel crane structure and elevator is still left. We can perceive the sense of industrial from this area. In the same time, the relationship between Maassilo and office building comes from the solid rectangular massing.

In building scale, the mass is trying to reveal its volume and make the building more transparent in solid substance with the noticable construction that can be seen from outside and vary in each mass which represent the function inside the building. Furthermore, after Maassilo received the new function as the night club and event space, the building was advanced in the introvert character from the requirement of the sound protection and the nonessential of light of the night event. The using time change from daytime to nighttime. However, the spirit of the building such as the ephemeral substance of the dark, steady and silence atmosphere in silo should be considered for the densification.

In the other hand, the volume is still followed the function of the building. There is more legible contrast between opening and enclose area. The space that require daylight such as café and office receive more daylight and the event space is getting darker for example the construction of the wall closing the opening in the attic at tenth floor of the second building of Brinkman & van der Vlugt. We can say that the presence of light has more influence to the use of volume suitable for human activities.

This research declares that the Maassilo has the uniqueness of the ensemble area, where people from different area can gather together by the area character as the junction. While the enclosed identity of Maassilo shown from the historical function and the intrinsic of construction that result in the shape, form and surface of the builfing. In consequence, There is the junxtaposition of ensemble scale and building scale which need to be concern for the design.

After considering the question together with above conclusion, this lead me to the further research question that would be continue exploring in the next step.

'What is the character of the mass and volume of Maassilo in the present and future context with its new position as the urban junction between industrial and living, is the mass require more connection of the inside-outside volume?'

Chapter VIII
Design principal

Growth of mass

The adding of mass should be introducing in the intervention according to historical aspect that the mass of the building always increases in order to start its significant periods. The changing supposed to be noticeable from outside and followed by the organization of the function. However, apart from adding, in the front of the building in the eastern part, there were lots of changing by removing and adding by the changing of the organization.

Intersection and Transition

The current situation of Maassilo, the building state between two district. The building should act as the center of the transition of two communities and between the atmosphere of industrial and living. Second intersection is the traffic junction; the possibility of the access is a good benefit for public function that require many people. The position as centralize public function should be address. In future plan of Rotterdam and Maashaven, playful atmosphere of urban playground and the approach to nature should be input to urban fabric. Moreover, the connection to the water should be preserve improving the quality between inside and outside such as waterfront area with steel elevators, the previous opening of the ground floor and the rooftop area with panoramic view of the harbor and city. Moreover, the connection of inside and outside should be improve for the quality between in both industrial harbor and living community using building as transition such as the waterfront area with steel elevators, the previous opening of the ground floor and the rooftop area with panoramic view of the harbor and city.

Cognition and Orientation

Each space should be differentiating with their various character due to the different type of the silo followed their shape and dimension. The dungeon character should be advance together with the idea of using some hints as the orientation guidance in both visible elements as a signage or the intrinsic of the construction and the perception of space from the ephemeral substance such as various light from different direction. The continuity of mysterious should be remained in the hierarchy and movement inside the building for people to stay curious while the main spaces will reveal their identities. The transition between function will help improving the character by the changing of perception from each space introducing the in-between space as the place of noticeable and space will be clearly understandable.

Possibility of Void

The adding of mass should be introducing in the intervention according to historical aspect that the mass of the building always increases in order to start its significant periods. The changing supposed to be noticeable from outside and followed by the organization of the function. However, apart from adding, in the front of the building in the eastern part, there were lots of changing by removing and adding by the changing of the organization.

Machine

The last principal to approach is the presence of the industrial. The potential of historical process from water through the elevators to reach the machinery provide the interesting organization of the building that totally different from other kind of building. The pattern of movement in horizontal on the top and ground floor and vertical movement in-between is one of the character of the silo. The various level of volume that created follow this organization and the condition of the machine should be revise after the invasion of human; the mezzanine for the conveyor, the position of tube and funnels, even the opening to the silo. How human react to these aspects? How the machine survives in this condition? This issue should be stay in account for the design step.

Literature

Francis D.K. Ching, Architeceture Form, Space and order (1979)

Andrea Simitch and Val Warke's, The Language of Architecture (2004)

Forty, Adrian, Words and Buildings: a Vocabulary of Modern Architecture (New York: Thames & Hudson, 2000)

Han Meyer, City and Port (1999)

Alan Holgate, Aesthetic of built form (Oxford University Press, 1992)

Massumi, Parables for the Virtual: Movement, Affect, Sensation (durham: duke University Press, 2002).