RESEARCH & ANALYSIS REPORT

Manutenção Militar Complex - Lisbon, Portugal

Interior of the Milling Factory

Photo:
Hielkje Zijlstra

THE BUILDING AS MACHINE

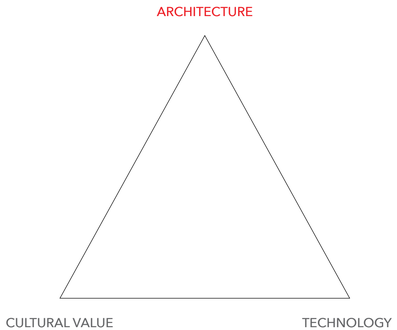
PREFACE

Heritage & Architecture

Before you lies the *Research and Analysis Report of the Manutenção Militar Complex*. The Research and Analysis is part of the graduation studio *Disclosing the Military City Lisbon* Autumn 2016 - 2017. The graduation studio is organized by the chair of Heritage and Architecture at the Faculty of Architecture at the TUDelft. The Research and Analysis Report will form the basis for our later design approach and answering the research question.

The Research and Analysis Report is constructed by three integrated (but separately presented) parts: Architectural Analysis, Technical Analysis and the Cultural Value.

The research is not complete, due to the language barrier and inaccessible information. But conducting extensive investigation has allowed us to answer the questions that we identified. The process was guided by Job Roos (architecture), Hielkje Zijlstra (architecture), Wido Quist (technology) and Marieke Kuipers (Cultural Value).



Source:
Graduation Studio Manual
Heritage and Architecture

PREFACE

Manutenção Militar Complex - Lisbon, Portugal

The Manutenção Militar Complex (MMC) located in the city of Lisbon, the capital of Portugal. The MMC was an industrial facility that produced food, uniforms and other goods for the Portuguese Army. Especially the southern part of the complex had an industrial function, where the northern part had a rather social function. In this Research and Analysis Report we will focus mainly on the southern part of the complex due to the industrial heritage present in this area.

The MMC was accommodated in a former Convent, *Convento das Grilas,* by the end of the 19th Century. During the 20th Century, due to the needs during the First World War and the Portuguese Colonial War in the 1960s, the complex was expanded multiple times. The industrial capacity became superfluous due to reduction of the army, the production stopped in 2010. The MMC was finally substituted by a public enterprise MM-Gestão Partilhada in 2015.

In the heart of the (southern) complex an ensemble of two objects is highlighted: The Milling Factory and The Bakery. Our group of students was chosen to analyse these objects in the built environment .

We hope you enjoy your reading.

Noëlle Dooper
Ruben Klinkenberg
Guido Martin
Amela Rašidkadić

Birds-eye view MMC

Photo:
Carla Goncalves

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INTRODUCTION

The Architectural Research and Analysis Report is composed of three chapters. These chapters are different scales on which the research and analysis are done. On all scales

This reports begins by an analysis on city scale. The goal on this scale is to understand the broader context of the design assignment. Most information is retrieved from earlier done research focusing on: topography, history, transport and demographics.

It will then go on to the direct environment of the buildings: the MMC and the parish Beato. The goal on this scale is to understand the context on more local scale. The information that is presented is a combination of retrieved information from earlier done research in literature and analysis on retrieved maps and drawings. The topics that are presented are divided in the following sub-chapters: History, Morphology, Transport, Amenities, Demographics, Character and the Production Process

The third section assess the scale of the building: the milling and the bakery. The goal on this scale is to understand the present spaces and the relation to their environment. The information that is presented is a combination of retrieved information from earlier done research in literature and analysis on retrieved maps and drawings. The topics that are presented are divided in the following sub-chapters: History, Overview, Circulation and Character

The report has been organised in the following way. At the start of each sub-chapter a research question is posed. During the sub-chapter that same question is answered by conclusions. The conclusions are underlined in text.

Images are sourced when their not our own. Literature is stated per page per subject.

CHAPTER I

THE CITY OF LISBON

LOCATION

RESEARCH QUESTION

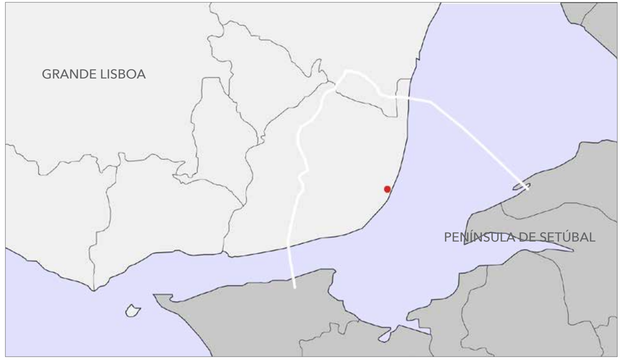
What is the influence of topography, geomorphology and climate on the location of the Manutenção Militar Complex?

Introduction
The research of the entire city is done to understand the findings on the scale of Beato in a larger context. The findings on smaller scale are often part of a larger system or have the same cause. Assessed should be if the findings can be used/solved on local scale or if they belong to a different assignment.

Birds-eye view on Lisbon

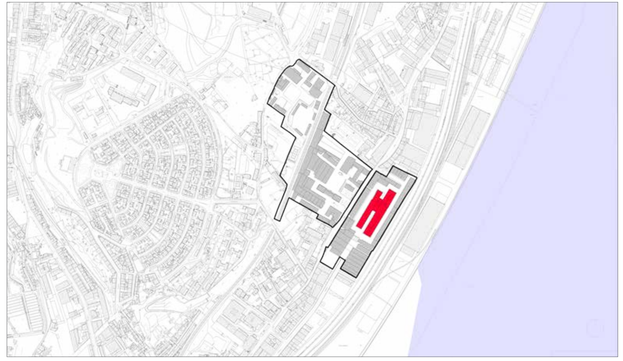
Retrieved from:
https://cityguidelisbon.com/2014/08/07/lisbon-helicopters/

Portugal



Metropolitan Area Lisboa

City of Lisbon



The MMC in Beato

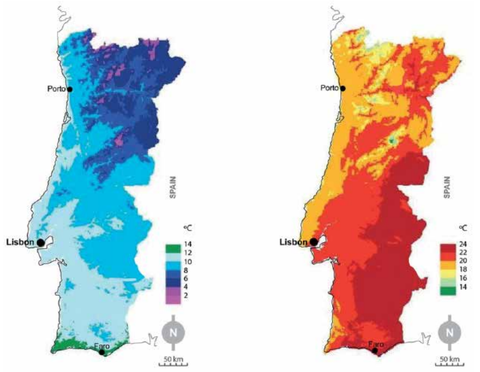
The Manutenção Militar Complex (MMC) is located in the metropolitan area of Lisbon, Portugal. The metropolitan area of Lisbon is divided by the Rio Tajo (river) in two sub-regions: Grande Lisboa and Península de Setúbal.

The Grande Lisboa it is the most populous and most densely populated Portuguese subregion. It includes the capital and prime city of Portugal - Lisbon. The city of Lisbon is divided in 24 freguesias (parishes) all controlled by their own municipality. The MMC is located in the freguesia Beato.

Climate Portugal

Average temperature Portugal Low (left) and High (right)

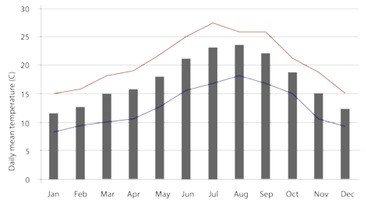
Source: Source: http://www.mdpi.com/2075-5309/5/4/1242/html



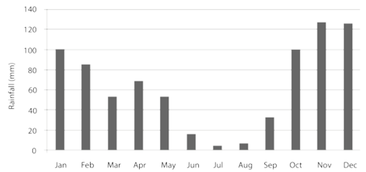
Totals and averages	Portugal	Netherlands
Annual average high in °C	20.8	14.1
Annual average low in °C	12.8	6,0
Average temperature in °C	16.8	10.1
Average annual precipitation - mm	753	833
Days per year with precipitation	82	182
Average annual hours of sunshine	2781	1602

Climate Lisbon

	Jan	Feb	Mar	Apr	May	June	***July***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***
Average high in °C	15	16	18	19	22	25	27	28	26	22	18	15
Average low in °C	8	9	10	11	13	16	17	18	17	15	11	9
Av. precipitation - mm	100	86	55	70		21	5	7	27	100	128	124
Days with precip.	11	12	8	8	6	3	1	1	3	8	10	11
Hours of sunshine	142	150	203	239	291	302	250	341	256	208	157	142



Average temperature Lisbon



Average precipitation Lisbon

Lisbon and the south part of Portugal contain a subtropical- Mediterranean climate. This means that the city deals with long warm summers and short very mild winters. The winters are paired with heavy 'monsoon' type rainfall that can reach 124 mm rain in one month.

Comparing Lisbon's climate with a more familiar climate, like the Dutch one, it provides more understanding of the situation and will help with facing the future design task.

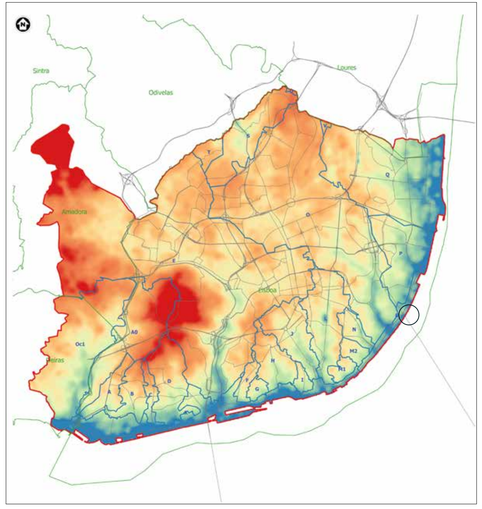
This means that during the design process the climate needs to be taken in consideration while approaching the buildings physics. For example the heavy rainfall in the winter will need to be questioned when detailing the roof and façades of the building. Also for indoor climate it needs to be taken in account that it needs to have a pleasant during the hot summers.

Source: http://www.ipma.pt/pt/oclima/normais.clima/1981-2012/012/

LEGEND

Altitude (m)

- <5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100
- 100 - 150
- 150 - 250



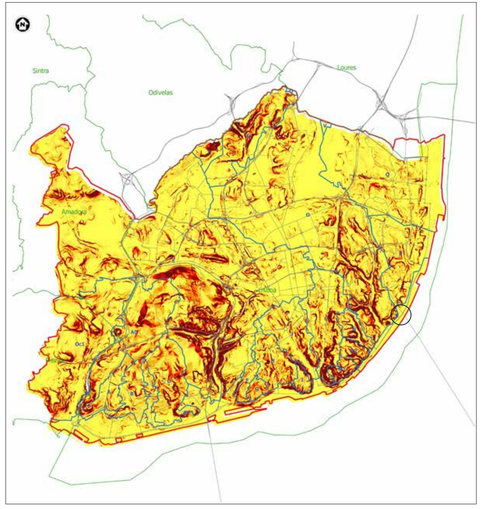
Map of Lisbon - Altitude

Retrieved from:
http://www.cm-lisboa.pt/participar/lisboa-em-debate/plano-drenagem

LEGEND

Slope (%)

- <5%
- 5 - 10%
- 10 - 15%
- 15 - 20%
- >20%



Map of Lisbon - Slopes

Retrieved from:
http://www.cm-lisboa.pt/participar/lisboa-em-debate/plano-drenagem

Flooding Lisbon in 2014[3]

Risk of Flooding - Beato

LEGEND

- Average risk
- High risk
- Very high risk

FLOODING

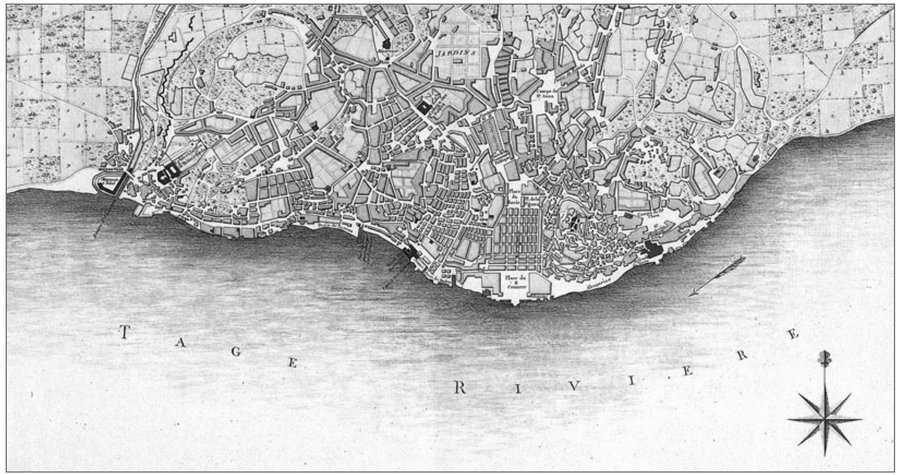
The maps on city scale show the altitude and the slopes throughout the city. The city of Lisbon is nicknamed: A Cidade das Sete Colinas (The City of Seven Hills).[1]

On the scale of Beato a sloping terrain could be important. A sloping terrain can create natural barriers, could be used in for passive transportation (gravity) and can provide view points. The relevant topics will be assessed in chapter 2: Beato.

Over time Lisbon has been hit several times by serious flooding. The last flood dating back to 2014 even flooded parts of the downtown city centre due to heavy periods of rain.[2]

The MMC is located in an area that could be vulnerable to flooding when a period of heavy rain occurs.

Retrieved from:
1 - https://en.wikipedia.org/wiki/Lisbon/
2 - http://www.telegraph.co.uk/news/world-news/europe/portugal/11162293/Watch-cars-trapped-in-flash-flooding-in-Lisbon-Portugal.html
3 - http://portugalresident.com/flood-misery-returns-to-lisbon



HISTORY

RESEARCH QUESTION

How has Lisbon developed in the 20th century, and how does the parish of Beato relate to this development?

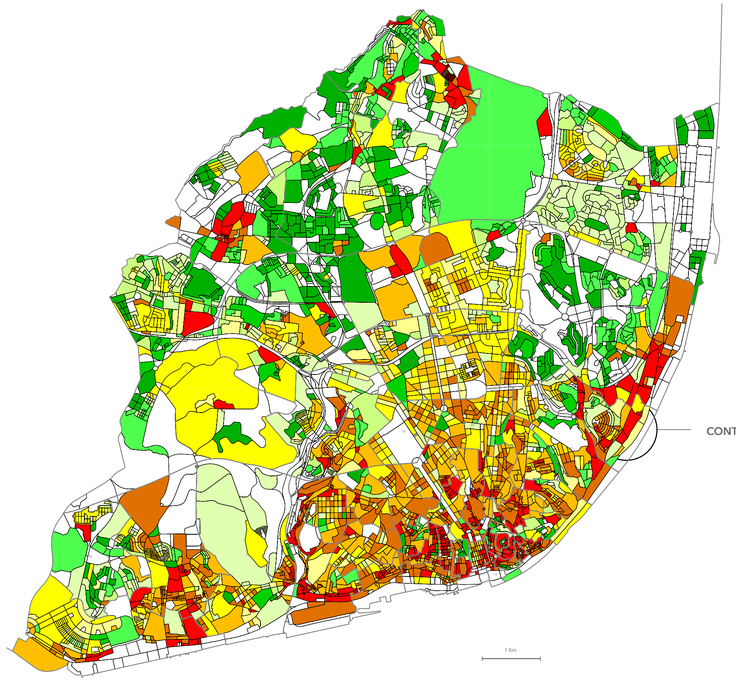
Map of Lisbon 1755

Map:
Anonymous (1755) Lisbonne. Retrieved on 8 November 2016 from http://biblio.unibe.ch/web-apps/maps/zoomify.php?pic=Ryh_1503_38.jpg&col=ryh

Urban Development - Morphology - Waterfront Development

LEGEND

- 2000 - 1980
- 1980 - 1975
- 1975 - 1970
- 1970 -1965
- 1965 - 1960
- 1960 - 1955
- 1955 - 1950
- 1950 - 1940
- 1940 - 1925
- 1925 - Before



CONTEXT MMC

Map: Age of buildings.

Câmara Municipal de Lisboa (2009). Relatório do Estado do Ordenamento do Território. Departamento de Planeamento Urbano

MAP LISBON 1899

MAP LISBON 1948

MAP LISBON 1987

HISTORY

The analysis of the three maps of Lisbon suggests the identification of four morphological periods over the last two centuries:

(1) A monarchic period, from 1812 to 1879;
(2) A republican period, from 1899 to 1911;
(3) A dictatorial period, from 1940 to 1978;
(4) A democratic period, from 1987 to 2011.

*The monarchic period is characterized by a slow urban development, supported by the coexistence of new spatial uses and organization proposals, such as **urban gardens and cultural facilities**, with structural urban elements from the 18th century. These elements included large squares and roads, some of which leading out of town through an organic matrix and others, in the inner city, with a rational design to better **express the Marques de Pombal's powers.***

*The late-monarchic and republican period, represented by the 1899 town map, is characized by the **emergence of new urban forms: the avenues, the roundabouts and new private residential developments, on a small scale, in parallel with housing for the working class, the villas .** The combined effect of these urban elements with the emergence of a new transportation mode, the electric tramway, was able to structure the northern expansion of the city.*

*The third period, the dictatorial period, represented by the 1948 town map. This period was characterized by the opening of a large urban park on the western side of the city, the construction of a large university campus, the construction of the Lisbon metro system as well as **various social housing estates made of single family houses, on a first phase, followed by multifamily building estates.***

*The democratic period – starts with the 1987 town map. This period is characterized by the construction of a complex system of urban motorways expressing a mobility concept **centred entirely on the private car.** A new look at the waterfronts justified a number of interventions on **public spaces along the Tajo** estuary that culminated with the emblematic project associated with the 1998 Universal Exhibition. This project has also involved the regeneration of a large, abandoned and contaminated industrial area – the EXPO 98 site. Finally, this period is also characterized by the **private promotion of housing on a large scale and the construction of important cultural facilities**, such as the Centro Cultural de Belém, a large multi purpose exhibition centre located on the western Tejo river front.*

Conclusion
The historic development of Lisbon can be divided in four periods. Each periods is characterized by their on interventions and political drive. The maps also show the presence of Beato on the earliest maps. When analysing the parish of Beato these facts should be taken in to consideration.

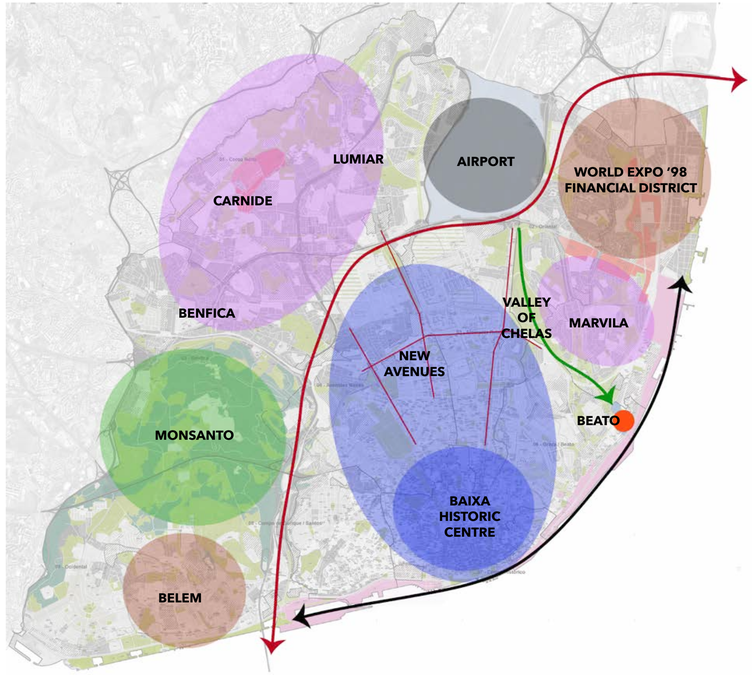
The posed question (assessed in chapter II):
Which buildings and structures characterize the four morphological periods in the parish of Beato?

Text and images retrieved from:

Oliveira, V. (2006)
Study of urban form in Portugal: a comparative analysis of the cities of Lisbon and Oporto

LEGEND

- Historic Centre
- Urban blocks
- Linear Blocks
- Airport
- 2nd Centre
- City Park West
- The MMC
- Main Route
- Industry/Harbour
- Valley of Chelas



Edition on the Morphology Map 2011 retrieved from:

Câmara Municipal de Lisboa (2009). Relatório do Estado do Ordenamento do Território. Departamento de Planeamento Urbano

(1) Baixa

(2) New Avenues

(3) Benfica

(4) Beato

(5) Valley of Chelas

(6) Marvila

The present situation of Lisbon can be simplified with a morphology map.

The different typologies indicate (or reveal) the four morphological periods.

The MMC is located in Beato, an area with both industry and historical housing. Beato is located between the linear/individual blocks of Marvila and the "city centre". However the valley of Chelas is an interruption in the urban tissue. This valley can be seen as green connection to Beato/MMC and is used for greenfields, brownfields, urban agriculture and leisure.

Images:
1 - 6: Retrieved from Google Maps

LEGEND

- Airport
- Financial district
- Industrial activity
- The MMC
- Green Areas

Edition on the Morphology Map 2011 retrieved from:

Câmara Municipal de Lisboa (2009). Relatório do Estado do Ordenamento do Território. Departamento de Planeamento Urbano

(1) World Exhibition Portugal
1940 - Area of Belem

(2) Museum of Electricity
2006 - Area of Belem

Museum Art, Architecture and Technology
2016 - Area of Belem

(3) LX Factory
2008 - Industrial site under the "Ponte 25 de Abril."

(4) "Devolver o Tejo as pessoas"
(4) "Returning the Tejo to the people"
2008 - City Centre Lisbon

(5) Parque Ribeirihno Oriental
Present - North-East Lisbon

(6) World Expo '98 (Park of Nations)
1998 - North-East Lisbon

Lisbon can be defined as a harbour city. During the era of industrialization (1900-1970) most of the waterfront was transformed into industrial territory.

The morphology map shows the three different centres of Lisbon: Belem, Baixa and Expo '98. Between the centre some developments have improved the recreational access to the river Tejo.

In 1940 the World Exhibition was held in Portugal. Belem was presented as the historical centre of Lisbon. The redevelopment of the waterfront made the river accessible to for recreation.

Also the area around the city centre is being developed since 2008 under the name: "Devolver o Tejo as pessoas (Returning the Tejo to the people)." This project includes a terminal for large cruise-ships aiming to improve tourism.

The MMC could be one of many developments to improve the access to the river Tejo. However the location of the MMC is in the middle of the still active industrial territory.

Images:
1 - Retrieved from: http://restosdecoleccao.blogspot.nl/2012/06/exposicao-do-mundo-portugues-em-1940.html

2 to 6- Retrieved from: Lisbon: a new relationship with the river, © AIVP - The worldwide network of Port Cities

TRANSPORT

RESEARCH QUESTION

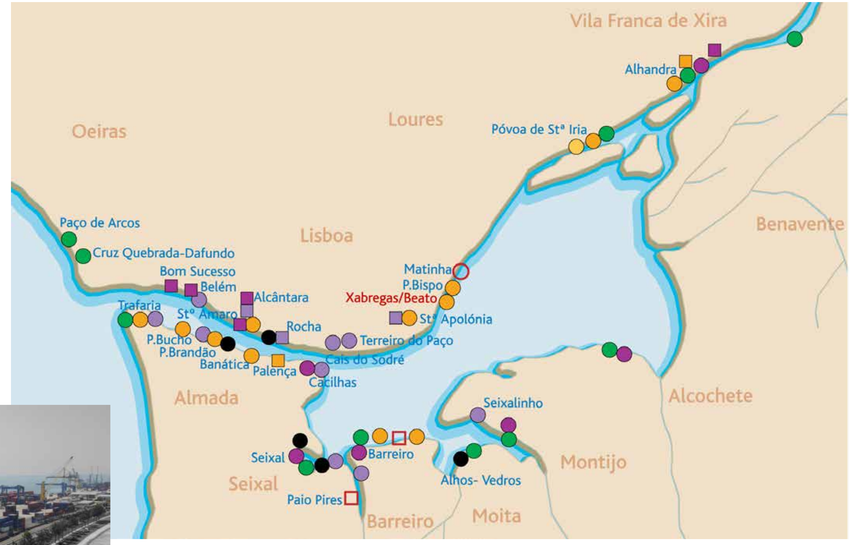
What is the influence of the transportation network on global, national and city scale on the MMC location?

ADD PHOTO

Photo:
Mgkm photography

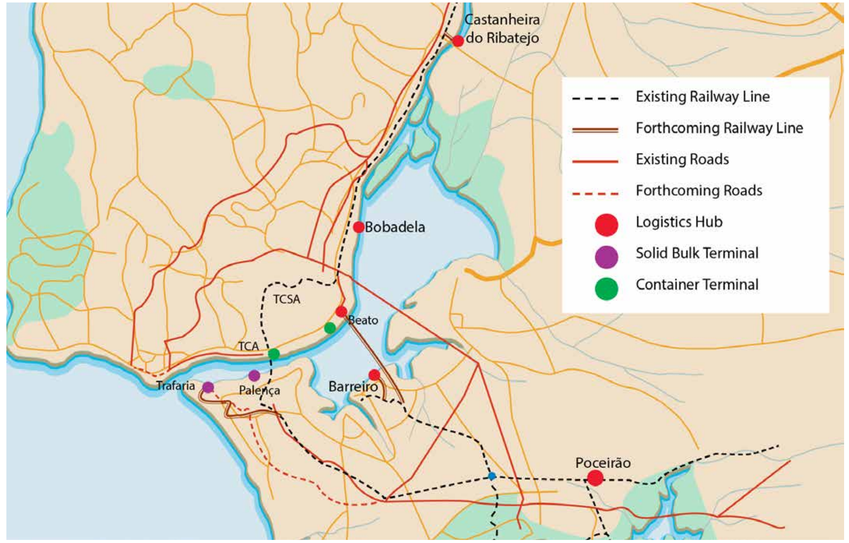
LEGEND

- Cargo
- Cargo/industry
- Shipyard
- Fishing (small)
- Fishing (large)
- Passenger
- Cruise ships
- Moorings
- Marina
- Others
- Closed



(1) Harbour activity

(3) View from Silo



(2) Harbour Future (vision)

HARBOUR ACTIVITY

The map on the left (1) shows the current harbour activity in Lisbon. Visible is that the waterfront of Beato is used for cargo shipping. A photo from the silo to the waterfront confirms this finding.

More important is the strategy from the Port of Lisbon (a private company), shown in the map on the right (2):

"The aim is to use the estuary and river as a means of linking the port's operational areas, and these areas with logistics hubs, thus reducing traffic using city roads and its resulting environmental impact. This means that conditions must be established that will enable the current level of river-borne traffic to grow, and container traffic to be introduced and boosted."

The waterfront of Beato (near the MMC) is used for cargo-shipping. The strategy is to grow traffic over water, it is thus unlikely for the waterfront to become available. If the future strategy is to change the waterfront of Beato to a Logistics Hub, harbour activity may increase.

Data:
Port of Lisbon Strategic Development Plan - Porto de Lisboa

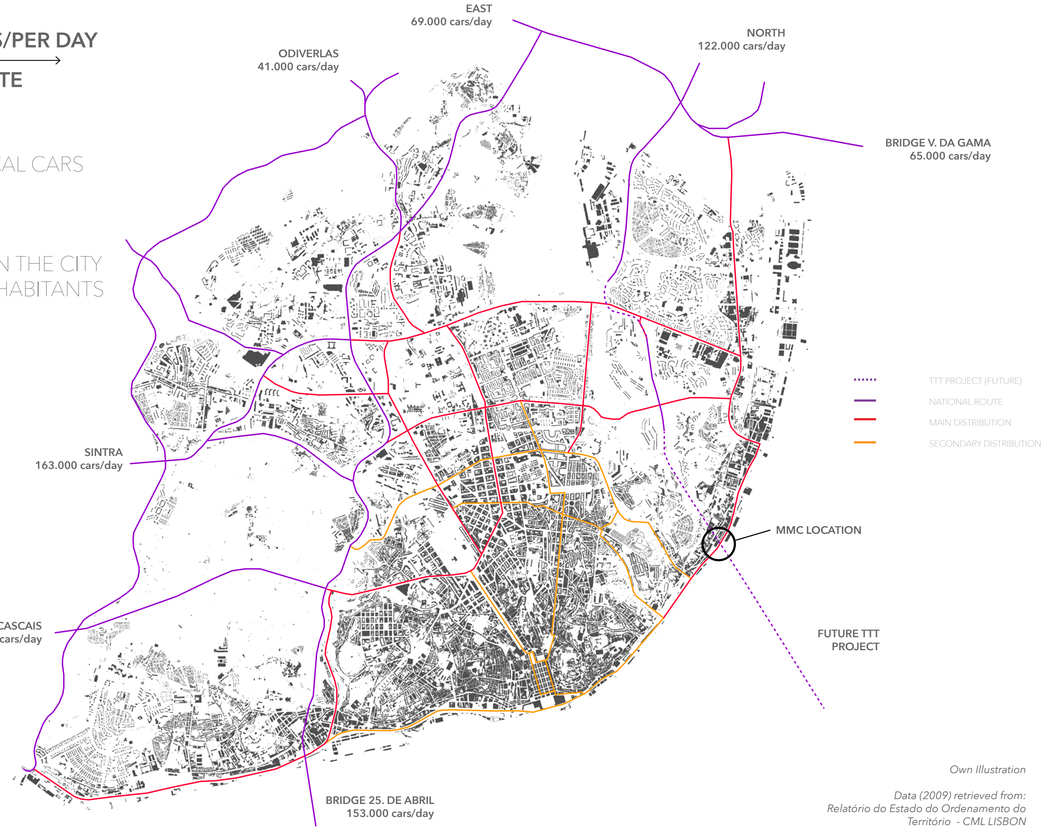
Images:
1 and 2- Port of Lisbon Strategic Development Plan - Porto de Lisboa
3 - Photo by Hielkje Zijlstra

624.400 CARS/PER DAY

COMMUTE

1.021.600 LOCAL CARS

ca. 1.750.000 IN THE CITY
ca. 500.000 INHABITANTS



Own Illustration

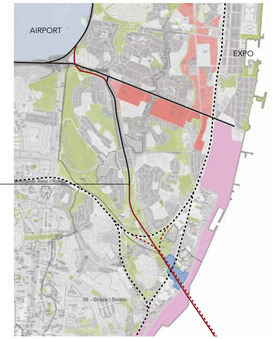
Data (2009) retrieved from:
Relatório do Estado do Ordenamento do Território - CML LISBON

EXISTING AIRPORT

NEW (FUTURE)
AIRPORT (2017)

TTT PROJECT

(1) THE TTT-PROJECT - CITY



THE TTT-PROJECT - LOCAL

The New Lisbon Airport (NAL) is the name of the project for the new airport that will serve Portugal, especially the area of Grand Lisboa and also all the centre / south. Opening in 2017, it will replace the Portela Airport as the main international airport in Lisbon, the closing of the current airport is not certain.

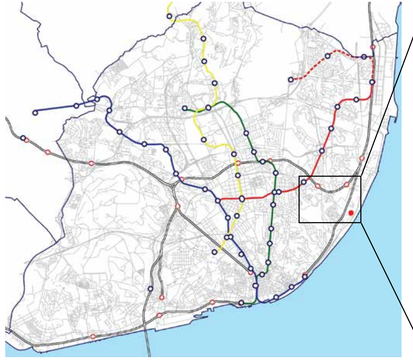
The Third Crossing of the Tajo (TTT) in Chelas-Barreiro alignment contribute to the development of "Grande Lisboa" as a city of two banks. In addition, it may help reduce the traffic on the 25. de Abril Bridge and V. da Gama Bridge, balancing traffic entries in Lisbon and creating spare capacity for the traffic generated by the new Lisbon airport.[1]

Data (2009 retrieved from):
(1) - Relatório do Estado do Ordenamento do Território - CML LISBON

Images:
(1) - Retrieved from http://www.esacademic.com/dic.nsf/eswiki/771688

(left) Train and (right) Metro in Lisbon

Photo:
Wiki Commons



(1) METRO AND TRAIN

(2) LOCAL ACCESS

PUBLIC TRANSPORT

The public transport in Lisbon on city scale are the train and the metro.

The train has national character. The train stations Marvila en Chelas are connected to the rest of Portugal. Trains to Coimbra and Porto stop in Marvila. The train is also connected to the city centre en the expo '98:

Time to city centre is 45 min, every 30 min.
(14 min walk + 30 min train)
Time to the expo '98 is 33 min, every 30 min.
(14 min walk + 19 min train)

The metro station Olaias is on the Red line, connecting for example the airport, the expo and the technical university.

The time to city centre is 57 min, every 6 min.
(36 min walk + 21 min metro)
Time to the expo '98 is 48 min, every 6 min.
(36 min walk + 12 min metro)

To compare
MMC to city centre by bike 15 min.
MMC to city centre by bike 50 min.
MMC to the expo '98 by bike 15 min.
MMC to the expo '98 by foot 50 min.

The train and metro network are not a suitable connection to the city network. Where it could be faster to walk, and much faster to use a bicycle.

Source: Google Maps

Images:
(1) - http://www.metrolisboa.pt/eng/customer-info/diagrams-and-maps/
(2) - Google Maps

DEMOGRAPHICS

RESEARCH QUESTION

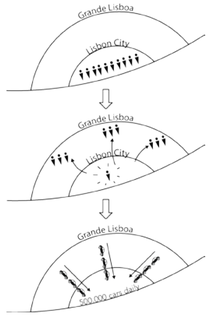
What is the influence of the housing and demographic developments in Lisbon and the context of the Manutenção Militar Complex?

Housing in Bairro Alto

Photo:
Manuel Salva

	1981	1991	2001	2007	2011
PORTUGAL	9.827.578	9.864.201	10.356.177	10.617.574	10.562.178
METROPOLITAN AREA	2.502.044	2.540.278	2.594.016	2.808.414	
GRANDE LISBON	1.853.729	1.836.484	1.892.891	2.025.628	
LISBON	807.937	663.394	564.657	499.700	**547.631**
BEATO	-	17.494	14.241	-	**12.737**

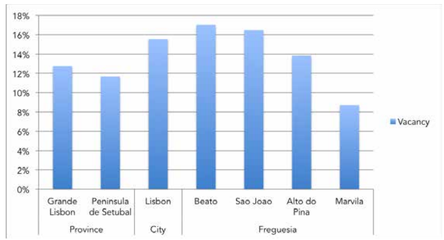
DEVELOPMENT POPULATION



MOVEMENT UNTIL 2007

VACANCY

LISBON 15%
BEATO 17%



VACANCY RATE (2011)

WHY IS THERE A SUDDEN INCREASE IN THE POPULATION IN LISBON IN THE LAST 5 YEARS?

1- UNTIL 2011 RENTAL CONTROL LAWS PROHIBIT AN (MAXIMUM) INCREASE OF THE RENT
2- RENTAL INCOME FAILED TO KEEP UP WITH MAINTENANCE COSTS
3- ENDING RENT CONTROLS WAS A CONDITION OF A 78 BILLION-EURO EUROPEAN UNION FUND RESCUE PACKAGE IN 2011
4- RENT STARTED TO INCREASE SINCE 2012
5- TENANTS BEGAN TO FLEE
6- OWNERS OF THE EMPTY BUILDINGS CAN'T AFFORD RENOVATIONS AFTER LOSING TENANTS

BUILDINGS BECOME VACANT

STRATEGY OF THE MUNICIPALITY

INVESTMENTS IN PUBLIC SPACE
EX. CITY CENTRE

2008 - UNTIL NOW

INVESTMENTS IN RENOVATION
"RENOVATE FIRST, PAY LATER"

2011 - UNTIL NOW

POPULATION

Until 2007, The population of the city of Lisbon has shrunk dramatically. In the past 30 years 300.000 people have moved out of the city. Curious to see is that the population in the Province of Lisbon is growing but in the city it is declining. This shows that the people are moving from the city to its surrounding areas. Other data show that due to this process, buildings become vacant.
In Lisbon (15%)
In Beato (17%).

However, in the last few years there's a small increase in population in the city of Lisbon. In Beato there is still a decline of the population. Two questions occur:

1: Why is there a sudden increase?
2: Why don't the people return to Beato?

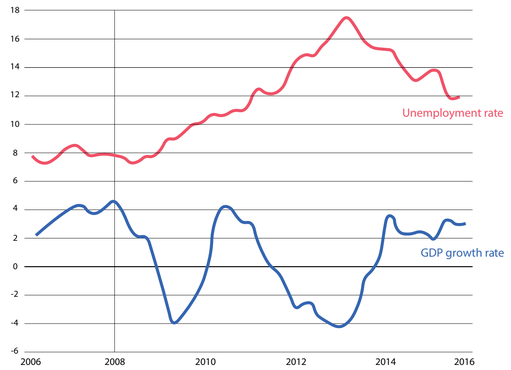
Data: Lisbon Demographics 2011- Instituto Nacional de Estatistica Censos

Images:
1 and 2 - http://www.cm-lisboa.pt/fileadmin/VIVER/Urbanismo/urbanismo/pdf.pdf

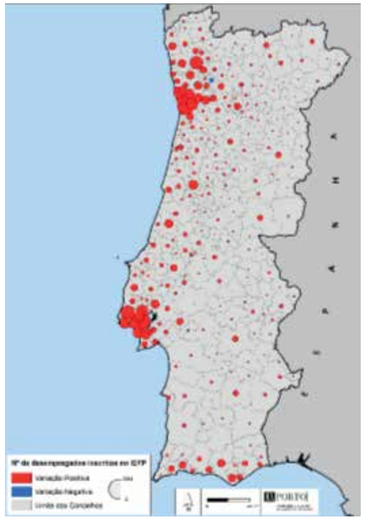
The economic crisis in 2008, did not spare Portugal. The country hit its financial rock-bottom in 2011, due to mismanaging risky credit, public debt creation, and European structural and cohesion funds for almost four decades within the higher political inner circle (Diário de Notícias. 2012). Looking at the GDP rates and unemployment rates, the country has been struggling economically since the crisis to get back on track. Although in the recent three years a stagnating growth can be found in GDP and employment. The unemployment can be mostly found in the metropolitan areas of Porto and Lisbon, because the large amount of population settlement (Marques et al. 2014).

The consequences of the crisis are still visible within the Portuguese society. The ones that could play a relevant role while facing the design task, because of its relation to the build environment, will be mentioned as follow.
The social class is facing the most difficulties in the post-crisis period. Basic-Secundary and Post-Secundary educated inhabitants are facing the highest unemployment rates (15,8% - 16,6%) in 2013. The cost of living for lower income families is increasing much faster that high income families. These high rates causes growth in indebtedness of households, which worsens living conditions and increases social inequalities (Marques et al. 2014).
On metropolitan scale young people are leaving the cities (and country) due to the high unemployment rates within this group (40% in 2014)(Marques et al. 2014).

This information (linked with the social part) will provide more in depth view into the demographic situation of the country and Lisbon, which can be used for the design brief.



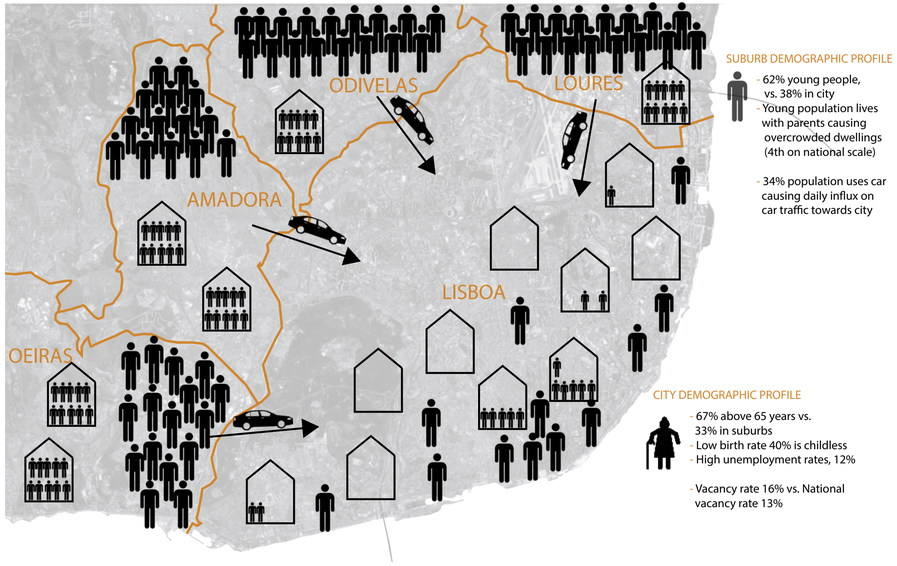
Source: http://www.tradingeconomics.com/portugal/youth-unemployment-rate



Unemployment growth by municipality (2009-2012) (Marques et al, 2014)

LISBON
LOCATION - HISTORY - TRANSPORT - **DEMOGRAPHICS**

Housing - Welfare - Social



IMBALANCE ON SOCIAL SCALE WITHIN THE MUNICIPAL AREA OF LISBON

There is a clear territorial division between the young and elderly within the area. The aging population and low child birth rate are a result of the fact that more younger people leaving the country or moving towards the suburbs (Marques et al. 2014). The suburbs offer cheaper rent for dwellings and contain less dense dwellings which are the main reason for young people to settle down (Marques et al. 2014).
This contributes to the result that the city is dealing with higher vacancy rate (16% in 2011) than the municipal area of Greater Lisbon (13%) (Lisbon Demographics 2011).

That is why the municipality working on projects to attract young people back to the city by, for example, creating spaces for start-ups in vacant buildings and redeveloping public space (see page Vision Municipality)

For the design task it is interesting to take the social imbalance within the area into consideration together with the vision of the municipality, because it could form a good foundation while looking at the future program of the complex.

Source:
Instituto Nacional de Estatistica Censos (2011) Lisbon Demographics 2011. Retrieved on 11 October 2016 from https://www.ine.pt/xportal/

Marques, F. S., Matos de, F., Guerra, P. & Ribeiro, D., 2014. Housing problems in Portugal: a challenge to define a territorialised policy in times of crisis.

CHAPTER II

THE PARISH OF BEATO

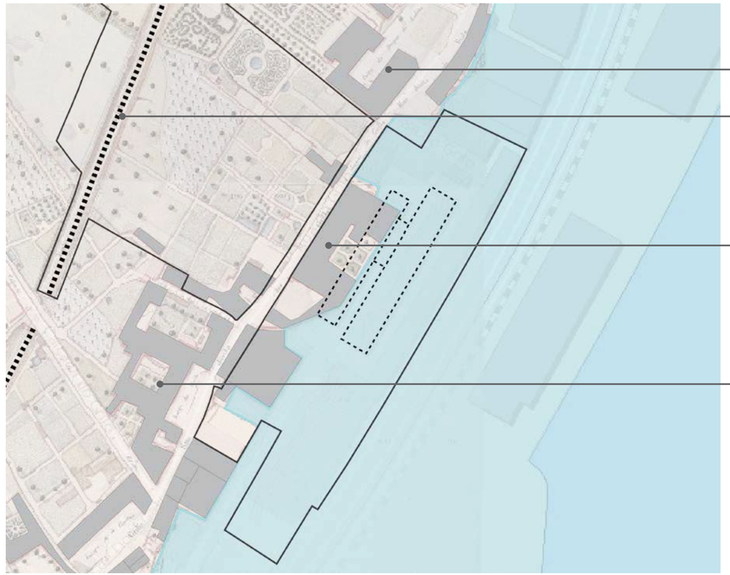
HISTORY

RESEARCH QUESTION

How did the urban context of the MMC develop over time, and what traces can be found of the historic development?

Map of Beato 1911

Source:
www.lxi.cm-lisboa.pt/lxi/



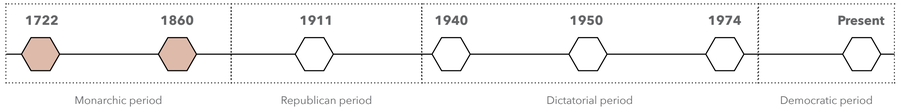
LEGEND

New construction

Buildings demolished/collapsed

MAP 1855/58

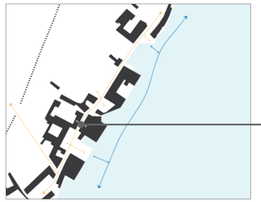
Urban Context



FUNCTIONS

(1) Design Palace (A)

(2) Convento do Grilo



TRANSPORT

(3) Connection? (B)

MONARCHIC PERIOD
Character

Use

Rua do Grilo to Waterline

Transport

People

LEGEND

Convent

Palace

Harbour industry/activity

Private garden

Cultivated land

TIMELINE

The map 1856-58 made by Filepe Folque shows the site before the transformation to the Manutencao Militar Complex (MMC), in the Monarchic period. This map shows traces of *the Origin of Beato*

This period is characterized by the power of royal and religious institutions. The land is used by these institutions as leisure garden or agricultural land. An assumption can be made that the convents also had a productive function.

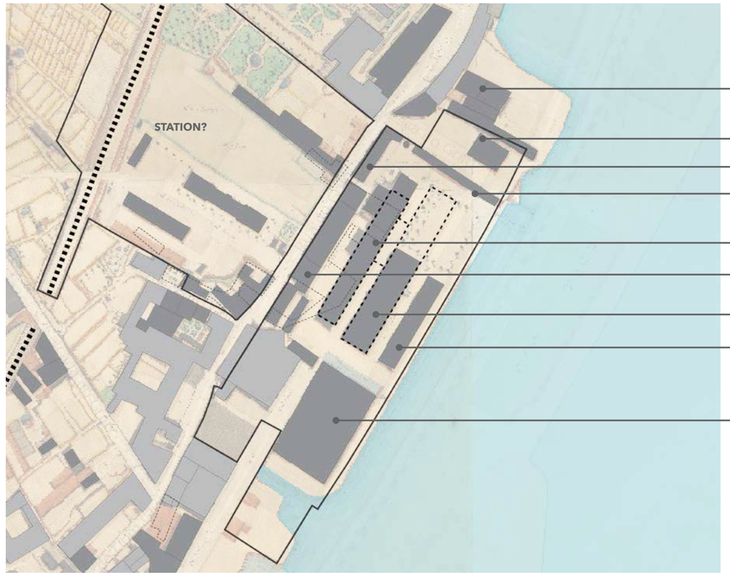
The direct connection to the waterfront and structures along the water indicate some kind of harbour activity.

Dates of significance

1722 - Origin of the Military Service[1]
1755 - After the big earthquake the Palace and the Convent were (partly) reconstructed.[2]
1856 - Opening of Portugal's first railway line (between Lisbon and Carregado).[3]

Soucres
1- http://restosdecoleccao.blogspot.nl/2013/10/manutencao-militar.html
2- http://aps-ruasdelisboacomhistria.blogspot.nl/2014_02_01_archive.html
3- https://en.wikipedia.org/wiki/Timeline_of_Portuguese_history#16th_century

Images
1 and 3 - 2- http://aps-ruasdelisboacomhistria.blogspot.nl/2014_02_01_archive.html
2 - Own edition - Photo: Google Maps



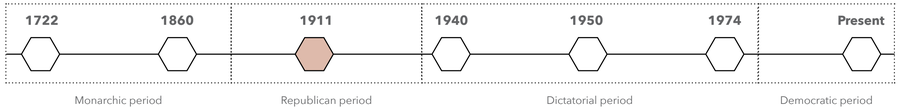
LEGEND

New construction

Buildings demolished/collapsed

MAP 1911

Urban Context



FUNCTIONS

Biscuit Factory, Photo 1917? (1)

TRANSPORT

Bakery, Photo 1917 (2)

REPUBLICAN PERIOD
Character

Use

Rua do Grilo to Waterline

Transport

People

LEGEND

Convent

Palace

Harbour industry/activity

Private garden

Cultivated land

TIMELINE

The map 1911 made by Silva Pinto shows the first structures of the MMC in the Republican period. This maps shows the *Settlement of Industry.*

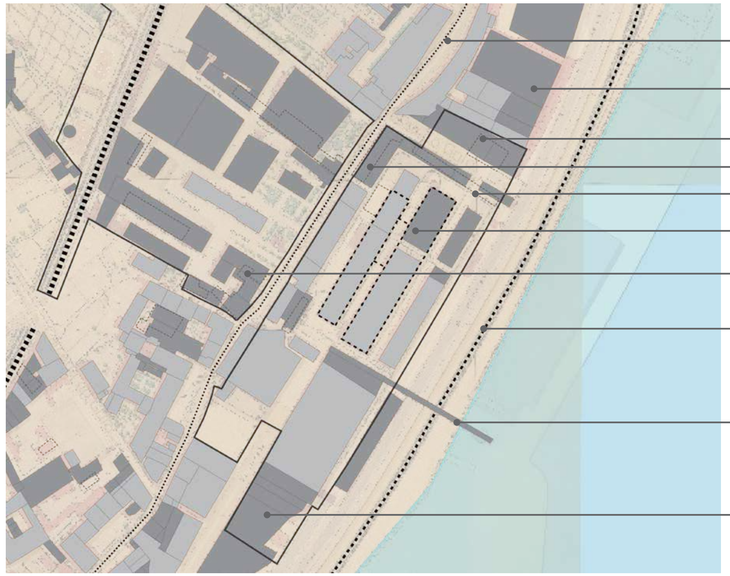
The Convent das Grilas is transformed to house officers of the MMC[1] The original waterline has been moved to create space for the MMC. A large square within the MMC could have been used as dock or outdoor storage. Most of the labour is still done by hand in this period.

Date of significance

1862 - Experiment to manufacture and supply bread to the army. A Military Bakery is created on the site now known as Rocha do Conde de Obidos named "Padaria Militar".[4]
1896 - Ministerio da Guerra takes possession of the site.
Name change from "Padaria Militar" changes name to "Manutencao Militar".[4]
1898 - 1910
Construction of factories: Milling, Bread, Biscuit, Pasta, Canned Food, Roasting and grinding Coffee, Sugar Refinery, Rice husking, Dairy and milk, Sausages.[4]

Soucres:
1- http://restosdecoleccao.blogspot.nl/2013/10/manutencao-militar.html
4- Folgado, D., & Custódio, J. (1999). Caminho do Oriente – Guia do Património Industrial. Lisboa: Livros Horizonte.

Images:
1 - Facebook MMC
2 - Facebook MMC



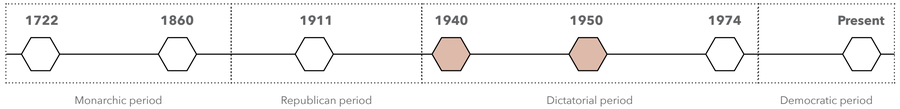
LEGEND

New construction

Buildings demolished/collapsed

MAP 1950

Urban Context



FUNCTIONS

(1) Aerial transport (A)

TRANSPORT

(2) Pier with rails (B)

DICTATORIAL PERIOD
Character

Use

Rua do Grilo to Waterline

Transport

People

LEGEND

Convent

Palace

Harbour industry/activity

Private garden

Cultivated land

TIMELINE

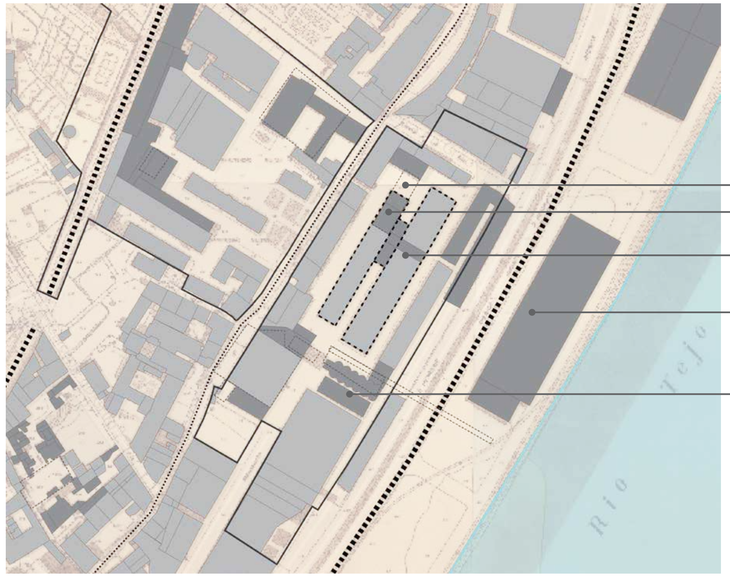
The map 1950 (unknown) shows the introduction of social facilities in the northern part of MMC as well as the increase of the harbour activities.

The period between 1920 and 1935 can be indicated as a period of industrialization. A lot of industrial (infra) structures have been developed or built.

A new railway (private) has been constructed and forms a border between MMC and the water. The solution is the construction of two mechanical air bridges, one from the water to the MMC and one from MMC south to the MMC train station (1951)[4]. The new logistics are complemented by rail within the MMC.

Images
1 and 2 - Original volume bakery (screenshot video of 1927 from www.cinemateca.pt, own editing)

Urban Context



Part of milling demolished

New silo's milling factory

Connection Bakery - Biscuit

New warehouses

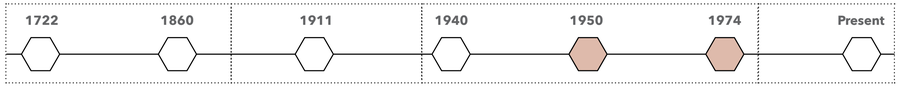
The pier, aerial connection and some warehouses are demolished, new silo's are built.

LEGEND

New construction

Buildings demolished/collapsed

MAP 1970-18983



FUNCTIONS

TRANSPORT

(1) SOCIAL BLOCK

DICTATORIAL PERIOD
Character

Use

Rua do Grilo to Waterline

Transport

People

LEGEND

Convent

Palace

Harbour industry/activity

Private garden

Cultivated land

Timeline

The map 1950-1974 made by ART 91 - PDM shows a further expansion of harbour activities. From 1950 the construction of social facilities for the employees began. The Social block included: opening of primary school, healthcare, vocational school, daycare, cafeteria, supermarket and a auditorium. Also a tram connection was made to connect the southern parts of Lisbon and Beato. This connection made it easier for employees to commute between the MMC and the city centre.

During the Ultramar War, the MMC is very active in the provision of food for the troops and in the support of the families of the soldiers. In this period the MMC reached its maximum level of productive development and of employees. Large scale buildings like the silo's and the Pasta/Biscuit are added, to optimize and maximize the production.

Date of significance

1951 - Aerial bridge between rail and factories[4]
1968 - Opening Supermarkets[5]
1974 - Opening big Silo's[5]
1974 - End to five decades of dictatorship.

Sources:
4- Folgado, D., & Custódio, J. (1999). Caminho do Oriente – Guia do Património Industrial. Lisboa: Livros Horizonte.
5 - Texts exhibited at Manutenção Militar Complex by Lisbon Municipality

Images:
1 - Retrieved from DOCOMOMO

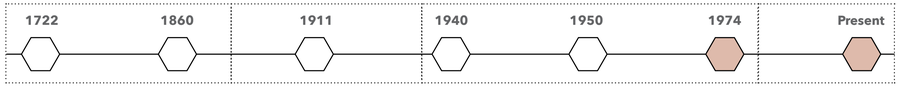
Urban Context

MAP 2011-2016

LEGEND

New construction

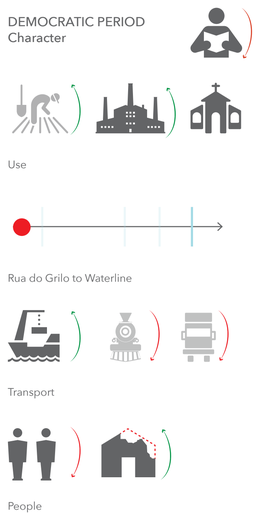
Buildings demolished/collapsed



FUNCTIONS

(1) CONTAINER HARBOUR

TRANSPORT



LEGEND

Convent

Palace

Harbour industry/activity

Private garden

Cultivated land

Timeline

The map 2011-2016 (present) from LXI shows the MMC in it's current ensemble. The first large intervention is the completion of the road to the east of the MMC, resulting in destruction of two MMC buildings.

Further development of the harbour, especially container shipping. More sea has been turned into land. On the southwest of the MMC, a lot of small buildings (houses?) have become vacant.

Date of significance

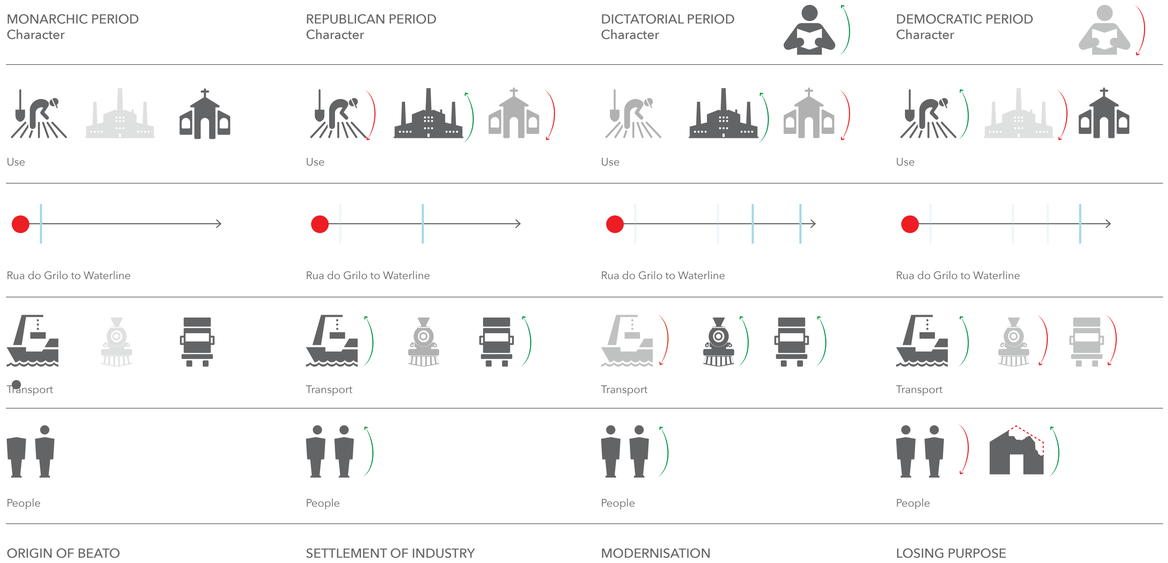
1975 - Independence of the former colonies: Angola, Mozambique, Cape Vert, Guinea Bissau, São Tomé.

Manutenção Militar has to adapt to a pacific period and reduce the production and activities. The "military supermarkets" closed.

2004 - The last year of compulsory military service - The Army is now of 32.992 troops while in the sixties it was of 200.000. Private companies provide a great part of the goods for the armed forces. The complex starts to lose its reason of being.[1]

2011- Manutenção Militar officially closed most of the factories in the complex, though there are still few services[1]

Images:
1 - Photo by Hielkje Zijlstra

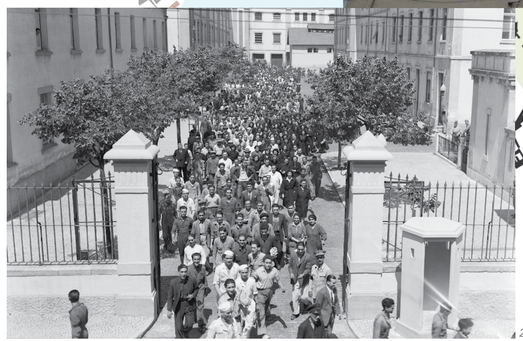


Urban Context

BEATO = BLESSED

The name Beato reminds of a better time: A history of wealth: convents and palace are still existing entities.
Green areas with agriculture, private gardens and an close connection with the river.

1



2

INDUSTRY

The MMC is a physical memory of time of power.

It reminds of a time where Portugal was powerful, and the MMC provided a lot of work and positive activity in the area of Beato. The same area is an representaion of an era of dictatorship under Franco, and the colonies (suppression and violence).

CONCLUSIONS

USE
The religious character has (partly) been replaced by the industry. First only land was taken, later a convent was taken for military use. The addition of a social block in 50s improved the social character of MMC. In the 70s the industry had the largest impact on Beato. The decline of MMC, has caused a void in Beato. The social functions, the employment and (some) activity disappeared.

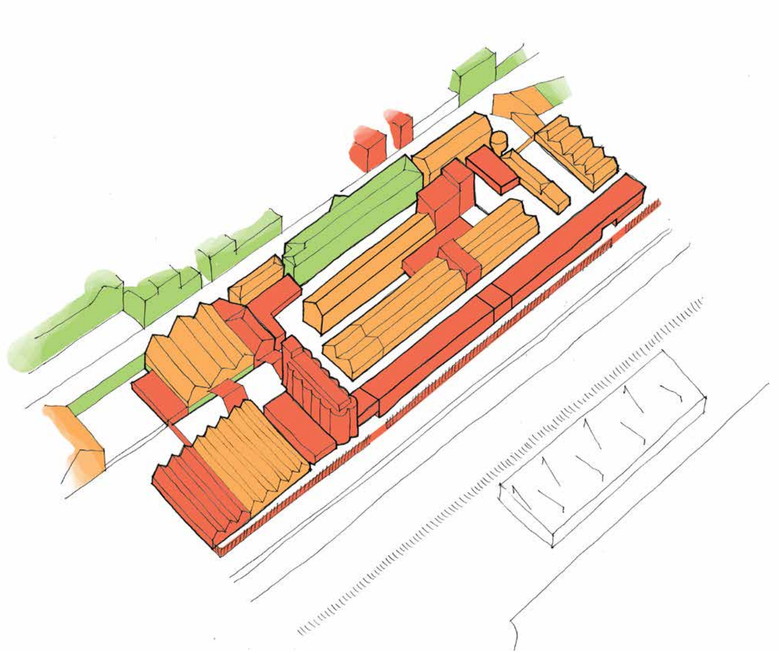
WATERLINE
The Rua do Grilo is the original waterline, due the addition of land from sea this connection has been lost.

TRANSPORT
The connection to the water has always had an important role. Until the 70s most goods were transported by water and rail, from the 70s the road became more important. The expansion of the private harbour made the water less accessible to the MMC.

PEOPLE
A growth in population (and buildings) due to employment until the 70s. The decline of the employment and the technical state of some buildings (probably) made people leave Beato. Leaving buildings and the MMC vacant.

Images:
1 - Photo by Hielkje Zijlstra
2 - Photo by DOCOMOMO

Urban Context



LEGEND

- Monarchic Period
- Republican Period
- Dictatorial Period

Conclusion

The age value is determined by the period in which the building is constructed.

Monarchic Period
The oldest part of Beato. The character is embedded in Convents, Palaces and the connected outdoor space that was mainly used for agriculture. Some traces are still left in the surroundings and on the site itself.

Republican Period
The first industrilization of Beato. The character is embedded in relativly small volumes and detailing of the buildings (cast-iron). Most of these buidlings have been reconstructed over time to keep up with the production process.

Dictatorial Period
The optimization of the production process and the introduction of social facilities. The character is embedded in the grand scale and use of modern building techniques. The scale and way of buidlings is in contrast with buildings from the republican period.

Democratic Period
In Beato hardly any buildings date from the democratic period. The largest intervention is the expension of the harbour for containerships.

MORPHOLOGY

RESEARCH QUESTION

How does the morphology of the parish of Beato relate to the MMC?

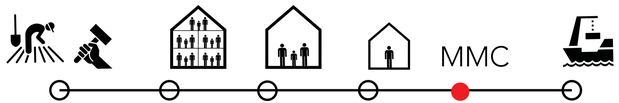
Urban Resilience

Linear blocks

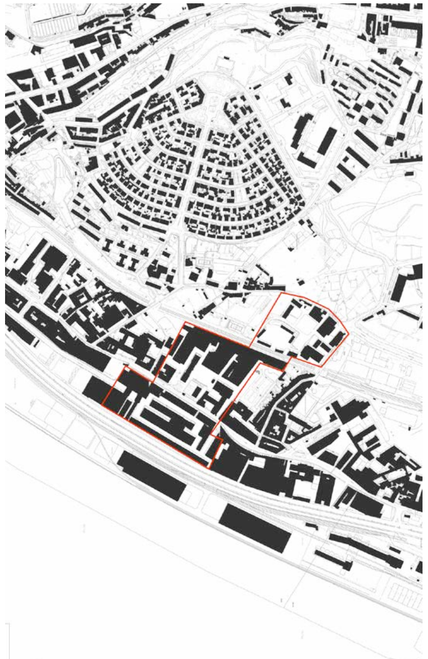
Historical fabric

Suburban fabric

Global harbour



Source:
GOOGLE MAPS



BUILDINGS

MORPHOLOGY

LEGEND

- Industrial Zone
- Residential Zone - Family Housing
- Residential Zone - Collective Housing
- Residential Zone - Historical/Mixed Use
- Recreational Green - Public
- Cultivated Land/Urban Agriculture
- Private Green
- Reclaimed land - Self constructed housing
- Brown Fields

MORPHOLOGY

The waterfront is dominated by harbour activity.

The area is low density.

A mixture of different typologies, the MMC is mainly surrounded by the historical fabric.

West of the train track, no continuity can be found in the urban tissue. The result: Palimpsest urbanism.

Source:
GOOGLE MAPS

LEGEND

1- Green area Madre de Deus
2 - Urban Agriculture
3 - Green area Social housing
4 - Urban Agriculture
5 - Jardins da Quinta das Pintoras
6 - Urban Agriculture/Bottum-up dwelling
7 - Brown Fields/No use
8 - Urban Agriculture
9 - Jardins do Convento dos Grilos
10 -Brown Fields/Parking
11 - Jardins do Palácio do Duque de Lafões
12 - Brown Fields/No use

GREENSPACES

LEGEND

- Recreational Green - Public
- Cultivated Land/Urban Agriculture
- Private Green
- Reclaimed land - Self constructed housing
- Brown Fields

GREENSPACES

Leisure
Some greenspaces have been designed for the newer areas of Beato. The area of Madre de Deus (1) has a sloping park with some sports facilities. In the historic tissue, no greenspaces for leisure are found.

Private green
In the historic tissue, some private green spaces are present. Owned by (former) religious and royal institutions. Other private green (5) is used by a company that sells wood.

Agriculture
A substantial part of the space is used for agriculture. It is impossible to identify if these plots are used by one or multiple owners (4-8). Looking at the structures, it can be assumed that a piece of land is reclaimed (6), used by individuals for agriculture (and maybe living).

Brownfields
A substantial part of Beato is brownfield. Some used for nothing (7 and 12), and others for parking (10).

LEGEND

Private

Public

PUBLIC PRIVATE

Source:
GOOGLE MAPS

Convent Garden

Convent Garden

Abandoned school

Wood-company

Palace Garden

Abandoned church

Community Centre

Convent Garden

LEGEND

Private

Brownfield

Private Green

Urban Agriculture

PRIVATE GREENSPACES

The public-private map shows that most of the public space is used for circulation. Sometimes with walls on both side of the road (3). Some places are wide enough to park a car, and the public space is mainly used for circulation and parking (1 and 4). Within the linear block structure (2) all space is public, mainly used for parking.

In conclusion:
Insufficient of public space to stay or meet, dominated by space for circulation or parking.

The overlay of greenspace and private space shows how the private space is used. The areas around the MMC are very open (unbuilt) but private and protected by wall.

Could this space not become public?

TRANSPORT

RESEARCH QUESTION

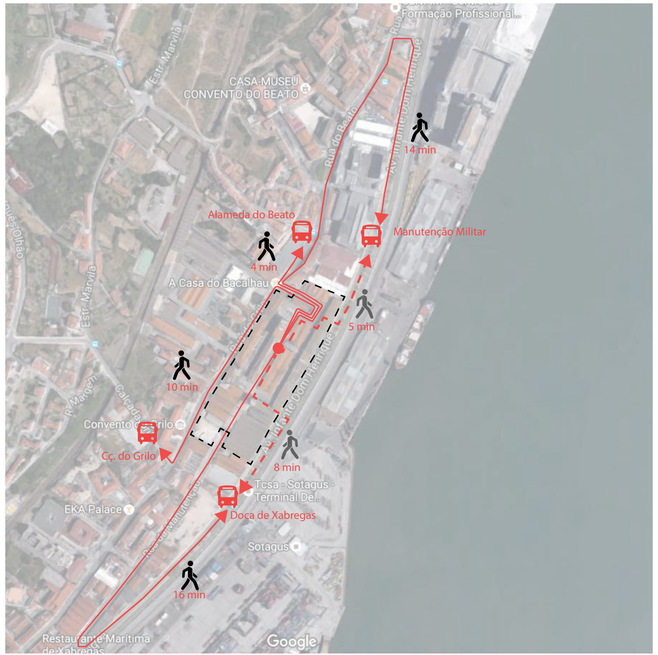
How is transportation around the MMC arranged?

Housing in Bairro Alto

Photo:
Manuel Salva

Public - Private

Bus	Bus station	Travel time to (hours)									
28	R.Manutenção	Restelo 0:50	Belém 0:42	Hosp. Egas Moniz 0:36	Cais do Sodré 0:24	Est.Santa Apolónia 0:06	Poço do Bispo 0:06	Est. Oriente 0:18	Moscavide 0:28	Portela 0:34	-
718	Calçada do Grilo	ISEL 0:13	Est. Braço de Prata 0:12	Poço do Bispo 0:08	Cemitério Alto S. João 0:12	Pç. do Chile 0:18	Al. Afonso Henriques 0:21	-	-	-	-
742	Calçada do Grilo	B.º Madre de Deus (Escola) 0:04	Cemitério Alto S. João 0:10	Pç. do Chile 0:16	Arco do Cego 0:21	S. Sebastião 0:28	Campolide 0:34	Alcântara 0:44	Alto S.to Amaro 0:50	Boa Hora 0:57	P. Ajuda 1:00
759	Calçada do Grilo	Restauradores 0:21	Rossio 0:18	Pç. Comércio 0:16	Est.Santa Apolónia 0:09	B.º Madre de Deus (Escola) 0:03	B.º das Salgadas 0:05	ISEL 0:10	Olivais 0:13	Bairro Encarnação 0:26	Est. Oriente 0:40
39	Calçada do Grilo	Marvila 0:07	-	-	-	-	-	-	-	-	-



current route

possible route

The only public transport that is directly accessible from the MMC Complex is the bus. In the direct surrounding there are 4 bus stations. When looking at the accessibility of these bus stations it is noticeable that the route towards the bus stations on the car road is way more complicated and long then it should be. This is because the whole strip where the South MMC belongs two is one closed long line.

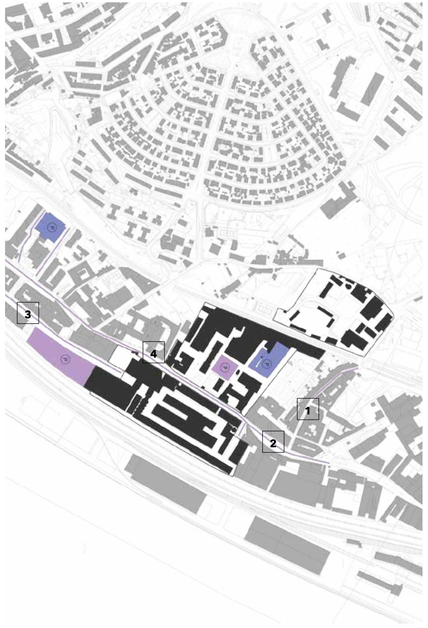
That is why it would be a better option to open up the MMC towards the car road, so not only the MMC would be better connected tot the city centre of Lisbon, but the whole area around the complex would also have better connection.
Also the two visual in the Pasta building have high potential to manage

Direct public transport accessibility towards the city can be improved.

Public - Private

Pedestrian space used by cars

Source: GOOGLE MAPS



PARKING

CAR ACCESS

LEGEND

- Main distribution
- Secondary distribution
- Local distribution
- Local distribution within MMC
- Parking indoor
- Parking outdoor

PRIVATE

The site has a good connection to the city centre and the Expo '98 due to the Av. Infante Henrique. Also the Rua do Grilo is an historical route connecting the entire water-front of Lisbon.

The parking in Beato is solved by using every possible space to park. The rules seem to be unwritten: "as long as other cars can pass, it's fine" The result of this attitude is that some potential qualitative public spaces are taken by cars (pictures 1-4).

The large office building has it's own parking garage, and also the MMC has it's own parking garage (now unused).

AMENITIES

RESEARCH QUESTION

What amenities are in the surroundings of the MMC and how are they spread in Beato?

Housing in Bairro Alto

Photo:
Manuel Salva

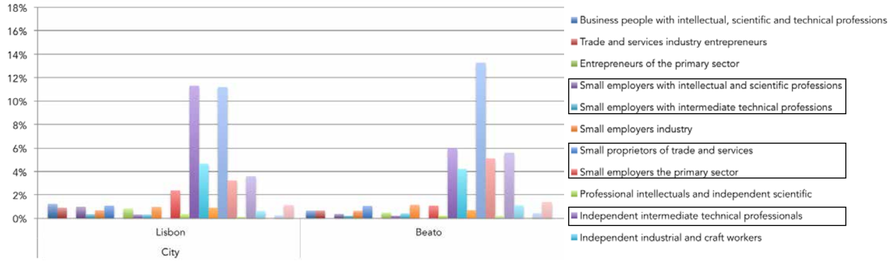
ANALYSIS
FACILITIES

- Retail
- Food and beverage
- Other business
- Pharmacy
- Bank
- Education
- Vacancy

Retails shops are focused on a small local scale (Google street-view 2015)

Schools as well (Google street-view 2015)

Small scale amenities form the street-view (Google street-view 2015)



The map with amenities provokes the assumption that the surrounding neighbourhood of the MMC (especially Rua de Xabregas and Rua do Grilo) contains a lot of amenities. But looking at the graphic overview on business activity in Lisbon and Beato it can be noticed that approximately 13% of the business activity in Beato is focussed on the local scale. Also from a street view, these amenities operate on a really small local scale and, for example, do not have a connection with the rest of the city.

Decline in amenities

The amenities on local scale create a very intimate atmosphere while strolling through the neighbourhoods. Because they are so reliable on a small scale, they are really vulnerable. Meaning that they can shut down very easily and create a very closed and vacant street-view.

For the design task this could play a role during the formation of the program of demands that will be implemented in the complex. The question that could be ask regarding this topic is:

What local scale amenities could work for the neighbourhood? Is it possible to implement large scale amenities? What would be the consequences for the neighbourhood?

Sources used:
Instituto Nacional de Estatistica Censos (2011) Lisbon Demographics 2011. Retrieved on 11 October 2016 from https://www.ine.pt/xportal/

DEMOGRAPHICS

RESEARCH QUESTION

What are the social, economical and building statistics of Beato and how do they relate to the rest of Lisbon?

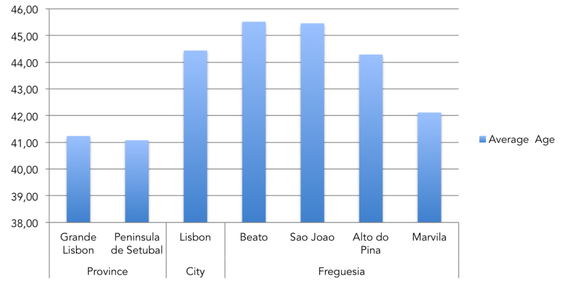
or

Who are the people living in Beato and how do they live?

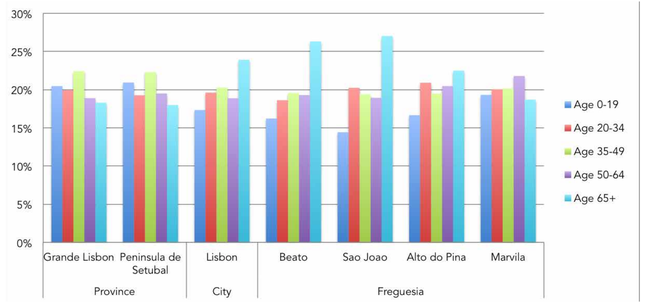
Employees of the MMC (70s)

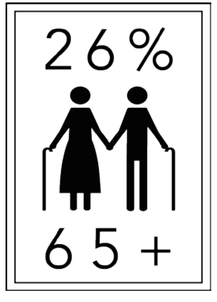
Photo:
DOCOMOMO

Average age



Age Groups





Age

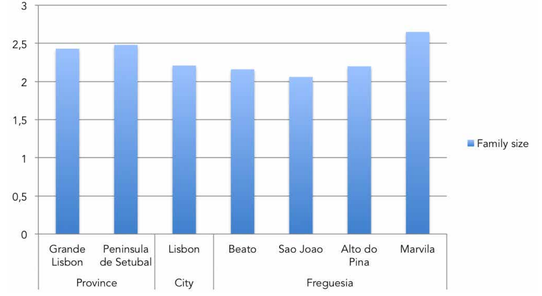
The average age of the city of Lisbon is noticeably higher than the average age of the province. Even higher is the average age of Beato. This is due to the high number of 65+ elderly in the city. **26% of the population in Beato is 65 years or older.**

Figures
Data derived from:
Instituto Nacional de Estatistica Censos (2011) Lisbon Demographics 2011. Retrieved on 11 October 2016 from https://www.ine.pt/xportal/xmain?xpgid=ine_main&xpid=INE

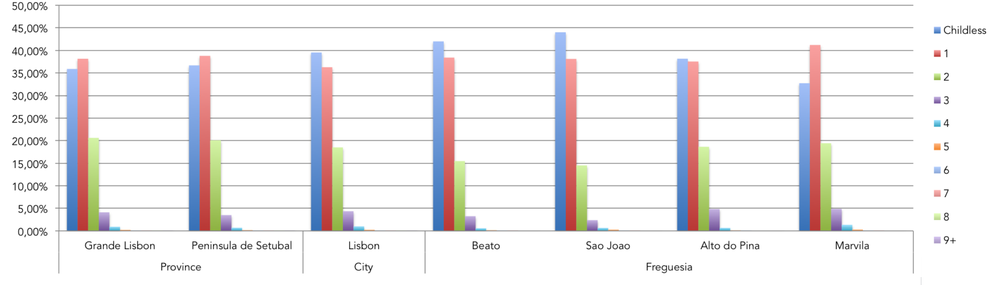
BEATO
HISTORY - MORPHOLOGY - TRANSPORT - AMENITIES - **DEMOGRAPHICS** - CHARACTER - PROCESS

Social - Economical - Buildings - Conclusions

Family Size



Number of children per family

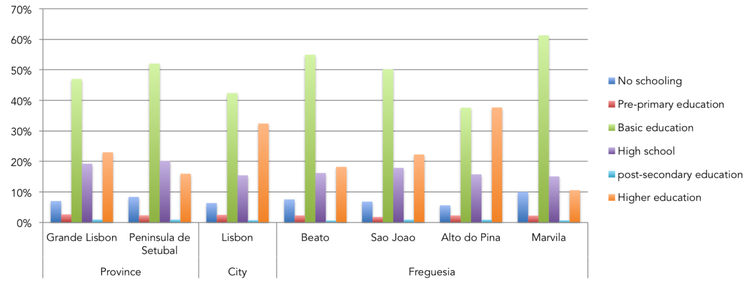


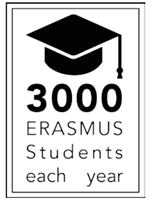
Family composition

The composition of the families show that the number of families living in Beato is lower than the number of families living in the rest of Lisbon.

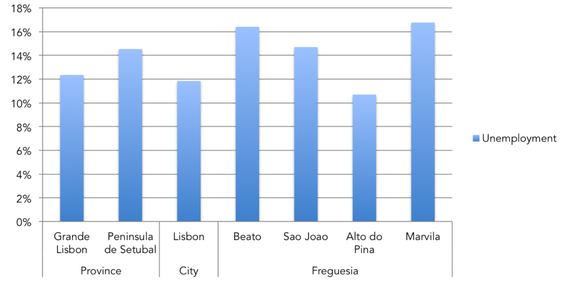
Lisbon Demographics 2011
Instituto Nacional de Estatistica Censos 2011

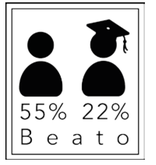
Education

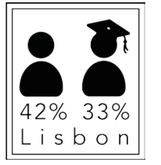


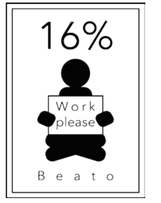


Unemployment









Education and unemployment

The level of high educated people in Beato is significantly lower than in the whole of Lisbon. **Besides that only half of the population in Beato has a basic education level.**

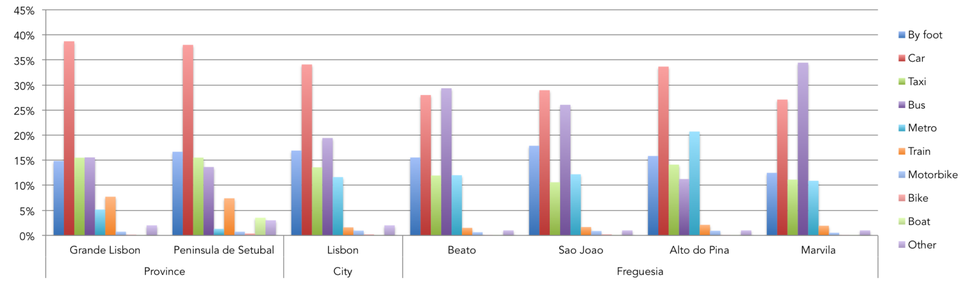
The unemployment rate in Beato is 16% which is higher than the unemployment rate in Lisbon. If this is due to the lack of working opportunities in Beato itself is yet to be researched further.

While the basic education level in Beato and Lisbon is not very high a lot of exchange students are present in the city centre. Each year more than 3000 students study in Lisbon with the Erasmus Exchange program. (VoxEurop, 2010)

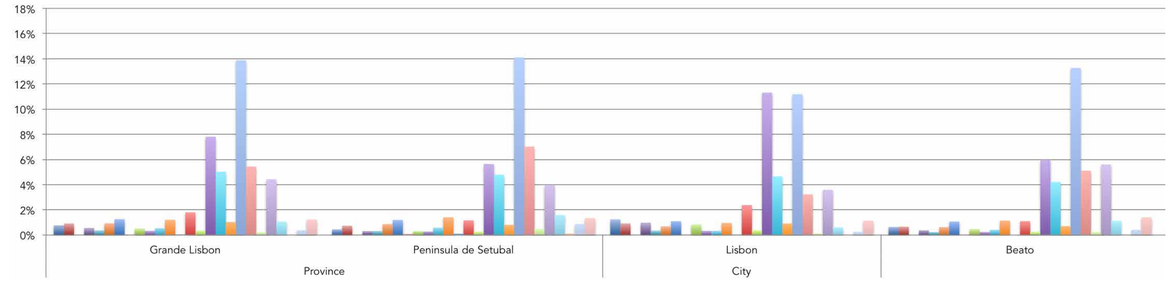
Text:
VoxEurop (2010) Lisbon empty capital. Retrieved on 8 October 2016 from http://www.voxeurop.eu/en/content/article/309401-lisbon-empty-capital

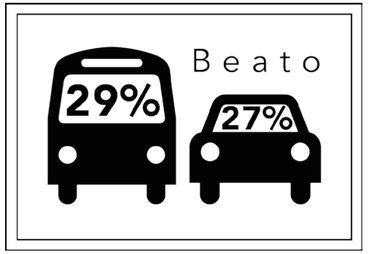
Figures
Data derived from:
Instituto Nacional de Estatistica Censos (2011) Lisbon Demographics 2011. Retrieved on 11 October 2016 from https://www.ine.pt/xportal/

Main working - living transport



Work Sector



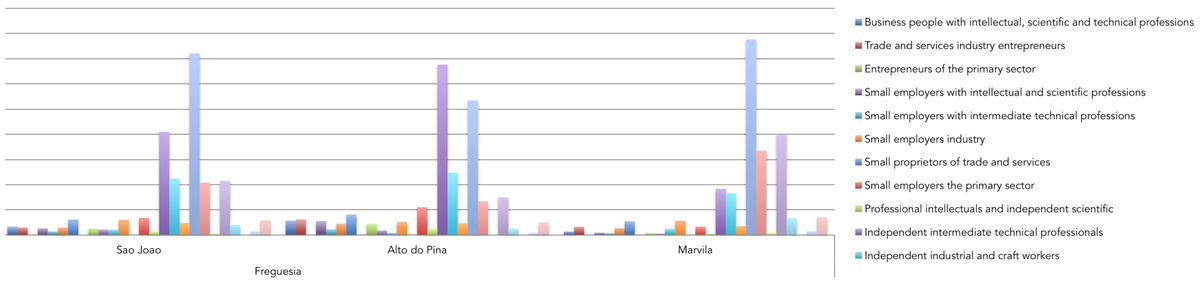


Working sector

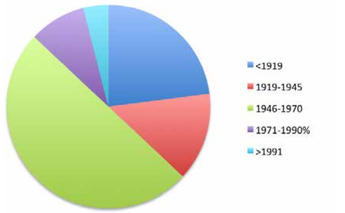
The people in Beato mostly move to work by bus which is quite different from the whole of Lisbon. Usually the car is the most used form of transportation. In Beato the car is a close second to the bus.

While looking at all the different working sectors most noticeably is that **most people working in Beato have a small self owned business.**

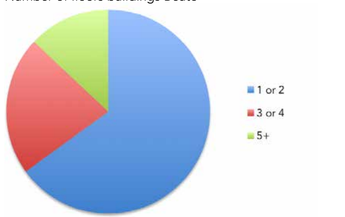
Data derived from:
Instituto Nacional de Estatistica Censos (2011) Lisbon Demographics 2011. Retrieved on 11 October 2016 from https://www.ine.pt/xportal/



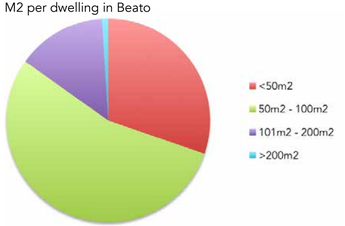
Age Buildings Beato

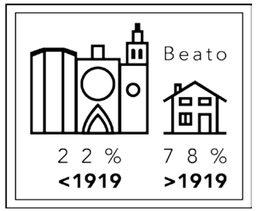


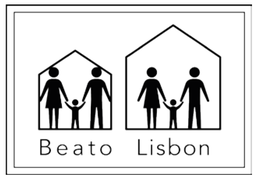
Number of floors buildings Beato



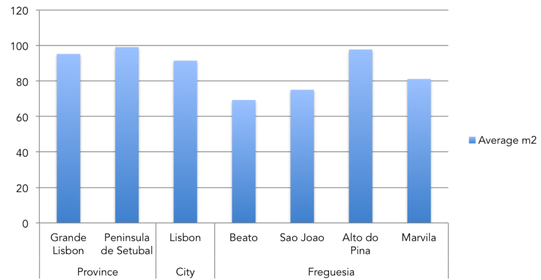
M2 per dwelling in Beato







Average m2 dwellings



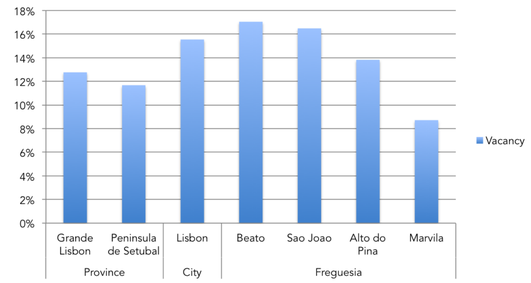
Buildings

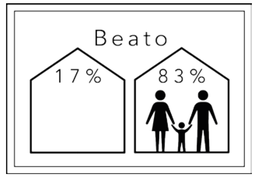
Most buildings in Beato are relatively young but the number of old buildings are mostly large old convents or palaces refering to the blessed past of Beato.

While looking at the number of floors and square meter floorspace we can conclude that **most buildings are relatively low and small, especially the dwellings.**

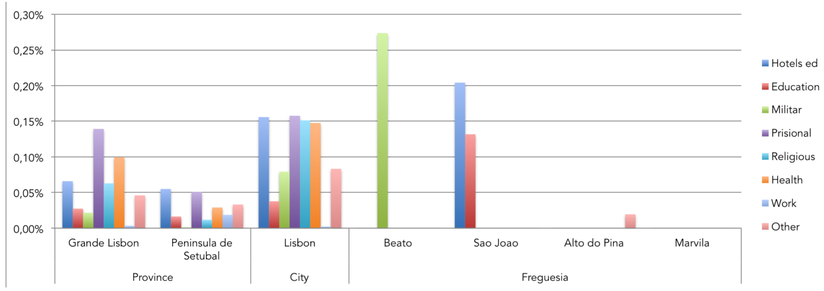
Figures
Data derived from:
Instituto Nacional de Estatistica Censos (2011) Lisbon Demographics 2011. Retrieved on 11 October 2016 from https://www.ine.pt/xportal/

Vacancy





Facilities besides dwellings



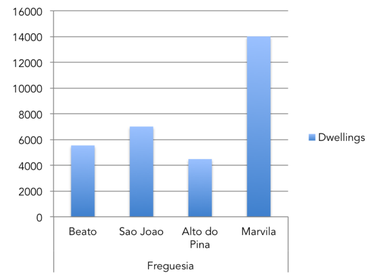
Vacancy and facilities

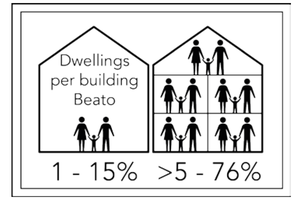
There are a lot of vacant buildings in Beato which is probably due to the migration of people and with that the facilities are no longer used so these are moving as well.

When the MMC was still active it dominated the facillities within Beato. We can conclude that there is a lack of (diverse) facilities in Beato.

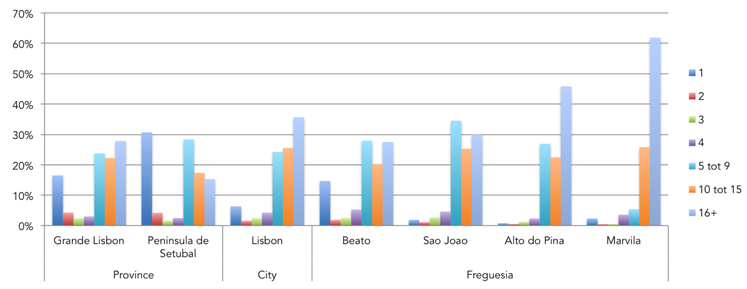
Lisbon Demographics 2011
Instituto Nacional de Estatistica Censos 2011

Number of Dwellings





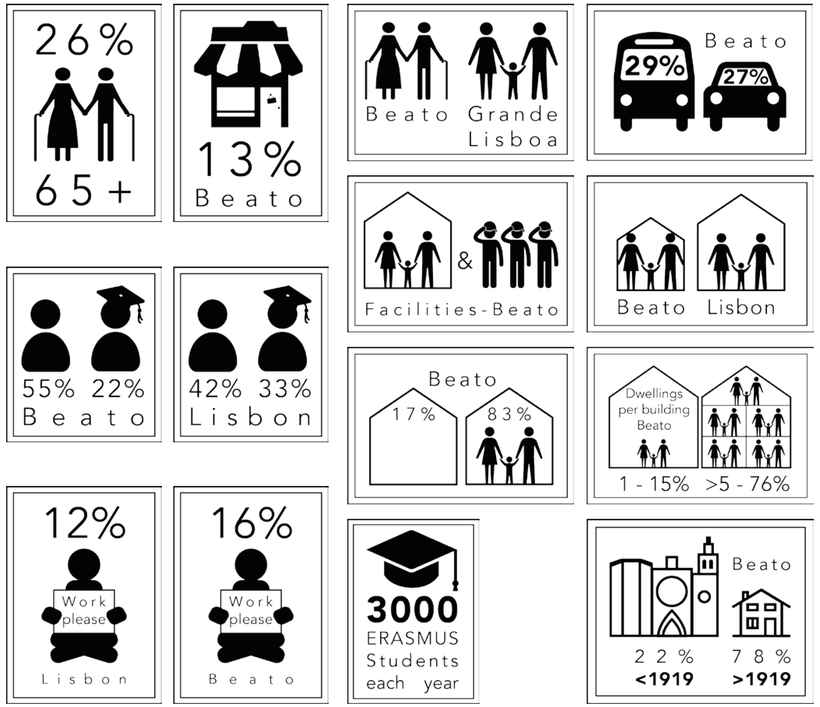
Number of dwellings per building



Dwellings

The dwellings in Beato are mostly occupied by multiple families in one building even though the number of single family dwelings is also higher than the average fraguesia's in Lisbon.

Figures
Data derived from:
Instituto Nacional de Estatistica Censos (2011)
Lisbon Demographics 2011. Retrieved on 11 October 2016 from https://www.ine.pt/xportal/



Conclusions of the demographic figures in Beato

- Young families move to the suburbs of Grande Lisboa and people get fewer children creating the aging city of Lisbon

- Beato has large population of....
  ....elderly
  ....people with basic education
  ....unemployed people

- The buildings in Beato....
  ....are relatively small
  ....have a high vacancy rate
  ....house multiple families
  ....house hardly any facilities other than dwellings
  ....are not very old with a few exceptions

CHARACTER

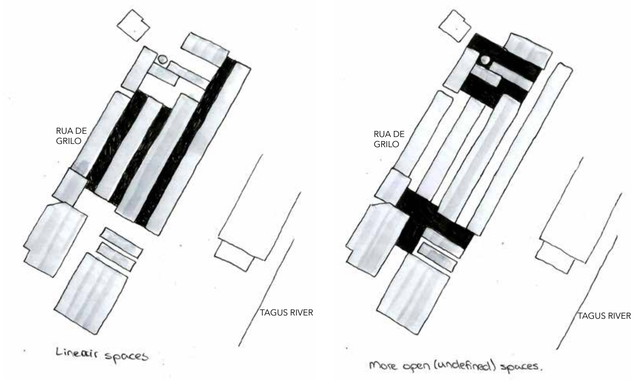
RESEARCH QUESTION

What are the characters of the spaces and the façades of the MMC?

Photo:
Street between the Milling and Bakery f the MMC photo by Noelle Dooper

The character of the space

The MMC shows a clear division of spaces which can be categorized as streets and squares. These spaces need to be re-searched to be able to define the different characters of these spaces.

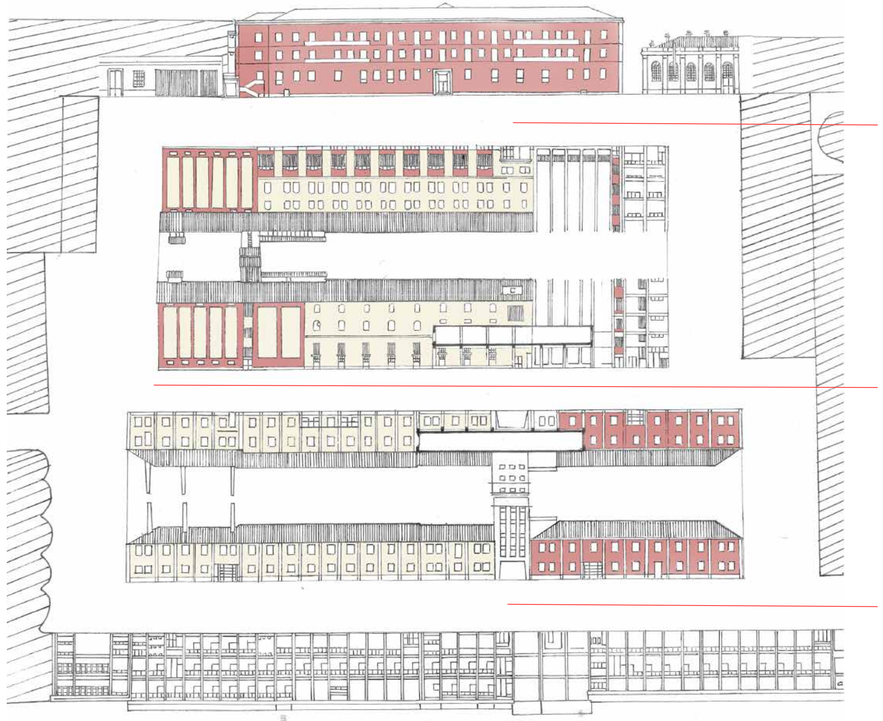


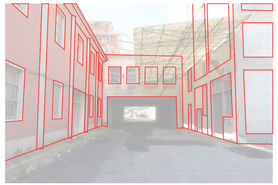
Interior spaces - Skin

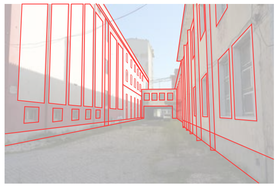
Spreading the façades over one drawing provides an overview of the differences in exterior of the buildings. At first sight there the common use of colours is noticeable. Another thing that is noticeable is the transition of different styles. The Pasta factory in the bottom of the drawing contains this repetitive concrete industrial character, while the convent in the top has a more rustic monumental character. In between these two there are the Milling and Bakery that both contain this mixture of the industrial and monumental character. The industrial comes back in the silos of the two buildings and the monumental in the other parts.

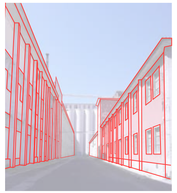
Industrial vs.. /and Monumental

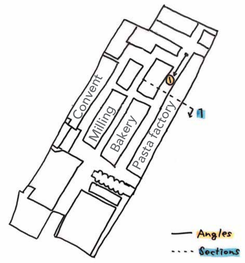
Looking at the façades from a human scale perspective, there can be a relation drawn between the different buildings on the streetview. This relation can be seen in the way elements in the façades are reacting to each other.
For example in the street with the Pasta factory and Bakery both façades contain these vertical elements, but in a different style. This vertical repetitiveness contributes to the atmosphere in this street and forming the character, although it has to be mentioned that the size of the Pasta factory and the Silo at the end of the street are the most dominating for the character formation of this street. Another example is the street of the Milling and Convent, where the use of similar window size on the upper two floors contributes to this rustic character.

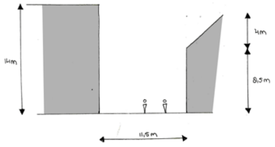


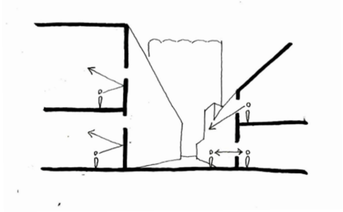


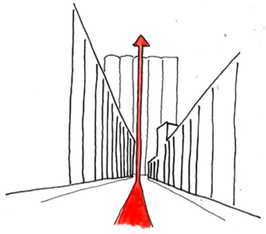












Streets

The street between the Pasta factory and the Bakery is very long (200 m) and feels even longer with the **vertical lines in the rhythmic façades** on both sides. The end of the street is clearly defined by the large and high Silo's redirecting your vision upwards. This landmark structure emphasizes the industrial atmosphere of the whole site but definitely also the character of this street.

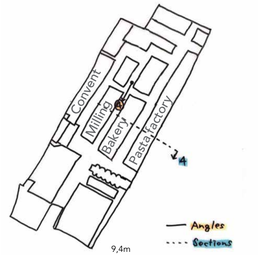
Besides the length the width of the street, with 11m is rather small compared to the other streets leaving only a small pavement to walk on suggesting a fast moving atmosphere.

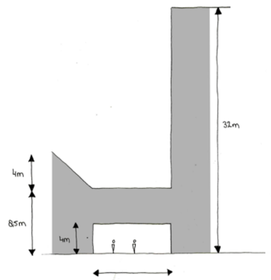
The facade of the Pasta factory is most prominent as it is higher, longer and more closed to the street. It is mostly this building and the Silo which highlight the industrial character of the street. Both buildings are rather closed making them look more solid and tough. The whole atmosphere with the grey coloured façades and small windows and rigid vertical division feels raw, cold and strict.

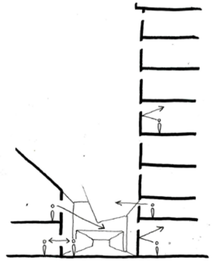
Overall the character of this street can be defined as industrial.

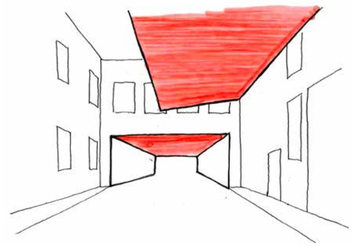
BEATO
HISTORY - MORPHOLOGY - TRANSPORT - AMENITIES - DEMOGRAPHICS - **CHARACTER** - PROCESS

Interior spaces - Skin









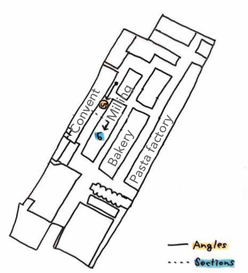
Streets

The street between the Bakery and the Milling is situated in the middle of the MMC and is most notably marked by a passage underneath a building part connecting the Bakery with the Milling. This building part also cuts the street and partly blocks your vision of the whole street.

Next to this obvious passage the street has two more canopy like structures giving the street a more secure enclosed and protected feeling. It helps to introduce the human scale within the street.

The middle street is also the smallest of the three and the windows of both façades are mostly orientated on the street creating a visible connection from both buildings as well. All these features enhance the secure character in which the buildings are orientated towards each other.

Overall the character of this street can be defined as intimate.



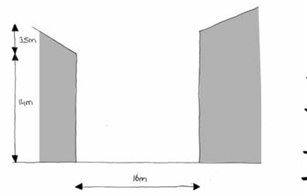
Streets

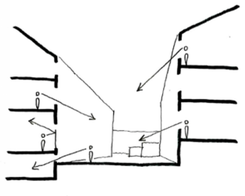
The street between the Milling and the Convent measures a width of 16m and is thus the widest street within the MMC. This width creates a more quiet, relaxed and slower atmosphere.

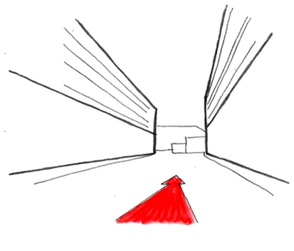
The division of the Milling facade separates the lower and upper part which contributes to the human scale feeling of the street. On the other side the first floor of the old convent is situated above street level separating the interior from the street as there is no immediate connection, it is impossible to look inside the building.

Lower buildings are situated at both end of the street which contribute to the tranquil atmosphere of the whole street.

Overall the character of this street can be defined as rustic.

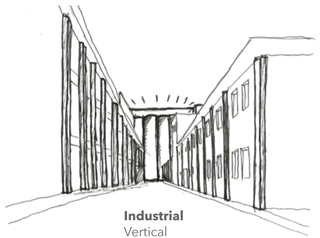






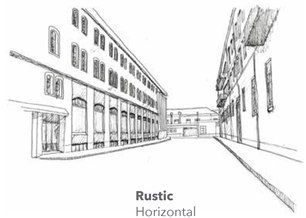
BEATO
HISTORY - MORPHOLOGY - TRANSPORT - AMENITIES - DEMOGRAPHICS - **CHARACTER** - PROCESS

Interior spaces - Skin

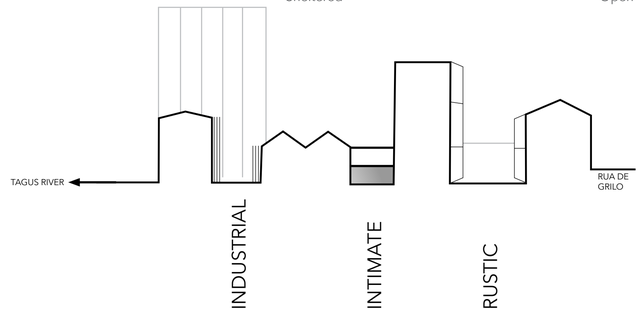


Industrial
Vertical
Rhythm
Industrial scale
Linear (vista)
Closed
Rigid
Solid
Strict
Tough
Raw
Cold

Intimate
Horizontal
Secure
Human scale
Interrupted (vista)
Protected
Enclosed
Secure
Inwards
Open
Sheltered



Rustic
Horizontal
Quiet
Human scale
Linear (vista)
Tranquil
Quiet
Relaxed
Slow
Inviting
Open



Conclusion

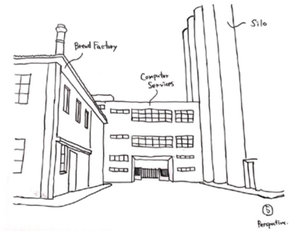
The three streets within the MMC all have their own character. Researching what actually defined the character made it able to describe the overall character with one word. The industrial street between the Pasta factory and Bakery, the intimate street between the Bakery and Milling and the rustic street between the Milling and convent.

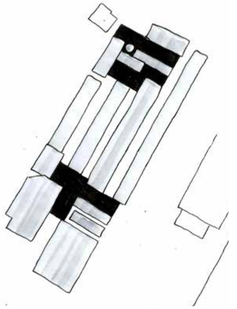
When transforming the MMC the character of the site must be taken into account. How to incorporate the defined characters in the newly shaped spaces?

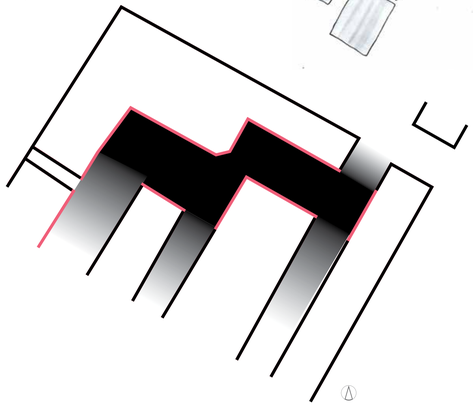
Interior spaces - Skin

Source images:
Bakery and Pasta factory
Docomomo, Lisbon 2016

Milling, Supermarket and Convent
Amela Rasidkadic, Lisbon September 2016





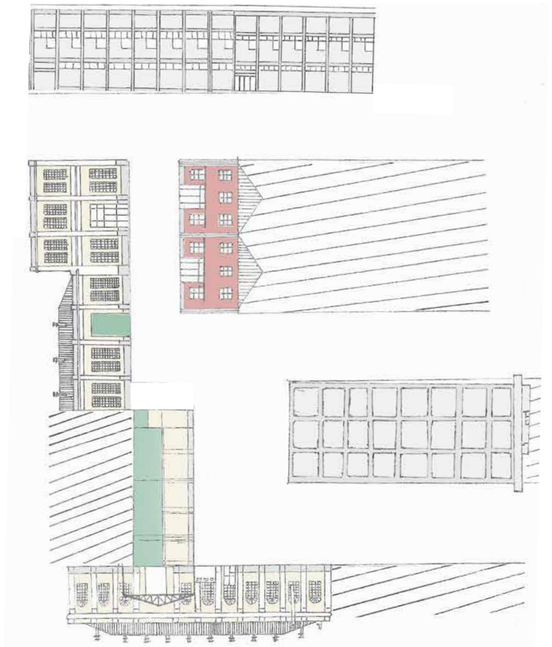


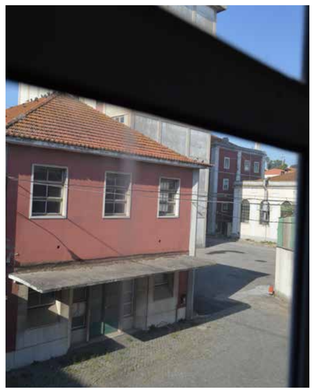
Diverse vs.. Intimate

Looking at the façades spread over the square on this page it can be noticed that there is also a mixture of industrial and monumental elements. But what is more noticeable is the difference in building scale. Most of the buildings around the square contain a scale of maximal 2 floor levels and this monumental style, creating this intimate neighbourhood atmosphere. But then there is the tall Milling silo that contains 9 closed floor, which, due to its large scale, holds a dominating position in this intimate space. It is almost like the silo is the landmark of the this square and contains an important function, because it is the first thing you notice if you come from the street of the Workshop and Cookie factory.

Source images:
Silo
Ruben Klinkenberg, Lisbon September 2016

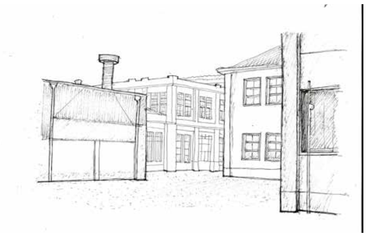
Interior spaces - Skin

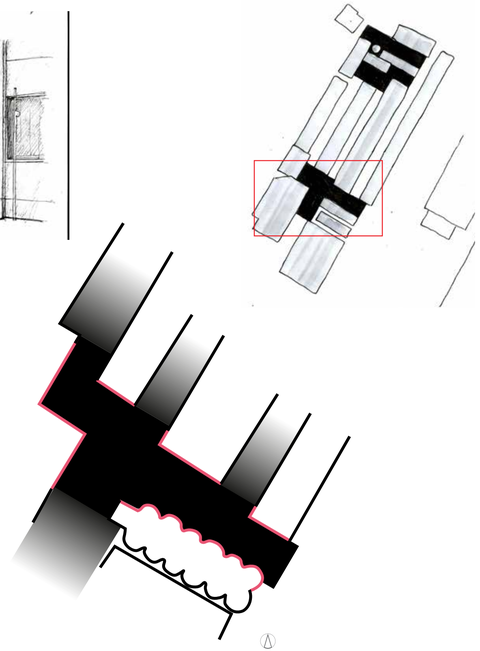




Source images:
Workshop and Cookie factory
Hielkje Zijlstra, Lisbon September 2016

Cookie factory and Silo
Amela Rasidkadic, Lisbon September 2016





Diverse vs.. Intimate

The square drawn on the left page, shows the mixture of the industrial and monumental elements in the façades. The most noticeable elements on this facade spread are the entrance of the Bakery and the Silo. The entrance of the Bakery contains the most detailed facade and it can almost be said that this facade contains a dual face with on one side a monumental vibe relating to the Milling, Supermarket and Convent and on the other side a more industrial look relatable towards the Silo and Pasta factory.
The Silo, due to its large size, contains a dominating position in this square.
Due to the variation of different building scales and style elements this square has a more diverse and less intimate open character.

Interior spaces - Skin

Height difference as border

Buildings as border

Facade of the Convent with entrances and windows

Completely closed facade of the Supermarket

Walls as border

Gates as border

Main monumental gate

Employers entrance gate

Gates which are closed off

Types of border

Photos:
Google maps - streetview

INTROVERT CHARACTER

LEGEND

- Heights
- Buildings
- Walls
- Gates

The MMC area has a closed off character because of its border. The border is made of either a height difference in the landscape, the façades of the buildings, a wall around the complex or gates. Some examples of these borders are given on the previous page.

This map shows where which kind of border is situated.

Interior spaces - Skin

BARBED WIRE

GLASS SPIKES

WATCHTOWERS

Traces of military

Photos:
Google maps - streetview

LEGEND

- People - Monumental
- People - Simple
- Vehicle - Monumental
- Vehicle - Simple

ENTRANCES

The entrances can be divided into two groups. The width of the gate indicates whether the entrance was used for vehicles or people, since big trucks were used for transportation.

The gates can also be categorized as monumental or non-monumental. The use of ornaments, in a very pragmatic industrial area, can indicate importance of the entrance.

Only one gate for vehicles can be seen as monumental. On this side (west) of Rua do Grilo was the social block and the office of the military chief. This entrance was probably the main gate for visitors.

Most entrances for people do have ornamentation. This could be explained by the prestige and status of the military, or by the representation to the neighbourhood. Since all entrances for people face Rua do Grilo.

INDUSTRIAL APPEARANCE

MONUMENTAL APPEARANCE

CONCLUSIONS

The skin of the MMC is formed by walls, gates, fences and buildings.

The buildings of the industrial part of the MMC face on one side:
The old waterline route Rua do Grilo

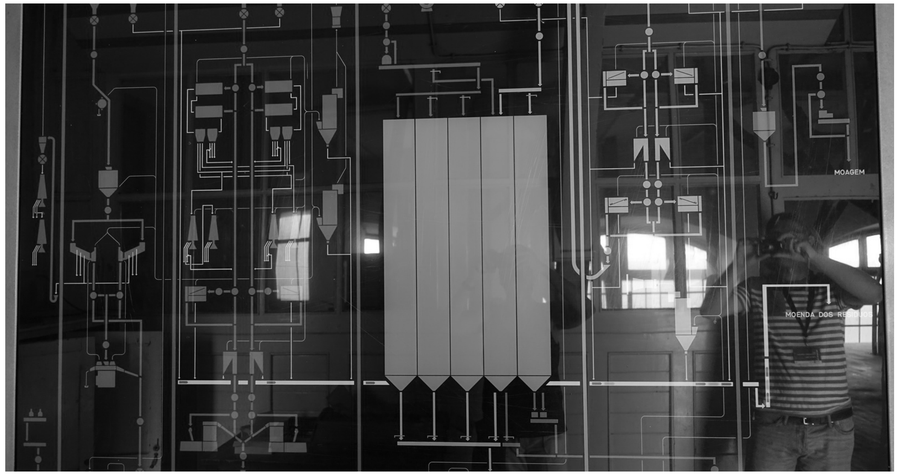
and on the other side :
The wide Avenue Infante Dom Henrique.

The skin has a significant difference in character worth notifying. The buildings on the Rua do Grilo are smaller in scale and have some ornamentation. The reason could be because this buildings were built in an earlier period (monarchic and republican) or because the buildings were meant to have a monumental presentation to the streetside.

On the other side; the huge length of pasta and biscuit factory (200 meters) dictate a very strong repetitive concrete structure ended with the height of the big silo's (40 meters). These buildings are built in the late republican period, and the way of building had changed since the republican period.

Assumption:
The buildings facing Rua do Grilo were the representative side of the MMC, used to show the prestige of the military.

The buildings facing the Av. Infante Dom Henrique are result of pragmatism, built in the most efficient way.



Production Process

Housing in Bairro Alto

Photo:
Manuel Salva

Production process

LEGEND

- Rail inside MMC (non-mechanic)
- Aerial Connection (mechanic)
- Connection by Road

CONNECTIONS

Global/National - Water
Up the river to and from Portugal/Spain.
Down the river to and from rest of the world.
Example: import and export to colonies.

National - Rail
Train connection from and to the rest of Portugal (other military bases).

Urban/Local - Road
Connection by road for the distribution of local produce from and to Lisbon/Portugal

Urban/Local - Tram
Tram connection by (slow) rail to connect the City to the Beato. Transport of labour?

Local - Foot
Distribution of products trough the supermarket to local families and military.

LOGISTICS

D: Distribution, import

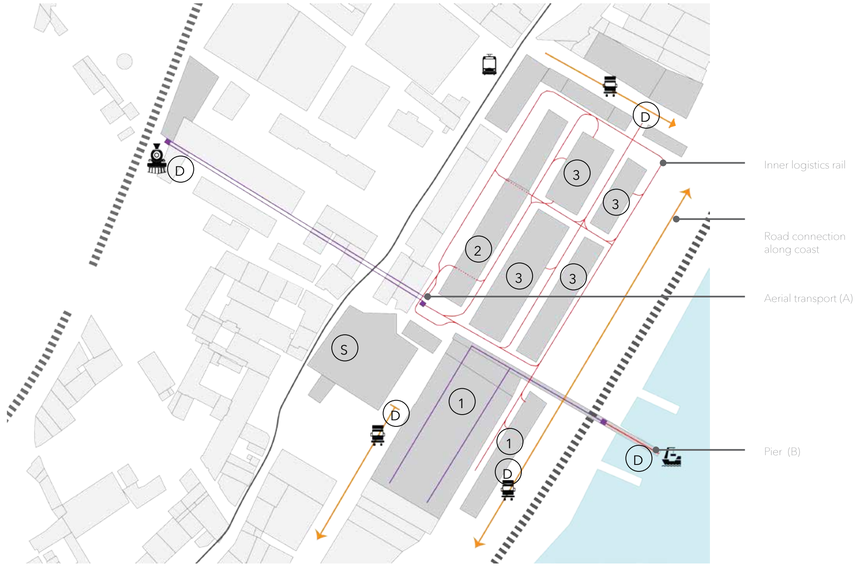
1: Warehouse, storage of ingredients

2: Milling, the process of changing wheat in to flour.

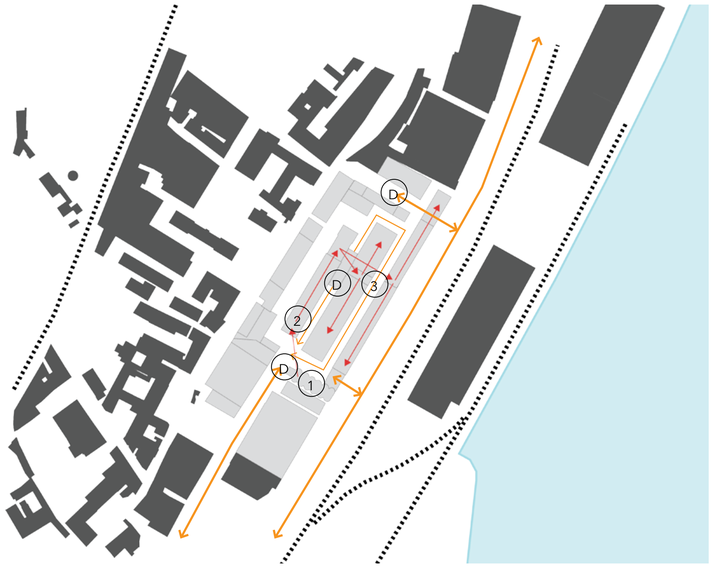
3: Production, the flour and other ingredients are combined to create food.

1: Warehouse, storage of products

D: Distribution, export
S: Supermarket, local



LOGISTICS - MAP 1950-1970



LOGISTICS - MAP 1970-2011

LEGEND

- Production process
- Aerial Connection (mechanic)
- Connection by Road

The distribution of products inside the MMC has changed in the 70s after the last stage of modernisation in the dictatorial period.

The construction of the big silos replaced the function of the warehouses. The aerial bridge was closed and all traffic was done by trucks.

Inside the MMC, the production process didn't change. However, the distribution of products was modernized. The internal rail was replaced by pipes pumping products from one builing to another.

The tram connection was also lost. The decline in production ment a decline in employees, making the tram connection a expensive luxury for a small group of people.

CHAPTER III

THE MILLING & BAKERY

HISTORY

RESEARCH QUESTION

How did the Milling and the Bakery developed over time?

The reasons for the development over time of the ensemble will be explained in six stages. Each stage is illustrated with a historical map of the complex, which shows the buildings that have been added in that particular stage, and (historical) photos and drawings. For a more technical analysis of the historic development of the ensemble, see the Technical Analysis.

Topview of Milling and Bakery

Photo:
Docomomo 2016

HISTORY

LEGEND (MAP)

- Existing buildings
- Added buildings

Ministerio da Guerra takes possession of the site.[1] The former convent is converted to Manutençao Militar to provide the Portuguese army with all kinds of products. In this stage no building of our ensemble was built yet.

34 years earlier, in 1862, an experiment was carried out to manufacture and supply bread to the army. A military bakery was created on a site now known as Rocha do Conde de Obidas named "Padaria Militar".[1]

Text
1. Folgado, D., & Custódio, J. (1999). *Caminho do Oriente - Guia do Património Industrial*. Lisboa: Livros Horizonte.

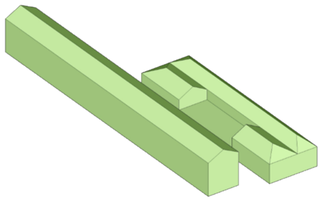
Images
1. Map of 1956-58 by Filepe Folque (own editing)

THE MILLING & BAKERY

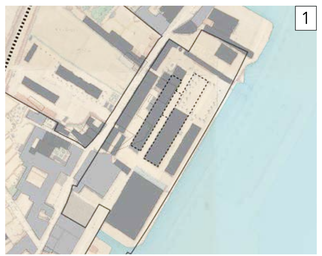
HISTORY

LEGEND (MAP)

- Existing buildings
- Added buildings



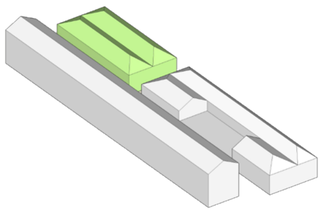
Between 1898 and 1910 construction of several factories, including the mill building and bakery.[1] The bakery is a volume with two roofs, in which a clear exception is visible: the middle part of the left roof is flat and lower. The milling is one elongated volume, as can be seen in a drawing that was made for its extension with a silo.



Text
1. Folgado, D., & Custódio, J. (1999). *Caminho do Oriente - Guia do Património Industrial*. Lisboa: Livros Horizonte.

Images
1. Map of 1911 by Silva Pinto (own editing)
2. Drawing 'Remodeling of the mill building' (provided by Docomomo)
3. Ground floor bakery (photo by Hielkje Zijlstra, 04-09-2016)
4. Bakery 1917 (photo Facebook MMC)

HISTORY



LEGEND (MAP)

- Existing buildings
- Added buildings

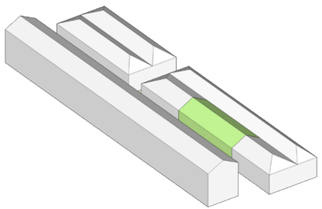
The period between 1920 and 1935 can be indicated as a period of industrialization. A lot of industrial (infra) structures have been developed or built. For example, the baker system was implemented in the bakery (image 3), the cookie factory has been built and the milling was distributed over three floors (image 4).[1] The sweets factory had a connection with both the bakery and mill building (image 1 and 2).

Text
1. Folgado, D., & Custódio, J. (1999). *Caminho do Oriente - Guia do Património Industrial*. Lisboa: Livros Horizonte.

Images
1. Connection bakery and sweets factory (screenshot video of 1927 from www.cinemateca.pt)
2. Connection sweets factory and mill building (screenshot video of 1927 from www.cinemateca.pt)
3. Baker system bakery (photo 1930s, provided by Docomomo)
4. First floor mill building with 22 mills (photo 1930s, provided by Docomomo)

THE MILLING & BAKERY

HISTORY



LEGEND (MAP)

- Existing buildings
- Added buildings

In the bakery the baker system has been replaced in 1955 by two automatic ovens.[1] Because of the need for a column-free space and the addition of a floor, which 'completes' the volume, they chose for a monolithic concrete structure. For this reason the old ovens in the middle part have been removed.

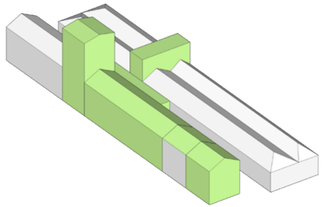
Text
1. Texts exhibited at Manutençao Militar Complex by Lisbon Municipality

Images
1. Map of 1950 by unknown (own editing)
2. Automatic ovens bakery (photo provided by Docomomo)

HISTORY

Stage 1 - Stage 2 - Stage 3 - Stage 4 - Stage 5 - Stage 6

1896 – <1911 – 1920s – 1955 – 1970s – <2016




1


2

LEGEND (MAP)

- Existing buildings
- Added buildings

During the Ultramar War, Manutençao Militar (MM) is very active in the provision of food for the troops. In this period the MM reached its maximum level of production: silos were built and the production process was modernized, especially in the mill building.[1] The new machines asked for a specific concrete structure, for that reason most of the original floors were removed.

Text
1. Texts exhibited at Manutençao Militar Complex by Lisbon Municipality

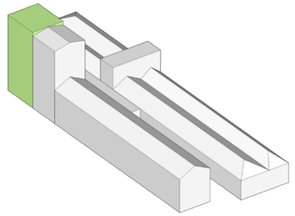
Images
1. Map of 1970-1983 by ART 91 - PDM (own editing)
2. New mills and concrete structure milling (photo by Hielkje Zijlstra, 01-09-2016)

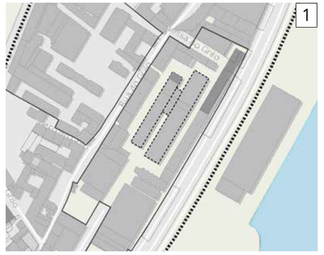
THE MILLING & BAKERY

HISTORY

Stage 1 - Stage 2 - Stage 3 - Stage 4 - Stage 5 - Stage 6

1896 – <1911 – 1920s – 1955 – 1970s – <2016




1


2

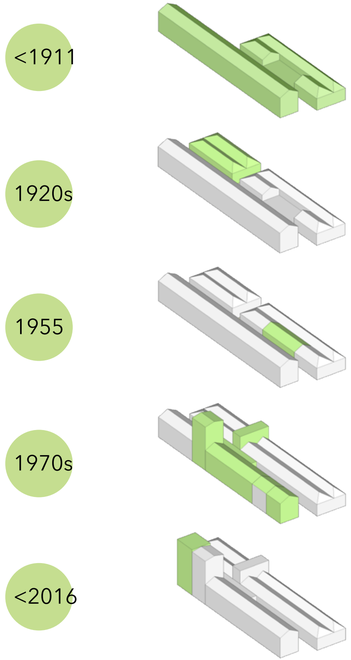
LEGEND (MAP)

- Existing buildings
- Added buildings

In 1975 independence of the former colonies: MM had to reduce the production. However, in the 1980s a warehouse has been added to the ensemble. This is probably done because the products were not shipped directly anymore, but stored and spread inland. In 2011 the complex officially closed most of the factories, of which the bakery was the last.[1]

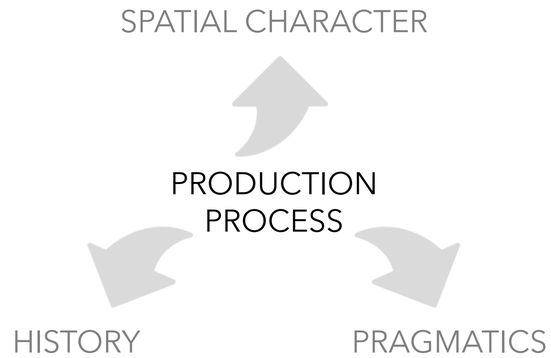
Text
1. Texts exhibited at Manutençao Militar Complex by Lisbon Municipality

Images
1. Map of 2015 by LXI (own editing)
2. Overview complex (photo mid-term presentation workshop group 6)



THE MILLING & BAKERY
HISTORY

Stage 1 - Stage 2 - Stage 3 - Stage 4 - Stage 5 - Stage 6



Modernization of the production process played a significant role in how the buildings became as they are right now. The production process is hereby strongly related to the military history, the spatial character of the buildings and site and it reflects the pragmatic attitude. The spatial character will not be discussed in this report, but will be explicitly addressed in the Architectural Analysis.

CHAPTER III

THE MILLING & BAKERY

OVERVIEW

RESEARCH QUESTION

Where is the Milling situated within the MMC and how does its interior and exterior look like?

The Milling South West view

Photo:
Docomomo 2016

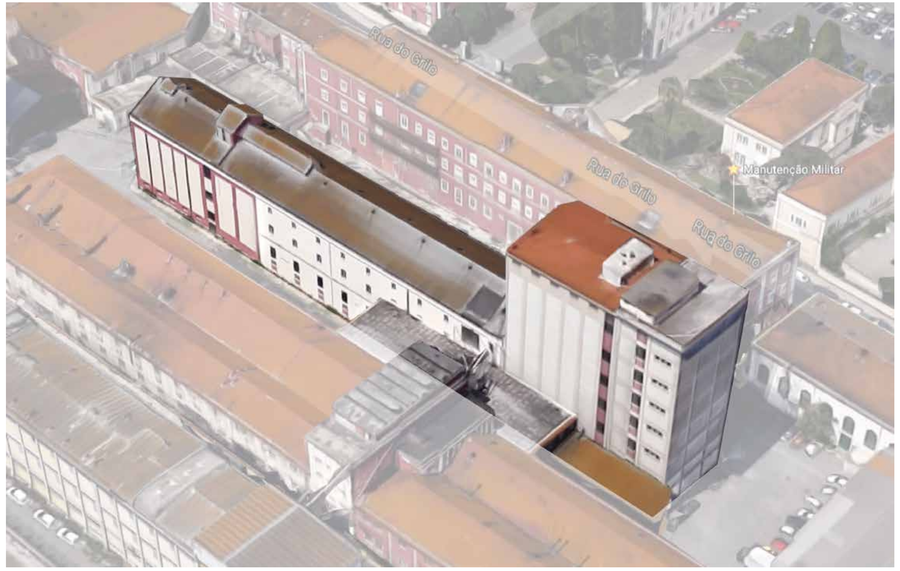
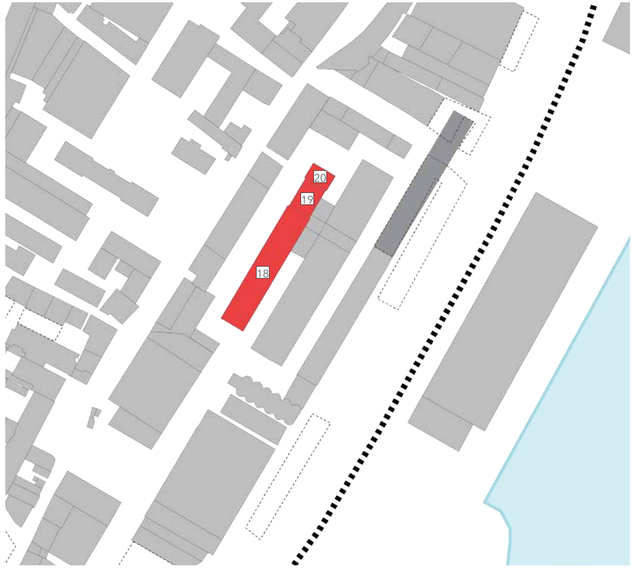


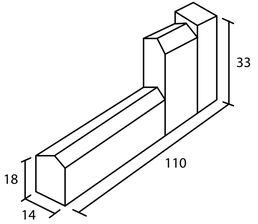
Image
Google Maps

THE MILLING
OVERVIEW - CIRCULATION - CHARACTER

Situation - Interior - Exterior - Drawings - Function



Overview MMC - Milling



Situation

The Milling is one of the buildings situated in the middle of the MMC and consists of multiple building parts.


1


2


3


4


5


6


7


8


9

Overview interior

These are some images of the interior of the Milling. Notable are the many machines and the large spaces in which they stand. Another intriguing aspect is that the interior throughout the building is very different, showing different construction techniques, materials and machinery.

1, 3, 5 and 7. Machines and spaces in building part 18
2. Smaller Silo's in building part 18
4, 6 an 9 Machines and spaces in building part 20
8. Larger Silo's in building part 19

Photos
1 - 2 - 3 Hielkje Zijlstra
4 - 5 - 6 - 8 - 9 Noelle Dooper
7 Daan Masmeijer

THE MILLING
OVERVIEW - CIRCULATION - CHARACTER

Situation - Interior - Exterior


1


2


3


4


5


6

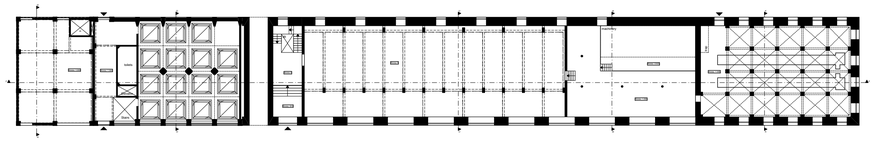

7

Overview exterior

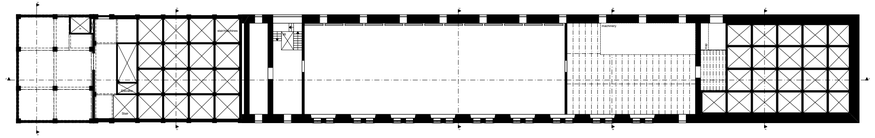
These are some images of the exterior of the Milling. From the outside the different building parts are visible in the facade ending with a high concrete construction on one side and a lower closed construction on the other side.

1, 3 and 5. Building part 20.
2, 6 and 7. Building part 18
4. Aerial photo of the whole Milling.

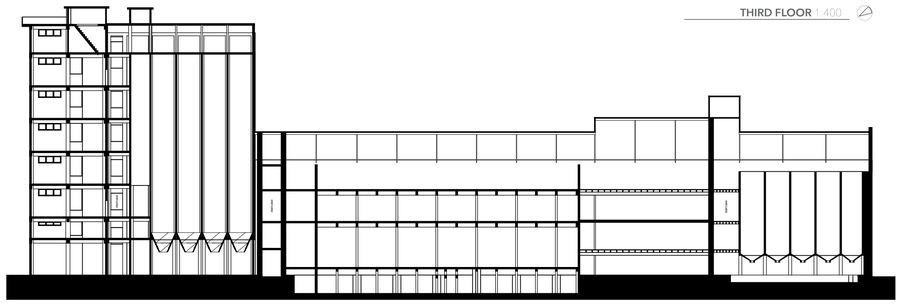
Photos
1 - 3 - 5 Hielkje Zijlstra
2 - 4 - 6 - 7 Noelle Dooper



GROUND FLOOR 1:400



THIRD FLOOR 1:400

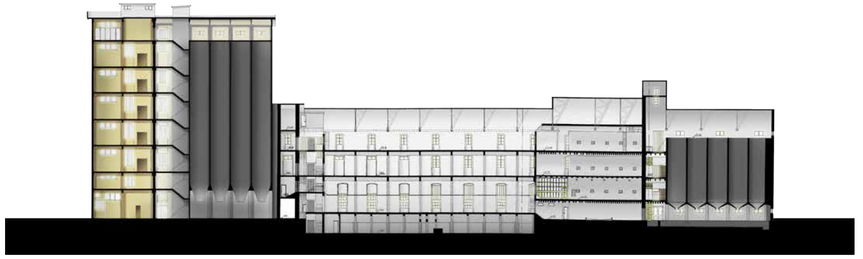


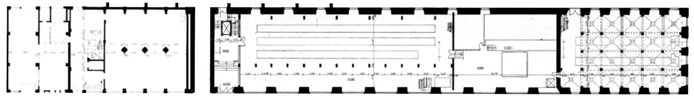
SECTION A-A 1:400

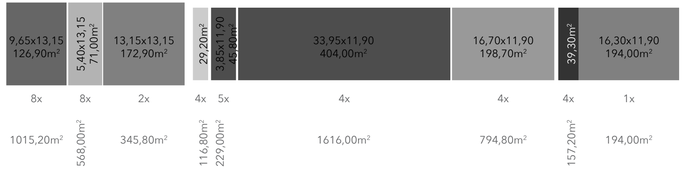
In addition to these drawings, there are also cross sections available in DWG of each building part.

THE MILLING
OVERVIEW - CIRCULATION - CHARACTER

Situation - Interior - Exterior - Drawings - Function







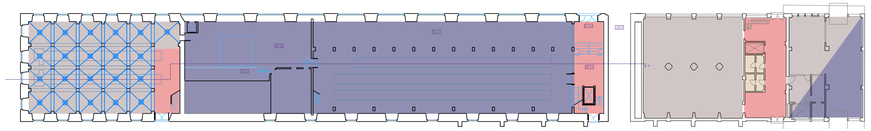
Total surface area milling
5036,80m²

Total surface area ensemble
10411,00m²

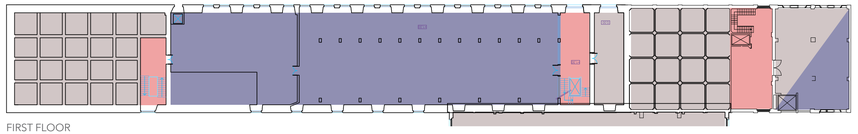
BK-City[1]
Total surface area: 36.400m2

Library TU Delft[2]
Total surface area: 15.000m2

Text
1. From: http://www.braaksma-roos.nl/projecten/herbestemming/bkcity/
2. From: http://www.mecanoo.nl/Projects/project/27/Library-Delft-University-of-Technology?t=0



GROUND FLOOR



FIRST FLOOR

STORAGE
PRODUCTION
OFFICES
CIRCULATION
BATHROOM

MOST COMMON FUNCTIONS

PRODUCTION

STORAGE

Production oriented functions.

The functions within both buildings are program oriented, which means that the functions are placed following the production process of the flower and bread discussed earlier. For the Milling the two main functions are production and storage.

Source images:
Machines production
Hielkje Zijlstra, Lisbon September 2016

Silo storage
Amela Rasidkadic, Lisbon September 2016

CIRCULATION

RESEARCH QUESTION

How is the circulation throughout the building arranged?

Staircase within the Milling building

Photo:
Noelle Dooper

Entrances - People - Products

Ground Floor - 1:500

LEGEND

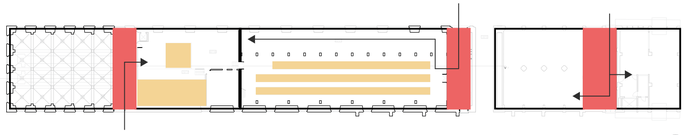
Entrance/Exit people

Entrance/Exit Products

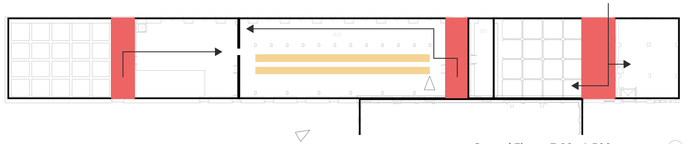
Entrances

The Milling has several entrances which are needed for all its different building parts. The entrances do not stand out except for the main entrance in the middle which is much wider and marked by a small canopy roof (photo 1). Some of the entrances are followed by stairs indicating that these were used by people and not for transporting the products. The products left the building via slides (photo 2) or large elevators ending immediately at streetlevel.

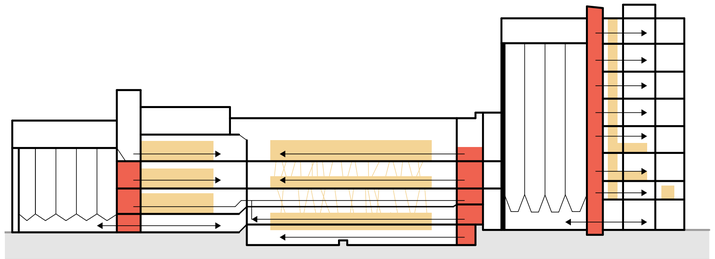
Photos
1 - 3 - 4 Noelle Dooper
2 Hielkje Zijlstra



Ground Floor - 1:500



Second Floor +7.00 - 1:500



1:500

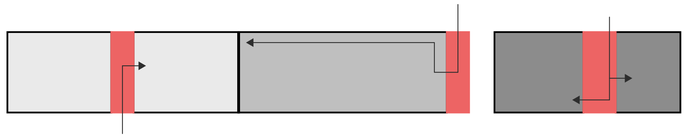
Section - 1:500

LEGEND

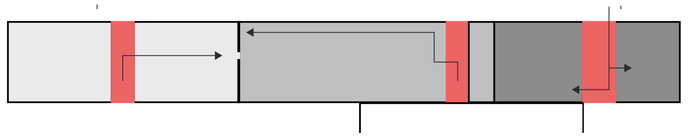
- Vertical circulation
- Machinery

People

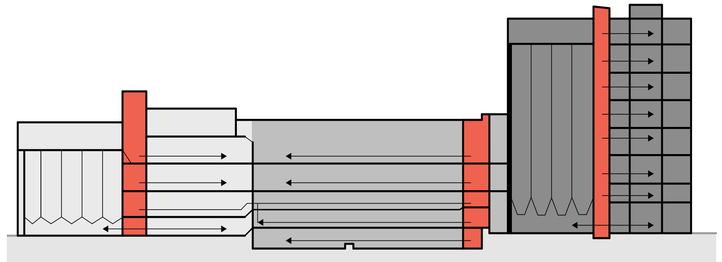
The circulation of the people through the Milling is determined by the machinery within the space. People have to move around the machinery so taking away the machines would influence the circulation.



Ground Floor - 1:500



Second Floor +7.00 - 1:500



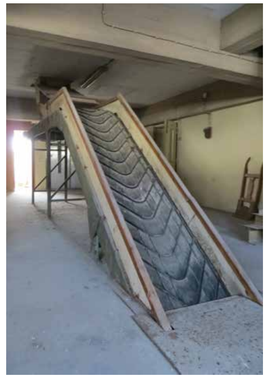
Section - 1:500

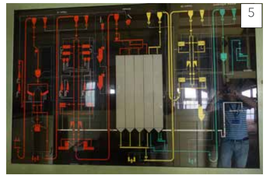
LEGEND

- Vertical circulation
- Building part 1 seperated by circulation
- Building part 2 seperated by circulation
- Building part 3 seperated by circulation

People

The circulation within the Milling is destined for specific building parts. This means that people enter the building knowing in which part they have to be as it is mostly impossible to move from one building part to the other (except for one bridge connecting the first and second part). Therefore walking through the building people can experience multiple dead ends. This is probably mainly due to later added building parts and the different functions in the production process in each part.



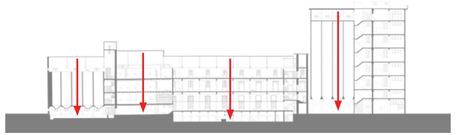


1. Slide on which the flour bags exit the Milling.
2, 7 and 8. Milling machines on each floor producing a finer flour transporting it through tubes to the next milling process.
3 and 4. Slide within the warehouse part of the building where the flour was bagged and stored. The slide transports the flour bags from floor to floor.
5. Chart showing the production process within the Milling.
6. The smaller Silo's at the beginning of the production process in which the grain was stored.

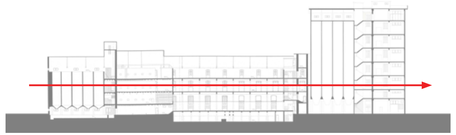
Photos
1 - 2 - 3 - 4 Noelle Dooper
5 - 6 - 7 - 8 Hielkje Zijlstra

THE MILLING
OVERVIEW - **CIRCULATION** - CHARACTER

Entrances - People - Products



Seperate processes



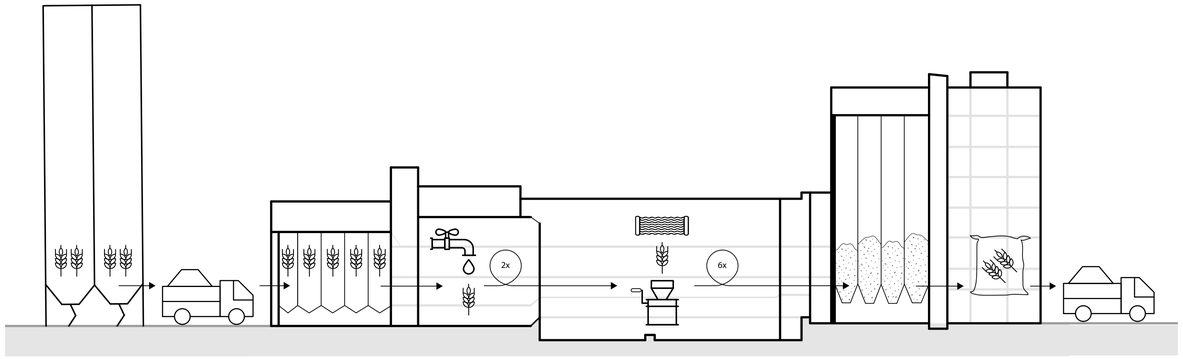
Overall process

Products

As the Milling is a factory producing flour from grains the product has a specific circulation through the building. Each step in the process of producing flour has its own building part but the overall process moves through the whole building.

First the grain is stored in the small Silo's creating a buffer zone for the process. Second the grain gets cleaned multiple times to remove all the dirt. Third the cleaned grains get milled into fine flour moving from the upper floor down to the ground floor. This process is repeated 6 times to ensure a fine flour which is then stored in the large Silo's (fourth step). The last step for the flour is to be bagged and stored in the warehouse. From there the flour leaves the building.

Production Process in the Milling



CHARACTER

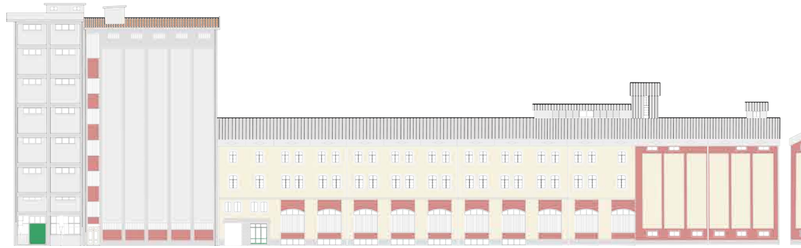
RESEARCH QUESTION

How can the character of the Milling be defined?

Machines within the Milling building

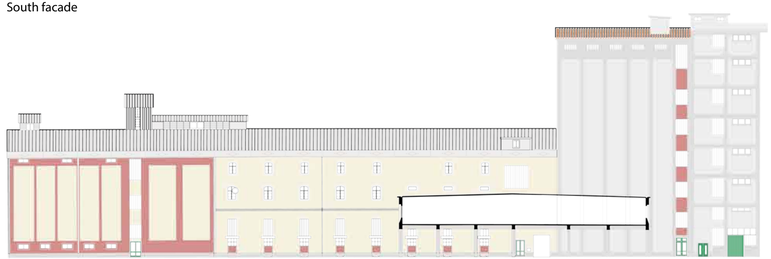
Photo:
Hielkje Zijlstra

North facade



West facade

South facade



East facade

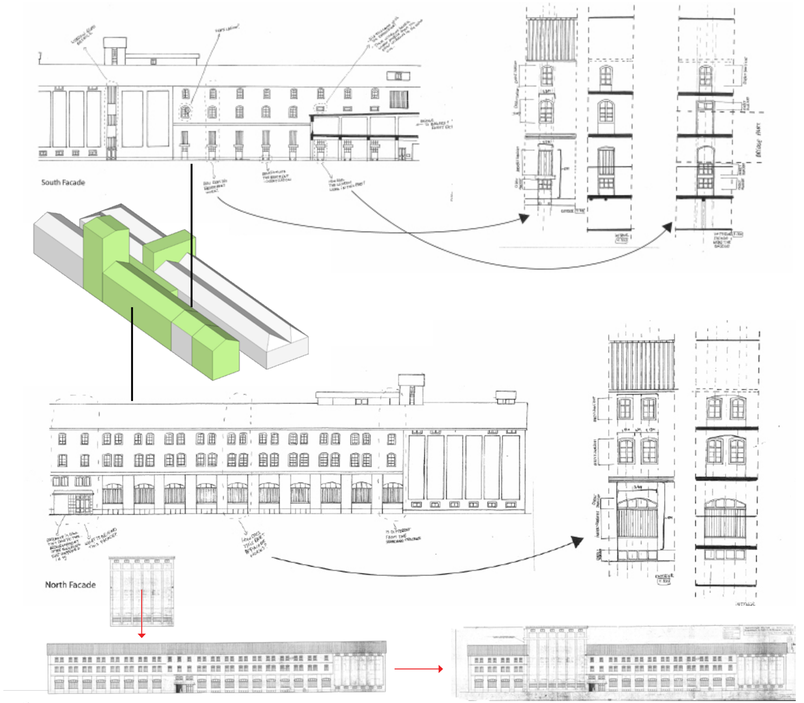
The facade of the Milling shows off a variety of different elements and styles. On one side there are these large concrete industrial silo part and on the other a more monumental cream/red coloured part.

Over time layering of different facade elements.

As discussed earlier in the history part, to become the building it is today, the Milling went through a couple of massive changes. That is why the building contains different parts that can not aesthetically relate to each other.
These changes took place at the end parts of the building (silos), leaving the middle part in its 'original' state.
During the further analysis of the facade the middle part of the building will be an interesting focus point due to its connection with the different facade parts of the building that changed drastically over the years.

THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

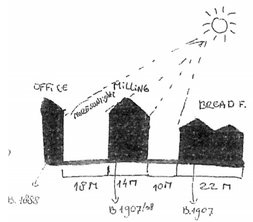
Façades - Daylight - Space

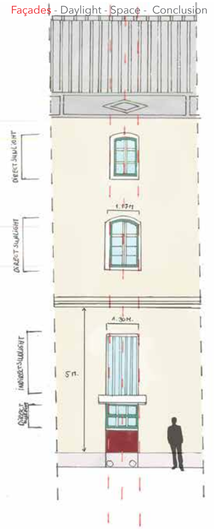


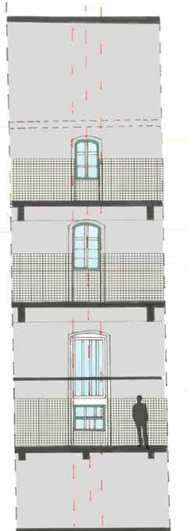
While putting the north and south facade next to each other it is noticeable that the south side is more closed than the north side. Another noticeable aspect is that the north side (ground floor) contains large 3,4 m wide open windows, this compared to the 1,3 m wide windows of the south side. Besides that the upper two floors of the north facade have a recurrence of two window, where as the south contains only one.

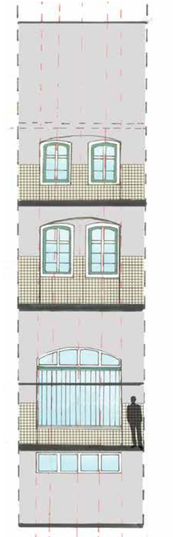
Difference in facade openings due to building climate of the interior.

This provokes the assumption that the heat production of the machines requires a more cooled environment, thus that is why there is a difference in amount of daylight (and heat) that comes from the windows.
Another argument for this assumption is that the wall contain a thickness of approximately 1,5 m. These thick walls create an ideal cooling environment. But the thickness could also be in combination with the load bearing structure of the facade, which is discussed more in depth in the Technical report.









Cream/Dark Red Plaster

Wooden window framework

Concrete roof element

Corrugated iron roof

White plaster

Ceremic tiles

Wooden window frames
Corrugated window glass

Cream/Dark Red Plaster

Wooden window frames
Corrugated window glass

Wooden window framework

Concrete roof element

White plaster

Ceremic tiles

Wooden window frames. Corrugated

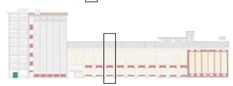
Wooden window framework

What also plays a part in explaining the character of the building is the materialisation of the exterior and interior.

For the two large silos it can be said that the dominant material is concrete, with here and there a view openings of windows consisting of glass and PVC window frames.

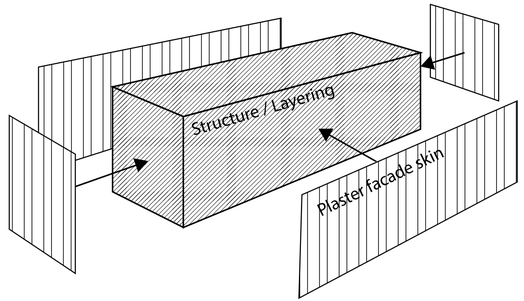
The exterior and interior of the other part of the Milling contains a more diverse materialization. The main three materials within the exterior are plaster, wooden window frames and glass. Here a notice has to be made regarding the ground floor windows. These window profiles contain glass that does not provide direct daylight and sight.
The roof of the building contains a concrete roof frame with a light corrugated plate structure on top.
The way these façades a framed by looking at the form and repetitiveness of the windows, the decorative elements on the roof frame and the use of colour creates a monumental look that also contributes to the character of the streets that is discussed earlier in this report.

Looking at the interior materialisation it contains the same three materials as the exterior but with an addition of tiles. The use of tiles is common in the interior of old industrial buildings. Which again proves the pragmatic character of the building. The colours that are used here are grey (concrete) and cream which in combination with the large daylight interval create a bright atmosphere in the area near the facade.



THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

Façades - Daylight - Space - Conclusion



Safety matches factory,
Zilina Slovakia (1915)

Textile factory,
St. Petersburg Russia (1937)

Unknown Silo

Factory
Moscow Russia

The facade of the silo shows a concrete structure and at the same time shows off its construction to the outside world which creates this industrial vibe.
The milling on the other hand contains a more mixtured facade, with a variation of materials and use of colours that leads to this more monumental character. But you can not really read what functions are behind the facade except for the small silo.

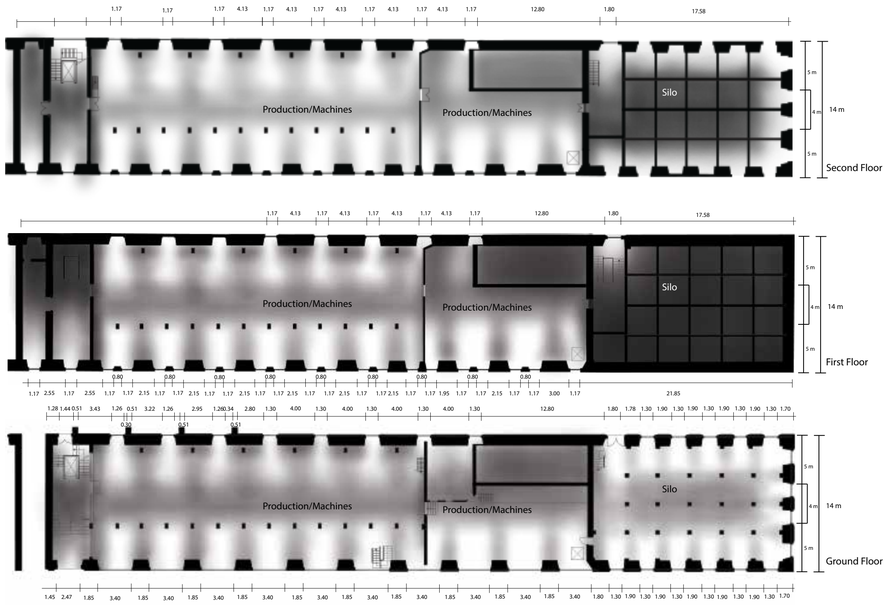
Studying the facade in relation with the interior within materialization, facade openings, daylight, functions concludes that the inside structure defines the facade.

Another thing that was noticeable within this study was the use of colour in the facade which can also be seen in the rest of the MM complex. This is an aspect that needs a notion because an assumption could be made that it is unique for the complex. But searching for other industrial examples dating from this time it can be said that this colour combination is not really a unique feature.
Looking at the interior materialisation of the walls, plaster can be seen again in combination with tiles, which is also a common combination for industrial (chemical) buildings dating from this time (RACM, z.d.).
This again, in combination with the daylight study, proves that the skin follows the function that was put inside the building.

Source text:
Rijksdienst voor Archeologie, Cultuurschap en Monumenten (RACM)(z.d.) Keramische vloertegels uit de twintigste eeuw. Retrieved on 11 November 2016 from http://cultureelerfgoed.nl/sites/default/files/publications/gids-techniek-49-keramische-vloertegels-uit-de-20ste-eeuw-2008.pdf

Source images:
Safety matches factory
https://en.wikipedia.org/wiki/Industrial_heritage#/media/File:-Zilina_zapalkaren.jpg
Textile factory Russia
https://www.mimoa.eu/projects/Russia/St.%20Petersburg/Red%20Banner%20Textile%20Factory/
Unknown silo
http://mike.da2c.org/jgg/rail/12-Ilinind/flour.htm
Factory Moscow
http://www.shutterstock.com/pic-84409210/stock-photo-factory-architecture-details-and-facade-in-moscow-russia.html

MILLING DAYLIGHT STUDY

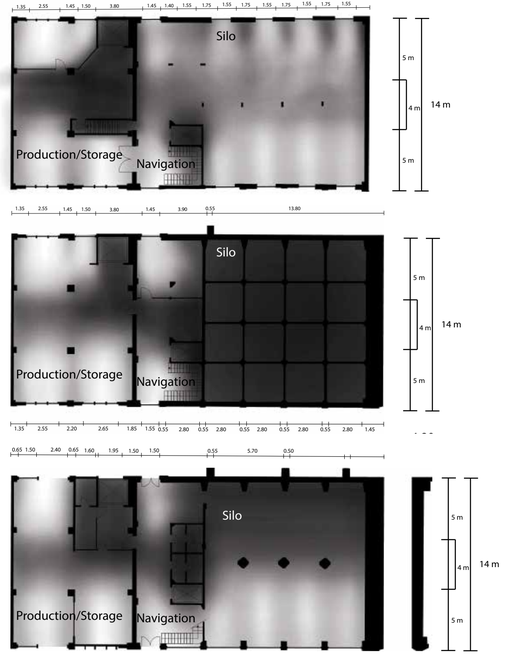


The amount of daylight that falls into an interior can have a strong influence on the way someone experiences a space. That is why it is important to know what kind of atmosphere daylight creates in the current surrounding, so it can be taken into account while changing the interior for a future surrounding.

THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

Façades - Daylight - Space - Conclusion

SILO DAYLIGHT STUDY

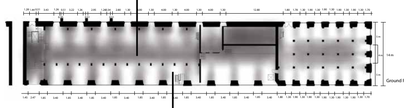


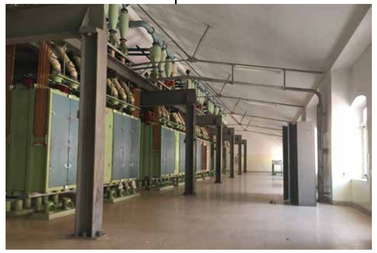
Studying the amount of daylight that comes into the interior it strengthens the assumption made earlier regarding the Milling façades. These schemes also show that the amount of daylight that goes through the facade is related to the function that is behind that part of the facade.

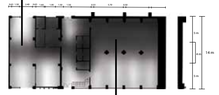
Daylight function oriented

The left page shows the daylight study of the middle part and the small silo. Here it is noticeable that the machines are placed in the centre of the floorplan which contains the least amount of daylight. Also the small silo is completely shut down from daylight due to the fact that the function does not require daylight.
Looking at the daylight from pictures it is

The same goes for the two large silo parts. Daylight here is not necessary and wanted so they remain mostly closed, causing a fully closed facade view from the outside.







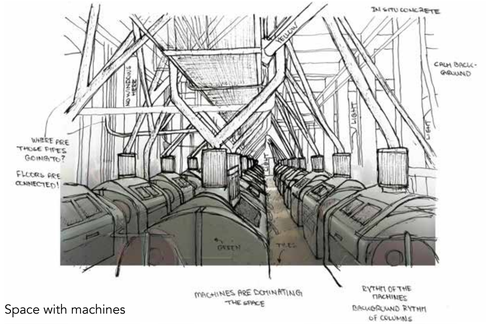
The atmosphere the amount of daylight creates in the middle part of the Milling, is a mixture of two types of atmospheres. Within the floorplan it can be divided in three strokes. Two strokes contain this bright open atmosphere and are the ones next to the windows. The other atmosphere is this closed, dark more intimate atmosphere that can be found in the middle stroke where the machines are. This division comes back in all the three levels of the middle part.
But if you would take away the machines, the space will be one whole with just light and dark spots.

Layering of atmospheres within one space.

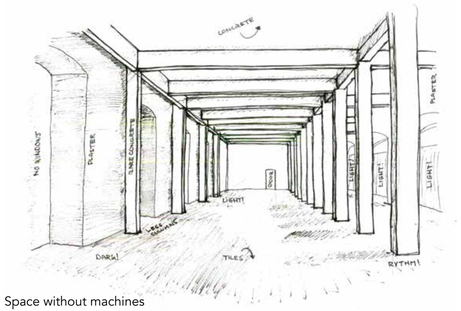
The two large silos contain a dominating closed and dark atmosphere. Which is straightforward in the storage silo part due to its function. But the silo (facing the square with the weird corner) contains a more lighter atmosphere due to the function mix of storage and production. Also this silo contains more potential for opening up the facade due to its construction (more detailed information about construction in the Technical report)

Source images:
Milling middle part
Noëlle Dooper, Lisbon Septembter 2016

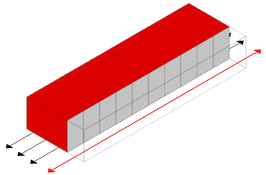
Milling silo
Amela Rasidkadic, Lisbon September 2016



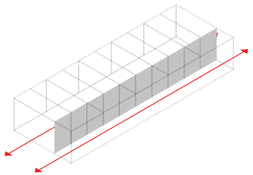
Space with machines



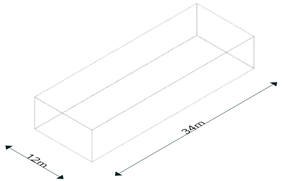
Space without machines



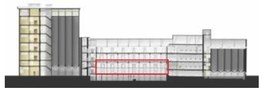
Space concept with machines



Space concept without machines



Measurements space



Conclusion
The milling room is the last stage in the milling process before packing. The space can be divided in two functional zones. The circulation space (see next page) and the production space.

Machines:
The production space is defined by the machines and their infrastructure. Especially the pipes/tubes are creating a chaotic atmosphere.

Light:
High windows provide enough light but not a visual relation with outside.

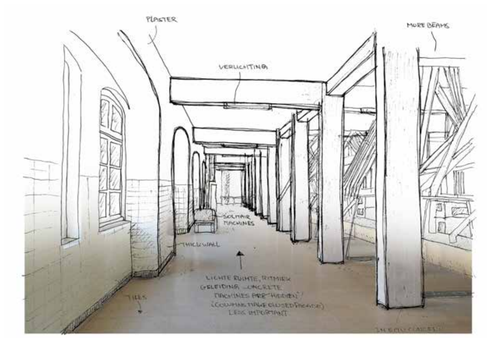
Space (without machines):
The space is linear and dynamic defined by the rhythm of the construction.

Layers:
The walls date from the original structure. The newer concrete structure is placed within the original structure as separate entity.

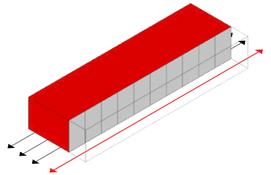
Colours:
Monotone

THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

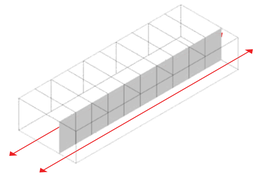
Façades - Daylight - Space - Conclusion



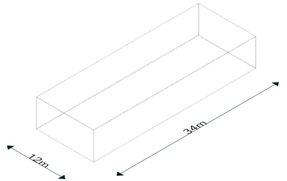
Space with machines



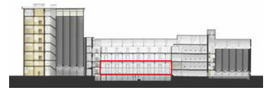
Space concept with machines



Space concept without machines



Measurements space



Conclusion
The milling room is the last stage in the milling process before packing. The space can be divided in two functional zones. The circulation space (see previous page) and the production space.

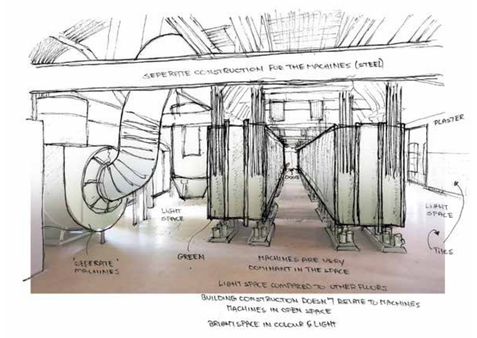
Machines:
The machines are visible and present, but separated from the space by the rhythmic construction.

Light:
High windows provide enough light

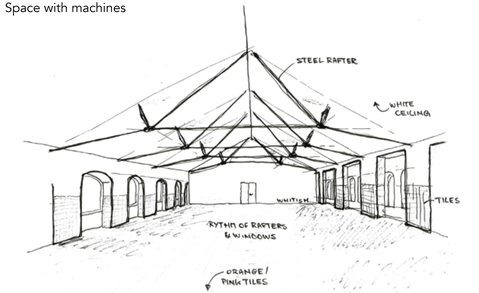
Space (without machines):
The space is linear and dynamic defined by the rhythm of the construction.

Layers:
The walls date from the original structure. The newer concrete beams are supported by the original structure as separate entity.

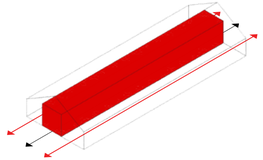
Colours:
Monotone



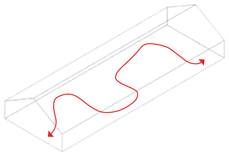
Space with machines



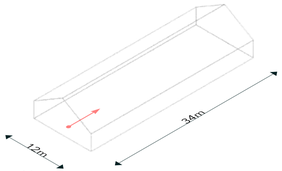
Space without machines



Space concept with machines



Space concept without machines



Measurements space

Conclusion
In this space machines dust collectors are one of the first steps in the milling process. The machines are suspended from a separate steel construction

Machines:
The machines are dominant, and create a strong linear space.

Light:
The windows create a light interior.

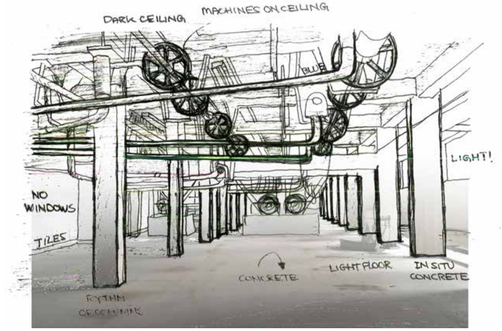
Space (without machines):
The space is linear in one direction. Without the machines the height of the room gets a structural expression due to the steel trusses.

Layers:
The walls and construction date from the original structure. Assumed is that the floor is added later on.

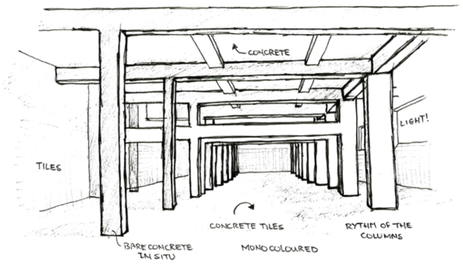
Colours:
The wood and painted steel give this space a warmer character.

THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

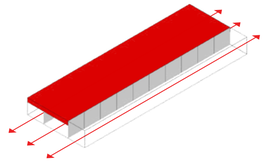
Façades - Daylight - Space - Conclusion



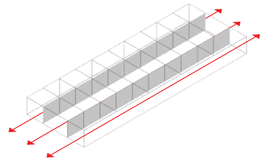
Space with machines



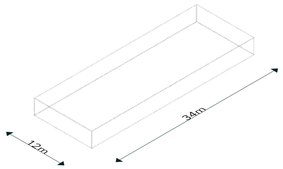
Space without machines



Space concept with machines



Space concept without machines



Measurements space

Conclusion
This space is part of the (re)construction in the 70s. The machines are engines to power the mills.

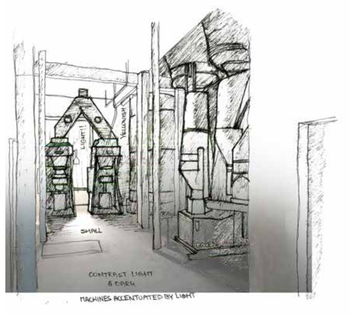
Machines:
The machines have a dominant impact on the ceiling, but not on the spatial concept.

Light:
The windows are positioned high, just above streetlevel, and only on one side of the space. The space is thus only luminous on one side.

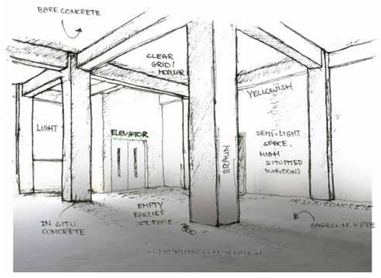
Space (without machines):
The space is linear in one dominant direction, defined by the concrete construction.

Layers:
The walls and construction date from the original structure. Assumed is that the floor is added later on.

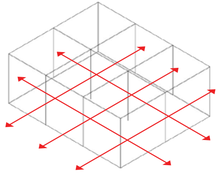
Colours:
Monotone



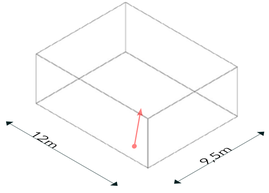
Space with machines



Space without machines



Space concept without machines



Measurements space

Conclusion
The tower next to the silo's was used for packing and added in the 70s. The machines were used for packeging or vertical distribution.

Machines:
The still present machines seem to be places at random, and do not have a relation with the construction. Some machines are places in front of the window and the illumination from behind gives them a prominent position in the space.

Light:
The windows on both façades create a light and comfortable space.

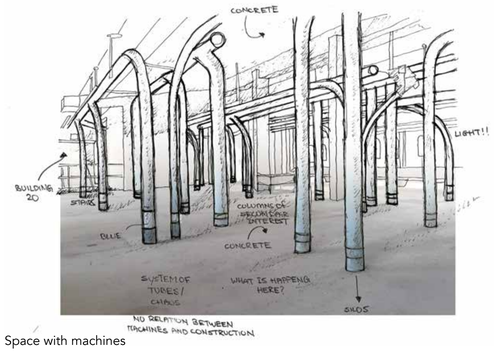
Space (without machines):
The construction creates no dominant direction, but due to the windows

Layers:
All visible structures are from the same era.

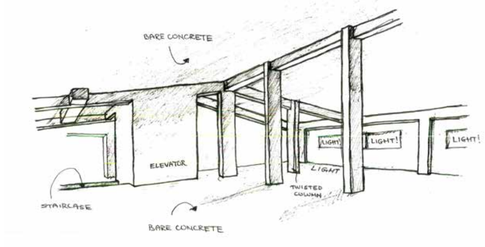
Colours:
Monotone

THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

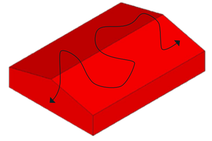
Façades - Daylight - Space - Conclusion



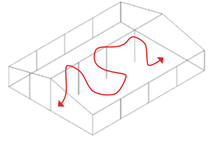
Space with machines



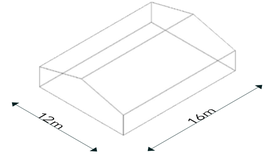
Space without machines



Space concept with machines



Space concept without machines



Measurements space

Conclusion
The room above the silo's is used as distribution space for the silos.

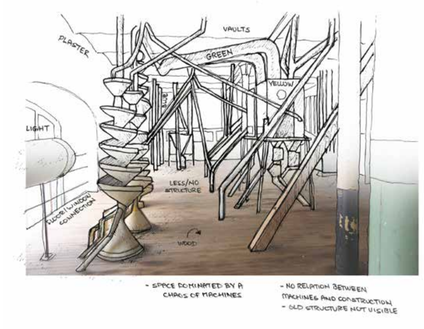
Machines:
The pipes have no relation to the concrete construction.

Light:
The little windows provide light, but there's no strong visual connection with outside.

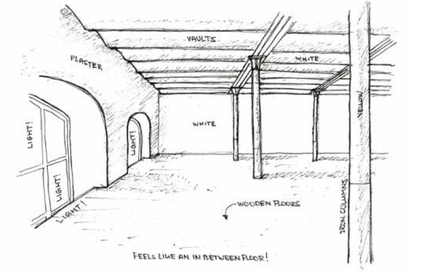
Space (without machines):
The space has no dominant direction.

Layers:
All visible structures are from the same era.

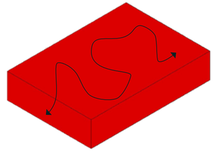
Colours:
Monotone



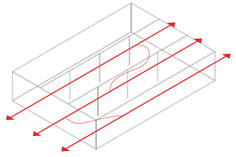
Space with machines



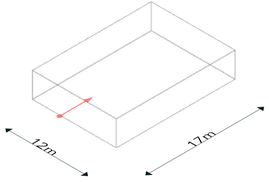
Space without machines



Space concept with machines



Space concept without machines



Measurements space

Conclusion
This space is part of the original construction, it's not clear if the function of this space was replaced by the newer machines after renovation in the 70's.

Machines:
The machines are dominant, and create a chaotic atmosphere.

Light:
The low windows run down to below the floor. The light only comes from one facade.

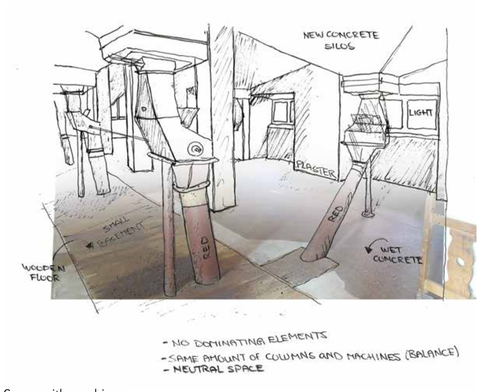
Space (without machines):
The space is linear in two directions: one dominant defined by the vaults and the incoming light. The other subordinate defined by the steel construction.

Layers:
The walls and construction date from the original structure. Assumed is that the floor is added later on.

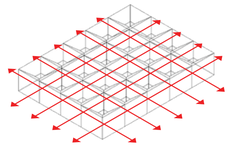
Colours:
The wood and painted steel give this space a warmer character.

THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

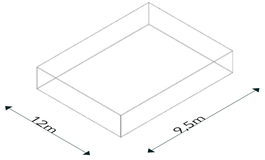
Façades - Daylight - Space - Conclusion



Space with machines



Space concept with machines



Measurements space

Conclusion
This space is part of the original construction, and reconstructed in the 70's. Assumed can be that the silo's were constructed.

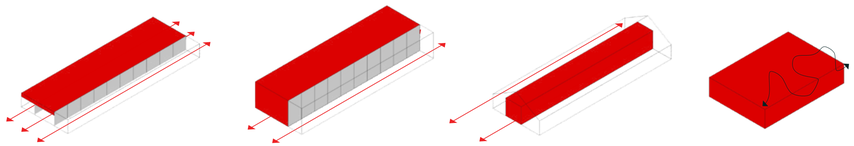
Machines:
There's a certain balance between the concrete column and the steel pipes.

Light:
The enters the room on eye level, but the windows are small and positioned deep in the facade. Creating a dusky athmosphere

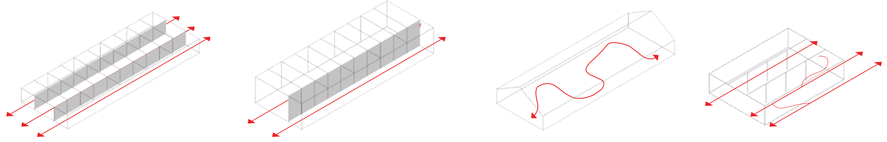
Space (without machines):
The space is static and has no dominant direction. The space is defined by the solidity of the silos, a low dynamic ceiling, creating a cramped atmosphere.

Layers:
The concrete silos date from the 70s and are connected to the original structure and original distribution system.

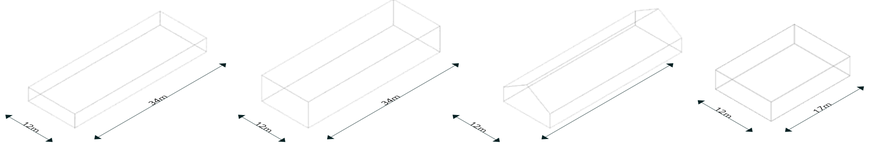
Colours:
There's a constrast between the cold white stucco on the silos, walls, bare concrete floors and the older wooden windows, steel distribution belts.



Space concept with machines



Space concept without machines

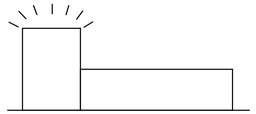


Measurements space

THE MILLING
OVERVIEW - CIRCULATION - **CHARACTER**

Façades - Daylight - Space - Conclusion

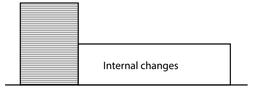
FORM/VOLUME



01. SILO IS THE LANDMARK IN ONE MILLING VOLUME

02. SUBWAY IN MILLING CREATES BURST IN LINEAR VOLUME

04. BRIDGE CREATES CHARACTERISTIC CONNECTION

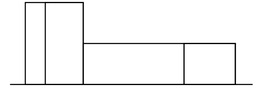


05. ORIGINAL VOLUMES (<1920'S) (INTERNAL CHANGES) VS.. ADDED VOLUMES (>1920'S)

FACADE

06. REAL CONSTRUCTION VISIBLE FROM OUTSIDE

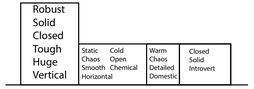
06. UNDERLYING FUNCTION VISIBLE THROUGH FACADE FINISH



07. FACADE CAN BE DIVIDED IN 4 PARTS

ATMOSPHERE

09. DARK PART MILLING CONTAINS MACHINERY



10. BUILDING PARTS CONTAIN DIFFERENT ATMOSPHERES

01. See chapter Milling Facade
02. See chapter Milling Facade
04. See chapter Bakery
05. See Technical Report
06. See chapter Milling Facade
See Technical Report
07. See chapter Milling Facade
09. See chapter Milling Daylight
10. See Chapter Milling Space

CHAPTER III

THE MILLING & **BAKERY**

OVERVIEW

RESEARCH QUESTION

Where is the Bakery situated within the MMC and how does its interior and exterior look like?

The Milling South West view

Photo:
Docomomo 2016

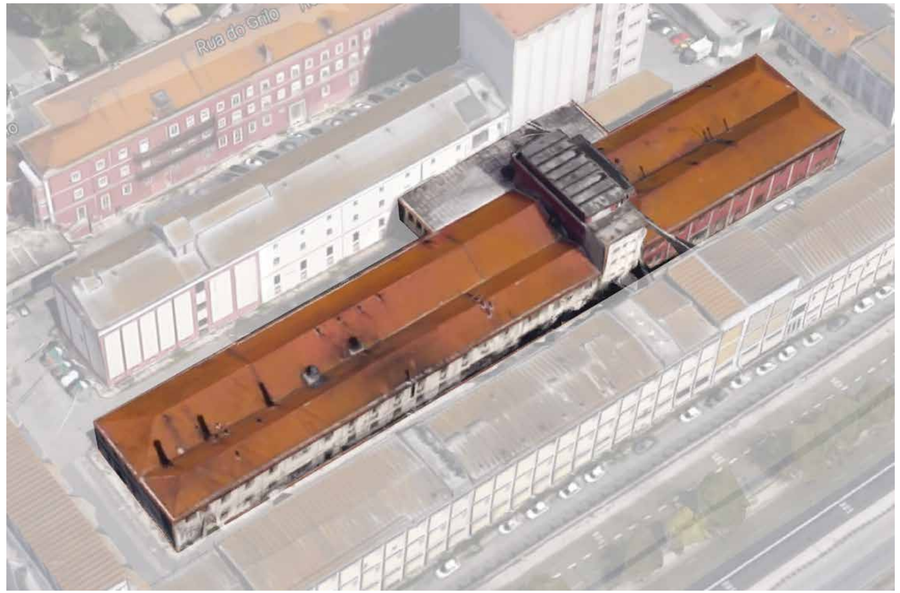
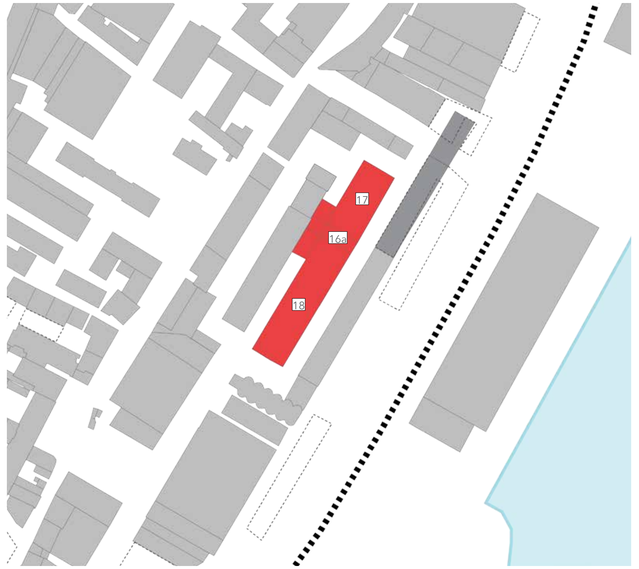
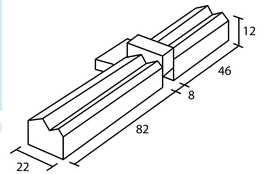


Image
Google Maps



Overview MMC - Bakery



Situation

The Bakery is one of the buildings situated in the middle of the MMC and consists of multiple building parts.


1


2


3


4


5


6


7


8


9

Overview interior

These are some images of the interior of the Bakery. Within the bakery each building parts shows a different interior either dominated by the old ovens, a large machine or large open spaces.

In building part 16:
1. The old ovens.
2. The oven which was last in use.
3. Staircase to offices.
4 and 5. The kneading and weighing department.
6. First floor.

7. Cookie factory in building part 17.

8. Storage in building part 16a.
9. small Silo's in building part 16a.

Photos
1 - 2 - 4 - 6 Hielkje Zijlstra
3 Noelle Dooper
5 - 7 - 8 - 9 Alessandro Scalisi

THE BAKERY
OVERVIEW - CIRCULATION - CHARACTER

Situation - Interior - Exterior - Drawings - Function


1


2


3


4


5


6

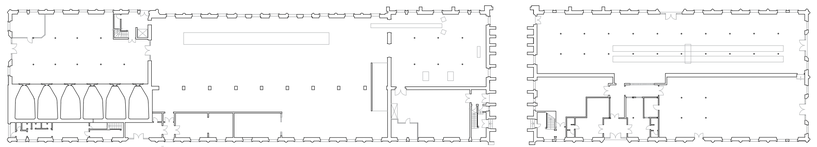

7

Overview exterior

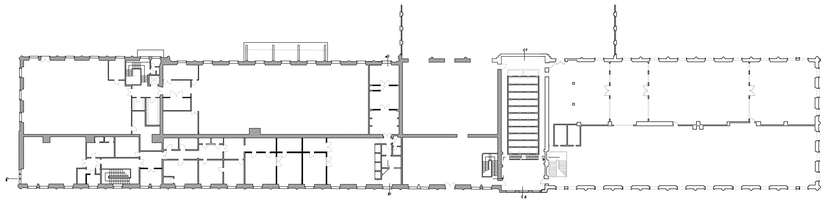
These are some images of the exterior of the Bakery. From the outside the different building parts are visible in the facade. Building 16 is the Bakery, building 16a are small Silo's and building 17 is a cookie factory. Building 16 and 17 are joind joined together by building 16a, an added volume creating a passage on the ground floor.

1. Entrance of building part 17.
2. Building part 16 also showing the passage of building part 16a connecting to the Milling.
3. Building 16a.
4. Aerial photo of the Bakery.
6. Facade of building part 17.
7. The passage between building 16 and 17.

Photos
1 Hielkje Zijlstra
2 - 3 - 4 - 6 - 7 Noelle Dooper



GROUND FLOOR 1:500



FIRST FLOOR 1:500

SECTION A-A 1:500

In addition to these drawings, there are also cross sections available in DWG of each building part.

THE BAKERY
OVERVIEW - CIRCULATION - CHARACTER

Situation - Interior - Exterior - Drawings - Function

20,03x23,10
462,70m²

2x

925,40m²

20,03x39,88
798,80m²

2x

1597,60m²

20,03x16,10
322,50m²

2x

645m²

10,65x45,16
481,00m²

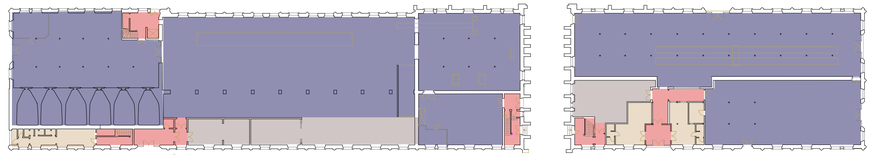
9,68x45,16
437,10m²

2x

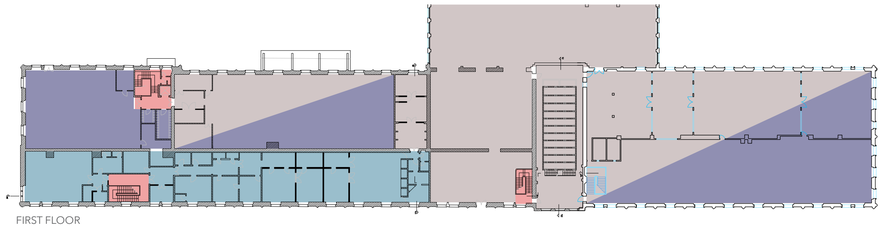
1836,20m²

Total surface area bakery and cookie factory
5004,20m²

Total surface area building 16B
370,00m²



GROUND FLOOR



FIRST FLOOR

MOST COMMON FUNCTIONS

PRODUCTION

STORAGE

STORAGE
PRODUCTION
OFFICES
CIRCULATION
BATHROOM

Production oriented functions.

The functions within the Bakery and Cookie factory are program oriented. Which means that the functions are placed following the production process of the flower and bread discussed earlier. Both buildings contain two main functions are production and storage. And are placed following the production process of the flower and bread discussed earlier.

Source images:
Cookie factory production
Docomomo, Lisbon 2016

Bakery storage
Hielkje Zijlstra, Lisbon September 2016

CIRCULATION

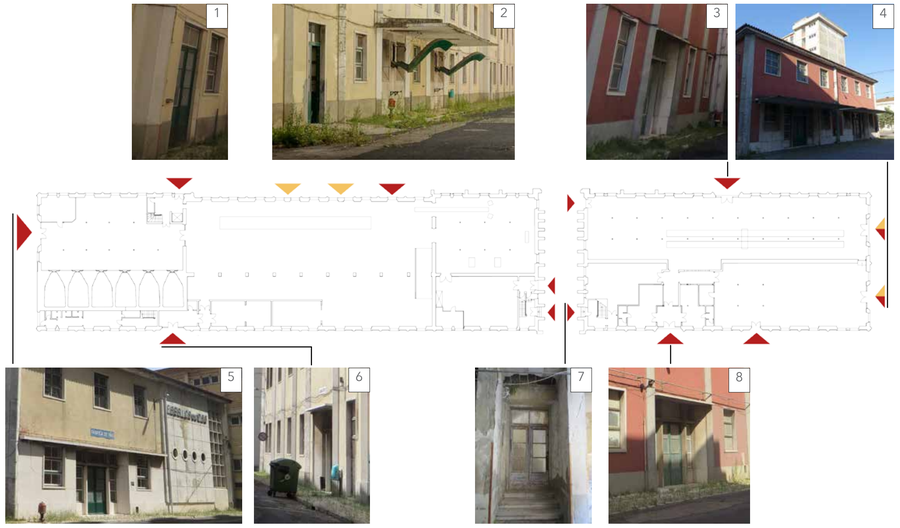
RESEARCH QUESTION

How is the circulation throughout the building arranged?

Staircase within the Bakery building

Photo:
Noelle Dooper

Entrances - People - Products



Ground Floor - 1:500

LEGEND

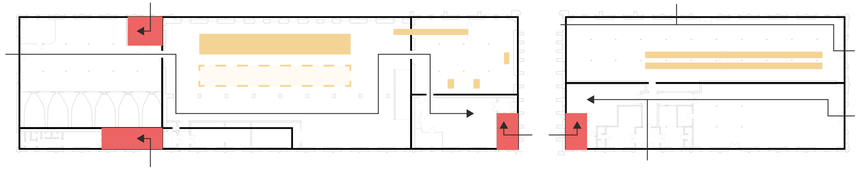
Entrance/Exit people

Entrance/Exit Products

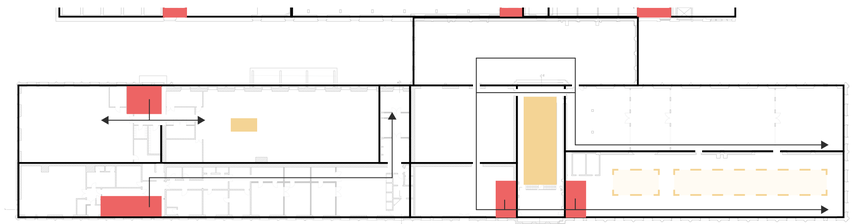
Entrances

The Bakery has several entrances which are needed for all its different building parts. The main entrance (photo 5) is located at the South-West Facade which is the most representative facade of the Bakery. The North-East facade on the other hand is the main entrance for the Cookie factory (photo 4) and mostly marked by the large canopy roofs. As this entrance is used for products the canopy roofs are to ensure that the products stay dry when loading trucks. Some of the entrances are followed by stairs (e.g. photo 7) indicating that these were used by people and not for transporting the products. The products left the building via slides (photo 2) or via an entrance at streetlevel.

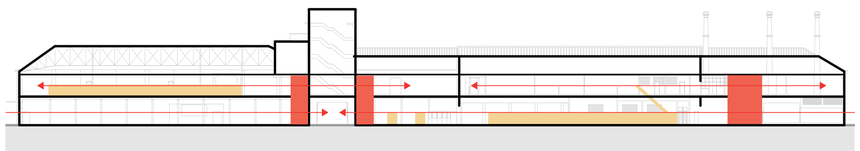
Photos
1 - 3 - 5 - 6 - 7 - 8 Noelle Dooper
2 - 4 Hielkje Zijlstra



Ground Floor - 1:500



Second Floor +7.00 - 1:500



Section - 1:500

LEGEND

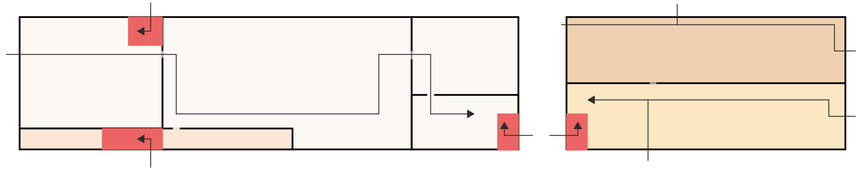
- Vertical circulation
- Machinery
- Removed machinery

People

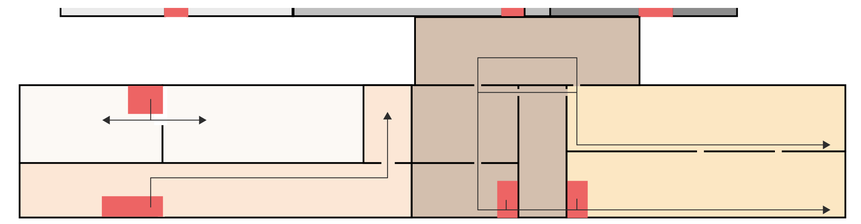
The circulation of the people through the Bakery is determined by the machinery within the space. People have to move around the machinery so taking away the machines would influence the circulation.

THE BAKERY
OVERVIEW - **CIRCULATION** - CHARACTER

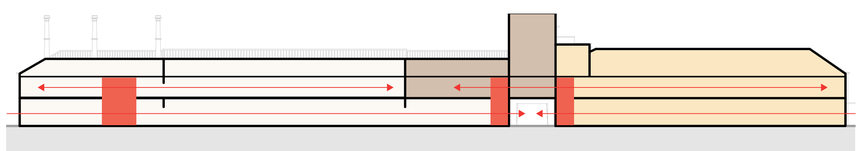
Entrances - People - Products



Ground Floor - 1:500



Second Floor +7.00 - 1:500



Section - 1:500

LEGEND

- Vertical circulation
- Building part 1 seperated by circulation
- Building part 2 seperated by circulation
- Building part 3 seperated by circulation
- Building part 2 seperated by circulation
- Building part 3 seperated by circulation

People

The circulation within the Bakery is destined for specific building parts. This means that people enter the building knowing in which part they have to be as it is mostly impossible to move from one building part to the other. Only building part 16a and 17 are connected on the first floor. Therefor walking through the building people can experience multiple dead ends. This is mainly due to later added building parts and the different functions in each part.


1


2


3


4

5


6


7

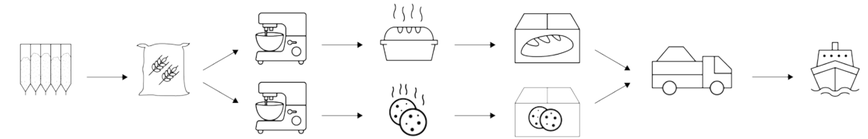

8

1. Old photo of Cookie machine.
2, 3, 4 and 5. Existing oven in building part 16 and slides from floor to floor and through the exterior wall.
6. Old photo of removed oven next to the existing one.
7 and 8. Old photo of the machines in the Cookie factory.

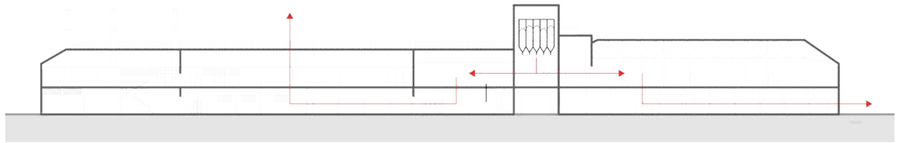
Photos
1 - 6 - 7 - 8 DOCOMOMO 2016
2 -3 -4 - 5 Hielkje Zijlstra

THE BAKERY
OVERVIEW - **CIRCULATION** - CHARACTER

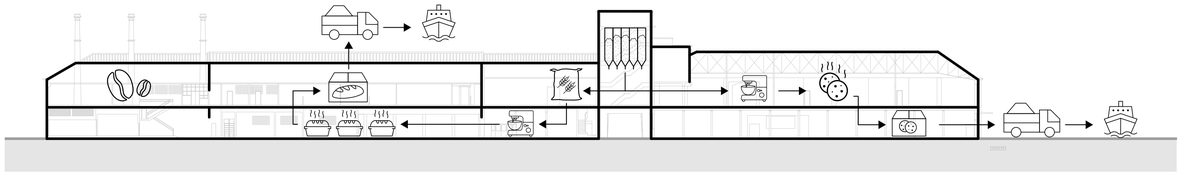
Entrances - People - Products



Production process overview



Production process starts from the Silo's in the middle



Production Process in the building

Products

The building named the Bakery produces bread and cookies. These two production processes are seperated into two buildings: building part 16 and 17. Within these buildings the production process is logically arranged in a chain of actions and spaces. Starting with the Silo's in the middle building part 16a where the flour is stored. So **the production in the whole building starts from within and from there spreads out into two chains of production: bread and cookies.**

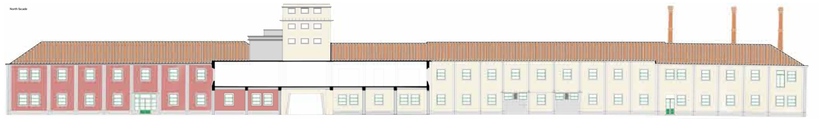
CHARACTER

RESEARCH QUESTION

How can the character of the Bakery be defined?

Old ovens of the Bakery

Photo:
Hielkje Zijlstra



The Bakery consists of four different façades, the two main are the bakery and the cookie factory which can be separated through the cream and red coloured façades. The cream facade represents the Bakery and the red facade represents the Cookie factory.
Just like the Milling the Bakery contains a variety of different elements, such as the two different coloured façades with a tall concrete element in the middle which is a silo. Besides that the building contains a bridge that is attached to the Milling but does not contain a internal connection with the building.

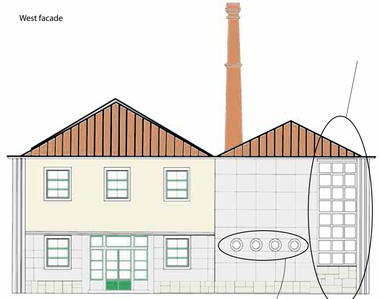
Over time layering of different facade elements.

Referring back tot the History part of this report, the Bakery went, just like the Milling, through a series of changes which are visible on the outside of the building.
Like mentioned earlier, the building contains four elements which are the two factories, the silo and the bridge. What is noticeable is that the two factories contain the same repeating elements, such as the window frames and the vertical concrete elements.

East facade

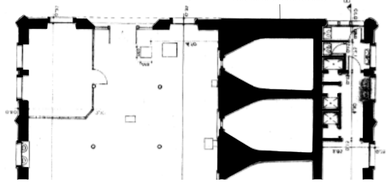
This facade seems to be the back of the building now. Comparing it with the entrance of the Bakery, it can be assumed that this also used to be an entrance, but later got a more distributing function when the two buildings merged into one.

West facade



Main entrance bakery

Pure for aestetical reasons



This glass window frame provokes the assumption that it contains a function behind that needs lots of daylight. But looking at the functions, it contains a bathroom on the ground floor and deposit on the first floor.

THE BAKERY
OVERVIEW - CIRCULATION - **CHARACTER**

Façades - Daylight - Space - Conclusion

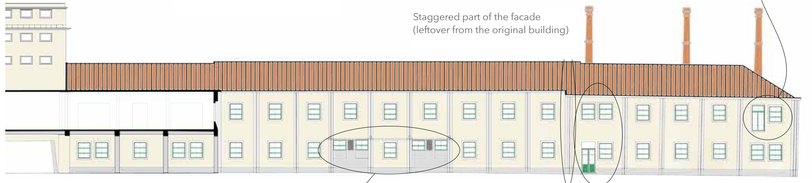
North facade

North facade

Shows monumental structure of the facade. Aesthetic reasons for using two windows or more daylight in the corners (assumptions)

Coffee factory/distribution

Staggered part of the facade (leftover from the original building)

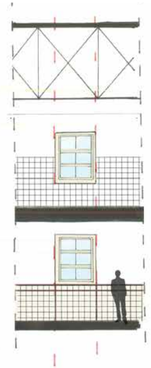


Part of the facade that reflects the production process. The tubes are connected with the floor above and are used for the distribution of bread

The circulation function with a staircase behind this facade and entrance define the structure of this part.

The Bakery, just like the Milling, went through a lot of change since the time it was build. The full transition of this building is viewed in the History part earlier in this report.
What is interesting is that these changes also can be seen in the facade today.
Studying the facade, it is noticeable that the there seems to be a structured pattern with some aspects showing-casing the production process that takes place behind the facade, such as the slides that stick out of the facade on the ground floor that are connected to the bread storage/production or the flour storage and the coffee factory.
Also one strange thing that is noticeable while comparing the facade with the floor-plans are the measurements of the distance between the window frames, which are all different. This is something that should be taken into consideration while working on this building.

Another noticeable aspect is the west facade of the bakery, which is also the main entrance of the building. The facade here contains much more details and shows window elements that are unique for the building.
Looking at the functions behind the west facade, a connection between these two can not be made. This leads to the assumptions that the facade is constructed this way for aesthetic reasons and to point out the main entrance or to create more daylight within the corners of the buildings.



Cream Plaster (Bakery)
Concrete elements

Wooden window frames

Dark red Plaster (Cookie F)
Concrete elements

Wooden window frames

Roof Tiles

White plaster

Ceremic tiles

Wooden window frames

Steel roof construction

What is interesting about the Bakery and Cookie factory contain a repetitive facade structure of windows that all have a width of 1,40 m and these concrete column that stick out of the facade. Because this is one repetitive element, only one facade element is drawn for the whole building.

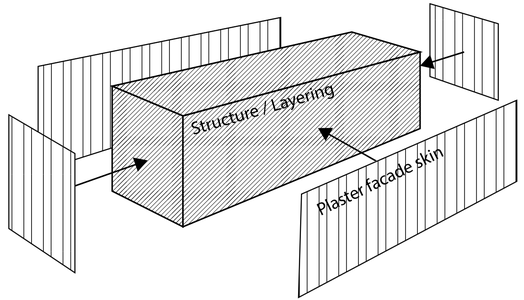
Repetitiveness in the facade.

The use of materialisation, colour and decorative elements in the facade is quite relatable to the one of the Milling.
The main three materials within the exterior are plaster, wooden window frames and glass. Although the roof here contains roof tiles.
This repetitive facade element and the constant use of the same material assumes, from a human perspective, that the building is one whole, despite the different use of colour and the silo in between. It can be said that this aspect contributes to defining the character of this building.

Looking at the interior materialisation it contains the same three materials as the exterior but with an addition of tiles. The use of tiles is common in the interior of old industrial buildings. Which again proves the pragmatic character of the building. The colours that are used here are white plaster and cream/ white tiles .

THE BAKERY
OVERVIEW - CIRCULATION - **CHARACTER**

Façades - Daylight - Space - Conclusion



Safety matches factory,
Zlina Slovakia (1915)

Textile factory,
St. Petersburg Russia (1937)

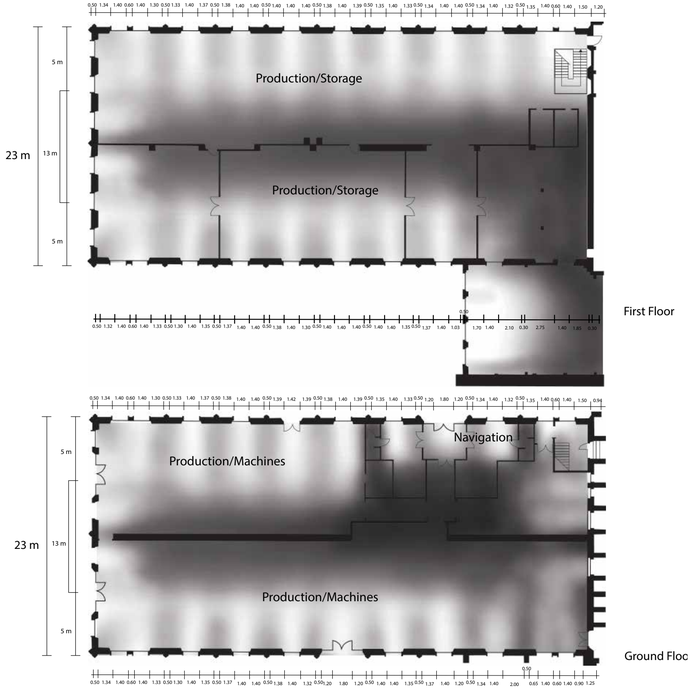
Unknown Silo

Factory
Moscow Russia

Just like in the Milling, studying the exterior in relation with the interior while focussing on materialization, facade openings, daylight, functions concludes that the inside structure defines the facade.

The conclusions that are made while discussing this aspect for the Milling also can count for the Bakery.

Source images:
Safety matches factory
https://en.wikipedia.org/wiki/Industrial_heritage#/media/File:-Zlina_zapalkaren.jpg
Textile factory Russia
https://www.mimoa.eu/projects/Russia/St.%20Petersburg/Red%20Banner%20Textile%20Factory/
Unknown silo
http://mike.da2c.org/igg/rail/12-linind/flour.htm
Factory Moscow
http://www.shutterstock.com/pic-84409210/stock-photo-factory-architecture-details-and-facade-in-moscow-russia.html

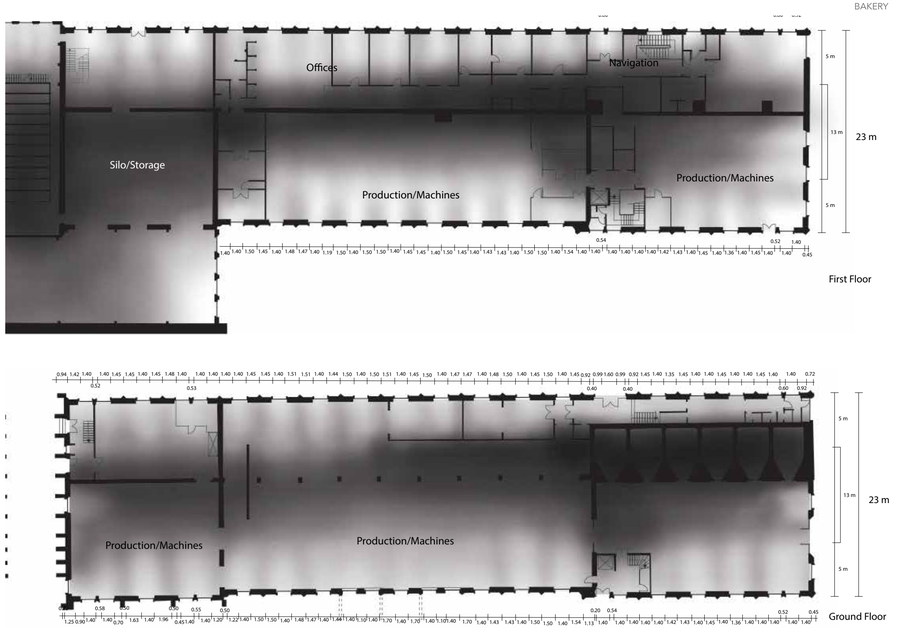


COOKIE FACTORY

Just like in the Milling, the amount of daylight that falls into an interior can have a strong influence on the way someone experiences a space. That is why it is important to know what kind of atmosphere daylight creates in the current surrounding, so it can be taken into account while changing the interior for a future surrounding.

THE BAKERY
OVERVIEW - CIRCULATION - **CHARACTER**

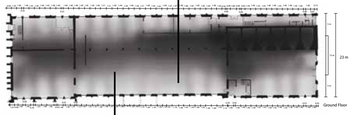
Façades - Daylight - Space - Conclusion

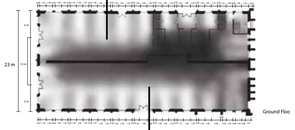


These daylight schemes show, just as with the Milling, that the amount of daylight that goes through the facade is related to the function that is behind that part of the facade.

Daylight function oriented

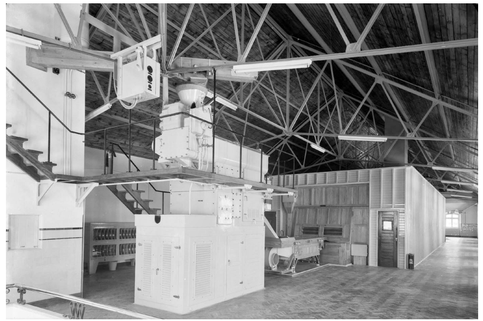
The Bakery has a width of approximately 22 m which means that roughly half of the width contains poor to no daylight. Within the Bakery this part has functions like circulation or storage that do not require daylight. Besides that, functions such as office spaces that need lots of daylight are structured next to the facade. The silo, of course, contains no daylight at all due to its function.
In the Cookie factory a division is of walls takes place at that part, plus it contains machines as shown in the pictures on the next page.





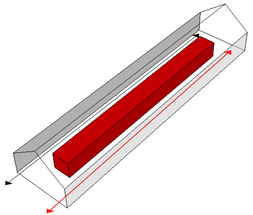
The atmosphere within the Bakery can be characterised as bright and open. Even with the machines in the space it still feels less like an intimate space, which is different from the atmosphere in the Milling.
What is interesting to mention here is that the large machines in the Bakery are put next to the facade instead of in the middle or in the part with the least amount of daylight.
This also happened in the Cookie factory, that contains lots of daylight in the areas the production process happened.
in regarding the Bakery is the place where the bread production happened.

Source images:
All photo images
Docomomo, Lisbon 2016

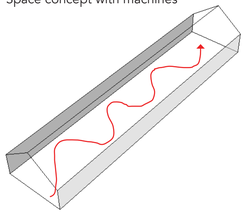


Space with machines

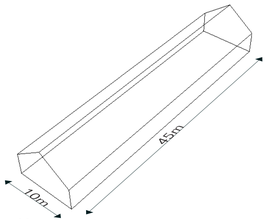
Space without machines



Space concept with machines



Space concept without machines



Measurements space

Conclusion

This space was part of the Cookie factory and used to be full of large machines. Therefore the space did not have any columns. Nowadays the machinery is removed changing the character of the space. The attention is much more focussed on the construction. Resulting in a large space with no clear direction and an industrial rough character.

Machines:
Before the machines were removed the space was completely filled by the machines leaving only little circulation space at the sides making the machines the center of attention. Creating a space with a clear horizontal focus.

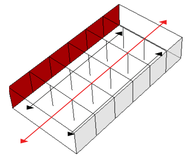
Light:
The space has daylight from its two external walls giving the space enough daylight which comes mainly from one side.

Space (without machines):
The space without machines is an empty hall type with a horizontal and industrial character focussing on the rythmic construction.

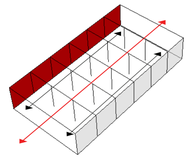
Layers:
As the space is empty and the structure has not been changed over time there are no layers visible.

Colours:
The colours of the space are defined by yellowish tiles on the wall and a rather dark roof with its construction showing.

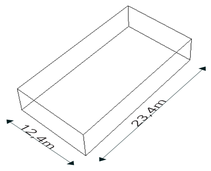
Space with machines



Space concept with machines



Space concept without machines



Measurements space

Conclusion

The character of the room is determined by the slim construction, the painted tiles, ovens and wooden baking tools. This gives the room a representative character.

Machines:
The only machines in this room are the old ovens with the painted tiles which tells the story of the Bakery and are a real reminiscence of the past activity. Giving this space a sort of grandeur.

Light:
The space has large windows to give the room its daylight and also some curtains making this part of the Bakery seem more representative and formal.

Space (without machines):
The only machines to take out would be the old ovens but this might be a challange as they have a structural purpose in the Bakery. The ovens also do not interrupt the spatial character of the space which is linear as the columns guide the visitor from the entrance to the next space.

Layers:
The whole space really emphasize the past importance of the Bakery creating this rustic atmosphere.

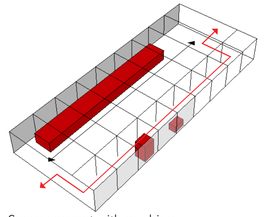
Colours:
This space is very colourful with its painted tiles, shiny reddish flooring, and red curtains. Giving the soace a warm atmosphere.

Space with machines

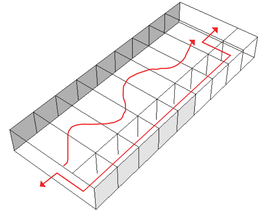
Space without machines

Space with machines

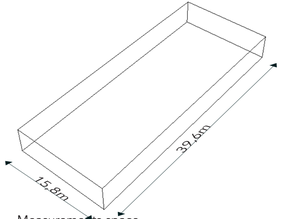
Space without machines



Space concept with machines



Space concept without machines



Measurements space

Conclusion
The large space used to be filled with two large ovens now only one oven is left and you can still see the connection with the second floor. When taking away the last oven the space would be more defined by the new concrete construction giving the room a rigid and heavy character.

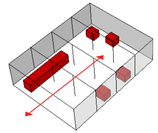
Machines:
The oven which is still there brings dynamics to the space especially with the connection to the upper floor. It also emphasizes the horizontal character and the length of the space.

Light:
There are windows on one side of the space but the oven is preventing a clear view outside, still enough daylight enters the space.

Space (without machines):
The rythm of the concrete columns define the space which now has a less defined direction.

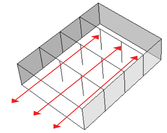
Layers:
The walls date from the original structure. The newer concrete structure is placed within the original structure as separate entity.

Colours:
Monotone

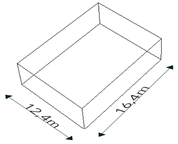


Space concept with machines

Space with machines



Space concept without machines



Measurements space

Conclusion
The space is defined by a slim construction and some loose objects placed randomly in the space. With the tiled flooring and obvious purpose for baking activities it has a dynamic and hygienic character.

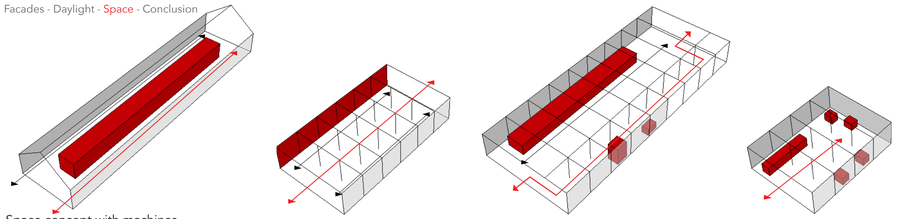
Machines:
Most of the machines are loose objects which can be easily moved giving the space a more dynamic and working character.

Light:
Windows bring in light from one side of the space as the other side ends in the passage in the middle of the building.

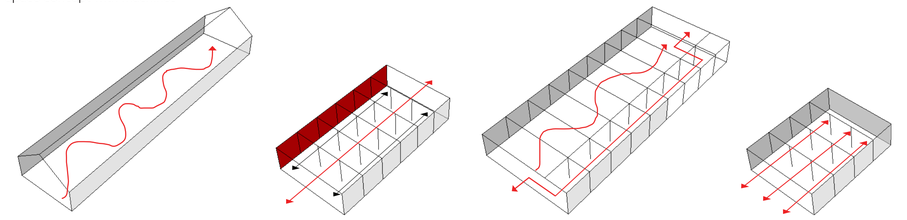
Space (without machines):
Taking away the machiney the slim construction will be defining the direction within the space.

Layers:
The structure is original showing the detailed columns while the flooring is a newer addition which shows the layers within the space.

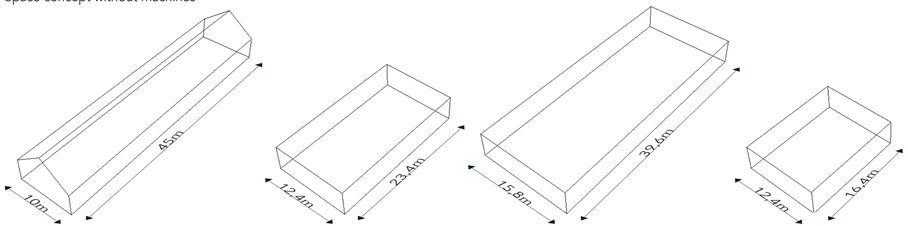
Colours:
Monotone



Space concept with machines



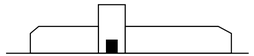
Space concept without machines



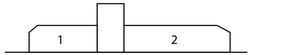
Measurements space

THE BAKERY
OVERVIEW - CIRCULATION - **CHARACTER**

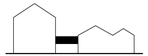
FORM/VOLUME



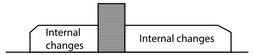
02. SUBWAY IN THE BAKERY



03. BAKERY: TWO SIMILAR VOLUMES CONNECTED THROUGH A HIGHER VOLUME = SILO

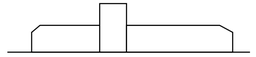


04. BRIDGE CREATES CHARACTERISTIC CONNECTION

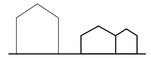


05. INTERNAL CHANGES AND ADDITIONS

FACADE



07. FACADE CAN BE DIVIDED IN 3 PARTS + BRIDGE



08..FRONT FACADE BAKERY TWO FACED

ATMOSPHERE

10. BUILDING PARTS CONTAIN DIFFERENT ATMOSPHERES

02. See chapter Bakery Facade p.
03. See chapter Bakery Facade p.
04. See chapter Bakery p.
05. See Technical Report
07. See chapter Bakery Facade p.
08. See chapter Bakery Facade p.
10. See Chapter Bakery Space p.