Reliving former port areas

The reference to warehouse architecture in new housing blocks of transformed ports

Figure 1. Aerial view of the present day Krøyers Plads, Copenhagen (Vilhelm Lauritzen Architects, 2017).

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Introduction

The idea that modernism of the twentieth century establishes an inevitable and continuous direction in the evolution of architecture, had to make way for a much more nuanced and layered perspective. Past and present stand in a complex relationship to each other. When looking back at the architecture of housing from over the past 150 years, a recurring orientation towards forms from the past has been present, although motives and outcomes tend to differ.

Considering the Arts and Crafts movement (around 1880-1920), the incentive for looking back to the past, is the aversion of rationalisation and mass production in architecture. The idea of seeking freedom and functionality, breaking from the academic strait-jacket and considering the past as a tool for the reclamation of craftsmanship varies from the ideas of German architect Paul Schmitthenner (1884-1972). He applied the ideas of simple and traditional architecture on housing to show the importance of one's own local culture and identity. Inspiration was held from timeless and anonymous art of built form. Even though his ideas were based on different grounds, they were suppressed until the nineties of the twentieth century, because referencing past architecture had obtained a bad connotation from the Second World War.

Visible connections to the past don't imply that building methods and materials of the present are being rejected. The use of traditional shapes and materials can simultaneously be applied with newer building methods and materials such as steel and concrete. For example in the work of the current, third generation architects of Bedaux in Tilburg, both the affinity with the achievements of previous generations and contemporary solutions are clearly visible. Rather than a predetermined choice, there seems to be a loose assortment of different influences. Therefore it is safe to say that modern architecture doesn't exist, and the architects have always taken inspiration from the past for their buildings, some more than others. The actual question that comes in mind is: what is the driving force behind these references of traditional architecture in new constructions? (Van Gameren et al., 2012)

The tendency of referencing past architecture also seems to happen with some building projects at post-industrial waterfront spaces, which are transformed and regenerated into residential areas. The aim of this history thesis is to provide insights into the reasoning behind the referencing of traditionalist maritime architecture and the extent to which this is done. To research this, two case studies situated in well-known port cities Amsterdam and Copenhagen were chosen. The case studies for his research are roughly built around the same time, have a similar function of housing and are standing in a similar context. On top of that, both buildings have a similar appearance e.g. through scale and material.

The first and oldest project of the case studies is Piraeus (1991-1994) by architect Hans Kollhoff (1946). The project is situated on KNSM-Island located at the Eastern Docklands of Amsterdam. KNSM-Island has been transformed and redeveloped into a residential area after the masterplan in 1988 by urban architect Jo Coenen (1949). The large-scaled building is located directly near the water's edge. The second case study is the project Krøyers Plads (2011-2016) after the design of the Danish architectural office Cobe. The project is located *on Grønlandske Handels Plads* (Greenlandic trading place) of *Christianshavn* (Christians harbour) in the city centre of Copenhagen. This former port area has also been transformed into a residential and commercial area. The project consists of three rectangular building blocks enclosed by the original warehouses from the eighteenth century, which results in an interesting comparison between new and old. Both case studies are located in former

port areas, of which the architecture at first glance seems to be inspired by the traditionalist and local architecture of former warehouses.

This has led to the following research question: *What are the similarities and differences in the architectural approach of contemporary housing projects in the former port areas of Copenhagen and Amsterdam?* The time span of this research is from 1988 until 2016 when these urban designs and the building projects originated and transformed. To research how the harbour has developed into a residential area, the period of the port being active must also be considered. For the KNSM-Island this is the beginning of the twentieth century and for Christianshavn the eighteenth century.

In order to answer the main question, several sub-questions that have arisen in this research will be examined: *What were the historical developments and transformations of the harbours KNSM-Island in Amsterdam and Krøyers Plads in Copenhagen leading to its urban form? To what extent are the heritage values and attributes of port areas involved in the debate between different stakeholders about the urban transformations of former port islands in Amsterdam and Copenhagen?; How are the heritage values of the masterplan translated into the architecture of two different housing projects Piraeus in Amsterdam and Krøyers Plads in Copenhagen?*

Enough has been written on these ports already, but there is no direct literature available yet about how new housing developments have taken over certain architectural elements from former port areas. Besides this, no comparison between these case-studies have been made before, so it might be interesting to study how differently they've developed influenced by other factors even though the outcome is nonetheless the same, inspired by former warehouses.

In order to answer these questions, both primary and secondary sources will be studied. Primary sources include the building itself, the design drawings and models. Secondary sources are for example the texts of the designer himself, articles of reviewers and journalists, newspaper articles, published images of the buildings, residents' meetings and municipal documents, like local plans and cultural-historical value assessments. The material about the historical development of the urban transformation of the harbour Christianshavn is not directly available. This research is limited to online sources. Therefore not a complete overview will be given and there is still a task ahead to develop this into further research.

The structure of this thesis consists of three chapters. The first chapter provides a brief overview of the historical background on the development of the harbours in Amsterdam and Copenhagen. The similarities and differences of their developments will also be compared. The second chapter examines the debate that has been taking place between the different actors involved in the discussion about the transformation of the former port areas. In this section the level of involvement of different actors and which heritage values and attributes about the identity of the port they considered important, will be discussed. The third chapter discusses the extent to which the outcomes of the second chapter are implemented in solutions for the architecture. For both projects five aspects are analysed: the relationship to its direct context, the shape formed by dimensions and proportions, layout of the facades, materialisation of the exterior and the layout of a typical apartment. These solutions will be compared to see how referencing to past maritime architecture affected the visual outcomes of the different projects and to what extent the different heritage values and attributes are involved in the designs.

Chapter 1 – Historical context

Introduction

This chapter will provide a brief overview of the historical background on urban developments and transformations of the harbours in Amsterdam and Copenhagen, to compare the similarities and differences of their main urban qualities. The chapter will therefore concentrate on the following question: *What were the historical developments and transformations of the harbours KNSM-Island in Amsterdam and Krøyers Plads in Copenhagen leading to its urban form?*

To answer this question, the role of both ports have to be analysed in their most active period and the period of their decline. From the active period it is possible to read how the ports were organized on an urban scale and why it was organized this way. From the period of decline it is possible to see which traces are left and whether they have changed or not. These urban characteristics are connected to historical developments, which are laid out in a timeline for both ports, to clarify the why and when (appendix, fig. 2 & 3).

1.1 Origins of the KNSM-Island, Eastern Docklands, Amsterdam, 1890 -1940

The northern part of Amsterdam's architectural and urbanistic development has always been closely connected to its location near the water and the harbour. The Eastern Docklands as we know it today, underwent several large changes. Before its origination at the end of the nineteenth century, Amsterdam was a flourishing port with a worldwide network. The growing trade due to industrialization brought with it a number of changes for shipping, for instance ships became larger and heavier, which made it more difficult to sail up the small harbours of Amsterdam's city centre. The old docks were no longer sufficient, resulting in the construction of a new dock area in eastern part of the IJ river (Heijdra, 2000). In total, five artificial peninsulas were built between 1874 and 1927, of which the first one was the IJ-island, now called the Java and KNSM island (fig. 4) (Buurman, 2005). This island originated in 1890 from a 1400 meter long and small shaped breakwater to protect the quays of the ''Oostelijke Handelskade'' (eastern trades quayside) against the waves caused by the harsh natural conditions (fig. 2).

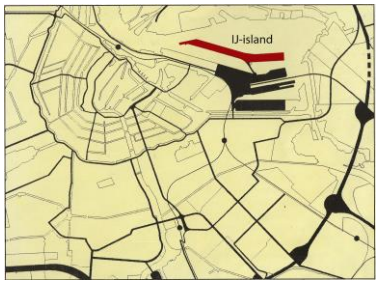


Figure 4. Location of the Eastern Docklands in relation to the city's ring of canals, the IJ and the ringway A10 (Koster, 1995, edited by author, 2022)

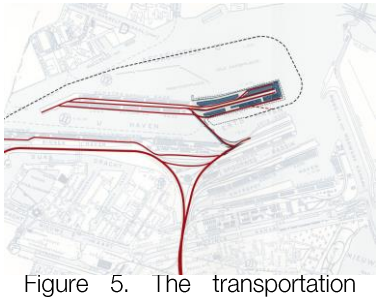


Figure 5. The transportation routes from the KNSM island in 1914, (Amsterdam Cultuur Historische Vereniging, 2020, edited by author, 2022)

This elongated breakwater was expanded and widened to an artificial island to be part of the new dock area in the eastern IJ. On the eastern part of the IJ island, in 1903, the Koninklijke Nederlandse Stoombootmaatschappij (KNSM) (Royal Dutch Steamship Company) established its headquarters as one of the largest shipping companies of Amsterdam. The island was called KNSM-Island, operating regular services to Indonesia, Surinam and the United States (Koster, 1995).

The second reason for the island's elongated shape is due to the large KNSM ships in order to have enough space to sail from and to the island. The island was fully geared up for loading and unloading ships (Luiten & Spangenber, 1989). The ships would dock here and through the tall cranes it was possible to transfer the cargo into the warehouses (fig. 6). The warehouses were laid out in rows alongside the quays for this purpose. In the middle of the island, multiple parallel train tracks were positioned to get the cargo from the warehouses into the trains (fig. 8 & 9). The trains would transport these goods inland from the nearby central station. This train transportation was only possible because the municipality decided to construct a breakwater with a fixed bridge, the *Blauwehoofdbrug,* to connect the IJ island with the mainland and the other artificial peninsulas (fig. 5) (Buurman, 2005). The shape of the island ensured that the warehouses, train tracks and roads would follow this elongated direction. The placement of these components towards each other is done purely for logistical reasons. The warehouses are not wide, but long instead, because a large width would take up too much space on the small island. With this long shape it was still possible to have enough storage. This shape and placement of the warehouses are also causing the long sightlines that run from the eastern part to the western part of the island (fig. 7).

Figure 6. Cranes on the Leventkade, approx. 1920 (Stadsarchief Amsterdam, **retrieved April 3, 2022**).

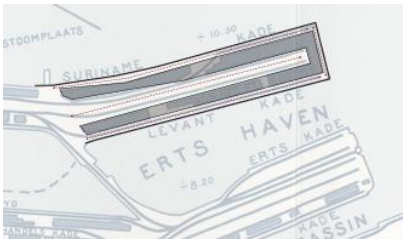


Figure 7. the shape of the warehouses and roads causing the three long sightlines (Amsterdam Cultuur Historische Vereniging, 2020, edited by author, 2022)

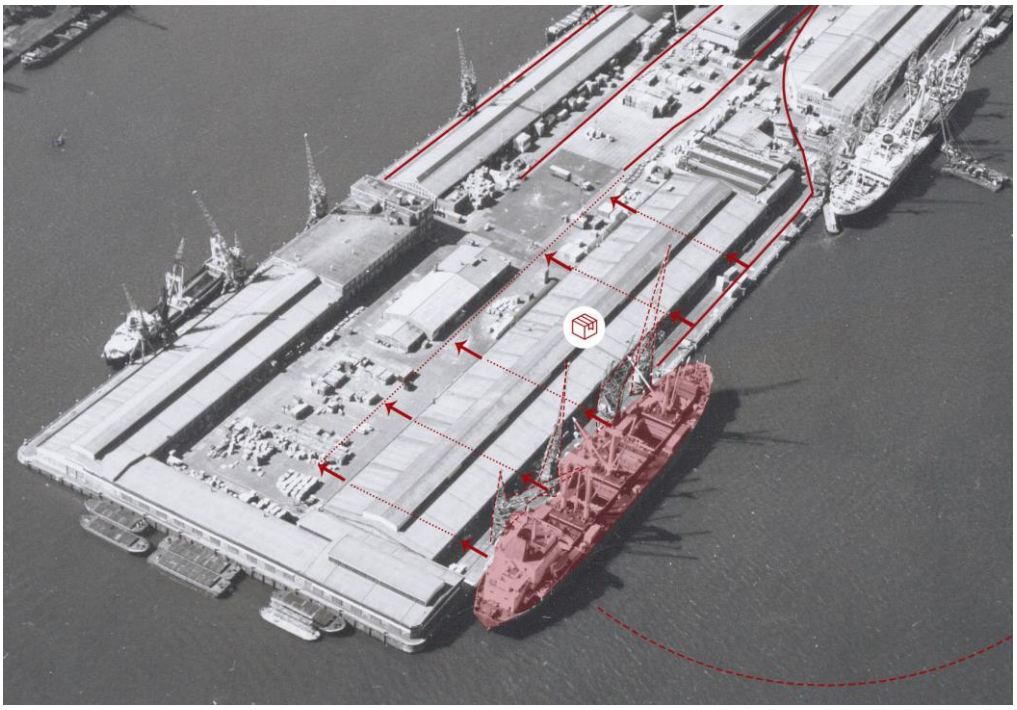


Figure 8. Aerial photograph from the KNSM island. How the island used to work as a port, approx. 1974 (Stadsarchief Amsterdam, retrieved April 3, 2022).

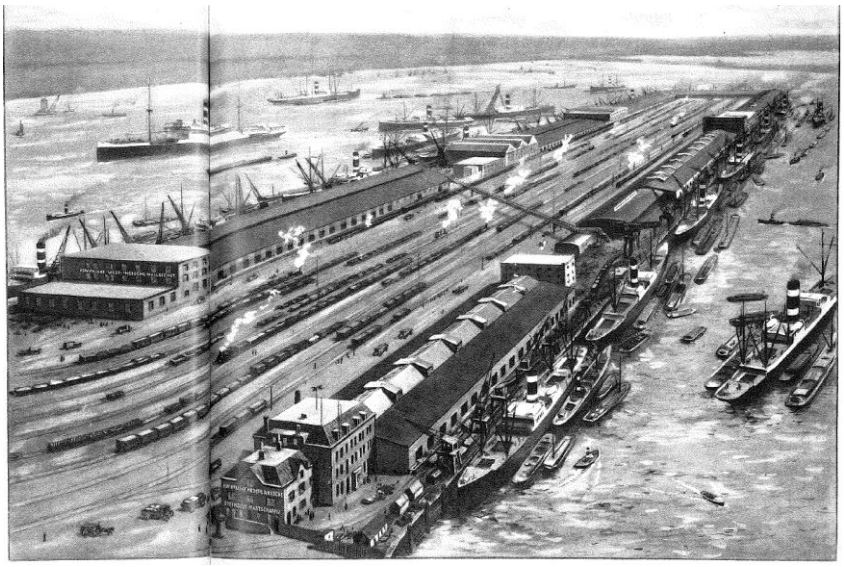


Figure 9. Overview of the KNSM establishments approx. 1910 (Heijdra, 1993)

1.2 KNSM-island, Later developments, 1950′s-1980′s

The success of these new docks did not last long because of a few upcoming events. After the Second World War and the independence of Indonesia the fortunes of most shipping lines began to decrease. The harbour had to take on a new form and modernisation and expansion of scale were therefore unavoidable. Most port activities shifted westwards in the sixties and this eastern harbour district gradually became redundant (Buurman, 2005). All this together meant an economic demise with disuse, deterioration and decay of the Eastern Docklands. The KNSM, as the last great shipping company in the Eastern Docklands, closed its gates in 1977. (Koster, 1995)

After the fall of the KNSM, the area was left abandoned for a decade of decay, which was not very good for the state of the existing buildings. The city council earmarked the area as a potential site for new housing developments due to its nearby location with the city centre (fig. 2). The plans were juggled for a long time and this gave squatters the opportunity to commit themselves to preserving the characteristic harbour architecture of the islands, but still a lot of buildings were demolished and commissioned by the municipality. The warehouses were well maintained and not regarded as very valuable at the time. There were other priorities, like new social housing developments. Of the former structures not much remained, only the original shape of the island, the quays with and a few buildings (fig. 10) (Buurman, 2005)

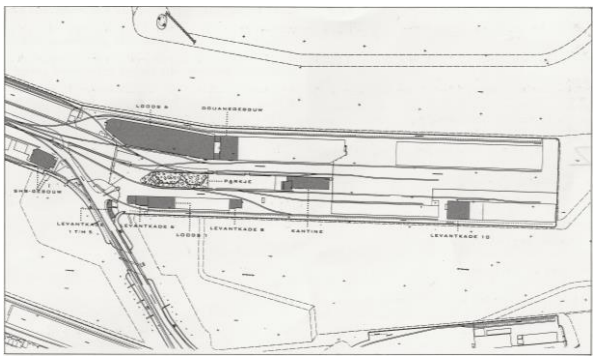


Figure 10: The maintained buildings, which emphasize the longitudinal direction (Luiten & Spangenber, 1989).

1.3 Origins of Krøyers Plads, Christianshavn, Copenhagen, 1618 -1920

The district of *Christianshavn* (Christians harbour) is named after King Christian IV, who in 1617 began the construction of a new neighbourhood on the marshy area south east of the centre. It was built by the Dutch engineer and architect Johan Semp in the years after 1618. The square, canals and streets were laid out according to a symmetrical urban plan surrounded by moats and ramparts with fortifications after Dutch tradition. This layout is still visible nowadays on an urban level. Large plots of land were set aside and given free of charge to anyone who intended the place for "qualitatively high city buildings", for instance warehouses and commercial activities (fig. 11) (Kulturministeriet, Slots- og Kulturstyrelsen, 2016).

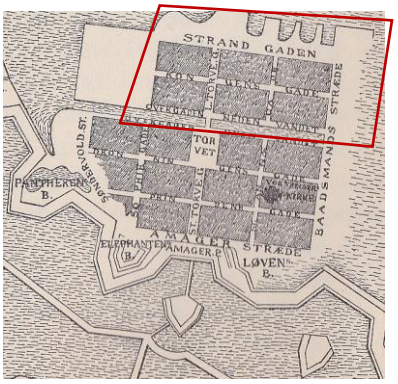


Figure 11. Drawing of the new district Christianshavn in Copenhagen, 1677-1690 (hovedstadshistorie.dk, retrieved April 13, 2022, edited, 2022).

The king and Semps visions for creating a harbour were only partly realised in Christianshavn. This happened near the street *Strandgade* (literal translation: ''shore street''), where the case study *Krøyers Plads* is located. They envisioned Strandgade to be one of the most important streets in Christianshavn, because of its direct access to the harbour, so the area could easily be filled with port activities and be occupied by merchants near the quayside (fig 12). The reason for their vision to come true is mainly because of Andreas Bjørn (1703-50), a Danish merchant to fill a part with peninsulas at the northern end of Strandgade (fig. 11). In the 18th century, the district was expanded with trading centres and industries, which flourished during the prosperous trading period.

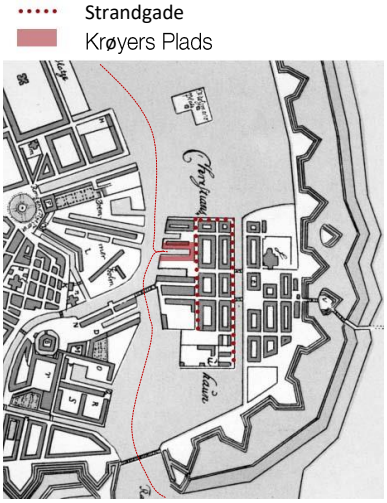


Figure 12. The drawing of the new district Christianshavn in Copenhagen, 1728 (hovedstadshistorie.dk, retrieved April 13, 2022, edited, 2022).

This northern part, first belonging to Bjørn, was subdivided in the eighteenth and nineteenth century between different merchants and shippers (fig. 13). Captain and merchant Hans Krøyer purchased Krøyers Plads, hence the name (fig. 12). This part of the harbour is shaped through an inlet for ships, similar to other parts of the port of this western quayside. One of the buildings built on his behalf was "Krøyers Pakhus" (warehouse), now known as the Arctic Institute and houses the Department of Eskimology (fig. 14). The other warehouses on Krøyers Plads that still exist were built between 1762 and 1806 by master mason and architect J. C. Conradi (fig 3). After his death a few warehouses were added and built in the same distinctive style.

Figure 13. Guache of Wilders Plads with on the left the beginning of Krøyers Plads, 1776 by I.H.W. von Haffner (Det Kongelige Bibliotek, retrieved April 13, 2022)

The warehouses are placed parallel to the quayside of the small basins and have an elongated small footprint, but compared to the main canal of the harbour, the buildings are positioned perpendicular (fig. 19). The approximate positioning of the warehouses near water is mainly done out of logistical reasons to move

the goods easily from the ships into the warehouses. The higher warehouses have relatively large openings in the walls in and under the piling, which were used to lift heavy and large goods onto the various floors (fig. 15). Not only the buildings, but also the outdoor spaces are used for storing goods (fig. 17 & 18). The six storey high brick gables of the warehouses form a recurring image on the waterfront, but sometimes interrupted by the gables of residentials buildings and lower and/or smaller warehouses (fig. 16) (København Kommune, 2004; Kulturministeriet, Slots- og Kulturstyrelsen, 2016).

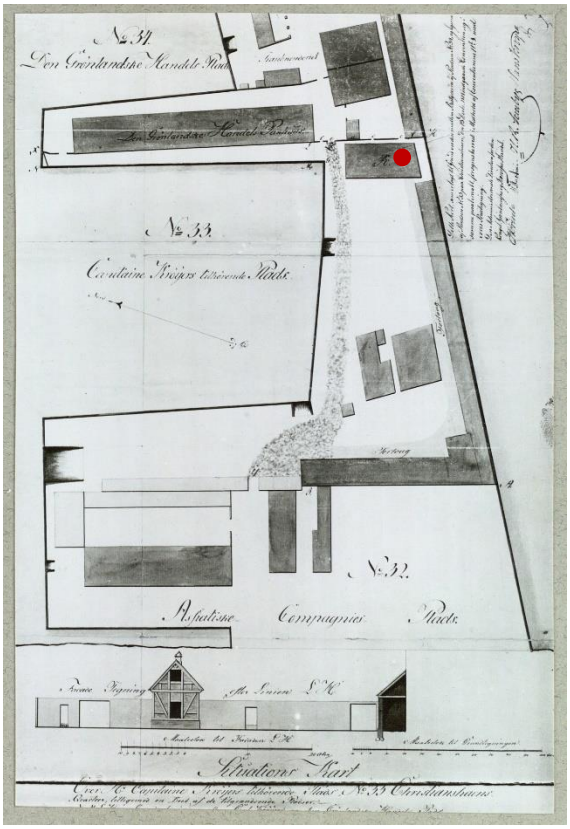


Figure 14. Harbour Copenhagen with Krøyers Plads, 1883. The building with the red dot is the Krøyers Pakhus (Det KGL Bibliotek, retrieved April 10, 2022, edited by author, 2022).

Figure 15. The large Warehouse, (now called North Atlantic House) from 1766 in the distinctive style *Lisen* (from Latin *licium*, French *lisse*, "thread", "band") inspired by architect Nicolai Eigtved (1701-1754) is called the building art of a flat but slightly prominent pilasters use of which only has decorative function. The middle part was used for lifted goods into the building (Kulturministeriet, Slots- og Kulturstyrelsen, 2016).

The northern part of Christianshavn had served for more than 200 years as a hub for Danish trade and was the home to shipbuilding, workshops, trading companies, warehouses and similar port functions. The 1950′s and 60′s were the area's heyday with a growing capacity of ships. There were no railway connections, so the transportation depended on the freight traffic, consequently causing traffic jams and closing off streets. Besides the 18th century warehouses, a few one-storey warehouses and one similar warehouse of six storeys were built as well in the twentieth century (fig. 19). A number of one-storey high warehouses were demolished between the 1920′s and 1960′s, for they were not necessary anymore.

Figure 16. Aerial photo of the Grønlandske Handels Plads in use as harbour with on the right Krøyers Plads, ca. 1910. (Det Kgl. Bibliotek, retrieved 3 April 2022).

Figure 17 & 18. Krøyers Plads with the new one-storey high warehouses, 1948 (left), 1955 (right) (Arktisk Institut, retrieved 3 April 2022).

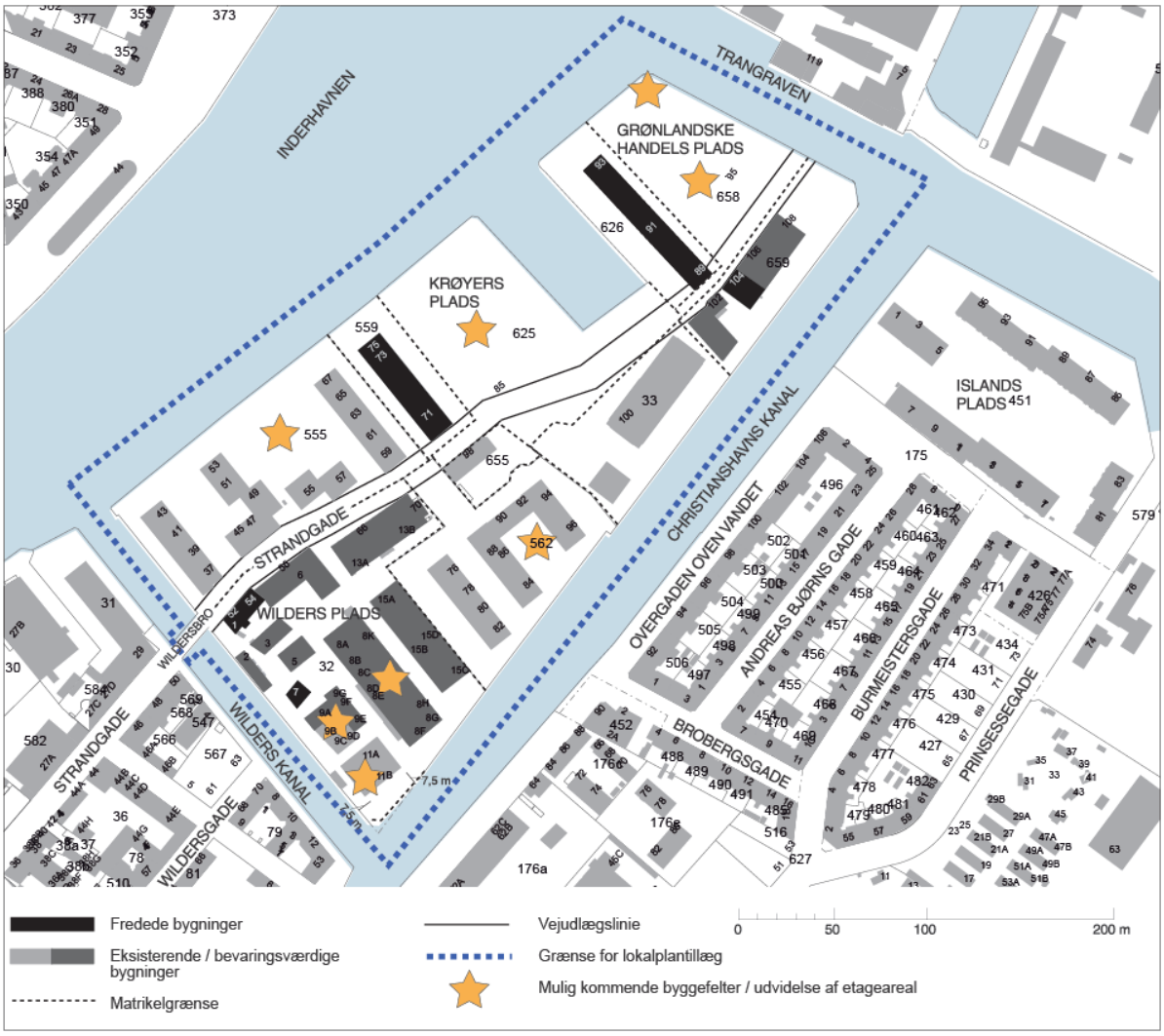
Figure 19. Aerial photo of the Grønlandske Handels Plads, ca. 1955 (Arktisk Institut, retrieved 3 April 2022).

1.4 Krøyers Plads, later developments, 1940-2019

The port lost its function in the early 1970′s, because they couldn′t handle the growing capacity. Mainly the older warehouse buildings were being preserved and protected. The initiatives of transforming the waterfront started at the beginning of the 1980′s and 90′s for commercial, office, residential, educational, cultural uses (Desfor & Jørgensen, 2003). The abandoned area of Krøyers Plads was handed over to the new state-owned company Freja Ejendomme in 1998 and turned into a popular cultural event and food venue. The Grønlandske Handels Plads has also been enriched with the introduction of two new bridges in 2016 for pedestrians and cyclists, which connects the area to the well-known harbour Nyhavn on the other side (fig. 3) (Nordatlantents.dk, retrieved 3 April 2022.)

In 2004, the municipality started to research the area for a long term redevelopment (fig. 22). The concluded that the industrial character of the area has disappeared and it was mainly used for residential and commercial uses. The built environment at Krøyers and Grønlandske Handels Plads was diverse and consisted both of very beautiful listed buildings and of buildings without special architectural qualities. Former workshop buildings on the head of the basin are being preserved and listed. This also goes for the larger warehouses, used as offices, administration like the North Atlantic house (fig. 21). Pedestrian and open spaces appear unstructured and run-down, dominated by large parking areas giving the area a varied, prosaic and realistic character. Sailing boats and houseboats line the surrounding canals, turning into an attractive leisure area (København Kommune, 2004). Besides the points mentioned above, the area still appears to have the characteristics of a harbour on a urban and building level (fig. 20) The harbours outline with their quays remained the same and a lot of former monumental and iconic warehouses where preserved. The main square Grønlandske Handels Plads at the north end and the street Strandgade which were part of an important transport route, are also still there.

Figure 20 and 21. Redevelopment area of the municipality: Krøyers Plads is located where the harbour "breaks". There are no longer any buildings on the site (left photo). The buildings are lined op perpendicular towards the main canal, but parallel to the basin. The brown buildings are listed monuments, the pink of high value, light pink medium value and grew of low value. White buildings have no value. København Kommune, 2004).



Lokalplanområdet med opland

Figure 22. An overview of the area which will be redeveloped (København Kommune, 2004).

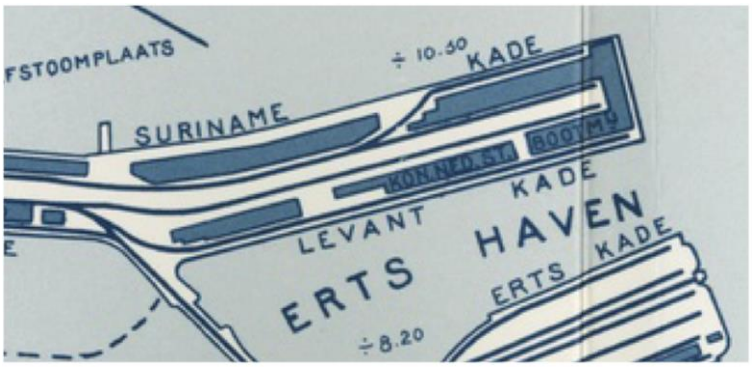
Conclusion

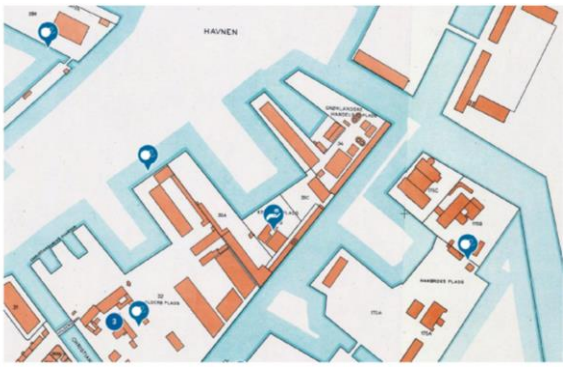
In the conclusion of the first chapter an answer will be given on the question of what the historical developments and transformations of both harbours were leading to its urban form. First a comparison will be made about how both were organized in their most active periods and why.

The KNSM-Island owes its long narrow shape initially from the former breakwater and this was kept to make it possible for large ships to sail to and from the island. All urban components like the roads, buildings follow this elongated shape by order of the shipping company KNSM. The components are placed and shaped towards each other in such a way to facilitate the flows of transportation on this site. So the island is constructed this way purely out of practical reasons. Considering the origin of Krøyers Plads this was done differently. The main symmetrical layout is derived from Dutch cities with canals, squares, streets and fortifications. A part of this is also visible in the former harbour of Krøyers Plads. The large plots of land were filled by rich merchants, so ultimately they also had a large say in how the harbour would look like for instance in the positioning of the warehouses. The outline of the harbour with the smaller basins were already defined by the architect Semp. Before Hans Krøyer purchased the land of Krøyers Plads, the surrounding lands were already filled with warehouses in the

same distinctive style, placed parallel to the quayside of the small basins and perpendicular towards the main canal out of practical transportation reasons. So how both islands originated and where constructed was different from each other, but how the islands further developed with their warehouses parallel to the quayside is similar for both where done out of practical transportation reasons.

How did both ports change and what traces are left from the former ports on an urban scale level? it is typical that almost no buildings remain of the KNSM-island. Only the outline with its quays, the bridge and the longitudinal direction of the island still exist. For Krøyers Plads this is different, as a large part of the buildings are still standing and the most important streets, squares and quays are still visible.





Figures 23 & 24: Comparison of the two harbours on an urban scale, 1:10000. Left is KNSM (1914) and right is Krøyers Plads (1860) (Cultuur Historische Vereniging, 2020; HistoriskAtlas.dk, retrieved 13 April 2022).

Figure 25 & 26. The KNSM Island in 1986 and Northern part of Krøyers Plads in 2004 just before the redevelopments (Stadsarchief Amsterdam, retrieved 13 April, 2022; København Kommune, 2004).

Chapter 2 – Next steps: from harbour to residential area

Introduction

How the area should be transformed into a residential area has been under long and intense debate. Different actors were involved during this discussion. The main actors which had a say in this debate will be discussed during this chapter in order to answer the sub-question: *To what extent are the heritage values and attributes of port areas involved in the debate between different stakeholders about the urban transformations of former port islands in Amsterdam and Copenhagen?*

To answer this question, the level of involvement of the different actors will be taken into account; their arguments for their ideas for the masterplan will be discussed; and, if they based their ideas on the former developments of the ports as discussed in chapter 1 or on other values and attributes? Redevelopments of both ports are laid out in a timeline, to clarify when and why (appendix, fig. 27, 28).

2.1 Redevelopment of the KNSM-Island

The Eastern Docklands were designated by the municipality of Amsterdam as an residential area in 1978. The different actors involved in the project of the KNSM-Island where the municipality urbanist(s), spatial planning department, local residents, committees concerning the monuments protection and clients (fig. 27, appendix).

Municipality

The city council was involved within the redevelopment of the KNSM-Island from the very first beginning and therefore an important stakeholder through the process. The first memorandum of principles for the Eastern Docklands (fig. 29). Their starting points were to keep the fingershaped peninsula structure of the islands, high density building, mixed-use and the use of water for recreational purposes (Luiten & Spangenber, 1989). Only the first point tells something about the preservation of the characteristics.

There was more discussion about the KNSM-Island than any other island, but in 1990 a definite plan was laid out (Buurman, 2005). The program of requirements for this island is: 1100 properties (100 properties per ha); one third will be rental and property for sale and the rest social housing; at least 60 percent should be three-roomflat and largely applying a medium-rise building height. These ideas about the island are very general and don't tell much about the preservation of the values of the island. The plan of the municipality was further developed by the spatial planning department (Luiten & Spangenber, 1989).

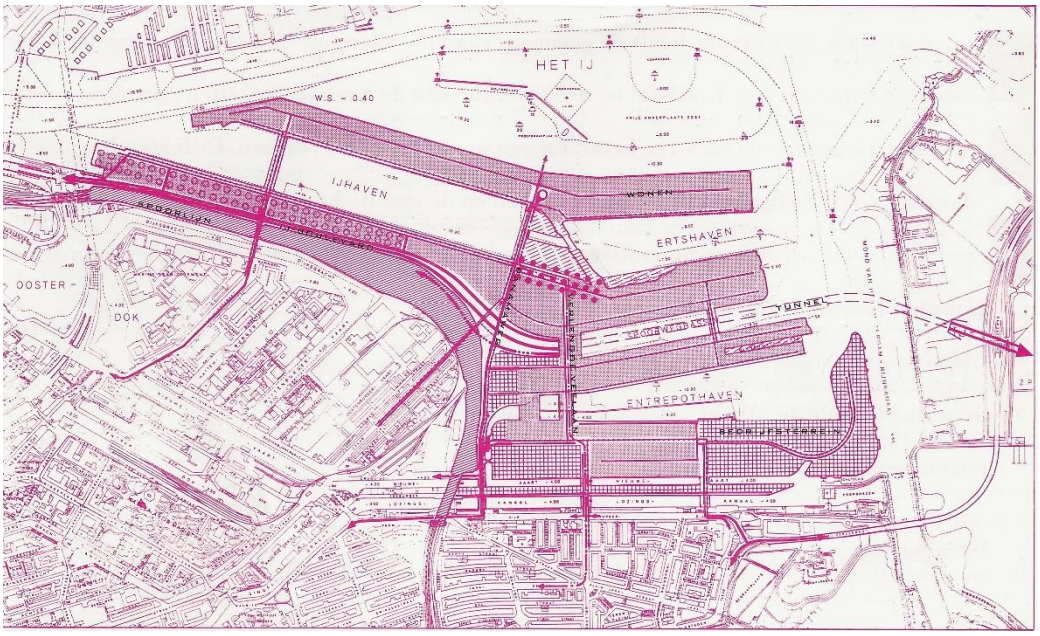


Fig. 29. Structure plan by the municipality for the Eastern Docklands in 1985 (Luiten & Spangenber, 1989).

Spatial Planning Department

The Spatial Planning Department (DRO) had a large say in the beginning phase of the KNSM-Island redevelopment. Usually a DRO mainly looks into the environmental conditions a future neighbourhood has to deal with. But this department chose to make a complete urban design which implemented their program of requirements in addition to those of the municipality (fig. 30). One of the starting points for this model is to combine both spatial characteristics of open and sheltered areas through closed housing blocks, as protection against the harsh winds. This closed block typology differs from the former elongated warehouses. The new housing typology should either have a view on the open water or an attractive urban space, like squares, streets and avenues on the ''city side'' (Rowe & Kan, 2014).

The waterside will be kept free of vehicular traffic as much as possible and have a more recreational function with the former jetties as a reminder of the large ships that used to dock here. To accentuate the contrast between water and land even further, the development was to be situated parallel to the quays, ultimately leading to three main streets to be in the same position as the axes in the former urban plan. The middle axis is slide bent at the rear end following the same direction of the former train tracks (Klaren & Boekraad, 1994). The retained buildings, reminiscent of the former history, are following the longitudinal direction and the new building blocks will be adjusted to this through height and form (Luiten & Spangenber, 1989).

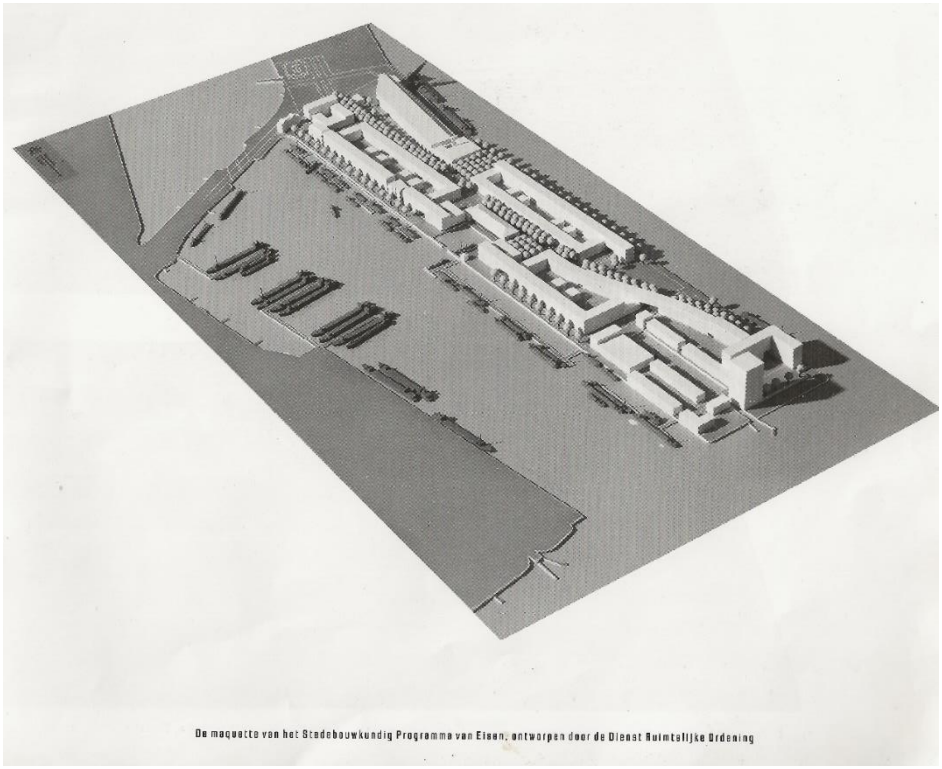


Figure 30. Urban design with program of requirements by the Spatial Planning Department (DRO) (Luiten & Spangenber, 1989).

Monuments protection

Many large existing warehouses will be demolished. Only the more refined buildings with a low building height and characteristic architectural appearance will be retained (fig. 10). The existing buildings that are incorporated into the urban design, will be renovated (Luiten & Spangenber, 1989). A few of the most important requirements of the aesthetics committee of Amsterdam were that the new buildings should have a rugged and robust urban appearance and fit in with the nautical and industrial atmosphere of the area and the original contours of historic buildings should be respected (Gemeente Amsterdam, retrieved 14 April 2022).

Why the choice was made not to retain and transform the former large warehouses is unknown. Probably, because they took up a lot of space and the typology of a large open warehouse wasn't easy to transform into a residential building. Besides this, transformation of the warehouses is a trend that has become more prevalent in the last few decades, because there is shift in appreciation towards these buildings (Molero, 2018).

Residents

As mentioned earlier, the KNSM-Island was taken over by a group of free-minded people in the eighties who wanted to preserve the characteristic dockland architecture as much as possible. When the news was out about the housing redevelopment, this resulted into a lot of resistance, proving how much they wanted to stay here (Havik, 2007). Ultimately they were given the opportunity to come up with their own plan, the so-called ''Waterkadeplan''. This plan was characterised for its open structure,

and no longer bears much resemblance to the earlier structure of the port (fig. 31) (Buurman, 2005). The design clearly refers to itself and not to the identity of the island. This design was also not in line with their earlier conservatism thoughts, perhaps the residents' own culture and the lack of traditional references played a part (Klaren & Boekraad, 1994).

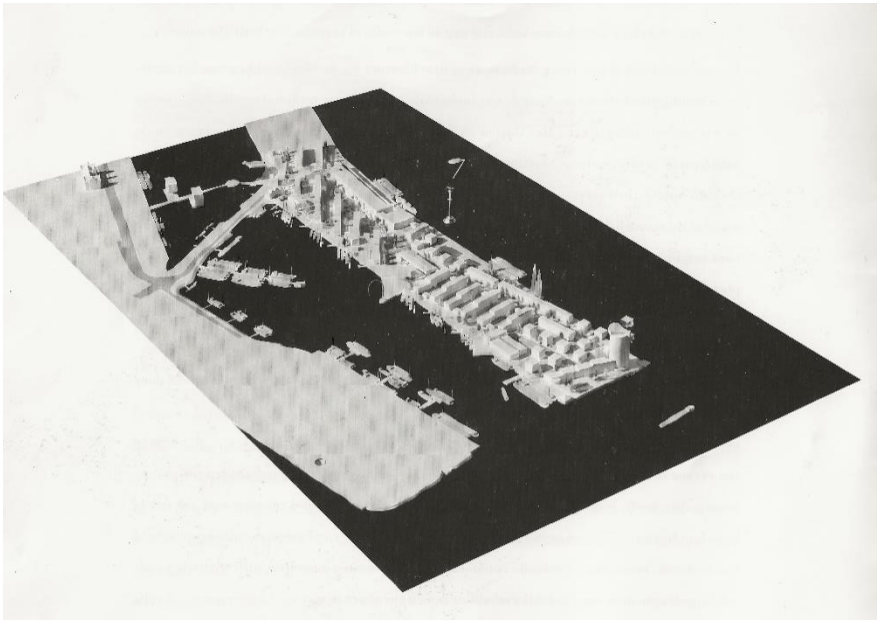


Fig. 31. Waterkadeplan ''water quay scheme'' by Arne van Herk and Sabine de Kleijn on behalf of the current residents (Luiten & Spangenber, 1989).

Urban planner

For KNSM-Island Jo Coenen was chosen to work out the scheme of the DRO. The clients and municipality proposed to engage an external architect who should develop an optimal coherence between structure, space and buildings, i.e. urban design and architecture relating to the difference between cheap and expensive housing and new and existing buildings. Besides that, Coenen introduces a new point of view: a timeless quality in the main structure. Coenen applied basic principles in his design, where it is visible he looked at the existing urban structure.

He maintains the central axis in the middle, formed by the existing buildings. He introduces another axis in the perpendicular direction of the middle. The strict and systematic grid was partly determined by the buildings spread over the island, drawing upon the monumental character of the KNSM-Island. Besides this he applies a set of principles that are not directly related to the former port structure, like planned landmarks and asymmetry in block thicknesses according to the orientation (fig. 32, 33) (Klaren & Boekraad, 1994).

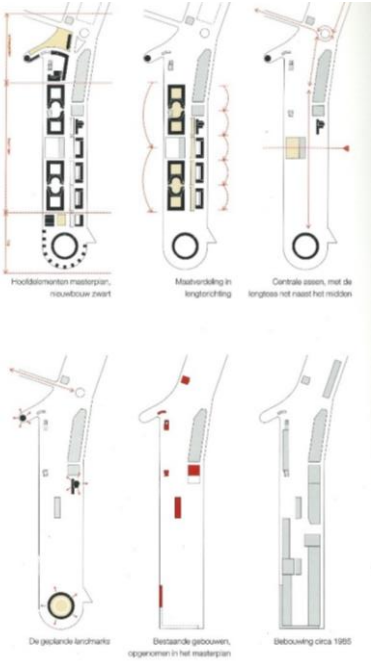


Fig. 32. Concepts for the KNSM-island by Jo Coenen (De Haan, Barbieri & Brinkman, 2004).

The two new closed building blocks on the south quay are both of considerable size. The scale is similar to the former warehouses, measuring 170 by 60 metres, six storeys high. The alteration in silhouettes by old and new buildings and open and closed spaces give the south quay a lively character. This is enhanced even more by the boats moored along the jetties (fig. 34).

When zooming into the block that later will be Piraeus a few things are noticeable. In the middle, the block is interrupted by two half circles of 8 storeys high. The design has been adapted to incorporate the existing canteen building block into the design and creating public spaces around the existing buildings on either side (fig. 33, 35) (Luiten & Spangenber, 1989).

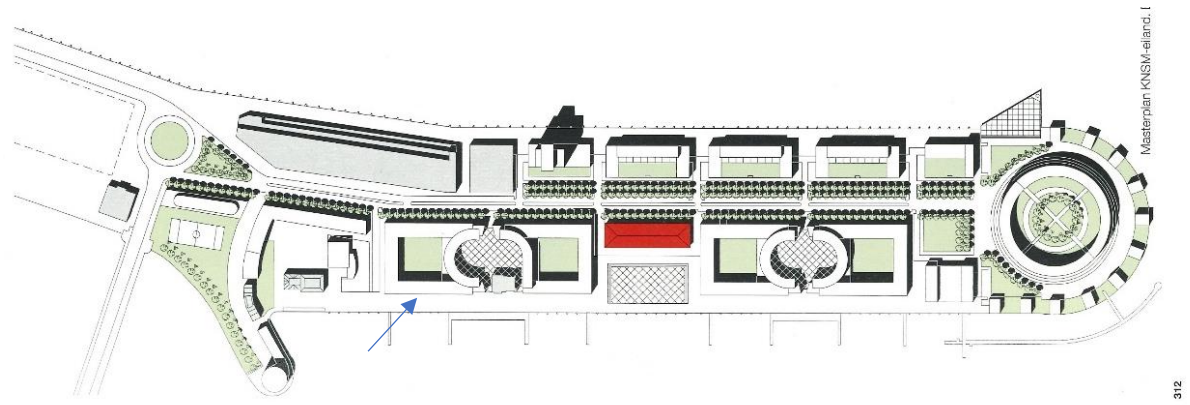


Fig. 33. Masterplan KNSM-island by Jo Coenen, with the outline for the future Piraeus (blue arrow) (De Haan, Barbieri & Brinkman, 2004).

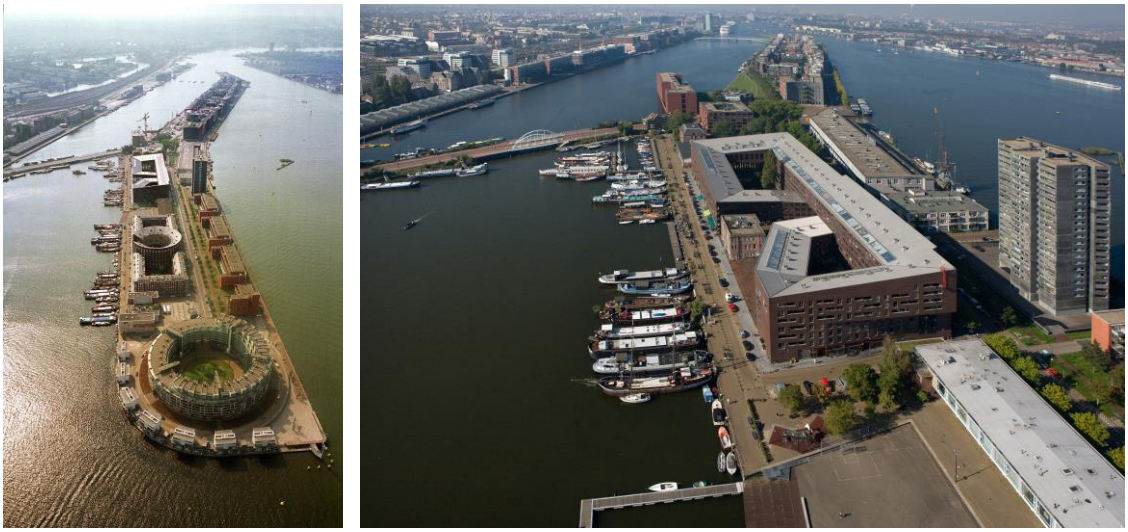


Fig. 34 & 35. The KNSM-Island after it was completed (De Freerk, 2000; Stadsarchief Amsterdam, retrieved April 2, 2022) and the KNSM-Island with Piraeus in 2011 (Stadsarchief Amsterdam, retrieved April 2, 2022).

2.2 Redevelopment of Krøyers Plads

Krøyers Plads was already designated by the municipality as a residential area in the eighties. The different actors involved in the project were the municipality, local organisations, politicians, residents, committees concerning monuments protection, clients and architects. When the project got started in 2004, it was the face of an architectural and political battlefield for more than a decade. Local

organisations and politicians have rejected five architectural proposals for various reasons (fig. 38, 28, appendix) (Cobe, 2016).

Residents, organizations and politicians

In 2004 the municipality decided to redevelop the harbour of Krøyers Plads into a mixed-use area, with housing and public functions. They approved the design of Dutch architect Erick van Egeraat, which included six new buildings that would almost be 2,5 times taller than the neighbouring warehouses (fig. 36). Politicians, local organizations and residents were protesting against this project from the beginning. With their conservative view, this group feared that the twelve storey high buildings (55m) would overshadow the characteristic and rare low-rise city centre of Copenhagen, consisting of five-storey high buildings dating from the 18th-19th century. The historic skyline, including low-rise alternated by churches, spires and domes, would change permanently, and lose its identity with the commercial buildings forming a new landmark (fig. 37).

Another argument against high-rise was the increase of traffic and wind, blocking of views and light at the existing buildings. Besides this, the prestige project represents ''a kind of staged neighbourhood for the wealthier'' (Pløger, 2010). Lastly, the complaint was made that the Danish people would be influenced too much by The Netherlands with their high-rise ideas. In The Netherlands the density is much higher than in Denmark, so it's not necessary to build this high. The action group decided to make a 1:1 impression on the site of Van Egeraat's design, because there were not a lot of visualisations at the time, giving a good representation of height. They did this through a crane lifting the project with a banner saying 'NO' (fig. 38, top left). (Pløger, 2010). Their influence on the redevelopment was large, because they made it possible to dismiss multiple design projects. It's clear from the reaction and provocation that in this case the new building projects should be decided democratically, because the citizens can make or break a project (Christianshavns Lokalråd, 2004).

Figure 36 & 37. The design on Krøyers Plads of the winning Dutch architect, Erick van Egeraat in 2004 which will be dismissed later (Welin, retrieved April 2, 2022). The new plan in the current skyline of Copenhagen (Københavns Kommune, 2004).

Fig. 38. Danish headlines of newspaper articles complaining about the different projects with high-rise buildings on Krøyers Plads (Cobe, retrieved April 2, 2022).

Monuments protection

The Cultural heritage board, the highest authority in the management of Danish cultural heritage, also objected to the first design for Krøyers Plads by van Egeraat. The board complains about the height of the buildings, believing that 55 metres will break with the characteristic profile of the city centre. The main structures on Krøyers Plads concerning building height and outline of the blocks must be the guiding principle. The board didn't object to the architectural value and concept of the project: ''The buildings are influenced by the traditional pitch roofed buildings, creating a strong contextual reference to their vicinity'' (van Egeraat; quoted in Larsen et al. 2005). Overall, this means that the municipality couldn't implement the local plan at Krøyers Plads until an agreement was reached with the board (Welin, 2004).

Municipality and architects

The municipality has the job of drawing up a local plan, before any project can be carried out. A local plan is a detailed plan that determines what can happen in an area and defines rules on use, road conditions, scale, location and design and conservation of buildings. The architect's project is in close

cooperation with the municipality and will also be presented in the plan. Finally, the local plan will be published to inform all parties (Københavns Kommune, 2004). When the local plan for Christianshavn with the project of Van Egeraat was rejected, other architects stepped forward to design the new buildings on Krøyers Plads, but none of them succeeded with their designs. Ultimately, this long process of discussions and investments, led to bankruptcy by the real estate developer and the project had to be placed on hold until 2010, when the municipality decided to start from scratch (Københavns Kommune, 2012).

The old local plan was replaced by a new one consisting of an expanded and changed program of requirements determining different spatial characteristics of the buildings and its context. First, the buildings should be mixed-used, with residential, commercial and public services in order to stimulate urban exchange and life in this area (Pløger, 2010). Secondly, the architecture needs to be of a high quality when considering the existing maritime environment. For this criterion it's important that the architect looks at the height (limit of 28m), shape and material of the existing warehouses. Thirdly, the question of density must not be overlooked. The build percentage for the whole area of Krøyers Plads must stay below 150%, because the existing buildings have to be considered. This will be made possible by building in varying densities depending on location and relationship to the context of the plots, creating a variation in compactness and openness. fourth, bringing in the element of water for recreational purposes (fig. 40). Lastly, the project needs to be developed in conversation with the existing community (Københavns Kommune, 2012).

Finally, Cobe's and Vilhelm Lauritzen Architects' design was approved in 2011 by the different stakeholders. The architectural offices ultimately served both as urban planners and architects of Krøyers Plads to make the buildings belong to the site on a urban and building scale. This design was, according to them, based on a hyper-democratic and contextual approach where the narrative of the port is placed central. Krøyers Plads, consisting of three residential buildings, is a reinvention of the existing industrial warehouses adjacent to the buildings, and therefore blends into the environment (fig. 39, 41) (Cobe, 2016).

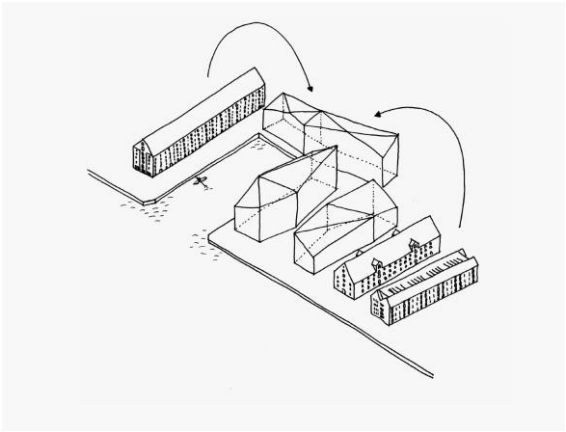
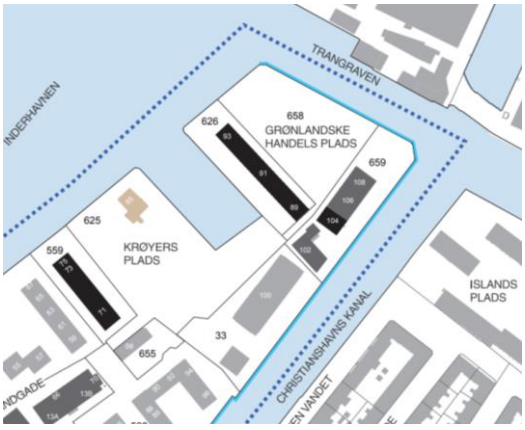


Fig. 39. The adaptation of former warehouses into the new design of Krøyers Plads (Cobe, retrieved April 2, 2022).



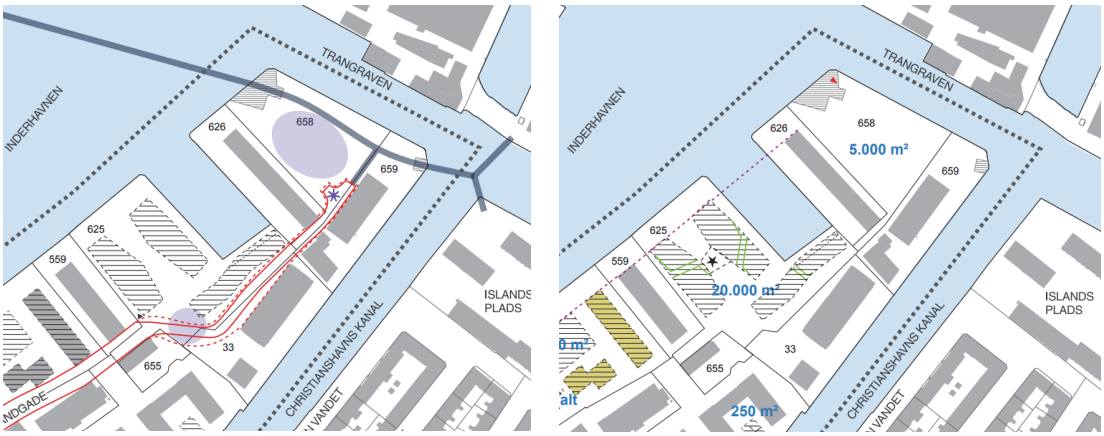


Fig. 40. The new plans for Krøyers Plads and surroundings on an urban scale level (København Kommune, 2012).

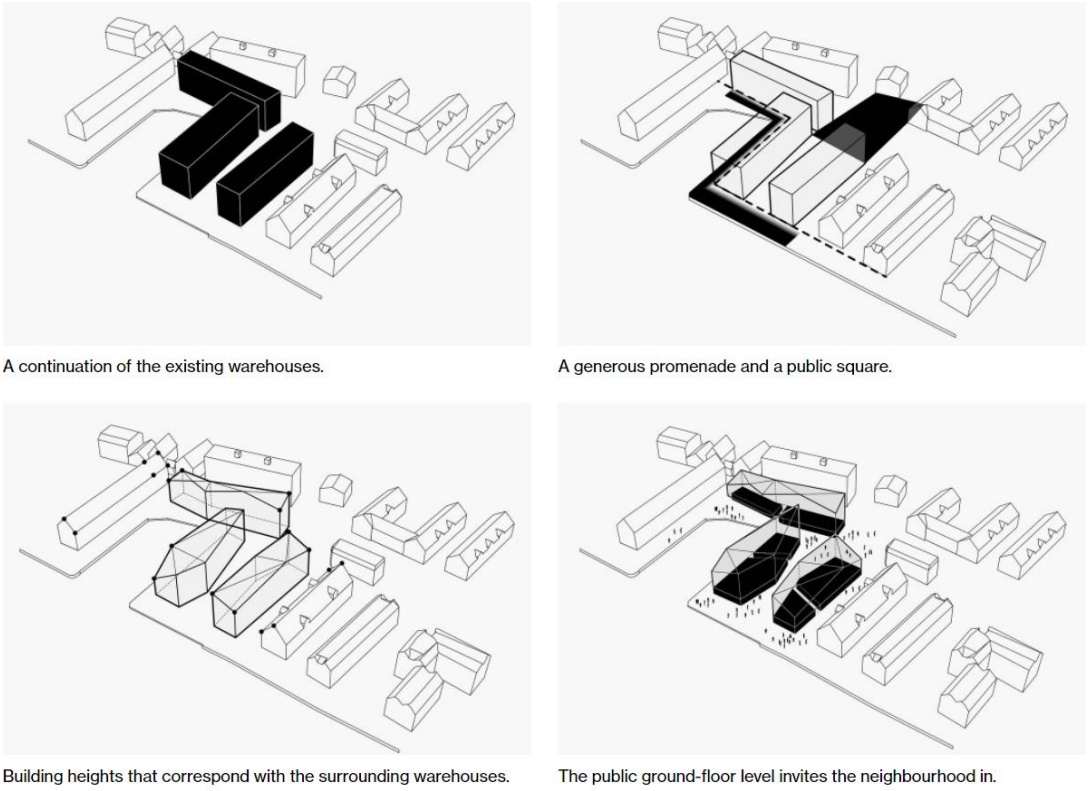


Fig. 41. The applied principles for the new design of Krøyers Plads by the architects (Cobe, retrieved April 2, 2022).

Conclusion

In the conclusion of the second chapter the level of involvement from the different stakeholders on the debate about urban transformations of the KNSM-Island and Krøyers Plads will be discussed and compared. To what extent have they considered previous values and attributes from the former harbour function in their ideas and how large has their contribution been?

When considering the role of the municipality in Amsterdam, it's safe to state that they were pulling a lot of strings with redevelopment of the port. Even though local residents were protesting heavily, the municipality still got their plan through. However, this was partly the residents' own fault, as their plan no longer resembled the former port structure.

The DRO started working out the program of requirements from the municipality and added to it. One could argue that they have possibly been pulling the largest strings, since they came up with the initial design for the KNSM-Island. Before urban-architect Jo Coenen started working on the DRO scheme a lot of concepts were already thought-out. In the DRO scheme a few things stand out related to the past structure: retaining of existing buildings determining the position and form of new buildings and urban spaces, positioning of elongated blocks parallel to the quayside, three axes (two along the quays and one in the middle), a lower building height of five to eight stories, and water as an important element of recreation and views. Coenen added to these points to make an optimal coherence between structure, space and buildings, interweaving existing and new buildings. By introducing a timeless quality in the main structure he draws upon the monumental character of the KNSM- Island. Through the new buildings he builds on the grid of the retained buildings, with the new blocks having a large and monumental size similar to the former warehouses (Piraeus).

The municipality of Copenhagen worked closely with urban designers and architects on the new plan for Krøyers Plan. They failed to involve the opinion of the local community in their decisions, which escalated into a long and tiring process of discussions and debates, which was much more tumultuous than KNSM-Island. This proves that the citizens of Copenhagen can exert a great deal of influence on architectural designs. Their reasons and intentions were coming from past heritage values, namely that the height would not destroy the existing historic skyline. The buildings should be in line with the existing architecture fitting into the urban profile. This opinion was also shared by the monument protection committee, whom compared to Amsterdam exerted a lot of influence on the protection of monuments. The monument committee placed the project on hold.

The architects and municipality ultimately came to an understanding with the local community about the design after 6 years. In the final local plan every stakeholder envisioned that the architecture needs to be of high quality considering the existing maritime narrative. This should include the height, shape and material of the existing warehouses, but also the urban structures of the port. To let the existing buildings not be overshadowed, it's important that the building density stays low as well. Finally, Cobe came up with three building units representing a reinvention of the adjacent warehouses, to blend in with the environment.

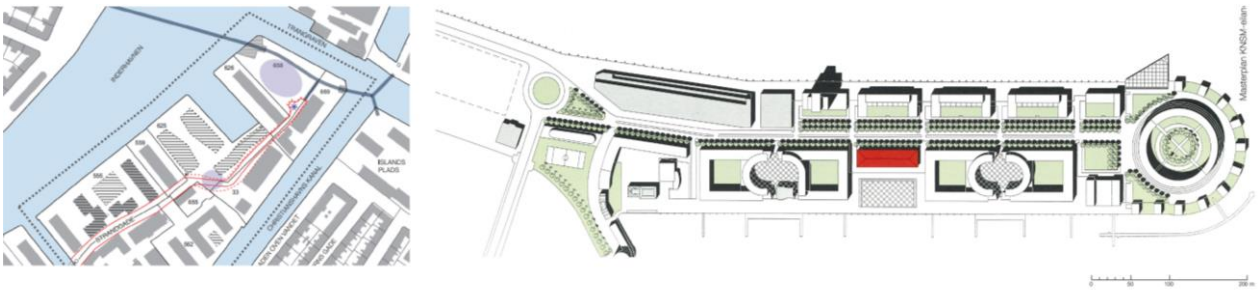


Fig. 42. Comparison of the masterplans of the two harbours, 1:10000

Chapter 3 – Piraeus and Krøyers Plads, from masterplan to buildings

Introduction

This chapter focuses on the following question: *How are the heritage values of the masterplan translated into the architecture of two different housing projects Piraeus in Amsterdam and Krøyers Plads in Copenhagen?* Do these solutions tell something about the way how the different cities cope with the transformation of former port areas and to what extent they involve different heritage values into the designs?

To answer this question, five aspects for both projects will be analysed: the relationship of the ground floor plan with its direct context; the shape of the building blocks; the layout of the facades; the materialisation of the exterior and the layout of a typical apartment. These aspects are dealt with one by one, comparing the two projects at each point. this is substantiated by the architect's opinion.

3.1 Relationship with the direct context

How do the buildings fit into the existing surroundings and what connections are made with the historical layers making the buildings belong to the site?

Piraeus

Coenen had made a formal and distinct urban scheme filled with monumental building blocks, avenues and squares. The giant sculptural block Piraeus from German architect Hans Kollhoff is one of them. Through its special shape the building opens up to its surroundings in a variety of ways, each having a different character. For instance the public square, the two parts of the building and the existing building that was already there enclose on the ground floor level (fig. 53). Besides this, the ''two parts'' each have their own more private courtyards, adjacent to a public square. On the west side this private square opens up to the garden from Mies Ruys. On the east side the inner courtyard is closed up to the adjacent public square (fig. 47-48, 51) (Klaren & Boekraad, 1994).

The central public square in the middle of the block forms a walkthrough from the middle axis, KNSM-laan, to the south quay (fig. 43). It was the architects intention to create a vibrant area at ground level on the south side, filled with shops, commercial spaces, bars and restaurant (Buurman, 2005). The building is placed parallel to the quay, creating a strong corridor between the building and the water reminding of the former axis that used to be here (fig. 52). Besides this, there are no strong references made to the direct surroundings reflecting on historical layers.

Krøyers Plads

Christianshavn waterfront is defined and shaped by a series of perpendicularly placed warehouses, each with very characteristic gables with a common architectural language. Two of the three new buildings on Krøyers Plads by Cobe are placed in the same direction and ensure that the buildings belong to the site. Between the end of the basin and the street Strandgade, the third building is placed in the other direction. Because the building is based on the same typology, the visual connection makes this variation possible. The outer gables create an enclosed route around the basin, placing the focus on the water and harbour. The activities around the waterside and the public plinth in the buildings

are drawing up the attention to this side as well, maybe even reminding the people of the historic maritime environment (fig. 50, 55).

For Krøyers Plads the architects intended to create urban spaces with each a different character: the avenue, the square, the garden, the promenade and harbour pier (fig. 49) (DETAIL, 2018). The green avenue on the east side of the middle building leads to the street that has always been the most important street of the area: Strandgade. Next to that, the design is described as light and airy at street level with a good balance between open and closed spaces. The open spaces and passages in the project will create a slightly labyrinthine environment, which characterises Christianshavn (fig. 54) (Københavns Kommune, 2012).

For both we can state that the buildings are interweaving with the past urban structure through their footprints and placement. With Krøyers Plads this is strongly accentuated through the rectangular building blocks, shaped in the same size and direction as the existing warehouses. The building Piraeus is aligned the same way as the former warehouse and are accentuating the continuation of the axis on the south quay. The shape of the building itself is broken down and divided into smaller pieces, making it impossible to think of the past warehouses from the inner courtyards. Both building projects have introduced an active plinth with public functions near the waterside, actively drawing attention to this side. It's not sure if it could be explained as a reminiscence of past activities.

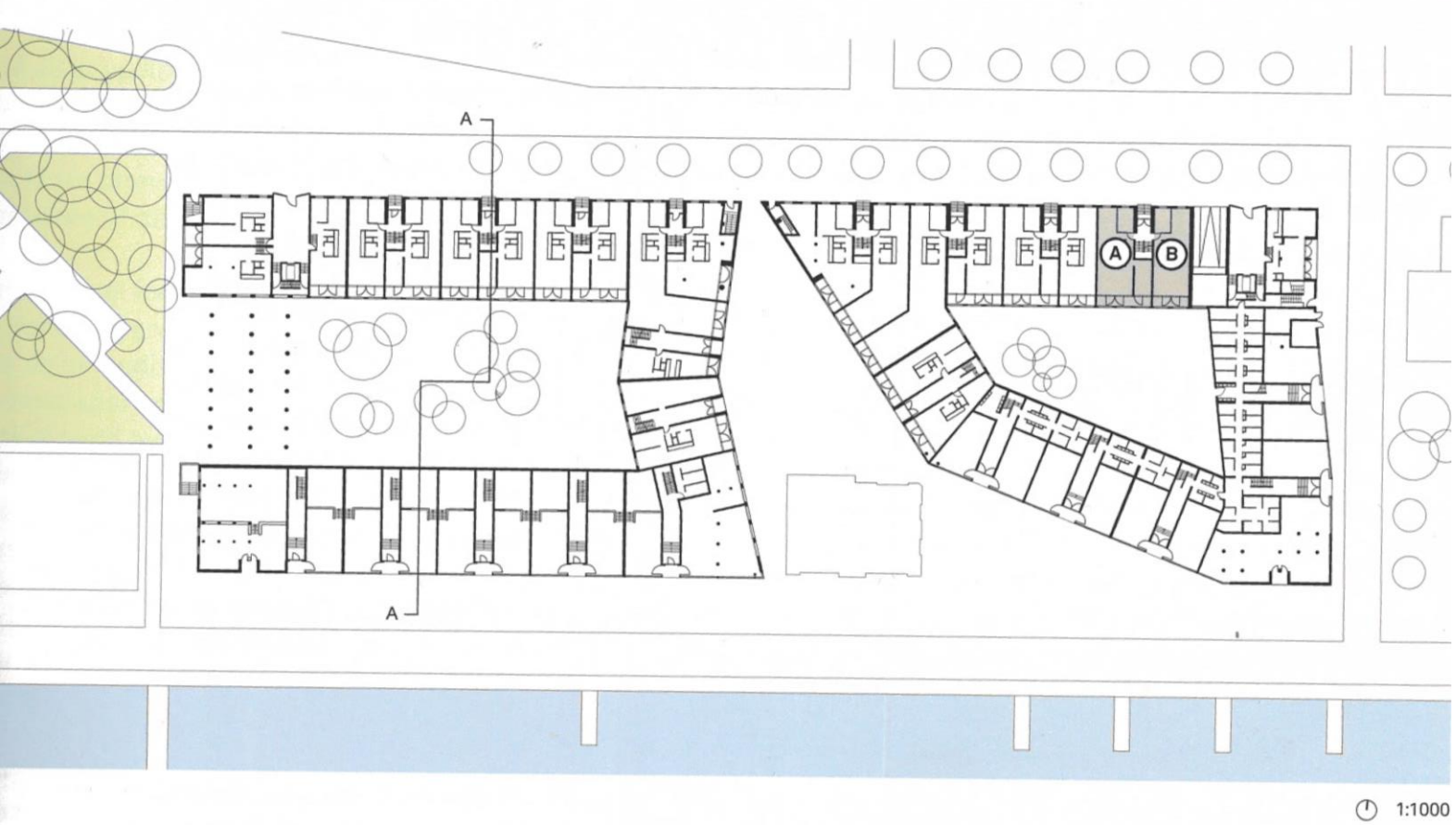


Figure 43. The ground floor plan of Piraeus with context (Levitt, McCafferty, 2018).

Figure 44. The ground floor plan of Krøyers Plads with context (Vilhelm Lauritzen Arkitekter, 2016).

Figure 45. Top, Section of Piraeus, 1:1000 (Levitt, McCafferty, 2018).

Figure 46. Bottom, Section of Krøyers Plads with context, 1:1000 (Vilhelm Lauritzen Arkitekter, 2016).

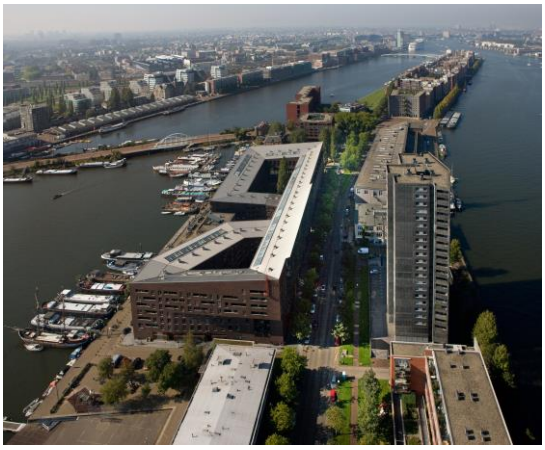



Figure 47, 48. Bird′s eye view of Piraeus as seen from the westside, 2011 (Stadsarchief Amsterdam, retrieved April 22, 2022).

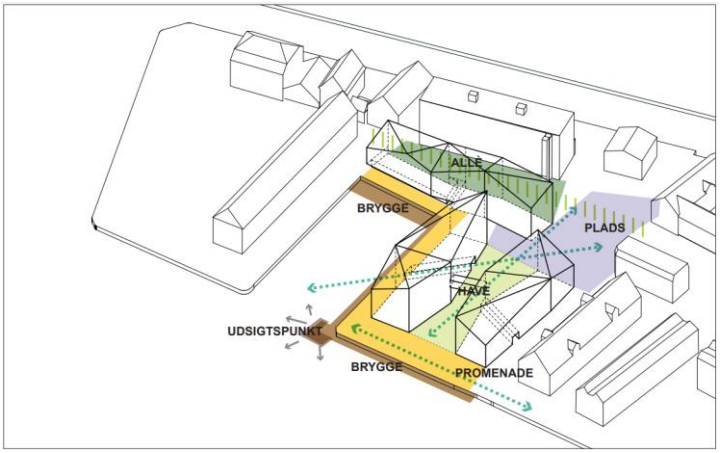


Fig. 49. Bird's eye view of the six urban spaces (København Kommune, 2012).

Fig. 50. The new building blocks at Krøyers Plads (Cobe, retrieved April 22, 2022).

Figure 51. Piraeus seen from the eastern square and the water docks 2008 (Stadsarchief Amsterdam, retrieved April 22, 2022).

Figure 52. The southern quayside with Piraeus on the left (Google Maps, retrieved 22 April, 2022).

Figure 53. The central square in the middle of the Piraeus building as seen from the existing building (Kollhoff Architekten, retrieved April 22, 2022).

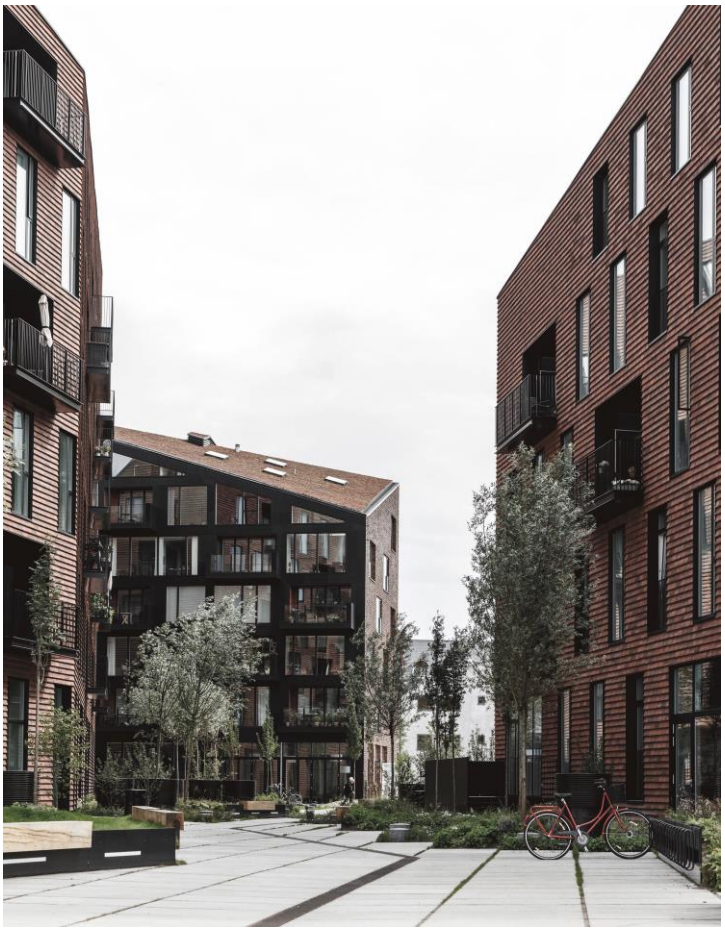


Fig. 54. The community garden between the two building blocks (Cobe, retrieved April 22, 2022).

Fig. 55. The basin with new docks at Krøyers Plads (Cobe, retrieved April 22, 2022).

3.2 Shape

The shape is determined by the three dimensions of the blocks and the shape of the roofs.

Piraeus

The islands of the Eastern harbour district served as a lab for architectural experiments in 1990′s. (Havik, 2007) It′s therefore not strange that the choice had been made for a foreign German architect, named Hans Kollhoff, to design the Piraeus building. When Kollhoff was chosen to make the design for Piraeus, he immediately questioned the urban planning preconditions and argued for a free interpretation of the closed building block (Kollhoff architekten, retrieved 23 April, 2022).

The building unit is angled in plan and section, opening up towards the surroundings in a variety of ways. This is done to improve the views from the northern part of block to the water and increase the daylight in the courtyard and homes. According to authors Klaren and Boekraad, Kollhoff focuses on the fragment of the building and its location. The morphology of the existing city is created by different circumstances, like the direction of the wind, the view on the water, the orientation of the sun and the active public spaces. But it seems like he does not actively draw a relationship to the past with his form (Klaren & Boekraad, 1994). Only the size of the block reminds of the former giant warehouses that used to stand here. Besides this, the shape Kollhoff made is the building height to be sloped towards the existing building in the middle, making it a focal point (fig. 56).

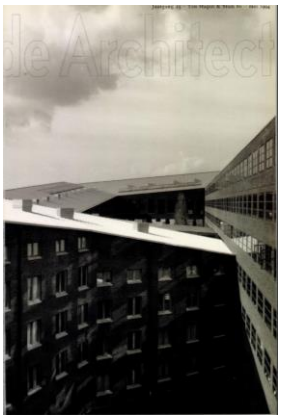
Krøyers Plads

The buildings are a bit wider and higher in some places than the existing neighbouring warehouses, allowing the new residential function to have enough space inside. The height of the buildings is adapted to the height of the surrounding buildings. Towards the street Strandgade, one roof rises and marks the end of Strandgade. The buildings are a maximum of 28 m at their highest point, blending in with adjacent warehouses and other buildings of Christianshavn. ‘’Krøyers Plads has surrendered to the modest roofscape of the city with its beautiful old towers.’’ (fig. 58, 60) (Cobe, retrieved 22 April, 2022).

Instead of traditional pitched roofs the architects created roofscapes, acting as a fifth façade in the gable. The roofs will be sculptural in form and at the same time they will resemble the large roofs of several warehouses along the harbour (Københavns Kommune, 2012). The roofs are made up of individual triangular surfaces with sloping eaves lines letting in sun, light and creating views (Detail, 2018) (fig. 59, 61). With this a contemporary and playful impression of the traditional typology has been achieved.

For the buildings at Krøyers Plads it′s clear that the main form of the buildings are derived from the former warehouses adjacent. Nevertheless they altered the roof determined by the environmental conditions, giving a contemporary feel to the design, because the steady form and placement of the warehouse typology didn′t allow space for much flexibility. One could argue that Kollhoff also had to deal with a lower rate of flexibility and therefore shaped the buildings this way according to its environment. The shape, however, doesn′t remind to the past warehouses.

Figure 56. Piraeus seen from the south side with the existing building in the middle (Kollhoff Architekten, retrieved April 22, 2022).



Figures 57 and 68 (right). The sloped elongated façade on the south and the cantilevering façade on the east. (Kollhoff Architekten, retrieved April 22, 2022; Ten Hagen & Stam bv, 1994).

Figure 58. The Skyline of the waterfront of Christianshavn with Krøyers Plads. (Ceramic Architectures, retrieved April 22, 2022).

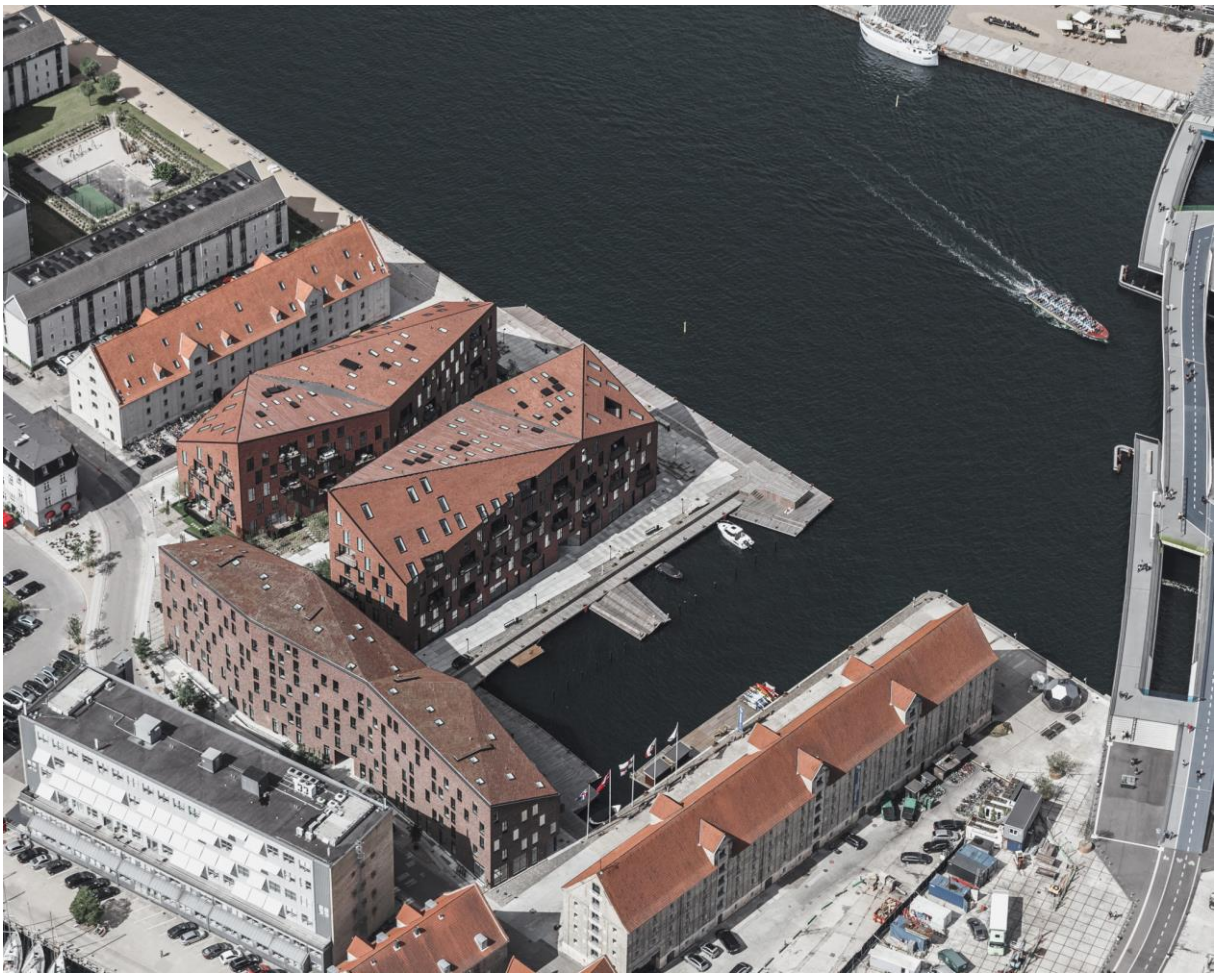


Figure 59. Aerial view of the three buildings blocks and existing warehouses at Krøyers Plads (Vilhelm Lauritzen Arkitekter, 2016).

Fig. 60. The new roof with the same height as the neighbouring buildings (Cobe, retrieved April 22, 2022).

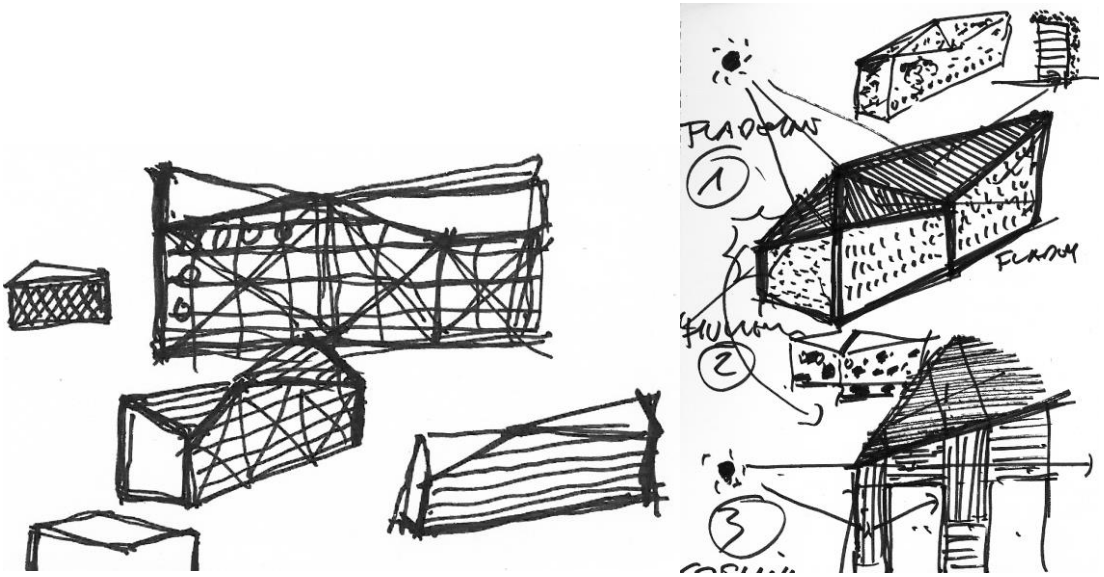


Figure 61. Sketches on the shape of the buildings for Krøyers Plads (Vilhelm Lauritzen Arkitekter, 2016).

3.3 Facades

For this analysis the outer facades and not the inner facades will be discussed, because they express the building characteristics to the environment. The most typical façades will be chosen to analyse, being the south of Piraeus and the north of the middle building from Krøyers Plads.

Piraeus

On approaching the KNSM-Island, one sees a colourful collection of buildings of different sizes and styles. One of the two striking buildings is Piraeus, which doesn't seem to refer to any known style or typology.

The south façade, with the roof acting as a fifth façade, is the most sculptural one of the building. Due to the consistent application of brick imported from Germany, the restrained use of materials and a sober uniform detailing, diversity in the facades has been subordinated to the monolithic, sculptural character of the building volume (Klaren & Boekraad, 1994). The new façade doesn't tell much about the historic preconditions, but seems to be a free interpretation of the architect, giving Piraeus a timeless and monumental character (fig. 56).

Krøyers Plads

The new buildings on Krøyers Plads implemented several typological features of the warehouse in the façade, being the repetition of the windows, the sober architectural aesthetics, and the adoption of dimensions and proportions of the former warehouses, regarding the roof, torso and base. The differences with the former warehouse are the larger windows, the large openings at the base and the sculptured roof with skylights.

The architecture of the three new buildings is a modern interpretation of the historic warehouses that characterise the Krøyers Plads area, but the project is at the same time aware of its location and therefore a contemporary infill of the past (Kobenhavn Kommune, 2010). Piraeus, on the other hand, is an autonomous work of art that is open to many interpretations and therefore dangerous to make assumptions about what the building represents.

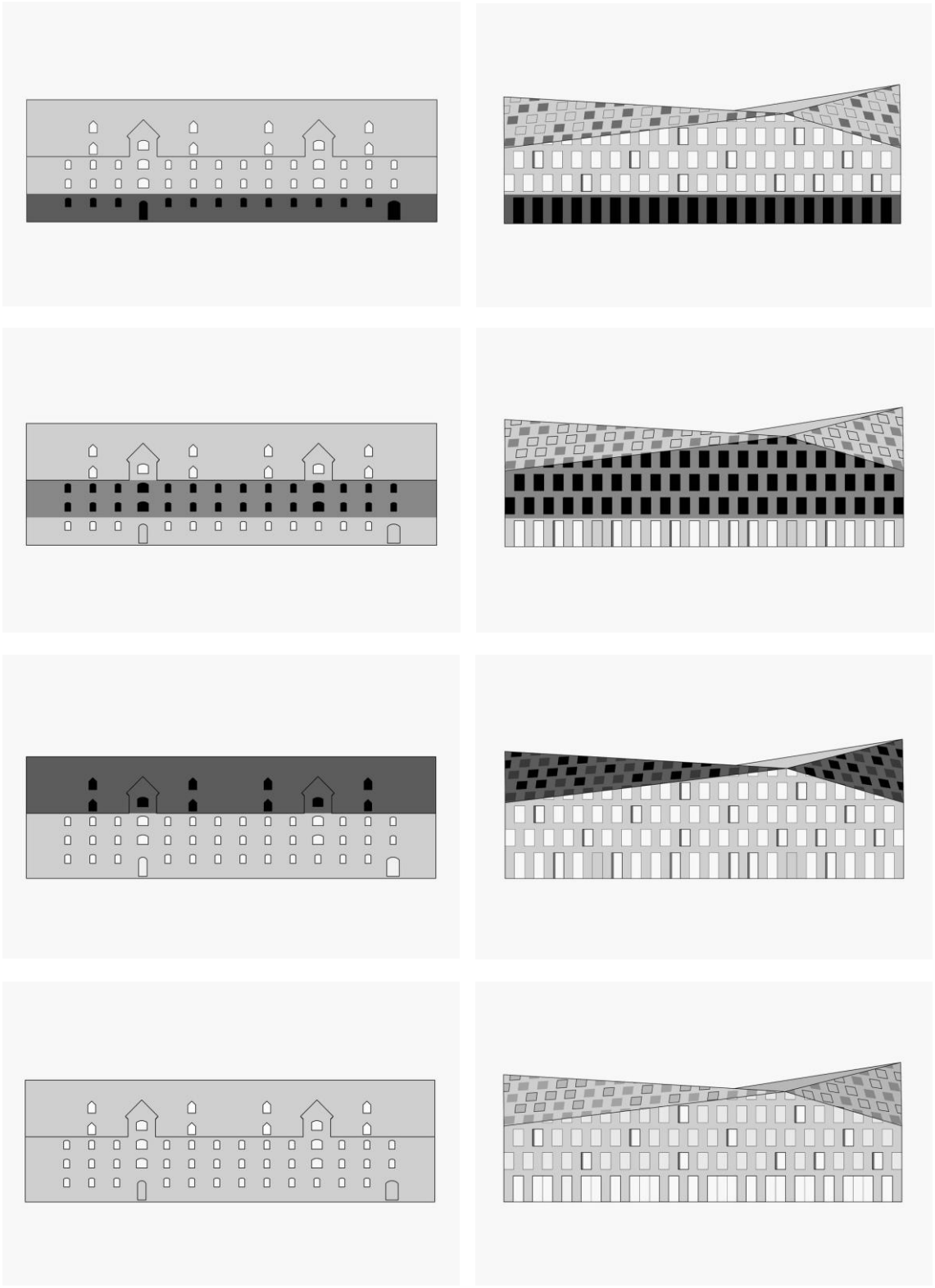


Fig. 62. The different parts of a façade constructed from the traditional warehouse: 1. Base, 2. Torso, 3. Roof, 4. Final composition (Cobe, retrieved April 22, 2022).

3.4 Materialisation

For the analysis of the materialisation, the materials applied covering a large surface of the facades and roofs have been chosen. These materials are the most representational to the outside environment and define the characteristics of the buildings.

Piraeus

For Piraeus, Kollhoff imported a North-German type of brick, i.e. hard fired speckled blue engineering brick (fig. 63). These bricks are found in the ports of Hamburg and Bremen. The KNSM harbour inspired Kollhoff to choose it. By covering the whole building with brickwork, the material unites the building through complex forms, making it a timeless piece, as if it has always been there (Lootsma, 1994).

The roof is covered with aluminium. The interrupted edge emphasises the self-contained quality of the block. These natural materials and the careful craftsmanship gives this alien mega form a more familiar face (fig. 56) (Kollhoff Architekten, retrieved 22 April, 2022).

Krøyers Plads

The Krøyers Plads façade takes its inspiration from the red tile materiality on the roofs of the old warehouses in the area (Cobe, retrieved 22 April, 2022). The two buildings perpendicular to the canal, were given a clay tile cladding (fig. 64). On the third building at the end of the basin the facades consist of bricks that are turned so that the ''frogs'' or indentations are faced outwards to reinterpret the historic brickwork (Detail, 2018).

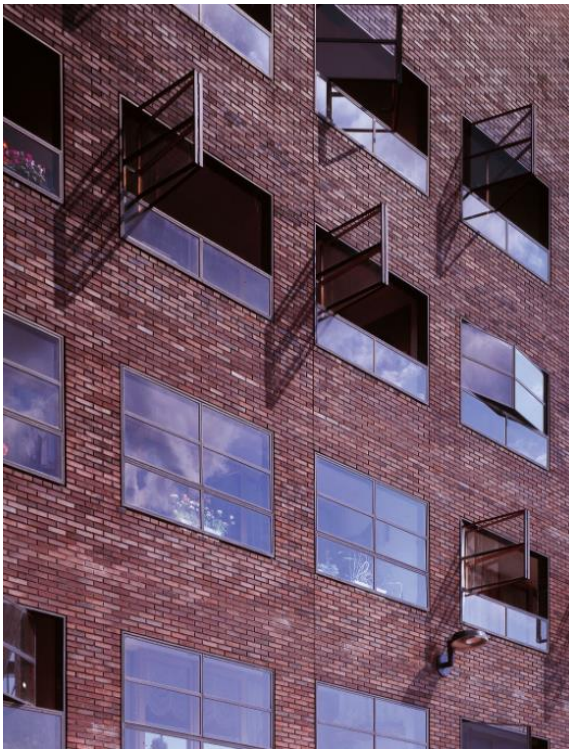


Figure 63. Masonry. (Kollhoff Architekten, retrieved April 22, 2022).

Fig. 64. The existing roof material compared to the new façade material, applied on the two buildings blocks facing the main canal (Cobe, retrieved April 22, 2022).

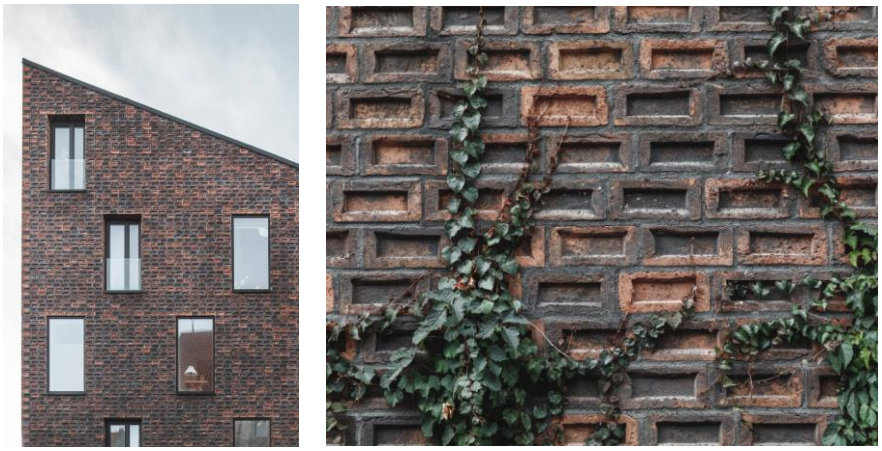


Fig. 65. Other brick material used for the perpendicular positioned building block (Cobe, retrieved April 22, 2022).

3.5 Floor plan

For this part a typical floor plan will be analysed, to see if the ideas of the architect about the historical layers are visualized.

Piraeus

Even though the plan encompasses 145 different types of flats, a basic type can still be distinguished. The large amount of variations is due to the irregular shape of the building's footprint and the roof, causing minor differences in forms of height and shapes of the floor plans. The basic type is a three/four-room flat of 14.9 m long and 5.6 m wide, deep by Dutch standards. A large part of the flats are placed aligning the main axes of the island.

An essential characteristic of the basic type is the way in which the outdoor space is interpreted as part of the home. Designed as a conservatory, the outdoor space has become less of a balcony and more of an extension of the living room. The conservatory is designed to offer shelter from the wind

and can be opened to create an indoor balcony. The standard four-room flats have an average surface area of 85 m2. The freely placed wet core with a fixed program for riser, sanitary and kitchen occupies the middle part of the house (Klaren & Boekraad, 1994; Lootsma, 1994). Besides the view to the former harbours on the south and the IJ on the north, the floorplan itself doesn't tell much about the former function, for the enclosed building block is very different than the former warehouses.

Krøyers Plads

A total of 107 apartments with individual layouts are distributed among the three buildings divided over the upper levels (Herrmann, Hofmeister, Schoof, 2021). The flats are positioned as expected, following the traditional long and straight form of the building block, making the width of one house narrow (fig. 44).

The large 5-room maisonette is situated in the building block at the end of the basin. The small openings of a traditional warehouse are abandoned, to provide the spaces enough light and views. Also the introduction of a balcony reminds us that this is a residential building. The sloped roof allows the rooms to be higher with skylights providing enough sun (Danish Design Review, 2016). The core is also filled with a fixed sanitary facility and riser program, keeping the gable ends free for the functions where people live. This also results from the traditional shape of warehouse.

Figures 66 and 67: Floorplans of maisonettes, (top) 4-room flat in Piraeus and (bottom) 5-room flat in Krøyers Plads, 1:200 scaled down (Klaren & Boekraad, 1994; Ceramic Architectures, retrieved April 22, 2022).

Conclusion

This study sought to answer the question what the driving force is behind the referencing of past architecture and former functions in new buildings, especially the architecture of residential buildings referencing the former port identity of areas that are transformed. But is that always the case? The main question of this research is therefore: *What are the similarities and differences in the architectural approach of contemporary housing projects in the former port areas of Copenhagen and Amsterdam?* By answering this question this research has been conducted into three parts analysing two case studies situated in transformed and regenerated harbour areas, i.e. Piraeus on KNSM-Island and Krøyers Plads on Christianshavn.

The first sub question of this research provides an overview on the historical developments of the ports causing this urban structure and leading to its identity. The results of this analysis showed that the KNSM-Island has purely been constructed out of practical reasons, from first being a breakwater developing into a port, implementing the concept of genius loci. The placement of this island and its elongated shape made the transportation easier. The roads, main axes and positioning of the warehouses facilitated these flows of transport.

Considering the origin of Krøyers Plads, the structure evolved differently, for a fixed urban plan was made for this area with pieces of land that could be purchased by wealthy merchants. The land next to the main canal the warehouses were all placed in the same direction perpendicular to the quayside, also allowing easy transportation. This pragmatic structure derived from its function and its environmental conditions, is present in both ports. When they both lost its original function around the seventies, they structure with its buildings remained but were not very well maintained.

The second sub question continued the redevelopment of the harbour area into a residential area. For this, it was most interesting to analyse how the former port identity was weighed in the debate between the stakeholders and how large their contribution was in keeping the values and attributes. For the KNSM-Island, the municipality and Spatial Planning Department (DRO) pulled the largest strings, since they set up the program of requirements and made the first design scheme for the island, which turned out to be the guide principle for the redesign. A lot of warehouses, train tracks, cranes and other attributes were being demolished or removed to make room for the new residential developments, which was accepted by the monuments committee. The DRO did consider the former structure of the port, which was shaped by the few buildings that were being retained. These are the three axes interweaving the new building blocks in the same direction as the existing buildings parallel to the quayside. The buildings are worked out by Coenen and through their size and placement they have a monumental but timeless character. Besides this the building height has been reduced to medium-high to keep the original scale of the island.

In contrast to the case of Amsterdam, the residents in Copenhagen had the upper hand when it came to making decisions of the redesign. When the municipality, together with the architect came up with a plan for Krøyers Plads, they protested heavily against this redevelopment plan. The surrounding buildings and the existing low skyline shaped through spires were not considered in this design of high-rise buildings. This opinion was also shared by the monuments committee, but agreed with the shape of the buildings, because they were referring to the traditional pitched roof from the warehouses. After a while, a new plan was made, which considered the existing warehouses and urban structures of Krøyers Plads.

So it's possible to state that the people of Copenhagen were more committed to preserve the existing heritage values than in Amsterdam. For KNSM-Island this is done in a more subtle way through the axes and the placement of the buildings. The main difference is also that the redevelopment of Copenhagen took place in the historic old city centre with a low skyline and an older port, while the KNSM-Island, surrounded by water, is more isolated from the rest of the city centre connected by only one bridge. Besides this, the redevelopments also took place in different times and cities, each having their own ideals. It would also be interesting to research how this has affected their decision making for the redevelopments.

When zooming in on the buildings themselves, the third and last question tried to answer how the heritage values of the final master plan were translated into the architecture of the building blocks Piraeus and Krøyers Plads. Considering the relationship with the context, it is possible to state that both projects are interwoven in the existing urban structure through the footprint and placement of the buildings. The buildings are interacting with the quays in the same manner as the original warehouses, only now having recreational function instead of shipping. The other public spaces are not referring to its former function but are oriented towards the new residential function.

The shape of the Piraeus block is not referencing the former warehouse, only through height and width. The shapes of the building blocks from Krøyers Plads on the other hand are a modern interpretation of the former warehouses, through dimension, proportion and the adaptation of the base, torso and roof. Only the roof is shaped through various forms adjusted to the environmental conditions the buildings have to deal with, which also goes for the Piraeus building. Lastly, the floor plan comes naturally from the traditional warehouse shape Krøyers Plads have, resulting the flats to be oriented on two sides. The flats of Piraeus have this same characteristic, but through the courtyard shape the deep warehouse typology isn't recognizable anymore. One could argue that it is, since the products moved from one side to the other.

Overall, we can conclude that the reference to the former port identity is stronger and more explicit within the case of Krøyers Plads, which is mainly due to the passionate Danish people, while the remains of the port identity on the KNSM-Island are more subtle. Also the fact that this port is older than the KNSM-Island might be one of the reasons why Krøyers Plads was valued so much as it did.

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Appendix

Figure 2. Timeline KNSM Island

1876
Construction North Sea Canal

Approx. 1880
Marshland Rietlanden, harbour activities in the city centre.

1870
1880

1890
Construction Central Station > Closing of old harbour front, because it was getting too small. A 1400 meters long breakwater parallel to the trades warf was made, to protect it from the violent natural conditions (Heijdra, 1993).

1890
1900

the new breakwater, raised from dredge of north sea canal, 1886 (Stadsarchief Amsterdam 2022).

1910
Ship warves are settling on the new island: the SMN (Stoomvaart Maatschappij Nederland) on the western part and KNSM (Koninklijke Nederlandse Stoomboot-Maatschappij) on the eastern part in 1903 (Heijdra, 1993).

1910
1920

The house flag of the KNSM. The flag, which is dark blue with a crown in the middle, is visible in multiple port cities that are connected to the company, like the Greek Piraeus (the same as the case study as reminder of the KNSM. (Heijdra, 1993).

1920's-30's
The most flourishing period of the shipping companies was from the twenties until the fourties. At one point the company occupied the whole north and south quay, the Surinamekade and Leventkade, consecutively. These street names are still recognizable in the current situation of the KNSM island (Buurman, 2005).

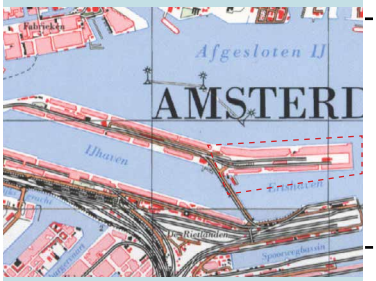
1930
1940

Approx 1920's (Stadsarchief Amsterdam 2022)

1950's
No more trading with the Indies due to de-colonisation (Koster, 1995).

1950
1960

1960-70's
Increase in the scale of industry > Most port activities shifted westwards, eastern harbour district gradually became redundant (Buurman, 2005).



(Topotijdreis, 2022) 1:50.000

1970
1980

1978
City council earmarked it as an potential site for new housing developments (Buurman 2005)

An alternative structure on the KNSM island inhabited by city nomads, The Last Bus Shelter (Bogaerts, 1989).

1980's
Squatters, artists and city nomads took over the area and lived in the former port buildings and their own homes, giving the island a new impulse (Koster, 1995)

1990

Figure 3. Timeline Krøyers Plads

1600
The area is a marshland

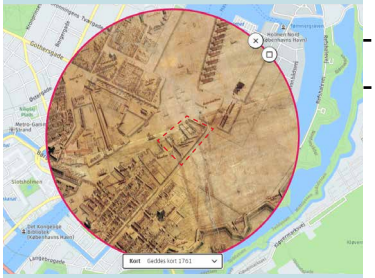
1617
Construction of Christianshavn (Harbour) intented for Dutch immigrants, but later became a shippers town, and ended up as an ordinary merchants' and craftmen's town.

Andreas Bjørn painted shortly before his death by A. Briinniche, approx. 1750 (Hovedstadshistorie.dk, n.d., viewed 13 april, 2022)

18th century
Expansion of the districht with trading centres and industries: flourishing period

1735
Merchant Andreas Bjørn filled the area at tge northern end of the street Strandgade with peninsulas, later named Nordatlantiske Brygge, Krøyer's Plads and Wilders Plads (Kulturministeriet, Slots- og Kulturstyrelsen, 2016).

1747
Bjørn and Admiral Suhm founded the Det almindelige Handelskompagni (General Trading Company) which mainly traded with Faroe Islands, Iceland, Finnmark and later Greenland (Kulturministeriet, Slots- og Kulturstyrelsen, 2016).

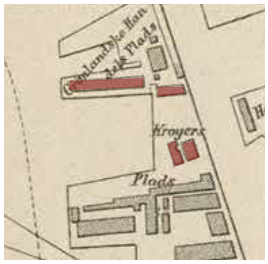


(historiskatlas.dk, 2022) 1:50.000

The shipping warf and wood business in Bjørnsholm by Andreas Bjørn, 18th century, (hovedstadshistorie.dk, n.d., viewed 13 april, 2022)

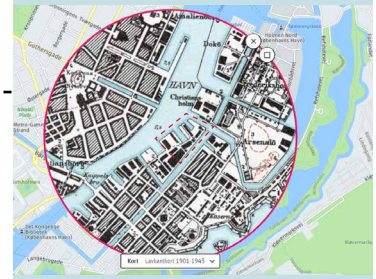
1774-1908
Danish hub: the trade was taken over by the Kgl. Grønlandske Handel, until 1908 (Royal Greenland Trading department) (Nordatlantents.dk, retrieved 3 april 2022)

Former Bjørnsholm, later called Grønlandske Handels Plads, 1810 by N. J. Bredal (Det KGL. Bibliotek, n.d., viewed april 13, 2022)

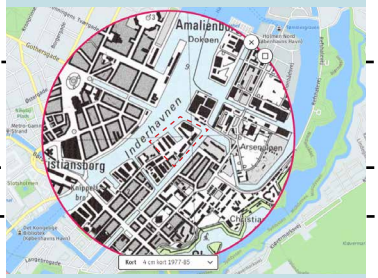


Krøyers Plads, 1934 (Det KGL. Bibliotek, n.d., viewed april 13, 2022)

1762-1806
Warehouses built on Kroyers Plads (Kulturministeriet, Slots- og Kulturstyrelsen, 2016.)



1938
Krøyers Plads was reacquired by Royal Greenland in 1938 (Kulturstyrelsen, retrieved 3 april 2022)



1950's-60's
Company's heyday with a lot of trade

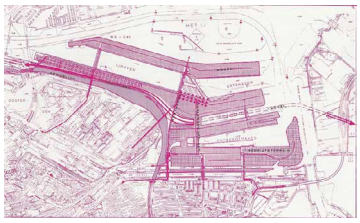
1970's
Company moved to another city: Ålborg.

1980's
Initiatives for redeveloping and transformoring the waterfront area and protecting the warehouses.

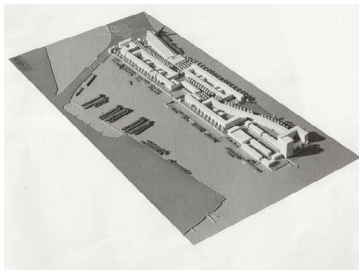
2001
Area was turned into a cultural and food venue: outdoor beach cafe and location tv show broadcasting

1600
1700
1740
1780
1820
1860
1900
1940
1980
2020

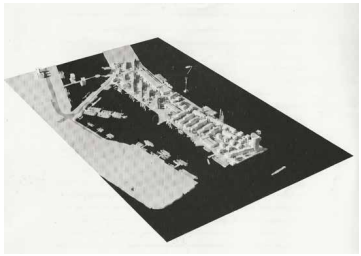
Figure 27. Timeline developments KNSM-Island



Structure plan Eastern Docklands (Luiten & Spangenber, 1989).



DRO plan (Luiten & Spangenber, 1989).



“Waterkadeplan” (Luiten & Spangenber, 1989).

Masterplan by Jo Coenen (De Haan, Barbieri & Brinkman, 2004)

Start with construction (Amsterdam Archief, viewed at april 4 2022)

KNSM-Island finished (Amsterdam Archief, viewed at april 4 2022)

1975-78
Designated as a residential area by the municipality in first memorandum

1985
Structure plan for the Eastern Docklands by the municipality

1987
The planning for the KNSM-Island started, with the plan of the DRO

1980-90’s
Resistance against the plans of redevelopment by the local residents who came to live here in the eighties.

Approx. 1987
“Waterkadeplan” by Arne van Herk and Sabine de Kleijn on behalf of the current residents.

1988
Second memorandum of the municipality, specif starting points where established.

1988
Plan of Spatial Planning Department was approved by the city council and the client (housing association).

1988
The clients propose that an external architect or urban/spatial planner should engage in the urban design. The choice for Jo Coenen was quickly made.

1988
Final design for the KNSM-Island by Jo Coenen

1993
Start with construction

1996
Completion of the construction for the KNSM-Island

(Luiten & Spangenber, 1989),
(De Haan, Barbieri & Brinkman, 2004)

Figure 28. Timeline developments Krøyers Plads

Outdoor beach bar (Bjørndal & Formsgaard, 2010)

1998
The newly formed state housing company Freja Ejendomme takes over Krøyers Plads. The plan is to transform the former commercial area into an attractive residential and service area.

Juli 2001
The beach bar Luftkastellet occupies the old warehouses on Krøyers Plads with 117 tonnes of sand imported from Råbjerg Mile and a casual atmosphere. The lease is temporary as the area is to be developed into housing.

The proposed housing development designed by the Dutch architectural firm Eric van Egeraat associated architects as seen from the Kvæst-husbroen (Bjørndal & Formsgaard, 2010)

February 2003
Five architectural firms are invited to a competition for Krøyers Plads. Dutch architect Erick van Egeraat wins with his proposal for six buildings up to 55 metres high, designed as a modern interpretation of Christianshavn's historic towers.

Spring 2004
The property company NCC buys Krøyers Plads from Freja Ejendomme with a view to building the Egeraats project.

2004
Erick van Egeraat's project launches a series of public protests with debates, petitions, demonstrations and the creation of the group Copenhageners against Misplaced High-Rise Buildings. Especially the locals are against the building of high-rise buildings on Krøyers Plads.

The protests against the first plan (Bjørndal & Formsgaard, 2010)

March 2005
The City Council votes down the Egeraat project. A number of politicians state that their decision is due to the popular opposition.

June 2005
NCC joins forces with Danish star architects BIG, Henning Larsen Architects and Kim Utzon Architects to develop a new plan for Krøyers Plads.

August 2005
NCC sells Krøyers Plads to one of the world's largest private equity funds, The Carlyle Group. However, NCC continues as advisor on the project.

(Bjørndal & Formsgaard, 2010)

May 2006
The Danish architectural community presents a trio consisting of one building from each studio.

Autumn 2006
The city's recently replaced politicians are not amused by the trio's proposal, and it never makes it further in the process. At the same time, the city's new mayor for technology and the environment, Klaus Bondam, has a soft spot for Egeraat's old project, which he is bringing up again. Carlyle, however, is putting a hold to this.

(Bjørndal & Formsgaard, 2010)

2009
After a long silence, Carlyle announces that it is in dialogue with the Municipality about developing a new, more low profile project for Krøyers Plads. The third project is thus in the making.

2010
The Krøyers Plads bankruptcy estate is being sold, and several potential buyers have already expressed their interest. So far, however, the site remains vacant.

The realised project by Cobe and Vilhelm Lauritzen Architects (Vilhelm Lauritzen Architects, 2016)

October 2011
New local plan proposed by the municipality in coorporation with two architectural offices: Cobe and Vilhelm Lauriten Architects. Which is agreed with by everyone.

2016
Realised

(Bjørndal & Formsgaard, 2010)