THE ROTTERDAM HARBOUR POLICE STATION

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VACANT HERITAGE | POLICE REAL ESTATE

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ACKNOWLEDGEMENT

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0. INTRODUCTION

CONTENT OF THIS BOOKLET

This booklet is part of a graduation project of the studio Heritage & Architecture as a completion of the master programme Architecture, Urbanism and Building Sciences at the University of Technology in Delft. The graduation studio consists of a project for the Dutch Police. Due to changes in the working field, a part of their real estate needs to be redeveloped (Weessies, 2017). However, these police buildings, located throughout the Netherlands, deal with unique elements such as security fences and partially closed facades. This means that they cannot simply be regarded as ordinary real estate.

Therefore, the Vacant Heritage studio focuses on a collection of ten police buildings, whose heritage values and adaptability will be discussed in order to contribute to research into a sustainable future with regard to the role of vacant heritage (Heritage & Architecture, 2021). We - Daphne and Diletta - both have chosen to focus on the Harbour Police Station at the Sint-Jobsweg 6, in Rotterdam. Therefore, the chapters of this booklet consist of the analysis that is conducted in order to define a program and to set up some guidelines. The first chapter consist of an indepth analysis of the context of the Rotterdam Harbour Police Station. The second chapter covers the topic of the building and its architecture, and last chapter ties in with the buildings' technology.

0. INTRODUCTION

INDEX

1. URBAN CONTEXT

1. URBAN CONTEXT

INTRODUCTION

The Rotterdam Harbour Police station is located in the Parkhaven, near the Maas. In this chapter the urban context will be analysed.

- Cultural historical spatial planning
- Spatial mapping
- Future developments
- Conclusions

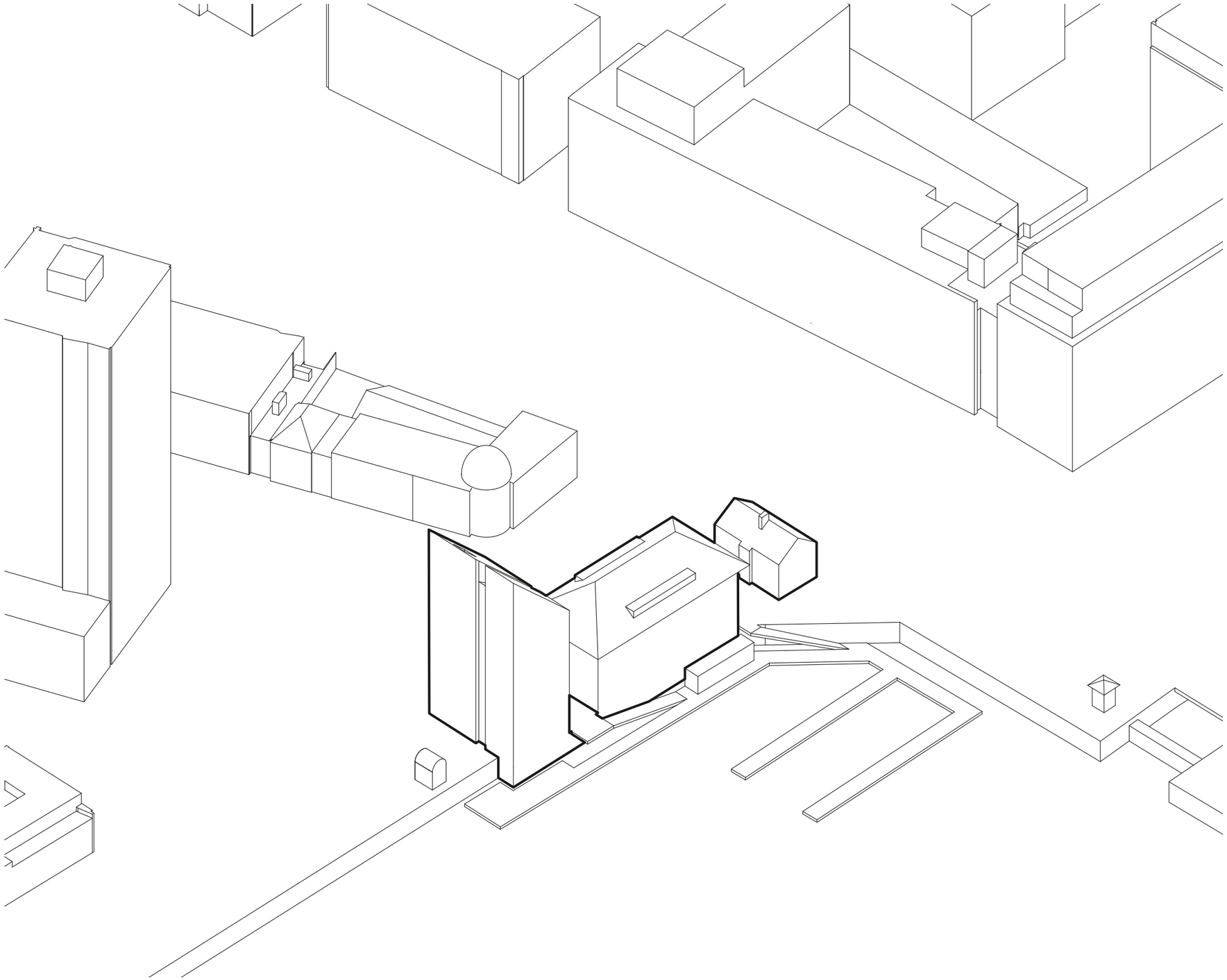


Fig. 1: Birds eye view of the Rotterdam Harbour Police Station (Zijlstra et al., 2021-2022)

1.1. CULTURAL HISTORICAL SPATIAL PLANNING

1.1. CULTURAL HISTORICAL SPATIAL PLANNING

INDEX

This subchapter will consist of the cultural historical development and the spatial planning of the site. It ties in with different scales, including the following:

- City scale
- City district
- Urban block
- Demography

CITY SCALE

DEVELOPMENT OF ROTTERDAM

Rotterdam - which naming was based on the construction of a dam on the river the Rotte - became a city in the year 1340 and was thrived on fishing. Over the years, the city developed southwards, towards the river Maas (or: Meuse), in order to improve their defenses. This resulted in the creation of the city centre triangle (Rutte & Abrahamse, 2016). In the Second World War, Rotterdam was bombed and suffered heavy losses. Despite this, in the years that followed the city and its harbour flourished again. This became evident when the city started to grow outside of the original triangular centre. Urban expansions outside this triangle started after 1850. One of these expansions included the annexation of Delfshaven, which was founded in 1389 along the canal that connects Delft to the river Maas. The harbour of Rotterdam became the largest in the world in 1962 (Volkskrant, 1962). Nowadays, the original city centre is still part of the structure. The structure of the city around the Harbour Police Station, which is located in the Lloydkwartier since 1985, is mainly dominated by the road network and the river Maas.

LEGEND

- Build environment
- Rivers and water
- Land

Fig. 2: City of Rotterdam (Zijlstra et al., 2021-2022)

DEVELOPMENT OF DELFSHAVEN

Delfshaven was founded in 1389, when the Delfshavense Schie was dug to give the city of Delft a connection with the Maas, the river which flows through Rotterdam. Now he ships were able to reach the Nieuwe Maas from Delft via the Delftse and Delfshavense Schie. The harbour town 'Delfshaven' arose around the lock. The old Historic Delfshaven, the working-class neighborhood Spangen and the quiet Oud-Mathenesse provide a lot of variety in this district (Historisch Delfshaven Rotterdam, n.d.). The history of the district can be summarized on the basis of the following events:

1489: During the Jonker Fransenoorlog (rebellion in Holland against the rule of emperor Maximilian), Delfshaven is almost entirely destroyed and all Delft ships captured or destroyed (Historisch Delfshaven Rotterdam, n.d.).

1550: Growth of Delfshaven into a prosperous town with about a thousand inhabitants thanks to herring fishing and whaling (Canon van Nederlands, n.d.).

1554: A stately building is built on the east side of the Aelbrechtskolk where city servants handle port affairs (Plaatsen Gids, n.d.).

1572: Invasion of the Geuzen (confederacy of Calvinist Dutch nobles), followed by a reconquest from the Spaniards, during which many buildings (most of them were made of wood) are destroyed (Plaatsen Gids, n.d.).

1577: Piet Hein is born in Delfshaven. He later became known for the conquest of the so-called Spanish treasure fleet in 1628 (Plaatsen Gids, n.d.).

1620: The Pilgrim Fathers are briefly accommodated in the Sint Anthonis Capel, from where they start the crossing to America (Canon van Nederlands, n.d.).

1653: Construction of the Kraanhuis with 'Zokkendragershuisje' (Plaatsen Gids, n.d.).

1795: Delfshaven declares itself an independent municipality. Start of independence from Delft (Canon van Nederlands, n.d.).

1825: Delfshaven receives city rights. The building on the Aelbrechtskolk (road in Delfshaven) will be the town hall of the municipality of Delfshaven. Today the building serves as a café and brewery De Pelgrim (Plaatsen Gids, n.d.).

1886: Delfshaven is united with Rotterdam. The new municipality will be named Rotterdam (Canon van Nederlands, n.d.).

1920: Construction of the *Witte Dorp* (Plaatsen gids, n.d.).

1930: Construction of the Oud-Mathenesse district (Plaatsen Gids, n.d.).

1940: The bombing that reduced the center of Rotterdam to ashes, leaves Delfshaven undisturbed (Plaatsen Gids, n.d.).

1943: On March 31, the Allies want to bomb the Keilehaven or a railway yard, but something goes wrong with the navigation. Dozens of firebombs hit Marconiplein and the houses around Schiedamseweg. There are 326 dead and more than 400 injured (Plaatsen Gids, n.d.).

1960: Historic Delfshaven is declared a protected cityscape (Plaatsen Gids, n.d.).

1993: On March 31, fifty years after the 'forgotten bombing', Prime Minister Ruud Lubbers unveils a monument in memory of the injured and dead.

2013: The Slavery Monument is unveiled to commemorate Rotterdam's slavery past, where the merchandise traded in the Lloydkwartier was obtained by selling slaves in Suriname and the Netherlands Antilles (Plaatsen Gids, n.d.).

Fig. 3a: Delfshaven 1815 (Kadaster, n.d.)

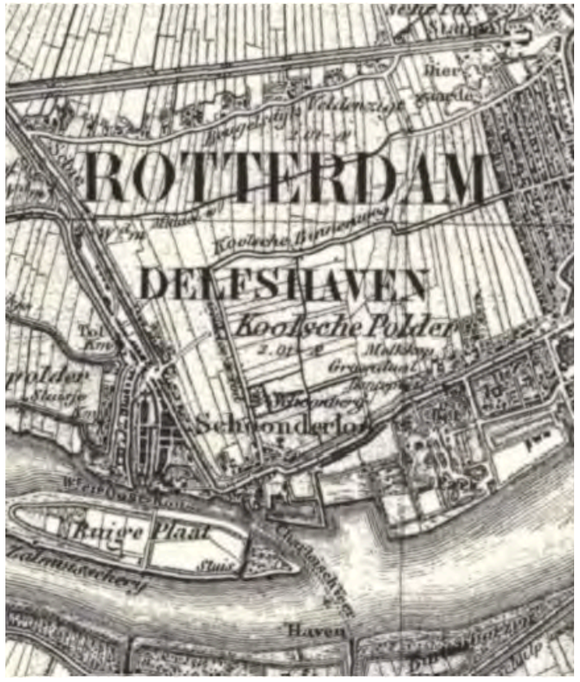


Fig. 3b: Delfshaven 1850 (Kadaster, n.d.)

Fig. 3c: Delfshaven 1914 (Kadaster, n.d.)

Fig. 3d: Delfshaven 1950 (Kadaster, n.d.)

DEVELOPMENT OF THE QUAY

The Harbour Police Station is located in the neighbourhood Schiemond, bordering the Parkhaven. The lay-out of this harbour has been changed many times. However, in this urban area, the first harbour activities took place between 1850-1911 as shown in figure 4a and 4b (Kadaster, n.d.). In 1911 the (former called) River Police moved into their own residence on a floating pontoon in the Parkhaven (Kramer, 2014). In 1933 they got a new office on the quay at the Sint Jobsweg 6 (Manneke, 1995).

During the Second World War, Rotterdam was bombed and the center of Rotterdam suffered heavy losses, while the district Delfshaven was left untouched. In the years that followed, the harbour flourished and the River Police extended. After a while, also the office at Sint Jobsweg became too small and in 1994 a new building, next to the existing one, was put into use (Manneke, 1995), which is visualised in figure 74. From 2000 onwards the name of the River Police changed into the Harbour Police.

LEGEND

- River Police
- Rivers and water
- Land

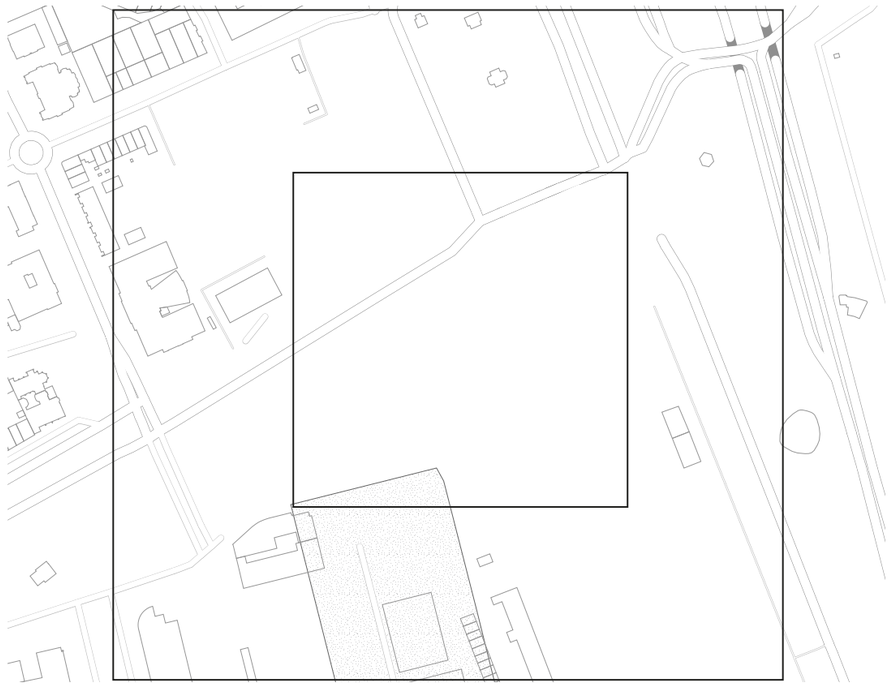


Fig. 4a: Parkhaven 1850 (Zijlstra et al., 2021-2022)

Fig. 4b: Parkhaven 1911 (Zijlstra et al., 2021-2022)

Fig. 4c: Parkhaven 1940 (Zijlstra et al., 2021-2022)

Fig. 4d: Parkhaven 1994 (Zijlstra et al., 2021-2022)

1.2. SPATIAL MAPPING

1.2. SPATIAL MAPPING

INDEX

This subchapter will consist of historical development and cultural political infiuences. The most important -as well as the most vivid- characteristics will be highlighted in maps and graphs.

- Nolli map (public space)
- Functions
- Building ages
- Building heights
- Infrastructure
- Sun and wind conditions
- Greenery and water
- Monumental buildings
- Street profiles
- Soil condition
- Building block characteristics
- Demography

CITY DISTRICT

1:2000

NOLLI MAP

The Nolli map shown on the right represents the open public spaces in the Delfshaven district. As the map shows, the area disposes of large open areas (in white). Interestingly, within the northern area the majority of the open spaces are private courtyards. These do increase the amount of open space in the area although are not publicly accessible. On the contrary, the Southern area, Schiemond, features large open spaces that are publicly accessible.

LEGEND

- Harbour River Police
- Building
- Water

Fig. 5: Map of the openess and closeness around the Harbour Police Station

CITY DISTRICT

1:2000

AXES

The map shown on the right shows the axes present in the Delsfhaven. When looking at the map it is striking how the Northern part appears to have more structured axes compared to the Southern area. In fact, the Müllerpier (of which on the North the Harbour Police station is located) seems not to have a clear structure or raster due to the crooked axes present. This does not apply as much for the Llyodkwartier which is located South-West. Here the axes are more straight and the area appears to have a clear structure.

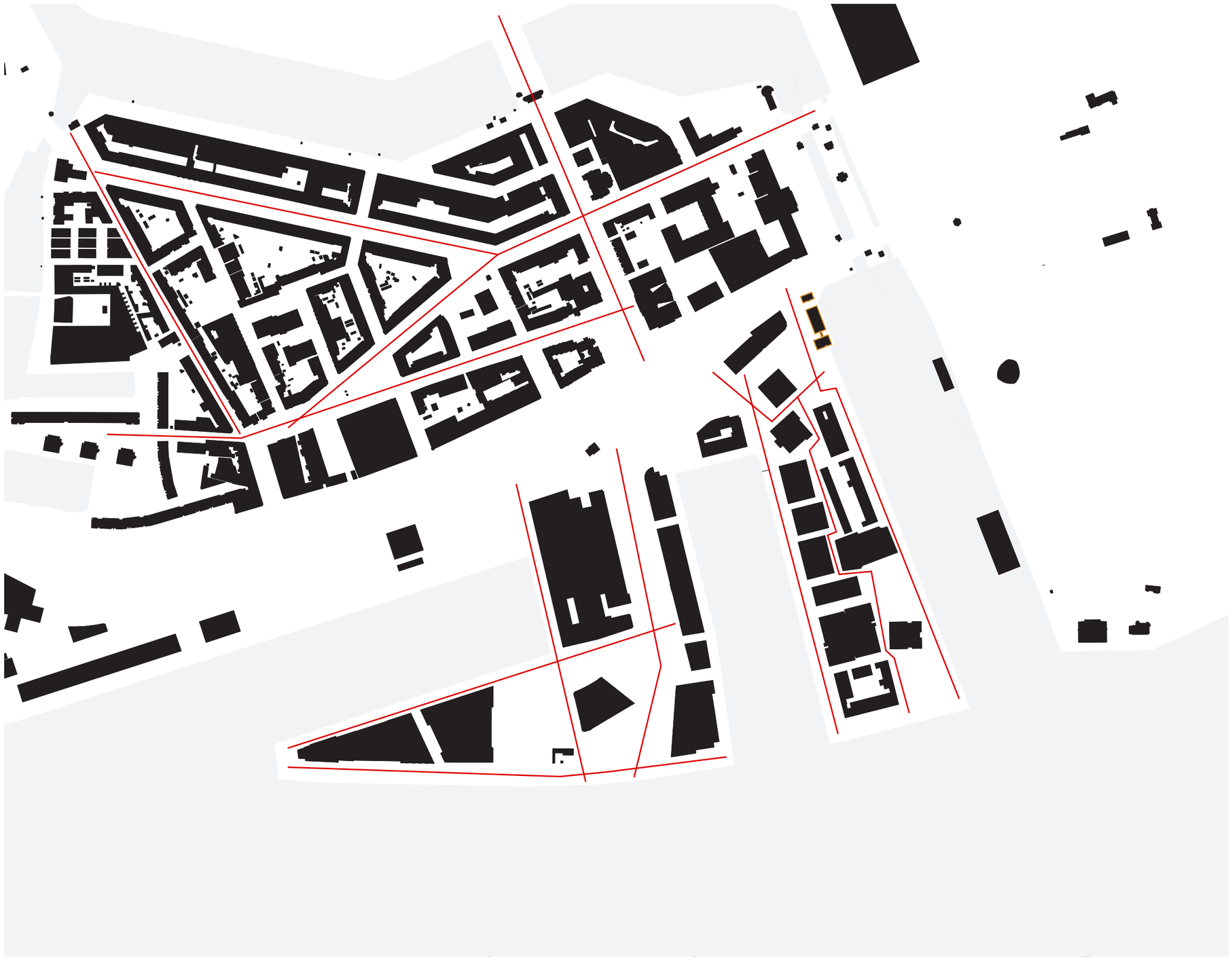


Fig. 6: Map of the axis around the Harbour Police Station

CITY DISTRICT

1:2000

FUNCTION OF BUILDINGS

The map on the right shows that the Delfshaven district presents a majority of residential buildings and building blocks. Many of these present a different function on the ground floor, while having residential functions on the upper floors. Also, in the area a remarkable number of educational buildings is present.

In the Schiemond area, where the Harbour Police building is located, the majority of the buildings are residential except for the buildings in the vicinity of the Harbour Police building. These, have educational, art & culture, residential, office, and healthcare functions.

In short, the Müllerpier consist of mainly residential buildings. Only the entrance area, including the building of the Rotterdam Harbour Police, represent a mixed-use area.

LEGEND

- Residential
- Art & Culture
- Religious
- Office
- Healthcare
- Education
- Store
- CHR (Cafe, Hotel, Restaurant)
- Sport facility
- Industrial

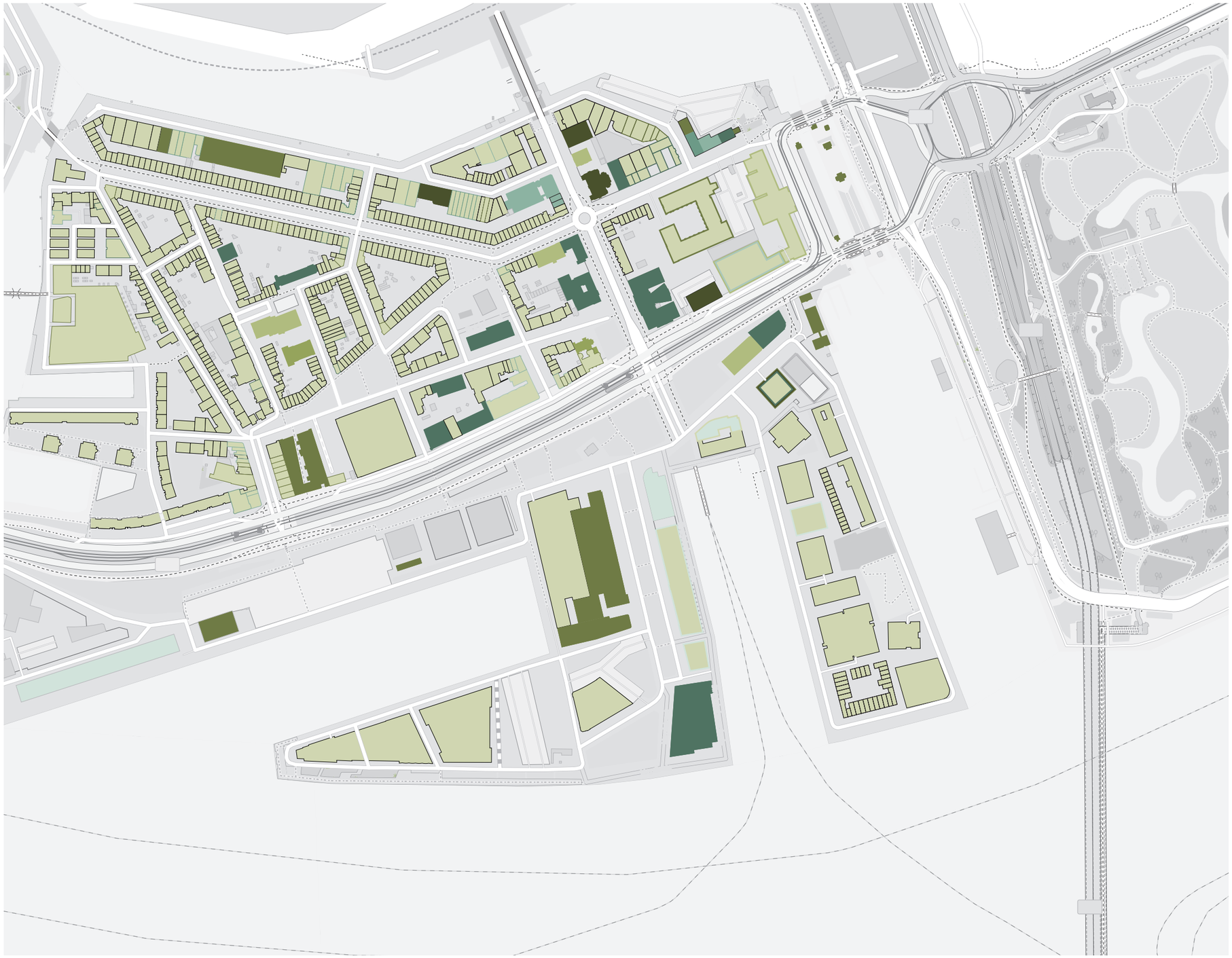


Fig. 7: Map of the building's funcions around the Harbour Police Station

CITY DISTRICT

1:2000

AGE OF BUILDINGS

The buildings present in the Delfshaven district were built in different time periods as the variety of colors in the map shows. The majority of these were built in the time peiod between 1896 and 1930. In the years after WWII, a small number of new buildings were built. However, the transformation of the Müllerpier took place in the beginning of the 21th century. Moreover, a large number of houses were built in recent years, starting from 2001.

The oldest buildings are present in the core of the Delfshaven district, on the Northern side buildings dated from 1941 to 1970 are present. Within the southern part of Delfshaven, the more recent buildings dating from 2001 onwards are present. These, as seen in the previous map, are mostly residential. The Western side of the district presents buildings dating from 1990 onwards, whereas, the Eastern part presents older buildings dating back to the 1930's until the 1960's.

LEGEND

- 1880 - 1895
- 1896 - 1910
- 1911 - 1920
- 1921 - 1930
- 1931 - 1940
- 1941 - 1950
- 1951 - 1960
- 1961 - 1970
- 1971 - 1980
- 1981 - 1990
- 1991 - 2000
- 2001 - 2010
- 2010 - today

Fig. 8: Map of the building ages around the Harbour Police Station

CITY DISTRICT

1:2000

HEIGHT OF BUILDINGS

The buildings present in the Delfshaven district largely vary in height as the different colors in the map on the right visualizes. The variety in heights is mostly present in the Southern part of the district, which is characterized by recently built buildings, as seen in the previous map. The heights in the Delfshaven district vary extremely. The Northwestern part presents lower buildings in comparison to the Southern part of the district. The core of the Delfshaven district presents mostly a uniform building height (from 8 to 16 meters), this might be attributable to the fact that these buildings were built in the same period.

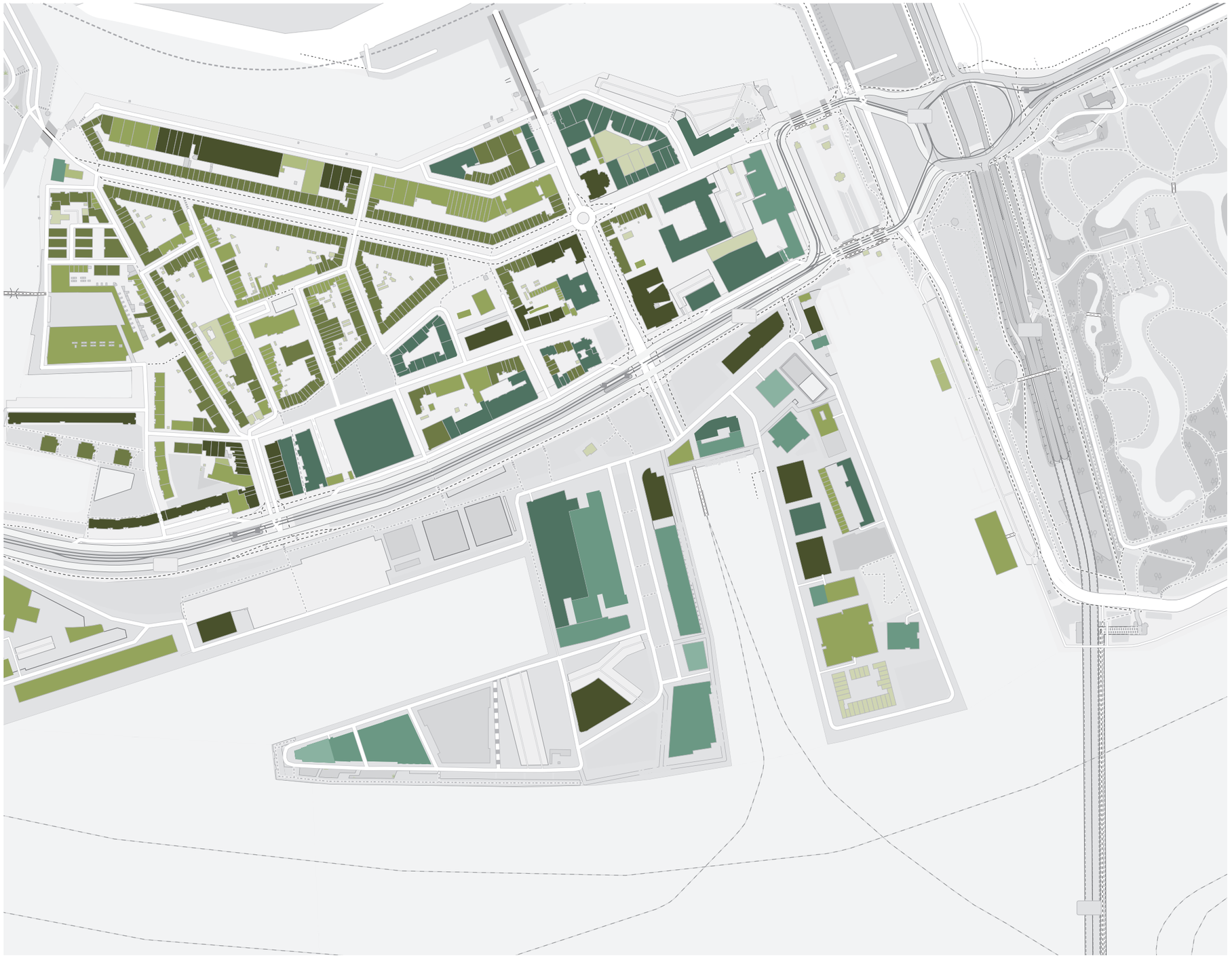


Fig. 9: Map of the building heights around the Harbour Police Station

CITY DISTRICT

1:2000

TRAFFIC IN DELFSHAVEN

Within the city of Rotterdam, the Harbour Police Station is located in the district Delfshaven. More precisely, it is located at the Parkhaven. Delfshaven is surrounded by water and is connected with roads and bridges on all four sides with the rest of Rotterdam. On the Northen part, the Pieter de Hoochweg connects the district with the Western part of Rotterdam. On the West side of the district, the S100 connects Delfshaven with the city centre. The S114 connects the district with Schiedam. The Maastunnel, which is very near to Delfshaven, connects the Northern part of the city to the so called Rotterdam Zuid. Also, the St. Jobshaven is a departure and arrival terminal for water taxis. Close by to the Rotterdam Police station a tram stop is present. Here, tram 8 goes both in direction Spangen (North of Rotterdam) en Kleiweg (West of Rotterdam), passing by the Rotterdam Central station, the Coolsingel, and the Euromast. The area does not have metro stops, the closest is the stop Coolhaven, which is reachable by foot in circa 10 minutes. Overall, this area is well reachable by foot, bike, public transport and by car.

LEGEND

⇄ Traffic direction

● Tram stop

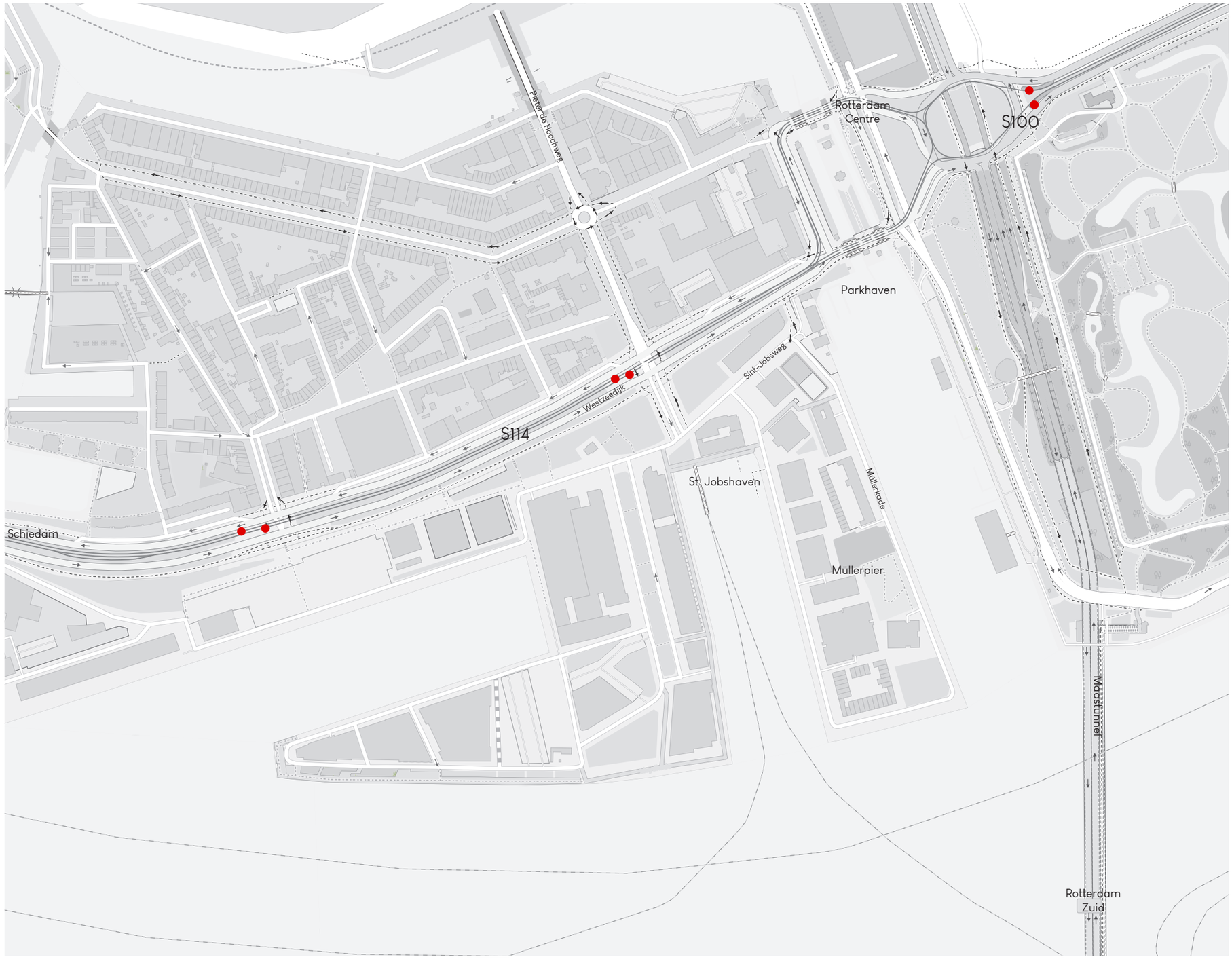


Fig. 10: Map of the traffic around the Harbour Police Station

CITY DISTRICT

1:2000

WIND AND SUN CONDITIONS

Wind is a hugely variable phenomenon. Dispite this, it seems that the wind in the Netherlands mainly comes from the southwest. The KNMI has weather stations spread throughout the Netherlands and that provides a lot of data. The data used for this map relates to the entire city of Rotterdam. The average varies from month to month, so this map uses a long-term average from the period 1981-2010. The compass rose shows how often the wind comes from each direction. Furthermore, the track of the sun is visualised underneath. As a result, the 1994 building catches the most sun, while the 1933 and 1940 buildings catch more wind due to the open street on the southwest side.

LEGEND

- >= 5 Bft
- 3-4 Bft
- 1-2 Bft
- Track of the sun

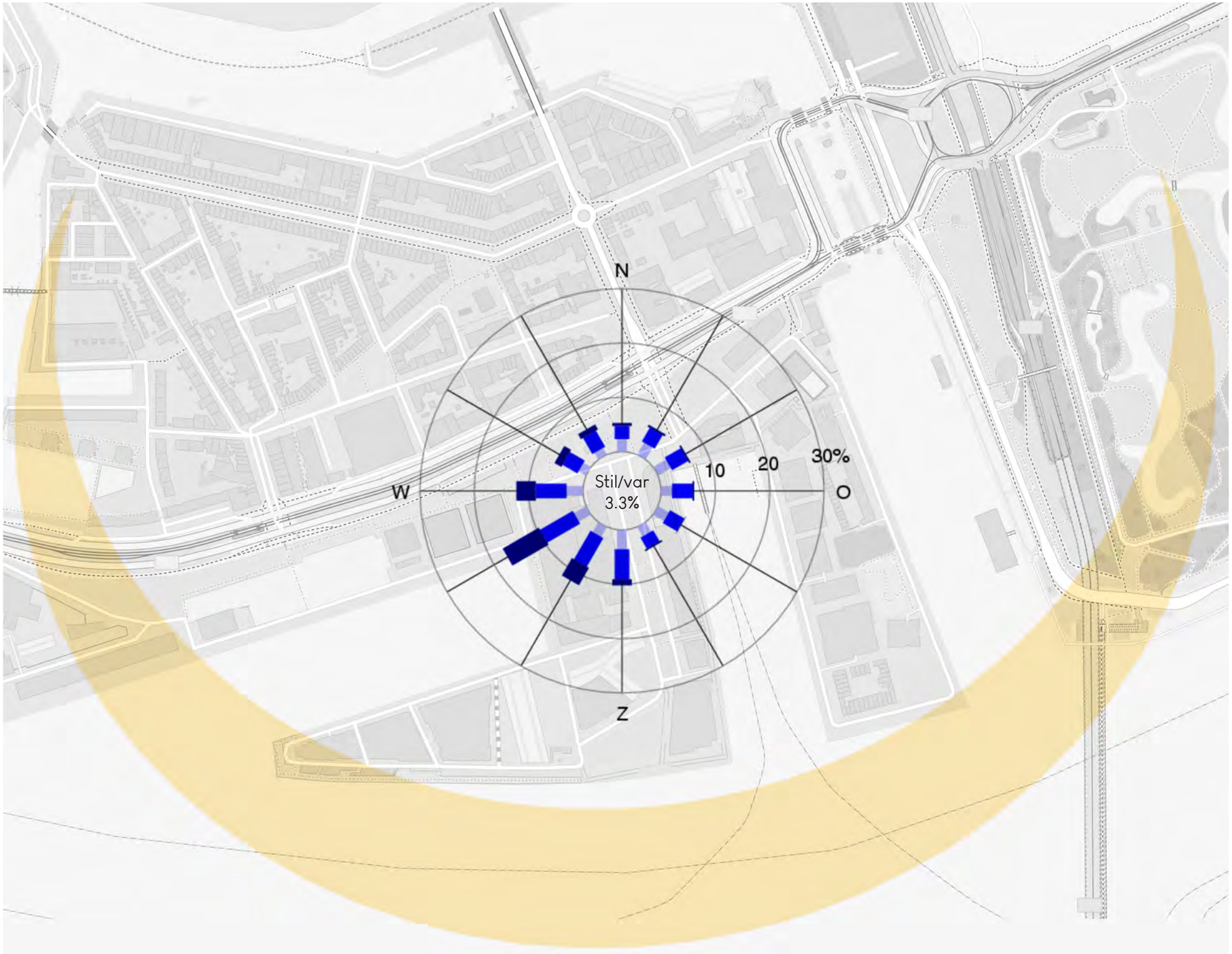


Fig. 11: Map of the wind and sun conditions around the Harbour Police Station

CITY DISTRICT

1:2000

GREENERY & WATER IN DELFSHAVEN

The majority of the greenery present in the Northern part of the Delfshaven is present in enclosed courtyards. The Northern and Southern parts are divided by a green strip bordering the Westzeedijk. Interestingly, the Southern area (Schiemond), presents larger publicly accessible green areas. This is in line with the large open spaces visible in the Nolli map. East of Delfshaven, the *Het Park* is present. This park, is one of the oldest parks of Rotterdam and has a surface of 28.4 hectares. Delfshaven is surrounded by water but does not present any water or canals within the area itself. The water of the Maas is also used as a form of transportation. In fact, as seen in the previous map, a water taxi is present in the area. Water is also present within *Het Park*.

Fig.12: Map of the greenery & water in the area

LEGEND

- Grass
- Trees
- Water
- Rotterdam Harbour Police
- Water

CITY DISTRICT

1:2000

LISTED MONUMENTS IN DELFSHAVEN

As seen previously, this area presents building dating back to different time periods and presents building with different functions. The map on the right shows (in orange) the listed monuments present in Delfshaven and in *Het Park*. Delfshaven has twelve listed monuments. Three of these are present in the Schiemond area, the *Electriciteitsfabriek* (number 16), the St. Job warehouse (number 17), the Rotterdamse Lloyd Offices (number 18).

However, the nearest listed monument buildings to the Rotterdam Harbour Police station are: the Grote Parksluis (number 7), the Annex Kiosk (number 8), as well as the Nautical School (number 6) are located. Interestingly, a considerable number of the listed monuments have a similar apperance to the Harbour Police 1933 building (i.e. numbers 1, 2, 3, 5, 6, 15, 16). In fact, most have brick facades and big window openings on the front facade. In the following pages, for each listed building, a short description is shown and a picture has been added.

LEGEND

- Listed monuments
- Rotterdam Harbour Police
- Water

Fig. 13: Map of the listed monuments around the Harbour Police Station

1. DRUKKERIJ EN UITGEVERIJ WYT

Location: Delfshaven
Built in: 1923–1925
Architect: W. Kromhout Czn.
Built as: Printing and Publishing Company
Current function: Offices

2. SCHEEPVAARTVERENIGING ZUID

Location: Delfshaven
Built in: 1920–1922
Architect: W. Kromhout Czn.
Built as: Offices for *Scheepsvaartvereeniging-Zuid*
Current function: Office of the founding Humanitas

3. DEPOT OF DUTCH EAST INDIA CO.

Location: Delfshaven
Built in: ca. 1880
Architect: Unknown
Built as: Depot of the Dutch East India Co.
Current function: Architecture firm

4. ROTTERDAM LYCEUM

Location: Delfshaven
Built in: 1928
Architect: J.H. de Roos & W.F. Overeynder
Built as: High school
Current function: The Theater Havo / VWO (School)

5. NAUTICAL SCHOOL

Location: Delfshaven
Built in: 1916
Architect: W. Dahlen
Built as: Nautical school
Current function: Higher education

6. NAUTICAL SCHOOL

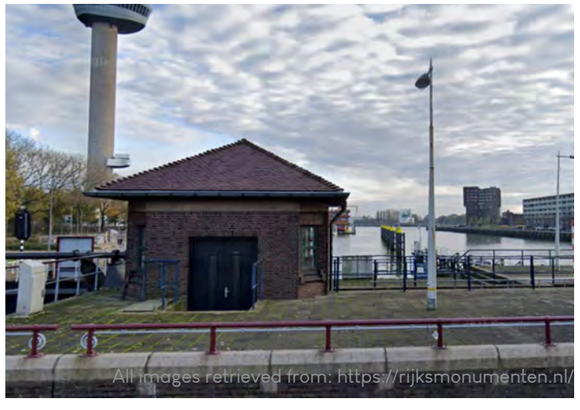
Location: Delfshaven
Built in: 1916
Architect: W. Dahlen
Built as: Nautical school
Current function: Offices

7. GROTE PARKSLUIS

Location: Delfshaven
Built in: 1931–1933
Architect: Unknown
Built as: Locks and bridges
Current function: Unchanged

8. ANNEX KIOSK

Location: Delfshaven
Built in: 1931–1933
Architect: Unknown
Built as: *Transformatorgebouw*
Current function: Unchanged



All images retrieved from: https://rijksmonumenten.nl/

9. NORWEGIAN SEAMEN'S CHURCH
Location: Het Park
Built in: 1914
Architect: A. Arneberg en M. Poulsson
Built as: Church
Current function: Church

10. MANSION 'DE HEUVEL'
Location: Het Park
Built in: Early 19th century
Architect: Unknown
Built as: Mansion
Current function: Brasserie

11. DEPOT OF DUTCH EAST INDIA CO.
Location: Het Park
Built in: Third quarte of 19th century
Architect: Unknown
Built as: Carriage house
Current function: Restaurant

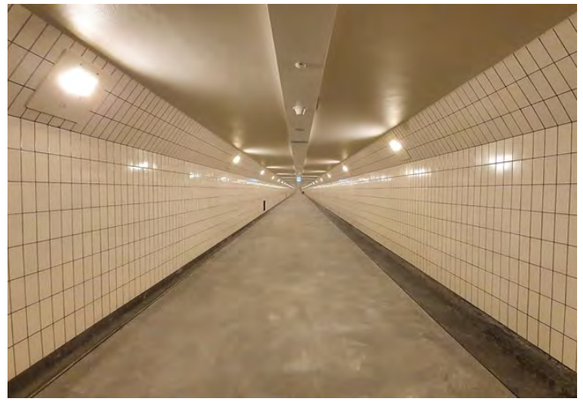
12. EUROMAST
Location: Het Park
Built in: 1958-1960
Architect: H.A. Maaskant & Municipal works
Built as: View tower
Current function: View tower

13. VENTILATION BUILDING

Location: Het Park
Built in: n.d.
Architect: n.a.
Built as: Ventilation building
Current function: Ventilation building

14. MAASTUNNEL

Location: Het Park
Built in: 1939-1940
Architect: n.a.
Built as: Tunnel
Current function: Tunnel



15. OCEAAN BUILDING
Location: Delfshaven
Built in: 1909
Architect: J. Verheul Dzn. & C.N. van Goor
Built as: Stockfish building
Current function: Offices

16. ELECTICITEITSFABRIEK
Location: Schiemond
Built in: 1904-1905
Architect: A.J.Th. Kok
Built as: Power station
Current function: Offices, housing & shops

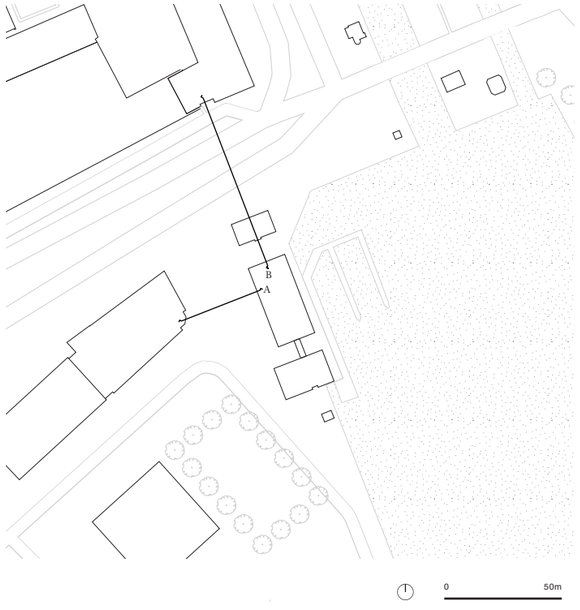
17. WAREHOUSE ST. JOB
Location: Schiemond
Built in: 1912–1914
Architect: J.J. Kanters & Fr. Eriksson
Built as: Warehouse
Current function: Offices & Houses

18. ROTTERDAMSE LLOYD OFFICES
Location: Schiemond
Built in: 1920–1922
Architect: W. Kromhout Czn.
Built as: Offices of Rotterdamse Lloyd
Current function: Offices

All images retrieved from: https://rijksmonumenten.nl/

STREET PROFILES

The Harbour Police Station is located next to Westzeedijk, which is located at a higher altitude than the rest of the area. This, is visible in the street profiles presented on the right. The Harbour Police station results being located approximately 2.2m lower than the Westzeedijk. Section BB', also, shows how close the Police Station is to the S114 road which connects the area to the city centre and to Schiedam. This section, aslo shows how wide the S114 is, compared to the 1940 building of the Police station. In the section AA', the relation of the Police Station towards the water is visible as well as the relation with the parking spaces located in front of the building and the Sint-Jobsweg.



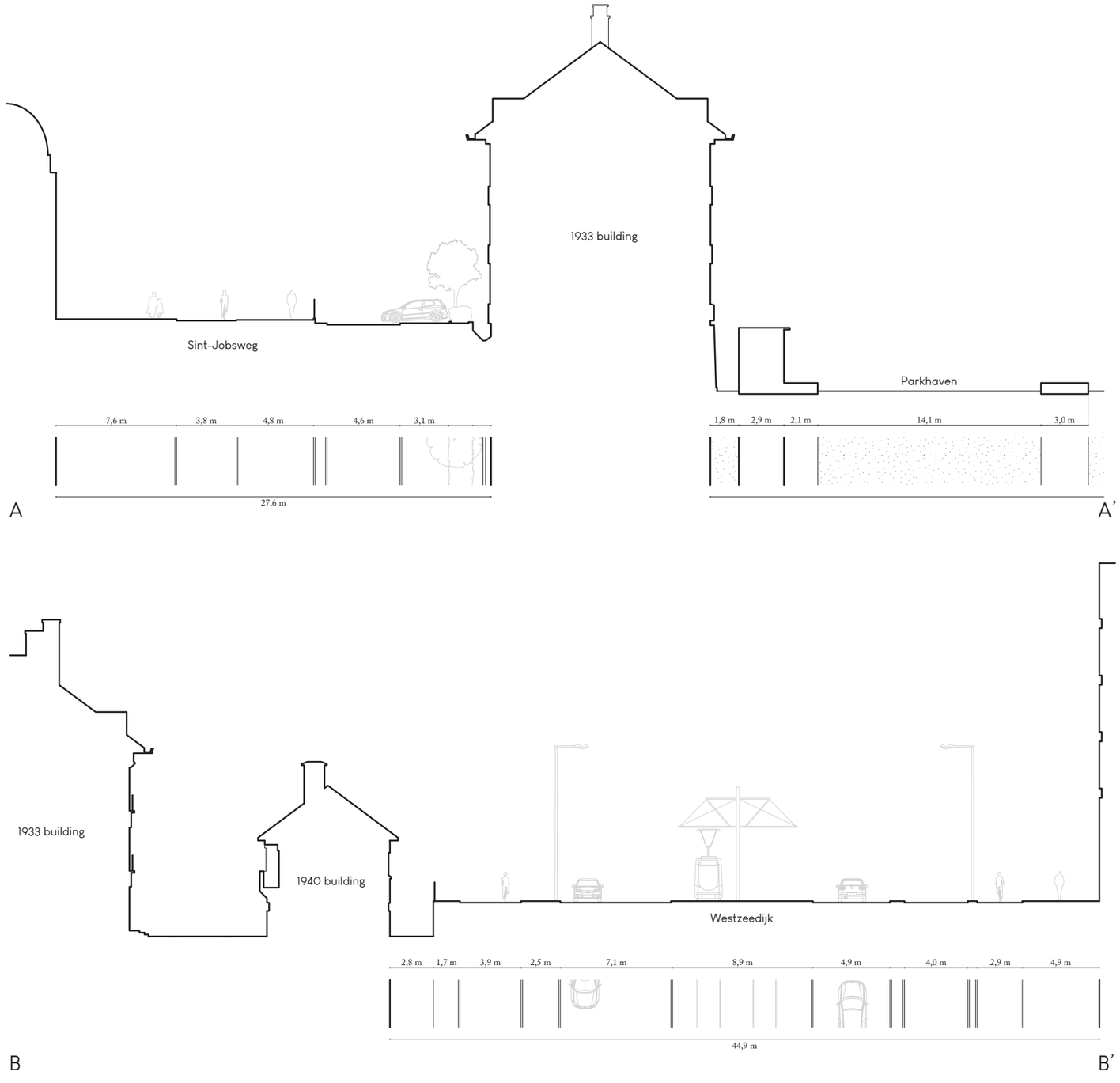


Fig 14: Street profiles of the site (Zijlstra et al., 2021-2022)

SOIL CONDITION

As previously read, the Harbour Police Station is located in Schiemond at the address Sint-Jobsweg 6. Within this area, the soil is made of several layers which all have a different composition. The data which will follow is based on a report in which the soil condition is researched. This research, has been conducted by the Municipal works of Rotterdam on a plot of land located on the Pier Lloydstraat. According to the report, the surface level at this address is located at an altidute that varies from NAP +3.50m. Around 1900, the height of this area has been increased by 1.5 to 2m by adding sand to the existing soil. From a depth of approximately 1.5 m-mv (NAP + 2.0 m), the soil locally becomes a bit more clayey. The exact composition of the soil can be seen on the section on the right. Based on the indicative soil map of the Municipality of Rotterdam, the location's soil is suspected of being slightly contaminated. The soil results being slightly contaminated where exceedances of the Background Values have been demonstrated, but where none of the established intervention values are exceeded (Gemeente Rotterdam, 2019).

LEGEND

- Clay, moderatly sandy
- Clay, very sandy
- Sand, moderately silty
- Sand, weakly silty
- Humous, week
- Humous, moderate

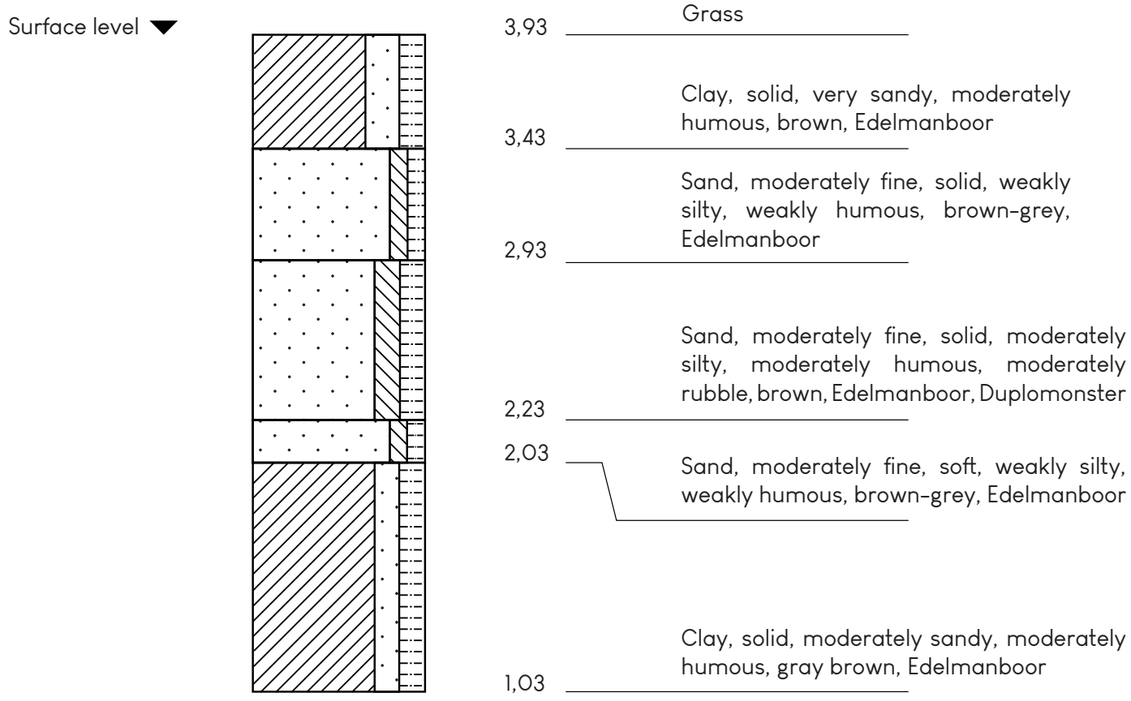


Fig. 15: Soil condition layering

URBAN BLOCK

1:1000

THE CHARACTERISTICS

The Harbour Police Station consists of three buildings, each with its own lay-out and number of fioor levels. In figure 16a, the different parcels are shown. It becomes clear that the Harbour Police Station deals with 4 parcels. Two complete parcels are owned by the police and two parts of other parcels, as indicated by the dotted lines, are covered by a rental contract. As a result, the area that is owned by the police is 1546 m^2 and this include the three buildings and the space around the 1933 building (fig. 16b).

The total build area, as visualised in black in figure 16c, is 720 m^2. Looking at the boundaries of the police real estate, this means that the empty area covers 1008 m^2 of owned space and a rented unbuilt space of 727 m^2 on the south and 253 m^2 on the north (fig. 16d).

LEGEND

- Main characteristic
- Secondary characteristic
- Rest space

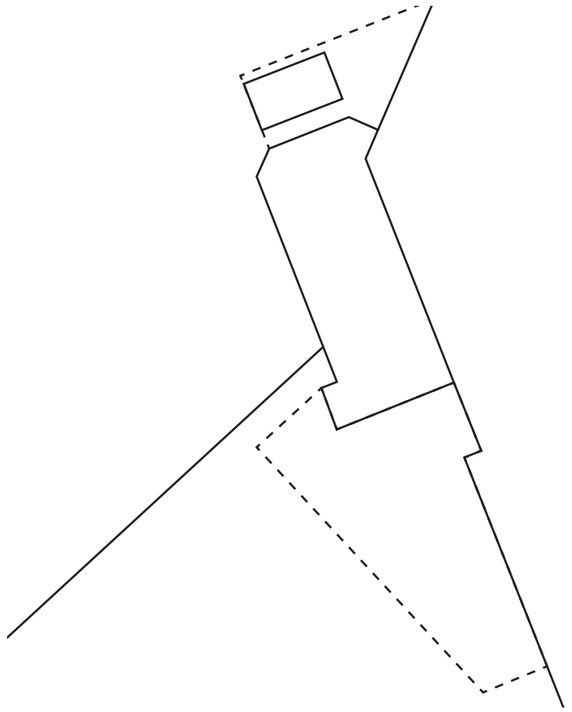


Fig. 16a: 4 parcels and rental areas[2]

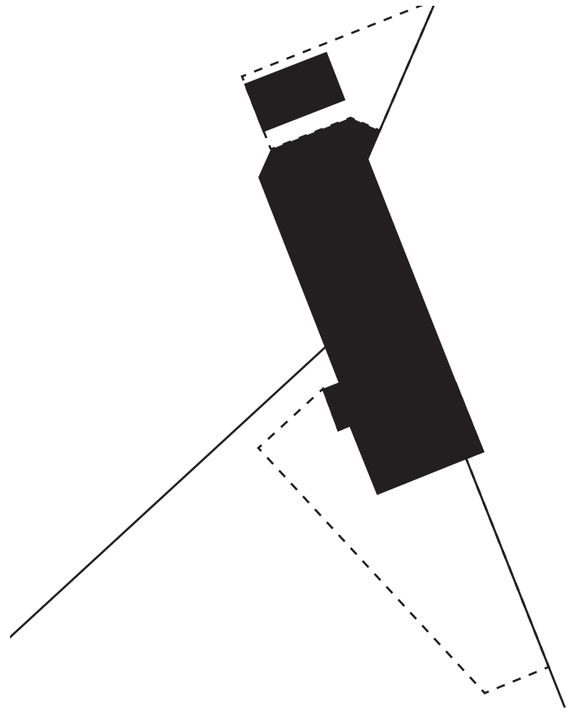


Fig. 16b: Owned Police Real Estate: 1546 m^2

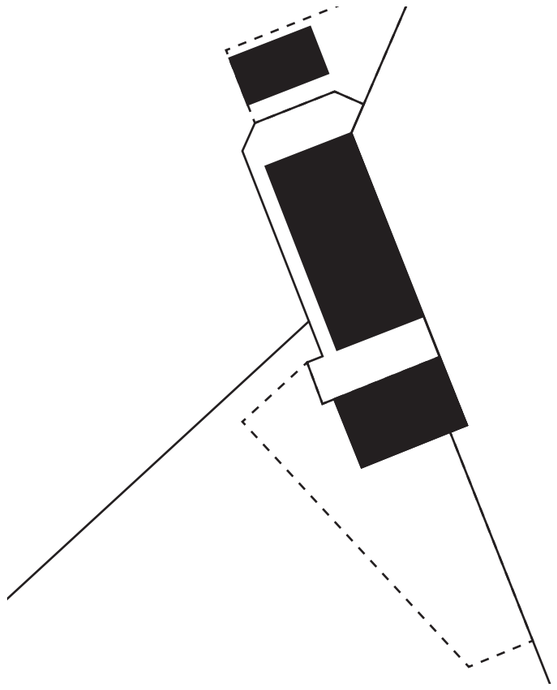


Fig. 16c: Build area: 720 m^2

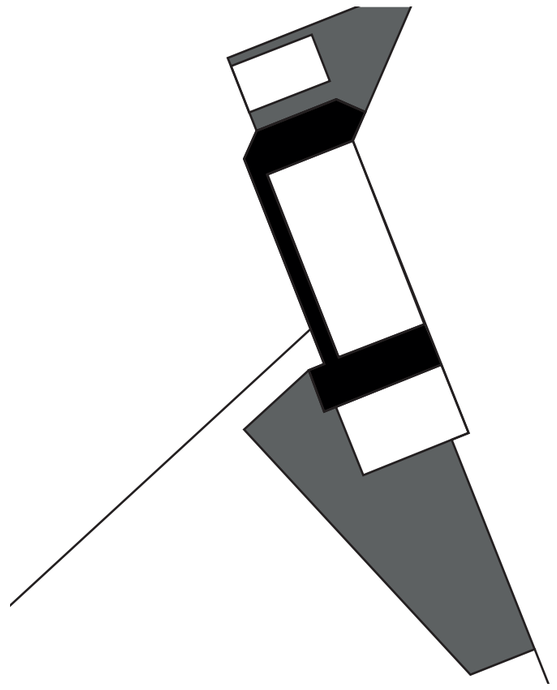


Fig. 16d: Empty area: 1988 m^2

URBAN BLOCK

1:1000

BUILT AND OPEN SPACES

When we take a closer look at the area surrounding the Rotterdam Harbour Police Station, the ratio between the built and open environment is noteworthy. Namely, in relation to the surrounding buildings, the Harbour Police Station is quite small and densily built on the one hand, but surrounded by a lot of open space on the other hand. This leads to small in-between spaces and a large urban context.

LEGEND

Buildings
Open spaces

Fig. 17: Built and open spaces

URBAN BLOCK

1:1000

PRIVATE, SEMI AND PUBLIC SPACES

Concerning the different buildings and parcels, a lot of spaces turn out to be (partially) unaccessible for the public. Especially in Delfshaven, on the north side of the Westzeedijk, different buildings comprise a sort of courtyard which is only accessible for the ones that are living or working in the surrounding buildings. At the Müllerpier, this concept is less common, but included by the Harbour Police Station, as can be seen on the map on the right. Furthermore, the map shows that the entrance area towards the rest of the Müllerpier (and Lloydkwartier) has a quite open structure, including large public spaces.

Fig. 18: Private, semi and public buildings and areas

LEGEND

- Private buildings
- Semi-private/public buildings
- Semi-private/public areas
- Public space

URBAN BLOCK

1:1000

CAR ROUTING AND PARKING

As mentioned in the maps of the city district, the area is accessible by car from the Westzeedijk. From this road, the Lloydkwartier and Müllerpier can be reached by the Pieter de Hoochweg - which merges into the Sint-Jobsweg - on the northwest side of the Mullerpier. Bordering the Sint-Jobsweg there are several parking spaces. In addition, the Rotterdam Harbour Police Station own their own private parking area for police cars. However, this area is most of the time not full.

Nevertheless, when walking through the area it becomes clear that several sidewalks and parts of the pavement that are not meant for parking are transformed into parking spaces by the local community. This probably suggests a lack of public parking spaces in this area.

LEGEND

- Car routes
- Parking spaces
- Not (intentionally) for cars

Fig. 19: Infrastructure relating to car

URBAN BLOCK

1:1000

WALKING ROUTES AND ENTRANCES

Another way to enter the area and the Rotterdam Harbour Police Station is by foot. In the map on the right the routes that are intended for walking are visualised. It becomes clear that the area around the Westzeedijk is clearly structured and one has less opportunities to choose a specific route. On the Müllerpier itself you have more freedom in which route you take to get to your final destination, as a result of the more open structures and public spaces.

LEGEND

- Primary walking routes
- Secondary walking routes
- Entrances Harbour Police Station
- Entrances surrounding buildings

Fig. 20: Infrastructing relating to walkers

URBAN BLOCK

1:1000

GREEN, WATER AND RECREATION

The open public spaces in the area are partially filled in by green, water and recreational areas. However, the green is foremost bordering the Westzeedijk and is therefore not used as recreational space. Likewise, the water is still used for the shipping of goods and professional use, so this harbour cannot be used recreationally either. Therefore, the only recreational space in the near surrounding of the Harbour Police Station is the basketball field and playground at the Müllerkade.

LEGEND

- Green
- Water
- Recreation

Fig. 21: Green, water and recreational areas

URBAN BLOCK

1:500

DIRECT SURROUNDINGS

What can be concluded on the close-by urban context of the Harbour Police Station is the fact that the direct surrounding consists mostly of infrastructural paved roads and sidewalks. As a result, the area is not appealing or suited for recreation.

On the northern side, the grass strip bordering the road provides some green. On the southside, this is provided by the trees surrounding the playfield. At the same time, these are the only spaces that can be used for recreational purposes at this moment.

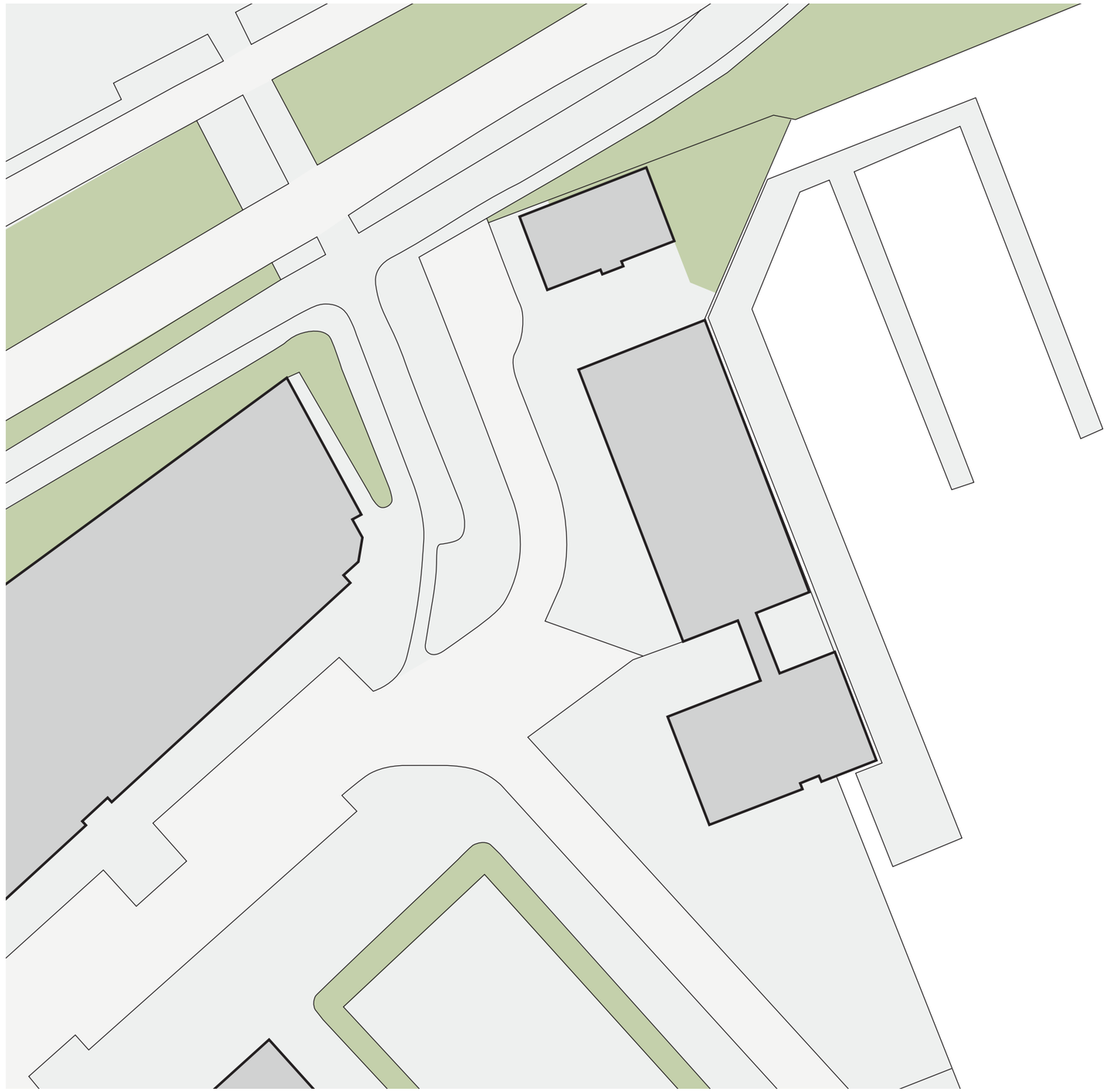


Fig. 22: Direct surrounding of the Harbour Police Station

URBAN BLOCK

1:500

PLOT AND ELEVATIONS

In the previous maps, the plot is used to indicate the Harbour Police Station. To obtain more insight in the meaning of this plot, the elevations are shown on the right. The differences in volumes become clear and this will be analysed more indepth in the following chapter.

LEGEND

Harbour Police Building

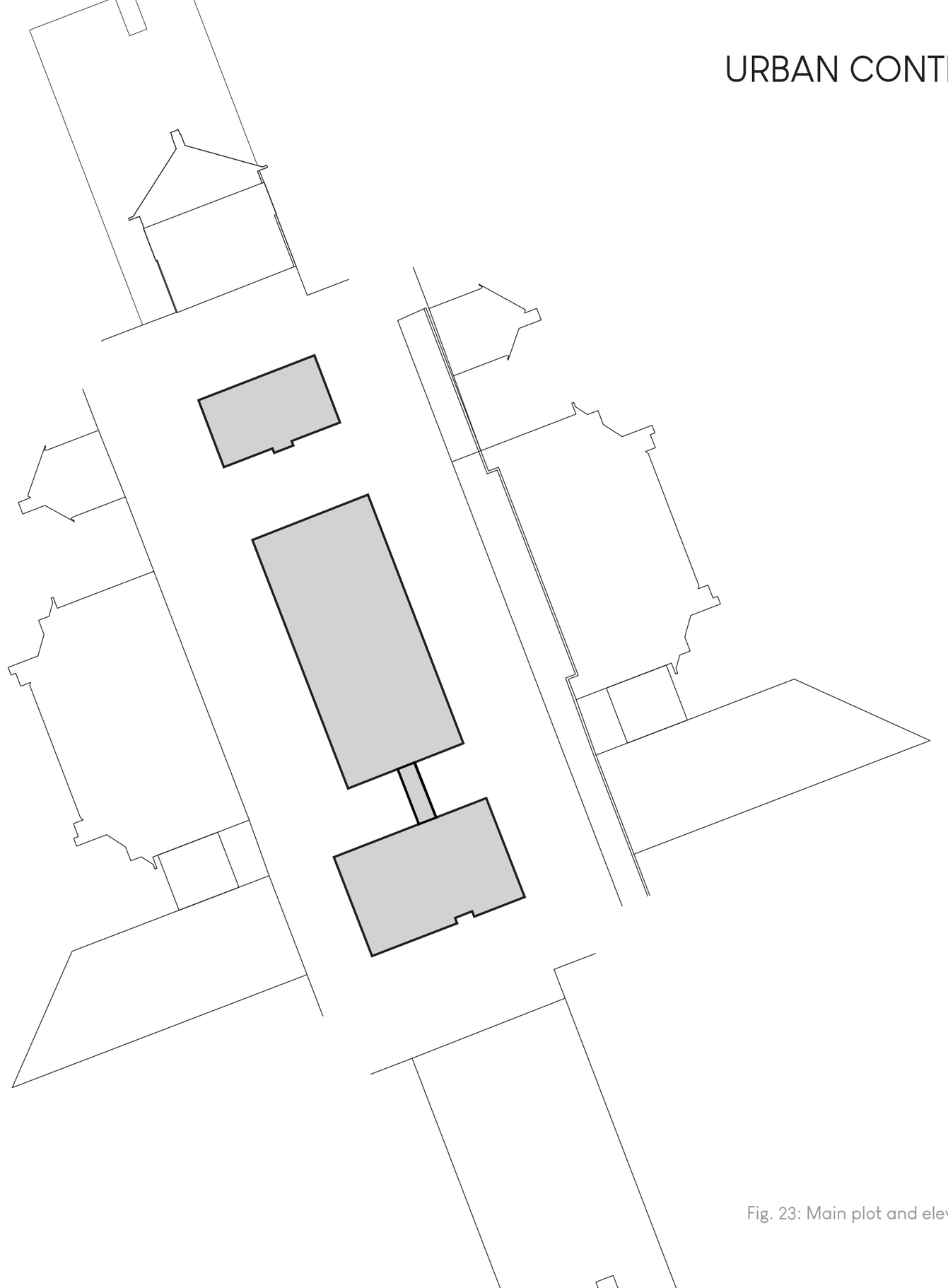


Fig. 23: Main plot and elevations

DEMOGRAPHY

DIVISION IN SCALE

In order to understand the demography of site of the Rotterdam Harbour Police Station, the demography is analysed in different scales. The smallest scale concerns the neighbourhood Schiemond. Furthermore, the scales of Rotterdam and the Netherlands are analysed to be able to compare the various statistics.

Fig. 24a: The neighbourhood Schiemond

Fig. 24b: The city Rotterdam

Fig. 24c: The Netherlands

DEMOGRAPHY

POPULATION DENSITY

The neighbourhood Schiemond has a dense population, as can be seen in the diagrams on the right. Not only in comparison to the rest of Rotterdam, but also in comparison to the Netherlands there live a lot of people on the same square kilometer. However, when we look at the amount of adresses, it does not look that weird at all. This is probably the result of the fact that there live quite large households (like families) in this area.

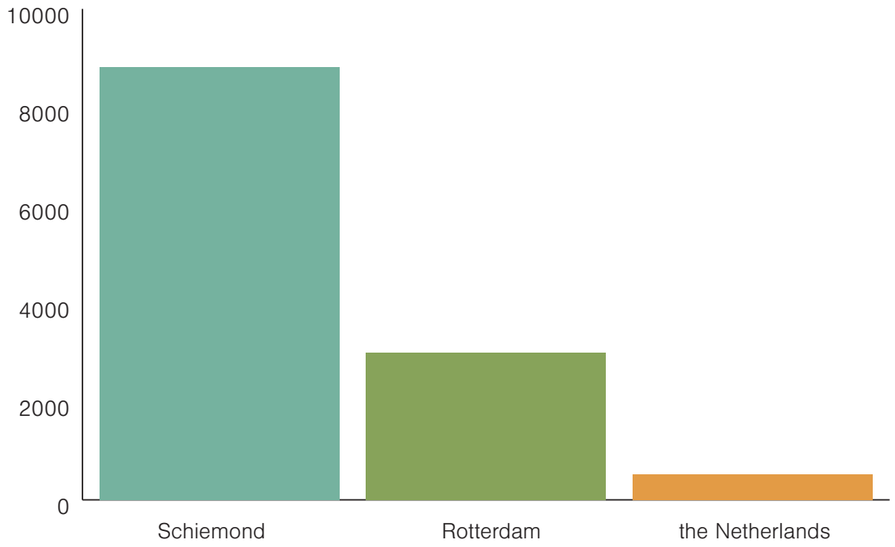


Fig. 25a: Population density

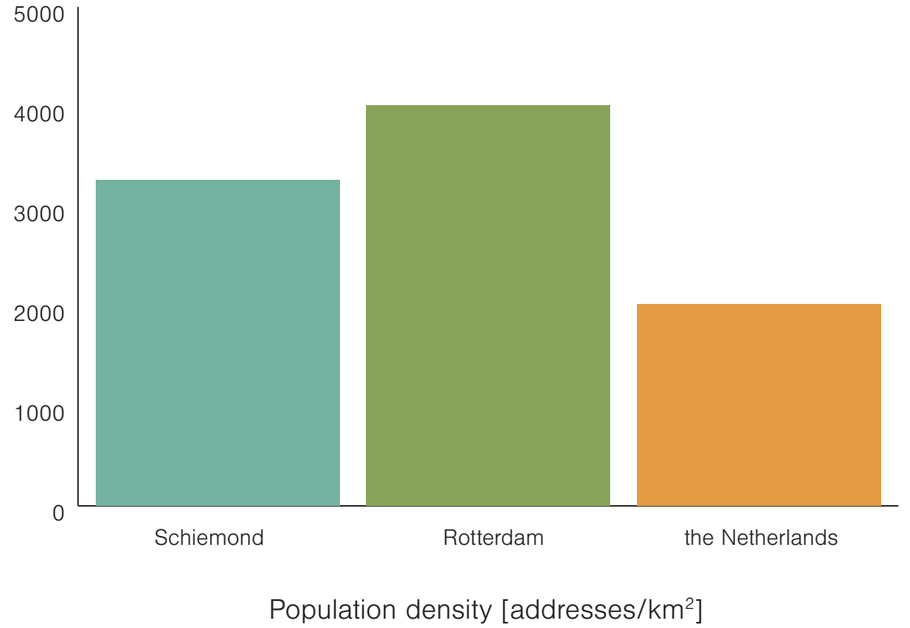


Fig. 25b: Population density

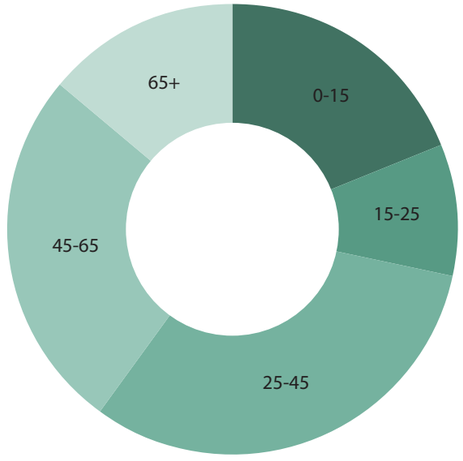
DEMOGRAPHY

POPULATION CHARACTERISTICS

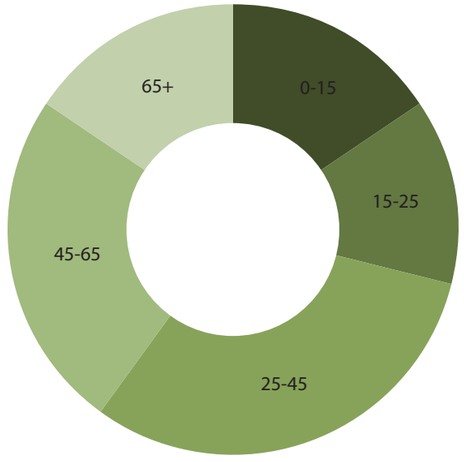
In these diagrams on the right, the main characteristics of the population within the neighbourhood of Schiemond is shown in blue. In order to compare these numbers and percentages, the data of the city of Rotterdam and the whole Netherlands are shown as well, in respectively green and yellow.

It shows that Schiemond is especially popular with young families. In addition, the number of 15-25 and 65+ year-olds is lower in Schiemond than in the other two diagrams. However, the number of 45-65 year-olds is fairly even on the scale of neighbourhood, city and country.

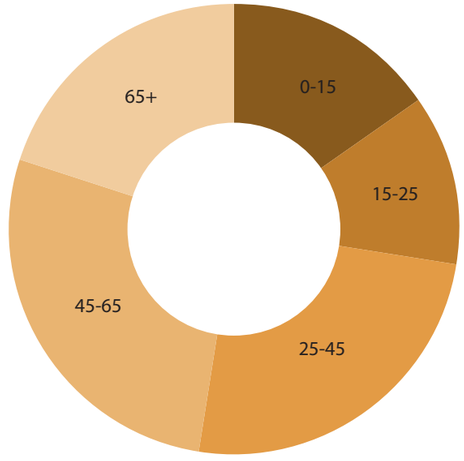
Concerning the education, there is a relatively large amount of people who attained a high education. At the same time, the amount of middle educational attainment is quite small. So, the average education level in the neighbourhood is determined by a balance between high and low education instead of a large number of middle education.



Ages of population in the district

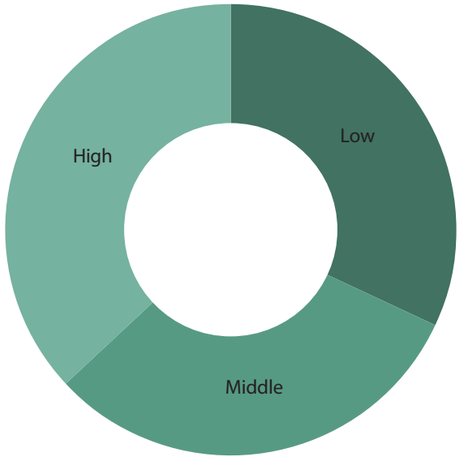


Ages of population in Rotterdam

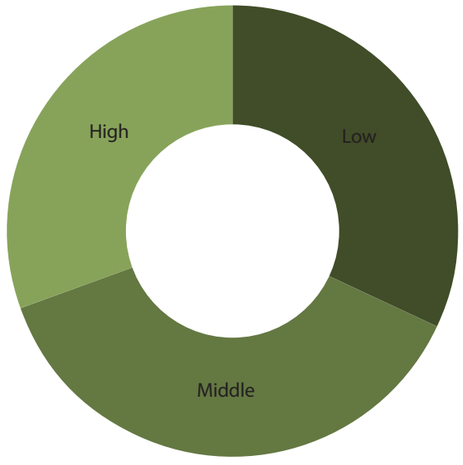


Ages of population in the Netherlands

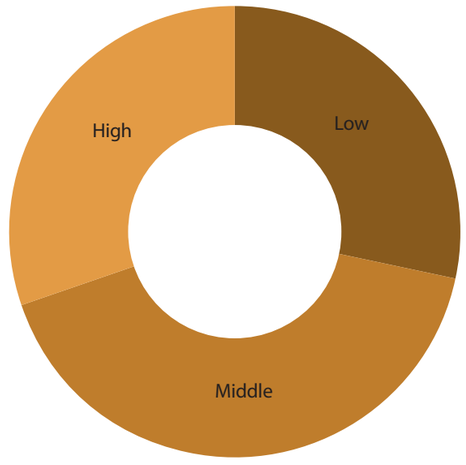
Fig. 26: Ages of the population



Educational attainment in the district



Educational attainment in Rotterdam



Educational attainment in the Netherlands

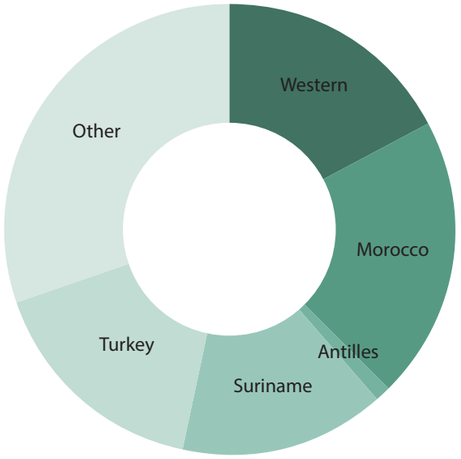
Fig. 27: Educational attainment

DEMOGRAPHY

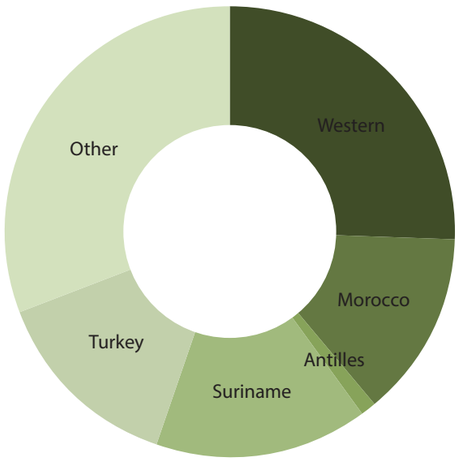
MIGRATION

On this page, some data about the migration backgrounds are presented. About one third of the population in Schiemond is autochthonous, a bit more than 10% has a western background and the remaining 55% is non-western. In comparison to Rotterdam and the Netherlands, the number of non-wester people is significantly higher. From this group, most immigrants come from the Middle-East, including Morocco and Turkey, and Suriname.

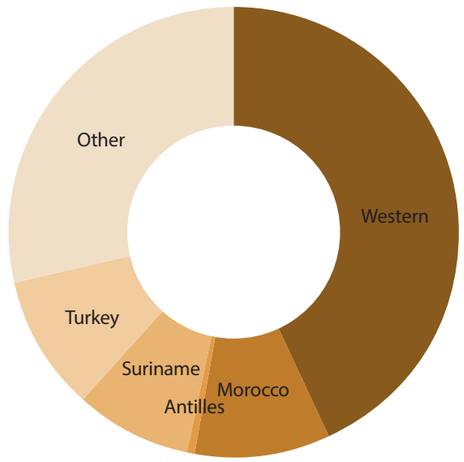
In relation to some previous data, the amount of young and large families in the neighbourhood of Schiemond can be explained. Namely, it is more common to have multiple children in non-western countries. As an example, the average global birth rate is 18.5 births per 1000 persons. In the Netherlands this birth rate is 10.9, while this is 15.4 in Turkey and 17.5 in the case of Morocco (World Population Review, n.d.).



Migration background in the district

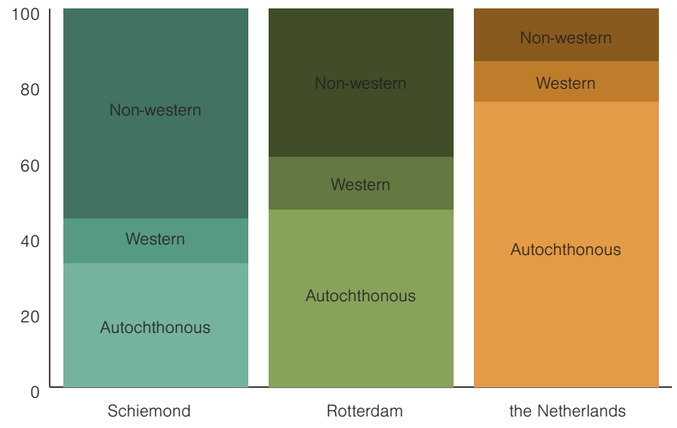


Migration background in Rotterdam



Migration background in the Netherlands

Fig. 28: Migration backgrounds



Distribution of the population i.r.t. autochthonous, Western and non-Western [%]

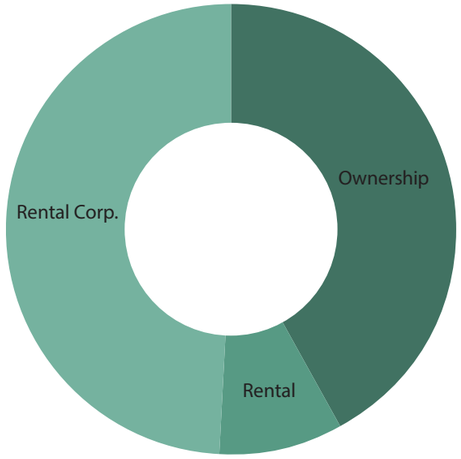
Fig. 29: Distribution of autochthonous and migration backgrounds

DEMOGRAPHY

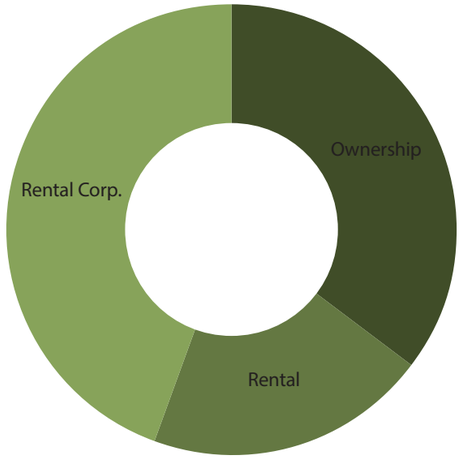
FINANCIAL CHARACTERISTICS

Eventhough 58% of the houses in the Netherlands are in possession of the inhabitant, this number is much lower in Schiemond and even lower in the whole city of Rotterdam. At the mean time the amount of corporative rental houses is extremely high in Schiemond. This probably has to do with the fact that the government has increasingly left the construction and management of homes to the rental-corporations in recent years. Namely, a lot of the buildings in Schiemond are newly build.

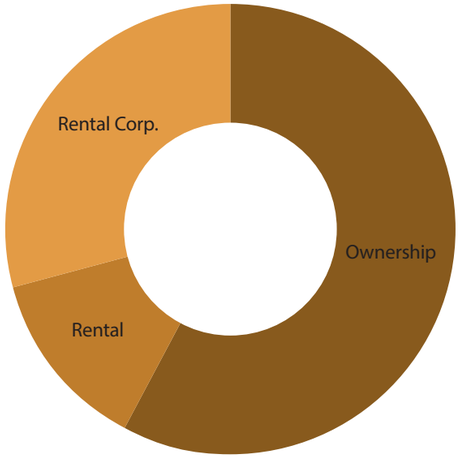
Concerning the average home values, the houses in Schiemond are more expensive than the median house in Rotterdam, but it is still less than the average in the Netherlands. However, the annual income per inhabitant in this neighbourhood is generally quite high. This is probably due to the relatively large number of people with a high level of education.



Ownership of the buildings in the district

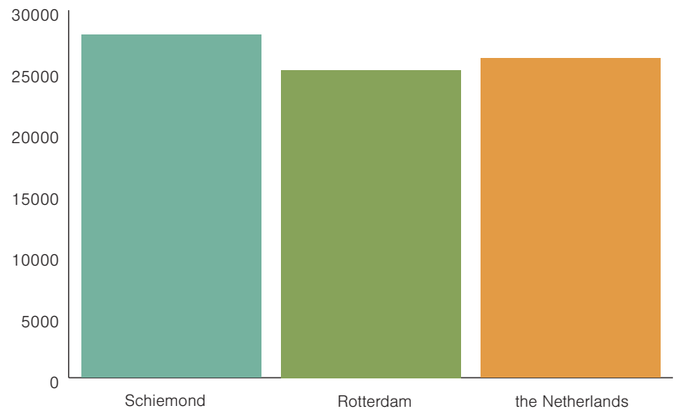


Ownership of the buildings in Rotterdam



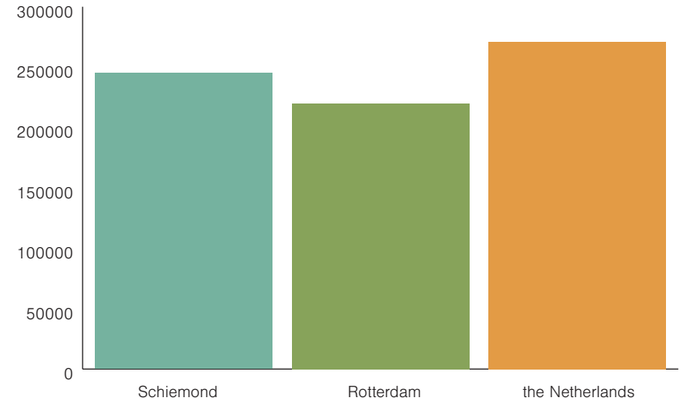
Ownership of the buildings in the Netherlands

Fig. 30: Ownership of buildings



Average annual income per inhabitant [€]

Fig. 31a: Annual income



Average home value [€]

Fig. 31b: Home value

DEMOGRAPHY

DISTANCES TO DAILY FUNCTIONS

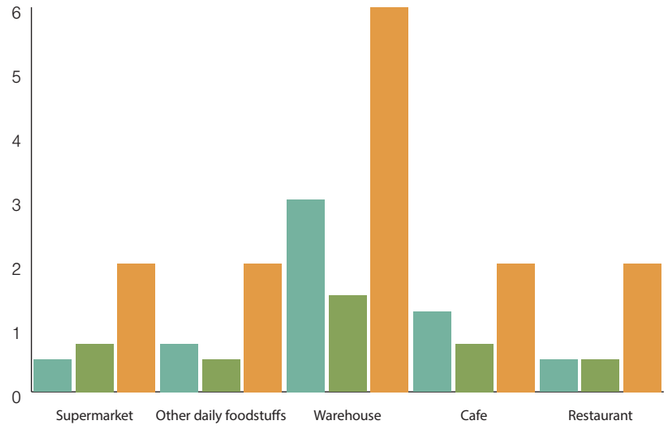
As mentioned before, Schiemond is located in the middle west of Rotterdam, just north of the river Maas. Compared to the average of Rotterdam, the distances to most daily functions are quite similar, as can be seen in the graphs on the right. Generally, only warehouses and cafes are further away than in the rest of the city.

In comparison to the Netherlands, everything is closerby in Schiemond (and Rotterdam). This makes of course sense, because the average for the whole country also takes into account the rural areas and remote places. In addition, the largest differences occur in the recreational and touristic domain. This ties in with a report of *Economische Verkenning Rotterdam* (2019), which state that "The economy has become more resilient due to its expansion into a service economy." In relation to this, it is assumed that the number of tourists in Rotterdam will continue to grow.

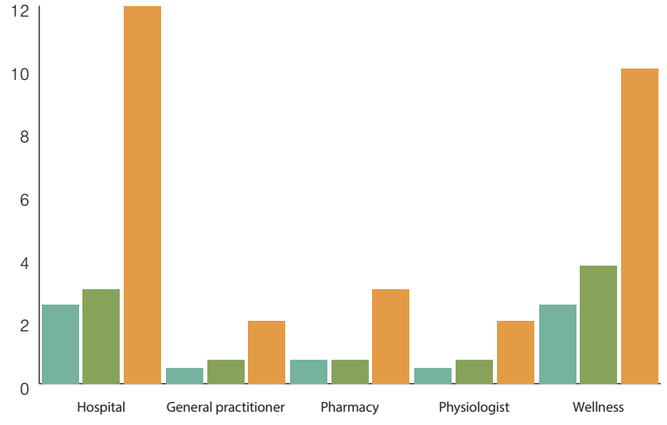
All in all, Schiemond is not only a valuable location in terms of the availability and accessibility of recreational functions but also of that of daily functions.

LEGEND

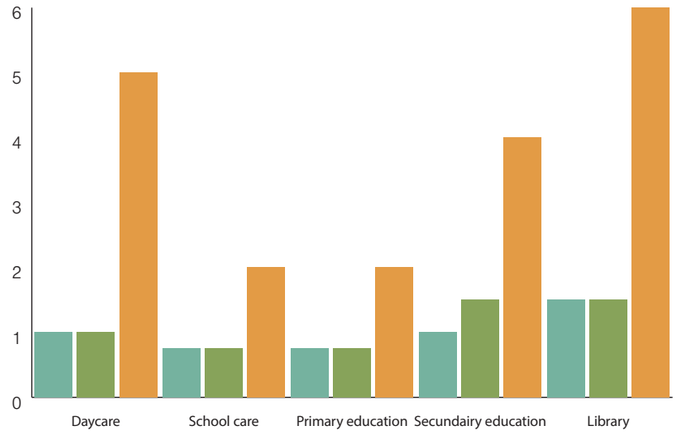
- Neighbourhood Schiemond
- City Rotterdam
- Country the Netherlands



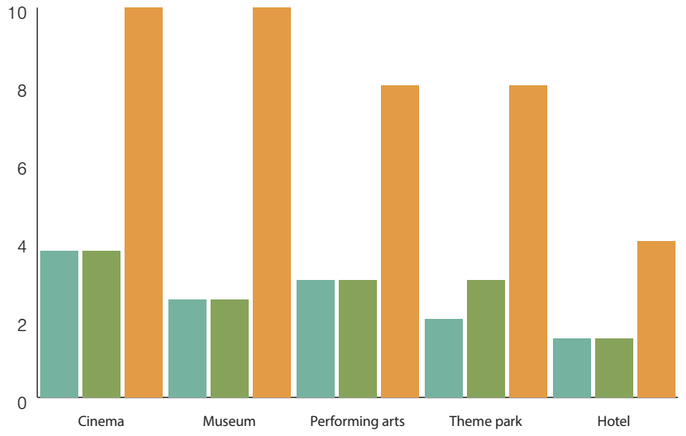
Average distances to daily retail and catering facilities [km]



Average distances to health and wellness facilities [km]



Average distances to childcare and education [km]



Average distances to recreational functions and services [km]

Fig. 32: Distances to daily functions

1.3. FUTURE DEVELOPMENTS

1.3. FUTURE DEVELOPMENTS

INDEX

This subchapter will consist of a more futuristic perspective on the site. The municipality has set up some documents in relation to the future of Rotterdam and the Lloydkwartier, in which the Rotterdam Harbour Police Station is located.

- Future of the city
- Future of the district
- Trends and developments

ROTTERDAM CITY VISION 2030

The municipality of Rotterdam has created a vision for 2030 of the city. The municipality envisions Rotterdam as a clean, colorful port city at the mouth of the Maas. With its recognizable skyline, it breathes a commercial spirit and has an open and international character. More than 600,000 people of more than 150 nationalities will live and work there. In addition to the multinationals which are and will be present, there will be many small and medium-sized companies that operate internationally. This will be partly stimulated by the special situation in Rotterdam. In fact, the city has a relatively young working population. Due to the collaboration between the business community and educational institutions, the working population has a unique composition of highly educated people and professionals. This will result in numerous win-win combinations, such as the large number of successful sustainable industrial companies in the port area, the well-known medical business cluster around the Erasmus Medical Center and the trendy furniture factories in the Stadshavens.

The municipality states that, in order to attract people, Rotterdam must be an attractive city to live in. However, this will require more than just building attractive homes. In fact, pleasant outdoor space, excellent education, good accessibility and a modern city center with a varied range of cultural and leisure facilities are what Rotterdam also wants to achieve.

The vision states that there is a number of neighborhoods that are emerging around the heart of the city centre, two of which are Delfshaven and the Lloydkwartier. Due to their central location, their historical character and the mix of functions of housing, catering, shops and art institutions, these neighborhoods are increasingly popular with (former) students and workers in the creative economy; precisely the groups that Rotterdam would like to associate with. From a social, cultural and economic point of view, these neighborhoods have the characteristics necessary to independently initiate a process of gentrification and transform them into a quiet urban living environment. The municipality supports this process with targeted measures. For Delfshaven the municipality wants achieve a quiet-urban living environment.

Within the vision of the municipality the Lloydkwartier is mentioned as a special area in Delfshaven. This area is a former port area, where a mix of living and working is developing. The municipality wants to explicitly focus on the creation of an audiovisual cluster (creative and commercial professional groups in image and sound) to provide additional stimulation for this segment of the creative sector. Furthermore, the development of the Lloydkwartier also has an impact on the Coolhaveneiland (Gemeente Rotterdam, 2007).

Fig. 33: Strategic Plan Rotterdam 2030 (Gemeente Rotterdam, 2007, p.58).

STRATEGIC PLAN LLOYDKWARTIER

The zoning plan for the Lloydkwartier was adopted by the municipality of Rotterdam on October 2014. The area of this plan is located in the district of Delfshaven, between the Westzeedijk, Parkhaven, Nieuwe Maas and the Schiemond harbour. It thus includes Schiehaven, Sint-Jobshaven, Lloydpier and Müllerpier. As mentioned before, he Rotterdam Harbour Police Station is located at the Müllerpier, bordering the Parkhaven.

Existing policies

Concerning the use of urban plinths, the "Lloydkwartier policy of zoning plans" (2013) expresses the notion that the space within the plinths of buildings should be used more broadly. This enables a not only a more flexible use of the plinths, it also prevents vacancy and avoids unnecessary procedures. However, more retail is not made possible, since the current offer is sufficient.

In regard to the spatial interpretation, the volumes that have to be built for the Lloydpier and the Müllerpier - according to the urban development plans - will be included in a more global and flexible manner than the regular urban development plans. The permitted volumes and housing numbers will continue to be derived from the urban development plans, but the building contours and height dimensions will become more global, so that it is possible to adapt the current locations for development.

In regard to catering in district Delfshaven, the focus of the "Catering area plan of Delfshaven" (2013) is on high-quality catering, mainly focused on food. From the point of view of the creative sector, the presence of catering establishments creates a place where people can meet and network. From an economic perspective, catering serves to support this district as well. Nevertheless, the importance of protecting the housing and the living environment of the residents is paramount. It is thus important that the Lloydkwartier is mainly a residential area.

There is room for a targeted development of the catering establishments. However, there are some restrictions. As a starter, catering with night openings and/or open 24 hours are not allowed. The exploitation of a terrace is only allowed in combination with opening hours from 07:00 and closing time at 23:00. Furthermore, it is not permitted to play background music or to providing other kinds of entertainment.

Description of the spatial plan

In relation to the previous zoning plan, flexibility for mixed purposes was reflected by a variety of buildings. The maximums for offices, retail and special purposes have now been reached. The remaining spaces only offers space for companies, two restaurants and social purposes like housing. In addition, flexibility must be possible within the current use, to prevent future vacancy.

Concerning the current use and the zoning plan, the buildings of the Harbour Police near the sluices are intended as buildings for facilities in the fields of education, religion, culture, health care, social services and public services. This also includes the accompanying parking facilities; utilities; gardens, yards and grounds; and structures that are no buildings. In addition, a company residence is also allowed.

The Müllerpier is mainly used for residential purposes or residential/work homes. Almost all the buildings are designated as 'residential', possibly with an indication if other functions are permitted on the ground floor, such as social facilities. The two northernmost buildings bordering the Müllerkade, are designated as a mixed-use and include life-cycle-resistant homes, as well as various facilities, such as a primary school, nursery, fitness center, medical center and a restaurant. The maximum allowed heights of the various building varies. Low-rise buildings may have a maximum height of 13 or 25 metres, while the high-rise is allowed to be 50 or even 70 metres high in the south-east corner of the Müllerpier .

The Parkhaven is mainly used by professional shipping to and from the Schie and Coolhaven. It also offers moorings for the Harbour Police and Customs. Outside the planning area, the Parkhaven offers moorings for the Pannenkoekenboot, De Zwarte Zwaan, Ocean Paradise, the Ameland and the Berenboot. The harbour has a functional character, and floating gardens or urban agriculture are therefore not desirable due to possible obstacles to shipping.

Plan description

The Müllerpier is suitable for mixed-use buildings. However, calling shops are not allowed in the area and spaces with a retail destination has been included as conservative, since expansion is not necessary. Companies in environmental categories 1 and 2 are present and possible in the mixed buildings on Lloydpier and Müllerpier. This concerns small-scale activities in buildings that also contain homes. Companies in environmental category 3 are not desirable here. Furthermore, it should be noted that the quays are vulnerable to high water because they are located lower than the areas closer to the center of the pier. Besides, the area is closed off from the inner dike area. It is striking that the Sint-Jobsweg and Sint-Jobskade are also relatively low, and therefore it floods at the same time as the quays. The (ground) level at the Müllerpier is 3.75 meters above NAP. The new construction should take place at least at ground level (of the surrounding residential area), and ideally at the recommended height of 4 meters above NAP. Concerning the transport of hazardous substances over the river Maas, a safety distance of 25 meters from the quay must be maintained at the Lloydpier and Müllerpier.

Fig. 34a: Birdseye view of the Park (AM, 2020)

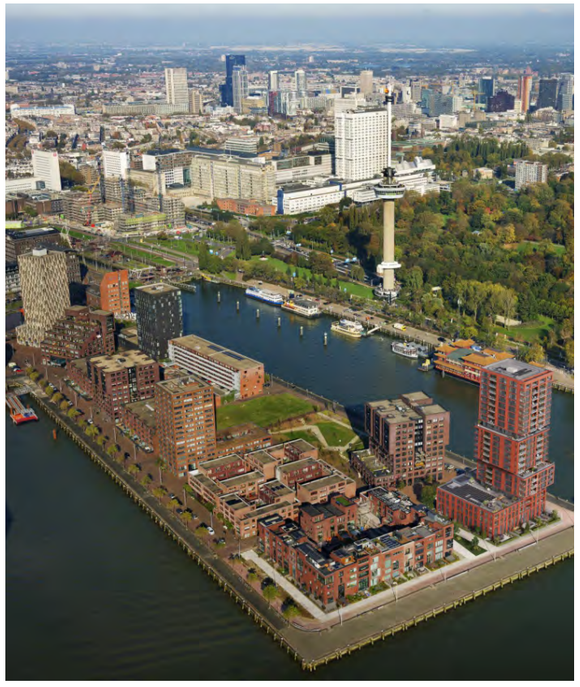


Fig. 34b: Birdseye view of the Mullerpier (AM, 2020)

MASTERPLAN PARKHAVEN

At this moment there is a Masterplan set up for the area on the other side of the Parkhaven. The core of the plan is that the *Parkhavenstrook* will consist of a balanced housing program and recreational tourism enrichment through a mix of facilities for the city. It will give a new meaning to this place, with its own identity but strongly linked to the existing urban fabric. It is designed as the green connection between the Park and the redesigned green quay. It is the city's ambition to develop the quays into a characteristic connected and central public space. It will be developed into a timeless ensemble with the Euromast (and other national monuments) as eye-catchers. This means that the new urban building blocks will be contemporary and at the same time timeless in their appearance; And finally, the area will be developed into a resilient and sustainable location for active urban living. In relation to the Harbour Police Station it is highlighted that the sightlines towards the Euromast will be preserved.

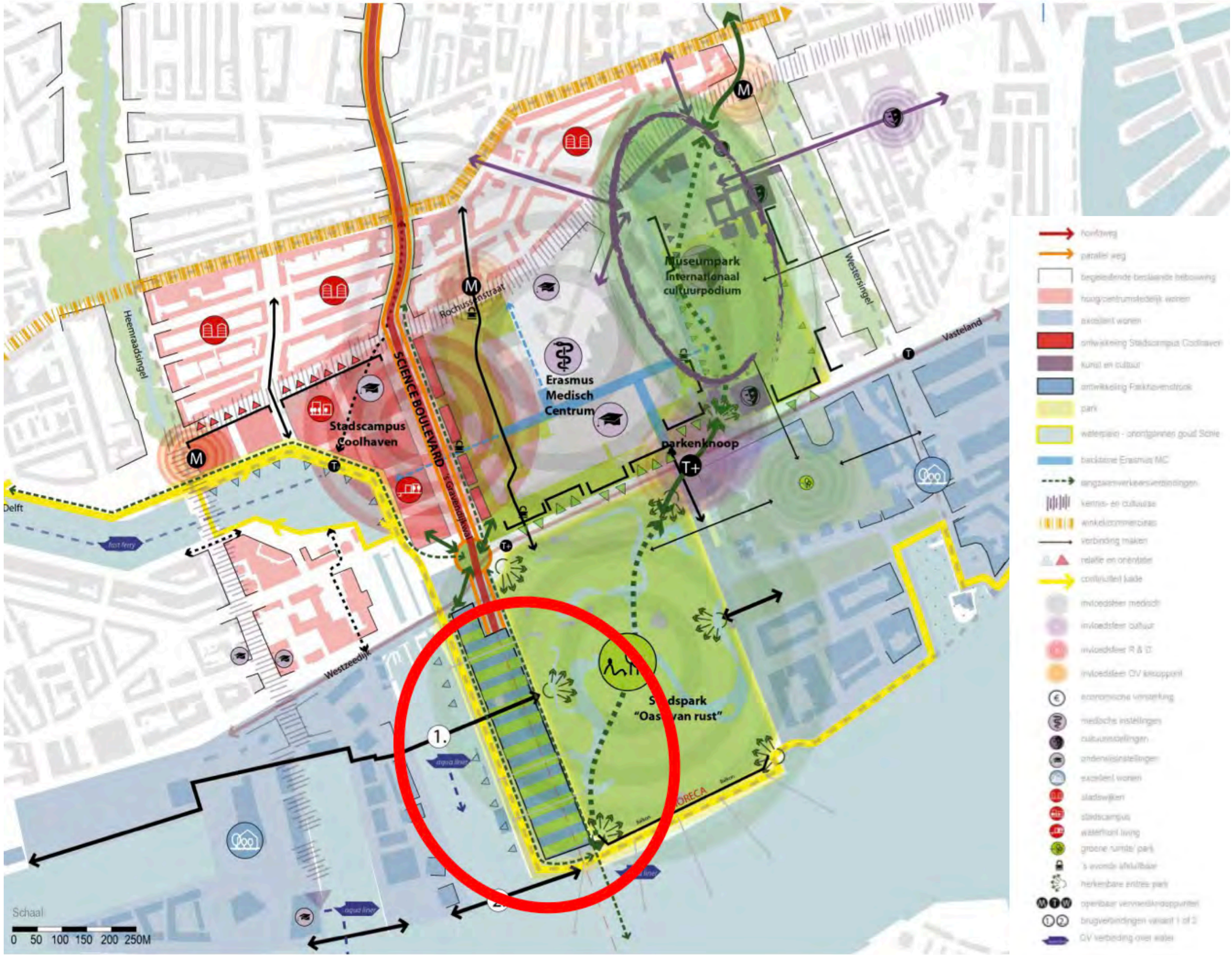


Fig. 35: Masterplan ParkHaven (Gemeente Rotterdam & Parkhaven and Partners, 2021)

TRENDS AND DEVELOPMENTS

DEPEST METHOD

In order to analyse the trends and developments that are represented in the city of Rotterdam and the area of the Harbour Police Station the DEPEST method is used. This methods incorporates the themes of demography, economy, politics, ecology, sociology and culture, and technology concerning current and future expected tendencies.

Demographic
- Densification
- Housing shortage
- Moving towards rural areas
- Increasing number of households (elderly and young families)
- More diversity and cultrual variety
- Ageing

Economic
- Rising average home values and housing prices
- Growing health care expenditure
- Broadening towards a service economy
- Growing number of visitors and tourists
- Bigger economical differences

Political
- Privacy regulations
- Rotterdam harbour as BeNeLux crossing point and gateway to Europe
- Increasing amount of demonstrations
- More distrust in the government
- Destinations plans for areas

Ecological
- More emphasis on climate (agreements)
- Increasing number of electric vehicles
- Houses are better insulated
- More green in the streets
- Developments and usage of ecological materials
- Extreme weather, climate change
- Re-valuation of existing buildings

Socio-cultural
- Longer life expectancy and ageing, but dementia and heart disease increases
- More flexible working
- The number of lonely people increases
- Less smokers, more obesity, more vegan
- More individual ideas, opinion exposure in society
- More publicity of monuments

Technological
- Digitalisation, more happens online (meetings, education, shopping)
- Developments in (medical) technologies
- E-mobility
- New ways of food production
- Robotics, VR, AI
- Prefab construction elements

1.4. CONCLUSION

CONCLUSION

MAIN TAKE-AWAYS

As a result of the previous subchapters, there are some main take-aways that eventually can lead to a series of interesting notions that can be used as design guidelines.

Structure
- The structure of the city around Lloydkwartier is dominated by the road network and river Maas;
- There is not a clear stucture or used grid at the Müllerpier. It appears to be a bit more closed off, compared to the southern area.
- The area surrounding the Harbour Police Station is not appealing, since there is not much (recreational) green;
- The 1940 bombing left Delfshaven intact;
- The building of the Harbour Police Station is quite small and surrounded by a lot of open space;

Location characteristics
- The parcel of the Harbour Police Station is lower in altitude in comparison to the Westzeedijk (approx. 2,2m height difference);
- The location is exposed to a Southwest wind. The 1933 & 1940 building catch more wind, while the 1994 building catches most sun;
- Many nearby listed monuments have a similar appearance to the 1933 Harbour Police station (such as brick, glazing);
- The soil is largely composed of clay on the surface and sand going down;

Accessibility
- It is a well accessible location: car (S114), bike, foot, public transport;
- Several sidewalks and parts of the pavement that are not meant for parking are transformed into parking spaces by the local community. (lack of public parking spaces?);
- The water of the Parkhaven is used for shipping of goods and professional use, so recreational use is not completely desirable;
- Concerning the Harbour Police Station, only warehouses and cafes are further away than in the rest of the city. Furthermore, all functions are closeby;

Functions and usage
- In the neighbourhood of Schiemond, the community consists of a relatively large amount of high education, a relatively small amount of middle education and mainly a balance between high and low education, instead of an average medium level of education;
- There is a significant high percentage of non-western people in Schiemond;
- The amount of corporative rental houses is relatively high in the neighbourhood;
- In Schiemond, the houses are more expensive than median houses in Rotterdam;
- The Harbour Police building is part of the Müllerpier, which is a quite new area, with mostly a residential function (transformation started beginning 21st century);

Trends and restrictions
- The Harbour Police is located at the Northern part of the Müllerpier, which is designated as a mixed use area;
- The municipality assumes that the amount of tourists in Rotterdam will continue growing;
- The maximum allowed height of low-rise buildings at the Müllerpier is 25 meters;
- The maximum allowed height of high-rise buildings is 50 meters;

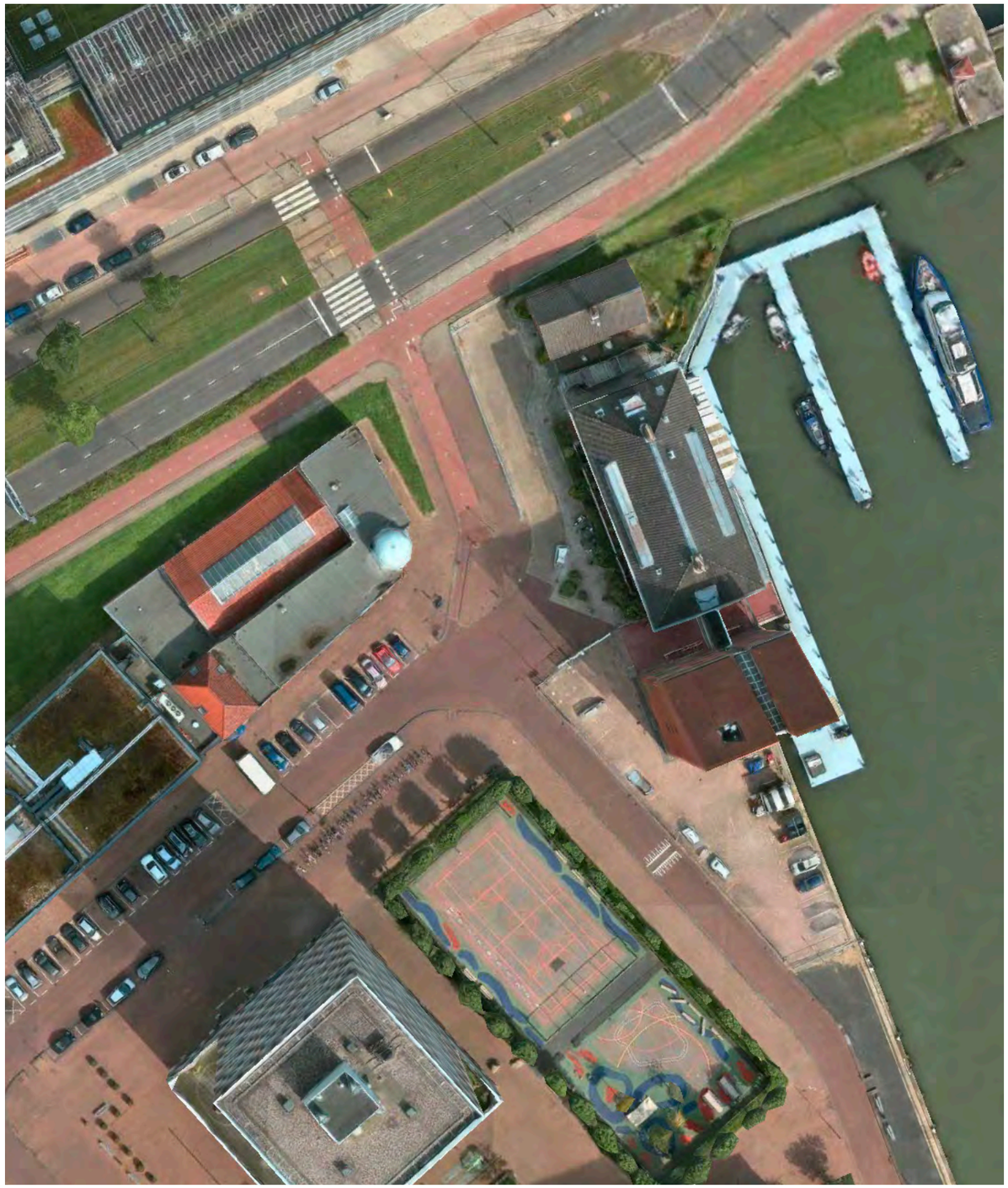


Fig. 36: Birds view of the Harbour Police Station (GoogleMaps)

2. BUILDING OBJECT AND ARCHITECTURE

2. BUILDING OBJECT AND ARCHITECTURE

INTRODUCTION

The Rotterdam Harbour Police station has undergone several changes. In this chapter, the history and current state of the police station will be discussed. Also, its subsequent identity will be taken into account.

- Cultural historical analysis
- Building analysis
- Conclusions

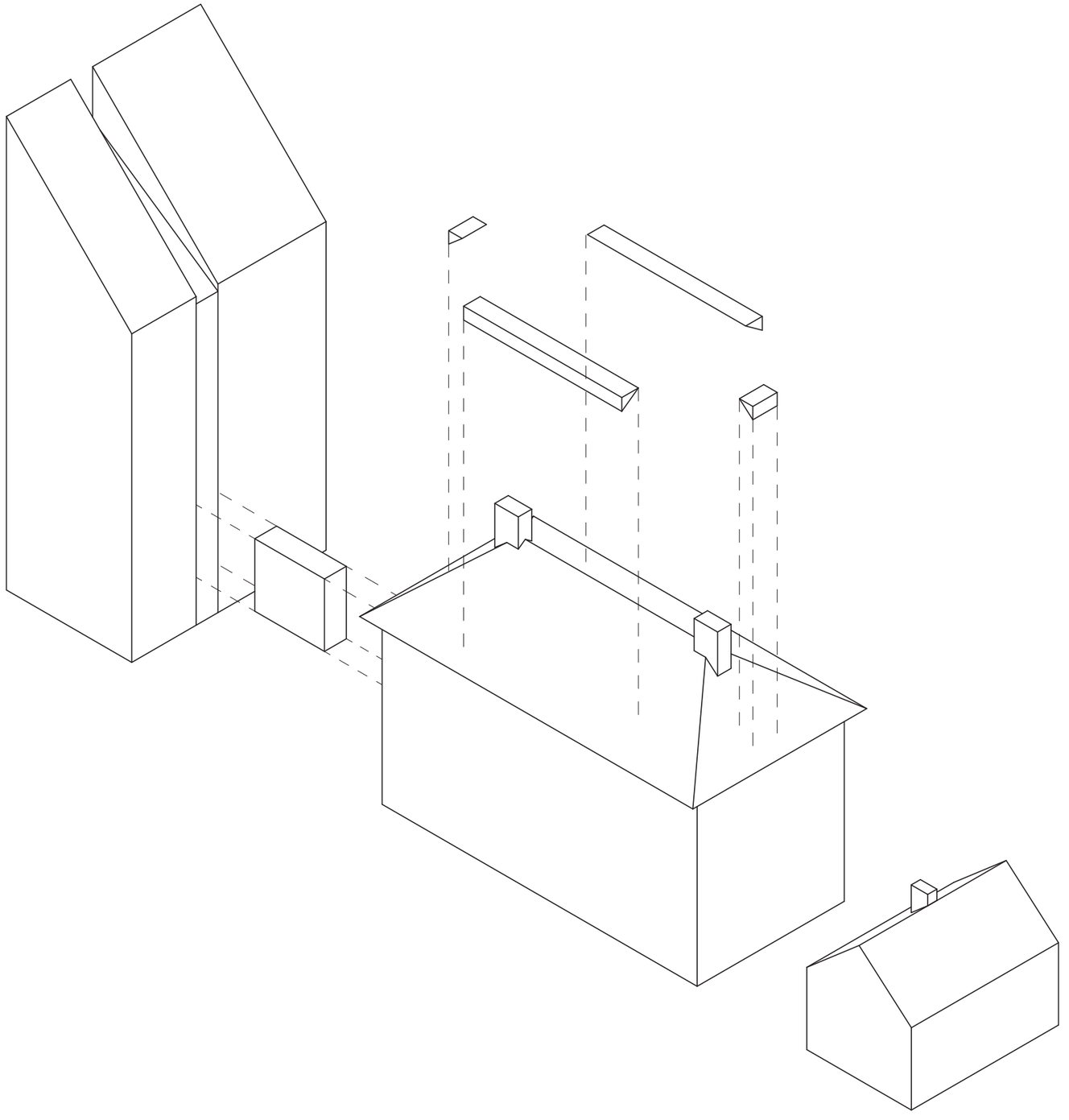


Fig. 37: Exploded volumes of the Rotterdam Harbour Police Station (Zijlstra et al., 2021-2022)

2.1. CULTURAL HISTORICAL ANALYSIS

2.1. CULTURAL HISTORICAL ANALYSIS

INDEX

This subchapter will consist of historical developments of the Parkhaven and the Riverpolice. Furthermore it will include the topics of architecture in relation to the historical perspective.

- Historical developments
- Cultural and social perspective
- Historical coding and mind map

HISTORICAL DEVELOPMENTS

TIMELINE OF PARKHAVEN

The Rotterdam Harbour Police, located at the Parkhaven, is founded in 1895 and has undergone several changes . In this timeline, the relation between the police and the parkhaven - including its most important events - are shown (based on: Kadaster, n.d.; Manneke, 1995).

1900

1895
The present-day harbor police was found in august 1895, as the river police, as a result of the fact that the shipping agents in the port were regularly confronted with theft of supplies.

1911
The river police settled in the Parkhaven on a floating pontoon.

1914-1918
After WWI the harbor police became responsible for border control.

1925

1930
In the beginning of the thirties, the river police encountered the smuggling of people for the first time. It was then that people tried to enter America via the harbor of Rotterdam. Also, the new building for the river police was designed, built and came into operation in 1932.

1940-1945
During WWII the river police was taken over and turned into the German Sicherheits polizei. Many Dutch citizens had been taken into prison and they made a wood carving for the Dutch police officers that took care of them.

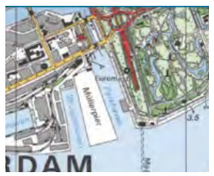
1950

1960s
Over the years, the harbor of Rotterdam extended at a high pace.

1970s
In the seventies, more emphasis was placed on the industrial parts of the harbor. As an example, the infrastructure was improved and companies settled in Botlek and Europoort.

1975

1994
As a result of the fact that the harbor was extended, the police had to enlarge their office as well.Therefore, an addition was made to the office of the riverpolice at the Sint Jobsweg.



2000

2000
The river police was renamed harbor police.

2010s
Since the beginning of the 21st century, the Mullerpier had undergone several improvements. Nowadays, the harbor police consists of a combination of a criminal investigation department, a neighborhood police, the border control and some support police officers.

2025

2021
The current police building covers 4.219 m2 and has about 350 employees.

Fig. 38: Timeline of the developments in Parkhaven (Stadsarchief Rotterdam, n.d.; Kadaster, n.d.)

HISTORICAL DEVELOPMENTS

FOUNDING OF THE RIVER POLICE

In 1895, the River Police was founded as part of the municipal police, as a result of the increasing amount of theft (Rivierpolitie Rotterdam, 1985). The first years were quite primitive, with only one inspector, a few policeman and few resources. Their office was situated in the building of the port service at the Leuvehaven (Manneke, 1995).

Over the years, the Rotterdam Harbour extended and so did the River Police. They gained more resources, like boats, and the amount of employees increased as well. Their office first moved to the Veerkade and since 1911 they got their own accommodation: a floating police station in the Parkhaven (fig. 39). However, it was not an ideal accommodation since it was extremely hot during summer and very cold during winter. They also had a lot of problems with rats, as a result of the location. In 1912 the floating police station capsized due to a leak in one of the iron tanks (Manneke, 1995).

In the end of the 1920s, the floating police office became insufficient for its use. The need for a new accommodation increased and in 1930 it was decided to build an office on the quay. During the Second World War, the River Police was taken over by the German. Dutch citizens had been taken into prison, within the cells and attic. Most of them only needed to stay for a few - approximately 4 to 6 - days, but to kill some time the detainees started to make a wood carving (Manneke, 1995). The Dutch policemen took care of them and gave them a lot of freedom. As a result of the friendly relationship between the river police and the detainees, it was not a bad place to be in prison at that time.

During the reconstruction years after the war, a period began when the port of Rotterdam would become the largest in the world. In this period, approximately 90 employees were working at the river police. The criminality, in terms of theft and prostitution, was high during this period (Seelbach, 2014). From the 1960s, fraud was also added to this list of common criminality in the harbour. However, the River Police had a good relationship with companies in the port area and the dock workers, so most people respected them. In the 1970, the amount of employees had increased to 154.

At the end of the 20th century, the nature of crime has changed dramatically. It became more serious, complex, purposeful and better organized (Manneke, 1995). Because the River Police continued to grow, in 1991 the renovation of the existing building and the construction of a new building started. The new building was placed on the former workshop and section room. In April 1994 the formal building was put into use (Berkelbach, 1995).

In the year 2000, the River Police was renamed Harbour Police (Seelbach, 2014). The amount of criminal events was still increasing and they had to deal with theft of supplies, human trafficking, drugs smuggling etc. Therefore, they started to work together with the the Port of Rotterdam Authority as well as with Customs, Dutch Royal Marechaussee and the Human Environment and Transport Inspection. In short, the small and primitive River Police had become an important hub in the national police system and is essential to safeguard the area from the Brienenoordbrug towards the sea.

WORK, GOALS AND AIMS

The River Police started as a small police station, but the founding was an important event. Namely, Rotterdam became the first city that was able to act against crime and theft, as well on land as on the water. Also, they were able to provide (emergency) assistance where and whenever needed.

The work of the River Police varied along the years. While they started with minor crimes at the end of the 19th century, their focus shifted to property crime during the First World War. Since the 1960s they have taken up the fight against prostitution and today drug confiscation is an important part of their standard activities. Nowadays the Harbour Police consist of a criminal Investigation department (which can be subdivided in four sections), the neighborhood police, the border control and a support department.

Since 2013, the multiple regional offices were united into one national police, which now consists of only ten police units. In short, it is their goal to protect, limit and affirm in a integer, trustworhy, courageous and connected manner.

Fig. 39: Employees in front of the River Police (Stadsarchief Rotterdam, 1910-1920)

Fig. 40: Overview of the warehouses and grounds at Parkhaven (Stadsarchief Rotterdam, 1928)

ARCHITECTURE AND STYLE

The buildings of the River Police are designed and constructed by engineers and architects of the Gemeentewerken Rotterdam, the Municipal Works Department of the city of Rotterdam, which is known as the engineering office of the Municipality.

Bastiaan van der Lecq

Between 1924 and 1933, Bastiaan van der Lecq (1891 - 1961) was employed as an architect by the Municipal Works in Rotterdam. After this period he started working as an independent architect. Van der Lecq mainly built in the style of the Delftse School. While working for the Municipal Works, he designed, among other things, the building of the River Police (1933, fig. 41) at the St. Jobshaven in Rotterdam, and buildings such as schools in the Coolhavenstraat and the Busken Huetstraat. In relation to this River Police Station, van der Lecq turned out to be no stranger in the field of ports and shipping. Namely, he also designed the office of a shipping agency in Maassluis, as well as seven radar towers along the Nieuwe Waterweg, and the complex of the Parksluizen of the Parkhaven (Manneke, 1995; Het Nieuwe Instituut, n.d.).

In addition to the River Police Station, the first drafts of the design of Van der Lecq also included houses for the inspectors and officers. However, the committee of local works criticized this, due to the high costs, so it was left out of the final plan. On October 16, 1930, the design was approved and construction started. When Van der Lecq resigned from municipal service in 1933, his colleague ir. Poot took over his task (Manneke, 1995). During his work as an independent architect, Van der Lecq also designed the small building for the Teekens family, which is located next to the main office of the River Police (fig. 42). The little building, dating from 1940, served as a home and workshop in one.

Concerning Van der Lecq's most commonly used architectural style, the Delftse School is a traditionalist and sober architectural style (ca. 1925-1955), which originated around the Delft professor ir. M.J. Granpre Molière (1883-1972). Sources of inspiration were the traditional Dutch brick architecture and, in church building, Romanesque architecture. Some of the main characteristic of the Delft School are: almost exclusive use of brick; high, tiled, pitched roofs between gable ends; high gutter lines; use of natural stone on constructively important points; form is determined by the function (De Vree, n.d.). When looking at the buildings designed by van der Lecq, these mentioned characteristics of the Delftse School are visible in his designs.

Maarten Struijs

Maarten Struijs (born in 1946) is a Dutch architect who has worked for 25 years (until 2006) at the Municipal Works Department of the city of Rotterdam. As an architect, Struijs wanted to create spaces in which the user could decide for himself what to do with it and how to use it. He called this concpet the 'onder-orde' (the under-structure), which became his design philosophy (Galema & Tijhuis, 2006). In 1983, Struijs told the newspaper *Het Vrije Volk* about this concept, saying:

"*In fact, I want architecture that is abstract. I give expression to the space, but people are not allowed to have the idea that this or that has to be done in that space. They can do it themselves. I think it is out of the question that in house construction it is determined what the living room, what the bedroom, what the offlce should be.This creates a dilemma in architecture, because you are always instructed to design a building for a specifIc use. Unfortunately, we are not allowed to build buildings for the 'we will see later'.*"(Het Vrije Volk, 1983).

The under-structure translated into space created with the use of material and light. This space had to be beautiful and interesting, but not necessarily force you to do anything. This not only meant making as much space as possible in a building without assigning a specific function, but it also meant that the entire building had to be used differently. The first function does not need to be propagated, because then it can get in the way of a later function change. Architecture must show solidarity with the users and all actors. The architect should limit himself to applying rhythmic material and light (Galema & Tijhuis, 2006).

When looking at the River Police building Struijs designed as an extension of the original housing (fig. 43), the contrast between old and new is striking, especially because of the form: the lectern-like roofs and the height of the new brick building contrast with the low old office with its hipped roof with tiles (Galema & Tijhuis, 2006).

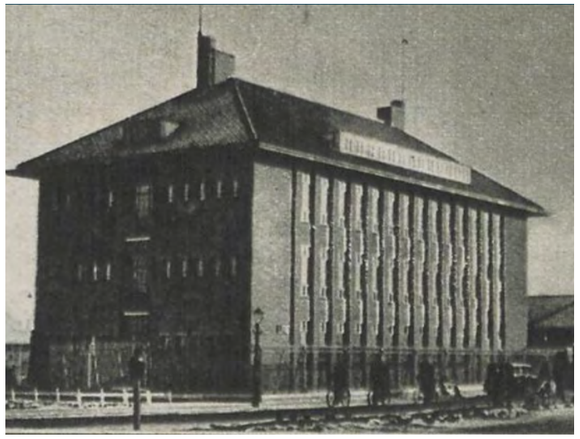


Fig. 41: 1933 building (Stadsarchief Rotterdam, n.d.)

Fig. 42: 1940 building (Seelbach, 2014)

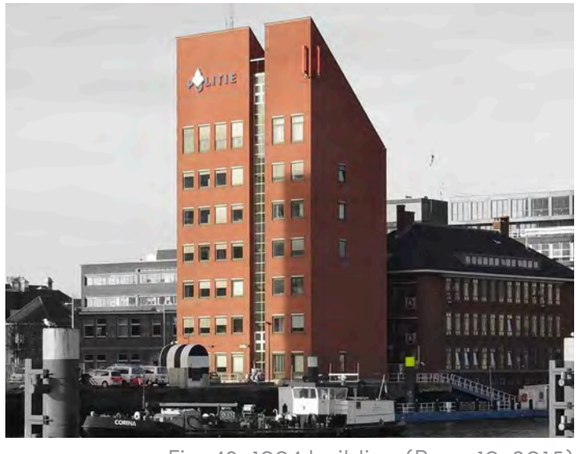


Fig. 43: 1994 building (Boss-19, 2015)

CULTURAL AND SOCIAL PERSPECTIVE

THE SPIRIT OF PLACE

According to Norberg-Schulz, the 'Genius Loci' can be divided into two essential parts. On the one hand, the spirit of the place is something spiritual, which is the atmosphere and character of the place. This concerns the identification with the place. On the other hand, it is also about something tangible, such as the location or spatial structure. He calls this the orientation of the place.

In his book Towards a Phenomenology of Architecture he mentions the following:

"We have used the word "dwelling" to indicate the total man-place relationship. To understand more fully what this word implies, it is useful to return to the distinction between "space" and "character". When man dwells, he is simultaneously located in space and exposed to a certain environmental character. The two psychological functions invlolved, may be called "orientation" and "identiflcation". To gain an existential foothold man has to be able to orientate himself; he has to know where he is. But he also has to identify himself with the environment, that is, he has to know how he is a certain place." (Schulz, 1980).

The location where the Harbour Police station stands today is the result of several key-moments in history that have shaped its charachter. The Parkhaven was located at a central spot in order to excecute the tasks of the River Police in relation to safeguarding the Maas. After being housed in quite primitive offices, the building of the River Police at the St. Jobsweg became a symbol for its growth over the years. Namely, it was the first spacious office building of the River Police. After the construction of the 1940 building, which was smaller, it was known as 'the building near the River Police'. Only recently, it was added to the real estate of the police. Over the years, the lack of space increased again. Therefore, the building designed by architect Struijs was added. Due to its contrasting character, it formed the image of the entire River Police and created a monumental character towards the harbour.

On another note, the spirit of this place resides in the long history of events and changes that happened within and around the buildings. Its spirit is characterised by (the memory of) the people who have worked there and who have lived there, as well as by them who have been imprisoned during the Second World War. As can be seen in the newspapers from 1933, the mayor used the oppening to praise the existence and growth of the River Police and its contribution to society (fig. 45). So, the atmosphere and character is also reflected by the building of the River Police itself, which has been able to grow in size and importance during the years in order to become the institution that we know today.

Fig. 44: Bureau rivierpolitie aan de Sint-Jobsweg (Stadsarchief Rotterdam, 1956)

Rotterdam.

EEN NIEUW BUREAU.

De rivierpolitie te Rotterdam vervult een belangrijke taak. Tot nu toe was ze slecht gehuisvest. Daaraan is thans een einde gekomen. Zaterdagnamiddag is een nieuw bureau aan de Parkhaven officieel geopend.

Tegenwoordig waren vele politie-autoriteiten, o. w. de w.n. hoofdcommissaris, de heer C. v. d. Pol; de oud-hoofdcommissaris, de heer A. H. Sirks; de commissarissen; Ir. L. W. H. van Dijk, directeur van Gemeentewerken; en tal van politie-inspecteurs.

Na door den heer v. d. Pol welkom te zijn geheeten heeft Burgemeester Mr. P. Droogleever Fortuyn een toespraak gehouden, waarin hij wees op de onvoldoende huisvesting van de Rotterdamsche politie. De rivierpolitie is de eerste, die een betere huisvesting verkrijgt. „De Rivierpolitie is in 1895 een zelfstandige afdeeling geworden en als men nagaat, hoe sedert haar optreden de criminaliteit op de rivier is verminderd, zal men moeten erkennen, dat het instellen van deze afdeeling een groot succes is geweest. Spr. stelt er prijs op te verklaren, dat hij het werk van de Rotterdamsche Rivierpolitie ten zeerste waardeert. Spr. wilde hieraan uitdrukking geven door in het nieuwe bureau het portret op te hangen van wijlen den heer E. J. van Binsbergen, den chef van dit korps, die dezen zomer stierf.

Spr. richtte zich vervolgens tot den heer J. Riedijk, chef van de Riverpolitie, dien hij gelukwenschte met het nieuwe gebouw.

Spr. verklaarde het nieuwe bureau voor geopend, in de hoop dat de onderlinge band bij het korps steeds hecht zal blijven.

Het is uw huis, houdt het hoog. (Applaus).

Namens de Rotterd politie en in het bijzonder namens de Riviepolitie heeft de heer v. d. Pol daarop den Burgemeester dank gebracht voor zijn woorden en geschenk.

De heer C. H. Hanewinckel, commissaris van politie dankte namens mevr. de wed. Van Binsbergen voor de waardeering, gebracht aan de nagedachtenis van den vroegeren chef van de Rivierpolitie.

Vervolgens werd een rondgang door het gebouw gemaakt.

Fig. 45a: Een nieuw bureau (De Standaard, 1933)

Rivierpolitie Rotterdam

Zaterdagmiddag om twee uur is het nieuwe bureau van de Rivierpolitie te Rotterdam officieel geopend. Aanwezig waren o.a. de burgemeester, Mr. P. Droogleever Fortuyn, de waarnemend hoofdcommissaris, de heer C. v. de Poll, en de waterschout de heer A. H. Sirks.

Nadat de heer v. d. Poll den burgemeester had verwelkomd, hield deze laatste een rede, waarin hij er op wees, dat de huisvesting van de politie, althans voor dit onderdeel, geen wenschen meer overliet.

Na de oprichting in 1895 en de verdere ontwikkeling van de rivierpolitie te hebben gememoreerd, wijdde de burgemeester enkele waardeerende woorden aan den kort geleden overleden chef van de rivierpolitie, den heer E. van Binsbergen, wiens portret door den burgemeester zelf in de gang werd opgehangen. Vervolgens spraken nog de heeren v. d. Poll en Hanewinckel, waarna een rondgang door het gebouw werd gemaakt, dat op het drukke punt bij de Parksluizen een uitnemende afsluiting (architectonisch bedoeld!) van de omgeving vormt.

Fig. 45b: Rivierpolitie (Scheepvaart, 1933)

HISTORICAL CODING AND MIND MAP

VALUES AND ATTRIBUTES

The identification of valuable architectural elements can be based on the coding of values and attributes. On the one hand, Pereira Roders (2012) divided values into eight primary values. On the other hand, the attributes can be identified on the basis of Veldpaus' Intangibles and tangibles (2014). These intangibles are made up of asset related, societal and process attributes, while the tangibles are expressed by asset, area and landscape attributes.

Sources like the book *Dienders te water* (1995) and articles from *Ons Rotterdam* (2014) provided insight in the history of the former River Police. Furthermore, the internet was scoured for information regarding the site analysis. These data were directly integrated into one text on the chronological events of the River Police and its site. The text was not paraphrased or adapted in order to maintain the objectivity. By coding this text - written by 11 different authors -, the values and (in) tangible attributes were identified. Several sources within this text showed overlapping Information, so values and attributes were mentioned multiple times. Therefore, the next step was to create an overarching overview whereby the values and attributes were visualized in a mind map, as visualised on the right.

LEGEND

- Political value
- Social value
- Scientific value
- Ecological value
- Age value
- Aesthetical value
- Historic value
- Economic value

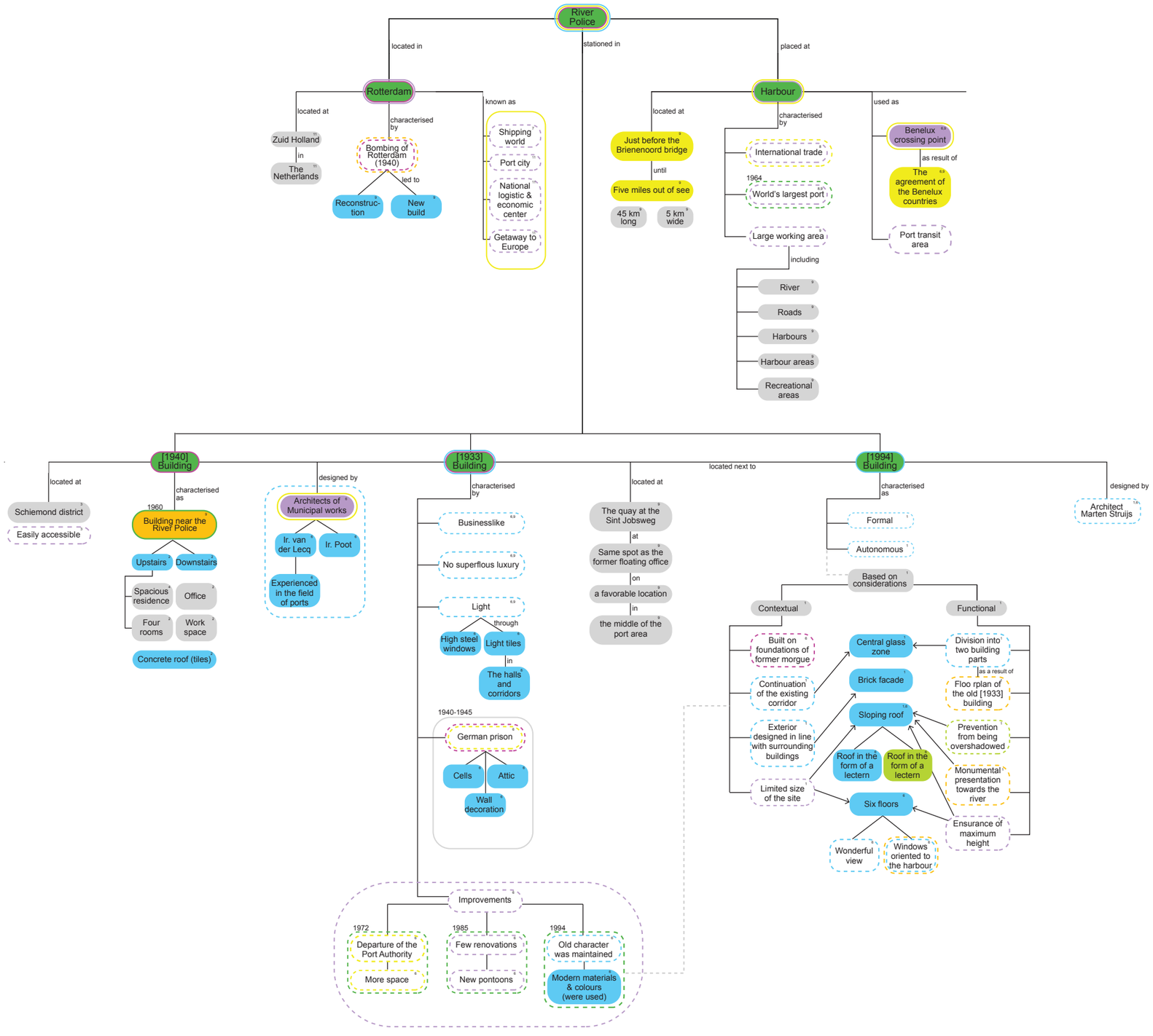


Fig. 46: Mind map of the coding of objective texts in relation to the Harbour Police Station

2.2. OBJECT AND BUILDING ANALYSIS

2.2. OBJECT AND BUILDING ANALYSIS

INDEX

This subchapter will consist of an analysis of the building and its architecture. As an example, the typology and materiality of the Rotterdam Harbour Police station will be discussed. This subchapter is divided into the following:

- Site and space plan
  - Typology
  - Spatial organisation
  - Orientation
- Skin and materiality
  - Material attributes
  - Solids and voids
- Interior and stuff
  - Interior elements
  - Art and decoration

2.2.1. SITE AND SPACE PLAN

RELATION TO HUMAN SCALE

The Harbour Police station consists of three separate buildings as the image on the right shows. The scale of the buildings is very different between each other. The 1940 building, on the left, is the smallest and more relatable to human scale. The 1933 building has a bigger scale compared to the 1940 building, but does not result as big as the 1994 building since its only three floors high. On the contrary, the 1994 building is eight floors high and results being very tall and not connected to human scale.

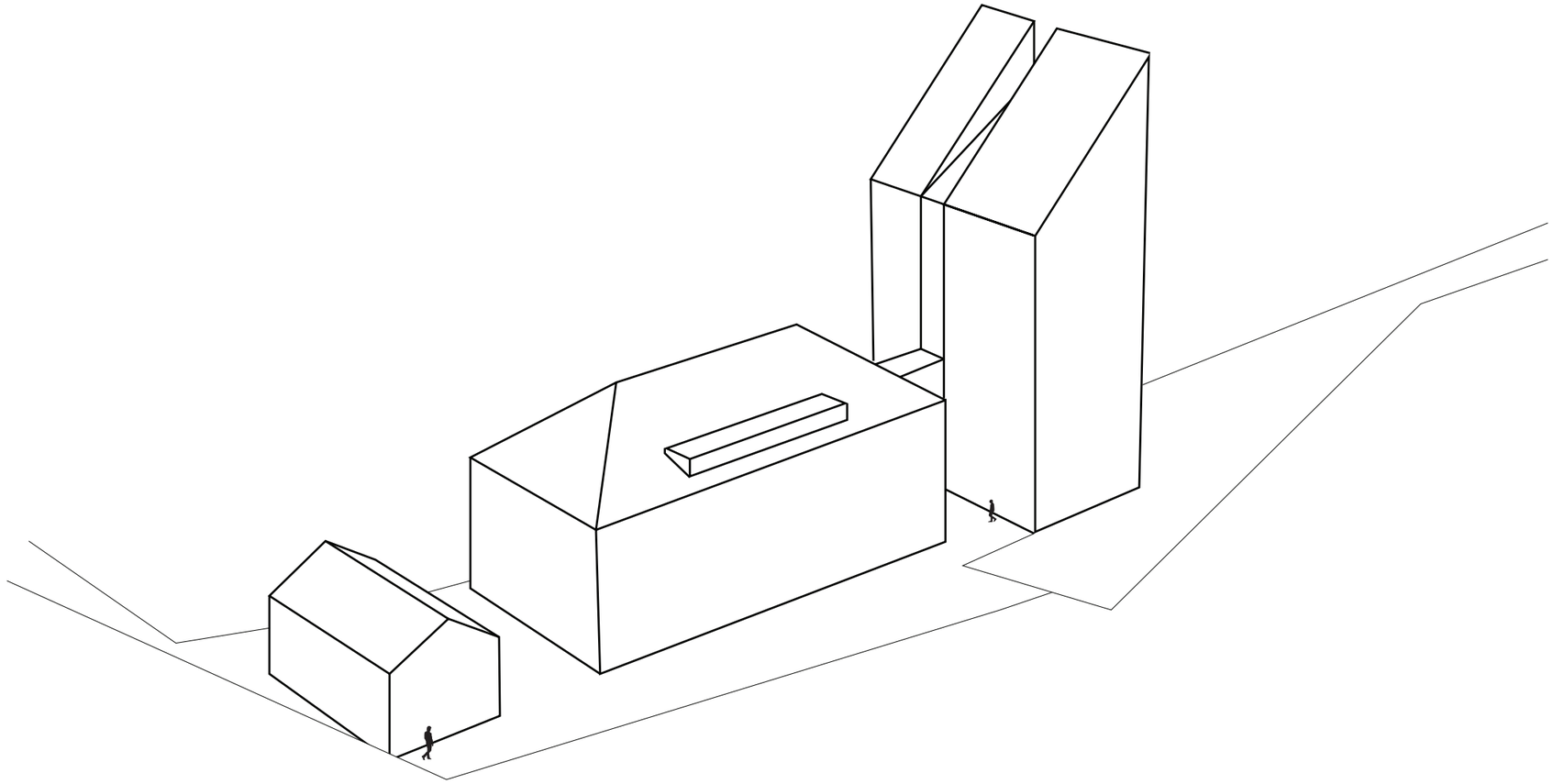


Fig. 47: Square meters of the Harbour Police Station

PROPORTIONS

The Rotterdam Harbour Police Station is composed of a composition of three buildings, located at the Sint Jobsweg parallel to the Parkhaven. The composition can be described as the planned arrangement of parts to form a whole. Nowadays, the Harbour Police consists of a tower, a connected building block and a detached house (fig. 48a and 48c).

From the east and west side, visual order is created by the three volumes. Towards the river, the Maas, the buildings are getting higher. As a result, the composition towards the River Maas can be described as monumental.

The buildings all have different proportions. As an example, the middle building is the widest, while the tallest building is only a little wider than the smallest building. In contrast to the height and width, the depth of the buildings do not differ a lot (fig. 48b and 48d).

Fig. 48a: East facade

Fig. 48b: North facade

Fig. 48c: West facade

Fig. 48d: South facade

FACADES

Apart from these scales, shapes and volumes, the buildings also have a specific appearance as a result of the facade designs. Therefore, the facade drawings are shown on the right to provide some general insights in the design of the three buildings. The highest building dates from 1994 and has a formal character. The middle 1933 building is the oldest and has a traditional appearance. The 1940 building is built as a residence and workshop, which is reflected by its design. Moreover, it will be analysed more intensively in the next subchapter.

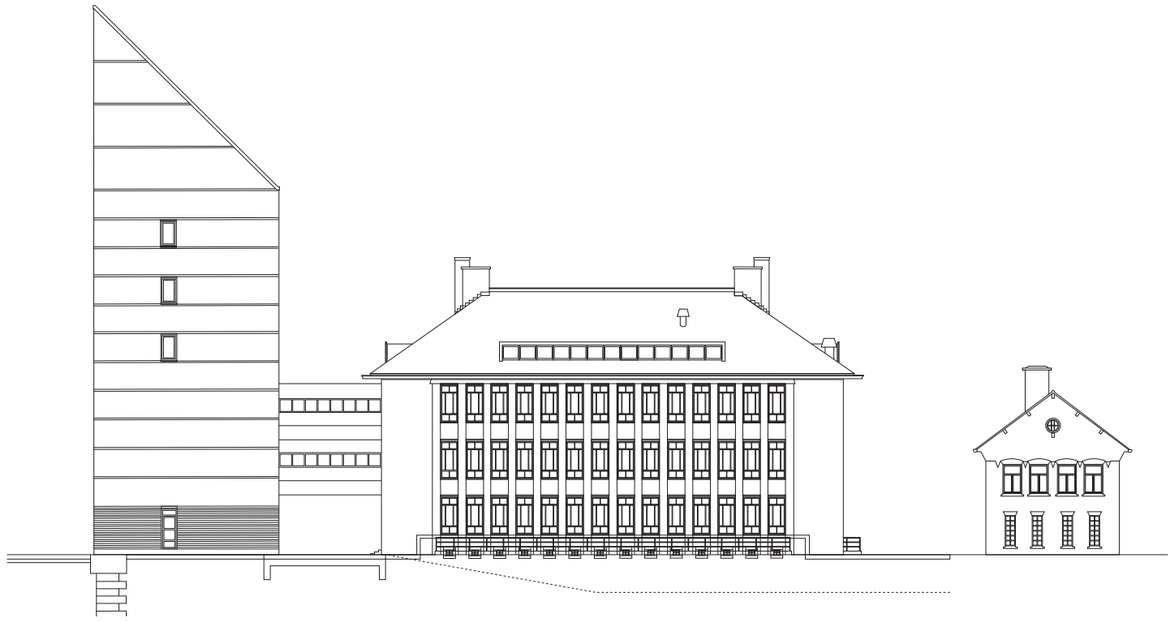


Fig. 49a: East facade

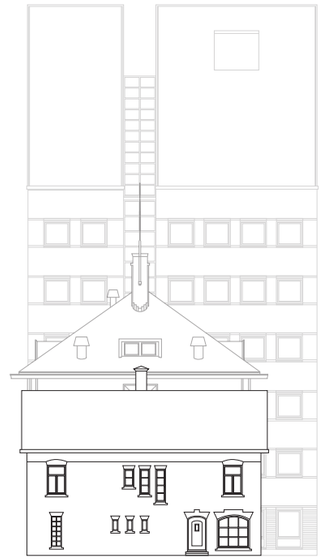


Fig. 49b: North facade

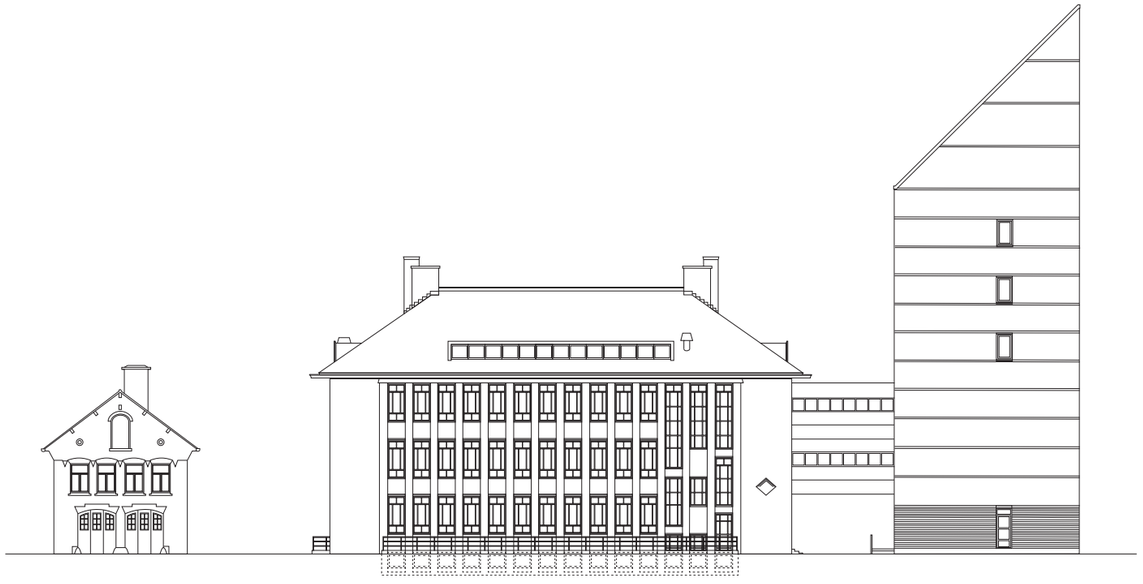


Fig. 49c: West facade

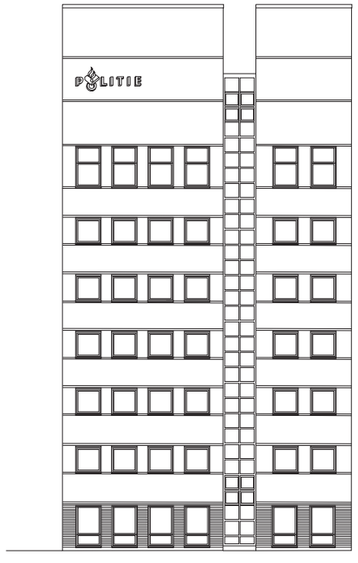


Fig. 49d: South facade

TYPOLOGY

SQUARE METERS

As previously said, the Harbour Police station consists of three separate buildings. All of them have different surfaces on each floor, as you can see on the images on the right. The 1994 building consists of then fioors, basement included. Each fioor has a surface of 222m², except the seventh and eighth floor which have a smaller surface due to the slanted roof. The 1933 building is four floor high. Each floor has a surface of 424m². The 1940 building does not have a basement and is only two storeys high. Each fioor has a surface of 114m².

LEGEND

222m² 1994 building
222m² 1933 building
222m² 1940 building

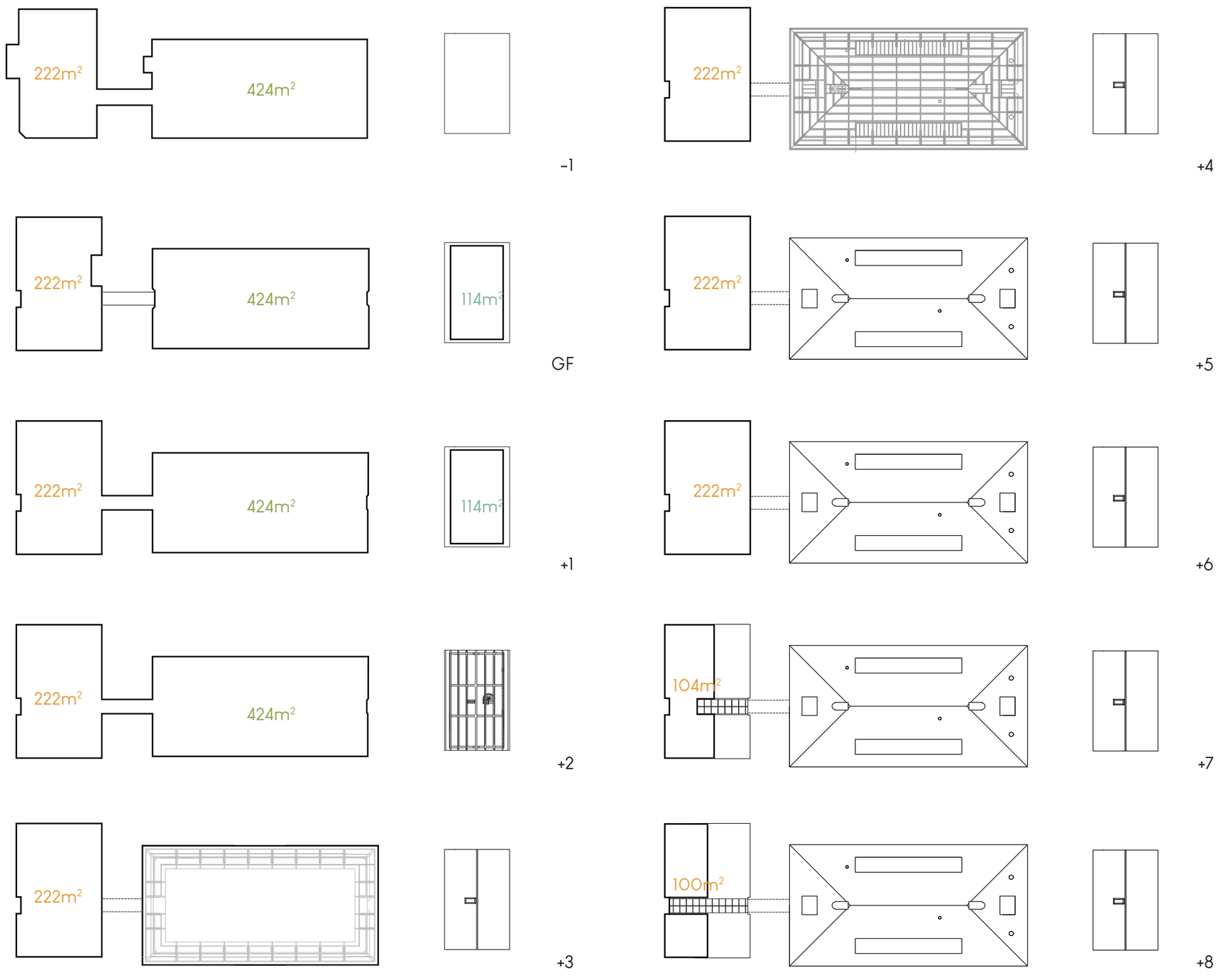


Fig. 50: Genaral overview of square metres

SPATIAL ORGANISATION

GRIDS

Each of the three buildings has a different grid, as can be seen on the floorplans displayed on the right. The 1994 building has five horizontal grid lines and four vertical ones. Interestingly, the 1933 buildings presents a very high amount of vertical grid (nineteen) compared to the horizontal ones (four). The 1940 building presents four horizontal grid line and three vertical ones. Each building presents grids on the outer walls.

LEGEND

- 1994 building
- 1933 building
- 1940 building

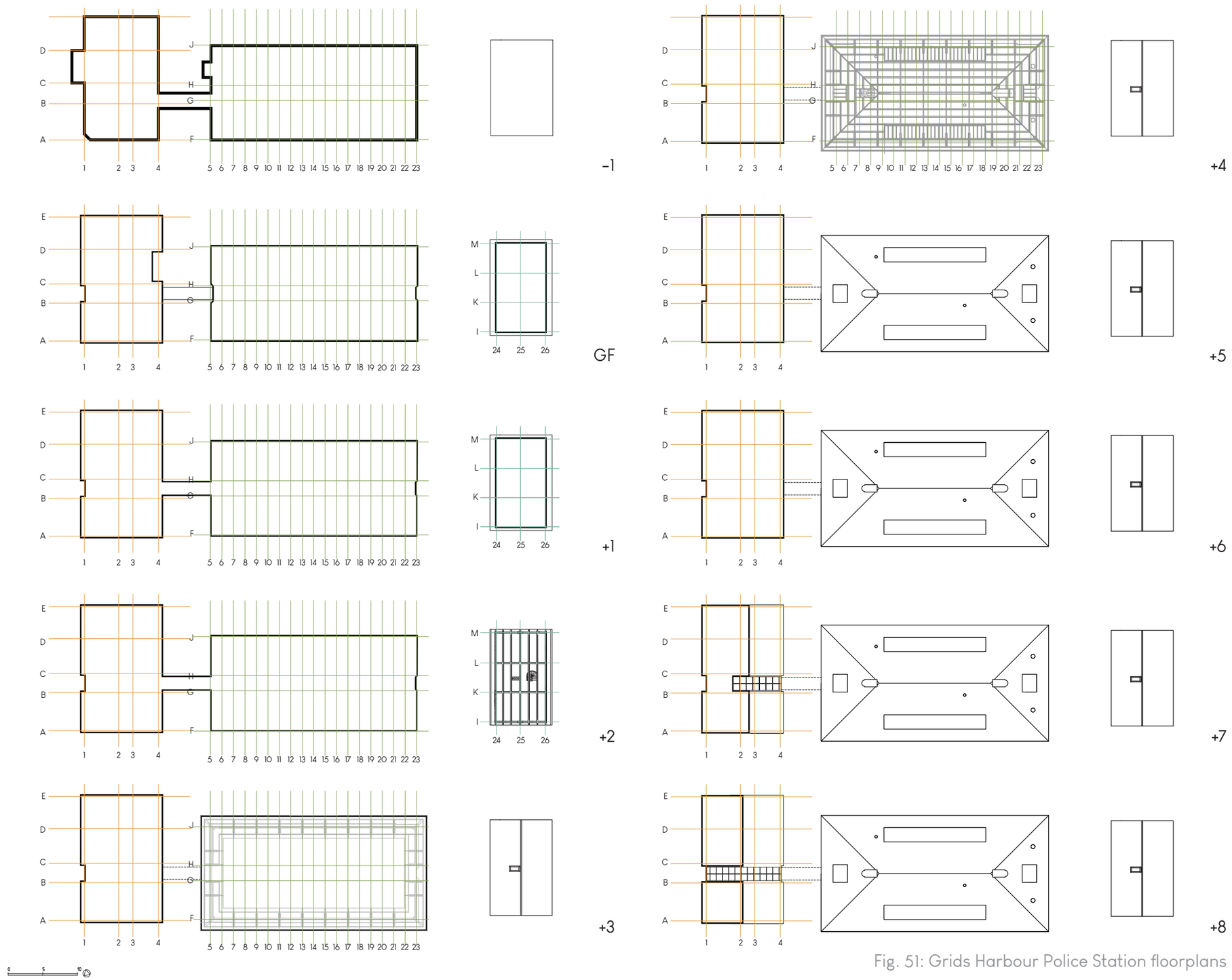


Fig. 51: Grids Harbour Police Station floorplans

SPATIAL ORGANISATION

ACCESS AND ROUTING

As mentioned before, the Harbour Police Station at the Sint-Jobsweg consist of a combination of a detached house, a building block and a tower. In addition, all three buildings have their own entrances. After entering the building, the spaces are organised by a corridor structure, as can be seen in the figures on the right.

The North-South corridor is the most dominant corridor. It connects the entrances with the rest of the building. As visualised, the corridor provides access to the stairways as well as to the different rooms. Furthermore, the 1994 building contains a East-West corridor as well. This corridor connects the stairways on the West side with the elevator on the East side of the building. It can be concluded that the corridors lead to a clear routing.

On the contrary, the 1940 building has no such thing as a stretched corridor. The structure can be described as a pavilion structure, since the different rooms at a certain fioor level are accessible from hall around the stairways.

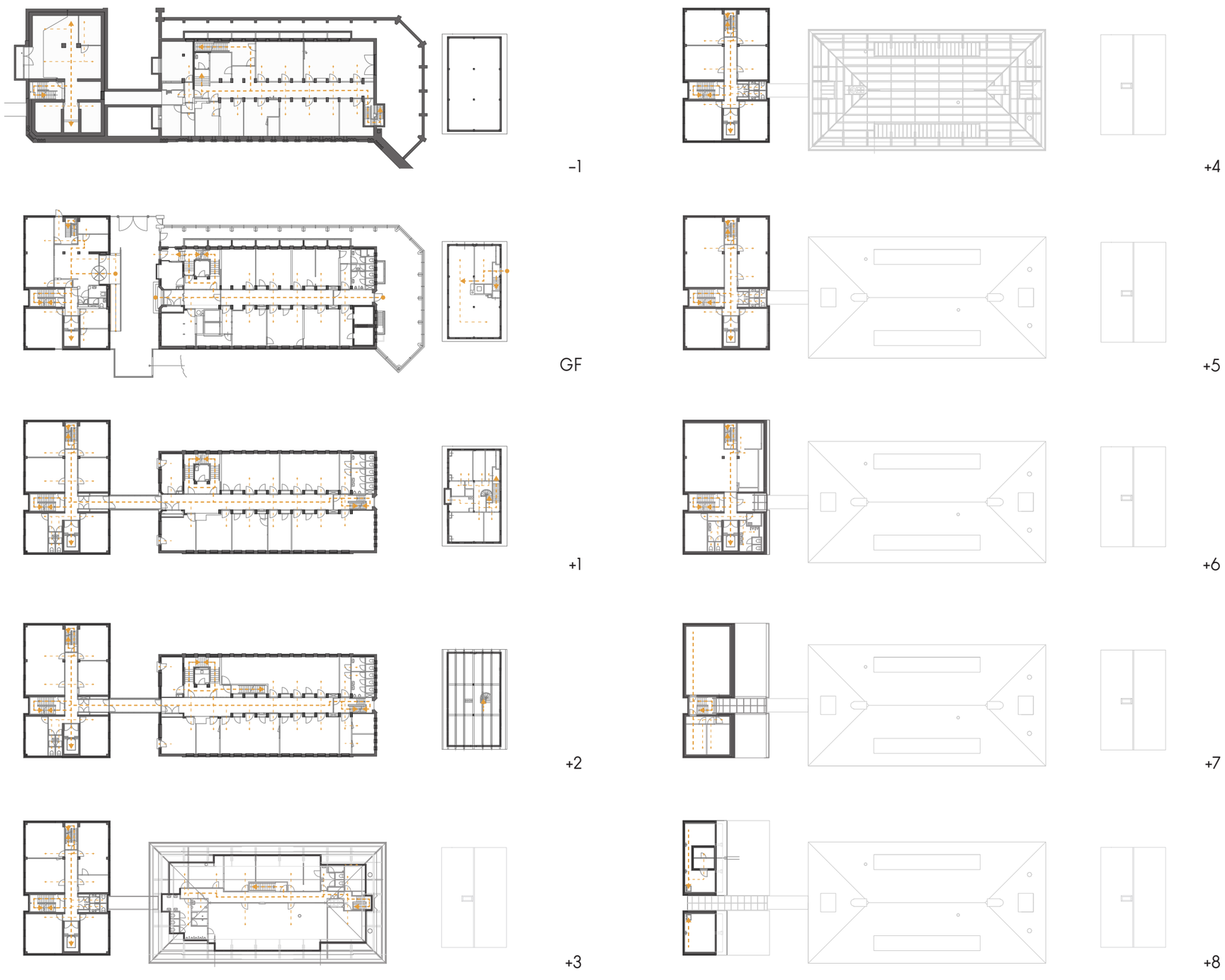


Fig. 52: Routing through the Rotterdam Harbour Police Station

SPATIAL ORGANISATION

ARRANGEMENT OF DAYLIGHT

In the basement enters little sunlight. Therefore, the functions should not require daylight, like technical rooms and storage spaces. On the ground floor, all facades - except the North facade of the 1994 building - have windows placed on each side. So, all the rooms receive direct sunlight, except the toilets (1994), corridor and interview rooms (1933), and toilet and technical room (1940).

On the first and second floor, the 1994 building presents most window openings on only two facades, the North and South side. On the other two facades, one staircase and the elevator are placed. The corner rooms have windows on one wall and consist of office functions. In the 1933 building, windows are placed on each facade. Each room - except the corridor - has direct sunlight coming in.

On both floors, the 1940 building accommodates an apartment and its functions, such as bedrooms, living room, and kitchen and receive direct sunlight.

On the third and fourth floor, the 1994 building presents window openings on all facades. The majority of the openings are again located on the North and South side. In the 1933 building, small window openings are placed in dormers, on all sides. They are particularly placed on the East and West side of the roof and make sunlight passage possible within the changing rooms. Also, two window openings are placed on the South and North side, which let the sunlight through within one staircase and one of the toilets.

On the fifth floor, the 1994 building also presents windows on the four sides. Nevertheless, most of the openings are placed on the South and North facades. On the sixth floor, windows are positioned only on the South and North. The kitchen, storage, and toilets are the spaces not receiving sunlight.

On the seventh floor the technical rooms and one storage room are placed. These do not require sunlight. In fact, the only space which receives direct sunlight is the staircase. The eighth floor does not have any window at all.

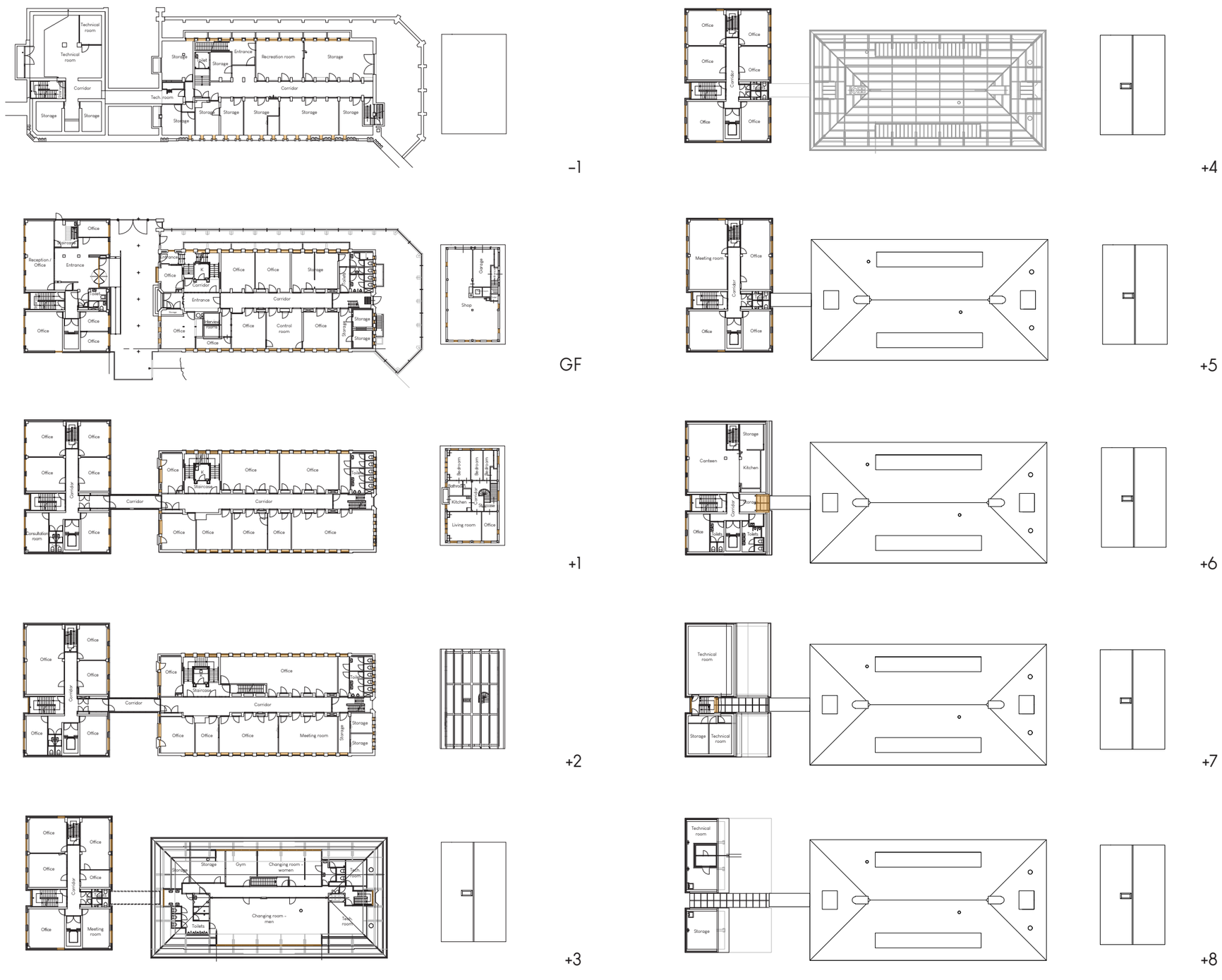
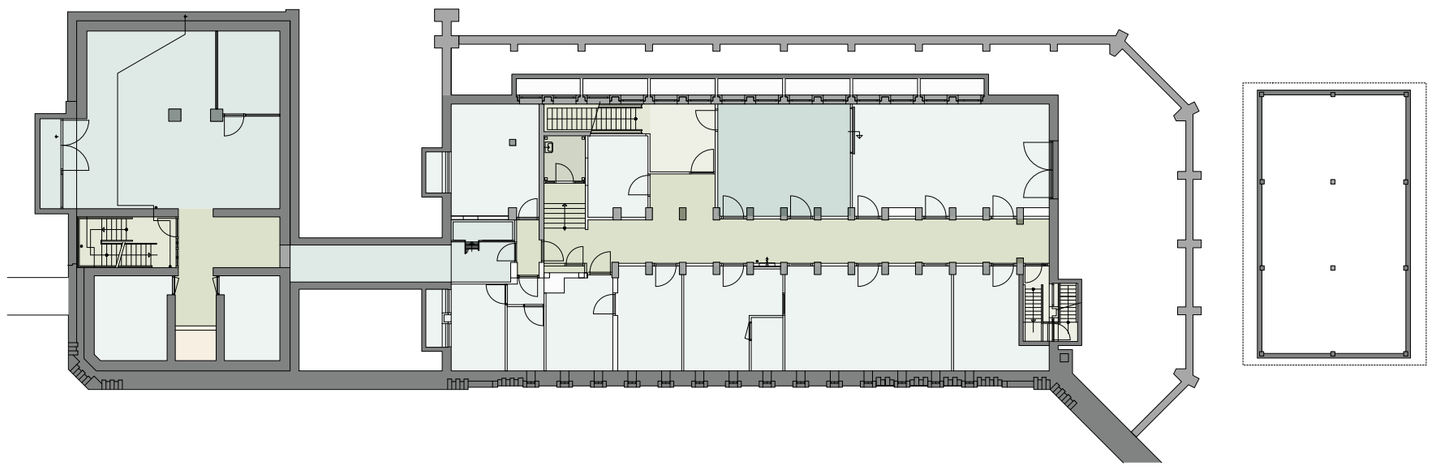


Fig. 53: Grids Harbour Police Station floorplans

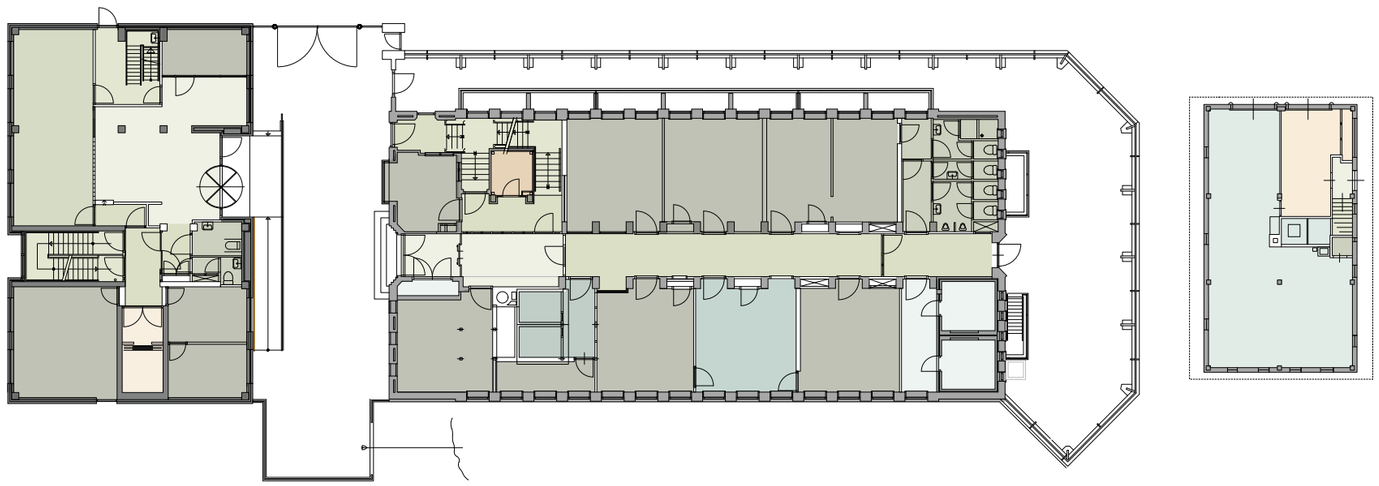
SPATIAL ORGANISATION

FUNCTIONS

On the basement level of both the 1994 and 1933 buildings, mostly storage spaces and technical rooms are located. The only exception is a recreational room and a toilet within the 1933 building. In both buildings the basement can only be reached through staircases.
On the ground floor, a big entrance and reception are present within the 1994 building, together with office spaces. Within the 1933 building the majority of the rooms are dedicated to offices, except for one storage room. A central corridor makes all the rooms accessible. Within the 1940 building, a big open spaces, which is dedicated to shop function, is present, together with a garage.



Basement



Ground floor

0 5 10

LEGEND

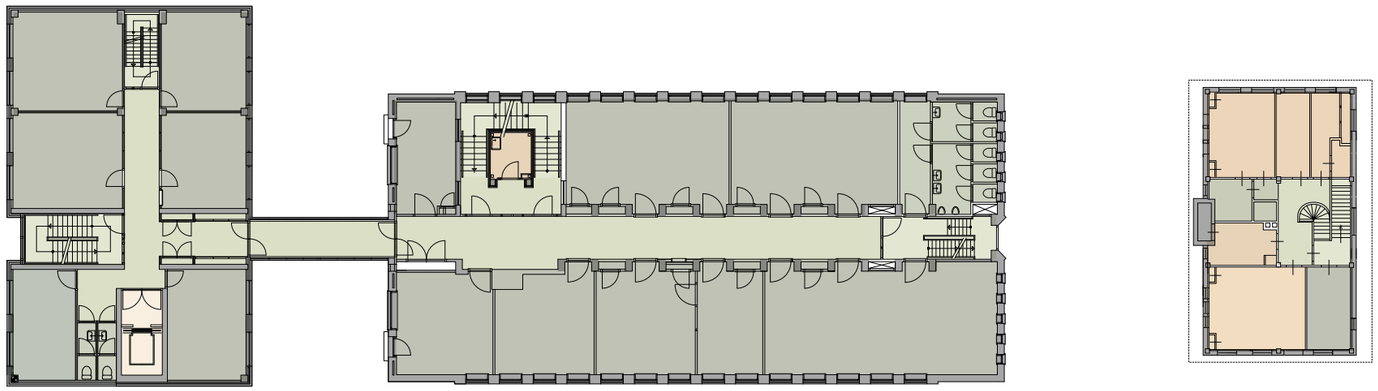
- Entrance
- Staircase
- Corridor
- Reception
- Toilet
- Bathroom
- Office
- Consultation room
- Interview room
- Control room
- Recreational room
- Meeting room
- Technical room
- Shop
- Storage
- Canteen
- Changing room
- Kitchen
- Bedroom
- Living room
- Gym
- Garage
- Elevator

Fig. 54a+b: Grids Harbour Police Station floorplans

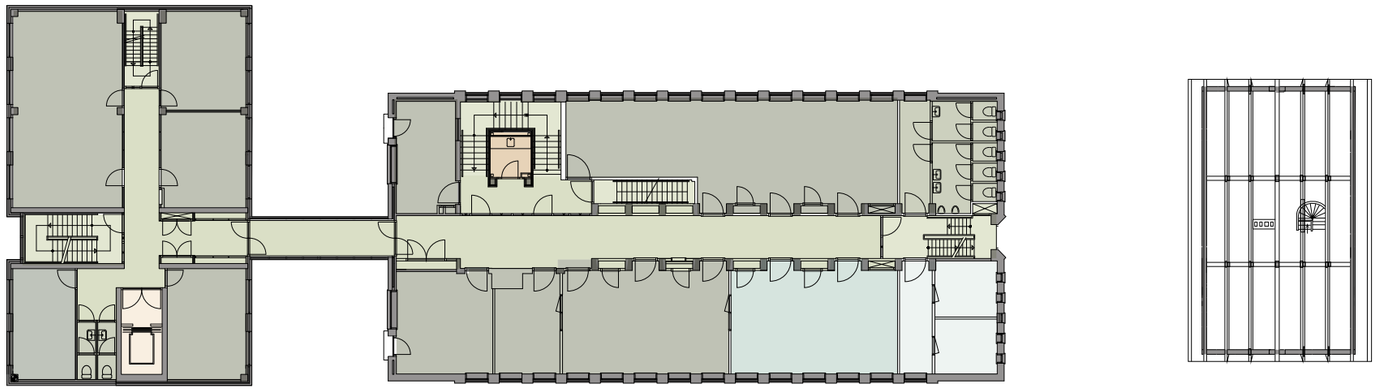
SPATIAL ORGANISATION

FUNCTIONS

On the first and second floors of both the 1994 and 1933 building the majority of the space is dedicated to office rooms. All the rooms are accessible through corridors. A corridor connects on both levels the two buildings. On the first and last floor of the 1940 building a three bedroom apartment, with kitchen, living room, bathroom and office, is located.



First floor



Second floor

0 5 10

LEGEND

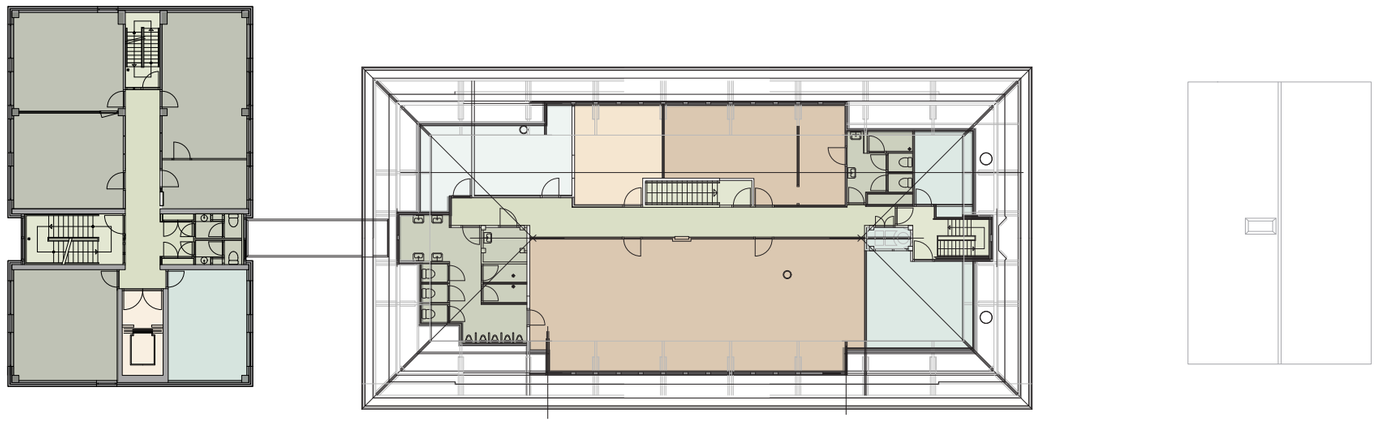
- Entrance
- Staircase
- Corridor
- Reception
- Toilet
- Bathroom
- Office
- Consultation room
- Interview room
- Control room
- Recreational room
- Meeting room
- Technical room
- Shop
- Storage
- Canteen
- Changing room
- Kitchen
- Bedroom
- Living room
- Gym
- Garage
- Elevator

Fig. 54c+d: Grids Harbour Police Station floorplans

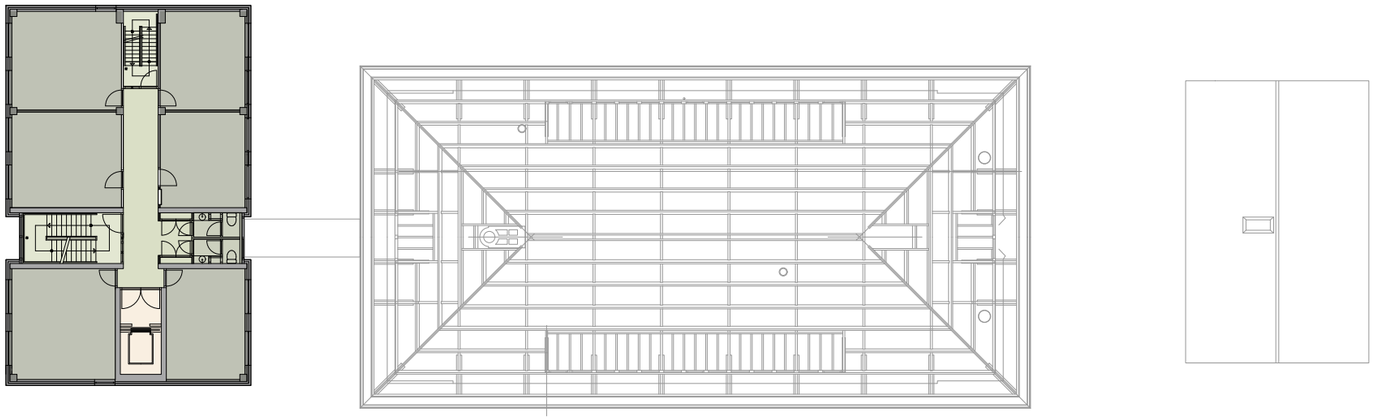
SPATIAL ORGANISATION

FUNCTIONS

On the third floor the 1994 and 1933 buildings are not connected anymore. Within the 1994 building, offices and one meeting room are present, together with one corridor, two staircases, one elevator and two toilets. On the same level, the 1933 building presents two changing room, toilets, storage spaces and two technical rooms. This floor is reachable through two staircases. On this level, the 1940 building presents the roof structure.
On the fourth floor, all the rooms within the 1994 building present office functions. Again, a corridor two toilets, two staircases and one elevator are present. On this level, the 1933 building presents the roof structure.



Third floor



Fourth floor

0 5 10

LEGEND

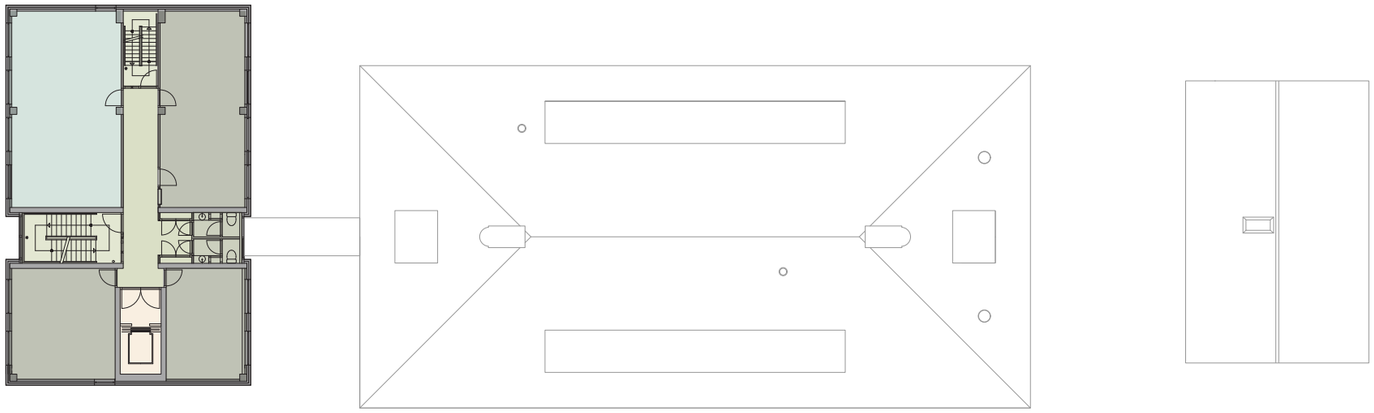
- Entrance
- Staircase
- Corridor
- Reception
- Toilet
- Bathroom
- Office
- Consultation room
- Interview room
- Control room
- Recreational room
- Meeting room
- Technical room
- Shop
- Storage
- Canteen
- Changing room
- Kitchen
- Bedroom
- Living room
- Gym
- Garage
- Elevator

Fig. 54e+f: Grids Harbour Police Station floorplans

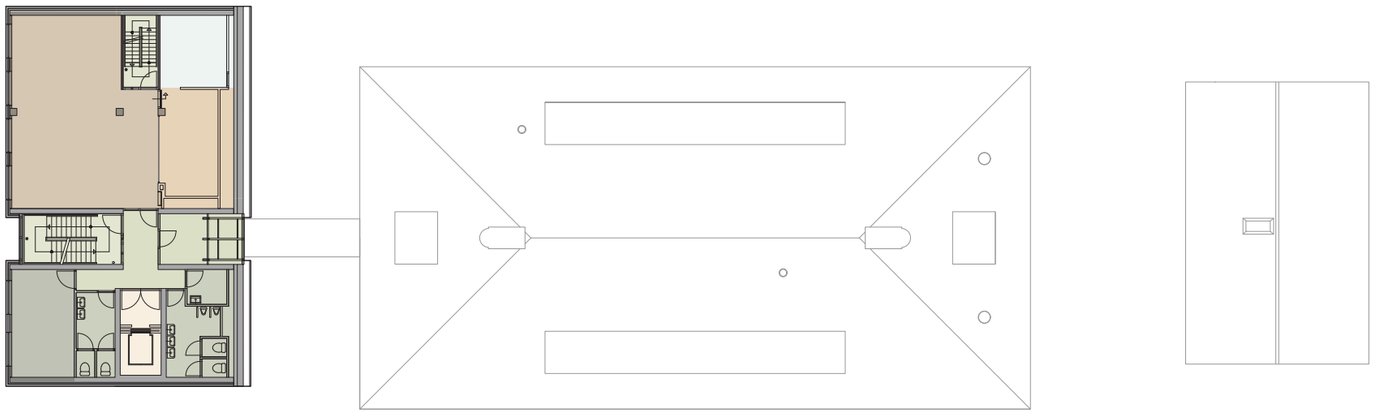
SPATIAL ORGANISATION

FUNCTIONS

On the fifth floor, within the 1994 building, three offices and one large meeting room are present. Again, a corridor, two toilets, two staircases and one elevator are present.
On the sixth floor the canteen is present. Together with, the kitchen and attached storage. Also, one office, four toilets, one elevator, and two staircases are present. The corridor on this floor results being considerably smaller than on the previous levels, since the canteen has incorporated it in its space.



Fifth floor



Sixth floor

0 5 10

LEGEND

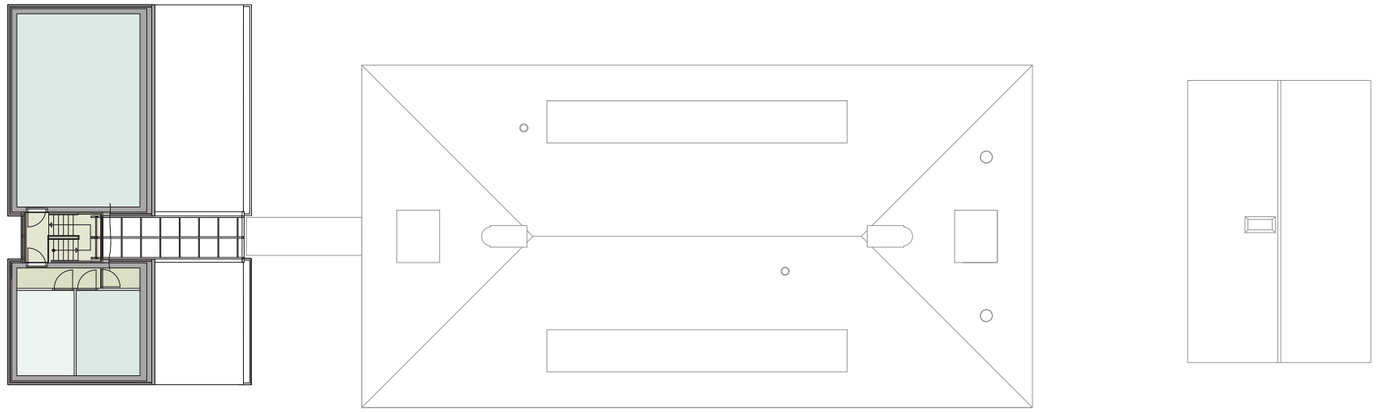
- Entrance
- Staircase
- Corridor
- Reception
- Toilet
- Bathroom
- Office
- Consultation room
- Interview room
- Control room
- Recreational room
- Meeting room
- Technical room
- Shop
- Storage
- Canteen
- Changing room
- Kitchen
- Bedroom
- Living room
- Gym
- Garage
- Elevator

Fig. 54g+h: Grids Harbour Police Station floorplans

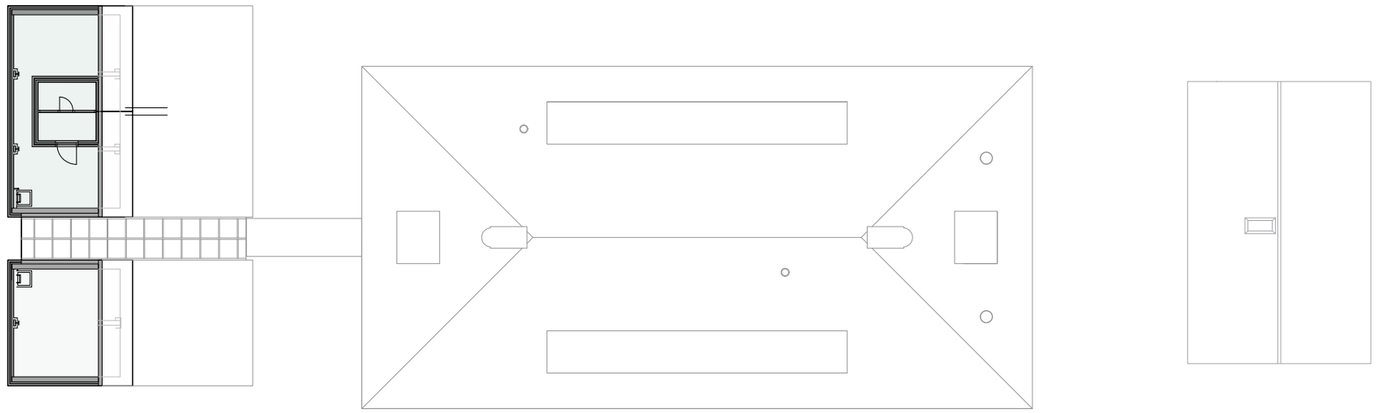
SPATIAL ORGANISATION

FUNCTIONS

On the seventh floor, within the 1994 building, two technical rooms are present, together with one storage room. This floor is only reachable with one staircase. The floor above, eighth floor, presents the same functions since it is the continuation in height of the floor underneath.



Seventh floor



Eighth floor

0 5 10

LEGEND

- Entrance
- Staircase
- Corridor
- Reception
- Toilet
- Bathroom
- Office
- Consultation room
- Interview room
- Control room
- Recreational room
- Meeting room
- Technical room
- Shop
- Storage
- Canteen
- Changing room
- Kitchen
- Bedroom
- Living room
- Gym
- Garage
- Elevator

Fig. 54i+j: Grids Harbour Police Station floorplans

ORIENTATION

POSITION IN THE AREA

Concerning the orientation of the building, the images on this page show each side of the harbour Police Station. The West side is considered to be the front, since this is the side that one has to approach to enter the building. Subsequently, the East side is considered to be the backside. This is also in line with the fact that this side is the least approachable as a result of the water inbetween the viewer and the building. Futhermore, the North and South sides are regarded as the end views of the buildings.

In line with the drawings concerning the daylight, the relation between interior and exterior can be analysed. Namely, the windows give insight in the interior functions. As an example, the offices all have similar windows. Furthermore, the stairs are emphasized in the west facade of the 1933 and 1940 building. In addition, the next subchapter will tie in to these notions.

Fig. 55: Top view Rotterdam Harbour Police Station

Fig. 56: North facade

Fig. 57: East facade

Fig. 58: South facade

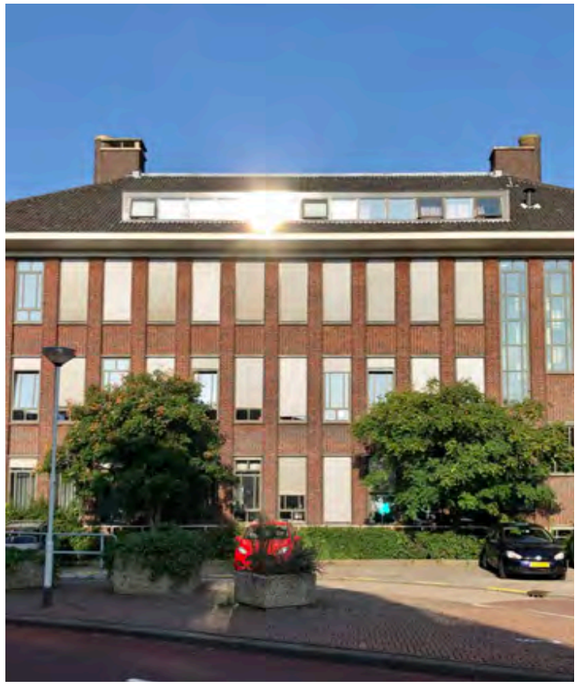


Fig. 59: West facade

ORIENTATION

SIGHTLINES TOWARDS THE AREA

From the Harbour Police Station, broad views are provided to each side. In the images on the right, the different directions are shown. Towards the North, the district Delfshaven, including the sluices, is visible. The East side provides sightlines across the Parhaven towards *het Park*, including the Euromast and the Zalmhaven tower. The South side provides broad views, on each floor level, towards the river *Maas*. In this way, the relation with the water and the harbour is emphasized. The sightlines towards the West are less broad, as it consist of views on the entrance area of the Mullerpier and Lloydkwartier and its high appartment buildings.

Fig. 60: Top view Rotterdam Harbour Police Station

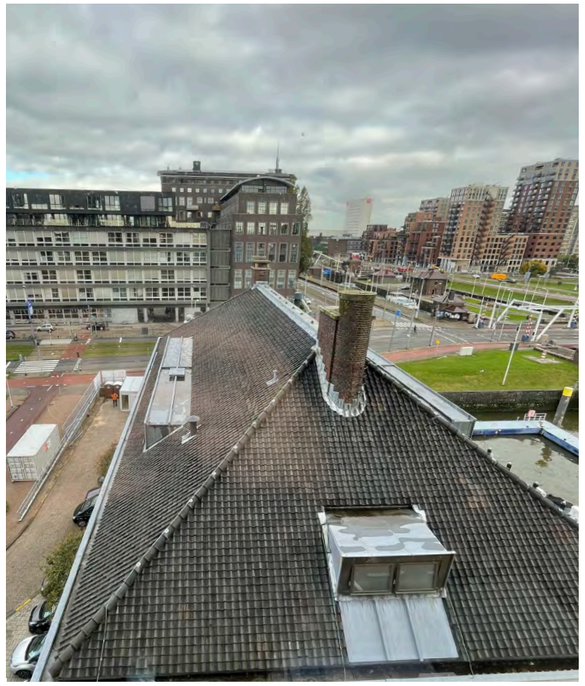


Fig. 61: View towards the North

Fig. 62: View towards the East

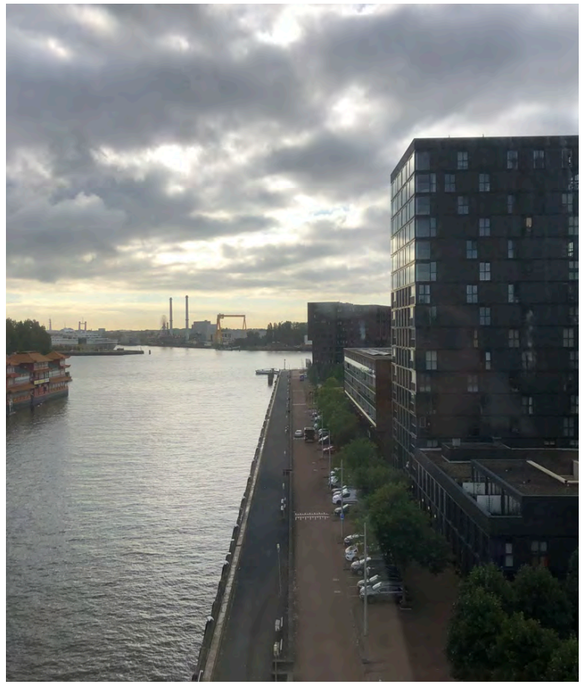


Fig. 63: View towards the South

Fig. 64: View towards the West

2.2.2. SKIN AND MATERIALITY

MATERIAL ATTRIBUTES

ARRANGEMENT OF ELEMENTS

When taking a closer look, the materiality of the buildings come into play. The first things that appear to the senses are the red-brown brick facade, the anthracite roof tiles and the black and white bridge (fig. 65 and 66). As mentioned before, the buildings consist of a clear grid and geometric shapes. As a result, the buildings can be defined by its repetitive rhythm and repetition.

Throughout the designs, there are some coherent repetitive elements. Namely, in each building, the brick bonds lead to a certain pattern. Nevertheless, these brick bonds are different per building, as will be shown on the following pages. In the larger 1994 building the colours of the bricks result in a sort of pattern as well, since black manganese stone layers alternate the brown-red surfaces (fig. 65). Furthermore, multiple windows of the same shapes, materials and sizes are used in each building. In addition they are placed on equal distances from each other. This suggests a rhythm, which generates a sense of order. Also it creates a visual link across the facade. In the small and middle (1940 and 1933) buildings, the repetitive use of window panes of the same sizes is disturbed by the abrupt change in vertical size (fig. 67 and 68). It is assumed that this used as a way to imply the availability of a stair inside.

Within the facade, balance and contrast are used to create a feeling of depth. This is most obvious in the middle building, where different positions, depths and patterns of the brick results in a more dynamic appearance (fig. 67). As a result, this contrast in brick bonds and depth highlights the presence of the windows. Nevertheless, at the same time there is some kind of balance. Namelu, the opposing forces are repeated and they create a visual equilibrium.

Fig. 65: East side of the Harbour Police Station

Fig. 66: Northern view of the Harbour Police Station

Fig. 67: West facade of the 1933 building

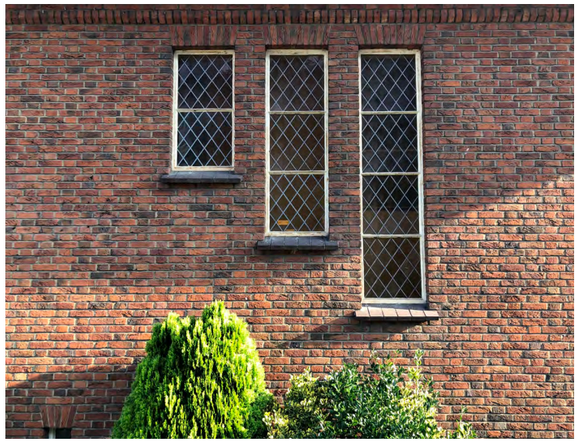


Fig. 68: North facade of the 1940 building

MATERIAL ATTRIBUTES

ARRANGEMENT OF ELEMENTS

In addition to the beforementioned rhythm and repetiton, the composition of the old small and middle buildings are (bilateral) symmetrical, as visible in the images on the right. The larger 1994 building forms another contrast, since its facade is more solid/closed and less dynamic. Colours also contribute to the perceived balance and contrast of the composition. As an example, the main brown-red bricks create visual stability throughout the design. However, the roof of the 1994 building is also brown-red, instead of anthracite, which forms a contradiction in regard to the other two buildings.

In the schematic drawings on this page, the symmetry and rhythm in the buildings become clear. In the 1994 building, the repetetive horizontal dark brown manganese stone layers provide a pattern on the facades. In the 1933 building, the vertical lines are a result of depth in the facade. In the 1940 building, the rhythm is less clear. Nevertheless, similar windows are used on the ground and first floor respectively. Furthermore, the windows are accentuation since these rhythmic voids contribute to the repetition. Besides, they form another contrast, namely between solids and voids. Finally, in each of the buildings, clear symmetry lines can be noticed. So to conclude, differences in colour layers, textures, depth, and the varying balance of solid and voids causes symmetry, rhythm and repetition.

LEGEND

- Transparency (voids)
- Symmetry axis
- Repetitive elements

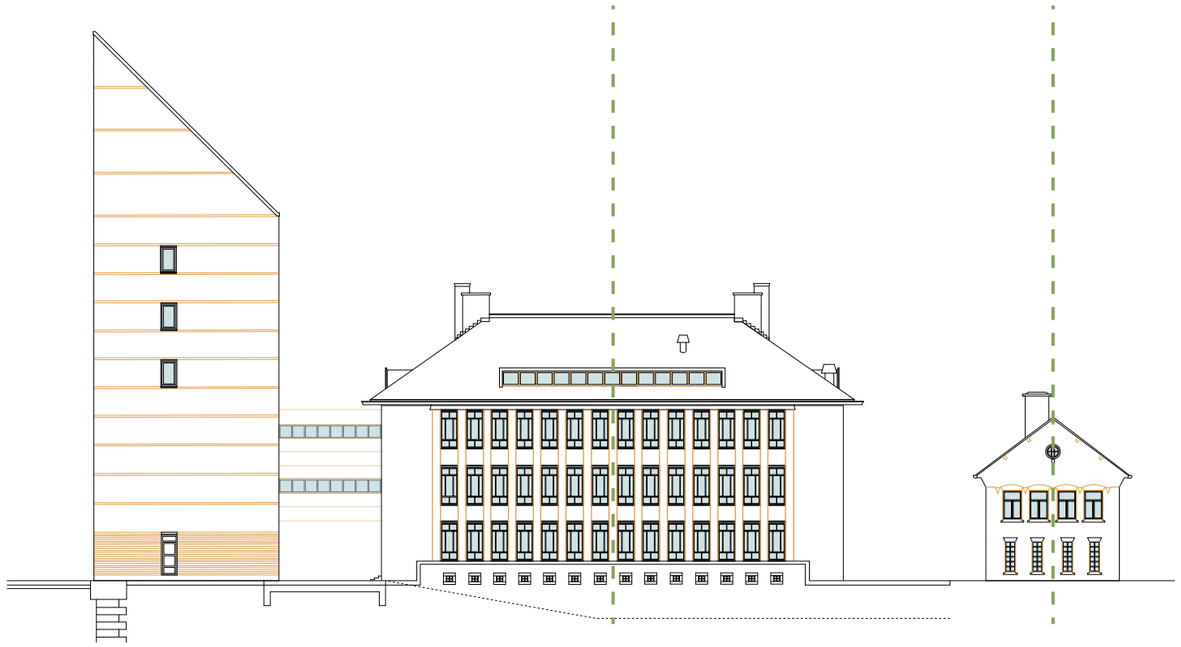


Fig. 69a: East facade

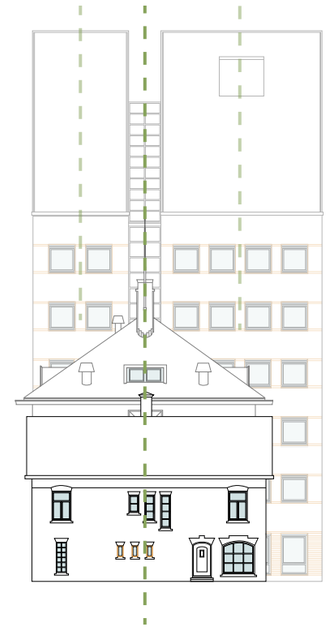


Fig. 69b: North facade

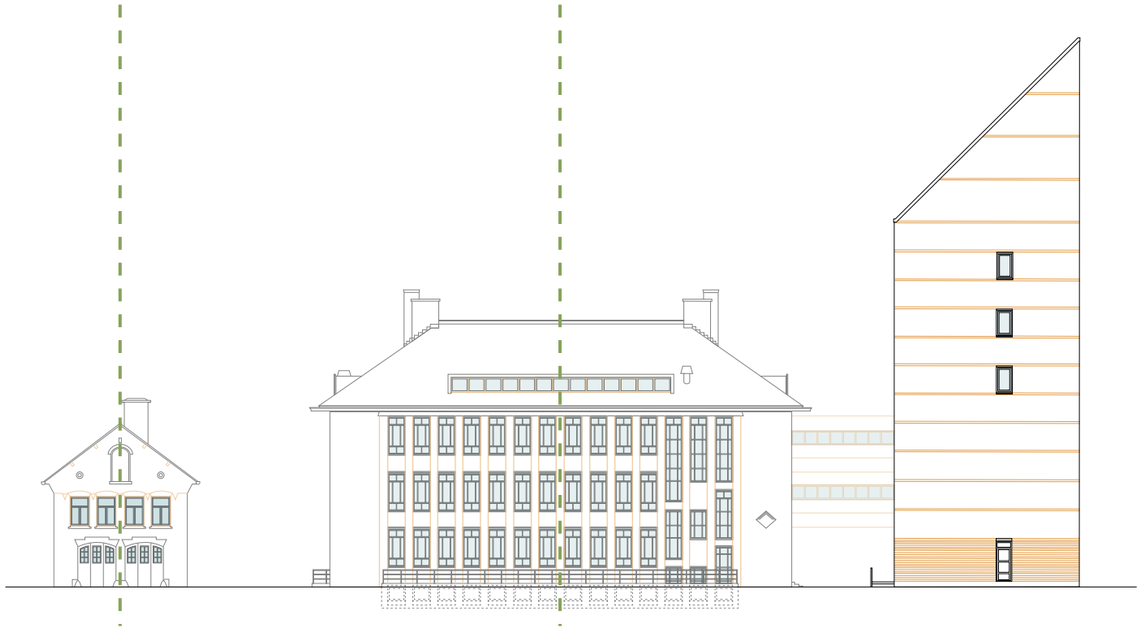


Fig. 69c: West facade

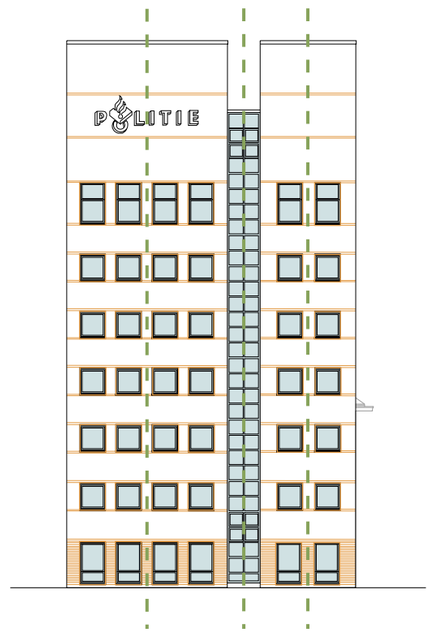


Fig. 69d: South facade

MATERIAL ATTRIBUTES

EMBODIMENT OF ELEMENTS

The three buildings of the Harbour Police Station in Rotterdam consist of a coherent palette of exterior materials. As an example, all their facades consist of brickwork. Moreover, the buildings show harmony on the basis their materiality, while their overall look, in terms of shape and height, is quite different.

In the figure below, the main materials are mentioned in a drawing of the west facade. This side is shown, since it is mainly representative for the other sides of the buildings. Overall, the materials of the Harbour Police Station can be devided in a few sets of materials. These concern masonry, natural stone, concrete, carpentry and ironwork. Therefore, these topics will be adressed on the following pages.

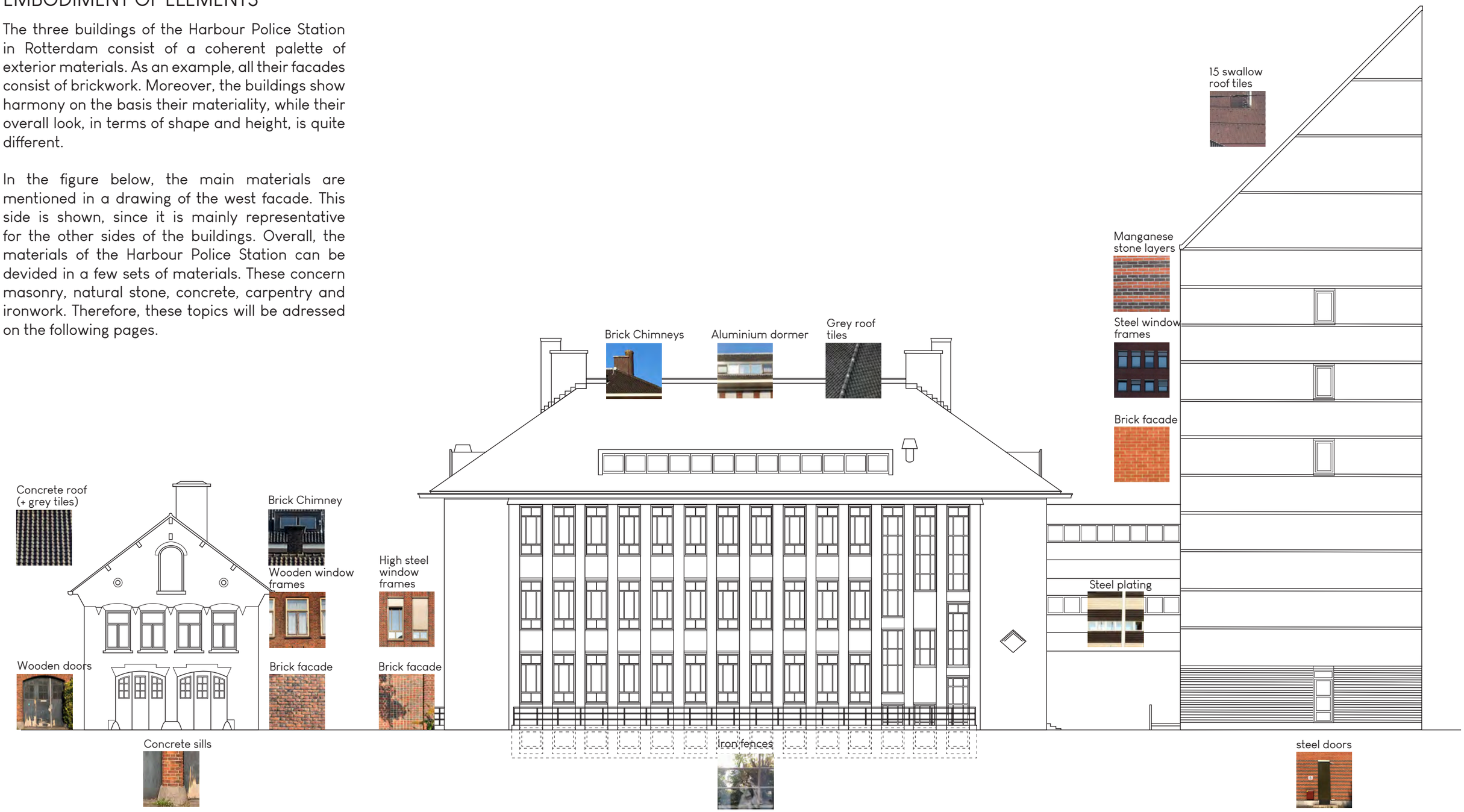


Fig. 70: West facades, including designations of main materials

MASONRY

The most obvious material is the widely used brick. The facades and walls of all three buildings consist of mainly bricks. Furthermore, the chimneys are made of brick as well. The brickwork facades of the Rotterdam Harbour Police Station show different levels of detailing and relations to the other materials.

1940 positioning and ornamentation

The former residence, which is known as the smallest of the three buildings, has the highest level of perceived detail. As an example, the patterns in the brickwork contribute to its dynamic character as can be seen in figure 71. Namely, the voids are not featured with lintels, but with masonry that is laid down vertically instead of horizontally. Moreover, most of them are flat arches. The little voids on the second floor contain bull's eye arches and semicircular arches. The openings on the ground floor contain segmented arches. This are so-called stretchers and cockscombs and these are especially used above the doors. These kind of constructions can decompose and transfer the forces resting on it to the sides. Furthermore, it provides some extra ornamentation. In addition to this variation of arches, the architect added other decorative elements like the usage of divergent bricks. The specific elements are highlighted in the images on the right. In addition, the balcony on the southside is decorated by gabs in the brickwork. Furthermore, the composition of the north facade is, contrary to all the other facades, free from symmetry. In this way, it seems that the windows are used to decorate the building and to create a more informal character.

1933 depth and variation

The middle building, dating from 1933, has a dynamic surface as well. In this situation this is – among other things – the result of depth and variation in brickwork. In the north and south facade, fences are bordering the balconies (fig. 72a). They are light and elegant as a result of its material and its shape. Furthermore, at the short sides, lintels are used to support the brickwork above the voids. On the east and west facade there are no lintels, since the construction is supported by a roll layer. On these facades, rhythm is created by the vertical lines that are shown in figure 72b. At these locations, the brickwork is placed (about 100 mm, so one brick) towards the front. Also, two types of bonds were used as an esthetic element. The stack bond is used between the windows, as can be seen in the image. In the west facade, the windows on the right also contribute to the dynamics and decoration of the facade, since it breaks the rhythm.

1994 colour layers

The 1994 building shows less ornamentation than the other two buildings. The building is quite formal and tends to have almost no decorative aspects. The manganese stone layers are used to emphasize the positions of the windows. At the same time, it creates a rhythm and can be seen as a subtile way of decoration (fig. 73a). The distance between the dark brown layers differs from the top to the bottom. The distances at the top are quite large, while at the bottom only two layers of brickwork are alternated each time. Furthermore, the glass corridor zone, which is located a bit backwards from the facade, provides some depth, as can be seen in figure 73b. In addition, the lintels that are used throughout the building are shown. Overall, the facades tend to have a quite formal character, which is not inviting the passersby. Nevertheless, the main entrance has a little more detail and attraction, due to the depth difference and the design of the banister.

Fig. 71a: Segmented arches 1940 building

Fig. 71b: Variation of arches 1940 building

Fig. 72a: Notches and thickness 1933 building

Fig. 72b: Depth of brick in the 1933 building

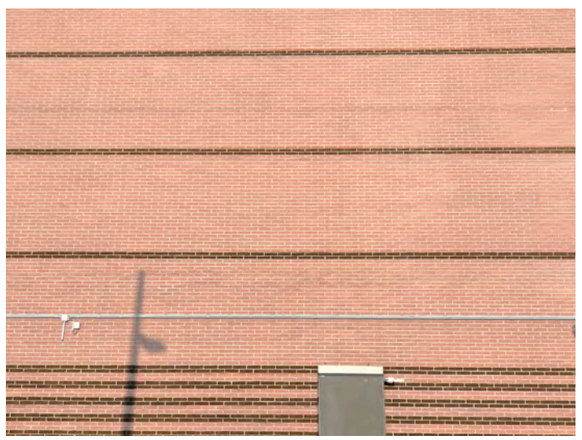


Fig. 73a: Colour layers 1994 building

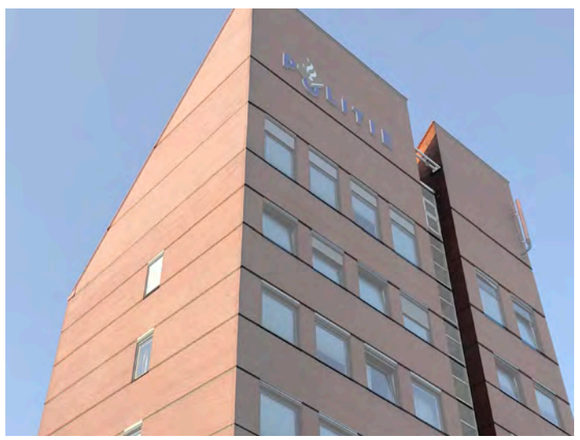


Fig. 73b: Layers and notches 1994 building

MASONRY

One of the differences between the three buildings of the Harbour Police Station is the use of brick bonds. The types that are used are the Flamish bond, a standing bond in combination with a stack bond and the strechter bond.

Flamish bond
The smallest building of the Rotterdam Harbour Police Station dates from 1940 and consists of the Flemish bond. This pattern is formed by alternating headers and stretchers within each row. The headers of each row are centered on the stretchers of the row below. The bond is ended with a triplicate at the corners of the building.

Standing bond
In the middle building, from 1933, the architect made use of two different bonds. The first one is the standing bond, which is sometimes called English bond. This pattern is formed by alternating layers of headers and stretchers. The joins between the stretchers are centered on the headers in the rows above and below. At the edges, the bond is ended with a triplicate in the stretcher layer.

Header stack bond
In the (vertical) niches between the windows of the middle building, a different brick bond is used. The brick headers are stacked upon each other and they thus form another pattern in the facade, as can be seen in the figures on this page.

Stretcher bond
In the tallest and youngest building, all bricks are laid lengthwise along the wall. So, the pattern is made up of stretchers, with the joins centered above and below half a brick. The connections in the corner are realized by means of a header in the alternating stretching layers.

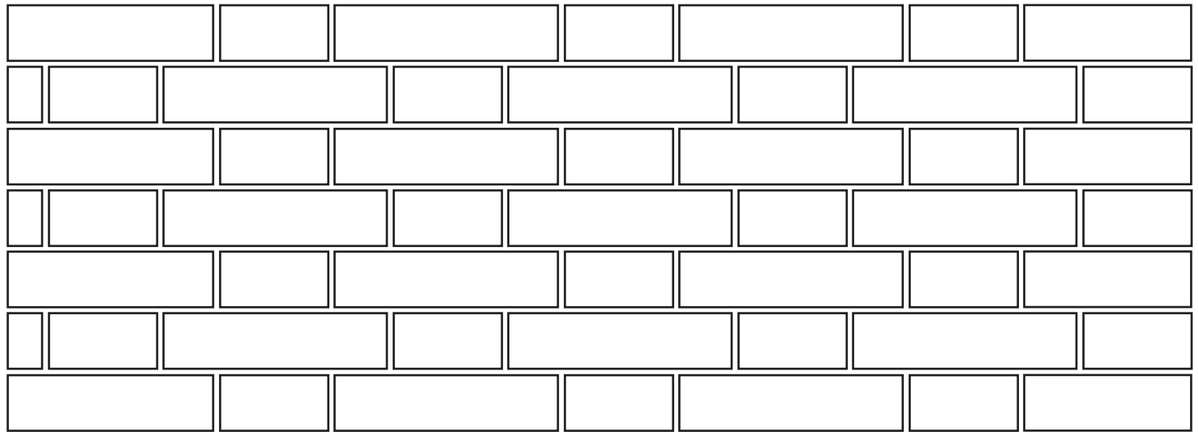


Fig. 74: Flamish bond

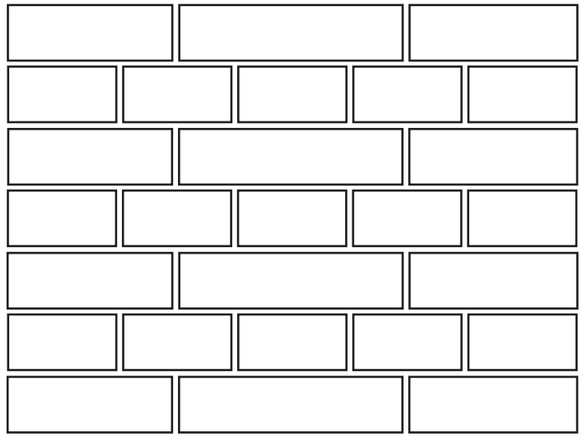


Fig. 75: Standing bond

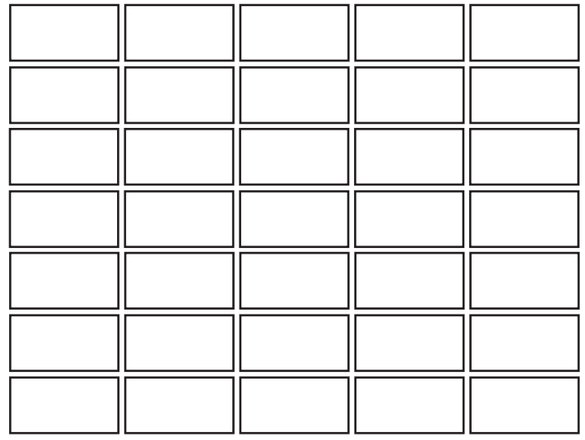


Fig. 76: Stack bond

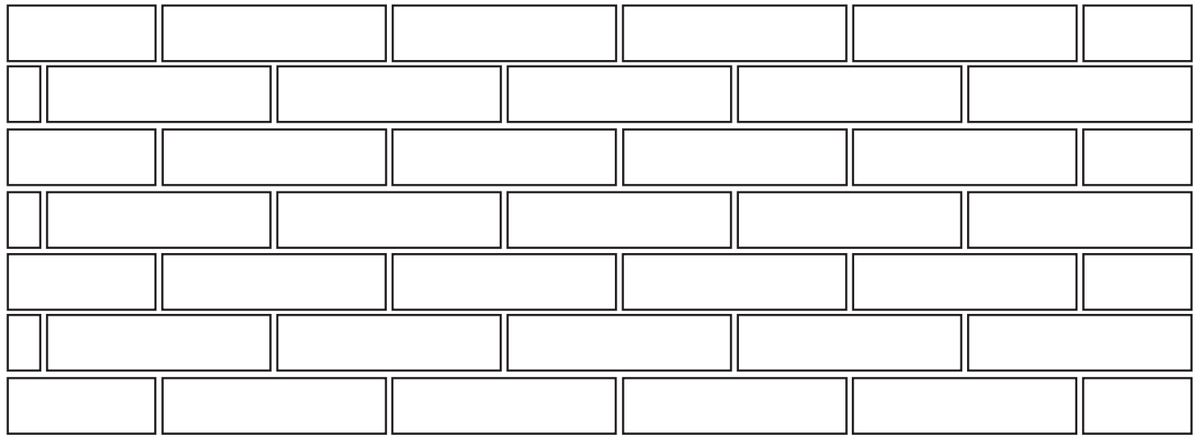


Fig. 77: Stretcher bond

MASONRY

As mentioned before, the appearance of the Rotterdam Harbour Police Station is infiuenced by the materiality of the three buildings. They all have a different look and one of the components that causes this variety is the used brick.

Colour
The baking colour of brick depend on the used clay. As an example, the ratio between lime and iron is essential for defining its colour. In the three buildings of the Harbour Police, there have been made use of different colours of brick. In the right figures on this page, the actual appearances are shown on the basis of some pictures. Furthermore, an abstraction is made to show the different colours and chroma's. Also, these abstractions emphasize the patterns and/or randomness of the coloured bricks. However, in each case it should be noticed that the perceived colour depends on the light. So, in the images it might look a bit differenct than in real life. Therefore, no statements will be made in regard to the exact colour codes.

The facade of the smallest building consist of a combination of yellow-, red- and grey- brownish coloured bricks. Within those bricks, there are multiple colours tones visible, as can be seen in figure 78b. As a result, the colour of the facade is quite dynamic as it differs endlessly. In the abstraction in figure 78a, the various tones are neglected.

The middle building consists of some brownish bricks as well. Again, there is more variation visible within the facade when we take a closer look. The colours of the separate bricks vary from orange to brown and from red to grey. However, those bricks are more (but not completely) equal coloured than the ones that are mentioned before (fig. 79b).

Lastly, the tallest building conists of a orange-brown facade made up of even coloured orange-brown bricks. Also, equally coloured darkbrown manganese stone are laid down in a few lines througout the facade to create a pattern.

Brick shaping techniques
There are different techniques to shape bricks, and these ways of manufacture play an important part in the texture of the bricks. On the basis of this, some assumptions are made in relation to the buildings and the used bricks.

In regard to the smallest building, it is assumed that hand moulded (or wasserstrich) bricks are used. The texture is rough and can be recognized by the capricious grained and sanded surface. The irregularity in the texture provides depth and dynamism. Furthermore, the mortar is slightly set back, which contributes to intensity of the perceived texture.

As mentioned before, the middle building has two types of brick bonds. Nevertheless, the same kind of bricks are used. The texture is rough, but not as raw and groovy as the bricks of the small building. It is assumed that the facades consist of revolver press bricks, since they have some texture and there is a little difference in colour.

The tallest building is assumed to be manufactured as an extruder brick. Namely, the surfaces are completely smooth and they are all exactly the same.

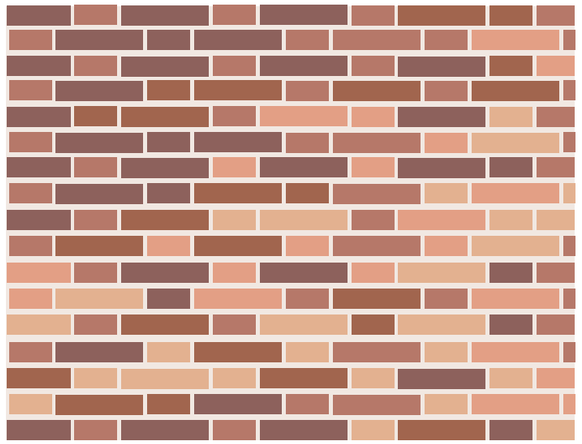


Fig. 78a: Small building 1940

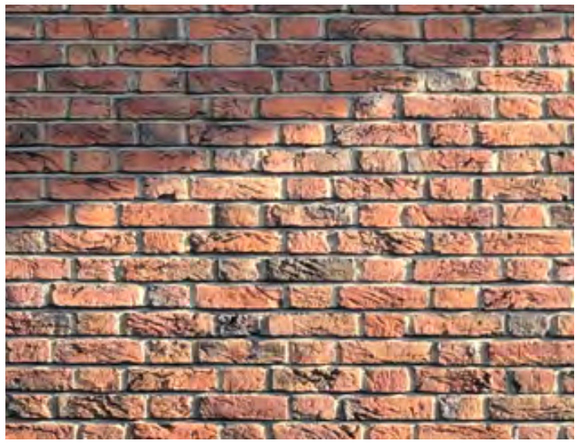


Fig. 78b: Small building 1940

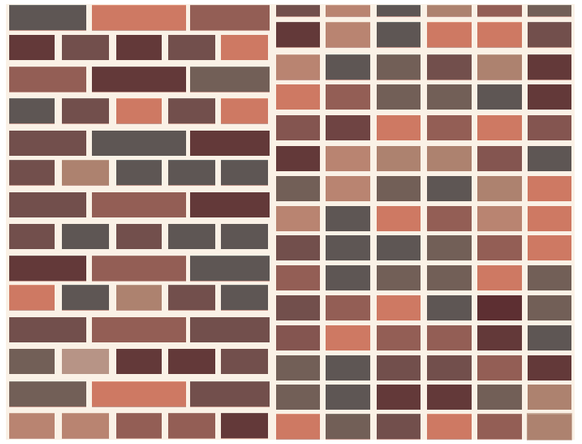


Fig. 79a: Medium building 1933

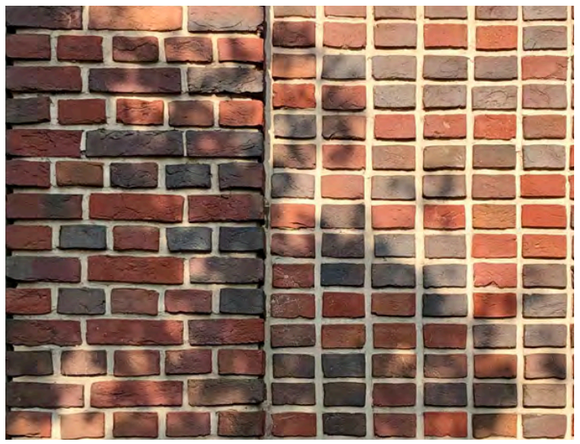


Fig. 79b: Medium building 1933

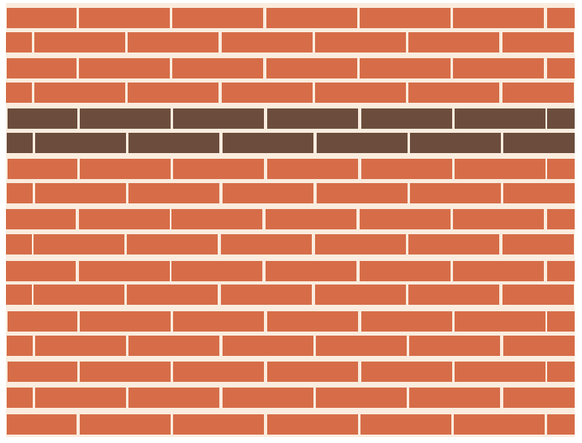


Fig. 80a: Large building 1994

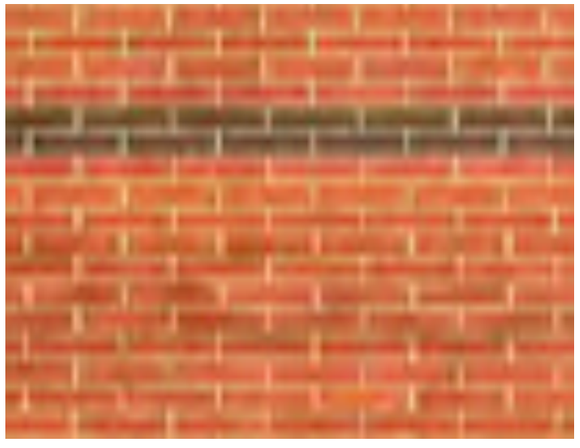


Fig. 80b: Large building 1994

MATERIAL ATTRIBUTES

CONCRETE

The second material we want to adress is a quite hidden material, since it is mainly used for structural reasons: concrete. It can be found in the cellar, floors and stairs. Furthermore, concrete lintels can be found in the exterior.

1940 construction and roof
Concrete is an unmistakable material in the 1940 building. The construction consists of several concrete columns and beams. Even the roof constuction is completely made of concrete, which is not common generally. Furthermore, the concrete is reflected on the outside, by means of the stone sills.

1933 cellar and lintels
Concerning the oldest building, concrete is used as the main construction material in the cellar. In this way, the cellar is also protected against the water from the River Maas on the east side. In addition, concrete elements return in the facade. As an example, the several lintels on the north and south sides of the building are made of concrete.

1994 construction and stairs
The construction of the 1994 building is made of concrete as well. Again, especially the cellar is mainly constructed from concrete. To emphasise this, even the stairs from the ground floor towards the cellar are materialised in concrete. However, in contradiction to the 1933 building, not only the cellar but also the remaining floorlevels are supported by concrete columns. Furthermore, in line with the middle building, the lintels above the windows are made of concrete. As can be seen in the images (fig. 82a and 83b), the appearance of the lintels are quite similar.

Fig. 81a: Concrete construction 1940 building

Fig. FIX81bME: Concrete sill 1940 building

Fig. 82a: Lintels 1933 building

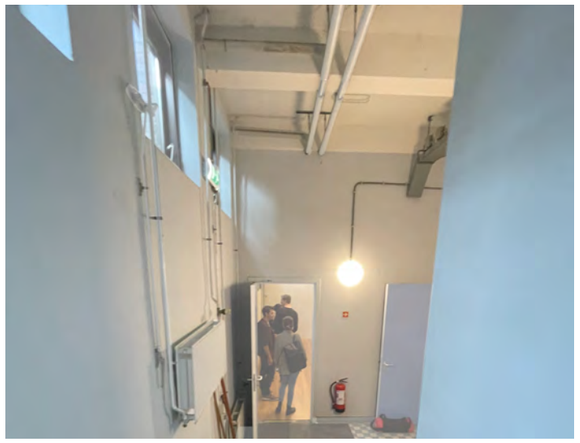


Fig. 82b: Concrete cellar 1933 building

Fig. 83a: Concrete stairwell 1994 building

Fig. 83b: Lintels 1994 building

MATERIAL ATTRIBUTES

NATURAL STONE AND CERAMICS

When we take a closer look, natural stone can be found at the various stairs. As well inside as outside, granite and hard stone details are used.

1940 Stone stills
Little use was made of natural stone in the 1940 building. This may be due to the fact that natural stone is relatively expensive. In the case of the workshop/residential house, the architect therefore chose to use concrete sills etc., as mentioned earlier. The roof of this building is covered by roof tiles, as shown in the figures on the right.

1933 Stairs and details
Concerning the 1933 building, the (same) architects did make use of natural stone. As an example, the stairwell, that forms an important part of the building in terms of circulation, is materialised by hard stone tiles. In addition, the stairs in front of the entrance is made of granite. Both materials contributes to the monumental perception of the building. Also this buildings' roof is covered with grey roof tiles similar to the 1940 building.

1994 Quay
In the newest and tallest building, the use of natural stone is again not striking. However, one thing that accounts not only for this building, but also for the larger area, is the quay. The quay is covered with black basalt stones. The border with the 1994 building is, on the contrary, covered with large granite stone blocks. The lectern roof is again covered with roof tiles. However, these are not grey but instead they have the same redbrown colour as the facade.

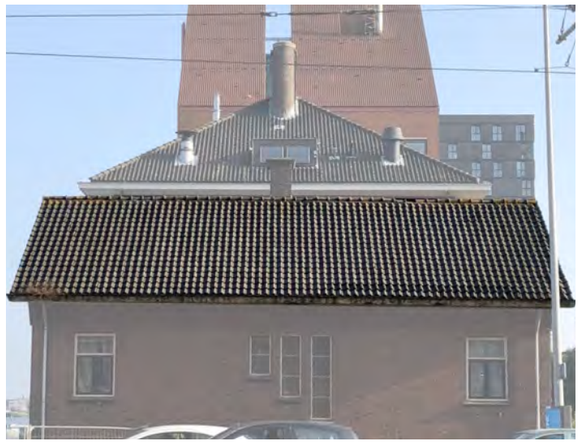


Fig. 84a: Roof tiles 1940 building (and others)

Fig. 84b: Roof tiles 1940 building

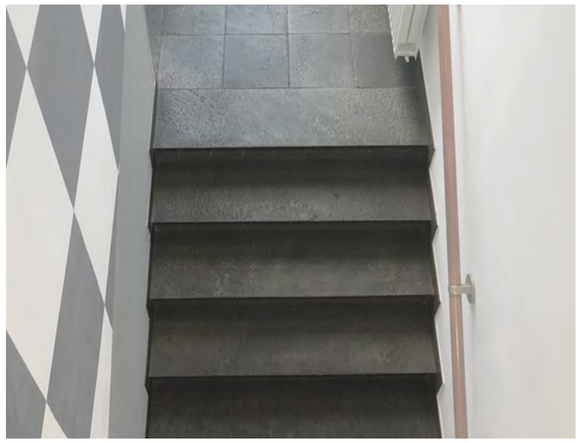


Fig. 85a: Hard stone stairwell

Fig. 85b: Stair steps main entrance 1933 building

Fig. 86a: South facade 1994 building

Fig. 86b: Natural stone quay apron

IRONWORK

A material that is clearly visible in the detailing, is the ironwork. As an example, various fences, such as balcony gates and the entrance gate, are made of iron. Even so, the 1933 building is characterised by its high steel window frames and the main material of the connecting bridge is steel.

1940 facade details
The small building has recurring iron elements, which are no eye catchers, but small details in the facade. In the figures on the right, the west facade forms an example including iron hooks and a hanging chain. These probably relates to its former function as a workshop place. Of course, the gutters of the building are visible as well and they are made of zinc. This also accounts for the other two buildings.

1933 fences and window frames
The materialisation of the middle building contains quite some ironwork. To start, the buildings is provided with numerous high steel window frames. Furthermore, the fences at the balconies at the north and south side are made of iron as well as shown in fig. 88a. In addition to this, the same accounts for the fence that is decorating the entrance door. Concerning the interior of this building, some police related ironwork is present. Namely, regarding the function of the Harbour Police Station, cells were needed. Even though it is not clearly visible from the outside, from figure 88b it becomes clear that at some windows within the building the cell fences are still present.

1994 entrance and central stairs
The ironwork of the 1994 building is partially similar to the 1933 building. Namely, the windows consist of the same steel window frames. In this figure, the fences that are surrounding the area are also visible and those are made of steel as well. In line with this, the entrance of the newest building consist also largely of ironwork as can be seen on the right. Last but not least, the connection between the two buildings is made of steel plating.

Fig. 87a: Iron details west facade 1940 building

Fig. 87b: Iron detail and gutter 1940 building

Fig. 88a: Steel windows and fence 1933 building

Fig. 88b: Steel window frame and cell fences

Fig. 89a: Steel stairs 1994 building

Fig. 89b: Steel ramp and aluminium door

MATERIAL ATTRIBUTES

CARPENTRY

Less obvious is the carpentry within the buildings. This includes the roof trusses, roof construction and some window frames of the buildings from 1933 and 1940. The entrances of these buildings are also made of wood. In addition, the banister of the main staircase is made of wood as well. As for the 1994 building, the most important carpentry is the woodcarving of former prisoners, dating back to the Second World War.

1940 windows and doors
In the smallest building, the carpentry is immediately visible. Namely, the doors, door frames and window frames are all build up of wood. However, the images also show that (especially) the window frames are somewhat deteriorated and are in need of a renovation.

1933 entrance and banisters
The entrance door of the 1933 building is made of wood as well, as shown on figure 91b. This is the only wooden element that is visible from the outside. However, it does contribute to the monumental character. After entering the building, more wood is visible in the interior. As an example, the majority of the doors inside are made of wood. Thereby, details like the banisters are also made of wood. Further to the top of the building, the roof has a wooden construction as well.

1994 - does not apply -
The newest building has no (fixed) wooden elements.

Fig. 90a: Wooden window frames 1940 building

Fig. 90b: Wooden door 1940 building

Fig. 91a: Wooden banister 1933 building

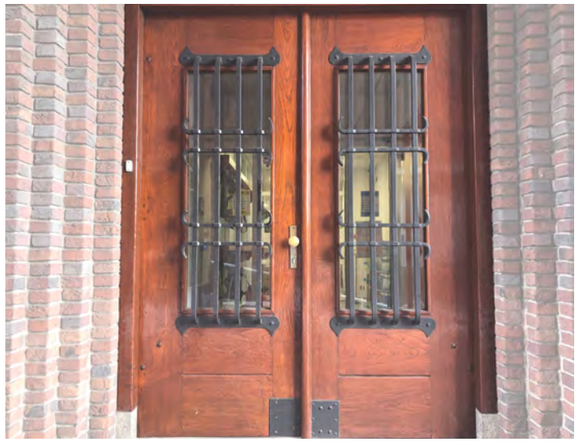


Fig. 91b: Wooden door (iron fences) 1933 building

MATERIAL ATTRIBUTES

MATERIAL EFFECTS

Influence of the entrance appearance
The Mullerpier and Lloydkwartier are both entered most often from the north side. More precisely, cyclists and walkers enter the area at the location of the Rotterdam Harbour Police Station. In the image below the entrance area is shown from the side of the Westzeedijk. Since the area is considered as an 'entrance' from Delfshaven towards the Mullerpier and the neighbourhood Schiemond, it would be likeable if it also appears that way.

Currently, the area can be characterized by its height difference, the paved roads and closed or hided facades. In addition, there are also quite some fences present (fig. 92a). Unfortunately, these elements do not contribute positively to the attractiveness of the area. On the contrary, it can be perceived as obstructing rather than inviting.

Therefore, this page is devoted to the visualisation of a transformation of the fences and paved ground into a green and more appealing area. In this example, greenery and more soft, warm and/or transparant materials are included, based on the book *Basics Design Materials* of Hegger, Drexler and Zeumer.

As a result, it can be concluded that a more appealing materialisation contributes to a more attractive and inviting character of the area.

Fig. 92a: Entrance area (bicycle/walking) towards the Mullerpier

Fig. 92b: Transformation entrance area (bicycle/walking) towards the Mullerpier

MATERIAL ATTRIBUTES

MATERIAL EFFECTS

Influence of the outdoor fences
In addition to the entrance area of the Mullerpier, the entrance of the Harbour Police Station is also surrounded by fences. This results in an unappealing entrance as can be seen in the image below (fig. 93a). The fences are part of the current function of the Police Station. Therefore, it can be assumed that they will be removed in case of any other future function.

In order to understand what this will mean for the appearance of the entrance in the future, figure 93b shows the situation where the fences are removed. As a result, the messy character is transformed into a clearer structure. In addition, the formal and obstructing appearance of the iron fences is exchanged for an open space. One can see through the corridor, which provides more space and it takes away the tight, locked-in feeling when standing inbetween the corridor. Moreover, the open character will also provides sightlines to the water and *het Park*. In addition, the more welcoming appearance of the brick walls will become visible.

All in all, the removal of the fences will make a big difference in the human understanding of the entrance. The corridor, which suggest that there should be a reason to go there (like the entrances), draws our attention in a more pleasant way. Furthermore, the area feels less narrow and more sightlines are provided.

Fig. 93a: Main entrance of the Harbour Police Station

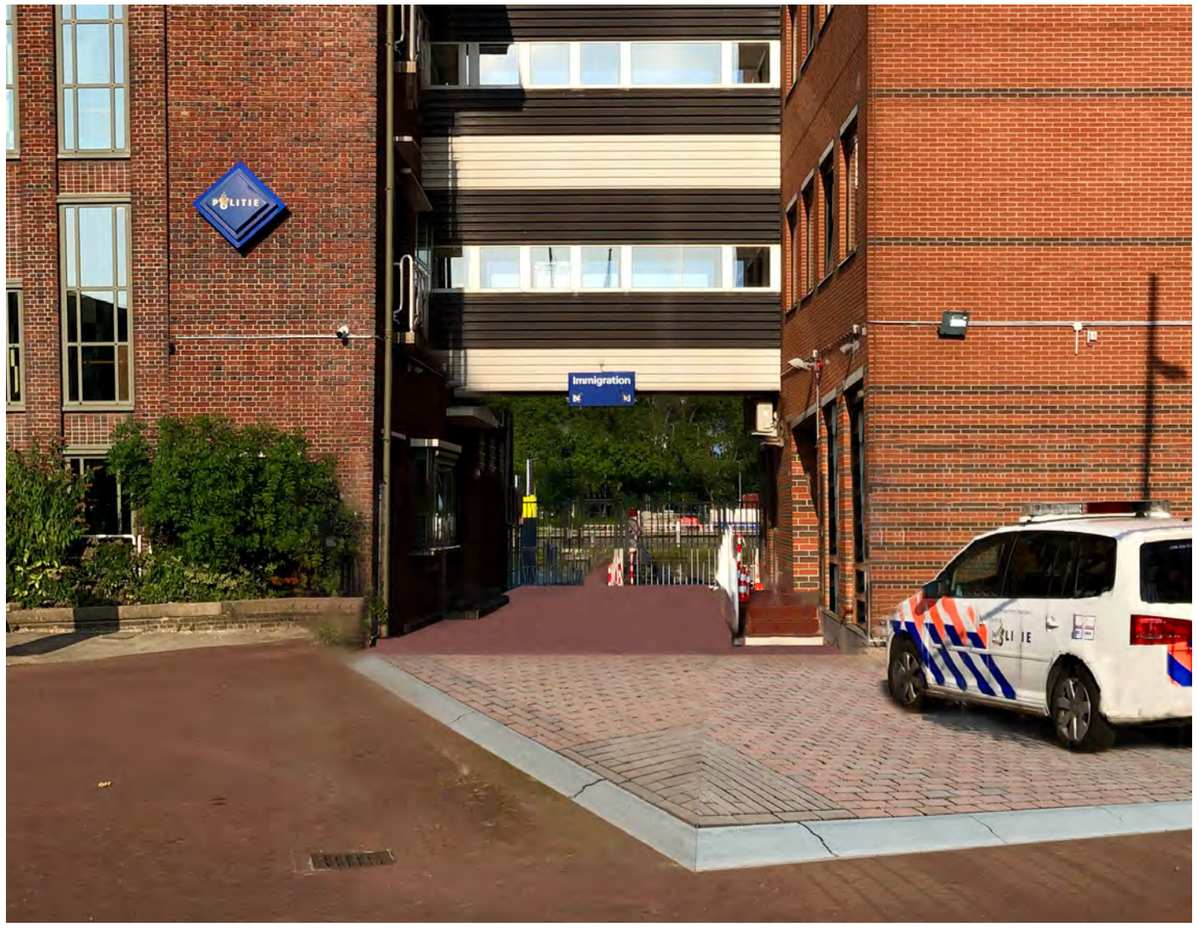


Fig. 93b: Transformation main entrance of the Harbour Police Station

MATERIAL ATTRIBUTES

MATERIAL EFFECTS

White VS. grey window frames
As mentioned before, the 1940 building has white wooden window frames. They create a tangible, yet soft, frame around the window. The 1933 and 1994 buildings have the same coloured (grey) steel window frames. They are less soft in their materiality and can be described as sober and more businesslike in comparison to the residential small building.

Wooden doors VS. alumnium doors
The doors of the 1940 and 1993 building are both made of wood. This material has a warm appearance and is thus more inviting. Also, those doors have a character and they reflect a more residential feeling. The revolving door of the 1994 building, on the contrary, could be any door in any public building, alternating from shopping mall to hospital. Nevertheless, the ramp in front of the newer building is of course more inclusive than the little stair steps in front of the 1940 and 1933 buildings.

Greenery VS. stone steps
The space in front of the 1940 and 1933 buildings are partially filled with some greenery. This makes the transition between building and space softer and also more appealing. Furthermore, the green bushes have the capability of covering parts of the windows, and thus the views, to create more private spaces. Not only the lack of windows, but also the lack of green, makes the facade of the 1994 building thus less appealing and less inviting.

Reflecting windows VS. sunscreens
As can be seen in the images below, the addition of sunscreens has a large effect on the appearance of the buildings. Namely, the sunscreens are not only obstructing the views, they are also covering the detailing in the windowframes.

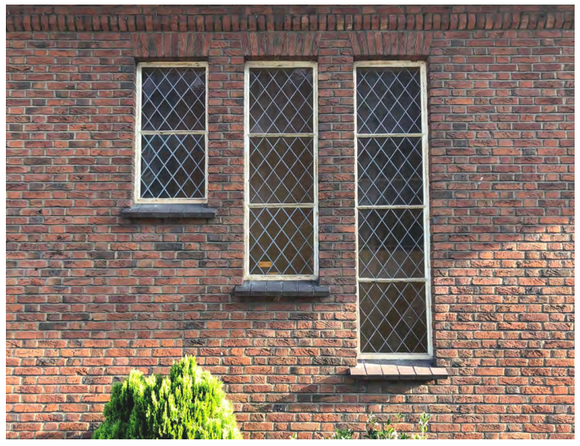


Fig. 94a: White window frames 1940 building

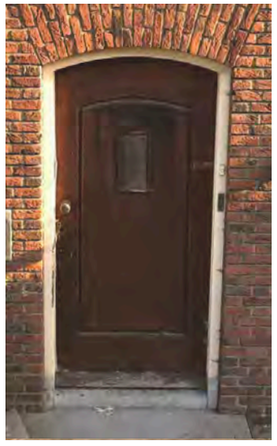


Fig. 95a+b: Wooden doors 1940 and 1933 building

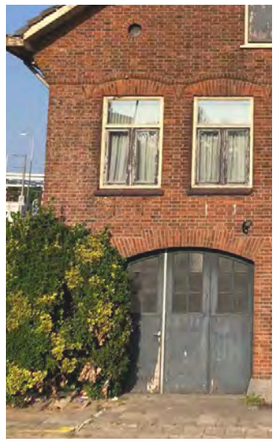
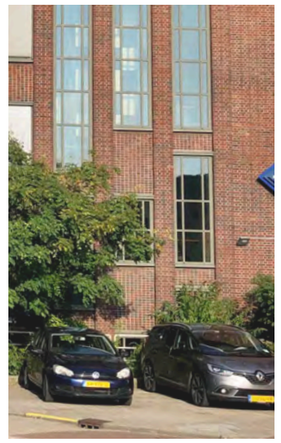



Fig. 96a+b: Green transition 1940 and 1933 building

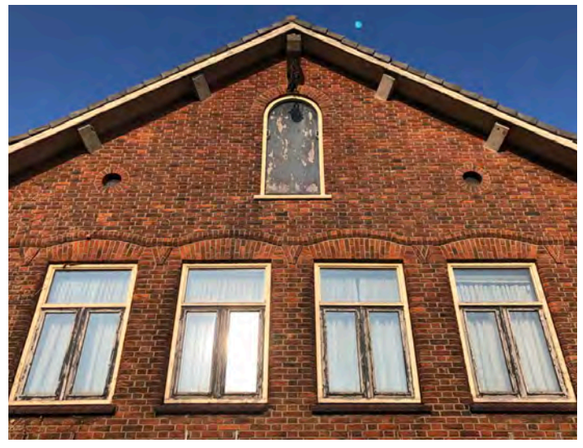


Fig. 97a: Indoor curtains 1940 building

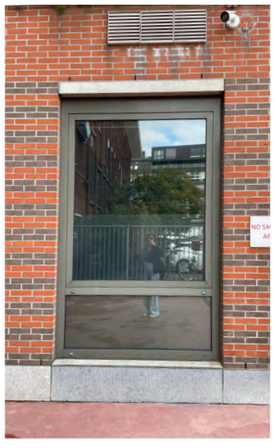



Fig. 94b+c: Grey window frames 1933 and 1994 building


Fig. 95c: Aluminium door 1994 building

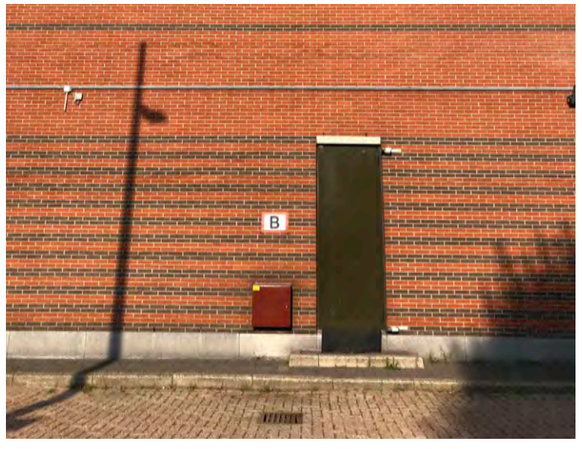


Fig. 96c: No transition 1994 building

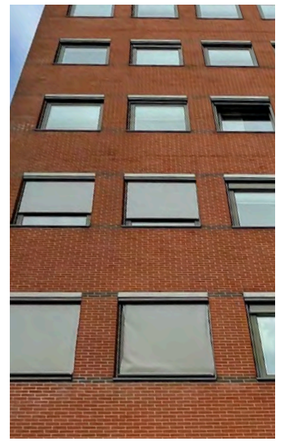



Fig. 97b+c: Outdoor sunscreens 1933 and 1994 building

SOLIDS AND VOIDS

OPENNESS AND CLOSEDNESS

The level of openness of the separate buildings differentiates. In order to emphasize this, the facade drawings are used to highlight the solids and voids, as can be seen in the images on the right.

As a result, it becomes evident that especially the east and west façades of the building from 1994 are mainly closed. The façades consist of approximately 95% of solid walls, while there are only three little windows. In these façades, there is little interaction between inside and outside, as shown in figures 98a and 98c. On the contrary, the north and south facade, as shown in figures 98b and 98d, consist of large numbers of windows. These façades are more open and offer a view of the surrounding to the employees.

Furthermore, the sizes of the buildings are not directly reflected by these architectural elements. Namely, the sizes of the windows are quite similar for each building. Nevertheless, the amount of windows in relation to the sizes of the front façades is remarkable. As a result, the tallest building seems even larger.

LEGEND

Solids
Voids

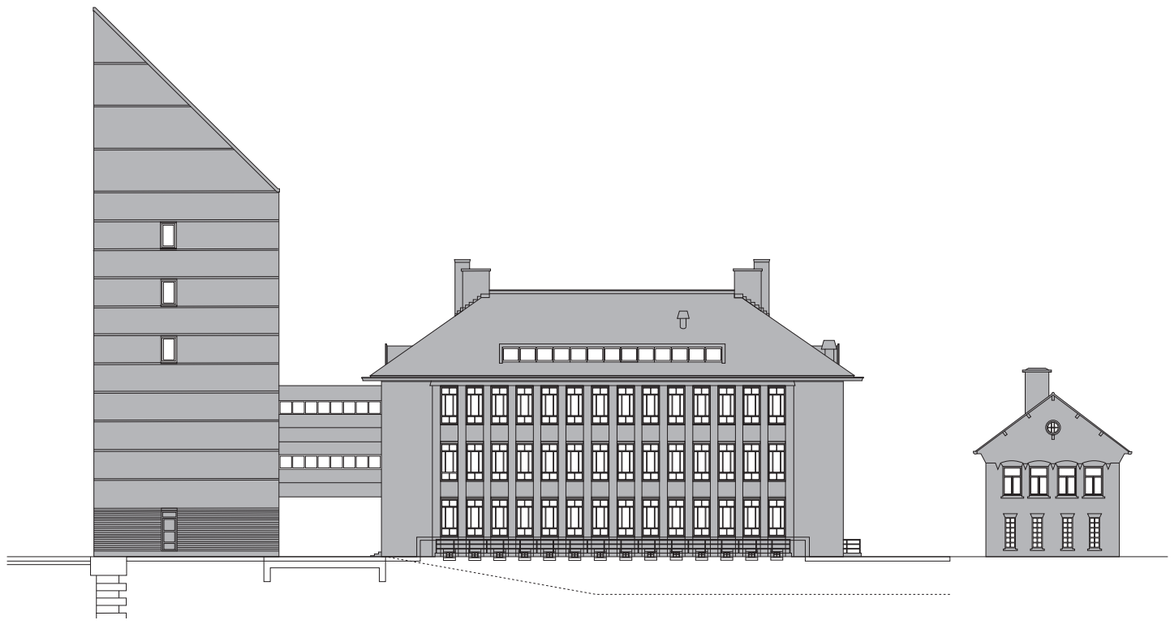


Fig. 98a: East facade

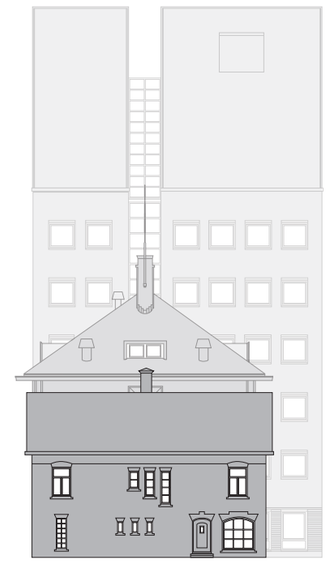


Fig. 98b: North facade

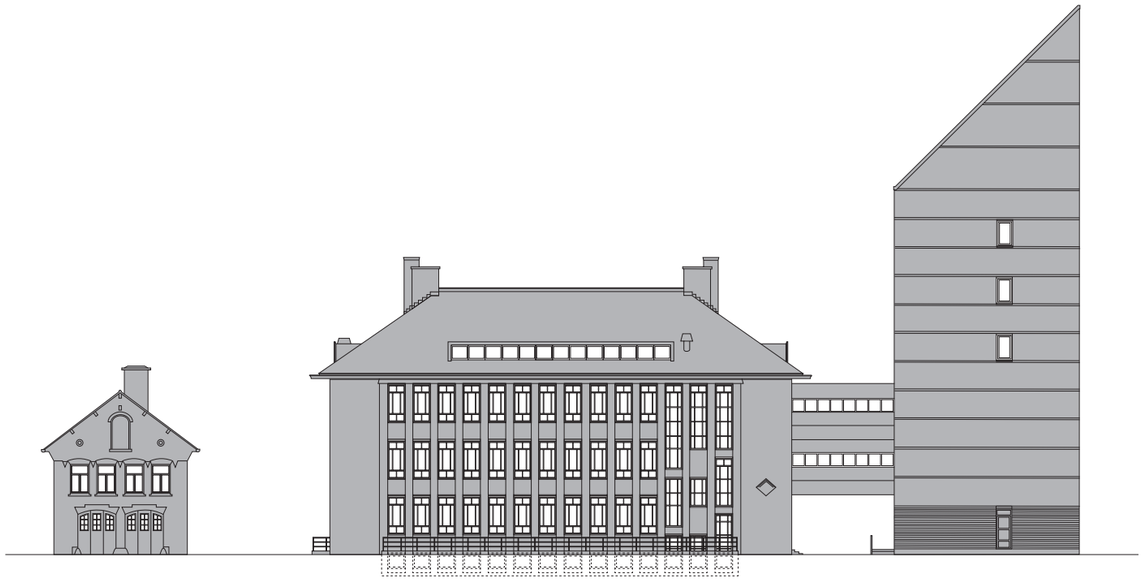


Fig. 98c: West facade

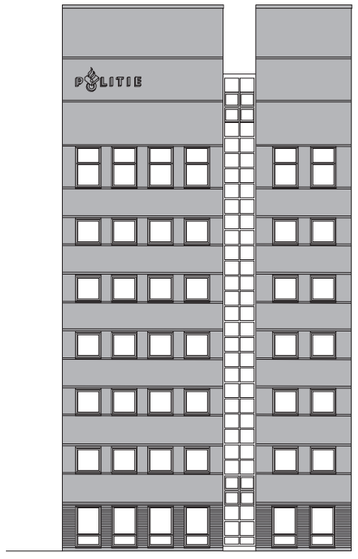


Fig. 98d: South facade

WINDOW TYPOLOGIES

When looking at the windows present in the three buildings, it can be noticed that, especially the 1933 and 1940 buildings, present a great variety of window typologies. In fact, both the 1933 and 1940 building presents then window typologies, all different in measurements. On the contrary, the 1994 building presents five typologies. It can be noticed that the window openings present in the 1994 building present, overall, bigger measurements in comparison to the other two buildings.

Furthermore, the windows utilised for the 1933 and the 1940 building present a higher level of ornamentation in comparison to the typologies utilised in the 1994 building.

While the 1994 building was built, the 1933 building underwent a renovation, during which all the windows were replaced with new ones. These, maintained the original form and shapes but not the original materials. In fact, the new windows were made out of aluminium and most of them had double glazing.

The 1940 building still presents the original windows. These, are the oldest ones which can be found on site. Some of them have similar shape and decorations to the windows of the 1933 building. Today, this building is being renovated. Therefore, most likely, the windows will be replaced with new ones which can meet today's interior climate requirements.

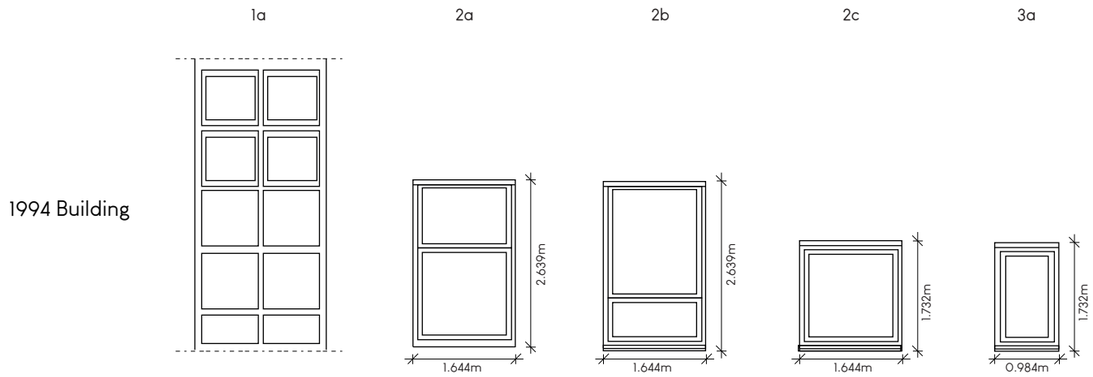


Fig. 99a: Typologies 1994 building

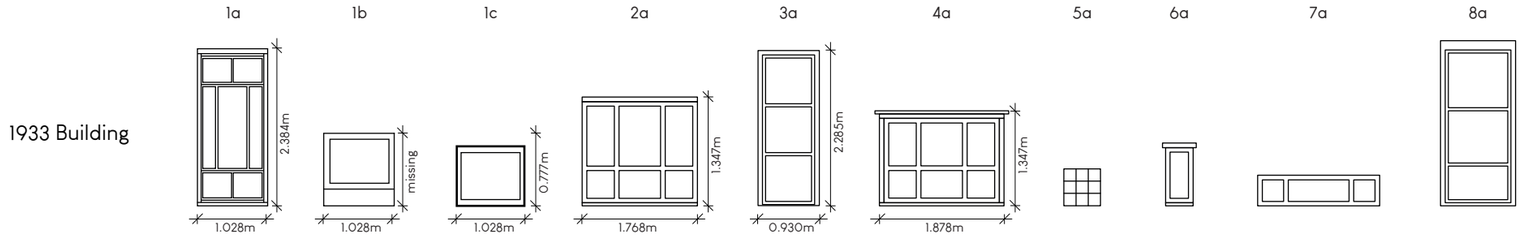


Fig. 99b: Typologies 1933 building

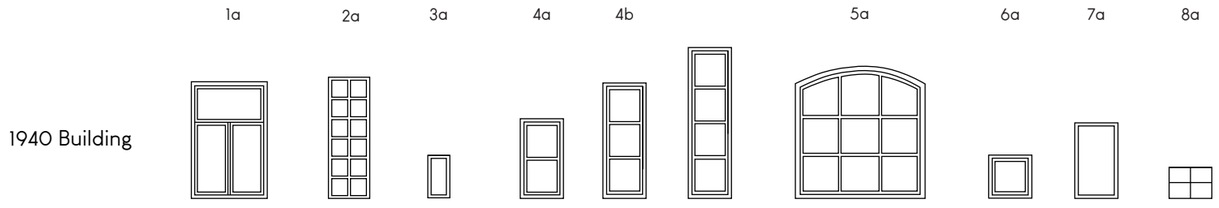


Fig. 99c: Typologies 1940 building

MATERIALITY OF WINDOWS

Aluminium
Aluminium window frames have been used both in the 1933 and 1994 building. This material started being used during the inter-war years together with non-ferrous metals such as bronze. Starting from 1950's aluminium became cheap enough to become widely used as material for windows (English Heritage, 2014). The aluminium frames of the 1933 building have a bronze-grey tint, whereas the 1994 building's ones have a dark grey tint.

Steel
Steel window frames are only present in the 1940 building, it is not excluded that this material had been used for the original windows of the 1933 building. In fact, steel became the most used material for window production during the 1920's and 1930's. Steel windows were strong, slim, cheap, and fire-resistant, factors that made them highly competitive with traditional softwood sashes. From around 1945 it became normal to utilise galvanised steel (English Heritage, 2014).

Wood
The 1940 building, besides steel window frames, presents wooden windows. Wooden windows continued to be used for residential houses even when steel became more utilised in the production of window frames.

Fig. 100a: Aluminium window frame 1933 building

Fig. 100b: Aluminium window frame 1933 building

Fig. 101a: Wooden window and door frames 1940 build.

Fig. 101b: Steel window frames 1940 building

Fig. 102a: Aluminium window frame 1994 building

Fig. 102b: Steel window frames 1994 building

SOLIDS AND VOIDS

MATERIALITY OF WINDOWS

When looking at the 1933 building, the main material used for the window frames is aluminium. As previously said, this building has undergone a renovation in 1994 in which, among other thing, the original windows were replaced with aluminium ones. Most likely, the original material was steel, material which was largely used at the time. As said, all windows were replaced, but the original shapes were maintained, except for the fact that five windows were removed in order to have the bridge connection between the 1933 and 1994 building. The only wooden element present, is the front entrance door which has been included since it presents some glass elements. The door, in contrast with the windows is an original element.

LEGEND

- Wood
- Steel
- Aluminium

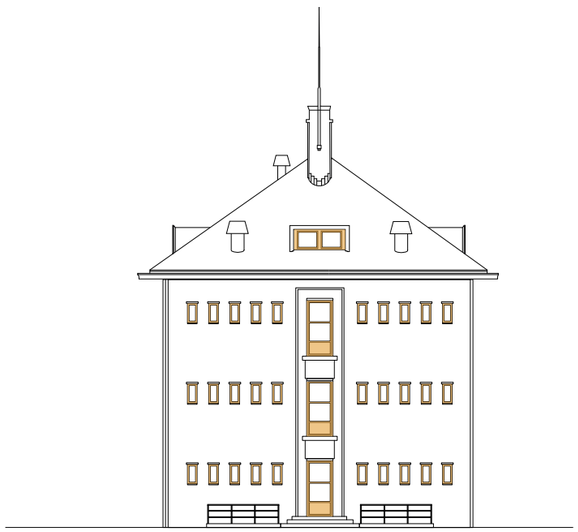


Fig. 103a: North facade

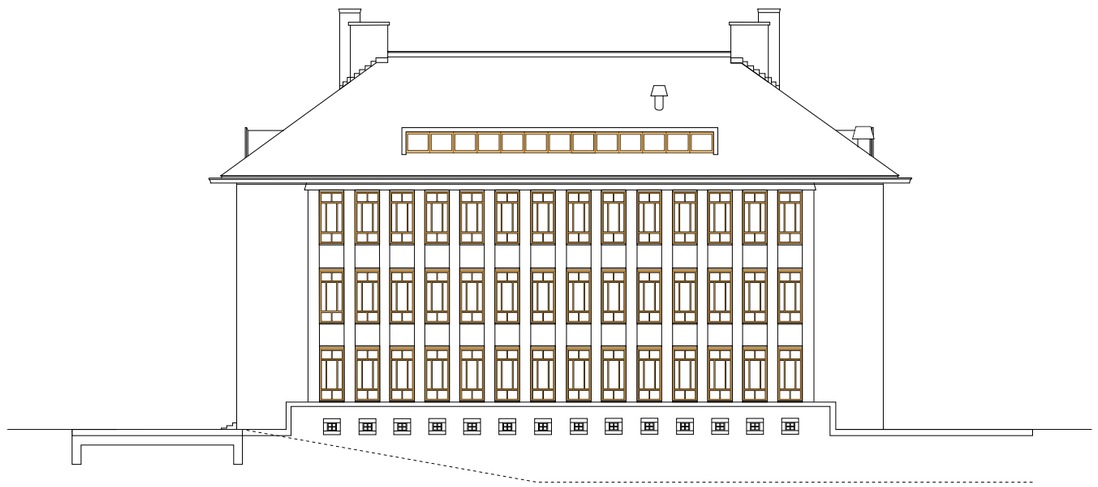


Fig. 103b: East facade

Fig. 103c: South facade

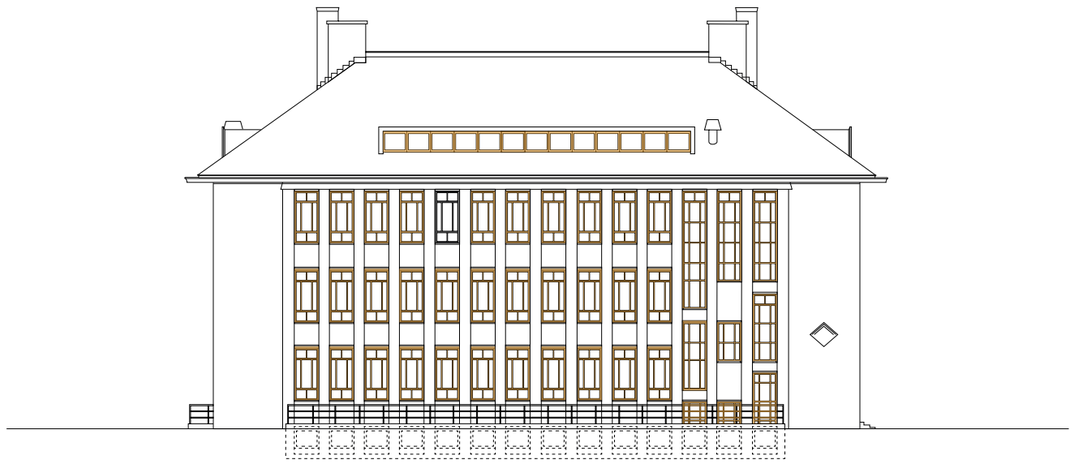


Fig. 103d: West facade

MATERIALITY OF WINDOWS

When looking at the materials of the windows present in the 1940 it is noticeable that two materials have been used. In fact, mostly on the ground floor, steel windows are present. The ground floor, when the building was still in use, was dedicated to a shop space. The upper floor, which accommodated an apartment, presents mostly wooden frames, except for three steel windows which are placed in proximity to the staircase which connects the two floors. Moreover, all the doors which connect to the exterior are made of wood.

LEGEND

- Wood
- Steel
- Aluminium

Fig. 104a: North facade

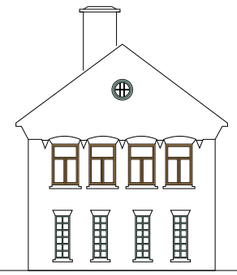


Fig. 104b: East facade

Fig. 104c: South facade

Fig. 104d: West facade

SOLIDS AND VOIDS

MATERIALITY OF WINDOWS

When looking at the windows present in the three buildings, it can be noticed that, especially the 1933 and 1940 buildings, present a great variety of window typologies. In fact, both the 1933 and 1940 building presents then window typologies, all different in measurements. On the contrary, the 1994 building presents five typologies. It can be noticed that the window openings present in the 1994 building present, overall, bigger measurements in comparison to the other two buildings.

LEGEND

- Wood
- Steel
- Aluminium

Fig. 105a: North facade

Fig. 105b: East facade

Fig. 105c: South facade

Fig. 105d: West facade

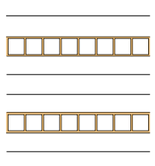


Fig. 106a: East facade

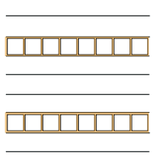


Fig. 106b: West facade

GLAZING

Single glazing
Single glazing started being manufactured with a cylinder method, which allowed for even larger sheets of glass to be made, in 1834 in Germany. Other manufacturing method followed after this one, such as float glass which allows for very large panes of distortion-free glass to be made.

Double glazing
Double glazing was invented in the first half of the 20th century but was introduced to the wide public in the 1970's and 1980's. Double glazing is more effective than single glazing due to the layer of gas within the seal which makes it more difficult for heat to escape. Furthermore, double glazing insures noise reduction, security, and cost savings.

Glass blocks
Glass brick was introduced in the early 1800's to provide light to cellars and ships' bowels. In the 1900's, thanks to the introduction of glass manufacturing, it became possible to introduce glass blocks as a large-scale spatial element. It was not until the 1930's that the further development of machine production produced more satisfactory types which were easier to work. Glass block can be used both as wall components or as floor components. In the 1933 building, these have been used as wall components in order to ensure light into cellars.

Fig. 107a: Glass brick 1933 building

Fig. 107b: Double glazing 1933 building

Fig. 108a: Single glazing 1940 building

Fig. 108b: Single glazing 1940 building

Fig. 109a: Double glazing 1994 building

Fig. 109b: Double glazing 1994 building

GLAZING

The 1933 building presents overall double glazing. This is the result of the renovation that took place in 1994. Only a small number of windows have remained the same. These, which can be seen (in green) are present on the East facade, which is facing the water. These windows are placed in the basement. Moreover, three windows (in yellow) placed on the South facade are made out of glass block. Unless the original glass blocks had been damaged and therefore needed to be replaced, it can be assumed that these are original as well since the use of glass blocks was introduced in the late 19th century, and since the these appear in the original facade drawings.

LEGEND

- Double glazing
- Single glazing
- Glass block

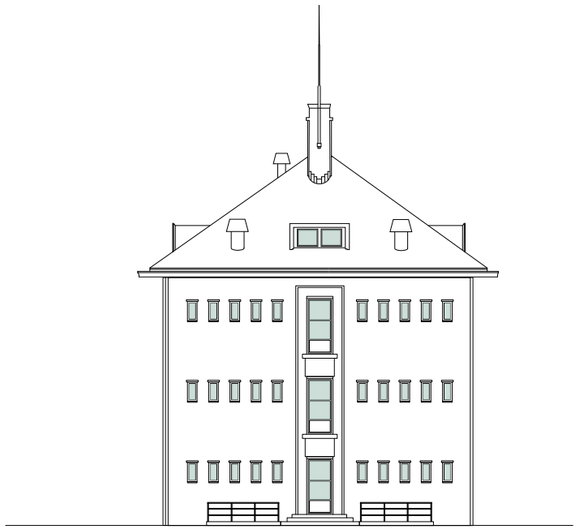


Fig. 110a: North facade

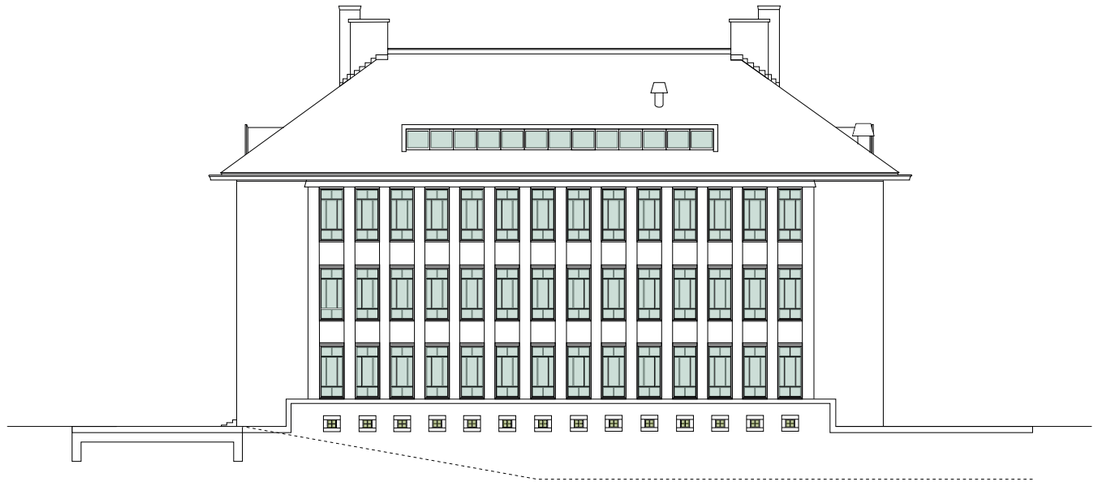


Fig. 110b: East facade

Fig. 110c: South facade

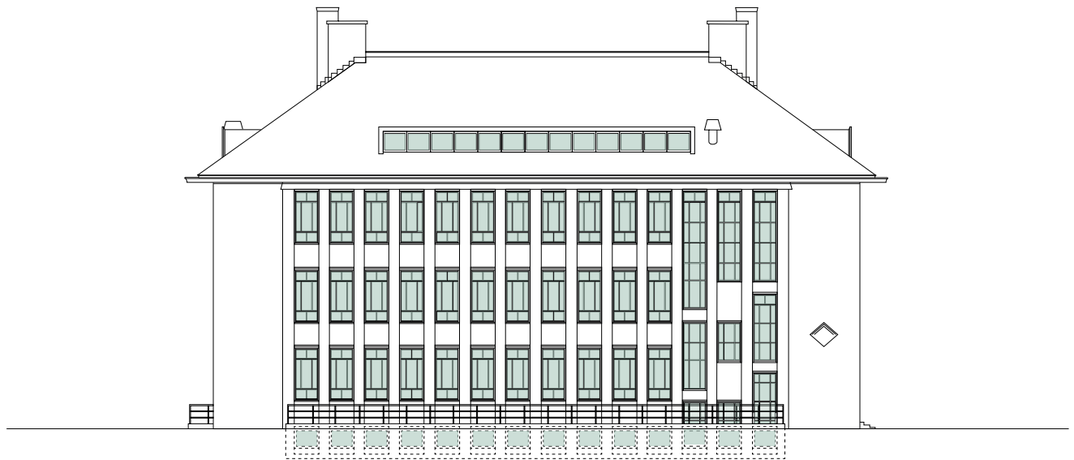


Fig. 110d: West facade

SOLIDS AND VOIDS

GLAZING

As previously said, the 1940 building's window frames we view today are original. The glazing used for these windows is single. In fact, double glazing was introduced in the market between the 1970's and 1980's.

LEGEND

- Double glazing
- Single glazing
- Glass block

Fig. 111a: North facade

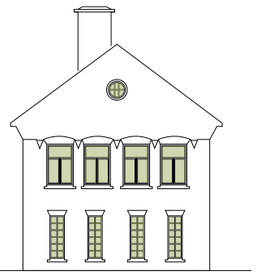


Fig. 111b: East facade

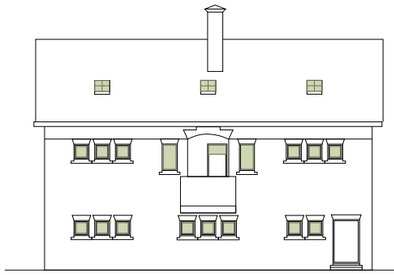


Fig. 111c: South facade

Fig. 111d: West facade

SOLIDS AND VOIDS

GLAZING

All the windows present in the 1994 building present double glazing. During the period this building was built, double glazing had become largely used in any type of buildings due to its specifics and sub-sequential increment of thermal comfort. It is therefore not surprising that double glazing was chosen for all the windows.

LEGEND

- Double glazing
- Single glazing
- Glass block

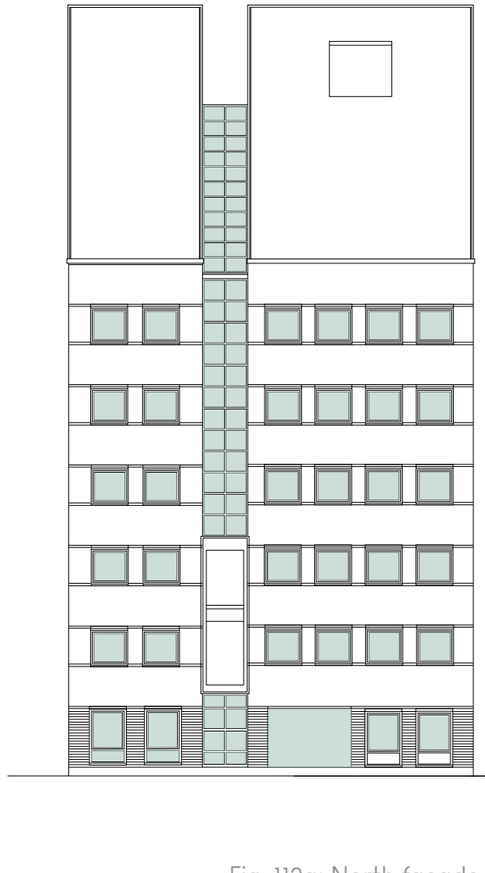


Fig. 112a: North facade

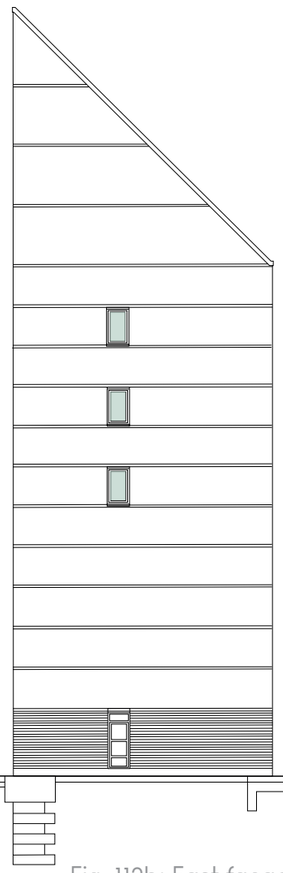


Fig. 112b: East facade

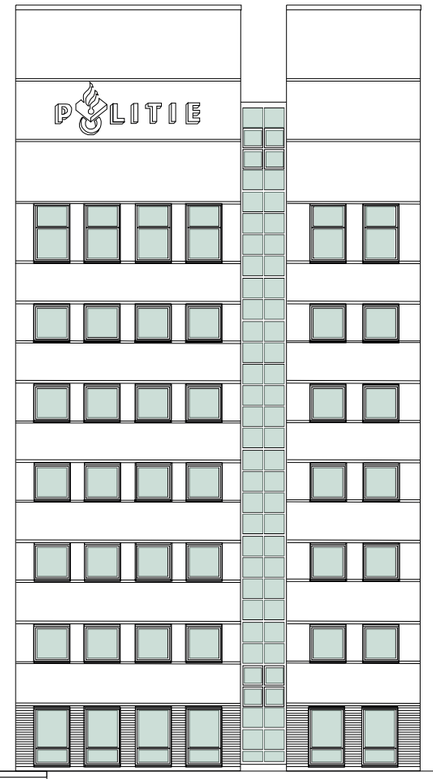


Fig. 112c: South facade

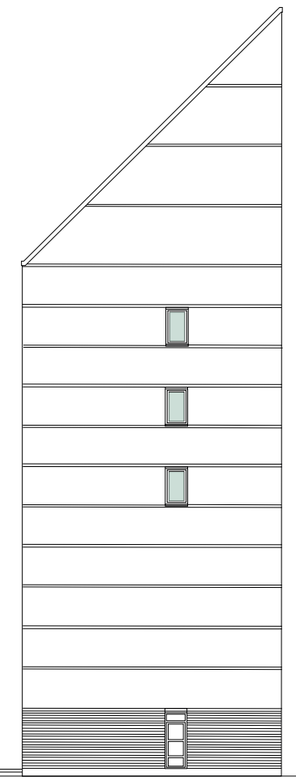


Fig. 112d: West facade

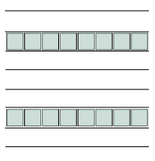


Fig. 113a: East facade

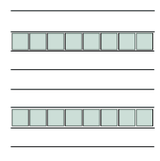


Fig. 113b: West facade

GLASS TRANSPARENCY

Transparant
Transparent glazing is the most common type of glazing used in all the three buildings. This typology is also the most common in use in today's buildings.

Frosted glass
Frosted glass is used in the 1933 building in order to give privacy. In fact, frosted glass is a transparent sheet of glass that is turned opaque through sandblasting or acid etching.

Stained glass
This glass is used in a small number of windows placed in the 1940 building. These windows do not permit to look inside.

Reflective glass
In the 1994 building some part of a number of windows placed on the ground floor present a part of glass which reflect the surface. This has been done in order to give privacy to the interior.

Fig. 114a: Frosted glass 1933 building

Fig. 114b: Transparent glass 1933 building

Fig. 115a: Stained glazing 1940 building

Fig. 115b: Transparent glazing 1940 building

Fig. 116a: Transparent glazing 1994 building

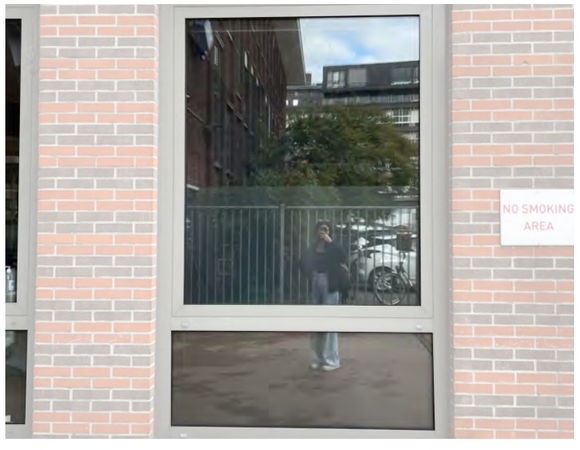


Fig. 116b: Transparent, Reflective glass 1994 building

SOLIDS AND VOIDS

GLASS TRANSPARENCY

Overall, the 1933 building presents transparent windows as can be seen on the right in light blue. An exception are five windows placed on the front facade (West) since it accommodates cells.

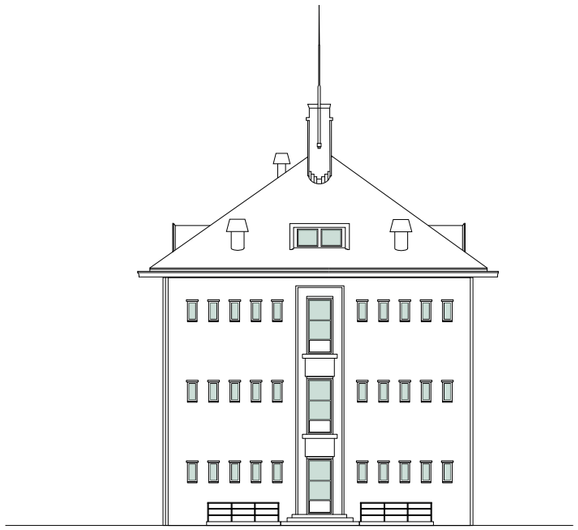


Fig. 117a: North facade

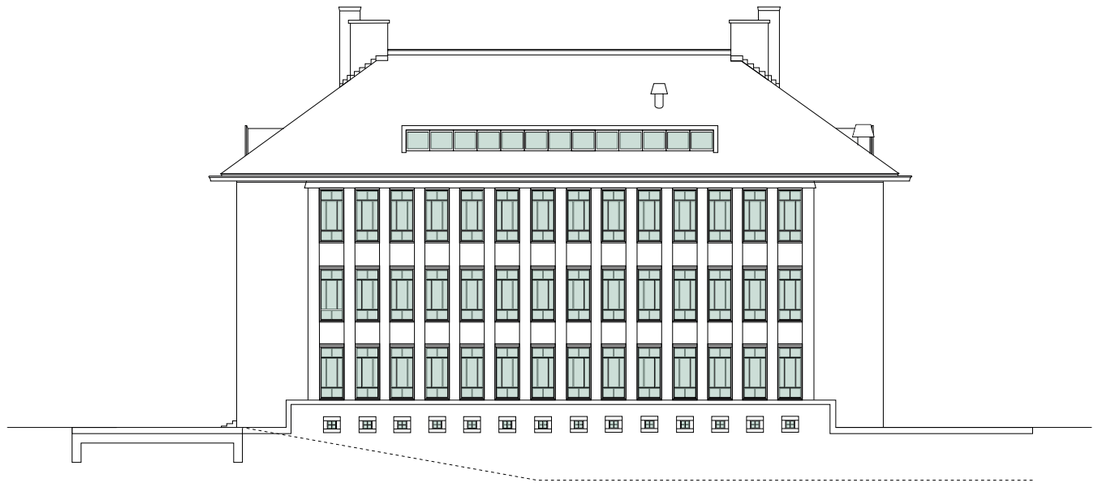


Fig. 117b: East facade

Fig. 117c: South facade

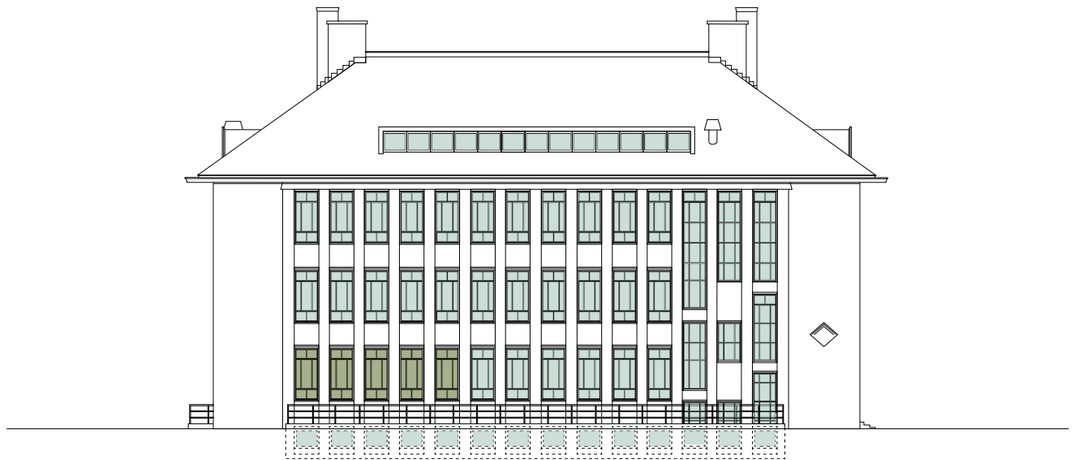


Fig. 117d: West facade

LEGEND

- Transparent
- Frosted glass
- Stained glass
- Reflective

SOLIDS AND VOIDS

GLASS TRANSPARENCY

When looking at the glass transparency of the 1940 building it is visible that it presents both transparent and frosted glass, as can be seen in the image on the right. Most of the windows are transparent expect, the steel frosted windows placed on the first floor, which are placed in proximity of the staircase, and the windows placed on the ground floor of the West facade. These are placed in the doors of what used to be the main entrance to the shop placed on the ground floor.

Fig. 118a: North facade

Fig. 118b: East facade

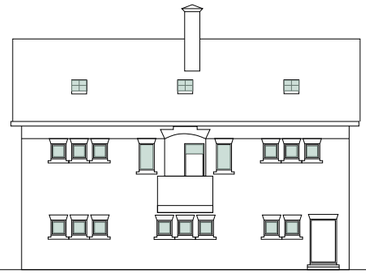


Fig. 118c: South facade

Fig. 118d: West facade

LEGEND

- Transparent
- Frosted glass
- Stained glass
- Reflective

SOLIDS AND VOIDS

GLASS TRANSPARENCY

When looking at the glass transparency of the windows of the 1994 building it is noticeable that the majority of the them are transparent, this can be seen, in light blue, in the image on the right. The only other category of glass present is visible on the ground floor of the North facade. Here, the main entrance of the building is placed. Since this floor, among the entrance, presents offices, it can be presumed that reflective glass has been chosen in order to give privacy to the offices. This does not count for the other offices present on the ground floor (South facade), since these are facing the private parking lot of the building.

LEGEND

- Transparent
- Frosted glass
- Stained glass
- Reflective

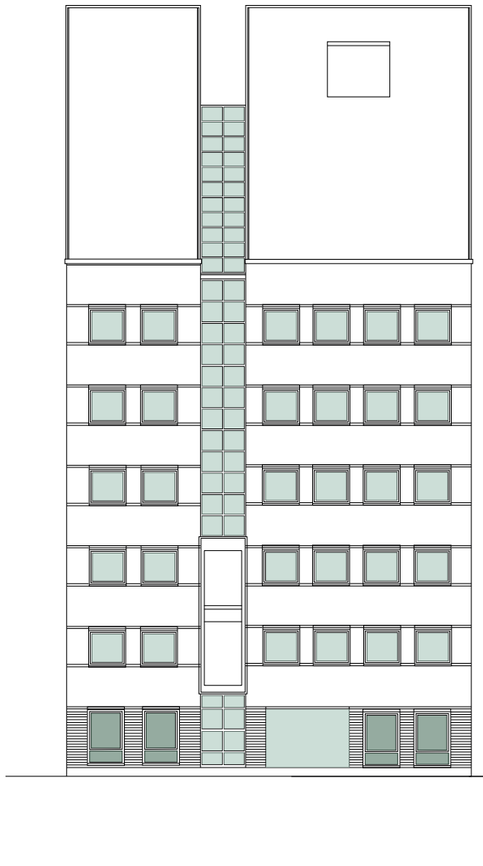


Fig. 119a: North facade

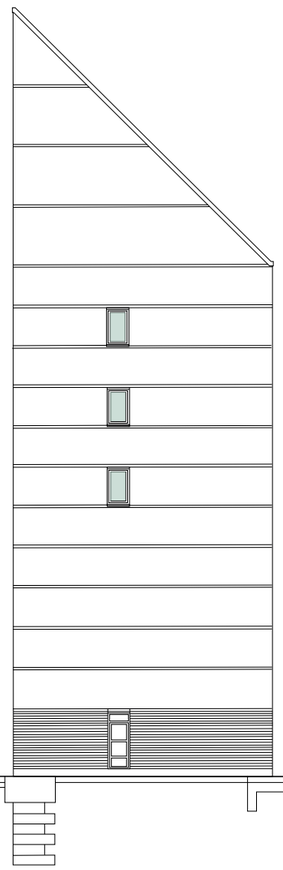


Fig. 119b: East facade

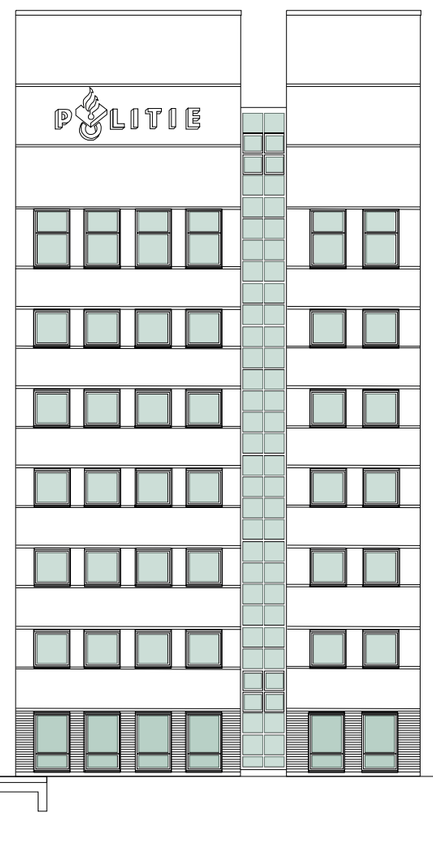


Fig. 119c: South facade

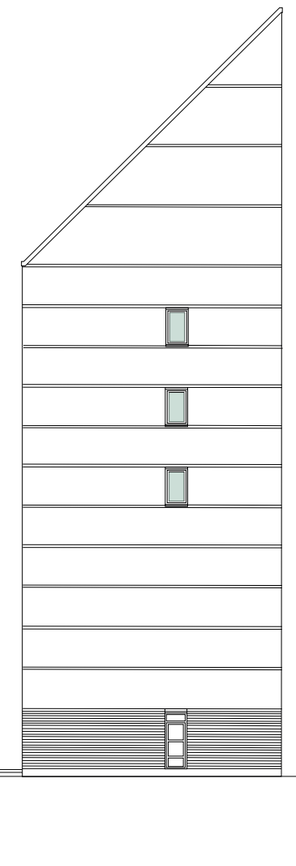


Fig. 119d: West facade

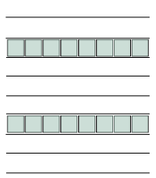


Fig. 120a: East facade

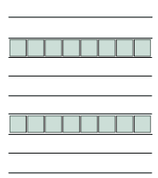


Fig. 120b: West facade

OPENING TYPOLOGY

Fixed window
The 1933, 1940, and the 1994 building present windows which can not be opened. In the 1933 building these are mostly present on the North facade. On the remaining façades a smaller number of fixed windows are present. Most windows present on the West and East facade have parts which are fixed and others which can be opened. This is also the case for the 1994 building windows. The 1940 building, on the other hand, presents a smaller number of fixed windows.

Tilt and turn window
This typology is the most common in the 1994 and 1933 building. These windows are made out of a part which can be turned open towards the inside and a part which can be tilted towards the inside having two hinges on the bottom.

Awning window
The awning windows are present in a small number in the 1940 and 1933 buildings. These windows, on the contrary of the hopper windows, have hinges on the top and open towards outside on the bottom

Casement window
The casement windows is only present in 1940 building. This is a classic typology which is often used in residential buildings. These windows are made out of two parts which can both be opened towards inside.

Fig. 121a: Fixed windows 1933 building

Fig. 121b: Awning windows 1933 building

Fig. 122a: Casement window1940 building

Fig. 122b: Awning window 1940 building

Fig. 123a: Tilt and turn + fixed window 1994 building

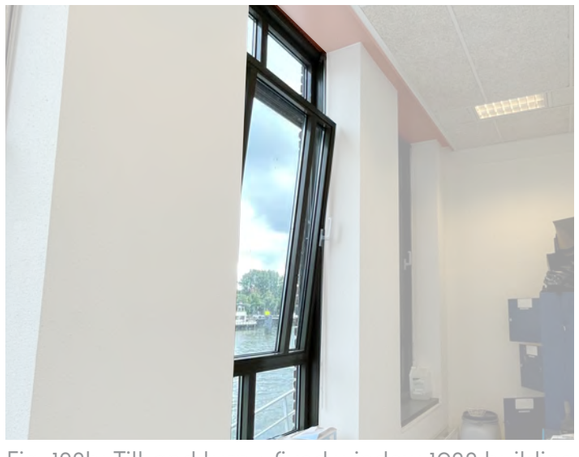


Fig. 123b: Tilt and turn + fixed window 1933 building

SOLIDS AND VOIDS

OPENING TYPOLOGY

When looking at the opening typology of the 1933 building's windows, we encounter four typologies. The majority of the windows are fixed, this means they can not be opened. This is because many windows, placed on the East and West facade, are made out of a part which can be opened and a number of fixed glass elements. Another common typology is the 'tilt and turn' window, this type can be seen in green on the right image. All these windows can both be opened by rotating towards the inside or be tilted towards the inside. Another typology present in this building is the awning window, highlighted in brown. As previously said, this typology opens towards the outside and has hinges on the top.

Although the windows placed during the 1994 renovation follow the original style, it is not possible to know weather these have the same opening direction as the original ones.

LEGEND

- Fixed window
- Awning window
- Tilt and turn window
- Casement window
- Direction of opening

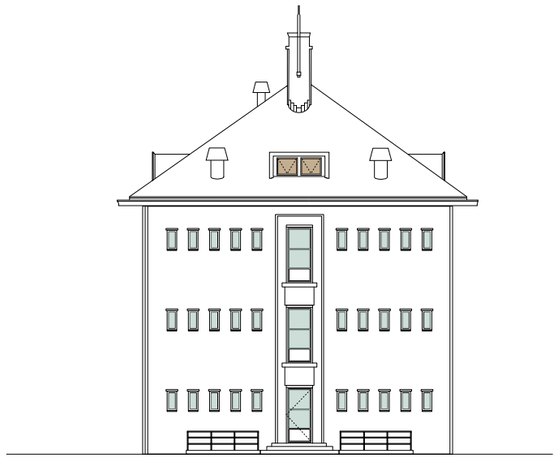


Fig. 124a: North facade

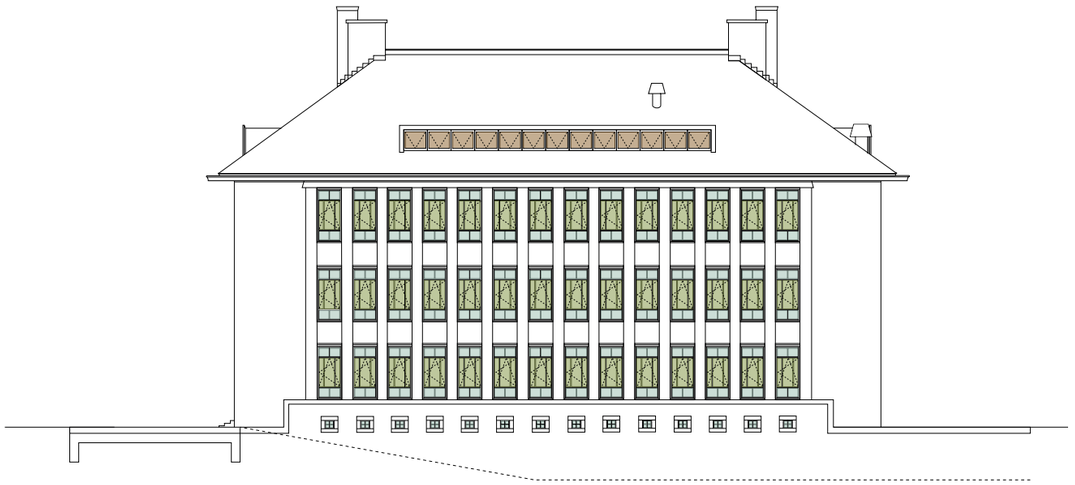


Fig. 124b: East facade

Fig. 124c: South facade

Fig. 124d: West facade

SOLIDS AND VOIDS

OPENING TYPOLOGY

When looking at the opening typology of the 1940 building's windows, we encounter three typologies. The majority of the windows are fixed, which means they can not be opened. As well as the 1933 building, this is because many windows, placed on the North, East and West facade, are made out of a part which can be opened and a number of fixed glass elements. This typology is present on both floors. Another common typology is the casement window, this type can be seen in light green on the right image. This typology is only present on the first floor and consists of both parts being openable towards the inside. Another typology present is the awning window, highlighted in brown. This typology opens towards the outside and has hinges on the top, these windows are present on both floors.

LEGEND

- Fixed window
- Awning window
- Tilt and turn window
- Casement window
- Direction of opening

Fig. 125a: North facade

Fig. 125b: East facade

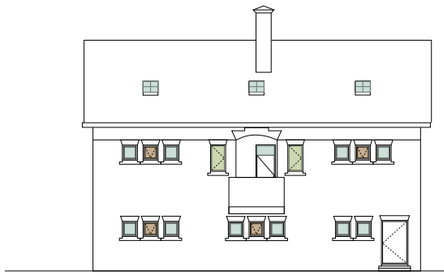


Fig. 125c: South facade

Fig. 125d: West facade

SOLIDS AND VOIDS

OPENING TYPOLOGY

When looking at the opening typology of the 1994 building's windows, we encounter three typologies. The majority of the windows belong to the 'tilt and turn' typology, this type can be seen in green on the right image. All these windows can both be opened by rotating towards the inside or be tilted towards the inside. Furthermore, a large number of fixed windows is present in the glass 'walls' present on the North and South façades. On the South facade, eight window which are part of the 'glass wall' are casement windows, to be seen in brown. This typology represents the windows which opens towards the inside and has hinges on the lower part. These help the ventilation in the staircase.

LEGEND

- Fixed window
- Awning window
- Tilt and turn window
- Casement window
- Direction of opening

Fig. 126a: North facade

Fig. 126b: East facade

Fig. 126c: South facade

Fig. 126d: West facade

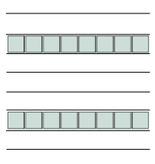


Fig. 127a: East facade

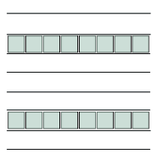


Fig. 127b: West facade

SUN SHADES

Exterior shades
Both the 1994 and 1933 buildings present exterior shades. These are motorised rollers which unfold themselves when there is too much light coming through the windows. It has to be noticed that these are the same for both buildings except for the colour, see the images on the right. On the contrary, the 1940 building does not present any kind of exterior shading.

Interior shades
The majority of the windows present, together with exterior shading, interior shades. These are venetian blinds. These, together with the exterior blinds, can give total privacy to the interior space.

Fig. 128a: Exterior shades 1933 building

Fig. 128b: Interior shades 1933 building

Fig. 129a: Exterior shades 1994 building

Fig. 129b: Interior shades 1994 building

SOLIDS AND VOIDS

SUN SHADES

When looking at the sun shades placed in the 1933 building we can see two typologies. In fact, apart of the windows which do not present any kind of shades, neither inside or outside, to be seen in light blue, there are windows which present only external shades and windows which present both interior and exterior shades. The windows which do no present any shades are present on the North facade. The windows which do not present interior shades but do have exterior ones are placed on the West facade. These, are the ones placed in proximity of the staircase and five windows on the ground floor, in proximity of the cells. All the exterior sun shades are automatized and unfold them self when there is too much light penetrating the interior.

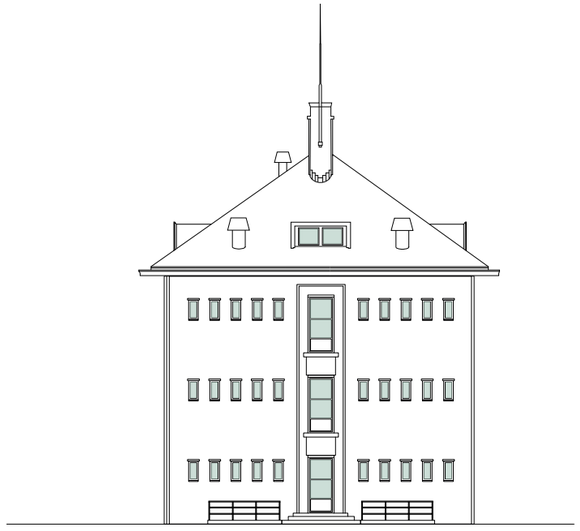


Fig. 130a: North facade

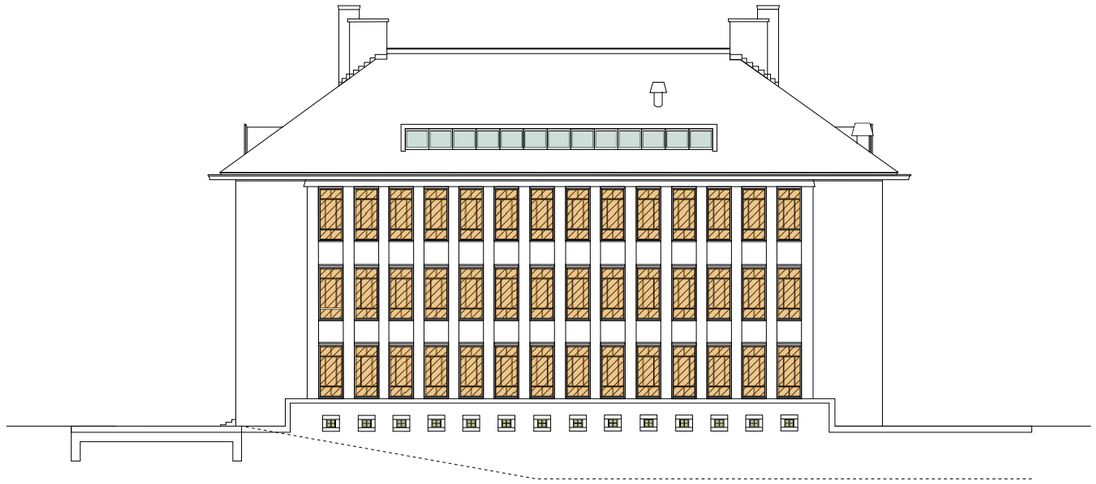


Fig. 130b: East facade

LEGEND

- No sun shades
- External sun shades
- Internal and external sun shades
- Internal sun shades

Fig. 130c: South facade

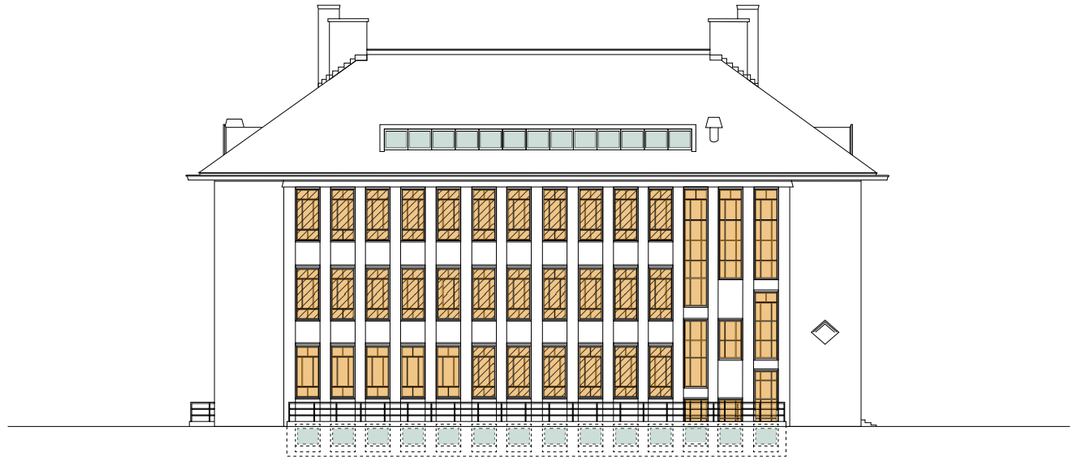


Fig. 130d: West facade

SOLIDS AND VOIDS

SUN SHADES

When looking at the 1940 building there are no visible sun shades. It is not excluded that when this building was still in use shades were present in the interior.

LEGEND

- No sun shades
- External sun shades
- Internal and external sun shades
- Internal sun shades

Fig. 131a: North facade

Fig. 131b: East facade

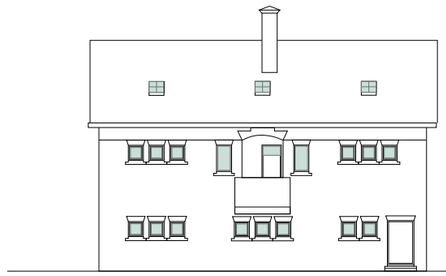


Fig. 131c: South facade

Fig. 131d: West facade

SOLIDS AND VOIDS

SUN SHADES

When looking at the sun shades placed in the 1994 building we see mainly two typologies. In fact, apart of the windows which do not present any kind of shades, neither inside or outside, to be seen in light blue, there are windows which present only internal shades and windows which present both interior and exterior shades. The windows which do no present any shades are the ones which are part of the 'glass wall'. The windows which present interior shades are placed on the North facade. The windows which present both internal and external shades are present on all the façades excepts for the North one. All the exterior sun shades, as the 1933 building, are automatized and unfold them self when there is too much light penetrating the interior.

LEGEND

- No sun shades
- External sun shades
- Internal and external sun shades
- Internal sun shades

Fig. 132a: North facade

Fig. 132b: East facade

Fig. 132c: South facade

Fig. 132d: West facade

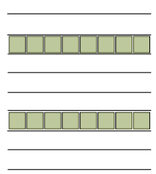


Fig. 133a: East facade

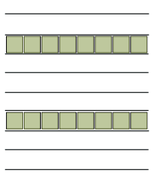


Fig. 133b: West facade

2.2.3. INTERIOR AND STUFF

INDOOR MATERIALITY

The materiality of the inside of the buildings differs from the outside. All in all, the buildings show more coherence concerning the indoor materiality. Currently, the 1940 building is stripped, so the original indoor materials are removed. Unfortuneatly, there is not much information about the original material usage as well.

The floors are mainly recognisable by the light tiling that is used in the hallways of the 1933 (except for the attic) and 1994 building. Furthermore, the coverings of the floors vary from linoleum and carpet to hard stone tiles. In addition, the materialisation of the stairs is also notable. The main stairs in the 1994 building is made of perforated steel sheet. The 1933 building consist of natural stone stairs.

The walls are all plastered white and the ceilings in both buildings consist of suspended ceilings. These suspended ceilings are white in the majority of the rooms. However, in the office canteen on the sixth floor of the 1994 building, the panels are alternated in white and blue (just like the light tiling).

The doors of both buildings are, similar to the tiling, quite consistent. The majority of the doors are added during the renovation and new construction and they appear in orange and blue. They are assumed to be board doors with a flat, flush inner door and honeycomb filling. In the 1933 builing another kind of door is used as well. The old original wooden doors, bordering the corridor, are conserved and thus still in use. The majority of both type of doors have glass panels, which contribute to the transparancy within the buildings. Nevertheless, the more private functions like bathrooms and toilets are of course provided with solid doorspanels.

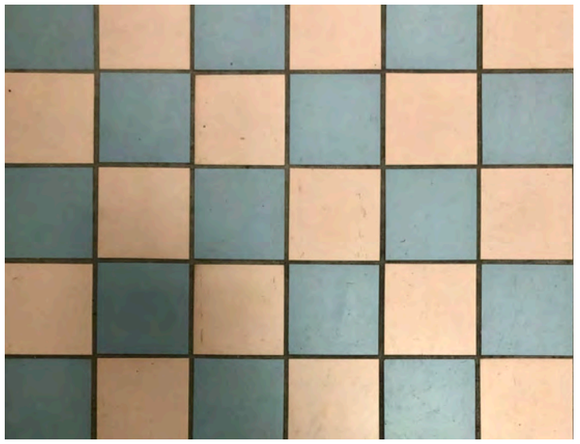


Fig. 134a: Light tiling

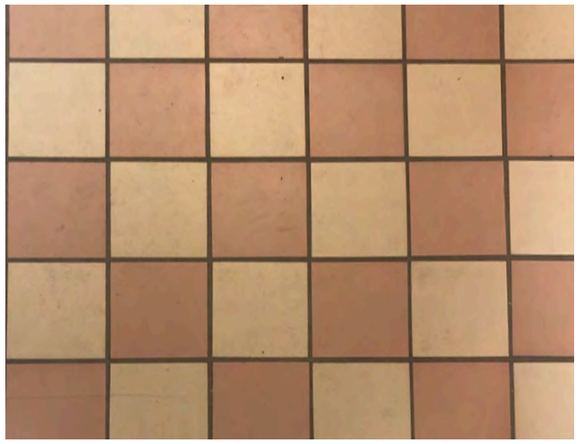


Fig. 134b: Light tiling

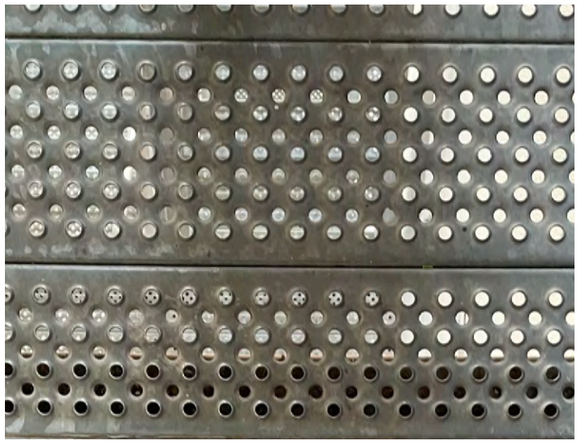


Fig. 135a: Materiality of the stairs

Fig. 135b: Materiality of the stairs

Fig. 136a: Wooden door

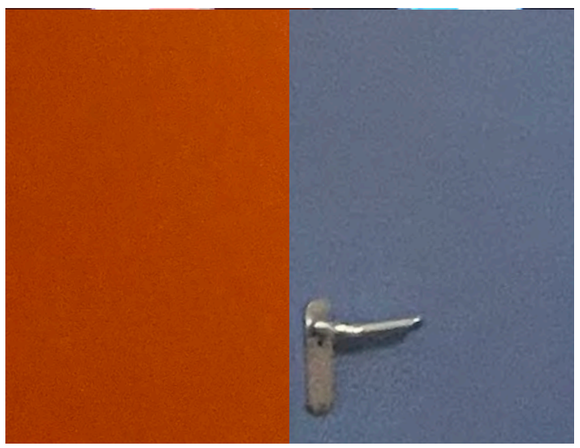


Fig. 136b: Board doors

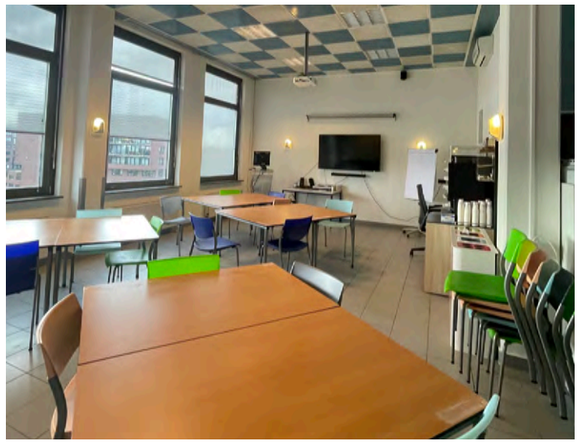


Fig. 137a: Canteen 1994

Fig. 137b: Canteen 1933

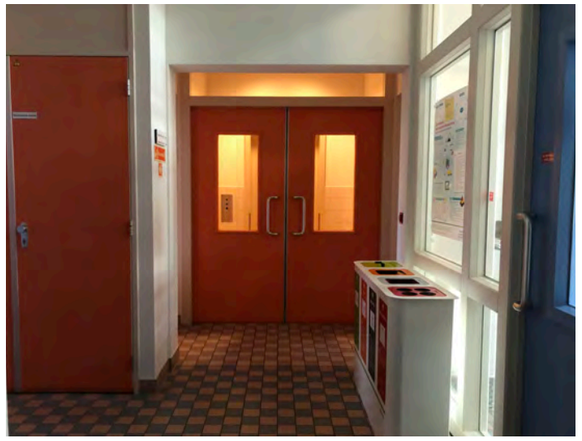


Fig. 138a: Hallway 1994

Fig. 138b: Hallway 1933

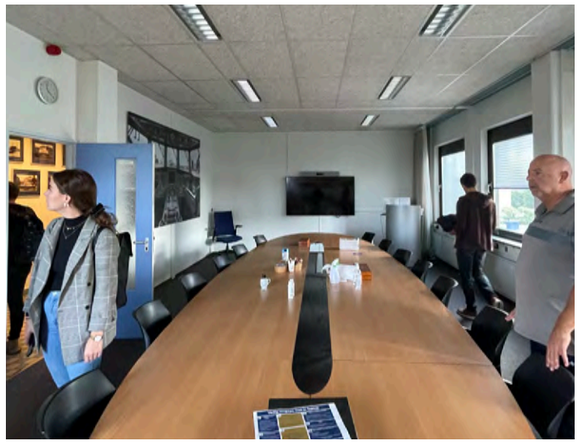


Fig. 139a: Sixth floor 1994

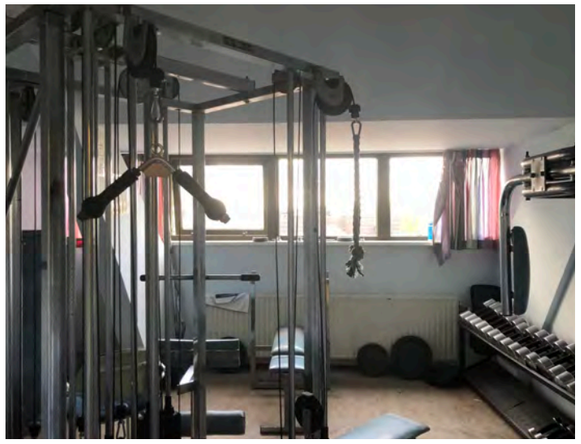


Fig. 139b: Attic 1933

Fig. 140a: Stairs 1994

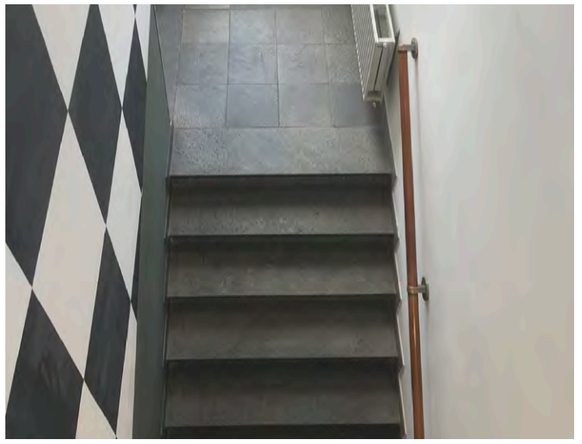


Fig. 140b: Stairs 1933

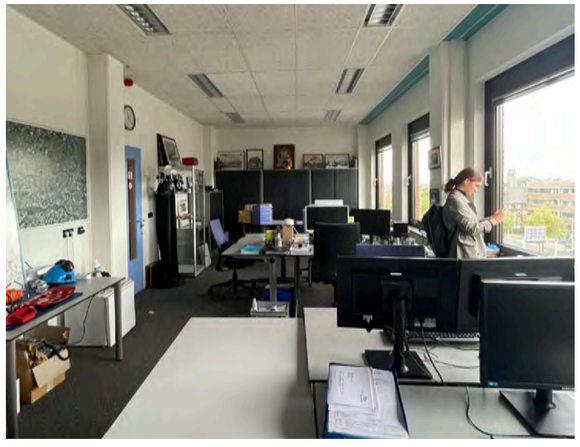


Fig. 141a: Workspace 1994

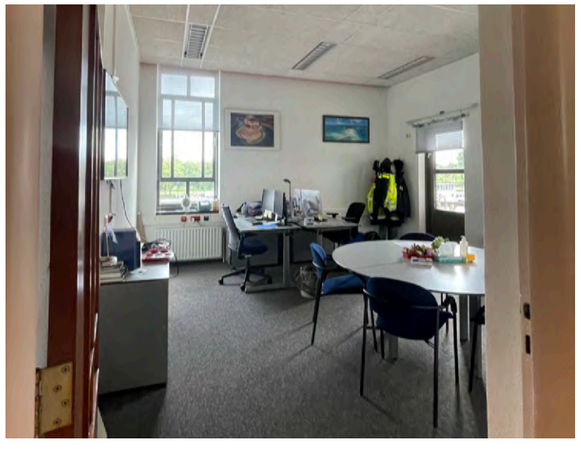


Fig. 141b: Workspace 1933

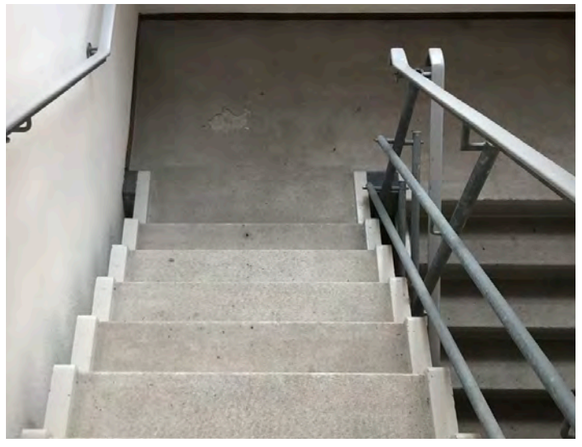


Fig. 142a: Stairs to basement 1994

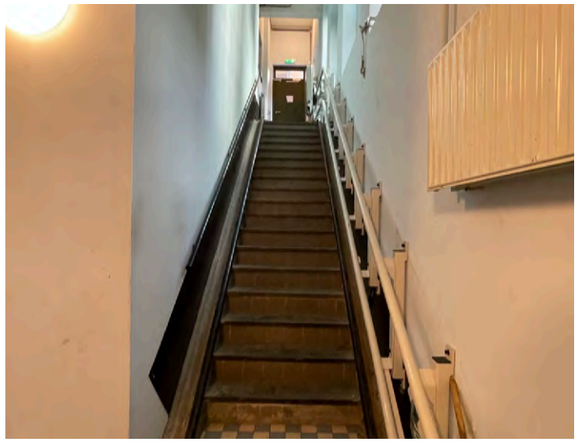


Fig. 142b: Stairs to basement 1933

ART AND DECORATION

The Rotterdam Harbour Police Station has some artworks and decoration throughout it 1933 and 1994 buildings. The interior of the 1940 building is unfortuneatly not intact anymore, so there is also no information about the art and decoration indoors.

First of all, the 1994 building has the woodcarving, dating from the Second World War and made by the prisoners, in possession. It shows the view from the attic of the 1933 building towards the West side, as shown in figure 143. It was given to the police as a thank you for the kindness and good care during their captivity. Furthermore, there are several old pictures and little police related ornaments hanging on the walls of the workspaces.

The 1933 building has a newer and more modern artwork. Namely, during the reconstruction at the end of the 20th century Jan van den Dobbelsteen was asked to create an artwork for the Harbour Police. The (inner) walls around the stairs are painted in a black and white block pattern. The grid of this pattern follows the grid of the windows. The cove are designed to have fluorescent lighting with a yellow-orange glow on the 1st floor, and a purple glow on the 2nd floor. In contrast to the clear order of the black and white pattern, the (outer) walls are coloured with clouds of color fields.

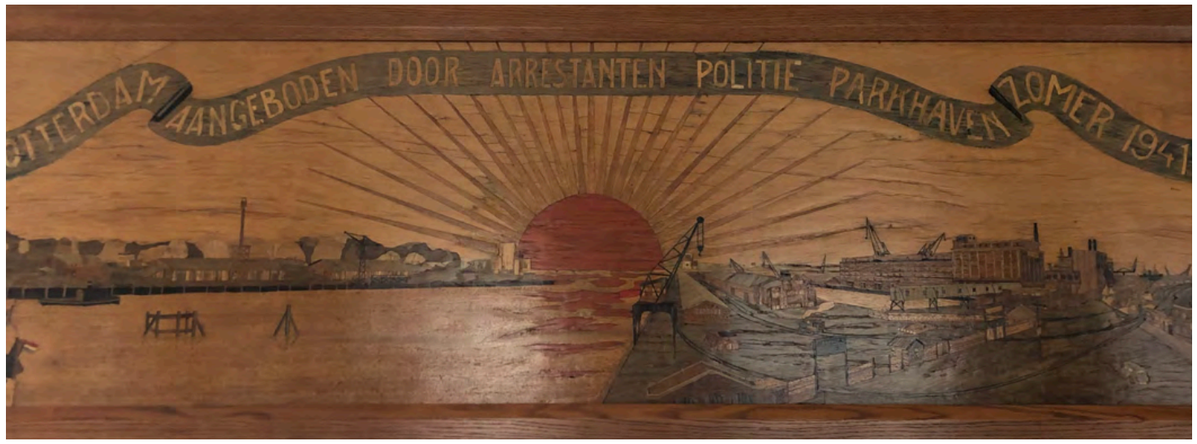


Fig. 143: Woodcarving made by prisoners during WWII

Fig. 144a: Preliminary model of the artwork

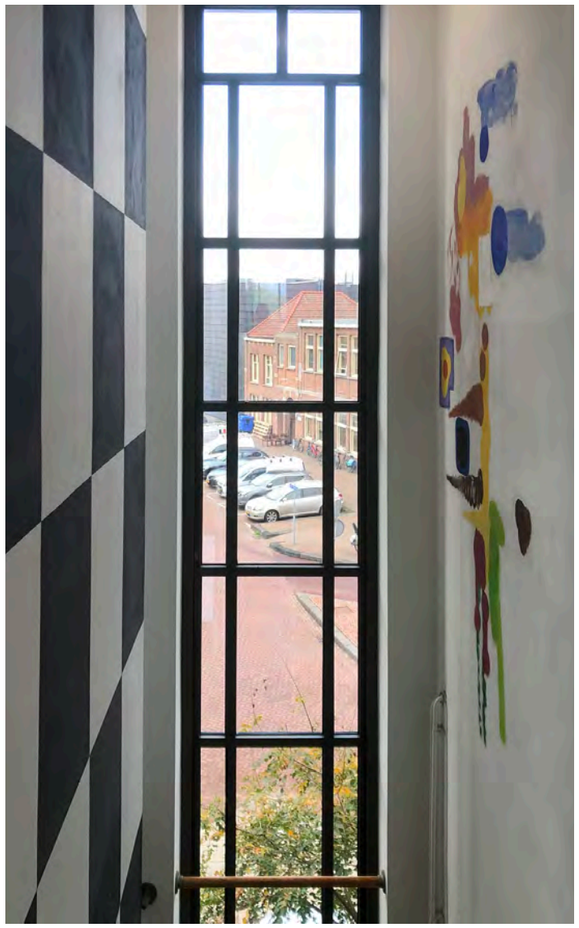


Fig. 144b: Artwork in the 1933 building

2.3. CONCLUSION

2.3. CONCLUSION

MAIN TAKE-AWAYS

As a result of the previous subchapters, there are some main take-aways that eventually can lead to a series of interesting notions that can be used as design guidelines.

1933 BUILDING
- The building has a corridor structure and an iconic staircase.
- It consists of a brick facade with a standing and cross bond, aluminium window frames, concrete lintels, iron fences, a wooden door and natural stone sills.
- Mainly fixed windows at the north and south side, casement windows on the east and west side, and awning dormer windows. All double glazing.
- It is improved and/or renovated three times.

1940 BUILDING
- The building has a free space plan.
- It was designed as a residence and workshop.
- It consists of a brick facade with a flamish bond, wooden window frames and doors, brick lintels and a concrete roof.
- Combination of fixed, awning and casement windows with single glazing.
- The building has not undergone any renovations yet.

1994 BUILDING
- The building has a corridor structure and an iconic staircase.
- It consists of a brick facade with a stretcher bond, aluminium window frames, and concrete lintels.
- Casement windows, fixed central glass zone and a few awning windows. All with double glazing.
- It has not undergone any renovations yet.

3. BUILDING TECHNOLOGY

3. BUILDING TECHNOLOGY

INTRODUCTION

This chapter analyses the building technology of the Rotterdam Harbour Police. This includes again the historical, current and future perspective.

- Technical historical analysis
- Building physical analysis

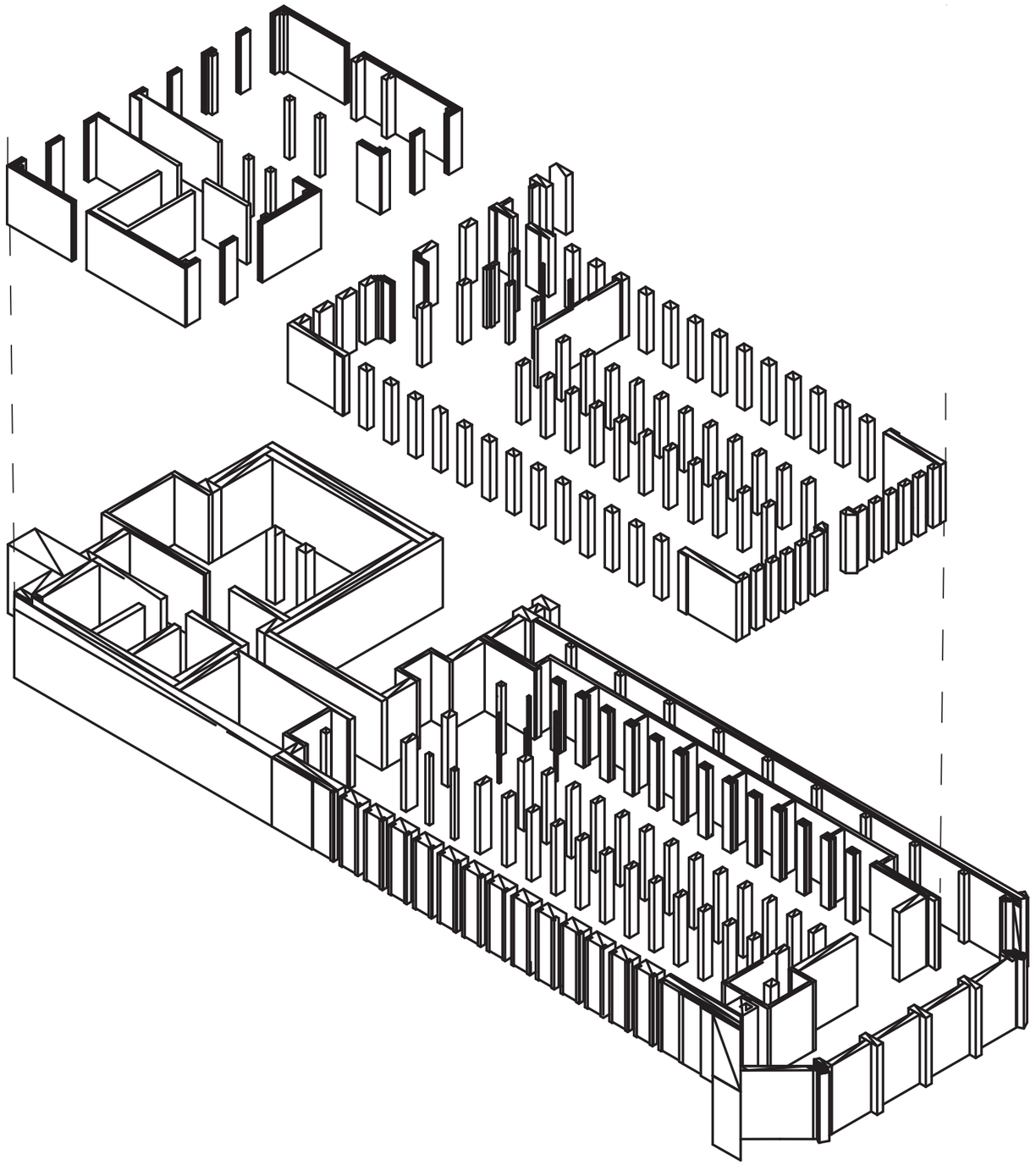


Fig. 145: Exploded view of the Rotterdam Harbour Police Station (Zijlstra et al., 2021-2022)

3.1. TECHNICAL HISTORICAL ANALYSIS

3.1. TECHNICAL HISTORICAL ANALYSIS

INDEX

This subchapter will include the historical perspective on the designs. It will start with an introduction on the building technology, followed by the floors-plans and sections of each of the three buildings..

20TH CENTURY TECHNOLOGY

In order to understand a bit about the psychology and technology of the buildings, the period of construction are indicated.

1933 building
The middle building is the oldest and dates back from 1933. It is constructed as a result of the lack of space of the former floating office. It is constructed concerning the traditional idea of Dutch architecture. As mentioned before, Van der Lecq mainly built in the style of the Delftse School, including an almost exclusive use of brick; high, tiled, pitched roofs between gable ends; high gutter lines; use of natural stone on constructively important points; and the idea of form follows function (De Vree, n.d.). Nevertheless, in this period of time the usage of steel led to a change in architecture. That is to say, steel as window frame resulted in slimmer profiles, which meant refinement and sharper lines.

1940 building
The architecture of the 1940 building is a bit more elegant than the 1933 building. This is the result of the higher level of detail and the usage of semi-circular shapes. Nevertheless, there are similiarities as a result of the style of the architect Van der Lecq. Furthermore, the roof construction of this building is notable. Namely, instead of wood, the construction material of the roof is concrete. This was due to the wider lack of wooden beams.

1994 building
The tallest building is the newest and it is less traditional. Particularly in the course of the twentieth century, the extruder has become the fastest brick forming machine and it led to angular and sleek shapes, as used in the 1994 building. The architect Struijs wanted to create spaces in which the user could decide for himself what to do and how to use it, and this became his design philosophy (Galema & Tijhuis, 2006). Concerning the bigger picture, in the years around the renovation and construction, the city of Rotterdam was enhanced with the Erasmusbrug and the Kunsthal.

Fig. 146a,b,c: Streetviews of the three buildings (resp. 1933, 1940, 1994) of the Rotterdam Harbour Police Station (Stadsarchief Rotterdam, n.d.)

1933 BUILDING

CONSTRUCTION FLOORPLANS

The oldest building of the three is the middle building, dating from 1933. The construction is made of a combination of materials.

The columns consist of concrete filled with brick. Furthermore, loadbearing walls provide stability. The columns present in the cellar are 330x600, 330x730, 330x810 and 400x600. The ones at the corridor on the other floors are 340x595 mm. Concerning the cellar, the walls are loadbearing. Furthermore, it should be noticed that the east facade is bordering the river Maas. Therefore, the wall is thickers and there is an extra layer of (natural) stones on the outside. This means that the total width of the east wall (1000 mm) is more than twice as width as the other walls (450 mm).

On the following page, the attic and the roof are also visualised. The gable roof with wolf ends consist of a construction of wooden purlins and trusses. The dimensions of the columns on which they rest are 100x250 mm.

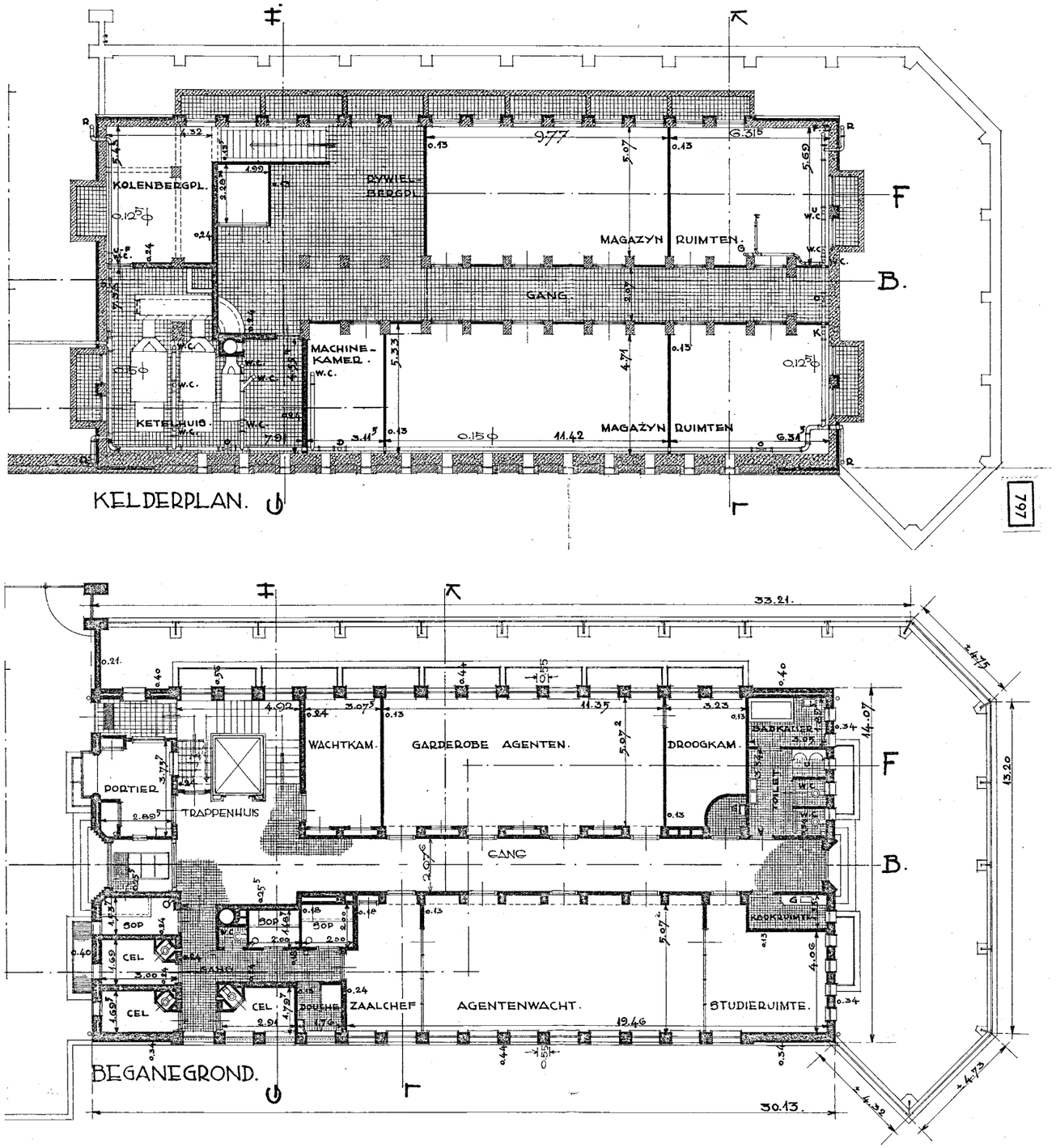
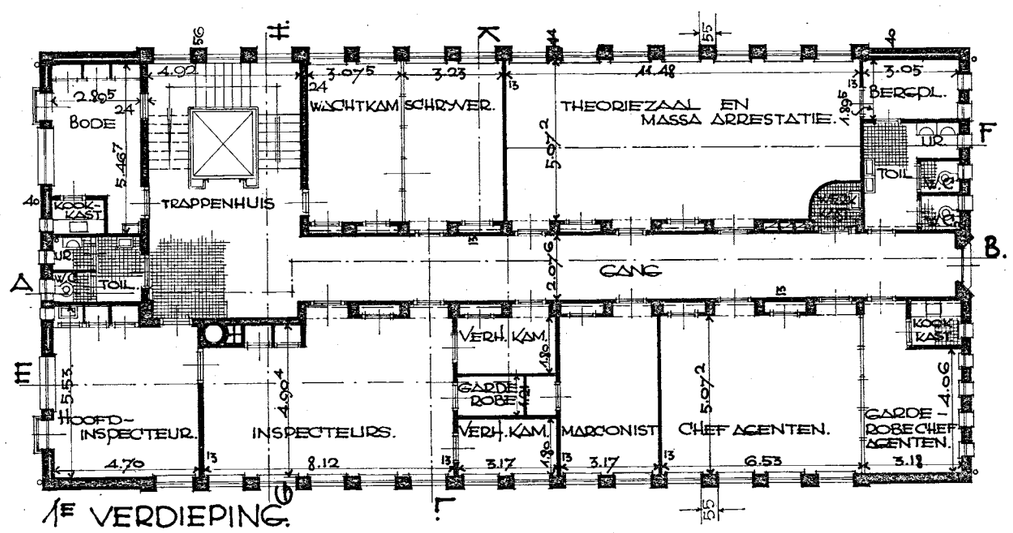
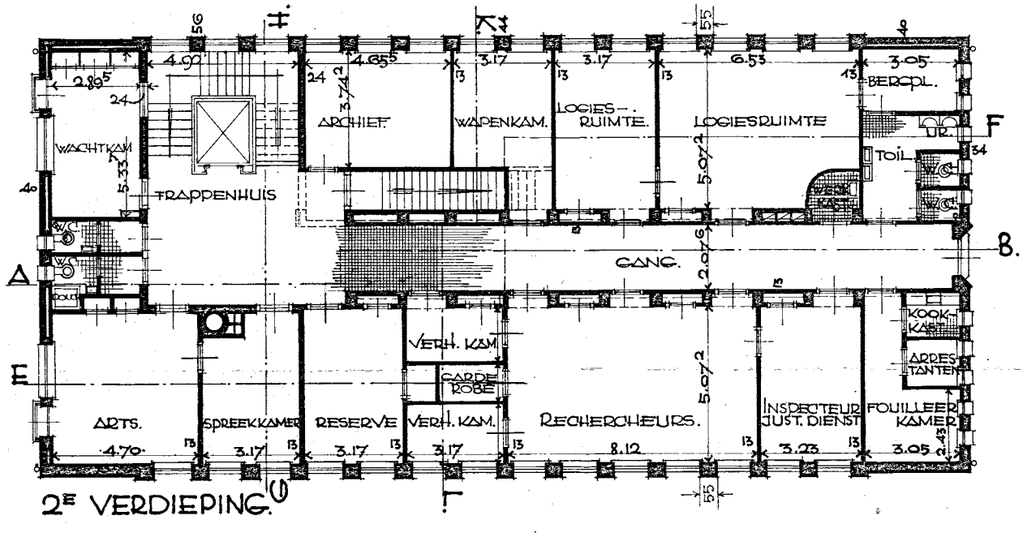
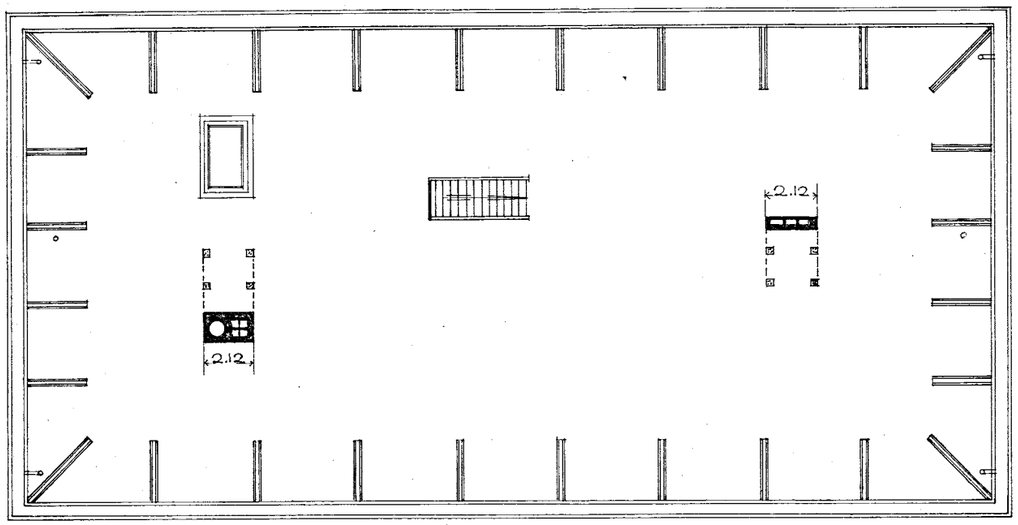


Fig. 147a: Floorplans 1:200, including construction (Gemeentewerken Rotterdam, n.d.)

CONSTRUCTION FLOORPLANS







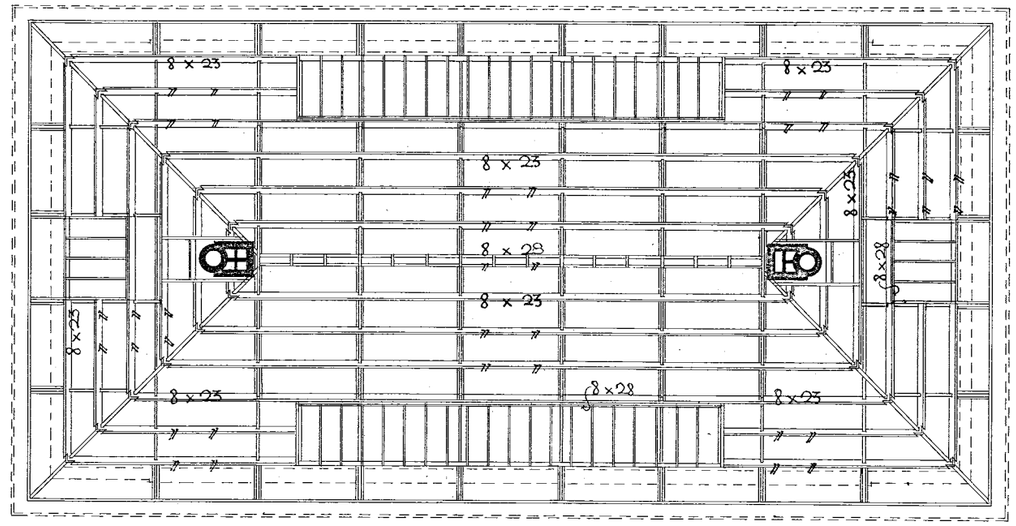


Fig. 147b: Floorplans 1:200, including construction (Gemeentewerken Rotterdam, n.d.)

1933 BUILDING

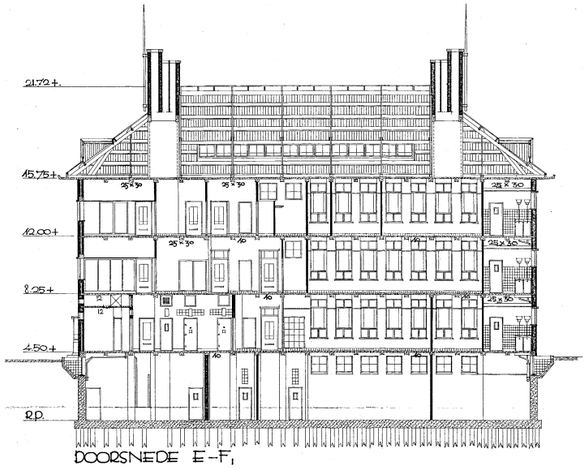
CONSTRUCTION SECTION

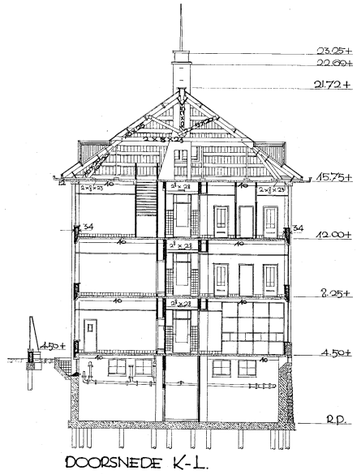
In the sections on this page, the beams are also visable. The beams are made up of reinforced concrete. The beams in the building have different dimensions, namely:

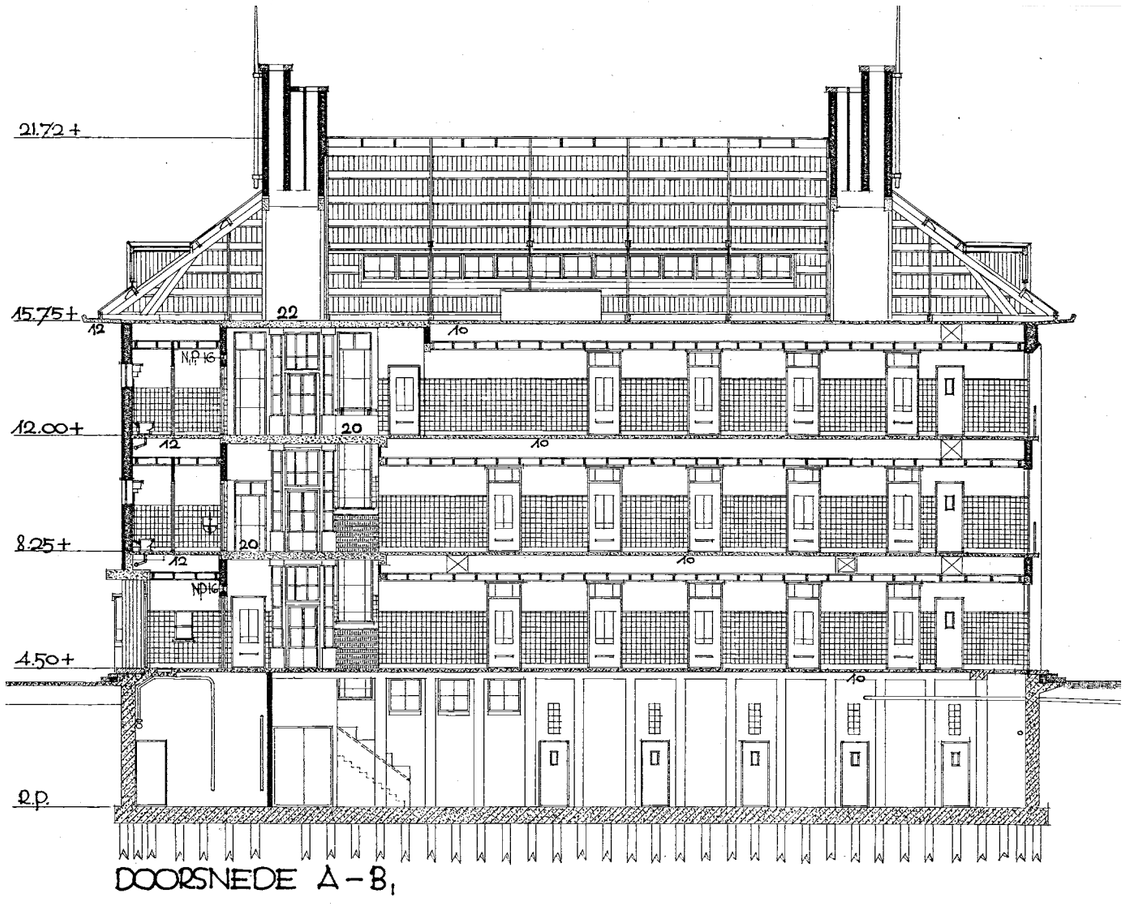
- 240x300 mm at the ground floor;
- 240x325 mm at the 1st, 2nd floor;
- 240x420 mm at the 1st floor;
- 250x300 mm at the ground, 1st, 2nd floor;
- 250x325 mm at the 2nd floor and in the new staircase;
- 250x350 mm at the new staircase;
- 250 x 400 mm in the hallways and cellar;
- 300x500 mm in the cellar;
- 300x600 mm in the hallways and cellar;
- 300x650 mm in the cellar;
- 600x250 mm in the cellar;

The roof consist of a wooden construction and the beams include the following measurements:

- 50x200 as buttress;
- 80x230 mm at the overhang and purlins;
- 80x280 mm as ridge purlin;
- 100x200 mm as the brace/strutt/korbel;
- 100x250 mm at the trusses.







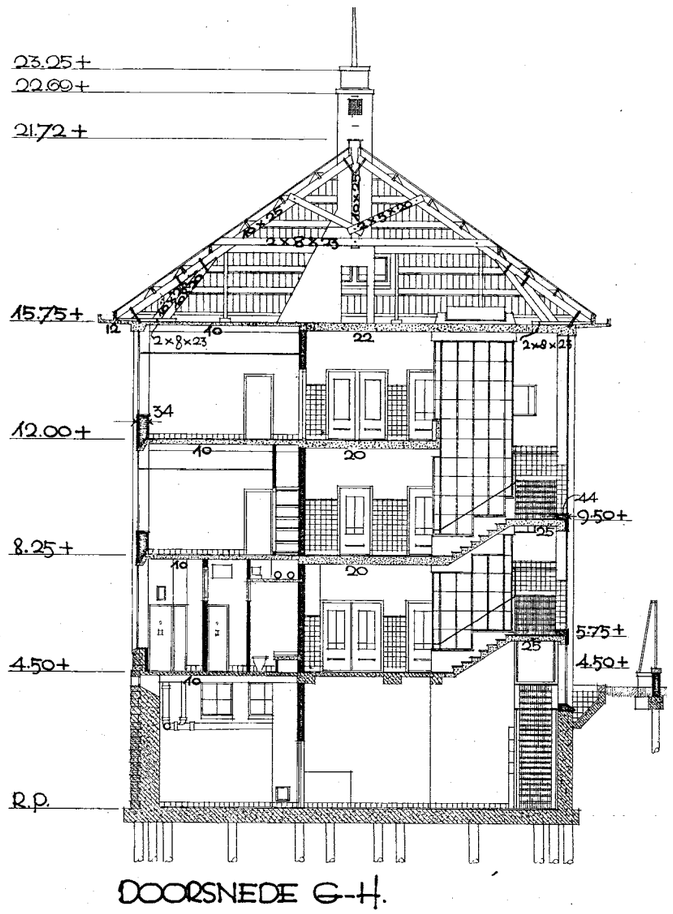


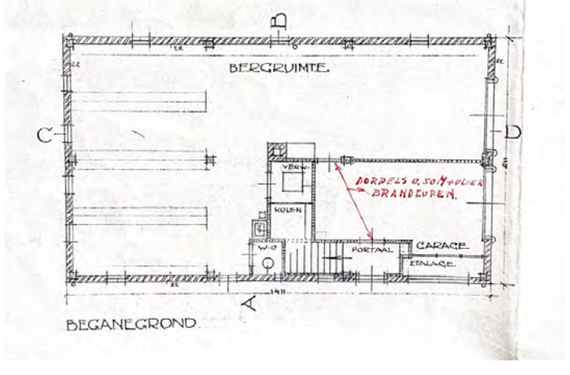
Fig. 148: Section 1:400 and 1:200, including construction (Gemeentewerken Rotterdam, n.d.)

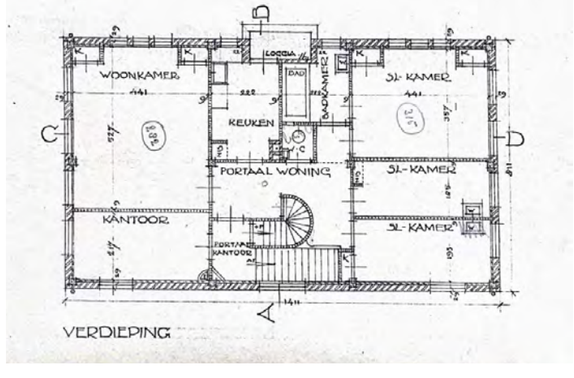
1940 BUILDING

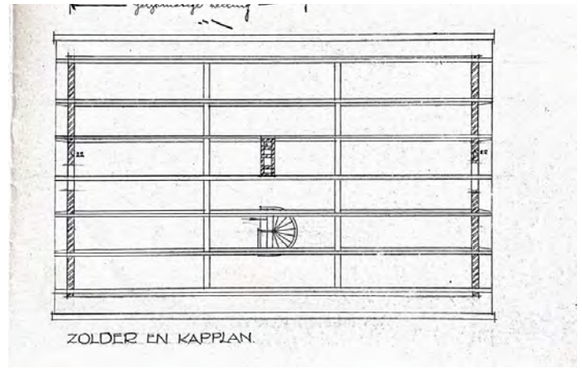
CONSTRUCTION FLOORPLAN

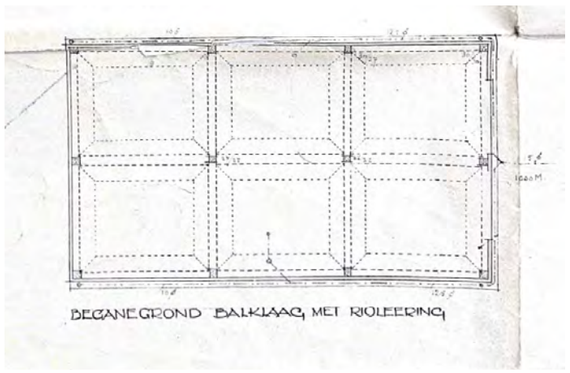
A few years after the 1933 building was put into use, the residence and workshop was built next to it in 1940. The construction consists of mainly concrete. The building can be seperated into six planes, as can be seen on the bottom left drawing. So, there are 12 columns that support the building. Those columns are incorporated within the loadbearing masonry. The columns have the following measurements:

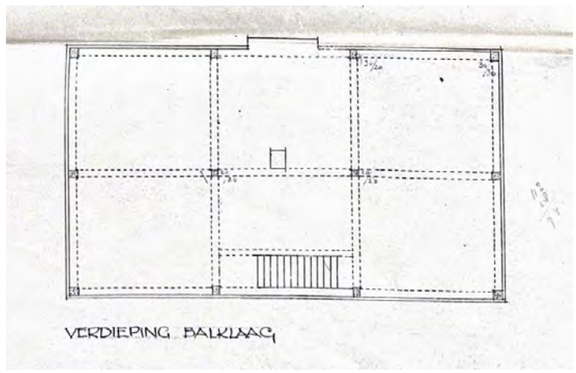
- 200x200 mm in the detached middle area;
- 200x300 mm in the middle of the outer walls;
- 300x300 mm at the corners of the outer walls.











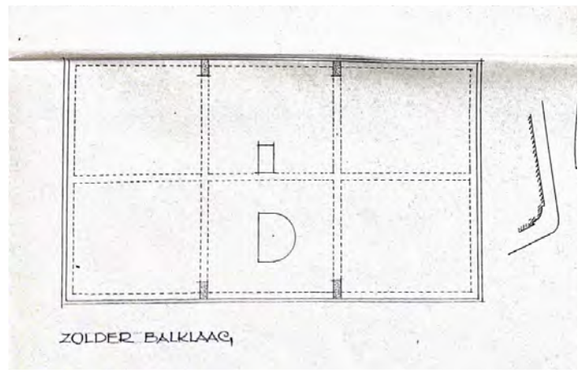
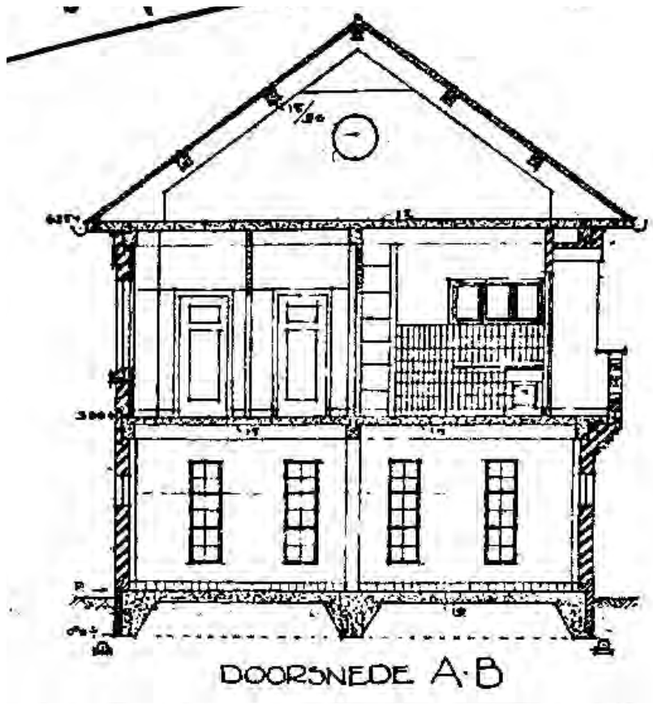


Fig. 149: Floorplan 1:200, including construction (Stadsarchief Rotterdam, n.d.)

CONSTRUCTION SECTION

Notches within the walls provide space for the beams to rest on. The average beam has a dimenstion of 250x230 mm. The roof forms an exception, but it is also made up of concrete purlins and trusses. The ridge purlin is 200x250 mm and the other purlins are 150x300mm or 200x400 mm.

The thickness of the floors differ. The ground floors consist of 190 mm concrete. The first and second floor have a thickness of 120 mm.



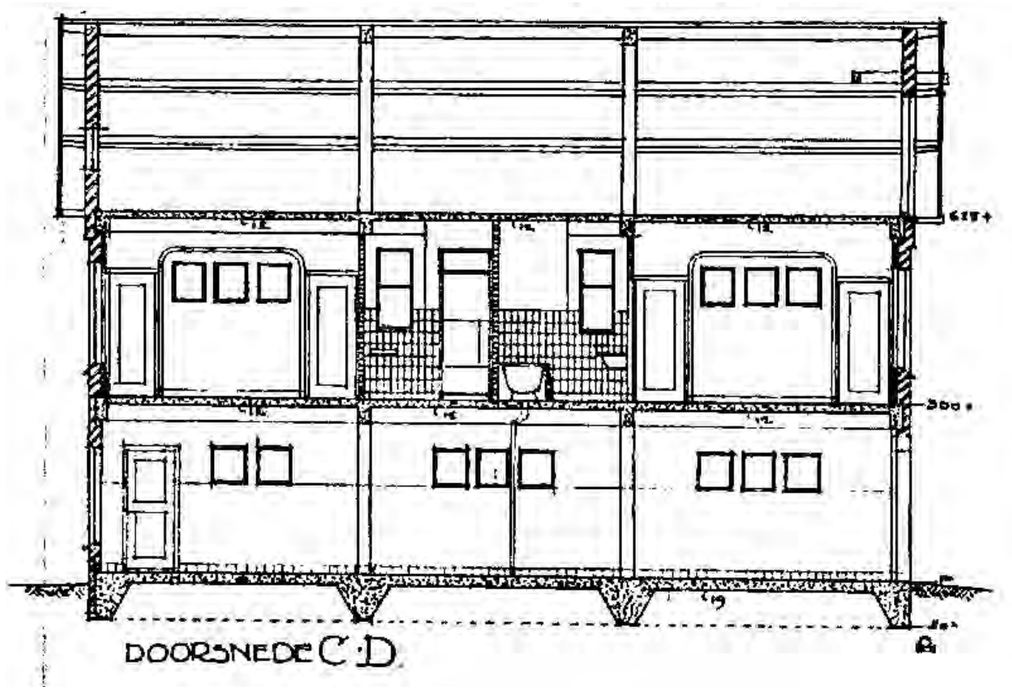


Fig. 150: Section 1:100, including construction (Stadsarchief Rotterdam, n.d.)

1994 BUILDING

CONSTRUCTION FLOORPLANS

The newest building is the extension, dating from 1994. The construction consist of concrete columns and loadbearing walls. The columns in the cellar are dimensioned as 600x600mm. Similar to the 1933 building, the walls on the east side are wider than the other walls since it borders the river Maas. Moreover, the eastern wall is 1500 mm thick, including the natural stones on the quay.

The columns on the other floors are 350x675 mm at the staircase at the west side of the building and the remaining columns are 350x350 mm. The walls surrounding the elevatorshaft and the extensions of the corridor, including the staircase, are loadbearing. They provide stability to the building. The relevant walls in the cellar and on the other floorlevels are 400 mm and 250 mm thick respectively. The same accounts for the liftshaft, except for the wall bordering the east facade. That one consists of a concrete layer of 350 mm.

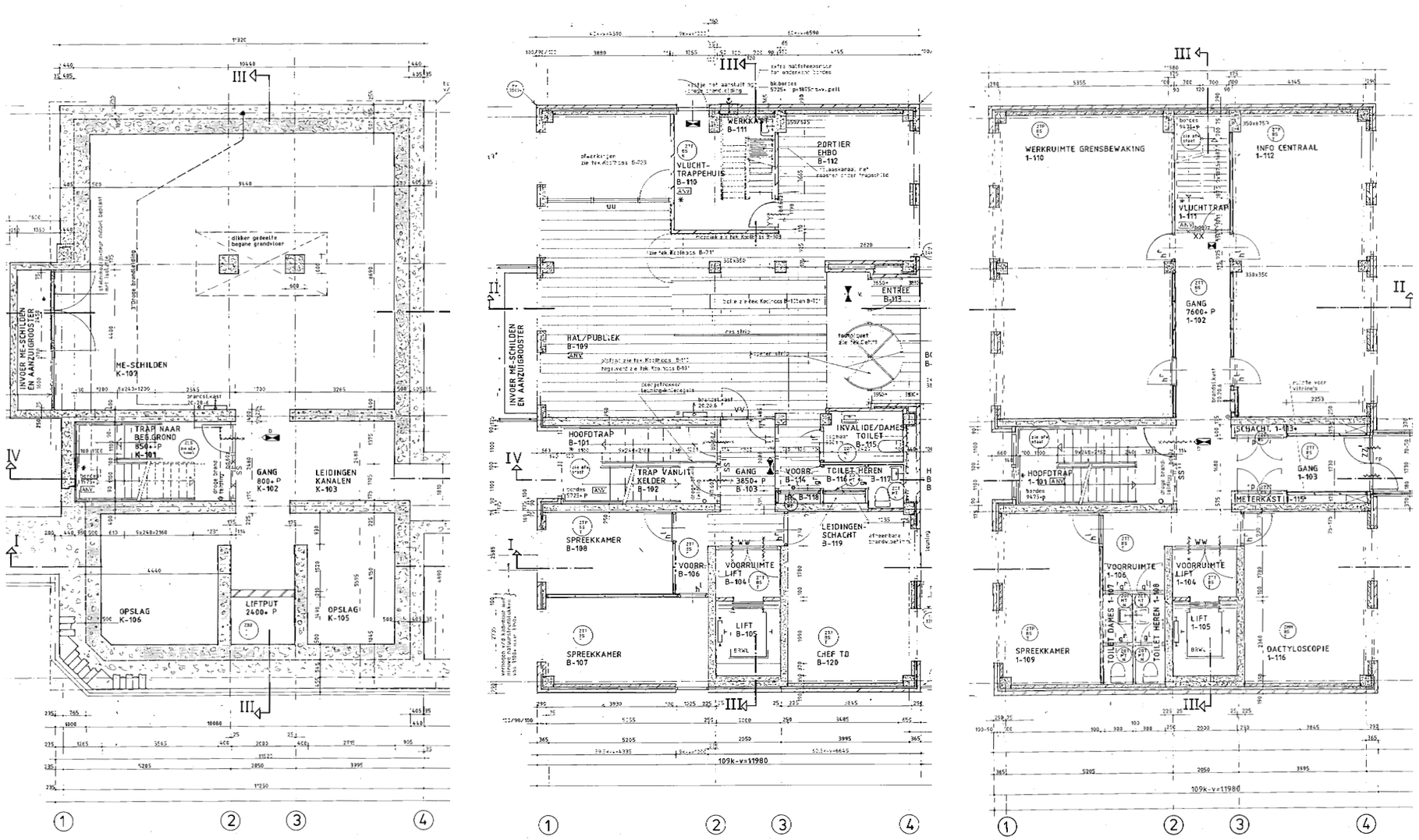


Fig. 151a: Floorplans 1:200, including construction (Gemeentewerken Rotterdam, n.d.)

CONSTRUCTION FLOORPLANS

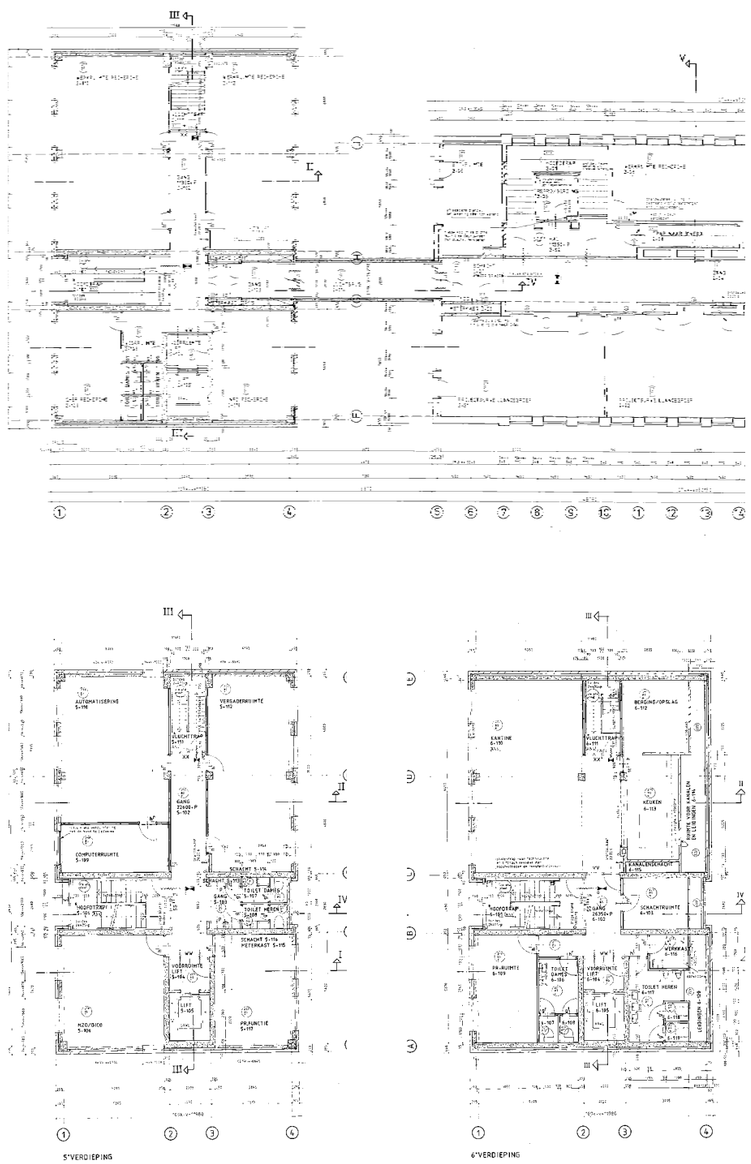


Fig. 151b: Floorplans 1:400, including construction (Gemeentewerken Rotterdam, n.d.)

1994 BUILDING

CONSTRUCTION SECTION

The sections of the building provide more information in regard to the beams. As an example, the beams bordering the corridors are determined to be 350x800 mm. Furthermore, the building does not present beams on the outer walls. Also, the floors rest directly on the loadbearing concrete. Therefore, reinforced floor strips of 900x1200x400 mm are used to support the outer perimeter of the floors. Overall, the thickness on the ground floor is 400 mm as well, and the general thickness of the remaining floors are 310 mm.

In addition, these drawings show the corridor bridge between the 1994 and 1933 buildings. It can be concluded that this construction is carried by a total of six IPE-270 steel profiles.

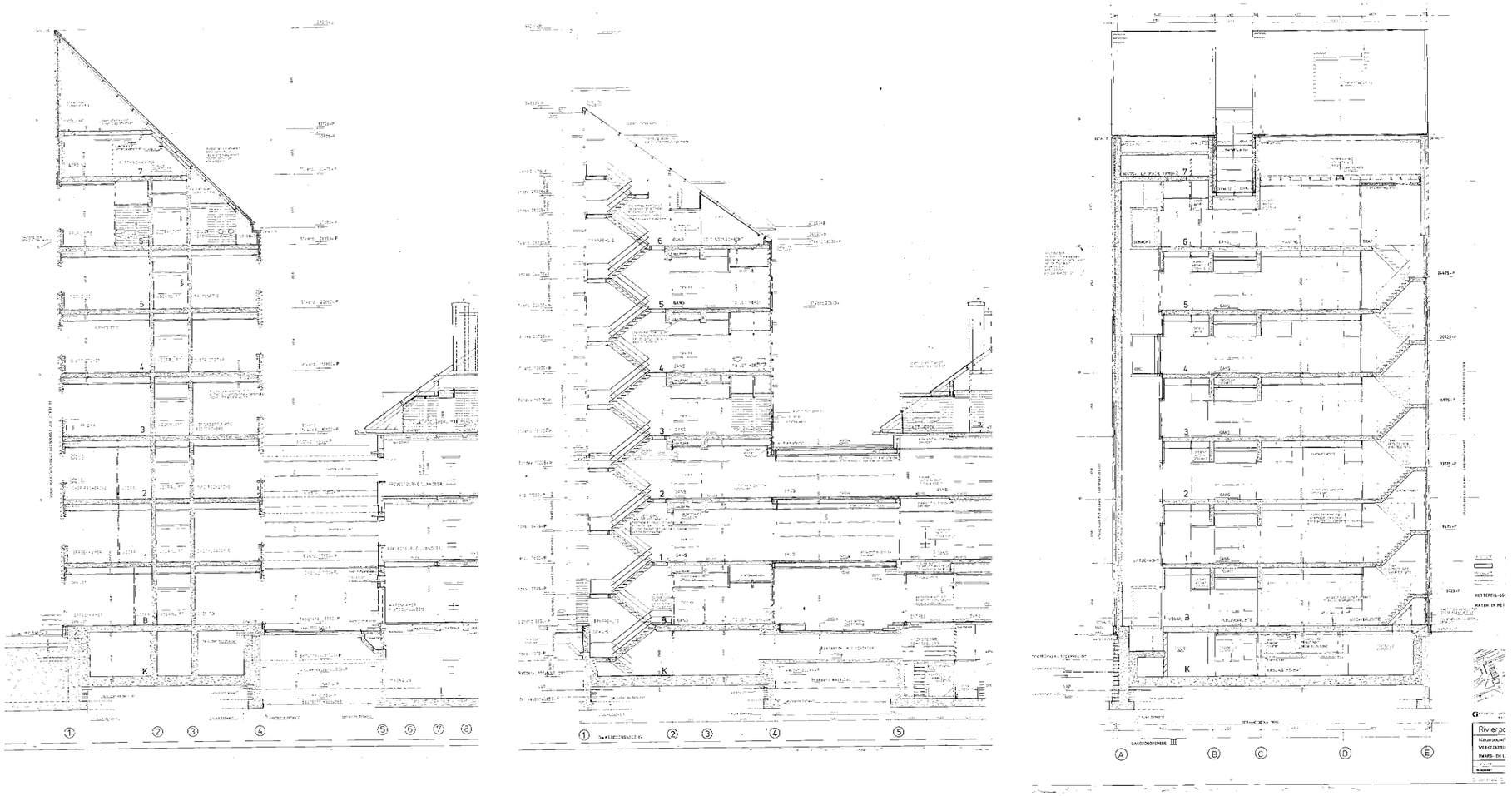


Fig. 152: Section 1:400, including construction (Gemeentewerken Rotterdam, n.d.)

3.2. BUILDING PHYSICAL ANALYSIS

3.2. BUILDING PHYSICAL ANALYSIS

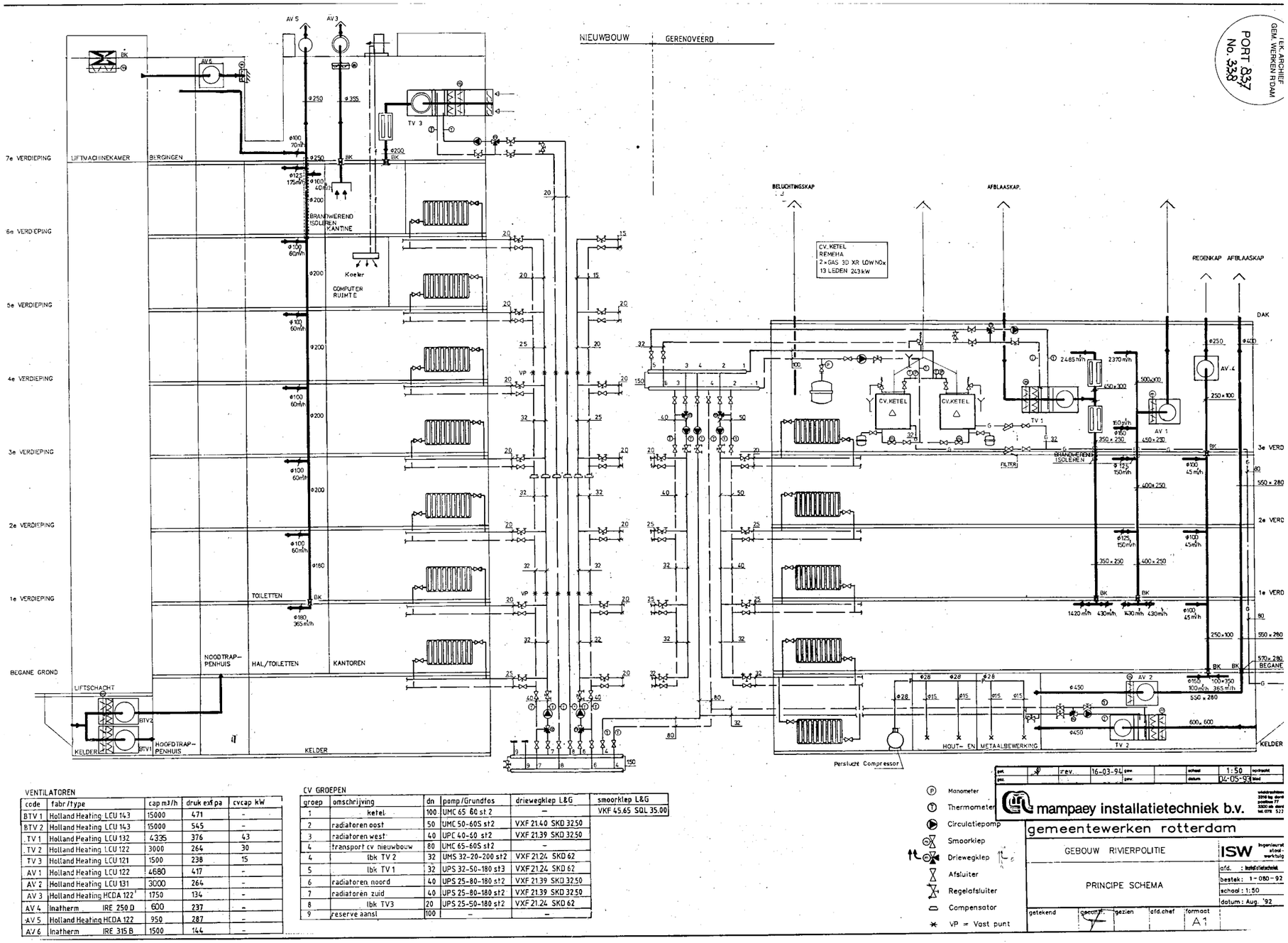
INDEX

This subchapter will consist of the current situation in relation to the building physics. This will include topics of installations, and construction details.

- Systems
- Detailing

ENERGY SYSTEM

As can be seen in the figure on the right, the energy systems of the 1933 and 1994 building are connected. Both buildings have technical rooms in the basement and on the top floors. At this moment the buildings are heated by two central heating boilers on the attic of the 1933 building. The physical connection is located in the basement.



VENTILATOREN

code	fabr/type	cap m3/h	druk ext pa	cvcap kW
BTV 1	Holland Heating LCU 143	15000	471	-
BTV 2	Holland Heating LCU 143	15000	545	-
TV 1	Holland Heating LCU 132	4335	376	43
TV 2	Holland Heating LCU 122	3000	264	30
TV 3	Holland Heating LCU 121	1500	238	15
AV 1	Holland Heating LCU 122	4680	417	-
AV 2	Holland Heating LCU 131	3000	264	-
AV 3	Holland Heating HCDA 122	1750	134	-
AV 4	Inatherm IRE 250 D	600	237	-
AV 5	Holland Heating HCDA 122	950	287	-
AV 6	Inatherm IRE 315 B	1500	144	-

CV GROEPEN

groep	omschrijving	dn	pomp/Grundfos	driewegklep L&G	smoorklep L&G
1	ketel	100	UMC 65 60 st 2	-	VKF 45.65 SQL 35.00
2	radiatoren oost	50	UMC 50-60S st2	VXF 21.40 SKD 32.50	
3	radiatoren west	40	UPC 40-60 st2	VXF 21.39 SKD 32.50	
4	transport cv nieuwbouw	80	UMC 65-60S st2	-	
4	tbk TV 2	32	UMS 32-20-200 st2	VXF 21.24 SKD 62	
5	tbk TV 1	32	UPS 32-50-180 st3	VXF 21.24 SKD 62	
6	radiatoren noord	40	UPS 25-80-180 st2	VXF 21.39 SKD 32.50	
7	radiatoren zuid	40	UPS 25-80-180 st2	VXF 21.39 SKD 32.50	
8	tbk TV3	20	UPS 25-50-180 st2	VXF 21.24 SKD 62	
9	reserve aansl	100	-	-	

- (P) Manometer
- (T) Thermometer
- Circulatiepomp
- Smoorklep
- Driewegklep
- Afsluiter
- Regelafsluiter
- Compensator
- VP = Vast punt

mampaey installatietechniek b.v.

gemeentewerken rotterdam

GEBOUW RIVIERPOLITIE — ISW

PRINCIPE SCHEMA

rev. 16-03-94 — schaal 1:50 — datum 04-05-93

getekend — gezien — afd.chef — formaat A1

Fig. 153: Energy system (Gemeentewerken Rotterdam, 1994)

WATER SYSTEM

Just like the energy system, the water system of the 1933 and 1994 buildings of the Harbour Police Station are connected with each other through the basements.

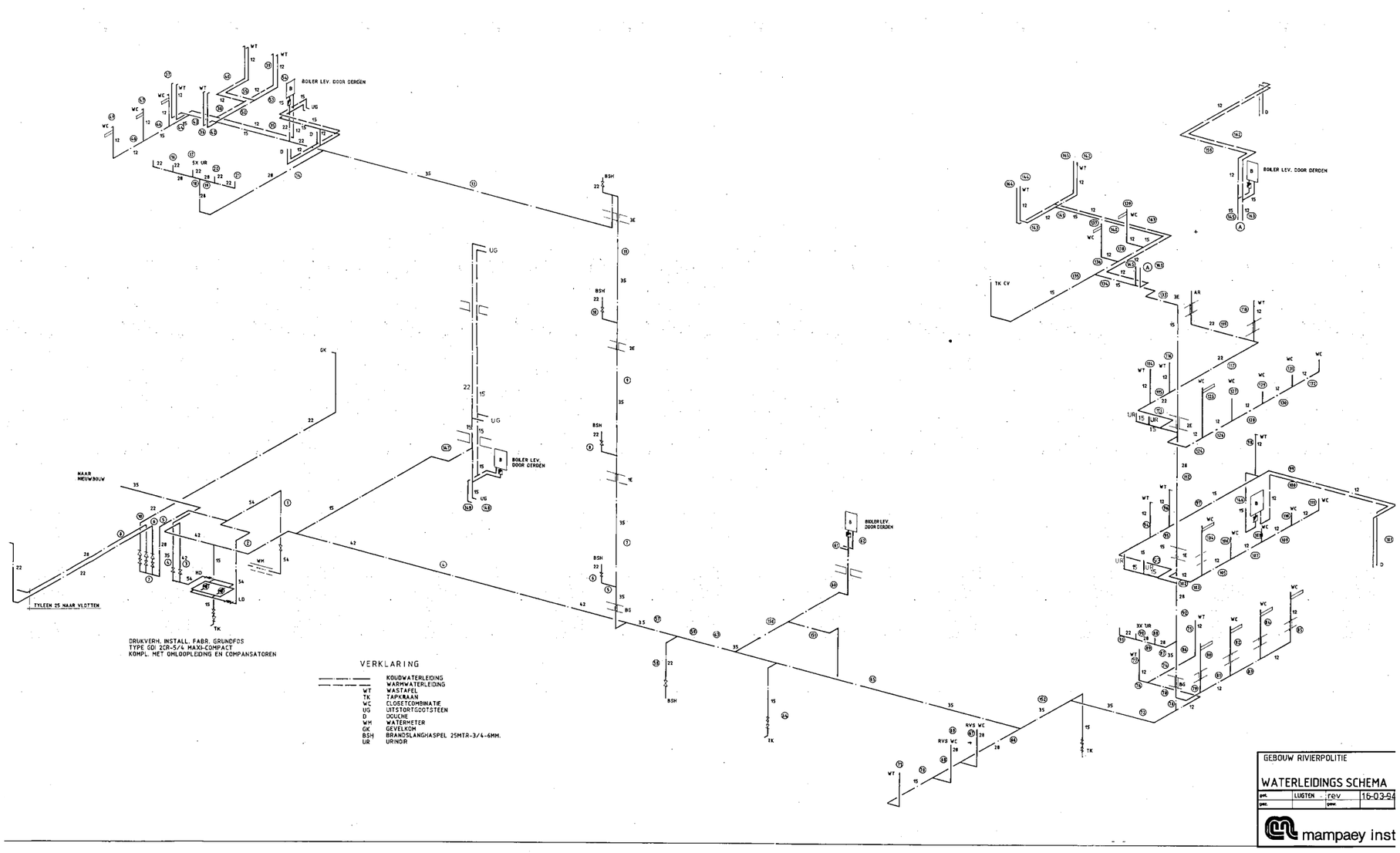
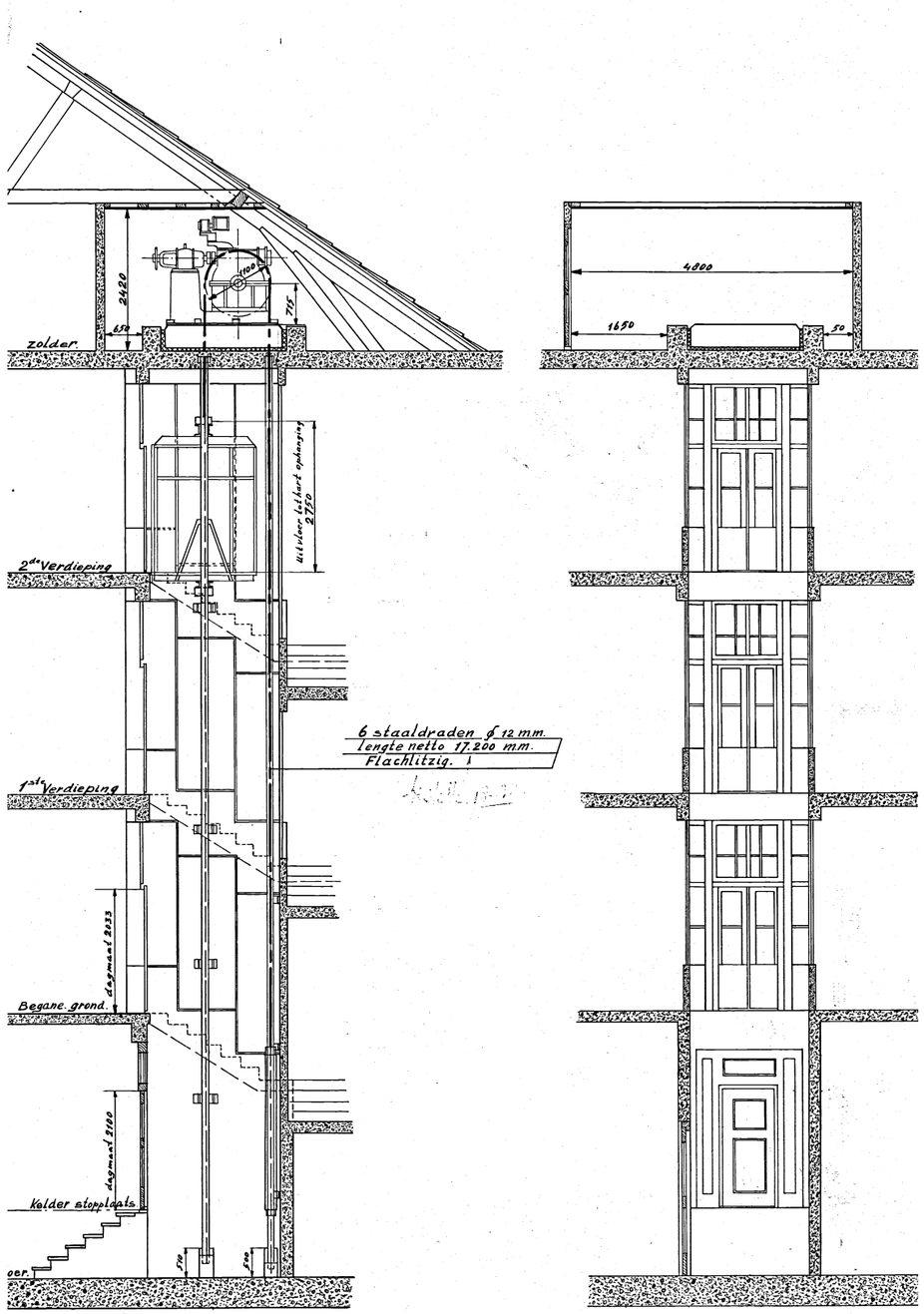


Fig. 154: Water system (Gemeentewerken Rotterdam, 1994)

1933 ELEVATOR

Even though it it not visible anymore, the 1933 building used to have an elevator. This was a traction elevator, which has a cable at the top of the elevator car, a pulley at the top and a counterweight. Nowadays, the elevator is removed and replaced by a kitchenette.



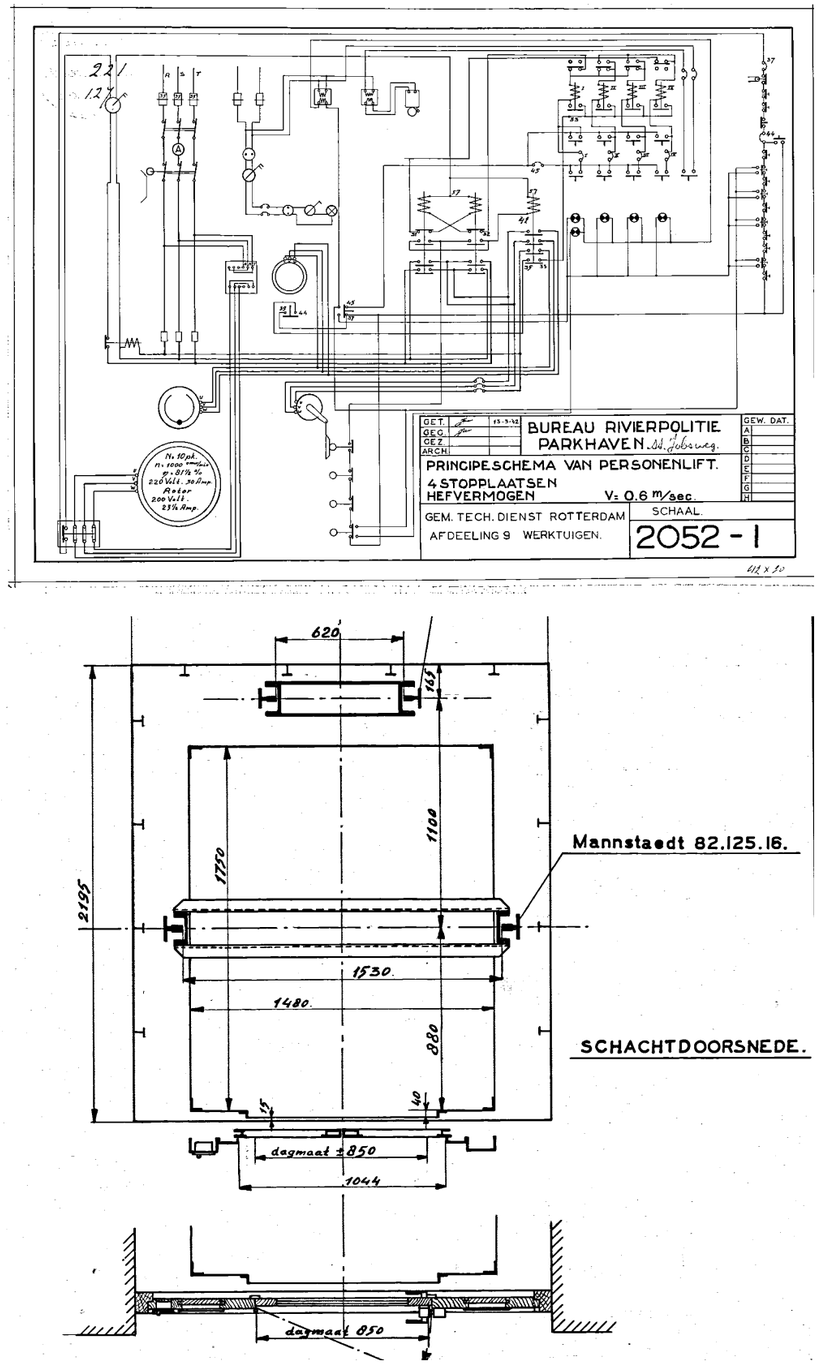


Fig. 155: Elevator design drawings (Gemeentewerken Rotterdam, 1932)

1933 BUILDING WINDOWS

The high steel window frames of the 1933 building are replaced by aluminium window frames in 1994. The existing detailing can be found in the image on the right. In addition, the structure of the wall is displayed. This consists of no less than 340 mm brick including joints and stucco. Nevertheless, the windows of this building show little differences, as most do have a sunscreen and windows that can open up.

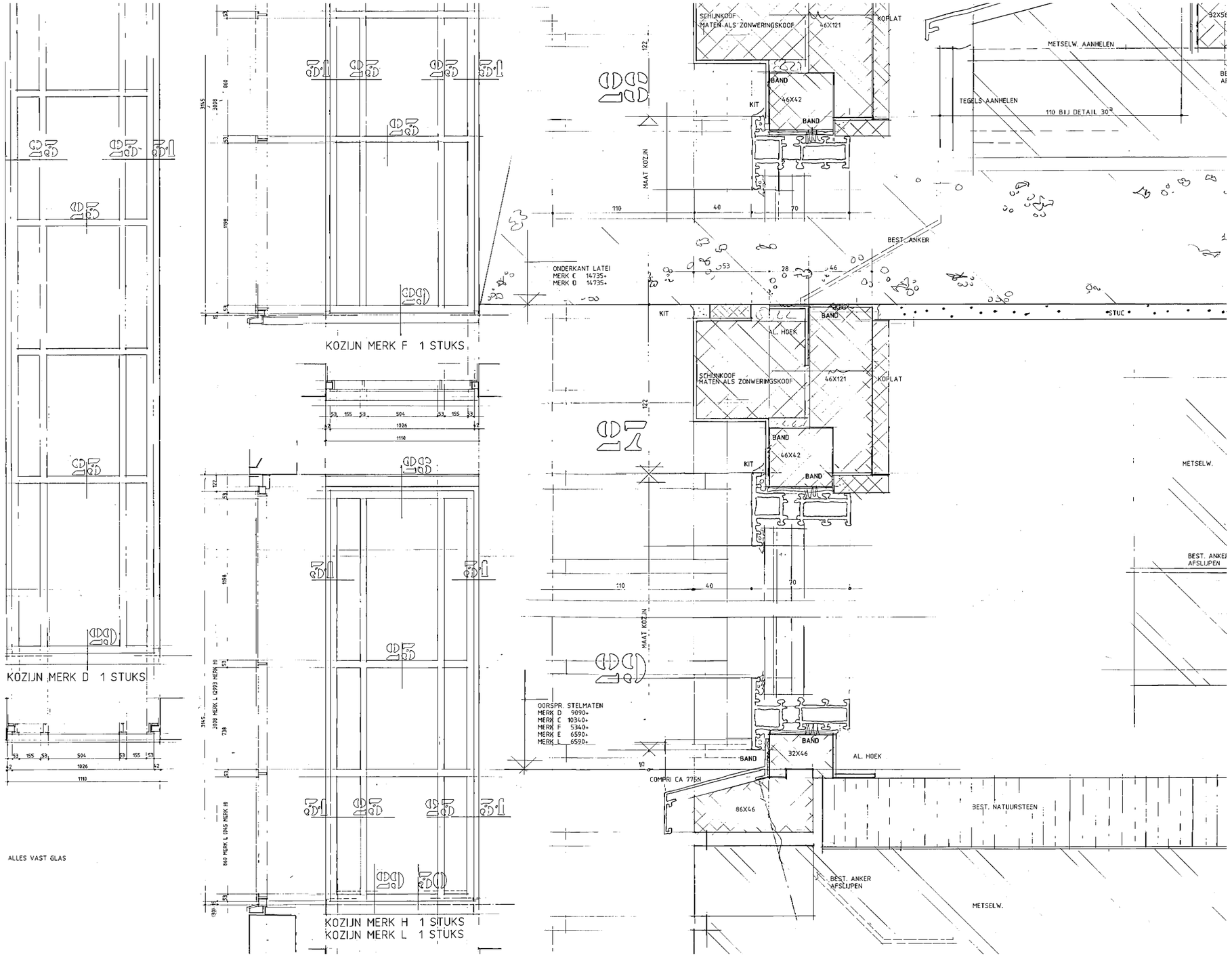


Fig. 156: Details of the 1933 windows (Gemeentewerken Rotterdam, n.d.)

1994 BUILDING WINDOWS

Similar to the 1933 building, the window frames of the 1994 building are made of aluminum. Also in this case the structure of the wall is displayed. The walls of this building consists of 100 mm brick, a 30 mm cavity, 60 mm of insulation and a 100 mm prefabricated concrete inner wall.

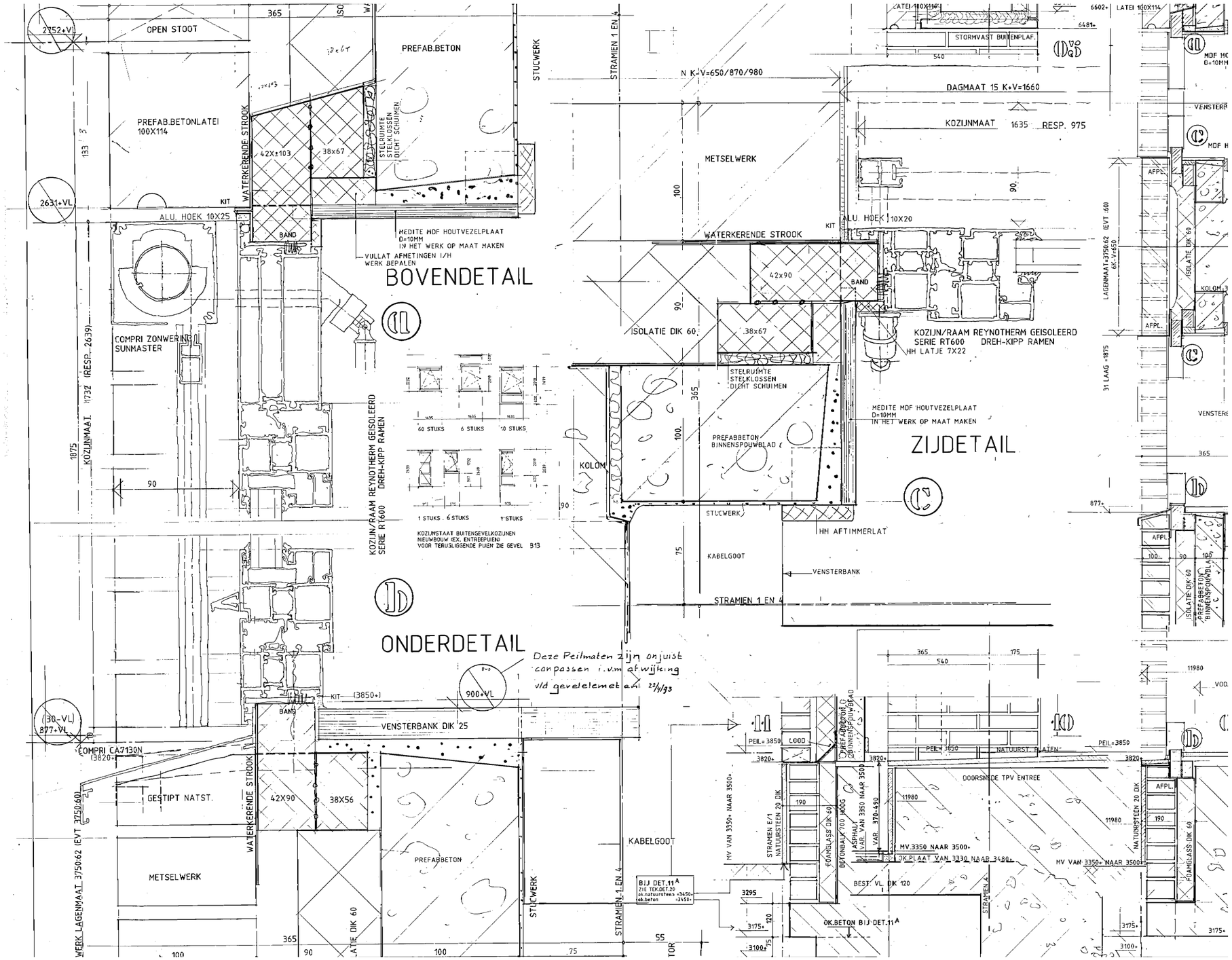


Fig. 157: Details of the 1994 windows (Gemeentewerken Rotterdam, n.d.)

3.3. CONCLUSION

3.3. CONCLUSION

MAIN TAKE-AWAYS

As a result of the previous subchapters, there are some main take-aways that eventually can lead to a series of interesting notions that can be used as design guidelines.

1933 BUILDING
- Concrete columns filled with brick.
- Loadbearing brick walls to provide stability.
- Roof of wooden purlins and trusses.
- Columns are incorporated within the loadbearing masonry.
- Original wooden window frames.
- No insulation.

1940 BUILDING
- Concrete columns incorporated within the loadbearing masonry.
- Roof of concrete purlins and trusses.
- Replaced aluminium window frames.
- No insulation.

1994 BUILDING
- Concrete columns.
- Loadbearing concrete walls bordering the elevatorshaft and the extensions of the corridor, including the staircase.
- Aluminium window frames.
- 60 mm insulation.

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