BUILDING ANALYSIS KOUDENHORN HAARLEM

Former Diaconiehuis, barracks and police office

Delft University of Technolgy I AR3AH105 I Vacant Heritage

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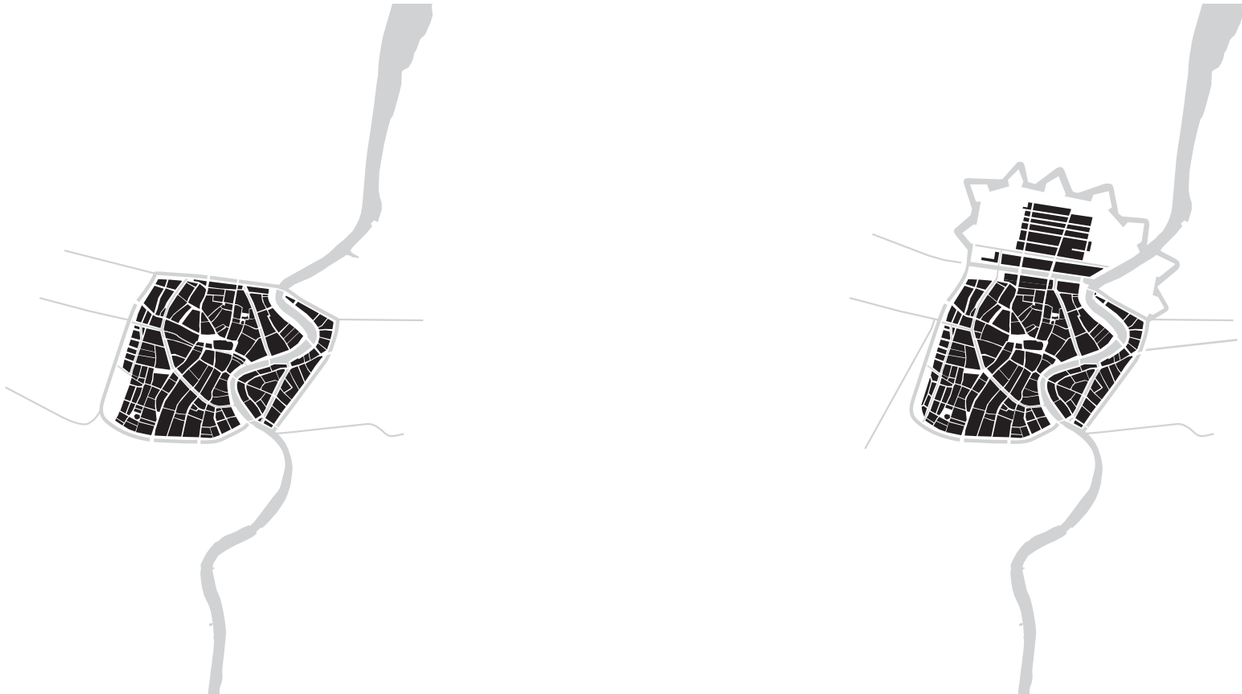
1. CONTEXT AND URBAN DEVELOPMENT

1.1 CULTURAL HISTORICAL SPATIAL PLANNING



Drawings from SBT analysis, from left to right: 1500 - 1800 - 1900 - 2000. Data retrieved from Topotijdreis (Het Kadaster, 2021).

1.1.1 HISTORICAL DEVELOPMENT

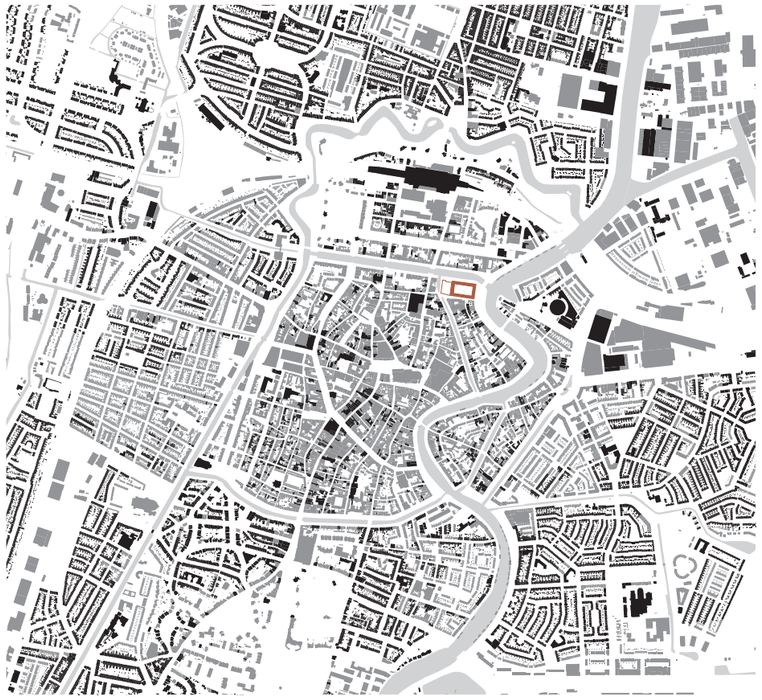
Introduction

The first mention of Haarlem can be found in a document from the 10th century, while it received city rights from Willem II of Holland in the year 1245. At the end of the Middle Ages, Haarlem had become one of the most important cities in Holland. In the Early Modern Period the city developed industrially as a textile city and culturally as a city of painters.

Haarlem initially grew along the west bank of the river Spaarne. The police station at the Koudenhorn is situated at the very edge of the oldest part of the city, along the Nieuwe Gracht which formed the border of the city before the city centre expanded northwards in the seventeenth century.

After the defensive works of the seventeenth century were demolished, Haarlem experienced many new developments. The city grew even more along the river Spaarne, including an expansion on the eastern side of the river (Gemeente Haarlem, z.d.).

1.1 CULTURAL HISTORICAL SPATIAL PLANNING



Drawings from SBT analysis, from left to right: 1800 - 1900 - 1950 - 2000. Data retrieved from QGIS (z.d.).

0 500M

1.1.2 MORPHOLOGY

Building Age

The old centre of Haarlem is mostly concentrated around the Grote Markt, which has been there since the 10th century. Due to its function as a garrison town and provincial capital, Haarlem grew during the 19th century. This was also when our case study, the police station at Koudenhorn, was transformed from an orphanage into a garrison.

Building Height

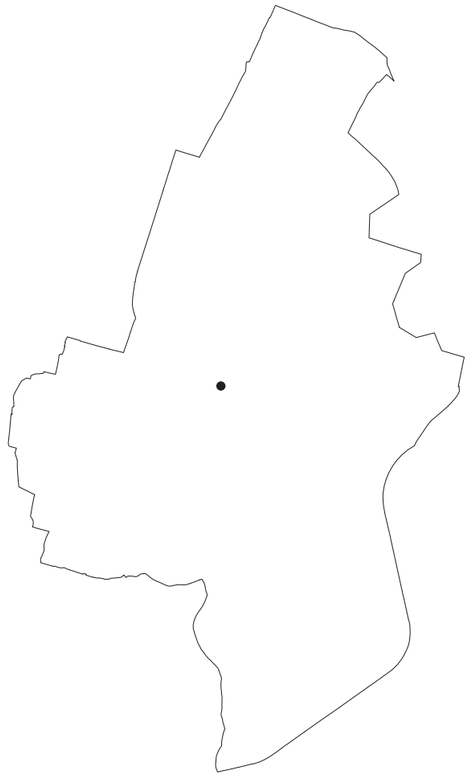
The historic city centre is made out of low building with generally 1-2 stories. A few public buildings form the exception, such as the town hall and churches. Thanks to these contrasting building heights, the skyline of Haarlem is easily recognizable. This view of the city is protected by the government, which is known as a “beschermd stadsgezicht”.

Even though the historic city centre consists mostly of low-rise, Haarlem has a high density. This can be attributed to the old centre which has remained intact and was forced to grow inside the city walls for many years. While the police station is surrounded by blocks of small plots, the station itself occupies the entire block. The station clearly has a much larger scale than the surrounding houses.

Legenda

- Newly build building blocks
- Building blocks
- Water
- Koudenhorn building

1.2 SPATIAL MAPPING



1.2.1 REGIONAL POSITION

Introduction

Haarlem is both a municipality and the capital ofthe province of North Holland, situated along the river Spaarne inthe South Kennemerland region. Relative to other cities in the Randstad,it is a medium-sized city. As of 2021, Haarlem has 162.526 inhabitants, which makes it the 12th biggest municipality of theNetherlands while being the third most dense, with 5.573 inhabitants per square km (Gemeente Haarlem, 2021a).

Legenda

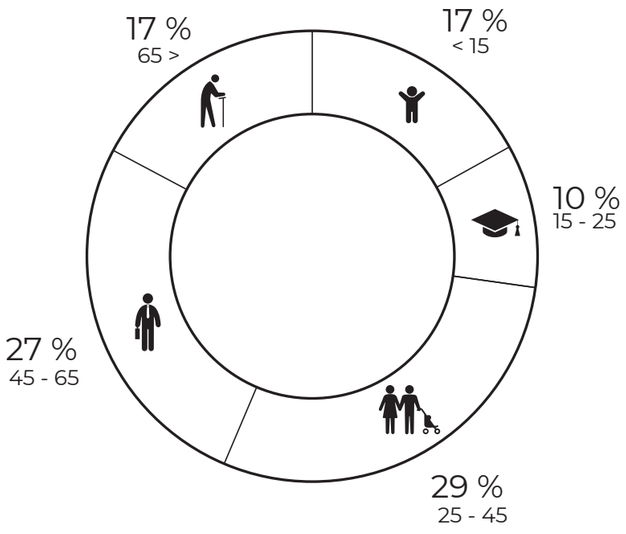
Koudenhorn police estate

Other vacant police estate

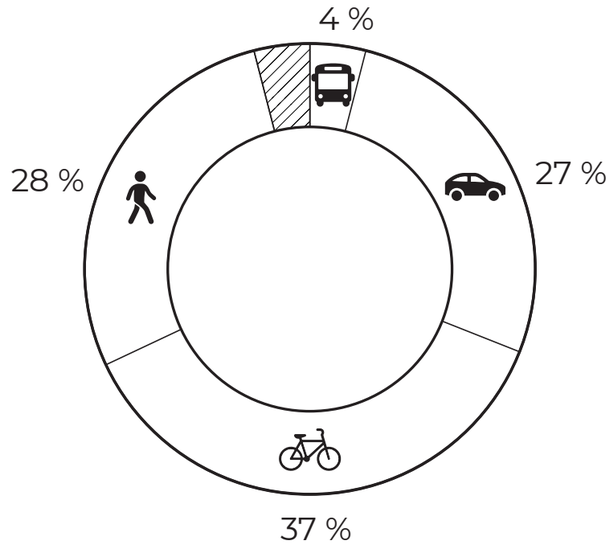
The regional position of Haarlem in the province North-Holland and the country of the Netherlands.

1.2 SPATIAL MAPPING

DEMOGRAPHY



MOBILITY

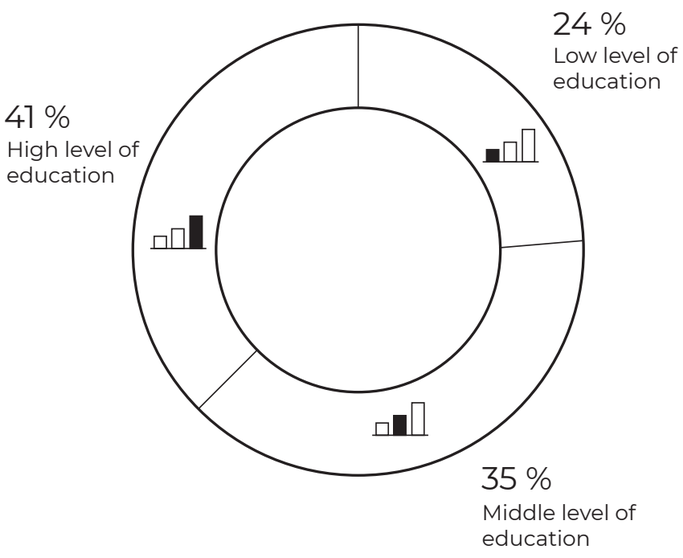


1.2.2 DEMOGRAPHY

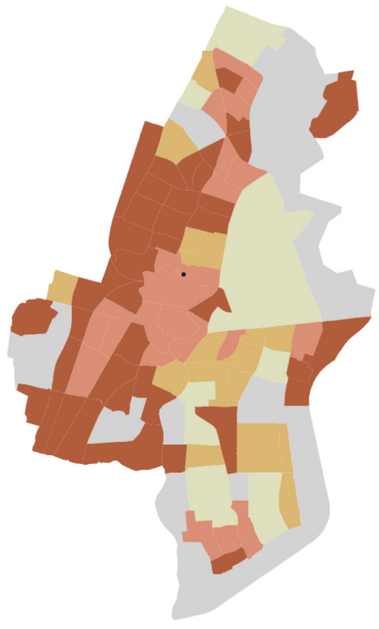
Spaarnestad Haarlem

Its location along the river Spaarne has given the city the nickname ‘Spaarnestad’. A resident of the city is called an Haarlemmer, but is also referred to as a mug (mosquito). Its origin is not known with certainty, but ‘mug’ was already used as a swear word in the 14th or 15th century. Haarlem has acted as an ‘overflow’ of Amsterdam since the late 1990s. Because houses in Amsterdam are scarce and expensive, more and more former Amsterdammers chose Haarlem. House prices in Haarlem have therefore risen. This also explains why Haarlem has such a large group of inhabitants between the age group of 25 and 65. Haarlem is also one of the cities in the Netherlands with the highest percentage of journeys done on foot (CBS OV, 2014).

EDUCATION



INCOME

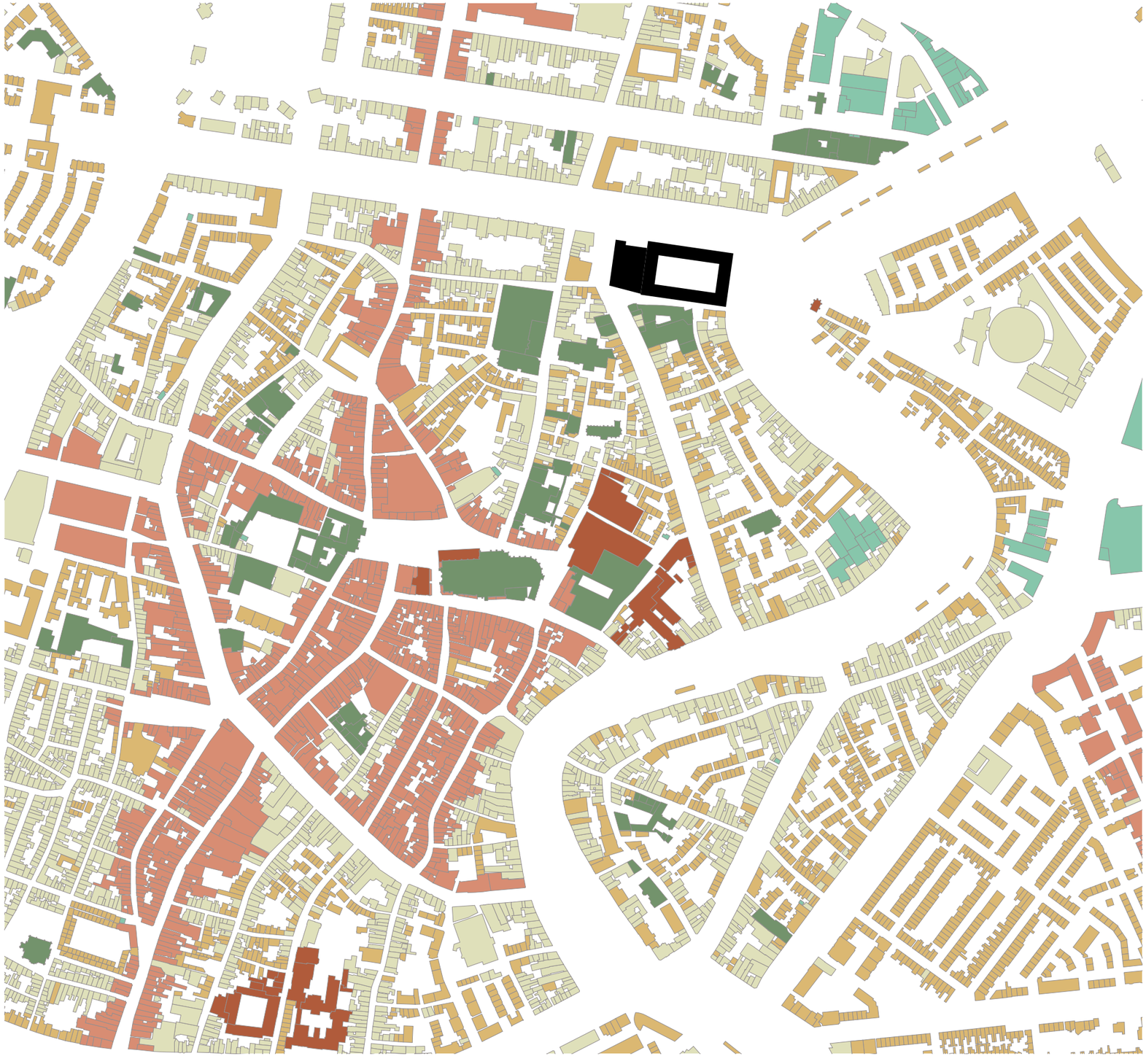


Legenda

- unknown information
- > 45.500
- 39.000 < 45.500
- 32.500 < 39.000
- 26.000 < 32.500
- < 26.000

Diagrams about the demography of Haarlem. Data retrieved from AlleCijfers (2021).

1.2 SPATIAL MAPPING



The different functions in the city center of Haarlem. Data retrieved from QGIS (z.d.).

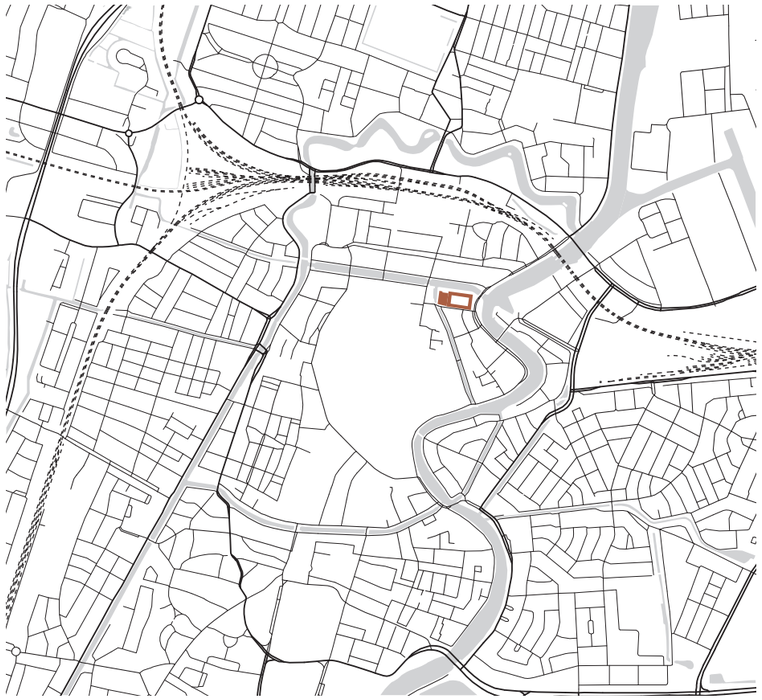
1.2.3 FACILITIES IN THE AREA

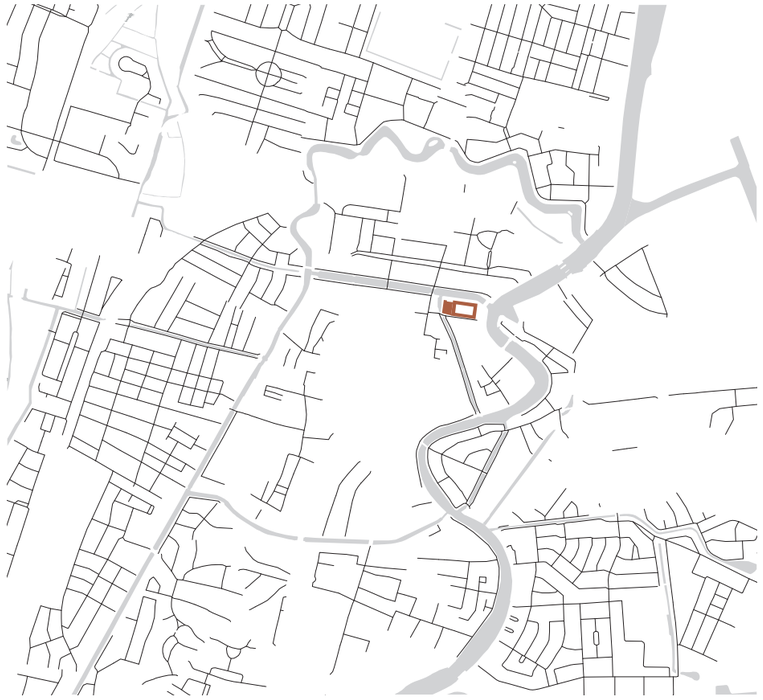
Variety of Functions

A great variety of functions can be seen in the inner city centre of Haarlem. An axis of shops runs throughout the city, with a cluster of shops around the Grote Markt. This square, next to the Grote Kerk creates a space for markets, festivals and concerts that are held here throughout the year.

Different types of buildings with societal functions can be seen throughout the city like the town hall, churches, a court and a library. However, the culture and educational functions are clustered together. All other buildings within the city centre are mainly dwelllings or dwellings in combination with another function.

1.2 SPATIAL MAPPING





Drawings from SBT analysis, from left to right: all roads, primary, secondary and tertiary. Data retrieved from QGIS (z.d.).

0 500M

1.2.4 INFRASTRUCTURE

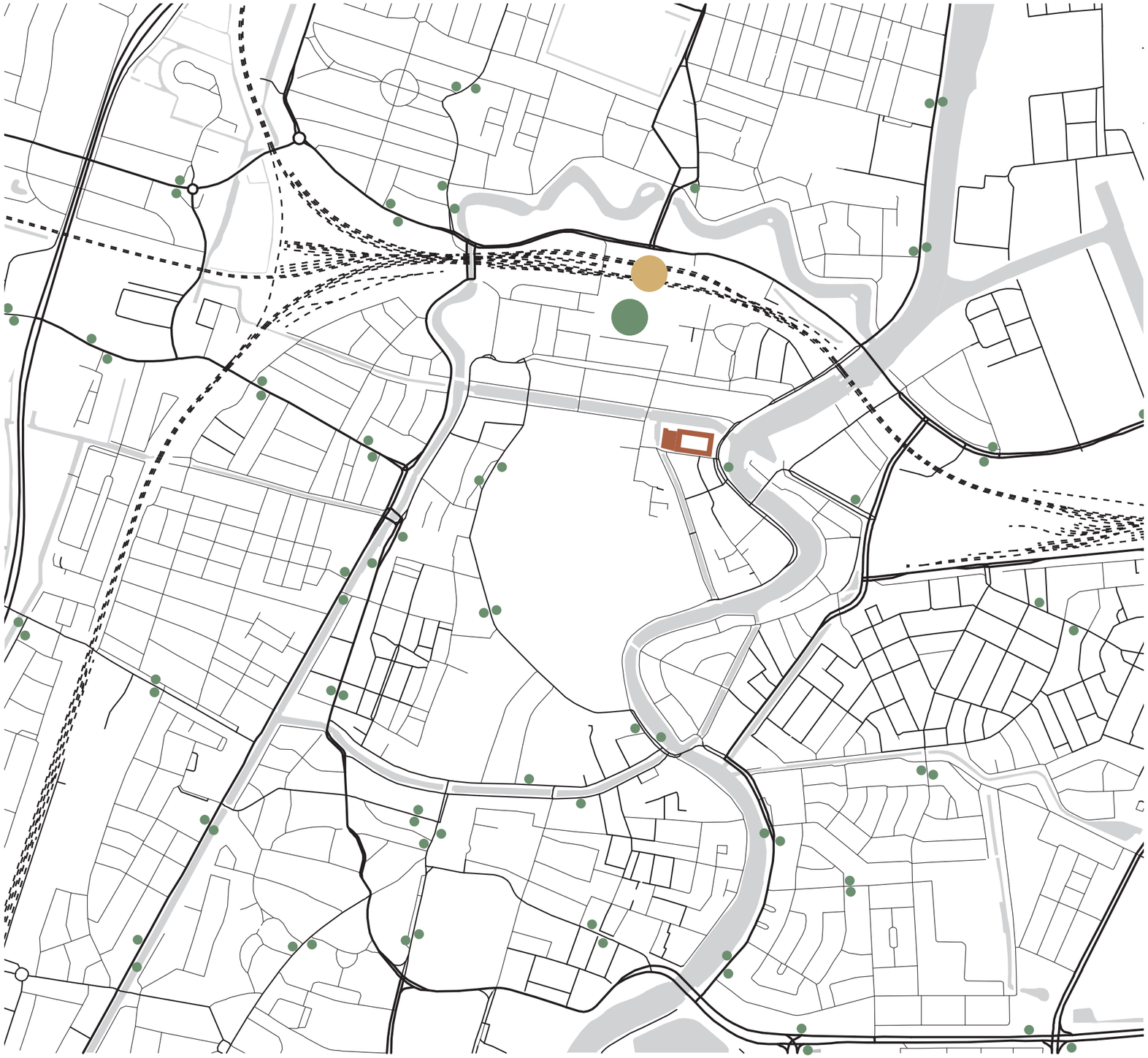
Road Network

Because of its dense inner city, the roads that belong to the tertiary network in the city centre are mostly narrow streets or alleys. Roads along the canals are generally wider than others, leaving space for car parking along the sides. The secondary network connects these smaller streets to the primary network, which runs along the Spaarne and most of the larger canals such as the Nieuwe Gracht and the old ramparts.

Legenda

- Road network
- Water
- Koudenhorn building

1.2 SPATIAL MAPPING



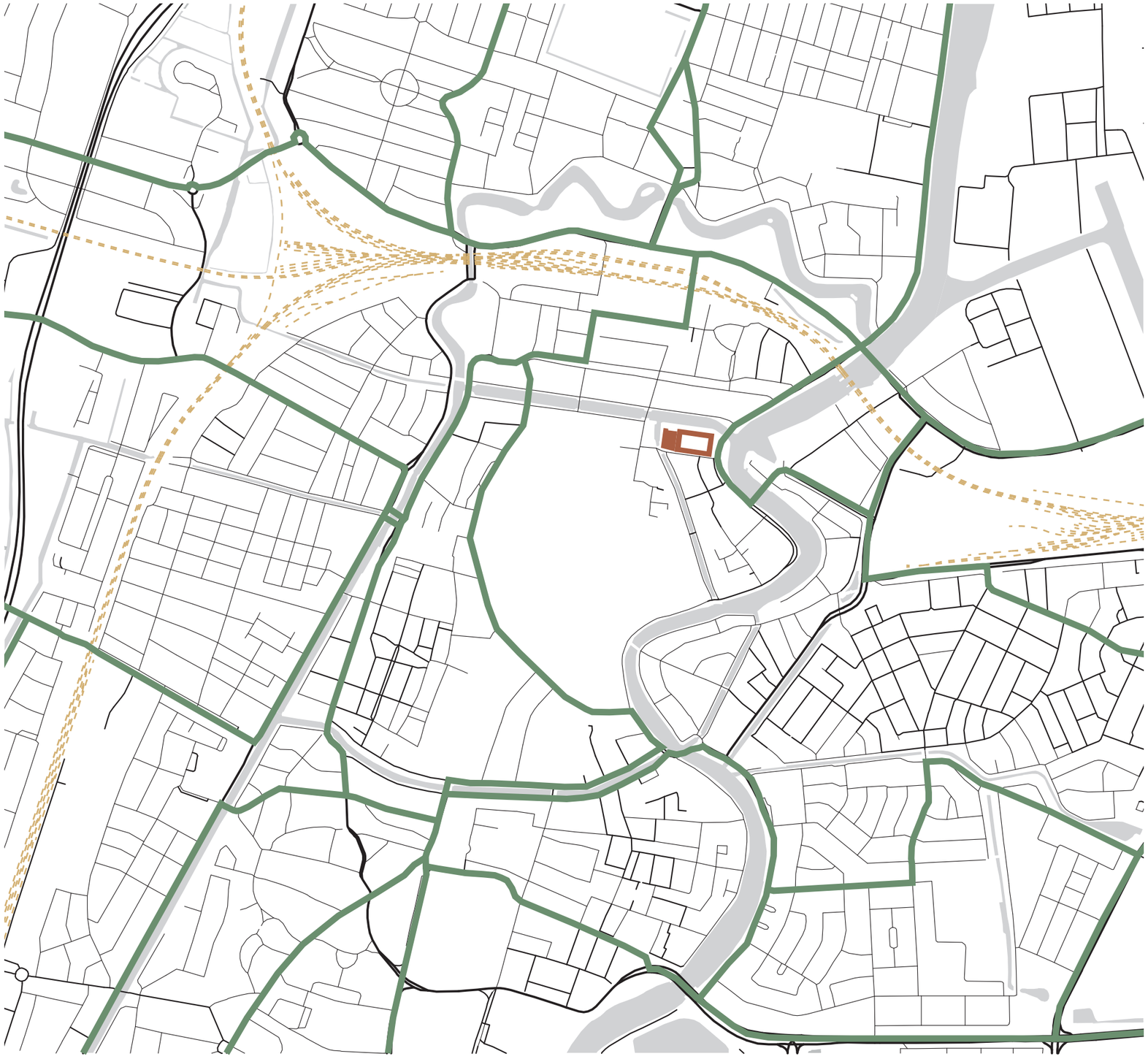
The different busstops and trainstationsin Haarlem. Data retrieved from QGIS (z.d.).

1.2.5 PUBLIC TRANSPORT

Trainstations and busstops

There is one busstop located on the Koudenhorn in front of the building, however, this is a busline in only one direction. While the city center of Haarlen is car-free, the busstops are located along the edges of the city center. A larger busstation is located on the square in front of the train station. This busstation is within 10 minutes walking distance from the Koudenhorn, so even without any busstops closeby, the building is still good accessible.

1.2 SPATIAL MAPPING



The different buslines and trains in Haarlem. Data retrieved from QGIS (z.d.).

1.2.5 PUBLIC TRANSPORT

Buslines

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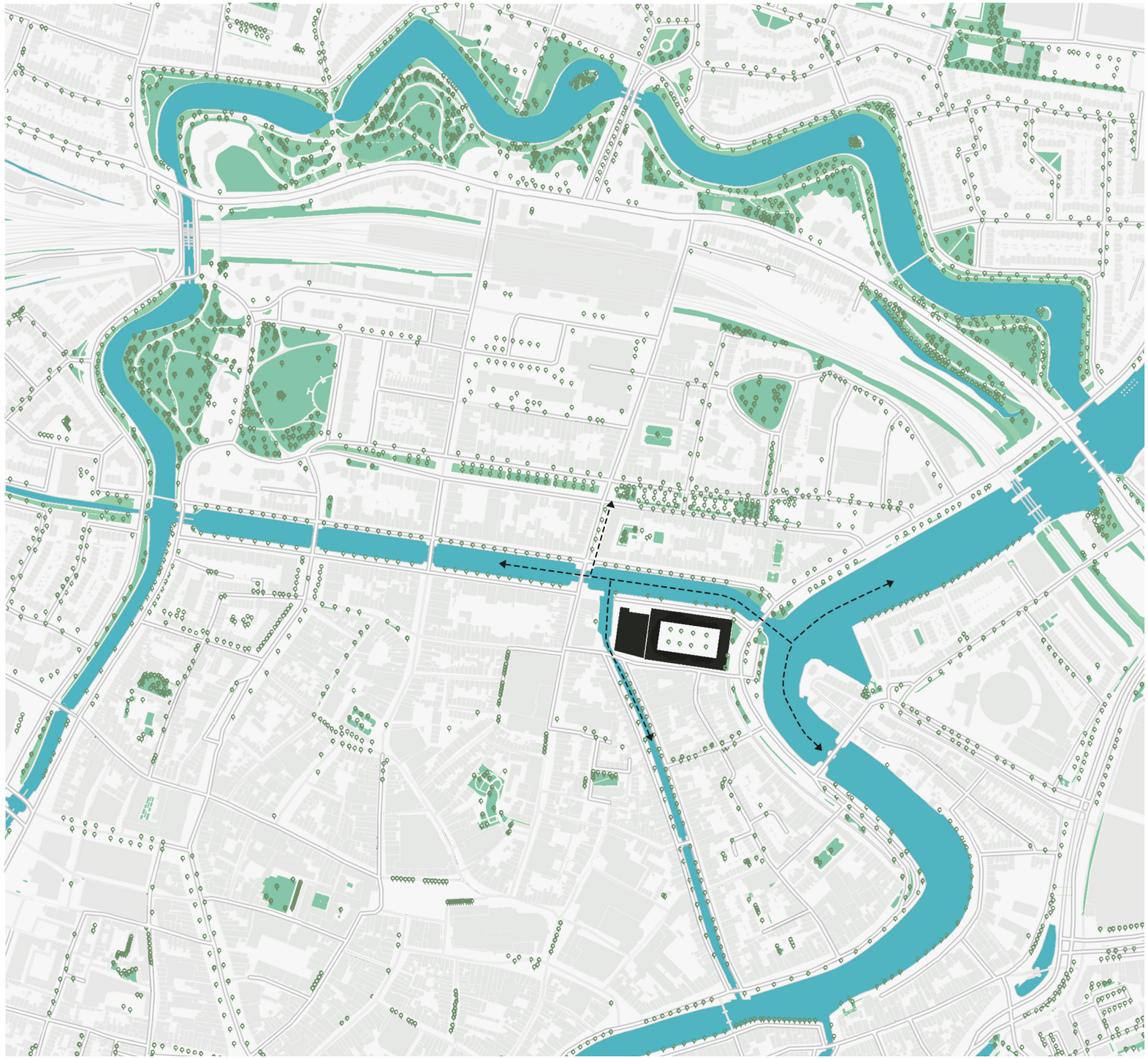
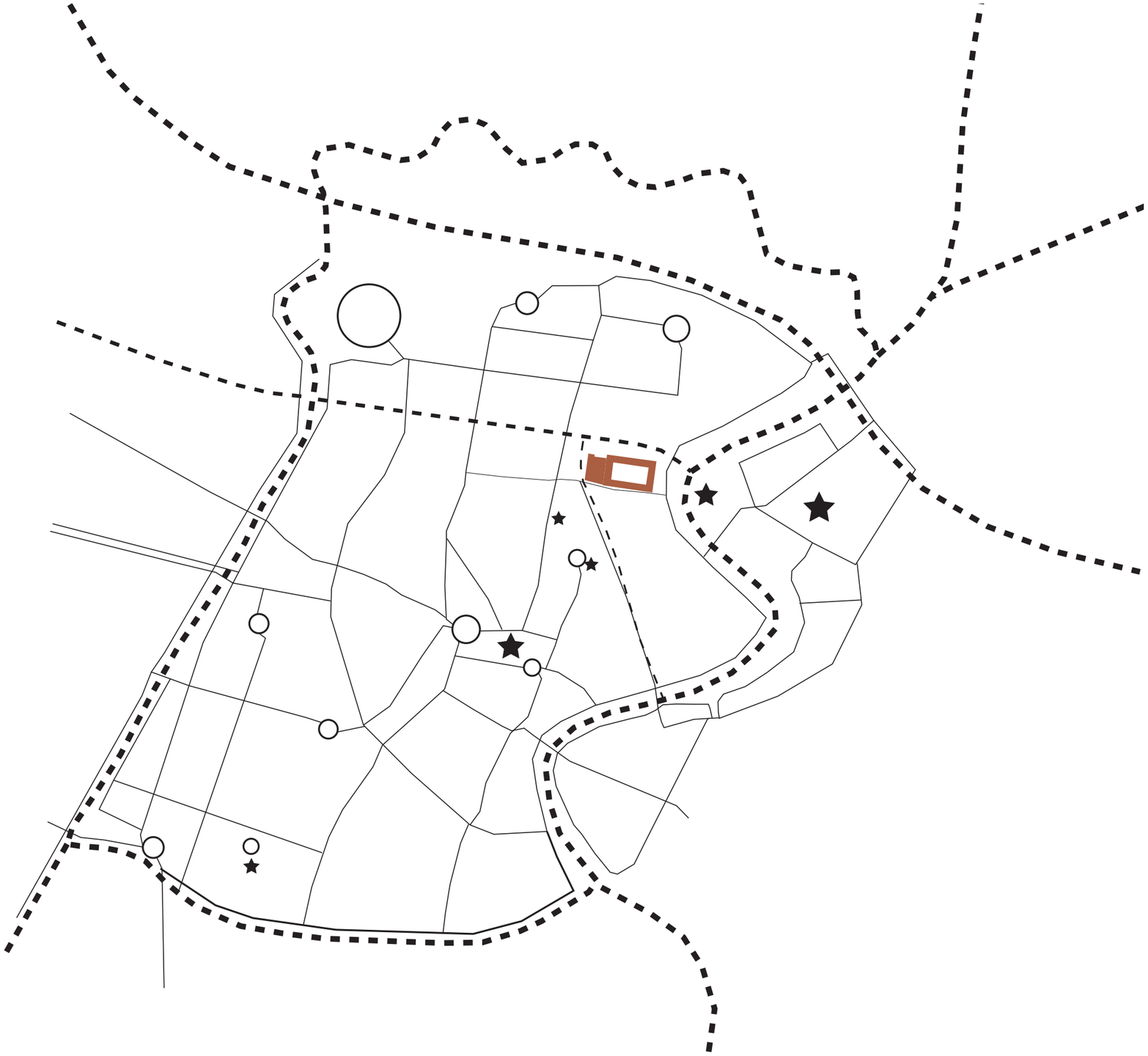


Water- and greenstructures

1.2.6 WATER- AND GREENSTRUCTURES

The map opposite shows the public water, greenery and trees. This map does not include the private greenery, water and trees except for the case study plot. The inner city is surrounded by water and several canals run through it. In addition, there are almost no ditches, ponds and puddles here. The realisation of the aforementioned elements can increase the biodiversity in the city. The case study is one of the most water-rich urban blocks in the city. The lot is on three sides surrounded by water. There is not a lot of green in the city except for a few large green locations such as the Kenaupark, the Bolwerken and the Nelson Mandelapark. Furthermore, many streets are tree-lined and many trees can be found in the aforementioned green locations. There are also many streets where no tree can be found. In addition, the dashed black arrows indicate the existing ecological structure in the vicinity of the case study, which can potentially be linked up to.

1.2 SPATIAL MAPPING



Map based on the theory of Kevin Lynch indicating landmarks, nodes, paths and edges

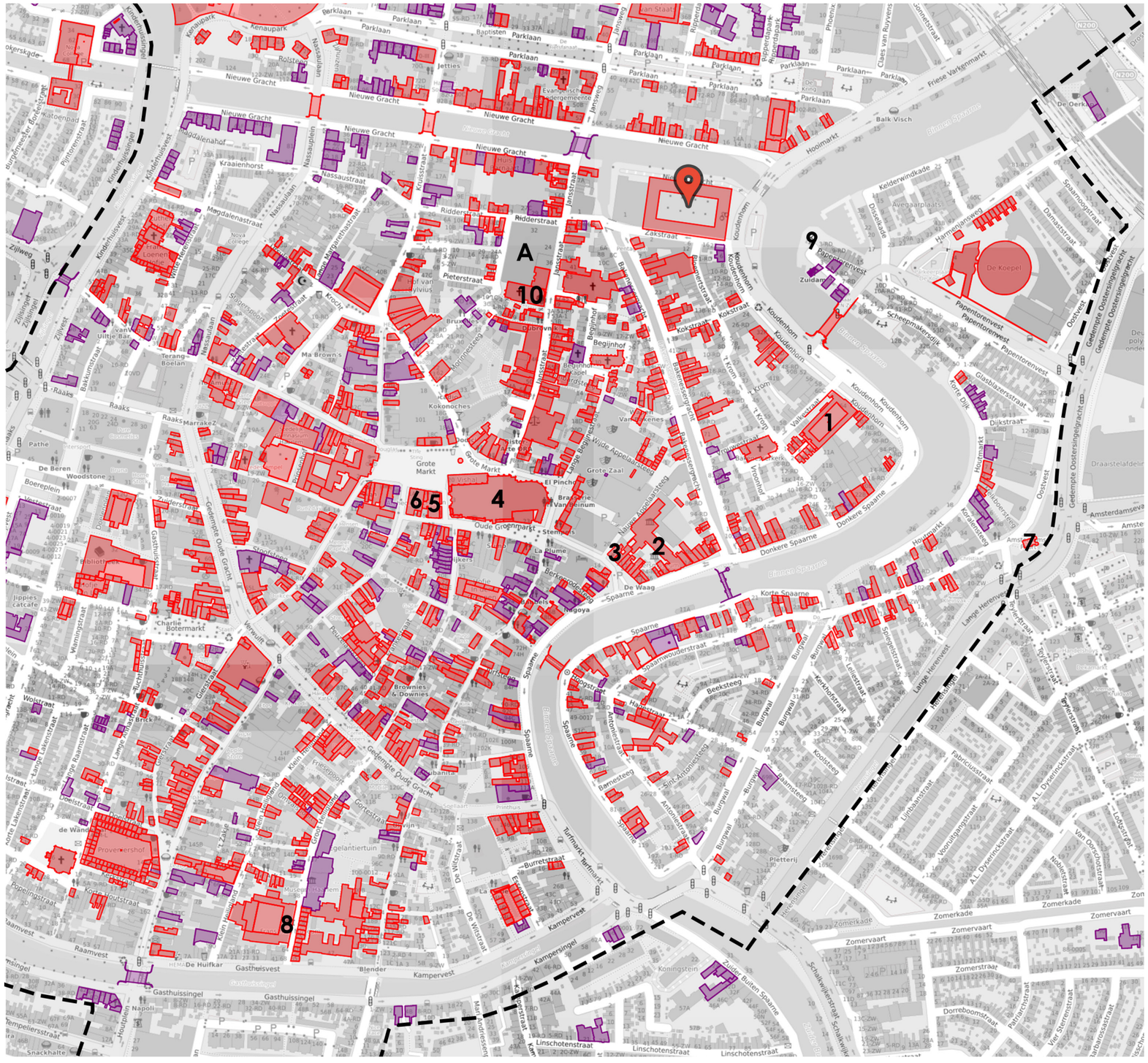
1.2.7 ORIENTATION

The map for the orientation is based on the theory of Kevin Lynch, which indicates the landmarks, districts, paths, nodes and edges in the city. As can be seen in the map, the Koudenhorn building is enclosed by edges in the form of water on three ofthe four sides and therefore located in the corner of a district. A bridge over het Spaarne close to the Koudenhorn connects both sides of the water. The landmarks in Haarlem are mostly churches, however the two on the right of the Koudenhorn are a mill and the Koepelgevangenis, which is a former prison. Due to its size and location along het Spaarne, the Koudenhorn itself could be considered as a landmark as well.

Legenda

- Landmark
- Node
- Edge
- Path

1.2 SPATIAL MAPPING



Cultural historical heritage objects and zones

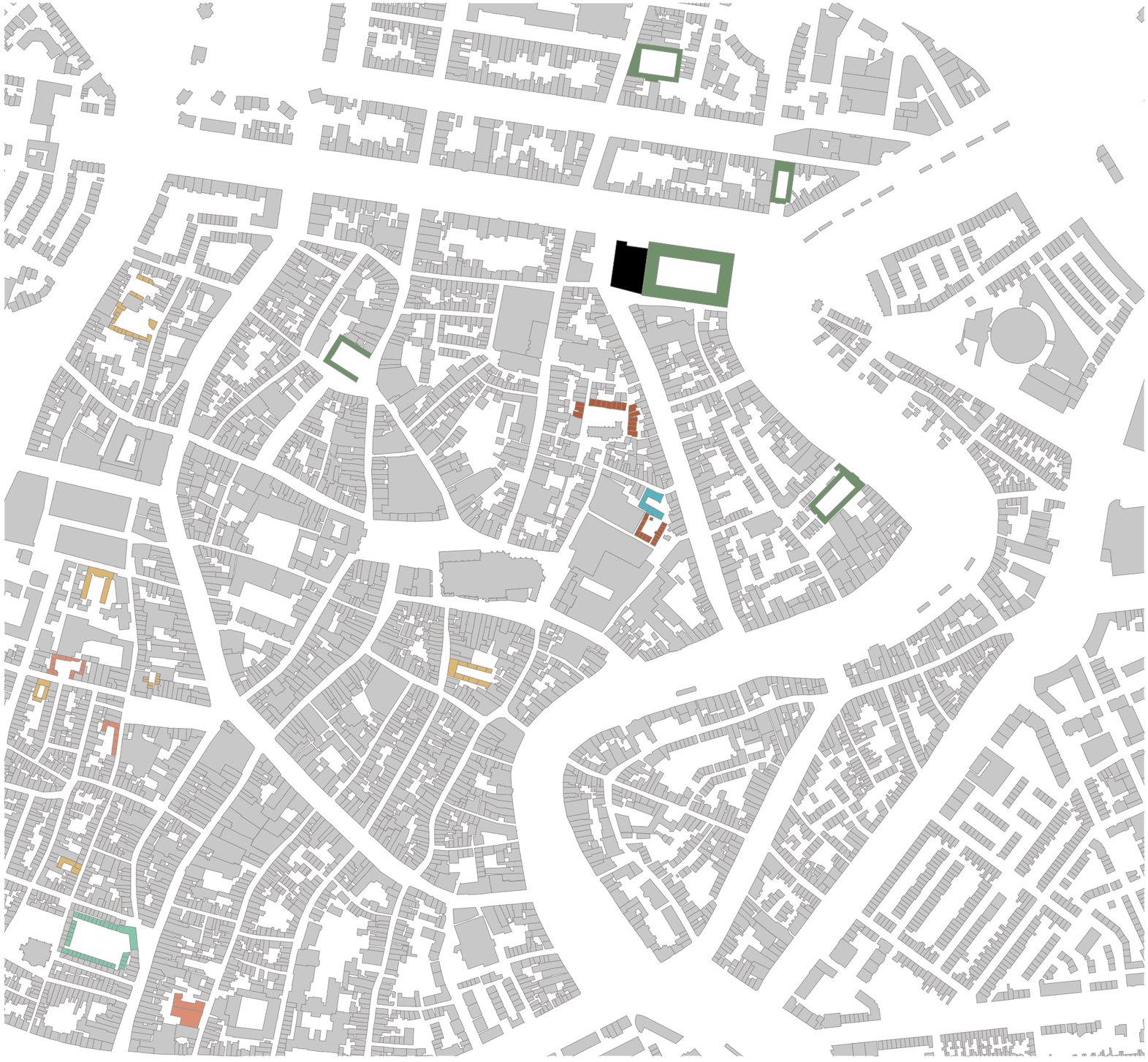
1.2.8 CULTURAL HISTORICAL HERITAGE

In the map on the side, the cultural-historical objects and zones are shown. The map shows that the case study lies within the protected cityscape of Haarlem. A large proportion of the buildings located therein are therefore designated as monumental or image-defining. The case study is a national monument and one of the largest in its immediate vicinity. The numbers show the position of well-known monumental buildings. The case study is fairly close to a number of these monuments. For example, the case study looks out on Molen De adriaan.

Legenda

- National monumen
- Provincial monume
- Municipal monume
- Protected cityscape
- A Haarlem Zuidwest
- B Haarlem
- 1 Teylers Hofje
- 2 Teylers Museum
- 3 Pieter Teylers Huis
- 4 De Grote of St. Bavokerk
- 5 Vleeshal
- 6 Frans Hals Museum -
- 7
- 8 Amsterdamse poort
- 9 Frans Hals Museum
- 10 Molen De Adriaan

1.2 SPATIAL MAPPING



The hofjes of Haarlem and their building age. Data retrieved from 3D BAG Viewer (TU Delft, z.d.).

1.2.9 HOFJES IN HAARLEM

The city of care

Haarlem is known for its many courtyards dotted throughout the centre, although many of these courtyards are hidden away inside urban blocks. The police station at Koudenhorn houses a courtyard, but in this case it is completely closed off from the public.

The care of the poor and the deprived in Haarlem dates back to the end of the 14th century. Haarlem was then already a trading center and in this small society poverty arose. The care expressed itself mainly in a private sense, but the city of Haarlem itself also contributed. In the early years (1431-1593), mainly many hospices and hofjes were founded, to which a few old men's homes were added later. Around 1600 even more hofjes arose, mainly because every church created their own hofjes back then.

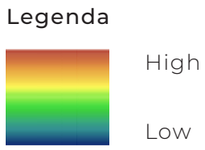
The "Nederlandse Hervormde Diaconie" was in financial decline and the Vroedschap (early modern type of college) devised means to help it and saw a vision in the establishment of a large Diaconate House, which was decided in 1767. On the Oxmarket (currently the Koudenhorn), the new Diaconate was built in 1768-1770 on the site of several houses that were demolished. In 1786 the poor of the almshouse, the poor of the almshouse and the workhouse were moved here and it was called the United Diaconate and Almshouse (Kurt, z.d.).

1.2 SPATIAL MAPPING

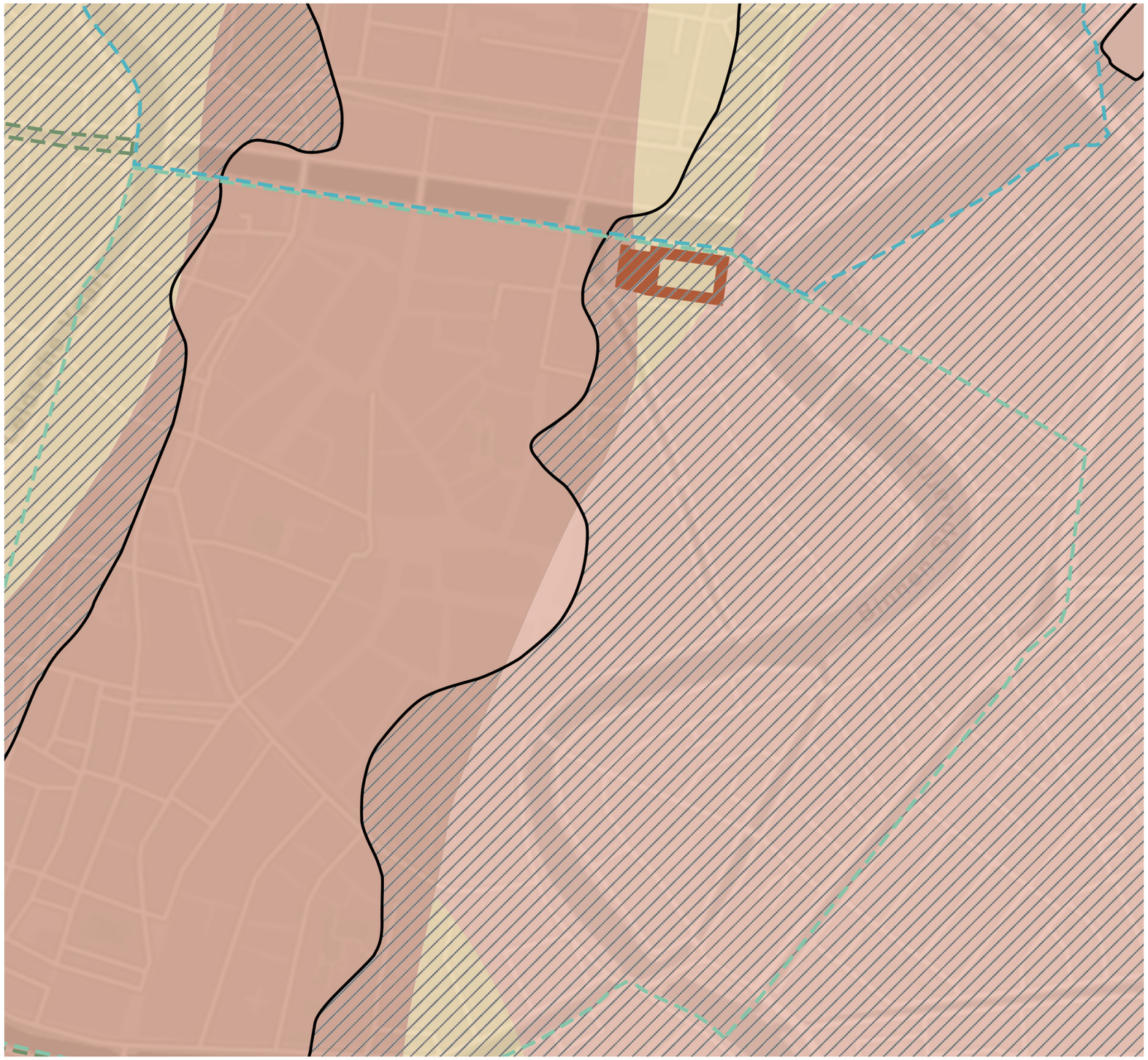
Topography height map

1.2.10 TOPOGRAPHY

The topographic elevation map is shown on the side. This map shows that the building heights in the city vary greatly. In the centre, many tall buildings can be found, with the tallest building being the Grote or Sint-Bavokerk. In the neighbourhoods around the centre, the building heights are limited, with a few peaks here and there. The case study is one of the tallest buildings in its immediate surroundings. It also appears that the water is a lot lower than the adjacent land.



1.2 SPATIAL MAPPING



Soil types and archaeological expectations

0 100M

1.2.11 SOIL

The figure on the left is about the soil. It shows that Haarlem is built on a sand ridge. On either side of the embankment, there is a natural sand plain. East of the wall, there is a natural clay and peat soil. The soil on both sides of the embankment is raised with sand, which varies in height. On the East side, an average of 2 metres of sand has been deposited, and on the other side of the wall, an average of 1 meter has been added. The type of soil determines the characteristics of the soil, such as water seepage and settlement. The archaeological value of the subsoil is also analysed. The highest archaeological value can be found in the centre of Haarlem, under which the case study falls. To the North of the centre the soil has a high archaeological value and to the South a medium archaeological value.

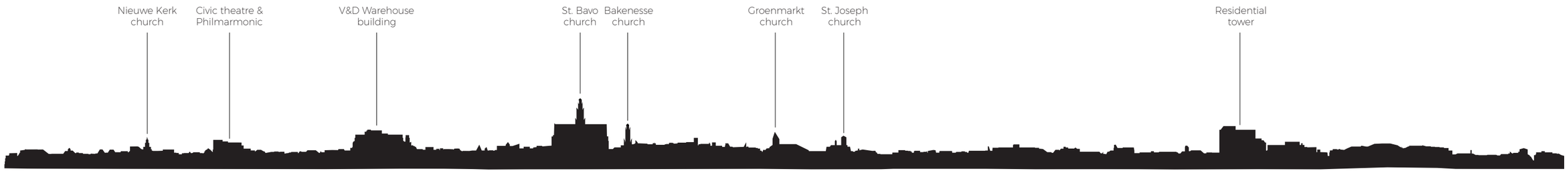
Legenda

- Koudenhorn building
- Sand wall
- Clay and peat lands
- Sand plain
- Anthropogenic covering
- Highest archaeological expectation
- High archeological expectation
- Medium-high archaeological expectation

1.2 SPATIAL MAPPING

1.2.12 CITY SKYLINE

Looking west from the Spaarne out over the city skyline, it becomes clear that the city centre consist mainly of lowrise buildings, with a few exceptions. Several churches and their bell towers rise above their surroundings, most significant of which is Saint Bavo's church, located in the very heart of the city. The two modern exceptions are the civic theatre & philharmonic building from the early 20th century and a seemingly out of place residential tower from the 1970's next to the central station.



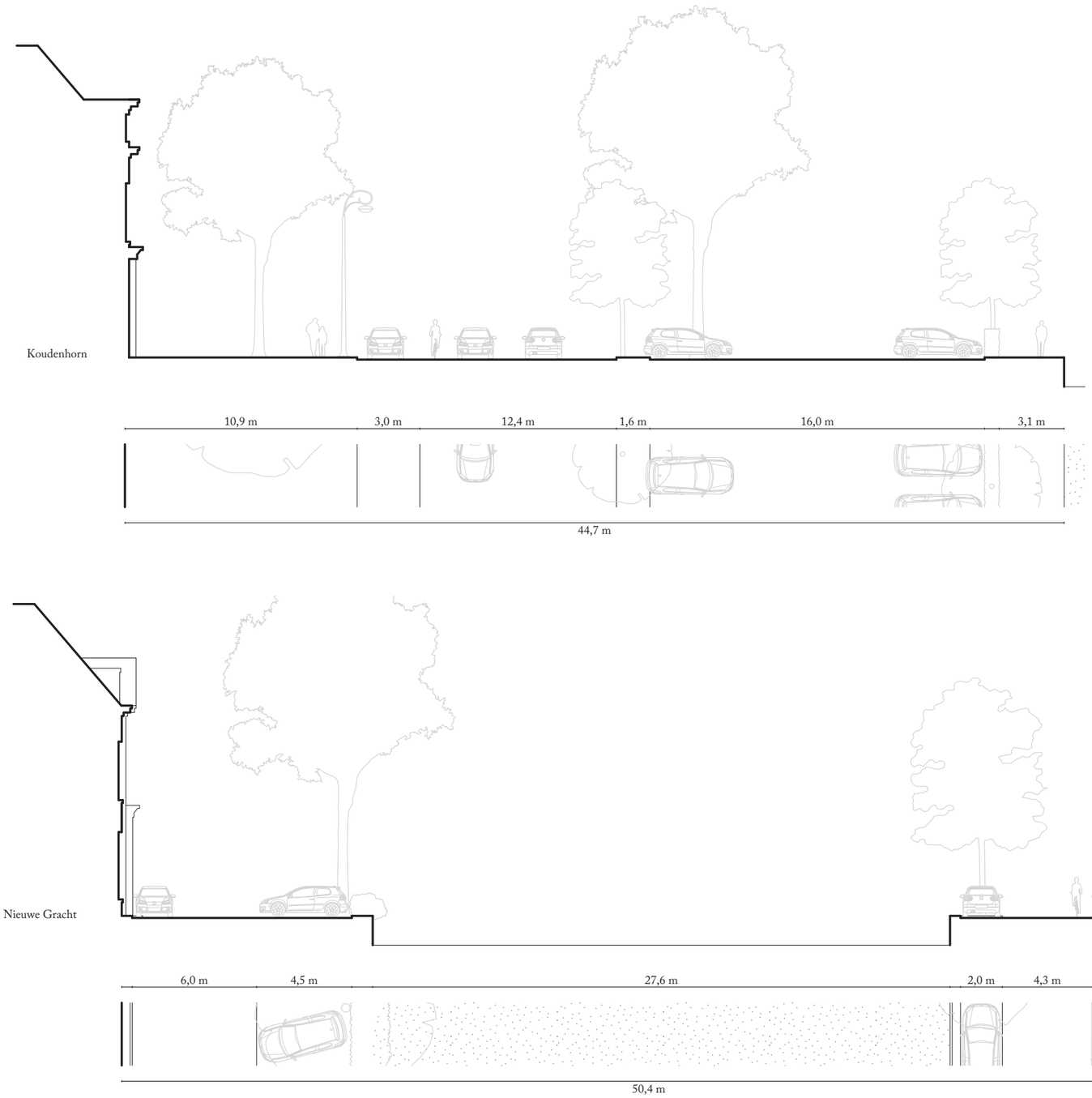
Skyline of Haarlem as seen from the Spaarne river. Data retrieved from 3D BAG Viewer (TU Delft, z.d.).

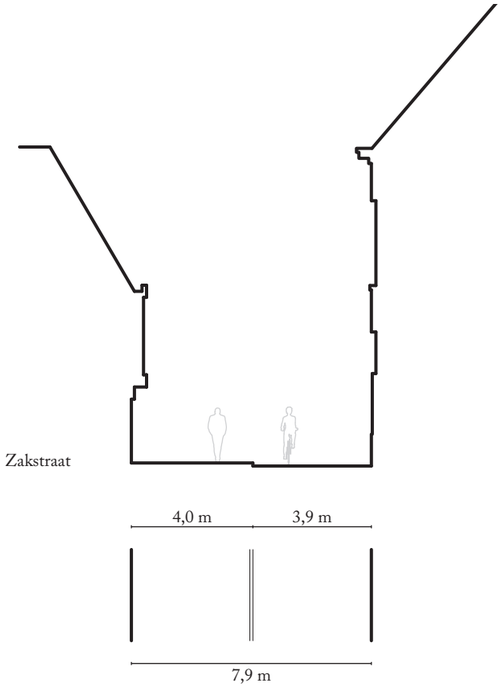
0 100M

1.2 SPATIAL MAPPING

1.2.13 STREET PROFILES

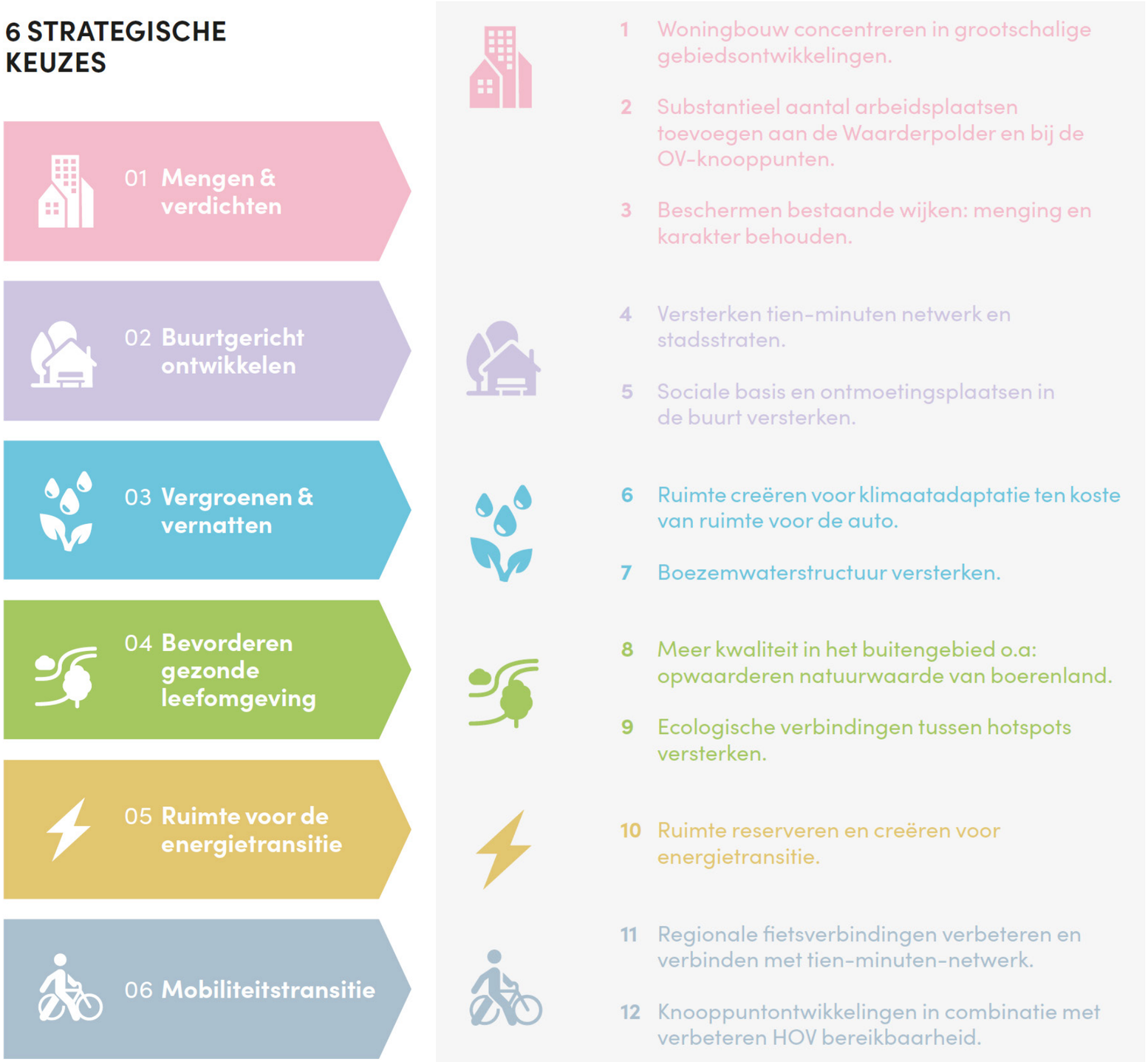
The Koudenhorn police station is located in the historic city centre of Haarlem, along the western bank of the Spaarne river. On this wide bank there is a sidewalk in front of the building's main entrance, the Koudenhorn road which is part of one of the main motorized traffic arterties of the city and a small parking area. To the north the plot is defined by the wide canal of the Nieuwe Gracht. Along the quay, which is used by the police for parking, there are lush trees and bushes. There is no functional connection to the water. The Zakstraat at the southern side of the building is quite narrow in relation to the height of the surrounding buildings. In combination with their closed character this gives the Zakstraat the appearance of an alley.





Drawings from SBT analysis.

1.3 FUTURE URBAN MANSTERPLANS AND POLICY



Omgevingsvisie Haarlem 2045 (Gemeente Haarlem, 2021b).

1.3.1 OMGEVINGSVISIE HAARLEM 2045

The vision of the municipality of Haarlem for 2045 elaborates on six main topics; a climate proof city, energy transition, strengthening of the social tissue, improving the attractiveness as living and working city, Haarlem as a healthy city for humans and animals and the Haarlem as sustainable and accessible city. These topics are translated into six strategical choices formulated as:

1. Mixing and condensing

This first topic relates to three of the in total 12 key focusses that aim to concentrate the construction of new housing in large scale urban developments and add a substantial amount of jobs in the Waarderpolder and close to public transport nodes. The developments however should not impact the exiting neighborhoods with their mix and character.

2. Neighborhood oriented developments

The topic related to the neighborhoods aims to strengthen the so called 10-minute networks and city streets and to strengthen the social basis and places for meeting and encounters in the areas.

3. Greening and rewetting

Two key focusses related to this topic are the aim to create space for climate adaptation at the expense of space for cars and strengthening of the ‘boezemwater’ structure.

4. Promote healthy living environment

The aims for this strategical choice are to improve the quality in the countryside by upgrading the nature value of farmland and the strengthening of ecological connections between hotspots.

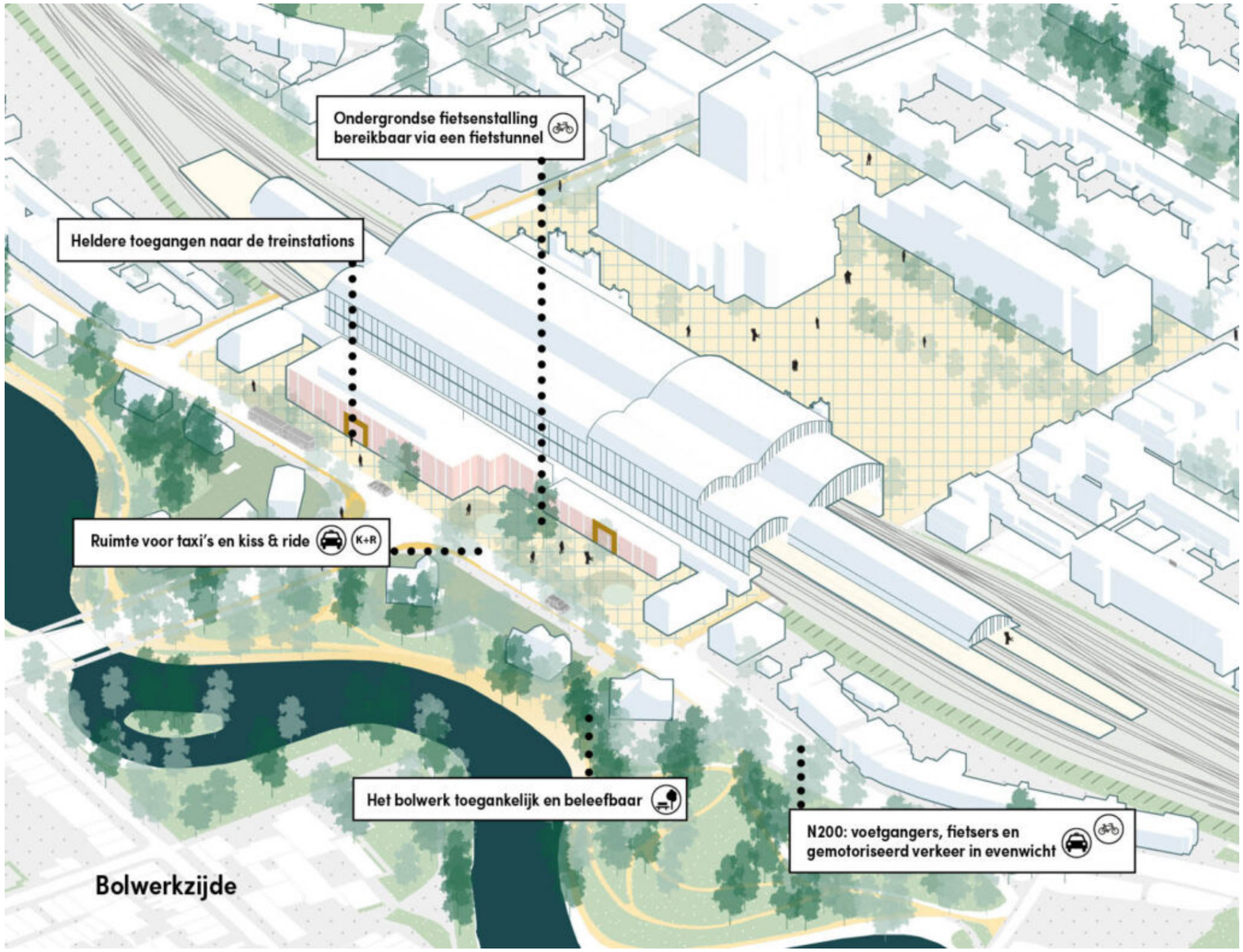
5. Space for energy transition

The fifth strategical choice aims to free up space for energy transition.

6. Mobility transition

The last topic of strategical choices aims to improve the regional bicycle network and connect it to the 10-minute networks and the development and improvement of public transport nodes.

1.3 FUTURE URBAN MANSTERPLANS AND POLICY



Integrale visie stationsgebied Haarlem 2020–2040 (Urhahn | stedenbouw & strategie, Goudappel Coffeng, & APPM Management consultants, 2021).

1.3.2 STATIONSGEBIED HAARLEM 2040

The core of the vision for the station area in Haarlem consists of five ambitions. These five aims form the connection between mobility and creating a meaningful place.

1. A lively area for everyone
Three main qualities should come together in the future station area; attractive public transport, appealing public space and inviting functions. Various uses of housing, working, cafes and restaurants and shopping will be combined to create a lively area both during the day and in the evening.

2. Focus on pedestrian and cyclists
The station area should become a pleasant space for walking and cycling. The square in front of the station should have a clear separation between the area for public transport and the areas for walking and staying.

3. Improved movement for travellers
In the new station area, enough space will remain for its main fuction as public transport node. The various traffic mode flows will not interfere, which could mean that a tunnel for cyclists with directs access to the bicycle storage should be implemented.

4. Connecting the defence line and inner city
The area surrounding the station connects the greenery and parks of the former defence line with the historic inner city. The station gets a square on both sides of the building with the Stationsplein as a city square with pleasant atmosphere as entrance to the inner city. On the other side, the Kennermerplein will be improved for pedestrians and cyclists with more greenery.

5. Sustainability in every way
Sustainability in every way implies the choice for sustainable transport modes. The area will be designed in a way that the choice for walking, cycling or public transport is the most obvious. Next to this, new buildings in the area should take future changes in use into account in the design.

1.3 FUTURE URBAN MANSTERPLANS AND POLICY

Koepelterrein Haarlem (Faro Architecten, 2021).

1.3.3 KOEPELGEVANGENIS

With the closure of de Koepel in Haarlem as a prison, a monument and the associated prison grounds were eligible for redevelopment. With a University College and art cinema as the main users of de Koepel, a transformation into a city campus was the obvious choice. To guarantee sufficient financial support and a lively city campus, other facilities such as a neighborhood shop, a cafe refered to as city canteen, 350 residential units, a hotel and parking garage have also been programmed.

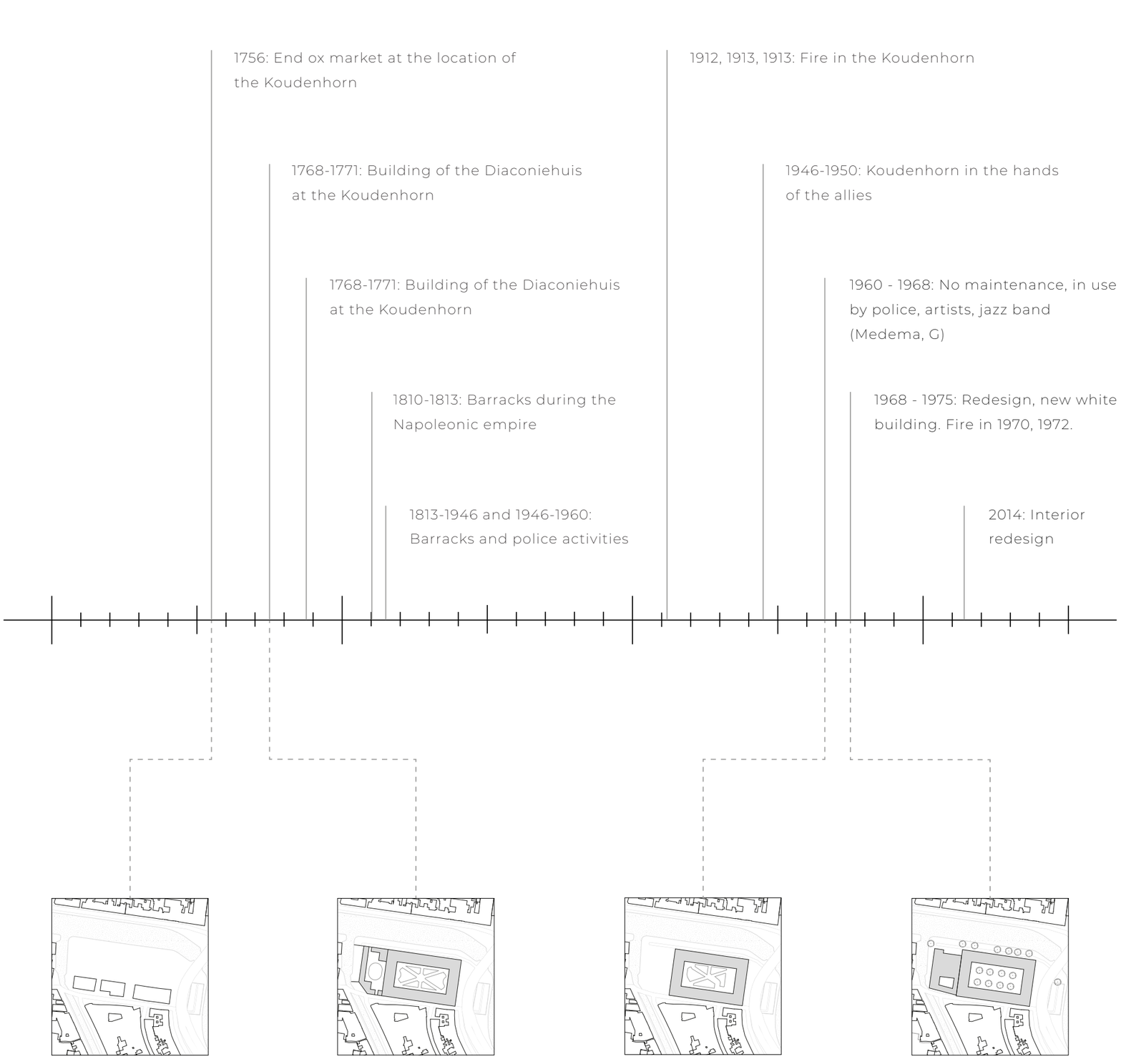
In addition ot the extensive program, the location in the city and the monumental status of the wall surrounding the prison grounds and several buildings have been taken into account. Despite the preservation of the monumental wall, the site still had to be opened up sufficiently to make the site public and it becomes part of the city centre. Next to this, It is essential that de Koepel remains part of the essential sightlines from the environment, so in some areas no new volumes could be added.

Within the walls, the functions are programmed in such a way that a variation in urban spaces is created, with narrow and widened areas. The program largely follows the old walls. A solitary volume will be built on the east side of de Koepel, which will shape the space that is created there. The new buildngs are architecturally related with a clear material nod to the existing buildings. An orange brick accent in the masonry in the old buildings is the connecting factor in the new buildings.

The ground level layout continues the urban carpet of Haarlem inwards and has beautiful green specializations in strategic positions (Faro Architecten, 2021).

2. BUILDING OBJECT AND THE ARCHITECTURE

2.1 CULTURAL HISTORICAL ANALYSIS



Drawings from SBT analysis, from left to right: before 1770, 1700-1960, 1960-1968, 1968-2021. Data retrieved from Het Kadaster (z.d.).

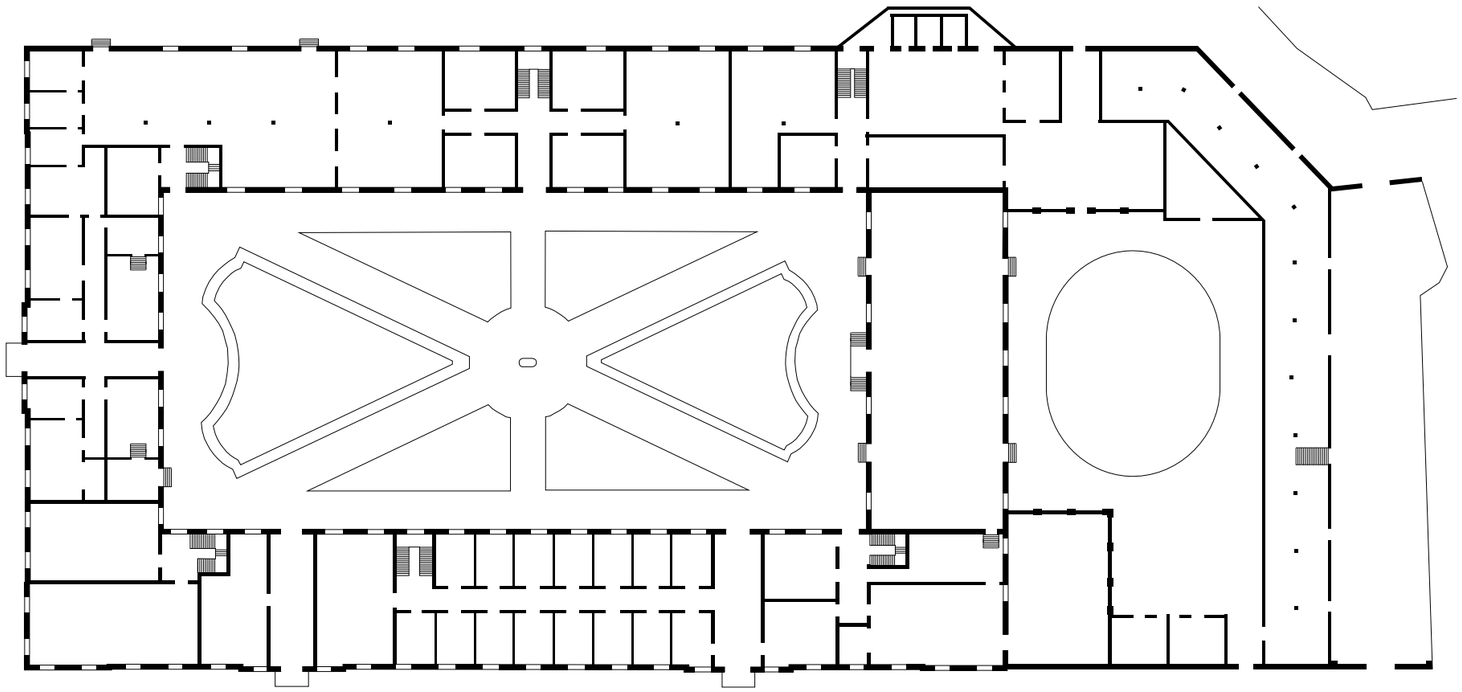
2.1.1 TIMELINE

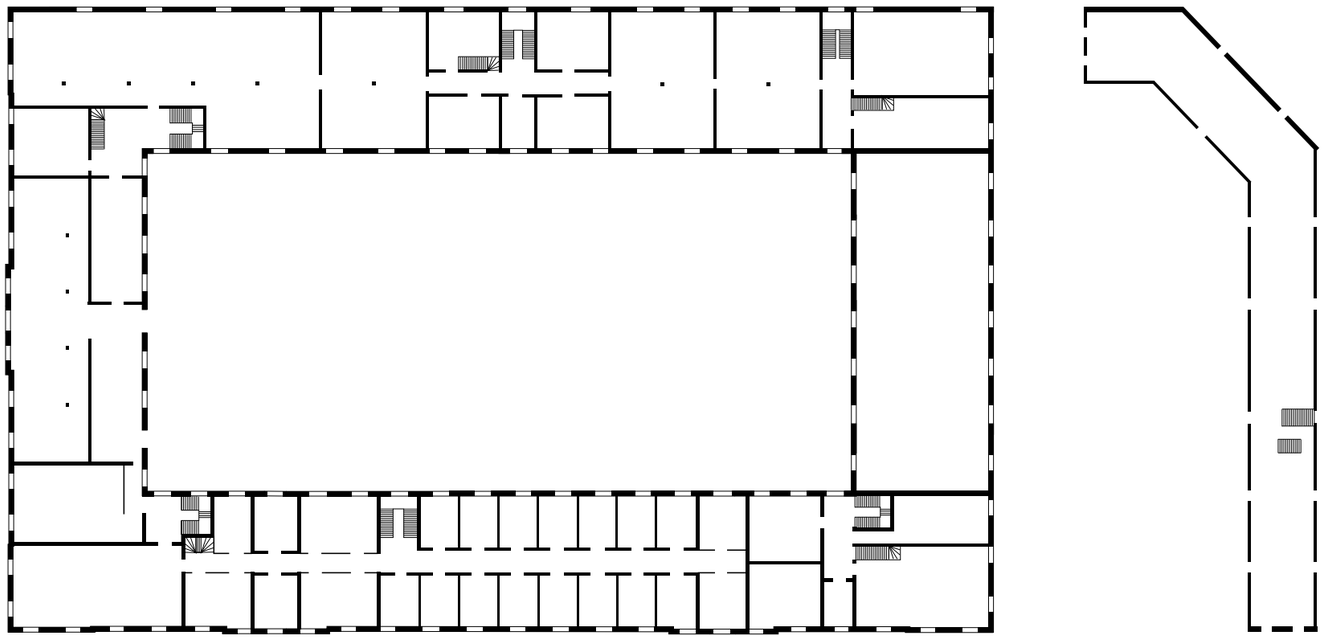
Historical Development

Before the building block of the Koudenhorn was build, there was an ox market located until 1756. From that moment onward, the ox market was relocated to another place in the city to make way for the new diaconiehuis (a poorhouse or chaplaincy house). From 1768-1771 the diaconiehuis was built as shown in the first drawing. The Koudenhorn was built to house 670 poor old people, 150 poor children and 80 commensals. However, it soon became clear that the building had too much space, so from 1786 onwards the building also housed the city's poor (Rijksmonumenten, 2020).

In 1810 the building was put into use as barracks, and the residents had to be relocated to another place in the city. The Koudenhorn retained this function until 1960, with an interruption between 1946-1950. Between 1960-1970 the courtyard was transformed in a practice space for traffic situations and the adjacent building has been removed. In 1971 the police headquarters was established in the old barracks, and a new building has been build next to it (Noords Hollands Archief, 2020).

2.1 CULTURAL HISTORICAL ANALYSIS





0 20M

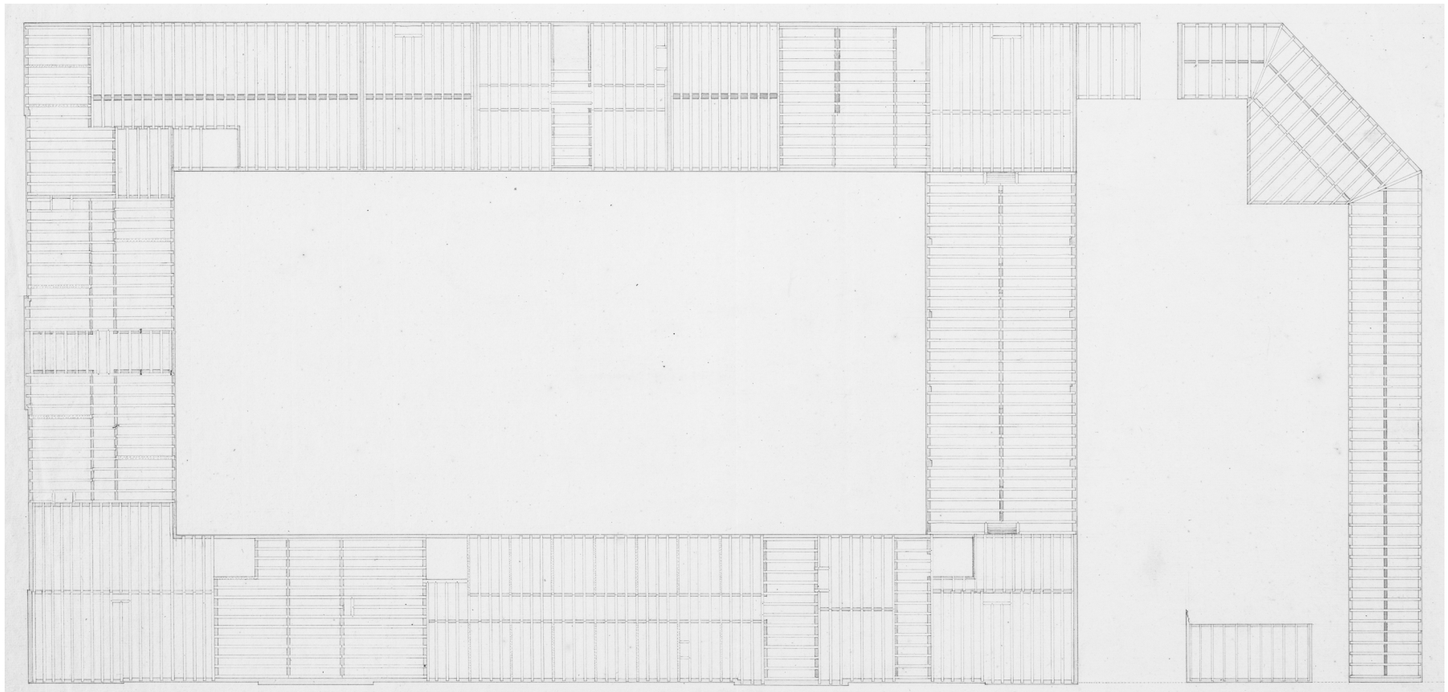
Drawings based on Municipal drawings out of 1768. Top-down: ground floor plan, first floor plan.

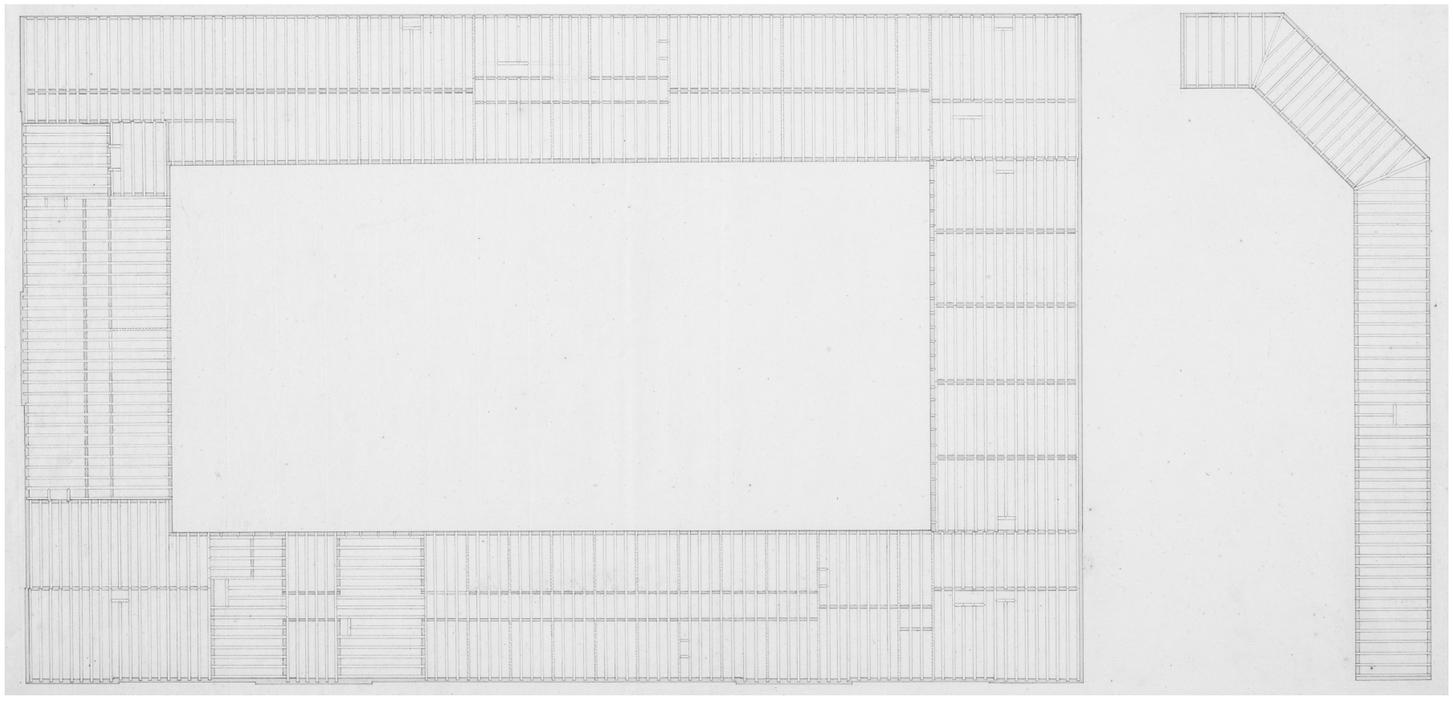
2.1.2 FLOORPLANS

Cultural and social time-based perspective

The main entrance to the building was located in the east facade. On either side of the main entrance one could find the regents' quarters. The dining hall was found on the other short wing, which one could only reach through the entrance on the square. The long wings contained the sleeping quarters and workrooms. The entrances on the side of the New Canal were for staff, residents, and dependents (Medema, 2014). On the side of the Bakenessergracht, separated from the main building, was a utilitarian building for the storage of peat and grain.

2.1 CULTURAL HISTORICAL ANALYSIS





Drawings of the Diaconiehuis (Smit, 1768).Top-down: first floor construction, second floor construction.

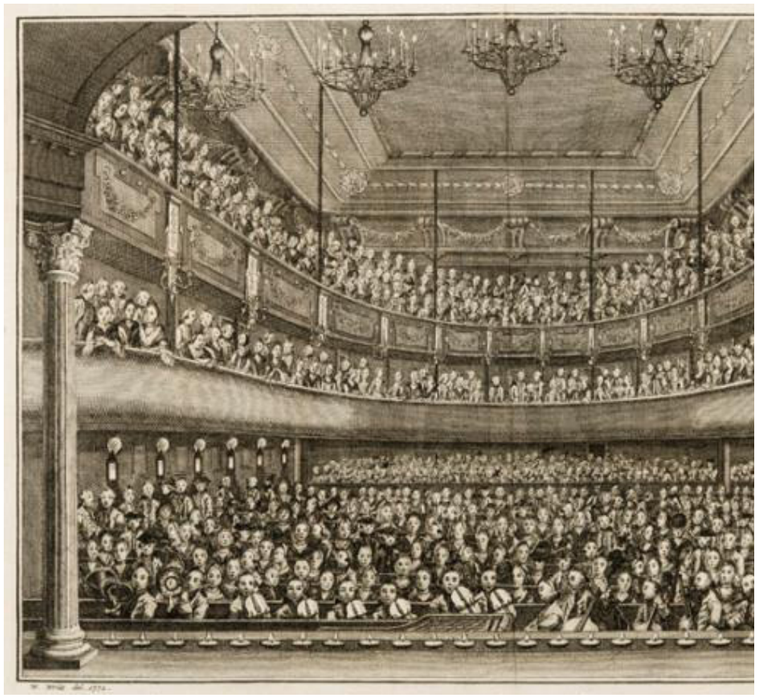
0 20M

2.1.3 LOADBEARING STRUCTURE

Construction

The former construction of the Diaconiehuis consisted out of masonry loadbearing exterior walls and wooden beams and columns throughout the building.

2.1 CULTURAL HISTORICAL ANALYSIS



Pictures from left to right: St. Pietsgasthuis, interior of the Schouwburg, Diaconiehuis, Hersteld Evangelisch Lutherse Kerk (Wikipedia, 2020).

2.1.4 ARCHITECTURAL STYLE - 1768

Architect Jan Smit

Jan Smit (1720-1807) was a carpenter in Amsterdam. The buildings he designed, except for the Diaconiehuis in Haarlem, are all in Amsterdam and were designed in a neoclassical style. He worked as a carpenter on the St. Pietersgasthuis after the death of his colleague Jan van der Streng. Between 1765-1770 he rebuilt the interior of the Schouwburg on the Keizersgracht in Amsterdam. He then built his most important design in Haarlem, the Diaconiehuis (1768-1771). After this, as a contractor, he also built the Hervormde Kerk of Ouderkerk aan de Amstel and the Hersteld Evangelisch Lutherse Kerk on the Kloveniersburgwal in Amsterdam (Lottman, 1978).

Architectural movement - Neoclassicism

Neoclassicism was a movement in art and architecture that again sought the supposed purity of the classics. The harmony in the buildings can be seen in the quiet balance of all parts with each other. Anything that was not harmonious was, in fact, evidence of artistic incompetence. The division of the façade is symmetrical and the middle section often has a pediment. Also, the masonry gives a suggestion in the bricks of a columnar order that is not actually there (Hermans, 1999). The facades are constructed hierarchically and centrally so as to immediately perceive the building as a unit. Both the austere layout in the facade and the austere neoclassical style fit well with the function of the Diaconate House. Custom in society and clear social functions were often represented in their simplicity and these buildings were not lavishly decorated; Decorum.

2.1 CULTURAL HISTORICAL ANALYSIS

Pictures from left to right: NZH gebouw Tempelierstraat, Koningstein office, Traffic Police (Bureau Polderman, 2015).

2.1.5 ARCHITECTURAL STYLE - 1967

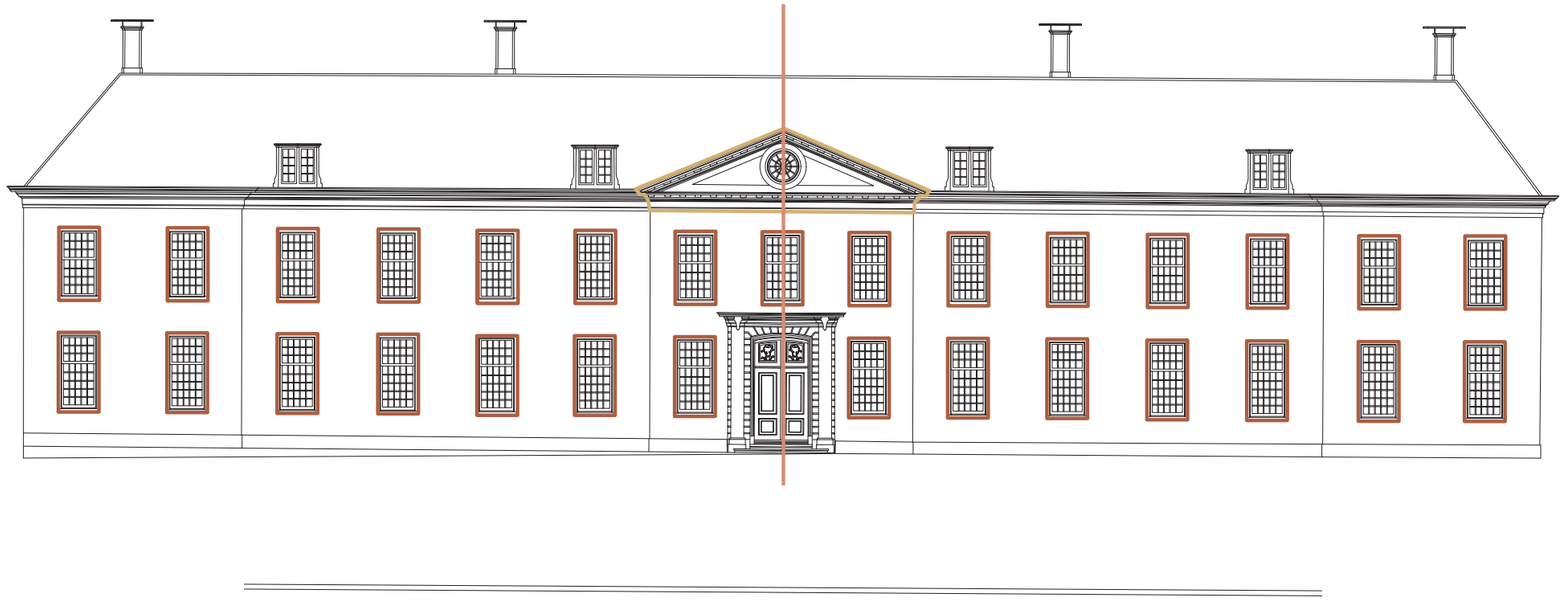
Architect Willem Bollebakker / Bernson

Willem Bollebakker (1918-2020) was educated at the interior architecture department of the Institute for Arts and Crafts Education (1936-1940) in Amsterdam. Like many architects, who were out of work due to the construction freeze during World War II, he used the occupation years for further education. Bollebakker enrolled at the Academy of Architecture in 1943 and completed his training in 1950. From 1941 he worked as a draughtsman at various agencies. Initially with G.H. Holt and later with J.J. van Linden. In 1954 he established himself as an independent architect in Haarlem. He associated himself with J.A. Riesener. In addition to houses, factories, a bus station in Haarlem and a school in Amsterdam-North, the two architects designed, among other things, an office building for the Honeywell company on the Wibautstraat in Amsterdam. Bollebakker was also one of the entrants for the Stadhuis competition in Amsterdam in 1967-1968 (Het Nieuwe Instituut, 2009). There are also several reports of competitions in which Bollebakker participated but which were unsuccessful. However, there is a report of a Kistenfabriek at the Nijverheidsweg in Haarlem. This design dates from 1959 and is mentioned in the bouwkundig weekblad. Otherwise, there are no records of this architect. It is possible that the archive of Gemeenteworks still has some buildings by his hand documented but that archive, which is now housed at the Noord-Hollands Archives, has not yet been released to visitors. Berson was also a partner of Wiek Röling, who was the cities architect of Haarlem from 1970-1988. However, Wiek Röling was not involved with the Koudenhorn building (Asselbergs & Röling, 1988). On the drawings for the traffic police in Haarlem, the names of Bollebaker and Bernson are mentioned. By Royal Decree his surname was changed to Bernson in 1970 (Bureau Polderman, 2015).

Architectural movement - New Objectivity

Construction and appearance are determined by the function of the building. New materials such as concrete and steel made it possible to develop new building structures that enabled a transparent and abstract architecture to be realized. Decoration is avoided and replaced by plain white plastered walls or glass walls.

2.1 CULTURAL HISTORICAL ANALYSIS



2.1.6 SYMBOLISM

Ornamentation Neoclassicism

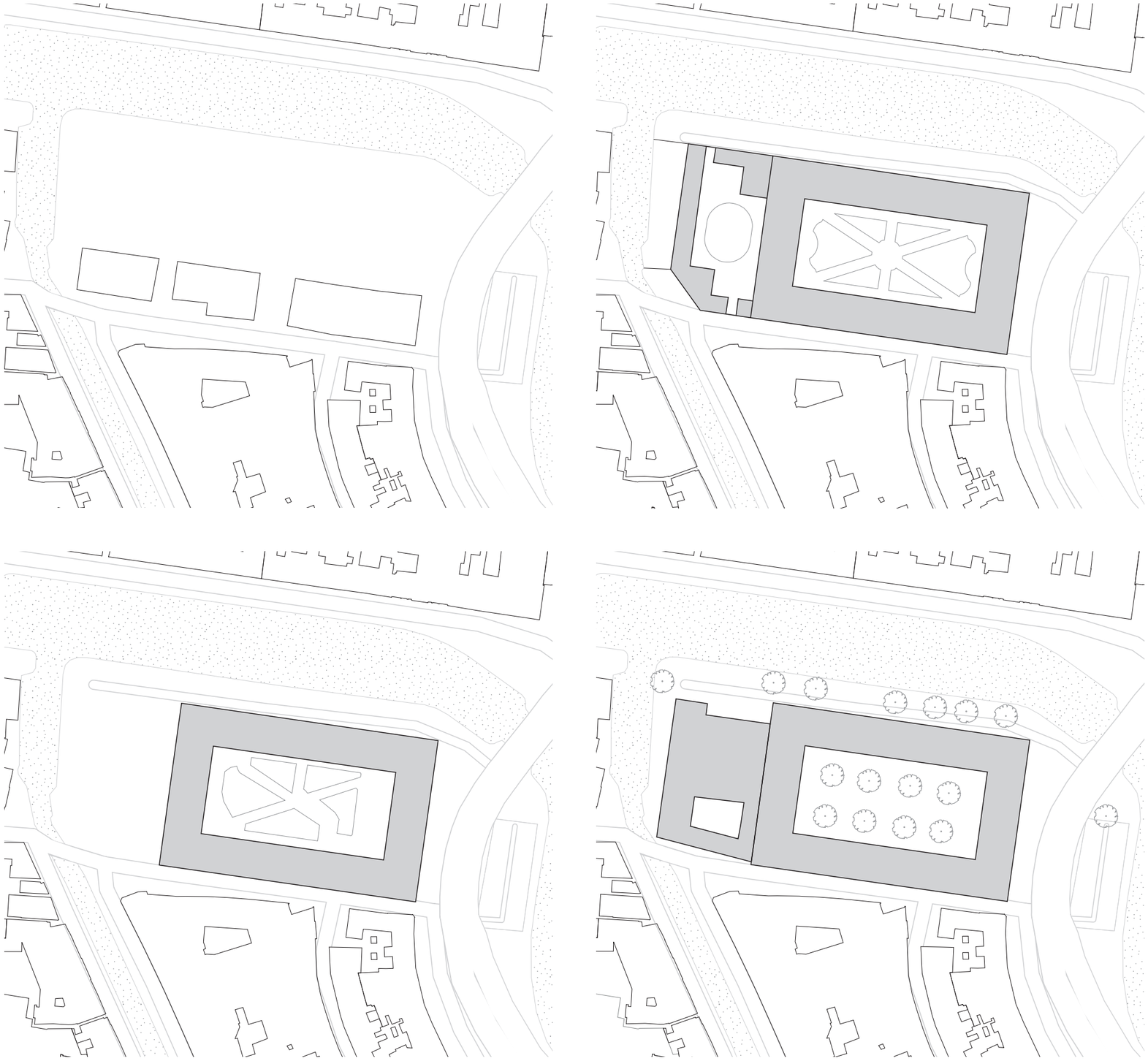
Neoclassicism was a movement in art and architecture that again sought the supposed purity of the classics. The harmony in the buildings can be seen in the quiet balance of all parts with each other. Anything that was not harmonious was, in fact, evidence of artistic incompetence. The division of the façade is symmetrical and the middle section often has a pediment. Also, the masonry gives a suggestion in the bricks of a columnar order that is not actually there (Hermans, 1999). The facades are constructed hierarchically and centrally so as to immediately perceive the building as a unit. Both the austere layout in the facade and the austere neoclassical style fit well with the function of the Diaconate House. Custom in society and clear social functions were often represented in their simplicity and these buildings were not lavishly decorated; Decorum.

Legenda

- Harmony in the balance of all parts with each other
- The division of the façade is symmetrical
- The middle section of the facade has a pediment
- The masonry gives a suggestion of columnar order
- The construction is hierarchically and centrallly
- Decorum is visible in the sobriety of the facade

Drawings based on Municipal drawings out of 1768. Eastern facade of the Koudenhorn.

2.1 CULTURAL HISTORICAL ANALYSIS



Drawings from SBT analysis, from left to right: before 1770, 1700-1960, 1960-1968, 1968-2021.

0 25M

2.1.7 URBAN SURROUNDINGS

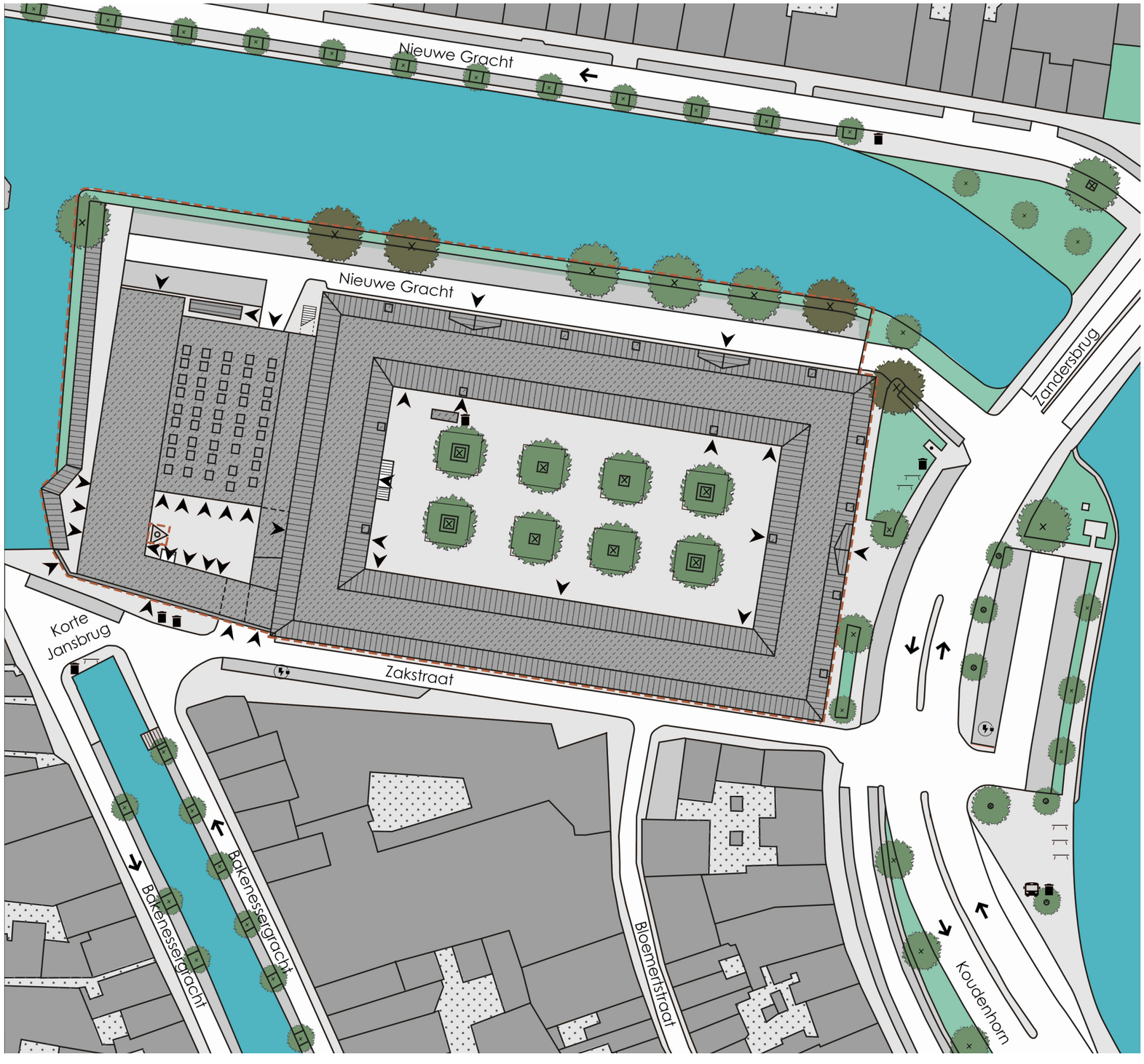
Position of the ensemble in the context

The Koudenhorn police station is located in the historic city centre of Haarlem, along the western bank of the Spaarne river. On this wide bank there is a sidewalk in front of the building's main entrance, the Koudenhorn road which is part of one of the main motorized traffic arterties of the city and a small parking area. To the north the plot is defined by the wide canal of the Nieuwe Gracht. Along the quay, which is used by the police for parking, there are lush trees and bushes. There is no functional connection to the water. The Zakstraat at the southern side of the building is quite narrow in relation to the height of the surrounding buildings. In combination with their closed character this gives the Zakstraat the appearance of an alley.

Legenda

- Koudenhorn building
- Surounding buildings
- Roads
- Water

2.2 TYPOLOGY



Site plan with lot border

0 25M

2.2.1 SITE PLAN

The current situation is visible on the side. There is little greenery on the plot itself. Only a low quality green border near the water. The exact location of the trees is indicated. Also if it concerns a normal or monumental tree. The size of the tree reflects its actual size. It can be seen that there are a number of large trees on the plot, three of which are monumental. There is another monumental tree in front of the East façade. On the plot itself, a road runs along the North side of the building, on which a large number of parking spaces are located. The courtyard in both the main building and the extension is completely paved. On the West side of the plot is a bicycle shed that is a visual barrier. With the exception of the Koudenhorn, there are all one-lane roads around the building, some of which are one-way streets. This must be taken into account in the design. There are a large number of entrances in the building. This is mainly the case with the extension. The main building has no entrance on the Zakstraat. A bus stop is located at a short distance on the other side of the Koudenhorn, which increases the accessibility of the building. The number of electric charging points is limited. In addition, there are sufficient waste disposal points located at a short distance from the case study.

Legenda

- Building
- Road
- Cycle path
- Parking
- Pavement
- Private garden
- Monumental tree
- Tree
- Green
- Water
- Lot border
- Entrance
- Bus stop
- Electric chrging point
- Bench
- Waste point

2.2 TYPOLOGY

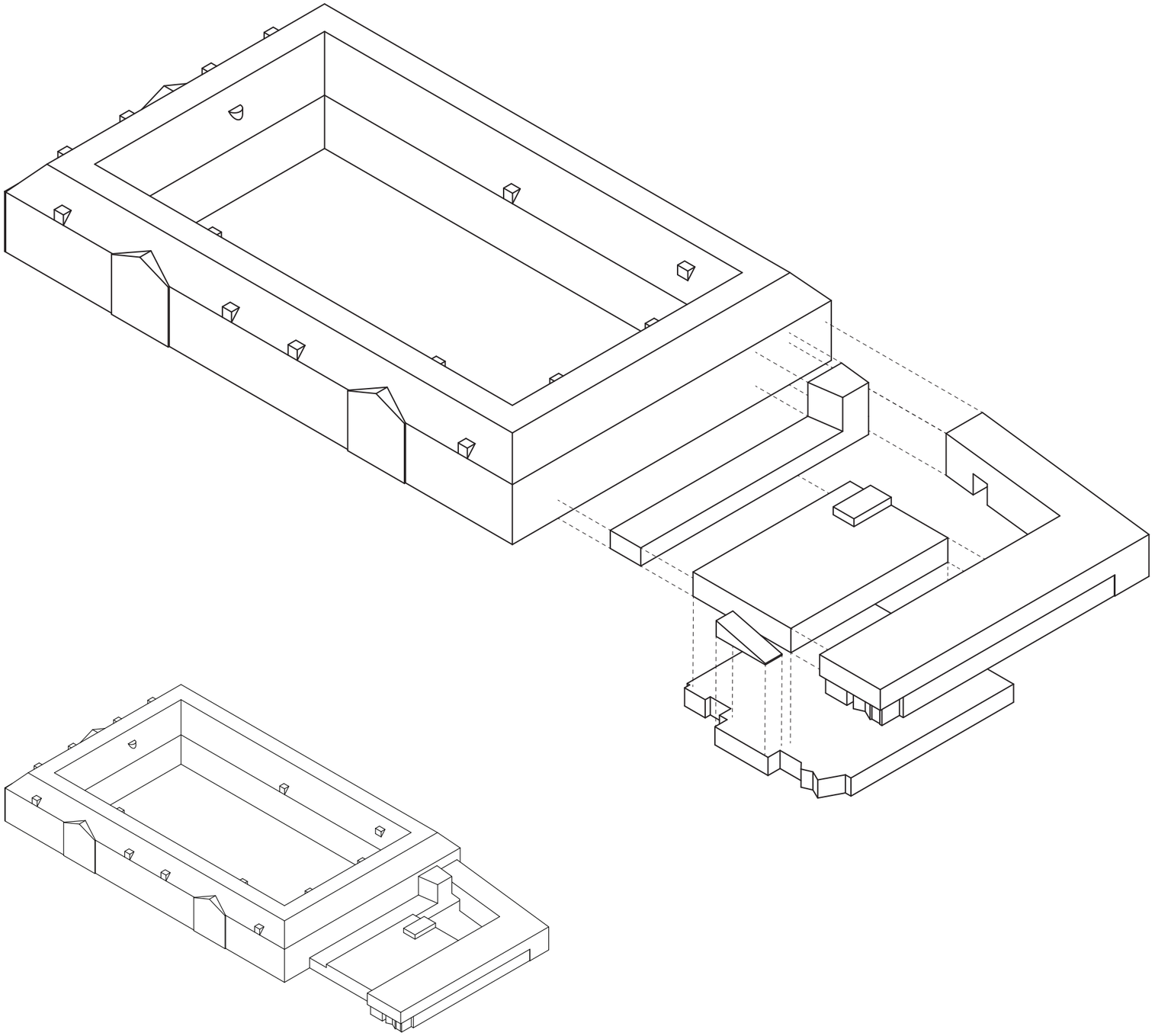
2.2.2 DIRECT URBAN CONTEXT

The Koudenhorn police station is located in the historic city centre of Haarlem, along the western bank of the Spaarne river. On this wide bank there is a sidewalk in front of the building's main entrance, the Koudenhorn road which is part of one of the main motorized traffic arteries of the city and a small parking area. To the north the plot is defined by the wide canal of the Nieuwe Gracht. Along the quay, which is used by the police for parking, there are lush trees and bushes. There is no functional connection to the water. The Zakstraat at the southern side of the building is quite narrow in relation to the height of the surrounding buildings. In combination with their closed character this gives the Zakstraat the appearance of an alley.

Drawings from SBT analysis. Data retrieved from QGIS (z.d.).

0 25M

2.2 TYPOLOGY

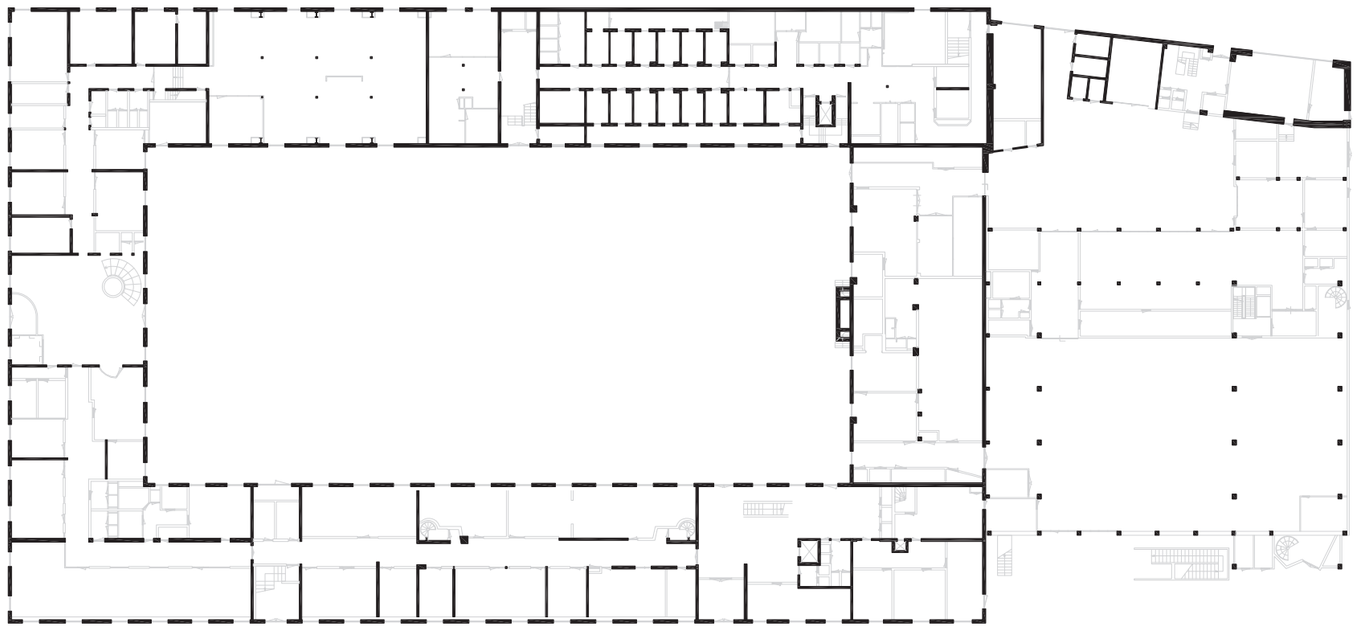


2.2.3 MASSES

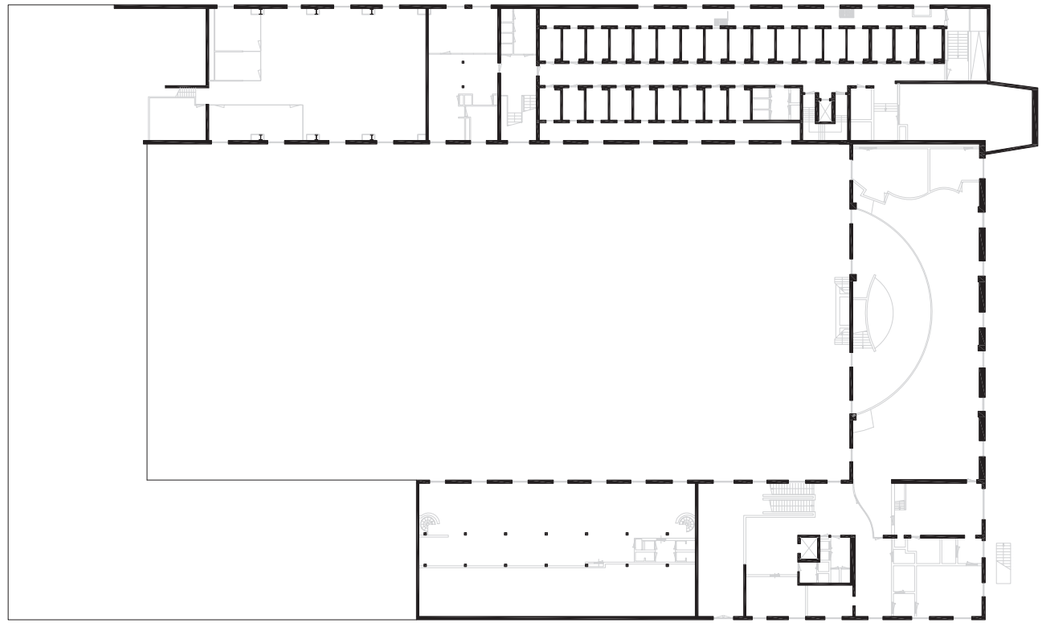
The Koudenhorn police station consist of two major volumes. The larger original volume from the 18th century consists of four wings enclosing a central courtyard. The wings are longer in one direction, making the overall shape of the building a rectangular one. On two sides of the building the entrances are located in breakfronts adorned with pediments. Multiple dormer windows protrude from the roof.
The addition from the 1970's is made up of three volumes on ground level and a basement. Two volumes are enclosed by a double-height L-shaped volume. The three volumes enclose a small courtyard.

Drawings from SBT analysis. Data retrieved from 3D BAG Viewer (TU Delft, z.d.).

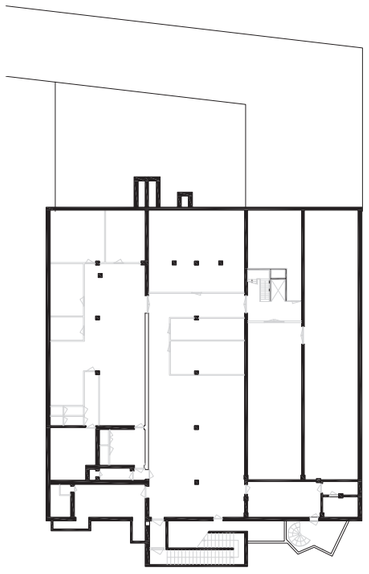
2.2 TYPOLOGY



Ground floor



Entresol



Basement

Drawings from SBT analysis.

0 10M

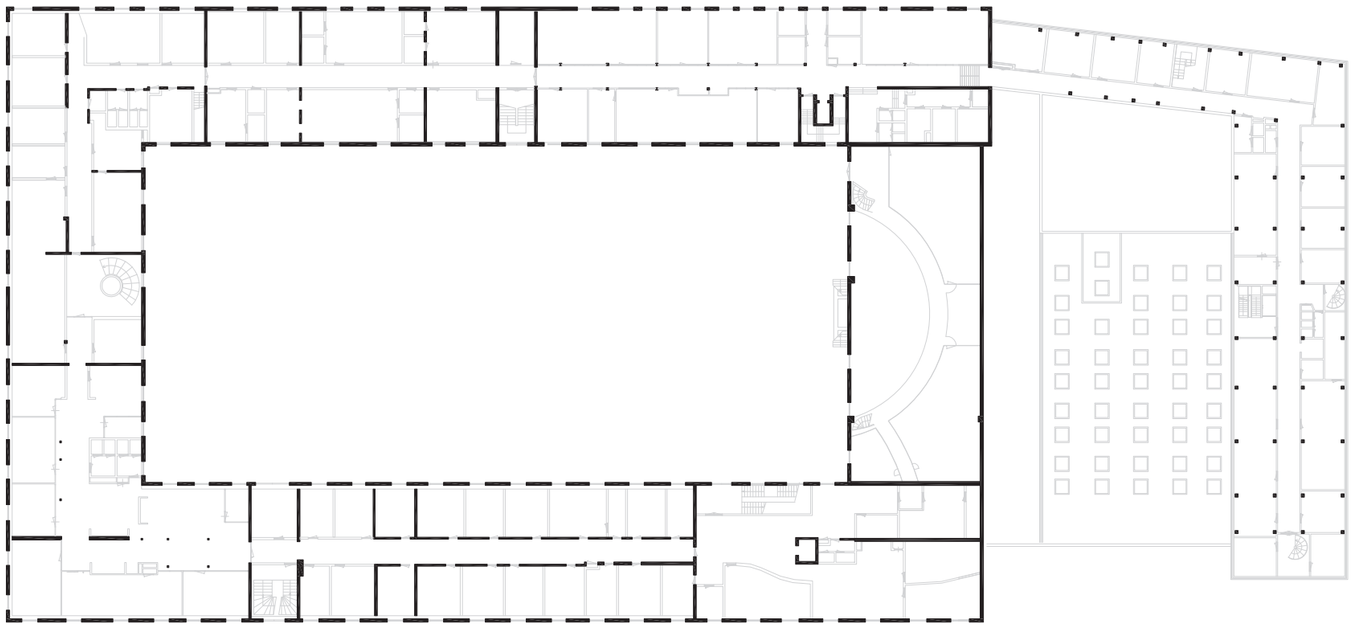
2.2.4 FLOORPLANS

The Koudenhorn building consists of five floors, including a basement below the newer volume and an entresol in the older volume between the ground floor and first floor. In some parts of the building, ladders provide access to spaces in the attic above the second floor used for installations. Despite several changes on the interior layout in the past, the spatial layout still reminds of the original situation with a central hallway with spaces on both sides. Some exceptions on this layout are the larger spaces on the ground floor and entresol in the upper wing and the canteen in the right wing of the older volume. The canteen is located in the former dining hall, which was a double height space, but currently a extra floor with void is added in this space on the same level as the first floor.

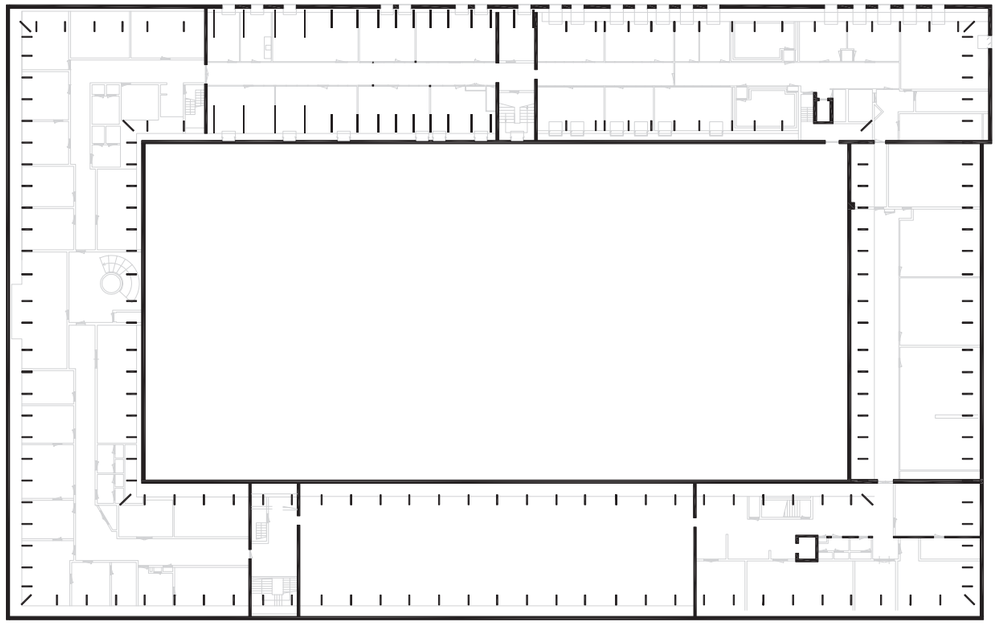
The newer volume has several bigger spaces on the ground floor compared to the spaces in the older volume. However, on the first floor, the newer volume follows the same spatial principle as the older volume with a central hallway with spaces on both sides.

2.2 TYPOLOGY

FLOORPLANS



First Floor

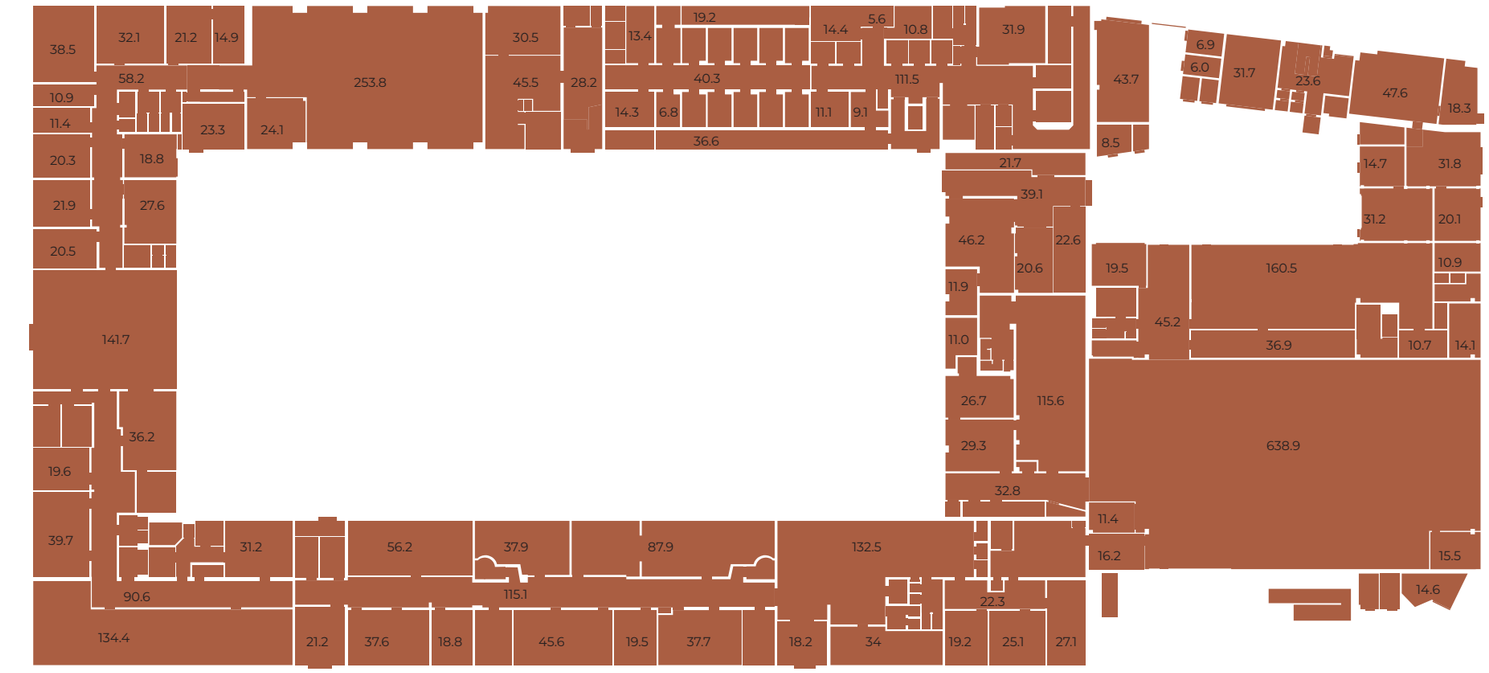


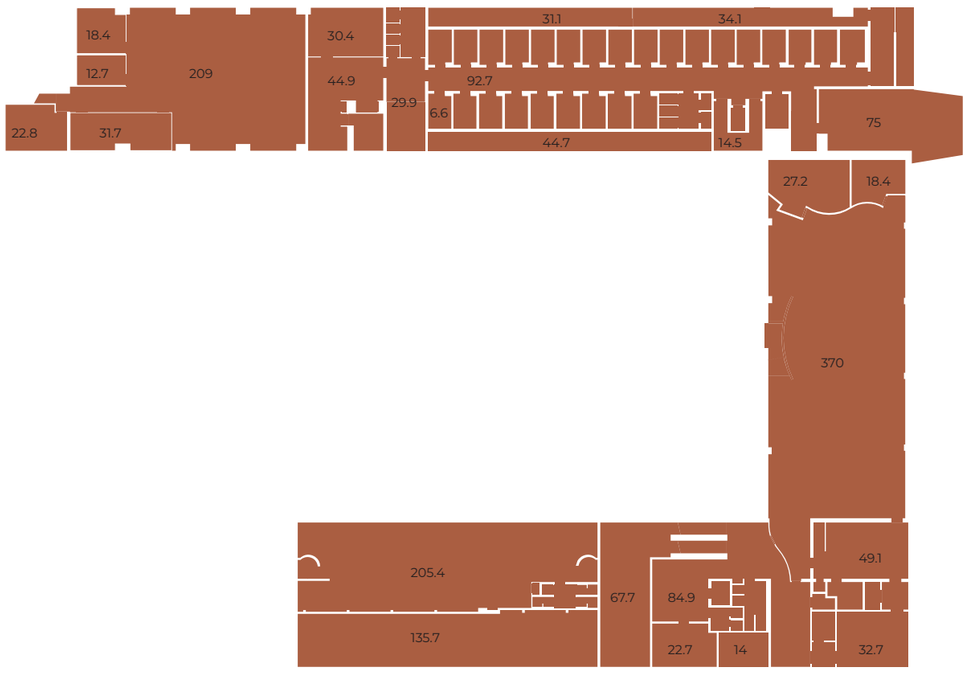
Attic

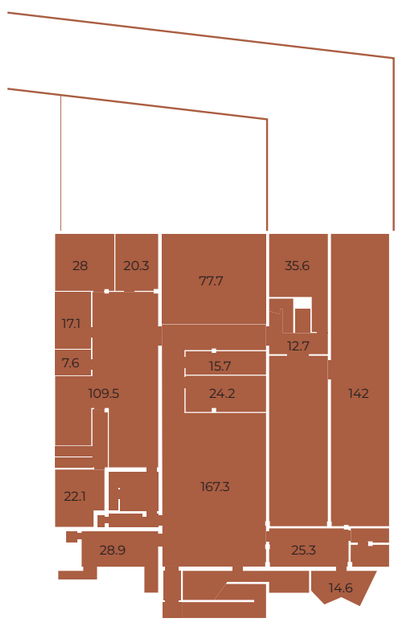
Drawings from SBT analysis.

0 10M

2.3 ORGANISATION







Based on SBT Collective research - Haarlem - Building Ojbect. Top-down: ground floor plan , entresol and basement

0 20M

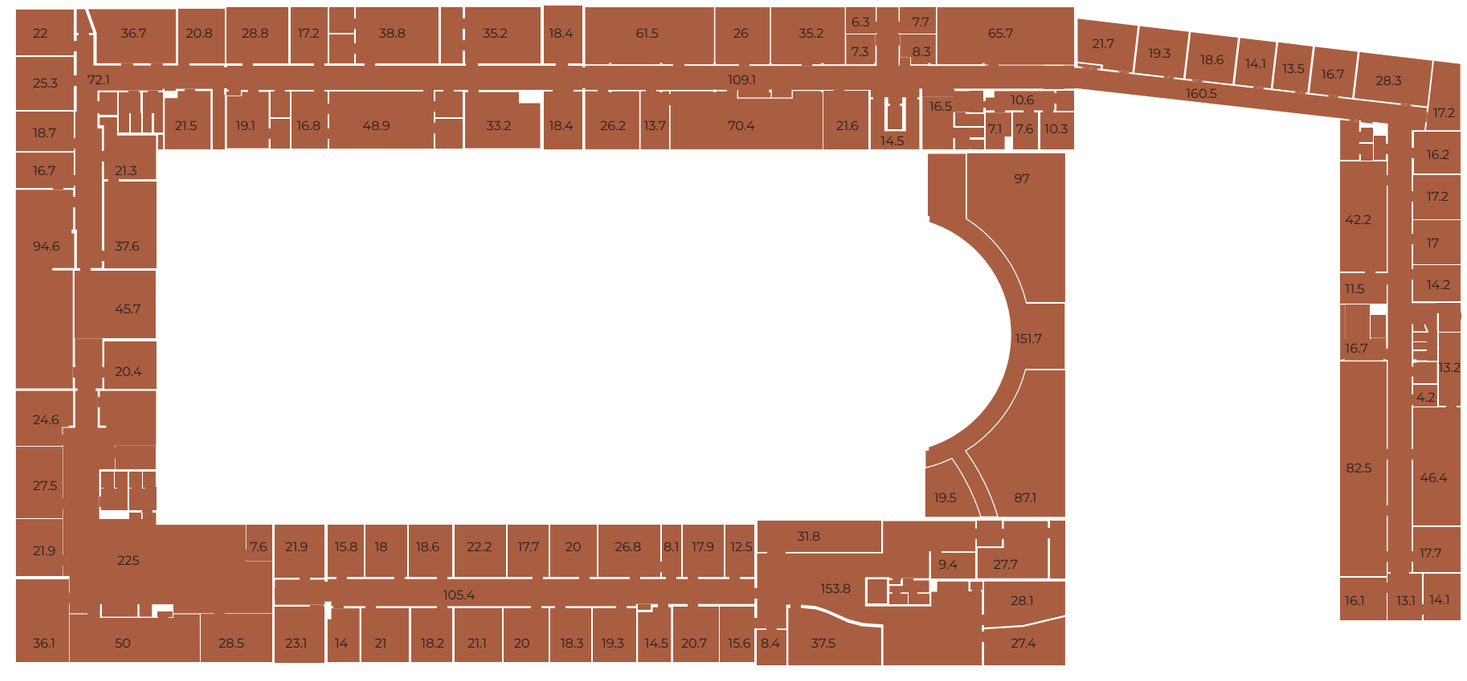
2.3.1 SEQUENCE OF SPACE

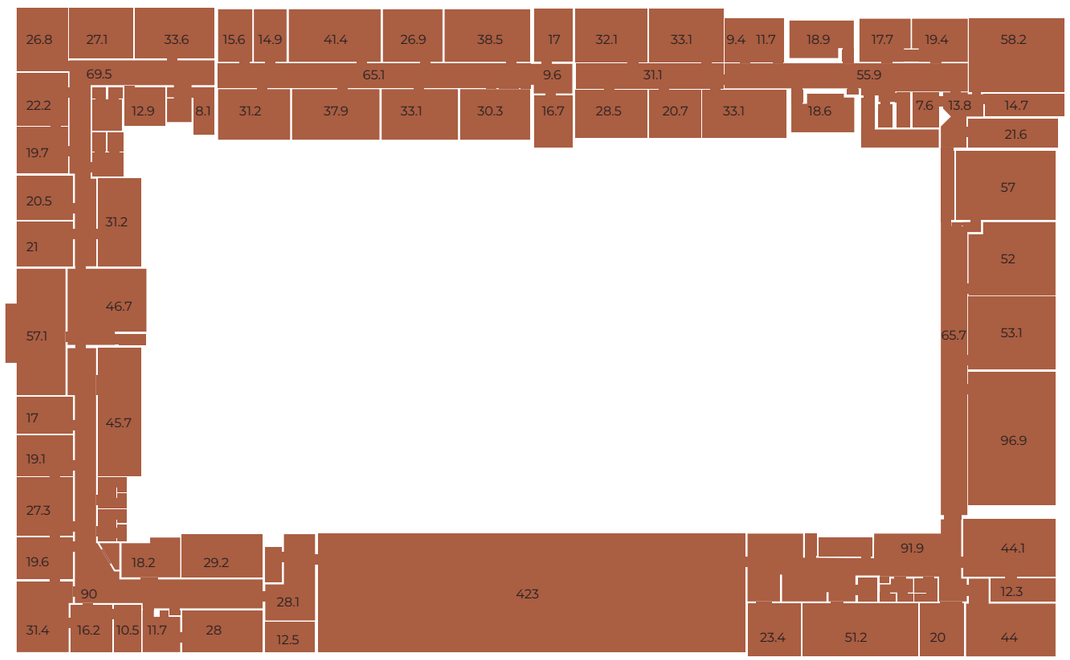
Despite the construction works on the interior in the past, some parts of the building are rebuilt with a similar space plan with a central hallway and spaces on both sides. Most of the spaces connected to the hallway have a floor area around 20m^2 with some exceptions of spaces with approximately dubble this size.

In more recent interior renovations, the structure shifted to a more open floor plan instead of the smaller office spaces, which can be seen in the bottom left corner of the ground floor. The area in the right top corner of the older building part on the ground floor and mezzanine is used for the cells. Some exceptions in spaces are the entrance foyer on the left in the ground floor plan and the bigger space in the top wing.

The newer added volume shows contrast in area and sequence of spaces with the older volume due to its larger spaces and differences in circulation. Also, the largest space of the building is located on the ground floor of the newer volume, which is used for car parking.

2.3 ORGANISATION





Based on SBT Collective research - Haarlem - Building Ojbect. Top-down: first floor plan, second floor plan

0 20M

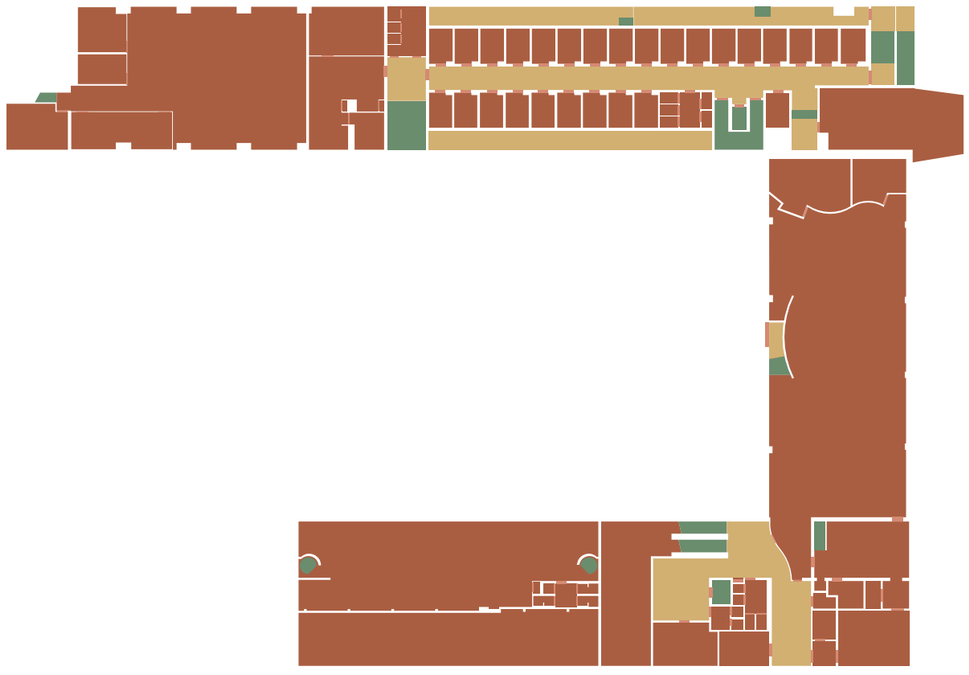
2.3.1 SEQUENCE OF SPACE

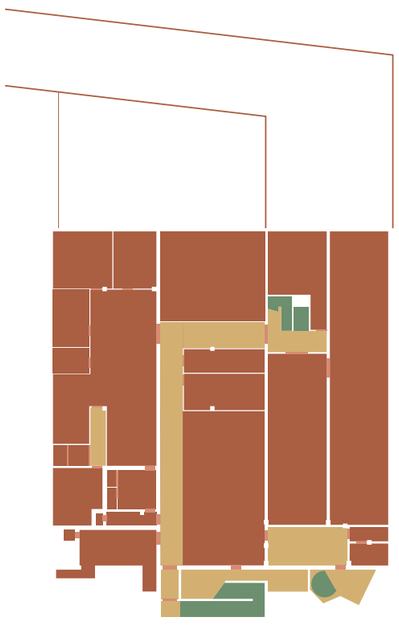
The spatial layout of the first and second floor of the older volume follow the same principle as the ground floor with the central hallway in the middle and spaces on both sides. Some exceptions on these floors are the mezzanine in the dining hall on the right of the older volume with bigger meeting rooms and the semi-circular void.

In contrast to the ground floor, the first floor of the newer volume also follows the spatial principal of a central hallway for circulation.

During the more recent interior renovations, a larger space on the second floor is created as can be seen in the lower wing of the bottom image, this indicates that there are possibilities to create larger open spaces as a result of the wooden roof structrure.

2.3 ORGANISATION





2.3.2 CIRCULATION

The older volume shows a clear circulation principle on all its floors with a central hallway with spaces on both sides. In some places, the central hallway ends in a bigger space such as the dining room on the mezzanine floor.

On the ground floor of the newer volume, there is no specific space for circulation besides the core with the staircase and elevator. The circulation in this part is integrated in the other spaces mainly meant for storage and parking. The circulation of the first floor of the newer volume connects to the first floor of the older volume and follows a similar circulation principle with the hallway with spaces on both sides.

Despite the central hallway in the biggest part of the building it is not possible to walk the through all the wings of one floor in one go, while at some places the circulation is disconnected and you have to go down a floor and go up in another place to reach an area on the same floor again.

Legenda

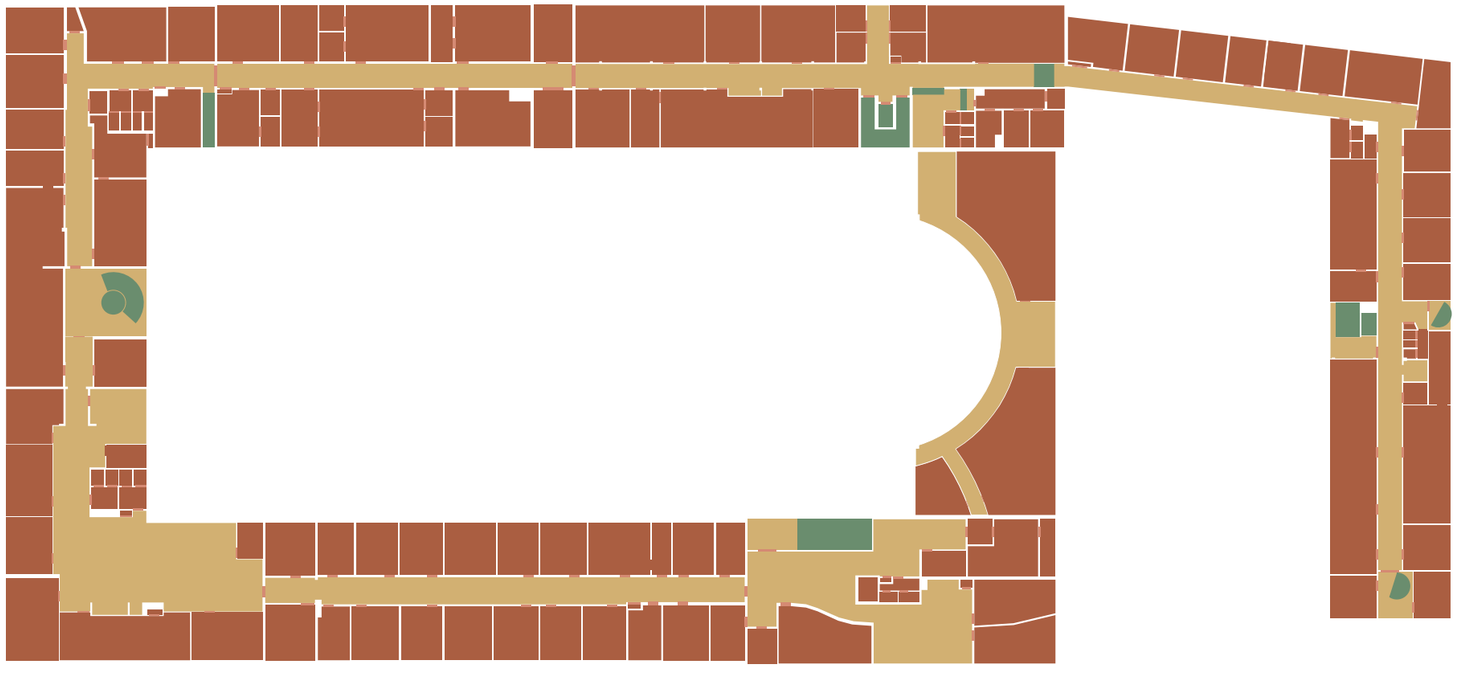
- Spaces
- Doors
- Horizontal circulation space
- Veritcal circulation space

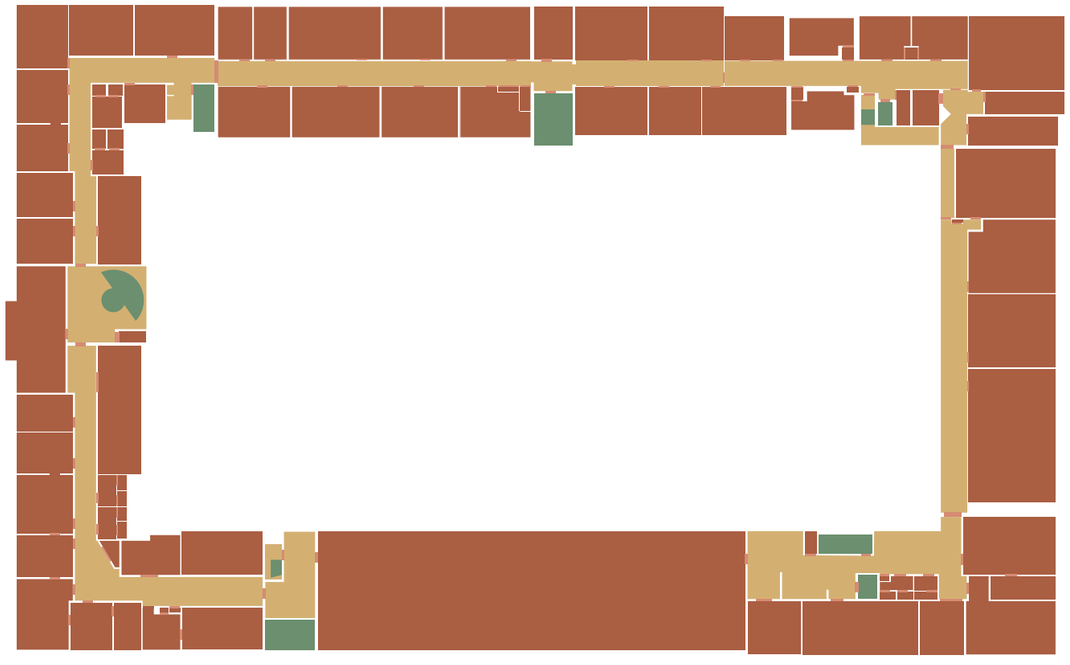
Based on SBT Collective research - Haarlem - Building Ojbect. Top-down: ground floor plan , entresol and basement

0 20M

2.3 ORGANISATION

2.3.2 CIRCULATION





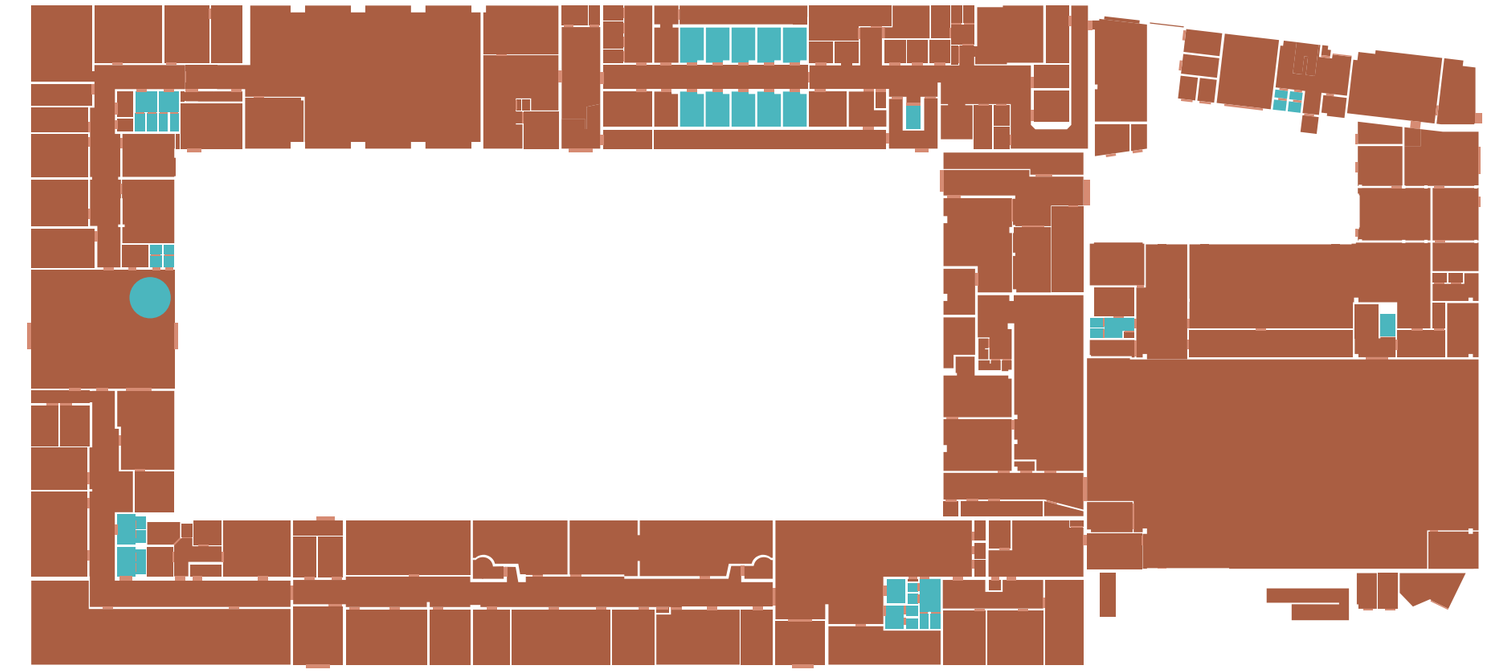
Legenda

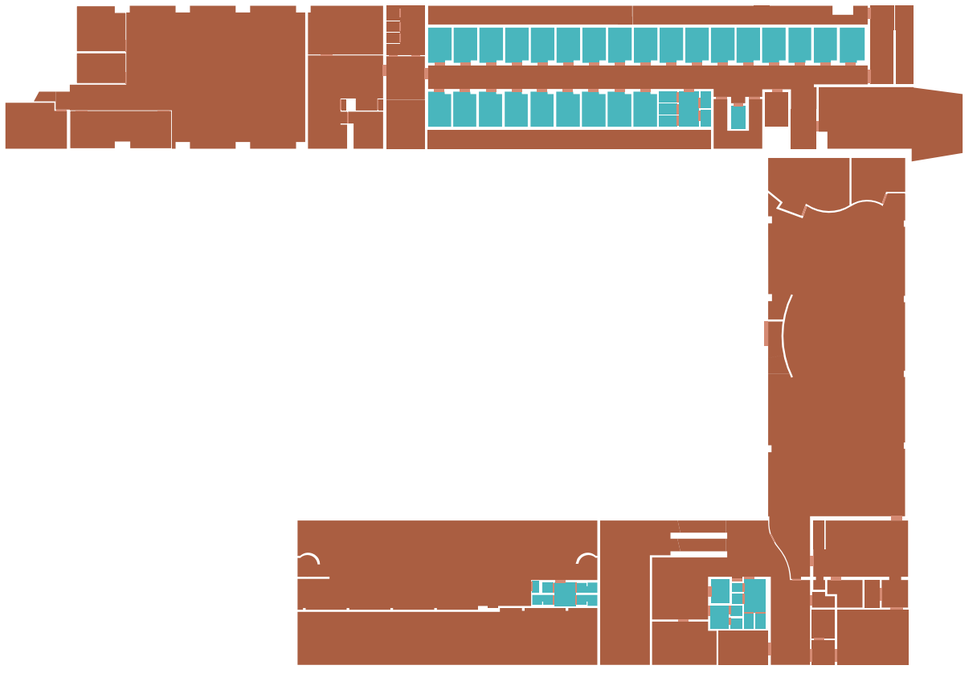
- Spaces
- Doors
- Horizontal circulation space
- Veritcal circulation space

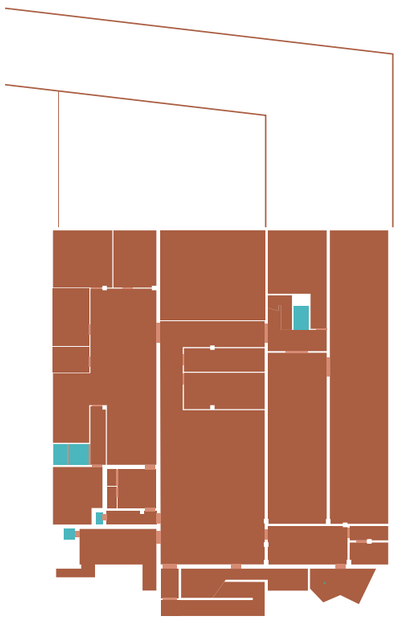
0 20M

Based on SBT Collective research - Haarlem - Building Ojbect. Top-down: first floor plan, second floor plan

2.3 ORGANISATION







2.3.3 FIXED AND FREE SPACES

The floorplans indicate the fixed and free spaces in the floorplan of the Koudenhorn building. In these drawings, the fixed spaces are the wet spaces, such as toilets and vertical cores for the elevators.

In the older volume, those fixed spaces are mostly located close to the corners of the building were the multiple wings meet.

Next to the wet spaces and elevator cores, the cells are also included in the fixed spaces. Not only due to the pipes and ducts for these spaces, but also due to amounth of concrete used for these spaces.

Legenda

Free spaces

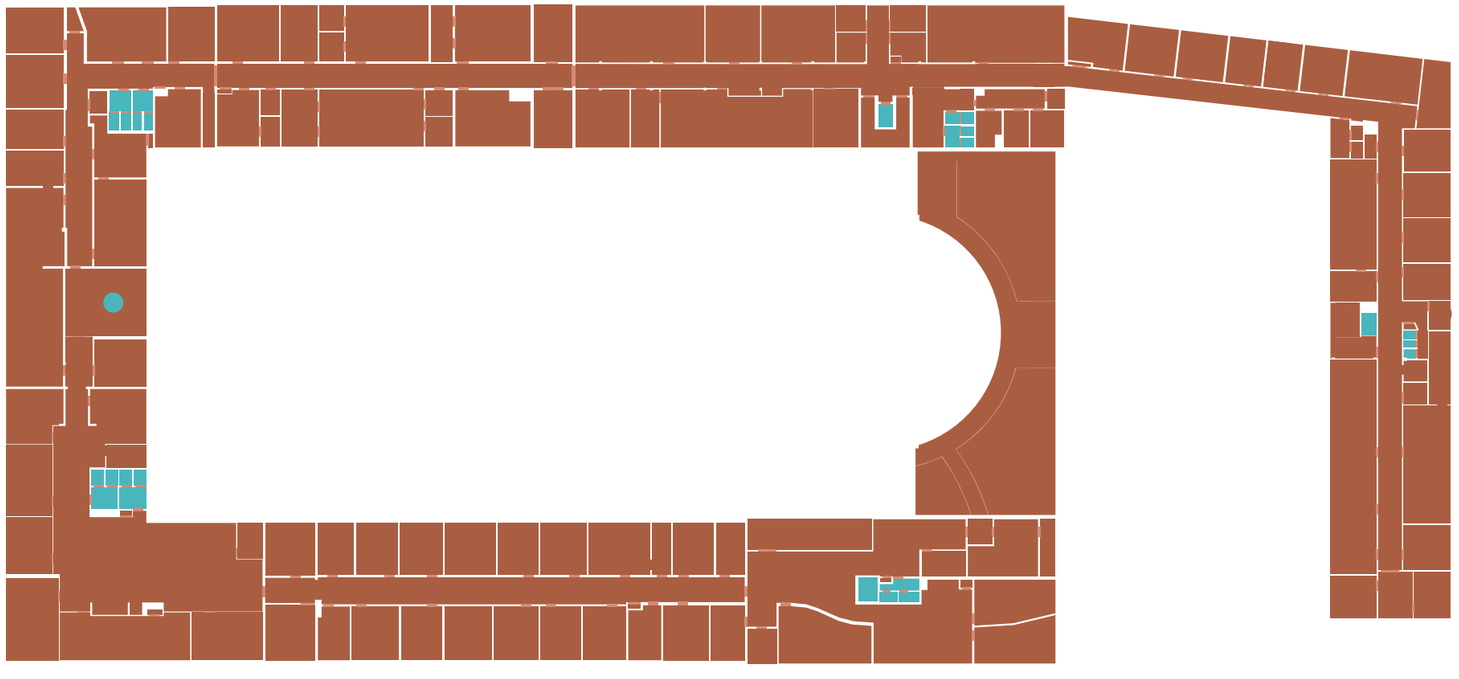
Fixed spaces

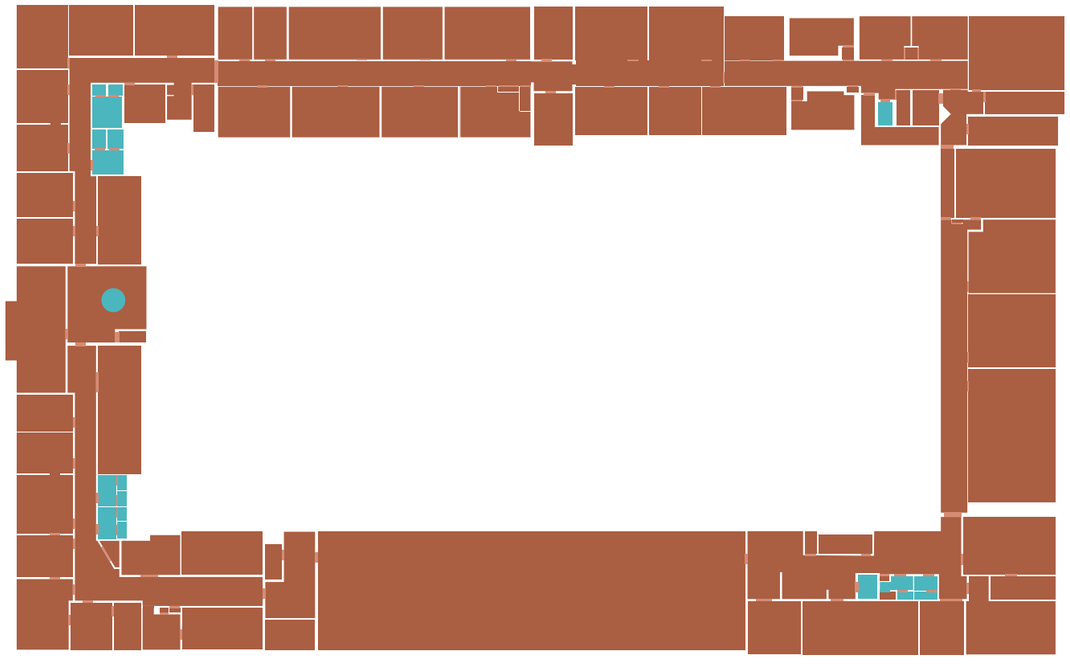
Based on SBT Collective research - Haarlem - Building Ojbect. Top-down: ground floor plan , entresol and basement

0 20M

2.3 ORGANISATION

2.3.3 FIXED AND FREE SPACES





Legenda

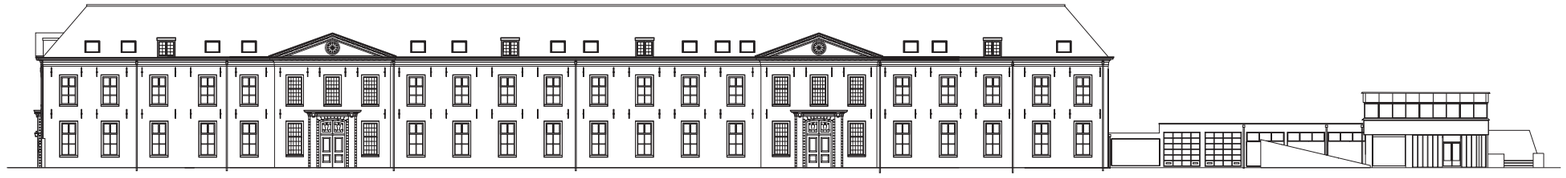
Free spaces

Fixed spaces

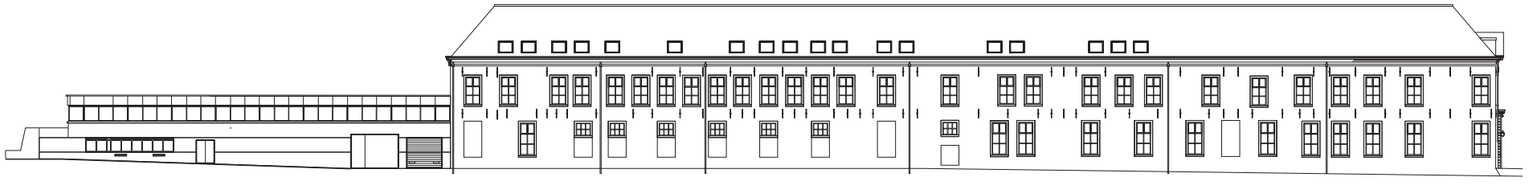
0 20M

Based on SBT Collective research - Haarlem - Building Ojbect. Top-down: first floor plan, second floor plan

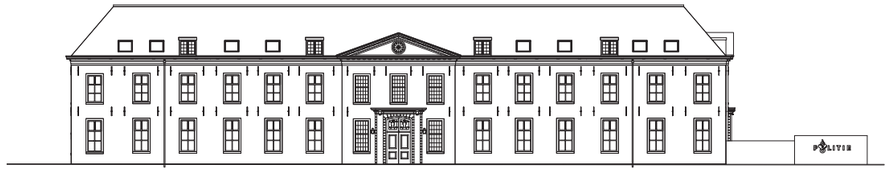
2.3 ORGANISATION



Facade Nieuwe Gracht



Facade Zakstraat



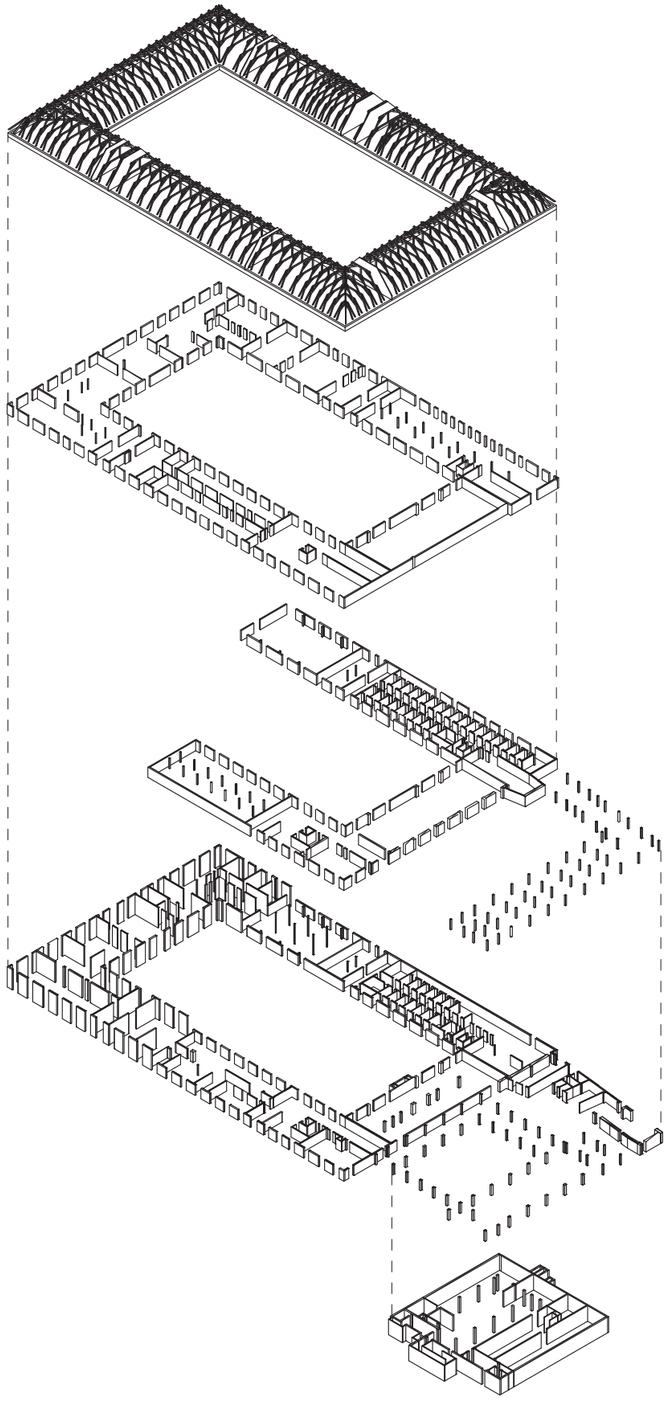
Facade Koudenhorn

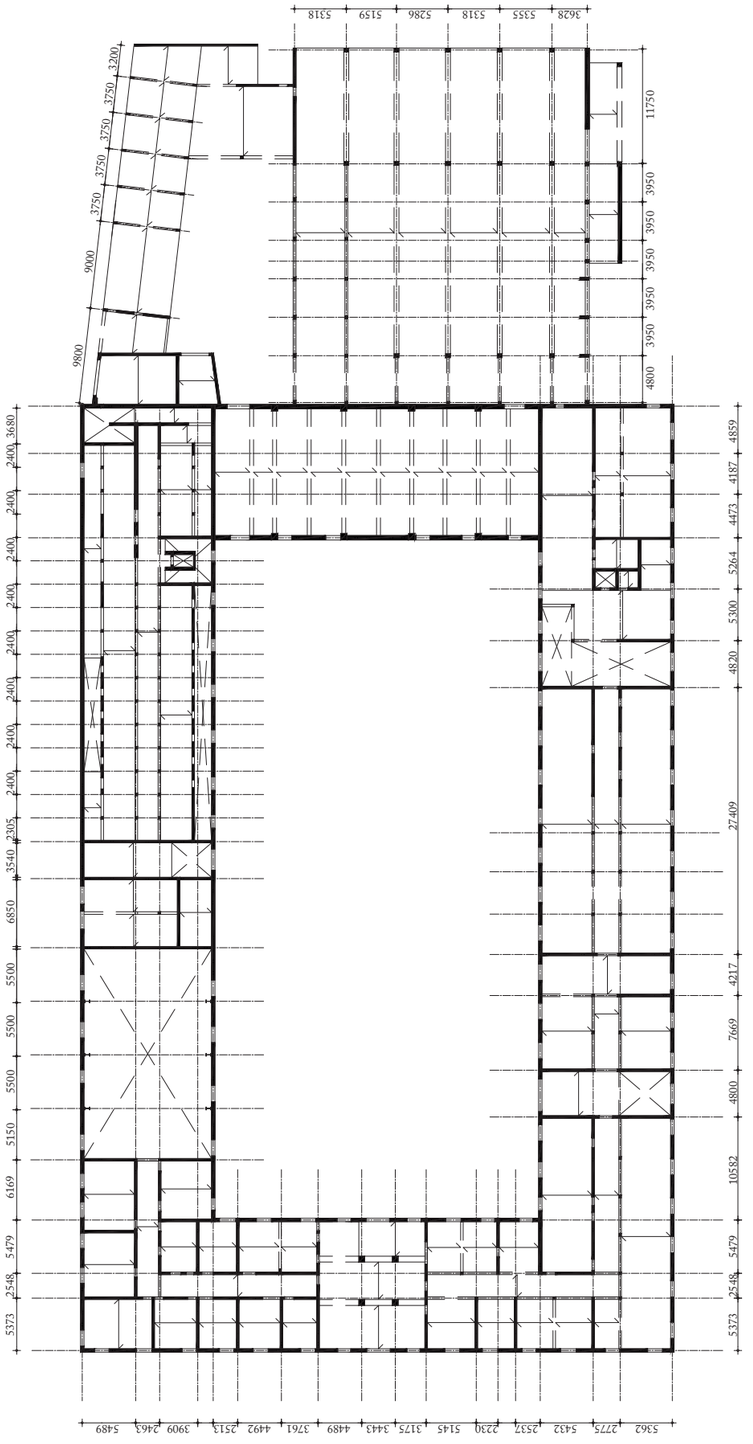
SBT Collective research - Haarlem - Building Ojbect

2.3.4 ORIENTATION

The orientation of the building becomes imediatly clear when looking at the exterior facades of the Koudenhorn. The three main entrances, which are also visible in the essence model, are oriented towards the Nieuwe Gracht and Koudenhorn. While the entrance on the Koudenhorn is used by the public to enter the police building and the other two are privately used by the police and closed of for the public, the facade facing the Koudenhorn could be considered as the front in the current situation. The facade along the narrow Zakstraat with filled in windows and the facade of the newer volume along the Bakenessergracht, which is not accessible by a street, can be experienced as the back side of the building.

2.4 STRUCTURE





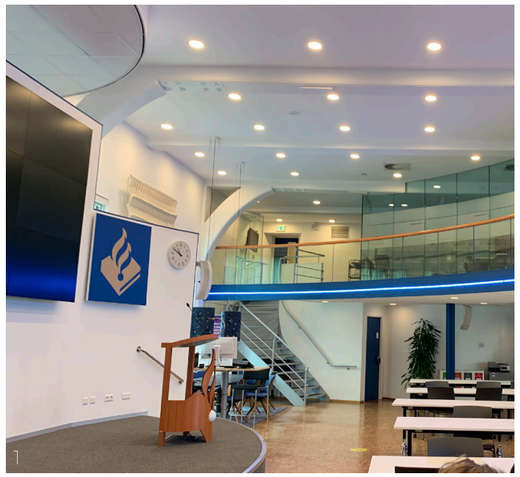
2.4.1 FORM

The load-bearings structure of the 1970's addition consist mainly of concrete columns and beams carrying the concrete floors. The structural concrete walls places in two directions structural provide stability. In the longitudonal direction, there is consistancy in the structural grid size. However, this is not the case in the latitudonal direction. This is likely due to the connection with the original building, where the existing structure and wall openings obstructed a consistant grid size.

The structure of the original building consist of the original load bearing exterior and interior walls of brick masonry, that together with additional concrete columns and beams support the concrete floors. In order to construct the mezzanine floor, additional structural elements have been placed. There is no consistancy in grid size of the structural elements in the original building, with the exception of the cell blocks and the steel structures placed to create larger open spaces.

Drawings from SBT analysis.

2.4 STRUCTURE


1


2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4


5


6


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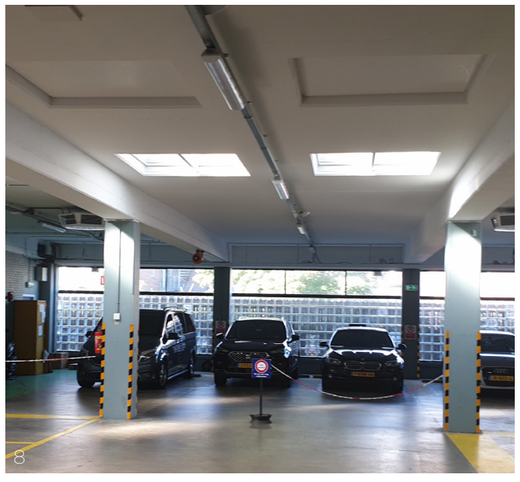

8


9

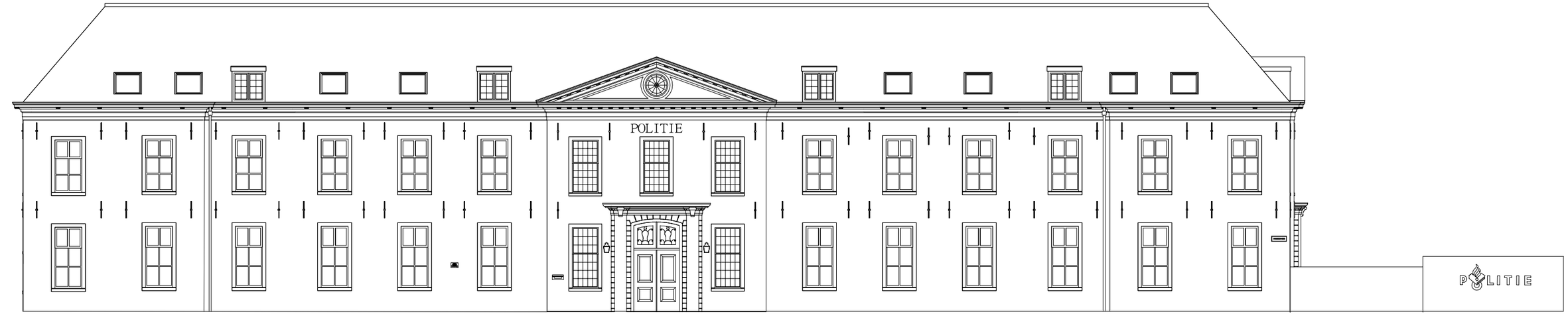
Pictures from the location visit to the Koudenhorn (own images).

2.4.2 ARTICULATION

In the original building volume from the 18th century, the wooden load-bearing structure is visible in certain spaces. In the canteen, the portal frames spanning the entire space can be seen (1). The roofstructure is visible in some spaces (2,3,4) and is only partly (5) visible where insulation has been added. The columns on image 6 are part of the original load-bearing structure, but within the new layout they seem out of place. The structure of the mazzanine floor can be seen where it does not reach from wall to wall (7). It appears to be a structure of concrete floors and columns. The load-bearing structure of the 1970's extension consists of reinforced concrete columns and beams. In the basement the columns are topped with a slab to carry the floors above (Dutch: paddestoelkolom). The imprint left by the original wooden formwork can be seen on the bottom of the ground-level floor.

2.5 SKIN

2.5.1 FACADES

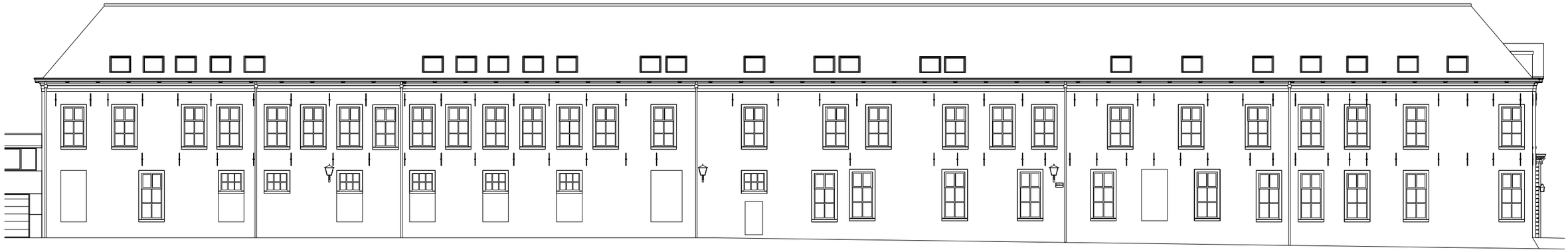


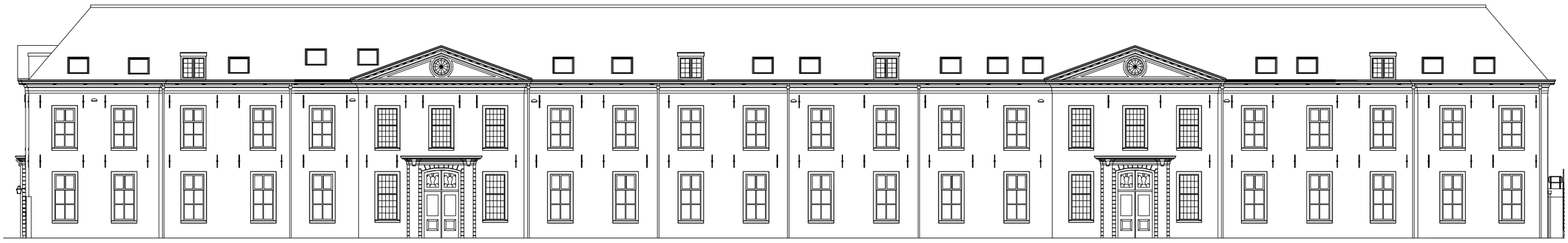
Facade main building Koudenhorn (above) & Bakenessergracht (beneath)

0 25M

2.5 SKIN

2.5.1 FACADES



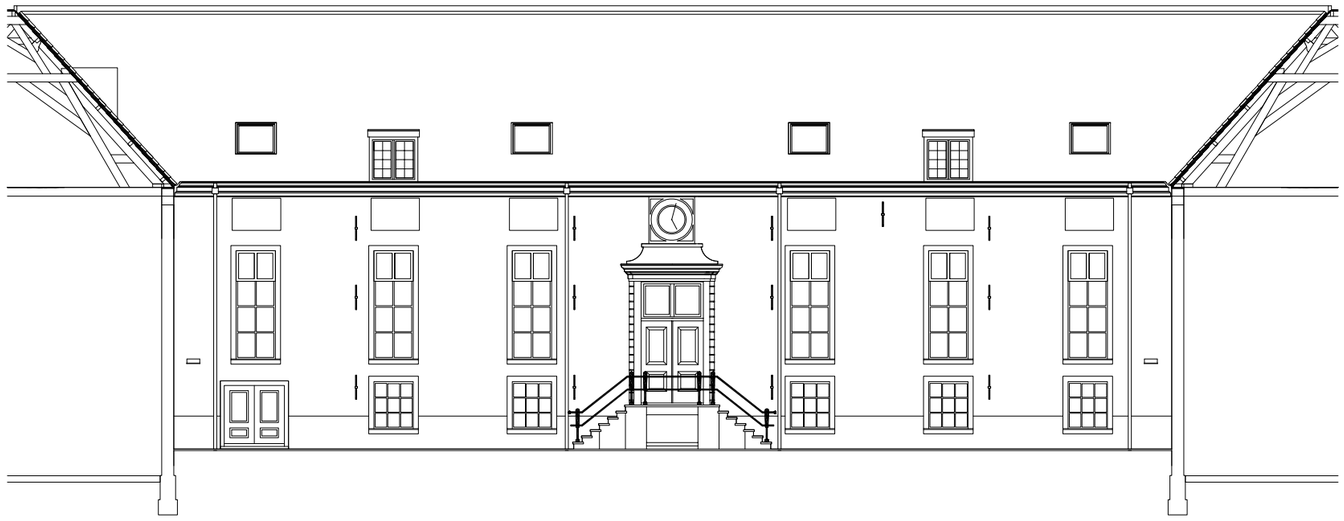


Facade main building Zakstraat (above) & Nieuwe Gracht (beneath)

0 25M

2.5 SKIN

2.5.1 FACADES



Facade main building courtyard side Koudenhorn (above) & courtyard side Bakenessergracht (beneath)

0 25M

2.5 SKIN

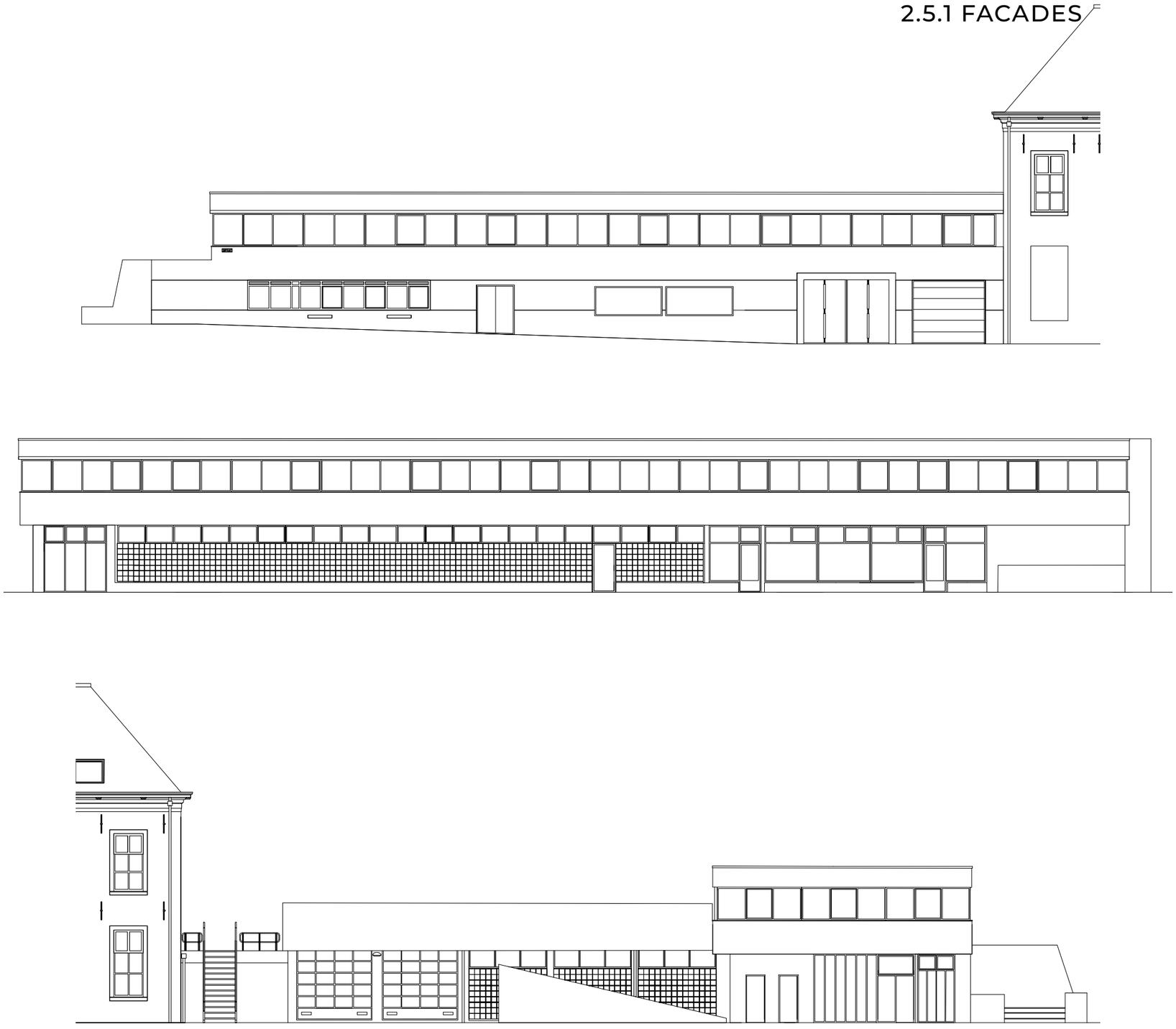
2.5.1 FACADES

Facade main building courtyard side Zakstraat (above) & courtyard side Nieuwe Gracht (beneath)

0 25M

2.5 SKIN

2.5.1 FACADES

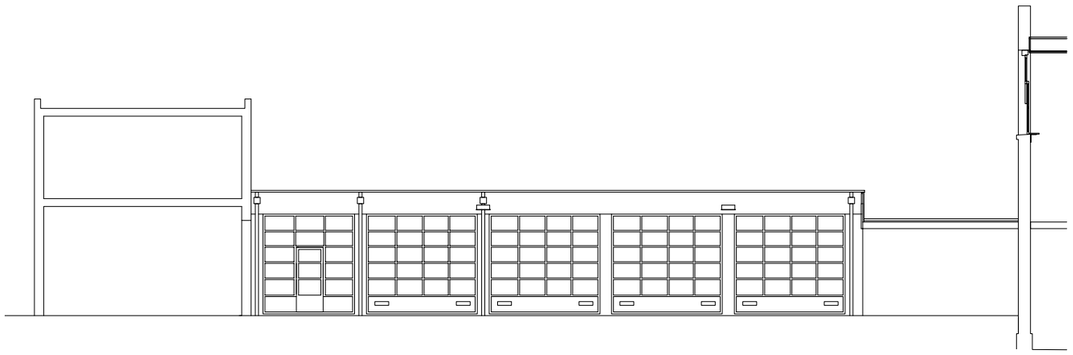


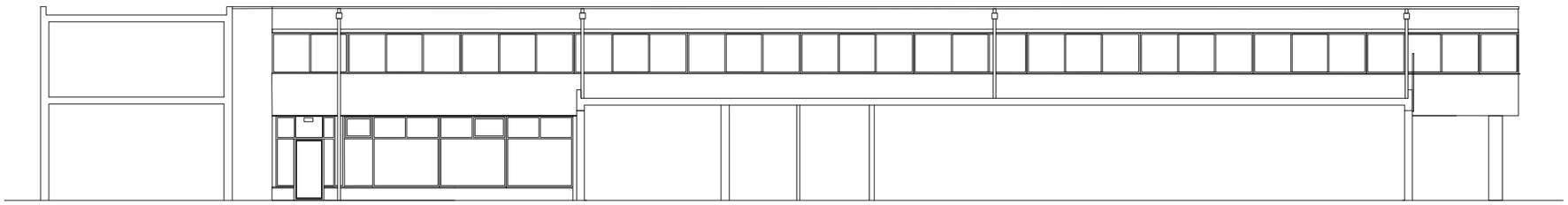
Facade extension Zakstraat (above), Bakenessergracht (middle) & Nieuwe Gracht (beneath)

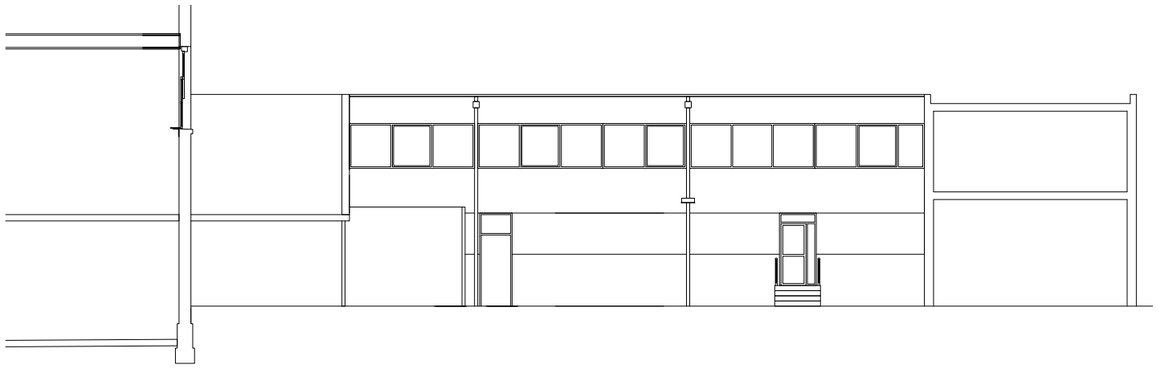
0 25M

2.5 SKIN

2.5.1 FACADES



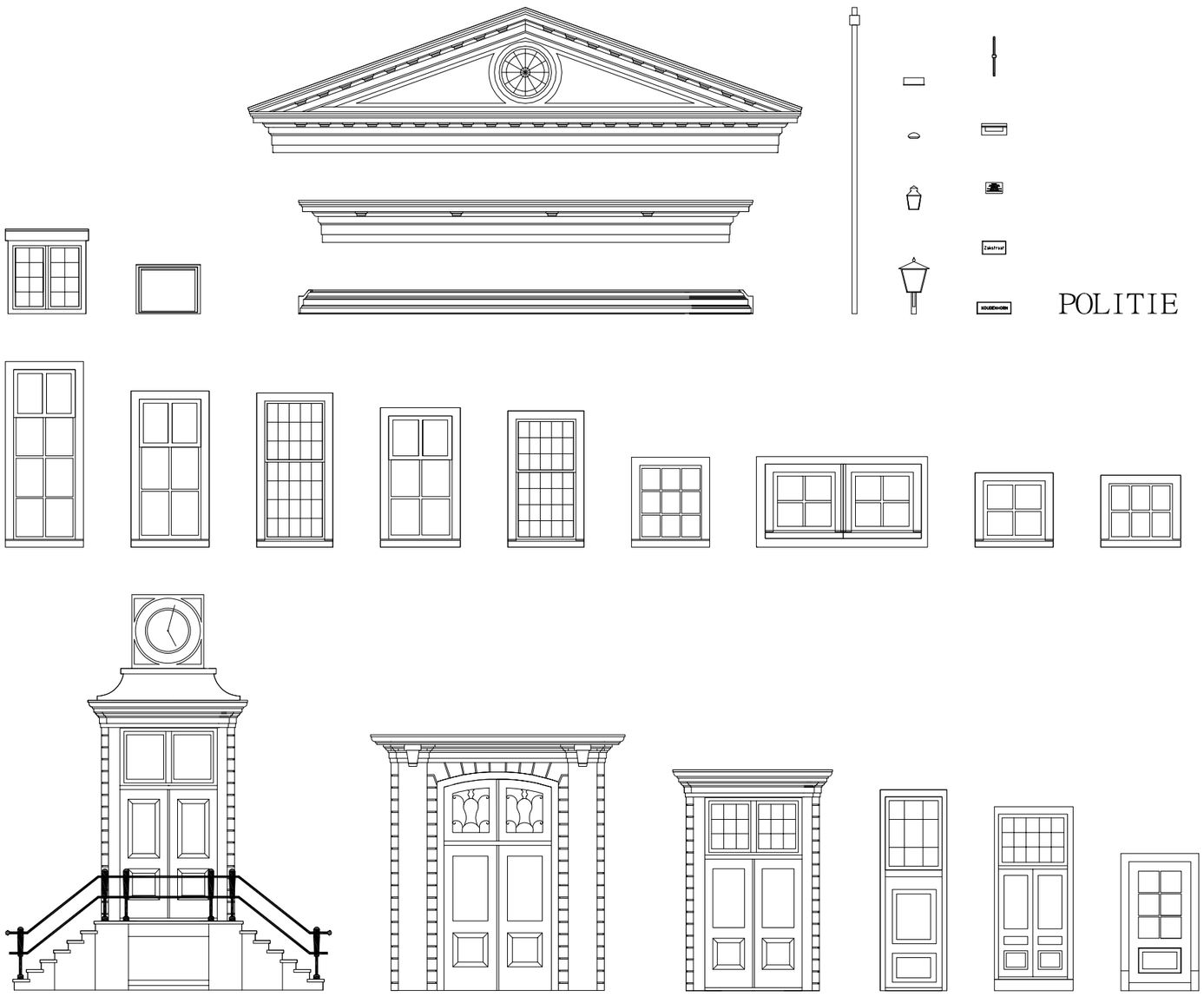




Facade extension courtyard side Nieuwe Gracht (above), courtyard side Bakenessergracht (middle) & courtyard side Zakstraat (beneath)

0 25M

2.5 SKIN



2.5.2 BUILDING ELEMENTS FACADE

The building elements of the main building are visible on the left. At the bottom are the doors. In the middle, the façade windows used. The top row shows the skylights, ornamental edges, gutters, lamps and other elements. Many different types of each category have been applied, and they fit together quite well. However, the roof window is a deviation from this. This element has a functional design. In addition, many elements contain decorative finishes, such as decorative edges, tympani, rod arrangement and profiling.

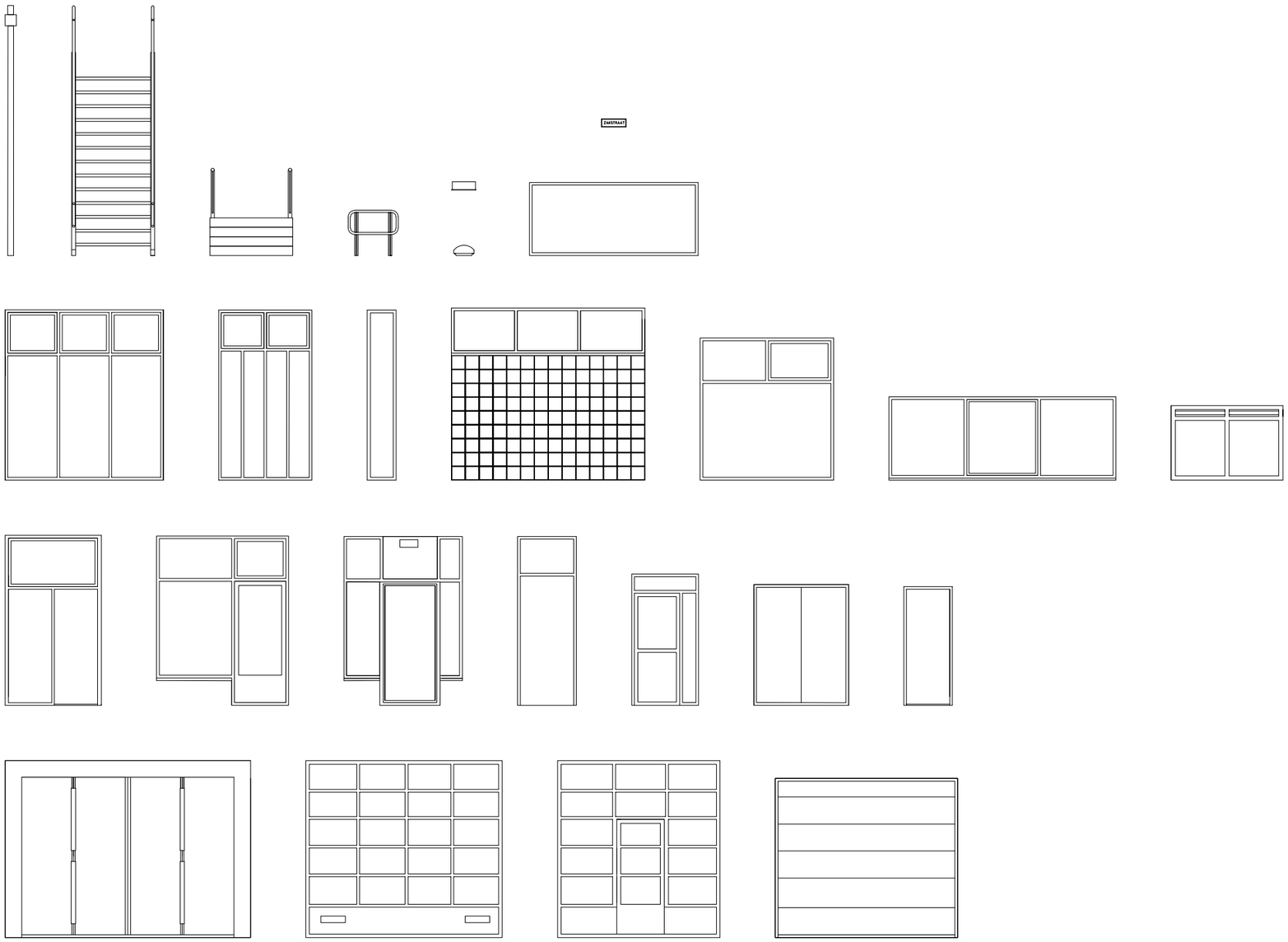
Building elements in the facades of the main building

0 10M

2.5 SKIN

2.5.2 BUILDING ELEMENTS FACADES

The building elements of the extension are visible here. At the bottom are the garage doors. In the row above, the doors used. In the third row, the façade windows. At the top are gutters, stairs, landings, balustrades, lamps and other elements. Of each category, many different types have been used, which fit well together. The elements are designed very functionally and do not have any ornate finishes. These elements contrast strongly with the more decorative elements of the main building.



Building elements in the facades of the main building

0 10M

2.5 SKIN

2.5.3 CONTRAST, COLOUR AND TEXTURE

Looking at the south facade of the Koudenhorn building complex the contrast between the two parts of the building becomes immediately apparant. The most obvious difference is in the size; the original 18th century building volume is both longer and higher than the extension from the 1970's. Secondly, there is a difference in materials. the facade of the original volume is made up out of brickwork, whereas the extension has a concrete facade. The colour of the brickwork is that of the material itself, with some discolouring caused by age. The concrete facade has two colours painted over it since its construction. The old bricks have a course texture. The concrete itself has some roughness to it, but relative to the brick it is quite smooth. The concrete facade has been textured by the addition of alternating protruding and set-back vertical strips. This vertical orientation contrasts with the horizontal orientation of the brickwork facade.

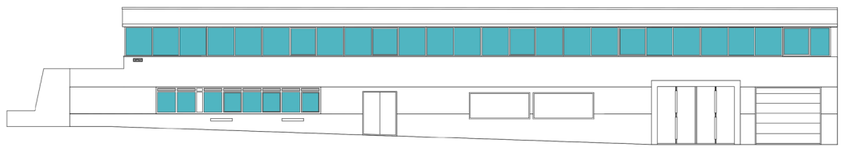
Elevation Zakstraat (south elevation). Adjusted drawing from SBT analysis.

0 10M

2.5 SKIN

2.5.4 TRANSPARENCY OF THE FACADES

The glass surface of the facade openings is coloured on the left. This illustrates the degree of transparency of the main building and the extension. The degree of transparency in the main building is less than that of the extension. In addition, the individual areas of glass in the main building are much smaller. This is partly due to the improved techniques, which made glass surfaces larger.

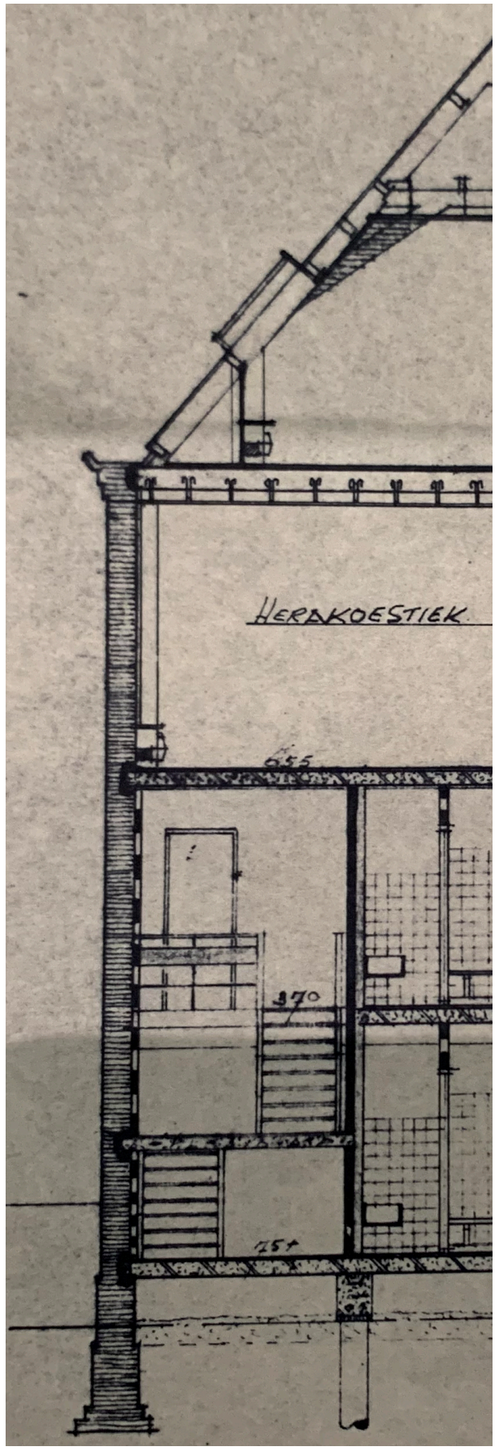


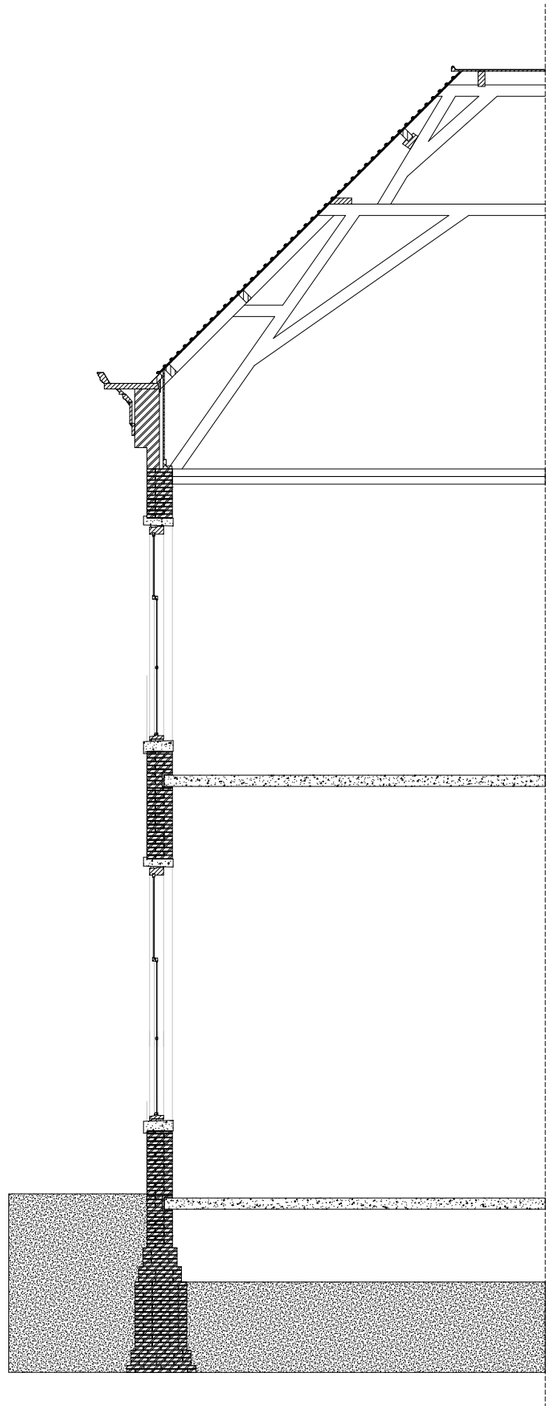
Transparency of the main building Koudenhorn facade (above) and extension Zakstraat facade (beneath)

0 25M

3. BUILDING TECHNOLOGY

3.1 BUILDING PHYSICAL ANALYSIS





Doorsnede F-F, Noord Hollands Archief, (1971).

3.1.1 CHARACTERISTIC SECTION

Basis for the section

Since there were a limited ammount of drawings available, the following section is based on drawings from the 1970s, retrieved from the Noord Hollands Archief in Haarlem. Since only the interior has been partially altered during the 2004, it is highly likely that the construction is mostly the same. the provided drawings from the archive focussed mainly on specific sections were the building diverges from its main structure. The new section that is shown on the right therefor does not exactly match with the drawing from the 1970s since it represents a characteristic section.

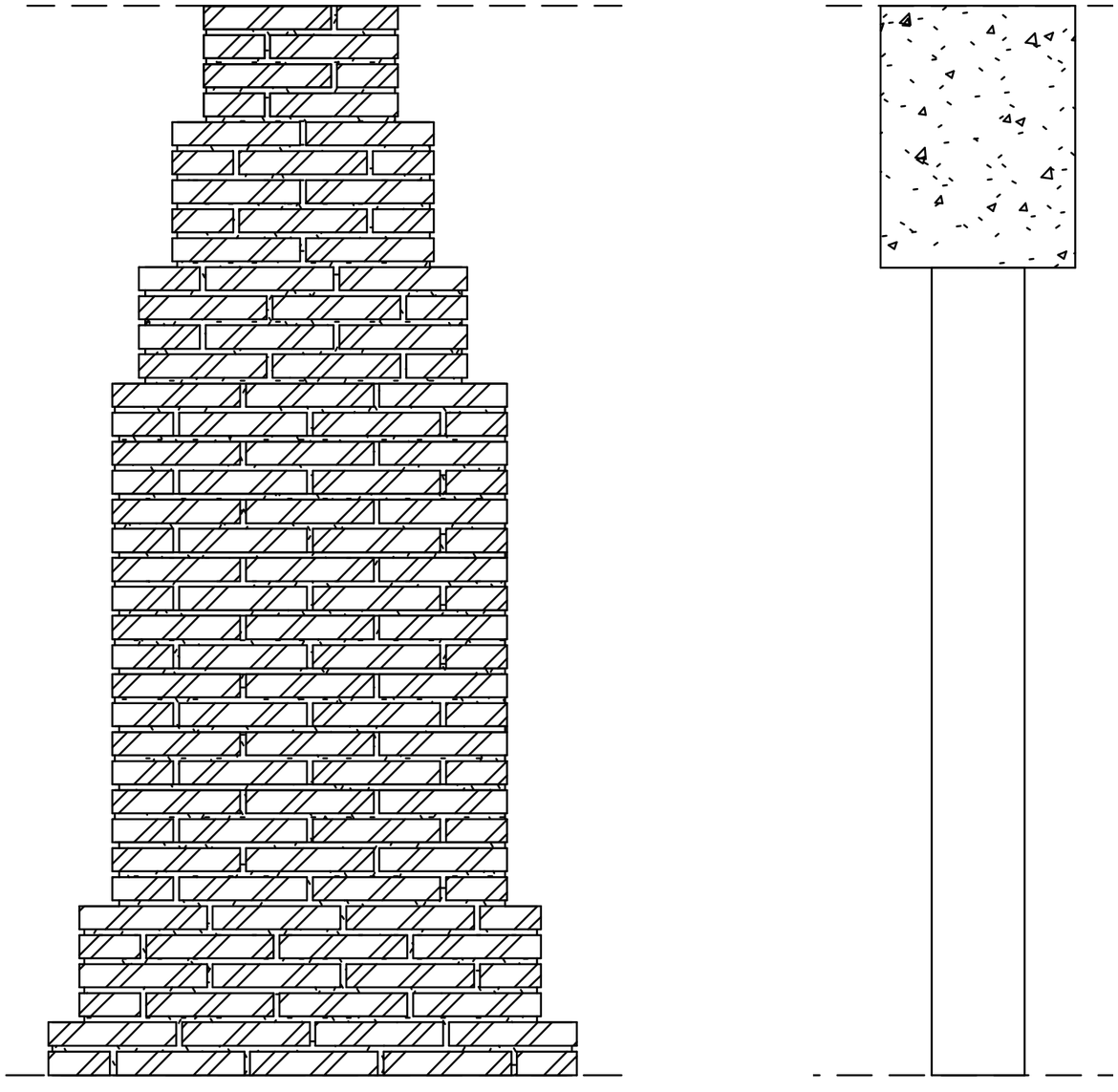
The new section

The new section shows the main build up of the carrying exterior wall of the building from its foundation to its roof structure. The section shows how the foundation is built up, how the windows are positioned in the facade, how the floors are attached to the facade, and how the eaves are detailed. In the next sub chapter , these details are further highlited.

Insulation, ventilation and heating.

It is highly likely that the interior finish of the building changed during the renovation in 2004. Although it is unfortunately unknown how the interior is constructed now, a visit to the building provided some insights. First of all it is certain that the building has been insulated on the inside. The window sill is currently significantly larger than it appears to be on the drawings from the 1970s. Furthermore, the beam structure in the roof is currently only partially visible. This could indicate that the roof was also insulated from the inside. heating is mainly distributed by adding radiators underneath the windows. While the ventilation ducts weren't visible, it could be seen that a new systemic ceiling was added. It is likely that the ventilation ducts are positioned above this ceiling.

3.1 BUILDING PHYSICAL ANALYSIS

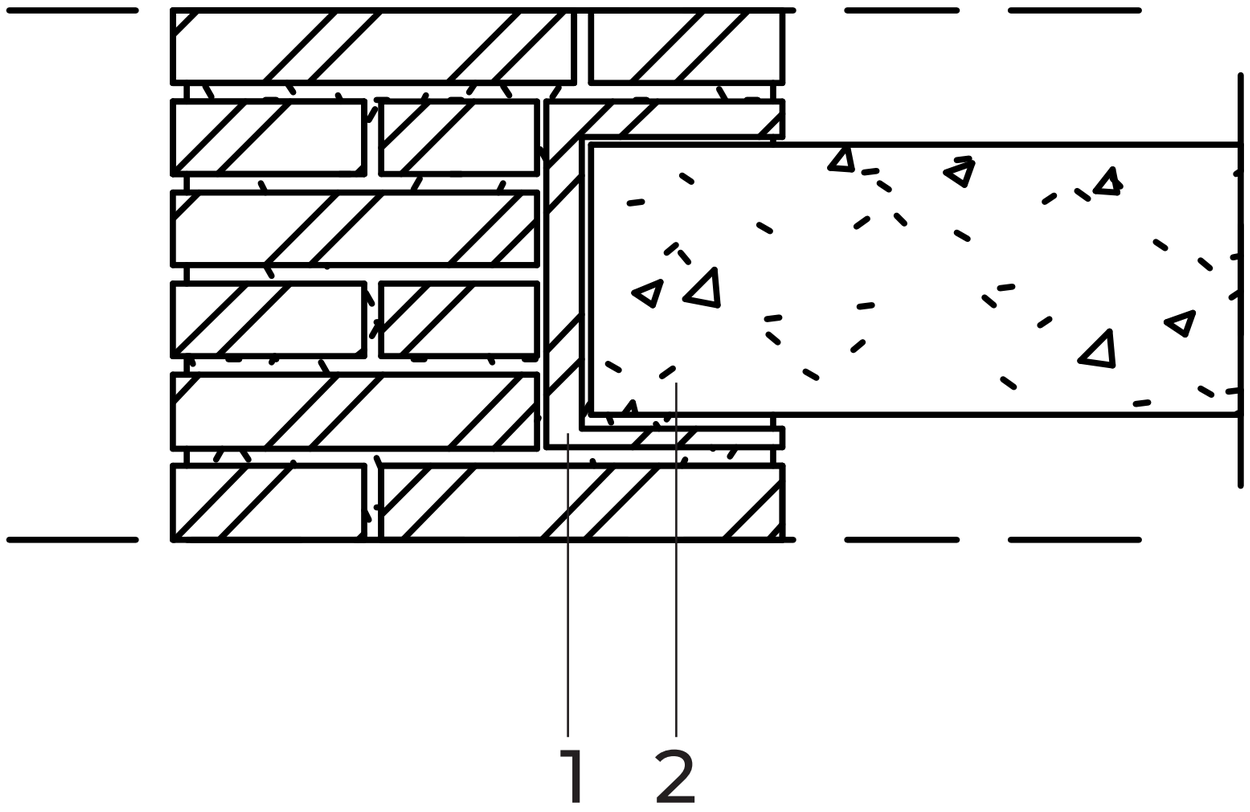


3.1.2 FOUNDATION DETAIL

Detail: brick foundation

The brick foundation still exists at the exterior carrying walls. The measurements of the brick are nown and are 220 mm in lenght, 105 mm in width and 40 mm in height. The drawings from the 1970s showed that the wall had a thickness of 360 mm. Taken into account that there is probably some form of a finish material on the internal side of the wall, it was deducted that the masonary was applied in a 1 and a half stone thickness. (220 + 105+ a joint of 10 mm = 335 mm). The resulting masonary structure can be seen on the left side of the page. While initially an assumption was made that the foundation rested on wooden poles, as is common in the city of Haarlem and Amsterdam, it was later discovered that the building is exactly located on the border of platue of hard sand which is located in Haarlem. In conclusion the brick foundation rests on sand and not on wooden poles. The brick foundations were deconstructed in the centre of the building and were replaced by concrete beams that rest on steel foundation columns.

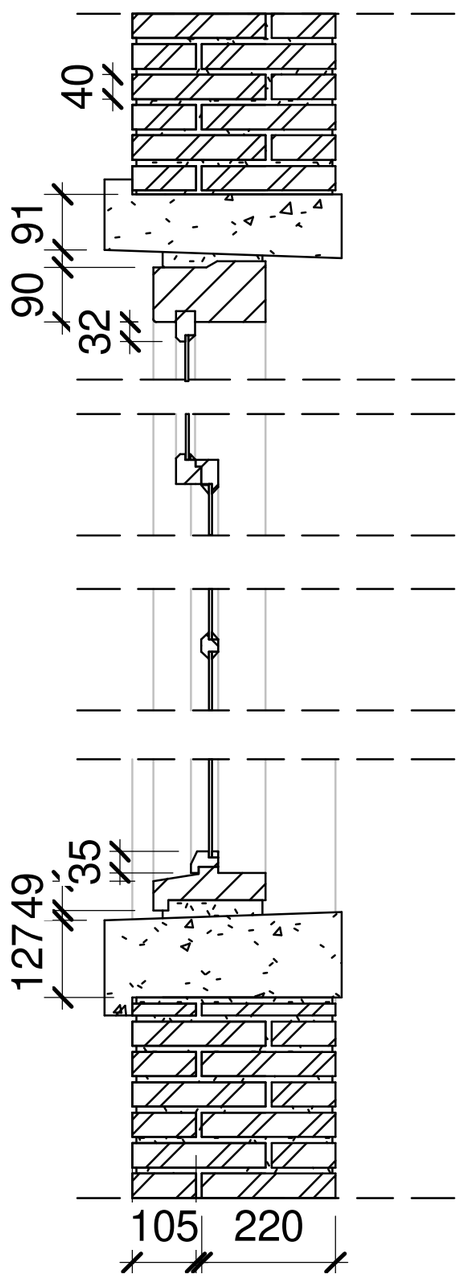
3.1 BUILDING PHYSICAL ANALYSIS



3.1.3 FLOOR DETAIL

Detail: New concrete floor integrated in brick wall
From the old construction drawings it is known that the floors used to consist of wooden beams. During the 1970s these beams were replaced by concrete floors which were reinforced in two directions. The dimensions of both the original wooden beams and the new concrete floors are unknown. It is however highly likely that the original wooden beams were higher in height than the new reinforced concrete floors. Some masonary was taken out to detach the wooden beams. The masonary had to be reconstructed which can be seen at point 1 in the image. The placement of the new floor can be seen in point 2.

3.1 BUILDING PHYSICAL ANALYSIS

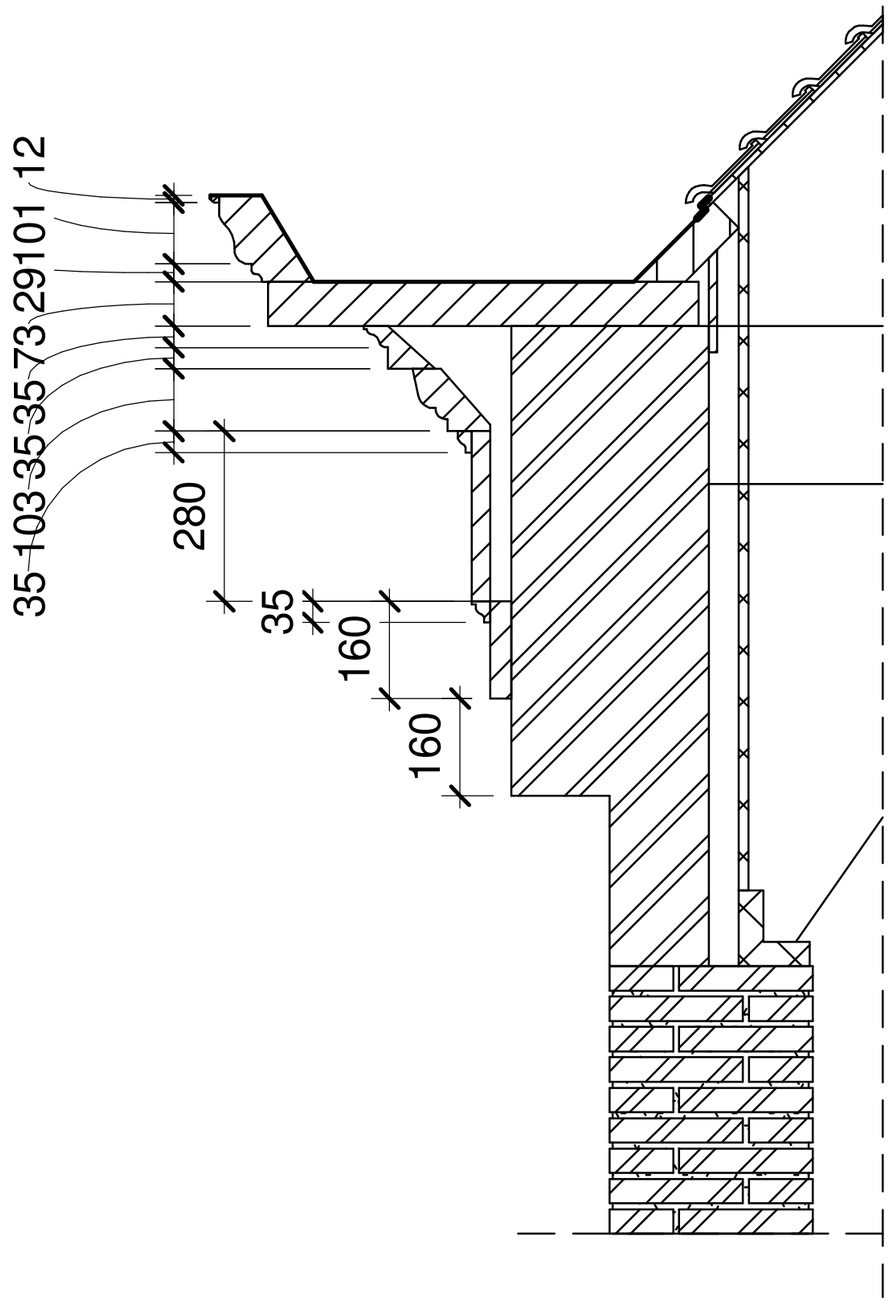


3.1.4 WINDOW DETAIL

Detail: positioning window in the facade

Now detailing was available of the window frames. the new datails are therefore mostly based on the 1:100 sections from the 1970s and the observation from the outside. Since the height of the masonary was known, the height of the window frame and sill elements has been estimated based on this height. The shape of the window elements has been largely based on reference details of similar buildings from the same time period. It can be seen that the window is constructed as a sliding window.

3.1 BUILDING PHYSICAL ANALYSIS

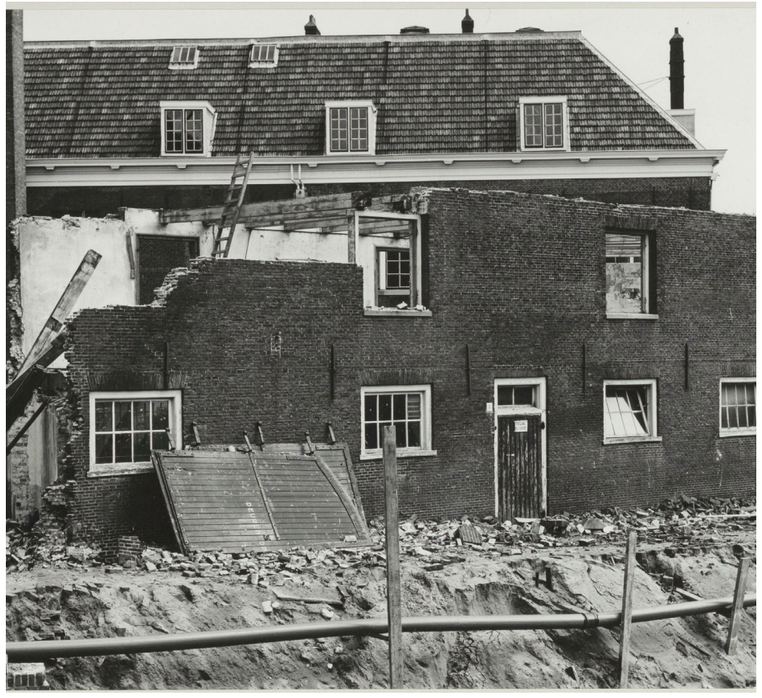


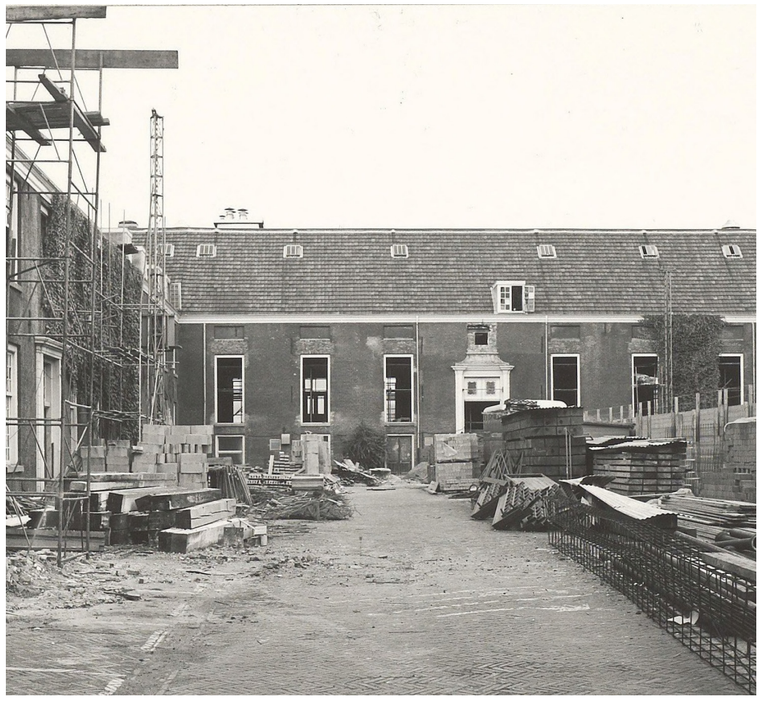
3.1.5 ROOF DETAIL

Detail: eaves

The only detail that was provided, was the detail of the window eaves. Therefor the precise measurements of this part of the building are known. It can be seen how the eaves consist of woodcarved elements that are atached to a brick element. An extra wooden corner element was placed upon the brickwork to which the beams of the roofstructure are connected.

3.1 BUILDING PHYSICAL ANALYSIS





Photos of building under construction, from left to right: 1968 - 1970 - 1972 - 1973. Photos retrieved from Noord-Hollands Archief (1971).

3.1.6 PICTURES OF HOW IT IS BUILT

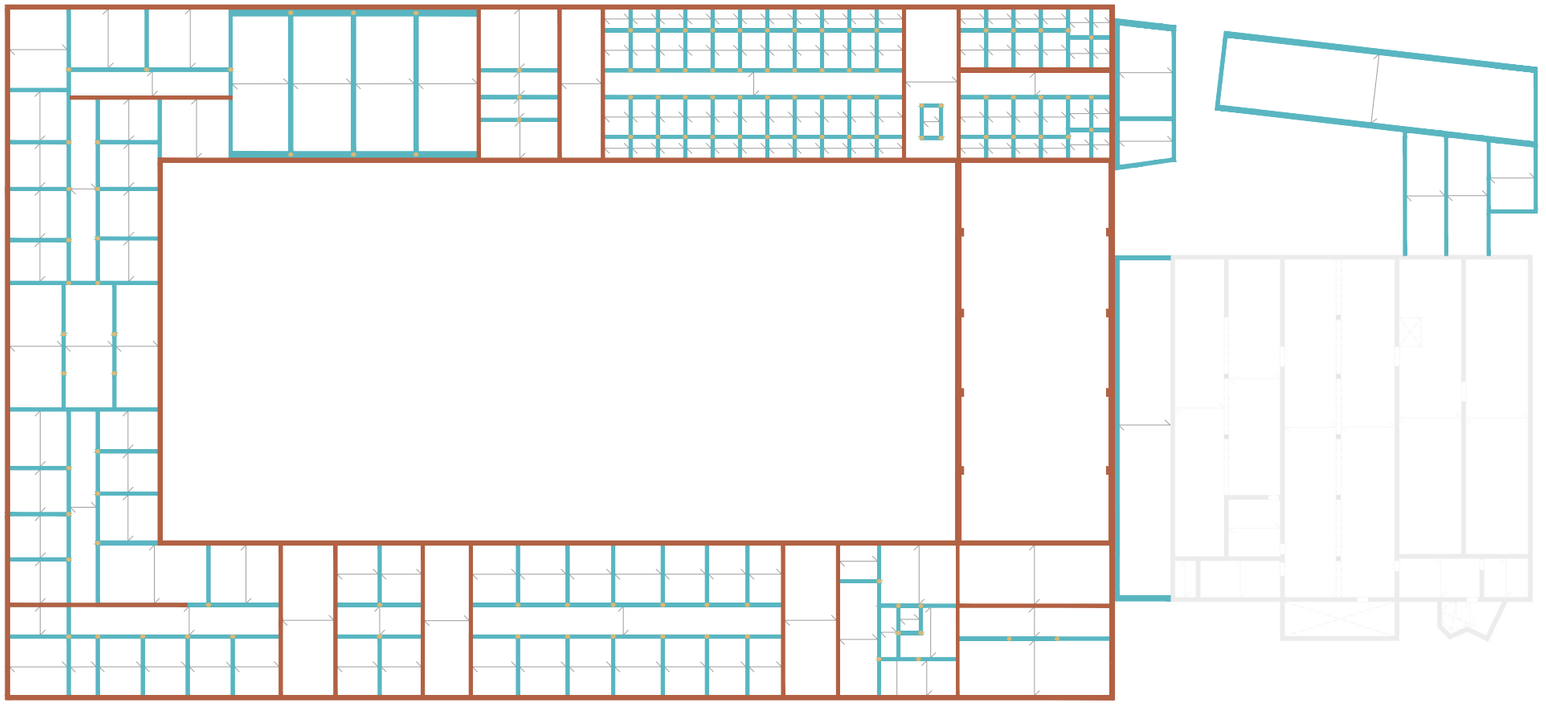
The pictures are showing different phases during the renovation of the building in a period of 1968-1973. The first picture is showing the start of the large scale renovation in 1968. They started with the demolition of the outbuilding from 1770, because it had to make place for a new building for the traffic police. In 1970 they started construction this building, as shown in the second picture. Here you can see the concrete loadbearing structure of the addition. After they completed this phase of the renovation, they started with the old building. Both picture on the bottom are showing the major changes they made to building, especially on the interior. They reconstructed this facade to the original drawing from 1770. On the last picture the damage to the roof structure caused by a big fire is shown.

3.1 BUILDING PHYSICAL ANALYSIS

3.1.7 FOUNDATION

The foundation of the building will be divided into two parts; the old building from 1770 and the 1970s addition. In the old building, the original brick foundation is still present at the exterior walls and at some places inside the building were originally brick walls were placed on. Because the soil underneath the building consists out of hard sand, this brick foundation is placed directly on the surface without using piles. Originally the floors were also placed directly on the sand, as still can be seen below the dining hall on the right side of the building. This method is called natural foundation. When the building was renovated in the 70s, new concrete floors were added which had influene on the foundation. The existing foundation was not sufficient anymore, so they added a system of concrete beams with steel foundation pipes. Although at first sight this system seems like a maze, some rhythm can be identified. In most parts of the building a centred hallway structure is used, which results in a grid of two lines with piles. In the top-right corner a grid of four piles is used, because the weight of the heavy walls of the cell blocks had to be carried. The old brick foundation on the interior is still been used to carry the 'new' concrete floors.

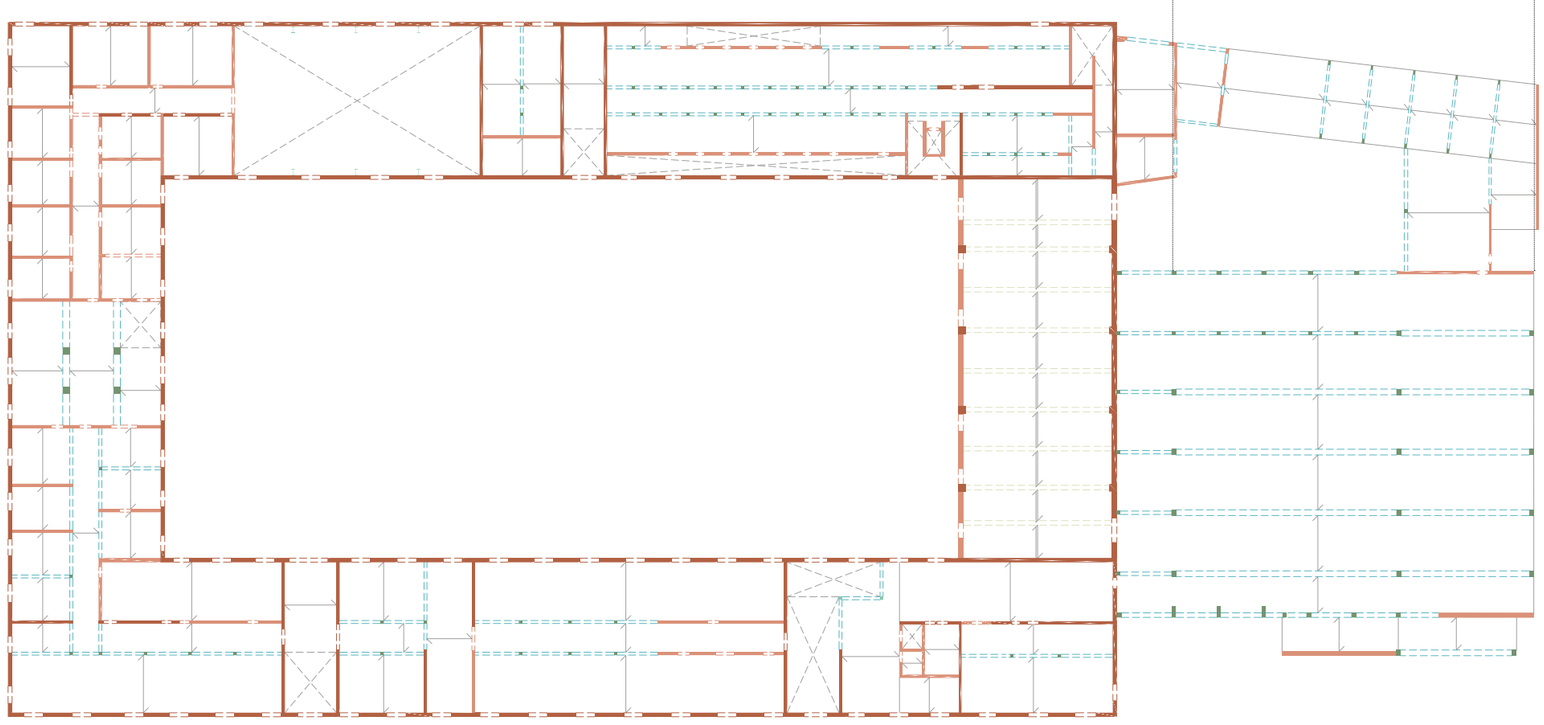
The 1970s addition is also placed on sand and because of that, the concrete foundation beams are placed directly on surface without using piles. Probably this could be done because of the fact this building was not to heavy. Most part of this addition is built on a basement; shown in the drawing on the bottom right. The foundation of this basement is constructed as one large slab without further use of concrete beams.



Strucutral plan foundation

3.1 BUILDING PHYSICAL ANALYSIS

Structural floorplan - basement



Structural floorplan - ground floor

0 15M

3.1.8 LOADBEARING STRUCTURE

The following structural floorplans are showing the structural elements on the related level and the floor system of the level above. For example, the structural floorplan of the ground floor on the bottom of this page is showing the structural elements on the ground floor and the floor system of the first floor.

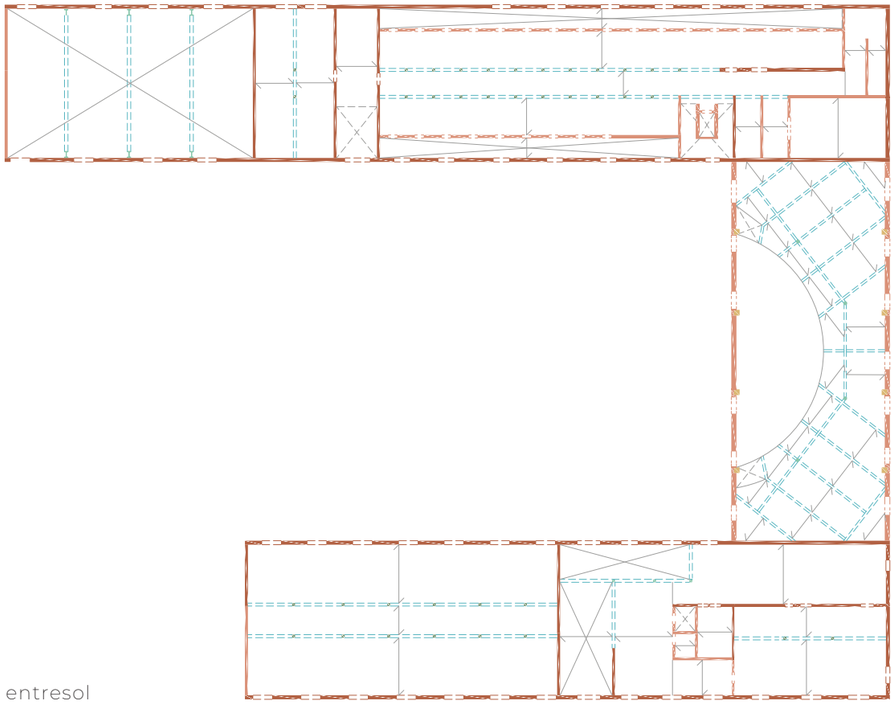
To start with the from bottom to the top, only the 1970s addition has a basement. Here, concrete structural walls and concrete columns are carrying the load of the concrete floors above. Some openings are for staircases. On top of this basement, a part of the addition is placed on. The structural system of this ground floor is based on concrete columns, beams and floors and the stability is ensured by structural concrete walls.

In the old building the original exterior and interior masonry walls are still used in the new structural system that is added in the 70s. These walls are coloured in dark red in the floorplan. In addition, concrete columns and beams are added to carry the load of the new concrete floors. At some places steel columns are used to create large open spaces. For example on the top-left of the building, where six HE500M steel columns are placed to create the sports hall. Another exemption can be found on the right side of the building, where the dining hall is located. Here original wooden beams are carrying the wooden floor. It is unlikely that the wooden beams are spanning approximately 13 meters, but the available drawings were not showing a clear system of columns underneath it. During an upcoming site visit this could be clarified.

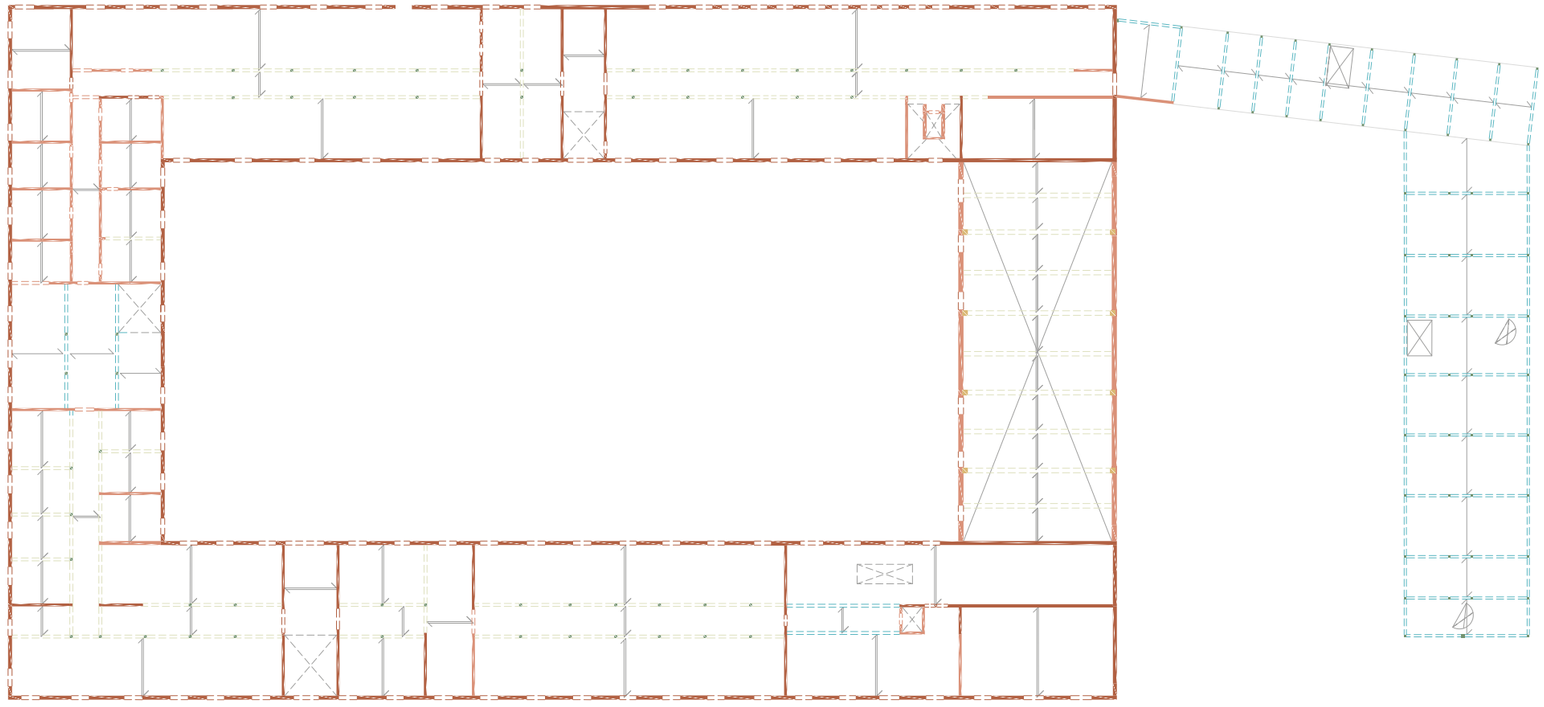
Legenda

- Original structural wall
- Structural wall
- Wooden beam
- Concrete column
- Steel column
- Concrete beam
- Span concrete floor
- Span wooden floor

3.1 BUILDING PHYSICAL ANALYSIS



Structural floorplan - entresol



Structural floorplan - first floor

3.1.8 LOADBEARING STRUCTURE

On some of the building an extra floor is added as shown in the top drawing on this page. Here the same system of concrete columns and beams as on the previous floor is continued. In the dining hall a new floor is added with the use of a steel frame of columns and beams. Part of the structure is resting on the exterior masonry walls. In this hall the original wooden portal frames are also visible and in the drawing coloured in dark yellow.

The first floor is again showing similarities with the floors underneath; the structure is consisting out of masonry walls, concrete columns and beams, but here the floor is made out of wood. The stability is provided by the capacity of the floors and walls to act as plane elements in both directions. On this level there is also a indoor connection with the 1970s addition on the top right corner. The structural system of the addition is based on concrete columns and beams. How the stability is provided is unclear within the information from the available drawings, but most likely wind cross-braces are taking care of this.

Legenda

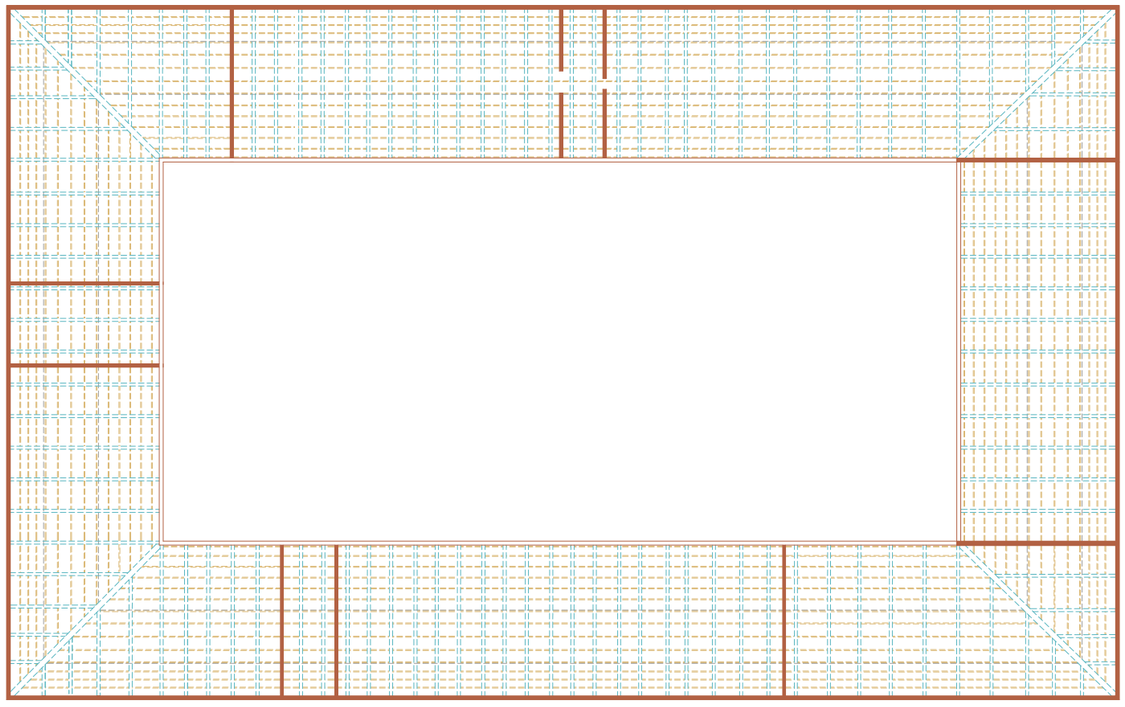
- Original structural wall
- Structural wall
- Wooden column
- Wooden beam
- Concrete column
- Steel column
- Beam
- Span concrete floor
- Span wooden floor

0 15M

3.1 BUILDING PHYSICAL ANALYSIS

3.1.9 ROOF CONSTRUCTION

This floorplan is showing the second floor and the roof structure. At some places the masonry walls are reaching to the top and providing extra stability to the roof. Wooden portals are spanning the full width of the building and are placed on the exterior masonry walls. The portals are meeting each other and the corners, where a double wide portal is bringing the load to the structural walls. The grey line is showing the two ridge lines of the roof; here it becomes clear that both sides of the roof are not similar. The side that is pointing to the courtyard is longer than the other side. This is the reason why in the drawing the masonry walls on the outside are coloured, because here the wall is reaching higher. The yellow lines are showing the wooden purlins between the portals. The portals and purlins together are providing the stability by forming plane elements in the roof.



Legenda

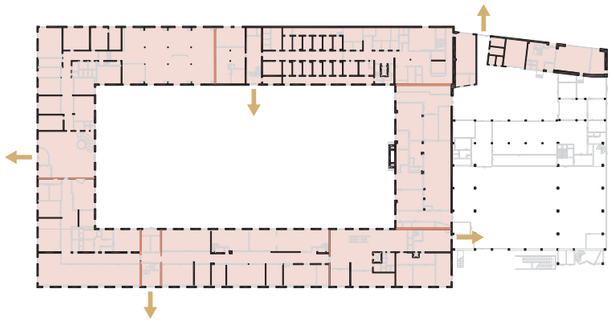
- Original structural wall
- Wooden perlins
- Ridge line
- Wooden portal

0 15M

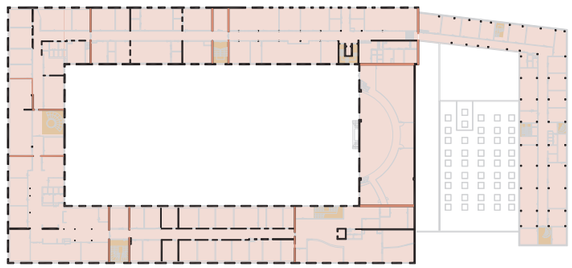
Structural floorplan - second floor with roof

3.1 BUILDING PHYSICAL ANALYSIS

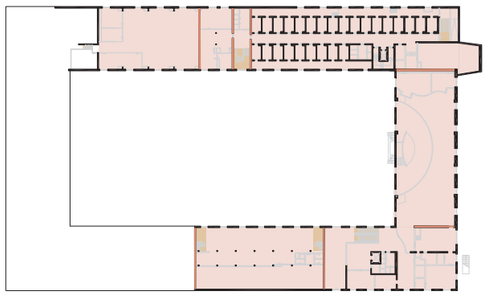
Ground floor



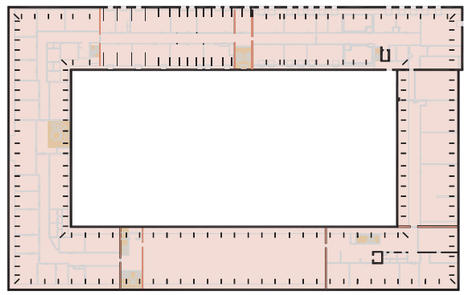
1st floor



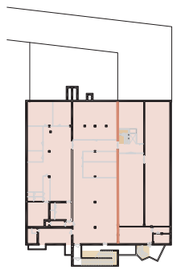
entresol



2nd floor



basement



3.1.10 FIRE COMPARTMENTS

Basis for compartmentisation

The exact compartimentisation of the Koudenhorn building is unknown. Based on Dutch building regulations, a fire compartment can be inbetween 500m2 and 1000m2. Based in these measurements the fire compartment drawings have been made which can be seen on the left.

The compartments

Each compartment is connected to one or more staircases. Sometimes a compartment is seperated by a solid wall. At some points it can be seen that there is a door which seperates the hallways. It is likely that some kind of fire measures have been taken into account when placing these doors. whether they are fire resistant for 30 minutes or for 60 minutes is unclear. The new addition has its own compartments and escape routes. A problem that now occurs is that some compartments have there main exit route ending on the courtyard. With the 1970s transformation, this coutyard was not directly connected to the surrounding streets anymore. Therefor users of the building will have to either exit the building by going from the courtyard to another compartment or by exiting through the new addition. since the exact compartmentisation is still uncertain, this problem might not be present at all. Further information needs to be gathered to determine the exact exit routes.

Legenda

- Fire resitant wall/door
- Fire compartment
- Exit route

0 30M

4. BIBLIOGRAPHY

4. BIBLIOGRAPHY

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Former Diaconiehuis, barracks and police office

Research done for Delft University of Technology
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