

## MASTER

### Thornico transformation a connecting intervention

van der Wielen, F.T.G.

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# graduation report

## thornico transformation a connecting intervention

**keywords:**

Jan Hoogstad, seventies office building, transformation,  
multitenant building, concrete,

**Fabian van der Wielen**

0783045

**Eindhoven University of Technology**

Department of Architecture, Building and Planning  
Graduation Studio RTM

**graduation committee**

prof.ir. P.J.R. Diederer  
ir. A. Peters - Van den Heuvel  
ir. R.R.W.I. Kindt

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# abstract

Thornico Building is a 1970's office building in Rotterdam designed by Jan Hoogstad, that no longer meets today's requirements. The building deals with problems on building physics, installations, user needs, user experience and representation. The buildings area, located at the Westblaak and Hartmansstraat, is introvert and forming a boundary between different area's in the Rotterdam city center.

In order to improve the building and the urban setting, this design assignment and research will focus on Jan Hoogstad's original architectural language, urban context and a new program. Thornico and its context will be analysed through a qualitative and comparative analysis.

The goal is to understand the challenges and all interests that affect the complexity of the design brief and solve the identified problems in a design. The result is the design of a transformation from Thornico to a extravert, connecting and multi-tenant building and urban context, with consideration of the Jan Hoogstad architectural language.



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*fig. 1 - Thornico (Van Duivenbode, 2016)*







# introduction

# theme introduction

The transformation of existing buildings will be one of the main focuses of future architects. It will be our task to design these rezoning, re-use and restructuring projects in a responsible, meaningful and mostly sustainable way. This graduation studio focuses on this particular topic in architecture: transformations.

The architectural language of a building is the autograph of the architect. Hoogstad is considered a rationalist architect, therefore the analysis on architectural language will focus on elements like order, structure and repetition and exceptions.

In a time of economic growth and welfare, the 1960's and 1970's, a lot of office buildings were built. Large scale projects, efficient building methods and functional, rational design led to a characteristic typology in office buildings.

Over time, the demands for (office) buildings have changed. Most of the buildings in this typology of seventies office buildings, that were functioning fine back then, do not anymore in 2017. To give these buildings a better place in today's society, a transformation is needed.

The main target of this graduation studio, is to study the transformation of these seventies office buildings to a building that fits today's requirements in all possible ways. In a studio of nine students, four selected seventies office buildings in Rotterdam are studied. This report is about the Thornico Building, located in the city center of Rotterdam.

Thornico Building is a large scale office, designed by architect Jan Hoogstad. Since it was constructed in 1978, its characteristic size and appearance causing Thornico to be a remarkable presence. Through the years, the building has endured a lot of users and a lot of adjustments.

Thornico is now partially tenantless and experiencing the same problems as most seventies office buildings. In order to improve the building and the urban setting by transformation, this design assignment and research will focus on Thornico Building and its urban context, the architectural language and a new program.

# research introduction

Design choices for the transformation of Thornico should be grounded on the basis of research. Research in design for buildings can be descriptive, correlational, semi-experimental, experimental, review and meta-analytic. Case studies, (naturalistic) observations, and (literature) reviews can help to find arguments to make choices in the design process.

In transformation projects the architect needs to find a position to relate to the existing object. Key element is the architecture of this object. Should the position of the architect be humble and respectful, or radical and impolite? Where on this spectrum does the architect find himself, and why? These thoughts resulted in the research question: How can Thornico be transformed to a multitenant building in accordance with the original architectural language?

This research question 'How can Thornico be transformed to a multitenant building in accordance with the original architectural language?' needs qualitative research methods to be answered. Analysis to the existing building, the urban context and the architectural language will provide insight in this topic.

The research question can be divided into subcategories. Qualitative analysis will be performed for Thornico Building in general, its necessities for transformation, its possibilities for transformation, the urban context in general, the urban necessities for transformation, the urban possibilities for transformation, the architect Jan Hoogstad and his architectural language.

The criteria for the analysis to architectural language are to be found in the literature research to Hoogstad and may be supplemented by the findings of both interior and exterior characteristics of two case study projects by Hoogstad: Thornico building and Moret & Limperg building.

# report structure

This report will mainly focus on the motivations and argument to make choices in the design proces. Relevant analysis and influcening elements will be mentioned and elaborated, resulting in the design of the transformation of Thorico.

Research and analysis to topics such as Thornico Building in general, its necessities for transformation, its possibilities for transformation, the urban context in general, the urban necessities for transformation, the urban possibilities for transformation, the architect Jan Hoogstad and his architectural language will be eleborated first.

The result, which is the design, will be clarified with text and drawings: plans, elevations, fragments, sections and visual impressions.

The design will be discussed, followed by the report conclusion and the bibliography.





# thornico



# thornico

Thornico Building, design by architect Jan Hoogstad and built in 1978, is a large office building at the Westblaak in Rotterdam. At first sight, a very introvert and rationally designed building with a strictly determined architectural language. Yet the building has a lot of exceptions in its seeming rigid architectural rules.

Thornico Building nowadays is owned by family owned business Thornico. This global group of companies is active in several business areas, being: food & technology, cargo shipping, sports & fashion, real estate & financing. The 34.000 square meters building along the Westblaak is part of the real estate department of the company and currently offers 29.000 square meters of rentable office space. Besides, a parking garage of another 20.000 square meters facilitates an enormous amount of parking spaces. This contributes, together with the location along the Westblaak, to the building's good accessibility.

The building's volume is very much in line with the row of large office blocks along the Westblaak street although the design by Hoogstad is one of the biggest in this sequence. While filling up half a building block, Thornico is clearly recognizable in its context. The rigid concrete façade system adds up to this remarkable appearance. Besides its large scale, the office building even has a quite heavy, closed and introvert appearance due to these façade elements.

Although the building appears to be very closed nowadays, a lot of attention was given to its public character, in the original design. A public arcade on ground level and even partly on the first and second floor is designed to invite visitors into the building. This arcade causes a more pleasant space for pedestrians along the crowded boulevard like street. So, even though the buildings function has always been of a private character, a remarkable public feature has been introduced by Hoogstad.

Quite an odd feature of the building is the roof of the main building volume. A mainly closed upper floor is provided a sloped roof, which reminds of a sort of typical Parisian roof. This roof is in contradiction with the building's rigid structure. The building's façade system is designed cleverly by implementing building services in it. Half of the façade's vertical ribs are in fact hollow, in order to accommodate piping and installations, mainly for ventilation purposes. The other half of these ribs cover the building's load bearing columns.

Recently, the buildings appearance changed slightly due to the current mindset of the Thornico company. With regard to what they call 'company karma',

the company tries to give something back to its surroundings whenever they profited from it. Therefore at the Thornico Building they implemented a concept in which the building would become a green lung within the inner city. This resulted in at that time the biggest green façade of Europe on the parking garage and green roofs on top of the buildings two towers.



*fig. 2 - Construction of Thornico Building (Groeneveld, 1976)*





*fig. 7- Hollow column detail*



*fig. 8- Facade element detail*



*fig. 9 - Interior space*



*fig. 10 - Interior corner exception*

# thornico necessities

Even though Thornico isn't even forty years old yet, it doesn't meet today's modern office building requirements anymore. On the topics of building physics, installations, user needs, user experience and representation there is need for improvements. These necessities are crucial factors that need to be taken into account in the assignment to transform the building.

The main complications of the current Thornico building, are related to building physics. The characteristic façade, was designed in an era in which thermic properties had less influence in building design. The façade is built with prefabricated panels that are hardly insulated: basically a large thermal bridge. Because of that, the interior spaces have a lot of climate problems. Spaces are generally warm in summer and cold in winter and take a lot of energy to be thermally controlled. Also, because of the thermal bridges, a lot of moisture problems appear close to window frames and interior surfaces close to the façade.

The integrated ventilation system, running through the hollow columns in the façade, cannot be regulated per floor. That means the amount of ventilation and the temperature of fresh air is set for all users, and can't be adjusted to the users' requirements.

Because of the prefabricated concrete façade elements and the relatively low floor height, only a small amount of daylight can enter the building. This causes oppressive and dark interior spaces. Also, the interior spaces and activities are not experienced from the outside street level. The building feels closed and introverted.

Functions in the building are divided per compartment per floor. Users of the building have no contact with users from other floors or compartments, except in the access facilities. The building is only accessible for users: it doesn't only seem introverted, it also functions introverted on both ground floor and upper floor levels.

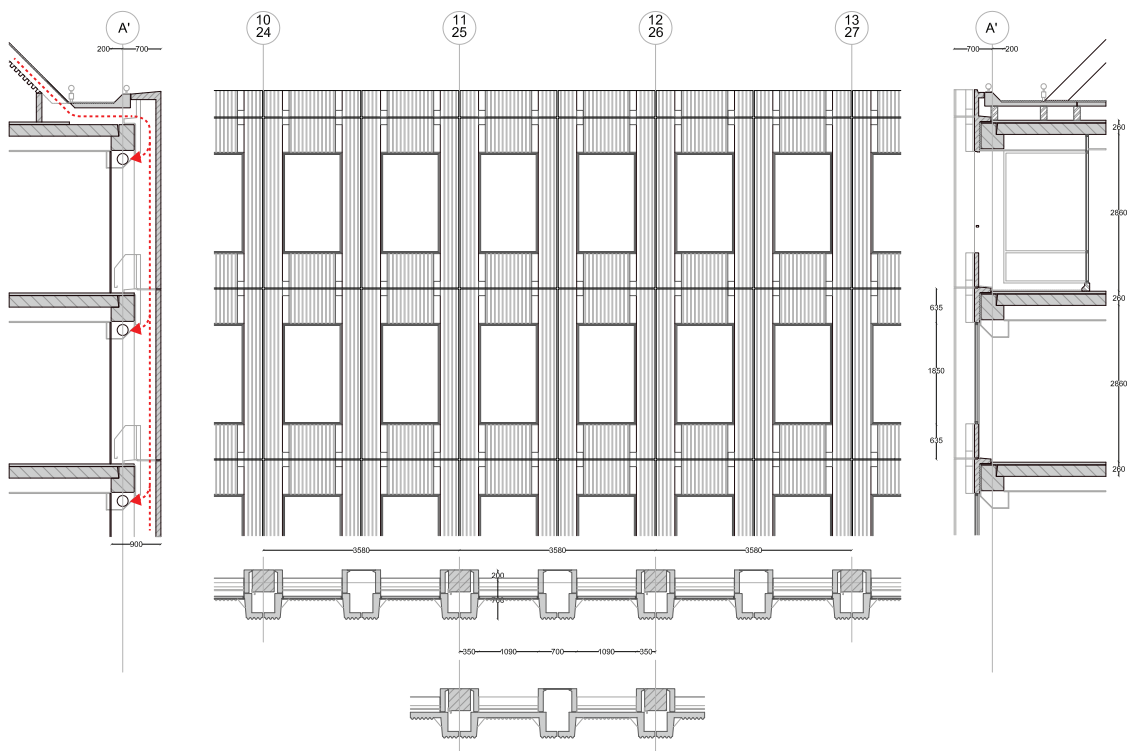


fig. 11 - Facade detailing with load bearing columns and hollow columns

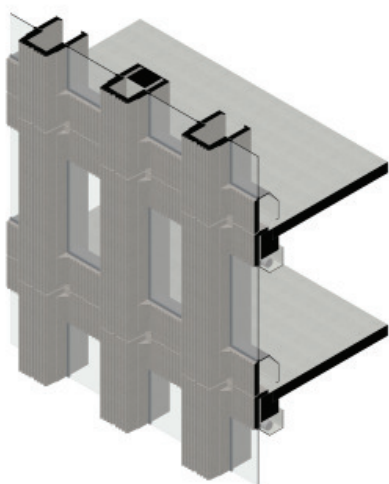


fig. 12 - Detail axonometry

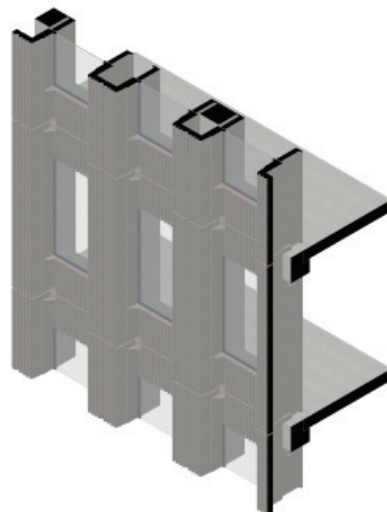


fig. 13 - Detail axonometry

# thornico possibilities

Thornico was designed as in an era when prefabrication was emerging. The buildings load bearing structure and facades are completely prefabricated, even though the building has some remarkable exceptions on its strict design grid.

Thornico was built with a prefab portal construction in the façade and in the center of the building. The concrete columns (400x400mm and 600x400mm) and concrete beams (400x470mm) are bearing the pre-fab concrete floors with a span of maximum 8800mm, causing a floor height of 3100mm with a maximum free height of 2900mm. Three concrete access cores take care of structural stability. Because of this prefab system, interventions can take place in most parts of the building.

The parking garage is built with a similar portal system, with a prefab TT-flooring beams. These TT-elements have a height of 550mm, resulting in a very low floor height. The free height is 2150mm, with maximum peaks of 2600mm. These heights might cause functional problems for a certain program other than parking, and need to be solved.

The façade of Thornico is also completely made of prefab panels, which are directly adjusted to the prefab portals. Therefore, these prefab panels can easily be removed.

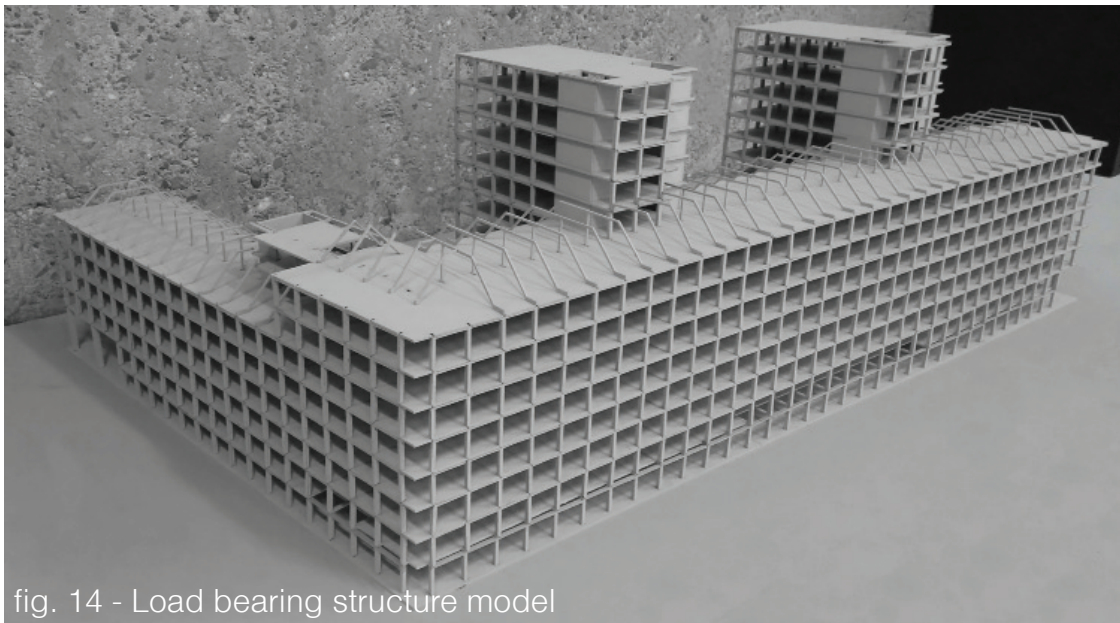


fig. 14 - Load bearing structure model





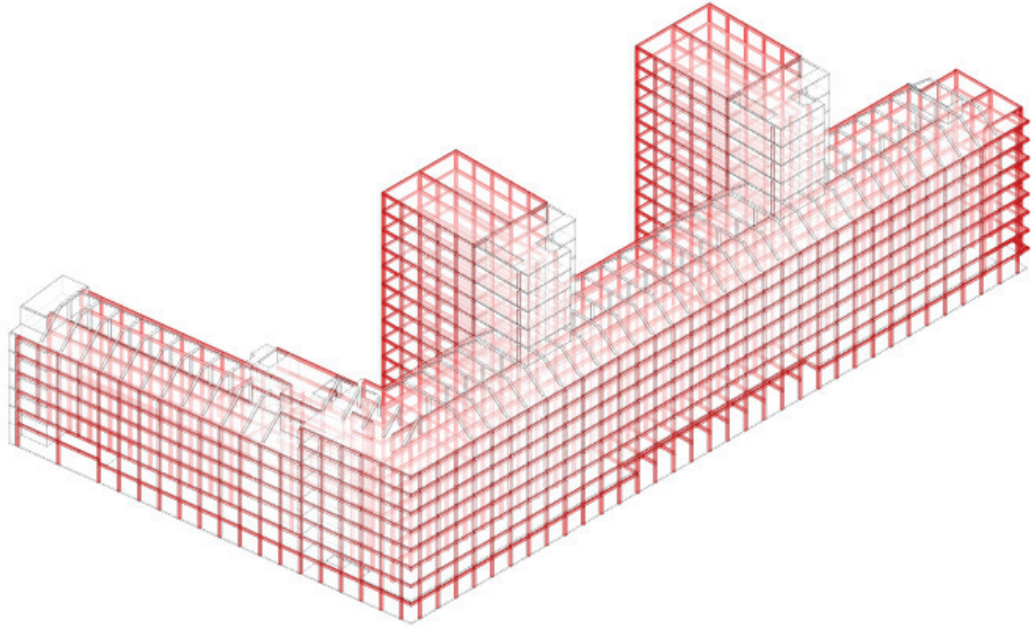


fig. 15 - Load bearing structure

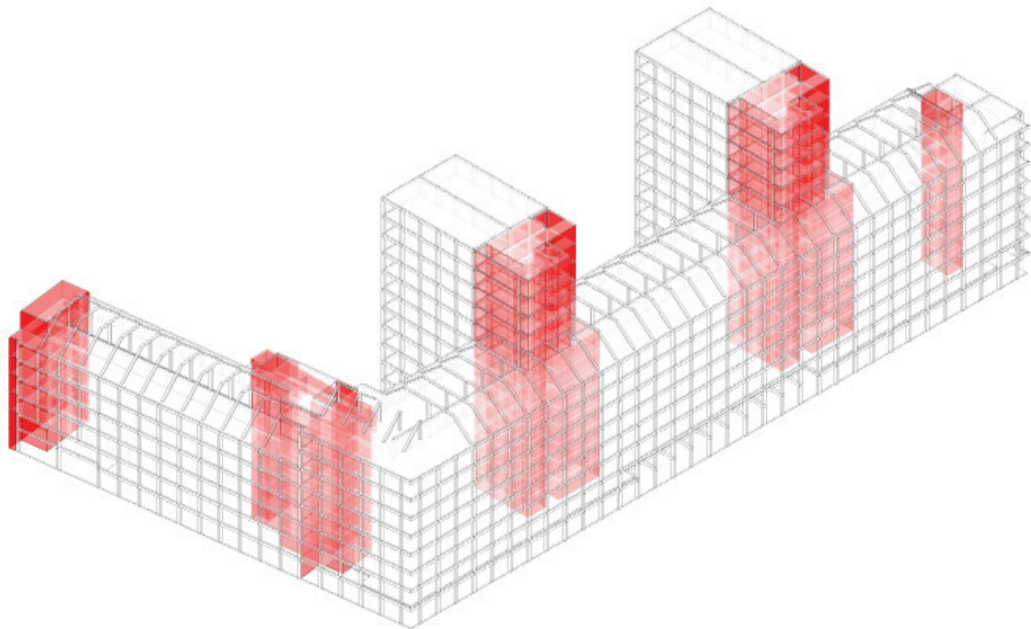


fig. 16 - Stabilizing structure

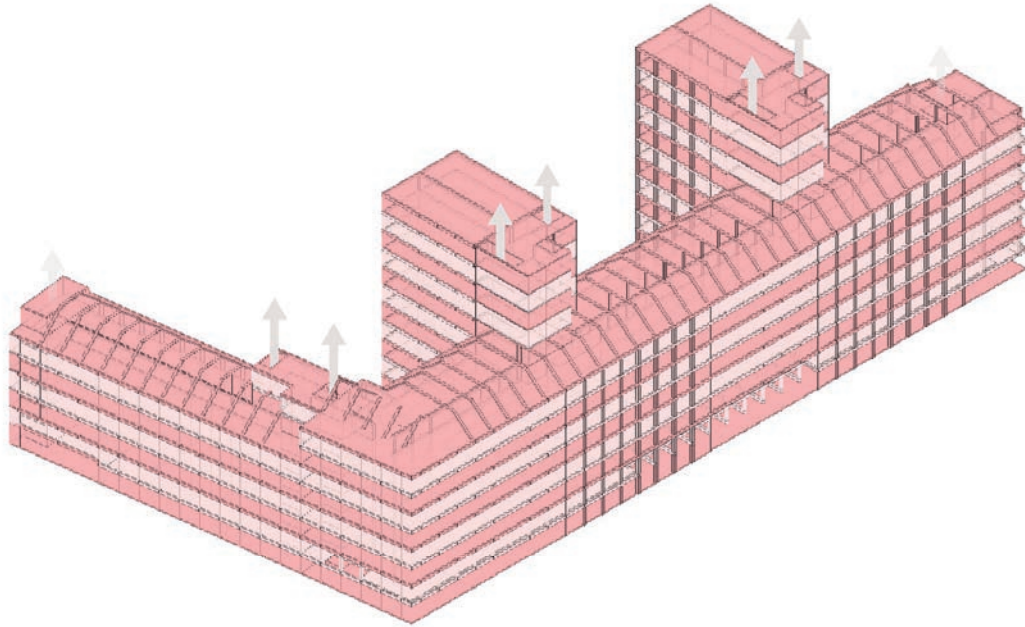


fig. 17 - Division by floors

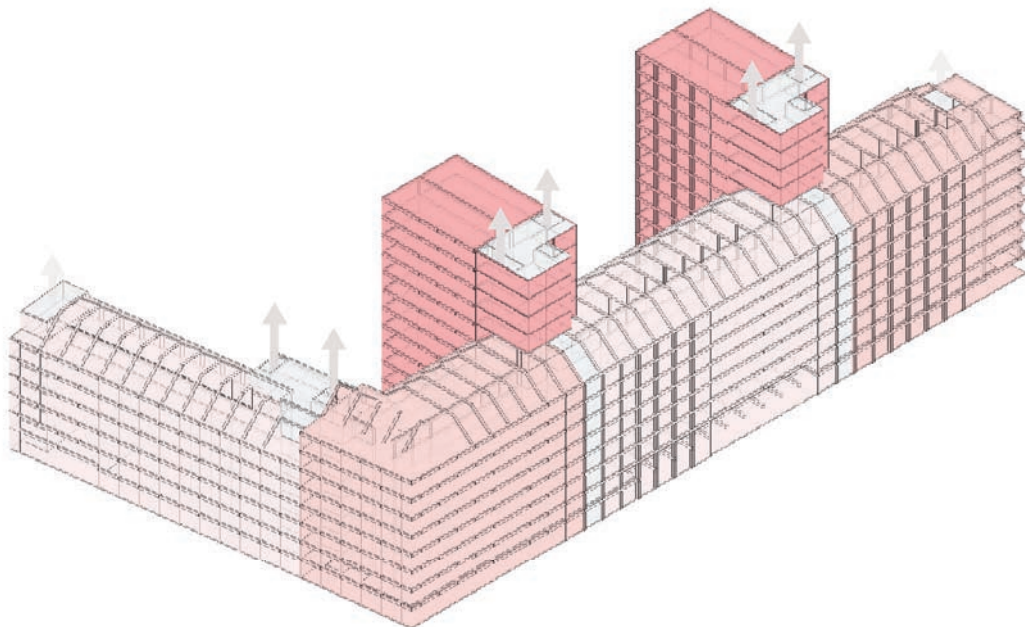


fig. 18 - Division by compartments

# urban context

Thornico Building is located at the Westblaak avenue and Hartmansstraat, in the Cool area in Rotterdam. The building block is surrounded by the Boomgaardstraat and Witte de Withstraat. It's striking that analysis show that Thornico is situated mostly on edges of different area typologies and policies

The city center of Rotterdam was bombed during the Second World War, which destroyed most old buildings. The location of Thornico was on the fire border, resulting in new post war buildings north of Thornico and old pre-war building south of Thornico. On the very plot of Thornico, old pre-war buildings were demolished in the 1960's, to build the Westblaak avenue with its massive office blocks.

Because of this Westblaak avenue, Thornico is well accessible by any kind of transport. The Westblaak is a main car route through the city center. Parking facilities are well represented, on both street parking and parking garages typologies. Thornico itself has a 18.000 square meter parking garage, which is mostly empty. Public transport had two major intersections close to Thornico: Beurs and Eendrachtplein are both connected to bus, tram and metro connections.

The Westblaak also introduces a lot of green and trees into the city center. Two double rows of large trees provide a lot of visual green, yet there's a lack of functional green and planting. The informal Witte de Withstraat has trees, but no functional planting. Westersingel and Museum Park provide more greenery.

The area north of Thornico, with large post war buildings, is the commercial city center of Rotterdam: shops and stores at Lijnbaan, Binnenweg and Beurstraverse and offices at World Trade Center, Blaak and Coolsingel. The area south of Thornico, with small scale pre-war building, is an informal area with a lot of restaurants, bars, pubs cultural functions and housing. This area is appointed by the Rotterdam municipality to be a creative and student focussed area.

The high-rise zone of Rotterdam, following the Kop van Zuid, Schiedamsedijk, Coolsingel and Hofplein-strip allows up to 200m. A strip between Schiedamssevest and Hartmansstraat is a 'transition zone', allowing high-rise up to 70m. Thornico is just located on the very edge of this transition zone. However, Thornico is already the highest building in its direct surroundings.



fig. 19 - High-rise area and transition zone



fig. 20 - Lijnbaan area (north)



fig. 21- Witte de Withstraat (south)  
(Goethals, 2014)

# urban context necessities

From an urban point of view, it's essential to deduct the boundary that is formed by Thornico Building. The Westblaak, and Thornico specifically, causes a disconnection between the city center north of Westblaak and the cultural and leisure area south of Westblaak. Making a connection instead would boost both area's and the plot of Thornico itself. The junction of public spaces therefore is crucial.

Another important aspect, is the character of the public spaces. The Rotterdam city center is often considered to lack high quality spaces for staying and lack green facilities. Park like places to stay all afternoon. To serve both the users of the building as the visitors of the area, a comfortable exterior space like a square or courtyard is needed.

The parking garage, in its current form, is a large obstacle. Because of its size and its massive stabilizing concrete wall it forms a visual and physical boundary. Yet, the building and area still need parking facilities till a certain extent, to serve users and visitors.

The restaurants at the Witte de Withstraat have their back of the house facilities at the Kromme Elleboog street: oriented towards Thorico. This is causing an unpleasant view that needs to be solved. Yet the Kromme Elleboog needs to keep functioning for transport functions of suppliers and services.



fig. 22 - Thornico in Rotterdam, 1:5000

# urban context possibilities

The plot of Thornico is enclosed by the Westblaak, Hartmansstraat, Witte de Withstraat, Kromme Elleboog and Boomgaardstraat. The entire block is built and should not be effected in a negative way. Therefore, the urban solutions should be found on the very plot of Thornico, regarding the options for connections.

These connections can be made at the passageways under Thornico at Hartmansstraat-parking garage and at Westblaak-Boomgaardstraat. At the back of Thornico the connections to Witte de Withstraat can be found through the Kromme Elleboog. This is a very functional street for suppliers and services of the Witte de Withstraat restaurants, but is very unpleasant: A lot of pollution, messiness and neglecting have occurred on ground floor level. It's has no visual qualities at all. A possibility to solve this problem is by completely blocking the Kromme Elleboog visually, and focus on the Thornico block internally. That however, would cause another introvert situation.

Another option would be maintain the parking garage of a comparable inactive function connected to Kromme Elleboog on ground floor level, and make the program on top of that looking over the back of the house facilities of the Restaurants. That would avoid an introvert situation, but keeps the Kromme Elleboog as a service street.

Possibilities to create a square or courtyard related to Thornico, the building (plot) needs to be adjusted. Because Thornico has very little free ground floor space, some ground floor parts might need to be demolished in order to create public space. Or these public spaces have to be translocated to a higher floor level.



fig. 23 - Green structures



fig. 24 - Green structures  
(Legado Architects, 2016)



fig. 25 - Accessibility



fig. 26 - Accessibility (Vink, 2009)



# jan hoogstad

Thornico Building was designed by Jan Hoogstad. Hoogstad (Rotterdam, June 29, 1930) is a Dutch architect who is *often regarded as a rationalist or a neo-rationalist. The recurring motifs in his work are space and durability. In the 1950's Hoogstad studied architecture and was briefly employed at the Herman Bakker architecture office. In 1957 Hoogstad began his own architecture firm. In the following years he produced mainly commercial and residential properties, including a house for himself. He also started teaching at the 'Bouwopleiding' of the Academie der Beeldende Kunsten en Technische Wetenschappen in Rotterdam.* (Griffioen, 2007)

*Because of dissatisfaction with the course of the training, Hoogstad decided along with a number of colleagues to establish the Academy of Architecture in 1965. This, moreover, without giving up his own agency. In the late sixties and early seventies Hoogstad participated in several prestigious competitions, such as the City Hall of Amsterdam (1967, fifth prize), the Centre Pompidou (1971, honorable mention) and the town hall of Lelystad (1975 winner).* (Griffioen, 2007)

*In the work of Jan Hoogstad there is something one could search for in vain in works of most other Dutch architects, namely the aspiration to underpin the work theoretically. In this country disinterest in theory and even in architecture's intellectual side as a whole is a widespread phenomenon among designers. Hoogstad is an exception. His is a quest for architecture that not only has a wide appeal but caters into the intellectual needs as well. There are few, if any, recent examples of this stance to be found in or out of the Netherlands, he opines. In older architecture, however, Hoogstad does recognize these qualities though the conditions under which they took shape are impossible to reproduce these days. It is his aim, therefore, to achieve the qualities of that architecture in a latterday idiom. This means being able to express them verbally, and for that he needs to find a theory.* (Dettingmeijer, 1996)

Most of Hoogstads projects were built in and after the 1960's and 1970's in Rotterdam and The Hague. Yet Thornico seems to lack any relevant documentation in literature. Despite its massive prominence, the building somehow doesn't seem to be part of the most illustrious designs in Hoogstads portfolio.

In 1977, Hoogstad wrote an article about the densification of the Rotterdam city center: 'Rotterdam zwemt in de ruimte', translated to 'Rotterdam swims in

space'. It was a plea for a small liner in the inner city. "Rotterdam had a certain prevailing size, a block of 90 meters, which was a grid of the city. And if such a measure is going to dominate, you can't do a lot. If you would choose a smaller size in order to dominate, like in music, plans can vary a lot more and it becomes more playful." (Mous, 2011)



fig. 27 - Jan Hoogstad (Booijink, 2012)

# architectural language

The architectural language of a building is the autograph of the architect. Hoogstad is considered a rationalist architect, therefore the analysis on architectural language will focus on elements like order, structure and repetition and exceptions.

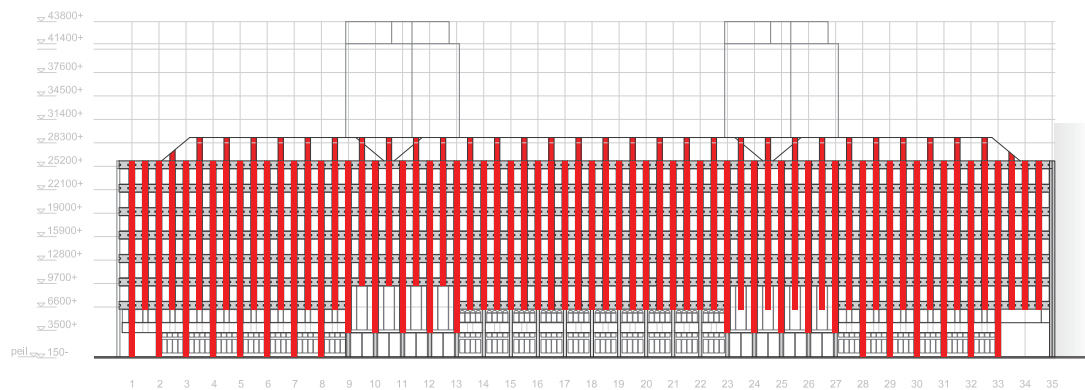


fig. 28 - Architectural language: primary ordering Westblaak 1:1000

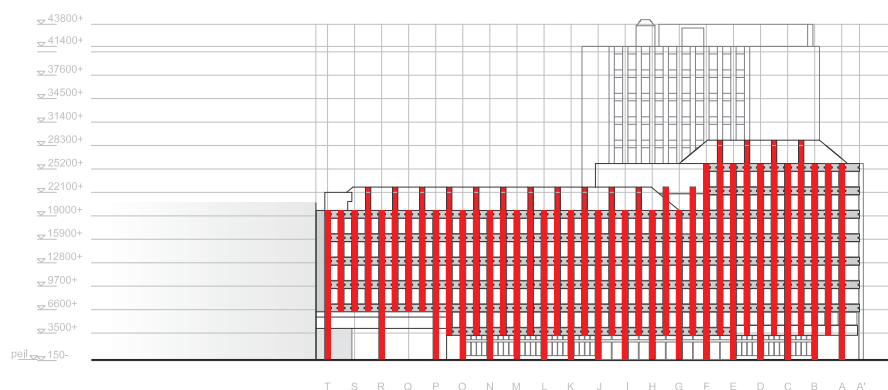


fig. 29 - Architectural language: primary ordering Hartmansstraat 1:1000

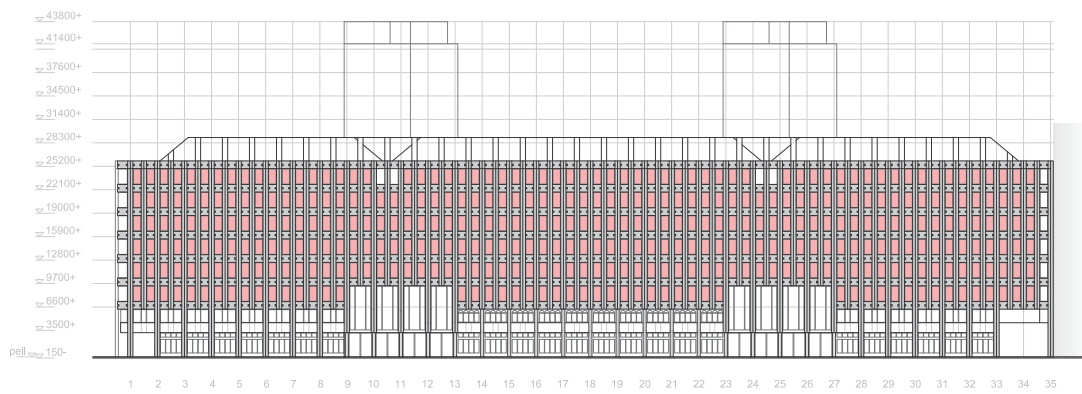


fig. 30 - Architectural language: secondary ordering Westblaak 1:1000

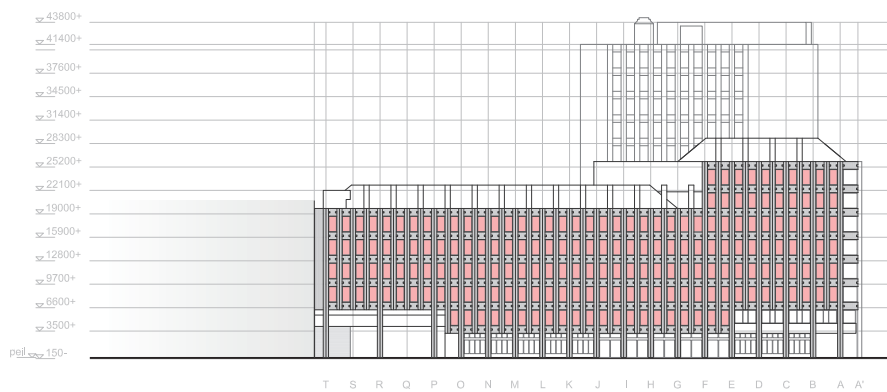


fig. 31 - Architectural language: secondary ordering Hartmansstraat 1:1000

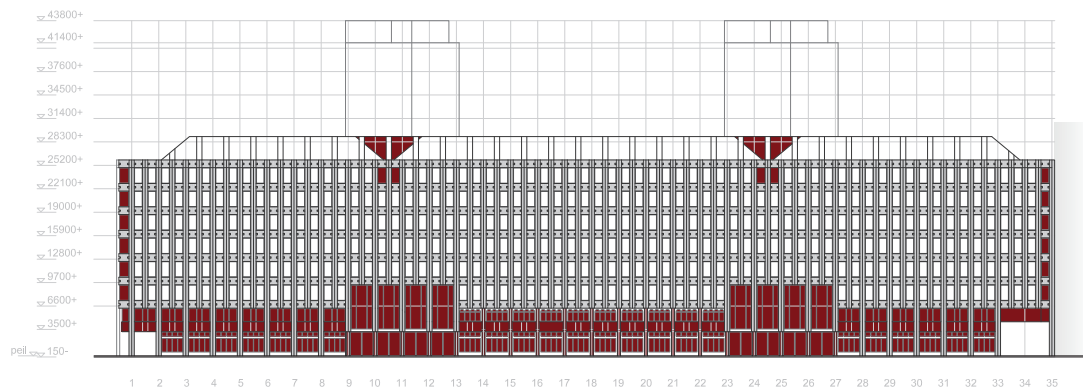


fig. 32 - Architectural language: ordering exceptions Westblaak 1:1000

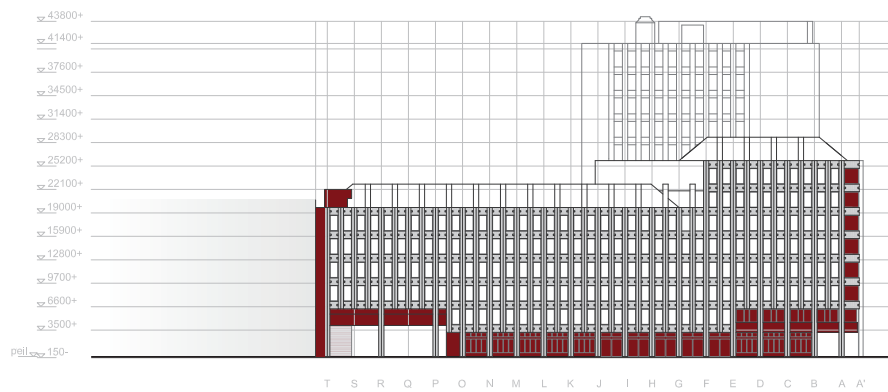


fig. 33 - Architectural language: ordering exceptions Hartmansstraat 1:1000



Most of Hoogstads projects were built in and after the 1960's and 1970's in Rotterdam and The Hague. Yet Thornico seems to lack any relevant documentation in literature. Despite its massive prominence, the building somehow doesn't seem to be part of the most illustrious designs in Hoogstads portfolio and neither do any comparable projects.

The Moret & Limperg office building however, has a lot comparable characteristics to the Thornico Building. Although it was built slightly later (1977-1981), similarities are striking. Just like the Thornico Building, Hoogstad designed the M&L building with various access systems, such as a double corridor, a single corridor, an external gallery and an arcade on the ground floor. The concrete load bearing structure in the façade also forms the primary ordering structure: vertically.



fig. 35 - Moret & Limperg office by Hoogstad (1977-1981)

Just like Thornico, *the air circulation system and lighting are integrated in the building.* (Groenendijk, 2007) It's notable that the M&L office also has these typical hollow columns in its façade, which serve for air ducts and ventilation: fresh air is supplied from the air treatment systems on the top floors and is guided down to the office floors through the façade.

The façade itself is mostly shaped by prefab panels including a parapet and windows. These are connected to the load bearing structure, in a similar way like Hoogstad did at Thornico, with a relatively small windows surface and a large concrete surface. These concrete parts of the prefab panels are the secondary ordering in the façade, even though the façade has less depth and relief than Thornico.



fig. 36 - Vertical primary ordering



fig. 37 - Arcade walkway



fig. 38 - Exterior installation services



fig. 39 - Exterior stairs





# design

# program

The new program for Thornico should fit better to the urban setting between the Rotterdam Lijnbaan area and the Witte de Withstraat area, which is addressed to be a creative/student zone. Instead of an introvert office function, the new program should offer a mix (semi) public functions with interaction between interior and exterior spaces. The access of all upper level building functions is regulated within two cores: all building users will meet each other in these entrances.

In the building plinth and active function for both day and night time is crucial. Restaurants, bars and small boutiques should bring a vivid and lively atmosphere. The great popularity for this leisure area with its restaurants, could really stimulate the livability of the building block.

The second floor till the fifth floor will be used by a mix of functions, mainly of creative nature. These functions will be divided over different floor levels and compartments, in order to create interaction and special experiences. The main visually connection function will be a library. The exquisite function to create a connection, climbing up the building gradually from the second up to the fifth floor.

Also starting on the second floor, will be a creative department of the Hogeschool van Rotterdam: the Willem de Kooning Academie. This university of applied sciences and arts, is currently closely located at Blaak. However, the amount of students is increasing strongly and the present facilities will be insufficient soon.

A conference and business meeting center will be located in the corner of Westblaak and Hartmansstraat, at the third and fourth floor. This function will bring creativity and business together in a single service. A flex work office space will also offer space to small creative and tech start-ups that fit this area, possibly companies of residents of Thornico.

The sixth and seventh floor, higher and therefore in a calmer part of the building, will be used for housing. Lofts of 70-90 square meter are meant for young professionals, working in creative crafts. The two towers are used for student housing, preferably students of the Willem de Kooning Academie. In that way, Thornico will form an informal, interactive and creative cluster that fits the needs of the area.



# conceptual mass

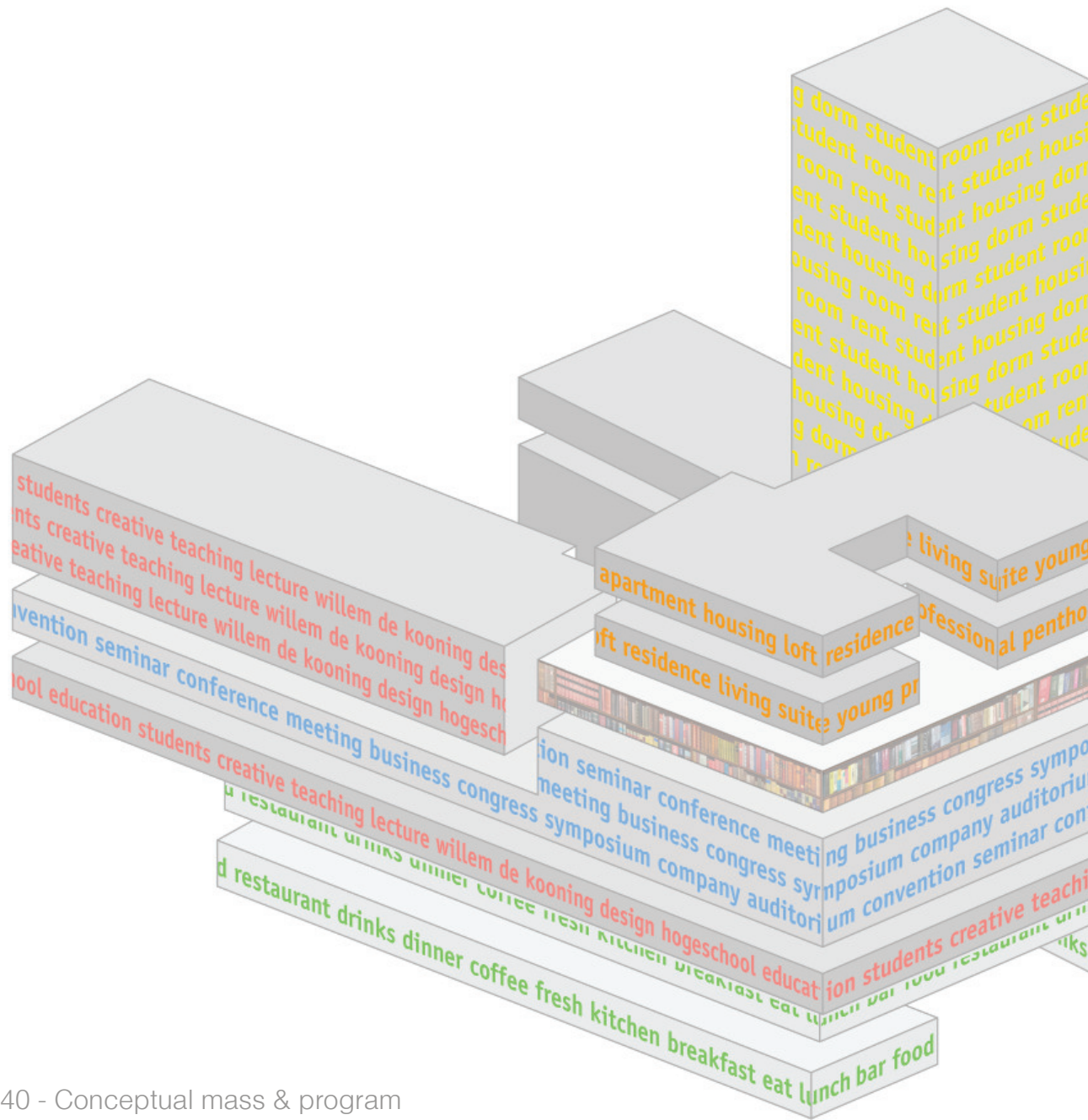


fig. 40 - Conceptual mass & program



# urban design

To make this area active and vivid, it's essential that this area will be the major connection between the Witte de Withstraat-area and the Rotterdam city center. The public space should be a high quality area for both staying and moving. The most important elements are the three new squares with different characters.

The ground floor level of Thornico will be intersected on two places at the Westblaak avenue. One opening, closest to the Hartmansstraat, will lead to a long square with a lot of restaurant and bar terrace facilities. Because of its Southern orientation, a lot of sunlight can enter. Street furniture and planting are accommodated to a lesser extent. This square will be the new passage between Westblaak and Witte de Withstraat for pedestrians and cyclists.

The other opening in Thornico will be filled with stairs. These stairs will lead to a new urban square and the arcade walkway. This square is the gathering area: all users of the building need to enter the building from this place. The square will be designed as an urban courtyard. Abstract tiling and furniture, but also a lot of planting. This square is also South-oriented, so a lot of sunlight can enter. The courtyard will gradually elevate two more levels with furniture, planting and trees. At the end of the square a spectacular view over the Witte de Withstraat dwellings and the Rotterdam skyline will appear.

At the Boomgaardstraat a third square will be designed. This square is much smaller and a lot more intimate and sheltered. Perfect for a short stay outside or to drink a coffee. The bike parking garage, which is located underneath the urban courtyard, can be accessed from both squares alongside. The urban courtyard itself, can also be accessed by stairs next to the bike parking entrances.

The arcade, an important urban element in the original design by Hoogstad, will be restored and extended. Both users and passers-by will walk over the sheltered sidewalk. On the first floor level, a walkway will complete the arcade.

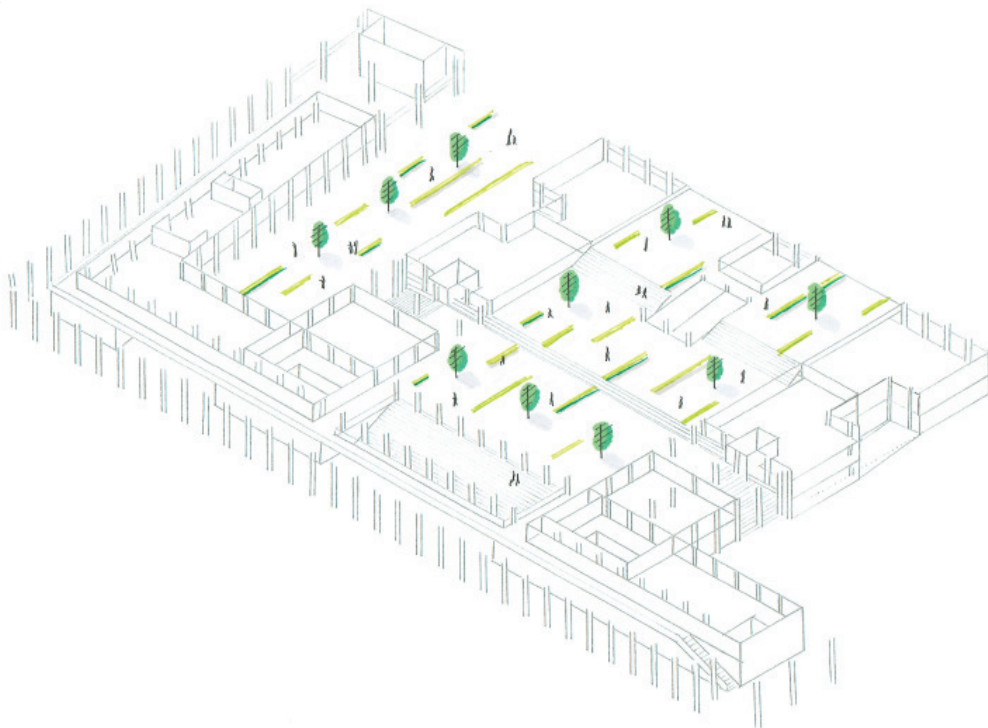


fig. 41 - Passage square, urban court yard and arcade concept

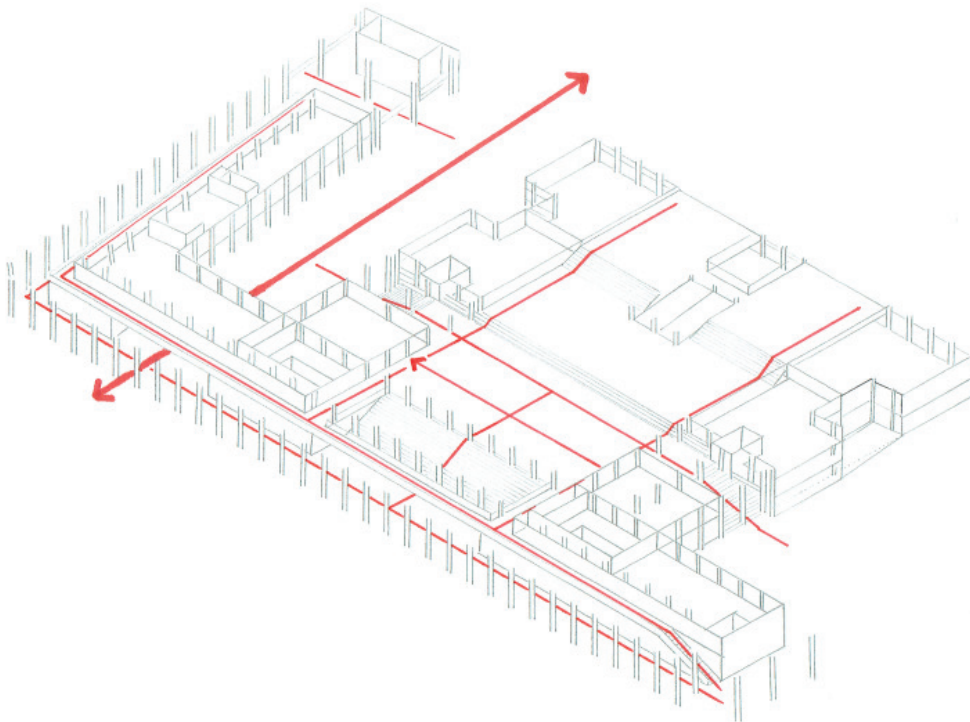


fig. 42 - Routing and accessibility concept



# public space ground floor

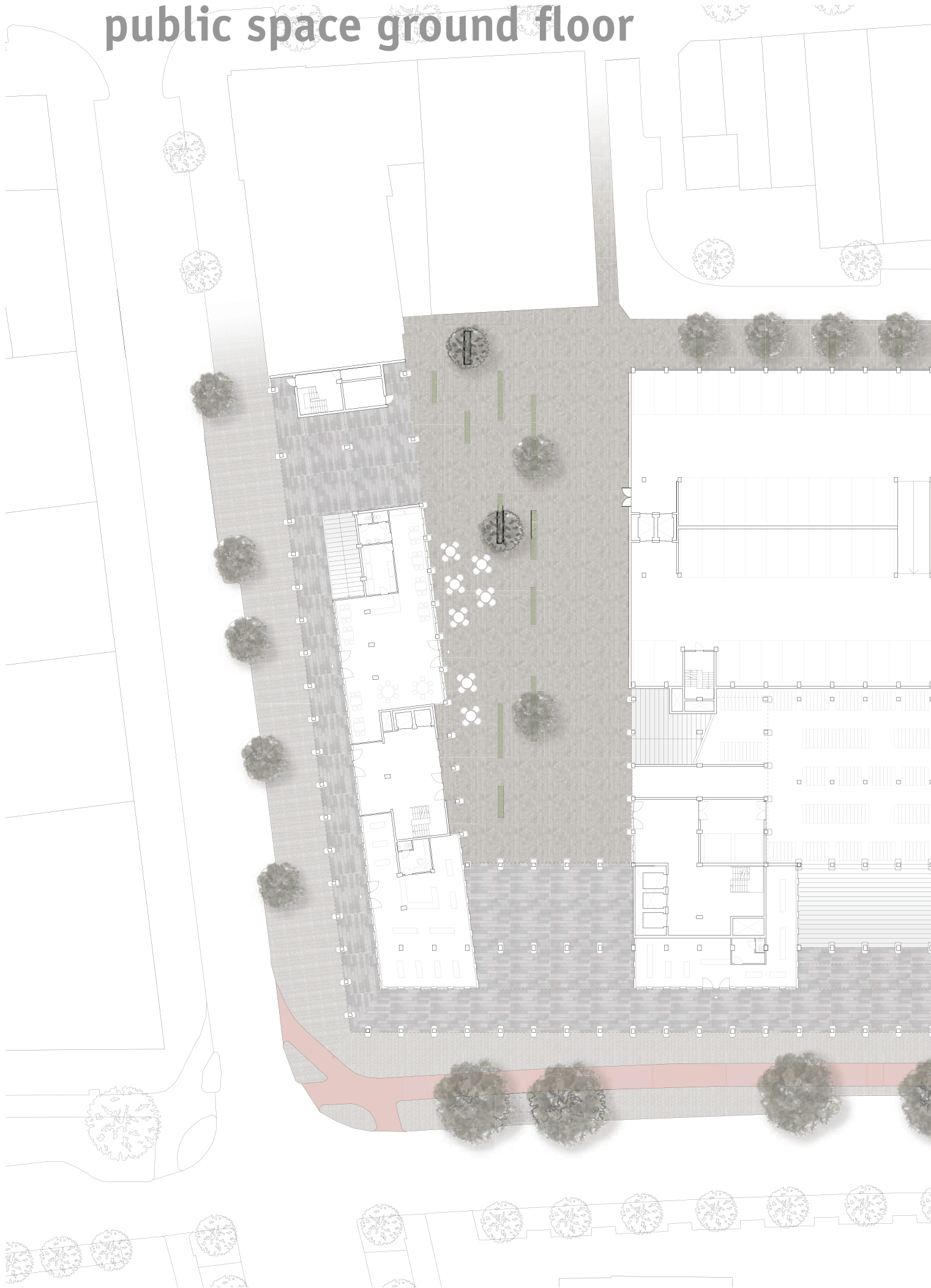




fig. 43 - Ground floor plan 1:500

# public space first floor





fig. 43 - First floor plan 1:500



# building design

The transformed Thornico building, with its mix of (public) functions, should be a real extravert and multitenant building. The bars and restaurants, library, Willem de Kooning Academy, conference and business center, exposition space, flex work offices, lofts and student housing should provide a coherent and active use of the building for all times of the day.

All regular users of the building, can enter the building from the urban courtyard. This is the place where everybody meets, no matter the circumstances or reason for visit. By using two access points, the two elevator and stairs cores, functions and users really mix in the building. The character of the building will be open, extravert and interactive.

Since Thornico is so large of scale, no extra floor space needs to be added. On the contrary: to make quality spaces instead of quantity spaces, floors space needs to be removed. By making double height floors and atriums, the standard floor spaces get interrupted and interesting, interactive spaces will occur. Also, these interventions provide more light and air within the building, which is needed for some functions.

Because the new functions are all fit within a transformed concrete office building, the 'scars' of the building will remain. In a humble position to the original design, these marks of use and earlier functions should not be covered. It's adequate to show rough concrete leftovers, open installation ducts and visible services. Since it's not a new building, the walls, floor and ceilings don't have to be perfect finished, a certain roughness is absolutely tolerable. This roughness can be a beautiful contrast with the furnishing of the new functions.

Design of the facades, floorplans and section will be explained at the drawings.



# visual impressions



fig. 44 - Arcade walkway



fig. 45 - Passage square



fig. 46 - Urban courtyard



fig. 47 - Library



# floor plans

Thornico was designed as an office with flexible, open floor spaces. This concept is very useful, regarding a transformation. By only displacing walls and floors, completely new spaces can be created. Therefore, the new floor plans might in principle not seem very contrasting from the original plans. However, functions and spaces are orientating and operating completely different from the original building.

The configuration of the access cores is determinative for the division of new functions within the existing structure of Thornico. Because of the fixed position of the elevator shafts, functions can only be accessed north or south. By replacing the stairs, rotated 90 degrees, another option is possible: access of function opposite of the elevators. The floor plans are generically designed, on a larger scale level. Only fragments have been designed and furnished on small scale as well.

The second floor till the fifth floor will be used by a mix of functions, mainly of creative nature. These functions will be divided over different floor levels and compartments, in order to create interaction and special experiences. The main visually connection function will be a library. The exquisite function to create a connection, climbing up the building gradually from the second up to the fifth floor.

Also starting on the second floor, will be a creative department of the Hogeschool van Rotterdam: the Willem de Kooning Academie. A conference and business meeting center will be located in the corner of Westblaak and Hartmansstraat, at the third and fourth floor. A flex work office space will also offer space to small creative and tech start-ups that fit this area, possibly companies of residents of Thornico.

The sixth and seventh floor, higher and therefore in a calmer part of the building, will be used for housing. Lofts of 70-90 square meter are meant for young professionals, working in creative crafts. The two towers are used for student housing, preferably students of the Willem de Kooning Academie. In that way, Thornico will form an informal, interactive and creative cluster that fits the needs of the area.



# second floor

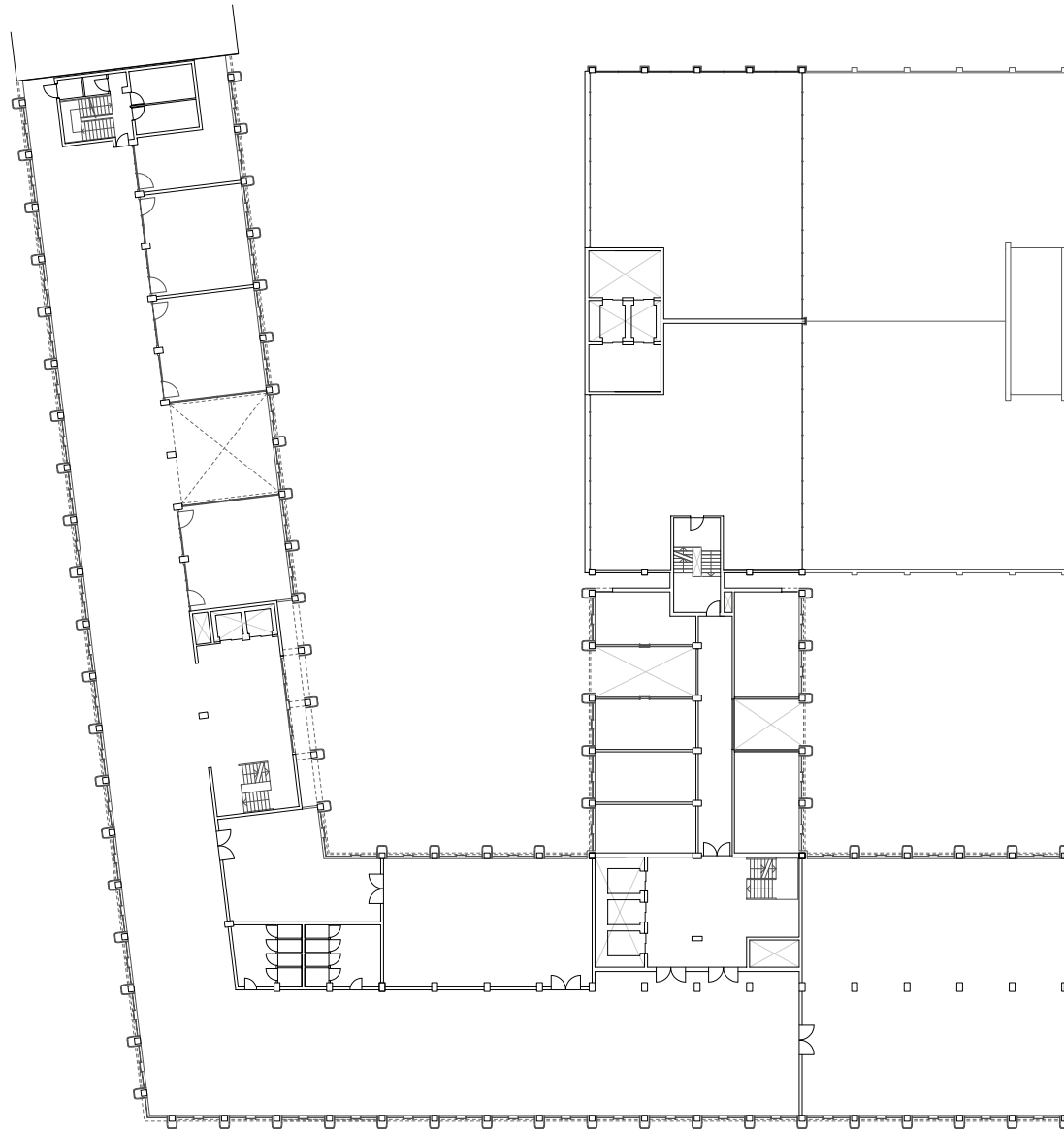
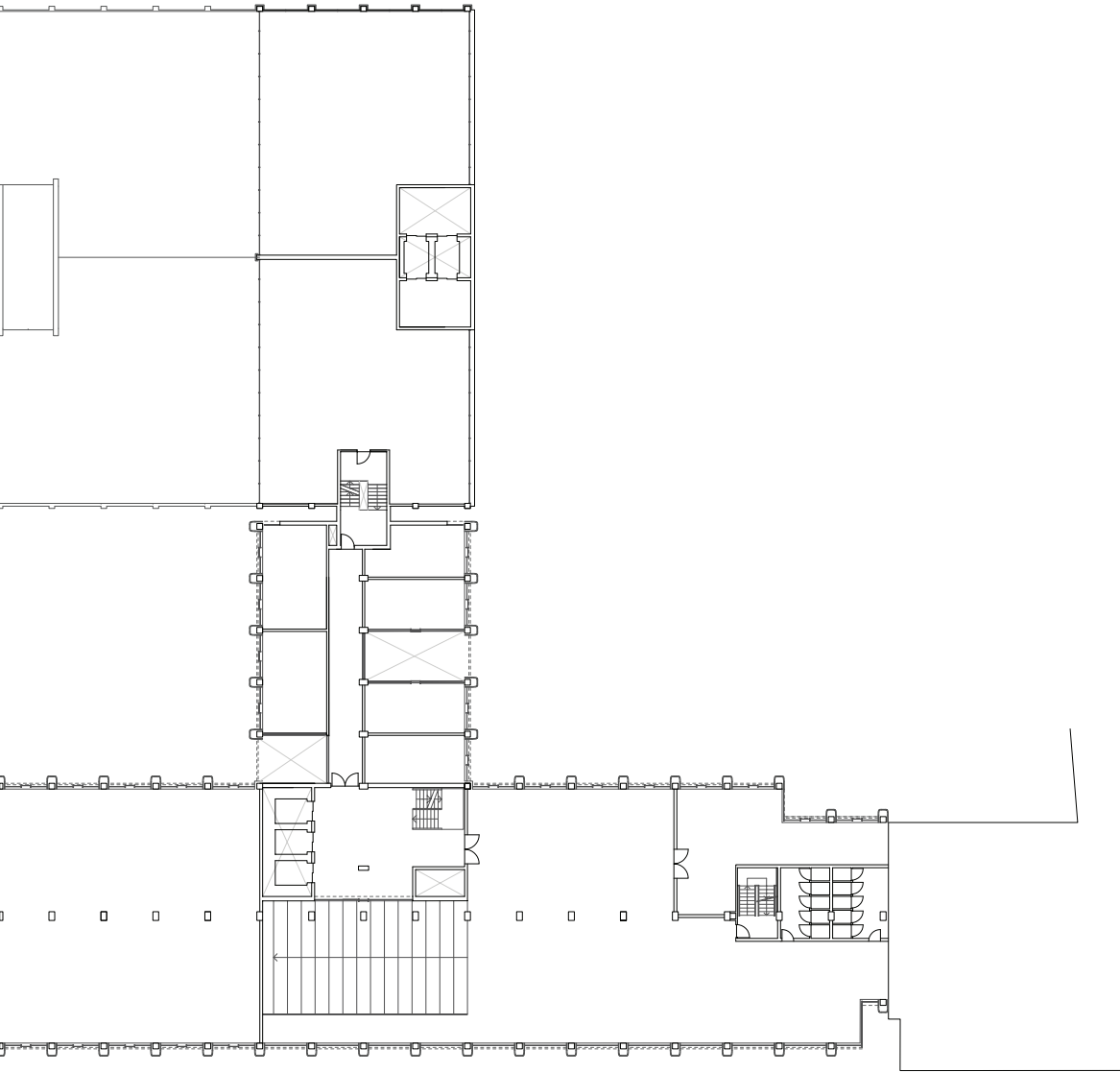


fig. 48 - Floorplan scale 1:500



# third floor

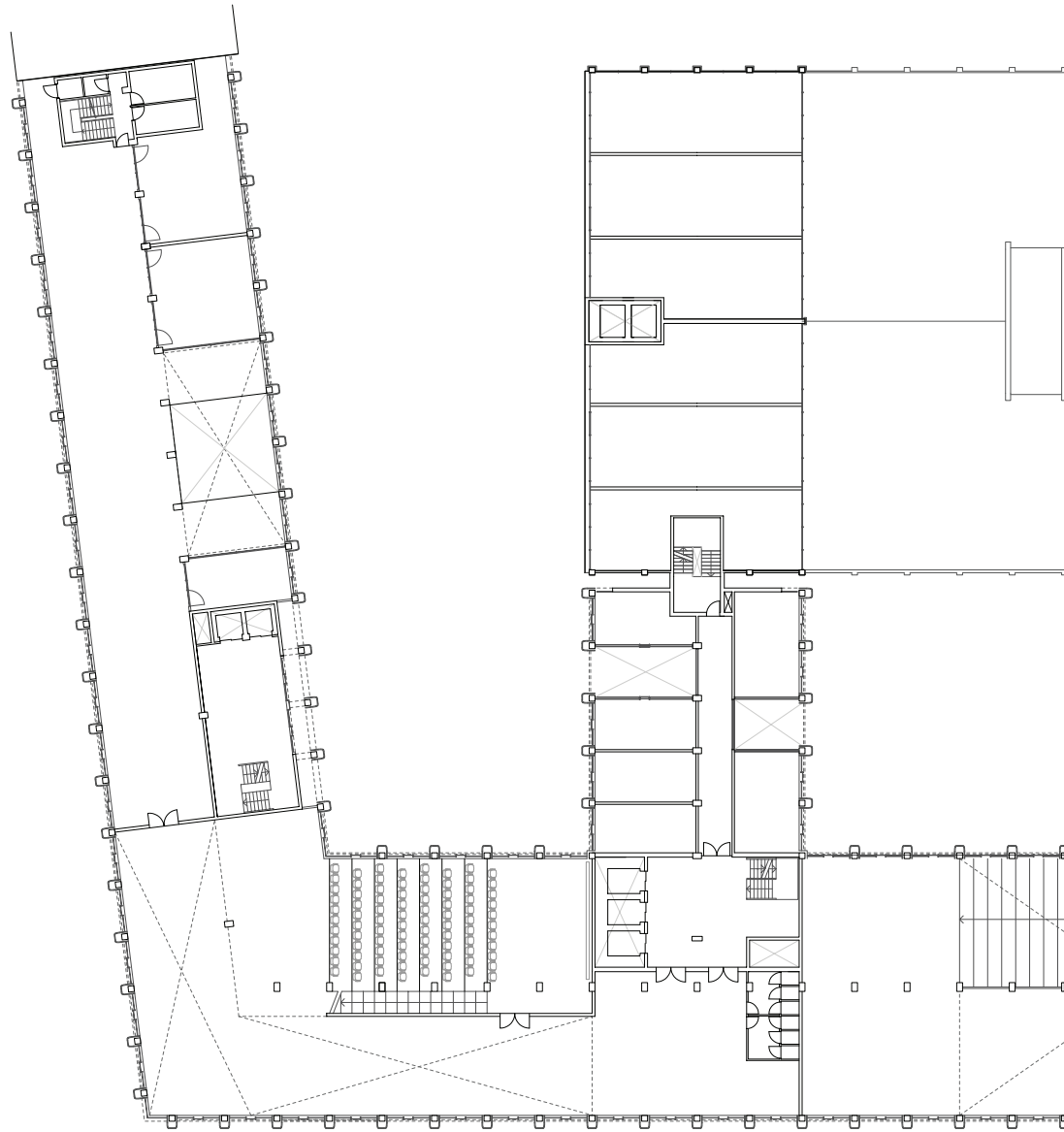
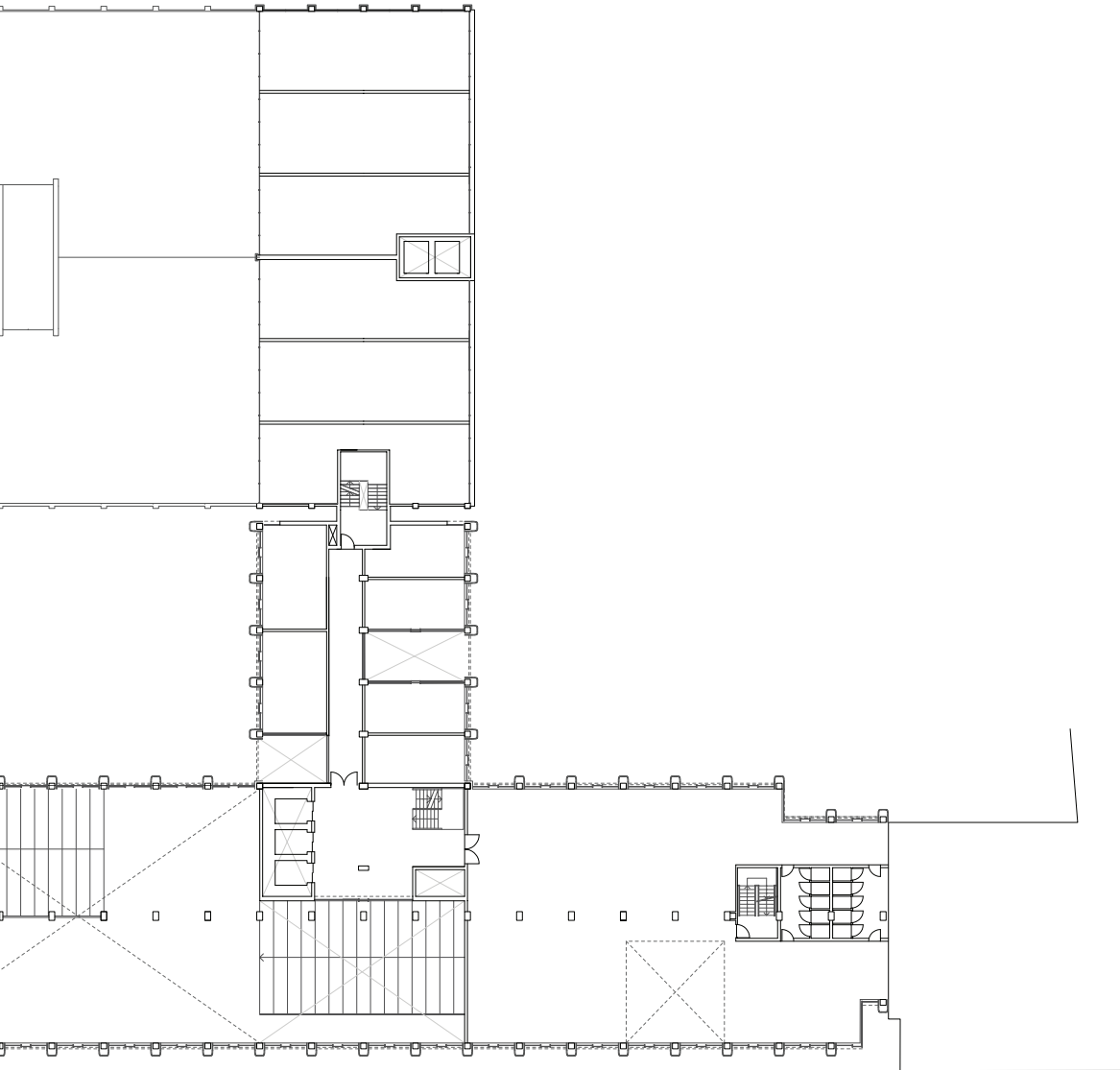


fig. 49 - Floorplan scale 1:500



# fourth floor

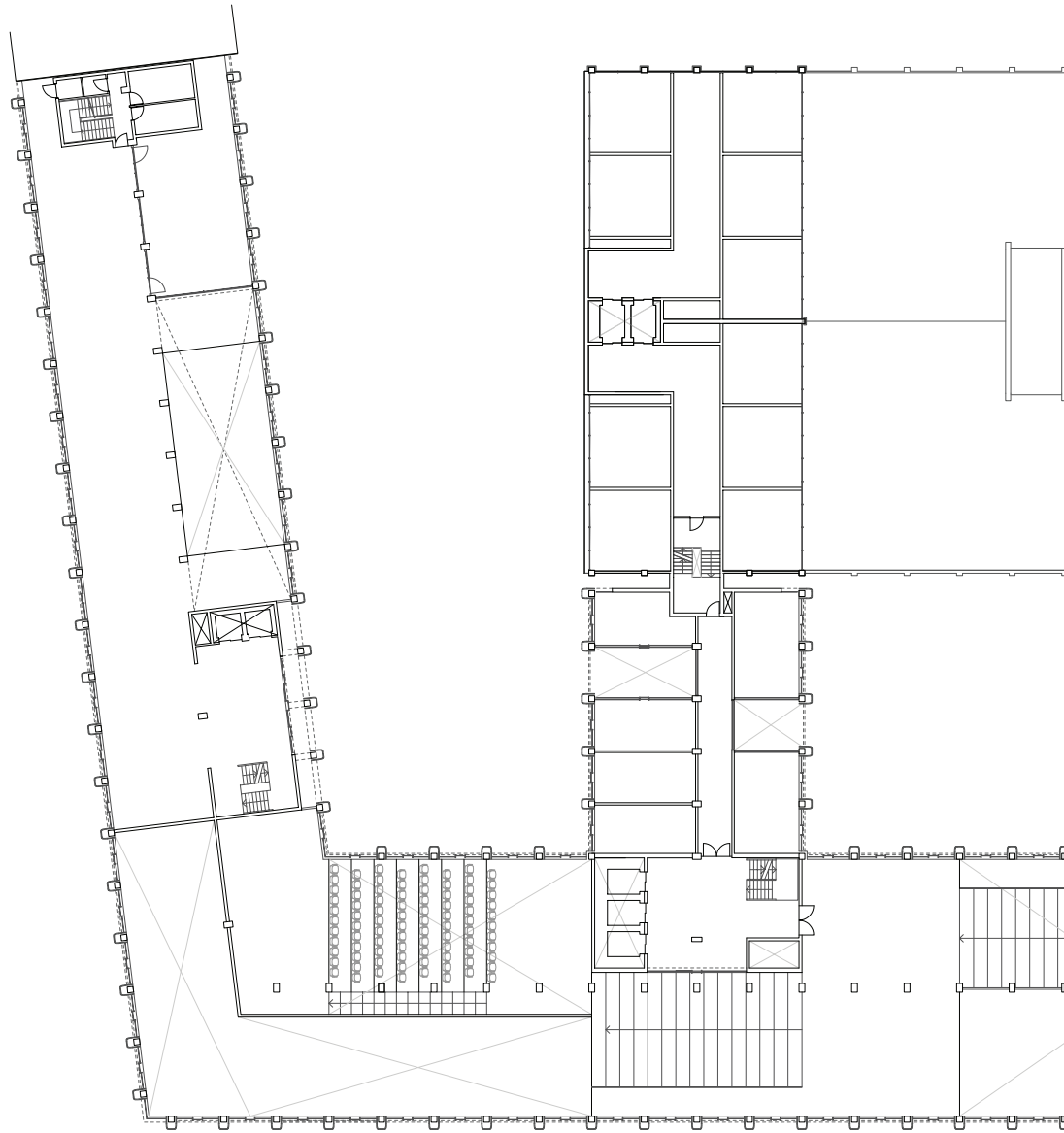
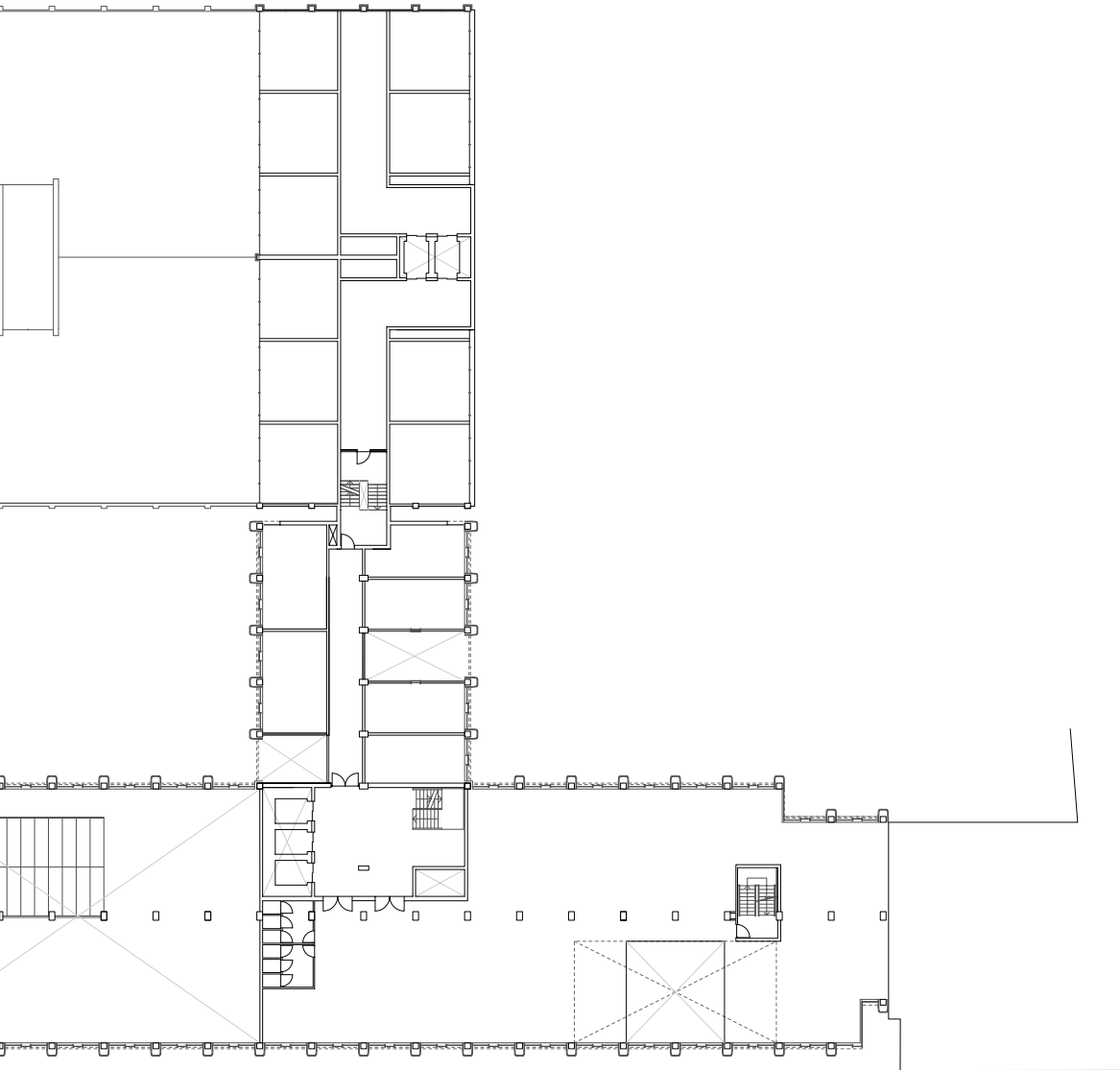


fig. 50 - Floorplan scale 1:500





# fifth floor

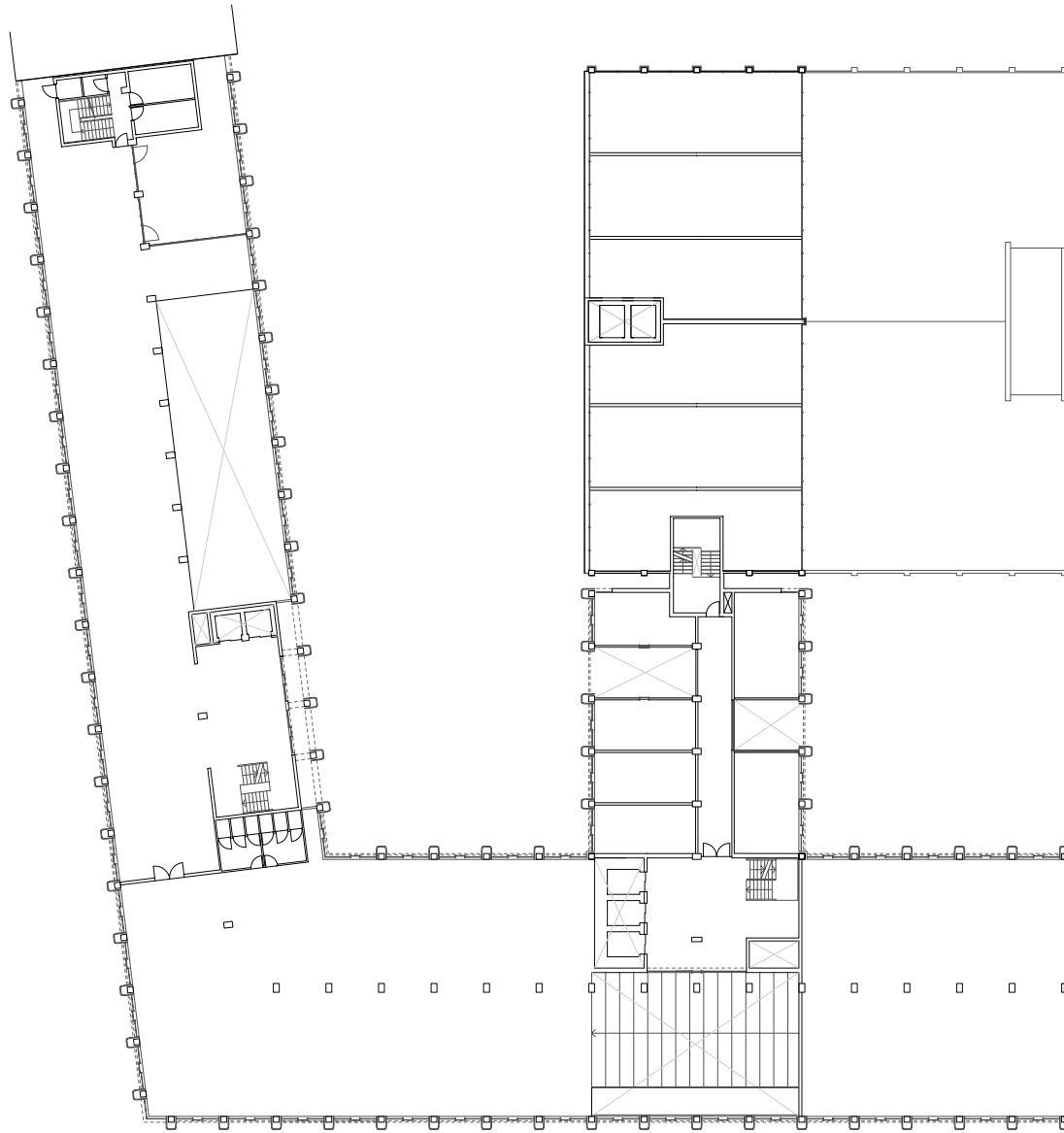
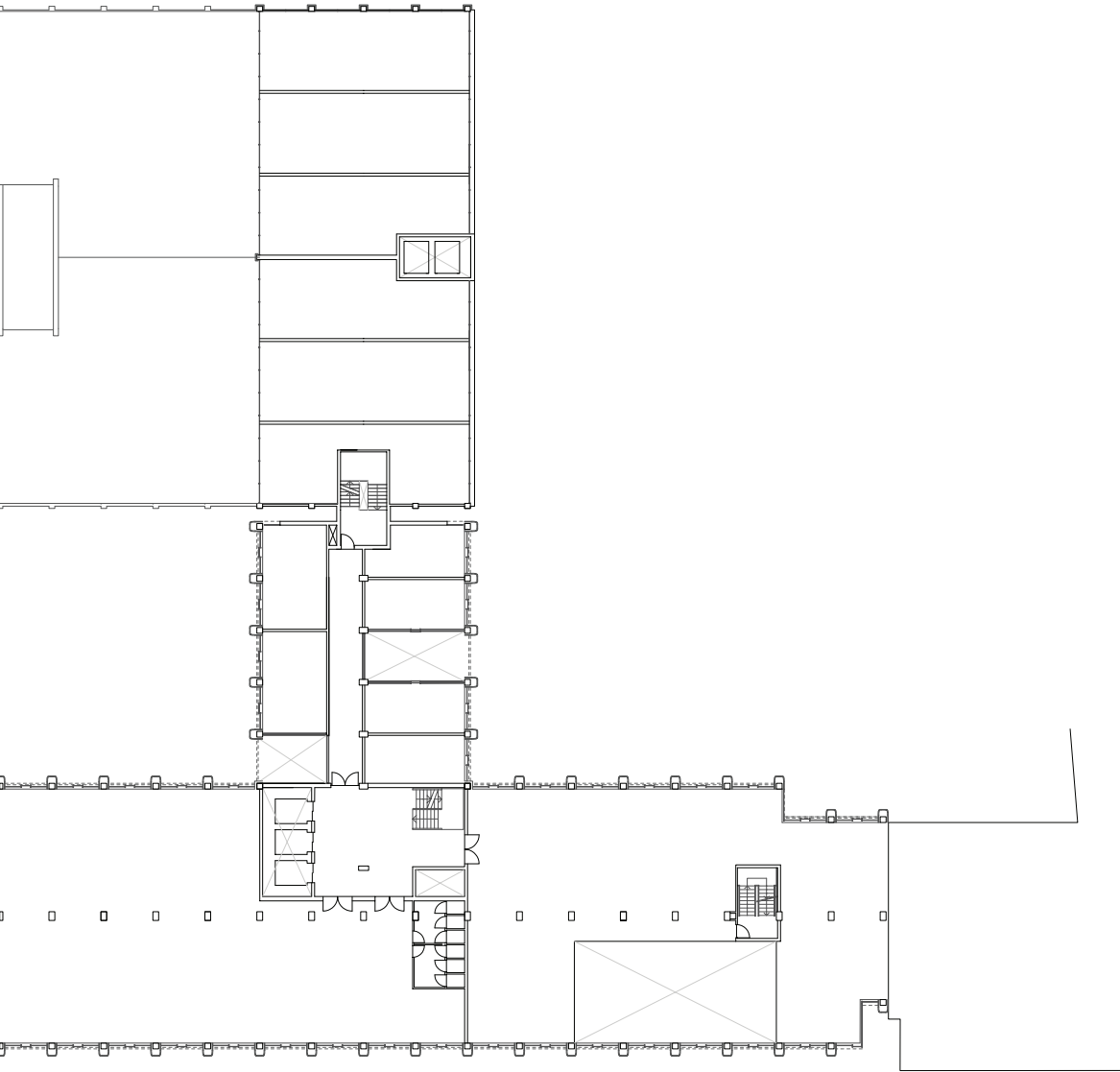


fig. 51 - Floorplan scale 1:500



# sixth-seventh floor

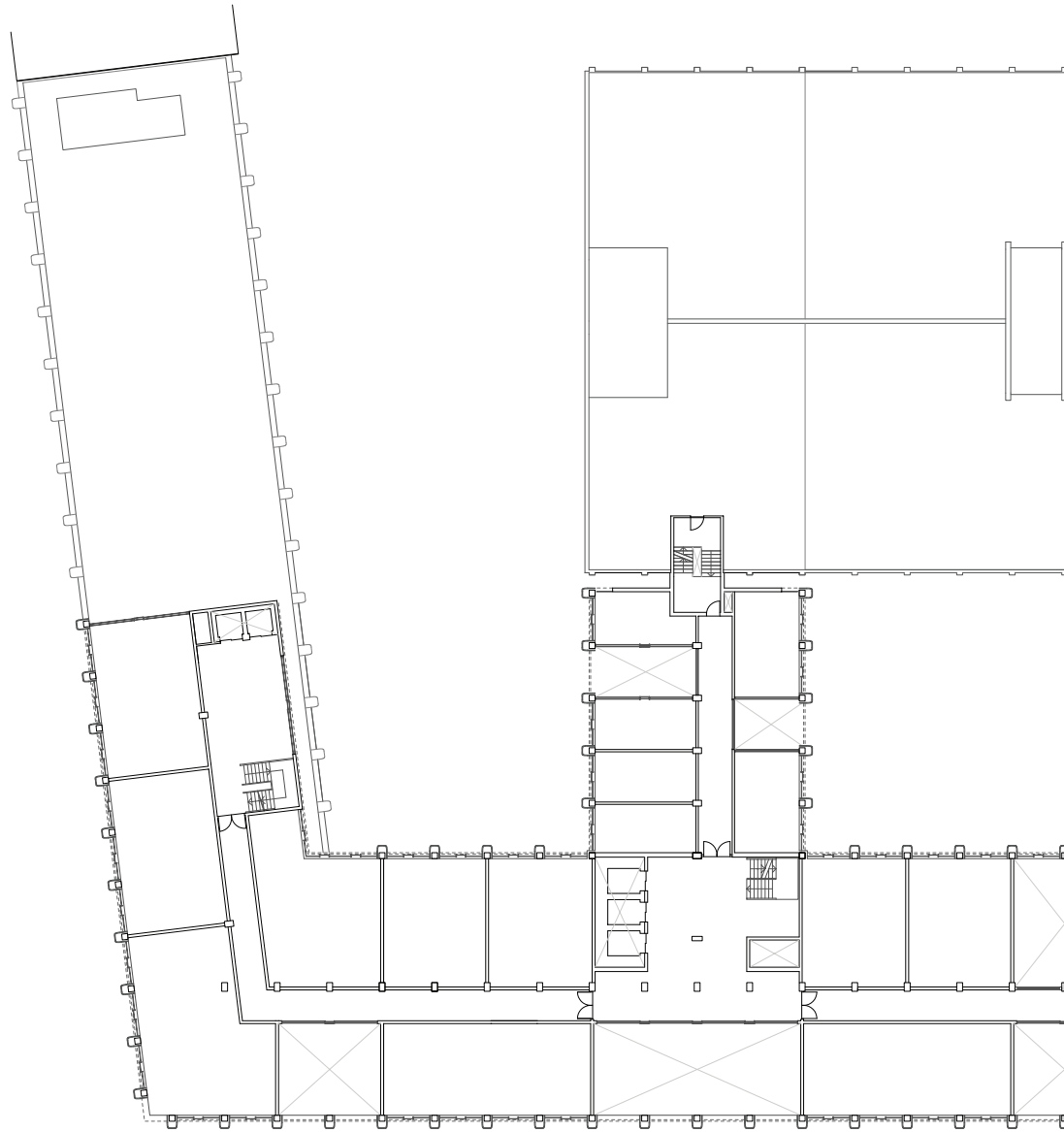
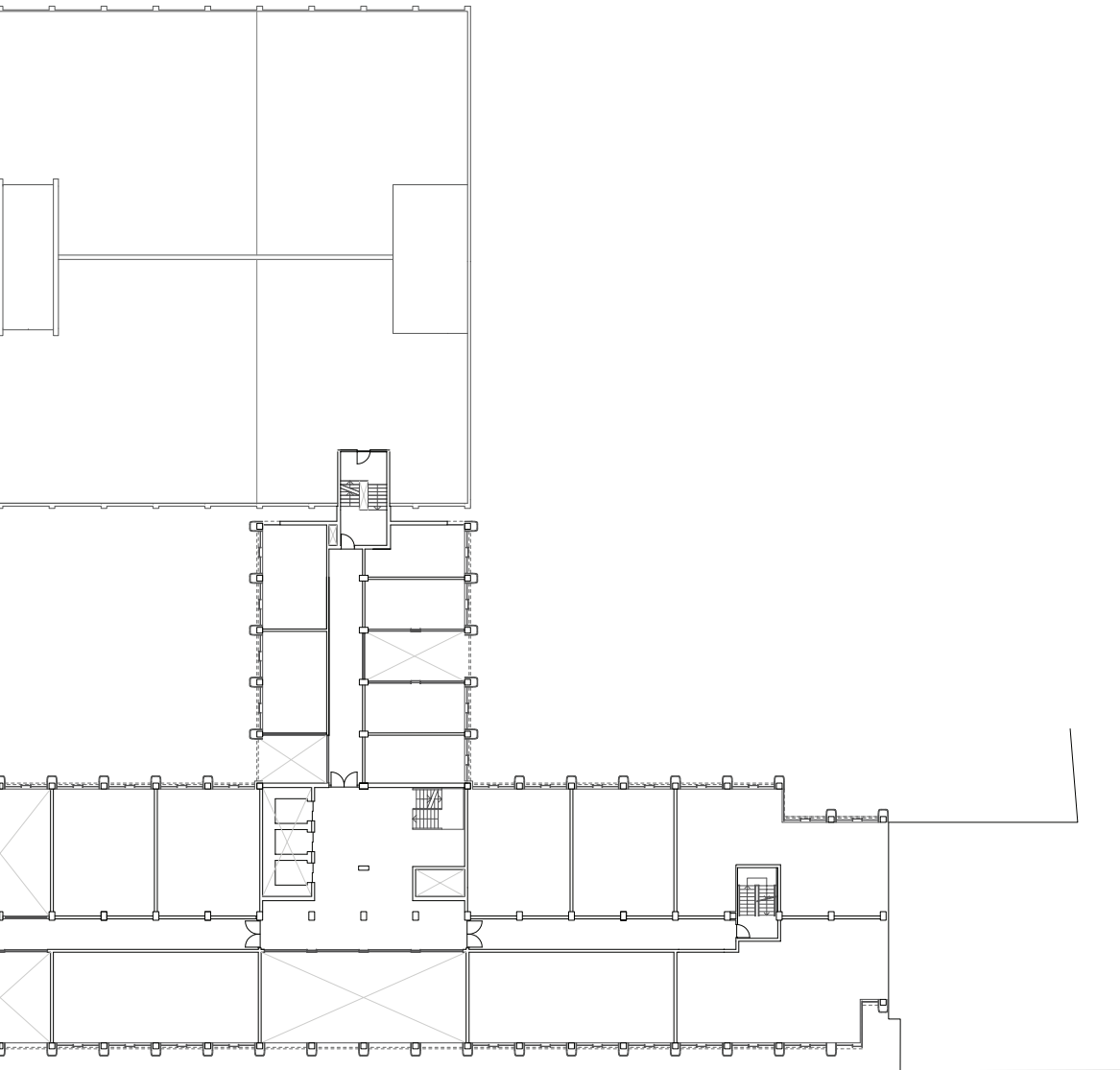


fig. 52- Floorplan scale 1:500



# eighth-twelfth floor

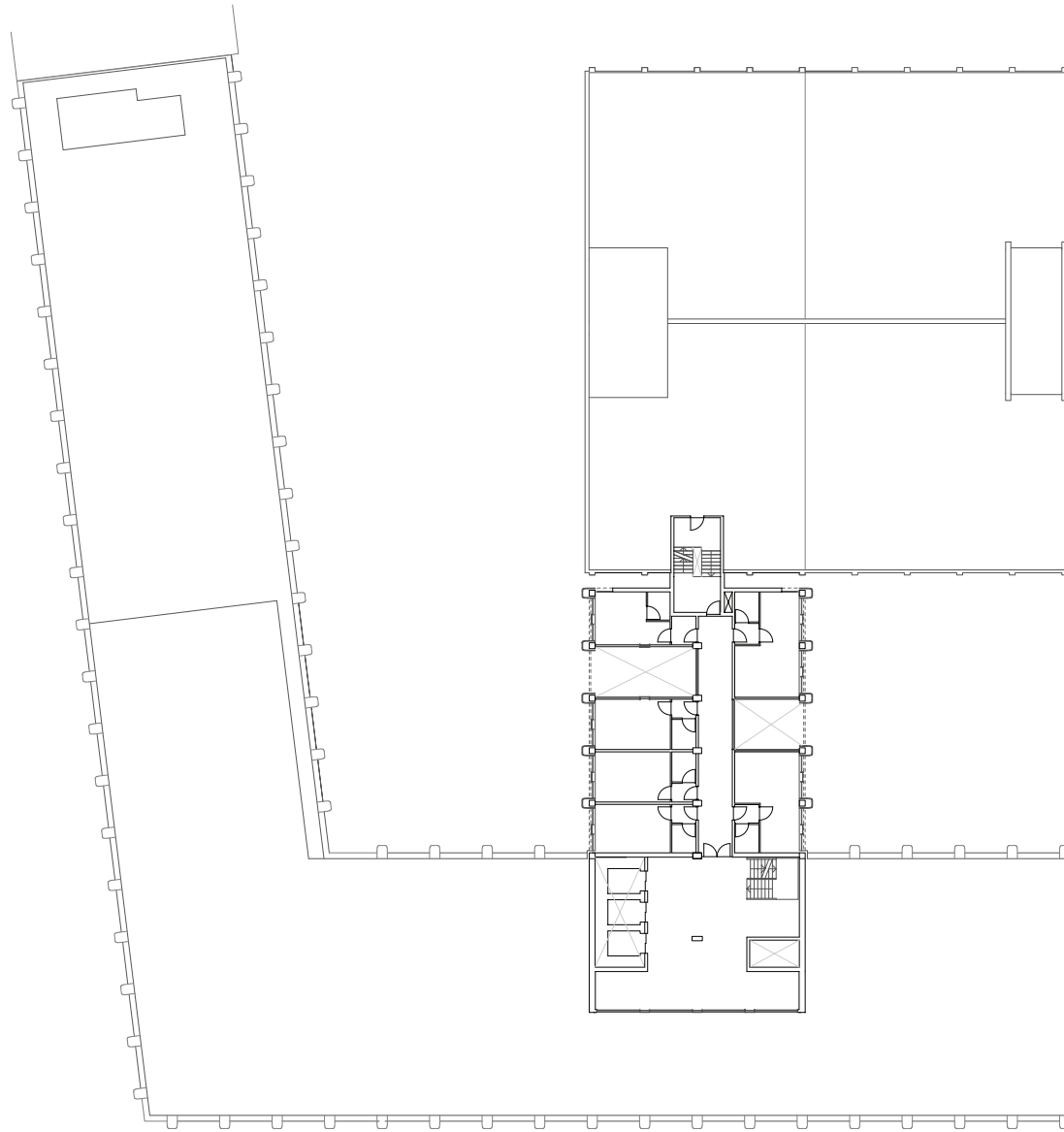
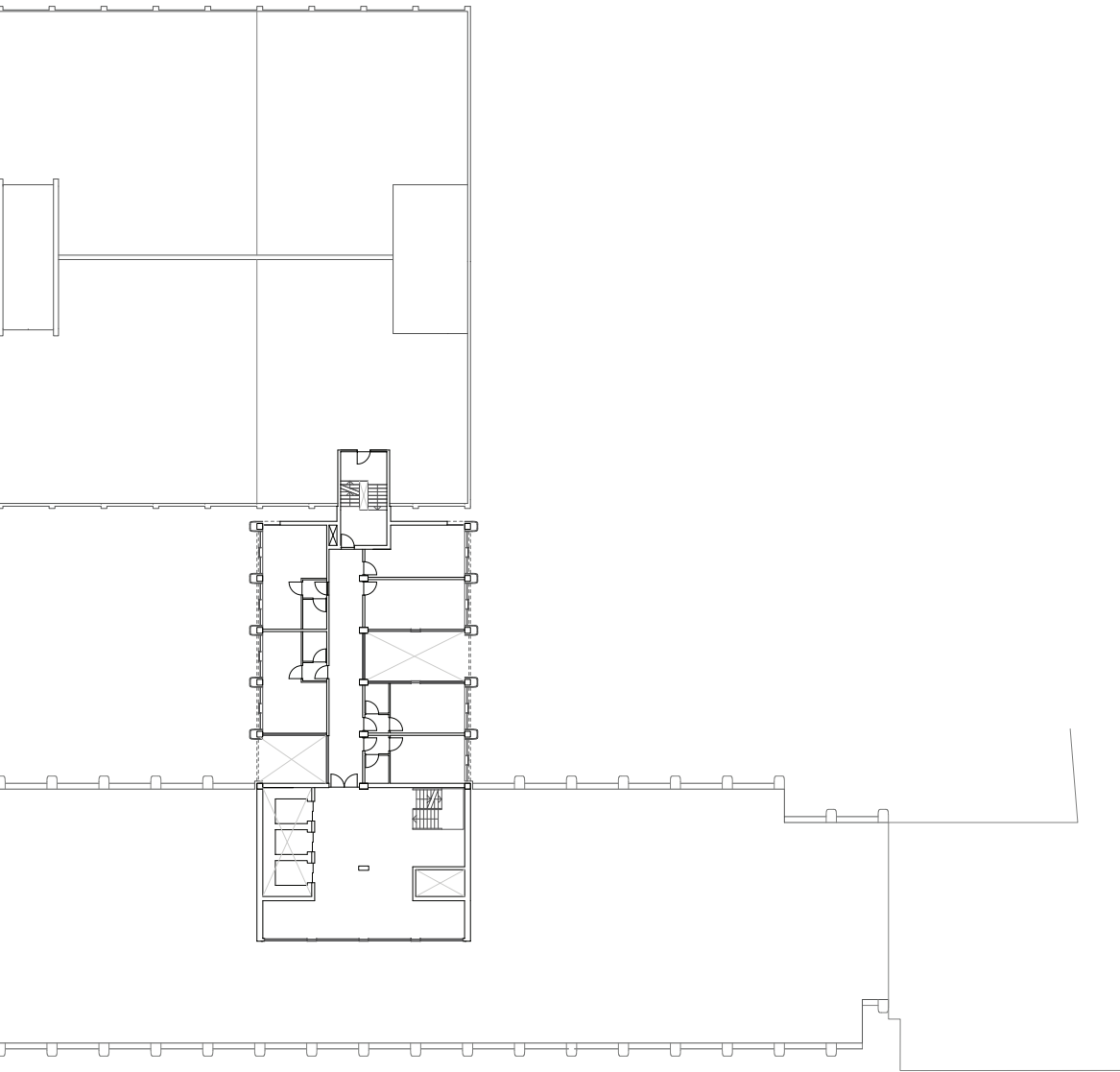


fig. 53 - Floorplan scale 1:500



# thirteenth floor

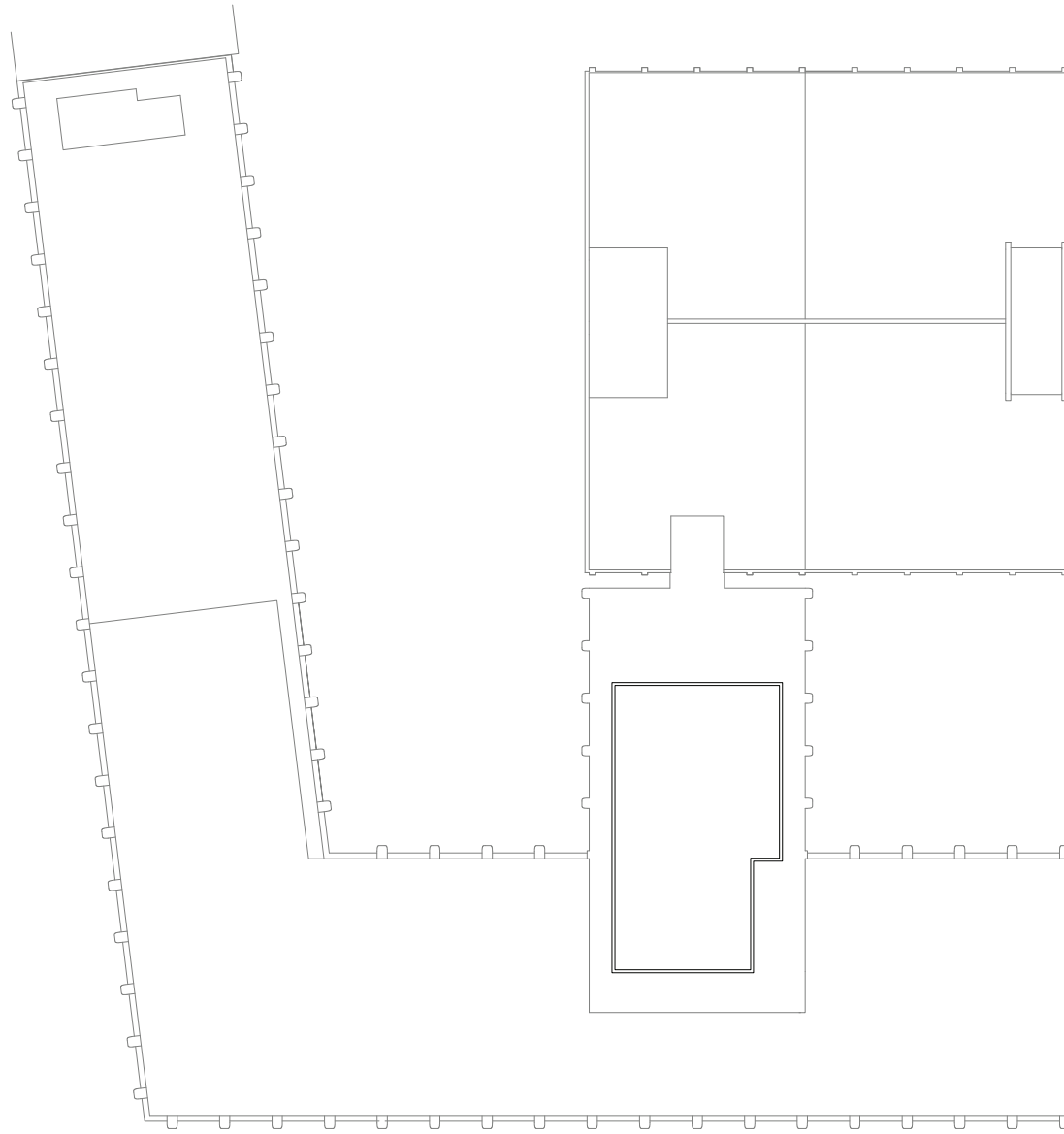
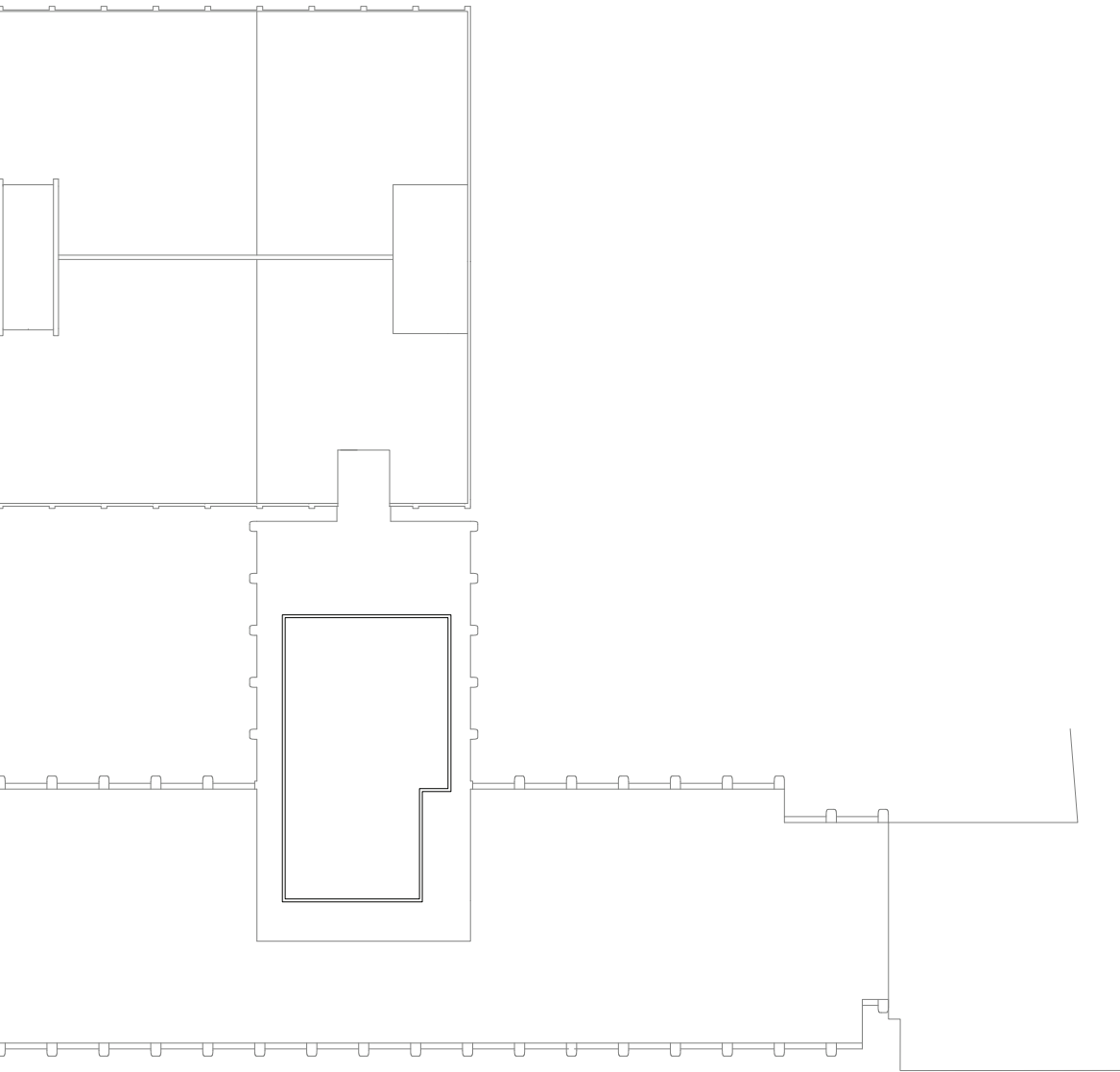


fig. 54 - Floorplan scale 1:500





# elevations

The new façades of Thornico are a new interpretation, derived from the original architectural language by Hoogstad, as found in the research analysis. As the original prefab façade was simply impossible to be kept, this alternative fits better on aspects of daylight, thermics, expression and interaction. The primary ordering in the façade, the vertical repetition of concrete column covers, is still the primary element. The secondary ordering however, are now subservient to the functional demands.

The hollow columns, designed for installations, have been taken out of the façade. The system was outdated and obstructive. They are however still referred to, in the design of the window frames. The window frames are as high as possible, in order to have a large glazed surface. This is required, to get daylight into the building and to get inactivity between interior and exterior. One of the goals of these window frames, is showing what is happening inside the building to the outside.

These window frames, vertically aligned to the position of the columns and former hollow columns, are slightly different for each function in the building. The depth of the glazing panels is also different per function. In that way, the multiple functions that are mixed over different floors and compartments, can be experienced even better. The difference in glazing color reinforces that effect.

The column covers on the actual load bearing columns, are also designed humbly to Hoogstads design. Although the design of Hoogstad was slightly narrowed to the outside, it was very angulated, causing a hard, closed, imperturbable and inexpugnable character. In order to make the building extravert instead of introvert, the edges of the column covers are now slightly curved and abstracted. Instead of using the brutalist, bare, rough aggregate concrete, the transformed Thornico needs light colored, smooth 'micro-concrete'.

Because of the high window frames, the horizontal elements are kept as low as possible. To get a better experience of depth and relief in the façade, these covers are positioned in depth in between the window frames and vertical columns. This relief is strengthened by the materialization: antracite colored concrete with a horizontally brushed finish.



# westblaak elevation

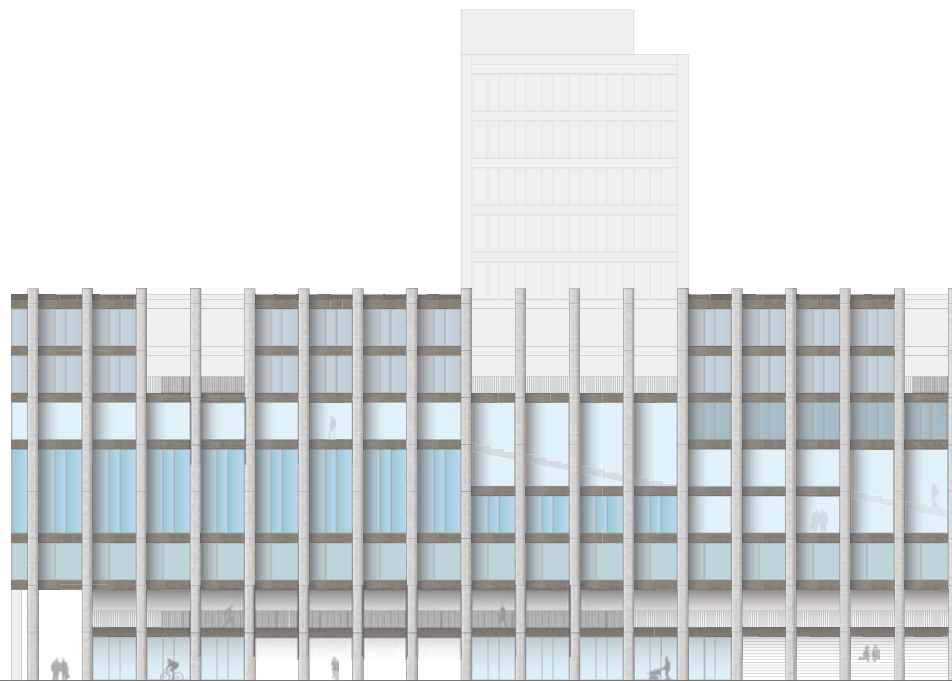
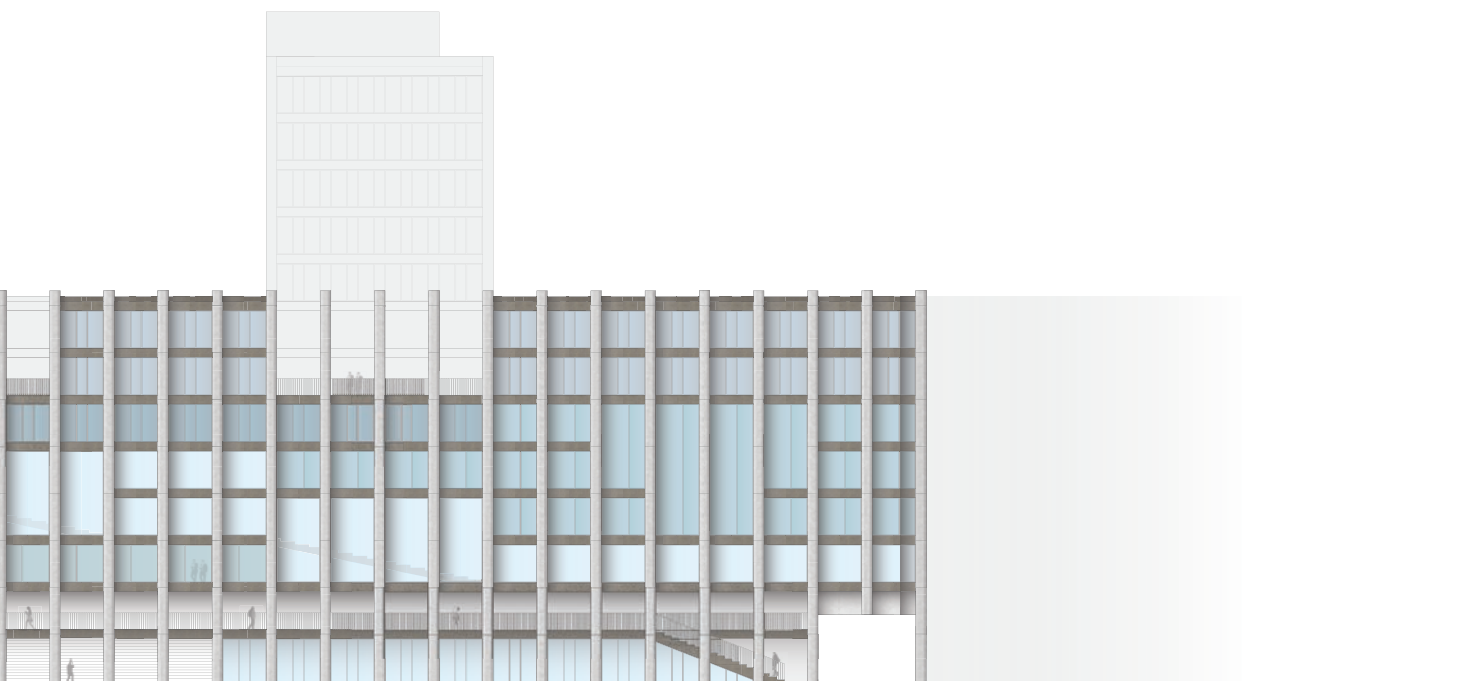


fig. 55 - Elevation scale 1:500



# hartmansstraat elevation

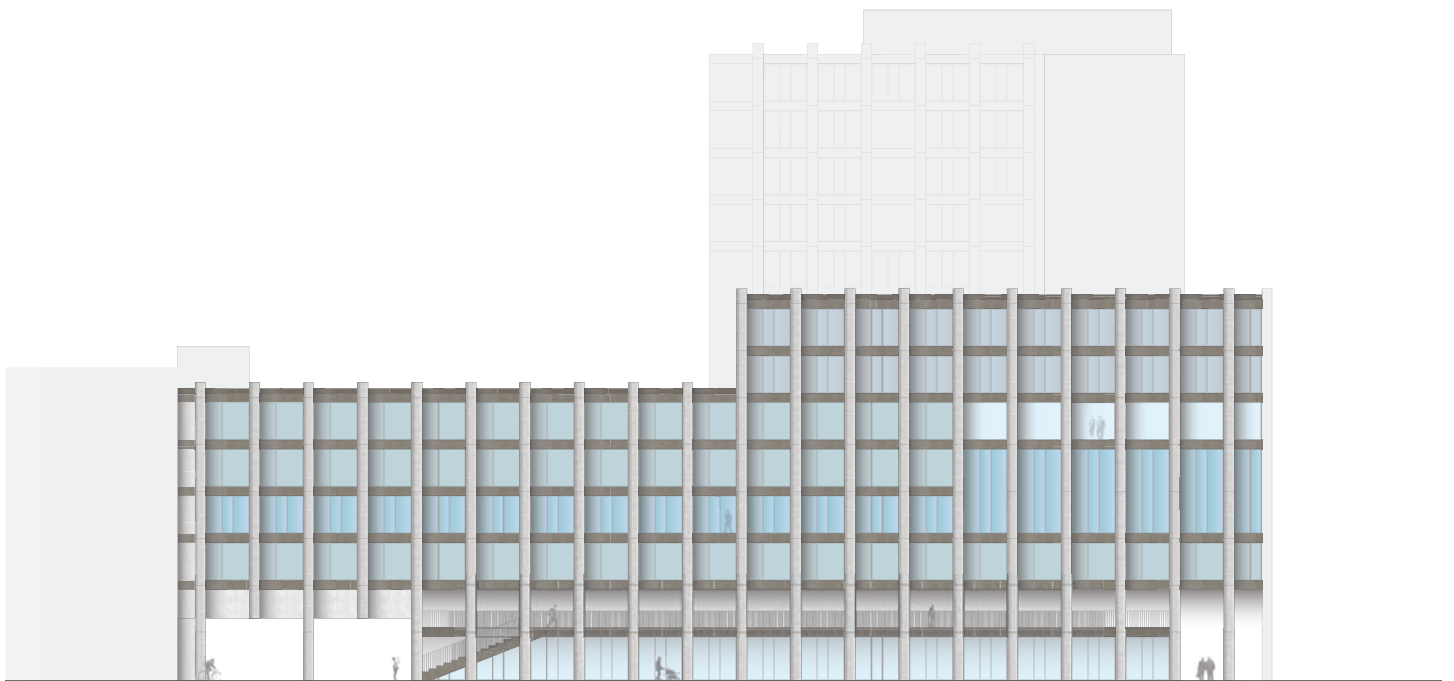


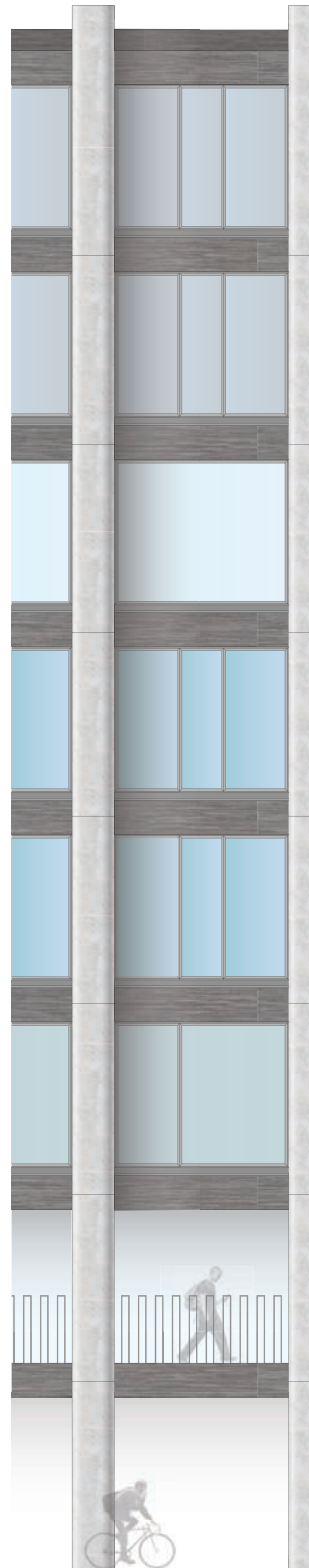
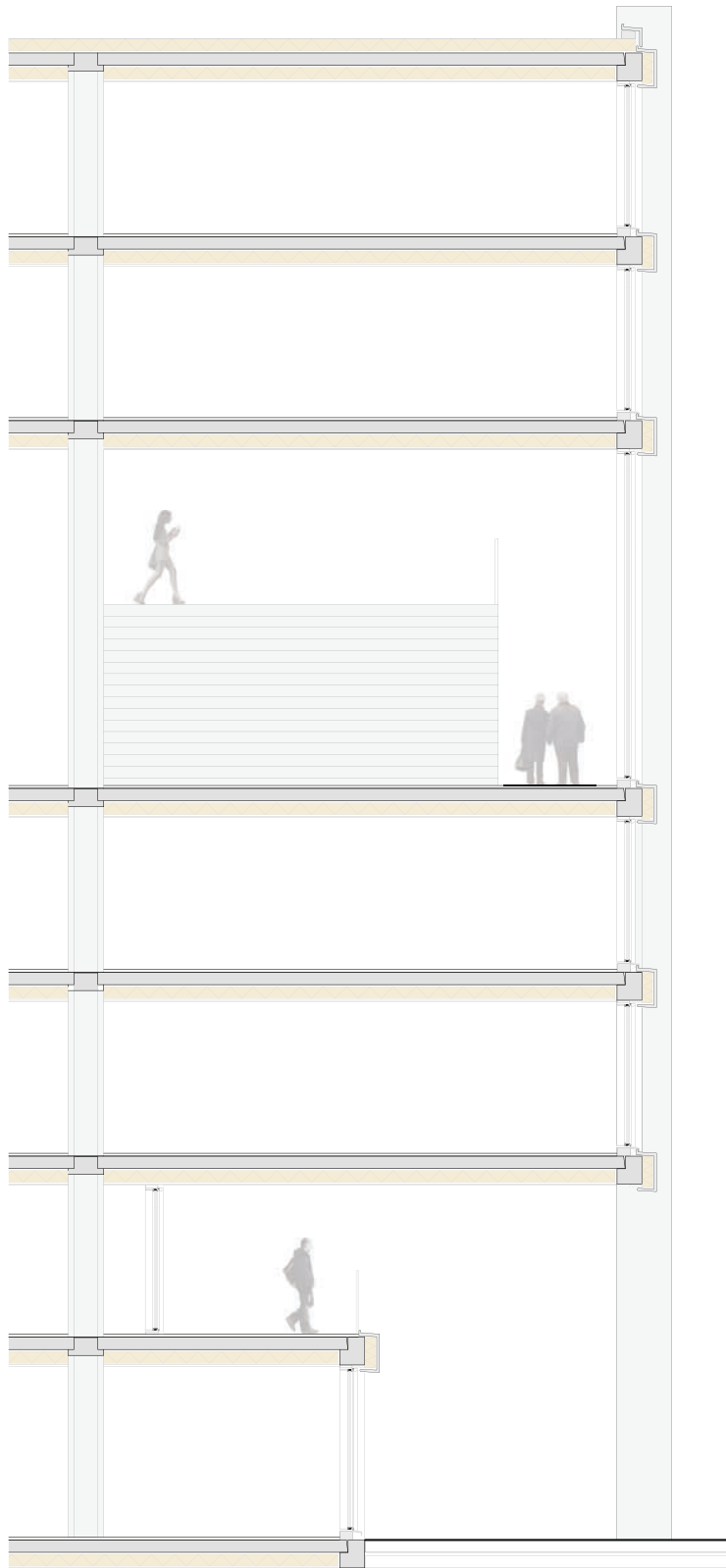
fig. 56 - Elevation scale 1:500

# boomgaardstraat elevation



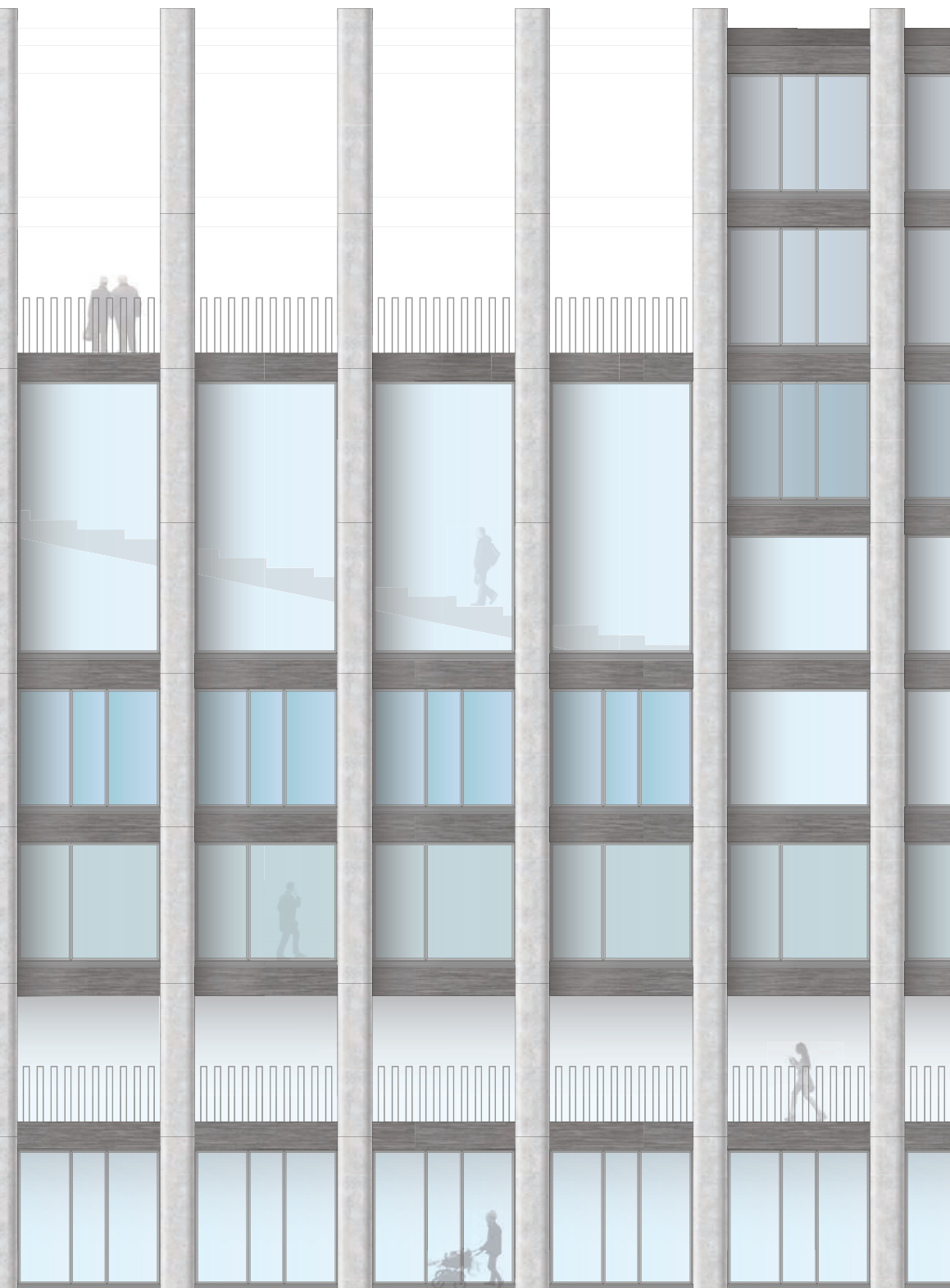
fig. 57 - Elevation scale 1:500

# façade fragment



78 fig. 58 - Façade fragment (scaled)







# sections

Sections are important to understand the design of the Thornico transformation. Because of the different floor heights of Thornico building and both parts of the parking garage, combined with the seven degrees angle at the Westblaak/Hartmansstraat corner, sections can provide information that floorplans can't.

The cross section shows how the urban courtyard can be entered from the Westblaak, the gradually increasing court yard, the special setting of the double high arcade and the interior spaces along the Westblaak.

The parallel section of the (former) parking garage shows the division and mixing of functions. The bottom two floors remain car parking garage. On top of that, the exterior top level of the urban courtyard enclosed by bars or restaurants. Above the public space focused functions, housing is designed. Three parking garage floors are transformed to a double layer 'Le Corbusier' typology lofts, oriented East-West, to the public spaces.

The parallel section of Thornico, shows the mix of different functions orientated in the building. All functions are accessed by at least one of the two cores, and therefore need to be connected to these cores.

# building cross section



fig. 59 - Section scale 1:500

# parking parallel section

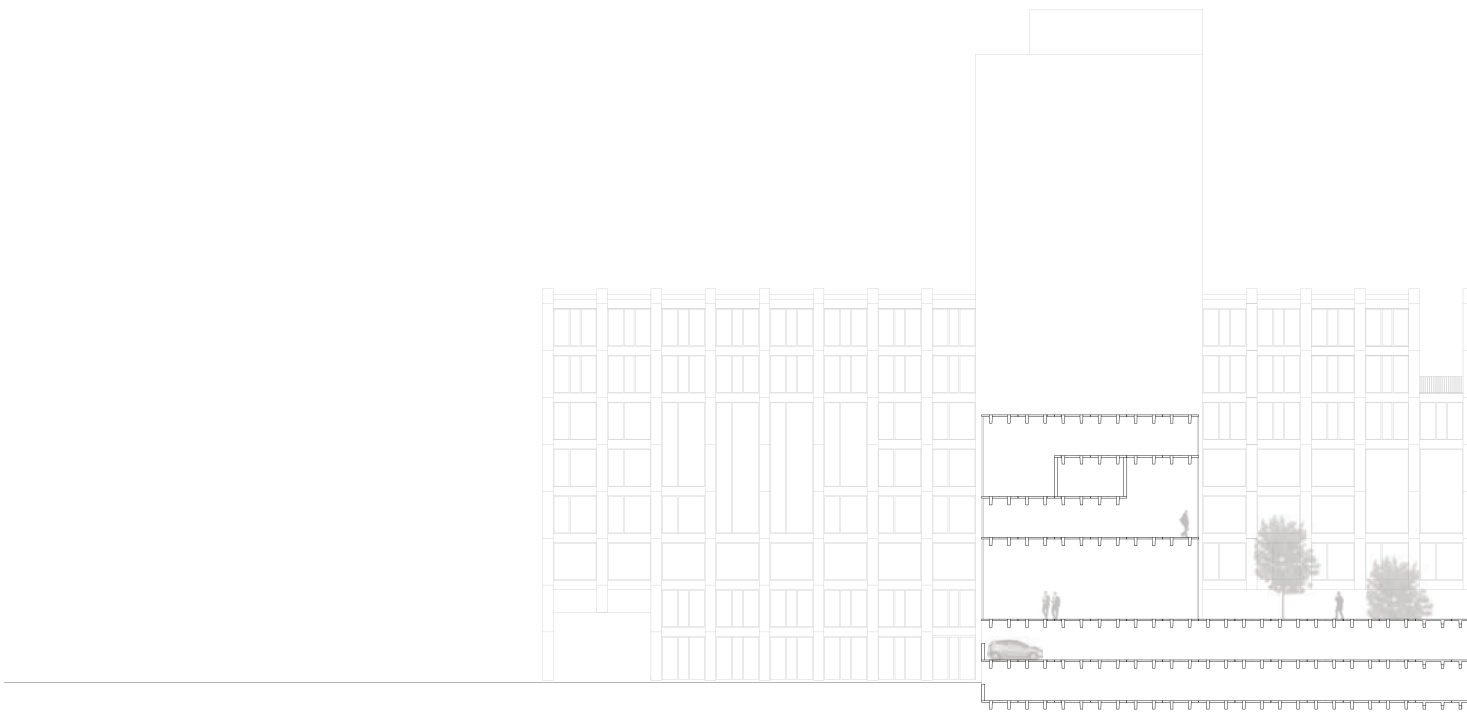
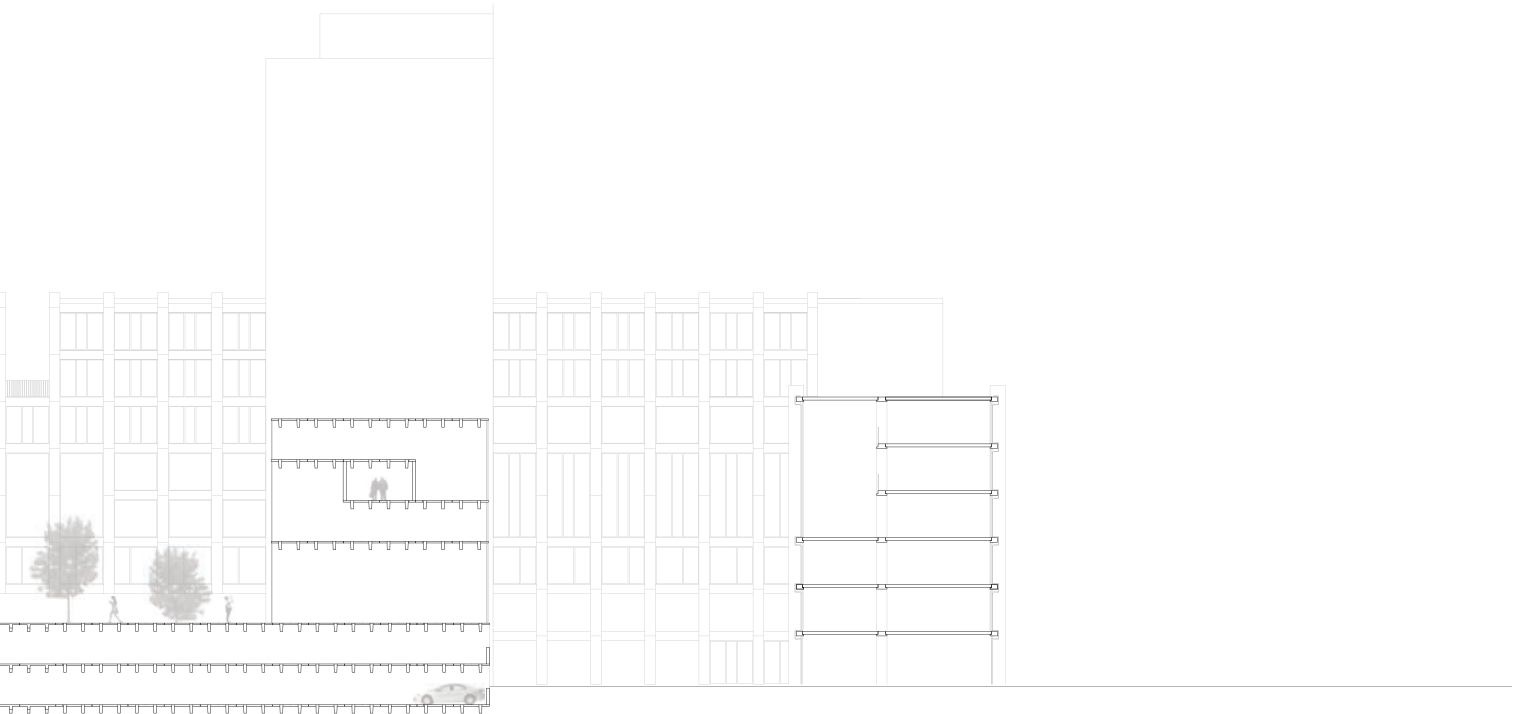


fig. 60 - Section scale 1:500



# building parallel section

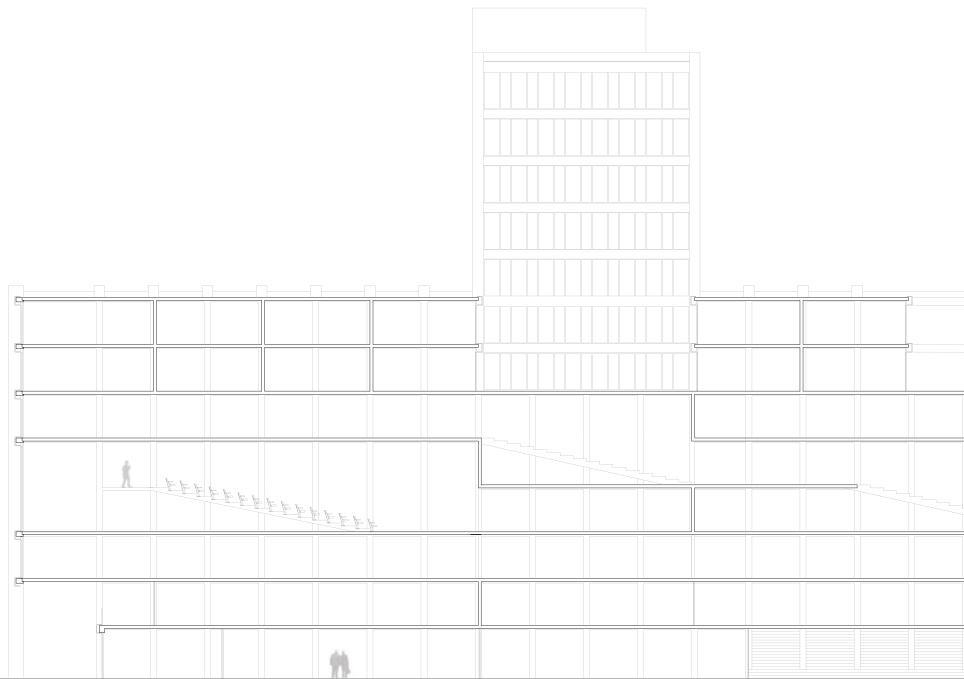
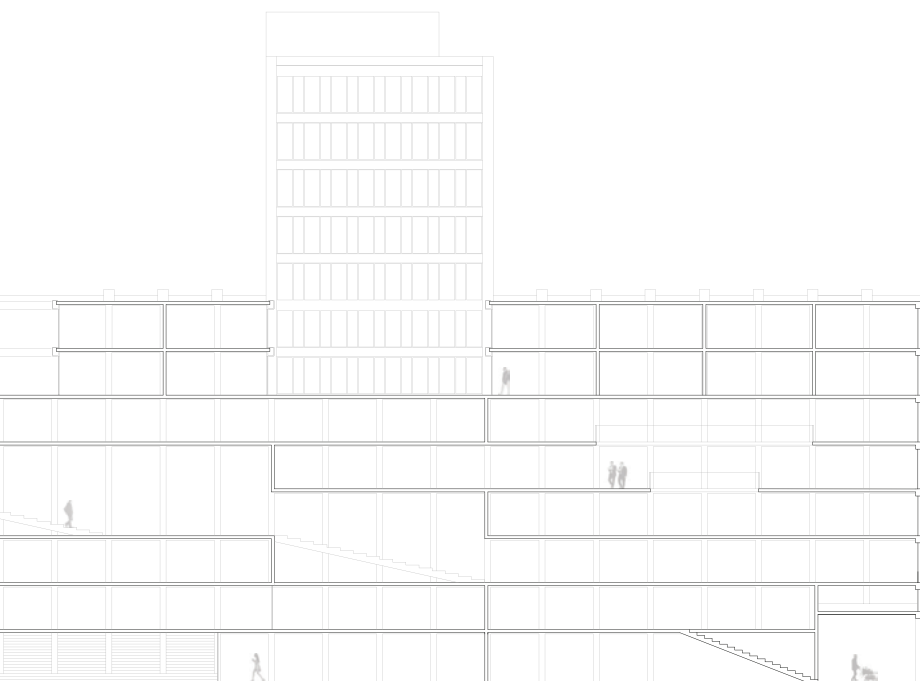


fig. 61 - Section scale 1:500



# models

Models have been used in different phases in the design. In order to get a better understanding of the concept and its feasibility, there needs to be a translation from a two-dimensional or three-dimensional design concept to a real, physical model. Next to a lot of conceptual and exploratory models, three presentation models were made: an urban context model 1:500, a section model 1:200 and a load bearing structure model 1:100.

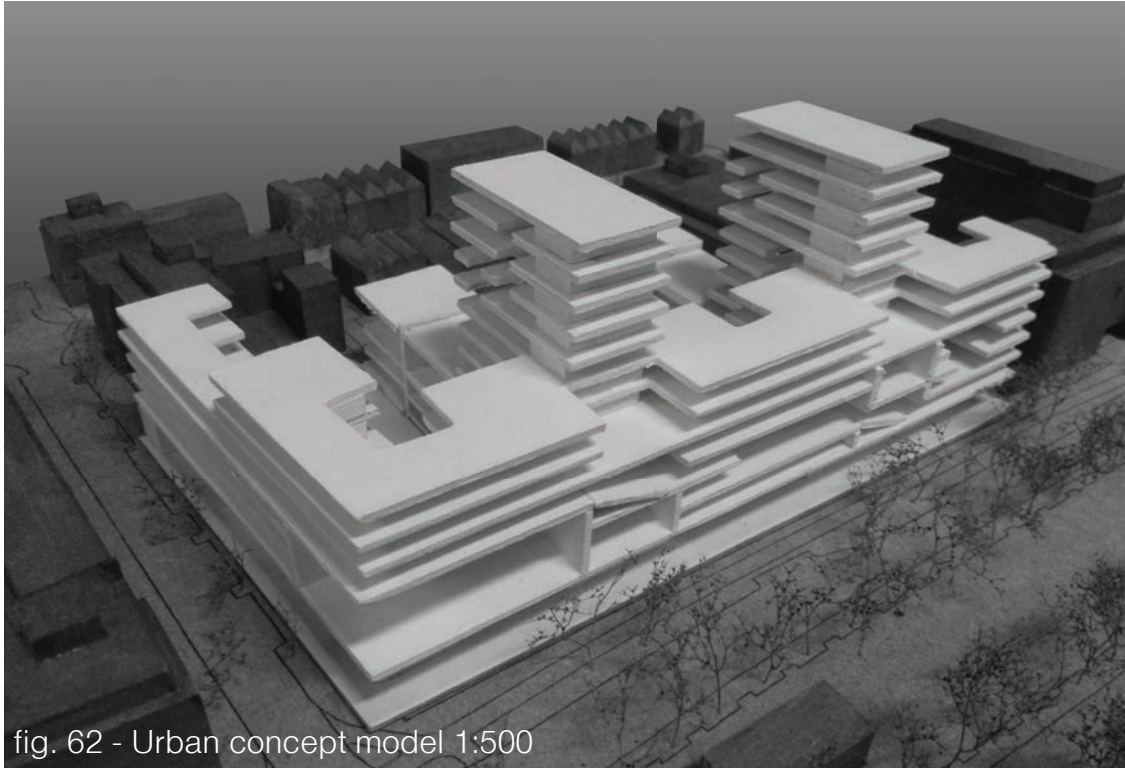


fig. 62 - Urban concept model 1:500

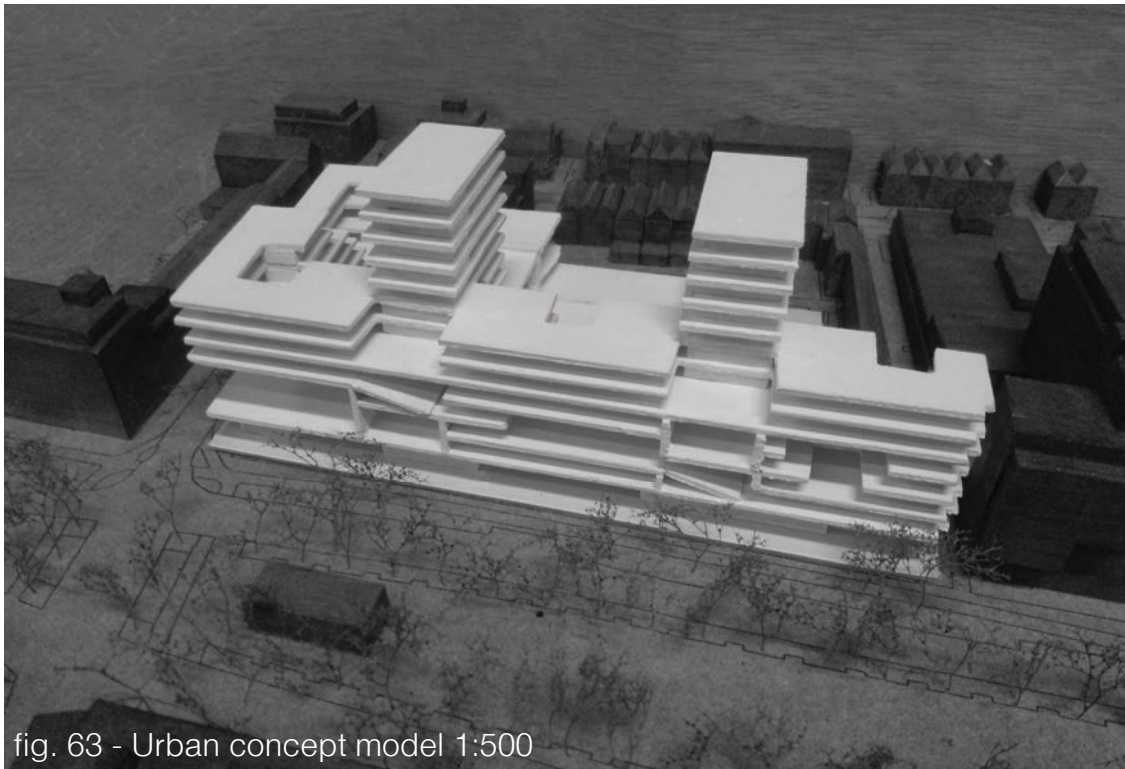


fig. 63 - Urban concept model 1:500



# models

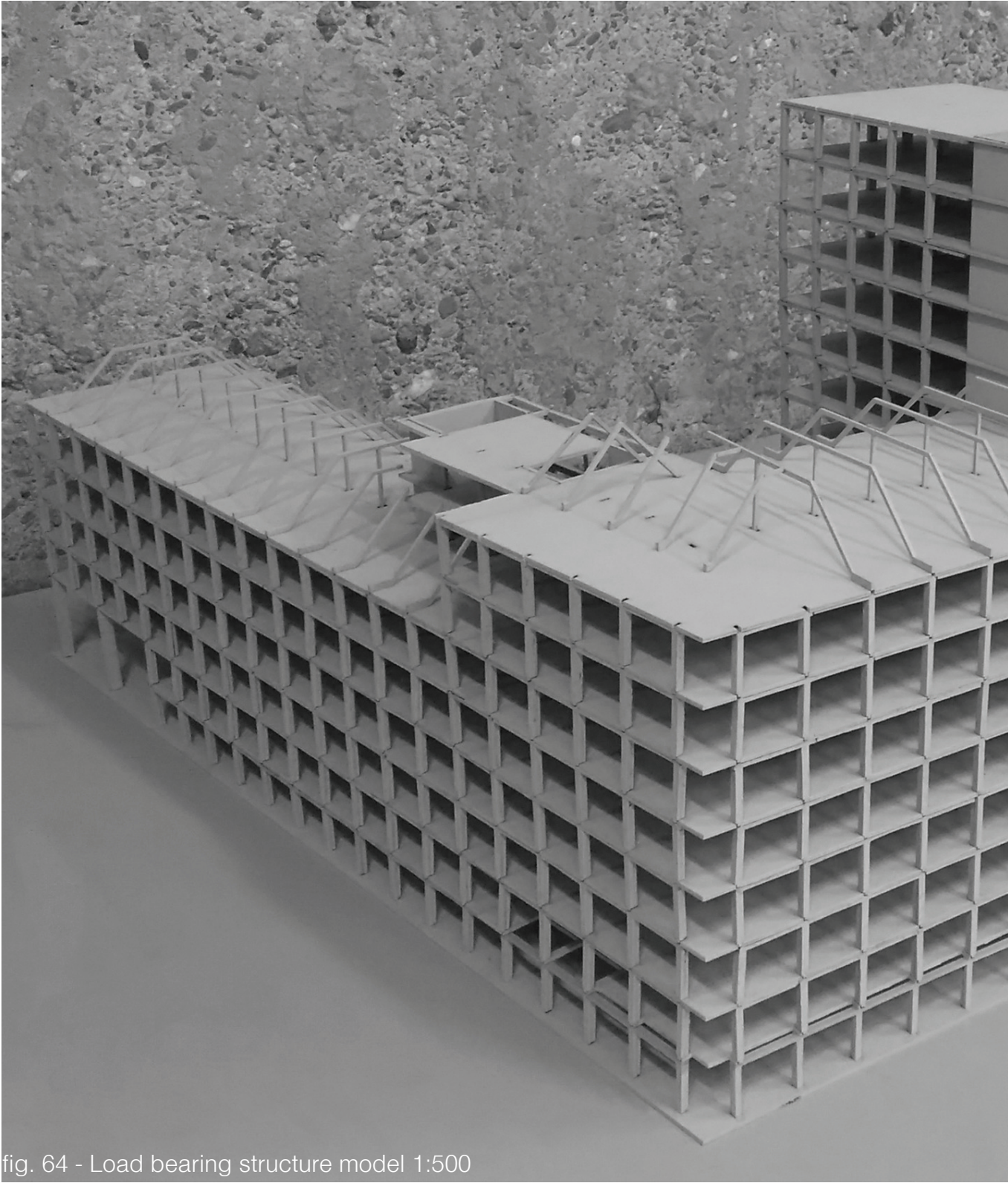
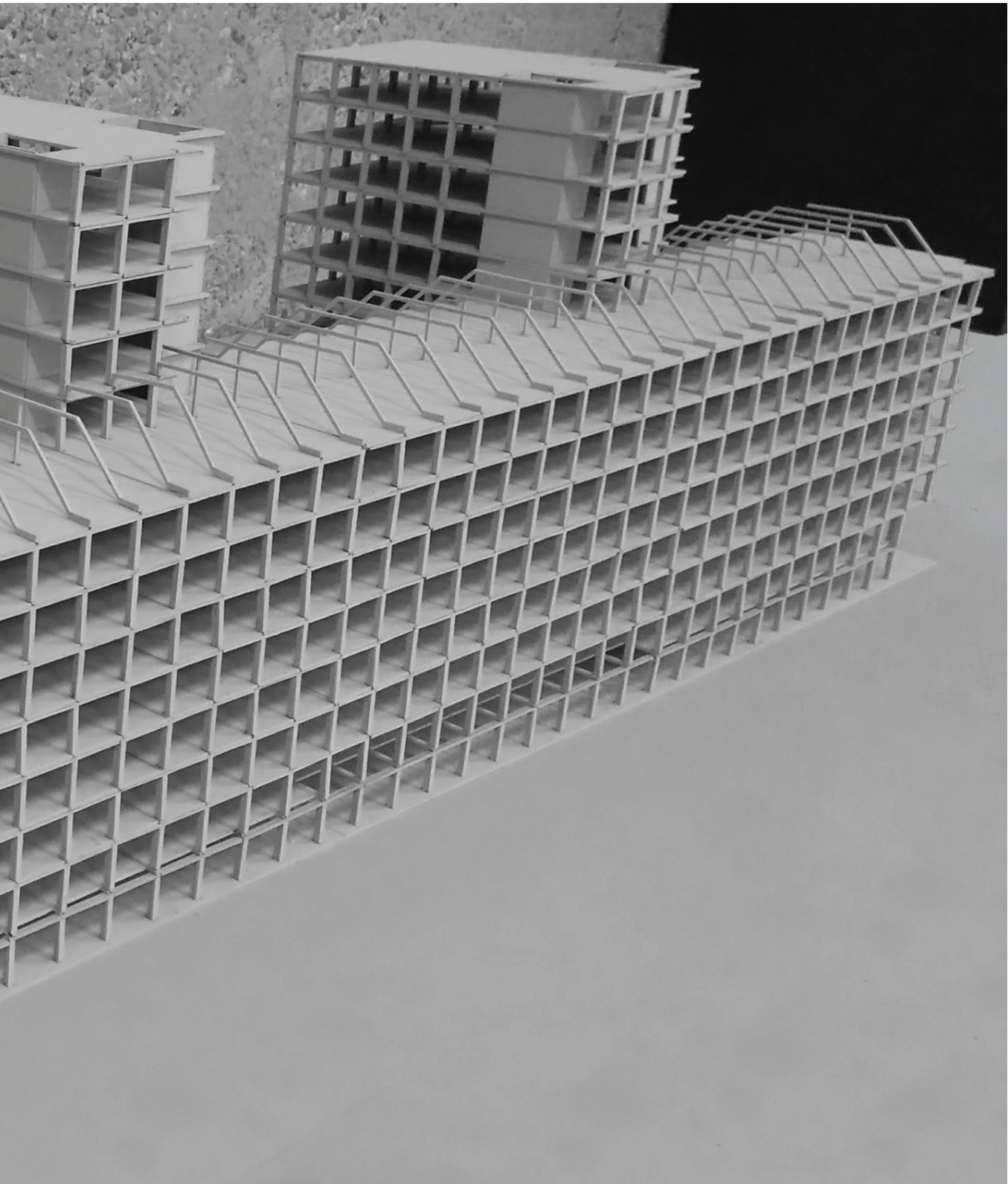


fig. 64 - Load bearing structure model 1:500



# section model

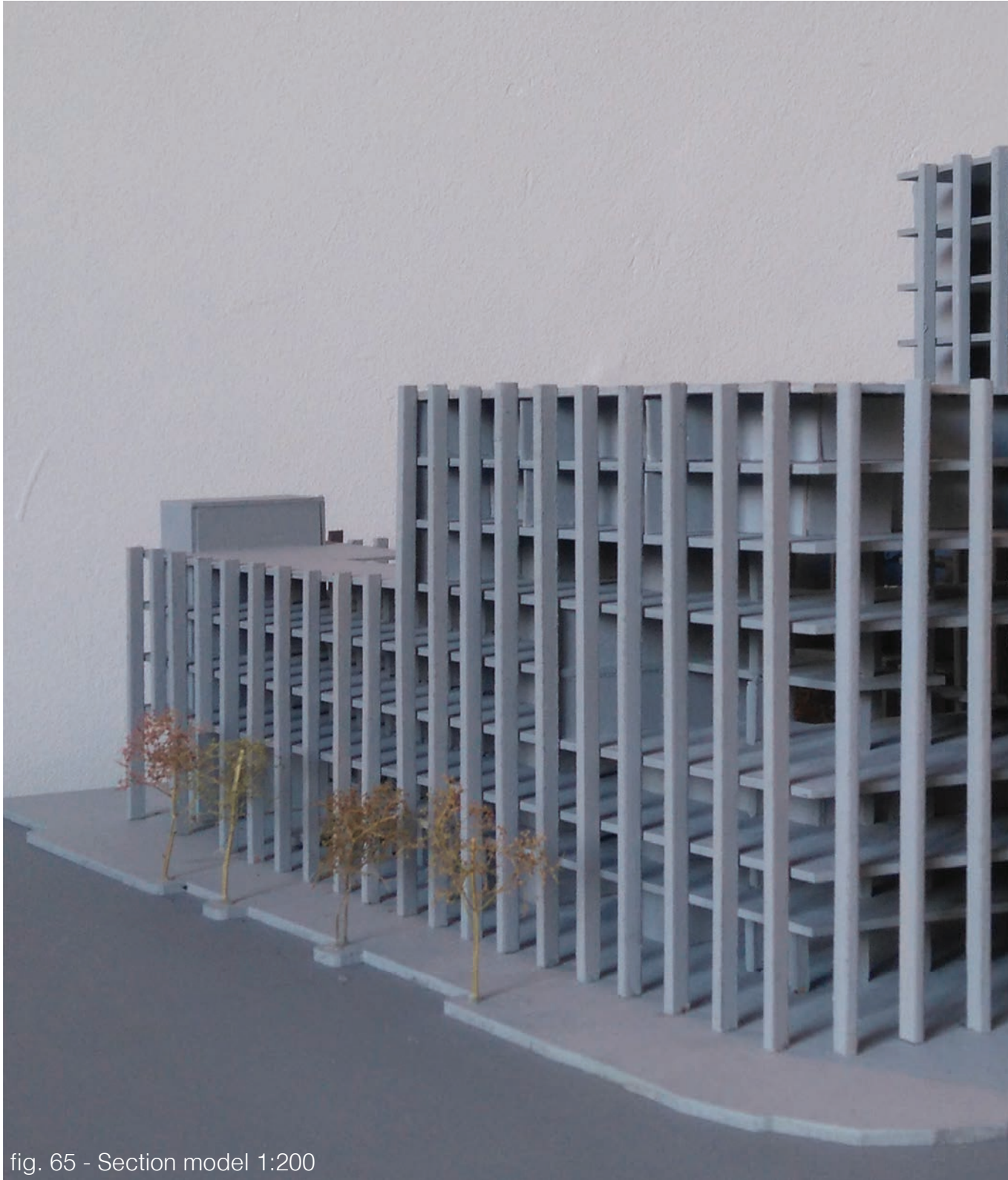
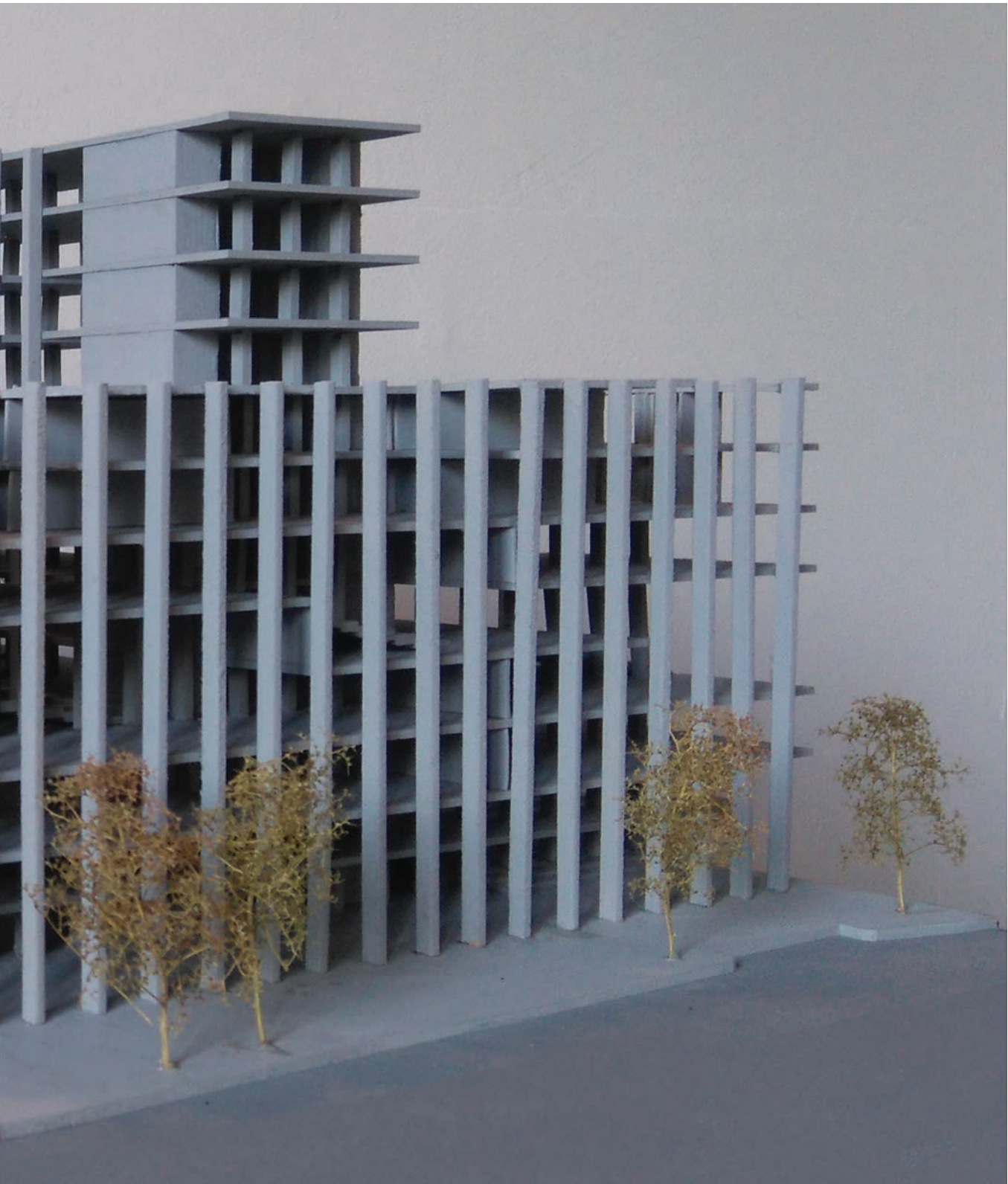


fig. 65 - Section model 1:200



# section model

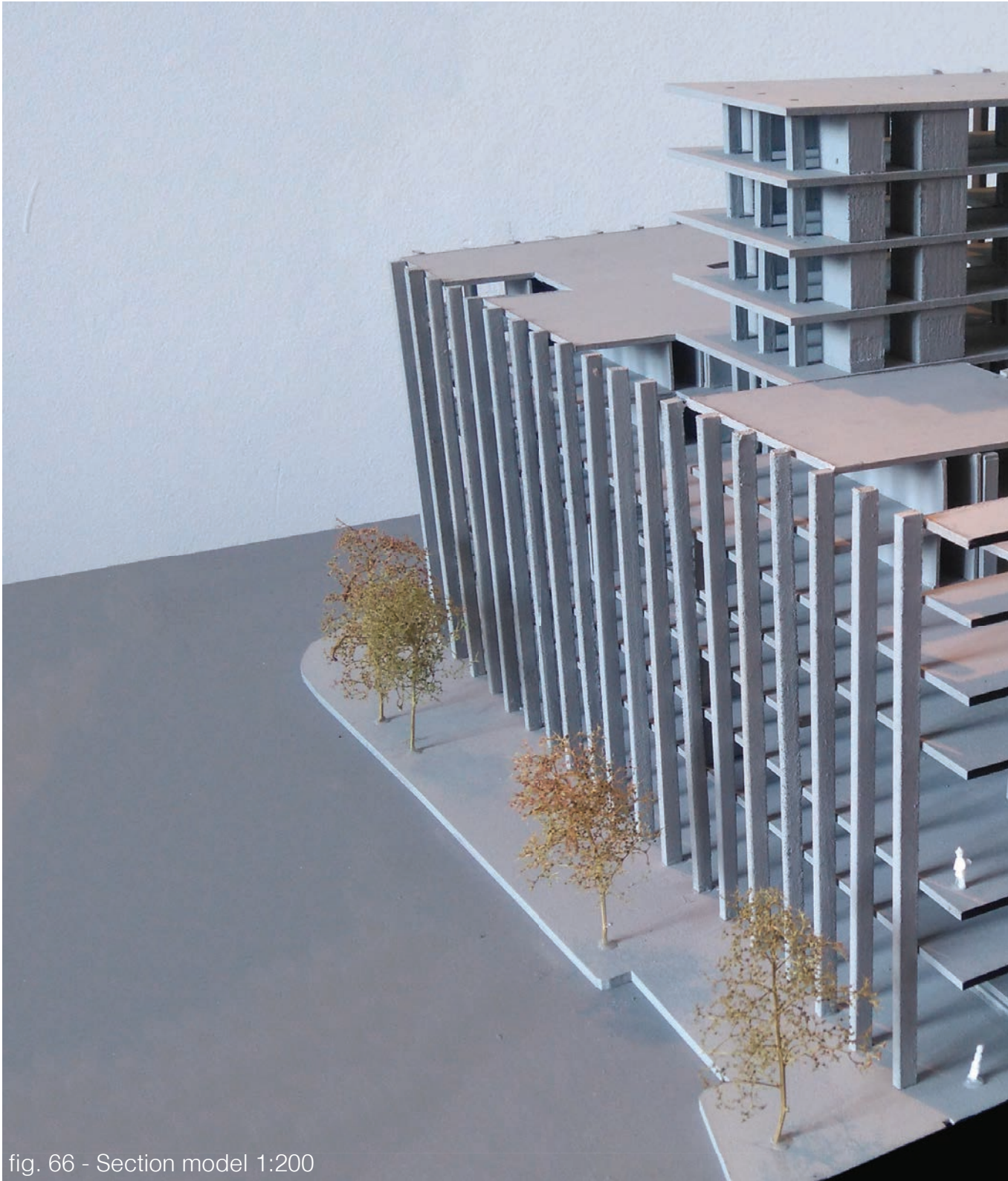
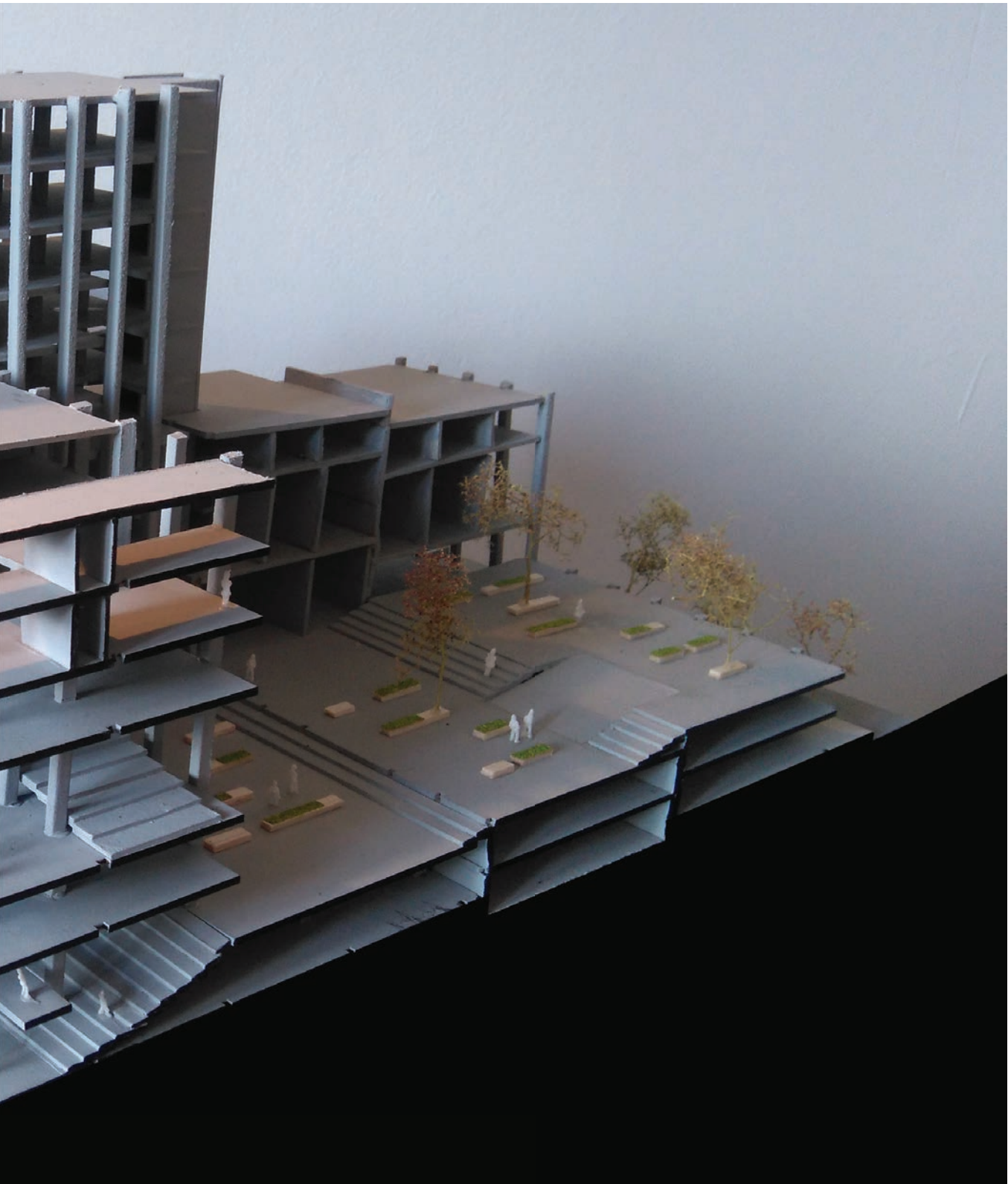


fig. 66 - Section model 1:200





# conclusion



# conclusion

The aim of this graduation studio was to understand the challenges and all interests that affect the complexity of the transformational design brief and solve the identified problems in a design. In order to improve Thornico building and the urban setting, this design assignment and research focussed on Jan Hoogstad's original architectural language, the urban context and a new program for Thornico.

After extensive and comprehensive analysis of the Thornico building itself and its history, the urban context and setting, a concept was formed. The most important aspects were turning Thornico into an open, accessible and extravert building instead of a closed and introvert building and making a connecting between Lijnbaan and Witte de Withstraat area, instead of forming a massive boundary.

This concept was elaborated to a transformational design in which opening spaces was the major intervention. The key factor was not to add new floor space, but removing floor space in order to get quality spaces, instead of quantity spaces. In this way, a lot of connections and a lot physical and visual interaction and is created. Qualities that the building structure itself already had, but just were not utilized.

I think the transformational design of this project would be a huge improvement, relative to the current situation of Thornico building. However, to me the design doesn't feel completely finished yet. I would have loved to completely design all different functions within the design till detail level and show my personal signature.





# discussion

# discussion

Over three quartiles I have been working on this graduation studio, with a lot of contentment and gratification. I think I have learned a lot and found a lot of encouragement, inspiration and motivation. However, afterwards I think things might have been better in a different way.

At the beginning of the project, I think too much time was spent urban analysis and lay-out. It seemed like analysis were not an instrument, but more of a goal. Also, adjusting drawings for a corresponding lay-out of the analysis booklet took a lot of time.

The new graduation studio program, which is only three quartiles instead of four, feels very short. I think now, that spending an entire quartile for analysis was too long. That time could have been used on elaboration of the design.

The main trend in the graduation committees feedback on the final colloquium presentation, was the lack of a personal signature in the design. Feedback which I totally agree with. To me, the design doesn't feel completely finished yet. I would have loved to completely design all different functions within the design and show my personal touch in better impressions and models. I think the time spent on analysis, might have better been used for the finishing touch of the project. If only there was a little more time, I think the design could have been a lot more personal and a lot better.

In end, I'm satisfied with what I've learned in achieved in a relatively short period of time. I would like to thank my graduation committee, Paul Diederer, Anne Marie Peters - Van den Heuvel, Renato Kindt and tutor Tomas Dirrix for their support.





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Fig. 1:

Van Duivenbode, O. (2016). [Homepage Thornico Building]. Retrieved October 17, 2016, from <http://thornicobuilding.com/>

Fig. 2:

Groeneveld, A. (1976, August 30). Bouw kantoor Westblaak. Retrieved September 22, 2016 from Stadsarchief Rotterdam: <http://collecties.stadsarchief.rotterdam.nl/publiek/detail.aspx?mode=eenvoudig&view=lijst&globaal=&volgnummer=0&xmldescid=229326809&dossierid=&positie=1>

Fig. 21:

Goethals, V. (2014, October 22). Rotterdam, Manhattan aan de maas: onze top 6. Retrieved November 7, 2016, from <http://wacca.be/2014/10/rotterdam-manhattan-aan-de-maas-onze-top-6/>

Fig. 24:

Legado Architects. (2016, August). Skatepark Westblaak II. Retrieved November 7, 2016, from <http://lagadoarchitects.com/portfolio/skatepark-westblaak-ii/>

Fig. 26:

Vink, M. (2009, January 04). Metro serie 5600. Retrieved November 7, 2016, from [https://nl.wikipedia.org/wiki/Beurs\\_\(metrostation\)#/media/File:Metro\\_serie\\_5600\\_Beurs.JPG](https://nl.wikipedia.org/wiki/Beurs_(metrostation)#/media/File:Metro_serie_5600_Beurs.JPG)

Fig. 27:

Booijink, A. (2012, December 30). De Nieuwe Campus. Retrieved October 17, 2016, from <http://www.agnesbooijink.nl/de-nieuwe-campus>