



Bouwstenen Vogelbuurt

bottom-up woningtransformatie door het stimuleren van particuliere woningverbetering



RMIT Graduation Studio
Transforming Housing Heritage
Graduation report

Persoonlijke informatie

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Inleiding

Deze scriptie *Bouwstenen Vogelbuurt* presenteert een jaar van onderzoek en ontwerp aan de Vogelbuurt in Carnisse, Rotterdam Zuid. Dit afstudeeronderzoek werd uitgevoerd met de onderzoeks-methodologie van de leerstoel R-MIT, die binnen de Bouwkunde opleiding van de Technische Universiteit Delft focust op renovatie en herbestemming. De doelstelling van de afstudeerstudio *Transforming Housing Heritage* was om interventies te ontwerpen die de bestaande woningbouwvoorraad een duurzame toekomst kunnen geven, zowel voor een specifiek voorbeeld als voor - meer generiek - vergelijkbare blokken op andere plekken.

Dit is een uitdagende benadering van de ons woningbouw erfgoed. Herontwikkeling is voor mij, vooral wanneer het woningbouw betreft, een puzzel die op meerdere manieren opgelost kan worden, de één nog mooier en intelligenter dan de ander. Met de beperkte (realistische) mogelijkheden die er zijn binnen bestaande bouw is het des te meer een uitdaging om een project tot een goed einde te brengen. Daar tegenover staat dat je met vrij weinig ingrepen heel veel resultaat kunt boeken. Dat maakt herontwikkelen zo fascinerend.

In dit project heb ik gefocust op acht portiekflats, ontworpen door J.H. van den Broek. Ze staan in de Vogelbuurt in Carnisse, Rotterdam Zuid. Gebouwd in en direct na de Tweede Wereldoorlog boden ze ooit goede huisvesting aan de mensen die door het bombardement op Rotterdam dakloos werden. De portieketagewoningen, ongeveer 50 m² groot, worden nu echter als klein en kwetsbaar bestempeld.

Ondanks hun leeftijd zien de blokken er behoorlijk goed uit. Door de materiaalschaarste in de oorlog werd er zoveel mogelijk bespaard op hout en staal. Door het veelvuldige gebruik van baksteen en beton weerstaan de blokken de tand des tijds veel beter dan hun voorlopers in de naastgelegen Eilandenbuurt.

In het Nationaal Programma Rotterdam Zuid (2011) heeft de gemeente Rotterdam de ambitie uitgesproken om in de komende twintig jaar zo'n 35.000 woningen op Zuid te vervangen of significant te verbeteren. Daarvan zijn 23.000 huizen in privaat eigendom, waaronder deze portiekwoningen in de Vogelbuurt. In dit onderzoek ben ik op zoek gegaan naar een strategie om deze woningen een duurzame toekomst te geven, op weg naar een sociaal en economisch sterker Rotterdam Zuid.

Roel van Tatenhove,
juni 2014.

Foto op de voorpagina: *figuur 0.1. De woningen in de Vogelbuurt in 2013.*
Foto gemaakt door de auteur.

Foto links: *figuur 0.2. Werklieden leggen houten balken voor de vloeren in de bouwput in Carnisse.* Bron: Veldacademie Rotterdam.



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Foto links: *figuur 0.3*. De achterzijde van de portiekflats in de Vogelbuurt.
Fotograaf: Chi Li Yao.

DEEL 1: ONDERZOEK

Chapter 1: Introduction

1.1 Problem statement

History

Rotterdam South (sometimes simply called *Zuid*) is dealing with a number of problems. It started between 1880 and 1940 as a quickly growing residential area for dockers, mainly originating from the islands of Zuid-Holland and Zeeland, and from Noord-Brabant. When the harbour grew it moved to the west, away from the residential areas. But from 1960 onwards, the ship building sector collapsed. Partly due to the oil crisis the economic activities in the harbour shrank and many people in Rotterdam Zuid became unemployed. This introduced poverty and impoverishment. Many residents moved away, their places to be taken by immigrants from among others Suriname, the Antilles, Turkey and Morocco.

Between 1975 and 1990, big parts of Zuid were redeveloped. The neglected privately owned dwellings are replaced by social housing projects, attracting the less privileged people. Combined with the establishment of new residential areas in the periphery of Rotterdam that attracted the wealthier residents of Rotterdam-Zuid, this led to a selective migration with negative effects on Zuid. Nowadays, the impoverished and relatively cheap apartments in Zuid attract the underprivileged from both other parts of the Netherlands and other European countries.¹

This is resulting in problems on the fields of living, working and education.²

Social problems³

Rotterdam Zuid has on average a low income. On Zuid, the average income is 10% lower than in Rotterdam. In the specific areas of Carnisse, Tarwewijk, Bloemhof and Feijenoord this is even 21% lower.

Rotterdam Zuid is also less safe than other parts of Rotterdam. Some areas experience significant nuisance by youth. There is no guidance for this youth; only when things start to get pretty serious, authorities come into action. Partly because of the high migration rate in the areas, there is little social cohesion.

On Zuid, there is a relatively low education level. Combined with the present language deficiency and the high rate of early school quitters, this leads to a high rate of youth unemployment.

There are few jobs in Zuid anyway. A third of the population of Rotterdam is living on Zuid, but only one fifth of all jobs in Rotterdam are based in Zuid. The growth of jobs is low on Zuid and the connections between jobs and Zuid are quite bad compared to the Northern part of Rotterdam. The possibilities that the area around Zuid offers are threatened by these bad connections.

Physical problems⁴

There is a very large vulnerable dwelling stock on Zuid and the organisation of the urban space is of low quality. There are few opportunities to make a 'dwelling career' in Zuid, for there is a very one-sided dwelling supply of small and outdated dwellings. Many dwellings



Figure 1.1.1 Rotterdam Zuid as many people think it is. Source: Veerkracht Carnisse, 2013, p. 15

¹ Gemeente Rotterdam et al., 2011, p.3

² Rijksoverheid, 2013

³ Deetman Mans, 2011, p. 7-8

⁴ Deetman Mans, 2011, p. 8-9



Figure 1.1.2 The actual situation in the Vogelbuurt. Photo made by author.

suffer a lack of maintenance and many residents do not have the financial possibilities to maintain their dwellings.

Furthermore, Rotterdam Zuid is a very fragmented area, composed of little neighbourhoods that are separated by major roads. There is low connection between areas. Investments in one area have low influence on adjacent areas. At last, there are bad east-west public transport connections in Rotterdam-Zuid.

NPRZ

These problems are not unique, but they tend to be harder to solve than in other cities. Therefore, the Ministry of Internal Affairs started in September 2011 the National Program on Rotterdam-Zuid (NPRZ) in which the government, the municipality of Rotterdam and many other organisations aim at regenerating Rotterdam Zuid. 'Regenerating' can be described as to revitalize, or to give new life and energy into an area. In the case of Zuid, this should be done through more employment, better education, higher incomes and more attractive residential areas.

The residential areas should become more attractive in four tracks⁵:

- replacement and improvement of privately owned dwellings
- replacement, improvement, addition and maintenance of social housing
- improvement of the accessibility of Rotterdam Zuid
- improvement of the safety and liveability

The city of Rotterdam, speaking about the first two tracks, wants to replace or improve one third of the total amount of dwellings on Zuid. This means about 12.000 dwellings from housings corporations and 23.000 privately owned dwellings and their corresponding outdoor space.⁶ This is because the housing stock is seen as vulnerable, because the apartments are small (< 75 m²), cheap (< € 130.000 based on the tax valuation) and without an elevator, so only reachable by stairs.⁷

Because the NPRZ is a twenty years program, this should be done in the coming twenty years.

Dwelling differentiation

Why does Rotterdam want to improve these houses? It's all about the social and economic improvement of Rotterdam Zuid. The current living environments do not fit the needs and wishes of the current and new residents of Zuid.⁸ Currently, we can distinguish two groups of residents.

First, we discern the elderly. Most elderly people living in Zuid came there when they were young, to work in the harbour. Since then they have lived in Zuid. Either they can't afford to leave Zuid, but often they do not even want to. They are willing to leave their apartments for health reasons, but they'd rather live as long as possible in their own neighbourhood, in their own house.⁹

The second group are the starters. The starters choose the small apartments in Zuid for their affordable price. For a small amount of time the dwellings fit their wishes, but when they start to earn more money or when their family expands, they start to search for larger and better dwellings.¹⁰

⁵ Gemeente Rotterdam et al., 2011, p.16

⁶ Gemeente Rotterdam et al., 2011, p.16

⁷ Rovers, C., 2009, p.24

⁸ Gemeente Rotterdam et al., 2011, p.16

⁹ Steunpunt Wonen, 2004, p. 14

¹⁰ Steunpunt Wonen, 2004, p. 18



Figure 1.1.3 The actual situation in the Vogelbuurt. Photo made by author.

As said, Zuid has an excess of people with a lower income, lower education and fewer opportunities to develop themselves fully. But it is found that many in Rotterdam Zuid do manage to develop and make a career. Problem is that often they move away to other parts of Rotterdam or the surrounding villages, instead of investing financially in their homes and socially in their neighbourhoods^{11, 12} - the longer people live in an area, the more they develop a social network there and the more they are willing to help solve neighbourhood problems.¹³ New entrants 'from the underside' are taking their place.¹⁴ To improve the social and economic position of Zuid and with that the general quality of living, Zuid needs to retain the residents that otherwise would have been moving away.

Project focus

Rotterdam is looking for ways to differentiate the housing supply on Zuid. The surplus on cheap small apartments needs to be replaced by addition of larger dwellings. On the one hand this will decrease the inflow of people with few opportunities; on the other hand this will tempt the wealthier residents from Zuid to stay and attract new privileged residents. A better dwelling differentiation would help to achieve a better mixed residential crowd of 'starters' and 'movers' and a solid basis for private investments in the dwellings and (social) environment.¹⁵ Although this is not the full solution to the problems of Zuid, it is an important part of it and I would like to focus on this dwelling differentiation. What ways can be chosen to achieve this differentiation?

As we have noticed, almost 2/3rd of the 35.000 addressed dwellings in Zuid are privately owned. The municipality of Rotterdam can make arrangements with the housing corporations about the renewal or replacement of the social housing stock. But with the 23.000 privately owned apartments this is of total different process. Twenty-three thousand apartments mean about twenty-three thousand owners. They probably do not all have the financial resources to improve their dwellings and their living area. Nor does the municipality have the resources to buy all apartments via expropriation. Therefore, a strategy has to be developed to improve the privately owned apartments.

In my graduation project, I am focusing on a specific area in Zuid: the southern part of the *Vogelbuurt* in the district of Carnisse. In this area between 75 and 100% of the dwellings are designated *vulnerable*. Almost all apartments are indeed smaller than 75 m², cheaper than € 130.000 and only reachable by stairs. They are built directly after the war and delivered in 1947. Despite their age the buildings look quite good. Because only bricks, concrete and wood were available as building material in and directly after the war, the buildings show little to almost no damage. They have also shown to be flexible. Numerous changes have taken place in the dwelling layout, designed by the different residents.

¹¹ Deelgemeente Charlois et al., 2009, p. 25

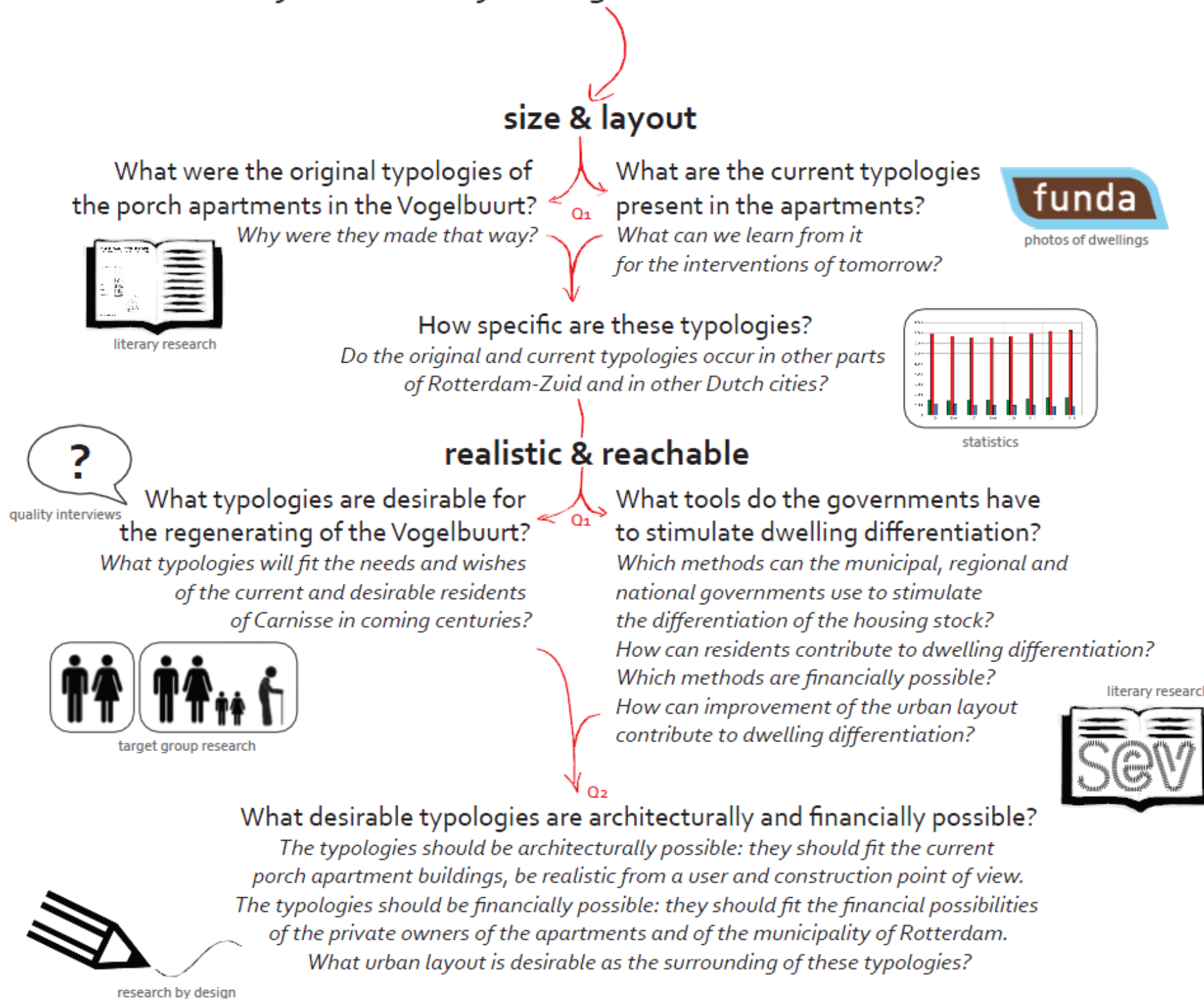
¹² Ophem, I. van, 2012, p.5

¹³ Brounen, D., Cox, R. and Neuteboom, P., 2011, p. 2671

¹⁴ Gemeente Rotterdam et al., 2011, p.16

¹⁵ Deelgemeente Charlois et al., 2009, p. 25

“How can we use *dwelling enlargement* to regenerate the Vogelbuurt in Carnisse, towards an economically and socially stronger Rotterdam-Zuid?”



1.2 Research questions

In my research, I have used the following research question:

How can we use dwelling enlargement to regenerate the Vogelbuurt in Carnisse, towards an economically and socially stronger Rotterdam-Zuid?

To structure the research, I divided the research question in sub questions. The first step of the research focused on the size and layout (in short: typology) of the dwellings:

What were the original typologies of the portico apartments in the Vogelbuurt?

What were the typologies built in the Vogelbuurt and why were they made that way?

*What are the current typologies present in the apartments?
What can we learn from it for the interventions of tomorrow?*

How specific are these typologies?

Do the original and current typologies occur in other parts of Rotterdam-Zuid and in other Dutch cities?

The second step was to create a toolbox with desired typologies that are realistic and reachable, and can be used specifically for the regeneration of the portico apartments in the Vogelbuurt and generally for the regeneration of portico apartments in Rotterdam-Zuid as a whole:

What typologies are desirable for the regenerating of the Vogelbuurt?

What typologies will fit the needs and wishes of the current and desirable residents of Carnisse in coming centuries?

*What tools do the governments have to stimulate dwelling differentiation?
Which methods can the municipal, regional and national governments use to stimulate the differentiation of the housing stock? How can residents contribute to dwelling differentiation? Which methods are financially possible? How can improvement of the urban layout contribute to dwelling differentiation?*

What typologies are architecturally and financially possible?

The typologies should be architecturally possible: they should fit the current portico apartment buildings, be realistic from a user and construction point of view.

The typologies should be financially possible: they should fit the financial possibilities of the private owners of the apartments and of the municipality of Rotterdam.

What typologies can we offer?

What urban layout is desirable as the surroundings of these typologies?

Figure 1.2.1. The research questions in relation to each other and the methods used.



Figure 1.3.1. The building site in Carnisse. Source: Veldacademie.

1.3 Goal

The intention of the graduation project was to find typologies that could (architecturally and financially) be realised in the existing portico apartments in the Vogelbuurt. I wanted to collect these typologies into a booklet that was in fact a toolbox for interventions that can be made in the privately owned portico apartments in Carnisse and possibly also in other parts of Zuid, so that a better dwelling differentiation and mixed residential crowd could be achieved.

1.4 Research methods

The research into the area of Rotterdam Zuid has mainly been literature research. It was no theoretical literature, but very specific literature about the problems on Zuid. This literature is mainly made by governments and research agencies commissioned by the government.

The research into the dwellings that are present in the Vogelbuurt area was more diverse. It consisted of research into the original layouts of the buildings, by reading texts from the architect Van den Broek and literature about his work. Furthermore, research has been done into the current state of the houses by exploring photos made by residents that are available on house supply websites such as www.funda.nl.

Research into residents was done by exploring government's data about the composition of the different households in the area. This data was compared with a household classification system that was developed by a housing advisory office. Next to that, quality interviews were held with residents of the Vogelbuurt area.

Research into financial feasibility, based on both government and residents, was again done using literature that was often made by government agencies, sometimes municipal, sometimes national. This was combined with (financial) estimations based on common sense, derived from conversations between the author and the mentor.

In the second quarter this research will be followed by very specific research by design into the dwellings located in the Vogelbuurt area in Rotterdam-Zuid.

Chapter 2: Layouts

2.1 Introduction

There are about 665.000 portico apartments in the Netherlands, which is about 9% of the total housing stock.¹⁶ The portico apartments have mainly been built in post-war expansion areas in the larger cities in the Netherlands.

The portico apartment is derived from the back-to-back alcove dwelling that existed before the introduction of the 'Woningwet' (Housing Act) of 1901. This housing type consisted of a staircase that served two dwellings per floor. A good example is the building block in the Marnixstraat in Amsterdam, made in 1873.¹⁷

Similar with the introduction with the law on housing in 1901, the first 'Haagse portieken' (The Hague type porches) came to being. The Haagse portiek is in fact an open staircase consisting of one straight stair, going from the public domain onto the first floor, where it serves 4 to 6 front doors. This way, all dwellings had their own front door, without any staircases with their risks on fires. At the ground floor there is a dwelling of 45 m², on the first floor another dwelling and the stairs that serve the dwelling on the second floor. Sometimes the third floor is the upper floor of the underlying dwelling, making it a large maisonette, sometimes it's an apartment itself. The Rotterdam variant on the Haagse portiek divides the upper floor on the dwellings on the first and second floor.¹⁸ About 14% of the dwellings in the Carnisse area and its direct surroundings (Charlois and Tarwewijk) are this type.¹⁹

These layouts were, according to architect J.H. van den Broek, very inefficient. The dwellings were rather small but still people used to have an eating room and, separated by an alcove, the *grand* living room. Furthermore, because every dwelling should have its front door at the street, a very complicated access system was needed to serve all the dwellings. These dwellings were also considered unhygienic. Van den Broek was given the commission to transform this critique into a design.²⁰

Van den Broek quits with the idea of the living room that was not so often used, and combines the eating- and living room. The dwellings were relatively wide and shallow, so plenty of healthy fresh air and natural light could enter the houses. One could enter the homes via a staircase at the façade, called 'portiek' (translated as *portico*). In theory these staircases could be very high, but regulations protected residents against too much stairs. In practice not more than four layers of dwellings existed.

The portiekflat was very often built in the years directly after the Second World War. In almost all post-war expansion areas in the larger cities in the Netherlands one can find these portico apartments.

An elevator serving only two dwellings per floor was too expensive, so soon the 'portiekflat' was followed by the apartment building with gallery access: 'galerijflat'. Here, one elevator could serve more houses per floor. Also higher blocks were possible. A gallery would connect the elevator to the individual homes.



Figure 2.1.1

1. The back-to-back alcove dwellings in Amsterdam. Source: Van Schagen, H., 1994, p. 85
 2. Typical The Hague-type porches home. Source: Van Schagen architecten, 2007, p. 38
 3. Typical post-war portico apartment building. Source: Van Schagen architecten, 2007, p. 38
 4. Typical 60's and 70's gallery apartment building. Source: Kennisbank Bestaande Woningbouw, 2013
- All plans are on the same scale so they can be compared.

¹⁶ Kim, L., 2012

¹⁷ Van Schagen, H., 1994, p. 85

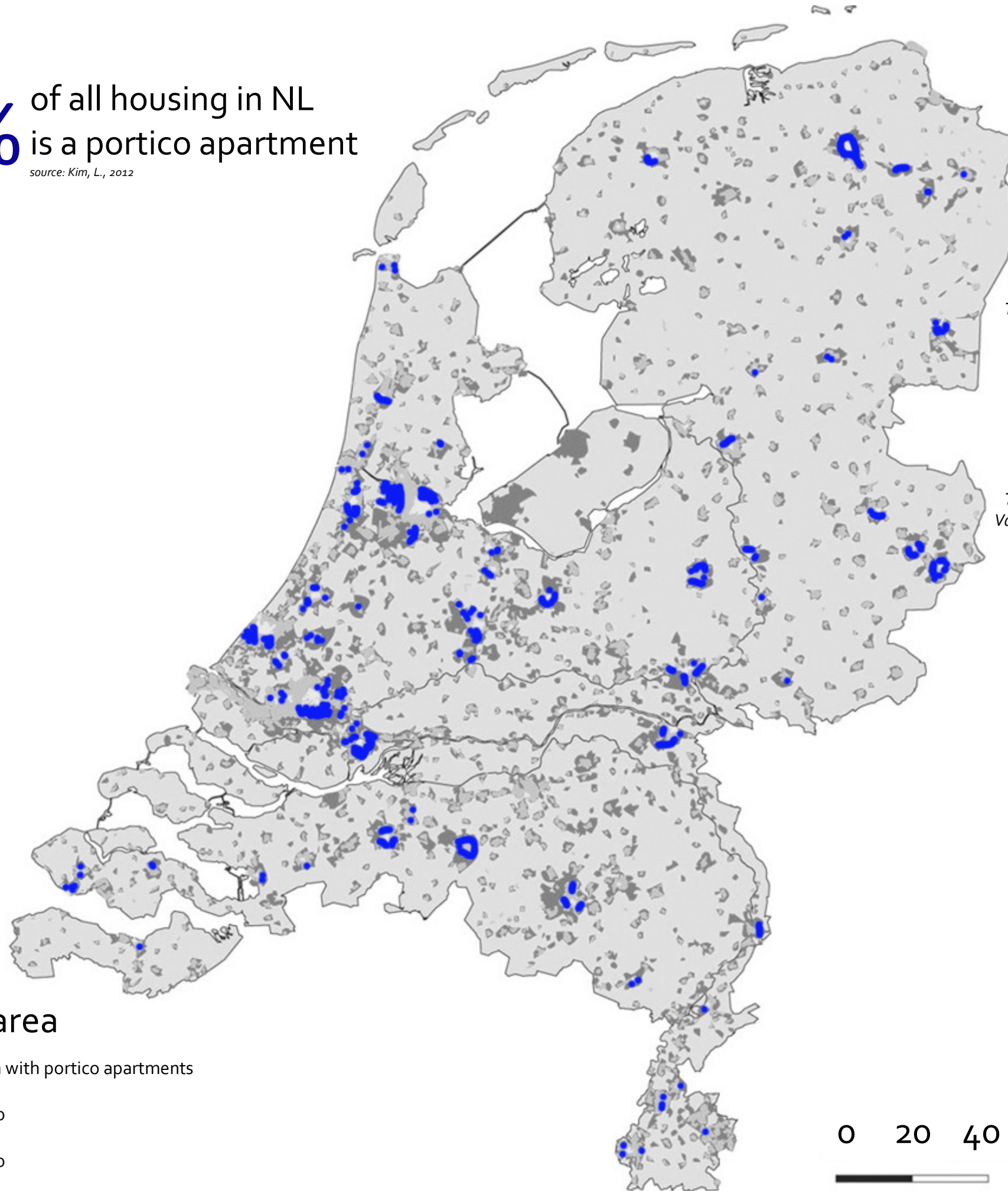
¹⁸ Van Schagen architecten, 2007, p. 38

¹⁹ Van Schagen architecten, 2007, p. 38

²⁰ Stroink, R., 1981, p. 31

9% of all housing in NL is a portico apartment

source: Kim, L., 2012



urban area

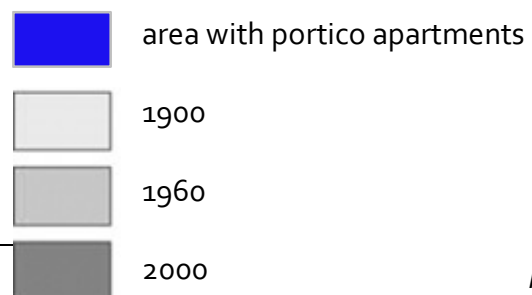


Figure 2.1.2. The locations of areas with portico apartments in the Netherlands. Illustration made by author based on own research.

The first experiments with portico apartment buildings as we see them in Carnisse date in the years before World War Two.

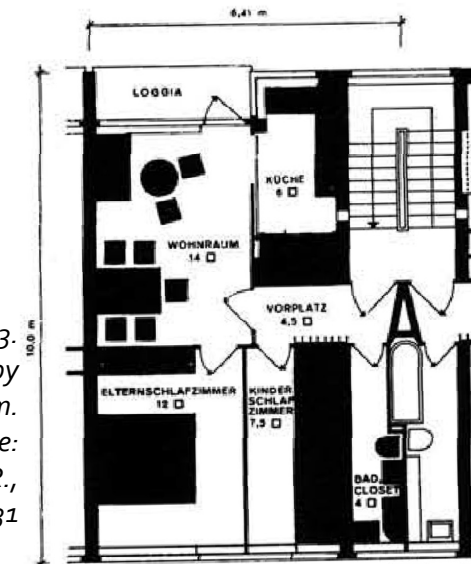


Figure 2.1.3. The design by Mart Stam. Source: Stroink, R., 1981, p. 31

In Germany, the architectural profession was looking for a dwelling type that was optimised in terms of size and usability, but still had enough fresh air and light access. This search for the 'Existenzminimum' (living wage) in housing also attracted Dutch members of the 'Nieuwe Bouwen' architectural style group, that in Germany did see their ideas being built. In 1929 for example, the Dutch architect Mart Stam designs 50 m² portico apartments in Frankfurt, Germany.²¹ (fig. 2.1.3.)

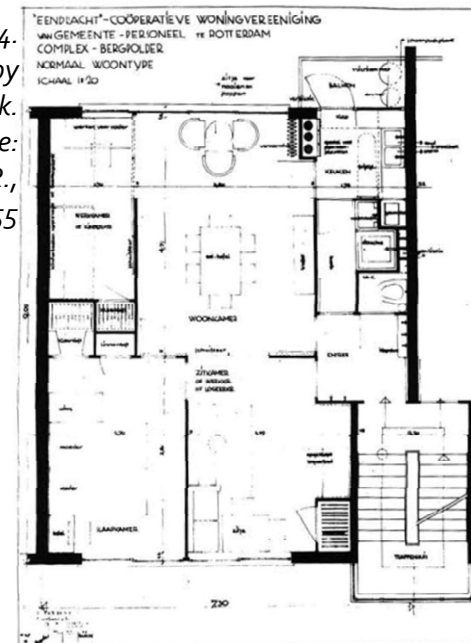


Figure 2.1.4. The design by Van den Broek. Source: Stroink, R., 1981, p. 55

In 1930, J.H. van den Broek designs the Bergpolder-area in Rotterdam. For the first time, he presents the half-open building block, in contrast to the closed building blocks that were common in the Dutch cities. The dwellings react in different ways to recent architectural discussions about the development of new dwelling typologies. Van den Broek's new layouts (fig. 2.1.4.) consist of relatively wide apartments of 7.5 m wide and only 9 m deep. The access system is a portico staircase, in contrast to the standard Dutch dwelling type

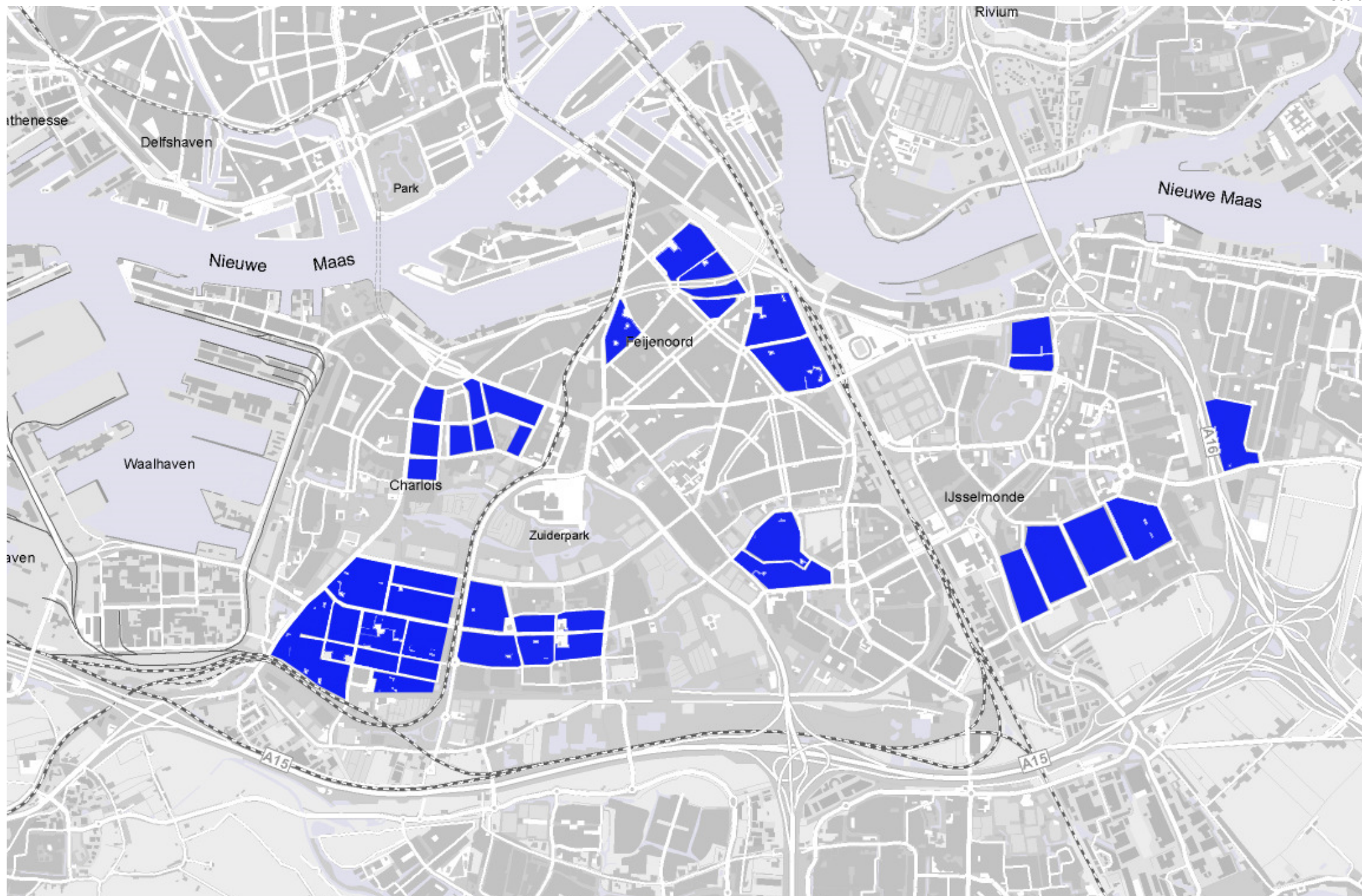
(that was considered unhygienic) with its door at street and many stairs inside the dwelling.

This layout offered Van den Broek the opportunity to orientate the dwelling always on the sun, instead of on the street. The living room can either be on the inside or the street side of the dwelling, but always on south or west. The layout is as flexible as possible with sliding doors and folding beds. With a few simple changes the dwelling can be adjusted to a day- or night situation or family growth. The main problem of this type is the span of 7.3m. Because of the weak soil in the western part of the Netherlands, the bearing walls could only be about 5 m apart. The design was not executed.

²¹ Stroink, R., 1981, p. 31
10

24% of all houses in Rotterdam are portico apartments
 71.826 out of 297.312 dwellings
 source: buurtmonitor Rotterdam, 2013

28% of all houses on Zuid are portico apartments
 26.377 out of 95.102 dwellings, source: buurtmonitor Rotterdam, 2013



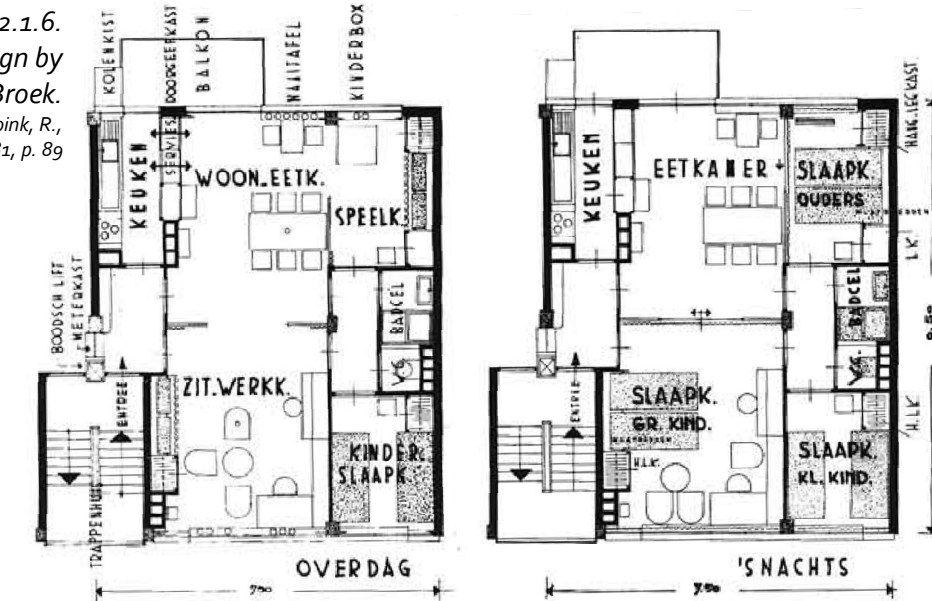
Above: Figure 2.1.5. The locations of areas with portico apartments in Rotterdam Zuid. Illustration made by author based on own research.
 Right: Figure 2.1.7. The universal applicability of the design. Source: Stroink, R., 1981, p. 111

In 1934 Van den Broek further develops his dwelling plans into a more efficient layout that was executed at the Vroesenlaan in Rotterdam. An extensive design study is the basis of this design. It also is an important step from the closed to the open building block.

It is executed with a concrete skeleton structure, although Van den Broek does not use this structure to develop the layout in any way that would be useful. The dwelling is still divided in two stretched zones. In the middle of the dwelling a 'double' access space is situated, so both in day and night the dwelling gives a direct connection to toilet and bath.

Although the innovative layout resulted in vacant dwellings, unwanted by the Rotterdam people that were looking for dwellings with their front door at street level, Van den Broek learned the importance of the opening of the building block and the double orientation of the dwelling layout.

Figure 2.1.6. The design by Van den Broek. Source: Stroink, R., 1981, p. 89



In 1938, Van der Broek designs portico apartments in Carnisse, Rotterdam Zuid. The project is called 'Woningbouwproject Algemeen Belang', meaning something like 'housing project general interest'. Although this name was derived from one of the initiating stakeholders 'Algemeen Belang', it is illustrative for the role of the project in society.

The housing industry was declining ever since the 30's, although there was a growing shortage of affordable rental homes. This project tried to serve both the housing industry and the residents. It led to the first big and highly standardised housing project.

The dwellings were optimally adjusted to its situation. The dwellings were optimised in such a way that it could be placed in any urban environment. This is done by the application of the so-called 'wisselbeuk'. This is the sleeping room adjacent to the staircase, which is connected to one of the two neighbouring dwellings. This meant an important step towards more

differentiation in dwelling supply, but maintaining a simple construction.

The staircase and sleeping room can be flipped, so the building block can be adjusted onto its situation and orientation. The office of Van den Broek also delivered building material lists and an organisation scheme, making the design

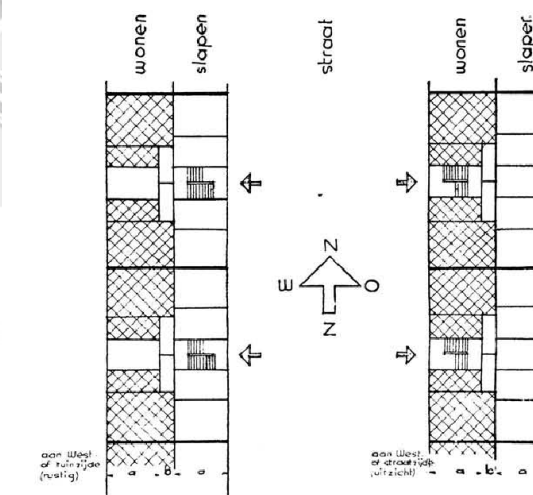




Figure 2.1.8. The locations of areas with portico apartments in the Carnisse. Illustration made by author based on own research.

process no longer a separate, but an integral part of the building activities. On May 14, 1940, the German occupiers bomb the centre of Rotterdam. About 24.000 dwellings were destroyed, making 80.000 residents homeless. Only two weeks later the mayor of Rotterdam, Pieter Oud (the brother of architect J.J.P. Oud) started working on the rebuilding of Rotterdam. He invited contractors from Rotterdam and some architects. Within a few weeks the '1000-dwellings plan' was born. No less than 1008 dwellings, based on the design of 1938, were built on three different locations in Rotterdam: in Oud-Mathenesse (Engelsestraat), in Blijdorp (Vroesenlaan-Statenvweg) and in the south-eastern part of Carnisse (Carnissensingel).

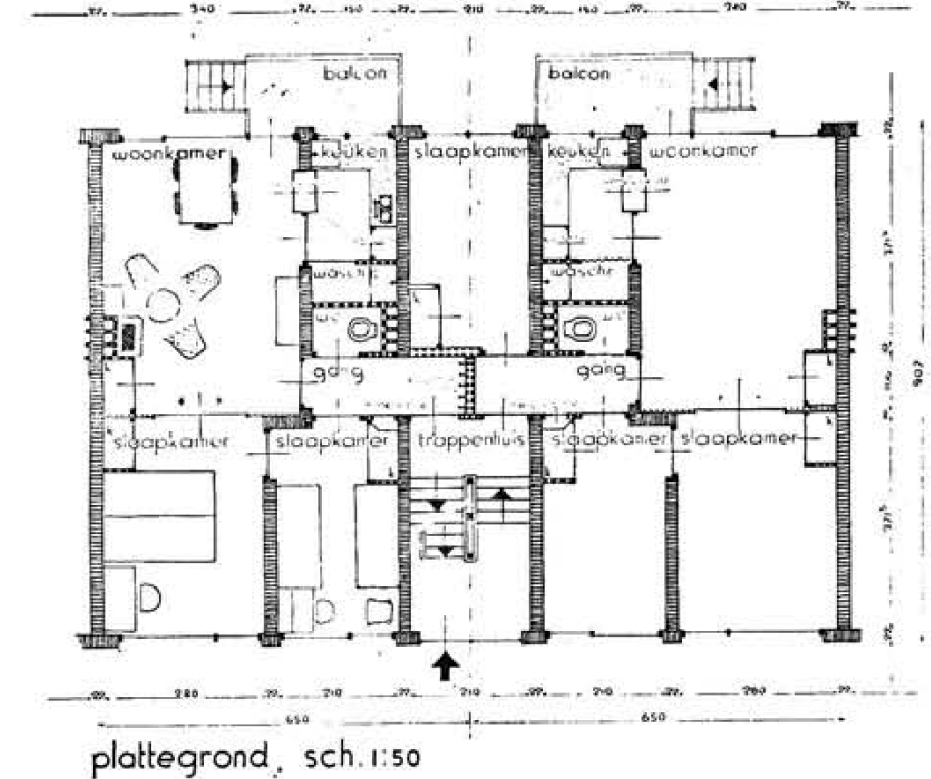


Figure 2.1.9. The design of the 1000-dwellings plan of Van den Broek.

Source: Stroink, R., 1981, p. 111

A little later the '1400-dwellings plan' (which turned out to become a 1900 dwellings plan) was executed. The dwellings are almost identical to the dwellings of the 1000-dwellings plan. The entrance of the dwellings works slightly different so a larger hall is achieved. Also the dwellings are executed with a tile roof instead of a flat roof, because the urbanism plans of Witteveen required so. Only a few of the blocks that Van den Broek designed were executed with a flat roof; those in Oud-Mathenesse and Blijdorp. All blocks in Carnisse have a sloping tile roof. After a building stop starting in 1942, the dwellings were built between 1946 and 1949.

69% of all houses in Carnisse are portico apartments

4.239 out of 6.011 dwellings, source: buurtmonitor Rotterdam, 2013

2.2 Urban development of Zuid

Around 1900 the urban development on Zuid was fragmented. The urban layout was the result of small, incoherent developments. The Housing Act of 1901 obliged municipalities to set up expansion plans. The first plan for the area of Rotterdam-Zuid was made by Gerrit Johannes de Jongh, chief of the Rotterdam public works department. He was especially interested in the harbour. Under his supervision the Maashaven and Waalhaven were designed and realised.²²

The expansion plan for Zuid dates back to 1903 and was more or less a composition of small plans, concerning different streets and harbours. In his opinion, harbour and city could develop coherent. An efficient network of roads, water, gas and electricity was designed for Zuid.²³

A second plan was made between 1914 and 1917 by De Jongh's successor Abraham Cornelis Burgdorffer, in cooperation with P. Verhagen and J. Klijnen. Still Zuid was considered to be mainly a harbour area with adjacent residential areas. There were little facilities or connections to the northern part of Rotterdam. The residential areas are fitted in the bowl-like areas in between the dikes. On the dikes, the main roads were located. Burgdorffer designs a center for Zuid, which was the precursor for the nowadays Zuidplein.²⁴

Rotterdam Zuid developed around 1920 mostly in the eastern part, because in the area of Feijenoord (northeast), the only connection with the northern part of Rotterdam was present. The plan of Burgdorffer did not offer enough possibilities for the development of the garden city Vreewijk. Therefore, the office of Marinus Jan Granpré Molière was asked to develop an expansion plan with more space for Vreewijk. In '21 Granpré Molière, Verhagen and Kok presented this idealistic vision on the development of a comfortable residential city. He designs Zuid as an integral part of Rotterdam, but with its very own identity. There is a gradual change from city to rural area because of north-south green strips and garden cities. The roads are connected to the connections with north, not only the existing Willemsbrug, but also the planned Maastunnel. He also opts for a bridge to the island of Van Brieneoord in the eastern part of Zuid, which is now the place of the Van Brieneoordbrug (highway A16).²⁵

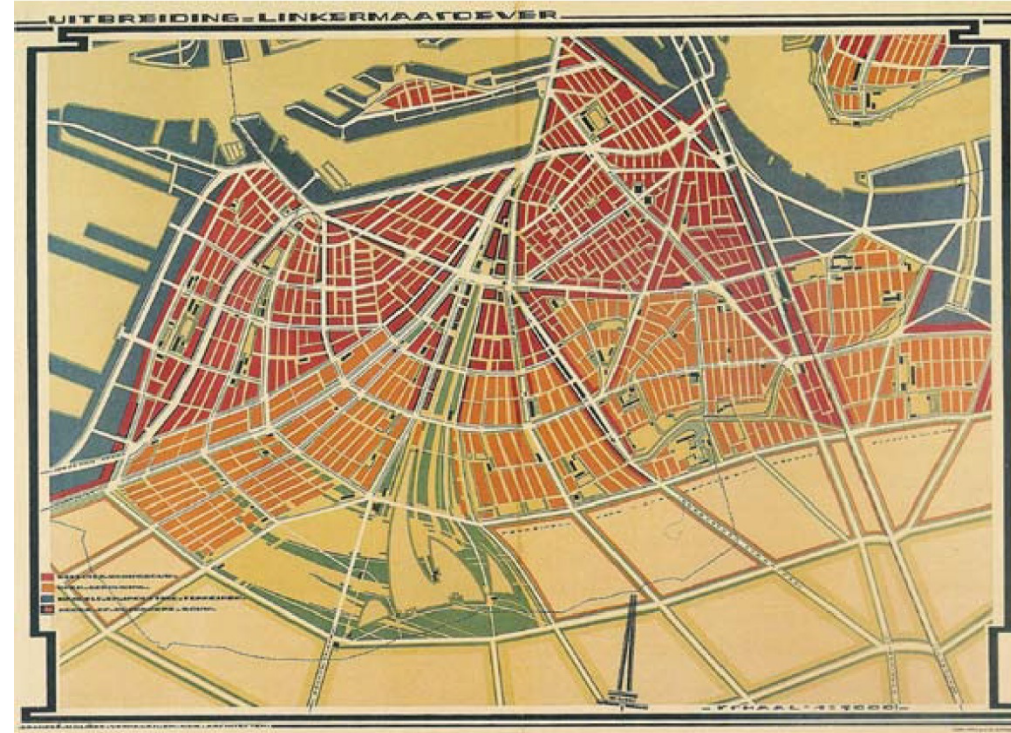
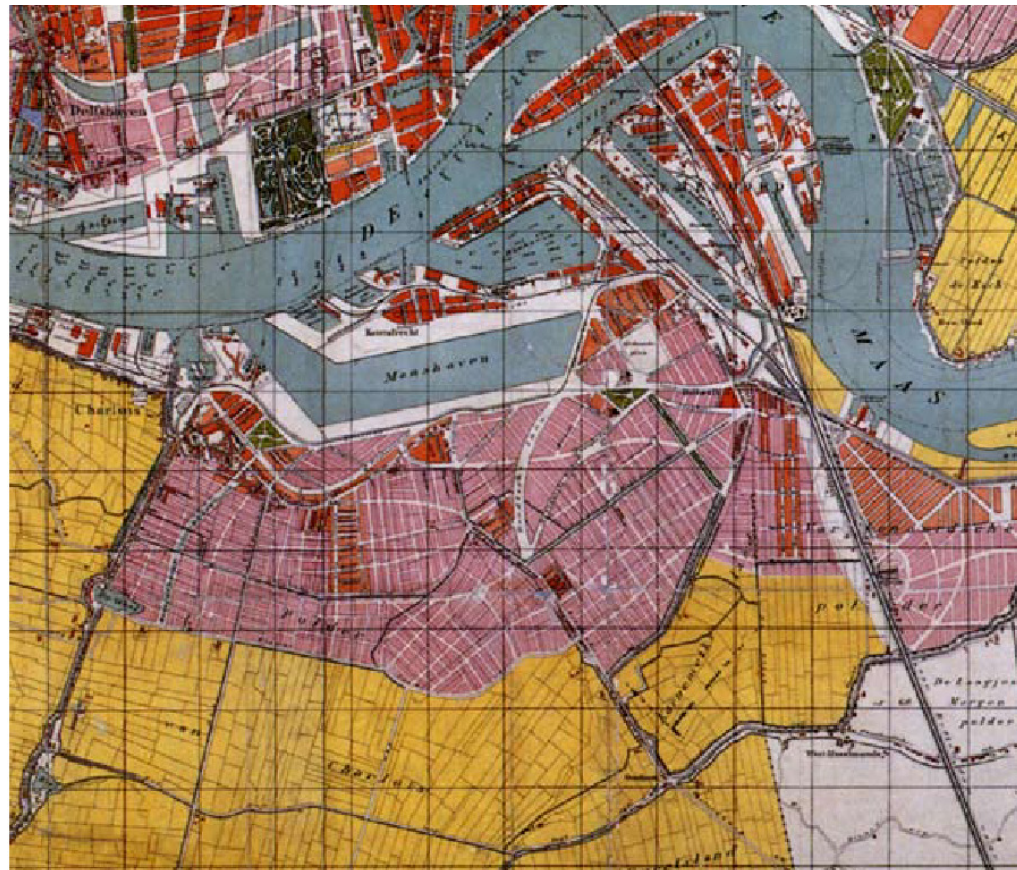
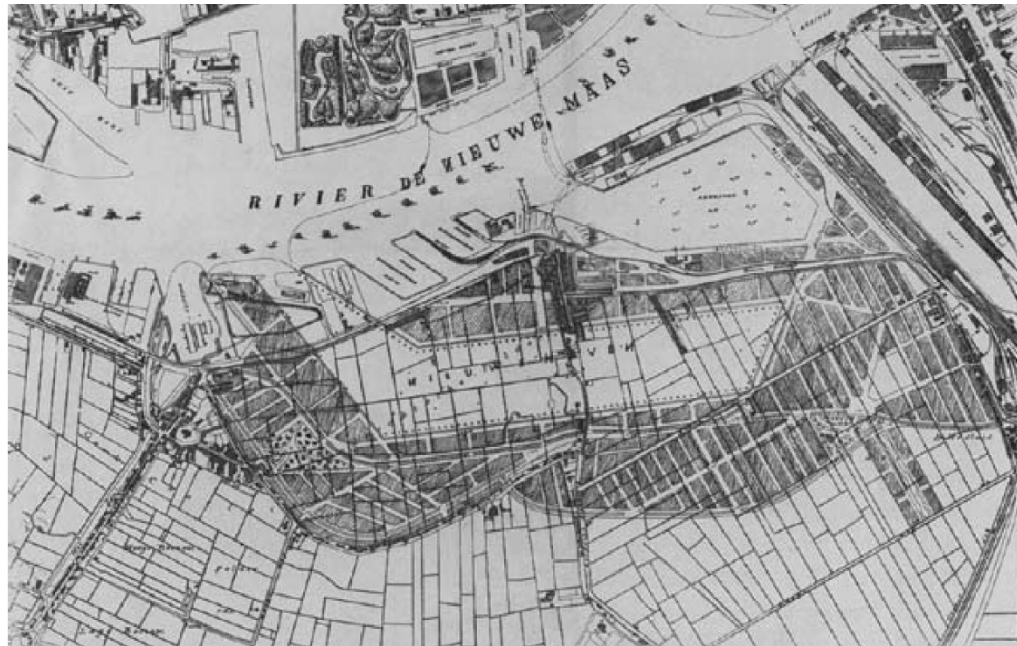


Figure 2.2.1. The plans of G.J. de Jongh of 1895 (upper left) and of 1903 (lower left), Burgdorffer (upper right) and Granpré Molière (lower right).
Source: Meijel, L. van, et al., 2008, p. 46 - 99

²² Stadsarchief Rotterdam, 2013

²³ Meijel, L. van, et al., 2008, p. 51

²⁴ Meijel, L. van, et al., 2008, p. 95

²⁵ Meijel, L. van, et al., 2008, p. 99



Figure 2.2.2. The plan of Witteveen, 1927.
Source: Meijel, L. van, et al., 2008, p. 100 - 101

It was Willem Gerrit Witteveen who transformed the visionary plan of Granpré Molière to a practical and ready to be executed layout. Burgdorffer was in 1922 followed up by De Roode. He asked Witteveen as city architect. His plan was accepted in 1927 and was very important for the layout of Carnisse and the Vogelbuurt as we know it nowadays. He designs a well-balanced network of roads and green zones that 'vein' the city. He sees the whole city, north and south, as one integral and restricted area. More connections over the river are favourable. In the plans of Witteveen one can already distinguish the later place of the Erasmusbrug.²⁶

When in 1933 the definitive decision for the Maastunnel was made, the area around Charlois became the focus point. In 1937 a revised version of the plan was published. Access roads such as the Dorpsweg became more important. These roads were accompanied by middle height apartment buildings, while the residential areas in between these roads were only two storeys high. These two-floor building blocks were closed in the northern part and open in the southern part of Zuid.²⁷ As realised, this differentiation in building height in the Vogelbuurt has disappeared. All building blocks are three storeys high, but the sloped roofs are still present.

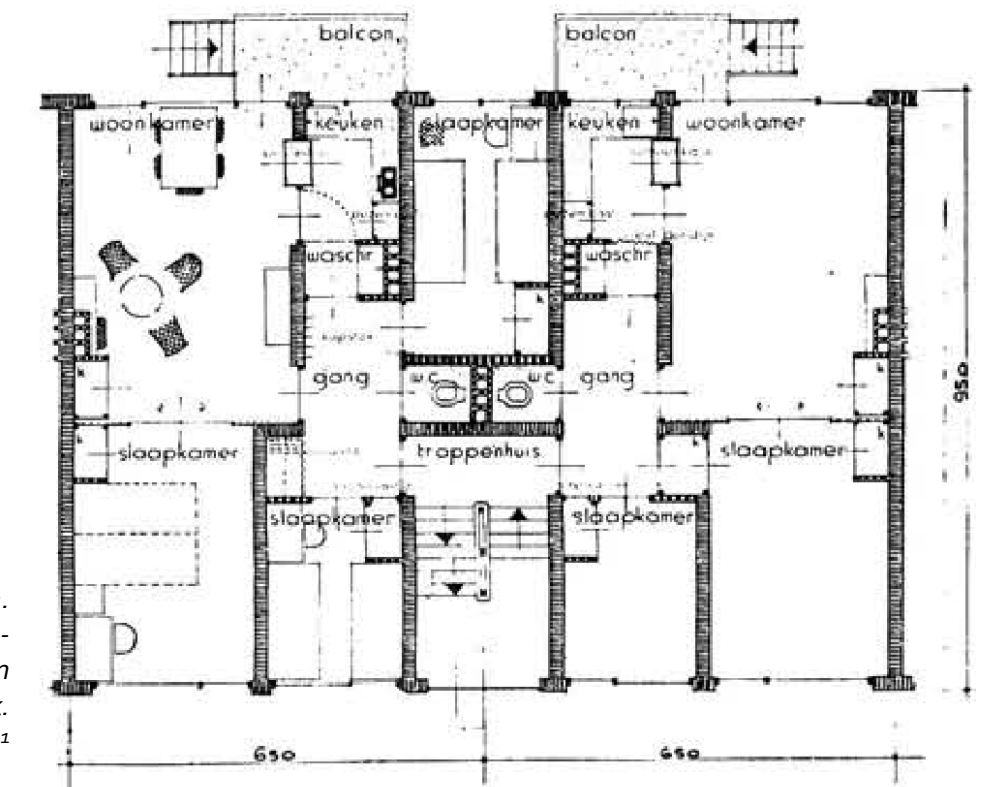
²⁶ Meijel, L. van, et al., 2008, p.101
²⁷ Meijel, L. van, et al., 2008, p.103



- Kitchen
- Dining room
- Living room
- Sleeping room
- Toilet / bathroom

Figure 2.3.2.
The design of the 1400-dwellings plan of Van den Broek.
Source: Stroink, R., 1981, p. 111

2.3 Original layout



variant

The 480 dwellings located in the south area of the Vogelbuurt differ slightly from the ones in Carnisse east (Eilandenbuurt) and other parts of Rotterdam. The front doors are not opposite the stairs, but next to it. This results in a square hallway instead of a long and narrow one.

Van den Broek, since 1936 in cooperation with Michiel Brinkman, explains this layout to the jury of the design competition in 1940. He notes that the design, called 'optimal minimum' was already used for 1750 homes in Rotterdam. The dwellings are a bayonet-type, meaning that half of the dwellings have two sleeping rooms, the other half have three.

The staircase is situated in such a way that it can be exchanged with sleeping room behind it. This means the living room and kitchen can be chosen to be either on the west side, or on street side (because of the view) or on the garden side (quietness).

The main bedroom is located en-suite to the living room. Van den Broek advises the use of folding beds, so this room can be used as a playing- or studying room in daytime.

The smaller bedrooms are precisely large enough to contain either one double bed or two single beds. For the sake of using the space as efficient as possible the connection between kitchen and hall is removed. For the same reason the balcony is only reachable from the living room. The storage- and washing rooms are located in the cellar. The ground floor lies 1,10 m above street level, which ensures enough privacy for sleeping rooms located at street side.²⁸



The original layout still intact, as seen on the Dorpsweg 166b (left) and Korhaanstraat 145c (right).

Figure 2.3.1. Pictures made by residents, derived from website funda.nl. Illustration made by author based on own research.

²⁸ Van den Broek, J.H., 1940
15

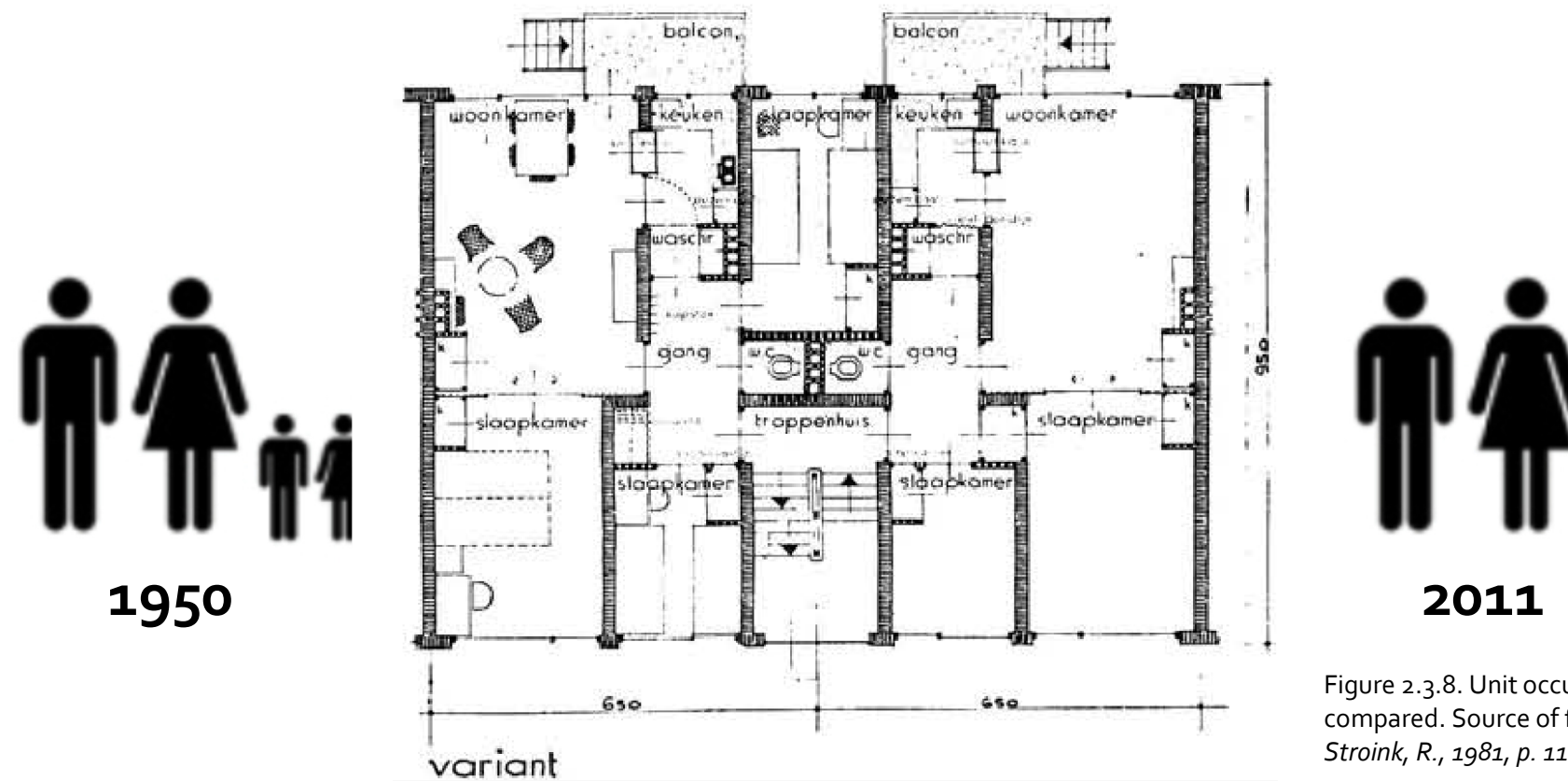


Figure 2.3.8. Unit occupation compared. Source of floorplan: *Stroink, R., 1981, p. 111*



Figure 2.3.9. Lepelaarsingel 1953
Source: Does, T. de, 2003, p. 46



Lepelaarsingel 2013
photograph made by author

Around the 1950's, when the dwellings were just built, the dwellings had far more occupiers than nowadays. As we can see in the dwellings plans as designed by Van den Broek, he designs the larger dwelling to be suitable for six people: two parents, four children. The smaller dwelling has one sleeping room less and is suitable for four people: two parents, two children. To Van den Broek's ideas, every sleeping room should be able to comprehend two beds.

The houses were indeed used intensively as shown in the statistics: around the 1950's, the average unit occupancy was 3.6 people per house³⁰. Still, if we would consider the master bedroom to have two sleeping places and every bedroom to have one, we could have an average of 3.5 sleeping places according to nowadays standards. Seen this way, the 3.6 people per house is not even that much. But, for it is an average, it means that for every house were only two people lived, in another house six people were living. It can be stated that the houses were used intensively, especially when compared to nowadays figures, as seen in figure 2.3.8. The average housing occupancy in the southern area of the Vogelbuurt in 2011 was 1,98³¹. This number is much lower, although many houses have extended into the basement or the attic. It shows something of the enormous change in dwelling demands and living standards that took place between the fifties and now.

Some of the demands that have changed since the fifties until now concern the comfort of the house: the heating system with only one gas stove in the living room is succeeded by a central heating system with radiators. The brick walls without cavity or insulation are now considered uncomfortable and uneconomical. Also spatial preferences have changed: the living room, kitchen and bathroom are considered too small nowadays.

The enormous increase in welfare has also had its effects on the streets and surroundings. The amount of cars in the streets has multiplied since the 1960's. The streets were once spacious and empty, but nowadays almost all parking spaces are filled, as shown in figure 2.3.9.

Many small-scale shops that were present in the Vogelbuurt area have disappeared. Two reasons can be named for this: the emergence of large-scale supermarkets and shopping centres (like the Zuidplein shopping area in Rotterdam-Zuid) and the decrease in occupants due to the reduction of average dwelling occupancy.

That leads to the question what the proposed dwelling enlargement will lead to. Larger dwellings can only be realised when the number of dwellings is reduced. This reduces further the amount of people in the area. This might have negative effects on the local shops that are still there, although the more wealthy residents might have a good effect on the local shops. A reduction of the number of dwellings might result in a reduction in the number of cars on the street, while at the same time these residents might have two cars per household, so the parking pressure on the street will be retained. In any way the use of the portico will change, for it serves fewer dwellings. Although in the larger dwelling bigger families might live, it serves fewer front doors and parts of the portico will be used less intensively. The portico will belong more to specific people (for example the people living at the highest floor) and will possibly feel more private.

³⁰ Kim, L., 2012

³¹ Own calculation.

2.4 Different layouts of today

Because the dwellings are privately owned, the residents have a large degree of freedom to transform their own houses according to their wishes. The most common interventions are shown in this paragraph.



Above: original layout.

Left: transformed layout and photographs.

A very common intervention (14 of the 30 houses that are for sale) is to break out the en-suite sliding doors and the cupboards, to create a relatively large façade-to-façade living room. The main bedroom is sacrificed to give space for the dining table. The double bed is often placed in the so-called 'wisselbeuk'. When this intervention is done in the smaller apartment (shown on the right side of the drawings), one can choose to either build a new wall and make a smaller bedroom on the same place as the original main bedroom; or chooses to place the double bed in the rather small bedroom.

Review:

Extra m ² /m ³ :	0	No extra square metres are achieved.
Flexibility:	-	Master bedroom disappears, less sleeping rooms means less flexibility.
Daylight:	++	The façade-to-façade living room has light from both sides.
Spatial quality:	++	The façade-to-façade living room is considered to have great spatial qualities.
Target groups:	-	Less sleeping rooms means this layout is considered not suitable for families with > 1 kids, but extra suitable for small households.
Conclusion:		The enlargement of the living room means great spatial and daylight qualities but less flexibility in target groups.



Figure 2.4.1. Pictures made by residents, derived from website funda.nl. Illustrations made by author based on own research.



The large living room as seen on the Fazantstraat 139a (left) and Dorpsweg 176c (middle), with the double bed in the 'wisselbeuk'-bedroom (right).



- Kitchen
- Dining room
- Living room
- Sleeping room
- Toilet / bathroom



Above: original layout.
Left: transformed layout and photographs.

A second intervention that is sometimes (3 of the 30 houses that are for sale) made is to enlarge the rather small kitchen. This can be done by removing a bit of the brick wall that separates the living room from the kitchen. A concrete lintel was present to make a door between kitchen and living room possible. This lintel is big enough to bridge this new span.

Often people chose to just enlarge the opening between kitchen and living room, thus not really creating a larger kitchen. But sometimes people chose to extend the kitchen into the living room, creating some kind of bar. This last kitchen layout is only logic when a façade-to-façade living room is available, otherwise the living room will be even smaller.

Figure 2.4.2. Pictures made by residents, derived from website funda.nl. Illustrations made by author based on own research.

Review:		
Extra m ² /m ² :	o	No extra square metres are achieved.
Flexibility:	-	Especially when the kitchen is extended into the living room, there are fewer ways to fill in the living room.
Daylight:	+	Merging kitchen and living room means better daylight distribution in both rooms.
Spatial quality:	++	The open kitchen often results in a larger and more practical kitchen, which is an important aspect in these dwellings.
Target groups:	-	Certain people might like a closed kitchen.
Conclusion:		The enlargement of the kitchen results in a more practical kitchen and better daylight distribution, but less flexibility.



The larger kitchens as present on the Korhaanstraat 117a (left), the Fazantstraat 139a (middle) and the opened but small kitchen on the Korhaanstraat 145c.



- Kitchen
- Dining room
- Living room
- Sleeping room
- Toilet / bathroom

Figure 2.4.3. Pictures made by residents, derived from website funda.nl. Illustrations made by author based on own research.



Above: original layout.
Left: transformed layout and photographs.

A third intervention is to enlarge the bathroom (3 of the 30 houses that are for sale). Originally, the bathroom was only offering a sink. Nowadays, a bathroom is considered to at least offer a sink and a shower. Often people have managed to fit these both in the original bathroom, but others chose to replace the kitchen to the smaller bedroom and create a larger bathroom with a window. This bathroom also offers space for a washing machine inside the dwelling.

Review:		
Extra m^2/m^3 :	o	No extra square metres are achieved.
Flexibility:	-	Since the kitchen will use a former bedroom, there are less bedrooms, meaning less flexibility.
Daylight:	++	The new bathroom has its own natural daylight.
Spatial quality:	++	The intervention results in a more spacious kitchen and a larger bathroom.
Target groups:	-	Less sleeping rooms means this layout is considered not suitable for families with kids, but extra suitable for small households.
Conclusion:		The replacement of the kitchen and enlargement of the bathroom results in a more practical kitchen and a more luxurious bathroom with its own daylight. Removing sleeping rooms however results in less flexibility in target groups. Furthermore, replacing the kitchen will have its consequences for water and gas pipes, ventilation etc., as shown in figure 2.3.9b.



The replaced kitchen (left) as present on the Lepelaarsingel 141b and the larger bathroom on the Korhaanstraat 146b (right).

1,20 m
4,98 m
4,08 m



- Kitchen
- Dining room
- Living room
- Sleeping room
- Toilet / bathroom

Figure 2.4.4. Pictures made by residents, derived from website funda.nl. Illustrations made by author based on own research.



Above: original layout.
Left: transformed layout and photographs.

Another fourth option is to enlarge the dwelling by extending it at the garden side (2 of the 30 houses that are for sale). Until now this is only done at apartments located at ground floor. The balcony is added to the kitchen area, creating a larger kitchen. A four-step stair is leading from kitchen to the garden.

When the balconies of the whole block are on garden side, then the balcony of the upper dwelling can function like a roof. When the balconies are at street side, one has to create his own roof. Probably the roof and especially the balcony floor are not insulated.

- Review:
- Extra m^2/m^3 : + An additional $3,0 m^2 / 8,7 m^3$ is added.
 - Flexibility: + The dwelling (kitchen) is enlarged without removing any sleeping rooms.
 - Daylight: - When the enlargement has smaller windows than the original kitchen window, the amount of daylight will decrease. Furthermore, the extension takes away direct sunlight from the living room.
 - Spatial quality: + The intervention results in a larger kitchen.
 - Target groups: + The larger kitchen makes the dwelling suitable for a larger target group. Not only families, but also the starters that want a little bit more luxury.
 - Conclusion: The enlargement of the kitchen onto the balcony brings extra dwelling comfort with small negative effects on the daylight only.



The extensions as present on the Fazantstraat 127a (left) and the Dorpsweg 166a (right).



- Kitchen
- Dining room
- Living room
- Sleeping room
- Toilet / bathroom

Figure 2.4.5. Pictures made by residents, derived from website funda.nl. Illustrations made by author based on own research.



The extensions as present on the Fazantstraat 127a (above) and the Fazantstraat 139a (middle and down).



Above: original layout. Left: transformed layout and photographs.

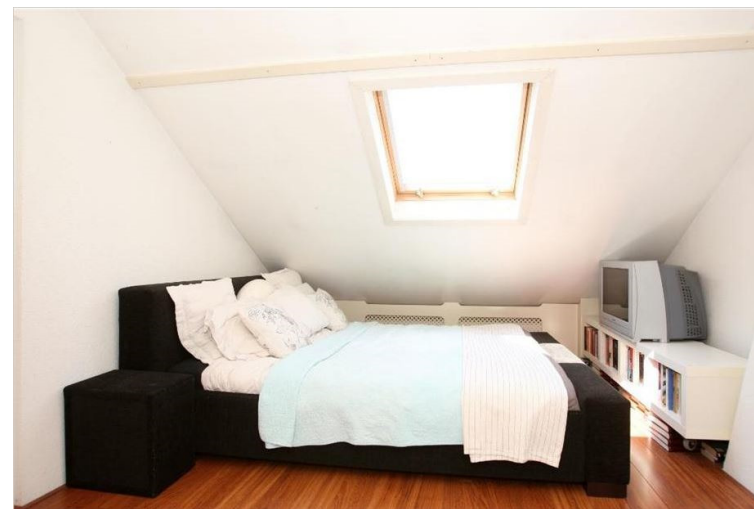
A structurally more far-reaching change in the dwelling layout and size is to combine the dwelling with the underlying storage. This is of course only possible for dwellings located at ground floor. The storage space is located directly under the living room, so people chose to make a connection between living room and the storage space. This can function as a new main bedroom. Although the storage spaces are only 2,2 meters high and have only small windows, it functions pretty well as a bedroom. The connection between ground floor and cellar can be made in more or less 'spatially optimal' ways. Sometimes people have a winder stair, but also spiral stairs and very steep straight stairs with a shutter at the end can be found.

- Review:
- Extra m²/m³:* ++ An additional 13,5 m² / 29,8 m³ is added.
 - Flexibility:* ++ The additional space on a different level could be a sufficient sleeping or hobby room.
 - Daylight:* - Although the extra room does not affect the amount of daylight in the original dwelling, the windows in the basement are rather small.
 - Spatial quality:* - Although the intervention makes the dwelling larger and more flexible, the place of the stairs negatively affects the spatial quality.
 - Target groups:* ++ The addition of the basement room means the dwelling is suitable for larger families or two persons households with specific living demands.
 - Conclusion:* The extension of the dwelling into the basement brings a lot of flexibility in the dwelling and a lot of options for the residents to arrange the dwelling according to their wishes, with only small drawbacks for the spatial quality of the dwellings.



- Kitchen
- Dining room
- Living room
- Sleeping room
- Toilet / bathroom

Figure 2.4.6. Pictures made by residents, derived from website funda.nl. Illustrations made by author based on own research.



The extensions as present on the Fazantstraat 135c (above and middle), the Korhaanstraat 126c (down). The plans left are corresponding based on this last example.



Above: original layout. Left: transformed layout and photographs.

When Van den Broek designed these blocks, he envisioned a flat roof³². The urban plans of municipal architect Witteveen however required tiled sloping roofs. Therefore these buildings ended up with tiled roofs with just empty space under it.³³

So a last structurally far-reaching change in the dwelling layout and size is to combine the dwelling with the empty attic above. This is of course only possible for dwellings located at second floor. People often make skylights to give the attic natural lighting. Then it can not only be used as storage, but also as a main bedroom. The connection between living room and attic can again have more or less architectural quality. Sometimes people have a straight stair in the living room or the small bedroom, but also very steep stairs in the hall can be found.

Review:

- Extra m²/m³: ++ Up to 28,9 m² / 62,3 m³ can be added.
- Flexibility: ++ The additional space on a different level could be very good sleeping or hobby rooms.
- Daylight: + When the resident makes a dormer or skylight in the attic, the daylight provision is fine.
- Spatial quality: - Although the intervention makes the dwelling larger and more flexible, the place of the stairs negatively affects the spatial quality.
- Target groups: ++ The addition of the attic means the dwelling is suitable for larger families or two persons households with specific living demands.
- Conclusion: The extension of the dwelling into the attic brings a lot of flexibility in the dwelling and a lot of options for the residents to arrange the dwelling according to their wishes, with only small drawbacks for the spatial quality of the dwellings.

Figure 2.3.11b. A section with some measurements based on the Fazantstraat 139a. Illustration made by author.

³² Oink, R., 1981, p. 112
³³ Van Schagen, H., 2013, lecture at Veldacademie



Figure 2.5.1. Portico apartments at the west side of the Dorpsweg. Source: Veldacademie

2.5 Conclusions

What were the original typologies of the portico apartments in the Vogelbuurt?

What were the typologies built in the Vogelbuurt and with why were they made that way?

The typologies in the southern part of the Vogelbuurt are designed by Van den Broek. The design is a result of a long process of study and optimisation. The 'bayonet-type' as he calls it, suits almost every urban plan. The staircase is situated in such a way that it can be exchanged with sleeping room behind it. This means the living room and kitchen can be chosen to be on either side of the block.

What are the current typologies present in the apartments?

What can we learn from it for the interventions of tomorrow?

We have seen that, despite the layout of Van den Broek being very efficient, around sixty years later all different kinds of interventions have taken place. The original dwellings do not fit the wishes of the users today. Of course this has to do with changing demands. People wish for a larger bathroom (with a shower, for example) and a kitchen with space for a dishwasher. It is striking that despite the lower number of people living in the houses, they are still considered quite small. Luckily, the dwellings have shown to be flexible. The large storage spaces and empty attic are popular places to expand to. The main bedroom is often skipped in favour a large living room.

We can learn that demands change and that dwellings that are efficient today, are too small tomorrow. Designing with a certain leftover space is future friendly. We can also learn that dwellings should be flexible to be able to adapt to the ever changing wishes and demands of the residents.

How specific are these typologies?

Do the original and current typologies occur in other parts of Rotterdam-Zuid and in other Dutch cities?

Yes, they do. The design of Van der Broek was realised in 480 dwellings in the southern part of the Vogelbuurt, but also the 1000-dwellings plan (without the sloped roofs): 258 dwellings in the eastern and 330 in the northern part of Carnisse; in 270 dwellings in Oud-Mathenesse and 150 dwellings in Blijdorp.³⁴ This adds up to 1488 dwellings throughout Rotterdam that are almost exactly the same, except for having an attic.

Furthermore, there are in total 71.826 portico apartments (without an elevator) in Rotterdam³⁵, for example the ones you can see in figure 2.4.1., with more or less comparable problems and generally comparable layouts. In total, there are around 665.000 portico apartments in the Netherlands³⁶. Often they also are in post-war expansion areas, although not always the problems are comparable to Rotterdam Zuid. Of course materialisation and construction methods can differ. Design strategies could be applicable to portico apartments from the early years after the Second World War in general, depending on their layout and construction method.³⁷ Specific solutions for the dwellings designed by Van den Broek are applicable to 1488 dwellings, if you take the attics into account.

³⁴ Stroink, R., 1981, p. 109

³⁵ Buurtmonitor Rotterdam, 2013

³⁶ Kim, L., 2012

³⁷ Battum, M.T. van, 2002, p. 19

3.1 Analysis current residents

Looking at the average age of the main occupants (figure 3.1.1. IV.e.1.), it can be concluded that mainly starters are present. But also out of the categories of forties and sixties quite some people are living in this area. If we look at how long the Carnisse residents are already living here (IV.e.2.), we see there's a large group that's only living here for less than 5 years with an average age of 32,9 years. A smaller, but significant group is living here for more than 10 years. The average age of this group is 57,3 years. We can confirm the conclusion of studies in the Vogelbuurt with in-depth questionnaires that the residents of Carnisse can be divided in two categories: the starters (mostly young people that are planning to leave the Vogelbuurt after a few years) and the stayers (mostly old people that have been living in the area for a long time).³⁸

We see that in the Vogelbuurt, most dwellings (56%) are occupied by only one person (figure 3.1.1. I.). 21% of the dwellings are occupied by a couple without children, only just exceeded by households with children, with a 23% part in the Vogelbuurt. The one person households (IV. d. 2.) show an age distribution that is corresponding with the average (IV. e. 2.), but they are living relatively a little bit longer in the area (more than 5 or 10 years). The couples without kids are often the starters. They are often between 20 and 34 years old (IV. c. 1.). However you might suspect that they are living here for only less than five years, their residence time shows a surprisingly even distribution (IV. c. 2.). If we look more in-depth to the statistics we calculate the average residence time of the couples without kids between 20 and 34 is only 3,3 years. The average residence time of the elderly group above 55 is precise 20 years more: 23,3 years. Indeed, there are two groups of residents: short-staying residents and older stayers. They are both combined in the group couples without kids, now showing an even distribution.

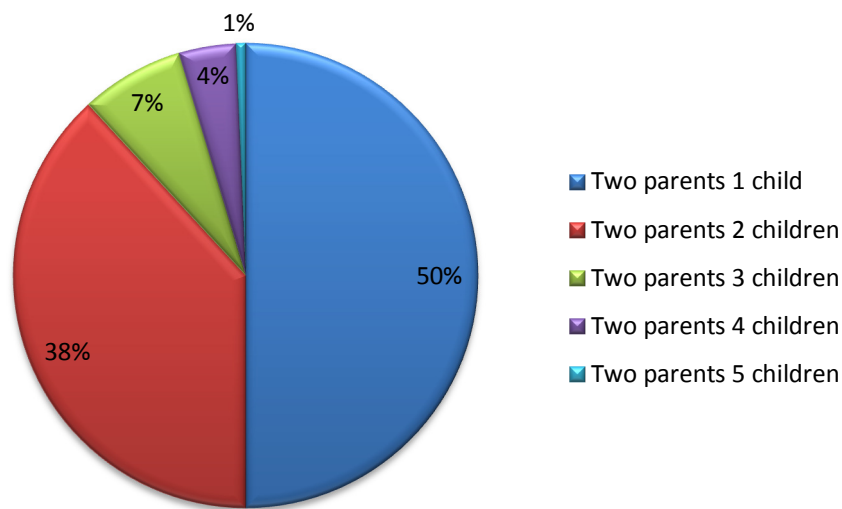
If we finally look at the households with children (figure 3.1.1. II & III), we see they mostly have 1 or 2 (sometimes 3) kids. That is about the maximum the apartments in the Vogelbuurt can handle, according to today's standards.

The one-parent households are living here relatively short (IV. b. 2.), while the couples with kids (IV. a. 2.) show a surprising peak between 5 and 10 years.

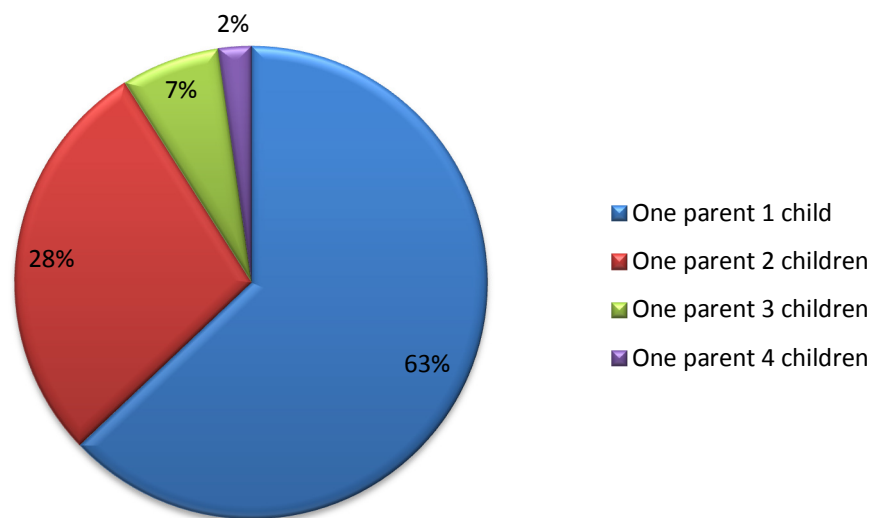
Concluding we can state that starters often live short in the Vogelbuurt, just like the one-parent households. The families with children live in the area longer, often between 5 and 10 years, followed by the elderly that are geographically the most stable and live on average very long in the area.

Left: figure 3.1.1. Illustration made by author.

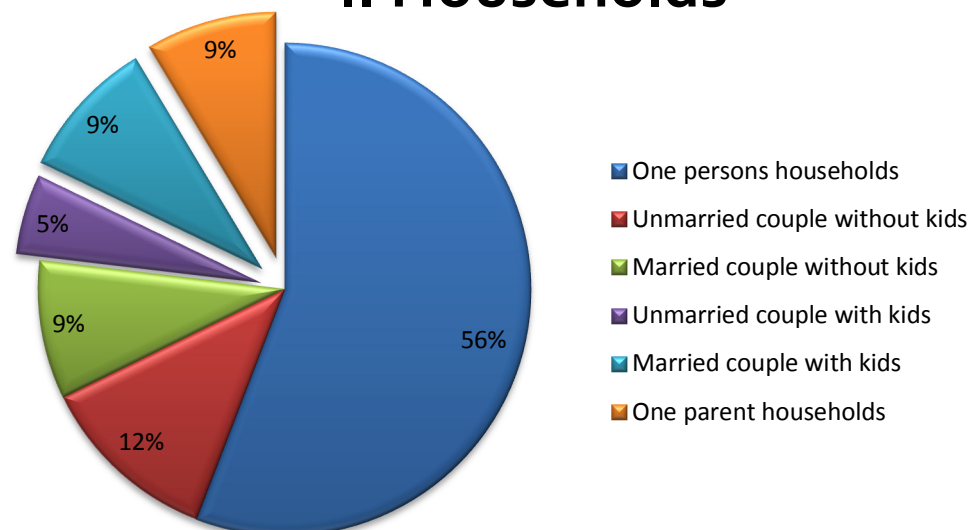
III. Number of children in families



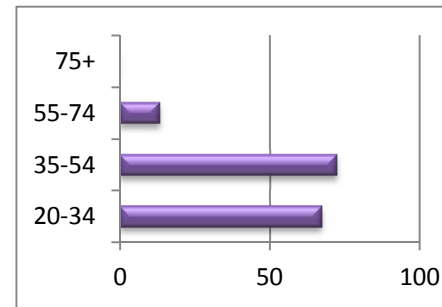
II. Number of children in one parent households



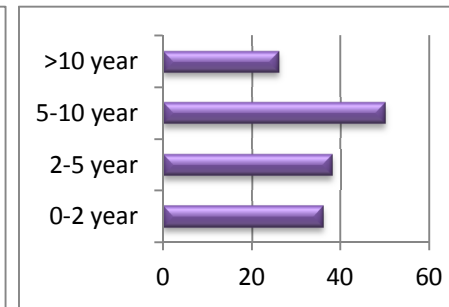
I. Households



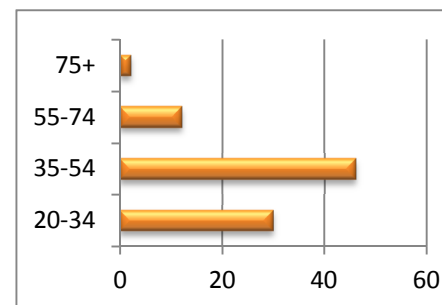
IV. a. Couples with kids



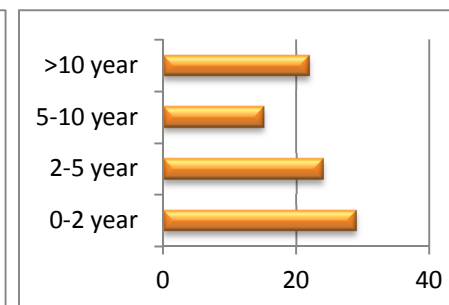
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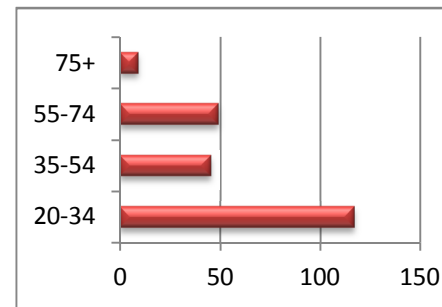
IV. b. One parent households



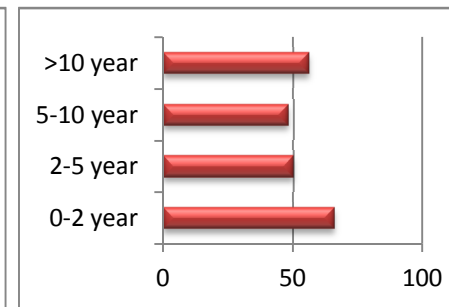
2.



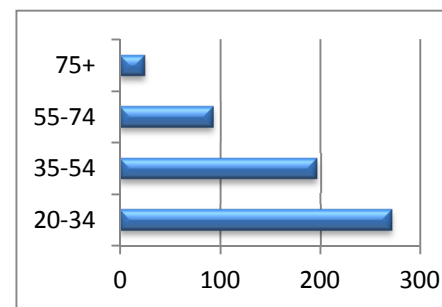
IV. c. Couples without kids



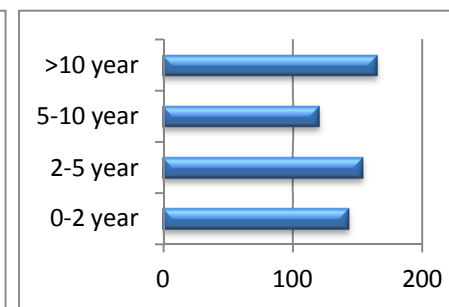
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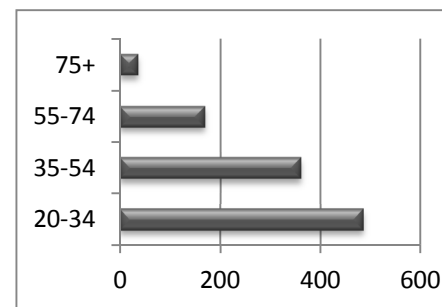
IV. d. One person households



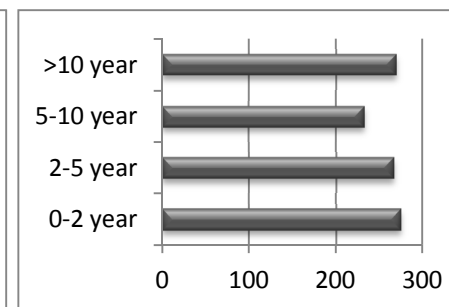
2.



IV. e. Average



2.





3.2 Residential wishes of current users

Speaking to the residents of the Vogelbuurt, it becomes clear that there are many differences in the way they like their neighbourhood and their dwelling. Of course, this also has to do with their age and the composition of their household. The different opinions and some general conclusions will be displayed here.

About one third of the interviewed people think their dwelling is okay. If you live there with only one or two people, then the fifty square metres that the dwelling offers, can be enough. These people often name the residential area to be quiet, and they like that.

Another opinion in the area is of people who think their dwelling is generally okay, although it could be better. One man named his kitchen and bathroom to be very small, but with monthly costs of only € 200, you should not complain, he said, especially not when you take the relatively big garden into account. Also in other cases, people named the kitchen and bathroom to be too small. Other people said that they wanted bigger bedrooms (because they have merged the original master bedroom and the living room for a façade-to-façade living room).

Some people think their dwelling is too small, but have no chance of moving away to another home. This was the case when I spoke to a man of about 50 years old. He lived at the second floor with his family. The house was too small, but since he recently became unemployed, moving away was not an option. When asked, he says he has never thought about merging homes.

It is illustrative when people are asked what they want to be improved in their dwelling; about 25% of the interviewed people say 'there simply is no space for improvement'. At the same time, about half of the people that were interviewed have extended their dwelling to the cellar or the attic, or occasionally even merged two homes. On the one hand people might not see opportunities there are in the layout of the dwelling, on the other hand residents are very self-assertive in improving their dwelling towards their own wishes and needs.

At last, there are also people living in the Vogelbuurt that think their dwelling is too small and are planning to move away. I spoke to a lady that pushed a buggy with two children. She said a third one was coming, and their house on the second floor now definitely became too small. She was now searching for a bigger home in Rotterdam Zuid, especially searching for more bedrooms. This wish for more bedrooms is common among households with children.

Concluding, it can be stated that a lot of people are happy with their dwelling as they are now. Some people just don't need that much space and are happy with the dwelling as it is now. Many people have merged their dwelling with the cellar or the attic and in this way improved their dwelling. Nevertheless, some people think some aspects of their dwelling should be improved. Especially bigger kitchens and bathrooms are important. When people have merged their living room and master bedroom, they might want a bigger bedroom than is available now. Households with children often are in search of more bedrooms.

Left: figure 3.2.1. Interviewed residents that are living in the Vogelbuurt. Pictures made by author.

3.3 Target group analysis

The municipality of Rotterdam and the district of Charlois (of which Carnisse is part) have made a vision about Carnisse in 2020. They name Carnisse to be an excellent place for people to start their residential career. For grown up children of residents it is an attractive place to buy their first home, but also people from outside the area are interested in starting here.

The municipalities name families to be important. They are the basis for the social structure in the area. Combined with small households, they inhabit the area. The Vogelbuurt has an average residential group with incomes around the Rotterdam average. Luxury and extravagance are not present in the Vogelbuurt, but the basic quality of the houses is all right. Some larger dwellings are present, aimed at people that are looking for more space. The spots in the area where dwellings face green or open spots, 'ground bound' dwellings can be realised.³⁹

The residents of Carnisse however think differently about this. In their vision for 2013 they describe Carnisse to have for everybody a fitting dwelling: for starters, families and elderly. Small studio's for students, working-and-living dwellings for entrepreneurs, connected dwellings for families that take care for their grandparent(s) and elderly dwellings with home care facilities.⁴⁰

Left: figure 3.3.1. How residents of Carnisse would like to see their area. Source: Bloeiend Carnisse, 2013, p.8.



³⁹ Deelgemeente Charlois et al., 2009, p. 20

⁴⁰ Bloeiend Carnisse, 2013, p. 8

Chapter 4: Feasibility

4.1 Possibilities for governmental support

Until now, the municipality of Rotterdam has mainly been trying to stimulate privately owned dwelling *improvement* (often: maintenance) by giving subsidies. Per apartment there was € 6.000 available as a subsidy. To get this subsidy, the home owners association had to have a long-term maintenance plan. The subsidy could contribute up to 55% of the total costs, as said with a maximum of six thousand euros.⁴¹

Between 2006 and 2010, the municipality and different social housing corporations invested € 70 million in the improvement of privately owned dwellings. Between 2010 and 2014 the municipality has reserved an additional € 38 million.

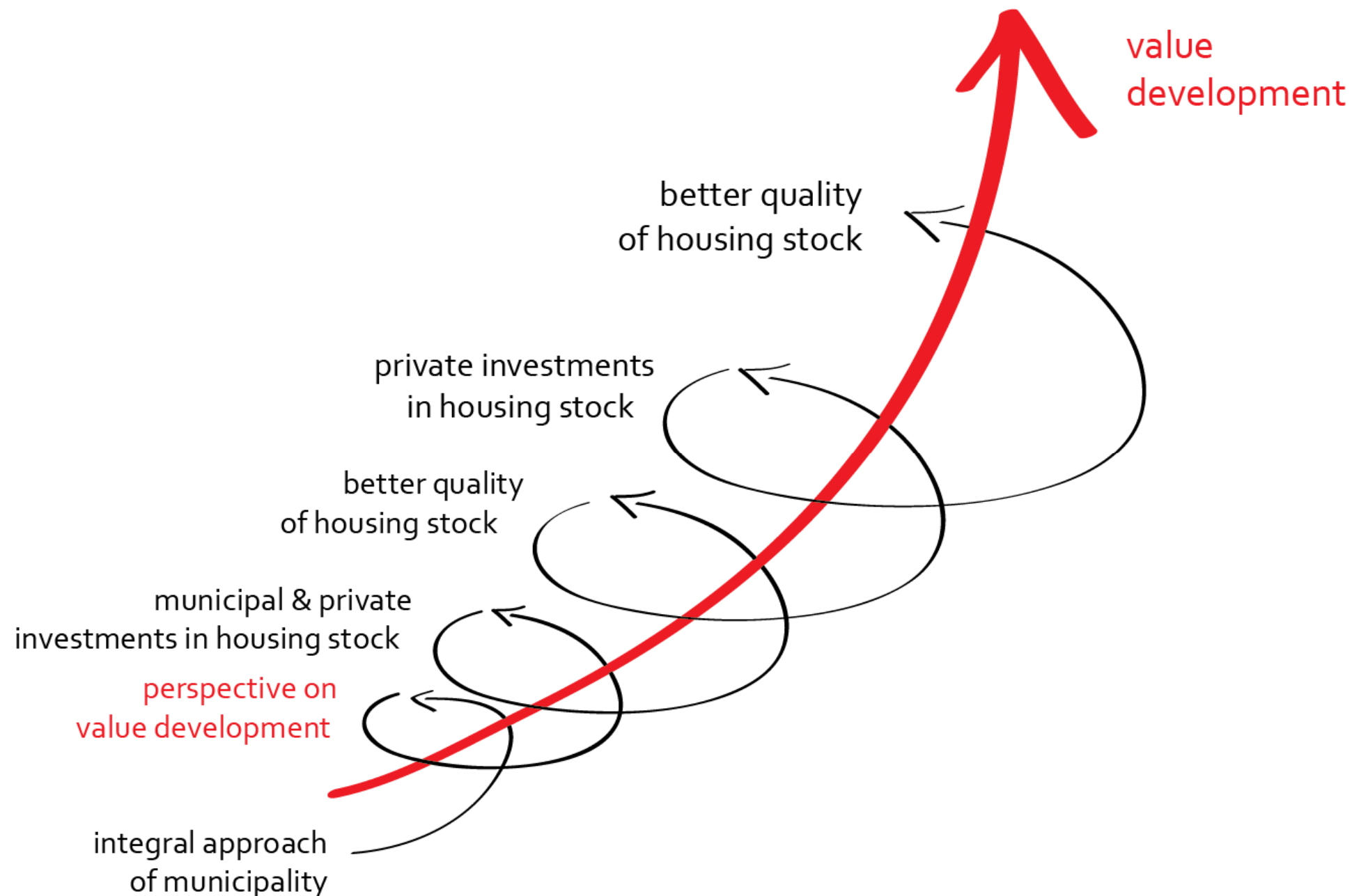
In 2011 and 2012, the municipality and corporation Havensteder together invested € 7 million in the Carnisse area, improving about 6000 dwellings of which 85% is privately owned.⁴²

Only recently, the municipality has changed its strategy. Giving subsidy on improvement is considered to actually be a prize on bad maintenance.⁴³ Therefore, the government is shifting from a system of subsidies to a system of financing, consisting of offering attractive loans and very small subsidies.⁴⁴ The success of this approach became clear in conversations with residents, for one of them was mentioning that his home owners association could get a very attractive loan from the government to replace the single-glass windows of the apartments. Therefore, the windows were replaced while the residents did not need to do an extra investment.

This strategy is not applied to the entire city, but to specific areas as appointed by the municipality. Especially on Rotterdam Zuid they name an integral approach to be crucial to improvement. This approach consists of improvement of privately owned apartments, improvement of the social rental homes, the urban space, accommodations, regional economy and social coherence. This approach, which should result in clearly visible improvements, is aimed at generating value improvement. An overview of this approach is given in figure 4.1.1. This value improvement is considered to be essential: only if the home owners have a perspective on value improvement, it is interesting for them to invest in their homes. And those private investments are a fundamental condition for the quality of the privately owned housing stock. This quality of the housing stock, combined with the quality of the outside space, is again important for attracting investments.⁴⁵

In short: an integral approach of both municipality and home owners should cause an upwards spiral, leading to improvement of the housing stock, attracting investments, attracting investments again.

Left: figure 4.1.1. Illustration made by author.



⁴¹ Korporaal, P., 2012, p.19

⁴² Korporaal, P., 2012, p.19

⁴³ Centraal Planbureau, 2000, p.85-93

⁴⁴ Gemeente Rotterdam, 2012, p.15

⁴⁵ Gemeente Rotterdam, 2012, p.8

For the specific dwellings in the Vogelbuurt, this integral approach means that the residents can nowadays still get a subsidy up to € 3000 for improving the quality of their dwelling. When the dwelling is also improved to be more energy efficient, an additional € 1200 can be received. Next to that, also low-rent loans are available.⁴⁶

Next to that, also subsidies can be requested for the differentiation in housing stock. A house merging subsidy is available for € 5000 per addressed house, with a maximum of € 15.000 (when one merges three or more houses). At this moment this subsidy is only available for the apartments in the adjacent Oud-Charlois and the northern part of the Vogelbuurt.⁴⁷

But the municipality not only helps in a financial way of thinking, but also offers management help. To help home owners associations (abbreviation in Dutch: VvE), the municipality of Rotterdam has established VvE-010, an office that helps these associations with management issues. For private home owners that want to merge apartments, a 'merging-coach' is available.

4.2 How can improvement of the urban layout contribute to dwelling differentiation?

A less direct approach to improvements in the privately owned housing stock (and part of the integral approach of the city of Rotterdam) is to invest in the urban space, the surrounding of the buildings. A better surrounding will make the dwellings more attractive and thus worth more.

The idea is that the increased value of the dwellings will stimulate the residents to also invest.⁴⁸

Clear, visible investments in the urban area can also be a first good step by the government to show their ambition for the area. The current residents of the Vogelbuurt tend to think that demolishing and replacing the existing buildings is the way the government will deal with the area.⁴⁹ Significant governmental investments into the area can give residents the confidence that their dwellings do have a future and that the money they invest, won't be discarded within the coming centuries.

These investments can be aimed at improving the urban area, adapting the facilities to the needs of the area⁵⁰ and improving the safety.⁵¹

A few conditions which must be met to improve the differentiation in the dwelling supply and counter selective migration are named by the national government. As said, parallel to the improvements in the homes, the urban area and the safety need to be improved. There also has to be a large enough demand for better dwellings. When there are surprisingly high incomes in the area although the housing prices in the area are quite low, there is a big chance that strategic dwelling improvement can keep these groups within the area. Besides that, the dwellings and the urban area should be competitive enough compared to the direct surroundings.⁵²

From that point of view, the large private gardens and the presence of both the Lepelaarsingel and the Zuiderpark can be important aspects that distinguish the Vogelbuurt from other parts of Rotterdam.

4.3 How can residents contribute to dwelling differentiation?

Various examples, also in Rotterdam, show that combined forces of both government and citizens can result in good housing projects that have a positive effect on their surroundings.

A famous example is the Wallisblok in Rotterdam. The housing block consisted of 75 impoverished houses. The area had to deal with drug-related problems and pollution. In 2004, the concept of 'klushuizen' was born: the homes were given away to a new group of residents that had to invest a certain amount of money in renovating their home.

Nowadays, in numerous cities these 'handyman houses' are in the real estate market. Residents buy the homes for a low price and are obliged to invest in refurbishment. They become part of a collective private commission, which is in fact an association of residents that want to build something together. This commission could for example hire architects and stipulate sharp prizes at contractors for the commission members that want to merge their homes.

Some housing corporations are already active in the Carnisse area, for example Woonbron in the Vogelbuurt. In the past Woonbron has bought privately owned apartments to make sure they keep in touch with the area. Housing corporations are professional organisations that can help private owners, for example via the home owners associations, maintaining their homes. They can even act as an administrator or manager of the association, to ensure professionalism and decisiveness. Because corporations are also selling their homes (instead of renting) via a 'Te Woon' system they more and more come in a position where they do not only serve renters, but also private owners. The owners have to sell their dwelling back to the corporation when they leave. This means the corporation can act as a service provider for the private owners.

In Rotterdam there are investigations if corporations can maintain buildings for private owners.⁵³ Another idea coming, from Stadslab Rotterdam-Zuid, was to make corporations a mediator between private landlords and tenants, because they can screen target groups (in this way help the landlords) and serve also the people that are not qualified for the social rental homes.⁵⁴

Possibly the corporation can not only buy homes to simply rent them out again, but buy clusters of homes with the ability to merge them. After that they can sell the homes via the 'Te Woon' system.

Last but not least, private stakeholders can buy dwellings with the ability to merge them. Investors could buy adjacent homes and sell them when refurbished, but also private owners could buy neighbouring houses with the intention to live there. This could for example be residents of Carnisse that buy a neighbouring home and extend their dwelling.

⁴⁶ Gemeente Rotterdam, 2013 [1]

⁴⁷ Gemeente Rotterdam, 2013 [2]

⁴⁸ Ophem, I. van, 2012, p.7

⁴⁹ Steunpunt Wonen, 2004, p. 11

⁵⁰ Platform31, 2008 [1]

⁵¹ Centraal Planbureau, 2000, p.93

⁵² Centraal Planbureau, 2000, p. 94

⁵³ Korporaal, P., 2012, p.21

⁵⁴ Stadslab Rotterdam-Zuid, 2011, p.9.



Chapter 5: Conclusions and design recommendations

The Vogelbuurt in Carnisse is situated in Rotterdam-Zuid. Built directly after the Second World War, it once offered good quality housing to the people that were homeless because of the bombing of Rotterdam. But living demands have changed and the dwellings are now regarded as small and vulnerable to social problems. The dwellings are small, only reachable by stairs and quite cheap.

Within the coming twenty years, the municipality of Rotterdam wants to replace or significantly improve about 35.000 dwellings on Zuid. Thereof 23.000 dwellings are privately owned, of which also the housing blocks in the Vogelbuurt.

Based on the research performed in the past weeks, I think the present houses could be adapted to fit the wishes of the future users, both tempting the current residents from the Vogelbuurt to stay instead of leaving and attracting new privileged residents, in this way improving the social and economic position of Zuid.

The research question that is investigated is the following: How can we use dwelling enlargement to regenerate the Vogelbuurt in Carnisse, towards an economically and socially stronger Rotterdam-Zuid?

We have seen that the current dwellings have proven to be flexible, for many residents have already made smaller or larger alterations in the layout of their homes, including expanding their homes into the cellar or the attic. We have also seen that mainly families are still demanding more space. Some are even considering moving to another home. This supports my hypothesis that dwelling enlargement can contribute to retain the current residents of the Vogelbuurt.

A low budget do-it-yourself approach is favourable for this neighbourhood, for it fits to the financial position of most residents and it stimulates taking care for the dwelling and neighbourhood. Such a bottom-up approach also fits the present day situation where large subsidies for area development are over. To stimulate the residents in this neighbourhood to really merge their dwellings, a system should be developed that makes it as easy as possible for them, on the one hand securing the architectonic, technical and cultural value of the present buildings, on the other hand giving the residents as much freedom as possible.

*Illustrations left: figure 5.1. Impressions of different interior layouts.
Illustration made by author.*

DEEL 2: ONTWERP

Hoofdstuk 6: strategie

6.1 Problemen in de Vogelbuurt

De woningmarkt in de Vogelbuurt verkeert anno 2014 in zwaar weer. De huizenprijzen staan stevig onder druk. Er zijn signalen dat veel huizen 'onder water staan' - dat wil zeggen dat de hypotheek hoger is dan de woningwaarde - zodat de eigenaar bij een verhuizing met een restschuld blijft zitten. Daarnaast noemt de gemeente de woningvoorraad in de Vogelbuurt kwetsbaar, omdat 'kwetsbare woningvoorraad' gekenmerkt wordt door een kleine woonoppervlakte (<75 m²), een WOZ-waarde van minder dan € 130.000 en alleen bereikbaar is per trap. Deze kwetsbare woningvoorraad trekt ook een kwetsbare bewonersgroep aan - mensen die op zoek zijn naar de zeer goedkope woonruimte en vaak weinig kansen hebben zichzelf te ontwikkelen. Dit gecombineerd met de grote hoeveelheid sociale huur op Zuid is er een concentratie van 'kansarme' bewoners met problemen op het gebied van werk en educatie als gevolg.^{55, 56}

De gemeente Rotterdam heeft in het Nationaal Programma Kwaliteitsprong Zuid (2011) de ambitie uitgesproken om in de komende 20 jaar 'één derde van de woningvoorraad op Zuid verbeteren of te vervangen, inclusief de buitenruimte. (...) Het gaat hier om zo'n 35.000 woningen: 12.000 corporatiewoningen en 23.000 particulier bezit.'⁵⁷

Carnisse is één van de zeven focuswijken van dit Nationaal Programma. Concreet betekent dit dat de gemeente de eenzijdige woningbouw wil vervangen of verbeteren, met als doel om de 'sociale stijgers voor Zuid te behouden zodat mensen ook wooncarrière kunnen maken in Rotterdam Zuid'.⁵⁸

De Vogelbuurt kent een eenzijdige woningvoorraad: vrijwel de hele buurt bestaat uit portieketagewoningen van ongeveer dezelfde grootte. Er zijn, afgezien van de mogelijkheid om uit te breiden naar zolder of kelder, geen mogelijkheden voor een wooncarrière. Ook worden de woningen slecht onderhouden, mede veroorzaakt door het hoge percentage kleine en inactieve VVE's. Daarnaast blijkt uit gesprekken met bewoners dat er sociale problematiek is. Bewoners voelen weinig binding met de buurt, er is weinig sociale samenhang en er wordt geen zorg gedragen voor de schil van de woning en de woonomgeving. Dat is jammer, want in mijn ogen is dit een waardevolle wijk vanwege zijn bijzondere geschiedenis en zijn functie als opstartwijk.

Afbeelding links: figuur 6.1.1. Overzicht kwetsbare woningvoorraad in Rotterdam Zuid. De Vogelbuurt staat aangegeven in het rode vierkant.

Bron: Rovers, C. et al., 2009, p.28.



⁵⁵ Gemeente Rotterdam et al., 2011, p.3

⁵⁶ Deetman Mans, 2011, p. 7-8

⁵⁷ Gemeente Rotterdam et al., 2011, p.16

⁵⁸ Korte samenvatting Nationaal Programma Rotterdam Zuid, via http://www.samenvoordeklant.nl/uploads/tx_news/20 - Rijnmond - Bijlage 8 Nationaal Programma Rotterdam Zuid.pdf



6.2 Kansen in de Vogelbuurt

Nu doet de Vogelbuurt het relatief goed vergeleken met andere wijken. Veel bewoners hebben een baan, want ze wonen immers met een hypotheek in de koopwoningen in de Vogelbuurt. Uit de gebiedsvisie Carnisse⁵⁹ blijkt dat deze buurt een 'arbeidersbuurt' is en inderdaad zijn hier veel zelfstandigen in de bouw gevestigd. In de Vogelbuurt wonen doeners!

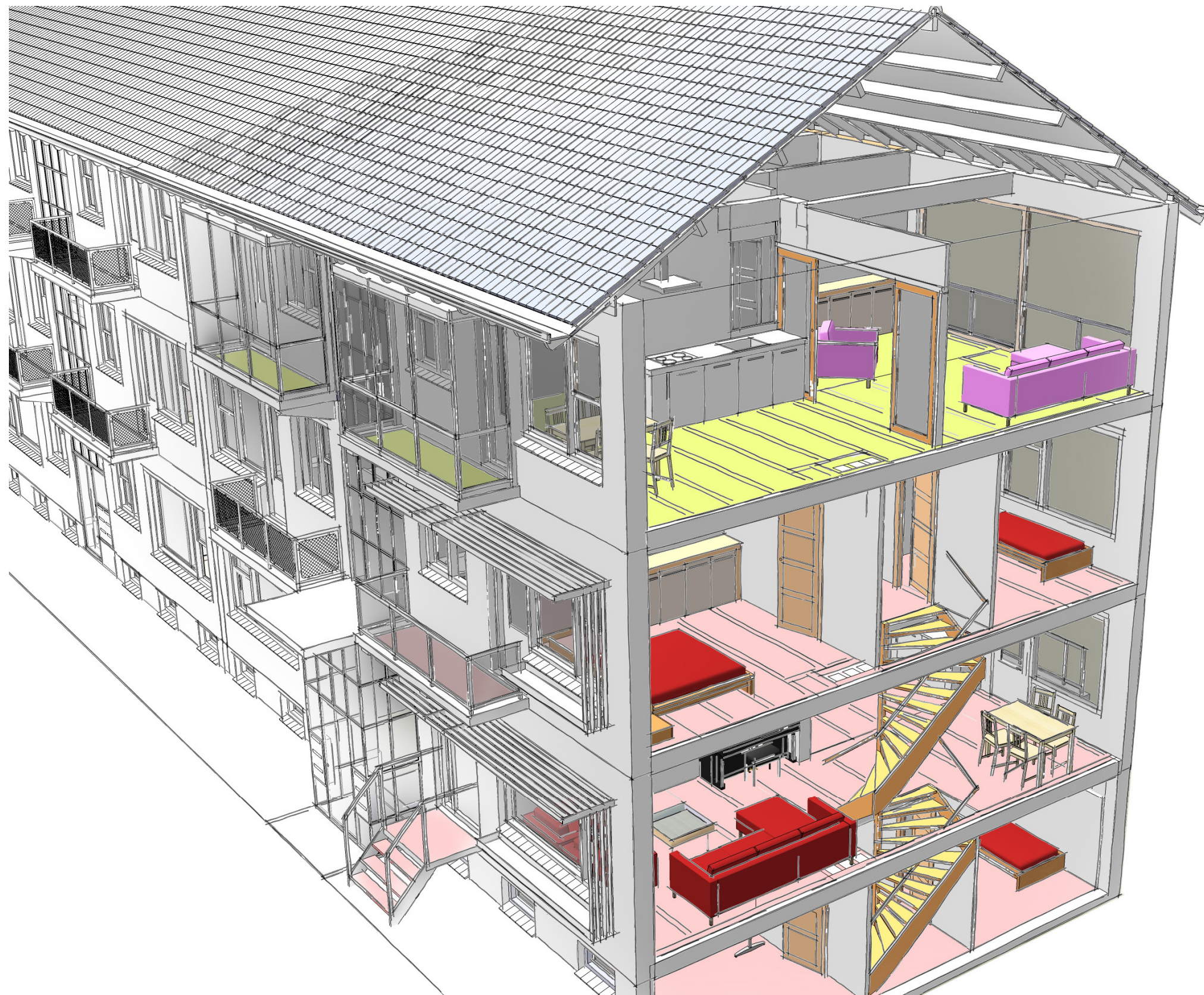
Bij het ontwerpen voor deze wijk zou mijns inziens een sociale en fysieke aanpak hand in hand moeten gaan. Ik heb dat teruggevonden in de klushuizen-strategie van de gemeente Rotterdam. De klushuizen zijn geboren uit de 'hotspot'-aanpak, waarbij de gemeente overlastgevend panden opkocht. Deze panden werden voor een bijzonder lage prijs aangeboden aan kopers die vervolgens verplicht waren het pand op te knappen naar nieuwbouwkwaliteit en enkele jaren te blijven wonen. Dat de klushuizen vaak in achterstandswijken staan, blijken de nieuwe eigenaars geen probleem te vinden. De koper krijgt de mogelijkheid om een woning financieel haalbaar volledig naar zijn wensen in te richten. Dat resulteert in binding met de woning zelf en de directe omgeving - de tuin en de straat. Wethouder Karakus (wonen) omschrijft het als volgt: *'Een klushuis levert de kopers niet alleen een mooie en grote woning op. De grootste winst is dat er enthousiaste bewoners komen die bij willen dragen aan hun wijk.'*⁶⁰

Vaak zijn klushuizen samenvoegingen van meerdere kleine woningen. Door deze samenvoeging mee te nemen in het ontwerpen voor de Vogelbuurt kan een antwoord worden gegeven op één van de belangrijkste uitdagingen in de Vogelbuurt: differentiatie aanbrenen in de eenzijdige en kwetsbare woningvoorraad. Door samen te voegen sla je twee vliegen in één klap: een samengevoegde woning wordt niet meer als 'kwetsbaar' aangemerkt vanwege de vergroting van de woonoppervlakte - zal dus ook een ander woonpubliek trekken - én er ontstaat differentiatie in het woningaanbod, dus bewoners kunnen ook binnen de wijk doorgroeien naar een groter huis. Zo beantwoordt deze aanpak de onderzoeksvraag die ik mezelf gesteld heb: hoe kan woningvergroting ingezet worden om de Vogelbuurt te regenereren, op weg naar een sociaal en economisch sterker Rotterdam-Zuid?

Zoals opgemerkt bij afgeronde klushuisprojecten, ontstaat door mensen te stimuleren om te investeren in hun woonomgeving, binding met de woning en omgeving. Binding die cruciaal is voor de ontwikkeling van de Vogelbuurt naar een sociaal en economisch sterkere wijk. Het mooie aan investeren is dat je het zowel met geld als met tijd kan doen. Klussen is investeren in je eigen woonomgeving, niet zozeer met geld, maar voornamelijk met tijd. Gecombineerd met de bevinding dat er veel doeners in arbeiderswijk Vogelbuurt wonen, lijkt dit een veelbelovende richting voor de buurt.

Foto links: *figuur 6.2.1. De woningen in de Vogelbuurt in 2013. Foto gemaakt door de auteur.*

⁵⁹ Deelgemeente Charlois et al., 2009, p. 25



6.3 Bouwstenen Vogelbuurt: het systeem.

Een logische vraag is waarom de markt deze handschoen niet heeft opgepakt - waarom zijn deze samenvoegingen niet al op grote schaal aan de gang? Een belangrijk probleem leek mij de financiële 'onrendabele top' die wordt veroorzaakt doordat samengevoegde woningen vaak minder waard zijn dan de twee afzonderlijke woningen plus verbouwkosten. Uit gesprekken van Veldacademie-studenten met professionals over het stimuleren van samenvoegen in Rotterdam blijkt dat mee te vallen. Bewoners zien de kosten die gemoeid zijn met het samenvoegen als investering in het woongenot. Het is immers dé manier om in je eigen huis en buurt te blijven wonen, terwijl je toch je woning kunt aanpassen naar je veranderde woonwensen.

Veel problematischer zijn de bezwaren van organisatorische aard, zoals dat het ingewikkeld kan zijn om een tweede hypotheek te krijgen of om de woningen juridisch samen te voegen waarbij de splitsingsakte van de Vereniging van Eigenaren moet worden aangepast, wat veel voeten in de aarde heeft. Om particuliere woningverbeteren daadwerkelijk te stimuleren is het verstandig deze problemen vooraf op te lossen.

Daartoe heb ik het systeem 'Bouwstenen Vogelbuurt' ontworpen, dat het bewoners zo makkelijk mogelijk maakt om hun woning te verduurzamen en/of samen te voegen met een naastgelegen woning. Op bepaalde gebieden kunnen bewoners kiezen uit een aantal opties, waarvoor de vergunningen al geregeld zijn en er technisch advies op maat gegeven kan worden. Op andere gebieden, zoals de indeling van de woning, hebben bewoners zoveel mogelijk vrijheid.

Een consortium, bestaande uit de gemeente Rotterdam, een architect, een aannemer en eventueel een bank is de motor achter *Bouwstenen*.

Bij dit consortium kunnen bewoners terecht voor advies, materialen en financiering.

Voor het consortium is het belangrijk dat er een partnership met een bank is. Het is namelijk lastig om een hypotheek te verkrijgen voor samengevoegde woningen door de onduidelijkheid rondom het proces van juridisch samenvoegen. Doordat de geliëerde bank het Bouwstenensysteem goed kent, kan de bank een reële risico-inschatting per bewoner maken. De toepassing van het systeem zorgt voor een gestroomlijnd bouwproces en duidelijkheid, zowel bouwkundig, ruimtelijk als juridisch, over het eindproduct. Dit neemt de koudwatervrees weg bij banken, die het stimuleren van samenvoegen zonder dit systeem in de weg zou staan.

De architect ontwerpt de verschillende componenten van het systeem. Ook kan deze bewoners aanvullend adviseren wanneer nodig.

Daarnaast is er een aannemer deel van het consortium. Deze aannemer kan de uitvoering van (delen van) het bouwproces overnemen van de bewoners, wanneer dit gewenst is. Tenslotte is de gemeente Rotterdam deel van het consortium. Zij treedt op als initiator (ze is er immers bij gebaat dat de kwetsbare woningvoorraad in de wijk wordt verminderd) en voert de eerste stap van dit proces uit: het creëren van een zone van anderhalve meter uit de gevel. Deze zone valt onder het beheer van bewoners.

Figuur links: *figuur 6.3.1. Impressie van Bouwstenen Vogelbuurt. Afbeelding gemaakt door de auteur.*



Figuur boven: *figuur 6.3.2. Impressie van straatsituatie bij Bouwstenen Vogelbuurt. Afbeelding gemaakt door de auteur.*

Deze gevelzone zorgt er enerzijds voor dat verschillen tussen de ene en andere kant van de straat - en appartementen onderling - minder opvallen. De balkons, die alleen aan de oostzijde van de straat voorkomen, raken ook beter ingebed in het straatprofiel. Tenslotte wordt de overgang tussen privé en openbaar minder strikt, wat de informele ontmoetingen in de buurt kan stimuleren en zo de sociale samenhang in de wijk bevordert.

Ook ontstaat ruimte voor verbetering. Bewoners kunnen geveltuintjes inrichten die de binding met de buurt versterken en het 'steense' uiterlijk van de flatjes vervriendelijken. Heel letterlijk ontstaat er ruimte voor verbetering, omdat in deze zone van 1,5 meter ruimte is voor het vergroten van de portiekentree en het aanbrengen van eigen entrees naar de woningen op de begane grond.

6.4 Het stappenplan voor bewoners.

Daarna is het de beurt aan bewoners. In vier stappen stellen zij hun zo ideaal mogelijke woning samen, afgestemd op hun budget en de mogelijkheden van de specifieke woningen die zij willen samenvoegen.

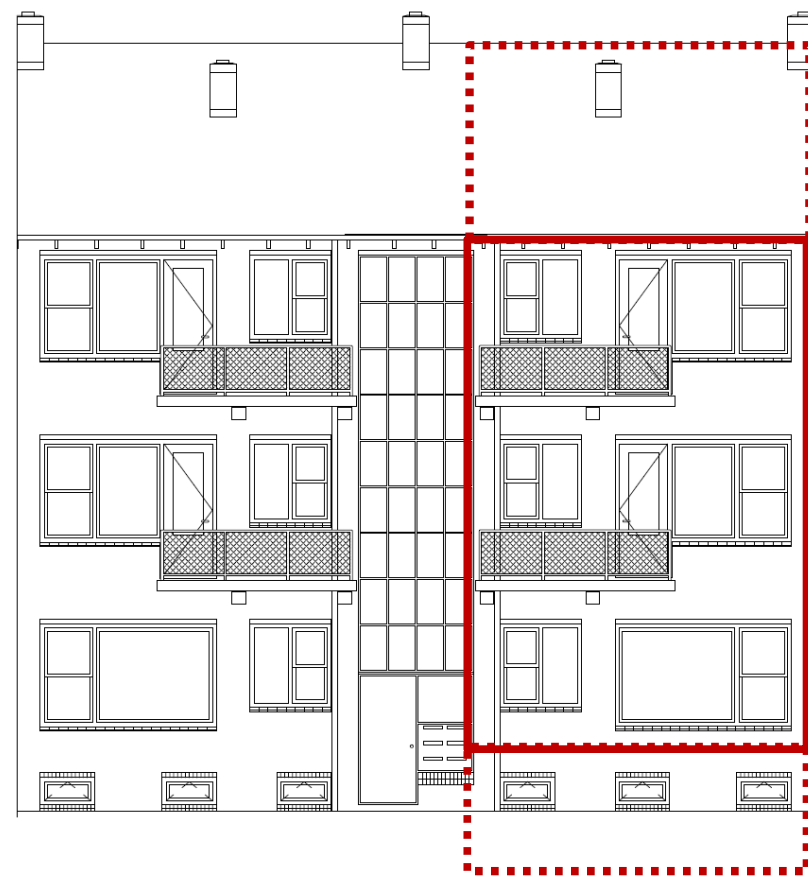
Een eerste stap is bewoners inventariseren met welke naastgelegen woning ze kunnen en willen samenvoegen. Dit hangt af van de beschikbaarheid van de woningen - met andere woorden: welke staan er te koop? Het blijkt uit mijn onderzoek dat in de Vogelbuurt bovengemiddeld veel woningen te koop staan. Bovendien is de doorloop hoog; gemiddeld één in de vijf jaar komt

elke woning te koop te staan. De kans dat een bewoner die wil samenvoegen binnen afzienbare tijd ook daadwerkelijk een naastgelegen woning kan kopen, is dus veel groter dan op andere plekken.

Dit samenvoegen kan globaal op twee manieren: horizontaal en verticaal. Wanneer een bewoner de oorspronkelijke appartementen van 47 en 56 m² samenvoegt, ontstaat een zogenaamde *loft* van 103 m². Hierin is het bijvoorbeeld mogelijk om een ruime doorzonwoonkamer te maken aan de ene zijde van het huis, en een slaapzone met vier slaapkamers aan de andere kant.

De bewoner zou ook verticaal kunnen samenvoegen. Dit kan over twee lagen (een maisonette) of alledrie de verdiepingen (een herenhuis). Wanneer de bovenste woning in bezit is zou de bewoner in overleg met de VVE kunnen treden om ook een deel van de gemeenschappelijke zolder bij zijn woning te betrekken. Ook interessant is dat als de bewoner de begane grond en de eerste verdieping allebei in bezit hebt, hij de kelderboxen kan schakelen en ook daar nog twee flinke kamers in kan maken. Met een hoogte van 2,2 m én daglicht is deze kelder prima geschikt voor extra slaap- of hobbykamers.

Figuur onder: *figuur 6.4.1. Overzicht woningconfiguraties. Afbeelding gemaakt door auteur.*



herenhuis



maisonette

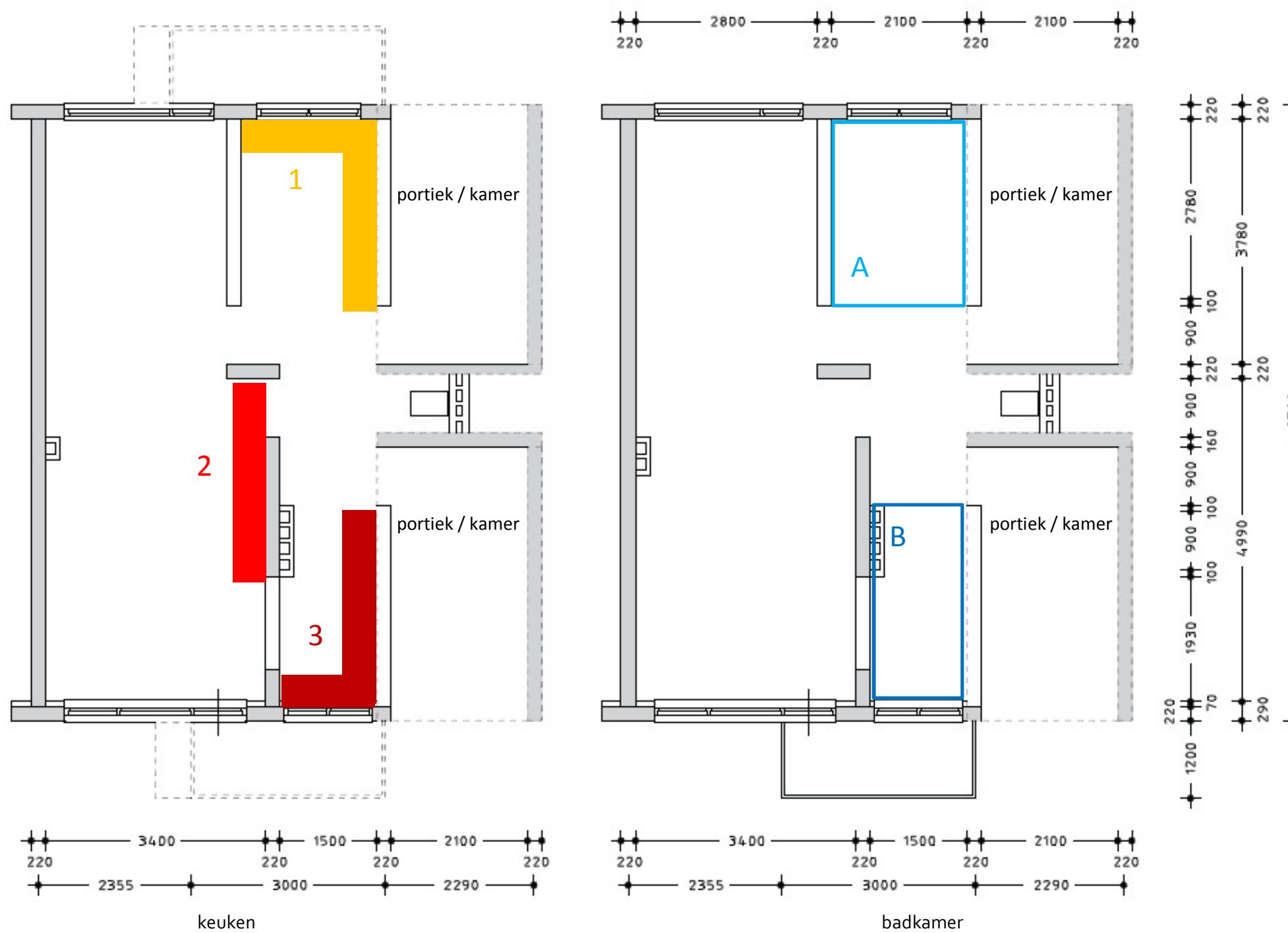


loft



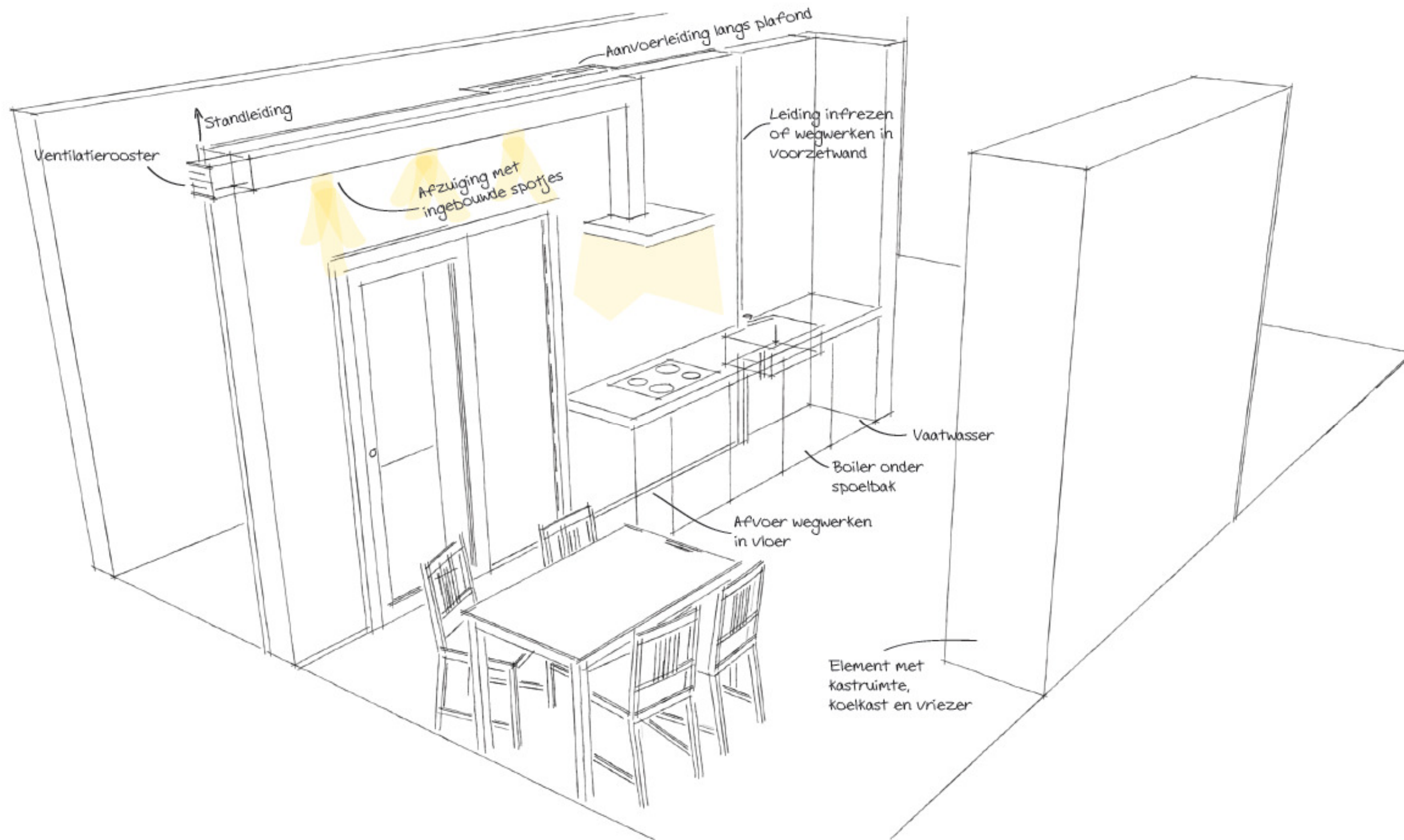
Een tweede stap is dat men kiest voor een locatie voor de badkamer en de keuken. Drie standaardlocaties worden aangeboden voor de keuken, twee voor de badkamer (zie figuur 6.4.2.). Zo kan de bewoner geadviseerd worden over leidingverloop en ventilatie, zoals te zien in figuur 6.4.3. Deze zaken zijn erg belangrijk bij de aanvraag van vergunningen. Als bewoners dus kiezen voor één van de aangeboden standaardoplossingen kan het vergunningstraject uit handen genomen worden en voorspoedig verlopen; deze opties zijn immers opgesteld in overleg met de gemeente en als concept goedgekeurd.

Mocht de bewoner niet tevreden zijn met één van deze standaardopties kan natuurlijk in overleg met de architect een specifiek plan worden opgesteld. Hier zal wel een apart vergunningstraject voor moeten worden ingesteld.



Figuur links: *figuur 6.4.2. Overzicht verschillende plaatsingsopties voor keuken en badkamer. Afbeelding gemaakt door de auteur.*

Figuur 6.4.3. Advies voor keukenoptie 2. Afbeelding gemaakt door auteur.





Stap drie is dat de bewoners keuze hebben om standaard opties aan te brengen aan de voor- of achtergevel van hun woning. Er zijn verschillende opties; een eigen entree naar de woningen op de begane grond, een wintergarden (beglaasd balkon), nieuwe balkonhekken, een zonwering met eventueel een bloemenbak erbij, een schuifpui en een ruimer terras in de tuin. In VVE-verband kan ook gekozen worden voor een portiekentree. Zie voor meer informatie over deze opties appendix 1.

Deze opties zijn zo ontworpen dat ze zo eenvoudig mogelijk door bewoners zelf in elkaar gezet kunnen worden en aangebracht. Natuurlijk kunnen

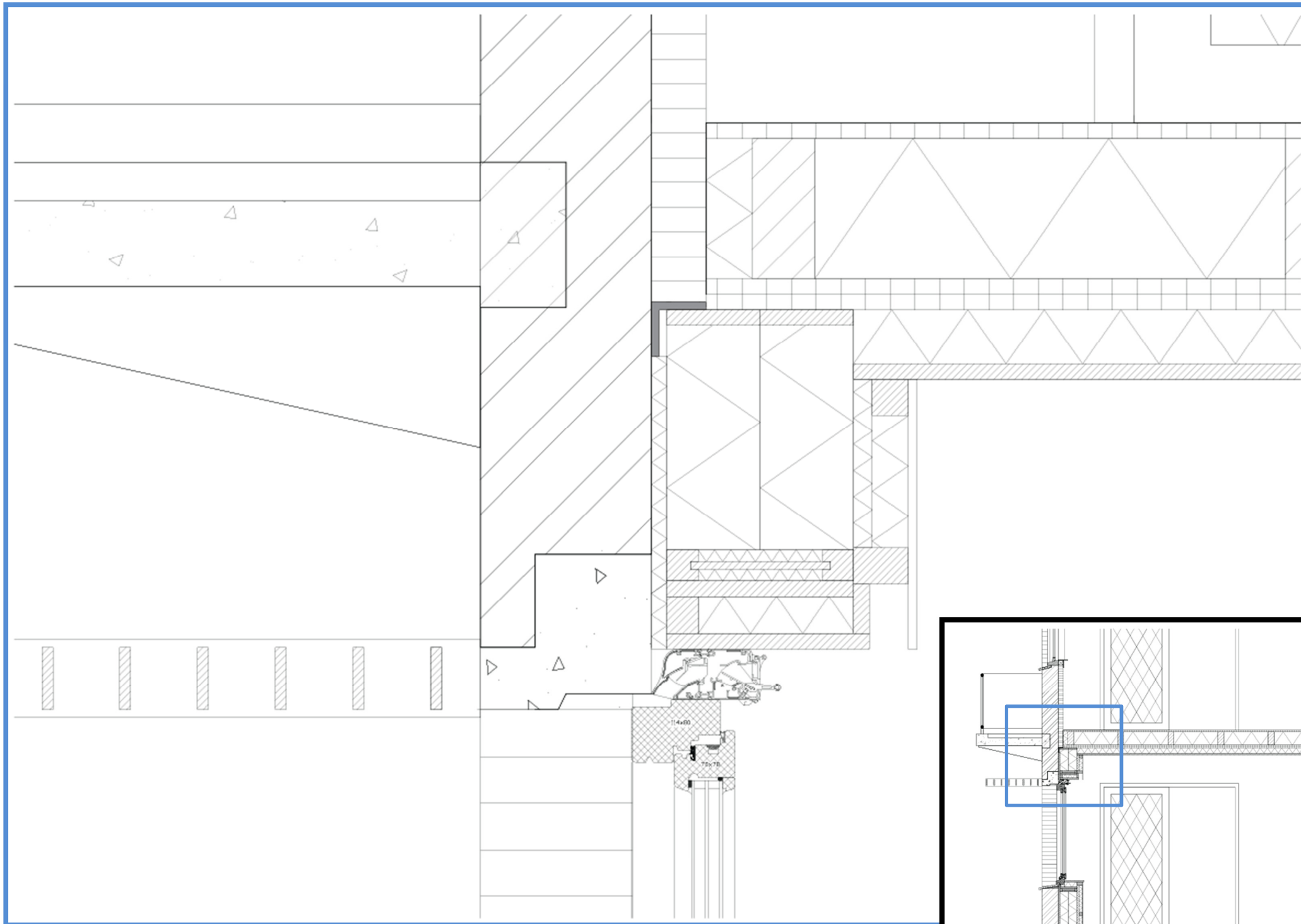
bewoners er ook voor kiezen om de aannemer in te schakelen. Zo heeft de bewoner zoveel mogelijk ruimte om de hoeveelheid werk en de prijs van zijn woningverbetering op zijn wensen af te stemmen.

De reden voor bewoners om voor deze opties te kiezen, is dat ze vooraf door welstand besproken en goedgekeurd zijn. Ook hier kan het vergunningstraject dus soepel doorlopen worden. Enerzijds bieden opties zekerheid aan de gemeente, die controle heeft over wat er in de straat mogelijk wordt gemaakt. Ook voor bewoners is deze zekerheid wenselijk, zo weten ze dat hun buurman ook via dit systeem zal werken en dus niet iets

aan zijn gevel zal aanbrengen wat uit de toon valt en de woningwaarde van de omringende panden ook negatief beïnvloed.

De opties zijn in samenhang met elkaar ontworpen en geconstrueerd uit zoveel mogelijk dezelfde materialen: hout, glas en staal. Door het onderscheid met de bakstenen architectuur van Van der Broek blijft enerzijds duidelijk wat oorspronkelijke bebouwing is en wat nieuw. Anderzijds zorgt dit ervoor dat in welke mate deze opties ook in de straat worden toegepast, deze opties altijd in evenwicht zijn met elkaar én met de achterliggende bebouwing.

Figuur boven: *figuur 6.4.4. Straatbeeld bij toepassing van opties. Afbeelding gemaakt door de auteur.*



Figuur 6.4.5. Detaillering isolatiepakket 'duurzaam' met geïsoleerde kelder. Afbeelding gemaakt door de auteur.

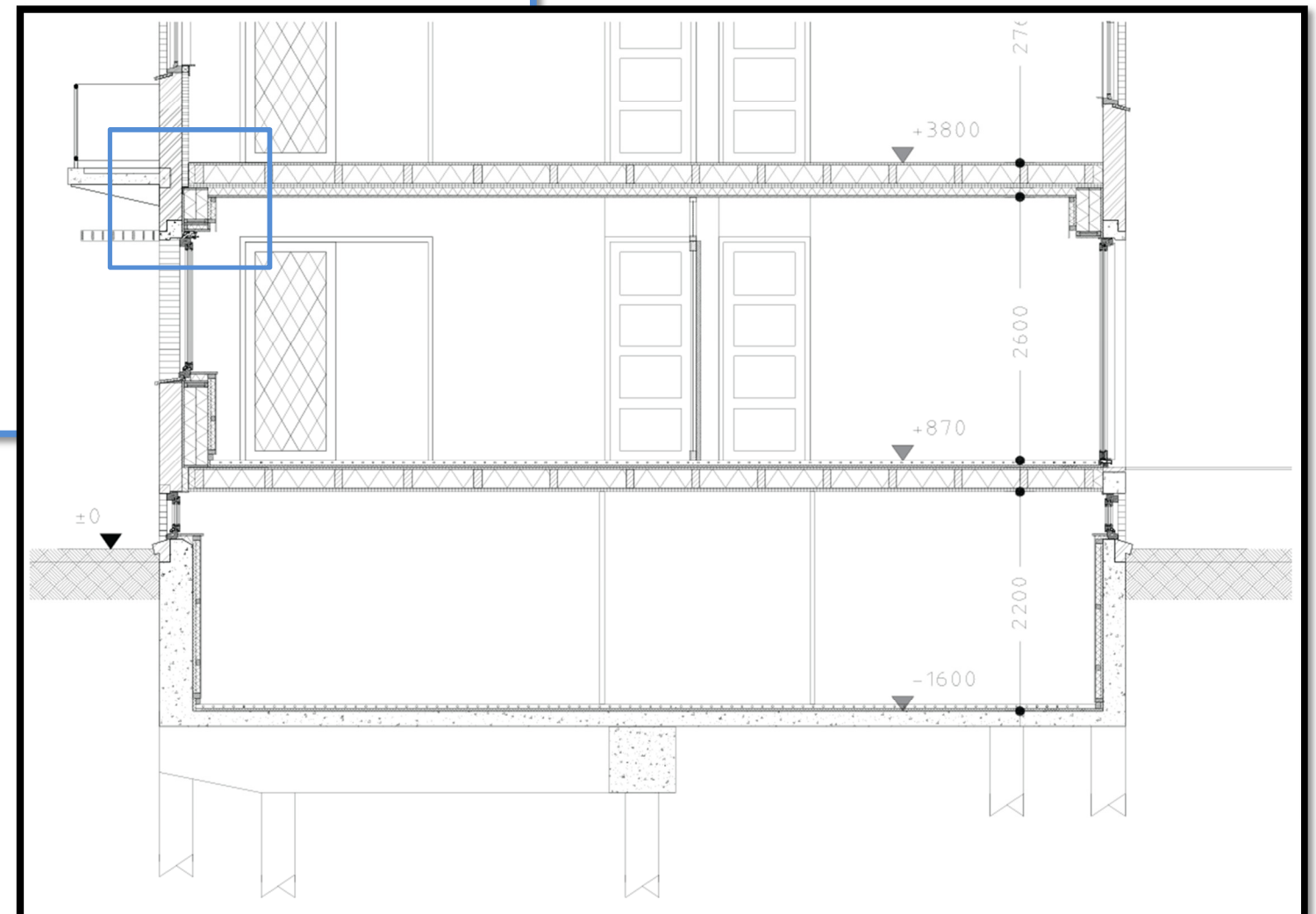
De vierde en laatste stap is dat bewoners kiezen voor een gevelisolatiepakket. Ze hebben keuze uit drie opties.

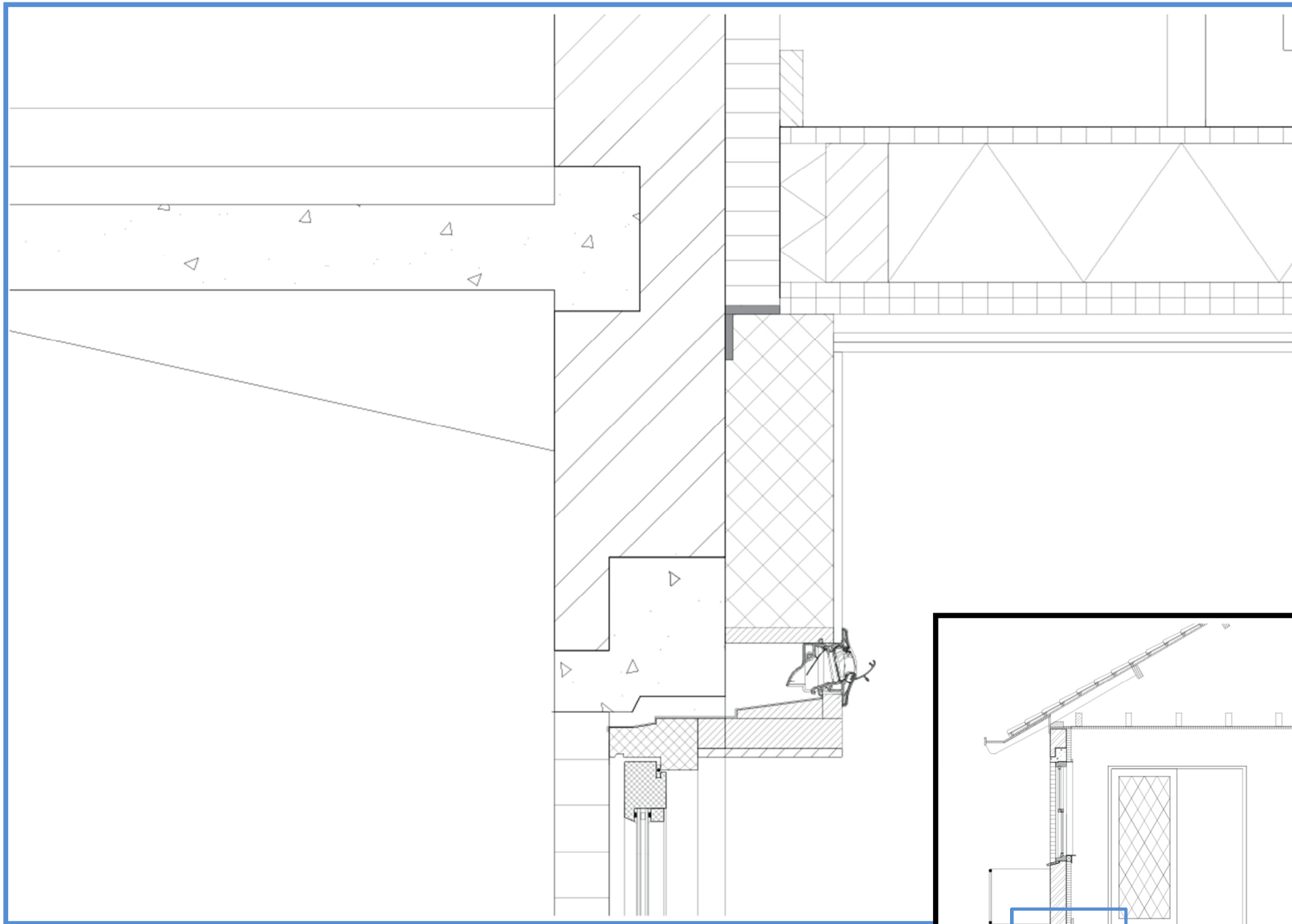
Optie 1 - duurzaam.

Deze optie is gericht op het zoveel mogelijk besparen van energie om zo de CO₂-uitstoot én de energiekosten te reduceren. Deze optie bestaat uit een vrij dik gevelpakket opgebouwd uit twee lagen van 120 mm dikke minerale wol. Deze zijn gevat in een frame van isolerende houten I-profielen. Daarvoor staat een isolerende voorzetwand van 70 mm dik, waarin leidingen en electra kunnen worden weggewerkt.

Bij deze optie worden houten kozijnen met driedubbele beglazing geleverd. Boven het kozijn zit een thermisch isolerende ventilatievoorziening weggewerkt, vanaf de straat niet zichtbaar. Ook dit is een belangrijke eis van welstand.

Voortbouwend op de principes die ten grondslag liggen aan dit gevelpakket wil ik bewoners ook adviseren over hoe om te gaan met de rest van het huis: de woningscheidende vloeren en wanden. In dit geval zou ik bewoners voorzetwanden adviseren bij alle dragende muren in het huis om zo koudebruggen te voorkomen. In de vloer (dus tussen de 180 mm hoge dragende balken) adviseer ik thermisch en akoestisch isolerende minerale wol. Onder het plafond kunnen de bewoners een 'zwevend plafond' hangen, bestaande uit zwaluwstaartprofielen en een dubbele gipsplaat. Zo is het akoestisch comfort in de woning gewaarborgd. Daarnaast kan op de vloer een dunne, zwevende renovatiedekvloer worden aangebracht met ingebouwde vloerverwarming.



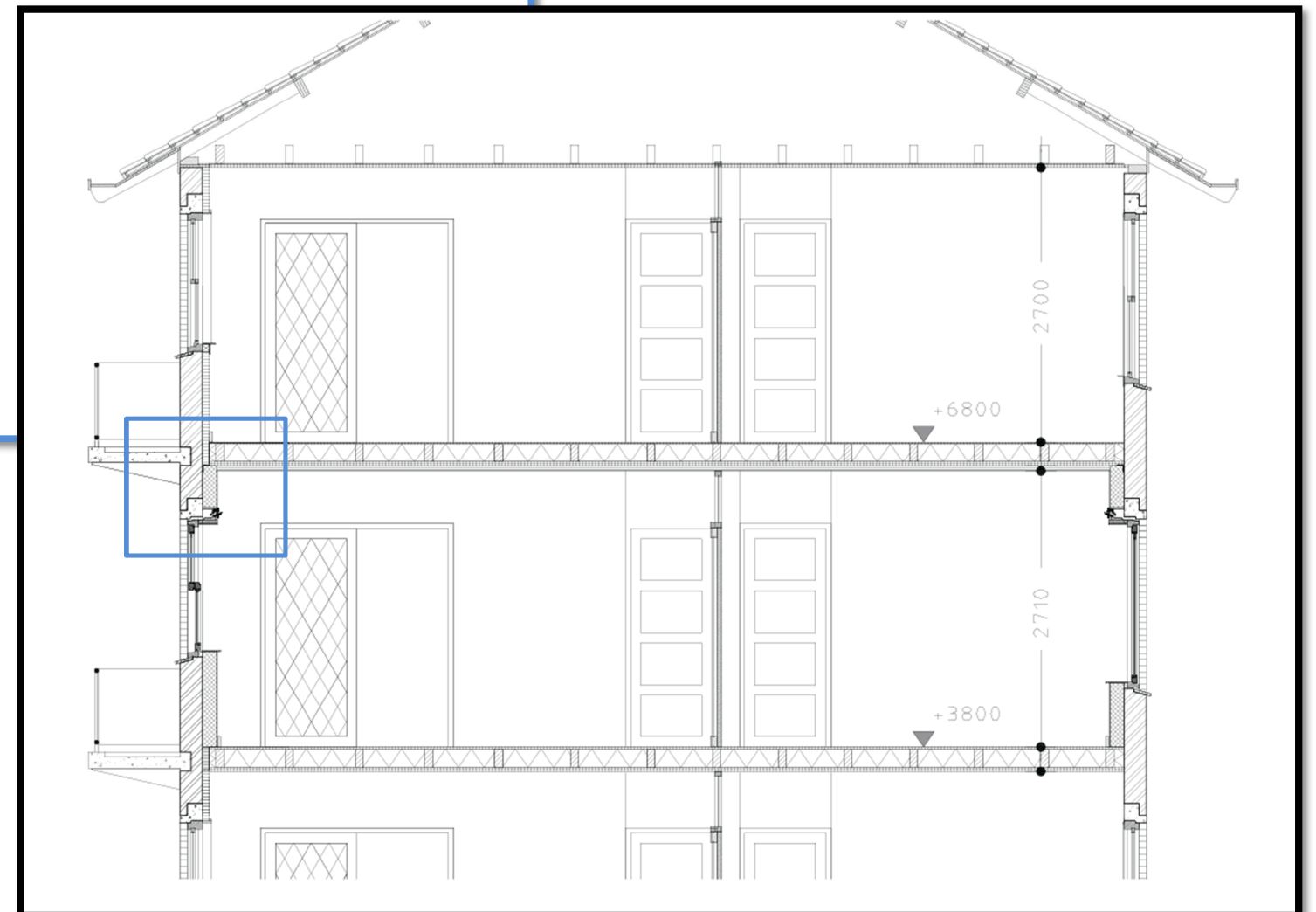


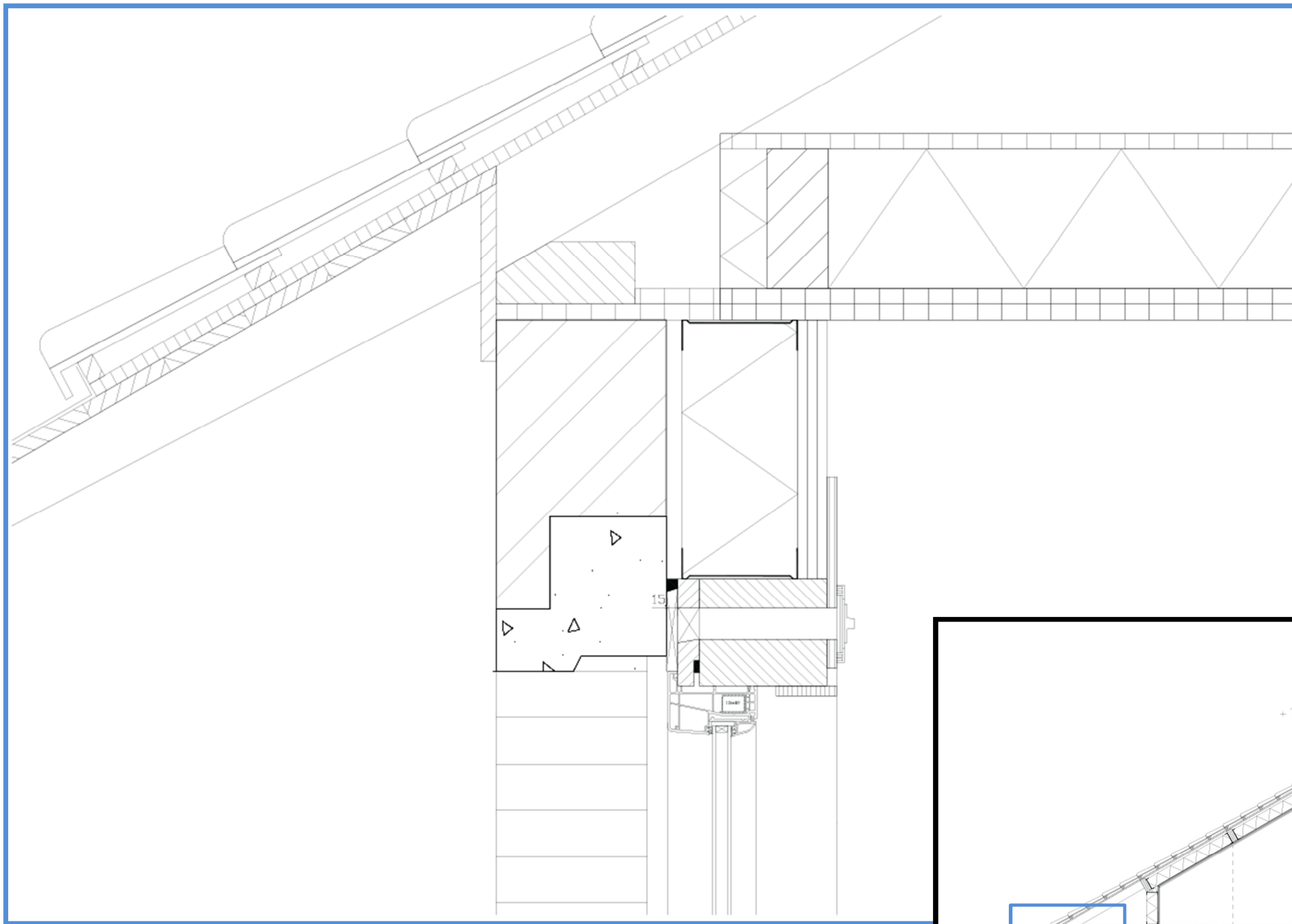
Optie 2 - renovatie.

Dit isolatiepakket houdt de waardevolle details uit het ontwerp van Van den Broek in ere. De houten kozijnen met dubbel glas liggen op dezelfde neggediepte als de oorspronkelijke ramen. Bovendien heeft dit nieuwe kozijn schuiframen, zoals deze eens in de Vogelbuurt te vinden waren. Voor ventilatie kunnen de bewoners natuurlijk hun raam openen, maar ook gebruik maken van het minimalistische ventilatierooster, dat het beeld aan de binnenzijde van de woning zo weinig mogelijk aantast. De isolatie zelf bestaat uit minerale blokken van 140 mm dik die tegen de huidige wand aangezet kunnen worden. Door deze bouwblokken ziet de wandafwerking er niet uit als gipsplaten, maar als een steenachtige wand.

Het advies voor de aanpak van de woningen houdt rekening met de waardevolle authentieke details die nog aanwezig kunnen zijn in de woning: de schuif- en en-suite deuren en de inbouwkasten. Daarom is een dekvloer niet mogelijk, maar een verlaagd plafond wordt wel geadviseerd.

*Figuur 6.4.6. Detaillering isolatiepakket 'renovatie'.
Afbeelding gemaakt door de auteur.*



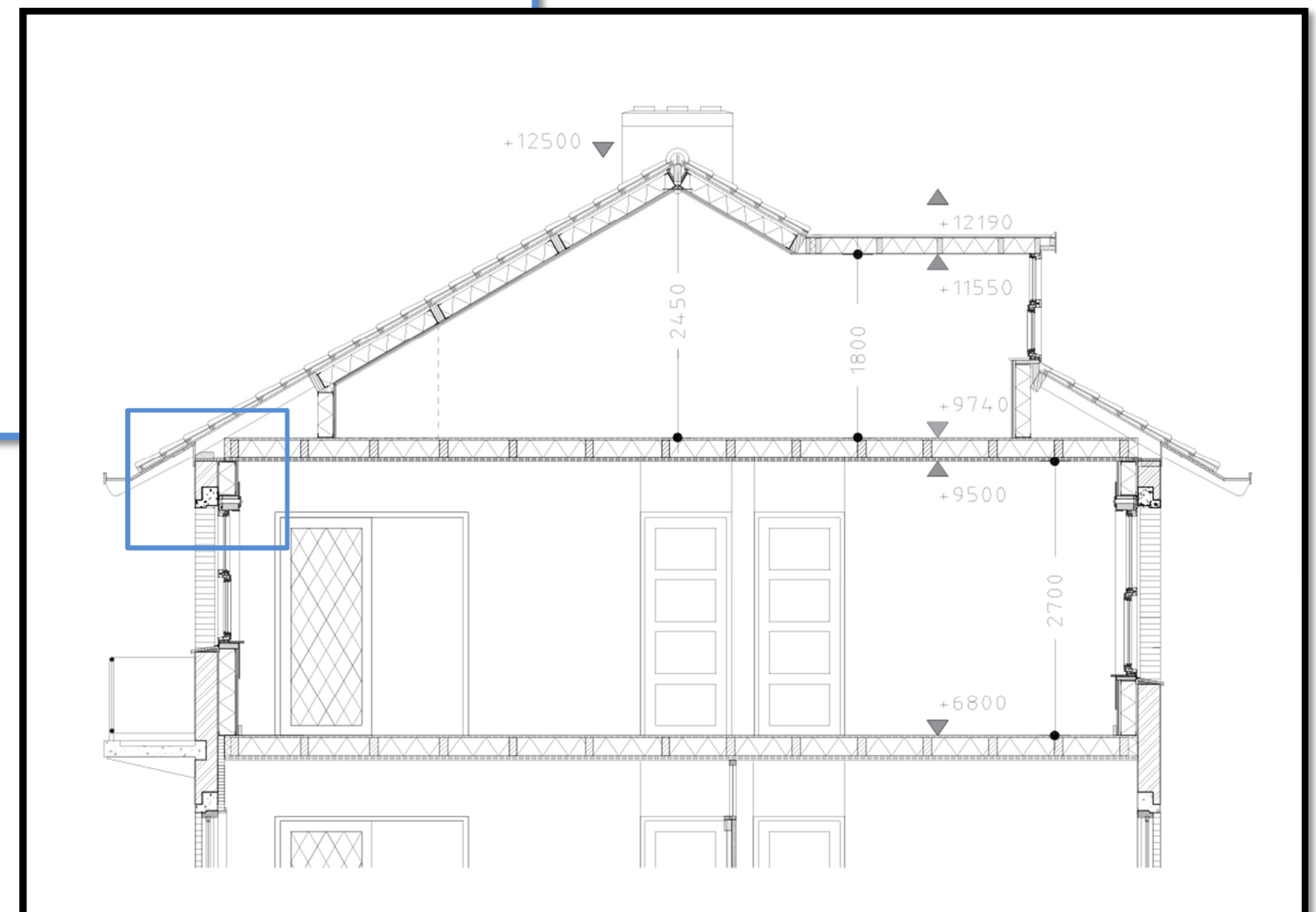


Optie 3 - budget.

De derde variant gaat uit van een isolatieprincipe dat zo makkelijk mogelijk door bewoners zelf te maken is om zo de kosten te drukken. Deze bestaat uit een metalstud of houten frame met daartussen minerale wol, afgedekt door een drievoudige laag gipsplaten van 12 mm elk. Deze drievoudige opbouw zorgt ervoor dat wanneer bewoners iets ophangen aan de wand, ze niet de dampremmende laag doorboren.

Dit pakket wordt geleverd met kunststof kozijnen en een low-tech ventilatierooster wederom door bewoners zelf in elkaar gezet kan worden.

Figuur 6.4.7. Detaillering isolatiepakket 'budget' met geïsoleerde zolder. Afbeelding gemaakt door de auteur.



KOSTEN	kosten		aantal	TOTAAL
	laten doen	zelf doen		
Keuze bij (vink aan)				
Stap 1 - huizen				
o Herenhuis	€ 132.000 k.k.		.....	.....
o Maisonette	€ 67.000 k.k.		.....	.....
o Loft	€ 67.000 k.k.		.....	.....
Stap 2 - plattegronden				
o Keuken optie 1	€ 9.000	€ 5.400	.....	.....
o Keuken optie 2	€ 9.500	€ 5.700	.....	.....
o Keuken optie 3	€ 5.000	€ 3.000	.....	.....
o Badkamer optie 1	€ 6.500	€ 3.900	.....	.....
o Badkamer optie 2	€ 3.200	€ 1.900	.....	.....
Stap 3 - opties				
o Wintergarden	€ 4.000	€ 3.300	.....	.....
o Nieuwe balkonhekken	€ 1.760	€ 1.320	.....	.....
o Zonwering/plantenbak	€ 1.100	€ 600	.....	.....
o Eigen entree	€ 3.000	€ 1.800	.....	.....
o Nieuwe portiekentree	€ 12.500	n.v.t.	.....	.....
o Schuifpui	€ 6.500	n.v.t.	.....	.....
o Terras	€ 5.000	€ 3.000	.....	.....
Stap 4 - gevelpakketten				
o Duurzaam	€ 5.600	€ 3.800	.....	.....
o Renovatie	€ 3.800	€ 2.600	.....	.....
o Prijsbewust	€ 3.000	€ 2.000	.....	.....
			

FINANCIEEL EN JURIDISCH

1. Huis
 - a. Opstelling kiezen
 - b. Plattegrond kiezen
 - c. Opties kiezen
 - d. Gevelpakket kiezen
2. Opstellen voorlopig ontwerp, kostenraming en taxatie door Bouwstenen.
3. Koop aangrenzend appartement
 - a. Concept hypotheekakte opstellen
 - b. Hypotheek onder voorwaarden
 - c. Koop onder voorwaarden
 - d. Hypotheek afsluiten
 - e. Definitieve koop
4. Wijzigen splitsingsakte VVE
5. Aanvragen benodigde vergunningen door Bouwstenen.
6. Bouwen
 - a. Vaststellen definitief ontwerp
 - b. Verbouwen (zie bouwkundig)

BOUWKUNDIG

1. Doorbraak dragende wanden
2. Aanbrengen trapgaten en plaatsen trappen
3. Aanbrengen benodigde gevelopeningen
4. Plaatsen nieuwe kozijnen
5. Plaatsen gekozen opties
6. Aanbrengen benodigd leidingwerk
7. Isoleren wanden
8. Inbouw keuken/badkamer
9. Afbouw

Wanneer de bewoners de vier stappen doorlopen hebben kunnen zij een overzicht maken van de verwachte kosten en zo een inschatting maken over wat hun woningvergroting financieel zal betekenen. Aan de hand hiervan kunnen ze inschatten of ze meer zelf zullen moeten doen, minder luxe opties nemen of juist nog wat groter kunnen denken. Ook adviseert *Bouwstenen Vogelbuurt* ze over hoe het bouwproces ingericht moet worden en hoe dit juridisch mogelijk gemaakt kan worden.

Figuur links: *figuur 6.4.8. Overzicht kosten en juridisch/bouwkundig advies. Figuur gemaakt door de auteur.*

Chapter 7: Reflection

7.1 Introduction

The Vogelbuurt neighbourhood in the Carnisse district in Rotterdam-Zuid was built in and directly after the Second World War. It once offered good quality housing to the people that were homeless because of the bombing of Rotterdam. Nowadays, the dwellings are regarded to be vulnerable to social problems. The municipality of Rotterdam aims to reduce the social and economic problems in Zuid, the southern part of Rotterdam, including the replacement or significantly improvement of about 35.000 dwellings on Zuid.⁶¹ Thereof 23.000 dwellings are privately owned, of which also the housing blocks in the Vogelbuurt.

This was the very challenging background of the studio 'Transforming Housing Heritage', in which I researched the southern part of the Vogelbuurt area, consisting of eight strips of so-called *portieketagebouw* - apartment blocks with dwellings of around 50 m², in total about 480 dwellings.

At the start of this graduation research I hoped to develop a strategy to improve the privately owned apartments by using the research question: *How can we use dwelling enlargement to regenerate the Vogelbuurt in Carnisse, towards an economically and socially stronger Rotterdam-Zuid?*



In my graduation I developed a strategy to stimulate people to improve their own homes, by making it as easy as possible to merge their home with an empty apartment next-door and stimulating them to insulate and maintain the enlarged dwelling. This can be done by offering a system where some elements are fixed (like the kitchen and bathroom), while in other occasions the residents have as much freedom as possible (for example the layout of the dwelling). By offering standard solutions for piping, insulation, heating and ventilation for a fixed price and with the needed permits, the residents can simply choose how they want their dwelling to work. The resident can choose if he installs everything himself or let it be done by a contractor and in this way have influence on the price of his dwelling improvement.

In this reflection report I account for the result of the research and design in the graduation project. Hereby I look back on my approach, try to understand why it did or did not work and learn from this. In the last chapters of this report I focus on the methodological line of approach that R-MIT uses: research by design. For this is seen as two different aspects I will first focus on the graduation process (chapter 4: relationship between research and design) and after that on the product and planning (chapter 5: relationship between research method of both studio and student).

7.2 Relationship between theme of studio and focus of research

The studio 'Transforming Housing Heritage' aimed at gaining insight in the past and future of mass-produced housing on the one hand, and on '*designing intervention that can offer the existing stock a sustainable future, both for a specific project location and in a more generic way that offers strategies for comparable building blocks in other places*' on the other hand.⁶²

Within this framework, I have chosen to focus on a specific part of the designated area; the southern part of the Vogelbuurt, containing eight apartment blocks designed by the famous Rotterdam-based architect J.H. van den Broek. Compared to the rest of the area, the situation seemed to me the worst here. The lack of maintenance was clearer and the street view was slightly messier than in the more classical northern part of the Vogelbuurt- this can all be related to the early modernist approach of Van den Broek⁶³.

Secondly, I have chosen to focus strongly on the private ownership of the apartments, since the small and cheap apartments at the bottom of the housing market in the Netherlands the last decennia have been problematic and vulnerable. Surely, it is hard to improve the existing housing stock that is privately owned. In my opinion, that was the main challenge of this studio, for it is one of the mayor challenges in the Dutch housing market as well.

Throughout this year I wanted to make my graduation as reality-proof as possible. I heard the slogan of the previous Transforming Housing Heritage studio was *meeting reality*, and I totally agree. Therefore the arranged collaboration with the Veldacademie was very useful. Furthermore, we as a graduation group also organised meetings with the residents of the Vogelbuurt area to learn from their experiences and ask their opinion about our research and (early) designs. The apartment in the middle of the area that was provided for a month by housing association Woonbron, proved to be very useful.

Not only the conversations with residents were helpful to me, I also consulted experts 'in the field'. I spoke about my strategy for this area with area developers, a local appraiser and several times to people from the municipality of Rotterdam. In this way I forced myself to make my strategy and design as reality-proof and valuable as possible.

During my research I noticed that the reality in the Vogelbuurt in Rotterdam-Zuid is a challenging one: an area with specific social problems, small houses, little money available at the owners/residents and a receding government. Still, I saw potential in the area: the area attracts starters; people are willing to invest in their own living standard and the dwellings could quite easily be transformed. Those I used as guidelines for the strategy and design that were to be developed. I think this approach - to 'cash' the opportunities in an area to answer to the weak points of that place - worked really well. In a similar next project I would not only focus on the problems in an area, but start early with also mapping the strengths of that neighbourhood. This is contradictory to the 'more generic way for comparable building blocks in other places' as stated in the projects announcement, but I think it is vital to use a local approach for area improvement - although I certainly believe that the strategy developed in this graduation could be useful when dealing with similar housing stock.

To conclude: within the framework of this studio, aimed at giving the mass-produced housing stock a sustainable future, I focussed on how this sustainable future can be provided specifically for *the privately owned* small apartments in the specific area of the Vogelbuurt.

7.3 Relationship between graduation project and wider social context

In 2011, the government of the Netherlands, the municipality of Rotterdam and a lot of other stakeholders signed the National Program on Rotterdam Zuid. Together they stated that the southern part of Rotterdam has problems that have proven to be persistent and hard to solve. This can be seen as a direct provocative to pay attention to this area. The specific area of the Vogelbuurt in Carnisse was chosen for its complicated situation caused by the private ownership. The maintenance and improvement of low-cost privately owned housing has the last decennia been a problem throughout the whole of the Netherlands.⁶⁴ At the start of the graduation, the societal relevance of my graduation was clear to me: a strategy that would contribute to the solution of societal and economic problems of Rotterdam-Zuid and improve the privately owned housing at the same time could be valuable for the post-war expansion areas in all major Dutch cities.

The question is to what extent the strategy that is specifically developed to fit the needs of the Vogelbuurt, is applicable to other building blocks, from other architects, in other Dutch cities, from other times and built using other building systems. Looking back, I think that the strategy itself - stimulating DIY by offering fixed elements - can be very useful for other post-war expansion areas with mass produced housing, but these fixed elements should be designed specifically for each different building block.

But in my opinion, my research has not only societal relevance, but also a social aspect. For the people that are living in the Vogelbuurt area, activities that are carried out to improve their area and homes could have a very direct influence on their lives. A family that can have a larger home in the area, using my strategy, or a resident that improved his home himself and is proud every time he comes home, that in fact is a very important change of mind-set that would be very beneficial for the Carnisse area, apart from if this strategy can be used in other places also.

⁶¹ Gemeente Rotterdam et al., 2011, p.16

⁶² Spoormans, Quist, poster graduation studio 'Transforming Housing Heritage', 2013.

⁶³ Vanstiphout, 2005, p. 373.

⁶⁴ Ophem, I. van, 2012, p. 1-2

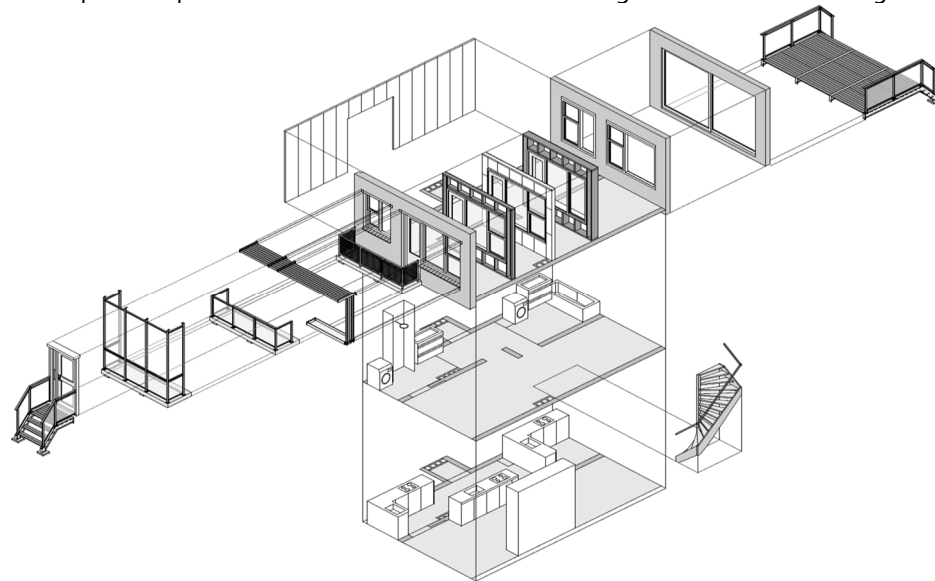
7.4 Relationship between research and design

At the start of this project, I envisioned my graduation product to be a booklet of standard home merges that could be made in the southern part of the Vogelbuurt. I have designed ways to merge two homes horizontally; two or three vertically and even divide three original apartments into two new homes. That my graduation product is now something rather different - still a booklet, but with independent small-scale components that are starting points for improvement by residents - is definitely due to the very strong relationship between research and design.

Compared to for example the Architecture & Dwelling project I did for MSc 2, research and design are way more interconnected in the methodological approach of RMIT. While in other projects a short period of research (or: analysis) is used as just a starting point for designing, in this graduation a rather long period of analysis was followed by a mixture of research and design, or: research by design. My design process started with the research by design of merging dwellings, based on the research into the major problem in this area: the vulnerable housing stock.

While designing, I continuously compared my design with the research and even carried out new research, for example by consulting experts in the field. These conversations often led to minor or bigger changes in the design, resulting in a rather different strategy and graduation product than I envisioned. This iteration works in two ways: not only from research to design, but also from design to research, for you start to research the things you design also.

In retrospect the process was more iterative and less straight-forward than I thought.



Small-scale components in relationship to each other. Illustration made by author.

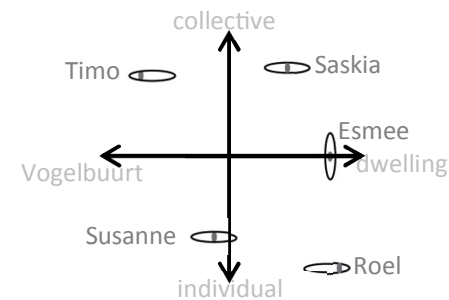
7.5 Relationship between research method of both studio and student

That iterative character of a project is something I had to learn, for in the first half year of the graduation I was very much focussed on designing efficiently with the goal to get my design to a very detailed level. I tended to think straightforward and narrow, and my teachers have encouraged me to take a step back and broaden my vision. Along the way I learned to actively take my time to compare my design with the research, to look at the whole project and think about what could still be improved. A detailed planning turned out very useful for this: by simply planning in a few hours every week I forced myself to do this. It occurred to me that the best project is not by definition the most detailed project, but rather the most thought-through strategy. This inevitably means spending some time on thinking of multiple ways forward, of only one is to be chosen - but this is no 'lost' time!

Also the value of presentations became clear. When preparing a presentation, one has to very carefully think about the relation between research and design. In my project the most important decisions (design-direction changes) were made directly after a presentation, based on the feedback of the mentors. In future projects, I expect that I can better connect - and more easily switch between - research and design.

What makes this graduation studio unique is the outgrowth of this research and design: a strategy. The goal of this project is not (only) a to-the-point design, but (also) a strategy to improve this neighbourhood in these challenging conditions, in which your design products play a key role.

It is very interesting that all the students in the Transforming Housing Heritage have their own focus and their own research method. While I focussed on dwelling enlargement to improve the area, Esmee Mlihi focussed on less or more collective ways of insulating, Saskia Hesselink on co-housing, Susanne de Zwart on the quality of public space in the living streets and Timo van de Ven on the quality of public space and the built surrounding at the main street. This wide range of different approaches shows the 'blank spots' in each design. For a full area-wide strategy, for example in my case, more attention could have been gone to the public space.



Indication of individual project characteristics. Illustration made by author.

Of course it is logic that a design is focussed on a specific topic, but it is very good to keep in mind that you do not cover the full range, and to be aware about your blank spots - so you can actually pay more attention to it when needed.

In that sense it is beautiful to see how complementary all individual graduation projects are - all designs could be executed alongside each other to improve the Vogelbuurt.

References

Online sources

- AgentschapNL, 2013, "Factsheet Kluswoningen". From: <http://www.agentschapnl.nl/subsidies-regelingen/stedenbeleid/eigenbouw> accessed on: 17.10.2013
- Battum, M.T. van, 2002, "Enige (on)mogelijkheden van portieketagewoningen bij herstructurering van vroeg naoorlogse wijken". From: http://www.bk.tudelft.nl/fileadmin/Faculteit/BK/Over_de_faculteit/Afdeling_n/Real_Estate_and_Housing/Opleiding/Master/Semester_4/doc/H_Andeweg_Marie_Therese_Enige_on_mogelijkheden_van_portieketagewoningen_bij_herstructurering_van_vroeg_naooorlogse_wijken.pdf accessed on 17.10.2013
- Brounen, D., Cox, R. and Neuteboom, P., 2011, "Safe and Satisfied? External Effects of Homeownership in Rotterdam." From: <http://usj.sagepub.com/content/49/12/2669> accessed 05.11.2013
- Buurtmonitor Rotterdam, 2013, "Woningen naar woningtype". From: <http://rotterdam.buurtmonitor.nl/> accessed on 17.10.2013
- Centraal Planbureau, 2000, "Op weg naar een effectiever grote stedenbeleid". From: <http://www.cpb.nl/publicatie/op-weg-naar-een-effectiever-grotestedenbeleid> accessed on 17.10.2013
- Companen, 2008, "Regionaal Woonwensenonderzoek". From: http://www.bergen-nh.nl/wonen_werken_en_leven/huisvesting/woonwensenonderzoek accessed on 17.10.2013
- Deelgemeente Charlois et al., 2009, "Gebiedsvisie Carnisse 2020. Kanskaart Carnisse". From: <http://www.deelraadinfo.nl/dsresource?objectid=43338&type=org> accessed on 16.10.2013
- Deetman Mans, 2011, "Kwaliteitssprong Zuid: ontwikkeling vanuit kracht". From: <http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2011/02/17/advies-commissie-deetman-mans.html> accessed on 16.10.2013
- Gemeente Rotterdam et al., 2011, "Zuid werkt! Nationaal programma kwaliteitssprong Zuid". From: <http://www.rotterdam.nl/BSD/Document/Perskamer/Zuid%2oWerkt!%2onationaal%2oprogramma%2oKwaliteitsprong%2oZuid%2omet%2ohandtekening.pdf> accessed on 16.10.2013
- Gemeente Rotterdam, 2012, "Plan van Aanpak particuliere woningvoorraad 2012-2018". From: http://www.rotterdam.nl/Stadsontwikkeling/Document/Plan%2ovan%2oiaanpak%2oparticuliere%2owoningvoorraad_def.pdf accessed on 17.10.2013
- Gemeente Rotterdam, 2013 [1], "Subsidie en lening voor woningverbetering". From: http://www.rotterdam.nl/product:subsidie_en_lening_voor_woningverbetering accessed on 17.10.2013
- Gemeente Rotterdam, 2013 [2], "Subsidies samenvoeging woningen". From: http://www.rotterdam.nl/product:subsidies_samenvoeging_woningen accessed on 17.10.2013
- Kennisbank Bestaande Woningbouw, 2013, "De eigenheid benut: ruimte, ruimtelijkheid en beeld." From: <http://www.bestandewoningbouw.nl/de-eigenheid-benut-ruimte-ruimtelijkheid-en-beeld/> accessed on 17.10.2013
- Kim, L., 2012, "Renewing the portiek apartments in Carnisse". From: <http://repository.tudelft.nl/view/ir/uuid%3A1795ac5f-5e9f-4737-8377-d52e9fd7bd70/> accessed on 16.10.2013
- Korporaal, P., 2012, "Woning zoekt onderhoud. Een nieuw perspectief voor particuliere woningverbetering". In: "Essay. Woning zoekt onderhoud." Rotterdam: KEI kenniscentrum stedelijke vernieuwing. From: http://kennisbank.platform31.nl/websites/kei2011/files/KEI2003/documentatie/kei-publicaties/KEI_Eo2.pdf accessed on 17.10.2013
- Meijel, L. van, et al., 2008, "Cultuurhistorische verkenning Rotterdam Zuid". From: <http://www.elsbet.nl/dl/CH%2overkenning%2oRotterdam%2oZuid.pdf> accessed on 17.10.2013
- Nienhuis, H., 2012, "Klushuizen, gentrypunctuur in Rotterdam?". From: <http://igitur-archive.library.uu.nl/student-theses/2012-0831-200716/Klushuizen,%2ogentrypunctuur%2oin%2oRotterdam.pdf> accessed on 05.11.2013
- Ophem, I. van., 2012, "Woning zoekt onderhoud. Een nieuw perspectief voor particuliere woningverbetering". In: "Essay. Woning zoekt onderhoud." Rotterdam: KEI kenniscentrum stedelijke vernieuwing. From: http://kennisbank.platform31.nl/websites/kei2011/files/KEI2003/documentatie/kei-publicaties/KEI_Eo2.pdf accessed on 17.10.2013
- Platform31, 2008 [1], "Dordrecht, Wielwijk". From: <http://kennisbank.platform31.nl/pages/27700/Dordrecht-Wielwijk.html> accessed 17.10.2013
- Platform31, 2008 [2], "Rotterdam, Wallisblok". From: <http://kennisbank.platform31.nl/pages/23843/Projecten/Rotterdam-Wallisblok.html> accessed on 05.11.2013
- Platform31, 2011, "Samenvoegen goedkope koopwoningen". From: http://sev.platform31.nl/rapporten/rapport.asp?code_pblc=1092 accessed 17.10.2013
- Rijksoverheid, 2013, "Nationaal programma Rotterdam Zuid". From: <http://www.rijksoverheid.nl/onderwerpen/leefbaarheid/nationaal-programma-rotterdam-zuid> accessed on 16.10.2013
- Stadsarchief Rotterdam, 2013, "G.J. de Jongh (1845-1917)". From: <http://www.gemeentearchief.rotterdam.nl/gj-de-jongh-1845-1917> accessed on 17.10.2013
- Stadslab Rotterdam-Zuid, 2011, "V79 Stadslab Rotterdam Zuid (Charlois)". From: http://kennisbank.platform31.nl/websites/kei2011/files/KEI2003/documentatie/kei-publicaties/V79_StadslabRotterdamZuid.pdf accessed on 17.10.2013
- Steunpunt Wonen, 2004, "Particuliere Participatie". From: http://www.urbannerdam.nl/publication/particuliere_participatie.pdf accessed on 16.10.2013
- Veerkracht Carnisse, 2013, "Bloeiend Carnisse". From: <http://www.drift.eur.nl/wp-content/uploads/2013/03/Bloeiend-Carnisse.pdf> accessed on 17.10.2013

Books

- Does, T. de, 2003, "Rotterdam Carnissebuurt in Vroeger Tijden". Rotterdam: Deboektant.
- Lees, L., Slater, T. and Wyly, E.K., 2010, "The Gentrification Reader". Oxford: Routledge Chapman & Hall.
- Rovers, C. et al., 2009, "Reader Trefzeker op Zuid. Tussenstand juli 2009". Rotterdam: Gemeente Rotterdam, dS+V.
- Schagen, H. van, 1994, "Op 100 m² kan men wonen". In: "Een reuze vooruitgang. Utopie en praktijk in de Zuidelijke Tuinsteden van Rotterdam". Rotterdam: 010 uitgevers.
- Stroink, R., 1981, "ir. J.H. van den Broek, projecten uit de periode 1928 - 1948". Delft: Delftse Universitaire Pers.
- Vanstiphout, W.A.J., 2005, "Maak een stad; Rotterdam en de architectuur van J.H. van den Broek". Rotterdam: 010 uitgevers.

Reports

- Van Schagen Architecten, 2007, "Van Zuidstad naar Tuinstad". Rotterdam: Van Schagen architecten.
- Van den Broek, J.H., 1940, "TOELICHTING MOTTO „OPTIMAAL MINIMUM” - Architecten Brinkman & van den Broek". Rotterdam.

Appendix 1: overzicht gevelopties

WINTERGARDEN

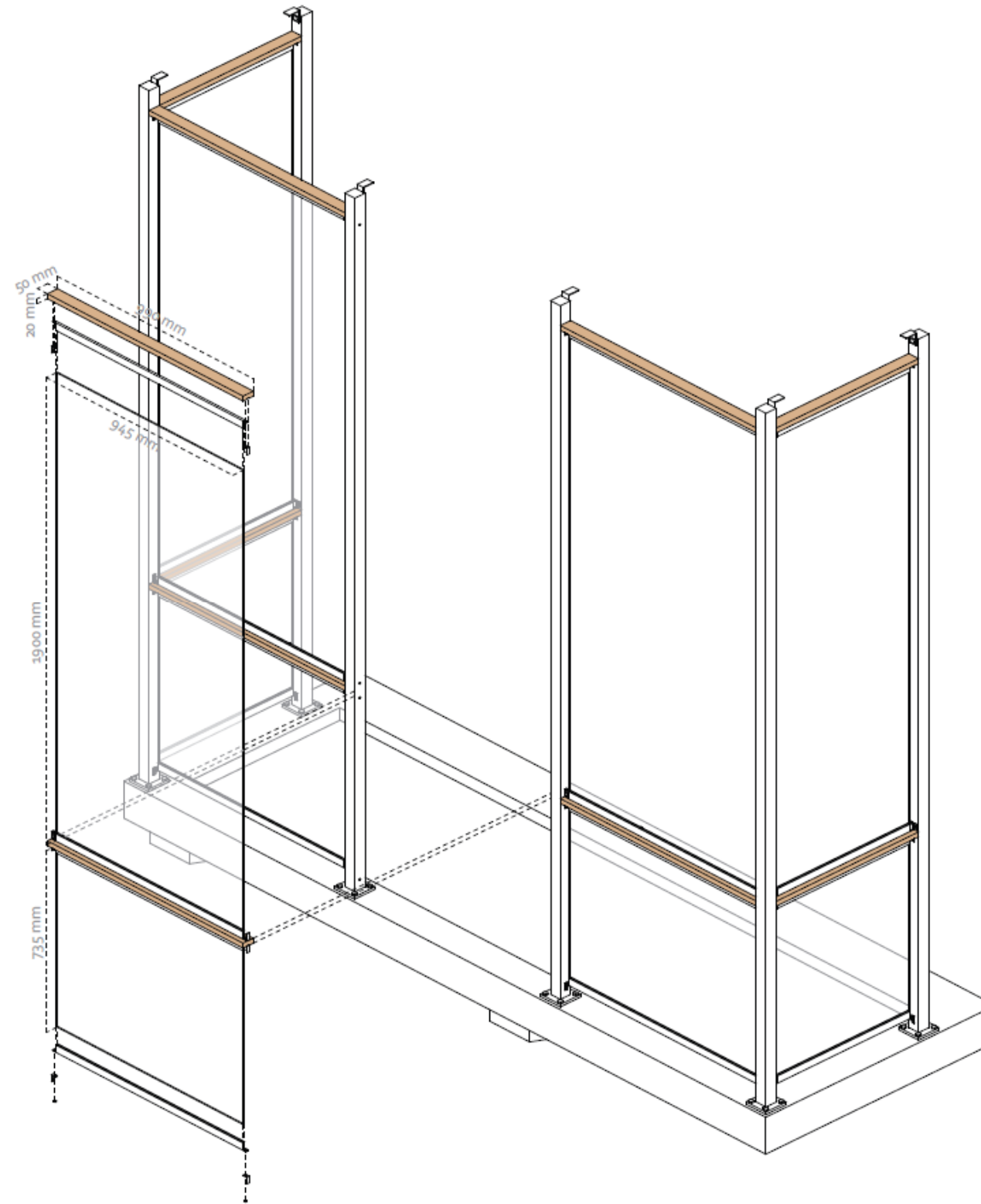
RVS staanders
50 bij 50 mm
hoogte 283 mm

leuning
20 bij 50 mm
lengte 695 of 990 mm

glas
gehard, gelaagd glas
in RVS ophang-
constructie

afmetingen:
735 x 945 mm,
735 x 650 en
1900 x 945 mm,
1900 x 650 mm

kosten:
zelf doen: € 3300
laten doen: € 4000



NIEUWE BALKONHEKKEN

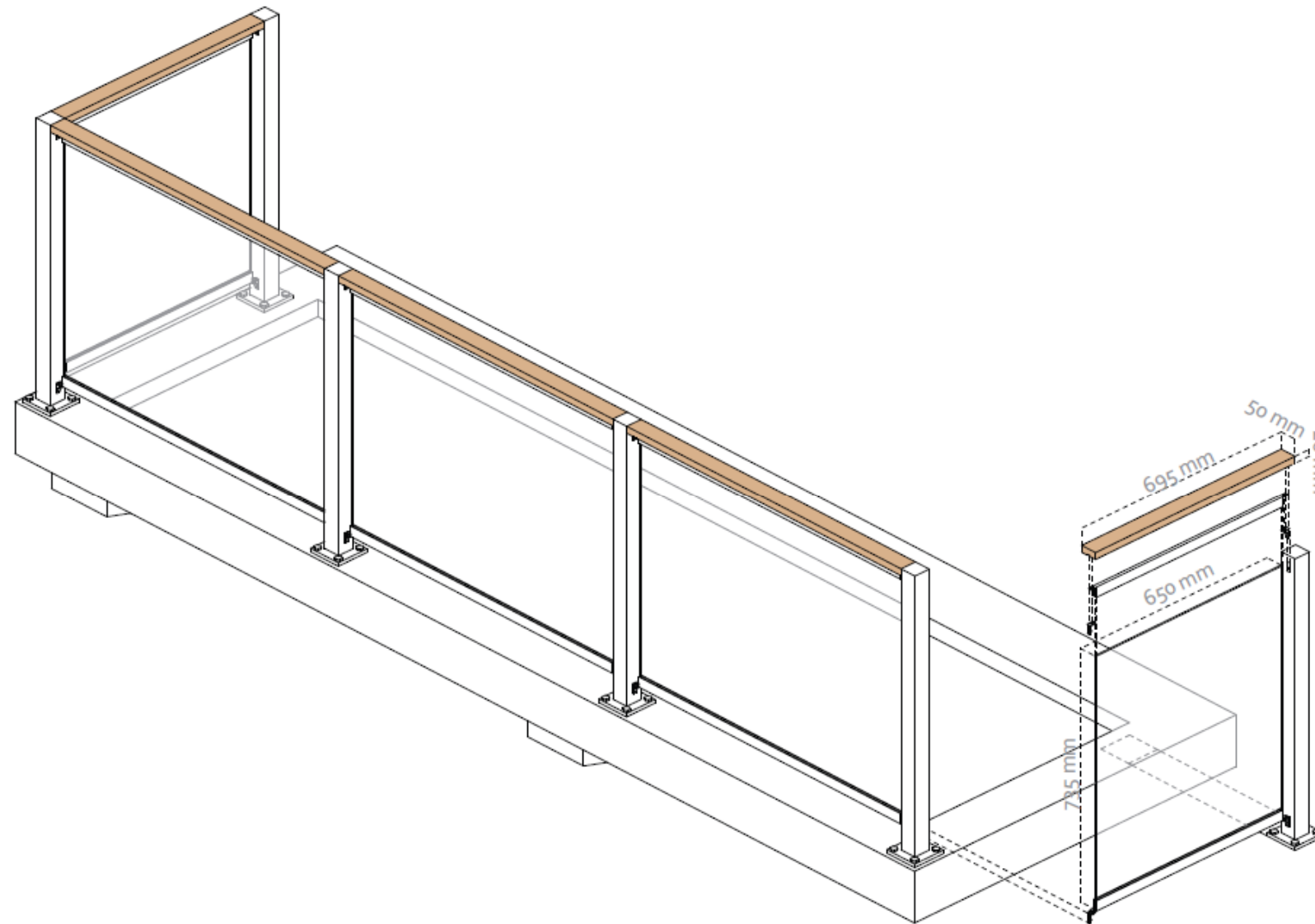
RVS staanders
50 bij 50 mm
hoogte 110 mm

leuning
20 bij 50 mm
lengte 695 of 990 mm

glas
gehard, gelaagd glas
in RVS ophang-
constructie

afmetingen:
735 x 945 mm,
735 x 650

kosten:
zelf doen: € 1320
laten doen: € 1760



ZONWERING MET PLANTENBAK

RVS bevestigingselementen

810 of 410 bij 100
dikte 10 mm

bloembak

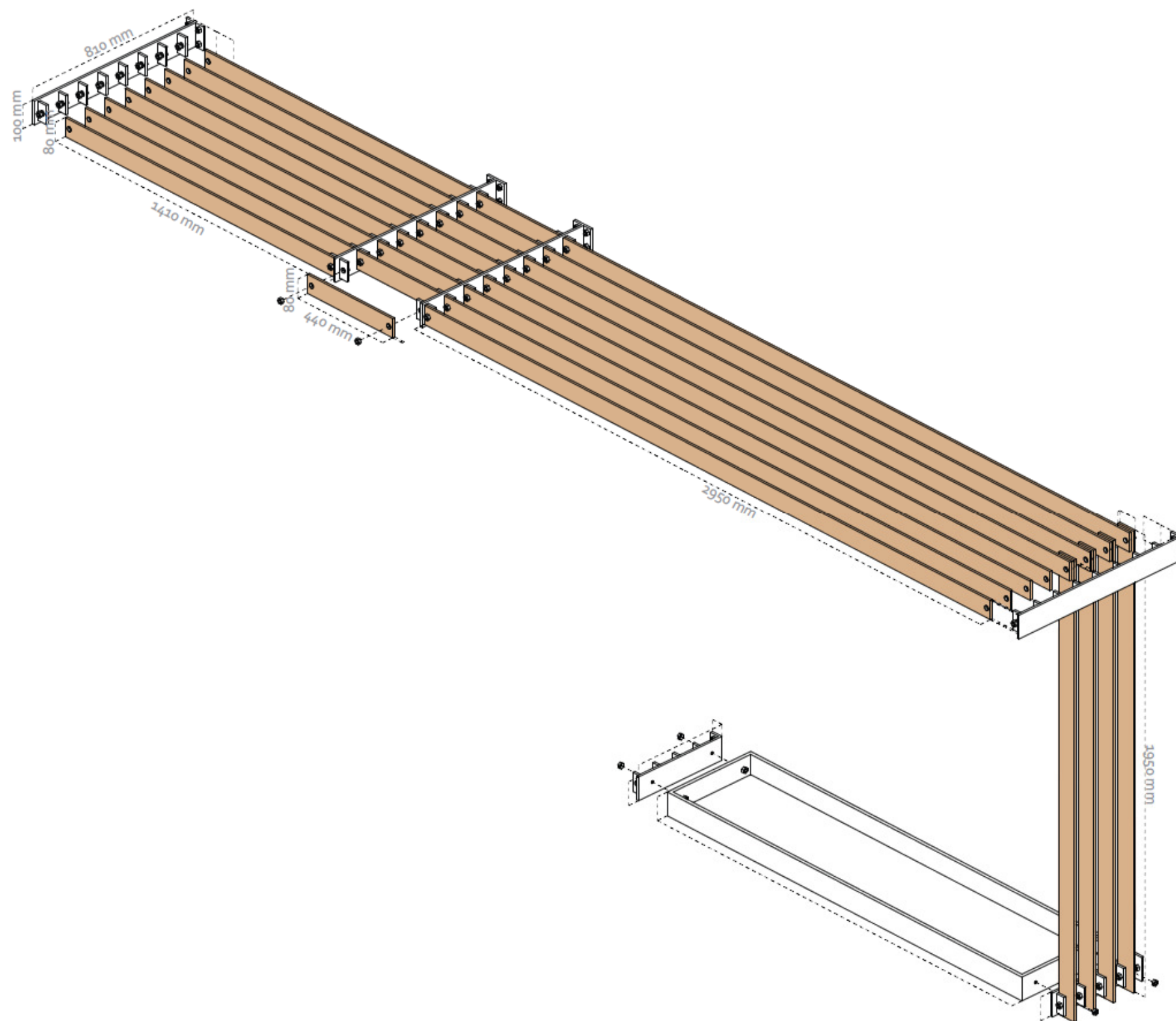
2860 of 1950 mm lengte
diepte 420 mm, hoogte 120 mm

lamellen

hoogte 80 mm, dikte 10 mm
lengte 440, 1410, 1950 en 2950 mm
ongeverfd, gelakt natuurlijk hout

kosten:

zelf doen: € 660
laten doen: € 1100



EIGEN ENTREE

stalen dragers

IPE 180 profiel, hoogte 180 mm, breedte 91 mm
dikte flens 5.3 mm

houten planken

dikte 20 mm, breedte 1230 mm
ongeverfd, gelakt hout

hekwerk

RVS staanders
50 bij 50 mm
hoogte 110 mm

leuning

20 bij 50 mm
lengte 930 en 970 mm

glas

gehard, gelaagd glas
in RVS ophang-
constructie

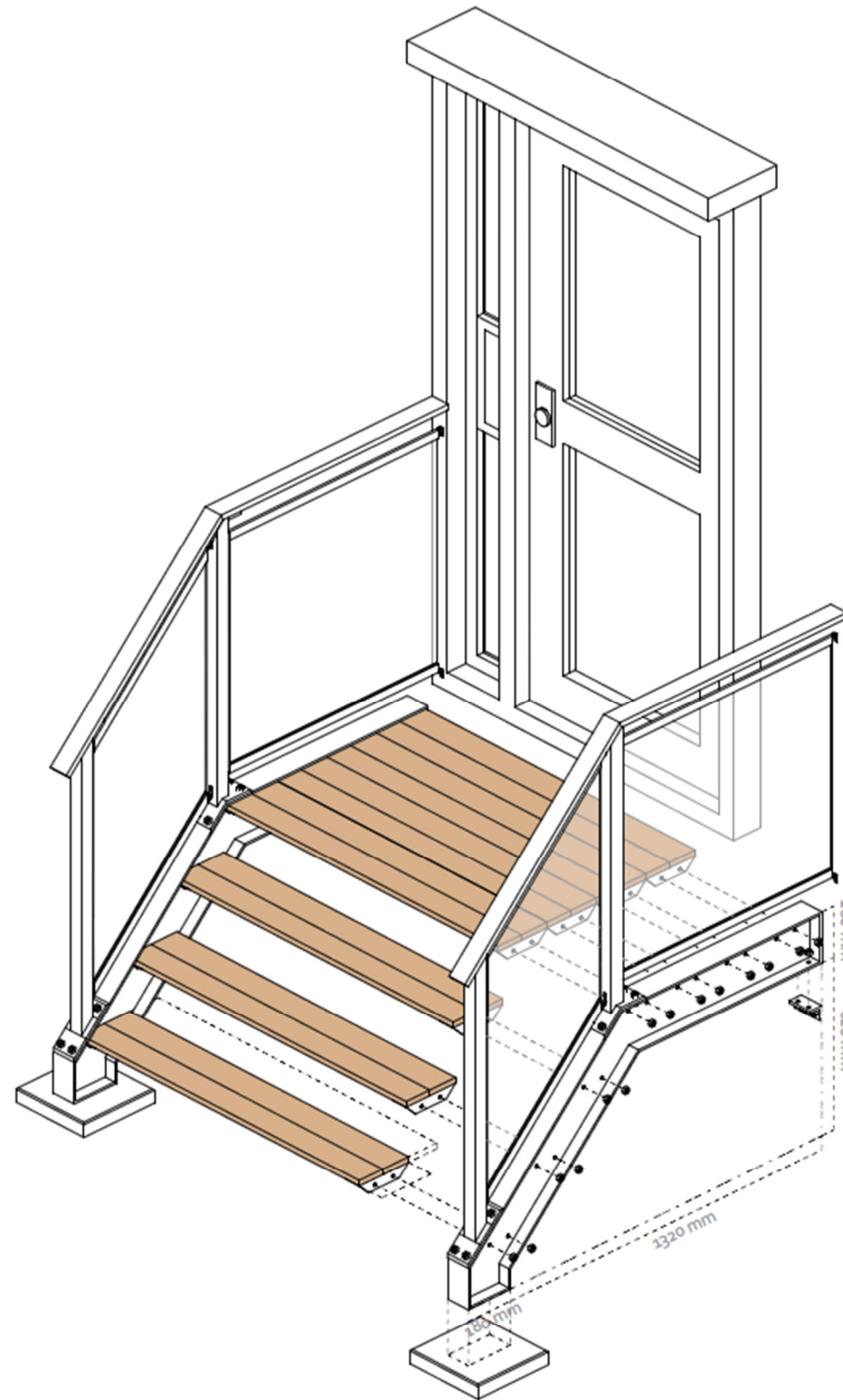
kosten:

trap

zelf doen: € 750
laten doen: € 1250

voordeur

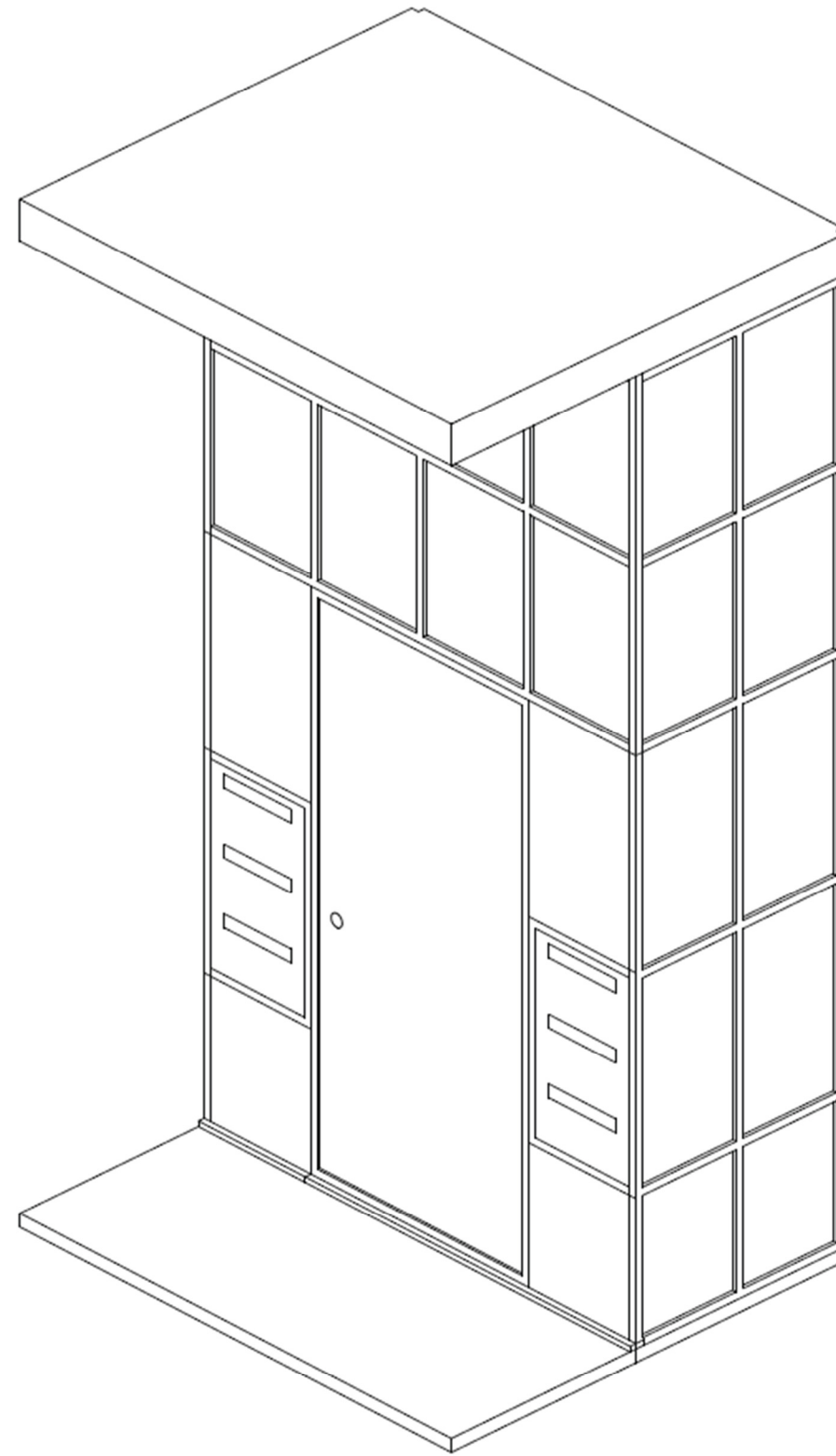
zelf doen: € 1050
laten doen: € 1750



NIEUWE PORTIEKENTREE

aanschaf in VVE-verband
installatie door de aannemer

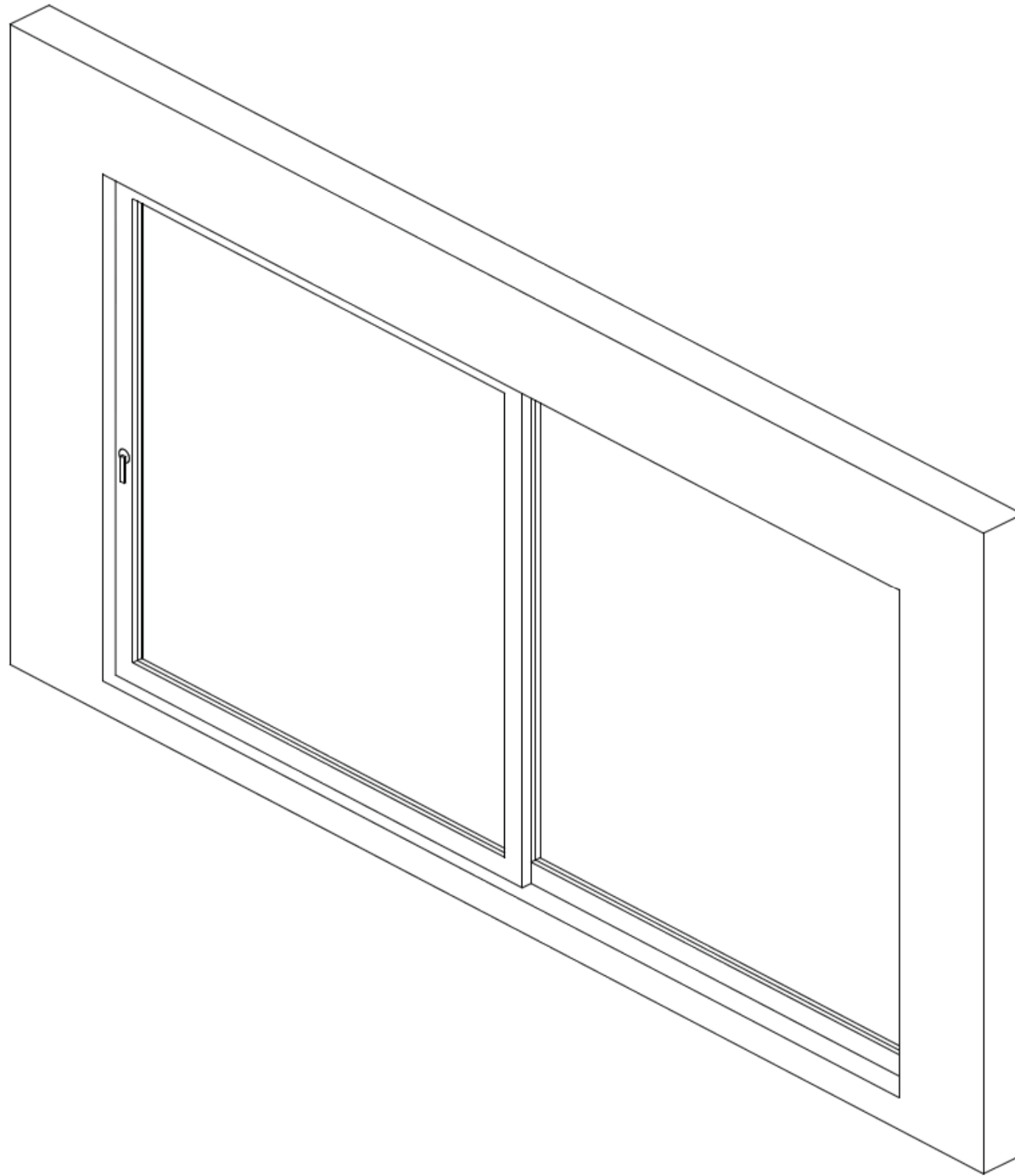
kosten: € 12.500



SCHUIFPUI

installatie door de aannemer

kosten: € 6.500



TERRAS

stalen dragers

IPE 180 profiel, hoogte 180 mm, breedte 91 mm
dikte flens 5.3 mm

houten planken

dikte 30 mm, breedte 1580 mm
ongeverfd, gelakt hout

hekwerk

RVS staanders
50 bij 50 mm
hoogte 110 mm

leuning

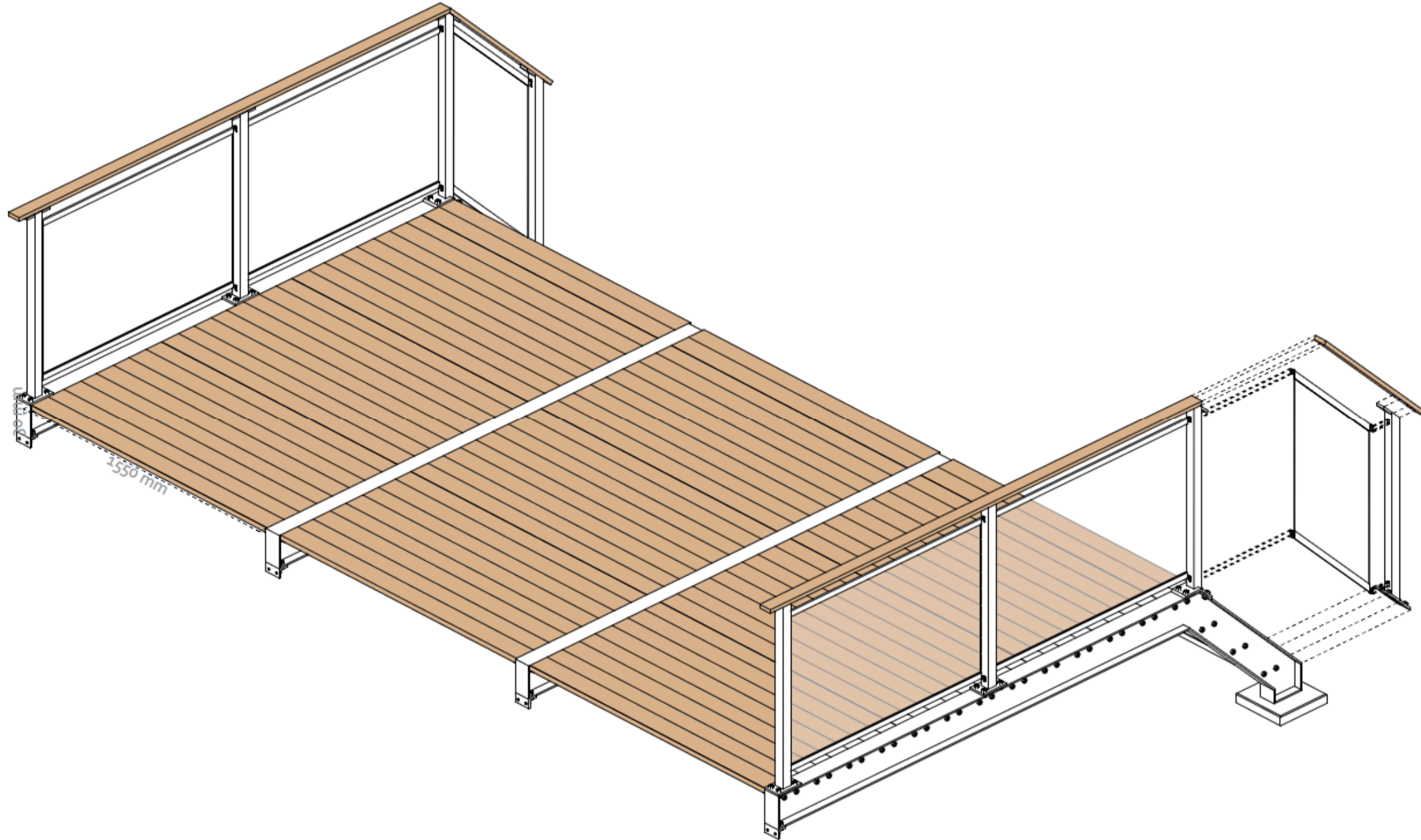
20 bij 50 mm
lengte 930 en 2740 mm

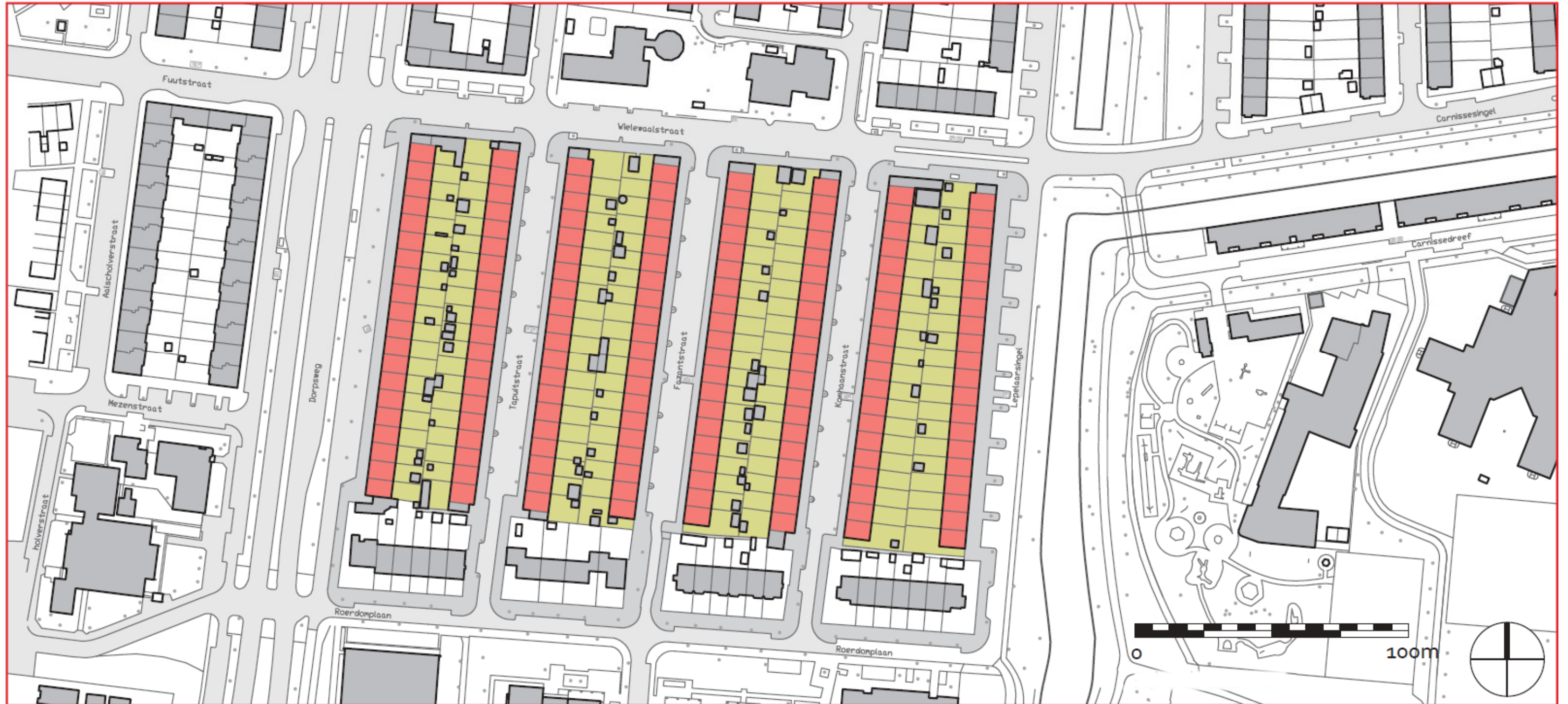
glas

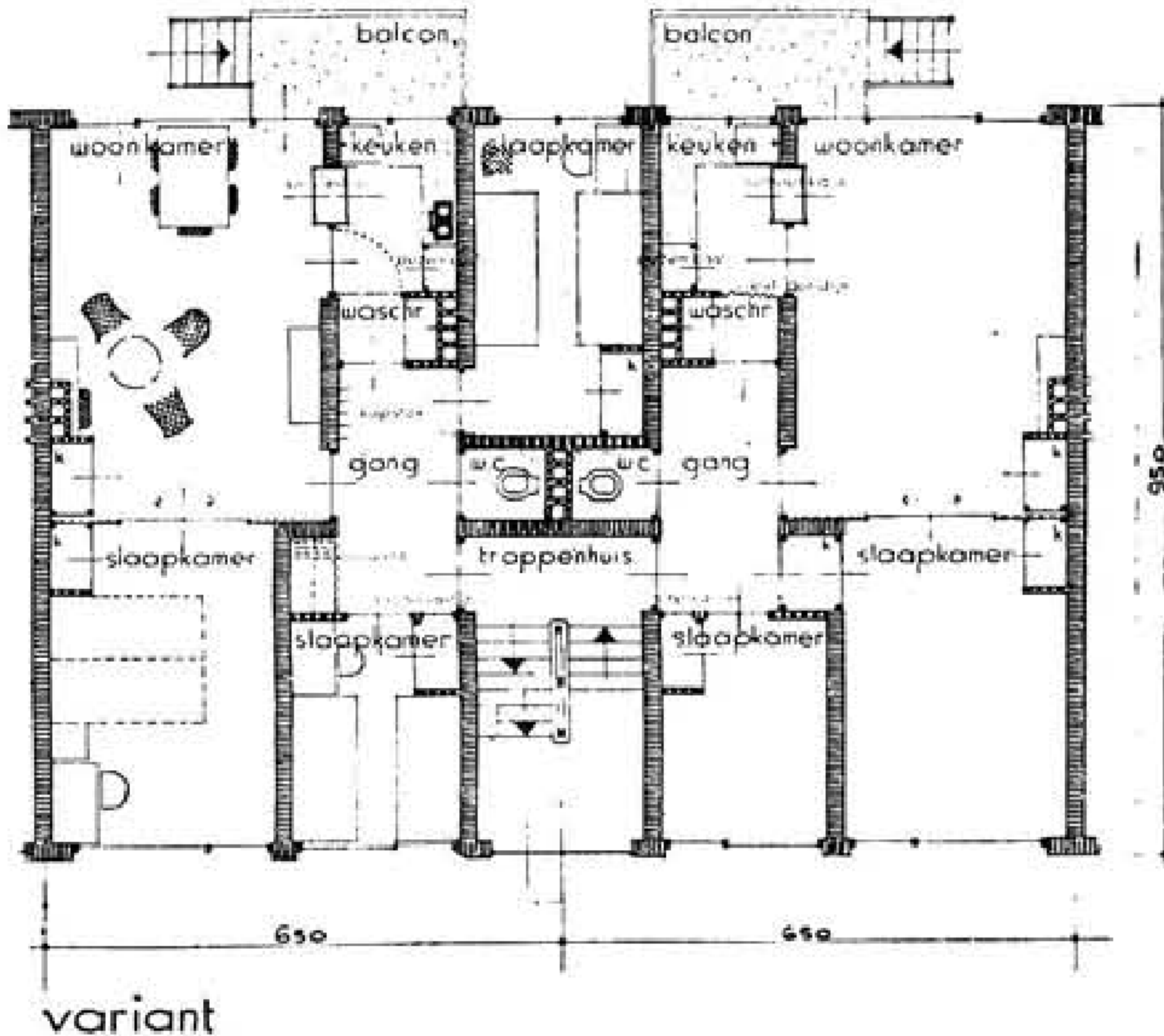
gehard, gelaagd glas
in RVS ophang-
constructie

kosten:

zelf doen: € 3000
laten doen: € 5000

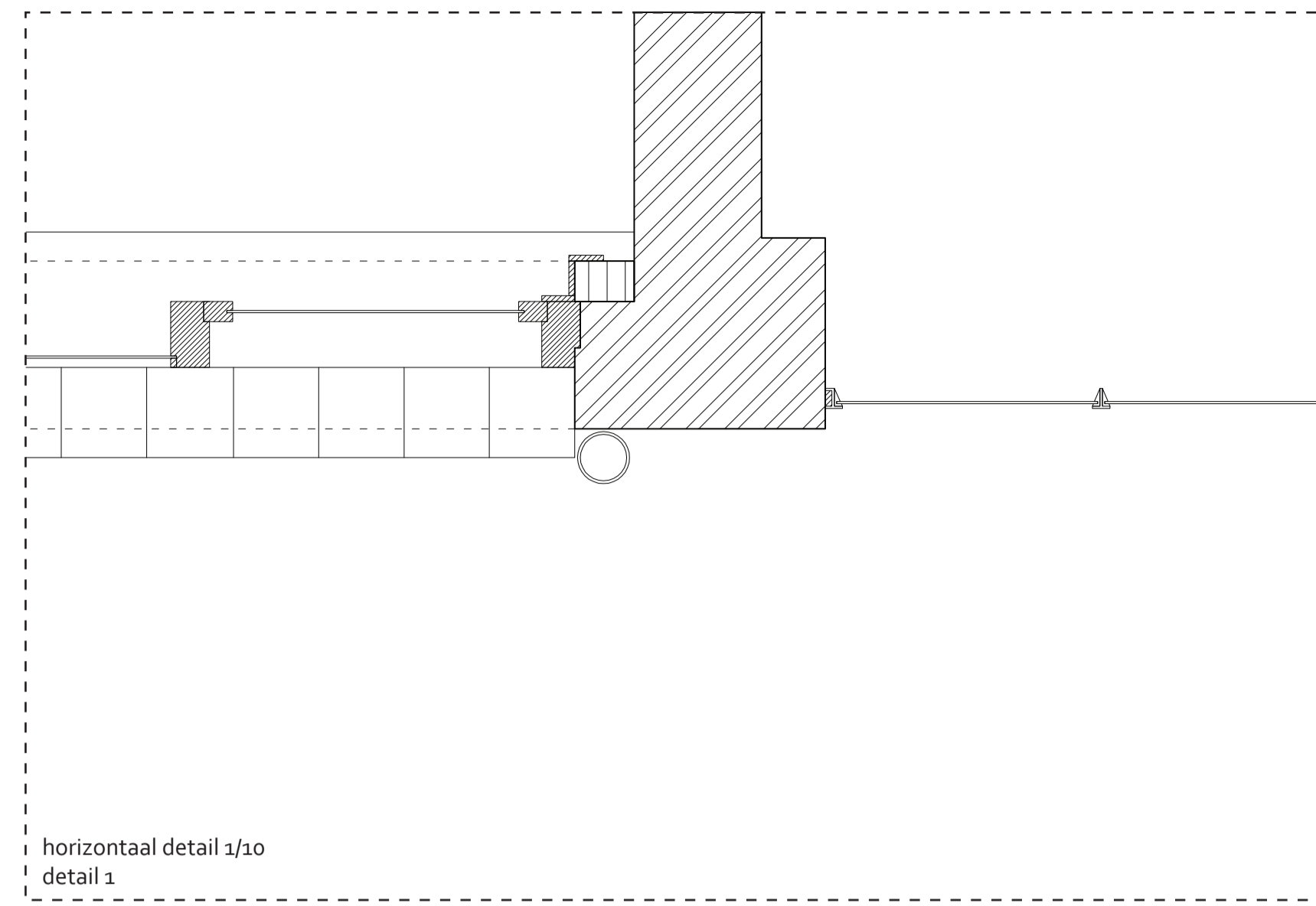




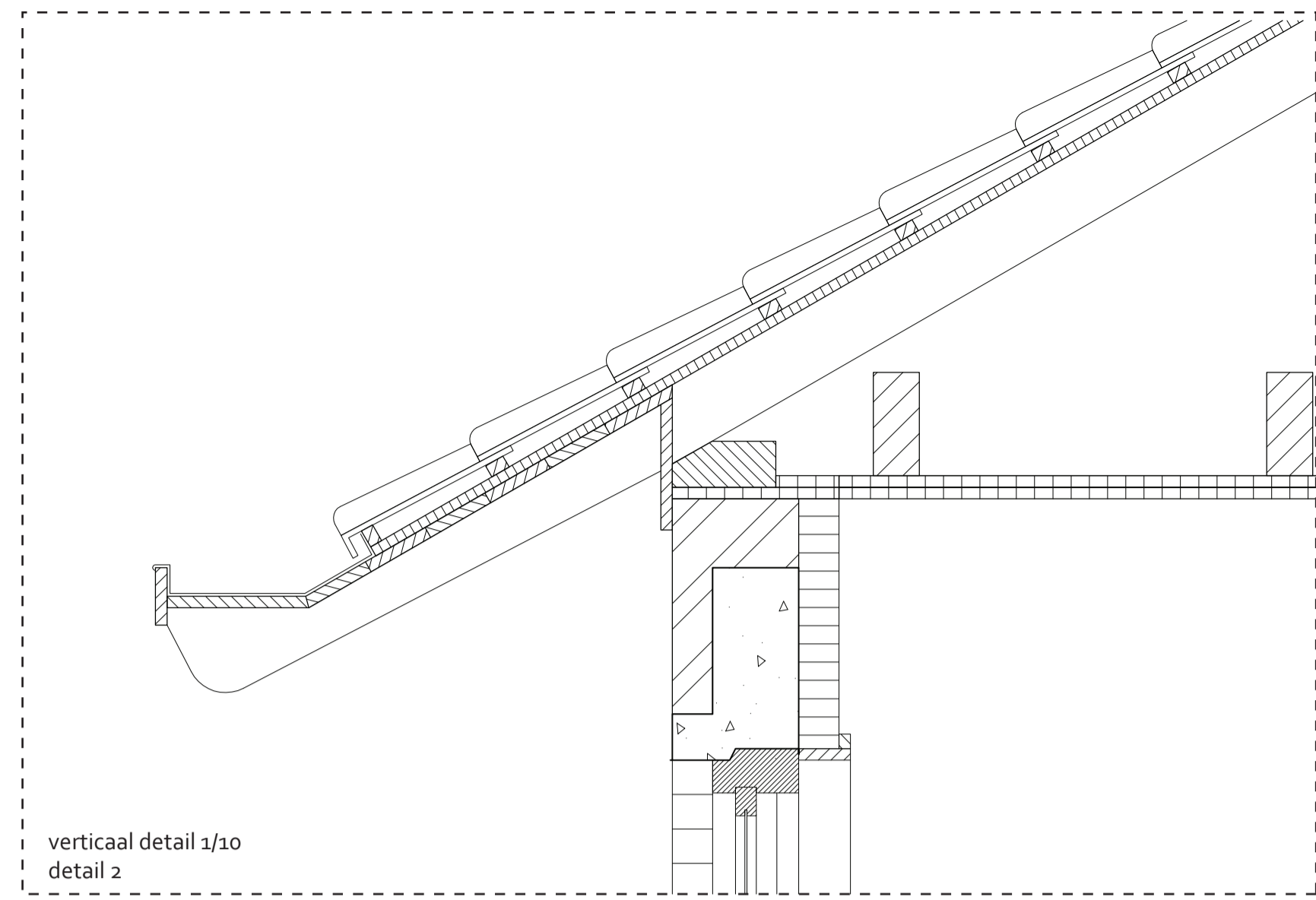




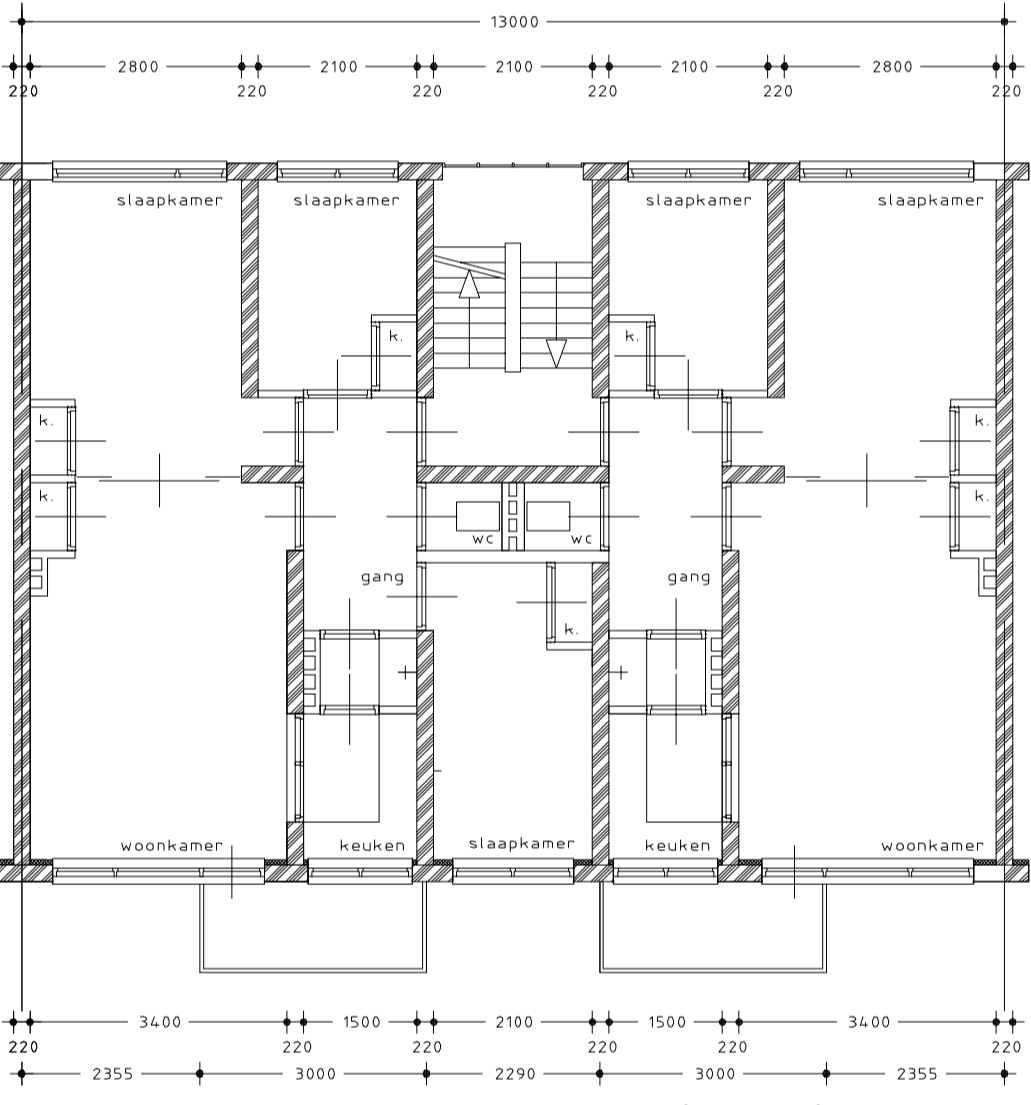
Situatietekening 1/2000



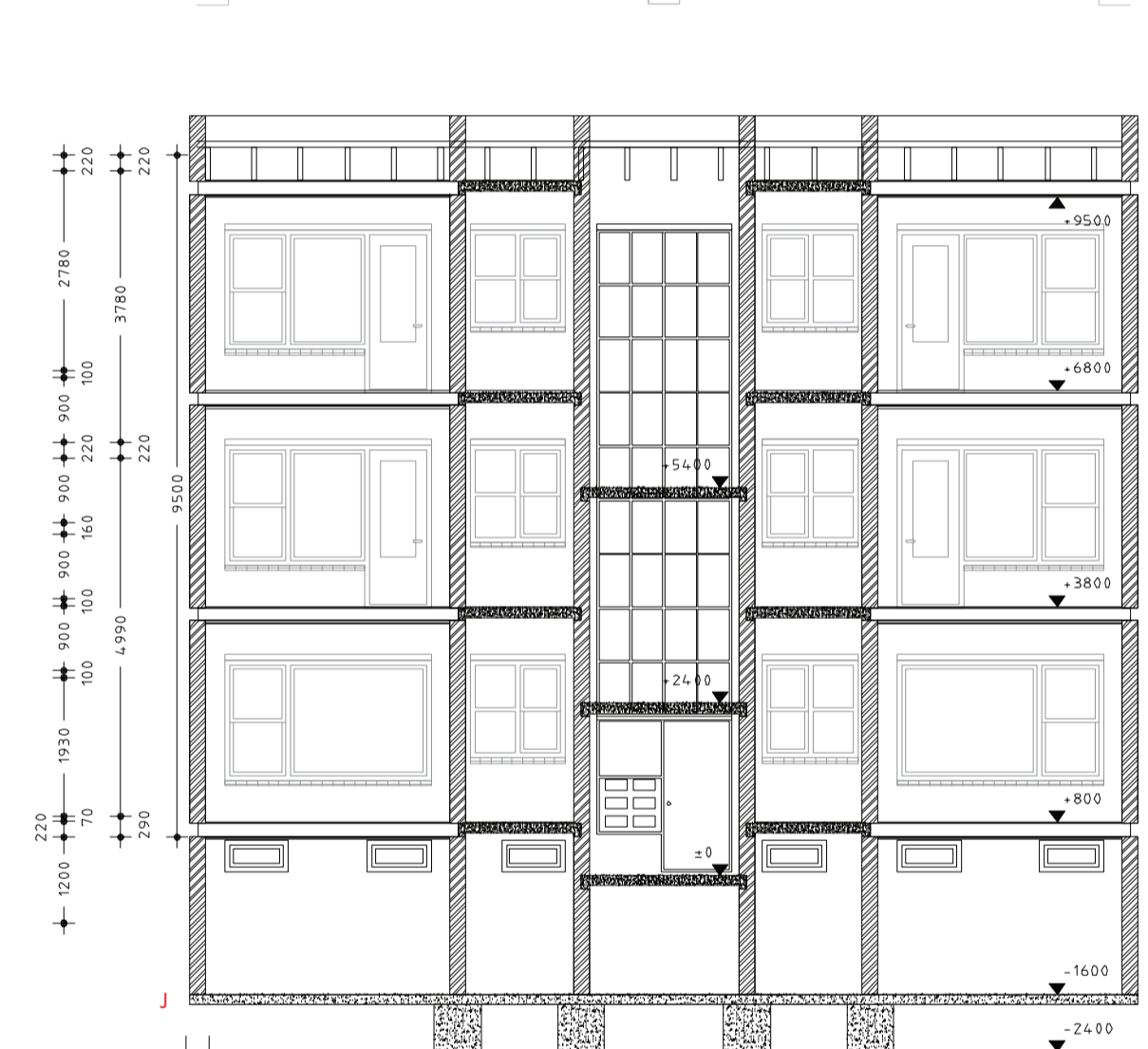
horizontaal detail 1/10 detail 1



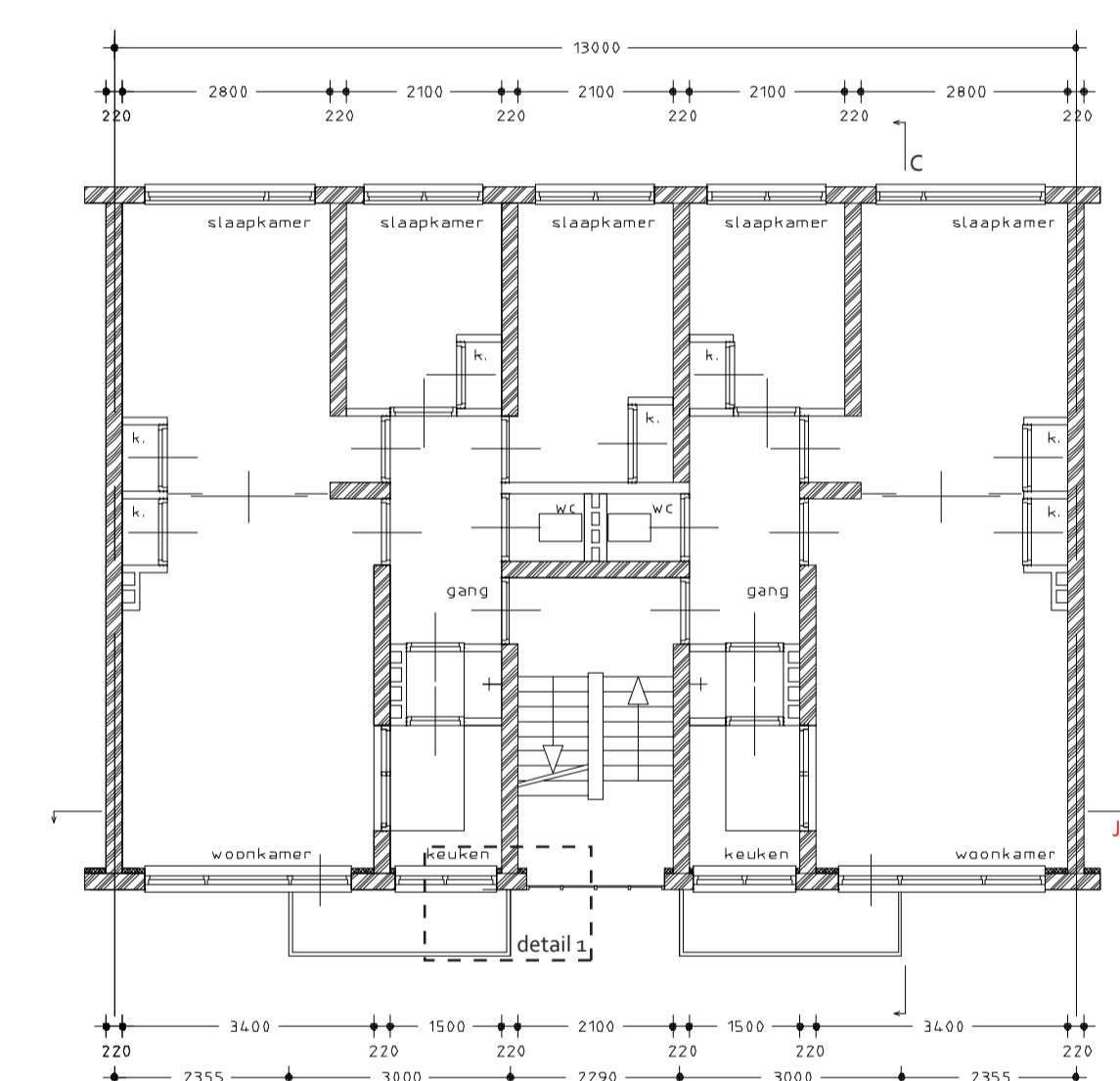
verticaal detail 1/10 detail 2



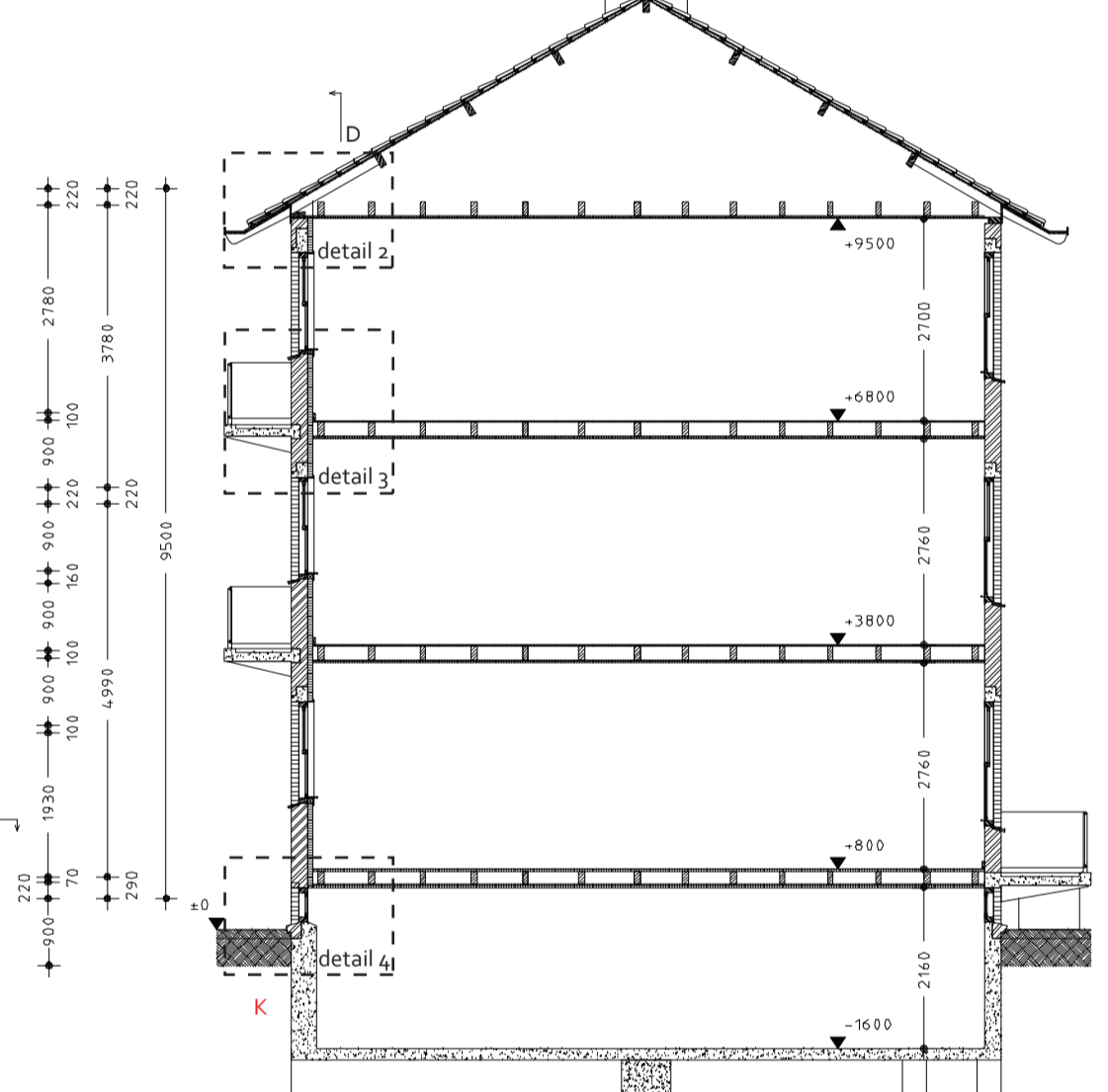
Plattegrond type A 1/100



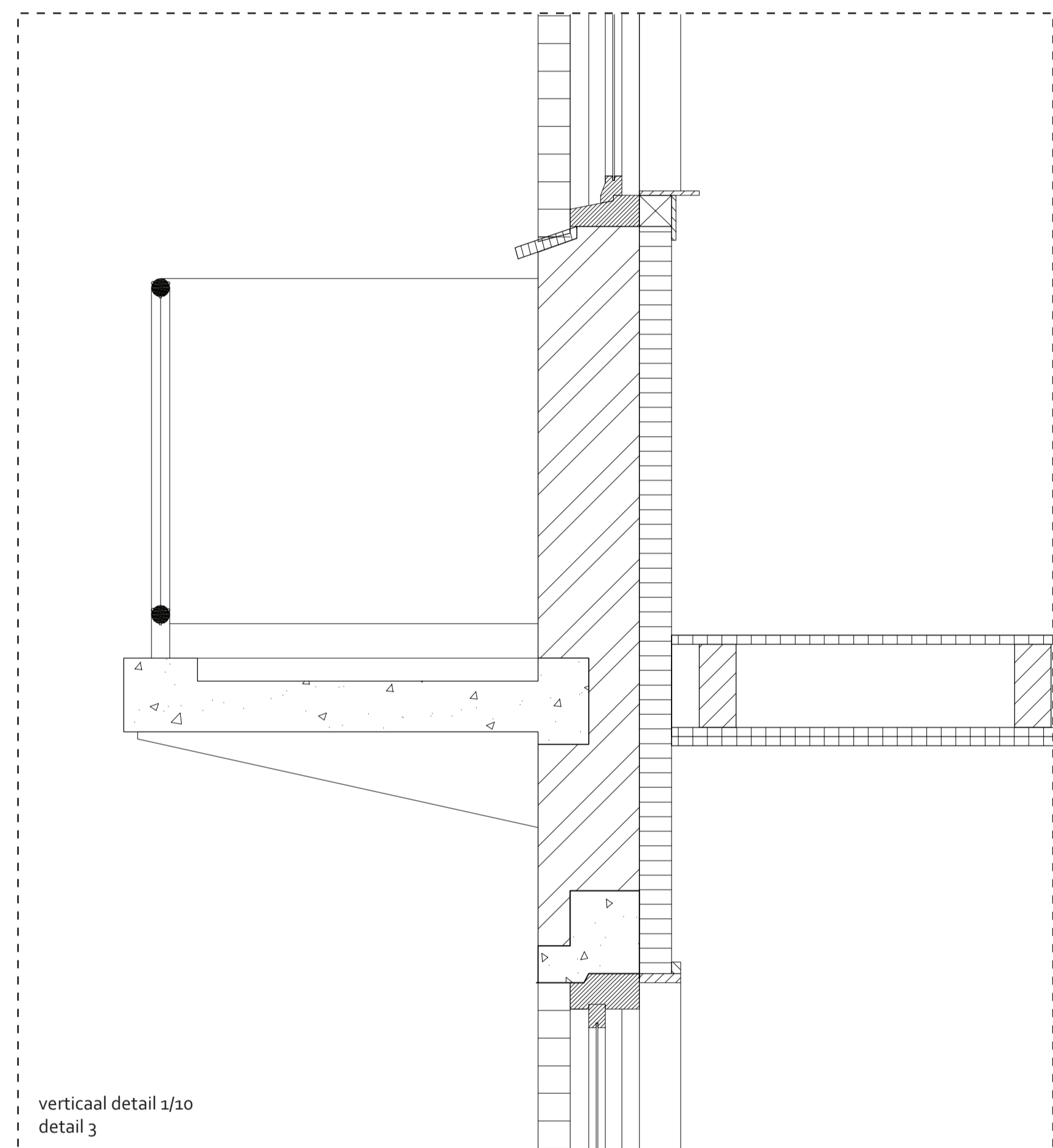
Langsdoorsnede 1/100



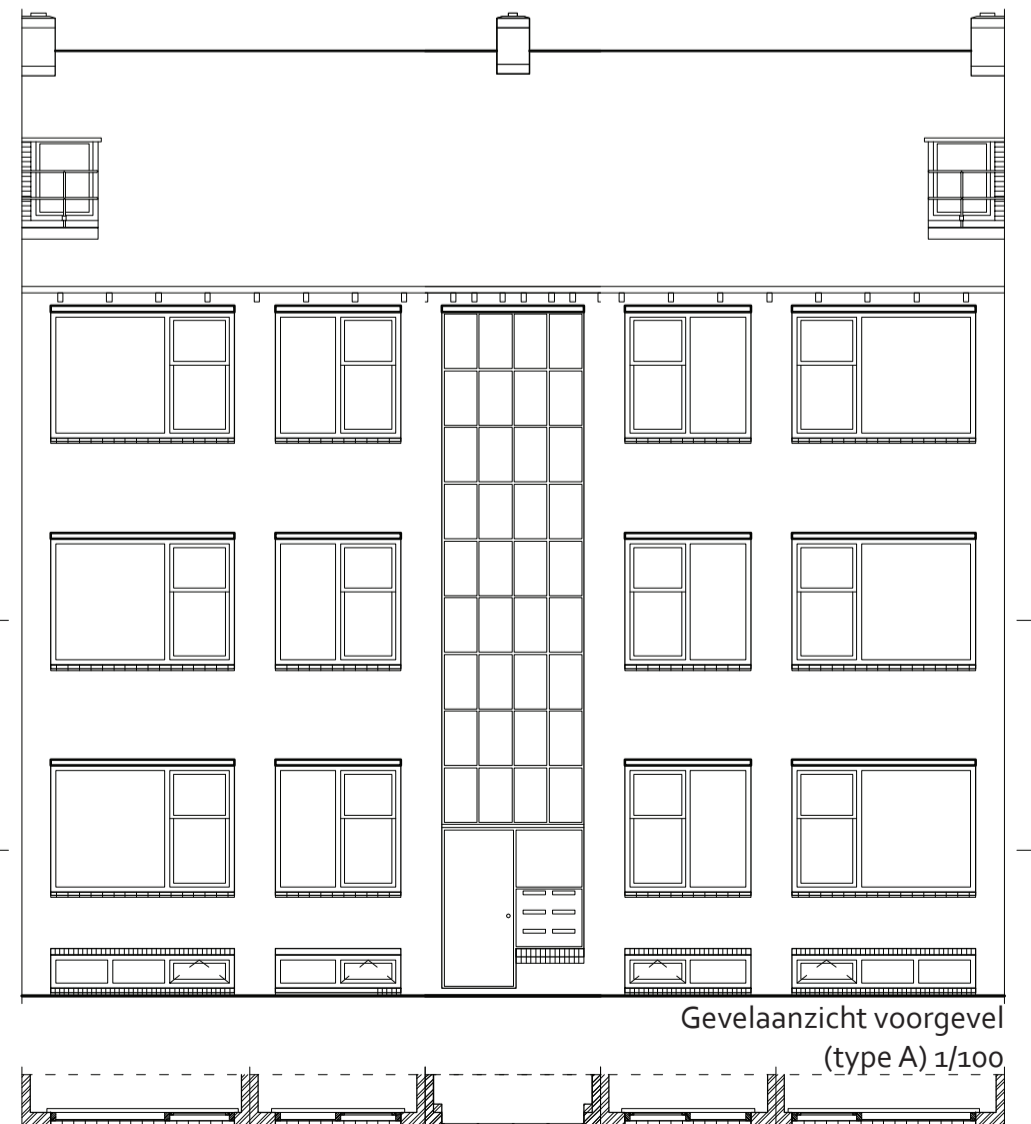
Plattegrond type B 1/100



Dwarsdoorsnede 1/100



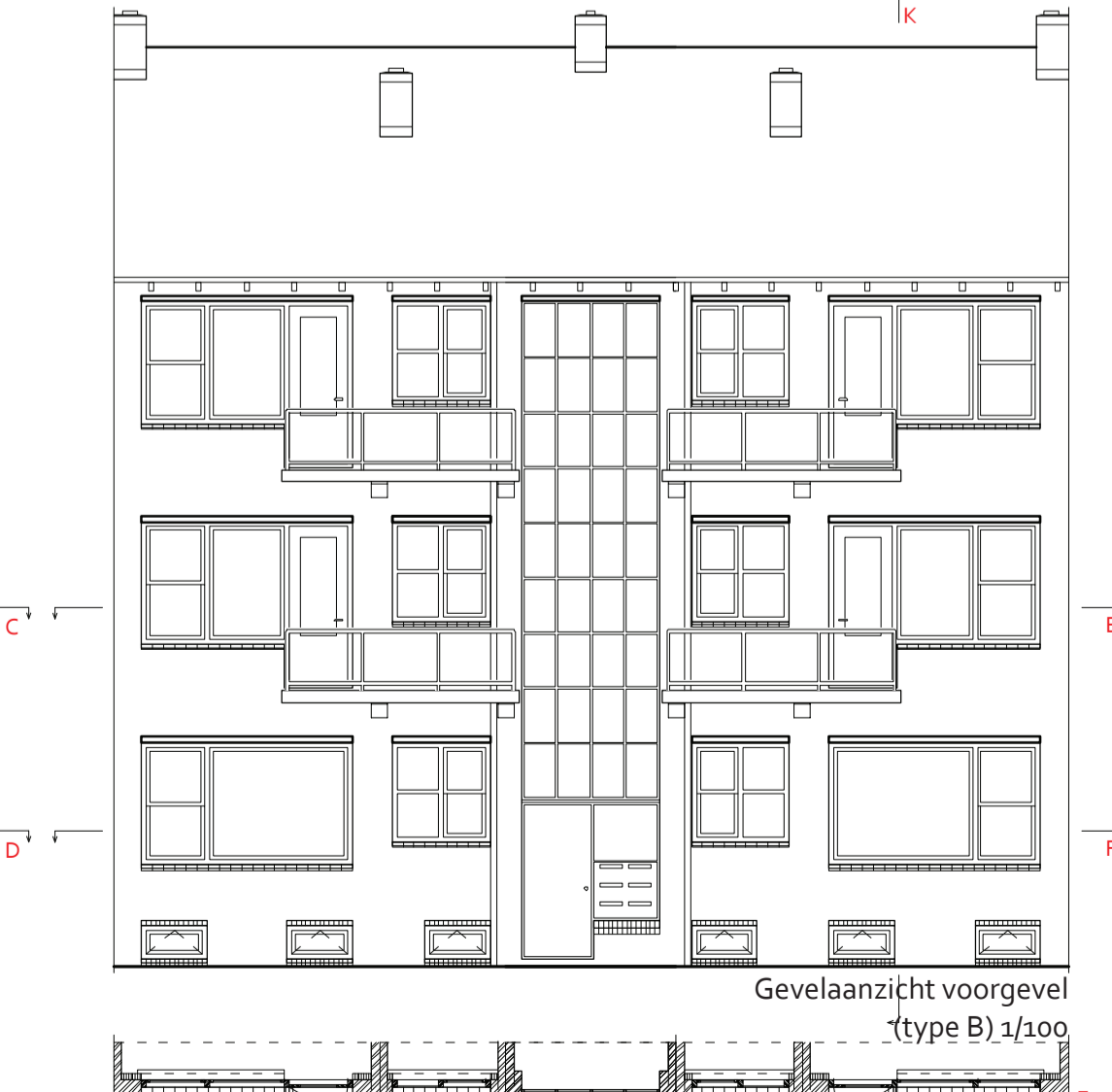
verticaal detail 1/10 detail 3



Gevelaanzicht voorgevel (type A) 1/100



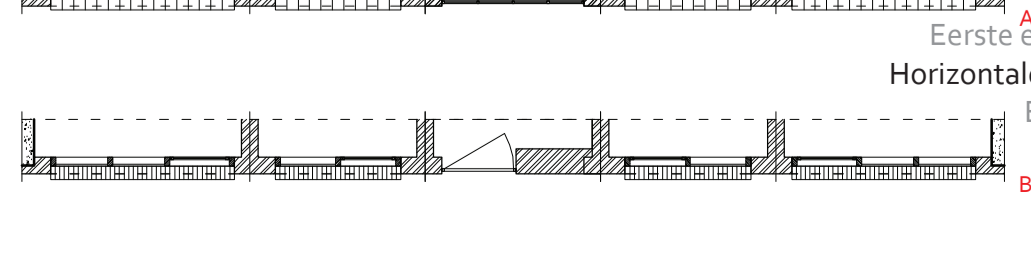
Gevelaanzicht achtergevel (type A) 1/100



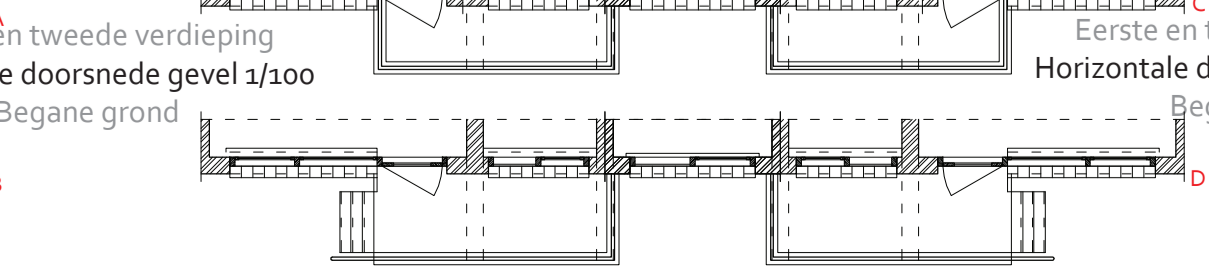
Gevelaanzicht voorgevel (type B) 1/100



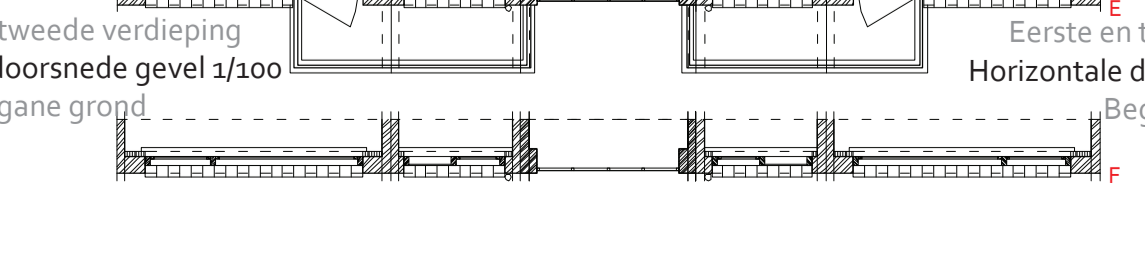
Gevelaanzicht achtergevel (type B) 1/100



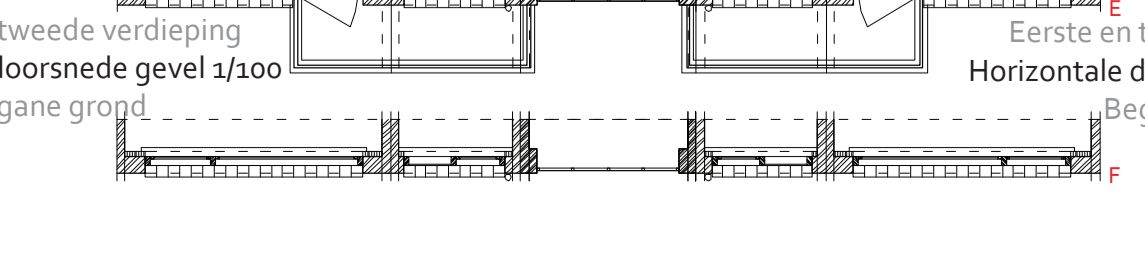
Eerste en tweede verdieping Horizontale doorsnede niveau 1/100



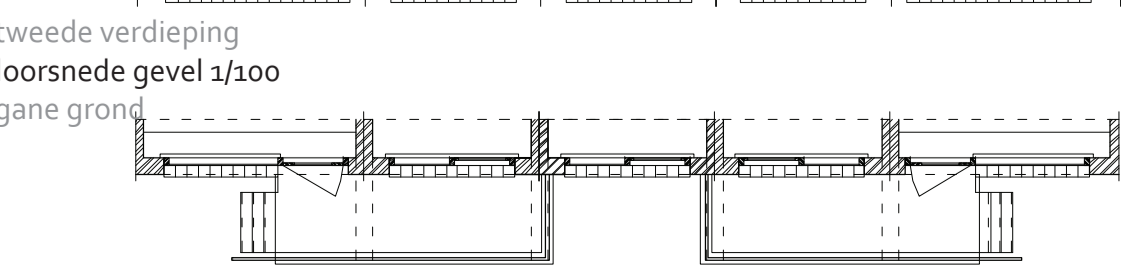
Begane grond



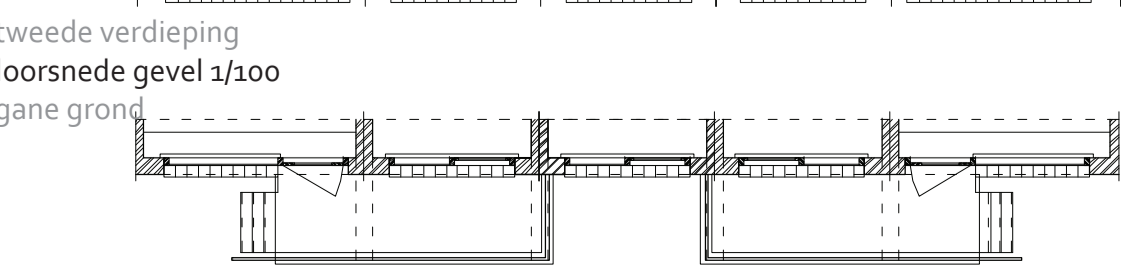
Eerste en tweede verdieping Horizontale doorsnede niveau 1/100



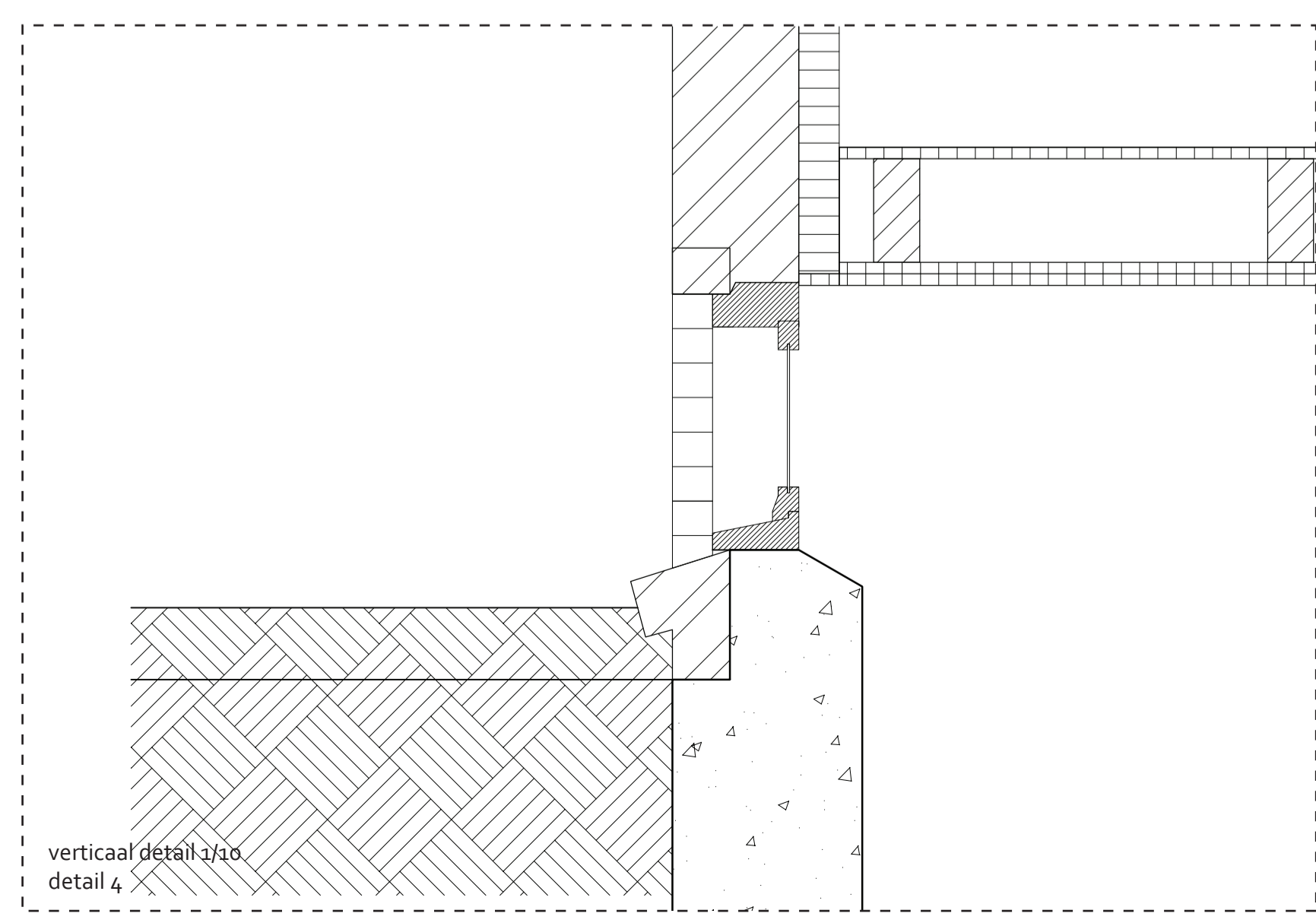
Begane grond



Eerste en tweede verdieping Horizontale doorsnede niveau 1/100



Begane grond



verticaal detail 1/10 detail 4