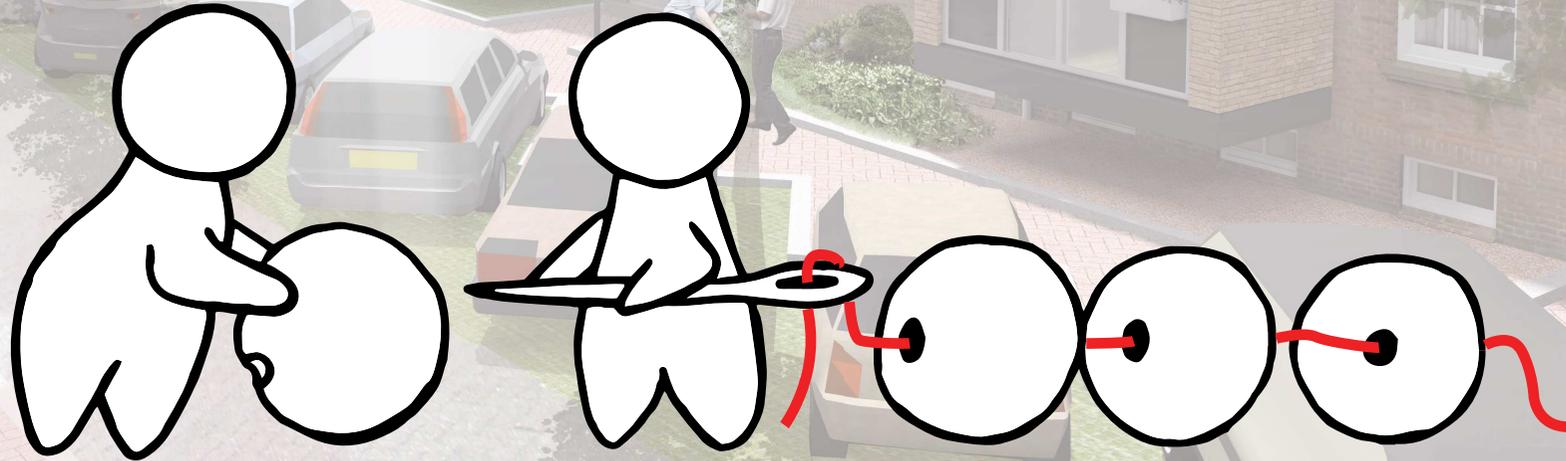


Graduation Report  
Susanne de Zwart

# “The Beads make the string”

How the input of individual stakeholders  
can improve the quality of public space in a neighbourhood



## Colophon

Susanne de Zwart

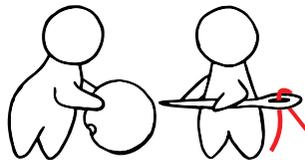
Tel. +31 6 52279690 / +91 9825041168

Email: susanne.dezward@hotmail.com

Student nr. 1503936

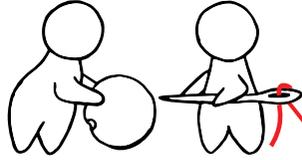
Graduation Studio RMIT: Transforming Housing Heritage 2013-2014

Technical University Delft, Faculty of Architecture



“ By themselves, as a group, the required qualities will not assure a great street, but they are necessary. Overall though, a final ingredient – perhaps the most important – is necessary, and I call it “magic” – the magic of design. ”

- Allen B. Jacobs (1993)



# Preface

This report would not have come into being without the help of other people. I would like to thank them here. Firstly my tutors, Wido, Lidwine and Pieter, for their comments and supports. The people at Veldacademie for letting me and my fellow students work at their studio and especially Pieter and Jurrian for their tips and comments. Aad and Bep at the inhabitants-organisation BOC for sharing their personal experience of the neighbourhood and the inhabitants of the Vogelbuurt themselves for sharing their dwelling-experience over there. The professionals in the field invited over by the Veldacademie to share their knowledge are not to be forgotten as their input is certainly interwoven in my final project. Martijn Lek of VVE 010, Nicol van Twillert and Arne Steeneken of Woonbron, Rini Biemans of Creatief Beheer and Astrid Karbaat and Josephine van der Klauw of the department of monuments of the municipality of Rotterdam.

Also I would like to thank Rob Kok, wijkconciierge in Oud-Mathenesse for giving insight in the “social” aspects that are involved when improving a neighbourhood, Mark Spee of Think Building Concepts for giving me a lot of insight in prefab dwelling extenstions and Erik Dral for sharing his knowledge about his own graduation project, which showed similarities to my project.

And last but certainly not least my fellow students for the nice groupwork and the personal comments.

With the input of all these people I was able to bring my graduation project to a successful conclusion.

Thank you.



# Summary

This graduation report is the result of my graduation project as part of the Masterstudio 'Transforming Housing Heritage' of RMIT at TU Delft, started in fall 2013. The topic of the studio is the "probleemwijk"\* 'Vogelbuurt' in Rotterdam Carnisse with the brief to "design interventions that can offer the existing building stock a sustainable future".

Where other students have put their focus on the dwellings and building blocks, I chose to approach the topic from a bigger scale: the scale of the neighbourhood's public space and subsequently the transition space from public to private.

In the Vogelbuurt, where social bounding is low and inhabitants do not feel responsible for the public space in their neighbourhood, improving the public space and the transition space from public to private can have a double sided benefit: by improving the quality of these spaces, people are invited to use that space, will start to feel responsible and by being in these spaces with others, social bounding can occur.

My research started with getting insight in the theory behind "quality of public space" from whereon I focussed on what qualities of public space are present in the Vogelbuurt and subsequently what should be done to improve them. For this I used both an objective approach to quality – by using public images – and a subjective approach – by using personal images.

The personal images are part of the concept I used throughout my graduation: that the users of the space should be involved in redesigning it, both in the design phase and the execution phase. Not only because they are the ones to use the design once executed, but also because in the particular case of the Vogelbuurt, the majority of dwellings is owned by private owners. A big at once alternation or even demolition of the neighbourhood is thus not possible. Change in the Vogelbuurt can only succeed when every inhabitant is willing and contributing to this change. They all have to make a contribution so together all these small initiatives can make a big change, like individual beads that together form a string.

The design I made is based on this bead- and string principle, where the inhabitants should be given the possibility to take initiative in enhancing their neighbourhood. My design thus exists of a redesign of public space that is to be filled up by inhabitants.

This takes place at two scales. On the scale of the neighbourhood I focussed on shared public space and on the scale of the dwelling I focussed on transition zones between the private space of the dwelling and the public space of the street. The former is located in the Roodborststraat – a street perpendicular to and interconnecting the residential streets – and the latter in the residential streets themselves.

*[\*] Dutch term: "Probleemwijk" or "Achterstandswijk": strongly decaying residential area with relatively many social problems (van Dale dictionary, [surfdiensten.vandale.nl](http://surfdiensten.vandale.nl))*

Both scales apply the principle of flexible public space to be filled with individual interventions.

Public space in the Roodborststraat is filled up with two kinds of “infill”: replacements of the now unused garages at the building block ends and parklets. The garage-replacements will be extensions of dwellings or new functions – in any case functions that provide “eyes on the street” and liveliness as these are both not present in the street now. Parklets are small-scale park-like elements that are the result of individual initiatives of inhabitants. The parklets form a series of little personal spaces within the shared public space of the neighbourhood.

Transition zones are filled with “extensions of private space” which take form figuratively – for example a front garden, seating, etc – or literally – by means of a dwelling extension. Another issue in the Vogelbuurt is namely that people are not satisfied with their dwelling the way it is now. Dwelling extensions – if only a few square metres – provide the possibilities of adjusting the dwelling to modern day wishes. The construction and placement of the extensions is based on the given of the many private owners: inhabitants can choose to extend their dwelling according to their personal wishes and without the need for cooperation or disturbance of neighbours.

To make sure the (execution of) the design will work, I worked out a strategy that, in short, consists of showing interest in the neighbourhood, enthusing inhabitants for their neighbourhood and subsequently make them willing to invest in their dwelling and neighbourhood. This will be initiated by the “neighbourhood concierge” that is appointed by a dwelling corporation and the municipality.

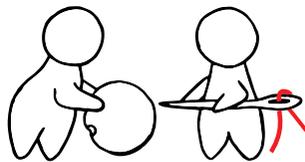
When inhabitants are convinced that their neighbourhood can change in a positive way, they will invest with individual initiatives that together – like beads that make a string – will make a big change in the Vogelbuurt.



# Table of Contents

Colophon	ii	
Preface	v	
Summary	vi	
 <i><u>INTRODUCTION</u></i>		
<b>1. Background information</b>	<b>1</b>	
 <i><u>RESEARCH AND DESIGN DIRECTION</u></i>		
<b>2. Problem Statement</b>	<b>5</b>	
<b>3. Research contents</b>	<b>6</b>	
<b>4. Directions for design</b>	<b>10</b>	
 <i><u>STRATEGY</u></i>		
<b>5. Execution steps for design</b>	<b>15</b>	
 <i><u>DESIGN</u></i>		
<b>6. Roodborststraat</b>	<b>19</b>	
<b>7. Residential street</b>	<b>24</b>	
<b>8. Extension Roadmap</b>	<b>28</b>	
<b>9. Dwelling plan changes</b>	<b>30</b>	
<b>10. Materialisation</b>	<b>34</b>	
<b>11. Construction</b>	<b>36</b>	
<b>12. Costs</b>	<b>40</b>	
 <i><u>DESIGN IN GREATER CONTEXT</u></i>		
<b>13. Roodborststraat in greater context</b>	<b>43</b>	
<b>14. Dwelling extensions in greater context</b>	<b>46</b>	
Literature list		
Appendix		

# Introduction



# 1. Background Information

## History of Rotterdam Zuid

The Vogelbuurt is part of the district of Carnisse, which is located in Rotterdam Zuid (South), the part of the city of Rotterdam on the south side of the river Meuse. There is a clear distinction between the parts of the city north and south of the river. Whereas the northern part of the city dates back to the 13th century (Renes, 2008), the history of the southern part makes its big developments in the 19th century. A short overview of the history of Rotterdam Zuid is given here (Municipality of Rotterdam & et. al, 2011, p. 9).

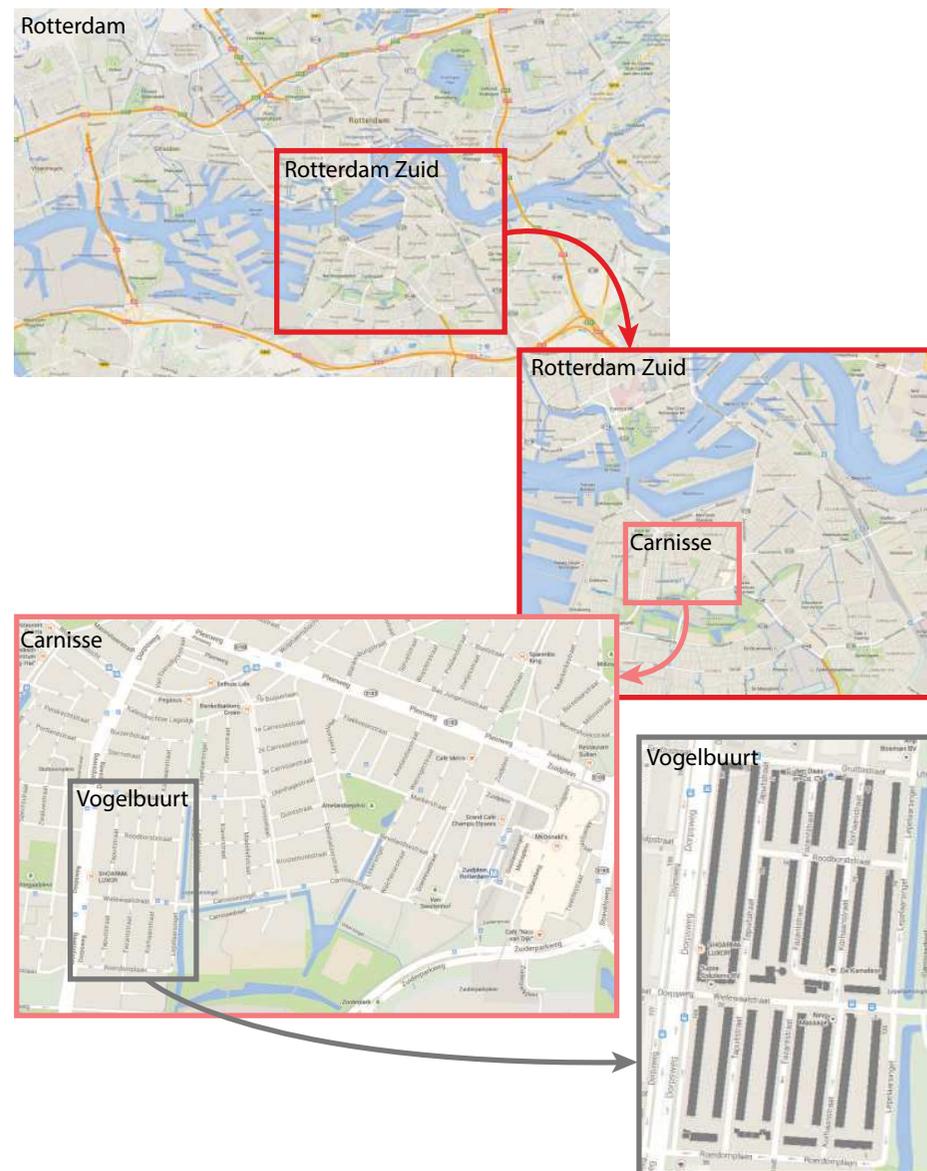
In 1872 the “Nieuwe Waterweg” is completed. This new connection with the sea makes that Rotterdam harbours can develop substantially. To house all the new workers that are employed in the harbours, new housing areas are developed in Rotterdam Zuid.

After the Second World War, when there is a big shortage of housing, the built environment of Rotterdam Zuid expands even further to cope with the big need for dwellings. Rotterdam is growing and in 1960 becomes the biggest port in the world.

During the 1960ies and 70ies times change: the harbours move further towards the sea, the shipbuilding sector collapses, the oil crisis kicks in and high unemployment rates are the result. But in this period there are also improvements in Zuid, like the erection of a metro line and sport complex Ahoy, although this does not change the general tide. People move away from Zuid and are replaced by foreigners resulting in increase of segregation, poverty, and safety issues.

From 1975 to 1990 the urban renewal movement replaces privately owned buildings by social renting dwellings for very low rents. In other places in Rotterdam new neighbourhoods are built for higher class people. This increases the homogeneity of inhabitants in Zuid: the low income class.

From the 1990ies onwards, tides do change. The “Kop van Zuid” (northern part of Rotterdam Zuid) is redeveloped and the new Erasmusbridge connects north with south. Other areas are refurbished as well, and plans are made to continue this improvement, but it is still a long way to solve all problems in Zuid.



Location Vogelbuurt in Rotterdam (maps.google.com)

### **History of the Vogelbuurt**

The Vogelbuurt finds its place in history in the urban plan of W.G. Witteveen of 1937. During his time as director of the urban planning authority of Rotterdam, he designed the urban outlines for the new development of Rotterdam Zuid. This plan was filled up in several stages (Komossa, 2008, pp. 205,206).

The area of Carnisse, in which the Vogelbuurt is located, was in its first stages of development when the 1938 the plan "Algemeen Belang I" (General Interest I) of architect J. H. van den Broek was implemented. This plan, consisting of the realisation of 753 portico dwellings, came into being due to the need for cheap dwellings for labourers. The street pattern of Witteveen was kept, but his idea of the closed building block was neglected and replaced by row housing (Hartman, 2012, p. 13).

After the bombing of Rotterdam in 1940 many people lost their homes. The plan "Algemeen Belang II" continued the methods of the first plan, building a thousand dwellings, exact copies of the ones from Van den Broek's first plan, to provide houses for the people who lost their homes. In 1941 part of these houses were erected in Carnisse.

In 1940 there was also the competition "Woningen 1940" (Dwellings 1940) that resulted in what nowadays is the Vogelbuurt. Only two months after the start of the competition, the results were announced: the architects that were going to build the dwellings were ir. H. Kramer, Jos de Jonge, ir. J. A. Brinkman and ir. J. H. v. d. Broek, ir. W. Vermeer and H. Sutterland (De Maasbode, 1940). The latter three designed the dwellings in the part of the Vogelbuurt on which lies the focus of the studio of RMIT. The focus of my graduation project will be the dwellings designed by ir. W. Vermeer of "Vermeer & Van de Tak".

### **Characterisation of the Vogelbuurt**

The area of focus of the Vogelbuurt in the graduation studio is bordered by the Dorpsweg in the west, the Lepelaarsingel in the east, the Gruttostraat in the North and the Roerdomplaan in the south.

It is a mainly residential area with housing blocks located in rows running from north to south along the Tapuitstraat, Fazantstraat and Korhaanstraat. At about two-thirds of the length of the residential streets, the Wielewaalstraat cuts the neighbourhood up in a northern and southern part.

At one point there is a different kind of connection between the residential streets provided for by the Roodborststraat. Because the Roodborststraat is so unique in its context - not a thoroughfare, neither a residential street - it interested me. Right now it does not serve any function, but because of its location and characteristics I focussed on this street. This is why I chose the northern part of the Vogelbuurt as the area of my focus.

The Vogelbuurt consists mainly of blocks of portico dwellings of three floors. Each portico gives access to six dwellings; two on each floor. In both the basement and attic there is room for storage (among which bicycles) of the dwellers. Between the rows of building blocks alternate the back gardens belonging to the lower apartments and the streets which facilitate parking. The short edges of the blocks are mostly closed off by hedges or fences.

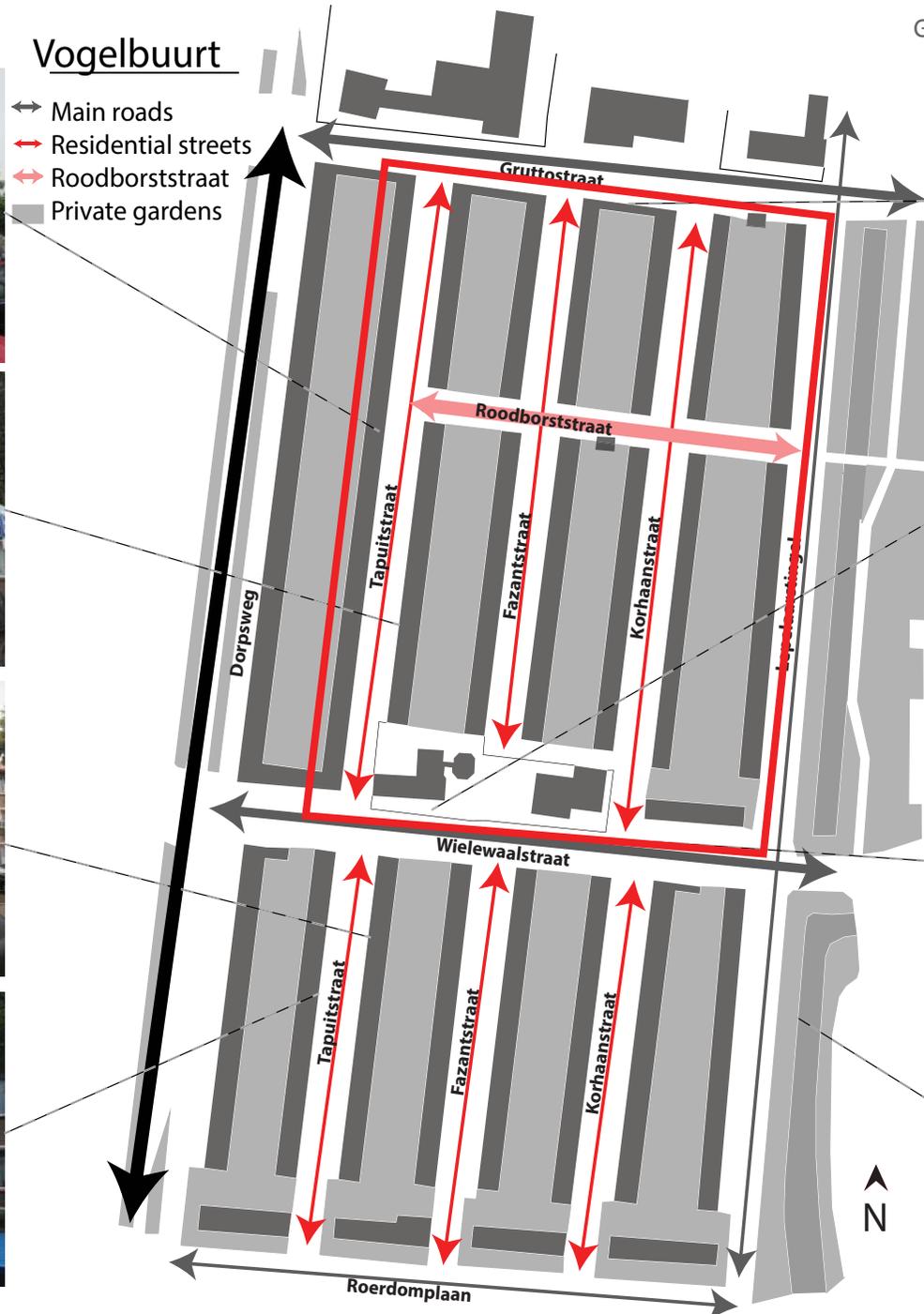
The streets crossing the Vogelbuurt from east to west, the Gruttostraat and Wielewaalstraat, facilitate other functions apart from dwelling. Here there are shops located, and other functions like schools, health centres, etc. This is also where the bus stops are located.

The atmosphere in the neighbourhood can be described as "stony" as there is a lack of front gardens in the streets. The green atmosphere is cared for by the mostly grown-up trees that line the streets and the hedges and "peaks into gardens" in the Roodborststraat. The Lepelaarsingel in the east cares for green "within short reach" and the Zuiderpark ("southern park") is just a few minute walk from the neighbourhood as well.

The pictures on the following pages give an impression of the neighbourhood and show the area of focus for my graduation project.

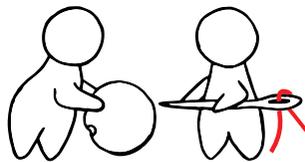
# Vogelbuurt

- ↔ Main roads
- ↔ Residential streets
- ↔ Roodborststraat
- Private gardens



Plan of the Vogelbuurt with street characterisation and impressions. The area framed in red indicates the area of focus for this graduation project.

# Research



## 2. Problem statement

Carnisse, or more general, Rotterdam Zuid, is considered an area of attention by the local and the national government. The area is falling behind on quality of dwelling, employment and education. For these reasons, in 2012 the “National Program Rotterdam South” was initiated. A program that aims to improve the three main topics just mentioned in seven “focus areas” of which Carnisse is one (Programmabureau NPRZ, 2012, p. 7).

### Investments in building stock

Although Carnisse, and thus the Vogelbuurt, is part of the National Program, the Vogelbuurt itself also struggles with more specific problems due to its characteristics.

Firstly, the majority of the building blocks in the Vogelbuurt are portico dwellings, of which the separate dwellings mostly belong to private owners, which either live there themselves or rent their property out (Steenbergen van & Wittmayer, 2012, p. 4). This is a detrimental condition for investments in the existing stock. Investments are needed as the dwellings are over 60 years old and do not meet contemporary needs of living comfort (Steunpunt Wonen, 2002, p. 15). Nowadays the government has taken the role of facilitator when it comes to transforming housing (environments), leaving initiatives for improvements to other parties, like housing corporations – but these are hardly represented in the Vogelbuurt (Steunpunt Wonen, p. 8).

### The Vogelbuurt as a hotel

This uncertainty about the future in combination with the high flow of inhabitants moving (both owners and tenants) has resulted in the neighbourhood taking the characteristics of a hotel. People often see living in the Vogelbuurt as the start of their dwelling career, with plans of moving as soon as financial situations permit it or as families grow larger and the dwellings become too small. On average the dwellings are sold every five years (Steunpunt Wonen, 2002, p. 10). This results in an attitude of inhabitants not feeling responsible for the neighbourhood. They feel like guests in a hotel, but there is no hotel management. This makes that maintenance of public space is not seen as a responsibility by inhabitants and investments in public space are not initiated nor executed (Graaff, 2012, p. 1).

People rather invest in the dwellings themselves, their private space. Because many homeowner associations are inactive or lack financial resources, private owners invest in their own properties separately. Investments like these do occur quite often, for example by extending the apartments on the top and ground floor respectively by adding the attic or basement to the dwellings (Steunpunt Wonen, 2004, p. 13).

### Image of the Vogelbuurt

The image of the Vogelbuurt is one of low-quality. Partly because of the physical qualities of the public space – result of the lack of interest just mentioned – but social aspects contribute to this image as well. Housing prices are cheap, which attracts inhabitants with lower incomes and many different nationalities, making that the area loses its heterogeneity in population and social contacts within this population. Also, there are feelings of increasing unsafety (Steunpunt Wonen, 2004, p. 14) and the Vogelbuurt has been in the news in a negative way, for example when a man was shot by the police (Redactie AD, 2013).

### Inhabitants

The inhabitants of the Vogelbuurt can roughly be divided into two groups: those who are starting their dwelling career and will move on in a few years and those that stay. Contacts between inhabitants vary widely. They can be close contacts or loose ones, but generally one can state that most contacts are found within the portico people share and hardly reach any further (Steunpunt Wonen, 2004, p. 13).

### Pass-through-area

To summarize: the Vogelbuurt can be characterized as a “pass-through-area”. Figuratively because many inhabitants don’t intend to live their whole lives in the Vogelbuurt, but also literally because people prefer investing in their own dwellings over public space, making the public space indeed a pass-through-area rather than an area which is worth spending time in. Improvement of the public space of the Vogelbuurt in the conditions mentioned is a challenge, especially because of the many private owners, which makes an overall approach more unlikely.

### 3. Research contents

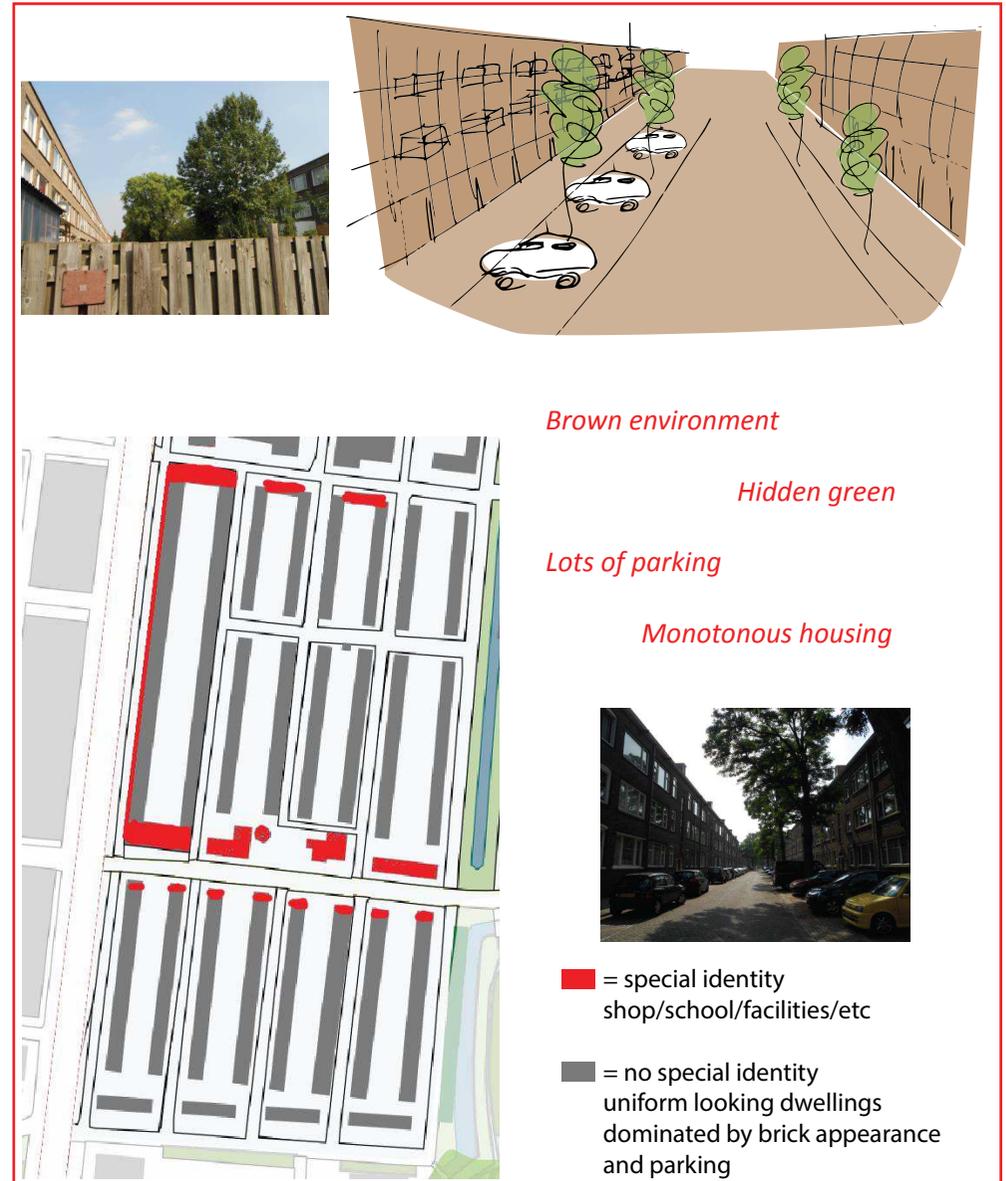
As may have become clear between the lines in the previous chapter, my area of focus in my research is the public space. In this chapter I will explain how I came to this topic, how I researched it and finally how this led to the directions of my design.

#### Introduction to the Vogelbuurt

My graduation project started with getting to know the site: an immediate start of the research in the form of first hand personal impressions – a stroll through its streets. My first impression while exploring the area was that the place was not as “bad” as I had expected (partly owing to the nice weather) but still there was something I did not like about the place: its impersonal appearance. What struck me was the monotony of the streets caused by an ongoing “copy-paste” of facades combined with the “brown” materialisation of these facades seamlessly blending with the pavement. Even after eight months I still have many pictures of the streets of which I do not know where I have taken them, confirming the impersonal character I noticed right at the start.

At that moment I decided to put my focus on the quality of public space as I clearly experienced it as being of “low quality” and was eager to find a way to enhance it.

I started to research what aspects define quality of public space and what its importance is, as I myself experienced that this (absence of) quality made me describe the place as having something “I do not like”, but I was not yet able to put my finger on it exactly.



*Brown environment*

*Hidden green*

*Lots of parking*

*Monotonous housing*

■ = special identity  
shop/school/facilities/etc

■ = no special identity  
uniform looking dwellings  
dominated by brick appearance  
and parking

Overview of first impressions

### Research question

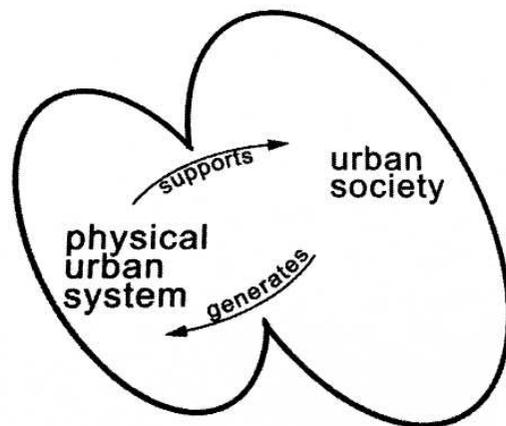
In his book "Great Streets" (1993, p.6) A.B. Jacobs states:

*'The interplay of human activity with the physical place has an enormous amount to do with the greatness of a street.  
It is difficult or impossible to separate the two, and few try.'*

This citation shows that there are opportunities for improving the quality of the Vogelbuurt by investing in the public space that is most common here: the streets. Making the streets "great streets" will have positive effects on the image of the Vogelbuurt as a low-quality neighbourhood.

But urban settings are also the settings of people's lives. By investing in the physical features of the streets, not only the negative image can be converted to an image of an area of good quality, but the living quality of the inhabitants themselves will be improved as well (A. B. Jacobs, 1993, p. 11). The group of inhabitants that intends to stay in the Vogelbuurt will have long term benefits of such improvements, the starters will enjoy the start of their dwelling career more and maybe consider to stay longer, increasing the heterogeneity of the place.

As said, inhabitants are willing to invest in their private "hotel rooms" themselves, but then, what's a hotel without a good lobby?



Relation between physical urban system and urban society, Klaassen, I. T. (2005)

With his quote, A. B. Jacobs defines two aspects: the physical public space and the interplay of human activity. In short: physical and social, or objective and subjective. And indeed, the more I researched, the more I found out that these two aspects generate and support each other (Klaassen, 2005) and thus deserve to be looked into further.

As an architect, I have influence on the physical part, and can thus influence the social "problems" in the Vogelbuurt defined in the previous chapter. But still, the physical environment does not *determine* social conditions and thus I need to focus on how to achieve this. That is why I incorporated the involvement of inhabitants in both my design and research.

All this can be summarized in my research question:

***"How can the physical quality of public space in the Vogelbuurt be improved and subsequently opportunities for improvement of social conditions be increased by using the involvement – both in design and execution – of inhabitants and owners as input?"***

### Physical and Social

The first two parts of the research question deal with the mutual influence the physical and the social environment have on each other. Because quality of public space is a given that is highly perceptive, I set up a scheme for my research (shown here) that takes “phenomenology” as its starting point.

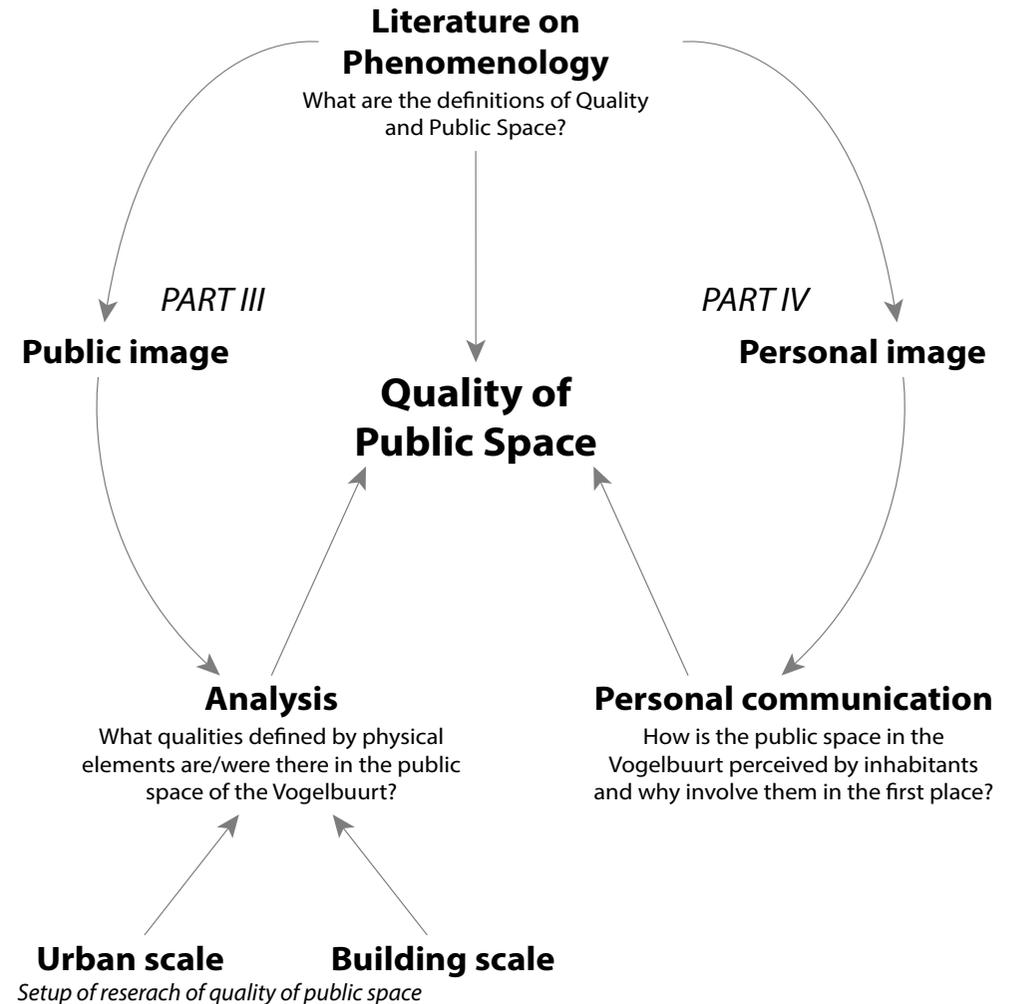
Phenomenology is researching by using the perception of users as a starting point: “A phenomenological approach means that dwellers and builders must take into account a place’s qualitative, mostly unmeasurable, aspects” (Nes van, 2012, p. 8). Phenomenology uses interviews, stories or observations with people who are having the experience of the research’s topic to examine the essence of an experience (Connelly, 2010, p. 127).

With the literature background of phenomenology from books of amongst others Lynch (1970), A. B. Jacobs (1993), Gehl (2010) I split up my research in the public image (“the common mental pictures carried by large numbers of a city’s inhabitants” (Lynch, 1970, p.4)) and the personal image (the individual opinions of people). Or in short, the “objective” and the “subjective” quality of public space.

For the public image I combined literature research with a physical analysis of both the building and urban scale of the Vogelbuurt. Also, I used a quality test (Ewing et al. 2005, 2006) to measure the “objective” quality of public space. By simple counting physical aspects in the area researched, scores for five qualities of public space are conceived: imageability, enclosure, human scale, transparency and complexity. In the chapters concerning my design of public space in the Vogelbuurt, the scores and interpretation of these scores will be discussed more elaborately. An overview of physical elements and their influence on quality can be found in the appendix in the score sheets for the different streets in the Vogelbuurt.

For the personal image my fellow students and I used questionnaires and personal conversations with inhabitants to get insight in what inhabitants in the Vogelbuurt think of their neighbourhood and living here. Also, we used “patterns” to discuss possible designs for the Vogelbuurt with inhabitants (Alexander et al., 1977) and used their comments for directions for design.

Apart from this, we were given the opportunity by Woonbron to use one of their vacant dwellings in the neighbourhood to get a feel of what it is to live here and thus form our own personal image.

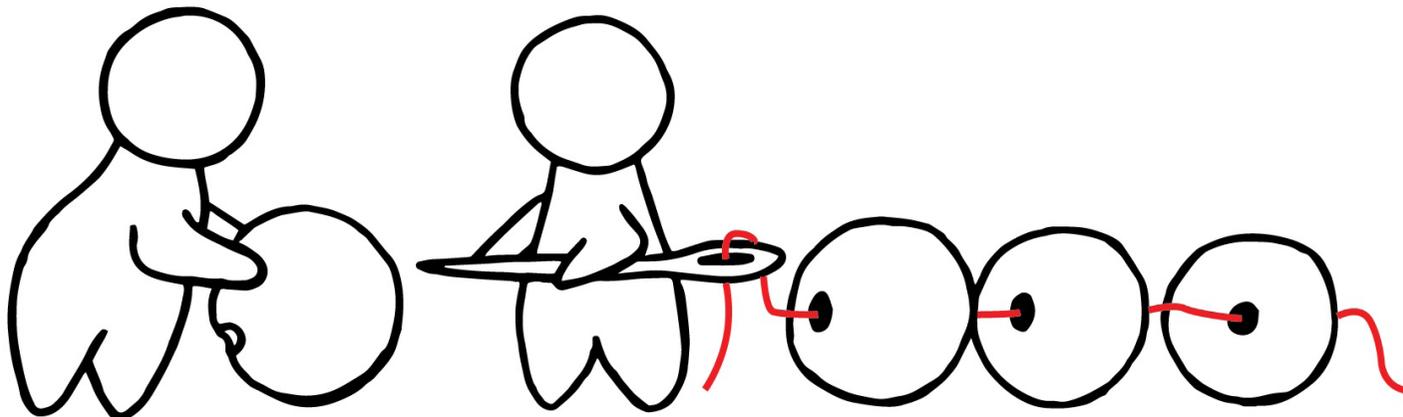


### Involvement

The third part of my research question focusses on the involvement of inhabitants in both the design and execution of the new plans for the Vogelbuurt. Involving inhabitants in this way is important for several reasons. In the research phase, inhabitants can give insight in what is going on in the neighbourhood, because they are the “experts” in living in this area. Apart from this benefit in the form of a source of information, involvement also creates goodwill among inhabitants. By involving them in the plans, they will know what is going on, instead of being told by others what will happen in “their” area. Research has shown that inhabitants that participated in transformation processes were more satisfied with the results than the ones that did not. Just by being part of the process inhabitants are already more satisfied, without even taking the design itself into consideration (Marissing van, 2008, pp. 20, 22).

Another reason to involve inhabitants in design processes to exclude “secondary use”: the adaption of the design by its users to mould it in a way it can be used as desired (Certeau de, 1988, p. XIX). To avoid unnecessary adaptations, a design should be intended to be used in the same way as it will be used after realisation.

Last but not least, the Vogelbuurt has this specific characteristic of many private owners. This discourages an approach of a big at once alternation. The approach of my design will thus be that every owner can contribute to improving the Vogelbuurt and together all these initiatives can bring a big change. Like beads that make a string.



*Single beads to form a string: lace up individual initiatives to improve the quality of public space in the neighbourhood as a whole*

## 4. Directions for design

The goal of this project is to use physical design to improve not only the physical qualities of public space, but also the social qualities that are influenced by it. Improvement of public space will increase liveliness in the streets because there is a strong connection between invitations and behaviour: if people are invited to use a space – that means, if that space is of good quality for the use intended – people *will* use that space (Gehl, 2010, p. 9). This liveliness can lead to more contacts between inhabitants as well, causing social bounding. In this way, not only the physical qualities of the area are enhanced, but also the social aspects that are influenced by it.

In addition to this, there is also the model of “defensible space” that can contribute to the feeling of safety in the neighbourhood (Newman, 1972, p. 3): “Defensible space is a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself. All the different elements which combine to make a defensible space have a common goal – an environment in which latent territoriality and sense of community in the inhabitants can be translated into responsibility for ensuring a safe, productive and well-maintained living space.”

### Extending the private realm

Manuel de Solà Morales (1992, p.6) states that the importance of public space lies in its function of a space that connects different kinds of private, collective and hybrid spaces so it can function as a whole. He pleads for the absorption of private domains into the public domain. In this way inhabitants extend their private realm into the public realm, create a defensible space and make that the public space becomes lively. The condition for this extension of the private realm into the public realm to happen, is that the public space incorporates *possibilities* for this. And that is one of the main issues in the Vogelbuurt: at the moment, these possibilities are hardly there.

Space between public and private



Public space used for private activities

Examples of transition zones and shared public space

No Space between public and private



No Public space used for private activities

Examples of absence of transition zones and shared public space

### Transition zones

The extension of the private realm into the public realm can be viewed from two scales: the direct environment of the dwelling and the neighbourhood in which this dwelling is located.

The first scale is where interaction with neighbours takes place. This social interaction makes it possible for inhabitants to think of their dwelling environment as “theirs”. Social contacts will only occur here though, when inhabitants can be in control of their level of privacy. The desired level of privacy depends on the person, but also the needs of that person on a certain moment. The physical environment should thus be able to cope with these differences in desires; it should offer possibilities for both making social contacts as well as possibilities for seclusion. When these possibilities and thus the control over privacy zoning are not possible,

social contacts are missed or avoided. When the transition from public to private is too harsh, people tend to isolate their private space from the public space because they are not in control of their privacy zoning. The hybrid zone or transition zone will soften this transition and thus invite people to extend their private realm (Dorst van, 2005, pp. 286, 287, 290, 294).

In the Vogelbuurt, there are no transition zones between the private inside space and public outside space: the sidewalk is running right along the dwelling facades. Research has shown though, that over 80% of informal contacts take place in these transition zones: the inhabitant stays “safe” within his own territory and is still easily approachable (Dorst van, p. 290). It is thus important to introduce transition zones in the residential streets in the Vogelbuurt.

#### No Space between public and private



No Public space used for private activities

Examples of absence of transition zones and shared public space in Vogelbuurt

#### Design Space between public and private

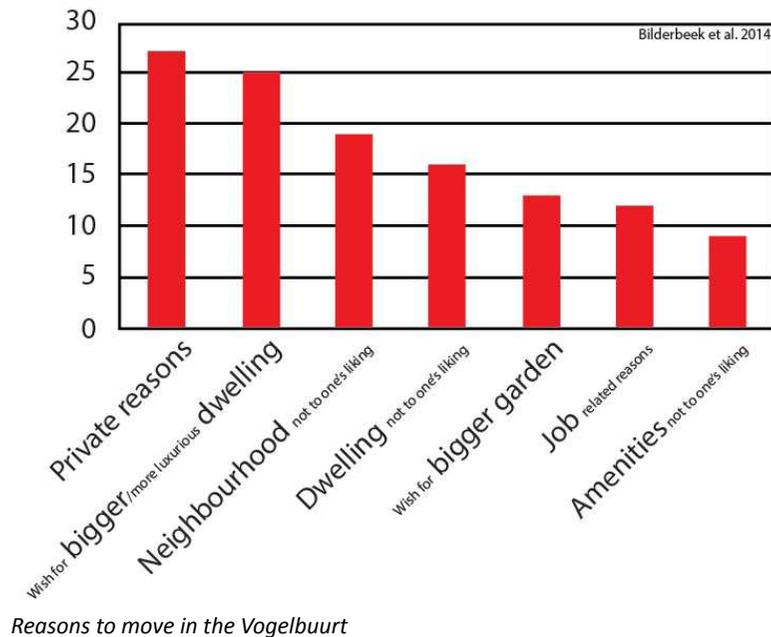


Design Public space used for private activities

Examples of possibilities of transition zones and shared public space

### Filling transition zones

Transition zones, when filled with personal expressions in the form of planters, seating, etc, will increase the qualities of human scale and complexity. The qualities of enclosure and imageability are increased as well when people literally extend their dwellings into public space with dwelling extensions (Ewing et al. 2005/2006). This brings us to an important part of my design: extension of dwellings. When we take a look at reasons to move in the Vogelbuurt, we see that “wish for a bigger or more luxurious dwelling” and “not satisfied with current dwelling” are high in the list. Indeed, the dwellings are with an average of just over 50 square metres not very big and fail to meet modern day standards. In the chapters of “design” I will elaborate on the dwelling extensions and the reasoning behind it. For now I just want to say: when filling transition zones, dwelling extensions are a very good option for both increasing the quality of public space and the dwellings themselves.



### Shared public space

The second scale of interest is the scale of the neighbourhood. As the residential streets are relatively narrow and “filled” with transition zones, the scale of neighbourhood public space is not found in the residential streets, but in the Roodborststraat, where no dwellings and thus no possibilities for transition zones are located (yet). The Roodborststraat has great potential to be used as shared public space in the Vogelbuurt, as a space where private activities take place in public space, but things have to change for this to happen.

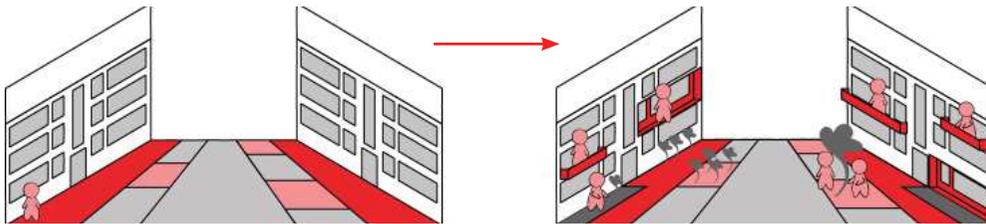
As mentioned before: if a space is of good quality for the use intended – people *will* use that space (Gehl, 2010, p. 9). But if a space has no intended use, nobody will use it. This is the case with the Roodborststraat right now. It serves no purpose, not even as a transition zones to and from dwellings because there are no dwelling entrances located here. The only functions present are the garages, but judging their state (and the fact there is even a tree in front of one of the garage doors) they are not used. For the quality of this street to increase there should be designed possibilities for use.

In this, one has to consider the different kinds of use: namely transit and staying activities. Studies showed that the amount of transit and staying activities in public space is about the same, but the time spend is much longer with the staying activities. Transit activities are now present in the Roodborststraat in the form of parking, but there is no reason to linger here. When redesigning the Roodborststraat, designing possibilities that make people stay here is thus very important.

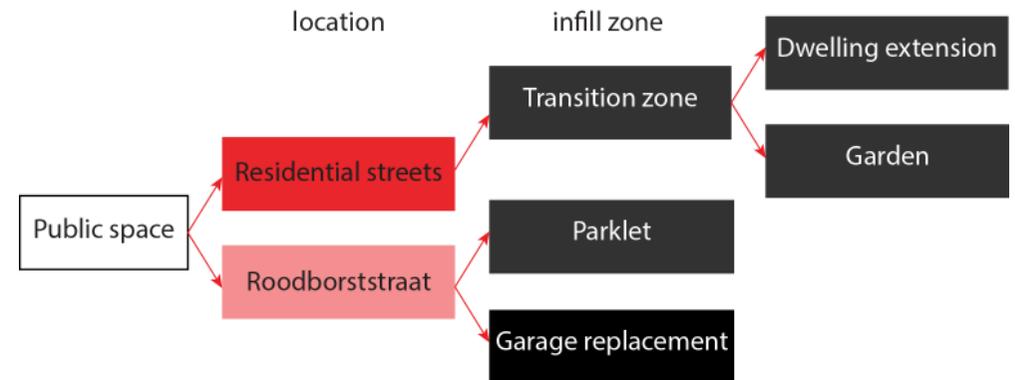
The new design for the Roodborststraat incorporates roughly three interventions: providing for parking space (a transit activity) and for two kinds of staying activities. The latter will be in the form of parklets and replacements of the garages at the building block ends. I will elaborate on this in the chapter “Roodborststraat” in the “Design” part of this report.

### Flexible space to be filled

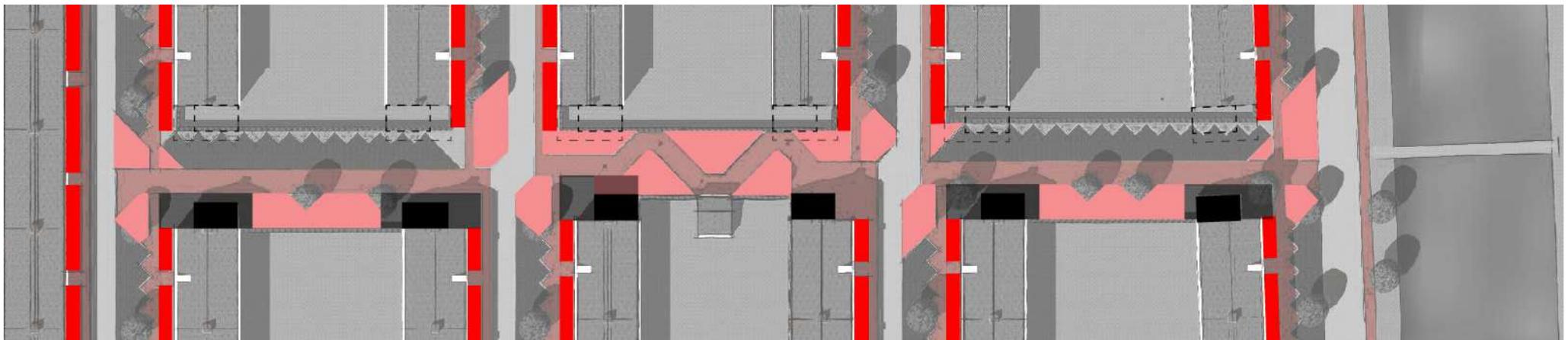
In short one can state that the private realm of the dwellings in the Vogelbuurt has to be extended into public space. This is done in transition zones in the residential streets and shared public space in the Roodborststraat. Combined with the aim of involving inhabitants in the process the improvement of their neighbourhood this results in the direction for design for the Vogelbuurt:



- Design flexible public space
- With transition zones and shared public space
- To be filled with individual interventions
- That are figurative or literal extensions of the private realm

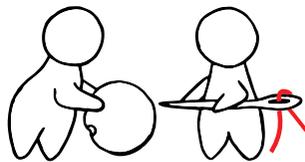


Overview of infill zones in public space of the Vogelbuurt



Infill zones in the residential streets (red) and the Roodborststraat (pink). Garage replacements are indicated in black, the dashed black lines indicate locations for possible similar building block end extensions

# Strategy



## 5. Execution steps of design

For the design as proposed to work once executed, a strategy is set up.

As mentioned before, the realm of the architect is the physical environment. This physical environment can support and influence the social conditions within this space, and it will, but it does not determine social conditions. That is why inhabitants are involved both the design and execution of the plans for the Vogelbuurt. Most important for this involvement to work out, is to convince people and enthuse them to contribute. That is what this strategy is aimed at.

First step in the process of intervening in the neighbourhood is to change the mindset of the inhabitants. From the many conversations my colleague-students and I had with current inhabitants it became clear that one has the feeling nobody cares about their neighbourhood. Inhabitants do not only refer to their neighbours, but also to parties “above”, like the municipality.

### Adoption

To answer this feeling of being left behind, the Vogelbuurt is “adopted” by a dwelling corporation that collaborates with the municipality. This adoption means that a corporation starts to take interest in what is going on in the Vogelbuurt, with the result that inhabitants feel that they are taken seriously. Examples of the dwelling corporation being involved in the neighbourhood are the introduction of a “nuisance hotline” that people can call to complain when something happens in their living environment. In this way the dwelling corporation and municipality can immediately take action to solve the problem. This may be something as simple as a dustbin being demolished by vandals, but when people see the dustbin is replaced quickly, they feel like they are heard.

Another example of the corporation being involved in the neighbourhood is that they advise VVE’s about everything that has to do with this kind of organisation. Advice can be given about MJOP’s or “splitsingsaktes”\*. To take it a step further, the dwelling corporation can buy a dwelling in a VVE that is “asleep” (meaning, not active) with the result that maintenance in the shared spaces of the dwellings concerned is lacking behind. By buying a dwelling, the corporation becomes part of that particular VVE and thus has a legal saying in the actions undertaking within this organisation.

[\*] Dutch terms: VVE = Vereniging van Eigenaars: homeowner association, MJOP = MeerJarenOnderhoudsPlanning: Maintenance plan for several years, Splitsingsakte: “split document” in which is described what part of the building belongs to what home owner



Neighbourhood post as the first step in converting the Roodborststraat

### **Be visible**

The principle of adoption and involvement of dwelling corporations in a neighbourhood is explained to me by Rob Kok, who is, you could say, the “personification” of an adoption like this in Oud-Mathenesse, located in the north or Rotterdam. His function is that of a “neighbourhood concierge”. The introduction of a “concierge” in the Vogelbuurt is also the next step in my strategy: be visible.

A concierge is the “host” of a neighbourhood and knows exactly what is going on in the area. He focusses on inhabitants and what concerns them in their living environment. In the Vogelbuurt, the concierge will be stationed in a “neighbourhood post” in the middle of the Vogelbuurt so he is always approachable for inhabitants. This neighbourhood post will be situated at the location of one of the garages in the Roodborststraat. As my design aims to enliven this street, the introduction of an “active” function in the form of this post, will be a first step in this process of enlivening. This post will not only be the “base” of the concierge, but can also be used by inhabitants, for example for a VVE meeting, or even a game of cards.

### **Involve and enthuse**

Once the concierge is settled in the Vogelbuurt, he will start to involve and enthuse inhabitants in and for their living environment. This will be done by setting up projects of converting public space in the Roodborststraat. The municipality will provide for a new street profile with flexible space incorporated in it, and inhabitants will fill these spaces up with their shared and individual initiatives. In this way, people are extending their private realm figuratively into public space, and thus enlarging their feeling of responsibility from their dwelling into the neighbourhood. By doing this together with fellow inhabitants, a feeling of shared responsibility is created and social bounding occurs. “My dwelling in the neighbourhood” will become “our neighbourhood”.

### **Prototype**

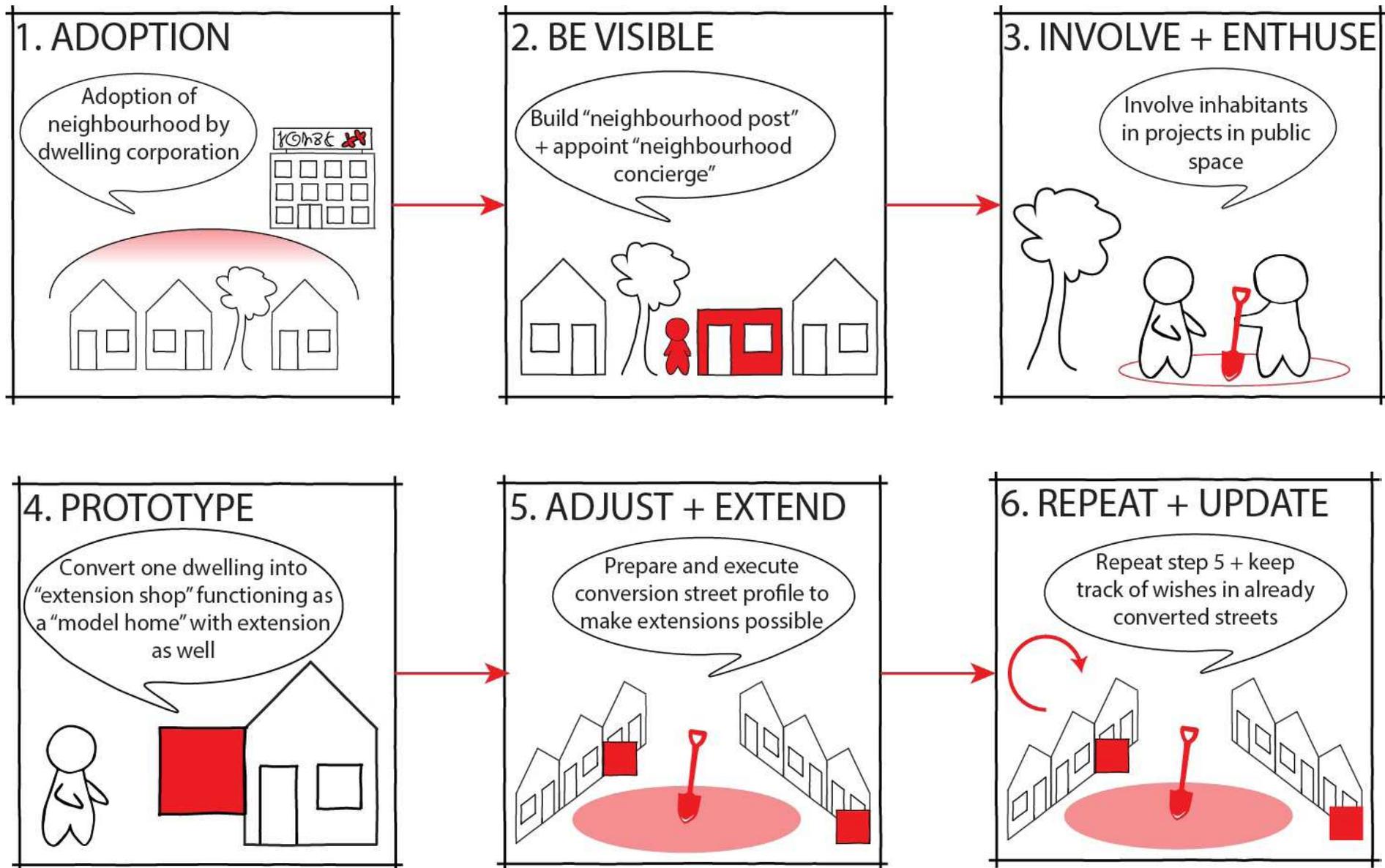
The next step in the strategy shifts the focus from the Roodborststraat to the residential streets. As explained before, the proposed design will not only enable inhabitants to extend their private realm figuratively, but also literally by extending their dwelling. For showing people how this works, a prototype dwelling extension is realised. This is done by a private party, which I will for now call “The Extension Company” (TEC). TEC buys a dwelling in the Vogelbuurt, extends it so this dwelling can serve as a model home, and sets up an “extension shop” within this dwelling where inhabitants can go to get information on the possibilities of extending their own dwelling and all the things that come with it (costs, possible dwelling changes, etc.). Once inhabitants decide to extend their dwelling, TEC will take care of the whole process of preparation and execution of this intervention.

### **Adjust and extend**

TEC will keep short lines with the neighbourhood concierge so a list of inhabitants interested in extending their dwelling can be kept. This is needed because, for dwelling extensions to be possible, the street profile has to be adjusted. By keeping insight in what inhabitants are interested (and where exactly they live), the municipality can decide in what street to adjust the street profile first so the inhabitants interested can extend their dwelling. In this street, the threshold for extending the private realm into the public realm will be much lower for other inhabitants as well, as the street profile now offers possibilities for this. Also, this particular street will be the example for the rest of the neighbourhood, where other inhabitants can see what benefits extending a dwelling can have.

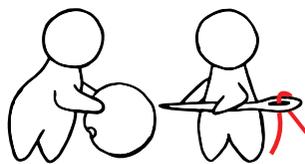
### **Repeat and update**

This process of keeping track of what inhabitants want to extend their dwelling, adjustment of the street profile by the municipality, and extensions of dwellings executed by TEC, will be repeated and updated for the whole Vogelbuurt so step by step, bead by bead, the neighbourhood is transformed.



Strategy for intervening in the Vogelbuurt in six steps

Design



## 6. Roodborststraat

As mentioned before, the Roodborststraat has a unique character in the Vogelbuurt and its vicinity because it is neither a thoroughfare, nor a residential street. This lack of function has now resulted in the street being merely a parking lot. The unique character of the street and its central location, make it a place with great potential though. In this chapter I will explain how the street is converted by first describing the current qualities\* (using the quality test of Ewing et al.), what elements of the streets are conserved, what elements are adjusted and what new street comes out of this change.

### Current street profile

The current appearance of the Roodborststraat can be summarized as a repetitive alternation of crossroads with residential streets and street sections closed off by gardens. Because of the strip typology, there are no front doors in the Roodborststraat, but only building block ends with small windows and the enclosure of gardens in the form of hedges and fences. Also, attached to the southern building block ends there are six garages – not necessarily belonging to the dwelling adjacent to it – that are used for storage. Their appearance though, shows that they are hardly used, and thus do not have an active function contributing to liveliness in the street.

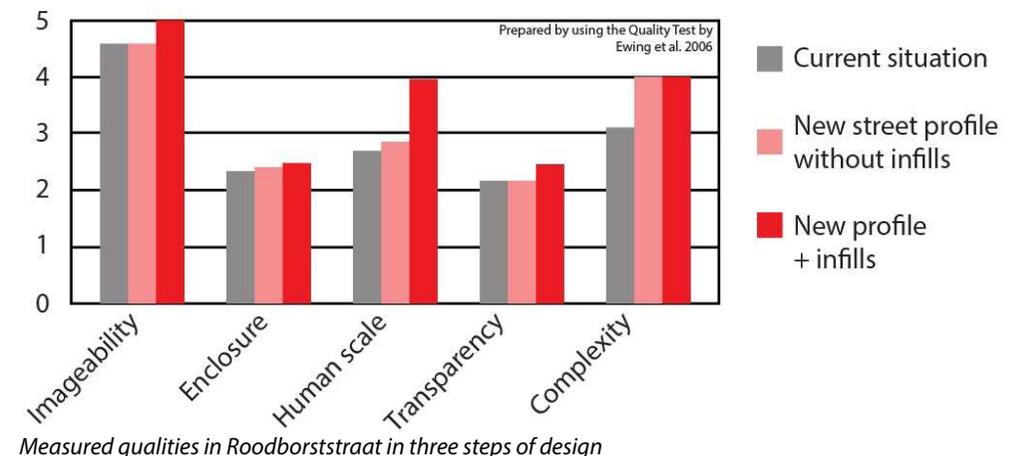
[\*] The elaborate score sheets on quality can be found in the appendix. The complete research of physical elements contributing to quality can be found in my research report.



Impression of the Roodborststraat in its current situation

When taking a look at the quality scores from the test we see a strong distinction between different qualities. The quality of imageability is very high. This is due to the variety in appearance of building blocks, hedges, crossroads, etc, and the fact that the street ends at the Lepelaarsingel, a major landscape feature. The other qualities do not score extremely high, especially the quality of transparency. This is caused by the lack of windows overlooking the streets, which makes that people do not feel watched when walking here. This lack of “eyes on the street” creates on the one hand a feeling of unsafety, on the other hand it creates the possibilities for bad intentions to take place without being watched (Jacobs, 1961). When transforming the Roodborststraat, this transparency issue is a major point of interest.

I could discuss the other qualities elaborately as well, but in the end there is only one conclusion: the dwellings in the Vogelbuurt turn their back to the Roodborststraat. This, together with the lack of other functions makes the place neglected. This has to change. When the street gets a function – is used by people – the qualities of human scale, transparency, complexity and enclosure (adding items that decrease long sightlines/percentage of sky visible) will increase.



### **New street profile**

My starting point for the Roodborststraat was to give it a unique function which distinguishes the street from the residential streets and at the same time makes that people want to spend time here. For the first part, I chose to make the car subordinated by emphasizing the street is meant for slow traffic. This is done by applying the same red clinkers at the same height level that in the residential streets indicate the sidewalks. On top of that, the middle part of the Roodborststraat is made car-free.

Roughly, the Roodborststraat will serve two functions: parking and free infill zones. The parking provides for short stay activity in the street but it is also needed because a lot of parking is removed from the residential streets with the new street profile there. The overall amount of parking space in the Vogelbuurt will decrease anyway, but these extra spaces in the Roodborststraat will compensate a certain amount. The other disappearing parking is taken care of by introducing paid parking for visitors. As became clear when talking to inhabitants, a lot of parked cars in the neighbourhood do not belong to inhabitants but to people that get on the bus or inhabitants that live in the surrounding neighbourhoods that already introduced paid parking. By introducing this in the Vogelbuurt as well, a lot less parking spaces will be necessary.

The free infill zones in the Roodborststraat consist of two types: parklets and garage replacements.



*Parklet and garage replacement in the Roodborststraat, facade elevation*



Roodborststraat. Top: existing situation, Bottom: new design

Parklets are small scale park-like elements that are the result of private initiatives of inhabitants (see “strategy”). They are scattered around the Roodborststraat and can be taken care of one by one. They are indicated, like the transition zones in the residential streets, with grey 30x30 concrete tiles that are easily removed. The new pavement fill will consist of red 30x30 tiles, indicating the place is converted. The additional infill will be a combination or choice of plants, vegetables or playground elements – according to the wishes of the initiators. Seating is provided for by cinder blocks, topped with a cover plate and wooden seating. This “language” of elements is used in every parklet in the Roodborststraat so together they form a series along the street that make for long term staying activities that will increase the liveliness in the street.

The important infill zones are the replacements of the existing garages. They are replaced with new constructions that serve an active function. This can be an extension of the dwelling adjacent to it, adding a significant amount of square metres and providing for variety in dwelling stock in the Vogelbuurt. It can also serve a commercial or social function: a small shop, an office at home, a card house, etc. The first example of this will be the neighbourhood post (see “strategy”).

For the garage replacements there are a few rules concerning design. Firstly, the structures should continue the character of the garages of being subordinated to the main building block. For this a maximum building height of two layers is introduced together with a footprint that is equal to the footprint of the garage to be replaced. In addition to this there should be a large amount of transparency that will provide for the required “eyes on the street”. Surrounding the footprint of the structure there will be a transition zone like in the residential streets that provides for the possibilities of displaying a human scale.

To conclude, the garage replacements do not necessarily have to replace a current garage but can also be implied at the building block ends at the northern side of the Roodborststraat where right now no garages are located. In this way the Roodborststraat is “opened up” by adding functions that bring liveliness to the street.



Top: garage replacement with “active” function like dwelling/shop/neighbourhood post  
 Bottom: parklet + “ingredients”



Impression of Roodborststraat with new design

## 7. Residential streets

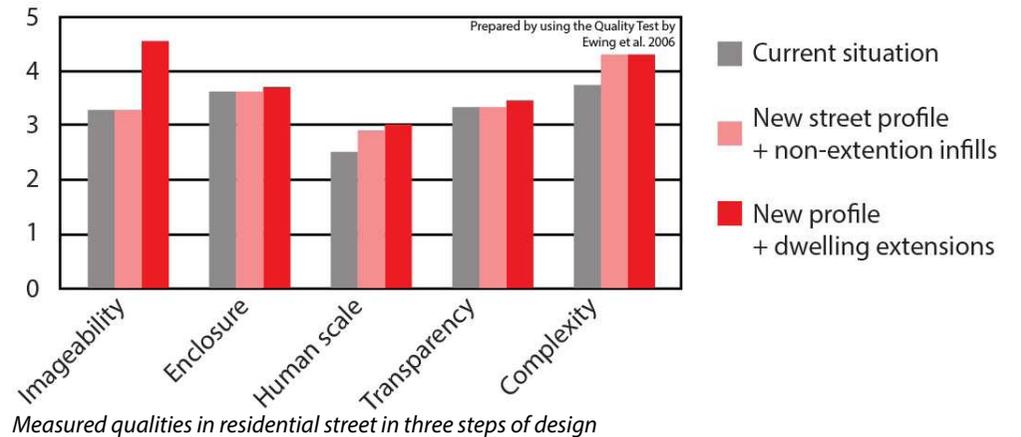
The principle of providing flexible public space to be filled with individual interventions in the residential streets, starts with the conversion of the street profile. I will first describe the current street profile and the qualities present (using the quality test of Ewings et al.), than what has to change to increase these qualities and subsequently the new street profile as the embodiment of the physical aspects that take care of this increase. Also I will explain how the same new street profile can contribute to providing an own identity for every street.

### Current street profile

Currently, the street profile in the residential streets consists roughly of two sidewalks – on both sides of the street, bordering the facades of the dwellings –, parking – present in the form of both parallel parking on one side of the driveway and cross parking on the other side – and trees – planted between the cross parking. A short analysis will explain what the consequences of this street profile are for the quality scores in these streets\*.

The current profile with sidewalks bordering the facades does not offer possibilities for dwellers to extend their private realm into the public realm as there are no transition zones present. This makes that there is no space to express a human scale by planters or street furniture or such, which makes for a low score on this particular quality. Although the proportions of street width versus building height and the presence of grown trees make for a decent score on enclosure, the uninterrupted long lines of the sidewalks and the parallel parking emphasize the length of the street, which results in a score that is lower than it could be. The score of imageability is mediocre because of the presence of a high percentage of historic building frontage – increasing imageability – compared with an ongoing repetition of facades without any difference in depth and the absence of people on the streets – decreasing imageability. Complexity is scoring decent because of the many different building accent colours: a result of private ownership placing a large variety of window frames. The score could be higher though, with more people and attributes on the streets.

[\*] The elaborate score sheets on quality can be found in the appendix. The complete research of physical elements contributing to quality can be found in my research report.



Existing street profile: no transition zones, cross- and parallel parking, emphasis of street length

### New street profile

For the new street profile to increase the quality of public space, the elements present contributing to quality should be conserved, and the ones decreasing quality taken care of.

The trees present in the streets are one of the elements that should certainly be conserved. They are the only “green” element in the further “brown” environment of paving and brick facades. With their changing appearance over the season and play of shadows when the sun shines they contribute highly to a diverse appearance. Also, they increase the quality of enclosure by decreasing the amount of sky visible and by interrupting long sightlines.

What should be changed is the location of the sidewalks right next to the facade. In the new street profile they are replaced by transition zones so people can extend their private realm, both figuratively and literally. These transition zones are the flexible public space to be filled with individual interventions.

Because of the transition zones that are just over 2 metres wide, there is not enough space for the parking like it is there in its current form. The new parking will be diagonal to the driveway. This has the advantage of a less width of required driveway than cross parking and it also brings variety in the street by breaking with the long sightlines by introducing another direction. Also there is more space for the pedestrian, who was always “crammed” between the facade and parked



*New street profile: transition zones, diagonal parking, interruption of emphasis of street length*



*New street profile with used transition zones: increase of qualities of human scale and complexity*

cars. On one side of the street there is no parking whereas on the other side the sidewalk is widening and narrowing because of the diagonal parking. The parking will be “green”, meaning on driveable grass.

The green parking contributes to variety in appearance, together with the introduction of other colours in the pavement. Whereas the current street consist of all grey pavement, the new pavement distinguishes between the sidewalks of red clinkers, the driveway of grey clinkers and the transition zones that are initially filled with concrete 30x30 tiles, that are easily to be removed when inhabitants want for example a front garden. The red clinkers also indicate the entrances of the dwellings by “cutting” the transition zones to the doors leading to the portiek.

This introduction of a line perpendicular to the long sightline of the street helps to emphasize the street width.

For a clear distinction between the different functions of the new street profile, the driveway and parking are located lower than the sidewalks and the sidewalks on their turn lower than the transition zones with the difference in height of a curb. With the introduction of the new street profile, there is now free way for inhabitants to extend their private realm. In this way, every street can create its own identity as an accumulation of all different private extensions. Every street becomes unique, rather than being “one of the streets in the Vogelbuurt”.



*New street profile with used transition zones and dwelling extensions: increase of all qualities of public space: human scale, complexity, imageability, transparency and enclosure*



*New street profile with used transition zones and even more dwelling extensions: presence of all qualities of public space: human scale, complexity, imageability, transparency and enclosure*



*Impression of residential street with new design*

## 8. Extension roadmap

It has now become clear how the street profiles in the residential streets can be adjusted to provide space for dwellings to extend. This chapter explain what dwelling extensions are possible. Chapter 9 will discuss the considerations for choosing a certain extension and the chapter following this will go into further details of materialisation and construction.

As soon as an inhabitant decides to extend his dwelling, he will go to The Extension Shop to ask for information (see “strategy”). Here, the inhabitant will be shown a roadmap consisting of two steps: “choose your dwelling extension” and “compose your facade”.

The first step will guide the inhabitant to choose the extension depending on his wishes to extend in the broad bay or narrow bay, whether he wants to add extra inside space (box) or outside space (balcony) to his dwelling and whether he wants to extend one or two metres from the facade. For the last step there is the rule that one can only extend two metres when it concerns the dwelling on the ground floor or when the neighbour living below already extended with a two metre box. This has to do with the amount of daylight being able to reach into the dwelling of the person living below the extension. A two metre canopy is not desired and thus not allowed.

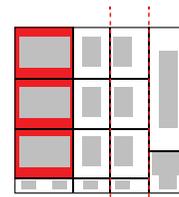
The second step is to compose the facade of the extension. The first sub-step is to find the corresponding “mould” for the extension, which depends on the bay-location (see “materialisation” for elaboration on this). This mould is then filled with windows by one’s choice. There are basically top-to-bottom windows and doors (for balconies) or windows consisting of an upper and a lower part. In the last case one can choose whether or not the lower part is opaque. This can be desired for example when one lives on the ground floor. Also one can choose whether the windows should be operable or not. To conclude one always has the costless option of adding planters underneath the operable windows or on the balcony balustrade. These planters are a service of The Extension Company and they will increase the quality of human scale in the streets and also make the connection between the inside private space and outside public space.



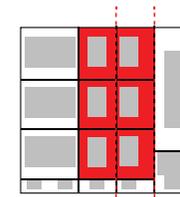
*Examples of different extensions*

Step 1:  
choose your extension

A. Where do you want to intervene?

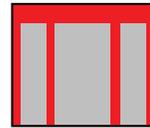


Broad bay

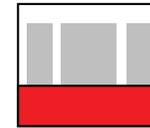


Narrow bay

B. Would you like a balcony or a "box"?



B Box



B Balcony

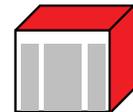


N Box

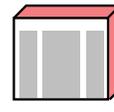


N Balcony

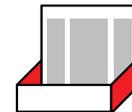
C. Would you like to extend 1 or 2 meters?\*



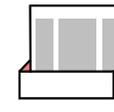
B2 Box



B1 Box



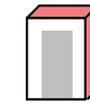
B2 Balcony



B1 Balcony



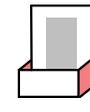
N2 Box



N1 Box



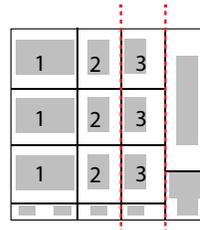
N2 Balcony



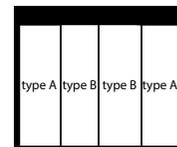
N1 Balcony

Step 2:  
compose your facade

A. Find your mould



1



2



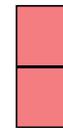
3



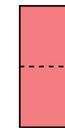
B. Choose your windows



- fixed
- two frames
- half opaque



- fixed
- two frames
- total glass



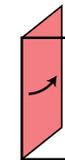
- fixed
- rod on inside
- total glass



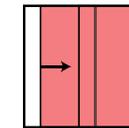
- tilt and turn
- two frames
- half opaque



- tilt and turn
- two frames
- total glass



- tilt and turn
- total glass
- \*only for balcony



- slide
- total glass
- \*only for broad balcony

## 9. Dwelling plan changes

The roadmap as discussed in the previous chapter will guide the inhabitant in composing the desired extensions by making several choices. The reasons underlying these choices will be discussed in this chapter.

When making the choice of extending one's dwelling, there are different considerations. The most obvious one is that the amount of living space increases – an understandable consideration in the relatively small dwellings in the Vogelbuurt. But there are more specific wishes underlying this desire for more square metres: some people like to have a big living room, others a big bathroom, others do not even care for extra inside square metres but would like a large balcony because they do not have a garden, etc. This chapter will show that the extensions are not simple an addition in square metres, but can generate a whole change of the dwelling plan, going much further than only changing the room adjacent to it.

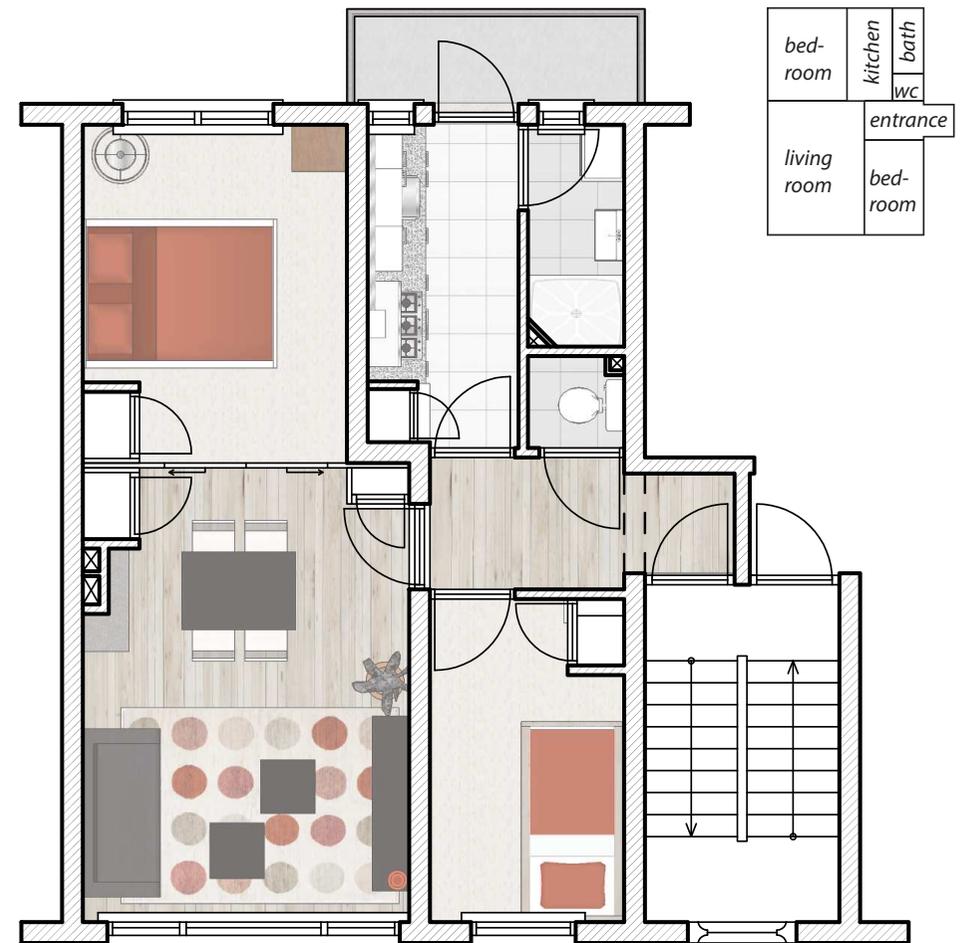
### Original dwelling plan and changes

Before going into the dwelling plan changes that the extension can generate, one first has to get insight in the current dwelling plan and any changes that may have been made already. These plans will be the starting point for improving the dwelling plan with the new extensions.

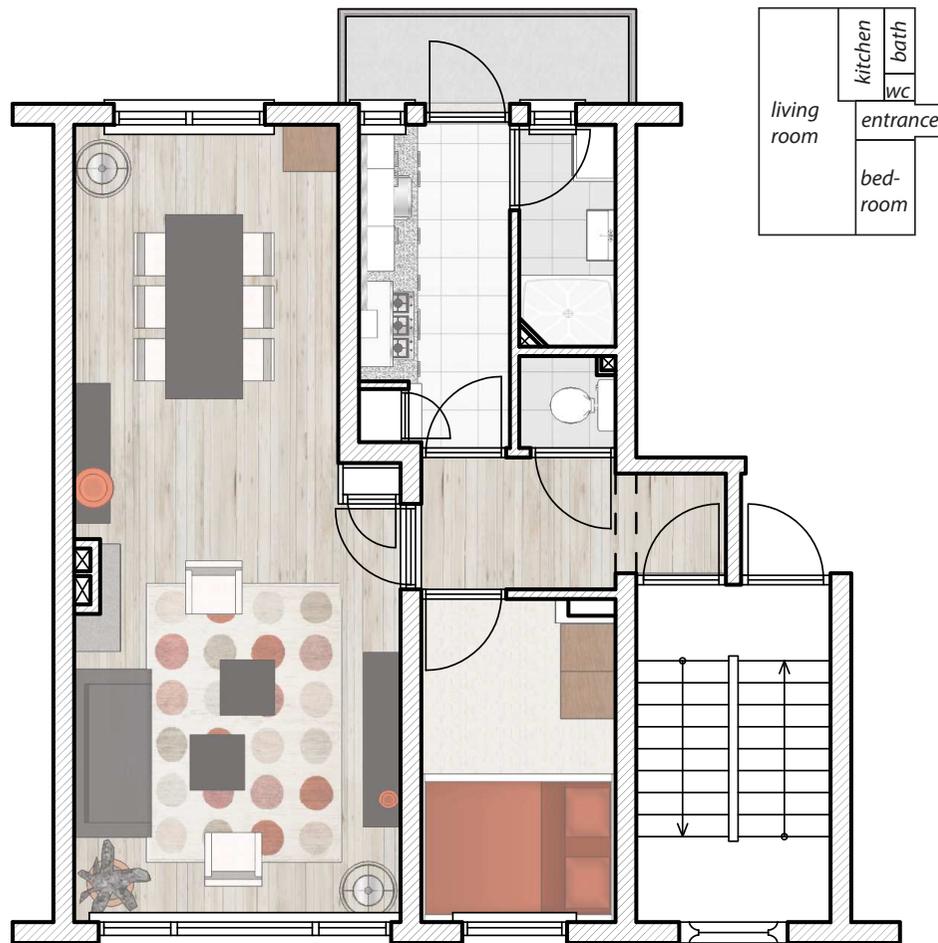
Overall there can be made a distinction between two types of dwelling plans in the part of the Vogelbuurt focussed on in this project: the original floor plan (floorplan 1) and the adjusted one with a larger living room (floorplan 2).

The original plan is a two-bedroom flat with the master bedroom adjacent to the living room with ensuite doors and a second bedroom in the narrow bay. The kitchen and bathroom are located in the other part of the narrow bay and are small for current-day standards. On top of that, the bathroom is only to be reached from the kitchen, something undesired nowadays. This original floor plan is still present in the Vogelbuurt, but the adjusted plan is represented in greater numbers.

The adjusted plan came into existence as a result of the wish for a larger living room. In the original plan there is hardly space for a dining table. For this reason the ensuite doors are removed to enlarge the living room and have space to place the table. Consequence of this is that the master bedroom is moved to the narrow bay, where a double sized bed only just fits in and can only be approached from one side, whereas the second bedroom disappears.



Floor plan 1: Original floor plan



*Floor plan 2: Most common adjusted floor plan*

### **New dwelling plan changes**

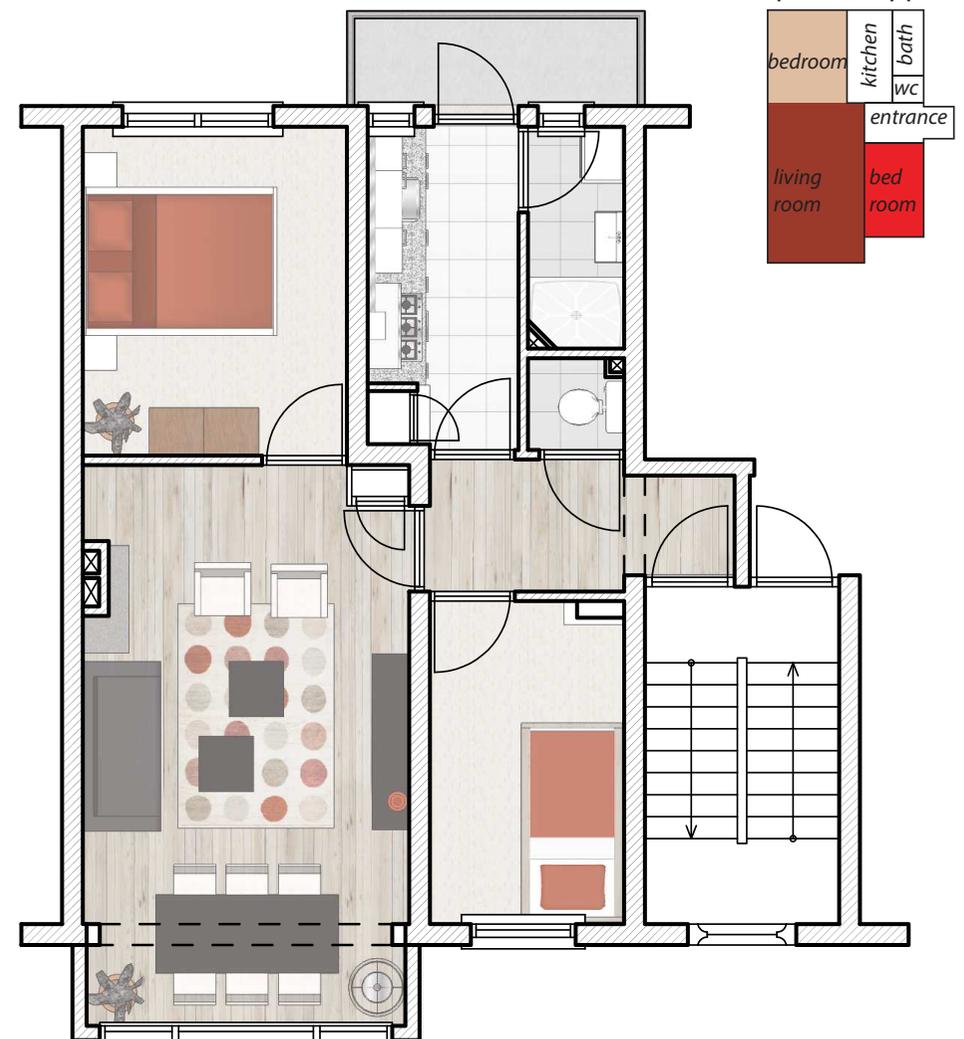
There are endless possibilities for dwelling plan changes when combining the eight extensions from the roadmap with all the different internal dwelling plan changes that are possible. I will discuss a few of them here: a relatively small intervention and a relative big change of the dwelling plan. In the attachment some more possible plans are included, but still this compilation of plans is not exhaustive.

The first example (floor plan 3) is of comparatively little impact on the dwelling plan. It takes the original floor plan (floor plan 1) as starting point and answers the wish for a bigger living room. Whereas in many dwellings in the Vogelbuurt this is solved by removing the ensuite doors and including the master bedroom in the living room (floor plan 2), in this example a one metre extension of the broad bay answers this wish. This extension adds about 3,5 square metres to the living room. With this extension, one is for example able to place a large dining table, to be used for example when having people over for dinner, or a desk for an office at home. The advantage of the extension compared to floor plan 2 is that the master bedroom stays intact in its spacious way (not a bed that just fits in) and the second bedroom is also still to be used as a bedroom, an office, or any other function.

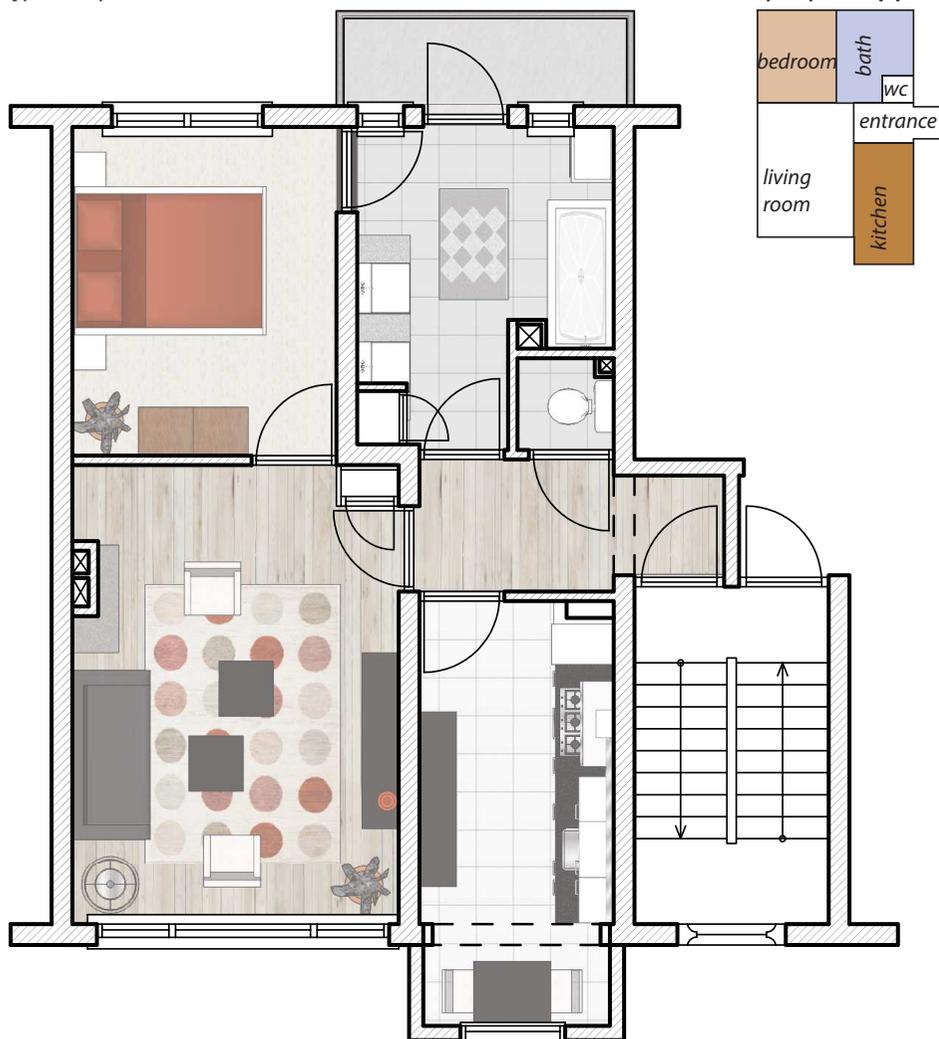
Floor plan 4 is a more extreme example of how the addition of an extension to the dwelling can change the floor plan. It shows how adding only 2 square metres to a dwelling can generate a floor plan with more spacious rooms for every function in the dwelling. Spacious in this sense does not necessarily mean greater in square metres, but more comfortable in use.

This example takes floor plan 2 as a starting point, with the large living room and the double bed located in the small bedroom. First step in the alternation of the floor plan is the addition of a one metre extension to the narrow bay, where the bedroom is located now. This room will become the kitchen, with the possibility for seating in the extension. Because the seating for dinner is provided for in the kitchen, there is no need for a dining table in the living room, which can thus be smaller. The location of the dining table will be converted back to its original function: the master bedroom. The bathroom, to conclude can more than double in size because the kitchen is moved to the other side of the hallway. The new floor plan may have a smaller living room, but all of the rooms are now much more comfortable and spacious to use.

The two examples discussed have shown how the extensions can immediately improve the dwelling plans or can be the catalyst for a more severe change in the dwelling plan. Depending on the wishes of the inhabitant, and of course the money and time this inhabitant is willing to spend, a large variety of dwelling plan changes can be thought of.



Floor plan 3: One metre extension broad bay



Interior changes with one metre box extension in the broad bay (as in floor plan 3)



Interior changes with one metre box extension in the narrow bay (as in floor plan 4)

Floor plan 4: One metre extension narrow bay

## 10. Materialisation

The Vogelbuurt was once designed as repetition of the same portiek dwellings that were identical to each other. Almost 70 years after completion, the appearance of the building blocks has changed quite a lot, and now my design proposal will implement another – much more drastically – change in this. In this chapter I will elaborate on these changes of the facades and how my design finds its place in this.

### Characterisation and changes over time

The appearance of the buildings in the Vogelbuurt is largely determined by the front facades, as the building block ends and back facades are respectively of relatively little presence or hardly visible from the streets. Also, the roofs are hardly seen from the streets.

The front facades can be characterized as a flat surface which is formed by an ongoing brick wall. This wall is punctured with holes in a grid pattern in which the windows are located. This grid is broken by the vertical accents of every separate portiek, consisting of two elements: a vertical window and a framed entrance door. Over the years, due to private ownership and, related to this, individual interventions, many window frames have been replaced. This has caused a variety of accents within the “brick wall”, but still the latter is very dominant. Because of the monotony caused by the repetition of the same elements, all placed in the same flat surface, the facades lower the quality of imageability and human scale. The variety of window frames, on the other hand, increases the quality of complexity.

### Extension “mould”

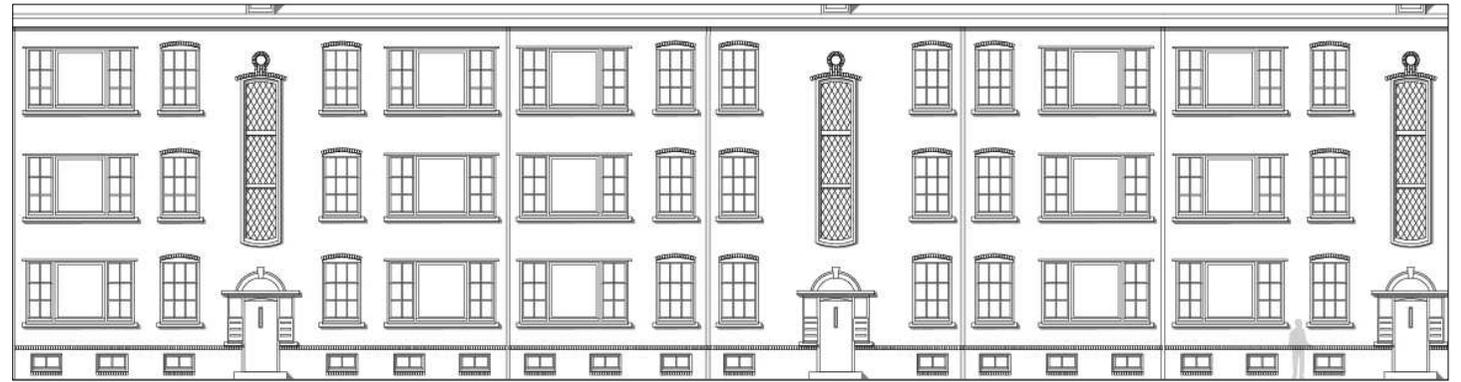
For the new designed extensions for the facade I continued the principle of variation within unity as it is now present in the form of the brick wall with different infills of window frames.

On the large scale, the material forms the unity between the different extensions – but also between old and new – by the use of brick strips, that do not contrast with the existing facade. Also the windows of the new extensions are located in the same grid as the current windows. I chose to do this because the extensions themselves bring a lot of variation already. To start with, there are eight different

extensions to choose from, that all vary in shape, but especially the depth they bring in the facade is a big change in the facade appearance. Because of this great variation in shape and form, I chose modest materials to fit with the existing. To express that the extensions are all part of a new “family” that is added to the existing, they all have a steel “bottom” which literally underline the new additions and form a new line on the existing facade. Also, this steel expresses the construction of the extension being a platform hanging from the facades.

### Extension “infill”

On a smaller scale, within the flat surface, window frames create of the variety, both in the existing and the new. The new extensions fall into the grid of the facade as an “offset” of a window that is already present. For the materialisation of the boxes and balconies I continued the brick “mould” with holes in it. The position of these holes depends on the position of the holes of the window frames in front of which the extensions are placed. In this way, the existing window frames are “extruded” out of the facade, but their x and y positions are still the same. Different is the height of the openings, which is extended to the floor. This to increase the quality of transparency but also for practical reasons: in case of the “box” extensions to let in more daylight, as the depth of the room behind increases, in the case of the balconies to be able to reach the balcony by a door. As seen in the roadmap, inhabitants can choose how to fill up the “holes” of the new extensions with windows. In the broad bay the outer and inner two windows have to be the same, to correspond with the narrow-wide-narrow principle present in the current windows in the broad bay. As goes for the extensions themselves, also the window frames form in shape, but are related by material. I chose for aluminium window frames for the practical reason of it being lightweight, but also because of the contrast with the existing facades caused by the very minimal depth of the window frames on the outside. In this way the new window frames form an aluminium “family” that varies in form but also distinguishes itself from the family of varied window frames in the existing facades.



Changes of facade. From top to bottom: original, current, future

# 11. Construction

This chapter will discuss the construction of the dwelling extensions. I will first explain the concept for the construction and subsequently get into execution details

## Construction considerations

When adding a new construction to an old one, the latter is often restricting possibilities for the new construction. In the case of the dwellings in the Vogelbuurt, which I want to extend by adding a new construction to the facade, there are three main structural things to consider.

One is the brick, self-supporting facade in which holes have to be realised. When doing this, thought has to be paid to how to support the facade still present above the new hole.

Secondly, the floors in the broad bay consist of wooden beams. In contrast to a concrete floor, wooden beams cannot take any tensile or pressure forces caused by the new extension. There thus has to be found another way to conduct these forces.

Lastly, there has to be paid attention to the weight of the new extension, as a significant addition of weight to the facade will require foundation strengthening.

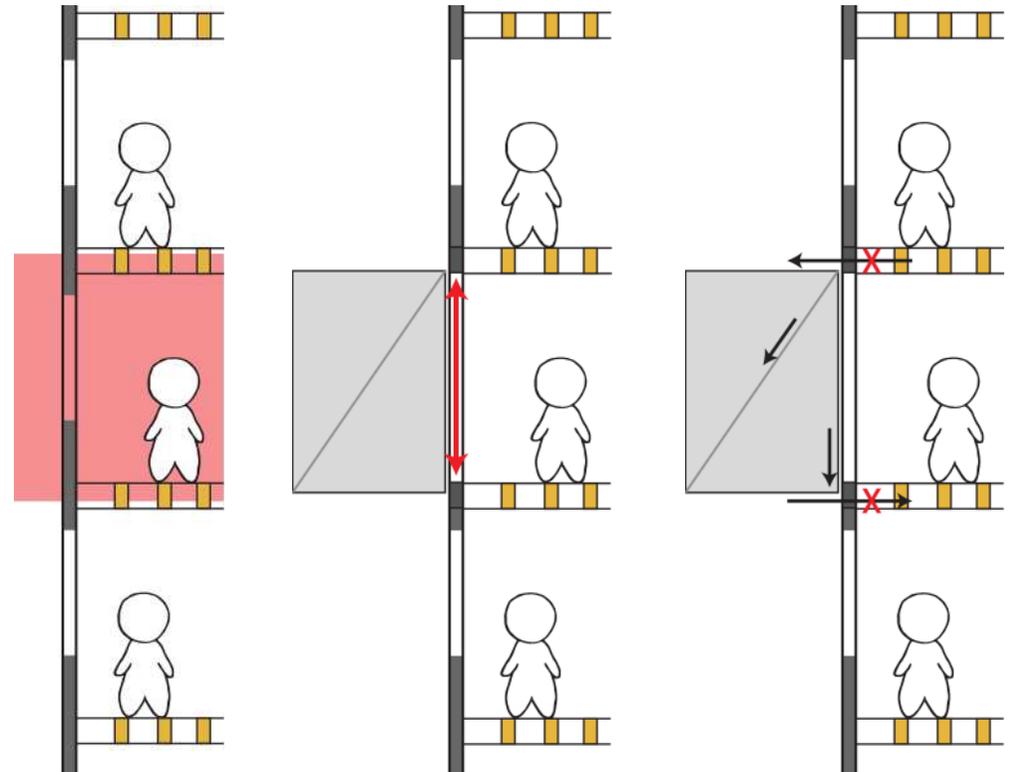
Apart from these “technical” considerations, there are some “social” aspects I concluded in my construction concept.

The idea underlying the dwelling extensions as a whole is that inhabitants should be able to extend their dwelling independently from other inhabitants: the possibility of individual initiatives. This principle has to be continued when thinking of a construction: after all, the neighbours should not experience any nuisance when the dwelling adjacent to them is altered. With this in mind principles like replacing the wooden floors with concrete floors to attach the extensions is not possible, because the floor of one dwelling is the ceiling of the other.

Apart from neighbours not experiencing any nuisance, I also aimed to reduce the nuisance for the inhabitants that extend their dwelling. This especially concerns the breakthrough of the facade, as the extension can easily be made prefab somewhere else.

When applying the traditional technique of strutting-breakthrough-placing beam to carry the facade above, the – usually steel – beam is embedded in mortar which has to set. While waiting for this, the hole in the facade is already there, forcing the dwellers to “wait” without a facade. I aimed to find a better solution for this.

To summarize the goals I set myself: the construction of the extensions should cause as little hindrance as possible for both executing and surrounding dwellers while considering the existing construction of brick facade and wooden floors.



Left: Construction zone only at dwelling of extension, Middle: Consider support of upper facade, Right: Consider forces by extensions on existing construction

### Construction process facade

While taking the considerations named above in mind, I came to an execution process of roughly three steps: prefabricate the extension in the factory (to cause little hindrance on site), prepare the hole in the facade by use of a Pynford beam and place the prefabricated extension using a fork truck. After this the extension can be finished from the inside.

I will now first explain how the facade is prepared for the extension and subsequently how the construction of the extension itself fits into this.

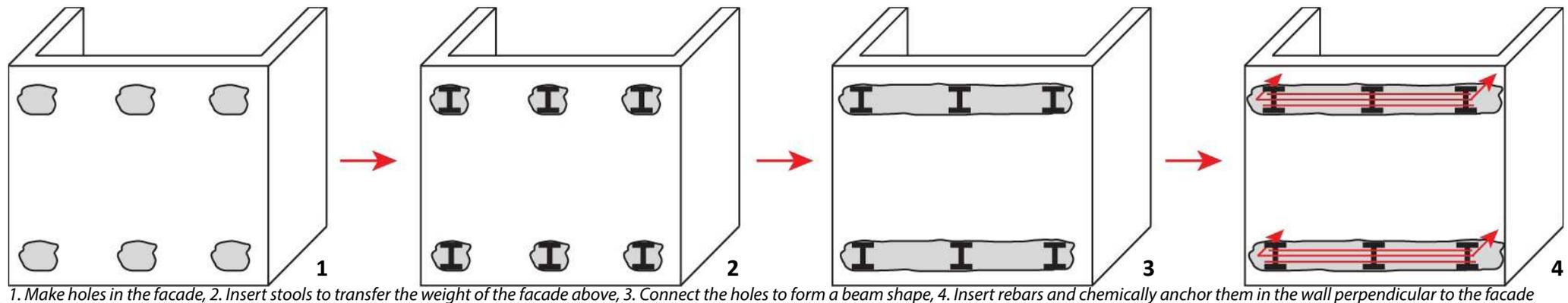
The preparation of the facade is done by starting with the construction of a Pynford beam. This Pynford beam is a (former) patented construction method of preparing an in situ cast concrete beam within an existing wall. The concrete beam hardens out and because it now carries the load of the facade above, the facade below the beam can be removed.



Preparation and placement of extension: 1. Preparing Pynford beam, 2. Breakthrough of facade + portal construction, 3. Placement of extension by fork truck followed by indoor finishing

First step in this principle is to prepare holes in the facade (1). They are placed at a distance of about one metre apart. Secondly, I section formed stools are placed in the holes (2). These are jacked up and set in mortar so they now function as struts that carry the weight of the facade above. Now the remaining brick between the stools can be removed (3). In the beam shaped hole that is now formed, reinforcement bars are placed that are chemically anchored in the separating walls of the building construction. This is done so that the walls will take the tensile forces caused by the extension hanging at the facade (4). Step (5) is to prepare a mould and cast the concrete beam. While the concrete hardens out, the inhabitants may have a wooden mould inside their living room, but this is significantly less disturbing as a complete hole in the facade. When the beam is set, the wall underneath the beam can be removed (6). Subsequently, a portal is formed by two U sections, pinned to the upper and lower Pynford beam (7). Finally, L-sections are attached to the lower Pynford beam to receive the extension (8). As shown in the diagrams, the Pynford beam is prepared above and below the hole-to-be. This is done so that, in the case of the neighbour below wanting to extend his dwelling, the facade below this beam can be easily removed. Also, this is an advantage for the neighbour below, who now only needs to prepare the lower beam.

[\*] In Dutch there is a distinction between “staalskeletbouw”, meaning a basic load bearing construction (“skeleton”) out of I-sections or such that is later to be filled with walls and “staalframebouw”, a lightweight construction with thin C-sections as a basis, that serves as a wall in itself.

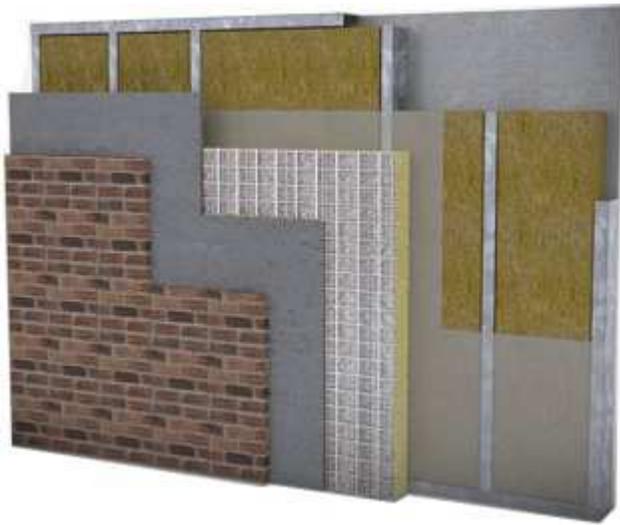


### Construction extension

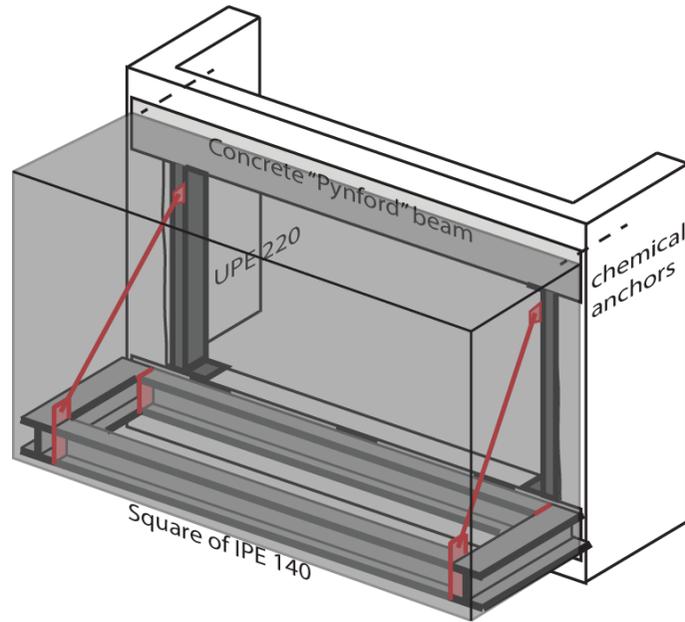
The construction of the extension consists basically of a platform, attached to the facade, on which a balcony or box-frame is placed.

The platform consists of a rectangle of I-sections welded together. The two end plates furthest removed from the facade are slightly longer, so a drawbar can be attached to them. These drawbars will be attached to the U sections in the facade once the extension is placed on the L-sections on the Pynford beam. Depending on whether it concerns a box or balcony, the drawbar is attached higher or lower. Tensile forces are now guided through the drawbars, via the U-sections and Pynford beam to the chemical anchors in the separating walls. Pressure strengths at the bottom are taken by the lower Pynford beam and transferred to the separating walls as well.

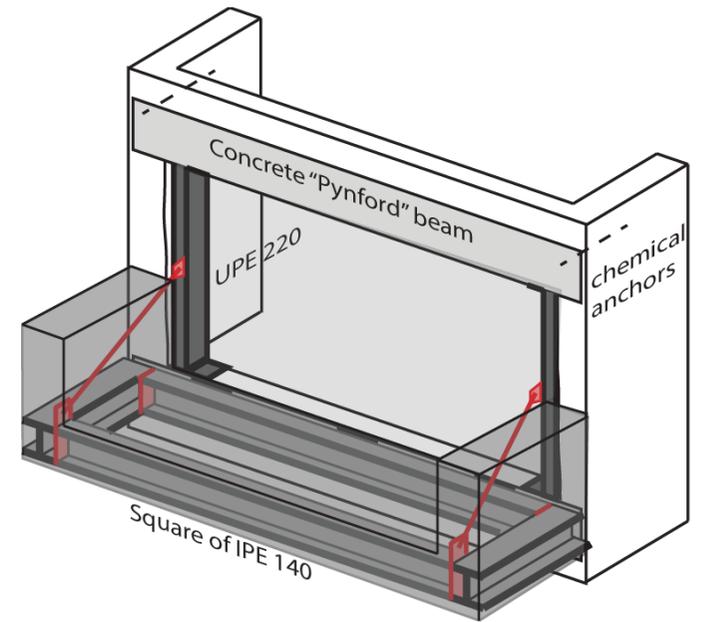
The construction forming the box or balcony is constructed out of “staalframebouw”\*: a steel frame of thin C-sections, filled with EPS insulation and clad with brick strips. This very lightweight construction makes sure there is not a significant amount of weight added to the facade, so strengthening of foundations is not needed. Moreover, when calculating the changes in weight, I found out that some extensions are even lighter than the solid brick wall they replace.



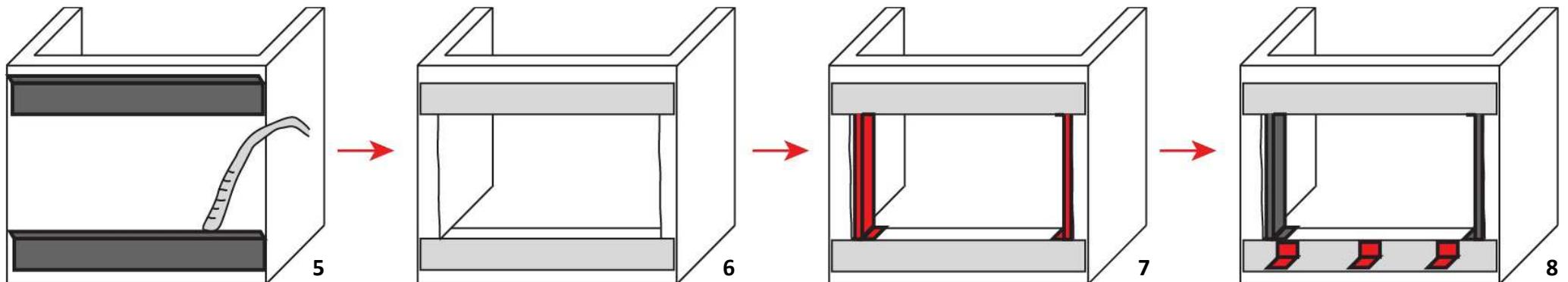
Steel frame-built construction with brick strip cladding



Inner construction of "box" extension



Inner construction of "balcony" extension



5. Apply moulding and pour concrete beam, 6. After hardening out of the concrete, the breakthrough of the wall is realised, 7. Insert UPE profiles to form a portal, 8. Attach L-sections to receive dwelling extensions

## 12. Costs

Apart from the spatial consequences, the costs of a dwelling extension are of influence when considering what dwelling extension one would like. This chapter gives a general overview of the costs of the eight dwelling extensions derived from the roadmap. The elaborate cost calculations can be found in the appendix. Note that these costs only include the dwelling extensions themselves, not any other changes in the dwelling plan that take place at the same time.

### Division of costs

For an overview of the elements that define the total costs, I made a subdivision and showed these in pie charts. There are three components in the charts: the pre-fab box itself (indicated in red), the costs “on site” for the preparation of the facade and the placement of the extension (indicated in pink) and taxes (grey). In the table there is also an addition which shows the difference in costs when including the option of a Climarad, chosen if inhabitants desire to include a climate system taking care of ventilation and heating in their extension as well.

What is noticeable are the proportions between the construction of the prefab extension and the costs made “on site”. Whereas the former depend on the components of the extension itself, the latter costs will be about the same for every extension as material and people have to be brought on site and the work to be done is the same. The dimensions of the hole in the facade to be made do not cause any differences in these costs. Because of this, it is relatively advantageous to choose a bigger extension as the costs for the hole in the facade “are there anyway”. For example, for an increase in costs of about 15%, a one metre extension becomes a two metre extension, which is thus an increase of square metres of 50%.

### Sharing costs

As the average value of the dwellings in the Vogelbuurt is nowadays relatively low (between €70.000 and €100.000 on average), an extension between €12.000 and €20,000 is quite an investment compared to the value of the dwelling. To lower the price per extension and thus per dwelling, sharing costs is a good option.

Firstly there is the sharing of costs for the preparation on site. Because the on-site work takes care of a significant part of the total costs, it would be very beneficial if inhabitants decide to extend their dwellings at the same moment.

If more holes in facades are prepared at once there will be a severe decline in costs per extension because the attributes and labour force for preparing holes in the facade are present in the Vogelbuurt anyway.

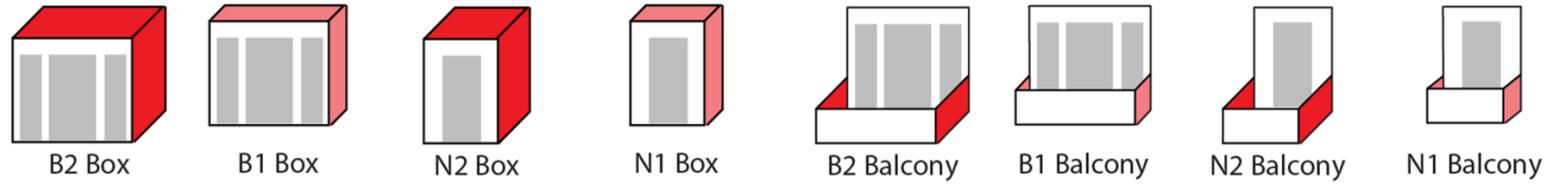
Secondly, costs per extension can be reduced if material components for the extensions can be bought with many at once. As is shown in elaborate cost overview in the appendix, the window frames for example take care for a significant part of the costs (in the transparent broad bay up to 40-50% of total material costs). Ordering more window frames at once will come with a discount and result in lower costs per extension.

### Other possibilities

Although the investment for the extension of dwellings may be relatively high, one has to see these extensions in a bigger context.

Firstly, from the viewpoint of the inhabitants themselves. When they are not satisfied with their dwelling, they have the choice to move, or to adjust their dwelling with the help of an extension. Pure theoretically, they have the choice to invest a maximum of €20.000 (not taking into account internal dwelling changes) compared to looking for a new dwelling that is worth a maximum of €20.000 more than their current dwelling. One can consider how much “better” a new dwelling can be, compared to the current one, with this increase of budget. Additionally, inhabitants may be dissatisfied with their dwelling, but like the location of their dwelling. In this case the extension has advantages over moving as well.

For the municipality/government the comparison can be made with a refurbishment or even demolish- and rebuilt of this “problem” neighbourhood. One does not need a lot of financial skills to understand this can never be done for an investment of let’s say €20.000 per dwelling. Elongating the life of the Vogelbuurt with dwelling extensions is, compared to this, a “cheap” option.



**COSTS EXTENSION**

€ 10.700	€ 8.500	€ 7.000	€ 5.400	€ 9.100	€ 8.100	€ 5.700	€ 5.000
----------	---------	---------	---------	---------	---------	---------	---------

pynford beam

€ 2.500	€ 2.500	€ 2.500	€ 2.500	€ 2.500	€ 2.500	€ 2.500	€ 2.500
---------	---------	---------	---------	---------	---------	---------	---------

breakthrough wall + U sections

€ 2.000	€ 2.000	€ 2.000	€ 2.000	€ 2.000	€ 2.000	€ 2.000	€ 2.000
---------	---------	---------	---------	---------	---------	---------	---------

placement of extension

€ 1.000	€ 1.000	€ 1.000	€ 1.000	€ 1.000	€ 1.000	€ 1.000	€ 1.000
---------	---------	---------	---------	---------	---------	---------	---------

**PREPARATION AND PLACEMENT**

€ 5.500	€ 5.500	€ 5.500	€ 5.500	€ 5.500	€ 5.500	€ 5.500	€ 5.500
---------	---------	---------	---------	---------	---------	---------	---------

**TOTAL COSTS**

€ 16.200	€ 14.000	€ 12.500	€ 10.900	€ 14.600	€ 13.600	€ 11.200	€ 10.500
----------	----------	----------	----------	----------	----------	----------	----------

**TOTAL INCLUDING TAX**

€ 18.400	€ 15.900	€ 14.200	€ 12.400	€ 16.600	€ 15.400	€ 12.700	€ 11.900
----------	----------	----------	----------	----------	----------	----------	----------

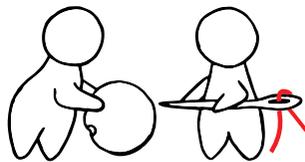
*including climarad (€2000)*

€ 20.700	€ 18.200	€ 16.500	€ 14.600	€ 18.800	€ 17.700	€ 15.000	€ 14.100
----------	----------	----------	----------	----------	----------	----------	----------



Summarized overview of costs for dwelling extensions

# Design in greater context



## 13. Roodborststraat in greater context

To conclude this graduation report I would like to say something about my plans for the Vogelbuurt in a greater context. In other words, how generic are my plans? This chapter will deal with the plans on the urban scale by looking at how the approach for the Roodborststraat can be beneficial in other neighbourhoods as well. The next chapter will look into the genericity on the architectural scale: the dwelling extensions.

### Where and why to apply

The approach for the Roodborststraat can be of interest for streets that have a similar character to this street and are located in a neighbourhood with similar issues as the Vogelbuurt.

Physically, the street to apply the Roodborststraat design to should be located in a neighbourhood with long, parallel residential streets of stacked dwellings, where the street itself is a non-functional street perpendicular to and connecting these residential streets. Non-functional in this context means that there are no active functions present, like dwellings, shops, public gardens or even doors to access them. In this context, a design similar to the Roodborststraat can be the answer to a lack of private outdoor space, result of the stacked housing, and a lack of shared public space. In other words: a lack of close-by accessible green in the neighbourhood. Converting the street to a shared public space like the Roodborststraat, it can increase the quality of public space not only in that street but in the whole neighbourhood. Also, it can increase social cohesion when inhabitants share this space. Please note that the design is purely physical and that – depending on the neighbourhood – a social program like the adoption of the Vogelbuurt might be necessary.

Residential street



Non functional perpendicular street



Streets similar to Roodborststraat

### Different degrees of “Roodborststraat”

Streets similar to the Roodborststraat are present in the Netherlands mostly in larger cities where stacked housing in strip typology answered the need for quick and much housing in times of housing shortage. One example is found in the neighbourhood next to the Vogelbuurt in Carnisse, but elsewhere in Rotterdam or in Amsterdam similar streets are present as well.

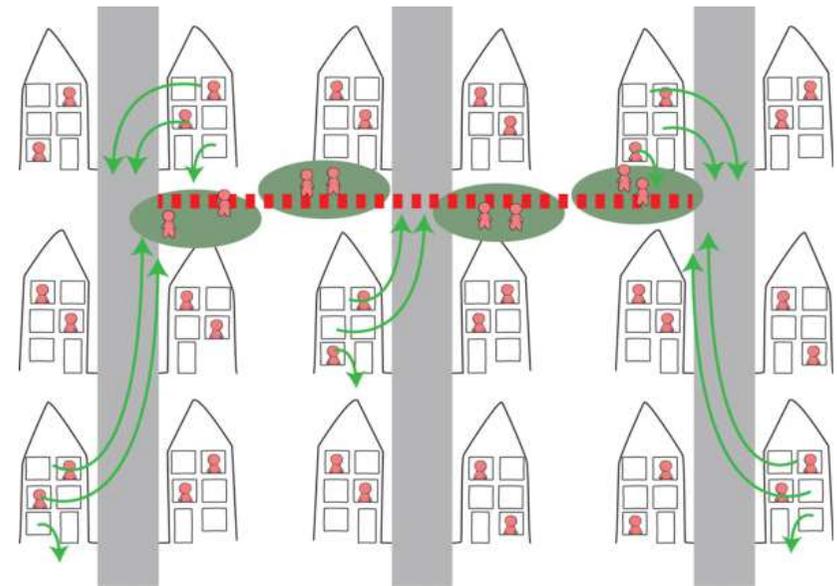
Apart from streets that are similar to the Roodborststraat in its present appearance, there are also examples where a street of shared public space was planned initially, like the Lidewijdepad in Amsterdam that is shown here in both its original state and its current state.

Another possibility is that streets like the Roodborststraat are created. An example of this can be found in Rotterdam Overschie where a neighbourhood of portiek dwellings was thoroughly refurbished, taking the public space into account as well. To interrupt the ongoing residential streets, some building blocks were removed to create a route perpendicular to them. To show the history of the place, the facade of one of the demolished blocks is conserved.

This demolition of building blocks may sound a bit extreme but is still very modest compared to the City Movement in the 1970ies (<http://rotterdam70.nl/>). The “Oude Westen” (Old West) in the city centre of Rotterdam is an example of this. To bring more spaciousness and ease of move in this neighbourhood consisting of long narrow streets, many breakthroughs were realised, creating a whole new series of public spaces. Nice to mention is that apart from breakthroughs in the form of lines or routes, also a series of squares was realised that form “living rooms” in the neighbourhood.

When considering all these different “degrees of Roodborststraat” present in the Netherlands, one can conclude that my design is still very modest, as I ‘only’ convert a street that is already present.

It is not unlikely though that more severe interventions are implemented in the Vogelbuurt. It would for example be an option to demolish a portiek on the corner of the Roodborststraat to create a “living room” like in the Oude Westen, or to create a new connection between residential streets by demolishing two opposite portieken that are bordering with their gardens. The restriction in the Vogelbuurt is of course the private ownership which makes demolition of a whole portiek unlikely, but by looking purely at the physical environment, options like this could be of great increase to the quality of public space.



*A “Roodborststraat” can answer the lack of private and shared outdoor space and increase the quality of public space in a neighbourhood*

Residential street



Amsterdam Bos en Lommer

Non functional perpendicular street



Residential street

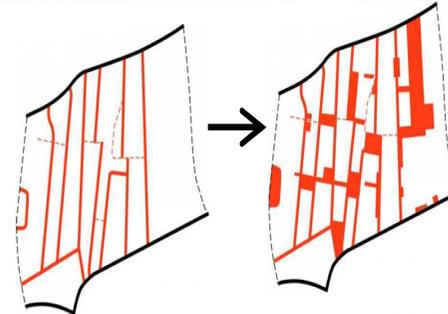


Oude Westen Rotterdam

Non functional perpendicular street



Rotterdam Overschie



De Zwarte Hond, R'70 (2010)



Top: planned "Roodborststraat" in Amsterdam Bos en Lommer  
Bottom: created "Roodborststraat" in Rotterdam Overschie

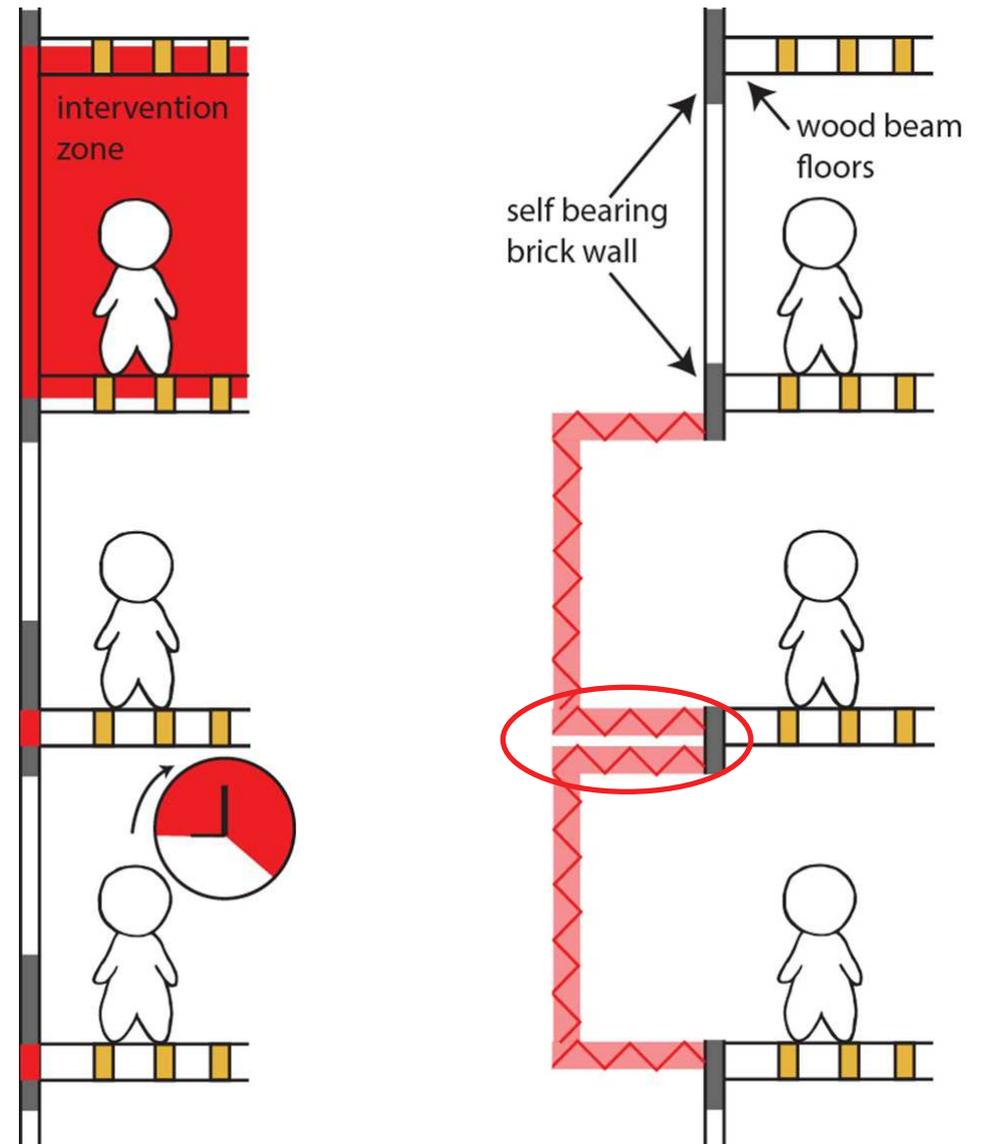
Oude Westen Rotterdam: many breakthroughs  
Bottom left: change in open spaces due to City Movement

## 14. Dwelling extensions in greater context

As I did for the Roodborststraat in the previous chapter, I will explain in this chapter how the dwelling extensions proposed in my design can be of use in a greater context. I will first discuss the conditions in which the dwelling extension can be of value and secondly discuss the advantages and disadvantages of my design proposal compared to other possible dwelling extensions.

### Where and why to apply

The dwelling extensions as proposed in my design are designed for traditionally built apartments. When applying the design to other buildings than the ones in the Vogelbuurt, it would thus be logical to imply them to structures that are similar to these buildings, if one does not want to alternate the design (too much). A rough indication of these particular group of buildings is that there are about 523.000 portiek dwellings in the Netherlands built before 1964 (AgentschapNL 2013), and that thus have a great possibility of being built roughly in the same way as the dwellings in the Vogelbuurt. They are also probable to have a low standard or lack of insulation and dwelling plans that may be too small for current day standards. The dwelling extensions as proposed could answer the need to increase the amount of square metres in the dwellings and subsequently generate a change in dwelling plan, as shown for the Vogelbuurt dwellings in chapter 9. When it comes to insulation, the extensions can also be beneficial, as they are highly insulated. Insulation in itself should not be a reason to extend a dwelling, but if inhabitants decide to insulate their dwelling (which is not a rare decision in the mostly uninsulated dwellings referred to) and are in need of extra space, why not do both at once? In this I do have to make the note that attention has to be paid to the consequences of insulating only a part of the facade with the new extensions. This is something I did not look into for my design, but, with the risk of internal condensation where old and new meet, this should definitely be sought out further. On a larger scale, dwelling extensions, combined with the introduction of transition zones, can be of great value to the quality of public space in the streets. The dwelling extensions – with their introduction of a new dimension in the mostly flat surfaces of the facade – increase the qualities of imageability and enclosure in the street. The transition zones, when filled with individual expressions of the private realm, will increase the qualities of human scale and complexity.



Left: Advantages: interventions without disturbing neighbours + quick plug-and-play installation  
 Right: Possible disadvantages: specific construction type and "double" construction

### **Advantages and disadvantages**

The dwelling extensions as proposed are designed for a very specific situation, focussing on a situation of private ownership of stacked dwellings and based on a traditional construction of wooden floors and brick facades. This specificity brings with it both advantages and disadvantages over other thinkable dwelling extensions.

When applied to stacked dwellings with private ownership, the design as proposed is of good use as it is based on providing an improvement of the dwelling that can be executed without the permission or disturbance of neighbours (even without private ownership, the idea of plug-and-play of prefab extensions is always an advantage for the inhabitants who are now not disturbed for a long time).

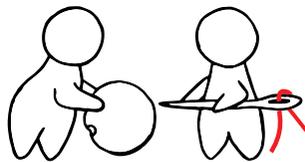
The other side of this is that the construction as proposed would not be logical to apply to more dwellings at once, for example when a dwelling corporation decides to apply the same extension to every dwelling in the portiek block they own. In this case there would be applied twice the construction that is theoretically needed, as every dwelling has its own floors and walls, resulting in double floors and walls where two extensions meet. I did design details for when two neighbouring inhabitants decide to extend simultaneously, leaving out the double construction, but this is an adjustment of a principle designed from a total different point of view. Also, the construction of suspending the floors of the extensions from the facade could be replaced by a much simpler construction for example in the form of a "wine rack" to be filled up.

When looking at the construction principle of the boxes, it is based on buildings built in a traditional way with a self-bearing brick facade and wooden floors. Because of this I came up with the idea of the Pynford beam to support the brick facade and the distribution forces to the loadbearing walls instead of the wooden floors that are not designed to take any horizontal forces. When the dwelling extensions are for example applied to apartments constructed with concrete tunnelling, filled with removable facades, the Pynford beam construction is both devious and not needed. A much simpler way of attaching the boxes to the existing construction can thus be used.

The genericity of the dwelling extensions is that the lightweight construction of steel frame and EPS insulation does not add a significant amount of weight to the facade. Moreover, when considering that a brick wall has to be removed to place the extension, the total building weight may even become less. The lightweight construction makes sure that in many cases foundation strengthening of the existing construction is not needed.

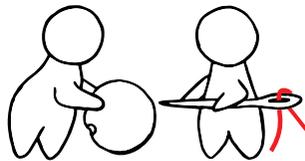
To summarize: the dwelling extensions as proposed are designed for a very specific construction and ownership situation. When these two elements differ in the contemplated building block to apply them to, alternations in construction are not unlikely. The principle of plug-and-play and the lightweight construction though, are to be seen as an advantage in every situation.

# Literature list



- Alexander, C., Ishikawa, S., Silverstein, M., & Jacobson, M. (1977). *A pattern language; towns, buildings, construction*. New York: Oxford University Press.
- Certeau de, M. (1988). *The practice of everyday life*. Berkeley: University of California Press.
- Connelly, L. M. (2010). What is phenomenology. *Medsurg Nursing*, 19(2), 127-128.
- Dorst van, M. J. (2005). *Een duurzaam leefbare woonomgeving fysieke voorwaarden voor privacyregulering*. Delft: Eburon.
- Ewing, R., Handy, S., Brownson, R. C., & Clemente, O. (2005). Measuring urban design qualities, an illustrated field manual: Active Living Research Program, Robert Wood Johnson Foundation.
- Ewing, R., Handy, S., Brownson, R. C., Clemente, O., & Winston, E. (2006). Identifying and measuring urban design qualities related to walkability. *Journal of Physical Activity & Health*, 3, S223.
- Gehl, J. (2010). *Cities for people*. Washington: Island Press.
- Graaff, P. (2012). Kenniscafé Bestaande Voorraad – Waardeontwikkeling, is die er wel in Carnisse? Rotterdam: Veldacademie.
- Jacobs, A. B. (1993). *Great streets*. Cambridge, Mass.: MIT Press.
- Jacobs, J. (1961). *The death and life of great American cities*. New York: Random House.
- Klaasen, I. T. (2005). Putting time into the picture: The relation between space and time in urban design and planning. In E. D. Hulsbergen, I. T. Klaasen & I. Kriens (Eds.), *Shifting sense in spatial planning* (pp. 181-195). Amsterdam: Techne Press.
- Lynch, K. (1960). *The image of the city*. Cambridge Massachusetts: MIT Press.
- Marissing van, E. (2008). Buurten bij beleidsmakers: stedelijke beleidsprocessen, bewonersparticipatie en sociale cohesie in vroeg-naoorlogse stadswijken in Nederland. *Netherlands Geographical Studies*, 377.
- Nes van, A. (2012). Between Heaven and Earth: Christian Norberg-Schulz's contribution to the phenomenology of place and architecture. *Environmental and Architectural Phenomenology*, 23(1).
- Newman, O. (1972). *Defensible space crime prevention through urban design*. New York: Macmillan.
- Programmabureau NPRZ. (2012). *Nationaal Programma Rotterdam Zuid; Uitvoeringsplan 2012-2014*.
- Redactie AD. (2013, 8 april). Rotterdammer (29) getroffen door politiekogel, *Algemeen Dagblad*.
- Solà Morales de, M. (1992). Openbare en collectieve ruimte. De verstedelijking van het privé domein als nieuwe uitdaging. *Oase*(33), 3-8.
- Steenbergen van, F., & Wittmayer, J. (2012). Carnisse in transitie? Een verkenning van het verleden, het heden en de toekomst van een Rotterdamse wijk. Rotterdam: Dutch Research Institute For Transitions (DRIFT), Erasmus University Rotterdam.
- Steunpunt Wonen. (2002). De rollen omgedraaid.
- Steunpunt Wonen. (2004). Particuliere Participatie.

# Appendix



# Contents of Appendix

Quality test score sheets of current appearance street

- Score sheets residential streets

- Score sheets non-residential streets

Dwelling plan changes possibilities

Indication of costs for extensions

P4 Posters

- Poster 1: research, strategy, residential street design

- Poster 2: intervention overview, Roodborststraat design

- Poster 3: extension roadmap, dwelling plan changes, placement process

- Poster 4: extension details, construction, new facade impression

P5 Posters: technical drawings

- Poster 1: street sections and existing urban plan

- Poster 2: facades, dwelling plans and new urban plan

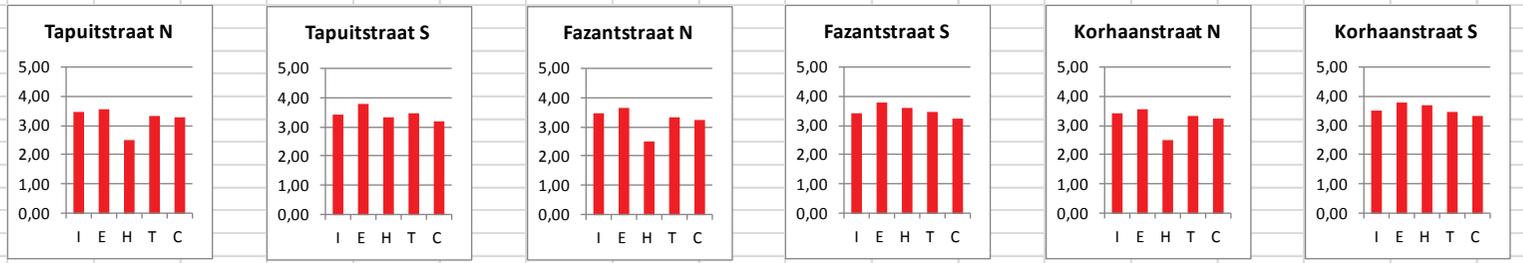
- Poster 3: cross sections and details

- Poster 4: dwelling extensions x8: elevations, plans and details

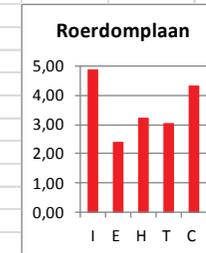
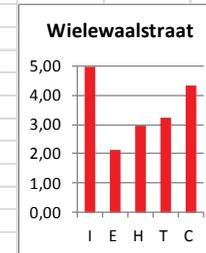
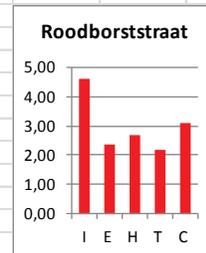
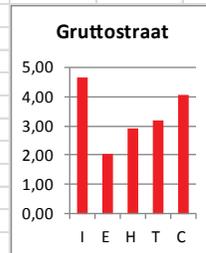
**measuring urban design qualities scoring sheet**

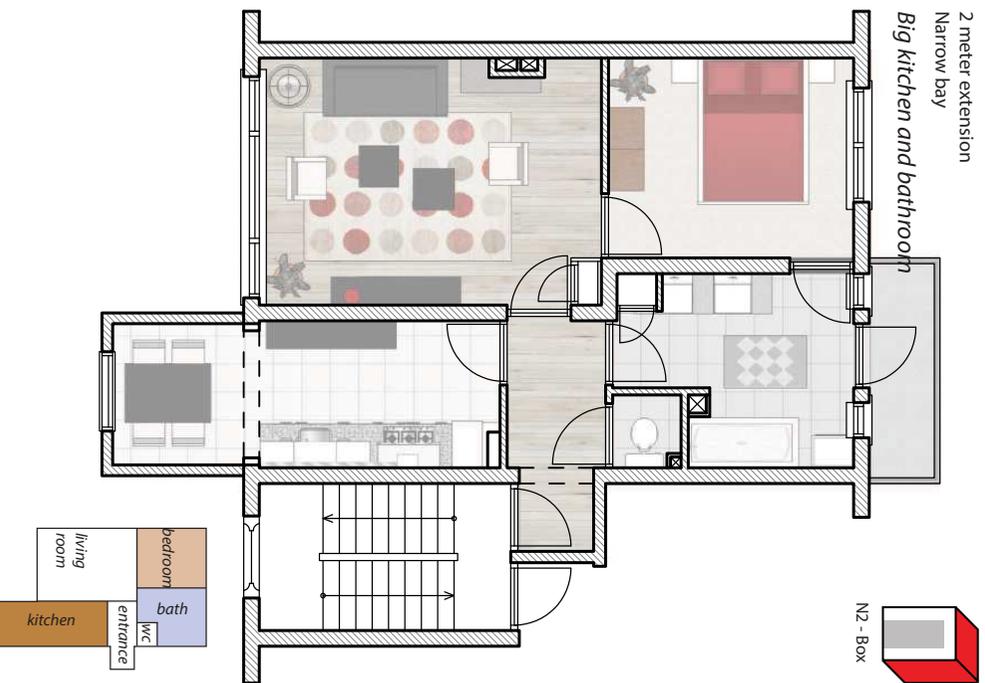
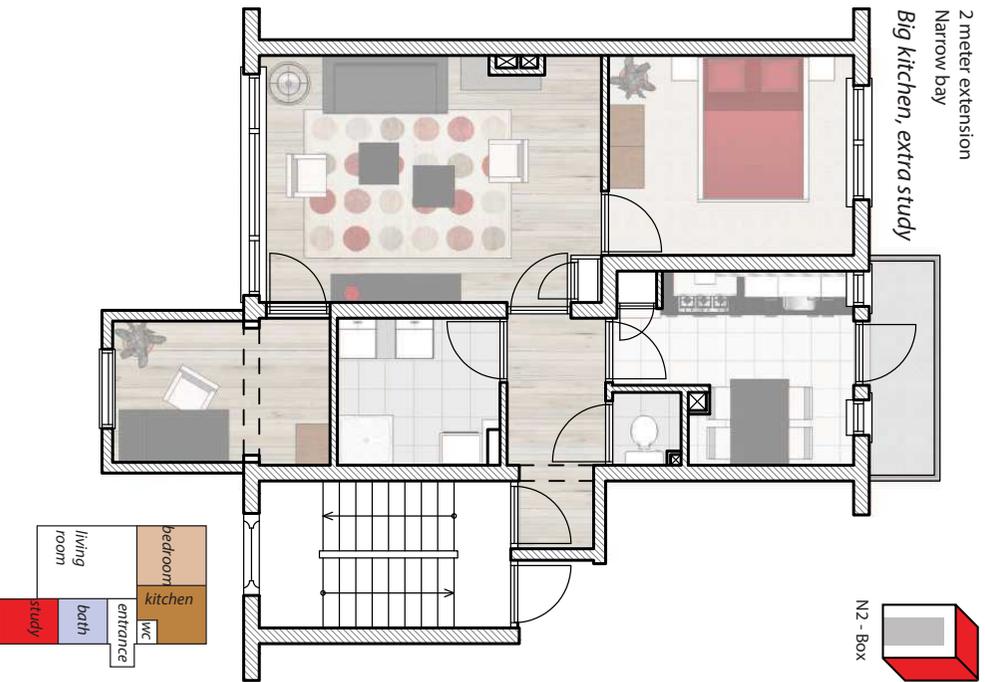
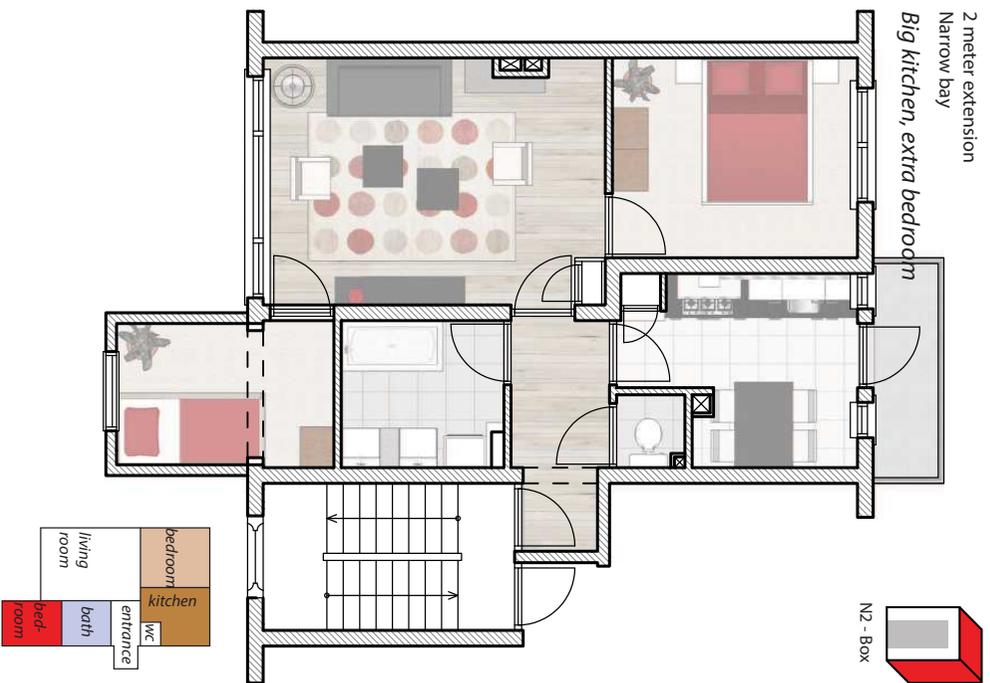
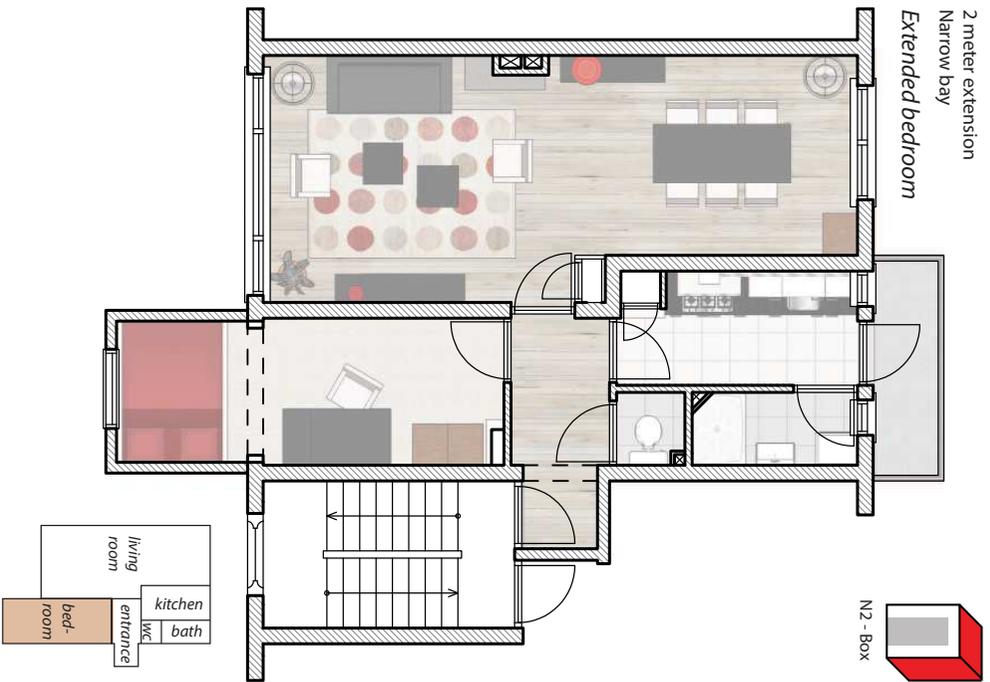
auditor: susanne de zwart  
date & time: 20 sept 2013, 1 pm

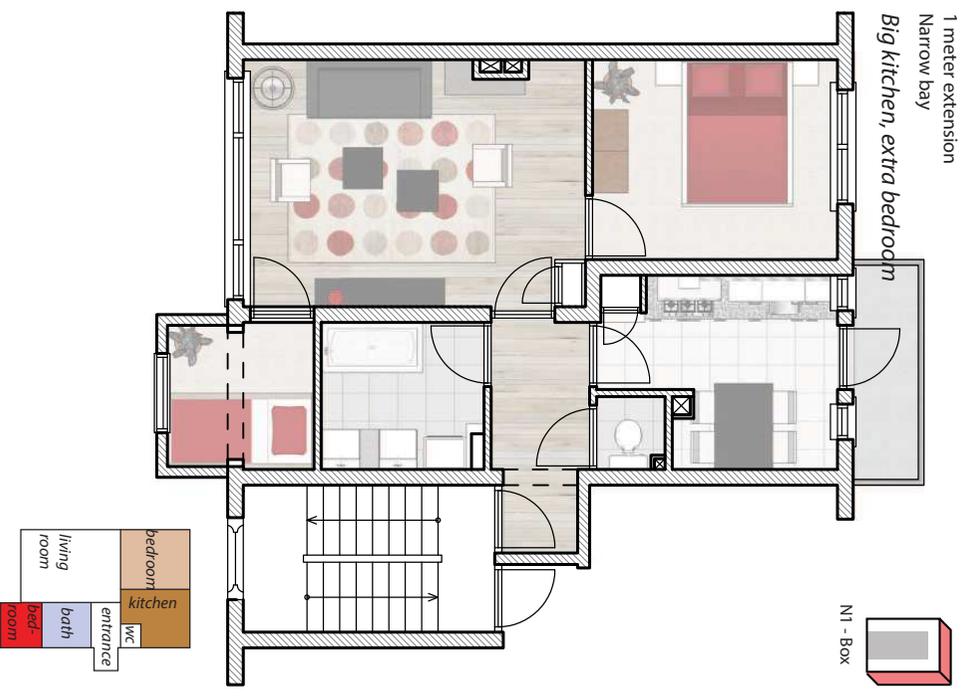
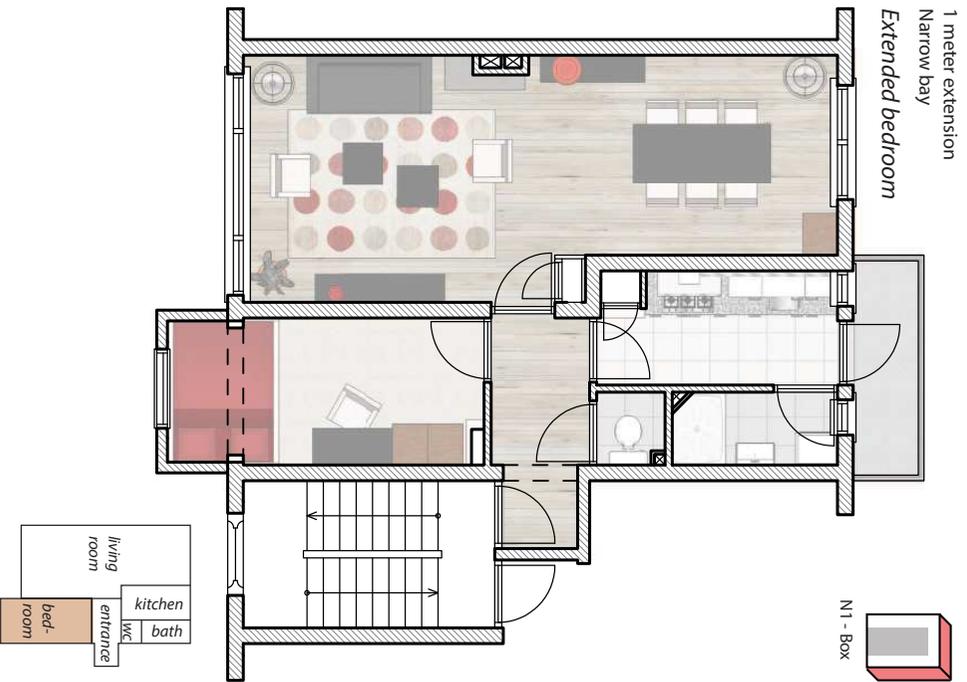
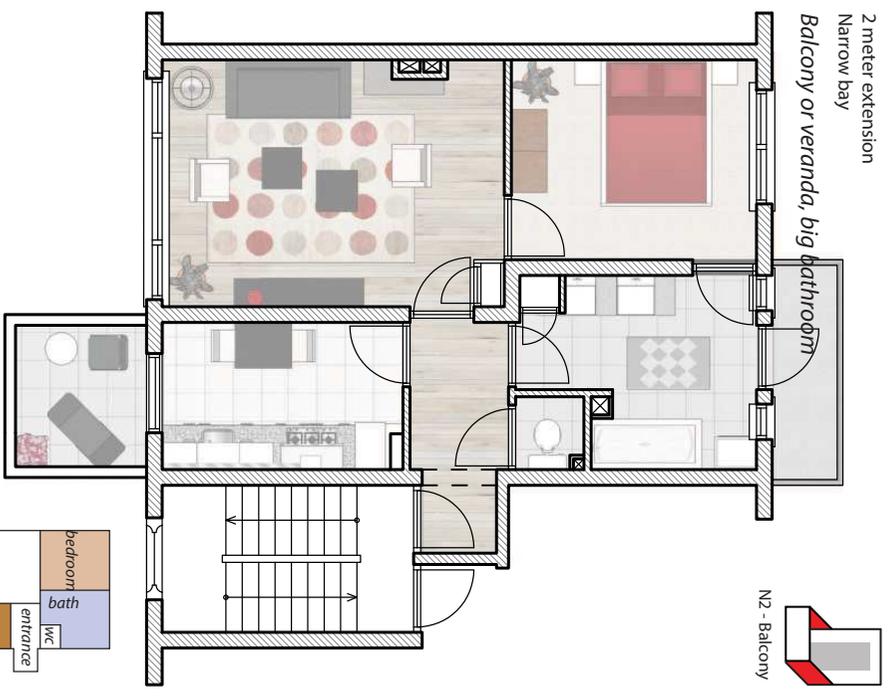
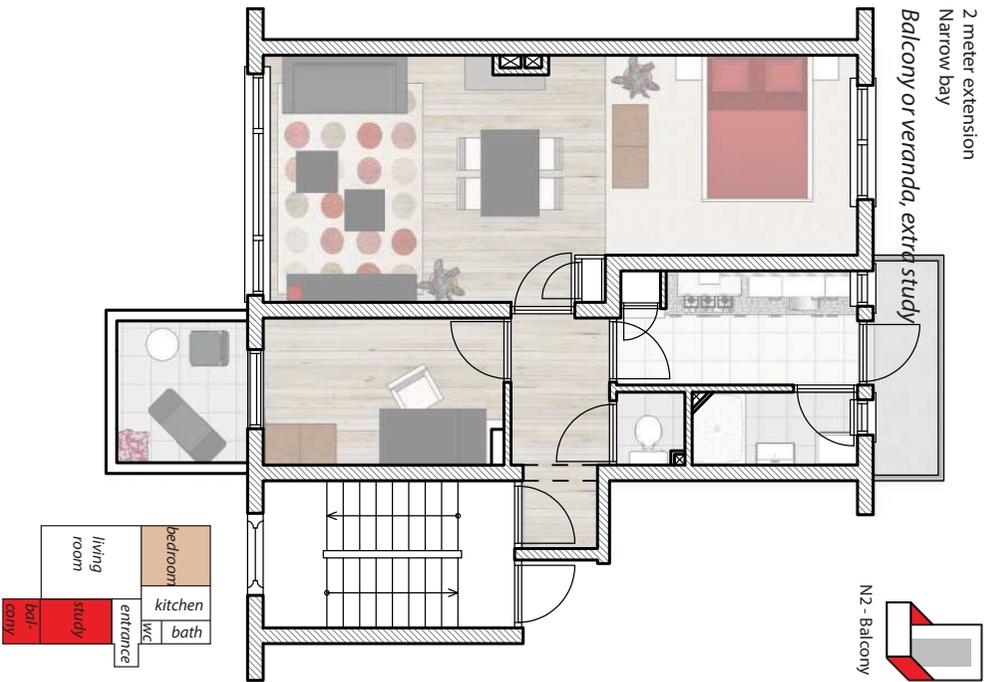
step	Tapuistraat North			Tapuistraat South			Fazantstraat North			Fazantstraat South			Korhaanstraat North			Korhaanstraat South																				
	recorded value	multiplier	product	recorded value	multiplier	product	recorded value	multiplier	product	recorded value	multiplier	product	recorded value	multiplier	product	recorded value	multiplier	product																		
<b>imageability</b>																																				
1. number of courtyards, plazas, and parks (both sides, within study area)	0	0,41	0,00	0	0,41	0,00	0	0,41	0,00	0	0,41	0,00	0	0,41	0,00	0	0,41	0,00																		
2. number of major landscape features (both sides, beyond study area)	0	0,72	0,00	0	0,72	0,00	0	0,72	0,00	0	0,72	0,00	0	0,72	0,00	0	0,72	0,00																		
3. proportion historic building frontage (both sides, within study area)	1	0,97	0,97	1	0,97	0,97	1	0,97	0,97	1	0,97	0,97	1	0,97	0,97	1	0,97	0,97																		
4. number of buildings with identifiers (both sides, within study area)	0	0,11	0,00	0	0,11	0,00	0	0,11	0,00	0	0,11	0,00	0	0,11	0,00	0	0,11	0,00																		
5. number of buildings with non-rectangular shapes (both sides, within study area)	2	0,08	0,16	2	0,08	0,16	2	0,08	0,16	2	0,08	0,16	2	0,08	0,16	2	0,08	0,16																		
6. presence of outdoor dining (your side, within study area)	0	0,64	0,00	0	0,64	0,00	0	0,64	0,00	0	0,64	0,00	0	0,64	0,00	0	0,64	0,00																		
7. number of people (your side, within study area)	4	0,02	0,08	1	0,02	0,02	3	0,02	0,06	2	0,02	0,04	2	0,02	0,04	5	0,02	0,10																		
8. noise level (both sides, within study area)	1	-0,18	-0,18	1	-0,18	-0,18	1	-0,18	-0,18	1	-0,18	-0,18	1	-0,18	-0,18	1	-0,18	-0,18																		
	add constant		+2,44	add constant		+2,44	add constant		+2,44	add constant		+2,44	add constant		+2,44	add constant		+2,44																		
	<b>imageability score</b>			<b>3,47</b>			<b>3,41</b>			<b>3,45</b>			<b>3,43</b>			<b>3,43</b>			<b>3,49</b>																	
<b>enclosure</b>																																				
1. number of long sight lines (both sides, beyond study area)	1	-0,31	-0,31	0	-0,31	0,00	1	-0,31	-0,31	0	-0,31	0,00	1	-0,31	-0,31	0	-0,31	0,00																		
2a. proportion street wall (your side, beyond study area)	1	0,72	0,72	1	0,72	0,72	1	0,72	0,72	1	0,72	0,72	1	0,72	0,72	1	0,72	0,72																		
2b. proportion street wall (opposite side, beyond study area)	1	0,94	0,94	1	0,94	0,94	1	0,94	0,94	1	0,94	0,94	1	0,94	0,94	1	0,94	0,94																		
3a. proportion sky (ahead, beyond study area)	0,25	-1,42	-0,35	0,3	-1,42	-0,43	0,2	-1,42	-0,28	0,3	-1,42	-0,43	0,25	-1,42	-0,35	0,3	-1,42	-0,43																		
3b. proportion sky (across, beyond study area)	0	-2,19	0,00	0	-2,19	0,00	0	-2,19	0,00	0	-2,19	0,00	0	-2,19	0,00	0	-2,19	0,00																		
	add constant		+2,57	add constant		+2,57	add constant		+2,57	add constant		+2,57	add constant		+2,57	add constant		+2,57																		
	<b>enclosure score</b>			<b>3,56</b>			<b>3,80</b>			<b>3,63</b>			<b>3,80</b>			<b>3,56</b>			<b>3,80</b>																	
<b>human scale</b>																																				
1. number of long sight lines (both sides, beyond study area)	1	-0,74	-0,74	0	-0,74	0,00	1	-0,74	-0,74	0	-0,74	0,00	1	-0,74	-0,74	0	-0,74	0,00																		
2. proportion windows at street level (your side, within study area)	0,35	1,10	0,39	0,45	1,10	0,50	0,35	1,10	0,39	0,45	1,10	0,50	0,35	1,10	0,39	0,45	1,10	0,50																		
3. average building heights (your side, within study area)	3	-0,003	-0,01	3	-0,003	-0,01	3	-0,003	-0,01	3	-0,003	-0,01	3	-0,003	-0,01	3	-0,003	-0,01																		
4. number of small planters (your side, within study area)	4	0,05	0,19	3	0,05	0,14	3	0,05	0,14	8	0,05	0,38	3	0,05	0,14	12	0,05	0,56																		
5. number of pieces of street furniture and other street items (your side, within study area)	2	0,04	0,08	2	0,04	0,08	3	0,04	0,12	3	0,04	0,12	3	0,04	0,12	1	0,04	0,04																		
	add constant		+2,61	add constant		+2,61	add constant		+2,61	add constant		+2,61	add constant		+2,61	add constant		+2,61																		
	<b>human scale score</b>			<b>2,51</b>			<b>3,32</b>			<b>2,51</b>			<b>3,59</b>			<b>2,51</b>			<b>3,70</b>																	
<b>transparency</b>																																				
1. proportion windows at street level (your side, within study area)	0,35	1,22	0,43	0,45	1,22	0,55	0,35	1,22	0,43	0,45	1,22	0,55	0,35	1,22	0,43	0,45	1,22	0,55																		
2. proportion street wall (your side, beyond study area)	1	0,67	0,67	1	0,67	0,67	1	0,67	0,67	1	0,67	0,67	1	0,67	0,67	1	0,67	0,67																		
3. proportion active uses (your side, within study area)	1	0,53	0,53	1	0,53	0,53	1	0,53	0,53	1	0,53	0,53	1	0,53	0,53	1	0,53	0,53																		
	add constant		+1,71	add constant		+1,71	add constant		+1,71	add constant		+1,71	add constant		+1,71	add constant		+1,71																		
	<b>transparency score</b>			<b>3,34</b>			<b>3,46</b>			<b>3,34</b>			<b>3,46</b>			<b>3,34</b>			<b>3,46</b>																	
<b>complexity</b>																																				
1. number of buildings (both sides, beyond study area)	2	0,05	0,09	2	0,05	0,09	2	0,05	0,09	2	0,05	0,09	2	0,05	0,09	2	0,05	0,09																		
2a. number of basic building colors (both sides, beyond study area)	1	0,23	0,23	1	0,23	0,23	1	0,23	0,23	1	0,23	0,23	1	0,23	0,23	1	0,23	0,23																		
2b. number of accent colors (both sides, beyond study area)	2	0,12	0,23	2	0,12	0,23	2	0,12	0,23	2	0,12	0,23	2	0,12	0,23	2	0,12	0,23																		
3. presence of outdoor dining (your side, within study area)	0	0,42	0,00	0	0,42	0,00	0	0,42	0,00	0	0,42	0,00	0	0,42	0,00	0	0,42	0,00																		
4. number of pieces of public art (both sides, within study area)	0	0,29	0,00	0	0,29	0,00	0	0,29	0,00	0	0,29	0,00	0	0,29	0,00	0	0,29	0,00																		
5. number of people (your side, within study area)	4	0,03	0,12	1	0,03	0,03	3	0,03	0,09	2	0,03	0,06	2	0,03	0,06	5	0,03	0,16																		
	add constant		+2,61	add constant		+2,61	add constant		+2,61	add constant		+2,61	add constant		+2,61	add constant		+2,61																		
	<b>complexity score</b>			<b>3,28</b>			<b>complexity score</b>			<b>3,19</b>			<b>complexity score</b>			<b>3,22</b>			<b>complexity score</b>			<b>3,22</b>			<b>complexity score</b>			<b>3,31</b>			<b>complexity score</b>			<b>3,31</b>		

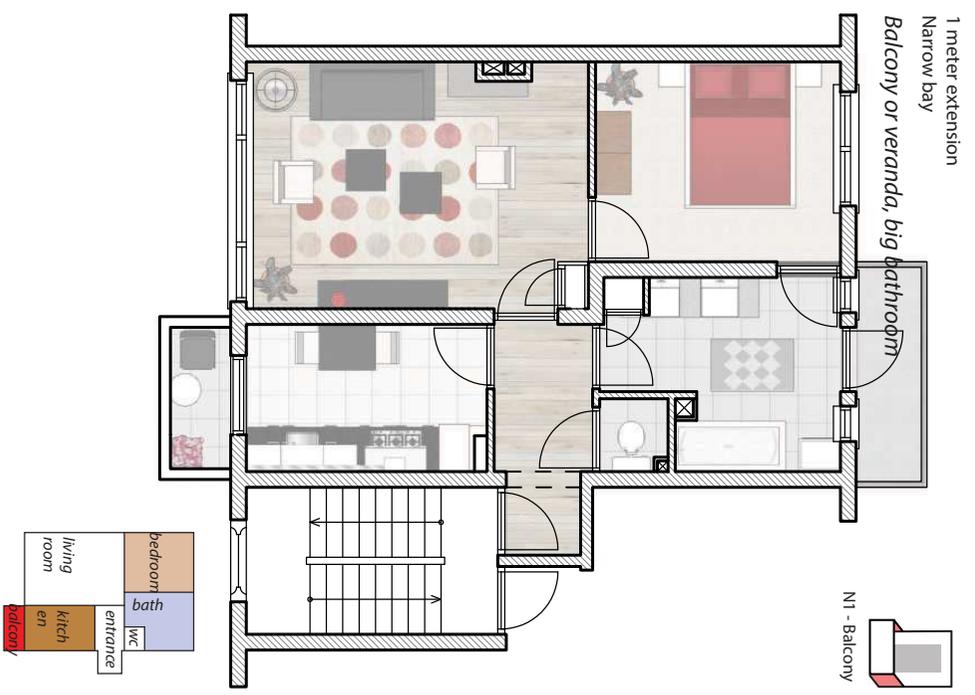
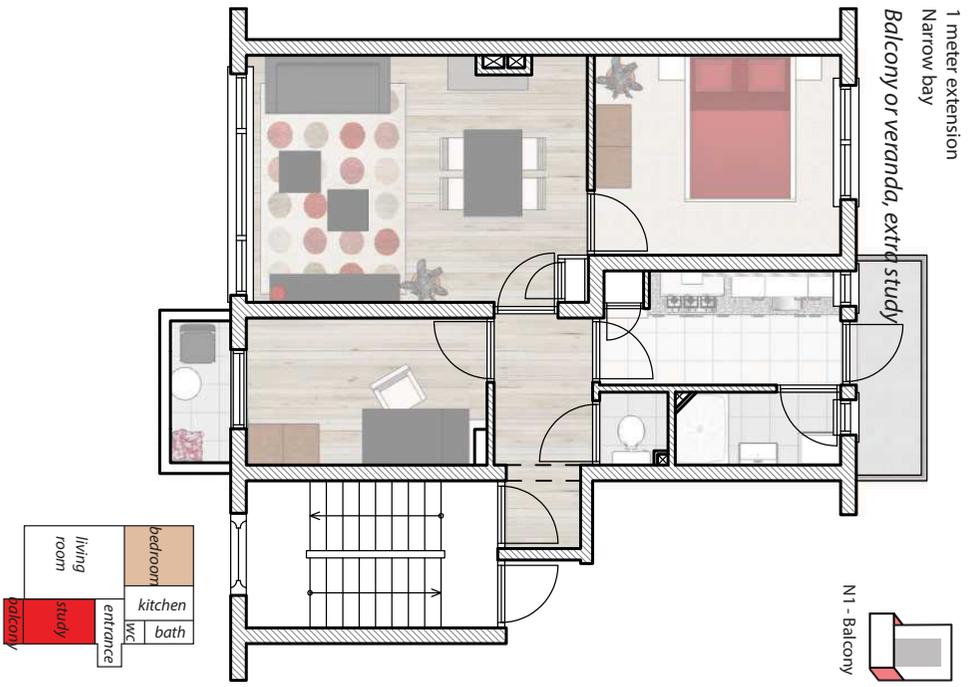
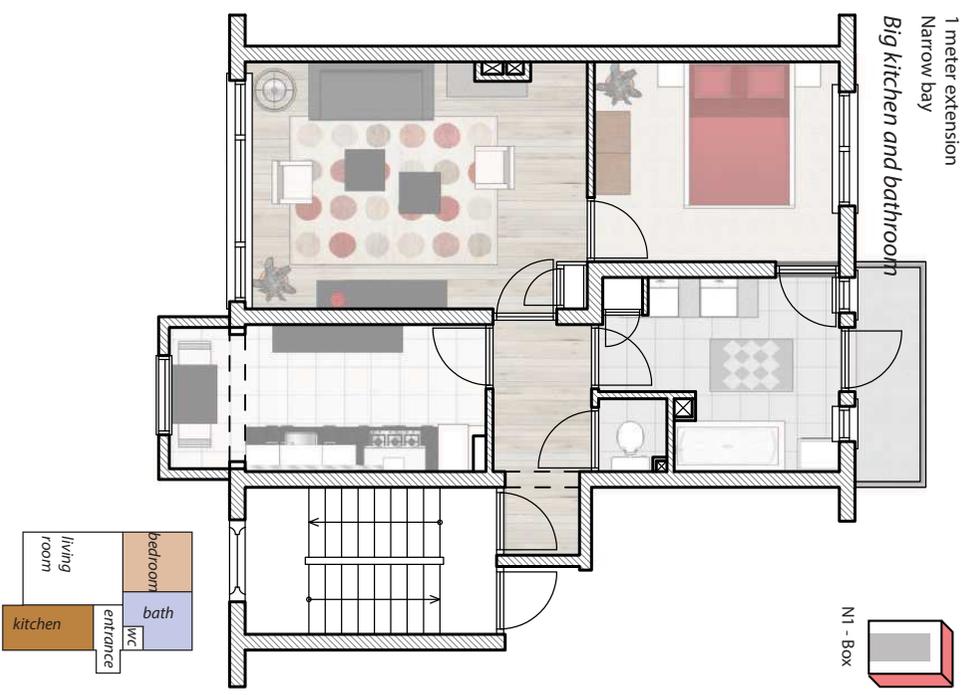
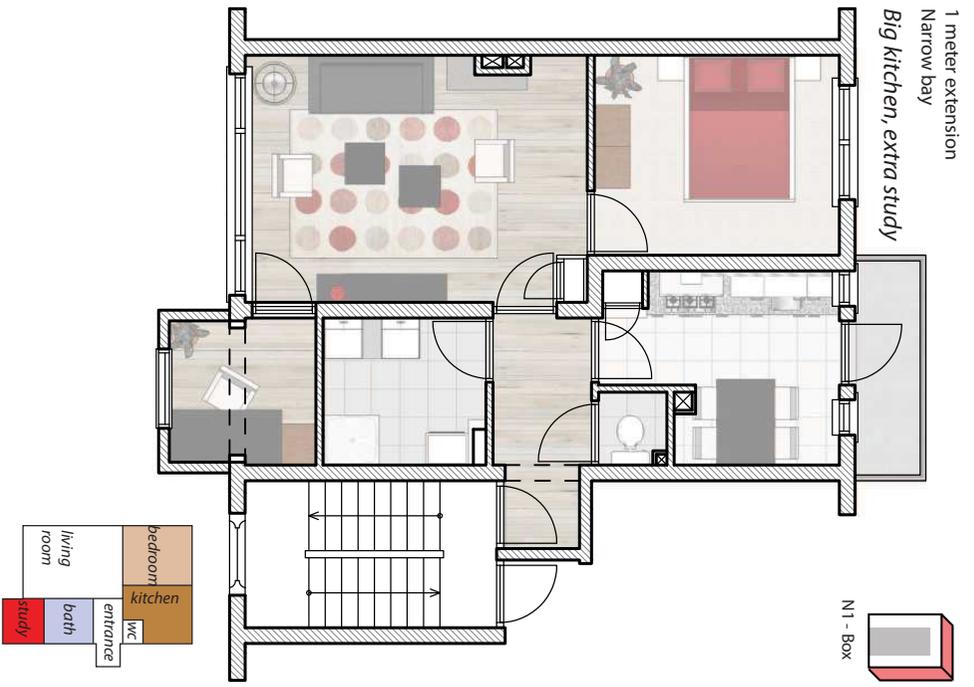


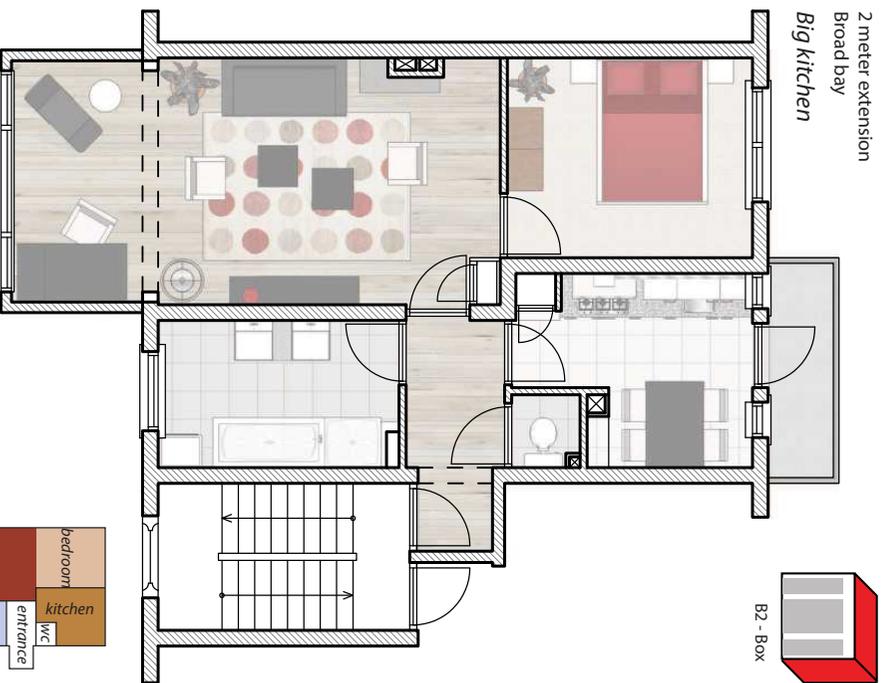
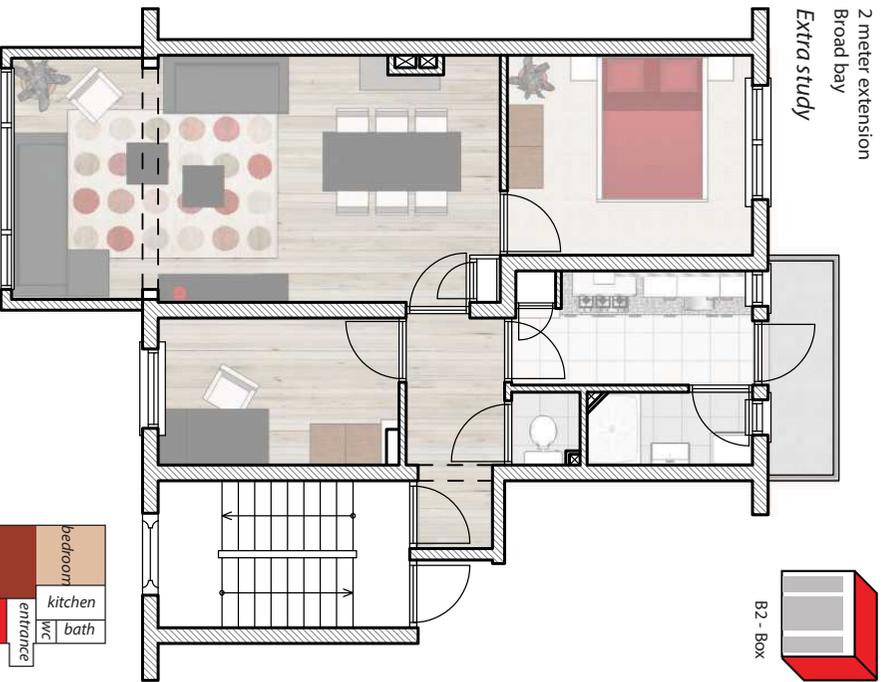
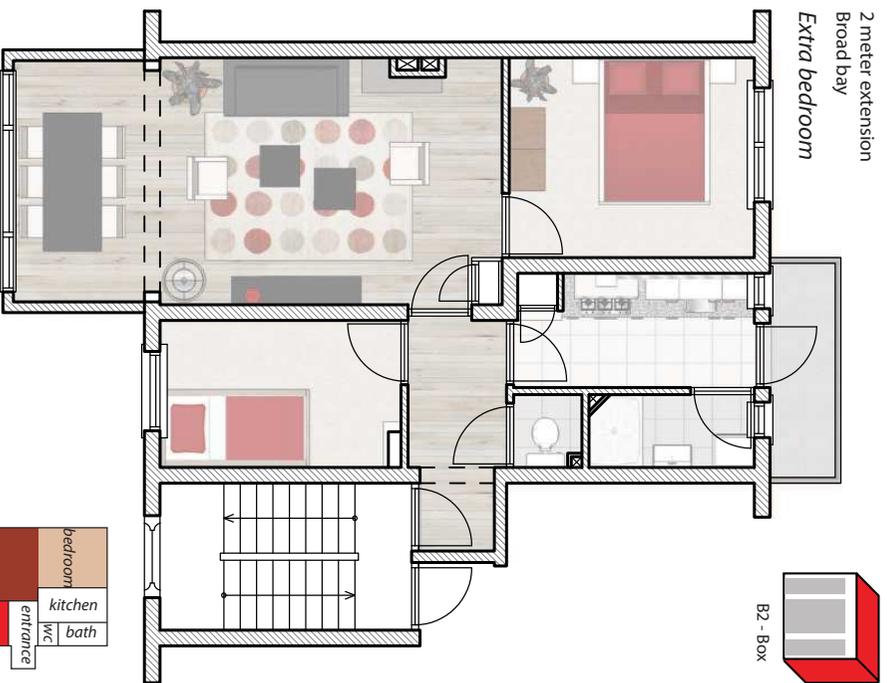
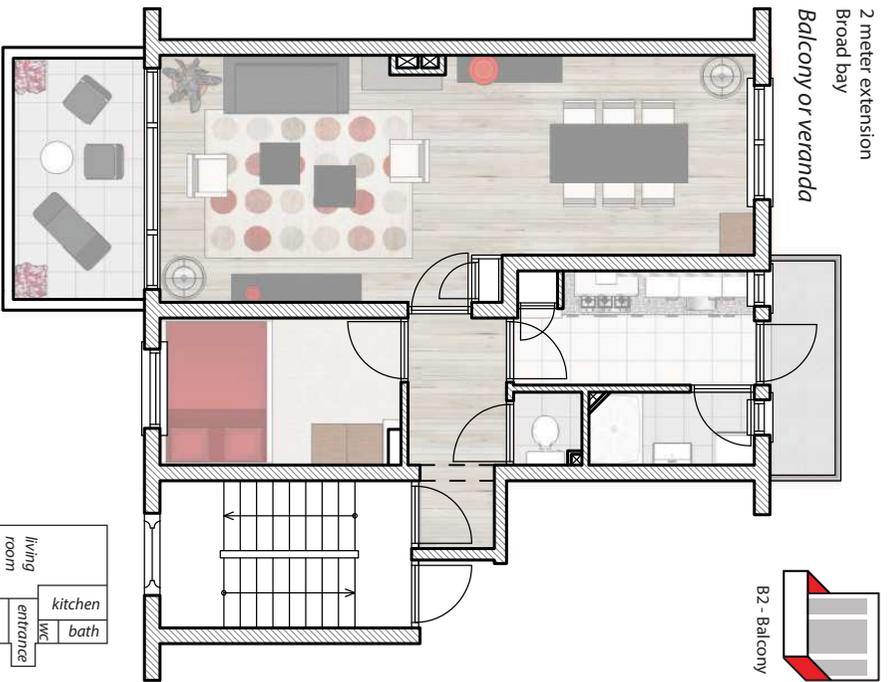
measuring urban design qualities scoring sheet															
auditor: susanne de zwart			Gruttostraat			Roodborststraat			Wielewaaistraat			Roerdomplan			
date & time: 20 sept 2013, 1 pm			recorded	multiplier	product	recorded	multiplier	product	recorded	multiplier	product	recorded	multiplier	product	
step	value														
<b>imageability</b>															
1. number of courtyards, plazas, and parks (both sides, within study area)	1	0,41	0,41	0	0,41	0,00	1	0,41	0,41	1	0,41	0,41	1	0,41	0,41
2. number of major landscape features (both sides, beyond study area)	1	0,72	0,72	1	0,72	0,72	1	0,72	0,72	1	0,72	0,72	1	0,72	0,72
3. proportion historic building frontage (both sides, within study area)	0,6	0,97	0,58	1	0,97	0,97	0,85	0,97	0,82	0,5	0,97	0,49	0,5	0,97	0,49
4. number of buildings with identifiers (both sides, within study area)	5	0,11	0,55	0	0,11	0,00	4	0,11	0,44	6	0,11	0,66	6	0,11	0,66
5. number of buildings with non-rectangular shapes (both sides, within study area)	5	0,08	0,40	8	0,08	0,64	6	0,08	0,48	3	0,08	0,24	3	0,08	0,24
6. presence of outdoor dining (your side, within study area)	0	0,64	0,00	0	0,64	0,00	0	0,64	0,00	0	0,64	0,00	0	0,64	0,00
7. number of people (your side, within study area)	5	0,02	0,10	0	0,02	0,00	10	0,02	0,20	5	0,02	0,10	5	0,02	0,10
8. noise level (both sides, within study area)	3	-0,18	-0,54	1	-0,18	-0,18	3	-0,18	-0,54	1	-0,18	-0,18	1	-0,18	-0,18
			add constant	+2,44			add constant	+2,44				add constant	+2,44		
			<b>imageability score</b>	<b>4,66</b>			<b>4,59</b>					<b>4,97</b>			<b>4,88</b>
<b>enclosure</b>															
1. number of long sight lines (both sides, beyond study area)	1	-0,31	-0,31	0	-0,31	0,00	1	-0,31	-0,31	0	-0,31	0,00	0	-0,31	0,00
2a. proportion street wall (your side, beyond study area)	0,5	0,72	0,36	0,6	0,72	0,43	0,5	0,72	0,36	0,7	0,72	0,50	0,7	0,72	0,50
2b. proportion street wall (opposite side, beyond study area)	0,3	0,94	0,28	0,6	0,94	0,56	0,5	0,94	0,47	0,3	0,94	0,28	0,3	0,94	0,28
3a. proportion sky (ahead, beyond study area)	0,15	-1,42	-0,21	0,4	-1,42	-0,57	0,2	-1,42	-0,28	0,2	-1,42	-0,28	0,2	-1,42	-0,28
3b. proportion sky (across, beyond study area)	0,3	-2,19	-0,66	0,3	-2,19	-0,66	0,3	-2,19	-0,66	0,3	-2,19	-0,66	0,3	-2,19	-0,66
			add constant	+2,57			add constant	+2,57				add constant	+2,57		
			<b>enclosure score</b>	<b>2,03</b>			<b>2,34</b>					<b>2,15</b>			<b>2,41</b>
<b>human scale</b>															
1. number of long sight lines (both sides, beyond study area)	1	-0,74	-0,74	0	-0,74	0,00	1	-0,74	-0,74	0	-0,74	0,00	0	-0,74	0,00
2. proportion windows at street level (your side, within study area)	0,5	1,10	0,55	0,05	1,10	0,06	0,6	1,10	0,66	0,3	1,10	0,33	0,3	1,10	0,33
3. average building heights (your side, within study area)	4	-0,003	-0,01	3	-0,003	-0,01	2	-0,003	-0,01	2	-0,003	-0,01	2	-0,003	-0,01
4. number of small planters (your side, within study area)	2	0,05	0,09	0	0,05	0,00	3	0,05	0,14	5	0,05	0,23	5	0,05	0,23
5. number of pieces of street furniture and other street items (your side, within study area)	0,04	0,40	0,04	1	0,04	0,04	7	0,04	0,28	1	0,04	0,04	1	0,04	0,04
			add constant	+2,61			add constant	+2,61				add constant	+2,61		
			<b>human scale score</b>	<b>2,90</b>			<b>2,70</b>					<b>2,94</b>			<b>3,21</b>
<b>transparency</b>															
1. proportion windows at street level (your side, within study area)	0,5	1,22	0,61	0,05	1,22	0,06	0,6	1,22	0,73	0,3	1,22	0,37	0,3	1,22	0,37
2. proportion street wall (your side, beyond study area)	0,5	0,67	0,33	0,6	0,67	0,40	0,5	0,67	0,33	0,7	0,67	0,47	0,7	0,67	0,47
3. proportion active uses (your side, within study area)	1	0,53	0,53	0	0,53	0,00	0,9	0,53	0,48	1	0,53	0,53	1	0,53	0,53
			add constant	+1,71			add constant	+1,71				add constant	+1,71		
			<b>transparency score</b>	<b>3,19</b>			<b>2,17</b>					<b>3,25</b>			<b>3,07</b>
<b>complexity</b>															
1. number of buildings (both sides, beyond study area)	6	0,05	0,27	6	0,05	0,27	8	0,05	0,37	14	0,05	0,64	14	0,05	0,64
2a. number of basic building colors (both sides, beyond study area)	2	0,23	0,45	1	0,23	0,23	2	0,23	0,45	3	0,23	0,68	3	0,23	0,68
2b. number of accent colors (both sides, beyond study area)	5	0,12	0,58	0	0,12	0,00	5	0,12	0,58	2	0,12	0,23	2	0,12	0,23
3. presence of outdoor dining (your side, within study area)	0	0,42	0,00	0	0,42	0,00	0	0,42	0,00	0	0,42	0,00	0	0,42	0,00
4. number of pieces of public art (both sides, within study area)	0	0,29	0,00	0	0,29	0,00	0	0,29	0,00	0	0,29	0,00	0	0,29	0,00
5. number of people (your side, within study area)	5	0,03	0,16	0	0,03	0,00	10	0,03	0,31	5	0,03	0,16	5	0,03	0,16
			add constant	+2,61			add constant	+2,61				add constant	+2,61		
			<b>complexity score</b>	<b>4,07</b>			<b>3,11</b>					<b>4,31</b>			<b>4,31</b>

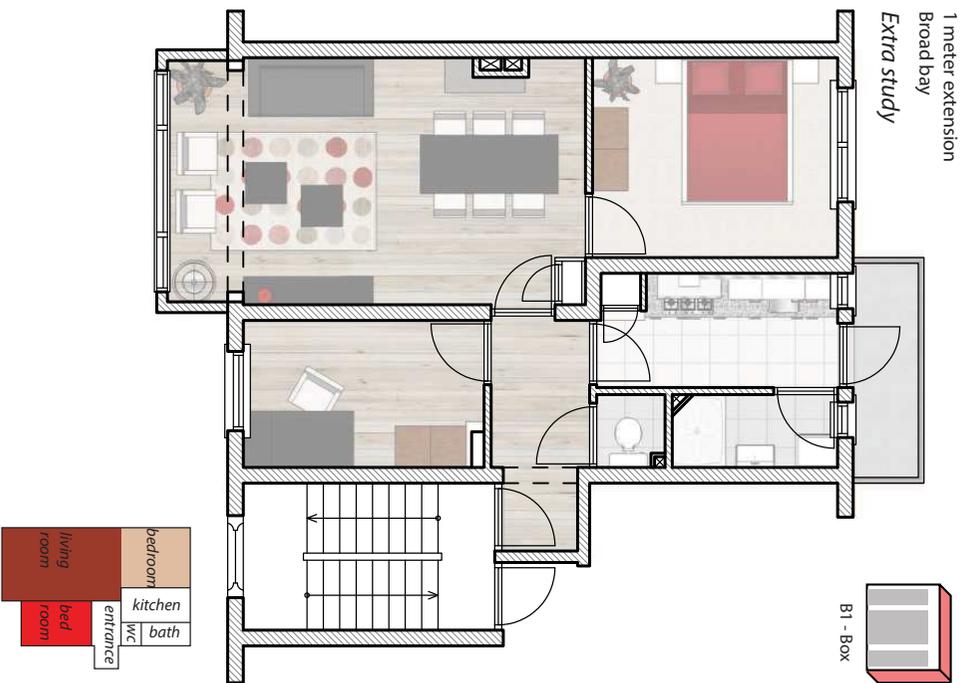
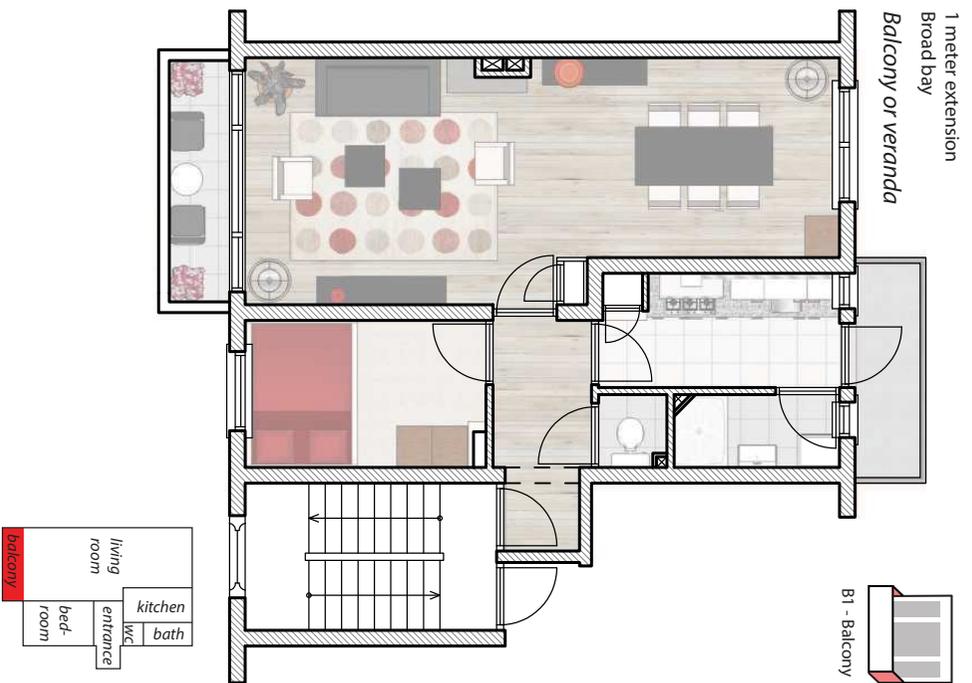
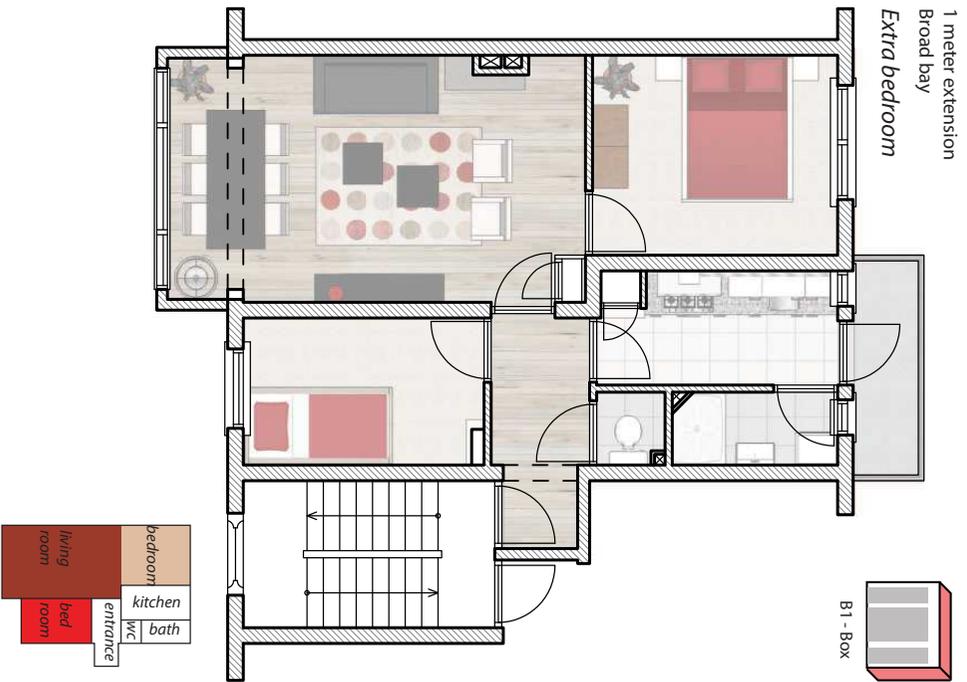
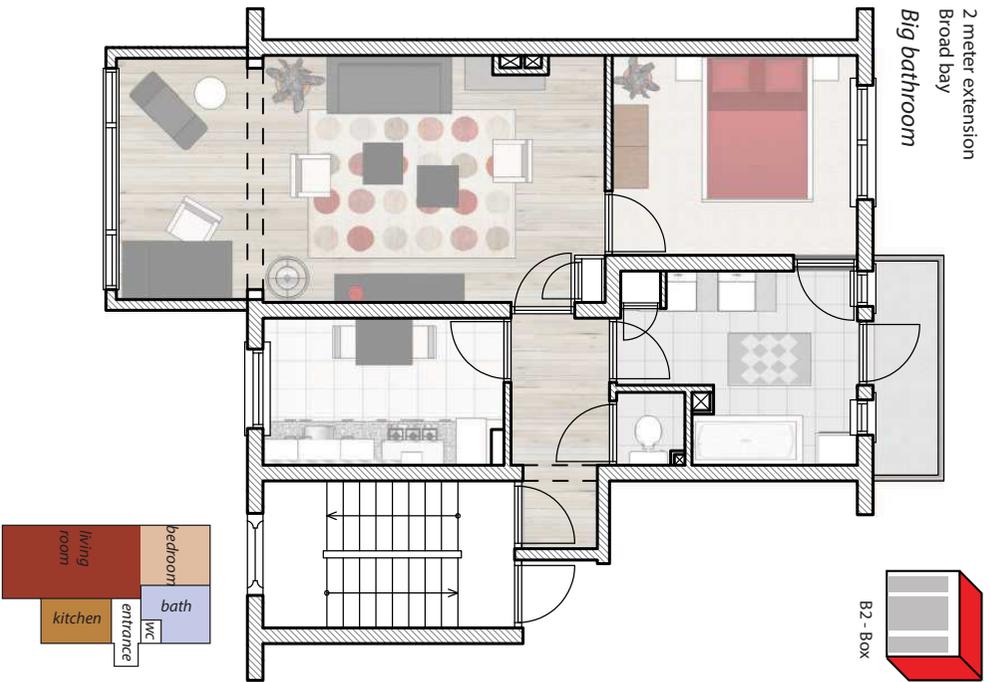


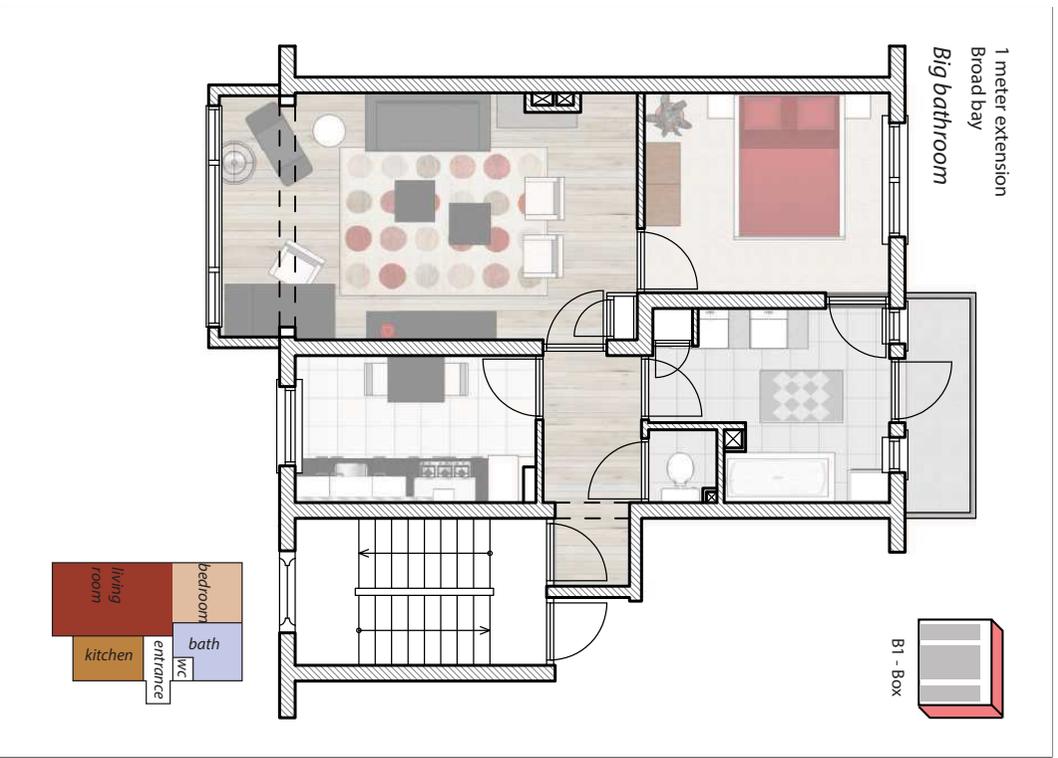
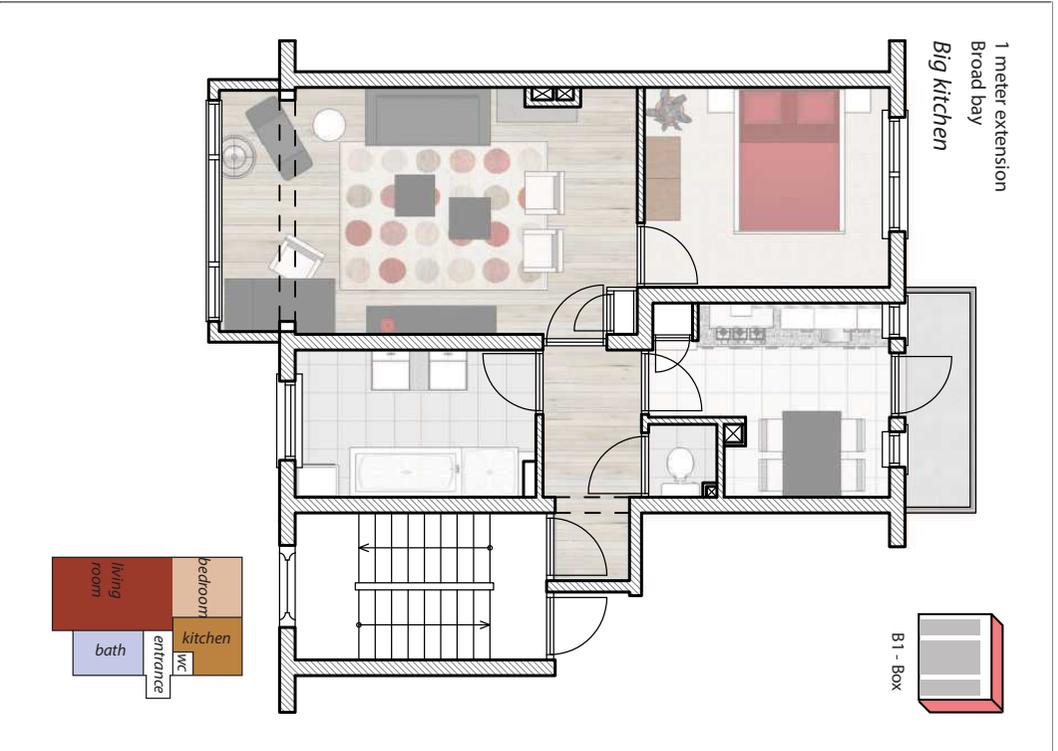












	<b>Broad box 2m</b>	<b>Broad box 1m</b>	<b>Narrow box 2m</b>	<b>Narrow box 1m</b>
hole facade (h*w)	3*3,46	3*3,46	3*2,06	3*2,06
box outside (h*w*d)	3*3,69*2	3*3,69*1	3*2,29*2	3*2,29*1
box inside (h*w*d)	2,485*3,185*1,765	2,485*3,185*0,765	2,485*1,785*1,765	2,485*1,785*0,765

<b>COSTS BOX</b>	costs per									
	unit	unit (m/m2)	costs	unit (m/m2)	costs	unit (m/m2)	costs	unit (m/m2)	costs	
steelconstruction IPE sections	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000	
window frames	€ 550	8	€ 4.400	8	€ 4.400	2,5	€ 1.375	2,5	€ 1.375	
prefab walls	€ 125	12	€ 1.500	6	€ 750	14,4	€ 1.800	8,4	€ 1.050	
indoor wall finish	€ 25	11	€ 275	6	€ 150	12,9	€ 323	7,9	€ 198	
floor	€ 100	7,4	€ 740	3,7	€ 370	4,6	€ 460	2,3	€ 230	
indoor floor finish	€ 75	5,6	€ 420	2,4	€ 180	3,2	€ 240	1,4	€ 105	
roof	€ 85	7,4	€ 629	3,7	€ 315	4,6	€ 391	2,3	€ 196	
roof finish	€ 50	7,4	€ 370	3,7	€ 185	4,6	€ 230	2,3	€ 115	
electrical installation	€ 50	7,4	€ 370	3,7	€ 185	4,6	€ 230	2,3	€ 115	
			<b>€ 10.704</b>		<b>€ 8.535</b>		<b>€ 7.049</b>		<b>€ 5.383</b>	
<i>including climarad (€2000)</i>			€ 12.704		€ 10.535		€ 9.049		€ 7.383	

#### PREPARATION AND PLACEMENT

pynford beam	€ 2.500	1	€ 2.500	1	€ 2.500	1	€ 2.500	1	€ 2.500
wall breakthrouhg + placement									
UPE sections	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000
placement box	€ 1.000	1	€ 1.000	1	€ 1.000	1	€ 1.000	1	€ 1.000
			<b>€ 5.500</b>		<b>€ 5.500</b>		<b>€ 5.500</b>		<b>€ 5.500</b>

#### TOTAL COSTS

			<b>€ 16.204</b>		<b>€ 14.035</b>		<b>€ 12.549</b>		<b>€ 10.883</b>
<i>including climarad</i>			€ 18.204		€ 16.035		€ 14.549		€ 12.883

#### TAXES

21% over material costs (50%)			€ 1.701		€ 1.474		€ 1.318		€ 1.143
6% over labour costs (50%)			€ 486		€ 421		€ 376		€ 326
			<b>€ 2.188</b>		<b>€ 1.895</b>		<b>€ 1.694</b>		<b>€ 1.469</b>
<i>including climarad</i>			€ 2.458		€ 2.165		€ 1.964		€ 1.739

<b>TOTAL including taxes</b>			<b>€ 18.392</b>		<b>€ 15.929</b>		<b>€ 14.243</b>		<b>€ 12.352</b>
<i>including climarad</i>			€ 20.662		€ 18.199		€ 16.513		€ 14.622

	<b>Broad balcony 2m</b>	<b>Broad balcony 1m</b>	<b>Narrow balcony 2m</b>	<b>Narrow balcony 1m</b>
hole facade (h*w)	3*3,46	3*3,46	3*2,06	3*2,06
balcony measurements (h*w*d)	1,345*3,64*2	1,345*3,64*1	1,345*2,24*2	1,345*2,24*1
balcony floor surface (w*d)	3,1*1,9	3,1*0,9	1,7*1,9	1,7*0,9

<b>COSTS BALCONY</b>	costs per									
	unit	unit (m/m2)	costs	unit (m/m2)	costs	unit (m/m2)	costs	unit (m/m2)	costs	
steelconstruction IPE sections	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000	
window frames	€ 550	8	€ 4.400	8	€ 4.400	2,5	€ 1.375	2,5	€ 1.375	
prefab walls	€ 125	5,4	€ 675	2,7	€ 338	8,6	€ 1.075	5,9	€ 738	
indoor wall finish	€ 25	0,8	€ 20	0,8	€ 20	3,2	€ 80	3,2	€ 80	
floor	€ 100	7,3	€ 730	3,6	€ 360	4,5	€ 450	2,2	€ 220	
floorfinish	€ 75	5,9	€ 443	2,8	€ 210	3,2	€ 240	1,5	€ 113	
balustrade aluminum/glass	€ 250	3,1	€ 775	3,1	€ 775	1,7	€ 425	1,7	€ 425	
wall plate side balustrade	€ 25	1,9	€ 48	0,9	€ 23	1,9	€ 48	0,9	€ 23	
			<b>€ 9.090</b>		<b>€ 8.125</b>		<b>€ 5.693</b>		<b>€ 4.973</b>	
<i>including climarad (€2000)</i>			<b>€ 11.090</b>		<b>€ 10.125</b>		<b>€ 7.693</b>		<b>€ 6.973</b>	

#### PREPARATION AND PLACEMENT

pynford beam	€ 2.500	1	€ 2.500	1	€ 2.500	1	€ 2.500	1	€ 2.500
wall breakthrouhg + placement									
UPE sections	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000	1	€ 2.000
placement box	€ 1.000	1	€ 1.000	1	€ 1.000	1	€ 1.000	1	€ 1.000
			<b>€ 5.500</b>		<b>€ 5.500</b>		<b>€ 5.500</b>		<b>€ 5.500</b>

#### TOTAL COSTS

			<b>€ 14.590</b>		<b>€ 13.625</b>		<b>€ 11.193</b>		<b>€ 10.473</b>
<i>including climarad</i>			<b>€ 16.590</b>		<b>€ 15.625</b>		<b>€ 13.193</b>		<b>€ 12.473</b>

#### TAXES

21% over material costs (50%)			€ 1.532		€ 1.431		€ 1.175		€ 1.100
6% over labour costs (50%)			€ 438		€ 409		€ 336		€ 314
			<b>€ 1.970</b>		<b>€ 1.839</b>		<b>€ 1.511</b>		<b>€ 1.414</b>
<i>including climarad</i>			<b>€ 2.240</b>		<b>€ 2.109</b>		<b>€ 1.781</b>		<b>€ 1.684</b>

<b>TOTAL including taxes</b>			<b>€ 16.560</b>		<b>€ 15.464</b>		<b>€ 12.703</b>		<b>€ 11.886</b>
<i>including climarad</i>			<b>€ 18.830</b>		<b>€ 17.734</b>		<b>€ 14.973</b>		<b>€ 14.156</b>