

DENSIFICATION STRATEGIES:

Building for Empty Nesters households to
stimulate flow of the housing market

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AR3AD100 Advanced Housing

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PREFACE

In front of you is the master thesis: “DENSIFICATION STRATEGIES: Building for Empty Nesters households to stimulate flow of the housing market” This thesis was written to fulfil the graduation requirements of the MSc Architecture, Urbanism and Building Sciences at TU delft. I have been researching and writing my thesis from February 2022 to February 2023.

After a challenging year, I developed a project about creating new housing concepts in existing urban contexts suitable for Empty Nesters households to stimulate flow in the housing market. For this target group, I investigated spatial design principles that can positively contribute to a pleasant and attractive living environment where spatial, functional and social aspects are positively supported. Therefore, this thesis has taught me valuable lessons both personally and professionally. I thank my supervisors for their guidance and support during the process. The challenges and feedback allowed me to take my research and design to the next level. This has maximised my learning opportunities, for which I thank them.

Finally, I would like to thank my family, friends and group mates for being there for me during my research process. I wish you much reading pleasure.

Sjaak Preyers
Breda, April 2022

ABSTRACT

The high prices and housing shortage are significant problems for the Dutch population. Thus, besides a general housing shortage, there is also a shortage of housing aimed at the needs of Empty Nesters. Homes are not always life-course resistant, and alternative housing in the desired living environment is lacking (van Staaïj et al., 2021; real estate market, 2022; Dynamis, AM, & Whooz, 2021).

The purpose of this research is to create a design strategy for densifying an existing residential area by creating a dwelling concept that is suitable for the Empty Nesters households as an attempt to stimulate the flow of the housing market for younger families. As such, this thesis aims to investigate and answer the following research question: **'How can new dwelling concepts for Empty Nesters, be integrated into a densification strategy for post-war neighborhoods, to stimulate flow in the housing market for younger families?'**

To answer the main research questions, this study uses an approach that complements what was learned from literature research on Empty Nesters, relocation motives, housing requirements, and user needs with insights from both theory and practice of architectural examples.

a clear picture emerged about the target group; what characteristics they differ in, what moving motives they have, what housing profiles this group has with connecting housing preferences and what spatial, functional and social qualities they need. By combining the outcomes of all sub-questions, a design strategy was created that could be used to design housing that is attractive and focused on the Empty Nester, integrated into an existing postwar neighbourhood, in order to stimulate the flow of the housing market. Thus, this strategy and the design created by using this strategy answer the central question of this research.



1

INTRODUCTION

1 INTRODUCTION

1.1 Personal statement

In recent years, rising house prices and housing shortages have been a more frequent topic that comes to light in the news (Figure 1). Within a large number of news reports on this topic, not only young students and starters are highlighted, but also couples, young and old, families, seniors, and migrants. They often state that all over the Netherlands, people are affected by the high prices and shortage of housing. This current and socially relevant problem caught my attention and is also why I chose this studio for my graduation project.

The Advanced Housing Design Graduation Studio (AR3AD100) describes the studio as exploring and developing how housing design can successfully address the challenge of ensuring social inclusion and increasing (bio)diversity while increasing density and liveability and reducing the ecological footprint of residents. The aim was to produce a comprehensive project within the urban context of the Randstad conurbation that contributes to the densification of the built environment and new (affordable) housing. Since I have reached the end of my studies, I want to use the knowledge gained over the past few years to find a solution(s) to the current problem. After all, it also concerns me; in a year, I would like to live on my own. Then I will have to enter a housing market where it sounds almost impossible to find a

house. Not a pleasant prospect, in other words. Nevertheless, how do you start this problem and for whom will you design a house? Based on the report 'Doorschuiven alstublieft' by real estate agency Dynamis, area developer AM and Whooz (2021), I found out that a specific target group could significantly impact this current and social problem and be the solution to the stagnation in the housing market. They claim about 1.1 million households fall into the "Empty Nesters" group. These are 55+ households without children living at home, living in housing. The report further indicates that many of these households live in housing that no longer suits their housing needs. The report also states that at least 167,000 households can take the next step. If a good housing product can

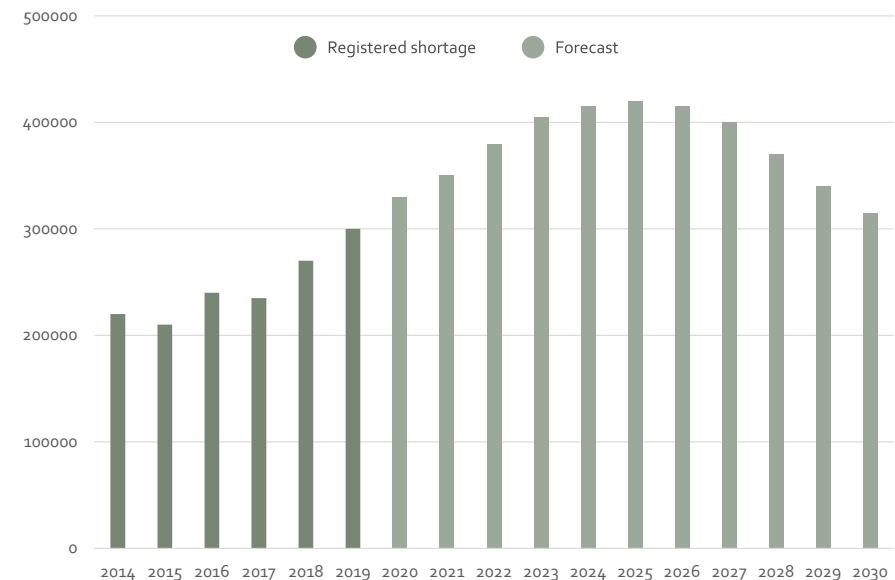


Figure 1: Housing shortage development (ABF Research 2021, edited by author)

be built for 5% of the 1.1 million Empty Nester households (57,000), this could lead to as many as 335 thousand moves within the housing market. This refers to moves within all housing market groups (Hoekveld & Zwet, 2021). The opportunity to help as many households as possible find suitable housing is thus at the end of the relocation chain and has therefore been a trigger for choosing this target group (Figure 2). What interests are there, and how do you design the best housing for this target group?

It is incredibly intriguing that, as an architect, I can influence these issues and try to find a solution. In my graduation project, I research Empty Nesters and this group's housing preferences and characteristics. In addition, my graduation project is about translating these findings into a design that provides housing for Empty Nester using a densification strategy. This target group's specific (housing) problem within this housing crisis is further described in the following paragraphs.



Figure 2: The flow of the housingmarket (made by author)

1.2 Problem statement

The introduction indicated that the high prices and housing shortage are significant problems for the Dutch population. Thus, besides a general housing shortage, there is also a shortage of housing aimed at the needs of Empty Nesters. Homes are not always life-course resistant, and alternative housing in the desired living environment is lacking (van Staaïj et al., 2021; real estate market, 2022; Dynamis, AM, & Whooz, 2021)(Figure 3). These people need more suitable housing to move and make way for younger families. Given the ageing population the Netherlands is experiencing, the housing shortage for Empty Nesters will only add to the problem. This shortage leads to the Empty Nesters staying dwelling in a house, which does not meet the housing needs of this group, and they prefer to grow old in a place where they are familiar and close to their social circle, called ageing in place (3Bplus, 2015). This restricts the opportunities for other (younger) households to continue to grow and causes congestion in the housing market. Living in unsuitable housing can lead to uncomfortable living situations, requiring people to make home adaptations or live uncomfortably. Also, it can harm the living environment. For instance, it can lead to inefficient use of publicly funded ancillary facilities, housing facilities and infrastructure, such as schools, utilities, and parks. (Platform31, 2018). What kind of housing would be suitable then?



Existing houses not life cycle Proof



Lacking suitable alternatives
(in existing neighborhood)

Figure 3: Problems senior housing (made by author)

It is therefore of utmost importance to solve this problem. This will be something that needs to happen in politics and policy-making. But at the other end of the spectrum, architects and urban planners can contribute to this issue by thinking about cities and buildings that will enable suitable housing for this population. From this, a central key question has been drawn up to help solve this problem.

1.3 Delineation

Empty Nesters in this study are individuals whose children no longer live at home. This usually starts at 55, but this is not a hard limit and can also happen at younger and later ages. The younger age groups (45+ years) can also be considered, as they can be seen as the Empty Nesters of the near future. The consequence of such a relatively low age limit is that the group of Empty Nesters is very diverse. It can include elderly people of retirement age as well as relatively young working elderly with children who have just left home. In practice, several terms are used for this group and also in this study, in addition to the term 'Empty Nesters', the terms 'senior' or '55-plus' are used to refer to the same group. The term 'future elderly' refers to the younger age groups (45+ years) among the elderly. However, this does make a distinction in self-reliance in this study. The study assumes people who are active and able to live independently.

1.4 Research question

The purpose of this research is to create a design strategy for densifying an existing residential area by creating a dwelling concept that is suitable for the Empty Nesters households as an attempt to stimulate the flow of the housing market for younger families. As such, this thesis aims to investigate and answer the following research question:

‘How can new dwelling concepts for Empty Nesters, be integrated into a densification strategy for post-war neighborhoods, to stimulate flow in the housing market for younger families?’

To answer this question, it is, first of all, essential to investigate who the Empty Nesters are. As indicated in the introduction, Empty Nesters are a specific group of the elderly entering a new phase of life. To properly understand this group of Empty Nesters, it is crucial to investigate the overarching type of residents, namely the general group of 55-plussers in the Dutch housing market. Studying the 55-plussers can provide insights into the diverse characteristics of this heterogeneous target group and how they are positioned in society. This will help understand how the Empty Nesters can be approached based on their characteristics. Therefore, the following question is asked: **What are the characteristics of the heterogeneous group of Empty Nesters, and how are they positioned in society?**

It is crucial to investigate the housing market behaviour of 55-plussers. It also provides insight into how they are positioned in the housing market, how their current housing is lacking, their relocation motives, and how to take advantage of that. The following question is therefore posed: **What does the housing market behaviour of the 55-plusser and their relocation motives look like?**

To get a better picture of the diversity among the Empty Nesters, it is important to investigate how the target group of the Empty Nesters

can be segmented. It also helps separate their differentiated housing needs to achieve the right housing requirement package for the different groups. The third sub-question focuses on this: **How can the 55-plusser be segmented to understand better the specific housing needs of groups of potential clients?**

Finally, it is essential to know the Empty Nesters' spatial, functional, and social needs to investigate the current conditions and residential preferences, both on the dwelling and neighbourhood scale. Therefore, the following question is asked: **What kind of spatial, functional, and social conditions are needed to make a home suitable for Empty Nesters households, whether they are healthy or physically impaired, and considering different social-economic backgrounds?**

Characteristics, relocation motives, group segmentation, spatial, functional, and social qualities.

2

THEORETHICAL FRAMEWORK

2 THEORETHICAL FRAMEWORK

Based on the four sub-questions, core concepts have emerged. This theoretical framework describes interesting theories and studies that have already been done on these research topics. How do these studies contribute to answering the central question of this research, and how does this research add to the literature?

2.1 Characteristic features

To properly understand this group of Empty Nesters, it is essential to recognise the overarching type of residents, namely the general group of over-55s in the Dutch housing market. Given the differences, the size of the 55+ market and the significant age difference between young and old seniors, it is unsurprising that the senior target group is considered a heterogeneous group. Although this heterogeneous group is still sometimes seen as a homogeneous consumer within the housing market, this is not the case (Knook & Nesselaar, 2001). Thus, various studies confirm that great mutual diversity can be observed within the target group of 55-plussers; For instance, distinctions can be made on purchasing power, health, household composition, mentality, work, leisure activities, education and many other issues (van Duin & van Gaalen, 2019; Ministry of VROM, 2007b; Knook & Nesselaar, 2001).

Wiekum (1986) has written a study on the demographic profile

of empty nesters and describes their housing consumption. He provides an overview of the housing needs of empty nesters that lead to why they live in certain types of housing. The study shows that many mechanisms driving a move must be critical life events. However, the will to move can be enhanced or reduced by various considerations called promoting/inhibiting factors. These factors do not affect every life event in the same way. These factors play a role in the decision to move or not.

2.2 Relocation theories

For decades, social geographers have been trying to study human relocation behaviour. Several theories/models have been developed that can partly explain moving behaviour. These are discussed in the sections below.

Life cycle theory

The 'Why families move' study by Rossi (1955) is considered by many to be one of the severe founders of moving behaviour studies. In it, Rossi found that moves were related to people's life stages. For instance, each life stage had different household housing needs. This theory is also called the "Life Cycle theory". After transitioning to a different life stage, the current housing situation would no longer match the desired situation (such as a family expansion or, on the

contrary, children moving out). However, it is assumed in this study that households strive for a match between their living situation and housing preferences. Should this no longer be the case, changes in the household give a reason to want to move (Rossi, 1955).

The sociologist Rossi (1955) defines moving as the adjustment of a living situation to residents' wishes through a change of residence. According to Rossi's (1955) life cycle theory, people go through different life stages. Rossi's theory links the stage in an individual's life cycle with the corresponding housing needs. The phases highlighted by Rossi mainly relate to changes within a household caused by demographics. The transition between life phases can create a discrepancy between the current and desired housing situation, assuming that people strive for a match between housing needs and housing situations. Dissatisfaction due to changes in household composition, combined with dissatisfaction with the living environment and income ¹³, may lead to a move at a (transitional) stage of the life cycle (Brown & Moore, 1970).

Stress-threshold theory

Brown and Moore (1970) developed the stress-threshold model, in which stress measures moving behaviour. They found that stress occurs when housing needs no longer meet the current housing situation. This means that housing satisfaction is closely related

to the desire to move. People would only move if dissatisfied with the current situation (Wolpert, 1966; Brown & Moore, 1970). Unlike the Life Cycle theory, the stress-threshold theory looks beyond household changes. Changes in the living environment can also cause dissatisfaction, leading to relocation propensity. An important note on this theory is that some people are forced to move despite being satisfied with their living situation. This applies, for example, to people who want to move because of a divorce. Structural constraints, such as the availability of suitable housing, are also not considered (De Boer, 1999).

Life course theory

This model is more of a continuation of the previous theories and provides a more comprehensive explanation of moving behaviour. In it, emphasis is placed on changes and events in the life course. Here, age, household composition, career and housing career are distinguished as different parallel trajectories. The events can cause triggers that can lead to a decision to move. Mulder & Hooimeijer (1999) argue that behaviour is determined by individual decisions and depends on macro-level constraints and opportunities. For instance, income, education and employment (unemployment) can also influence a desire to move. The business cycle and local and regional housing market situations are also critical, such as high house prices and housing shortages (van Dam et al., 2013).

Push and pull model

The push and pull (Figure 4) model is similar to the Life course model. In it, moving behaviour is linked to changes in different life stages and changing desires; the push and pull factors) (Reed et al., 2002; Stimson, 2004). In addition, this model posits the match between supply and demand as a determinant of a move (Lee, 1966; Haas & Serouw, 1993). Through this model, a link can be established between the desire to move and the actual move. The literature distinguishes between the desire to move and the actual move. Thus, there must first be a desire to move before someone takes action. Push factors are what triggers a desire to move.

‘Push factors are the life events or circumstances that loosen an individual’s attachment to his or her current residence and lead him or her to consider relocation’ (Gonyea, 2006, p. 563). Major life events - changing lifestyle, health, environment, etc. - lead to a desire to move. Of course, this is person-specific and varies from person to person or household to household. Thus, four categories can be drawn up that together form the main push factors (van den Boer, 1998; Stimson & McCrea, 2004).

- Life-changing events
- The desire to change lifestyle
- Reduced health
- A changing environment

Pull factors determine the actual move. ‘Pull factors are life events or circumstances that occur at another location and draw an individual towards a new residence’ (Gonyea, 2006). These are, therefore, positive factors of a new living situation that draw people to move, such as available facilities, type of house or attractive surroundings. The side drawing here, though, is that these offered features have to match the desires of a specific target group in such a way as to win them over. Butler et al. (1969) argue that the pull factor is a more important element in the model than the push factor because the pull factor has the most influence. The psychological factor is important because people often strive for the optimum. It is not the dissatisfaction with the current home that makes one move, but rather the greater satisfaction one can obtain from the new living situation. Thus, five categories can be drawn up that make up the most critical pull factors (Stimson et al., 2004).

- Amenities/facilities
- Location
- Housing preferences
- Price/quality
- Social environment
- Type of dwelling

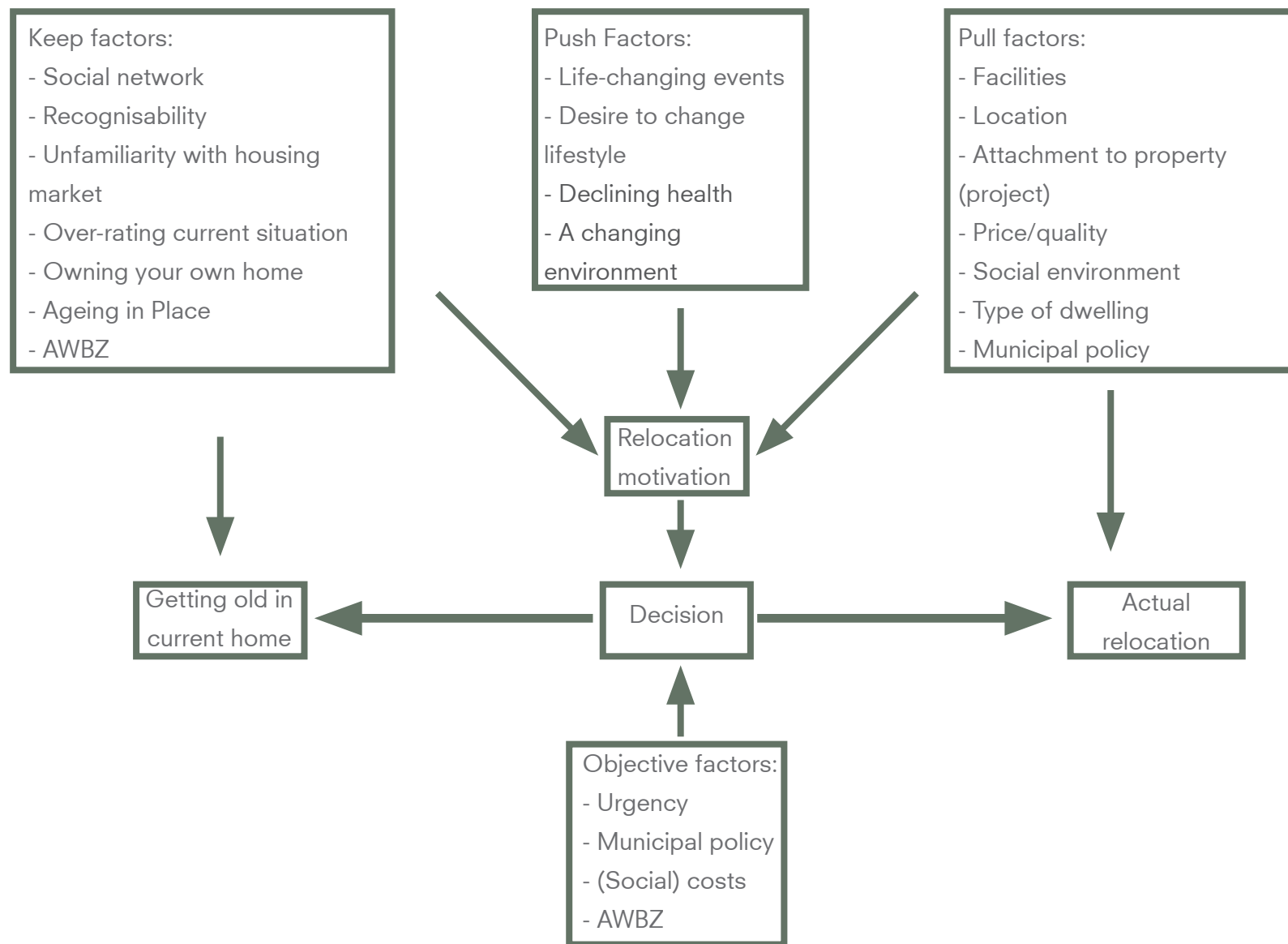


Figure 4: Push, Pull & Keep factors (J. de Bree 2003, edited by author)

Social context

People's behaviour is influenced by the social context in which they move. The social context - yet to be (directly) discussed in the theories above - is also an essential factor determining the propensity to move. Social demographic, cultural and economic developments can cause people's behaviour and preferences to change. Thus, one can also influence this themselves. For instance, individuals or minorities can influence larger groups, as a result of which, in the longer term, certain norms, values, wishes, etc., can become socially accepted within society as a whole (Lesthaeghe, 1983; Elchardus, 1984; Willekens, 1989; Mayer & Tuma, 1990; Mulder, 1993). A clear example is the multicultural influence and individualisation in our society.

The above theories are partly confirmed in several studies. Kremer (2020) Wrote a study that focused on the moving behaviour of residents within the municipality of Zoetermeer, particularly on the group of residents aged between 55 and 66 whose children live independently, such as the Empty Nesters. She elucidated personal motivations, professional insights and constraints in facilitating the target group's move. Buffalo et al. (2011) wrote a study on gaining insight into how older people experience their living environment's physical, social and psychological dimensions. In this study, they examine the living environment as a three-dimensional concept and

the role of the neighbourhood for older people. In addition, feeling socially integrated and satisfied with one's social life are important indicators of individuals' happiness and well-being and the strength of local communities. These are important aspects of older people's moving behaviour. (Weijs-Perrée et al. (2017). Physical, social and psychological dimensions also influence this. For instance, a better sense of neighbourhood and stronger connections are associated with better physical and mental health, lower stress levels and more social support and physical activity (Young et al., 2004). If we can better understand the experiences of the different dimensions of their living environment, this can be used to identify different push and pull factors. We can take this into account in forward-looking designs for the Empty Nesters to entice them to move sooner.

2.3 Housing qualities

Several studies have already been done on the housing preferences of Empty Nesters and what makes a house suitable for these households. The municipality of Haren (2005) wrote a report on the relocation propensity and corresponding housing needs of elderly people (55-plus). A survey gained insight into older people's (55-plus) moving propensity and housing requirements. This survey was sent to 971 households over 55 years old. Weikum (1986) argues that there appear to be various social norms, such as space, rent,

structure type, quality and neighbourhood norms, that need to be met to entice empty nesters. Baldwin (2008) conducted research on housing following the Human Life Cycle. He argues that the essence of Universal Design principles rests on the fundamental premise of a flexible, supportive and non-discriminatory environment. These trends call for a new approach to designing environments more attuned to people's changing situations and their varying capacities, like the Empty Nesters. With this genuinely universal approach, they would be supported throughout their lives. This thinking aligns with the WHO guide to age-friendly communities and cities. The WHO guide is central to active ageing, with life-course approaches to promote health throughout life (WHO, 2002). The guide identifies critical aspects of city life that promote active ageing and evaluates a community's 'age friendliness' (WHO, 2007). The guide includes eight domains of liveability;

- (1) outdoor spaces and buildings;
- (2) transport;
- (3) housing;
- (4) social participation;
- (5) respect and social inclusion;
- (6) civic participation and employment;
- (7) communication and information;
- (8) community support and health services.

To get an even better idea of what makes a home suitable for Empty Nesters, inspiration can be drawn from recent housing concepts and initiatives for Empty Nesters. Ossokina et al. (2019) published research in which they developed and applied a new methodology to design the best housing concepts for the elderly based on the research on their housing preferences and architectural design principles. They analysed practically and architecturally feasible combinations of housing, building and site attributes highly valued by the target group. Christian Schittich published a book called "Housing for people of all ages" in 2007. In his book, he describes the concept of integrated living. Schittich (2007) argues that multi-generational housing should provide older people with a social environment that promotes their integration into society, much more than specialised senior living facilities ever could. Nevertheless, Integrated Housing is not limited to the integration of the elderly. Other changes in our society also call for new housing concepts. In this book, Peter Ebner defines the concept of Integral Living and runs through its typology. Integrated Living are the examples presented in this book. Several chapters analyse buildings' structural requirements in line with users' needs in new and existing buildings. The selected projects provide a comprehensive overview. Jelle van Boggelen (2020) investigated the characteristics of empty nesters and showed that they are often very active and outgoing, which may differ from the general image people often

have of this target group. Furthermore, it explains why a healthy city is particularly relevant for empty nesters and what exercise can mean for their future lives. He has several case studies of housing projects, De Klencke and De Prinsendam in Amsterdam and Park Hoog Oostduin and De Zilverzijde in The Hague. These projects were selected to investigate the needs and requirements of housing for empty nesters. The analysis focuses on floor plans, neighbourhood amenities and opportunities for social interaction in and around the building.

2.4 Summary

The theoretical framework revealed studies on suitable housing for Empty Nesters, the moving motives of Empty Nesters, housing preferences and what makes a home suitable for Empty Nesters, and recently emerging methodologies and housing forms for Empty Nesters. The theoretical framework also provided insights from 3 different perspectives on aspects affecting the target group, their moving motives and housing preferences, all of which are important for a housing concept for this target group. The first part shows that the target group is not a homogeneous group that can be easily approached but has great diversity. These different factors do not affect

each stage of life in the same way and play a role in why they live in certain types of housing or decide to move. The second part focuses on the moving motives of the target group. Thus, physical, social and psychological dimensions influence the moving behaviour of the over-55s, and hence the Empty Nester. Thus, life events or lifestyles can influence moving behaviour in addition to these three dimensions. These can then all be divided into push and pull factors. The last section deals with housing preferences and qualities. For instance, there are various preferences and qualities that the over-55s and hence the Empty Nester look at.

Although relatively many conditions have already been set for the Empty Nesters that can be used as a basis for the rest of the research and design, conclusions from existing studies often remain broad and unrelated to specific design guidelines. This is precisely what is needed to design suitable future homes for Empty Nesters. In addition, many studies focus on stand-alone designs. It is essential to integrate these new projects into existing residential areas because of the ongoing urbanisation of Dutch society. Therefore, it is crucial in this research to establish specific design guidelines for suitable housing for Empty Nesters, which can be used when densifying an existing urban environment. The theoretical findings and structure lead to the figure 5. This figure forms the conceptual model underlying this research.

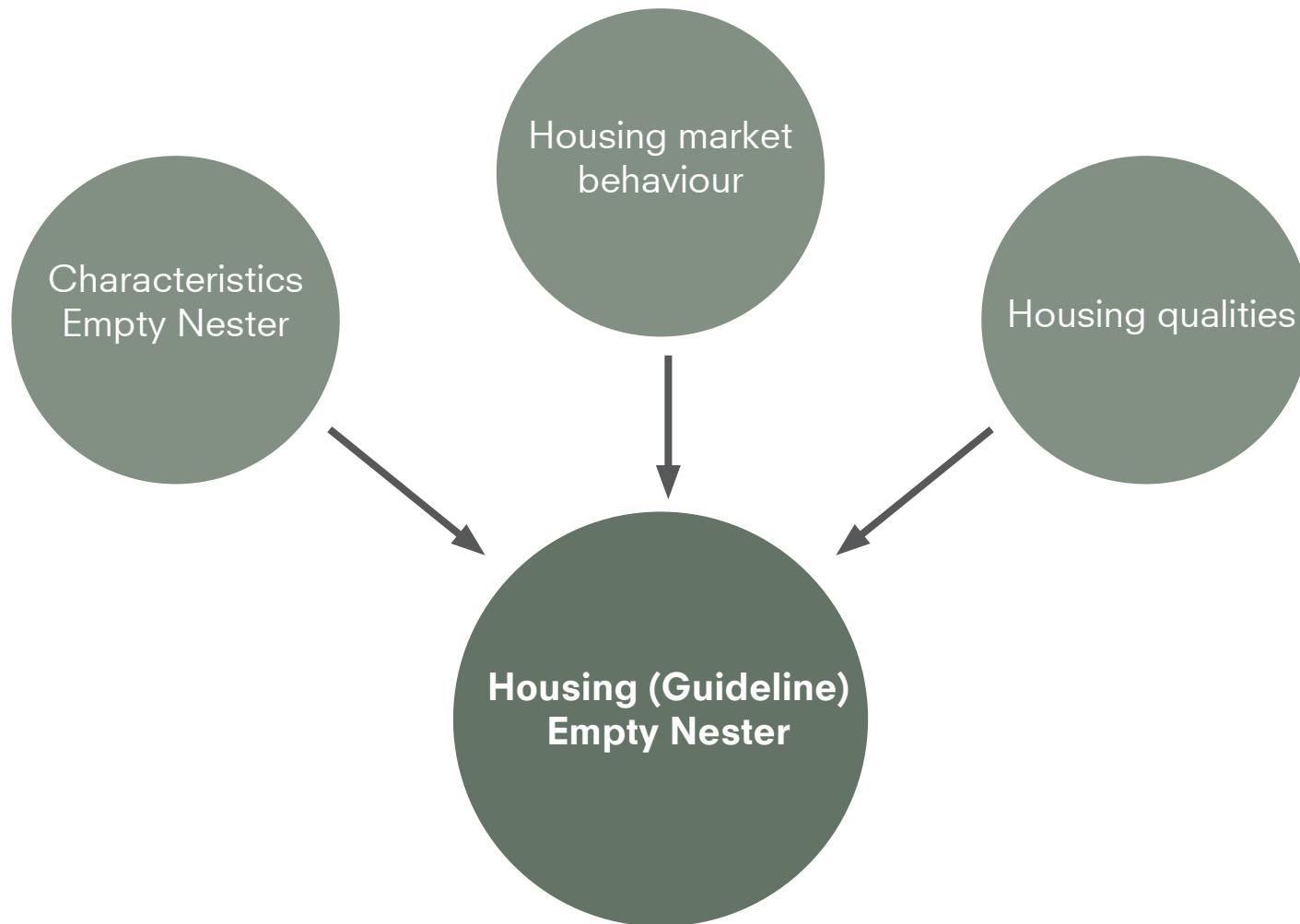
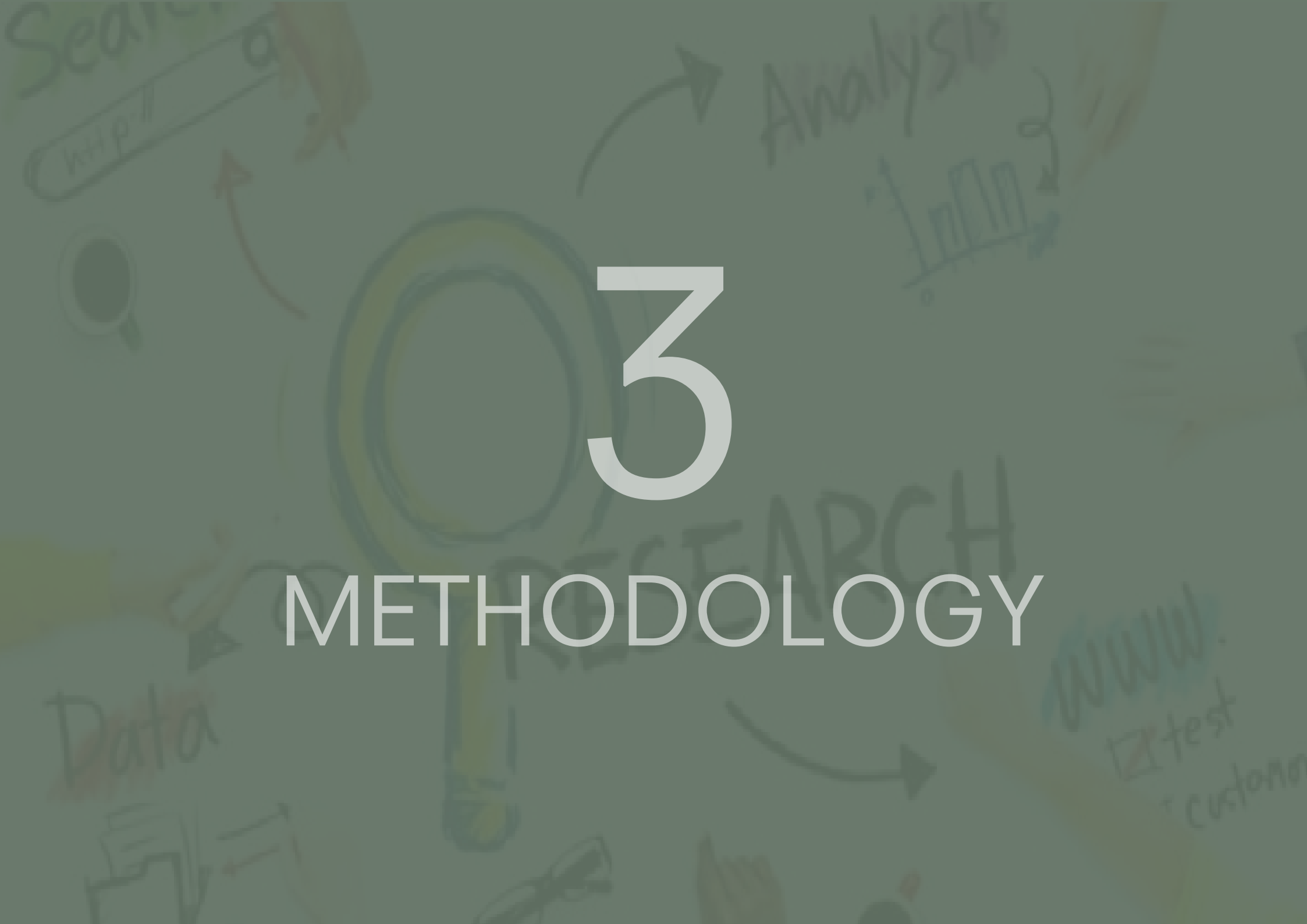


Figure 5: Structure theoretical finding (made by author)

The background is a dark, muted green with a hand-drawn, sketchy texture. It features various terms and diagrams in lighter shades of green, yellow, and brown. At the top left, the word "Search" is written in a cursive font, with a magnifying glass icon below it. To its right, "Analysis" is written in a similar style. In the center, a large, hand-drawn circle is visible. Below the circle, the word "RESEARCH" is written in a bold, sans-serif font. At the bottom left, the word "Data" is written. At the bottom right, the words "www.", "test", and "customer" are written in a cursive font. Arrows and other small sketches are scattered throughout the background, creating a sense of a brainstorming or research process.

3

METHODOLOGY

3 METHODOLOGY

3.1 Methodology and Methods

To answer the main research questions, this study uses an approach that complements what was learned from literature research on Empty Nesters, relocation motives, housing requirements, and user needs with insights from both theory and practice of architectural examples.

The research includes both an individual and a group part, with the group researching the different urban layers of Groot IJsselmonde, like; demographically, urban structures, typologies, building heights, etc. This group research will help understand the urban context, urban diversity and how the different search fields affect the chosen area. It also allows the group to make collective interpretations as guidelines for an urban planning strategy, site selection and building location. As for the individual part, this study takes different approaches.

For the first sub-question, **“What are the characteristics of the heterogeneous group of Empty Nesters, and how are they positioned in society?”** a target group research was conducted in chapter three. A mixed-methods research is used to get a grip on the characteristic features of the over-55s, thus including the “Empty Nester” and how they are differently positioned. Within this target group research, the qualitative part consists of desk research

where several literature studies were done using textual analysis. This involved research into the characteristics and properties such as; purchasing power, health, household composition, mentality, work, leisure activities, and education of the over-55s and how they differ in these topics. The findings were further substantiated by quantitative research. Data was analysed from various databases, reports and studies by CBS and Monitor Older People’s Housing 2020 and the Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving, PBL). The outcome will provide a more general ingredient list covering the various characteristics. This outcome will help apply a more targeted segmentation technique to answer the third sub-question.

The second sub-question, **“What does the housing market behaviour of the over-55s and their relocation motifs look like?”** will be answered using a housing market behaviour research in chapter four. Here, mixed-methods research was used. Within this research, the qualitative part consists of desk research involving several literature studies using textual analyses. Here, research was done on various aspects of the housing market behaviour of people over 55. These include; moving behaviour and motives, housing situations and preferences, and influence on the Dutch housing market. The findings were further substantiated by the quantitative research, where data analysis was done from various databases,

reports and studies from CBS, Monitor Ouderenhuisvesting 2020 and Netherlands Environmental Assessment Agency (PBL). The conclusion will create a list of push and pull factors that can be used for design and housing qualities that should partly answer the fourth sub-question.

The third sub-question, **“How can the over-55s be segmented to understand better the specific housing needs of groups of potential clients?”** will be answered through a segmentation study. This research uses different segmentation methods, as explained in chapter five. A mix-methods research was also used for this study. Within this research, the qualitative part consists of desk research involving several literature studies done on segmentation methods and the target group using textual analysis. Thereby, the results of the previous chapters will be analysed. From this, several residential profiles will be drawn up to help with more targeted designs for the Empty Nesters.

The final sub-question, **“What kind of spatial, functional, and social conditions are needed to make a home suitable for Empty Nesters households, whether they are healthy or physically impaired, and considering different social-economic backgrounds?”** will be answered by theory and practice. In it, the desired housing qualities will be investigated. The last sub-question aims to link theory and practice. Within this research, the qualitative part

consists of desk research where a literature study was done on “age-friendly communities” using textual analysis chapter six. In addition, case studies of projects designed specifically for those over-55s and Empty Nesters were analysed in chapter seven. These housing projects contain spatial, functional and social qualities that should ensure good housing quality for this target group and thus be attractive. By mapping plans analytically, the physical, functional and social representation of the space will be examined, and then these are linked to the ‘ingredients’ found earlier in the literature review and converted into design elements, leading to a design strategy.

Groot IJsselmonde, studied by the studio group, will be used as a case study for this research. For this, an urban planning strategy was made, and a neighbourhood choice and building location were chosen this are shown in chapter 7. A design was eventually made for this. Figure 6 (on the next page) shows per sub-question which input leads to which output and how they contribute to the answer to the main question.

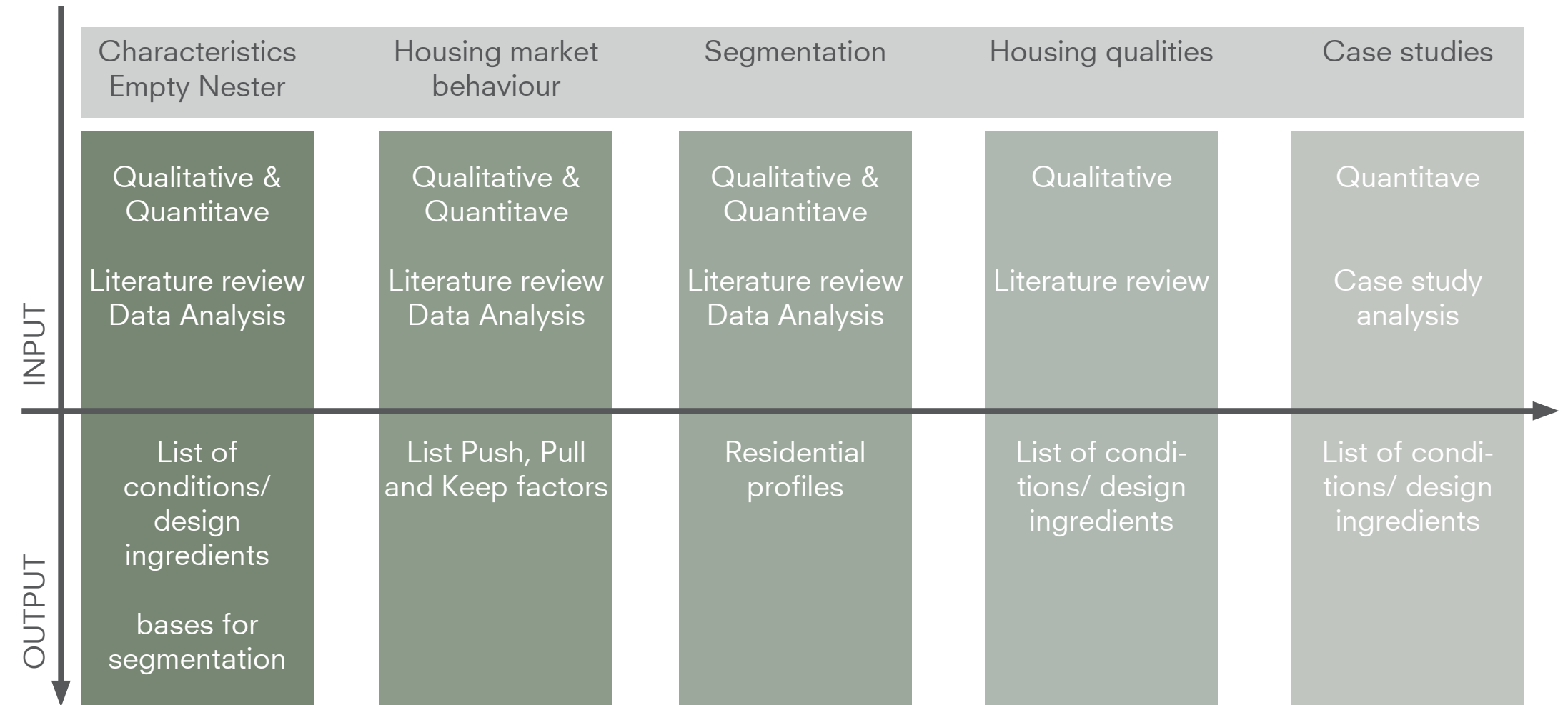


Figure 6: Methods (made by author)



4

TARGET GROUP INVESTIGATION

4 TARGET GROUP INVESTIGATION

4.1 Introduction

As indicated in the introduction, this report will focus on housing design for Empty Nesters, a specific group of the elderly in the housing market who are entering a new phase of life. To properly understand this group of Empty Nesters, it is essential to recognise the overarching type of residents, namely the general group of 55-plussers in the Dutch housing market. Within the target group of older people, great mutual diversity can be observed; for instance, distinctions can be made on purchasing power, health, household composition, mentality, work, leisure activities, education and many other issues (van Duin & van Gaalen, (2019; Ministry of VROM, 2007b; Knook & Nesselaaar, 2001). Given the size of the 55+ market and the significant age difference between young and old seniors, it is not surprising that the senior target group is considered a heterogeneous group. Although this heterogeneous group is still sometimes seen as a homogeneous consumer within the housing market, this is not the case (Knook & Nesselaaar, 2001). Although there is a clear link between age and specific housing preferences, this should not be taken as the main starting point for the housing market. It is essential to know who the consumers are; this gives insight into how consumers behave and what factors influence this. This chapter looks at existing scientific and policy research on the characteristics of current and future seniors that may influence the Dutch housing market.

4.2 Ageing In the Netherlands

Now that the first representatives of the post-war birth wave (the baby boom generation) have turned 65, ageing is taking off. The Netherlands has over 3.7 million 55-plus households (47% of all households), 16% of the Dutch population is 65 years or older, and 13% (over a million) are 75-plus households. These numbers will continue to increase in the coming years, and most are homeowners (De Groot et al., 2013; Akkermans et al., 2020; Hoetjes, 2022). According to the latest demographic forecast by CBS and the Netherlands Environmental Assessment Agency (PBL), the Netherlands will consist of almost 9 million households in 2035, of which 51% will be in the 55-plus age group and 19% 75-plus. By 2040, the number of people aged 75-plus will double both in number and share of the housing market compared to today (De Groot et al., 2013; Akkermans et al., 2020; Stuart-Fox et al., 2021). This increase in the number and share of older people will affect not only the Dutch housing market but also the fact that this heterogeneous target group is characterised by great diversity. This may result in different behaviour in the housing market. (Hermans & VLEUGELS, 2017; Stuart-Fox et al. 2021). For instance, it has been concluded by the Netherlands Environmental Assessment Agency (PBL) (2013) that the generation of older people, that was born between 1945 and 1960, also referred to as the new generation of older people, is

generally more highly educated, more prosperous, more vital, more mobile and more active than previous generations of older people. This is the result of thanks in part to positive demographic trends within the Netherlands. These characteristics greatly influence housing market behaviour (van Dam et al., 2013; De Groot et al., 2013).

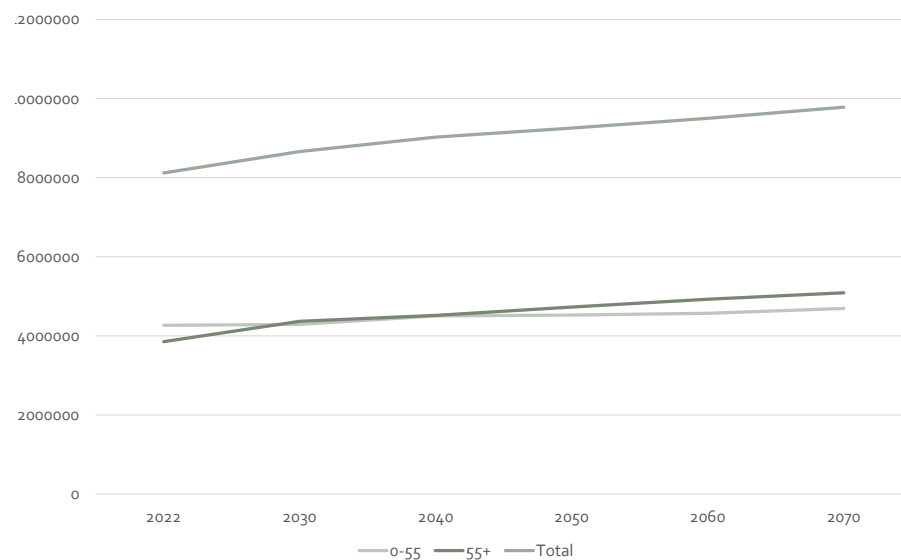


Figure 7: forecast households in the Netherlands 2022-2070 by age and marital status (Centraal Bureau voor de Statistiek, 2021a, edited by author).

The Netherlands will face a strong ageing population in the coming decades shown in figure 7. In doing so, there will be significant differences between different municipalities. For instance, Bible-

believing municipalities and large student cities such as Utrecht are expected to age relatively less, and municipalities in the peripheral rural areas will have to deal with strong ageing (Verwest, 2011; Verwest & Van Dam, 2010). Incidentally, these spatial differences in the degree of ageing do not necessarily say anything about the attractiveness of a particular municipality for the elderly; after all, the residential location is often determined by choices made at earlier stages of the life course. Although peripheral and rural areas will continue to be among the most ageing areas in the future, the number of older people is increasing most strongly in the big cities in the Randstad, simply because this is where most people live now and therefore where most older people will live in the future. Therefore, the large cities in Randstad face a significantly greater numerical challenge than the rural municipalities because the increase in demand for housing suitable for the elderly is also the strongest. This is partly due to the low relocation propensity of the elderly. The majority of elderly people move within their region, city or even neighbourhood (Stee Group, 2005).

4.3 Definition Senior

Several attempts have been made to formulate a definition for senior citizens. However, this is not possible at all. Someone aged 55 is not the other. Nor do people change within a day of turning 55.

This change has been gradual over the years. Although there can be an age difference of 20 years within this group, many over-55s are more similar to people aged 35 than those aged 75+ (Knook & Nesselaar, 2001). Thus, there is a difference in a chronological and psychological age. Indeed, someone aged 55 does not necessarily feel 55 yet either; many people feel younger than they are. Still, it makes sense to distinguish this group and set a lower age limit of 55. Around this age - sometimes earlier and sometimes later - certain relevant changes that affect the housing market will still occur (Knook & Nesselaar, 2001).

4.4 Older & More Vital

A critical and visible development in the housing market is increasing life expectancy. It does not mean that this is without flaws. It is increasingly common for the average elderly person to have a chronic illness. Although these chronic illnesses are accompanied by physical limitations and which can therefore be an obstacle to self-reliance for the elderly, this is becoming less and less the case. (Van Dam et al., 2013; Health Council, 2018). For instance, the number of older people, on average free of (moderate to severe) physical limitations, has declined in recent decades. However, older people are also increasingly living independently for longer, decreasing the number of older people living in (care) institutions.

This is because the elderly are more self-reliant, partly thanks to the government's recent extramuralisation policy. Extramuralisation is the physical separation of living and care, whereby lighter care is now provided in the home situation and the entitlement to stay in an intramural setting lapse (Kromhout, 2018). Elderly people will form an increasing part of Dutch society, and elderly housing, particularly longer independent living at home, will become increasingly important (De Groot et al., 2013; Stuart-Fox et al., 2021).

4.5 Mentality & Lifestyle

The longer vitality of the elderly described in the above paragraph is associated with the mentality and lifestyle of the elderly. Previously, the elderly were associated with an inactive and withdrawn lifestyle. However, that image is no longer the actual of today's over-55s. For instance, many of today's 55-plussers are emancipated, active, self-aware, take new initiatives, follow courses and training, enjoy visiting museums, do voluntary work, engage in sports or can be found online (Knook & Nesselaar, 2001). Thus, the over-55s want to remain active in society and continue their proactive lifestyle for as long as possible. This is also reflected in CBS' (2020) study on the Social Cohesion and Well-being of the elderly. Over half of the over-55s in the Netherlands say they enjoy getting older, and less than 1 in 10 feel old. 58% of those over-55s say they are as happy now

as when they were 25, and almost a quarter are even happier. This is according to CBS' Belevings 2019 survey. It also found that the 'young elderly' of today are thus more likely to be happy than the young elderly of the past. An essential factor is that this group has it better than the generation before in several respects, as described above. (CBS, 2020). However, this does not take away from the fact that there are still a proportion of older people who are not at all so vital and purchasing power and have a somewhat more subdued mentality and lifestyle.

4.6 Household Composition

Another significant development is the composition of elderly households. In the Netherlands, the share of single-person households within the housing market is increasing; this is also visible in figure 8. The total number of single-person households has grown from 685 thousand in 1971 to 3.1 million at the beginning of 2021 (CBS). This will only increase further. Within 55+ households, the share of single-person households is also high; for instance, 39.1% (1,458,600) are single-person households out of the total number of 55+ households (3,730,940) (BKZ, 2019). Subsequently, as age increases, the proportion of single people among them will also increase. In addition to widowhood, single-person households are increasingly emerging due to divorce (CBS, 2018). The

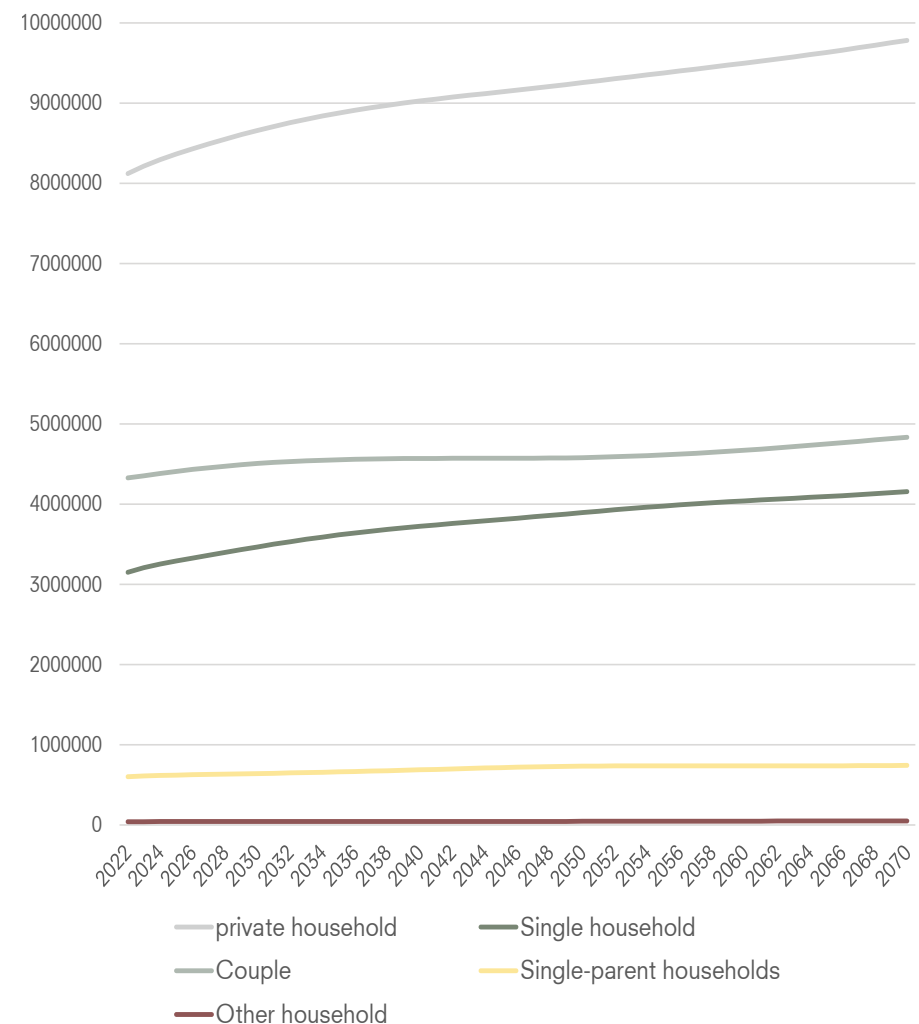


Figure 8: forecast households in the Netherlands by age and marital status 2022-2070 (Centraal Bureau voor de Statistiek, 2021a, edited by author).

projection of male and female life expectancy in 2040 shows that the share of single persons among older women is still higher than among older men. This is partly because women have a higher life expectancy than men. In addition, women are more likely to enter into relationships with older men, meaning they are left alone more often and for longer on average after the death of their partner (Van Dam et al., 2013; CBS, 2018). Another critical aspect of the evolution of household composition is the fact that elderly people are more often childless. In 2013, the share of childless women aged 65+ was about 11%; this number is expected to rise to about 18% in 2040. This means that more and more elderly people will then be able to fall back on a partner or children for help or informal care. As a result, the percentage needing proper care will only increase. This development will also have an impact on the housing market. (Van Dam et al. 2013; CBS, 218).

4.7 Education

The housing market behaviour, education level, and wealth of people aged 55 and over strongly correlate (Hooimeijer, 2007; Van Dam et al., 2013). In recent decades, the educational level of older people has increased significantly. This substantial increase results from favourable demographic trends within the Netherlands (Van Dam et al., 2013; Van Iersel et al., 2009). After World War II, educational

participation per generation increased continuously, resulting in older generations being relieved by younger, more educated generations. As a result, the education level of the adult population has only increased. Among today's over-55s, only 39% have only primary education. More than 25% of them have completed higher education (HBO, WO), and this percentage is still gradually increasing in subsequent generations (Van Dam et al., 2013). The elderly of today and tomorrow are, therefore, more similar to today's young people in terms of education than the older generation of elderly people (Hooimeijer, 2007). Thus, figure 9 compares the level of education of people aged 55 and over in 2003 and 2021. The table shows that the size of middle- and higher-educated people is increasing while that of lower-educated people is decreasing.

	2003			2021			Difference		
	Woman	Man	Total	Woman	Man	Total	Woman	Man	Total
Lower Education	66,6%	43,1%	55,6%	46,4%	31,2%	39,1%	-20,2%	-11,9%	16,5%
Medium Education	23,8%	36,2%	29,5%	30,7%	35,8%	33,2%	+6,9%	+12%	+3,7%
Higher Education	9,3%	20,3%	14,4%	20,9%	31,1%	25,8%	+11,6%	+5,5%	11,4%
Unknown	0,3%	0,4%	0,5%	2%	1,9%	1,9%	+1,7%	+1,5%	+1,4%

Figure 9: The educational level of the 55+ population in the Netherlands (from: Centraal Bureau voor de Statistiek, 2021b, edited by author).

The table also clearly shows that more and more women are completing higher education. Completing further education became increasingly important to enter the labour market. This is partly due to the government's policy; they assume that citizens are engaged in lifelong learning. Thus, the government tries to increase the employability of older people, among others, through (re)education and training so that they can work for a long time and in different directions (De Boer, 2006; Hermans & Vleugels, 2010).

4.8 Income

Having a higher education more often leads to a higher income and better pension (Van Dam et al., 2013; Van Iersel et al., 2009). With this often comes better health and vitality. This is visible in the longer independent living of the over-55s. Thus, the positive increase in educational attainment within the Netherlands can also be seen in the social capital of the younger generation and future elderly. The elderly of the baby boom generation are relatively affluent (CBS, 2021; Van Dam et al., 2013). For instance, today's elderly have built up a supplementary pension more often, making them less financially dependent on AOW benefits alone. Also, the increasing labour participation share of women and the (legally) rising retirement age (now 67) affect their income and affluence as much as their behaviour, such as relocation behaviour, leisure

activities and consumption (Hooimeijer, 2007; Soede, 2012; Knoef et al., 2012; De Groot et al., 2013). Also, the share of homeowners that has increased sharply has strengthened the wealth of the elderly. In 1981, only 30% of people over 65 owned their homes; in 2019, this number had already risen to 63% of people over 65, and this share continues to increase (Van Dam et al., 2013; CBS, 2019).

In general, people face a drop in income when they also retire. Nowadays, financial starting positions are better due to higher percentages of working women and better supplementary pensions (Van Dam et al., 2013). Despite a positive increase in the social capital of the younger generation and future elderly, there is still

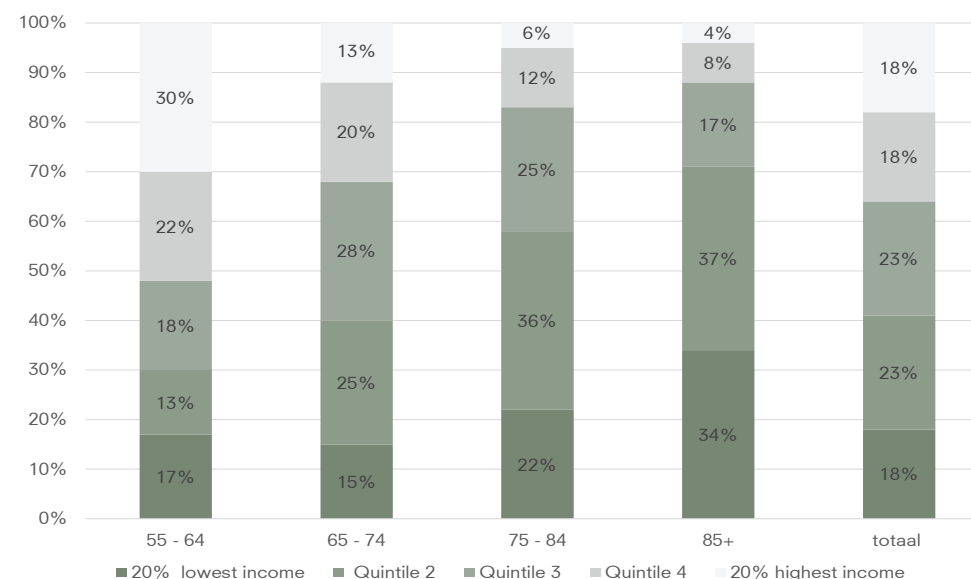


Figure 10: The division of 55+ households within the disposable income quintiles of the Netherlands in 2019 (Stuart-Fox et al., 2021, edited by author).

diversity between them. Figure 10 confirms the income declines and diversity within this target group. This shows that the group of over-55s can be divided into five income groups, also called quintiles. In addition, this figure shows the shares and differences within the age groups. For instance, the first age group, 55-64, still belongs to the working, but this is no longer true for the vast majority of those over-65s. This is also visible in the graph in which the percentage of the highest income continues to decline as age increases (Van Dam et al., 2013; Stuart-Fox et al., 2021).

As mentioned, behaviour in the housing market is related to the level of education and, thus, wealth; this also applies to the elderly. Higher-educated baby boomers participate more often in the labour market and are healthier (with fewer disabilities) and more vital for longer than their predecessors. This allows them to live independently for longer, for example. Higher education and income usually also mean a different lifestyle, consumption and leisure activities (Hooimeijer, 2007; Van Dam et al., 2013).

4.9 Leisure activities

Around certain moments, usually the Empty nest moment or retirement, people's free time has increased significantly. People can then mainly decide how they organise their day, compared to when

they still had to take care of children or were in paid employment (Knook & Nesselaar, 2001; Van Dam et al., 2013). Thus, there are all kinds of pursuits into which 50-plussers put their time; hobbies, board positions in sports clubs and voluntary work. As a result, they do not feel like they are standing still. Some people are busier than ever after retirement. Older people work longer and are increasingly active in the labour market even after retirement. Working longer reduces the number of young older people aged 55 to 65 who have time for volunteering. In particular, 55- to 65-year-olds who retire early do volunteer work relatively often (van Duin & van Gaalen, 2019). In addition, seniors are also increasingly active digitally; for example, relatively much time is spent watching television or online streaming services such as Netflix, Growing number of over-50s surfing the web (CBS,2020).

Many seniors need to spend their leisure time in a meaningful way. For instance, about 1.5 million over-55s (40 %) do voluntary work, especially in sports, hobbies and church activities. Some elderly decide to continue working part-time after reaching the retirement age, start a third career or pursue new studies. Nevertheless, most elderly people, when they retire, mainly spend more time on the activities they were previously involved in, a small group opting for a new direction (Knook & Nesselaar, 2001). There is also growing sports participation among the over-50s. In

the 55-65 age group, about 50% participate in sports every week, while among over-65s, it is around 41%. Walking, cycling, tennis, running, golf, fitness and swimming are popular within the senior market (CBS & RIVM, 2017; Den Dool, 2017). Thus, the elderly prefer fewer activities in/around the house but more outdoors. Most of today's over-50s who participate in sports will not suddenly stop practising sports upon reaching a specific age limit; this will only happen in case of physical limitations. Thanks to the positive development in the vitality of seniors, there is a growing awareness among the group itself that it is crucial to exercise enough even in old age. People do sport not only to stay fit but also because of the social aspects (Knook & Nesselaar, 2001).

4.10 Social contacts

According to Boluijt et al. (2012), social contacts are essential for good social participation and integration (Mars & Schmeets, 2011). Participation in social networks creates social engagement by dealing with society's norms and values (DSP, 2011). Even within the heterogeneous group of older people, this varies between men and women, age and between the low and highly educated, marital status and degree of urbanisation. (CBS, 2014). Thus, it appears that people who frequently participate in society are happier than those who participate little in society (Lyubomirsky et al., 2005;

Helliwell & Putnam, 2004; Uijtdewillegen, 2016). Interestingly, Low-educated people have the slightest contact with family members. Highly educated people have the most contact with family, friends and acquaintances. Contact with neighbours is the same for low and highly-educated people (CBS, 2010).

A social network is vital for older people's satisfaction, which also certainly affects the housing market. Thus, they attach much value to the help and support they receive within their social circle (Martin & Westerhof, 2003; Uijtdewillegen, 2016). Weekly contact with family generally remains stable throughout life. As age progresses, contact with friends decreases up to and including age 55; after that, it even increases slightly. Similarly, contact with neighbours increases with age (CBS, 2019). Most over-55s have weekly encounters with family, friends and neighbours. In 2019, 81.6 per cent had contact with family once a week, 65.5% had weekly contact with friends, and 63.4% had weekly contact with neighbours (CBS, 2019). Thanks to the rise in social media use among older people, weekly contacts remain relatively stable (CBS, 2019; CBS, 2020).

Network size reflects the social connections in which older people participate (Steverink, 2002). As age advances, people face various events that affect their social circle; they face the Empty Nest moment, retirement, the death of a partner or a family member, or

moving house (Hovaguimian et al., 1988; Kahn & Antonucci, 1980; Knipscheer, 1980). The latter event results in a decrease in the social network size (Victor et al., 2002). Broese van Groenou and van Tilburg (2007) indicate that smaller social networks can harm older people. For instance, it can lead to social isolation and mental health problems.

4.11 Diversity

The elderly of today and the future are, as described in the paragraphs above, more vital, more active, and more affluent than ever before. However, there is great diversity within this heterogeneous target group. This target group can be very diverse, even within different age cohorts. In terms of prosperity, working or not (yet), partner or no partner, vitality, health, activity, etc. This picture reflects the increased diversity in life courses: at 50 or 60, people have very different experiences behind them (Sap & Schippers). Thus, the diversity in wealth within this group has even increased. For instance, assets and incomes have become more unequally distributed within the old-age group, partly because of the difference in education. On the one hand, there are well-to-do elderly couples with supplementary pensions and a paid-off, strongly appreciated owner-occupied house, and on the other hand, the less educated, single elderly or elderly people who

entered the labour market later in life, with a modest pension and a rented house (Van Dam et al., 2013; Hermans & Vleugels, 2010).

When it comes to age categories within this target group, it can also be very diverse. In Gerontology - the science of ageing - we first knew the traditional three-stage model of 'learning - working - resting'. With growing diversity, this model changed to a five-phase model with fluid boundaries and transitions (figure 11). Together, the fourth and fifth life stages constitute age categories of the elderly in society (Sap & Schippers). As already shown in the paragraphs above, people who are in the 4th stage of life - such as those over-55s - are the people who have their freedom and can arrange their lives as they see fit. For instance, Peter Laslett called this stage of life the 'crown of life', where this group are finally free of obligations, such as studying, working and raising children, and gets the chance to develop themselves in complete freedom (Knipscheer, 2006). This phase of life can be both an active and enterprising phase, in which people are fit and enterprising in life and are looking for self-development and self-actualisation, but also a phase of loss of social roles and social contacts and sometimes gradual withdrawal from society (Ministry of Health, Welfare and Sport, 2005; Hermans & Vleugels, 2010). His research shows that the third stage of life (shown in figure 11) can best be characterised as "a phase in which the pace is slowed down and

which is characterised by freedom from obligations, a pleasant arrangement of the day and, in addition, maintaining health and social contacts as well as possible” (Van de Maat, 2008, p.34). The diversity within this target group has thus increased significantly and will only continue to develop in the future. The above paragraph indicated that not everyone had received positive social development to the same extent. Socio-demographic, socio-economic and socio-cultural dynamics ensure that the relationship with housing has an out-of-order course, as shown in figure 12.

As various factors within these different areas influence each person, this has significant consequences for the various housing and living situations (Ministry of Housing, Spatial Planning and the Environment, 2007b). Age and age limits will be less critical for finding preferences and needs. In the long term, norms and values change and with them, human development (Brouwer, Sogelée & Van Till, 2005). In the figure below, the former Ministry of VROM shows a general model of how these other developments affect a person and thus also housing and, indirectly, the housing market.

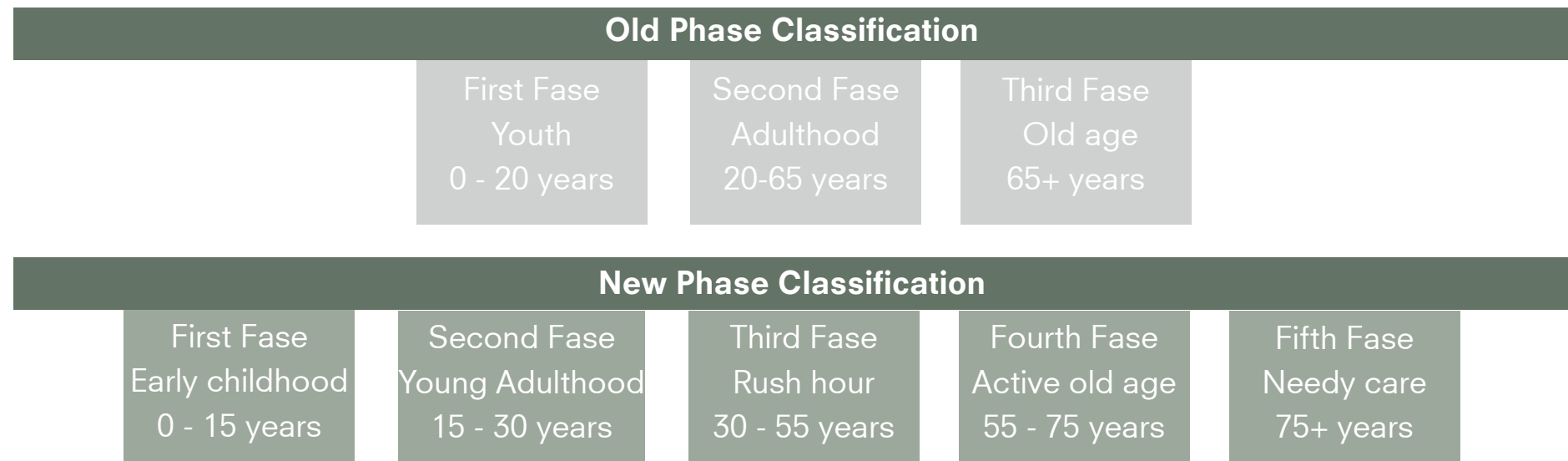


Figure 11: Old and New Phase Classification (Knipscheer, 2006, edited by author).

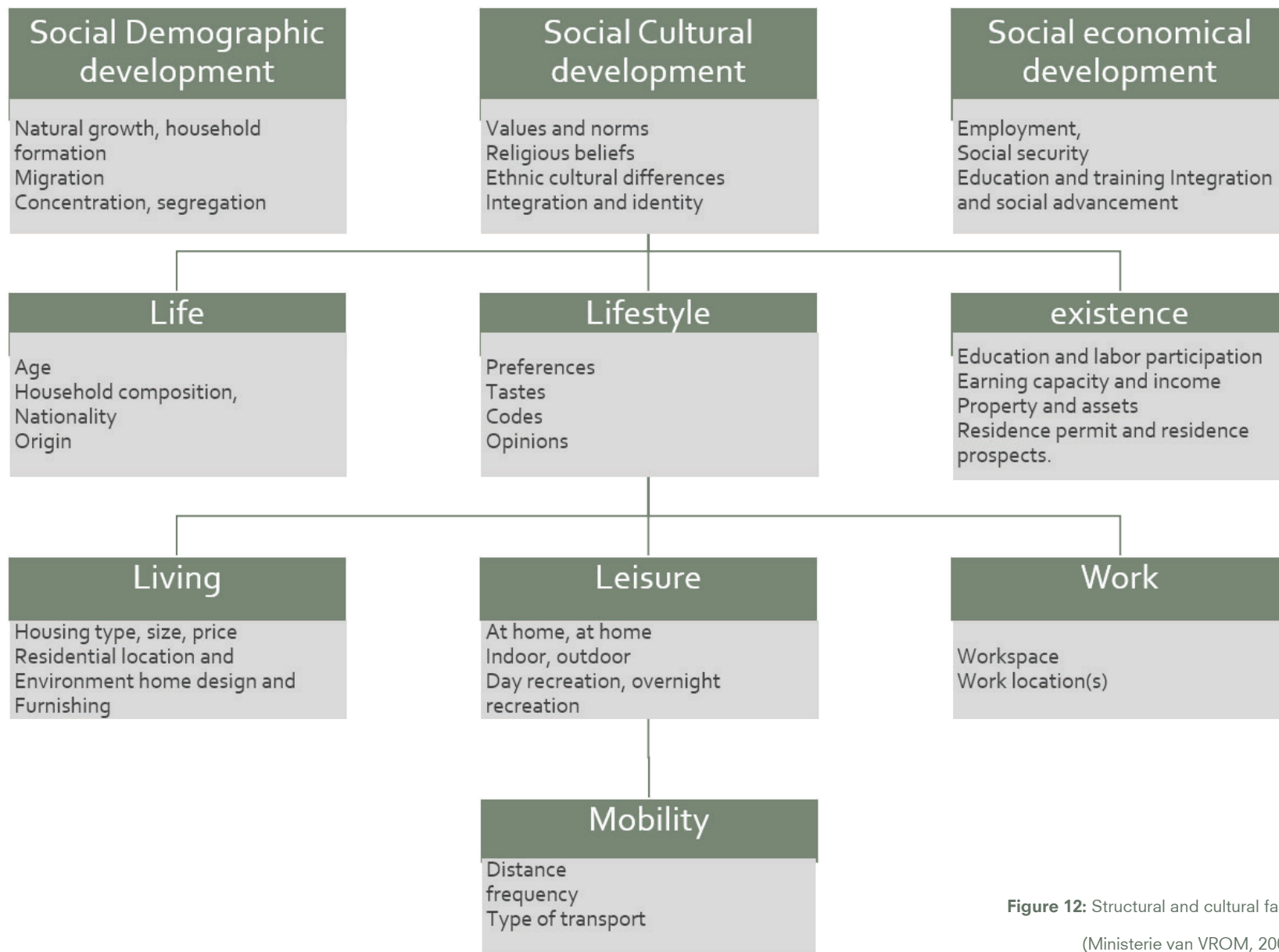


Figure 12: Structural and cultural factors driving dynamics

(Ministerie van VROM, 2007b, edited by author)

4.12 Conclusion

This chapter has analysed and described the target group 55-plus (the Empty Nesters umbrella group) and had to answer the following question: "What are the characteristics of the heterogeneous group of Empty Nesters, and how are they positioned in society?". As described, the ageing population will grow, and the number of people and households aged 55 and above is expected to increase. Unsurprisingly, the characteristic features make this group different from the previous generation but also have great diversity within this heterogeneous target group. It is also logical that the literature mentions that "the older person" does not exist. For instance, older people differ in the household, income, level of education and vitality, among other things. In addition, this target group may vary in the standards and values they adhere to. This diversity is mainly due to their life history and their generation. For instance, different social demographic, cultural and economic influences affect one during the life course. For example, not everyone has experienced the same prosperity or has had to deal with social changes. Diversity will be incredibly high among the current and future generations of older people, such as the baby boomers. This generation is also forming ageing waves. This diversity among the elderly and the fact that the elderly are critical consumers calls for the segmentation of the target group.

In short, different social demographic, cultural and economic influences affect a person during the life course, which results in characteristics differences, e.g. household, income, level of education and vitality, among other things. This also affects the design of a home suitable for this target group. These influences have been translated into essential Empty Nester housing development aspects and are summarised on the next page.

- As the elderly become older and more vital, it is essential that they also have the opportunity in homes that also allow for this, which is why homes must become life cycle proof.

- Because older people have active and entrepreneurial lifestyles, a design should have functional and spatial qualities in different scales that support this.

- Given the differences in household compositions, different homes should be designed to accommodate this.

- Design enough variety for sufficient quality for every target group to live comfortably.

- Because there is great diversity in education, income and wealth, it should be taken into account that there are various housing qualities related to these differences in wealth. Think of size homes and luxury.

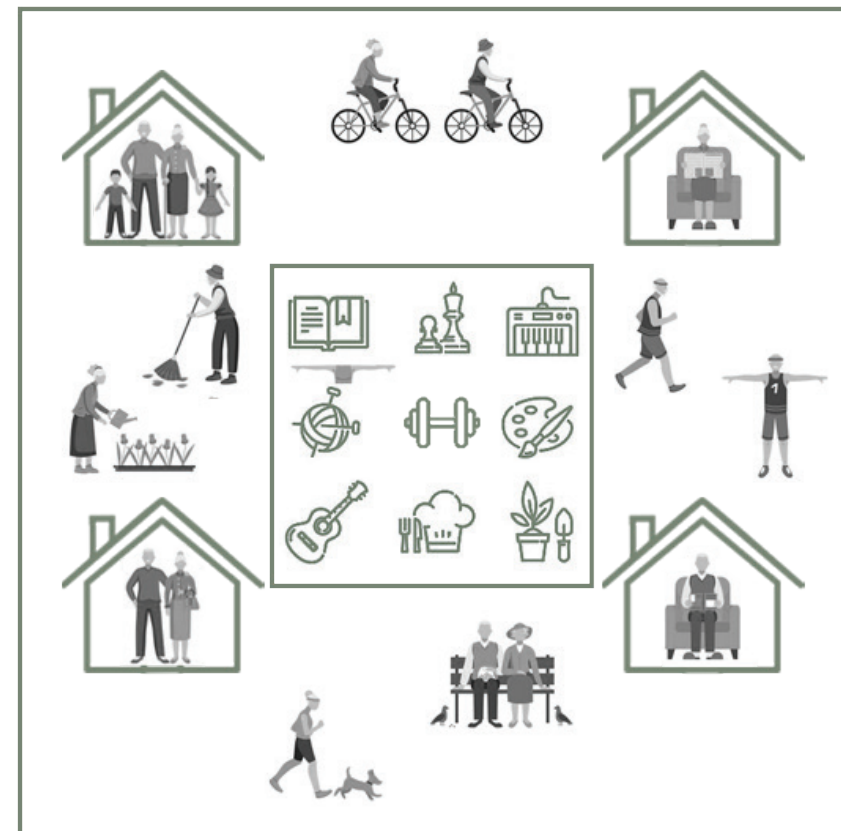


Figure 13: design essential edited by author)



5

HOUSING MARKET BEHAVIOUR

5 Housing market behaviour of over-55s

5.1 Introduction

As a developer or architect, finding out who those consumers are is essential. In doing so, it is necessary to know how consumers behave and what factors are responsible for this. In the housing market, too, there is great diversity within this target group. This also applies to the moving behaviour of older people (De Groot et al., 2013). This chapter examines the housing market behaviour of the elderly. In the first part of the chapter, the theoretical foundation elaborates on several theories on moving behaviour. The concept of moving behaviour comprises several stages: moving motivation, moving propensity and the actual move. This chapter focuses on the propensity to move. It also examines existing literature on ageing in the Netherlands, its impact on the Dutch housing market and the housing market behaviour of the over-55s. Thereby, the extent to which over-55s are inclined to move, what keeps them in their place and what motives they have to do so are examined using different theories.

5.2 Moving propensity over-50s

Research shows that older people are very home-loving and prefer to stay in their current homes for as long as possible (De Groot, Van Dam and Daalhuizen, 2013). From the survey perceptions by CBS (2019), 46% of 55- to 65-year-olds say they do not want to move; among 65- to 75-year-olds, this rises to 60% and among over-75s, even 72%. As a result, there is a need to modify existing housing rather than new housing. Older people are sedentary because they are attached to their homes and living environment (see figure 14) They have memories, build a social life, and have daily routines (Ministry of VROM, 2007c). Thus, as people grow older, their sense of home ownership increases, and their propensity to move decreases. The longer a person lives in the same home, the greater the resistance to moving; this is partly due to attachment that has increased over the years (Filius, 1993; Van der Meer, 2006; Smith, 2009).

In addition, the low relocation propensity of older people is influenced, among other things, by the fact that moving is often not a challenging step in their housing career (Schellekens, 2010). According to Van Iersel et al. (2009), many elderly people are already at the peak of their housing careers. As a result, they are often comfortable and like where they live. A move also often means a downward step in the housing career (Ministry of VROM, 2007c;

Hooimeijer et al., 1986). Older people generally only readily give up something they have worked hard for because they have reached a certain age or the household has shrunk. Similarly, the same applies to housing; having several rooms that used to be a necessity can now be considered a luxury (Fokkema et al., 1993). However, it can be expected that at some point, the current housing situation may not match practical housing needs due to the limitations or needs associated with ageing. In contrast, most people over 55 are satisfied with their homes (see figure 14): in 2018, 90% were (very) satisfied. Regarding the living environment, 86% of people over 55 are (very) satisfied. People over 75 are often (very) satisfied with their homes and living environment (Akkermans et al., 2020).

Furthermore, relatively high homeownership plays a role in the low propensity of older people to move. Increased self-reliance also means that older people can often stay at the same address for a long time. Even though a third of 55-plussers and almost a quarter of 75-plussers - consider their own home unsuitable or less suitable in case of health or old age problems. Modifying the home is preferred to moving for most. Of all 55-plussers, 56 per cent say they only want to move if there is no other option. In addition, fewer and fewer older people live in care or retirement homes (CBS StatLine, 2019c). Developments in recent years have blurred the line between independent living and intramural care facilities,

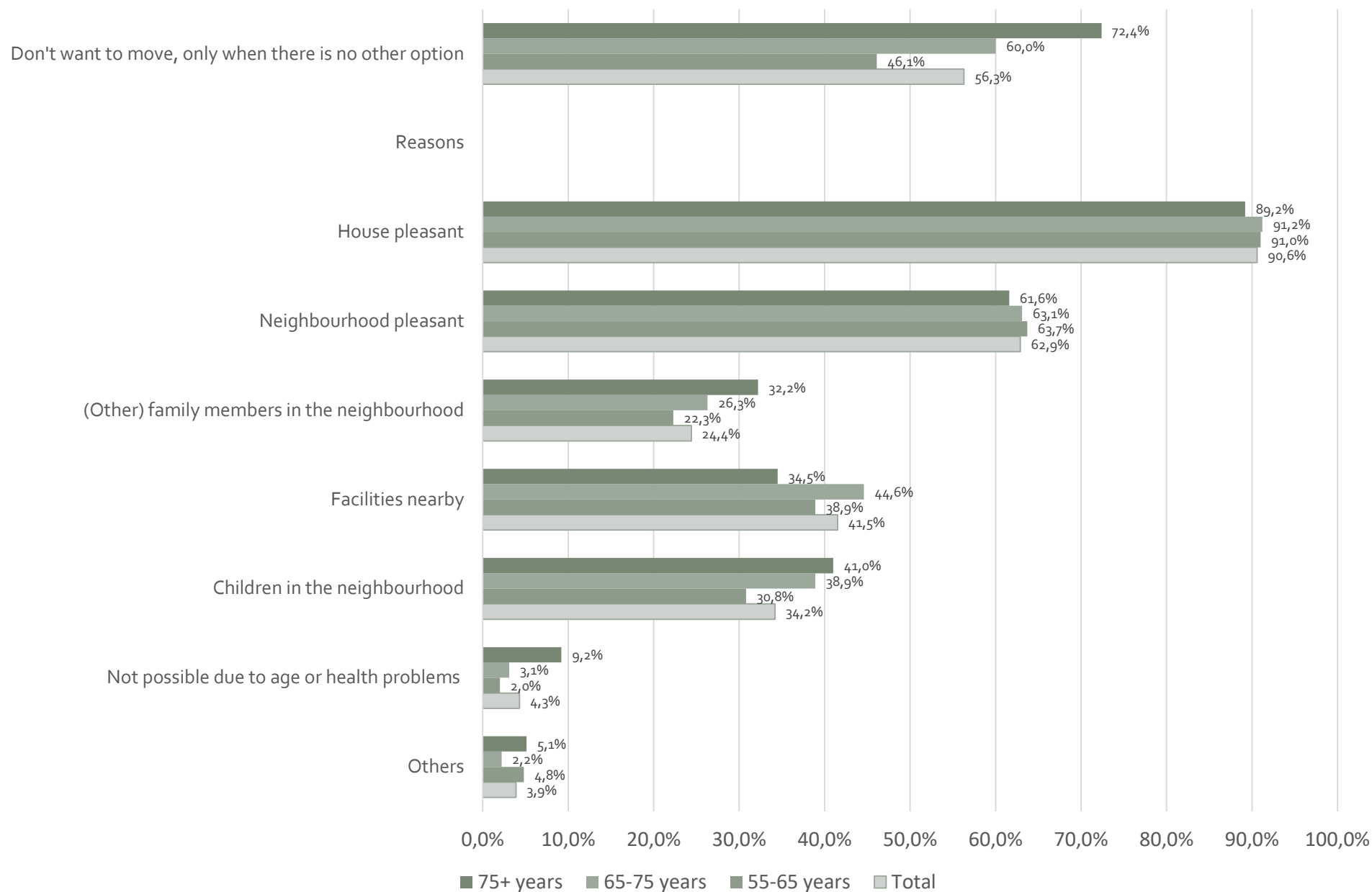


Figure 14: No desires to move and reasons (CBS, 2020) (edited by author)

and several new housing forms have been developed where the elderly can live independently but still receive intensive care. The number of older people living independently will only increase (De Klerk, 2004). This also has implications for the housing market.

Several theories have been discussed in the theoretical framework identifying important factors determining the propensity to move. These include the difference between wanting to move and moving (see figure 4). Both international and national research shows that people with a positive desire to move do not often move. This is especially high among the elderly (De Groot et al., 2008). The main reasons for this are the need for more of the desired supply in the desired (current) neighbourhood and waiting for the sale of their own home. In the WoOn (2012) study, the tightening of the social rent policy is cited as one of the reasons for the limited alternatives for older people from upper and middle-income groups. However, it is also difficult for move-in-inclined low-income seniors to secure social rented housing. Due to scarcity, there are extensive waiting lists, and thus competition is only growing (Ministry of Housing, Spatial Planning and the Environment, 2007c; Fokkema, 1996). Another reason why the low realisation probability and low willingness to move may have to do with the needs and housing preferences of the elderly. As mentioned earlier in this section, most elderly people are at the top of their housing careers and are less willing

to take a step or several steps back. (De Groot et al. 2008; 2012).

However, there is also a part that does want to move. For example, in 2020, Statistics Netherlands published that about 1 in 3 (33%) of those over-55s still want to move (figure 15). For example, 9% want to move within five years, and 6% have more patience and want to move within 5 to 10 years. 4 % would only want to move after 10 years. As mentioned earlier, the propensity to move decreases as people age and the CBS study confirms this. Namely, 43% of the 55 to 65-year-olds would still like to move, while in the age group of 65 to 75, the percentage drops to 30% and the over-75s to 17%.

The proportion of elderly people who do want to move can be attributed to health or housing-related motives (figure 15). The reason for moving because of health complaints is the first reason. 43% of 55 to 65-year-olds indicate that they would like to move if they have health or age-related problems. As the age increases, the percentage who want to move for this reason also increases. For example, the percentage among the 65 to 75 age group has risen to 57% and among the over-75s to 70% (Akkermans et al., 2020). Having physical limitations and living in an unsuitable home contribute significantly to the desire of the elderly to move house. Moving to a suitable home because of problems with self-reliance due to physical limitations is called reactive moving behaviour

(Van Campen, 2008). Moving to a suitable home by young elderly people, who are not yet hindered by physical limitations, is also called proactive relocation behaviour. Kullberg and Ras (2004) state that it is estimated that at least 1 in 3 elderly people who move or are inclined to move to do so as a precautionary measure. However, this group, known as “pre-sorters”, is tiny. The majority waits and postpones the move until it becomes necessary (De Zeeuw, 2007). Housing-related moving motives of the elderly are linked to the desire

to improve the current living situation because it no longer fits the lifestyle. The deterioration of social interaction in the neighbourhood and the increase in nuisance in the neighbourhood also appear to be critical motives for the elderly to move. 40% of the over-55s give the reason for moving because their home is too large. 20% give the reason that they no longer want a garden. 6% want to live closer to their children or with family or friends (3%) (Akkermans et al., 2020). These types of moves are often associated with reaching new

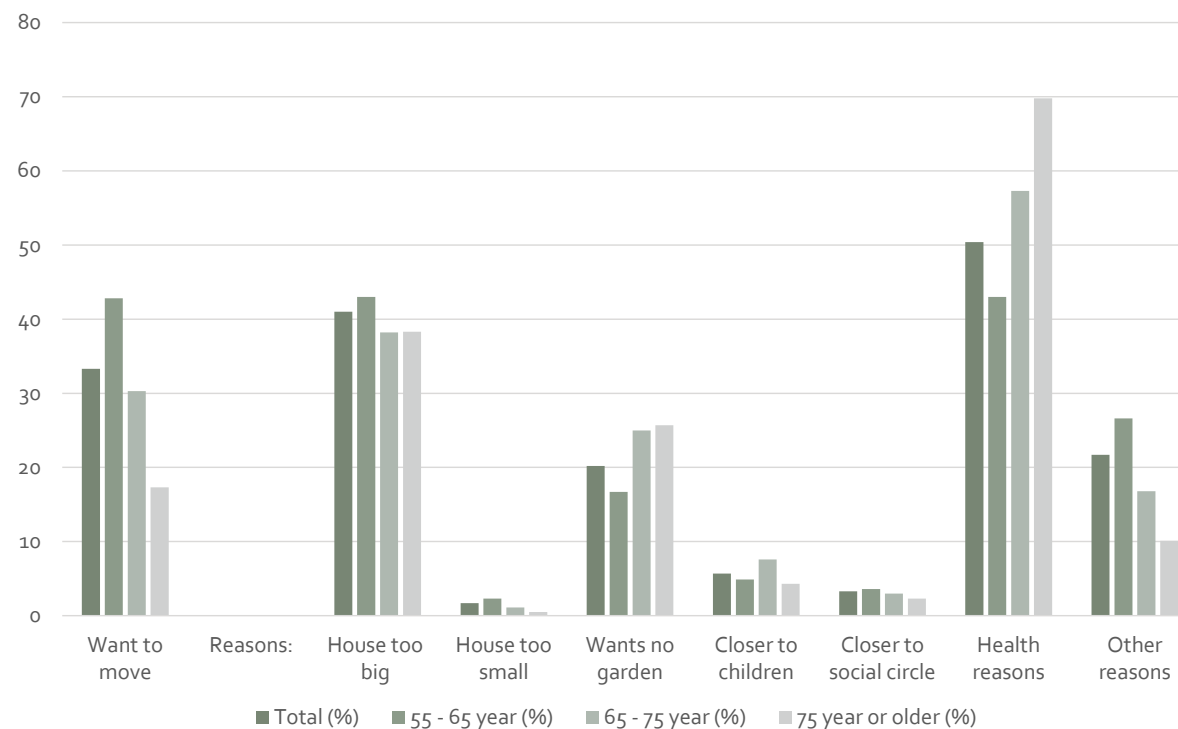


Figure 15: willingnes (CBS, 2020) (edited by author)

phases of life, such as the empty nest moment or retirement age. Only among the younger elderly people move to a limited extent because of work careers or changes in family situation (Kullberg, 2005). Having a partner appears to have a modest effect on the desire to move house among the elderly. Older people with higher education seem more likely to want to move to a more suitable home with an eye on the future (De Klerk, 2004). In practice, these relocation motives have a minor role in relocation behaviour. Most older people move in anticipation or response to a need for care (Filius, 1993; Kullberg & Ras, 2004).

5.3 Housing situation of those over-55s

Gaining insight into the propensity to move of the elderly is essential to get a grip on the behaviour of the elderly in the housing market. It is also important to understand another aspect of the housing market behaviour of the elderly. There is an observation that most elderly people are homebound. This observation raises the question of what kind of homes make these elderly people so stable. This information is also essential for understanding what kind of homes are pleasant for the elderly to meet this need/preference.

CBS research published in 2020 shows that most over-55s live

independently. It was found that flats, flats and intermediate houses are popular among those over-55s; The majority of those over-55s live in an intermediate house (26%) or in a flat or apartment (26%; this includes a storey, upstairs and downstairs houses). These figures differ by age. Most popular among over-75s are flats and flats (40%). This share is significantly lower among 55- to 65-year-olds (19%) and 65- to 75-year-olds (25%). These age groups are more likely than those over-75s to live in ground-connected houses such as; detached houses, semi-detached houses, corner houses and intermediate houses (figure 16). Ten per cent of those over-55s say they live in senior housing. Overall, some 5.6 million over-55s will live independently at home by 2020, of which more than 1.3 million will be over-75s.

Furthermore, CBS data published in 2019 reveals that nearly 60 per cent of 55-64-year-olds live in single-family homes. That share declines as age increases. The percentage of older people in a multi-family owner-occupied house (owner-occupied flat) or a single-family owner-occupied house owned by a corporation varies relatively little between age groups. However, significant differences show the share in multi-family housing owned by a corporation: the older, the more households live in this segment. In the Monitor, the term 'multi-family dwelling' refers to a stacked dwelling such as a flat, gallery flat, storey dwelling, upstairs and downstairs dwelling, porch

house or maisonette. The term ‘flat’ is a synonym for ‘multi-family dwelling’. The proportion of older people living in privately rented housing is small. However, with age, the percentage of a multi-family dwellings owned by a private landlord increases (Figure 17).

However, this is only the case in some places. Often the percentage is less in large cities as shown in figure 18 In Rotterdam, over-55s living independently are more represented in rented accommodation (Ministry of VROM, 2007c). The large proportion of renters among the

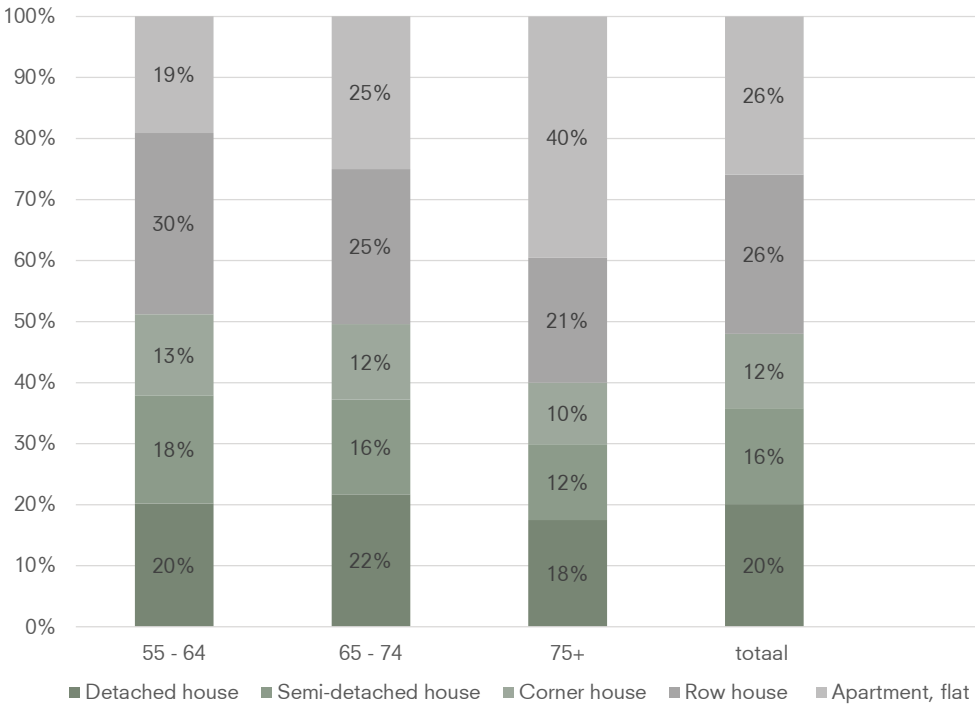


Figure 16: desired housing type (CBS, 2020, edited by author).

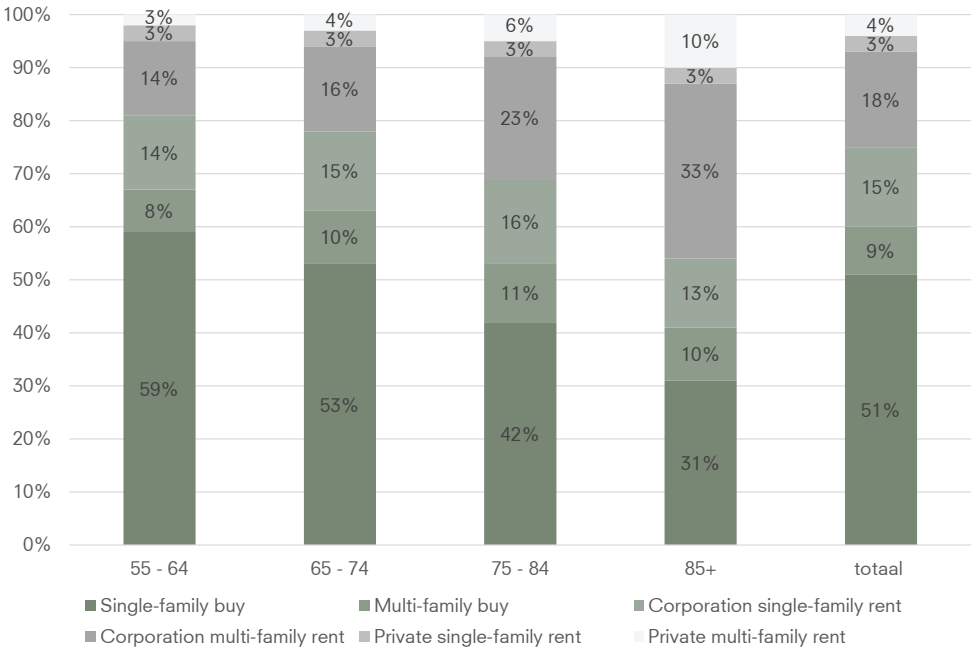


Figure 17: 55-plus households composition by age and typology (CBS, 2020, edited by author).

over-55s can be partly explained by the fact that when this generation entered the housing market, many more rental houses were built. Buying a house was less common back then; renting was the norm. In addition, this also relates to the socio-economic diversity within the target group, which is more represented in some areas than others. Some caution is needed in the expectation that home ownership among the elderly will continue to rise. However, the share of owner-occupiers among the elderly will increase. As noted earlier, the share of owner-occupiers among younger older people aged 55 to 65 is about twice as high as among those aged over 75. The Ministry of Housing, Spatial Planning and the environment’s latest housing survey showed that a limited proportion of older people

are leaving the owner-occupied sector (Ministry of Housing, Spatial Planning and the Environment, 2007a). Nevertheless, more people will grow old in owner-occupied houses in the future. According to projections by the Ministry of Housing, Spatial Planning and the Environment, which take into account the transition from buying to renting as an uncertain factor, it is very likely that by 2030, 60% of 55-64-year-olds, 50% of 65-74-year-olds and 40% of 75-plus will live in an owner-occupied home. For all age groups, this is more than today (Ministry of VROM, 2007b).

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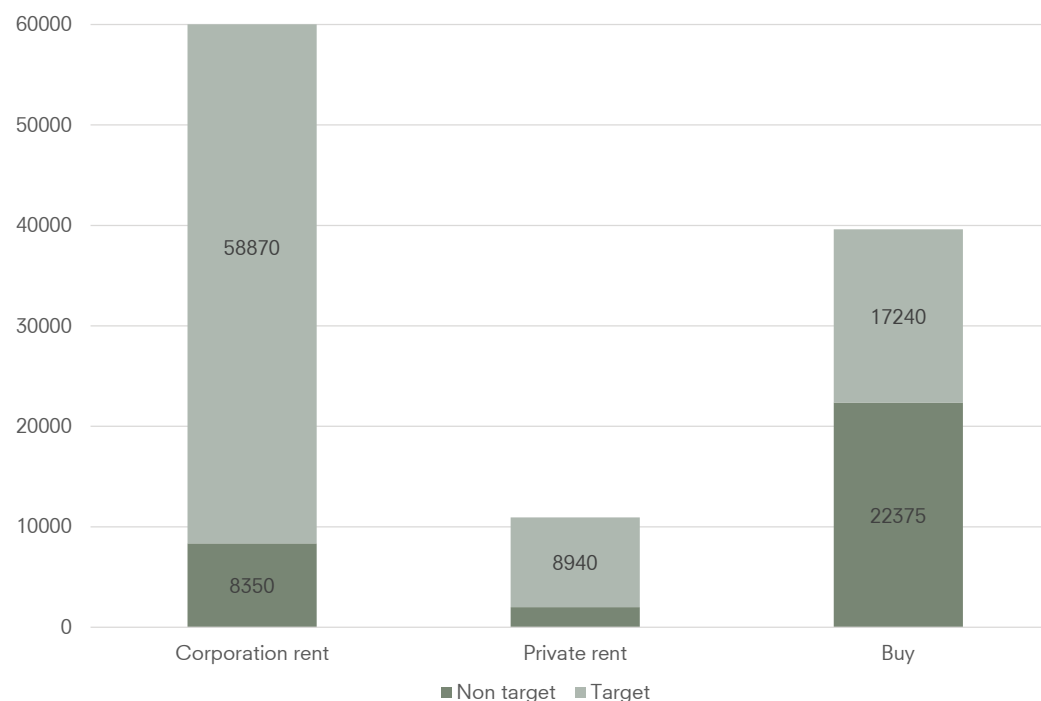


Figure 18: 55-plus households composition by type of rent(CBS, 2020) (edited by author)

In the previous paragraphs, the propensity to move of the elderly and the current housing situation have been examined to get a grip on the behaviour of the elderly in the housing market. In addition to these key indicators, it is also essential to understand the housing preferences of the elderly in order to respond to this need/preference.

The vast majority of over-55s (60%) with a desire to move to want to move to a single-floor dwelling (flat or flat).10% or less have a different preference (Figure 19). Thus, as age increases, so does the percentage who want to move to an apartment or flat; 47% of 55- to 65-year-olds, compared with 64% of 65-75-year-olds to as much as 73% among over-75s.

A further distinction can be made between owner-occupied and rented houses. The WoON survey shows no significant difference between rented or owner-occupied housing for the 55-pluser that want to move (41% rent, 42% buy) (Akkermans et al., 2020). However, there is a clear difference if there are health problems, then the preference is for a rented house. The most evident difference between buying and renting can be seen in wealth. Thus, households with low affluence are more likely to choose rental housing, and those with high affluence are likelier to choose owner-

occupied housing (Akkermans et al., 2020). Another aspect that emerges in the Perceptions survey (2019), which households look at is the presence of a private garden. For instance, half of the 55-plus households who want to move prefer having their own garden (figure 19). A smaller proportion (46%) prefer no garden (Akkermans et al., 2020).

Finally, more than half of the over-55s (55%) who want to move would choose senior housing (figure 20). The main reason is the occupant's or partner's health condition. It is also found that households with lower affluence are more likely to choose a senior housing option than households with higher affluence.

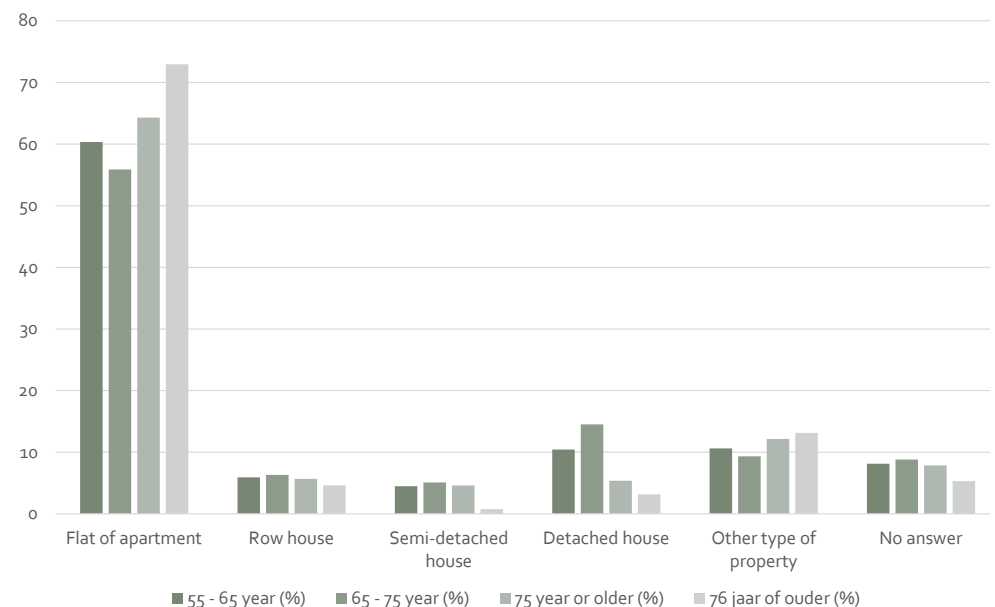


Figure 19: 55-plus typology preferences (CBS, 2020) (edited by author)

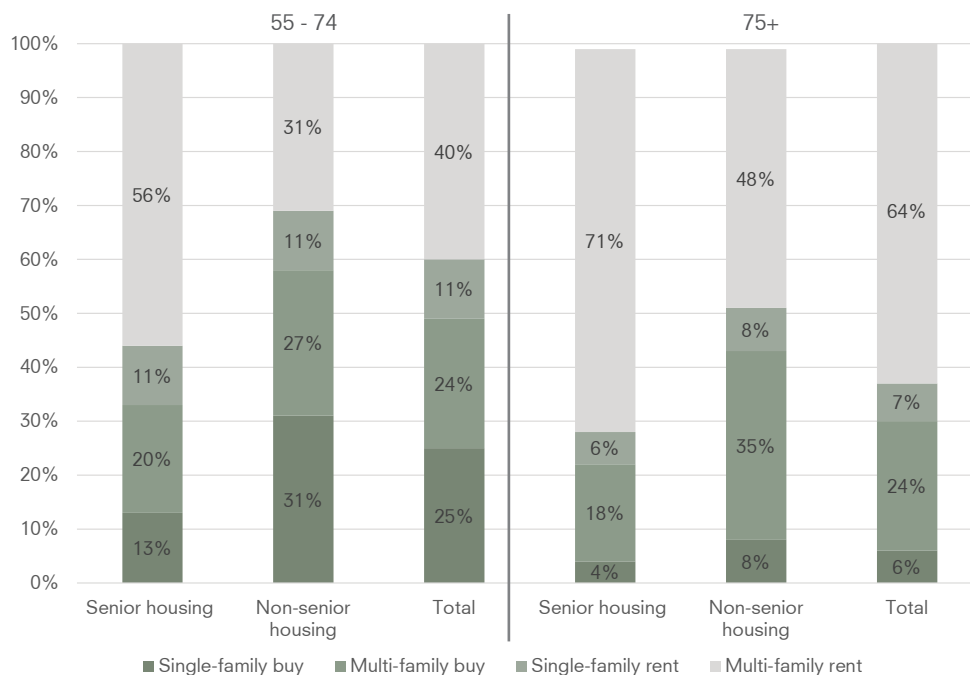


Figure 20: 55-plus senior housing preferences (CBS, 2020) (edited by author)

As noted earlier, many older people are already at the peak of their housing careers. Typically, these are spacious homes where these households live (see figure 21), but are these homes suitable for today's lifestyle and the future? What kind of housing would be suitable for the elderly? The suitability of an elderly home is often derived from 2 indicators (De Klerk, 2004; Sogelée & Brouwer, 2003). The first indicator involves whether it is specifically intended for the elderly and the possibility of any care or services from a support centre located nearby (De Klerk, 2004). Thereby, three types of housing for the elderly can be distinguished: housing for the elderly with care, housing for the elderly with services such as meal care,

and other housing for the elderly (Sogelée & Brouwer, 2003). These include residential-care complexes, sheltered housing, service flats, etc. (De Klerk, 2004).

The second indicator deals with the physical characteristics of a dwelling, think accessibility. The main criterion is a zero-access dwelling. This is a dwelling where the entrance to the house and the primary areas - such as the living room, kitchen, sanitary facilities, and at least one bedroom - are on the same floor. However, it can be noted that not all zero-entry houses are necessarily suitable for the elderly. As people age, the home and immediate living environment are more critical in daily activities and social

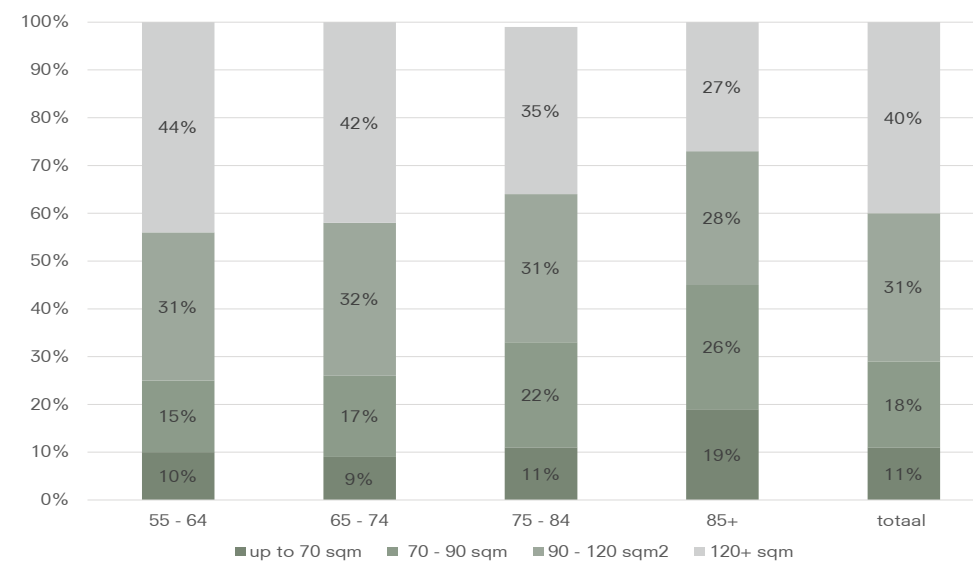


Figure 21: 55-plus households and current housing size preferences (CBS, 2020) (edited by author)

contacts, especially among people with lower mobility (Filius, 1993). For instance, shops, public transport and care and welfare facilities in the vicinity are also essential (VROM-Raad, 2005). Many over-55s still need to experience physical limitations. Should the time come, the current home must be adapted, or a move is necessary. The suitability of a dwelling for the elderly does not only depend on a ground-floor dwelling. Several aspects would be needed; for instance, a ramp to the front door and a stair lift would also be necessary. Some dwellings would even require widening doors or modifications to kitchens and bathrooms, should the elderly wish to continue living in their homes after physical limitations (De Klerk, 2004). Besides physical (necessary) aspects, supportive aspects can make life easier for the elderly and even help older people live independently at home for longer. These include intelligent technologies in the home, such as home automation living (Demiris & Hensel, 2009). This can range from everyday actions such as turning lights on and off and electric door openers to automatic curtains (Demiris & Hensel, 2009; Peine, 2009).

Furthermore, there is a wide range of information and communication technologies available that older people can use, making them less dependent on mobility. Examples include ordering groceries online (Sixsmith & Sixsmith, 2008).

5.4 Ageing and the housing market

Even for the active player in the housing market, it is noticeable that there is a major transition due to the changing housing needs among seniors. It is estimated that the effects of ageing and stagnation will only get stronger. The honourable elderly are likely to become even more honourable, partly due to the longer independent living discussed in the previous paragraphs. This makes it even more challenging to promote flow. Even then, this is confirmed by the research report of Monitor Ouderenhuisvesting 2020 based on figures (see figure 22). For example, in 2019, 33% of the Dutch population comprised those over-55s. This group is said to be responsible for a meagre 15% of all moves within the housing market. There is a clear difference here, with the over-85s relocating relatively more often than the younger elderly. For example, 10% of all over 85s have moved, compared to a percentage of 4-5% for the younger elderly (Stuart-Fox et al., 2021).

As told in the problem statement, there is a visible observation that ageing changes the dynamics in the housing market and thus contributes to the stagnation of housing market flow (de Groot et al., 2013; Hooimeijer, 2007; Leidelmeijer et al., 2011; Ministry of VROM 2010). This stagnation can pose a problem for

younger households that want to move on (Clark & Deurloo, 2006; Kraan, 2021). Especially the combination of ageing and scarcity in the housing market makes it difficult for first-time buyers and young families to get a (desired) home. Often, younger households are forced to look for other types of housing, move to other areas, or even not move due to ageing and stagnation (de Groot et al., 2013). These households, in turn, occupy housing for others. This further delays the visual circle within the potential relocation chain.

An ageing population does not automatically mean that only monotonous senior housing should now be built - "senior housing". This group's different (housing) wants and should be listened to. Some housing qualities are valued more than others by seniors. For instance, some examples are; good accessibility, comfort, safety, proximity to good facilities, etc. Similarly, a growing demand for more luxurious flats is visible in the housing market or developments related to care integration.

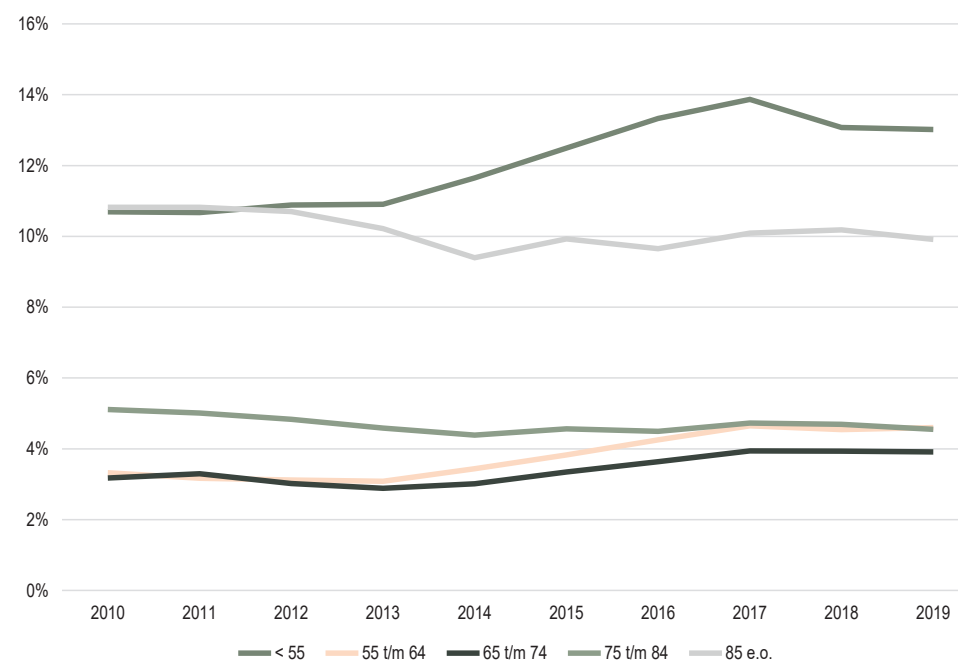


Figure 22: 55-plus households and percentage of the moving numbers (CBS, 2020) (edited by author)

5.5 Conclusion

The Netherlands is ageing, which has visible implications for the housing market. Older adults are very sedentary and prefer to stay in their current homes for as long as possible. They are attached to their home and surroundings, among other things, which often makes them reluctant to move. They are more willing to adapt to the home than move. These adaptations allow the elderly to live in their home longer, even if mobility decreases. Think of minor adaptations like handles and removal of thresholds to major adaptations like a stair lift. Intelligent technologies such as home automation also enable the elderly to live independently longer as age advances, home ownership increases, and the propensity to move decreases. The limited moving dynamics and stagnation of the housing market thus accompany the ageing population. Due to the stagnation in the housing market, younger households need help moving on to (more suitable) single-family houses.

As revealed in the “Life cycle theory” and “Life course theory” theories discussed, the propensity to move is influenced by various events during various life stages of residents. This is also evident in the literature review. The proportion of elderly people who do want to move can be attributed to health or housing-related motives. There is also a difference between older adults who move out of

precaution, also called proactive moving behaviour and elderly people who move to a suitable house because of self-reliance problems, called reactive moving behaviour. Housing-related moving motives of the elderly are linked to the desire to improve the current living situation because it no longer suits the lifestyle, such as the empty nest moment or retirement age. The housing motives function as triggers where another housing need is for the household.

The literature review has revealed that honourability is associated with the low propensity of older people to move. This can be explained using the Push and Pull Theory. The low propensity to move is influenced by current satisfaction, higher self-reliance, home ownership, and lack of desired supply, among other factors. These factors are seen as keep factors which keep residents in their current housing situation. The above relocation motives that function as triggers are also called Push factors. These factors actually push people out of their current housing situation.

The last factor is the Pull factor. This factor emerges in the literature review as needs and housing preferences of the elderly. We discuss this further in chapter 7. Thus, the elderly who want to move have various needs and housing preferences. So the ageing population will significantly impact the supply and demand of the housing market. Ageing does not automatically mean that only monotonous

senior housing should be built now. This group's different (housing) wishes and needs should be listened to. Some housing qualities are valued more than others by seniors. For instance, some examples are; good accessibility, comfort, safety, proximity to good facilities, etc. Similarly, a growing demand for more luxurious flats is visible in the housing market or developments related to care integration. These factors can be decisive to past 55-plus from their current homes and thus get the housing market going. These Pull factors can thus be considered the most critical factors to restart the relocation dynamics. Since the propensity to move is low, the elderly must be enticed to move using Pull factors.

Figure 22 shows which push, pull and keep factors play a role for over-55s and Empty Nesters. Subsequently, these factors have been listed under need. these factors can be translated into essential aspects in the development of Empty Nester housing..

Push

health and old age issues
current home, not life cycle proof
desire to improve the current housing situation
deterioration of social interaction in the neighbourhood
increase of nuisance in the neighbourhood
dwelling too large

less maintenance
wants a garden
living closer to social circle.

Pull

needs and housing preferences of the elderly
single-floor dwelling (flat or flat)
presence of a private garden
presence of a balcony
senior housing
the right owner-occupied and rental properties
Supply of desired homes in the desired (current) neighbourhood

Keep

being attached to the current home
being attached to the current living environment
social environment
feeling comfortable
home ownership
increased self-sufficiency
lack of desired offer in the desired (current) neighbourhood

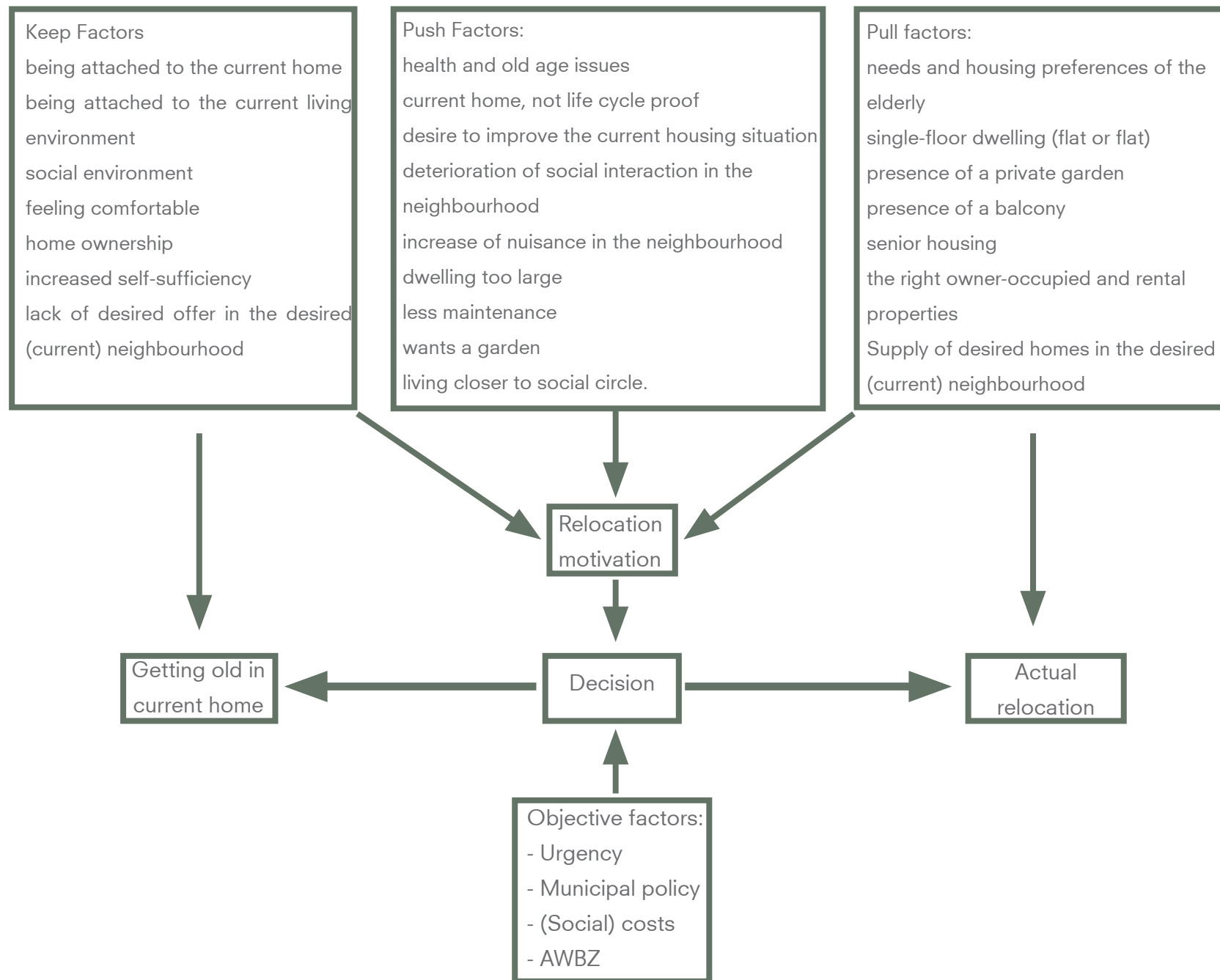


Figure 23: Push, Pull & Keep factors (J. de Bree 2003, edited by author)



6

SEGMENTATION

6 SEGMENTATION

6.1 Segmentation of housing consumers

Within the housing market, there can be great diversity among consumers. This means that not all consumers have the same needs and preferences. As a result, companies use consumer segmentation to offer a product tailored to them. As we can see from the paragraphs above, “the consumer does not exist”. For instance, the target group of over-50s and thus Empty Nesters should be considered a heterogeneous group. Who differ in age, gender, education level, income, status and all sorts of other factors from each other. Because of the large and increasing diversity within this target group, it is difficult to determine who the consumer is. Therefore, it is convenient to divide this heterogeneous group of older people into smaller homogeneous subgroups. Segmentation divides the market/group into segments with similar characteristics (De Wit, 2003; Veldhof, 2012). According to De Wit (2003), the different segments also have different needs and requirements, so they also need different approaches. Thus, De Wit (2003) argues that segmentation is essential to understand better buyers and forces providers to delve into consumers’ behaviour, wishes, needs and desires.

Kotler & Armstrong (2009) in their book Marketing ‘the essence’, define market segmentation as dividing the market into separate

customer groups, in which each group has different characteristics, behaviour or needs. Also, each grouping is likely to require a different marketing approach. Further, Kotler & Armstrong (2009) state that a targeting approach can be used when segments are established. A specific package, needs, and product can be assembled for each target segment. Four different forms of segmentation can be distinguished (Kotler & Armstrong, 2009):

- **Geographic segmentation:** Dividing a market by country, region, city or district
- **Demographic segmentation:** Dividing a market by age, gender, income, religion, et cetera.
- **Psychographic segmentation:** Dividing a market by social classes, lifestyle or personality.
- **Behavioural segmentation:** Dividing the market based on knowledge of a product such as frequency of use, the purpose of use, time of use and user status

Consumer segmentation is also crucial within the housing market. This way, a better picture of the target group, with its necessities and desires, can be obtained. A more targeted approach can also be created. Previously, consumers in the housing market were mainly segmented based on socio-demographic characteristics, linking life stages and housing typology (Ouweland, 2010). Today, this form of segmentation is visible in housing construction; for instance, ‘starter

homes' are still built for starters and 'senior homes' for seniors. However, the diversity between housing consumers is observable so that housing needs do not overlap with supply. Therefore, there is a visible shift in the segmentation techniques being applied. For instance, the lifestyle approach or psychographic segmentation is becoming increasingly popular. This involves linking value orientation and living environment (Van Kralingen, 2009; Veldhof, 2012).

6.1.1 Lifestyle approach and psychographics

Ouwehand (2010) argues that there are several reasons for the transition from segmentation techniques emerged. For instance, a significant reason is that the housing market is increasingly being approached in a demand-oriented rather than a supply-oriented way. Various developments in socio-demographic characteristics have also led to the transition to the lifestyle approach. Ver states Ouwenhand (2010) that there is a greater need for consumer insight, where it is essential to know what factors determine specific preferences. Lagasse et al. (2008) describe a person's lifestyle as closely linked to their activities, interests and opinions. Psychographic segmentation is also seen as a lifestyle approach, however, there is a crucial difference. The lifestyle approach mainly looks at activities, interests and opinions. Psychographics goes a little further; in addition to the factors mentioned above, it also uses a personality survey (Lagasse et.al.

2008). Several segmentation models based on lifestyle approaches are known, including SmartAgent Company's BSR model.

6.1.2 The BSR model

The Brand Strategy Research (BSR) model is a social-psychological segmentation model from Smart Agent Company. Smart Agent specialises in consumer perception and lifestyles. Through the BSR model, perception worlds are mapped. It also explores and structures people's underlying values, needs and motives within a given domain. The SmartAgent Company assumes that its perception strongly influences individual choices made by consumers in a given domain.

The BSR model uses psychographic values to classify people into different lifestyles. The lifestyles are created based on different characteristics and are translated on two axes: the sociological and psychological axes. The sociological axis runs between 'ego' and 'group', while the psychological axis runs from 'extrovert' to 'introvert' (MarketResponse, 2022). (See figure 24) The sociological and psychological dimensions thus visualise the model. The sociological axis runs from 'ego' to 'group'. These terms represent the extent to which a person is oriented towards the individual, versus the group. For example, people on the 'ego' side are more self-oriented and people on the 'group' side consider

the group/environment more in their decisions and behaviour (MarketResponse, 2022).

The psychological axis runs from 'introverted' to 'extroverted'. This axis indicates how people deal with emotions. People on the introverted side of the model are more subdued and keep their emotions close to themselves. People on the extroverted side of the model are instead outward-looking and deal with their emotions in an open way (MarketResponse, 2022).

This model creates four primary segments. Each segment is then linked to a colour and word:

The red lifestyle (freedom)

The yellow lifestyle (harmony)

The green lifestyle (security)

The blue lifestyle (control)

Despite having four primary categories, there is some diversity between them. It is visible that everyone has something akin to the 4 lifestyles. However, the colour in which someone is positioned is dominant, this colour is then named that person's colour (MarketResponse, 2022).

6.2 Household profiles.

Segmentation has also been done within seniors by SmartAgent Company. Besides socio-demographic shifts, the company also looked at the psychographics of the over-55s. This concluded that the over-55s could also be placed in different lifeworlds. These older people also each have different life attitudes and views on ageing. Thus, MarketResponse segments the over-55s into 6 different segments, each with its own colour and description:

Red People

The red profile represents freedom and vitality. The red consumer generally has a vibrant, free and active life and considers independence most important. The red consumer may have an urban orientation but does not necessarily have to live urban. They do, however, prefer green surroundings. For the red consumer, a home should be an extension of their lifestyle. People value a diverse architectural image, in which the presentation of buildings is essential. Thus, it should stand out from the rest. Red consumers are generally confident and able to assess and anticipate situations quickly. This also makes them come across as direct and decisive. Thus, they can be seen as "early adopters", and the latest housing trends are very attractive to them; think of the sharing economy. They also desire extra space for themselves to work or pursue a hobby.

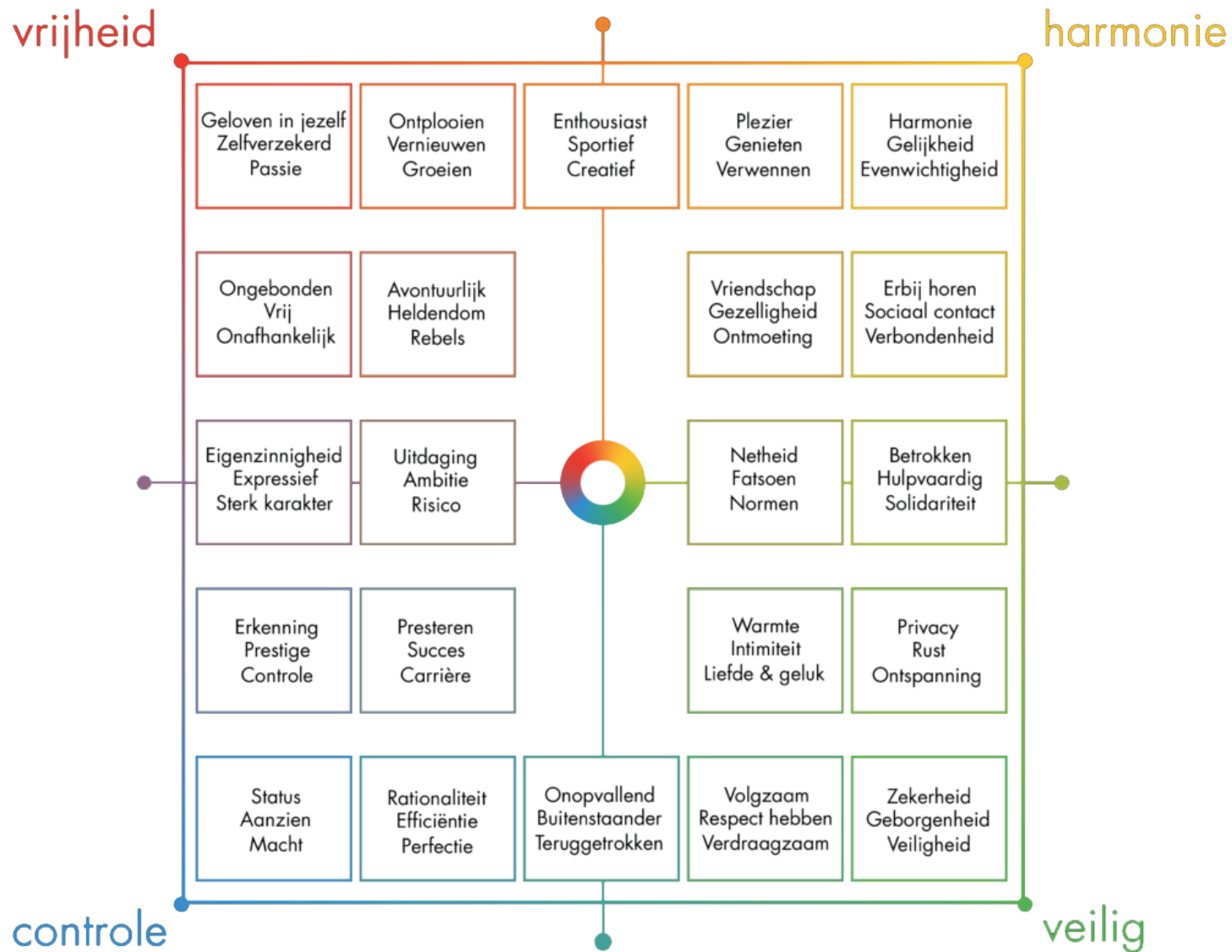


Figure 23: lifestyle diagram MarketResponse, 2022

Finally, it is essential for this group to have sufficient opportunities for (sports) activity and relaxation (MarketResponse, 2022).

Orange People

The orange profile is a combination of the direct red consumer and the yellow social consumer. The orange consumer is creative and sociable and finds social contact very important. This can be indoors or outdoors. The orange consumer prefers a residential or central location in a village, with easy access to public transport. It should be a lively environment with enough greenery and close to the social circle. Having a park and enough opportunities for sports and leisure is also essential. Often, the orange consumer is already satisfied with a lifelong home. However, appearance is also essential for this group. For instance, housing should be cosy and homely but have a characteristic and playful appearance (MarketResponse, 2022).

Yellow People

The yellow profile represents harmony and community. Often this group is low- or middle-income educated and has a below-modal income. The yellow consumer values social interaction with the environment and is mainly group-oriented. Thus, this group can be described as jovial enthusiastic and optimistic. They are often central to society and have a busy social life. The desired living environment

is a residential area or a courtyard. Thus, there should be enough space for social interaction, amenities and shops should be within walking distance, and the neighbourhood should be safe. The most important for yellow consumers is that they live in a place where they can enjoy themselves, have fun and maintain their contacts. Attractive housing types include a residential yard, a narrow street, and a court or flat with a traditional and cosy feel (MarketResponse, 2022).

Green People

The green profile stands for certainty and security. This group is often low or medium educated and has a below-to-moderate income. The green consumer is group-oriented with a relatively closed character. Thus, this group can be described as serious and quiet people who dislike being in the foreground and are mainly attached to their privacy. They often seek a good work-life balance, in addition to being practical, homely and caring family people. Thus, green elderly prefer being indoors rather than outdoors. Above all, the living environment should offer peace and privacy. Thus, there may be room for sporadic social interaction. Greens prefer to live in an environment with mostly the same people they can identify with. According to them, a home should be central to peace, space and familiarity. Above all, the home should be cosy, modest and simple. Furthermore, functionality and efficiency are essential. The exemplary architecture is traditional or sleek. The ideal interior design is simple

and calm. Furthermore, they consider it especially important that the home is practical and offers privacy. (MarketResponse, 2022).

Aqua resident

The Green profile is a mix between blue and green. This group is often highly educated and has an above-modal income. Thus, the aqua consumer is often socially engaged, thoughtful and open-minded. Thus, this group is more traditional, serious, intelligent, rational, and calm. They like peace and regularity and can keep to themselves well. Social commitment is often seen in social work. They like to be prepared and like to live in a life-proof home at an early stage. This group's ideal living environment is quiet, offering comfort, privacy, freedom and practical luxury with nearby green structures. The desired home should offer plenty of space with sustainable and energy-efficient aspects or even an energy-neutral (zero on the meter) home. Also, the desired home has extra facilities such as private parking and extra space to work/ practise hobbies (MarketResponse, 2022).

Blue residents

The blue profile represents manifestation and control. This group is often highly educated and has an above-modal income. The blue consumer is career-driven and has more to spend. Therefore status is essential to this group, and they are exclusive and

luxury-oriented. The group can be described as goal-oriented, entrepreneurial, and rational, with a strong character. They like to be busy in and around the house. Furthermore, it is appreciated when people like them live in the area. Good contact is essential, but this may be mainly sporadic social interaction. Luxury living concepts are attractive that are quiet, and spacious. In addition, high quality and privacy are essential there. The home should also be comfortable. The desired living environment is rural or in a spacious neighbourhood with water. It should have a quiet and spacious character, with plenty of green spaces nearby. Further, the environment should be neat and well-maintained. The presence of shops and amenities is also essential. The desired property has a modern, sleek and stately character but may also have a classic look. The ideal interior design is bright, modern and luxurious. Thus, the home may have amenities that offer comfort and make life easier. Furthermore, blue elderly are keen on their privacy. The ideal home is a detached house or a maisonette house; however, such is also open to wanting to live in an apartment (MarketResponse, 2022).

6.3 Conclusion

An attempt was made to segment the target group of 55-plus based on different characteristics. Thus, this heterogeneous group has been subdivided using the lifestyles approaches of the BSR model, as well as income, education, lifestyle, and household composition addressed in Chapter 4, “target group investigation”. This creates six different types of seniors in figure 23 can be seen that the size per group differs by area.

Segmentation enables a better understanding of the specific housing preferences of different groups of older people so that supply can be better matched to demand in the future. This diversity among the elderly and the fact that the elderly are discerning consumers calls for the segmentation of the target group. Historically, segmentation was mainly based on traditional characteristics (income, education, age, etc.). However, norms and values are becoming increasingly important in determining demand. Lifestyle segmentation provides insight into consumer norms and values patterns and can be seen as an addition to traditional segmentation. This study, therefore, used a target group segmentation based on traditional characteristics and supplemented it with information derived from lifestyles. Based on the research from chapter 4, traditional characteristics emerged that influence the various

housing preferences of people over 55 from chapter 5. In particular, these can be traced back to traditional characteristics; education, income, household and moving propensity. These traditional characteristics were therefore taken as a basis in this study and then supplemented with information derived from SmartAgent’s lifestyle segmentation. This resulted in 6 target groups that differed from each other. These groups were then translated into housing profiles with housing preferences shown on the next two pages.

Group	Income	Education	Lifestyle	Household	Moving propensity
A	Above average	High	Blue/ aqua	Couple	Lower
B	Above average	Middle	Red/ orange	Couple/ single	Higher
C	Average	Middle	Yellow/ orange	Couple	Lower
D	Average	Middle	Divers	Single	Higher
E	Below average	Low	Green/ yellow	Couple	Middle
F	Below average	Middle	Green/ yellow	Single	Higher

	Red	Orange	Yellow	Lime	Green	Aqua	Blue
Netherlands	11.2%	18.1%	12.0%	12.5%	17.2%	13.3%	15.7%
Groot IJsselmonde	5.9%	23.8%	13.9%	11.6%	30.0%	8.8%	6.1%
Rotterdam	18.3%	28.2%	9.3%	8.7%	18.4%	8.5%	8.6%

Figure 23: Segmentation Household profiles, edited by author)

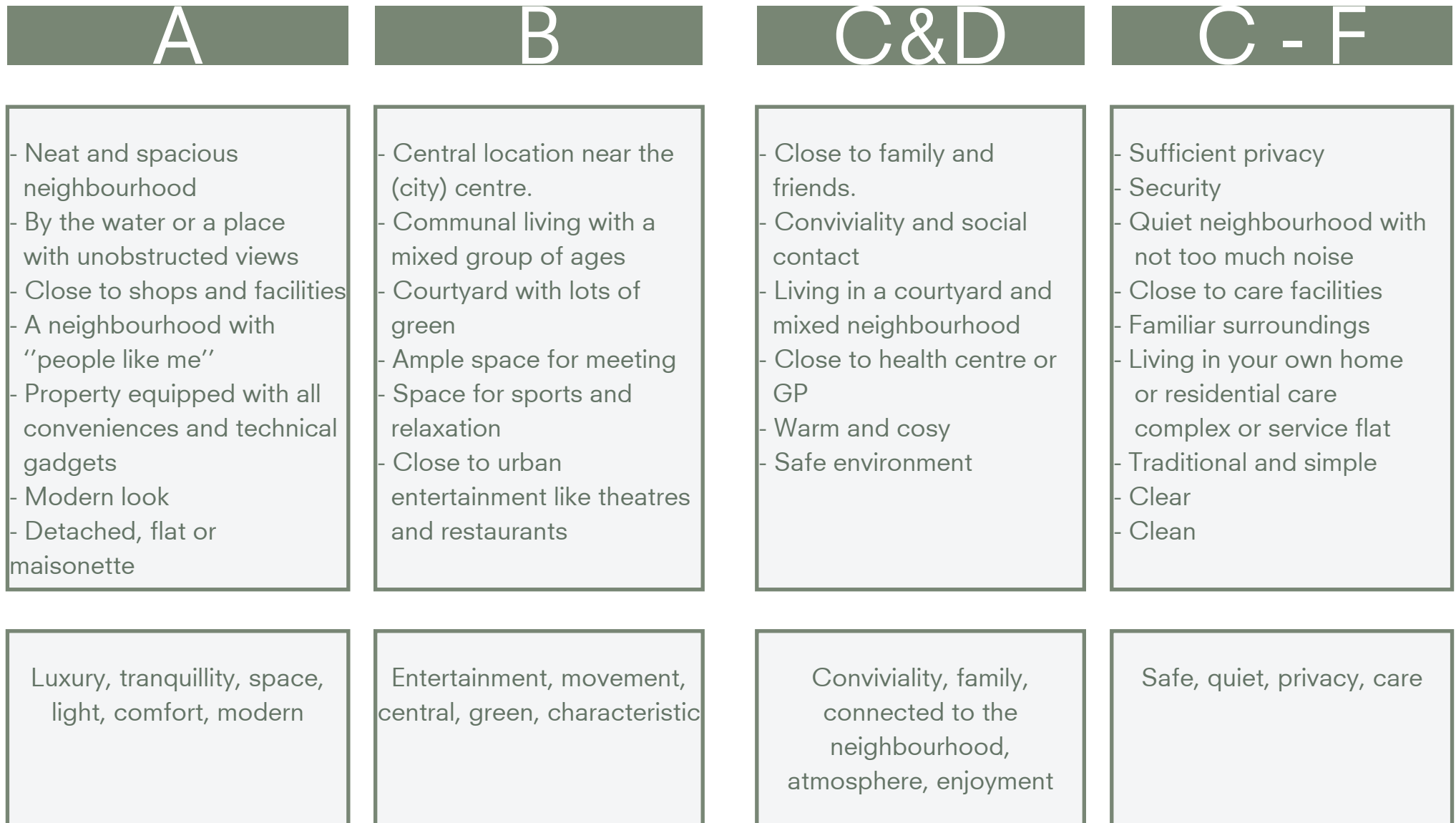


Figure 24: Segmentation Household profiles, edited by author)



7

DISERED QUALITIES

7 DESIRED QUALITIES

7.1 Introduction

In the above chapters, the target group has been revealed, and we better understand its characteristics, segmentation and the housing market behaviour of the over-55s. The last chapter mentioned already revealed the type of housing preferred by this group. However, this is still not enough to now answer the question; What spatial conditions are needed to make a house suitable for Empty Nesters households, whether they are healthy or physically disabled and taking into account different socio-economic backgrounds? That will be answered in this chapter. The desired Qualitative conditions will be approached through various domains set out by WHO, which deal with the liveability of age-friendly communities. Why livability? Liveability indicates how well our wishes and requirements match our environment; as revealed in the previous chapters, this differs for everyone.

Age Friendly communities

According to WHO, an “age-friendly” city promotes active ageing; it optimises health, participation and safety opportunities to improve quality of life as people age. As highlighted in the previous chapters, there are a variety of factors that affect people over their life course. These determinants explain the considerable diversity among older people. For instance, several studies confirm that a number of community characteristics have been identified that promote ageing in a community. Among these are the physical building environment, social environment and access to support services essential for this development (WHO, 2007; Van den Berg et al., 2015; Van Campen et al., 2017; Driest, 2004; Höppner & Arnold,

2013; Timmermans et al., 2016). These characteristics are derived from a WHO guide, which is central to active ageing, with life course approaches to promote health throughout the life course (WHO, 2002). The guide identifies key aspects of urban life that promote active ageing and evaluates the ‘age-friendliness’ of a community (WHO, 2007). The guide includes eight domains of liveability (figure 25) .

- (1) outdoor spaces and buildings;
- (2) transport;
- (3) housing;
- (4) social participation;
- (5) respect and social inclusion;
- (6) civic participation and employment;
- (7) communication and information;
- (8) community support and health services.

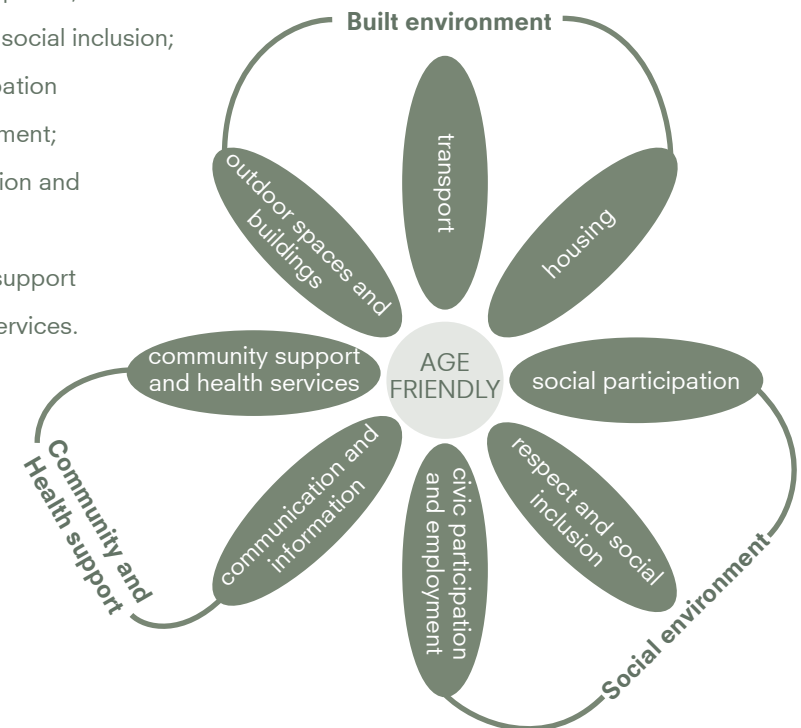


Figure 25: age friendly domains and groups (Black et al., 2016)(edited by author)

This chapter divides the eight domains into three groups (figure 25):

(1) built environment (i.e. transport, housing and outdoor spaces);

(2) community and health support (i.e. community support, health services, communication, and information);

(3) social environment (i.e. social participation, citizens)

7.2 Public spaces and buildings

Public space/ outdoor environment/public building include the environment we live in or places we regularly visit, such as shopping centres, parks or car parks. These places significantly impact the mobility, independence and quality of life of older people and influence their ability to age “in place”. It is crucial that these areas are accessible and perceived as safe, this not only promotes the use but is also involved in community life and thus promotes liveability (WHO, 2007).

7.2.1 Safety

Public safety in all open spaces and buildings is a priority and a much-encompassing term. Feeling safe in one’s living environment strongly influences people’s willingness to move around the local community, affecting their independence, physical health, social integration, emotional well-being, and livability (WHO, 2007; Reith, 2016). After all, safety for people over 55 in the environment is not only about traffic but also safety in the home and on the street. Elderly people are generally more vulnerable than younger ones, partly due to psychological, social

and physical risks. Besides police patrols, enforcement of ordinances, spatial structures and aspects can also contribute to the sense of security, an essential aspect of liveability (WHO, 2007; Reith, 2016).

Private, communal and public

Making a clear distinction between private, communal and public contributes to the sense of security (Oosterling, 2007). This prevents unwanted people from entering places where they should not go.

Recognisability

Spatial structures that are recognisable, orderly and have diverse orientations contribute to the feeling of safety (WHO, 2007; Reith, 2016). Recognisability in public spaces can be enhanced by various architecture and building structures, as well as the placement of good street lighting or distinctive design elements, such as works of art. It is important to create the right balance for a peaceful public space. Applying too much variation over cluttered structures removes the overview, making people feel unsafe faster (WHO, 2007; Reith, 2016). This can also contribute to greater social control in the neighbourhood.

Variation in architecture

Striking buildings can serve as landmarks. The recognisability of residential buildings can be influenced by embellishing entrances, for instance. The architecture of a building can also contribute to this. For instance, the material, colour and shape can also provide a landmark. As in public spaces, it is crucial

to create the right balance to have a clear overview (WHO, 2007; Reith, 2016). Besides feeling basic safety, variation in architecture can also be a pull factor. Architecture starts to play an increasingly important role as people become parents. Thus, people increasingly appreciate its appearance. It exudes a certain status and that is important. This is especially true for people already further along in their households, such as the average over-55s. An important factor, however, is that one must have sufficient financial resources. Should this not be the case, the house's architecture (appearance) becomes less critical, and most people generally want as many square metres as possible for their money.

7.2.2 Accessibility

This means that everyone should be able to enter a building or location independently; Also, people with sensory and/or physical disabilities, such as walker users, wheelchairs or mobility scooters (WHO, 2007).

It is also vital that physical infrastructures are well-designed and positioned. For example, roads, footpaths, and cycle paths should be well-connected and visually separated where necessary. Consider Pedestrian crossings with visual and/or audible signals so that people can cross safely, or overpasses or subways, to help pedestrians and/or bicycles cross busy roads. Furthermore, it is essential for accessibility but also safety that people can move well across infrastructures. Thus, pavements should have a smooth, flat, non-slip surface with low kerbs and be wide enough for wheelchairs. Pavements should also be free of obstacles (e.g. parked cars, trees, and dog faeces) (WHO, 2007).

Buildings are also subject to several conditions to ensure accessibility. For example, they must contain lifts to cross the floors, ramps to ensure accessibility for the buildings themselves, and sufficient signage for overview. In addition, accessible buildings have a number of features such as; handrails on stairs, stairs that are not too high or steep, non-slip floors and restrooms with comfortable chairs (WHO, 2007).

7.2.3 Pleasant, clean and vibrant environment

A clean and vibrant natural environment is an essential feature in the city that people cite as an age-friendly and important feature. Thus, streets must be clean, well-maintained green structures, without noise pollution or unpleasant odours. The presence of residents also makes a neighbourhood attractive. Thus, it is essential to create spatial aspects where there is an opportunity for social interaction. Think of outdoor seating in parks, public transport stops or public spaces (WHO, 2007).

7.2.4 Presence of Nature

For many older people, the presence of nature is an essential aspect of the environment. Greenery in and around homes is good for the (living) environment in and around the home. It positively affects the quality of public space and residents' and visitors' health and overall well-being.

Air quality

All forms of green space contribute to removing particulate matter and other pollutants from the air, thereby improving air quality (Hiemstra et al., 2008). Dense

greenery can be exploited to screen pollution sources (e.g. a busy road) from residential areas and sensitive buildings or adjacent pedestrian and cycle paths (Barwise & Kumar, 2020).

Temperature

Outdoor greenery also helps reduce heat in and around the home. This is of great importance because heat stress during sleep has significant adverse health effects (Spijker et al., 2022). For instance, it has been proven that a park can be up to 5 degrees cooler than a densely built-up city centre. Here, the effect of shade has the most significant impact. Shade limits the warming of the air, which improves the feeling of thermal comfort. This is due to the lower radiation temperature under trees. As a result, parks function as islands of coolness in warmer urban areas and have a cooling effect on surrounding neighbourhoods (Heusinkveld et al., 2014; Spijker et al., 2022).

Mental health

Recent studies reveal that the presence of a natural environment makes people more relaxed and positive. People feel happier in a more natural environment. This is already the case in agricultural areas, but most strongly on the beach (Spijker et al., 2022). Closer to home, for example, trees on the street make a difference. Similarly, having a view of greenery from home itself has a strong correlation with higher mental well-being. Although almost all types of green structures positively impact mental health, trees have the most influence (Nguyen et al., 2021; Spijker et al., 2022). Especially people who are unwilling or unable to seek nature's benefit

from a green environment. People also still benefit from a natural environment later in life. For instance, research shows that greenery and water can reduce the risk of developing anxiety disorders (de Vries et al., 2016; Spijker et al., 2022).

Social cohesion

An attractive green living environment can contribute positively to the social cohesion of a neighbourhood. For instance, it can lead to (new) encounters with neighbourhood residents, which can strengthen the connection with the neighbourhood (residents) (Kemperman & Timmermans, 2014). Thus, people are more social when they are in a green environment. Also, greenery is linked to less crime and aggression, essential for residents' safety, health and well-being. Furthermore, the presence of greenery is found to contribute positively to feelings of loneliness among single people and the elderly. Thus, residents are more satisfied with the social cohesion of a greener neighbourhood and that public green space is essential for social cohesion, with perception and use of green space playing a particular role in this (Zelenski et al., 2015; Weinstein et al., 2015; Kondo et al.; 2017; Spijker et al., 2022).

Physical activities

The final aspect of a green living environment is its association with physical activity. This is particularly evident in the elderly. Being active outdoors can improve cognitive health, e.g. mental alertness, better memory functioning and reduced risk of stress, depression and dementia. (Roe et al., 2020). Gardening can also be seen as a basic form of exercise. This can also take place some distance from the home such as; a garden, park, allotment complex, and urban agriculture area (Spijker et al., 2022).

7.2.5 Functions

As indicated earlier in chapter 5, primary facilities such as; supermarkets, public transport and care and welfare facilities in the vicinity are also crucial for a seniors' home (VROM-Raad, 2005). This also applies to age-friendly communities. Since most people over 55 are still well on their feet, this will not initially be seen as an essential factor. As people grow older, the home and immediate living environment are more critical in daily activities and social contacts, especially among people with lower mobility (Filius, 1993; Council for the Environment and Infrastructure, 2020). This also means that the reachability and accessibility of these facilities should be optimal; this has been discussed in the accessibility paragraph. Various studies focusing on the availability of services usually focus on the availability of shops. For instance, it appears that Dutch elderly people prefer shops within walking distance from their homes (Blijie et al., 2009a; Stuart-Fox et al., 2021). This is because elderly people can no longer cycle over time, and often public transport is too expensive for lower-income households (Council for the Environment and Infrastructure, 2020). This is confirmed by WoON (2018); this study concludes that 25.4% of people aged 55-64 wish to have a shop within 500 metres of their home; for the 75+ age group, this percentage has increased to 47.1%. The WHO confirms this for ageing-friendly communities, Where the minimum distance should be 500 metres from home (Daalhuizen et al., 2019; WHO, 2007). In addition, it is also desirable if facilities are clustered so that the elderly do not have to travel too far.

What was also shown earlier in the previous chapters is that the elderly have diverse lifestyles, preferences and habits. This also means that various facilities are

needed to meet these needs. Based on the ageing-friendly communities framework, primary facilities such as doctors, pharmacies, supermarkets, and public transport stops are necessary. There are also secondary facilities. These can be seen as a necessity for some and a luxury for others, but they can function as pull factors. There can also be a difference between public, communal, or even private use.

7.3 Transport & public transport

Transport refers to all aspects of driving and mobility options. It includes the condition and design of transport-related infrastructure such as signage, traffic lights, public transport and pavements. Accessibility to reliable, affordable public transport and other travel options is becoming crucial for most people aged 55 and above. Although public transport is considered expensive, it is an essential service for those over-55s. For instance, the 2018 housing survey shows that in the 55-64 age group, 57.4% consider proximity to public transport important and 17.0% crucial. This percentage increases with age and is 65.7% for those aged 75 and above (30.5% really important). This is shown in table 5.8. Although public transport is expensive, low-income households find proximity more important than high-income households. The relationship between income and mobility can explain this. Lower-income people, in general, have lower physical mobility and are less likely to own a car (WoON, 2018).

In addition, car parking is an essential issue for people. Thus, priority parking spaces for the elderly and disabled near buildings and drop-off and pick-up areas

are considered age-friendly facilities. Furthermore, private on-site or communal parking facilities, which are screened from the public, are preferred.

7.4 Housing

Housing includes the living and living conditions that create opportunities for ageing. Thus, it is crucial to have appropriate housing with diverse styles and adaptable or universal design features. This is essential for this heterogeneous target group to continue living independently in their communities.

7.4.1 Affordability

An important factor affecting housing for older people and their quality of life is the cost of housing. In the target group investigation section, it already emerged that there are various socio-economic strata within this target group. This also means that the cost of affordable housing will vary from person to person. This means it must be taken into account in the supply.

7.4.2 Housing type

In chapter 5, housing market behaviour, we have already seen various housing preferences concerning the type of dwelling. The vast majority of over-55s (60%) with a desire to move to want to move to a single-floor dwelling (flat or flat).10% or less have a different preference (figure 19) (Blijie et al., 2009a). This means this should also be considered, and different housing types should be offered. Council

for Public Health & Society (2020) states that a mix of housing types and a living environment is vital to encourage interaction between neighbours. Thus, this mix can lead to the liveliness and spatial quality. Since most over-55s want to move to a multifamily house, this housing type should be present.

7.4.3 Number of rooms & Area

Generally, it is difficult for people to determine the correct surface area of a property. Therefore, people often look at another aspect and often base the right size of a property on that; namely, the number of rooms a property contains. Several studies reveal that most households are satisfied with one extra room relative to the number of family members (Van Iersel et al., 2009). However, there is a difference between satisfaction and desire. It is noticeable that a 1-person household already prefers three rooms. . As age increases, the desired number of rooms also decreases. Up to 65 years of age, the desired number of rooms is four and three after that (WoON, 2018).

7.4.4 Design

In a housing design, several aspects affect the comfortable living of elderly people in their homes. For example, it is considered that a dwelling is accessible (as described in the paragraphs above); Life cycle proof; has Primary functions on the same floor, with appropriate bathroom and kitchen facilities; is large enough to move around in; that has sufficient storage space; that has passages and doorways large enough for a wheelchair; and that is adequately equipped for the environmental conditions.

Adaptations

Furthermore, adapting the home when necessary to continue living comfortably at home must be possible. This should include minor adaptations such as handrails and handles for toilets and showers, which can be dismantled and removed.

Thermal comfort

Thermal indoor climate refers to the environmental parameters that affect a person's thermal experience, such as; air temperature, radiation, contacts, humidity and airflow rate (FPS, 2013; Kurvers et al., 2012; Boerstra et al., 2008). It is often indicated to what extent a person is cold or warm. Thermal comfort is spoken of when occupants have no need for a higher or lower temperature. It is expressed as the degree to which one finds the indoor thermal climate "acceptable" (Boerstra et al., 2008). This is subjective and, thus, person-specific. Thermal comfort is influenced by physical activity, clothing and the levels and fluctuations of thermal environment factor characteristics mentioned above. For example, elderly people are more sensitive to higher and lower temperatures and benefit from appropriate indoor thermal comfort (FPS, 2013; Kurvers et al., 2012; Boerstra et al., 2008). Here, a distinction is made between general thermal pleasantness and local thermal pleasantness. Local thermal pleasantness refers to small aspects that affect the body and cause it to cool down or warm up too much, e.g., draughts in the neck, e.g. due to an intake grille of a ventilation system blowing in too much air or cold feet due to floor temperature that is too low (FOD, 2013; Kurvers et al., 2012; Boerstra et al., 2008). Residents who spend long periods in an environment that is thermally uncomfortable for them may suffer. For instance, cognitive ability

may decrease, thus reducing productivity. Thermal discomfort has also been shown to lead to psychological or physical complaints such as restlessness or being distracted more often (FPS, 2013; Boerstra et al., 2008).

As mentioned earlier, older people are more sensitive to higher and lower temperatures. In addition, the elderly are less able to adapt physiologically and behaviourally. It is, therefore, best to maintain a narrower temperature range for the elderly, with a preference for passive solutions and adaptive options such as: moving to a location with different thermal conditions, changing the air velocity (open window, use ceiling fan), adjusting night ventilation settings and using Mechanical cooling.

Acoustic comfort

Good acoustic comfort creates a more pleasant living environment and promotes relationships between building occupants. As people are increasingly at home due to working from home or older people spending more time at home after retirement age, it is essential for the mental well-being of the occupants. Thus, poor acoustic comfort can have adverse health effects (nervousness, stress, sleep disturbances, fatigue) (Reinten, 2014).

Visual Comfort

Visual comfort refers to the set of environmental parameters that affect human visual aspects such as; daylight, artificial light and view-related aspects (Hulsman et al., 2008). Daylight is better for people, animals and plants than artificial light. House design has much influence on daylight entry and viewing aspects. Daylight entry is essential for health (Hulsman et al., 2008). Views from the home are considered an essential quality in visual comfort. It can provide stress reduction and can have an orientation function. For instance, views of nature have previously been described as positively impacting human mental health (Spijker et al., 2022; Hulsman et al., 2008). The human visual system changes throughout life. The visual ability deteriorates after 40 years. Older people (65+) need twice as much light as younger (40+) people. It is, therefore, important that daylight entry is as optimal as possible; this can be achieved with large window openings. This is also desirable for the view.

7.5 Social environment

The social environment of a community consists of 3 domains:

- Social Participation
- Civic Participation & Employment
- Respect & Social Inclusion.

7.5.1 Social participation

Social participation, such as interaction with neighbours, friends and family, significantly impacts the health and mental well-being of older people. It gives people a kind of “psychological security” Social participation includes all types of interaction with others and the extent to which this is made possible in a community. The services and environmental features already mentioned can encourage opportunities to meet. However, there are also other amenities and spatial aspects, such as; communal spaces, spatial aspects that enable encounters in traffic areas, catering facilities, sports facilities, outdoor spaces, etc. Regular social interaction in public spaces can already contribute to feeling home in the neighbourhood. A greater sense of social cohesion further contributes to the sense of security in a residential environment, which is also an essential factor for well-being (Blake et al., 1956; Choi & Denise, 1998; Sikma, 2011). Although many over-55s already have very active social lives, they must live in an integrated community that promotes social participation through a wide range of facilities for people of all abilities and financial circumstances. If social participation is lost, it can lead to negative consequences such as; loneliness or isolation (Blake et al., 1956; Choi & Denise, 1998; Sikma, 2011). For instance, loneliness and social isolation are major risk factors for mental health, increasing the risk of depression. The WHO confirmed in 2020 that this is public disease number 1.

7.5.2 Respect and social integration

Respect and social integration are other essential features of age-friendly communities. Through social integration, age-friendly communities promote positive images of ageing. In order to improve the image of ageing by showing respect and inclusion for all people in the community. Similarly, integration of care is shown to be essential to make people feel part of society and the community (Jakubec et al., 2016; WHO, 2007).

7.5.3 Civic participation and employment

Civic participation and employment form the last aspect of the social environment. Civic participation refers to participation in the community; this can be in the form of volunteering or committees. For some people, this has been a regular part of their daily lives for years, while others only start this when they are retired. Employment is, of course, necessary for people; most of the over-55s naturally work until they reach retirement age. Some people want to continue working after reaching retirement age. Working somewhere or finding new work provides economic security for the resident and benefits the community (WHO, 2007; Black et al., 2016).

7.6 Community and health support

Mental well-being and good physical health are essential for appropriate quality of life and age-friendliness. Obtaining availability and access to community-related services that support physical health and/or mental well-being promotes healthy ageing and well-being of residents (Black et al., 2016; Cramm et al., 2013). Community support consists of the following two areas: Community Support & Health Services & Communication and Information.

Community-related services should be able to respond to changing needs as people age. This applies to social and any care needs. Initially, the over-55s are active and independent. However, should things change, home support, for example, would make it possible for people to live at home longer. There are also intelligent, innovative technologies that not only make things easier for people but can also provide vital support and health information (Black et al., 2016; Zulman et al., 2013). That said, it is also essential that age-friendly communities have sufficient information available about activities, services and services and accessibility for all. It is recognised that in Age-Friendly Communities, there are various (information) needs on social aspects as well as health, work, etc. related aspects. These needs and information are what residents need in order to live the best life possible and meet their needs (Black et al., 2016; Zulman et al., 2013).

7.7 Conclusion

This chapter was partly intended to answer the question, “What kind of spatial, functional, and social conditions are needed to make a home suitable for Empty Nesters households, whether they are healthy or physically impaired, and considering different social-economic backgrounds?”

It can be concluded that at different scales, spatial, functional and social qualities are needed and desired by the elderly to make them comfortable to live in. The following pages contain summaries of all the needs and desires found.

Environment

- The city is clean, with enforced regulations limiting noise levels and unpleasant or harmful odours in public places. Green spaces and walkways
- There are well-maintained and safe green spaces, with adequate shelter, toilet facilities and seating that can be easily accessed.
- Pedestrian-friendly walkways are free from obstructions, have a smooth surface, have public toilets and can be easily accessed. Outdoor seating
- Outdoor seating is available, particularly in parks, transport stops and public spaces, and spaced at regular intervals; the seating is well-maintained and patrolled

to ensure safe access by all. Pavements

- Pavements are well-maintained, smooth, level, non-slip and wide enough to accommodate wheelchairs with low curbs that taper off to the road.
- Pavements are clear of any obstructions (e.g. street vendors, parked cars, trees, dog droppings, snow) and pedestrians have priority of use. Roads
- Roads have adequate non-slip, regularly spaced pedestrian crossings ensuring that it is safe for pedestrians to cross the road.
- Roads have well-designed and appropriately placed physical structures, such as traffic islands, overpasses or underpasses, to assist pedestrians to cross busy roads.
- Pedestrian crossing lights allow sufficient time for older people to cross the road and have visual and audio signals.

Traffic

- There is strict enforcement of traffic rules and regulations, with drivers giving way to pedestrians. Cycle paths
- There are separate cycle paths for cyclists.

Safety

- Public safety in all open spaces and buildings is a priority and is promoted by, for example, measures to reduce the risk from natural disasters, good street lighting, police patrols, enforcement of by-laws, and support for community and personal safety initiatives.

Services

- Services are clustered, located in close proximity to where older people live and can be easily accessed (e.g. are located on the ground floor of buildings).
- There are special customer service arrangements for older people, such as separate queues or service counters for older people.

- Buildings are accessible and have the following features:

- elevators
- ramps
- adequate signage
- railings on stairs
- stairs that are not too high or steep
- non-slip flooring
- rest areas with comfortable chairs
- sufficient numbers of public toilets.

Public toilets

- Public toilets are clean, well-maintained, easily accessible for people with varying abilities, well-signed and placed in convenient locations.

Affordability

- Affordable housing is available for all older people.

Design

- Housing is made of appropriate materials and well-structured.
- There is sufficient space to enable older people to move around freely.
- Housing is appropriately equipped to meet environmental conditions (e.g. appropriate air-conditioning or heating).
- Housing is adapted for older people, with even surfaces, passages wide enough for wheelchairs, and appropriately designed bathrooms, toilets and kitchens.

Modifications

- Housing is modified for older people as needed.
- Housing modifications are affordable.
- Equipment for housing modifications is readily available.
- There is a good understanding of how housing can be modified to meet the needs of older people.

Maintenance

- Maintenance services are affordable for older people.
- Public housing, rented accommodation and common areas are well-maintained.

Ageing in place

- Housing is located close to services and facilities.
- Affordable services are provided to enable older people to remain at home, to “age in place”.

8

CASE STUDIES

8 CASE STUDIES

The previous chapters described the needs and wishes of the Empty Nester and which spatial, functional and social qualities are needed for this target group. Thus, the groups covered by the Empty Nester benefit from different housing qualities explicitly tailored for them. However, how can such design elements be interpreted in practice? This will be examined in this chapter based on several case studies. The case studies are chosen because they are explicitly designed for those over-55s and Empty Nesters. Thereby, it will be analysed how these projects have addressed this heterogeneous group's diversity and diverse housing preferences.

KREILERBURCHT

W. Patijn - IJSSELMONDE 1991

Kreilerburcht

8.1 Kreilerburcht

The Kreilerburcht is a unique housing complex for 55+ households located in IJsselmonde. This complex was built on the initiative of older residents from IJsselmonde, who had organised themselves in 1987 into the Association Different Living for Older People. With this building, people aged 55 and over can live in a way that differs from the conventional form used for the elderly, partly due to communal facilities (association A.W.D.O., s.d.). Thus, the wish was that during their third stage of life, elderly people could live in a residential community with other elderly people, actively and meaningfully, healthily and sociably, independently but not alone. These residents wanted a building with communal facilities to avoid loneliness and dependence on care or family. They chose architect Patijn because of his experience with unique residential buildings. Thus, from 1987 to 1992, preparations were made regarding the policy plan, legal form, wish list, and the correct location (association A.W.D.O., s.d.).

The project is situated in a central location in IJsselmonde, close to IJsselmonde's indoor shopping centre. The location was chosen because of the spatial layout of the area and its central location. As a result, primary facilities are accessible within a radius of 500 metres. The rectangular complex consists of 3 parts; 2 parallel residential blocks, in which 68 flats and communal lofts are spread over four floors and a centrally located communal atrium. The central

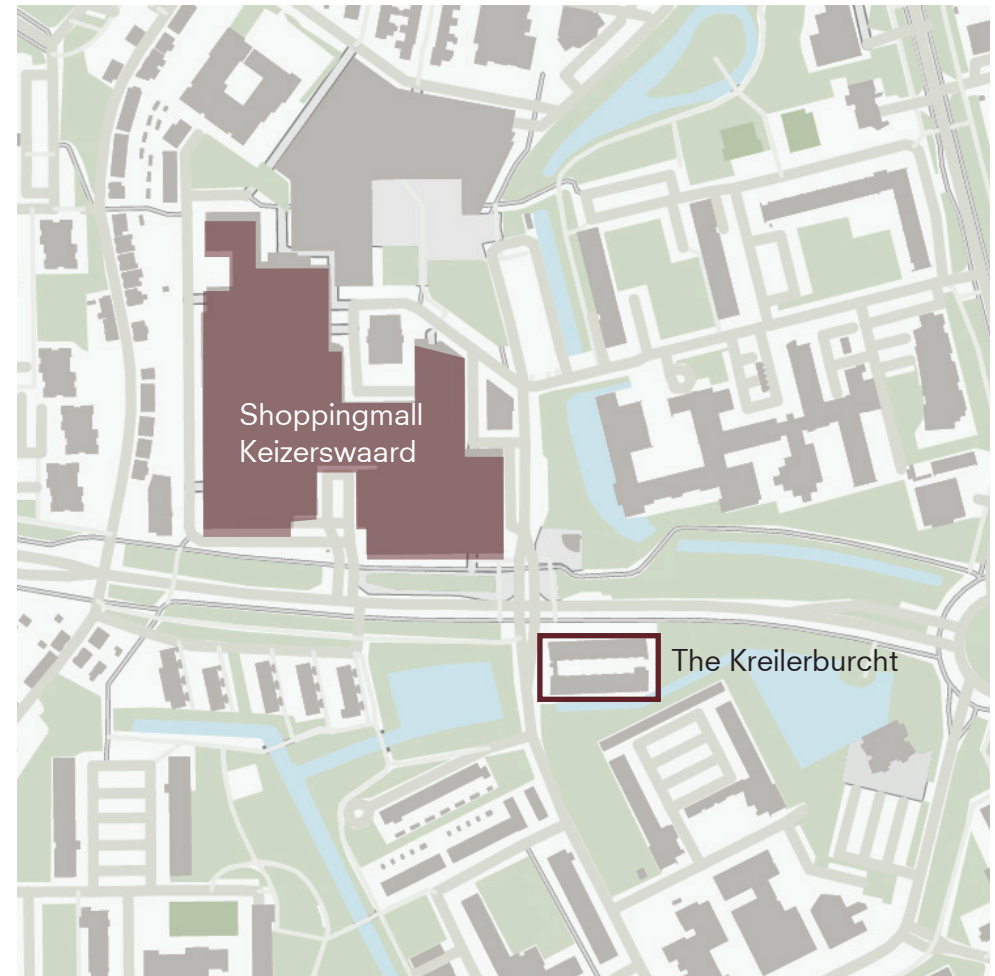


Figure 26: Location The Kreilerburcht, made by author)

entrance is located at the atrium, slightly set back from the blocks, on the short west façade of the building. The flats on the floors are accessible via indoor galleries at hand, two stairwells and two lifts entrance and one at the end of the gallery. This structure provides clear and uncluttered accessibility for the residents; there is a clear distinction between public, communal and private (Figure 28 & 29).

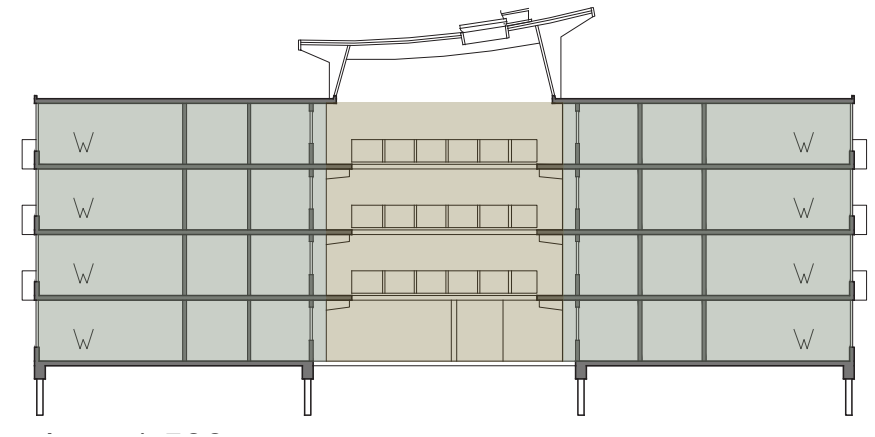


Figure 27: Section zones The Krielerburcht, made by author)



Figure 28: floorplan zones The Krielerburcht, made by author)

The complex is made for interaction and conviviality; The open structure provides the opportunity for interaction and connection between the residents (figure 29) with tropical plants and a pleasant indoor climate, which receives daylight through the glass facades and windows under the curved roof, it is a pleasant place for residents to sit and interact with each other (figure 30). Besides the communal atrium, residents on each floor have access to a so-called cluster room, where they can, for example, do their laundry, sit outside on a communal terrace, and play cards or billiards (figure 31 & 32). There are also guest rooms and a shared bicycle shed in the complex. The complex's atrium forms the central heart with its exceptionally tall and open structure. This clearly distinguishes between the communal open space, the cluster spaces and flats (figure 29 & 30).

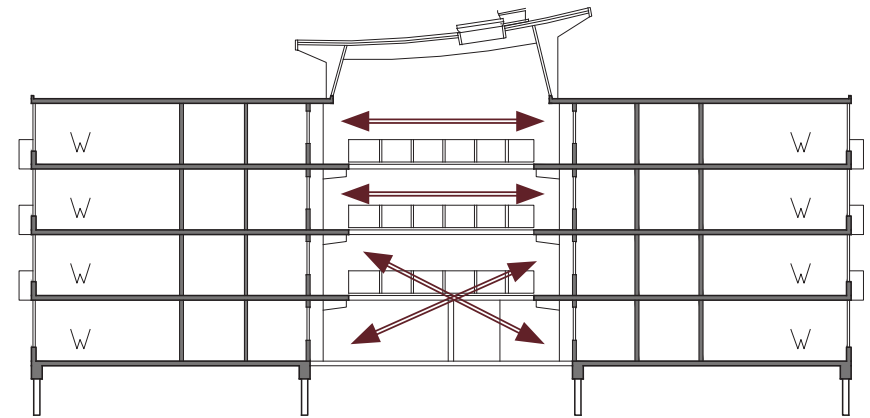


Figure 29: Connectivity The Krielerburcht, made by author)



Figure 30: Open atrium The Krielerburcht, (association A.W.D.O., s.d.)



Figure 32: Cluster balcony The Krielerburcht, (association A.W.D.O., s.d.)



Figure 31: Cluster room The Krielerburcht, (association A.W.D.O., s.d.)

The flats have a comfortable feel and open structure. The living room connects to the open kitchen. There is a small extra bedroom and a lovely balcony; this combination in the layout gives the flat a particularly comfortable character. The large bedroom that opens onto the hall and the living room enhances the feeling of comfort. There is also a practical shower room, a separate toilet and an efficient storage room. Each flat measures 71 m² and includes a small room right next to the entrance, a small room that can be used as desired. In addition, all flats have an open view of the outside, giving a spacious layout (figure 33).

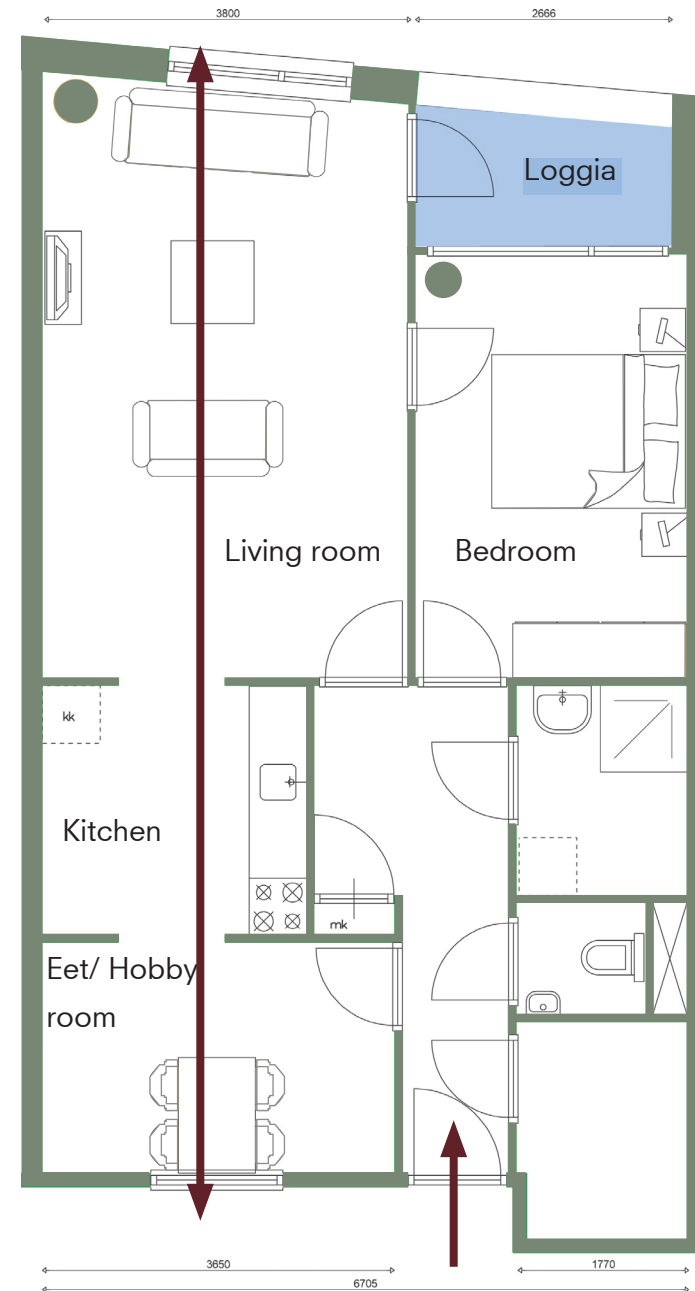


Figure 33: Connectivity The Krielerburcht, made by author)



EBBINGHOF

Moriko Kira - GRONINGEN 2022

8.2 Ebbinghof

The project is located near the historic centre of Groningen. The complex consists of 40 diverse flats ranging from 60 to 150 m². A mix of social, medium and private sector rentals is situated around a communal garden. The open shape of the building and different heights provide light from three sides. Thus, the public indoor garden is always in maximum sunlight. The connection between private and communal is visible in the structure of the building, with the flats and communal indoor spaces on the outside accessible on the upper floors via galleries overlooking the communal garden. The wide galleries should provide space for interaction. This allows them to be themselves and meet others: in freedom and togetherness (Figure 33 & 34).

The flats have a comfortable feel and open structure. The spacious living room connects to the open kitchen that faces outwards. This combination in the layout gives the flat a remarkably free character. Depending on the size, additional rooms can be used as desired. There is also a practical shower room, a separate toilet and an efficient storage room. In addition, all flats have an open view of the outside, giving a spacious layout (Figure 33 & 34).

A courtyard has been realised for residents who want to have a spontaneous mutual contact. The sun in the courtyard is also significant for the residents. With this in mind, the pentagonal

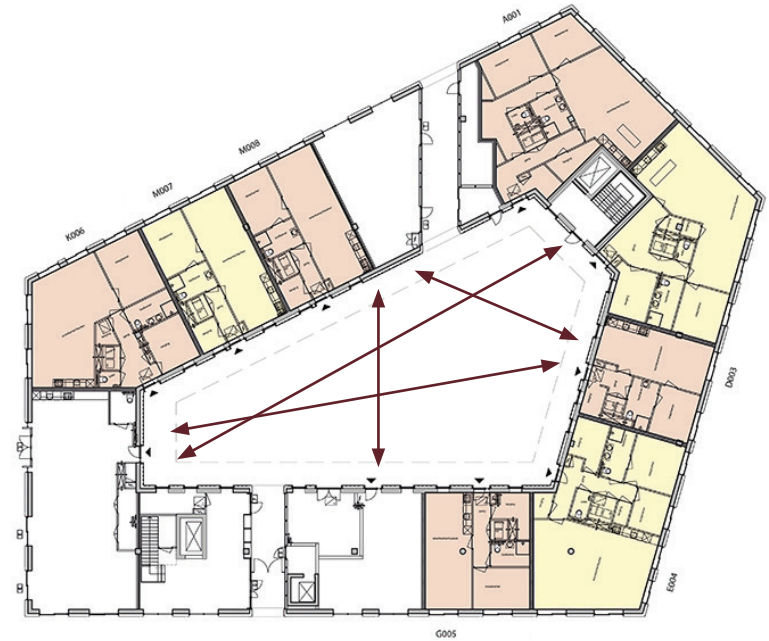


Figure 33: Connectivity Ebbinghof (edited by author)



Figure 34: Variety apartments and functions Ebbinghof (edited by author)

building came into being. The south and north sides are partly lower, so the courtyard is sunny and open. There are two roof terraces where residents can create gardens. The result is a dynamic building that gives a changing impression depending on the side. The building constantly plays with the light that adapts to the changing seasons and weather conditions. The project is energy-efficient and sustainably built. The future-proof flats are fit for life and are all-electric. As a result, residents are no longer dependent on gas, which is also visible in the facilities. For instance, they have electric car sharing for all residents. They can also use the public inner garden and a sunny rooftop terrace on the second and third floors (figure 35, 36, 37). Bicycles can be parked in the communal bike sheds.



Figure 36: Communal courtyard Ebbinghof (Ebbinghof)



Figure 34: Communal terrace Ebbinghof (Ebbinghof)



Figure 35: Communal terrace Ebbinghof (Ebbinghof)

An architectural rendering of a modern, multi-story building with a prominent green roof. The building features a grid-like facade with large windows and cantilevered balconies. The roof is covered in lush greenery, and the building is surrounded by trees and a paved plaza with people walking. The sky is overcast.

LEGEND

de Architekten Cie - 2022

8.3 Legend

Legends is a residential project comprising 150 homes, 50 intended for social rent, 50 for medium rent and 50 for free sector rent. Because there is a wide range of housing types, the building meets the different housing needs of active 55+ people (figure 37). The project is designed to move and meet. Thus, enough spatial aspects have been designed where interaction is possible such as; the communal areas, the reading tables and sitting areas located on the floating inner streets (figure 38 & 40), for example. There is also ample opportunity for interaction at the plinth or courtyard garden's spacious entrances and activity areas. The courtyard garden should function as an oasis of tranquillity, offering coolness through large trees in the summer and functioning as a unique garden room in the autumn and winter months see figure 38 (Architekten Cie).

The building's functions and architecture combine to create an interactive and unique building with plenty of room for personal and collective happiness. So that the residents are part of a vibrant community where healthy and happy ageing is paramount. The essence of the design is mainly about contributing to the happy ageing of an ageing population. This was attempted by creating new forms of living where the vital 55+ person can live a fun, active, healthy and meaningful life for longer (Architekten Cie).



Figure 37: Mixed apartments (Architekten Cie, edited by author)

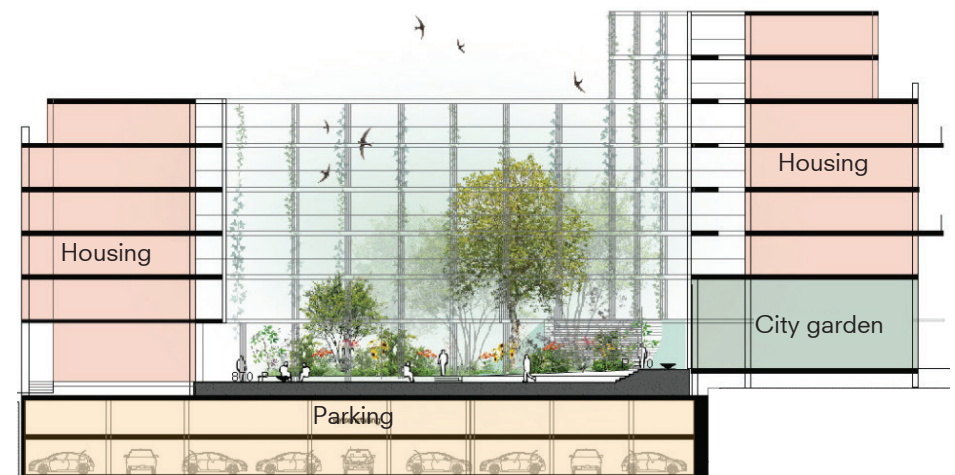


Figure 38: Mixed functions (Architekten Cie, edited by author)

The homes are very sustainable and come in a wide variety, so there is enough for everyone. It is also sustainable because it is adaptable to changing (care) needs. The houses can be divided freely, as the design considers the separation of the load-bearing part and the built-ins. For instance, all living areas have at least one non-load-bearing wall that can be broken through and without electrical wiring. This allows the living units to be linked and easily enlarged or reduced in the future as required. In addition, due to the central location, enough necessary provision is available (Architekten Cie).

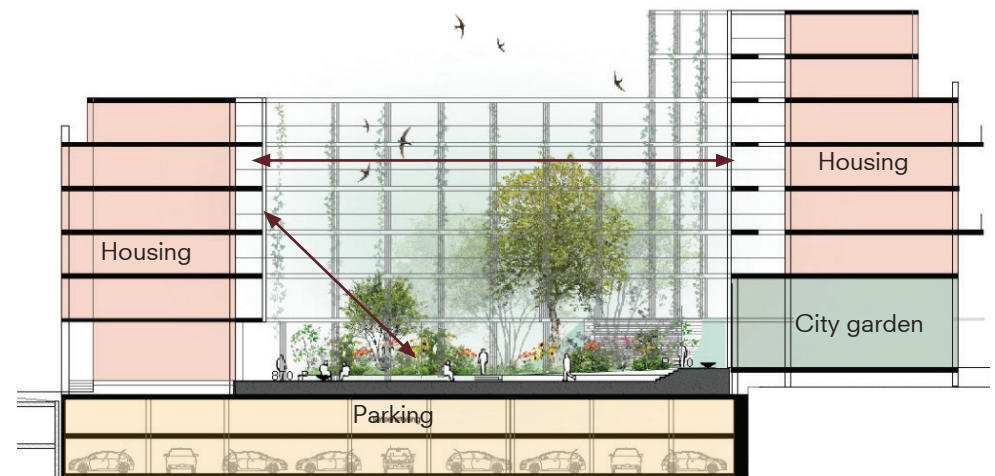


Figure 39: connections (Architekten Cie, edited by author)

Besides movement and interaction, the design also offers safety. For instance, the entrances are designed strategically that encourage connection and open onto the lively plinth. Besides practicality, routing also offers a positive experience. For instance, wide galleries, sloping paths, stairs, bridges and living corridors act as lifted streets where you can have coffee with your neighbours or read a book (figure 39 & 40) (Architekten Cie).



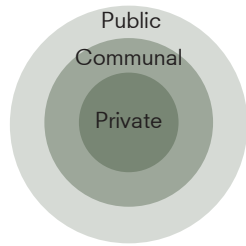
Figure 40: connections & liveliness (Architekten Cie)

The building is designed according to the Open Building principle, which means it can be adapted in the future to the needs of new users or residents. The plinth, for instance, is designed as a freely dividable space five to six metres high. This will initially contain office and catering spaces. However, these can be transformed into flats in the future. The building will be energy-neutral, thanks to solar panels that provide electricity for the heat pump, ventilation and lighting (Architekten Cie).

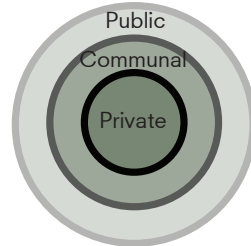
8.4 Conclusion

This chapter partly answered the question, “What kind of spatial, functional, and social conditions are needed to make a home suitable for Empty Nesters households, whether they are healthy or physically impaired, and considering different socio-economic backgrounds?”

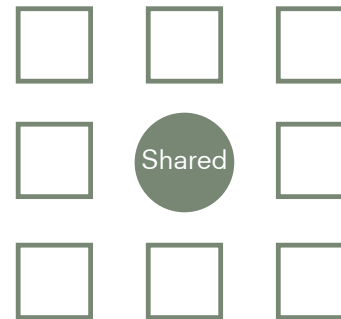
By analysing case studies of projects designed with an eye on the spatial, functional and social conditions needed to make a home accessible and attractive for Empty Nesters. Each project has successfully managed to interpret how to fulfil these desires for this target group. This can be done both in a monotonous way, as depicted in the first case study where the dwellings are the same and only address the various functional and social housing preferences and fulfilling a broader parquet where there is diversity in spatial, functional and social housing preferences are fulfilled depicted in the other two case studies. By analysing architectural projects in practice, several design elements that encourage the above qualities could be found. The design elements can be found on the next page.



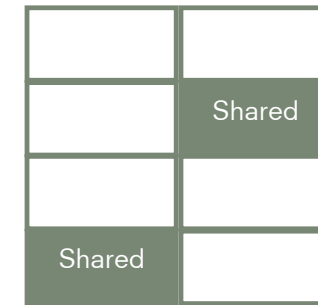
PROVIDE BUFFER ZONES
FOR TRANSITION



CREATE CLEAR BOUNDARIES
FOR SAFETY



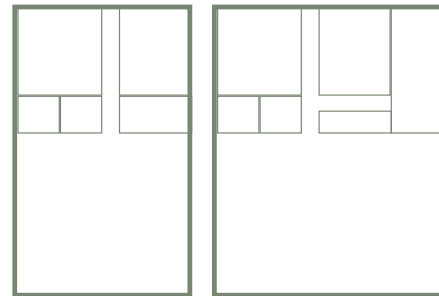
CREATE DWELLINGS
AROUND SHARED SPACES/
BUILDING



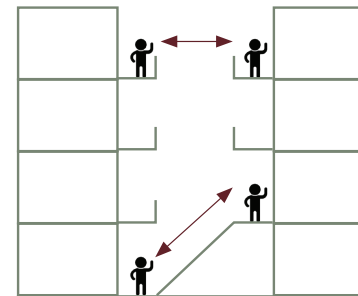
CREATE SHARED SPACES ON
DIFFERENT LEVELS



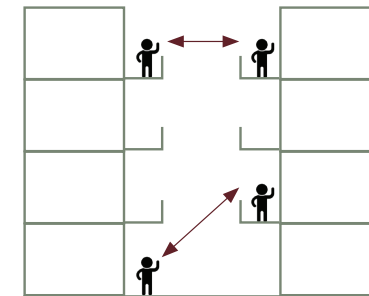
PROVIDE MULTIFUNCTIONAL
SHARED SPACES FOR
DIFFERENT INTEREST



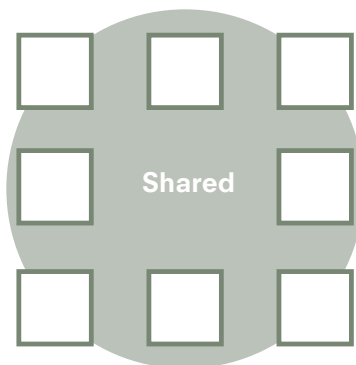
PROVIDE DIFFERENT DWELLING SIZES
TO SUPPORT DIFFERENT HOUSEHOLDS
AND ECONOMICAL LAYERS



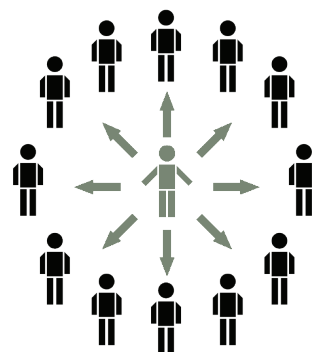
USE STAIRS AND GALLERIES AS
INTERACTION PLACES



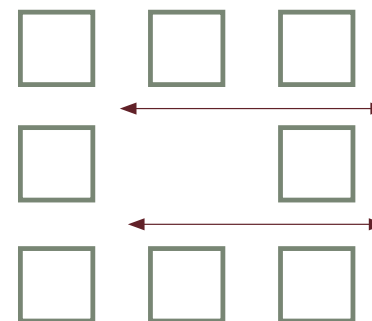
CREATE VERTICAL AND HORIZONTAL
SIGHT LINES/ INTERACTION



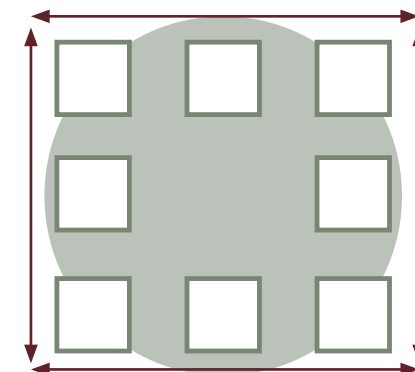
CREATE SHARED GREEN
SPACES



CREATE OPPORTUNITY TO
HAVE INTERACTIONS



CONNECT ROUTES IN AND
TO THE NEIGHBOURHOOD



CREATE A CAR FREE ZONE
WITHIN THE NEIGHBOUR-
HOOD

9

CONCLUSION

10 CONCLUSION

This research was supposed to give an answer on the following main question:

‘How can new dwelling concepts for Empty Nesters, be integrated into a densification strategy for post-war neighborhoods, to stimulate flow in the housing market for younger families?’

To finally answer this central question, several sub-questions were studied.

The first sub-question studied was **“What are the characteristics of the heterogeneous group of Empty Nesters, and how are they positioned in society?”**. In short, different social demographic, cultural and economic influences affect a person during the life course, which results in characteristics differences, e.g. household, income, level of education and vitality, among other things. This results in a heterogeneous group with different (housing) needs. This also affects the home design suitable for this heterogeneous target group. Some of these influences have been translated into spatial, functional or social aspects important in developing Empty Nester housing.

The second sub-question of this study was: **“What does the housing market behaviour of the over-55s and their relocation motifs look like?”**. It can be concluded that older adults are very sedentary and prefer to stay in their current homes for as long as possible. Thus, limited relocation dynamics and housing market stagnation accompany ageing. Various events influence the propensity to move in the different life stages of residents. Low move propensity is influenced by, e.g. current satisfaction, greater self-sufficiency, home ownership and lack of desirable supply. These factors are seen as keeping residents in their current housing situation. Moving motives that act as triggers are called Push factors. These factors push people out of their current housing situation. Pull factors are older people’s needs and housing preferences that make

a property attractive. Ageing will therefore have a significant impact on supply and demand in the housing market. This group's different (housing) wishes and needs should be listened to. Some housing qualities are valued more by seniors than others. Some examples are; good accessibility, comfort, safety, and proximity to good facilities. A growing demand for more luxurious flats is also visible in the housing market or developments related to care integration. These Pull factors can be decisive in getting over-55s out of their current homes, thus boosting the housing market. These Pull factors are the most critical factors to restart the moving dynamics. Since the propensity to move is low, older people must be enticed to move using Pull factors. Using the factors mentioned above, several design elements are essential in the development of Empty Nester.

The third sub-question of this study was as follows:
How can the over-55s be segmented to understand better the specific housing needs of groups of potential clients?

Segmentation can provide a better understanding of the specific housing preferences of different groups of older people so that supply can be better matched to demand in the future. This diversity among older people and the fact that older people are demanding consumers make segmentation of the target group necessary. The combination of traditional and lifestyle segmentation resulted in 6 target groups. These groups were then translated into housing

profiles with housing preferences. These residential profiles help create a design better suited to the Empty Nester's demand.

The final sub-question answered in this study was:
What kind of spatial, functional, and social conditions are needed to make a home suitable for Empty Nesters households, whether they are healthy or physically impaired, and considering different social-economic backgrounds?

Through a combination of literature review and analysing case studies designed with an eye on the spatial, functional and social conditions needed to make a home accessible and attractive for Empty Nesters. Several design elements could be found that encourage the above qualities and thus make a home attractive and suitable.

All in all, a clear picture emerged about the target group; what characteristics they differ in, what moving motives they have, what housing profiles this group has with connecting housing preferences and what spatial, functional and social qualities they need. By combining the outcomes of all sub-questions, a design strategy was created that could be used to design housing that is attractive and focused on the Empty Nester, integrated into an existing postwar neighbourhood, in order to stimulate the flow of the housing market. Thus, this strategy and the design created by using this strategy answer the central question of this research.

An aerial photograph of a city grid, showing streets, buildings, and green spaces, overlaid with a dark green semi-transparent filter.

10

LOCATION
ANALYSES

9 LOCATION ANALYSES

Groot-IJsselmonde is difficult to summarise in one sentence and involves many characteristic features, in which the well-thought-out urban planning structure and green character are defining features.

Different neighbourhoods in a large district

Groot-IJsselmonde is a large neighbourhood that is intersected by ring roads in the neighbourhood, creating various interruptions and neighbourhoods; the road ring around the central part of the neighbourhood, the historical dyke that meanders through the neighbourhood, the IJsselmonde Creek, the Park and several green lobes that penetrate the neighbourhood from the outside are also spatially structuring elements that divide Groot-IJsselmonde into districts and neighbourhoods (Figure 41).

A garden city incorporated into the city

The origins of Groot-IJsselmonde began with its expansion to the south. It started with the meadow next to De Kuip, which became Sportsdorp. Only in the 1960s was the rest of Groot-IJsselmonde built as a new suburb of Rotterdam. The urban design of Groot-IJsselmonde is in line with the ideas of the garden city movement, in which lots of public greenery should surround the building blocks. Furthermore, the later realisation of Beverwaard, the intensification of traffic on the A16 and A15 and the addition of new urban functions on the edges of the neighbourhoods have made Groot-IJsselmonde part the city (Figure 41).

A district with many economic activities

Although Groot-IJsselmonde is mainly known as a residential district, it is also a district where many economic activities take place and offer many employment opportunities. The main places in the district that offer this are; the Stadionweg business park, De Kuip and the Topsportcentrum, with the adjacent companies, the Maasstad hospital, the Hordijk business park and the Keizerswaard shopping centre. Many smaller-scale economic activities can also be found in the various districts (Figure 41).

A neighbourhood with various green living environments

IJsselmonde's green residential environment is a positive aspect of the district. Except for the district's centre, all districts have a green living environment. Thus, the neighbourhoods are variously arranged by greenery, each in its way. In Sportsdorp, for instance, there is much greenery through private gardens. In Tuinenhoven, Hordijkerveld and Reyerwaard, many flats have an enclosed and semi-public character because they have been built around green courtyards. Zomerland is more open as it mainly contains public greenery between the flats. Whatever the case, there is always greenery in Groot IJsselmonde (Figure 41).

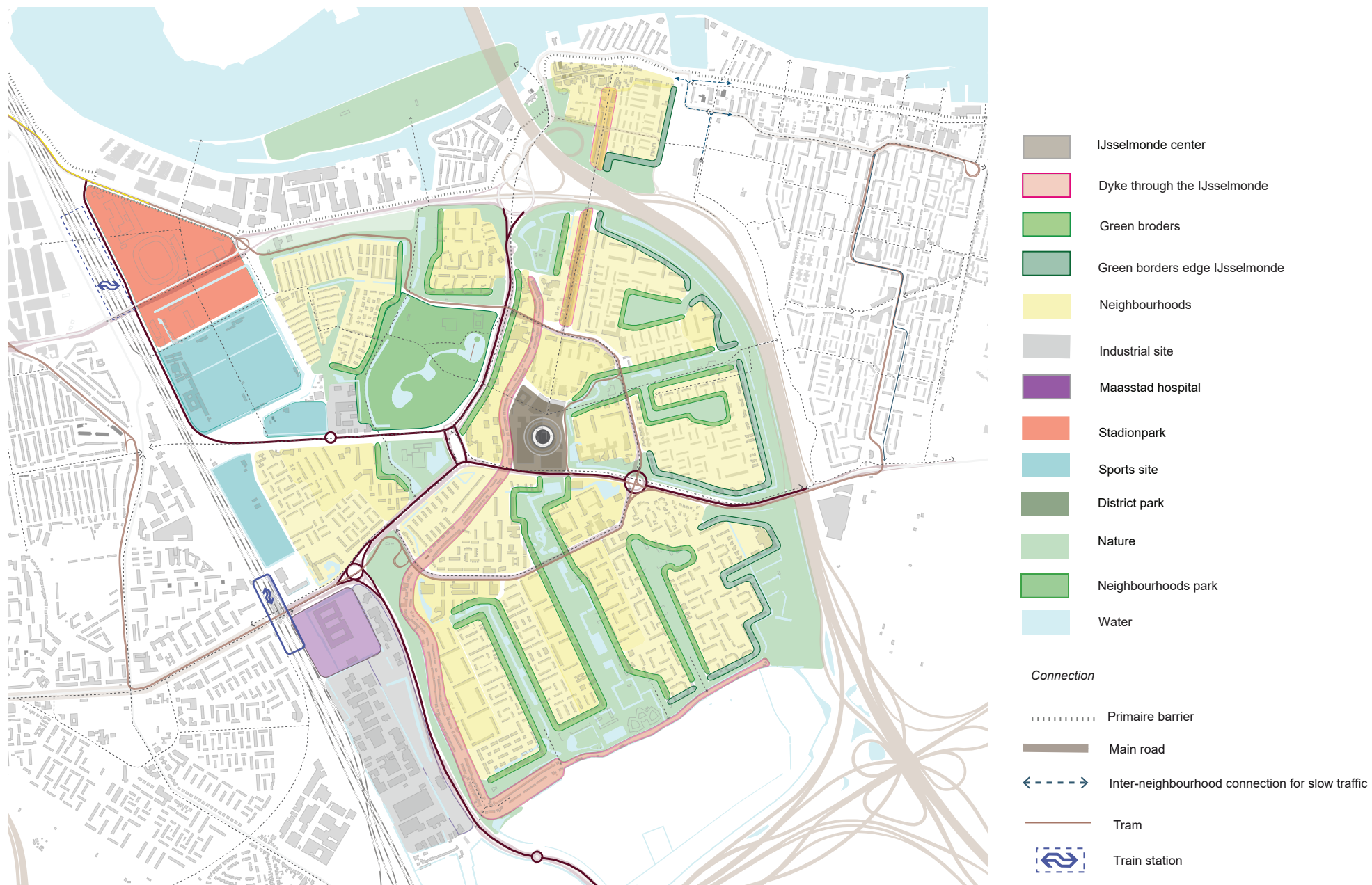


Figure 41: Analyses Groot IJsselmonde (made by author)

A neighbourhood with a diverse population

The population of Groot-IJsselmonde differs from the Rotterdam average on several points. The neighbourhood has a relatively large number of over-65s in the Empty Nesters target group and a smaller working population. Ethnically, there is less diversity and colour compared to the Rotterdam average. In terms of household composition, it is about the same as the Rotterdam average. A notable difference is that the standardised annual income is 1,800 euro lower. The reason lies in the high proportion of over-65s. In terms of lifestyles, the green and orange lifestyles predominate, but the Grote Woontest 2012 and an analysis using the lifestyle finder show that this differs per neighbourhood. In the social index, Groot-IJsselmonde scores slightly better than the Rotterdam average (Figure 42) (NPRZ, 2015).

A neighbourhood with a good image

From the Major Housing Test 2012, it can be concluded that Groot-IJsselmonde has the best image compared to other neighbourhoods in Rotterdam South, both among residents and non-residents. In particular, the presence of greenery and the shopping centre are frequently mentioned. However, the neighbourhood can be considered unsafe as there is a negative association with many flats. Residents' satisfaction with the neighbourhood has increased over the years. However, there has been a decline in Tuinenhoven (NPRZ, 2015).

Housing stock with points of interest

What is striking about the housing stock of Groot-IJsselmonde is housing corporations own that relatively many homes. Even though there has been a restructuring in the differentiation of the housing stock, there is still a limited supply. For instance, many stapled houses still need lifts, and houses with (too) small living space and/or low value. That said, there is the sufficient technical quality of housing. For instance, it was visible during the site survey that many corporations are working on making houses more sustainable. Despite this, there are still many homes that could be more energy-efficient. There is also a drop in demand in some large, outdated and expensive senior housing complexes. This calls for new housing concepts that address the problems mentioned above (Figure 43) (NPRZ, 2015).

A liveable neighbourhood

Groot-IJsselmonde scores objectively at or better than the Rotterdam average on the safety index. However, there are slightly more burglaries in the south of the district. Thus, the district scores worse on violence and burglary, and Groot-IJsselmonde scores slightly worse than the Rotterdam average on the safety index. In Tuinenhoven and Hordijkerveld, the safety, social and economic problems were reasons to include parts of these neighbourhoods in the cantilevers approach (NPRZ, 2015).

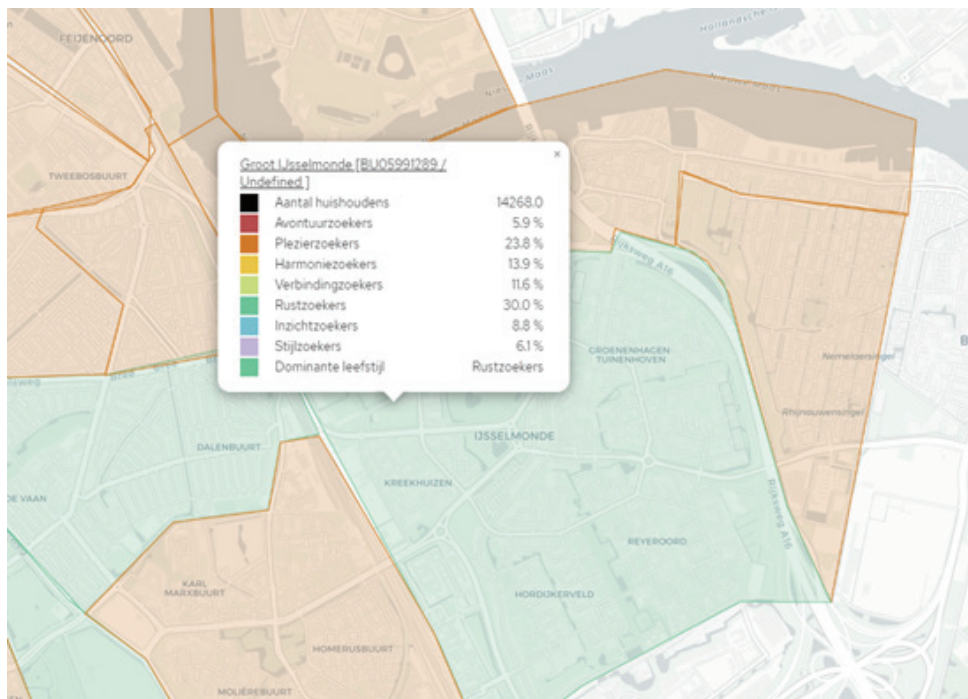


Figure 42: Type of persons IJsselmonde <https://app.leefstijlvinder.nl/login>

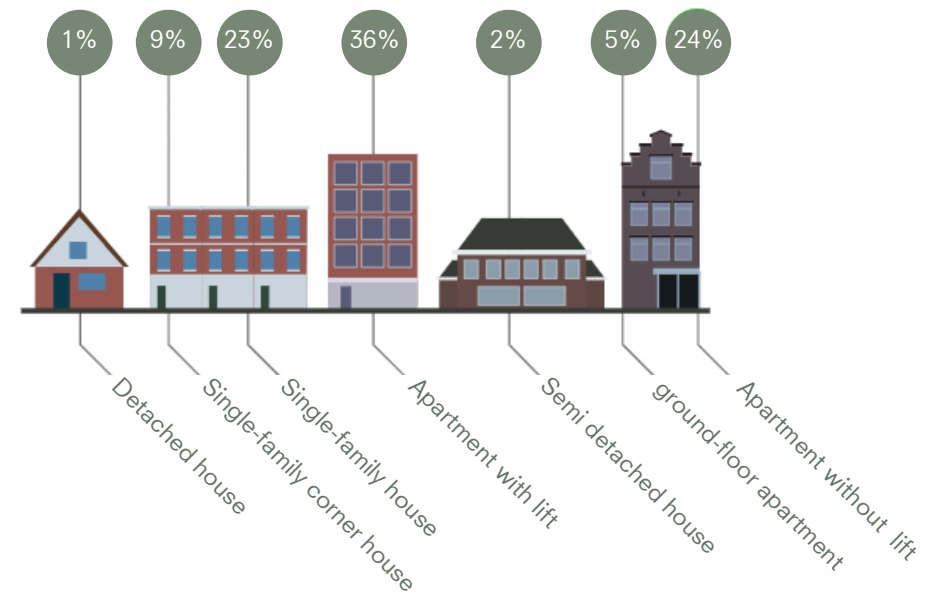
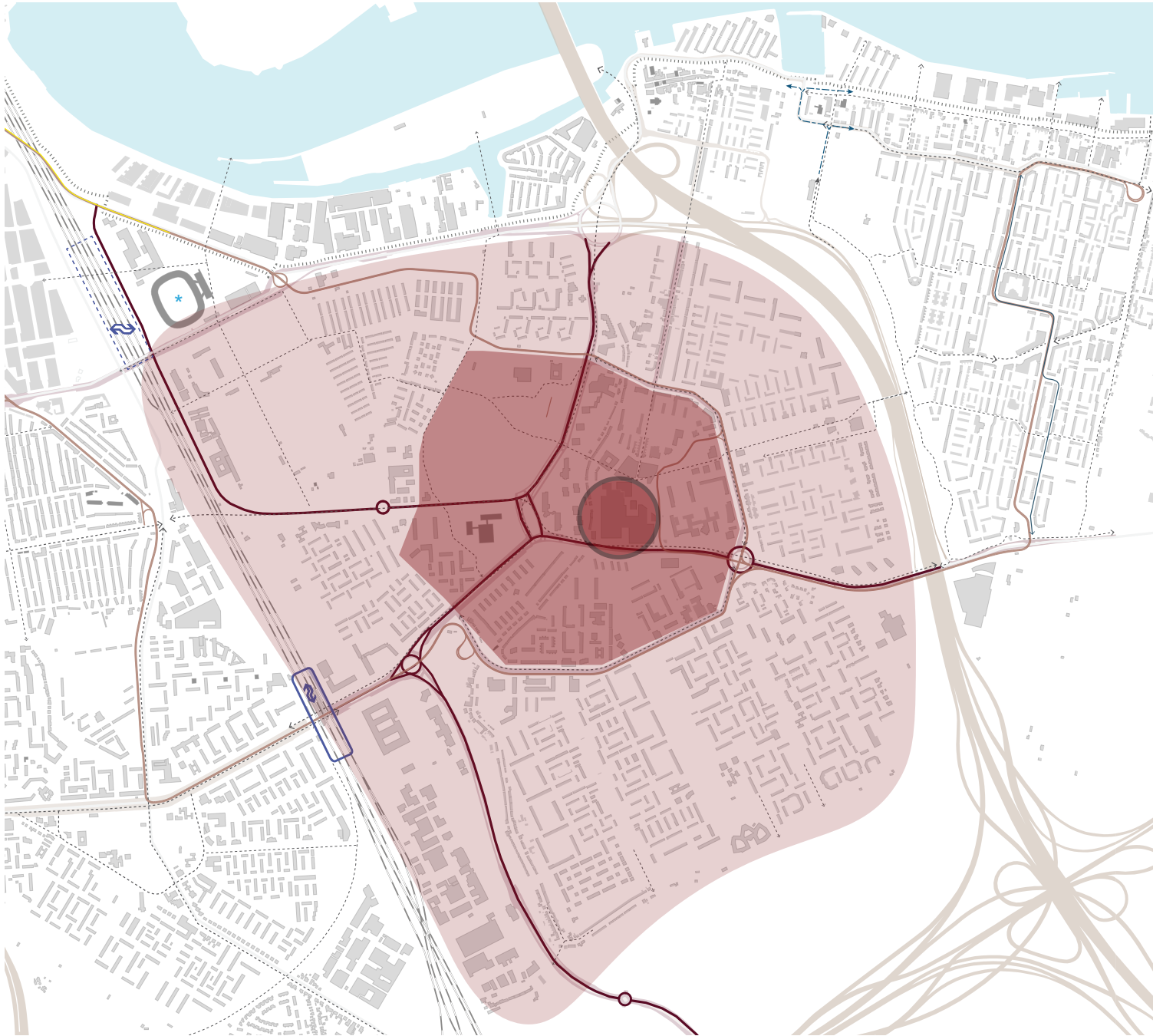
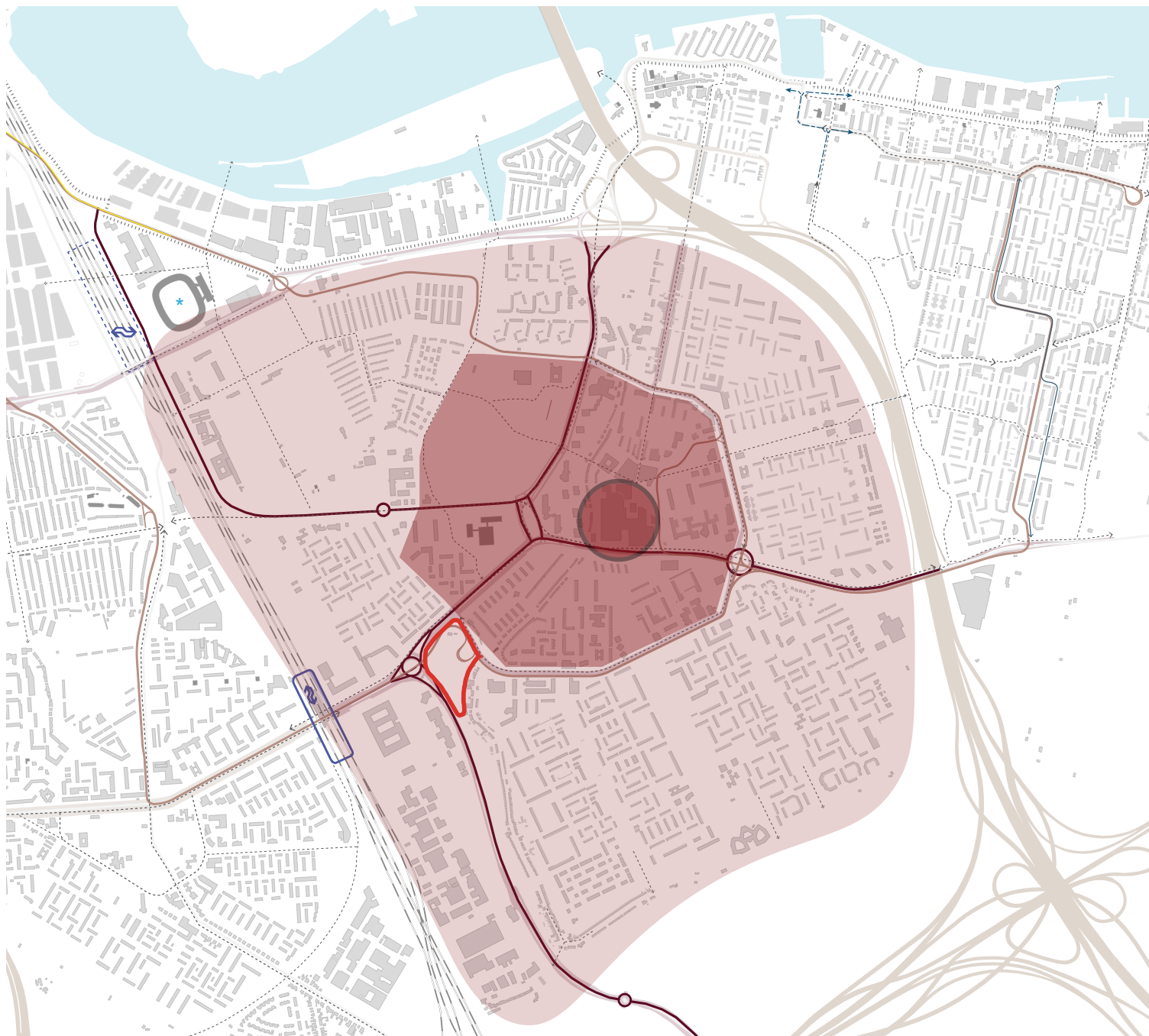
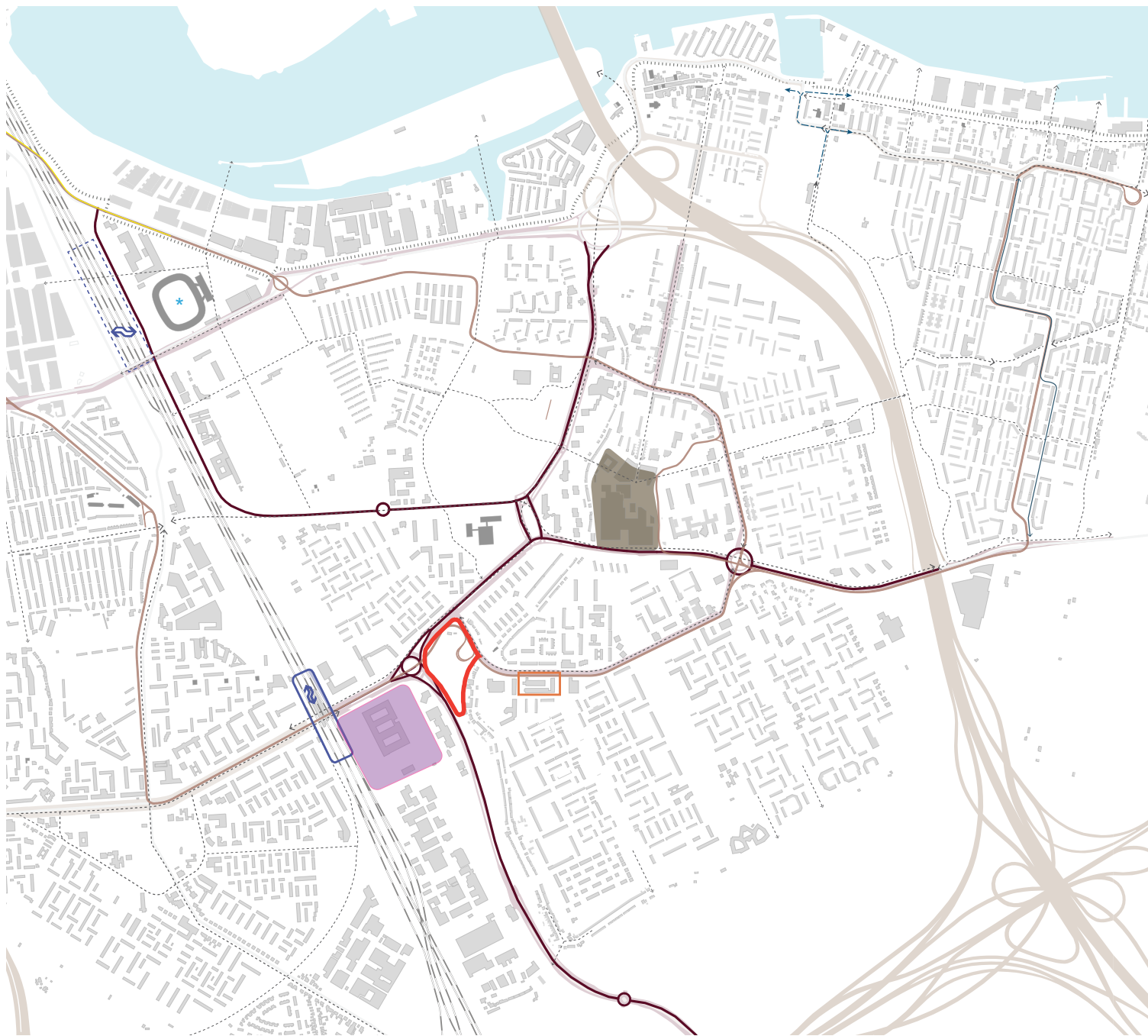


Figure 43: Housing type IJsselmonde (<https://www.woneninrotterdam.nl/ijsselmonde/groot-ijsselmonde/>) (edited by author)



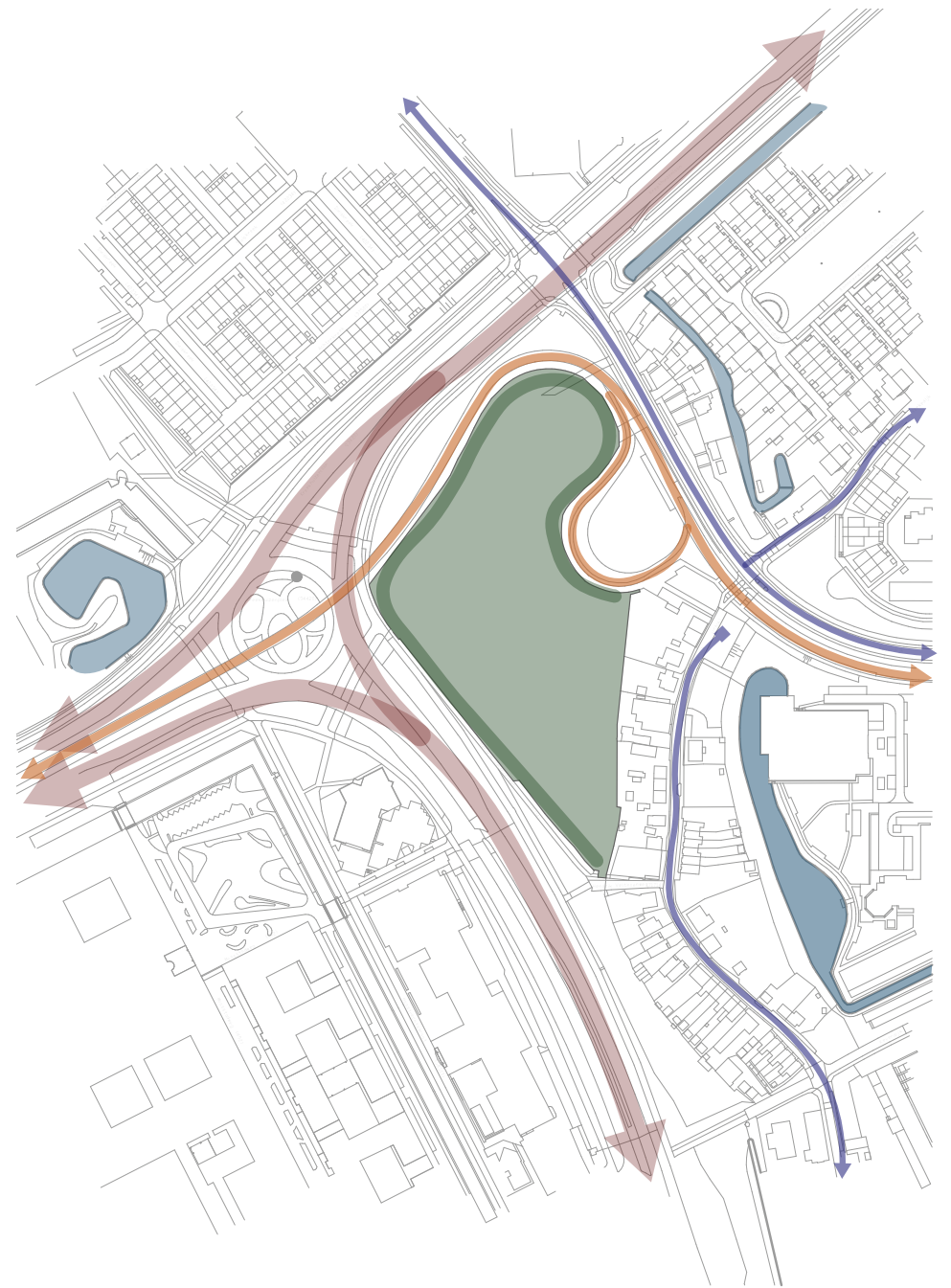


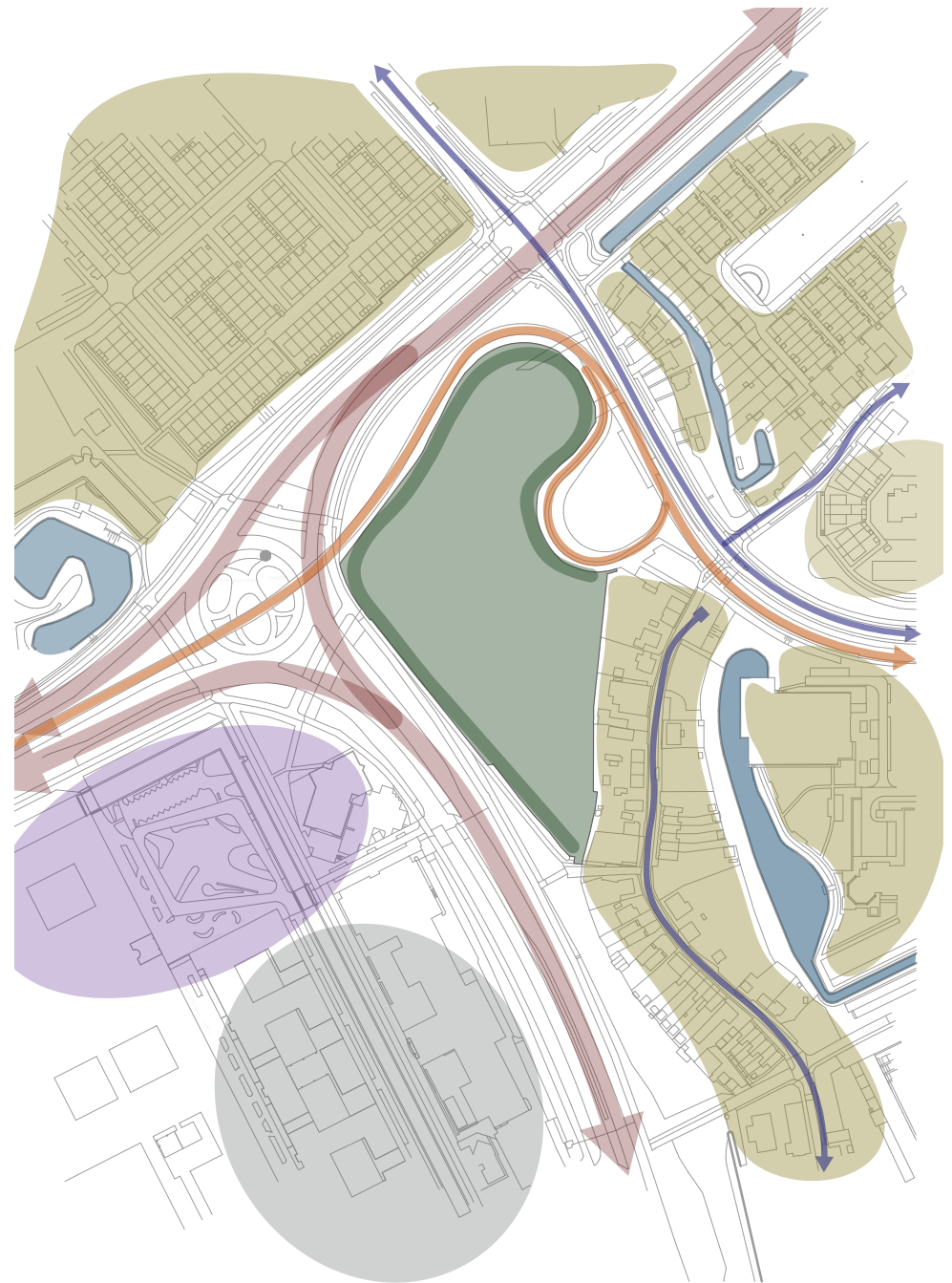
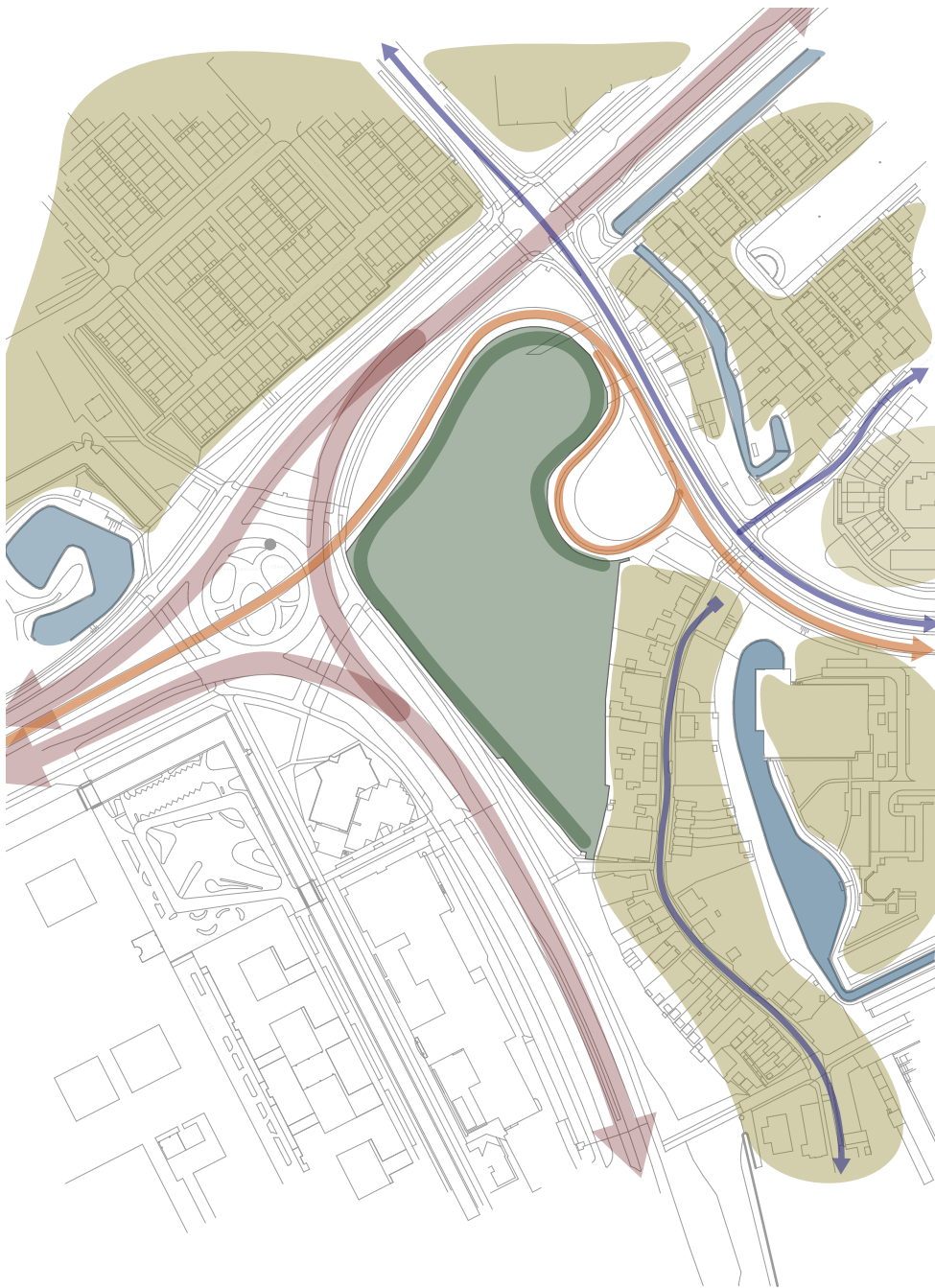




Because the objective is to create new housing for empty nesters, we looked at locations with as few existing houses as possible. In order to maximise the impact. Therefore, a location that meets the conditions of the WHO guidelines, such as a centrally located location so that the residents still live close to their social circle, was considered

the location is ideal for the Empty Nester. It is centrally located close to the central. Several public transport are available within walking distance. and 1st and 2nd amenities are within walking distance of the location. Besides, it is a quiet plot surrounded by greenery.

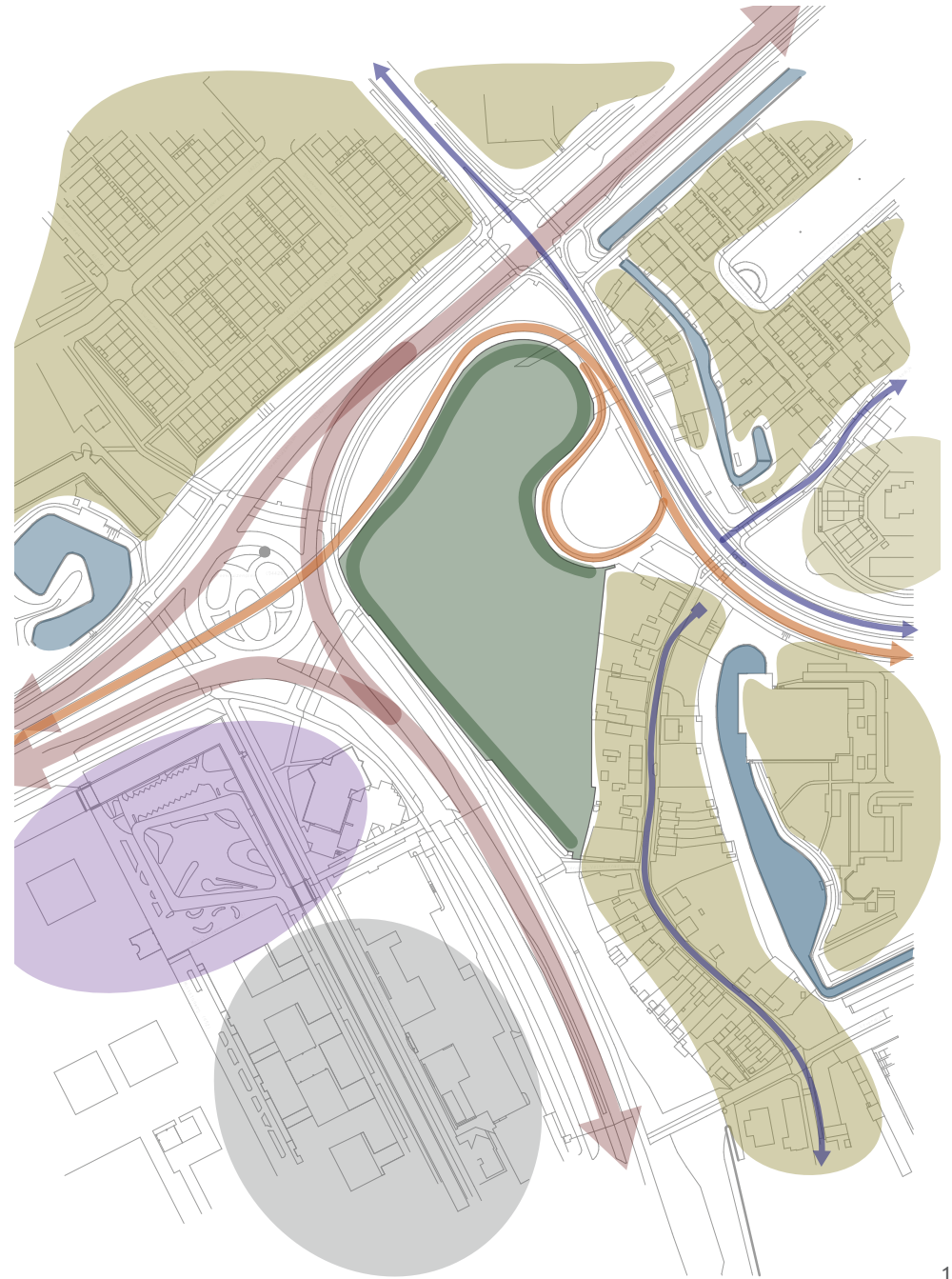




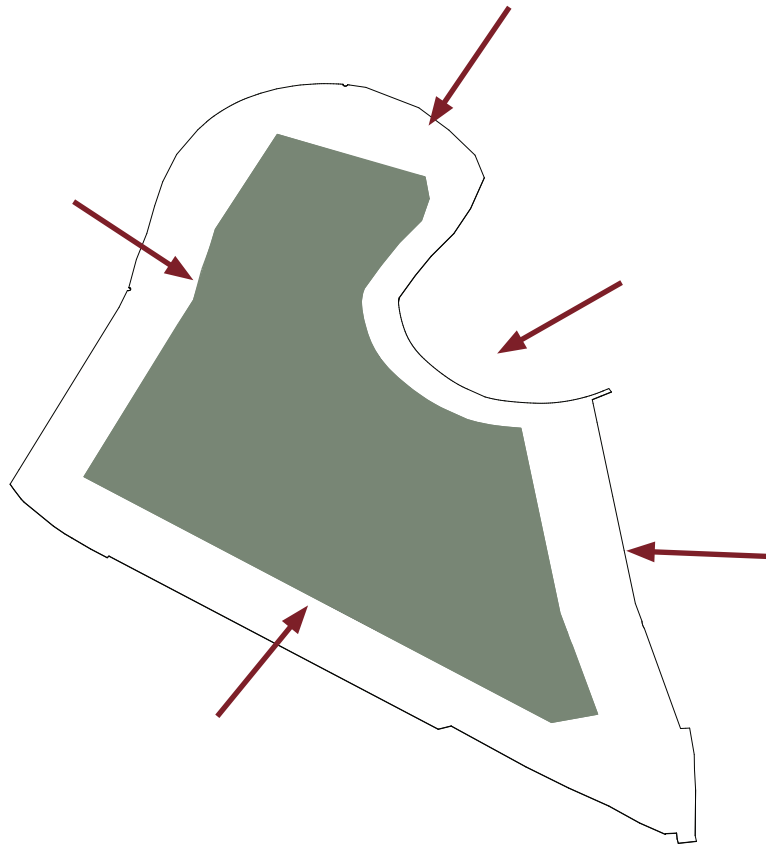
11

DESIGN

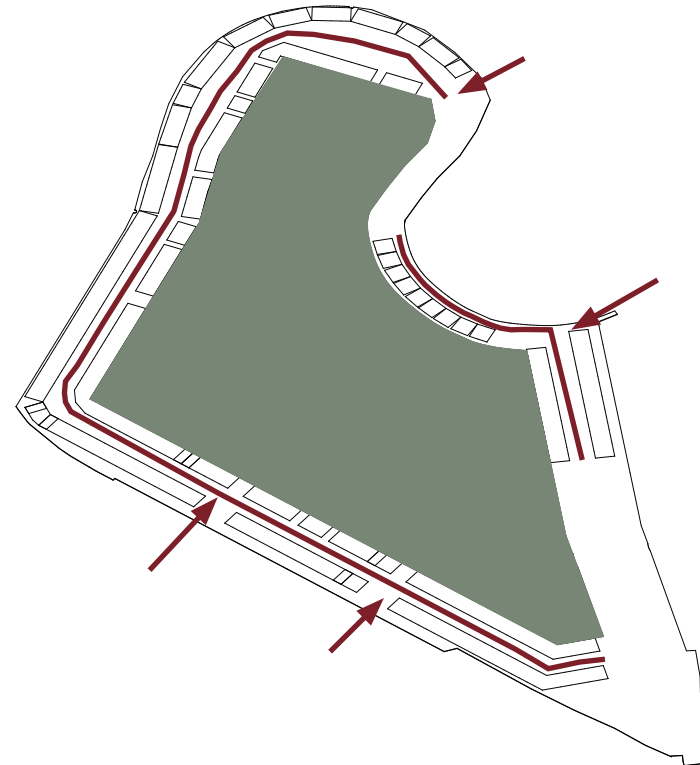
This chapter shows an overview of the densification design of this graduation project. The design elements and strategy that followed out of the graduation research is used as a base. design elements from the research will be used in this chapter to show the relation between the research and the design decisions that have been made.



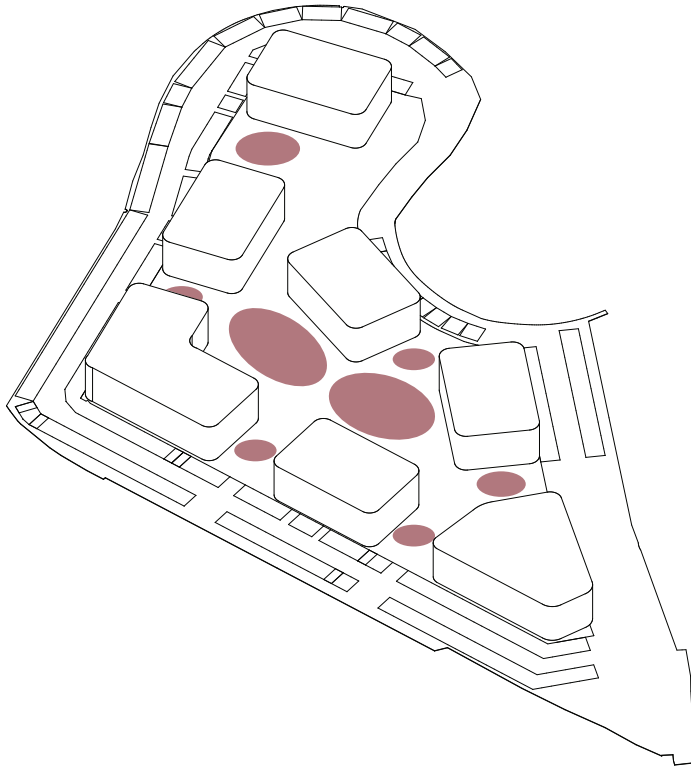
DESIGN CONCEPT



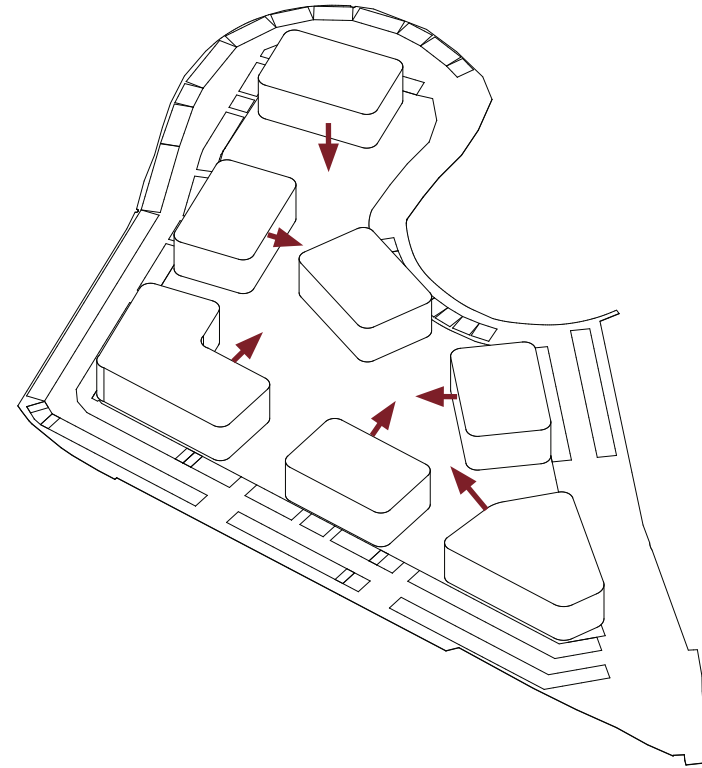
(1) maximum use of land



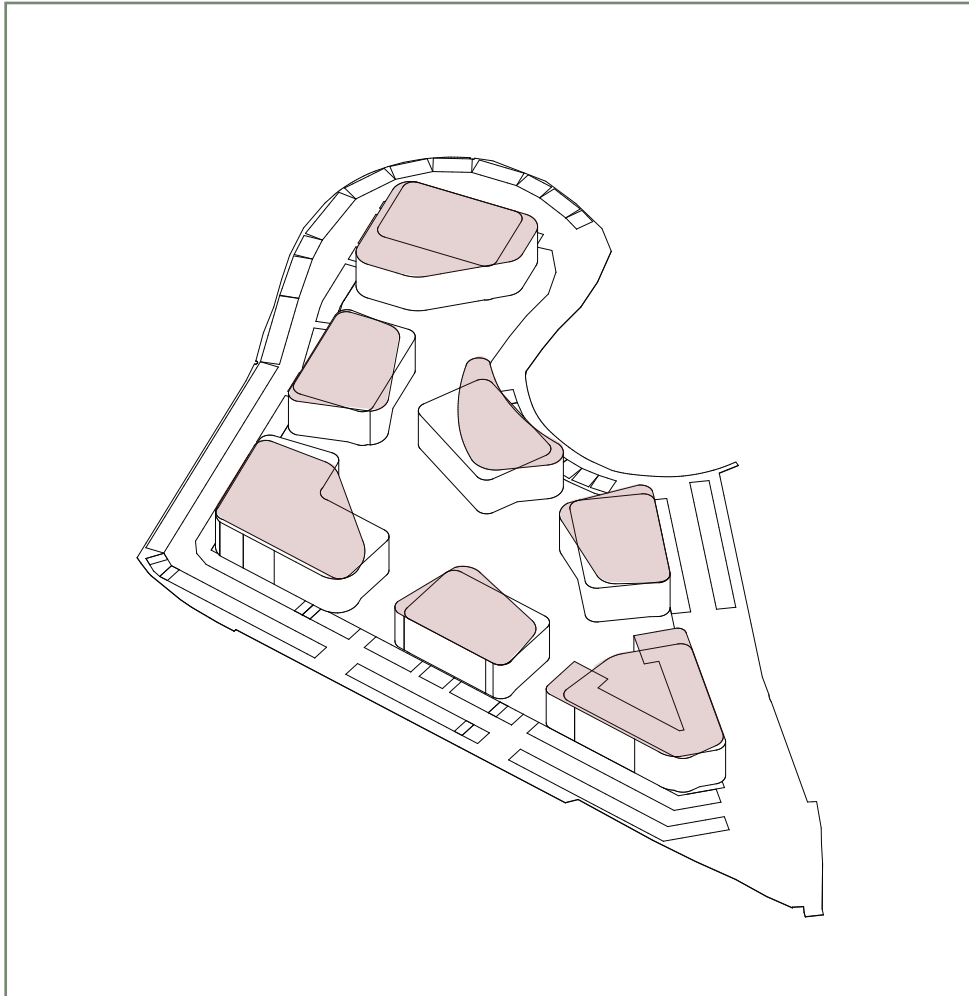
(2) Circulation on the outside



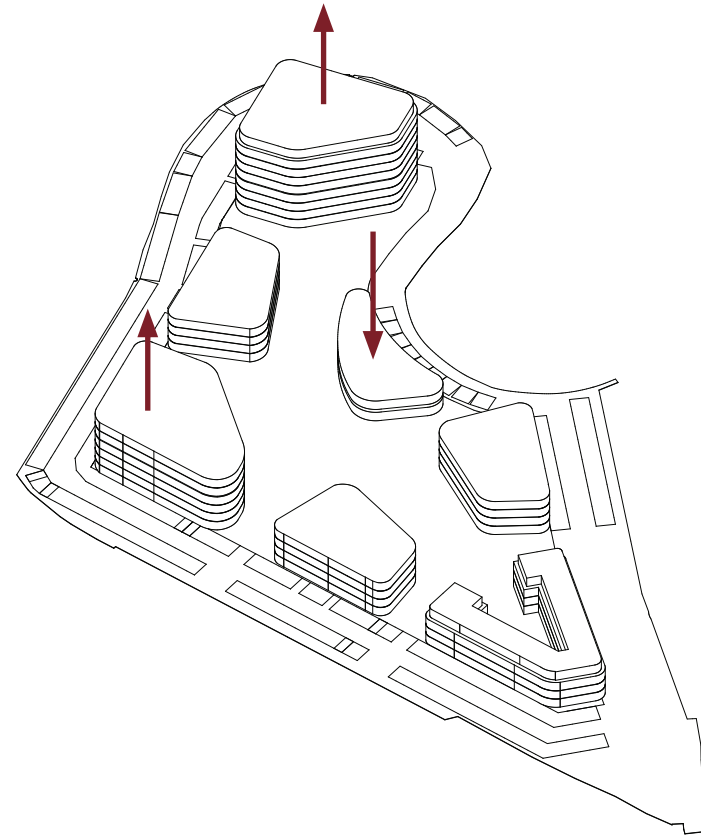
(3) Flexibility in size,
intimacy and use of
communities



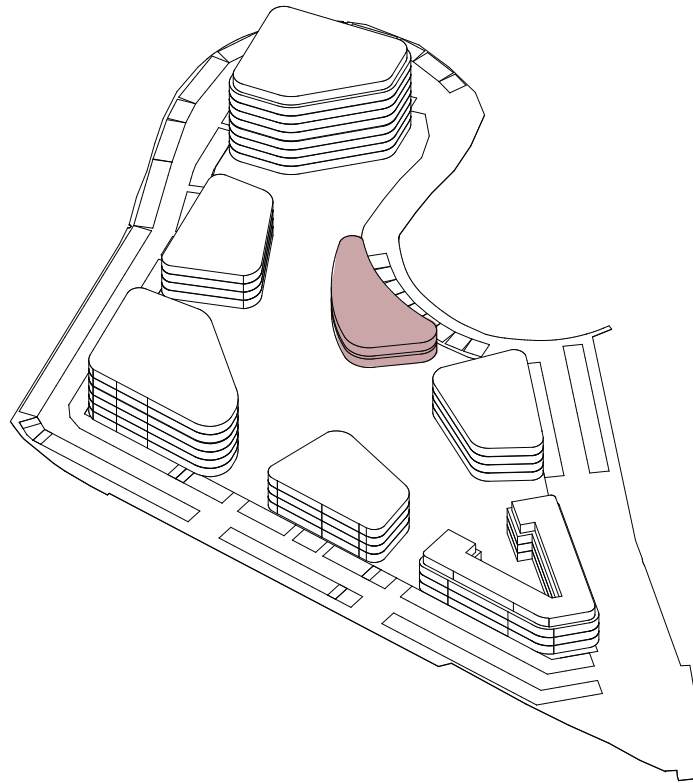
(4) Shared spaces are visible
from the private and smaller
clusters



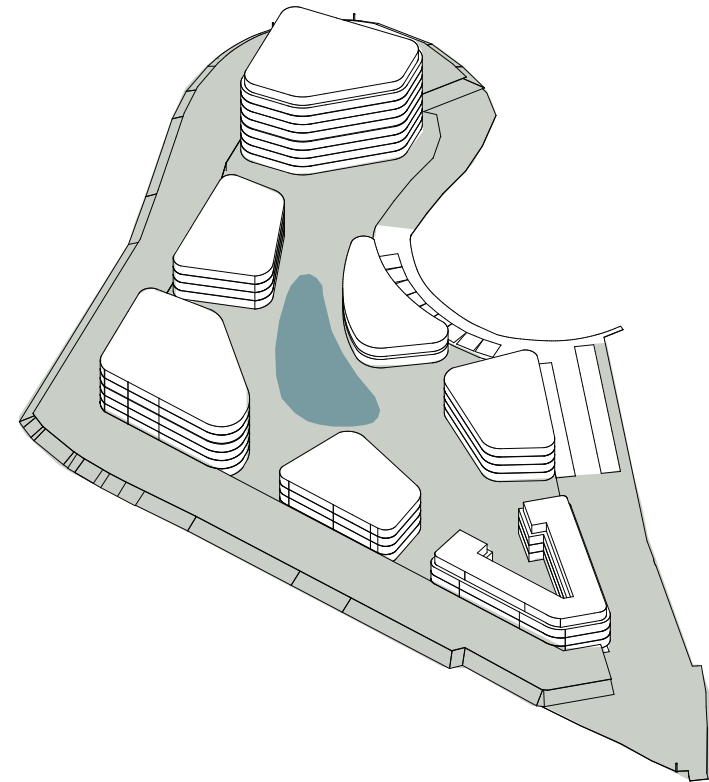
(5) variation in architecture
and recognisability
maintaining organic forms



(6) Variation in height, but maintaining
human scale (4 stories basic height)



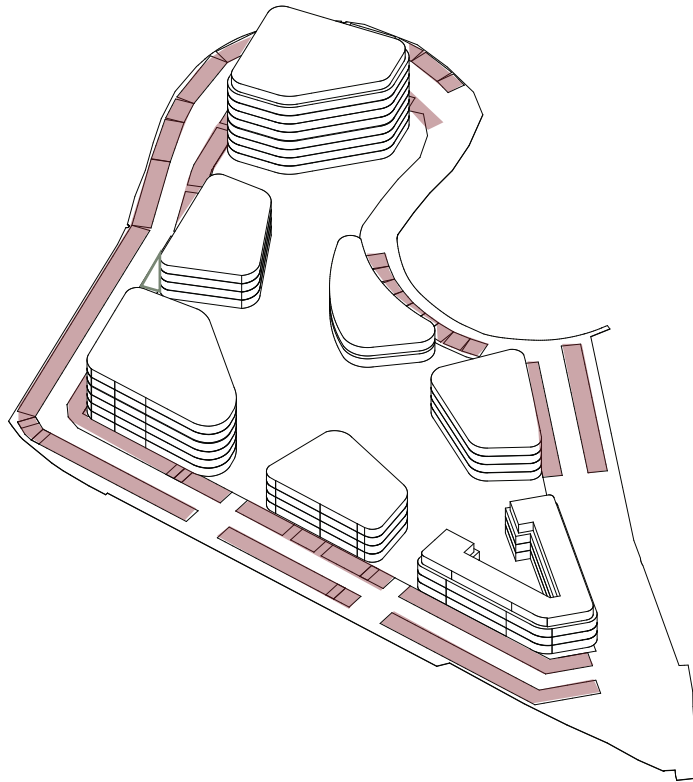
(7) Communal building central



(8) green envorinment central and surrounding



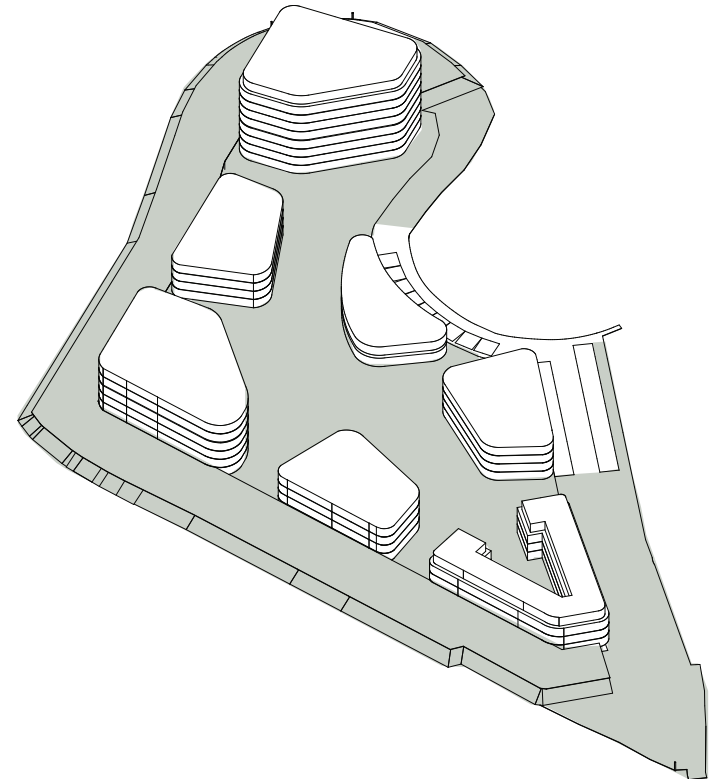
Parking hub



Enough parking spaces hidden around the area, close to the buildings



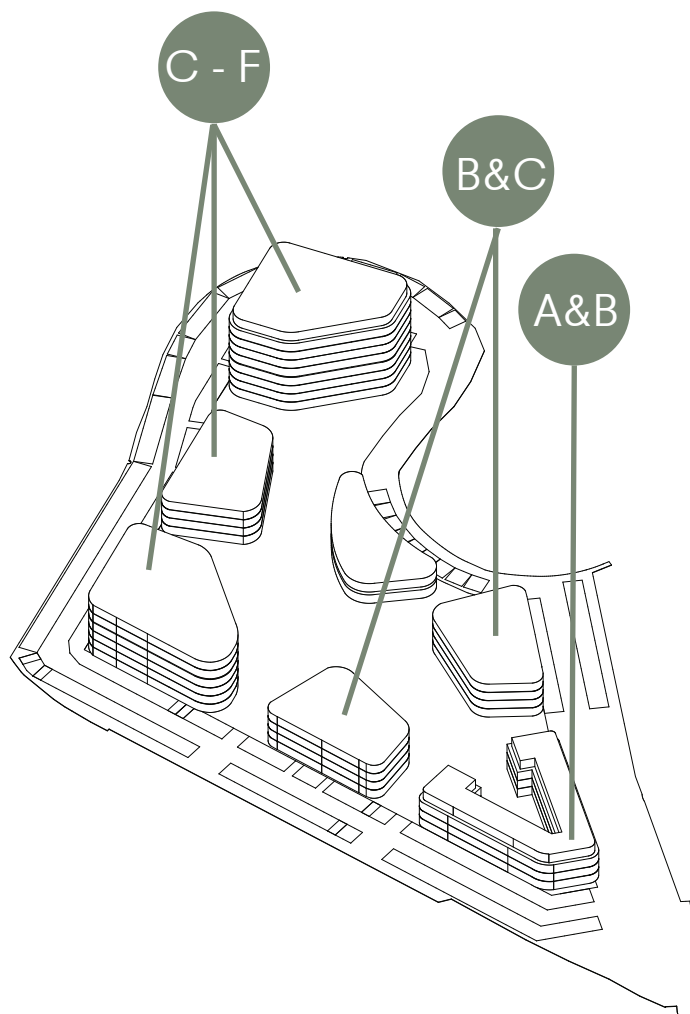
Communal garden



Different types of green based on the different functions from the research



Mixed housing



Different types and sizes of houses
for the different groups resulting from
the research



Social Hub



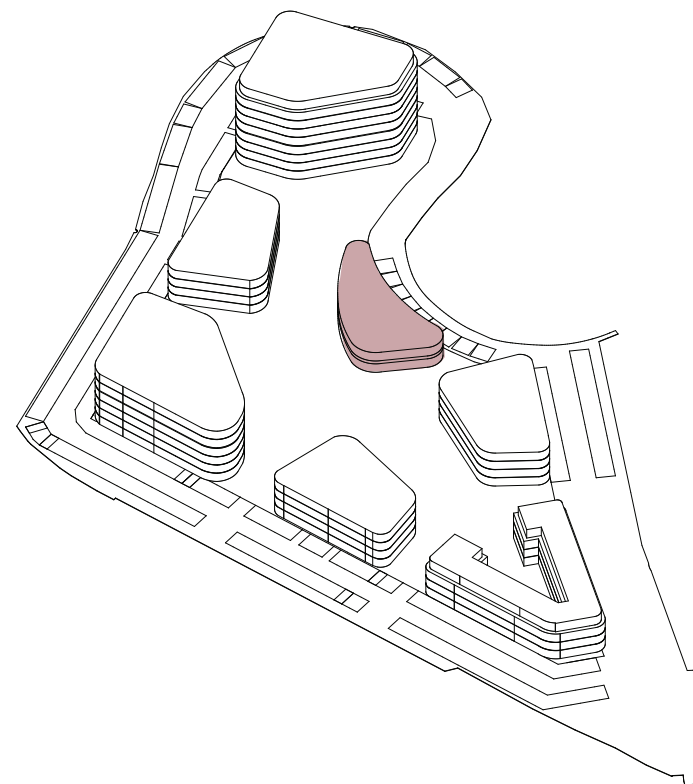
Guest room



Work/library

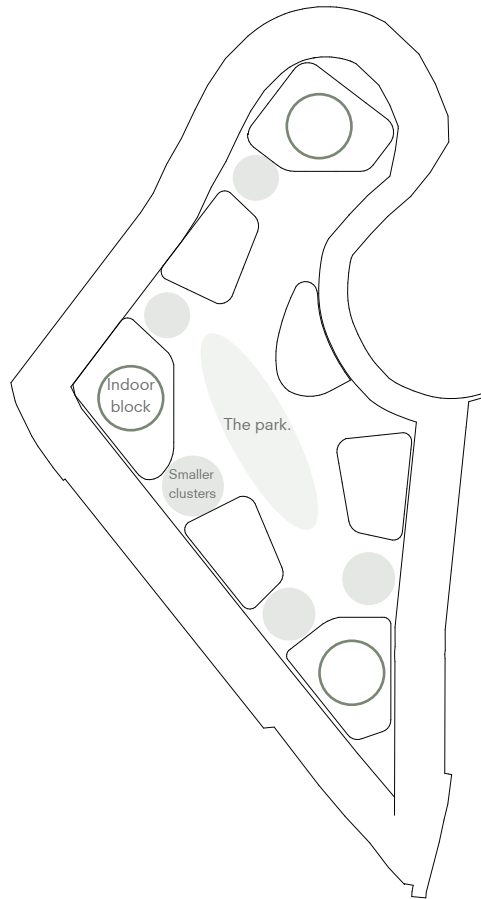


Sport/health/
wellness

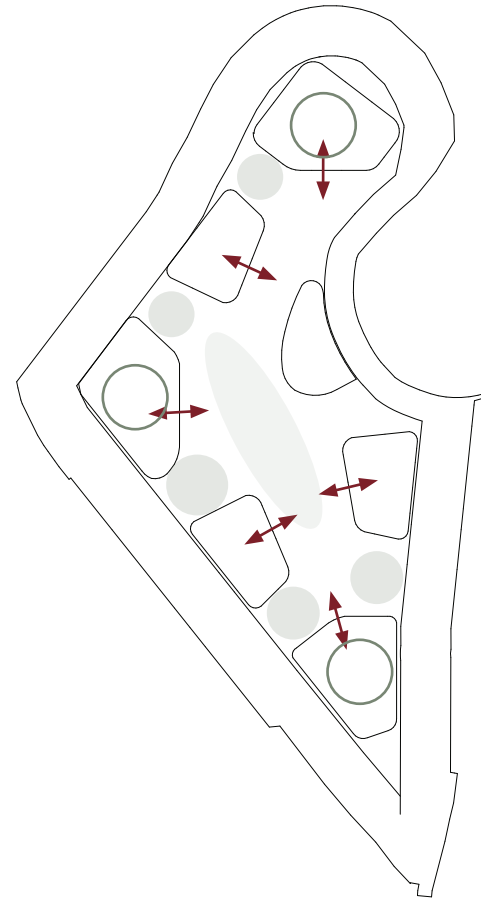


Diversity of functions for the different
needs of different groups

MASTERPLAN



The added volumes create shared courtyards on different scales: three indoor blocks, smaller clusters and the park. Following the natural shape of existing plot to make it coherent, and fitted to the natural environment.



The entrances around central courtyard provides for interactivity and social control.



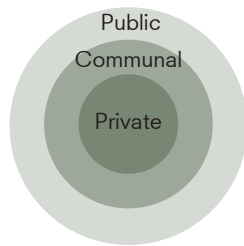
Add indoor galleries as communal interactive spaces. Provide buffer zones for transition. Create boundaries for safety.



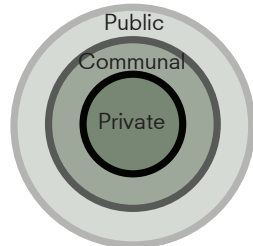
Provide for a shared central building and different spaces throughout the buildings to stimulate social contacts.



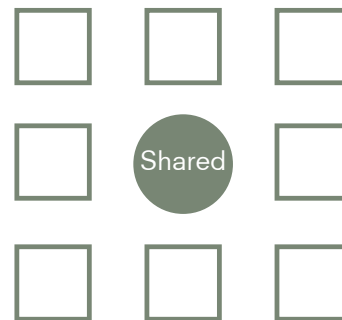
Add a organic shape park to highlight the organic form.
create intersections to increase connections.



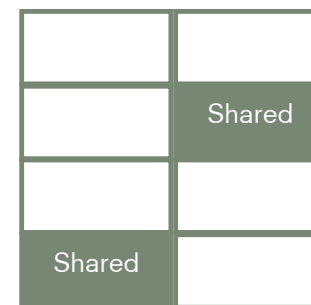
PROVIDE BUFFER ZONES
FOR TRANSITION



CREATE CLEAR BOUNDARIES
FOR SAFETY



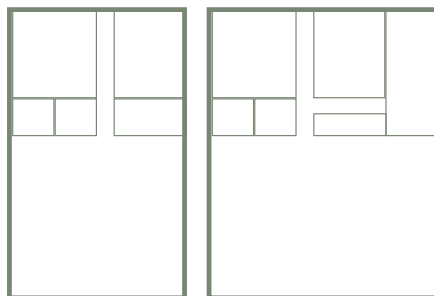
CREATE DWELLINGS
AROUND SHARED SPACES/
BUILDING



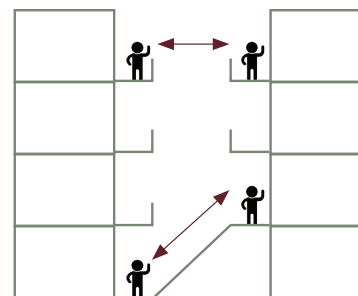
CREATE SHARED SPACES ON
DIFFERENT LEVELS



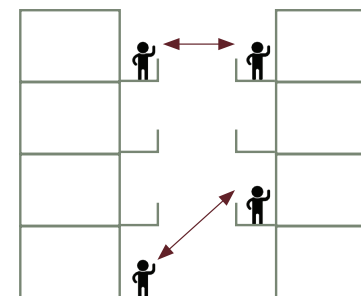
PROVIDE MULTIFUNCTIONAL
SHARED SPACES FOR
DIFFERENT INTEREST



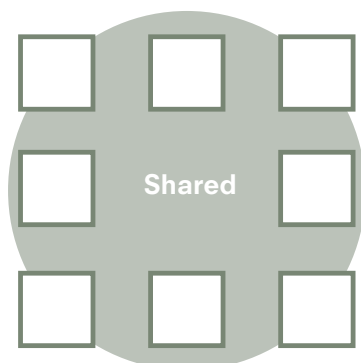
PROVIDE DIFFERENT DWELLING SIZES
TO SUPPORT DIFFERENT HOUSEHOLDS
AND ECONOMICAL LAYERS



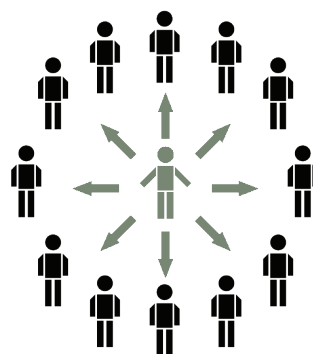
USE STAIRS AND GALLERIES AS
INTERACTION PLACES



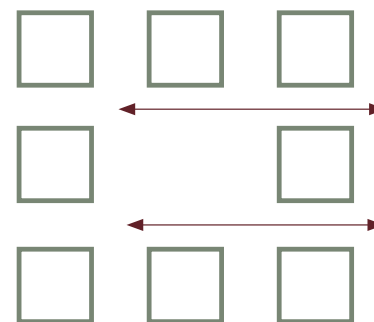
CREATE VERTICAL AND HORIZONTAL
SIGHT LINES/ INTERACTION



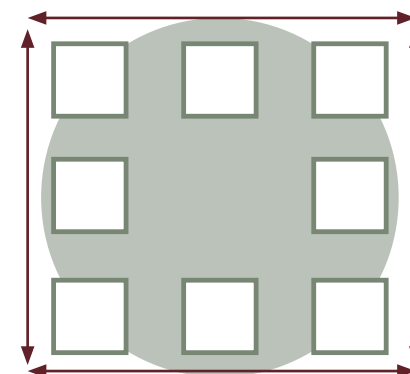
CREATE SHARED GREEN
SPACES



CREATE OPPORTUNITY TO
HAVE INTERACTIONS

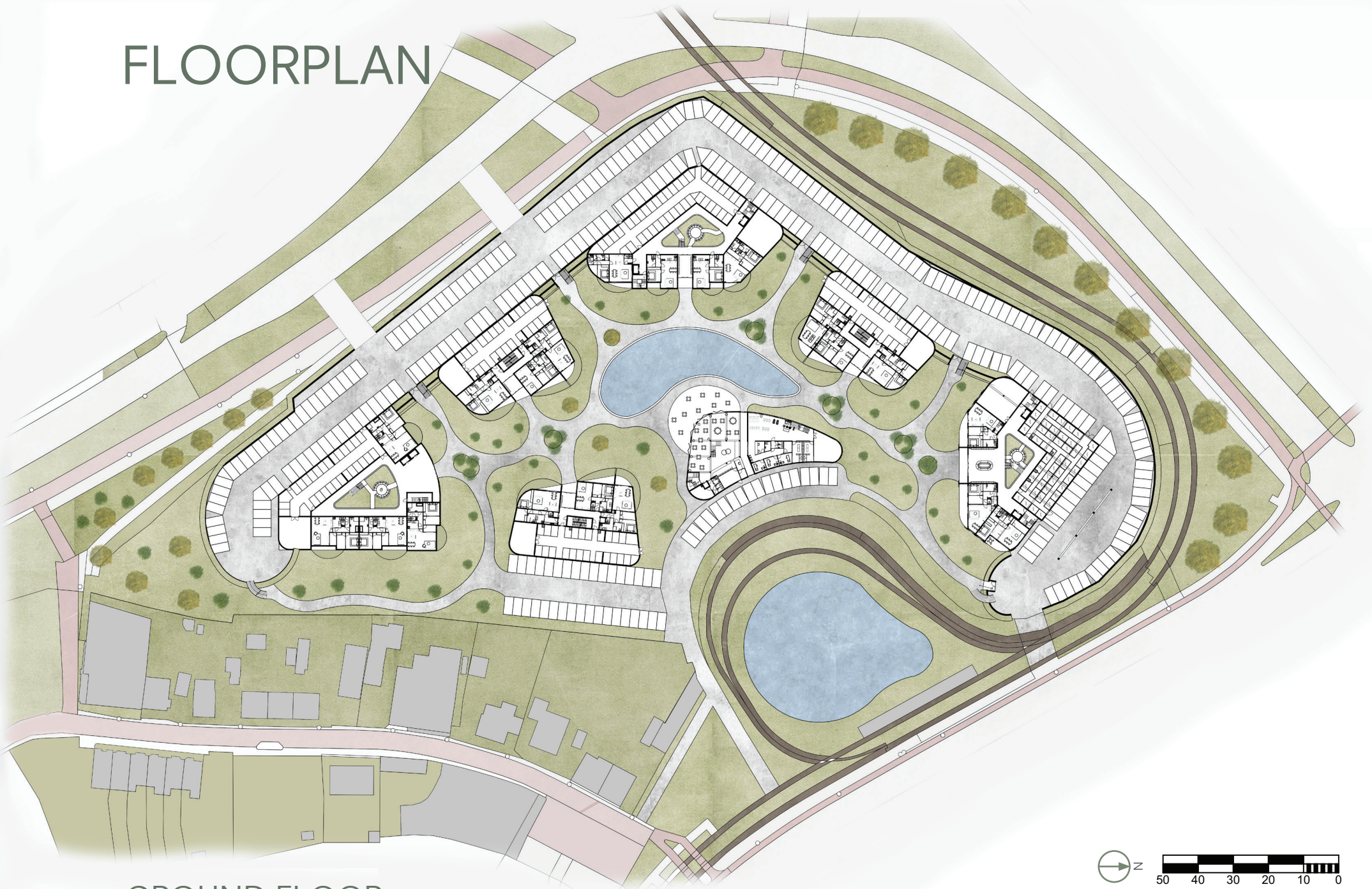


CONNECT ROUTES IN AND
TO THE NEIGHBOURHOOD

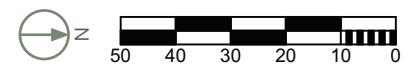


CREATE A CAR FREE ZONE
WITHIN THE NEIGHBOUR-
HOOD

FLOORPLAN



GROUND FLOOR





FIRST FLOOR

The plans show how pedestrian routes in the park lead to the various residential buildings and the central communal building. In addition, it shows how each building is connected to the parking spaces also the entrances are placed at the edges of the plot. In addition, the wide galleries and stairs form as a social meeting function. The park and the raised ground level above the parking spaces form

a connection between the different heights and spaces. This encourages movement and meeting in the space. The placement of benches along the pedestrian routes also encourages encounters. Applying various building shapes, heights and a clear inner park enhances recognisability.

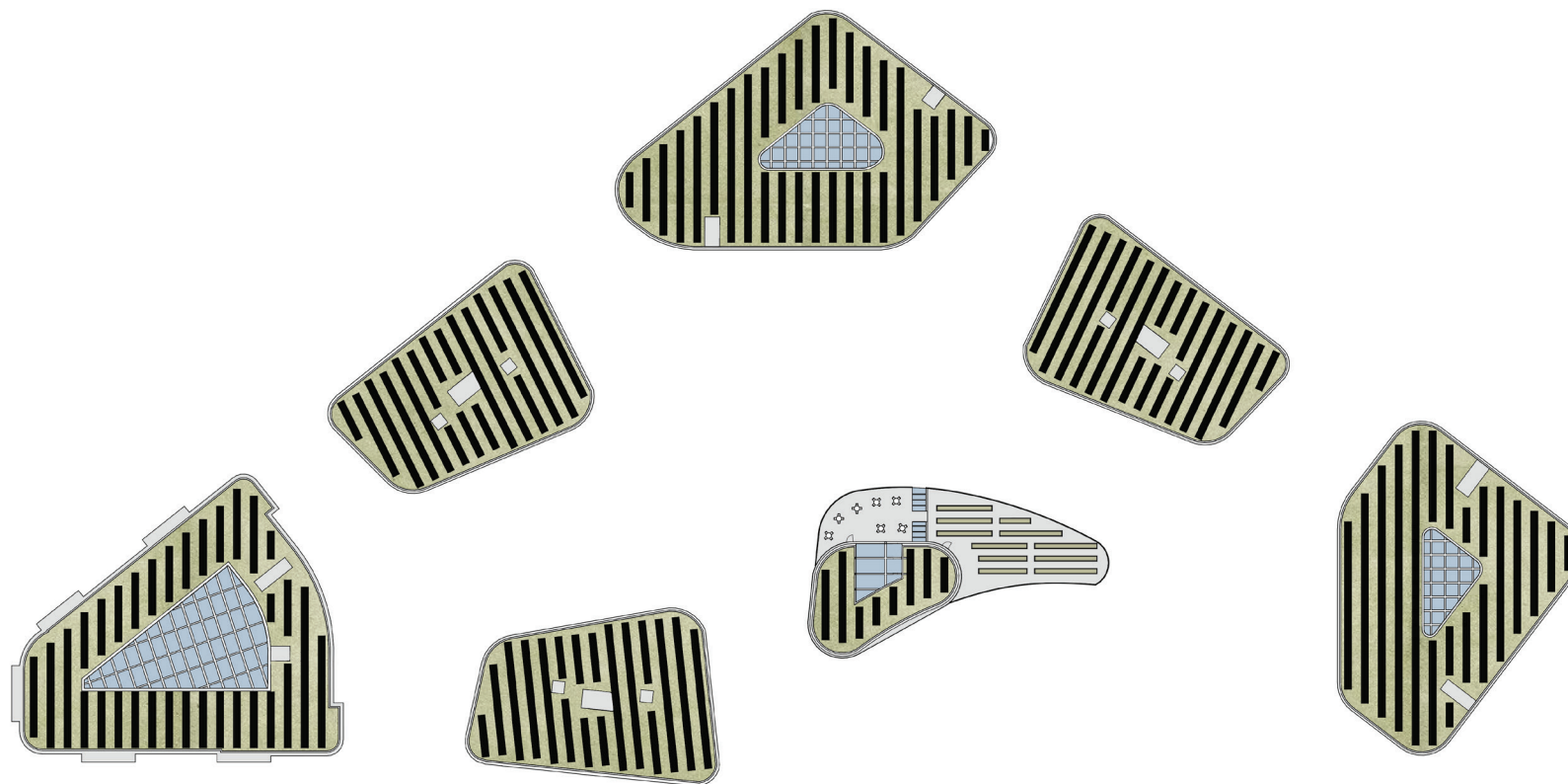








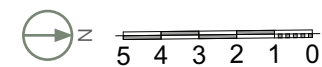


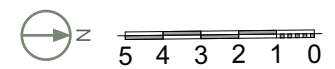
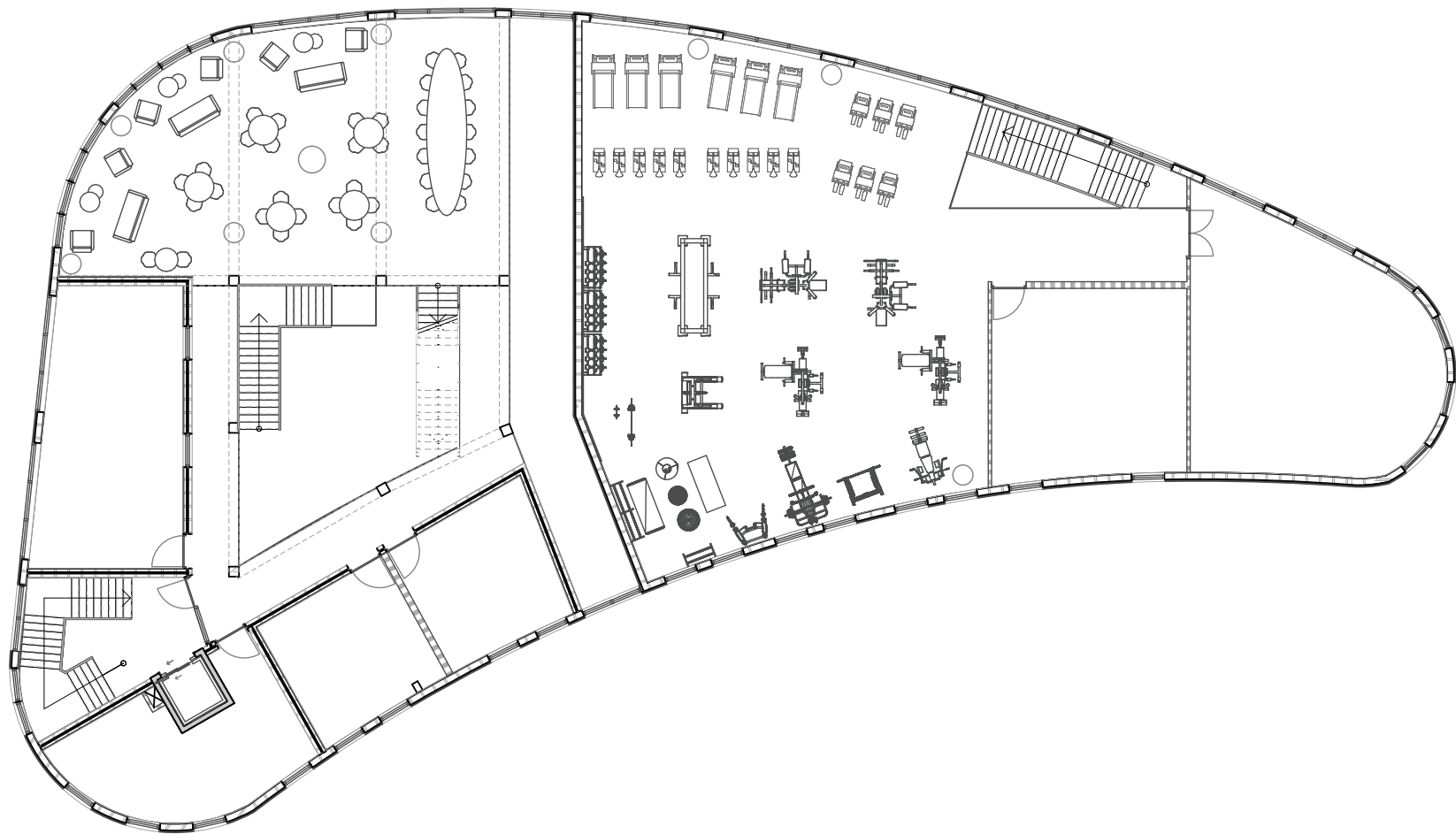


COMMUNAL BUILDING

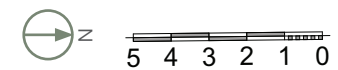
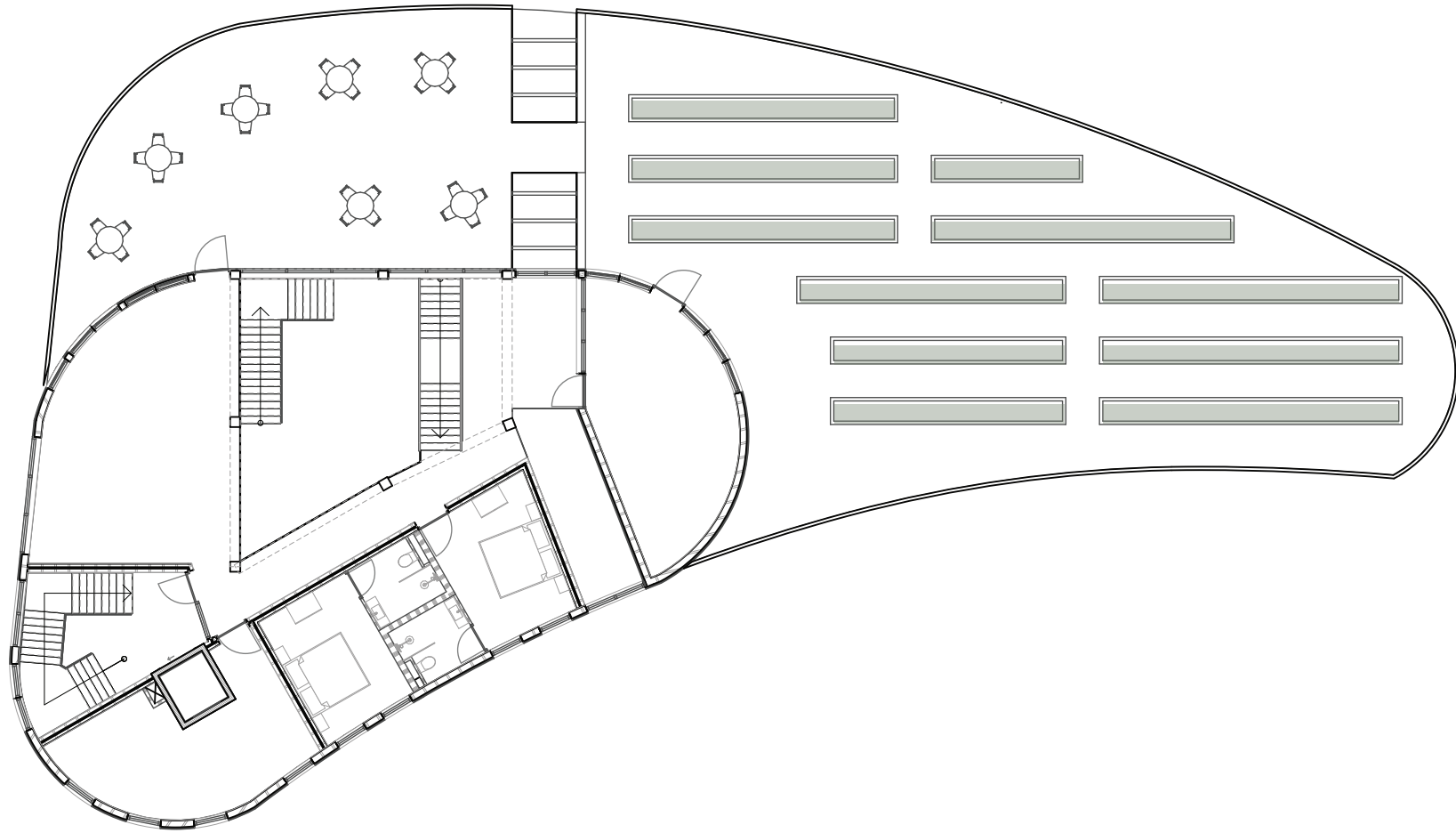


GROUND FLOOR





FIRST FLOOR



SECOND FLOOR

At the centre of the neighbourhood, there is a communal building that contains various functions based on the different needs of residents. It contains a restaurant/ communal kitchen, social hub, library, multipurpose rooms, guestrooms, communal rooftop,

urban farming and a fitness/ health centre. This encourages social meetings, social well-being and sense of community.







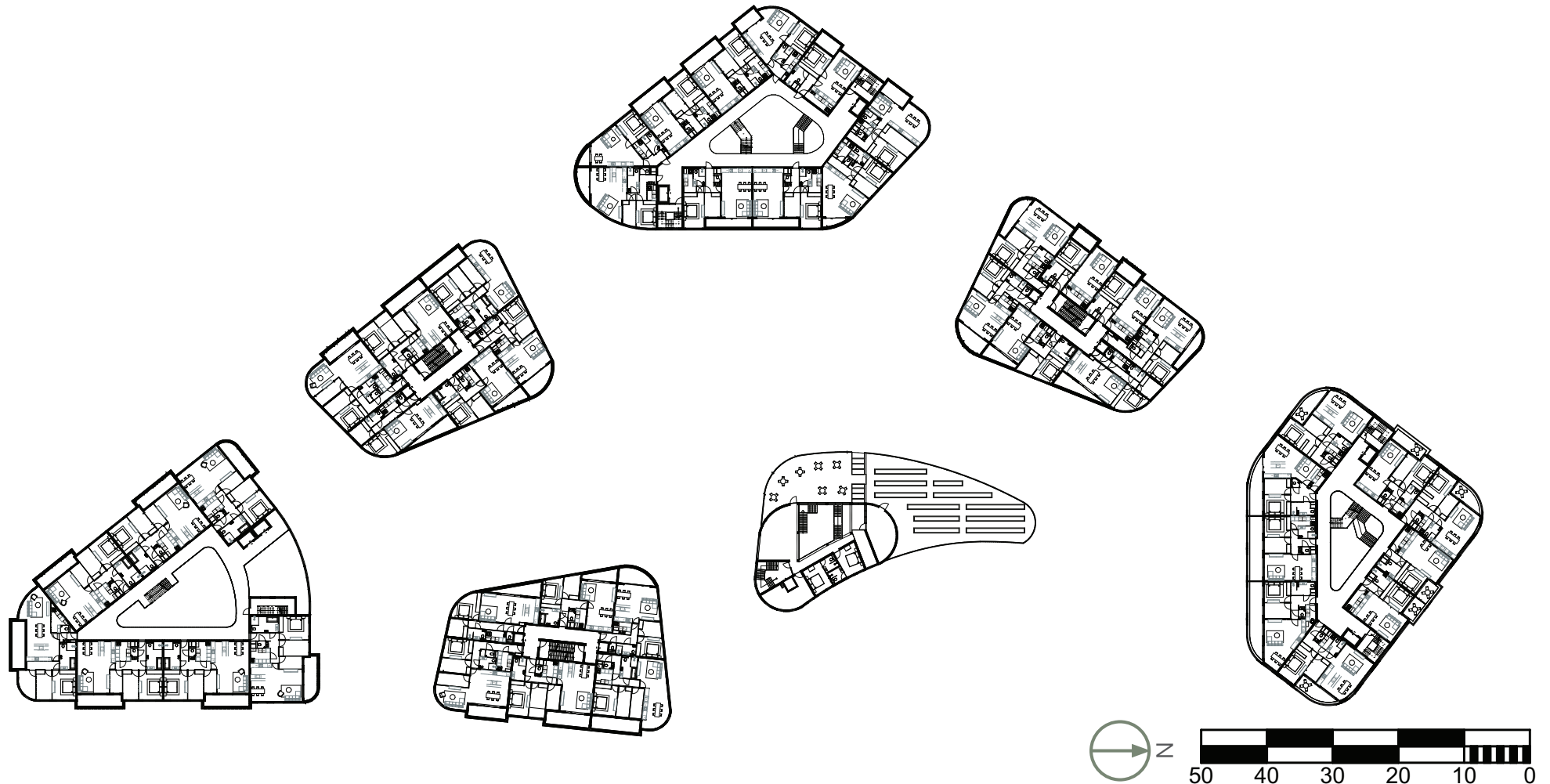








DWELLINGS

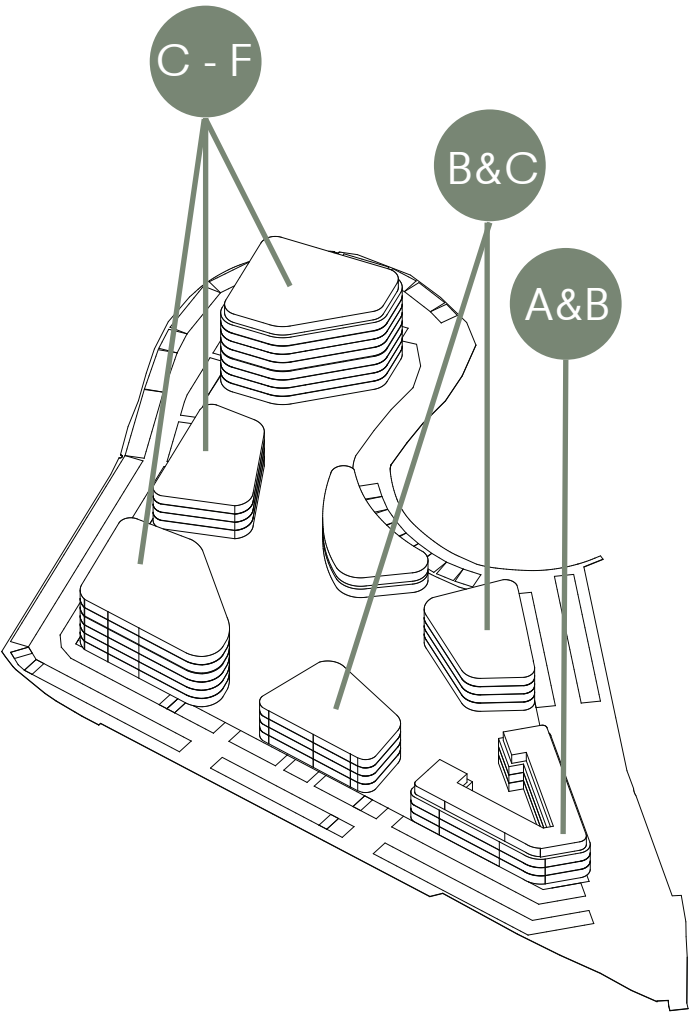


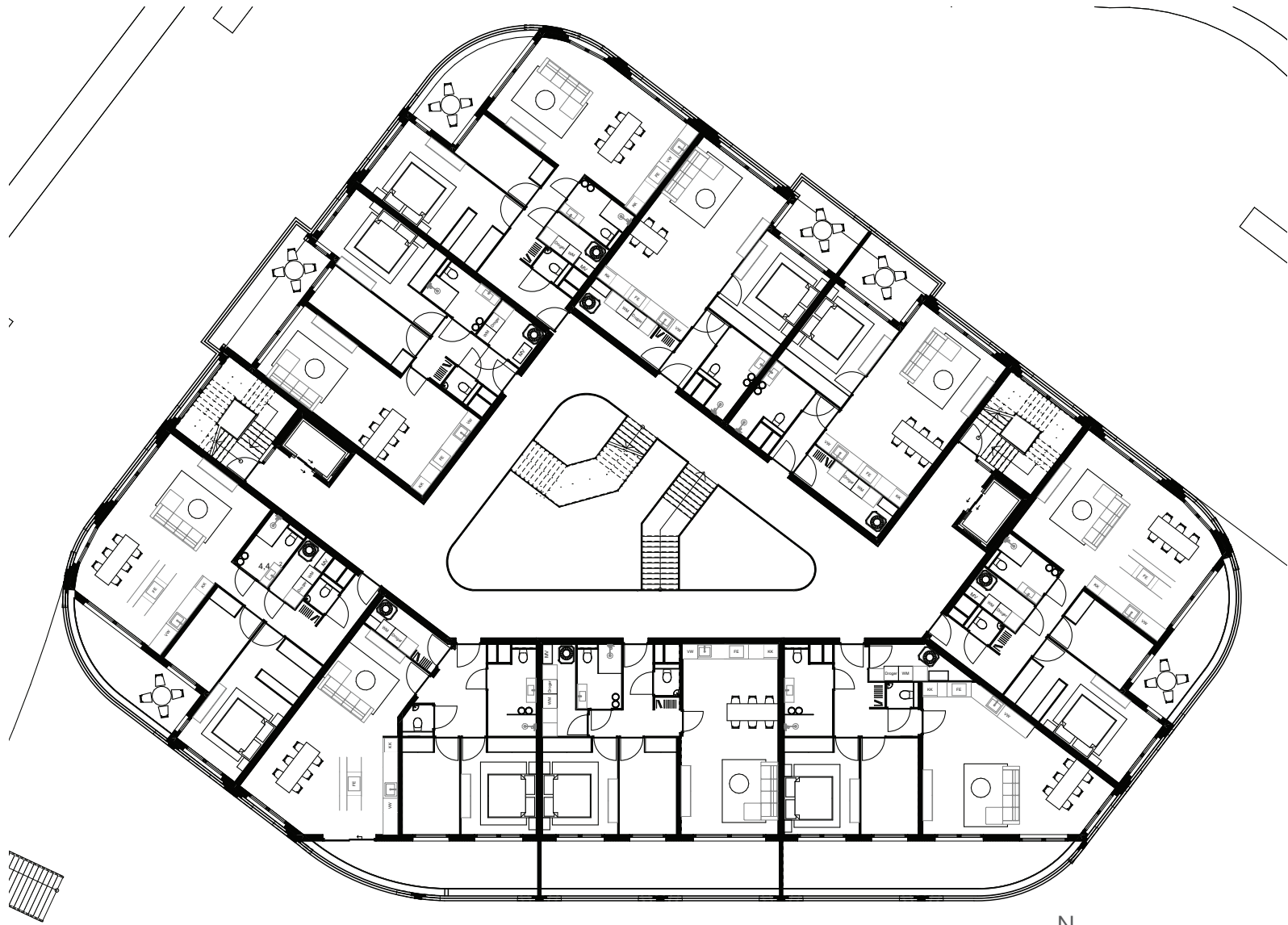
SECOND FLOOR

Six residential buildings have been designed, with different housing types for different types of households and groups. This has taken into account that all homes meet the “Ageing Friendly” conditions, for example, all homes are designed wheelchair accessible. The flats have a comfortable feel and open structure. The spacious living room connects to the open kitchen that faces outwards. The living area is connected to green balconies/gardens. This gives sightlines of greenery or liveliness. This combination in the layout gives the flat a remarkably free character. Depending on the size, additional rooms can be used as desired. There is also a practical shower room, a separate toilet and an efficient storage room. In addition, all flats have an open view of the outside, giving a spacious layout .

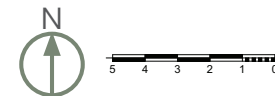
The design also offers safety. For instance, the entrances are designed strategically that encourage connection and open onto the lively park. Besides practicality, routing also offers a positive experience. For instance, wide galleries, lifted ground floor, stairs, and indoor courtyards.

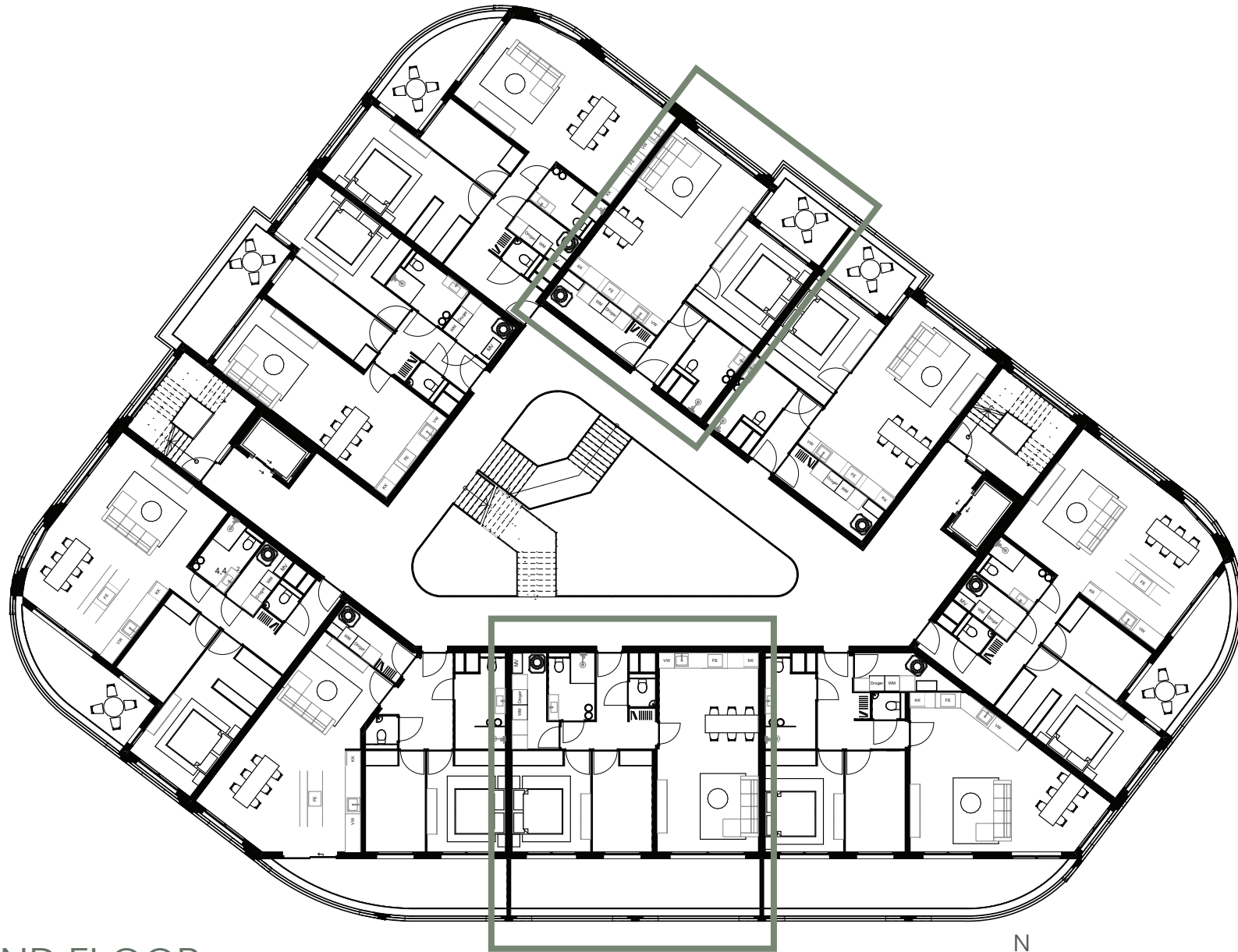
Group	Income	Education	Lifestyle	Household	Movingpro pensity
A	Above average	High	Blue/ aqua	Couple	Lower
B	Above average	Middle	Red/ orange	Couple/ single	Higher
C	Average	Middle	Yellow/ orange	Couple	Lower
D	Average	Middle	Divers	Single	Higher
E	Below average	Low	Green/ yellow	Couple	Middle
F	Below average	Middle	Green/ yellow	Single	Higher





GROUND FLOOR

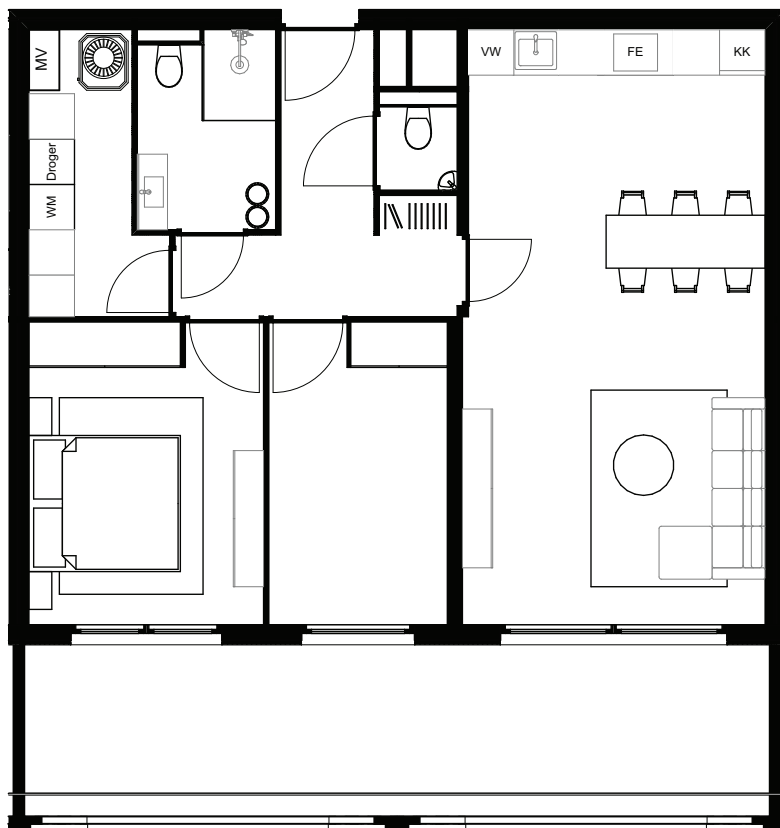




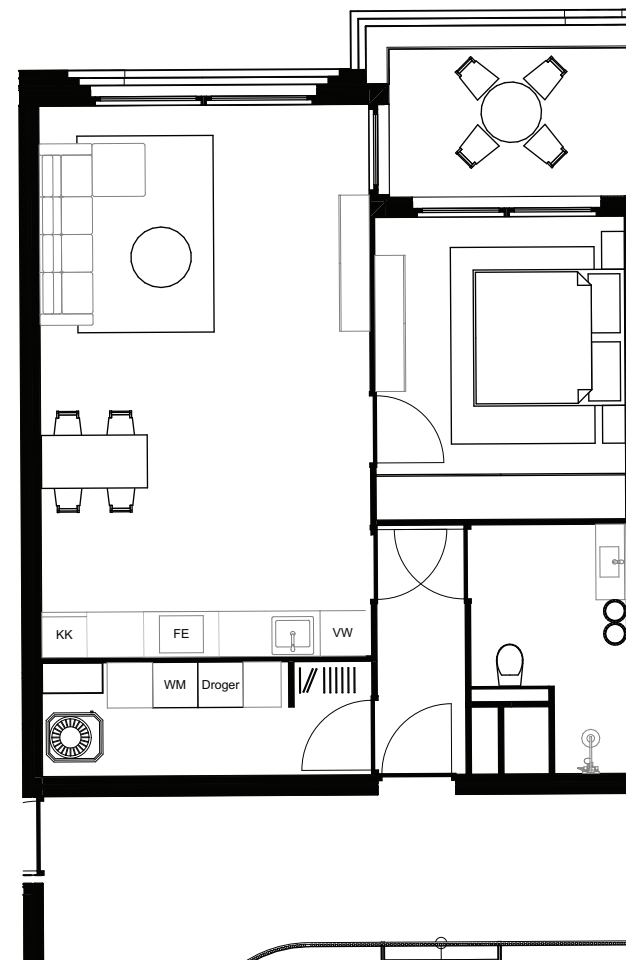
SECOND FLOOR



C - F



3 room apartment
(68 sqm)



2 room apartment
(60 sqm)





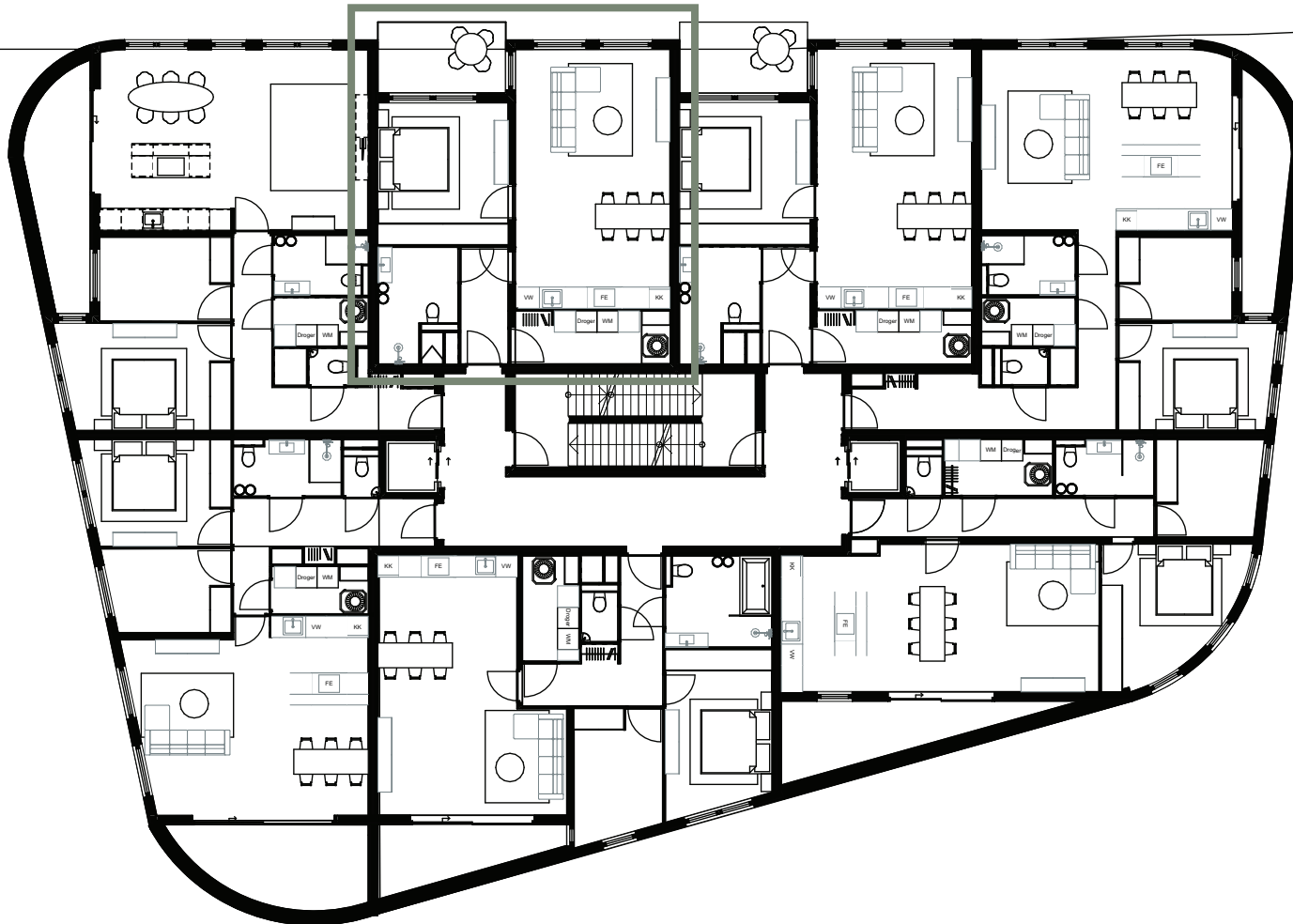




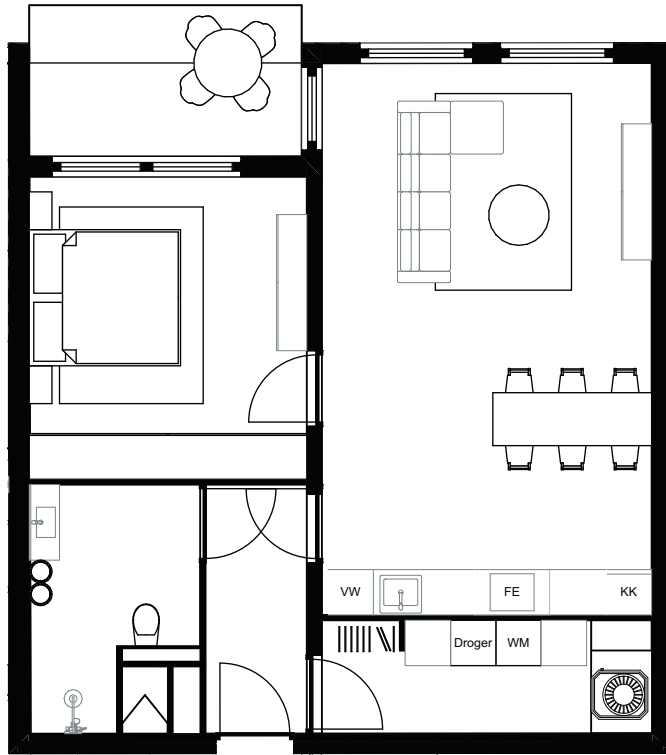


GROUND FLOOR

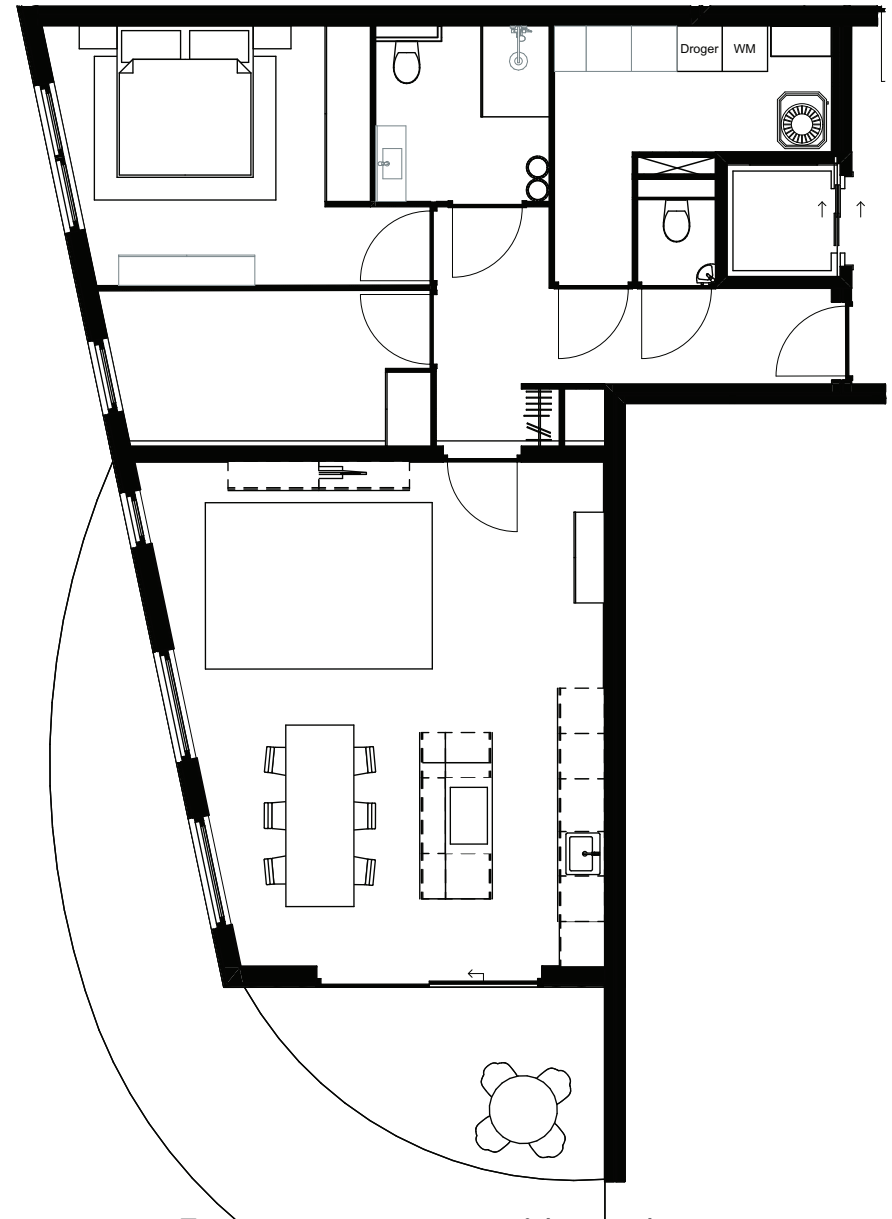
B&C



FIRST FLOOR



2 room apartment with garden on the
elevated ground floor
(60 sqm)

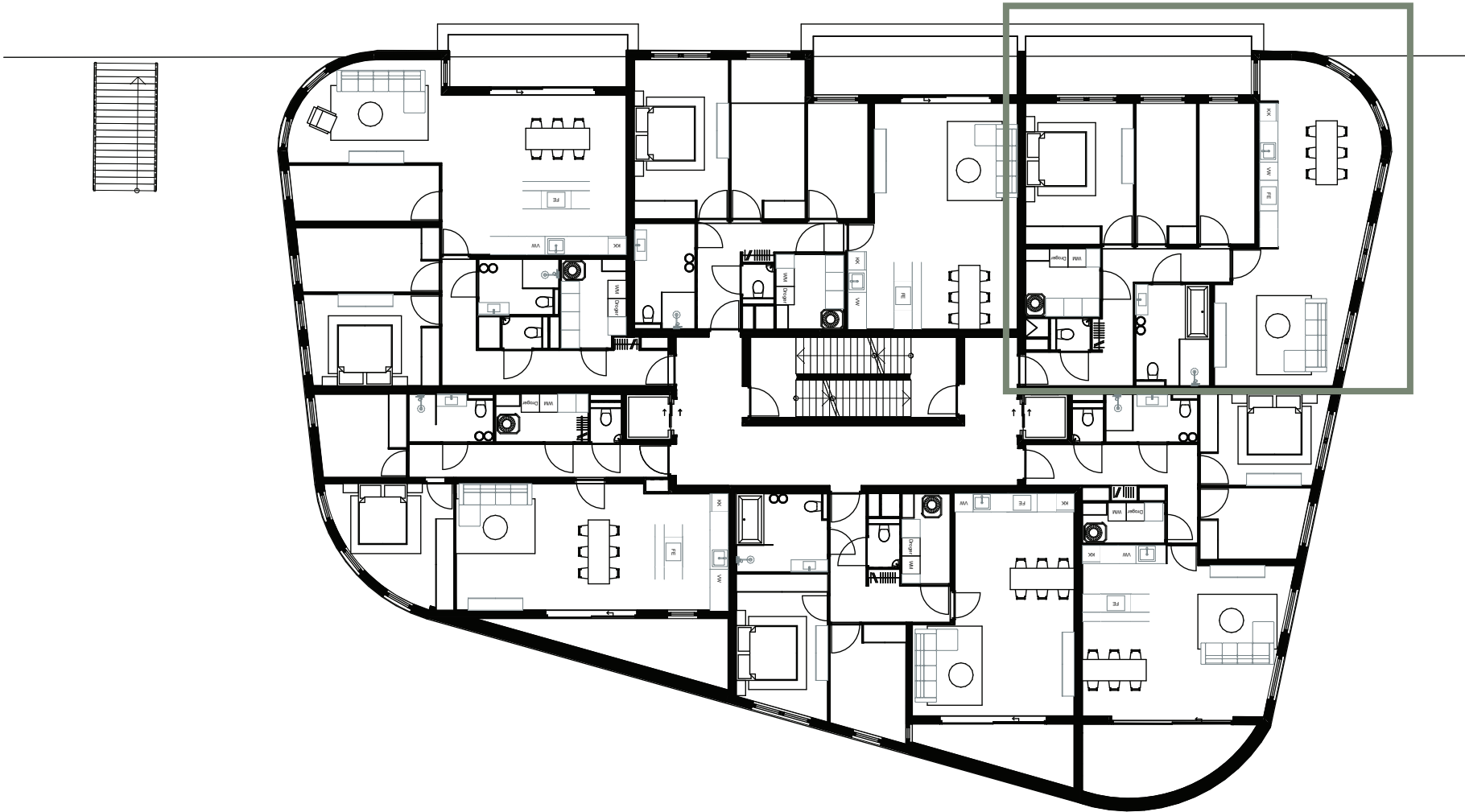


3 room apartment with garden
(72 sqm)

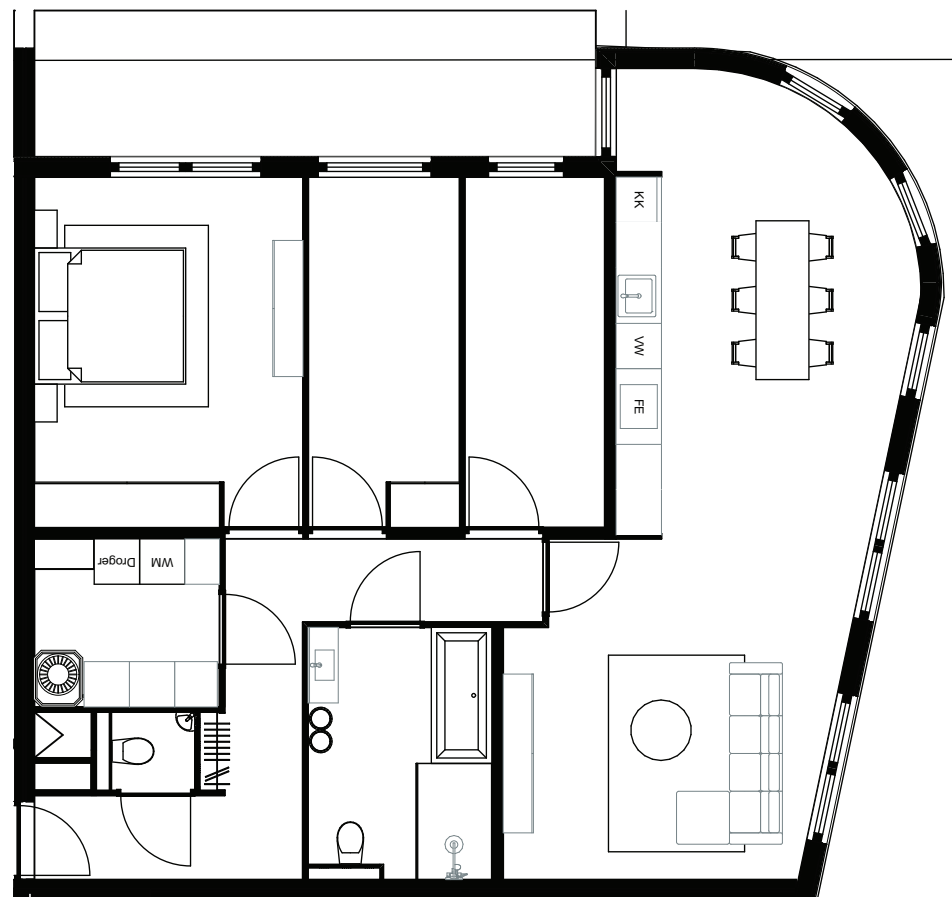




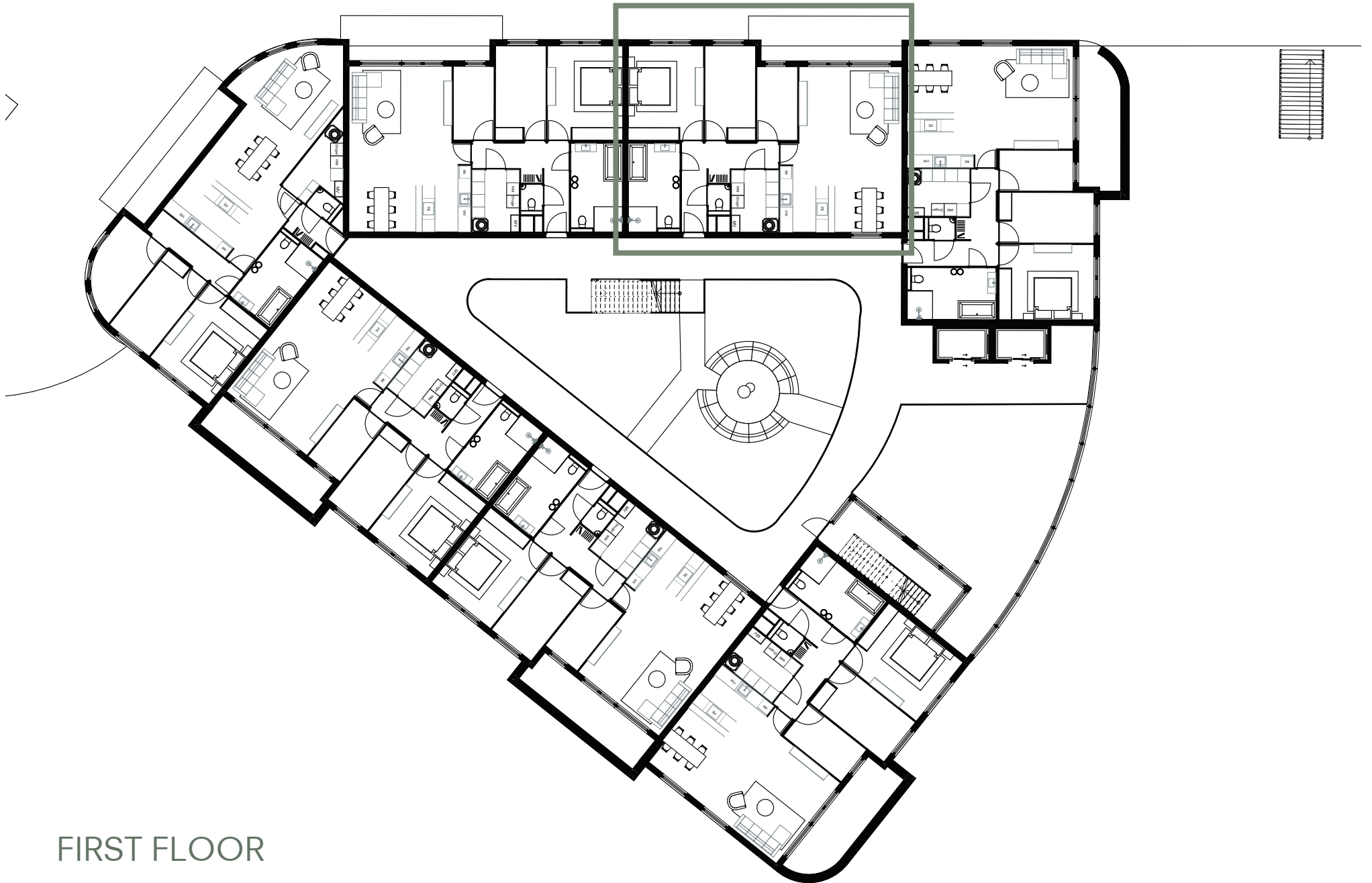




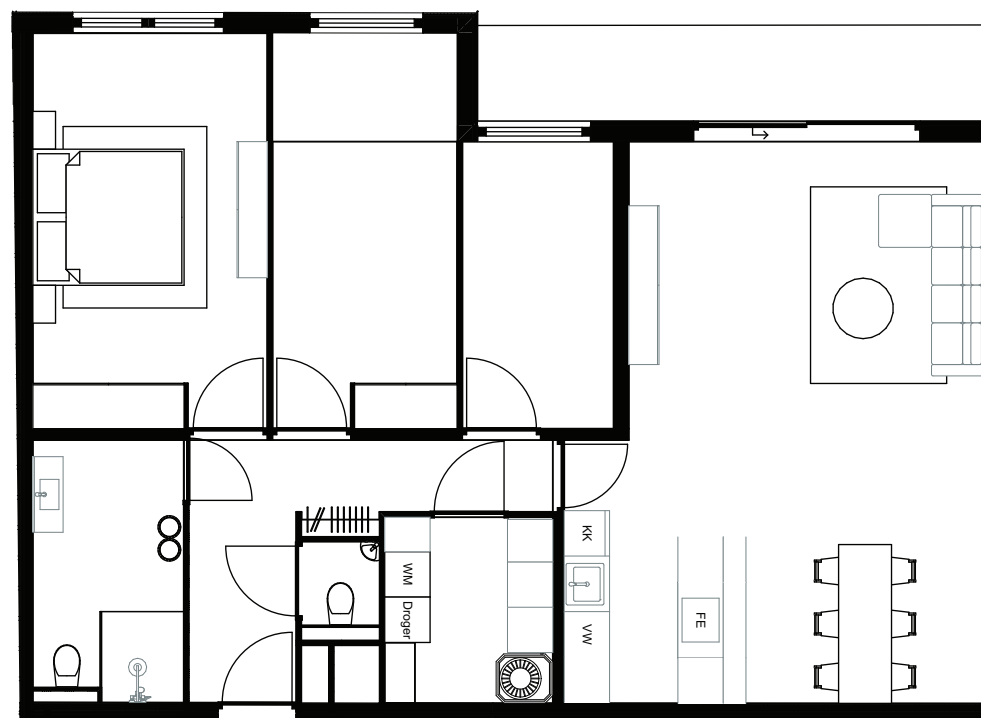
FIRST FLOOR



4 room apartment with garden on the
elevated ground floor
(100 sqm)



FIRST FLOOR



4 room apartment with garden on the
elevated ground floor
(100 sqm)





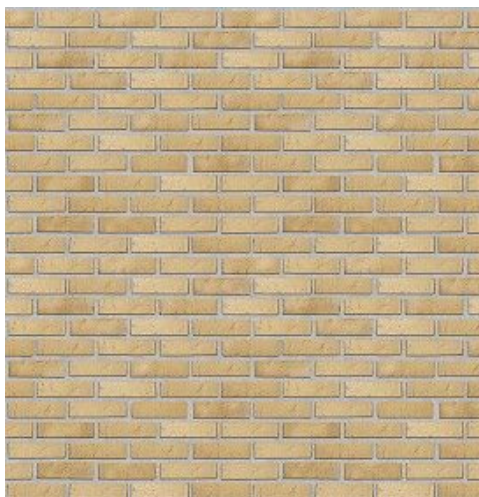
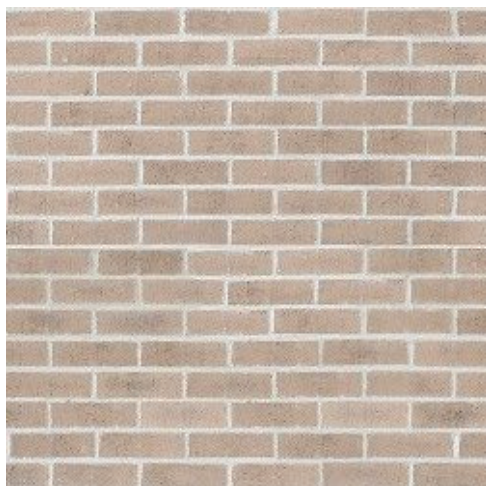
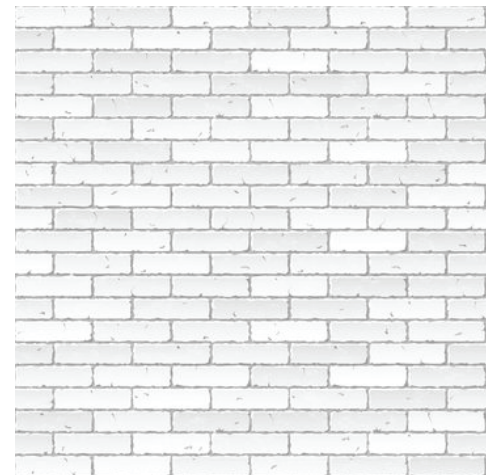
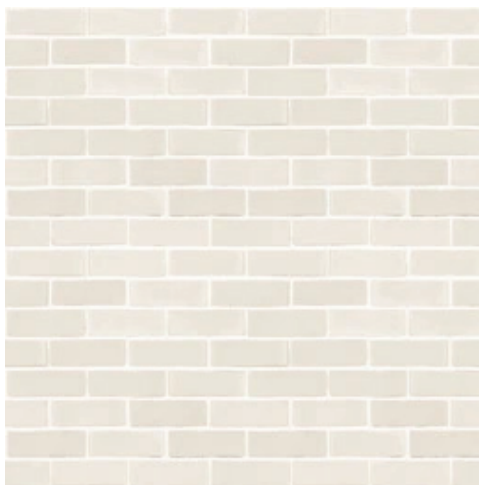
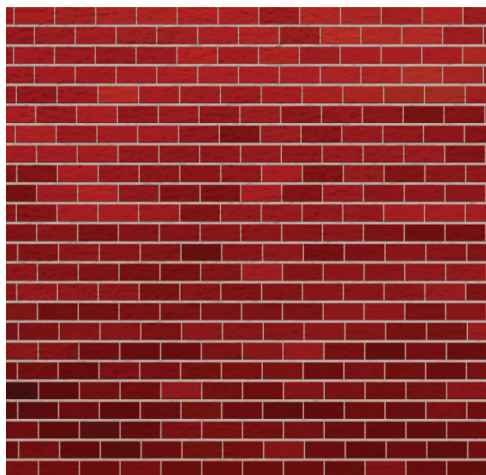
FACADES

When choosing the façade materials, the emphasis was on circularity and that the materials are maintenance-free. In addition, an authentic and timeless look was chosen through the use of demountable, round A-brick ceremonial strips.

The façade of the tallest building is composed of different materials. The red stone strips one of the most eye-catching façade. The darker elements are the almost solar panels. These provide much of the energy required by the building. Besides those solar panels, the rest of the façade consists alternately of dark façade panels and wood. The large glass facades give the houses plenty of daylight and make them feel spacious and open.

To avoid making the design too monotonous and to create a coherent whole, all residential blocks have a façade of stone strips combined with glass. Each block uses the same materials. To increase recognisability, however, different colours have been applied. These are also symbolic to reflect the great diversity within the target group. The communal building is equipped with impregnated Douglas wood, making it stand out from the residential blocks.

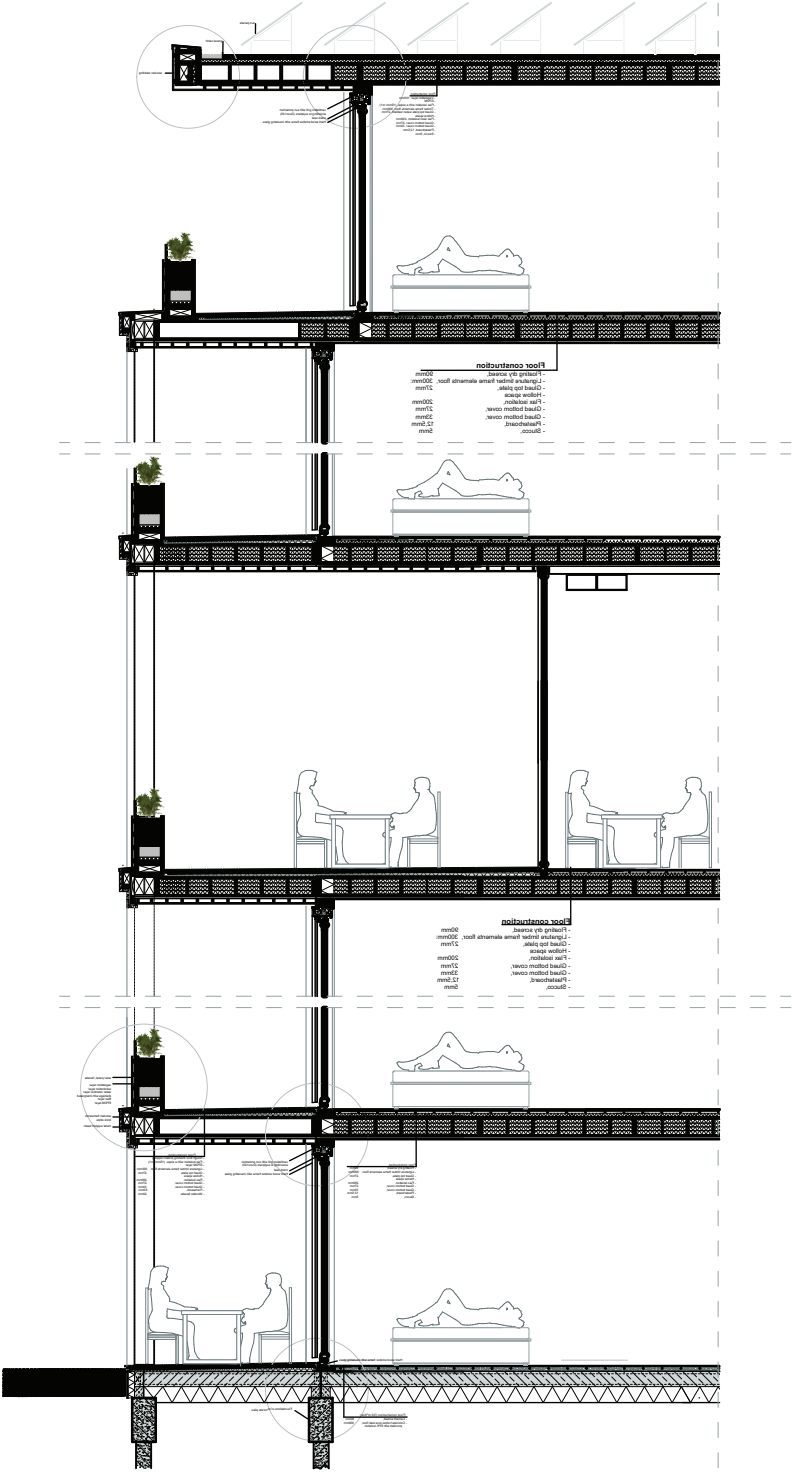


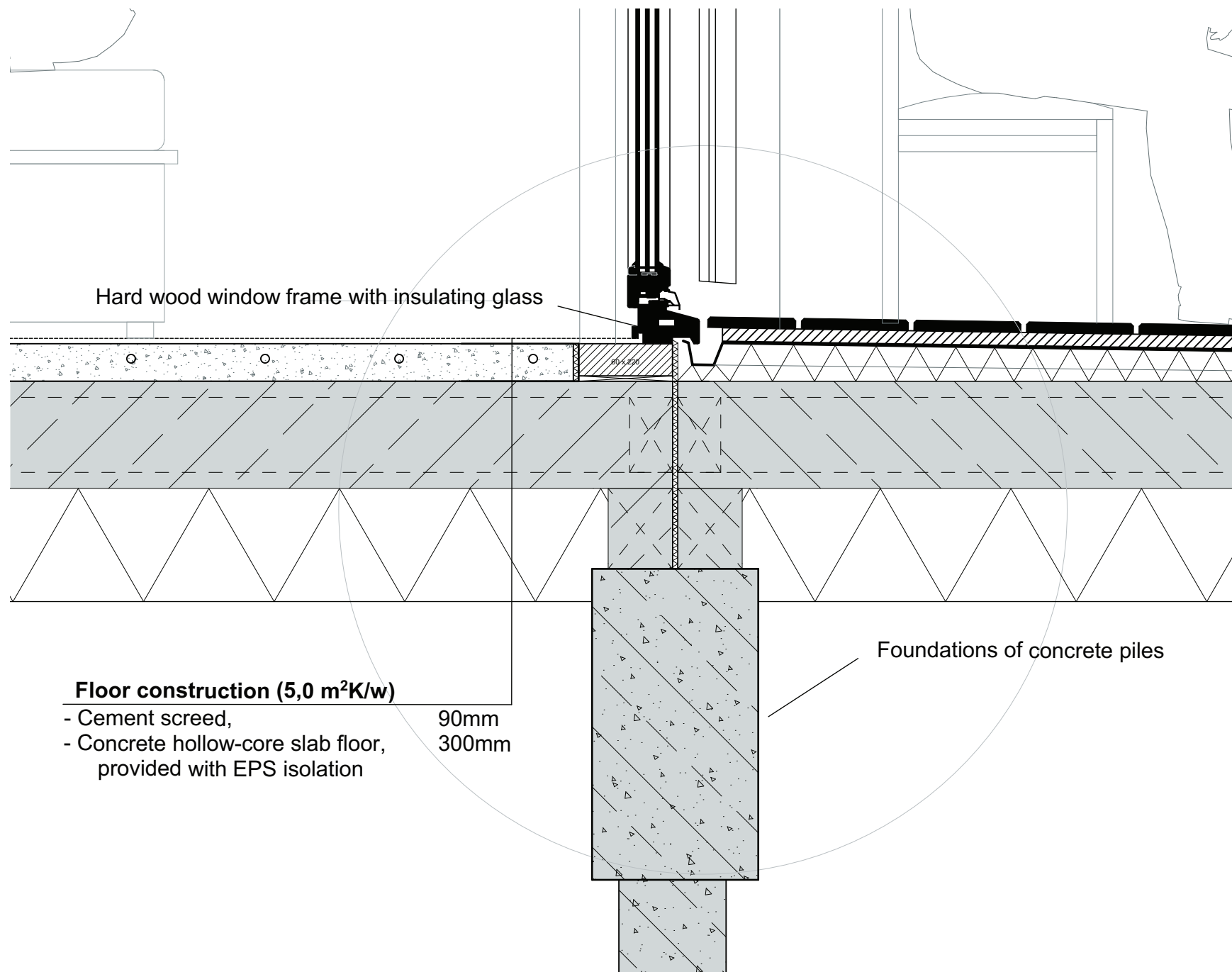


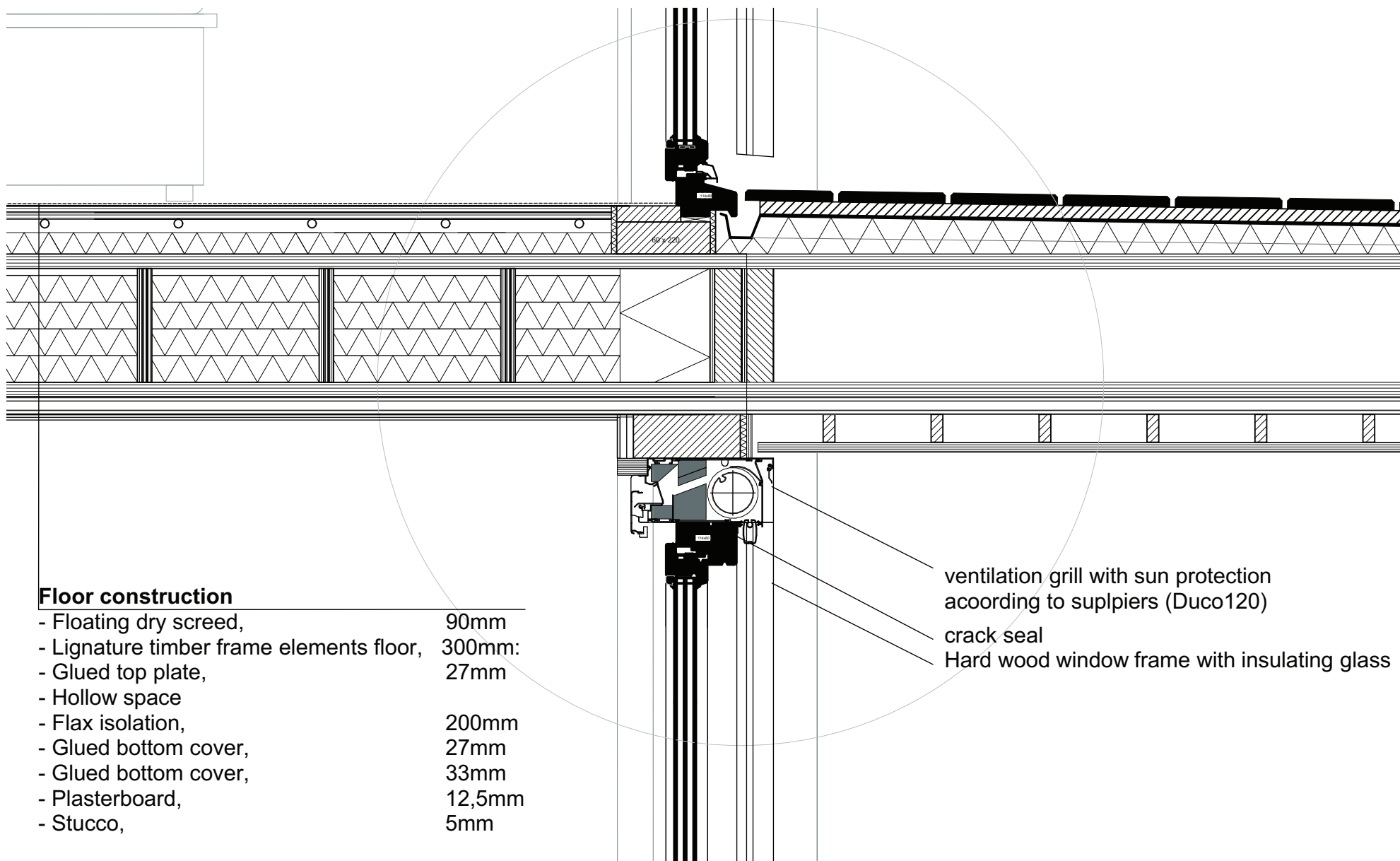


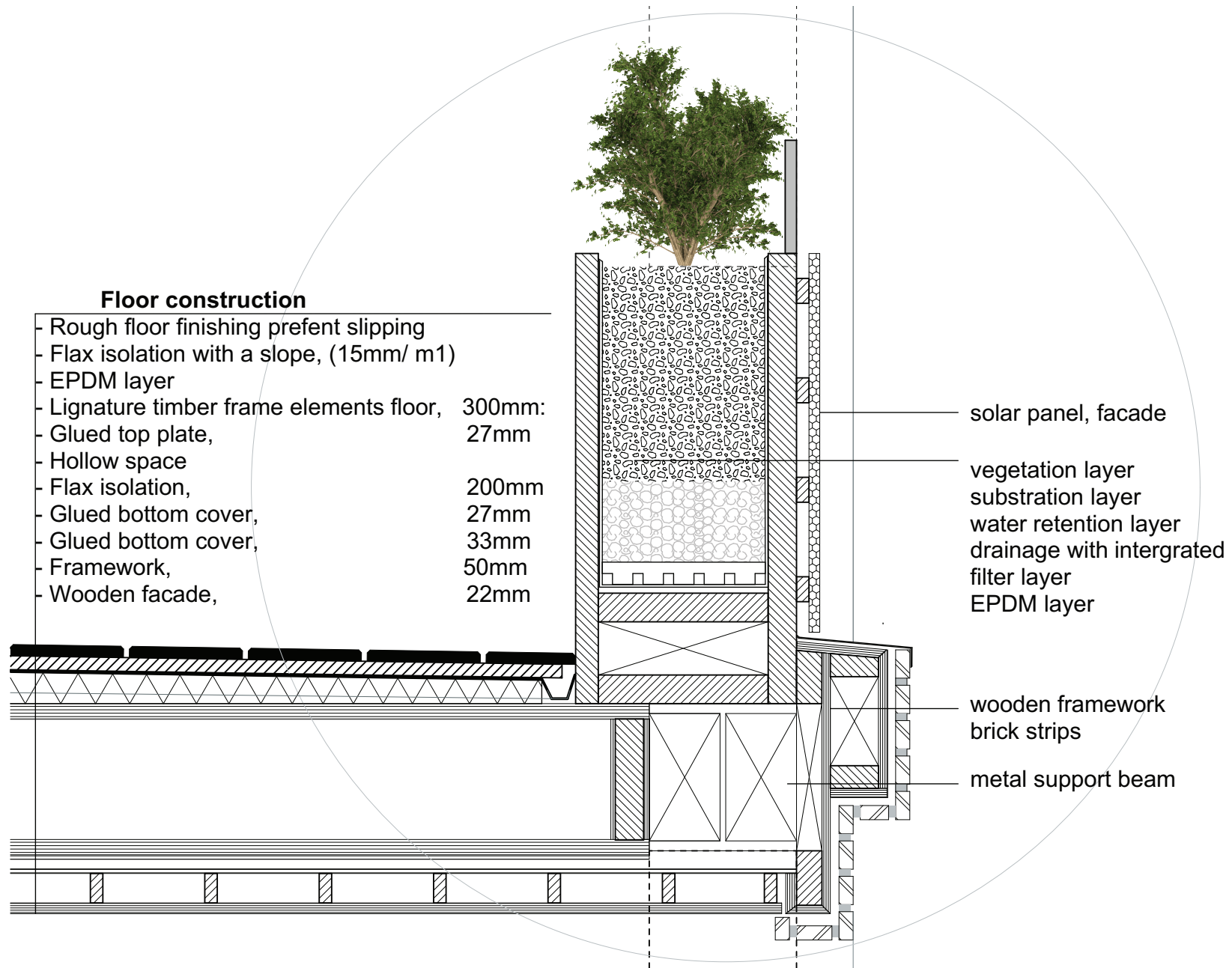


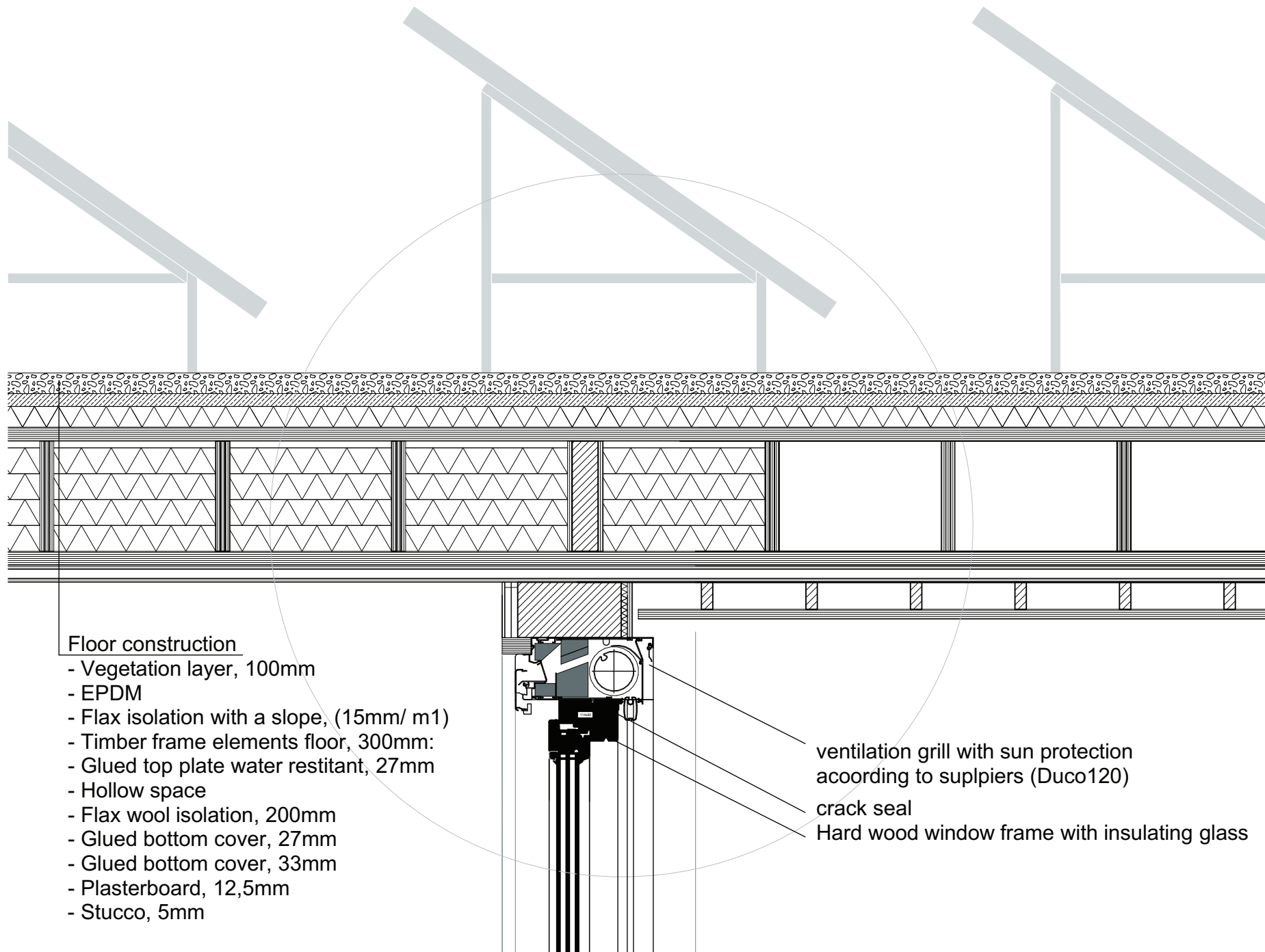
SECTIONS FRAGMENTS

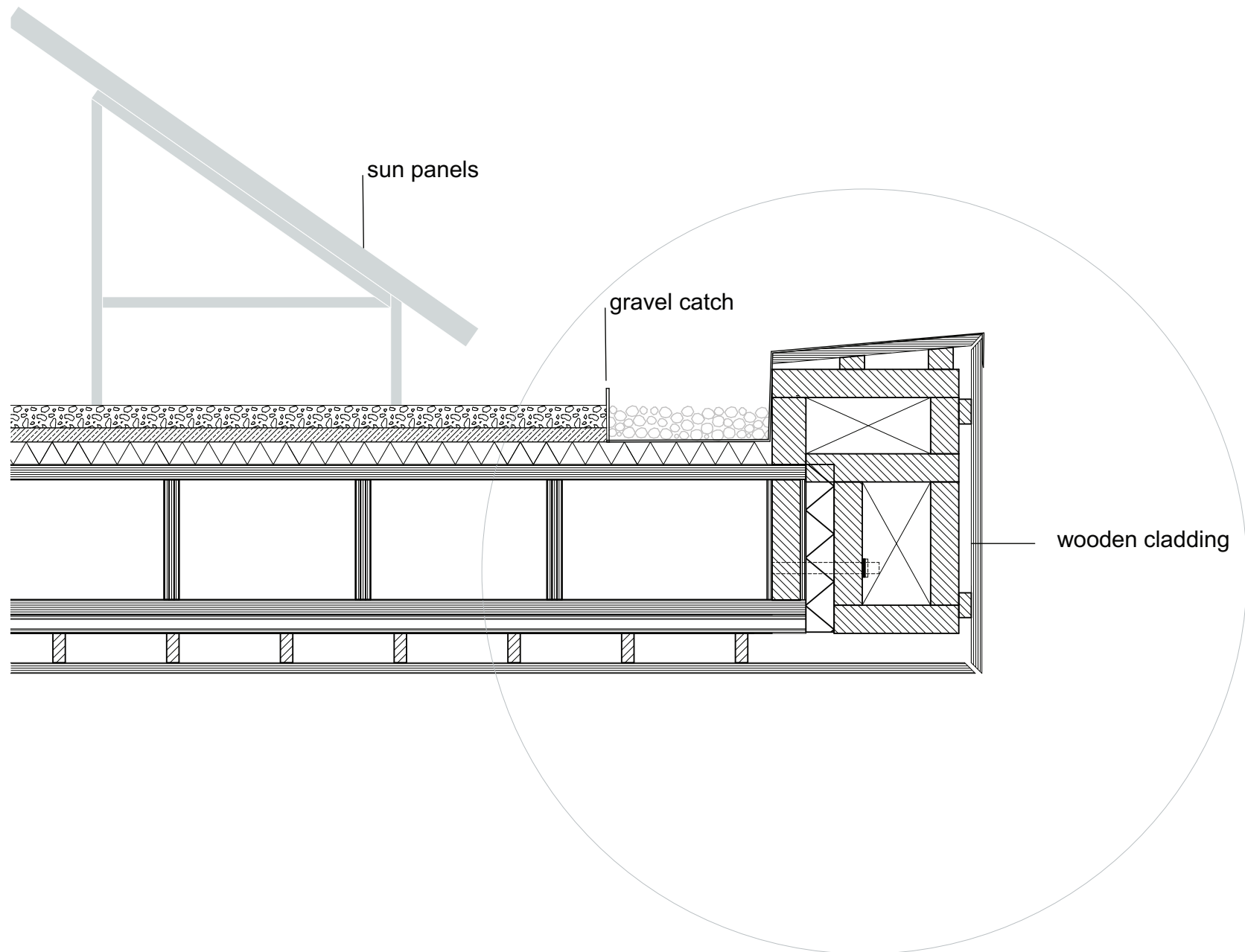






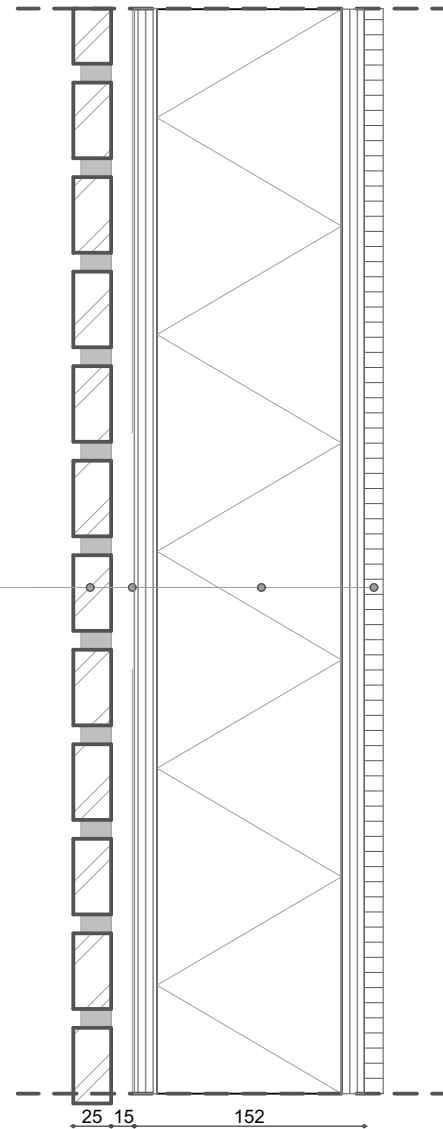


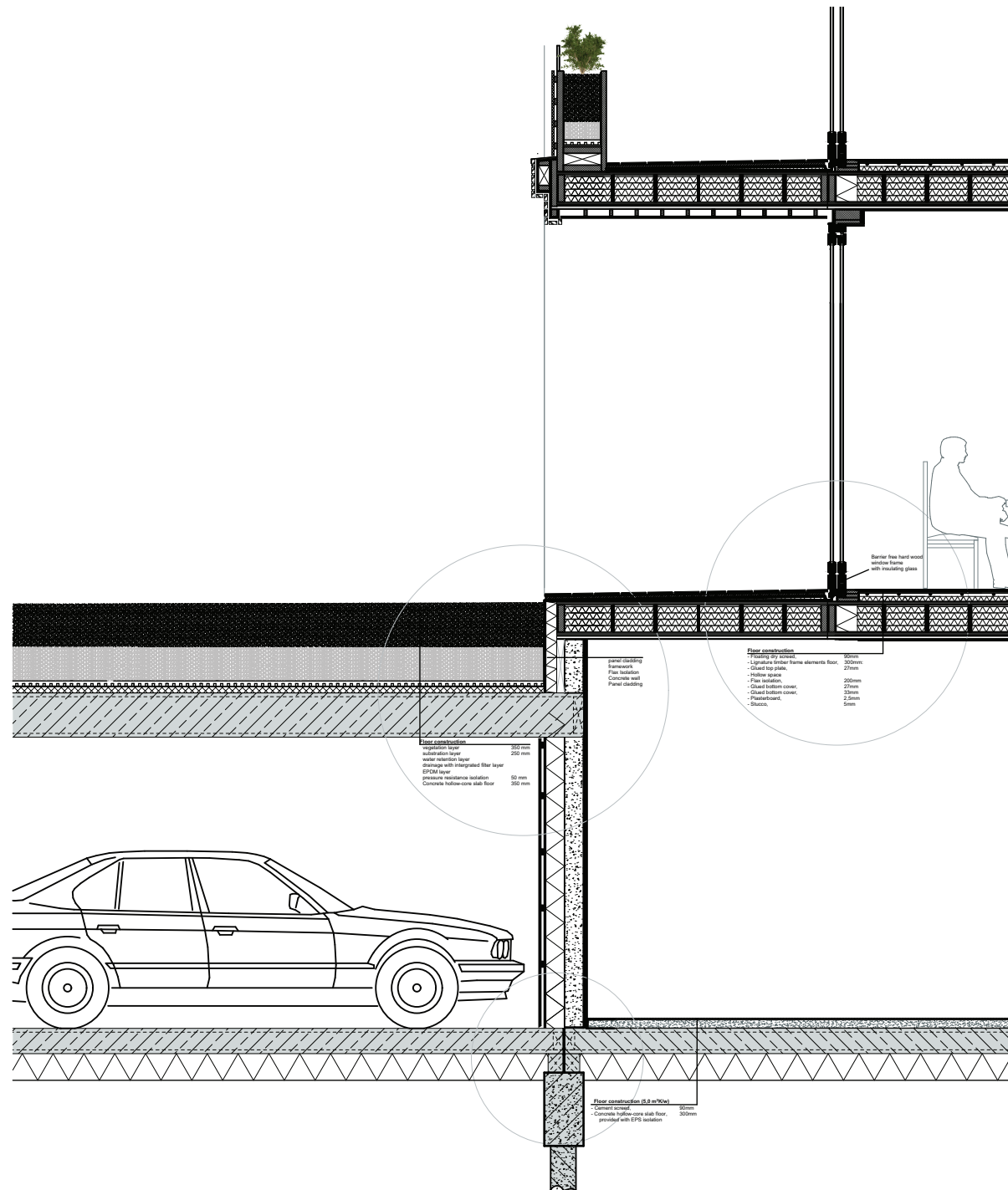


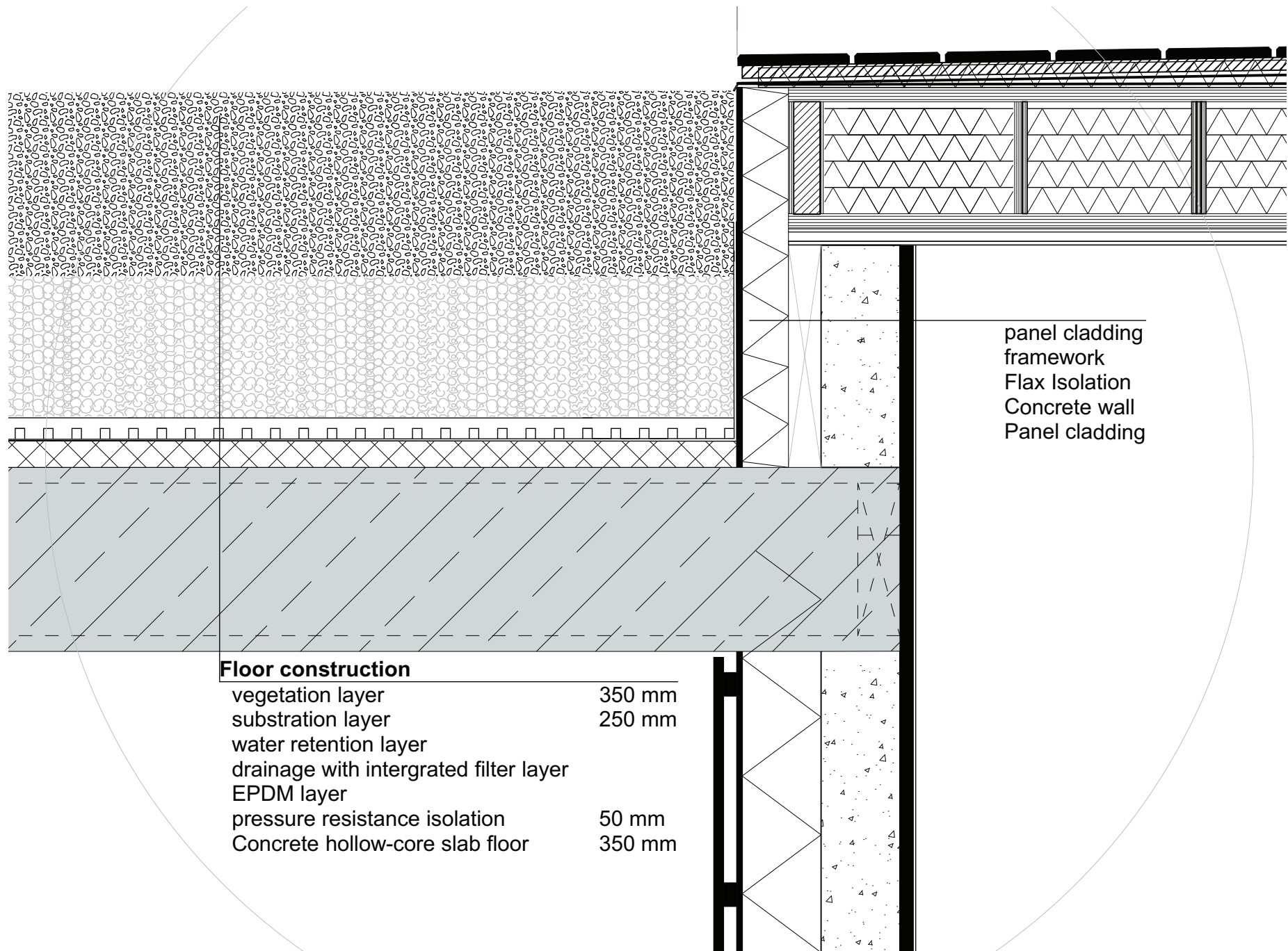


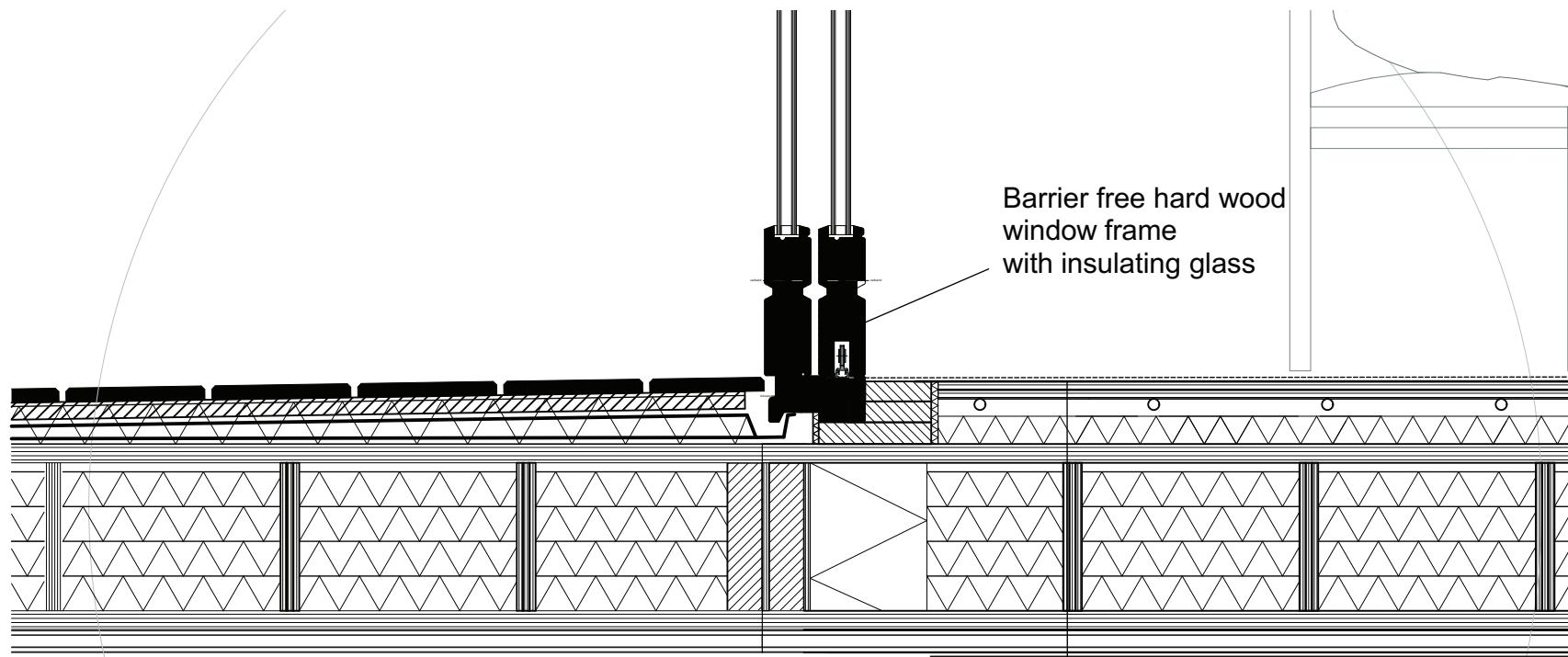
WANDOPBOUW (Bu-Bi):

- Steenstrips
- Waterkerende, dampopen folie
- Hemsec Sip ® Bouwsysteem 152 mm
- Enkel of dubbel gips 12,5 mm (30 of 60 min. brandwerend)









Floor construction

- | | |
|--|--------|
| - Floating dry screed, | 90mm |
| - Lignature timber frame elements floor, | 300mm: |
| - Glued top plate, | 27mm |
| - Hollow space | |
| - Flax isolation, | 200mm |
| - Glued bottom cover, | 27mm |
| - Glued bottom cover, | 33mm |
| - Plasterboard, | 2,5mm |
| - Stucco, | 5mm |

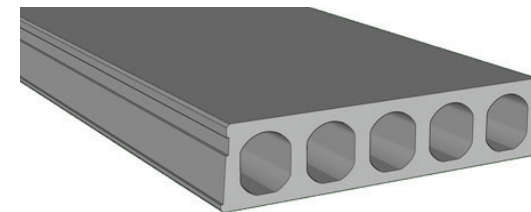
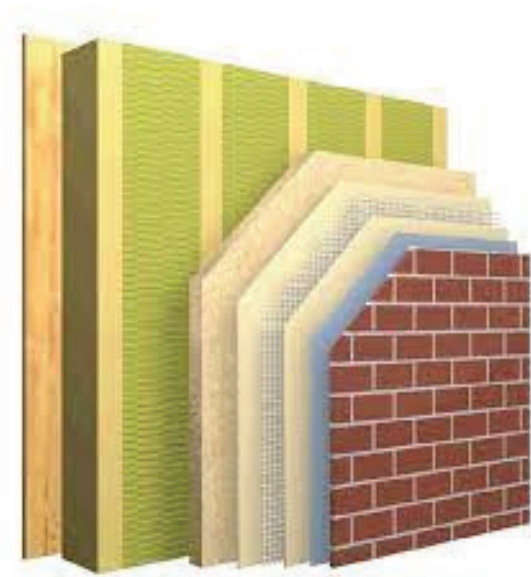
CONSTRUCTION PRINCIPLE

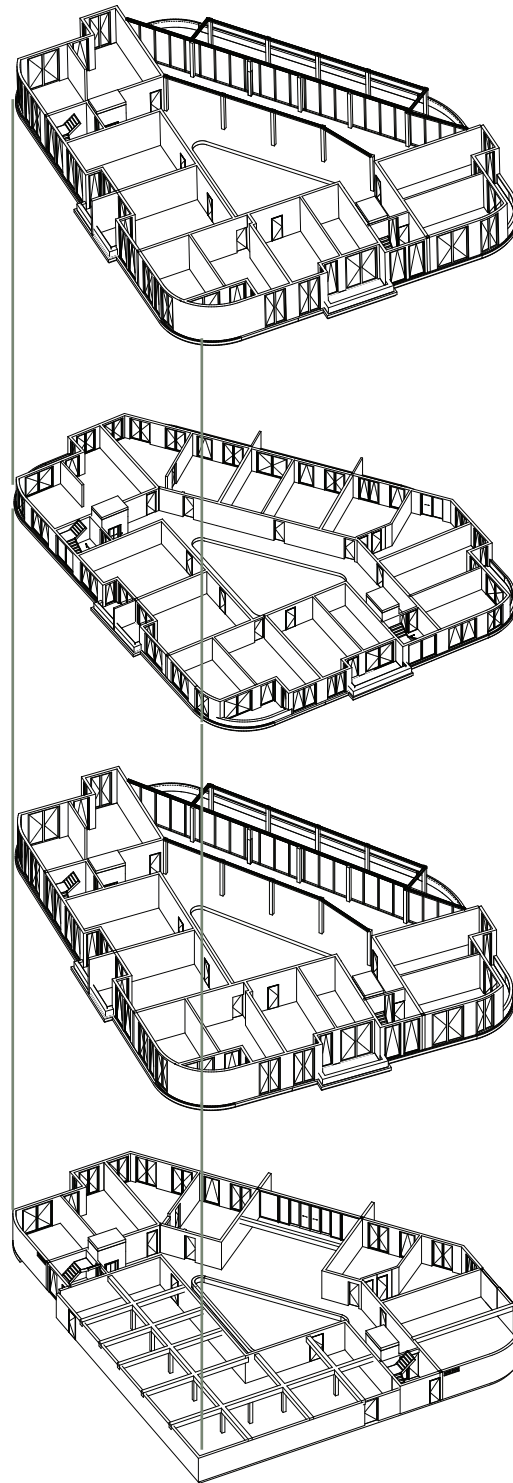
The construction of the buildings mainly consist out of prefab elements. This choice was made to shorten the construction time and this building method is more affordable.

For the load-bearing walls CLT was chosen as a material. prefabricated timber-frame elements. The facades consist out of prefab timber frame elements, with stone strips. this is chossing, because of the light weigth of the stone strips en prefab elements.

The floors consist out of Llnatur floor elements. This are prefab floor elements with internal acoustic and/or thermal insulation. the strength of the elements, make large span widths possible. The Lignatur floor elements do not need a finish, so the material can remain unfinished. the wooden finish gives a warm feeling. Besides Lignatur floor, wooden beams wil be places, where needed.

The ground floor is made from concrete hollow-core slab floor. Also the elevated ground floor above the parking spaces is made of concrete hollow-core slab floor. This floors are relative lightweight and have large span widths.





SECTIONS





Vegetation

Upper substrate for large bushes
and small trees and lower substrate

Drainage and water storage

Root barrier

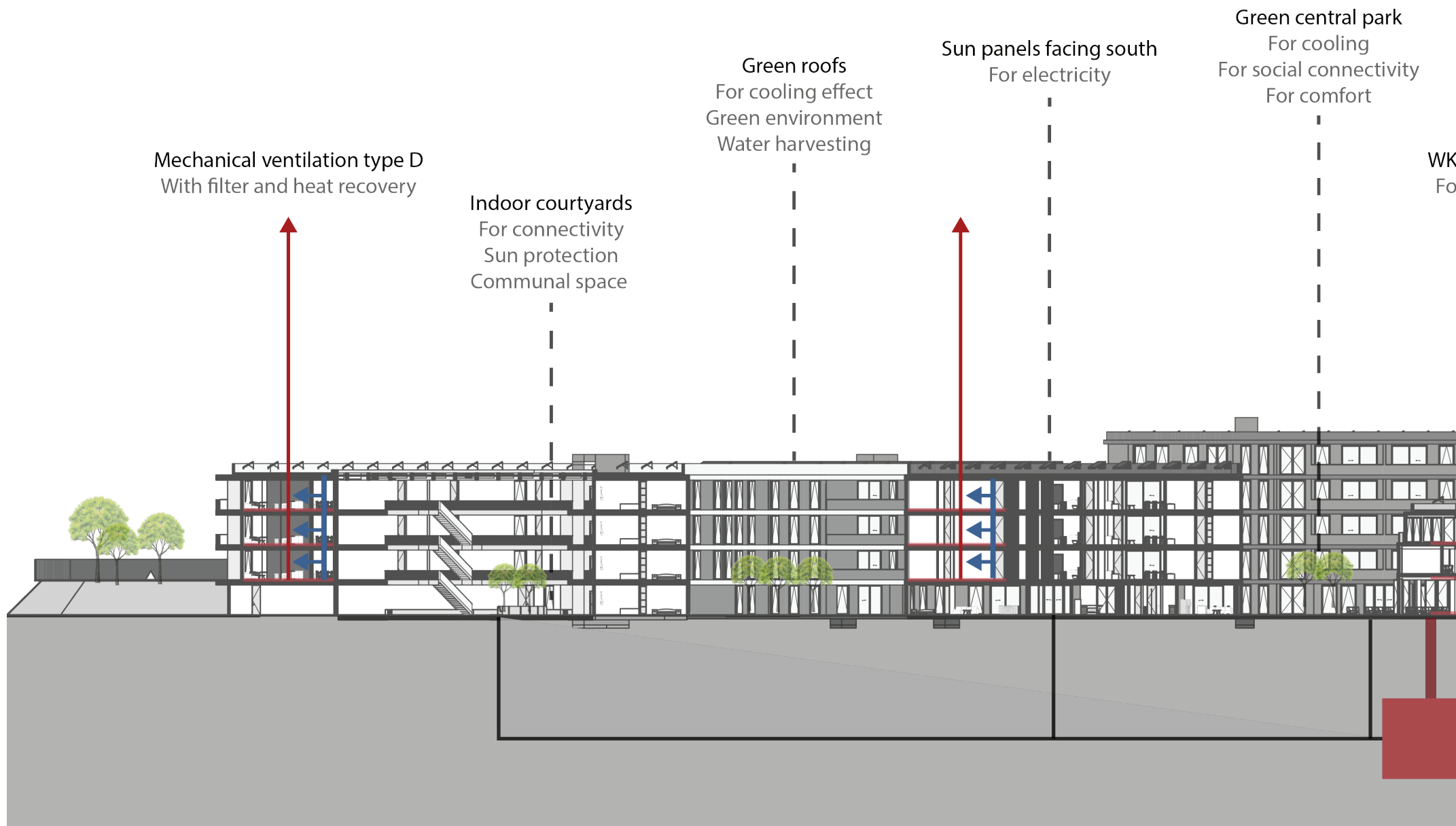
Waterproof membrane

Roof protection membrane

Concrete hollow-core slab floor



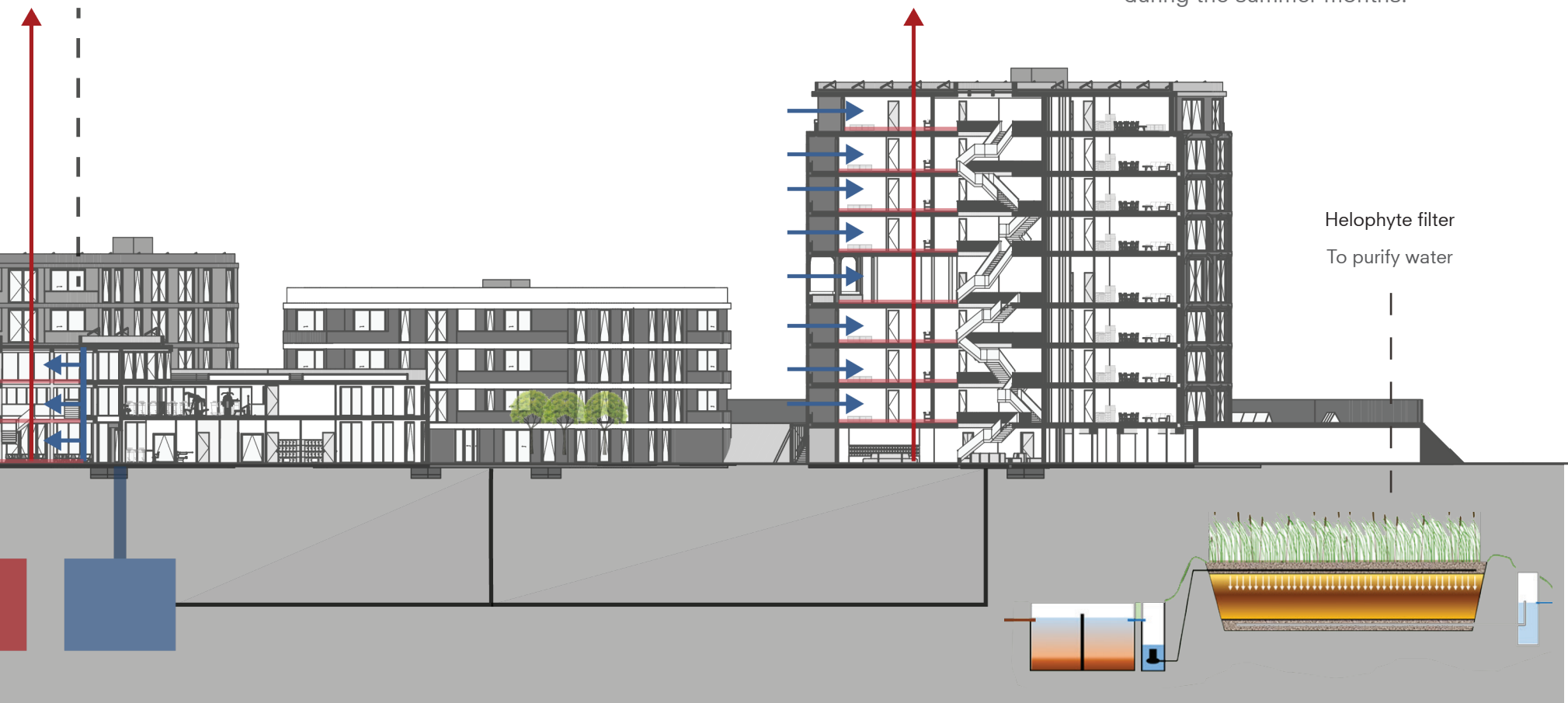




CO with heat pump
for heating/cooling

Natural ventilation

Besides different social and functional design solutions, this design offers several sustainable solutions based on the different groups. To provide fresh air, natural ventilation was chosen for the social classes and mechanical ventilation for the more expensive houses type D is applied. Underfloor heating is chosen for heating, which is incidentally used in all buildings. In addition, this system can also be used for cooling during the summer months.





PV PANELS RED TOWER

AVERAGE CONSUMPTION OF
HOUSEHOLDS WITHOUT GAS*:

27 ONE-PERSON HOUSEHOLDS	(48.600 KWH)
46 TWO-PERSON HOUSEHOLDS	(128.800 KWH)

THE TOTAL CONSUMPTION OF KWH PER YEAR IS LOWER THAN THE POWER	(177.400 KWH)
--	---------------

TOTAL AMOUNT PV PANELS:

AVERAGE POWER GENERATION PER PANEL:

TOTAL POWER GENERATION ROOF (350*315):	(1110.250)
TOTAL POWER GENERATION FACADE (130*190*0.7)	(17.290)
TOTAL PRODUCTION OF THE SOLAR PANELS.	(127.540)

TOTAL OF 72% OF THE ELECTRICITY CONSUMPTION
WILL BE COVERED BY THE SOLAR PANELS OF THE RED TOWER

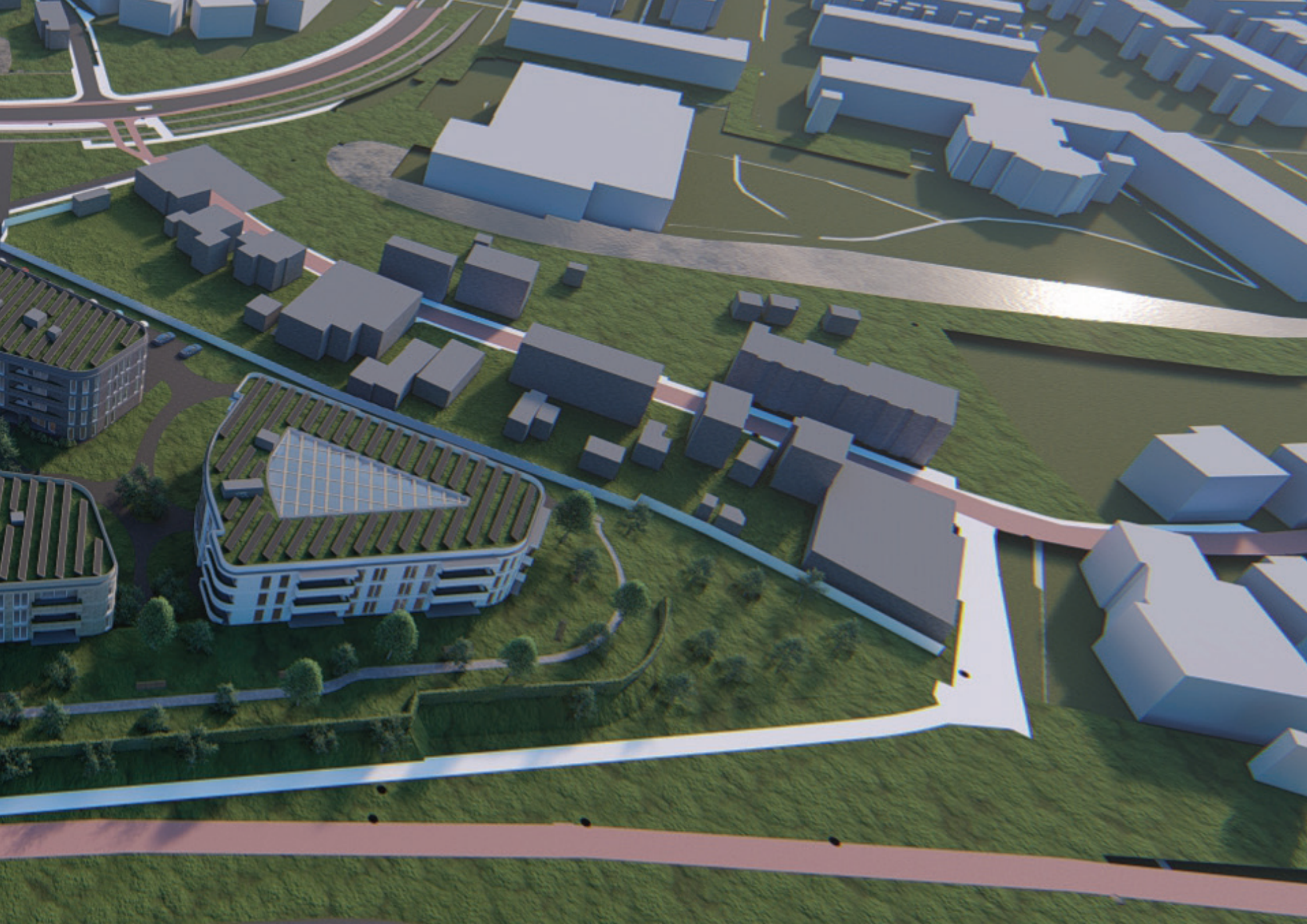
BEFORE







AFTER



12

REFLECTION

1 - Relation between graduation topic, studio topic, master track, and master programme

The Advanced Housing Design Graduation Studio (AR3AD100) describes the studio as researching and developing how housing design can successfully address the challenge of assuring social inclusion and enhancing (bio-)diversity while increasing the density and liveability and reducing the ecological footprint of its residents. The aim was to produce a comprehensive project within the urban context of the Randstad that contributes to the densification of the built environment and new (affordable) housing.

My graduation project is about creating new housing concepts in existing urban contexts suitable for Empty Nesters households to stimulate flow in the housing market. For this target group, I investigated spatial design principles that can positively contribute to a pleasant and attractive living environment where spatial, functional and social aspects are positively supported. The creation of housing is closely related to the Master of Architecture programme, while the topic and the densification strategy are closely related to the graduate studio followed.

2 - The relationship between research and design

As mentioned earlier, this studio focuses, among other things, on the densification of the built environment. For this strategy, we were commissioned to research a target group at the beginning of the study. It soon became apparent that a functional problem was occurring in the housing market, for which a large group was primarily responsible. As a result, I ended up with the target group of Empty Nesters.

After a year of researching this group, this is not an easy target group. This target group's size, diversity and influences surprised me in every way. The more research I did on this target group, the more complicated it became. However, this increased my urge to tackle this target group. During my research, I focused on various aspects necessary for creating a design strategy. In this, I did not just specifically take an architectural direction but a much broader package, so there are sociological and marketing-like pieces in my research report as well. This gave a better picture of the target group with what characteristics this target group has and, in differences, what housing market behaviour they have, what housing profiles this group has with connecting housing preferences and what spatial, functional and social qualities they need. Thus, on different scales, I created a design strategy to meet these needs through architecture and landscape architecture. All this resulted in a design

of a residential area for the Empty Nester, which meets the different housing preferences and qualities of different housing profiles to encourage flow in the housing market.

3 - Elaboration on research method and approach in relation to the graduation studio methodical line of inquiry

For my research, I applied different research methods to arrive at the desired research results and conclusions. The different methods had their input and provided insights from different perspectives. Nevertheless, the results did show a relationship with each other, sometimes overlapping. It consisted of mix-method research. The primary qualitative part consisted of desk research using textual analyses, which was further underpinned by the quantitative research using data analyses. The site study, ethnographic research and historical analysis provided further insight into the site and specific objectives for legitimising the design response. Also analysed were case studies designed with an eye on the spatial, functional and social conditions required to make a property accessible and attractive to Empty Nesters. The case study investigations have been essential. It is integrative to explore how practitioners interpret the specific research topic. In this way, I have learned much about different (new) housing types and specific aspects of this housing typology.

The final research findings are a combination of these different methods. This combination of research methods clearly represents my chosen topic, and the various perspectives have provided valuable research results.

As already told in the previous paragraph, I increased my knowledge about the target group and the subject by looking beyond architectural aspects; this also involved a piece of sociology and marketing. These methods helped me gain a deeper understanding of the target groups' needs and establish design guidelines. This may also have partly worked against me during the graduation process. Examining a target group from different angles gives you much information that can help you formulate a design strategy. More importantly, it can work against you and complicate a problem. On several occasions, I have been in a position where I had lost my overview and needed to know how to proceed with my research. Based on feedback from my research supervisor Frederique van Andel and after flipping my research several times, I found the proper structure and course. I learned from this and now understand even better why setting up a strong and structured research plan is essential.

5 - The ethical issues and dilemmas I encountered in my research, elaborating the design and potential applications of the results in practice.

During my research and design, I came across ethical dilemmas. For example, How important are cultural and ethnic differences in mix-housing projects? Can different socio-economic groups live side by side? The great diversity among the target group also results in different approaches. On what basis is the housing profile of a target group formed? Practical questions also arise when thinking about practical implementation. Should people accept living next to a social housing unit while they have paid the prime price? Do people want to share common spaces if they come from different socio-economic strata? Does the responsibility lie with the architect or the client? Clear direction lines should be established, but advancing insights will influence adjustments for these ethical issues.

6 - Elaboration on the relationship between the graduation project and the broader social, professional and scientific framework, touching upon the transferability of the project results

The social issue of suitable housing for Empty Nesters is underexposed. It is a socially emerging problem that has proliferated in recent decades and is still growing due to the ageing population in the Netherlands. This problem concerns not only the target group

itself but the entire housing market; for instance, young households are finding it harder to get housing due to the existing housing market congestion. Given the housing shortage, high prices and pressure on construction, addressing the housing problem for Empty Nesters is highly desirable. However, only in recent years has attention been paid to finding appropriate housing solutions.

Mentoring

During the graduation process, we were guided by our mentors in the areas of research, design and construction engineering. Thus, there were several moments and ways in which the mentors provided suggestions for the development and direction of our project. The following section describes the central relevant moments.

For the research report, I was told several times that I needed to grasp my target audience better. Because it was a complex case, I struggled with it for a long time. Fortunately, the feedback did help me in finding a way to understand the target group. I also had feedback on the structure of my research report. I took this on board, which resulted in a clear and structured research report.

Also, the design process could have been smoother throughout

the year. For instance, I had to start from scratch with a design for this target group twice. In hindsight, this took my project and design to the next level. Getting a better awareness of the target group also helped me understand the design. During the final stages of the design, more emphasis was placed on the technical aspects. Through research and helpful feedback from my mentor, I gained more knowledge about the installation concepts and materials. This knowledge informed my design decisions and made the project stronger. Also, the building technology mentor has given me helpful feedback about the design, which elevated my project even more.

Although the project achieved its research objectives in many ways, some areas can be developed further. A design can always be improved. An important aspect I learnt is that successful designs come about when it is right at different scales. This creates a constant alternation between the context and the zoomed-in scale. Thus, I also applied my research at different scales in my design. Think of the connection to the existing neighbourhood, design of surroundings, choice of materialisation and thermal comfort.

How further?

Based on the level and quality delivered at the P4 moment, an improvement will come for the P5 moment on both the design, the research report, and the construction aspect. This also depends on passing the P4 and the feedback we receive.

Finally, I want to convey that despite all the setbacks in terms of health, my graduation project successfully achieved my personal goals and the research objectives outlined to address the problem statement. I have established my position as an architect and developed a design strategy in the existing urban context for the Empty Nester to encourage flow in the housing market. However, there are some areas where the design and research could have been further explored or improved upon.

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