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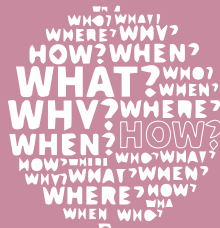
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Year:

2021-2022



Studio Research Report

Advanced Housing studio

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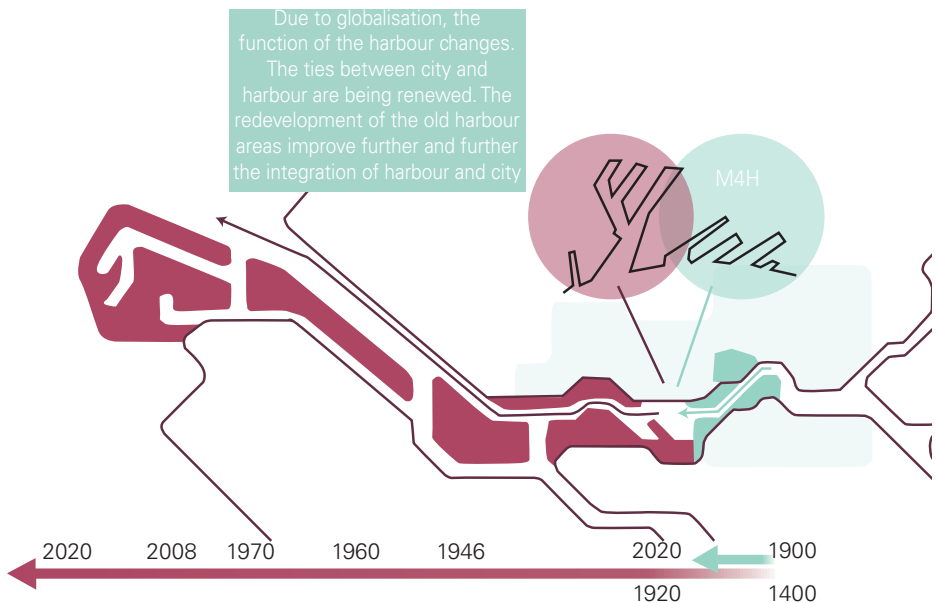
Assignment

“M4H: for Modern Households Building a city for everyone”

There is a big need for new homes in The Netherlands. This need contains of one million new homes between now and 2030 of which 54.000 are to be realized in Rotterdam (NOS, 2020). Adding new homes is an immense task in every imaginable way: logistics, policy making, financing, sheer building volume and so on. There is a sudden emergence of this challenge due to the public consciousness, which led to countless news items, background stories and reports.

The one million homes challenge is not just a matter of bulk, it is also a matter of quality. This studio research report is part of the studio Advanced Housing Design. The main question in this studio is: ‘How do we provide suitable, affordable housing for a diverse population? To answer that question we need to know who the people are who inhabit - or want to inhabit - our cities. Who are the modern households? What do they aspire to? Where do they live now and more pertinent to us, as architecture students: where and how do they WANT to live?

For this graduation studio, the sight is set on the Rotterdam harbour area of Merwe-Vierhavens (M4H). The goal of the municipality of Rotterdam is to create an innovative live-work environment, intended to bring creativity, innovation and making together. To this ambition, the notion of inclusiveness and equality will be added by focussing on the myriad of modern household types that have developed in recent times and for whom recognition is of paramount importance.



Transformation of the harbour of Rotterdam (illustrated by author)

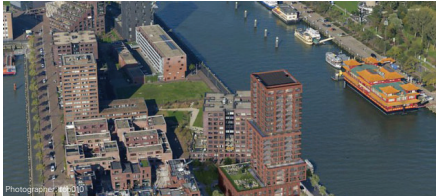
To show where my building plot is situated, I will show an overview of the urban plan which is designed by my graduation group for the location Merwe-Vierhaven (M4H) for the municipality of Rotterdam.



2. Urban master plan

Design question

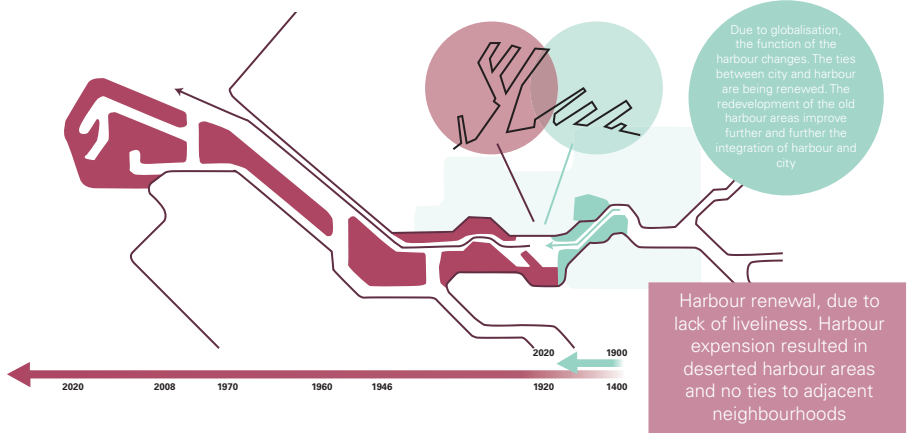
Approach: reference projects



Usage of existing plans as starting point

History

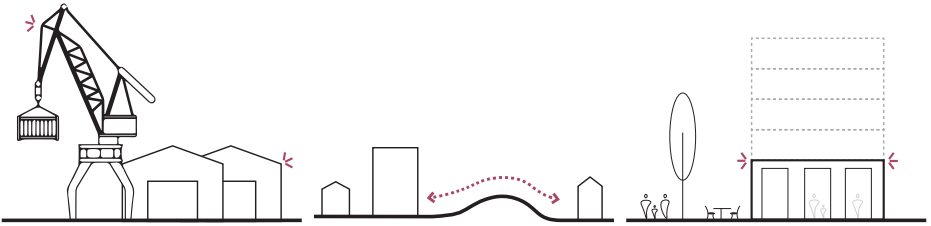
Harbour renewal in Merwe-Vierhavens



Goal of the urban plan

Developing a dynamic working area for the people of Rotterdam with respect to the identity of the harbour

3 starting points



1. Preservation of the harbour identity

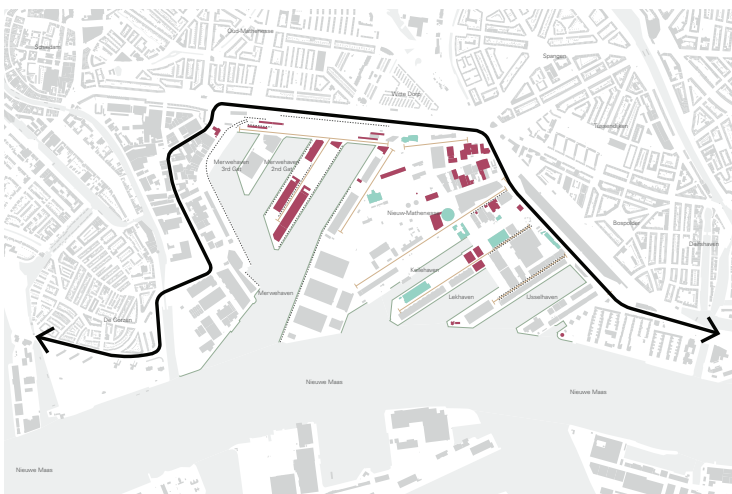
2. Implementing a strong spatial structure

3. Create a strong programmatic structure with surrounding areas

1. Preservation of the harbour identity

Respect the industrial character and preserve the characteristic elements.

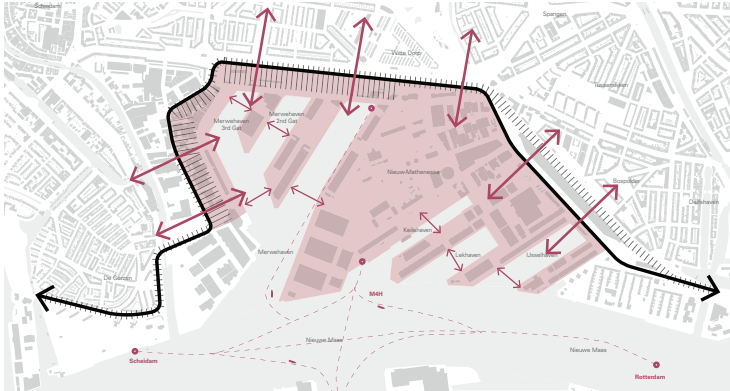
- Preserve the **rich variety of buildings, quays, tracks, and constructions** in Merwehaven. These image-defining objects form the basis of the identity of the area and contribute to value development.
- A **green heritage route** is proposed that follows three key points in the masterplan where the monuments are preserved.



2. Implementing a strong spatial structure

Restore the spatial connection with the surrounding area.

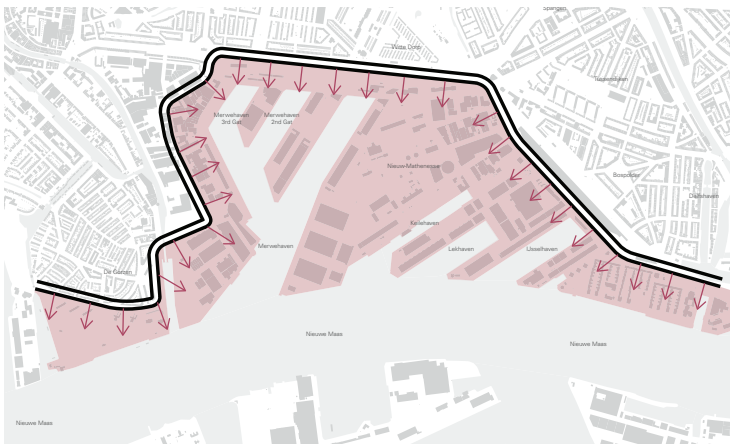
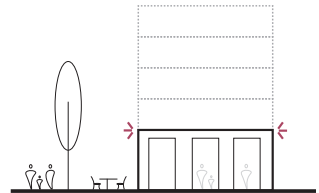
- Creating **good and safe connections** over water and land, at all levels and for all modes of transport.
- In order to connect the harbour with the city, **strong physical and functional connections** will be made to the adjacent neighbourhoods.



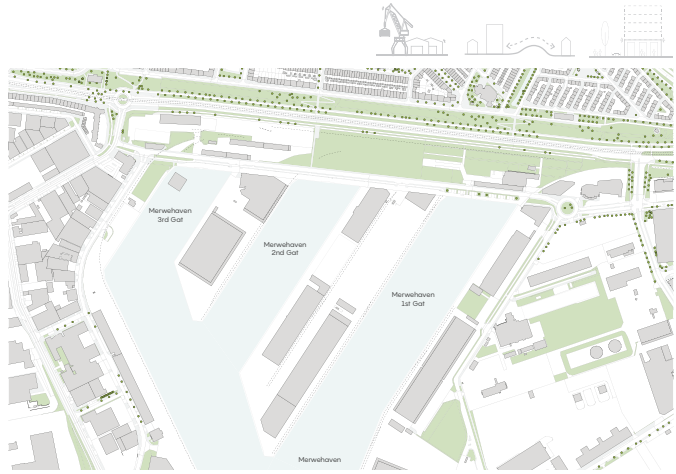
3. Create a strong programmatic structure with surrounding areas

Restore the programmatic connection with the surrounding area.

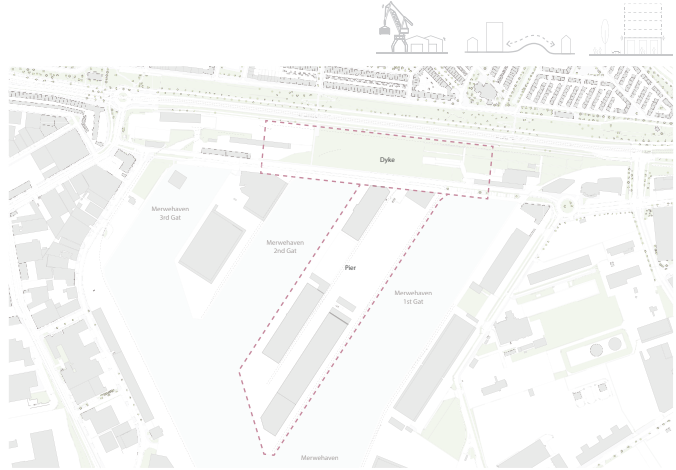
- Creating **high plinths** that define the image of the street with a **mix of commercial, cultural, and social facilities**.
- Realizing an **open innovation environment** with a varied mix of companies in different growth phases.
- In addition to the green heritage route, building block setbacks along the quay provide **space for greenery and leisure activities**.



Current situation



Divided into two quadrants



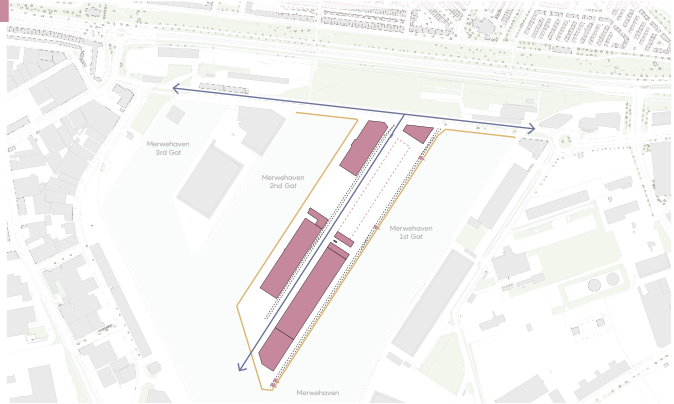
Characteristic elements:
quays, warehouses, cranes
and traintracks



Legend

- Characteristic warehouses
- Characteristic quay
- Crane and traintracks
- Characteristic structure
- Characteristic cranes

Scale 1:4000 (297x528mm)



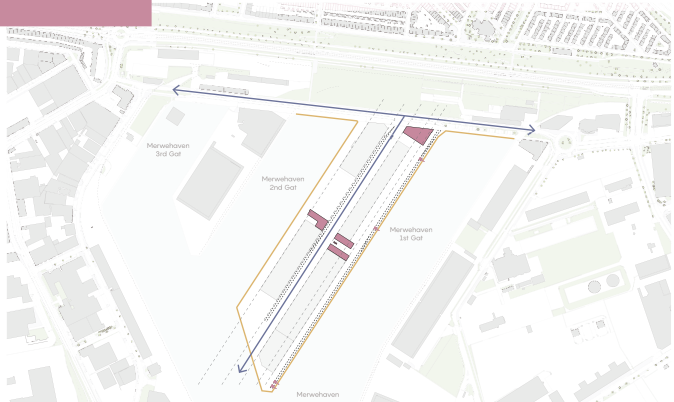
Preserve character: quays, warehouses,
cranes and traintracks



Legend

- Characteristic warehouses
- Characteristic quay
- Crane and traintracks
- Characteristic structure
- Characteristic cranes

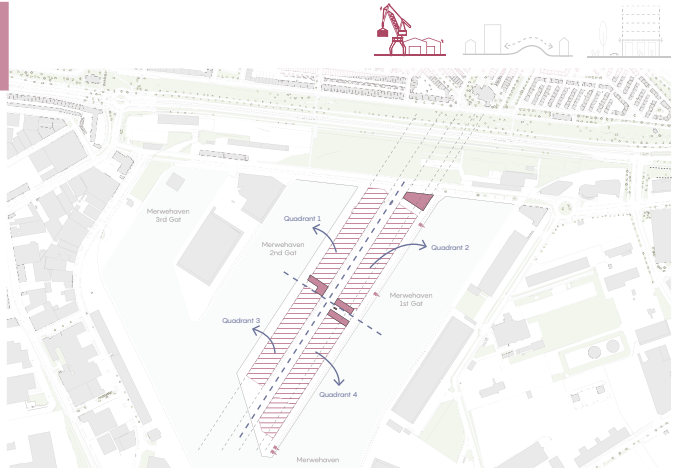
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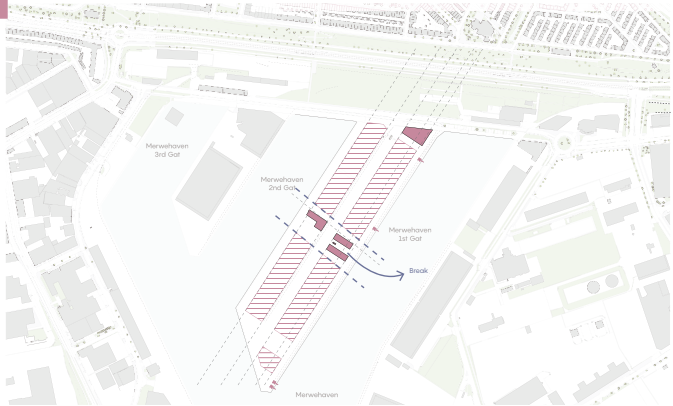
Pier division into four
quadrants



Scale 1:4000 (297x528mm)



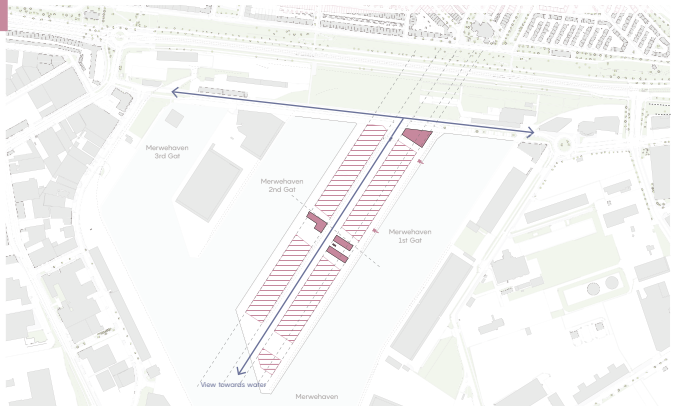
Introduce break: emphasis on warehouses



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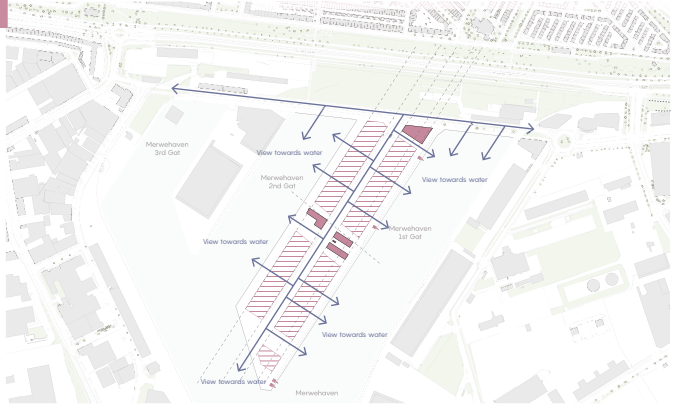
Grid following the warehouses and sightlines



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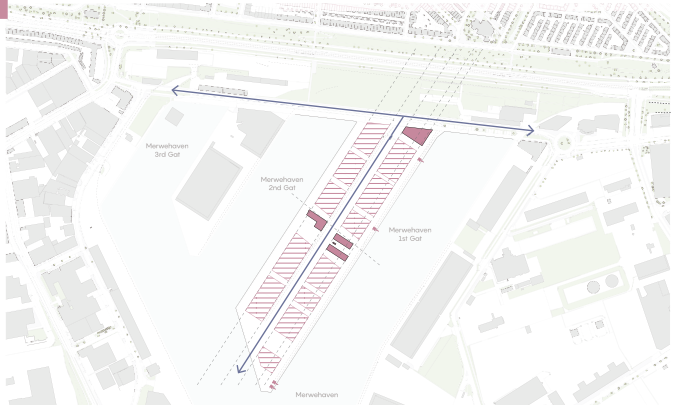
Sightlines towards the water



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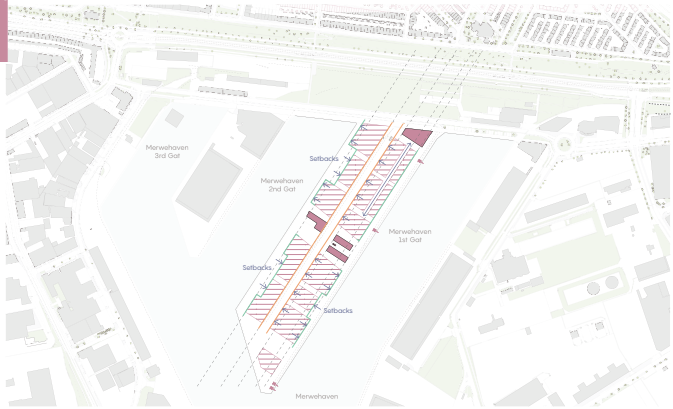
Building zones



Scale 1:4000 (297x528mm)



Hard edge to keep warehouse grid and characteristic sightline towards top pier, soft edge to make playful facade towards water



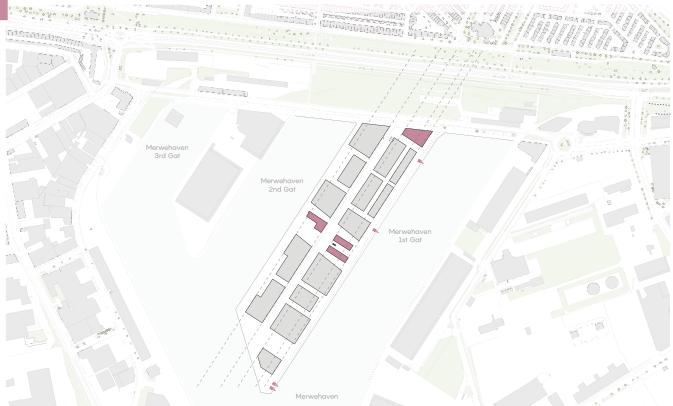
Legend

- Hard edge
- Soft edge

Scale 1:4000 (297x528mm)



Building blocks



Scale 1:4000 (297x528mm)



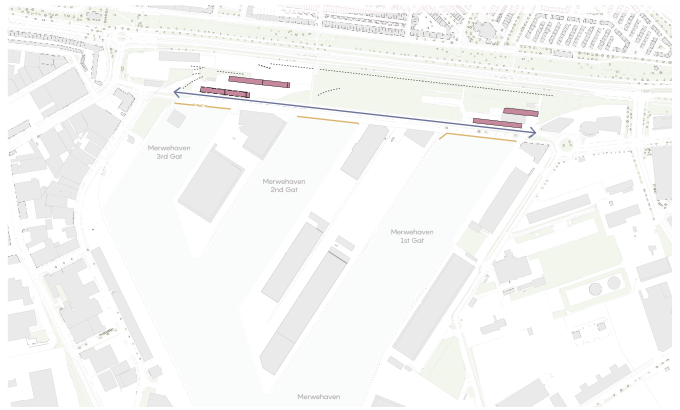
Characteristic elements on the dyke



Legend

- Characteristic warehouses
- Characteristic quay
- Crane and traintracks
- Characteristic structure
- Characteristic cranes

Scale 1:4000 (297x528mm)



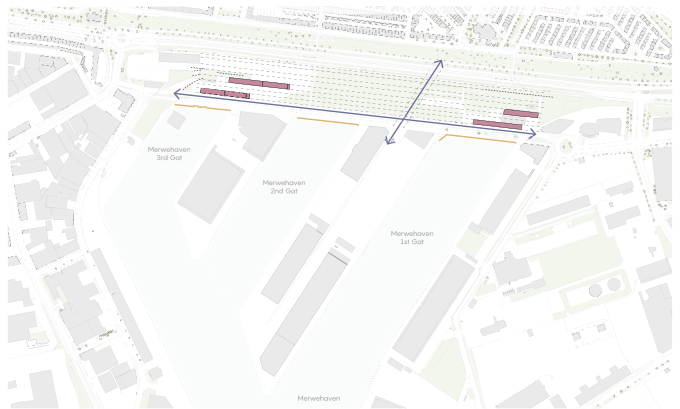
Preservation of the characteristic elements



Legend

- Characteristic warehouses
- Characteristic quay
- Crane and traintracks
- Characteristic structure
- Characteristic cranes

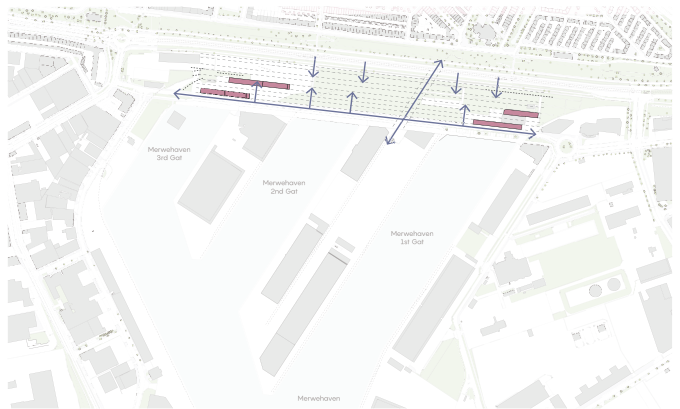
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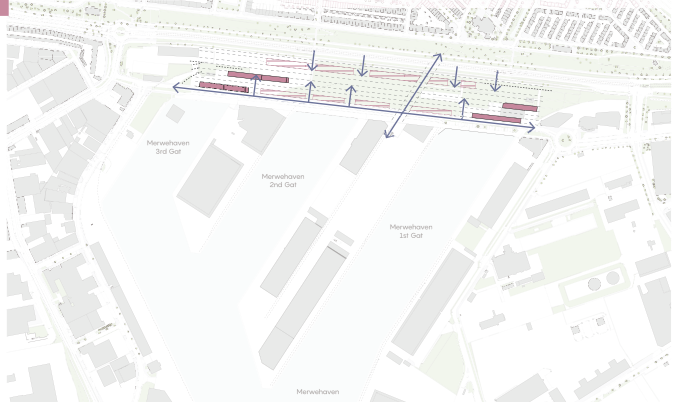
Sightlines and connections to adjacent neighbourhood



Scale 1:4000 (297x528mm)



Creating grid for building zones



Scale 1:4000 (297x528mm)



Green throughout dyke, in between buildings



Scale 1:4000 (297x528mm)



Building zones



Scale 1:4000 (297x528mm)



All building zones



Scale 1:4000 (297x528mm)



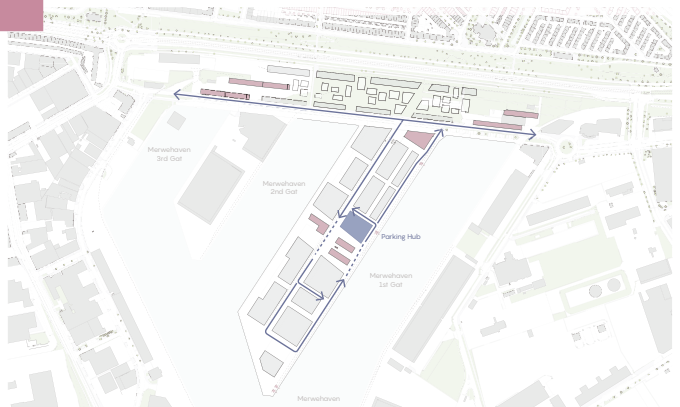
Diverse typologies



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Circulation and introduction to central parking hub



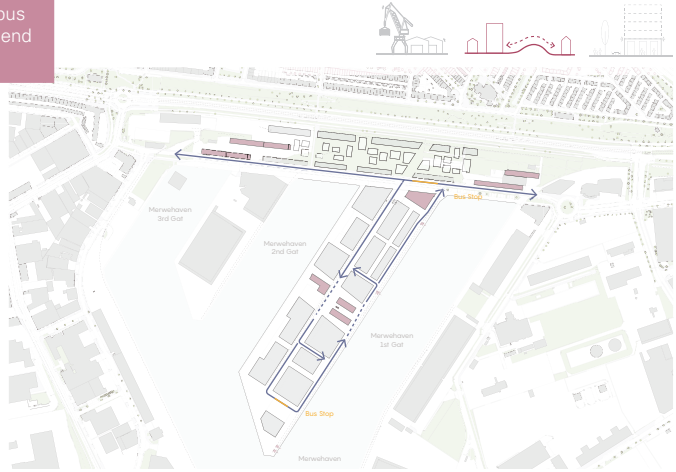
Legend

 Parking Hub

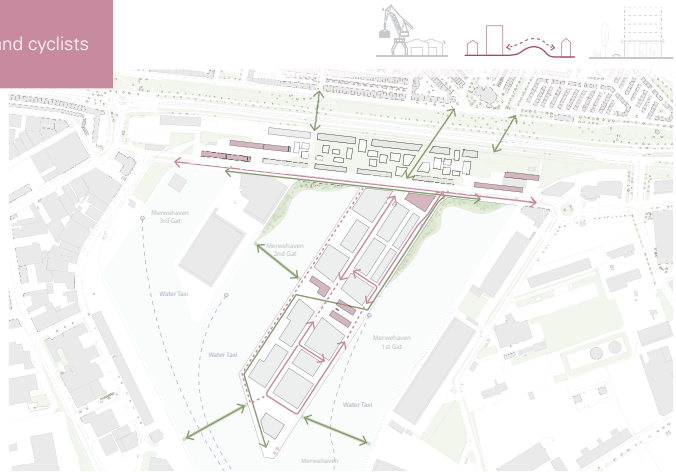
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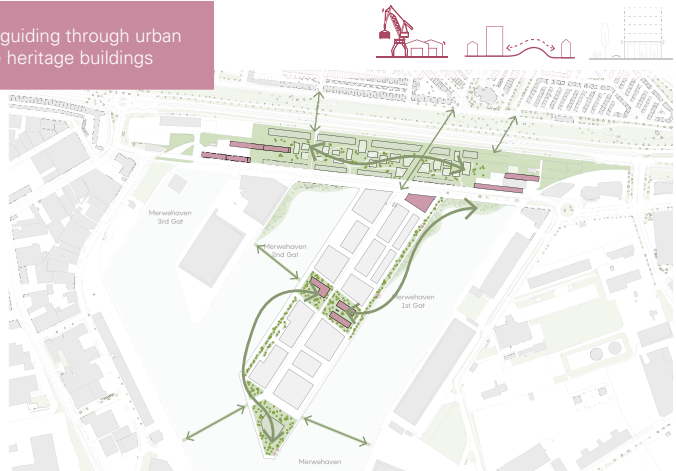
Public transport, with two bus stops on the beginning and end of the pier



Circulation for pedestrians and cyclists



Introducing a green route, guiding through urban plan and passing all the heritage buildings



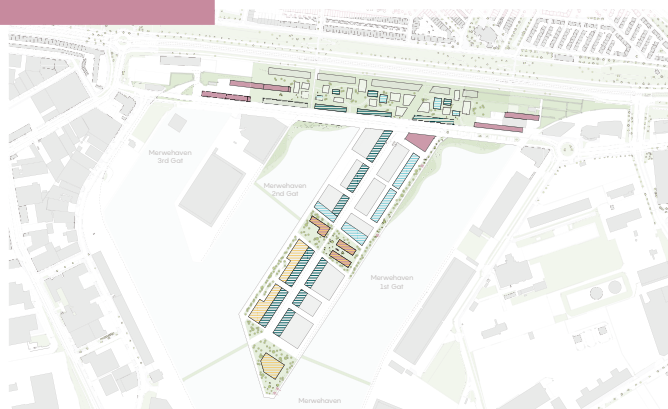
Sunstudy for the green heritage route: when and how in use?



Scale 1:4000 (297x528mm)



Functions in plinth adjacent to green heritage route, regarding the sun study



Legend

- Horeca: cafes & restaurants
- Work- & living mix
- Horeca: cafes & lunchrooms

Scale 1:4000 (297x528mm)



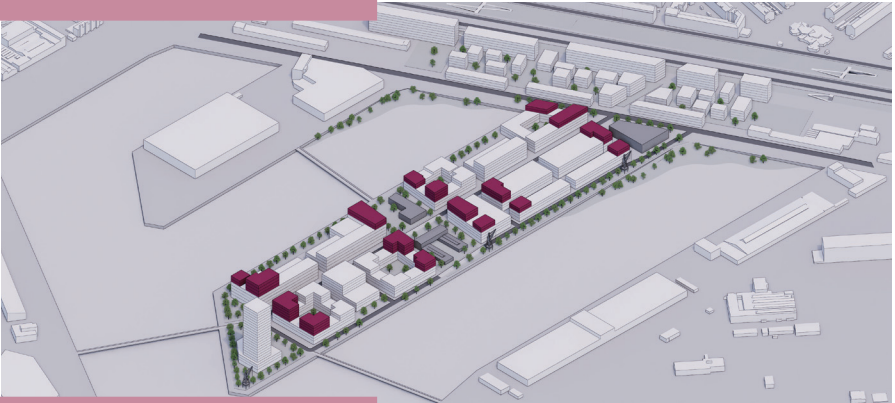
Final urban plan



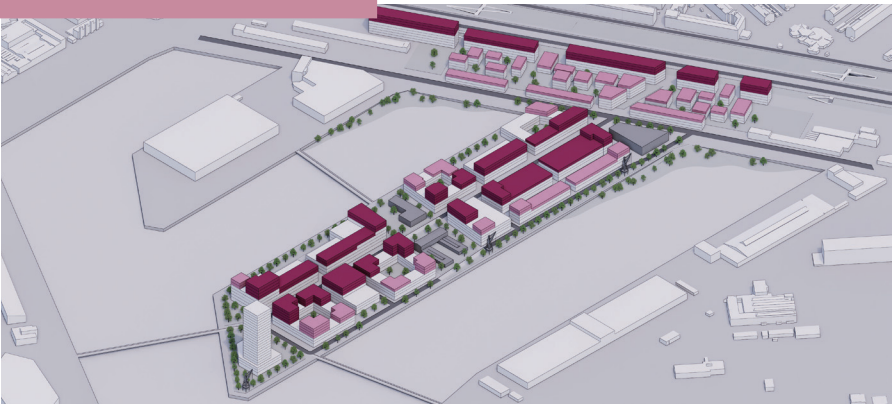
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Specials on the corners



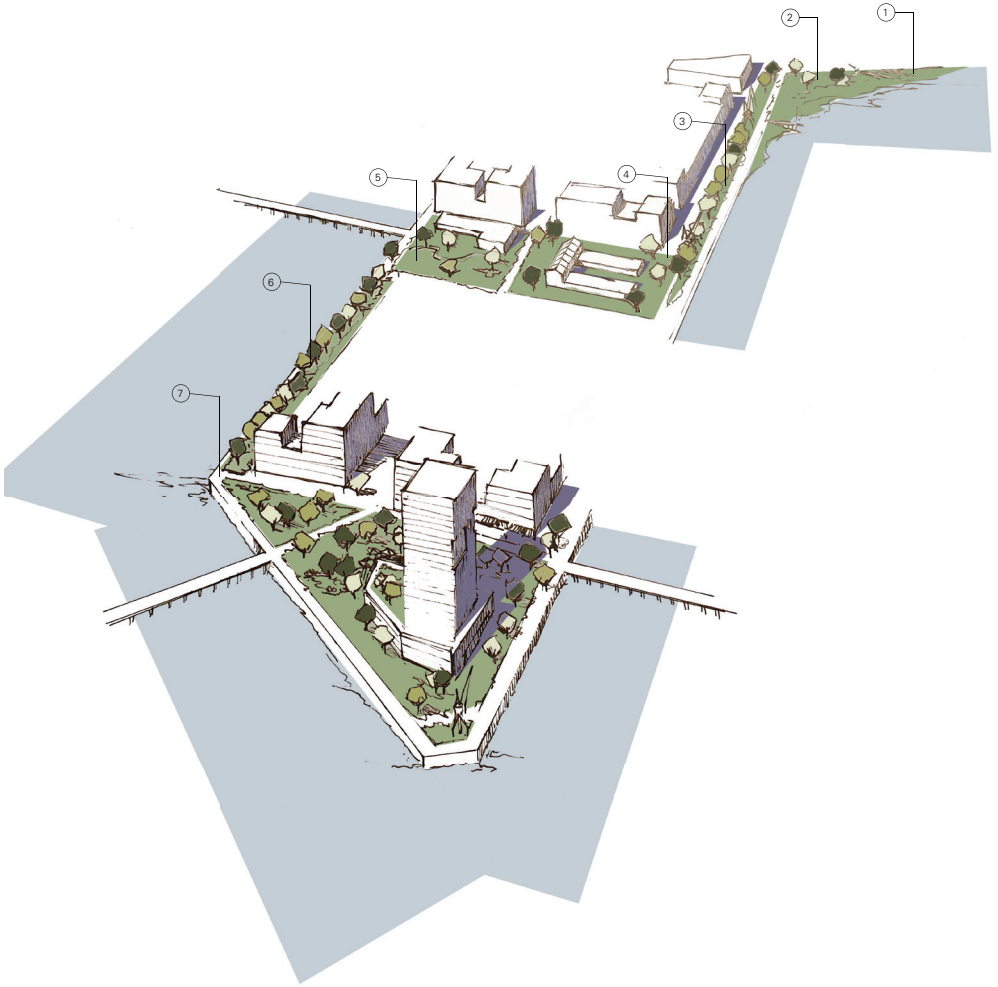
Buildings lower towards waterfront

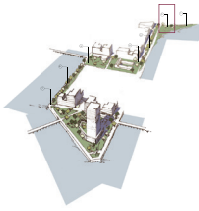
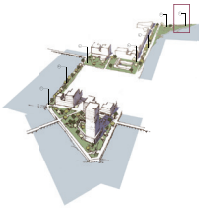


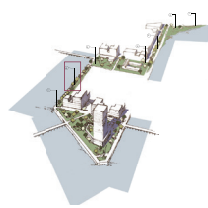
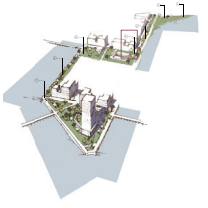
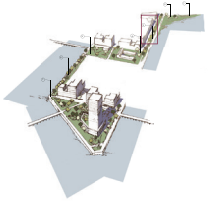
Final urban plan in birds eye view

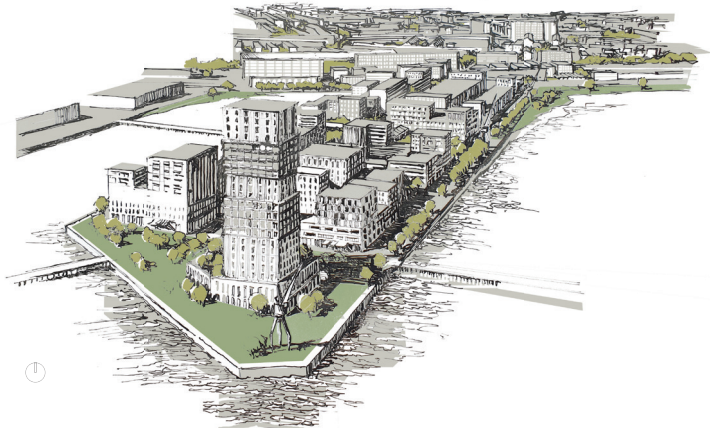
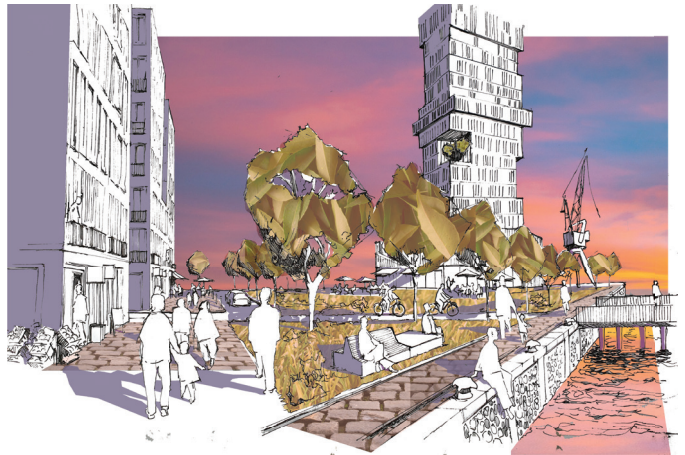
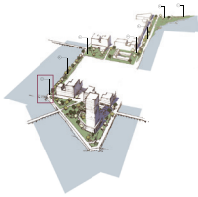
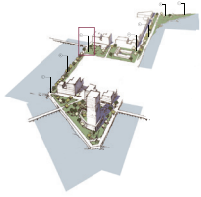


An experience through the urban plan, walking along the green heritage route









Building plot



Zoomed in



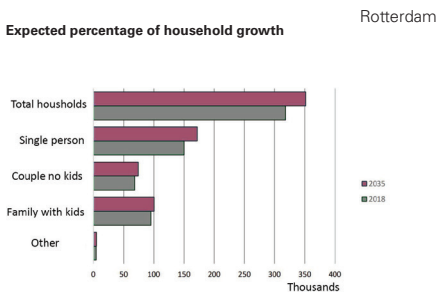


3. Introduction to the research

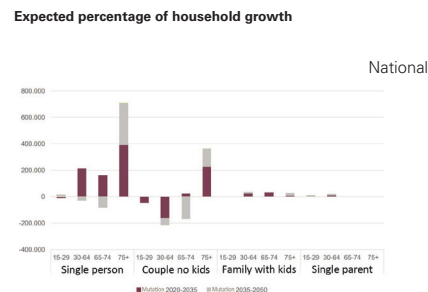
In this chapter I explain shortly the motivation for my household choice, the main topics of the report, research questions, relevance of the report and my methodology.

Preface

There is a big need for new homes in The Netherlands. The composition of households has changed significantly in recent decades. This change is characterized, among other things, by the sharp decrease in the average number of persons per household. Households in the Netherlands are getting smaller and single is increasingly becoming the norm (Lansbergen, 2018, p. 9).



Source: Hoppeteyn, Permentier & Van der Zanden, 2018



Source: CBS, 2019

This research report focuses on the modern household group single-person households. Who are the single-person households, what is the reason for the household decline and what is the

reason for the need of less living space? Is singularization also a problem of impoverishment?

Feeling at home is the main topic of this research report. I link feeling at home to the different groups within the single-person households to investigate how single-person households of all ages and income groups can feel at home.

Research

This research report forms the basis of the design of a building ensemble in Merwehaven for homes for single-person households.

Feeling at home

This research report focuses on the theme of the solo dweller's feeling at home. When and how will the different single-person households feel at home? What is feeling at home exactly?

Feeling at home has different meanings for everyone. It could be a house or a neighbourhood in which we live, the city in which we work or a country where we come from. Feeling at home can also be about something much smaller. Think of a bench in a park where you regularly sit down or a lunch room, where you drink your coffee. What all these different feelings of home have in common is that there is always a connection with a place (Graaf van der & Duyvendak, 2009, p. 13). But why do we feel at home in a certain place. It is often difficult to put into words why we feel at home somewhere. Feeling at home is a feeling, an experience that we become especially aware of when we leave the place that is connected to this feeling or when this place changes (Graaf van der & Duyvendak, 2009, p. 13).

In various studies and literature on feeling at home (like 'Thuis voelen in de

buurt', 'Thuisvoelen', 'Verzorgingsthuiss' and 'De Hofmakerij van toen & nu' for example), various aspects are repeatedly mentioned that make people feel at home. In order to make the concept of feeling at home more concrete, regularly recurring aspects that contribute to a feeling at home are collected and classified. Based on these aspects, I investigate what contributes to feeling at home for the different single-person households.

This research report distinguishes the following four aspects of a feeling of home, each with two subgroups:

<p>Comfort</p> <p>User-friendliness</p> <p>Basic needs</p>	<p>Safety</p> <p>Freedom</p> <p>Protection</p>
<p>Social interaction</p> <p>Hospitality</p> <p>Encounter</p>	<p>Identity</p> <p>Recognition</p> <p>Ownership</p>

In the research report I discuss how these aspects of feeling at home are linked to the different single-person households and how I used it to form the basis of my design for M4H.

Single-person households

Besides feeling at home, this research report focuses on single-person households. But who are the single-person households? People who live alone are all in a different phase of life, all with different wishes and needs, different lifestyles and different living requirements. This heterogeneous group can be divided into four subgroups according to Buys (2018, p. 39):

- Widowed: single people who were previously part of a couple and whose partner has died.
- Divorced: single people who were previously part of a couple and whose ex-partner has not died.
- Empty nests: single people who were single-parent households, where the (last) child left the household.

- New households: single people who were not yet a reference person and not a partner in other households. This mainly concerns young adults living at home who have started living independently.

Lastly but not least, I added the happy single from Klinenberg (2013) to this list:

- Happy singles: single people who never form a couple and never get children.

The challenge as an architect is to create a home for every future resident, to create a design in which residents with different wishes, requirements and ideals will feel at home. How can you create a space that offers a worthy place to all different type of users?

Inclusivity and life-course proof

This research also includes the theme inclusivity and life-course proof housing for different age groups within the single-person households. Lansbergen (2019, p.14) indicated in her research that many solo dwellers move into a house temporarily. As a result, there is a danger that someone will only become a bypasser without bonding with the neighbourhood, which increases the chance of loneliness. Inclusivity and life-course proof housing gives solo dwellers the possibility of not having to move.

Part of the inclusive society is mixed living. The central government of the Netherlands proposes housing projects where different groups of people deliberately live together, maintain contact and also undertake joint activities (Van der Velden, Tiggeloven & Wassenberg, 2016, p. 16). Under the heading of "magic mix," housing associations aim to accommodate vulnerable target groups such as the elderly between 'regular' tenants

or students. Housing projects in the inclusive society often emphasize solidarity, interaction between the groups and self-management on a voluntary basis (Maaskant, 2018, p. 12).

Little can be found about a housing offer aimed at the group of solo dwellers as a whole. The housing supply is often aimed at only the starter or only the senior and is not aimed at the total group, from young to old. How nice would it be to move into a house that is flexible enough, that it is possible to live in your home for a longer period of time. A home that is life-course proof and can move with you if your life starts to look different because you get older, suddenly have to work at home, you have a (temporary) relationship or because your aging child stays with you and has different needs.

This research focuses on the question of what is needed to design a future-proof residential complex with homes of relatively small areas where single people of all ages and backgrounds will feel at home. This concerns affordable, high-quality homes that are future-proof, so that they are sufficiently adaptable to any future housing needs.

To learn about how to design for the future residents within the single-person households in relation to how they want to live and the theme feeling at home, an analysis of four residential projects in the form of an plan analysis will be conducted. At one of those projects and Knarrenhof (architectural project for independent elderly) ethnographic drawings and interviews will be conducted as well.



Single-person households (illustration by author)

Research questions

“How to design a future-proof residential complex where single people of all ages and backgrounds will feel at home?”

In order to provide structure, I divide this overarching question into the following sub-questions:

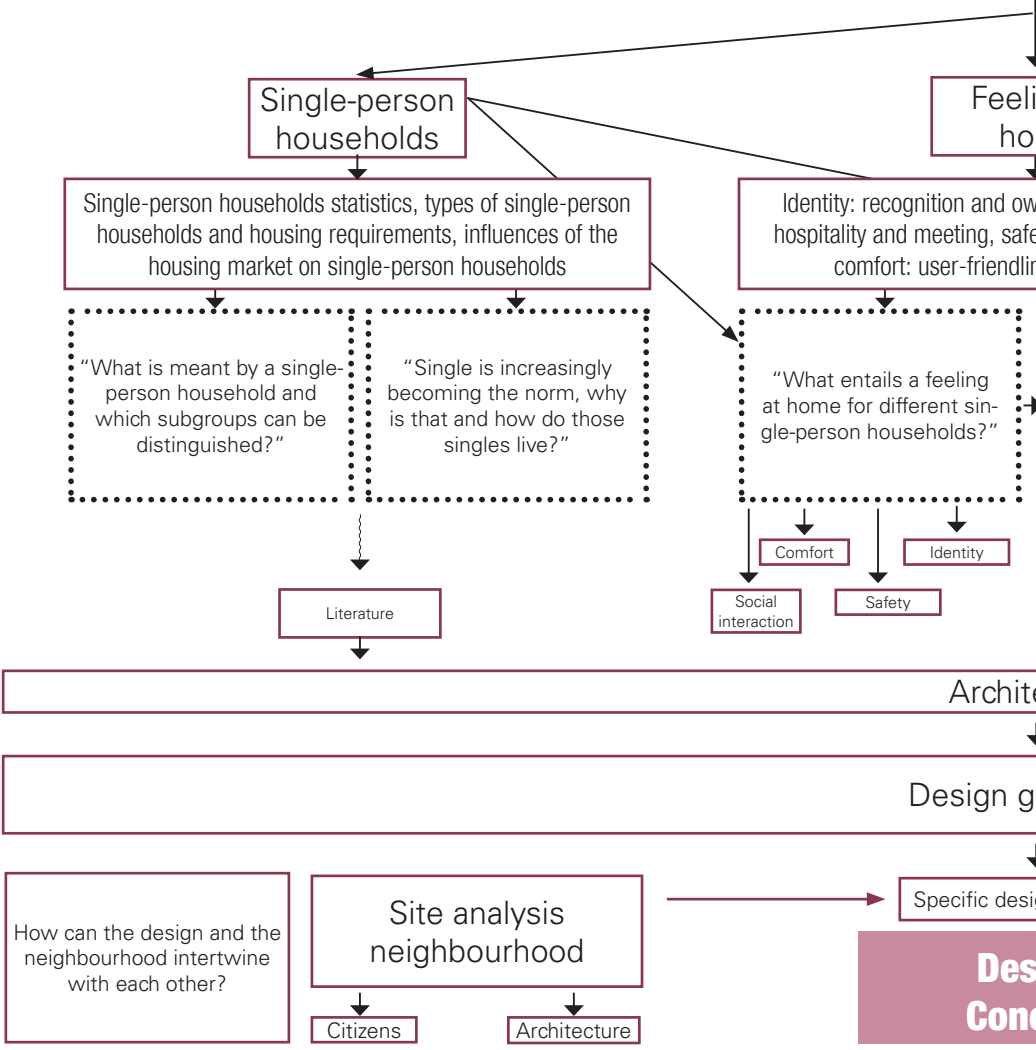
1. What is meant by a single-person household and which subgroups can be distinguished?
2. Single is increasingly becoming the norm, why is that and how do those singles live?
3. Why does the housing market not respond to the growing needs of solo dwellers?
4. What entails a feeling at home for different single-person households?
5. How will building with inclusive purpose help single-person households with different incomes and ages to feel at home?
6. How can the “feeling at home” be translated into design?



Feeling a

In 1971, a household consisted of 3.2 persons on average, which has decreased to 2.2 (Lansbergen, 2018, p. 9). The prognosis is that there will be more single-person households and more people will live alone (van Dijk, 2018).

“How to design a future-proof residential environment for people of all ages and backgrounds?”



Research scheme (illustration by author)

at home

average; at the beginning of 2018 this had dropped
that the household dilution will continue and more
Duin, te Riele & Stoeldraijer, 2019, p. 4)

residential complex where single
grounds will feel at home?"

“Find the similarities,
cherish the differences”

ing at
me

Inclusivity

ownership, social interaction:
safety: protection and freedom,
business and basic needs

Generation mix, flexibility, adaptability, central government
initiative

How can the “feeling at home” be translated into design?

What is building with inclusive purpose?

How will building with inclusive purpose help single-person households with different incomes and ages to feel at home?

Literature, case studies, interviews

Literature, case studies

ecture

guidelines

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cept



Approach

The first part of the research focuses on literature studies into single-person households and the housing market regarding the single-person households. First the types of single-person households are distinguished and why there is a shift in the household compositions. Afterwards, the focus is on the current housing market and what influences the housing market has on the single-person households.

The second part of the research focuses on feeling at home and what it means to feel at home for the different single-person household. I'll explain how an architect can contribute to feeling at home for the future residents regarding the topics identity, safety, social interaction and comfort. To show the view of different single-person households on feeling at home, I include interviews with residents from my case studies. I combine feeling at home with the housing requirements of single-person households.

The third and final part is about what building inclusive is and how it can be achieved. Why is it important to build with inclusive purpose? How will this help single-person households with different incomes and ages? Could building with inclusive purpose help designing a building complex for different single-person households? In this part I also compare five case studies for single-person households on the topics identity, safety, comfort and social interaction. I compare the housing wishes and feeling at home from the different single-person households and the interviews. The main goal is to find the similarities and cherish the differences between wishes, feeling at home and design interventions to create a future-proof residential complex with homes of relatively small areas

where single people of all ages and backgrounds will feel at home.

Relevance

Most design assignments for architects about single-person households are about a particular group, like students, starters or elderly. To create inclusiveness within the single-person households, it is important to keep in mind that everyone is different. There is not a 'consumer'. From the architectural perspective, the focus is on the wishes and housing requirements of different groups within the single-person household segment, creating a building complex. As the group of singles grows, there is a need for forms of housing that suit their living situation, budget and housing requirements. In the light of the inclusive society, housing concepts in which residents can mean something for each other are in the spotlight. I want to design a complex where young and old can help and meet each other, exchange knowledge or even something simple as taking the dog for a walk or having social control over each other. This will be in the form of co-living but also in the form of meeting in circulation spaces and shared facilities.

In support of this goal, worldwide attention has been increasingly focused on the added value of bringing generations together and mutual solidarity. The European Union put the subject on the map with the launch of 'the European year of active aging and intergenerational solidarity' in 2012 (Tymowski, 2015), and in the Netherlands, too, attention is being paid to initiatives that connect the generations (Aedes-Actiz, 2016). A residential complex that is suitable for young and old, with a focus on mutual interaction and participation, can offer an helpful solution for social and housing

issues to counter loneliness and the need to move. For example, younger solo's can help elderly with moving stuff around their home, while elderly can help with watering the plants, when the younger solo's are on holiday.

Methodology

To assure the validity and reliability of the data, I use triangulation. "Triangulation is a method used to increase the credibility and validity of research findings. Credibility refers to trustworthiness and how believable a study is; validity is concerned with the extent to which a study accurately reflects or evaluates the concept or ideas being investigated. Triangulation, by combining theories, methods or observers in a research study, can help ensure that fundamental biases arising from the use of a single method or a single observer are overcome (Noble & Heale, 2019, p. 1)." I'll explain how I used triangulation in my literature research, fieldwork and case studies.

Literature research

The literature research is the base of my research report and is the most important source of information in my research. The literature research is apparent in the whole research rapport. To answer the research question "How to design a future-proof residential complex where single people of all ages and backgrounds will feel at home?" I did an elaborate literature research with multiple scientific sources. Six sub questions are drawn up with each it's own theme. I applied triangulation in each part of the research by using multiple scientific sources to establish validity and reliability. The use of multiple sources to approach these topics from different perspectives gave me a broader and more elaborate research.

Fieldwork

The main goal of the research is how single-person households live and want to live and how they can feel at home. This relates to the observation of human action which can be described as praxeology. To design truly to the wishes of the future users, an in depth research is needed, which also involves fieldwork. The fieldwork is apparent in the second part of the research in the form of interviews and ethnographic drawings. This is valuable information for being able to design more accurately to the wishes and needs of the single-person households and can confirm or debunk the literature research, hence it is the second most important source of information for my research rapport.

During the research, I visited Knarrenhof in Zwolle and Lofts in Amsterdam. The residents from Knarrenhof are single-person households consisting of independent elderly. The residents from the Lofts in Amsterdam are single-person households consisting of young professionals. On both locations I held interviews with residents about their apartment, circulation space, communal spaces, public spaces/plinth and their feeling of home. These type of questions belong to phenomenology. How do they experience and see things from their perspective?

Besides the interviews, I also made drawings and pictures of noticeable things on location, like their transition zones, to capture how they transferred their identity into their own spaces. By the use of praxeology and semiology, I looked at how the residents decorated their apartment or shaped their private gardens. I wanted to see how the residents used the space around their homes. I transferred this information into ethnographic graphics.

I did interviews with the architect from the locations to compare the three different types of observations/collected data. I did these interviews to see if their original ideas for the residents were realized.

To finalize the fieldwork triangulation, all interviews and observations were compared to see which final guidelines could be drawn up for the eventual design for Merwehaven.

Case studies

I used the case studies in the final part of the research. The case studies are used to look at existing housing projects for single-person households. I used the literature research and fieldwork to see if the aspects of feeling at home and housing requirements of different single-person households are apparent in the case studies. I used this information to look at how the wishes were translated into an architectural design. This information is the third most important source of information for my research rapport.

For every case study, the morphology is important. What is the organization and what makes it characteristic. By looking at the morphology of the build structures the layout of the building plot can be seen. Architects most of the time look first at the building which is shown by the morphology. But equally important are the surroundings and parts in-between the building(s).

Another methodology used during the case study analysis is to capture the characteristics of the typologies. What type of dwellings are in the building? How are they used and what is the circulation?

Finally I used the methodology topology to see the dimensions of the spaces within the building.

Solo in M4H

Find the similarities and cherish the differences

In the introduction to the research I explained shortly the focus points and subjects of this research report.

In this chapter we dive deeper into an elaborate answer to the research questions. I explain why certain design interventions are presented in my design and how that links to my research.



4. Research report

Singles and the housing market

1. What is meant by a single-person household and which subgroups can be distinguished?

The composition of households has changed significantly in recent decades, the standardized ideal of a married couple with children is no longer the norm. This change is characterized, among other things, by the sharp decrease in the average number of persons per household. In 1971 a household consisted of 3.2 persons on average; at the beginning of 2018 this had dropped to 2.2. The decrease is caused by decreasing family size and increasing childlessness on the one hand and the rise of the single-person household on the other (van Duin, te Riele & Stoeldraijer, 2019, p. 4). There are more and more people who live alone. The prognosis is that the household decrease will continue and that more and more people will live alone (van Duin, te Riele & Stoeldraijer, 2019, p. 4). At the beginning of 2018, single households made up 38 percent of all households; from 2045 this is expected to be 43 percent (van Duin, te Riele & Stoeldraijer, 2019, p. 3)

What is a single person household?

A single-person household is a “private household consisting of one person”. The concept of a single-person household refers to the composition of the household. A single person forms a single-person household, which only provides itself (privately) with housing and (non-) daily necessities of life (Hofsté, 2016, p.11). The remainder of this chapter zooms in on this group of single people.

Figures for single-person households

Number of single households

The total number of singles has grown from 685 thousand in 1971 to nearly 3 million at the beginning of 2018. The number of singles is forecast to increase to 3.8 million in 2060 (van Duin, te Riele & Stoeldraijer, 2019, p. 18).

Expected development of the number of households

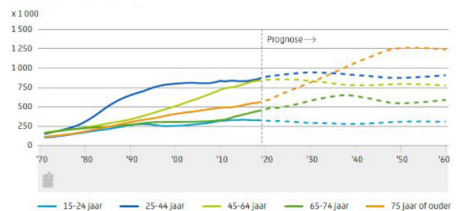
A one-person household can arise, but can also be disbanded because a household can change its composition again, for example if someone starts living together. The table below shows the expected development of the number of households in the period 2017-2027. This shows that the number of single households is expected to grow by 424,000 households between 2017 and 2027 (Buys, 2018, p. 30).

	aantal in 2017	ontwikkeling	
		uitstroom	overanderd
alleenstaand	2.969.000	1.573.000	1.396.000
huishoudens met kind(eren)	2.581.000	1.192.000	1.390.000
meerpersoonshh zonder k.	2.256.000	1.001.000	1.254.000
	7.806.000	3.766.000	4.040.000

	instroom		saldo
	aantal in 2027		
alleenstaand	1.997.000	3.393.000	424.000
huishoudens met kind(eren)	1.195.000	2.585.000	3.000
meerpersoonshh zonder k.	1.106.000	2.360.000	104.000
	4.298.000	8.338.000	532.000

Expected development of the number of households in the period 2017-2027 (Buys, 2018, p. 35)

Share of people in single-person households by age



Solo dwellers (van Duin, te Riele, Stoeldraijer, p. 19)

The figure above shows the proportion of people in single-person households by age. At the moment the age

categories 25-44 years and 45-64 years are most represented in this group. Young single adults often run a single-person household for a period of time after leaving the parental home until they find a partner to live with. From about the age of 45, the share of single people increases because couples break up, often initially through divorce. At a higher age, the risk of the partner dying increases, so that the share of single-person households increases further. The prognosis is that the age distribution will change and that more and more elderly people over 75 years and singles aged 25-44 will be represented in this group (van Duin, te Riele & Stoeldraijer, 2019, p. 19).

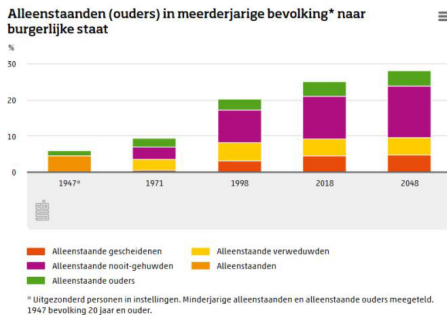
Singles in all shapes and sizes

All singles have one thing in common: they are all small households. However, it is also a heterogeneous group, which, depending on an event that could lead to the creation of a single-person household, can be divided into 4 subgroups:

- Widowed: single people who were previously part of a couple and whose partner has died.
- Divorced: single people who were previously part of a couple and whose ex-partner has not died.
- Empty nests: single people who were single-parent households, where the (last) child left the household.
- New households: single people who were not yet a reference person and not a partner in other households. This mainly concerns children living at home who have started living independently (Buys, 2018, p. 39).

This subgroup distribution has changed over the years. Today's single person is no longer the same as in 1947. When widowhood was the main explanation for being alone, postponement of marriage became increasingly important

and after 1971 divorce too. In 2017, 21% of singles were divorced, 22% were widowed and more than half had never been married (CBS, 2018). The overview below shows that the number of single people who have never been married will increase in the coming years.



Solo (parents) (CBS, 2018)

Rotterdam

In Rotterdam, 24.8% of the population consists of people living alone.

Below is an indication of how many people per subgroup became single in 2016. The median age of the subgroup is also indicated and the percentage per subgroup is considered to be housing in the G4.

	Amount	Age (median)	Share residing in the G4
New households	147.00	24	23%
Divorced	144.00	35	27%
Empty nests	31.000	56	16%
Widowed	47.000	74	8 %

CBS (2008), adjusted by author

Conclusion

- The number of single people has grown in recent years and is forecast to rise to 3.8 million in 2060. The number of single-person households will also increase in proportion to households with children and multi-person

households without children in the coming years.

- Singles are a heterogeneous group, divided into 5 subgroups: widowed, divorced, empty nests, new households and happy singles

- New households and divorced people are currently most represented in the group of singles. This also applies to singles living in the G4. The prognosis is that in the next 40 years, in addition to single people aged 25-44 (new households and divorced), the elderly over 75 years of age will also form an increasing share within this group.

2. Single is increasingly becoming the norm, why is that and how do those singles live?

As indicated in the previous chapter, singles are a heterogeneous group: single starters, people who are divorced, widows or empty nesters. Living alone is the “most striking social experiment” of recent decades, according to Klinenberg (2012). For the first time in history, a substantial part of Western society lives alone. Without a loved one, without parents to take care of, without children and without someone to share the rent with. This chapter further examines why living alone has taken off so much and zooms in on who these singles actually are.

Different view of relationships

Humans are essentially social beings. We seek out the other for various purposes, but certainly not least in order to connect ourselves. A relationship, living together, “living apart together”, marriage, there are various possibilities to shape our connection. Looking at the trends in

these new connections, it is striking that in recent decades less and less value has been attached to formal regulations in the form of legal and religious arrangements. Living together without being married, having children without being married, more divorces without formal divorces, it all seems very natural to bond in a different way than traditional marriage (Latten, 2004, p. 46). The figures from CBS (2018) support this trend; Compared to the peak of the number of marriages in 1970, since then a third fewer marriages have been contracted, the number of divorces has increased fivefold and the number of singles has also increased more than three times (CBS, 2018).

In the 1960s, the standard was to leave home, get married, have children and remain married until the death of one of the partners. Nowadays people think different about relationship and family formation. Values and norms have changed. There is talk of detraditionalization, in which “action is less and less guided by routine, prescribed ways of acting and traditions” (Populier, 2011). The growth in the number of singles stems from these changes in norms and values that have occurred in all Western societies since the Second World War.

Increased prosperity and independence

However, the change in norms and values is not the only explanation for the growth in the number of single people. Increased prosperity, the increased economic independence of women

and the expansion of the welfare state, as a result of which people can now shape their own life course more than before, also play a role in this (CBS, 2018). According to Klinenberg (2012), living alone is mainly a characteristic of highly developed welfare states, where the standard of living is high and the social safety net appears to be strong. In order to live alone you must first be able to afford it. Citizens can pursue their autonomy with confidence that the safety net will catch them if they fall (Klinenberg, 2012, p. 165).

It is not without reason that the number of people living alone is increasing in countries where the middle class is growing fast (India, China, Brazil). It is a phenomenon of prosperity, just as children in countries without a social system are an old-age provision.

“Do you know why so many of us live alone? “Because we can.”

(Klinenberg, 2012, p 165).

This development has consequences for the way in which relationships are viewed. Households no longer consist of a married couple with children, where the husband is the breadwinner. Sexual relationships, marriage, living together and having children have become increasingly disconnected, while they were closely linked until the 1960s. This development is also partly due to the wide availability of contraceptives, which means that sex no longer has to lead to pregnancy (CBS, 2018). Attitudes towards divorce have also changed. This is reflected, among other things, in the relaxation of legal rules on divorce. In the past,

a judge had to be convinced with weighty arguments to pronounce a divorce, now it is rather the other way around: those who are not satisfied in a marriage must justify it for themselves - and the environment - in order to maintain the relationship. Divorce is no longer the shame it used to be (Fogteloo & Thomas, 2013).

Our welfare state makes it increasingly possible to determine our own life course more and more. Thanks to her own income or social assistance, a woman who wants a divorce is no longer forced to stay with her partner for economic reasons (CBS, 2018). A supplementary pension in addition to AOW, support from home and personal budgets also enables elderly people to continue to live independently until they reach old age.

Individualization of relationships

When individuals are no longer guided by rules, traditions and actions, there is an increase in active freedom of choice. There is increasing autonomy and individualization. Two developments can be seen here: on the one hand the detachment from traditional institutions (detraditionalisation) and on the other hand the increase in self-control, personal responsibility and self-management (Populier, 2017). A new mentality has emerged in which the personal development of the individual is placed above the collective and its prescriptions.“ Particularly in the 1960s and 1970s, we see words such as self-

actualization, self-development, awareness and personality growth looming (Populier, 2017).

In his book "Going solo", Klinenberg (2012) also indicates that living alone, for a longer or shorter period of time, fits in nicely with what people strive for in the I era: self-development, developing your talents, "doing your own thing". We have also been used to having that room of one's own from an early age. Almost everyone has spent their childhood in the luxury of their own bedroom, while it was much more normal for their parents to share rooms with brothers and sisters (Fogteloo & Thomas, 2013).

Individualization also means that people are increasingly taking the freedom to determine their own path and to enjoy life without restriction. Freedom, independence and shaping your own life are normal concepts nowadays. And as indicated, this freedom is also supported by the increased prosperity (Populier, 2017).

Frequently heard arguments for a conscious choice to live alone are: it is a hassle, the children do not want it, we choose to only do fun things without having to take others into account (Fogteloo & Thomas, 2013).

Single is increasingly the norm

As indicated earlier, by 2047 there will be 3.6 million single people out of an adult population of nearly 15 million. Then almost one in four adults is single. But who are these singles actually?

Small affordable homes

The income of single households is lower than that of two-person households and families. This means that they can pay less for their home. The small house is popular with this group because of its affordability. In addition, the need for a large home is disappearing due to the decreasing household size. Smaller households need less space. The popularity of small homes for this group is therefore increasing (Wolf, 2020, p. 7). Lansbergen (2019, p. 44) indicates that the necessary amount of space for social activities of a household indoors is determined by the social life of a household outside. In short: if the level of facilities and space around a home is optimal for single people, they are willing to live smaller. How big a single person wants to live therefore depends on the environment with all its facilities. In my design I introduce public functions in the plinth and make central living rooms for the co-living housing concepts, which are 2 of the 3 housing concepts present in the building. A wide gallery with transition zones between public and private marks an extension of their small dwelling.

Temporary residence

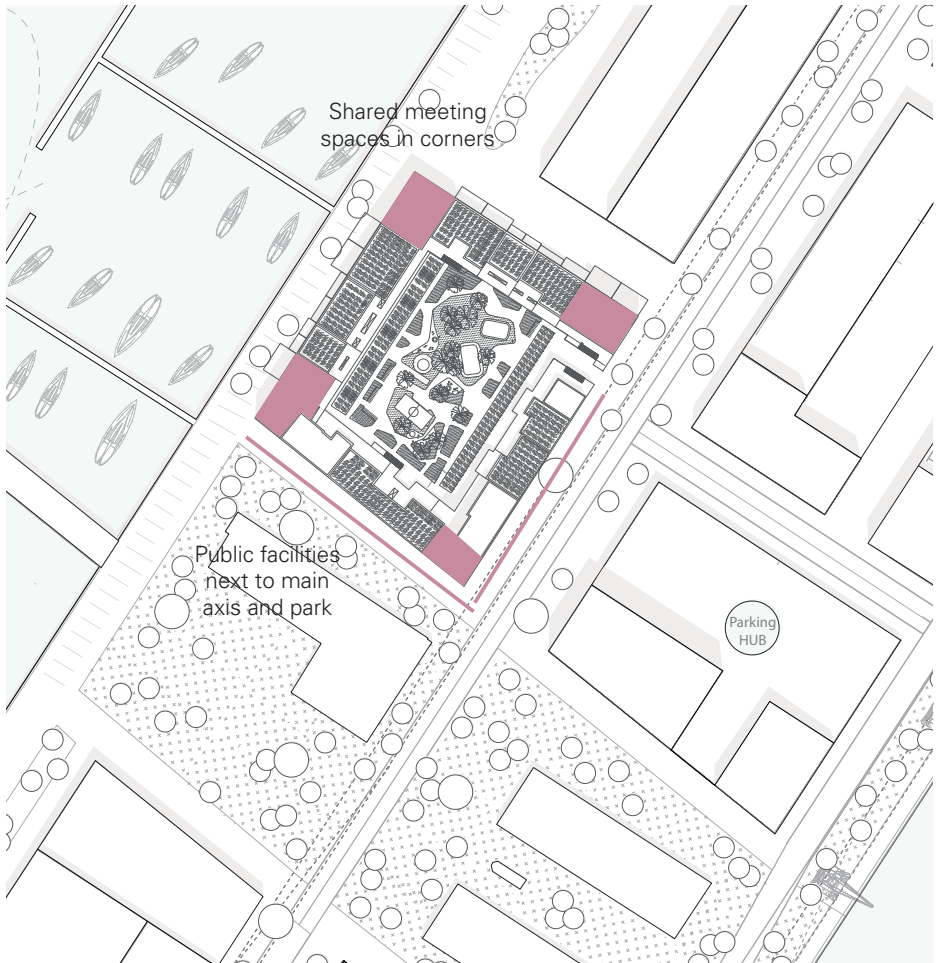
Single starters, people who are divorced or widows may find a new relationship within a few years. Part of the group of singles consists of a group looking for a "temporary" home. The temporary and acute user character, for example if you have just been divorced, can ensure that residents only become passers-by without bonding with the neighbourhood. Lansbergen (2019,

p. 53) indicates that it is therefore important to stimulate mutual involvement within an apartment

building which can be achieved by co-living or shared facilities.

Situation

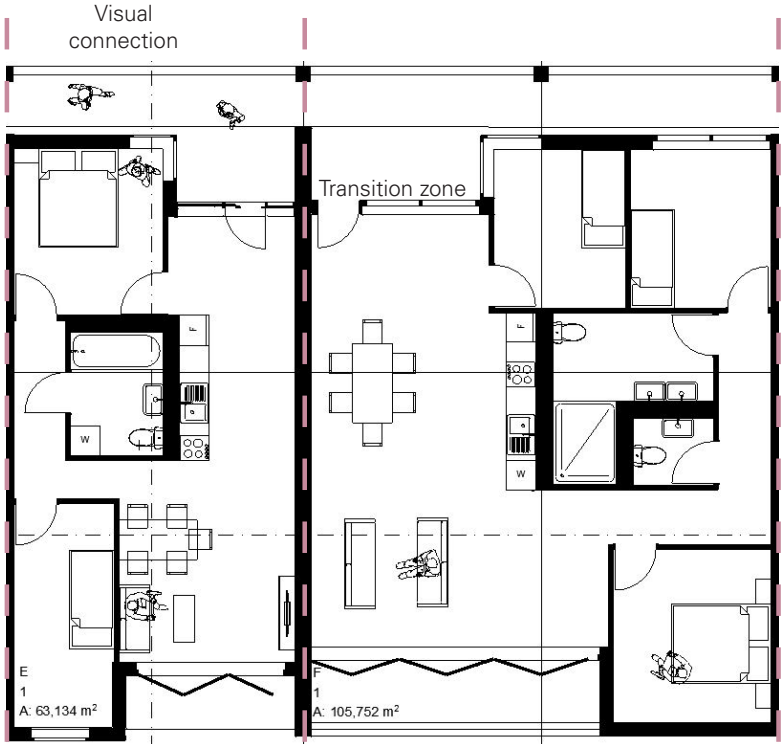
Public functions, 1:1000



Housing concepts

Housing concept 1	Housing concept 2	Housing concept 3
Rent longer stay	Rent temporary stay	Owner-occupied dwellings
Independent in Co-living (building scale)	Co-living (dwelling scale)	Independent
30-40 m ²	100 m ² (3 persons)	50-70 m ²
Shared outdoor space, living room & transition zone		Shared outdoor space & transition zone

Illustrations by author



Illustrations by author

Alone, but not lonely

Is someone who is single lonely? CBS (2018) has conducted research into the extent to which single people feel socially isolated and / or lonely. One of the results of this research is that only 4 percent of the population is 'socially isolated'. A partner relationship is not the only form of contact that people value. Relationships with family, friends and neighbours also play an important role in well-being. CBS (2018) calls someone socially isolated if someone aged 15 and older has no weekly contact with family, friends or neighbours. Singles hardly differ from cohabiting couples and single parents. The study did show that the percentage of socially isolated people among divorced people is higher than average, while it is lower among never-married and widowed people. In this study, CBS (2018) describes loneliness as "the subjective experience of an unpleasant or intolerable lack of (the quality of) certain social relationships. Then it concerns a shortage of established contacts, and the lack of a certain degree of intimacy. This is about a difference between the realized contacts with other people and the contacts that people would wish for themselves" (CBS, 2018). It is indicated that social isolation can be related to loneliness, but it is not necessary. There are also individuals with an extensive social network who feel lonely. In addition to having a partner and the social network, health and the degree to which people are in control of their lives also play a role in the feeling of loneliness (CBS, 2018). According to CBS' research (2018), 4 percent of the population aged 15 years and

older feels very lonely. Never married people are below this by 3%. Widows slightly above at 4.4% and divorced at 6.5% well above.

The research shows that socially isolated and loneliness mainly occur in the subgroup of divorced persons. Never-married people (especially the subgroup of new households) feel less lonely than average. Lansbergen indicates that temporarily moving into a house does not create a bond with the neighbourhood, which can lead to loneliness (Lansbergen, 2019, p. 53). To ensure bonding with the neighbourhood and building it's necessary to have (visual) interaction with the neighbours and a certain flexibility within the dwelling, that if your household composition changes you can keep living in your home. This is why I introduce flexible dwelling plans with the possibility of having your (grand) kids over, a big bed for you and your partner and transition zones in front of the building to create neighbourly contact.

Happy singles

Klinenberg (2012) also came to the conclusion in his research that only a small proportion of people living alone are lonely and isolated. Much more common is a single-person household, inhabited by someone who has chosen to do so and is generally satisfied with this form of life (Klinenberg, 2012, p. 167). Nowadays the term "happy singles" is often used for singles. The folk singer Benny Neyman also sang as in 1996 the "happy bachelor who only went to sleep when he had seen all the stars". According to Latten (2004,

p. 47), modern people want to enjoy themselves enormously: "Enjoying life is the most important goal. Both men and women place high demands on their relationship. If that doesn't add anything, someone else will soon be sought. Gone are the days when you could count on compassionate looks as a single. In fact, it is becoming more and more normal - especially in the big cities - to go through life alone. You organize your life the way you want. You agree with whom you want. And you can only be accountable to yourself. Rather happy single than unhappy in a relationship, that's the motto." He indicates that it is getting easier to go through life as a single. Today we are much less dependent on each other. Women earn their own living and are no longer dependent on a man. Society is also adapting - albeit slowly. This is reflected, for example, in the number of single meals in the supermarket (de Jong, 2017).

'If I want to, I eat macaroni every day' 39-year-old Mandy is consciously single and satisfied with that. After a number of broken relationships, she is alone and much happier. "I work in varying shifts and have a lot of animals. My animals are number one and many men find that difficult," said Mandy. "I also notice that a relationship is oppressive for me. All kinds of family obligations, but also always being together. That's just not for me." She particularly appreciates the freedom of single existence. "If I want to, I eat macaroni every day. Sometimes people sometimes ask: don't you miss warmth? Well, you don't have to be in a relationship for that. I also get warmth from my

friends. And no, I don't miss sex either. I think my life is totally fine like that." The happy single in the form of divorced, widowed and by choice is the group I want to focus most on in the co-living housing concepts. I want to create independent living in a co-living housing concept, with shared facilities, where the residents can decide their degree of participation in the co-living concept (housing concept 1 on page 40).

Extended adolescence

The term "extended adolescence" refers to the period between study and starting a family. Today's young people are increasingly taking a detour towards the life of job, home and family. This is especially true for highly educated people. Both men and women after their twenties are in a phase that requires little bonding, both in work and in private life. It is a phase of having fun, going out and hanging out on the couch (Fogteloo & Thomas, 2013). For young adults, more emphasis has been placed on gaining experience and entering the labour market before they possibly make the choice for a permanent relationship, cohabitation and children (CBS, 2018).

The city as an extension of the home

For a large part of the singles, affordable living in a central location is important. The central location is important for these target groups, because they see the city as an extension of their home more than other target groups. Due to the lack of a family, places for meeting are important. This often takes place outside the home. They are used to living more

outside the home. They do not drink coffee with friends at home, but in an espresso bar. Restaurants, hotels, cinemas, theaters, clubs, gyms and even shops act as a substitute living room, because they are more outside the door, they require less space in the house (Hoorn & Kotte, 2016, p 24). They use both the facilities in the city as those in their immediate surroundings. The space in front of the dwelling and the openness is important.

Klinenberg (2012) also confirms this in his research. The public life of associations, cafés and theaters is most lively, especially where living alone is rampant. The singletons, as he calls them, are much more inclined to get out and about than the family person, who mainly seeks entertainment in a domestic environment.

Conclusion

- In 2047, 25% of adults will be single.
- Nowadays there is talk of detraditionalisation, which has brought a different view of relationships and family formation. In addition to the traditional marriage, many more possibilities have come to shape a connection.
- As a result of our increased standard of living and our social safety net, it has become increasingly possible to determine our own life course.
- This development is also partly due to the wide availability of contraceptives, which means that sex no longer has to lead to pregnancy.
- Nowadays there is an increasing autonomy and individualization.
- People are increasingly taking the freedom to determine their

own path and to enjoy life without restriction. People strive for freedom, independence and want to shape their own life.

- Singles are often looking for small homes with a central location, on the one hand because they need less space and often see the city as an extension of their home, on the other hand because they can pay less for a place to live. Part of the group of single people is looking for a temporary home. This can ensure that the resident has less of a bond with the neighbourhood, which can increase feelings of loneliness.

- Places to meet - often outdoors are important for singles. Singles go out and live partly outdoors. They therefore consider facilities important.

- Only a small number of singles feel lonely and isolated. This is most common in the group of divorced persons. Most single people are generally satisfied with this form of life.

- There are more and more happy singles, who enjoy life and organize their life the way they want it.

- Many young adults - especially highly educated people - wait longer and longer before they possibly make the choice for a permanent relationship, living together and children and first go through life as a happy single.

- Society is also increasingly responding to singles, which is reflected, for example, in the ever-increasing supply of single meals in the supermarket.

3. Why does the housing market not respond to the growing needs of solo dwellers?

The housing market is locked!

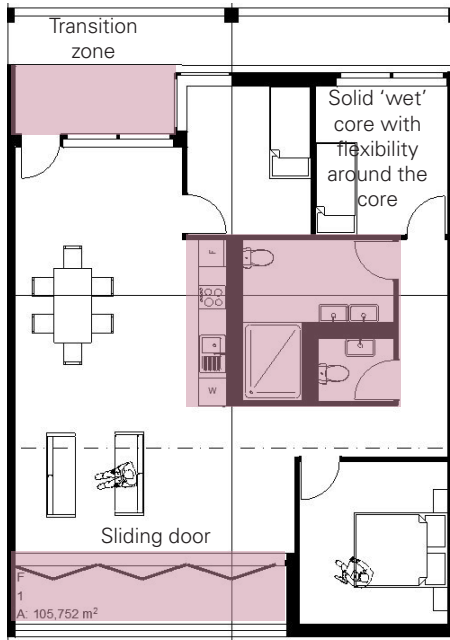
There is a limited supply of housing, very high prices and a lot of competition. The housing supply in the Netherlands lags far behind demand. In 2020 there was a shortage of 331,000 homes (CBS, 2018). The limited supply has an effect on the purchase price of a home. When a house becomes available, there are so many interested parties that the price is driven up by the high demand for housing. Candidates must bid strongly to have a chance. The price of an average home increased in the fourth quarter of 2020 compared to the previous year by 11.6% to €365,000 (NVM, 2020-a). The average rent also increased in the fourth quarter of 2020 as a result of the shortage in the supply, combined with a still high demand, by 4.1% for houses and 7.1% for apartments (NVM, 2020-b).

One of the major problems in the housing market is the limited traffic flow in combination with the housing shortage in both owner-occupied and rental properties. For starters, for example, due to the high demand for starter homes on the one hand and a very limited supply on the other hand, starters are almost never covered. In addition, high demands are placed on their financial situation. On the rental market in Rotterdam, for example, someone is registered for an average of four years for a social rental home before a home is allocated (van der Krol, 2020).

The limited throughput is partly because empty nesters and seniors do not move much from their single-family home (Kremer, 2020, p. 5). The limited throughput has a number of consequences. The first consequence is the effect on the purchase price of housing, which is driven up by the high demand for housing. The high prices have an impact on the accessibility and affordability of the homes. This is better for the elderly than for starters. Older people with their own home have often been able to piggyback on the price increases for a long time, have seen their wealth increase. On the other hand, starters who want to buy their first house are confronted with high prices and a lower price-quality ratio, such as less and less space for a certain price (Kremer, 2020, p. 5). By creating different types of dwellings throughout my building plot, I can make the throughput easier. Even so, that most dwellers don't have to move at all, since the dwellings are flexible and lifetime proof. With the creation of a solid 'wet' core (bathroom, toilet and kitchen) in the middle of the dwelling, the rest of the dwelling has enough flexibility to change the layout if the needs of the resident changes.

Another consequence of the limited flow is that people continue to live in a house that does not (anymore) suit their situation. Due to the increased house prices, a larger home is not affordable or there is insufficient supply of suitable homes. As a result, people are unable to realize a desired move or to obtain the desired home (Kremer, 2020, p. 6). By making a big sliding folding door

and the use of a transition space in front of the building, the immediate surroundings become part of the dwelling, creating both visual as psychological space around the building.



Shared living, dwelling type G (illustrations by author)

Usually as a result in apartment blocks, the housing stock is not optimally used. Many single-family homes are occupied by empty nesters and seniors, although these homes no longer always fit their housing wishes or needs (Kremer, 2020, p. 7).

The lack of traffic flow is also a major problem in the rental market. As mentioned, the waiting times for the houses are long. Moreover, it is difficult to switch to another rental home when the family situation changes. There are several reasons for this

- Switching to an owner-occupied home is not an option for many

tenants, given the demands placed on the financial situation of a prospective buyer.

- If the tenant's income increases, the tenant is no longer always eligible for social housing. The tenant must then switch to the free rental sector, where prices are noticeably higher than for social housing.

- If the income does not increase, there will be a long waiting time to be able to move into the next home. As a result, many tenants remain where they are and do not move (Kremer, 2020, p. 7).

There is a lot of attention for the problems in the housing market. The key to getting the housing market moving lies to a large extent in increasing the supply as I'm doing by designing a new apartment building for M4H, but also to stimulate people to move so that any latent desire to move is converted into an actual move. As a result, more flow can be initiated. This can be achieved to respond to the requirements and future requirements of the residents.

What is the consequence of the decreasing household size for housing?

The decreasing household size has major consequences for housing construction. The increase in small households and the accompanying dilution of households leads to an increasing need for housing. It appears that the supply side of the market is not sufficiently prepared for this demand, as a result of which the existing housing shortage will increase further (Hofsté, p. 5).

What do single households

particularly need? The decreasing household size leads to a lower need for homes with a large living area. Research shows that single people are in the minority when it comes to the demand for single-family homes. However, they make up the majority of those asking for apartments. It concerns singles of all ages (Buys, 2018, p. 21).

The income of single households is generally lower than that of two-person households and families. For this reason, many households choose to live in a house with less space in order to be able to live affordable. Due to the smaller living area, the price is lower than for larger homes (de Vries, 2018, p. 10).

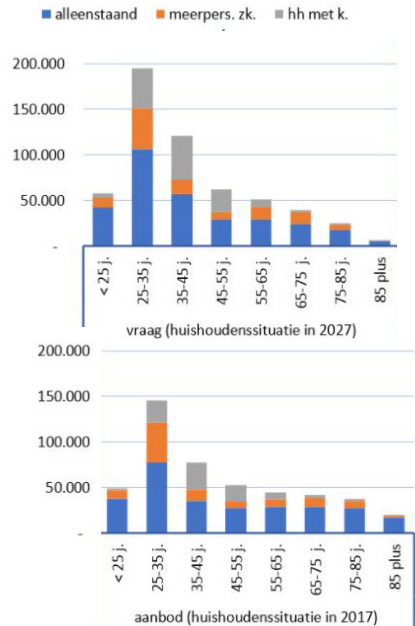
The popularity of smaller homes cannot be explained solely by rising house prices. Changing housing requirements are also causing the increasing popularity of small homes. The quality of living is increasingly determined by the location of the home and to an increasingly lesser extent by the living area of the home (de Vries, 2018, p. 7)

The foregoing shows that the increase in single-person households is leading to a greater demand for housing. This group is particularly interested in apartments. As a result of their financial situation, but also because housing quality prevails over living area, smaller homes are popular with this group.

What does the housing market for single-person households look like in the G4?

Buys' (2018) study indicates that it is expected that in the G4 the difference between demand

(556,000) and supply (469,000) of apartments in the period 2017-2027 will result in a shortage of 88,000 apartments (Buys, 2018, p. 35). Building extra apartments is therefore badly needed. If you look at the graph below, you can see that in the G4 the most requesters and providers can be found between the ages of 25-45 (including singles).



Estimation supply and demand of apartments in the period 2017-2027 in the G4 (Buys, 2018, p. 38)

To respond to the need of apartments, all three housing concepts will consist of apartment dwellings, varying in size and layout to accommodate different wishes from the different single-person

households.

What does the housing demand, housing situation and moving behavior look like within the 4 subgroups?

As indicated in the previous chapter, 4 different subgroups of single people can be distinguished. These different singles have very different starting points and continuations in their lives. The number of single households is growing. But what do these differences mean for the housing market. What does the housing demand, housing situation and moving behaviour of these different subgroups look like, are there similarities and differences?

New households (starters)

A lot has changed for new households in five years. Less than half of these households are still single (or again) after five years and about one in five are still single and also live (or again) at the same address as at the start. About a quarter moved to another address as a single person (Buys, 2018, p. 40). Newly formed single people do not stay at their (first) address for long. After a year, more than 30% has already left. After five years, more than 70% is no longer present at the old address (Buys, 2018, p. 42). For the housing type it makes a lot of difference whether the single people are still single (or again) after five years or not. Those who are no longer single can be found more often in a single-family home at their new address than at their old address. Hence my dwelling designs have the possibility to live with two people, if the household composition changes. The resident is not forced to have to

move to another apartment. The reverse is true for those who have remained single; they have started to live in an apartment more often (Buys, 2018, p. 42). The survey also shows that many of the singles have moved to one of the big 4 cities (Buys, 2018, p. 43).

Research shows that the new household / starter does not exist. New households include a diverse group of people, with different perspectives and wishes. The life stage of the starter is characterized by a relatively rapid succession of changes in education, work, relationships and housing. For example, the career develops especially during this period, when income rises. For many starters, work is the trigger for a move. Income influences the desired living quality, the spending space and the purchasing wish (Hoefnagel, 2011, p 11). The order in which events take place is not fixed, but it does show a global pattern. The emphasis is on completing education, financial independence, starting a first full-time job and decisions are made in the private sphere that are related to the interpretation of one's own lifestyles (Hoefnagel, 2011, p 15). It often takes a lot of effort for this group to enter the housing market. In general, the concepts are young, mobile, independent, development, ambitions and knowledge, characteristics that characterize the life phase of the starter (Hoefnagel, 2011, p 16).

Recently divorced

CBS (2020) has researched that after a divorce, parents often initially continue to live together in the

neighbourhood, especially when it comes to children of primary school age. Three quarters of couples with one or more children who separated in 2014 lived less than ten kilometers apart in 2018. Parents with children of primary school age and parents with a high income more often continue to live together. As soon as parents find a new partner, the distance usually increases. If both exes started living together with a new partner, more than 40 percent live more than ten kilometers apart after 3 years. If neither of them has started living together again, that is 22 percent (CBS, 2020).

More than 40% of the divorced singles are still single after 5 years. With regard to concentration in the four major cities, it appears that those who are still (or again) single after five years have become more concentrated in the G4. The opposite applies to those who have a new partner after five years. They have just left the G4. The big cities seem to be attractive to "long-term singles" who are still relatively young, but lose that appeal to singles who get a partner (Buys, 2018, p. 46).

Widowed

The life course of widows differs greatly from that of the younger types of single people. The majority of this group are older single people. After 5 years, most, unless they have died or moved to an institution, are still single and often still live at the same address (Buys, 2018, p. 48). Recently widowed singles are relatively stable, but when they move, it is usually to an apartment. Widowed singles are rare in the four

major cities. The share of living in the G4 has also declined since the beginning of this century (from 12% in 2000 to 8% in 2017). The G4's appeal to recently widowed singles is low. There is nothing to be found in this group of any movement 'back to the city'. On the contrary, insofar as they still live in the G4, these singles are more likely to leave the cities (Buys, 2018, p. 50).

Empty nests (formerly single-parent households)

The life course of singles who recently entered the empty nest phase is more similar to that of widows than to that of the younger types of singles. This type also often remains single and does not move much. There are more of them than among the widows who start a (new) relationship (Buys, 2018, p. 52). The loyalty of this type of single person is greater than that of the other three. If they live in single-family homes, 71% can still be found there after five years, if they live in apartments, this is the case with 64% (Buys, 2018, p. 53). If one is still alone after five years, a move often means a move to an apartment. Those who are no longer single, mostly move (again) to a single-family home (Buys, 2018, p. 54). Like widows, single empty nest households do not often live in the four large cities, certainly not in comparison with the two younger types of single people (new households and newly divorced singles). Their move will not fundamentally change the G4's share. While the G4 clearly appeal to 'long-term singles' of the young species, there is no such attraction when it

comes to single empty nesters, even if they are still single after five years (Buys, 2018, p. 53). Elderly and empty nesters can't find suitable housing in the big cities due to affordability and the size of a lifetime proof dwelling. By presenting this form of dwellings in the heart of Rotterdam, I respond with my design to the outward flow from Rotterdam.

Conclusion

- The housing supply is lagging far behind the demand, also for single-person households.

Increasing the supply is one of the solutions to get the housing market moving.

- The increase in single-person households is leading to a greater demand for housing.

- Single households are particularly interested in apartments.

- As a result of their financial situation, but also because housing quality prevails over living area, smaller homes are popular with this group.

- In the coming years, the demand for apartments in the G4 will exceed the supply. In order to meet the demand, homes will have to be added to the stock.

- Most home seekers in the G4 are currently 25-45 years old.

- The 4 different subgroups within the group of singles have different housing requirements, housing situation and moving behaviour.

- The new households and divorced people are usually still (relatively) young. Most are no longer single after five years. A minority is still or single again after five years. These "long-term singles" often move into apartments in the big city, while

those who are no longer single after five years are more likely to be found in single-family homes and outside of the big cities. Both groups like to go to the G4,

- Widows and former single-parent households follow a completely different path. Usually they no longer enter into (new) relationships and continue to live where they live. In many cases this is in a single-family home and outside the big cities (G4). When they move it is usually to an apartment.

The goal of my design is to respond to the housing demand of these single-person households. To create apartments for longer (housing concepts 1 and 3) and shorter stay (housing concept 2). My primary focus is on the happy singles who like to live (independently) in co-living housing concepts and independent single-person apartments.

Feeling at home

4. What entails a feeling at home for different single-person households?

The challenge as an architect is to create a home for every future resident, to create a design in which residents with different wishes, requirements and ideals will feel at home. But what is feeling at home really?

Home has many different meanings to as many different people. It could be the house or neighbourhood we live in, the city we work in, or the country we come from. Home can also be about something much smaller. Think of a bench in a park where you regularly sit down or the Starbucks where you drink coffee. What all these different feelings of home have in common is that there is always a connection with a place: with a house, a neighbourhood, a city or a park bench (van der Graaf & Duyvendak, 2009, p 13). But why do we feel at home in a certain place. It is often difficult to put into words why we feel at home somewhere (Van der Graaf & Duyvendak, 2009, p. 13). Feeling at home is a feeling, an experience of which we become especially aware when we leave the place associated with this feeling or when this place changes (Van der Graaf & Duyvendak, 2009, p. 13).

Various aspects that make people feel at home are repeatedly mentioned in various studies and literature on feeling at home. To make the concept of feeling at home more concrete, regularly recurring aspects that contribute to a

feeling of home have been collected, classified and elaborated in this chapter. Based on this elaboration, it is examined what is important for single people and what contributes to feeling at home.

As indicated, the challenge as an architect is to create a home for every future resident, to create a design in which residents with different wishes, requirements and ideals will feel at home. For this reason, it has also been investigated what a number of well-known architects understand by feeling at home.

What is feeling at home?

You can feel at home somewhere in very different ways. It is a feeling that is experienced in very different situations and has many variations. Some associate feeling at home primarily with safety and comfort, others with being yourself. Feeling at home can also be grafted on familiarity with people and things (van der Graaf & Duyvendak, 2009, p. 3).

Many descriptions of a feeling of home refer to feeling at home in the neighbourhood. The inventoried aspects in this chapter relate to feeling at home in your house. In this research it was decided to distinguish the following 4 aspects of a home feeling, each with 2 subgroups:

Comfort	Safety
User-friendliness	Freedom
Basic needs	Protection
Social interaction	Identity
Hospitality	Recognition
Encounters	Ownership

Comfort: user-friendliness and basic needs

Living means feeling comfortable. To feel comfortable, of course, basic needs such as a house with its own bed and food must be met. In order to experience a feeling of home, it is important that the resident feels comfortable in his home. Comfort is about convenience (BCDadvies, 2020).

Everyone experiences living comfort differently. What makes a home pleasant or pleasant to stay in? The user-friendliness of the living space and immediate living environment also plays a role in this. This can be visible elements such as modern sanitary facilities, a large garden or a house without thresholds.

What people's needs are and what someone experiences as comfortable is often personal. For example, living on the ground floor will be pleasant for the elderly, while young people often attach less value to this. Living comfort can also concern non-visible characteristics of a home, "the feeling". You can think of temperature, fresh air, humidity, smell, light, sound and draft. In short, a healthy living environment (BCDadvies, 2020).

Duijvendak (2009, p. 258) introduces the concepts of 'familiarity', 'haven' and 'heaven', which can be distinguished by feeling at home.

- Haven: To feel at home, people need a safe, comfortable and predictable place – 'a haven in a heartless world' – where people can feel at ease.
- Heaven: a 'heaven' refers to the situation in which you can be yourself.
- Familiarity: to feel at home you need to feel familiar with a place and people (Duyvendak, 2009, p. 258)

Safety: protection and freedom

To experience a feeling of home, it is important that the resident feels safe in his or her home. This sense of security is determined by the degree of privacy that the resident has. Safety is about the protection of the resident, but at the same time it is also about the freedom of the resident (Populier, 2017, p. 6). Security is an essential condition for freedom and openness. If you don't feel safe, you can't be yourself and face the world with an open mind.

Feeling safe is in line with the current trend towards individualization.

Individualization means that people are increasingly taking the freedom to determine their own path and enjoy life without limits. Freedom, independence and shaping your life are normal concepts nowadays (Populier, 2017, p. 6). Having a home where you feel safe and secure, where you can be yourself and from which you can shape your life, contributes to this.

Social interaction: hospitality and meeting

The individualization of society may have continued to increase, but this does not mean that people no longer want to meet each other. It does not mean that everyone prefers to live on their own "withdrawn to their" perfect home. "The popularity of urban living is great. Households here are not only looking for a home or living environment that suits their own lifestyle. In order to experience a feeling of home, it is important that the resident can engage in social interactions. This concerns the possibility to receive guests at home, but also to meet people at the home,

in the immediate surroundings and in the neighbourhood.

Blokland (2008) indicates in 'Meetings matters' that meeting is one of the primary necessities of human life. Meeting is essential to feel at home (Blokland, 2008, p. 3). People don't like living in an environment where they have no idea who the others are. There is a need to meet. The simple 'coincidentally encounter' is also important. To feel at home somewhere, these encounters matter.

Identity: recognition and ownership
Partly as a result of individualization, housing consumers increasingly want to distinguish themselves by the products they buy, but also by the place or the way in which they live. Living as an expression of lifestyle. Many people find it important to be able to distinguish themselves in the way in which, or through the place where they live.

The home and living environment are increasingly linked to identity. That is why households are increasingly opting for a particular home, in a particular living environment, as an expression of their lifestyle. When it comes to stacked housing construction, for example, for many people, uniform housing complexes, in which every apartment looks the same, do not appeal to the imagination. People often want to be able to designate their home. Residents can distinguish themselves more by means of variation in design, colour and material use of the facade. Or by combining different housing typologies in a building, residents have access

to a unique home within a complex, and there is much more choice to find a home that exactly matches their own individual housing needs. In addition to various housing types in stacked construction, variation in and adaptability of housing plans is also highly desirable in general in order to strengthen one's own identity.

In order to feel at home, it is important that a user can process his own identity in the house and make the house his own (Jonker, 2016, p. 70).

Ownership refers to the extent to which a resident has control over the home and living environment. A house becomes a home when the resident has a sense of ownership of the house. This obviously plays a role in the case of a home for sale. With an owner-occupied home you get the freedom to adjust the home to your liking. The architect Christopher Alexander also indicates that 'Feeling at home is a result of the feeling of ownership over the house. It is only with a sense of ownership that one can live comfortably.' He believes that people cannot really live a comfortable and healthy life in a house that is not their own. That is why Alexander also argues for the fact that everyone should own their own house. This gives a person a sense of ownership over their most personal environment. According to Alexander, the ability to adapt and repair the houses is essential in order to make a house a home (Jonker, 2016, p. 74).

Herman Hertzberger also indicates that "only after the occupants have

taken possession of the building, can a house become a home." The more responsibility users have about a building and therefore the more influence on it, the more care and love they will be inclined invest in it. And as the area becomes more appropriate to them, it will become their property. Only then do users become residents. According to Hertzberger, the architect only has a facilitating role in creating a feeling of home. To a greater extent this is up to the residents themselves. However, with architecture it is possible to enable the residents to make the house their own (Jonker, 2016, p. 73).

Building inclusive

5. How will building with inclusive purpose help single-person households with different incomes and ages to feel at home?

Why should housing (floor plans) be made more flexible?

I introduce flexible dwelling floorplans, but why is it important for my building? The challenge as an architect is to create a home for every future resident, to create a design in which residents with different wishes, requirements and ideals will feel at home. In the previous chapters it was indicated that the group of single people have one thing in common, namely that they are small households, but that they otherwise form a heterogeneous group. It has been indicated that within this group 4 subgroups can be recognized, which have a different starting point and continuation of their lives. For these subgroups, the general housing requirements and housing requirements are described in broad terms. It is important that an architect has knowledge of these basic wishes and includes this in his design. However, to be able to create a real home as an architect, more is needed than designing a uniform floor plan for these target groups. To explain this, a link is made with Bernard Leupen's statement:

"The architect makes the house, the resident makes it home."

The architect only designs the shell within which the living will take place and a core. His design offers opportunities for certain forms of

habitation, but at the same time makes others more difficult. Each wall, floor, opening and size of space determines, either intentionally or unintentionally, the possibilities and impossibilities of the home. The architect will therefore have to think carefully in advance about which forms of habitation he wants to offer opportunities in his design, and which ones he will exclude. Leupen mentions the determining but also limiting role that architecture plays in the residents' sense of home. The residents eventually turn the house into a home, but the design already hides an impetus to what forms of living are possible (Hoefnagel, 2011, p. 14).

Despite the fact that general characteristics of the 4 subgroups can be identified, it also applies to single people that the ideal home looks different for everyone. In order to accommodate all these differences, it is important that the architect's design is as little determining and limiting as possible. To achieve this, a high degree of flexibility and adaptability of the home is required. This is possible by designing a flexible floor plan instead of a uniform floor plan, which creates homes that can be filled in and used by different groups of users in their own way. It concerns a building design that has a permanent exterior that matches the urban development / environment, but has a flexible interior that is able to meet different user requirements within a number of restrictions (Bruning, 2012), Why is it that nowadays there is a need for flexibility and adaptability of the home as a result of the variety of individual

housing requirements? What is the relevance of flexible dwelling?

The housing requirement does not exist

Until recently, the housing requirements of households were reasonably predictable on the basis of household composition, income and age. It was reasonably accurate to determine where and how people lived. Since the 1970s, however, people have become less and less easy to classify into unambiguous population groups due to increased prosperity, spatial mobility, emancipation and higher education levels. Cultural preferences and social considerations now also play a more important role in the choice of home and living environment, but also in the use of facilities. Housing requirements have become much more diverse (Hoefnagel, 2011, p. 11).

The "consumer" does not exist

Through individualization, people are increasingly developing their own personality and thereby also their personal housing wishes. Someone nowadays wants to distinguish himself from his environment and wants to realize his individual wishes. You can see this very clearly in the clothing industry. Nobody wants to wear the same clothes as their neighbour or wife. This also applies to the housing market, where "the consumer" does not exist. Here, too, people have a natural desire to distinguish themselves from their environment and they want to realize their individual wishes (Zijgers, 2008, p. 43). To respond to this demand, I designed different dwellings for different consumers, with a certain

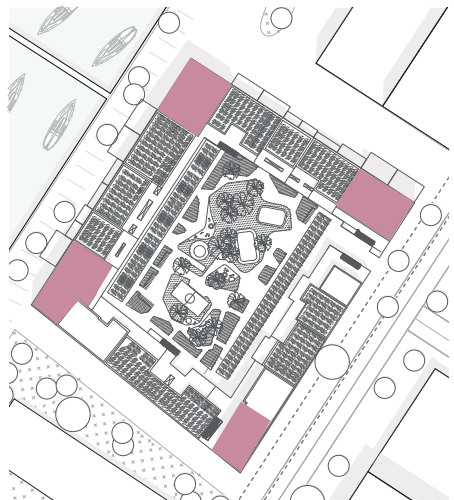
degree of flexibility. Consumers need a home that matches their income and individual housing requirements. Habraken (1961) writes: "Because the housing consumer can adapt his home to his wishes, it becomes his pride, he feels comfortable in the home and is careful with it." (Zijgers, 2008, p. 40).

Zijgers (2008, p.40) indicates that consumers in the western world are increasingly looking for their own identity. The consumer is therefore more interested in products that reinforce this identity and not in products that everyone already has. Designing a house on your own plot in consultation with an architect fits in well with this. Besides the fact that there are few free plots available on which a house can be realized according to your own housing requirements, such a custom-designed house is too expensive for many people and requires a lot of time and knowledge. Certainly for the group of single people, this is generally not an option and homes developed by developers will have to be chosen. The advantage of these homes is that at the time of purchase there is a lot of clarity about the type of housing to be realized, the development time and the selling price. The disadvantage is that less freedom of choice is available with such homes, so that in many cases the home to be realized does not meet the individual housing requirements of the consumer. This is often because this property was developed for a consumer group and not based of the housing requirements of one consumer (Zijgers, 2008, p. 5). With a flexible

floor plan it is much better possible to match the housing requirements of individual consumers.

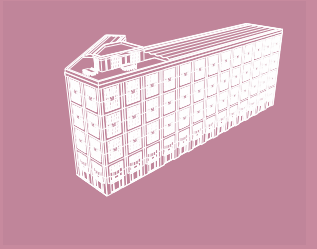
Hybrid work

Before the corona crisis, people had already worked from home for 4 hours on average. During the corona crisis, working from home boomed, a lot of experience was gained with working from home and investments were also made in the facilities to make this possible. It is expected that working from home will double after corona (CBP, 2021, p. 1). This current development also makes a flexible floor plan attractive, in which the resident is given the freedom to determine how he wants to implement more often working from home. Certainly for a single person who has a small space, being able to fill in the space flexibly contributes to the home feeling. In the building design on the corners are working spaces and a shared living room introduced to respond to the changing hybrid work trend.

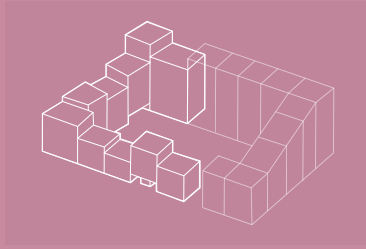


Illustrations by author

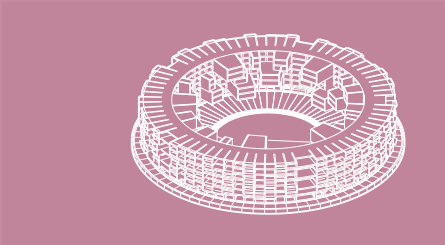
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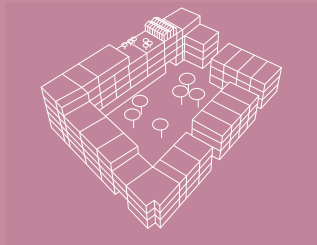
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3



4



Plan analysis for feeling at home

The plan analysis is used to compare the literature with existing designs, to help set up guidelines for design interventions within my design

1

De
Lofts

2

Harbour
houses

3

Tietgen
dormitory

4

Ecovillage

Criteria

Feeling at home

How are the different aspects of feeling at home translated into the case study?

1 Context

Where is the building located and how does it relate to its context?

2 Floor plans and circulation

How are the collective facilities and private dwellings accessed?

3 Dwelling

How do the solo dweller residents live?
What are the measurements of the apartments?

Feeling at home

Identity

Recognition

Ownership

Feeling of Safety

Protection

Freedom

Comfort

Basic needs

User-friendliness

Social interaction

Encounters

Hospitality

Feeling at home aspects are not repeated throughout one case study to prevent repetition

Identity



Recognition & Ownership

Feeling of safety



Protection & Freedom

Social interaction

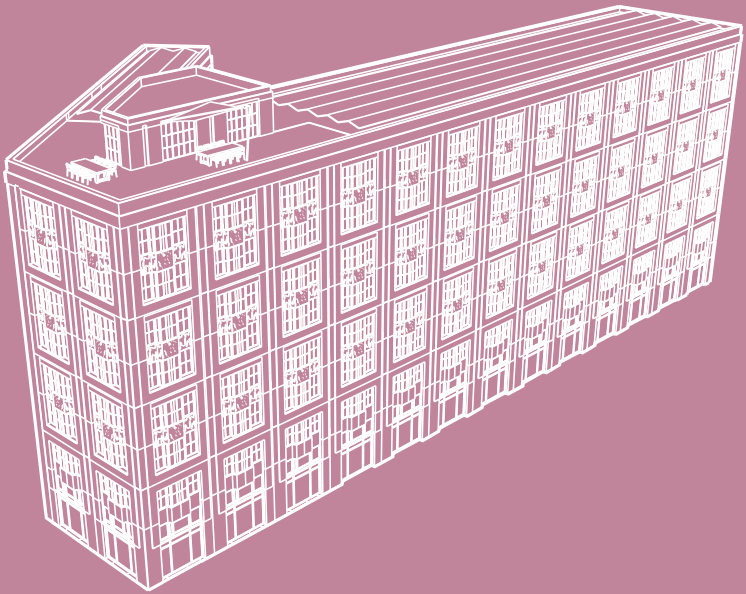


Encounters & Hospitality

Comfort



Basic needs & User-friendliness



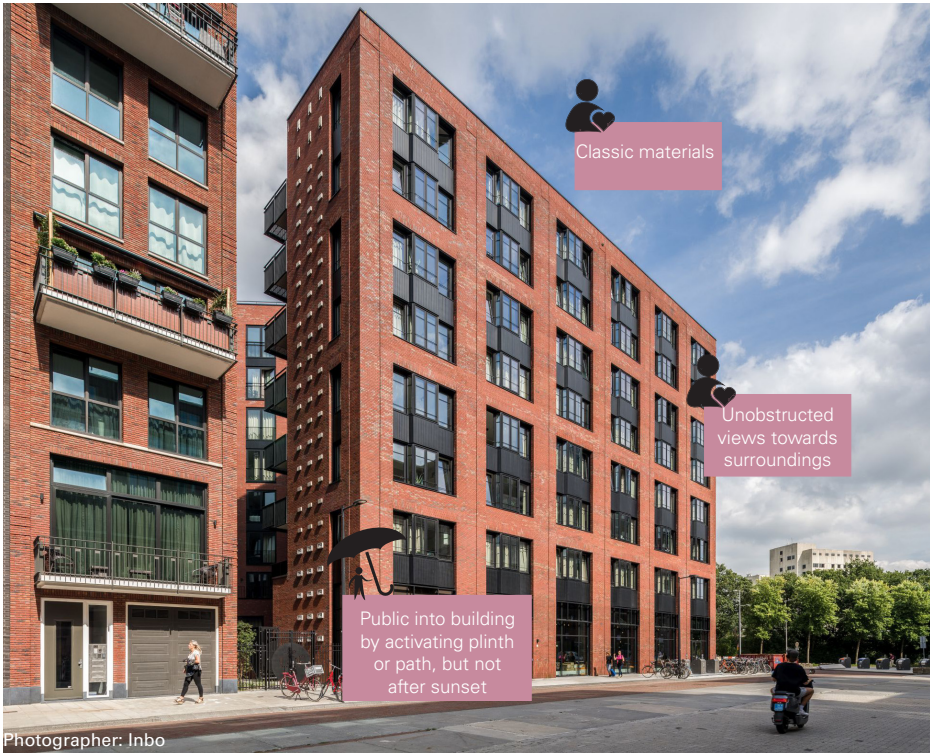
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De Lofts

De Lofts, Amsterdam

This case study is interesting due to the fact that it holds single-person households in the Netherlands. This gives me the chance to observe the plans on paper but also experience the design and daily life in person. I'm interested how the apartments work, how the residents spend their time in the building, which times they use the building and how the communal spaces play a part in the building and their day to day life.

The typology is also interesting. It is a block on the corner of a busy place in Amsterdam, the Amstelkwartier. What is the relation to the public space? Is there a transition zone, is the building accessible for the public. I want to find out the relation of public and private on this busy corner.



Photographer: Inbo

Realization: 2017

Client: AM

Architect: Inbo

Number of dwellings: 212

Address: Spaklerweg, Amsterdam

Communal functions: special facilities on ground floor and shared roof terrace

Special offers: starters/young professionals/ urban millennials, collective spaces, community

De Lofts is a living concept aimed at young professionals. Small, but smartly arranged studios and two-room homes, combined with special facilities on the ground floor and a shared roof terrace.

The building is designed as a sturdy urban block. Deep purple masonry with vertical recessed piers forms the framework for large industrial-looking windows. The characteristic "bay windows" give every home a broad view to the outside and a windowsill where you can sit.

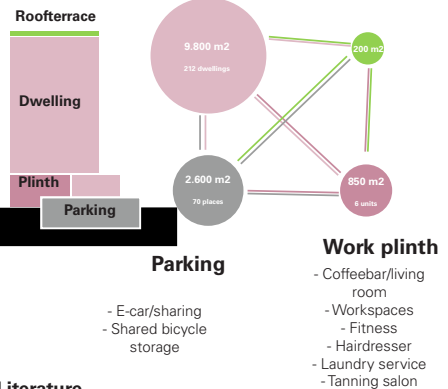
The 212 compact homes will be delivered ready-to-live. Six commercial units will be built in the work plinth. In addition, the block will have a double parking basement with a communal bicycle shed.

Starter households

- Compact (32 m²)

Outdoor space

- Shared rooftop terrace

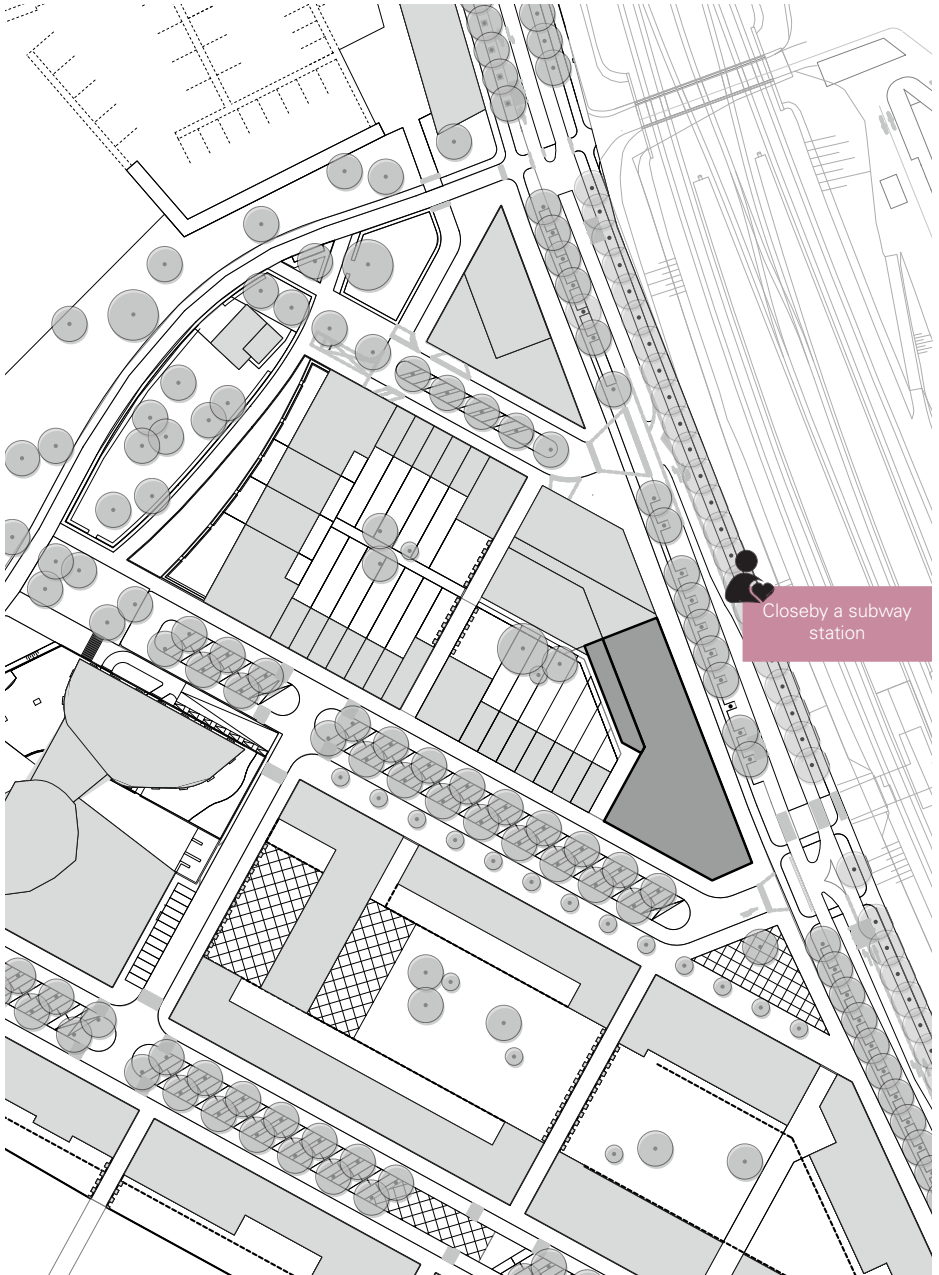


Literature

AM. (2020, February 14). De Lofts. Retrieved April 16, 2020, from <https://www.am.nl/referentieprojecten/de-lofts/>
 Inbo. (n.d.). De Lofts Amsterdam. Retrieved April 16, 2020, from <https://www.inbo.com/nl/nieuws/nieuwsbrieven/okt-2016-wonen/de-lofts-amsterdam>

1. Context

1:1500



The underlay of the images used is from the source: Inbo architects -> direct contact (e-mail). Traced and adjusted by author



Ground floor

1:500

- Solo dwelling
- Circulation
- Public function



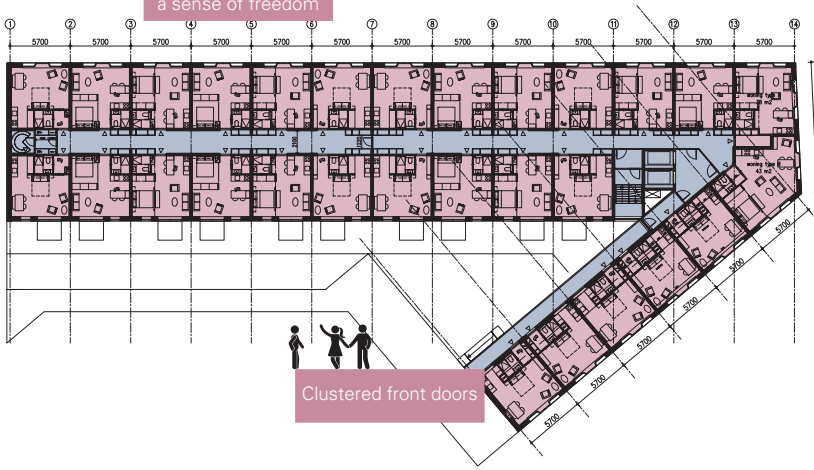
City center and immediate surroundings: expansion of living room



First floor

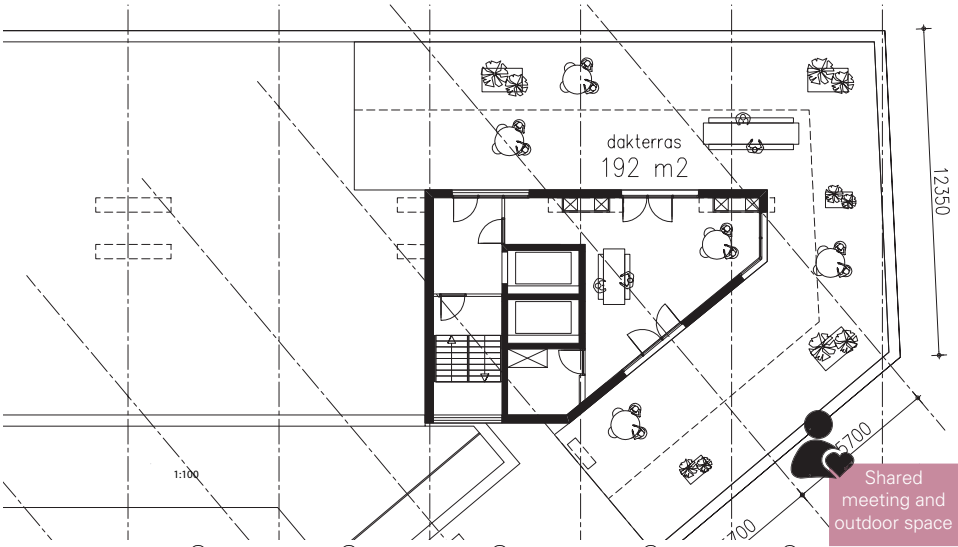
1:500

Views can help the resident feel free. By unobstructed views towards water and/or green, this can help to feel a sense of freedom

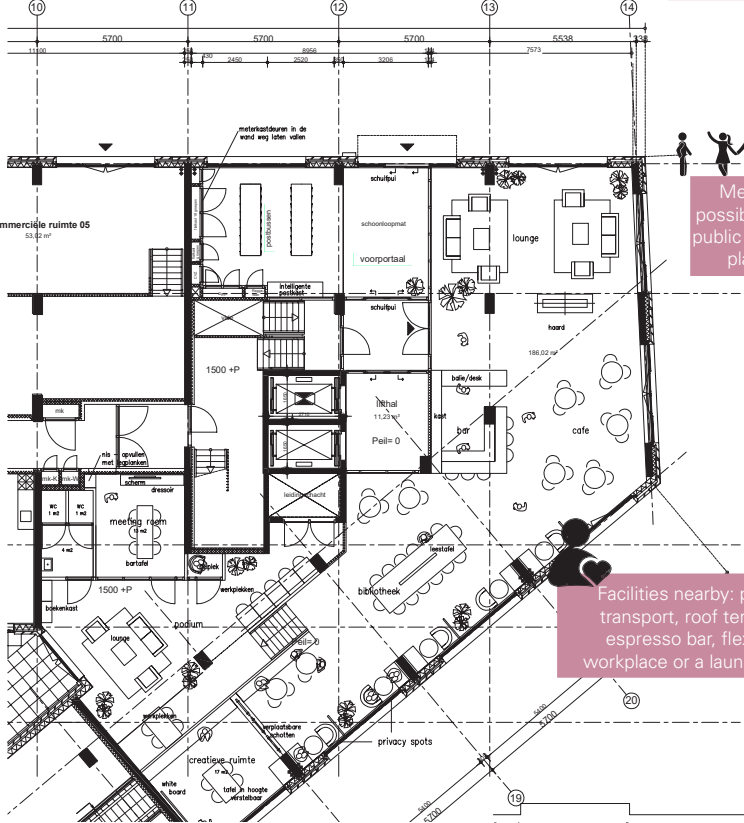


Communal spaces

Roof and cafe/library, 1:200



Communal spaces next to central circulation



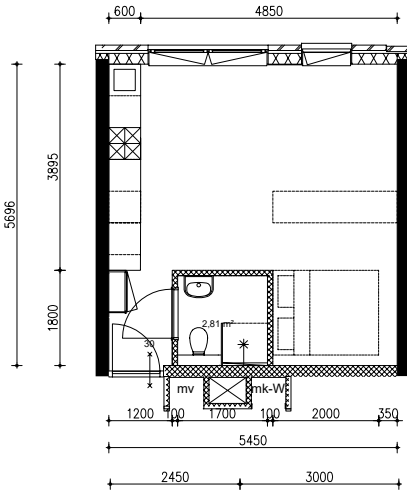
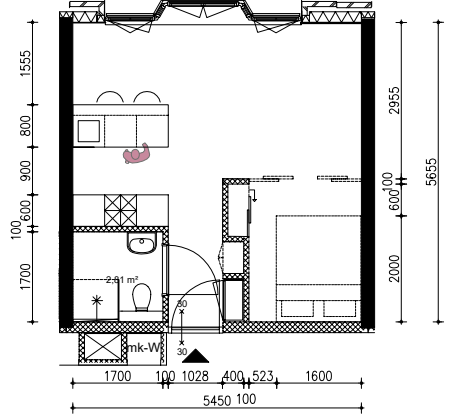
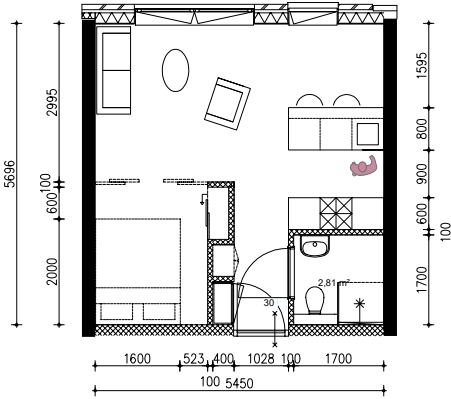
Meeting possibilities in public meeting places

Facilities nearby: public transport, roof terrace, espresso bar, flexible workplace or a launderette

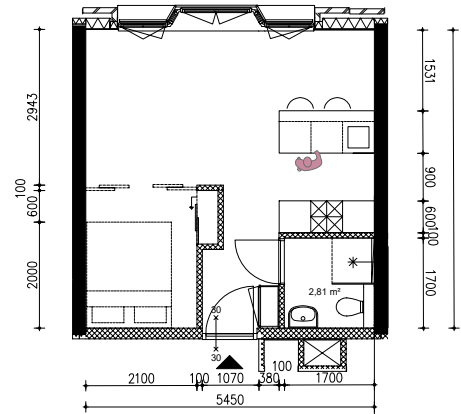
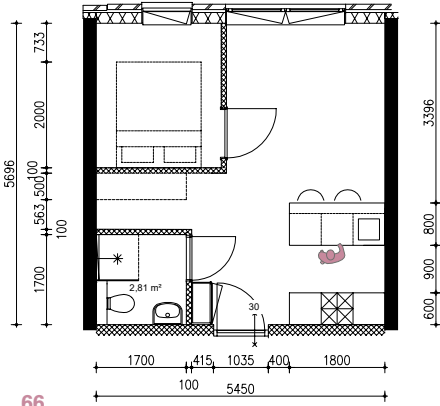
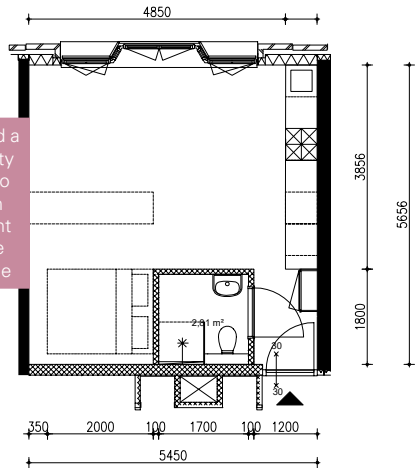


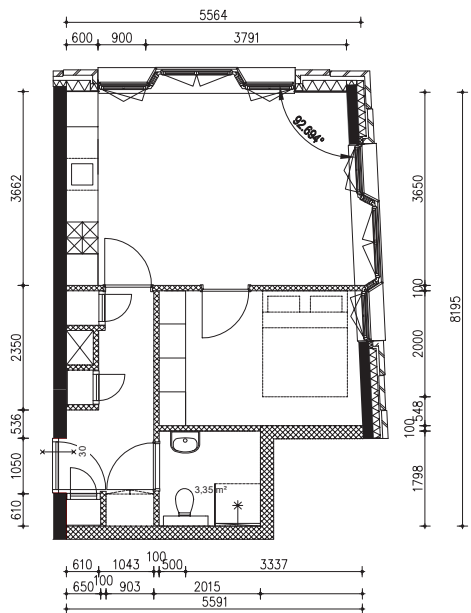
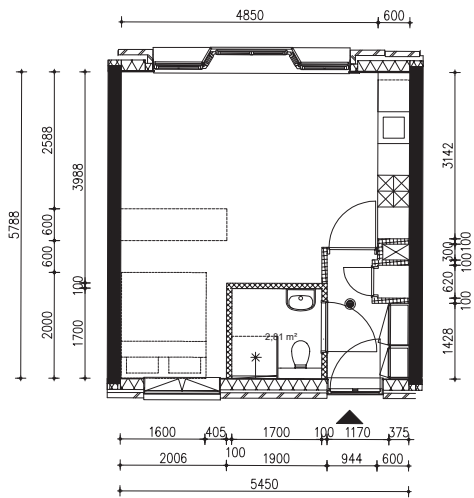
Dwelling types

1:200, +- 30 m2



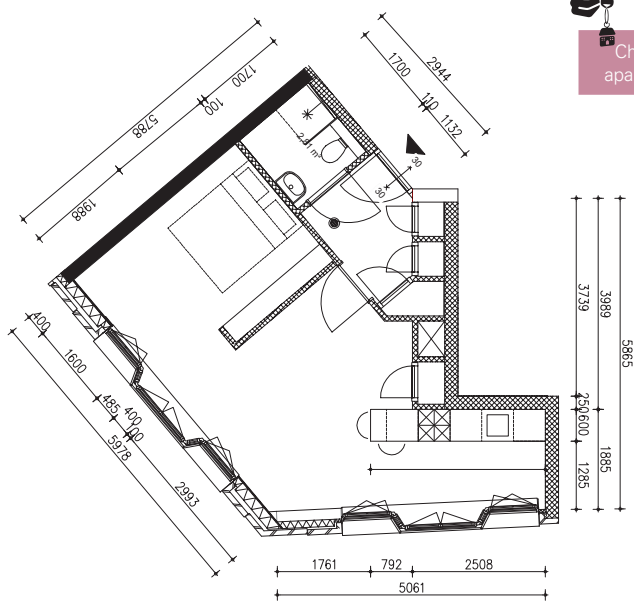
The dwelling need a degree of flexibility for the resident to create their own interior, apartment layout and space around their home





Adjustable to changing needs

Choosing own apartment layout



Ethnography and interviews

What do the residents like?

Apartment



"The size of the apartment is just big enough, it should not be smaller."



"The cool thing is that I have a large windowsill, I usually use it as a bench when I read. It saves me a lot of space"



"The only think I don't like is that my bedroom is in my living room. I prefer it to be a separate room."



"I would like an extra room for work."



"I like that the kitchen is part of the living room."



"I got to choose my apartment layout, which was pretty nice"

Communal spaces



"It's not always busy, the roof terrace however is used quiet often when the weather is nice."



"I really like the communal spaces, especially since covid. I used to work in office or in my apartment, but now that I have to work from home, I like to sit in the library with some people I know in the building."



"The bar and library are great places to meet people, the first week I immediately knew some people from the building"

Circulation space



"The corridor is a bit dark sometimes. I would prefer more light."



"A friend of mine lives next to the gallery, I would prefer that more. The corridor sometimes feels like entering a hotel."



"I like that the staircase has a connection to the library and cafe. I can always see if I know people, after a long day at work and join them."

Public space/plinth

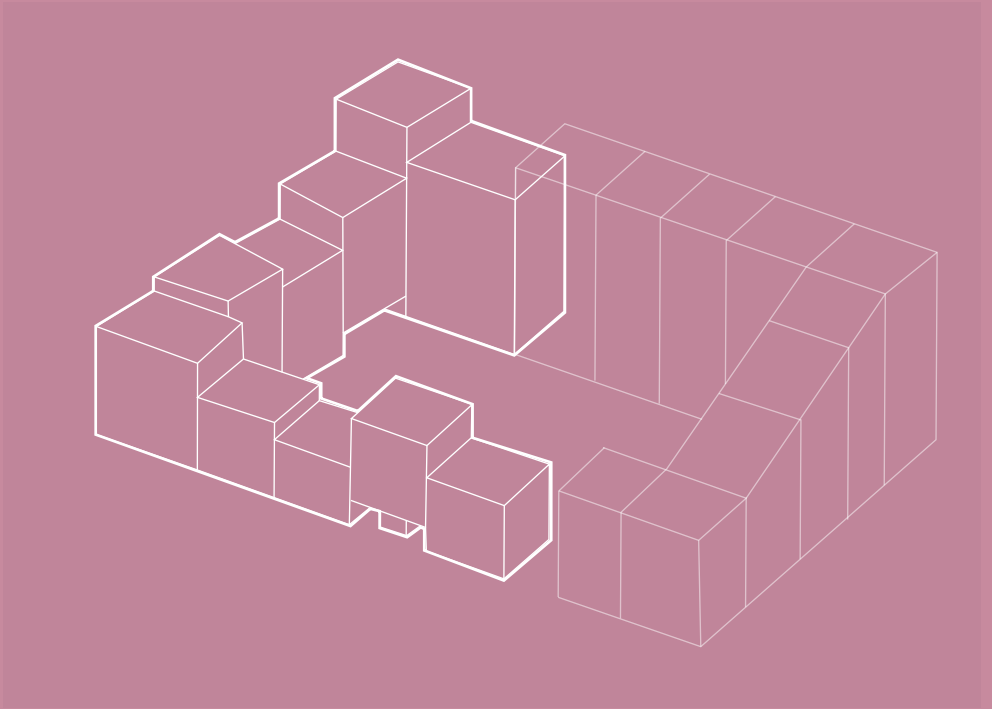


"Sometimes it gets busy, so I like looking outside my window, while I read. I like there to be some commotion."

"There are not really functions I use, but I know some people who do. I think it's primarily for people who aren't living here."



"There isn't much green around, that is the only thing I'm missing. The rest is fine, we live next to the metro station."



2

Harbour houses

Harbour houses, Aarhus, Adept

The Harbour houses from Adept is a residential complex overlooking the bay of Aarhus, which breaks with both the port's massive scale and its iconic building tendencies. The simple design is characterized by its roof greenhouses, varied building heights and sustainable initiatives that give the complex its zero-energy label. The building adapts to its complex context reflecting both a large building scale and a smaller and more intimate maritime atmosphere.

The building itself has the same sizes as my plot in the urban plan. Also holds the Harbour houses a lot of small apartments which can be used for single-person households. I am interested in the configuration of these apartments and the circulation.

The design is part of a courtyard block and fits into my typology. It will be interesting to see how Adept dealt with the courtyard and the relation between dwellings, public and the courtyard.

The architecture of the Harbour houses fits right in with the harbour. Not only is this project interesting for the placement and usage of the dwellings and circulation, but also for its architecture.



Realization: 2015
Client: Brabrand Boligforening
Architect: Adept
Size: 13.400 m²
Address: Aarhus
Communal functions: Shared roof terraces and cafe
Special offers: starters/young professionals/ urban millennials, elderly

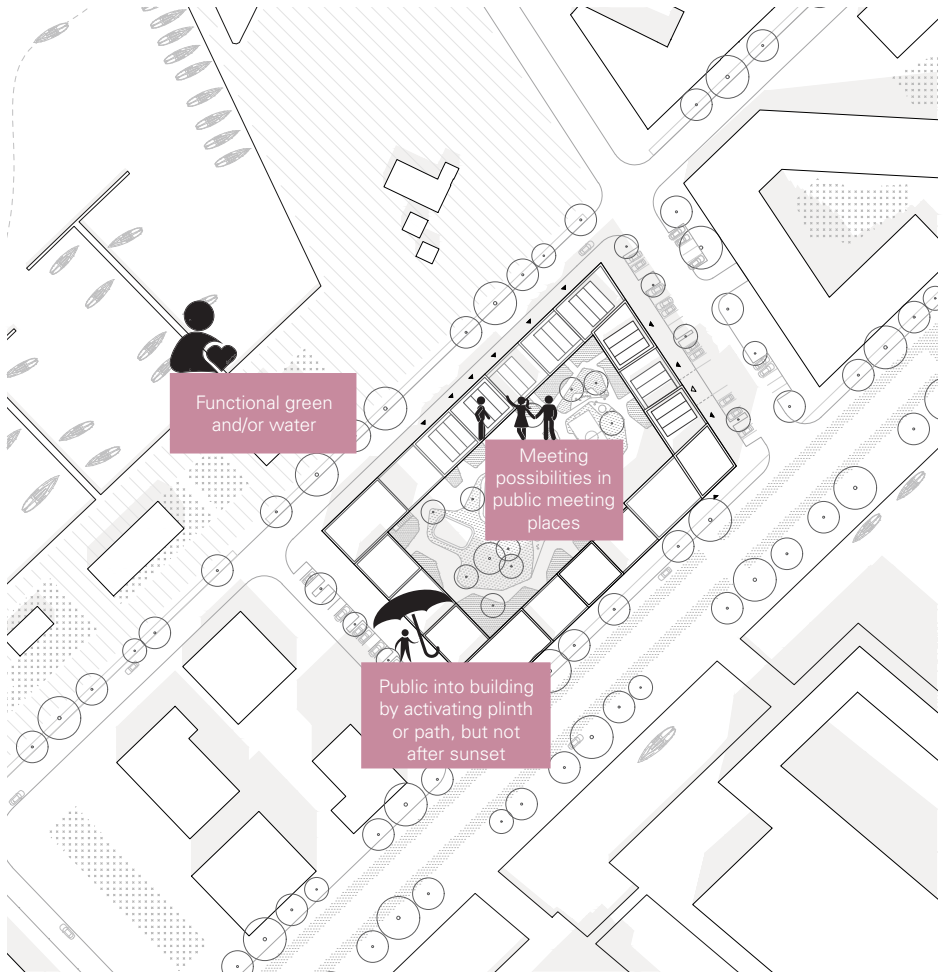
Harbour Houses is a single-person household residential complex overlooking the bay of Aarhus, which breaks with both the port's massive scale and its iconic building tendencies. The simple design is characterized by its roof greenhouses, varied building heights and sustainable initiatives that give the complex its zero-energy label. The building adapts to its complex context reflecting both a large building scale and a smaller and more intimate maritime atmosphere. The housing is meant for middle and high income single-person households. It's interesting to see how the courtyard relates to the harbour and what type of single-person household types are apparent. Sightlines are important in this projects to keep a strong relation to the harbour.

Literature

Furuto, A. (2018, January 15). 'Canal Houses': Aarhus Harbour Housing Project Winning Proposal / ADEPT + Luplau Poulsen. Retrieved June 3, 2021, from https://www.archdaily.com/389855/canal-houses-aarhus-harbour-housing-project-winning-proposal-adept-luplau-poulsen?ad_medium=gallery
 Adept. (n.d.). Harbour Houses - ADEPT. Retrieved June 3, 2021, from <https://www.adept.dk/project/harbor-houses>

Context

1:1500



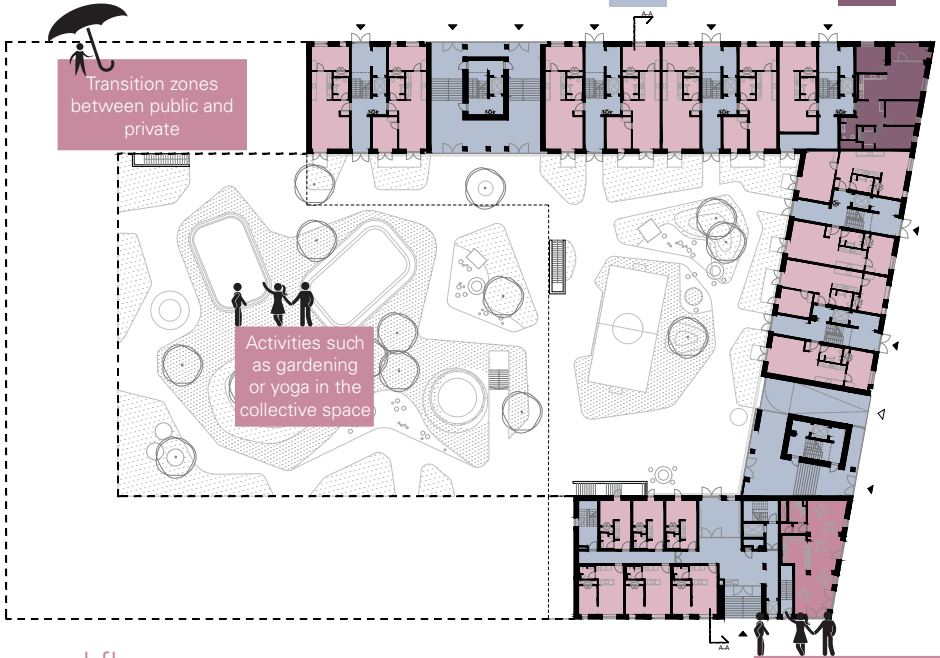
The underlay of the images used is from the source: Adept architects -> direct contact (e-mail). Traced and adjusted by author



Ground floor

1:500

- Solo dwelling
- Circulation
- Public function
- Other



Second floor

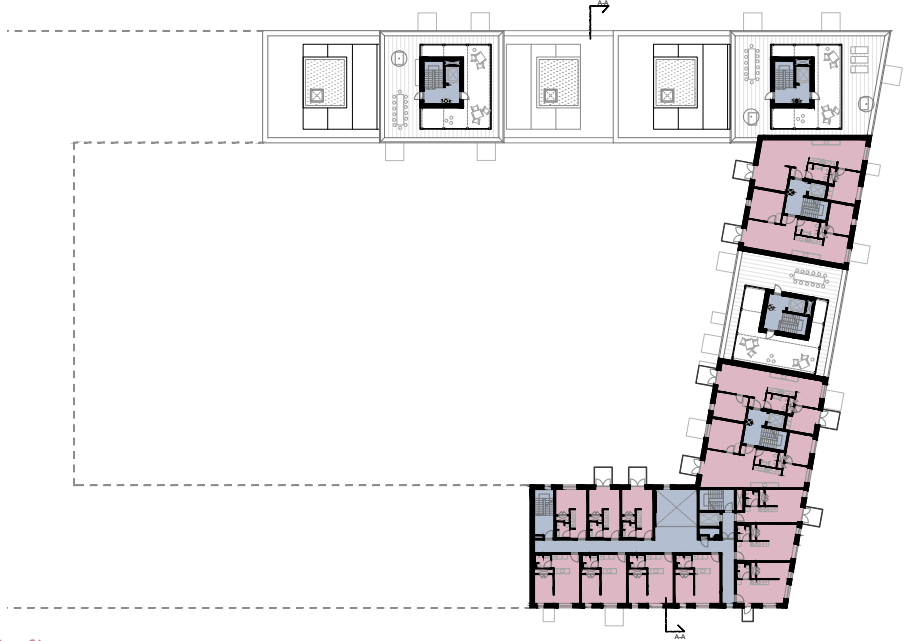
1:500



Sixth floor

1:500

- Solo dwelling
- Public function
- Circulation
- Other



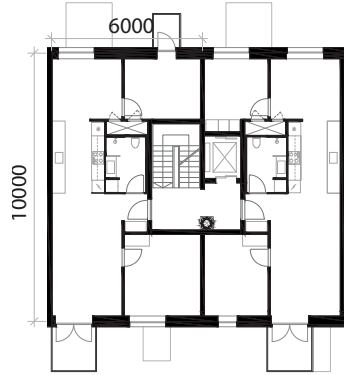
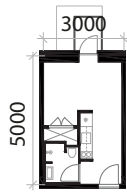
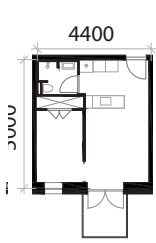
Ninth floor

1:500



Dwelling types

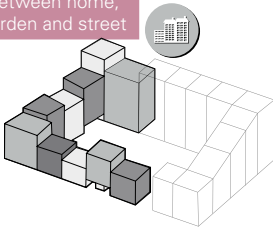
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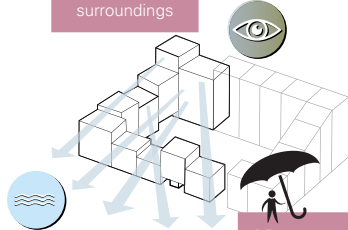
0m 1m 5m 10m

Concept drawings

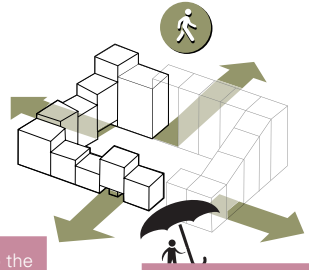
Variation in building blocks and streetscape: differences between home, garden and street



Unobstructed views towards surroundings



Meeting possibilities in public meeting places



Views can help the resident feel free. By unobstructed views towards water and/or green, this can help to feel a sense of freedom

Public into building by activating plinth or path, but not after sunset

Elevation

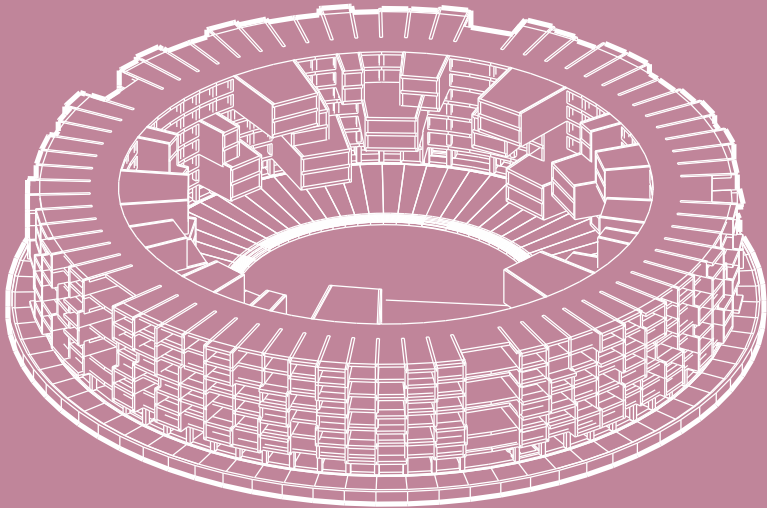
1:500



Section

A-A 1:500





3

Tietgen dormitory

Tietgen dormitory, Copenhagen, Lundgaard & Tranberg

The Tietgen dormitory from Lundgaard & Tranberg is a courtyard shaped in a circle located near Copenhagen University in Ørestad North. The project's dynamic, sculptural expression is created by the contrast of the building's overall form with the honest expression of the individual programmatic elements. The building's circular form- symbol of equality and the communal is contrasted with individual, projecting volumes expressing the individual residences. The principle inspiration for the project is this meeting of the collective and the individual, a characteristic inherent to the dormitory building type.

Especially this meeting is something I want to research. How do the public, communal and private spaces work together and transition? What is it that attract the single-person households/students in this design?

The design is part of a courtyard block and fits into my typology. It will be interesting to see how Lundgaard & Tranberg dealt with the courtyard and the relation between dwellings, public and the courtyard.



Photographer: Lundgaard & Tranberg

Realization: 2005

Client: AM

Architect: Lundgaard & Tranberg Architects

Area: 26515 m²

Address: Rued Langgaards Vej, Copenhagen

Communal functions: special facilities on ground floor

Special offers: students, collective spaces, community

The Tietgen dormitory has a dynamic, sculptural expression that is created by the contrast of the building's overall form. The principle inspiration for the project is this meeting of the collective and the individual, a characteristic inherent to the dormitory building type. It will be interesting to see the relation to the courtyard, circulation space and the student dwelling types.

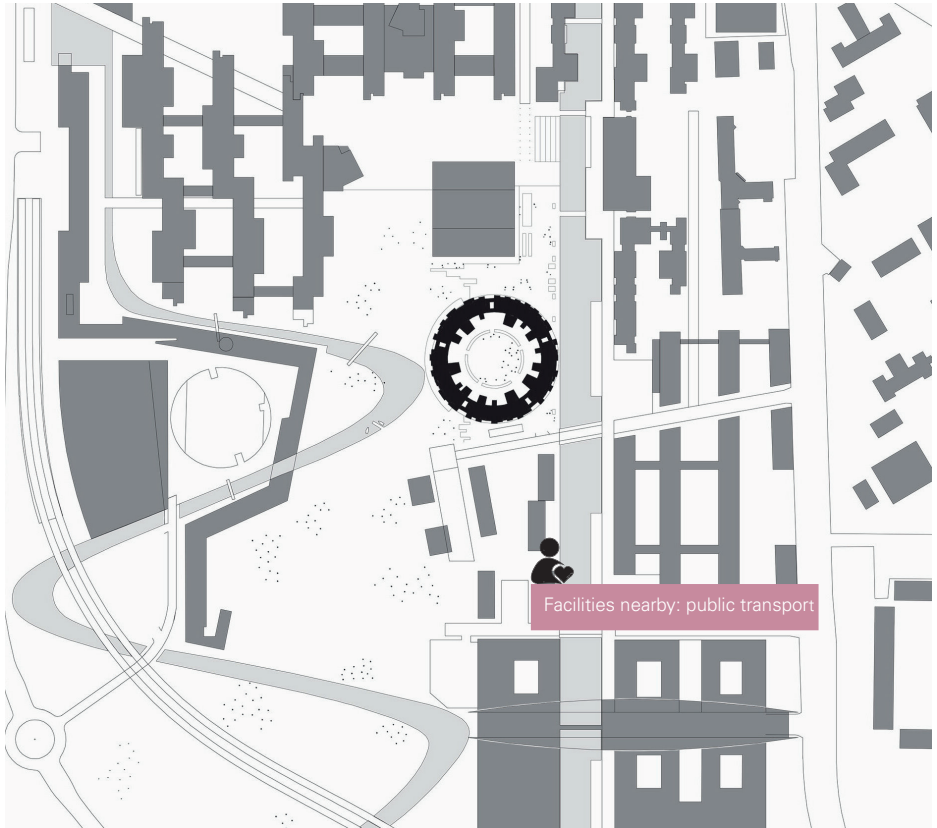
Literature

Sánchez, D. (2021, April 30). Tietgen Dormitory / Lundgaard & Tranberg Architects. Retrieved June 3, 2021, from <https://www.archdaily.com/474237/tietgen-dormitory-lundgaard-and-tranberg-architects>

Lundgaard & Tranberg. (n.d.). Tietgen Dormitory. Retrieved June 3, 2021, from <https://www.ltarkitekter.dk/tietgen-en-0>

Context

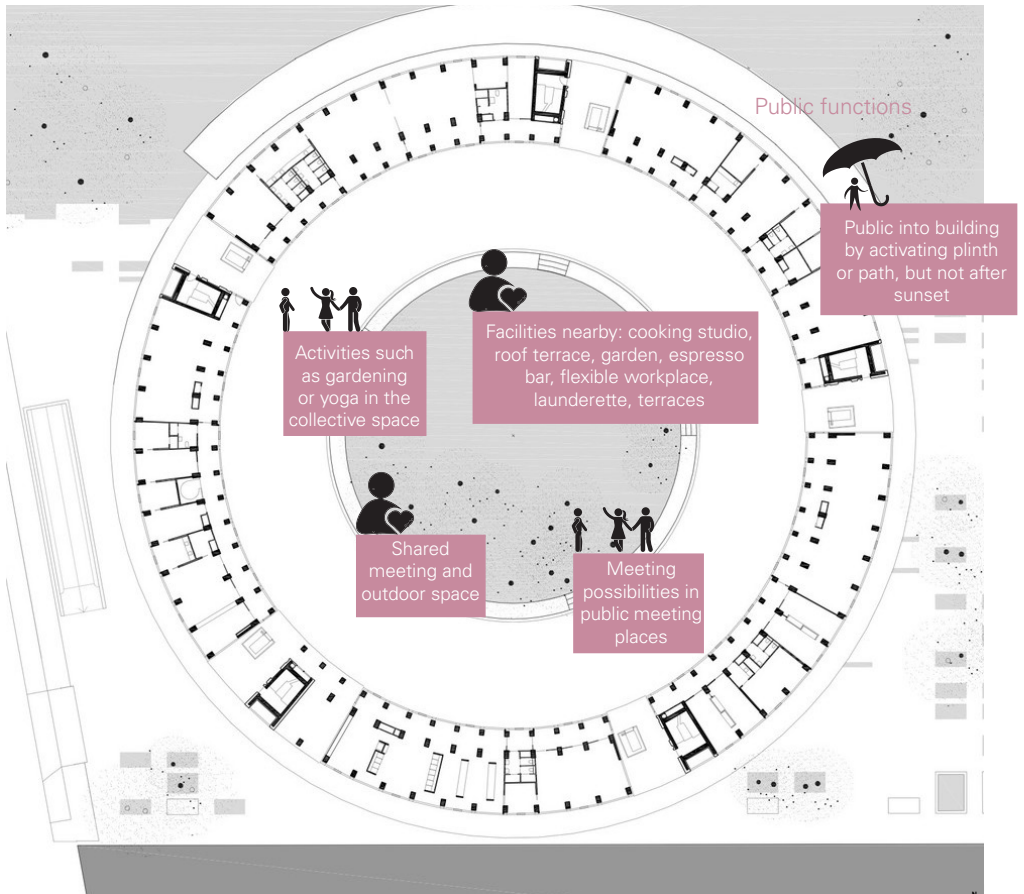
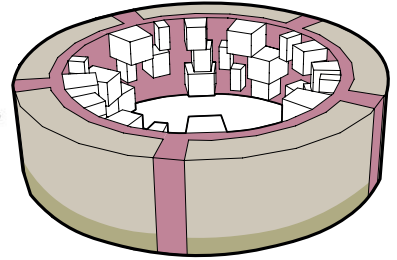
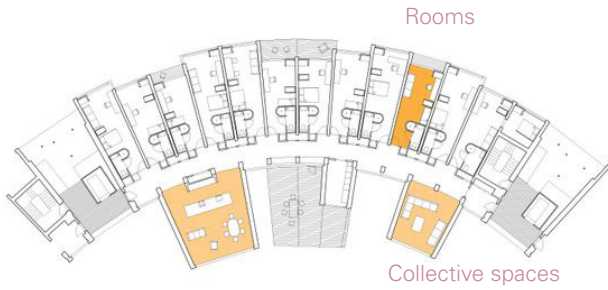
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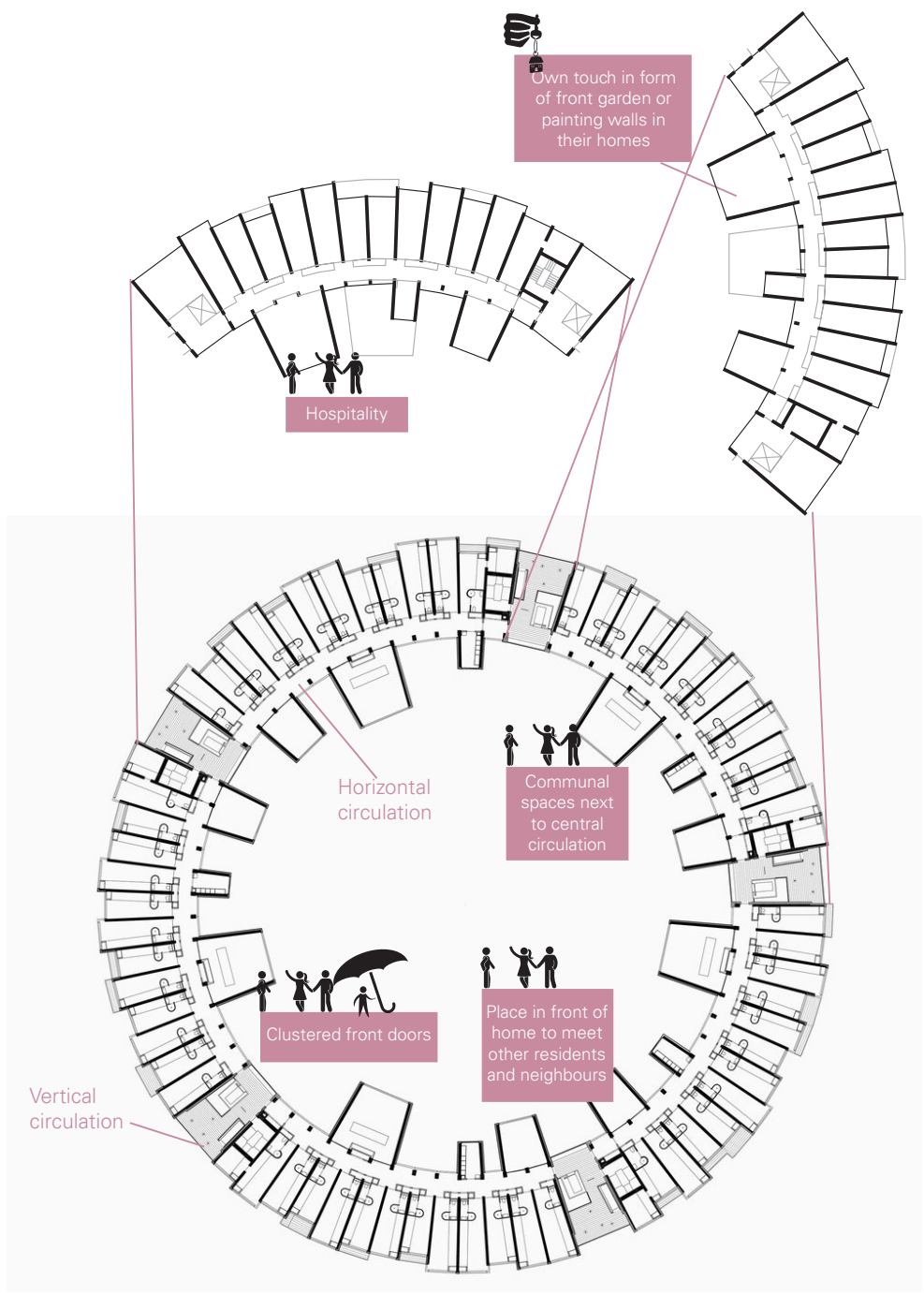


The underlay of the images used is from the source:
Sánchez, D. (2021, April 30). Tietgen Dormitory / Lundgaard & Tranberg Architects. Retrieved June 3, 2021, from <https://www.archdaily.com/474237/tietgen-dormitory-lundgaard-and-tranberg-architects>

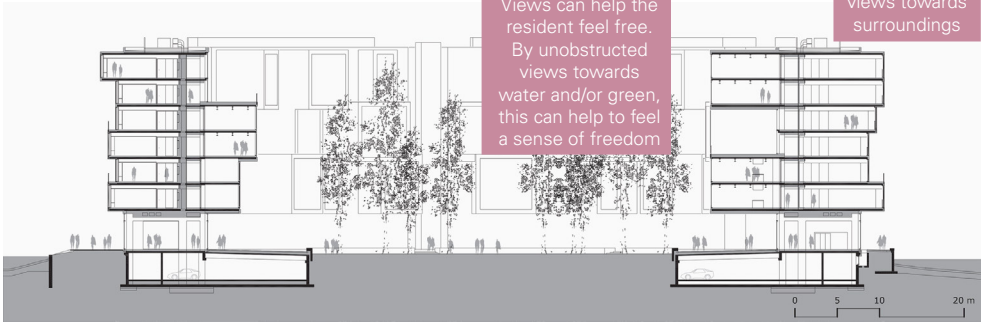
Typical floor plan

- Public function
- Circulation
- Dwellings





Section

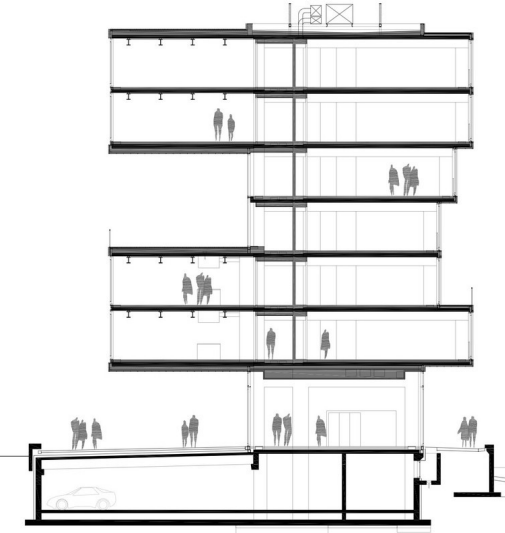
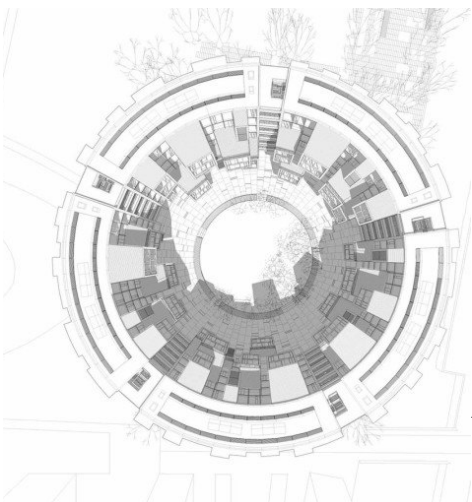


Views can help the resident feel free. By unobstructed views towards water and/or green, this can help to feel a sense of freedom

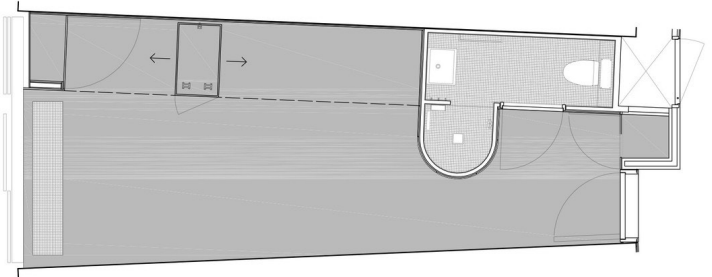
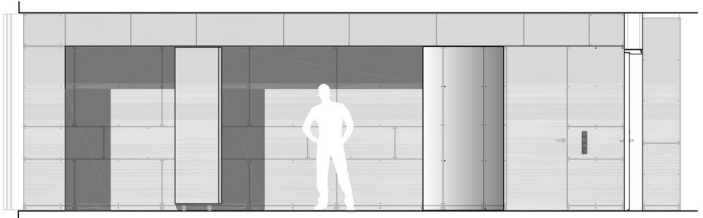
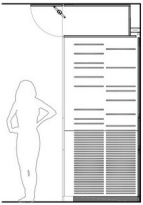
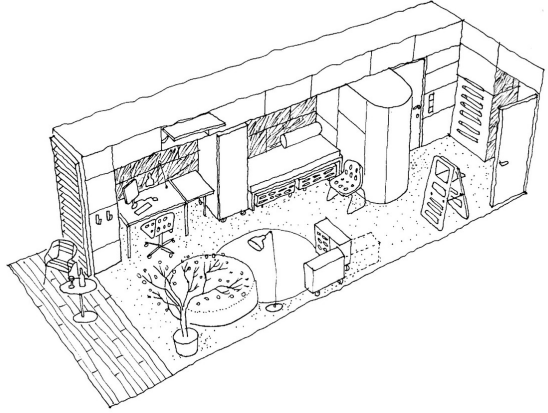
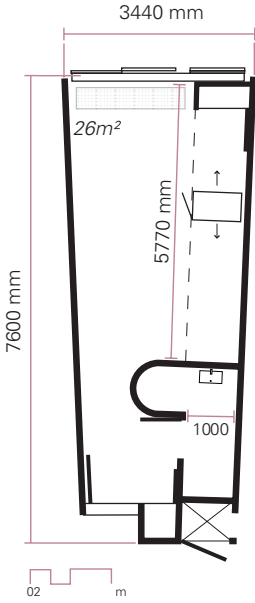
Unobstructed views towards surroundings

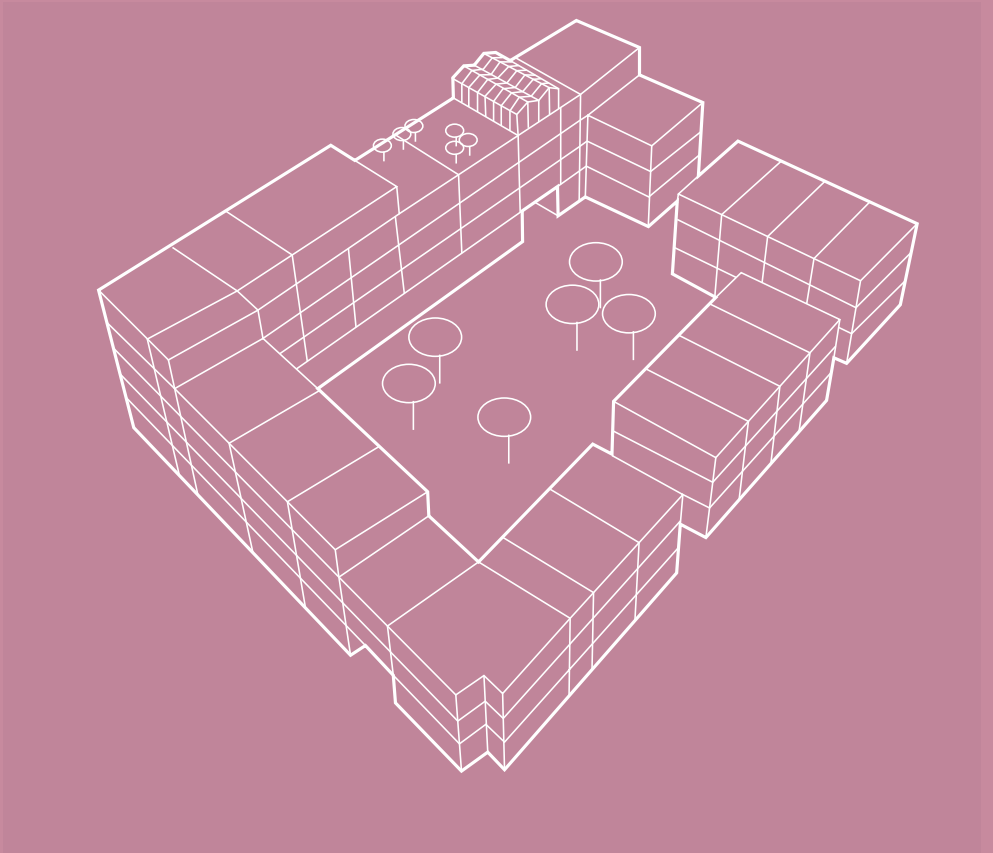


Room for meeting people



Dwelling types





4

Ecovillage

Ecovillage, Stigsborg, C.F. Møller

Ecovillage is located in Aalborg's new Stigsborg suburb, which was created for EcoVillage, a specialist in sustainable housing communities in Denmark. Ecovillage is aimed at multiple types of households including single-person households. The buildings vary in height and include a multi-storey building and townhouses. Together they form a block around an open courtyard. The courtyard is the heart of the community, helping to strengthen its social aspect. On the ground floor are communal areas which include guest rooms, a workshop, fitness room, shared office space, plus a kitchen and dining area for communal dining. The active ground floor helps create life for the new urban area. I'll work on a plan analysis of this project. How is the courtyard situated and how does it relate to the circulation space? What communal spaces and what housing typologies for single-person households are apparent?

The underlay of the images used is from the source: C. F. Moller -> direct contact (e-mail). Traced and adjusted by author



Impression: C F Moller

Realization: 2021
Client: EcoVillage
Architect: C F Moller
Size: 5000 m²
Address: Stigsberg
Communal functions: special facilities on ground floor and shared roof terrace
Special offers: single person households, social contact, dwelling facing towards inner courtyard

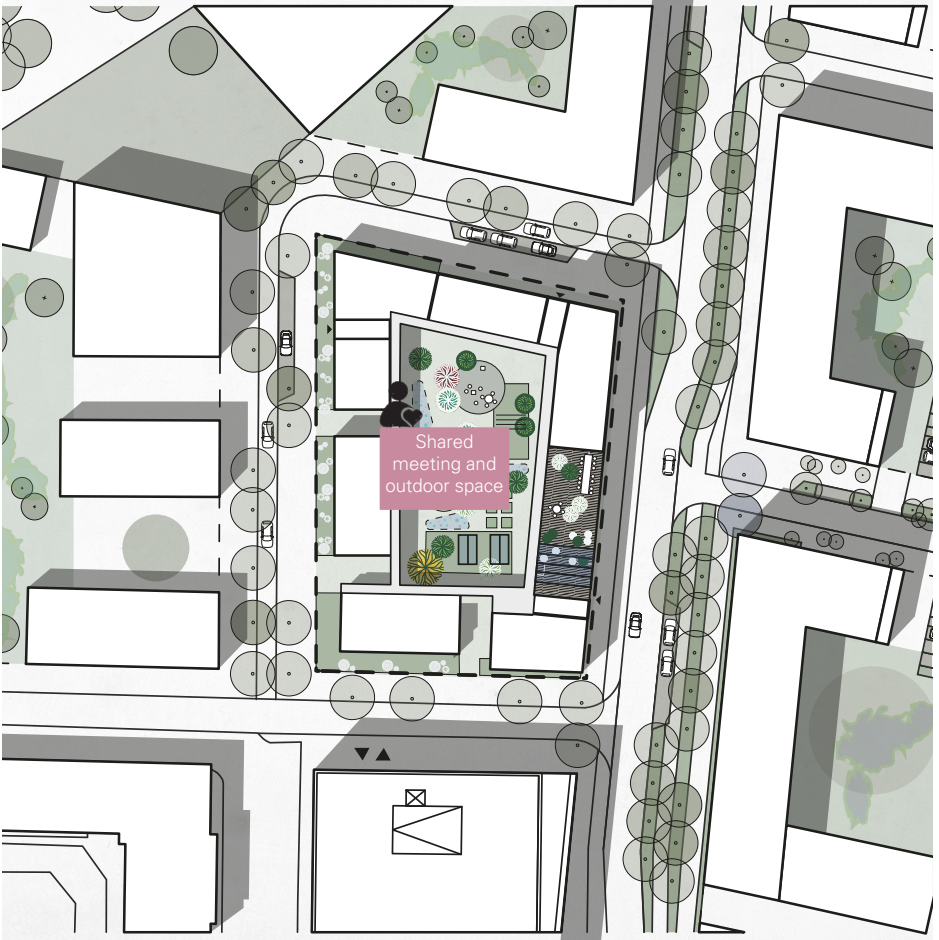
Ecovillage is located in Aalborg’s new Stigsborg suburb, which was created for EcoVillage, a specialist in sustainable housing communities in Denmark. The buildings vary in height and include a multi-storey building and townhouses. Together they form a block around an open courtyard. The courtyard is the heart of the community, helping to strengthen its social aspect. On the ground floor, communal areas include guest rooms, a workshop, fitness room, shared office space, plus a kitchen and dining area for communal dining. The active ground floor helps create life for the new urban area. By working on a plan analysis of this project, it will be interesting to look at the courtyard and circulation relations, communal spaces and what housing typologies for single-person households are apparent.

Literature

C.F. Moller. (n.d.). Sundsholmerne - EcoVillage. Retrieved June 3, 2021, from <https://www.cfmoller.com/p/Sundsholmerne-EcoVillage-i3524.html>

Context

1:1000



Ground floor

1:500

- Solo dwelling
- Circulation
- Public function
- Other


Transition zones between public and private




Public into building by activating plinth or path, but not after sunset

First floor

1:500



Second floor

1:500



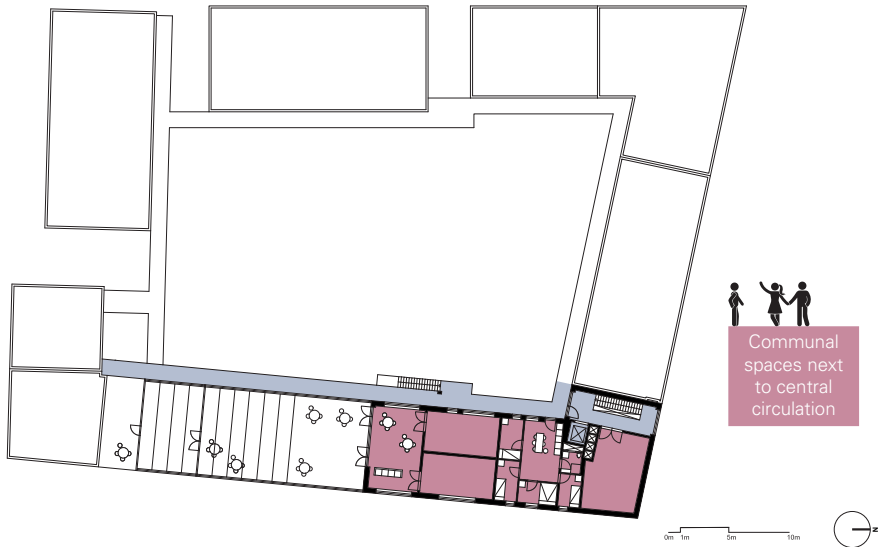
Third floor

1:500



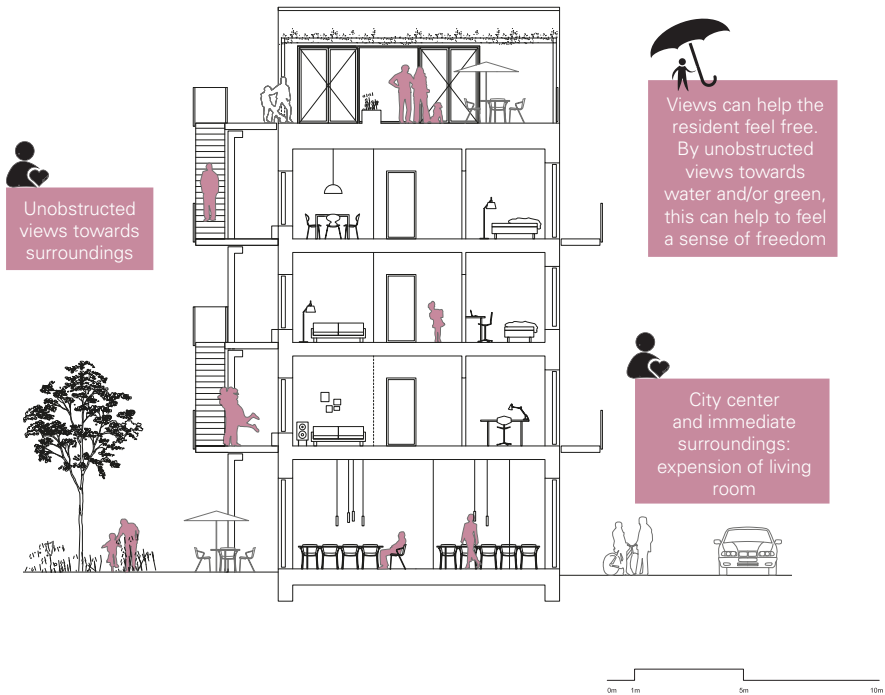
Fourth floor

1:500



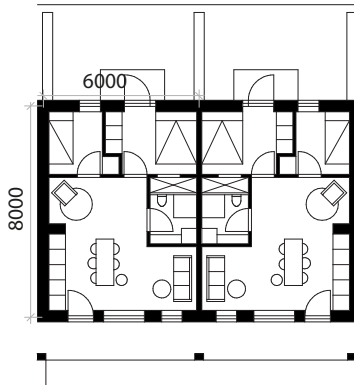
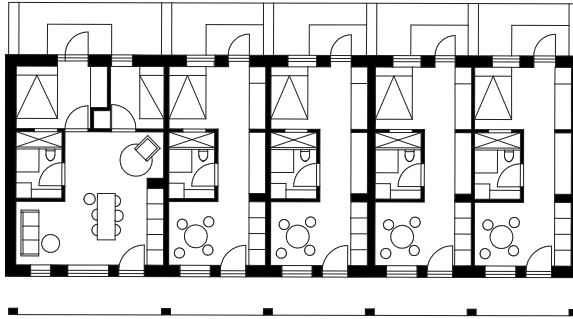
Section

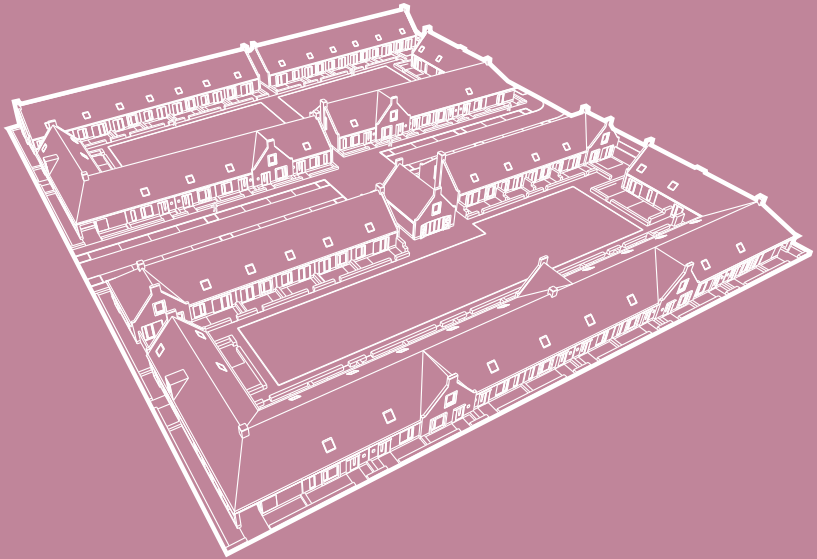
1:200



Dwelling types

1:200





5

Knarrenhof

Knarrenhof, Zwolle, Inbo

Knarrenhof in Zwolle is a living concept aimed at independent elderly. Changes in health care, a retreating government and the separation of housing and care are an incentive for many people to arrange something themselves for their old age. People want to keep control of their lives and look for a place to live pleasantly and safely even in old age, with accessible care just around the corner. I conducted interviews on location, which will give a good example of how the independent elderly want to live.



Having view on a place nearby where the (grand)children play

Activities such as gardening or yoga in the collective space

Own picture



Classic materials

Unobstructed views towards surroundings

Place in front of home to meet other residents and neighbours

Transition zones between public and private

Own picture

Homes should be suitable if physical limitations start to arise, but this should not be the first appearance

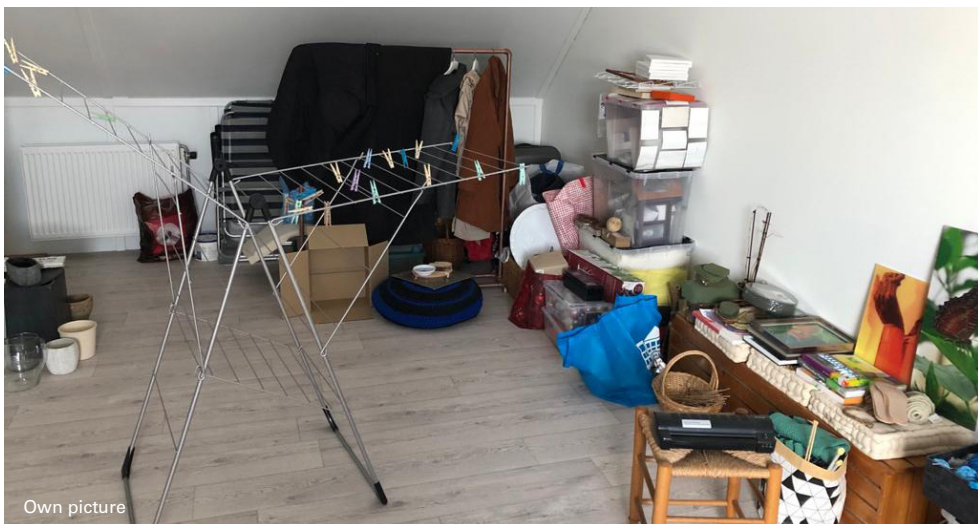


The elderly need the option to store their memories/objects in and around the home

Own picture



Own picture



Own picture



Extra sleeping place for guests ((grand)children)

Own picture

Interviews

What do the residents like?



"I would not have moved if there was an elevator"



"They (the architect) did not keep in mind that we're smaller and can't reach the top of the doors to clean it"



"I miss a little separation between the gardens for privacy and wind"



"I like that the living room is next to the communal garden"



"I use the storage as a separate bedroom or place for stuff"



"I don't want to be old, I'm different"



"I'm not participating in the yoga activities"



"The lock is on the door after a certain hour, one of the neighbours closes it very early unfortunately"



“The other courtyard is a lot more fun, here people are more in their home”



“I still try to do my garden, but to be honest I can't any more”



“The communal space should always be open for everyone! Not only some hours”



“We want to choose what is placed in the communal space, now it is just an old cafeteria”



“I am very happy rent and buy is mixed”

Feeling at home for different groups of singles translated into design

6. How can the “feeling at home” be translated into design?

Young professionals up to 35 years

This group includes the previously discussed new households and starters/young professionals and also includes part of the happy singles. What contributes to feeling at home for this group in terms of comfort, safety, social interaction and identity?

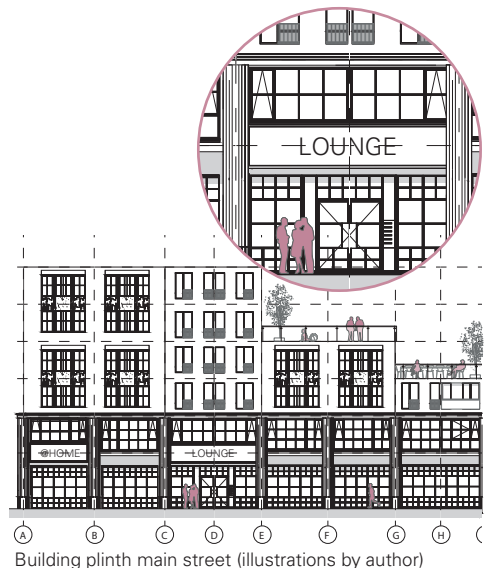
Comfort

The transition from student to starter often involves a new daily schedule and a different activity pattern, which increases the need for peace, privacy and independence. Young professionals who are working generally no longer want to live in a shared home with room-mates and have an increasing need for independent living space (Hoefnagel, 2011, p. 62). The housing concept 1, where you live independently in co-living is perfect for the young professionals. Co-living within a dwelling is fine if it's used for temporary stay (1-2 years), which is fitting with housing concept 2. They can use the dwelling as a place where they can be themselves - a heaven - where they feel familiar. The home is a place to shield themselves from the outside world, where they can be themselves, whenever they wish.

At the same time, the behaviour of the young professional is characterized in particular by being

away from home or around their home and a lifestyle in which enjoyment is paramount. A significant portion of the income is spent on vacations, travel and leisure activities such as having lunch in the city and attending a concert. The house functions as a base from which you can approach the world with an open mind (Hoefnagel, 2011, p, 55).

In a study by Hoefnagel (2011, p. 62), 68.1 percent of the respondents indicate that they prefer a city centre location. By living in the centre they can easily combine different activities such as work, shopping and hobbies. A city centre residential environment is characterized by a high level of facilities (Hoefnagel, 2011, p. 62). A study by Bouwfonds Ontwikkeling (2011) in collaboration with the Hanze University of Applied Sciences in Groningen also showed that young professionals find it an added value if many facilities are located in the residential area. Small-scale



companies, studios, restaurants and terraces provide liveliness, which are situated in the plinth of my building design.

It was stated that it should not cause any noise nuisance. In the immediate vicinity of the home, catering and in particular large-scale catering are not appreciated. Facilities such as sports facilities or a little café with terraces are appreciated (Bouwfonds Ontwikkeling, 2011, p. 26). Proximity to the centre and good accessibility by public transport or bicycle are highly desirable (Hoefnagel, 2011, p. 5).

In addition to the need for facilities in the living environment, starters also find greenery in the area important. Green should be functional: you should be able to do something there, such as lounging, picnicking or barbecuing. Water is also seen as an important added value, but especially in a functional sense. Being able to moor your boat on your own terrace is seen by many as an ideal situation (Bouwfonds Ontwikkeling, 2011, p. 30).

My building plot is situated next to a parking hub and a dock. There is a green courtyard where you can

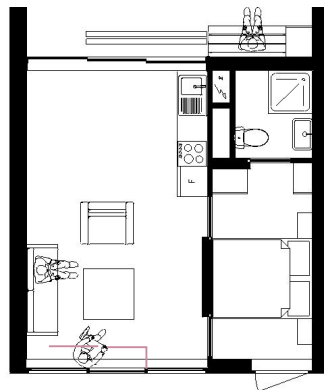


Courtyard and public plinth (illustrations by author)

encounter and get together to pick-nick and lounge. The main axis has a bicycle path and car with public transport.

The single young professional considers the location more important than the living space. Because of this, but also because of the affordability, a small home in a central location is popular. The choice for small houses also stems from the fact that this generation wants to live differently than their parents. It can be smart, small and ecological. A smaller home means less maintenance, less consumption and a smaller footprint. Even if they are no longer single, it may still be preferable to live small (Temmerman, 2016).

The dwelling for the young professionals are compact, smart and ecological apartments, with smart doors which slide into a closet and has deep window sills. The young professionals in The Lofts in Amsterdam said "the cool thing is that I have a large windowsill, I usually use it as a bench when I read. It saves me a lot of space."



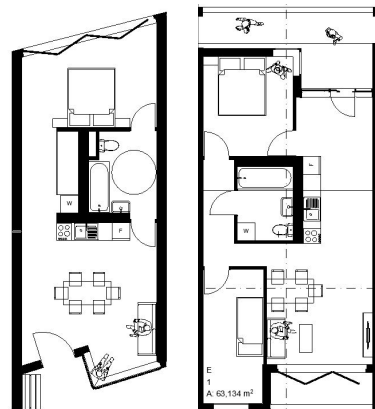
Dwelling type A (illustrations by author)

When young professionals start working, their financial options are still limited. For this reason, they often start in a cheap, rather cramped rental apartment with little luxury. They quickly start looking for a better home (Blije, van Hulle et al. 2009, p 58).

Dopper & Geuting (2018, p. 12) indicate that an affordable studio or small apartment of approximately 30 – 40 m² suits their housing needs for this starter. In exchange for an affordable home, they want to sacrifice living space. The location does not necessarily have to be super central, provided that it is easily accessible by public transport (and within cycling distance of the centre). A small kitchen unit is sufficient for a small meal (Dopper & Geuting, 2018, p. 15).

Singles who have been employed for a while have more spending power and a preference for more luxury than the starter. They want a small apartment of approximately 40 to 50 m² in a relatively luxurious complex (Dopper & Geuting, 2018, p. 12). They would like a small apartment that is equipped with all comforts, has a good finishing level of the house and is light (Bouwfonds Ontwikkeling, 2011, p. 30), in a prime location close to amenities, employment and a public transport hub (Dopper & Geuting, 2018, p. 15). If the single has a larger budget, then a house with a living space of 50 – 60 m² is also popular. This fits housing concept 3, where the young professional rather has an independent dwelling, without shared facilities. A second room next to the bedroom is a plus. The bedroom should have room for

a double bed and cupboard space (Hoefnagel, 2011, p. 50). The trade-off between facilities, location, surface and price is slightly different for the groups above. For starters, it is mainly about affordability, for singles who have been working a little longer, it is more about convenience or, if this is financially possible, convenience and more space (Dopper & Geuting, 2018, p. 15).



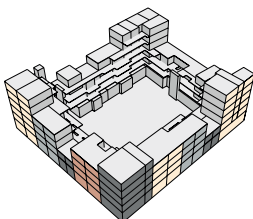
Dwelling type D & E (illustrations by author)

Because the houses are small, the sharing of facilities and services is popular for the younger young professionals. The facilities and services can be of a higher standard because it is shared rather than in an individual home. Facilities that can be shared include a cooking studio, roof terrace, (vegetable) garden, guest room, home care, babysitting centre, shared cars, espresso bar, flexible workplace or a launderette (Hoorn & Kotte, 2016, p. 11). Hoorn and Kotte (2016, p. 11) indicate that sharing facilities has a positive effect on interaction and anchoring in the neighbourhood. The hard boundary between home and the city disappears. A home only provides primary private activities

and (semi-public or semi-private) facilities become an extension of the home. By realizing a living room in the middle of the co-living concept, attached to the gallery, I extend their dwellings while enhancing the social interaction.

Bouwfonds Ontwikkeling's (2011, p. 30) research shows that modern architecture is not easily regarded as attractive. Traditional architecture is preferred. The use of classic materials such as red-brown brick, glass and wood and natural colours are found to be attractive. Gray and black are judged too gloomy and materials like concrete and steel were judged as 'chilly'. In addition, it was indicated that variation and playfulness in the street-scape, such as variation in building blocks and differences in level between home, garden and street, are experienced as positive. The architecture of the houses must be adapted to the environment in the form of views for example (Bouwfonds Ontwikkeling, p. 30, 2011)

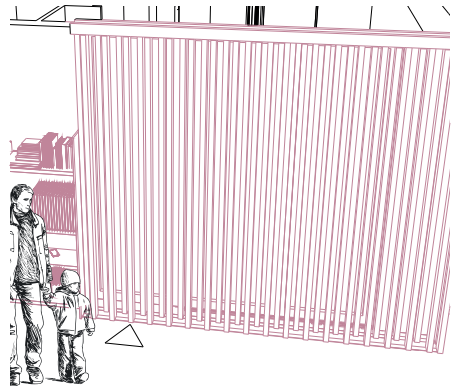
My building uses the materials wood, red-brown brick and glass. To create the variation and playfulness in the streetscape, a lot of different types of dwellings are presented with setbacks. There are shared roofterraces with urban farming and relaxation and living rooms with laundry and kitchens on every floor.



Setbacks in streetscape (illustrations by author)

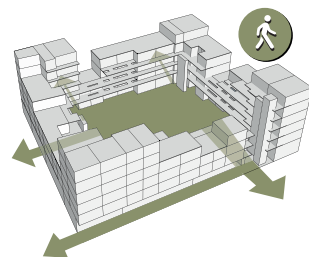
Safety

Safety scores highest when valuing environmental characteristics (Hoefnagel, 2011, p. 62), a house and neighbourhood in which they feel familiar. A harbour where they feel at home and from which they can set out. For privacy it is important to have transition zones between the public and private space to give the residents a certain degree of privacy. In front of the dwellings is a sunscreen, which the residents can move to determine their preferred degree of privacy.



Movable sunscreen (illustrations by author)

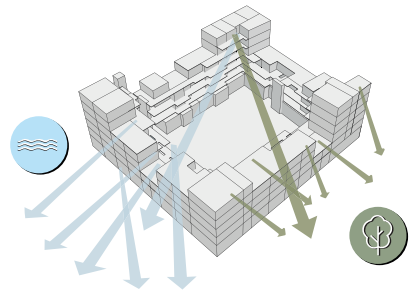
Public into the building creates liveliness, but not after a certain hour. Clustered front doors are preferred in this group. In my design there is a gate which invites people in, but is closable after a certain hour.



Open for public (illustrations by author)

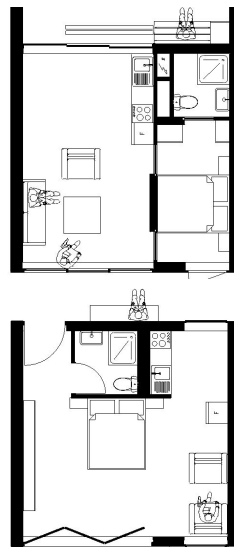
An owner-occupied home is often associated with freedom, as a owner-occupied home is after all from the owner. Ownership is seen as a good investment, but also gives a feeling of freedom, you can customize your home the way you want. This means that there are young professionals who choose to buy a home. For many single young professionals, however, freedom also has to do with financial freedom and flexibility. Buying a home can hinder the mobility / freedom of the young professional. For this reason, many young professionals prefer renting. 62.9 percent of respondents in Hoefnagel's survey (2011, p. 62) prefer to rent in the first instance. Incidentally, many starting young professionals do not have a choice between buying or renting. A starting young professional initially has a low starting salary and a temporary employment contract. The income is still insufficient to realize their wishes, they can rent or buy a house in a neighbourhood where they do not want to live. In this phase of life, however, there is also a strong growth in income in a relatively short period of time, which means that a more expensive house – rent or purchase – that more closely matches the housing needs. Young professionals are increasingly taking the freedom to determine their own path and enjoy life without limits. Freedom, independence and shaping your life are normal concepts nowadays (Populier, 2017, p. 6). Having a home where you feel safe and secure, where you can be yourself and from which you can shape your life, contributes to this. Freedom can be achieved through views

towards green and water nearby.



Views towards water and green (illustrations by author)

By giving the resident the chance to shape their apartment like they want is one of the ways to achieve the previously discussed freedom (Hoefnagel, 2011, p. 62). This is something I also talked about in my interviews with the residents from the Lofts in Amsterdam. "I got to choose my apartment layout, which was pretty nice". That's why I chose to make multiple floor-plans layouts, with each their own qualities and flexibility.



Dwelling type A and A' (illustrations by author)

Social interaction

Affordability and the choice of location have the greatest influence on the housing requirements of the single young professional. Affordable living in a central location is important to a large proportion of young professionals. The central location is important for this target group, because they see the city and its facilities as an extension of their home, more than other target groups. Due to the lack of a family, places to meet are important. This often takes place outdoors. They are used to living outside the door more. Because they spend more time outdoors, they need less space in the house (Hoorn & Kotte, 2016, p. 24).

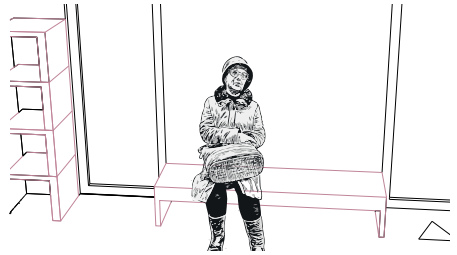
I designed roof terraces and transition zones for the residents to meet for small, visual and longer interactions. By adding movable sliding doors, the feeling of outside/inside is reduced and it can be used as an expansion of their living room and help with creating a sense of freedom for the residents.



Roof terraces (illustrations by author)

Social contacts are important. Many encounters often take place in public meeting places such as cinemas, discotheques and especially cafés. For this, the young professional often goes to the city centre. But the

immediate living environment must also offer opportunities for social contact. An eatery or a gym in the immediate living environment is of great added value. An attractive living environment offers space for contact and exchange between different users. This living environment includes places in front of the homes, where you can sit and meet your neighbours (Hoefnagel, 2011, p. 5).



Transition zones with benches and shelves (illustrations by author)

Young professionals not only find it important to have social contacts outside the home. Hoefnagel's (2011, p. 55) research shows that the home is also a place to maintain social contacts, share things and have time for each other. This value is expressed in activities such as being with a friend and eating together. There must therefore be room for this in the home. By creating a big flexible living room this is realized into the design of the dwellings.

From the interviews in the Lofts in Amsterdam I got the following results:

"I really like the communal spaces, especially since Covid. I used to work in office or in my apartment, but now that I have to work from home, I like to sit in the library with some people I know in the building."

"The bar and library are great places

to meet people, the first week I immediately knew some people from the building”

“I like that the staircase has a connection to the library and cafe. I can always see if I know people, after a long day at work and join them.”

Hence I designed the central circulation as a meeting zone. The horizontal circulation (gallery) acts like a meeting zone due to the transition zones and the vertical circulation is connected to the shared living rooms.

house in the rented house does of course contribute to making a house a home.

Living small is almost always a compromise. The choice for a small apartment stems from the trade-off between living space and residential identity. On the one hand, young professionals have a limited budget, especially given the rising prices in the city. On the other hand they pursue an urban lifestyle. To accommodate both, they make a choice between residential identity



Circulation and meeting space’ (illustrations by author)

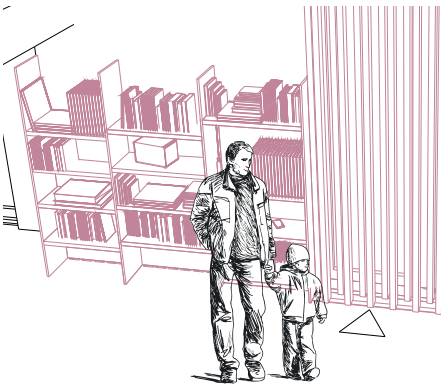
Identity

Young people also feel the need to give their home an identity by means of their own touch, such as a front garden. As indicated, there are young people who buy their own house. In addition to the fact that many young people do not yet have the financial means to come to a house, they also do not want to take on the obligation of their own home. The possibility of being able to adjust and repair the

(living in line with their urban identity and lifestyle) or more spacious living (cheaper, but outside the city). The trend for small apartments shows that young professionals are increasingly opting for the preservation of residential identity instead of square meters. Variation in materials in the apartment block gives recognition of the part the young professionals are living in and hereby familiarity with a place contributing to

feeling at home (Dopper & Geuting, 2018, p. 11).

In the Lofts in Amsterdam the residents said: "I got to choose my apartment layout, which was pretty nice"; this gives the resident the possibility to choose their apartment layout and gives them a sense of ownership, thus a feeling at home. The transition zones are the bay width of the dwelling x 1,2 meters in depth. This space contains some designed benches for social interaction. The space also contains bookshelves for personal belongings. It can act like a place of exchange of books or something else, where you can show something you're proud of and would like to share with or show the neighbours. Due to the variation in materials and setbacks your dwelling becomes recognizable. In combination with the open-able sliding doors to extend your living room and the nearby small scale facilities and a small, smart and ecological dwelling, appreciation in your home can be achieved for the young professionals.



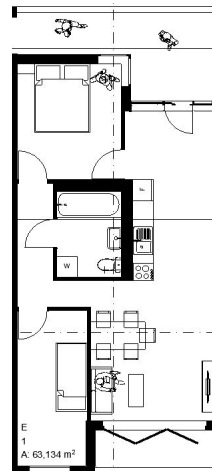
Bookshelves (illustrations by author)

Middle group, age 35–65 years

Many single people who fall under the target groups divorced and empty-nesters fall in this middle group in terms of age and of course the happy singles. What contributes to feeling at home for this middle group in terms of comfort, safety, social interaction and identity?

Comfort

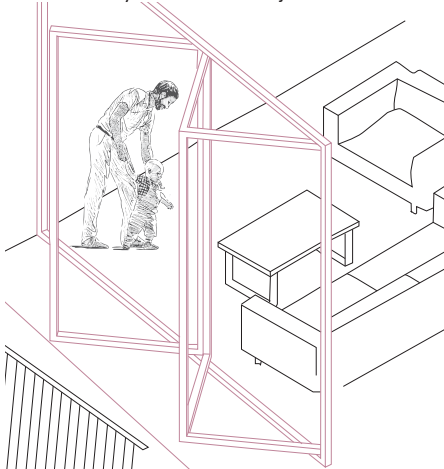
In contrast to the young professionals, this group generally likes to be home a lot (BPD, 2015, p. 8). A comfortable home contributes to this. In general, they work about 35 to 38 hours a week. These single people are used to being alone and find it very pleasant, especially in the evening after work. It's 'me-time', relaxing on the couch with a book, watching a movie or series, calling or using the internet. It is indicated that an apartment of 40 m² is the minimum. A classic three-room layout is most popular because it offers a living room, a bedroom and an extra room (BPD, 2015, p. 6).



Dwelling type E (illustrations by author)

Living rooms should above all be warm and cozy. Bedrooms should radiate peace and relaxation. They often sleep in a double bed, so a bedroom in a single-person household should in principle be the same size as a bedroom in a multi-person household. These singles place great value on storage space. When they are alone, they prefer to eat on the couch and watch TV. When friends come to eat, they sit at the table together (BPD, 2015, p. 8).

An outdoor space is seen as necessary. An unobstructed view is very popular, but even if there is no nice view, people want a balcony or garden. The singles use the outdoor space to relax, eat and drink, hang up the laundry and do odd jobs.



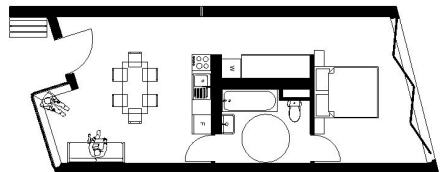
Outdoor space (illustrations by author)

Almost everyone has or wants an extra room. An extra room is often used as a hobby room, extra room for when the children come to visit, storage space or work space and seems to be essential for these single people (BPD, 2015, p. 8).

This research shows that this group

is not really enthusiastic about the idea of sharing things. There is a perception that they will then have to give up some of their privacy, freedom and independence. They would consider sharing residential functions, such as a kitchen or a laundrette, an invasion of their privacy. Also, "sharing" is associated with "college years," and thus with the idea of "taking a step back in life" (BPD, 2015, p. 10). For most of the middle group, housing concept 3 (independent living) fits best.

Both or one of the two partners must look for another home after a divorce. Certainly if children are also involved, it primarily concerns who will live where, spousal and child support, dividing the estate and making agreements that are in the best interests of the children. The first priority for those who leave is not to immediately find the perfect home that meets their housing needs and where they feel at home, but to find a temporary living situation. In general, two years are needed to find a more sustainable solution to the housing problem (divorce shop). After 2 to 3 years, a more stable situation arises and people start looking for a suitable home. For this group I introduced some smaller short stay independent rent apartments, which gives the divorced resident to adjust and flow through into a different apartment in the building.



Dwelling type D (illustrations by author)

From research among empty-nesters who live in a land-bound home and who are considering a move, almost half indicate that they think they now live too large and are therefore looking for a smaller home. These empty-nesters no longer need all that space and those bedrooms once the children are finally on their own two feet. A smaller house, with at most an extra room for when a (grand) child comes to stay, is more than enough and also a lot less laborious to keep clean. Other reasons for wanting to move are health reasons, but also the convenience of not having to keep a garden anymore, they prefer a small balcony or space in front of their home (Crutzen & Hagen, 2020).

Safety

The middle group starts getting health issues and prefer a living room next to the circulation. Social control from your neighbours is important, while keeping a degree of privacy in the form of transition zones between public and private. They prefer a gallery which ensures a sense of safety in the dwelling, due to social control (Crutzen & Hagen, 2020).

This group likes noise until evening hours, when it's 'me' time. The architect has to think about a solution to keep the noise at a minimum when the sun starts to set (Crutzen & Hagen, 2020). This is one of the reasons why the co-living and independent housing concepts are separated in the building. Whereas the singles who enjoy co-living prefer noise, the singles who enjoy independent living prefer silence. The middle group prefers to buy a home and likes to design it the way they want. The dwelling need a

degree of flexibility for the resident to create their own interior and apartment layout (Crutzen & Hagen, 2020). By designing only a wet core, the resident is free to adjust and reshape the interior of the dwelling.

Views can help the resident feel free. By unobstructed views towards water and/or green, this can help the middle group to feel a sense of freedom and thus a sense of feeling at home. In addition it is also important having view on a place nearby where the (grand)children play (Crutzen & Hagen, 2020).

Social interaction

This group also finds social interaction important. They spend much less time away from home than the group of young professionals and spend an average of four evenings at home alone. They also receive friends and family at home (BPD, 2015, p. 8). When they come to eat, they sit at the table together. There must be room in the house for a dining table. On the other evenings they do go out to meet friends and/or family elsewhere (BPD, 2015, p. 8).

As indicated, an extra third room is desired. The longing for this extra room is also accompanied by hospitality. Of course as an extra room for (grand)children, but even though an extra sleeping place for guests is only used ten times a year on average, single people find it important to be able to offer it at all times (BPD, 2015, p. 8).

For this group, the attachment of the social network in the current neighbourhood where they live hinders moving to an apartment.

Kremer (2020, p. 9) has investigated the reasons for moving empty-nesters. This research showed, among other things, that the empty-nesters still move little in order to presort for the next phase of life. One of the reasons that makes them less likely to move on to another home is that they are attached to the social network in their area and are familiar with their current living situation. They like to move if there is a good (visual) connection with the new neighbours and if it's in the same city as their previous home. My design makes place for this group of single-person households from Rotterdam, looking for a home where they can receive guests, meet neighbours in the circulation space and transition zones and still be able to visit their children or vica versa.

The middle group prefers to have a shared garden where there are activities such as gardening or yoga, where they can meet other residents. They like interactions and the previously discussed transition zones are places for small talks with the other residents (Kremer, 2020, p. 10).

Identity

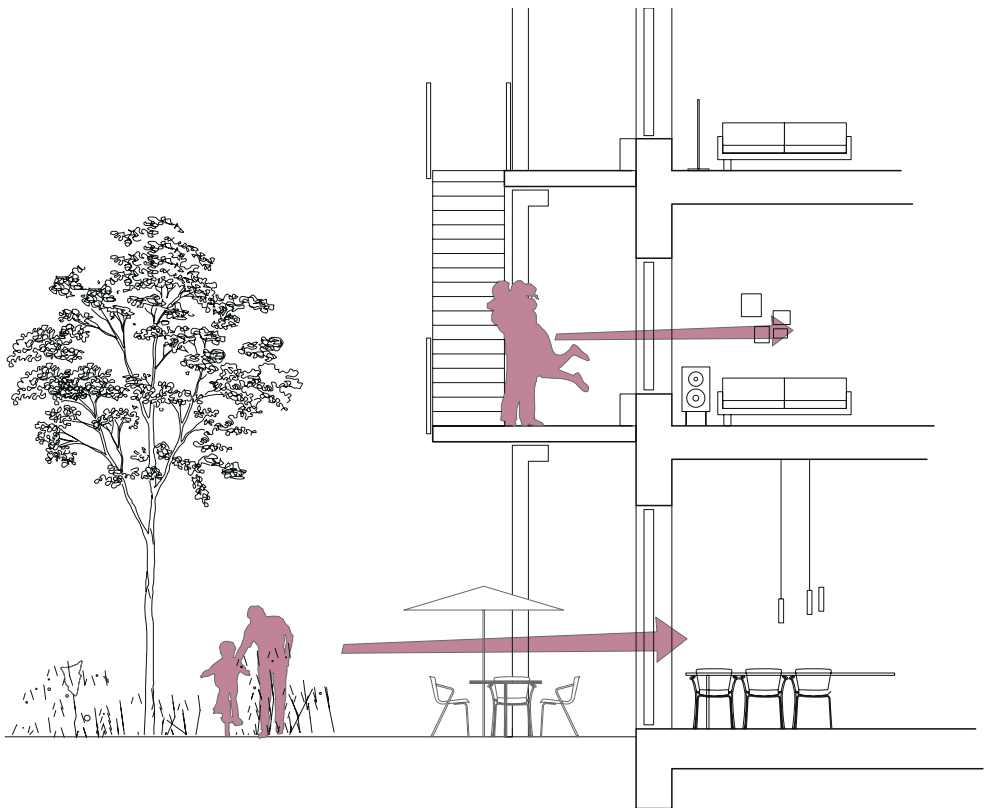
This phase of life generally concerns vital people, including the somewhat older people within this middle group, such as the empty nesters. Empty nesters consist of a group of people whose children have started living independently. They are on average 56 years old. More than 90% of empty-nesters still live in the same family home 5 years after the last child left home (Kremer, 2020, p. 9). Because of these empty-nesters, little is moved to pre-sort for

the next phase of life. In addition to the reasons mentioned under social interaction, it is also that this group often does not find the offer attractive enough (Hagen & Neijmeijer, 2020, p. 3). Homes for seniors do not fit in well with the empty-nester group. It concerns a very varied group that actively participates in social life. People over 55 are not attracted to an apartment with a rollator image (Kremer, 2020, p. 60). This probably applies not only to empty-nesters, but to all singles of this age. This older group still feels vital. If they want to move, they definitely don't want to move to a retirement home yet. The image of a senior citizen's home as a follow-up home is not good. By building comfortable apartments for this target group, more flow can be initiated in the housing market. Kremer (2020, p. 60) indicates that more should be associated with an active lifestyle. Homes should be suitable if physical limitations start to arise, but this should not be the first appearance.

This group likes to have initiative in creating their own home. Think about apartment layout, but also a private outdoor space which they can design themselves (Kremer, 2020, p. 64). Even though this group of single-person households is still very vital. I however make the dwellings life-proof, by making them one floor and add wide turning circles. I kept in mind the elderly scale, by realizing two handrails on the gallery and lowering the windows, in the unfortunate case a resident ends up in a wheelchair due to old age.



Shared roof terraces with urban farming (illustrations by author)



Shared garden and transition zones connected to living rooms (illustrations by author)

Elderly Age 65+

This group includes a large part of the group of widows and a part of the happy singles. What contributes to feeling at home for this group in terms of comfort, safety, social interaction and identity.

Comfort

The elderly are increasingly confronted with physical and sensory decline and reduced health, which means that their mobility is increasingly becoming more and more limited. The housing requirements of the elderly vary widely. In general the elderly prefer to live independently in their own home for as long as possible and to remain self-reliant. The home must therefore be able to meet different and possibly changing needs. The nursing home only comes into the picture when things really don't go well (Sikma, 2011, p. 36).

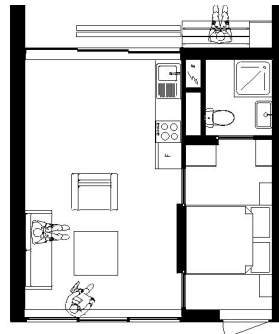
The elderly will slowly develop physical barriers and health issues, a small apartment makes sure that they can easily access all rooms. 30 - 40 m² are the guideline, due to mobility issues it is advised to create small apartments so the elderly do not have to bridge big distances within the dwelling (Sikma, 2011, p. 36).

As a result of this decline and reduced health, the elderly are forced to be much more house-bound than the previous groups. For this reason, any unsuitability of the home has more consequences for them than for younger age groups. It is important to make the living space and immediate living environment user-friendly and accessible in order to allow older people with limited mobility to retain their freedom and flexibility as much

as possible, so that they can continue to participate in society and maintain contacts (Sikma, 2011, p. 36).

When an elderly person is forced to spend more and more time in and around the home as a result of reduced health, matters such as temperature, acoustics, lighting and air quality become more important (Jonker, 2016, p. 76). Providing comfort is very important for self-reliance and the feeling of being at home. For example, a good indoor climate ensures that people can keep moving on summer days. The extent to which a room is experienced as pleasant is related to, among other things, temperature. But correct lighting and acoustics in a room also provide a more pleasant feeling and contribute to a feeling of home (Jonker, 2016, p. 86).

A big part of the elderly prefers to live independently for as long as possible, in an environment with a mixed population of all ages and household compositions. A large part of this group is not (yet) in need of care. This group of single-person households likes to share stories and facilities with their neighbours. This group fits well into housing concept 1.



Dwelling type A (illustrations by author)

A growing number of elderly people are increasingly focused on the city. Proportionally, more and more wealthy and active elderly people are moving to the city. They have time, are vital and visit the city for entertainment. Because children are now living away from home, they are exchanging their spacious family home for a smaller – one floor, with a view to the future – apartment in the city. The apartment should radiate luxury and comfort. Generally, older people prefer a relatively larger apartment than younger people. Simply because they have more belongings and are used to a spacious family home (Dopper & Geuting, 2018, p. 13). They want a house with at least two bedrooms, a storage room on the ground floor, an outdoor area and a safe living environment. These ‘young elderly people’ appreciate certain facilities in the field of convenience, comfort and service, like a sauna, massage salon, hairdresser and/or fitness (Gemeente Den Haag, 2011, p. 11).

Dopper & Geuting (2018, p. 21) indicate in their research that they expect that the demand for small apartments among this group will increase due to the increasing group of (self-living) single elderly people. Small apartments are relatively low maintenance (especially for rent), in addition, the shared facilities (if available) and living with like-minded people may appeal to the older target group. It is indicated that this group opts for comfort and prefers to live in an easily accessible place, close to amenities. At the same time, peace and security are important. They like social contact so as not to become isolated. It is

also appreciated if they can make use of collective (care) facilities, spaces and activities (Dopper & Geuting, 2018, p. 21).

One of the residents from Knarrenhof in Zwolle said: “they (the architect) do not think about us, we are not as tall as your average resident. I can not clean my doors because they are too high!” It is important to think about the elderly and their reach. Also lowering the windows, so if they end up in a wheelchair, they can still look outside.

Safety

To experience a feeling of home, it is important that the resident feels safe in his or her home. Safety is about the protection of the resident, but here too it is about the freedom of the resident. If a resident feels safe in his environment, he feels free to move more freely. This concerns an accessible public space that is designed in such a way that the elderly - also with possible disabilities - can participate safely in it. This is one of the reasons why the wide transition zones were realized. The elderly have more space and a turning circle if they become less mobile.

Freedom is also obtained through an outdoor space. It is important that the house has the opportunity to roam around inside and outside the house, even if it is just a small balcony. This gives a feeling of freedom (Jonker, 2016, p. 74).

The public space must be designed in such a way that the elderly can participate in this environment, despite their limitations. They should

feel safe and free enough to go outside. These include necessary activities such as grocery shopping, optional activities such as taking a walk or sitting in the sun, and social activities such as holding a conversation. An accessible design of the public space with attention to accessibility, convenience, social interaction, safety and attractiveness of the public space is important. This is one of the main reasons why my circulation space plays a big part of my design.

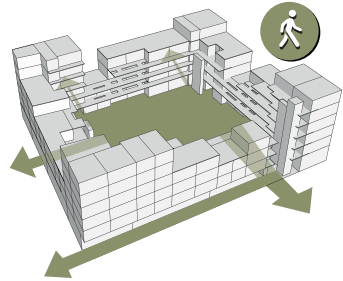
The elderly in Knarrenhof in Zwolle said: "I wouldn't move if I had an elevator". According to Jonker (2016, p. 74) the elderly want an elevator outside the view. They want the possibility to take the elevator but rather take the stairs as long as possible to show their independence.

The elderly like to have social control over each other. A lot of elderly have a call chain to talk to each other in the morning and see if they are still fine. They prefer a living room next to the circulation so they can see each other and wave to each other. The elderly like to sit outside and see their neighbours in the morning and evening (Jonker, 2016, p. 74).



Transition zone connected to living room
(illustrations by author)

The elderly like to talk to newcomers, including people from the neighbourhood. They prefer having an open building block or functions in the plinth, so they can talk to by-passers. This gives them the freedom to let the public come to them. In addition it is also important having view on a place nearby where the grandchildren play (Jonker, 2016, p. 82).



Open for public (illustrations by author)

Social interaction

For the elderly, too, it is important that the resident is able to engage in social interaction in order to experience a feeling of home. The resident can make contacts by receiving guests or by meeting people outside the home.

The immediate living environment becomes more important as people get older. In the long run, many elderly people have fewer and fewer options, both physically and mentally. As the physical and emotional limitations of older people increase, the world they can most easily reach (the neighbourhood) becomes more important for their psychological well-being (Sikma, 2011, p. 32). This is also because the elderly are no longer always able to drive or cycle and have a small range (Stavenuiter & van Dongen, 2008, p. 14). Due to reduced mobility, but also due to a shrinking network and

children moving house, the elderly have a greater need for replacement social networks at neighbourhood and district level. They also want to live close to amenities. The distance to facilities must be bridgeable for an elderly person.

Not only the accessibility but also the attractiveness of a route determines how often the elderly go out.

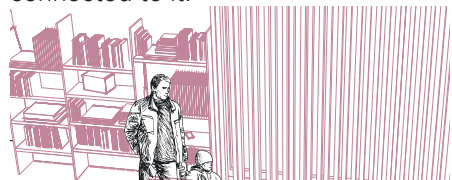
Footpaths, for example, should not only be passable, but also pleasant to use. If the elderly enjoy walking, they will do it more often. Street furniture (signs, benches, toilets, etc.) are a requirement for a liveable public space for the elderly. An important added value of an accessible public space is that people do not have to look down all the time. By making transition zones where residents can sit, I created streets in the air with close ties between neighbours, where elderly don't have to look down and can rummage around. Activities with other residents, similar to the middle group is important to achieve and maintain social contacts, since their own social contacts are decreasing. This is realized in the shared courtyard and facilities in the co-living housing concept.

Identity

In order to feel at home, it is important that a user can process his own identity in the house and make the house his own (Jonker, 2016, p. 70). Especially in the case of the elderly, the resident likes to be surrounded by known and cherished objects, such as photos of family and friends.

In general, it can be said that older people who are satisfied with their

current living situation want to continue living there because they have lived there for years, have built a life with memories and have a network of friends, acquaintances and neighbours (Nivel, Kirti et al. 2014, p. 29). But even if their house no longer meets the requirements, the elderly often prefer to stay at home because of the personal and financial safety, memories and the feeling of home that their own home offers to the elderly (Sikma, 2011, p. 36). Many elderly people own a home. As indicated, there is an increasing group of elderly people who want to exchange their larger owner-occupied home for a smaller apartment, but this is a minority. The research by Blije and van Hulle (2009, p. 79) shows that older people in the age of 65 to 75 years in particular want to move from an owner-occupied home to a rental home. My design gives place for these elderly who want to move to a co-living concept where they can have strong ties with neighbours and a lot of attractive outdoor space. The elderly need to have the option to store their memories/objects and create their own front garden. In front of their dwellings there are designed bookshelves with personal belongings which the resident can show or share with their neighbours. The elderly like to talk about their own belongings and share the stories connected to it.



Bookshelves with belongings of residents
(illustrations by author)



Flexibility within the dwelling



Variation in building blocks and streetscape: differences between home, garden and street



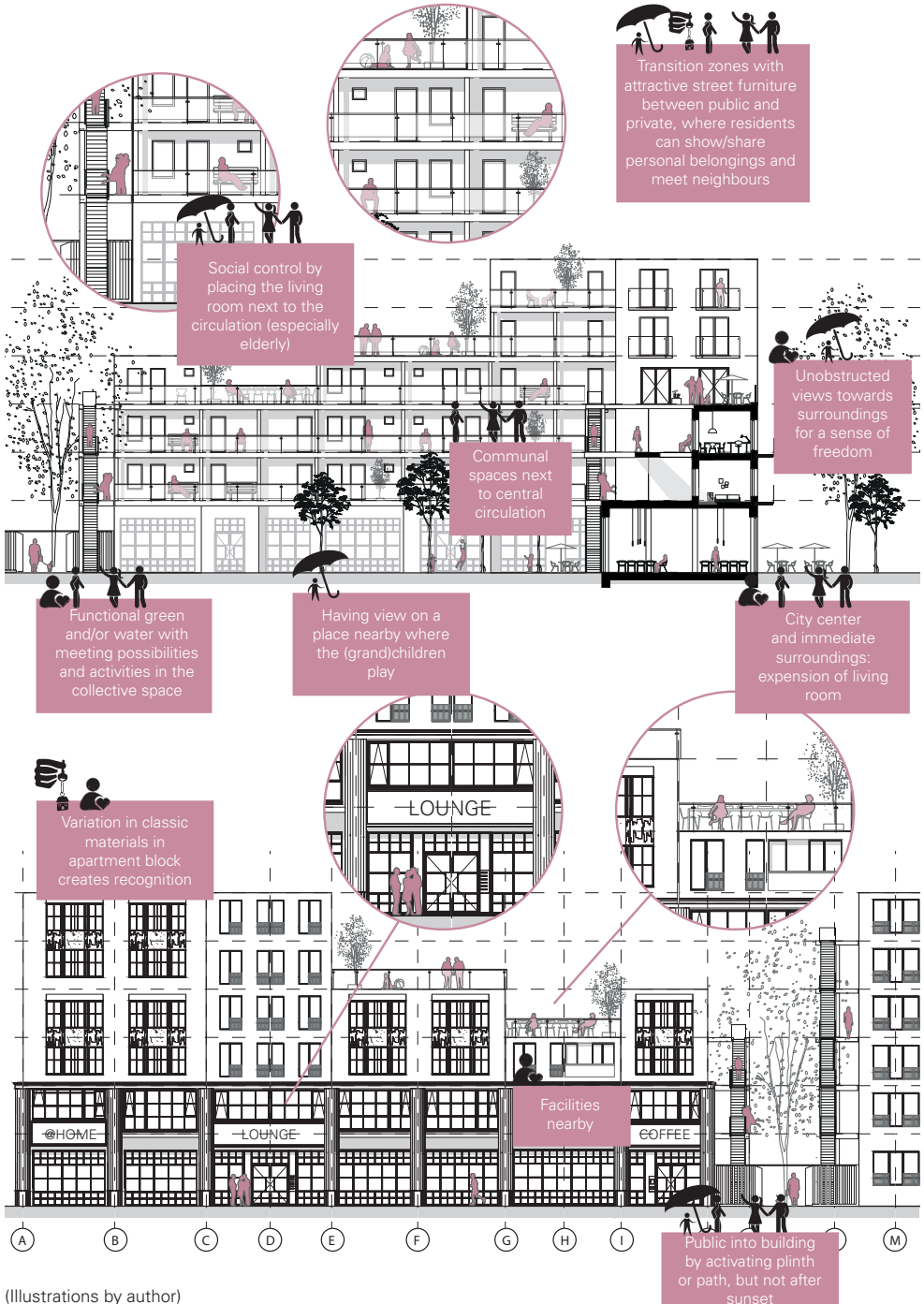
The dwelling need a degree of flexibility for the resident to create their own interior, apartment layout and space around their home



Elderly scale: lowered windows and benches

(Illustrations by author)

Building overview



(Illustrations by author)



5. Graduation plan & bibliography

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Personal information

Name Mick Hiskemuller
Student number 4591488

Studio

Name studio Advanced Housing Design
Main mentor Theo Kupers - Teachers of Practice / A (AR3AD100 Advanced Housing Design)
Second mentor Anne Kockelkorn - Form, Space & Type (AR3A010 Research Plan)
Thrid mentor Ferry Adema - Building Product Innovation (AR3AD100 Advanced Housing Design)
Argumentation of choice of the studio I am interested in designing a mixed, high quality living environment and affordable housing, combined with smart living-work solutions for various people. The research method by looking into case studies and interviewing residents both suit me well. I followed Dutch Dwelling's MSc 1 and was very enthusiastic about it. During this period I also wrote my History Thesis about the transformation of Merwe-Vierhavens and Delfshaven in Rotterdam, which is the design location for this design studio, because I find both areas very interesting.

Goal

There is a big need for new homes in The Netherlands. This need contains of one million new homes between now and 2030 of which 54.000 are to be realized in Rotterdam (NOS, 2020). Adding new homes is an immense task in every imaginable way: logistics, policy making, financing and sheer building volume.

The one million homes challenge is a matter of quality. 'How do we, as architects, provide suitable and affordable housing for a diverse population? To answer that question we need to know more about the people who inhabit - or want to inhabit - our cities. Who are the modern households? What do they aspire to? Where do they live now and more pertinent to us, as architecture students: where and how do they want to live?

For this graduation studio, the sight is set on the Rotterdam harbour area of Merwe-Vierhavens (M4H). The goal of the municipality of Rotterdam is to create an innovative live-work environment, intended to bring creativity, innovation and making together. To this ambition, the notion of inclusiveness and equality will be added by focussing on the myriad of modern household types that have developed in recent times and for whom recognition is of paramount importance.

The composition of households has changed significantly in recent decades, the married couple with children is no longer the norm. This change is characterized, among other things, by the sharp decrease in the average number of persons per household. Households in the Netherlands are getting smaller and single is increasingly the norm (Lansbergen, 2018, p. 9).

This research report focuses on the modern household group single-person households. Who are the single-person households, what is the reason for the household decline and what is the reason for the need of less living space? Is singularization also a problem of impoverishment?

Feeling at home is the main topic of this research report and is investigated by the use of the concepts comfort, safety, social interaction and identity. I link feeling at home to the different groups within the single-person households to investigate how single-person households of all ages and income groups can feel at home. This is translated in the following research questions:

"How to design a future-proof residential complex where single people of all ages and backgrounds will feel at home?"

In order to provide structure, I divide this overarching question into the following sub-questions:

1. What is meant by a single-person household and which subgroups can be distinguished?
2. Single is increasingly becoming the norm, why is that and how do those singles live?
3. Why does the housing market not respond to the growing needs of solo dwellers?
4. What entails a feeling at home for different single-person households?
5. How will building with inclusive purpose help single-person households with different incomes and ages to feel at home?
6. How can the “feeling at home” be translated into design?

Process

The first part of the research focuses on literature studies into single-person households and the housing market regarding the single-person households. First the types of single-person households are distinguished and why there is a shift in the household compositions. Afterwards, the focus is on the current housing market and what influences the housing market has on the single-person households.

The second part of the research focuses on feeling at home and what it means to feel at home for the different single-person household. I'll explain how an architect can contribute to feeling at home for the future residents regarding the topics identity, safety, social interaction and comfort. To show the view of different single-person households on feeling at home, I include interviews with residents from my case studies. I combine feeling at home with the housing requirements of single-person households.

The third and final part is about what building inclusive is and how it can be achieved. Why is it important to build with inclusive purpose? How will this help single-person households with different incomes and ages? Could building with inclusive purpose help designing a building complex for different single-person households? In this part I also compare five case studies for single-person households on the topics identity, safety, comfort and social interaction. I compare the housing wishes and feeling at home from the different single-person households and the interviews. The main goal is to find the similarities and cherish the differences between wishes, feeling at home and design interventions to create a future-proof residential complex with homes of relatively small areas where single people of all ages and backgrounds will feel at home.

Bibliography and general practical preference

To assure the validity and reliability of the data, I use triangulation. “Triangulation is a method used to increase the credibility and validity of research findings. Credibility refers to trustworthiness and how believable a study is; validity is concerned with the extent to which a study accurately reflects or evaluates the concept or ideas being investigated. Triangulation, by combining theories, methods or observers in

a research study, can help ensure that fundamental biases arising from the use of a single method or a single observer are overcome (Noble & Heale, 2019, p. 1).” I’ll explain how I used triangulation in my literature research, fieldwork and case studies.

Literature research

The literature research is the base of my research report and is the most important source of information in my research. The literature research is apparent in the whole research rapport. To answer the research question “How to design a future-proof residential complex where single people of all ages and backgrounds will feel at home?” I did an elaborate literature research with multiple scientific sources. Six subquestions are drawn up with each its own theme. I applied triangulation in each part of the research by using multiple scientific sources to establish validity and reliability. The use of multiple sources to approach these topics from different perspectives gives me a broader and more elaborate research.

Fieldwork

The main goal of the research is how single-person households live and want to live and how they can feel at home. This relates to the observation of human action which can be described as praxeology. To design truly to the wishes of the future users, an in depth research is needed, which also involves fieldwork. The fieldwork is apparent in the second part of the research in the form of interviews and ethnographic drawings. This is valuable information for being able to design more accurately to the wishes and needs of the single-person households and can confirm or debunk the literature research, hence it is the second most important source of information for my research rapport.

During the research, I visited Knarrenhof in Zwolle and Lofts in Amsterdam. The residents from Knarrenhof are single-person households consisting of independent elderly. The residents from the Lofts in Amsterdam are single-person households consisting of young professionals. On both locations I held interviews with residents about their apartment, circulation space, communal spaces, public spaces/plinth and their feeling of home. These type of questions belong to phenomenology. How do they experience and see things from their perspective?

Besides the interviews, I also made drawings of noticeable things on location, like their transition zones, to capture how they transferred their identity into their own spaces. By the use of praxeology and semiology, I looked at how the residents decorated their apartment or shaped their private gardens. I wanted to see how the residents used the space around their homes. I transferred this information into ethnographic graphics.

I did interviews with the architect from the locations to compare the three different types of observations/collected data. I did these interviews to see if their original ideas for the residents were realized.

During the research, I interviewed three students, who are living alone, so most future residents are represented in the eventual design for Merwehaven.

To finalize the fieldwork triangulation, all interviews and observations are compared to see which final guidelines could be drawn up for the eventual design for Merwehaven.

Case studies

I used the case studies in the final part of the research. The case studies are used to look at existing housing projects for single-person households. I used the literature research and fieldwork to see if the aspects of feeling at home and housing requirements of different single-person households are apparent in the case studies. I used this information to look at how the wishes were translated into an architectural design. This information is the third most important source of information for my research rapport.

For every case study, the morphology is important. What is the organization and what makes it characteristic. By looking at the morphology of the build structures the layout of the building plot can be seen. Architects most of the time look first at the building which is shown by the morphology. But equally important are the surroundings.

Another methodology used during the case study analysis is to capture the characteristics of the typologies. What type of dwellings are in the building? How are they used and what is the circulation?

Finally the methodology topology is used to see the dimensions of the spaces within the building.

Reflection

Most design assignments for architects (and in my previous master and bachelor courses) about single-person households are about a particular group, like students, starters or elderly. To create inclusiveness within the single-person households, it is important to keep in mind that everyone is different. There is not a 'consumer'. From the architectural perspective, the focus is on the wishes and housing requirements of different groups within the single-person household segment, creating a building complex. As the group of singles grows, there is a need for forms of housing that suit their living situation, budget and housing requirements. In the light of the inclusive society, housing concepts in which residents can mean something for each other are in the spotlight. I want to design a complex where young and old can help and meet each other, exchange knowledge or even something simple as taking the dog for a walk or having social control over each other.

In support of this goal, worldwide attention has been increasingly focused on the added value of bringing generations together and mutual solidarity. The European Union put the subject on the map with the launch of 'the European year of active

aging and intergenerational solidarity' in 2012 (European Parliament, 2011), and in the Netherlands, too, attention is being paid to initiatives that connect the generations (Aedes-Actiz, 2016). A residential complex that is suitable for young and old, with a focus on mutual interaction and participation, can offer an helpful solution for social and housing issues to counter loneliness and the need to move. For example, younger solo's can help elderly with moving stuff around their home, while elderly can help with watering the plants, when the younger solo's are on holiday.

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Own interviews with young professionals:

Apartment

"The size of the apartment is just big enough, it should not be smaller."

"The cool thing is that I have a large windowsill, I usually use it as a bench when I read. It saves me a lot of space"

"The only think I don't like is that my bedroom is in my living room. I prefer it to be a separate room."

"I would like an extra room for work."

"I like that the kitchen is part of the living room."

"I got to choose my apartment layout, which was pretty nice"

Circulation space

"The corridor is a bit dark sometimes. I would prefer more light."

"A friend of mine lives next to the gallery, I would prefer that more. The corridor sometimes feels like entering a hotel."

"I like that the staircase has a connection to the library and cafe. I can always see if I know people, after a long day at work and join them."

Communal spaces

"I really like the communal spaces, especially since covid. I used to work in office or in my apartment, but now that I have to work from home, I like to sit in the library with some people I know in the building."

"The bar and library are great places to meet people, the first week I immediately knew some people from the building"

Communal spaces

"It's not always busy, the roof terrace however is used quiet often when the weather is nice."

"I really like the communal spaces, especially since covid. I used to work in office or in my apartment, but now that I have to work from home, I like to sit in the library with some people I know in the building."

"The bar and library are great places to meet people, the first week I immediately knew some people from the building"

"It's not always busy, the roof terrace however is used quiet often when the weather is nice."

Public space/plinth

“Sometimes it gets busy, so I like looking outside my window, while I read. I like there to be some commotion.”

“There are not really functions I use, but I know some people who do. I think it’s primarily for people who aren’t living here.”

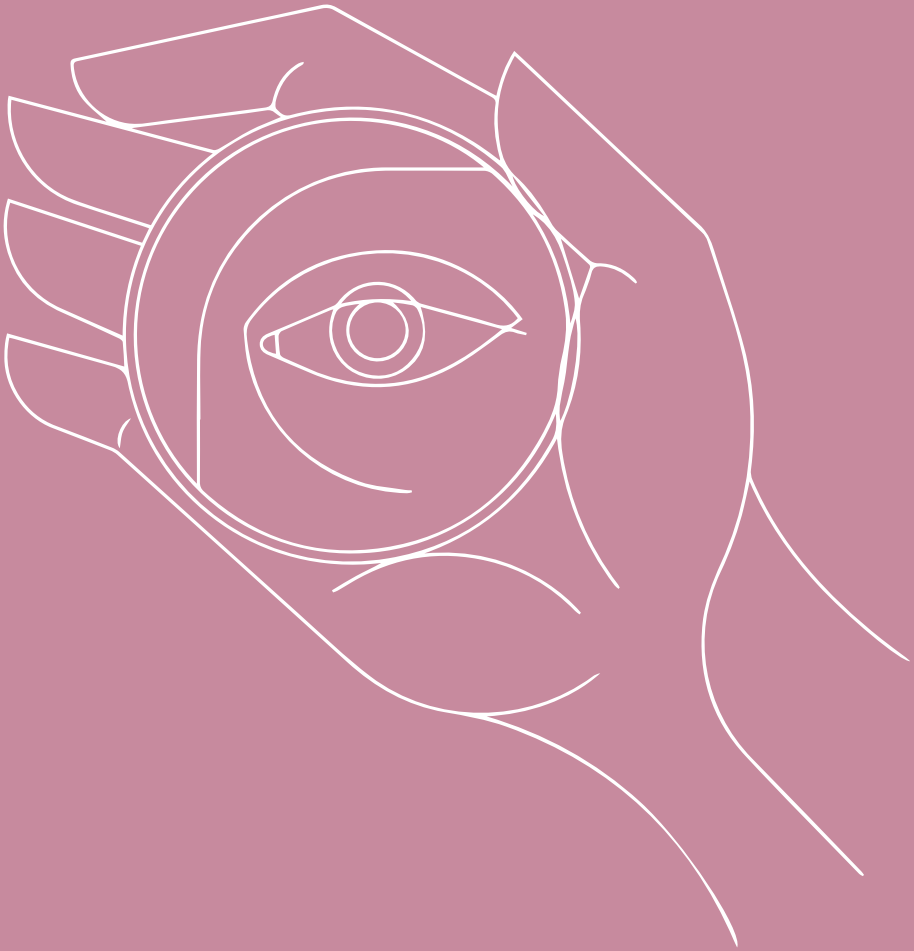
“There isn’t much green around, that is the only thing I’m missing. The rest is fine, we live next to the metro station.”

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6. Reflection

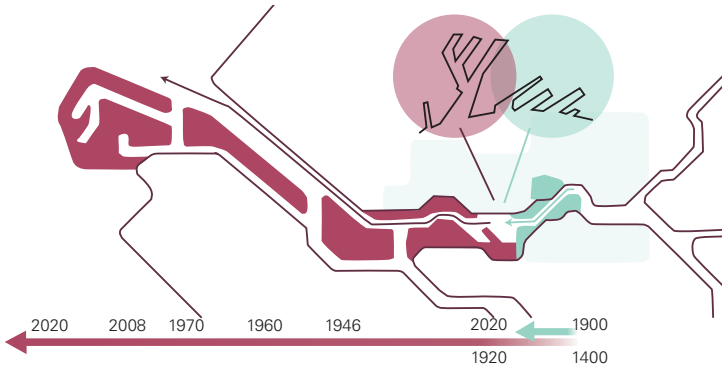
In this chapter I explain the relation between my design and research, ethical dilemmas I encountered, the relationship between the graduation project and the wider social, professional and scientific framework, the relation between research method and approach and the graduation studio methodical line of inquiry and finally the relationship between my graduation topic, the studio topic, the master track and my master programme.

Aspect 1

The relationship between research and design

Research has been the base of my design since the start of my graduation process. The research provided me the knowledge to make my eventual design appropriate and functional, while the design gave me insights for future problems, which led me to do additional research. It was an iterative process, sometimes working longer on the design at the time and sometimes working longer on the research. The more I closed to the end of the year, the more design based my iterative process became.

During this year I did all sorts of research. The start of the year was group work on the location, residents of Rotterdam and modern households, which gave me a good insight of the shifts in (market)trends, city/harbour shifts and corresponding consequences. I learned about how and why the harbour of Rotterdam decayed over the years and why the municipality wants to improve this area. It was interesting to see how an area can evolve over time; from a flourishing fruit and juice harbour area to a decayed area with drug use and prostitution and how the state of the area translated into the buildings within. The market and resident research into who the modern households are, gave me the possibility to think about why there was a shift in the first place. Single-person households and elderly were especially interesting to research. The double aging effect, emancipation and use of birth control for example played a huge part in the household shift within these groups. This formed the basis for the choice of the future residents for my design, which were single-person households.



Shift in harbour areas in Rotterdam (illustration made by author)



Source: Wagemans, J. (2013). Analyse van het Katoenveem. Retrieved from <https://www.studeersnel.nl/nl/document/technische-universiteit-delft/ontwerpproject-5/overige/analyse-van-het-katoenveem/68027/view>



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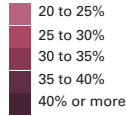
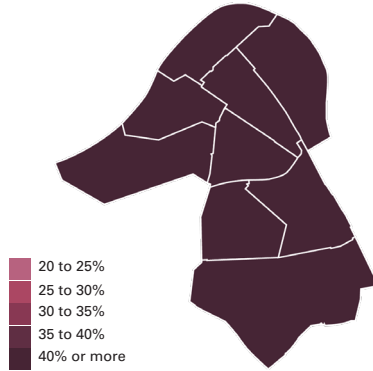


Source: Havenkrant (2021). Retrieved from <https://www.portofrotterdam.com/nl/havenkrant/havenkrant-35/van-verval-len-haven-tot-hippe-hotspot>

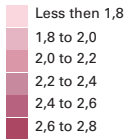
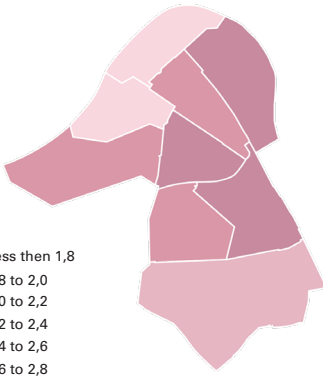
Density
11.069 inhabitants per square kilometer



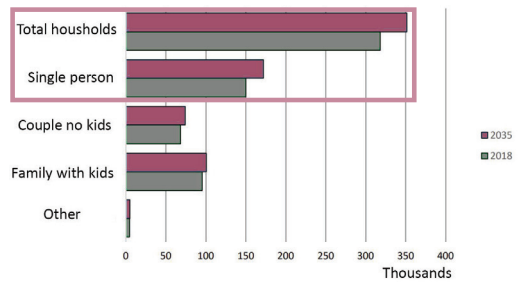
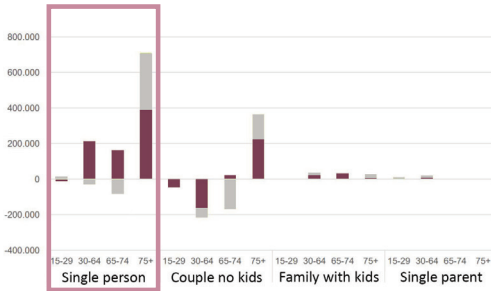
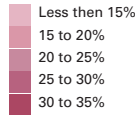
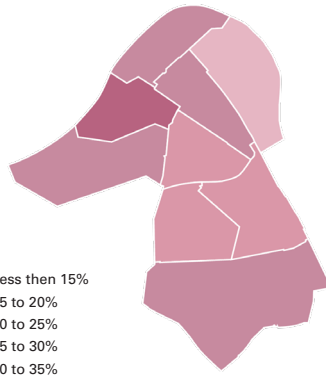
One person households
According to CBS (2019)



Average household size
According to CBS (2019)



Households without children
According to CBS (2019)



Source: CBS, 2019

Source: Hoppeteyn, Permentier & Van der Zanden, 2018

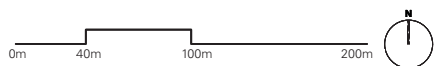
While researching and doing market research, my graduation peers and I worked on an urban plan for the Merwehaven design location. After doing the literature research, we decided to visit the design location to get a good look at what the location feels like. Is it like it was described in my history research? This studio is about researching why and how the modern households want to live. I think it's important to experience as much as possible in person and not only doing literature research. I think it's good to experience and feel what a location is like. Since the site visit, this approach became the basis of my design. I constantly try to put myself in the shoes of the future residents. How are the residents using the building? How do they reach their dwelling? What are the spatial qualities of the building? I try to design from a human centered approach.

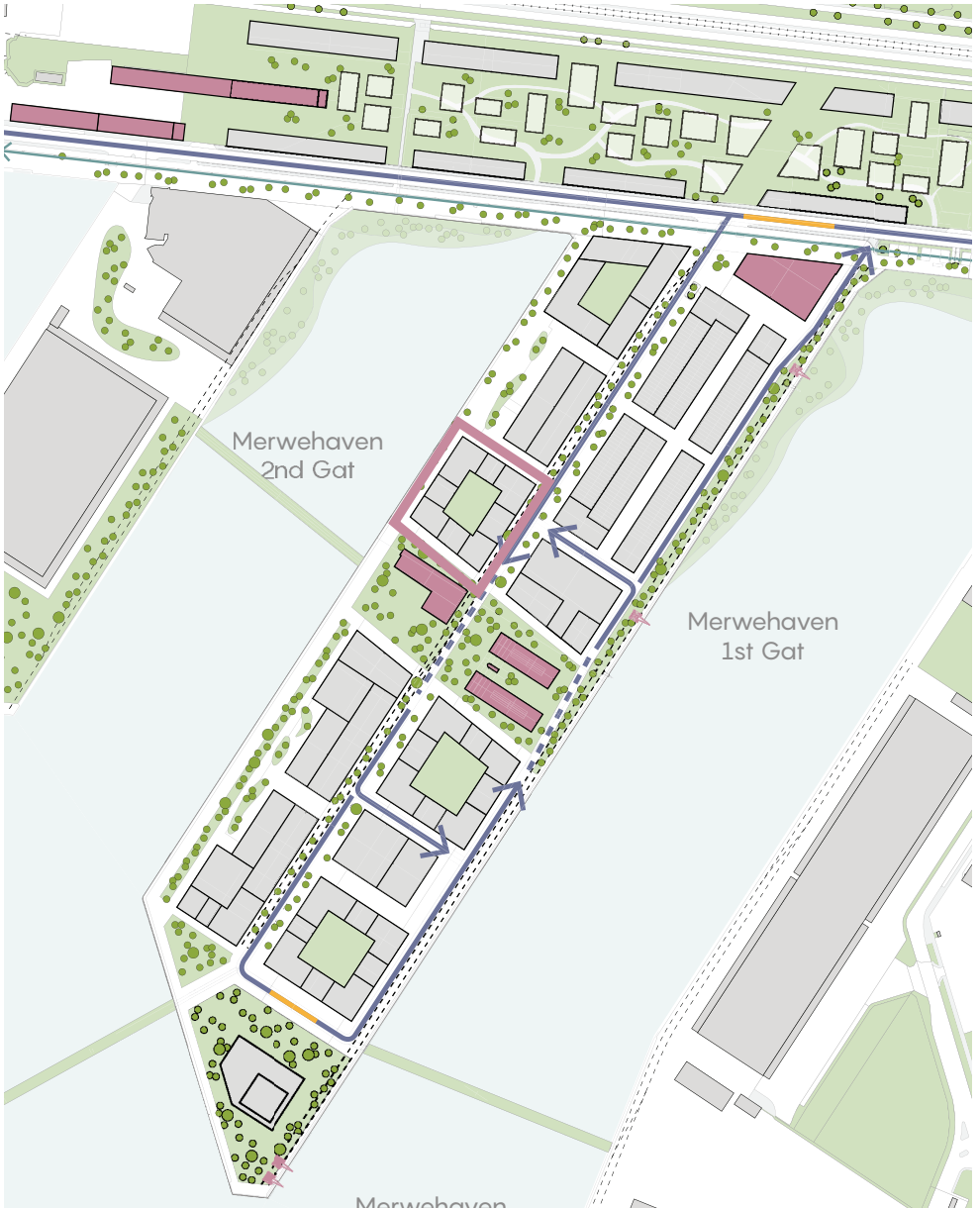
Once we arrived in the area, it was indeed a decayed area. However there were a lot more businesses than I expected. All with a connection to the past: fruit and juice businesses, old cranes, train tracks and buildings designed for harbour trade. My literature location research described the area as decayed, deserted and unpleasant. We found this not to be exactly true. We saw a lot of potential in some of the industrial buildings and genius loci of the location.

During our site visit, I talked to residents in the adjacent neighbourhoods and noticed that the feelings surrounding the area differed from person to person. Most never visit, since the area is mostly industries and has no pleasant outdoor space. Others used the area to walk their dogs and clear their minds. This showed me how different people can be regarding a certain topic. This showed me that for my research into feeling at home, I have to take this subjectivity into mind. Everyone is different, how does that influence my research and design?



Site visit (pictures made by author)





My literature research into single-person households and site visit showed me that everyone is different, with different wishes, income, housing requirements and ages. I combined single-person households with the research topic feeling at home. How could I design for all these different people with different wishes and link that to feeling at home? This led me to doing different kinds of research. I sketched (design into research) possible outcomes and did an analysis of case studies (research into design). This gave me insight into how successful projects came about and see the direct translation from my literature research into an existing design. I used this analysis research method to form more concrete guidelines for my project, but some questions still remained. How do the residents use these designs and does it work? Do they feel at home? If not, why not? These questions can't be answered by looking at drawings of a project and that's why I added two Dutch case studies which I could visit. I visited both to ask and interview the residents directly about what feeling at home is for them, how they used the building and more importantly; how they want to live.

I think that this last step gave my research a sharper edge and a more believable constructed design.



"The size of the apartment is just big enough, it should not be smaller."



"The cool thing is that I have a large windowsill, I usually use it as a bench when I read. It saves me a lot of space"



"The only think I don't like is that my bedroom is in my living room. I prefer it to be a separate room."



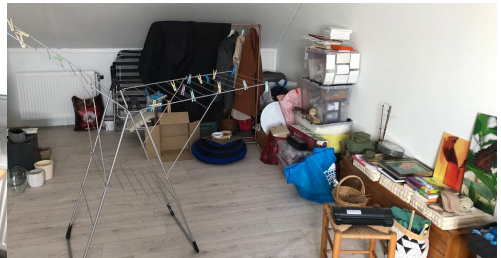
"I would like an extra room for work."



"I like that the kitchen is part of the living room."



"I got to choose my apartment layout, which was pretty nice"



Interviews and site visits in Knarrenhof and de Lofts (pictures made by author)

Feeling at home

How are the different aspects of feeling at home translated into the case study?

1 Context

Where is the building located and how does it relate to its context?

2 Floor plans and circulation

How are the collective facilities and private dwellings accessed?

3 Dwelling

How do the solo dweller residents live?
What are the measurements of the apartments?

Case study approach



Example of the studied material

Due to the sheer amount of researchable things within feeling at home and single-person households, I made a research scheme to narrow down the most important parts for my design guidelines.



Feeling a

In 1971, a household consisted of 3.2 persons on average, which has decreased to 2.2 (Lansbergen, 2018, p. 9). The prognosis is that the number of single-person households will continue to increase, and more people will live alone (van Dijk, 2018).

“How to design a future-proof residential environment for people of all ages and backgrounds?”

Single-person households

Feeling at home

Single-person households statistics, types of single-person households and housing requirements, influences of the housing market on single-person households

Identity: recognition and ownership, hospitality and meeting, safety, comfort: user-friendliness

“What is meant by a single-person household and which subgroups can be distinguished?”

“Single is increasingly becoming the norm, why is that and how do those singles live?”

“What entails a feeling at home for different single-person households?”

Literature

Comfort

Identity

Social interaction

Safety

Architecture

Design guidelines

How can the design and the neighbourhood intertwine with each other?

Site analysis neighbourhood

Specific design

Citizens

Architecture

Design
Concept

Research scheme (illustration by author)

at home

average; at the beginning of 2018 this had dropped
that the household dilution will continue and more
Quin, te Riele & Stoeldraijer, 2019, p. 4)

residential complex where single
households will feel at home?"

“Find the
similarities,
cherish the
differences”

ing at
me

Inclusivity

nership, social interaction:
ty: protection and freedom,
ness and basic needs

Generation mix, flexibility, adaptability, central government
initiative

How can the “feeling at
home” be translated into
design?

What is building with
inclusive purpose?

How will building with
inclusive purpose help
single-person households
with different incomes and
ages to feel at home?

Literature, case studies, interviews

Literature, case studies

ecture

guidelines

gn guidelines

ign
cept

Tietgen dormitory
Knarrenhof

Fieldwork &
case studies
De Lofts

Harbour houses
Ecovillage

The relation between the research was a consecutive process. While following the scheme I went back and forth between design and research. The site analysis was part of the group research into the modern households, one million home challenge, housing market and such. The literature research on feeling at home and single-person households came forward out of the group research. The fieldwork and case studies were used to test my literature findings. The relation between research and design however was an iterative process. The design led me constantly back to doing more research, while the research constantly led me back to trying new design guidelines out in my design. I noticed that while designing I constantly had to redraw my guidelines and add some interesting research. Some parts of my guidelines had to be redrawn due to construction issues, affordability, flexibility, location in the landscape/building and it's orientation, inner climate, circulation space or feedback from my tutors. My tutors gave me feedback every week to improve my critical thinking. Are you being bold enough? What do you want to achieve? Why do you want to achieve it? If you achieve it, how does it translate in your design? I took this advice as a way to look at my design with different goggles. After every tutoring session I made a realistic possibility and a more extreme version from a design element in my building, to look at the differences and take the important and interesting parts with me into my eventual project.

All in all I think an iterative process was the way to go. This way I intertwined both design and research from beginning to the end. I noticed that it does take more time to make a design, however with a thorough thought process and research behind it, I definitely think it's worth it. It not only helped my design decisions, but also the credibility and explanation of the made design decisions. Even though I won't forever be a student, I think that researching will never stop. There is always new information to find, which could suit better to the building you're designing for. During this master track, I did learn how to find information, implement it and reflect on it. I now know how to be critical about my findings and this created new designing ways.



Impression of the inner facade (illustration by author)

Aspect 2

The relationship between my graduation topic, the studio topic, the master track and my master programme

In the Netherlands there is a big need for homes. This need contains one million new homes between now and 2030 of which 54.000 are to be realized in Rotterdam (NOS, 2020). The one million homes challenge is not just a matter of bulk, it is also a matter of quality. My studio research report is part of the studio Advanced Housing Design, with the main question of the studio: 'How do we provide suitable, affordable housing for a diverse population? To answer that question we need to know who the people are who inhabit - or want to inhabit - our cities. Who are the modern households? What do they aspire to? Where do they live now and more pertinent to us, as architecture students: where and how do they WANT to live? After market and inhabitant research I decided to design for single-person households which I combined with my graduation topic.

I got interested in human centered architecture after the elective ethnography in the master program of the TU Delft, hence I chose this studio, which really looks at HOW the resident wants to live. In the master track ethnography, I performed a type of social research that involves examining the behaviour of the participants in a given social situation. After this elective I already came up with my eventual graduation topic, feeling at home, since that reflects on all of us. Trying to implement the feeling at home is interesting and difficult, since it differs for every individual. For one it can be a bench in a park, for the other it could be his/her home or city. I combined feeling at home with the expanding modern household group single-person households. My project is based around that everyone is different and has different wishes and housing requirements to feel at home. My design guidelines are set up to both touch the topic feeling at home but also touch upon the topic of flexibility. Flexibility to be applicable in more future buildings, but also because every resident needs a certain degree of flexibility to create their own identity, feeling of safety, comfort and social interaction. The relation between project topic, studio topic and master track/program is to make a residential building complex where everyone should have the chance to feel at home, which (according to me) should be the starting point of every architect. Especially in a time where quantity is more important than quality in the residential sector. I hope that I can use my design guidelines in future projects. Due to the flexibility it can more easily be transferred into these future projects.

Aspect 3

Relation between research method and approach and the graduation studio methodical line of inquiry

The graduation studio started with group work. The group work consisted first of market research, the one million home challenge and who will inhabit our future cities. I think this was a good set up for the rest of my project. I got to start looking into who will inhabit my building from an early stage. It gave me the opportunity to work with an aim. The tutors from the Advanced Housing studio gave good advice on how to conduct your research and what some of the different approaches could be.

I also was on track with my research due to the studio schedule. It was build up in an appropriate way to step by step think about your own next steps in your individual research. The only downside was that some of the research about the residents in Rotterdam and market/dwelling research from all the neighbourhoods in Rotterdam, was only presented once and to focused on a certain part of Rotterdam. It was to precise applied to that certain neighbourhood that it was difficult to apply in your own individual project.

The making of an urban plan was very useful for the design. It gave a good insight on the amount of space the group could work with and how you could use strong existing elements in the urban plan (and eventually in your own project).

Aspect 4

Relationship between the graduation project and the wider social, professional and scientific framework

Most design assignments for architects about single-person households are about a particular group, like students, starters or elderly. To create inclusiveness within single-person households, it is important to keep in mind that everyone is different. There is not a 'consumer'. I introduced a certain degree of flexibility so I didn't have to force the consumer into a forced feeling at home, but instead give the resident their own initiative.

From the architectural perspective, the focus is on the wishes and housing requirements of different groups within the single-person household segment, creating an intergenerational building complex. As the group of singles grows, there is a need for forms of housing that suit their living situation, budget and housing requirements. In the light of the inclusive society, housing concepts in which residents can mean something for each other are in the spotlight. I designed a complex where young and old can help and meet each other, exchange knowledge or even something as simple as taking the dog for a walk or having social control over each other. This will be in the form of co-living but also in the form of meeting in circulation spaces and shared facilities.

In support of this goal, worldwide attention has been increasingly focused on the added value of bringing generations together and mutual solidarity. The European Union put the subject on the map with the launch of 'the European year of active aging and intergenerational solidarity' in 2012 (Tymowski, 2015), and in the Netherlands, too, attention is being paid to initiatives that connect the generations (Aedes-Actiz, 2016). A residential complex that is suitable for young and old, with a focus on mutual interaction and participation, can offer a helpful solution for social and housing issues to counter loneliness and the need to move. For example, younger solo's can help elderly with moving stuff around their home, while elderly can help with watering the plants, when the younger solo's are on holiday.

Aspect 5

The ethical issues and dilemmas in doing the research and elaborating the design

I came across multiple ethical issues and dilemmas while doing my research. Some are more important than others, but all important nonetheless. For one, my project offers space for sixty persons (only). The project has small residential units, but with a high quality of life in and outside your dwelling. The ethical issue arises; should we build for single-person households in the first place. They take up more square meters per person per household, in a time that needs condense urban areas due to overpopulation in the cities and the ever growing housing prices. I think this is a matter of quality above quantity in this case. Everyone should have the possibility to live how they want to live and should not be forced into a small studio, with the minimum square meters. Single-person households can improve the throughput of for example elderly or a divorced empty-nester who still lives in a family home.

Another dilemma was that feeling at home is a subjective topic. Everyone is different and feeling at home differs for everyone. To make feeling at home as objective as possible I did extensive literature research and interviews to see what people wrote and said about feeling at home. I came up with four leading themes/tools (identity, feeling of safety, comfort and social interaction) which contribute to a feeling at home. These themes/tools were subdivided into two themes of their own, to include as many research papers and resident suggestions as possible.

The studio focuses on realistic and affordable housing for the modern households. Sometimes I was too safe while designing the building. I aimed to be cost efficient but also give space for the residents to feel at home. There was a fine line between being too safe and letting yourself go in the design process. Eventually I came up with a design which dangles in between the two. Having a clear and 'simple' building overview, straightforward industrial outer facade which connects to the surroundings and a more special inside facade, creating most aspects of feeling at home due to the transition zones, orientation, louvres, social spaces and visual connections.

The last dilemma was to not form confirmation bias (the obstinate tendency to always look for evidence to support the hypothesis). I tried to assure the validity and reliability of my data. I used triangulation to make it as scientific as I could. "Triangulation is a method used to increase the credibility and validity of research findings. Credibility refers to trustworthiness and how believable a study is; validity is concerned with the extent to which a study accurately reflects or evaluates the concept or ideas being investigated. Triangulation, by combining theories, methods or observers in a research study, can help ensure that fundamental biases arising from the use of a single method or a single observer are overcome (Noble & Heale, 2019, p. 1)." Triangulation does not single confirmation bias out, however it did help my critical thinking process.

