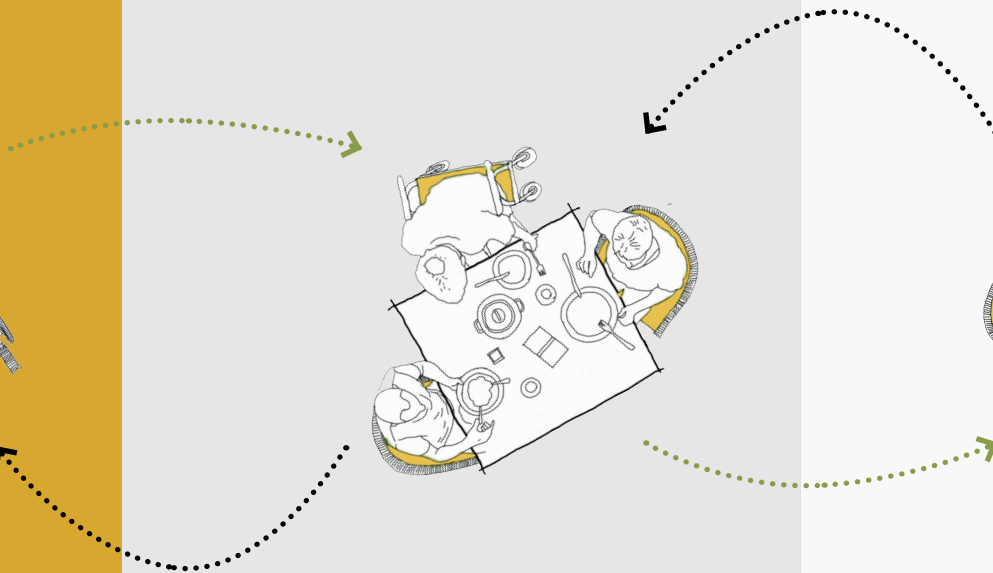
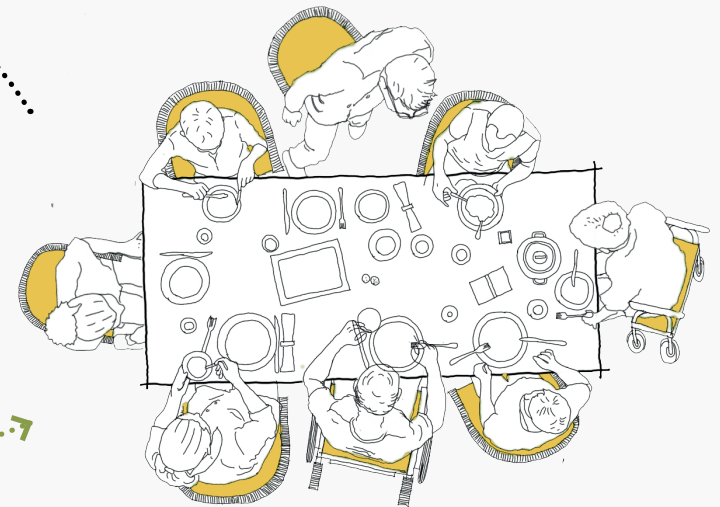
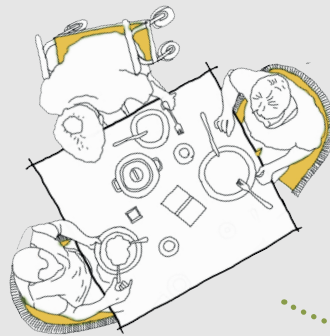


# TOGETHER THROUGH FLEX-HOUSING

Antonia Bohn - 5157897

Architecture & Dwelling - Designing for Care

MSC 3&4 - 2021 - Research Booklet





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# Introduction

Problem statement

Goal

Exercises



# Fieldwork

Accessibility

Private & Shared spaces

The elderly as social being

# In-depth Research

Private & Shared spaces

Zoning & Transition zones

Interaction & Participation

Encouraging interaction

Futureproof design

# Results

# Design

## ORGANISATION

The studio report is divided in three parts, which evolve around the topics of the introduction and the fieldwork (1&2), the in-depth research and its results (3&4) and the design (5), which will be added later on.



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# 1. INTRODUCTION

TO THE STUDIO 'DESIGNING FOR CARE'



## THE STUDIO

As the final year of my study life approached I asked myself not only, which project I could enjoy for a full year, but also which project could direct my way into actual societal issues, we face as architects. As wonderful it is to design monumental buildings, which make others stand before them in awe, I decided to focus on something more humble with an actual use for humans, which improves not only the environment they live in but also their lives.

When I stumbled upon the studio 'Designing for Care', which addresses inclusive living environments for Elderly, I knew that I wanted to dive deeper into that topic. During our studio time we focused on the main target group, the Elderly, and how they can live with formal or informal care. To grasp their needs and lives, we worked together with the Dutch housing cooperation 'Habion', which enabled us to stay at a senior home for a couple of days to understand for whom we are designing. The goal of the project is to design a living environment, where Elderly can age in dignity with the possibility of formal and informal care and the company of other generations.

## 1.1 MOTIVATION

### CHOICE OF STUDIO

Thinking about the topic of Elderly, I thought of my grandparents, which are luckily quite active for their old age and still live independently in their home. My grandmother always used to say, how she does not want to be alone, if my grandfather ever dies. "I will immediately move to my friends' senior home, if Bertl dies. I won't stay alone in this huge house."

When I think of the typical senior home, I tend to have negative feelings about it, as I imagine it to be a quite sad and loveless environment, but my grandmother apparently does not define the building through the care or the architecture, but rather through the connections and friendships she has with the residents. Would it be possible, that she does not need to choose between the house she spent almost her whole life in and another place, where she has company? Could these friendships maybe be broadened to other generations and therefore create a system of informal care? Why should there be a choice between either being cared for by caregivers or cared for by friends, neighbours and family? I want to find out how these choices can be combined to create an environment, where there is not either - or.



## 1.2 PROBLEM STATEMENT

### GENERAL + FIELDWORK

As with age comes sickness and physical limitation, the pressure on the care system is rising constantly. The Netherlands need to be prepared to create a system, which can face this challenge and care for the elderly in an appropriate way. The typical care home for elderly only houses people over the age of 60 and therefore segregates them from the rest of the age-groups of the society. Older people are only surrounded by people their same age and are often – because of their physical limitations – not able to seek out for others outside their direct living environment. Elderly tend to live alone and spend much time in their direct surrounding, which often results in isolation or loneliness. Elderly in the Netherlands, especially over 75 years old, tend to feel severely lonely according to a study from CBS (CBS (2020)). Furthermore care workers do not have enough time in their busy working schedule to fulfil all the needs elderly have apart from health problems. Elderly need to be able to go outside, be able to talk to people or participate in activities with others to live a fulfilled life, which often can not be provided by the care workers. Therefore an informal care system can help to remove some of the care workers work load and make normal people help the elderly with small tasks such as doing groceries or simply going for a walk.

These problems are not only part of politics and sociology, but

also of architecture. How can the built environment provide solutions for elderly and help to improve their aging?

The studio 'Designing for Care' aims at creating an 'Inclusive living environment', which can tackle most of these problems by inventing neighbourhoods, where people can grow old with dignity and as independent as possible. This living environment should implement a system of informal care, where neighbours can help each other and therefore also provide a mix in generations, as some of these tasks need physical strength. It should provide spaces for interaction and help people to stay healthy and independent as possible.

During my stay at the senior complex in Hilversum, where elderly live independently in apartments, I noticed that they spent most of their time inside and alone in their apartments, which mostly resulted in them feeling isolated and lonely, as they did not know many of their neighbours and did not know what to do about it. The residents rather live next to each other than together with each other. Most of them only meet each other in the corridors and interactions barely exceed a simple 'Hello' or a small talk. The common spaces they have are barely used because of a lack of comfort or the lack of design to be used properly. Spaces only provide some chairs but barely any other function to attract

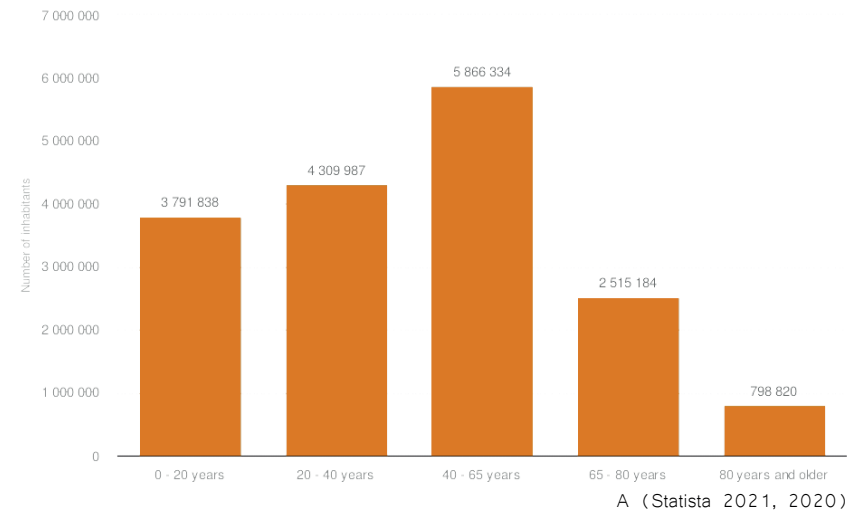
the residents in a larger way. Corridors mostly only provide the function of reaching your apartment door but could have potential for interaction through other functions or by simple acts like adding a second chair, so that two people could sit down and talk. The 'LivInn' is a space configuration which offers a communal kitchen, living room, a bar and a theatre, and had just opened shortly before our arrival, and was not known by the residents yet. As we organised a gathering, where we cooked dinner for them to get to know them and ask some questions, we saw that most of them were eager to get to know us too and were happy to experience something new with younger people. As we were only at the senior home for a couple of days, this was something very special to them, which they wished for more often. Because of the ongoing renovation at the senior complex, the elderly had to walk long routes to reach the 'LivInn' and did not simply see what is going on inside. As the elderly live alone in their apartments, the main area, where interaction could happen, are shared spaces. These spaces are not formulated in a way, which attract the resident to use them, which I want to change in my design.

# THE AGING SOCIETY

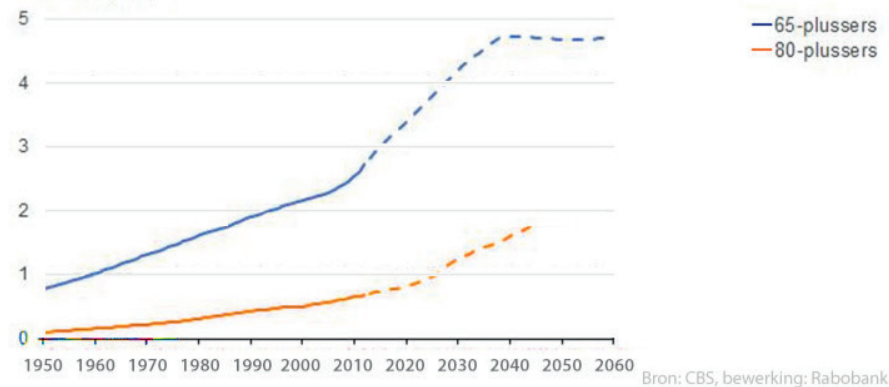
## OLDER AND OLDER

People are growing older and older. Because of the improvement in medical support and therefore higher life expectancy as well as the decrease in births in the last 50 years, the demographic has changed rapidly. In 2019 19 % of the Dutch inhabitants were over 65 years old and this number is going to grow immensely in the coming years. Prognoses show, that in 2050 the percentage of elderly (aged 65+) will be about 46,5 %, which will be still less than for example Germany with 57 %, but more than Belgium with 41,7 % (de Kruijf & Langenberg, 2017). Many European countries are facing an aging society and need to prepare for the future by improving or changing the health and care systems, as well as implementing the right building types to house elderlies in a dignified way. I do not want to look at this as a problem as everyone eventually grows older. I rather see this as a challenge and an opportunity to create housing, which both my parents and my future grandchildren can enjoy equally.

Population of the Netherlands in 2019, by age



Figuur 1: Bevolkingsprognose voor 2013-2060  
aantal (miljoen)



B (Weevil Care, 2017)

## RELEVANCE OF THE STUDIO

Many European countries are facing an aging society and need to prepare for the future by improving or changing the health and care systems, as well as implementing the right building types to house elderlies in a dignified way. As with age comes sickness and physical limitation, the pressure on the care system is rising constantly. The Netherlands need to be prepared to create a system, which can face this challenge and care for them in an appropriate way. The typical care home for elderly only houses them and therefore segregates them from the rest of the society. Older people are only surrounded by people their same age and are often – because of their physical limitations – not able to seek out for others outside their direct living environment, which also results in loneliness among elderly. These problems are not only part of Politics and Sociology, but also of Architecture. How can the built environment provide solutions for elderly and help to improve their aging?

The studio 'Designing for Care' aims at creating an 'Inclusive living environment', which can tackle most of these problems by inventing neighbourhoods, where people can grow old with dignity and as independent as possible. This living environment should implement a system of informal care, where neighbours can help each other and therefore

also provide a mix in generations, as some of these tasks need physical strength. It should provide spaces for interaction and help people to stay as healthy and independent as possible.

The Netherlands would have needed to build 44.000 new homes up to 2021 on to provide suitable living environments for Elderly, which is hard to manage, since the economic crisis (Government of the Netherlands, n.d.)

By supporting seniors to stay active, both physically and socially, the government aims at making elderly as independent as possible to enable them to stay at their homes for as long as possible.

How would a home need to look like to enable someone and also the next resident to stay there their whole life? Which architectural and social elements are necessary to create an enjoyable environment for elderly?

## 1.3 GOAL

### FOR AN INCLUSIVE LIVING ENVIRONMENT

Christopher Alexander came up with his version of an 'inclusive living environment' in 1977. Alexander emphasizes on the fact, that old people should not only be surrounded by other old, but also by younger people, so that both generations will not be isolated and estranged from the benefits of the exchange. Already more than 40 years ago Alexander saw the problem of the segregation of the elderly from the society and came up with some ideas to stop this development. As many elderly do not need formal care, but just someone to help them cook or similar, they should not be moved to nursing homes, but just receive help from their neighbours. They should be allowed to stay in their neighbourhood with other old people, just not too much to be isolated from other generations. Amenities and nursing care should be in proximity, so they can stay where they live before becoming less independent. By distributing the elderly over a city and not clustering them, many problems could be solved and provide a comfortable living situation for a whole neighbourhood. (Alexander, 1977, pp.215).

A lot of the aspects, Alexander states are still relevant today. Every person should be provided with a built environment, which enables them to live a fulfilled and dignified life

from young to old age. This surrounding needs to provide a safe and enjoyable built environment, people or neighbours for a social network and an informal or formal care system for the older generations.

The built environment needs to be accessible by everyone, and should invite people to gather and interact with each other. Feeling comfortable in your living environment is not only linked to your apartment or house, but also to the public spaces you are surrounded by and the people who use it. Therefore the neighbourhood needs to offer common spaces, which could be used by many different people. The residents should differ in age, as every generation wants to have input from others, which can only expand their knowledge and interests. Elderly can benefit from younger people, as they can help them with their physical strength, whereas younger people might benefit from the elderly life experience or simply their company. Bringing different generations together in the same neighbourhood creates a livelier and happier living environment for both. Elderly will have the possibility to spend time with either other elderly or as well with youngster, which can tackle their loneliness and feeling of isolation. Bringing the social interaction and togetherness as close to them as possible, enables them

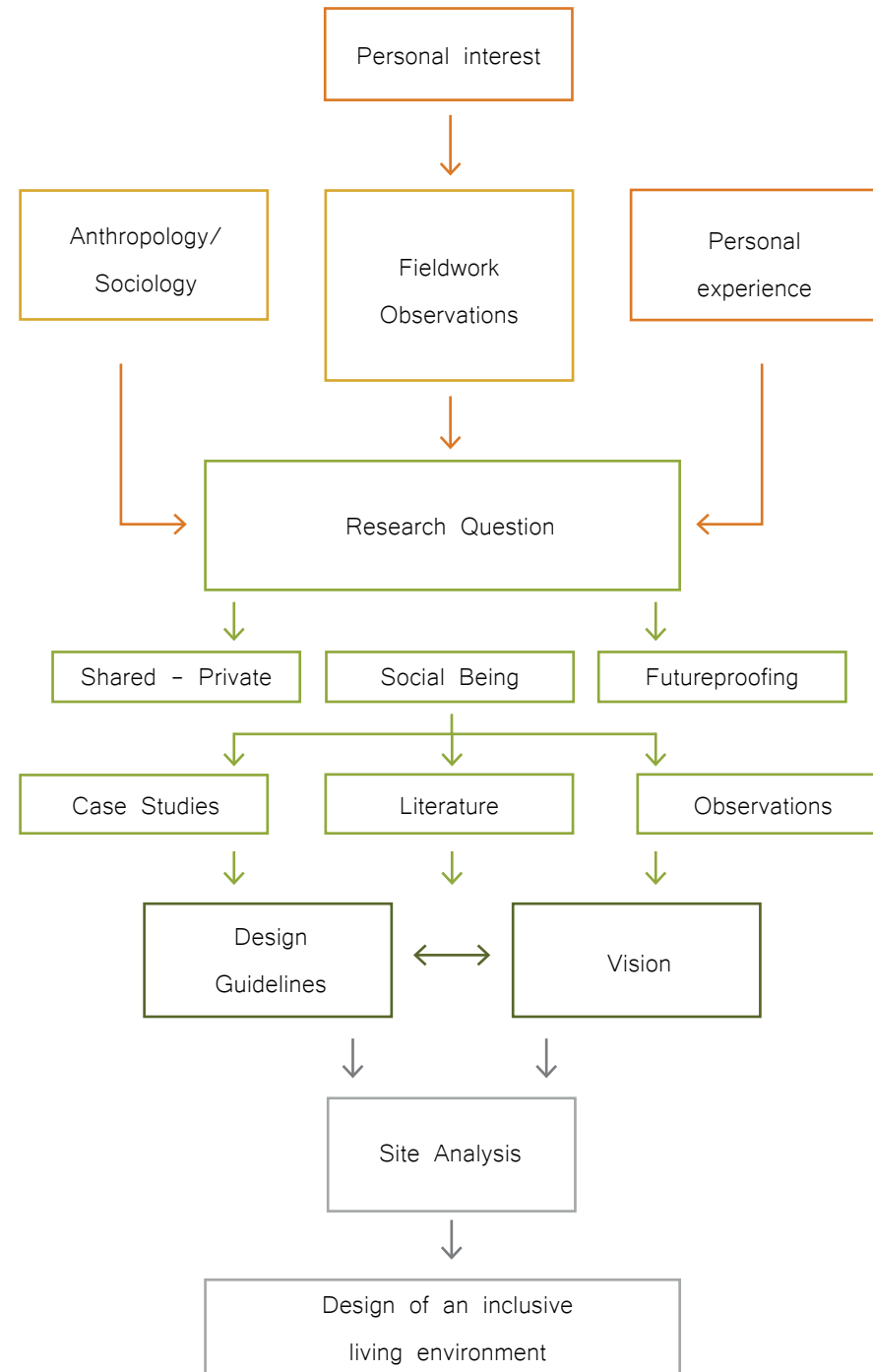
to be an active part of the neighbourhood and the society without additional struggle for their physical limitation. An elderly can be part of a community by simply sitting in a room, where an activity takes place or talking to other residents in the hallway.

The goal is to provide shared spaces on every scale of the neighbourhood, from the public to the most private part of the living environment by always providing a choice between being on your own and being together. The built environment needs to be a safe, enjoyable and also affordable configuration of space, which offers functions for everyone. With my design I want to tackle loneliness or the feeling of isolation among elderly and everyone, integrate them more into the society and show how living together is always better than just living next to each other. I want to ensure, that the design can become future proof by implementing flexible structures in the neighbourhood, so future generations can adapt their environment to their needs.

## 1.4 STRUCTURE OF THE STUDIO

We started the studio with our personal interest, which directed us towards specific topics during our fieldwork, which we spent in an elderly home in Hilversum. Before our visit, we used personal experiences using a walker and a wheelchair to be able to empathize with elderly's physical limitations. As the studio does not only focus on architecture, but aims at giving a broad overview and insight in different fields, during our stay we not only focused on architectural research, but also on methods from sociology or anthropology, as the target group should not be investigated from the outside, but from their own viewpoint. We were able to observe and ask the elderly about their needs and wishes. With that expertise the students obtained knowledge, which led to specific research questions and a main focus. The further research investigated through different methods like reading literature, analysing case studies and further observations.

This resulted in a general vision for an inclusive living environment, which will lead towards an actual design with the help of a site and its analysis.



## 1.5 THE EXERCISES

At the beginning of the studio, there were several small exercises that prepared us for the topic of different approaches to observation and research and brought us closer to our target group, the senior citizens.

The exercises, which seemed somewhat random at first glance, actually helped us to empathise with senior citizens and to develop a different perspective than our own. The step out of our own small world into a world in which we are not completely strong and safe helped us to take the first step towards a human-centred design. Walking in the elderly shoe for a while helped us immensely to develop first observations and made us more careful for the fieldwork afterwards. Having experienced, how it feels to be somehow physically limited made us aware of issues, elderly face every day in normal environments. By understanding the physical and mental effort it takes to tackle common daily activities as an elderly increased our awareness for the further research.



## OBSERVING WITH DIFFERENT SENSES TRAIN-ENTRANCE

The very first exercise let us understand, how you can observe spaces with different senses and how this changes the experience of it. I did the exercise on my way going towards Delft and focused on a trains entrance. I started with the sense of seeing and tried to investigate as much detail as possible. After 15 minutes i started to write down what i noticed. As I knew what I was aiming for, I could write down a lot more, than i could have without this goal. Knowing what exactly you are looking for, can immensely help to receive a better result in observation. Afterwards I closed my eyes and tried to grasp at much sound around me as possible. It was hard to not assume certain actions with specific noises, but I tried to stay neutral.

This exercise taught us, how important preparation for research is and how different approaches can provide different outcomes.

### Sense of Seeing:

Looking towards the glass door, I firstly see my neighboring seat, which is covered in a blue, dotted fabric. A light blue pillow is attached to the head part of the seat, which has a lot of wrinkles on it as well as ICE stitched on top of it.

I bend forward a little to have a better view at the door, looking past my bright yellow backpack and my black raincoat. Shaking glass doors you can look through them, there is only a non-smokers sign and the blue sign with a white 2 on it. the shiny chrome profiles reflect the surrounding a little distorted. Behind it the ice entrance door has a large oval window, where you can see the fast moving outside.

The ground is covered with a grey carpet, which is dirty from many shoes, which walked on it.

On the wall there is a display indicating the arrival at the following stations. The walls are made of plastic panels, which are in different grey shades.

The glass door opens up as someone comes closer.

Before seeing the man, there is huge luggage being dragged along the floor. The grey and red sack is larger than a usual suitcase, but soft and is easily folded together to fit through the door.

The space between the seats is narrow, why the man walking behind the luggage turns sideways to squeeze through it. He is wearing a pullover and some cargo pants and places the luggage and the backpack on his shoulders next to the entrance on the grey carpet.

As the moving outside is getting slower, the man holds onto a matte silverish Pole until the train stops.

The opening of the door takes about 10 seconds after the man pressed the green button on the right side of the door. The door first slides to the outside, then moves to the side to open up. The two steps to the platform only become visible after the opening.

The man grabs his luggage, puts it in both hands and slowly descends the steps to the outside.

The door stays open for about 30 seconds, until it closes again. The train slowly starts to drive again

### Sense of Listening:

Being in a moving train.

Permanent humming sound of the train's motor

Again and again : juddering sound Around every 10 seconds. The seats around me are creaking every sudden move the train makes. Someone next to me just switched on or off a switch and blows his nose afterwards.

I can hear someone else adjusting his seating position, I hear fabrics being rubbed against each other.

I hear a swishing sound behind me, followed by a scratching sound.

Someone stumbles against the wall and I can hear a „shit“ mumbled under his breath.

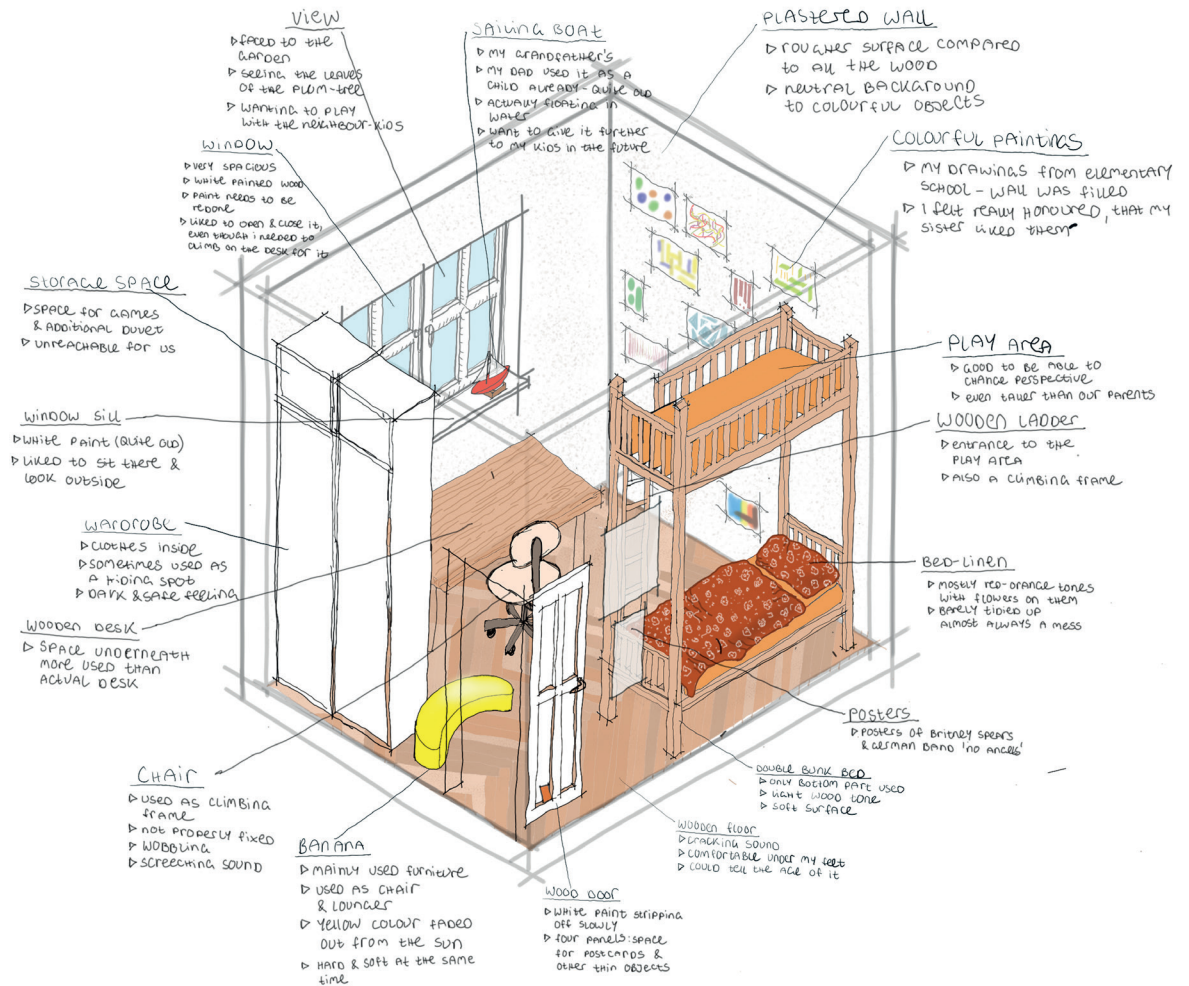
Some seats away, people are talking. Their voices Sound dark. One of them starts to laugh, but they are too far away to clearly understand what they are talking about.



## THE EYE OF MEMORY

I remembered a place from my childhood, where i felt most comfortable and at home. I immediately thought not of my own, but of my sister's room, where we spent most of our childhood's years. I decided to draw the room as an axono-metric to show different elements of the room. After drawing it, I noticed that the room is a lot higher than it actually was, which was a good representation of how a young and small person perceives things differently than an adult.

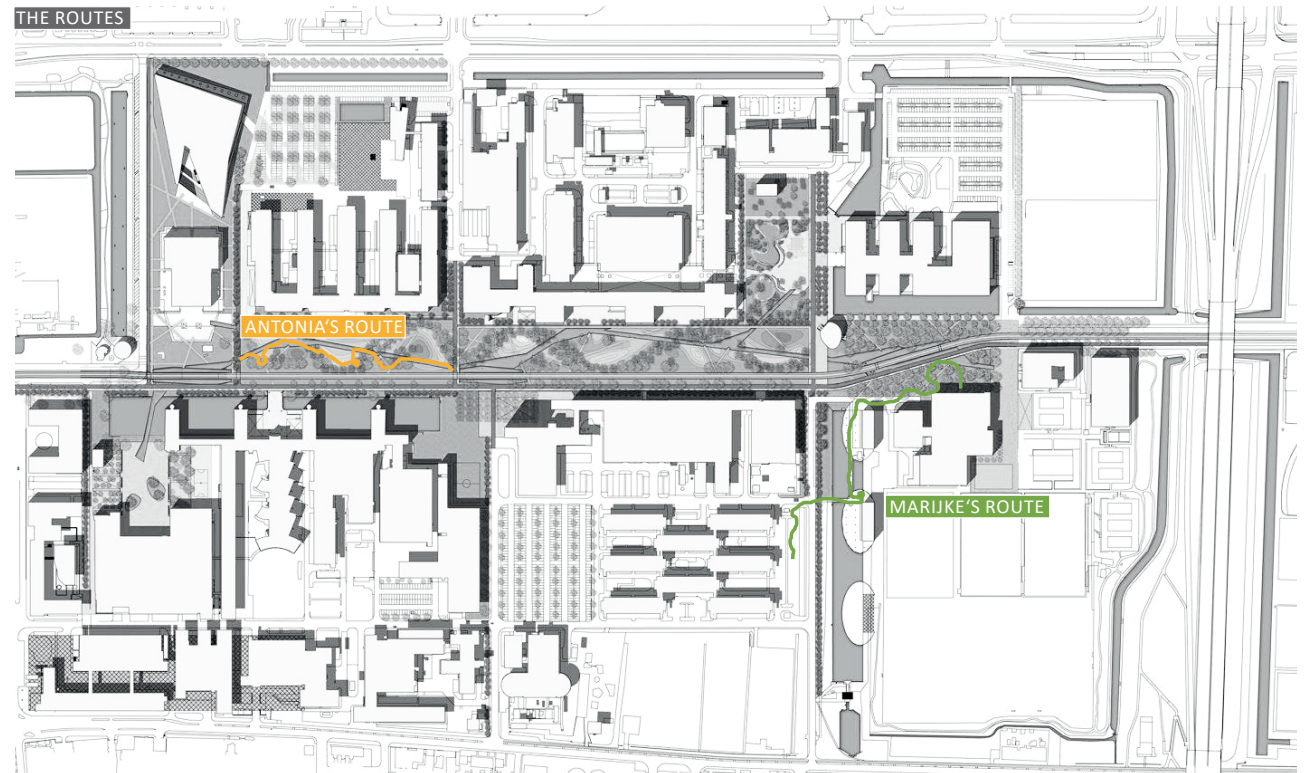
This exercise taught me, how important personal belongings and memory-bound items are to create a feeling of home and comfort.



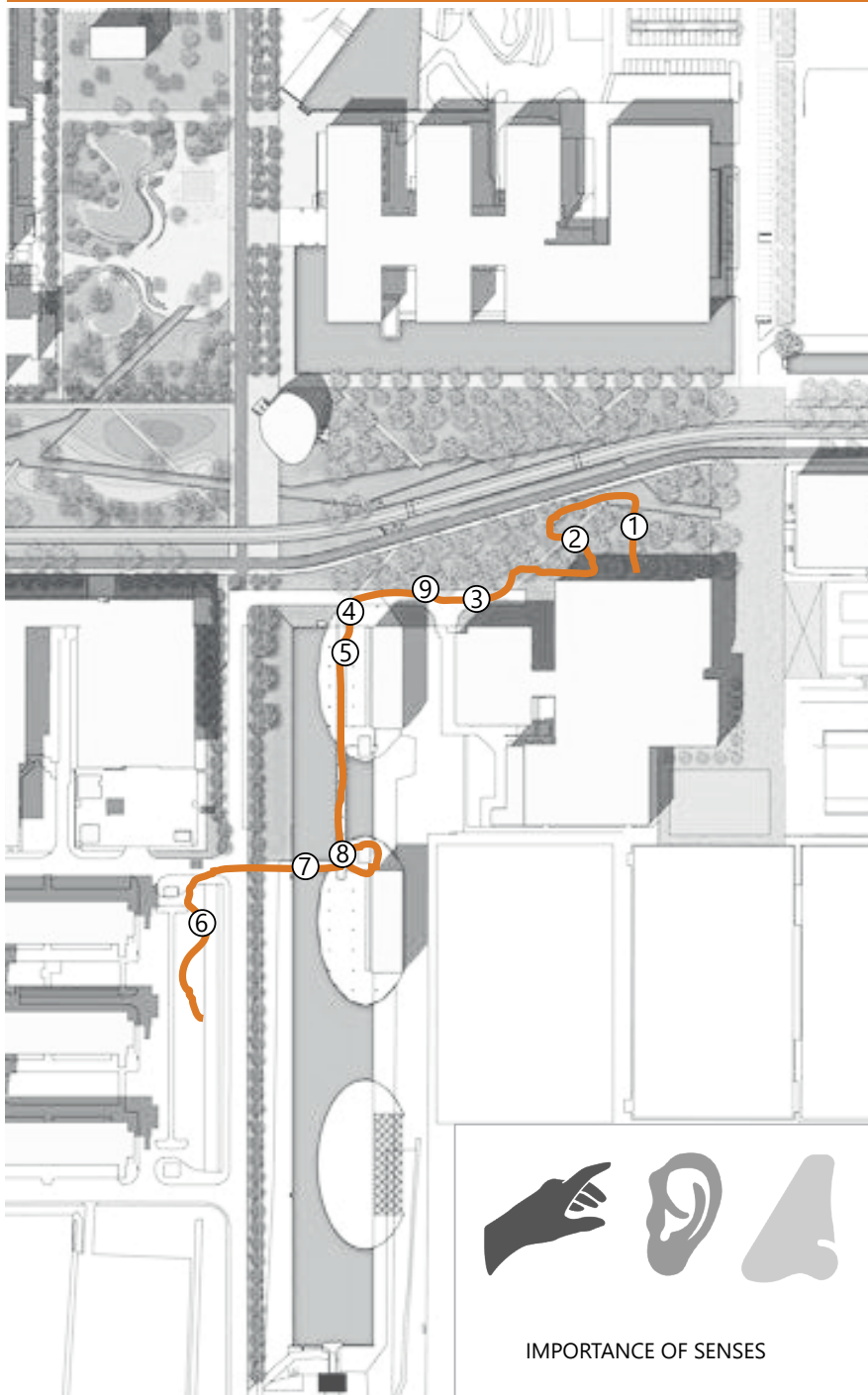
## BLINDFOLDED

For this exercise, I grouped up with another student, where one of us walked around blindfolded, whereas the other one directed the blind one through the campus. This exercise helped us to understand, how it feels to lose one of your senses, which is probably one of the most important ones. As this feeling was new to us, we struggled to keep orientation, walked much slower and used our other senses to help ourselves. Especially the sense of touch was the most important to us, as we could always use our feet and hands to distinguish between different materials.

With higher age, everyone loses the strength of different abilities, which might lead to insecurity and worse orientation. Therefore was it really useful to understand how a blind person feels like.



MARIJKE'S ROUTE (circa 45 minutes)



IMPORTANCE OF SENSES



1 - FEELING A PATTERN

Proximity of the X-center gave away, that the round shape would be a ball



2 - GUESSING THE OBJECT

Material was quite obvious, but shape was difficult to guess



3 - AVOIDING TRIP HAZARD

cold stone easy, attached reflective light felt strange



4 - LOOSING THE ORIENTATION

After around 15 minutes the orientation was completely lost



5 - GUESSING THE MATERIAL

Without seeing wood did feel like a complete different material



6 - GUESSING THE CAR'S BRAND

Hard to feel the shape of the car, feeling the brand was really hard



7 - UNCOMFORTABLE RAILING

Interruption of railing quite uncomfortable for people who need it



8 - VIBRATION + SURFACE CHANGE

Not only haptic, but also acoustic sense gave away material change



9 - MATERIAL TRANSITIONS

Steps as one of the hardest challenge - you are not sure about the height

ANTONIA'S ROUTE (CIRCA 30 MINUTES)



1 - FEELING A PATTERN

The pattern is with squares is easy to guess, but the text is much harder.



2 - CHANGING TEXTURES

Textures that change feels surprising for you feet.



3 - KNOWING THE ORIENTATION

By the sound of buses, the beginning-point was correctly guessed.



4 - GUESSING THE MATERIAL

Not by feet, but by feeling with fingers, the right material was guessed.



5 - GUESSING THE OBJECT

The object has many materials, by knocking on some, it was figured out.



6 - GUESSING THE TYPE OF BOOK

It smelled old, the pages were thin, the cover was made of fabric.



7 - INTERESTING SCIENCE

The purpose of Galileo thermometer, is gone while feeling.



2 - GUESSING THE OBJECT

The object is hard to guess because such a lamp in a field of grass is not common.



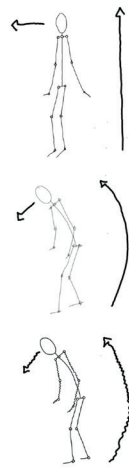
9 - TRIPPING HAZARD

A threshold, even if you can sit on it, can be dangerous because of the height

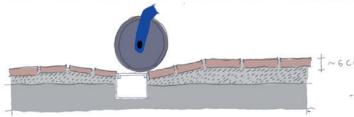
# FEELING WEAK

Another exercise to feel weak was to experience our surrounding with a walker and a wheelchair. We walked around the campus and in the city. During our time we experienced many things, which would not be a problem for young people without any physical limitations, but were large obstacles for elderly dependant on walkers or wheelchair. We understood how minor height differences could create an obstacle for elderly and how the dependency on these vehicles also decrease their living environment, as going out is mostly linked to a large effort. We saw, that traffic lights are green for a really short amount of time and how challenging a change in material is. I also noticed the bad influence on the posture, as your leaning on the walker or the wheelchair makes you face downwards and shrinks your view field by a lot. You might not be able to notice dangers around you as quickly as others. After leaning on the walker for 30 minutes, I also noticed how tiring it is for your hands to hold onto the walker.

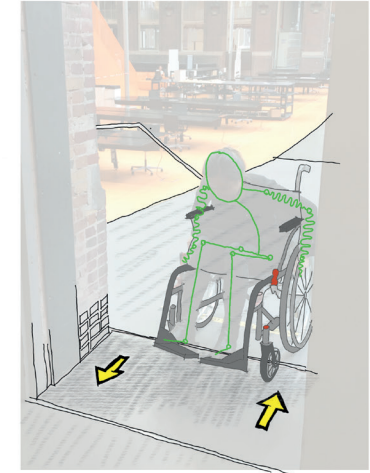
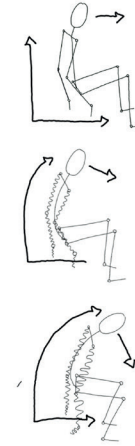
This exercise taught us how important barrier-free architecture is and how we should always keep in mind, that steps or slight changes can already become a huge obstacle.



reality



feeling



reality



feeling



## FEELING WEAK

As elderly often do not have the clearest vision anymore and often develop certain eye diseases, we wanted to investigate how challenging it can be to experience the built environment with limited vision. For that we wore specific glasses, which were simulating a specific disease by blurring your vision through dark spots. The pictures on the right shows, how harmless steps, objects or animals can become an obstacle, as you can not clearly distinguish between materials anymore. For a person with unrestricted vision, it would be the obvious choice to step to the right and cross the dog and the height difference, but a person with limited vision would need to slow down to understand this situation or even need help from others.

This exercise showed how important easily accessible environments are to create a safe and understandable surrounding for people with physical limitations.



# 2. FIELDWORK OUTCOMES

FROM THE SENIOR COMPLEX IN HILVERSUM



## THE FIELDWORK

It is quite difficult to design a project without having a concrete connection to the target group, why we stayed at an elderly home for a couple of days to get a chance to change our perspective to theirs.

Going there, the most important question for me was, how their living environment, their apartments and communal areas, as well as their neighbourhood is shaped like and how the elderly react to that.

Are they happy or satisfied with what they have and where are still improvements possible?

How are their every-day lives, what do they do, where do they go?

The research consisted of various ways of observations, such as taking photographs, making notes, drawing floor plans and making sketches of important aspects. I talked to the residents in casual conversations, also interviewed them with concrete questions and observed their behaviour. After the stay I sorted the raw data and created drawings to visualize the complete data.

**Location:** 'De Boomberg' in Hilversum

**Residents:** singles + couples 60+ in independent apartments

**Research question:**

How does their daily life and activities look like and how is their living environment shaped?

**Goal:**

Studying our target group in their direct living environment, finding clues for problems to solve in our project

**Methods:**

photographs, sketching, observing, casual talks, interviews, joining gatherings, visiting neighbourhood, helping the elderly, etc,

**Main observations:**

- Lack of usable shared spaces
- Loneliness among residents

# 2.1

## THE SENIOR HOME

To get to know the target-group for our project „Designing for Care“, we stayed at the Senior complex ‚De Boomberg‘ in Hilversum for three days from the 29th of September until the 2nd of October 2020. We were a group of 3 students, who stayed in an empty apartment in Flank 1. During these days we got to know many of the residents, observed their behaviour in different activities and interviewed them to get a better understanding of their living environment. We talked to them about their needs and interests in their living environment and observed their daily routines.

The following observations are the – for me – most striking elements of our fieldwork. Three different topics stood out, which are accessibility, the relationship between privacy and togetherness and the elderly as an social being.

## THE SENIOR HOME

### „DE BOOMBERG‘ IN HILVERSUM

The senior home sits in an environment surrounded by many large Villas, but very close to the city centre of Hilversum, which enables most of the elderly to reach amenities in short time.

The senior home ‘De Boomberg’ is divided in three parts, from which we were only able to investigate two parts, as the third one, which is a care facility, was under renovation during our stay.

We stayed at the “Flank”, which offers 42 individual apartments (about 50m<sup>2</sup>) for single elderly over the age of 60 rented out by the housing cooperation ‘Habion’. Directly attached to it, we were also able to visit the elderly home ‘Bergstaete’, which does not belong to ‘Habion’, but also houses elderly singles and couples in larger apartments. The connecting element of the different buildings is the ‘LivInn’, which is a generous shared space with a communal kitchen, a small theatre, a bar, a hairdresser and a living room, which is supposed to bring elderly and the neighbours together. As the ‘LivInn’ had just opened one week before our arrival and it is the residents task to fill it with life, the LivInn was mostly deserted and barely used.



# THE SENIOR HOME

## INDIVIDUALITY

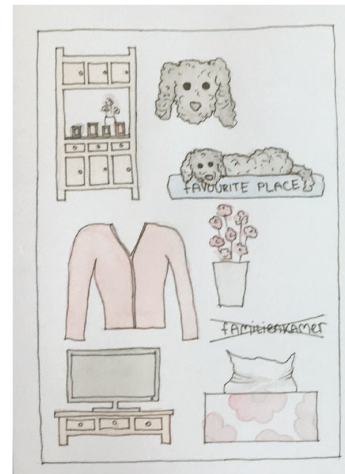
In the beginning of the studio the topic of 'Elderly' felt a little abstract, as we usually are only in contact with our own grandparents. Therefore we usually talk about 'the Elderly' as of a group, which are all the same, but it is important to consider their differences in our further design. Every elderly is different, has different needs, interests and worries. After talking and getting to know the different residents, I started to draw the most important aspects of them and their living environment. Where one of the residents loved to talk to us about music and drank a glass of wine with us, others were talking about their pets and not being afraid to become emotional about their worries.

Thinking about their individuality makes it hard to design one space, which would be liked by everyone. The space should be flexible and large enough to allow everyone to bring their personal belongings and make this space their home.

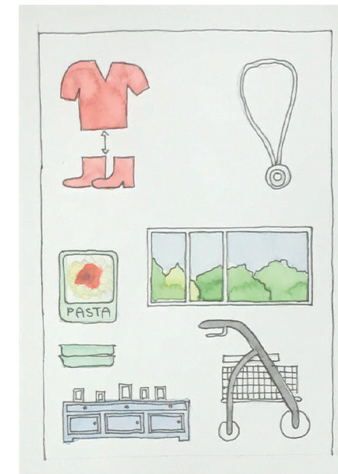
-> every elderly is individual

-> offer of activities and functions should be broad and flexible enough so everyone can participate in it

Annett



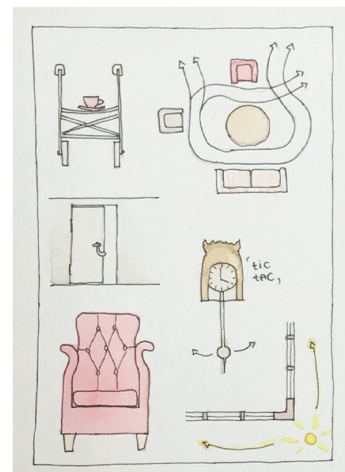
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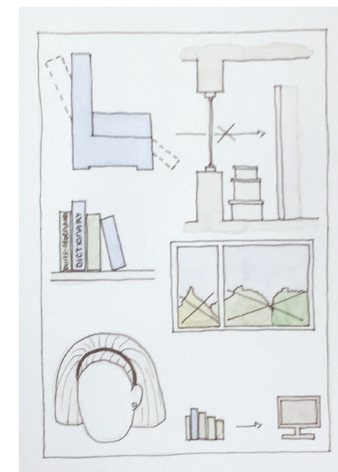
Joseph



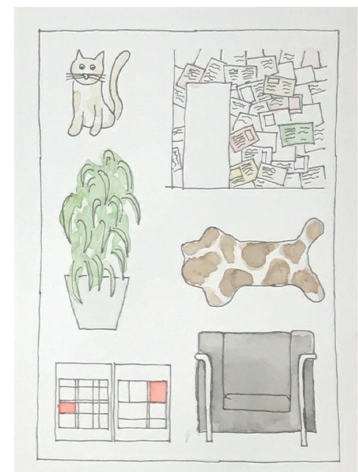
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# 2.2

## ACCESSIBILITY

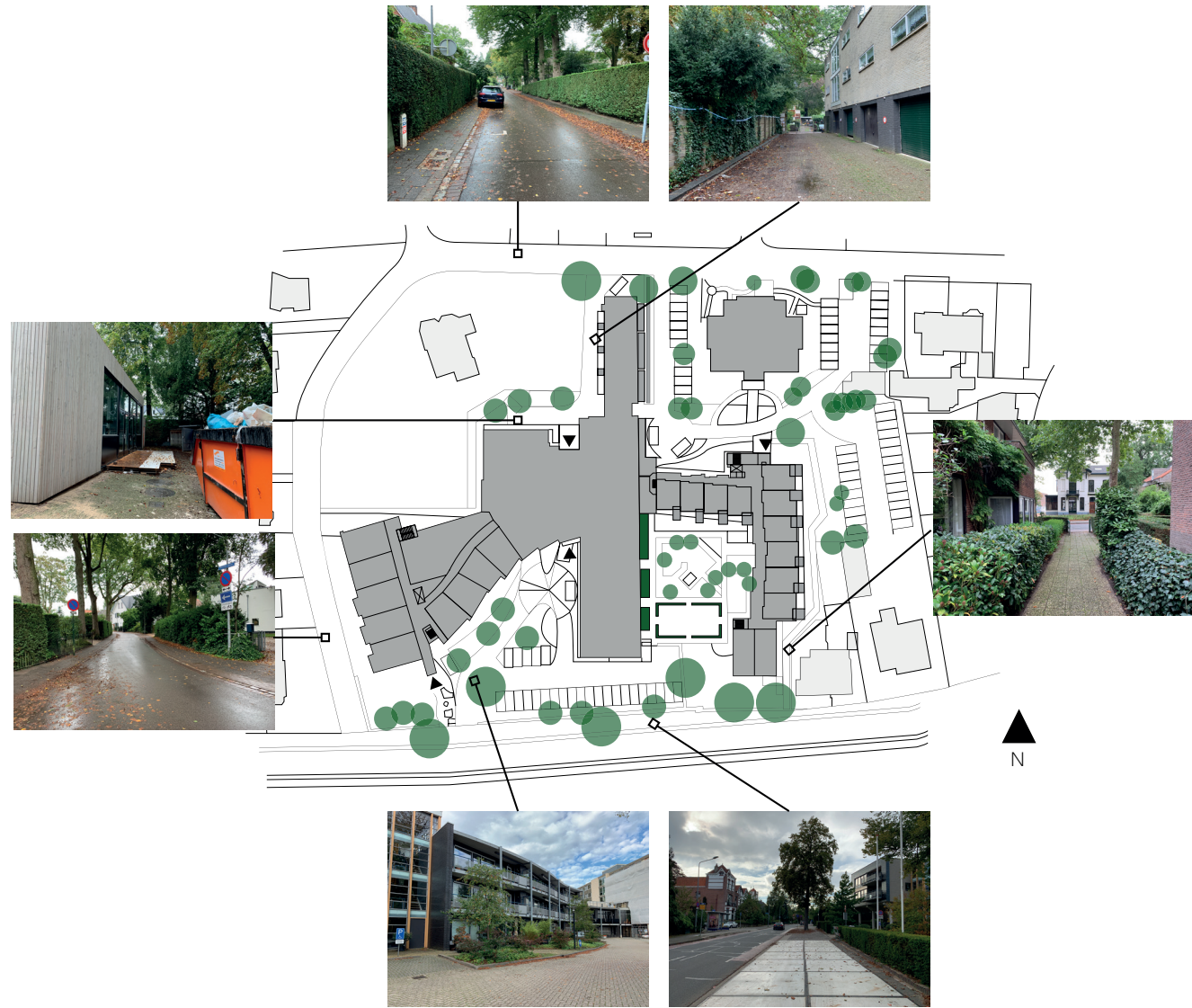
During our initial personal exercises, we experienced how small elements in the built environment can become a huge obstacle for the Elderly, which might have less physical strength, impaired vision, or a slower pace than we students have. Therefore I wanted to see, how accessible the senior home in Hilversum is and which aspects are useful for my future design. As not only the building and its attached garden or shared spaces are important for the resident, I also looked into the neighbourhood of Hilversum to see whether it is a safe environment for the elderly.

# ACCESSIBILITY SURROUNDING

The building is surrounded with a lot of greenery and relatively slow traffic because of the location in a residential area. The side walks are narrow and often have obstacles such as parked cars and fallen leaves in autumn which makes it hard to walk on. Elderly often walk on the middle of the street as there is a more even underground. As there is not a lot traffic, elderly walking on the streets is not a large danger, but it would still be safer if there were wider sidewalks.

-> wide and clear recognizable sidewalks necessary for the safety of elderly

-> road-maintenance and clearing of leaves important in autumn



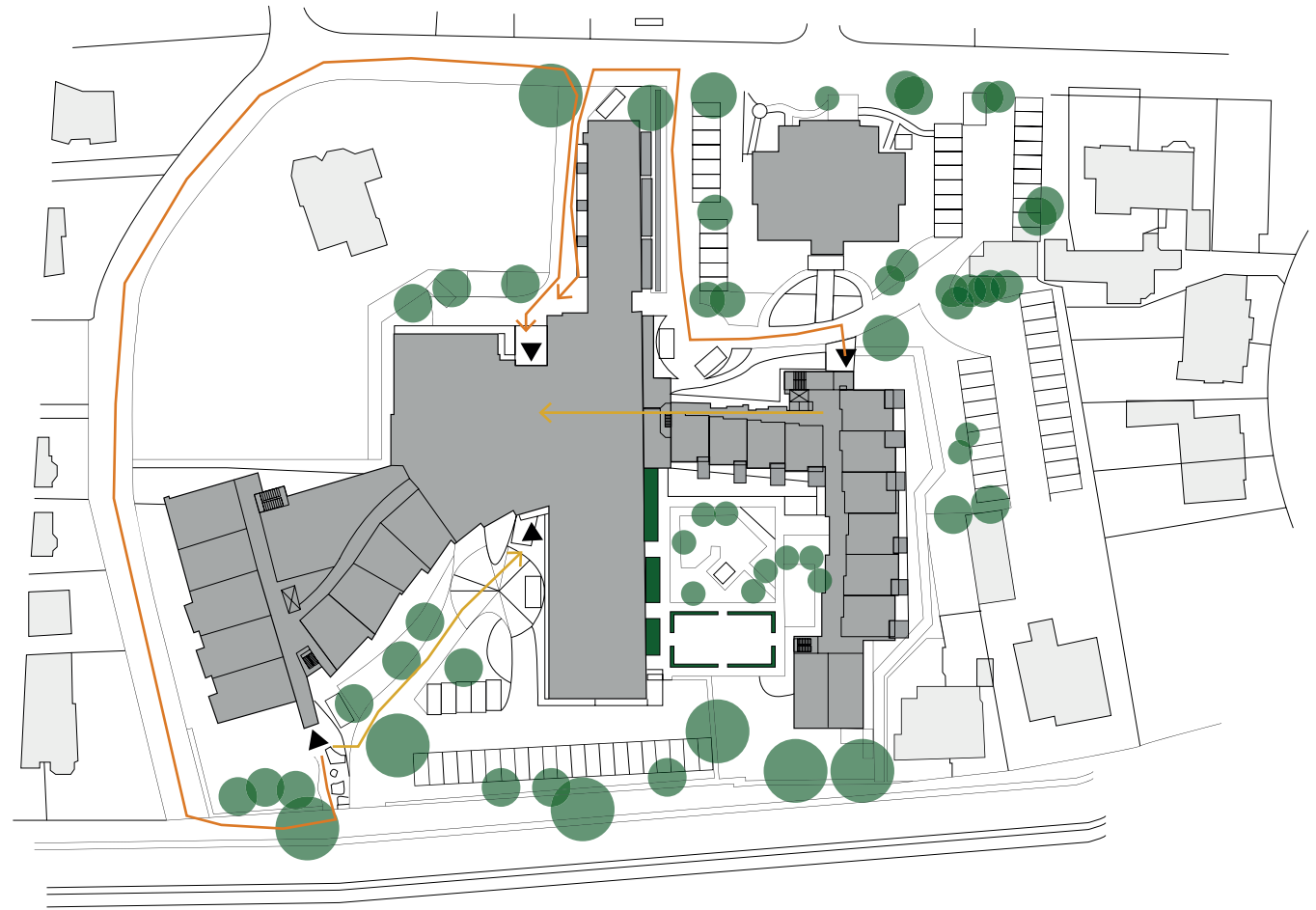
# ACCESSIBILITY

## ENTRANCE

With every building having their own entrance and currently no passage indoors to de Boomborg building, the Bloomberg building / 'Livinn' concept is only accessible through an entrance on the outside of the facade, which creates long routes for the elderly and therefore an obstacle. When the 'LivInn' will have fully opened, the routes will be a lot shorter. Short ways are important, as the elderly do not want to be tired before arriving at the place for an activity.

-> direct connections / accessibility important for public functions

-> public function in the centre is a good position - makes it accessible for most of the residents



- route during renovation
- route after renovation

# ACCESSIBILITY

## OBSTACLES IN THE NEIGHBOURHOOD

Walking through the neighbourhood in Hilversum, I noticed some obstacles, some very obvious, some more subtle. The sidewalks were quite narrow for people to walk one and mostly covered with leaves and fallen nuts, which might be a slipping risk for elderly. In the city there were also sidewalks, which abruptly ended and force elderly to change the side without a traffic light. Directly around the elderly home there were slippery surfaces, large steps and garbage bins, which were so high and with heavy lids, that it was quite challenging to open them even for me.

- > making architecture accessible and barrier-free does not stop in the building but also in the direct neighbourhood
- > surfaces must be kept dirt-free and slip-proof
- > heavy elements and large steps should be avoided

narrow sidewalks



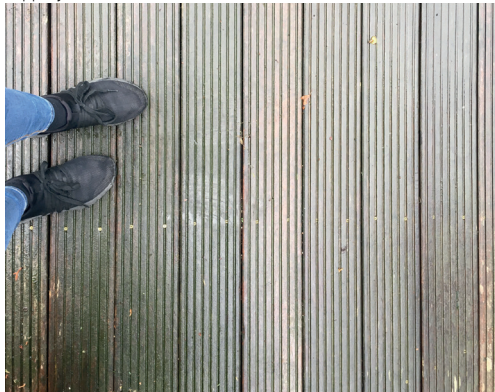
fallen leaves and nuts - hard for walkers



inaccessible sidewalks



slippery terrace



large step - obstacle for walker



too high and heavy garbage bins



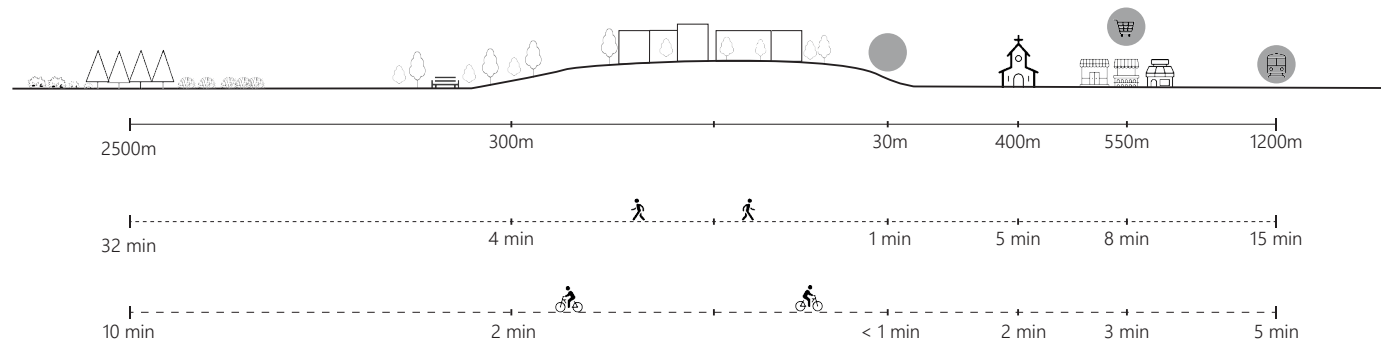


## ACCESSIBILITY

### PROXIMITY OF AMENITIES

As elderly become more physically limited with their age, the distance to different amenities becomes more and more important. We investigated, how far away places like greenery, the church, the supermarket and the train station are and how walking and cycling makes the difference. In 'De Boomberg' many residents still are quite active, as they all live independently and are not dependant on care. But many of them are reliant on a walker or a 'scootmobil' to reach their environment. That is why it is so important, that elderly live in an environment with a good amenities infrastructure. The location of the senior complex in Hilversum is in close proximity of the city centre, why the distance to daily-needed places like the supermarket is small.

-> close proximity of daily amenities important for elderly

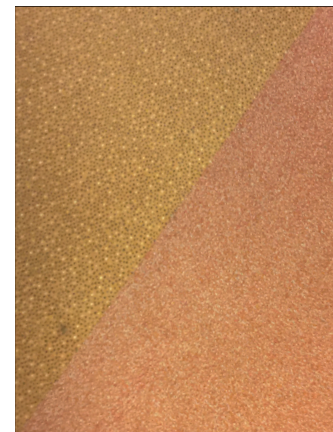
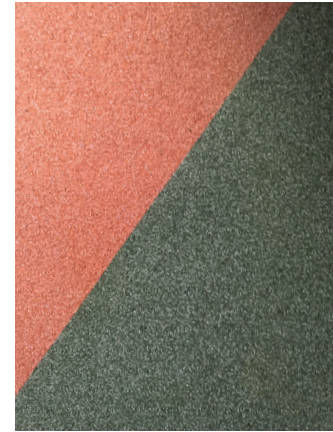


## ACCESSIBILITY

## COLOUR CODE FOR ORIENTATION

In „Flank 1“ differently coloured carpets show the transition from one floor to another. The residents can orientate and identify themselves with the colours. If one of them is lost, they might be able to find their way to the apartment by that. That means an elderly might be able to remember the right floor by the colour on the ground.

-> colour code gives orientation



## ACCESSIBILITY

### DOORS, DOORS, DOORS

As we stayed for three days in the senior home, we had the chance to sleep in one of the vacant apartments of the complex ourselves and see the spatial configuration of the dwelling without any furniture. Walking around in the apartment, the only moveable element were the seven doors, which felt like they were placed without any consideration for the mobility of the elderly. When we wanted to go to the bathroom it happened frequently, that one door got stuck in the other, which would be an almost unsolvable issue, if I were dependant on a wheelchair, as there is not enough space to move around freely. We asked ourselves, which doors are actually necessary, as the apartments were only rented to singles, therefore residents living on their own. Getting rid of doors or replacing them with sliding ones, could not only safe space but also create a dwelling for people with different mobility.

-> Important to avoid obstacles in the apartment

-> Flexible elements can provide more space and freedom

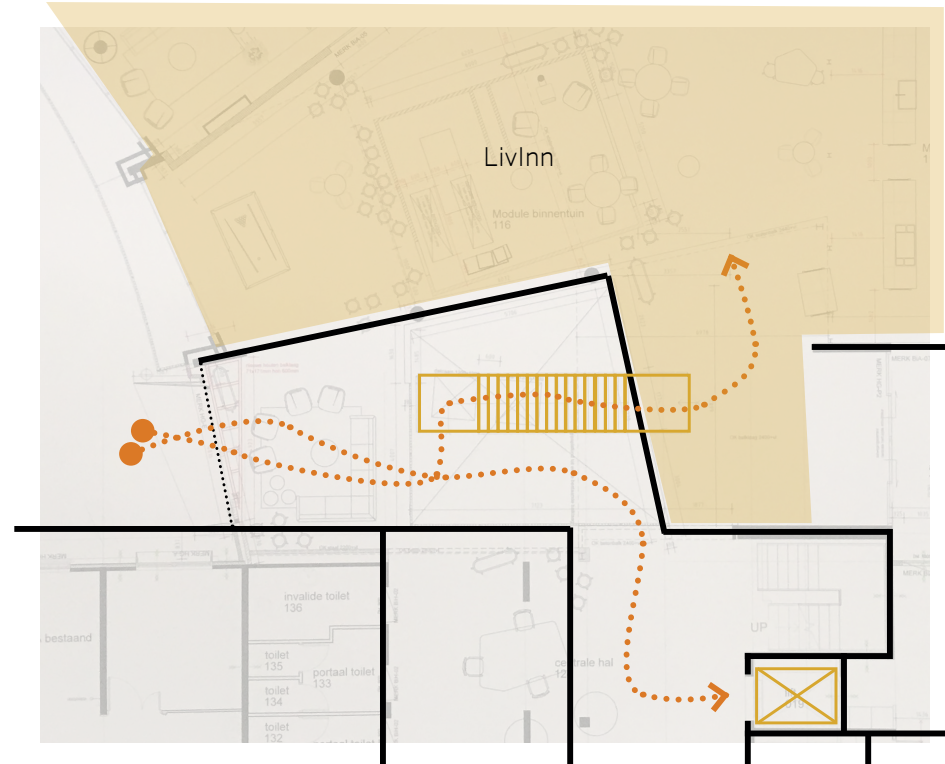


## ACCESSIBILITY

## EASY IS NOT ALWAYS BEST

During our stay in Hilversum we had a conversation with the director of the housing cooperation 'Habion', who told us, how important it is, that elderly stay active. Seeing elderly become weaker, it is an easy choice to always offer them help, the shortest routes and the most comfort, as you want them to feel well. However it is incredibly important, that elderly stay active and still do some exercise to stay as fit as long as possible. During the design of the 'LivInn' (on the right) the architects decided to place the stairs closer to the entrance door to actively encourage the elderly to take them. As the position of the elevator is a little more hidden, only the elderly, who really are dependant on it can take it and the others overcome this little challenge and take the stairs. Small things like that are not obvious, but can change the level of activity of an elderly even slightly.

- > The easiest option is not always the best for the health
- > Architecture can encourage healthy behaviour in subtle ways



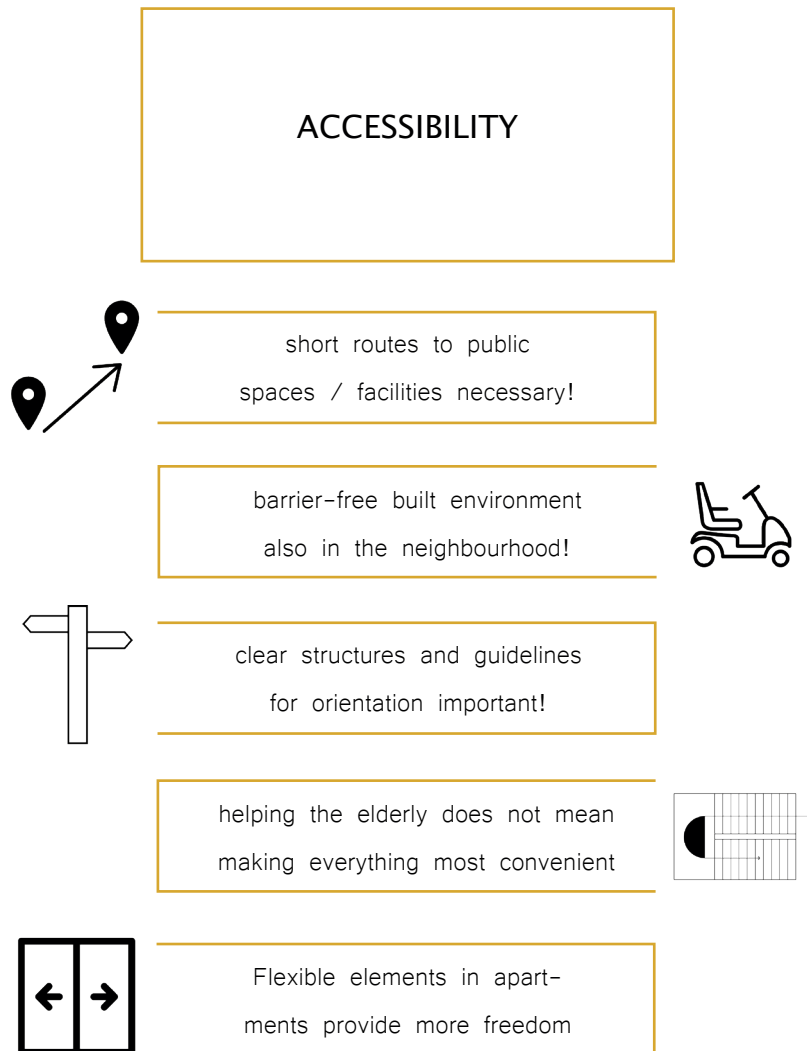
## ACCESSIBILITY

### CONCLUSIONS

To understand, how accessible the senior home and Hilversum are, I walked around the building and the city to see, which elements might be challenging for the elderly. Taking many pictures I later sorted and arranged helped to see things I had not noticed in the beginning. I looked into the plans of the building to keep track of routes, the residents need to follow and tried to experience the spaces similarly to the elderly by walking slower and the same routes, they would go.

My research showed me, how important close distances to amenities are and that they should be barrier-free. To avoid confusion certain guidelines, like clear structures, directions and clear colours need to be provided.

Elements inside the apartment also need to be thought out by the architect, so the apartment can be flexible and used by anyone. Furthermore, making everything perfectly easy accessible might not be the healthiest choice for elderly, as they should be encouraged to still stay active at their old age, to become as old as possible.



# 2.3

## PRIVATE & SHARED SPACES

Before we arrived in the senior home, I had thought about the reaction of the residents to our stay there. Even though Habion had informed them and we had written an introduction letter, I was wondering how open they would be to us somehow 'intruding' their living environment. I started to think about the topic of Privacy, how willing they would be to share their experiences with us and how likely they are to be open with us. How much time do they spend alone or together with others and how are the spaces for private or shared activities shaped?

This chapter focuses on the private and shared spaces in the senior home and their relationship to each other. I want to investigate how much the elderly value their privacy and how important spending time with others is to them.

# PRIVATE & SHARED SPACES

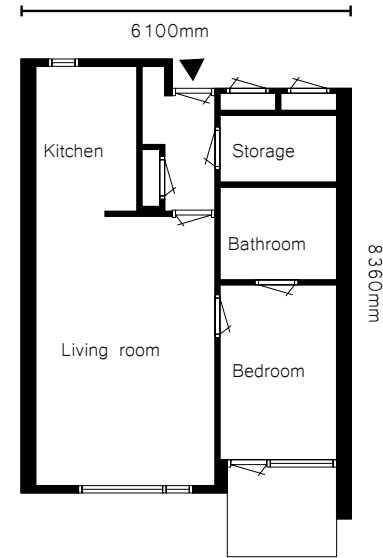
## PRIVATE SPACES

Flank 1 has smaller apartments and balconies than the apartments at Bergstaete. The configuration of the apartments are similar in a way that the kitchen is located on the left side of the apartment with an open connection to the living room. The storage spaces are located next to the entrance and the bedroom facing the balcony. The difference is that the apartment at Bergstaete has an extra storage room. The building complex offers different sizes in apartments as well the option to either buy or rent it, which allows people with different backgrounds in. As the two buildings do not belong to the same senior housing cooperation, the residents barely have contact to each other. Some of the residents in Flank1 were really happy about their apartment size, whereas some in Bergstaete even wanted to have more space. This is always dependant on the resident's former living situation.

-> mix of apartment sizes & option to buy or rent creates mix of people with different social backgrounds

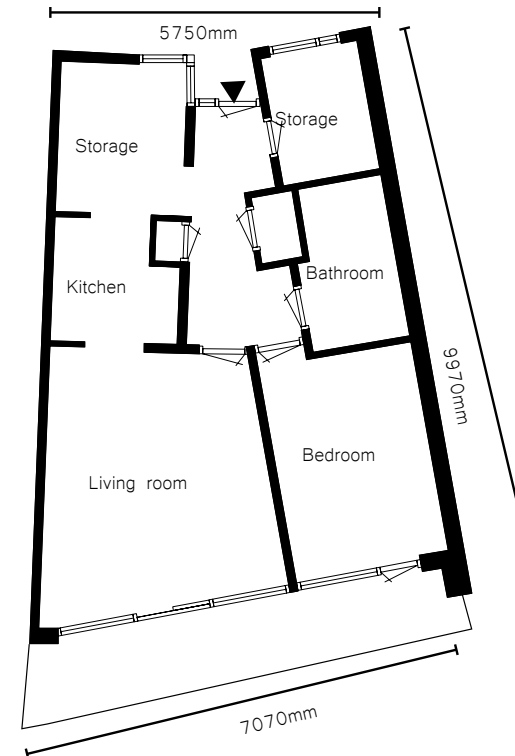
50m2 excl. balcony

Flank 1



Bergstaete

73m2 excl. balcony

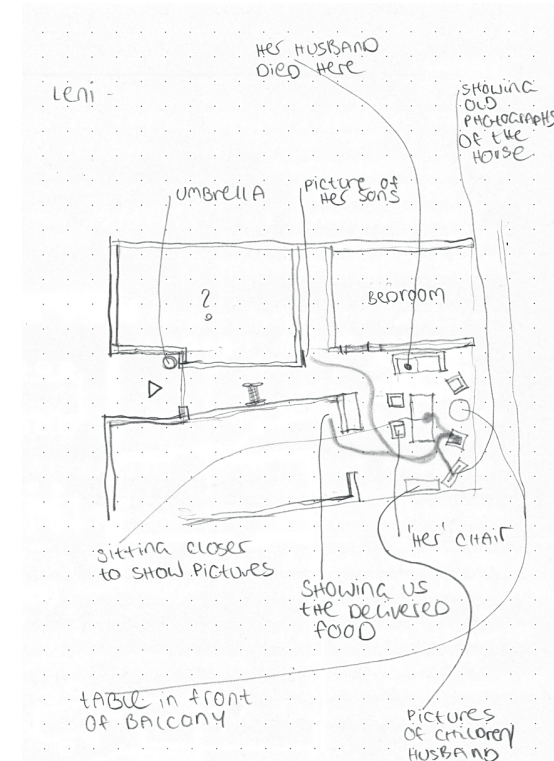
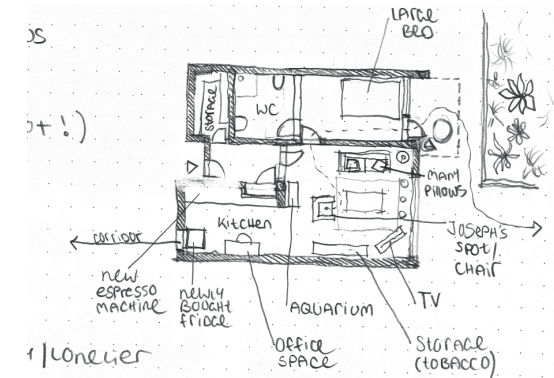
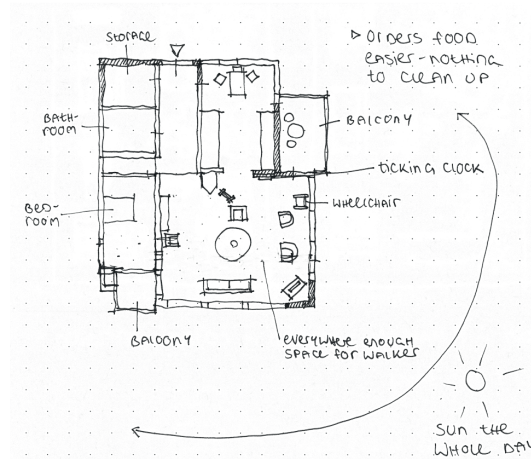
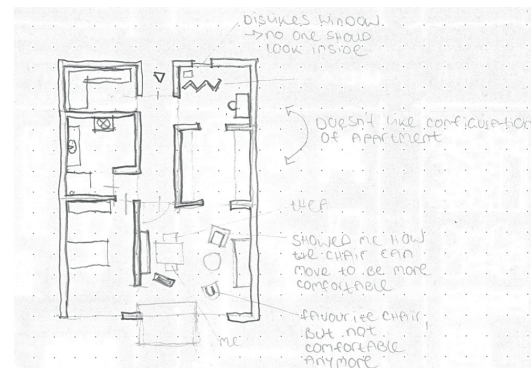
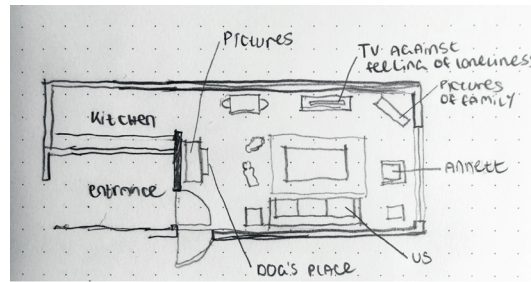


# PRIVATE & SHARED SPACES

## DIFFERENT INTERIORS

During and after the interviews I drew the floorplan of each apartment, where we always sat down in the living room. The other rooms were sometimes shown to us more specifically dependant on the openness of the resident. Almost all of the residents were proud of their apartment and wanted us to see and document it by drawings and photographs. I could clearly see, that almost everyone had had joyful memories to certain furniture pieces, photographs or animals, which they proudly displayed in their living room. Whereas some had pictures of their deceased partner or their grandchildren, others showed their interest in interior design by carefully choosing their furniture. You could definitely see, how full of memories and important feelings not only the apartments, but also the objects in it are for the residents, which shows how valuable a true home can be. Their private apartment showed, where they feel most comfortable and give them space to feel at home.

- > Apartments are full of memories and life
- > many feel at home in their apartments





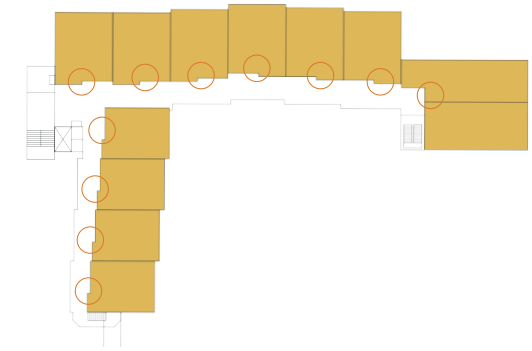
# PRIVATE & SHARED SPACES

## PRIVACY IS KEY

Walking through the corridors of the senior complex, I noticed, that almost all of the windows to the apartments' kitchens were covered with a curtain or sometimes even with a fixed element like a tall fridge. Even if the architect of the building wanted to keep the link between the corridor and the individual apartments, you can see how important the resident's privacy is. They usually value it more, than receiving light from two sides or seeing their neighbours pass by. As about half of the covers could be opened, you can see that they still want to keep open the option of seeing their neighbours and being seen by them.

However what keeps people from looking inside also gives the apartments identity, as after a while, you might remember who installed a specific curtain.

- > privacy + protection from views really important
- > curtains etc. also give identity
- > residents want to have a choice between privacy and togetherness
- > architecture can provide this choice

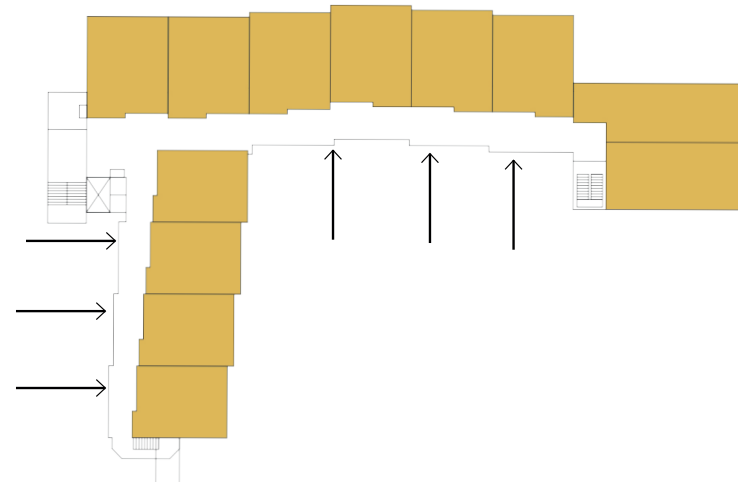


# PRIVATE & SHARED SPACES

## DIFFERENT USE FOR CORRIDORS

The corners in the corridors of „Flank 1‘ were used in different ways, some were just left empty, whereas others were used for storing a bike or a wheelchair. Other corners were somehow designed by the residents with the help of small statues, chairs or plants. This showed me, how residents make semi-public space their own. They trust their neighbours enough to leave their bikes or the walkers outside and also want to somehow give this space an identity. Some of them will recognize their neighbour’s apartment by the plants, which are standing in front of the entrance door. This gives information about the personality of the resident. Watering these plants or taking their bike could initiate casual contact between the residents, as they might meet in this space. This space also shows, how the semi-private space works as a buffer between fully private and the public outside to transition from one space into the other

- > corridors can give identity
- > added purpose in corridors can initiate interaction
- > Buffer between inside and outside / private and public

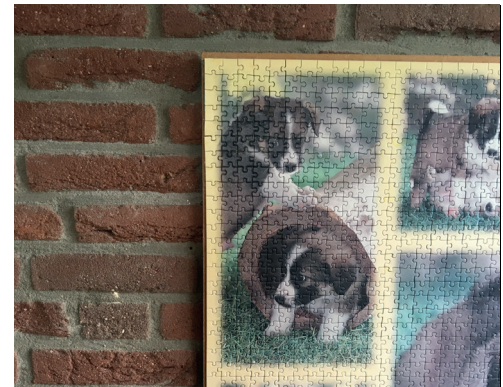


# PRIVATE & SHARED SPACES

## CORRIDORS AT FLANK 1

Walking through the staircases and corners of the 'Flank', I noticed, that most of the corridors were deserted and barely used. The elements in the corridors and stairwells gave the impression, that it might be used sometimes, but we never saw anyone in the corridors apart from entering and exiting their apartment. Magazines, books or decorating elements like a duck and puzzle might represent the age of the residents, as most of these objects are elderly-appropriate and would not be considered modern. It showed, that areas, which are not fully private or public lack an actual design, as no one fully feels responsible for those spaces. Compared to the lovingly designed apartments, these 'rest-spaces' leave a feeling of lost potential. It seemed, as no one is fully responsible for the semi-private spaces, it became somehow neglected, why clear ownership and responsibilities for spaces can be important.

- > corridors mostly deserted
- > decoration only appealing to elderly
- > Lost potential for useful spaces
- > clear ownership/ responsibility for all spaces important



# PRIVATE & SHARED SPACES

## COMMUNAL SPACES

The building has a diversity of communal areas. Within 'De Boomberg' the 'LivInn' concept had just opened with different modules and functions.

The other housing cooperation in 'Bergstaete' only provides a big atrium without a particular function. Flank 1 shares the 'LivInn' with the care facility, which is still under construction and additionally has an outdoor communal area, the garden, which is taken care of by a garden committee organised by the residents.

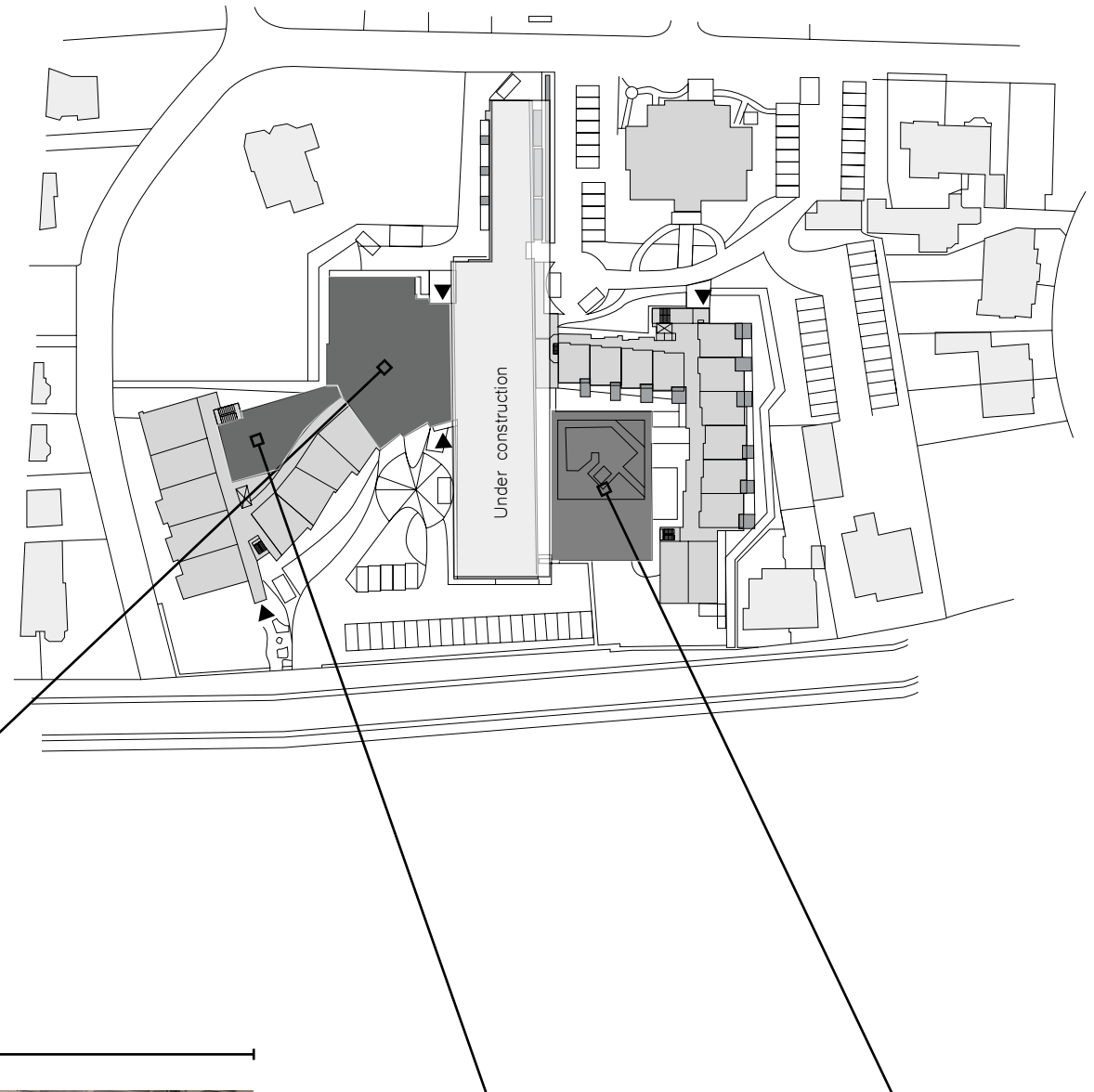


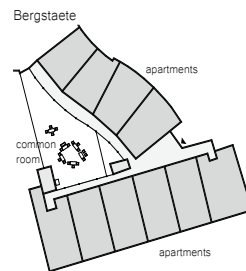
image by Veronique Le

## PRIVATE & SHARED SPACES

### LITTLE USE OF SHARED SPACE

The only gathering in Bergstaete, where many or all of the residents come together in the shared space, is the coffee meeting, which is organised by one of the residents. As it only happens every 6 to 8 weeks and not at all in the winter and the summer, the community of residents only meets about five times a year. The original layout of the building would give the residents the opportunity to meet up in the hallways and the shared space in between, but it is barely used. The generosity of the space seems to be a good spot to meet, but due to the large glass front and the little heating or cooling, the space becomes unusable during some times of the year. The residents make use of external organisation as the 'Seniorenvereniging Hilversum' to take part in activities with other elderly or go to church. This makes it hard for a community to grow, as seeing people only every 7 weeks is too little to get familiar with someone or even get to know them.

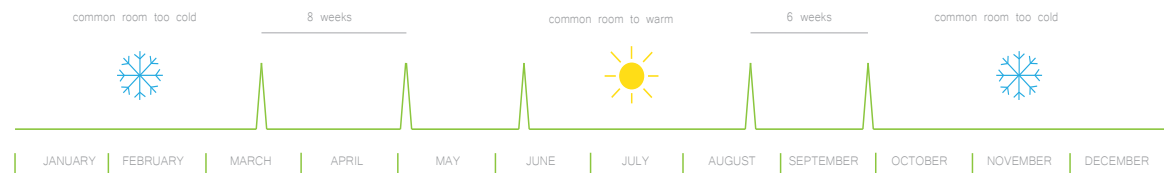
- > comfort of shared spaces is a must!
- > placement of shared space is essential
- > flexible use can bring more life into spaces



shared space in Bergstaete



St. Vituskerk in Hilversum



# PRIVATE & SHARED SPACES

## IMPRESSIONS AT THE LIVINN

The 'LivInn' on the contrary has been recently renovated and the interior designers tried to find a balance between traditional and modern elements. They asked the residents about their preferred furniture, but tried to mix it up with modern parts to make the place attractive for different generations. Some of the traditional elements (old posters / card games / music CDs) sparked memories in the elderly and initiated conversations about their lives.

The designers created different smaller areas, which are dedicated to a bar, a theatre or a Pool-table, where smaller groups can meet and feel comfortable. In my opinion the 'LivInn' now can attract everyone, as there is a broad offer in function and aesthetic appeal, which makes the residents and the neighbourhood want to spend their time in it.

- > mix of old and new furniture invites different generations inside
- > old objects spark memories from the past

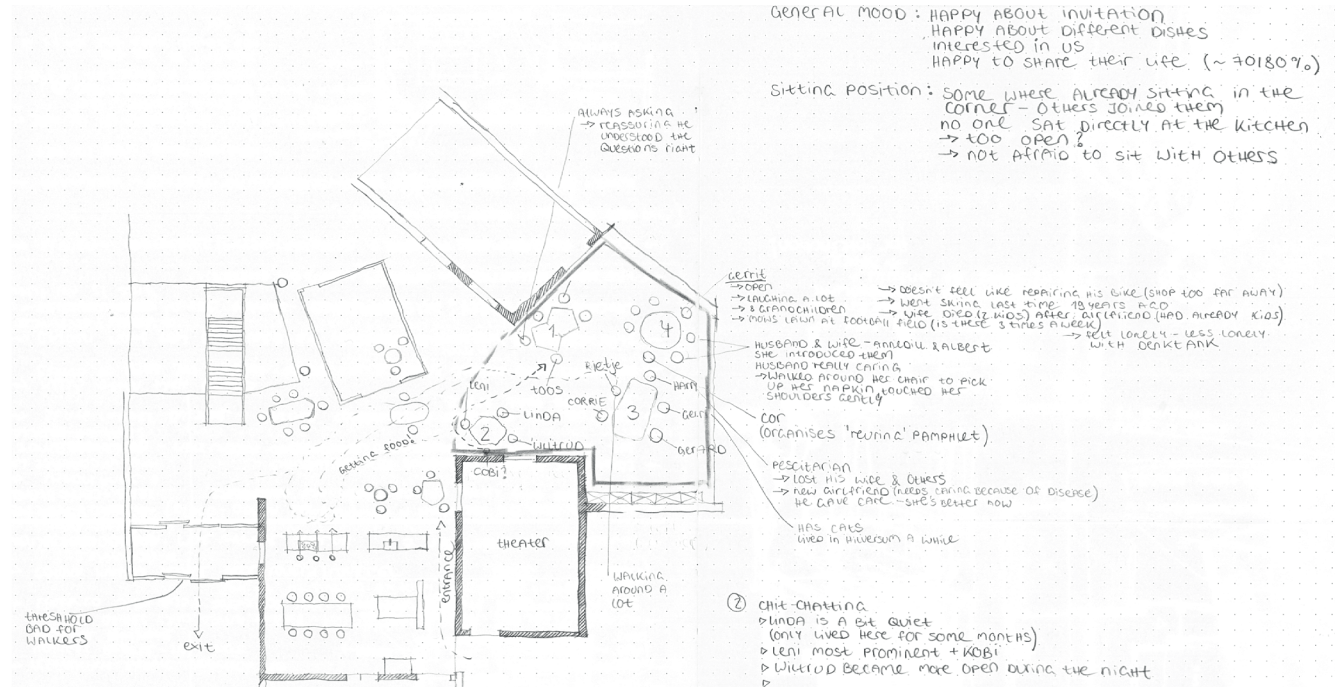


# PRIVATE & SHARED SPACES

## QUESTION DINNER

During a coffee meeting with the residents we invited them for a dinner in the evening. The majority of them were happy and excited about it and gladly accepted the invite. During the dinner the elderly noticed, as many of them did not know the space of the LivInn yet, how this common room could be used. During the dinner we could see how more quiet and cautious people warmed up to the others and felt welcomed in the group. We had prepared many different tables all over the LivInn, but everyone decided to sit in one corner of the room, where they had a wall in their back to feel less exposed. Elderly from different complexes decided to sit together and were not afraid to make new friends during the night.

- > residents need to be shown how something can be used
- > smaller areas are more comfortable for meetings than large exposed areas
- > maybe the position of the LivInn in a more central position, which is visible from the apartments could show the residents how the space can be used
- > maybe smaller spaces with more privacy would invite more people in







## PRIVATE & SHARED SPACES

### CONCLUSIONS

Looking into the private and shared spaces of the senior home you could see, how a mix of apartment sizes can also create a mix of people with different backgrounds, which might create a more diverse community.

I could clearly see the importance for the elderly of having a private space, where they can feel fully at home. It is important to them to be protected from views, noise and others in their private space to have a place to rest. The semi-private spaces, such as the corridors to the apartments were not only used as circulation, but also as a buffer zone and identity-giving space. It is important, that these zones also have a clear ownership, so they will not be neglected and leftover spaces. Looking at the shared or communal spaces in 'De Boomborg' it was obvious, that they lacked mostly comfort, were badly accessible and partly lacked a suitable aesthetics for the elderly to feel comfortable in them.

Concluding you could see, that the privately owned spaces are much more valued than the shared spaces, but this could be because of the lost potential in the shared spaces. Could a properly designed shared space encourage the elderly to use it more often and interact with others?

### PRIVATE & SHARED SPACES



mix of apartment types create  
mix of different people

Memory-filled homes / feeling  
at home in their private apartment



Privacy main key  
for feeling of comfort

Semi-private spaces can give identity  
and work as a buffer zone, but need  
clear ownership / responsibility



Shared spaces:  
Comfort, location, function & look  
important for participation

# 2.4

## THE ELDERLY AS SOCIAL BEING

As the residents in 'De Boomberg' mostly live alone, I asked myself, whether they are social beings, if they like to interact with others, if they are spending enough time with others and if they have grown a community out of the complex. I wanted to know, whether they are only alone in their apartments, or rather lonely. To understand their social behaviour, we joined a coffee gathering of them and invited them for a dinner to see how likely they are to participate. I investigated their behaviour during the meetings and interviews to see or pick up a feeling about their mood. Furthermore I drew some floor plans and took pictures of situations to understand, which routes the elderly take and how they interact with each other.

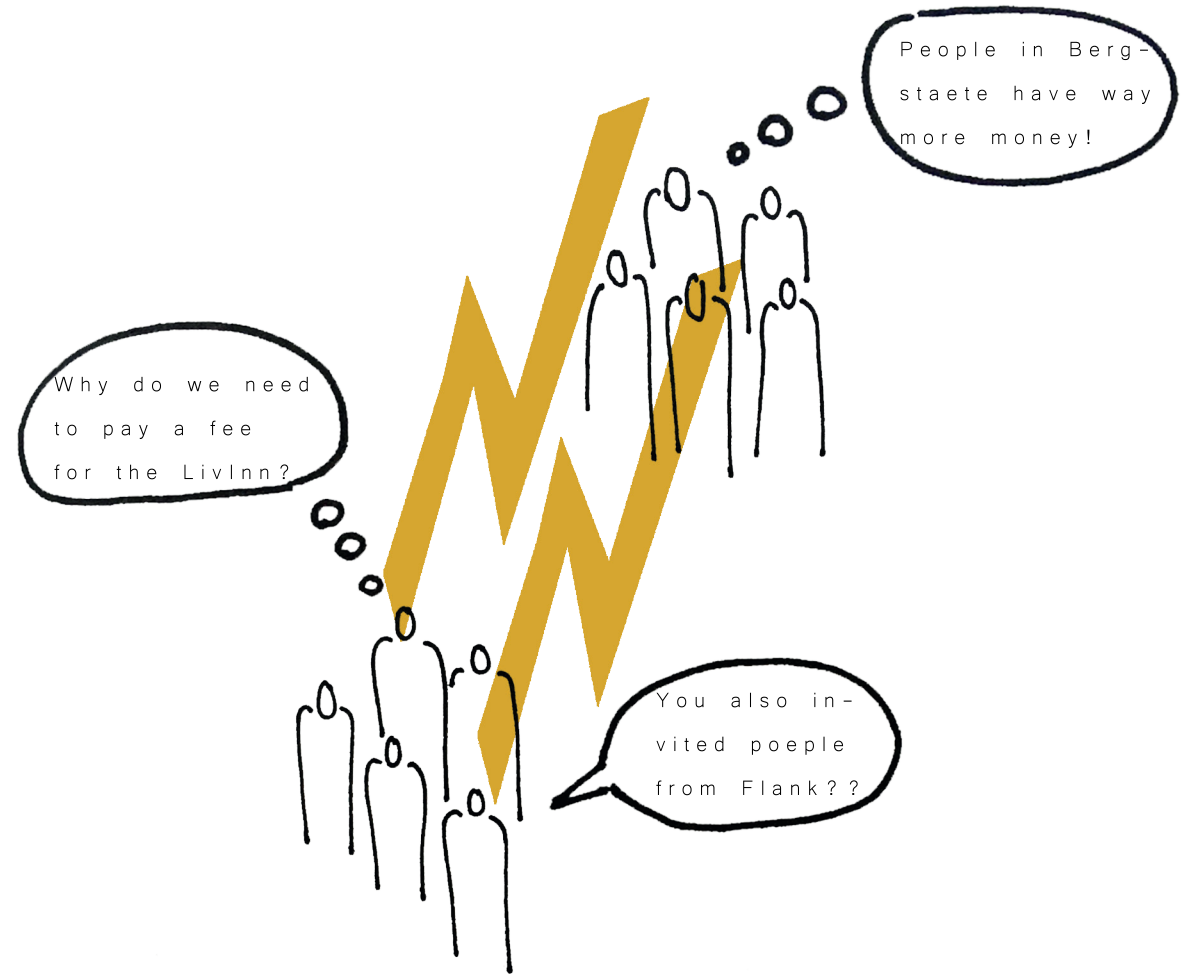
# THE ELDERLY AS SOCIAL BEING

## TENSION BETWEEN RESIDENTS

During the stay at the 'De Boomborg' I noticed, that there was a clear aversion between the residents of the two building blocks of 'Bergstaete' and 'Flank'. This tension referred to the different housing cooperation, they are owned by as well as the general difference in apartment-price and status of the residents. This observation was a little bit tricky, as no one openly said something bad about the other residents, it was rather a feeling of a certain tone in their voices, which made me listen attentively. Some of the residents of 'Flank' were somehow irritated, when we invited the residents of 'Berstaete' to the dinner, as they belong to another housing cooperation.

-> different priced apartments in the same building with the same shared space might solve tensions between the residents

-> mix between people with different backgrounds can only improve versatility



## THE ELDERLY AS SOCIAL BEING

### ALONE OR LONELY ?

Contrary to the feeling of community during the gathering at the coffee meeting many of the elderly spend most of their time during the day inside their apartments. As they are physically limited they can not walk outside as frequently anymore, as that is linked to a large effort. Asking about their daily lives and activities, many of them told us, that they feel physically limited to participate in group activities and therefore sometimes feel lonely and isolated. Some of them became emotional talking about that topic and simply did not have an idea, what they can do.

- > residents tend to be lonely in their apartments
- > architecture should encourage them to participate more, by placing public functions very close by and accessible
- > activity offer for people with physical limitations

-> Can elderly be less lonely if they share their apartments with others?



# THE ELDERLY AS SOCIAL BEING

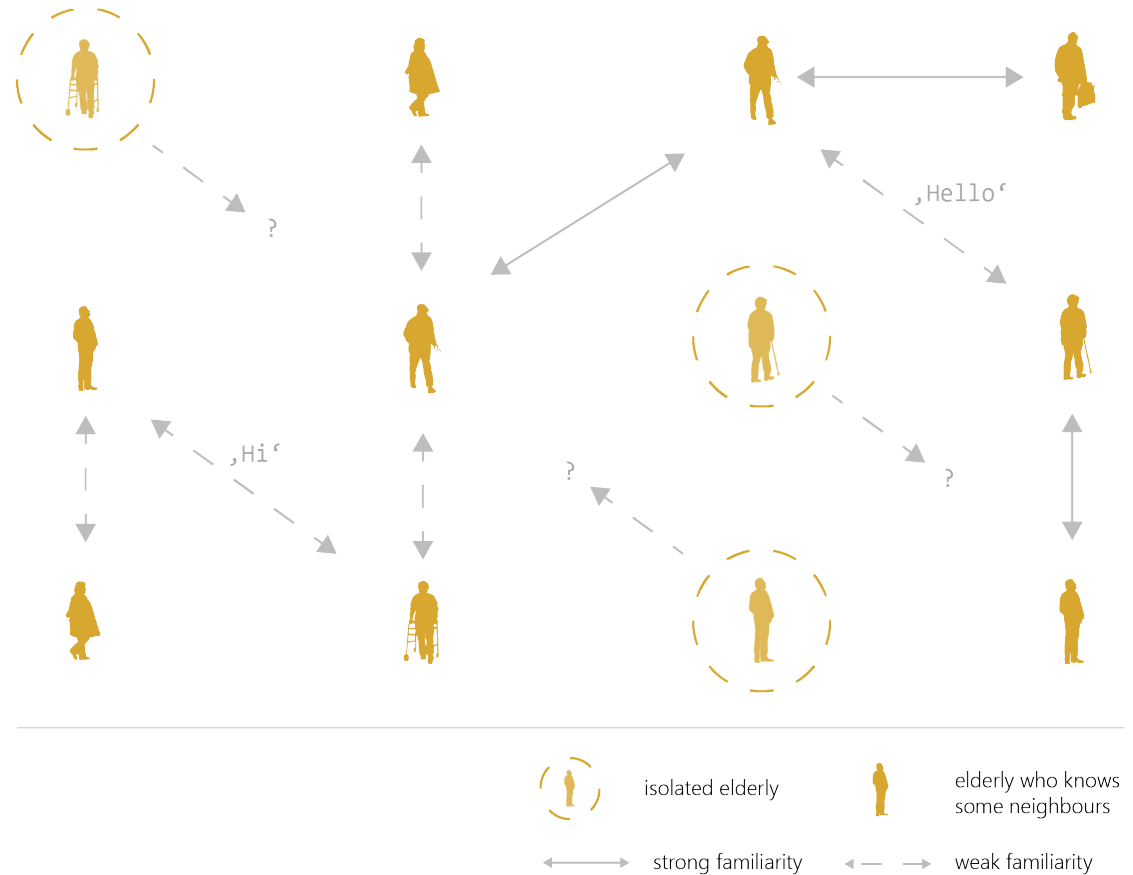
## ISOLATED ELDERLY

In casual conversations and interviews, it became clear, that the complex lacked a sense of a community. Whereas some of the residents did not care that much, as they have friends and family at other places, most of them wished for more interaction. Many of the residents only know little about their neighbours and barely consider them as their friend. The usual conversation on the corridors is limited to a ‚Hello‘ and other small-talk. Many residents were saying, that they feel lonely at home and do not know what to do, even though they would have plenty of time. Many are even almost fully isolated and on their own most of the time.

-> many elderly feel lonely and do not have friends in the complex

-> architecture should provide the possibility of interaction between the residents

Isolated elderly in senior residences



# THE ELDERLY AS SOCIAL BEING

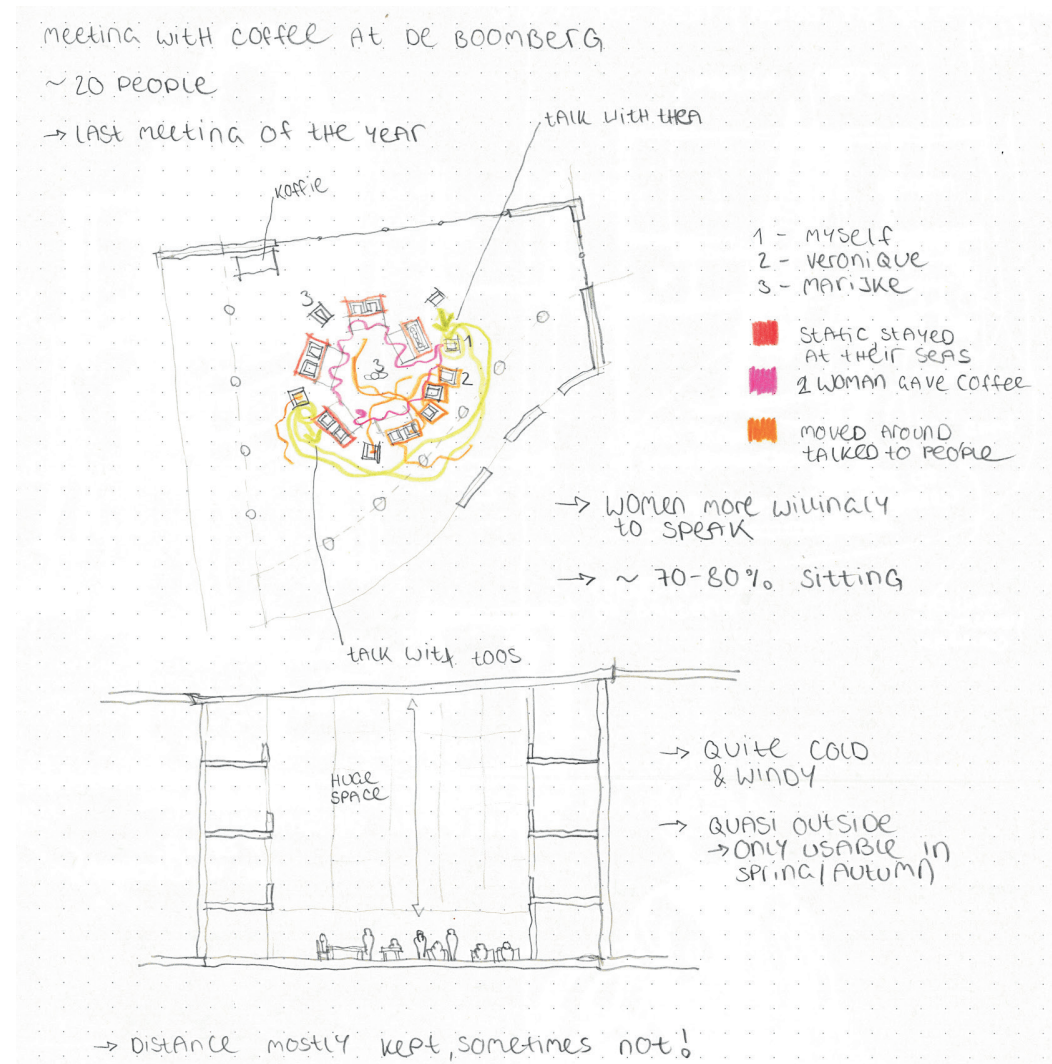
## COFFEE MEETING AT BERGSTAETE

The residents invited us to join their coffee meeting, which happens every 6 to 8 weeks in the common room of Bergstaete. The gathering itself is organized by some of the residents, who bought a large coffee kettle to be able to serve about 20 people. They also offered tea and many residents brought cookies, which were happily shared.

The housing cooperation only provides the large atrium and a couple of chairs and tables, but not any activities, why the residents are responsible for any group activity.

The spacious common room in the middle of the apartments gave plenty of space for everyone to keep the 1,5 meter distance, which not always remained during the meeting. After introducing us and the project we are working on, most of the residents were willing to share their experiences. Many, especially female elderly, were quite happy about these meetings, where they could catch up with the other residents.

-> responsibility of organising activities purely on residents  
-> happy to participate in the coffee meeting with other elderly



# THE ELDERLY AS SOCIAL BEING

## PARTICIPATION

On one evening, we invited some elderly for a dinner at the 'LivInn', where all guests were asked to bring their own cutlery and tableware, as there is not enough at the 'LivInn' for everyone. Almost everyone we had invited, came, so we were about 20 people, who were excited to try our dishes. In the afternoon, the 'Happy Hour' had taken place in the 'LivInn' and some people stayed for the dinner. The residents from 'Bergstaete' and 'Flank' mixed up and all sat together in one corner of the spacious common room. Before we started serving dinner, we introduced ourselves and asked them to do the same with their name, how long they have been living here and what their hobbies are. We prepared three different dishes for them and asked them to come to the counter in the kitchen to pick it up. For physically limited residents we offered to serve them.

- > elderly did not care too much about Corona and keeping the distance
- > happy to meet new people in casual setting
- > they were happy to try something new

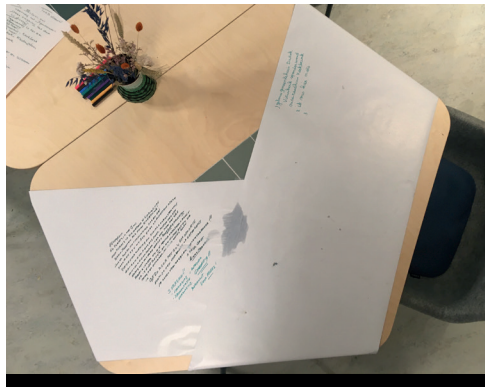
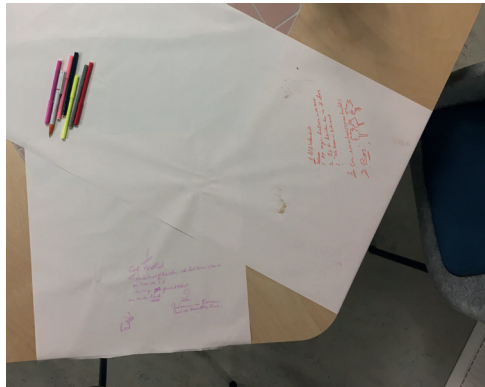
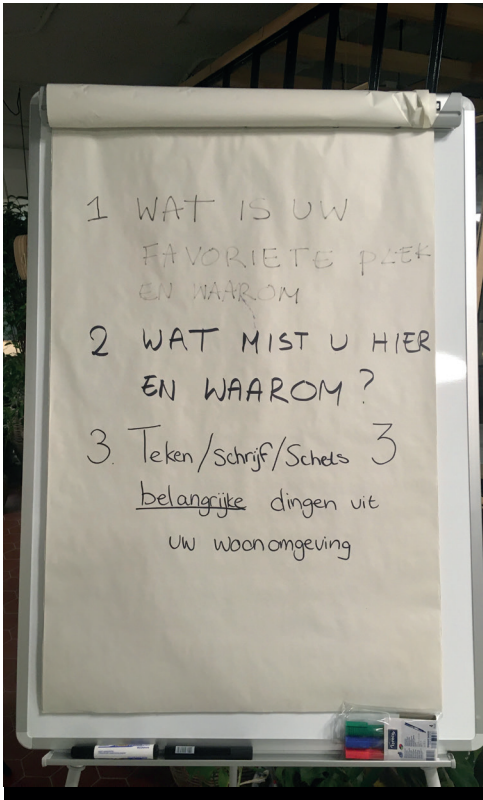
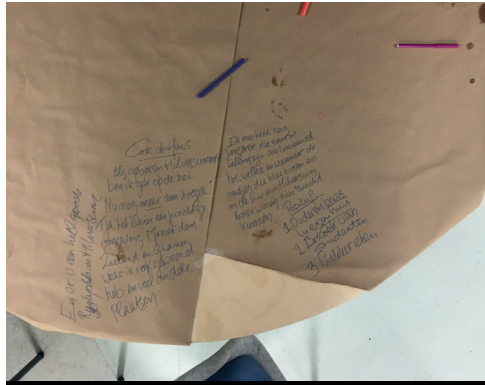
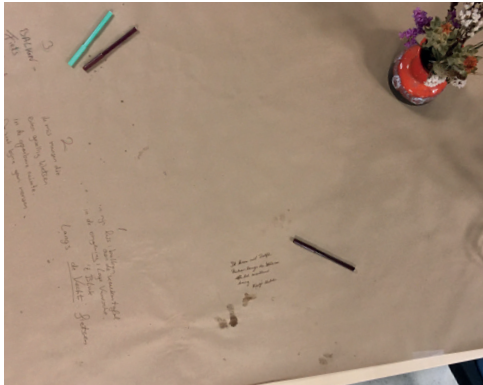


# THE ELDERLY AS SOCIAL BEING

## ANSWERS ON TABLECLOTH FROM THE QUESTION DINNER

Before the dinner we had prepared paper sheets as tablecloths and pens on different tables for them to answer three questions. After every dish we wrote down the question on a flip-chart and repeated it twice, so everyone understood it. The residents then wrote down their answers, which we later documented. We wanted them not to hurry with their answers, but to take their time, but noticed that most of them answered the first question and it became less with the next ones. The dinner ended around 8:30pm and we helped especially the elderlies with walkers to find the right way to return to their home. Almost all of them answered our questions and thanked us repeatedly for our invite. They enjoyed to have tried not only new dishes, but also have talked to younger people, as most of their conversations usually evolve around sickness and aging.

- > elderly get tired and exhausted easier, therefore activities should not be too long
- > elderly happy to get input from younger people



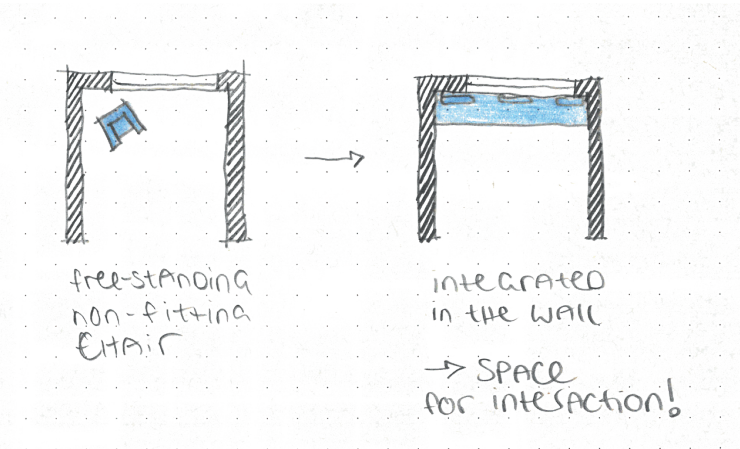
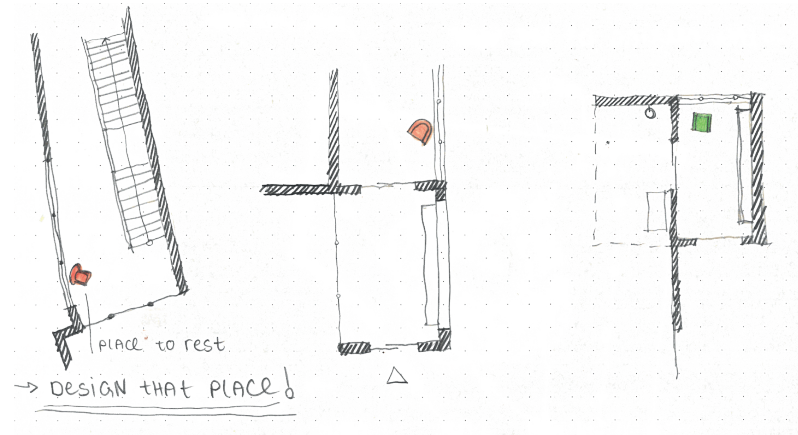


# THE ELDERLY AS SOCIAL BEING

## LOST POTENTIAL FOR INTERACTION

During various walks around the building complexes I noticed multiple random chairs standing close to the entrances and stairs, which were placed there by the residents to have a short rest after a walk or being outside before going up the stairs and into their apartments. As elderly become weaker and need to rest more often, these spaces could bare another function to spark interaction with others. Very simple measures, like adding a second chair or a small library could make the residents enjoy the chair longer. These spaces would have a lot of potential for casual interaction, as the most people meet at the entrances or the stairwell of their homes. One of the chairs (middle photograph) is already right next to the mailboxes, where an elderly could start a conversation about the post of another.

- > lost potential for interaction at entrances / stairwells / corridors
- > additional function could create spaces of encounter
- > functions could also provide conversation-starters

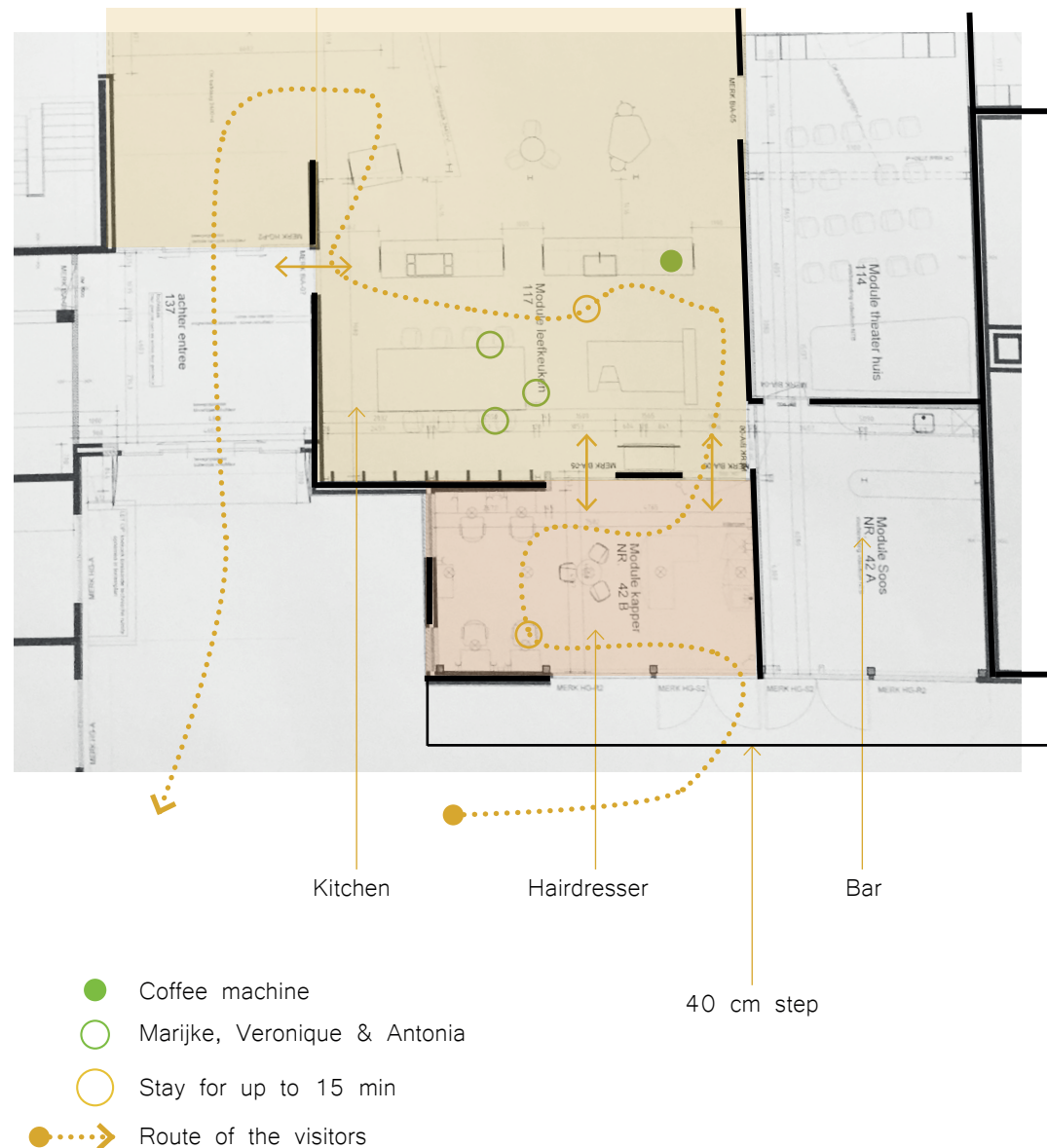


## THE ELDERLY AS SOCIAL BEING

### LOST POTENTIAL FOR INTERACTION

On Friday opened the hairdresser in the 'LivInn' in Hilversum, which for the first time of our stay created a casual liveliness in the common space. When the first residents arrived, they first struggled to reach the entrance of the LivInn, as there was a 40 cm high step, which was a large obstacle for the elderly with walkers. The hairdresser, the students and other elderly came to help and initiated the first short interaction. As the hairdresser is not fully closed up, but has windows towards the kitchen, where we were sitting, the elderly came to us after their haircut wanting to have a small conversation. Some of them also came because we made fresh coffee with the machine, we had brought, which made them stay a little longer.

- > Visual connections are important for initiating interaction
- > adding public functions creates casual conversations
- > Coffee / small snacks makes people want to stay longer in a conversation



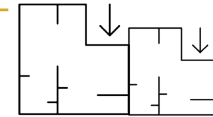
# THE ELDERLY AS SOCIAL BEING

## CONCLUSIONS

Looking into the elderly's social behaviour, you could see that the complex did not provide the perfect basis for social interaction. The next to each other instead of together with each other was already visible in the position of the two residences with different apartment sizes. By implementing different apartment sizes, you can create a mix of people with different backgrounds and generations. The feeling of loneliness was noticeable, as many residents spend much time alone in their apartments, but wished to participate and interact with others more, especially with us students, the younger generations. I could see, how additional functions to shared spaces can increase interaction between the residents and how the visual link to these spaces and functions play an important role in initiating and encouraging social behaviour.

### ELDERLY AS SOCIAL BEING?

Mix of apartments creates mix of people



Feeling of loneliness inside their apartments



Wish to participate / interact (especially with youngsters)



Added functions can initiate interaction among elderly



Visual connection important for initiating interaction





# FIELDWORK -> RESEARCH

## HOW TO CONTINUE

By being able to stay at an senior home a a couple of days, I was able to change my perspective towards the one of the elderly. Problems, which I never encountered before became quite obvious in the senior home talking to and observing the elderlies' behaviour. The fieldwork answered many questions to their behaviour and needs, but opened up even more questions. Are the issues and needs only for the elderly in this specific senior home or are these general issues, elderly are facing everywhere? The fieldwork inspired me to look deeper into the topics of private and shared spaces and their uses, into the topic of interaction and how architecture can encourage this social activity among elderly and their neighbours. Can certain ways of living together enhance the quality of the elderlies' life?

I will also look into the topic of making neighbourhoods future proof, so elderly are not dependant living in a senior home, but can rather live anywhere together with others. The research will give certain guidelines for the future design, which will help to guide me through the complexity of designing for elderly.

# 3. IN-DEPTH RESEARCH

ON DESIGNING FOR ELDERLY

In which way can architecture provide the  
right transition between Privacy and Shared space  
encouraging elderly to participate in social interaction?

## 3.1 DEFINITION

### RESEARCH QUESTION

I want to research how a shared space in and around the building complex needs to be formulated to increase the interaction and the familiarity among elderlies and their neighbours. The shared space could be anything, which is not the personal apartment or room of the resident. I want to research usual shared living rooms, which are used for gatherings as well as shared kitchens, which are used to cook together or have a coffee. I want to investigate flexible spaces, which can offer different functions like a small theatre space or a sport room. But as interaction does not only happen during a planned activity, I also want to research how informal spaces can increase the familiarity among elderlies and their neighbours. Can a specifically designed entrance situation make people stay there for a longer time to create the possibility for a conversation? Can a corridor contain a certain function, which brings people from the neighbourhood into the building and adds something to the space, which otherwise would only be the residents' way to their doors?

Can the private space even be minimized to make more space for communal gatherings? Can a shared apartment work for elderlies? Are elderlies willing to share their apartments? Will that change in the future? I want to research

about private and shared spaces, as well as the inbetween, the transition zones, as they might be the space for interaction. I want to investigate, why interaction and social participation has a positive effect on elderly, and how it can tackle loneliness. After this I want to look into the physical environment, how the built environment needs to be shaped, so elderly are not hindered from participating because of a lack of accessibility. Is it possible, that architecture and the built environment encourages elderly to be socially more active? After all that I want to make sure, that not only the current generation benefits from these measures, but also the future ones. How need buildings to be shaped like to house the coming elderly for the next 100 years? How can flexibility increase the longevity and liveliness of a neighbourhood?

To get a better grasp on these questions, I formulated subquestions, which will broaden the topic.

1. What is private and shared space and how are these defined?
2. What is Zoning and how does one space transition into the other?
3. How important is social interaction and participation for elderly?
4. How can architecture encourage elderly to be socially active?
6. How can architects create an environment for elderly, which is future-proof?



# 3.2

## PRIVATE & SHARED SPACE

What is a private and a shared space and how are these defined?

During my fieldwork I saw, how the elderly value both their private space as well as the spaces, where they spend time with others. This chapter focuses on the specific definitions of private and shared spaces, why it is important to have both of these zones and how different people value these spaces individually.

# PRIVATE & SHARED SPACE

## PRIVATE VS. PUBLIC SPACE

### Private space

The mind or consciousness can be declared the most basic manifestation of privacy. For some people this can be a space to take a rest from the outside world, to feel in control, for others this might be a trap in their thoughts, unable to reach out. Some might even be scared to enter it, because they fear their thoughts, why they always seek out for company (Madanipour, 2003, p.6). This private 'space' is even more protected from others than the physical shape of the private space of a room or home. According to the Cambridge dictionary privacy is the "state of being alone" or "someone's right to keep their personal matters and relationships secret" (Cambridge Dictionary, n.d.). In 1890, the lawyers Samuel D. Warren and Louis D. Brandeis published an article with the name "The right to privacy". They state the importance of having "full protection in person and in property" by having "the right to be left alone". As the complexity of the life had increased, the necessity of "some retreat" had become essential for the individual (Warren & Brandeis, 1890). Private space can also be defined as "a part of space that belongs to, or is controlled by and individual, for that individual's exclusive use, keeping the public out" (Madanipour, 2003, p. 35).

Having a private place, where you can be either alone or only with your family is essential for almost any person. Everyone needs to be able recovering from a stressful day at work or the busy life outside of your personal life. Privacy is usually bound to a place with a concrete separation from another space, but is not fixed to a specific place. You can be private in a living room the same way you can be private in a garden or even on a public bench. I will focus on the spatial privacy, therefore a room or a configuration of rooms, which are only used by one person and their direct family.

### Public space

Shared or public space is a space, which belongs to a group of people. It can either belong to a whole city and therefore anyone or only to small groups like to room-mates. Jan Gehl describes the city as a meeting place, therefore a place, where people gather and interact. He emphasized how important the pedestrian traffic is, as this strengthens the city life. Filling the public space - which is always somehow shared - with necessary activities like going to school, doing groceries and recreational activities, like taking a walk or doing sports, improves the shared

space immensely (Gehl, 2010, pp.19). In the book "How to study public life" from 2013 Gehl and Svarre define the 'public space' as "streets, alleys, buildings, squares, bollards: everything that can be considered part of the built environment". It should also be understood "in the broadest sense as everything that takes place between buildings (...) everything we can go out and observe happening" (Gehl & Svarre, 2013, p.2). These definitions only focus on the public life, which happens mostly outside of building complexes. There are different scales of shared spaces, but all of them are defined by at least two people, who are not owning it using the space. Public space is "controlled by the public authorities, concerns people as a whole, is open or available to them and is used or shared by all members of a community" (Madanipour, 2003, p.117). There are many definitions for the public realm, but I do not only want to focus on the public, the outside, but also on other shared spaces, which are not always fully accessible to everyone, but smaller groups.

# PRIVATE & SHARED SPACE

## DEFINITION: SHARED SPACE

Searching for a specific definition for 'shared spaces' confronted me with a problem, as the term is very broad and mostly used as a synonym with 'public space'. As you can also share spaces with smaller groups, I want to define 'shared spaces' as spaces, where at least two people come together and somehow interact. This can be a gathering on a bench in a park, as well as the casual encounter in the laundry room. The shared space can be as small as a living room in a shared flat, where only up to three people come together to be with each other.

You can distinguish between shared spaces by the amount of users, the type of activity in it or the function of it. Public space is a part of the broader term of the shared space, but does not include more private spaces like a corridor or the entrance to a residential building. I want to focus on spaces, where interaction happens, which is outside of the fully private realm.

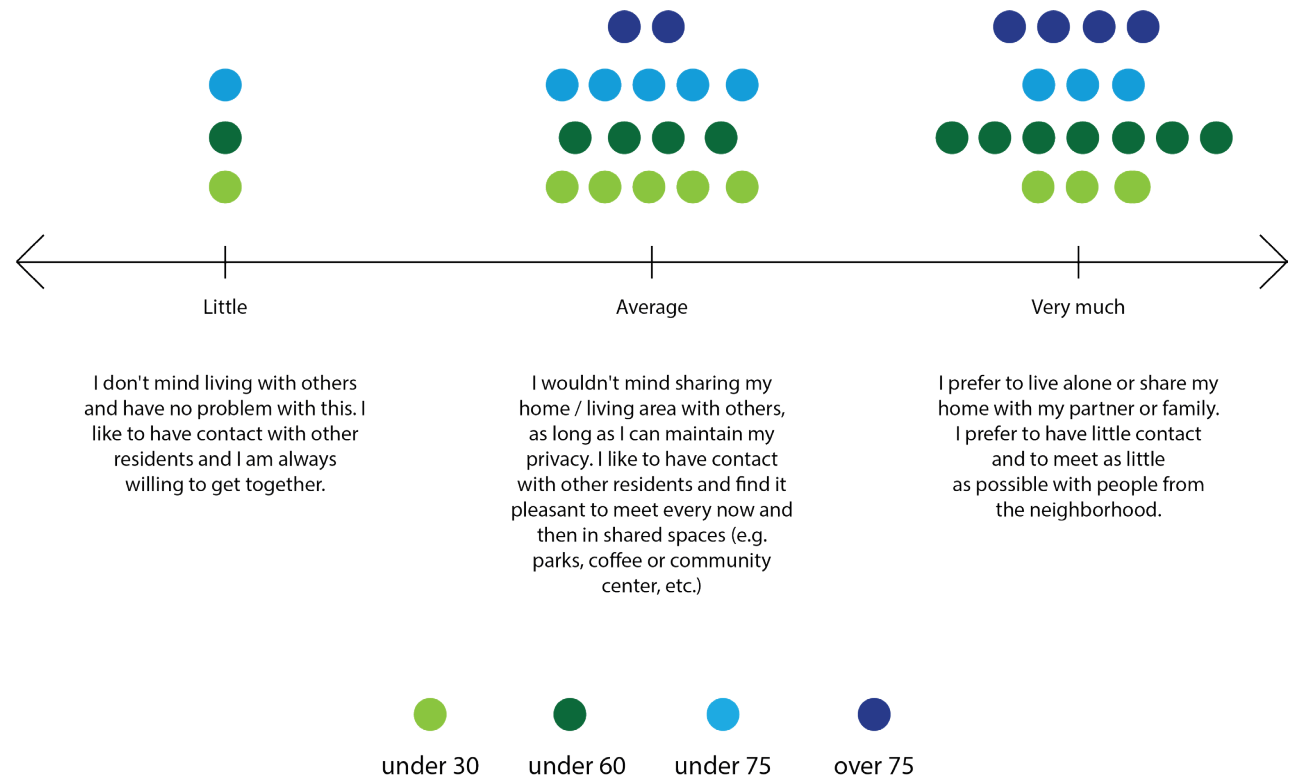


# PRIVATE & SHARED SPACE

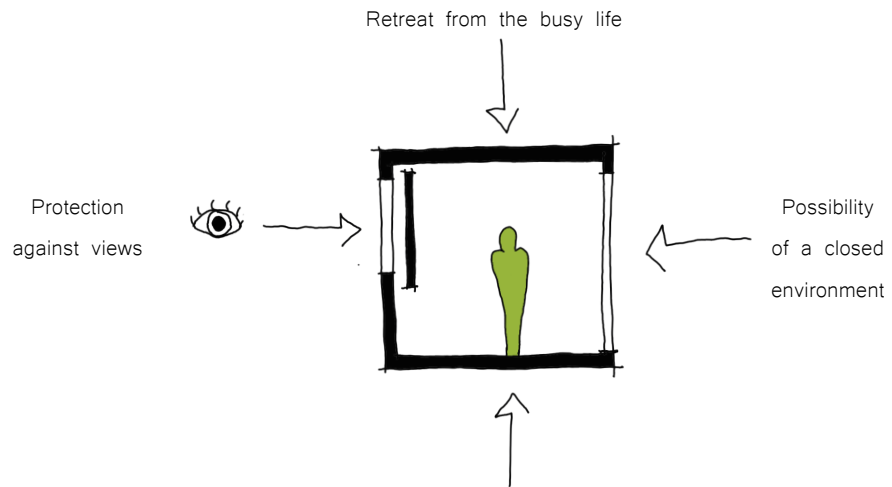
## DEGREES OF PUBLICNESS

“Some people want to live where the action is. Others want more isolation. This corresponds to a basic human personality dimension, which could be called the “extrovert-introvert” dimension, or the “community loving-privacy loving” dimension” (Alexander ,1977, p.193). Christopher Alexander distinguishes between different types of humans, which are influencing their preferences for housing as well. This can be easily transferred onto elderly. During the fieldwork, we asked them what they would like to see when they look out of the window and their answers were really diverse. Some of them wanted to see trees and nature, therefore a quiet environment, others preferred to see people moving around, therefore looked for the visual interaction with others. The fieldwork showed how different the elderly are concerning their interests, their preference of window-orientation or the importance of privacy. The survey we made in ‘Tanthof’ later on also showed, that everyone independent of their age can value their privacy differently. Alexander’s pattern can be applied to the concrete design of a neighbourhood. It is important to provide different choices and possibilities for the residents and also something in between.

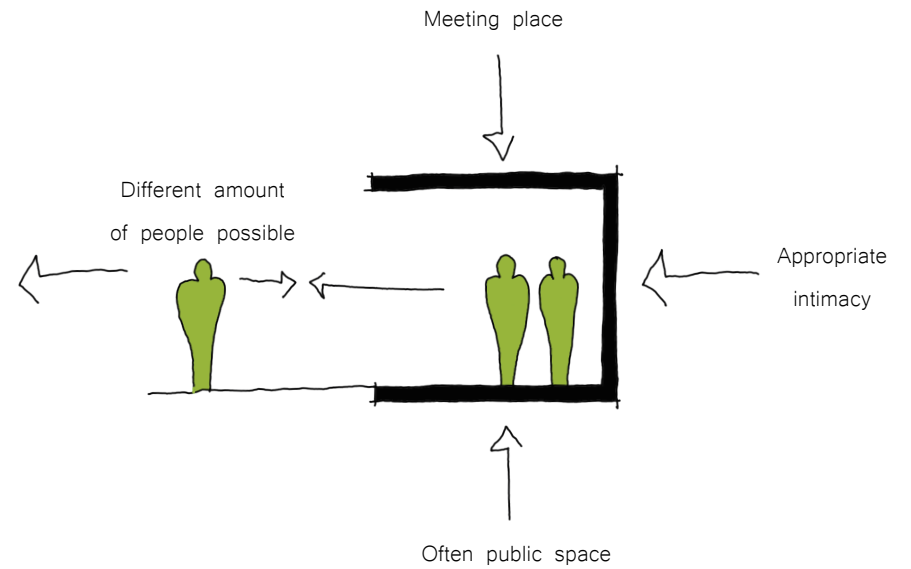
How much do you value your privacy?



### PRIVATE SPACE



### PUBLIC SPACE



## PRIVATE & SHARED SPACE

### INDIVIDUALITY VS. COLLECTIVISM

Private spaces usually come with Being alone, whereas shared spaces are used for company. I asked myself, which different personalities exist and how they react to being alone or being together. The sociologist David Riesmann stated in his book "The lonely crowd" from 1950, that there are three types of personality: the tradition-directed, the inner-directed and the other-directed personality. People who do not have a certainty and solidity of tradition in their society need to face new challenges and must therefore be inner-directed. The other-directed type is able to respond quickly and in a flexible way to changes and is formed by what others think and do (Riesmann, 1950). The inner-directed personality's preferred way of thinking is similar to the individualism, which was described by the French aristocratic philosopher Alexis de Tocqueville (1805-59) as "moderate selfishness that disposed humans to be concerned only with their own small circle of family and friends" (Lukes, n.d.). An individualist's most important thoughts go towards himself and his direct surrounding, whereas he neglects the public involvement with others. In the contrary collectivism subordinates the individual to a social collectivity (state, nation, etc.) and emphasizes on its interests. Jean Jacques Rousseau stated 1762, that the individual can only

find "his true being and freedom only in submission to the 'general will' of the community". (Editors of Encyclopaedia Britannica, n.d.).

The challenge is to find the right degree between Individuality and Collectivity, not only in a society, but also on different scales such as cities or even buildings. Where should the 'Me-Thinking' stop and develop towards a 'Us-Thinking'? Where should we draw the line between my family, my friends, people we know and strangers? And how does this translate to private and shared space? By creating gradual transitions, many options of different intensities of 'Alone' and 'Together' we can offer a wide range of possibilities and also match the various types of personalities.

During the fieldwork we talked to many different elderly and noticed, that some are always looking for interaction with others, organise gatherings to exchange themselves and keep themselves busy, whereas others rather liked to stay more for themselves in their private spaces. Having talked to about 15 of elderly, you could clearly see there are no to types of people, but rather 15 different ones.

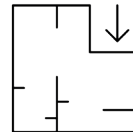
# PRIVATE & SHARED SPACES

## CONCLUSIONS

Looking into private and shared spaces I found clear definitions and found out, how valuable both spaces are for the well-being of a person. What I could see in the senior home, that these spaces are very important to them, can be applied to every person. Providing both private and shared spaces is essential for people to have a place to retreat and to make cities lively.

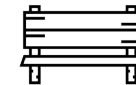
Furthermore there is no clear black and white of when people want to be on their own or in company, but rather a gradual transition into each other. That is why it is important to offer different options when it comes to the intensity of togetherness and being alone.

### PRIVATE & SHARED SPACES



Private spaces are  
essential for everyone

Shared spaces are  
essential for everyone



Different levels of Alone  
& Together  
provide different choices!

# 3.3

## ZONING & TRANSITION ZONES

What is Zoning and how does one space transition into the other?

To clarify terms, I will be using later on, I started to read different definitions of phrases for spaces, zones and their transition into each other. I wanted to know, how we can distinguish one space from the other. Is it merely the separating walls in between or can it also be linked with the ownership, the feeling of a space? Which effects do the spaces have on people as well as on the city as a whole? I want to investigate, what zones and transition zones are and how different shapes can influence the behaviour of people.



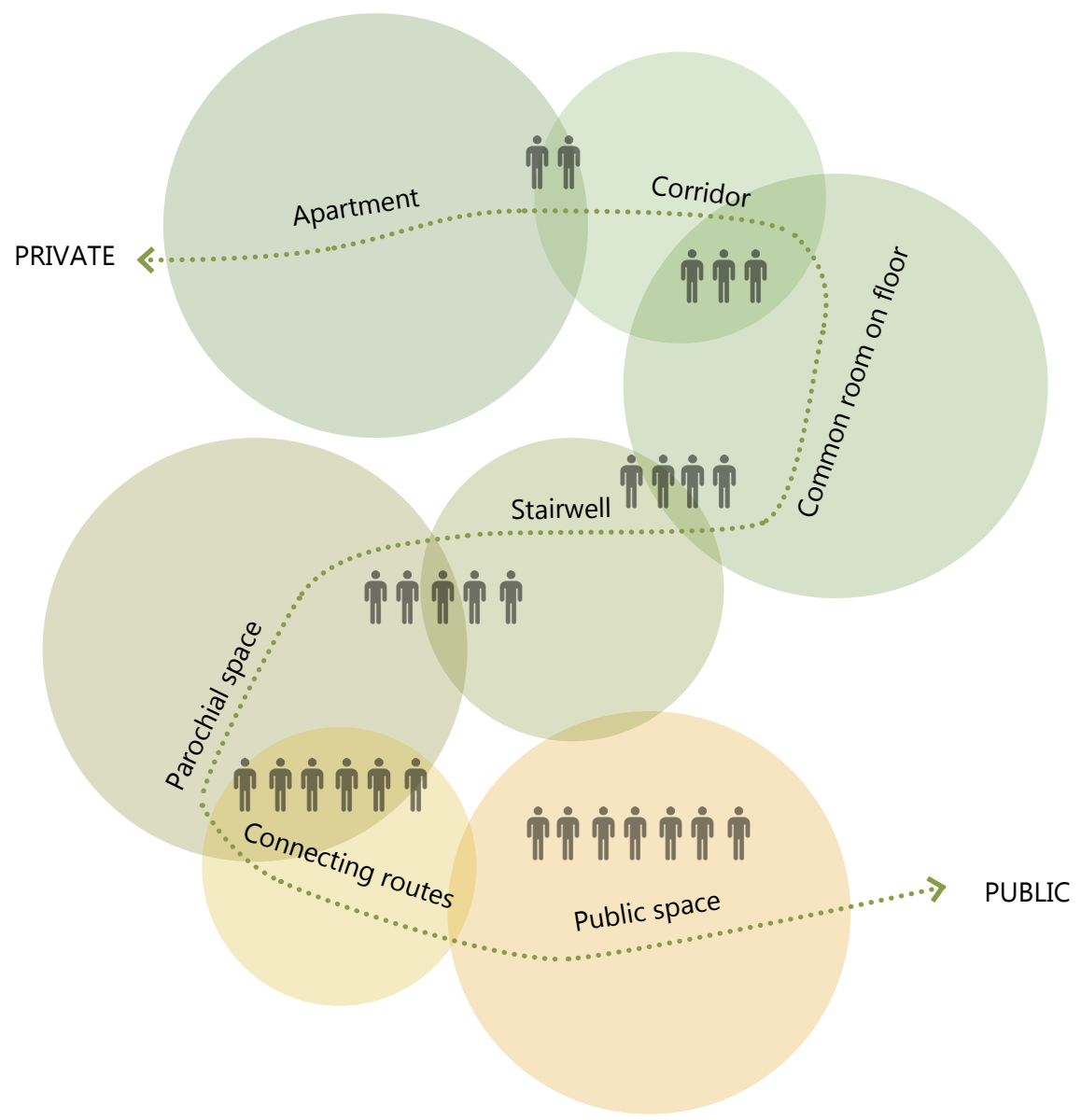
## ZONING & TRANSITION ZONES

### CLEAR OR BLURRED?

It is important to be able to distinguish between spaces, which might be easy inside a building. The entrance of a building is divided with a wall and door from the corridor, which is also clearly closed from an individual apartment. Walls usually create a simple and obvious separation. Sometimes there are more subtle elements, like a bench or a change in material, which is supposed to display a change in function of space. If the change happens that way, the borders of these spaces start to blur. It becomes unclear, which space can be used by private owners and which space by the general public. There have been many attempts to classify these spaces and the transition between them.

In 1985 Albert Hunter published a report in the book “The Challenge of Social Control: Institution Building and Systemic Constraint”. In his report he focuses on social safety in a society and distinguishes between social, institutional and spatial aspects. Looking from a sociological viewpoint, he used three different types of ‘social orders’ to define spaces. He distinguishes them into ‘Private’, ‘Parochial’ and ‘Public’, and emphasizes, how the ‘spatial domain of the public order’ is “characteristically found at the points of intersection and interpenetration of other social orders” (Hunter, 1985,

p.235). He says, that the transition from one order to the other is the most important and interesting part and it is hard to “delineate (them) without mutual reference to the others” (Ibid, p.236). The ‘in between’ is therefore difficult to define with strict borders. He states, that those three orders “cannot maintain social order throughout a society without a mutual interdependence” (Ibid. p.240). So social safety and therefore a working society is dependant on the correlation between those spaces.



## ZONING & TRANSITION ZONES

### ARCHITECTURE

The urbanist Machiel van Dorst in the book 'Privacyscript' (2015) created a model of 'Privacy-Zoning', in which he defined a gradual transition from public to private. His definition is aimed at giving the complexity of this transition more precision than the usual division in public, semi-public and private, why the book uses the division in private, semi-private, parochial and public and does not define a clear border between them but rather a gradual transition. The book provides examples of shared spaces inside of buildings, such as stairwells or corridors, to show with different aspects concerning ownership, accessibility, amount of apartments, overview within the space and towards other zones, how private or public this space is perceived.

This method uses the term 'parochial', which they define as similar to semi-private, which also stands for a social environment with secondary relationships, but with a higher accessibility than stairwells in apartment buildings. They state, that towns or religious communities could be parochial environments, as the people meeting there know each other. They should be involved in an interpersonal network, which is nestled in a community. People meeting in a parochial space might have completely different backgrounds, live in different households, but share an interest

in something, like their way of living, an activity or the place of living. Parochial environments do not have the same amount of privacy than a private domain, but they are not accessible to anyone. That also gives the members of that space more rights than outsiders. It will be informally organized, that the control over the space will be transferred from one individual to the group. Considering safety, one member will warn the others about strange behaviour of visitors solidarily to socially control the other's needs. They define domains by the result of the relationship of people, as they are able to move, the places can move with them (van de Wal & van Dorst, 2015).

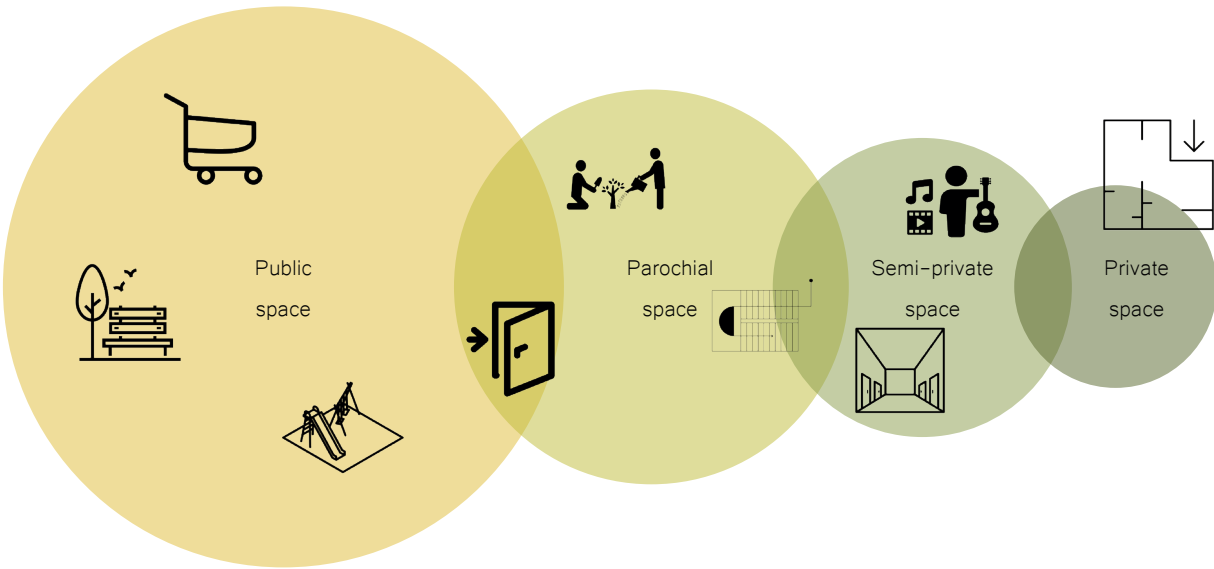
If spaces are meant for a flexible use many parochial groups or spaces can take shape in them. As they do not have clear borders, they can vary from the group size or the activity taking place. Knowing about the flexibility of parochial spaces, it rather makes sense to give a place a certain function or activity than certain spatial features, as many groups then can use it in a different way.

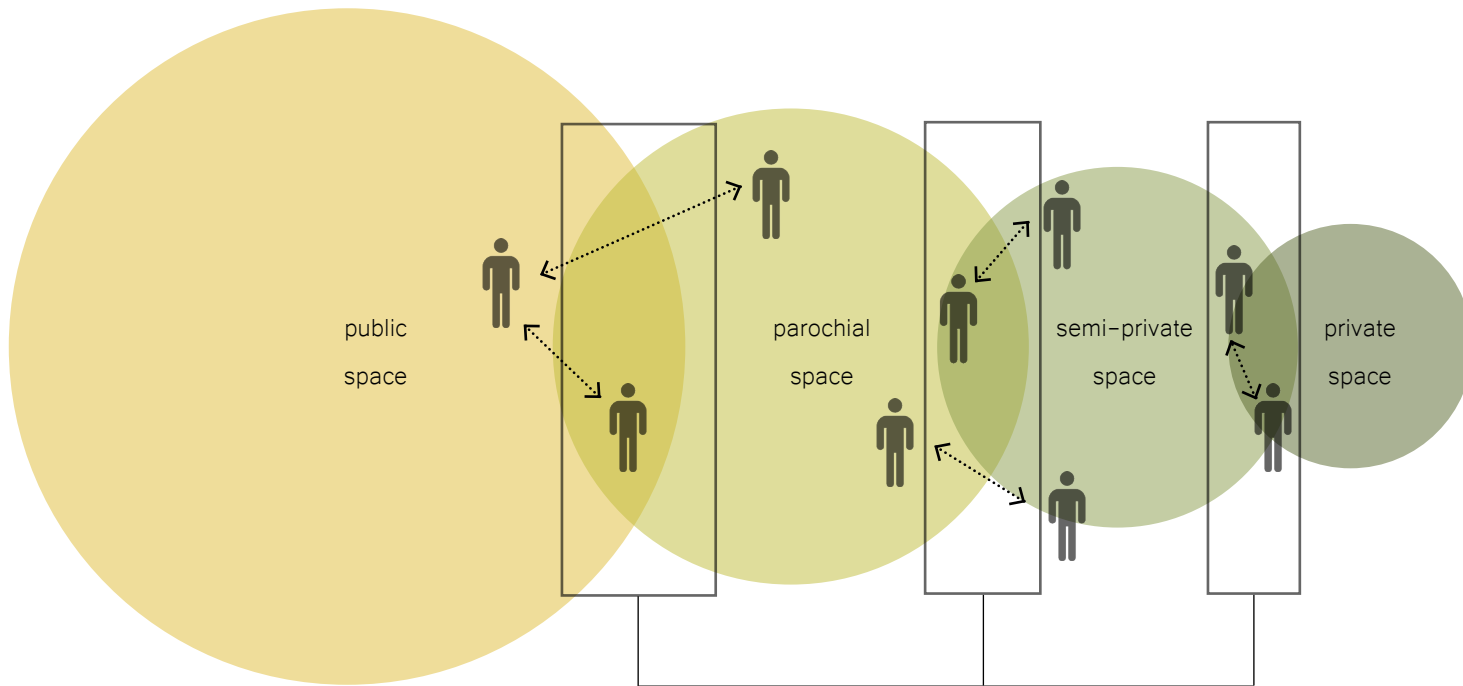
# ZONING & TRANSITION ZONES

## DEFINITION OF ZONES

Out of these different informations about definitions, I will use the terms 'Public', 'Parochial', 'Semi-Private' and 'Private' to distinguish between spaces, which does not create clear borders, but rather blurred lines in between. If there is no clear element separating them like a wall, the transition will develop gradually.

I will define public space as space with a function accessible by everyone such as playgrounds, parks or shops. Parochial space is a space belonging or being assigned to a large group of people in close proximity, meaning in the same building or in the direct surrounding (for example a communal garden in the courtyard, the entrance to a building and the stairwell used by every resident). Semi-private space is defined as shared space belonging or being assigned to a smaller group of people in immediate proximity (for example a common room on the same floor, the corridor to your apartment). Private space equals the personal apartment or house of someone including a garden or a balcony, if they are only accessible from the apartment and the person has the control over that space.





Transition as  
space for interaction

## ZONING & TRANSITION ZONES

### TRANSITION BETWEEN SPACES

In the Christmas break I walked around a newly built area with my parents to look into the architecture of the differently constructed buildings. When entering the complex we firstly saw one of the buildings from a far and then entered through a narrow opening in the facade to catch a glimpse of the inner courtyard. Walking through the building's playground and some communal gardens, we suddenly almost felt like intruders in the resident's private space.

Although there was no clear boundary between the fully public space, the atmosphere of the space had changed. Walking through the area we would have been able to glimpse into the gardens and living rooms of many apartments, which gave us the feeling of not being allowed there. Even though none of these areas were closed off from the public, it felt not right to be there as stranger.

These spaces in the city are so called transition or threshold zones, which mark the transition from public to private, where it is difficult to draw clear lines. There are countless names for the transition between spaces. It can be called a threshold, the 'in between', an intermediate space, the private-public boundary or Jan Gehl describes the 'City's edges' by "where you enter and leave buildings, where

indoor an outdoor life can interact (...) where city meets building. The edges of a city limit the visual field and define individual space." (Gehl, 2010, p.75). He states that this transition offers a "feeling of organization, comfort and security" (Ibid.). Jan Gehl states, that for feeling safe and structured, people want to have a definition of different spaces, while the in between or the threshold is an interesting place, which simultaneously connects and separates people.

"If the edge fails, then the space never becomes lively!" (Alexander, 1977, p. 644) – Christopher Alexander emphasizes how important the transition zone is to create vivid cities. Where public meets private space, an interesting threshold emerges, which defends "the private sphere from public intrusion and (...) the public sphere from private encroachment" and at the same time works as a means of communication, as its "ambiguous character" may "promote permeability and social interaction" (Madanipour, 2003, p.55). I do not only want to focus on the transition from inside to outside or private to public, but also on the transition from private room to semi-private living room or from apartment to semi-private corridors.

This transition space is difficult to grasp, as it often does

not have a concrete shape, nor borders, as inside-outside. This challenging spaces have a high potential to spark interaction between neighbours both with casual and planned activities around them.



private

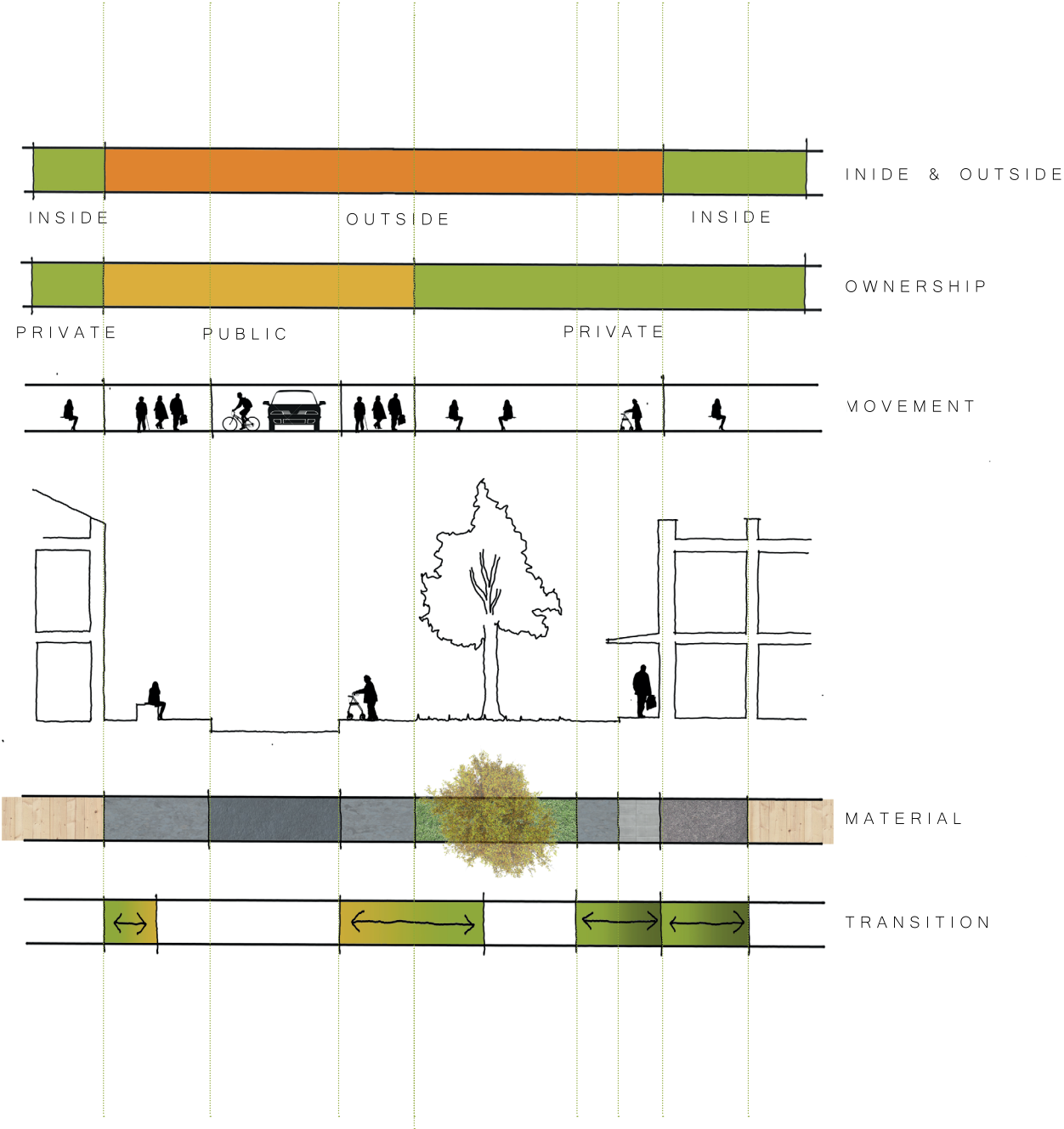
public

Where do you draw the line?

# ZONING & TRANSITION ZONES

## WHY NECESSARY?

The transition from one space to the other can be distinguished in many different ways. Looking at an exemplary section, you can see, that spaces can be distinguished by inside and outside, where the outside part usually is public and the inside private. Thinking about ownership, some outside spaces still might be private, for example a privately owned garden. Ownership is mainly the legal entitlement to control a property, but it is possible, that people develop a feeling of ownership through using a space on a regular basis (Madanipour, 2003, p.43). The movement in different spaces can also provide information, how a space is used and configured. Materials also create differences of the perception of a space, as hard surfaces are rather used by vehicles than soft surfaces. Materials can therefore also hint at the change between private and shared spaces by giving orientation. All these spaces not always have a clear border. Most of the times there is a transition from one to the other, which happens in different levels of abruptness. Sometimes the distinction is created through a wall, which is really obvious, but it can also form through a bench placed in a specific way. These transition zones are interesting to investigate, as it is difficult to clearly find where they start and stop.



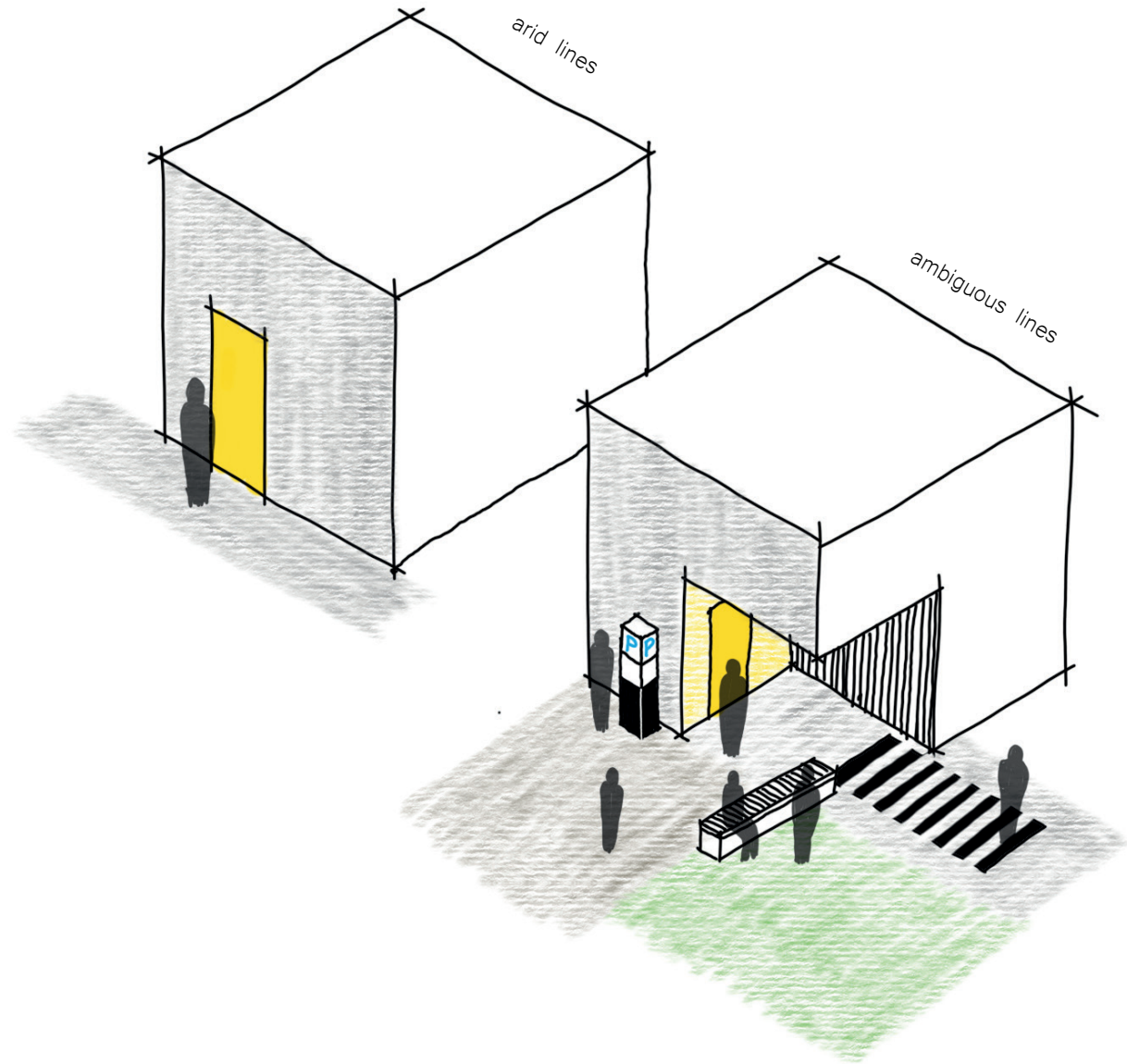


# ZONING & TRANSITION ZONES

## AMBIGUITY

Madanipour defines the threshold between private and public as an actively made ambivalent boundary, which can encourage social interaction. He states, that the more ambiguous this threshold is, the more civilized and lively a place can be. He uses the examples of an entrance to a building, where he states, that rigid walls make the interaction arid, communication limited and the social life poorer. Closed off fortresses have the highest amount of control but also the least possibility of interaction at the boundary.

Ambiguity evolves “where the boundaries are frequently crossed for a variety of purposes” (Madanipour, 2003, p.56). Designing an entrance to a building with ambiguous elements, such as benches, edges, certain functions can therefore encourage people to interact with each other. Placing a parking automate close to the entrance of a building can spark casual interaction between the residents the same way a bench can. Apart from the increase in interaction through ambiguous lines, of course the surfaces need to be non-slippery, it needs to have comfortably reachable elements.

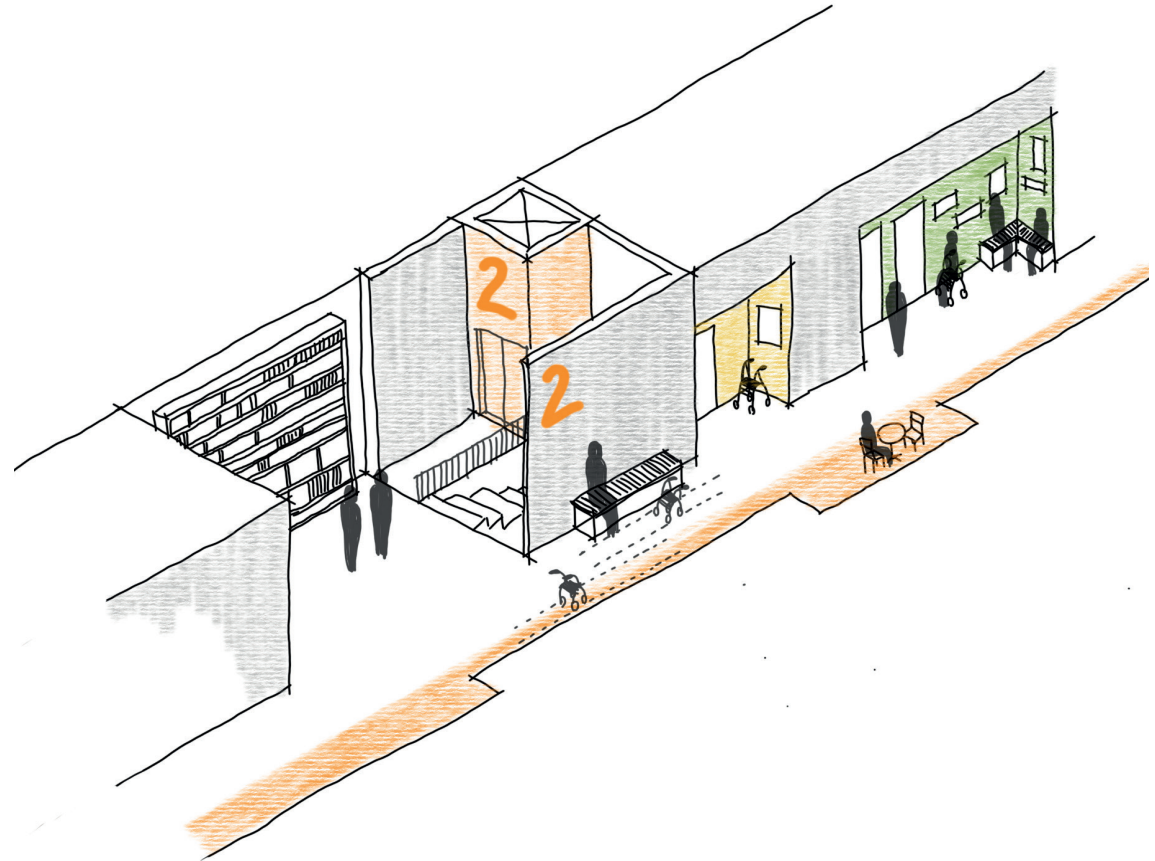


## ZONING & TRANSITION ZONES

### AMBIGUITY

The ambiguous lines can be also translated to the transition from a private apartment and a semi-private corridor. Everyone should furthermore be able to recognize their floor by clearly visible floor numbers or a colour code to orientate themselves as well be allowed to design their personal and private entrance with private items and a secure place to store an item like a walker or a bike. Adding sitting possibilities facing each other for different amount of people can spark interaction between the residents as well as another function like a small library.

Every floor needs to be accessible by everyone, why an elevator is essential as well as wide enough corridors and entrance spaces to enable everyone to pass without any struggles. As elderly get tired easily close to the stairs there should be a place to rest, which might also be a place to communicate with others.

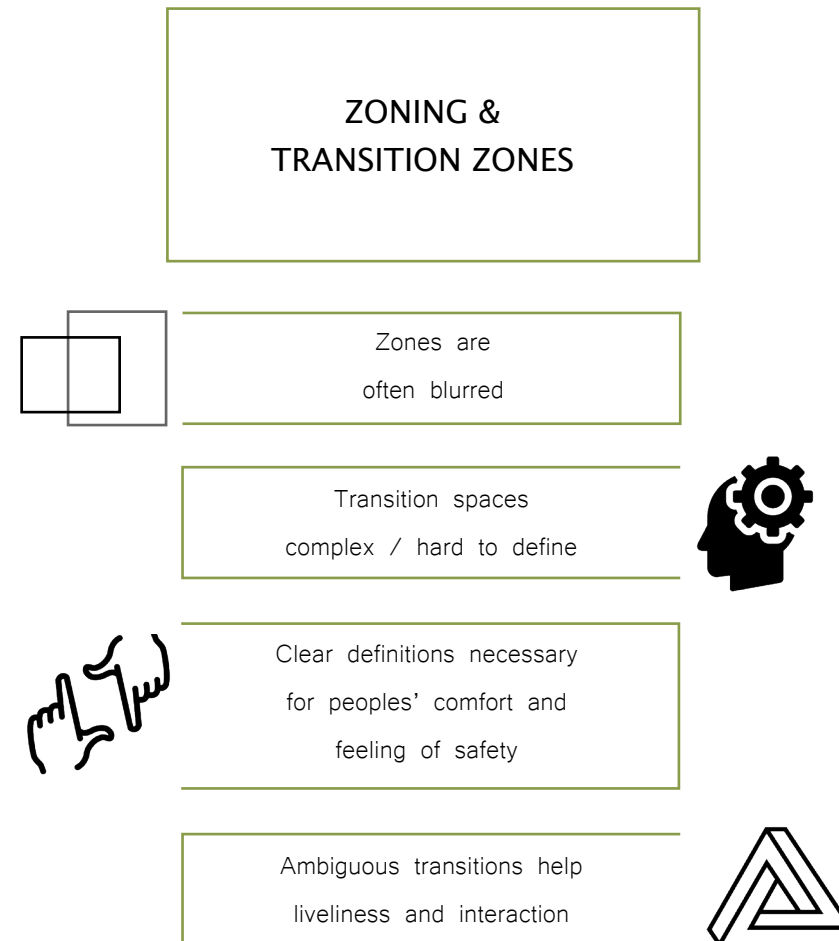


# ZONING & TRANSITION ZONES

## CONCLUSIONS

The chapter showed, that the topic of Zoning and Transition zones is very complex, as there are different definitions of zones, which blur into each other. It is important for people, that they have a clear definition of which space belong to whom, so they will feel comfortable and safe in their environment.

To increase interaction and the liveliness of these transition zones it can be helpful to create ambiguous zones, where different functions and qualities are embedded at the same place.



# 3.4

## INTERACTION & PARTICIPATION

How important is social interaction and participation for elderly?

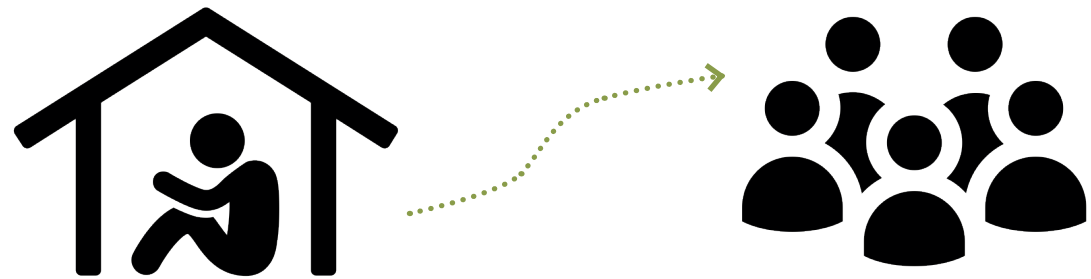
During the fieldwork I noticed, that many elderly tend to feel lonely, as they do not have a lot of contact in their building and generally do not have as much contact to others. The social interaction in the parts of the senior home only happen very seldom and casual encounters mostly evolve around simple greetings. During gatherings I noticed, that many elderly were happy about company and seeked out for conversations with others. I wanted to see, if elderly in general struggle with loneliness, and if social interaction can have positive effects on their mental and physical health. Therefore I looked into statistics about elderly in the Netherlands and in the world.

# INTERACTION & PARTICIPATION

## DEFINITION

The human being has always been social. Everyone needs social contact to others frequently to not feel lonely, to exchange thoughts or simply feel the presence of others around him. The world of elderly becomes smaller with their aging, as going outside is connected to physical strain, their family mostly has moved out, their friends or spouses might have died, why seeking for interaction is essential for a happy life. Social Participation is the involvement in an activity with other people. The Australian University 'La Trobe' created an institute for Social Participation, where they define social participation as "meaningful involvement in decision-making about health, policy and planning, care and treatment, and the well being of self and the community" (Piskur et al., 2014).

Interaction does not necessarily need to involve a certain activity, as you can also just feel to be a part of a group by for example watching a movie together or being a visitor of a park. Architecture should provide spaces, where everyone and especially elderly are encouraged to interact with each other by providing comfort, safety and accessible elements, which initiate interaction.



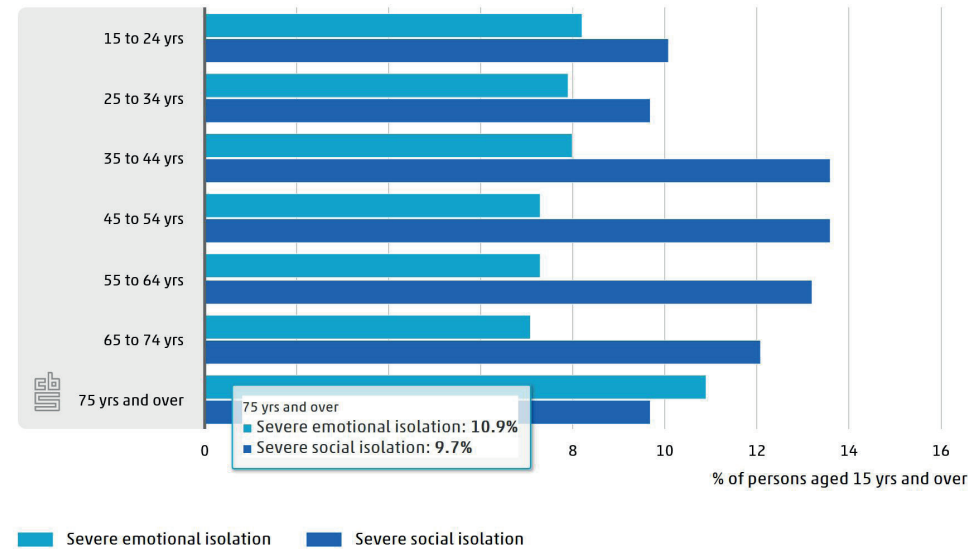
# INTERACTION & PARTICIPATION

## LONELINESS

A study done by CBS recently published data, which showed, that almost 1 in 10 Dutch people frequently feel lonely in 2019. Looking especially at elderly aged over 75 years old you can see, that they tend to be more lonely, as their family usually lives somewhere else and they are not as mobile anymore. People aged over 75 tend to feel severe emotional isolation rather than younger people, which should be avoided to provide them with social interaction (CBS, 2020). Social interaction and participation can help to tackle this loneliness among elderly. The World Health Organisation promotes this by encouraging vulnerable groups, like elderly, to become active protagonists in shaping their own health by staying socially active (World Health Organisation, n.d.).

During the stay in Hilversum, we noticed, that quite some of the elderly felt isolated and lonely, which should be avoided and the built environment can contribute to it by creating space for encounter and interaction.

Loneliness by age, 2019



(CBS (2020))

## INTERACTION & PARTICIPATION

### BENEFITS

The Center of Aging from the University of Manitoba in Canada published a report in 2013 about “Social participation and its benefits” with a focus on elderly. This investigation focused on existing research as well as interviews with 60 older adults, who live in 5 different senior centres around Winnipeg and 10 directors and program coordinators of senior centres in Manitoba. The report states, that social interaction and participation among elderly has severe positive effects on the lives of them, which improves their physical and mental health as well has social and psychological benefits. The study showed that elderly, who took part in social activities, which partly involved physical activities, developed better motor function and higher grip and muscle strength. The risk of developing a disability within 5 years was reduced by 43 % and the risk of developing a mobility disability by 31%. They even saw, how elderly involved in social activities live longer. Concerning the mental health, they stated, that the risk of developing dementia was reduced by 40% and they were 2,5 more likely to have improvements in their depressive symptoms. 85% of the elderly stated in general that the participation in social interaction helped to reduce the stress they felt in their lives. (Novek et al., 2013).



better motor function  
(grip & muscle strength)

# 43%

lower risk of developing a  
disability over 5 years

### PHYSICAL HEALTH

# HALF

the likelihood of dying  
within a 12 year time period

# 31%

lower risk of  
mobility disability

# 40%

reduced risk  
of developing dementia

# 2,5

more likely to have improvements  
in their depressive symptoms

### MENTAL HEALTH

# 85%

state it is helpful  
to relieve stress

# INTERACTION & PARTICIPATION

## BENEFITS

Social interaction should be always included in a living environment for elderly to make them live a longer and happier life. The study showed, that elderly were more likely to develop friendships due to their social engagement as well as being able to rely on social support. They felt a larger social inclusion being part of a community, where they created a social network around them. Looking into the psychological benefits of the measures, the researchers could see, that their memory function was significantly improved as well as their sleep. The average reduction of cognitive decline was 70% over a time of 5 years. Generally 90% of the studied seniors stated, that the involvement in social activities contributed to their emotional well being. (Novek et al., 2013).

This study shows, how just a bit of social interaction in different intensities can help to increase the lifetime of elderly and improve the quality of life.



they develop friendships  
and have social support



elderly feel part of  
a community / social network

## SOCIAL BENEFITS



social inclusion



significantly improved older adults'  
memory function and sleep

70%

reduced cognitive decline  
over 5 years (average)

## PSYCHOLOGICAL BENEFITS

90%

state it contributes to their  
emotional well-being

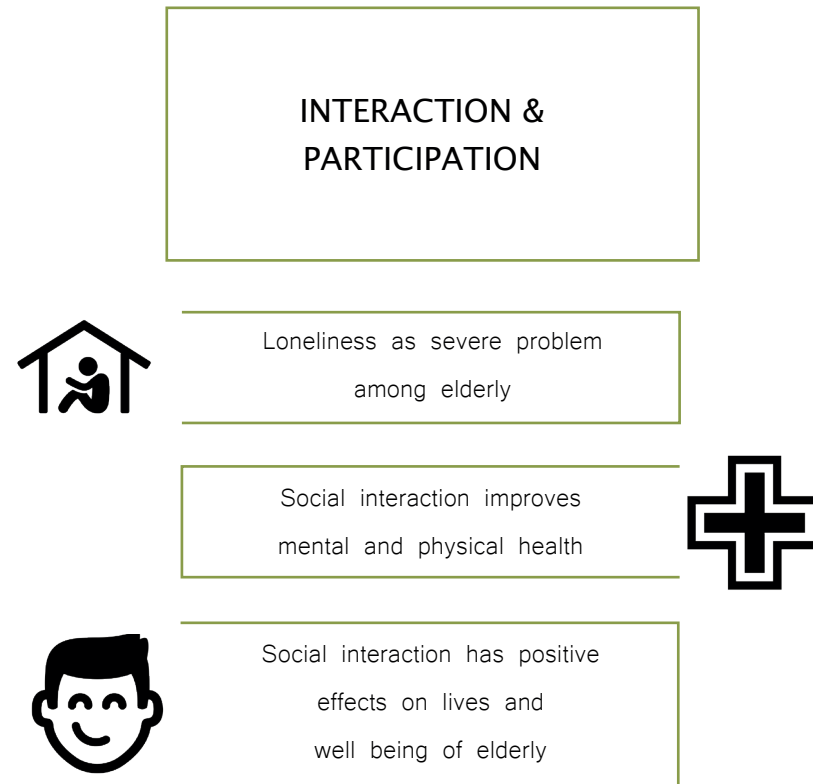


# INTERACTION & PARTICIPATION

## CONCLUSIONS

Looking into loneliness in the Netherlands, I could see that loneliness can become a severe problem for elderly, but also for different generations. To prevent this from happening, to create longer, happier and healthier lives for elderly, social interaction and participation can play an important role. The study showed, that social interaction can have immense positive outcomes on elderly concerning their physical and mental health as well as on their well being.

This shows, how important it is to implement spaces in my design, where social activities can take place. As not only elderly struggle from loneliness, this implementation can improve the lives of everyone living in the neighbourhood.



# 3.5

## ENCOURAGING INTERACTION

How can architecture provide interaction to encourage elderly to be socially active?

The chapter about spaces transitioning into each other already gave a clue, how certain spaces can be shaped like to encourage people to stay there longer and interact with others. By creating ambiguous lines in between, adding functions, places to sit down, creating comfort, anyone is more likely to stay there and interact than just in a plain space. I asked myself, how the social aspect of an elderly can be encouraged in different ways. As with age comes limited mobility, it is important, that every elderly can reach the space, where the interaction will happen, therefore the basic accessibility is important. As the world around elderly becomes smaller, as their life mostly evolves only around their neighbourhood, I looked into Co-Housing projects, which bring the interaction as close as possible to their doors. If the seeking out for social activities requires to much effort from the elderly, why should we not move the social activities to the elderly.

## ENCOURAGING INTERACTION

### ACCESSIBILITY

The fieldwork showed me, how important it is, that shared spaces are in close proximity and easily accessible for elderly. If they link the route to the shared space already with a high physical effort, they might not be as likely to join group activities. During the dinner, we had organised, we noticed, how drained many of the elderly were only after walking around the building as the direct entrance had not opened yet. Large steps, which were still in place because of the construction site were large obstacles and made them need help from the younger people. Therefore the very first step, how the built environment can encourage interaction between its citizens, is to make everything accessible for anyone. If it is possible for an elderly, someone with a disability or other limitations to reach every location, the number of people interacting is the highest.

Looking into spaces, which can be easily used by elderly, we immediately think about accessibility and barrier-freedom.

The German architects Fischer and Meuser published a book about barrier-free architecture, where they states, that this term is still mostly associated with disadvantaged groups, like disabled people or elderly, but could and should be appreciated by everyone, as it makes everyone's daily

life easier. He compares the physical abilities of an elderly with a cane with a small child – a large step can be a huge obstacle for both. He wants to make sure, that the goal to make the built environment barrier-free is not out of political correctness, should not be stigmatized, but rather evolve quite naturally (Fischer & Meuser, p.10). They refer to reports from Germany and neighbouring countries, which provide the information, that about 10% of the population urgently need barrier-free architecture, for 40% is it at least necessary and for 100% is it just comfortable (Ibid. p.11). Creating barrier-free built environments does not only mean making it wheelchair-accessible, but also creating clear structures and routes for pedestrians, so that they can easily orientate themselves. Creating a neighbourhood, where elderly with beginning declining memory can easily find their home by recognizing certain elements, can help everyone not to get lost.

During our fieldwork we saw, how difficult it was for the elderly to need to make a large detour around their building to reach the public function of the senior complex. After arriving they were exhausted and needed to rest for some time before they could actively join the activity. Having short

and accessible routes towards public functions also lowers the mental barrier of participating, as the residents do not link the activity with a long and exhausting first step, but rather with easy accessibility.

# ENCOURAGING INTERACTION

## ACCESSIBILITY

When you design for elderly, it becomes obvious pretty soon to bring facilities like parks, bus stops, shops and supermarkets as close to them as possible, as their physical abilities decrease with their age. With this in mind, it should also come natural to bring togetherness and interaction as close to them as possible. Every elderly should live in an environment, where they can communicate with others in their direct surrounding, because sometimes leaving the house for something really small like a walk can be a huge struggle for them.

Because of that I decided to research Co-Housing and Co-Living situations, where the shared space is at maximum. An elderly would not even have to leave his or her apartment to be able to talk to others.



## ENCOURAGING INTERACTION

### CO-LIVING IN THE FUTURE

During the research looking for Co-Housing projects or ideas for living together, I stumbled upon an online project, which has been set up by the office of SPACE10 called "One Shared House 2030". SPACE10 wanted to set up a playful research project, to see if people are willing to share spaces and share a home eventually. The online survey, they created has received more than 14.000 responses from people from 147 countries, which shows a broad answer spectrum from all around the world. Most of the answers, about 85% of the answers are from young people around the age of 18 and 39, therefore do not show the opinion of the older generations as much.

The researchers state that the largest benefit for the asked people of sharing a home would be the social life (SPACE10, 2021). Having researched the loneliness among elderly, which is also common around other generations, this seems not to be surprising.

They provided 21 questions evolving around the topics of the value of privacy, ownership, community, activities and many more. Most people preferred to live in a quite small community with about 4 to 10 residents in total, which shows that they prefer close relationships over many. The only exception in this response were families with children,

who preferred to stay in larger communities with around 10 to 25 residents.

Another important aspect of the study looking into the groups of people to live with, stated, that everyone likes to stay in a diverse community. The wish to stay with people from different backgrounds as well as different generations was strong.

The survey showed, that the biggest concern was the possible lack of privacy in the shared home. Even if living together would be a great way of socialising with each other, everyone also needs a place to retreat from this. That is also why it was so important to them to have zones with specific functions, which are clearly defined in private or shared, so every resident can keep control over their spaces and belongings. Being asked about the ownership of the community spaces, the most answered they want to have a shared system, where some people rent whereas others have bought it. Being asked about which spaces they would be willing to share, the answers were very diverse. Not a single one was willing to share their bedroom, as this is the most private space in someone's home, but also everyone was willing to share at least one facility or function of the shared home. As this study is not a profound research

and the answers are rather quantitative than qualitative, SPACE10 wanted to invite others to think of possible ways of living in the future and inspire people to design shared communities (SPACE10, 2021).

**TOLERANCE**

**which of these items are you comfortable sharing in your home, long-term?**

self-sustainable garden	11%
internet	11%
utilities	9%
common room	9%
workspaces	9%
household appliances	8%
kitchen	8%
cleaning responsibilities	8%
self-driving car	8%
workspaces	9%
household appliances	8%
kitchen	8%
cleaning responsibilities	8%
self-driving car	8%
child care	6%
daily dinners	6%
groceries	4%
shower & toilet	3%
bedroom	0%
nothing	0%

**SIZE**

**what is the right amount of people for your community?**

4-10	48%
10-25	32%
25-50	13%
50-100	4%
100+	3%

**OWNERSHIP**

**who owns your community?**

members share equal ownership	49%
members pay rent to management	18%
some members own, others rent	18%
members share different levels of ownership	15%

**SPACE**

**how do you prefer the spaces in the house to be utilized?**

set private spaces and communal spaces with clear boundaries of use	67%
modular walls that grow or contract space based on needs	33%

**CONS**

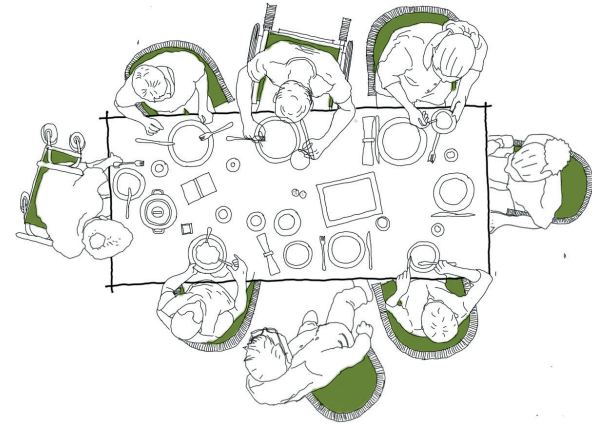
**what do you think will be the biggest con of living with others?**

lack of privacy	34%
other people's mess	21%
not having full autonomy on decisions impacting daily life	17%
potentially not liking someone in the group	14%
potential arguments when disagreements occur	14%

C: Screenshots from: ONE sharED HOUSE 2030, n.d.)



If the mountain won't come to Mohammed,  
then let's take Mohammed to the mountain



## ENCOURAGING INTERACTION

### CO-HOUSING / CO-LIVING

As my main goal for an inclusive living environment is the social engagement among elderly with the help of shared spaces, I looked into Co-Housing and especially Co-Living, which connects living together with a great amount of shared space. If the senior is physically limited to seek out for interaction, why should I not try to bring the social interaction to the senior? If the mountain won't come to Mohammed, let's take Mohammed to the mountain

Co-Housing defined by Karen A. Franck is "housing, that features spaces and facilities for joint use by all residents who also maintain their own individual households" (Franck, 1989, p. 3), whereas Co-Living or shared housing is defined by housing, "in which unrelated individuals share single dwelling units, forming joint or group households" (Ibid, p. 3).

The architect and professor for the built environment at the Royal Institute of Technology in Stockholm Dick Urban Vestbro describes the main goals of Co-Housing as the sharing of "responsibilities fairly between men and women" and as "to promote collaboration between residents, to achieve a sense of community, and to facilitate access to shared amenities" (Vestbro, 2010, p. 42). Living together and not only next to each other can tackle loneliness and

the feeling of isolation among elderly, as they always have the option to enter a shared space and to interact with others.

Our fieldwork week showed me, that people inside a building do not necessarily know each other, only because they live in the same building. There needs to be a space or many spaces, where an interaction can happen, either casually or planned. Co-Living situations aim at bringing people closer together, increasing their familiarity and making their residents happier.

I investigated different Co-Living environments to find out, how their shared space is shaped and which functions they share as well as how the transition from private to public is, to see how those transition create interaction between the residents. I want to see, whether the residents of Co-Living houses know each other better and have created a social network, where individuals can rely on their neighbours. Which spaces need to be private and which spaces can be shared to provide enough privacy and recreational space? I want to find out, what the right mix between elderly and younger generations is as well as how closed off or open these situations are towards the surrounding. I will look

into Co-Living situations for different aged residents to get an overview. The case studies vary in size to see how Co-Living situations are solved on neighbourhood, building and apartment scale.



## What do I want to know from the Case studies?

1. How is the shared space shaped and with which goal?
2. How is the balance between privacy and togetherness?
3. Does the transition from private to shared provide a choice for the resident?
4. Does the housing encourage interaction?

What are the advantages and disadvantages of this situation?

## R50 - Berlin



D (Alberts, n.d.)

Architect: Heide Beckerath architects  
& ifau and Jesko Fezer  
finished in 2013  
19 units  
about 80 residents

# ENCOURAGING INTERACTION

## CASE STUDY 'R50' – BERLIN

R50 is a building in Kreuzberg in Berlin by Heide Becker-ath architects and ifau and Jesko Fezer. It was completed in 2013 and houses 19 units of 2 to 3 room apartments over 6 floors. The building is free standing and its rectangular footprint is orientated in all four directions. The architects not only aimed at creating a Co-Housing situation, but also provided a space saving design. From a video with an interview of the architects, they talked about, how the residents could give up some of the space in their apartments to save space, because they could have larger gatherings, which only happen two or three times a year, in their common room at the ground floor (Architekturclips, 2013). The project was designed in participation with the future residents to fit the layouts to their needs.

### 1. How is the shared space shaped and with which goal?

Each floor consists of two or three independent apartments, which share a balcony wrapping around the whole floor, which can be used by all units on the floor. On the roof is a garden and on the ground floor a flexible open space with sofas and a ping-pong table, which can be used by all the residents. They also share a laundry room, but theoretically have every function they need in their apartment.

### 2. How is the balance between privacy and togetherness?

The residents are not dependant on the shared functions, but rather use it as additional functions, which makes their home special to other regular complexes with only private areas.

### 3. Does the transition from private to shared provide a choice for the resident?

Every resident can always keep their privacy by closing their balcony doors or rather stay at the sides of the balcony, which belong only to them. He always only shares the balcony with two other units, which are made of people who know each other, as the project was built with participation of the residents. As the doors to the balcony space are room-high, the rooms inside can be used as an extension to the outside space. Therefore the residents can signalize their wish for privacy by either staying inside or closing their doors.

### 4. Does the housing encourage interaction?

One resident can always just walk over to the next apartment and have a look in their living room to see whether someone is home or not, but most of the interaction in the house will take place in the common room downstairs, as it offers the most functions. When the residents delib-

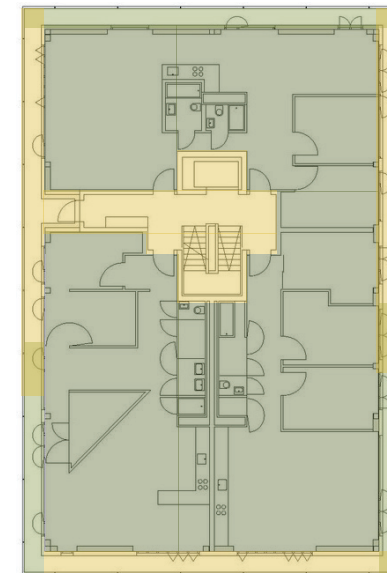
erately decide to seek out for company, they gather there to actively do something together like playing ping pong or celebrating something.

# R50 - Berlin

Distribution private - shared



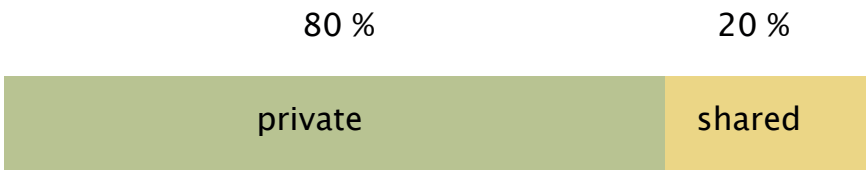
Regular floor plan



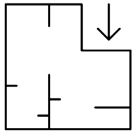
E (Archdaily, n.d.)

- private
- shared
- transition zones

# R50 - Berlin

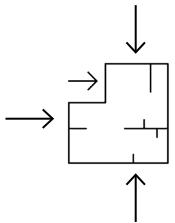


## PROS



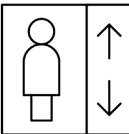
independent apartments,  
every needed function existing

close knowledge of  
people on the same floor



space saving design (rare large gatherings can happen in common space)

accessible by everyone  
(elevator, no steps)

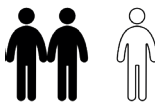
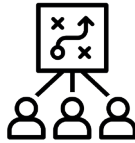


## CONS



rare casual encounters

meetings need to be planned,  
because of little casual encounters



little contact with residents on  
different floors

## Centraal Wonen - Delft



Architect: Flip Krabbendam  
finished in 1981  
4 clusters á 25 residents  
100 residents

# ENCOURAGING INTERACTION

## CASE STUDY CENTRAAL WONEN – DELFT

‘Centraal Wonen’ is located in Tanthof in Delft, in the Netherlands. Flip Krabbendam is one of the architects and has been living in this Co-Living environment since its completion in 1981. One of my group mates and I managed to talk to him and interview him about the general composition of the building, the idea behind it and also about the living situation, as he is one of the residents. The whole complex houses around 100 residents.

### 1. How is the shared space shaped and with which goal?

‘Centraal wonen’ is divided into four different sized clusters, which have some functions shared by all the residents, like a bar, a kitchen and flexible spaces for sport activities, pottery or general gatherings. Every resident rents an individual room, which is about 25 m<sup>2</sup> large and shares a small coffee kitchen and a bathroom with three others. Eight residents share a kitchen with each other and the living room is used by 16 people. The goal of the project was to create somehow a student housing for working adults. By sharing various rooms you use daily, the community of the building complex has grown strong and Flip Krabbendam is happy to live together with many people from different backgrounds.

### 2. How is the balance between privacy and togetherness?

As only the bedroom is fully private for a resident, the main

part of a day will be shared with others. Everyone meets someone during their day for daily activities like cooking or relaxing in the living room.

### 3. Does the transition from private to shared provide a choice for the resident?

The resident is forced to meet other residents during the day, as he shares necessary rooms like the bathroom and kitchen with others. The transition from the private space to the living room is distinguished from each other over different floors for some, but others directly enter it without a buffer zone. As the rooms on the ground floor directly open up towards the living room, it is highly unlikely to be able to leave unnoticed. If you decide to live there, you seek out for the social interaction with others, but the architect told us, that very little families live in the complex, as they want to gain more private spaces and a higher feeling of privacy when they get children.

### 4. Does the housing encourage interaction?

In the two hours, we were talking to the architect in the living room, many residents walked past us, which caused some casual conversations. We saw one young woman preparing a table for the ‘Día de Muertos’, which sparked the conversation about her Spanish heritage and involved

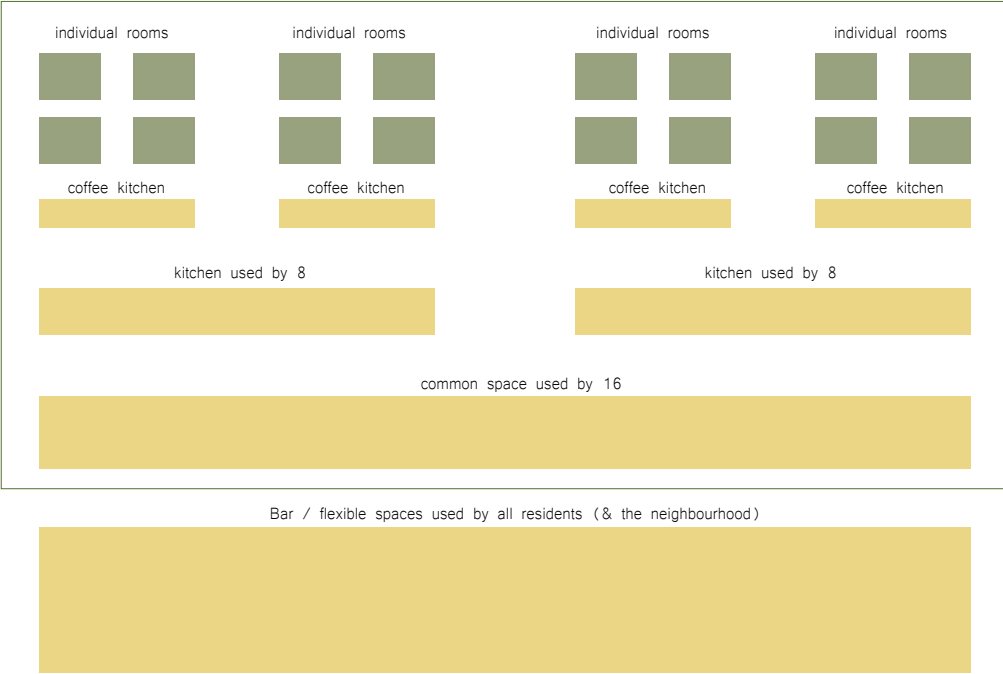
us in the activities of the house for a while. Another time a resident came by with a dog, which wanted to be petted by us, which started another casual encounter.

This concept is clearly meant for residents, who like to interact with others and do not spend too much time alone with the goal of happily sharing everything.

The architect told us, how they tried to bring in the whole neighbourhood into the bigger shared spaces, which did not work how they planned. The others did not know about the spaces, as they were not clearly visible and prominently located from to outside.

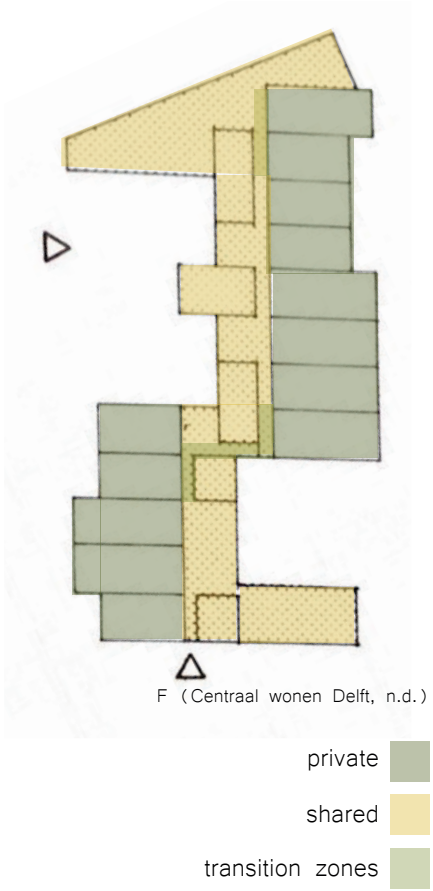
# Centraal Wonen - Delft

Distribution private - shared



Cluster x 4

Ground floor plan (2 clusters)





# Centraal Wonen - Delft

30 %

70 %

private

shared

## PROS



Daily interaction with others during cooking/ in the living room

feeling of loneliness should not come up (always 16+ people around you)



casual interaction in corridors (saying hello, chatting)

flexible shared spaces for activities (Yoga, coffee gathering)



## CONS



No choice of sharing spaces with others

rooms are not accessible for elderly (steep and narrow steps)



little private space (only bedroom)

## New ground Co-Housing - London



G (UK Cohousing, n.d.)

Architect: Pollard Thomas Edwards

finished in 2016

25 units

about 40 residents

# ENCOURAGING INTERACTION

## CASE STUDY THE NEW GROUND CO-HOUSING – LONDON

The New Ground Co-Housing in High Barnet close to London is the very first senior Co-Housing project in the United Kingdom, which was designed by Pollard Thomas Edwards and completed in 2016. The complex houses 25 independent dwellings and a shared “Co-House” in a L-shape facing a generous communal garden. The residents are elderly women around the ages of 50 to 85 who live together in 8 socially rented, and 17 owner-occupied apartments. Some of the residents had become widowers, others were left alone after their children had moved out, why they decided to group together in this home (Day, n.d.).

### 1. How is the shared space shaped and with which goal?

The building houses one shared house or apartment, which offers a communal kitchen, which hosts meals weekly. The building offers other shared facilities, like a launderette, large circulation spaces, which are used as social spaces and an additional guest apartment. The largest shared space is the communal garden, which can be seen from any apartment, as the link to interaction is the most important.

### 2. How is the balance between privacy and togetherness?

The residents are always linked to the social aspect of the project, but still have the possibility to withdraw themselves into their private spaces.

### 3. Does the transition from private to shared provide a choice for the resident?

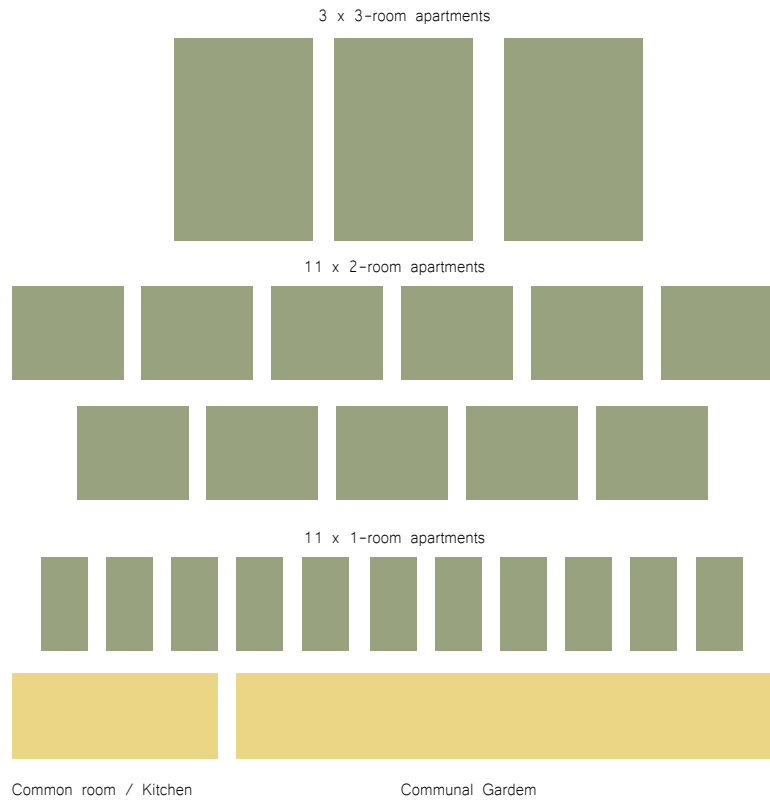
As their apartments offer them everything they need, they can deliberately decide to find interaction with the other residents by leaving their homes and entering the garden or the ‘Co-House’.

### 4. Does the housing encourage interaction?

The design of the project already started with the idea of finding residents, who want to become a community, why social interaction had been encouraged from the start.

# New ground Co-Housing - London

Distribution private - shared



Ground floor plan



H (UK Cohousing, n.d.)

- private
- shared
- transition zones

50 %

50 %



PROS

CONS



Choice of being alone or together



Small offer in activities (only garden + kitchen)

Mix of people with different backgrounds



casual interaction in corridors (saying hello, chatting)

## ENCOURAGING INTERACTION

### SHARED ACTIVITIES

The book “Co-Housing cultures” focuses on projects from various European countries, where people live together as a community and elaborates on the social and participatory aspects of the residents’ lives. The authors “id22: Institute for creative sustainability” state, that Co-Housing projects are “creating community (...), encouraging neighbourhood engagement beyond the borders of their projects and so are helping develop their cities.” (id22, 2012, p.17) These projects help to create inclusive living environments for elderly and people with disabilities and emphasizes on participatory and social architecture. The residents are actively seeking out for social connection by meeting in their common spaces and organising activities with their neighbours. The different projects in the book focus on the residents, their special needs or interests by showing interviews and photographs of their community. The book does not touch upon the architectural aspects of the buildings, but changes your perspective to the one of the residents. The following pages show a list of shared activities, the residents do together with their neighbours, which I sorted into four categories. There are daily activities, which are mostly based on casual encounters and usually only involve 2 to 4 people. The weekly activities consist of casual and planned

encounters and involve larger groups of people, up until 15. The more seldom the activity happens, the more special it becomes. This makes sense, as every resident has a life next to the Co-Housing community, where he or she needs to handle their work-, friend- and family-life.

The monthly activities, the residents do together already involve up until about 50 people, which do not happen casually, but are planned by one of the residents.

The special activities only happen on special occasions, such as holidays, birthdays or celebrations, but need to be able to gather the whole amount of the residents at a space.

I also sorted the activities by the space they would happen in and could see, that the daily and weekly activities usually circle around their apartments and their own building, whereas monthly and special activities can happen a little further away.

For most of the projects the option of having inside and outside spaces were quite important, as all of them valued their gardens very much. Furthermore many of them did not have rooms with a single function, but rather changed the function according to their needs. The Co-Housing project “Alte Schule Karlshorst” in Berlin for example uses their

community house as a guest apartment if necessary (Ibid. p.43).

One of the resident of this Co-Housing project in Berlin, which used to be a school, described their home as a “place for learning” (Ibid. p.45), as they offer different workshops and the link between different generations challenges them to learn from the others. Another thing, which is quite important to the residents sharing their building is, that everything happens on a voluntarily level, so a resident in ‘Vrijburcht’ in Amsterdam is happy, that the project does not “force anything on residents, but really offers possibilities” (Ibid. p.173). A resident from a project in Basel noted, how great it is to have “enjoyable opportunities to meet with neighbours without having to enter binding relationships” (Ibid. p.59). You can see, how enjoyable shared spaces and activities can be for the residents, if nothing is forced upon them, but rather offered in an open way. The landlord and residents in Färdknappen in Stockholm came up with a system to collect money for group activities by doing small work, like gardening, cleaning the house, for which the landlord pays them like professionals (Ibid. p.73). This shows how the community can motivate people to be active and helpful for the group.

# Shared activities in Co-Housing projects

on same floor ●

in same ensemble ●

in neighbourhood ●

## Daily activities

- Shared Cooking
- Trip to compost
- Checking for mail
- Meeting in the garden
- Coffee with neighbours
- Walking
- Resting
- Remote working

-> Casual encounters

-> Small spaces to gather for about 2-4 people

## Weekly activities

- Cleaning
- Trip to laundry drying rack
- Reading books to children
- Accompanying children
- Communal cooking
- Film screenings
- Sports / Gymnastics
- Watering plants
- Work-group meeting
- Choir practice
- Coffee meeting
- Gardening
- Feeding ducks

-> Casual + Planned encounters

-> Spaces to gather for up to 15 people

## Monthly activities

- Informal house meeting
- Maintaining house
- Maintaining garden
- Discussion about residents
- Theatre plays
- Neighbourhood meeting
- Think-Tank

-> Planned encounters

-> Spaces to gather for up to 50 people

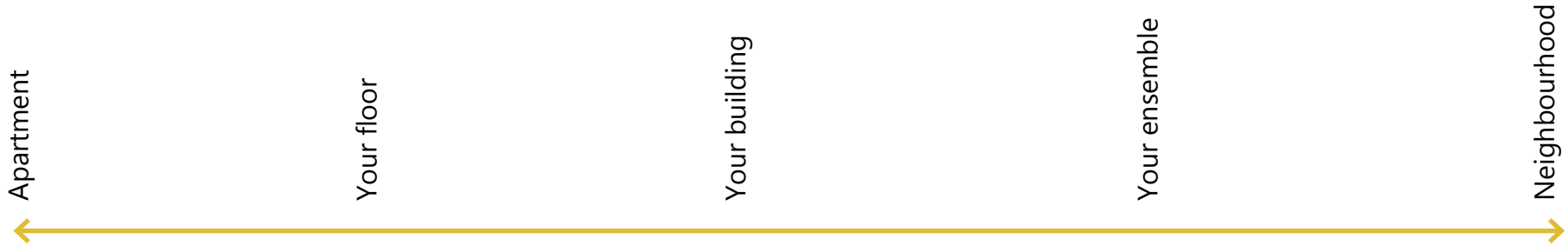
## Special activities

- Christmas Tree decorating party
- Annual Street festival
- Holiday celebrations
- Birthdays
- Memorial for deceased residents

-> Planned encounters

-> Spaces to gather for the whole neighbourhood (150 max)

# Differently sizes for activities



-> Small spaces to gather for about 2-4 people

-> Necessary on every floor

-> Spaces to gather for up to 15 people

-> Necessary in every building

-> Spaces to gather for up to 50 people

-> Necessary in neighbourhood (inside + outside)

-> Spaces to gather for the whole neighbourhood (150 max)

-> Necessary in neighbourhood (mostly outside)

-> offer inside and outside spaces

-> Flexible spaces for space optimisation

-> Flexible spaces for casual encounters

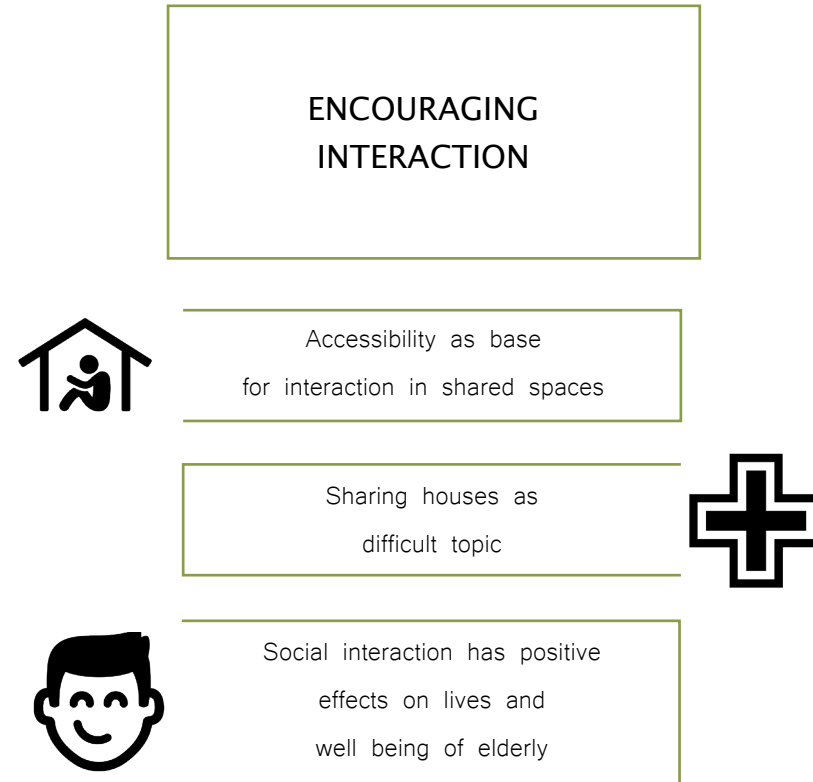
-> Flexible spaces to create a lively neighbourhood



# ENCOURAGING INTERACTION

## CONCLUSIONS

This chapter showed, that a neighbourhood, which is supposed to encourage interaction needs to be firstly accessible by everyone independent of their age or limitation. As the world of an elderly becomes smaller with their age, the interaction should be brought closer to their environment, which opens up a complex concept. Looking into Co-Housing I saw, that this can be a good way of tackling loneliness, making residents happier to be in company of others. The case studies showed, that it is important to provide the option of both private and shared spaces, so the residents feel in control of their spaces. Apart from that it is also convenient to provide shared spaces with different sizes and uses, so the resident can decide from many activities. The chapter showed how architecture and the built environment can provide the elderly and everyone with interaction with certain types of dwellings and shared spaces.



# 3.6

## FUTUREPROOF DESIGN

How can architects create an environment for elderly, which is future-proof?

As with age comes physical limitations, former easily conquerable elements like stairs, slopes, long distances become a challenge for elderly. I asked myself how the built environment needs to be shaped like to ensure, that people can stay in their homes as long as they wish to. Furthermore I want to know, how a building, its common spaces and dwellings need to be formed, so the future generations can easily adapt it to their changing needs. I will investigate flexible structures, which can adapt to the users needs through different definitions from architects and look into case studies to see, how it can be applied to actual projects.

## FUTUREPROOF DESIGN

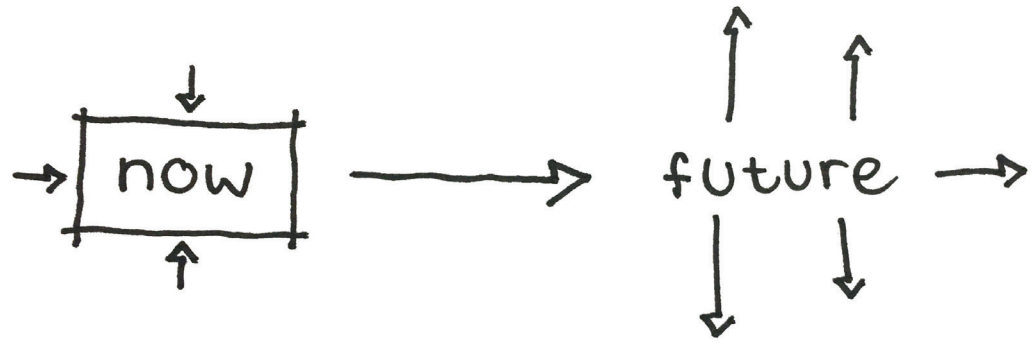
### CHANGES

We talked to the generation of elderly right now in 2020 to understand their needs, their interests and their daily lives. As architects we should always be aiming at a design, which lasts longer than just one or two generations, why we also have to consider what might change in 50 or maybe 100 years. How will living or working situations change? Will there be offices in the future or will most of the work-life happen at our homes?

When the Corona-pandemic started in 2020 in Europe, the situation for people changed dramatically. The government decided to implement strict measurements to ensure the health of its citizens. Looking at the working population, many were advised to work from home, which created struggles for many people. As many homes are merely meant to provide you for your 'free time' with fixed functions and rooms, many people were facing problems. For students, who were not allowed anymore to work at the faculty, the home became the only possible space for continuing working. The routine of going to another place to work productively, fell away. The students were facing the problem of needing to adapt their spaces to a work environment, which can be sometimes very challenging.

As we do not know specifically, what the future will bring,

we need to be prepared for changes. The growing world population will need living environments, where they can tackle these changes. The home is usually the most important place in a person's life, as they spend most of their time there, link it with memories and experiences, spend time with their family there. Home to one can be their private apartment, whereas to the other it can be a whole neighbourhood. We need to make sure, that this home can adjust to the future changes in needs and wishes of the coming generations, as the world around is only getting more complex.



# FUTUREPROOF DESIGN

## FLEXIBILITY

One way to make buildings future-proof is to create flexible structures, which can be adapted to the needs of the residents, the residents living there right now, as well as the further generations. During the search for those designs, the phrases flexibility and adaptability emerged over and over again. The Cambridge dictionary defines flexibility as “the quality of being able to change or be changed easily according to the situation” (Cambridge Dictionary, n.d.), whereas adaptability is “an ability or willingness to change in order to suit different conditions” (Cambridge Dictionary, n.d.). These definitions show, that the words can be used quite synonymously. Designing flexible building opens up the possibility of changing spaces, elements and the structure later on to meet the wishes of the residents. A large living room can turn into two smaller rooms, or a full apartment can turn into a shared space for the building. The options of flexibility are almost countless, but there are some common ones.

Dr. Ing. Sigrid Loch investigated the increase in importance of adaptive dwellings in her Urban Design Dissertation in 2009. She sees the biggest potential in keeping the buildings’ substance by a new usage through flexible structures. She states, that because of demographic and social chang-

es, this topic has been becoming more and more challenging. The typical layout with fixed uses for different rooms can barely keep up with the pace of the changing society. New models for neighbourhoods do not have the main focus on the typology, like row-house, single-family-home, but rather on the interior floor plan layout.

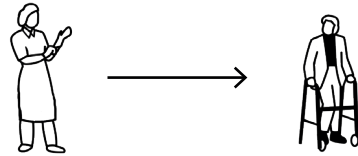
Loch defines three types of flexibility. The ‘Functional Flexibility’ evolves around usage-neutral room layouts, where rooms do not always need to be a bedroom but can also be a work room. This flexibility emphasizes on the self-determination of the residents’ identity, as he or she can decide and also change their decision later.

The second one, the “Integrated flexibility” offers the user to change between different spatial situations with the use of flexible barriers, such as folding doors, removable furniture and changeable surface materials. This comes in handy while designing for elderly, as through simple acts the quality of small units can increase.

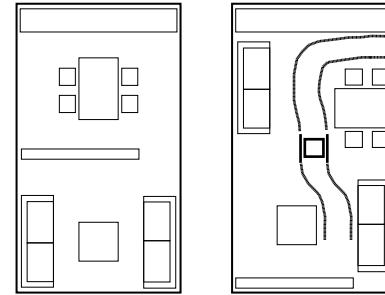
The third type is the Structural flexibility, which involves contrary to the other two, conversion work. This flexibility is used for long-term changes in the buildings’ structure. By separating the supporting structure from the finishing elements the apartments can be changed later with ease

(Sigmund, 2016). This could mean adding a room from another apartment or adding a whole new floor to a building. If the general structure has been planned for future adaptations, the further additions will be added in a more efficient, cheaper and cleaner way. Looking into the benefits for elderly having flexible dwellings, I saw, how functional flexibility can enable them to change use of rooms, if they will become dependant on a walker. Integrated Flexibility could make bed-dependant elderly a part of the daily life in a living room, as they will not be separated by a fixed wall from the other residents. Structural flexibility can help to change the function of a room into another, as the living situation changes.

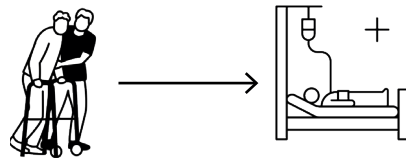
Functional Flexibility



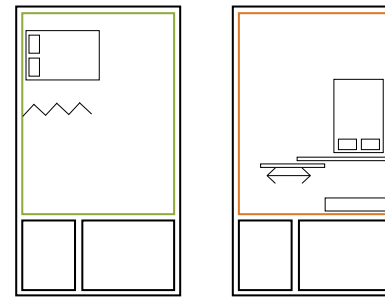
Elderly becomes walker- or wheelchair dependant  
-> simple shapes create enough space



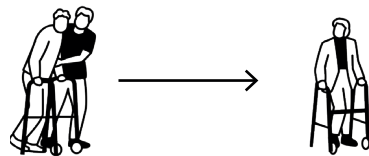
Integrated Flexibility



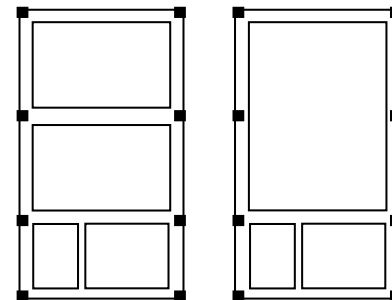
Elderly becomes seriously sick and bed-dependant  
-> open door lets him be part of the daily life



Structural Flexibility



Elderly loses his / her partner  
-> No move necessary - rooms changeable



# FUTUREPROOF DESIGN

## CASE STUDIES

To see, how flexibility can be applied to concrete projects, I investigated different floor plans of flexible buildings. I searched for projects, which have their main focus on flexible structures and offer options in the furnishing of their dwellings. I investigated, which rooms have a fixed location in the apartment and how the freedom of placing walls can create different spatial configurations.

Which kind of flexibility are they using in the layout of the apartments? Do the rooms have specific functions or is it kept use-neutral? How free is the user to adapt the apartment to their needs? Who is the target group of the project and would this also be suitable for elderly?

In each case study, I analysed the load bearing structure as well as the fixed elements, like pipes or balconies, to see which areas are not fully free. I marked the different uses for areas in the apartment and could see, that some of the plans did not provide information about the use, which implied the multi-purpose use of them. Looking into the variety of partition walls and moveable elements, the adaptiveness and large variety of the possibilities became clear.





## What do I want to know from the Case studies?

1. Which type of flexibility is used in the project?
2. Do the rooms have specific functions?
3. Can the user adapt the dwelling to his/her needs?
4. Who is the target group of the project?
5. Would the project be suitable for elderly?



## Hennephof Housing – Nijmegen



1 (Site practice, n.d.)

Architects: site practice

to be finished

81 units

about 150 residents

# FUTUREPROOF DESIGN

## CASE STUDY: HENNEPHOF HOUSING – NIJMEGEN

Looking for projects, which include flexible dwelling types, I found the “Hennephof Housing” in Nijmegen, the Netherlands, which is still in the planning phase right now. The competition about the housing project with 81 dwellings and communal facilities was won by the architectural practice ‘Site Practice’. Through the use of compact apartments, the architects could provide generous shared spaces, for example roof gardens, double-height loggias and a workshop space. The architects aim at using a participatory design to increase the feeling of responsibility in their surrounding, as the residents will handle it more carefully and create a stronger and more resilient society. I looked into one of the one-room apartments of the project, which is about 60 m<sup>2</sup> large.

### 1. Which type of flexibility is used in the project?

The architects provide integrated as well as functional flexibility, so the resident can freely decide on the finishing of the apartment. As the building is already 7 floors high, the project does not aim at extending the project in the future, but rather adapt the apartments inside.

### 2. Do the rooms have specific functions?

To make the future resident participate in the design process, the apartments are handed over as a ‘naked shell’, so

they can decide on their own, how the apartment is going to look like in the end. By only providing the load bearing walls, the core with bathroom and kitchen, the balcony and the entrance zone, the layout is fully use-neutral to the residents’ wishes. He or she can freely decide about the size of their bedrooms / living rooms etc. The architects show even one configuration of the apartment, which fully renounces any additional walls, but just uses movable elements like curtains or sliding doors (version 1)

### 3. Can the user adapt the dwelling to his/her needs?

The resident is completely free in designing his or her apartment for the first time. The next resident will need to remove or add walls, if he or she wants to change the layout.

### 4. Who is the target group of the project?

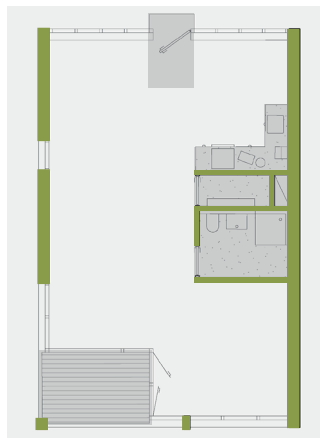
The competition aimed at creating affordable dwellings with shared facilities with the focus on its residents. The residents will be attracted to the building because of its community, the affordable, circular and energy-efficient design, as they use timber balloon frame and hempcrete construction.

### 5. Would the project be suitable for elderly?

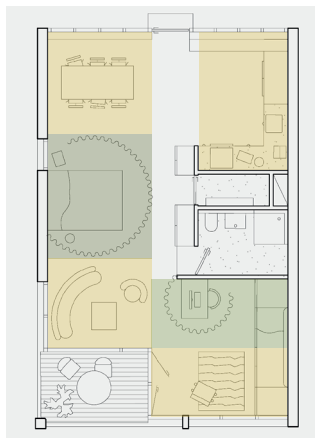
Thinking about the goal of the project focusing on the community by implementing shared spaces, elderly could enjoy

this environment too. Thinking about the openness of the floor plans, the needs of elderly for more space to move around with a walker or a wheelchair could be met as well. Only the bathroom would need to be adjusted to become barrier-free for the elderly, just as the entrances and balcony accesses (Site practice, n.d.).

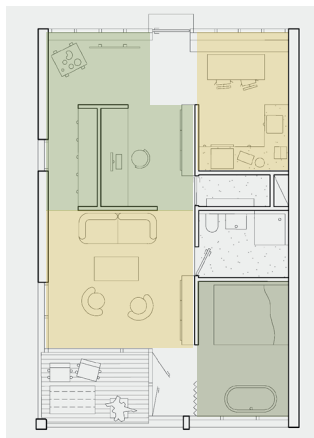
# Hennephof Housing - Nijmegen



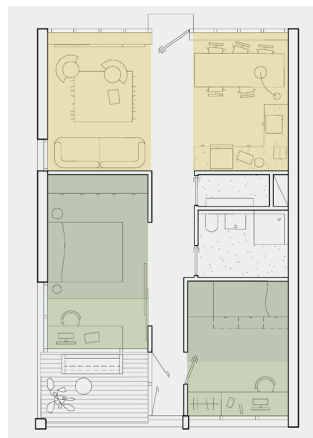
Version 1



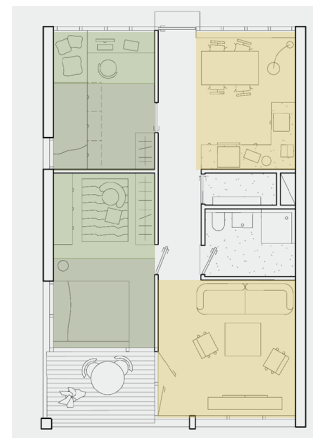
Version 2



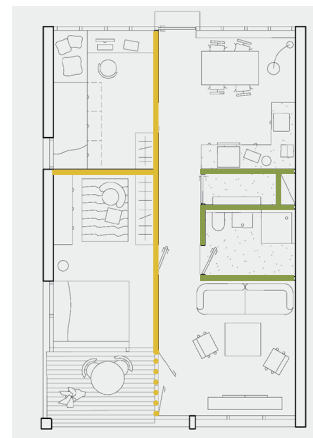
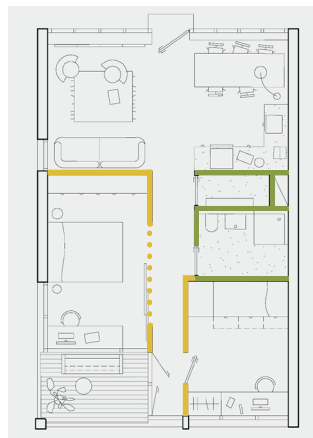
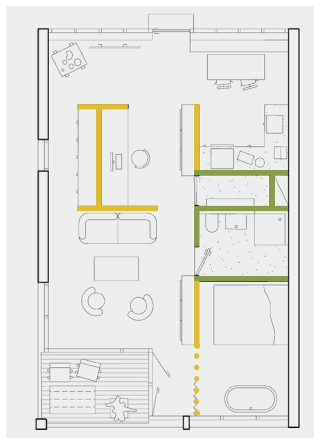
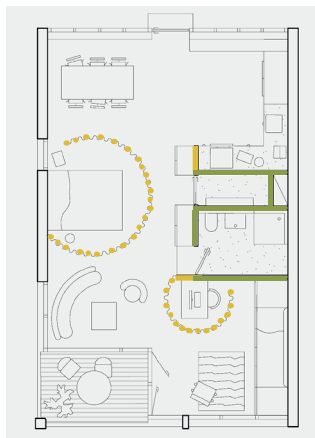
Version 3



Version 4



-  Fixed walls
-  Fixed elements on every floor / apartment
-  Kitchen & Living room
-  Working
-  Sleeping
-  additional walls
-  openable elements



J Floor plans from: (Site practice, n.d.)



## A52 - Berlin



K (roedig.schop architekten bda, n.d.)

Architects: roedig.schop architekten

finished in 2015

10 units

about 25 residents

## FUTUREPROOF DESIGN

### CASE STUDY: A52 – BERLIN

A52 in Berlin is a apartment block built by Roedig.Schop architekten from Berlin, finished in 2015. The block houses 10 units on 7 floors. The floors are either separated into two apartments or only house one large apartment. The architects kept the floor plans flexible and created a variety in the layouts, which is also visible on the facade with windows placed differently. The smaller apartments are about 67 m<sup>2</sup> and the larger ones double the size. The project staples single-family homes on top of each other and also provide a garden, a roof terrace and a guest apartment on the top floor, which can be used by the residents on a rotating basis (Architektenkammer Berlin, 2006).

#### 1. Which type of flexibility is used in the project?

The architects offered functional and integrated flexibility for the first time users of the dwellings. As the block is part of a larger row of houses, the adaptability will only be continued inside the dwellings.

#### 2. Do the rooms have specific functions?

The apartments have openings to two sides, why the placement of the function stays open to the residents' decision. Only the bathroom and kitchen need to be in the inside of the dwelling, as the supply shaft is there. The user has the freedom to choose where the bedroom, the living room

or other functions are placed. Some floor plans show very generous layouts, whereas others are more enclosed and defined.

#### 3. Can the user adapt the dwelling to his/her needs?

As the load bearing structure is on the outside walls and the circulation core of the house, the layout is quite free. The residents can decide, which rooms to divide.

#### 4. Who is the target group of the project?

The architects worked together with the clients, which were in the 'Baugruppe A52 GbR', an association of clients with 3 couples and 3 families with kids (Ring & Eigner, 2009).

#### 5. Would the project be suitable for elderly?

The flexibility of the apartments can create suitable environments for elderly to adapt them to their needs. As all the floors are accessible by an elevator and the bathroom sizes can be freely adjusted, elderly could live there as well. The communal areas on the roof and in the garden could furthermore enhance the quality of life.



# A52 - Berlin



L: Floor plans from: (roedig.schop architecten bda, n.d.)



## R50 - Berlin



D (Alberts, n.d.)

## FUTUREPROOF DESIGN

### CASE STUDY: R50 – BERLIN

This project has been already mentioned in the chapter of '3.5 Encouraging interaction', as it not only provides flexibility, but also aspects of Co-Housing. Each of the floors were designed in participation with the residents, why they could adapt the sizes and orientations of the rooms.

#### 1. Which type of flexibility is used in the project?

The project used integrated and functional flexibility. Each of the floors were designed in participation with the residents, why they could adapt the sizes, the number and orientations of the rooms. Whereas some keep generous spaces, others distribute the given space in smaller spaces.

#### 2. Do the rooms have specific functions?

The bathrooms and kitchens are always linked to the supply shafts of the buildings, but the position of the other rooms such as for sleeping, gathering and working is free to the residents' decision.

#### 3. Can the user adapt the dwelling to his/her needs?

The user can adapt the layout freely. The more open the apartment is, the more free is the arrangement of the furniture. Every resident developed certain priorities in room sizes and functions to fit their different needs.

#### 4. Who is the target group of the project?

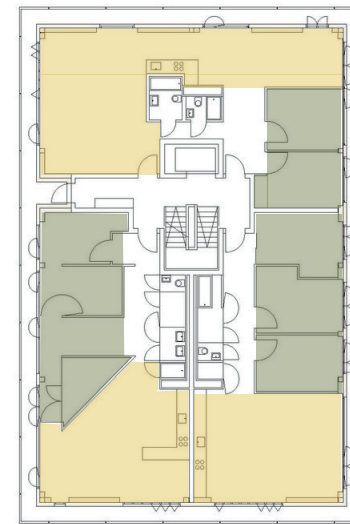
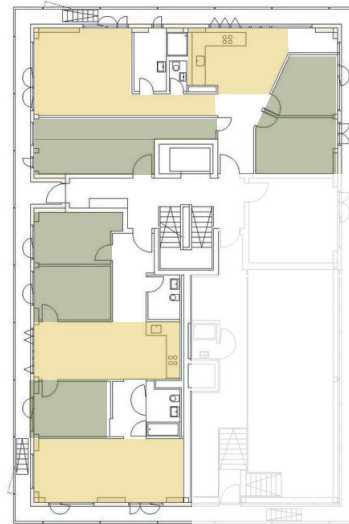
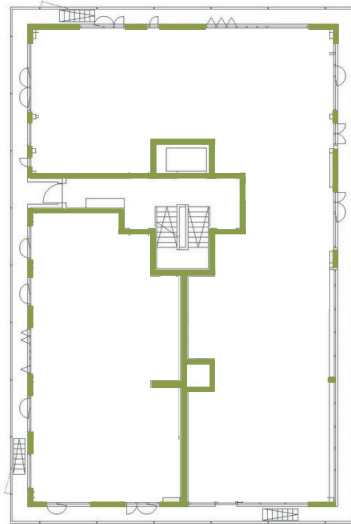
The project was developed in participation with the residents

of the 19 units, which were active co-designers of their new living spaces by leading many discussions, consultations and adapting over and over again. The residents were looking for community-orientated and affordable housing, why they founded a group, which later decided on the plot, the size and design of the building (Archdaily, 2015).

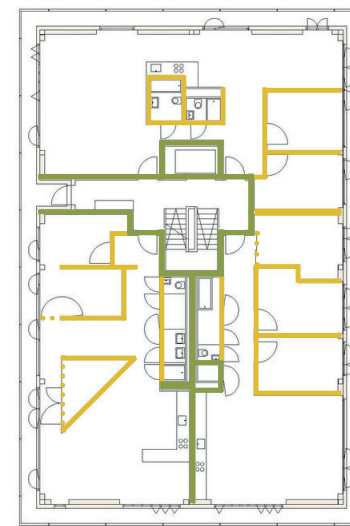
#### 5. Would the project be suitable for elderly?

The adaptability leaves enough freedom for the apartments to be changed to their needs in the future. The communal spaces also help to make project attractive by offering social interaction an activities with the neighbours. The balconies are only about one meter deep, which is difficult to access when you are dependant on a walker or similar, This means, that elderly would mostly stay inside in their apartments, but can still take part in activities on the ground floor and the roof garden, where most of the activities take place.

## R50 - Berlin



- Fixed walls
- Fixed elements on every floor / apartment
- Kitchen & Living room
- Sleeping / Working
- additional walls
- openable elements



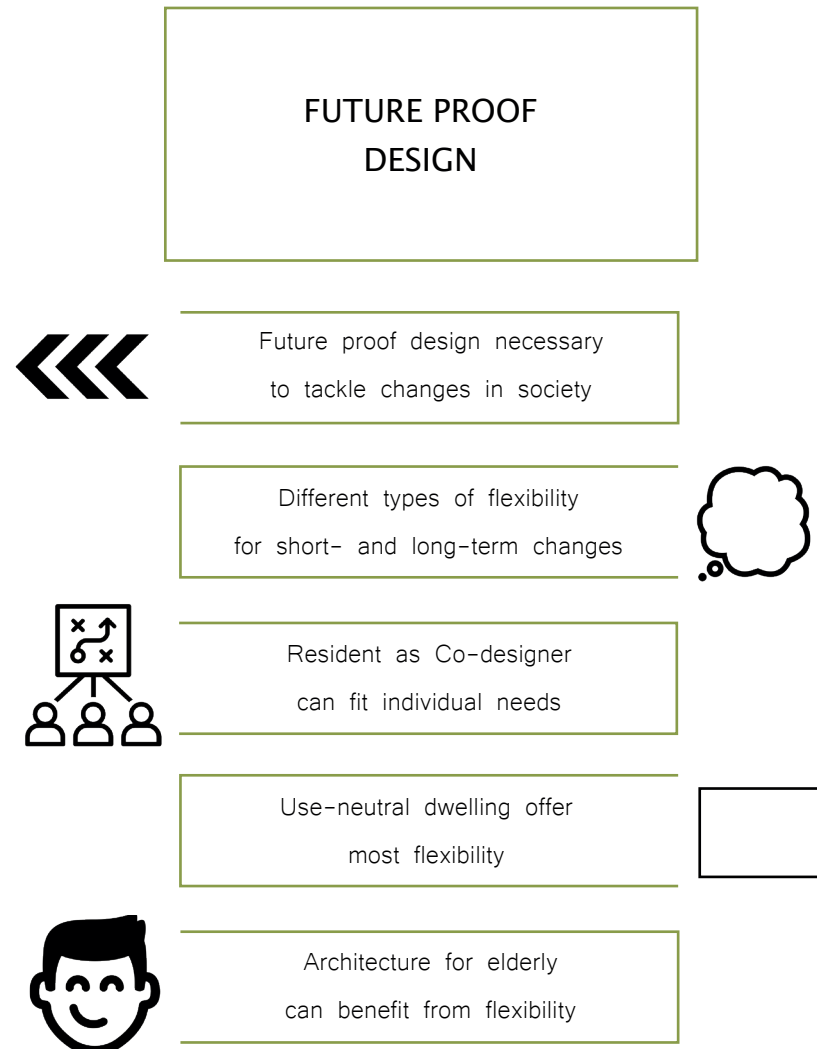
E: Floor plans from: (Alberts, n.d.)



# FUTUREPROOF DESIGN

## CONCLUSIONS

Looking into the topic of flexibility and adaptability, it stood out, how these aspects can not only create future-proof designs, but are also necessary to tackle changes in the society. The best way to prepare for these changes is to implement flexible spaces, which can offer various functions for its users. There are different types of flexibility, which are either suitable for short-term or for long-term changes. The case studies showed, how the resident can become the Co-designer of the project by adapting its apartment to their needs and wishes. The more freedom the resident has in this, the larger is his part in creating their own dream home. Apartments, which start from an almost empty space and with no given certain function can be adapted the most by the residents. The chapter showed, how flexible apartments can offer benefits for elderly, as the apartments have the ability to change with them as they age.



# 4. RESULTS

DESIGN GUIDELINES & VISION

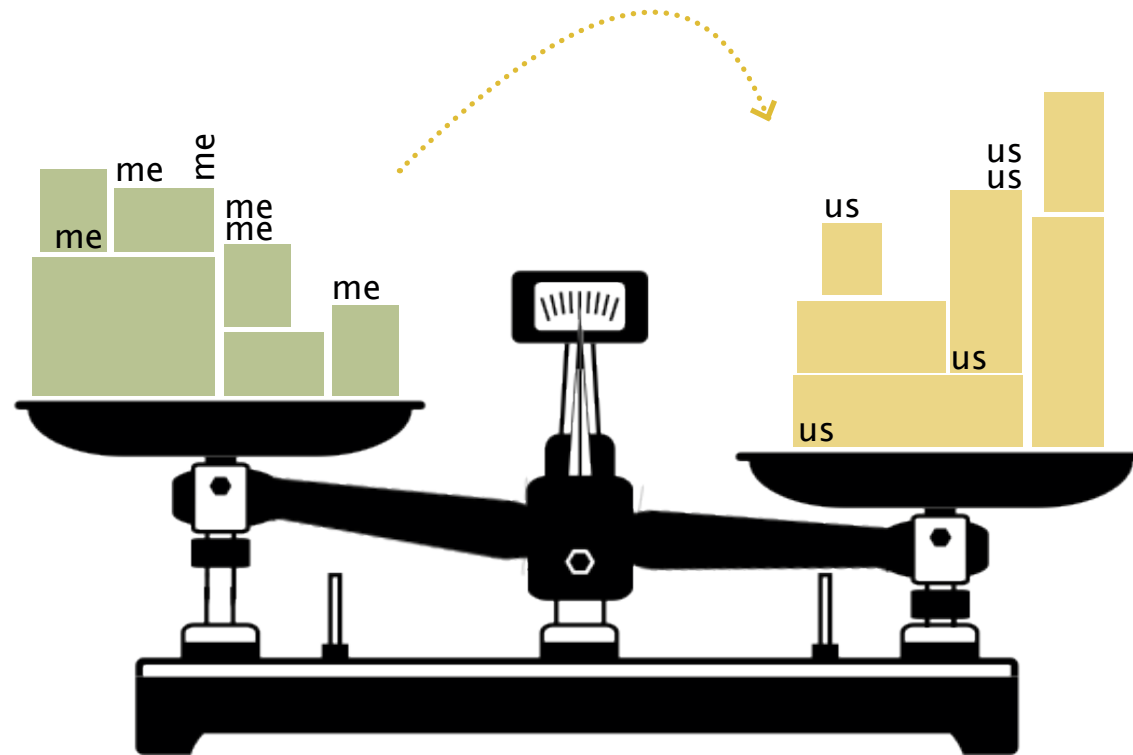


# 4.1

## DESIGN GUIDELINES

After the research in this booklet, I am full of ideas and inspirations for the actual design. To put the focus now on the design, I formulated five design guidelines, which will direct my inclusive living environment. As the topic of Designing for elderly is incredibly complex, the design guidelines do not stand for themselves, but rather transition into and relate to each other.

These guidelines focus on the topics of private and shared spaces, encouraging interaction between the residents, creating a future proof living environment, mixing people of different generations and backgrounds and offering gradients and different options for all of that.



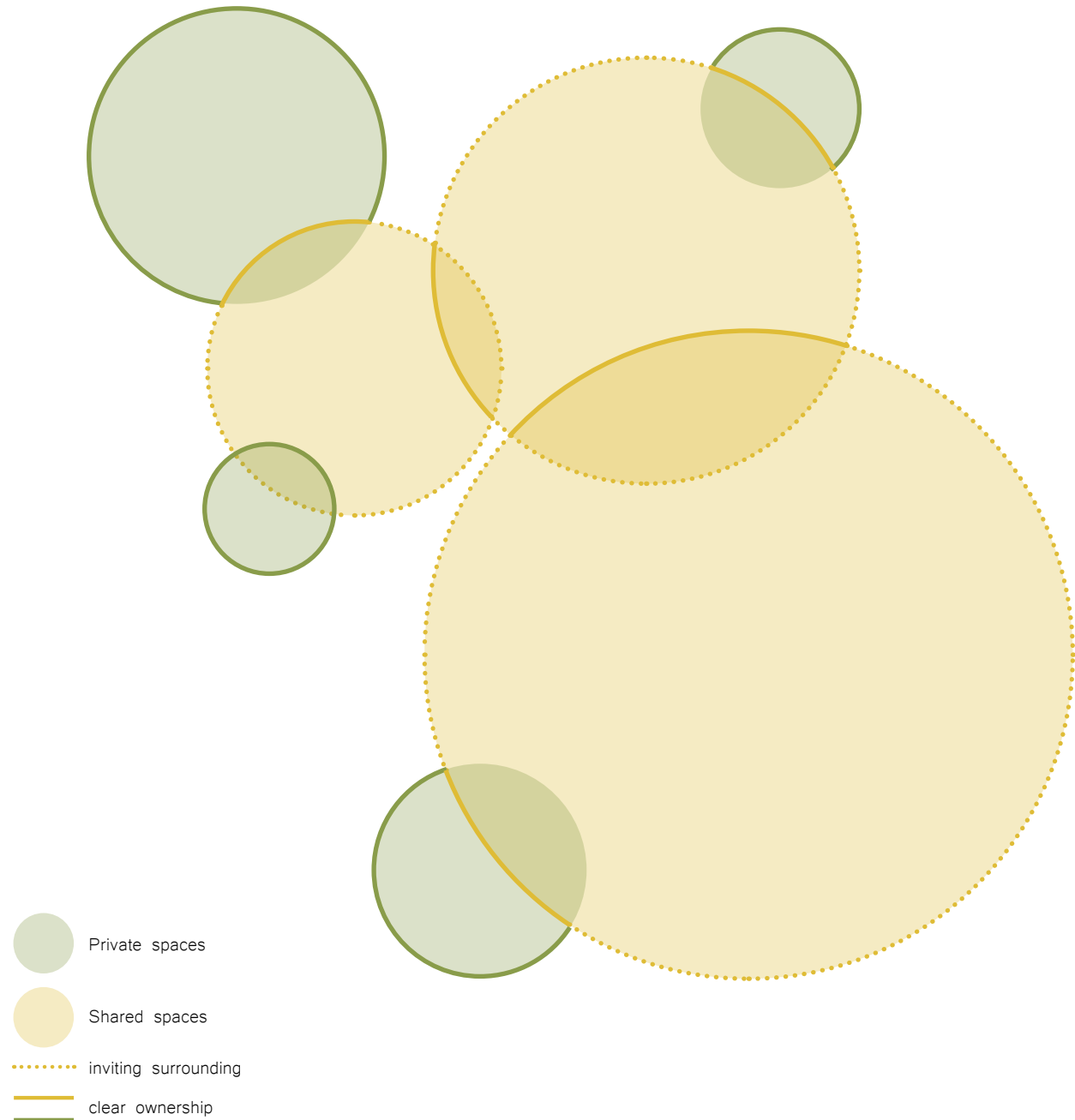
## FINDING THE BALANCE

### BETWEEN THE ME AND THE US

I saw during the fieldwork and the further in-depth research, that elderly value their privacy and their wish to be with others almost equally. As everyone is different, every individual will think a little different about that, why it is important for my design to provide both. It is necessary to specify clear zones, so people will feel responsible of spaces and take care of them. Elderly are happier and healthier, when they spend time with others, why I want to emphasize on the shared spaces. Keeping the right balance will be the challenge for my design. Every resident will need a place to gather with small, moderate and large groups, as well have spaces to retreat from the liveliness of the neighbourhood. The level of privacy will differ from the most private one in the apartments to the most public on a public square. To create a feeling of safety and comfort, I want to make sure, that every space has a clear zoning and ownership, so someone will be responsible.

-> Provide private and shared spaces  
on every scale of the neighbourhood!

-> Ensure clear zones for feeling of comfort / belonging

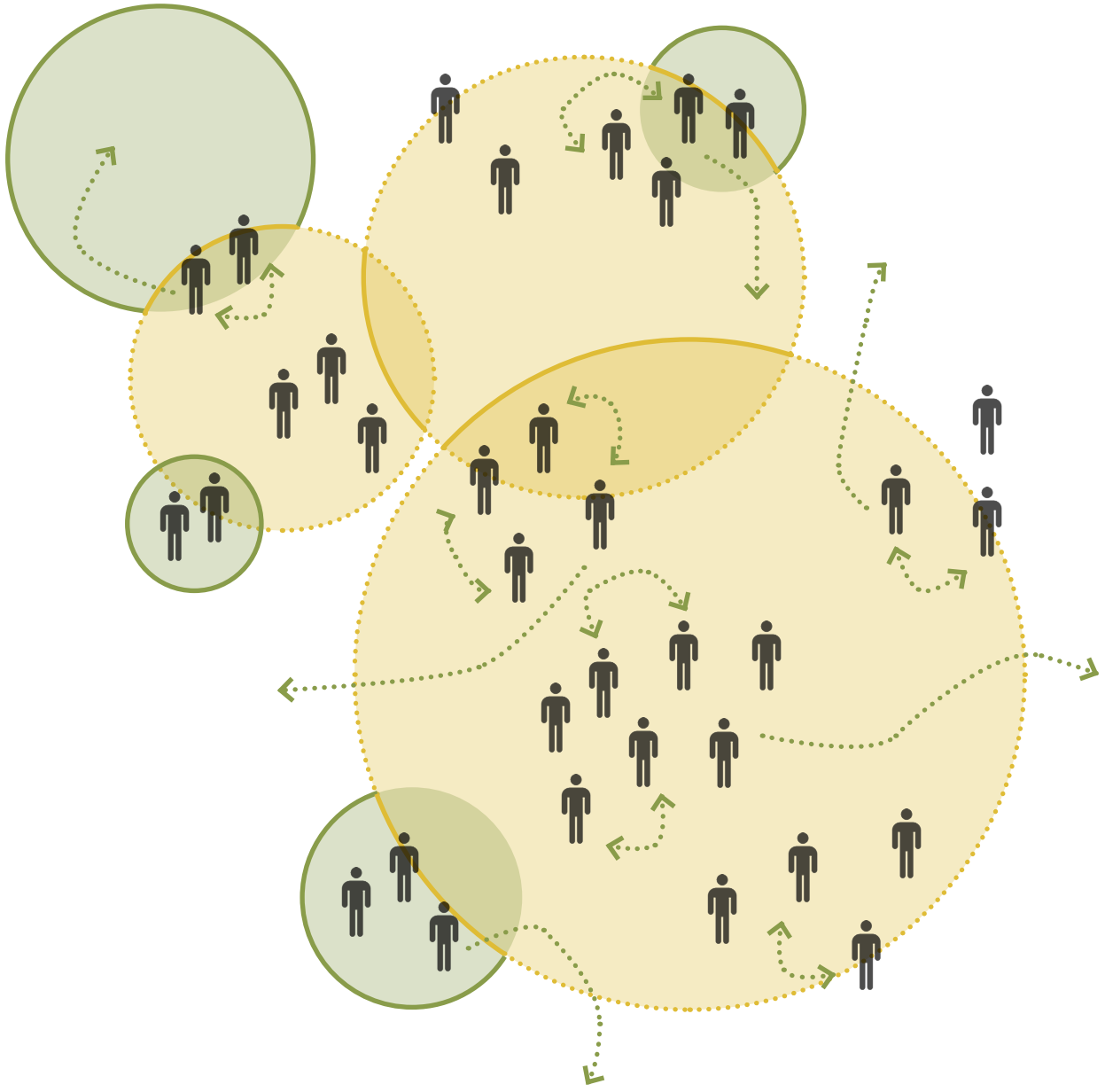


# ENCOURAGING INTERACTION

## BETWEEN THE ME AND THE US

Elderly as well as anyone need social activities to stay happy, healthy and enjoy the environment they live in. Therefore it is important to provide places, where interaction can take place close to their living environment. This can be a very small situation like a bench close to the entrance door, this can be the implementation of shared flats, or the provision of public spaces, like gardens or playgrounds. The resident is supposed to be encouraged to take part in social interaction without being forced into it. The voluntary nature in this is very important!

- > Provide places for interaction on every scale of the neighbourhood
- > Always leave choices, nothing will be forced!

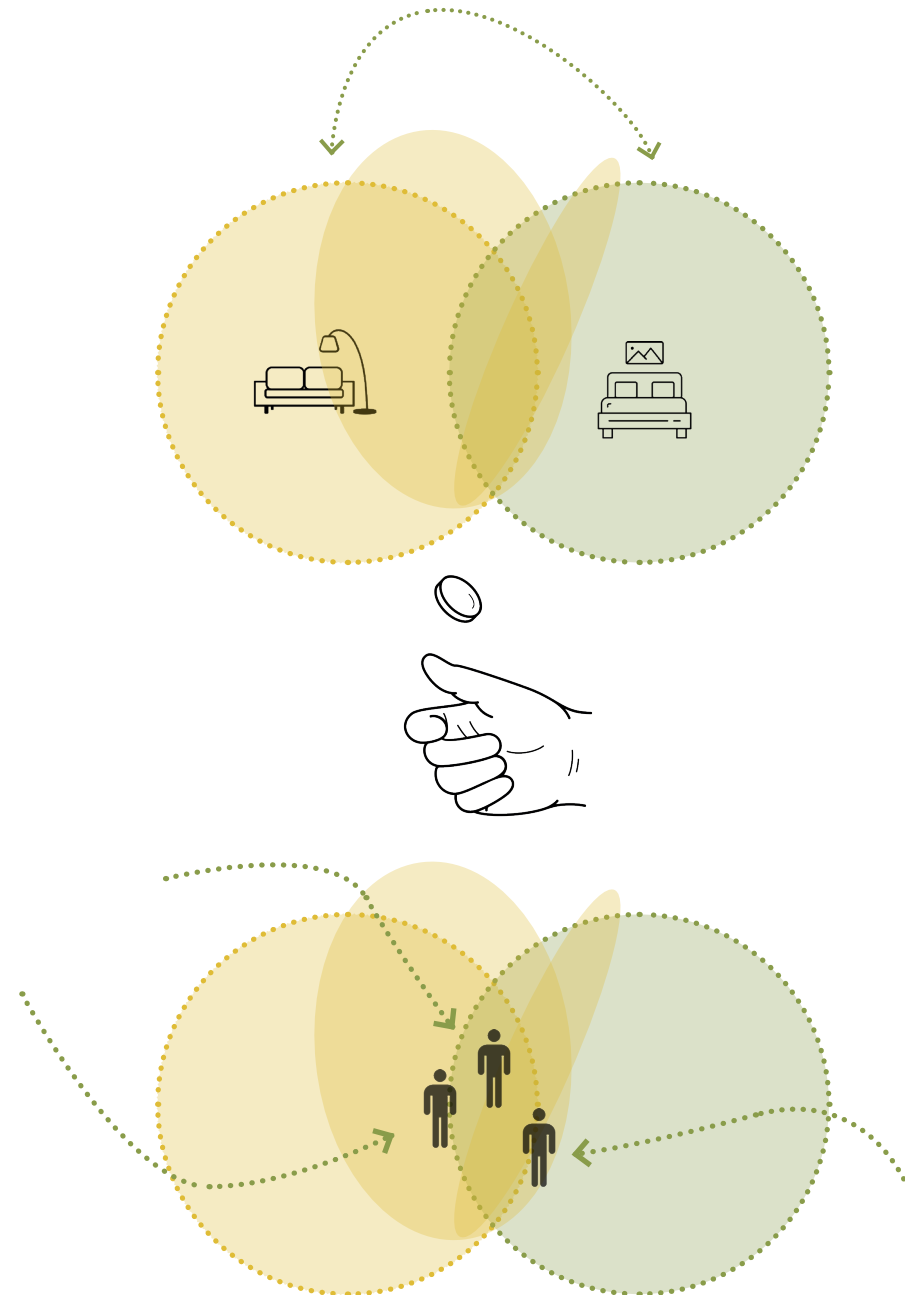


←.....→ Interaction  
 .....→ 'Escape route'

# CREATING A FUTURE-PROOF NEIGHBOURHOOD

To make sure, the concept will be suitable for the coming generations, the neighbourhood needs to be flexible in use. The needs of the future generations might change drastically and the dwellings and the whole neighbourhood should be able to be as adaptive as possible. adaptive apartments help to make a home for elderly future-proof as well, as they can easily adapt their apartments to their changing needs. By making apartments use-neutral, so they can be changed into different functions or leaving the possibility of an extension open, the building does not become a finished work after the construction is done, but rather leaves the opportunity to adapt than rebuild, why flexibility provides the longevity of a building. Creating not only private spaces, but also shared spaces in a adaptive way ensures the liveliness of the space, as people meet at the same place for different activities.

- > Create flexible dwellings for longevity of the building
- > Create flexible dwellings for long-time use for elderly
- > Create flexible shared spaces for liveliness of the neighbourhood



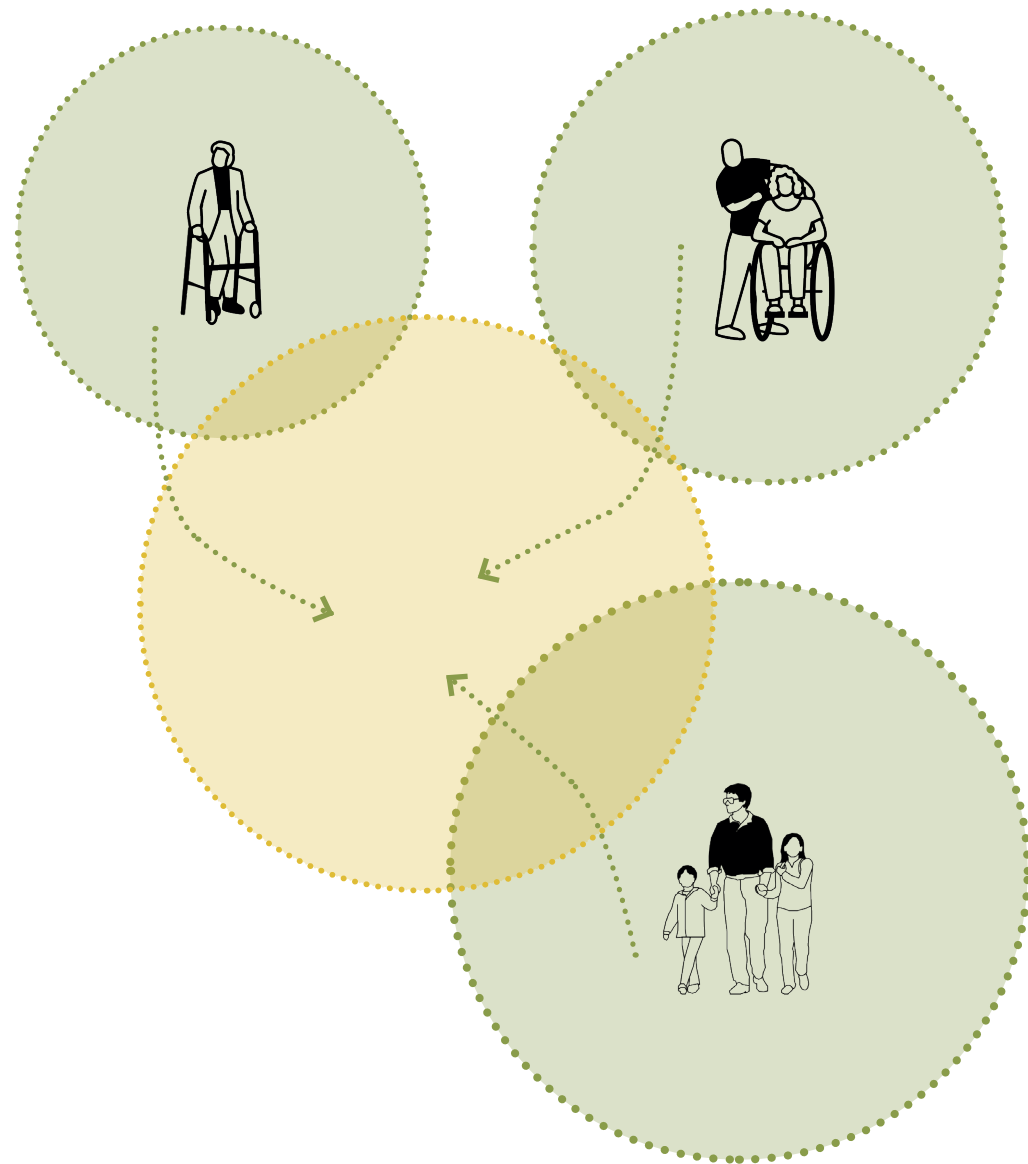
## MIXING

### DIFFERENT PEOPLE

To create an inclusive living environment, the elderly should be a normal part of the society, why creating neighbourhoods with different generations, different physical abilities and ages should come natural. Elderly should not be segregated from the rest of the society in Elderly homes, but rather be provided with an environment, were they can live happily and safely. Joining different generation together will have a positive outcome on their community, as both can benefit from the others' strengths. When I noticed during the fieldwork, that the elderly from neighbouring senior homes had somehow developed an aversion against each other because of Wealth differences and lack of familiarity, I could see that not only the mix of different generations is important, but also the mix of people with different wealth and background.

-> Provide differently sized apartments next to each other

-> Provide a mix of generations & backgrounds

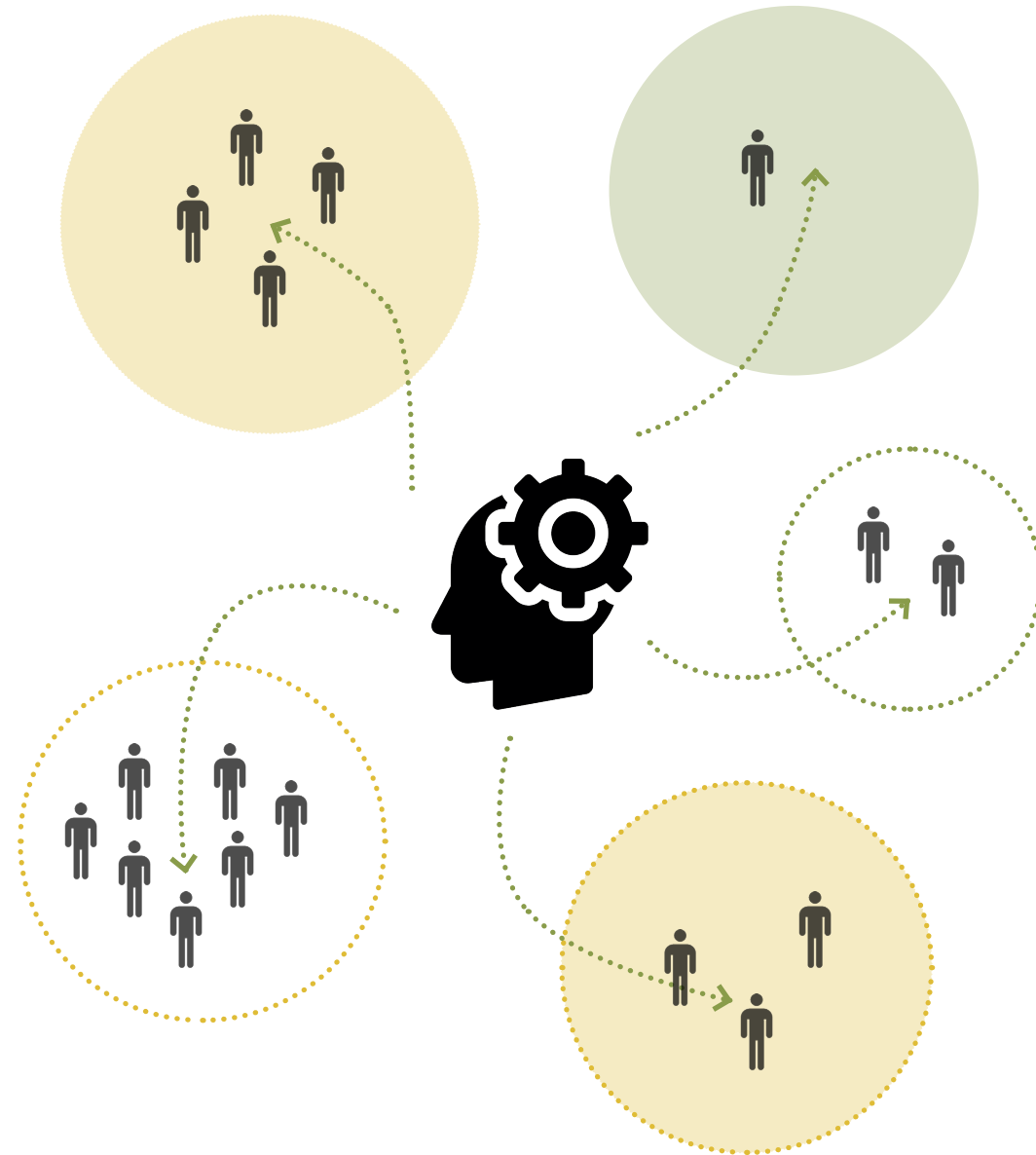


## PROVIDING CHOICES

### DIFFERENT LEVELS OF INTENSITY

Nothing in this world is merely black and white, every need, character or wish rather takes place in gradients. I want to offer various options in all the guidelines mentioned above. It should be possible to chose between different intensities of privacy and togetherness. Whereas some people want to have interaction every day, others should be allowed to only meet others once a week. Whereas some want to change the layout of their apartment every once in a while, others might be happy with a standardized version of an apartment. Some residents enjoy the company of many children around them contrary to residents who want a quiet surrounding. Therefore the project should include not only two types of characters, but rather many different ones, where everyone can find the right place.

-> Provide many different combinations of qualities in the built environment



# 4.2

## VISION

“Designing for Elderly” - the studios’ goal is to create suitable living environments for elderly, but what distinguishes the elderly from the rest of the society? Many times during my research I noticed, how issues or problems elderly encounter, can be applied to the whole society. Designing for the elderly means tackling loneliness, means creating places to share and to retreat, means creating places for encounters and social interaction, means creating lively and accessible neighbourhoods.

But how is that merely meant for elderly? Everyone will benefit from these measures. The elderly is not an outsider, a stranger to the society, but just a regular part of it with a bit more dependence on others due to their age. We should go away from the thought, that designing for the elderly is something else than designing for the society as a whole.



## VISION

### ON AN INCLUSIVE LIVING ENVIRONMENT

To make sure, the society exists as a whole, the outcomes of my research will lead into a living environment, where the living quality is enhanced for everyone. Offering flexible apartments, where elderly can move around with their walker can help as well a family with a stroller. Office hours with a general practitioner will be mostly used by the elderly, but can be appreciated by the full neighbourhood.

Helping each other, caring for each other is not a one-way road. I want to create an environment, where nothing exists in black and white, but a lively giving and taking is the goal of the neighbourhood. People should not live next to each other, but rather together with each other in a supportive way. Creating an inclusive living environment, where Elderly can live together with families, students, couples etc. is a complex opportunity, i will try to tackle in Delft Tanthof. Applying all the design guidelines, all the thoughts in my research, closing open ends and bringing them together in one project will be the next step in this studio. I will turn abstract concepts into a concrete design. To be able to create a neighbourhood with the focus the social encounter between residents, I chose a site location, which is small enough to implement a detailed design, but big enough to focus on the bigger picture of the neighbourhood, its relation

to the surrounding and eventually already existing communities. As the research started with the fieldwork, which was human centred on the lives of elderly, the starting point was from the personality, the needs, hopes and issues of people. The design will continue to zoom out looking into the neighbourhood scale and then zoom back in again to the smallest, but most important element, the resident.

My design will provide a balance between private and shared spaces on every layer of the neighbourhood, in the dwellings, the building, the direct surrounding and the whole new neighbourhood. It will give the residents spaces for encountering, spaces to meet and gather by still leaving the option open to rather stay on your own. The neighbourhood will be accessible by anyone independent on their age, limitation or background to provide a mix of people and create an environment, where everyone feels comfortable, is welcomed and supported by his neighbours. The design will implement flexible spaces, both for private and shared spaces, to offer a function, activity and certain quality for any taste. The program and execution will not be a design in black and white, but rather offer various options, levels of intensity. The same way, human beings are not only one way or the other, the neighbourhood should be able

to serve the community with different options. To create a system of informal care for the elderly, the mix of residents is necessary, so younger people can help elderly with their physical strength, whereas elderly help and support differently. Implementing small parts for care will be necessary, but as for the most guidelines of my projects, this will create advantages for every resident in the new neighbourhood.

If we start designing for the society as a whole instead of focusing on different target groups, the built environment and its resident's lives will be enhanced.



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# APPENDIX

## REFLECTION

### PRODUCT. PROCESS. PLANNING

The studio “Designing for Care – towards an inclusive living environment” has enabled me to design a living environment in ‘Delft Tanthof’, where elderlies are a fully normal part of the society and live together with different age groups in independent apartments. The residents have the choice of sharing their time with other residents, as there are many spaces for interaction, spaces to encounter others, but no one is being forced into participating to the community of the neighbourhood, as there is always the choice of being on their own in private spaces. The neighbourhood is futureproof, as the design is based on flexibility, which makes the apartments as well as the more public spaces multifunctional. The apartments are planned in a way, which enables people with different needs to move into it and also change the layout of it later on independent of their changing needs. As people always have had completely different preferences, the neighbourhood aims at providing many different qualities, where each elderly and the other residents can live comfortably and happily for as long as they want. The idea of the neighbourhood is to create an environment, from which not only elderly benefit, but rather everyone.

#### The Fieldwork

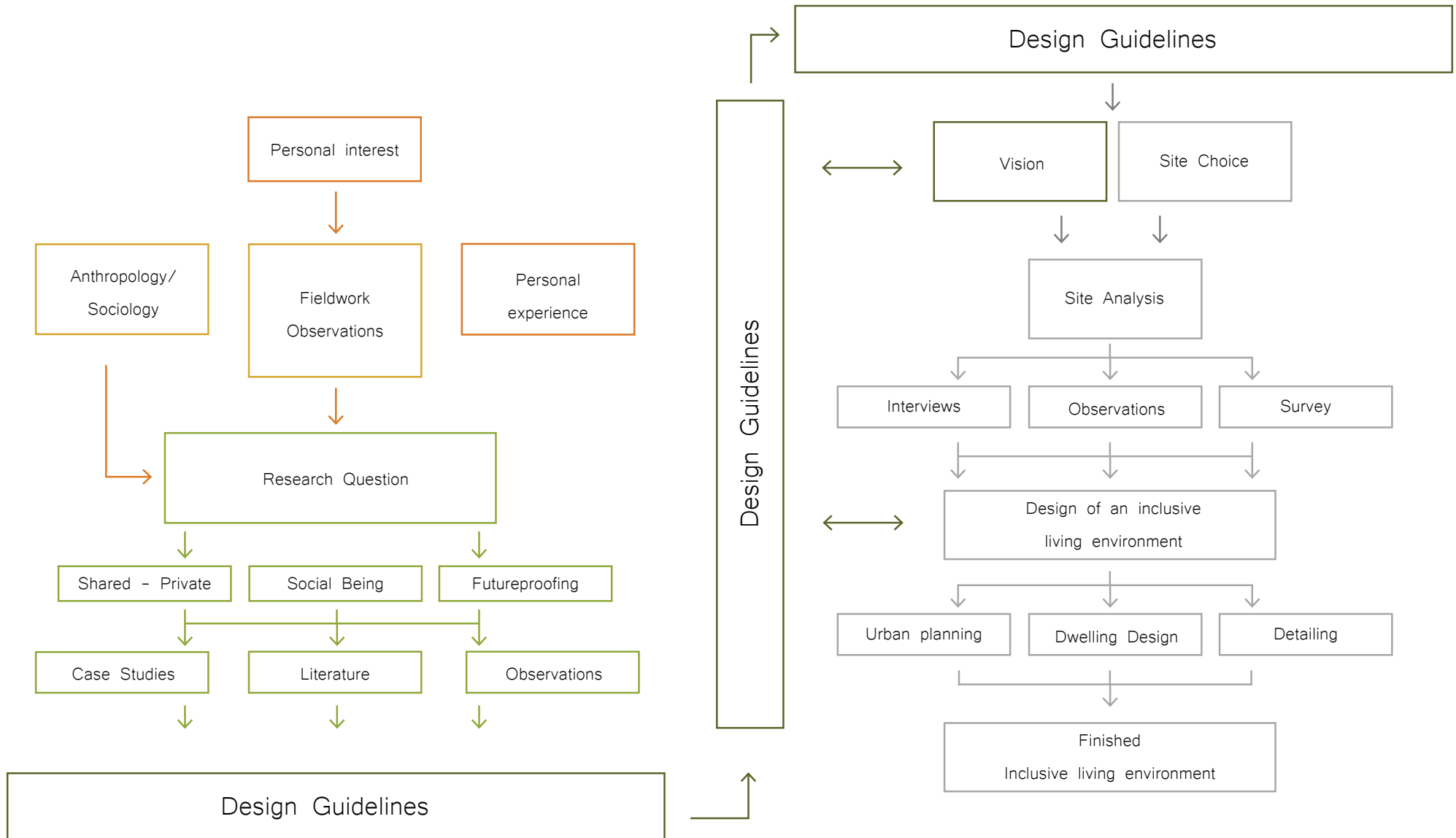
The graduation studio ‘Designing for Care’ evolves mostly around a social and human centred topic. Because of that the origins of the initial research emerged from anthropological and sociological background. We students started with a real practical approach to understand the main target group of our project better. The first stage of the project consisted of various personal exercises, which for example included using a walker and wheelchair. These exercises were aiming at getting ourselves comfortable and familiar with the physical abilities of elderly and to make us understand the physical limitations and the struggles that come along with it.

After that we went to different elderly homes in the Netherlands, where we stayed for a couple of days and wanted to understand the elderly, their struggles and wishes to be able to design an environment, where they feel fully comfortable in. We analysed not only the elderly themselves, but also their behaviour, their living environment, and their needs by talking to them, observing them, and inviting them to dinner or interviews. Fieldwork in Hilversum

As we design for elderly, we needed to get to know them, their needs and their problems. Staying at the same building

complex, following their daily routines and getting to know them changed our perspective from the outside to the inside. The fieldwork at a senior complex brought us closer to our target group and made it possible to start with our research with the centre of interest about elderly. We studied how spaces are used by the residents (praxeology) by observation and interviews as well as how their surrounding is experienced and liked by them (phenomenology). Observing, how people sat together during the dinner and how they interacted with others gave us insight about how open or shy the person is or whether he or she likes to talk a lot or not. By giving them easy questions to answer, for example “What is your favourite place?” we could understand, whether the person is still active, wants to be with other people or enjoys this space because of a certain view. Most of the research we did, was qualitative, as we started to talk to the elderly, therefore interacted with them via simple conversations and small talk, as well as more in-depth interviews. Whereas the casual talks gave us and them a feeling of getting to know the person and their character better, the interviews helped to investigate specific topics, which are more connected to architecture and the topic of our studio.

# STRUCTURE



We also used observation through different senses, for example drawing the floor plans of different people and comparing them or noting the sound around the neighbourhood. Another important method was to use participation, as we organized a dinner, where they answered us questions in an informal context and we could gain more data than from single interviews. We first asked them to introduce themselves, where we already noticed, that some people stood up for it, some were willing to share a lot of information and some did not want to introduce themselves at all. After each course we asked them to write down answers to three different questions, which told us about their favorite place, what they miss in their living environment and what is most important to them. We collected the data and visualized it differently via graphs, diagrams and explanatory images and time-lines, which gave us an insight about their lives. We were able to reconstruct, how their daily routine looks like to help us figure out, which facilities like shops need to be close by. Furthermore we investigated the neighbourhood of the complex to find out, how accessible the surrounding is and how we could avoid obstacles in our design. All this information was useful to dive deeper in our research question and find a main topic we are interested in.

After the fieldwork we continued to visualize the information we had gathered and created new maps and different links, we only found out after we had gone home again. Reflecting on the interviews and the mood of the residents, we came to new conclusions and found connections between different topics, for example how the location of a common space can influence the use of it. Staying with them made us learn more about them, than any read book could have taught us. The reason for staying with them was to get this inside perspective of the life of an elderly and experience how we could improve their living environment both architecturally and socially.

#### The in-depth research

After the fieldwork, I developed a certain interest, which I investigated further in the in-depth research phase. Coming out of the fieldwork, I could see that loneliness and the lack of use of shared spaces was an issue I wanted to further research, why I dived into the topics of shared and private spaces, Being alone and being together, the benefits of interaction and much later on also into the topic of flexibility. I used different methods like literature, case studies, further interviews and more fieldwork to broaden my knowledge

and to create a stable foundation for the following design. As I had found the interest in private and shared spaces as well as the loneliness or rather the wish for interaction, I continued my research after the fieldwork by investigating literature and case studies to find out, how a shared space can spark interaction and how living together rather than living next to each other can positively influence the elderly's life. I started by understanding, what exactly a shared space is by looking into different literature and investigating how this space can be used. I also looked into the extreme of sharing space, which is Co-Housing and Co-Living, to see, whether sharing the direct environment, which is an apartment, can positively influence the loneliness and happiness of elderly. The case studies helped me to find positive and negative aspects of sharing spaces, which I investigated through walking through one of the projects and experiencing the living environment in the conversation with the architect (Centraal wonen, Delft). Other projects were understandable through comparing the floor plans or listening to interviews with the architects and reading articles about it. Looking at different typologies of buildings and neighbourhoods also helped me to distinguish between useful or rather hindering design elements and taught me that designing

barrier-free for elderly can be useful for everyone. Putting the floor plans and the amount of shared spaces of different projects next to each other, made me understand, which project works better than the other, offers more options for the residents or encourages even interaction.

More theoretical literature, which touched on other fields such as sociology, psychology and history helped to draw a bigger picture of not just the architectural aspects of an inclusive living environment.

I searched for different definitions and opinions from sociology as well as from urbanists and architects with a focus on people as the user of architecture to create a larger overview. It showed how architecture can not be a one dimensional profession, which only focuses on walls and windows, but rather needs to be open to perspectives from other subjects, like sociology, anthropology, psychology and many more to create a coherent and especially suitable environment for people. This in-depth research led to design guidelines, which helped in the design phase to give a clear direction, where I am heading. After finalizing most of the research, I decided to choose Delft Tanthof as my site, as I liked the neighbourhood, its existing community and the possibility of designing both on urban and apartment level.

### The Site

Before visiting Tanthof for the first time we had an on-line meeting with employees of the municipality of Delft, who explained us the general Blomkol-structure of the neighbourhood and told us more about the population and building types. After choosing the site in Delft Tanthof, we wanted to broaden our knowledge about the neighbourhood, why we started by walking around in the area, seeing the general structure of it and finding public facilities and bus stops. We experienced the neighbourhood, took walks around the site, documented situations through pictures, sketches and notes and developed a feeling how it is to live in this neighbourhood. During our first walk-around we also happened to meet one of the residents of the shared living complex ‚Centraal wonen‘, which we had found on-line before. He willingly answered us questions about the living situation there and introduced us to the architect of the project, who still lives in the complex. It was extremely interesting and helpful to talk to him, while he also showed us around and answered us questions, as well as giving us new material we could use for our further research. While walking through the complex and even talking to other residents, we could ourselves experience the built environment,

its advantages and also disadvantages, which we will be able to use for our future design.

Some time later we returned to the site with a survey, we had created as a group of five students. The survey held questions about general topics and more in-depth interests of each of us students. I wanted to know how much they value their privacy and whether they were willing to share any spaces with others or rather stay on their own. To receive a broader feedback from different generations, we did not only ask elderly, but people between 15 and 85 years old. We did not only gain new knowledge about the residents by letting them answer the survey, but also how they reacted to us. Some were happy to answer, some were annoyed by it. The survey helped us to receive an overview about the situation in Tanthof and helped us with our first concept for an inclusive living environment.

### The Design

As the essential part of the project is the elderly as the focus point, I now had to zoom out again to develop the urban planning of the neighbourhood. I wanted to make sure, the new complex would fit into Tanthof rather than stand out, so that the residents would accept it as their

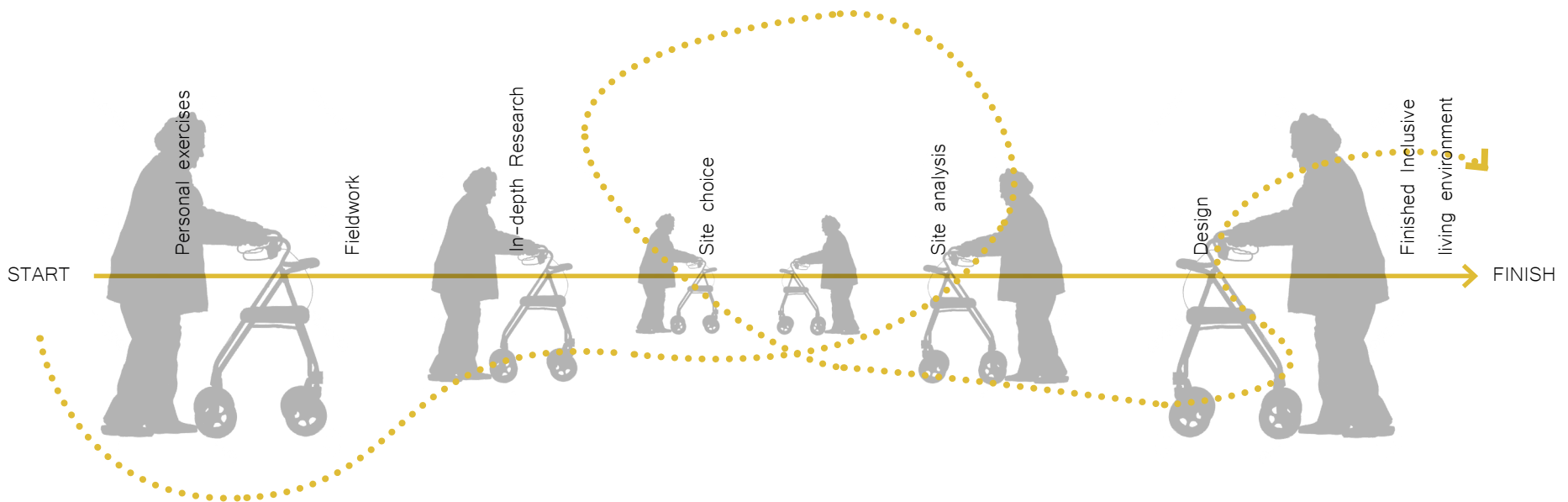
own and would be invited to live together rather than next to each other. By adjusting the dimensions and heights, as well as the facades of the buildings to the surrounding, the new project fits in. For the next steps of the design it was barely ever a linear process, but rather going back to the urban part and jumping forth into the apartments or the care aspects. By keeping the design guidelines always at hand, every decision had to be fitted to these to make sure, the new living environment fits the needs of the elderly. By looking back into certain case studies, new ideas evolved for the apartments or certain spaces. During the weeks of designing, I still looked for case studies, for materials, for forms of living together, which I turned into a combination for my inclusive living environment. The goal for my inclusive living environment was to encourage elderly to share time with each other and other generations, to not feel lonely, but rather part of a community and to make it futureproof. It was important to me, that there are always choices provided, so no one will be forced to live in a certain way, but rather have the ability to choose from different options, both for the architectural and social aspect. My project "Together through Flex-Housing" opens up possibilities for adapting the housing later on, gives elderly the

opportunity to live normally and for as long as they want. As my design is only a theoretical project, you can never fully say, if it would work in practice, but I am confident, that the immense flexibility opens up a large field of possibilities for future projects.

#### The Planning

As the design is now almost complete, the next weeks will help to draw one complete picture of the project. I want to show the actual use of this inclusive neighbourhood, by presenting the design not only in plan and section, but also in axonometric views, visualisations and sketches. I want to bring the project to life. The next weeks will be spent on finalizing all drawings, adding the last details to the project to produce one clear story. I will make sure that all loose ends will be tied together, so that the fieldwork, the in-depth research and the actual design do not stand next to each other but are bound together.

# PROCESS



Elderly as main focus point  
Process of going back and forth



# REFLECTION

## FEEDBACK. POSITIONING

### Feedback from Tutors

My tutors Birgit Jurgenhake, Marieke Berkers and Lex van Deudekom made sure, that everyone chooses the direction of his or her project themselves without pushing them too hard in a certain direction. I felt encouraged to proceed with my interests, while they just made sure, that we broaden our perspective by investigating the aspect from a different viewpoint or investigated from another discipline. They made sure, we students helped each other by showing their different viewpoints, which encouraged us to dive deeper into certain topics to add more dimension to a subject. Having the possibility to talk to the mentors once a week also helped to overcome certain struggles, like being stuck with one specific part, as they brought in a new idea, you had not thought about before. They helped us to broaden the view again and see, that architecture is not an one-disciplinary field, but rather touches upon many fields such as sociology, economy, politics etc. They also encouraged us to enjoy our work, which sounds like an easy advice, but helped to become more expressive and playful in our designs.

### What I learned

This project was the longest project of my study life so far, as it almost lasted a full year. The practical approach of the studio with the visit of an elderly home and other practical exercises encouraged me to dive deep into the topic of the studio and encouraged to envision this project more than others before. This intense approach taught us more in a couple of days than theoretical research could have ever done in months, which I really appreciated. The intense research phase afterwards opened up my perspective on the topic of how we should design in the future for elderly, but also for residents in general concerning not only aesthetics and affordability, but also especially looking at the social aspects of my design.

### The relationship between Research & Design

The research has been the essential foundation for the following design. The design guidelines, which evolved out of the research followed me like a Mantra, which I always had in mind while designing. The idea was to recognize these guidelines on every scale of the project. One of the guidelines was the provision of choice through flexibility, which you can find at many different parts of the design: in

the building with a public function (used for sport activities, choir practice, theatre plays, general gatherings, etc.), in the apartment sizes and residents. It also becomes visible in the balconies of the apartments, which can be used alone or together with others which also counts for the piece of furniture in between.

Both research and design were not a linear process, but rather going back and forth again and again, looking back at the very beginning of the research, reading again, what had led me to these decisions, but always with the target group, the elderly in mind as the essential part of the design.

### Topic of project & Architecture generally

The studio “Designing for care” taught me to focus on the most important aspect of architecture, which is the person, the actual future user of the built environment. What should be quite obvious, often becomes of secondary importance nowadays, as other aspects receive more attention. The approach of practical experience in the beginning of a project should always be the starting point, but is hard to achieve in practice. To be able to do this during our study was a privilege, which turned us somehow into experts concerning this field, which can always be helpful in the future. The

things we learned can definitely be helpful for the profession of architecture, but could also help the health sector, the caregivers to enjoy their work more or to work less exhausting hours, as informal care systems would take pressure away from them. As a large part of the Dutch society already consists of elderly, many areas could benefit from creating inclusive living environments instead of separating them from other generations in nursing homes.

## POSITIONING

### WITHIN ACADEMIC DEBATES

Visiting projects by famous architects, which are meant to be a monument or a sight in a city, often gives me the feeling of being out of place. It feels like the space has lost the sense of the person who is using it, which is odd, as architecture should always firstly evolve around the user. This studio started not from the large scale, but from the smallest scale, the user – the elderly. Walking a mile in their shoes through different exercises, living together with them for some days and talking to them eye to eye was a fully different approach to the start of a studio than ever before in my study years. We did not only focus on the architecture, which surrounds the elderly, but focused on their behaviour, their feelings, and their wishes. Trying to stay fully neutral and not judgemental about different topics helped us to draw a fuller picture of their situation. As this approach is not fully new to architectural research, I investigated the books in my literature list to find out, who worked in a similar way in the past to find more and maybe other methods to approach the topic.

Christopher Alexander in the book “A Pattern Language” (1978) has an interesting way to investigate different ‘patterns’ by stating the problem first, discussing it with an image or an illustration and then giving a solution, which

in the end results in a language, which can be used for almost any scale of a project in architecture. The way he does that, could be helpful for the Designing for Care studio, as it is similar to the build-up of the studio and helps you on different scales. Organizing your research this way, would give a clear structure and definite answers, but was a little too strict, as he mostly only states one solution for a usually broader problem. In chapter 21 he talks about the four-storey limit, which should provide the connection to the ground and the surrounding with all the residents. Thinking of cities today, this might be aspirational, but barely possible concerning the size of the population. Generally stating one problem and then finding an answer to it, can give a definite answer, but you must consider, that it is not applicable to every city, culture, and neighbourhood, as it always depends on the context. Keeping things different and approaching it in different ways, also provides changes and intriguing architecture.

The urbanist Jan Gehl focused on the public life in cities in his books ‘Cities for people’ & ‘How to study public life’. He openly showed the methods, he used, to understand how people use the public space of a city and wants to teach different ways of understanding and designing useful

and enjoyable spaces. By showing photographs of the city life and analyses of routes or distances, he makes you understand, how important certain design elements and sizes are. By linking maps with timelines, classifying categories of activities or users, he makes his book understandable and a helpful guideline for designing cities.

By not only using architectural methods, like maps, plans or photographs, but also methods from different fields such as sociology or psychology he is able to draw a larger picture of a situation and also shows how relevant cities are for the whole society.

The urbanist Ali Madanipour provides analytical insights in his book “Public and private spaces in the city“, where he uses elements of psychology, philosophy, sociology, anthropology and history to explain different spaces and the transition from one to the other. By interlinking these fields he creates a broad and understandable picture of cities. By using concrete examples of projects, literature or images, the topic becomes clearer and makes it interesting for people from different backgrounds. The book holds rather theoretical information and does not include a lot information about the physical shape of public and private spaces, which I emphasized on in my design.

## FIELDWORK

## INTRODUCTION LETTER

To let the elderly know about our visit, we sent them an introduction letter with a description of our research topic and interest.

Beste bewoners van de boomberg,

Wij, Anotnia, Marijke en Veronique, zijn drie bouwkunde studenten van de TU Delft die hard op weg zijn om architect te worden. Dit jaar gaan wij namelijk afstuderen. Wij doen onderzoek naar het ontwerpen van een inclusieve samenleving waar iedereen zoals ouderen, families, studenten, kinderen kunnen samenleven. Om meer inzicht te krijgen hoe mensen van verschillende leeftijden wonen, zijn wij uitgenodigd om voor 5 dagen bij jullie op bezoek te komen. Zo kunnen wij meemaken hoe het voelt om te wonen waar u leeft. Wij kijken er naar uit om jullie te ontmoeten, maar eerste stellen wij ons nog even voor:



Antonia  
24 jaar

Ik ben 24 jaar oud en ben opgegroeid in Duitsland. Tijdens mijn studie heb ik mijn bachelor in München gedaan en doe nu mijn master in Delft. Omdat ik geïnteresseerd ben in de Nederlandse architectuur en doordat ik een nieuwe taal wilde leren, ben ik naar Nederland gekomen. Tijdens het afstuderen wil ik een betere woonomgeving creëren voor iedereen van elke leeftijd. Het is geweldig dat wij langs mogen komen bij jullie om een nieuw perspectief te geven en meer te leren over het dagelijks leven. Ik zou het geweldig vinden als iemand Engels of Duits met mij zou kunnen spreken omdat mijn Nederlands nog niet zo goed is. Ik ben benieuwd naar jullie levensverhalen en hoe jullie het vinden om in een zorgomgeving te wonen. Ik hoop dat jullie ons uit kunnen leggen wat je prettig en niet prettig vindt aan jullie woonomgeving en dat wij tot nieuwe inzichten komen.

Aarzel niet om ons aan te spreken! Als jullie vragen hebben over ons of waar wij mee bezig zijn dan zullen wij deze met liefde beantwoorden.

Wij kijken er erg naar uit om jullie over een week te ontmoeten!  
Groetjes, Antonia, Veronique & Marijke



Veronique  
25 jaar

Graag stel ik mij kort voor: ik ben Veronique Le, 25 jaar oud en ik kom oorspronkelijk uit het verre Maastricht. Sinds twee jaar studeer ik aan de Technische Universiteit Delft. Waarbij ik net ben begonnen met het afstudeertraject. Mijn onderzoek is voornamelijk gericht op de bewoners, daarom kijk ik er erg naar uit om mee te maken hoe uw dagelijks leven eruitziet en wat uw mening is over uw woning/omgeving. Naast mijn studie sta ik het liefst in de keuken en hou ik van lekker eten. Het lijkt mij erg leuk om samen een hapje te eten of een kopje koffie te drinken in de 5 dagen dat wij er zijn!



Marijke  
25 jaar

Mijn naam is Marijke Blom, 25 jaar en volgende week mag ik 5 dagen jullie buurmeisje zijn. Tijdens afstuderen houd ik mij bezig met woningen waarbij iedereen welkom is en fijn woont. Om meer te weten te komen over hoe (ouderen) mensen wonen, komen wij langs. Graag zou ik jullie beter willen leren kennen om zo een beter beeld te krijgen én natuurlijk voor de gezelligheid. In mijn vrije tijd bak en kook ik graag (en het opeten niet te vergeten) en speel ik gitaar en zing. Ik ben ook altijd in om samen een spelletje te doen of om samen te sporten. Ik heb er zin in om samen dingen te doen.

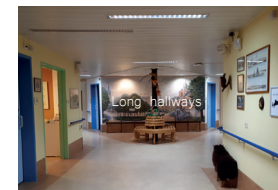
# FIELDWORK

## CARE HOSPITAL 'GOOIZICHT'

Gooizicht (1972) is a low care hospital, built in 1972. It has long hallways and at the short side a living room. It is a combination between living and care. The ground floor is for the offices and physiotherapy. The top floors are of the departments. Nowadays they would like to change the division, so the less mobile people on the ground floor. But since the floor plan it is hard to change the layout. The floor plan is not flexible. There are three departments with in total 140 apartments. The rooms are divided in single rooms (20m<sup>2</sup>) and double rooms (35m<sup>2</sup>). We had a guided tour on the three apartments. They indicated that sharing a sleeping room or bathroom is definitely not preferred. All furniture must comply with the Working Conditions Act (Arbowet) and is paid by the government. This ensures that the rooms of the residents give little identity. Half of the Netherlands (50,1%) is overweight, with 15% severe obesity. Compared to 1990 this was 33% with overweight and 5,5% with severe obesity.<sup>1</sup> In Gooizicht they have new technology for people with obesity. There is a ceiling lift so they can easily move a person in the room,

1 Volksgezondheid. (z.d.). Overgewicht | Cijfers & Context | Huidige situatie | Volksgezondheidszorg.info. Geraadpleegd op 23 oktober 2020, van <https://www.volksgezondheidszorg.info/onderwerp/overgewicht/cijfers-context/huidige-situatie#node-overgewicht-volwassenen>

	De linde	Eekhoorn	De Beuk
TYPE CARE	Somatic care	Psychological care	Geriatric physiotherapy care
ROOM	Single room (20m <sup>2</sup> )	Single room (20m <sup>2</sup> )	(most) Double room (20m <sup>2</sup> )
RESIDENTS	23 residents	19 residents with one crisis bed	25 residents
BATHROOMS	4 bathrooms	4 bathrooms	4 bathrooms
DURATION	?	1 year	30 days
STAFF	Morning 5 Afternoon 3 Evening 1	Morning 5 Afternoon 3 Evening 1	Morning 5 Afternoon 3 Evening 1



Gooizicht by Marijke Blom

this saves time and is not physically heavy for the nurses. But there is now only one ceiling lift for one room in the whole building. If another person has obesity, the room is taken and the nurses should use a less practical elevator which causes more back problems.

## WEDNESDAY

## COFFEE MEETING AT BERGSTAETE

Elderly invited us to join their coffee meeting, which only happens every 6 to 8 weeks - people were happy to talk to us, very inviting and welcoming - we asked them to join the dinner in the evening, which most of them did.

## TALK / CONVERSATION WITH LENI

Afterwards on of the elderly invited us to see her apartment, talked about her dead husband, about her apartment, her grandchildren

## TALK WITH PETER BOERENFIJN

Peter came by and we talked about our experiences so far

## DINNER WITH 22 ELDERLIES

22 people showed up, all were excited about the dinner we introduced us, asked them to introduce them with their name, hobbies and how long they have been living here We prepared 3 different dishes and asked 3 questions inbetween

1. What is your favourite place in your living environment?
2. What do miss here?
3. Choose 3 things which are most important to you in your living environment!

## THURSDAY

## INTERVIEW WITH JOSEPH

he was really friendly from the beginning, offered us a bed, blankets, a fridge, a shelve etc. Willingly to share a lot of information

## INTERVIEW WITH ANNETT

Joseph asked her to talk to us, she agreed She was open to share, but also got emotional

## DISCOVERING THE NEIGHBOURHOOD ON MY OWN

I walked around in the neighbourhood and discovered obstacles, distances to essential shops

## INTERVIEW WITH THEA

invited me to her home in Bergstaete talked a lot about her former work as a midwife does not feel at home in her apartment

## SPONTANEOUS DRINKS WITH JOSEPH

Joseph called and we sat at the Bar room in the Livnn, drank wine, switched on the juke box and talked mostly about music

## FRIDAY

## COFFEE IN THE LIVINN

we drank coffee and because the hairdresser was open, many people passed by and drank a cup with us or stopped for a small conversation

## INTERVIEW WITH COR (WE WERE INTERVIEWED)

Cor asked us questions about what we did and what our plans are to write that down in the newspaper he writes for Habion afterwards he showed us his aprtments

## GOOIZICHT

Peter organized, that we could have an 1 hour long tour in Gooizicht to see different departments of an actual care facility

## INTERVIEW WITH WIL

Thea's half sister Wiltrud invited us to see her apartment, which she really likes and offered us tea and many answers

## TALK WITH GERRIT

We returned our keys to Gerrit and talked a bit in his apartment

# FIELDWORK OBSERVATIONS

## OUTCOMES FROM THE QUESTION DINNER

### What is your favourite place?

- > many of the residents are still quite active, as most of them enjoy being in the surrounding.
- > many answered what they used to do - therefore less active
- > living environment becomes smaller

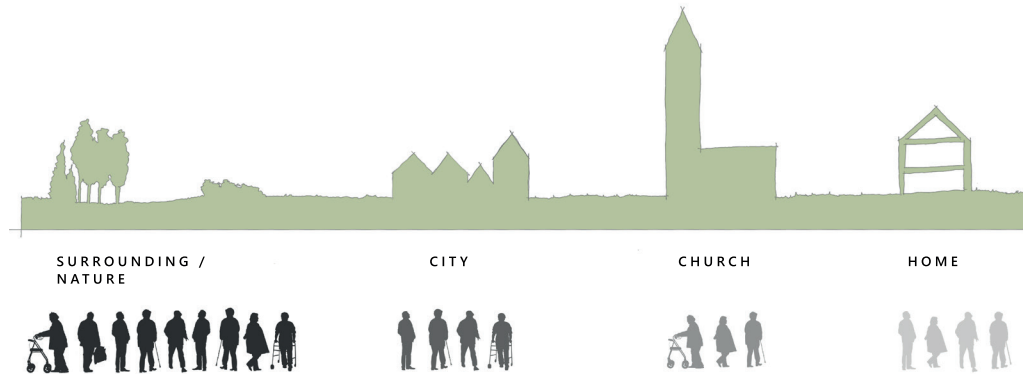
### What do you miss here?

- > many different answers
- > many did not wish for anything - were happy
- > accessibility and resting places very important

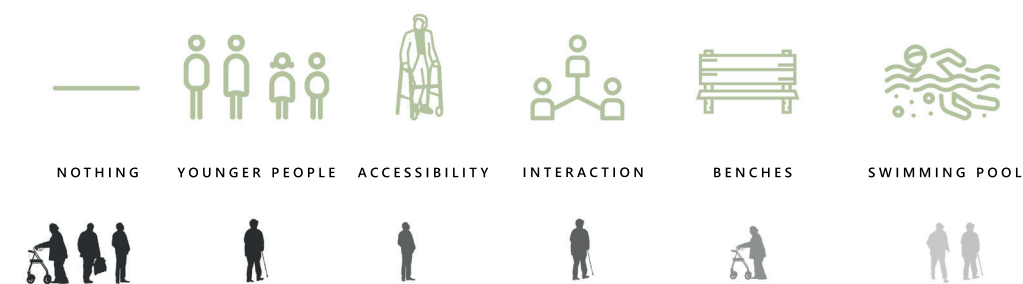
### Name the 3 most important things to you:

- > very individual answers
- > difference in scale (book vs. family / nature)

What is your favourite place?



What do you miss here?



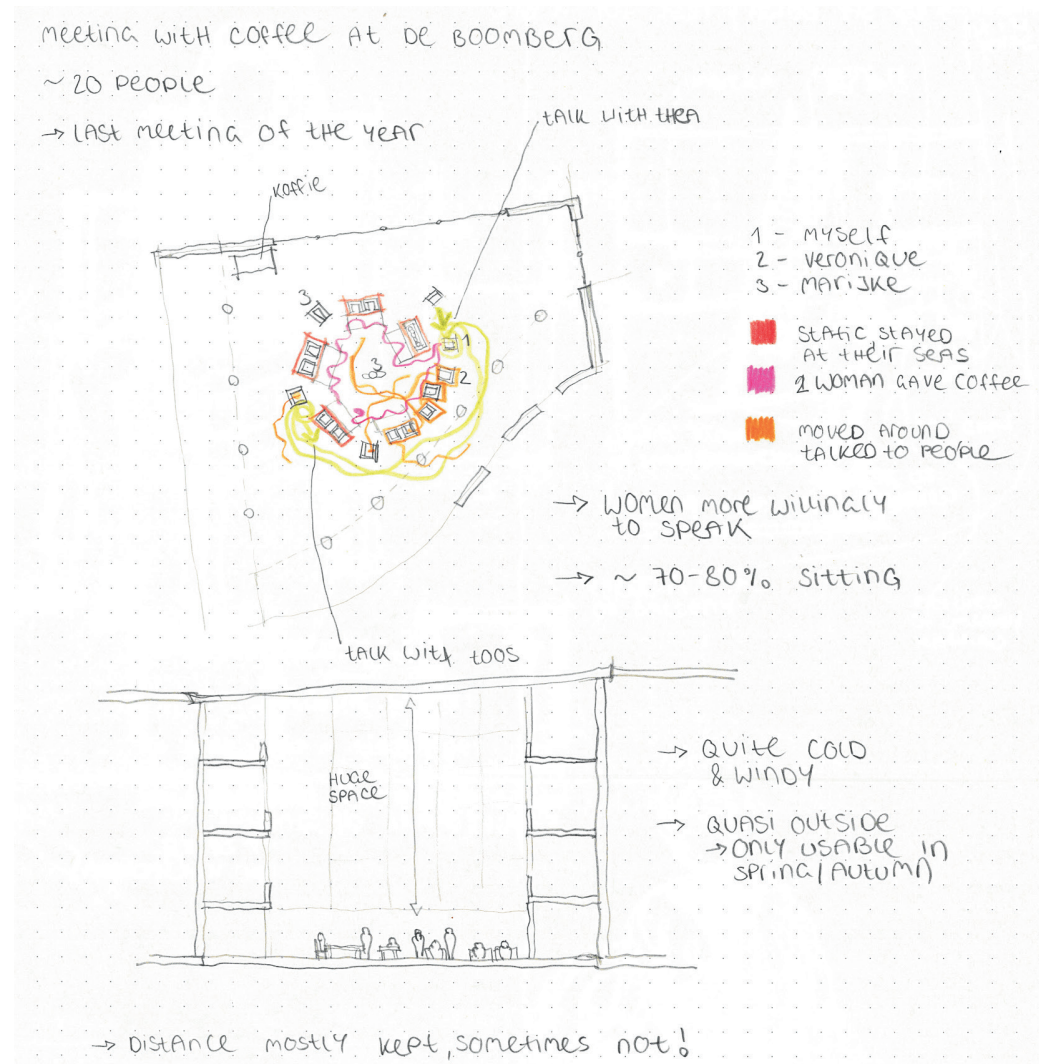
Name three things, which are most important to you!



## THE ELDERLY AS SOCIAL BEING

### COFFEE MEETING AT BERGSTAETE

The residents invited us to join their coffee meeting, which happens every 6 to 8 weeks in the common room of Bergstaete. They asked us to bring our own cup, which the residents brought as well and join them at 10am. As many residents participated in the gathering, we struggled first to enter the building, as the front door is usually closed for visitors, but after that we followed the sound of chatting and found the common room on the first floor of the building. The gathering itself is organized by some of the residents, who bought a large coffee kettle to be able to serve about 20 people. They also offered tea and many residents brought cookies, which were happily shared. The spacious common room in the middle of the apartments gave plenty of space for everyone to keep the 1,5 meter distance, which not always remained during the meeting. The common room's height stretches over three floors and has a generous glass facade, which gives enough light, but makes it impossible for the residents to gather there during the winter and the summer, as it is too warm or too cold during these seasons. After introducing us and the project we are working on, most of the residents were willing to share their experiences.



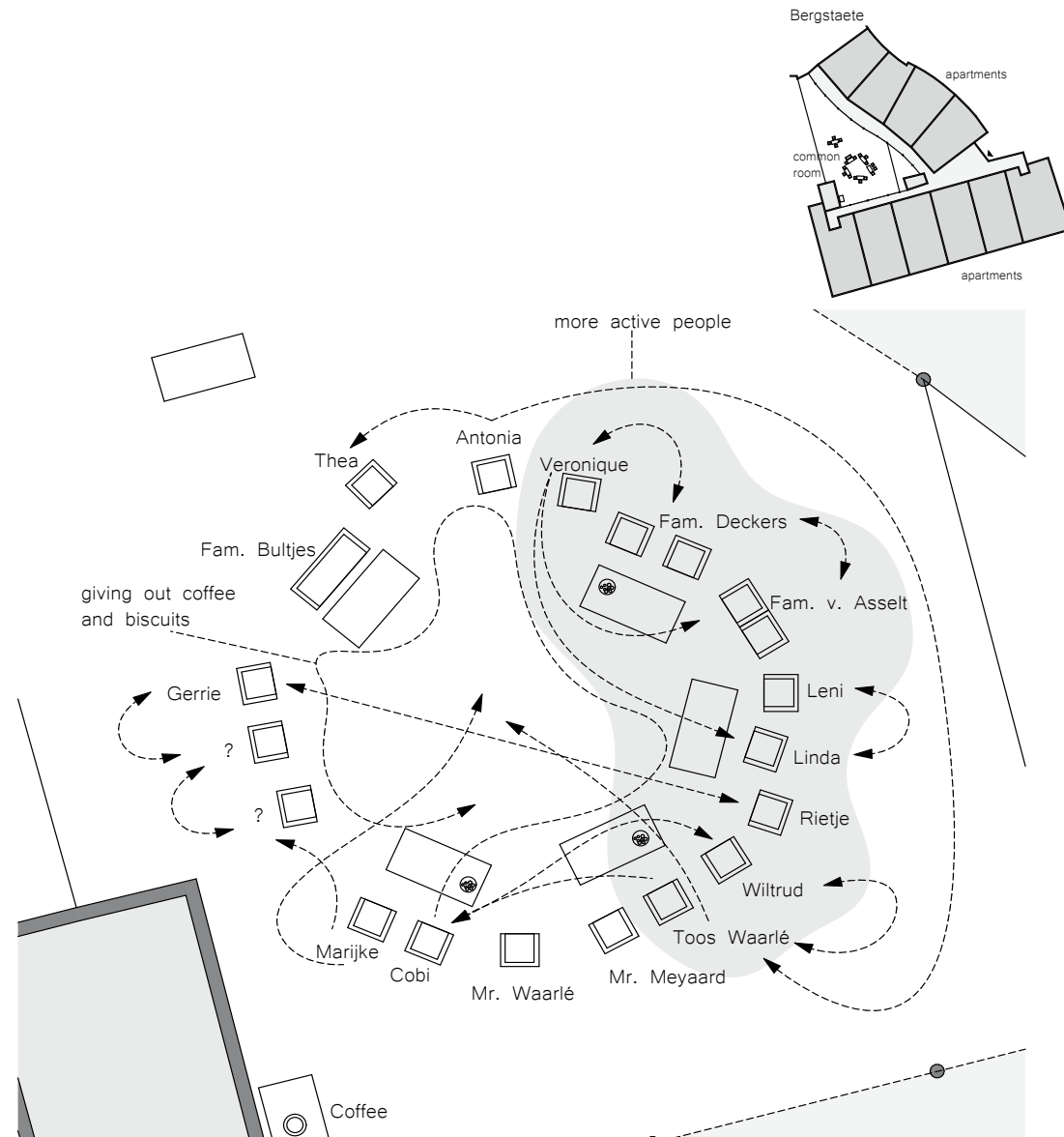
- > residents were willing to share their experiences
- > excited for new experiences
- > happy to participate in the coffee meeting with other elderly



# THE ELDERLY AS SOCIAL BEING

## COFFEE MEETING AT BERGSTAETE

Toos Waarlé, one of the residents, organised the coffee meeting, introduced us and walked around a lot, whereas Marijke introduced us and the project in the beginning. You could clearly recognize one half, which was more active, walking around, talking to different people and on the other side more passive participants, which stayed rather on their own and talked only to their direct neighbours. Family Deckers was quiet, but conversation started after being asked, whereas Mr. v. Asselt did not like the coffee meetings. Leni & Linda are direct neighbours, but Leni is talkative, contrary to Linda who was constantly looking around to make contact to others. Leni walked around and talked to many different people, once asked for a pen to write down a name of another resident, she forgot. Family Bultjes stayed mostly on their own, did not talk much to others. Cobi made sure everyone had coffee and cookies, walked in rounds and barely stopped. The general mood was comfortable, the residents were open to share their experiences in the building and interested in our research. We used the gathering to invite the residents to the question dinner in the evening, which most of them signed up for.



-> every elderly has a different personality

## FIELDWORK

### INTERVIEW WITH JOSEPH

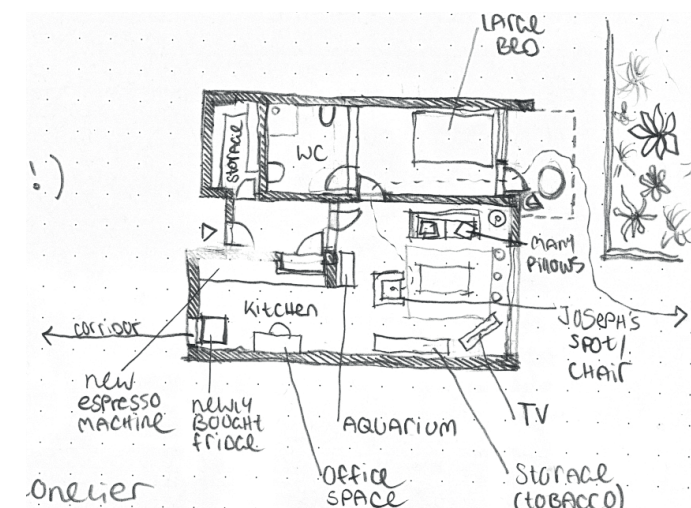
- very inviting (cooked dinner for us and lend us a fridge, cupboards and an inflatable bed for the empty apartment we slept in)
- Joseph is originally from Maastricht, which he considers a city, whereas Hilversum is too small to be called one
- There is no strong community in De Boomberg
- Before Habion renovated the middle part of the building complex, he liked to go to the former restaurant to be in contact with younger people, who also ate there - now this is not possible anymore
- He likes to keep himself busy, as the Corona situation makes people feel lonelier than before
- Before the pandemic happened, he had a more intimate feeling in the building
- he loves music, especially Disco music and Donna Summer, as he worked in that field when he was younger
- When asked about sorting five categories by importance this was the result: Neighbourhood - Apartment - People - City - Building (first most important)
- He likes to stay outside a lot (he is

in the Garden comittee of the Flank)  
--> *we walk outside to the garden*

- The garden right now is only used by the residents, but is meant for the whole neighbourhood in the future for gatherings
- meets often with friends (large social circle)
- inside the Flank, the building complex, he would only consider 2 residents as his friends, as most of the residents are a lot older than him and are not as active anymore
- he talks about the LivInn, where a hairdresser, a physio-therapist and a doctor will come to bring life into the space his favourite place in his living environment is his apartment and the adjacent garden, where he feels most at home



On Thursday night around 9 he calls us to ask us to drink a wine. He struggles to find us first, but we end up picking him up from the entrance of the Flank and walk over to the LivInn, where we sit down in the bar, drink red wine, switch on the music box and talk about music in general. He really enjoys the room and the different objects around him and is reminded on different songs and concerts in the past. He gets really excited about that and asks us, whether we still know these artists. He is also interested in contemporary music and surprises us by knowing Miley Cyrus, Drake or the german artist Helene Fischer.



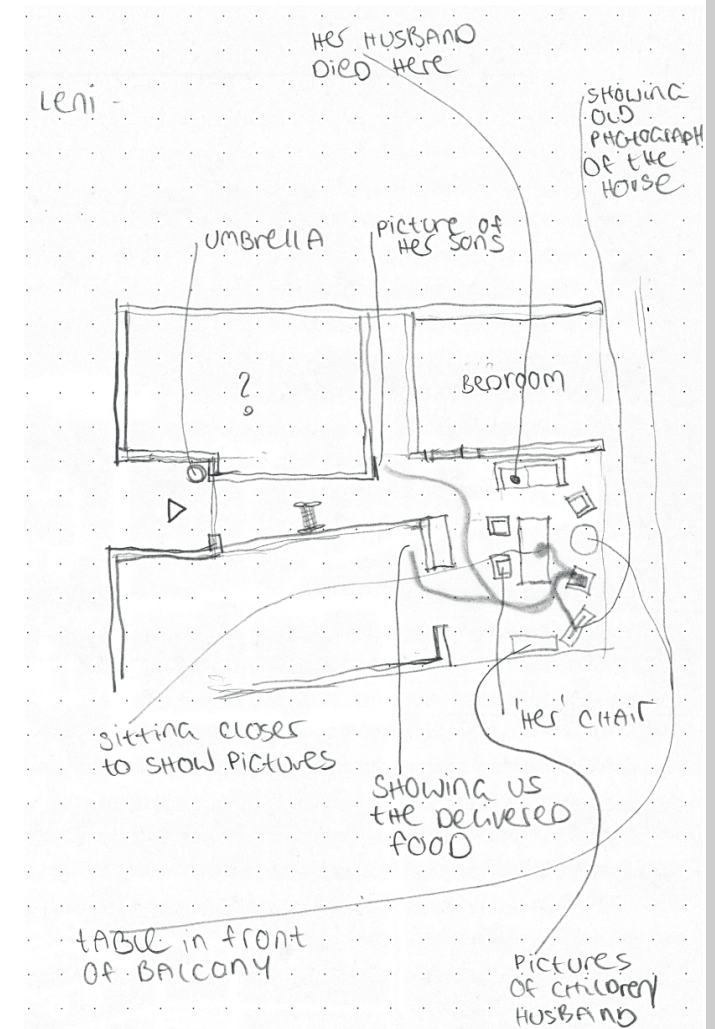
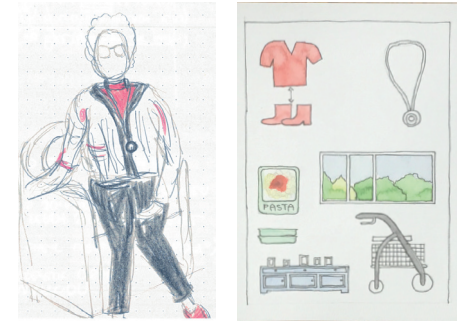
## FIELDWORK

### INTERVIEW WITH LENI

She invited us directly after the coffee meeting at Bergstaete to come inside to her apartment and showed it to us proudly.

- She has been living here since 17 years, one of the first residents in Bergstaete - she showed us pictures from the construction site of the building
- She likes to stay active, has a fixed bike in her apartment to train her muscles and joints
- 2018 her husband died in her apartment on the couch
- Out of fear the same thing could happen to her, she wears a emergency button around her neck
- She has a cupboard, where she portrays all her relatives in pictures (5 grandchildren and her passed husband in the middle)
- she is originally from Utrecht
- She usually orders her food every week, they deliver it every third day packaged and ready to be warmed up

During the dinner she introduced herself with her age, that she lived here for 17 years and that she is a widow, since her husband died in 2018. During the different questions, we asked during the dinner, we saw her writing down answers, but later noticed, that she had ripped it out. Veronique asked her later about it. She said, that religion and church is really important to her and she wrote that down, but was afraid, that we might read out the answers loudly. As she is physically limited, she can no longer go to church every sunday and did not want to be seen as a liar or be laughed at, because of her answer.



## FIELDWORK

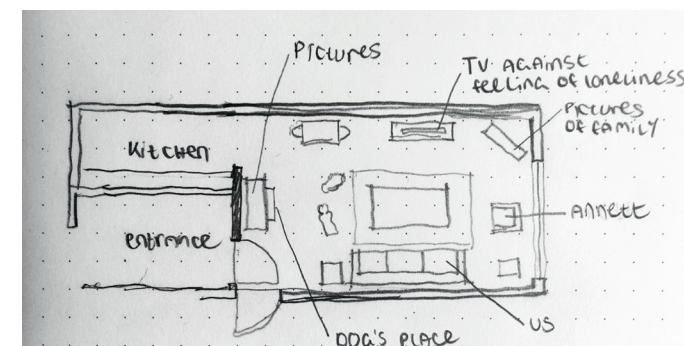
### INTERVIEW WITH ANNETT

- Annett has been living here for 6 years
- in the beginning she tells us, that the water and ventilation system, as well as the elevator is often broken in the house
- she has two small dogs, which are sometimes too heavy for her to carry around
- she thinks her apartment is a little too dark, as the trees in front of the window take away most of the light
- she is one of the youngest people living here, was shocked when she saw the future of her own aging in the older residents (elderlies walking around dependant on walkers, not being able to do anything actively anymore)
- she knows the typical nursing home, because her mother was in one, they entertained them in weird ways - someone played piano and they should sing along, they were dressed with sombreros -> because of that for her her independence is really important
- the ‚Familienkamer‘ in the LivInn - she thinks it is a good concept, but the name should be overthought - it is usually a place, where the family unites at a funeral

- she does not consider their building as a community, she only knows little things about her neighbours and they only say ‚Hello‘ to each other
- the community is always dependant on individuals, she is not sure, whether gatherings would help with that
- she is always friendly and treats everyone with respect, which she expects from others as well
- she is insecure about doing new activities, as she is suffering from Arthrose, which makes many activities hard as well as her legs hurt after standing too long
- she is in contact with Ank, a Habion employee, who tries to make her participate in different activities, but she does not want to
- Her apartment: she needs all of the space she has, it could even be bigger
- it is really important to her to bring her own furniture, her personal belongings
- for her going to a care facility should not be ‚the End‘, but still a nice space, where you spend your last years at
- she likes to spend her time by decorating her apartment

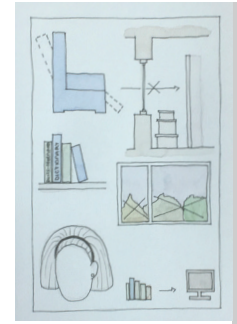
- she spends a lot of time in front of the TV, which she names her favourite place, as she likes the sound around her
- she feels really lonely --> *starts to cry*
- her working past: she owned different restaurants in Aarnhem, Amsterdam and Utrecht
- she does not read as much anymore as she used to
- she gets really emotional about getting older and talks about the limitations she experienced because of sicknesses and operations (kidney surgery was a scary situation for her)

Her living room is decorated in light colours (white, greyish, rosé colour scheme) and all her furniture fits well together. Additional plants, family pictures and her dogs running around make the apartment her own.



# FIELDWORK

## INTERVIEW WITH THEA



Thea approached me at the coffee meeting, as she speaks German and English well. She was interested in our project and was willing to share her experiences living here.

- She used to live in Amsterdam and has a smaller apartment now in Bergstaete, which she does not really like and is considering moving again
- She used to have another apartment in Hilversum, but the children living close to her were too loud for her
- She generally still likes the idea of having mixed apartments with students and families, as long as everyone watches out for each other and for example parties happen somewhere else

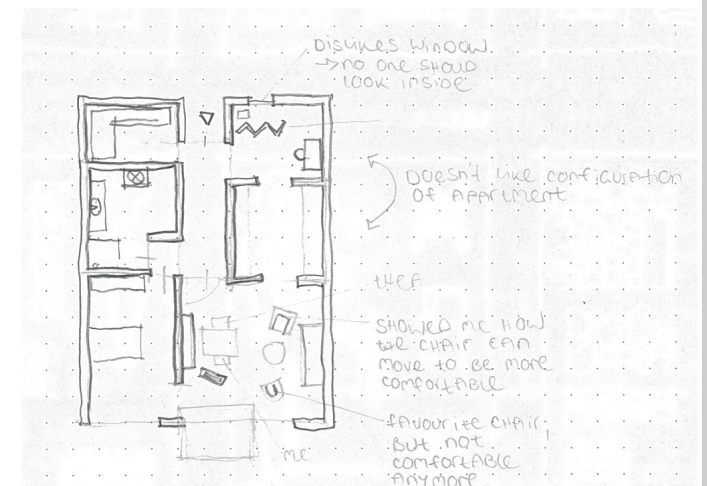
She invited me for the next day to come to her apartment and have an interview with her - at her apartment she prepared tea and cake for us as well as a dictionary to look up words

- Thea is now retired and has a stepsister, who is 2 years older and lives on the same floor as her
- She talked about belonging to the middle class, which is the most important part of society She was used to work hardly as a midwife
- When she was younger she was really social, now not

as much anymore

- Her bathroom has a good size for her - no bathtub needed
- Her bedroom also has a good size, but she is not happy about the general configuration of her apartment
- She wants to have a seperated kitchen, it is not supposed to be open and she does not like the small office space next to the entrance
- Her favourite place is a church in Amsterdam and she generally enjoys going to Amsterdam for different activities. She would not want to live there anymore, as it lost its charme because of its tourists
- When asked about sorting five categories by importance this was the result:  
1. People 2. Apartment 3. Building (-safety) 4. Neighbourhood (Quiet) 5. City (train, bus, etc.)
- Hilversum is really quiet - completely different mentality - people are less open, more introvert
- There is no community in the building (people from Hilversum 50%, other origin 50%) residents say ‚Hello‘ and general polite things, but they are not friends

- no chance of mentality at that age anymore - hard to adapt
- the coffee meeting every 6-8 weeks is often enough for her
- She stays busy with activities from the ‚Seniorenvereniging Hilversum‘ (concerts, lectures, coffee meetings)
- She thought she would get used to the apartment, but has not happened yet
- She has a friend from the beighbourhood, she met because of a shared route to the church



## FIELDWORK

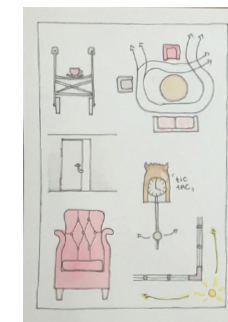
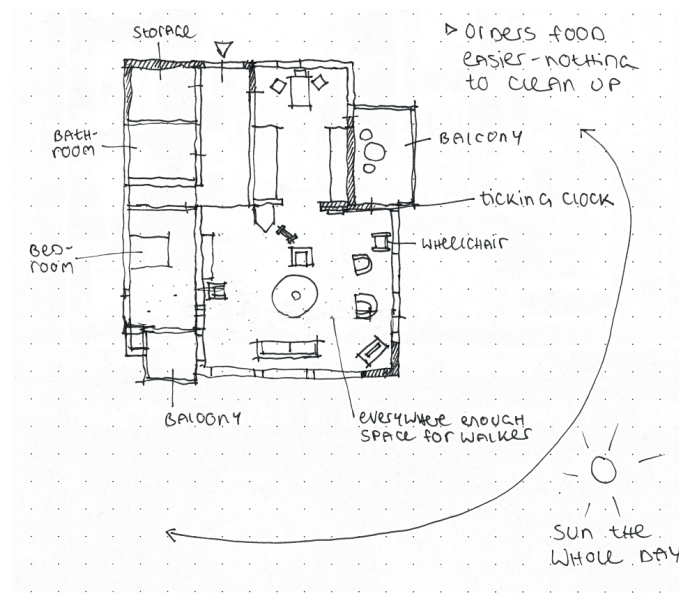
### INTERVIEW WITH WIL

Wil approached me at the LivInn on Friday and wanted us to see her apartment, as we already saw her stepsister's apartment on the day before (Thea). At her apartment she is wearing a silver chain necklace, a cardigan with colourful details and simple black shirt and pants. She is also wearing a gold ring and has her walker always close by, with which she also transports her cup of tea

- She lived here for about seven years, so longer than her sister Thea
- Her husband had Alzheimer but died a few years ago
- She usually orders food, as that is easier to clean up
- Her usual day looks like this:  
7:30 wakes up & takes a shower  
9:45 her son comes by, who lives closeby
- Afterwards she has a physiotherapist appointment or a coffee meeting, where she heads to with her walker
- Every friday she goes to the hairdresser in the LivInn
- Every saturday she meets with friends at a cafe, they call themselves the ‚Bitterballen Club‘
- Sundays she goes to church with her scootmobil
- She spends dinner with her sister, which she really enjoys

- She has 2 sons and 1 daughter
- She is proud of her apartment and enjoys spending her time here.
- The best thing to her is that she has sun the whole day, as her apartment is at the corner of the building and is almost fully glazed

The apartment is generously furnished, as Wil always needs to be able to walk around with her walker. Between every chair, wall and other furniture piece, there is always enough space for her to walk around.



Antonia Bohn  
June 2021

