

MASTER

Stimulating homemaking

stimulating the feeling of home in the future nursing home

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Stimulating Homemaking

**Stimulating the feeling of home in the
future nursing home**

**Master thesis
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**Stimulating Healthy Environments
Master Architecture, Building and Planning
Eindhoven University of Technology**

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How can preconceived associations from elderly towards the typology of a nursing home be used to increase adaptability in order to stimulate a feeling of home?

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Keywords: Adaptability, preconceived associations, nursing home typology, feeling of home, physical environment

ABSTRACT

Works of design and architecture tell us certain moods that they seek to encourage and sustain in their inhabitants; negative or positive associations with a certain environment or style makes you judge the expressions instead of the actual product (De Botton, 2007). When it comes to home for the elderly, this turns out to be problematic; the residents' building preferences as inferred by designers have been shown to be very different from those that are actually held (PARKER et al., 2004). This research visualized the results of a literary research of the improvements and requirements of the architectural aspects of a nursing home. This is done in order to implement them in the typology of future nursing homes and hence helps them to stimulate residents to feel at home in a nursing home. The notion is that the sense of well-being of residents increases when the environment has a non-institutional character (van Leimpd et al., 2009). Findings from literature have been re-designed into three alternatives which are evaluated through a series of qualitative interviews with residents of two different nursing homes. The conclusions from the interviews resulted in specific preferred applications of the literature. As these however just focus on one solution, the paper concludes with a case study in which they have been applied in design elements with a bigger scale in a nursing home.



Research





HOME

1. Introduction

The reason for moving to a nursing home is often a rite of passage. A major event leads to an impaired mental or physical condition, which allows an elder not only to become more aware of their own vulnerability, often it also turns out that the required personal care is hardly possible in the current home. Then, usually, the move to a nursing home takes place. Taking advantage of the scale of care homes for intensive care often means that they are quite bulky. The size, the clinical character and a lack of privacy ensures that nursing homes are often perceived as institutional and stigmatizing (Jonker, 2016). Non-institutional environments characterized as having homelike or “enhanced” ambiance (personalized rooms, domestic furnishings, natural elements, etc.) are associated with improved intellectual and emotional well-being, enhanced social interaction, reduced agitation, reduced trespassing and exit seeking, greater preference and pleasure, and improved functionality of older adults with dementia and other mental illnesses (Day, Carreon and Stump, 2000). However often, psychological needs such as privacy and dignity are dealt with as care issues, rather as building features, which promote or facilitate them (Parker et al, 2004). When it comes to a home for the elderly, this turns out to be problematic; the residents’ building preferences as inferred by designers have been shown to be very different from those that are actually held (PARKER et al., 2004) This thesis tries to provide guidance towards the design of elderly homes in order to help them achieve a sense of home through a research on the preconceived associations towards these institutions.

By investigating the typology of nursing homes and the preferences elderly have towards it, they can be helped with their problem of adapting to a new environment. Looking back at figure 1, the transition from re-building a home to the feeling of home, this step consists of a large number of smaller steps which have to be taken in order to feel at home. Here, the goal is to help elderly decrease the amount of steps by avoiding any negative associations they have towards nursing homes and their typology. This is related to the broaden-and-build theory of positive emotions (Fredrickson, 2001; Salovey, Rothman, Detweiler, & Steward, 2000). As proposed by this theory, people who



Figure 1. The process of achieving the feeling of home.

2. Background

In 2011, a new concept of health was introduced: 'Health as the ability to and to self-manage, in the face of social, physical and emotional challenges (Huber et al., 2016). This concept, other than the one being used by the World Health Organization which only looks at the absence of disease (Andrews, Faulkner and Andrews, 2004), leads to new insights. According to this new definition, elderly can be diagnosed sick when they have troubles adapting to a new environment. As when healthy people move to a different home, they lose their connection to this, after which they have to re-build it (figure 1). To do so, they rely on their adaptability; a skill which sick, elderly, people lack or have problems with. As the goal is to provide guidance in the design of nursing homes, this leads to the question how the physical environment can contribute in the feeling of home. British philosopher Alan de Botton puts it in his book, *The Architecture of Happiness* (P72, 2007), as follows:

“What works of design and architecture talk to us about is the kind of life that would most appropriately unfold within and around them. They tell us certain moods that they seek to encourage and sustain in their inhabitants. While keeping us warm and helping us in mechanical ways, they simultaneously hold out an invitation for us to be specific sorts of people. They speak of visions of happiness. To describe a building as beautiful therefore suggest more than a mere aesthetical fondness; it implies an attraction of the particular way of life this structure is promoting through its roof, door handles, window frames, stair case and furnishings. A feeling of beauty is a sign that we come upon a material articulation of certain ideas of a good life.”

Thereafter, however, de Botton notes two problems. The first one is that the emotion architecture evokes can be highly overpowered and therefore lacks enforcement. Second, is that people have negative associations with a certain environment or style and therefore make a judgment on what it symbolizes, rather than it is (Botton, 2007). This second problem indicates the role architecture can have in achieving a sense of home when these associations are known.

Typology Problematic associations according to the problem statement

Identified design blocks of "the typical home" in the Netherlands



| | PRIVACY | CLINICAL CHARACTER | | LAYOUT |
|----------------------------------|---------|--------------------|------------------|--------|
| | | Cognitive support | Physical support | |
| Garden | | | | |
| Entry/Hallway | | | | |
| Living room & kitchen | | | | |
| Toilet | | | | |
| Bathroom | | | | |
| Bedroom | | | | |

Table 7

experience positive emotions more frequently are more likely to build a variety of resilience resources, such as environmental mastery and social support, which may help to overcome stress and induces a broader range of possible behaviors (Fredrickson & Joiner, 2002).

2.1 Research boundaries and methodology

As for most people, a nursing home is their last “home”, the general atmosphere should be like that (Nillesen and Opitz, 2013.). Therefore, the typology of a typical Dutch home is translated to the one of a nursing home and analyzed in such a way for this research. After outlining these design blocks, the general attributes on which they will be analyzed and data will be categorized. This will be done with use of a literature study and evaluated with a qualitative research. The participants are 26 residents coming from two nursing homes. Respectively De Drie Ringen, located in Utrecht, and De Peppelrode, which is based in Eindhoven. The set-up is a visual questionnaire showing the findings from the literature research. For each found statement three variations have been made. As the research done in the used literature proves that the findings are improvements for the residents; it is assumed that the designed variations will do the same. The questionnaire show photographs matching the made variations. The participants to choose one favorite for each question. Together, all the answers show which one of these design solutions are most preferable. The interviewer asks further to find the motivation for each answer and these will also be assessed during analysis of the results. The questionnaire will follow the structure of how the statements have been categorized in table 1, per design block, per attribute. As some statements will have overlap, the amount of questions is not the same as the amount of statements. How the attributes and design block come together is explained in the following two sections.

2.1.1 Attributes for analysis

The problem statement with nursing homes concerns the size, clinical character and a lack of privacy (Jonker, 2016). The findings from the literature study will be classified by these. How they are interpreted in this research will be as follows. The problem with the size of nursing homes has to do with the building organization, orientation and the reference towards the layout of a regular home, findings regarding these will be placed in this category. The clinical character has to be experienced as non-institutional; this regards how the character is experienced and how much the medical environment is expressed in the typology. Difficult in this case however is the conflict between two factors: sensory stimulation and safety/medical support of the living environment. Day (2000) argues that certain levels of sensory stimulation may be required to promote engagement in activities and interaction and to minimize withdrawal among people. However, the safety and medical support the environment in a nursing home needs to offer tend to decrease these stimuli. Statements regarding the clinical character are therefore

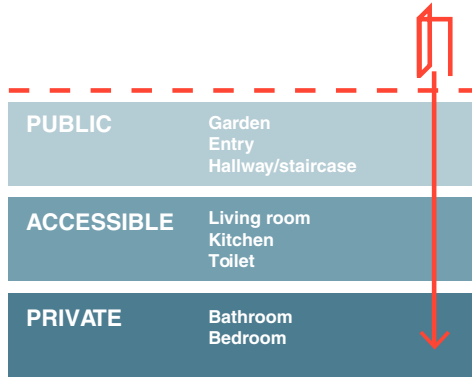


Figure 2. Privacy in regular housing (Nillesen and Opitz, 2013.)

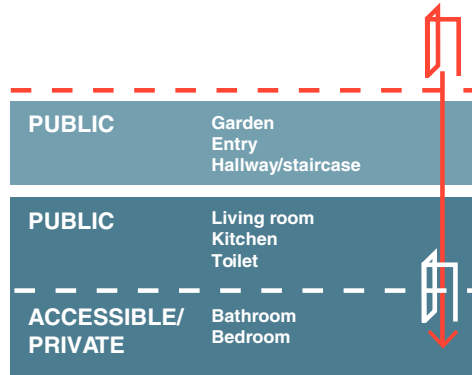


Figure 3. Privacy in a nursing home (Nillesen and Opitz, 2013.).

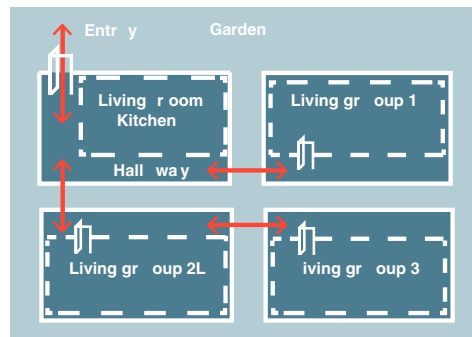


Figure 4. Privacy in regular housing (Nillesen and Opitz, 2013.).

split up between cognitive and physical support which both try to reach out to a consensus. Privacy levels will be analyzed according to the measure in which it's supported in daily living activities.

2.1.2 Design blocks of a home

Living environments that are familiar to residents and easy to understand, provide the greatest support to residents (van Liempd et al., 2009); this argues all the more for a very precise alignment of people and environment. The “last home” should refer to a “regular home” as much as possible. Therefore, the average Dutch home has been inventoried to the following design blocks: entry/hallway, garden, living room/kitchen, bathroom, toilet, bathroom, bedroom (Nillesen and Opitz, 2013.). The garden, entry/hallway are classified as public as they are experienced the least private. Then, as accessible, the living room/kitchen and the toilet are categorized together. In most nursing homes they are grouped together and function as one. The toilet is not seen as private as it is also accessible to guests. However, the bed and bathroom are not and are therefore private.

The great difference with living in a house and a nursing home is the privacy border (Nillesen and Opitz, 2013.). In figure 2 and 3 the identified design blocks are shown with their respective privacy level. For both situations the entrance lies on the same block. However, the border between what is identified as public and private in a house, has merging boundaries in a nursing home. Bath- and bedrooms can be shared and are combined in living groups which form a second border residents can or cannot cross. This is further illustrated in figure 4 where a general layout of figure 2 is displayed in a simple, general, version with all the identified design blocks.



3. *Literature findings*

In the next section all findings from literature, which are categorized in table 2, will be discussed and summarized following the order in figure 3. Some sections have been put together when the literature contained overlap.

3.1 Garden

As table 3 shows, the privacy in the garden on both ends, being public or private, can offer multiple needs. There has to be a balance between the extend in which its only accessible for residents and how the space is demarcated. Important also is the boundary between interior and exterior, there has to be a strong relation between the two in order for the garden to function well (Nillesen and Opitz, 2013.). Accessibility to the greenery has to be researched as just an entrance to the garden isn't enough for it to stimulate use.

3.2 Entry and hallway

Entering a nursing home should reference to the identity of a home (Jonker, 2016). Shown in figure 3 and 4, there are several entries, one giving access to the building, one towards the living group and one to the resident's private space. A front door for every living group is ideal, this in order to reduce the scale of large buildings (Nillesen and Opitz, 2013.). The amount of doors should be limited as this can be confusing. When it comes to cognitive support, hallways should offer people to challenge their improvisation skills (Smith and Walda, 2016). Important is whether there still is a clear demarcation between hallway and the adjacent spaces to keep it readable for the user. Moreover, apart from stimuli, hallways should offer sufficient support during a walk (Nillesen and Opitz, 2013.). This can be done with elements such as bars mounted on the walls or resting places where people can take a brake from walking. The latter can also be used in combination with certain stimuli.

3.3 Kitchen and living room.

These two categories have been put together since they are often designed in the same space. If it concerns a public or private area will be made clear when discussing the statement. When it comes to designing a public living room, which can be shared or combined,

this can lead to an environment which is less homey (van Liempd et al., 2009). This means that when the living room has too much of a multi-functional character it loses its label of living room. To increase this character there should be a clear demarcation between hallway and living room. Furthermore, when there are multiple seating areas this offers multiple benefits. First, it has a positive influence on the residents' mood (van Liempd et al., 2009) as it secondly also decreases withdrawal behavior (Zeisel, 2003). What has to be kept in mind is that activities should be able to happen simultaneously without interfering each other (Jonker, 2016). To improve stimuli in the living room the seating area should be guided towards it (Nillesen and Opitz, 2013.). Examples can be towards windows or activities within the living room where it is important that these have to be guided stimuli in order to prevent a negative influence (Nillesen and Opitz, 2013.). When the kitchen counter is designed transversally to the wall, people often like to help out the staff. When the staff shows their back it gives them an unpleasant feeling (Nillesen and Opitz, 2013.).

3.4 The Toilet and Bathroom

These design blocks are discussed together as the toilet is often placed in the bathroom and not as a singular space. Often the bathroom is a shared space between two residents or more. This is done in order to keep down the costs of a nursing home. However, this is not a preferred situation in most residents' opinion, the more people share a bathroom the less satisfied they are (Nillesen and Opitz, 2013.). Van Liempd et al (2009). suggests to research the option of shared toilets and private bathrooms. Bathrooms often look functional and sterile, this worsens experience and recognizability (van Liempd et al., 2009). As recognizability is concerned, the same goes for visibility as it stimulates own use (Nillesen and Opitz, 2013.). Bathrooms for multiple residents tend to be too small and therefore need to be designed functional (van Liempd et al., 2009).

3.5 The bedroom

The bedroom is in this case also seen as the private space of a resident. Almost 30% of residents use their own room regularly as a place to receive guests and use it as a living room (van Liempd et al., 2009). The size of the bedroom should be considerably big enough for people to receive enough guests. A lack of stimuli is a reason for the limited use of residents' own room and when the room is bigger it tends to be used more, e.g. for receiving visitors (Nillesen and Opitz, 2013.). Moreover, specially designed clothes closets were found to increase

autonomy in dressing for those with middle stage dementia (Namazi & Johnson, 1992a). This can also be done for a bigger target group than just people with dementia but also physical impairments. Finally, A clear transitions from hallway to bedroom creates stronger identity of the room as personal space (Nillesen and Opitz, 2013.).



"Free Image on Pixabay - Book Wall, Books, Wall, Decorative", 2017

4. Results

For all discussed statements from section 3 and table 2 three variations have been made which are elaborated and visualized in section 1 of the appendix. In the questionnaire, each alternative is described with the use of text and a photograph showing an executed example. These examples are photographs of nursing homes which have an approximate execution of the situation described in the answer it links to. Prior these 24 multiple choice question 8 open question will start the interview to gain more insight in the living experience of the participant in the nursing home.

After visiting both nursing homes several times a total of 26 interviews have been conducted. Nine of which at De Drie Ringen and 17 at De Peppelrode. The group of participants consists of 14 men and 12 women which together have an average year of birth of 1945 (72 years old). All patients had somatic complaints and were not diagnosed with dementia. The apartments of the interviewees all had a similar set-up with a living room, separate bedroom and a private bathroom. The living rooms in the Drie Ringen also had a small kitchen in it although most residents couldn't use it anymore because of a physical impairment. What the Drie Ringen also had extra was a loggia, a balcony with glass doors from top to bottom, about which every resident was very enthusiastic about.

The shared spaces in De Peppelrode are of a bigger scale as they are intended for a larger group of residents. The central living room is larger and is divided into several spaces. Also, every hallway has its own seating area with a small kitchen suitable for about 8 residents, these spaces are absent in De Drie Ringen. What differentiates more is the size and set-up of the garden. Nursing home De peppelrode has a very natural set-up with lots greenery, water, walkways and a kiosk to have a coffee or tea. The outdoor space in De Drie Ringen has a courtyard of which most of the floor area is paved and feels less natural. However, there is a large park nearby where residents often go to with visitors.

The interviews have all been conducted in the apartment of the participant without any bystanders. After a question was asked their was some guidance needed when the participant started answering according to what was comparable in the current living situation instead of what is desired. In the next part the results, as displayed in table 1, will be elaborated according their respective attribute.

4.1 garden

When it comes to the garden it can be said to maintain privacy a border made of planters is mostly preferred. The garden should only be accessible to residents or have a visible connection with an adjacent park. The connection residents have with the garden is best to strengthen with a veranda which has opening doors or windows. A second option, maybe more suitable for private quarters, is with a balcony. All participants said they enjoyed having a clear vision and connection with the surrounding outdoor environment. The loggia, which was present in De Drie Ringen, seems very suitable for this since it is more comfortable all year round. As this also is a kind independent physical accessibility to an outdoor space, this also supplies a certain amount of physical support (van Liempd et al., 2009).

4.2 Entry/hallway

Although most residents don't leave the nursing home that often the entry turned out to be of importance. When it comes to the reception, its presence is very much related to the sense of security of the residents; which is why it should be clearly visible upon entering the nursing home. Transitioning from the hallway to the living spaces should be clear but in a manner that requires light demarcation. A transition to the living room which is made clear with planters and columns turned out to be most desired as it also keeps a connection with other parts of the building. Furthermore, doors towards living groups and personal space should have light personalization. Examples in the questionnaire showed items like a doorbell or window next to the door which could be used for personalization and identification. In the found literature it was said that there should be sufficient places to sit down and rest in a hallway (Nillisen and Opitz, 2013). Among the participants this turned out to be not true, most people answered that they wanted mounted bars for support and just shorter hallways to walk. They stated never to go for a walk inside the building for recreation.

4.3 Living room and kitchen

The living rooms are preferably of a small setup where a large living room with smaller areas is also optional. This division which has to be made in larger space doesn't have to be very physical. Although, a lot participants said a slight division with planters still got a third of the votes. When the kitchen is placed in a small public living room it should be placed in a transverse position to the wall. This makes the

one being in the kitchen part of the rest of the living room. What is next is that an orientation towards the garden is mostly desired although only a few less people wanted a orientation towards the street. An introverted orientation, like an indoor plaza was by no one desired.

4.4 Bathroom and Toilet

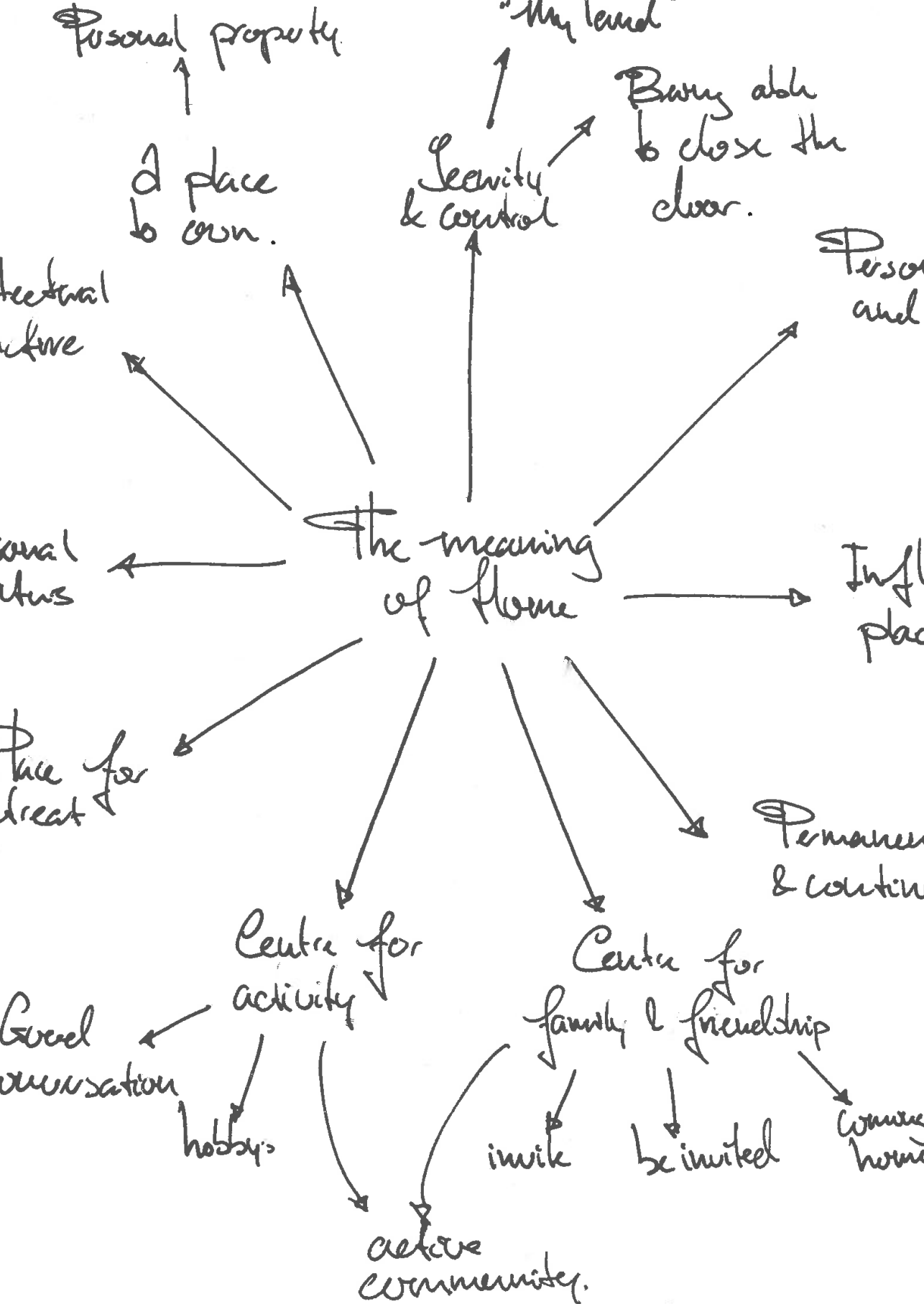
About the possibility of shared toilets and private bathrooms the results are very clear. Everybody wanted to have both the toilet and bathroom as a personal space in their apartment. When it comes to the clinical character of the bathroom and toilet it wasn't so much the pale colors used but the larger interventions shown in the questionnaire. People said to enjoy the convenience of being able to access the bathroom from any other space but a movable wall for example increased the clinical character by a significant amount. The size of the bathroom of the toilet should be bigger than usual but again, the biggest option started addressing a clinical character as some interviewees stated.

4.5 Bedroom

The most personal space, the bedroom and own apartment has to be of significant size to be a place to receive guests. 54% of the participants said they want a large sitting area in their own living room. When they were asked if they want more space 50% even said they would like to have a kitchen as an additional space.

4.6 observations

Apart from the answers given to the survey there were also several open question and the interviewer asked for a motivation when a participant gave an answer. From these motivations several observations can be made. One is that most residents really value their personal space. They like to have their own "bubble" in which they can feel comfortable and safe. Often with this bubble they mean their apartment and when they leave it that tend to seek to find a new one. Most participants said that they hardly went outside to look for a social encounter. Going out for them meant going to eat in the main living room, take part in an activity or find a quiet space to read or enjoy a view. The latter leads to a second observation which is that the residents, although being in their personal space, like to have a connection with either the garden, street or in a light extend with the rest of the nursing home. Meaning that they don't want to feel isolated in their bubble.



5. Discussion

Relating back to the research question, whether the typology of a nursing home can be used to stimulate a feeling of home, it can be said that this research gave clear results about the preferences residents have when it comes to the discussed design possibilities. The design blocks discussed in Appendix part 1 give an indication how they should be applied and, in combination with the results in table 2, provide very specific guidance when it comes to making design decisions. However, when it comes to designing a nursing home, they might evolve implications which make it hard to copy results from this research. Therefore, the final step is to make the design blocks more applicable. Each intervention from a design block has impact on a certain level, these levels are labeled. These are based on the literature findings, survey results and observation during the research. The design blocks, together with their respective labels, are able to help make decisions in more complex design challenges.

First four labels are privacy, cognitive support, physical support and the layout; coming from the problem statement and are used in table 2. Privacy can be further divided into a scale depending on the amount of people the privacy is designed for. Furthermore, two other labels can be distinguished which are focused on connectivity, meaning orientation on either to the street or city. Altogether these can form the hand and pockets for the puzzle pieces that together make the design for a nursing home. A more precise description of the labels can be found in part 4 of the appendix.

Before continuing to the research part, the design blocks are prioritized at the hand of the survey results. First priority is the veranda and the private balcony. Both turned out to be very popular and they will have a high flexibility when it comes to applying them on different scales. Second, connectivity towards the neighborhood and with other residents. The diversity of contact should become high and focused around shared spaces. Third is privacy, this has to be offered on different scales and places. Final goal is to make the latter two also readable for the by-passer, the viewer or a visitor. The atmosphere should express individuality and privacy which is surrounding the residents in this nursing home.

1. Collection scheme

| | CLINICAL CHARACTER | | LAYOUT | |
|----------------------|---|--|---|--|
| | PRIVACY | Cognitive support | | Physical support |
| Garden | <p>A closed of garden can enhance the sense of security and rest. Outdoorspace however can also be a meeting area between residents and the neighborhood (Nillesen and Opitz, 2013).</p> | <p>A well-functioning garden offers many cognitive stimuli and even makes residents experience the seasons of the year. The garden has a strong relation with the interior and should therefore also be visible and offer some kind of experience when not using it (Nillesen and Opitz, 2013.)</p> <p>When there are opportunities for residents to walk through the outdoorspace they tend to use it more. (van Liempd et al., 2009)</p> | <p>A direct entrance from the living room to the garden isn't enough to increase the frequency of residents going outside. Independent physical accessibility increases the use of outdoorspace (van Liempd et al., 2009).</p> | <p>Connecting an outdoor space by placing a use destination in line of sight stimulates use (Nillesen and Opitz, 2013.).</p> <p>Demarcating outdoorspace with greenery instead of fences is experienced less institutional (Nillesen and Opitz, 2013.).</p> |
| Entry/hallway | <p>The entrance of the building or towards a room is the place where you enter your home. This transition from public to private should be enhanced in order to reference to a home's identity (Jonker, 2016).</p> <p>A front door for every living group is ideal. bigger buildings can reduce their scale like this and it addresses personal identity (Nillesen and Opitz, 2013.).</p> | <p>Continue to claim the improvisational skills of older people increases their self-reliance (Smit and Walda, 2016).</p> <p>Pay special attention to the transition into on another of the corridors, accentuating the endings (Nillesen and Opitz, 2013.).</p> <p>Make sure there is a clear demarcation between the hallway and the living room, this creates clarity and readability for the user</p> | <p>It is important that there are sufficient places to sit down and rest in a hallway (Nillesen and Opitz, 2013.).</p> <p>A railing for support on the walls aren't a familiar element from the home situation, however they give a sense of security and therefore stimulate movement (Nillesen and Opitz, 2013.).</p> | <p>Short hallways are better for orientation preferable with a view on/from the living room. Limiting the amount of doors suits orientation as well (Nillesen and Opitz, 2013.)</p> <p>Doors which can be opened by residents should be placed in plain sight. This encourages independency and a positive relationship with the well-being and going about (van Liempd et al., 2009).</p> |

Table 2

| | | | | |
|----------------------------|---|--|--|---|
| | | <p>(Jonker, 2016)</p> <p>The presence of a walking circuit is often cited as beneficial (van Liempd et al., 2009).</p> | | |
| Kitchen/living room | <p>Designing houses where the living rooms can be shared/combined leads to an environment which is experienced less homey (van Liempd et al., 2009).</p> <p>Having several separated seating areas has a positive influence on residents' mood (van Liempd et al., 2009).</p> | <p>Activities should be able to happen simultaneously without interfering each other (Jonker, 2016)</p> <p>The presence of multiple seating-activity areas in the living room decreases withdrawal behavior (Zeisel, 2003)</p> <p>Make sure there the resident only receives guided stimuli in order to prevent unrest (Nillesen and Opitz, 2013).</p> | <p>When the kitchen counter is transversely to the wall people often help out the staff. When the staff shows their back towards the residents while cooking it gives them an unpleasant feeling (Nillesen and Opitz, 2013).</p> | <p>Seating areas should always be designed towards stimuli (Nillesen and Opitz, 2013.).</p> <p>Residents should be able to help in the kitchen if they would like to (Nillesen and Opitz, 2013.)</p> <p>There should be a clear demarcation between hallway and living room to give a more identifiable atmosphere (Nillesen and Opitz, 2013.)</p> <p>There should be multiple living room type spaces but they should look differently, this to improve orientation (Nillesen and Opitz, 2013.).</p> |
| Toilet | <p>Research the possibility of shared toilets and private bathrooms (van Liempd et al., 2009).</p> | <p>Visibility from the room stimulates own use (van Liempd et al., 2009).</p> | <p>Visibility from the room stimulates own use (van Liempd et al., 2009).</p> <p>Bathrooms often look functional and sterile, this worsens experience and recognizability (van Liempd et al., 2009).</p> | <p>Placement of the bathroom outside of the bedroom creates alcoves which, when too deep, can result in confusing hallways (Nillesen and Opitz, 2013.).</p> |

Table 2

| | | | | |
|-----------------|--|---|---|--|
| Bedroom | <p>Almost 30% of residents uses their own room regularly as a place to receive guests and uses it as living room (van Liempd et al., 2009)</p> | <p>A lack of stimuli is a reason for the limited use of residents' own room (Nillesen and Opitz, 2013).</p> <p>When the room is bigger it tends to be used more, ea. for receiving visitors (Nillesen and Opitz, 2013).</p> | <p>Specially designed clothes closets were found to increase autonomy in dressing for those with middle stage dementia (Namazi & Johnson, 1992a).</p> | <p>A clear transitions from hallway to bedroom creates stronger identity of the room as personal space (Nillesen and Opitz, 2013).</p> |
| bathroom | <p>Research the possibility of shared bathrooms and private bathrooms (van Liempd et al., 2009).</p> <p>The more people share a bathroom the less satisfied they are (Nillesen and Opitz, 2013).</p> | <p>Visibility from the room stimulates own use (van Liempd et al., 2009).</p> | <p>Bathrooms often look functional and sterile, this worsens experience and recognizability (van Liempd et al., 2009).</p> | <p>Bathrooms for multiple residents tend to be too small and therefore need to designed functional (van Liempd et al., 2009).</p> |

Table 2

2. Survey results

| | | | | | |
|---|--|--------------------------------------|----|--|------|
| 1. Natural garden fence | | 13. Kitchen set-up | | | |
| A. | The fence is overgrown with greenery. | 23% | A. | The kitchen is central in the room. | 27% |
| B. | The fence consists of large planters bushes. | 54% | B. | The kitchen is transverse to the wall. | 54% |
| C. | The fence consists completely of bushes and trees. | 23% | C. | An open kitchen borders the living room. | 19% |
| 2. Privacy of the garden | | 14. Living room orientation | | | |
| A. | The garden is completely private. | 46% | A. | Garden orientated. | 62% |
| B. | The garden is part private, part public. | 35% | B. | Inside orientated. | 0% |
| C. | The garden is completely public. | 19% | C. | Street orientated. | 38% |
| 3. Use of the garden | | 15. Bathroom privacy | | | |
| A. | A natural set up like a walking park. | 46% | A. | Open towards a shared toilet and private bathroom. | 0% |
| B. | A garden with paved terraces and paths. | 35% | B. | Not open towards a shared toilet and private bathroom. | 100% |
| C. | A completely paved garden. | 15% | | | |
| 4. The accessibility of the garden | | 16. Toilet appearance | | | |
| A. | The garden runs through into an indoor garden. | 4% | A. | Light to no color use. | 62% |
| B. | A veranda with opening doors. | 81% | B. | Several brighter colors. | 27% |
| C. | A normal set-up but its always accessible. | 15% | C. | Mostly bright colors. | 11% |
| 5. Garden connectivity | | 17. Toilet size | | | |
| A. | The garden borders the resident's room. | 0% | A. | The toilet is placed sideways to save space. | 11% |
| B. | A private balcony. | 73% | B. | Easy accessible for entering with a wheelchair. | 58% |
| C. | The garden is visible through the windows. | 27% | C. | The toilet has room for a wheelchair a second person. | 31% |
| 6. Reception visibility | | 18. Receive guests | | | |
| A. | The reception is clearly in sight. | 62% | A. | Space for two people to sit. | 8% |
| B. | The reception is partly hidden. | 23% | B. | Space for four people to sit on a table. | 38% |
| C. | There is no reception. | 15% | C. | Space for a couch and several chairs. | 54% |
| 7. Entry towards the living group | | 19. Room size | | | |
| A. | A standard double door. | 19% | A. | A room with small sitting area. | 12% |
| B. | A small door with a doorbell. | 62% | B. | A room with an extra living room. | 38% |
| C. | A door with realistic door sticker. | 19% | C. | A room with living room and kitchen. | 50% |
| 8. Transition to the living room | | 20. Closet support | | | |
| A. | A color difference in the floor. | 19% | A. | A closet opening two ways. | 54% |
| B. | A division made with planters or columns. | 54% | B. | A walk-in closet. | 4% |
| C. | Hallway and living room are completely separated. | 27% | C. | An open closet system for extra reachability. | 42% |
| 9. Hallway support | | 21. The apartment' front door | | | |
| A. | There are mounted bars and sitting areas. | 19% | A. | A typical front door with color distinction. | 31% |
| B. | There are just sitting areas. | 27% | B. | A front door with a small window. | 54% |
| C. | There are just mounted bars. | 54% | C. | A door with a photo sticker over it. | 15% |
| 10. Hallway orientation | | 22. Bathroom visibility | | | |
| A. | Doors divide the hallway in shorter parts. | 12% | A. | The bathroom is open to the entire room. | 4% |
| B. | Objects make the hallway seem shorter. | 54% | B. | The bathroom is open to the bedroom. | 31% |
| C. | Alcoves in the wall make it seem shorter. | 35% | C. | The bathroom is a separate space. | 65% |
| 11. Scale of the living room | | 23. Bathroom appearance | | | |
| A. | A small living room with a kitchen. | 46% | A. | Light to no color use. | 31% |
| B. | A restaurant set up with several divisions. | 35% | B. | Several brighter colors. | 50% |
| C. | One big central space. | 19% | C. | Mostly bright colors. | 19% |
| 12. Privacy in the living room | | 24. Bathroom size | | | |
| A. | A division is made by placing walls. | 19% | A. | A bathroom as small as possible. | 23% |
| B. | The living room has been divided by planters. | 27% | B. | Extra space around the shower and toilet. | 58% |
| C. | There are several sitting areas without any physical division. | 54% | C. | More then extra space around the shower and toilet. | 19% |

Table 3

3. Design labels

Privacy

The first three labels are derived from the problematic associations which, seen in table 1, which is privacy. Because this subject was mentioned many times during the interviews, the label has been specified into three categories. This is done to design more specific solutions and have a bigger impact on this issue.

Privacy level I

This degree of privacy is preserved for one person such as in a private room or an enclosed spot in a shared space.

Privacy level II

The amount of people which can enjoy their privacy in this case exists from two to three people.

Privacy level III

For this privacy level for 6-8 people have to be ensured. When the privacy of the entire nursing home is addressed, this label will be used as well.



Label 1. Privacy level I



Label 2. Privacy level II



Label 3. Privacy level III

Physical support

The fourth label is, just as privacy, coming from the one of the problematic associations in table 1. When it comes to the physical support, the main influence must be the physical discomforts for the residents in a nursing home. On the other hand it should also have a non-institutional character when applied, but that will be more specified in label 6.

Cognitive support

Cognitive support is focused on stimulating the resident. This can be as a form of entertainment, stimulating/enable to take undertake an activity. What these exactly are will be specified in table 2 and the associated design blocks.

Home layout

To take down the constitutional character of a nursing home, the sixth label involves the layout of a home. Design interventions with this label are considered to give the nursing home more overlap with the layout of a regular Dutch home or undermine considered bad qualities or the typology of nursing home. Which these are exactly are described in the statements from literature which can be found in table 2.



Label 4. Physical support



Label 5. Cognitive support



Label 6. Home layout

Connectivity

During the interviews the topic of connectivity with the surrounding environment came up several times. It is therefore that the subject will be taken in the set of design labels. As can be seen in the survey results in table 3, question 14 shows that the division between garden orientation and street orientation is quite even. Connectivity is because of that between:

I Garden orientation

II Street orientation

Personalization

Second important observation during the interviews is that most residents value their personal space highly and they very much want to create their own space in the nursing home. The label personalization therefore can be interpreted in two ways, where it firstly means that someone can identify with a space as theirs. Second, is that others can recognize this personalization of a space of the residents.



Label 7. Garden orientation



Label 8. Street orientation



Label 9. Personalization

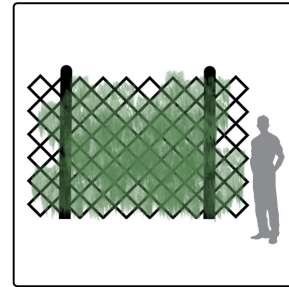
4. Design blocks

1. Natural garden fence

Demarcating outdoor space with greenery instead of fences is experienced as less institutional, (Nillesen and Opitz, 2013) Therefore three alternative fences where greenery has been applied.

A. The garden woven into the fence.

The fence is overgrown with greenery. This option is the most secure as there is still an actual fence apparent. However, this can still relate too much as a too institutional solution. The vegetation might not grow thick enough to cover enough of the fence.



1. A



B. The garden and fencing come together in planters and form a wall.

Big flower pots or a wall with an integrated planting space can be used as a division between public and private. The height of the pots or wall determines how secure the demarcation is; as does the thickness of the vegetation. This option can also offer residents with an impairment to be able to do some gardening if the vegetation is at an appropriate height. When in a wheelchair, people can reach approximately 80 centimeter around each shoulder which on average is 110 centimeter above the ground (Haak & Leever-van der Burgh, 1994).



1. B



C. The border is completely demarcated with greenery.

This option relates most to a garden as it consists only of greenery. However, it might not be perceived enough as a fence and therefore offer a lesser sense of security.



1. C



The privacy is kept for the entire nursing home, therefore the large security label for all three options. They also prevent an institutional layout which gives it the layout label. Option C improves the garden orientation as it increases the garden significantly.

2. Privacy of the garden

A closed of garden can enhance the sense of security and rest. Outdoor space however can also be a meeting area between residents and the neighborhood (Nillesen and Opitz, 2013). This statement led up to the question what level of privacy is asked for in the garden.

A. Completely private.

The garden is meant for residents only, offering the biggest sense security and most rest relating to the other options. A disadvantage might be that there is no relation to the neighborhood.

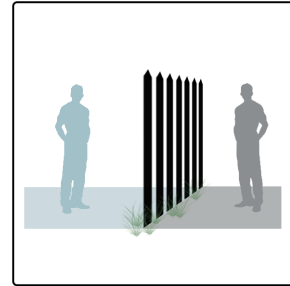
B. Semi-private, one part is shared and the other part is private.

There is a mix between public and private where, for example, there is a private terrace for the residents and public field where people can still walk their dog. This generates a relation with the neighborhood while still respecting the privacy of the garden. In what extend however depends on the border between the public and private part.

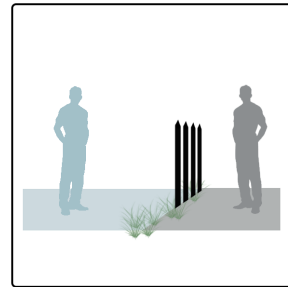
C. Non private, a completely shared outdoor space.

The garden is completely private and offers a strong relation with the surrounding area. This can threaten the sense of security and the amount of rest it offers for the residents. This option has likely to be supported with a private outdoor space.

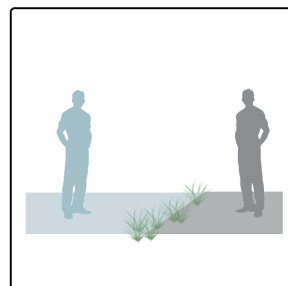
Option A and B address the privacy of the garden, although B in a lesser degree, where option C offers no privacy. As B and C decrease in privacy, they do offer extra orientation to street or maybe even the community.



2. A



2. B



2. C



3. Use of the garden.

A well-functioning garden offers many cognitive stimuli and connecting an outdoor space by placing a destinations of use in line of sight stimulates use. (Nillesen and Opitz, 2013.) Three options will be explored with different divisions of paved and un-paved (green) space.

A. Natural: park

The majority of the surface consists of greenery with a small path made for walking, much a like a path through a park. The extensive space for vegetation offers the means of creating an abundant garden. However, the small amount of walking space might result in conditions which are not optimal for people with a physical impairment.

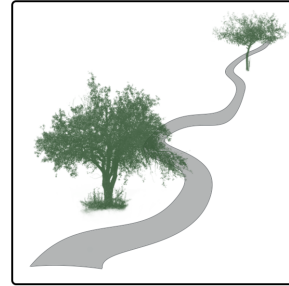
B. Semi: part paved, part garden

One half of the garden is paved, which can function as a terrace, the other half will be filled with vegetation. When there is a terrace there is more space available for wheelchair users to enjoy the outdoor space and with more comfort.

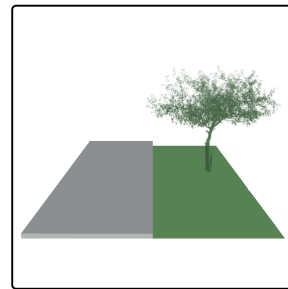
C. Completely artificial: courtyard

The floor is completely paved and, where perforated, offers space for vegetation to grow. When the garden is executed in this way it offers maximum accessibility for people with a physical impairment. A disadvantage might be that the garden is experienced as too artificial.

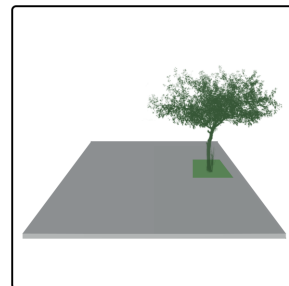
Option A is labeled as cognitive supportive and offering garden orientation as it creates a walking route through the outdoor space which enables the garden to be experienced differently than option B and C; which are labeled as physical supportive.



3. B



3. B



3. C



4. The accessibility of the garden

A direct entrance from the living room to the garden isn't enough to increase the frequency of residents going outside. Independent physical accessibility increases the use of outdoor space (van Liempd et al., 2009). Elaborating on this, next to easy independent access, different options generating a different type of access to the garden are explored.

A. An indoor garden, making it accessible at all times.

Bringing the garden inside with bigger means than potted flowers, it can be accessed under ideal conditions. Beneficial is that it can be used at all times and all year round, not only when the weather is comfortable. A downside might be that it is perceived as artificial or is hard to maintain the greenery.

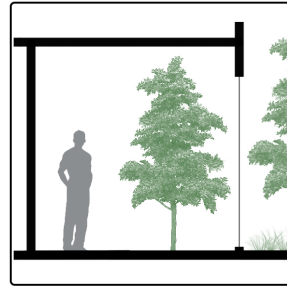
B. A veranda which can be closed and opened.

This option offers a veranda covered in glass. It brings the user as close as possible to the garden while still enjoying the comforts of the indoors. This option can also be applied for private access in the shape of a loggia.

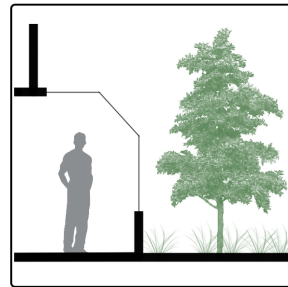
C. The garden is completely outside and accessibility is provided by an independent access system.

Here, the basic option is applied where the user has independent access to the outdoor space with the notion that too experience the garden you have to go outside and an indoor veranda or indoor garden is not enough.

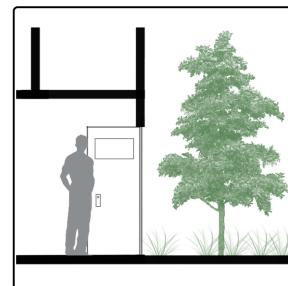
The first two options give a better connection to the garden. The third one also references to the living independently and therefore to the layout of a home.



4. A



4. B



4. C



5. Garden connectivity

A well-functioning garden offers many cognitive stimuli and even makes residents experience the seasons of the year. The garden has a strong relation with the interior and should therefore also be visible and offer some kind of experience when not using it (Nillesen and Opitz, 2013.) Three different kind of options which of a different relation with the exterior are explored. In this case the interior-exterior relation in the private room is looked into.

A. The garden borders the window in private space.

When the garden is as close as possible to the user the relation with the garden can be very strong, as the adjacent part can be related to as “theirs”. A downside might be a lack of privacy as other residents might pass by and this way intrude their private space.

B. The garden can be experienced from a private balcony.

A private balcony gives a resident the opportunity to be outside without having any direct contact with other people which can be pleasant. As most residents have an impairment it has to be taken into account that balconies tend to be small spaces and had to be accessible when, for example, in a wheelchair. The minimal used space for making a turn of 180 degrees is a square of 170 centimeters (Haak & Leever-van der Burgh, 1994).

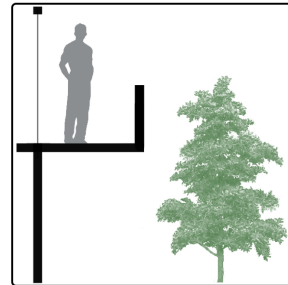
C. The garden can be seen from above through a window.

In this example there is only a visual connection and the resident isn't brought closer to the garden. This can be sufficient but has to be seen as the minimum.

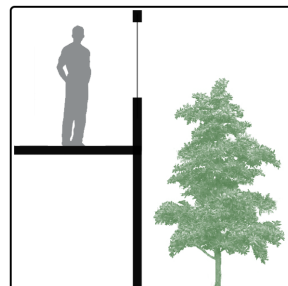
All three options address the connectivity to the garden where a private balcony also does this for privacy.



5. B



5. B



5. B



6. Reception visibility

The entrance of the building or towards a room is the place where you enter your home. This transition from public to private should be enhanced in order to reference to a home's identity (Jonker, 2016). Three different ways of how the reception is placed near the entrance.

A. In plain sight.

The reception clearly visible when entering might give the least relation to coming home as it might feel institutionalizing. On the other hand, it can create a bigger sense of security for the residents, as there is always someone paying attention to whom enters or leaves the building.

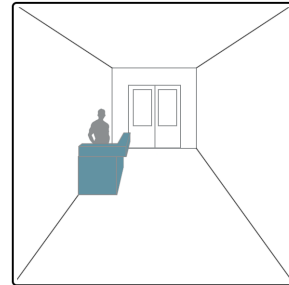
B. Hidden

The reception is still visible but hidden away and therefore less dominant when entering. The same impact as option A but it might feel less institutionalizing.

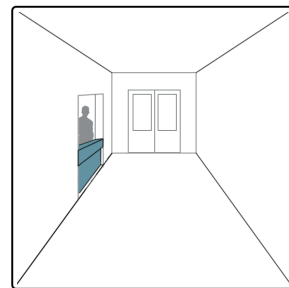
C. Absent

The reception is absent or replaced by a digital device. This might relate more to coming home as there is no reception clearly visible. However, it decreases the sense of security because there is no eye on the entry or exit by the staff.

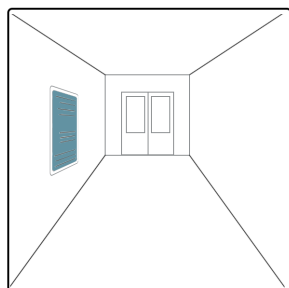
Although the first two and the third can have a very different impact on the sense of security for the residents, they all address the privacy for a large group. Option C refers to the layout of a home as well as the reception is absent.



6. A



6. B



6. C



7. Entry towards the living group.

A front door for every living group is ideal, bigger buildings can reduce their scale like this and it addresses personal identity (Nillesen and Opitz, 2013.). Three variations.

A. A simplistic double door.

The most basic option (figure) offering only functional requirements.

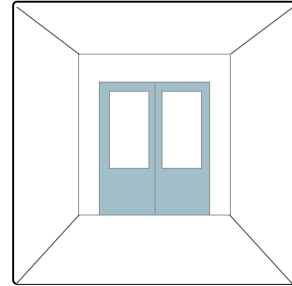
B. The door has a smaller scale and doorbell.

With the addition of some more “houselike” elements the door can become more distinguishable for residents and therefore more personal.

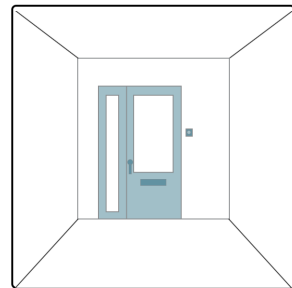
C. The door looks like the front door of a house.

A sticker has been put over the door for it to look like the front door of a house. This option can offer most personalization but can be perceived as fake, or “too much”.

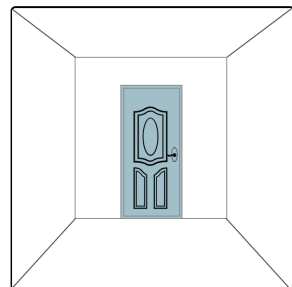
As said in the statement above, this door will be placed to scale down the sense of scale and increase personal identity and therefore the label of privacy and layout. Option C also gets a label for cognitive stimulation and personalization as it is a tool for individual recognition in a nursing home.



7. A



7. B



7. C



8. Transition to the living room

The living room and the hallway should have a clear demarcation to improve readability and experience:

A. A demarcation on the floor through color difference

There is a subtle difference made between the two spaces with use of the floor. This will maintain a strong relation with the hallway. The living room might seem not demarcated enough.

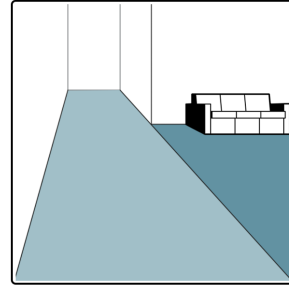
B. A border between hallway and living room with the use of pillars and half height walls or planters.

A more flexible option which still offers a connection between the two spaces. Also a connection with other adjacent spaces might be possible.

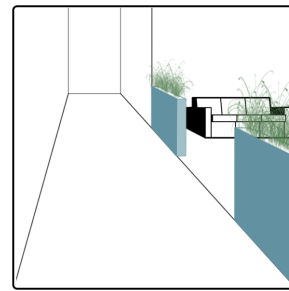
C. Hallway and living are completely separated by a wall.

There is no relation between the two spaces. The living room is closed off and can be best experienced as the space as it is. Low connectivity with the rest of the space might be a result however.

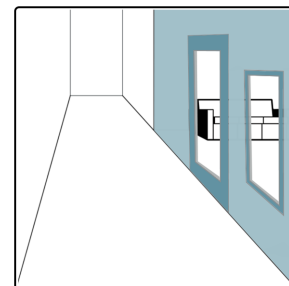
By a clear and readable experience of the living room the reference to the layout of a home is made and that is where the label comes from. Option C also increases the level of privacy.



8. A



8. B



8. C



9. Hallway support

It is important that there are sufficient places to sit down and rest in a hallway. Also, a railing for support on the walls aren't a familiar element from the home situation, however they give a sense of security and therefore stimulate movement (Nillesen and Opitz, 2013.). There are three combinations explored.

A. Mounted bars all over the hallway together with benches.

Combining both types of support can be most pleasant for people with an impairment, although the hallway might become to busy.

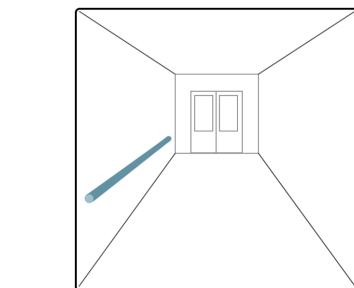
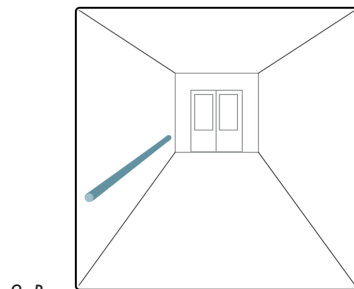
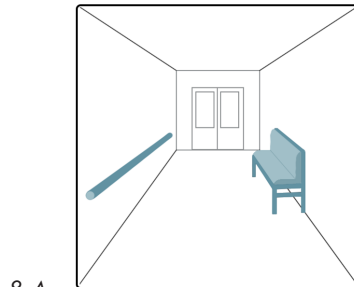
B. Benches placed throughout the hallway.

Benches will mostly be beneficial for people who have a certain range they can walk. The bench can be place to rest and extend this range or make it more comfortable. Possibilities here are that when they are designed it can also become a meeting ground ,a place to enjoy a nice view or be part of a route through the entire building.

C. Mounted bars throughout the hallway.

Mounted bars are mostly suited for people that just need support during their walk en not so much a place to sit down. It can support their balance or be used a guide from one place to another.

The main focus of this intervention is the physical support.



10. Hallway orientation

Short hallways are better for orientation preferable with a view on/from the living room. Limiting the amount of doors suits orientation as well (Nillesen and Opitz, 2013.) The options which are explored try to address these needs.

A. Doors divide the hallway in separate areas.

By this implementation hallways can be made shorter without limiting the length of the building. A disadvantage however is that more doors can be disorientating or too much of a boundary.

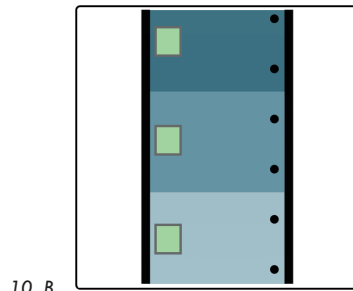
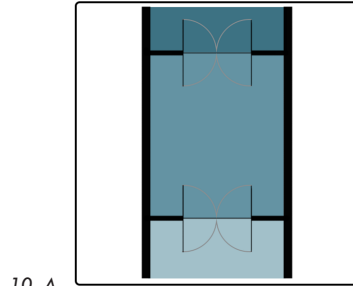
B. Room dividers have been placed to diminish the sense of scale.

The hallway is longer in size and therefore easier to use. Spaces can be designed for longer stay and are more flexible.

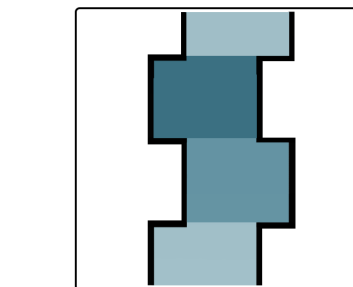
C. Longer alcoves to generate a more calm movement of the wall.

Alcoves can break the wall up into smaller sections and therefore decrease the sense of scale. When they are too deep it can become confusing, this has to be kept in mind.

Improvements on orientation are aimed at the experience of the layout of the building which gives it the associated label. Option A addresses the privacy for the user.



10. B



10. C



11. Scale of the living room

Nursing homes where the living rooms can be shared/combined leads to an environment which is experienced less homey (van Liempd et al., 2009). This argues for a smaller scale in living rooms. However, activities should be able to happen simultaneously without interfering each other (Jonker, 2016) which argues the opposite. Therefore three options with a difference scale.

A. A small living room with kitchen in a house like setting

A setting for 6-8 people accommodating the residents from a living group. A smaller, somewhat more private set-up very suitable for people who don't want that many people around them. This space occupies a minimum of 12 m² for the seating area and 7 m² for the kitchen.

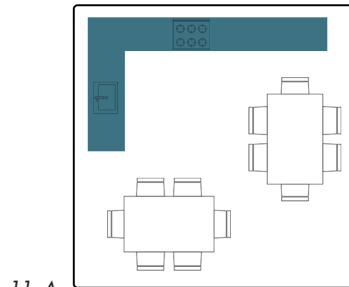
B. A living room and kitchen for the whole complex but divided into several areas.

Having a living room for more people can lead to more a more lively space. Moreover, the room can have more purposes and be divided into smaller areas with different atmospheres. A table for four people is about 5 m² meaning that one living group needs at least 10-15 m². The kitchen will serve more people and therefore has to be scaled up to at least 15 m² (Haak & Leever-van der Burgh, 1994).

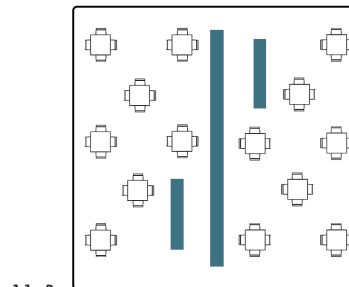
C. One central living room and kitchen for the whole complex.

A central living room is as lively as possible but this means privacy is harder to accommodate than in option A and B. Having multiple purpose areas is easier however.

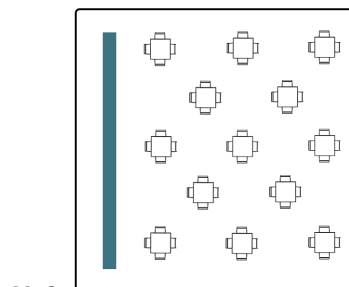
All three options give a different experience of privacy of which option A is the most intimate, therefore it also address more the layout of a home.



11. A



11. B



11. C



12. Privacy in the living room

Having several separated seating areas has a positive influence on residents' mood (van Liempd et al., 2009) and multiple seating-activity areas in the living room decreases withdrawal behavior (Zeisel, 2003). A central living room in a nursing home accommodates a lot of people and this issue has to be taken into account.

A. The living room is divided by walls.

A very strong demarcation of personal space which can be pleasant for the user. The flexibility of the room might decrease as the smaller areas also take up more space than the 5m² which is advised (Haak & Leever-van der Burgh, 1994).

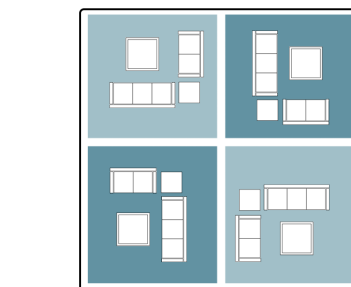
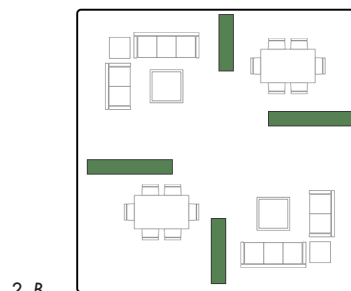
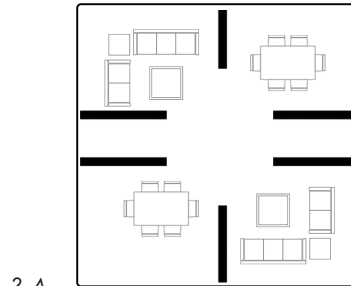
B. The living is divided with the use of planters or room-dividers.

This flexible way of creating a division of space gives the user the needed privacy and also maintains a space which can be re-arranged to accommodate other activities.

C. The living room has set of separated seating areas which are facing each other.

The separation between the seating areas is more visual than physical, this can serve a more open layout with less privacy than the other options. The visual separation is created by turning the furniture away and towards each other.

All options deliver two different kind of atmospheres from a personal level to a small group of people. The label of personalization could be addressed as well but this is too much dependable on how explicit the space is appropriated.



13. Kitchen set-up

When the kitchen counter is transversely to the wall people often help out the staff. When the staff shows their back towards the residents while cooking it gives them an unpleasant feeling Residents should be able to help in the kitchen if they would like to (Nillesen and Opitz, 2013.).

A. The kitchen is central in the living room.

With the kitchen central it is the main focus point of the room. When it comes to addressing people in the cooking process, this can support that. A downside however might be that when not in use, an empty kitchen is in focus.

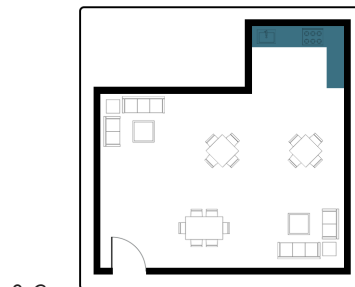
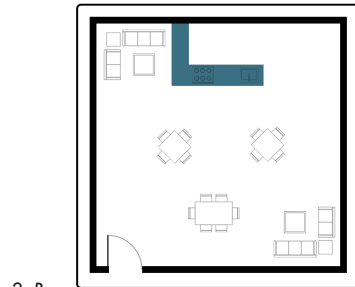
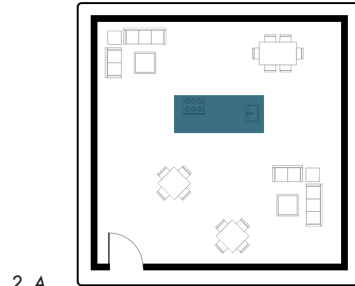
B. The kitchen is adjacent to the wall.

When applying this set-up the kitchen counter is an extension of cooking space into the living room. Another implementation can be to divide the room into several spaces. It can invite people to help cooking as well.

C. The kitchen is next to the living room.

Here the kitchen is a separate space which is opened to the living room. The connection between the two is less strong but this can mean the living room has a stronger identity than the kitchen area.

Placement of the kitchen in one of the above manners aims at cognitive stimuli and the layout of a home.



14. Living room orientation

Seating areas should always be designed towards stimuli (Nillesen and Opitz, 2013.). Three alternatives are explored on which the main living room can be explored:

A. Orientation towards the garden.

The living room opens up towards the private garden or greenery surrounding the nursing home. Maybe a less active view but, depending on the situation, more pleasant to the eye. Distance between the greenery and the viewer has not been quantified.

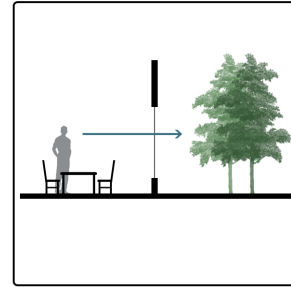
B. Internal orientation.

An internal square in this case, working as a center of the building. This approach is more people orientated as it brings the focus on other residents instead of the exterior.

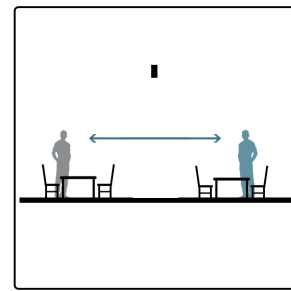
C. Orientation towards the street.

In contrast to the orientation towards the garden, this can offer a more active view depending on the street it is facing. In this case the distance between the street and the viewer has not been quantified.

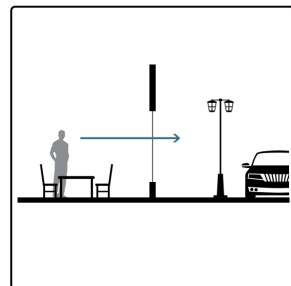
All orientations provide cognitive stimuli. Option A and C however address more labels such as the home layout. Also, as their aim is different, option A has a garden label and option C a street label for orientation.



2. A



2. B



2. C



16. Toilet appearance.

Toilet often look functional and sterile, this worsens experience and recognizability (van Liempd et al., 2009). Looking at different color schemes varying in color contrast can give an image of the desired toilet. The colors in option A have been chosen for their variation in white to grey tones. In following options B and C come of them have replaced with brighter colors in order to create structure in the colors instead of randomly choosing colors.

A. Functional coloring

The gradient is very pale en therefore might be too functional or institutional. It will easier to clean however and more hygienic.

B. A light color gradient

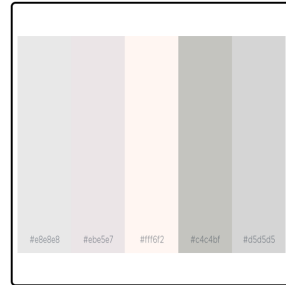
With light coloring the benefits of hygiene can be kept and break the functional look of the toilet.

C. Heavy coloring.

A heavier color palette doesn't refer to a functional design but can be harder to clean thoroughly.

The colors of the toilet offer two purposes in the above described case. It can have very minimal coloring to make it easy to keep clean and hygienic, as in option A. Or, serve a stimuli to better the experience of the space as is done with the palettes in option B and C. Therefore Last two options get a label for cognitive stimulation and personalization.

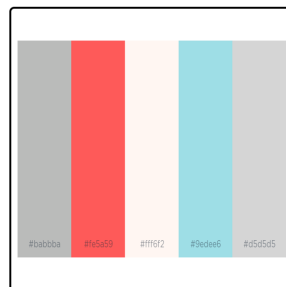
2. A



2. B



2. B



17. Toilet size

Toilets which look too sterile and functional worsen experience (Nillesen and Opitz, 2013.).

A. A compact size toilet

A toilet about the size of 4m² can be more comfortable as the user has everything close by and does not have to turn or walk a lot when moving around. However, depending on the level of impairment, this option can be too tight to make use of the toilet comfortably.

B. “Medium” size

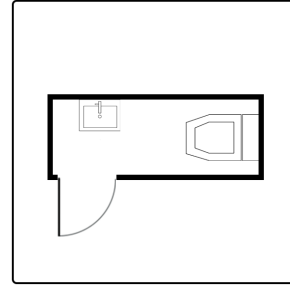
When the size is a bit bigger, 5 m², the extra space can offer the extra space people may need when making a toilet visit.

C. “Large” size.

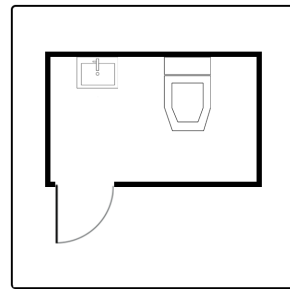
Size is bigger than actually required. Extra space can be more comfortable for the resident. However, when the room is bigger it can also seem to be too functional.

All three variations have their own level of physical support and comfort which is the only label addressed.

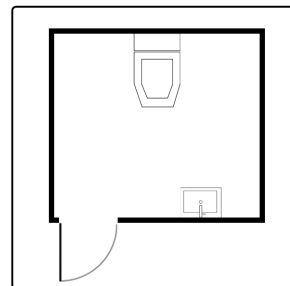
2. A



2. B



2. C



18. Receive guests

Almost 30% of residents uses their own room regularly as a place to receive guests and uses it as living room (van Liempd et al., 2009). Each option gives a different variation of how many and in what setting guests can be received.

A. Room for one or two people to sit.

In this case, the overall apartment will be smaller as there is only room for an extra two people. Depending on how the facilities in the rest of the building are, this can already be sufficient.

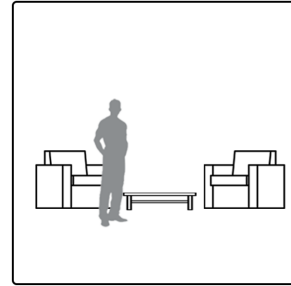
B. Room for receiving people at a table.

This will accommodate more people and maybe visits for a longer duration, such as private dinners or game activities. It can also serve wishes for the resident to have extra space in the room. This will mean about 4m² extra.

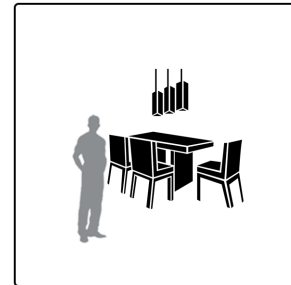
C. Room for a couch and chairs.

This can be additional to having room for a dining table or is just available by itself. This offers a more living room like setting and therefore relates more to a house.

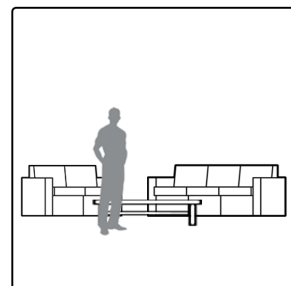
The availability of the receiving guests addresses the layout of a home as it has more overlap with the living room of a house. The privacy of the group which is meeting is preserved as well as they have an enclosed space for themselves. Finally, personalization is also influenced as residents invite people in their personal area.



2. A



2. B



2. C



19. Room size

When the room is bigger it tends to be used more, ea. for receiving visitors (Nillesen and Opitz, 2013.). Three room sizes are defined.

A. Singular room.

A singular room without additional spaces. This can be more comfortable as it can decrease the distances the resident has to travel through the room. The minimum size for this type of room is 25m^2 , as the statement is that rooms need to be at least bigger than minimal (15m^2) for it to be more used.

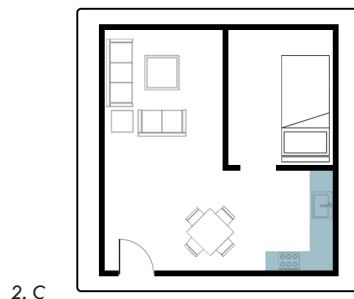
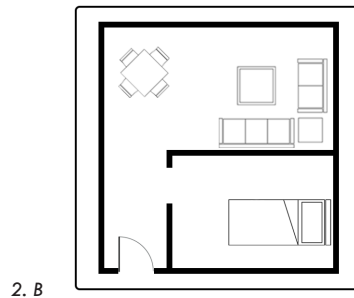
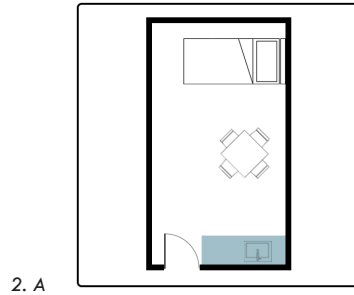
B. An additional room.

The apartment is extended with an extra room, offering an extra seating area for the resident, giving at least an extra 12m^2 .

C. An additional room and kitchen.

In this case the additional room is extended with a personal kitchen with an additional 6m^2 .

Bigger rooms address the layout of a house better and therefore only option B and C get this label.



20. Closet support

Specially designed clothes closets were found to increase autonomy in dressing for elderly. (Namazi & Johnson, 1992a). How this can be done is elaborated in the following examples.

A. Walk-in closet.

With the use of a walk-in closet the user can be closer to the shelves and have the comfort of not having to turn around or bend over for reaching items.

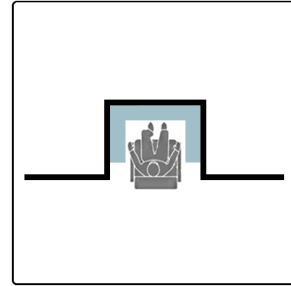
B. Pass-through closet.

Allowing more privacy, this type of closet can be opened on two sides. On the inside and outside of the apartment. Care takers can supply the resident of service without having to enter the room which can increase the privacy.

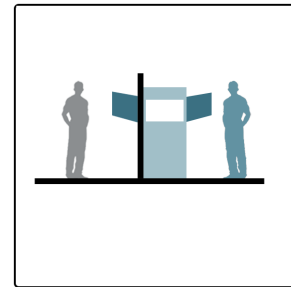
C. Open closet system.

Like the walk-in closet, an open system can be supporting users in their independence when dressing themselves.

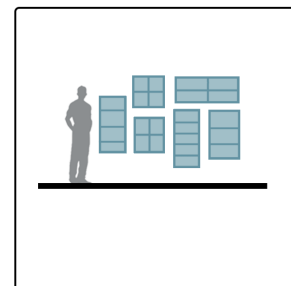
These three closet systems are all aimed on a different kind of physical support for the user. Option B also creates more privacy for the resident and option C can give the availability for personalization as it is interior decoration.



2. A



2. B



2. C



21. The apartment front door

A clear transition from hallway to bedroom creates stronger identity of the room as personal space (Nillesen and Opitz, 2013.). The three offered alternatives all a different kind of distinction.

A. Door with a color distinction.

An easy way of personalizing the door is by giving it a different color. The level of personalization is light but it can help to break pattern within a building.

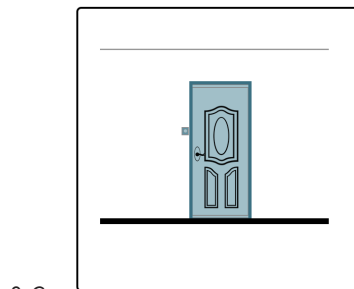
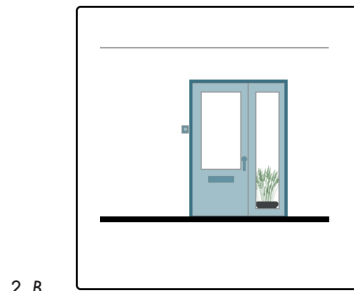
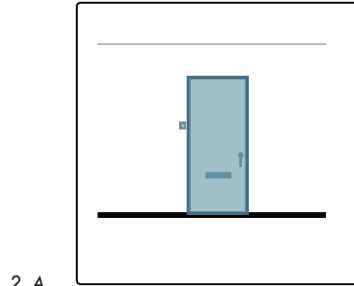
B. Door with a window

Placing a window next to the door can create a connection with the space behind it, giving it an identity to the person living there. Personal items can be placed next to it to create this distinction. The relation can also work the other way around, where a resident can keep a connection to the hallway.

C. Door with a cover photo of a realistic door.

A sticker showing a realistic door, it can even be the one of a resident's former home, will be a stronger personalization than just coloring the door.

With every option the goal is to create recognition and give residents the opportunity to stand out from the rest. Therefore the labels cognitive stimulation and personalization come to mind with these labels.



22. Bathroom visibility

The visibility towards the rest of the room stimulates own use (van Liempd et al., 2009). Furthermore, it also increases the comfort when using the bathroom.

A. Connected to the living room.

With a straight connection to the living room with opening doors as seen in option A. Although it increases usability it might increase the institutional character of the room.

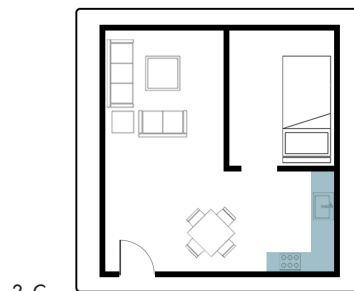
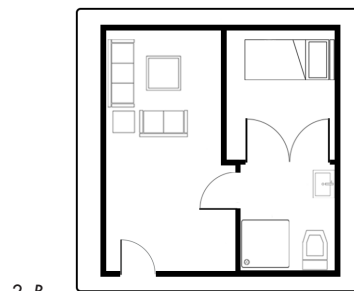
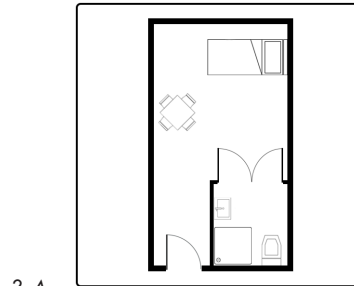
B. Open connection with the bedroom.

Opening doors with just towards the bedroom instead of the living room might deliver the same benefits as in option A, but still have a institutional character.

C. A completely separate room.

With no differentiation from the entry towards the bathroom as in a regular home, with a simple door, the institutional character is minimized. To keep a more easy access the door can be a sliding door instead of a standard door.

The visibility of the is trying to be increased in order to increase the ease of use. For people with an impairment a door might me not as easy to pass though in comparison with a situation where almost the entire wall can be moved as in option A and B. The label which for each option is then physical stimulation. Option C however also gets a label for home layout as it refers to a home situation. Advised is to apply this option with a sliding door.



23. Bathroom visibility

Bathrooms often look functional and sterile, this worsens experience and recognizability (van Liempd et al., 2009). Looking at different color schemes varying in color contrast can give an image of the desired toilet.

A. Functional coloring

The gradient is very pale and therefore might be too functional or institutional. It will be easier to clean however and more hygienic.

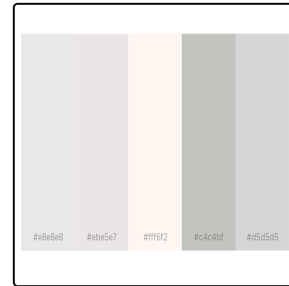
B. A light color gradient

With light coloring the benefits of hygiene can be kept and break the functional look of the toilet.

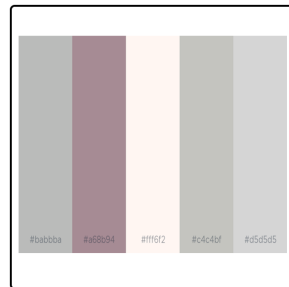
C. Heavy coloring.

A heavier color palette doesn't refer to a functional design but can be harder to clean thoroughly.

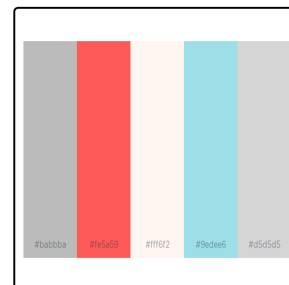
The colors of the bathroom offer, just as the toilet, two purposes in the above described case. It can have very minimal coloring to make it easy to keep clean and hygienic, as in option A. Or, serve a stimuli to better the experience of the space as is done with the palettes in option B and C. Therefore last two options get a label for cognitive stimulation and personalization.



2. A



2. B



2. C



24. Bathroom size

Bathrooms which look too sterile and functional worsen experience (Nillesen and Opitz, 2013.), three alternatives are explored:

A. A compact size toilet

A toilet about the size of 4m² can be more comfortable as the user has everything close by and does not have to turn or walk a lot when moving around. Depending on the level of impairment however this option can be tight to comfortably make use of the toilet.

B. “Medium” size

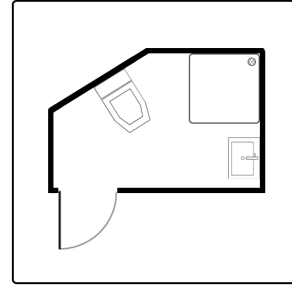
When the size is a bit bigger, 5 m², the extra space can offer the extra space people may need when making a toilet visit.

C. “Large” size.

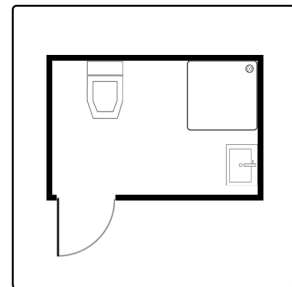
Size is bigger than actually required. Extra space can be more comfortable for the resident. However, when the room is bigger it can also seem to be too functional.

All three variations have their own level of physical support and comfort which is the only label addressed.

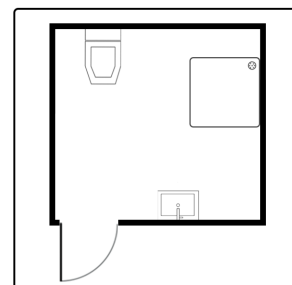
2. A



2. B



2. C





Site Analysis



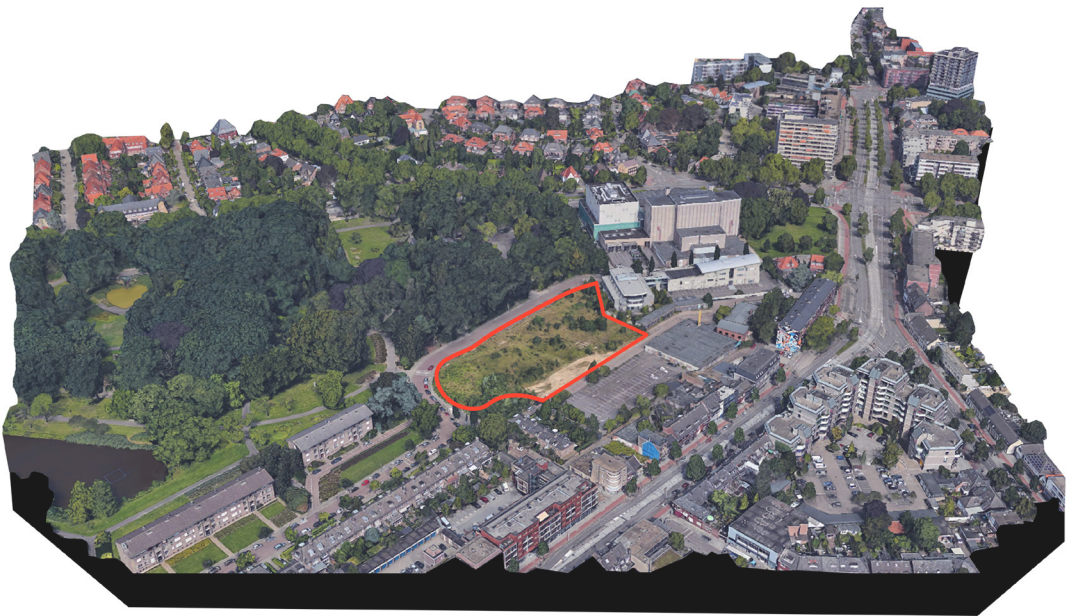


Figure 1.1 The location of the site.

1. Site motivation

The site, located near the center of Eindhoven, where the research component will be tested is seen on the left hand picture (figure 1.1) and will be analyzed in depth in the next part. Why this site has been chosen is due several factors and criteria while looking for a fit design location. During the research it became clear that residents of a nursing home have a need for an environment with on the one hand, activity and people, and on the other, a quiet area for them to enjoy some peace. As further on can be read in the site analysis, this is exactly what can be realized on this site. On the southern side is a quiet park with plenty of green which runs out into a huge park, where on the Northern side lies the city center on 5 minutes walking distance.

The site has been an empty plot for years and is surrounded with a lot of vacant and neglected buildings. As the area around it is quite vibrant and is a popular place for the people of Eindhoven to enjoy the park or drive by, this makes it all the more fit for a place where elderly can have a suited place in the urban fabric. Furthermore, right next to is the city theatre and is nice additions to the already plenty amenities surrounding the future nursing home.

Next, a thorough analysis of the urban area will summarize all the strengths and weaknesses which have to be taken into account while designing. This will lead up to several conclusions which thereafter will be translated into several design responses. These will be the foundation for the urban masterplan and nursing home.

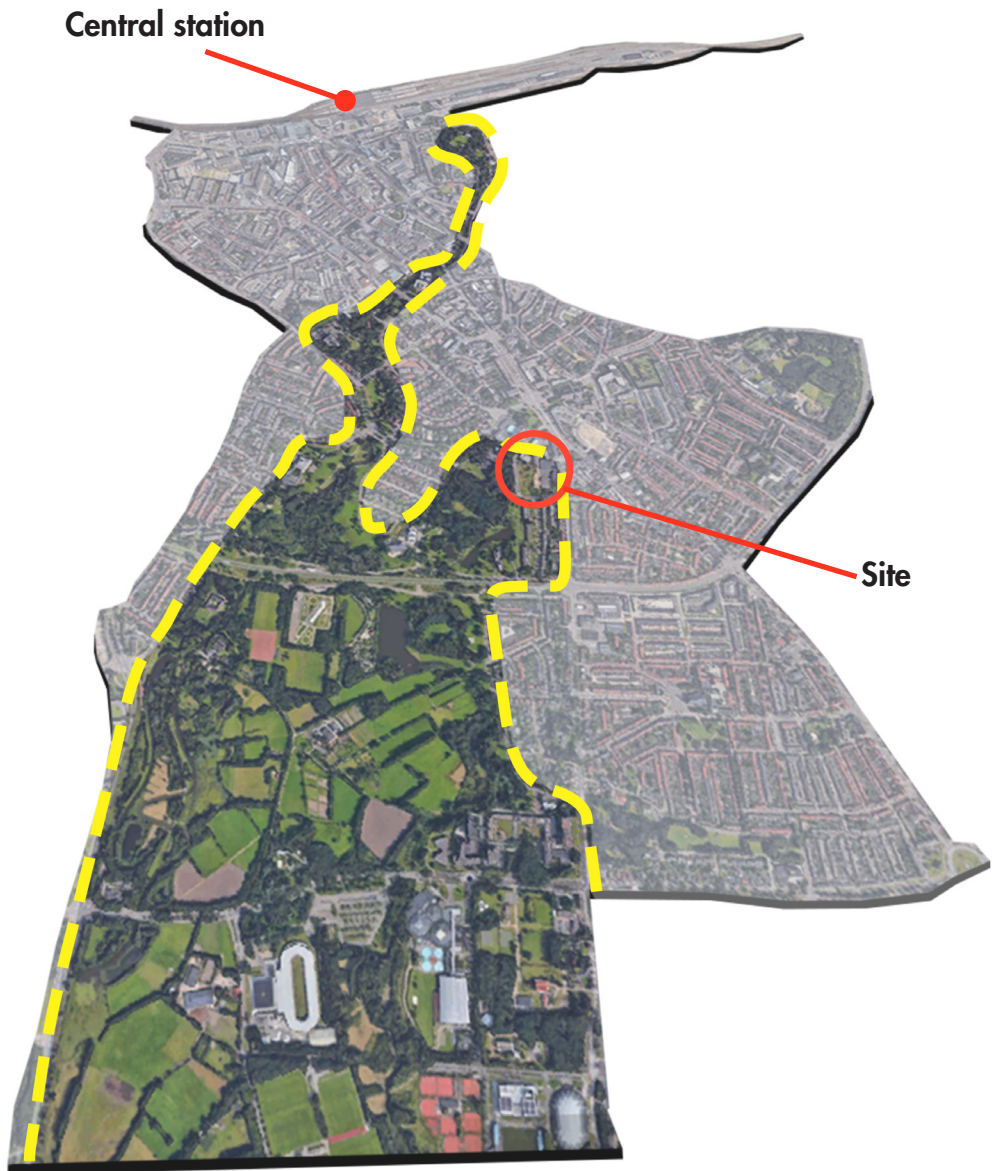


Figure 2.1 The yellow line shows the border between park and urban area in this section of Eindhoven.

2. Urban analysis

2.1 Green boundary

For a comprehensive review, the analysis has a top down structure which starts on a city scale and ends with the site in close boundaries. Seen on the left in figure 2.1 is a section of Eindhoven. The central station is shown for orientation as it lies at the center of the city. The highlighted part shows the densely built area city scape. The unhighlighted part shows the Genneperpark which runs though the city center. The yellow line shows the quite strong border along the two and as can be seen, the design location lies right on it.

The atmosphere of the park next it can be described as a place where people often sit down for pick nick, walk their dog and local commuters go for a run or walk. Going more to the south, the greenery seems more like a countryside with some small farmland and lots of path for walking and cycling routes. The main aim for this area is again recreation. Finally, at the bottom of the figure, it can be seen that the focus shifts to sport ground as here are some of the biggest sporting facilities of the Netherlands located.

A further breakdown of this part of Eindhoven will follow on the next page with a stronger focus on the separate parts in this neighborhood.

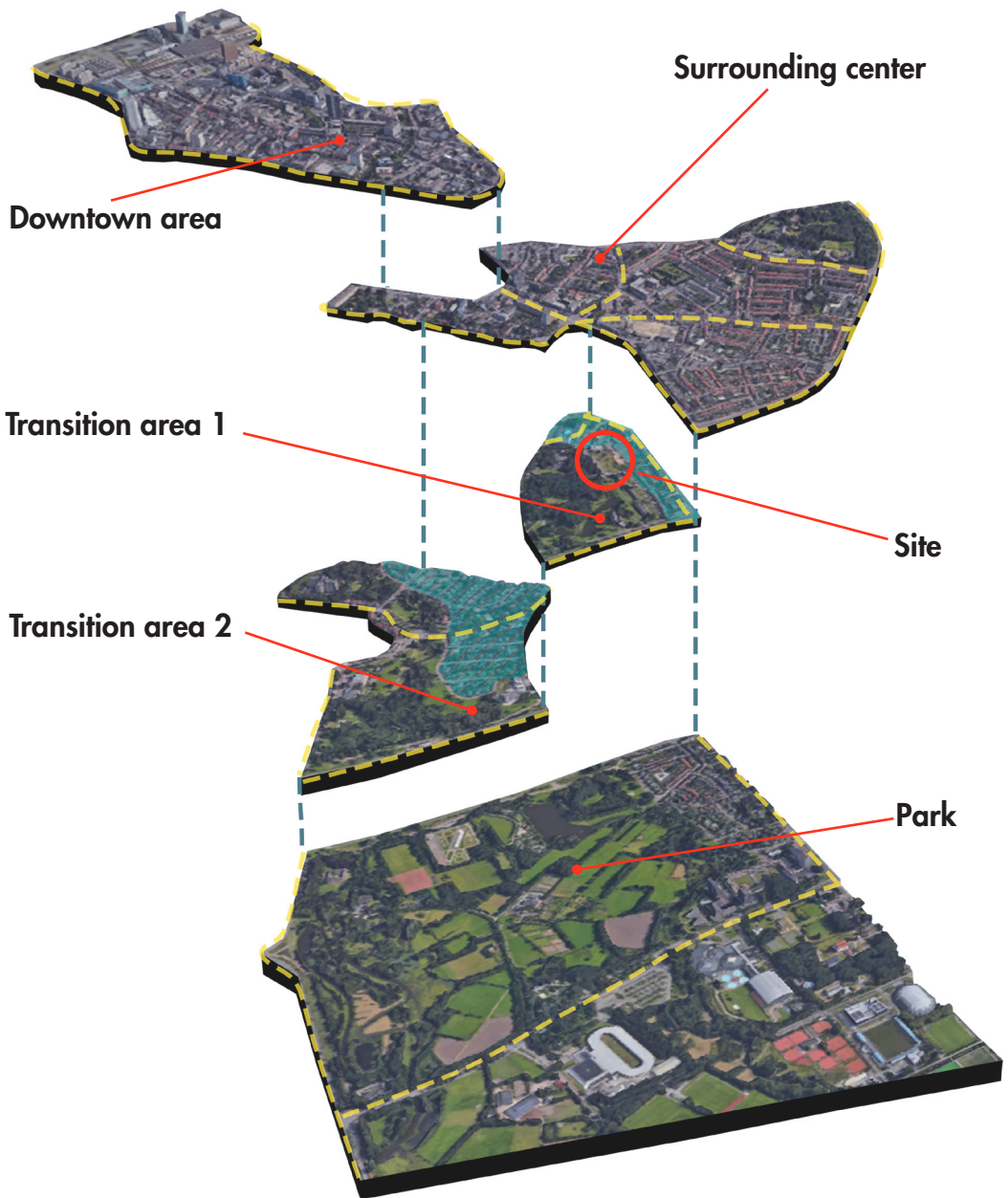


Figure 2.2 A breakdown of several small districts in Eindhoven, blue lines show where the pieces connect, yellow lines show where roads act as borders and the blue area shows where there is a transition from urban to the park.

2.2 City districts

Looking closer at this section of Eindhoven, five areas can be distinguished as is seen in figure 2.2. The blue dotted lines in this graphic show where the different cut outs are connected and the yellow lines depict where there are busy roads acting as boundaries between those districts.

First there is the downtown area which can be seen as the center district of Eindhoven. There is always a busy atmosphere as it contains the central station, many shopping streets and the nightlife is very active. Part of it is car free, which is pleasant for pedestrians, but it is surrounded by busy roads. These boundaries generate demarcated atmosphere giving it a strong identity.

Second, is the district surrounding the downtown area. A semi-residential area with busy road axes connecting to the center. Around these axes are several shopping hubs focusing on first amenities such as supermarkets and pharmacies. It should not go unnoticed that these two districts are within five minutes walking distance from the design location and therefore directly address needs for the future residents.

Furthermore, there are transition area 1 and 2, with the design location in area 1. These areas are identified as transition area, is because there is a change when it comes to land use, activities, density, volume and program. The blue area demarcates where this happens exactly.

Last, there is the Genneperpark with a countryside ambiance, small farming fields, museums and water areas.

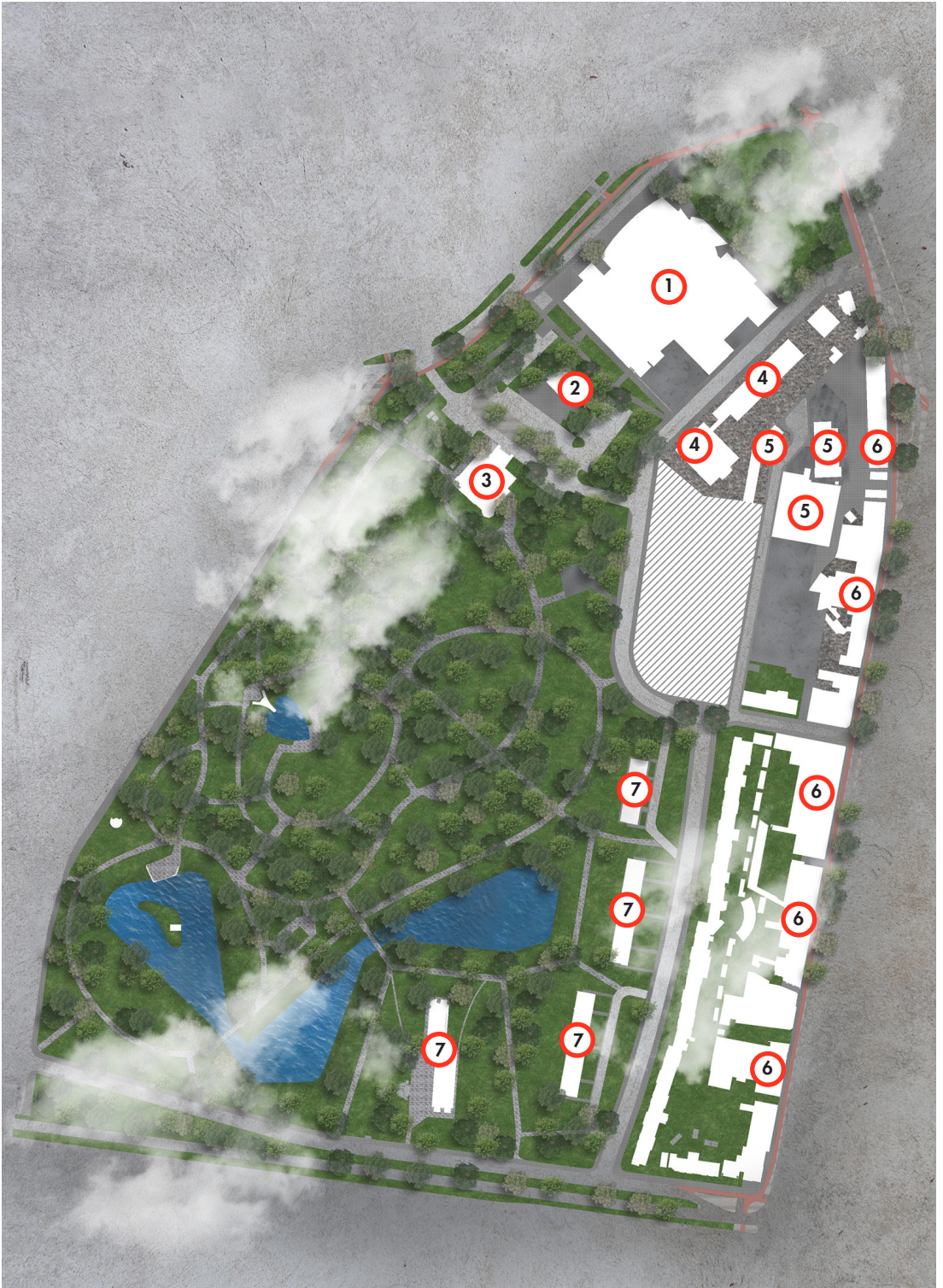


Figure 2.3 This map shows the current situation of Transition area 1 in figure 2.3. The numbers go along side with the text on page XXX to describe the functions of the buildings in this neighborhood.

2.3 City districts

Shown on the left is transition area 1 from figure 2.3. The surrounding functions show a wide variety of functions. Number 1 marks the city theatre where weekly performances are held around the weekend. Number 2 is a small performance kiosk which is part of the city theater and during summer has an occasional event. These events are often organized in combination with the *City pavillion* (Stadpaviljoen) which carries number 3 and is a small restaurant. Together these functions form a small creative hub in this area of Eindhoven. During shows many visitors have to park their car in the street bordering the site and this should be thought of when making interventions in this area.

Next, there are two buildings being renovated into luxury apartments and are depicted by number 4. Right next to this (5) is a row of garage boxes and two vacant buildings without any future developing plans. All buildings are covered in graffiti and are getting overgrown with weeds.

The entire row of buildings which carry the number 6 are a combination of retail and housing. The retail function is situated on the ground floor where apartments are housed above. Number 7 shows apartment buildings with a height varying from 4 to 7 layers.

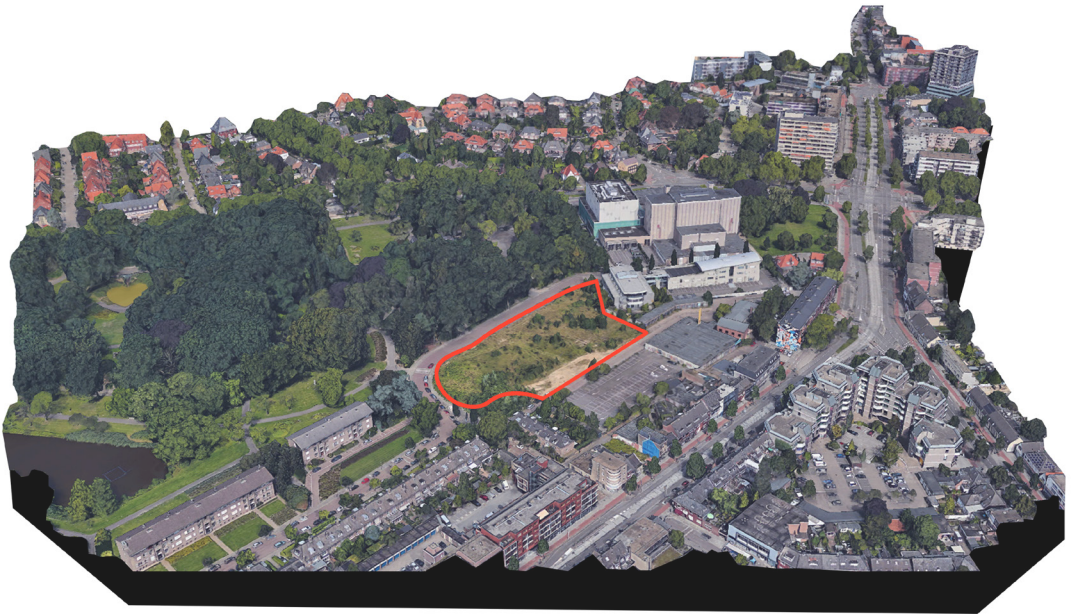


Figure 2.4 The location of the site.



Figure 2.5 The atmosphere around the site. The area which have the same colors show opposing atmospheres.

2.4 Site atmosphere

The image in figure 2.4 shows the site in a birds eye perspective where the discussed functions from image 2.3 are visible. After several site visits the atmosphere in these areas have been mapped into figure 2.5. The colors show opposites in atmosphere.

The top left area is a luxury housing area with a very spatial setup. There's lots of space between the houses and they are all surrounded with lots of trees and greenery. On the opposite side, in the other gray area, the set-up is quite different where there are just apartment buildings which are surrounded with grassy fields. The road is full of parked cars making the area quite dense when it comes to atmosphere.

The blue area shows on the left side shows the *Stadswandel park*. Most activities are aimed at lingering, walking a dog and during summer it is a popular place for picnicking. The setup of the park is very natural with lots of high trees in between fields of grass. On the other side there is the more urban area. The top side goes towards the city center where the noisy traffic comes from. The axis over which this goes is a has a hasty feeling of the very active road. Retail functions are mixed with residential placed above these.



Figure 2.6 The iconic edges in the area.

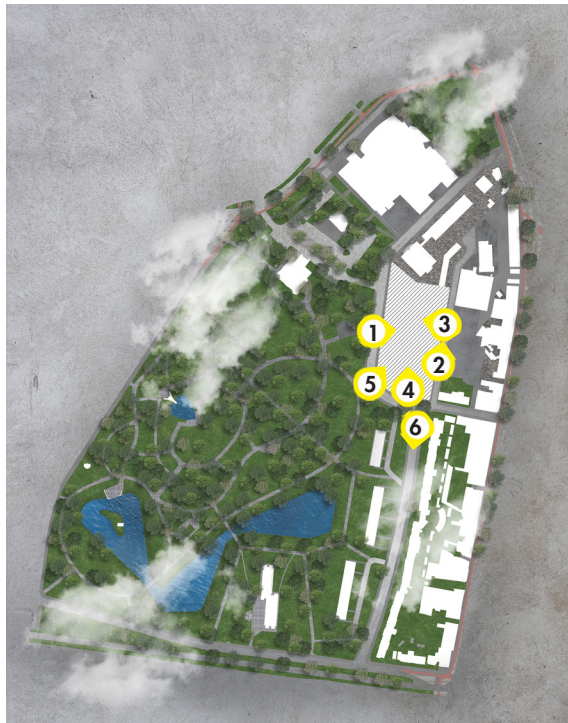


Figure 2.7 The locations of where the photo's on the next page have been taken.

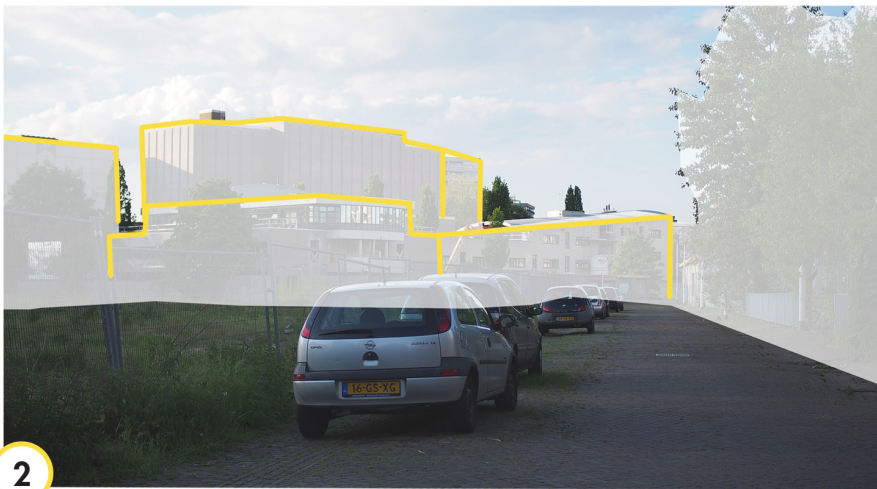
2.5 Iconic volumes

As the site is completely empty, the volumes of the surrounding buildings and park have a bigger impact. Figure 2.6 shows the edges with a strong identity in the area. On the next page images are shown of the coming analysis. Figure 2.8 shows from where the pictures have been taken. Strongest is the volume of the city theatre, which is about 28 meters high and has a very cubic, solid shape (figure 2.10, 2.12 and 2.13). The trees at the edge of the park area about 12 to 15 meters high which therefore also have strong influence in the site atmosphere (figure 2.11). On the other side the borders are not that high in volume and further away as well. The empty parking lot is quite large and expands the empty area and the atmosphere that comes with it (figure 2.9). The street on the bottom side of figure 2.8 has, due the apartments and parked cars a very dense volume (figure 2.14).



1

Figure 2.9 An abandoned building with apartments in the back.



2

Figure 2.10 The backstreet and the city theatre.



3

Figure 2.11 The strong and thick edge of the park.



Figure 2.12 The edge of the park together with strong volume of the theatre.



Figure 2.13 The future apartments and the pitching roof of the church.

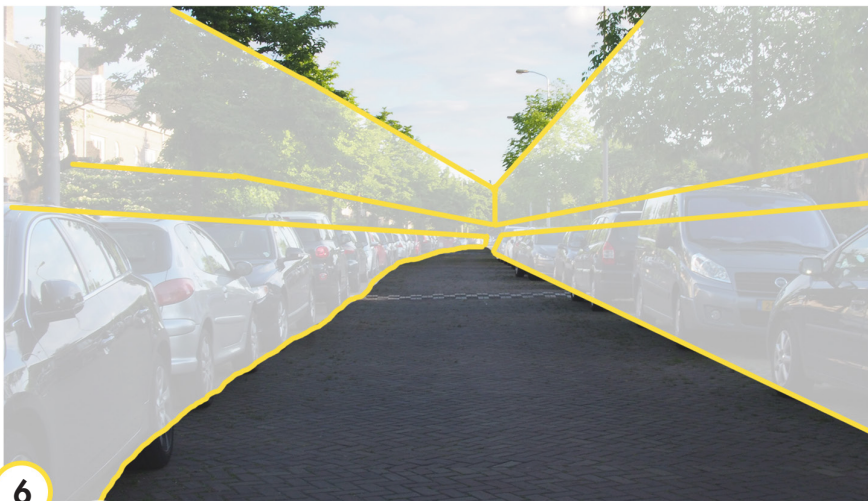


Figure 2.14 The street from the south with a very dense atmosphere due the many parked cars.

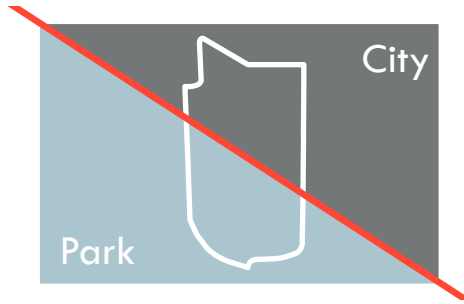


Figure 3.1 The iconic edges in the area.

| | | | |
|-------------|-------------|---|------------|
| 1. Land use | Park | ↔ | City |
| 2. Activity | Linger | ↔ | Hasty |
| 3. Spatial | Open | ↔ | Dense |
| 4. Volume | 2 stories | ↔ | High-rise |
| 5. Program | Residential | ↔ | Commercial |

Figure 3.2 The iconic edges in the area.

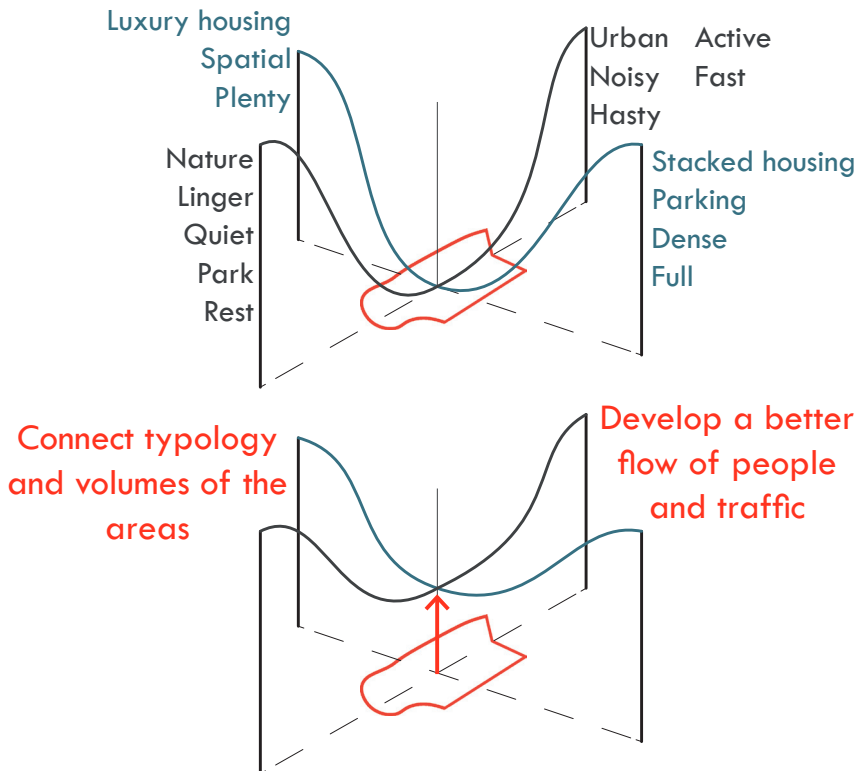


Figure 3.3 The iconic edges in the area.

3. Analysis conclusions

From the urban analysis done in chapter 2 three important conclusions can be drawn. First, it can be concluded that the site lies in a divided area (figure 3.1) with several borders which have different scales, as is seen in figure 3.2. This divergence has multiple layers of which five have been identified. There is a transition from urban land use to park, the activities shift in speed and purpose, the density of spatial organization together with the volumes and last conclusion is that the program shifts between residential and commercial.

As all these activities don't shift simply from left to right on the map. Figure 3.2 show how these move across the site where the words from figure 2.6 have been used. The transition in this area is basically zero as the site is literally empty and the neighboring buildings are vacant. This is what a new masterplan an the nursing home should try to overcome. The program should not only suffice the residents but also connect them with the neighborhood.

There are two more objectives to fill this transition gap. First, is to connect the typology and volumes of the area. This has to be done to create a connecting activity hub. Second, is that the flow of people should be improved. The division between city and park should be a strong factor of the design and with the current traffic situation and land use that is not optimal.

These conclusions are translated into a responsive strategy to make best use of these and form a strong basis for designing the nursing and the surrounding area.

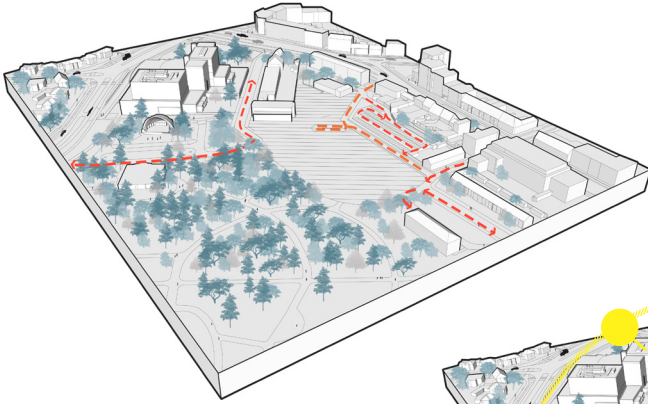


Figure 4.1 A new traffic situation

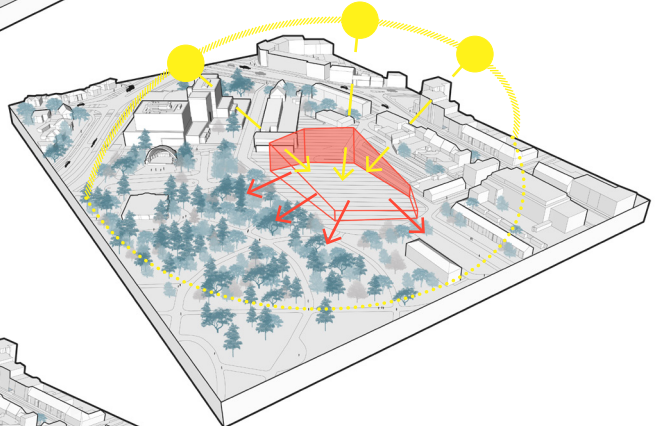


Figure 4.2 The Sloped volume

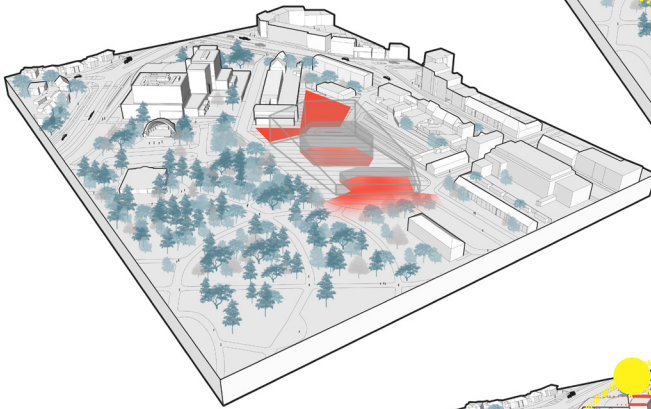


Figure 4.3. Three squares in and around the site

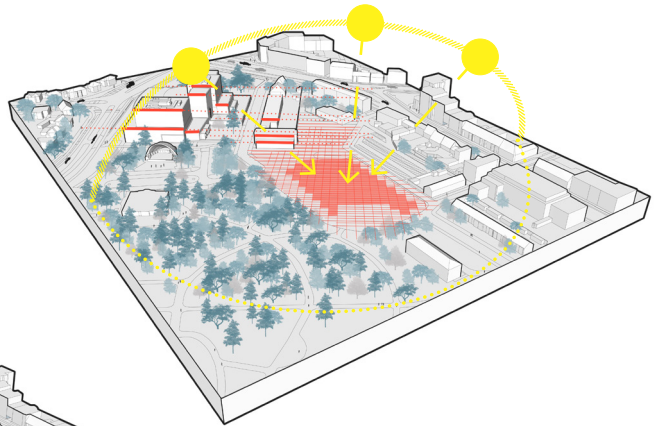


Figure 4.4 Grid lines coming from the surroundings

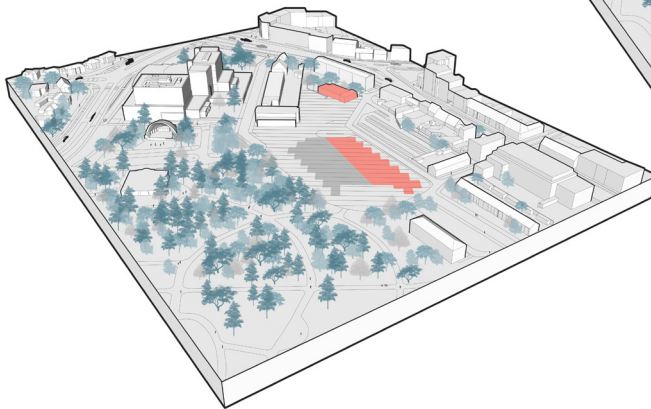


Figure 4.5 The program emphasizing the division between city and park

4. *Responsive strategy*

From the previous conclusions in chapter 3 five responsive actions will undertaken and will form the foundation for the design. All interventions are shown on the left and in a larger size for closer reading on the following pages.

First response is to change the traffic situation. The road in between the site and the park will be removed and traffic has to be guided around. This enables the design to connect directly with the park as the road forms a direct border. By doing this the space being identified as city and as park is very clear as well. Second, is that the volume should have a sloped shape which is highest towards the city and the theater; which declines to ground level at the entry of the park. Important also is that the slope on the city side is smaller in order keep the main orientation to the park instead of the city. Next to this, is that it also creates perfect orientation towards the path of the sun. Third response makes a division and connection towards the surroundings. On the north side will come public square where the main entrance of the nursing home will come. With the high volume, entry and public square this side will have a strong identity to serve more needs. An example is when many people walk by when there are shows in the theater. In the middle of the volume will come a private garden, which turned out to have a high desirability. The side towards the park will have a semi-public atmosphere with a restaurant also accessible for non-residents. Fourth comes the grid which is aligned with dominant lines in the area. It also orientates the design towards the sun and park. This will result in an edged volume where there is the possibility to create many intimate and personal spaces which are desired based on the research. The program, especially on the ground floor will have a disparity between a public health clinic, also aimed at the residents, and more private functions oriented towards the park.

1. A new traffic situation enables the park to continue and create a division between city and park.

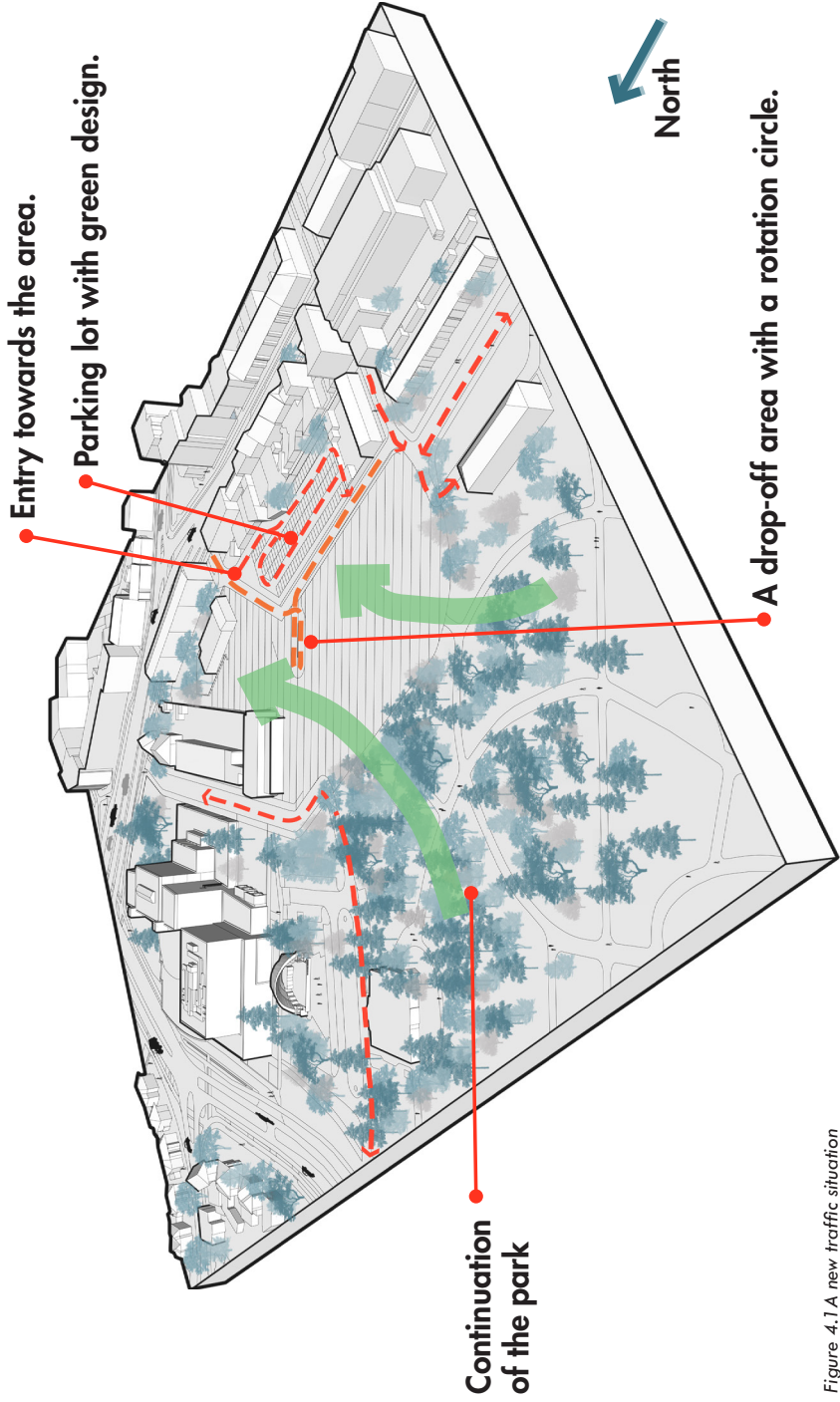


Figure 4.1 A new traffic situation

2. A sloped volume will connect to the surrounding typology and will make use of the qualities in the area.

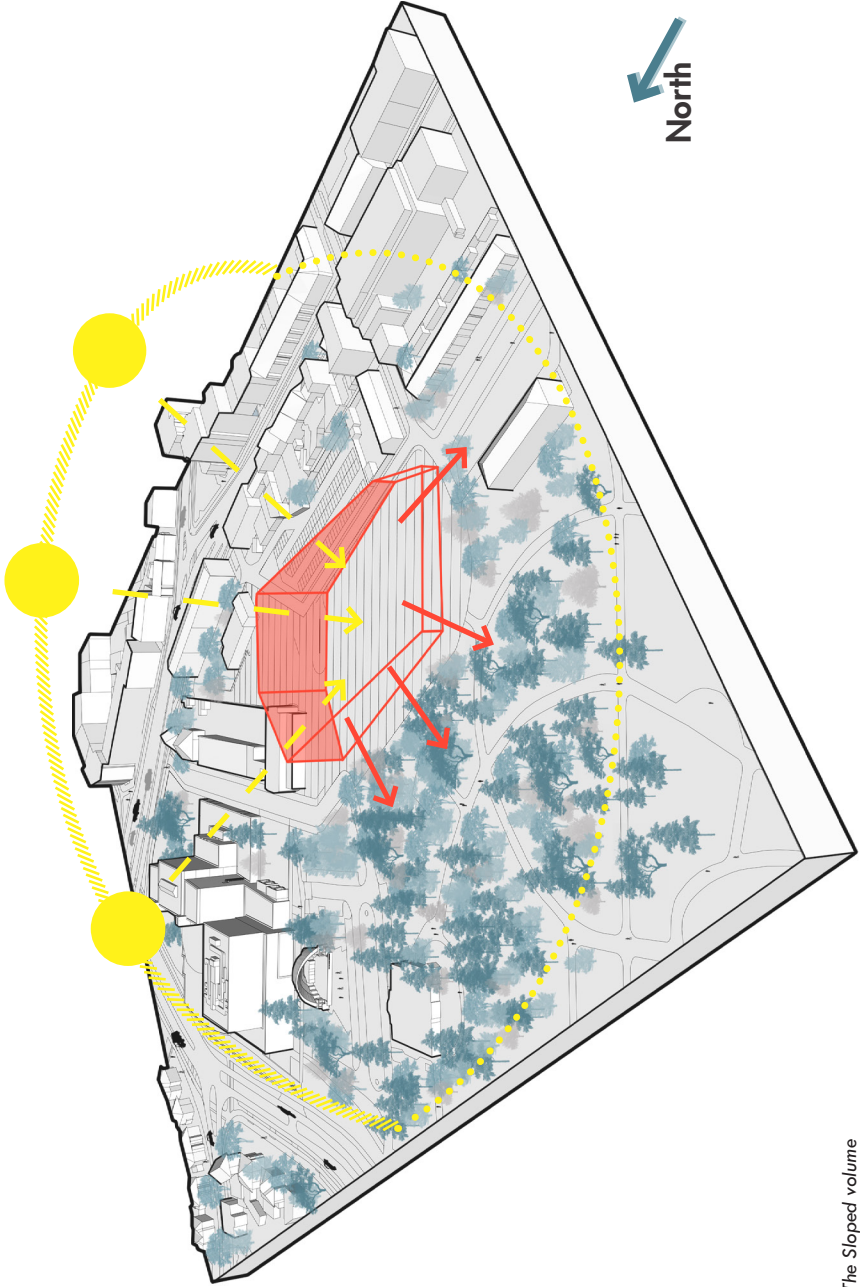


Figure 4.2 The Sloped volume

3. Three squares give space for different required atmospheres.

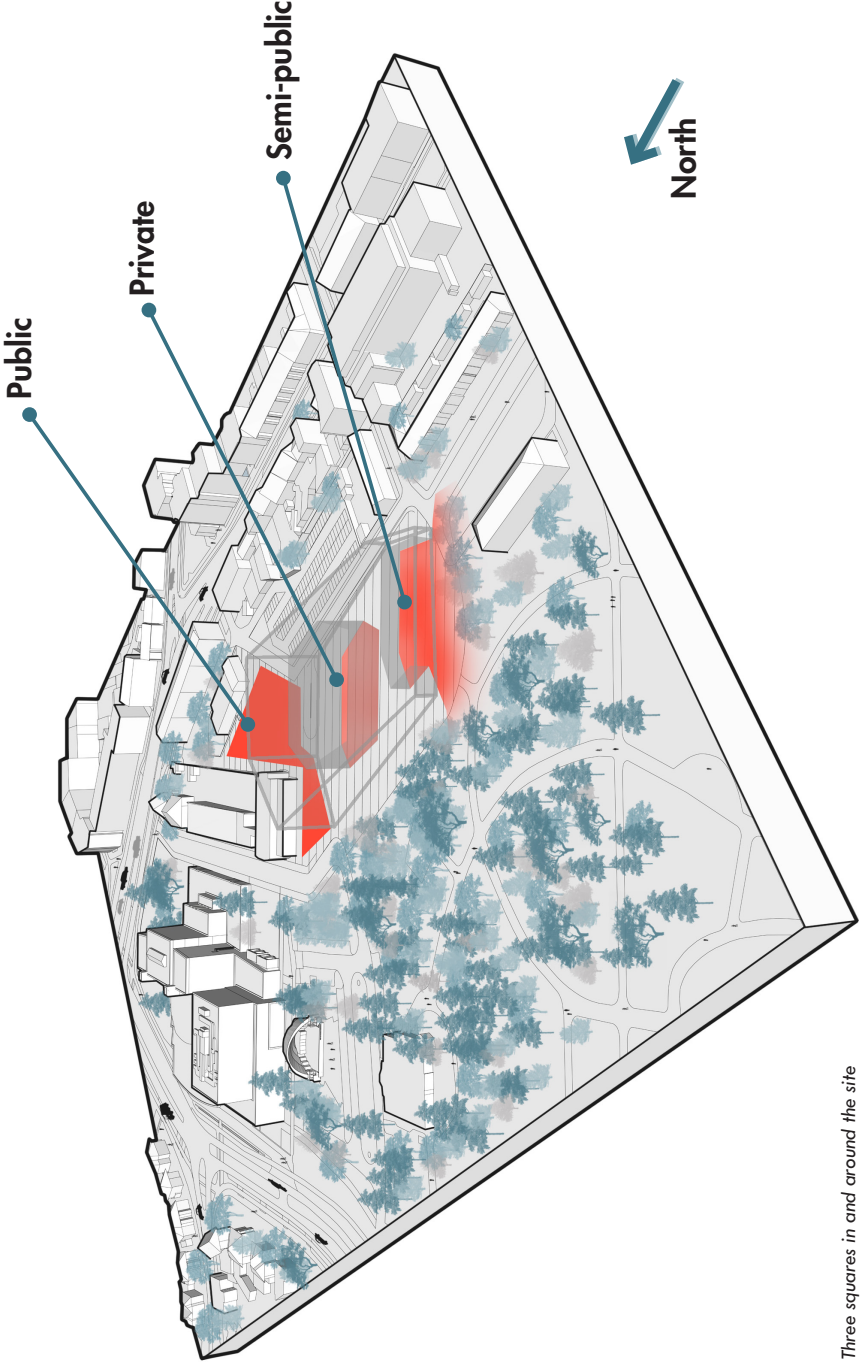


Figure 4.3. Three squares in and around the site

4. The grid corresponds with dominant lines through the site and focusing on the park and sun.

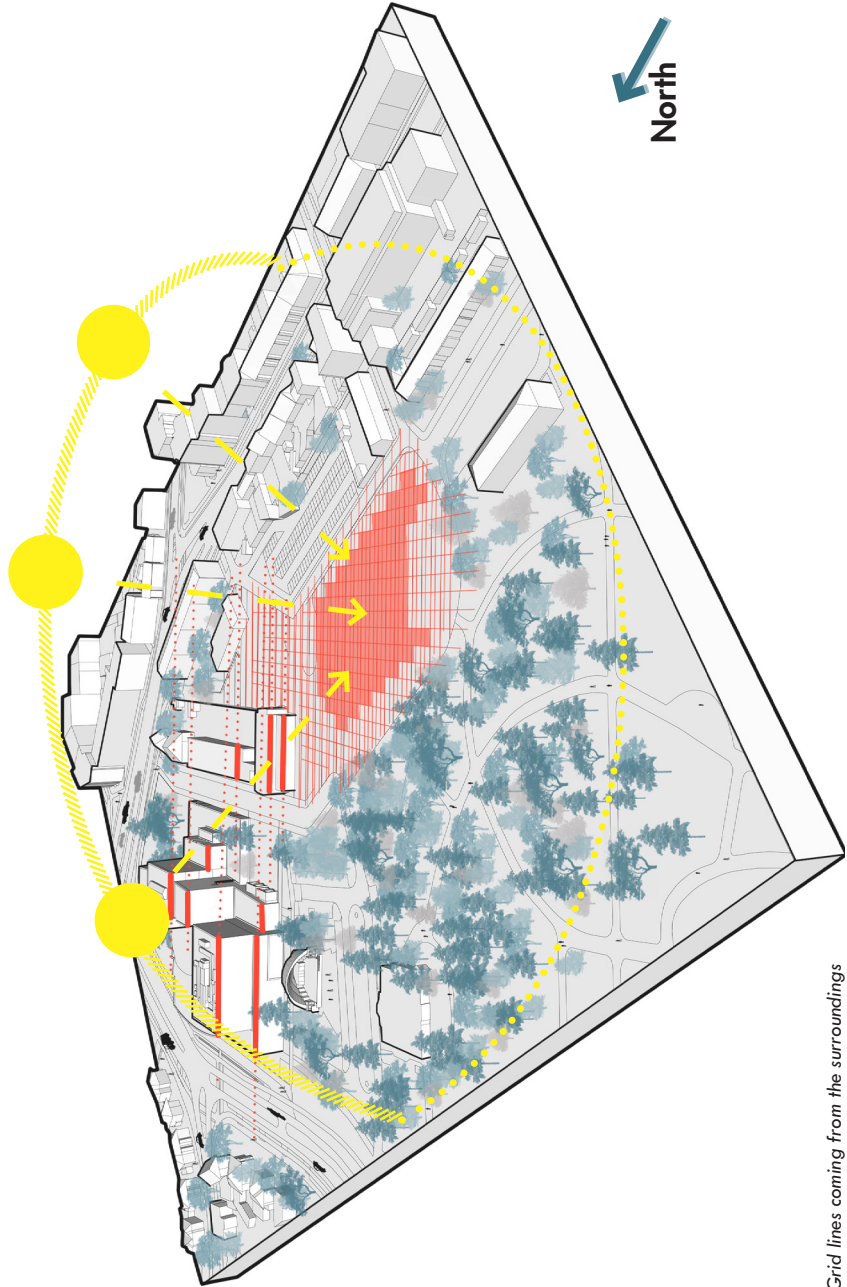


Figure 4.4 Grid lines coming from the surroundings

5. The program serves medical needs and attracts a desired crowd which activates the area socially.

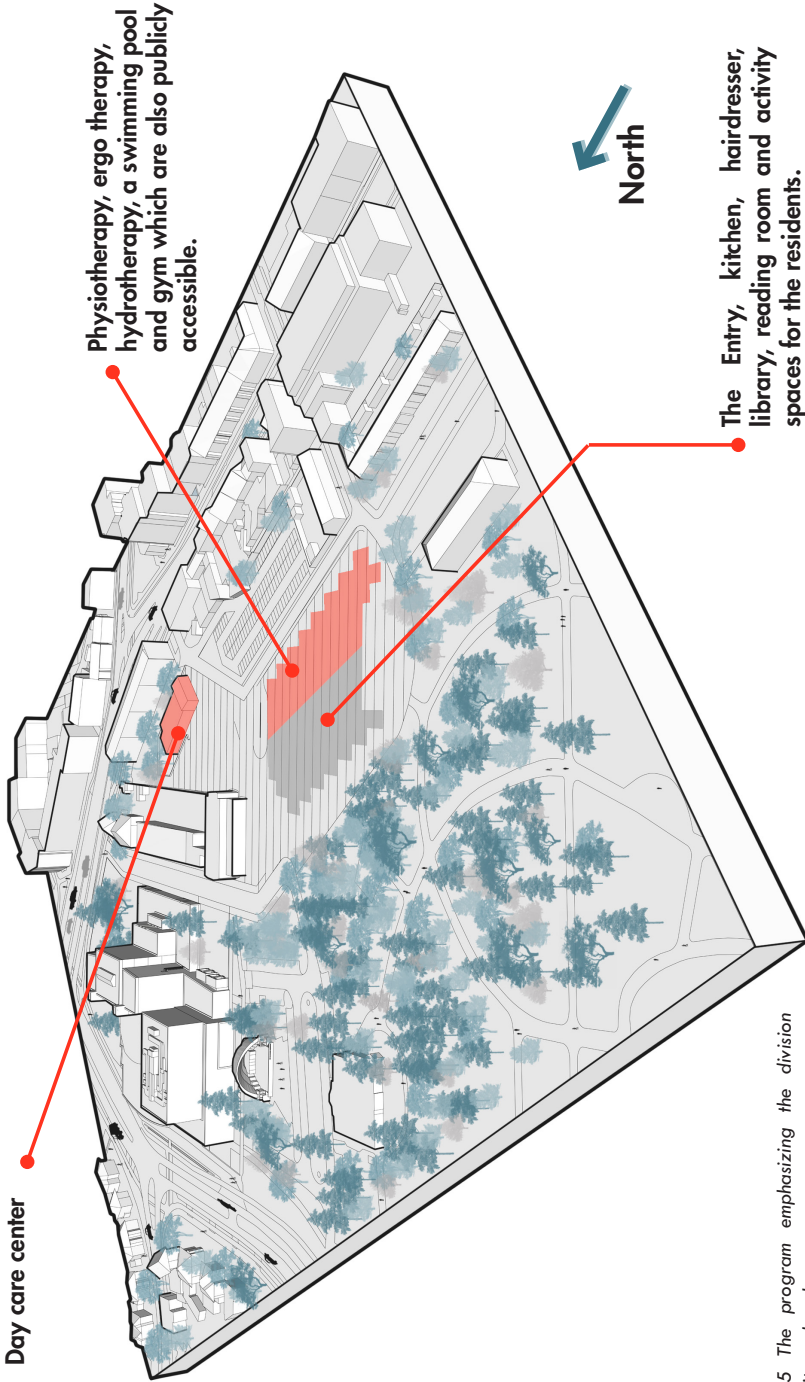


Figure 4.5 The program emphasizing the division between city and park



Design





Figure 5.1 The new masterplan

5. Masterplan

Redeveloping the area around the site has been done in order to generate a higher living quality for the future residents. Because the parking lot looks neglected, several buildings are vacant and are covered in graffiti, they will have a negative impact on any apartments orientated this side. As there is already some infrastructure for cars to go through the building and park for the residents, the decision has been made to demolish the two vacant buildings. The orange outlines in figure 5.1 show where the buildings were located. This enables it to give space for the public square to come together. Moreover, there is now the possibility to connect the east entry towards roads in the rest of the area. Along this a drop-off circle for the nursing home can be located. The same goes for the parking lot which can be circled in and out as well. The yellow line shows the traffic moves through the area.

In order to create a softer transition and expand the atmosphere from the park the materials in the parking lot are picked to do this. The parking spots are paved with open bricks where grass can grow through. Surrounding the stand are small trees which continue the atmosphere from park on the other side of the building. Together this will be a gradient which connects the park to the city in a more delicate way as it has a fading border. Response 1 has been filled in this way and is the first step in decreasing the transition gap.

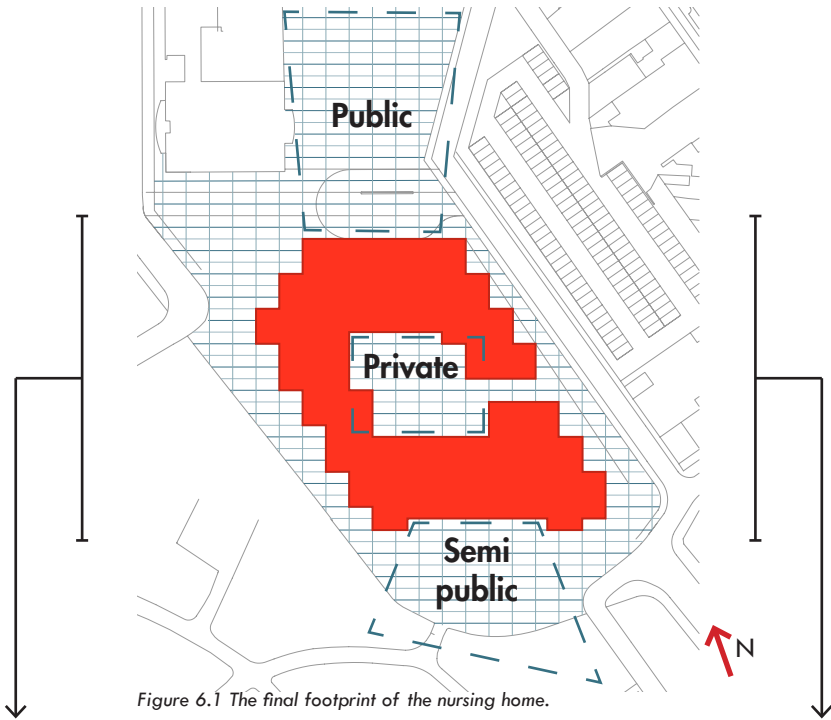


Figure 6.1 The final footprint of the nursing home.

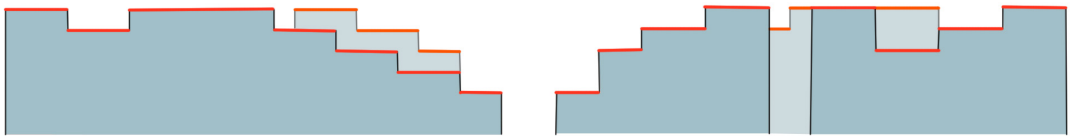


Figure 6.2 The stepped slopes of the two longitudinal facades.

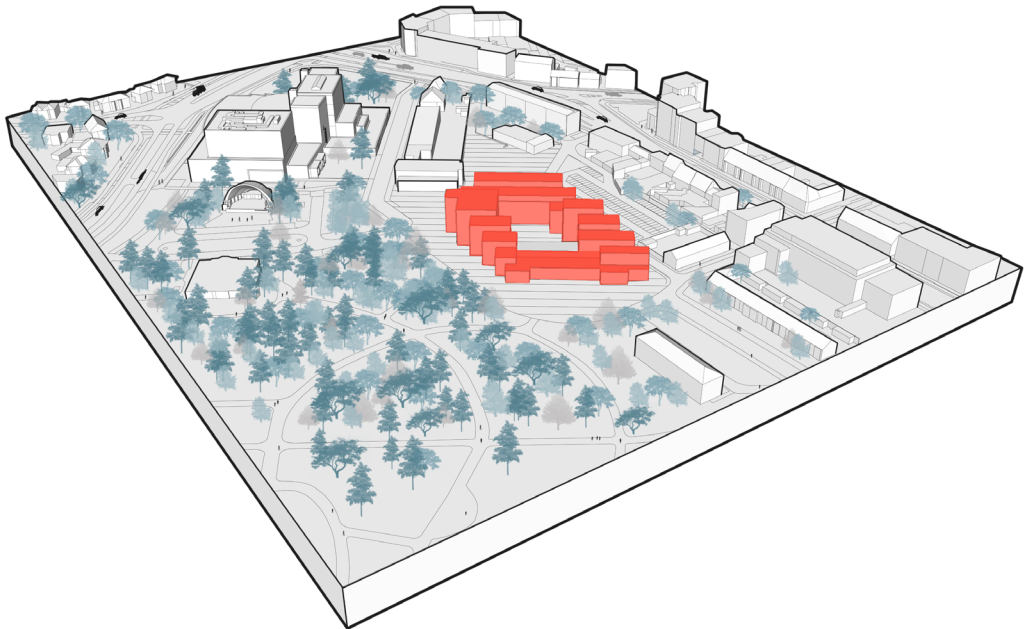


Figure 6.3 The volume on site in a 3d plane.

6. Volumetric approach

The volume came together after a long series of testing new grids and filling these in. Early concepts lead to unsatisfying results here the quality of the apartments just didn't feel optimal. As the building shouldn't become this huge block full of apartments it would get a homelike appearance. The results from a grid with a horizontal distance of 6 meters and a vertical one of 3 led to the best results. The final footprint is seen in figure 6.1. One of the design responses is to orientate towards the park and turn away from the city. It turned out however that this would lead to a unwelcoming facade. To overcome this, the volume is cut open at the entrance of the health clinic. An atrium will provide a visual connection with the private garden and a beautiful entrance for any visitors. As addition, the slope of the building is broken down into two rising steps, as is seen in figure 6.2. The wall being put up on the east side is broken, a more dynamic shape is created and there is a visual connection from the inner apartments. Figure 6.3 shows how the volume fits into the context seen from a bird's eye perspective.

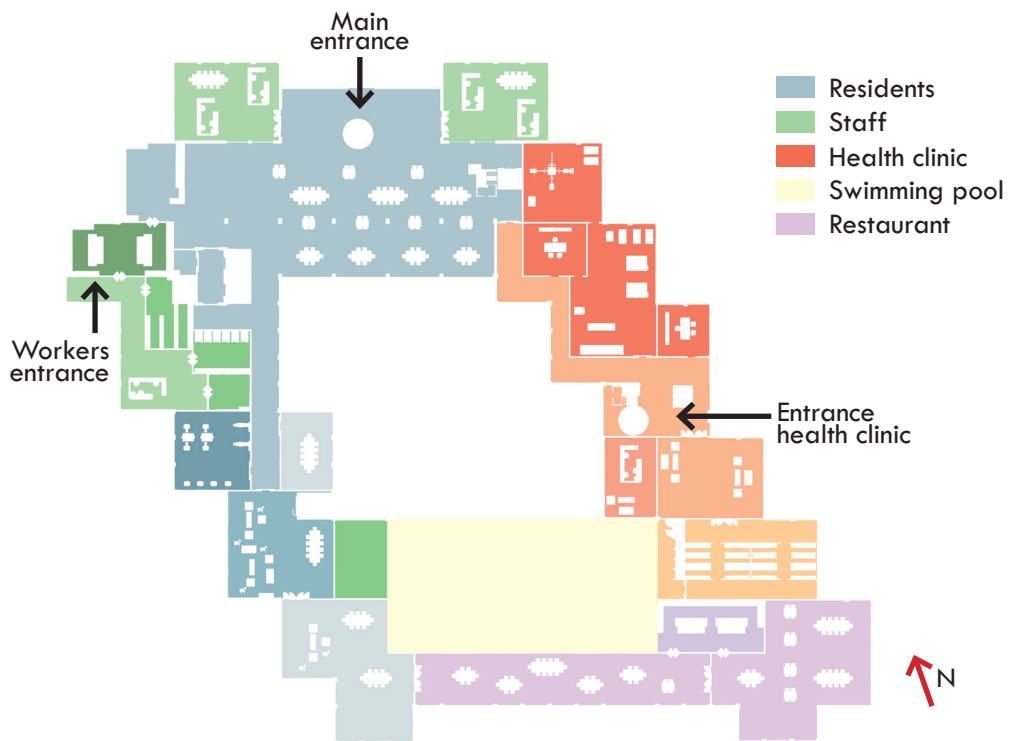


Figure 7.1 The division of the program on the ground floor.



Figure 7.2 The ground floor

7. Program

According to response number 5, where was said that the program should have a division between residents and non-residents, the ground floor finds its layout (figure 7.1). With the main entry on the north side, at the public square, residents walk up to a clear reception in the middle of the space as this was a desire coming from the survey. Around the reception are offices for staff located, together they form a barrier between in- and outside and safeguard a sense of privacy. After passing this, they find themselves in the middle of the central living room. Towards the west is the kitchen located from where the food is prepared and served. The east side contains a second entry for personal and deliveries of goods. Furthermore contains this side services like a hairdresser, pharmacy, reading room and rooms for open activities. When continuing there is an entry to the restaurant which is accessible for visitors as well. Residents and non-residents mix on the inside and on the terrace next to the park. Moving back to the main living room, on the east side is an entry for residents to go the health clinic. This hallway offers view on the central garden where other patients can have visual contact with rest of the nursing home. The health clinic has space for physiotherapy, ergo therapy, a small gym, two offices and has a swimming pool for hydrotherapy. The pool is also open for other activities such as fitness and swimming lessons for children. The entry for this health clinic is in the atrium which offers a nice view on the inner garden. The swimming pool is surrounded by glass with a strong connection to the garden as well. From the restaurant there are visual connections as well, this to show more of the nursing home towards a by-passer who stopped for a drink or lunch.

Floor 3

Floor 3 has, next to 25 apartments, a large living room. From here is orientation on two types of park, public and private. Towards the park is a balcony deck where residents can enjoy the public park but in a private atmosphere, as alternative to the terrace on the first floor.

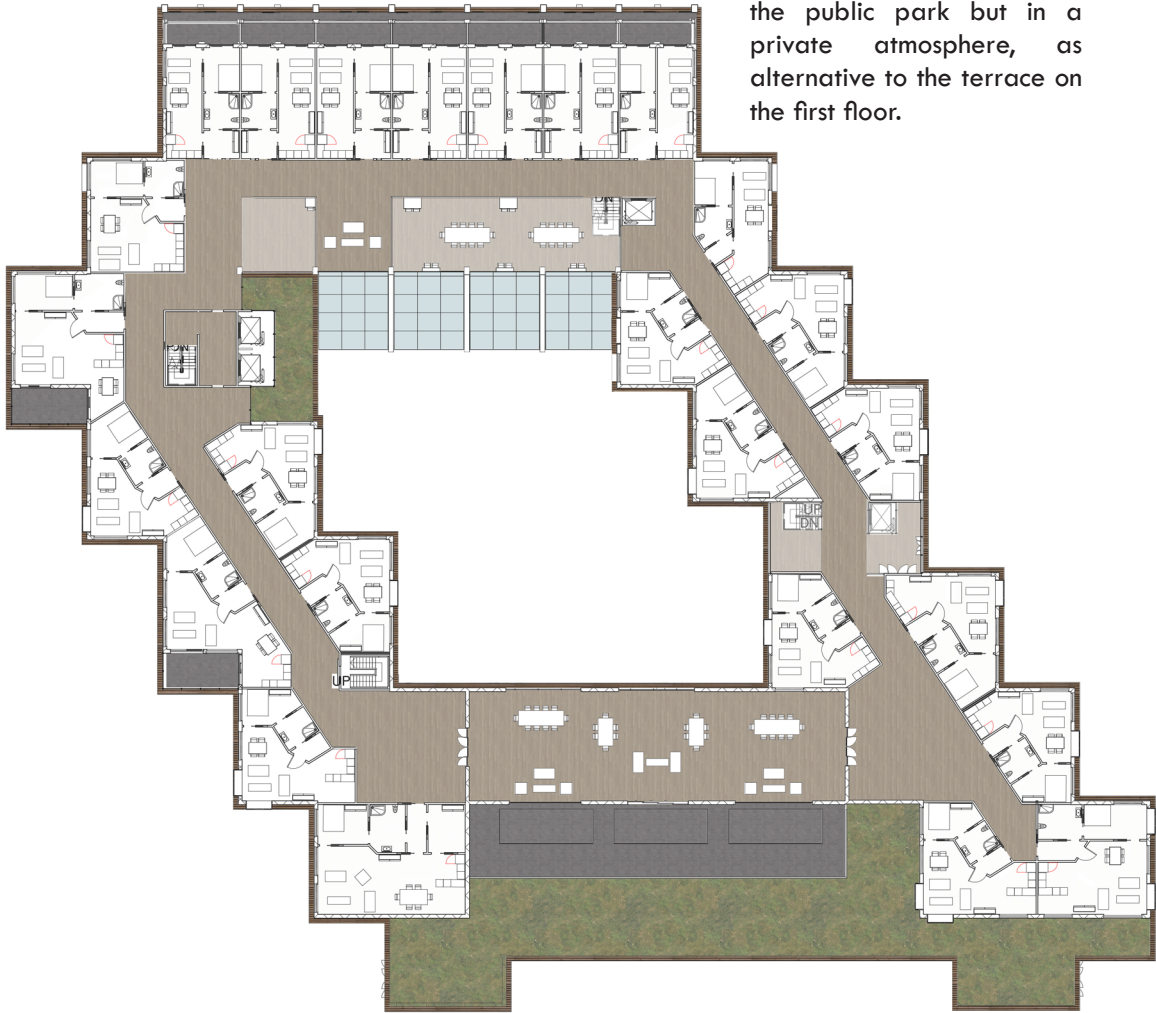


Figure 7.3 Floor 3

Floor 4

With 26 apartments houses floor 4 most people. The left wing of the nursing home starts taking its first step back towards the top.

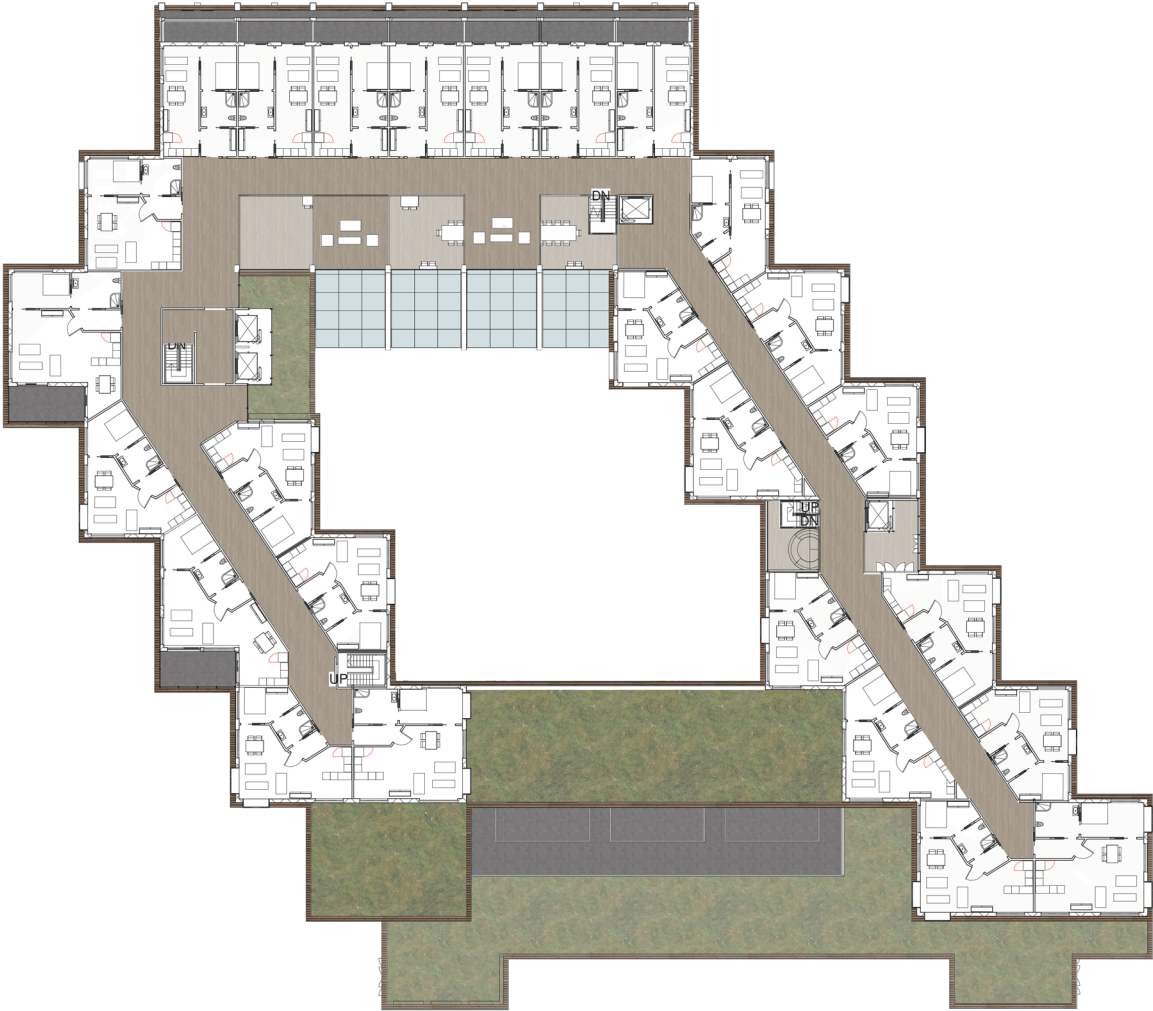


Figure 7.4 Floor 4

Floor 5

On this floor the right wing start to divide itself. Six apartments are more isolated from here on. The left wing opens up even more.

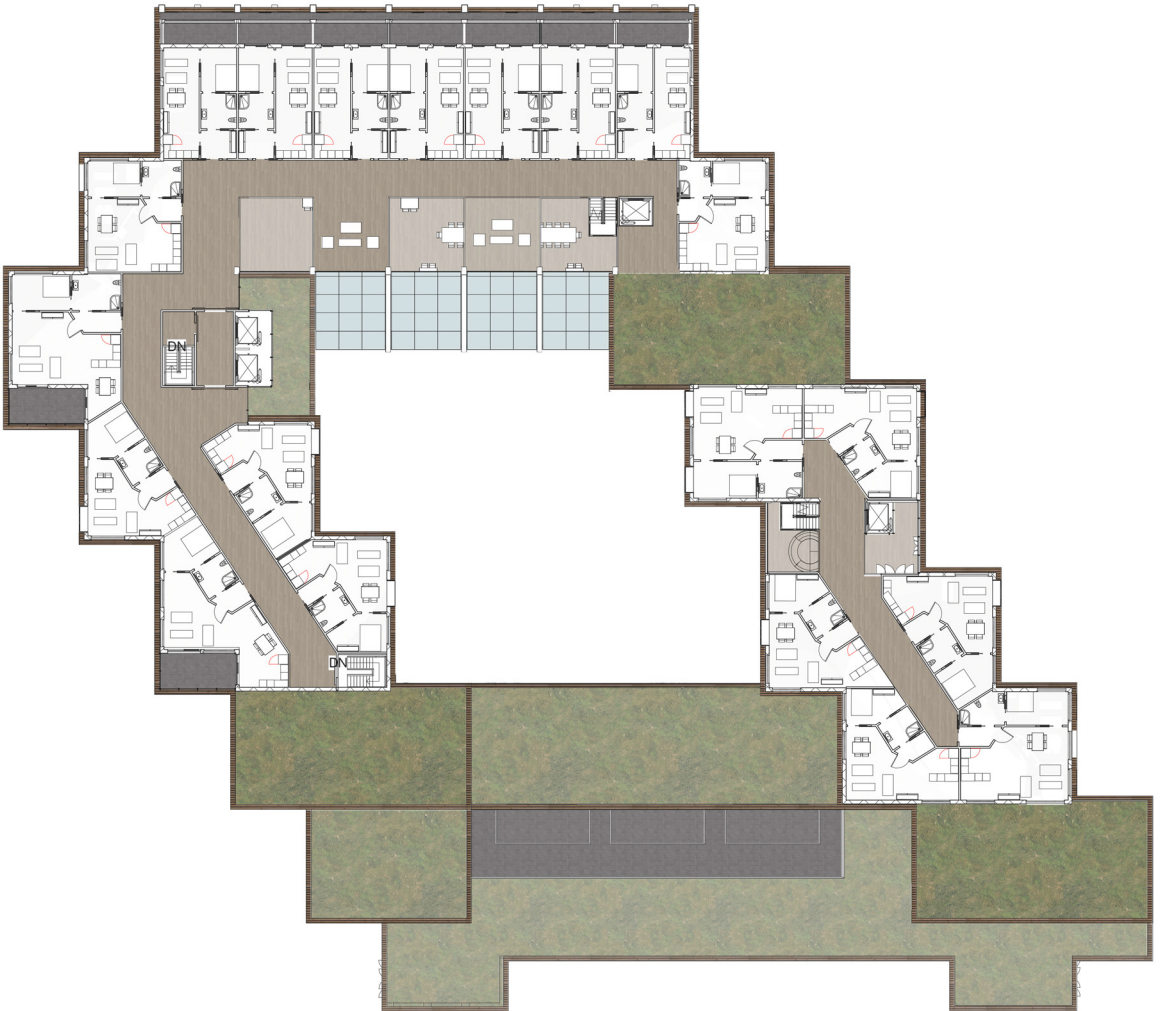


Figure 7.5 Floor 5

Floor 6

The final layer of apartments completes the total of 85 residences. There are now three groups of apartments with all different orientation. As they connect not directly, the routes are more interesting as well.



Figure 7.6 Floor 6

Floor 7

On the roof, floor 7, is a large veranda situated. Because it sticks out just above the surrounding buildings, there is a beautiful view of Eindhoven and the Genneper Parken. The large amount of green roof create an interesting view as well.

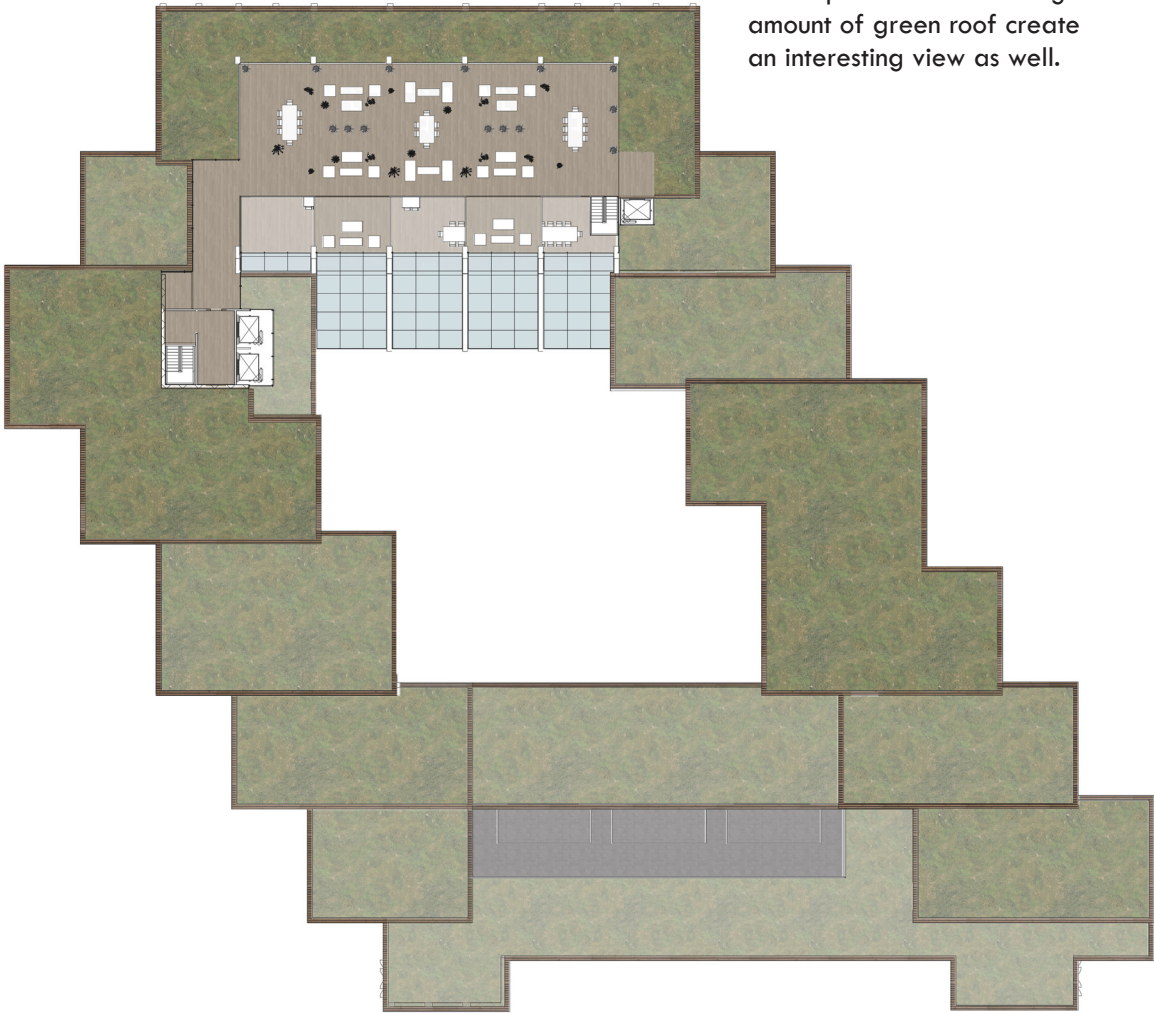


Figure 7.7 Floor 7

Floor 8

The top of floor 8 completes the building and makes it reach a height of 25 meter.

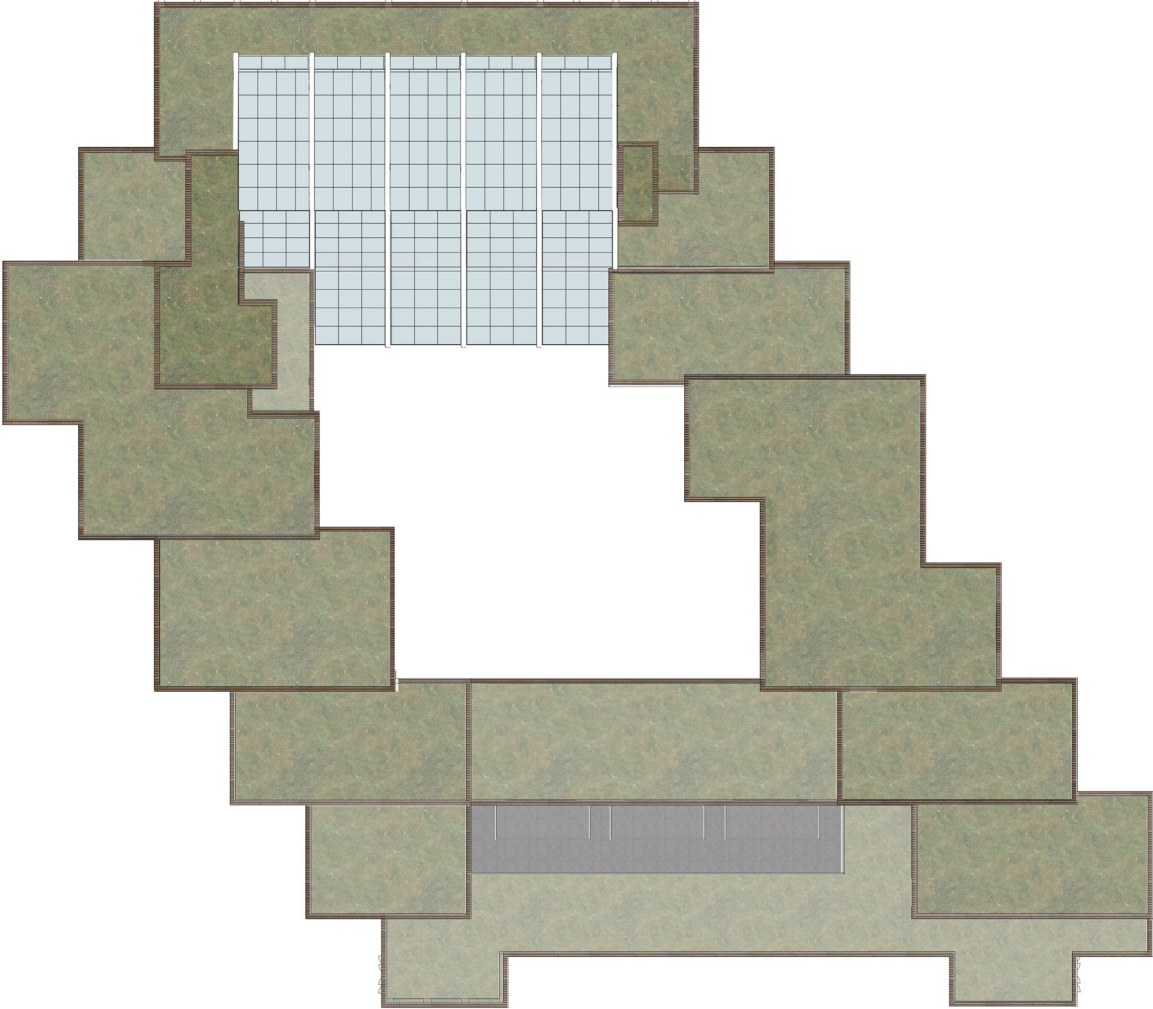


Figure 7.8 Floor 8

8. Experience

To gain more inside in how the nursing functions from the perspective from the user, three story lines have been put together to show the characteristics of the created spaces. First storyline will follow a resident through building, looking for a nice place to read. Starting in the main living room, the search will continue to the reading room, the atrium on floor 4, the top deck and end in the garden. How these places are experienced will be in the description of the render. Second storyline will be of a visitor, coming to drop her son of at the pool for a swimming lesson, a treatment at the health clinic and visiting a resident of the nursing home. Finally, there is an impression of a by-passer who walks around the building interacts with the architecture and the residents.

The following chapter will have a landscape orientation in order to optimize the composition of the visualizations.

The resident

The main living room

Coming out of the elevator, he looks through the room. He sees some familiar faces and free spots, but not a quiet spot to read his magazine.



Figure 8.1



The reading room

Upon entering, he looks immediately for his favorite spot. Taken. Not surprisingly as it has the best view on the park from this side. Maybe there is a nice spot higher in the building.

Figure 8.2

The atrium

After taking the elevator back up, he gets out of floor 4. There are some nice places to sit, but he notices the nice sunshine on the garden and the rest of the building. This makes him decide to take a look on the top deck.



Figure 8.3



The deck

Coming up here always gives breathtaking views, doesn't matter what kind of weather. The sky is clearing up, the sunset must be lovely tonight. As he looks around he sees the perfect spot, an empty corner in the inner garden. Perfect. Back down again, but worth the walk.

Figure 8.4

Entering the private garden

The garden seems quiet today, he walks up to the back and looks for his spot in the sun.



Figure 8.5



Sitting down
As he sits down and start reading he sees the swimming lessons are tarting again. Always a lively period of the year. He remeber what day it is and checks if his grand son is with the group. He then remembers that he will meet his daughter today as well. After reading for half an hour he moves to the front restaurant where they agreed to meet.

Figure 8.6

Meeting in the Restaurant

As he sits down and start reading he sees the swimming lessons are tarting again. Always a lively period of the year. He remembers what day it is and checks if his grand son is with the group. He then remembers that he will meet his daughter today as well. After reading for half an hour he moves to the front restaurant where they agreed to meet.



Figure 8.7

The visitor

Arriving by car

While arriving, she tries to check whether she sees her father's apartment. She planted some purple lavender to spot his window when she drives by. She doesn't see her father sitting, she only sees one of his friends sitting on his balcony.





Entering the health center

She looks further along the facade, but she notices more people planted blue and purple flowers so she might have looked at the wrong apartment. She walks with her son to the atrium where they can enter..

Figure 8.9

Swimming classes

Dropping of her son at the pool, she looks in the garden. She sees some familiar faces, she waves high and then leaving to go to her appointment with the physiotherapist.



Figure 8.10



Walking in the health clinic
While being guided towards the treatment room she looks through the window and sees her father walking through the garden, looking for a place to read his weekly magazine. She waves, but their eyes do not cross.

Figure 8.17

The passerby

View from the park

After a stroll in the Stadswandelpark the passerby comes at the far end of a path. Through an opening the park seems the run through in the garden of a nursing home. He can see the trees continue within the complex. He walks further towards the restaurant.





View from the city theater

Coming from the city side, the passerby takes a small detour to walk through the extended park. She looks up and tries to recognize some of the flowers in the facade.

Figure 8.13



Figure 9.1 The 24 most preferred design blocks. Their size represents their level of prioritization.

9. Evidence based design

The research led to 24 most preferred design blocks, seen in figure 9.1, which have been tested in this nursing home. In the following section the direct appliances will be elaborated. To do so, a series of axonometries will be used to point out which design has been used where and how. As the size of the paper is limited applications have been divided over the series of figures. First 6 sections and one overview of the whole nursing home will be shown. After this will be zoomed in on the apartments to show how the research is implemented on the smallest scale. For this analysis the layout will continue in a landscape format to optimize readability.

Floor 1

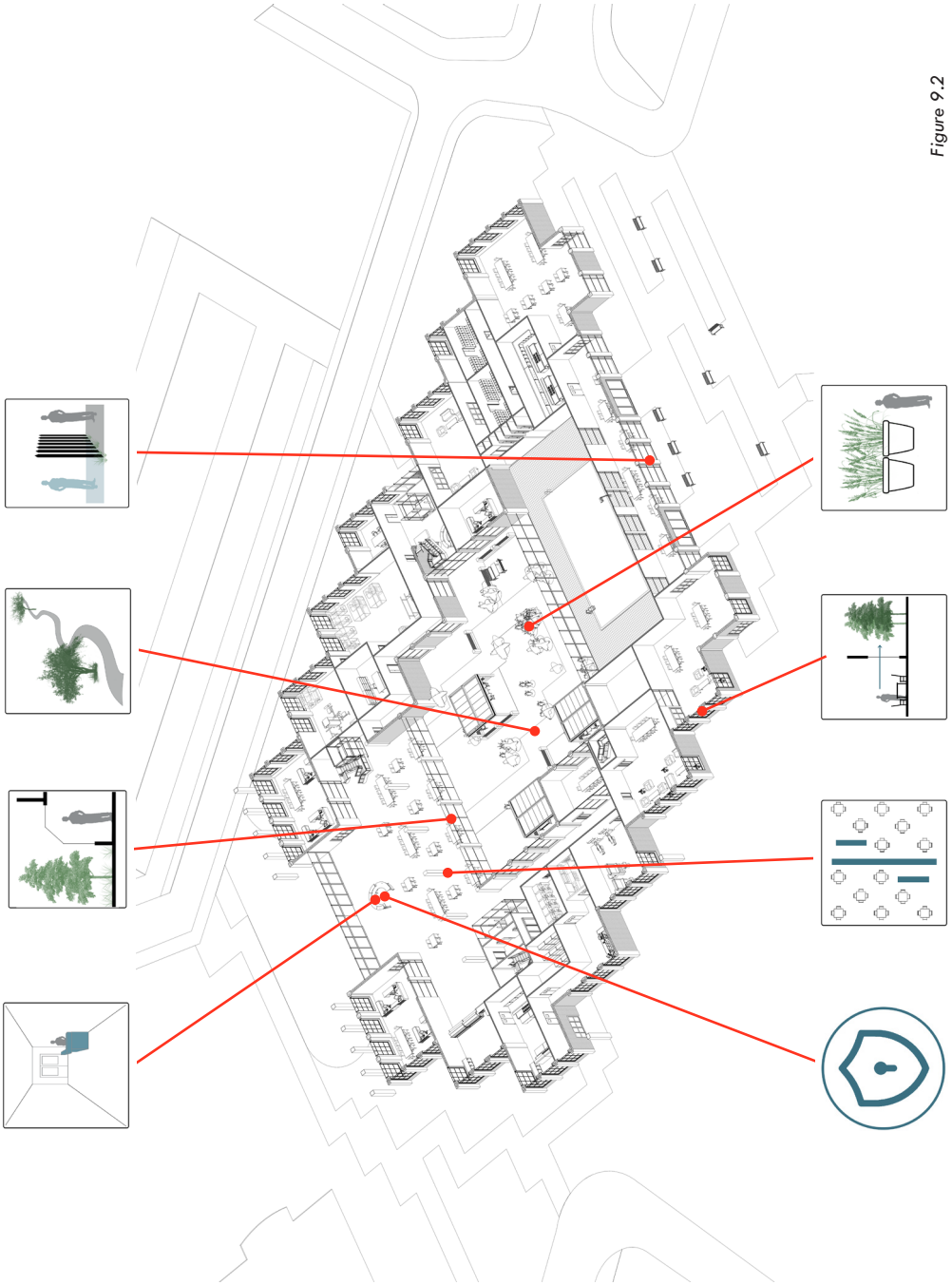


Figure 9.2

Floor 4

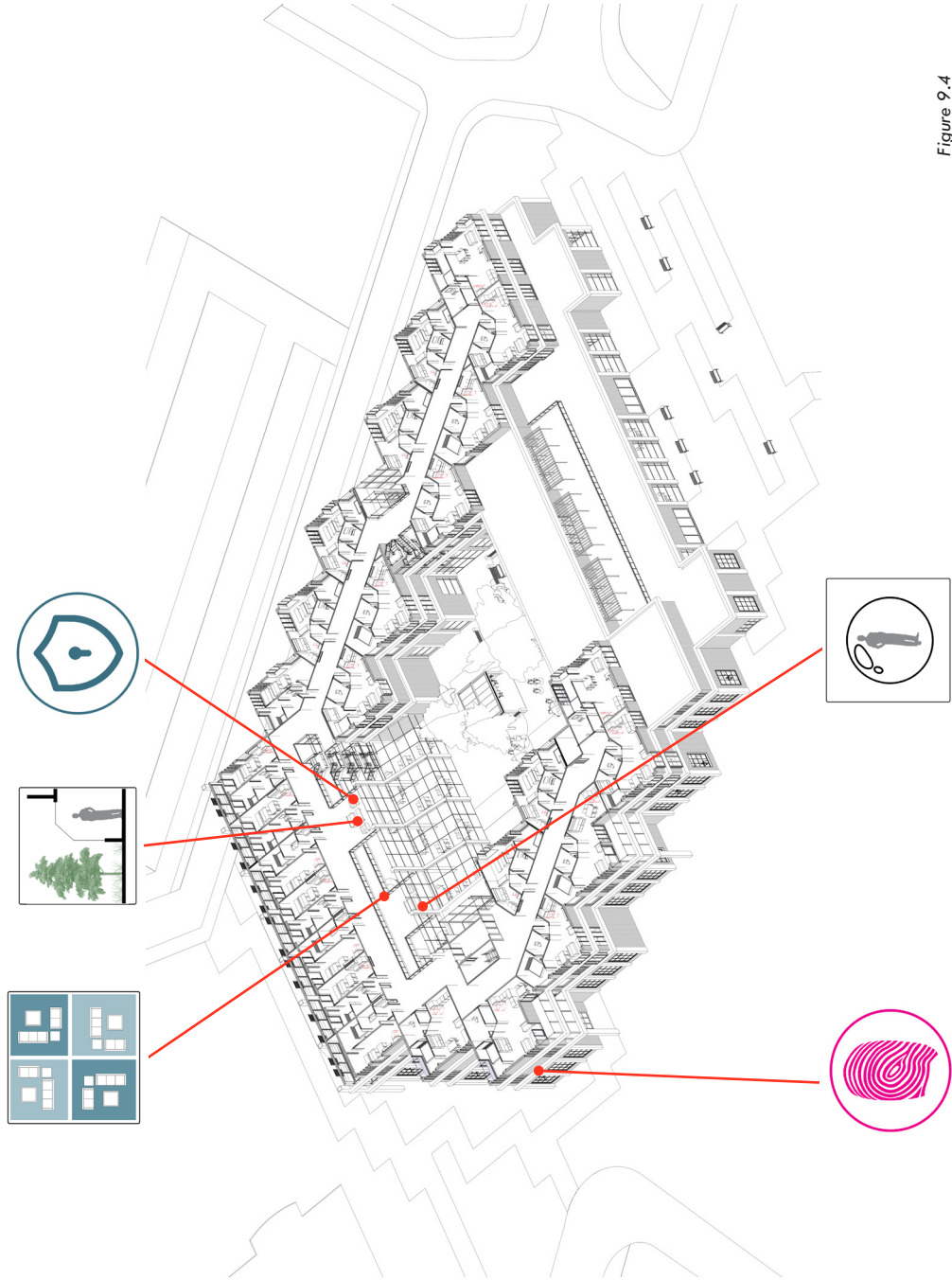


Figure 9.4

Floor 5

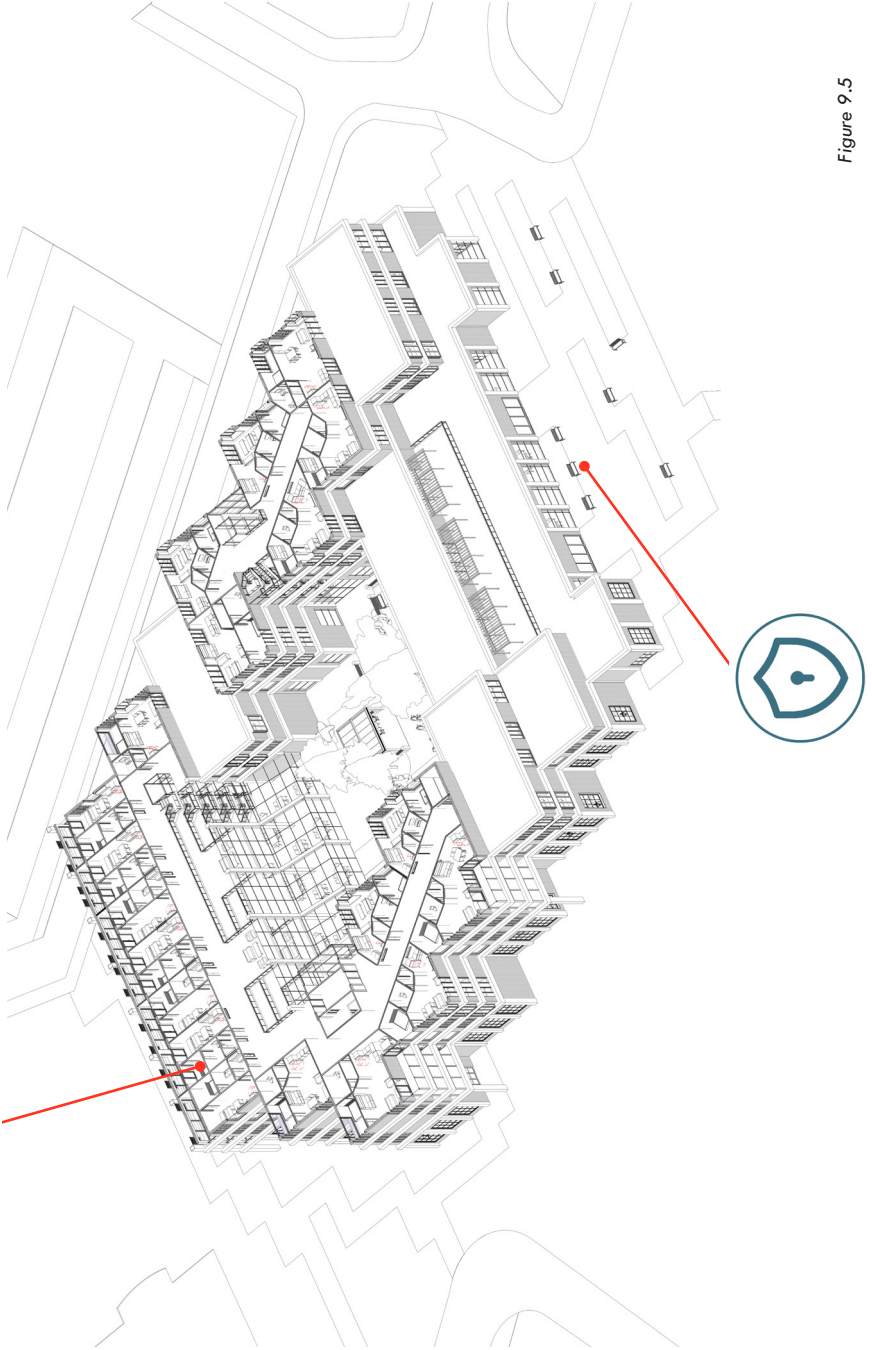
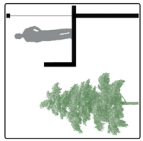


Figure 9.5

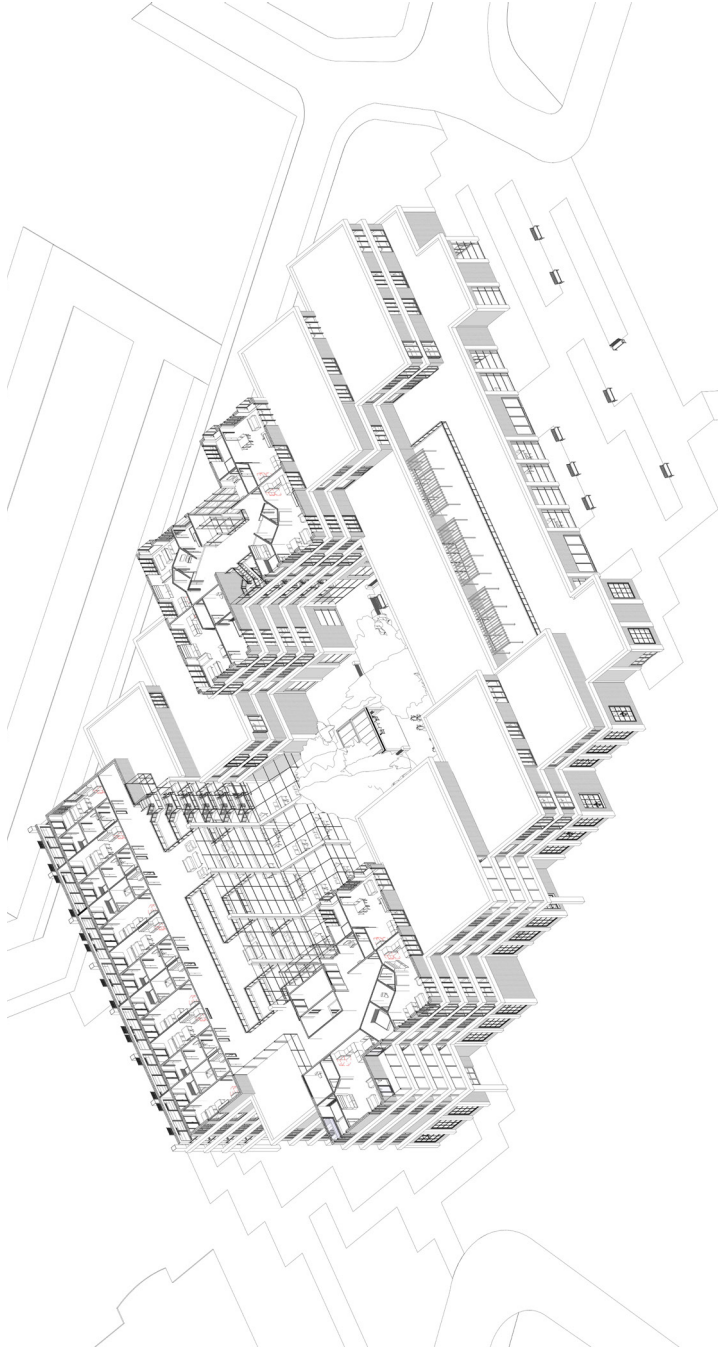


Figure 9.6

Floor 7

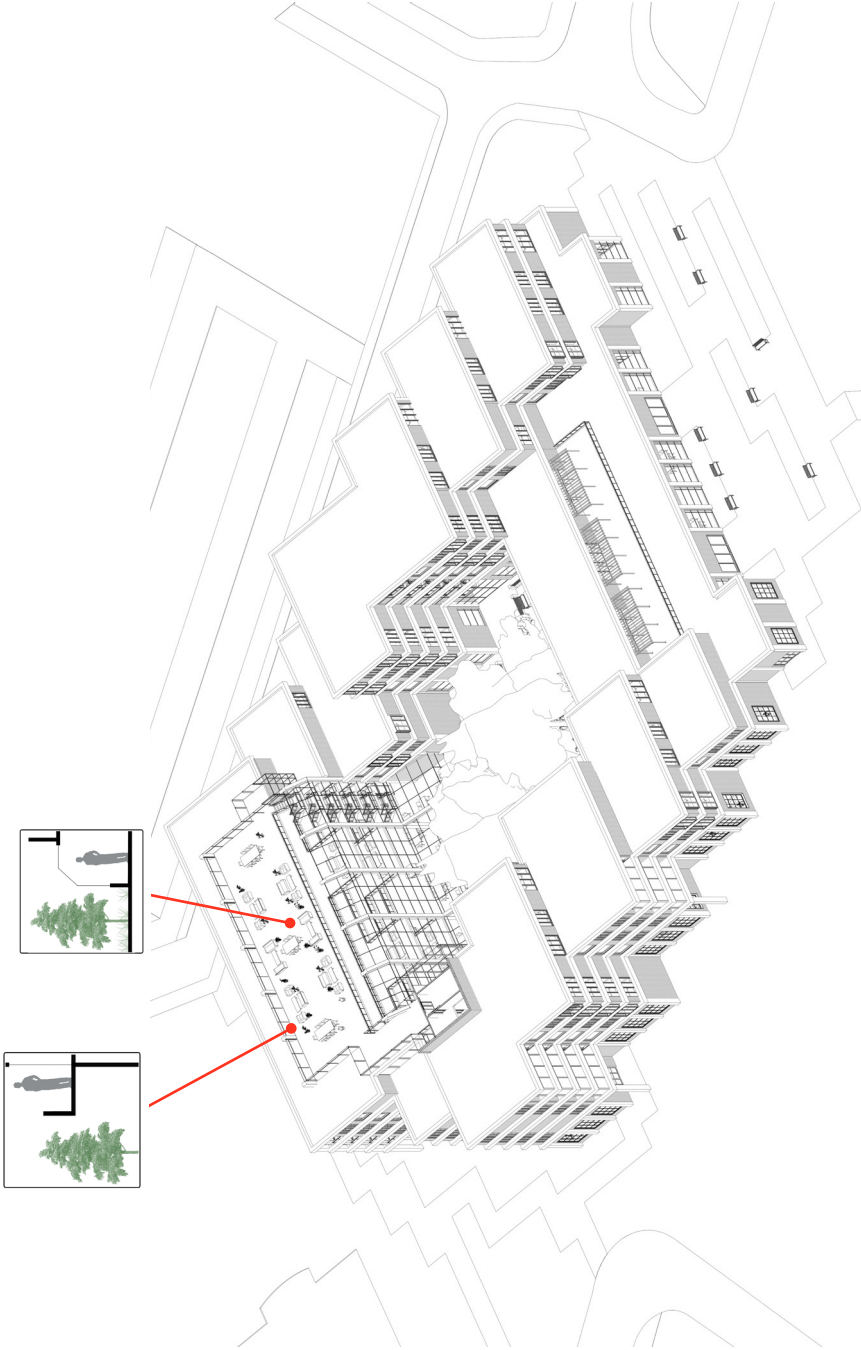


Figure 9.7

Floor 8

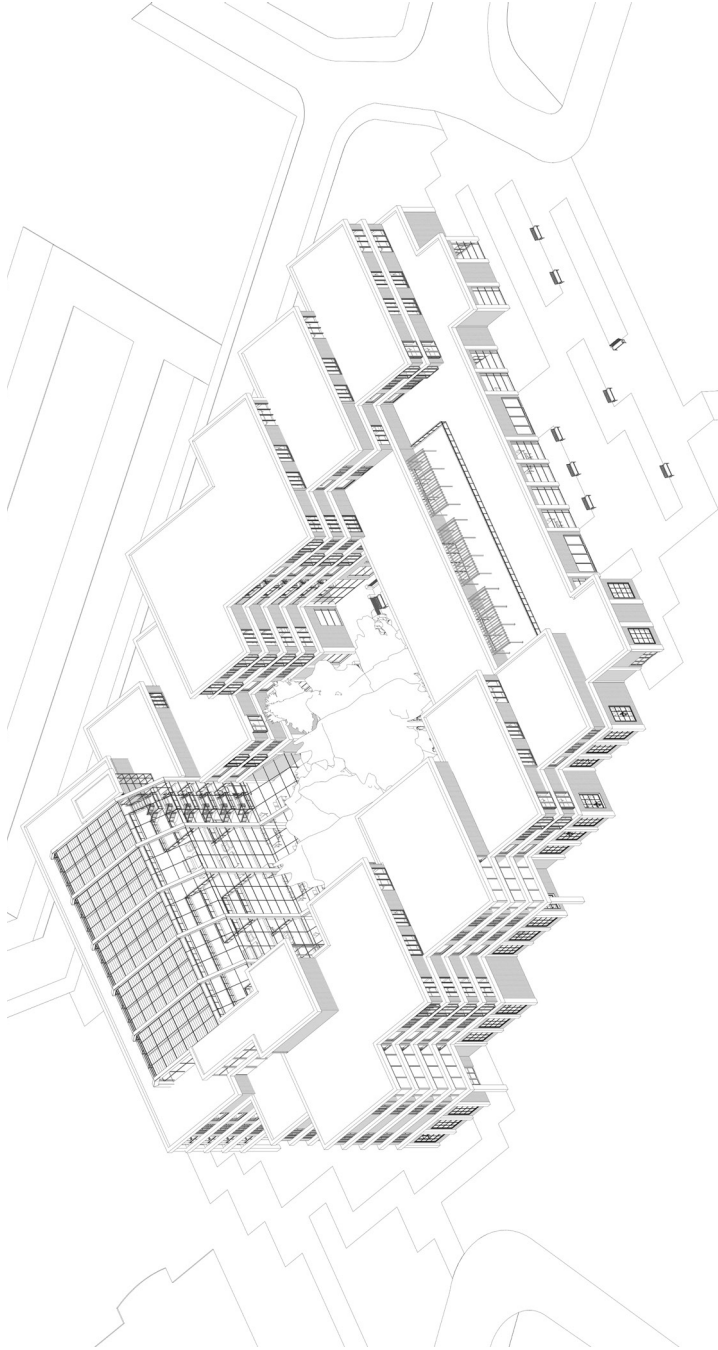


Figure 9.8

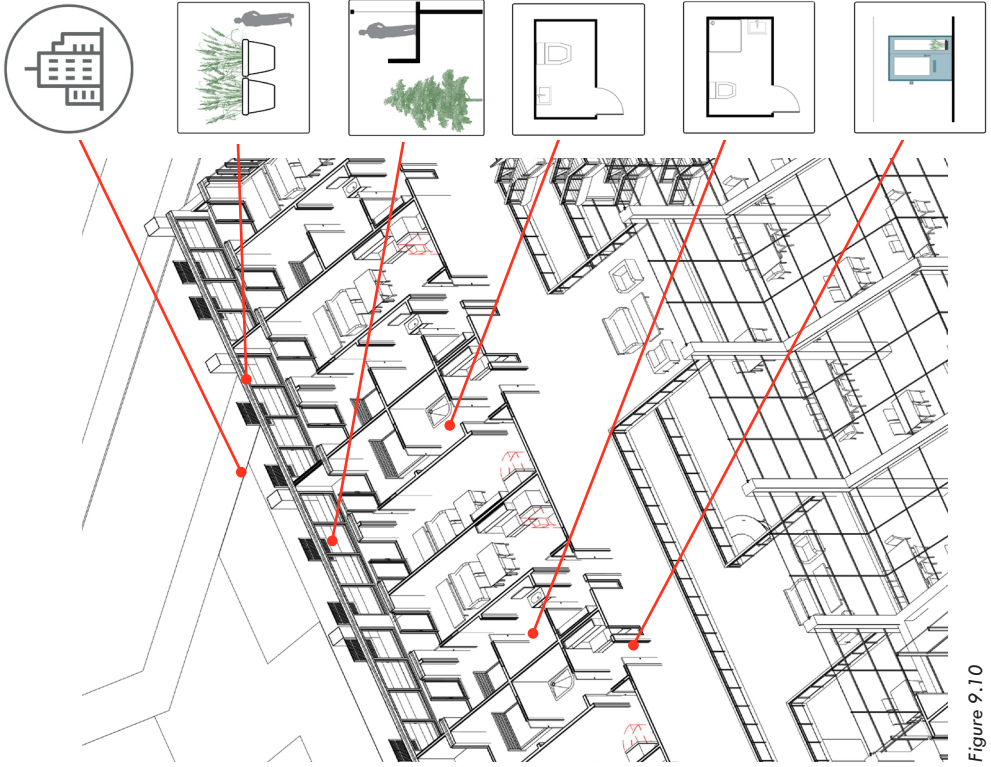


Figure 9.10

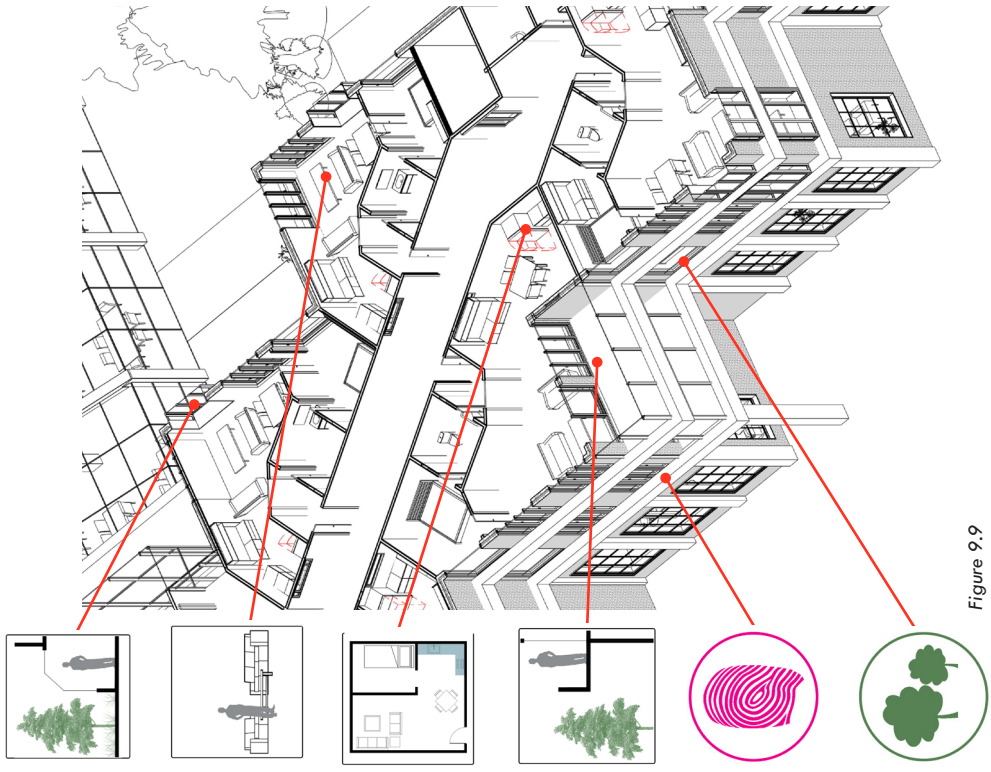


Figure 9.9

10. Final conclusion

After the conducted research all survey results were examined and a top 24 of design blocks were selected. Following the research, came a site analysis which resulted in a response strategy with five key points: a new traffic situation, a sloped volume, three squares, a grid and a division in the program. Answering to the strategy with the 24 design blocks as main tool, it was not possible to come with expressive design features.

In order to solve this problem, the following three design blocks have been prioritized: the veranda, the connection to the neighborhood and the personal spaces in the nursing home. Based on this decision, the outcome of the design process lead to a result with a strong architectural expression.

The veranda's have been implemented on two levels, in personal and shared spaces. The main center of the building is dominated by a big atrium, focused on the private garden for the residents. In personal areas, this is implemented in the apartments with bay windows, balconies and a flower box surrounding each floor. The connection with the neighborhood is realized by offering many different orientations and placing a health clinic on the ground floor. The health clinic includes different services for residents and non residents. This enables interaction between them. Visitors can see how residents enjoy living in the nursing home and residents choose to mix when the want to. Visual connections and semi-public spaces in the nursing home are key to achieve this.

The added goal of expressing these prioritized aspects in the architecture of the building, is done to have an influence on their preconceived associations towards nursing homes, to make them readable for the observer. The result therefore not only affects the residents of the nursing home, but also the spectator.

The title of this thesis, Stimulating Homemaking, comes from an unknown quote: "home is not where you come from, home is where you make it". The outcome of the project has lead to an environment which lays the ground work for residents to built a home, to achieve a feeling home.

11. Reflection

The goal, of coming up with a guide for improvements of the typology of a nursing home, has been achieved. However, the approach led to design interventions with a small scale. During the design process most challenges involved with fitting the program in the context and how the program would fit together seemed to have the largest impact on the general outcome. When restarting the same project, the advice is to enlarge or widen the research boundaries to also include the program. Now, the solution came up to implement a health clinic into the nursing home to attract more people and generate lively hood. With a more extensive research, it might turned out that there are better alternatives.

The process of the research was quite slow in the beginning. Looking for a research question turned out to be difficult, as many new improvements have to do with smart technologies and appliances which don't have a big overlap with architecture. The bootcamp halfway the project could next time be much sooner as it led to many insights.

In review, the subject turned out to be very interesting as the aspects of designing for elderly seems to be a field that needs lots of improvement. This being the first project with this kind opened, the last year lots of new insights came up and the learning curve was very high.

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