

CONNECT TO NATURE

- A home for well-being, where indoor & outdoor are connected



Johanna Pettersson

Chalmers School of Architecture
Department of Architecture and Civil Engineering
Master Thesis Spring 2024
Examiner: Johanna Eriksson
Supervisor: Susanne Clase

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CHALMERS
UNIVERSITY OF TECHNOLOGY

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ABSTRACT

In healthcare environments the contact with nature has positive impacts on health and well-being, which previous studies have shown. Contact with nature reduces stress, anxiety and the feeling of isolation and promotes healing and recovery. Outdoor environments contribute to social activities, connection to the society, stimulate physical activity, and a varied rehabilitation. For elderly people in healthcare environments the contact with nature is therefore important, but today many elderly at Swedish nursing homes feel a limitation in the access to outdoor environments. The design choices contribute to the contact to nature and the possibility to use the outdoor environments, and it already starts from inside the building.

In my master's thesis I have developed a proposal for a nursing home in Örebro, where the design decisions enhancing the contact to the nature and the surrounding. The aim has been to design a proposal where the architecture strengthens the connection between the indoor and outdoor environments to offer various choices and contribute to well-being for the elderly. The aim has been to encourage and facilitate outdoor stay and create preconditions for activities outdoor. The aim has also been to design a home where the contact with nature and the surrounding is clear even when staying indoor.

To connect the indoor and outdoor environment, accessibility, the target group, movement, visual connection, and the impact of nature has been studied. One conclusion is that the outdoor environments need to be close and adapted to the target group to enable outdoor stay. The building and the outdoor environment need to interact to take advantage of the positive effects that the nature and the outdoor environment can contribute to. Also, the indoor environment can offer various dimensions of contact with nature. To connect the indoor and outdoor environment, a variety in the design is required as the elderly have different abilities, needs and interests.

The method consists of research by literature studies, interviews, and study visits where the connection between architecture, nature, and health(care) is studied. These was the basis for the design studies which then landed in a final design proposal.

RESEARCH QUESTION

How can architecture strengthen the connection between the indoor and outdoor environment and contribute to closer contact with nature to promote well-being for elderly people in healthcare environments?

How can the design of a nursing home encourage and facilitate outdoor stay and activities outdoor?

Key words: Connecting indoor and outdoor, health-promoting design, well-being, nature, nursing home



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*Thanks to everyone who has helped
and supported me during the work
with my master thesis!*

INTRODUCTION

This chapter describes the aim of the project, the
delimitations and method

AIM & PURPOSE

The project will be based on the knowledge that the nature has positive impact on human health and well-being, especially for the elderly (Bengtsson, 2015). Today there are many elderly people at Swedish nursing homes who feel a limitation to use the outdoor environment. (Göteborgs Universitet, 2024) The rehabilitation usually take place in the indoor environments, even though there is research that shows that there are many health-promoting advantages of being able to do rehabilitation outdoor. (Engström et al., 2022)

The purpose is to investigate how the architecture can contribute to environments for health and well-being for elderly people at nursing homes by having the connection with nature in mind while designing. The purpose is also to investigate how this can be done on a limited area.

The aim has been to design a proposal where the architecture strengthens the connection between the indoor and outdoor environments to offer various choices and contribute to well-being. The aim has been to encourage and facilitate outdoor stay and create preconditions for activities outdoor. The aim has also been to design a home where the contact with nature and the surrounding is clear even when staying indoor.

DELIMITATIONS

There are more things than nature that have impact on health and well-being for elderly people at nursing homes but this will not be investigated more than how the connection to nature and the accessibility to outdoor environments can provide different activities and various choices. The focus in the project is the residents and their opportunity to outdoor stay and accessibility to the nature and the surroundings to create a better everyday life and well-being.

The aim is to take advantage of the positive effects that the nature and the outdoor environment can contribute to but the project will not focus on the care of the vegetation or the specific choice of plants or economical aspects.

RELEVANCE FOR SUSTAINABLE DEVELOPMENT

The project will highlight the importance of the connection to nature and greenery for health and well-being and will therefore be relevant when it comes to social and ecological sustainability in our built environments. To provide connection to nature and stimulating outdoor environments, the outdoor environment will give space for valuable greenery, which will contribute to an environment that provides space for biodiversity and a better microclimate.

RESEARCH QUESTIONS

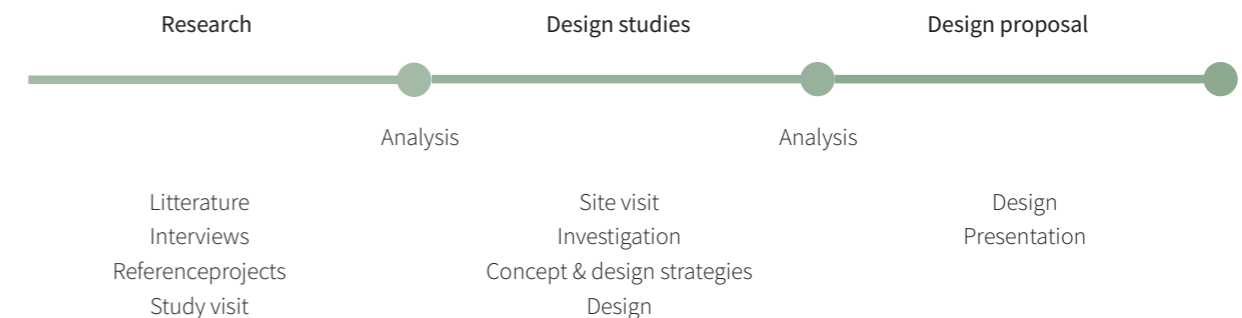
How can architecture strengthen the connection between the indoor and outdoor environment and contribute to closer contact with nature to promote well-being for elderly people in healthcare environments?

How can the design of a nursing home encourage and facilitate outdoor stay and activities outdoor?

METHOD

This master thesis started with a research phase that include literature studies, interviews and study visits. The literature studies gave a broader insight into the subject and a base for the questions to the interviews as well as a better understanding of the focus of the study visits. During the study visits and interviews, I noted qualities that I found when it comes to strengthen the connection to the nature and the accessibility to outdoor stay for the elderly.

I also did some reflections on previous study visits that I did during the autumn 2022. The findings from the study visits and the knowledge from the literature studies about the positive effects of nature and outdoor stay have been analyzed and then develop to a concept and design strategies for the project. The strategies have then been investigated at different scales, first a volume study of the building on the site in relation to the surroundings, then zoomed in on the building, the spaces shared by everyone, the units and the residents apartments. This landed in a final design proposal, and the work has been iterative.



BACKGROUND

In this chapter, the nature's impact on human health and well-being is described and the importance of the connection to nature in healthcare environments and nursing homes.

NURSING HOME

In the book *Vårdmiljöns betydelse* from 2014 they describe that a nursing home for elderly people, is a home for those who need support in their everyday life when their physical function, cognition and other functions has decreased. To help the elderly, there are therapists, nurses and staff at the units who works there, in other words it is both a home and a workplace. The elderly have different backgrounds and experiences, and moving to a nursing home means a change in their life, as routines and the social context become new. The physical environment affects the elderly's feeling of home, sense of freedom and connection to the society which is important for their well-being. (Wijk et al., 2014)

HEALTH AND WELL-BEING AND THE IMPACT OF NATURE

What is health? The World Health Organization, WHO, defines it as follows; "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Our everyday life affects our health, the level of stress and the sense of coherence and being part of the society has an impact on our health and well-being, we want to experience meaning and purpose. (WHO, 2024b). The environment we are surrounded by have impact on our perceived well-being, as well as economical and social aspects. (WHO, 2024a)

Regardless of age, disability or which group in the society an individual belongs to, all people have the right to a good health. In addition to the previously mentioned, lifestyle habits and the possibility to take own decisions will effect our health and wellbeing. (Folkhälsomyndigheten, 2022)

Nature and natural elements have a positive impact on our health and well-being, as nature can lower the levels of stress, says Kaplan and Kaplan in the book *The Experience of Nature* from 1989. One explanation for this is that we have two different types of attention that require different levels of effort of focus, direct attention and fascination. Direct attention requires a lot effort to focus and can therefore contribute to stress and mental fatigue. In case of mental fatigue, an urban environment can therefore be experienced as confusing and tiring. While fascination, which can be described as spontaneous attention is achieved when we see or engage in something that we find interesting. When we are in a state of fascination, less effort to focus is required and, in this stage, it is possible to reflection and recover. Nature is an environment that does not require any great effort from us, as it is experienced as natural and contains of elements that are interesting and "soft". We can then be in a state of "soft fascination". However, both types of attention are important, otherwise we would not handle advanced tasks. But for a person who is in a stage of perceived crisis, is an environment that does not require direct attention beneficial. It is not only the natural elements themselves, such as water, that are appreciate, it is the elements in their context, which create a place and a natural environment. But the size of a garden or a green area does not have to be decisive to achieve soft fascination, the importante thing is if there is something to explore or not. Something to explore is therefore preferred over something that you immediately get an overview of. (Kaplan & Kaplan, 1989)

Many studies on the nature's impact on human health and well-being has been done in healthcare environments. One of them was done by Roger Ulrich between the years 1972 and 1981. The purpose was to see if there was any difference in recovery by seeing nature outside the window or not. The participants were patients at a Pennsylvanian hospital who had have a surgery. Some of the patients had a view to greenery and they recovered faster and needed less medication compared to the patients who had windows facing a wall. They also had a more positive experience of the hospital visit overall. (Ulrich, 1984) Being able to see greenery instead of built elements outside the window, also have possitive effects at workplaces, as it has effects on the perceived stress. (Kaplan & Kaplan, 1989)

OUTDOOR STAY AND REHABILITATION AT SWEDISH NURSING HOMES

For people with low well-being, who has high levels of stress and anxiety the nature and outdoor environment have the greatest potential to contribute to positive effects on rest and recovery is described in Anna Bengtssons doctural thesis *From Experiences of the Outdoors to the Design of Healthcare Environments : A Phenomenological Case Study at Nursing Homes* from 2015. It also has great effect on spleep pattern and can reduce the use of drugs which was obsurved in the study by Ulrich. Elderly people in nursing homes are one of the groups of people who suffer the most from this, and therefore the outdoor environment is extra important in these environments, this becomes even more relevant since the elderly population in our society is increasing. (Bengtsson, 2015)

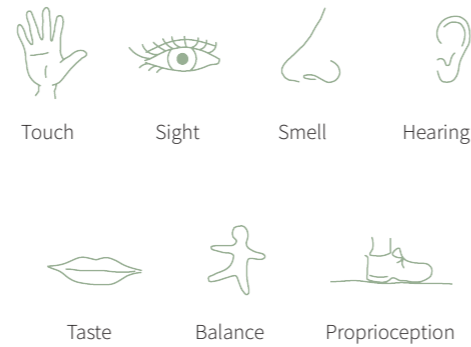
The Institute of Health and Care Sciences describes that the connection to outdoor environments is of great importance when designing nursing homes but in Sweden there is today no guarantee to good access to outdoor environment with nature and greenery. Being able to choose where you want to stay gives freedom and reduces the feeling of isolation and contributes to greater opportunities for socializing. (Göteborgs Universitet, 2023) There is today no regulations about how often or how much time the elderly at nursing homes should be allowed to stay outdoor if they cannot do it on their own. How the outdoor environment is designed will affect how and if it will be used. Today many elderly people find it difficult to use the outdoor environments and the design of the physical environment becomes important, especially for people with various disabilities. Outdoor rehabilitation has also been shown to have good effects on the health. (Göteborgs Universitet, 2024) But in the book *Vård, omsorg och rehabilitering utomhus- teori, praktik och nya perspektiv* from 2022 they describe that the outdoor environment is today rarely used for rehabilitation. (Engström et al., 2022)

THEORY

This chapter describes theories that explain what a health-promoting environment is and how health and well-being are affected by the physical environment. I have chosen these theories as they are based on the health-promoting effects of nature and they also describe the importance of various choices and coherence, which both the indoor and outdoor environment contributes to, which is important for elderly people when they moving into a new home.

SENSORY IMPRESSIONS OF NATURE

The outdoor environment offers many sensory impressions. The senses are stimulated by the dynamics of the nature, it stimulates when we experience the weather changes, the varied texture of the vegetations, the smell from the flower, the flavor from fruit and berries, and sounds from the wind in the trees and the birds to mention some. When we see the changes in nature during the year, when the color on the leaf goes from green to red and when the day becomes night, it helps us with time orientation. Compared to the indoor environment, the outdoor environment with its varying texture and topography creates natural physical challenges, it is therefore beneficial to use the outdoor environment for rehabilitative purposes. (Engström et al., 2022)



Some people lose their appetite when they get older. But having the possibility to eat in an outdoor environment can encourage the appetite. In an environment that are inspiring and where the senses stimulates it become more like an activity, and less focus on the eating. (Engström et al., 2022)

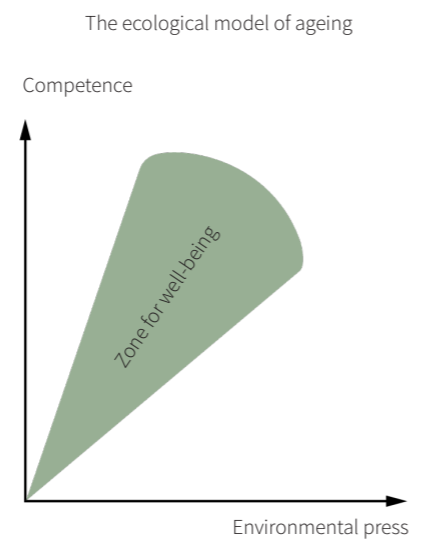


Illustration based on the model by Lawton, 1983

HEALTH-PROMOTING ENVIRONMENTS

A health-promoting environment provide comfort and stimulation. To achieve that, the design needs to be supportive for the individual and the sensory impressions must also contribute to a positive experience. (Engström et al., 2022) Lawton's theory from 1983, the ecological model of ageing, explain this. It describes how an individual's competence and physical function affect how we will experience the environment and if the experience will be positive or not, therefore the environment needs to be adapted to the target group. (Engström et al., 2022)

Health is individual and we achieve it in different ways, but what seems to be common is the need of coherence. Aaron Antonovsky describes this in the Salutogenic model from 1996, our life situation needs to be experienced as meaningful, manageable and comprehensible to feel coherence. Then it can be easier to handle stressful situations for example. The outdoor environment can be a salutogenic environment and provide the feeling of coherence. (Engström et al., 2022)

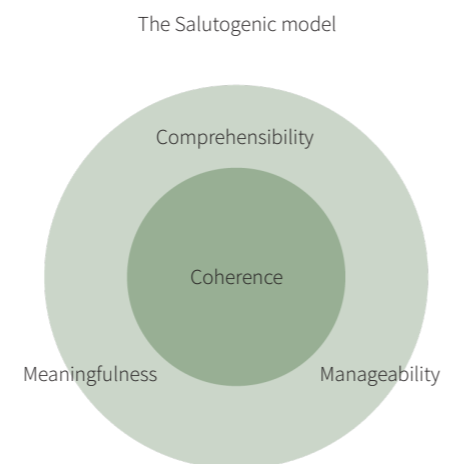


Illustration based on the model by Antonovsky, 1996

In Anna Bengtsson's model Four zones of contact with nature, she divides the indoor and the outdoor environment into four zones. The model describes that all zones, in varying degrees, can have contact with nature and the surrounding and therefore contribute to different qualities. It also highlights that the outdoor environments should be able to be experienced by everyone, regardless of stage of health and physical capacity. The zones therefore need to be adapted according to purpose and target group and be clearly connected to support and facilitate movement between and within them. For those who are bedridden, zone one and two becomes extra important. (Bengtsson, 2015)

Zone one, located indoor, is the spaces where the connection to nature is primarily achieved through views from windows. Zone two is the space that connects the indoor and outdoor environment, the transition, for example balconies, these two zones are the most accessible to everyone. In zone three we find the courtyard, the more "designed" outdoor environment that also can be a place for social activities, and a place for recovery. With designed elements and walking path with varying challenges this becomes an attractive place for outdoor stay and rehabilitation. Zone four is the zone that surrounds the facility, the neighborhood. This zone sets the other zones in a context and contribute to a connection to the society. (Bengtsson, 2015) The ability to use this zone is also a quality for the individual, but for older people there is a risk of getting lost because of decreasing memory, but can with advantage be used for organized activities together with the staff. (Engström et al., 2022)

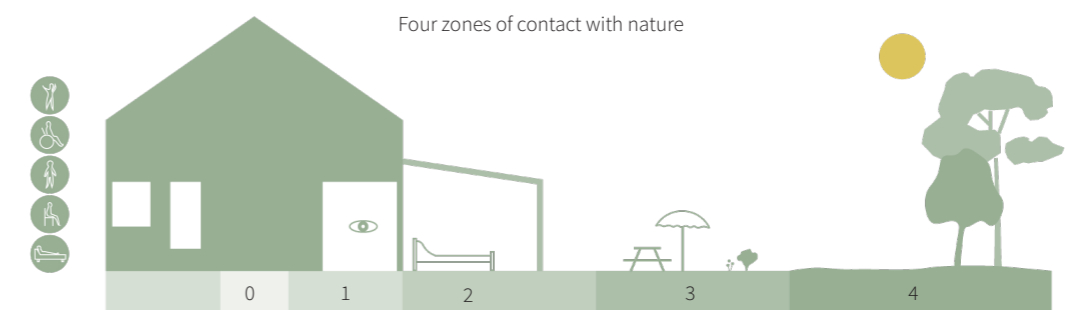


Illustration based of the model by Bengtsson, 2015

The theory of supportive environments is described in the model Triangle of supporting environments. The model describes that a person has different needs depending on their health and well-being and the physical environment can be designed to be supportive to those needs. If a person experience stress and anxiety and have low well-being, the need for privacy and calm spaces for recovery is more appreciated compared to when a person experiences good health and well-being. Gradually, our will to be active and interact in social activities increases with the feeling of high well-being. It can be about observing what is happening from a distance, then participating in an activity and then being the one who leads an activity. Depending on the state of well-being the environment can be over stimulated or under stimulated, a person with low well-being is more sensitive for impression for example. (Bengtsson & Grahn, 2014)

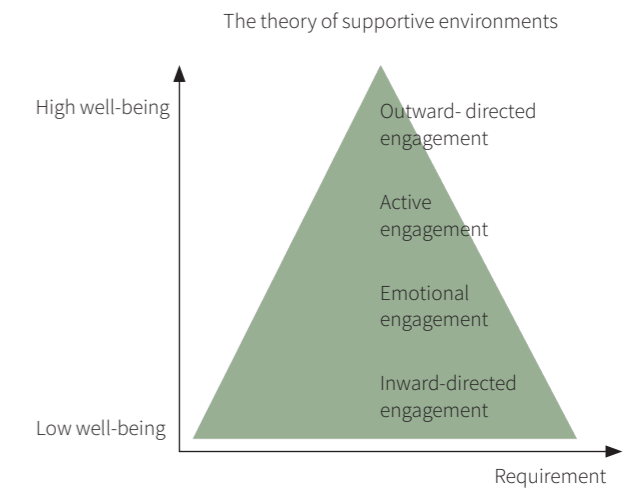


Illustration based of the model by Bengtsson & Grahn, 2014

Bengtsson and Grahn describe further that people will be in different states of well-being and therefore different qualities in the outdoor environment are needed to be supportive and to contribute to health and well-being. Based on the triangle of supportive environments, 19 health-promoting qualities has been developed. These can be divided into two categories, comfortable design and inspiring design. The comfortable design provide a safe environment, while the inspiring design provides the users with options and variation. Below follows a list of of the 19 qualities. (Bengtsson & Grahn, 2014)

Comfortable design -

- Closeness and easy access
- Enclosure and entrances (Between the courtyard and the neighborhood)
- Safety and security
- Familiar (elements that makes it feel like home)
- Orientation and a way of finding
- Different options in different kinds of weather

Inspiring design -

- Contact with the surrounding life
- Social opportunities
- Joyful and meaningful activities
- Culture and connection to past
- Symbolism/Reflection (For example, a tree that remains of the summer)
- Space (Entering another world, a coherent whole)
- Rich in species
- Prospect (green open space with view of nature, greenery and plants)
- Sensual pleasures of nature (Hear, smell, see, feel and taste)
- Seasons changing in nature (Time orientation)
- Serene (A place for peace and silence)
- Wild nature
- Refuge (A place for privacy)

In the book *The role of the outdoors in residential environments for aging* from 2005, they say that built elements can promot the use of the outdoor environment. There is a need of many sitting areas and benches for rest. It should aslo be safe to move with a wheelchair or walker so the choise of ground material is important, railings along the walking path can also be helpful for those with decreased balance. Since elderly are sensitive to weather changes the gardens can be design with weather protected sitting areas, this makes the outdoor environment more usefull. (Rodiek et al., 2005) To make the outdoor environment accessible, it must be easy to go out, thresholds, stairs and elevators are examples of barriers that make outdoor visit less accessible. (Engström et al., 2022)

QUALITIES IN A VIEW FROM THE WINDOW

In a Norwegian study from 2015, the qualities of views from a window were studied. A well-disposed view contains a good balance between the three layers, "sky, landscape (urban and/or nature), and ground". If this is achieved the view can provide good information about what is happening in the surroundings and and an interesting view. Access to this is affected by the distance (depth), the width of the view and which elements the view contains of. In the study it was found that elements like walls, pillars and balconies was not preferred, especially if they were in the center of the view. Natural elements and long and wide views was preferred, this give the view higher quality than short views towards a facade. (Klößner & Szybinska Matusaik, 2015)

REFERENCE PROJECTS & STUDY VISITS

This capter includes interviews and study visits at nursing homes for a better understanding of the elderlys needs and how they use the outdoor environments and how the design of the indoor and outdoor contribute to that. For the study visits I have chosen projects that have different preconditions when it comes to the connection between the indoor and outdoor.

Intervju with Madeleine Liljegren & the OUT - FIT project

I interviewed Madeleine Liljegren who is a licensed physiotherapist and also has a master's degree in landscape architecture. She is now a PhD within the research project OUT-FIT, "Kvaliteter i fysisk utemiljö som främjar hälsa för äldre personer som bor på särskilt boende – från kartläggning till arbetsmetod för design och planering".

The project is on going and led by the Institute of Health and Care Sciences, and includes representatives from Chalmers University of Technology, Swedish University of Agricultural Sciences, University of Gävle and the University of Gothenburg. The project aims to map the accessibility and qualities of the outdoor environments at Swedish nursing homes. The project highlights the importance of access to outdoor environments, outdoor stays and rehabilitation to contribute to health and wellbeing for elderly people. (Göteborgs Universitet, 2024)

Madeleine starts the intervju by telling me that she has worked as a physiotherapist at nursing homes, and it was during that time she noticed that the elderly rarely went outdoor.

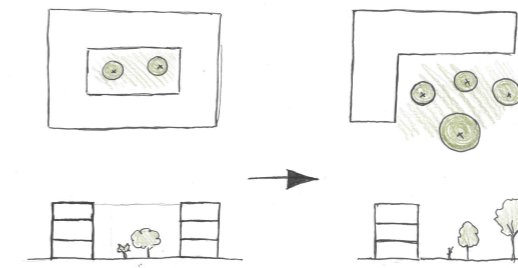
About 20 percent of the Swedish nursing homes don't have an outdoor environment, according to a small Swedish study from 2016 by Nordin. During the pandemic this become clear when relatives were not allowed to visit, many of the elderly did not go outdoors. The staff prefer when it is easy for the elderly to go outdoor by themselves and it is preferred if the building has one floor, so that the staff can get a better overview. But that is not always possible.

Balconies do not offer the same contact with nature as the outdoor environment on the ground, but Madeleine thinks architects can develop the design of balconies. A balcony need to be large enough so all residents and staff at a unit can participate in an activity at the same time. Terraces and balconies become more useful if there are options, like open spaces or glazed rooms that protect against wind and offer heat. Placement of elevators and stairwells can also be important, she brings up an example where an elevator was directly connected from the dining room down to the courtyard.

I asked if it makes any difference if the building has two or three floors. When it comes to communication it does not, but when it comes to the visual connection to nature it does. The building's location and context then matter, if you have a view of large trees from the third floor, the view can be beautiful and improve connection to nature. We talk about closed courtyards, if they are small and the facade come close, it can be hot during summer, and you often lose contact to the ground already from the second floor and the contact with the neighborhood, many elderly find that boring.

It is difficult to offer contact with nature for those who are bedridden. If the design is based on Anna Bengtsson's model with the four zones, it should be possible to move within and between the zones. It can be difficult to offer this to those who are bedridden but to enable them to stay at the terraces or balconies is beneficial. To make this possible, it needs to be frictionless to move the bed and no thresholds to make it easy for the staff. Many elderly prefer French balconies that provide a view from the bed. Being outdoor has a greater effect than a view of the nature from a window, but if it is not possible to go outdoor, a view of nature is more beneficial than a view of a wall. Being able to open a window and let the air and sound of nature in is also an advantage.

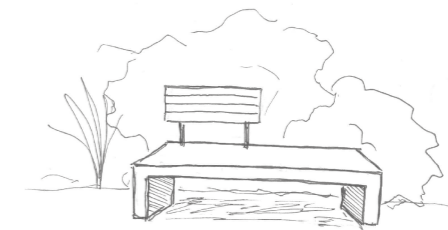
I asked about how outdoor rehabilitation works. To be able to offer care and rehabilitation outdoor, there need to be a restroom easy accessed from outdoor as many elderly people have incontinence issues. Access to water is important and not only through a garden hose. When it comes to the rehabilitation itself, some elderly have hip fractures or suffered a stroke, then the first step may be to practice balance while sitting. To facilitate this, benches in different heights and benches with and without armrests and backrests are needed to be able to increase the training. Also hard surfaces are needed where the rehabilitation and movement will take place. It is also good to have challenges, such as gravel and bark, but these surfaces can be placed further from the building. Storage and space for duo bikes is good, if the elderly want to cycle in the neighbourhood.



Contact with the surroundings



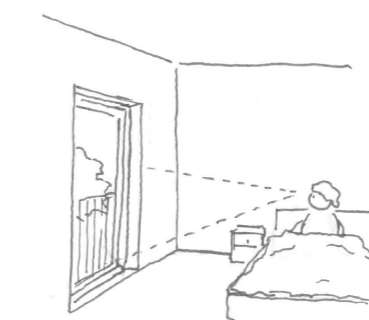
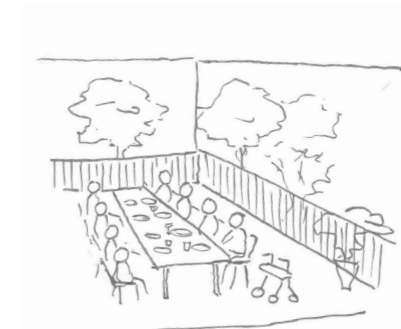
Restroom outdoor



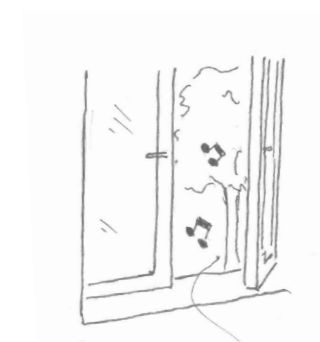
Benches



Balconies in varied sizes



View from the bed



Sound from nature

AKVARELLEN

I visited Akvarellen, a nursing home for people with dementia located in Kumla. It was completed in 2017 and the design architect was the architect of Kumla municipality at that time and Hållén Arkitekter finished the project. It is a nursing home with 60 apartments divided in 6 (3) units.

FINDINGS

The accommodation is a one-storey high building with a complement building for administration, kitchen, and storage in two floors. The accommodation is structured with six volumes, one for each unit. Those extend towards the surrounding landscape and are connected with a common corridor. The corridor provides indoor walking and along the corridor are many doors that makes it easy to find the outdoor environment and a way back. By each entrance there are niches with benches.

In the courtyard there is a dancefloor which is connected to the aula. There is also a greenhouse and built elements for rehabilitation. Elements like railings and a bridge which provide variation in topography. I also saw plantings and a water fountain that can stimulate the senses.

Two units share a garden which opens up to the neighborhood. The hard surfaces are not oversized, which I think creates a direction and movement. Through a gate I reached a walking loop that leads around part of the building. This part of the outdoor environment connects most to the surroundings, even if it is fenced and along the walking loop there are several benches. All the walking paths lead to entrances, there are a lot of them, so it is easy to find the way back indoor.

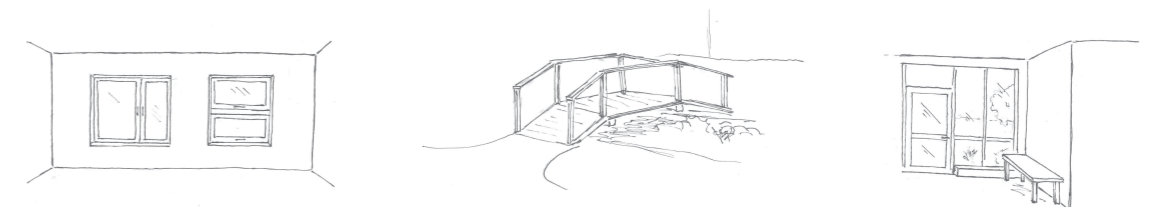
Except from the greenhouse there are no glazed terrasses connected to the building, but the common spaces indoor offer views to the nature and connects to a patio and walking paths. The common spaces indoor do not offer private space, but I find sofas in the corridors of the units, but this do not connect to the outdoor environment. The common spaces in the units facing different directions, which contributes to different qualities in the views and connecting to the the surrounding.

Each apartment has two windows, one is splited in the middle, so it is possible to open the upper one or the one in the same height as the bed. Many of the apartments views the garden that is shared between two units, but the facade of the other unit come quite close. In addition to the aula, which is used for dancing, gymnastic and other activities, there is a spa, hair salon and a room with bikes for exercise. At the main entrance there is a space with for washing wheelchairs.

COMMENTS FROM STAFF

During my visit, the staff describe that the outdoor environments are used a lot and the elderly can use the outdoor environment by themselves, especially the closed courtyard. The walking path that runs around the building is used frequently for rehabilitation, walks and activities are then organized along it. Outdoor, there are many open spaces, which are appreciated, these provide space for activities. One time for example, they had an agility show, when some dogs came and visited the nursing home.

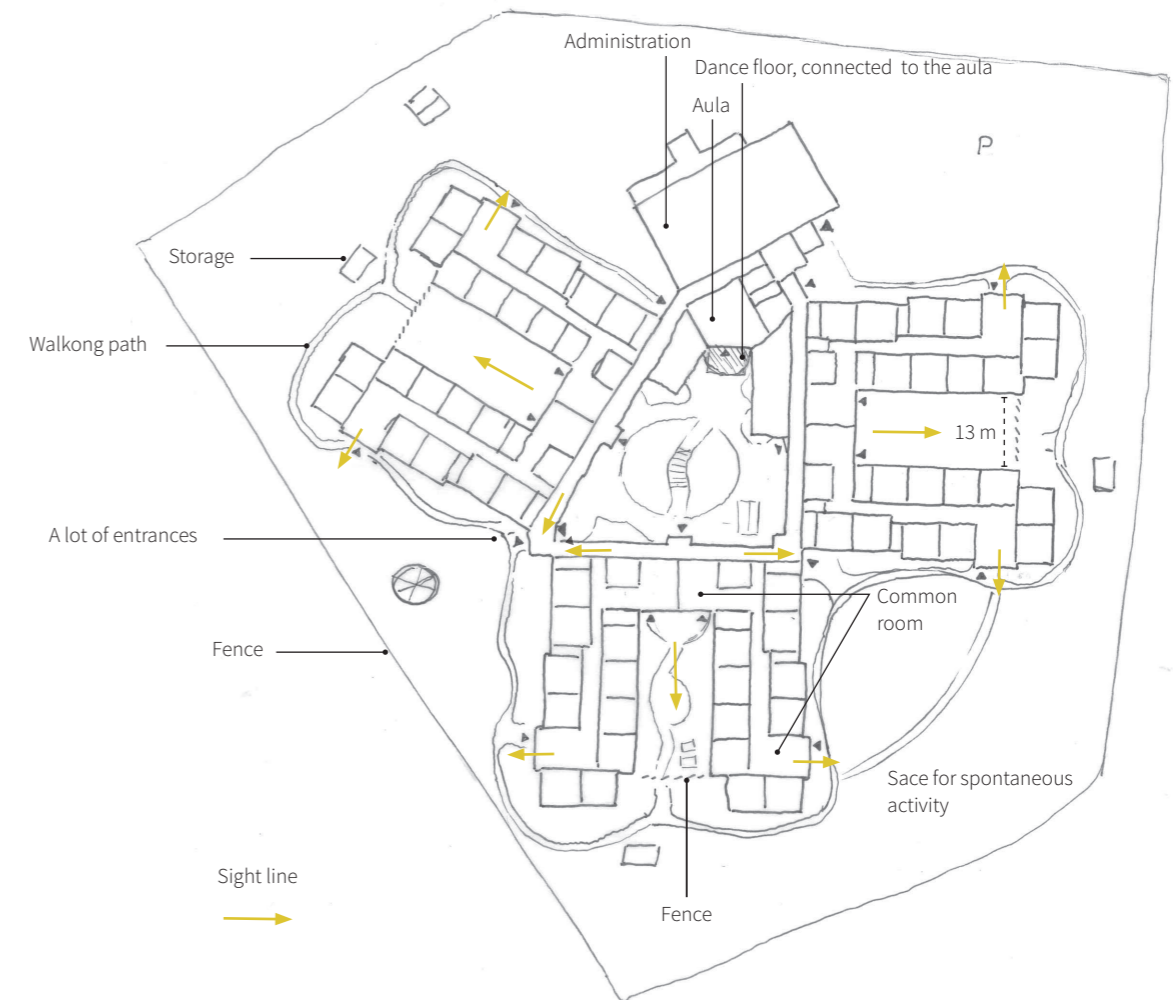
The corridors indoor are also used a lot for walking which is positive for the elderly's physique. The common aula is often used for dancing and other activities and it is useful to have the dancing floor outdoor direct connected to this room.



Placement of windows.

Bridge in the courtyard.

Many entrances with benches.



Garden between two units.



Walking path around the the facility with a fence around it.

TRÄDGÅRDARNA

Trädgårdarna is a nursing home located in Örebro. It was completed in 2018 and the architect was Marge Arkitekter and landscape architects was Land arkitekter. The accommodation contains of 81 apartments, whereof four couple apartments, divided on 9 units.

FINDINGS

The accommodation is a closed two story building with three courtyards. During the study visit I noticed the feeling of home. The hospital feeling is not there, and the corridors does not feel long and boring. They offer views and interesting detail solutions such as deep window shelves where plants can be placed at different heights.

In every room there are windows facing the courtyards or the landscape, even in the laundry room. The windows are placed in various heights so the outdoor environment can be seen from a wheelchair. On the second floor, where the residents have no direct contact with the courtyards, there are several balconies in different sizes, some are glazed, and some are open. A large winter garden is also located on the second floor with room for many, like a complement to the courtyard. There is one stairwell in the larger building, which means that the elderly must walk a long distance if they would like to go down to the courtyard. There are four couple apartments with their own balcony, and the balconies large enough for two wheelchairs.

In the three courtyards there are raised planting beds for gardening and rounded corners on the walking path. At two of the courtyards, there is hard surfaces with heating, but in the third courtyard there is gravel on the surface which can be an issue for some of the elderly but also a good challenge to practice walking. The thresholds are designed to make it easy to step over with a wheelchair or with a walker when entering the courtyards.

In the indoor common areas there are small rooms for watching tv. I find them cozy and they offer the elderly a calm space a and also a view to the neighbourhood. The large entrance that welcomes visitors is light with a fountain, when I leave Trädgårdarna the residents are sitting in a circle in the entrance hall to take part at the gymnastic activity.

COMMENTS FROM STAFF

When we walk around the accommodation, I got told that many of the elderly like to spend time in the common areas instead of their own apartments. The elderly often use the outdoor environments, and they usually go to the courtyard that is closest to their unit. Those who live on the second floor do not use the courtyards as much as those on the first floor but the balconies are instead used frequently and some of them are large enough for cultivation. As I understand it, they are satisfied with the outdoor environments, and sometimes there is entertainment taking place in the courtyards. But there could be more activities like pétanque, for those who don't have gardening as an interest.

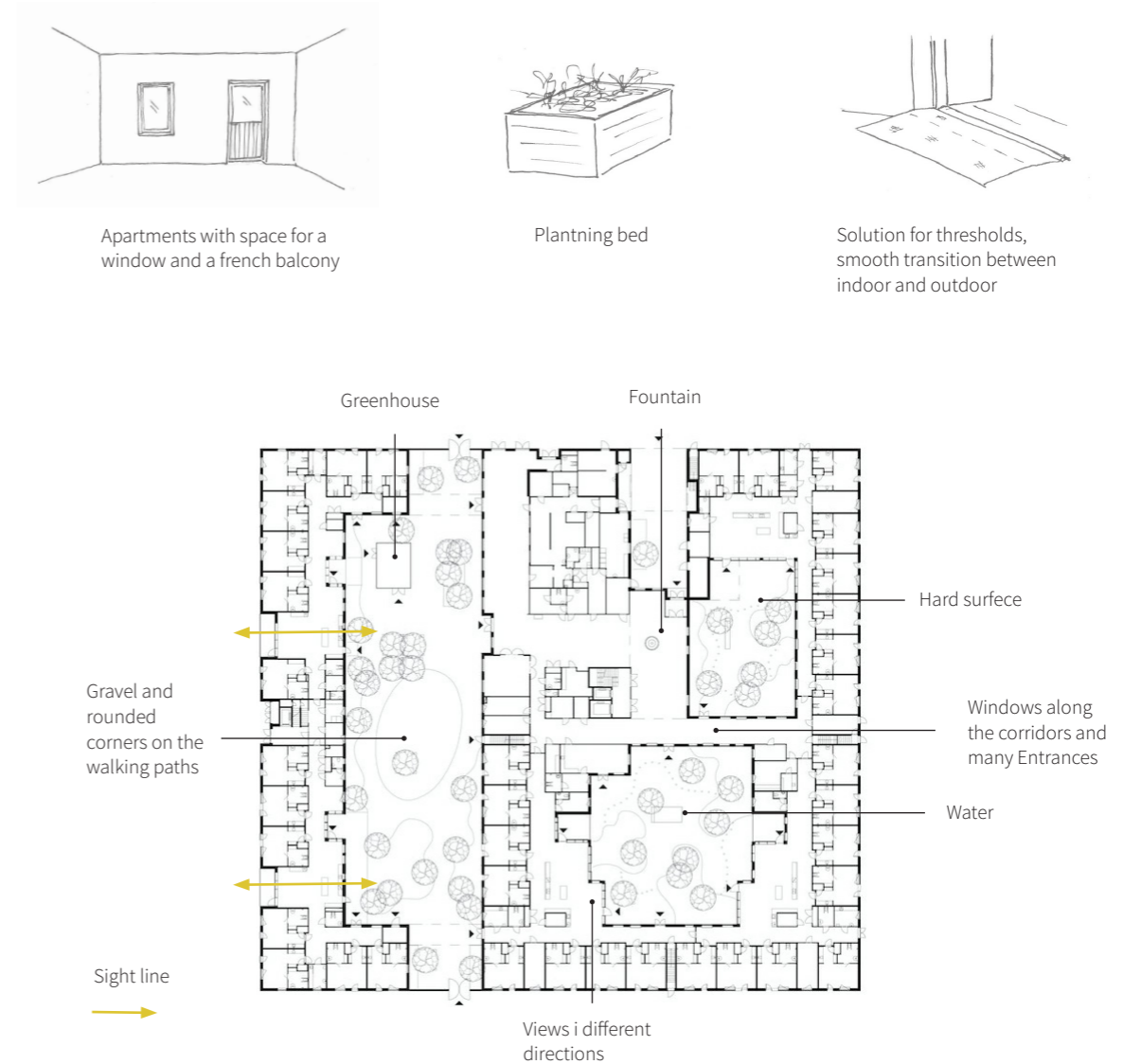
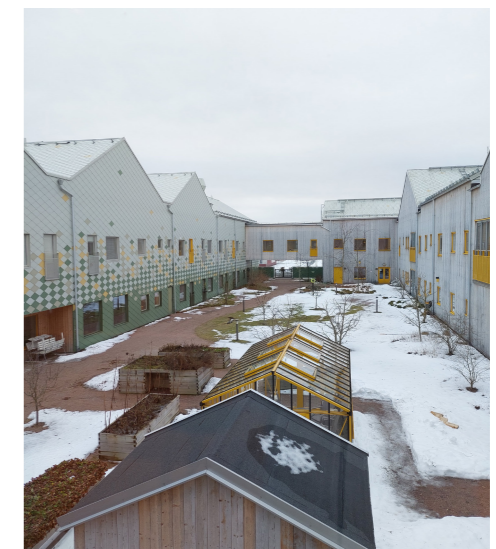


Figure 1.
Trädgårdarna vårdboende, floor plan 1. Marge Arkitekter



Winter garden on second floor and open terrace



Courtyard with green house and raised planting beds

KUNGSPARKEN

Kungsparken is a nursing home located in Kumla. The accommodation contains of 126 apartments divided on 14 (7) units and they moved in 2023. The Architects was Marge Arkitekter and landscape architects SP Landskapsbyrå.

FINDINGS

The accommodation is a building in three to four floors with a common garden facing south. When I visited Kungsparken I noticed all the carefully choices of material, in the interior there is a lot of visible wood, like the doors, frames, niches and floors. Natural materials that contribute to a warm feeling, as well as the coloursceeme with earthy colors that I find calm and harmonious. The entrance to the apartments has been marked with “bays”, those are decorated with wooden details which makes it more personal. The windows in the common spaces are large and offer views to the surroundings, on the fourth floor the pine forest can be visible in the horizon. The floor plans offer many views as I moved around in the building, even in the stairwell. The volume of the building has been pushed, this creates an intresting floor plan and walk indoor and it also creates a feeling of a smaller scale of the building.

The balconies probably give space for all of the residents in the unit so everyone can sit together there. There are also smart solutions such as small workplaces for staff in the common kitchens in the units. In the outdoor environment, there is a walking path, part of it has a hard surface with several benches along it. In the sloping part of the garden there is gravel on the walking path, which can be good for those who want more challenge. There are several seating areas one around a pond, some under a roof and there is also a green house in the garden.

COMMENTS FROM STAFF

The staff tells me that the garden is most used by the residents on the first floor who have easy access to it. The residents who live on the upper floor use it when there are activities arranged or when their relatives come to visit them. But they think that the greenhouse will be used more during the summer, last summer they had just moved in. When it comes to the balconies in the units there is an issue with the high thresholds, for some of the elderly in wheelchairs it is difficult to go out by themselves.



Figure 2.
Kungsparkens vårdboende, floor plan 1. Marge Arkitekter



View from the dining room, large windows.



Weather protected seating areas

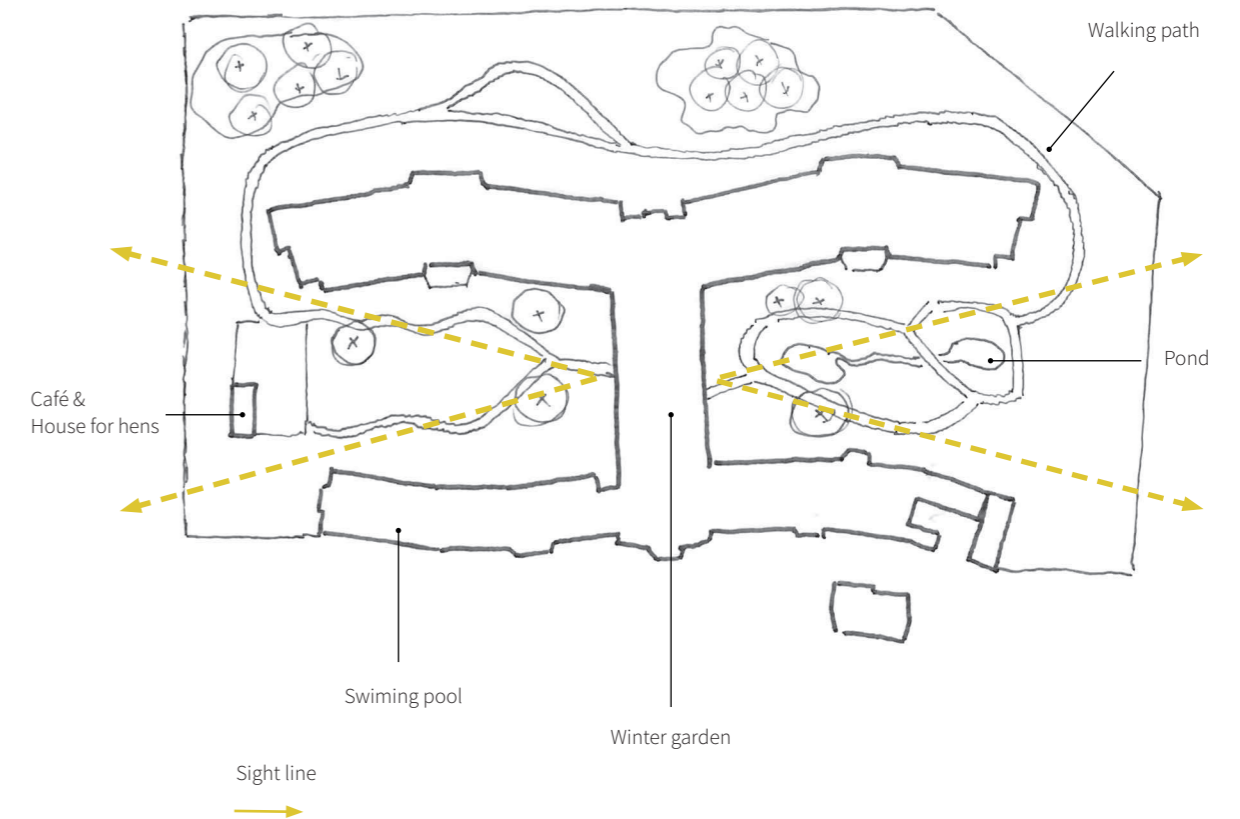
MÅNSTORPSÄNGAR

During a study visit in the autumn 2022, I visited Månstorpsängar located in Vellinge. The accommodation was originally designed by Asmussen's architects and consists of 56 apartments. The service building was one story, while the resident building had two storeys. The garden was then developed by Landskapsgruppen Öresund.

FINDINGS

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This is a nursing home that give me a feeling of home. The relationship between the courtyards, the building and the surroundings felt very natural. The placement of the building give space to relatively large gardens which opened up to the surroundings. The gardens were also large enough for a variety of vegetation and things to discover. The vegetation and the buildings together created an enclosed feeling and in the same time an open feeling and connection to the surrounding. In the gardens, there was a lot of greenery that framed the walking paths, which created a direction and something to look at during the walk. There was also a pond with a bridge where you could walk across the water and the places to sit and take a rest felt homely and protected. On one of the gardens there was also a house for hens and a small café, these built elements became landmarks in the gardens, something that made the outdoor environment more attractive. There was also a room for a swimming pool that faced the greenery. Indoor, there was a small winter garden with room for a few seats. Even though this was not small and did not provide room for so many plants, you could still sit there and have a view over the courtyard and the surroundings with a feeling of closeness to nature.



Pond and greenery in one of the gardens



Winter garden

SITE

ÖREBRO

The site for my project is located in Örebro. I grew up in Örebro which is the main reason for the choose of the site. Örebro is Sweden's seventh largest city located in the middle of the country, west of Hjälmaren with a population of approximately 155 000 people.



BRUNNSPARKEN

The plot is directly connected to Brunnsparken in Örebro, 4.5 kilometers from the city center. Brunnsparken was during the 17th century a spa and is today a public park with a restaurant, theater, and dance hall, among other things. The park itself is in need of renovation. I contacted Örebro municipality and described my ideas for my master thesis, and they came up with this plot as an option. There is today a detail plan, this one is for a residential building, not a nursing home, and I have therefor not followed the detail plan but the project is within the plot. The plot is close to valuable nature, old buildings, activities, and a residential area and school. The combination creates both qualities and challenges and gave the project a clear context to work with.

QUALITIES I REQUESTED

- Good connection with the city by car, bus and bike.
- Close to green area, green area that offer views and can be used by the residents.
- Activities/shops within the area, to contribute to connection to the society.

- 1 Gustavsvik bath resort and camping
- 2 Industri area
- 3 Sommaro, cultural reserve
- 4 Gustavsvik golf
- 5 Brunnsparken
- 6 Karlslund, cultural reserve





Greenery



Activity
 1. Supermarket 2. Restaurant 3. Theater
 4. School 5. Recreation area 6. The plot Park



Cars and bus stops



Bike/ pedestrian

SWOT ANALYSIS

STRENGTHS

- Activities in the area
- Close to park and greenery
- Good communication to the city
- Calm area
- Slightly sloping plot, almost flat

OPPORTUNITIES

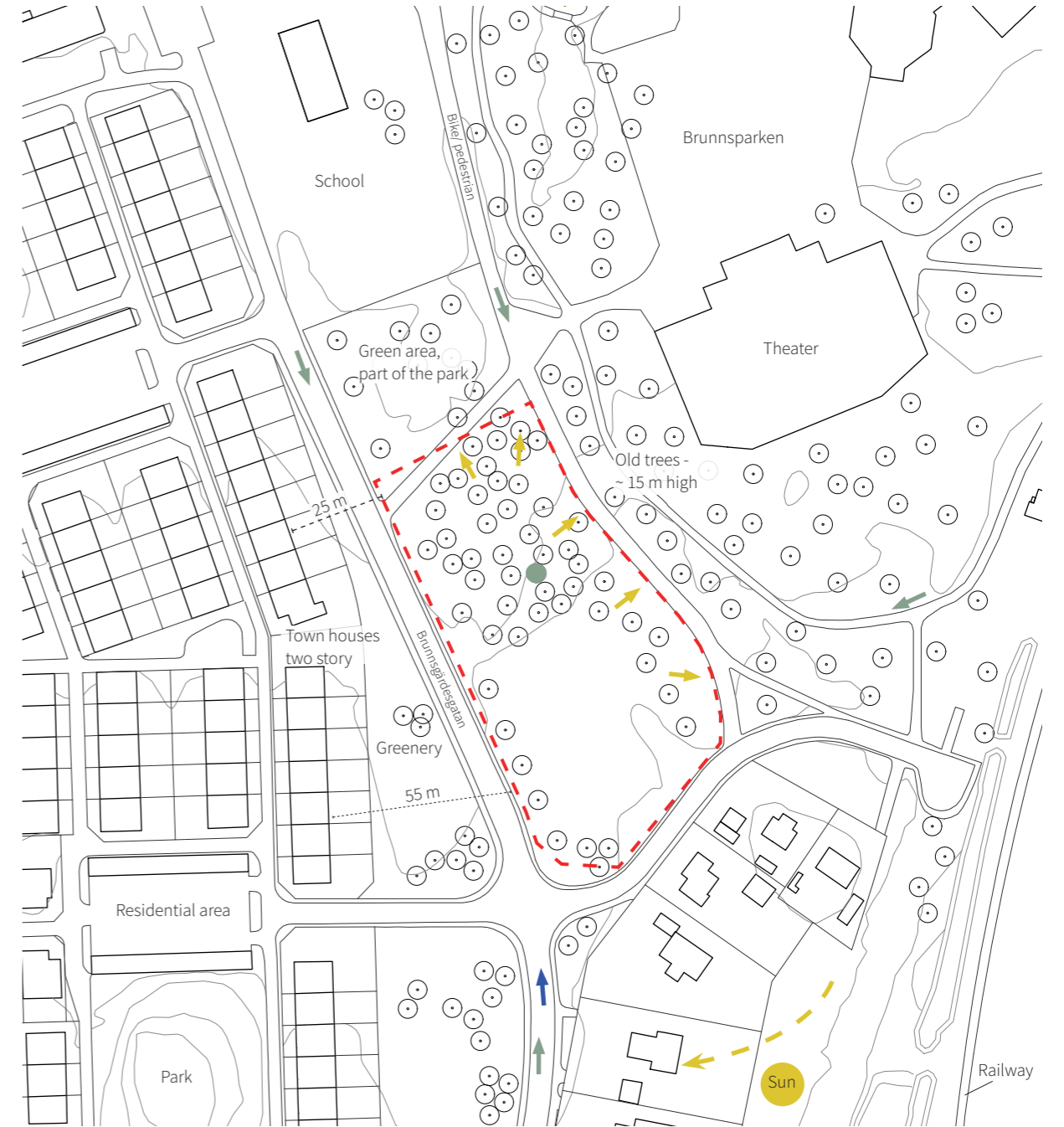
- Use the park for rehabilitation purposes
- Connect the site to the park
- Explore the concept on a limited area
- Make this part of the area more active

WEAKNESSES

- Small site
- Rail way (sound and barrier)
- Park northeast of the site (location)

THREATS

- The concept of the park changes in a way that is not beneficial for the residents
- The school area changes
- (This is imagined threats)



Site analysis

Scale 1:2000
 0 50m

- Views to park
- Bikes and pedestrian
- Cars (Dead end street)
- Tree to be preserved (according to detail plan)



The plot



Park and bike path connecting to the plot



Restaurant



Residential area



Old building and pond in Brunnsparken

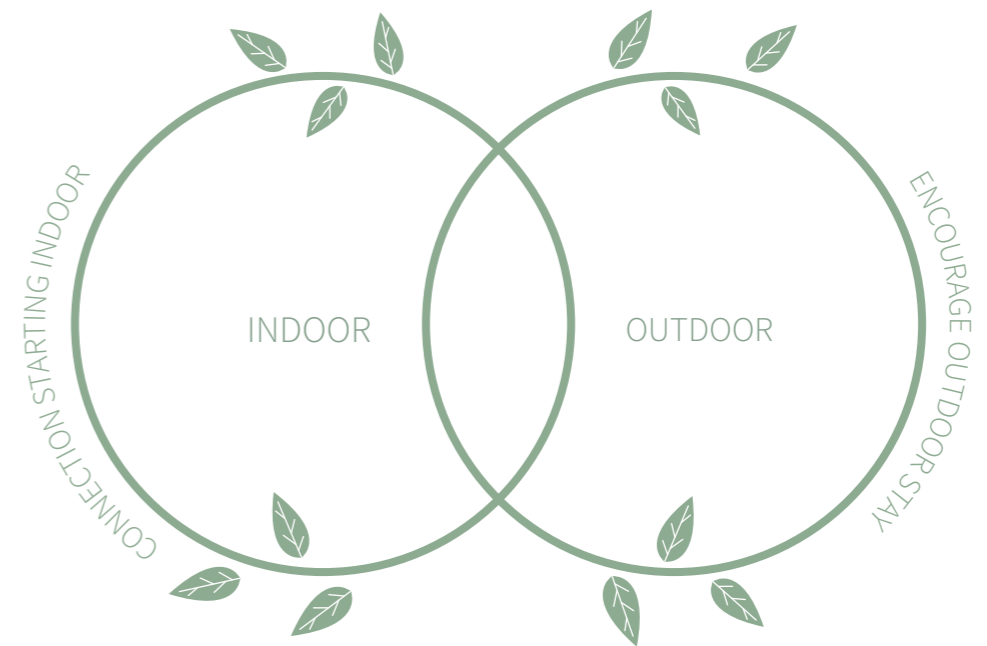


The theater

CONCEPT & DESIGN STRATEGIES

CONCEPT

Connecting indoor and outdoor



CONNECTION STARTING INDOOR

VISUAL CONTACT

Since there are positive effects on our health and well-being from seeing nature and greenery, the visual contact from inside the building become important. This also contributes to a closer connection to the surrounding neighborhood and with that a coherence and timeorientation.

The garden and the surroundings become part of the composition, these become the layers of what we see outside the window and affect the quality of the view.



COMMUNICATION/MOVEMENT

Easy communication between the indoor and outdoor environment is important for the accessibility and use of the outdoor environment.

In addition to easy access to elevators and stairs and several entrances, an interesting walk indoor encourage movement. Views to nature and places to stop and rest contribute to this.



CLOSENESS AND TRANSITION

Closeness to the outdoor environment is, as previously mentioned, important. For those who can not go out by themselves, the connection to the nature in the indoor environment and the zone closest to the building (the transition) are important. Where the building and the outdoor environment meet, several senses can be stimulated. This can be a wintergarden, balconies and the window placement which enables views of nature, sound of nature and touching/feeling nature.



ENCOURAGE OUTDOOR STAY

ACTIVITIES AND DIFFERENT CHOICES

To encourage to outdoor stay, different choices are needed so everyone can find something that interests them and make it more attractive. Places in the outdoor environment for different types of activities, calm activities for rest and recovery where there is a place to sit and observe the surrounding or a path to stroll along. Place for social activities where you can talk with friends or playing some games. The courtyard is a place for vegetation with different characters and a place where the elderly can be safe and observe the surrounding neighborhood.



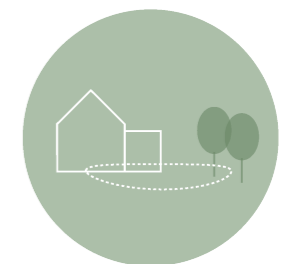
"INDOOR FUNCTIONS" MOVING OUTDOOR

To enable outdoor stay for the elderly, easy access to a restroom and water is needed, as well as sitting areas protected from different weather conditions. Outdoor kitchen, greenhouses and elements for activity/rehabilitation in the outdoor environment can make it more attractive to stay outdoor. The outdoor environment stimulates many senses and provides greater variety in challenge levels for rehabilitation.

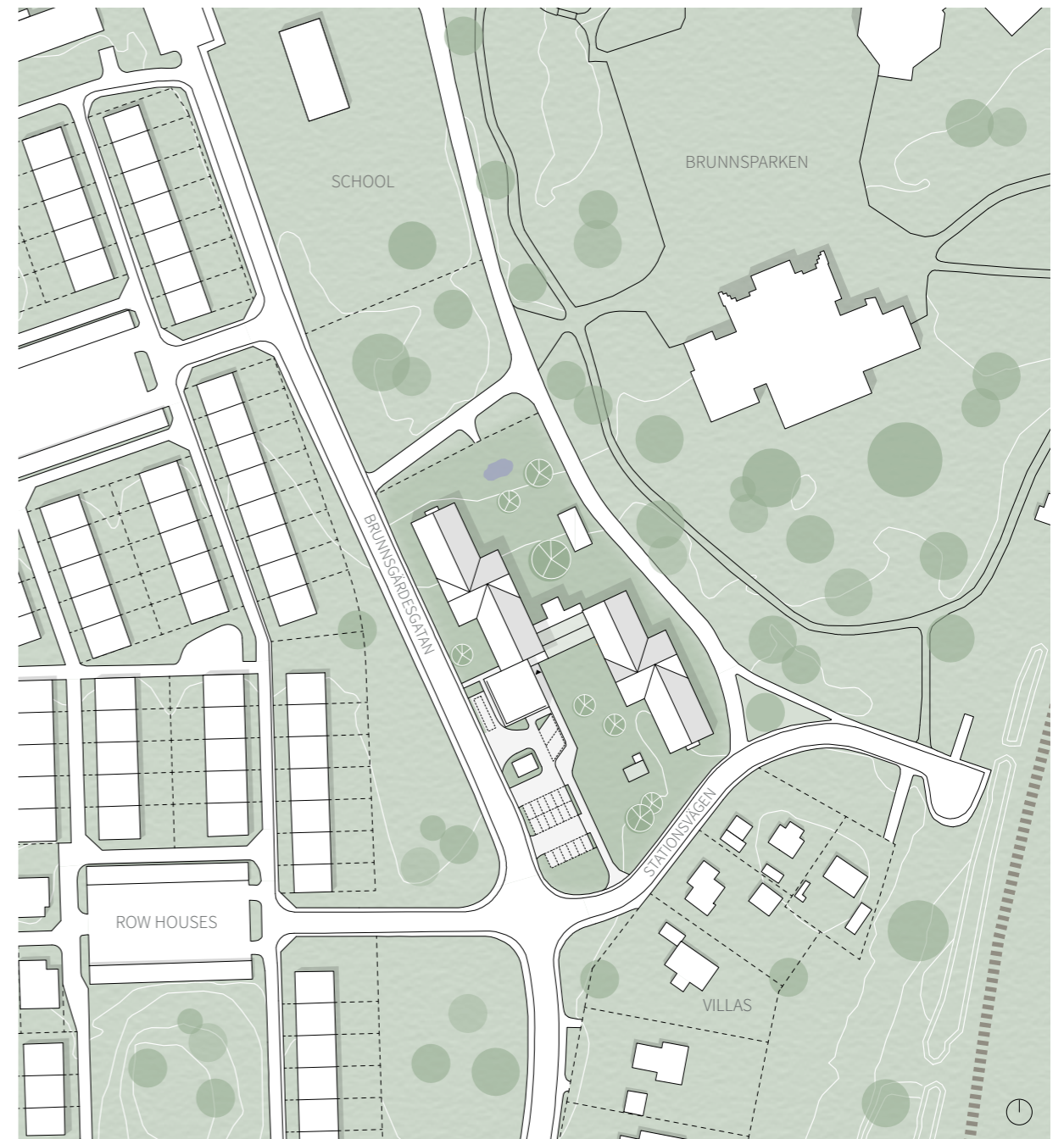


MOVEMENT

Safe and accessible outdoors environments where it is easy to find the entrances and the way back indoor, as the elderly may have reduced memory and difficulty with balance. The walking path can give a direction and inspire to walk with interesting things along it.

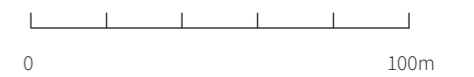


DESIGN PROPOSAL



SITE PLAN

SCALE 1:2000/A4





1



2



3



4

PLACEMENT IN THE LANDSCAPE

1. PRECONDITIONS FOR THE PLOT

The plot is long and relatively narrow and it surrounds by a residential area to the south and west, and it connects to a park in the northeast.

2. VOLUME

The volume is pushed to scale down the impression of the building, this also invites the surrounding when there is no back of the facility and makes it more pleasant to move around.

3. VIEWS

The placement of the building gives both the units and the common areas views in different directions that are not blocked by a facade, which gives a greater connection to the surroundings and longer and wider views towards nature. Further displacement of the residential building creates a more interesting walk in-door.

4. OUTDOOR ENVIRONMENT

The placement of the building creates space for two courtyards that meet the surrounding neighbourhood, the common area indoor, the winter garden that will be described later, become a link. The placement of the building and the open courtyards provide space for large trees and vegetation and also a relation to the neighbourhood.



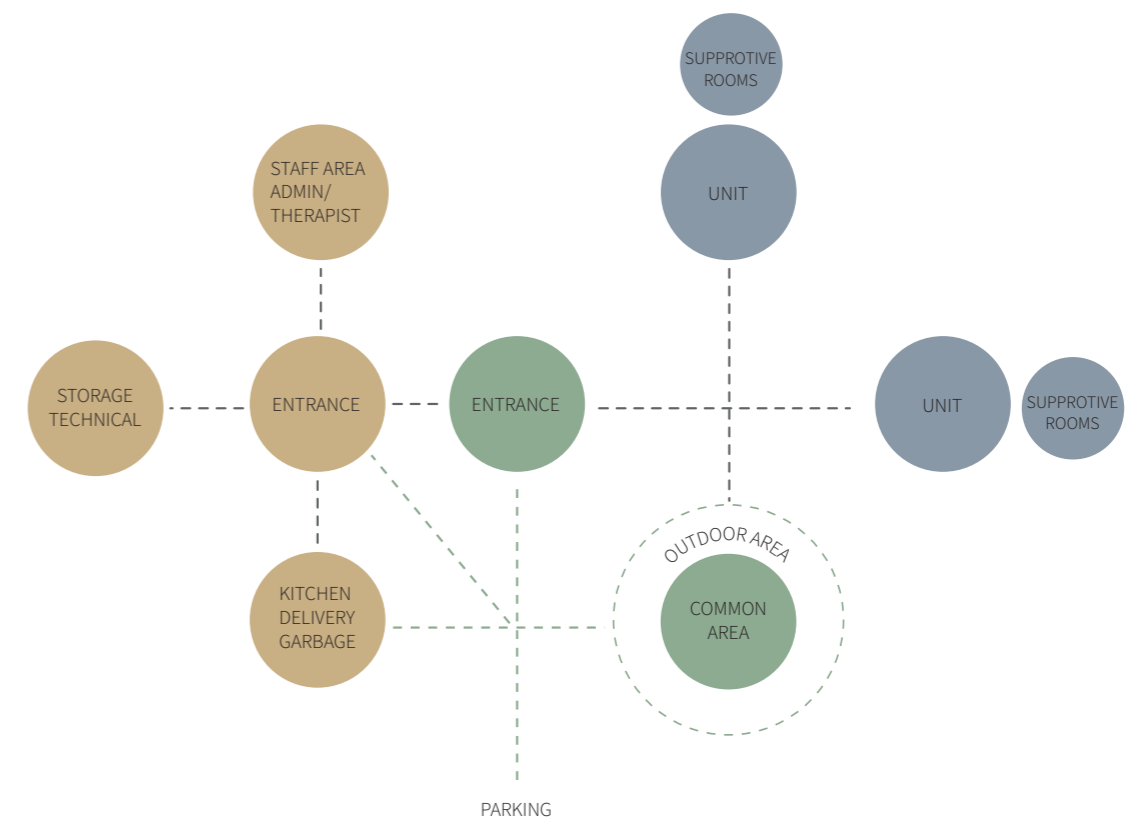
GENERAL DISTRIBUTION OF FUNCTIONS

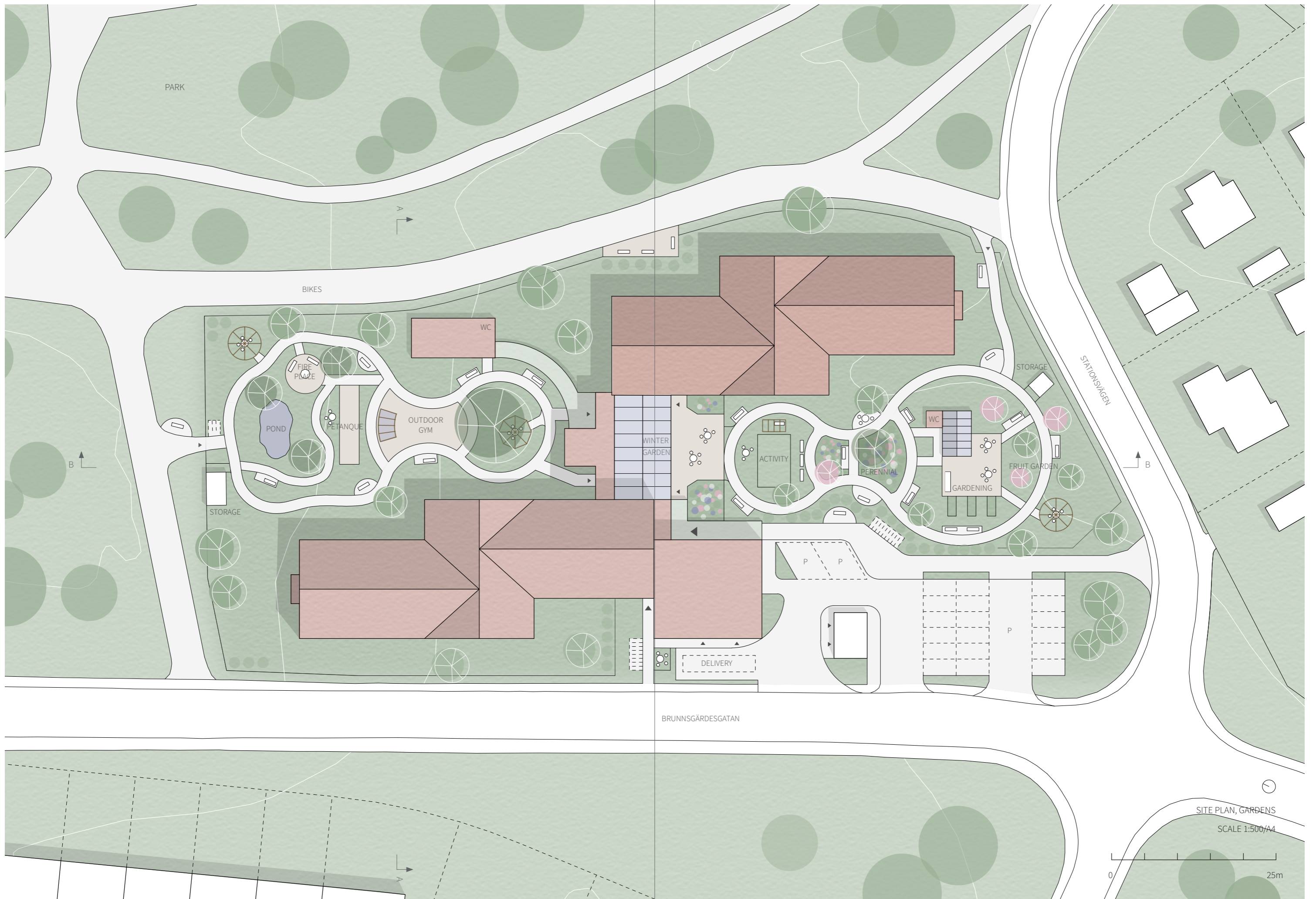
- Residential area (60 apartments)
- Common area
- Service area

LIST OF FUNCTIONS BASED ON PROGRAM FROM ÖREBRO MANICIPALITY

RESIDENTIAL AREA	<p><u>UNITS</u> 10 apartments in each unit (approximately 35 sqm)</p> <p>(Common areas within the unit); Kitchen + storage Dining room Living room Balcony/terrace Storage</p>	<p><u>SUPPORTIVE ROOMS</u> (Can be shared between two units, will not be in my project) Expedition + WC - staff Storage Desinfection Laundry Cleaning room</p>		
	<p><u>FOYER (ENTRANCE)</u> RWC WC Lounge Storage - wheelchairs</p>	<p><u>COMMON ROOMS</u> (Shared by all) "Aula" with kitchenette "Flexible rooms" - example, gym, meeting room</p> <p><u>SUPPORTIVE AREA</u> (One on each floor) Expedition + drugstorage/preproom - Nurse</p>	<p><u>OUTDOOR AREA</u> Parking cars Parking bikes Storage - bikes Storage - furnitures Patio Garden</p>	
	<p><u>ADMINISTRATION & THERAPIST</u> Office - 1 person Office - Shared Meeting room Printing room Storage</p> <p><u>STAFF AREA</u> Changing room WC & shower Laundry Storage - Clothes Break room (With kitchen) Rest room</p>	<p><u>KITCHEN</u> Fridge & freezer Storage - Food Storage - Non food Kitchen Prep room Dish room</p> <p><u>KITCHEN - STAFF AREA</u> Changing room WC & shower Break room (with kitchenette) Office (can be part of the break room) Cleaning Laundry</p>	<p><u>GARBAGE ROOM/HOUSE</u> Garebage - Kitchen Gargage - General</p> <p><u>DELIVERY</u> Delivery - Kitchen Delivery - General</p> <p><u>STORAGES (Shared by all)</u> Storage - General Cleaning Storage - Aid Storage - Dressings Storage - Tenants</p> <p><u>TECHNICAL AREA</u></p>	

FLOWCHART







South garden.



North garden.

THE GARDENS

The nursing home has two gardens with different characters, and landmarks to encourage and facilitate outdoor stay. The different characters of the gardens and activities contribute to various choices and a place for everyone where many senses can be stimulated. They also contribute to a clear context and relationship to the surroundings.

The south garden that faces the villa area has the character of a villa garden with cultivation. There is room for spontaneous activities, such as bocchia or dance with direct connection to the winter garden. There are also perennials, planting beds and a fruit garden near a green house in the south garden.

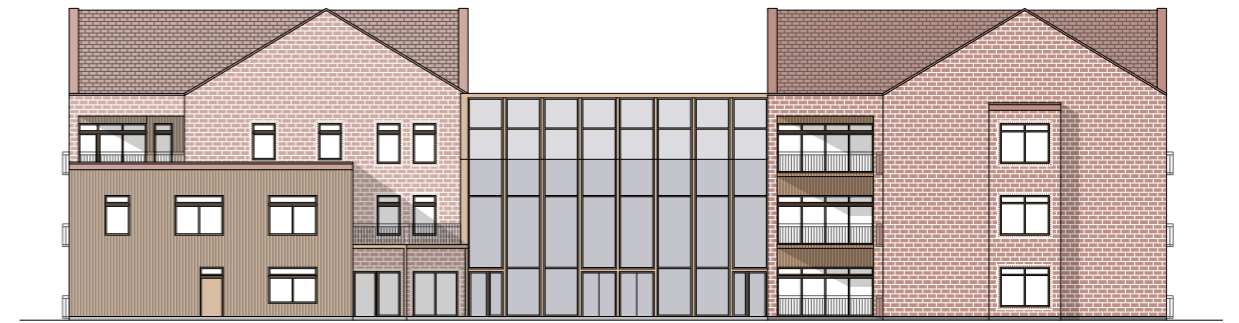
The north garden connects to the park and is framed by the large trees and has a wild and natural character. One of the existing trees is preserved, according to the detail plan, (several of the existing trees can probably be preserved). In the north garden there is an additional building with a gym connected to the outdoor gym and a pétanque rink. Closer to the park the vegetation become more natural and under the trees there is a barbecue area, and a pond.

To encourage and facilitate outdoor stay, there is access to restrooms and water on both gardens and plenty of seating areas. Both seating areas where you can spend time together with others but also benches if you want to rest and observe the surrounding by yourself for a while. The different types of seating areas are spread out so everyone can use the different rooms in the garden in the way they prefer.

All walking path leads back to the entrances and the winter garden to make it safe and easy to find the way back home. In both the south and the north garden there are various distances to walk, and along the walking path is things to discover. If there is organized activities outdoor, there is a thought about the movement around the plot as well. It is possible to go out from both gardens to the park without passing the road and there is a space for benches along the bike road.

FACADES

As previously mentioned, the volume of the building has been pushed to scale down the impressions of the facility. To scale it down even more, the service building and the winter garden have another character compared to the residential buildings, both in shape and choice of materials. The residential buildings are covered with bricks and the service building with wooden panels, natural materials that work well together. The facade at the balconies are also covered in wood to create a softer feeling that connects to the common rooms indoor.



ELEVATION SOUTH



ELEVATION WEST

SCALE 1:400/A4



SECTIONS

I chosed to design a building with three stories since a one-story building on this plot was not possible. The contact with the courtyard on the ground will be reduces already on the second floor, but my plot is surrounded by old and high trees that offer views towards greenery even from the third floor. With a smaller footprint it was possible to give more space for the gardens, and as previously mentioned, longer and wider views towards nature and the surroundings in different directions from all units. Which not only creates qualities for the views but also a sense of coherece and greater orientation.

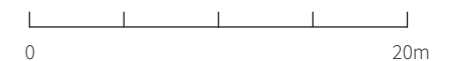


SECTION A

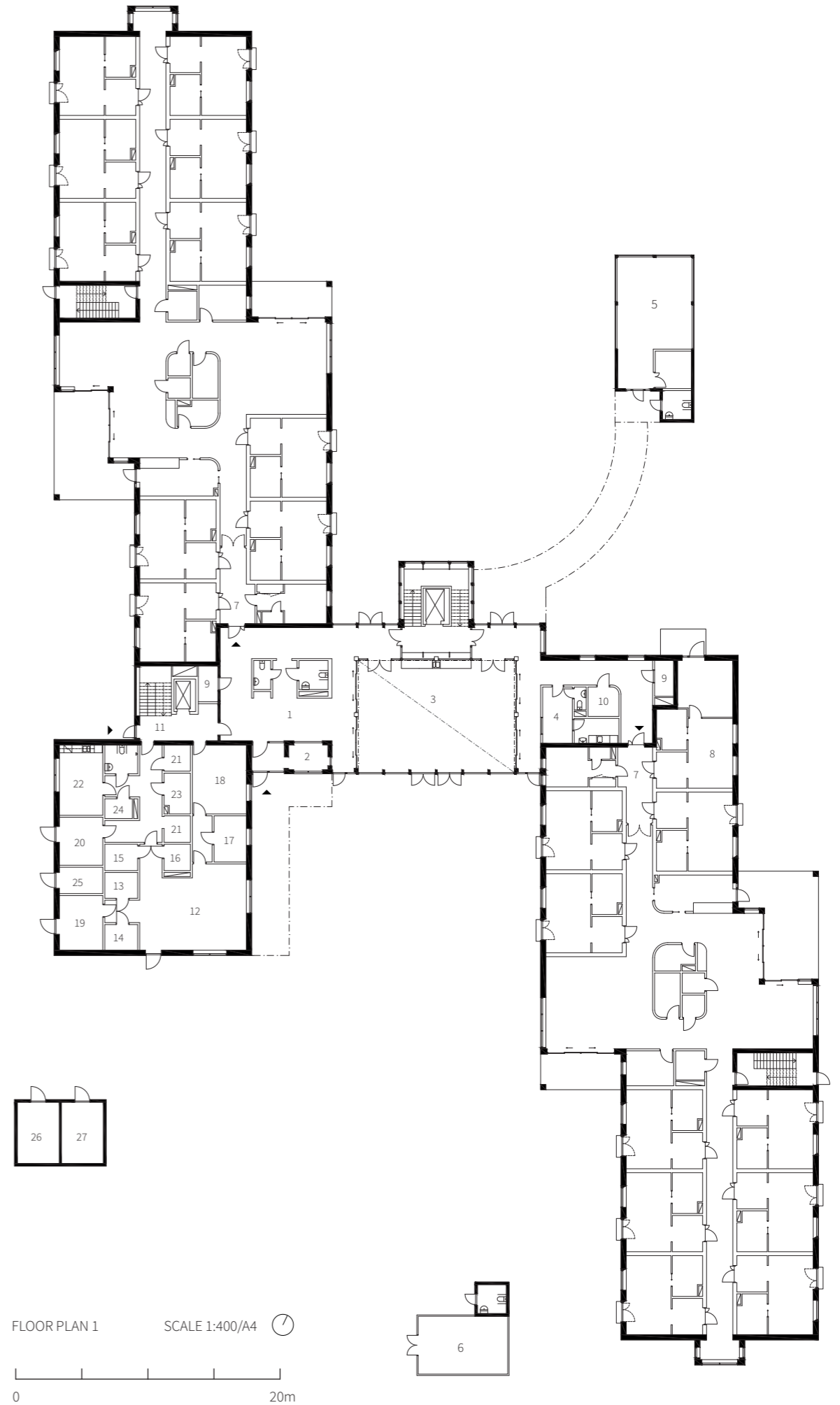


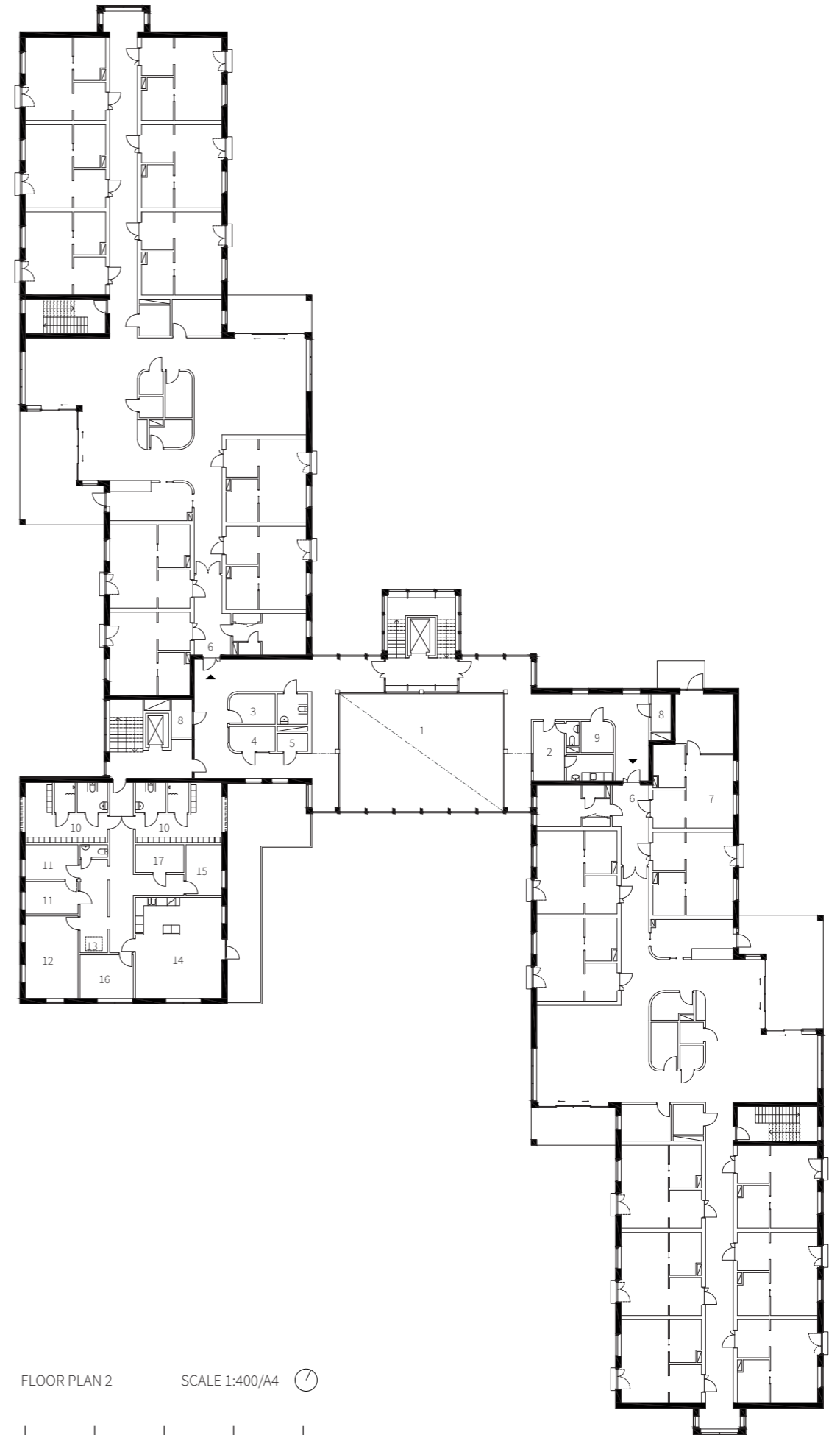
SECTION B

SCALE 1:400/A4



1. Foyer
2. Storage - Wheelchairs
3. Wintergarden
4. Expedition - Nurse + drug storage & prep room
5. Gym
6. Green house
7. Unit
8. Couple apartment
9. Waste
10. Storage
11. Entrance, staff
12. Kitchen
13. Fridge
14. Freezer
15. Stogage, food
16. Storage, non food
17. Prep room
18. Dish
19. Delivery, kitchen
20. Delivery , general
21. Changingroom
22. Break room
23. Laundry
24. Cleaning
25. Technical
26. Waste room, general
27. Waste room, kitchen

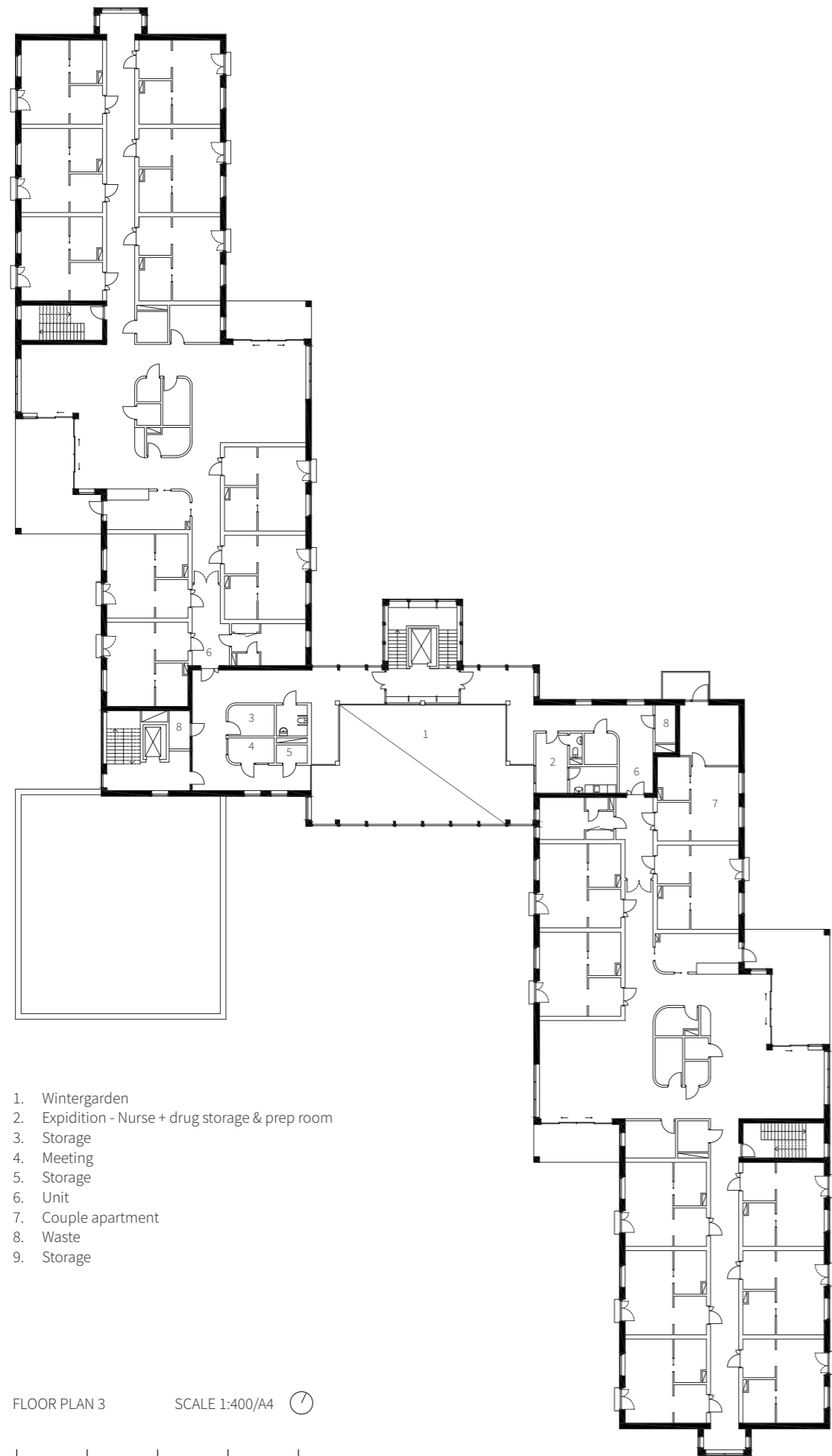




1. Wintergarden
2. Expedition - Nurse + drug storage & prep room
3. Storage - Clothes
4. Meeting
5. Storage
6. Unit
7. Couple apartment
8. Waste
9. Storage
10. Changing room
11. Office, 1 person
12. Office, 4 persons
13. Printing area
14. Break room
15. Rest room
16. Meeting
17. Laundry

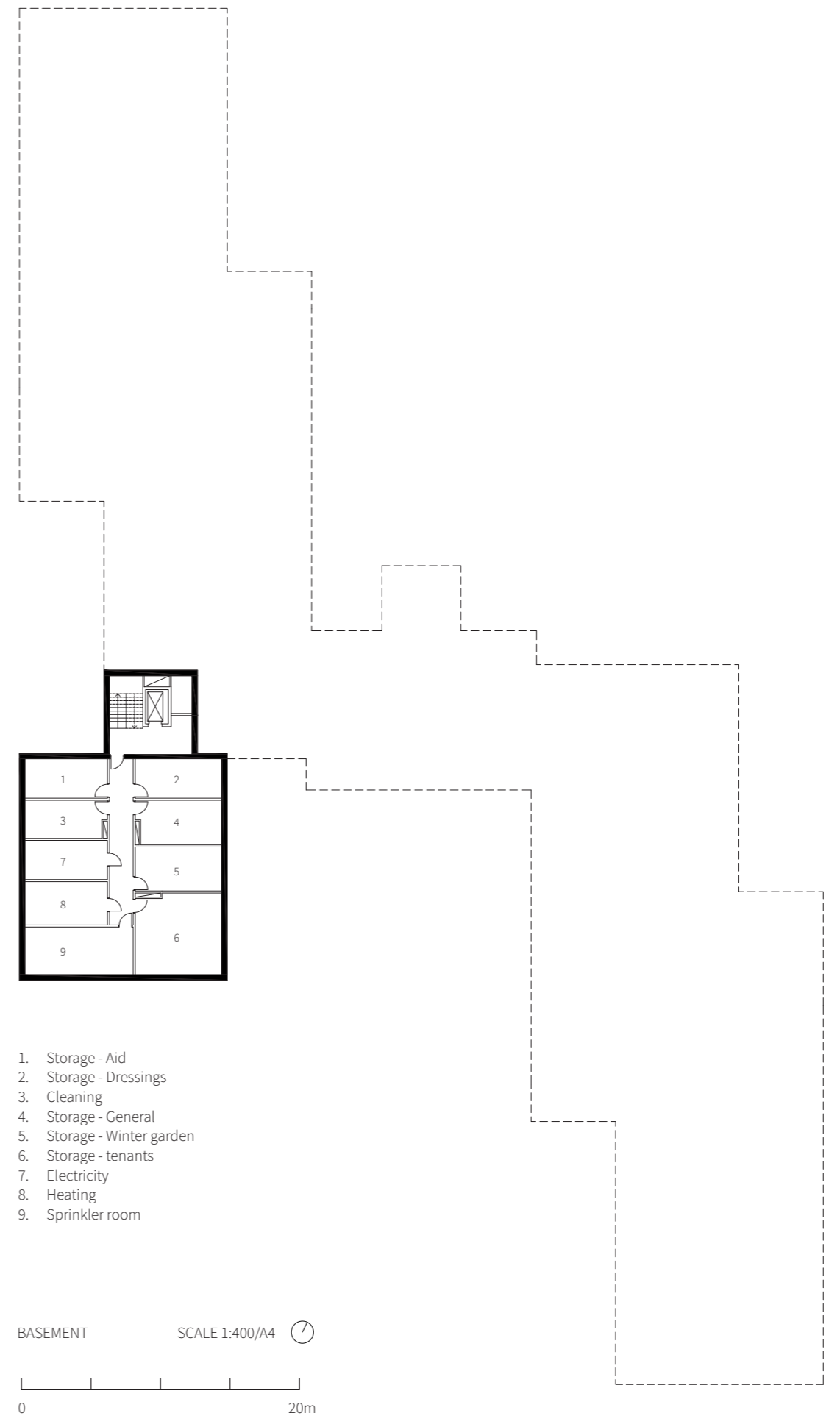
FLOOR PLAN 2 SCALE 1:400/A4





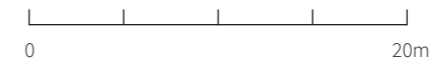
1. Wintergarden
2. Expedition - Nurse + drug storage & prep room
3. Storage
4. Meeting
5. Storage
6. Unit
7. Couple apartment
8. Waste
9. Storage

FLOOR PLAN 3 SCALE 1:400/A4



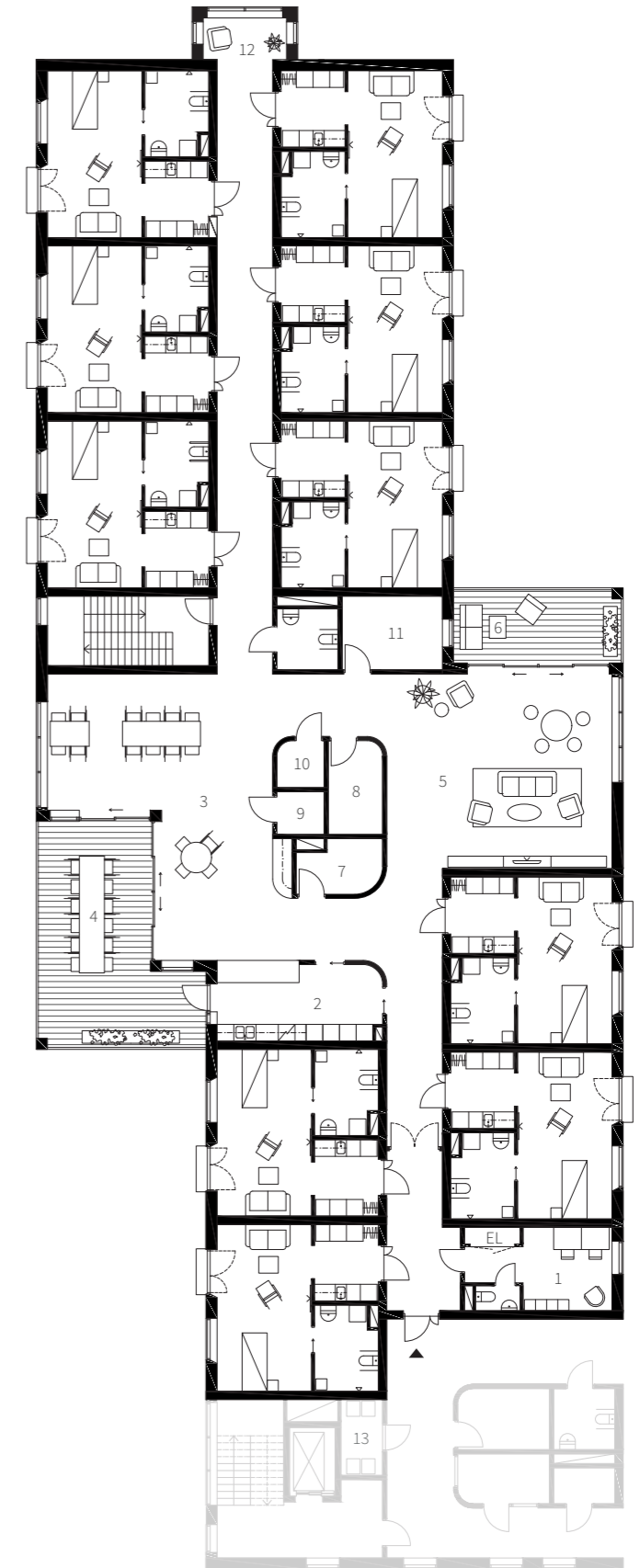
1. Storage - Aid
2. Storage - Dressings
3. Cleaning
4. Storage - General
5. Storage - Winter garden
6. Storage - tenants
7. Electricity
8. Heating
9. Sprinkler room

BASEMENT SCALE 1:400/A4





Dining room & Kitchen.

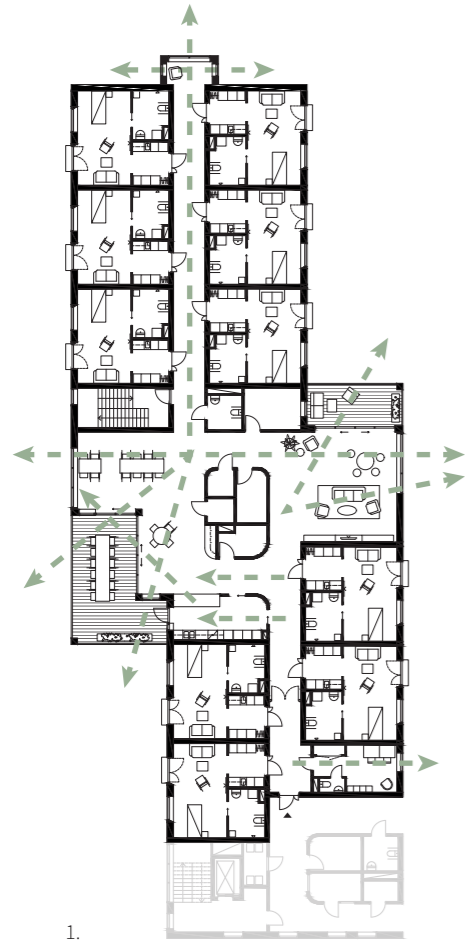


- 1. Expedition, staff
- 2. Kitchen
- 3. Dining room
- 4. Balcony
- 5. Living room
- 6. Balcony
- 7. Storage
- 8. Desinfection
- 9. Storage, kitchen
- 10. Cleaning
- 11. Laundry
- 12. Bay window
- 13. Garbage

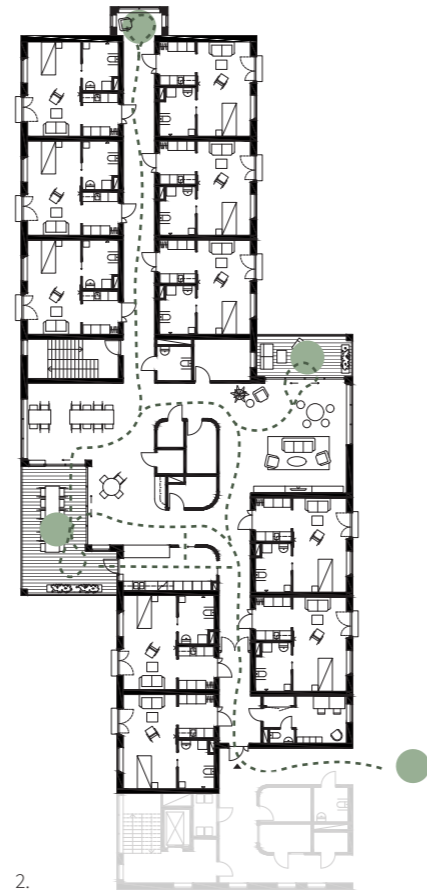
FLOOR PLAN, UNIT (North)

SCALE 1:250/A4

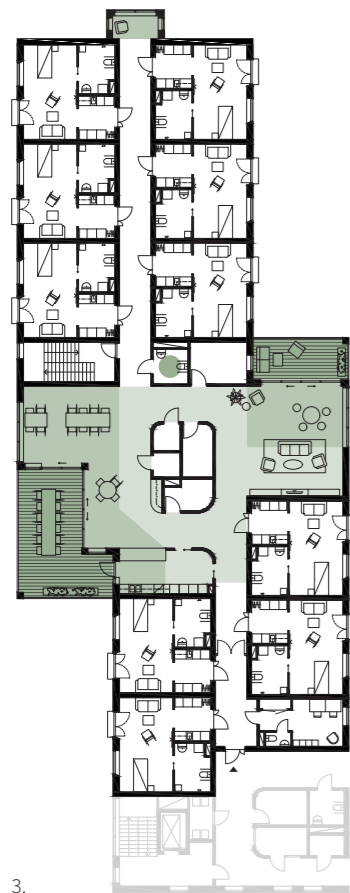




1.



2.



3.

UNIT

1. VIEWS

The shape of the volume of the building provides windows over corner that provide wide views and connection to the surrounding. Each unit faces three directions, but the offset of the shape gives a view towards the fourth. This means that the residents can choose if they want to observe the garden, the park, or the residential area outside. They also get a greater sense of orientation and understanding of where they are.

2. MOVEMENT AND DESTINATION

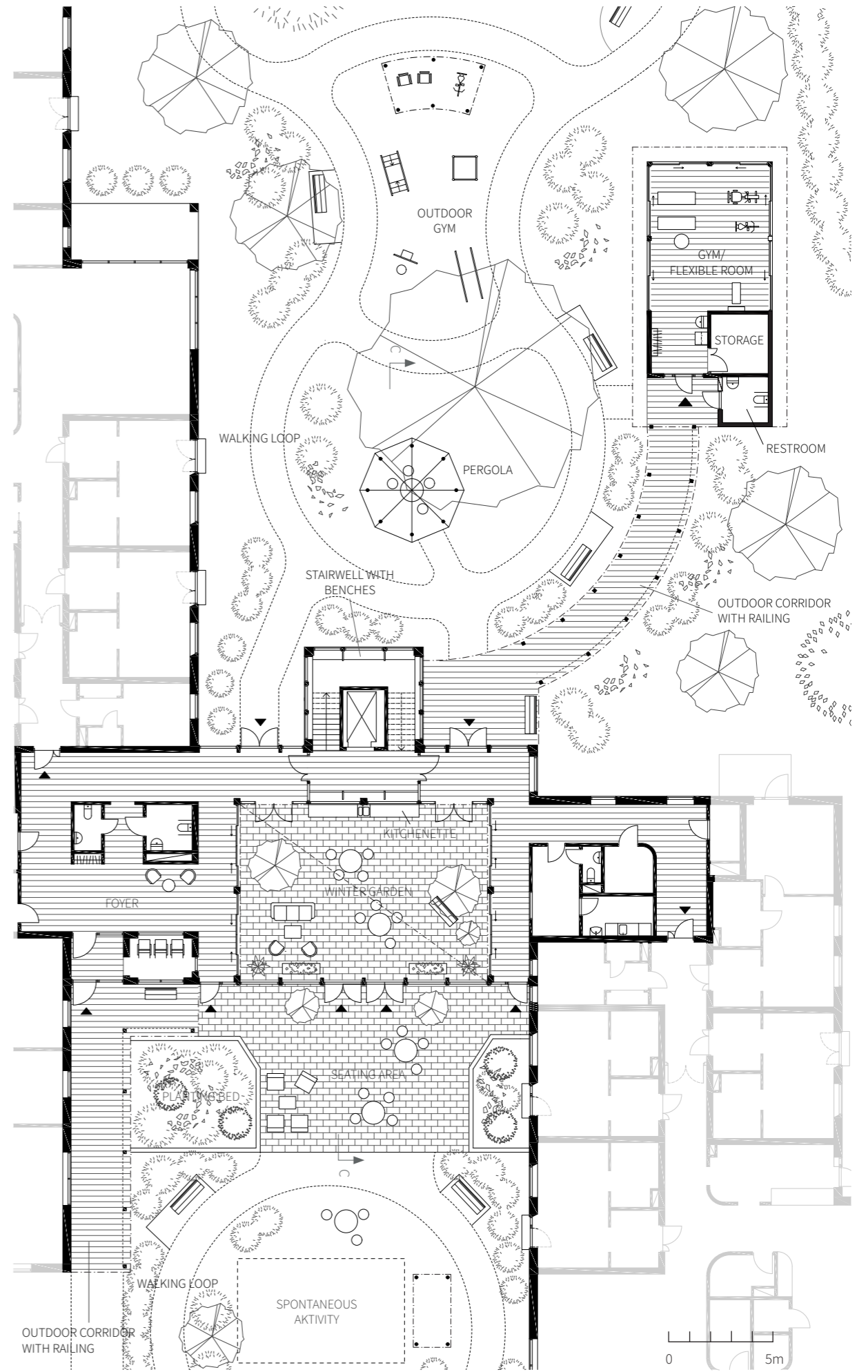
In the unit there are three destinations that clearly connect the indoor and outdoor environment and creates an interesting walk. (The fourth is in the wintergarden in the common area shared by everyone in the nursing home). One aim for the project was to offer different places indoor for connection with the outdoor environment. In each unit there is a glazed bay in the end of the corridor, with space for one to two people, a place for private conversations or to sit alone. Next to the living room there is a balcony with room for a small group of people and in the dining room there is a large balcony with room for everyone in the unit.

3. CLOSENESS AND TRANSITION

The common rooms in the unit are located central in the corridor to break up the corridor and create a feeling of more space and to give everyone close to the common rooms. Supportive functions are placed in the middle which creates a circulation around it. The balconies and large windows connect indoor and outdoor with the possibility to open up the glazed doors. For those who want, they can sit indoor but still have a feeling of being a part of the activity on the balcony. The balconies are pushed in to protect against rain and sun and to create an enclosed feeling.



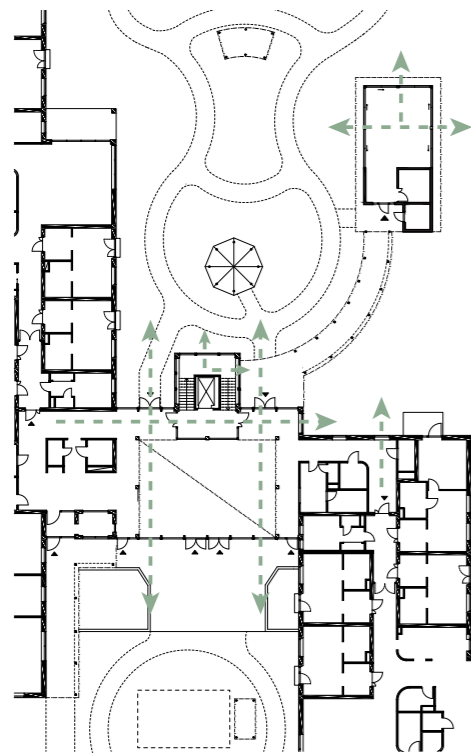
Winter garden.



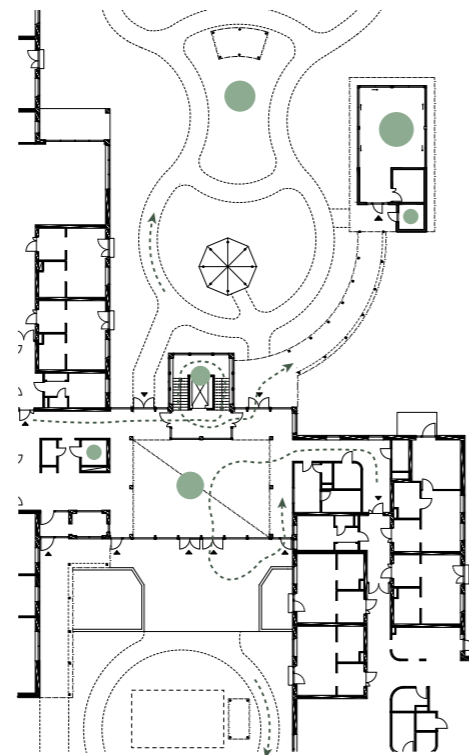
FLOOR PLAN WINTER GARDEN

SCALE 1:250/A4

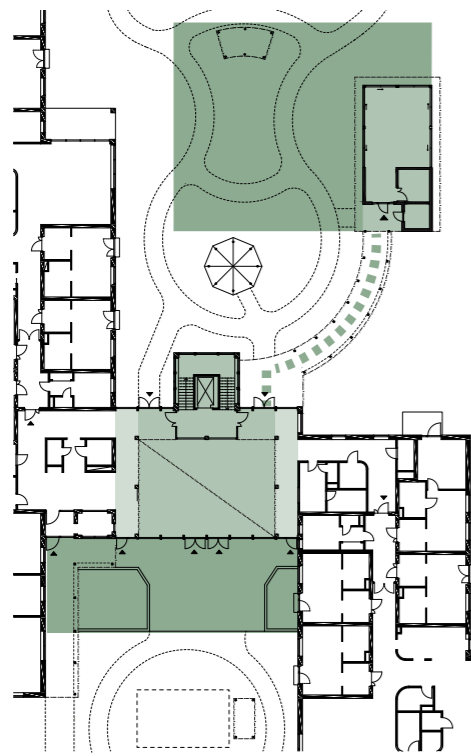




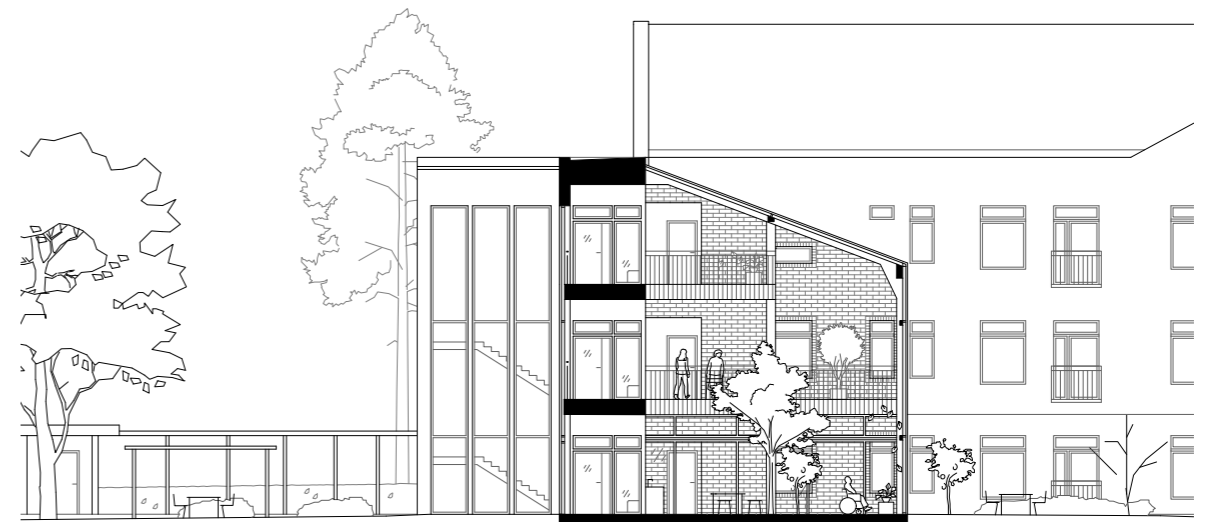
1.



2.



3.



SECTION C

SCALE 1:250/A4



WINTER GARDEN

1. VIEWS

The winter garden becomes a transparent node and transition that connects the gardens and the units. The winter garden encourages movement to the outdoor environment as the stairwell are centrally located in the winter garden so the elderly can easily find it when they are there. The stairwell are also glazed to make it more pleasant to walk and on each landing there are benches.

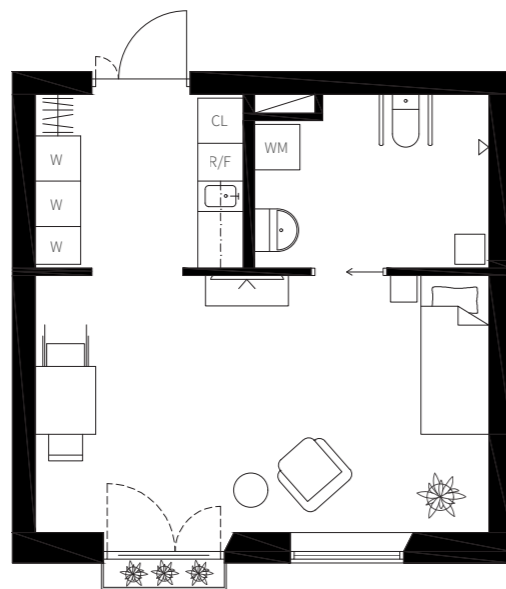
2. MOVEMENT AND LANDMARK

The winter garden is a landmark in the facility and the stairwell as previously mentioned is centrally located in the winter garden to encourage movement. From the winter garden you can reach the courtyards, there is an additional building in the northern garden with a gym connected to an outdoor gym, this building can be reached via a passage under a roof and is equipped with a restroom. This is to encourage rehabilitation outdoor which gives a reason to go out from the residential building for a while. In the south garden there is also a restroom next to a green house to make it possible to stay outdoor during a longer time and arrange activities. The main entrance is next to the winter garden and becomes a welcoming room for visitors.

3. CLOSENESS AND TRANSITION

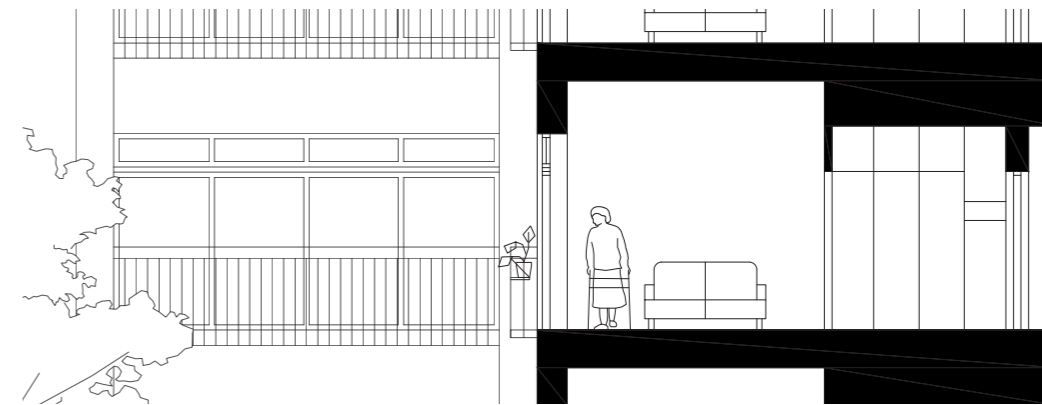
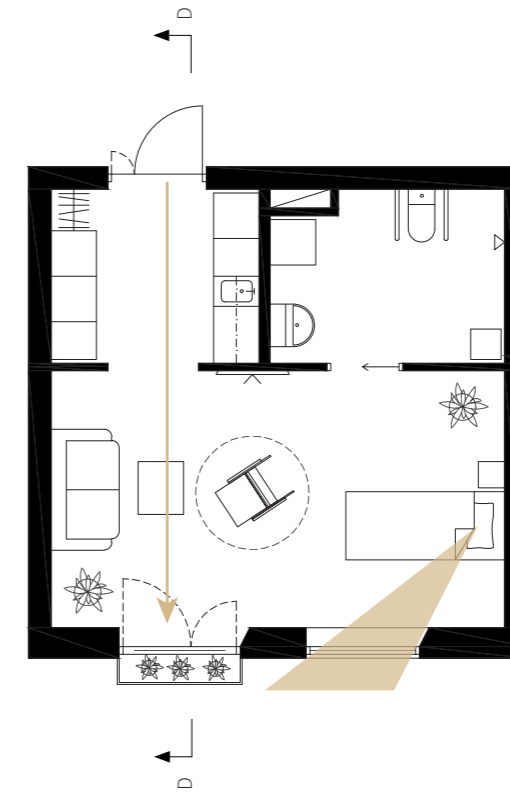
The winter garden becomes a place where everyone can meet. It offers a connection to nature during all seasons and the glazed roof contributes to both see and hear the sound of nature. The winter garden is connected but a large patio where many can sit together, the winter garden is also equipped with a kitchenette to be able to arrange activities and provides space for both dining tables and lounge sofas. To increase the experience of the connection to the outdoor environment in the winter garden, the brick-clad facade of the residential buildings continue into the winter garden, as the tiling in the seating area outdoors floats from the outdoor in to the indoor.

The possibility of being able to practice the rehabilitation outdoor or very close to nature, in the transition, can encourage physical activity and outdoor stay. It can contribute to be able to think about other things during the practice and contribute to recovery.



APARTMENT

SCALE 1:100/A4



SECTION D

SCALE 1:100/A4

APARTMENT

In the design study phase I investigated the dimensions of the floor plans for the apartments and came to the conclusion to working with an apartment that is not so deep but wider, which provides more facade space and therefore more space for windows. I also studied the angle of the view from the bed and choose to cut the corner of the wall to give a wider view. The window closest the bed has an opening window on the upper part, so the frame doesn't block the view. The apartment have a French balcony, which doesn't block the view from the bed either, but gives the opportunity to make it personal with plants. The French balcony has two doors to be able to choose how much to open it up to let in air and sound from the outdoor environment and to make the apartment more furnishable. In the apartment, there is also options of placing the bed, along the wall or freestanding, both positions give a view of the surroundings. The angle of the view from the bed provides views towards greenery even for the apartments close to the corner of the building.

CONCLUSION & DISCUSSION

CONCLUTION & DISCUSSION

When working with architecture in healthcare environments, there are several things that need to be considered. A nursing home is a home for a target group with several needs, and a workplace with a lot of logistics that must go together. Therefore, the design solutions when it comes to connecting indoor and outdoor are probably not solved in the same way as in another situation.

What I find interesting is to understand how and why nature has a positive effect on our health and well-being and not just the conclusion that it has. This to be able to create a design that takes advantage of the qualities. One conclusion I have done is, to connect indoor and outdoor to take advantage of nature's positive effects on health and well-being, it needs to be seen as a whole, the building, the garden and the surrounding. In a home for the elderly, where the target group does not have the opportunity to go far from the home by themselves, the experience and qualities need to be close. .

We appreciate natural elements like trees and water, and the natural element in its context, when it becomes a natural environment and where there are things to discover, it is this, among other things, which helps us be in a state of "fascination" with the possibility to recover. When the outdoor environment becomes an extension of the indoor, more choices are created for different activities and places to stay, and when the building relates and interact with the surrounding it can create a feeling of connection to the surrounding and a better orientation.

I see my design strategies as conclusions for how to develop a home for the elderly where the indoor and outdoor environment are connected in order to promote health and well-being. How to solve this depends on the preconditions of the site and context.

Another conclusion that I did after interviews and study visits is that the optimal design solution to facilitate outdoor stay for elderly people at nursing homes, is a facility in one floor where the elderly can easily go out on their own and where the staff have a good overview. However, this feels obvious, but it is not always possible. Then, instead, the design can be adapted according to the site and the qualities can be achieved in other ways. Then the connection to nature becomes important to solve on each floor, like balconies and visual contact with nature and the surrounding. This requires that the volume and placement of the building provides the conditions for this. Investigations of the placement, angles of views and studying how close the surrounding buildings are and what type of nature is nearby, how far the views extend and how high the trees are, becomes important then. Views from the upper floor can be very beautiful and for some reminds of a former home.



This was one reason why I chose to work with a three-story building instead of two in order to open up the courtyards to the surroundings. I concluded, from the third floor of my plot it is possible to get good views towards nature, because of the old trees surrounding it.

The courtyard and the surrounding neighborhood becomes part of the "composition" of the view and together also the experience of the outdoor environment. I think this is described in Anna Bengtsson's model with the four zones. Open the gardens also provided more space for large trees. Large trees cannot grow close to a building, but near the edge of the plot, a reason to work with open courtyards if the plot is small. And also, more space for various activities in the garden and space for functions such as a restroom to facilitate and encourage outdoor stay during a longer period.

If the elderly usually use the outdoor environments that are closest to their unit, I think that it is good if each outdoor space offer a variation of qualities. The elderly have different physical conditions, so it is also important that there can be challenges for those who want. I also think that people who have good mental well-being can be the ones with the most limited physical capabilities. Care and rehabilitation outdoor feels important to motivate the elderly to practice. Being able to stay outdoor contributes to more variety and in outdoor environment the "hospital" feeling can be removed, the tree in the garden can be the same that the elderly had in their previous garden.

Some other reflections during the process have been the following, if a tree or water is placed where it can't grow naturally, will it have a positive effect on the well-being or enhance the experience of being in a hospital environment? And when does the winter gardens become too large so that you lose contact with the outdoor environment, the fresh air and the time orientation. In a winter garden, the vegetation does not change color during the year. When does the winter garden become a barrier rather than a connection to nature. This was things I reflected on when I did my research. A conclusion based on the theories, now when the work is finished, is that it depends more on the placement of the wintergarden and the relationship to the surroundings. If you can stay in the winter garden and observe what happens outside or not more than the size of the winter garden.



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- Figures
- Figure 1. Marge Arkitekter. *Trädgårdarna Vårdboende* [Floor plan]. Retrieved 2024-02-01 from <https://www.marge.se/projects/the-gardens?lang=sv-SE>
- Figure 2. Marge Arkitekter. *Kungsparken Vårdboende* [Floor plan]. Retrieved 2024-02-01 from <https://www.marge.se/projects/kumla-care-home?lang=sv-SE>



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