Lapinjärvitalo

Service housing for seniors - a detached house typology to grow old in

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Ida Fraser

Abstract

This thesis was completed as an assignment provided by Aalto University and ordered by Lapinjärvi municipality and The Housing Finance and Development Center. The assignment was '*to design a new type of modular house/housing for elderly in a detached house-like typology*'. As the social health- and elderly care system in Finland is facing comprehensive changes in the near future Lapinjärvi municipality wants to prepare for the changes. Institutional elderly care is to be reduced and elderly are expected to live at home for as long as humanely possible. For a small municipality like Lapinjärvi, where 2700 inhabitants are spread out over an area of 330 square kilometers, home care gets painfully expensive. By building attractive homes closer to the town centre the municipality wishes to include the ageing population as part of the community in the town centre rather than the outskirts at a younger age. These homes are designed for accommodating life, enabling inhabitants in later life to live at home for longer.

What is needed is a normal home that is, in detail, planned and suited for the last part of life - the home has to be attractive to anyone but be transformable to the needs of the elderly. Furthermore the budget has to be realistic - a house in the countryside in municipality like Lapinjärvi can be worth roughly 100.000 €, these homes should be just as affordable.

This thesis focuses on understanding the variety of needs that may or may not arise during the process of ageing. The human oriented design process is developed by studying literature, research and undertaking hands on experience. These needs inform the possibility and inspire a high quality housing.

The result is a research of flexible modular housing units that adapt to the changes of ageing. A case study showing placements and surroundings of the Lapinjärvihouse in Lapinjärvi is included in the research.

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Introduction

The task we were introduced by Aalto University to was to design service housing in a detached house typology for the municipality of Lapinjärvi. The project was to be modular housing units that should cater for all needs of independent living and also enable services that support independent living. It should be no bigger than 50 m² in order to avoid certain energy regulations and the nature of the module should make it possible to move the house. The modules should be able to be combined in different ways to create different housing solutions. The final price of the house should be no more than a typical house in Lapinjärvi. The municipality of Lapinjärvi and The Housing Finance and Development Center ordered the assignment.

I was very happy to take on this task. Even though I first questioned the basis for some of the criteria such as why it should be parcel-house like housing and why current energy regulations was to be ignored. I was hoping for the possibility to do some research of what actually is needed, without any assumptions. Especially when designing for an age group I have difficulty relating to since I have little to no personal experience. Human-oriented design and empathy is something that interests me, also, designing for both needs and dreams is intriguing.

During our first meeting in Lapinjärvi with the municipality director Tiina Heikka and the property manager Janne Salonen I was pleased to find out about the municipality strategy of human-oriented municipality work and the research that they had already done among elderly and their needs in the community. I was definitely going to be able to do this 'my way' even though the task was strictly limited. Next, we met the new area architect Johanna Hyrkäs who has plenty of experience with human-oriented design work, she had already started planning various ways of getting to know the town and it's inhabitants.

My goal in this project was to create housing that would be suited for *growing old* in, a house that changes according to the changes of ageing. I think it is important to build attractive senior housing where people want to move at the beginning of retirement and they can see themselves growing old in, removing the stigma of 'the elderly home' is one of my objectives. I think a definite risk with the detached house typology is that when mobility decreases or memory loss becomes severe, the house may become a prison for the inhabitant for instance when the path outside becomes full of obstacles and the apartment is not connected to common areas or neighbors through indoor connections. With this project, I wanted to make sure that social life and belonging to the community outside the home would be natural and easy for anyone, regardless of age, mobility and health factors, even in this housing typology. Human-centered design has been a basis for this project. The inhabitants of Lapinjärvi have been the main source of information and inspiration for the task.

55?   115?

I started getting to know the town by visits, helping out at the different homes for elderly, an overnight stay at the elderly home, spending the day with the home care workers and participating in a workshop.

As I mentioned before ageing and elderly is not a very familiar subject for me, and it has been a challenge to take on this massive subject. I strongly believe that empathy is the strongest tool to understand who you design for and imagination is the best support for empathy. Therefore I have not only immersed myself in statistics, academic works, regulations and guidelines for designing for elderly but also read fictional literature to gain insight in for example the consequences of diseases I am not familiar with.

The process started in February 2017 and continued with monthly meetings with the design group until the end of September 2017. The process has been very intense with a large and varying group of people all having a say in the end result. I has not been easy to keep focused on the points I started at; Human oriented design, since many other aspects have been important and consumed a lot of time such as the modular structure and the planning of the area. At times I think I did lose focus but looking back I did manage to create a solid value basis for my work, which helped me to see clearer on other aspects of the project. That being said, it has been an introduction to what the architectural process eventually is, many different aspects and somehow pulling it all together into one piece.

This thesis will consist of five parts. Initially you will be introduced to the background of this project, it will answer the question of why this has been done. Secondly, the design aspects will be examined under three themes - Ageing, Empathy and Responsibility. This part goes through the support and justification of the choices I have made during the design process. The last chapter takes you through the design process and the design, and shows how the three themes have impacted the design. This chapter also includes an introduction of Lapinjärvi town and a new area plan including the new Lapinjärvi houses.

Background - Changes in society

Social welfare and health care reform

The result of the social welfare and health care reform will be that the munic-ipalities will no longer be economically responsible for social and healthcare, including elderly care, according to current frames of the reform.[1] This means the healthcare system will be opened up for the private market actors in a new way.

In Lapinjärvi, the municipality has proactively made the decision of letting a private company, Medgroup, take over the responsibility of health care and elderly care, in order to produce higher-quality services. Medgroup works in close collaboration with Lapinjärvi municipality to both research and implement resident oriented care, according to the municipality strategy of resident oriented decision-making.

The demographic transition is becoming costly

An inevitable consequence of lower fertility and mortality is the ageing of the population in Finland. A growing part of the population is over 65 years old (seniors) and mainly retired. This partially is due to the fact that the "the post war generation"[2] is now growing old and to the fact the younger population have less children and they have them later in life.[3] The working part of the population who pay taxes is therefore steadily becoming smaller. Basically, the working population cannot afford to pay for the elderly care as it is organized today; the elderly care system has to change into being more efficient and less costly.
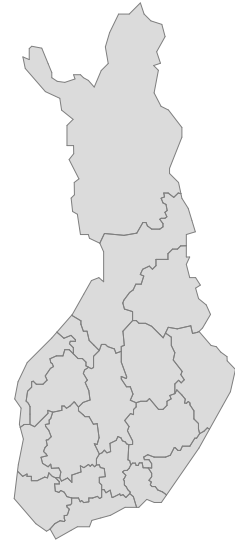
Finland will be divided into 18 counties with responsibility for financial resourses and organizing services such as heallthcare and elderly care.

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1   Ministry of Social Affairs and health, Health, social services and regional government reform Equal and cost-effective services for all, p.1

2   Official Statistics of Finland: Population development in independent Finland - greying Baby Boomers: The Second World War changed the direction of population growth in Finland. After the Winter War, the number of births fell in 1940, but then went up again in the next year of Interim Peace. The number of births reached peak figures after the war was over. In 1947 the total fertility rate was 3.5

3   Official Statistics of Finland (OSF): *Births*

Ageing municipalities

The change in population age demographics is especially visible in municipalities surrounding growing cities. During the last decades "surrounding" municipalities have grown both in population and in wealth but now the population is growing old, fast. In Lapinjärvi the growth of over 75-year olds will be 35,7 % between 2015 and 2017.[4] The elderly population will be doubled proportionally in many surrounding municipalities over the next decade.[5]

No more institutional care

Due to the ageing population and the growing amount of elderly and according to current legislation[6], institutional elderly care is to be reduced to keep cost at a constant level. One of the measures of doing this is to explore new types of housing for elderly.

"The objective is that a an increasingly lesser part of the elderly will be in facilitated care and a bigger part receiving open care, such as family care or home care. It is important that each of us can live at home as long as possible or in homelike conditions. Elderly themselves see this as an important factor for their quality of life" [7]

Minister of social health and social Services in the Finnish government Susanna Huovinen (27.2.2014')

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4   Aro, T., Official Statistics of Finland in *Kuinka nopeasti Suomi vanhenee?*

5   Ibid.
6   980/2012 Laki ikääntyneen väestön toimintakyvyn tukemisesta sekä iäkkäiden sosiaali- ja terveyspalveluista
7   Ministry of Social Affairs and Health, Iäkkäiden laitoshoitoa vähennetään useilla erilaisilla toimenpiteillä

Living preferences among elderly

Living preferences among elderly has been and is continually being studied. A recent study showed that the outcome of questionnaires changed drastically when realism was added in the questions asked.[8] Instead of asking how elderly would like to live according to their dreams, the questions were modified with a realistic level by asking how elderly would want to live taking into account their financial situation, health and mobility. The most recent studies show that the dream among elderly is still to live in their own parcel house (however the amount who want this form of living is steadily decreasing) and generally, when introduced with realism of life, elderly would like to live in the city close to services in disability friendly multistory housing, as part of the community and as independently as possible. Belonging to a small-scale community or neighborhood with close contact to the ones living nearby is an important factor of wellbeing for elderly.[9] However, Finland is a large country with very varied areas; we cannot come up with solutions only for the majority that want to live in the city. The minority living in less dense inhabited areas should also be catered for, according to the requirements current demographic changes set on housing in general.
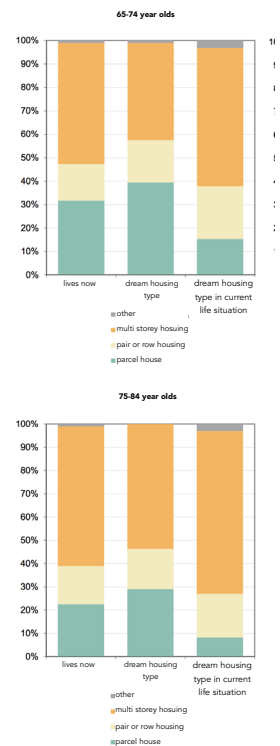
Asukasbarometri 2017, wishes for livng among elderly

8   Helminen, V., Vesala S., Rehunen A., Strandell, A. ja Reimi, P. Ikääntydeiden asuinpaikat nyt ja tulevaisuudessa. Suomen ympäristökeskuksen raportteja p. 56-57

9   Jolanki, O., Leinonen, E., Rajaniemi, J., Rappe, E., Räsänen, T., Teittinen, O. ja Topo, P. 2017. Asumisen yhteisöllisyys ja hyvä vanhuus. Valtioneuvoston selvitys- ja tutkimustoiminnan julkaisuja. P. 16

Precedents

The concept of parcel house senior housing has been tried before in Finland. In Karajalohja a plot of 5 hectares will fit 28 parcel-houses of different sizes, of which 21 has been completed. The village, called "The granny cottage village" is located a couple of kilometers from Karjalohja town center and forms it's own little community semi-isolated from it's surroundings. The houses are prefabricated; building on site only takes a week. The houses are however not designed for relocation and are in general bigger and more expensive than the Lapinjärvihouse will be. The accessibility arrangements to each home are organized individually and some solutions inside the homes are not necessarily the most flexible, for example, for inhabitants with mobility difficulties.

Karjalohja "grannycottages"

The company Kuusikkoaho Oy has created the concept "Virkkulankylä" - Virkkula-villages¨, a concept of housing for people moving into retirement. The Virkkulankylä concept does not want to talk about senior housing or housing for elderly but housing for "the third age".

"We want to bring citizens moving forward from working life to live centrally, close to services and make sure that when the need for care increases they will be able to live as long as possible in their own familiar surroundings. Virkkula-villages will be built both in cities and on the country side."

- CEO Leo Tolonen

The housing created by Kuusikkoaho according to the Virkkula-village concept is not restricted to one typology and Lapinjärvitalo could fit into the Virkkula-village concept. So far a service house with 42 spots has been completed in Outokumpu and a service house with 45 spots will be finished I Kauhava in January 2018. Small scale projects with terrace and parcel housing are in planning in several towns around the country.

Situation in Lapinjärvi - Initiative

During the 1980's there was an increasing demand for elderly housing in Lapinjärvi town. To meet these demands a number of terrace houses with small, approximately 30 m² apartments were built. The people moving in to the new apartments came from conditions with no running water, no plumbing, no indoor toilets - very basic conditions. The apartments were a great improvement for these inhabitants. Time has changed and so has the standards for what we consider good housing for elderly and anyone else for that matter. The old terrace house bathrooms are not accessible, neither are the entrances to the apartments; some inhabitants have to be accompanied to and from the service center since they simply cannot get their stroller over the threshold by themselves. Home caretakers struggle to work in the environment of these old apartments since they have not been designed with the workers in mind at all. The houses are placed in a fairly standard grid but it is still quite hard to orient yourself around the area and the houses are in fairly bad condition technically. Therefore, the municipality wishes to renew the current elderly housing stock.

There are 2800 inhabitants in Lapinjärvi, spread over a 329,87 km² area with a rough diameter of 20 km. Providing inhabitants with home care over such a large area becomes time consuming and expensive. There are many inhabitants interested in moving closer to the town center, but the existing housing stock is limited for attractive options, therefore, people choose not to move to the town center and rather stay where they currently live, further away from amenities.

The idea is that these new apartments for elderly should be attractive for anyone to move in to, at any age. They are targeted for 55 + (retired) people but can essentially be rented out to anyone if the demand among 55 + is not big enough, which; in the light of current demographic changes should not be an issue. The new apartments should be small and efficient, in close contact to nature and it should be possible to age gracefully and live your whole life in your own home. Essentially these are just that; homes. Homes that facilitate ageing. As these apartments will be attractive and highly desirable, people will move closer to the town center with it's services well before they are "old" or "have to" and before they are even in need of any kind of care. These homes should make a good place to spend your retirement days and enjoy all possible aspects of life.
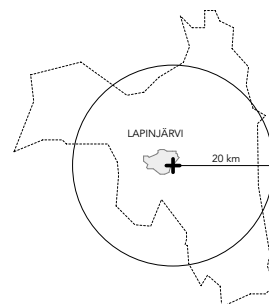
Most residents in Lapinjärvi live in houses with big gardens, or even in farms, as they do in the countryside in Finland. A rough estimate of the worth of a typical house an elderly person in Lapinjärvi would live in is depending on size and location around 100.000€. The new apartments or houses that could replace the old housing stock cannot be more expensive than this for people to still be able to afford it. However, different types of renting/leasing are being explored.

The Housing Finance and Developing Center of Finland, ARA is a collaborator on this project and is looking for new solutions to senior housing.

Ageing

/ˈeɪdʒɪŋ/

[noun]
1   the process of growing old.

1.1 the process of change in the properties of a material occurring over a period, either spontaneously or through deliberate action.

[adjective]
1   (of a person) growing old; elderly.

1.1 (of a thing) reaching end of useful life.

People grow old

My favorite way of expressing human ageing is the term 'growing old'. Ageing is a continuous process, phases that include changes. We talk a lot about what negative changes might come out of ageing; guidelines for designing for elderly (clearly) take into account the physical and mental deterioration or difficulties that might come with ageing. This is important, however if we only design for the negative worst-case scenario it will show. Exploring ageing neutrally or positively and constantly keeping in mind the range or variety of ageing will certainly improve the end result.

"In humans, ageing represents the accumulation of changes in a human being over time, encompassing physical, psychological, and social changes."
- Wikipedia

According to Marja Saarenheimo ageing is three things; *adaption, choice and resistance*.[10] Adaption because at some point we **do** get weaker and disease **is** more common among the older population. Choice because we all have the right to choose what we think of growing old and how we want to grow old. Resistance, she refers to the questioning of the stereotypes concerning ageing. *"We often think that ageing is something specific. The human does not have to change into something specific"* Saarenheimo points out that ageing is very individual and diverse. I find Saarenheimo's description of ageing very accurate, mostly because of the individual perspective. The human does not become something specific when turning a certain age, in this sense housing should not become something specific either. We talk about designing for the elderly as if 'the elderly' is a homogenous group of people when in fact the elderly is as heterogeneous as any other.

Fear of ageing

Ageing and eventually dying scares most of us, and when scared of ageing you do not want to be constantly reminded of it. Moving into a senior home should not be a reminder of how old you are getting, yet it is natural to want to prepare for getting physically older. There needs to be a balance between the 'normal home' and the measures taken to prepare for growing old, better yet, the measures taken should make all aspects of life comfortable and enjoyable.

"We fear death and anything that makes us think about it, and we prefer to put out of sight anything that reminds us of it. Old people are put in retirement homes where they see only other old people, (...) we try to prolong their life but not their existence."   - Tzvetan Todorov

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10   Saarenheimo M. in Vanheneminen on sopeutumista, valintaa ja vastarintaa – Psykologi: "Se on mahdollisuus"

Moving to a senior home

Ageing does not mean you become something specific. Throughout life you should have the possibility and power to decide for yourself. The ideal scenario in our future society is that senior homes are normal, attractive homes where people want to move in at the age of retirement. Retirement is the only "common" factor among the elderly and marks a certain change in life. Human beings are continuously individual; therefore homes should be as well. A senior home should never be a place where the elderly are forced to move in.

Movement and space

Moving at some point in life becomes more difficult and the need for equipment to ease moving then becomes important. This is why the design of senior houses naturally has to take this into account and make spaces undisrupted and spacious enough for moving with helping equipment. On the other hand grabbing on to furniture and walls might be an important help when moving becomes uncertain. Designing space for easy mobility is not only about designing large spaces, it is more about designing flexible spaces that change according to the change in the inhabitant.

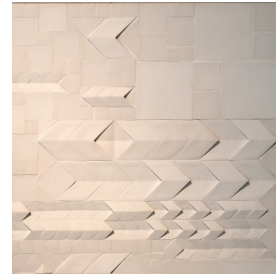Artwork by Ruth Bryk.

Sensing

"Therefore, the design of the built environment must go beyond form and function, but special attention to the perception of our surroundings must also be paid. In order to do that, all senses must be taken into consideration since they become decisive in fully connecting with our built environment; e.g., a rich utilization of different building materials, with their significant variations in warmth, texture, color, smell, etc. are essential for providing a holistic perception, which is important to everyone, but especially to those affected by a sensory impairment."   - Marta Bordas Eddy

The senses work in our favor. When one loses their sight, the difference between a blueberry and a lingonberry evident without tasting; we use all of our senses to perceive our surroundings, if one senses gets weaker the other senses compensate for it and get stronger. One should not underestimate how our senses work together in everyday life. This is why we should design for all the senses, and in housing aimed for ageing it becomes even more important to make it possible to perceive and enjoy your surroundings if one or more senses weaken.

Light and sight

Vision often decreases with age and the need for proper illumination therefore increases, both with natural light and sufficient artificial light. An advantage with the detached house type is the possibility of placing windows or openings on all wall surfaces and the small apartment size makes it possible to place windows in every space. Openings also secure views to the outside nature and community. The more time spent indoors the more important the views outside become. Fixed lighting that makes cleaning, cooking and similar easy is important. The everyday artificial light for coziness and atmosphere is something the individual inhabitant probably would want to have control over them selves.

Memory

What it is like to loose your memory is quite hard to understand since it is very hard to research. It is nearly impossible to interview someone with far advanced dementia. There are still many guidelines for designing for people suffering from dementia, but to truly understand what it feels like to be in a situation of memory loss is completely different than following guidelines. Saarenheimo concluded in her discussion in *Muistamisen Vimma -"memory and imagination are very closely related, they could even be cousins or siblings"*[11]. Continuing on this thought I think imagination is the best way to explore memory loss since memory in fact does consist of a lot of our own imaginative "storytelling". Familiarity, clarity, visual connections, and security are in considered as main factors this project for designing for oblivious.
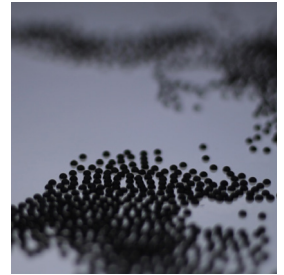
Artwork by Ryoji Ikeda.

Community

The older you are the more of your friends around you will pass away. Your family (if you have one) might get bigger with grandchildren but in todays hectic and busy society making time to see your loved ones can be a struggle. The nearby neighborhood and neighbors might become your closest network when retired and living at home.

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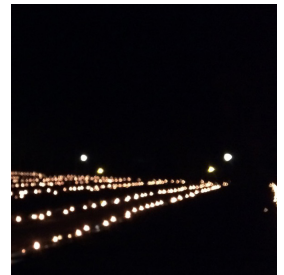
11   Saarenheimo, M. (2012) p. 11

Buildings wear in different rates

Buildings tend to consist of many structural or superficial layers and elements. Because the different layers serve different purposes, they also endure different levels of wear and therefore age at different speed and have different lifespans. When designing for ageing people the question of the ageing building becomes intriguing - can designing for ageing resonate in not only the use of the building but in the ageing of the building itself?

The Lapinjärvihouse will be a space for a home. A home is often characterized by it's layering of time and this is what becomes interesting and attractive in a house. Change over time should be allowed and every inhabitant should have the possibility to leave their mark on their home; the next inhabitant can always change everything to their own preference. This is how ageing and wear should become visible in this house for ageing. Time should not be erased by not allowing impact or alterations to the basis of the Lapinjärvihouse; it should be encouraged. Some changes should be pre thought of to support any individual but every individual can have ideas of their own of how to improve the Lapinjärvihouse and personalize it.

The basic design should allow for this type own ageing as well.

In his work *How buildings learn*, Stuart Brand studies the extended version of "Duffy's four S's" - his own "6 S's" which represent the structural layers of a building and how the *different rate of change* in a building.[12] The 6 S's also provide a view of how to perceive ageing of building.
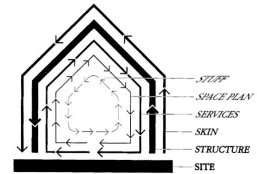
SITE - Site is forever. That is why the site should be chosen with care and also treated with care. The less impact building makes on the site the less traces we leave in nature.

STRUCTURE - A building can last for 300 years or even longer if it is well built, if the need for it is consistent and therefore the building is well taken care of. In the countryside, buildings lose their purpose when small towns empty. Todays society changes quickly and it is impossible to know for certain what the future housing needs and dreams will be. Therefore, movable houses are part of preparation for the future.

SERVICES - Designing a house so services are easy to reach and change in case of deterioration without touching the structure is a key factor to prolonging the lifespan of the structure and letting it age in its own timeframe. Services in the one story, detached house typology is easy to connect through the floor and need minimal covering, which enables easy access when future reparations or alterations become current.

SPACE PLAN - The space plan probably changes with every new inhabitant, and the assumption is that the inhabitant will also change the space plan during his or her stay in the apartment as well. This is why designing a flexible space plan with room for change is of great importance so the building does not become outdated and uninhabitable du to inflexibility and therefore too quick ageing. The measures taken in the design should incorporate multiple variations of a space plan. Easy changes to the space are priority but all forms of possible alterations are positive.

SURFACES - The inside surfaces of an apartment are changed with aesthetical wants, dreams and trends. The inhabitants should be able to decide for them selves what colors and textures define their home. Deposition should be allowed to happen, for it eventually creates the character of the home.

STUFF - Interior furniture can be integrated or independent. The important thing is that they are moveable and any other parts of the house are not dependent on the 'stuff'. Their lifespan is usually the shortest in the house and should be very easy to interchange. The "stuff" is what essentially makes the inhabitants home; the house only creates the space for it.

(For this project modified version of Brands 6 S's.)

12   Brand, S. (p. 31, ebook)

Architecture of ageing

Ageing = change

Ageing changes the human body and mind. Some diseases make the changes more drastic and it is impossible to predict individual destiny. Adapting to the changes might be tricky but changes often happen slowly. Sometimes the change is so slow that it is hard or even forgotten to react upon them. The surroundings should be flexible enough to adapt to the human changes.

Ageing = preservation

Ageing is also a matter of preserving what has been to the furthest extent possible regardless of the changes happening. Many physical (and mental) changes can require physical changes in the environment for the preservation of for example mobility to be possible. If lifting things high up becomes hard it is a matter of, for example, lowering shelves to preserve the capability of lifting up cutlery to its storage place in the kitchen or laying ones hat on the shelf in the entrance. This is how the environment of the ageing person should be able to both individually and flexibly react to the bodily and mental changes of the human being in the process of ageing. The surroundings must accept the state of change and be able to adapt to it.

It is also important that the individual can shape their own surroundings. Mental changes require a certain stability in the environment. Stability is defined by the individuals possibility to make individual decisions concerning their environment and the power to shape their life to fit their purpose. The surroundings cannot be a static installation decided by outside entities or forces based on "the greater good" and the needs of the majority. The needs of the majority never get it right on the individual level.

Graceful ageing

We should not be afraid of ageing. Ageing can be beautiful, but it is a matter of choosing design solutions and materials that can be allowed to age. The point is that all things in life should be allowed to age and eventually come to an end of life. In buildings, ageing, use and wear should be allowed to happen but one element coming to the end of it's life should not mean that the whole entity becomes useless. Regarding a building as layers and components forming a whole allows for uneven ageing to take place. Nothing is ever finished or done; there are ends and new beginnings. We should not try to create forever, rather plan for the end of life. Using materials that can be accepted back in nature after death is a more responsible way of designing.

Empathy

/ˈɛmpəθi

[noun]

1   the ability to understand and share the feelings of another.

Human-centered design in a human-oriented municipality

Lapinjärvi municipality profiles itself as a human-oriented municipality. In 2015 it set its target of becoming the first human-oriented municipality in Finland. As the municipality explains it on their website - "*The change is in progress. The municipality of the future is a networking agent. A people-centered municipality engages different actors in the design and implementation of services. We act with the human above.*" The attitude of the municipality inspired me to implement human-centered design to this project, especially because the target group is not familiar to me and the only way of understanding it for me is to imagine it. Design guidelines are of enormous help when designing for an unkown group of people but even more valuable is the information derived from the targets of the design. Therefore, I saw human-centered design as a powerfull tool to sensitively understand who I am designing for. By getting to know the municipality and it's inahbitants through visits, conversations and workshops and by imagining myself with the variety of needs that elderly might have. The starting point of this design task was to understand the future user by letting *the future users* tell me what they need both directly and indirectly.
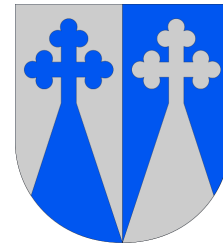
To celebrate and manifest the human oriented municipality, Lapinjärvi made a new version of its coat of arms.

Understanding who you design for - literature and imagination

All of my grandparents have passed away now. My grandmother on my father's side is the only grandparent I ever met and got to know. She was diagnosed with MS[13] before I was born and most my memories of her are of her sitting in a wheelchair or lying in bed with little capacity to move and difficulties to talk. For the last ten years of her life she was completely dependent on her caretakers. I met her only for a couple of weeks every year because she lived in Denmark and I lived in Finland. She lived in a fantastic nursing home in her own fully functioning one bedroom apartment with living room and an open kitchen, big bathroom and a little deck outside, edged by blackcurrant bushes. The apartment was connected to the common areas through and indoor corridor.

When we were visiting we were often many - my parents and me, my aunt and her husband, my cousin(s) and my uncle. Her caretaker Magda* would often come while we were there, to lift her up from bed to her wheelchair, to give her medicine, bring food or change her diapers or anything else that was on the schedule. Sometimes we were up to 10 people in her apartment at once, but it was still comfortable and Magda* could still do her job. I would pick blackcurrants on the deck, even though I did not like them.

This is my only close contact with a) elderly and b) how elderly live. I couldn't even approach this task from the angle "how would I want to live when I am old(er)" because I would still do it from my point of view which is valid only to a certain point. What I can derive from my personal experience is that a senior home is not only for the persons living in it, it might also be for visiting family and friends. Visits from loved ones are probably very important at an older age, therefore it should be a nice experience also for visitors to visit, otherwise, sadly, visits might become more rare.

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13   Multiple sclerosis (MS) is an unpredictable, often disabling disease of the central nervous system that disrupts the flow of information within the brain, and between the brain and body.

As Lapinjärvi is developing as a memory friendly village, dementia related diseases are getting more common and dementia is not very familiar to me I wanted to try to get to know memory loss. In order to understand loosing your memory it felt appropriate to understand memory. *Muistamisen vimma* - "The frenzy of remembering" is a discussion with novels on memory written by Marja Saarenheimo. *"Without memory our life would lack continuity, but without the capability of forgetting our life would be controlled by chaos. Memory is both friend and enemy.* Through various literate works Saarenheimo explores what memory is and what it means to us. What we remember defines us, often we try to forget things or events that we would not want to defined us. We constantly try to control our memory. When our memory is incapable of reminding us of details our imagination quickly steps in. Saarenheimo describes memory and imagination as close relatives. I think the key to understanding memory loss therefore lies in imagination. Imagine waking up in the morning and needing to go to the bathroom, if you see a toilet your memory might kick in more sensitively and tell you this is where you need to go. Imagine walking out of your front door to see only other similar front doors and eventually get lost because you do not know which door is yours. It would probably be scary and going out might not even be an option anymore. In this scenario individually looking houses and front doors could help navigation immensely.

Dementia is hard for anyone to understand since it is difficult to interview or study a person with far-gone dementia. *Still Alice* is a novel written by Lisa Genova, it is a fictional story based on real events and people, about a woman, Alice, who gets diagnosed with aggressive Alzheimer in her 50's. The story is imaginatively written from Alices point of view, in a way that has been complimented as the most descriptive novel of dementia written yet. Reading Alices story gives an insight to the life of someone suffering from Alzheimer and tools to imagine what life is like when you start losing your memory. What I found especially interesting was at the end of the book when the main character did not recognize her kids anymore but they still felt safe and nice to be around. I imagine that familiarity is the best thing for someone whose cognitive capabilities deteriorate. We react with feelings quite separately from reason sometimes which leads me to believe that feelings become more important when reason is no longer in play. Familiar surroundings and objects make it easier to feel comfortable. This is why I find it important that moving in to a "senior home" should be a decision taken of free will in an early stage of retirement. The Lapinjärvi house has to be a beautiful and attractive home that can compete with the seniors old houses and homes.

*name changed

Human-centered work already executed in Lapinjärvi

Before we started working with the Lapinjärvi house, the municipality had completed a couple of questionnaires for the residents and hosted workshops, all in the spirit of the new strategy of a human-oriented municipality. One of the questionnaires was specifically directed to 65+ residents, inquiring what improvements the older population in Lapinjärvi would suggest. 288 residents older than 65 years replied to the questionnaire, which is 10% of the whole municipality population. Most of the respondents were currently living in a parcel-house in a household of two people. The answers indicate that the 65 + in Lapinjärvi are active and social, however a majority suffers from a disease that requires frequent checkups or care. Many explained that they can take care of themselves for now, but expressed worries about the consequences if something was to happen (driving license lost, spouse died, health got worse etc.) and wished that help would be there when eventually needed, either for themselves or their spouse taking care of them.

Visits to Lapinjärvi

During the design process I visited Lapinjärvi a few times. I stayed in Lapinjärvi from the 27th to the 28th of March. I spent the first day walking around the town and its surroundings getting to know it and searching for spots suitable for additional building. The night I spent in the service home, in a small room used for wound care and similar during daytime.

"The night in TePa was okay, but it is not an environment where I would want to live" (Extract from diary notes after the visit)

The next morning Johanna and I met at the elderly home Honkahovi. We were meant to spend the morining there, helping the caretakers. By 'working for a day' in Honkahovi and TePa, the service home, I got insight to the current senior inhabitants life and their needs. I was quite nervous about how the inhabitants were going to react towards us, but I quickly realized that in Honkahovi the inhabitants are old and many very oblivious.

"The greater part of the inhabitants are already so oblivious that it makes no difference if it is caretaker Mirjami* who showers Lena* or if it is architecture student Ida who does it. For Lena it seemed almost nicer that Ida did it because Ida spoke Lena's mother tongue Swedish……Most of the inhabitants' days are spent either in their own room "resting" or in the common area "resting". A lot of sitting down and staring, it would be good if there was something nicer to stair at." (Extract from diary notes after the visit, *names changed)

Most of the blinds and curtains were pulled in front of the low windows in Honkahovi. The view outside was limited, it was dark and the spaces were quite dull. Better neutral light, clearer views to the outside and better indoor lighting would have made a big difference. There is no possibility for the inhabitants to go outside alone. The inhabitants did decide for themselves how often they wanted to shower and how long they wanted to sleep in the morning.

The caretakers' work is very draining and very physical. My back was hurting already after an hour of helping Mirjami*, a lot of my time I spent in the bathroom of the residents.

"Based on my visit most of the everyday care work is performed in the bathroom, the bathroom will be a very important part of the Lapinjärvihouse and is probably the place that needs to be most flexible." (Extract from diary notes after the visit)

In TePa the inhabitants are still quite mobile and more active. Here we had time to sit down and talk to the caretaker who was working the shift. She was there

alone with approximately 10 inhabitants. The inhabitants eat their meals together and seemed to spend a lot of their free time in the common area watching tv.

"We talked a lot about stimulating recreational activities and how different people want to spend their time in different ways. Even though continuous tv watching might seem endlessly booring for a young person it might be the dream retirement for 88 year old Kerttu*. Nobody should judge nor force elderly to do anything. EVERYTHING should be based on personal choices and preferences. Of course moving in to an elderly home is kind of contradictory to this since moving in to an elderly home is probably not always the elderly's own choice. Moving in to the lapinjärvi house should definitely be a choice made of free will and positive thing." (Extract from diary notes after the visit, *names changed)

Some of the inhabitants are in shape to move around town and go to the food store on their own. In TePa the major reason for the inhabitants to live there seems to be dementia.

In April, we spent a day with the home care workers. They took us with them to their tasks of the day, including taking food to customers, helping customers to and from the service center, giving wound care and handing out medicines. The customer visits I joined were all in the town center. The difficulties of the home care workers are mostly related to the customer's homes not being suited or spacious enough for caring work to take place. The biggest problem seems to be the bathroom, which are not fitted for care work. Secondly there is seldom enough storage space for the equipment needed and thirdly there is often too many of the customers own things in the apartment that make it hard for the home care worker to do their job.

It is however important to remember that Lapinjärvitalo will be home to it's inhabitants, the home care workers are, after all, visitors. Some design solutions can make it easier for the caretakers to work, but there can be no restrictions to how the inhabitant inhabits one's home and further fulfills oneself.

Workshops in Lapinjärvi

As Lapinjärvi municipality strives to be a human-oriented municipality, they organize workshops to get the inhabitants involved. We (Liina Lindberg and me) took part of in workshop (may 2017) where initial ideas, wishes and dreams for the memory friendly town and the future Lapinjärvihouse were gathered and discussed. This was the initial workshop in a series of many to come where the mayor of the municipality, Tiina Heikka, and area architect Johanna Hyrkäs, were hoping to inspire as many people as possible to sign up for 'the dream team' who will participate to the future workshops where the memory friendly village and also the Lapinjärvihouse will be designed, together with the inhabitants.

About 15 people turned up to the kick off workshop. I facilitated a discussion about what the Lapinjärvi house should provide. Everything from storage space, separate toilets, to "my own little space" and views to nature came up on the list. I was happy to notice that the participants had a lot of ideas and seemed excited about the idea of the Lapinjärvi houses and could imagine themselves living in one.

The first workshop with the actual dream team was held in September 2017. Here, our two designs were presented to the inhabitants and commented on.

These workshops will be held six times in the fall 2017 and 6 times in the spring 2018 while developing the Lapinjärvi house and the memory friendly area plan of the town.

Responsibility

/rɪˌspɒnsɪˈbɪlɪti/

[noun]

1   The state or fact of having a duty to deal with something or having control over someone.

2   The state or fact of being accountable or to blame for something.

2.2 (responsibility to/towards) A moral obligation to behave correctly towards or in respect of.

3   The opportunity and ability to act independently and take decisions without authorization.

    (often **responsibilities**) A thing which one is required to do as part of a job, role or legal obligation.

Sustainability

One of the initial boundaries of the project was that the apartment size should not be over 50 m². According to current Land Use and Building Act, a house of less than 50 m2 is not bound by the energy emission regulations.[14] However there are some inconsistencies in what measured area is to be considered warmed net area or the effective floor area but because it is the construction supervision (in this case the Loviisa construction supervision) who in the end decides how to interpret the regulations. At a meeting in which a representat of Loviisa construction supervision sat in on it was decided that 50 m² guideline will be interpreted as the net warmed area - the usable area.

Not following the energy emission regulations can be viewed upon in two different ways. One could say that it is irresponsible to disregard the regulation and possibly build houses that use more energy than allowed. Then again the methods of building houses that stand up to the requirements often use materials that do not belong in nature, for example, this case would require enthalpy recovery, one machine for every household. The communal heating source in Lapinjävi is bio waste from saw work; a sustainable source of energy.

Instead of concentrating on how to lock heat inside the house this project aims to use natural materials. In the end everything we build turns to waste; ecology and sustainability in architecture should focus firstly on building with materials nature can take back when it eventually becomes waste. Secondly on using sustainable energy sources so 'wasted energy' would no longer be a problem.

Economy

Another initial requirement of the project was the cost of the building. Our responsibility is to build housing for elderly that is affordable. The cost should not exceed the costs of a typical house in Lapinjärvi. The basis for the idea is that it should be possible for anyone to sell their house in Lapinjärvi and with the turnover be able to buy a Lapinjärvi house, however, there will be different ways to require the right to live in a Lapinjärvihouse, such as renting one.

At this stage of the design process the measures taken to keep costs down have been firstly based on rational design. Every work stage in building adds a cost; therefore minimizing work stages also minimizes costs. Keeping the design simple and putting in detail work where it is needed and beneficial for the whole concept is part of the strategy to create an affordable entity. Exploring alternative building solutions allows for a range of price alternatives.

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14   Maankäyttö- ja rakennuslaki 5.2.1999/132; 117 g § Energiatehokkuus. 2016.

The design

Floorplan and wall projections 1:75

Process

This project consists of two main objectives - modularity and senior housing. The references I decided to bring up were according to these two themes.
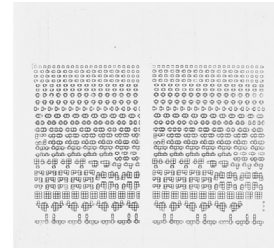
1. Kiosk 67, a modular unit created in Tjechoslovakia by Saša J. Mächtig in the 1960's serves as an example of how a simple modular unit functions as one but can also be combined in multiple different ways and serve many different purposes. A flexibility in building with modular units lies in this; it has to function independently and be combinable in several ways to be flexible enough to serve as many users as possible that production stays profitable. The Kiosk 67 was produced until 1999 and exported all over the world and can today be found used as beehives, street kitchens, flower kiosks, and much more.

2. Jystrup savværek designed by the Danish architects Vandkunsten in a small village in Denmark called Jystrup. This scheme is co-operative housing, not only meant for seniors but families and inhabitants of all ages. However, in Denmark there is a tradition of building solely senior housing in a co-operative way, were inhabitants gain a lot by sharing communal spaces, both indoor and outdoor. This is an example of how community can be directly engaged with through architecture, which in the case of senior housing is immensely important.

The limiting guidelines of the design were strict; the maximum size of the new apartments was to be under 50 m^2, the modular structure is restricted by certain measurements due to transportation and should be adaptable. The design process continued figuring out, by looking at these case studies, how a modular system would best be implemented in this scheme.

Inhabitants

As concluded, the variation of inhabitant is almost as large as the amount of inhabitants. Individual needs and preferences is a constant balancing act with rational design. Ida Väänänen from Tampere university developed a scheme in her dissertation *Housing for people with intellectual disabilities -Solutions for resident centered housing* which helps define the different needs of the inhabitant. In this case, a modified version of the scheme illustrates the range of possible needs, which have to be possible to fulfill in one apartment.
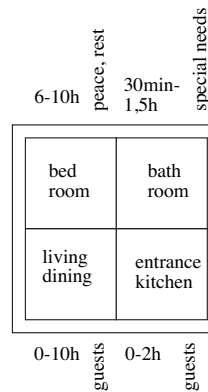

Kiosk 67.

Jystrup Savværk.

RESIDENTS

alone   couple   friends   inhabitant
                              +
                              nurse

COMMUNITY

X
no community   possibility   supported   guided

MOBILITY-EQUIPMENT

no need-   stroller   wheelchair   lift
little need

FLEXIBILITY IN APARTMENT

internal flexibility   additional parts   expansion to
                                            common spaces

NEED FOR SUPPORT

no need -   moderate   comprehensive   vital
low

HOUSETYPE

house   connected house
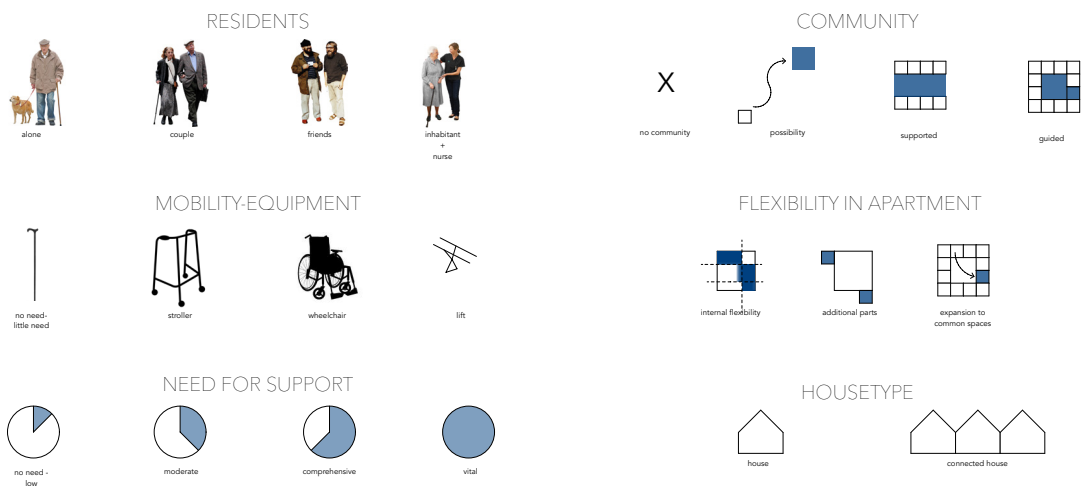
A modified version of Ida Väänänen's scheme for
defining inhabitant variation in this project.

Dealing with a small space

Flexibility usually increases the more space is available. However, this project strives to create a compact yet functional home, not only because of the initial limits on size. When the home is kept relatively small it is possible to keep costs down in terms of construction, upkeep and rent. The space is easier to take care of, your home should take care of you not vice versa, and it is also a question of security, a smaller home is easier to oversee and feels cozier. Since the space is small it is important to define spaces for flexible use; the spaces should still be left for the inhabitant to inhabit. But making it clear for oneself what might be the different uses and functions of the different spaces makes it easier to define the suitable degree of undefined space. The major questions of space usage then become:

- what do you do in which spaces?
- how much time do you spend in each space?
- what spaces need to be connected to each other in order for the spaces to function as well as possible?

This resulted in quite elaborate earlier schemes of space connections, which ended up inspiring the final design.

	peace, rest		special needs
6-10h		30min- 1,5h	
	bed room	bath room	
	living dining	entrance kitchen	
0-10h	guests	0-2h	guests

What spaces need o be connected to each other? For exaple if there is only one toilet in the apartment it would be good if it is reachable from"public" spaces in regard of guests. For the inhabitant the toilet should also be close to the bedroom. The kitchen naturally connects to the living spaces.
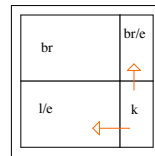
Because the time spent in the entrance, bathroom and kitchen is probably less than the time spent in sleeping or living areas it is natural that these spaces are a smaller part of the whole.
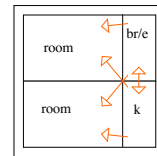
In stead of splitting the aprtment up into basic functions the aprt-ment could be thought to be delt into different spaces that can be used in desired way. In this case the spaces need to be connected more flexibly than in a traditional floor layout.
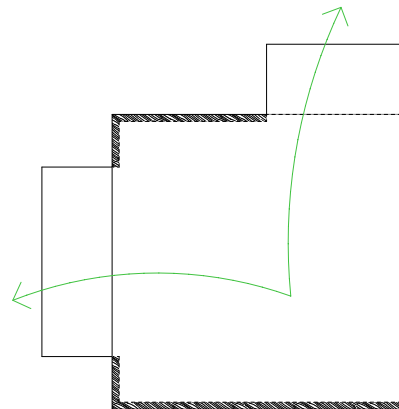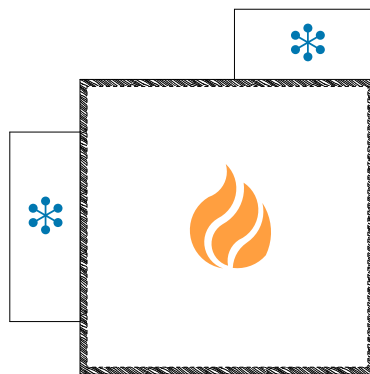
The space should be compact and simple. A compact and simple space willl be cheaper to build and maintain. A compact space is clear also feels safe. However, in the warm months the aprtment could take advantage of the oudoor space and "spread out" into unheated rooms or areas.

Concept

After exploring several modular concepts proved themselves to be unnecessarily complicated for the size limit, an early scheme that derived straight from the space examinations became the clearest, most simple, solution to unravel this design task.

Furthermore, the idea is that the heated living space is to be compact and life can spill out of this space during the warmer months of the year, was key. The compact space is not only more economical, it is also clear and an easily understandable space, it is cozy and it is under control with a possibility of visual connection to the whole apartment from the moment you step through the front door.

Modular idea

Benefits of modular building

Most of the construction work can be done in controlled surroundings indoor to minimize complications caused by weather. The time spent on site is minimal as the module can be brought to site with all the finishing done. The roof can be a part of the construction if the transportation route to site allows for it but it is more probable that the roof structure is assembled and covered on site.

Why modular building for this purpose?

The modular units are also transportable away from the site, which means that they can be moved in case the owner moves to another location, or if there no longer is use for the space at it's current site but there is need for it elsewhere. As previously discussed, it is hard to predict how demographics will change living preferences in the future; therefore movable houses could become a great asset in the future.

The module

The module structure frame is CLT. A combination of two modules forms the basic apartment of 43,2 m². On each side 'design areas' of 1.8x2.4 m is reserved for placing openings. A full opening can serve as a door outside or as connection point to the next module. Even if the whole opening is used there is still enough intact surface from top to bottom to carry the load of the structure. If no openings are needed in a certain spot, the frame is left untouched.
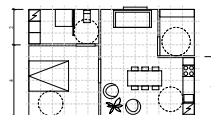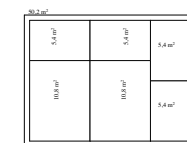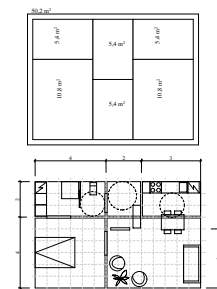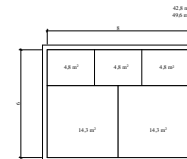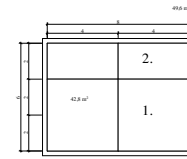
Various modular concept tryouts.

1700

3400

3700

7400

3700

6200
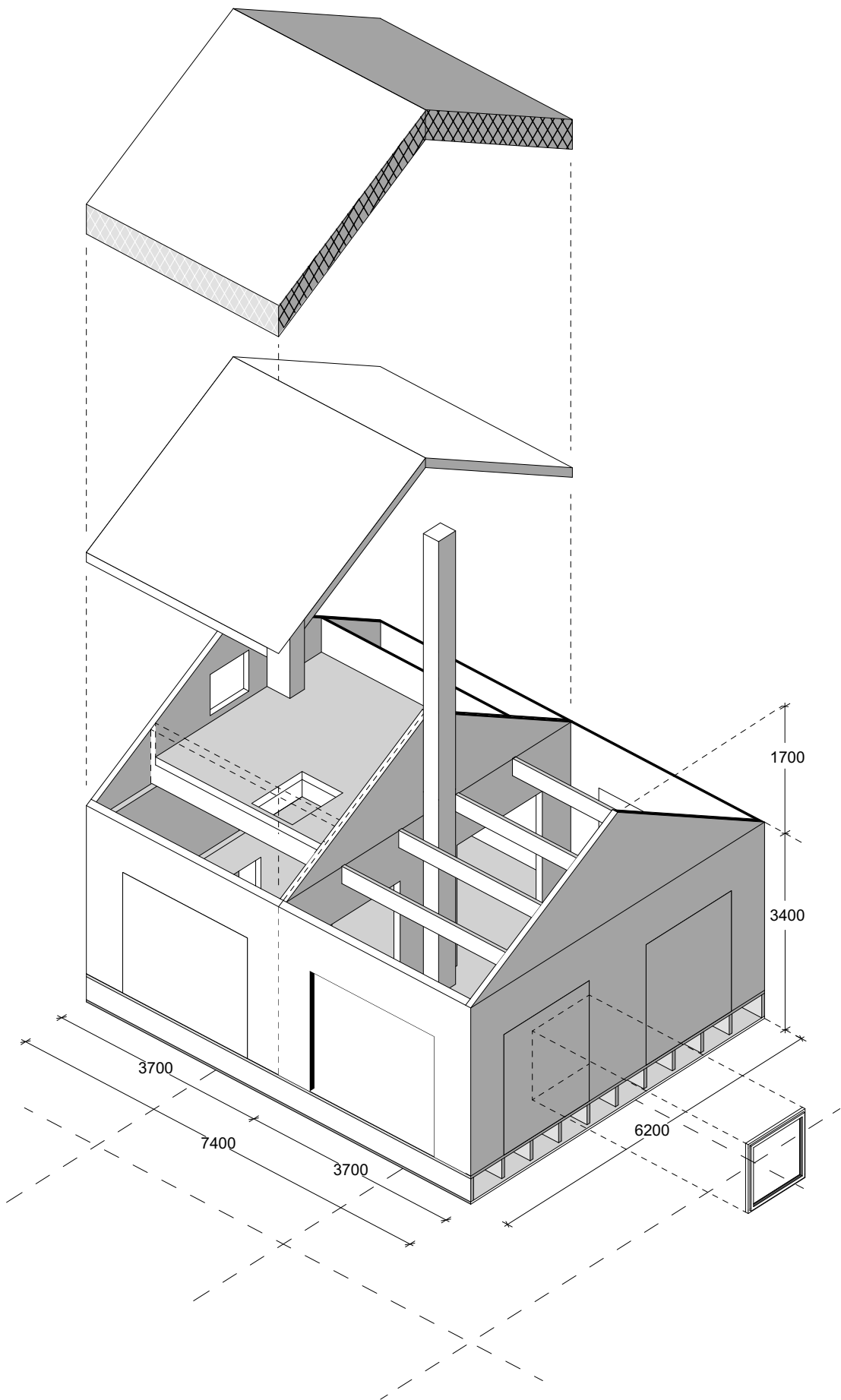
Dimensions

The module is 3,6 meters wide and 6 meters long on the inside. The measurements are dividable by 600 mm, which resonates with other building material dimensions for efficient material use. The inside space can facilitate a kitchen with dining area and living area or a bathroom, entrance and bedroom. The extension module can function as two additional bedrooms or as storage and bedroom or sauna and guestroom and so on.

Windows and doors

Openings obey the same measurement guidelines; they are divisible by 600 mm and fit the overall structure grid. Openings are framed on the outside. The frame creates a three dimensionality and contrast to the façade, mimicking the traditional way of framing windows with boards. The frame does however also protect from excess sunlight in summertime and when building tightly in areas where people pass by close to the house, as the frame reduces insight into the home. The frame restricts the time of direct visual contact between the outdoor and indoor when passing by. Frames can be placed on every opening or strategically where it is most needed on south facades and on facades where people pass by. When openings are strategically protected from visual insight and sunlight the need for pulling down blinds or curtains is reduced and the view outside from the home is therefore less obstructed.
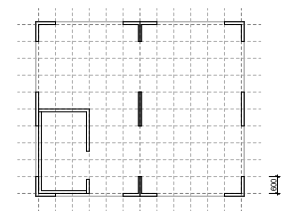
Structure grid.

Bathroom

The bathroom is a separate module placed in the base module. The base module is cut out to fit the bathroom entity, in order to allow for floor surfaces to be leveled.

Combination

The basic one bedroom apartment consists of two modules. An additional extension module adds one or two rooms to the apartment, depending on how the added module is chosen to split up. The third module can host one or two bedrooms, a sauna, a storage unit, a workshop or a green room. These are just a few examples of what the added space can be used for but the options are limitless.
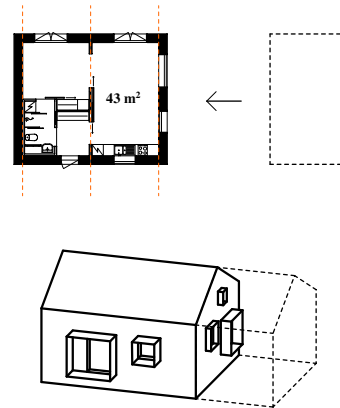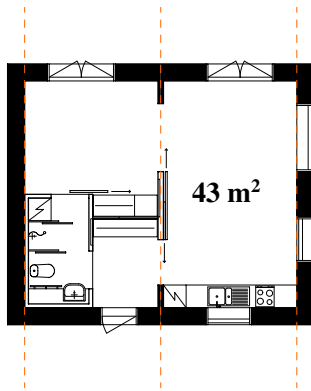
The basic apartment consists of two modules. By adding modules, different, bigger apartment solutions are possible. The apartment functions as a detached house, but is also connectable into larger entities without the floorplan suffering.
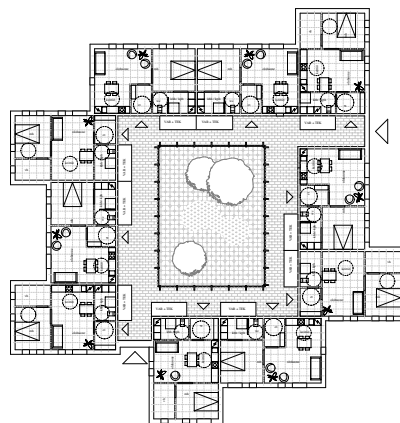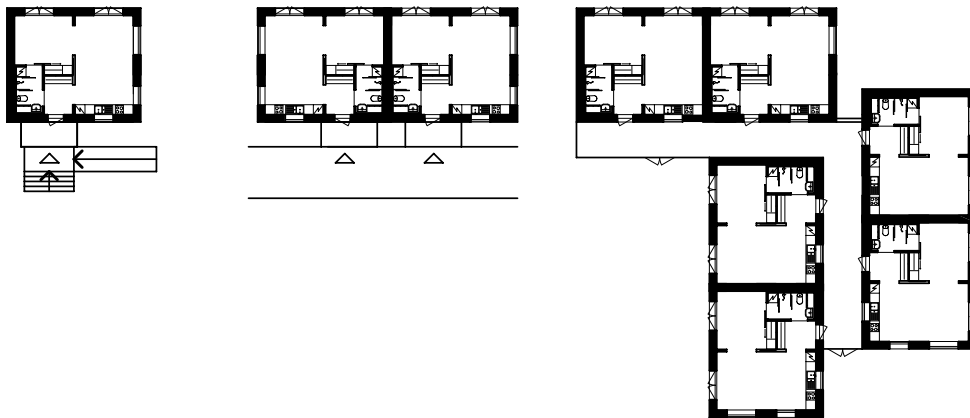

An initial idea was that a bigger more connected typology could create more covered half-heated indoor/outdoor spaces physically connecting neighbors. This however was concluded unnatural for the scale in Lapinjärvi and contradictory to the idea of movable houses and was therefore left as an alternative strategy of how to connect the modular aprtments. (here explored with an early floorplan layout)

The window desig takes inspiration from traditional "peasant house" windows. These are found plentilly in Lapin-järvi and on the countryside in Finland. Traditional windows are boarded aroun the edges for protection. Ofted the boards are painted in a different color than the facade. The translation of the edgeboards in this design is a frame around the window. The frame stands out of the wall and cretes a threedimensional effect aswell as a contrast to the facade, in a similar way as the edgeboard traditionally has. The benefits of the frame is that it shades the opening from heating sunlight in summertime and also helps limit view into the home in tightly placed area designs. The frames can be placed on every window but can also be placed strategically in places where it is most needed.
The window can be completely clear or split into two or three parts when functioning as ventilation windows.
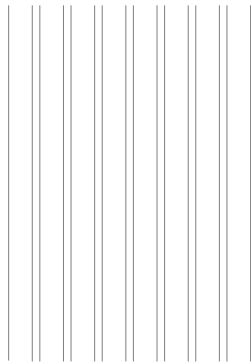
1.
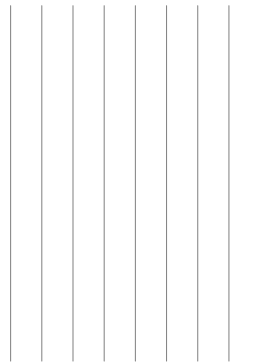
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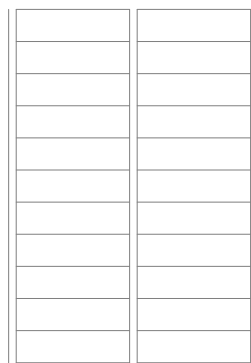
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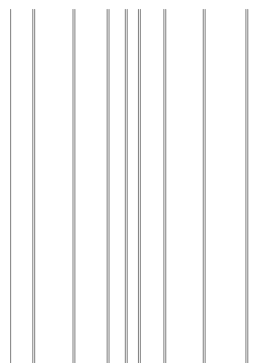
5.

1. Traditional stacking
2. Smooth stacking
3. Horisontal stacking
4. Stacking with both horisontal and vertical elements
5. Thick boards of different widths

In order to ccreate more identity to the housin units, the stanking of the weather protective woodboards can vary from house to house. This makes the streetsape more interesting aswell as clearer, especially for people wit memory affecting deseases. Both color and faade structure are factors that impact how recognizeable the houses are.

Stucrure

The basic structure is traditional, layered structure. The CLT frame (100 mm) is covered with insulation (350 mm) and the insulating layer is covered with a protecting surface. On the inside the CLT frame can be left exposed or covered in preferred ways.

The structure can however be simplified in order to cut costs. One option is to combine the load bearing frame and the insulating layer into one layer. This can be done by increasing the clt frame thickness to 160 mm and leaving out the insulating layer. The structure can still be covered on both the inside and outside but a third option is to leave the structure completely exposed to eliminate work stages in the facades. This would require alternative methods of protecting the structure such as longer eaves.

Foundation

The foundation is concrete walls on two or more sides. The modular structure lifts the house floor level a meter above ground. The wooden floor structure width with insulation is 450 mm and it has to be properly ventilated from underneath. The wooden structure cannot be in contact with ground due to moisture issues. The modules are placed on the foundation with enough ventilated space underneath. In order to create a clear environment for moving from the inside to the outside without any kinds of obstacles, the ground level can be risen to the level of the inside floor level. The porch functions as a bridge over the gap created and a grid structure stops the gap from filling up with leaves and rubbish.
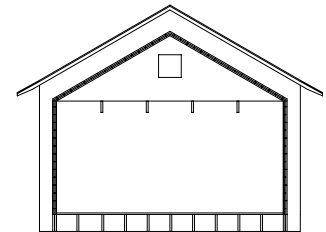
Roof

The roof of the house would be built separately on site. The one floor apartment with a pitched roof allows for high ceilings, using CLT panels as loadbearing elements. This is however a more demanding way of building the roof - a simpler (and cheaper) way would be to not use the opportunity of a high ceiling, and make it straight instead. This leaves the attic cold but still usable.
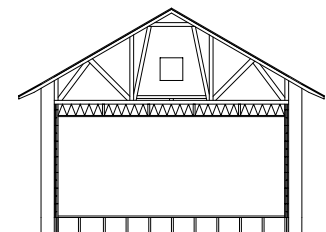
Facades

The façade functions as the protective surface of the house but it is also the façade that gives the house much of its identity. By stacking the facade boards in different patterns it is possible to give different expressions to the façade. Depending on what kind of stacking is chosen the protective layer can be either part of the module when brought to site or built on site with the roof structure.
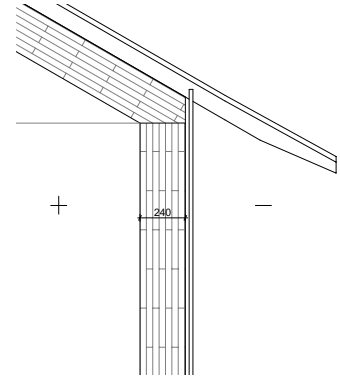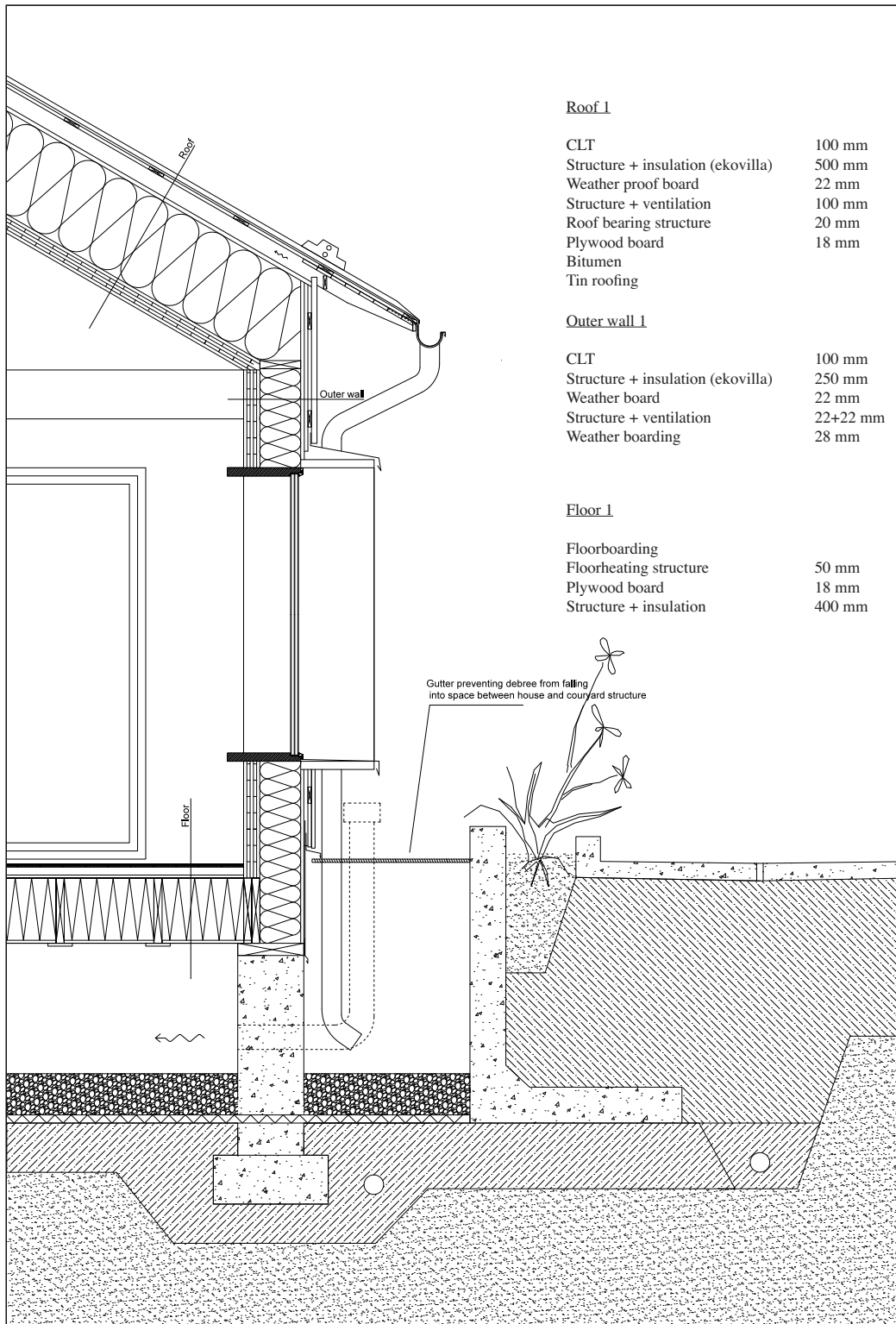

Single material structure, with or without weather protection surface.

Basic roof structure, with high ceiling.

Roof 1

CLT	100 mm
Structure + insulation (ekovilla)	500 mm
Weather proof board	22 mm
Structure + ventilation	100 mm
Roof bearing structure	20 mm
Plywood board	18 mm
Bitumen	
Tin roofing	

Outer wall 1

CLT	100 mm
Structure + insulation (ekovilla)	250 mm
Weather board	22 mm
Structure + ventilation	22+22 mm
Weather boarding	28 mm

Floor 1

Floorboarding	
Floorheating structure	50 mm
Plywood board	18 mm
Structure + insulation	400 mm

Roof

Outer wall

Floor

Gutter preventing debree from falling
into space between house and courtyard structure

Section 1:40

Design solutions

Ageing requires for the home to change according to the human change due to ageing.

The following descriptions are based on the basic 43,2 m² apartment.

Directions

The apartment can open up in four directions. However, this is only possible when constructed as a detached house. When connected to one or more other modules, sides of the apartment have to be partially or completely closed. Therefore, the spatial design takes into consideration the possible closing of one, two or even three walls. In the case of closing walls there still should be enough opening to let in enough light.

Space

When moving in to a senior home there needs to be space for three main functions;

- space for moving
- space for your own life
- space for storage

When growing old the need for equipment assisting moving will probably at some point become relevant. Therefore the space needs to be organized in such a way that moving around does not become compromised, even when furnished. When talking to inhabitants during the workshop in Lapinjärvi, it became evident that one of the most important things with moving to a senior home is that you should be able to bring your own life with you. This often means bringing furniture, objects and art that you have surrounded yourself with over the years. There needs to be space for both your own furniture and the things that you have en emotional connection with, like old photographs or books. While growing old the need for storage will probably become bigger - therefore additional storage both inside and outside the apartment have been considered.
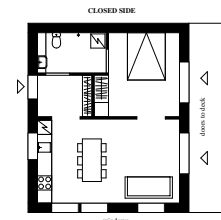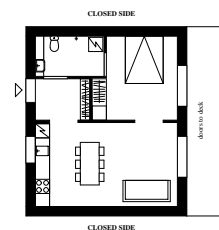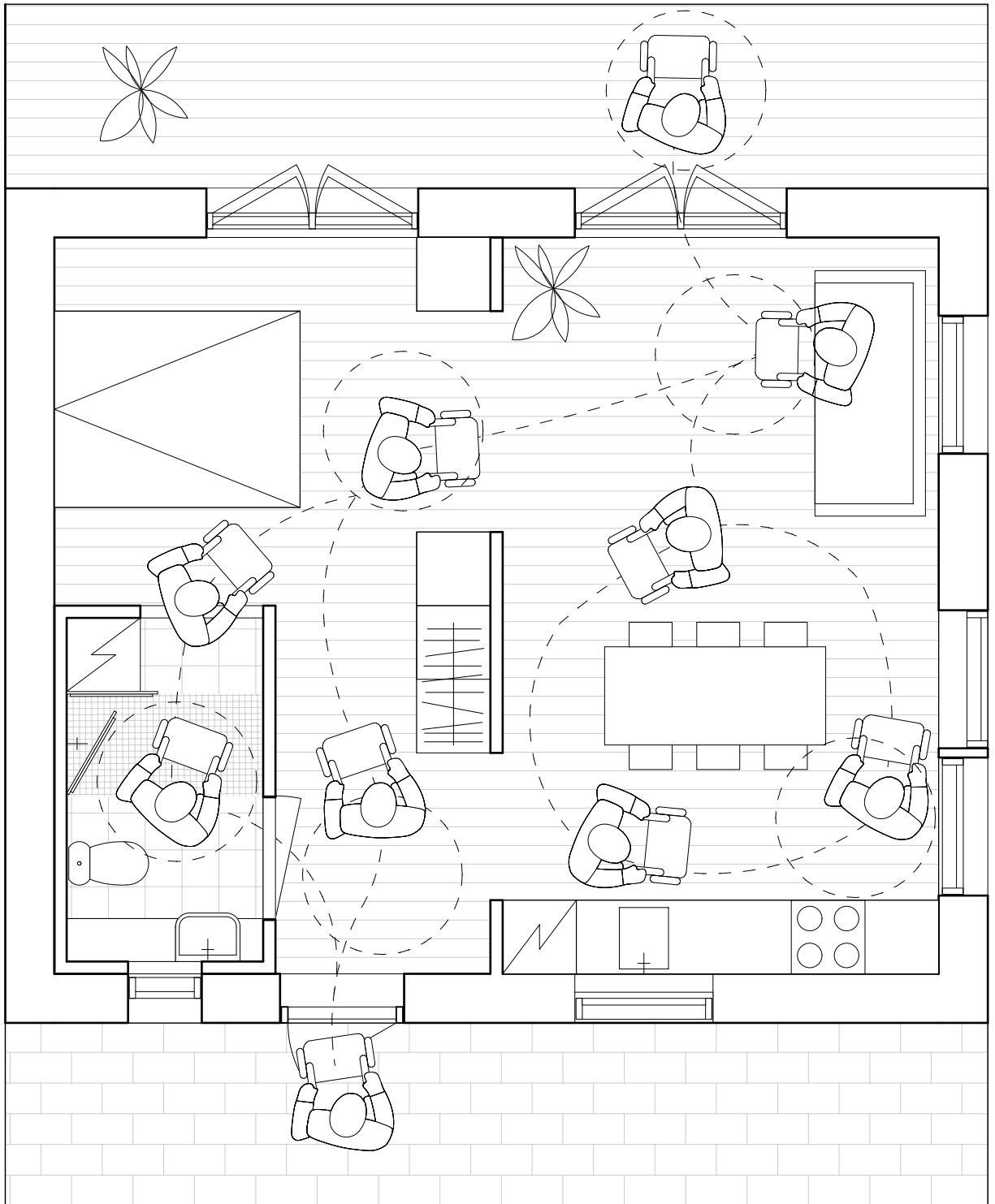
V1.
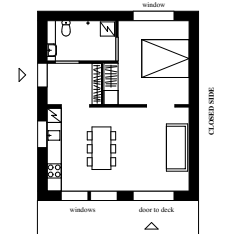
V2.
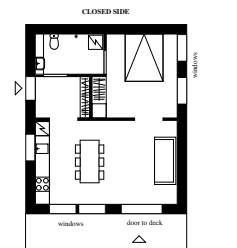
V3.

V4.

Moving scheme 1:50

Entrance

Wall between entrance and bedroom

A "swinging wall" between the entrance and the bedroom enables connection of spaces in various ways. In a normal scenario where a couple is living together in their home it is nice to have a proper entrance with a good amount of storage for jackets and shoes. However there might come a time when the physical connection between the entrance and bedroom might be needed, for example when:

- house care/nurse come for regular visits but you do not want the staff to have access to the whole apartment
- the inhabitant needs assisting equipment for moving and moving needs to be less obstructed
- visual connection throughout the whole apartment is needed, for example in case of memory loss - you remember what you see
- the bedroom needs to be separated completely from the living space, for example if a couple are living together but in very different health condition and they need separated sleeping areas

The list goes on, the swinging wall is easy for anyone to open or close, the change is therefore simple and does not require building measures.
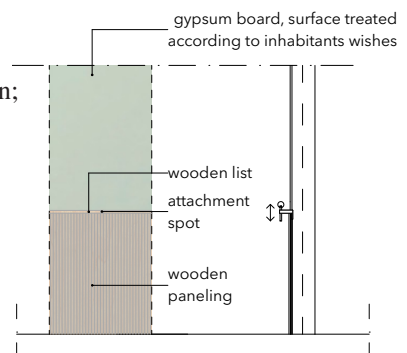
Movable furniture

Movable, adaptable furniture designed particularly for Lapinjärvitalo. These can also be left out but since the apartment size is small, specially designed furniture can optimize the space use and make adaptability one-step more accurate and easier.

The idea is that there would be a cupboard in the entrance and another one in the bedroom. These can be adjusted to the inhabitants needs an also easily moved on wheels in case of changes in the space plan.

Handrails

The special design of the wall is not only a visual feature but serves a function; the point where the different surfaces meets is also a point for handrails to be attached if and when needed.
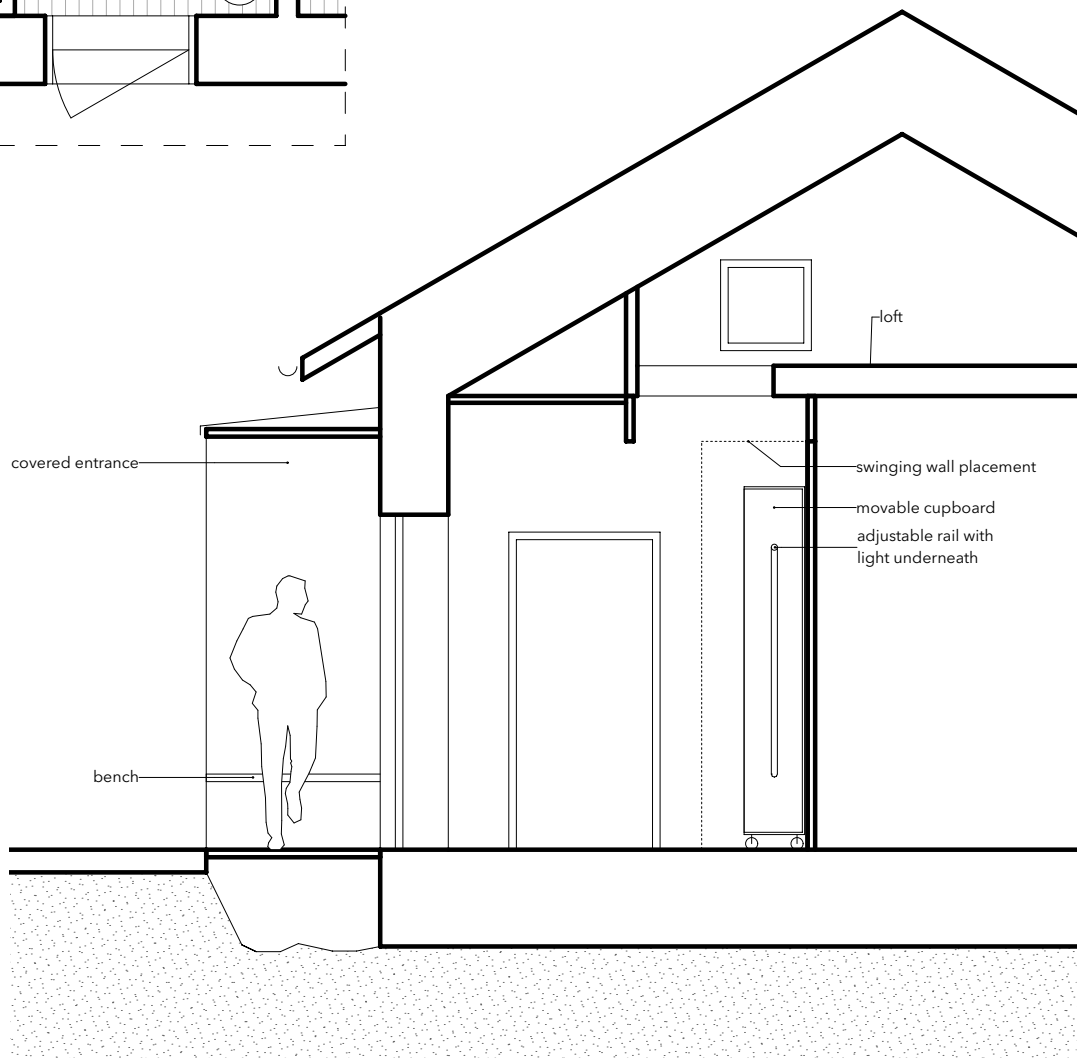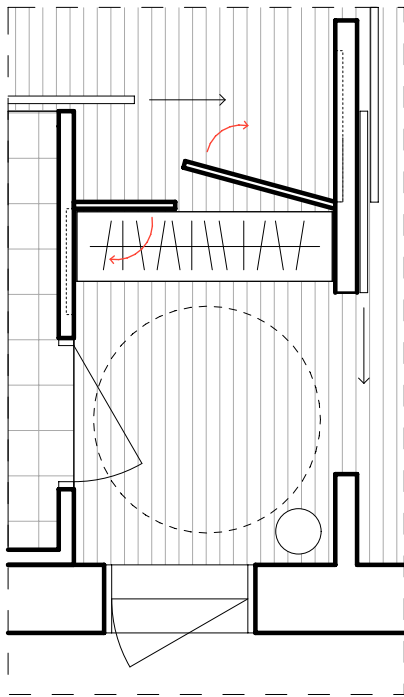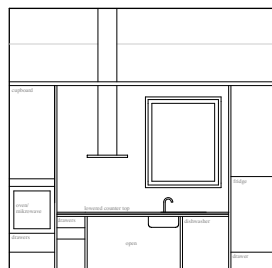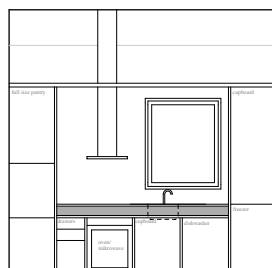

gypsum board, surface treated according to inhabitants wishes

wooden list

attachment spot

wooden paneling

loft

covered entrance

swinging wall placement

movable cupboard

adjustable rail with
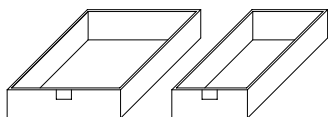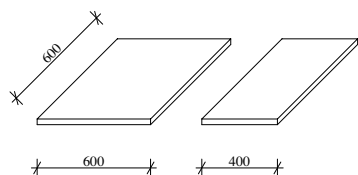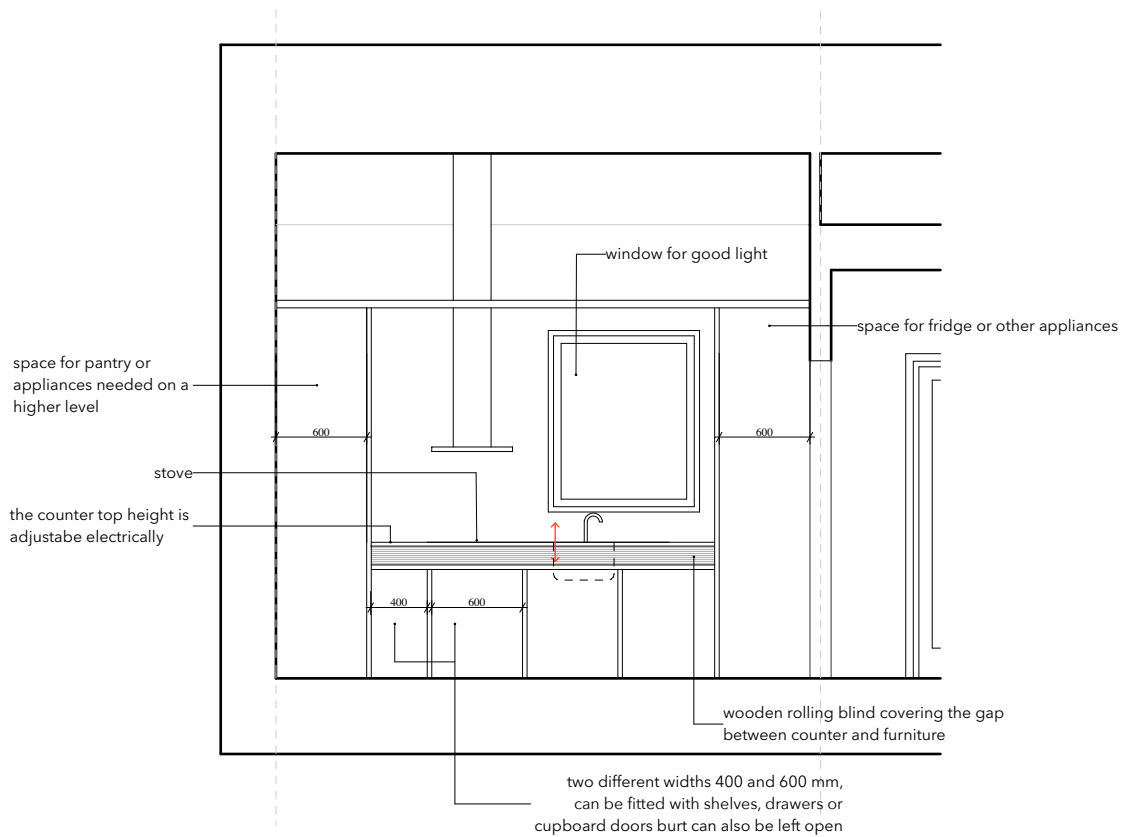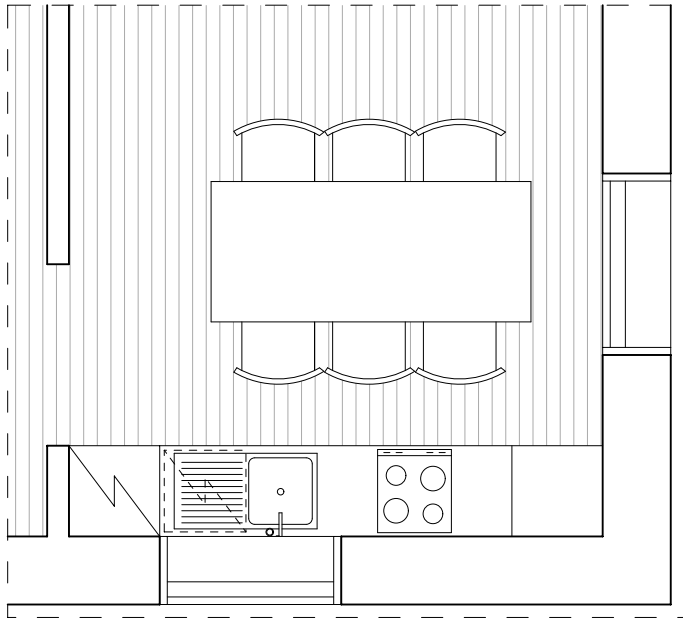light underneath

bench

Kitchen

The kitchen is a system of frame, shelving and drawers that can be adapted to individual needs. The system consists of two towers, where oven, dishwasher, fridge or food cabinets can be placed according to preference. Further there is a frame system in which the kitchen counter and shelving/drawers can be placed at preferred height. It is also possible to take out the shelves completely to allow wheelchair access or sitting while cooking.
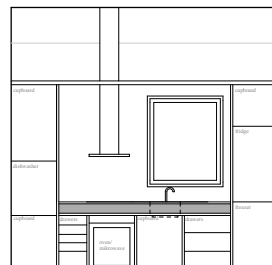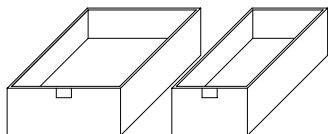
Variations of the kitchen.

window for good light

space for fridge or other appliances

space for pantry or
appliances needed on a
higher level

600

600

stove

the counter top height is
adjustabe electrically

400   600

wooden rolling blind covering the gap
between counter and furniture

two different widths 400 and 600 mm,
can be fitted with shelves, drawers or
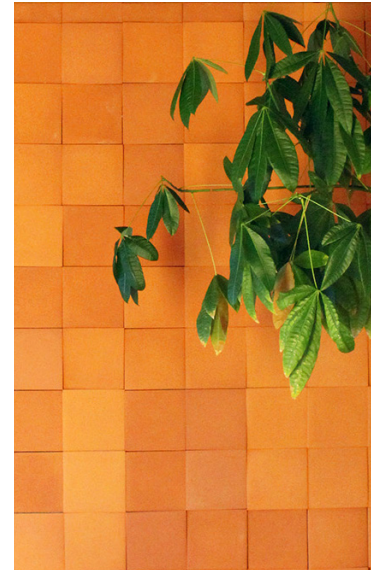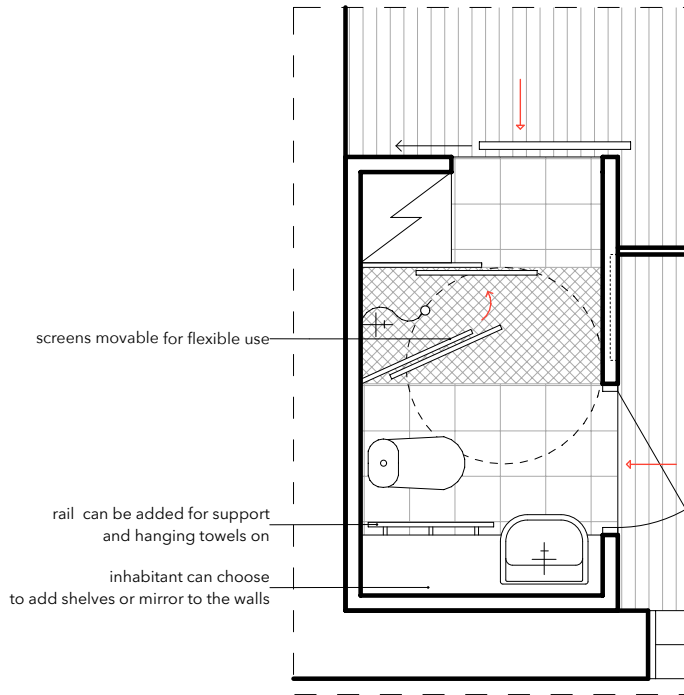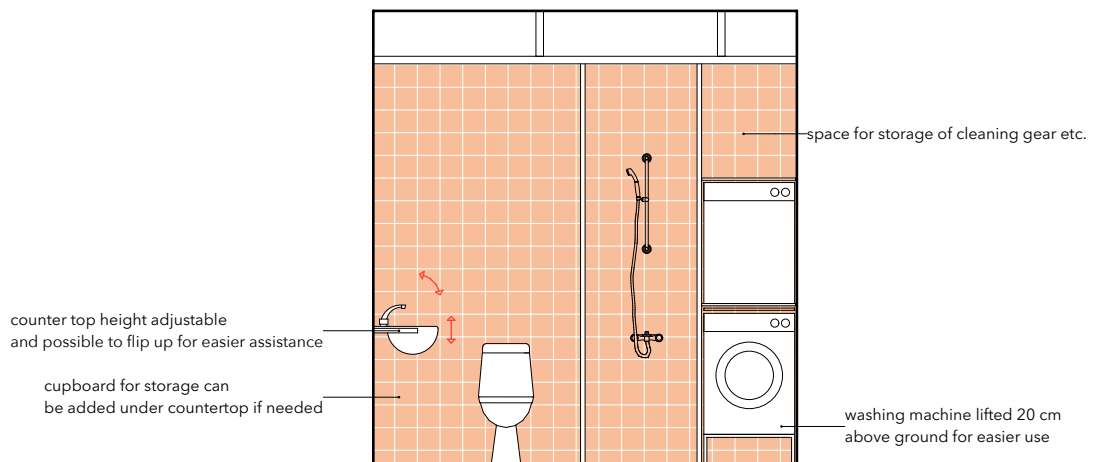cupboard doors burt can also be left open

Diagrams 1:50

Bathroom

The idea is that the bathroom should be able to function as different types of spaces. Accessibility measurement requires a lot of space - this space should be used wisely.
Firstly, the bathroom is planned with two entrances, one from the bedroom and one from the entrance hall. This makes it easy and quick to get to the bathroom from the bedroom but also lets guests use the toilet without having to go through the hosts' bedroom. The actual toilet seat is placed opposite the guest entrance. The shower is placed in the middle of the bathroom and is separated by screens. In case the inhabitants want, they can use the bathroom as two separate units - one as toilet, one for showering. But, since the shower is separated by a light screen, when wheelchair access is needed the screen can simply be turned out of the way. In the Lapinjärvi workshop many wished to have a separate extra toilet in their home. This is unfortunately in a small space quite a waste if space - this solution offers 'the next best thing' to a separate toilet. At the end of the bathroom there is space for a washing machine and drier. This part of the bathroom can thus be separated as a utility space. Because of the two entrances and the placement of the shower in the middle, the bathroom is multifunctional and does not waste space due to accessibility requirement.
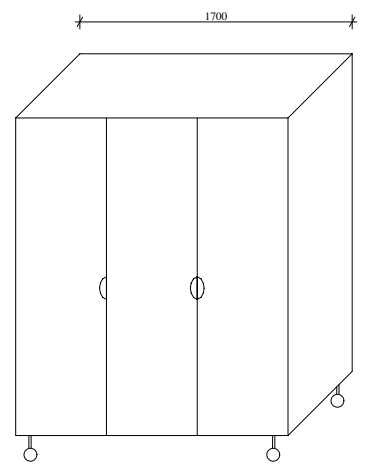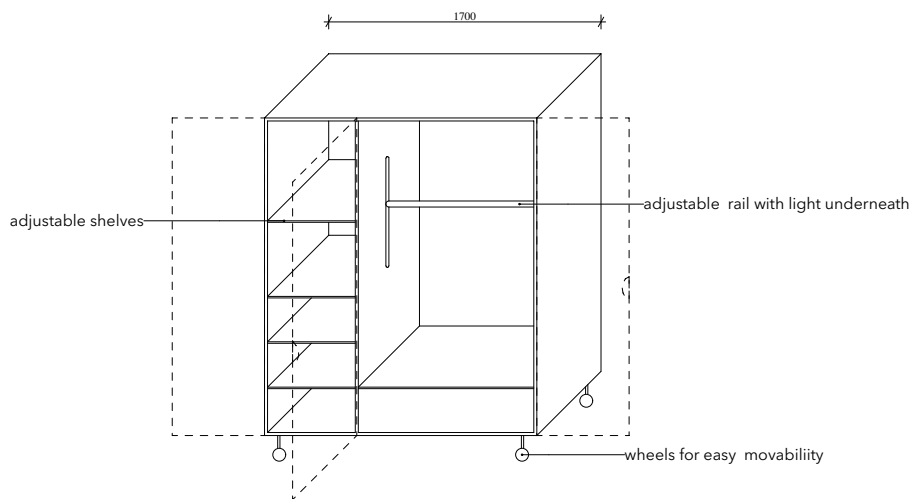
screens movable for flexible use

rail can be added for support
and hanging towels on

inhabitant can choose
to add shelves or mirror to the walls

Example of bathrooom wall surface; a warm
calm coloured tile that creates an easily
identifiable texture. The unglaced clay tile
would help keep the moisturebalance konstant.
Picture from ceramic Karin Widnäs' studio in
Fiskars.

space for storage of cleaning gear etc.

counter top height adjustable
and possible to flip up for easier assistance

cupboard for storage can
be added under countertop if needed

washing machine lifted 20 cm
above ground for easier use

Diagrams 1:50

58

Bedroom

In this compact apartment there is still a fair sized bedroom where there is space for a couple, there is space for furniture, there is space to assist if assistance is needed and if the inhabitant spends most of his/her time in bed there is space for seating for guests. The bedroom is however very open towards the living room so the whole space would still feel spacious. The main window in the bedroom should be placed low so the view outside does not become obstructed when lying in bed. This becomes very important in case of the inhabitants physical condition requires continuous bed rest. Windows can be placed on two walls and if it is possible the second window can function as a ventilation window close to the bed, relieving warmth and still air in the summertime. The cupboard design to fit in the space between the bedroom and entrance is adjustable to the inhabitants needs. If the passage between the entrance and bedroom is needed, the cupboard is easily movable on wheels.

11,6 m²

adjustable shelves

adjustable rail with light underneath

wheels for easy movabiliity

1700

1700
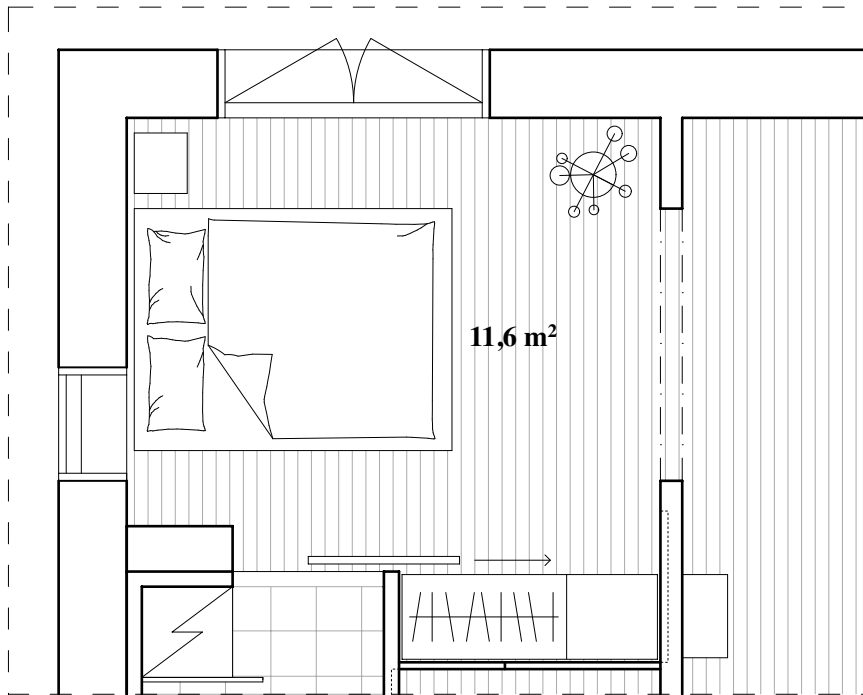
Diagrams 1:50

Loft

The loft functions as a guestroom and a storage space in the compact apartment. When children or grandchildren come to visit the loft offers a unique space for sleeping. Even if a couple wanted separate bedrooms, the loft can function as a second bedroom. After a life of 50 years or more people tend to have a collection of memories manifested in things. Photographs, old toys or schoolbooks from childhood memories from ones own parents an other such things can be important to us, even if they are not needed every day or even every year. The loft is a solution to the storage of all of these memories and, of course, the practical thing such as winter clothing during the summer months. The loft functions as a storage space whether it is a heated space or not. (See structure variations p. 54) If mobility prevents the inhabitant of going up to the loft herself, relatives or the home care personnel can help. If the inhabitant should not climb up to the loft due to other reasons, the ladder can simply be put away and the hatch to the loft closed.

12.5 m²

storage

storage

Diagrams 1:100
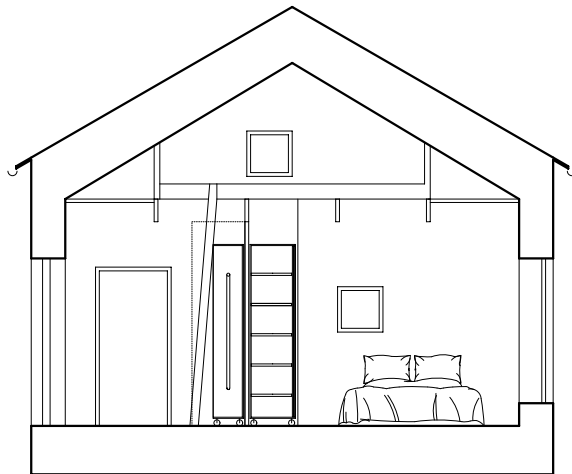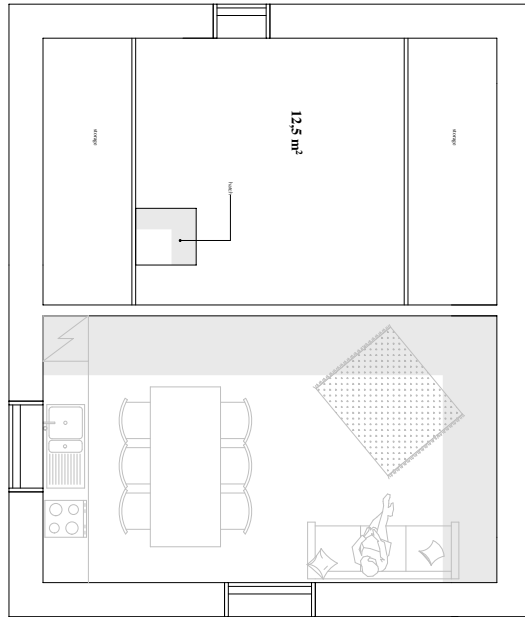
Flexibility, change

The most important aspect of the Lapinjärvi housi is its ability to change according to the change of its inhabitants. The series of images illustrate how the simple low-tech changes allow for the Lapinjärvi house to configure to the process of growing older.
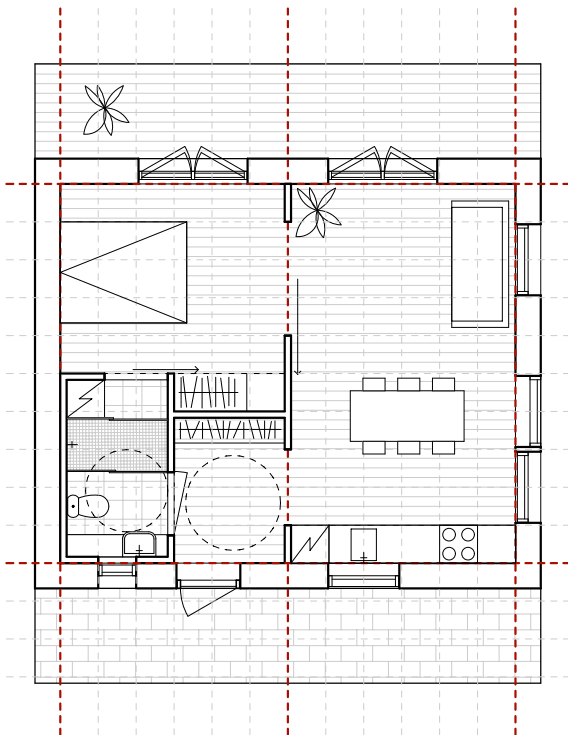
A couple living together, their need for help is little.
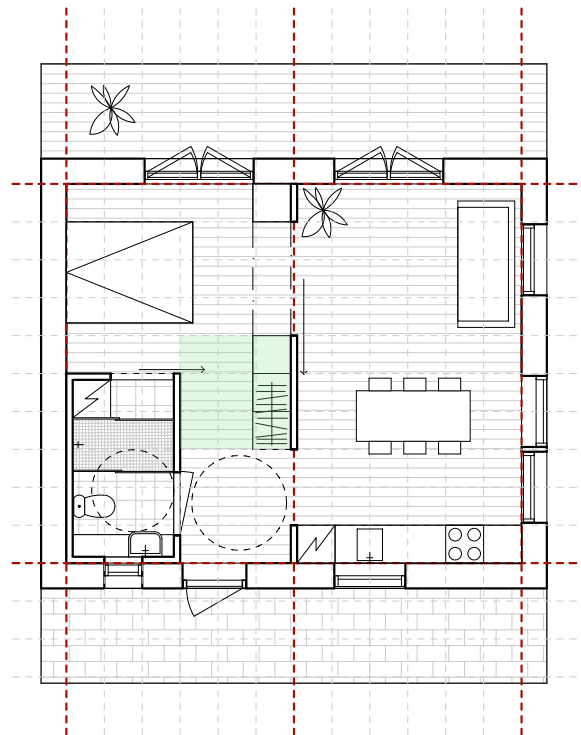
The need for help becomes bigger - a nurse visits every week to distribute medicine and give footcare. THe couple doesnt want the nurse to have access to the whola apartment, so they open up the passage between the entrance and the bedroom.
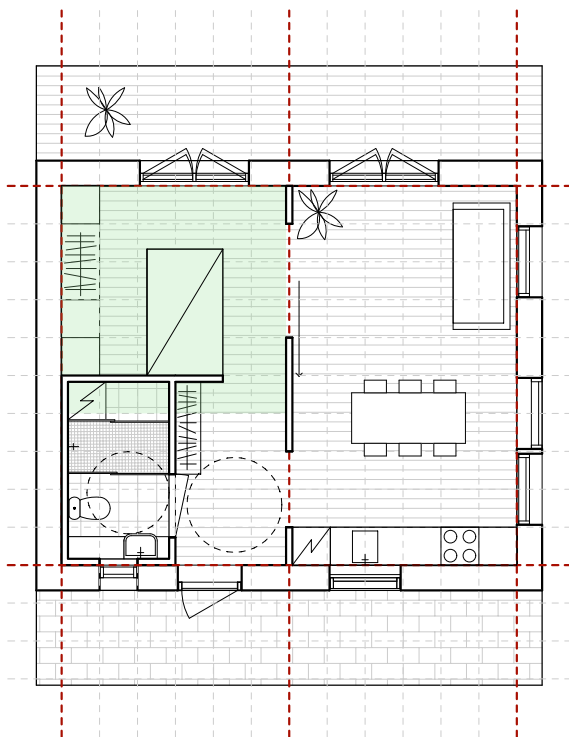
Only one person living in the apartment, most of the inhabitants time is spent in bed resing, the bed is moved so the view from bed is straight out of the window.
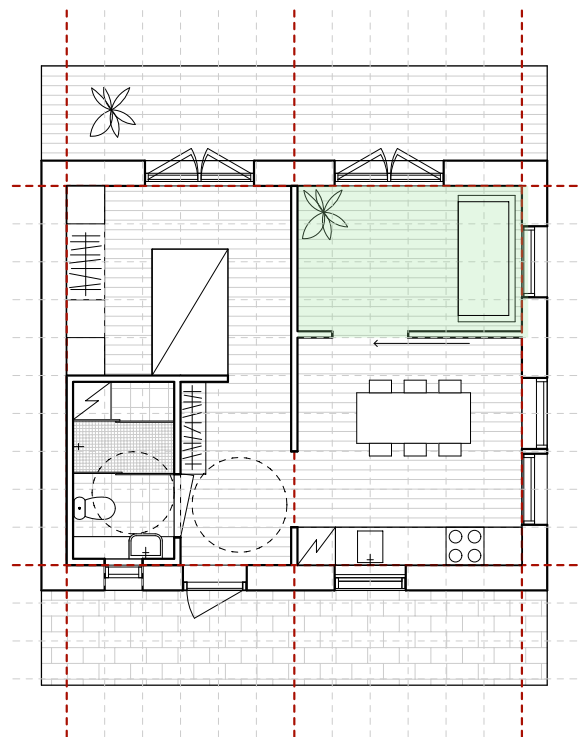
From time to time the inhabitant is need of constant around the clock care. The livingroom can be split into two spaces. The separated from the kitchen can function as the caretakers work room, equipment storage, or in the case that acouple still lived together but can-t sleep in the same room it could function as a separate sleeping area.

Block

The importance of the block increases, as the habitants get older. The block is the close environment where for example the physically impaired spends most of their life. Easy access to the outdoor, community belonging and close connection to nature are factors that become important and keeps the human strong while ageing. The block is a group of three or more apartments surrounding an inner yard. The main access to each apartment is from the center of the block. The whole inner corridor can be lifted to the same level as the apartments and is therefore completely unobstructed. This allows for only one ramp to the inner yard instead of a ramp for each apartment. The ramp and the structure of the inner corridor be durable enough for snow plowing with a smaller machine, or visits from for example therapy horses, is possible.
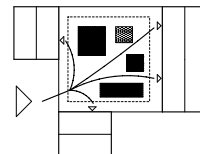
Courtyard

The inner yard is the core of the block community social life. Here, there is a possibility for gardening, socializing, relaxing and exercise. The inhabitants should take part of the designing process and decide what activities should be made possible in the courtyard. If, for example, the inhabitants want, they can have pets, for example chickens, in the garden. However, it is important that access to the apartment is clear and easy to take care of, especially in wintertime.

Garden

For accessible personal outdoor space each apartment is equipped with a open deck. It is also possible to add a covered veranda to extend the "outdoor" months of the year.

Aplication to the site

Lapinjärvi town 1:4000

Site analysis

Lapinjärvi is situated in Uusimaa, 20 km north from Loviisa, approximately an hours drive east from Helsinki. It is a small municipality according to amount of inhabitants, 238th in size of 311 Finnish municipalities with 2700 inhabitants. The Lapinjärvi lake borders the town center.

The city centre

The city centre is picturesque street with two churches, buildings from different periods of time, large old trees and many different colors. The basic everyday services can be found along the center route.

LAPINJÄRVI

HELSINKI

5 km

LAPINJÄRVI

HELSINKI 100 km

LOVIISA

Map with labels: CHURCH, GRAVEYARD, MUSEUM, BANK, PARKING, GROCERY STORE, CAFE, HARDWARE STORE, GROCERY STORE, KEY SHOP

1.

2.

3.

4.
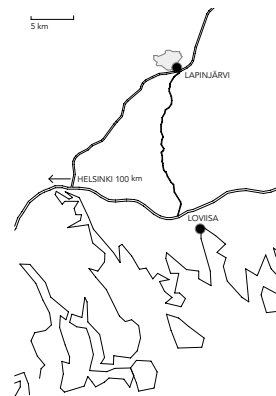
5.

The elderly cluster

Across the town the is a elderly center with the institutional elderly home Honka-
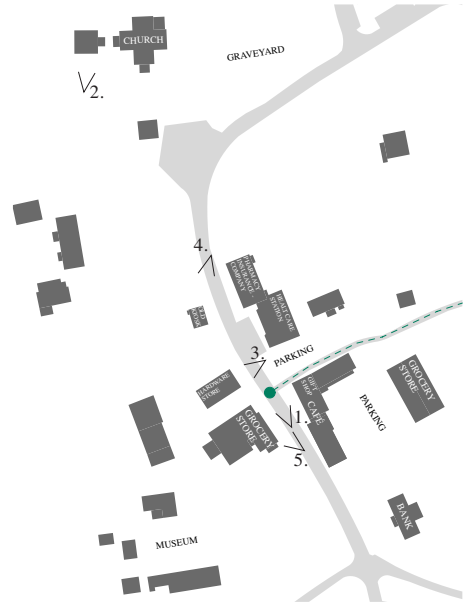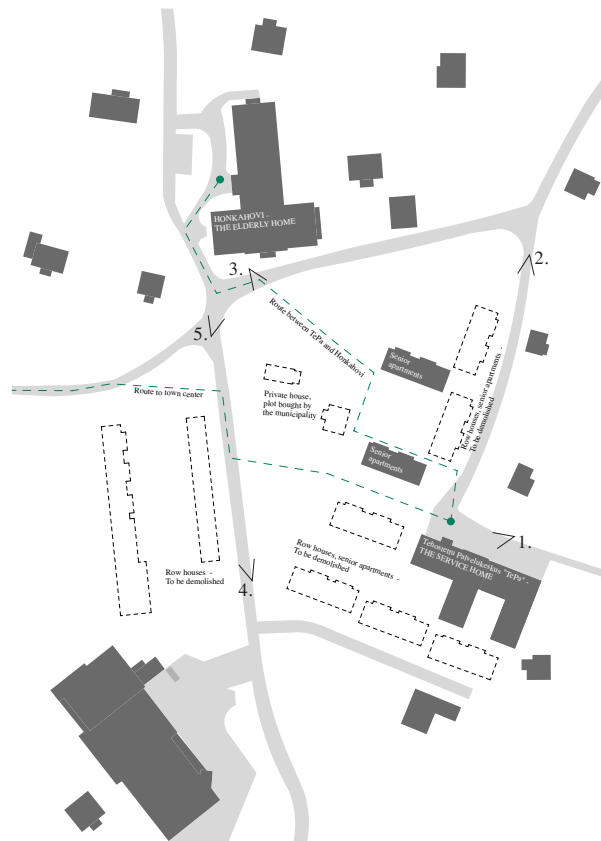hovi and the intensified service home TePa (short for Tehostettu Palvelukeskus).
The row houses close by are senior housing units currently provided by the
municipality.

1.

2.

3.

4.

5.

Two clusters

One of the biggest issues is how to connect and unify these two clusters and somehow bring the services closer to the elderly, while bringing them together as a part of the community.

In bad condition

Some of the senior housing are in quite bad condition and are to be replaced.

Traffic

The route from the elderly cluster to the center is partially reserved for pedestrians only, however there are parts where pedestrians have to share space with vehicle traffic causing dangerous situations.

Nature

There is a central park Lukkarinpuisto, which has been improved recently. Two other areas are designated for park purpose but are not really treated as such and could use improvement. In the area around the library and the daycare center there are many big trees of which some are rare and interesting species.

Hills

The town is mainly quite flat in the public spaces, however the library is situated on a hillier spot.

Land ownership

The lands owned by the municipality are the most realistic places to situate the new Lapinjärvihouses, however in the future, if possible, plots closer to the city center would be obvious places to situate Lapinjärvi houses, to mix functions of the town one step further.
Nimismiehenpolku

CHURCHES

CEMETARY

TOWN HALL

undefined
park

LUKKARI
PARK

TOWN-
CENTER

HEALTH
CARE

STORE

STORE

CAFE

50 m

STORE

BANK

200 m

DAYCARE

BROFOGDAS

LIBRARY

BAKERY

special trees

SENIOR
HOUSING

SENIOR
HOUSING

ELDERLY
HOUSING

dangerous
crossing

SENIORS

SENIOR
HOUSING

ELDERLY
HOUSING

500 m

undefined
park

Nimismiehenpolku

Area perceptions 1:4000

To continue with the picturesque milieu of Lapinjärvi I wanted to lift up Nimis-miehenpolku - Länsmansstigen. This little road is edged by some of the oldest houses in Lapinjärvi, which is why it is part of the local culture route. The scale of the houses is very similar to the one of the new Lapinjärvihouses, therefore they serve as both inspiration and example of the possible milieu of the new Lapinjärvihouse areas.

Views along Nimismiehenpolku.

Area plan

The area plan shows the new organization of Lapinjärvi. It is based on blocks of 3 or more Lapinjärvi houses. A route all the way across the town reserved for pedestrians only with only a few crossing with vehicles. Parking is scattered and broken into smaller units.

Focal points of the route are spots where for example environmental art can be implemented to improve the clarity of navigation in the town, which is especially important for inhabitant with memory diseases. These spots should also be furnished with seating and resting places and possibly some attractions, which make it more inviting to move around the town. This could be a chicken house, a special area of planting (maybe cherry trees which blossom in the spring, rhododendron or roses) a historical artifact or maybe just an old car. Brofogdas, the old house near the daycare center and library, which is currently in use by the Lapinjärvi veteran association, could be a spot for development and greater use. It is centrally located and in the middle of the route between the Service home and the town center and could therefore serve as a kind of living room for the whole community, bringing the two centers closer to each other.

Example
block
two

Example
block
one

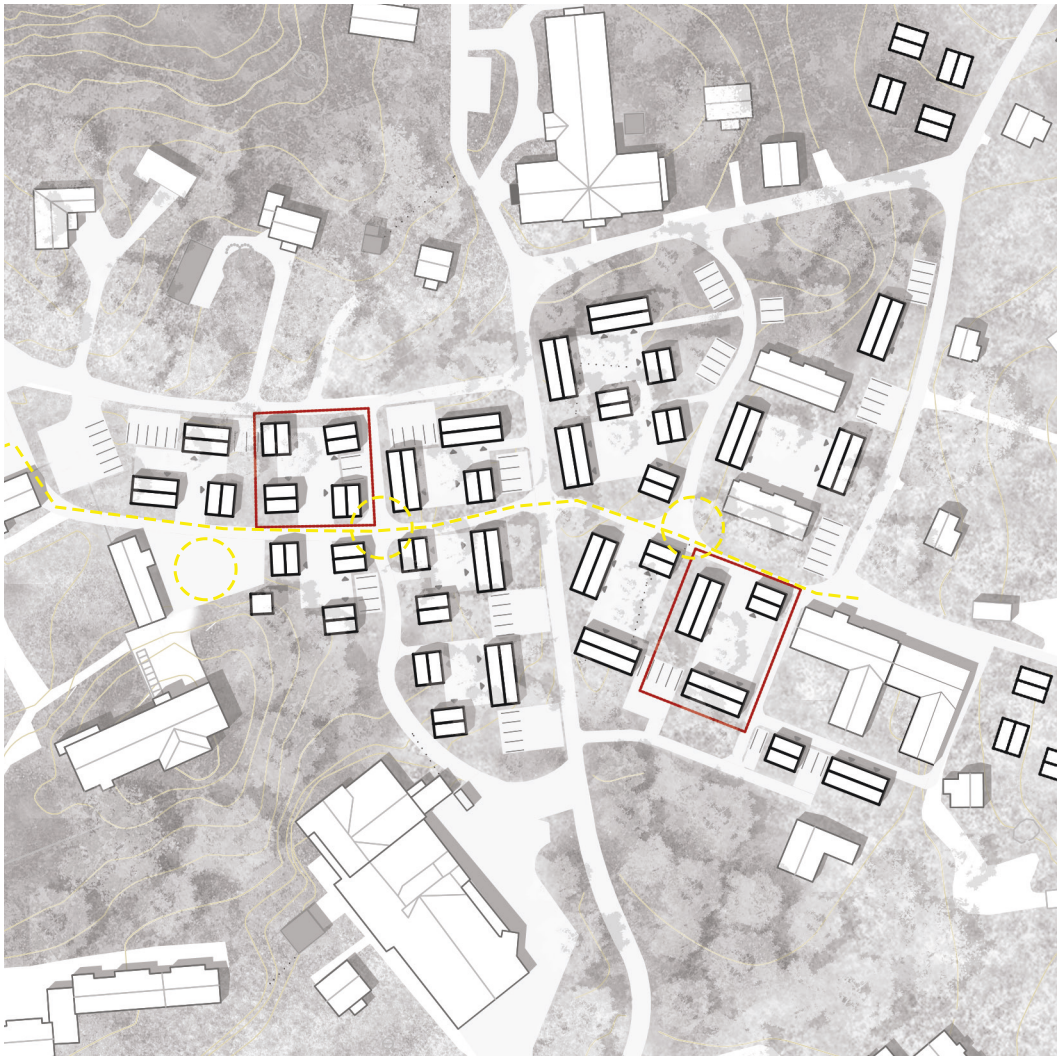Area layout diagram 1:4000

Preliminary building phase

Route to town centre and focal points

Possible future locations

Preliminary building phase 1:2000

Example block one

Block one is situated next to the existing Service home, TePa. Block one consists of two connected houses and one parcel house, placed around a communal inner yard. The whole inner yard is lifted to the level of the apartment indoor surface, allowing for completely clear movement between indoor and outdoors.

Accessible routes to the courtyard are placed on two sides - one is also suitable for a snow-moving vehicle that can take care of the courtyard in wintertime. On two sides stairs are placed for access to and from the block.

The inner yard can be designed by and with the inhabitants. In the courtyard there are storage units for the inhabitants, different leveled planting boxes, recreational areas and benches. The entrances to the apartments are marked by the porches; these mark the boundary where semi-public becomes private.

One of the apartments can be used as a communal space for the inhabitants. The communal space could be fitted with spaces that can be used in a shared system, such as a workshop or a sauna.

Block section 1:200

Example block 1, 1:400

Block facade 1:100

Example block two

Block two is located on route to the town center from the Service home. It is smaller and none of the houses are connected. In order to keep the inner yard level closer to the route level the last lift up to apartment level is taken care of with individual ramps. Every house does not have their own private garden; therefore the inner yard becomes the heart of the block community. The inhabitants can inhabit and personalize the surroundings of their own home in the courtyard but are in contact with their neighbors through the outdoor space.

Apartments are organized to fit their spot in the block, openings and windows are placed so direct use of the courtyard is possible.

Block section 1:200

Bock floorplan 1:400
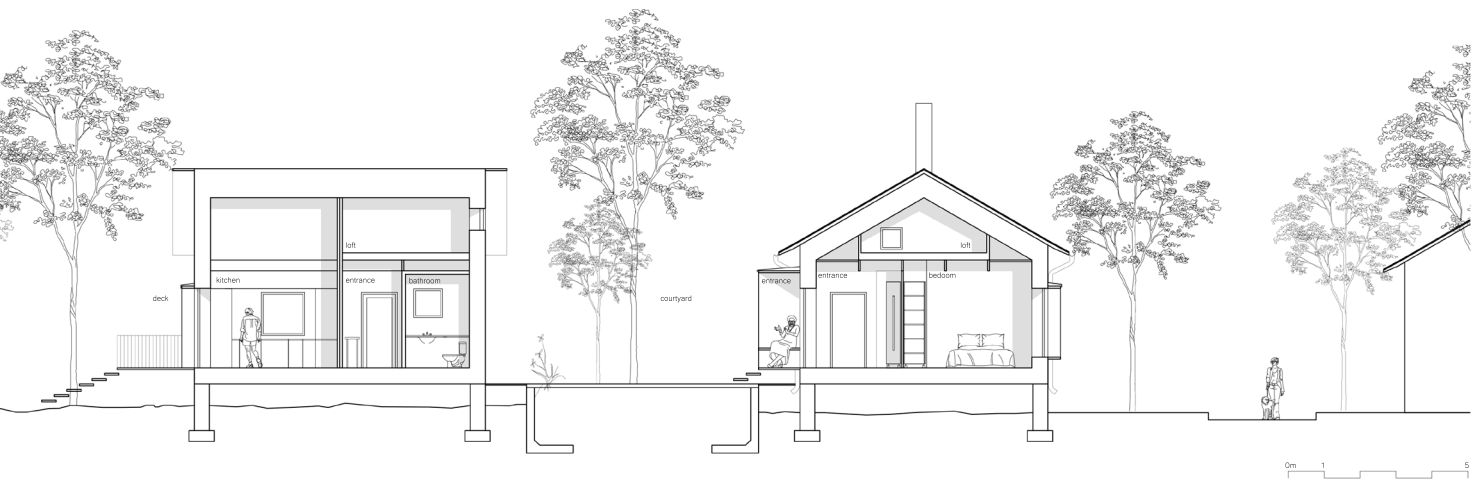
Conclusions

This project has been challenging but rewarding. Initially I thought that designing a relatively small house should be an easy task when in fact it was a very complicated one. Realizing that the individuals needs are the most important and that this small house should cater for a multitude of solutions made the task more complicated but all the more interesting.

The detached house typology is a good alternative for senior housing, for there are people who have lived all their life in small-scale houses and wish to continue to do so for the rest of their lives if there would be a possibility for it. Furthermore, the small-scale typology allows for very good housing qualities and is a housing style many want to live in. However, a definite risk with "until the end of life living" in a detached house typology is isolation. This needs to be taken into account in every part of the elderly care structure and unwanted isolation should never be allowed. As mentioned I think more connected typologies where inhabitants live independently but have access to shared facilities could be an alternative solution.

The modular structure allows for easy assembly on site, safe building and the possibility to move the whole home if needed. The nature wooden structure does not allow for close contact with the ground and therefore the structure does naturally lift the inside floor height fairly high above ground, which makes accessibility more difficult to achieve. Easy access outside and to the community is key for the detached house typology for senior housing.

Adaptability gives possibility to many layout variations, which is important for providing individual and site specific solutions, but not every solution is perfect and an adaptable building system is never a ready design. As shown in the block studies, the layout functions best in different ways depending on location and surroundings. A layout that gives many possibilities also requires individual observation on every building site and a certain layout solution for every individual inhabitant. I do not believe that one type house can fit all situations; therefore I believe it is positive that every site requires specific attention. Solutions that make change easy, like the swinging wall and adaptable furniture are key to the idea of the adaptable home and could be explored even further.

As all new apartments in multi story housing are required to be accessible, also for the aspect of "living at home for as long as possible" it is more than relevant to also explore the detached house typology in the same manner. I believe that accessibility is not the only feature that makes a good home for senior inhabitants, but high quality surroundings and the possibility to make your home your own is key.

I hope this thesis project can serve as inspiration for the future development of the Lapinjärvihouse and the research of senior housing in the small-scale typology.

View along route to town centre,
next to example block 2.

Acknowledgements

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Skalgubbar have been used in the visualizations: www.skagubbar.se

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Results of the questionnaire for inhabitants over the age 65 in 2016
Results of the questionnaire for municipality inhabitants in general in 2016

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Title of thesis Lapinjärvitalo

Service housing for seniors - a detached house typology to grow old in

Department Department of Architecture

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Thesis supervisor Karin Krokfors

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Abstract

This thesis was completed as an assignment provided by Aalto University and ordered by Lapinjärvi municipality and The Housing Finance and Development Center. The assignment was '*to design a new type of modular house/housing for elderly in a detached house-like typology*'. As the social health- and elderly care system in Finland is facing comprehensive changes in the near future Lapinjärvi municipality wants to prepare for the changes. Institutional elderly care is to be reduced and elderly are expected to live at home for as long as humanely possible.

  For a small municipality like Lapinjärvi, where 2700 inhabitants are spread out over an area of 330 square kilometers, home care gets painfully expensive. By building attractive homes closer to the town centre the municipality wishes to include the ageing population as part of the community in the town centre rather than the outskirts at a younger age. These homes should be designed for accommodating life, enabling inhabitants in later life to live at home for longer.

  What is needed is a normal home that is, in detail, planned and suited for the last part of life - the home has to be attractive to anyone but be transformable to the needs of the elderly. Furthermore the budget has to be realistic - a house in the countryside in municipality like Lapinjärvi can be worth roughly 100.000 €, these homes should be just as affordable.

  This thesis focuses on understanding the variety of needs that may or may not arise during the process of ageing. The human oriented design process is developed by studying literature, research and undertaking hands on experience. These needs inform the possibility and inspire a high quality housing.

  The result is a research of flexible modular housing units that adapt to the changes of ageing. A case study showing placements and surroundings of the Lapinjärvihouse in Lapinjärvi is included in the research.

Keywords growing old, human oriented, modular, adaptable, Lapinjärvi

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Tiivistelmä

Tämä opinnäytetyö tehtiin tilaustyönä Aalto-yliopistolle Lapinjärven kunnan ja Asumisen rahoitus- ja kehittämiskeskuksen tilauksesta. Tehtävä oli *'suunnitella uusi omakotitalomainen modulaarinen asunto vanheneville'*. Koska sosiaali- ja terveydenhuollon järjestelmät muuttuvat radikaalisti tulevaisuudessa Lapinjärven kunta haluaa varautua muutoksiin. Laitoshoitoa tullaan vähentämään ja vanhuksia odotetaan asuvan kotona niin pitkään kun on inhimillisesti mahdollista.

Pienelle kunnalle kuten Lapinjärvelle, missä 2700 asukasta asuvat 330 km² alueella, kotihoito tulee valitettavan kalliiksi. Rakentamalla houkuttelevia koteja lähelle kirkonkylää kunta toivoo pystyvänsä sisällyttämään vanhenevan väestön osaksi kirkonkylän yhteisöä nuoremmassa iässä. Nämä kodit pitäisi olla suunniteltu elämää varten, mahdollistaen vanhempien asukkaiden asumisen kotona pitempään.

Tarvitaan normaalin kodin joka on yksityiskohtaisesti suunniteltu elämän viimeistä osaa varten - kodin pitää olla houkutteleva kenelle tahansa mutta pystyä muuntumaan vanhenevan tarpeiden mukaan. Lisäksi budjetin pitää olla realistinen - talo maaseudulla kuten Lapinjärvellä on karkeasti 100 000 euron arvoinen, Lapinjärvitalon pitäisi olla yhtä edullinen.

Tämä opinnäytetyö keskittyy vanhenemiseen liittyvien muutosten ja tarpeiden ymmärtämiseen. Ihmislähtöinen suunnitteluprosessi on kehitetty kirjallisuuden, tutkimuksen ja käytännön kokemuksen avulla. Tarpeet informoi ja inspiroi mahdollisuuden laadukkaaseen asumiseen.

Lopputulos on tutkimus muuntuvista modulaarisista asumisyksiköistä jotka sopeutuvat vanhenemisen muutoksiin. Tapaus tarkastelu Lapinjärvestä ja Lapinjärvitalojen sijoittamisesta Lapinjärvelle on osa tutkimusta.

Avainsanat vanheneminen, ihmislähtöinen, modulaarinen, mukautuva, Lapinjärvi