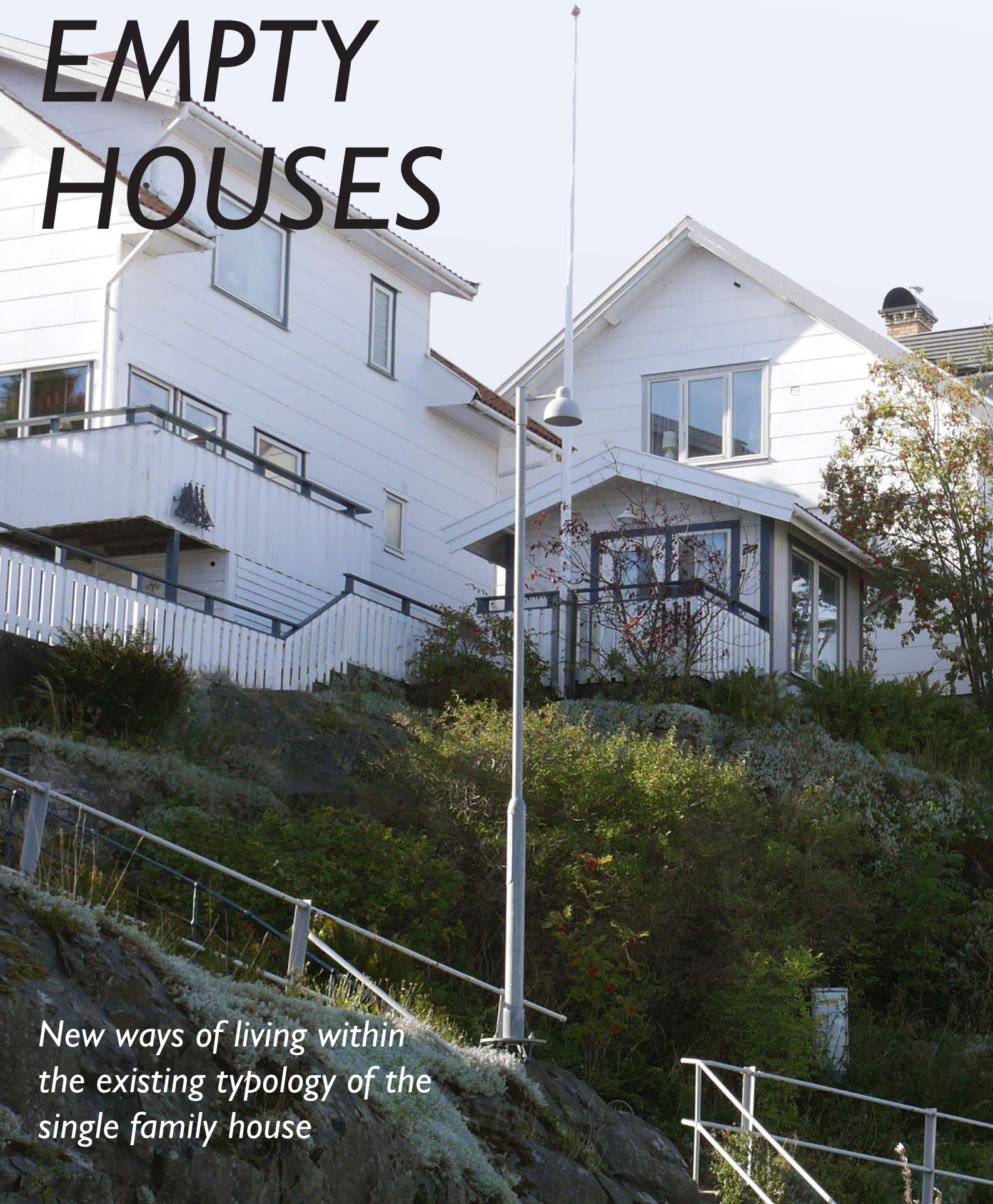


HALF EMPTY HOUSES

*Master's thesis in Architecture, 2023
Chalmers University of Technology*

Lovisa Kumlien

*New ways of living within
the existing typology of the
single family house*



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New ways of living within the existing
typology of the single family house



CHALMERS

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ABSTRACT

The single family house is a typology with an invisible vacancy and a great future potential to tackle large societal challenges. 50% of Swedish households live in single family houses and they are to be found all over the country. Many of them are built for a family with children but today the majority of these houses are inhabited by only 1 or 2 persons and a third of all house owners express they have too much space. There is a discrepancy between what we build or dream of and the reality of how we live today. The lack of variations in sizes and ownership models can make it hard to both stay in and move to the area.

The aim of this thesis is to investigate the potential of the single family house to develop new housing solutions within the existing as well as summarising knowledge and strategies for how this can be done and how to reach qualities in the design while doing so.

The project takes place in the context of the island Åstol where the only option to create more housing is to develop within the existing 180 villas and where the future of the local community is dependent on how they make use of their limited space. The outcome of the thesis is a design proposal of how 3 of these villas can be transformed to support a sustainable development.

Through research of relevant reports and references on the subject together with real life examples based on interviews and statistics, the proposals of transformations are presented as a palette of potential showcasing new ways of living - matching the needs of today's society as well as challenging the norm of how we live today.

Keywords : single family house, transformation, coliving, rural and urban development, housing norms



Housing at Åstol

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01.

INTRODUCTION

Research question:

In what ways can transformations of the typical single family house support sustainable development in a local community?

Purpose and aim

The aim of this thesis is to investigate the potential of the single family house to develop new housing solutions within the existing - matching the needs of today's society as well as challenging the norm of how we live today. The purpose is to summarise knowledge and strategies for how this can be done and how to reach qualities in the design while doing so.

Outcome

The outcome is a design proposal of how three houses at the island Åstol can be transformed showcasing a palette of potential of what is possible as well as an conclusion of what effect this can have on the local community and in society as a whole.

Delimitations

Åstol's context and houses are the base of the project but the intension is that the knowledge gained here can be applied to other places as well. However, these places will have different conditions, such as potential residents, which needs to be consider before further development.

The garden is a big quality of the single family house and an important aspect of ecological sustainability. This thesis will not cover this topic due to the absence of greenery at Åstol as well as the time limit.

There are more topics to explore on a more detailed level such as building performance and choice of material. These aspects are an important part of architecture both in relation to expression and sustainability. However, the proposals are made in a more general and schematic sense to show opportunities and needs to be developed further.

The houseowners have willingly opened up their homes for my investigation. The thesis has learned from them but has not been restricted or necessary adapted to their private situation.

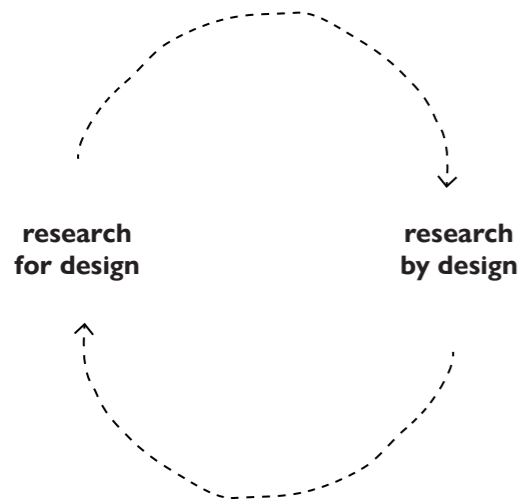
There are many interesting options for creating housing in other types of buildings, this thesis is although focused on developing the single family house.

To be able to live in a place is not only a question of housing opportunities but also about work, school, service and community. There are also interesting research to be found on developing single family houses into spaces of public use. This thesis nevertheless focus on housing, claiming that solving this issue can drive other development too.

Reading instructions

The thesis starts with by a background introducing the subject further. The research is structured in two parts; research for design and research by design ending up in a design proposal. In the final discussion the potential of the result is analysed on an individual, local and societal level. The thesis is then summed up in a final conclusion.





Method

The project has developed through two parallel processes of "research for design" and "research by design" allowing them to inform each other.

Research for design

The goal has been to gather knowledge important to carry out the design project.

Learning from a local situation

The thesis has been developed in close relation to the community at Åstol. The reason behind choosing Åstol is a previous project called "Rearrange the existing" made by me and Elisabet Arns in the course ARK174 *Planning and design for sustainable development in a local context*. The project investigated Åstols buildings as an limited resources proposing ideas for further development. The project was short but has led to deepened conversations and collaborations with the community. One goal of this thesis is to develop this started work further by looking closer at Åstols villas and how new housing solutions can be created.

Åstol is an island with limited physical boundaries and clear societal challenges but also with an engaged and aware community willing to look for new solutions. This makes Åstol a great laboratory or testbed possible for other places to learn from.

Meeting with locals

The investigations has included visits of the villas for measuring and photographing as well as talking to the houseowners. Eight weeks into the project the ongoing thesis was presented in a common meeting at Åstol as I attended their weekly fika. After my introduction each group discussed prepared questions with the help of post-it notes ending up in an open discussion.

Reports on subject as base

Learning about single family houses through reports such as 500k by Kod architects (2016) These reports provide a framework of historical examples, statistics, interviews, planning procedurs and future sustainable visions. They also present some general design strategies which aim to challenge the housing norm in these areas.

Research by design

The goal in this part has been to learn about and from the three villas at Åstol through design studies based on the findings made through research.

3 houses at Åstol

The intension of choosing three single family houses proposing different transformations is to showcase a "palette of potential" of what is possible within this typology rather than just giving one answer.

Many of the island's villas are quite similar and the decision of which ones to choose was in the end mainly based on 1, the owner's willingness to be part of the project and 2, choosing houses built in different time periods.

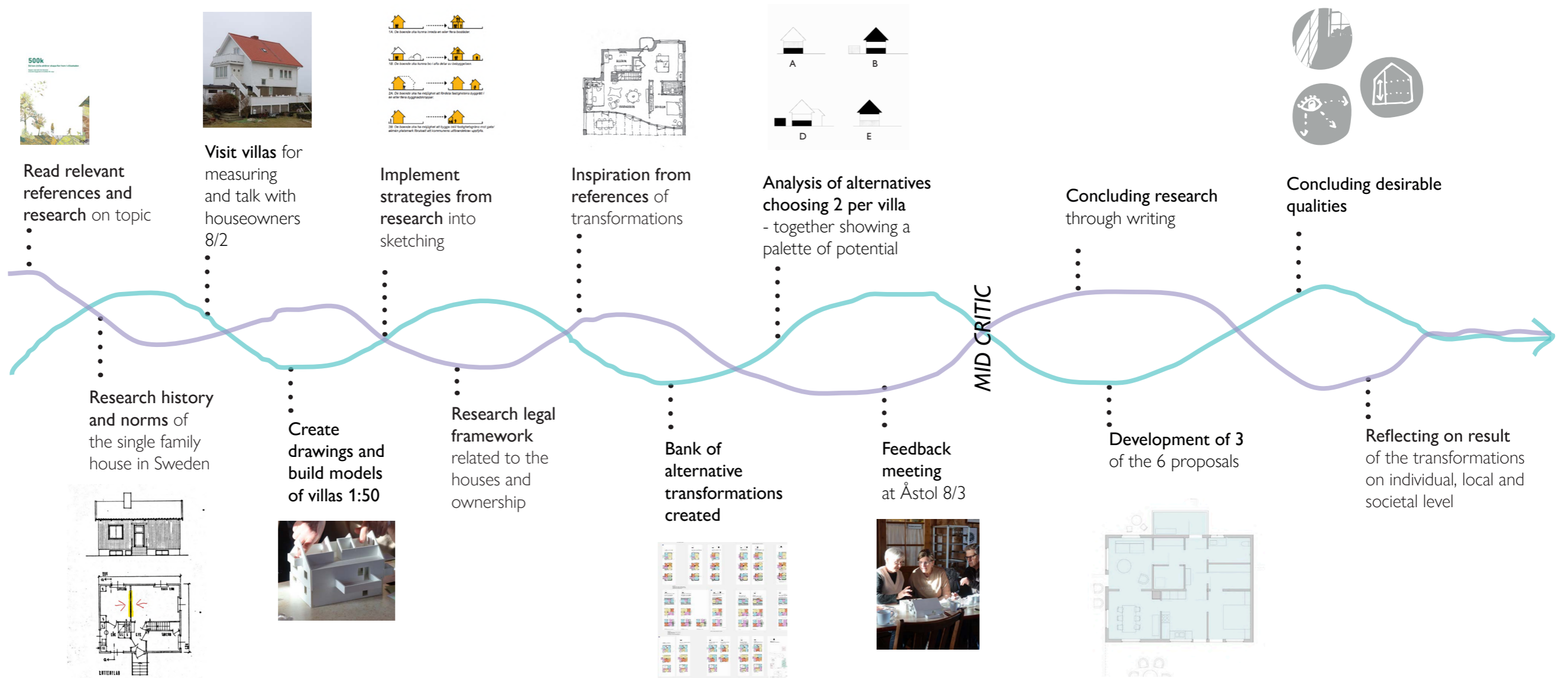
Design studies

This has included creating drawings, sketching and building physical as well as digital models. Building up a bank of alternatives choosing to develop on per villa for further investigations. Concluding strategies and keys from my studies which others could possibly learn from has been an important goal of my work.



RESEARCH FOR DESIGN

RESEARCH BY DESIGN



BACKGROUND

Personally, I have felt that going into the subject of existing single family houses can be seen as passing a sort of private boundary. A topic belonging to the house owner and not on the common table up for discussion.

On Åstol, I have met people who feel like their existence and future lies beyond their control. How they use their limited number of houses determines the local community's future. Letting the housing question be entirely private here is a passive stance that could allow the society to shift from a living local community to a summer vacation residency.

No, on Åstol, they have started to lift the question of housing as a common problem requiring new solutions. It makes Åstol a good example of how limitations can lead to re-evaluation of resources and new development. Something we all need to learn in order to create a sustainable future.

In these regards the architect has knowledge and an opportunity to contribute using their expertise to see spatial potential that opens up new ways of living and take part in the conversation of how to tackle our large societal challenges.

Housing shortage?

The demand for housing is so large that we talk about a housing crisis. According to Boverket Sweden needs to build 63.400 new housing units per year between 2021-2030 to match the population growth and catch up with the housing shortage which has been built up in the last 15 years. Additionally, more than half of the country's municipalities state that they have a shortage of housing (Boverket, 2022).

Vacant space

At the same time the majority of single family houses are inhabited by 1 or 2 persons (scb) and 1 of 3 private house owners think they have too much space (Mäklarsamfundet 2013). The Swedish housing stock consists of 5 million housing units and 2 million of these are single family houses which can be found all over the country - in the cities suburbs, in smaller towns and in the countryside where they make up the majority of the housing.

A civil building movement

Most planning discussions today tend to look from an urban, large scale norm and the villa areas are rarely included in the discussion or are described as an urban "problem". But by understanding the possibilities and qualities of the villa areas and the people living there, there is a potential of a civil building movement regenerating these areas creating new housing solutions (Kod architects 2016).

Sustainable development

In 2015, the United Nations agreed on 17 Sustainable development goals which aims to guide all the world's countries into a sustainable future on social, economical and environmental levels by 2030. Goal nr 11 focuses on cities and communities and reads "Make cities and human settlements inclusive, safe, resilient and sustainable". To reach these goals, large changes need to be made.

Social sustainability

Social sustainability refers to the ability of a society or community to meet the needs of its inhabitants in a way that promotes well-being, social cohesion, and equity over the long term. Segregation, increased loneliness and changing demographics are some examples of challenges today.

Environmental impact

The building sector stands for a large amount of Sweden's environmental impact. As larger and smaller cities grow, they become larger to the area but not more dense in population. The development of new areas on virgin land has a great negative impact on the environment. Urban sprawl is a global challenge and being resourceful with land and other resources is one of Sweden's prioritized goals in the law for built environment (Plan- och bygglagen) (Kod architects 2016). The single family house in itself is less resource efficient than an apartment building and consumes a lot of land and infrastructure seen to the number of inhabitants.

Donut economy

The economic model "donut economy" developed by Kate Raworth describes that we must find a way to distribute resources in a way that respects the planet's boundaries while meeting the basic needs of all people (Raworth, 2018). To find strategies for developing new housing within the existing can be seen as a way of redistributing and sharing resources in a way which fits everyone's needs and reduces the environmental impact of these areas.

Rural and rurban development

Urban refers to cities, rural the countryside and rurban is a term for what is in between. Areas which are neither urban or plain rural, with other words, a large portion of the Swedish municipalities and smaller towns.

Centralization, globalization and privatization have in the last couple of decades made a formerly alive and active countryside into spaces where people move from, public service can not be counted on. It is hard to get anything built in a location that is outside of the market. In politics one talks more about "fixing problems" in the countryside rather than providing any visions for it (Åkerman, 2020). The countryside has many possibilities such as land, empty houses and space. The obstacles are more structural and concern legislation and rules and lack of support and knowledge from the higher levels of society.

The desire to live outside the cities is significant. Surveys show that about one-third of Sweden's population wants to live in rural areas. The reasons are a different lifestyle, more space for less money, and living closer to nature. At the same time, access to infrastructure, services, meeting places, as well as a larger selection of housing and housing types are also requested (Åkerman, 2020).

But for population growth to happen, housing is also needed in rural areas. Despite depopulation and an aging population, there is a lack of housing even here (Åkerman, 2020). To cope only with the internal relocations within the municipalities, at least 50,000 new homes are needed outside of the urban areas (tätorterna). A wider range of housing forms is demanded and above all; smaller, cheaper and simpler accommodation (Bengard & Eklund, 2019).

The conditions for traditional housing construction outside the market's eye are limited and create a lock-in effect. Which means that many areas will be without local development and new housing. The conventional, market-oriented perspective must be supplemented with other approaches (Åkerman, 2020).

02.

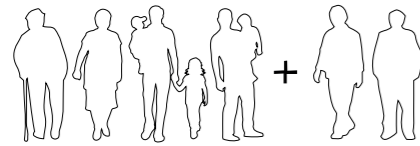
RESEARCH FOR DESIGN

From a historical perspective

A brief historical overview

of the single family development and the household

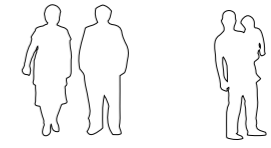
"1-2 persons household has gone from 14% in 1910 to 69% in 2010"



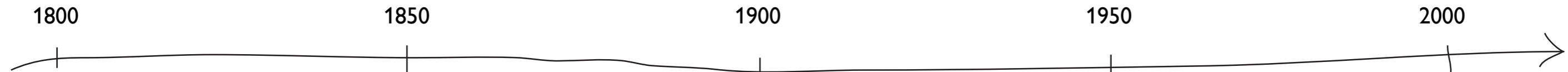
Large families with workers



The nuclear family



Smaller households



1800

1850

1900

1950

2000

9/10 swedes farmers

Beginning of industrialisation

Railway

Urbanisation

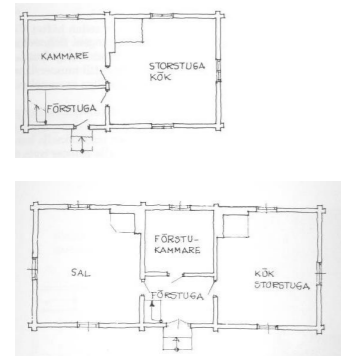
Funcionalism

Post war

Tv

Million program
-1/3 villas/row houses

Digitalisation



Single and double cabin
1-2 rooms, normal housing
for one family + workers

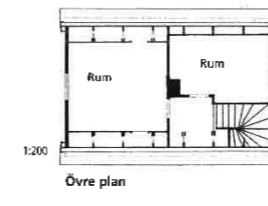


Övre plan
Skala 1:200



1890 workers villa, 69m²

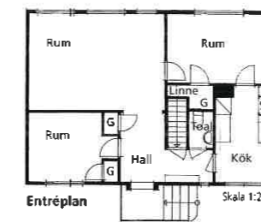
Large class-difference in newly
built villas. Upper class in 8-12
rooms and workers families in
1-3 rooms



Övre plan
1:200



1920, 70m²

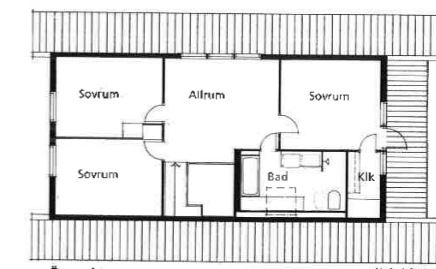


1930, 70m²

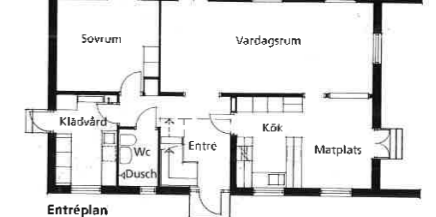


1920, 70m²

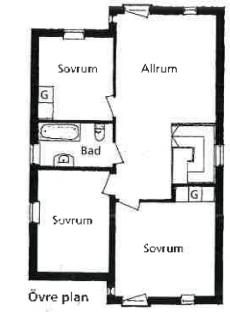
"Today we build
larger houses but
live in smaller
households."



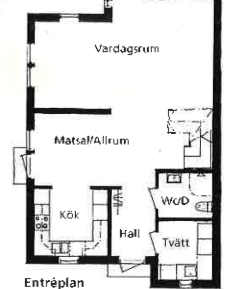
Övre plan
Skala 1:200



1970, 160 m²



Övre plan
Skala 1:200



2000, 170 m²

All floor plans from the book
"Så byggdes villan" (2009) by
Björk, Nordling and Reppen

"Norms of what is
"crowded" or "too
small" has changed
drastically".

Economy and housing

The development of single family housing has largely been affected by the residents' class and finances but also the country's economy.

Around 1900s villas outside the city for the upper class family could have 8-12 rooms while worker villas for a family or two shared 2-3 rooms and kitchen (Björk et al, 2009).

With political ambitions to improve the life of the growing middle class the garden city in the 1900s with inspiration from Europe was planned. It was followed by *egnahems-rörelsen* 1920-1960 which through political subsidised loans made it possible for workers to build their own villa with a yard possible to grow their own food (Björk et al, 2009).

As Sweden's economy improved after the war period large uniformed villa areas were developed. One third of the million programme was single and row houses.

Around the 1980s the villa was more or less supposed to reflect the individual personality and new technical products such as microwaves and the video pushed "freedom" for the individual and a normal villa could be about 160 sqm (Björk et al, 2009). Today we build larger houses but live in smaller households.

As a welfare state and a rich country we have not had to consider the use of resources as one had to historically. But as more and more global challenges arise it has become an important question again.

Home and work

200 years ago when 9 of 10 swedes were farmers, housing and work was one thing. The ones not owning land or properties were service people and the one they worked for was by law responsible for their provision and housing (Björk et al, 2009).

Around 1850 the industrial revolution and urbanisation led to new work and housing markets. The working class was created as well as a new housing market where the workers needed to rent housing disconnected from work and not directly connected to their work. Large industries however often built villa areas for workers connected to the industry. Villa areas outside the city have largely been seen as a way of escaping the crowded and dirty city where work happens (Björk et al, 2009).

During mid 1900, the home was shaped as a place for leisure and family life. Today, technical improvements and digitalisation has made it possible for many to work remotely and the distinction between work and home has again become smaller. During the covid-19 pandemic "working from home" has become a natural part of many professions which in turn changes the conditions of where it is possible to live.

The household

Housing is not always adapted to the needs of the household configuration. Before industrialisation the majority of people lived on the countryside, families of many generations and workers together normally

in a single or double cabin of 1-2 rooms (Björk et al, 2009). Working families during the industrialization normally had to share small housing units as the economy did not allow for adapted housing.

Until 1940 housing development was about providing each household with shelter, despite the size of family. 1-2 rooms and kitchen was normal housing and was no different for families or single households (Björk et al, 2009). During 1960s the view of housing standards changed and the households needs, rather than finances, decided their choice of housing (Andersson & Arfwedson, 2018).

Norms of what is "crowded" or "too small" have changed drastically. In 1940 the first "trångboddhetsnorm" (over crowded-norm) was introduced stating that there can only live 2 persons per room plus a kitchen to not be overcrowded. This means a 2 room + kitchen was ok for a family of 4. The third and current norm was created 1974 stating that each family member (excl. partners) should have one own room plus both kitchen and living room. This means a family of 4 (with two partners) should have 4 rooms + kitchen (Björk et al, 2009).

Around 1900s, the working class worked long days and their spare time short. The home was not the place for social life, instead men socialized with men, women with women and children with children. In the beginning of 1900, the home began to be designed as a place for leisure and where the mother could raise the children. The idea of the family, following

"Again, the housing stock is not matching the needs of the household configuration."

the bourgeois ideal, became the guiding principle for housing development (Andersson & Arfwedson, 2018). Most housing built after 1950 is based on the 1940s norm of the nuclear family (Karlsson et al, 2013). But since 1910, 1-2 persons' households has gone from 14% to 69% in 2010 (Andersson & Arfwedson, 2018). Again, the housing stock is not matching the needs of the household configuration.

Room functions

Through time, the function of rooms within the home have shifted. The kitchen has historically been used for work as well as sleeping. With improved finances the kitchen was separated from the dining space and only a place for preparation (Björk et al, 2009). Today with open floor plans the kitchen is seen as an important part of the social life.

"Finrummet", or the more formal version of the living room, has been a place for representation and one of the homeowners at Åstol told me that when the TV arrived to finrummet, "one still had to sit in the kitchen watching it from afar".

Technical improvements as well as technology have very much changed our use of space. The TV made it possible to be entertained at home rather than going to a public space and the microwave made cooking and eating habits more flexible (Björk et al, 2009). Today, headphones and smartphones make it possible for several activities to happen simultaneously in the same room. This has opened up for "being alone together" in a new way.

Single family housing today

In the background current problems regarding housing shortage, ecological and social sustainability as well as rural and urban development are described. Following are some challenges and possible opportunities linked directly to single family housing today.

Gap between ideals and statistics

40% of Swedish households live in a single family household and they can be found all over the country. The typology is developed and built based on the norm of the nuclear family but only a third of these houses are inhabited by two parents with children and a majority by only 1-2 persons as seen in the diagram (Kod architects, 2016).

The reason for this is mainly because we have children later, divorce more and live longer (Andersson & Arfwedson, 2018). The time period a family with children lives in a house is quite short and children today do not inherit the house in the same way as in former generational housing (Lindenthal & Mraz, 2015).

Villas are often associated with dreams of freedom, flexibility and privacy but research shows that with changed living conditions the maintenance of the villa and garden can become a burden and the housing situation a reason for increased social loneliness. (Lindenthal J, Mraz G, 2015)

Social resilience

Resilience is a term for how well something can adapt and develop in times of change. The only constant is change and everyone's lives change throughout time. Aging, divorces, having children and then seeing them move, becoming alone or a relative becoming sick. Social resilience is the ability to bounce back after or to even develop when change happens (Kod architects, 2016).

The lack of mixed housing sizes and forms of ownership in these areas makes it difficult to stay in

the district when ageing or in the event of changed living conditions like after a divorce. Together with high financial threshold makes these areas segregated and less inclusive for different types of households (Kod architects, 2016).

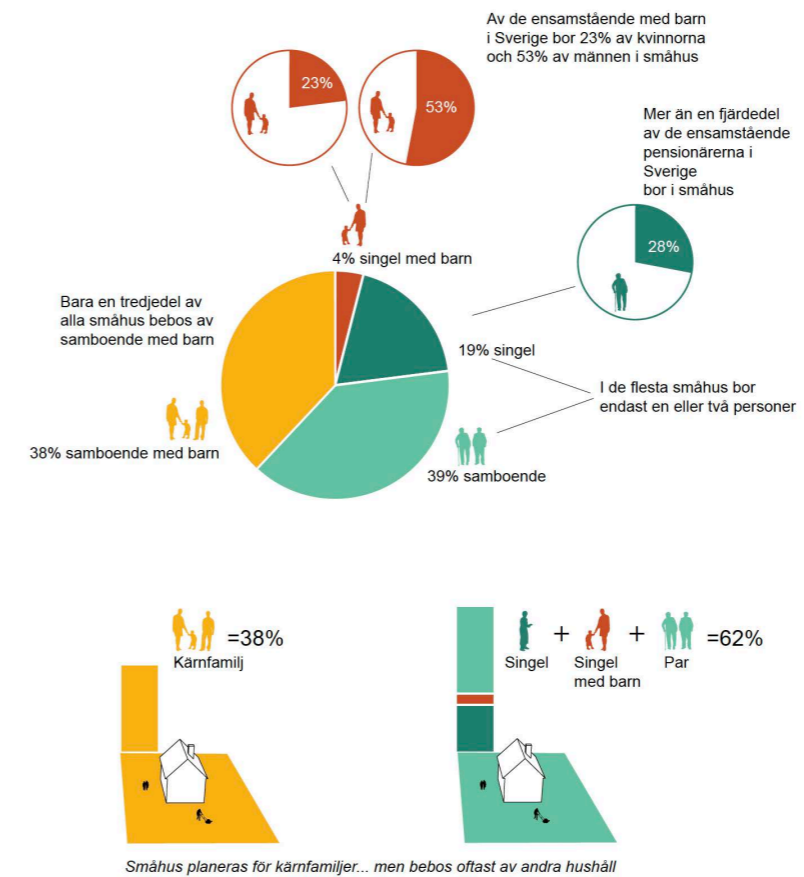
Seniors and villas

We live longer today and the portion of people over 65 years old is expected to grow in the future. Reports show that seniors have a hard time finding suitable housing solutions (Kod architects, 2016). Seniors often live in single family houses and in smaller municipalities this is the dominated housing form (SOU 2015:85). At the same time many have a wish to stay in their house or at least within the same community as long as possible (Kod architects, 2016).

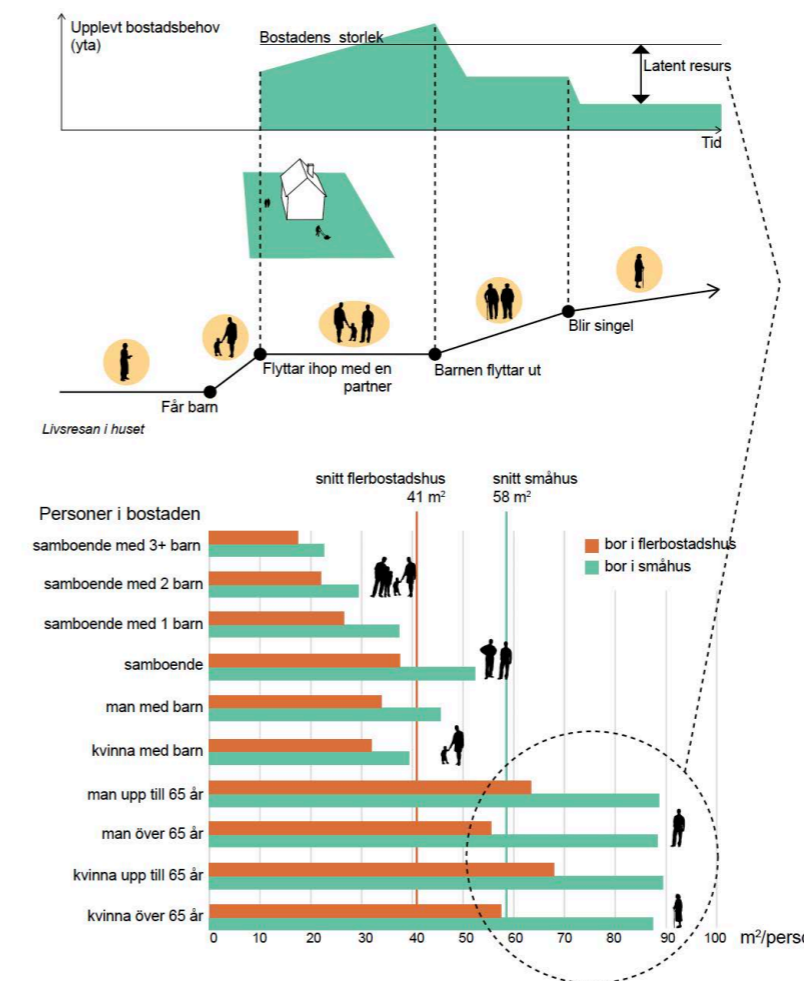
Reducing the workload of maintaining a house and wishing for a smaller living area are shown to be the main reasons why seniors move from their villas. Becoming alone in the household after a divorce or loss of a partner was also a huge factor (SOU 2015:85).

Statistics show that in Sweden 35% of people above 60 years old live alone. 1 of 5 seniors state they have no connection to relatives and that friends disappear with age (scb). Community and social relations are important for our well being, keeping the brain in shape and healthy longer (SOU 2015:85).

For many older people, expenses are rising but the pension goes down. Even if their house is worth a lot on the market, the money does not benefit them until they sell and move which is the opposite of what many wish for.



Average living area per person, household and housing form, Sweden 2014 (SCB, 500k Kod architects, 2016)



Division of household-types in small houses, Sweden 2014 (SCB, 500k Kod architects, 2016)

Legal framework

In 500k Kod architects state that the current detailed plan regulations for single family housing areas are outdated, do not serve our needs and therefore should be updated. The report states that increased opportunities for residents to adapt and share their homes, houses and gardens is the key to creating more homes in the residential cities of the future.

Common hindrances today for creating more housing is for example; that the number of housing per property is regulated, separate buildings (gårdshus) can not be used for housing or that there is a maximum of one housing unit per plot (Kod architects, 2016). This is what the policy 500k suggests should change by updating detailing plans.

The policy will not be presented further in this thesis. However, Kod have also summarized 4 main strategies for how an area can be developed based on the new policy which will be used further on in this thesis.

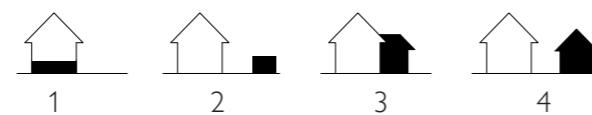
Change over time

Buildings change over time to fit our needs. As we have seen, the single family typology has potential to create new housing solutions. Even a new addition created for a relative should in simple ways be transformed to a rental for a stranger with larger needs of privacy.

The goal of the policy 500k is to propose updates to detail plans so that they can allow the houses to an larger extent follow the changing needs of the inhabitant and society as a whole.

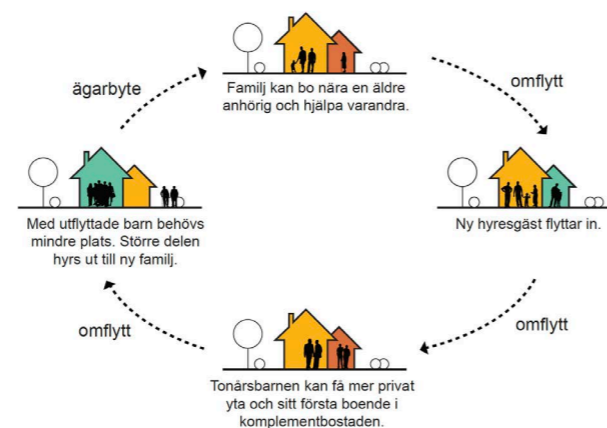
Strategies for development

The four strategies to develop the single family house based on Kod's proposal of updated detail plans are;



1. Existing house is split into several housing units
2. Separate building (like a garage) is turned into housing
3. Housing is created through additions
4. New separate housing is built on plot

Creating new housing solutions within the existing can start off new moving patterns or make it possible to stay in house while also giving space for new inhabitants (Kod architects, 2016).



Moving chains made possible (500k Kod architects, 2016)

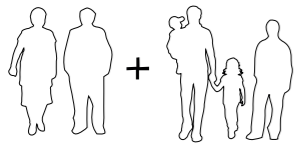


Additions to a villa on Åstol. The clear shape of the original villa makes it still readable despite multiple additions.

Sharing a home

The norm in Sweden is to share your home with the immediate family. But as we have seen there are many good reasons to look for alternatives. Lets take a look at some of those.

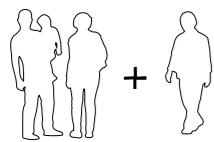
Common ideas of sharing



Generational housing

Relatives living together not as common today as historically. In many cultures this is still the most natural solution.

What is important when sharing with non-relatives?



Inherent (inneboende)

Small part or just a room rented out. The size of the apartment makes it only suitable during a shorter period of time (students or temporary housing). The quality of the housing can sometimes be questioned.



Corridor / coliving

Often associated with youth and a lower standard. Today with more single households, an aging population and smaller families the question is;

What is important for collective living to work in adult age?



Seasonal rental to student

A common solution is to rent out part of home to student during the study periods. This can give owner possibility to use rooms during holidays for own guests.



Vacational rental

Another common solution is short term rentals during summer or specific weekends.

This can give the owner additional income. It supports tourism but does not solve the need of more housing for permanent residents.

Coliving

Coliving and cohousing communities are designed to create a sense of community and social interaction among residents, while still providing individuals with their own private homes.

By sharing one can get access to even more. Some of the benefits of cohousing are; sharing costs, workload, responsibility, shores while being able to keep private life. Getting access to company and being able to live "alone" in house longer has great health benefits.

Architectural office Theory into practice (TIP) has good experience in designing shared housing solutions for example for both students (KTH Live-In Lab) and seniors (Max4Lax). Following is a glimpse into what can be learned from them;

No one wants to live in an institution. It is important to get away from a corridor-feeling and instead create an experience of a home.

Shared space should not be forced on you. Make it possible to move between entrance, private space and bathroom without crossing shared space.

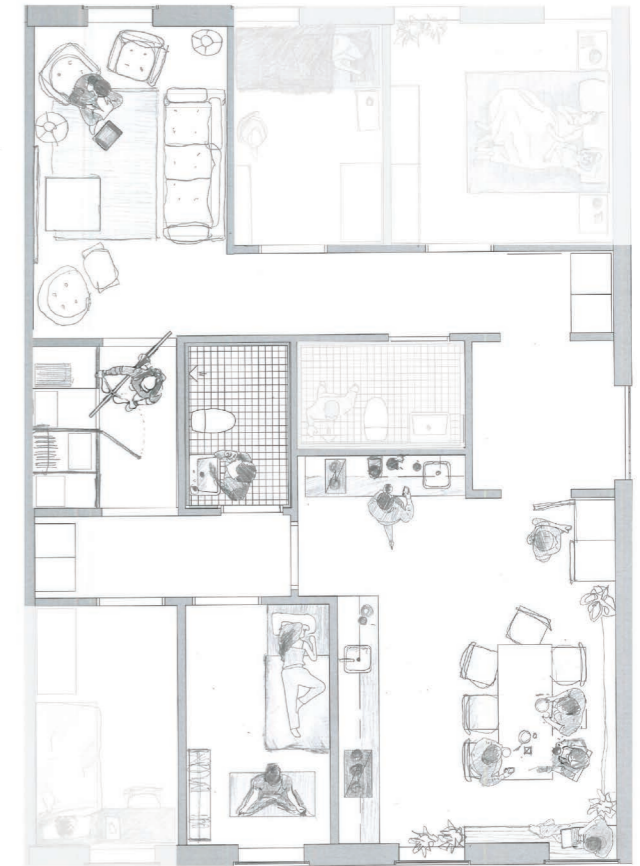
Private space with room for more than just sleeping.

Space for belongings. Especially important for seniors since they have lived a long life and bring more into the household.

Shared spaces where different activities can happen at same time. Allowing people to "be alone together" For ex dividing shared space into two rooms.

The kitchen is often the core of interaction. Make sure it is multifunctional and space for more than just one preparing food.

Important to begin with a social framework of people with positive and realistic attitude willing to make it work.



Coliving by Theory into practice in KTH Live In Lab

Models of ownership

Äganderätt (ownership right)

Provides individuals with complete control and ownership over their property.

Bostadsrätt (residential ownership)

Provides a form of shared ownership and the right to occupy a specific unit within a cooperative housing association. High stakes, low fee

Kooperativ hyresrätt (cooperative rental housing)

Residents collectively own and manage a rental property. Residents do not own the actual units they live in but rather have a right to use them as long as they are members of the cooperative. Low stakes, higher fee.

Hyresrätt (rental housing)

Individuals or households rent space from a landlord or a housing company.

Åstol

The project is carried out within the context of the island Åstol in the Västra Götaland region. On a cliff surrounded by the ocean sits 187 houses that up to 500 full- and part-time residents today call home. The islanders note that life here is something unique and a local resident expressed that; "The island is like a ship and we who live here are the crew". The limited space they share has given rise to a strong sense of belonging.

On Åstol it is not possible to build anything new since all land is occupied with houses. This makes the existing built environment a limited resource and the community is pushed to develop within it.

Thus, the island becomes a good example of how to grow, thrive and develop within limited boundaries. A great start for learning about sustainable development.

Historical development

The natural harbour, fishing and the strong herring-periods made it possible for people to inhabit the island already in the 1760s. Since fishing disappeared in the 1960s, the number of all year-round residents has unfortunately been steadily declining. When the industry that made it possible to live on Åstol disappeared, many moved and the majority of those who live here today are either retired, commuting or can work from home. The old fishing community has changed, and half of the houses are today owned by part-time residents. The local community depends on the large seasonal tourism to keep the grocery store and ferry going.

Future visions

The population of Åstol has a history of strong local engagement. Even today, society is developing

to a large extent by non-profit work and the local population themselves push big issues concerning for example ferries, shops and schools. There is a strong dedication in seeing the society survive and develop but also a fear in losing what has been.

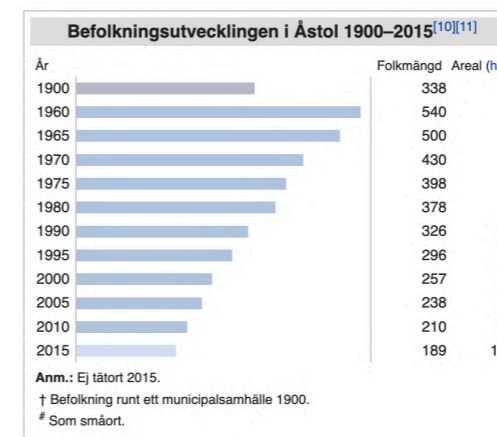
During 2019-2020, Åstol participated in Västra Götaland region's project "Martin Service och besöksnäring" (Maritime service and hospitality industry). A local workgroup of 15 people representing various associations on the island was formed to discuss the development of Åstol. One of the four areas of development they identified were housing, where they stated that they want to "Promote full-time housing by strengthening community services such as ferry, shop and parking." As well as "create different forms of housing, develop Åstol's offer of activities and strengthen Åstol's heterogeneous population." (Maritim service och besöksnäring, 2020)

Strengthening tourism is a common strategy for development in these kind of areas but does not necessary support Åstol as a living society all year round. During the pandemic it has become clear how digitalisation creates new opportunities when it comes to where and how to live. When you can work from home some days during a week, places like Åstol can become more attractive as a place to live. The sea is sometimes referred to as the "future new arable land" and an even more developed space for production of food and energy (for example with wave power and algae cultivation). Even though digitalisation and the sea are creating new opportunities, Åstol's land area is still limited.

As it is not possible to build new today, the only opportunity that remains is to work with what already exists.



Photo by Gustav Tillas



Depopulation since fishing ended in the 60s (scb)



Åstol today (numbers from Åstols framtid, Bohlin 2020)

Housing

The housing consists mainly of the 187 villas with households of 1-2 persons, but many of them are in three stories with room for many more. The limited number of houses with rising prices makes it difficult to move here. The local community is also made weaker as more and more houses are sold to summer guests. Despite aging, many people still live in their large houses as other forms of housing are lacking on the island. In a sense, the current housing conditions make it hard to both stay on as well as move to the island.

Some of the houses are built in timber and stone but the majority in plank. The oldest houses remaining today are "single houses" (enkelhus) consisting of one kitchen and one room called "storstugan". After 1850 this once was built with an additional room called "kammare". It was also common to raise the roof to make sure the attic could be inhabited. During the same period it became more common to build "double houses" (dubbelhus) which were two rooms wide and therefore had four rooms in total surrounding the centrally placed chimney (Husen på Åstol, 2021).

Some houses were placed quite close to the bedrock but in the beginning of the 1900s one started to make the foundation higher creating a basement, often with room for a "summer kitchen". In many cases houses without a basement were lifted to create space for one (Husen på Åstol, 2021).

Meeting with locals

Eight weeks into the project I had planned another visit to Åstol. I took part of their weekly fika with the goal of presenting my ongoing work and discuss potential transformations. After my introduction each group discussed the questions seen on next page, with the help of printed questions and post-its. We ended with a common discussion.

Overall, the 10 people joining the meeting recognized the problems described and were interested in hearing about and discussing what solutions and opportunities there is to be found.

"Smaller apartments with some shared spaces should be created to improve social life and reduce individual workload." -Houseowner at Åstol



Common meeting at Åstol



Questions and summarized answers

Describe your future vision for Åstol

Everyone agrees; A living society with more residents in all ages living here all year round.

What do you think of your own housing situation - today and in the future? (reflections, dreams, worries)

It is good and can not be cheaper - could possibly rent out during summer. Can imagine renting out to younger family. Would want accessible bathroom. Smaller apartments with some shared spaces should be created to improve social life and reduce individual workload. Wish to be healthy and live in a thriving society. Worry to become lonely in a big house when aging. Worry of a depopulated island and only few people living here.

What would be difficult with renting out part of your home?

The decision of doing it when you are used to something else. Feeling of someone intruding your private life. To get along with tenant. Sharing entrance or worries about needing to access rental to reach different functions in basement such as laundry. Sounds and noises. Need to create more bathrooms on other floors. Renovations. Sharing quite small outdoor spaces since they all are often used depending on wind direction. Need of space for visiting guests.

About the group

10 participants in ages 60-80

3 men / 7 women

The majority grew up on island or have lived here for a long time

One of the participants owns one of the houses in my study.

What would be the possibilities with renting out part of your home?

Improved financial situation - especially if you are alone. Increased social life and safety. With more residents it is easier to secure services such as grocery store. Large houses. Living houses and a living island.

Who would you want to create housing for?

Pensioners, families with children, everyone who would appreciate beautiful Åstol, someone wanting to live here all year round. Close friends, relatives and strangers if it is a good match.

Concluding - motivations and hinders

The following list of motivations and hinder on societal, neighbourhood and individual level is meant as an overview summarizing the research for design.

MOTIVATIONS

societal level

- a larger & more varied housing market
- saved virgin land & reduced urban sprawl
- making use of existing infrastructure
- energy & resource savings

neighbourhood level

- enlivened society
- increased support for societal services
- can support shared resources
- variated housing solutions
- needs of an aging population

individual level

- create housing for relatives, friends or others
- shared cost and work
- improved social life
- improved safety
- resilient living in times of change
- contribution to local development
- get to know new people

HINDERS

- building regulations & detail plans

- emotional attachment to building
- resistance to change status quo
- fear of conflicts
- fear of loosing privacy and control
- fear of bureaucracy/complicated things
- want freedom in use of extra space
- want space for guests
- fear of noise
- not in need of the extra money
- costly renovations
- reduced amount of outdoor space



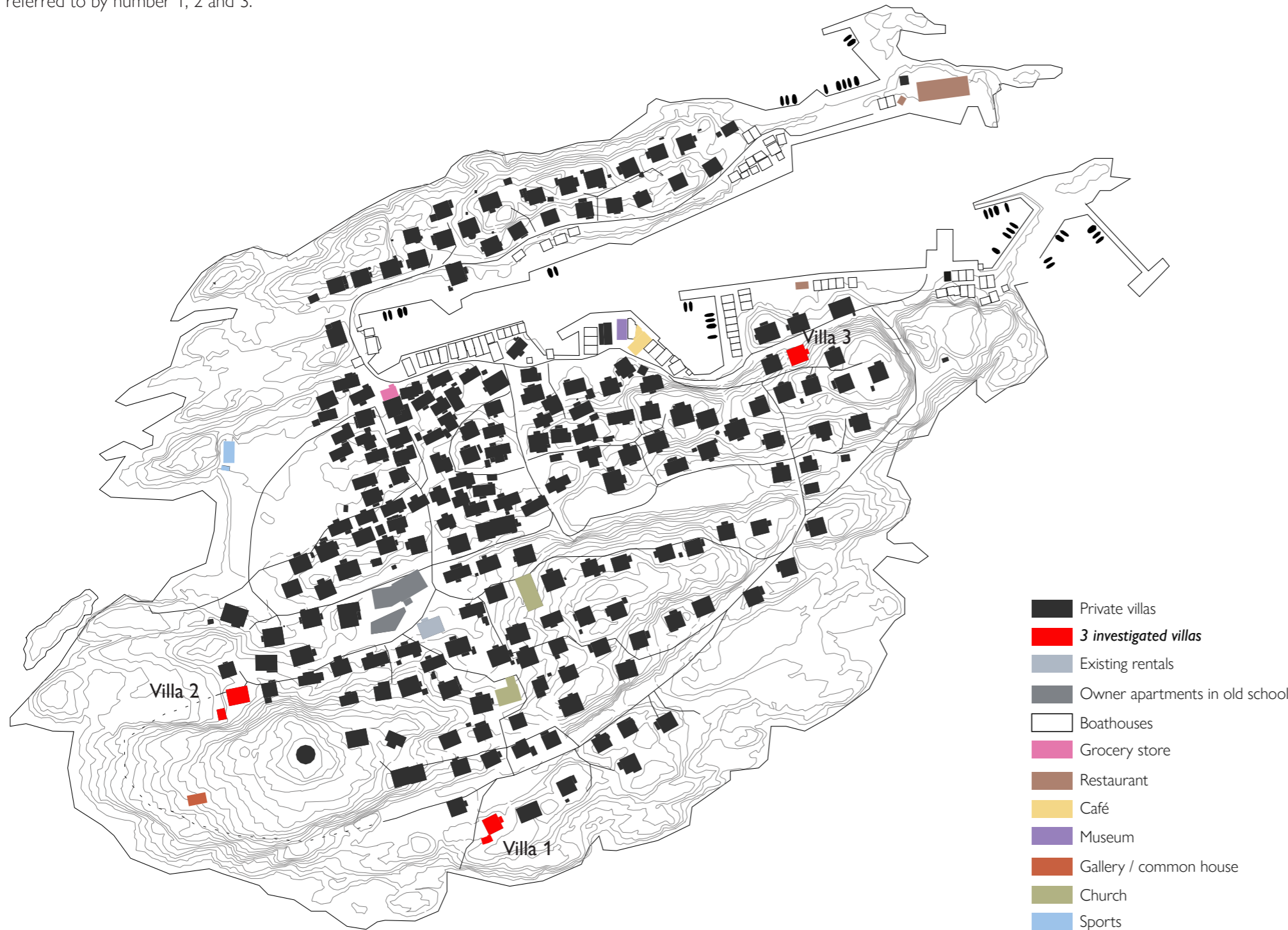
Former children room in one of the villas

04.

RESEARCH BY DESIGN

Site

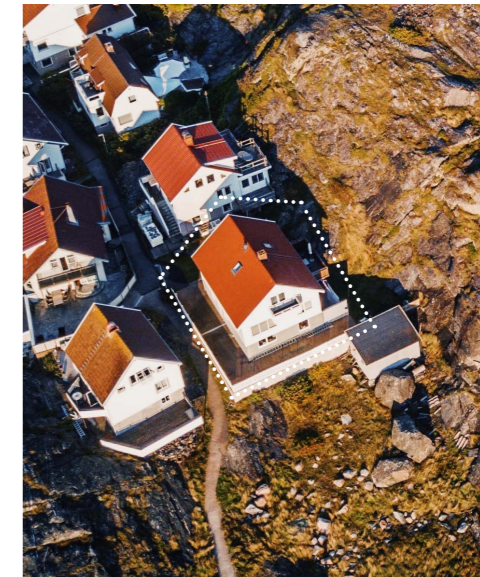
For the project three villas on Åstol were chosen for investigation. For simplification the villas are now referred to by number 1, 2 and 3.



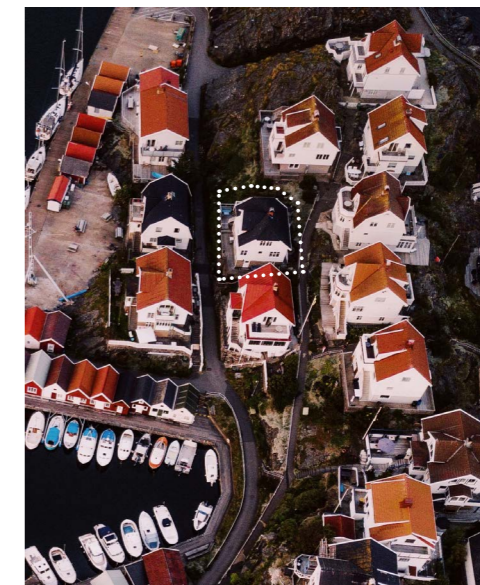
1:2000



Villa 1
Built 1956
8x8 m



Villa 2
Built 1964
8x11 m



Villa 3
Built 1934
8x9 m

Photo by Gustav Tillas
Houses seen from west

HOUSE 1



Built 1956
8x8 m
3 stories

"We have too much space for socializing"

"As a couple we are different when it comes to privacy or control regarding renting out"



Today

Two pensioners on three floors.

"It is possible to build attefallare or greenhouse in front of house"

The house

- + Ocean view in southwest
- + There is some space on plot to add volume
- + Possible to build a separate staircase
- slightly worse light conditions in the basement due to the terrace

HOUSE 2



Built 1964
8x11 m
3 stories

"We built this house and want to live here as long as possible"



"Not sure what to do with basement next"



Today

Two seniors which previously rented out 2 rooms in basement to adult daughter which has moved out.

"The walls are very poorly insulated"

The house

- + Ocean view in west
- + Basement good potential for housing
- + Plot large enough for additions
- low roof and centrally placed staircase make it harder to turn attic into separate housing
- main floor limited access to outdoor space
- +/- built in 60s and in need of some renovations

HOUSE 3



Built 1934
8x9 m
3 stories



"The previous owners were 70+ but moved as it got to difficult with all the stairs"



Today

A middle aged couple using house as vacational residency but plan to move here one day.

"Windows needs to be replaced or renovated"

The house

- + Separate staircase
- + Good conditions for separate housing in attic
- + Spacious main floor and attic
- no large bathroom main floor
- worse light conditions i part of basement due to terrace
- bad base conditions for accessible housing



Qualities and challenges of the villa

Following is a summary of the analysis of the three villas at Åstol as well as of findings from research. It highlights some qualities of the typical villa which can make it a good starting point for developing additional housing in but also challenges which should be considered.

Facade area

Villas often have a lot of facade area which can provide the building with light and views in many directions. This raises the opportunities of using and re-designing the house in more than one way.

One prominent floor

Villas often have one prominent floor and in the three villas on Åstol it is always the middle one. Basements and attics are built as additions and have lower ceiling height and smaller windows. Improving these floors is often about replicating some of the qualities found on the main floor.

General rooms

The historical basic structure of the older double-house with four quite general rooms surrounding a chimney makes it flexible and able to change usage over time. When creating new housing this generality of rooms is important to consider to allow the house to be able to change over time and with new needs.

Outdoor space

Access to private outdoor space is an important quality in villa areas.

The accessible floor

One floor is often the accessible one and on Åstol it is often the “basement” which many times is placed above ground. The direct access to the outside has created the tradition of inhabitants moving down there during summer. This layout can be seen as a challenge for the rest of the house but also an opportunity to create good housing in the “basement”.

Space for stuff

Many sqm in villas are used to store our stuff and belongings. This is an important aspect to consider but also to challenge.

Expectations of the villa

When people move to a villa they expect more compared to an apartment. Some of these things can be additional space, higher level of privacy or direct access to garden or outdoor space. When creating more housing within the existing these are qualities valuable to maintain or recreate.

Sound

Bad insulation in between floors and rooms can raise the sound level in a house and become an issue when sharing it with others. There are technical solutions to reduce noise but one design strategy can also be to not place private rooms next to each other without a buffer zone reducing the sound.

Sense of home

Villas have a “sense of home” already from the start compared to a corridor or institutional housing. When sharing a home with others, this can be a valuable feature reducing the feeling of a student corridor or retirement home.

Size

The size of a single family house and its plot can ofcourse vary a lot and this is a factor which is very determining in how it can be transformed and what type of households it is suitable for. But even a small addition can change the usage of a house quite drastically.

Implementing research to Åstol

The four strategies below from the report 500k (Kod architects, 2016) were applied to the villas at Åstol as a study of what is possible on the island.



1. Existing house is split into several housing units
2. Existing separate building (like garage) is turned into housing
3. Housing is created through additions
4. New separate housing is built on plot

Analysis:

On Åstol the plots are small and the villas are placed close together. Strategy 4, building new separate housing on plot, is therefore not an option. The smaller size of an Attefallshus of 30 sqm can however be an option in some cases but as 500k states it is rarely large enough for a permanent or accessible residency.

Strategy 2 is not a strong option on Åstol as separate buildings on plots are of very small sizes such as sheds or old outhouses. The island is car free and therefore has no garages available to transform. The closest Åstol gets to this strategy is to develop the boathouses in the harbour into housing. An interesting project but however outside of this thesis focus area.

Strategy 3 can work well here since even the smallest additions can change the possible usage of the whole building.

Strategy 1 is the most obvious one working for Åstol since most villas have three furnished floors inhabited by few residents.

Alternative transformations

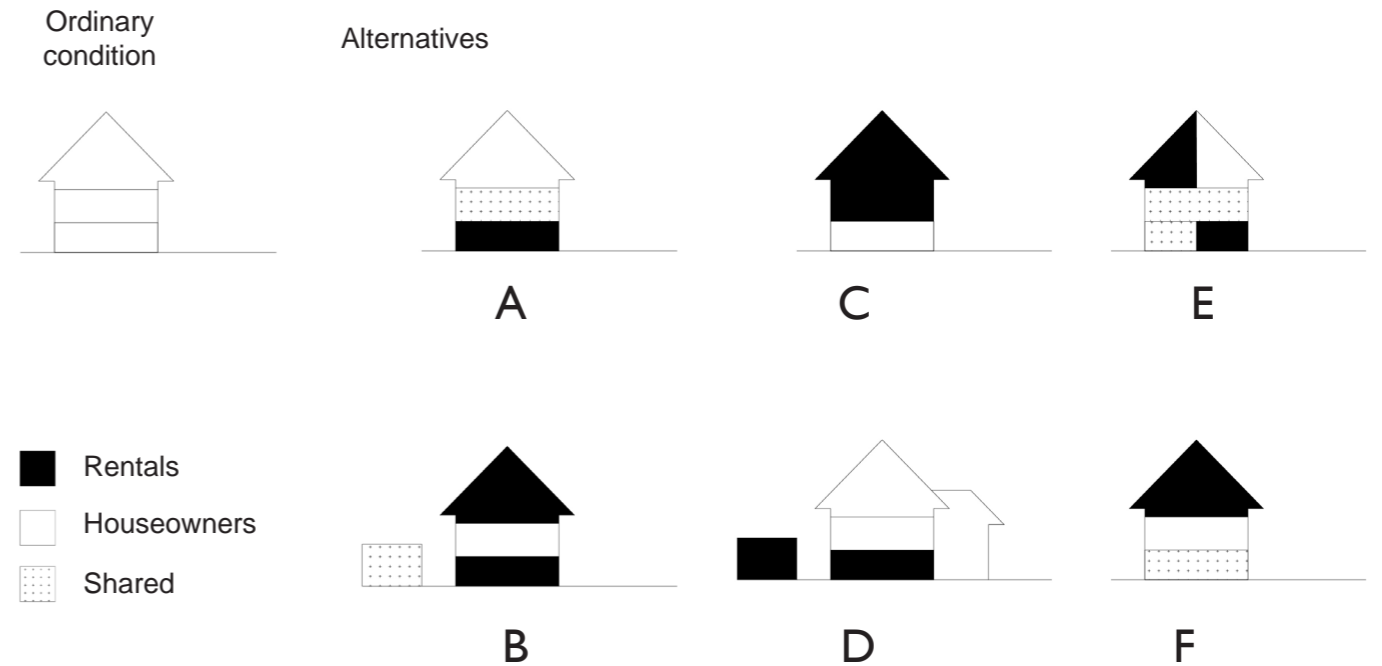
When developing the strategies even further in relation to the specific conditions of each villa, 6 alternatives were created.

The illustrations show owners' space in white, rental in black and shared as dotted.

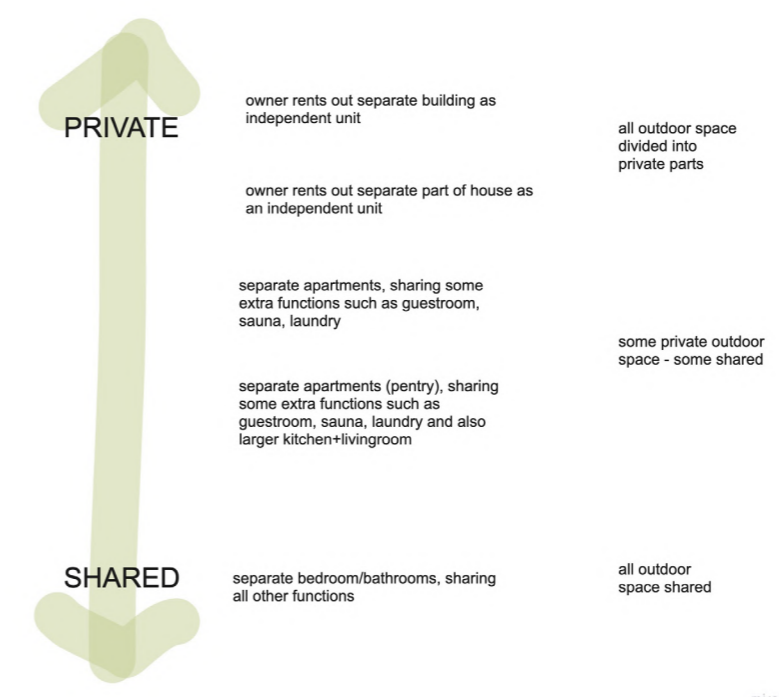
Together they show various possibilities of how a villa can be inhabited and shared.

Levels of sharing

The balance between private and shared space has been found as one of the most important questions when people consider living closer together. All alternatives were somewhat evaluated according to this scale and developed to show a variation.



Alternative transformations



Levels of sharing

HOUSE 1

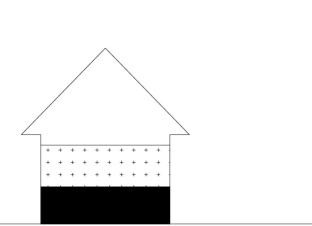


Alternative A

TWO PRIVATE UNITS, SHARING MAIN FLOOR



Smaller changes



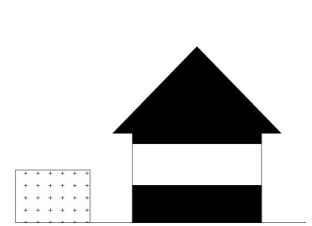
Two private units sharing main floor with common kitchen and living room

Alternative B

GUEST/RESOURCE UNIT + APT EACH FLOORS



Larger changes



A community shared guest house making it possible to maximise space for housing with one unit per floor

HOUSE 2

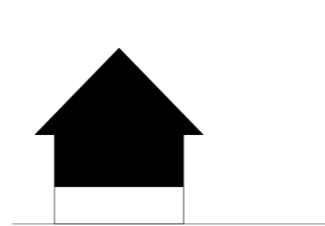


Alternative C

MOVING DOWN TO BASEMENT



Smaller changes



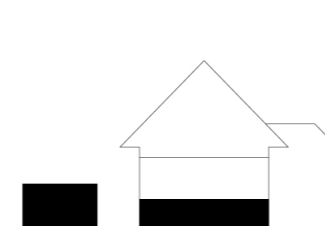
Senior adapted apartment in basement - renting out top floors to family

Alternative D

ADDITIONS GIVING SPACE FOR 2 LARGER HOUSEHOLDS



Larger changes



Smaller additions giving space for two larger households

HOUSE 3



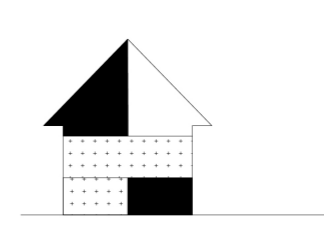
- Rentals
- Houseowners
- Shared

Alternative E

THREE PRIVATE PARTS - REST IS SHARED



Smaller changes



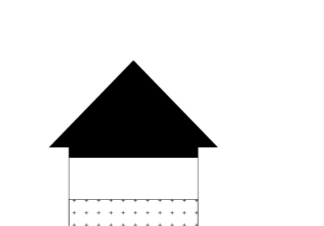
Three smaller private units sharing rest of house

Alternative F

TWO APARTMENTS - SHARED BASEMENT



Larger changes



Two separate apartments top floors with shared functions in basement

DESIGN PROPOSALS

This chapter will go through the developed proposals based on the research and alternative B, C and E from previous studies.

Desirable qualities

From the research and all design studies a set of desirable qualities could be summarized. This is a list of concluded qualities important to consider in order to be able to create good housing within an existing villa. These qualities have in turn been used in analysing the proposals and can be found highlighting different aspects of the proposals on the next pages.

FLEXIBILITY

ability to change over time and be used in different ways



GENERAL SPACES FREE OF USE

Rooms not designated to just one function. Not too small or specific in what it can be used for



CIRCULATION

Movement between rooms in more than one way. Makes space feel larger



SEPARATE ENTRANCES

Enables access to house from more than one direction



SPACE TO PERSONALISE

Ability of space to be adjusted to personal wishes

BALANCE BETWEEN PRIVATE AND SHARED

spaces important to balance when sharing home with others



BUFFER ZONE

Space inbetween increasing level of integrity



PRIVATE SPACE

Secluded space with room for more than just a bed



SEMI PRIVATE SPACE

Space giving a sense of belonging without demanding investment



SHARED SPACE

Well functioning spaces large enough for multiple activities and to "be alone together"

FUNCTIONALITY

making a space work well



SEPARATE VERTICAL CONNECTION

A separate staircase increases ability to move inbetween floors secluded from the rest



ACCESSIBILITY

Space prepared for when it is not as easy to move around anymore



ACCESS TO EXTRA SPACE

Something extra making life easier or creates opportunities like guestroom, veranda, hobby-room



USABLE SPACE

Increasing amount of space being functional in home

ATMOSPHERE

improving the experience of a space



LIGHT

Sufficient daylight important. Light from directions change experience of space throughout day



SIGHTLINES

Ability to see far accross home, preferably out into the landscape



ACCESS TO OUTDOOR SPACE

A cheap way to enlarge the living space without building more



SHELTERED SPACES

Wind, sun and rain protected spaces in close relation to home

HOUSE 1



Today

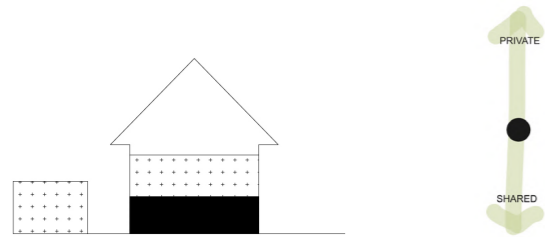
Two pensioners on three floors.



Proposal

An additional "resource unit" is placed on plot which can work as temporary housing for short term rentals or guests.

This reduces the need of extra space within the house creating room for two couples to share the main building.



Two households with larger private spaces sharing main floor with kitchen and living rooms + the resource unit

Main transformations

- added 30m2 unit
- moved staircase
- reduced space for installations



Photo by Gustav Tillas



"Even if these additions are quite small, they can preferably be planned in a way which allows several alternatives in usage."

"Creating a strong shape matching but not mimicking the iconic villa."

Adding resource unit

Many have a need for additional space once in a while for visiting guests, storing tools or a home office.

Adding "resource-buildings" inbetween houses can be a way of freeing up space within the houses, space which in turn can be made into housing.

This can also push a community into sharing resources to a higher extent. Stuff make up large part of the space in the houses but sharing more inbetween the community could reduce the need of private ownership.

In the example of House 1, the homeowners can share the resource unit with the other residents as well as renting it out to the rest of the community when needed.

Even if these additions are quite small, they can preferably be planned in a way which allows several alternatives in usage. This can be done as in the proposal of House 1 by creating general room sizes with own entrances which both can reach a separate unit of pantry and bathroom. The space can be flexibly used as either bedrooms, social spaces, home offices, creative studio or storage.

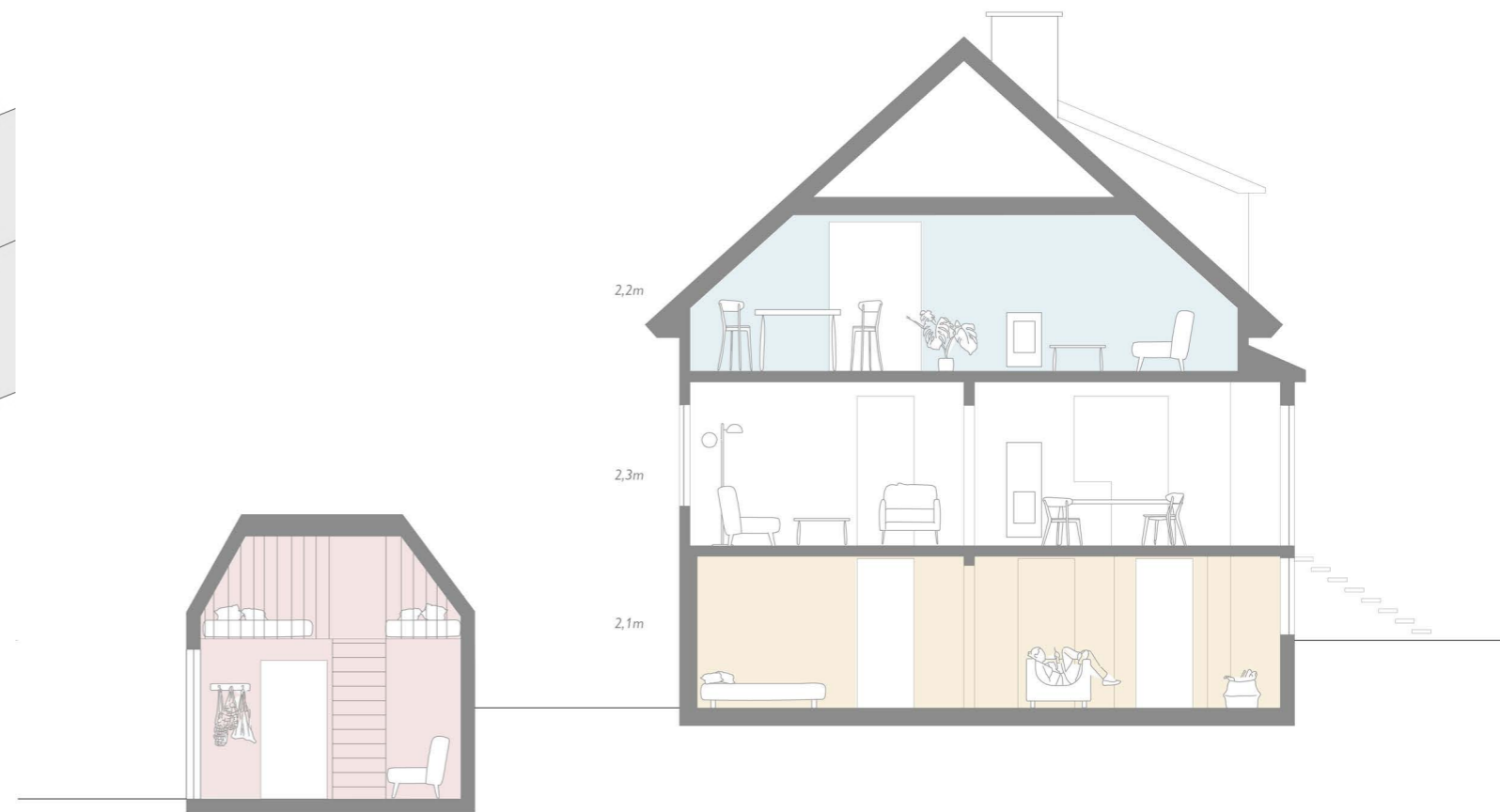
The design behind the resource unit comes from wanting a shape which can fit into small and irregular plots. The roof is high where loft is and gives it the look of a rock, melting into the landscape - creating a strong shape matching but not mimicking the iconic villa.



Siteplan after 1:200

Access from north, ocean view towards southwest.
Drawing showing new resource building and extended entrance unit.

- Existing building
- New addition



Section after 1:100

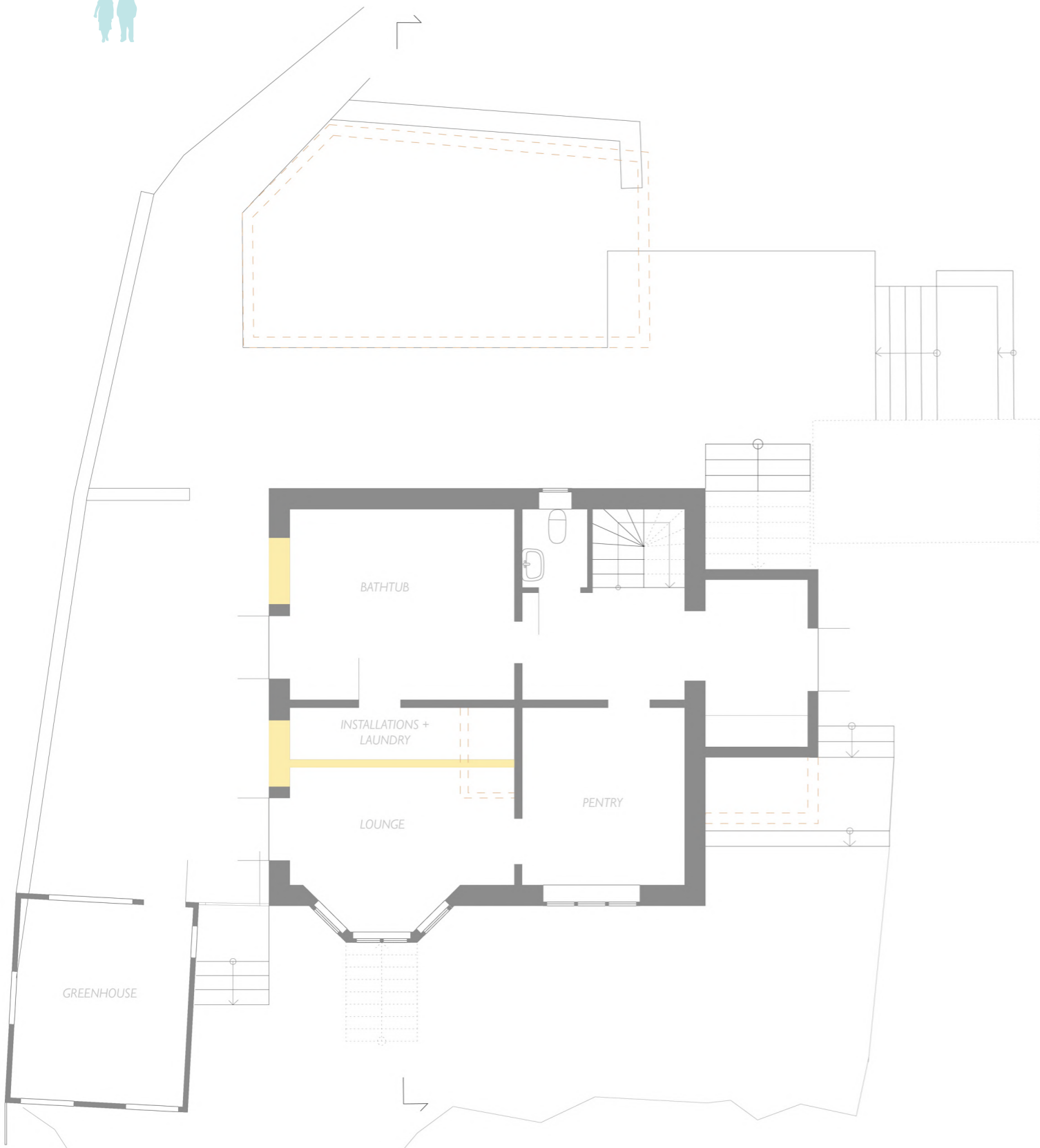
Two smaller households share middle floor
+ additional space in resource unit



RESOURCE UNIT
access to extra space



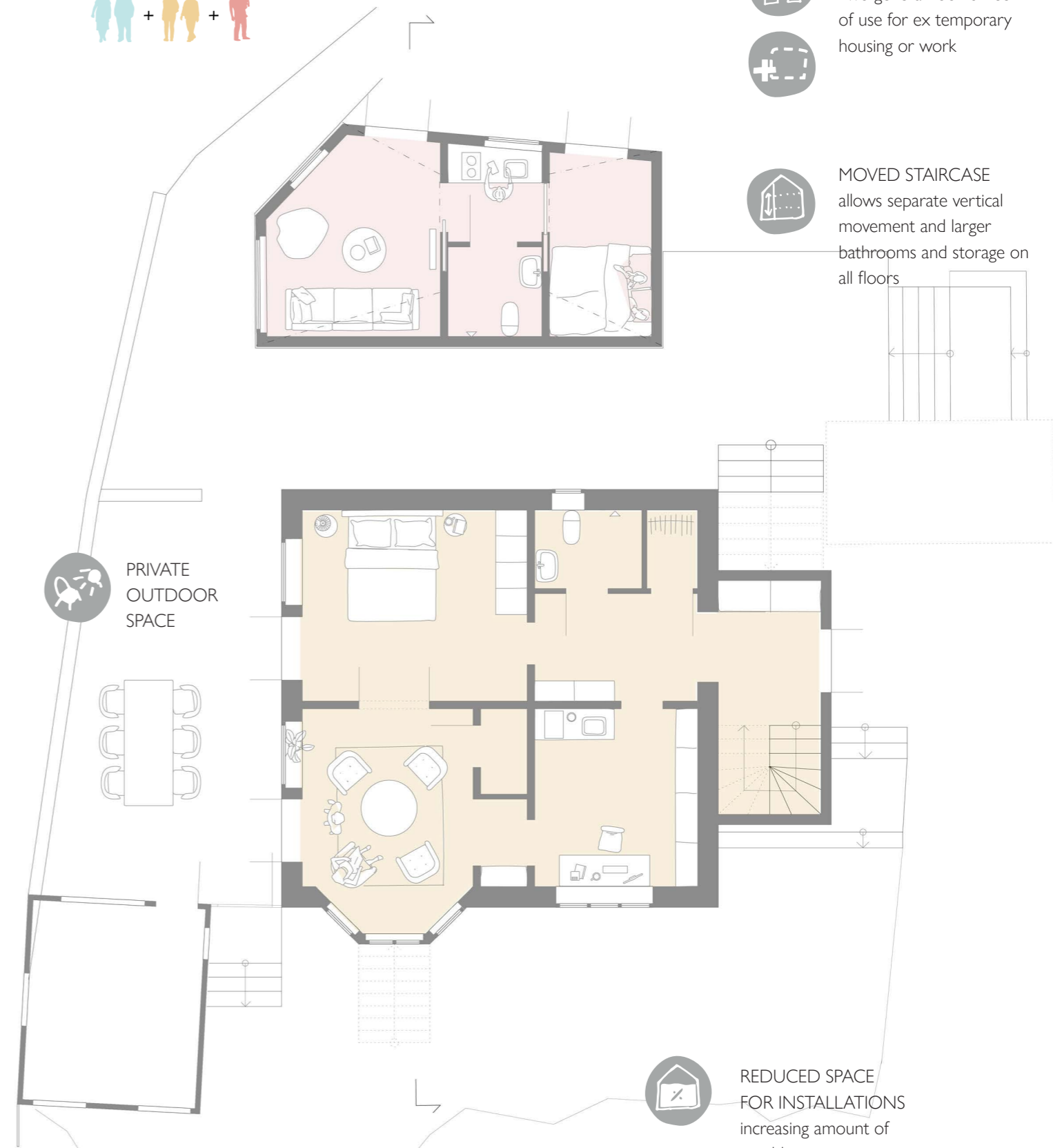
BUFFER FLOOR
shared floor as a buffer
for more integrity
between private floors



Basement before 1:100

Basement with current extra kitchen, living room and larger bathtub.

- Removed
- New addition



Basement after 1:100

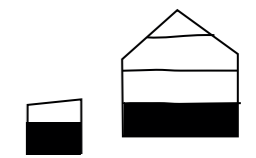
Private space for one household as well as resource unit in north

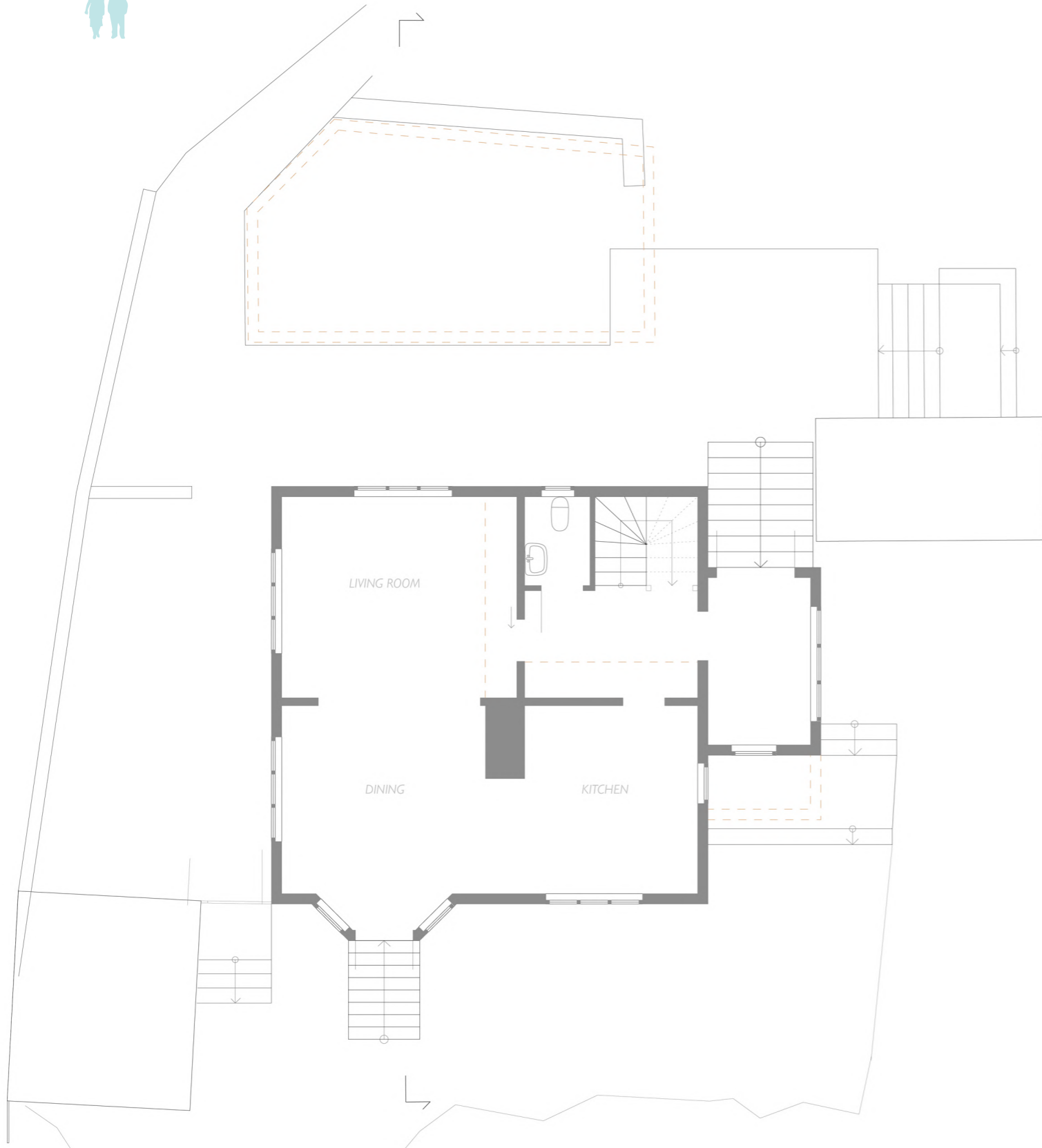
- REDUCED SPACE FOR INSTALLATIONS increasing amount of useable space

- RESOURCE UNIT
Two general rooms free of use for ex temporary housing or work

- MOVED STAIRCASE
allows separate vertical movement and larger bathrooms and storage on all floors

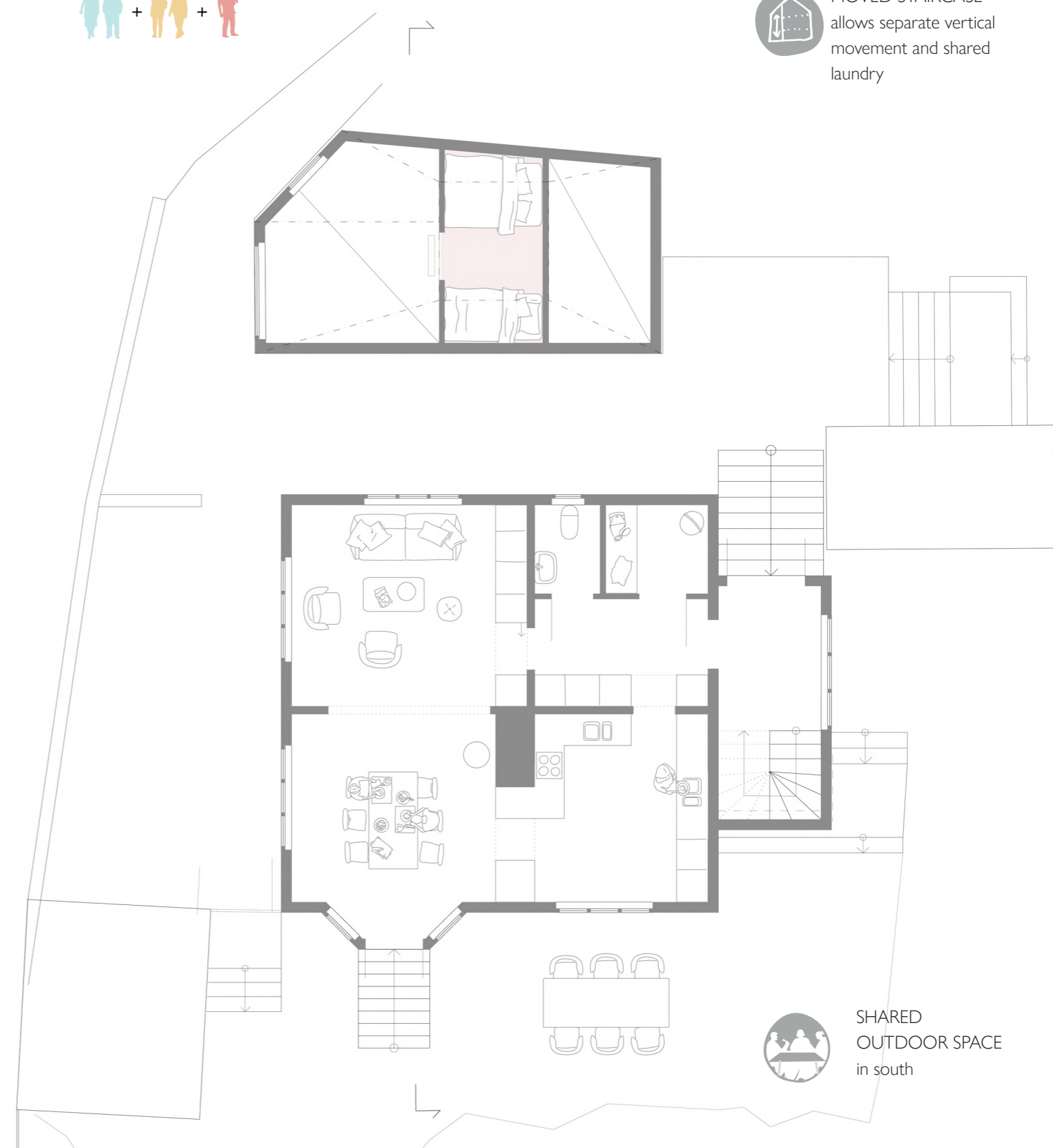
- PRIVATE OUTDOOR SPACE





Main floor before 1:100

- Removed
- New addition



Main floor after 1:100

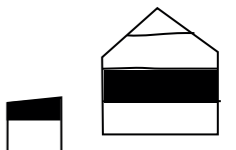
Shared floor between household as well as loft in resource unit



MOVED STAIRCASE
allows separate vertical
movement and shared
laundry

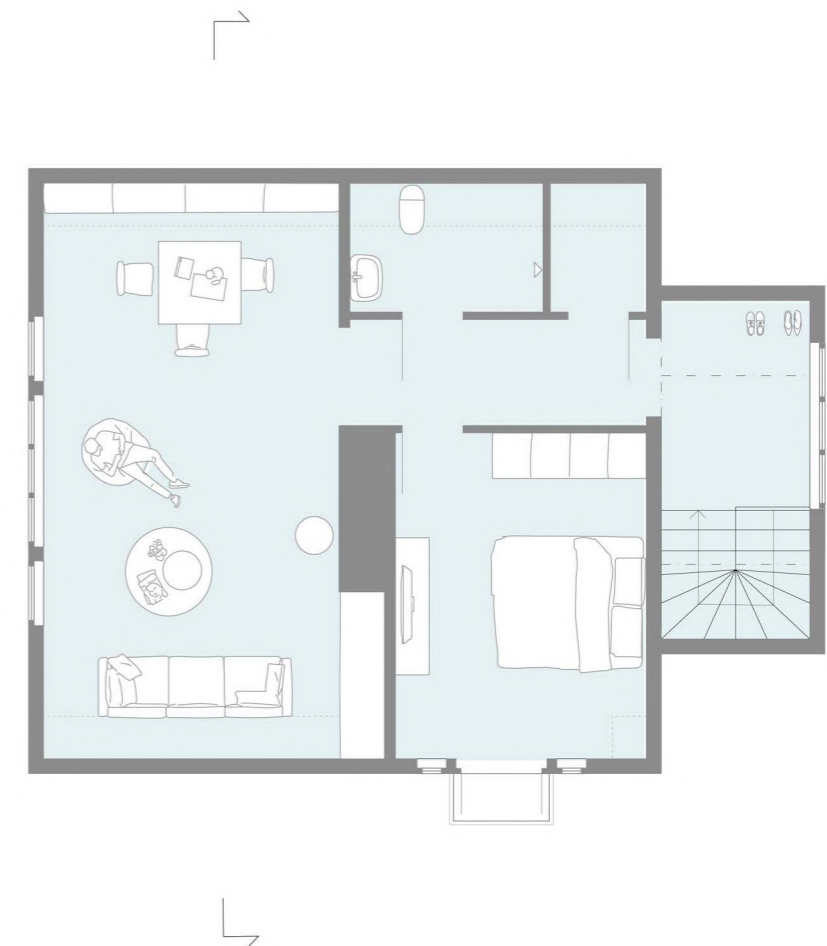
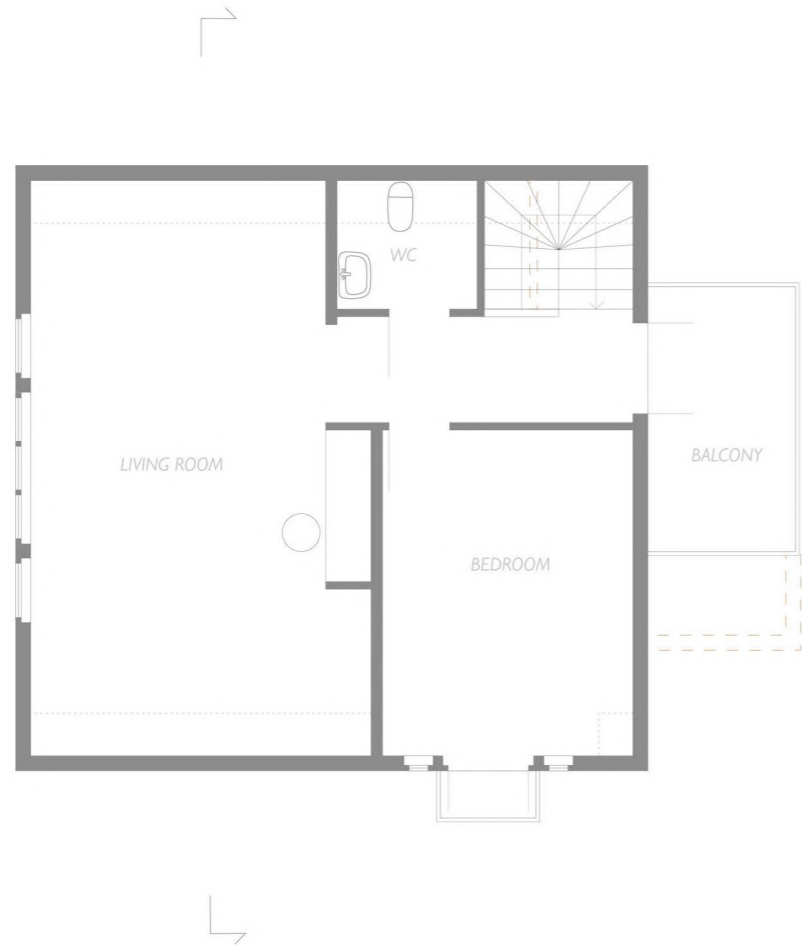


SHARED
OUTDOOR SPACE
in south





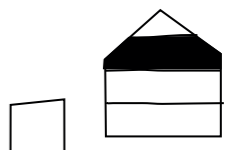
MOVED STAIRCASE
allows separate vertical
movement and larger
bathrooms and storage on all
floors



Attic before 1:100

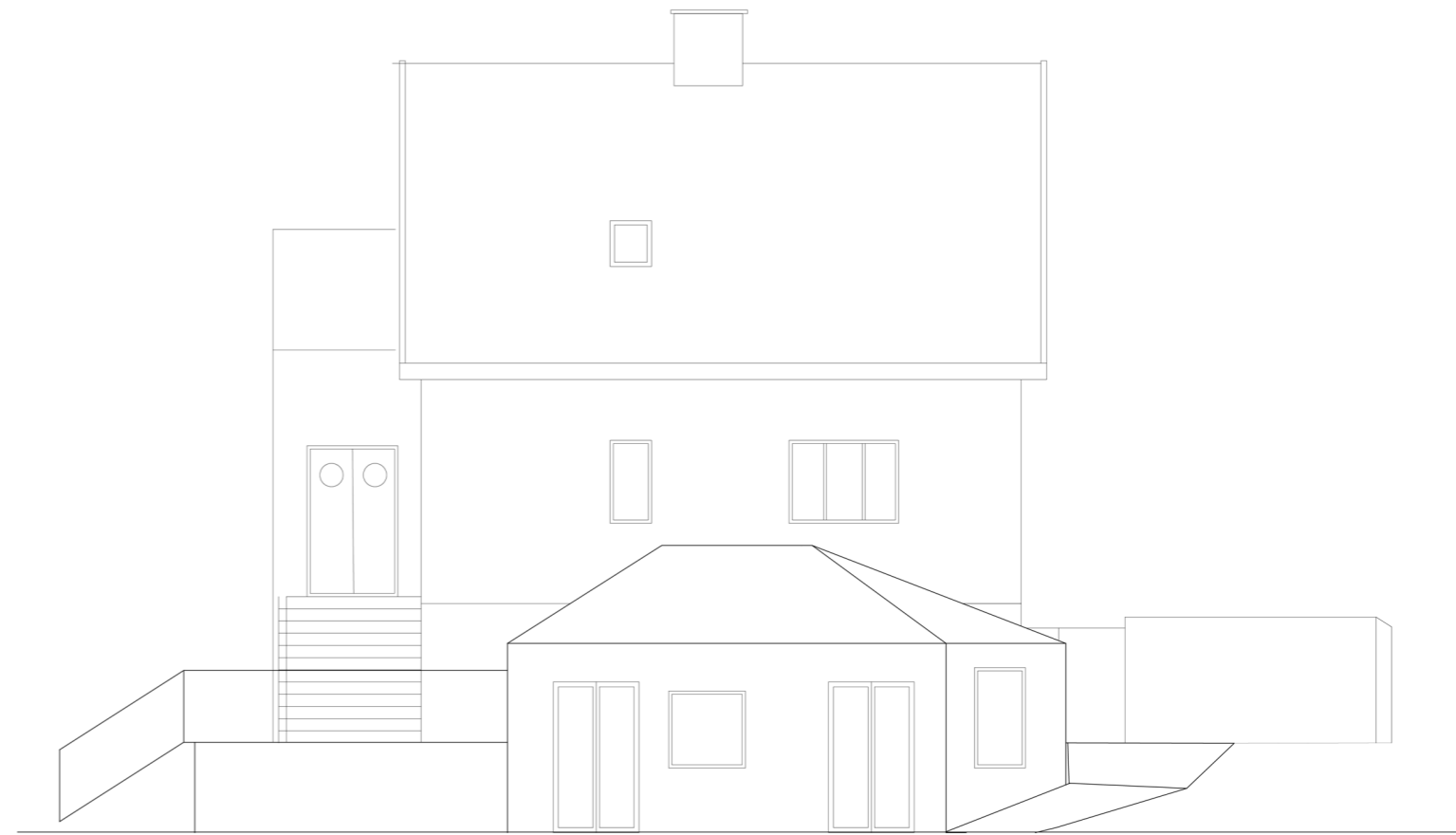
- Removed
- New addition

Attic after 1:100
Private space for one household





Facades north before 1:100



Facades north after 1:100

The design behind the resource unit comes from wanting a shape which can fit into small and irregular plots, the roof is high where loft is and gives it the look of a rock, melting into the landscape - creating a strong shape matching but not mimicking the iconic villa.



Facades east before 1:100



Facades east after 1:100

The existing height difference makes it possible to have a 4m unit without blocking the view of the main floor.

HOUSE 2



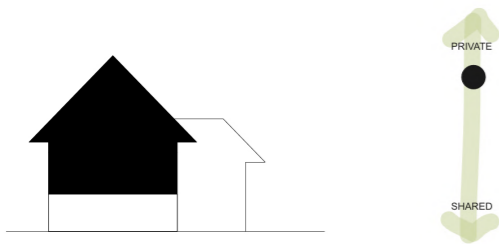
Today

Two seniors which built this house and want to stay here as long as possible.



Proposal

By turning the "basement" into permanent housing they get a comfortable home of 80 m² with direct access to ground level. This change allows an additional family to move in on the two top floors.



Two separate households with high level of privacy

Main transformations

- remodeling of basement
- removing stair between households
- new entrance unit to basement
- new veranda and terrace main floor

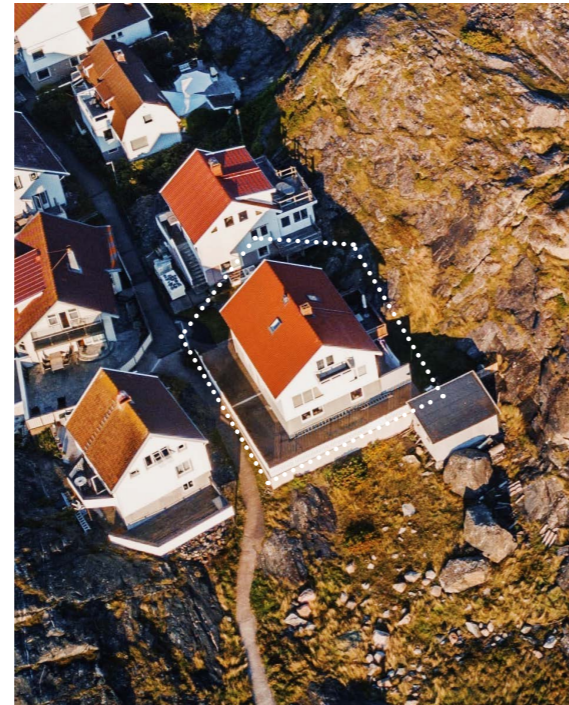


Photo by Gustav Tillas



Basement floor - looking from dining space into living room. New openings inside and to the outside makes it possible to move freely in home. Larger windows but kept 45 cm above floor to frame the room and create space to make it more personal.

Division in two

Two households sharing one house is a quite common solution in a generational housing. But no matter if you are related or not clear boundaries between the two is often preferred.

Separating a house in two demand more space than when some space is shared inbetween them. This put some requirements on the size of the house.

Removing the stair inbetween households is here a strategy to increase privacy of the two households as well as making more space in the basement apartment.

The downside of this is reduced flexibility for future changes but on the other hand increased functionality to make the most of the building here and now.

The outdoor space is also divided between households on two different levels. Important to give top floor direct access to outdoors through new terraces and veranda. For playing, both the hill and space in front of house in west are good options.

Removing the top floors access to extra space in basement is somewhat compensated by assigning them main access to the storage shed in front of house.

Housing in a basement needs to somehow be compensated with other qualities. The ceiling height is often under the normal standard of housing. Spaciousness can however also be achieved in other ways such as larger openings, light from more than one direction, sightlines through home, direct access to outdoor space and rooms free of use.



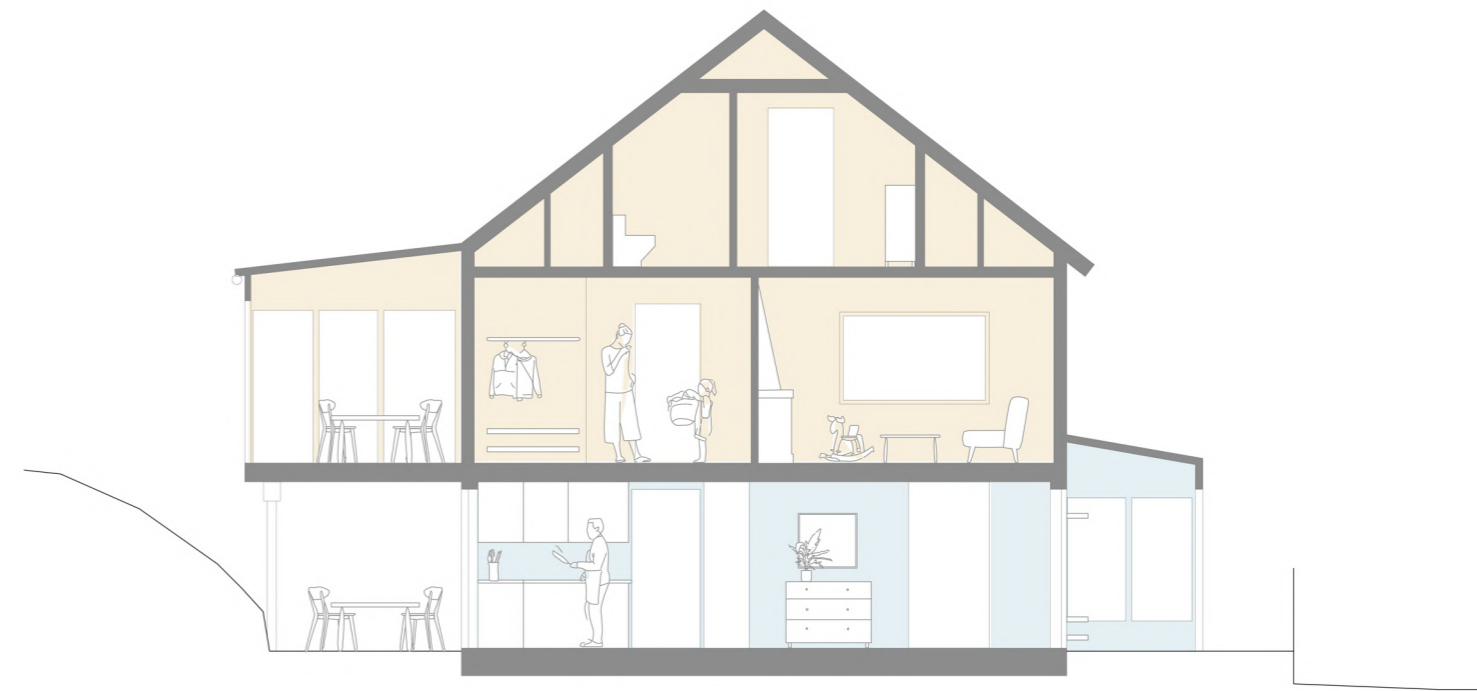
NEW ADDITIONS
 two new entrance units makes division of households clearer and give them useful extra space as well as wind protected corners



Existing building
 New addition

Siteplan after 1:100

Entrance from northeast and ocean view in west. Storage building can be designated for new larger household.



REMOVED STAIR
 between households increasing privacy and adding space for kitchen in basement

Section after 1:100

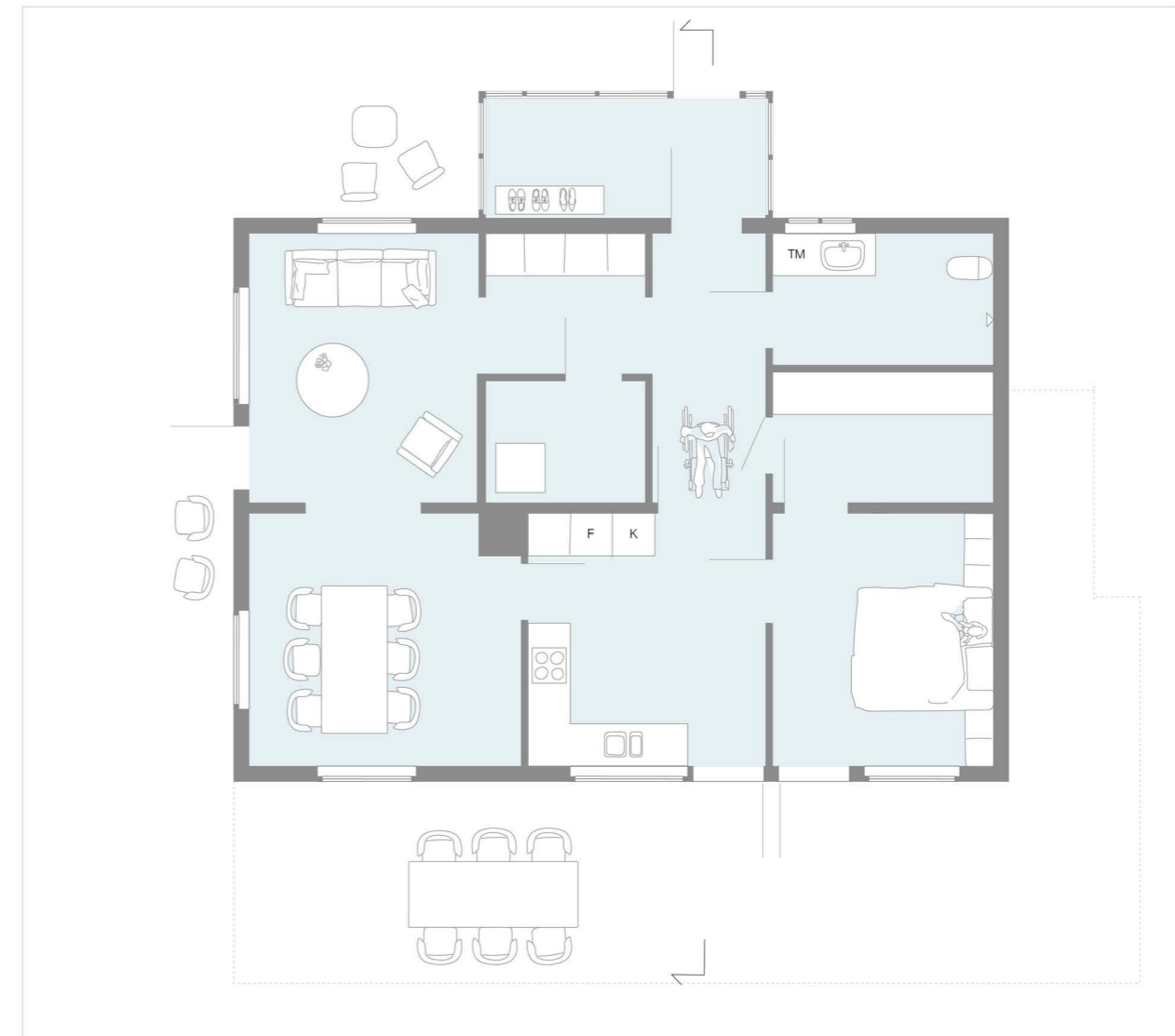
Senior adapted basement giving space for larger household on top two floors



CIRCULATION
reduced space for installations
and new openings makes it
easy to move around



REMOVED STAIR
between households
increasing privacy
and adding space to
apartment



RAIN AND SUN PROTECTED
outdoor space in south
sheltered by terrace



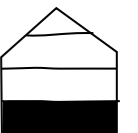
NEW OPENINGS
for better light and view
through home as well as
direct access to outside

Basement before 1:100

Basement above ground but without great potential for new housing but with small windows and unwelcoming entrance in a beautiful but windy position

- Removed
- New addition

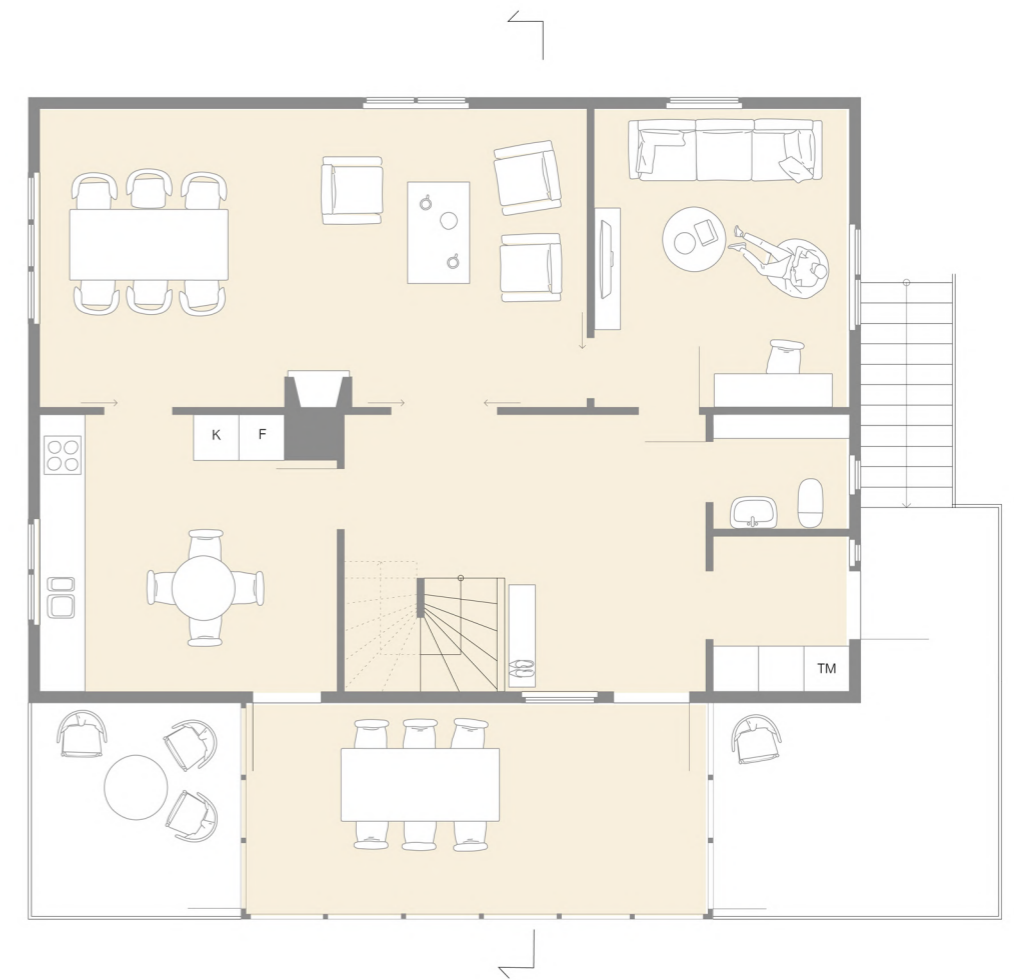
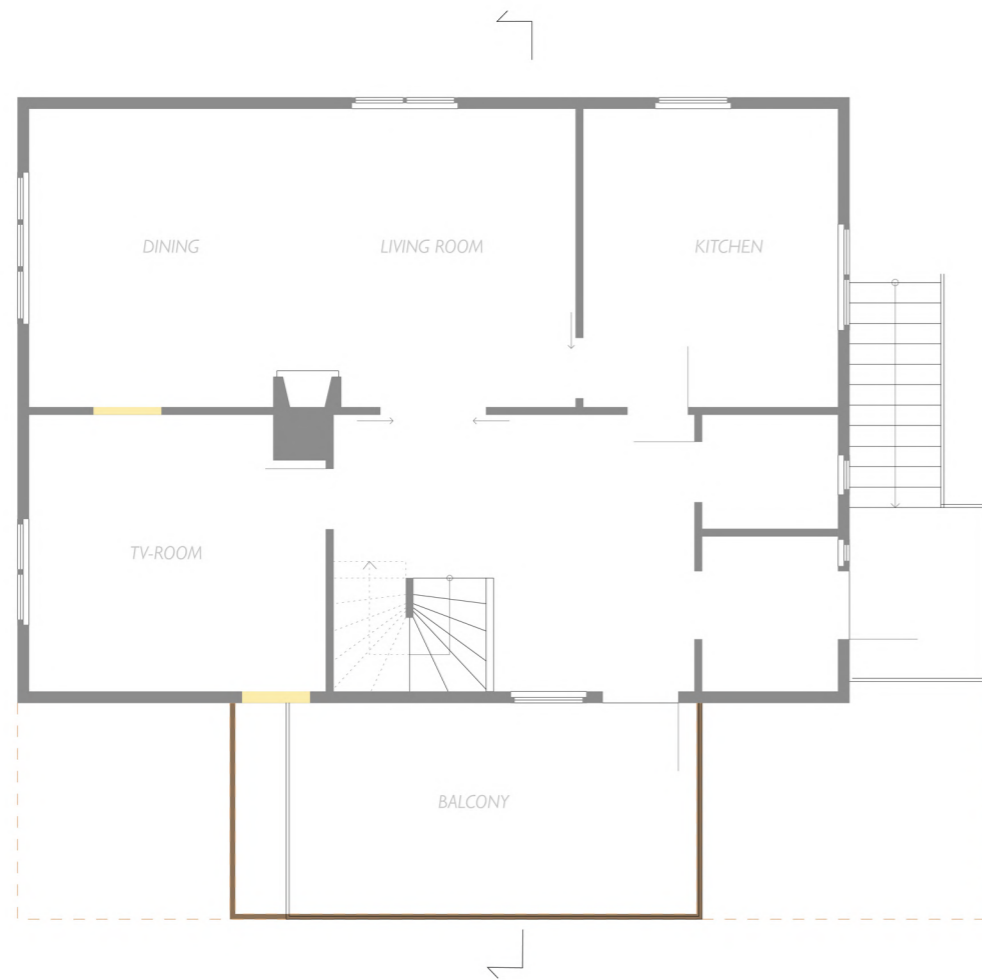
Basement after 1:100





INCREASED CIRCULATION
possible to move freely between rooms and outside, making home more spacious

MOVED KITCHEN
with direct access to veranda - motivated by the need of renovations



Main floor before 1:100

Only direct access to outdoors through balcony which is not wheater protected.

- Removed
- New addition

Main floor after 1:100

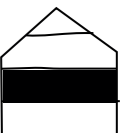
Larger household



BALCONY TURNED INTO VERANDA
new unheated space extending the seasons and with new terrace it is also an additional entrance

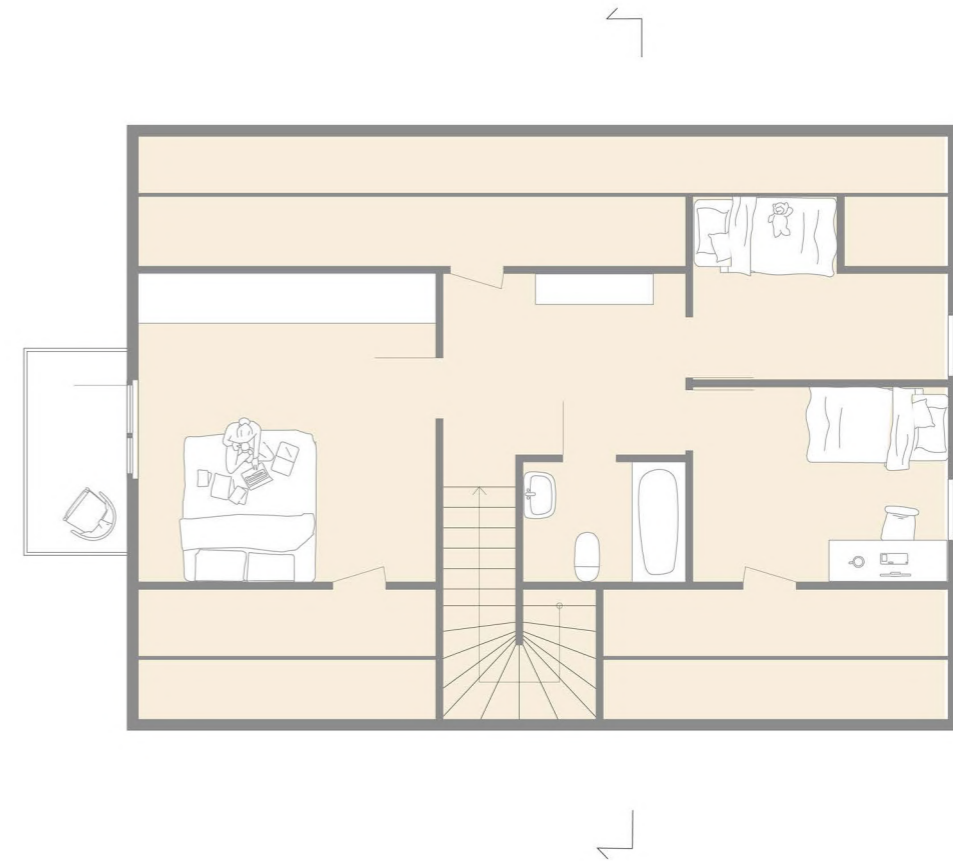
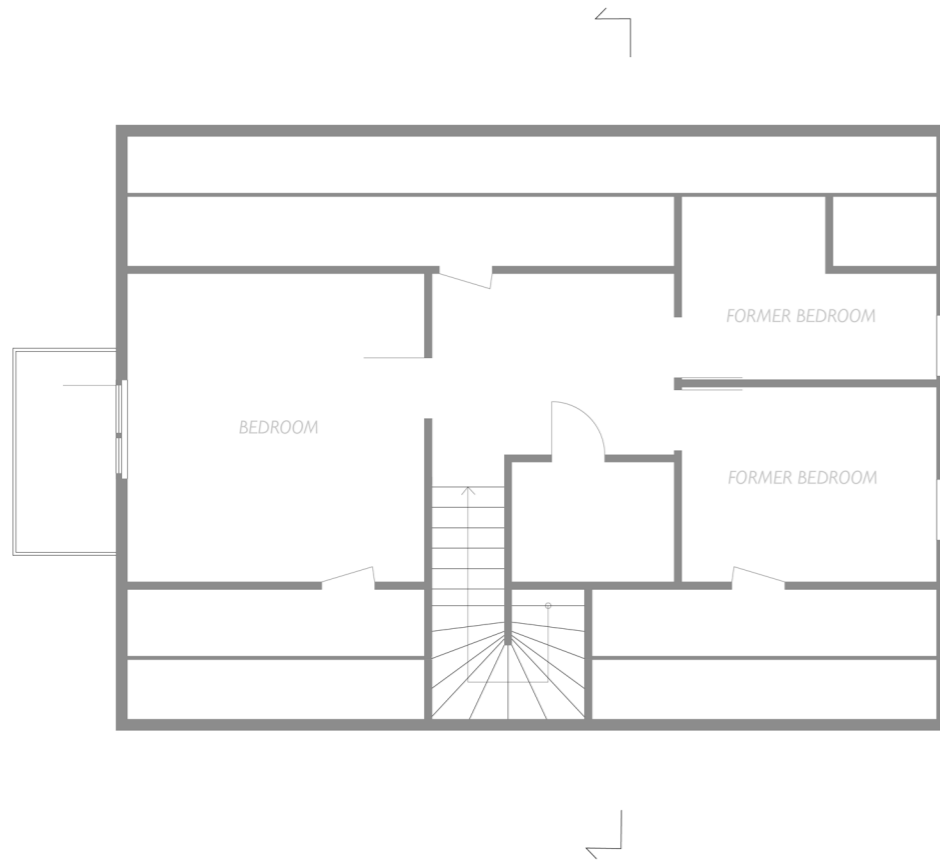


WHEATER PROTECTION
veranda provides a sheltered space from rain, sun and wind as well as calm corners on the new terrace in southeast and southwest





NO CHANGES
not all changes are
necessary and this floor
is kept as it is



BEDROOM / TV-ROOM
the larger bedroom can
also be switched with tv
room on other floor

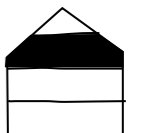


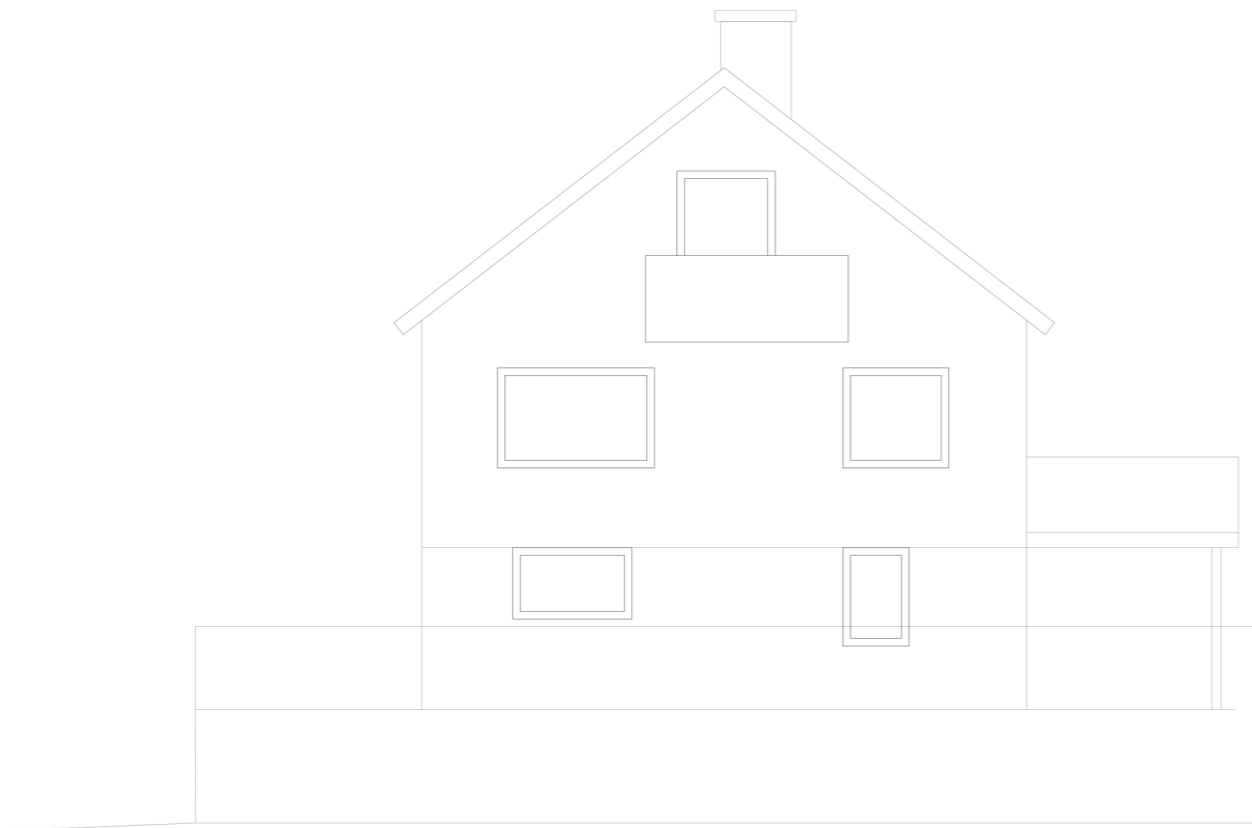
USEFUL ROOMS
when only 2 seniors lived in the
house the two smaller bedrooms
were rarely used - with a new
larger household they will be again

Attic before 1:100

Removed
New addition

Attic after 1:100
Larger household





Facades west before 1:100

The basement is not really a basement since it is above ground, but it is however designed as if it was.

Facades west after 1:100

Larger windows and a more clear entrance is added. Wind protected corners are created with the new additions.



Facades south before 1:100



Facades south after 1:100

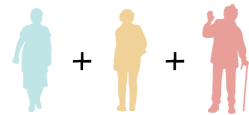
New veranda and terraces give top household outdoor space protected from wind and the lower apartment shade from sun

HOUSE 3



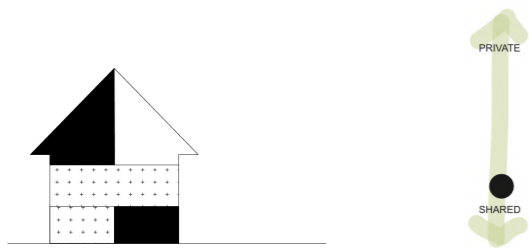
Today

A middle aged couple using house as vacational residency but plan to move here one day.



Proposal

In a speculative scenario a senior women pairs up with two friends which also think they can benefit from sharing one house together.



Three smaller private units sharing rest of house.

Main transformations

- accessibility through added ramp and elevator
- remodeling of attic into private units
- improved shared space in basement

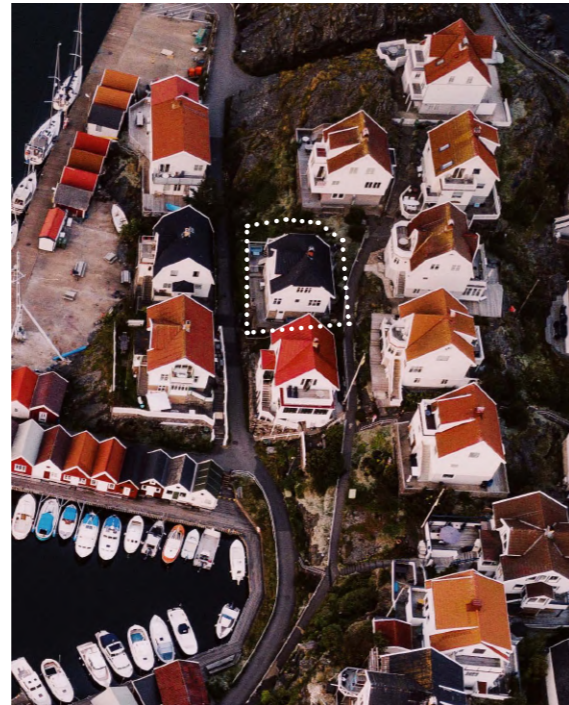


Photo by Gustav Tillas



"In some aspects cohousing is the easiest way of changing the use of a house without doing much renovations."

Coliving for seniors

Aging in a large house can become burdensom and lonely. Especially if doing it alone.

In this scenario, three seniors pair up and share one villa. With reduced costs, shared responsibility and plenty of common space - the seniors home is a safe place balancing both the need of solitude and company.

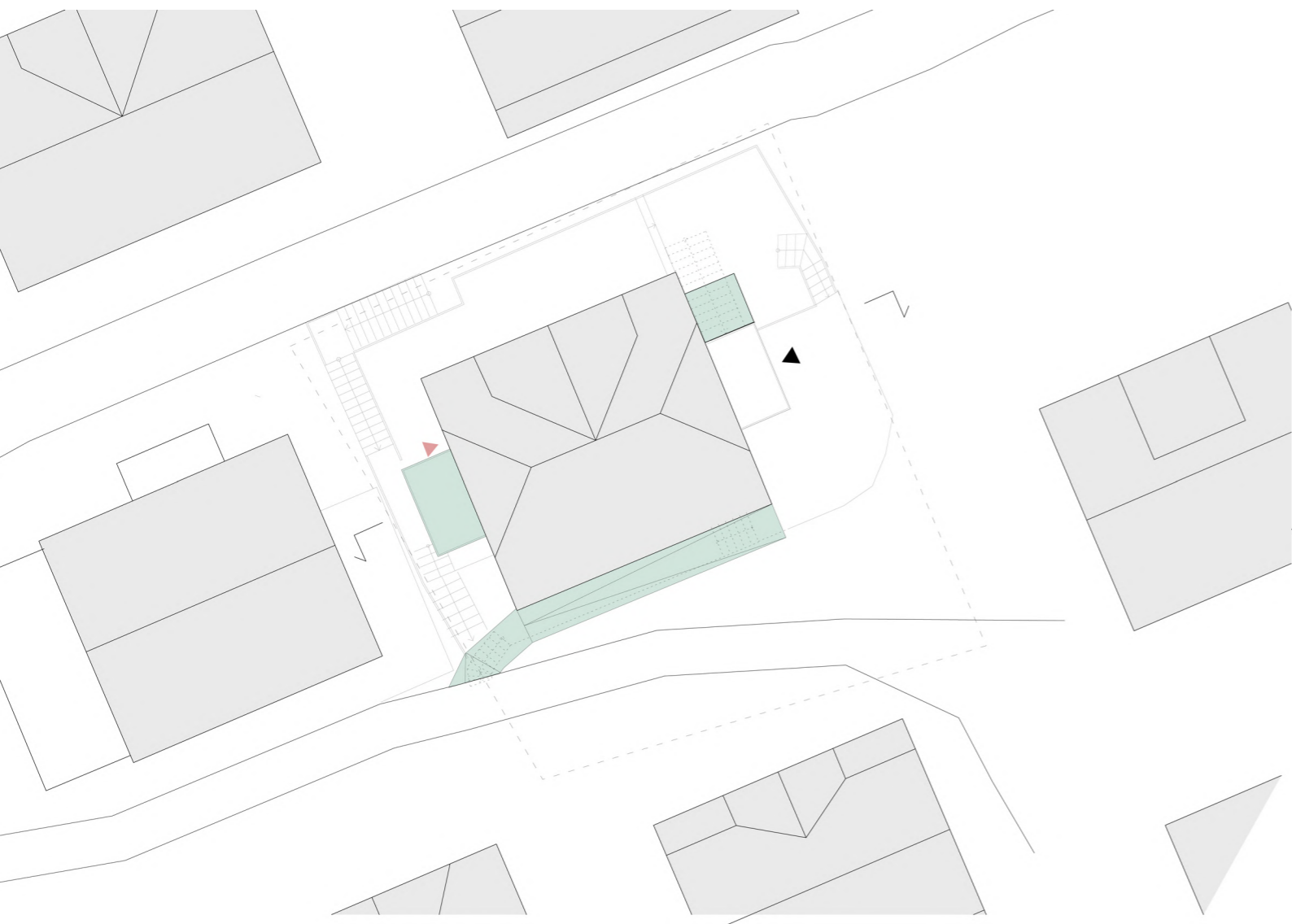
If they have former houses, they can now be made available on the market to be sold or rented out to other families. This change can also make finances available for renovations of the new house - adapting it right after their needs and wishes.

In some aspects cohousing is the easiest way of changing the use of a house without doing much renovations. Much can be shared and the sense of

a home, rather than institution or corridor, is there already from the start. However, there are some aspects that needs to be thought of in order to make it work. One of them highlighted in previous research is the balance between private and shared.

Accessibility can be crucial when aging and as we have seen the reason why some feel forced to move. By adding a ramp, elevator and turning the entrance even a 3 stories villa on a hill can work as cohousing for seniors.

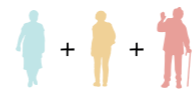
The choice of ownership model is important to make sure the balance of the new household works well in the long run. Starting a cooperative association which each person then rent from demands a higher stake but a low rent and can be a good solution for seniors.



Siteplan after 1:100

Access through steep stair in north or stairs down from upper road in south. Terraces on basement and main floor

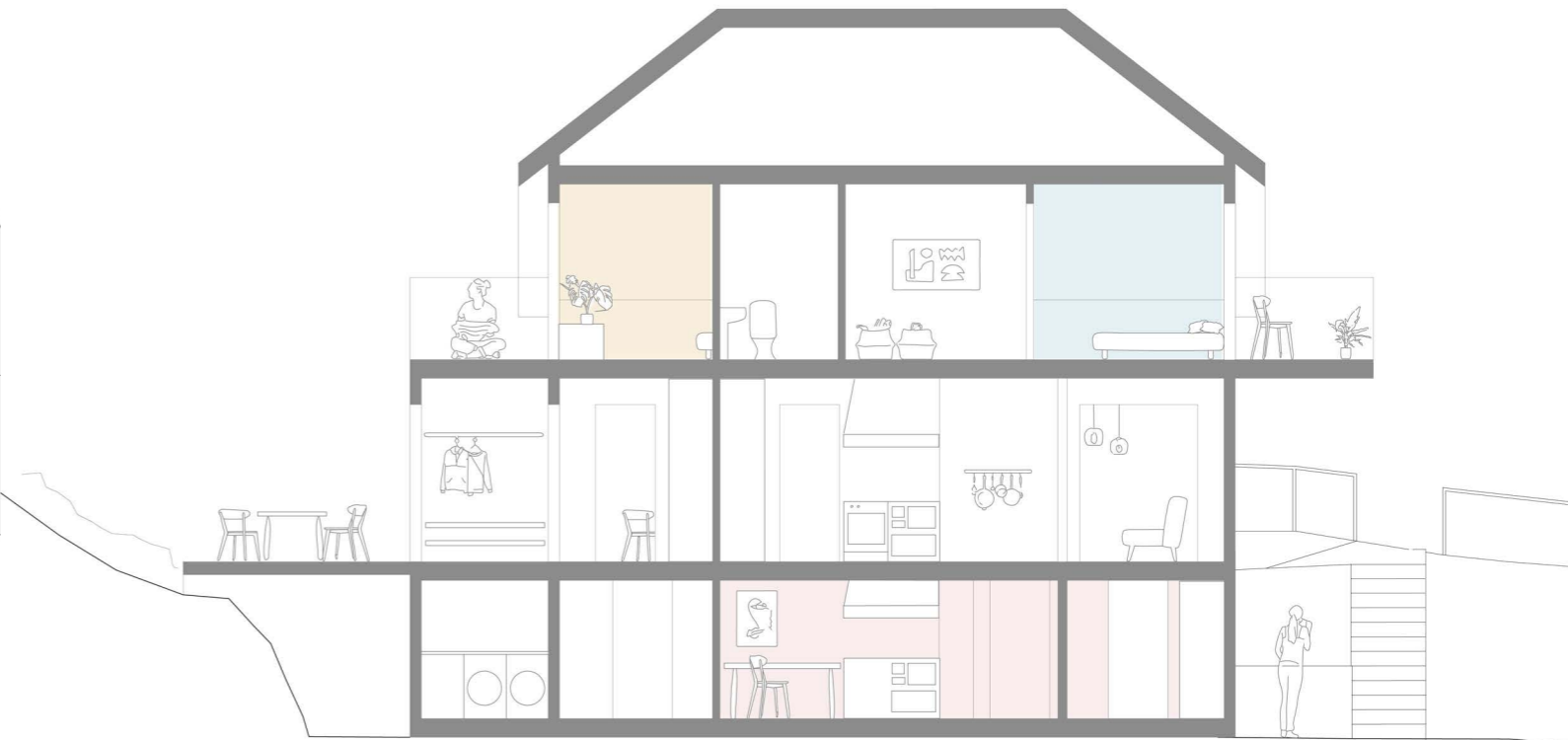
- Existing building
- New addition



SHARED OUTDOOR SPACE
on main floor terrace



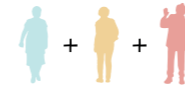
ACCESSIBLE
ENTRANCE
from upper road
through new ramp



PRIVATE OUTDOOR
SPACE
on ground floor and on
balconies

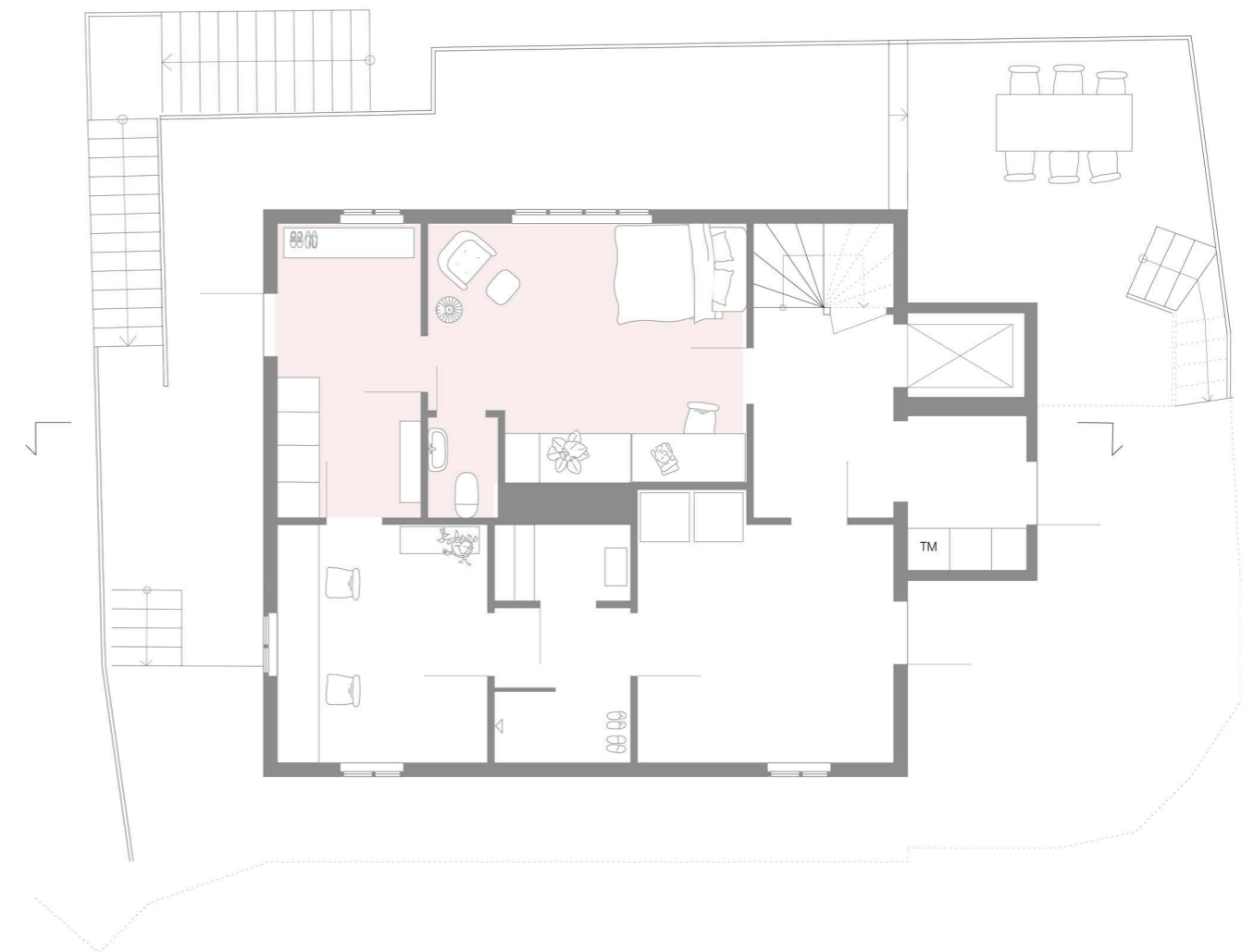
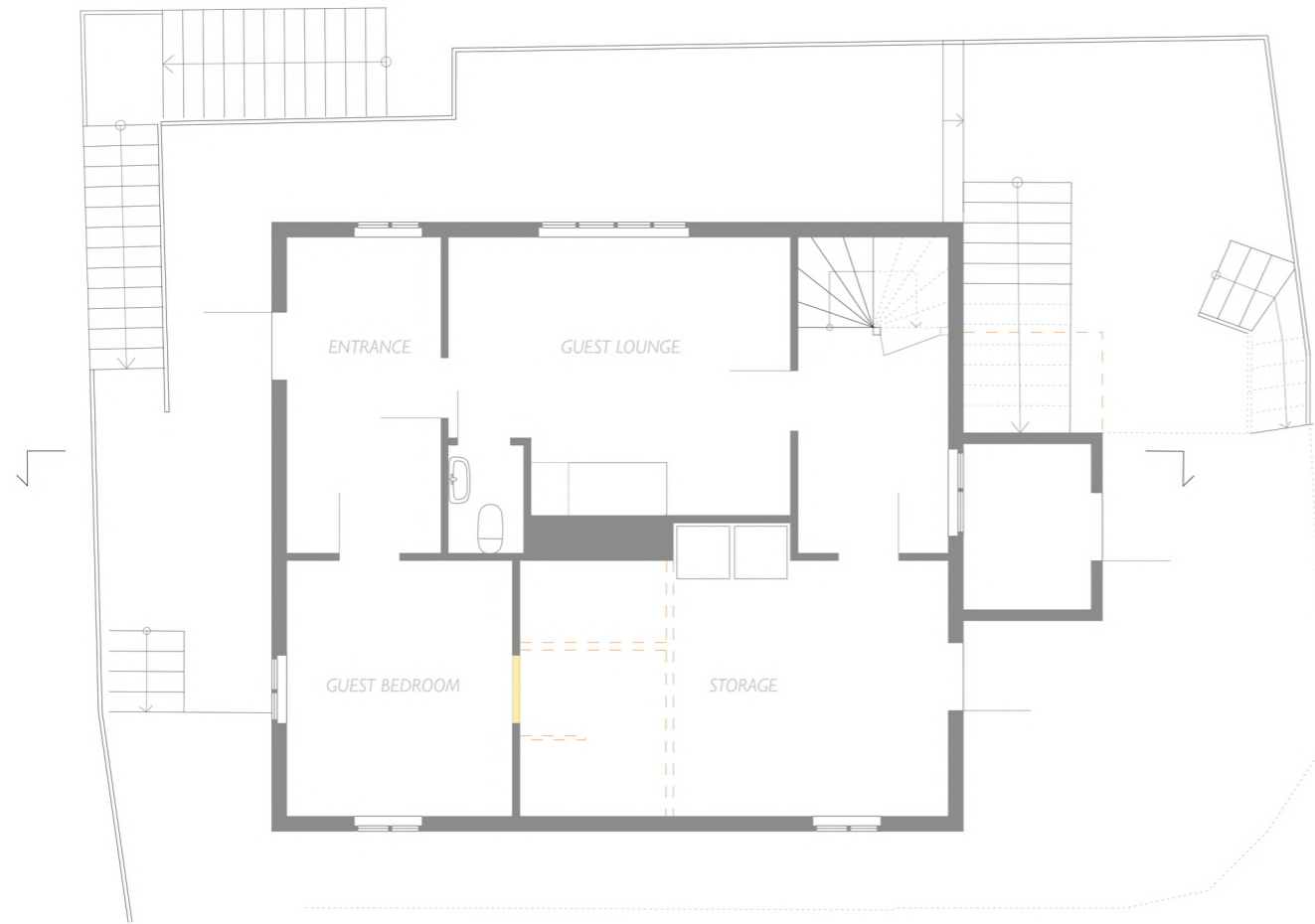
Section after 1:100

Three private units share rest of house



NEW CIRCULATION
 opens up for various
 ways of using rooms
 for ex guest/hobby room
 could be part of private
 unit

NEW ELEVATOR
 in the position of the old
 steep entrance stair



Basement before 1:100

Hill and terrace makes south part of basement dark.
 Existing shower in storage room not currently in use

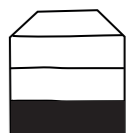
- Removed
- New addition

Basement after 1:100

One private unit + shared functions such as sauna,
 storage and hobby room.



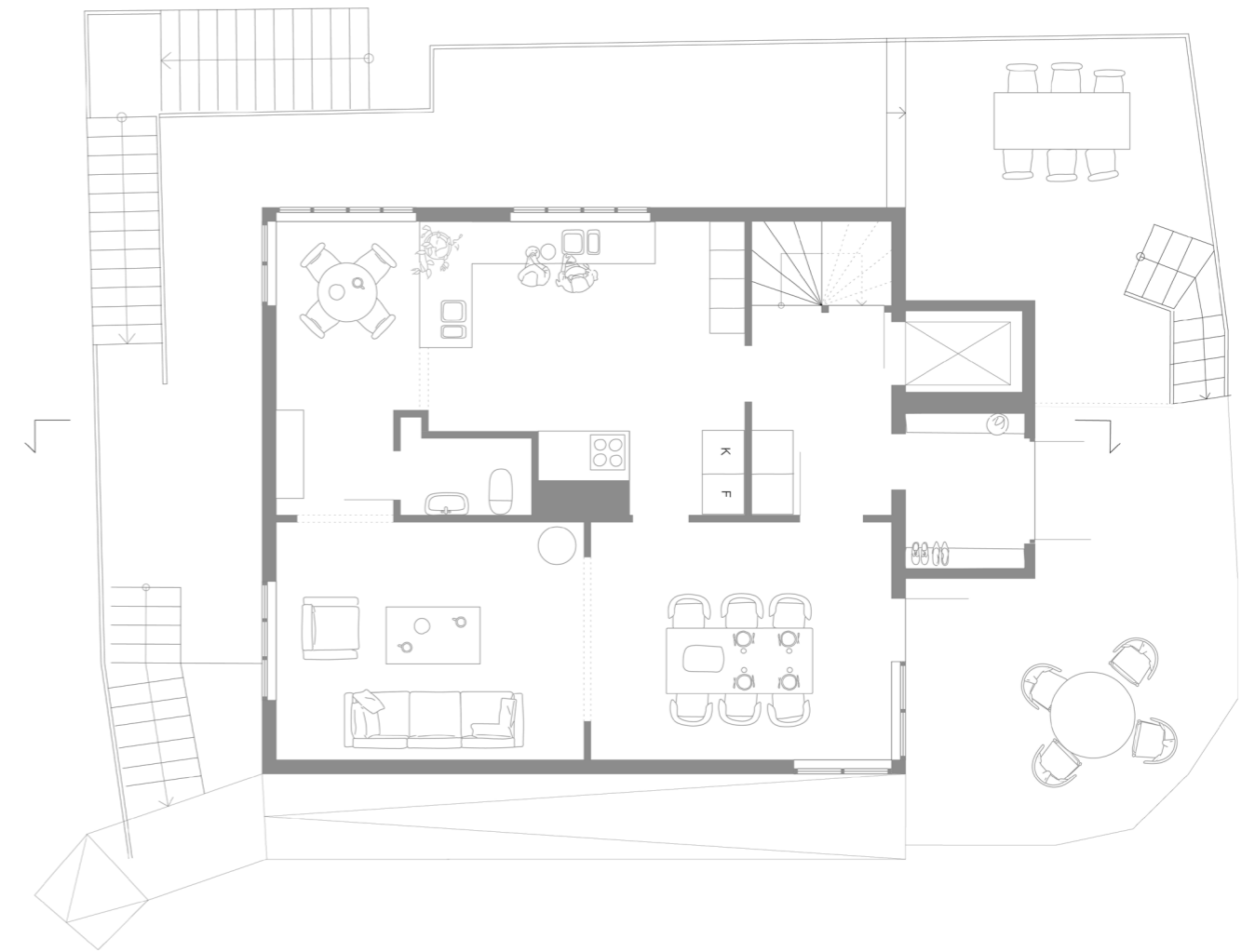
SHARED ZONE
 shared functions such as
 sauna, shower, storage
 and hobby room in the
 darker space towards hill
 and terrace





SHARED KITCHEN
made more functional
with more work space

SEPERATE STAIRCASE
possible to not cross
social space to get to
private unit



Main floor before 1:100

Steep stair leading up to entrance. The most prominent floor of the house.

- Removed
- New addition

Main floor after 1:100

Shared floor with new accessible entrance from upper road



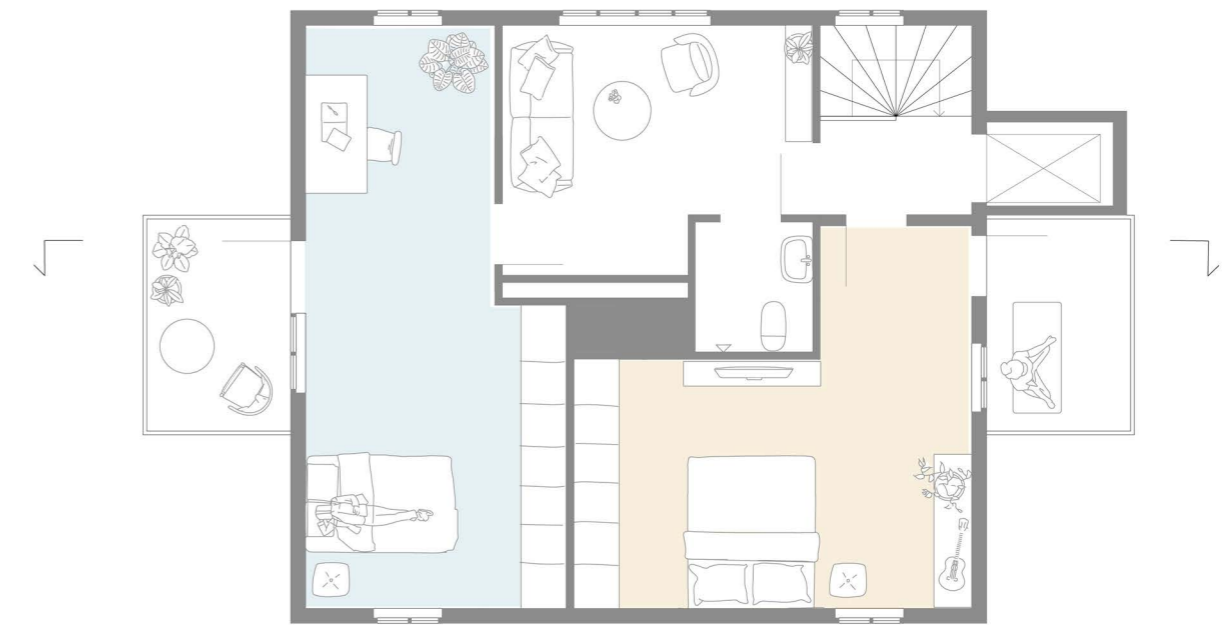
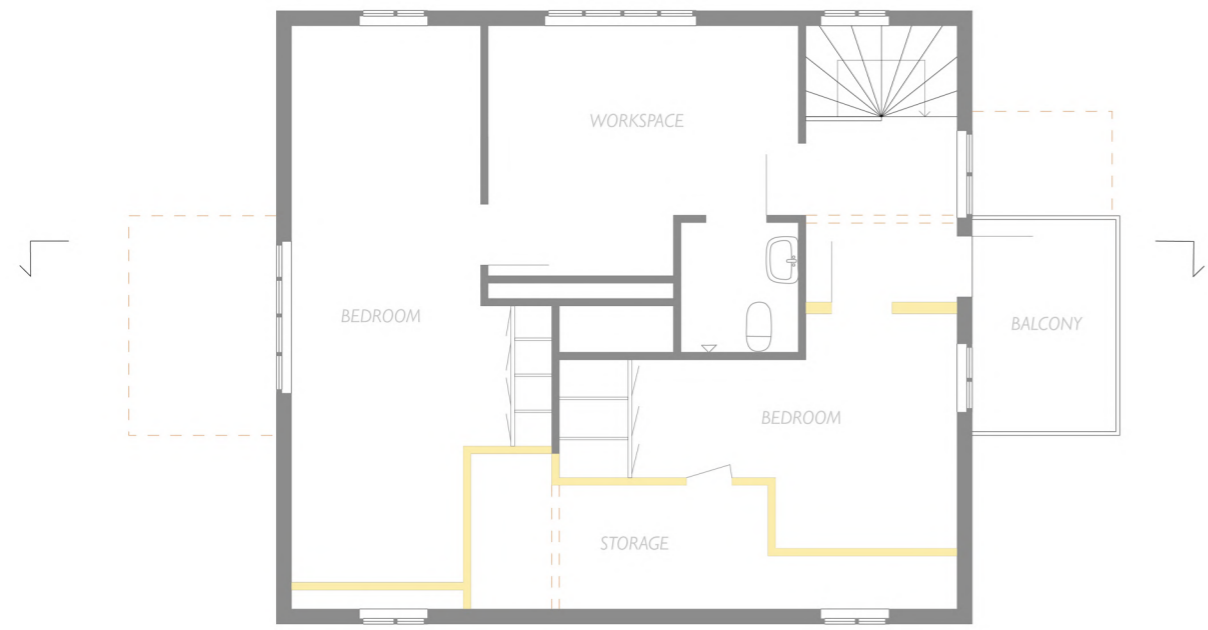
NEW ACCESSIBLE ENTRANCE
from upper road through ramp
and new doors towards terrace
- giving room for new elevator in
position of old stair





PRIVATE OUTDOOR SPACE
by moving one wall and building one additional balcony

SEMI PRIVATE SPACE
the two units share extra space + bathroom

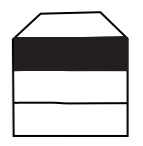


Attic before 1:100
Two narrow bedrooms with much space for storage

Attic after 1:100
Two private units sharing bathroom and extra space

— Removed
- - - New addition

REMOVED STORAGE
creating two larger separate units with more freedom in usage





Facades north before 1:100

Facades north after 1:100

Showing the position of the new elevator as well as ramp from upper road



Facades east before 1:100



Facades east after 1:100
Showing the position of the new elevator

05.

DISCUSSION

Research question

In what ways can transformations of the typical single family house support sustainable development in a local community?

Summarizing

The thesis early on conclude that the single family house carries a vacancy of space in areas where there is also a need for a more varied housing market. This potential is then being investigated through further research. The questions of how a single family house can be inhabited in new ways and what is important to think of when transforming them, are being answered through the chapter research by design ending up in presenting a design proposal with transformations of three villas, together showcasing a "palette of potential". The proposals are paired up with a set of desirable qualities which can be seen as keys unlocking the houses potential.

Reflecting on result

To answer to the research question stated above, the effect can be discussed on a societal, local and individual level;

Societal level

Not all places are like Åstol where the community is pushed to develop within the existing. But this is also why the island becomes a good example of sustainable development. Even if we have more land to exploit, we should question that as the only solution. This thesis suggest that by developing within existing areas, we save large amount of resources while also enlivening these areas.

The need of more housing is large all over the country and especially a variation of simpler, smaller

and cheaper housing is needed. Luckily the 2 million swedish single family houses are also everywhere. Kod architects state in 500k that if 1% of swedish house owners build one additional housing per year, 500.000 new housing units can be created in 25 years, hence the name of the report.

The houses at Åstol are large for the number of inhabitants but still not huge and the plots are very small. Despite this, the result show that new housing can be developed. In other places the houses are even smaller but their plot and garden is large. In these cases other strategies mentioned in the policy 500k (Kod Architects, 2016) can be considered, such as cutting off part of plot or building a larger separate housing building in garden.

Local level

Statistics says a third of the population who wish to live in rural areas still want access to service, community and activities. This equation can be solved by making it possible for more people to live on a smaller area. This creates incentive for a better societal service such as grocery store, a school or public transport, which in turn will make the area more attractive and so on.

"Enlived houses means an enlived community" - Local resident on Åstol

The community at Åstol state that they want to strengthen a more heterogenous population as an important aspect of being a thriving society. Their

housing offer although is very homogenous. A more variation housing market with more rentals and shared ownership models as well as simpler and smaller housing would allow a larger variation of residents too.

The aging population is evident on Åstol but also a representable picture of the demograhpic situation in large parts of the country. Creating new housing solutions for this group within the existing can make it possible for them to stay within the local community or even their own houses, while also making space for new residents to move there.

Individual level

How we inhabit our houses has changed through history and our personal needs changes throughout our lives. Not even half of us live according to the norm of the nuclear family and those who do realize that the time period with children at home is quite short. Through transformations of this very common typology, new housing solutions for shifting needs can be created in popular areas.

Living in a private house is the dream of many but it has been showed that the burden and workload of owning a house can be large. Sharing the responsibility with other inhabitants living in the house can not only bring help but also provide finances for costly renovations.

In Sweden we have a high rate of single family households. In this sense it is important to find good

solutions for how to live together with others than a partner. Sharing a home demand a lot from the inhabitants but also the space. This thesis has given some advice on how architecture can help along the way.

Concluding

It's easy to assume that people live exactly as they want to. But we are all influenced by norms and sometimes trapped in beliefs that make us forget to question them in order to realize what we truly need.

I believe it is important that we help each other see what is in front of us with new eyes but also to have a common conversation about what we as a society need and how we can shape that sustainable future we all hear about.

As an architect, I believe we have a lot of knowledge to contribute to this discussion. I have found that being proactive and joining the conversation of both individual and societal challenges can open up for new ideas and dreams. Hopefully my work can be a contribution to that future.

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STUDENT BACKGROUND

Masters program (MPDSD): Chalmers University of Technology, Gothenburg

Planning and design for sustainable development in a local context (ARK174)

Sustainable architectural design (ARK466)

Sustainable building: competition (ARK350)

Internship at Bonava design studio, Stockholm

Bachelor degree in Architecture: Royal institute of technology (KTH), Stockholm

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