

AGEING IN THE COUNTRYSIDE

SENIOR HOUSING

Binder 2 - Preparatory and process
Diploma project
AHO / Spring 2023

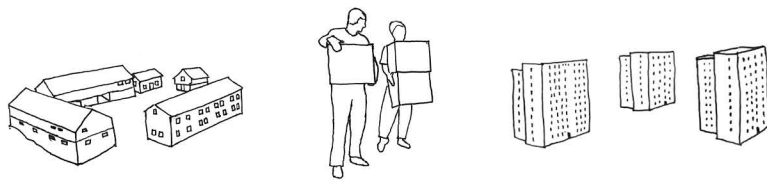
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01

Background



CHANGING DEMOGRAPHICS

In recent decades, there have been major demographic changes in the rural parts of Norway. Urbanization and centralization contribute to population growth in the cities, while the rural areas experience a population decline.

A challenge that is also becoming increasingly relevant is the aging population. The trend shows that the younger people are moving towards the cities while the older generation is staying, and therefore the proportion of elderly people in the rural areas of Norway will increase⁽¹⁾. At the same time, the elderly live longer and have better functional capacity than before⁽²⁾. In Norway, we see that the growth is particularly large in the age group 70 years and older, where the proportion is estimated to increase from 11 to 19 per cent by 2060⁽³⁾.

Norwegian 65-year-olds can expect to have at least 15-18 healthy years ahead of them. It is then natural that the elderly want increased independence and far more people over 80 can live in their own home compared to previously. Surveys also shows that

among elderly people living at home, the proportion who rate their health as good or very good has increased in recent years.⁽⁴⁾

The fact that more elderly people live at home for longer also has its challenges, as both physical and social needs will change throughout life. Many elderly people will also experience loss of friends and family as they age, and the number of elderly people living alone in Norway will increase⁽⁵⁾. This makes loneliness one of the three most important challenges we face among the elderly today, and especially among the population over 80 years⁽⁶⁾. Good neighborliness and social relations are therefore extra important.

It is important that action is taken before this becomes too big a social problem, and one must look at sustainable solutions for the future through, for example, new housing concepts for the elderly in the districts.



PHYSICAL ENVIRONMENTS

There is a desire for more elderly people to take responsibility for their own housing situation, and private homes for the elderly can be one of the solutions to many of the problems seen among the elderly⁽¹⁾. There are several ways to think about private housing for the elderly, and you can benefit from looking at both Denmark and Sweden, which are ahead of us in this process.

The municipalities in Denmark have an active housing policy to ensure good housing for the elderly population, and Sweden has over time built up a variety of housing options for the elderly. It seems that they have succeeded well, in that private homes for the elderly works as a supplement to the public healthcare for the elderly.⁽²⁾

By ensuring an age-friendly future development of physical environments, we can ensure that the older population can be active members of the society for as long as possible. The design has a lot to say in order to preserve independence in their own home for as long as possible. Well-designed housing and local communities can also help to reduce the demand for the

municipality's care services and aids⁽³⁾. And research and experience also show that measures taken for the elderly are good measures for society as a whole⁽⁴⁾.

Surveys show that most of the elderly population in Norway want to live in familiar surroundings for the rest of their lives, but not necessarily in the same house⁽⁵⁾. A home should be a place where you feel safe, and it is not just the building that contributes to this feeling. It could just as well be the furniture, pictures and memories, such as the garden, the neighbours, the view or the surrounding landscape⁽⁶⁾.

The public sector must facilitate a society where it is possible to age well, and both the adaptation of existing housing and the construction of new alternative forms of housing must be central to the age-friendly initiatives. We need more examples of different types of housing for the elderly with good community solutions in Norway⁽⁷⁾. And many elderly people express that they are willing to pay more to have access to shared facilities⁽⁸⁾.



HOUSING COMMUNITIES

In recent years, there have been built several good examples of housing for the elderly and housing communities in the cities, but there are few alternatives in the rural areas. Surveys show that many elderly people in Norway would like to move to more adapted and social forms of living ⁽¹⁾. And research from Denmark shows that co-housing can lead to the elderly being able to manage for five years longer without help from the public ⁽²⁾, while at the same time co-locating people who may need municipal care services mean they can spend more time on care instead of travel.

A Norwegian study from 2021 concluded that housing communities can contribute to an increased quality of life for the elderly³. The results highlight five aspects for increased quality of life; (1) increased mastery and the possibility of surviving longer, (2) easy access to activities and an environment that inspires participation, (3) the experience of security, (4) more social relationships and (5) homogeneity ⁽⁴⁾.

Although one can debate what gives the best composition of people in housing communities, one sees that conflicts in such communities more often occur between generations and that satisfaction is greater when the neighbours are like minded and in the same stage of life ⁽⁵⁾. It is however worth focusing on not creating a barrier to the rest of society. This can for example include that you live close to other age groups, think about how to set up shared facilities in your own project and the proximity to functions in the local environment that are used by several generations.

Housing communities designed for the elderly can be a good option for the elderly who are looking for a easier, more organized everyday life with social cohesion while maintaining a high degree of independence ⁽⁶⁾. Nevertheless, it is worth noting that the physical surroundings in themselves do not create social community, but can inspire and facilitate it.

1 (Munkejord et al., 2018)
3, 4, 5 (Moe et al., 2021)

2 (Senior Norge, n.d.)
6 (Kogstad, 2020)

02

RESEARCH QUESTION

How can housing communities for the elderly be designed in a rural context, so that it can deal with the aging population in the districts of Norway?

03

METHOD



CASE STUDY

We will choose a village in Norway as a case study and draw out an architectural project. We see the master thesis as an opportunity to learn before starting work, and seek towards a feasible project.

Therefore, we want to deal with for example: the zoning plan and plan description, fire regulations, universal design and more. To see what certain regulations and challenges can give us in terms of both opportunities and limitations.

It will be important to analyse and look at already established social communities and meeting places to see what functions we can both implement or add in our project. We want to take our thought user group seriously.

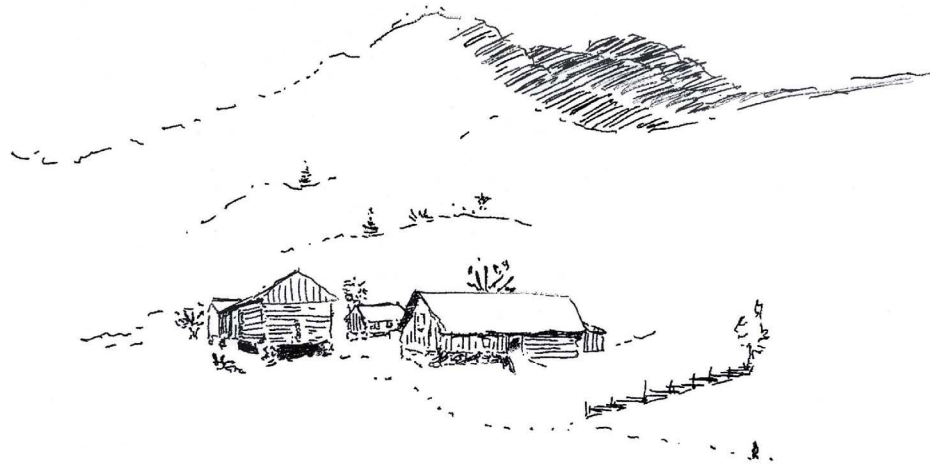
USER GROUP AND INVOLVEMENT

Through our work we want to get in touch with some elderly people, and have therefore arranged a workshop with a local pensioners association. We will develop a questionnaire to survey their needs and thoughts regarding current and future living situation. This can help us to make qualitative choices in our design process.

SENSE OF PLACE

We want to achieve an inclusive architecture, that identifies different user needs and functions, and develop solutions that can be used by everyone on the same terms.

We want the architecture to have a sense of place and be in harmony with its surroundings.



HOUSING COMMUNITY FOR THE ELDERLY

We want to explore what an attractive housing community can be in a rural context in Norway. We believe there is a difference in what is attractive for the elderly in the city compared to rural areas.

Our project will look at how we can provide less living space per person, but still give access to what they need through shared space. Even though our project is aimed at able-bodied elderly people, it is important for us to make dwellings in a life cycle standard, that is accessible if you end up in a wheelchair for a while.

We will look into what we believe is suitable building sizes for our selected site with surroundings, and how many units this will include.

Among other things we need to explore the correct balance between private and public. Many villages in Norway have a well organized social community, but may lack some of the meeting places where casual social activity can occur.

Therefore, we will look into what shared space is necessary, indoors and outdoors. And the possibility of adding a public café to ensure a good social mix within our project, and invite other generations in

TPOLOGY

We have chosen to work with “bygdetun” as a typology. A “bygdetun” can be described as “a fully or partially enclosed courtyard, often a farm, that consists of the space where the houses stand and the courtyard in between the houses”⁽¹⁾.

This is a typology well known in rural parts of Norway, and for our target group. We therefore believe this can be one way of making it attractive for the elderly to move. Since they can relate to the typology and surroundings.

MATERIALS TO HAND IN

Drawings:

-Site Plan

-Plans

-Sections

-Elevations

-Detailed section

-Exterior illustration

-Interior illustrations

Models:

-1:200 Site / project model

-1:20 Construction model

-1:10 Detail models

DIPLOMA SEMESTER - SPRING 2023

January - Phase I

- Research
- Site Analysis
- Base drawings

February - Phase I / Phase II

- Sketching models and drawings

March - Phase II

- Workshop with the elderly in the village
- Build up arguments
- Midterm review

April - Phase II / Phase III

- Development of the project

May - Phase III

- Finish all drawings
- Finish models
- Delivery

June

- Presentation



● Feiring

NATIONAL CONTEXT

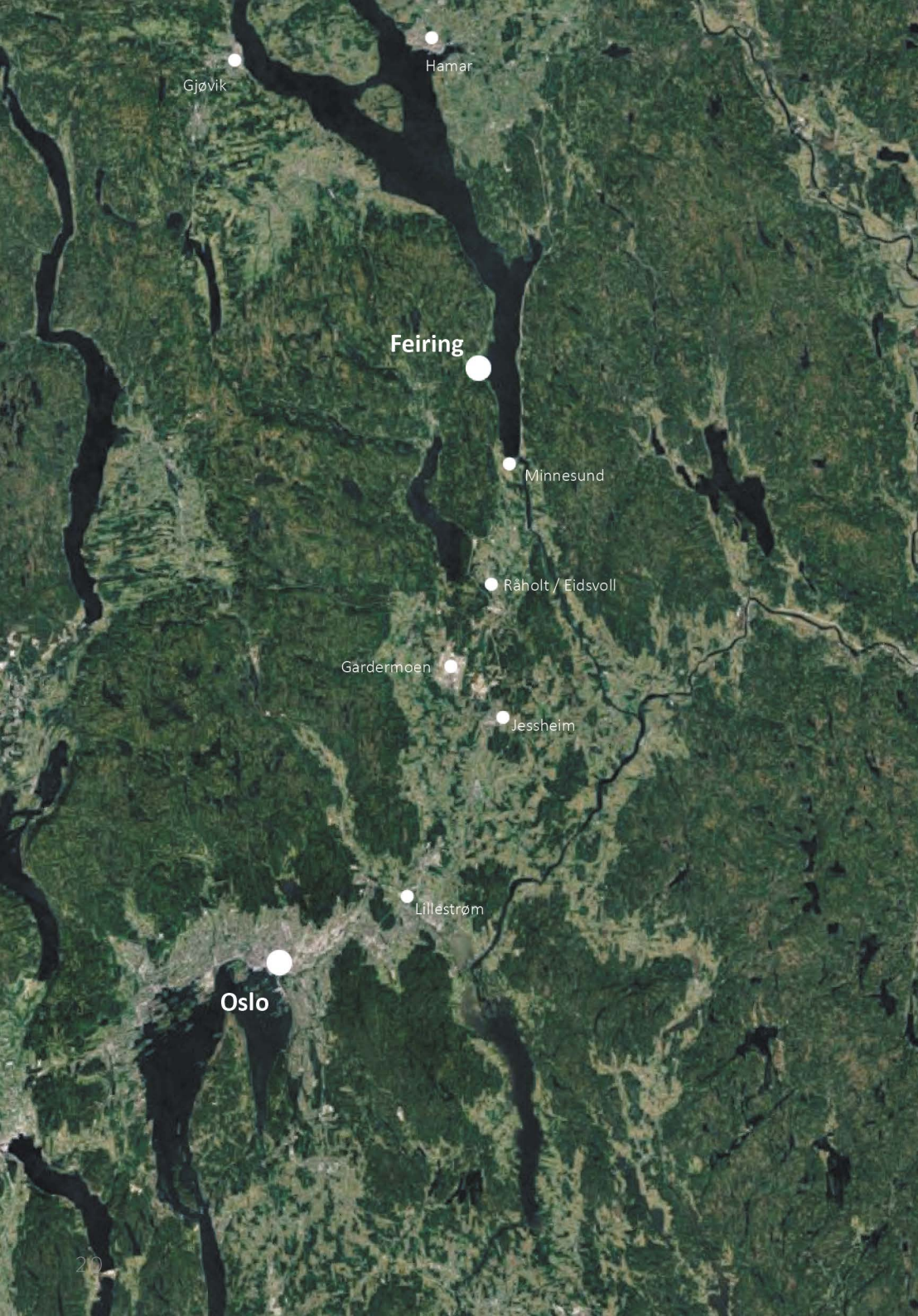
Perhaps it is possible to imagine a future for rural Norway by looking at the composition of housing and people. We believe that senior housing with community solutions can help to improve the dynamics of the housing market in rural areas, by achieving a better match between housing needs and housing consumption.

By providing the elderly with suitable housing, which is good for aging in, it can be ensured that they stay in the village for as long as possible. At the same time, detached houses, which are sought after by younger people in the establishment phase, are exempted, and in this way you can help to keep the population steady over time.

Part of the problem lies in getting older people to move. However, in recent years we have seen tendencies towards what we can call strategic relocation, which means that older people move to secure a more suitable living situation. It turns out, however, that it is in urban areas that most elderly people move,

who can be connected with the fact that it is in and around the big cities that you find the most age-appropriate housing. Perhaps elderly people in the rural areas would also move if there were attractive alternatives.

We have chosen a small village as a case study, to be able to explore our research question in a given situation. The village we have chosen is Feiring, which is located in Viken county.



REGIONAL CONTEXT

The municipality, Eidsvoll, is experiencing great growth in the south due to its close location and easy connection to Oslo. The investment is mainly targeted along the trainline, aimed at commuters and families who for various reasons want to live outside of Oslo.

It is still uncertain what ripple effects and impacts this development will lead to for the rest of the municipality and especially the more rural areas. Over time it will probably improve access and distance to necessary infrastructure, which means that smaller settlements can preserve their rural quality but at the same time be better connected.

Feiring to ...



Råholt / Eidsvoll	24 min
Gardermoen	33 min
Jessheim	32 min
Lillestrøm	51 min
Oslo	62 min
Gjøvik	48 min
Hamar	48 min



Gardermoen	1 hour 38 min
Oslo	1 hour 43 min
Gjøvik	2 hours 26 min
Hamar	1 hour 27 min



PICTURE FROM FEIRING.INFO

LOCAL CONTEXT - FEIRING

Feiring is a serene and idyllic place situated on the eastern bank of Lake Mjøsa, known for its stunning natural landscapes and rich cultural heritage. The village was historically based on agricultural and forestry settlements but also has a history of iron industry and copper mines. Today a lot of the people living here commute to work closer to Oslo.

The village has had some variation in population over the years, but today there are just below 1000 inhabitants. As thought, we see that there are more adults and elderly than the average for the municipality, which is a trend that is expected to continue.

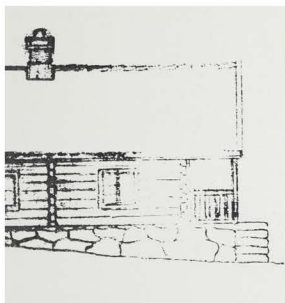
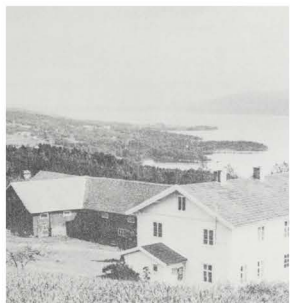
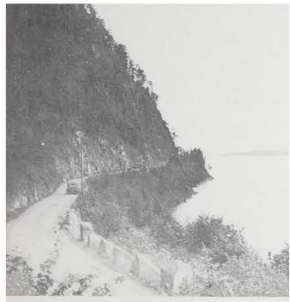
We see a great potential to rethink facilitation for the existing population so they can extend their lifetime in the village, as well as potential for future inhabitants. It seems like the desire to live in the village is greater than the

existing supply of housing. Some people wish to move back to the place they grew up, while others seek towards tranquillity.

The housing situation contains of 95 percent detached houses, and a predominance of larger houses above 120 m². These picturesque homes and farmhouses dot the landscape, nestled amidst rolling hills and stands of towering trees. The architecture of Feiring reflects the town's history, with a mix of traditional Norwegian buildings, mostly wooden buildings, and some more modern designs.

They have a former retirement home that is now renovated into housing for the disabled. There are no good options for the able-bodied elderly, which would have to move out of the village to get a more suitable home.

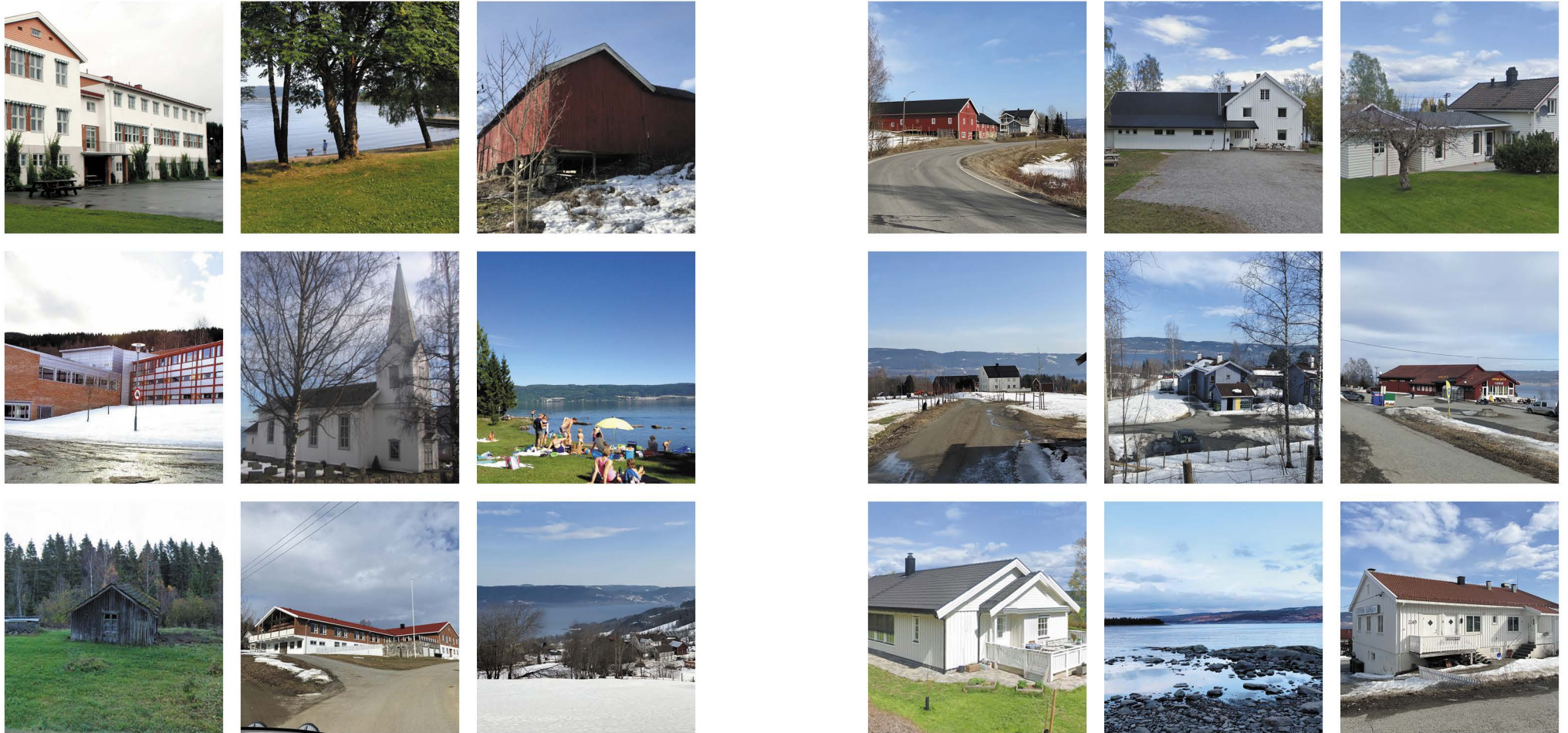
HISTORICAL PICTURES FROM FEIRING

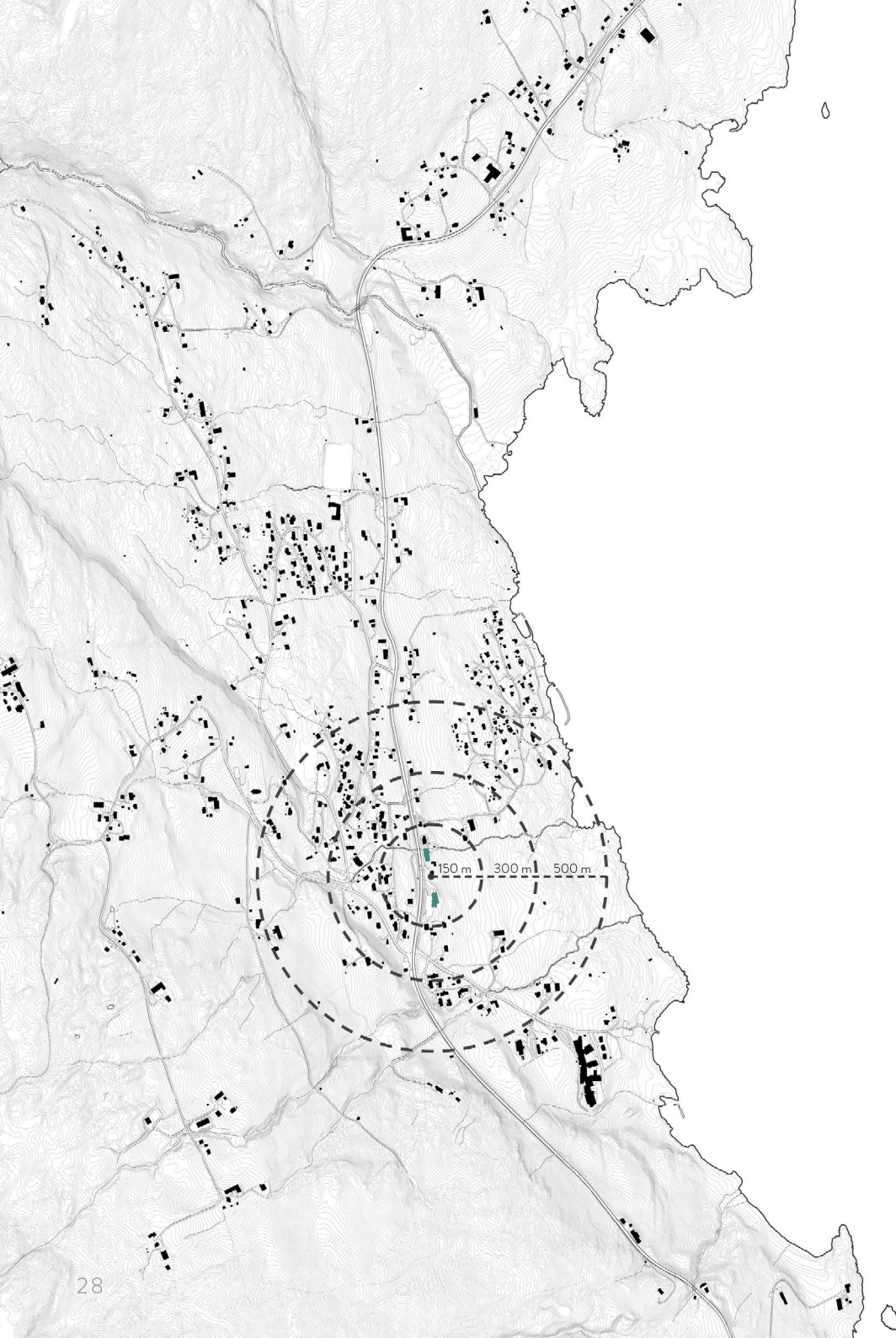


Norsk Folkemuseum (Digitalt museum)
-<https://digitaltmuseum.no/search/?q=Feiring+&aq=owner%3F%3A%22NF%22>

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-<https://digitaltmuseum.no/search/?q=Feiring+&aq=owner%3F%3A%22NF%22>

PICTURES FROM FEIRING TODAY





CHOICE OF SITE

Factors for choice of site:

- Closeness to commercial facilities
- Closeness to community functions
- Safe surroundings
- Landscape and terrain
- Outdoor areas
- Connection to infrastructure
- Access to public transportation
- View

Most of these factors was set based on characteristics of an age-friendly environment from NALs handbook⁽¹⁾, and is intended to ensure a good starting point for our project.

The rural areas of Norway allows people of different ages to live in relation to each other, and at the same time it is maybe more based on social cohesion than life in the city. Therefore, we think the most important factors for the elderly is closeness to the functions where these meetings between generations and people happens.

¹(Helsedirektoratet, 2021)



SITE

Thrift store

Disserud Fjøs og maskin

Fløygir - Community house

Bus stop towards Oslo

Coop Prix - Grocery store
Hairdresser

Bus stop towards Hamar

--- SITE AND PLOT BOUNDARY

PHASE I - PRE-DESIGN AND CONCEPT

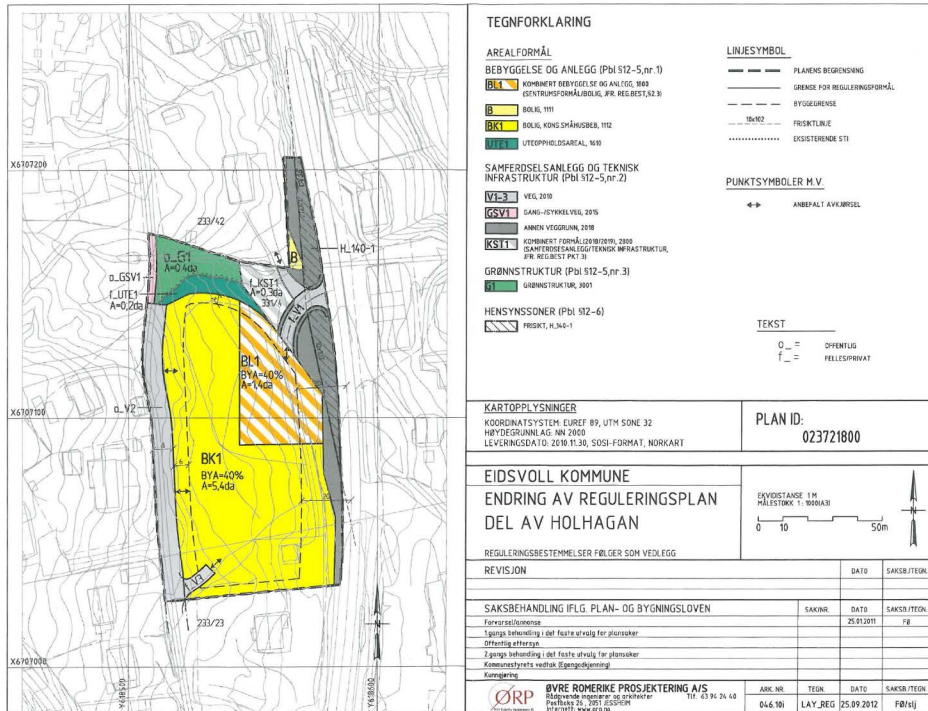
In this phase, we gather all necessary information and defines the project's extents to develop a plan for the project.

The Pre-design phase involves our research, analysis, and investigations of the site. We will also look into existing structures that may affect the project.

By collecting data like the zoning plan, regulations, environmental information, and any other requirements we get an overview of what may impact the design and decisions.

Through this phase we will start to develop a concept for the project, which will be based on the findings and studies we undertake.

SITE ANALYSIS



REGULATIONS / ZONING PLAN

Planning regulations:

Roof angle pitched roof: 27° - 40°

Colour use: Earth tones

Max utilization rate: 40%

Outdoor living space per housing unit: 75 m²

Parking space per housing unit: 1.5

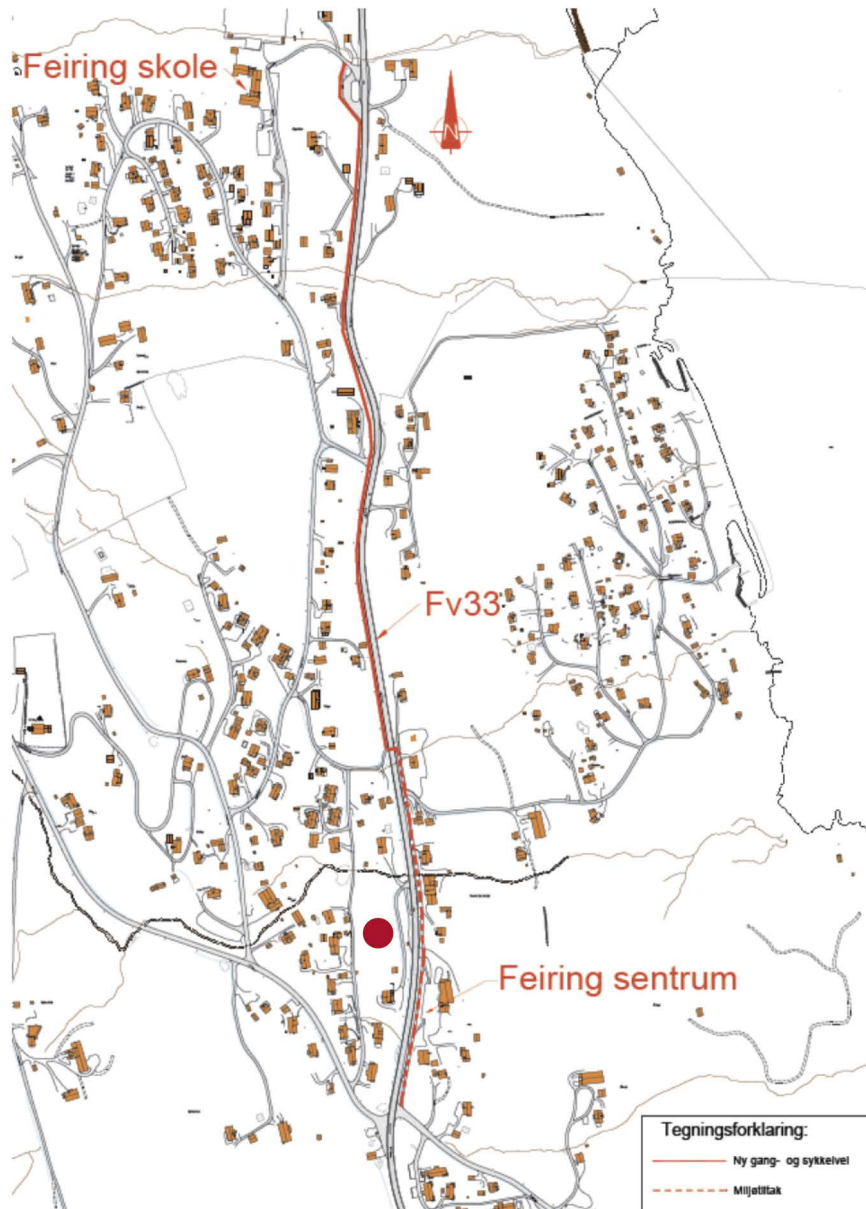
Max 4 housing units per building

Roof lifts / dormers: < 1/3 of the roof area

Ridge height: 9 m above average terrain level

Eave height: 7.5 m above average terrain level

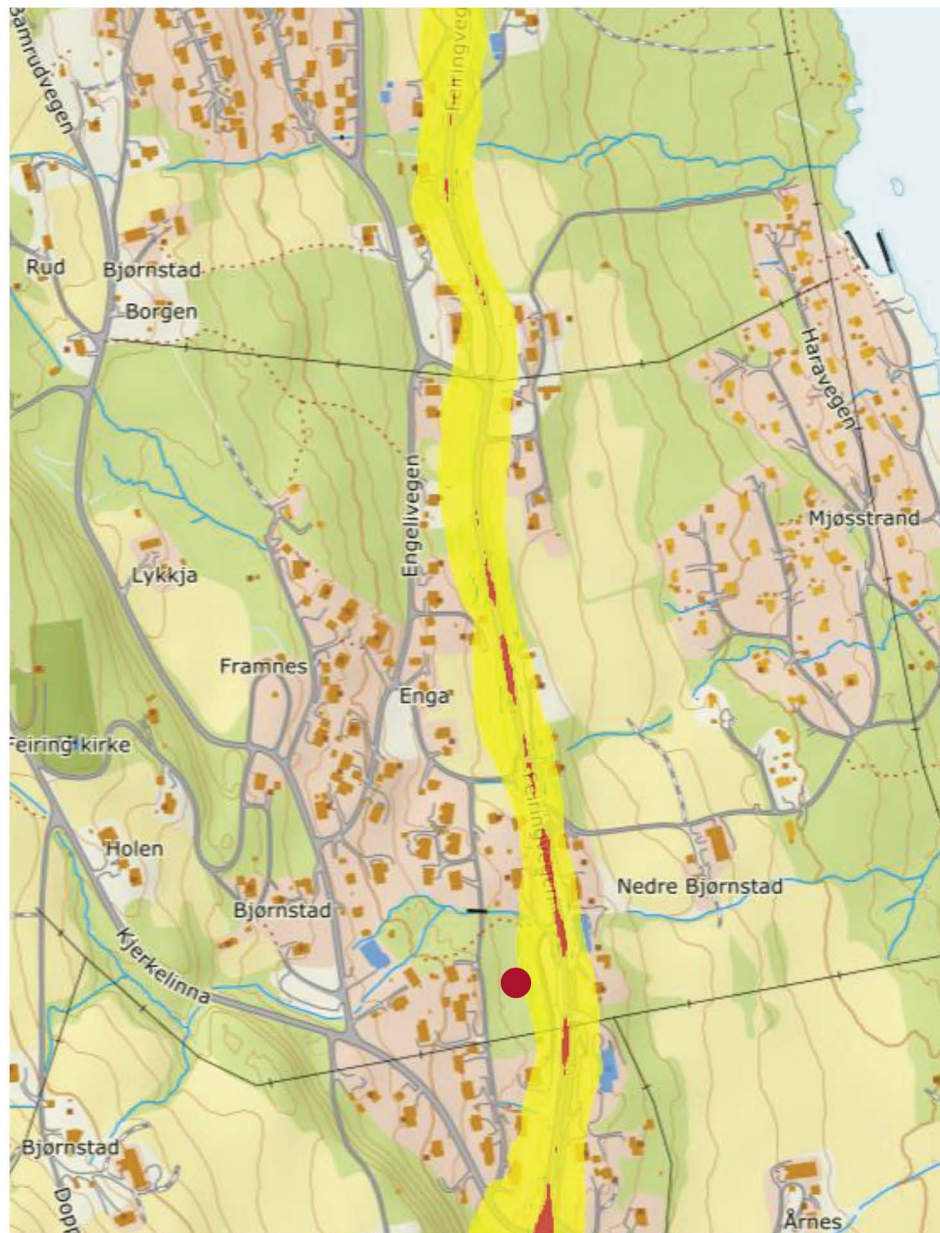
Eave height detached garage: 5 m above average terrain level



PEDESTRIAN SIDEWALK PROJECT

Changes to the main road, Fv33, east of the site.
Establishment of sidewalks from village centre to the primary school.
Reduction of speed limit from 50 km/h to 40 km/h.
This will improve the traffic noise on our site.

● Site



TRAFFIC NOISE

The traffic noise is present on the east side of the site.

Reducing the speed limit might also reduce the noise, and the yellow noise zone will then impact our site less.

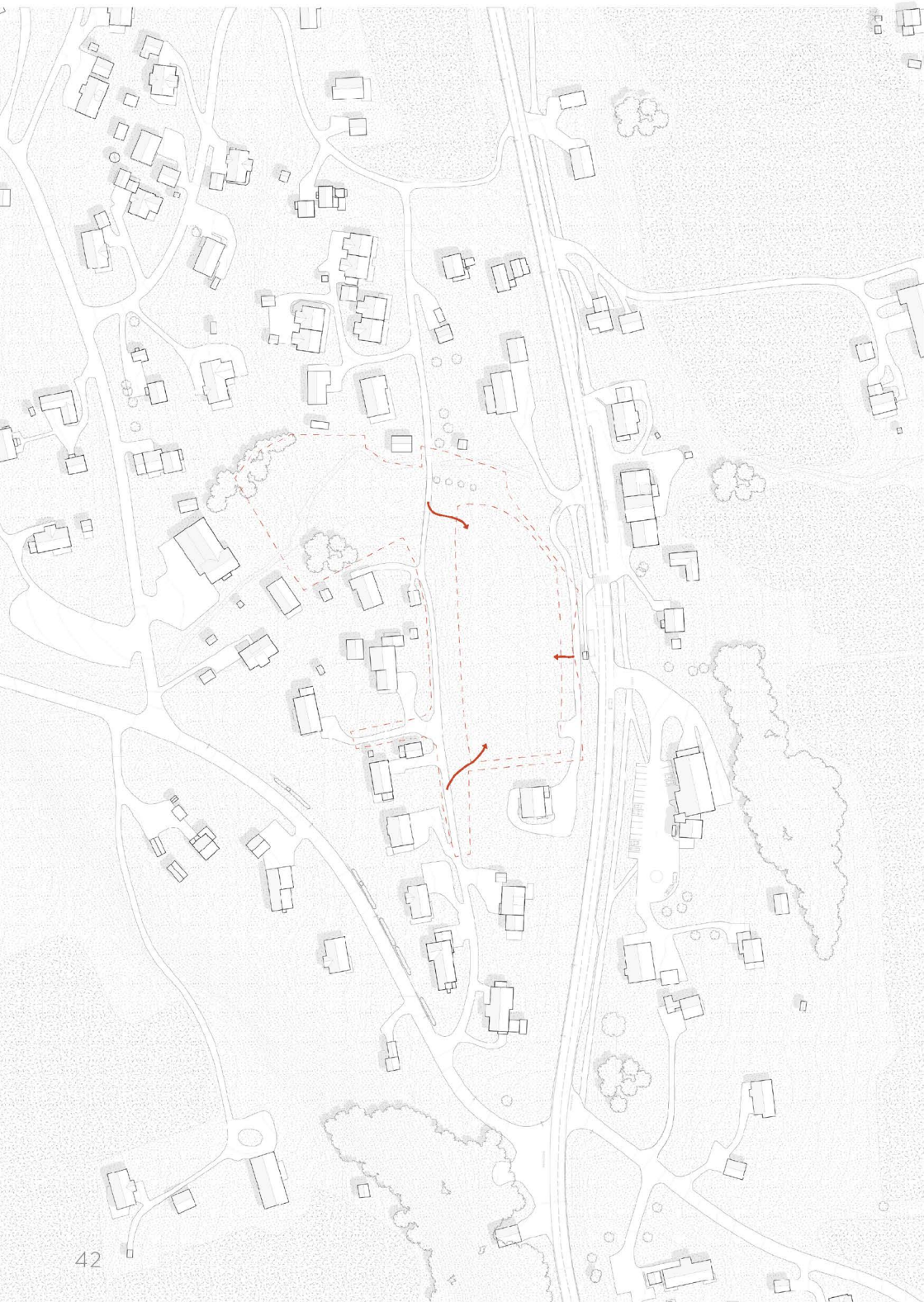
The noise is something to think about both when placing our buildings and in the plan layout with placement of rooms.

● Site



TERRAIN

The terrain on the site can be divided in three, a steep slope in the west, more flat terrain in the middle and a slope in the east.



ACCESS

There are three natural access points on the site, where the difference in terrain has a slope that allows easier access.

PICTURES FROM SITE



View from center of the site



Road east of the site



View from top of the site



Road west of the site

FOUNDATION WALLS FEIRING



FOUNDATION WALLS FEIRING



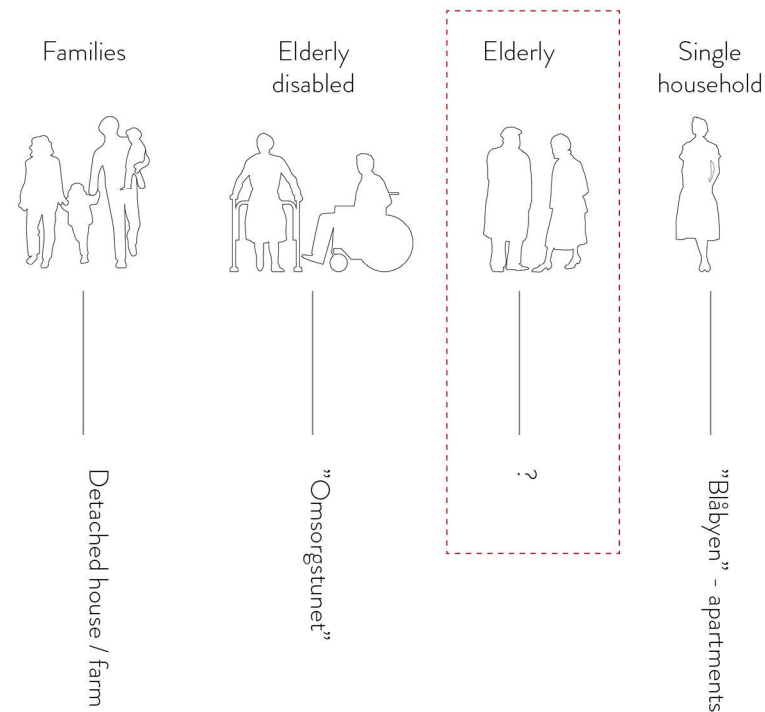
POPULATION PROJECTION IN FEIRING

Befolkning - Feiring skolekrets pr 31.12	Prognose----->																		
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
0-1 år	13	14	17	15	12	14	13	12	12	12	12	12	12	12	12	12	12	12	12
2-5 år	54	42	36	39	39	37	37	35	30	31	31	31	31	30	31	29	29	28	28
6-15 år	132	130	124	119	127	123	124	117	111	108	104	102	94	91	84	83	82	79	74
16-22 år	52	54	58	62	68	71	73	78	84	84	81	78	81	80	80	73	67	66	68
23-66 år	553	529	516	508	505	492	479	465	460	449	439	431	413	410	395	397	392	380	370
67-79 år	119	126	132	141	147	150	149	153	146	152	157	155	157	155	165	166	165	162	170
80-89 år	40	34	33	34	33	35	34	38	44	47	48	56	62	63	67	68	68	71	66
90 år og over	7	9	9	6	6	9	10	12	11	10	11	10	11	12	10	11	12	17	18
sum	970	938	925	924	937	931	919	910	898	893	883	875	861	853	844	839	827	815	806
årlig endring:		-32	-13	-1	13	-6	-12	-9	-12	-5	-10	-8	-14	-8	-9	-5	-12	-12	-9

Over the next 12 years, we will see an increase of 61 people in the age group 67 and over, but a general decrease in the population of 113 people.

POPULATION AND HOUSING OPTIONS IN FEIRING

Today there is no option for the healthy elderly in the village.



RESPONSE TO THE SENIOR WAVE

Senior wave:

- Increasing proportion of healthy elderly
- More people must live at home longer
- Relieve the pressure on the health and care sector
- Don't sit on a home they can't maintain

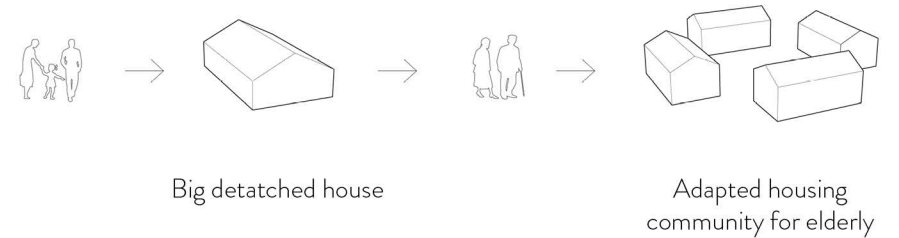
Contribute to natural replacement of people in the village

- Free single detached houses
- Housing available for families with small children
- Contribute to an even population and school pupils

Belong to a community

- Housing community
 - Can increase the quality of life, 5 main points
 - Increased mastery and prolonged independence
 - Access to activities and inspiring environment
 - Feeling of safety
 - Stronger social relationships
 - Homogeneity
 - Manage 5 years longer without help from the public sector
 - Activate the elderly, let them take a greater part in society

BETTER MATCH HOUSING CONSUMPTION AND HOUSING NEEDS



VALUES



POSSIBLE WAYS TO THINK SUSTAINABILITY

Economical sustainability

- Maintenance friendly

-Shared facilities

- Pre-fabrication

-Building system

- Material choice

-Housing size

Social sustainability

- Health

-Well-being

- Safety

- Affiliation

- Inclusion

-Interaction**-Community**

- Universally designed

-Lifetime housing

Environmental sustainability

- Materials

- Greenhouse gas emissions

-Solar cells

- Charging points for car/bicycle

-Ground source heating**-Energy efficiency**

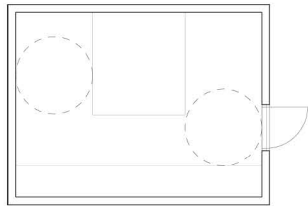
- Minimize basement space

-Terrain balance

REQUIREMENTS FOR LIFELONG HOUSING IN NORWAY

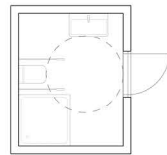
- Small house: maximum size 150 m²
- Not have high thresholds or other physical obstacles inside or outside
- All necessary housing functions must be on the entrance level (entrance area, kitchen and living room, bedroom, bathroom/toilet).
- It must be possible to install solutions for welfare and smart home technology afterwards.

Bedroom



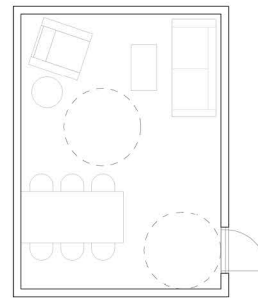
- Double bed, turning circle one side
- Wheelchair friendly

Bathroom



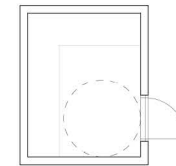
- Wheelchair friendly
- Space for washing machine

Living room



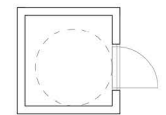
- Minimum same size as bedroom

Kitchen



- Wheelchair friendly

Storage



- Minimum 3 m²
- Inside apartment

WORKSHOP WITH FEIRING PENSIONERS ASSOCIATION 01.03.2023

It is important for us to draw a credible and grounded project that could work well in a rural context. Therefore we wanted to get a insight into what the elderly people in the village Feiring are thinking about their current and future housing situation, and we invited the Pensioners association to a workshop.

The workshop started with a small presentation of our background and thoughts, before we walked around to the different tables and asked a small list of question and had conversations where we got to hear their thoughts of how it is ageing in the countryside today.

One thing we experienced was that the positivity was significantly higher if we said housing with shared solutions instead of housing communities.



QUESTIONS AND ANSWERS:

1. Current place of residence

- How do you live today?

Detached house |||||

Small farm ||

Farm ||

- What do you think about ageing in your current home?

- Renovate and get everything on one level
- Do not want to move away from acquaintances
- Becomes more difficult to move around
- Lives in an old and difficult house to get older in
- Way too much to maintain alone
- Too far away from the grocery store and the social activities

2. Future residence

- Is it applicable to move inside the village, if there was a good alternative?

Yes |||||

No |||

Depends on the alternative ||||

- Advantages and possible disadvantages of senior housing with shared functions?

- Important not to push a community on everyone
- Must have the ability to retreat and be private
- It is important to have something to do
- if the alternative is good, you don't have to redo your own home

QUESTIONS AND ANSWERS:

3. Design of senior housing

- Offers nearby, location?
 - Walking distance to the grocery store
 - Closeness to Fløygir (community center)
- Wishes when it comes to floor plans / layout?
 - Everything on one level!
 - Possibility to close the kitchen
 - Private patio with a view towards Mjøsa
 - A private flower bed
- Social community, to increase social interaction and activity?
 - Would have been very good. Lonely today when the family has moved out of the village
 - I really want to live in a shared accommodation (1 person)
- Common room as an extension of the home? What functions should one have here?
 - The outdoor area is most important
 - A living room to gather and have quiz nights

Quotes

"It would have been nice to be more people doing the maintenance"

"I want to live on my farm, moving is out of the question"

"We are a bit disconnected and lonely where we live today, and could well consider moving inside the village if there was a good option"

"I always visit, she has everything on one level and I'm envious of that. But I can't take the old man with me when moving"

"I must have my own patio with a view of Mjøsa, and a small flower bed that I can deal with"

"It would have been nice to be able to go to the shops, and be closer to Fløygir and the social scene"

"I don't want any community pushed on me, you have to have the opportunity to retreat"

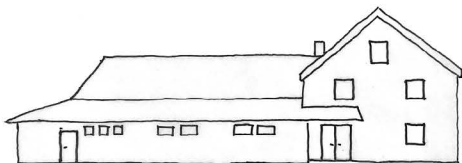
"If there is an alternative I can move to, my home could be very nice for a family with children"

"Maybe just a common living room to have quiz nights and a nice outdoor area"

"We have arranged our home with a stair lift so we can continue to live here for a long time"

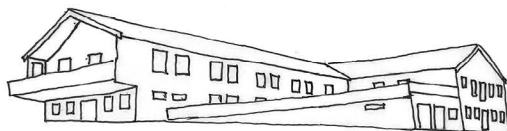
ACTIVITIES FOR THE ELDERLY IN FEIRING

Fløygir- Community house



Senior dance group- Every Tuesday
 Walking group- Every Thursday
 Pensioners Association- First Wednesday every month

Omsorgstunet- housing for elderly people with disabilities



Craft Café- Every other Thursday

CALENDAR AT FEIRING.INFO

Aktiviteter og arrangementer i Feiring

Kategorier ▾ Tagger ▾

< MAI 2023 > Slå sammen alle Utvid alle

MAI 1 man	1.mai arrangement @ Fløygir mai 1@18:00
	Innebandy for damer @ gymsalen Feiring skole mai 1@19:30-21:00
MAI 2 tir	Fritidsklubb @ Fløygir mai 2@18:00-20:30
	Tirsdagstreninga @ gymsalen Feiring skole mai 2@18:30-19:40
MAI 3 ons	Åpent møte i Pensjonistforeningen @ Fløygir mai 3@18:00-21:00
	UTSATT – NY DATO KOMMER! Dugnad på Fløygir mai 3@18:00-20:00
MAI 4 tor	Gågrupper @ Fløygir mai 4@12:00-13:00
	Dugnad på kirkegården @ Feiring kirke mai 4@17:00-19:00

< MAI 2023 > Abbonér ▾

TYPOLGY STUDY - "BYGDETUN"

A "bygdetun" can be described as "a fully or partially enclosed courtyard, often a farm, that consists of the space where the houses stand and the courtyard around which the houses are grouped"⁽¹⁾. This is a known typology in the countryside in Norway, and are for many associated with rural societies.

There were several factors that influenced the development of various types of courtyards in different parts of the country, including climate, communication, organization of work, and aesthetics⁽²⁾. The terrain also often plays a major role in how the buildings and courtyard is placed and adapted to the space.

In eastern Norway and Trøndelag it became more common to have fewer and larger buildings, and therefore the rectangular courtyard emerged as a more regular organization⁽³⁾.

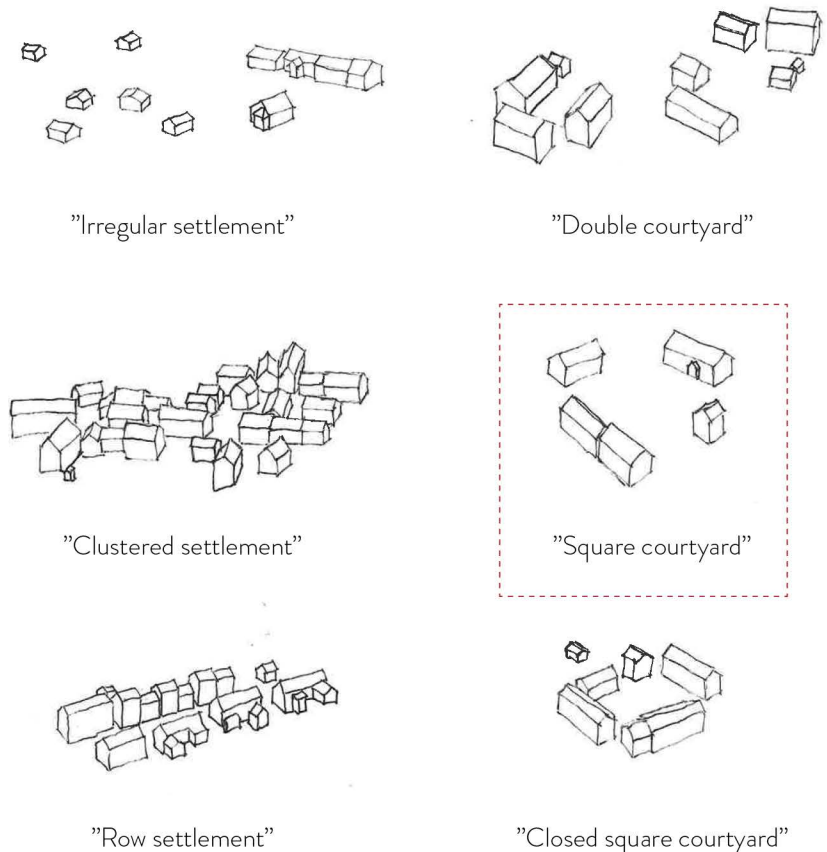
Although shared ownership of houses was not the most common, there are early examples of it. There are farms, for example, with shared living quarters and houses for food preparations that are shared by several different farms.

The living room, or "stua", was the main room and the most important house. But perhaps most important was the courtyard itself as a meeting place, garden, and area for community and work.

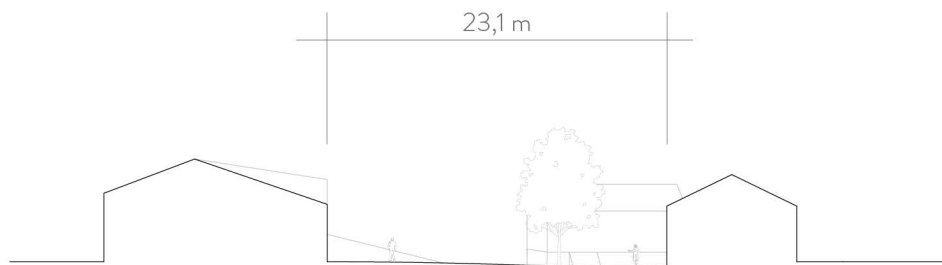
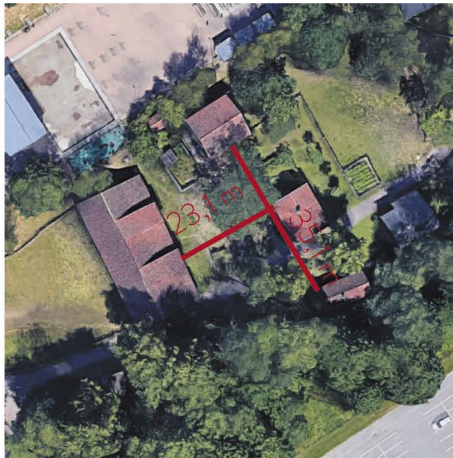
The following pages shows some "bygdetun" placed in the Norwegian Folkmuseum at Bygdøy in Oslo. It shows different sizes and variations of buildings, as they come from different parts of the country.

1 (Tun, 2021)
2, 3 (Christensen, 1995, p. 251 and 254)

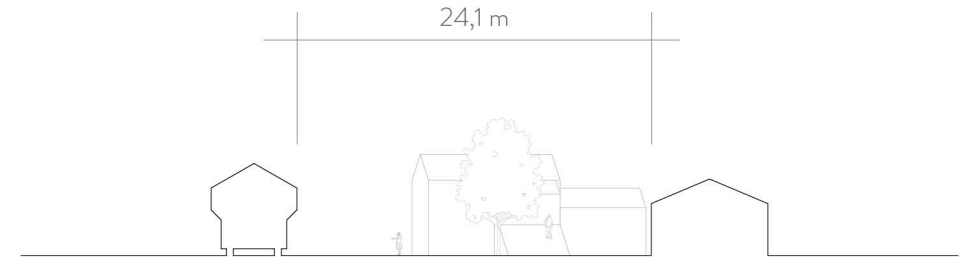
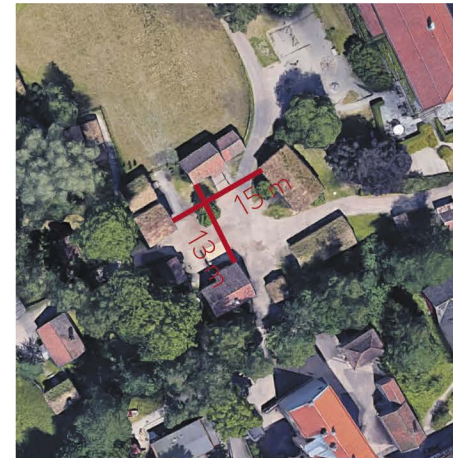
DIFFERENT TYPES OF "BYGDETUN" - HISTORICALLY



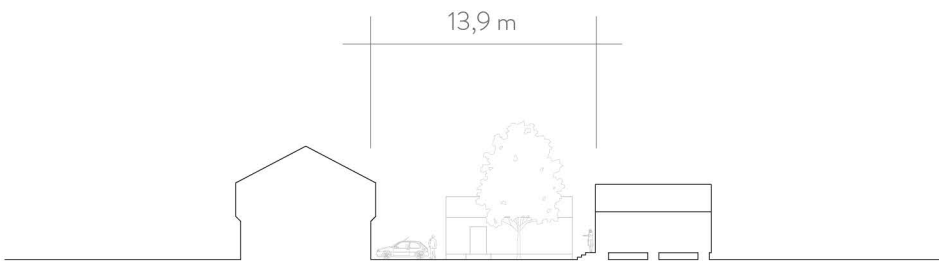
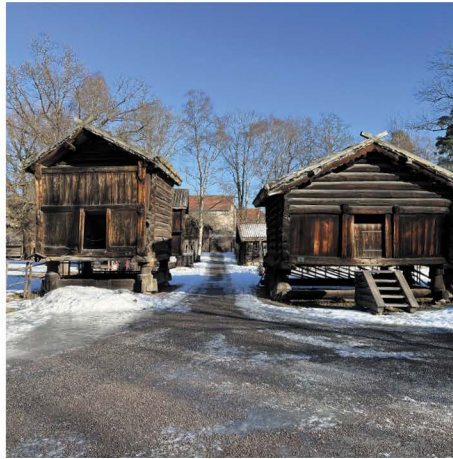
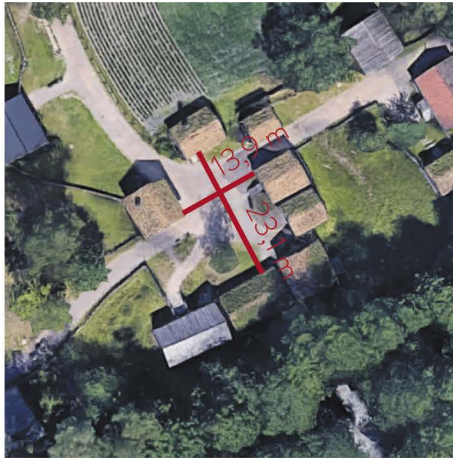
NORSK FOLKEMUSEUM - ØSTLANDET



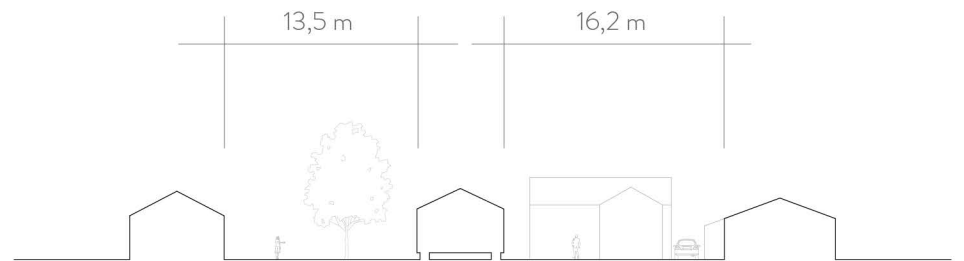
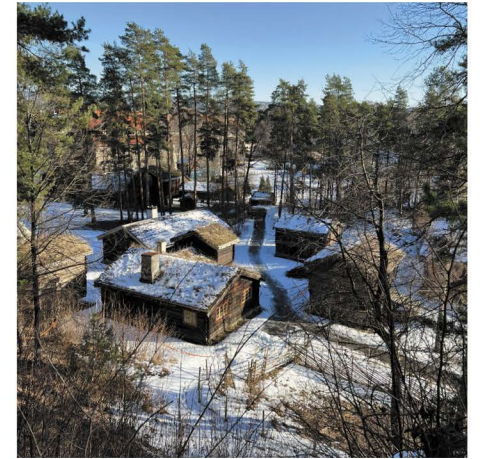
NORSK FOLKEMUSEUM - TELEMAR



NORSK FOLKEMUSEUM - HALLINGDAL



NORSK FOLKEMUSEUM - ØSTERDALEN





BYGDETUN IN FEIRING

As shown there are several "bygdetun" in Feiring as well, organised around a square courtyard.

They often have smaller buildings towards the south, to better the sun conditions in the courtyard. The central space of the courtyard is set to manoeuvring and circulation.

Some of the farms have been changed in modern times, and some have added an additional house to be able to fit several generations in one farm.

Most people who have grown up in the village have at one point lived on a village farm, since the older generation lived partly by farming.

DEFINE THE COURTYARD

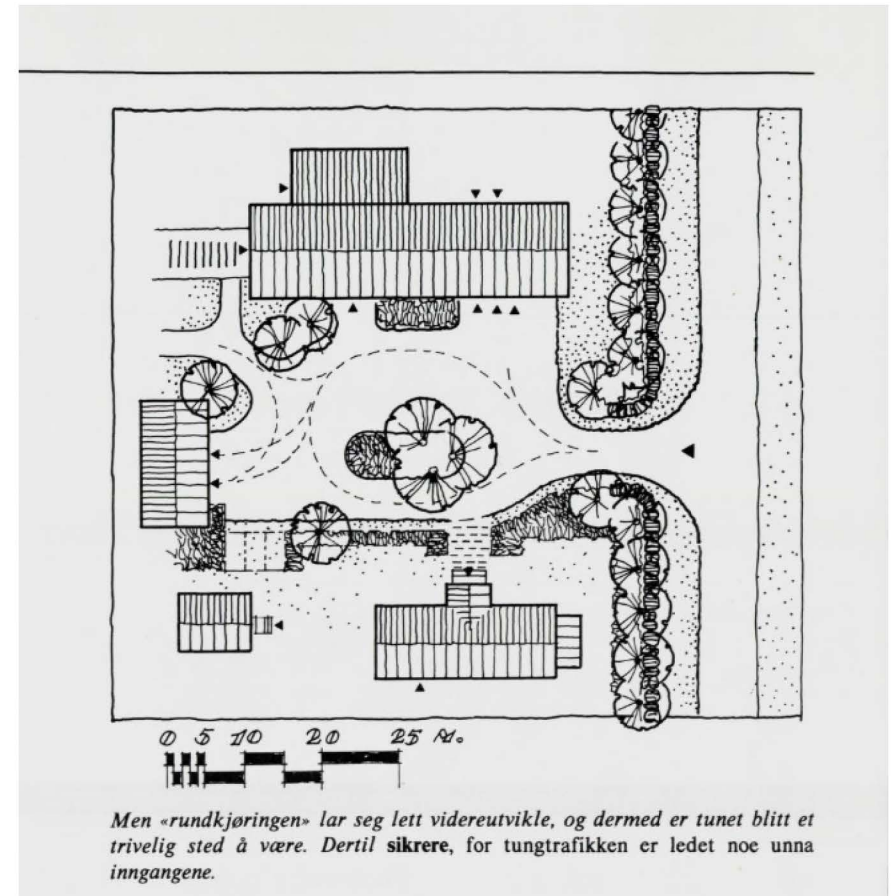
A courtyard can be defined by several factors that are important for its usability and functionality. First and foremost, it should have sufficient space for manoeuvring, allowing for easy movement and navigation. Additionally, good visibility is crucial for safety reasons, and a reasonably flat surface will ensure that it is accessible to all.

A dry courtyard is essential, as this will prevent slips and falls, particularly in wet weather. Therefore it is convenient to have some slope in the terrain, and think about surface water handling. Furthermore, it should be well-founded to ensure stability, and an appropriate wearing surface with good traction should be used for durability.

It is important that the courtyard is easy to maintain and keep clean. This means that the surface should be easy to sweep or hose down, and any drainage should be well-designed. Additionally, it should be designed with efficient snow clearance in mind.

It may be applicable to differentiate between vehicular and pedestrian traffic, but it could also be shared spaces but with distinguished entry situations. The courtyard's use should also be flexible, adapting to the changing needs of modern times and accommodating new features and functionality.

Finally, to create a sense of community, it is important to have visual contact with the courtyard from all living spaces. By considering these factors, a well-designed courtyard can provide a functional and visually appealing space for both residents and visitors.



Inspired by the book "Tun og gardshage", Kyllingstad R.

Kyllingstad, R. K. (1984). Tun og gardshage. A/S Landbruksforlaget. https://www.nb.no/items/URN:NBN:no-nb_digibok_2007071304044?page=32

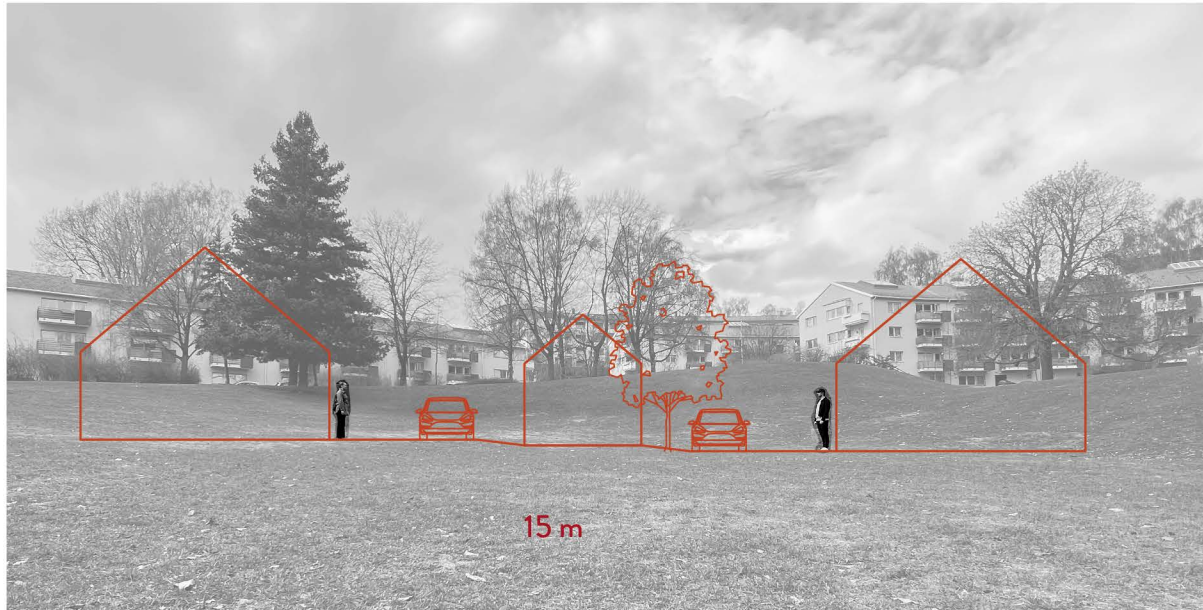
DISTANCE STUDY

We carried out a distance study, in order to better understand what is a good distance in a courtyard situation with regard to modern conditions.

Factors we will take into account in our design of the courtyards are space for a separate private patio outside the house, necessary space for transport in emergency situations, moving and everyday life, common green area and the possibility of a greenhouse.

The next page shows a thought usage of the modern courtyard, and concludes with what we think is a necessary size. We see that below 15 meters is too narrow, and 30 meters will fit all functions well.





15 meters distance:

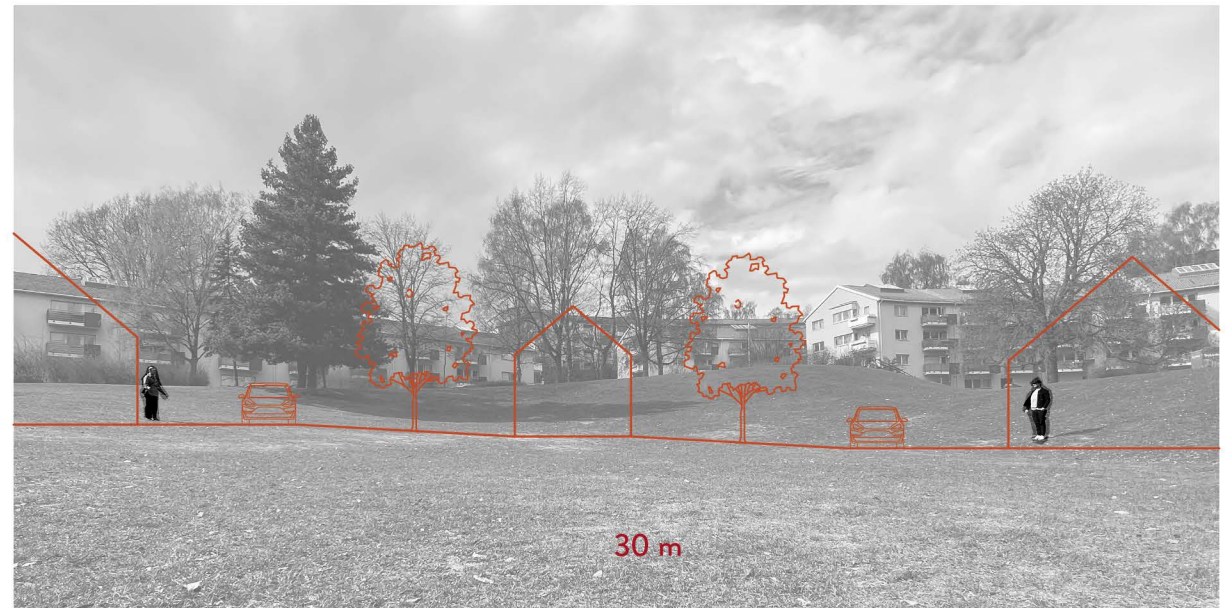
- Private space outside the house
- Transportation space
- Green space
- Greenhouse
- Green space
- Transportation space
- Private space outside the house

As thought, 15 meters is too close in order to fit all of the wanted functions. It feels cramped.

30 meters distance:

- Private space outside the house
- Transport space
- Green space
- Greenhouse
- Green space
- Transportation space
- Private space outside the house

Feels more spacious, the private area becomes more private with more distance to the common green space.



10

PHASE II - SKETCHING AND EXPLORING

PHASE II - SKETCHING AND EXPLORING

This phase explores the potential of the site, through models, sketching and drawings. And seeks to further develop the concept through translating the program and typology into architectural design.

The phase ends with the midterm presentation, that gives an overview of the project at that stage. Looking at strengths and weaknesses to the concept and start of the architectural design.

Starting with a volume study, and a plan study to explore sizes and what the site and surroundings can handle of building mass. As well as taking a look at the situation in section, to better understand the placement of buildings in the terrain.

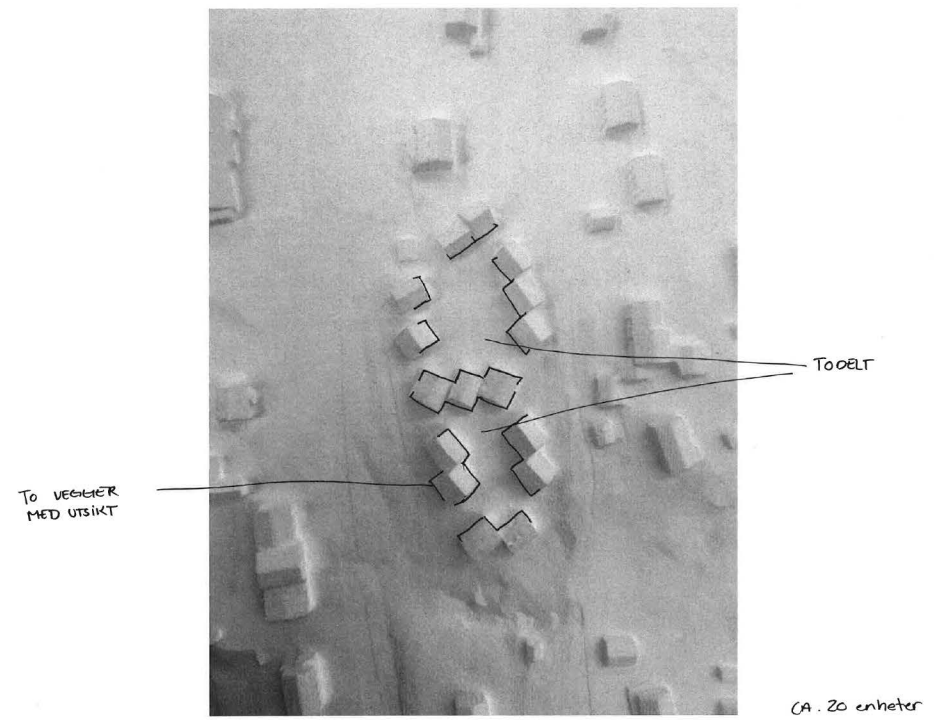
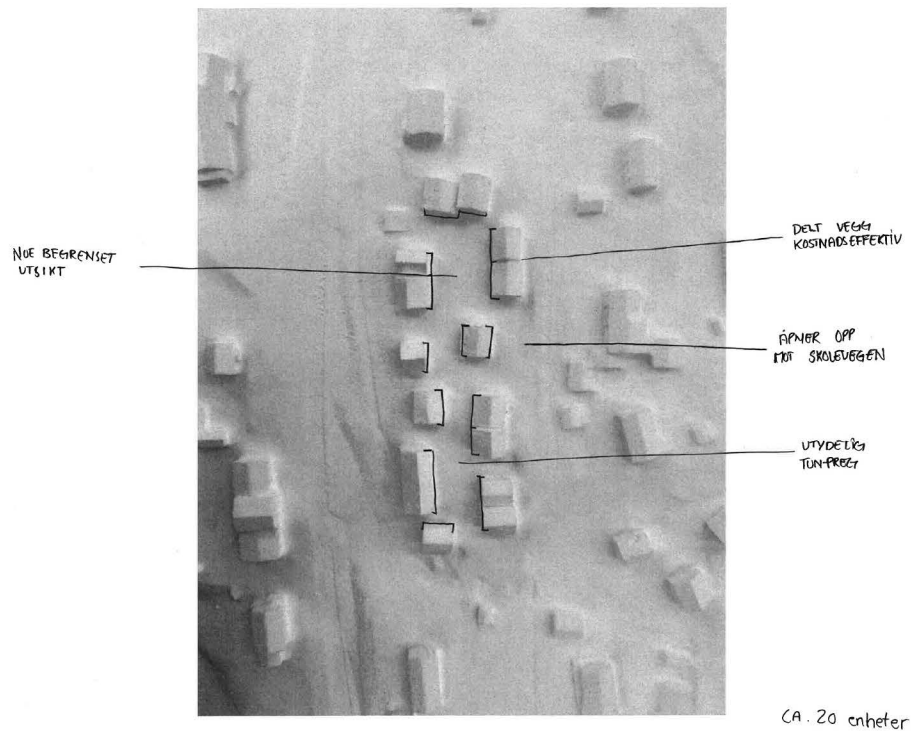
Sketching different configurations of buildings and placements. Looking at the ridge direction, and which effect this has.

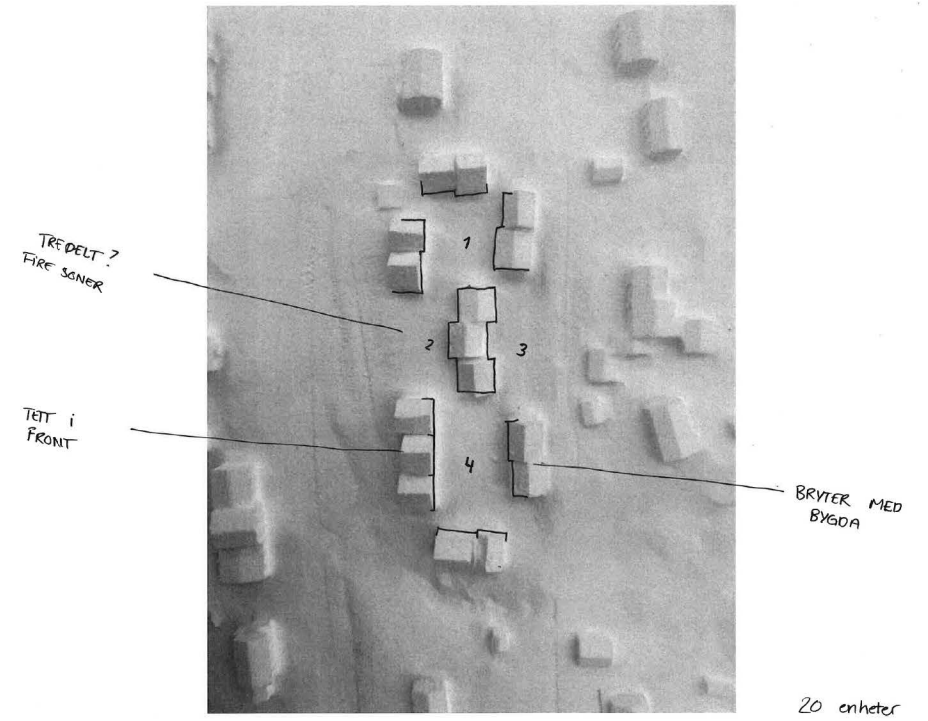
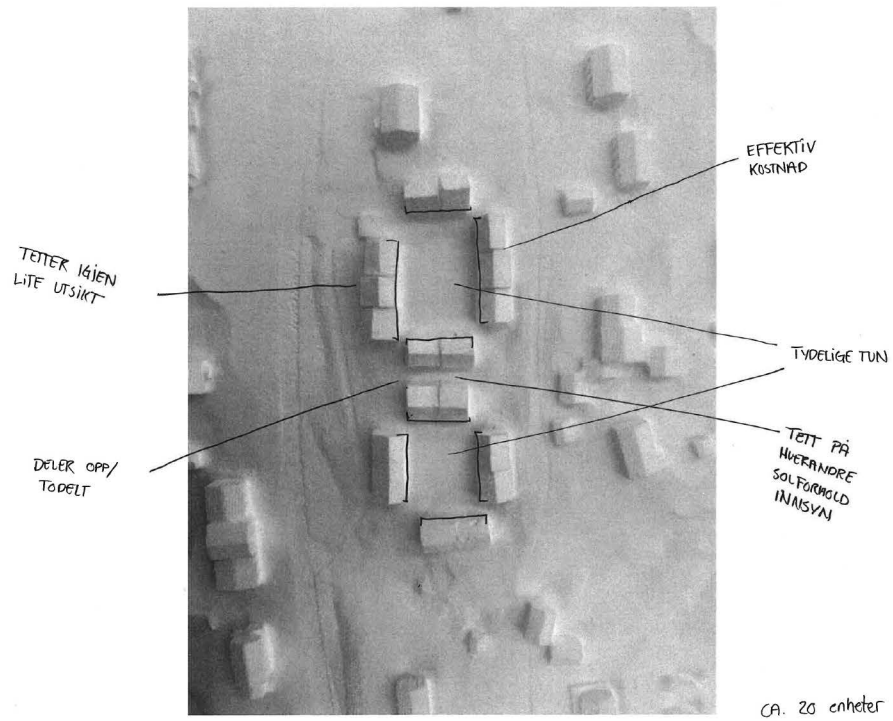
Using different tools to explore. For example hand drawings, 3D modelling, rendering, and 2D drawing.

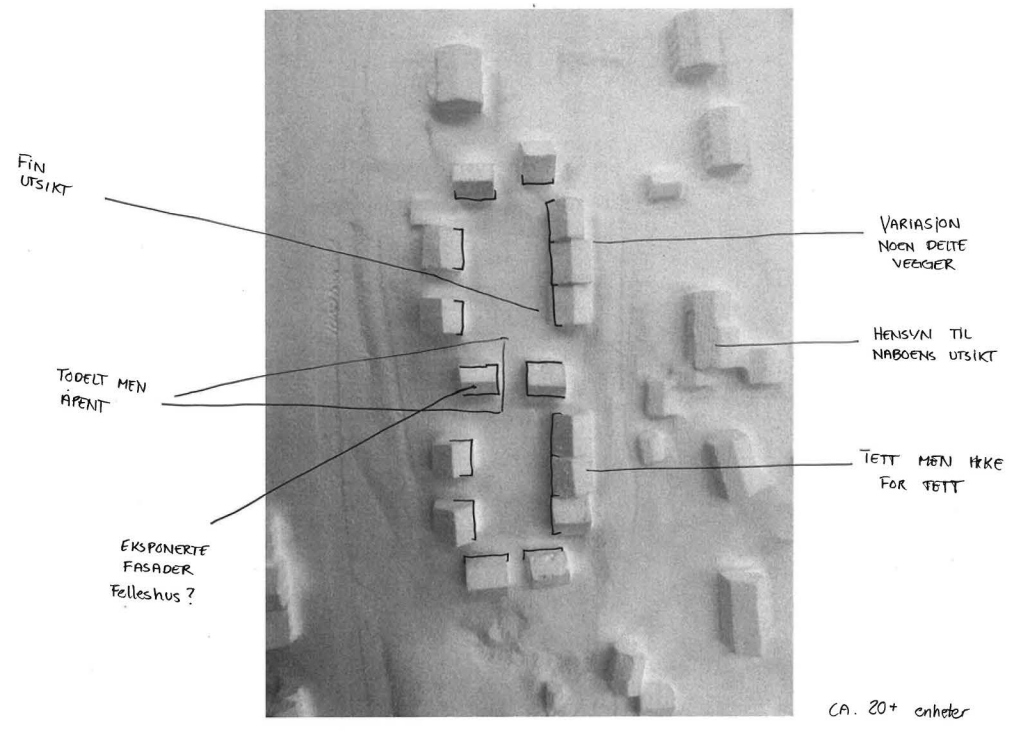
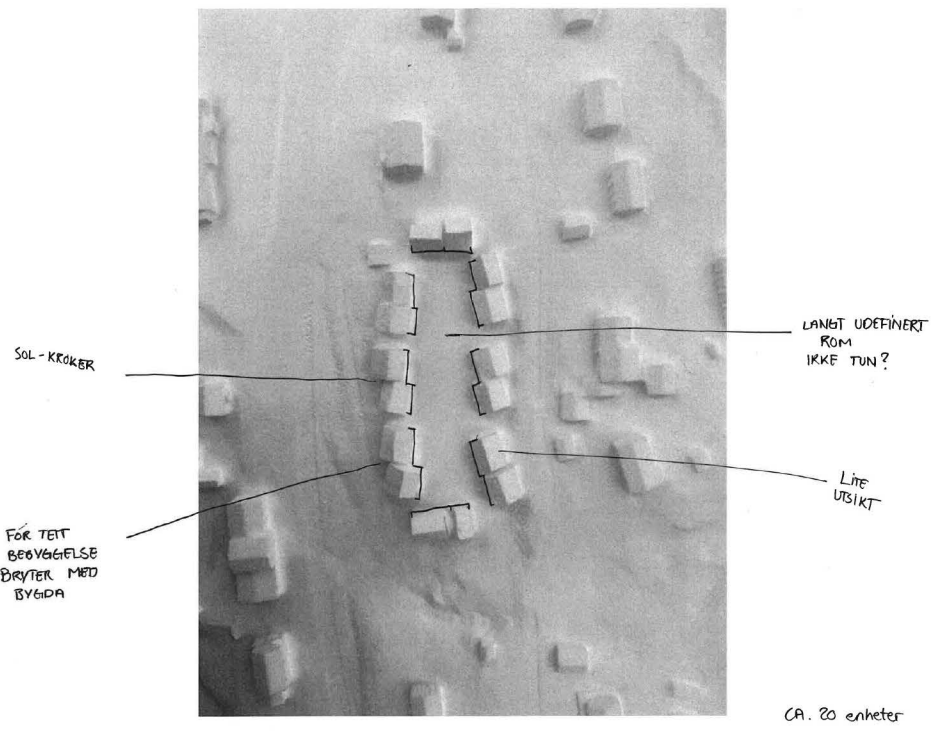
VOLUME STUDIES



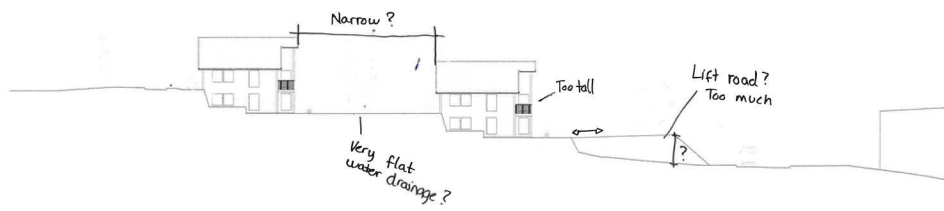
VOLUME ANALYSIS



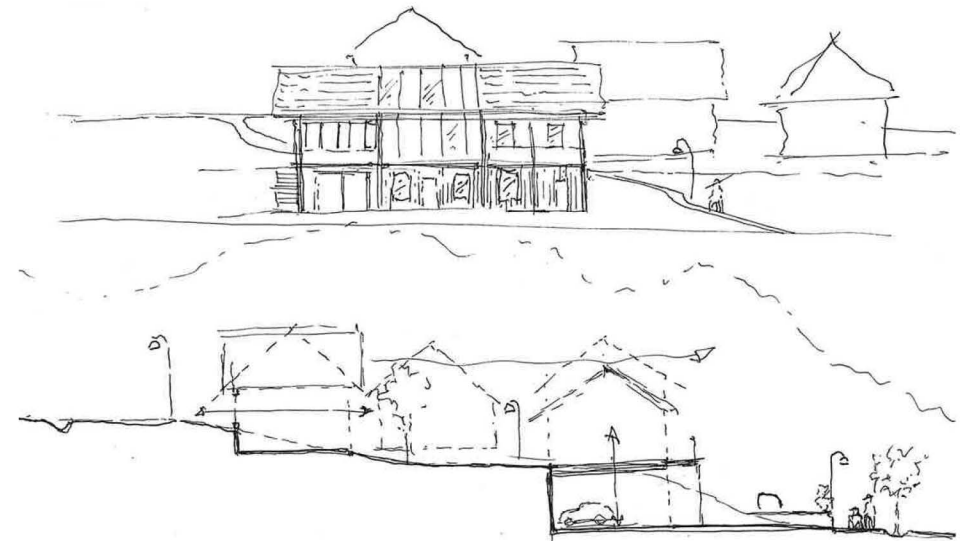




PLACEMENT IN TERRAIN



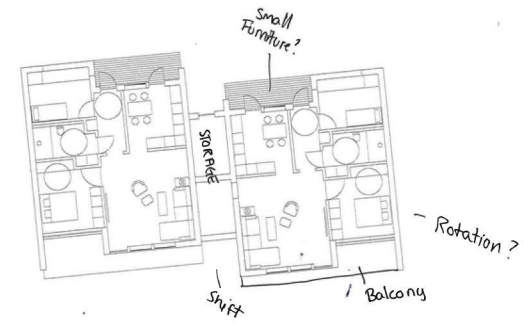
SKETCH BUILDING IN TERRAIN



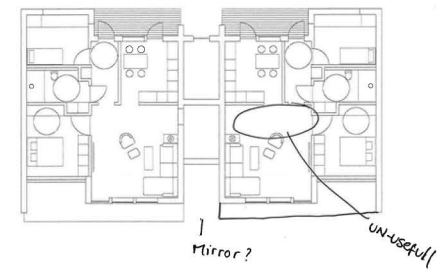
SKETCH TUN - HIGH UTILIZATION



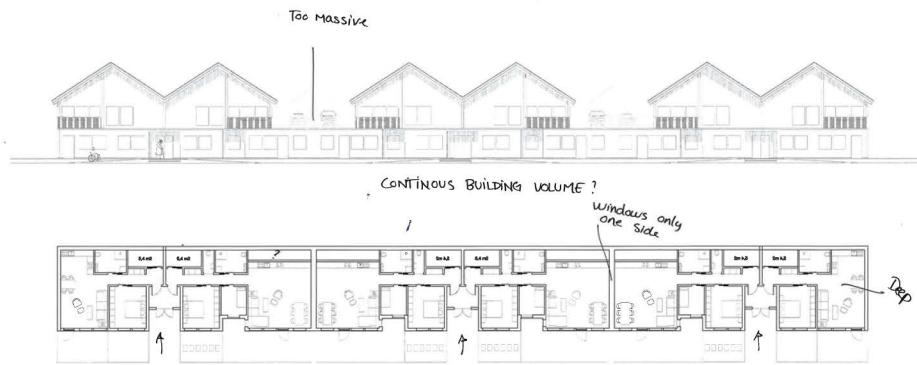
TWIN HOUSE



Q-z



CONTINUOUS FIRST FLOOR

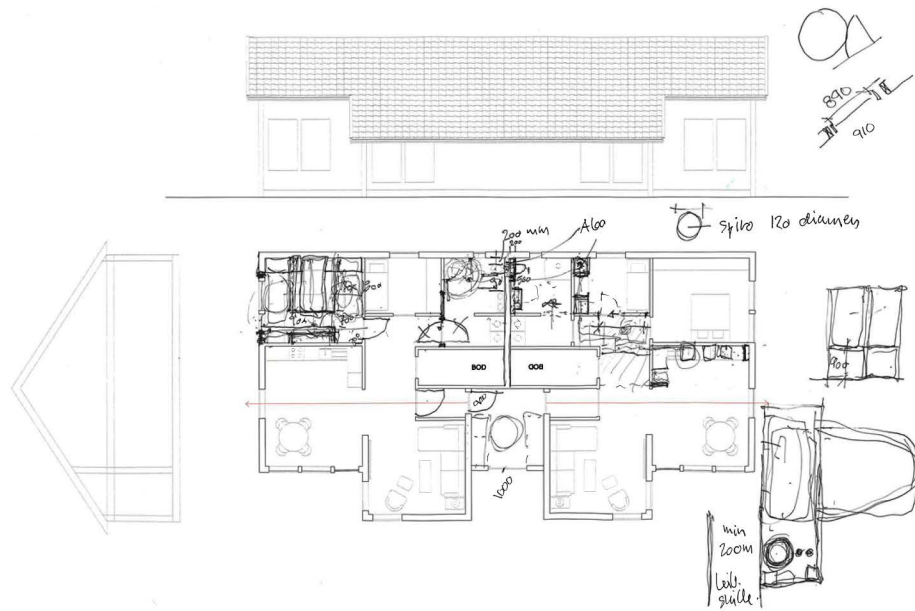


DIVIDED FIRST FLOOR

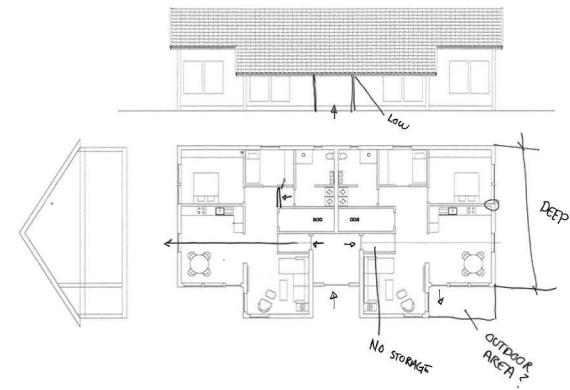


TECHNICAL SKETCH

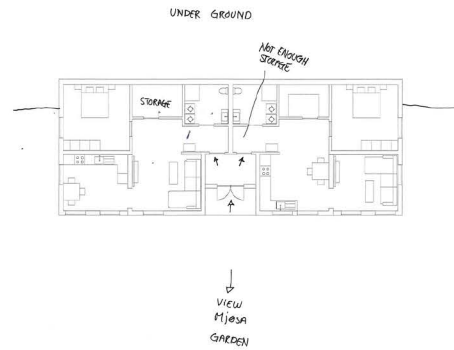
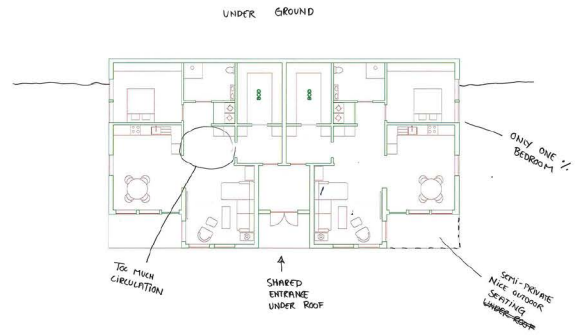
Plan testing, to figure out needed size.
Thinking of the link between size and price, what is sustainable
in a rural context.



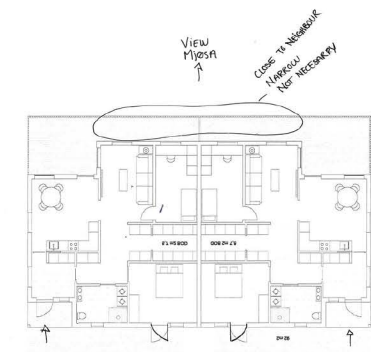
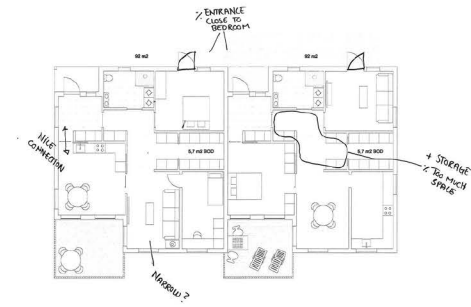
ONE STORY HOUSE - TWO APARTMENTS



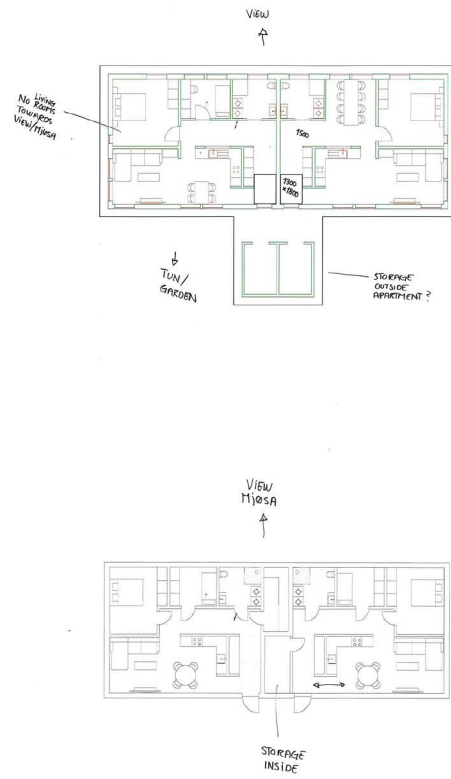
1. FLOOR WEST BUILDINGS



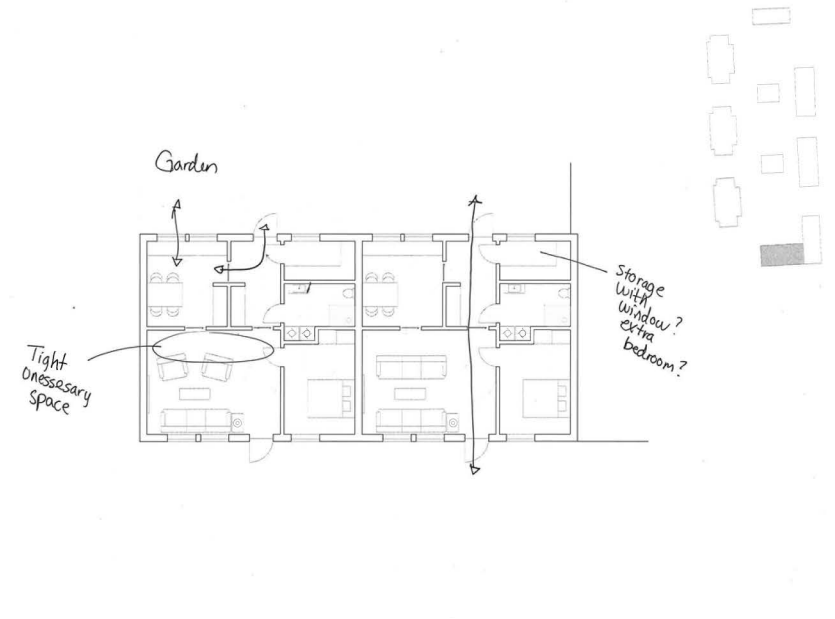
2. FLOOR WEST BUILDINGS



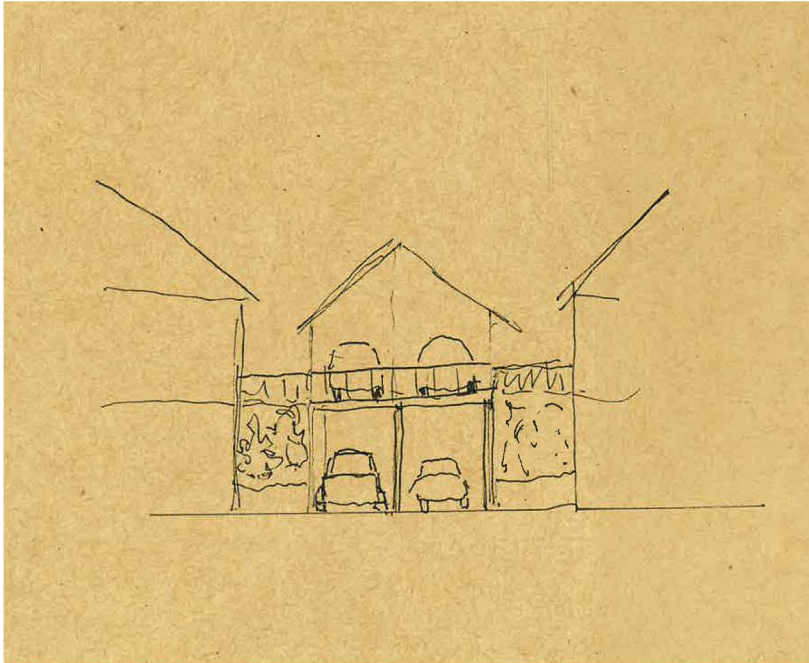
EAST BUILDINGS - ONE STORY



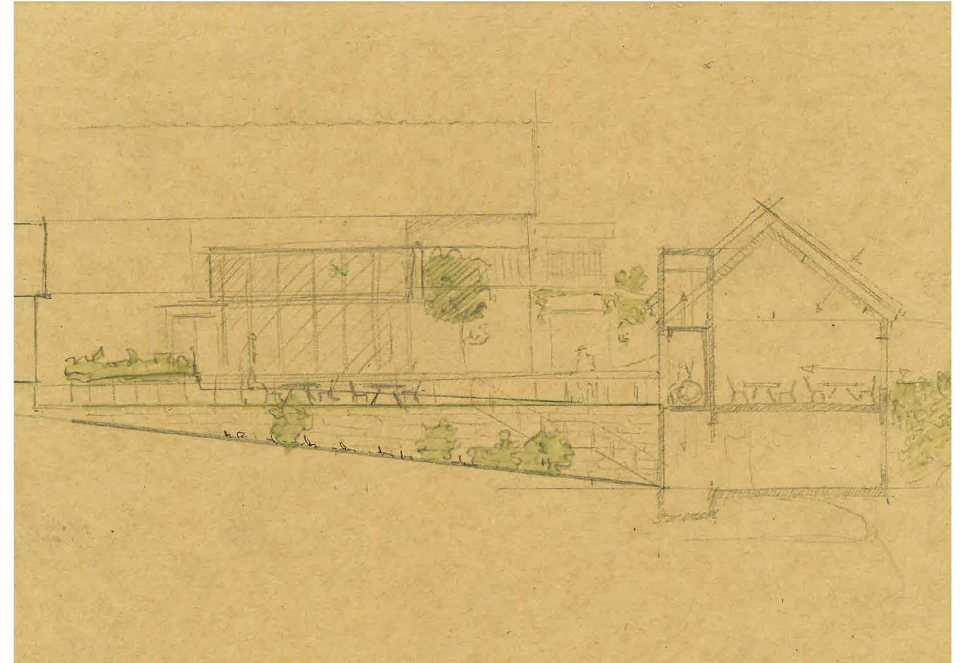
SOUTH BUILDING - ONE STORY



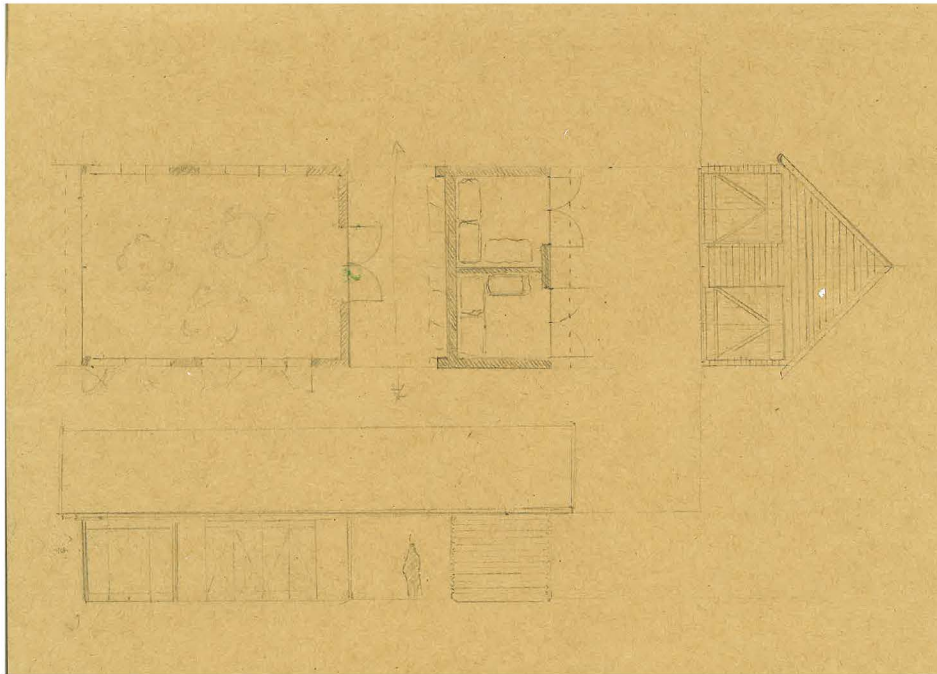
CAR PORT TWO LEVELS



ACCESS FROM NORTH-EAST

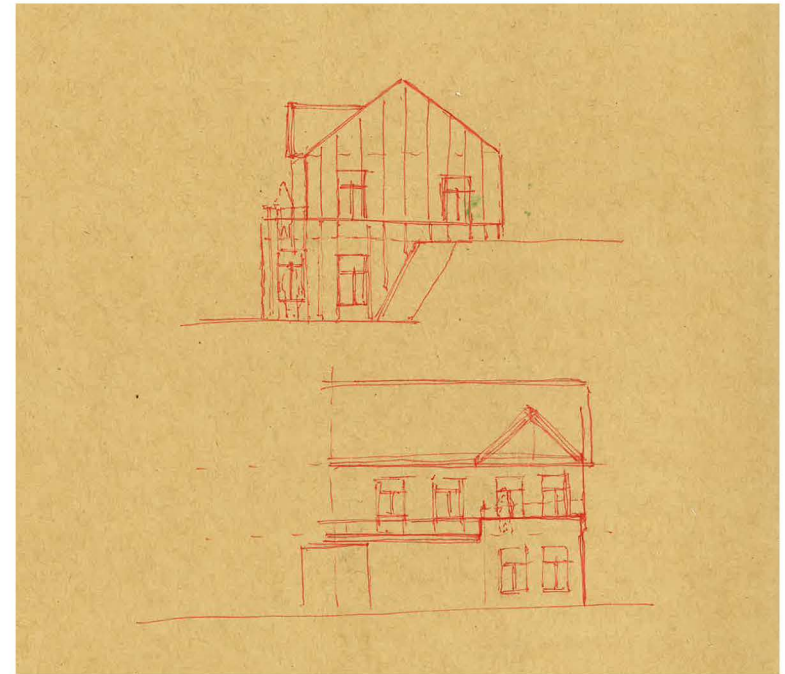


SKETCH COMMON HOUSE



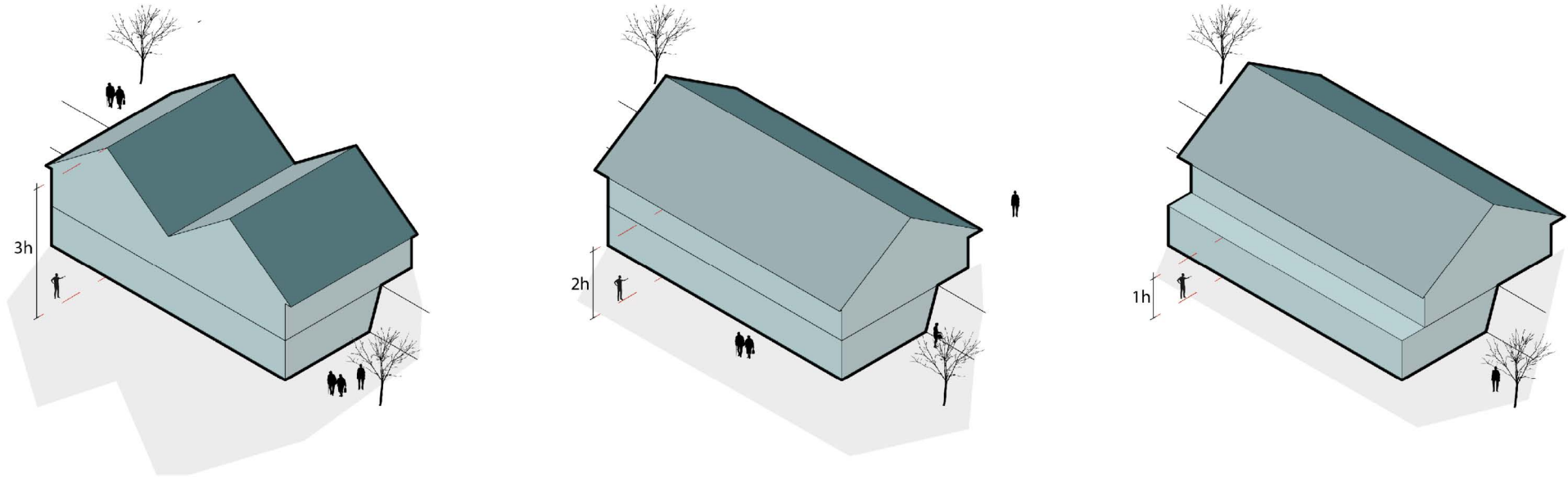
Initial sketches of the common house. Passage through, with living room on one side and spacious tool sheds on the other side.

SKETCH BUILDING IN TERRAIN



Building in the terrain, changing direction of the roof?

BUILDING IN TERRAIN



By reversing the direction of the roof, we lower the experience of the building height. Shifting the floor above will lower it further, while also improving the solar conditions in the yard.

EARLY ARCHITECTURAL EXPRESSION



Shared functions in the center, with storage connected.
The idea of a flat yard.

EARLY ARCHITECTURAL EXPRESSION



A more closed square courtyard.



Closed, lafted, garden shed and more transparent common living room.



Functional gutter detail. Laft for a durable structure for the shed.



Green wall in the lower floor of the buildings towards west.



Shutters, sun shading - manually

MIDTERM 30.03.2023

Thoughts:

- Focus on accessibility
- Flatten the terrain in the yard
- Levels, ramps
- Parking in the courtyard for short distance to door
- Access from east and west

- Too high utilization?
- Three gardens one courtyard?
- 20 units
- 30 parking spaces

Feedback:

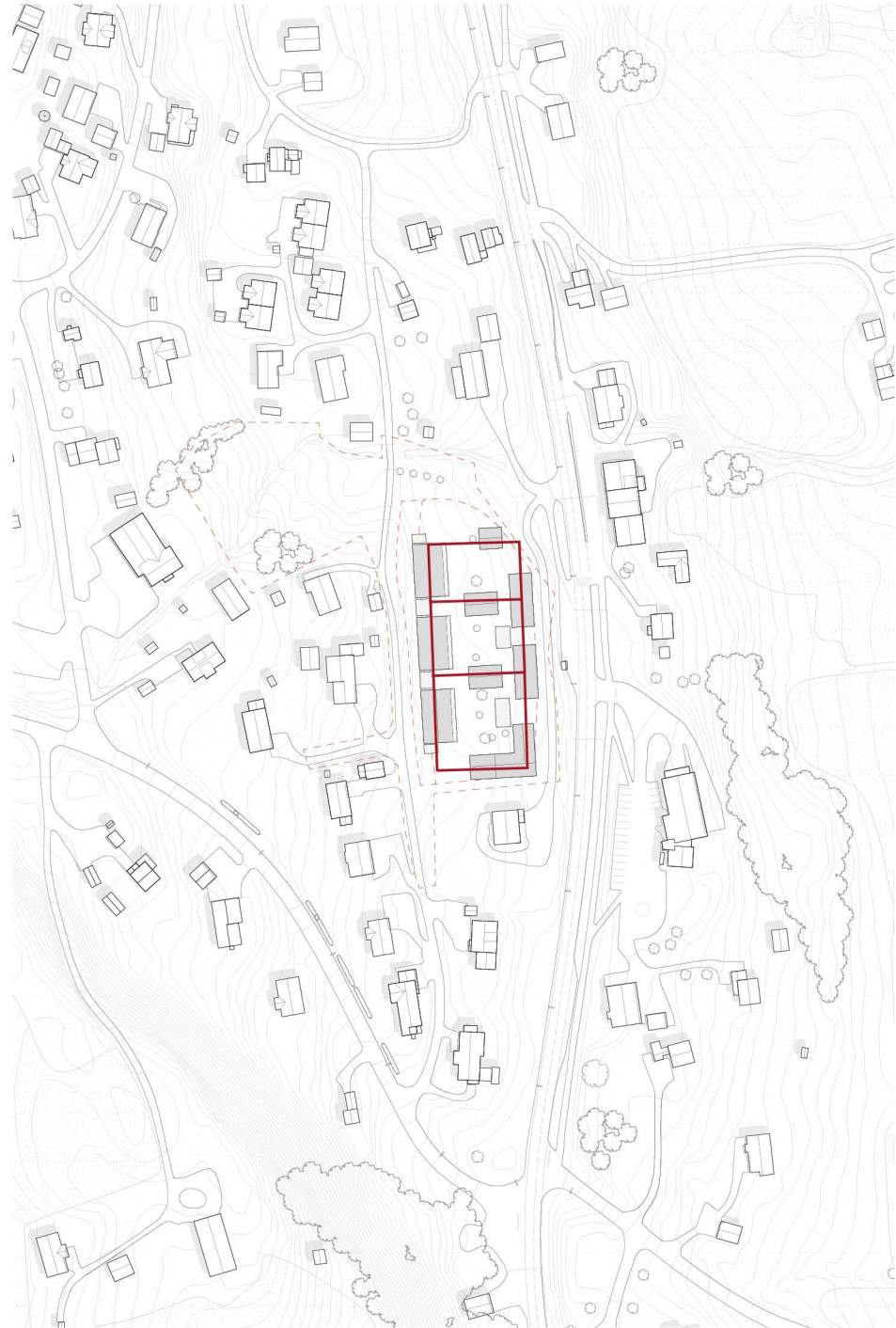
- Houses on east side placement, divided between the gardens.
- Car and parking to dominant
- Changing the terrain too much?
- Allow a more natural terrain and garden, not necessary to process everything
- Maybe not every unit has to be universally designed, but accessible

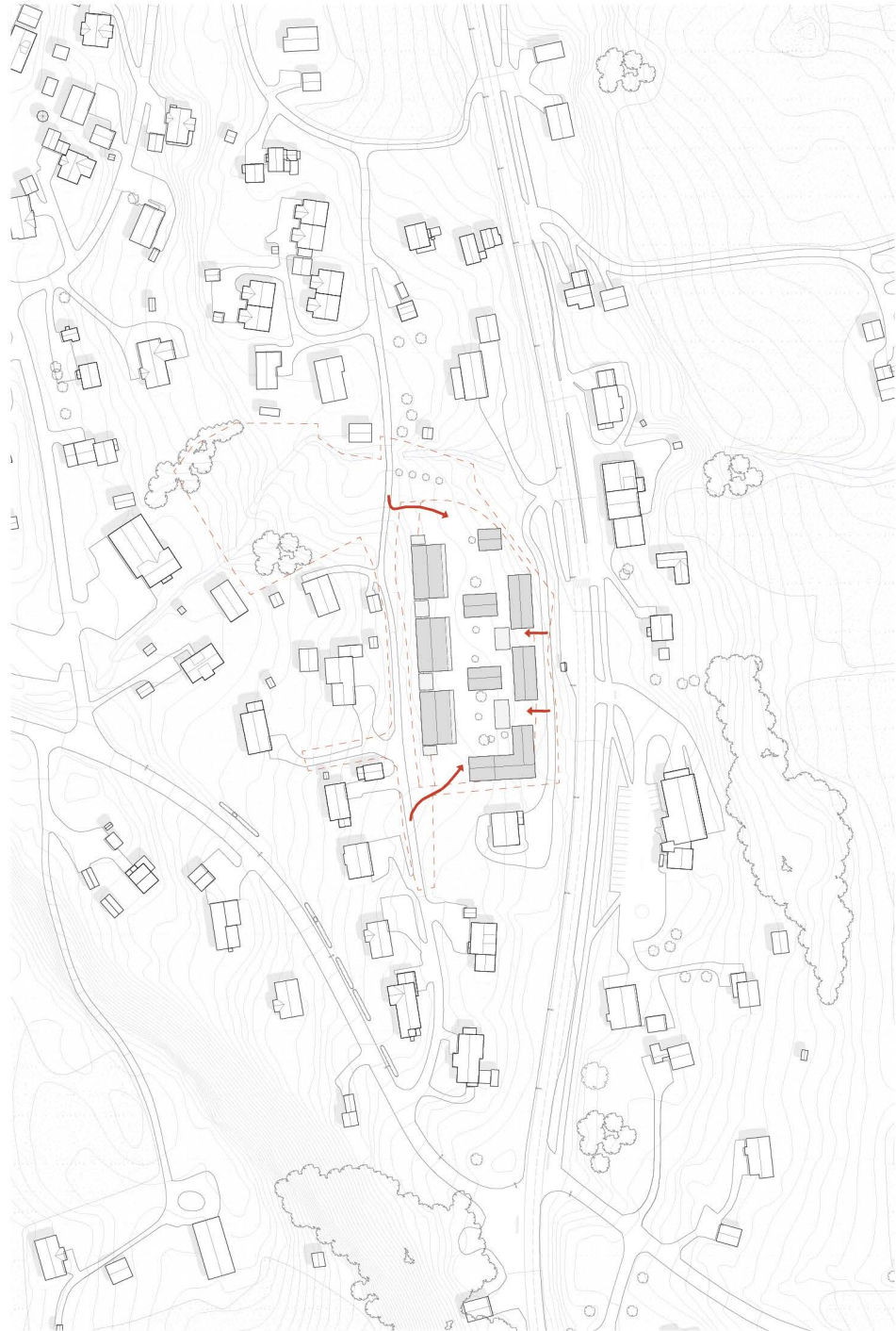
Utilization rate: 29.4%

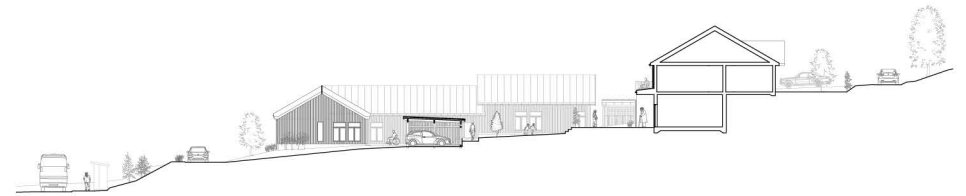
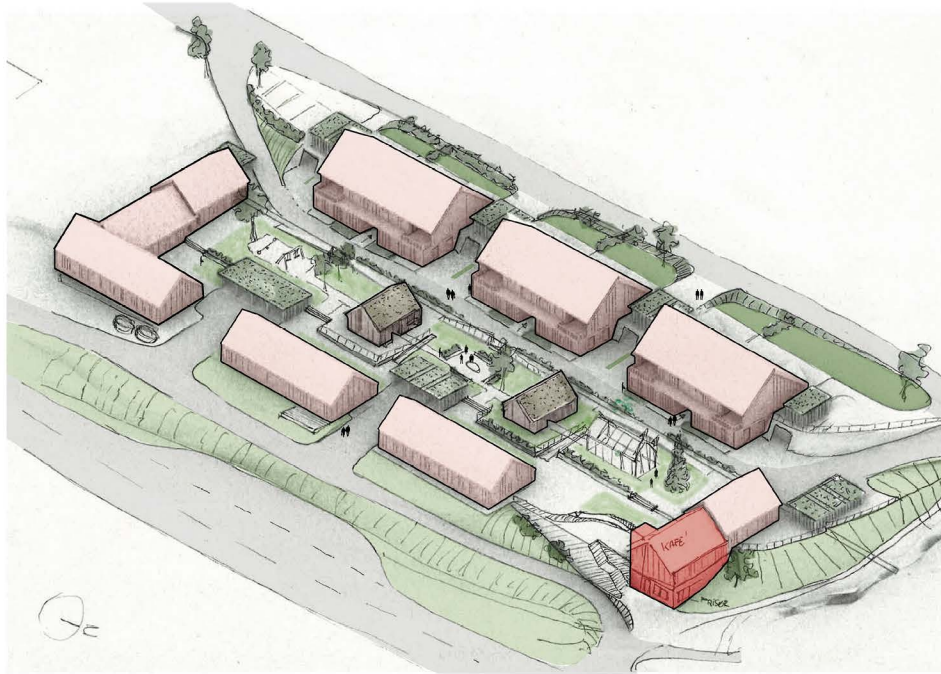
Plot area: 6800 m²

Built-up area: 1997 m²



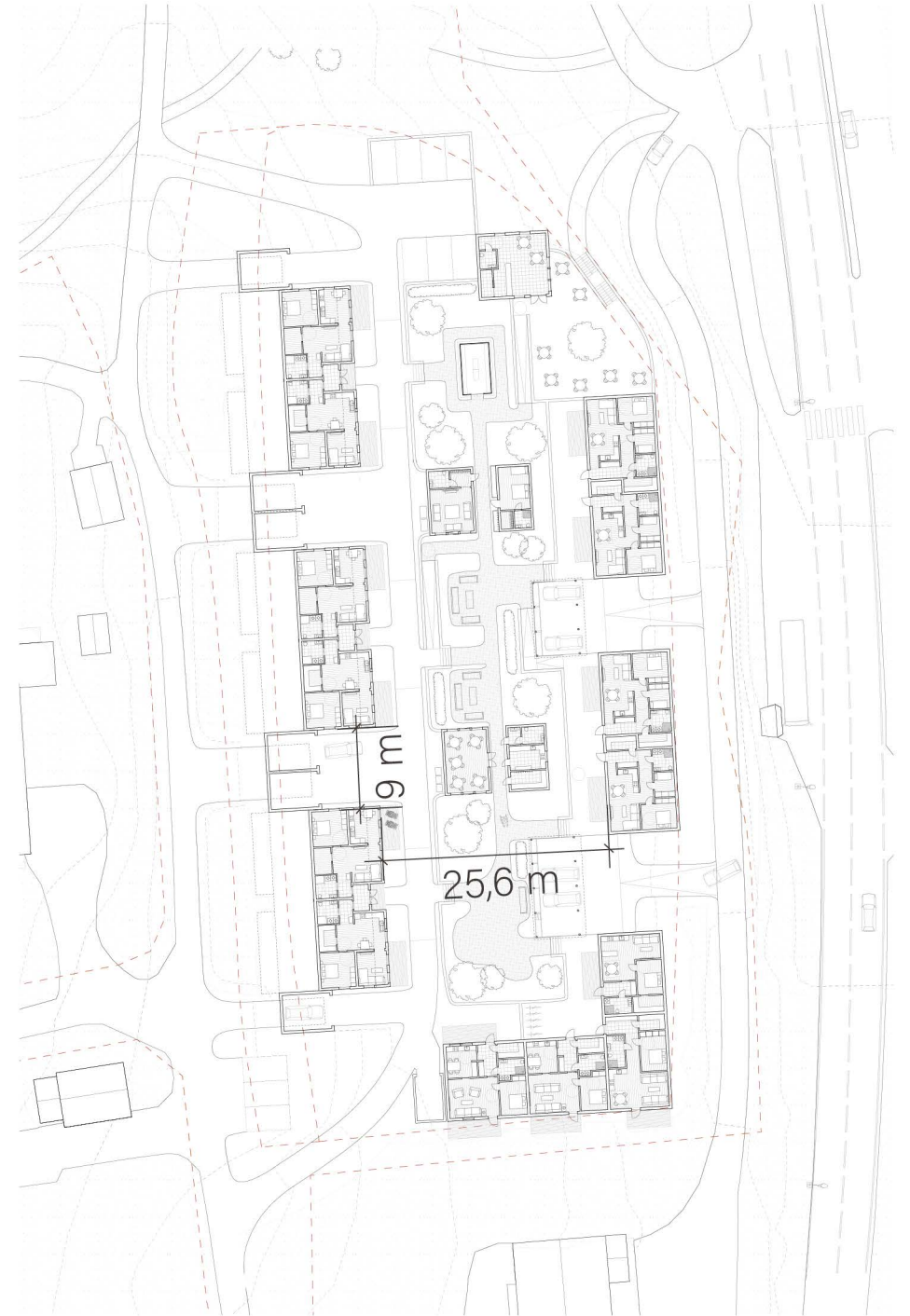




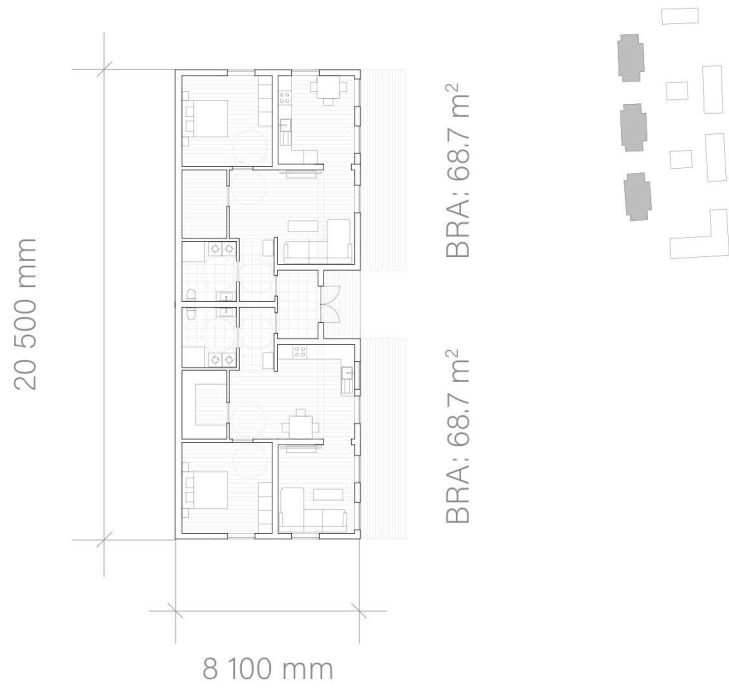




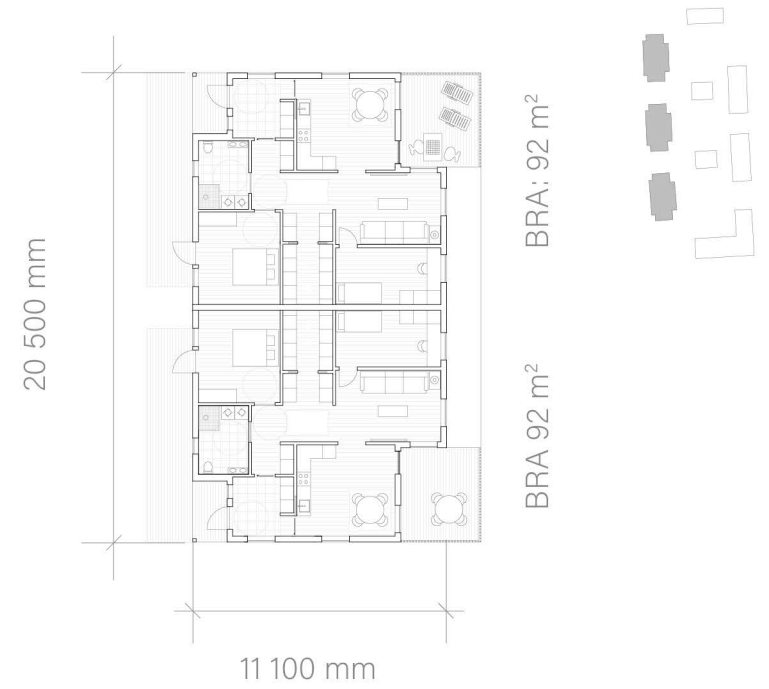




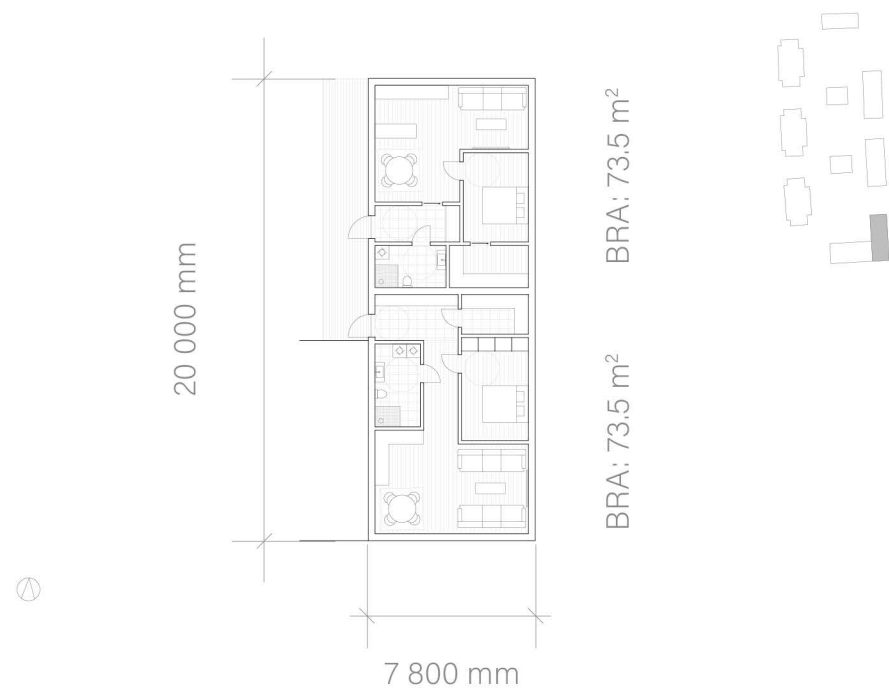
1. FLOOR



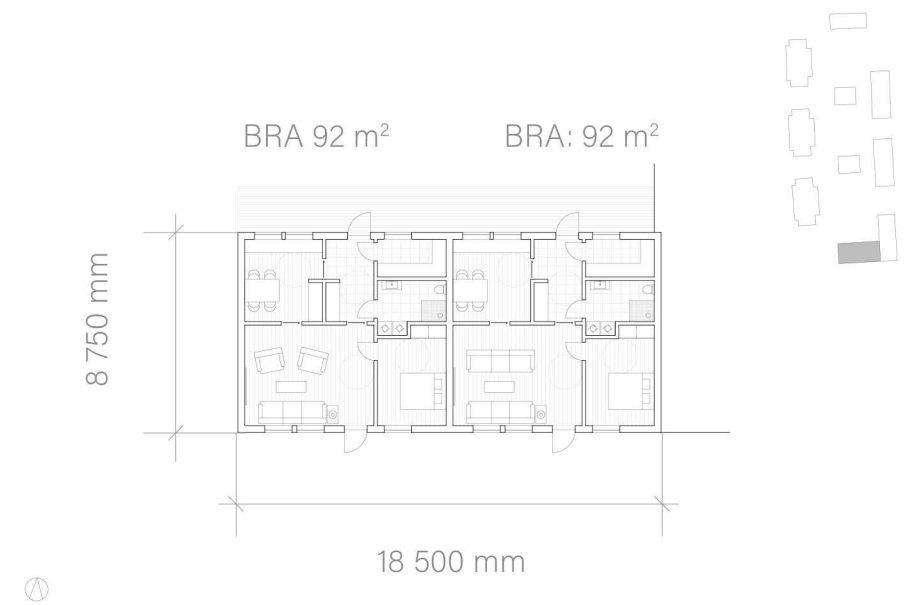
2. FLOOR



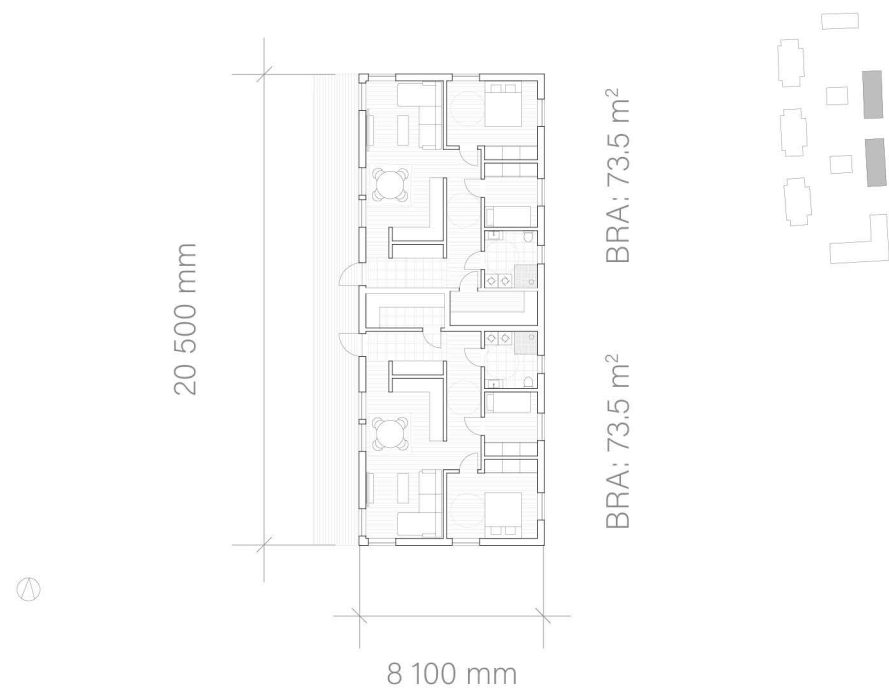
CORNER BUILDING



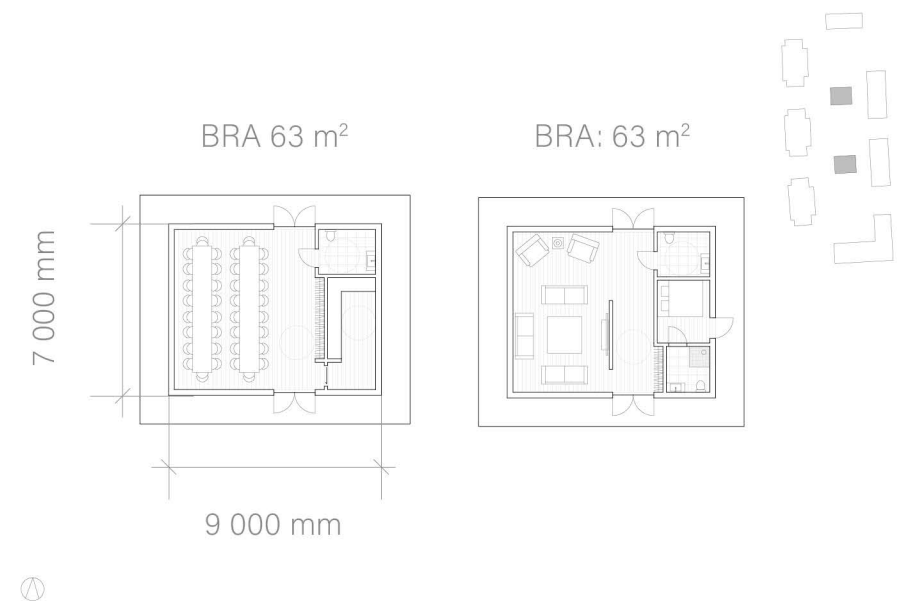
CORNER BUILDING



EAST BUILDINGS

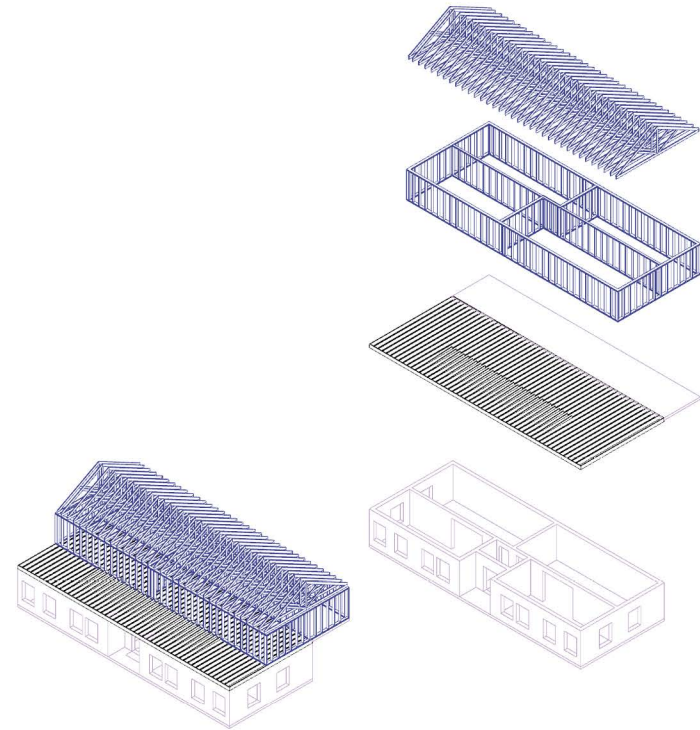
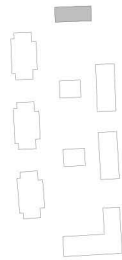
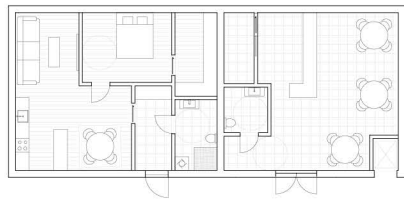


COMMON HOUSES



NORTH BUILDING - CAFÉ

CONSTRUCTION



HOUSING UNITS



CARPORT - LIGHT STRUCTURES



PHASE III - DESIGN DEVELOPMENT

Further explores the design and concepts sketched in Phase II. Dives deeper into the project's details, developing the design's structural systems and refining the building's appearance and materials.

Revises and corrects weaknesses in the project from midterm. Taking the natural terrain more into account and working with placing the buildings in the terrain instead of altering it.

Development of a construction system that can work in all the buildings. Giving us the wanted flexibility in plan layouts and window openings in the facade and roof.

Changes to the plan layout to give living spaces in two directions, towards the social courtyard and towards the view of Mjøsa.

Facade study, from foundation wall to roof, to find suitable and good details. Working with sun shading as a facade element, through sliding shutters.

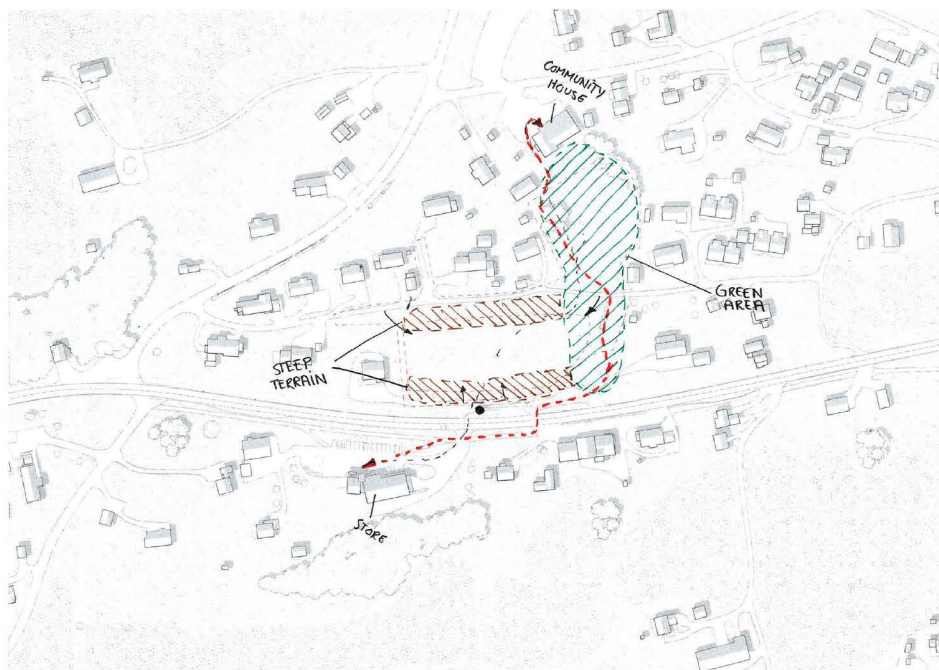
Developing detail drawings and models to better understand all connections and architectural expression.

SITUATION

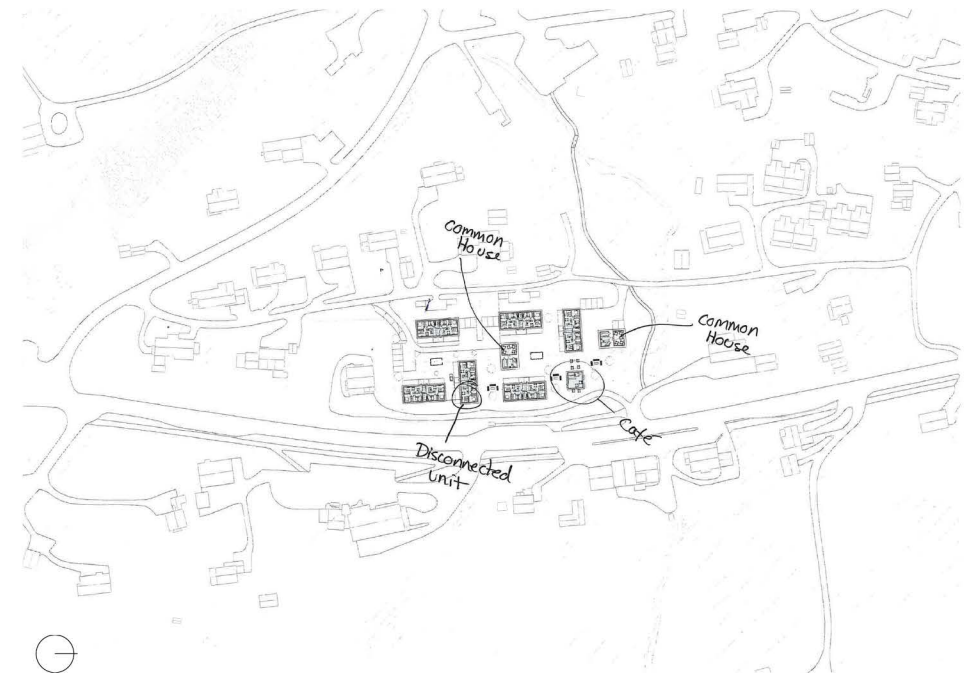
Development of situation based on feedback on midterm. Taking the number of buildings and units down, more suitable for the surroundings and the plot.

Want to work more with the existing terrain.

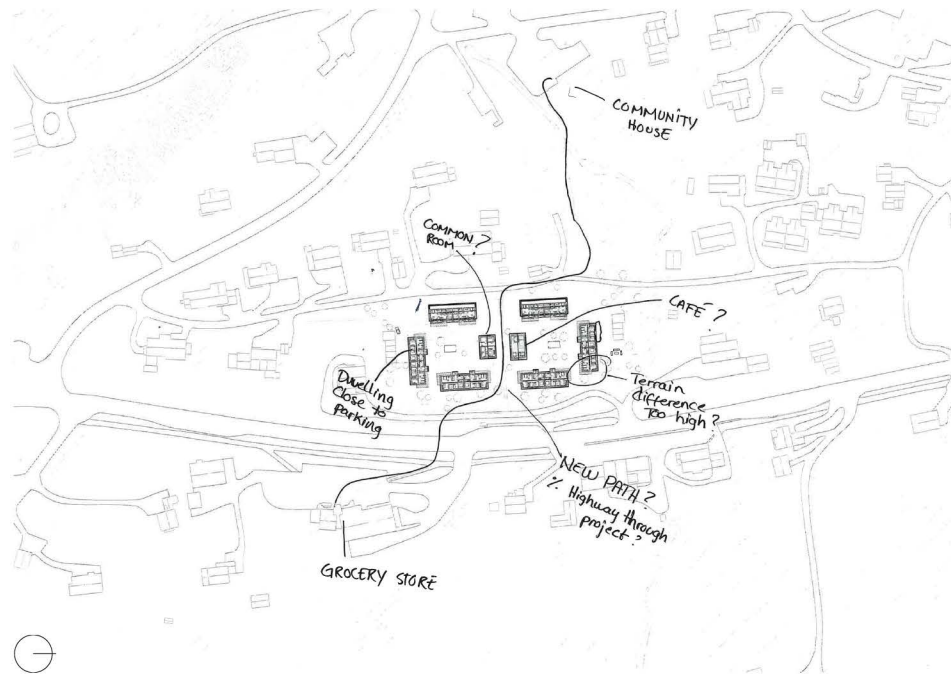
Place buildings in the parts with steepest slopes and take use of the more flat area in the middle of the plot as garden. Let as much as possible be naturally sloped.



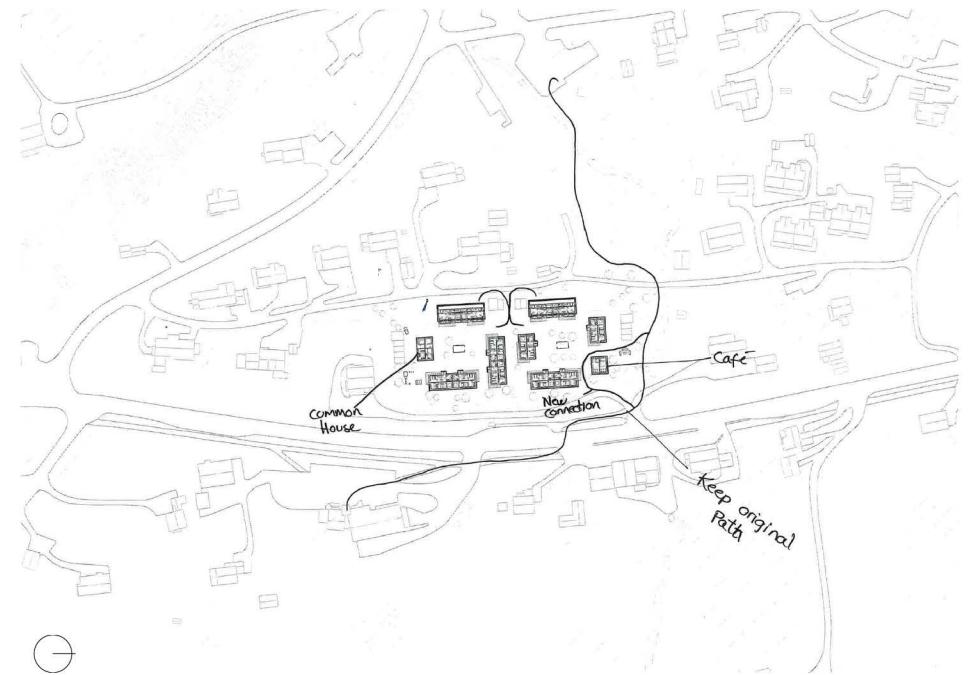
MORE FREE PLACEMENT OF BUILDING MASS



TWO COURTYARDS WITH CENTRAL COMMON HOUSE AND CAFÉ



TWO DEFINED COURTYARDS CONNECTED TO EXISTING PATH



PATIOS

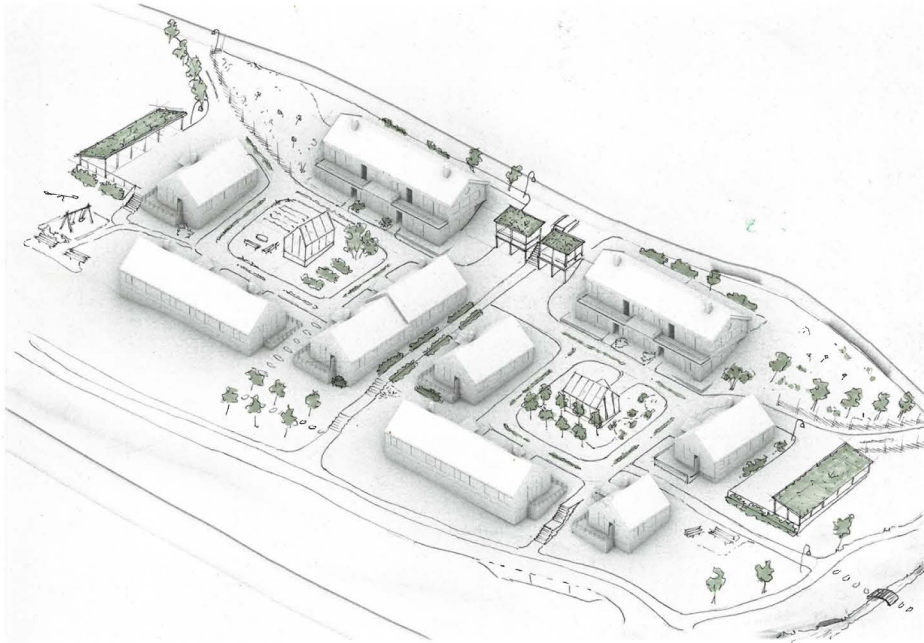


GARDEN AND PATH SKETCHING

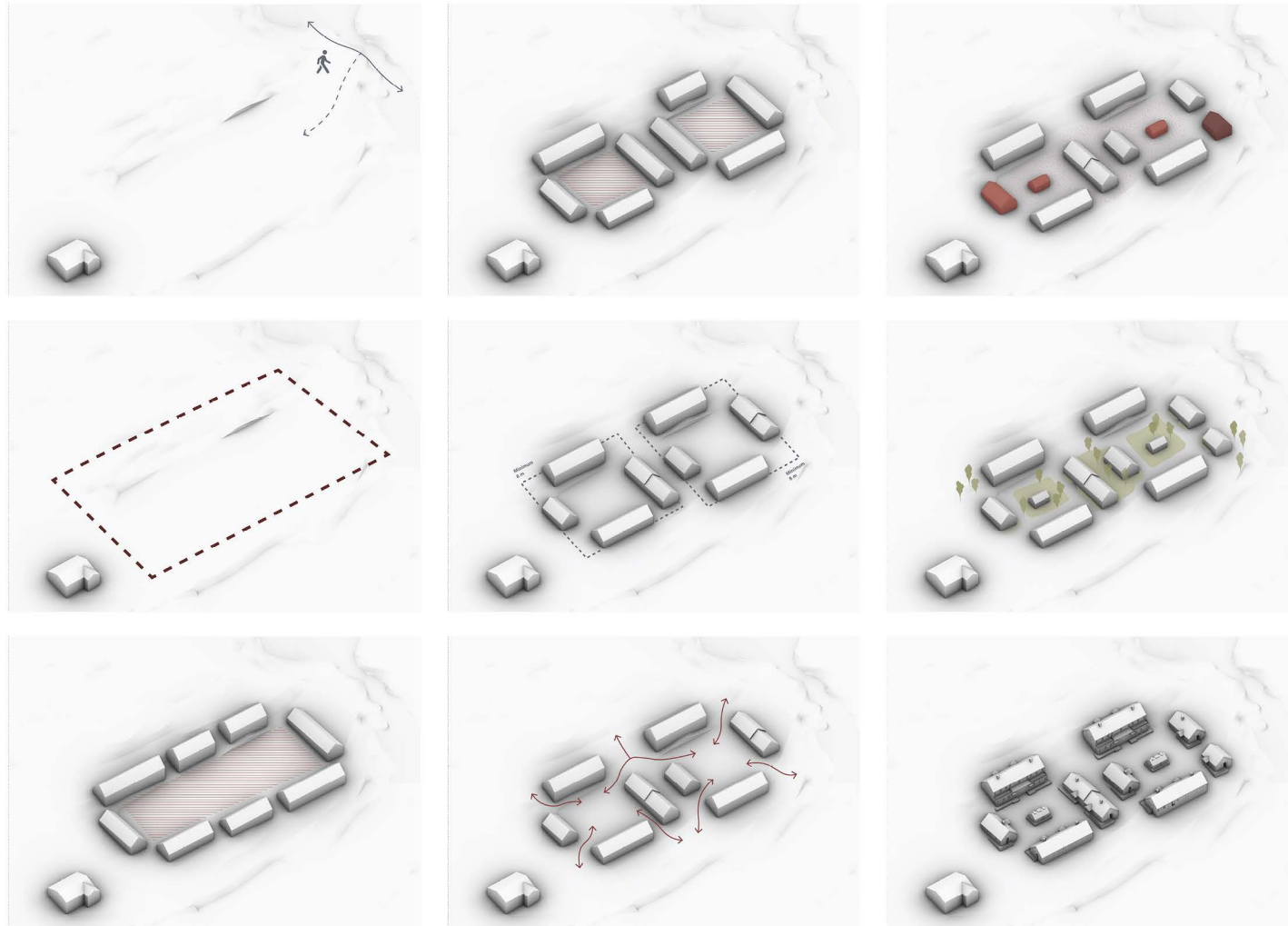


GREENERY

Development of the courtyard gardens and surroundings.



DIAGRAMS DIFFERENT MEASURES



FINAL SITUATION

This shows the developed situation.

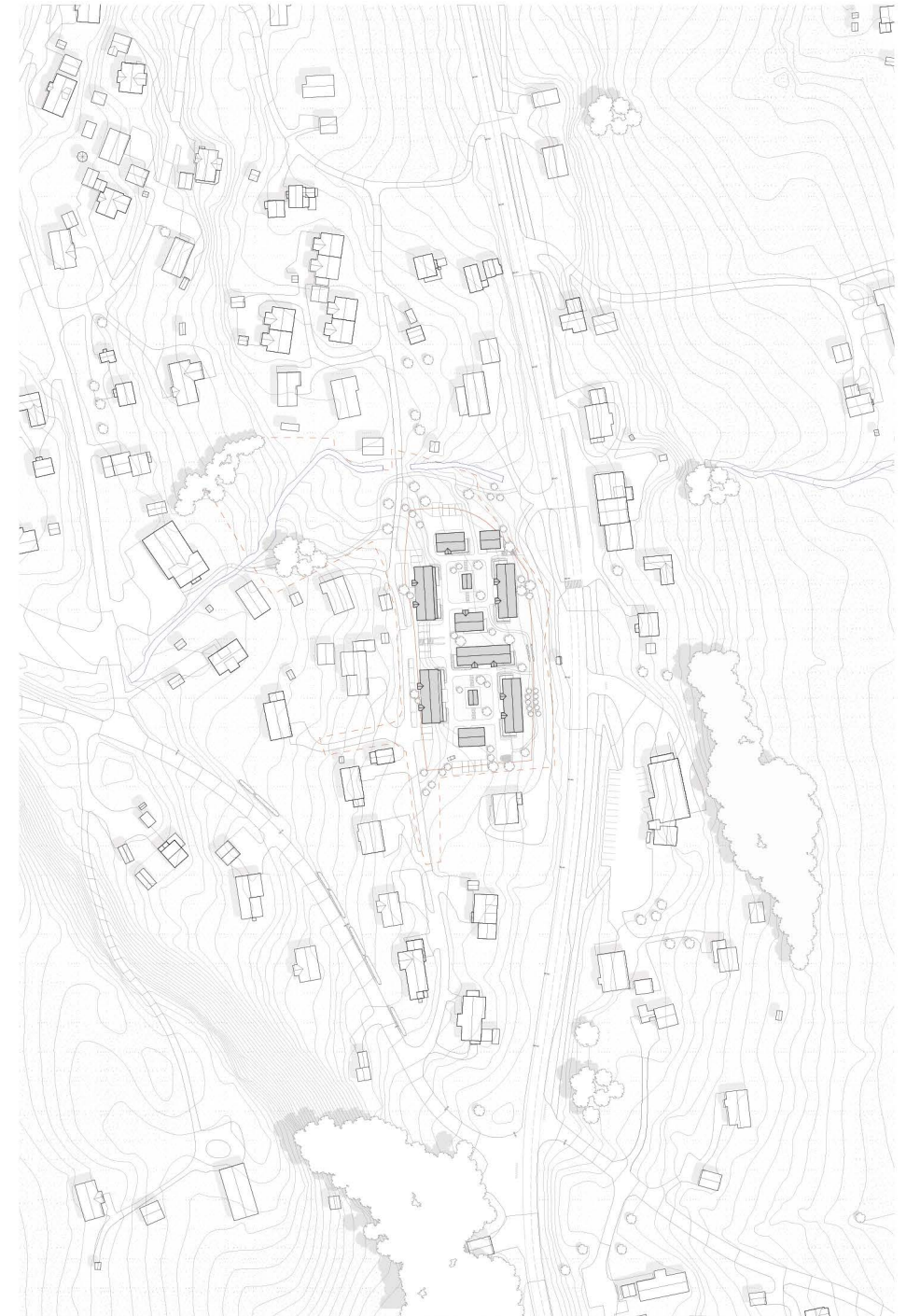
Following pages:

- (1) The situation is divided into two courtyards.
- (2) There are two main access points with car, and parking in the north-west and south-west of the site.
- (3) It has a clear connection to the park area in the north.
- (4) It takes better use of the natural terrain when it comes to placement of buildings and gardens. Buildings placed in the more steep terrain, and courtyards/garden with a naturally more gentle terrain.
- (5) There is a new connection to the existing path from the grocery store to the community house.
- (6) The Greenhouse Café is strategically placed in the north-east, connected to the path and with a stunning view towards Mjøsa. The common house is placed in the south, and the two community greenhouses is centrally placed in both courtyards.
- (7) The distances between the buildings are kept to 8 meters because of fire safety. This also contributes to a more open situation.
- (8) Looking at the sun conditions, the courtyards are little affected by shadows.

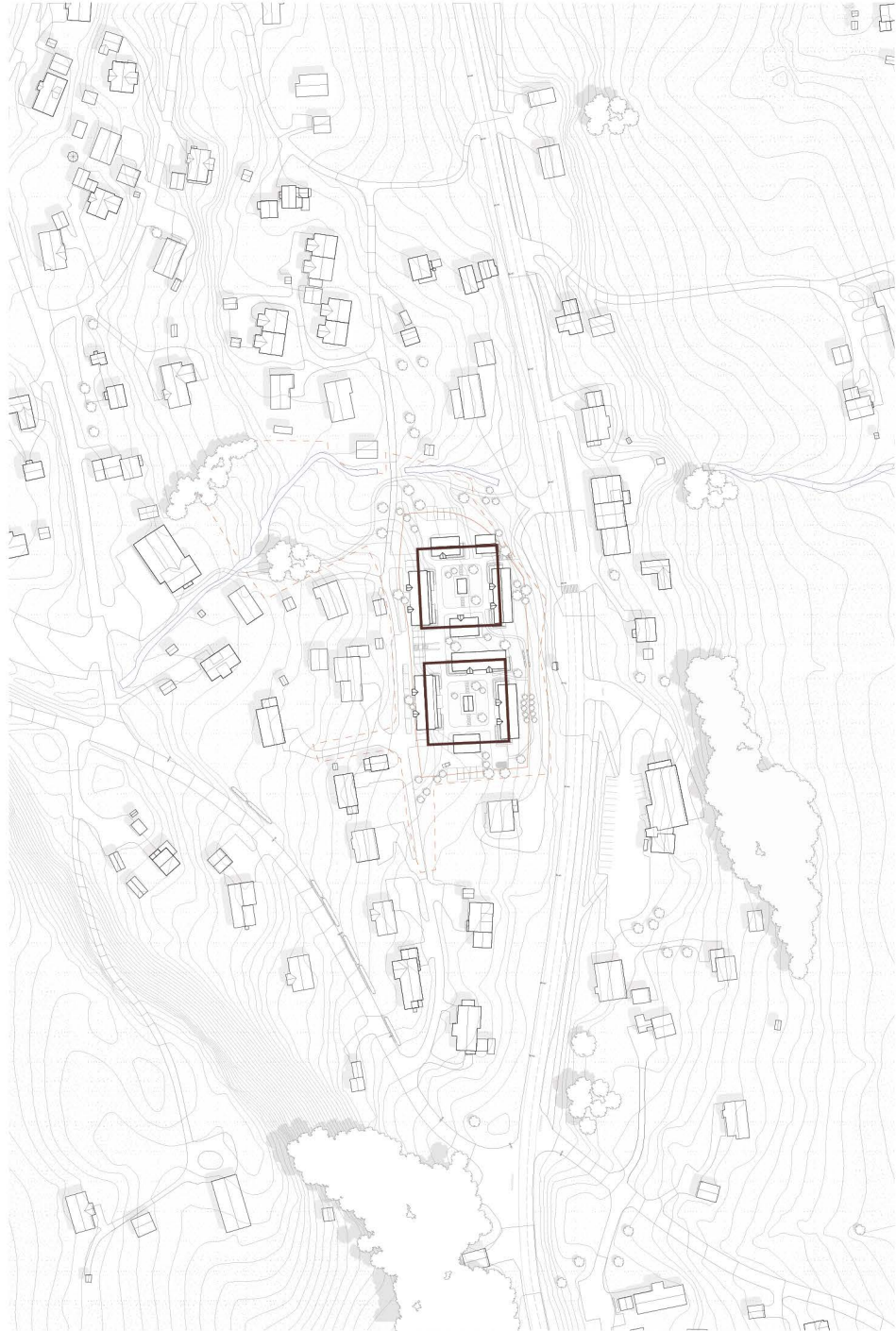
Plot area: 6800 m²

Built-up area: 1476 m²

Utilization rate: 21.7%



1



2



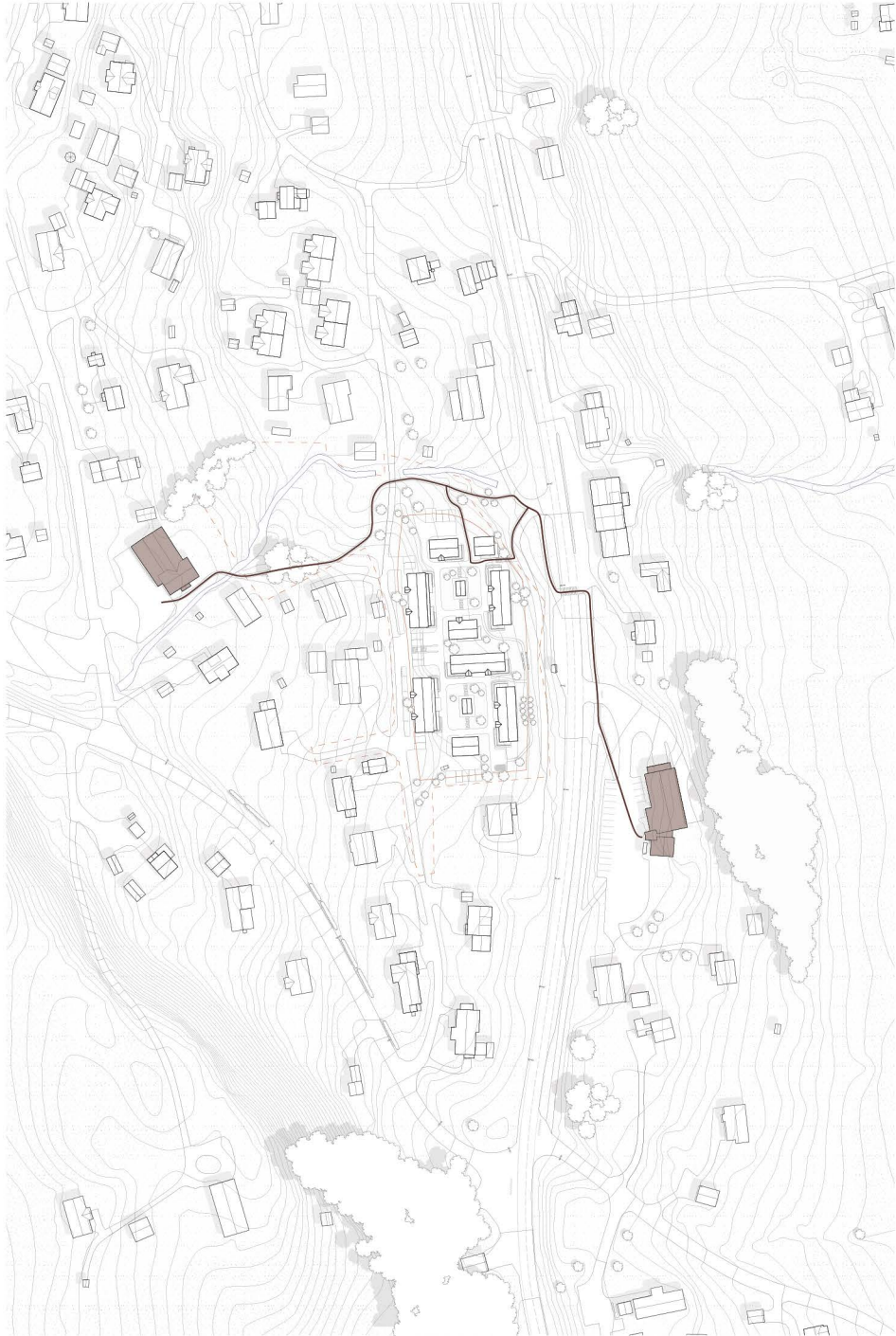
3



4



5



6





23.06 kl. 09



23.06 kl. 12



23.06 kl. 16

GARDEN PLAN

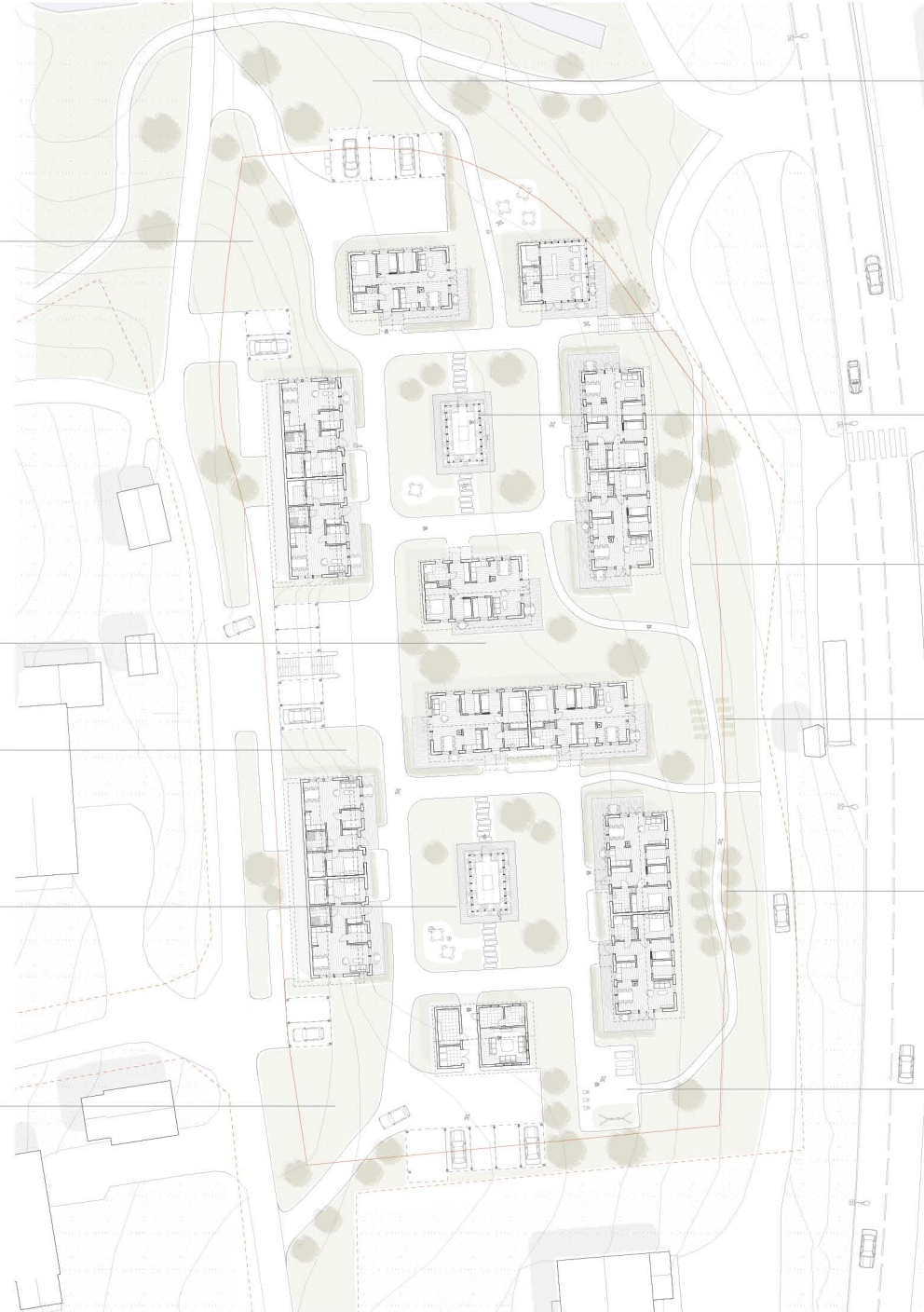
Flower meadow

Ornamental garden

Grass

Vegetable garden

Flower meadow



Park

Herb garden

Walking path

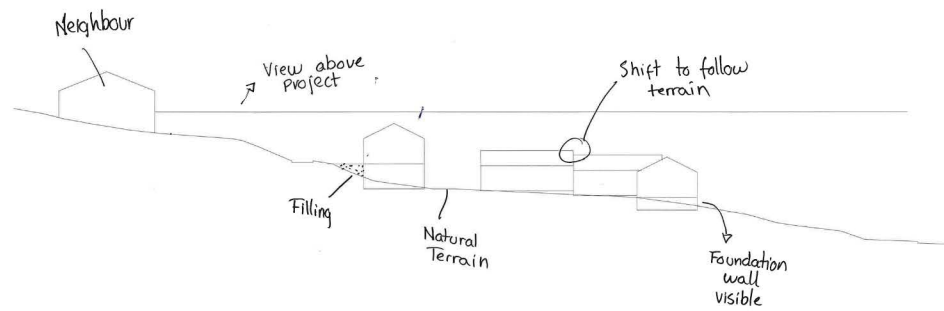
Berry bushes

Fruit trees

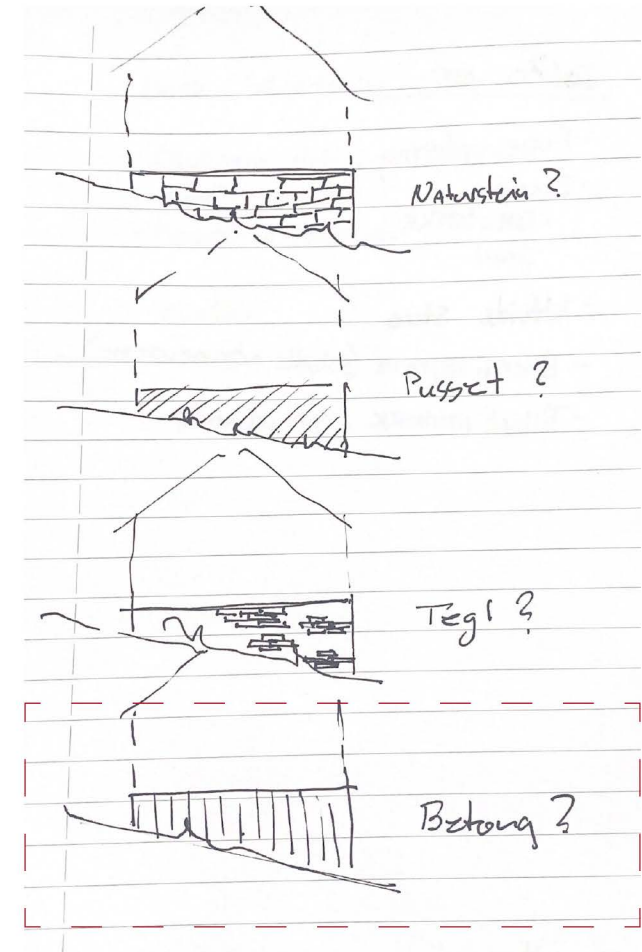
Playground

TERRAIN

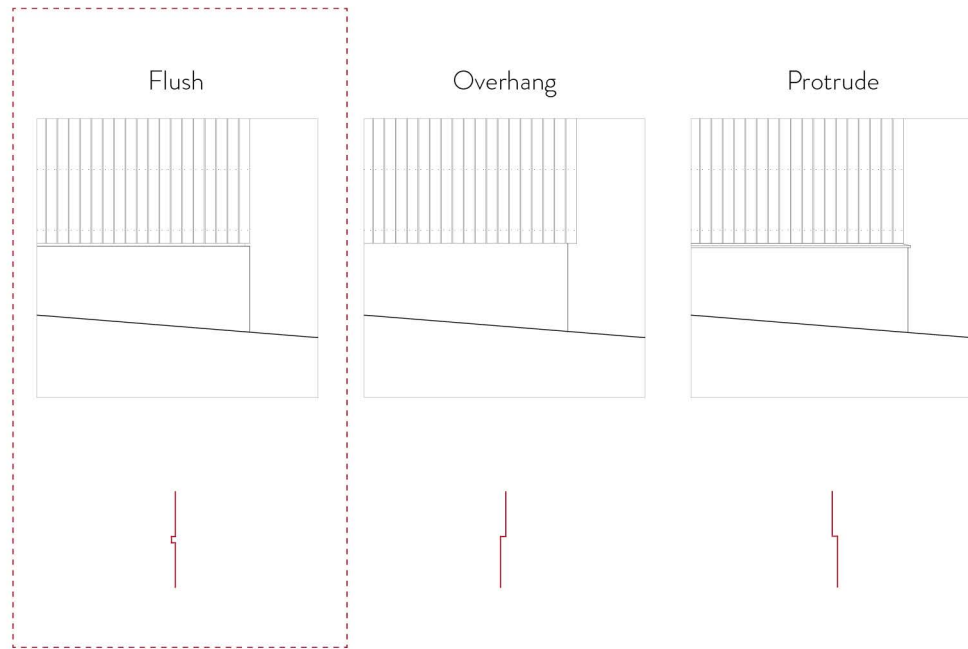
Place buildings to work with the existing terrain, to not make too large interventions. Some filling is necessary towards Skoleveien west of the site, otherwise the terrain can remain as is, and the expression of the visible foundation walls will become important.



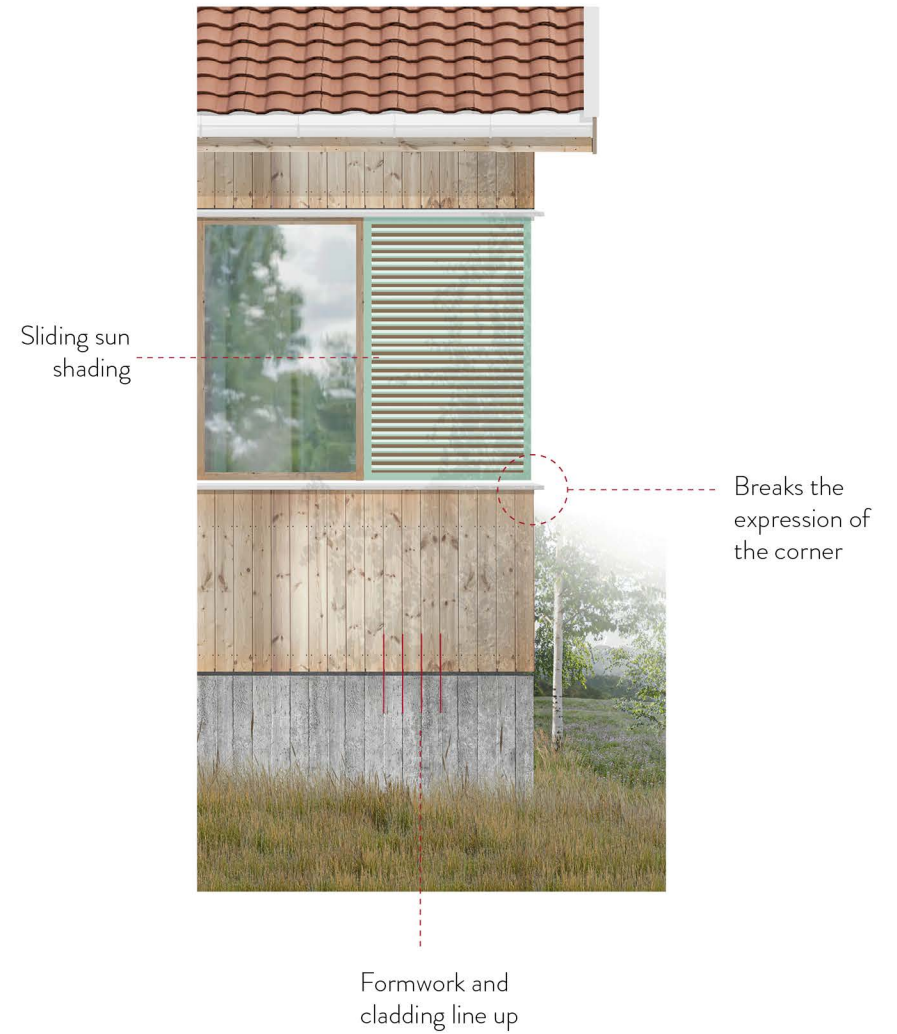
FOUNDATION WALL EXPRESSION



FOUNDATION WALL DETAIL



FACADE EXPRESSION



COLOUR TESTING



CORNER TESTING

Letting the verticality continue at the corner. Working with framing the window section.



COLOUR TESTING FACADE



"Ny rauland"



"Rognebær"



"Jernsvart"

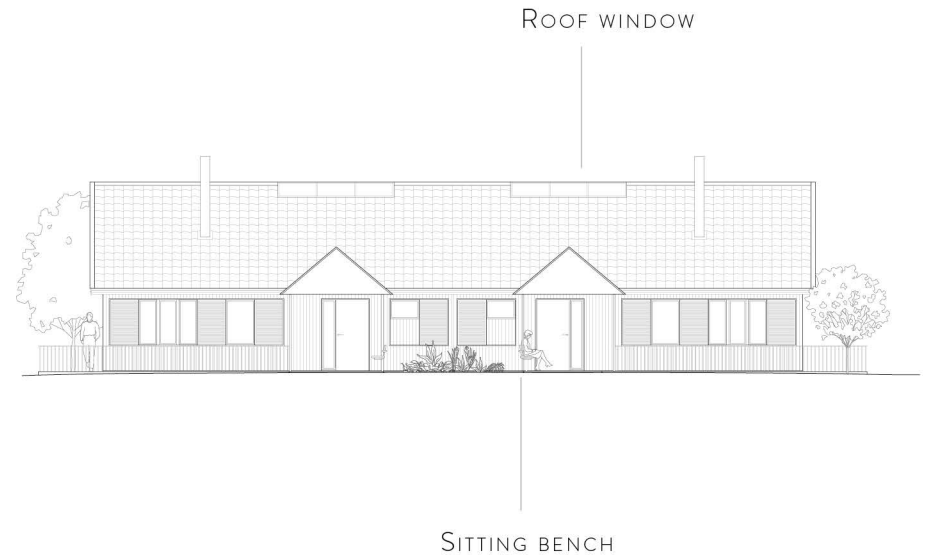


"Dovrebrun"

FACADE TESTING



FACADE

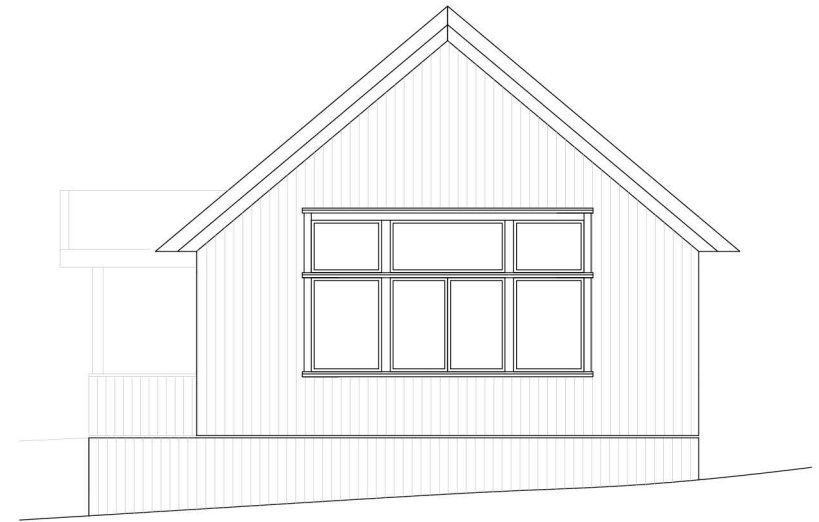


GABLE FACADE TESTING



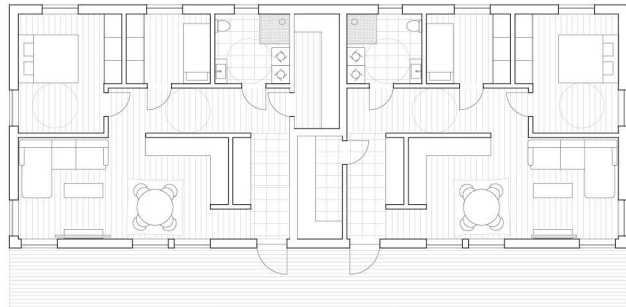
GABLE FACADE

Traditional expression, works well with plan layout and central corridor.



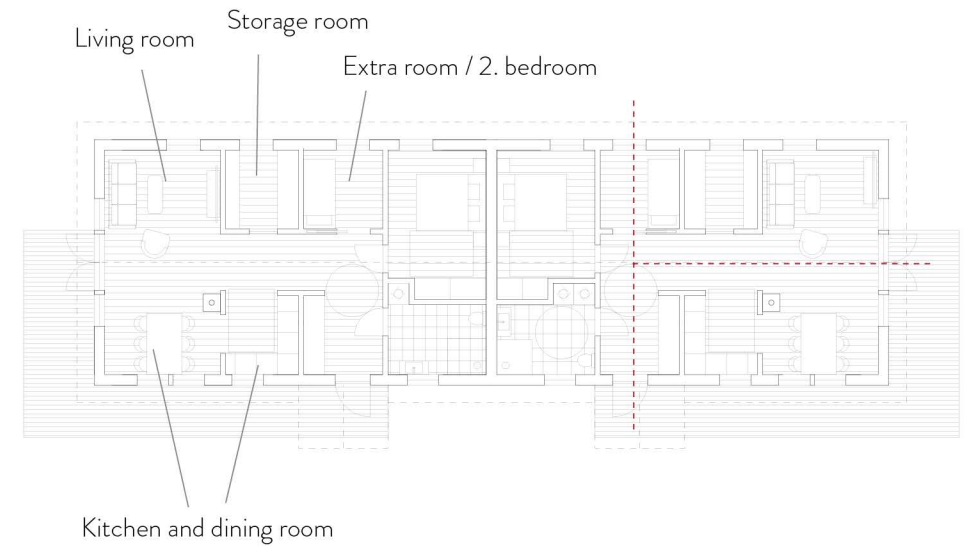
ONE STORY HOUSING MIDTERM

No living room towards the view of Mjøsa, everything directed towards the courtyard. Too narrow entry situation, not enough space between units. Complicating with shifting dividing wall.



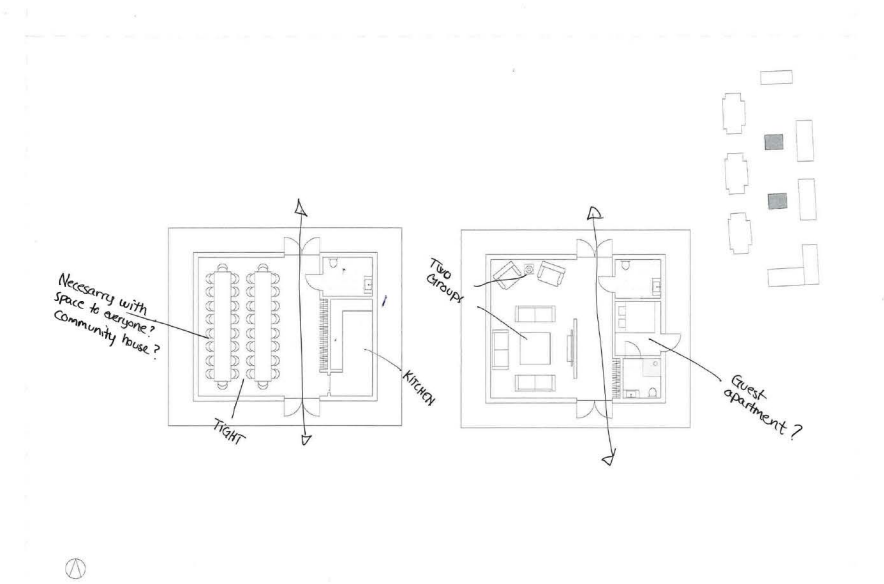
PLAN ONE STORY HOUSING

Development of plan layout. Possible sight axis to view when entering, through 2. bedroom / extra room. Kitchen and dining room placed towards the courtyard. Living room towards the view of Mjøsa. Spacious storage room if necessary, if not this can be removed and living room can be bigger. BRA per unit: 69.6 m²



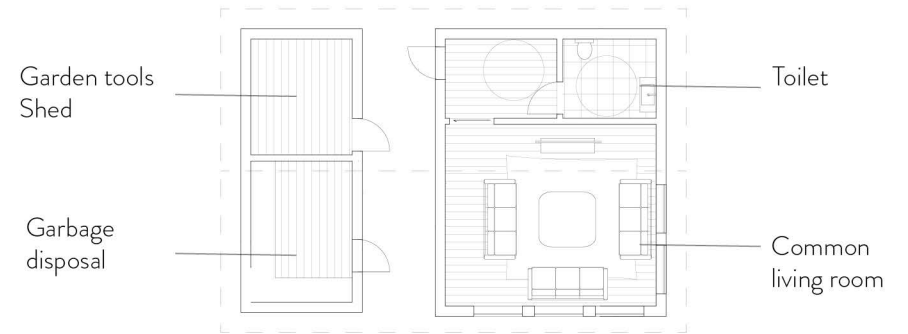
COMMON HOUSE MIDTERM

Maybe two common houses is not necessary. Do not want to compete with the community house. Also the guest apartment is maybe not necessary when every apartment has a 2. bedroom / attic.



PLAN COMMON HOUSE

Simple living room to see the football match, have a quiz night or knitting club. A shed for garden tools and shared equipment, and garbage disposal close to the parking lot. Mailboxes can be hung here as well, to co-locate and contribute to create a daily interaction between residents.



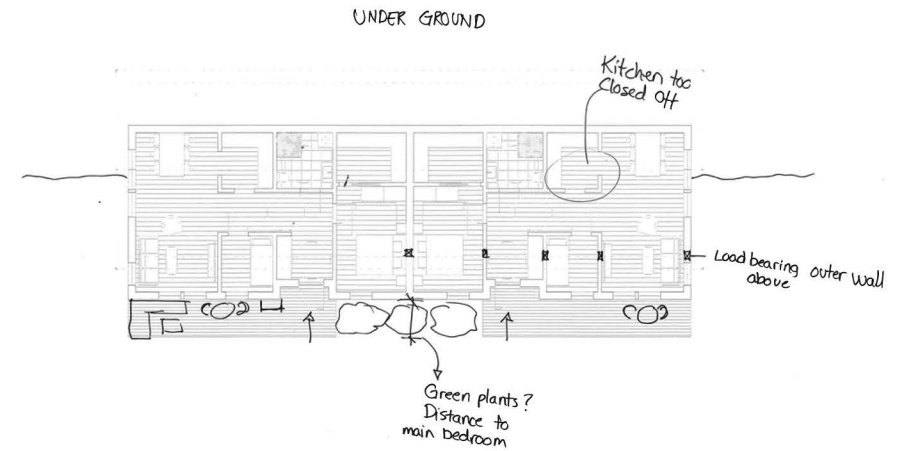
1. FLOOR WEST BUILDINGS MIDTERM

Only one bedroom. Maybe a little too deep building volume.



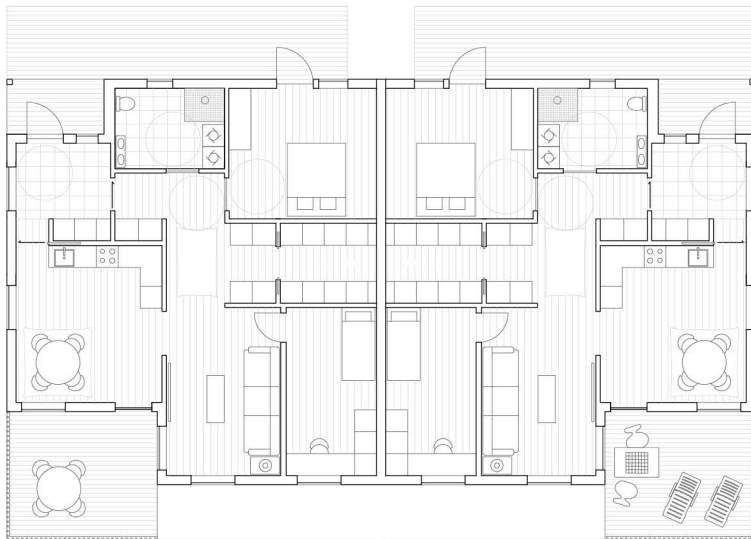
1. FLOOR WEST BUILDINGS

Possibility of two bedrooms, or open up and get bigger living room.
Not too deep, fits well in the terrain. Shifted plan above, so load bearing structure landing on columns.



2. FLOOR WEST BUILDINGS MIDTERM

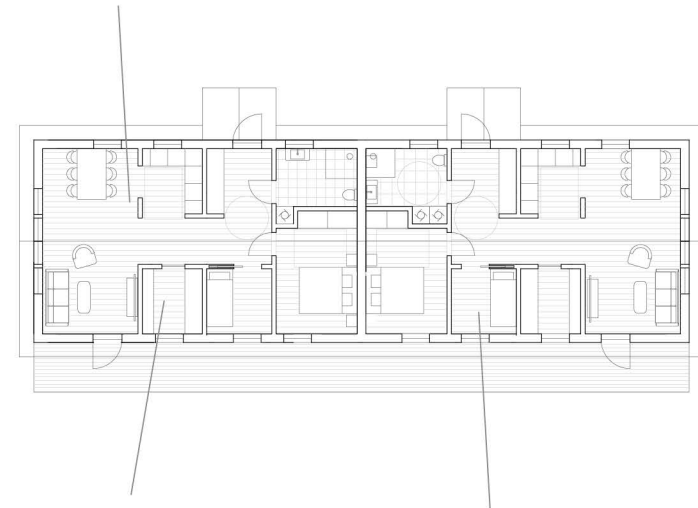
Too large apartment, not economically sustainable in a rural setting.
A lot of storage - too much?



2. FLOOR WEST BUILDINGS

Same system and layout as the one story houses. Works well with the construction below. Possibility of variation with extra room and attic space.

Fireplace?

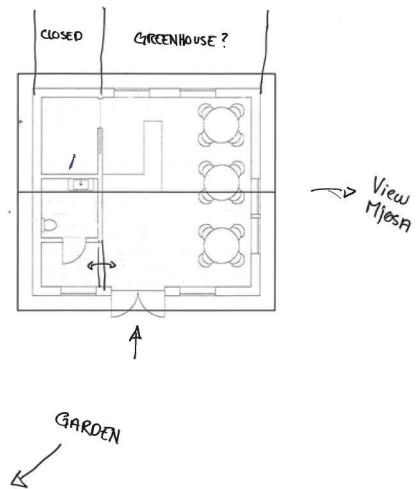


Storage room not
necessary with attic?

Variation on 2. bedroom /
extra room

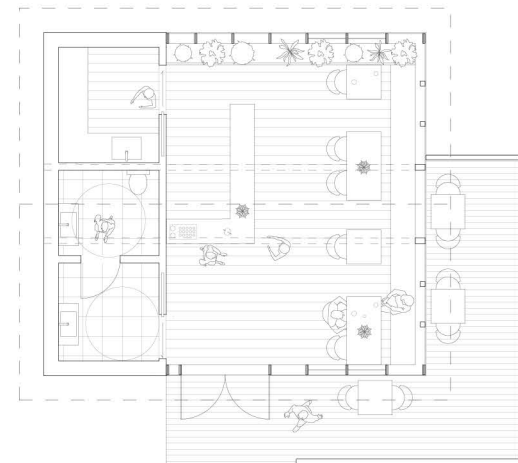
CAFÉ MIDTERM

Could be nice with a greenhouse café with nice sun conditions and view towards Mjøsa.
Allows a clear public character and openness.



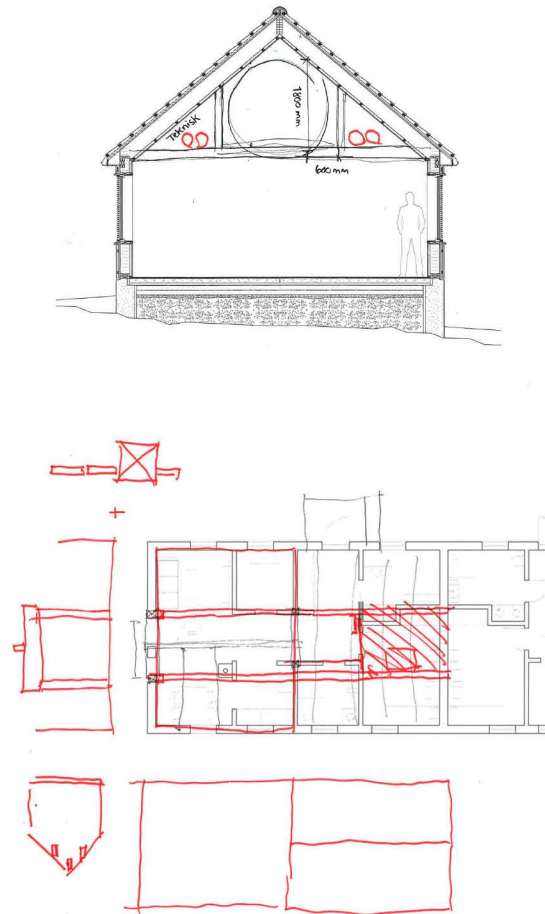
PLAN CAFÉ

Open greenhouse structure towards the view and in the seating area. Closed structure with necessary functions like toilet and kitchen for the café, this could be a lafted structure.

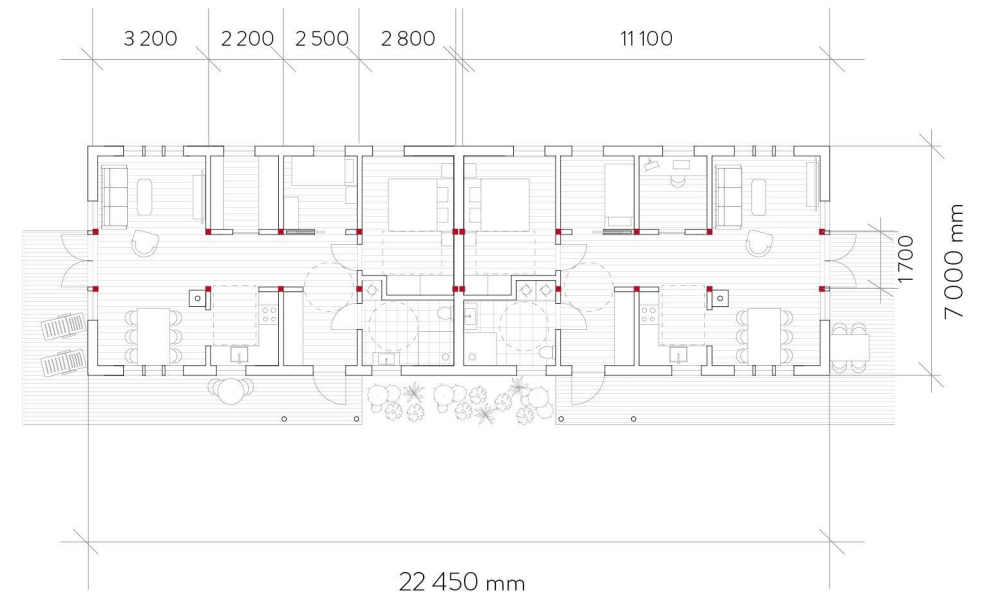


SECTION - STORAGE LOFT

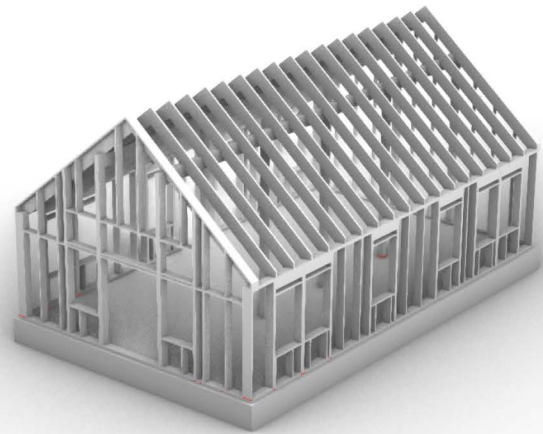
Taking use of the space the pitched roof of 40 degrees gives us. Either as extra storage or even sleeping space for grandchildren. Changing the construction to make room for a ridge window, and being able to have opening in the middle of the gable wall.



CONSTRUCTION IN PLAN



CONSTRUCTION 3D



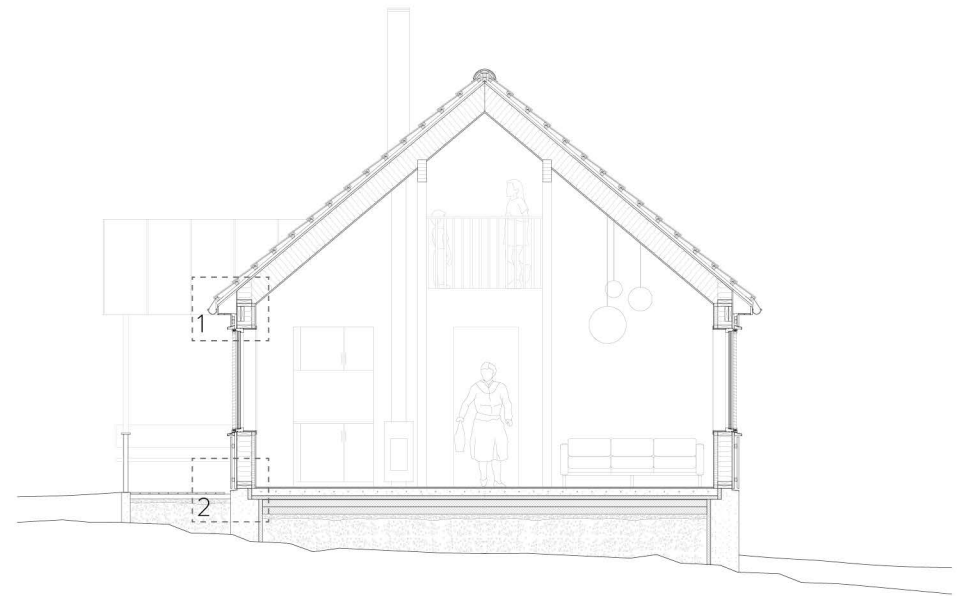
CONSTRUCTION MODEL 1:20 PHOTOS



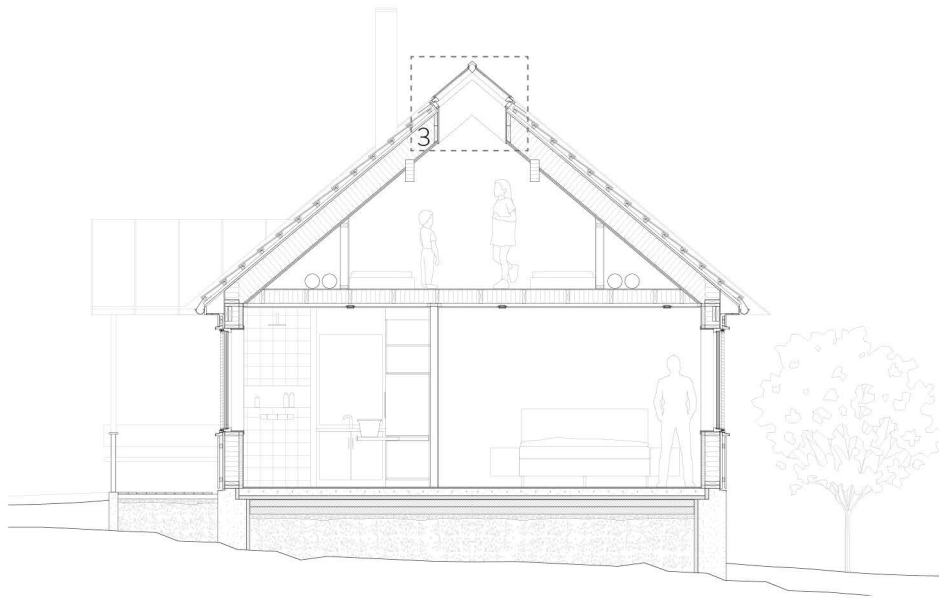
BUILDING DETAILS



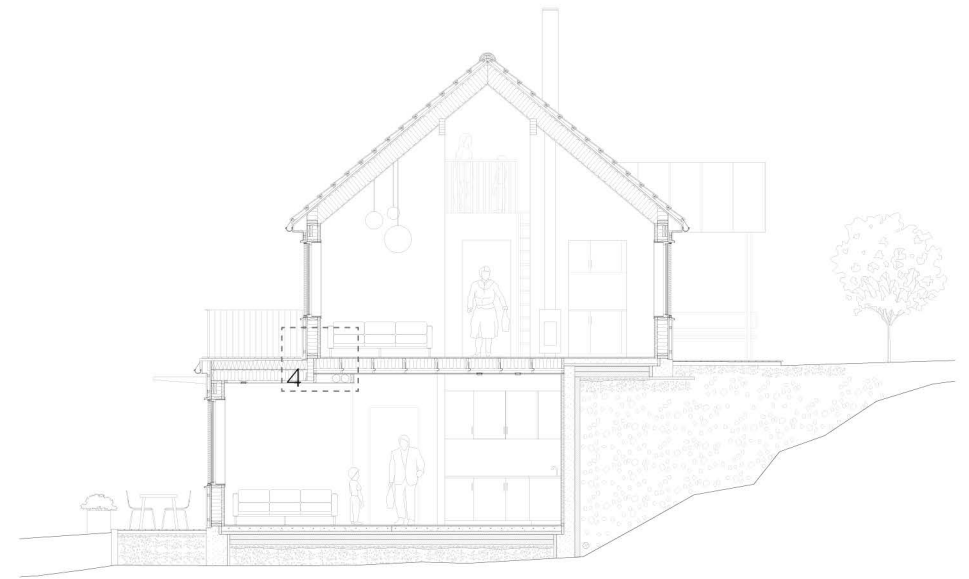
DETAIL SECTION A



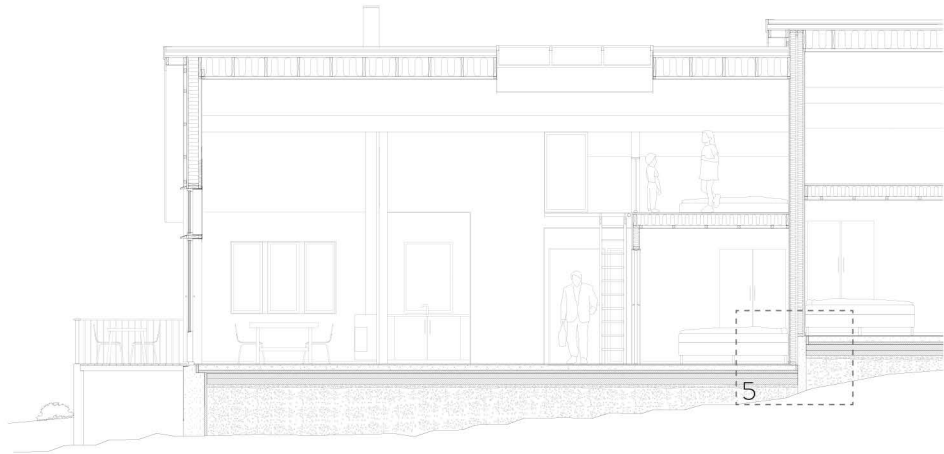
DETAIL SECTION B



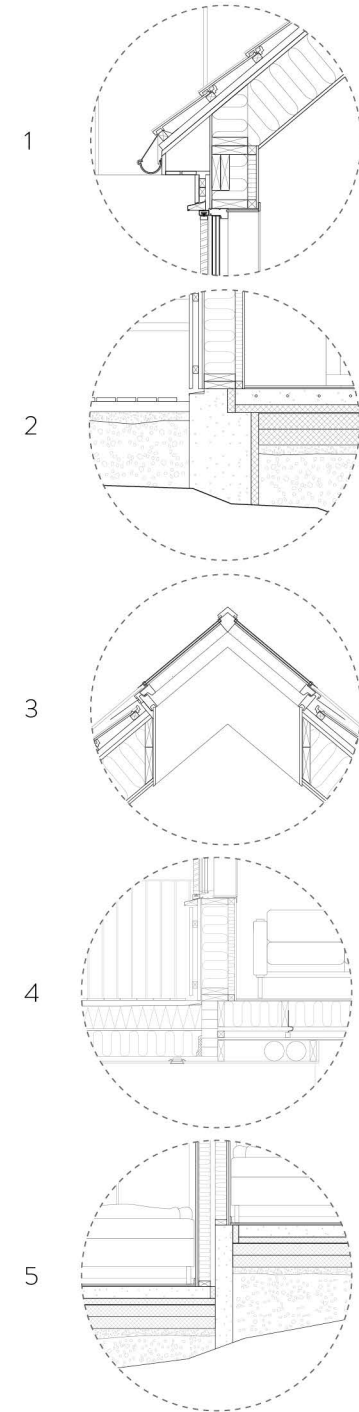
DETAIL SECTION C



DETAIL SECTION D



DETAILS



INTERIOR RENDER ATTIC



INTERIOR RENDER LIVING ROOM



ILLUSTRATION - COURTYARD / "TUN"



PROJECT SUMMARY

How can housing communities for the elderly be designed in a rural context, so that it can deal with the aging population in the districts of Norway?

There are many ways of designing a housing community for the elderly in a rural context. Still, we believe it is important to be specific for the place and to work with an architecture that people can relate to and feel familiar with.

Location is the first important choice. To be close to the existing meeting places and activities in the village, preferably within walking distance.

Second is the design of the housing units, that needs to be easily adaptable to the changing needs that comes with ageing. This includes outdoor spaces, such as gardens and greenhouse.

Common spaces should encourage to social interaction. Both for bigger events and everyday life, for example

while gardening or just as simple as throwing your garbage or collecting your mail.

It is also important to consider the local surroundings and environment when designing the housing community. For example when it comes to sun, terrain and energy-efficient solutions.

Overall we believe the choice of topology is a key element in making a project like this attractive for possible inhabitants. Because this contributes to the feeling of safety and homeliness.

We believe that housing communities for the elderly can increase quality of life also in a rural context. And allow the elderly to stay in their village for as long as possible, and not be forced to move before they really need to.

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