



TWO BIRDS,  
ONE STONE  
sensors booklet



## From the prediploma

This diploma project wants to examine the potential that lies in abandoned agricultural buildings. Buildings that have lost their initial function and use, and their need to transform to stay "alive". Keeping the notion of the cultural history, while applying modern standards.

In Norway there are more than 500 000 buildings related to farming or some sort of agricultural production. The Norwegian State Agricultural Administration mapped these buildings in a selection of municipalities in 2013. The numbers showed that 1 out of 4 buildings were either not in use or totally abandoned. If these numbers represents the general situation in Norway, it means that there are about 125 000 empty buildings in the farming industry alone. And the numbers will probably rise the following years. Farming is changing from individual small farming to a more collective and bigger farm industry. This results in the need of new, more spacious buildings, leaving the to small buildings behind. In 2024 it will be forbidden by law to keep livestock in the traditional stall (bås) due to animal welfare. This forces the farmers to either give up their occupation or to build a new and bigger house. Again leaving the old houses empty.

If we can reuse these buildings, give them a new purpose and a new life, we would save a piece of history while using already processed materials to create something new and contemporary. Exploring an exiting typology in the process. It's a win win situation. **Two birds, one stone.**



To investigate the possibilities that lie in the transformation of abandoned agricultural buildings, it seems wise to use an existing situation as a starting point. This will help narrowing down the project and add resistance to it.

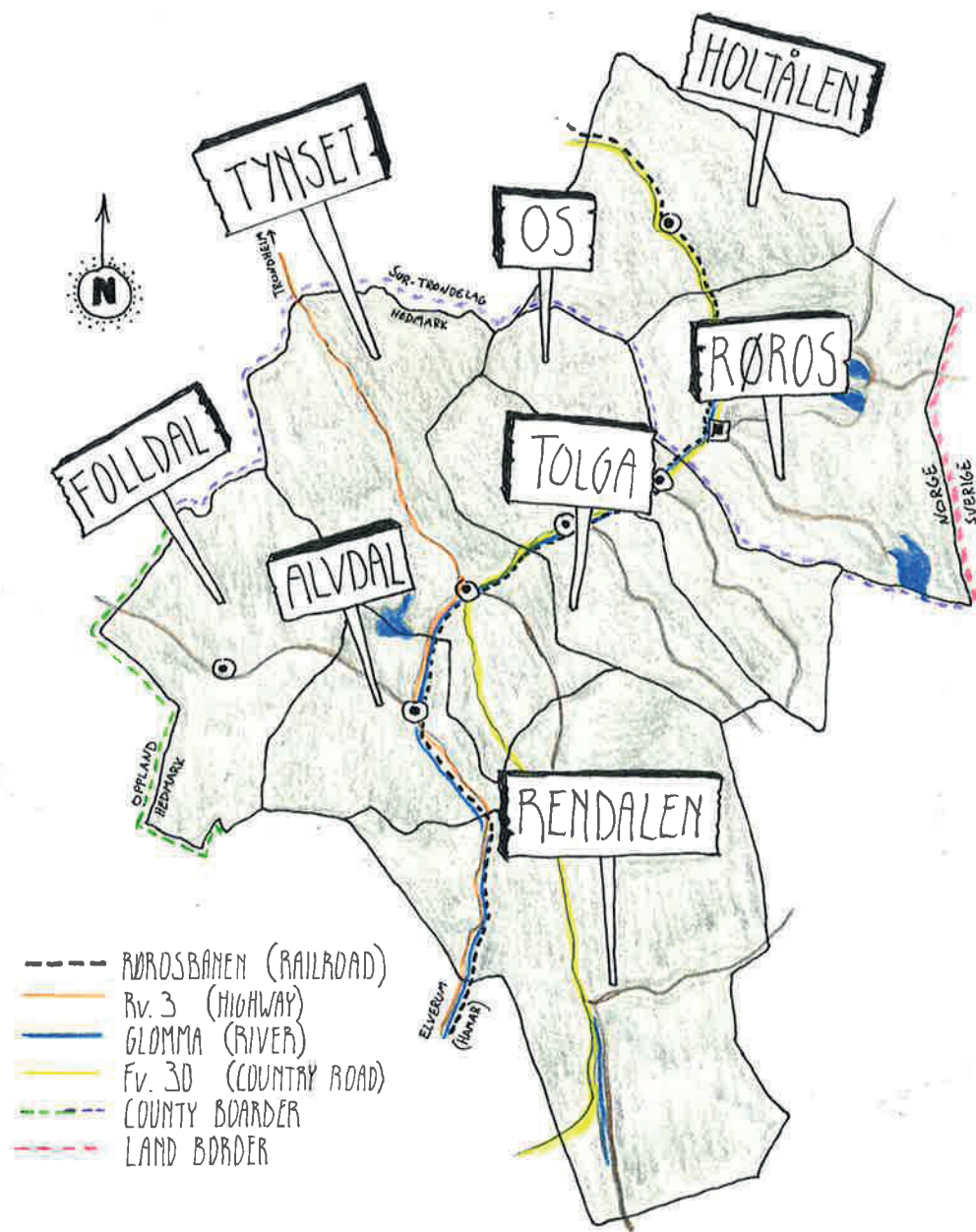
The chosen site consists of several buildings with different original functions and constructions, a "tun". The primary focus will be on the barn. The size and the construction of this building allows a variety of solutions to be tried out. It is also the most general of the buildings, meaning that the solutions in the end result, should be transferable to the many similar buildings in the region.

The project is to be read almost like a manual to how one actually and realistically could restore this barn. The knowledge acquired should be helpful to other similar projects. The goal is to find a functional and easy way to include these old buildings into the modern life, not as a memorial of the past but a "living" structure in use.

Most farm buildings are privately owned, and restoration of buildings tend to cost a lot of money. To keep this project as realistic as possible, it will be developed with an awareness of the economical factors. Aiming for a "low tech" result that will benefit a wider range of people

Some time in the beginning of the semester will be spent on exploring the different ways of transformation for buildings in similar conditions. Getting to understand the original structures and their positive and negative qualities. The work progress will force the project to jump in and out of the situation, constantly comparing it to similar but still slightly different structures.

## The plot



Selected focus region. Tolga in Nord-Østerdalen in the so called "Mountainregion". Above is a map of the region and to the right a map of the center of tolga.

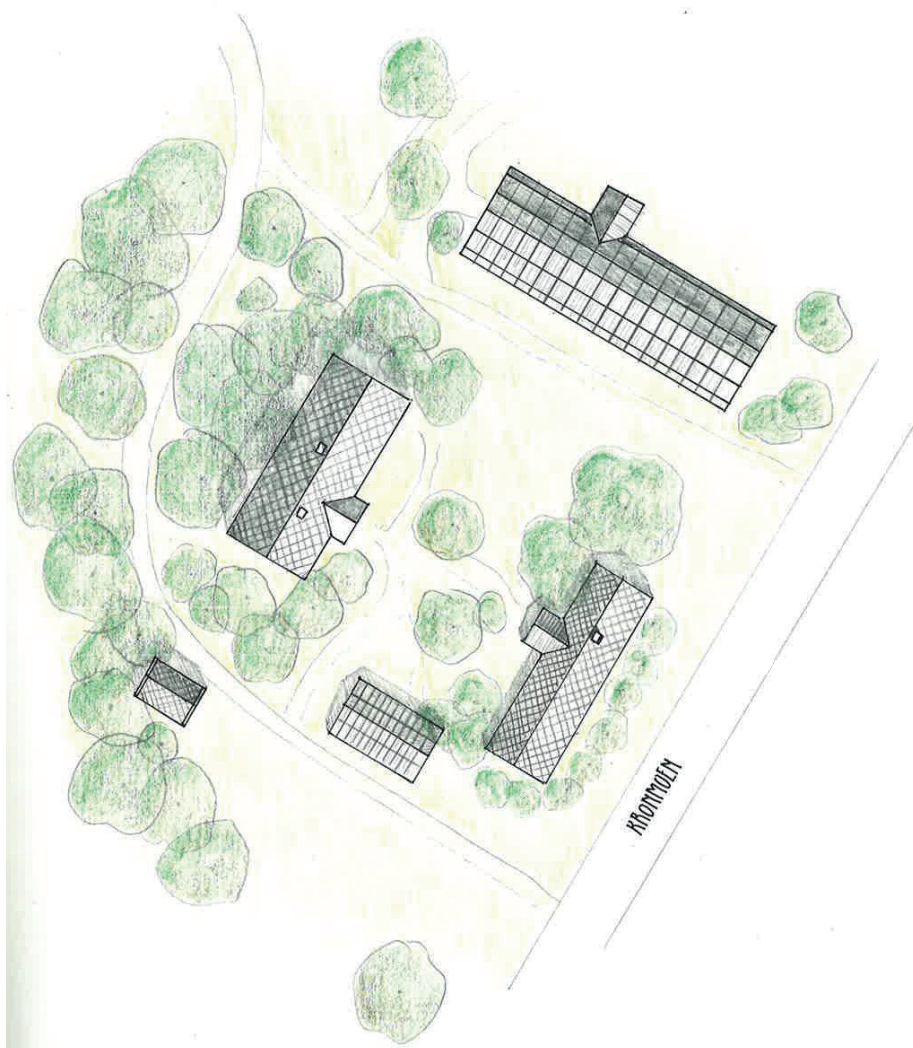






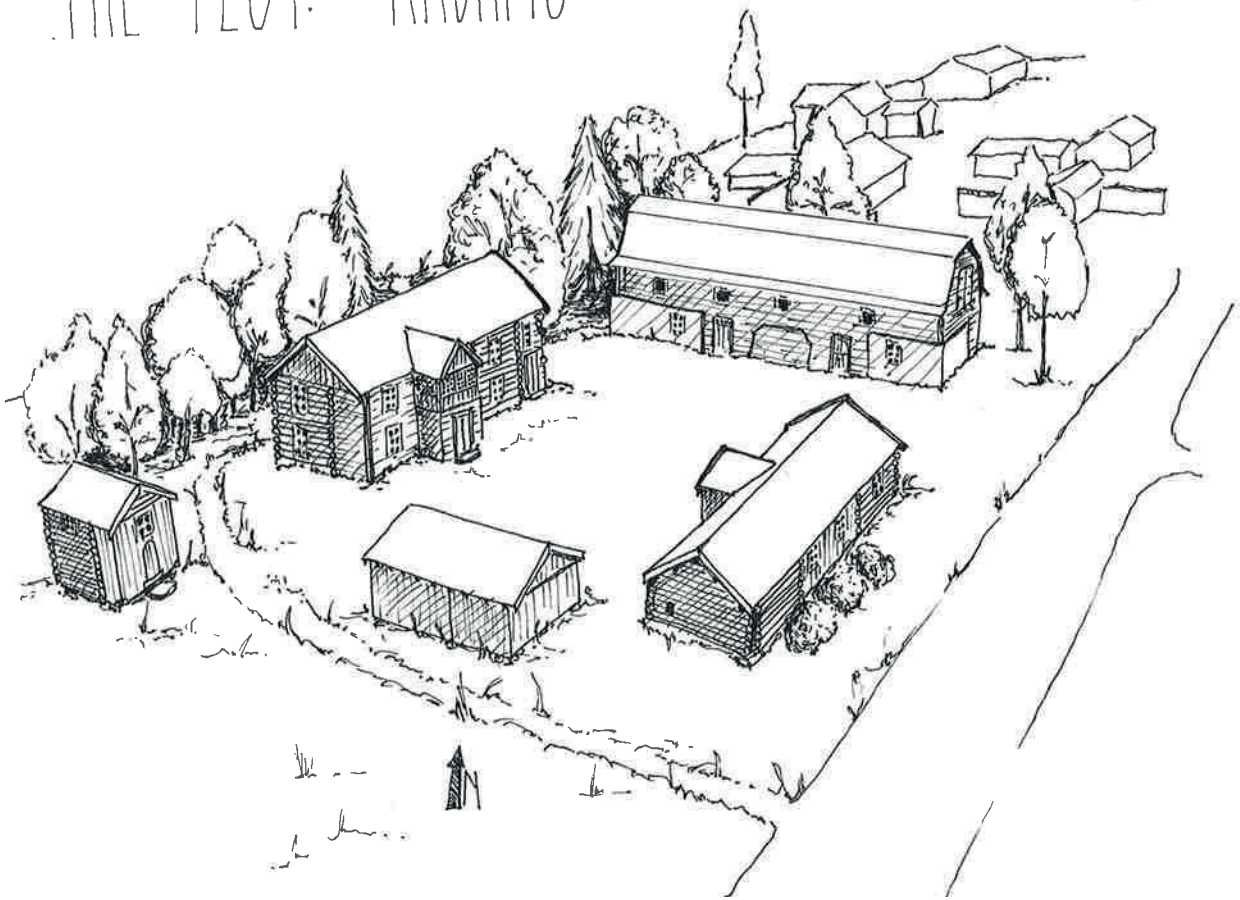
The Kronmo farm lies in the municipality of Tolga, only 20 minutes from "the Mountain Capitol" Røros. The town was founded when a smelter in relation to the mines at Røros was built close to Toljefossen, the local water fall. Since the primary industry was related to this, small farms were built around the smelter.

This makes the Kronmo farm interesting. The houses have a typical layout, but are unusually close to the town center. A small path crossing the outskirts of the town is the main travel route for pedestrians moving between the town center and the residential area.

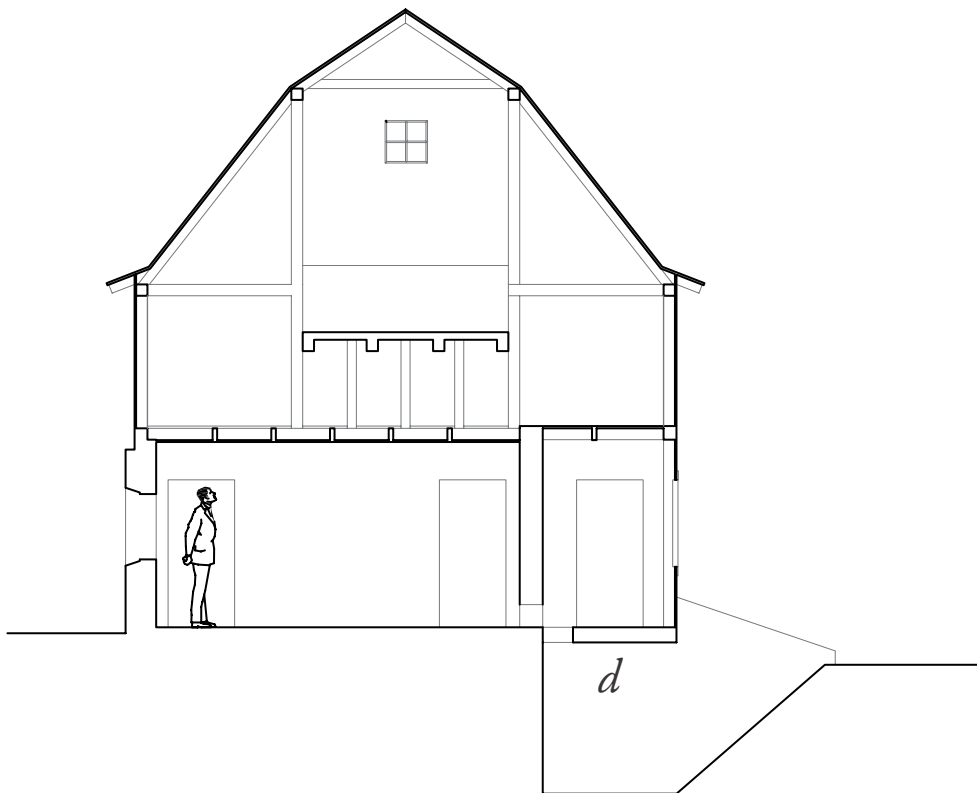
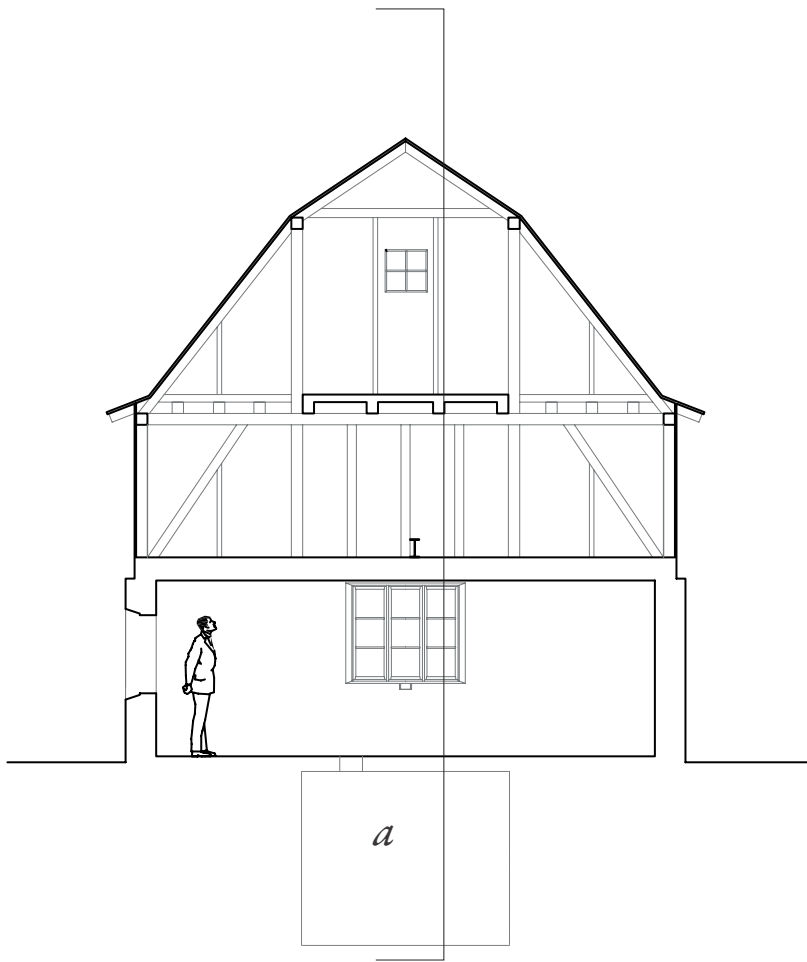




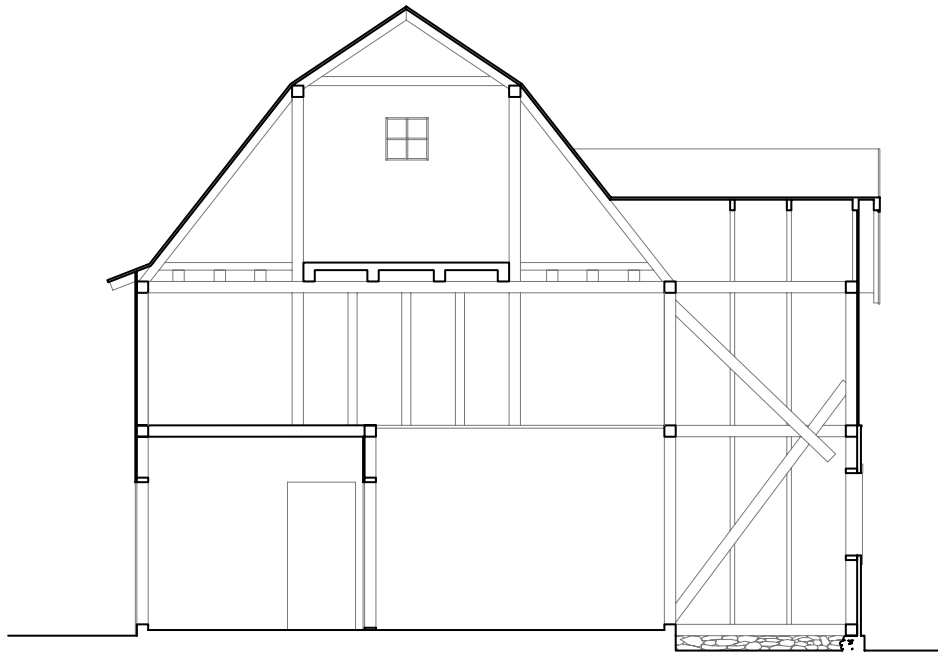
THE PLOT: KRONMO



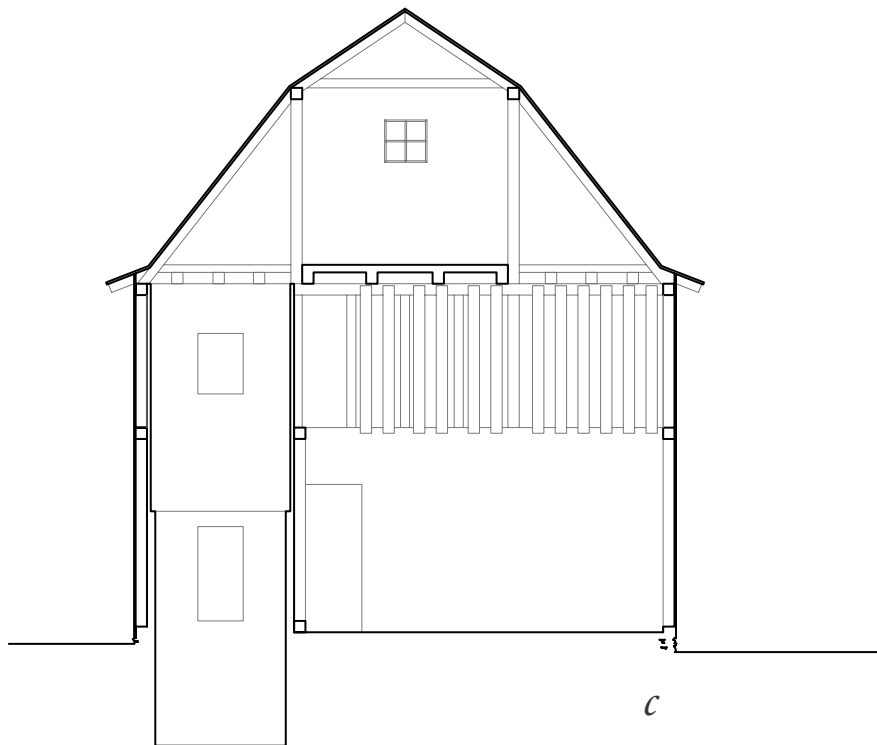




*Sections of existing barn layout. 1:100*

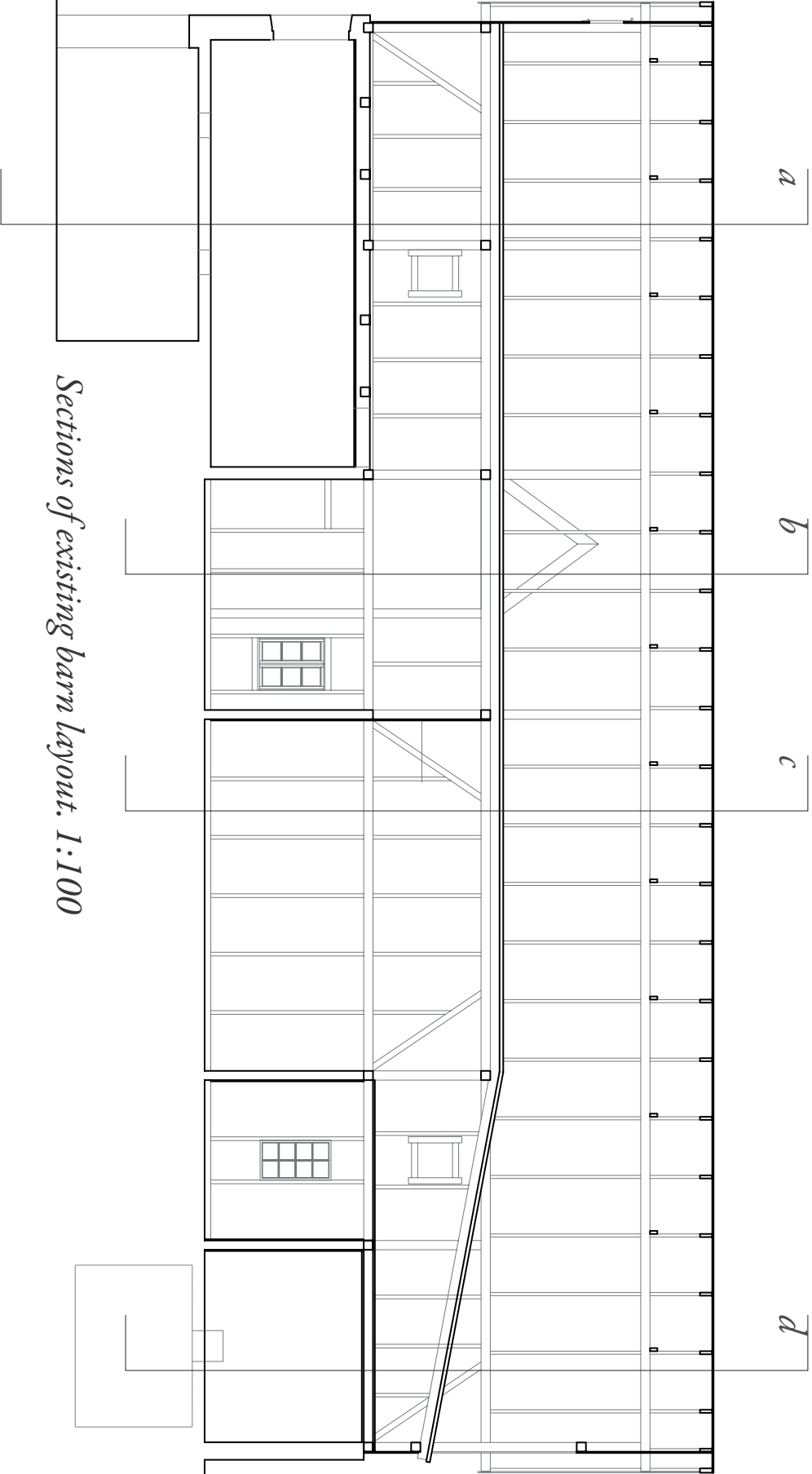


*b*



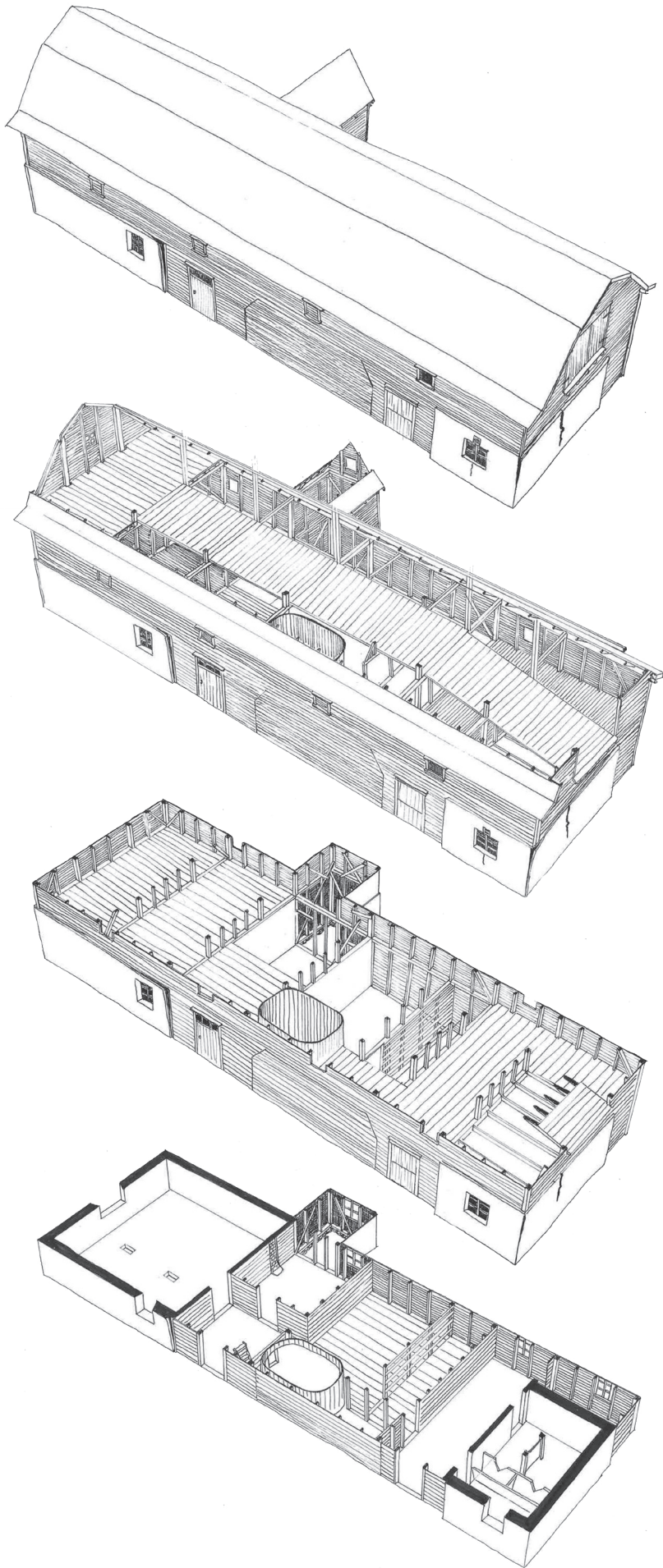
*c*





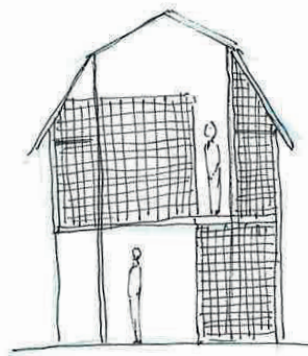
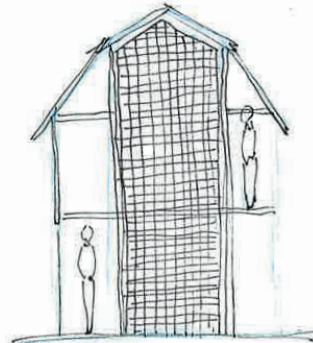
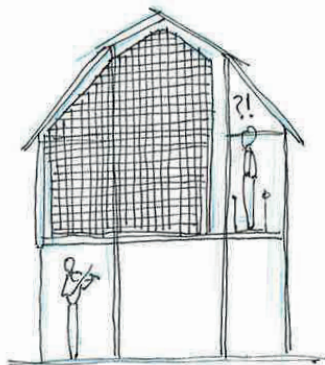
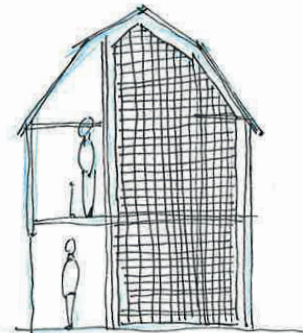
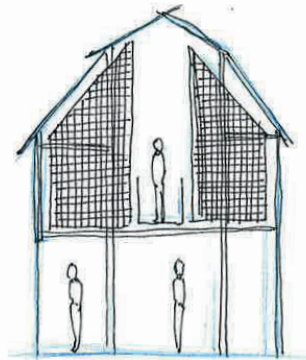
*Sections of existing barn layout. 1:100*

*Existing layout*

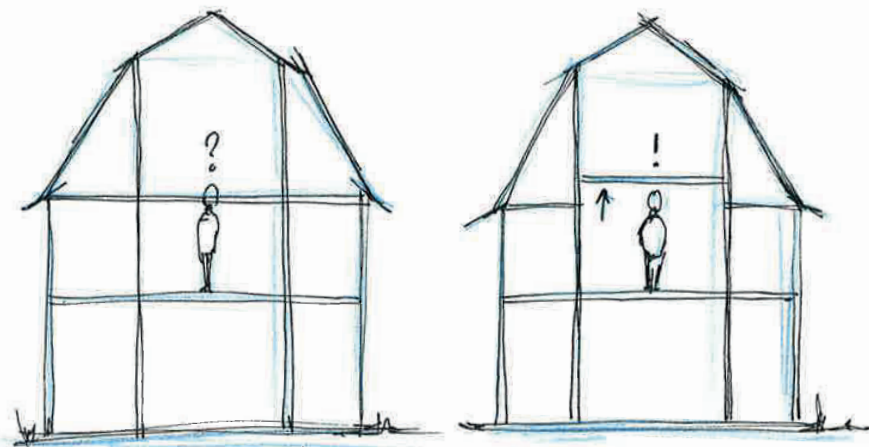




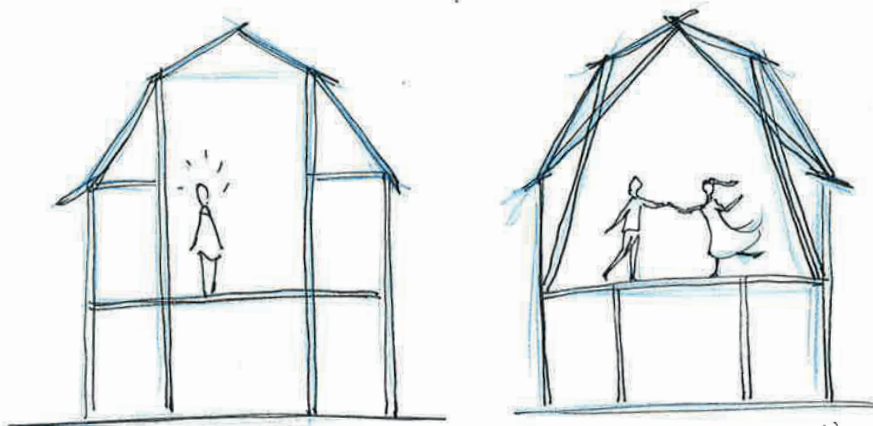
**How to treat the construction and making it more suited the new use**



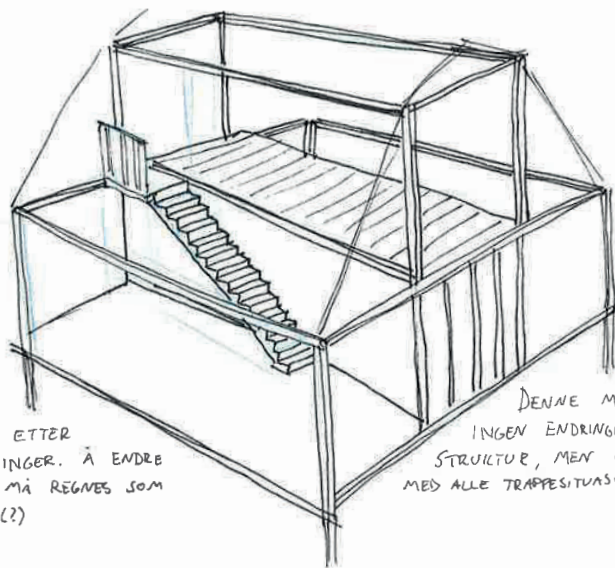




HVORDAN LØSER JEG HØYDEN PÅ MELLOMETASJEN? KAN JEG TILLATE  
Å HEVE MIDTRE BJELKE. KAN DET LØSES PÅ ANDRE MÅTER?

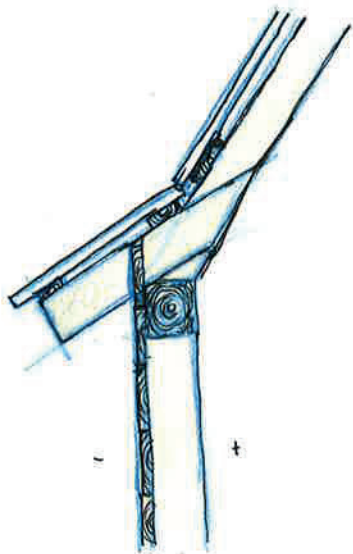


HVOR GÅR GRENSENE FOR HVA SOM BØR VÆRE LOV Å ENDRER PÅ?  
MISTER BYGNINGEN KARAKTER DERSOM SLIKE ENDRINGER BLIR UTFØRT?

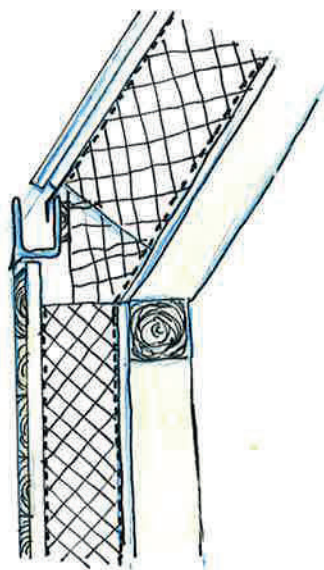


DET SØKES OFTE ETTER  
REVERSIBLE LØSNINGER. Å ENDRER  
KONSTRUKSJONEN MÅ REGNES SOM  
IKKE REVERSIBEL (?)

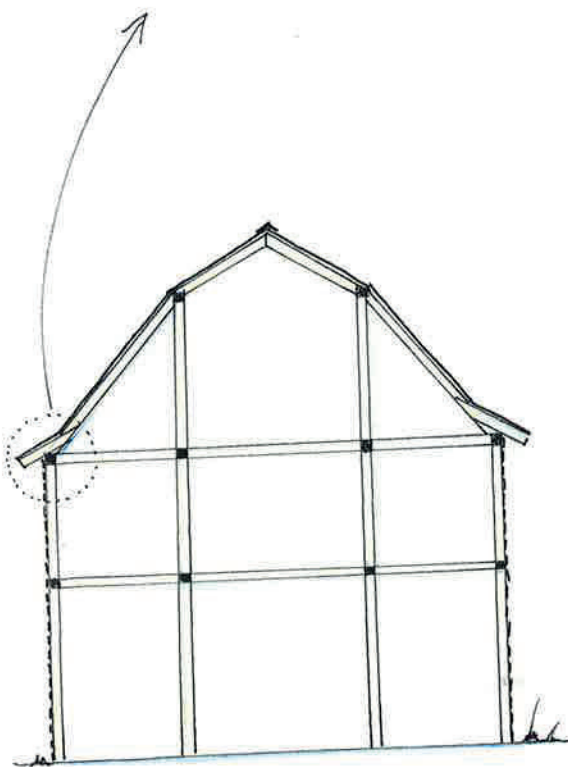
DENNE METODEN KREVER  
INGEN ENDRINGER PÅ ORIGINAL  
STRUKTUR, MEN ER SVÆRT UPRÆKTISK  
MED ALLE TRAPPE SITUASJONER SOM OPPSTÅR



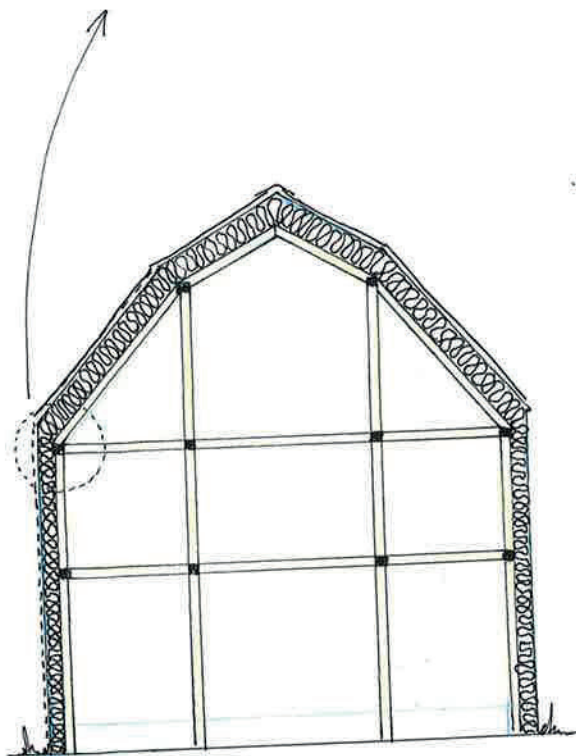
300mm  
TAKUTSTIKK



INGEN TAKUTSTIKK  
INNFELT TAKRENNE

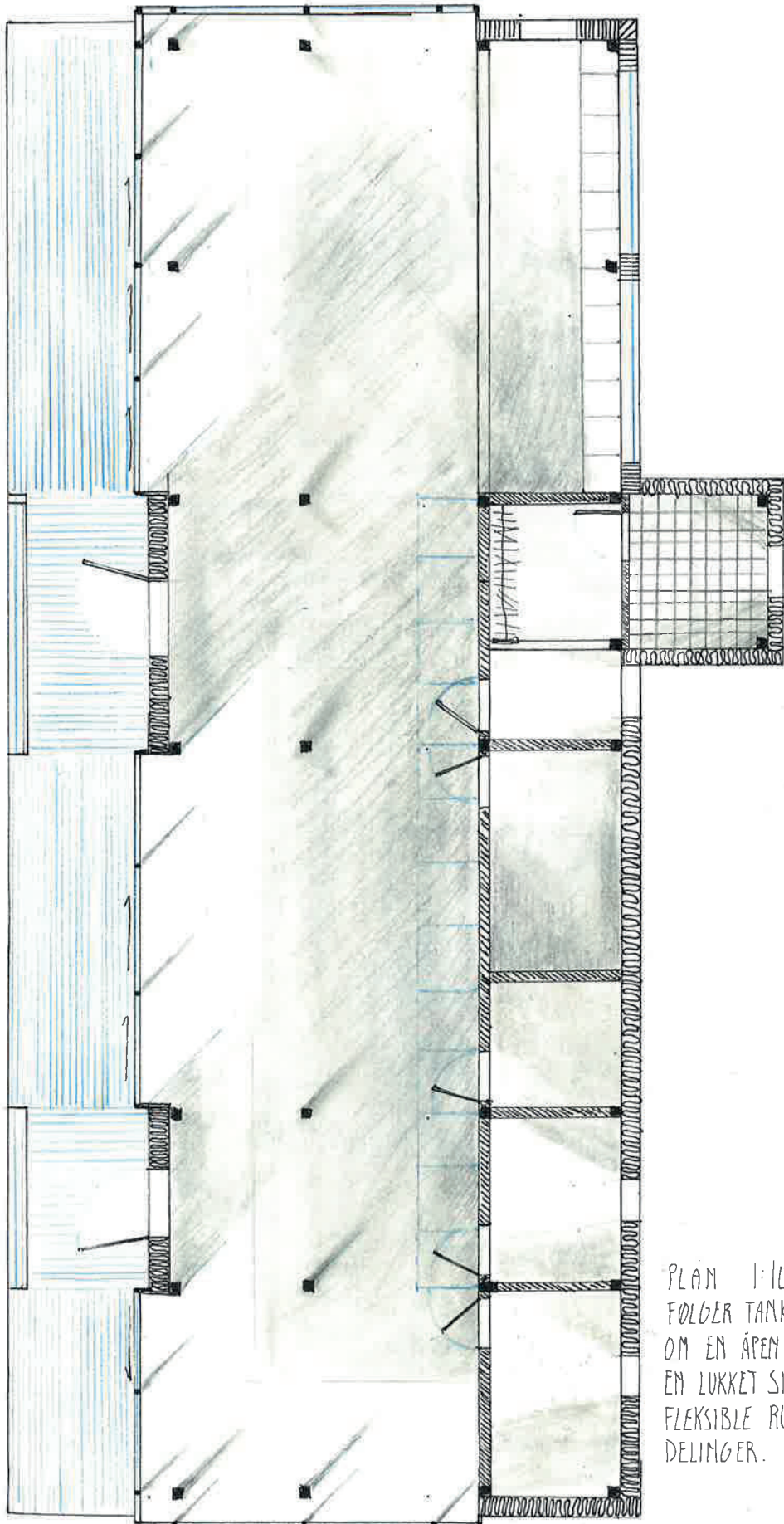


DAGENS SITUASJON.  
HORIZONTAL KLEDNING  
BÆKKTAK MED TAKUTSPRING

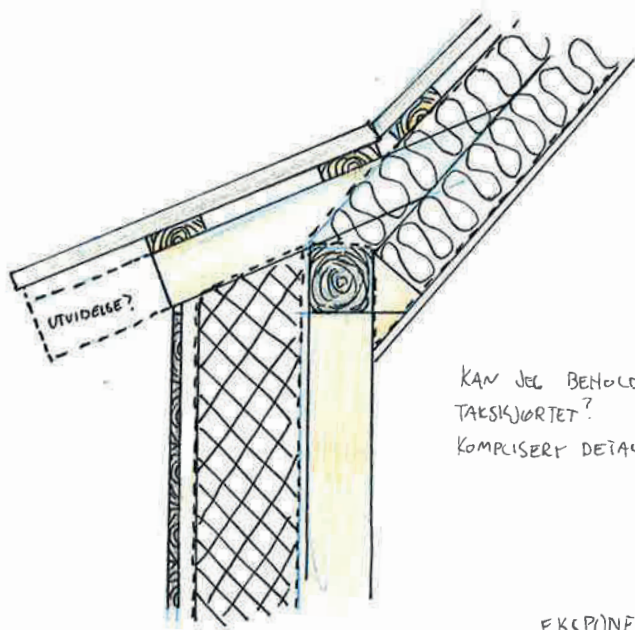


ISOLERT SITUASJON  
ISOLASJONEN «SPISER OPP»  
TAKUTSPRINGET. VILLE OPPLEVD  
KUNSTIG Å REKONSTRUERE DET.  
SAMME KLEDNINGSSITUASJON (?)



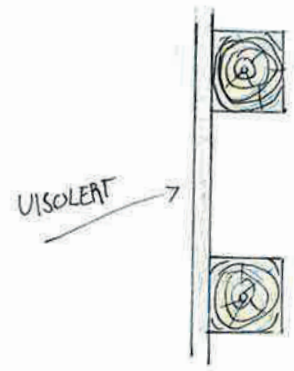


PLAN 1:100  
FØLGER TANKEN  
OM EN ÅPEN OG  
EN LUKKET SIDE.  
FLEKSIBLE ROM-  
DELINGER.

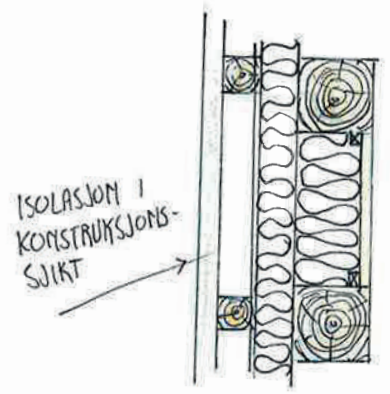
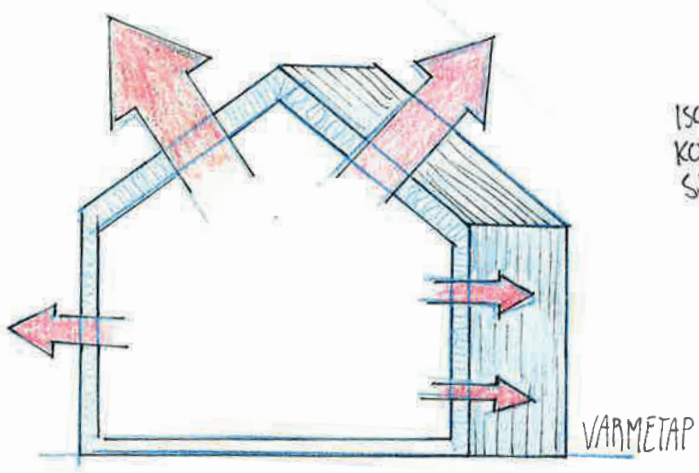


ENERGIRAMMER  
 FRITIDSBOLIG OVER 150m<sup>2</sup>  
 KONTORBYGNING  
 FORRETNINGSBYGNING

KAN JEG BEHOLDE  
 TAKSKJØRET?  
 KOMPLISERT DETALJ



EKSPONERT KONSTRUKSJON

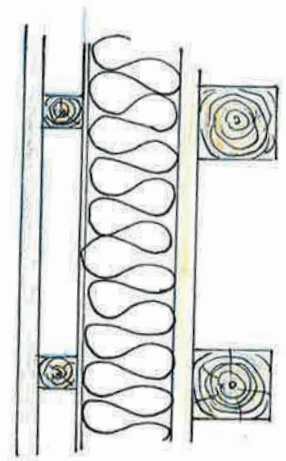


Å IKKE ISOLERE HEMMER BRUKSMULIGHETENE  
 MEN BEVARER UTTRYKKET.

Å ISOLERE I KONSTRUKSJONEN MINSKER INNEROM  
 MEN BYGGER MINIMALT PÅ UTSIDEN.

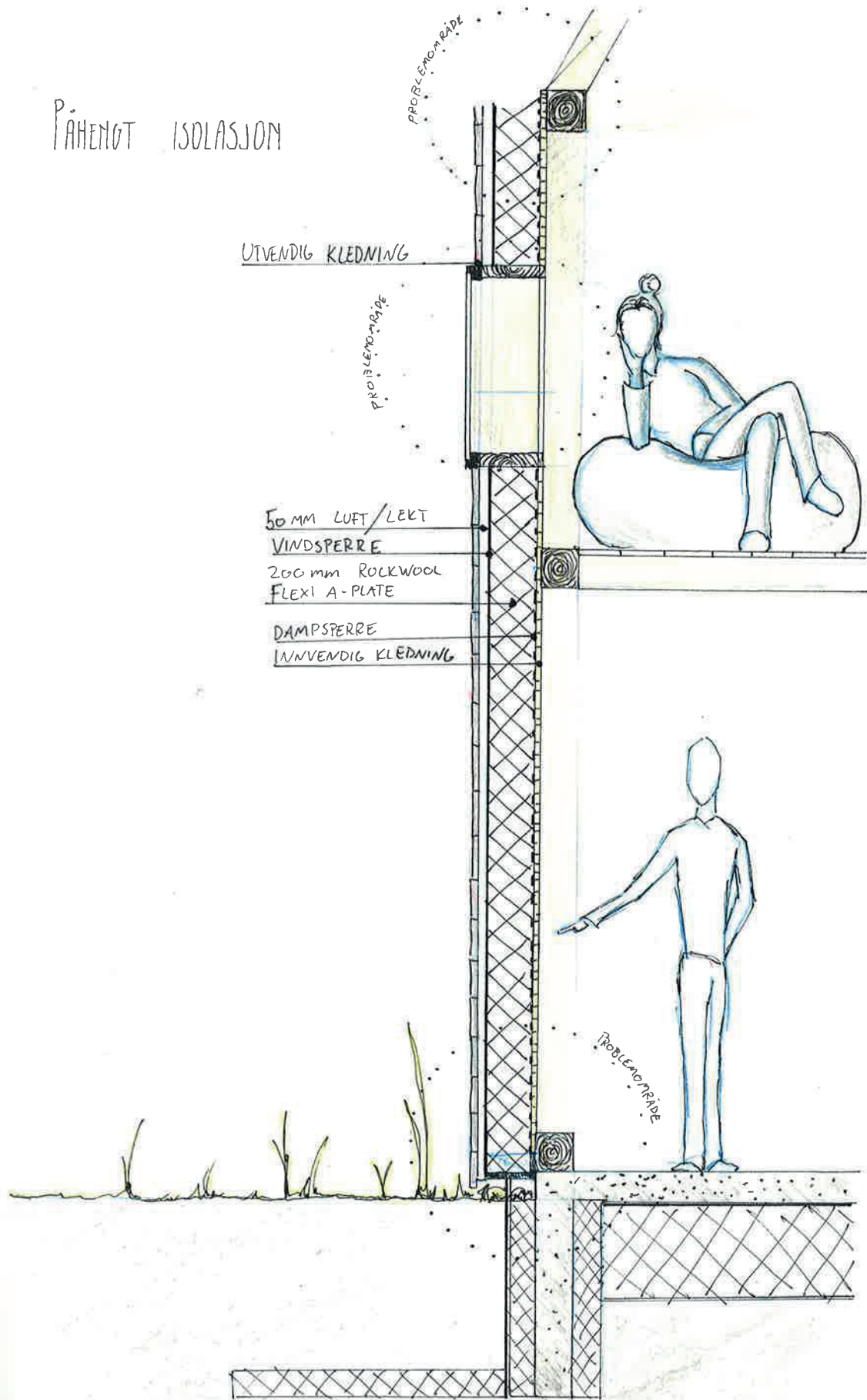
PÅHENG FASADE BYGGER MYE PÅ UTSIDEN MEN LAR KONSTRUKSJONEN  
 STÅ UFORSTØRRET PÅ INNSIDEN.

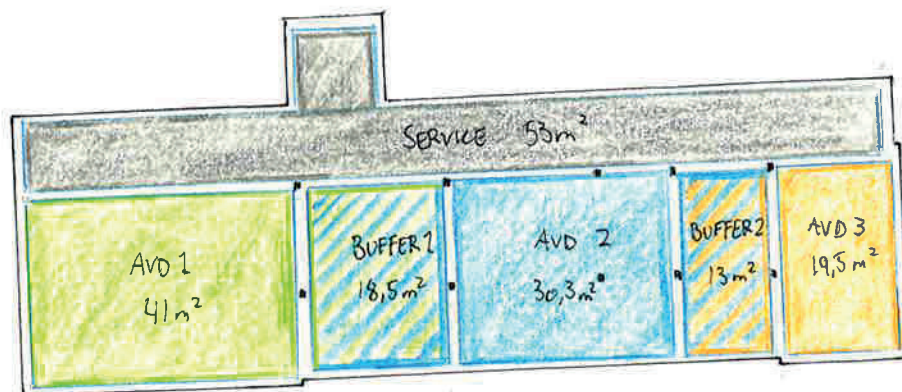
PÅHENG  
 FASADE



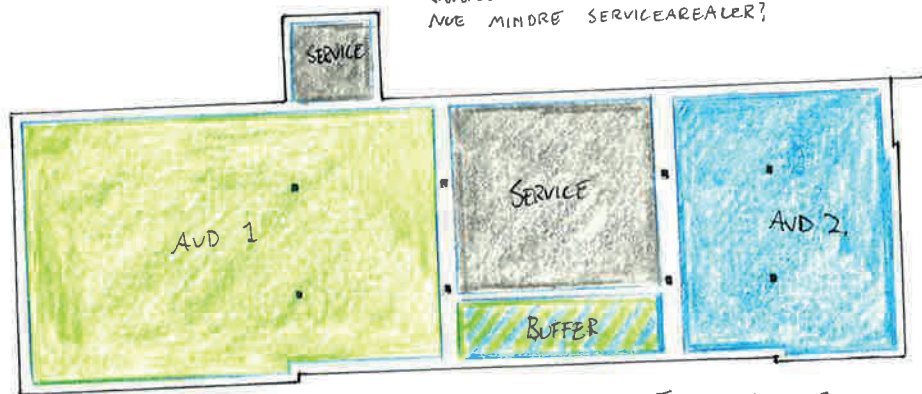


# PÅHENG ISOLASJON

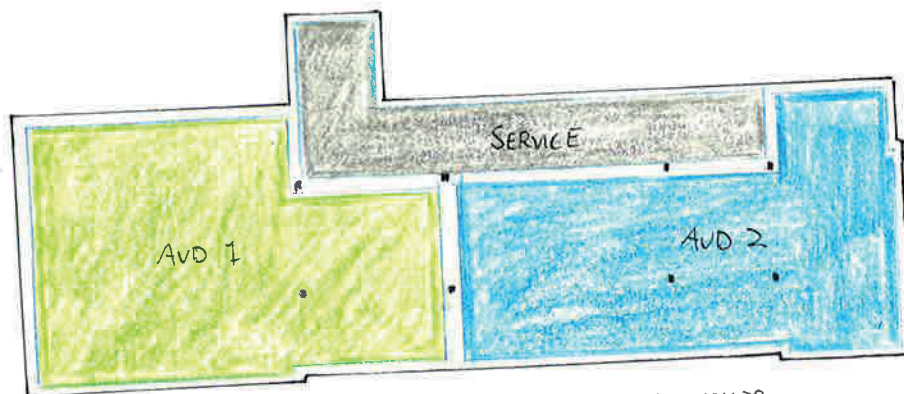




HVOR STORE AREALER TRENGER MAN TIL SERVICEAREALER?  
 HVA ER GEMERELLE RUMSTØRRELSER? NÅR ER ET ROM STORT NOK?  
 KANSE EN VARIANT AV DENNE MED  
 NOE MINDRE SERVICEAREALER?

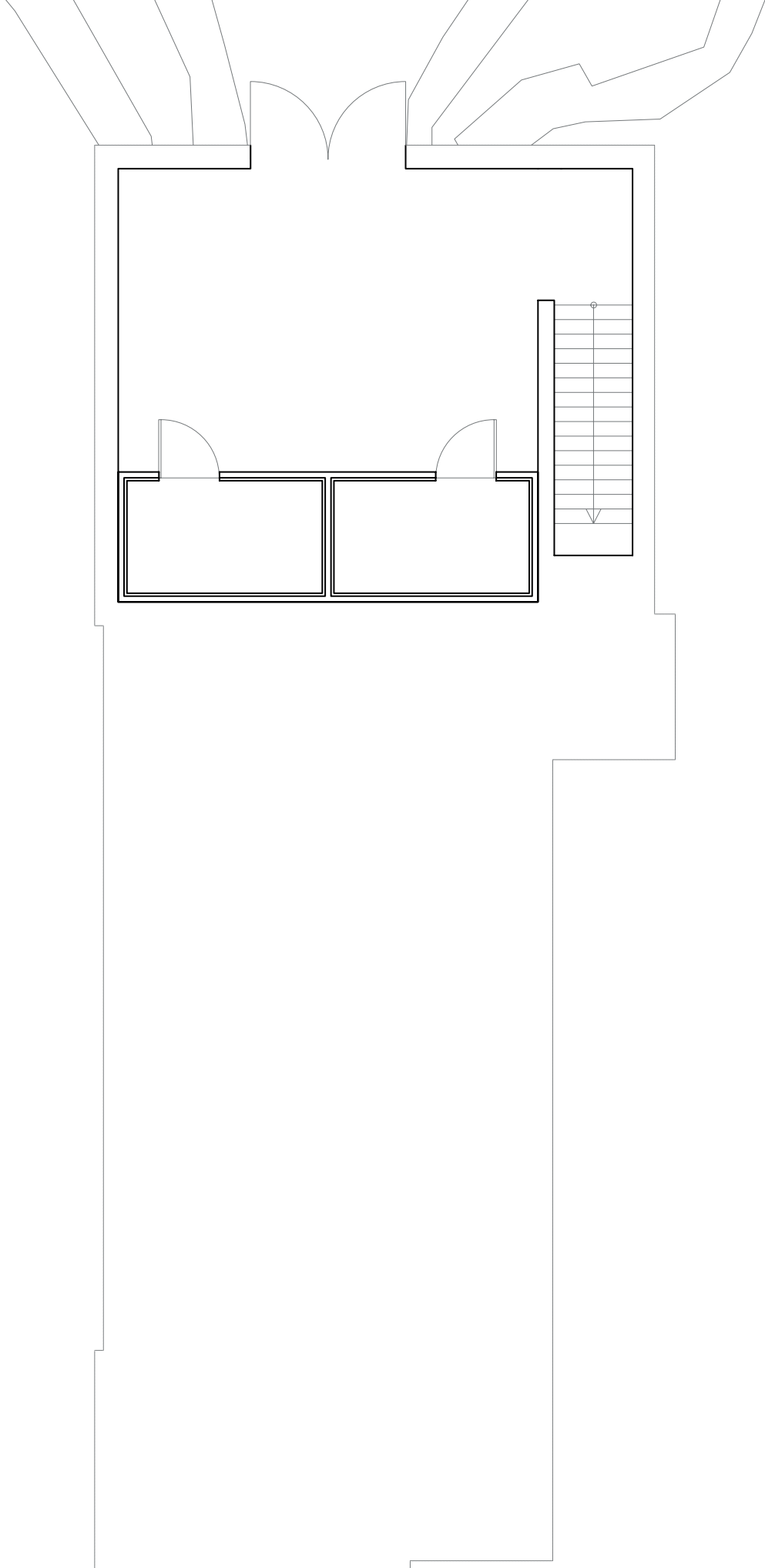


VURDERE ANTALL AVDELINGER. TO ER MULIGENS  
 BEDRE ENN TRE. DENNE PLANEN UDELEGGER  
 VOLNSKJULPNINGENS KVALITETER.

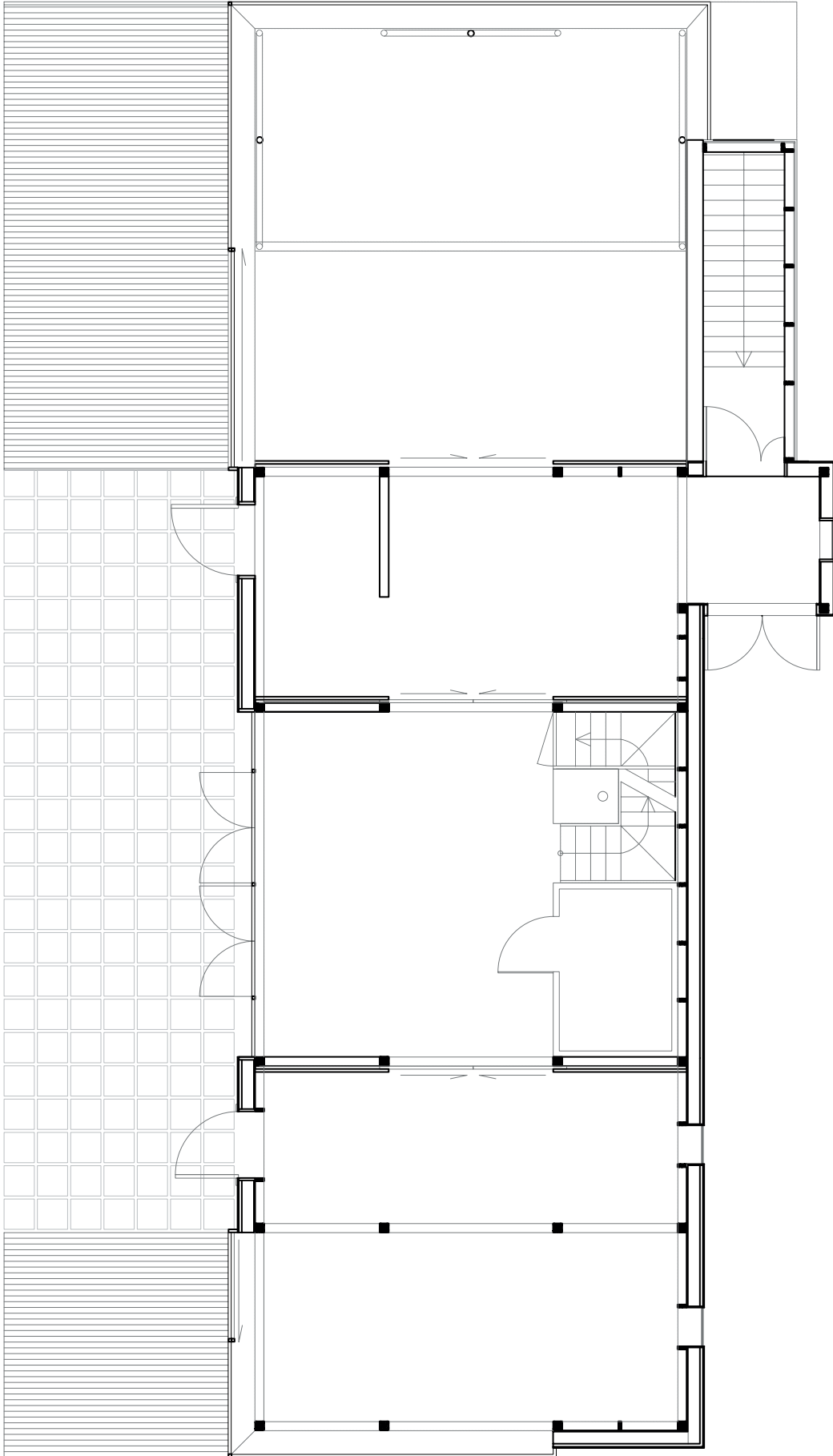


MINDRE TRANGT MED 2 AVDELINGER  
 KAN SE UT SOM AT DETTE ER EN  
 BEDRE FØRHOLDSFORDELING AV PRIMÆR- OG  
 SEKUNDÆRFUNKSJONENE.  
 HVORDAN FORHOLDER ANDRE ETASJE SEG TIL DETTE?  
 HVOR LIGGER TRAPPER OG SIRKULASJON.



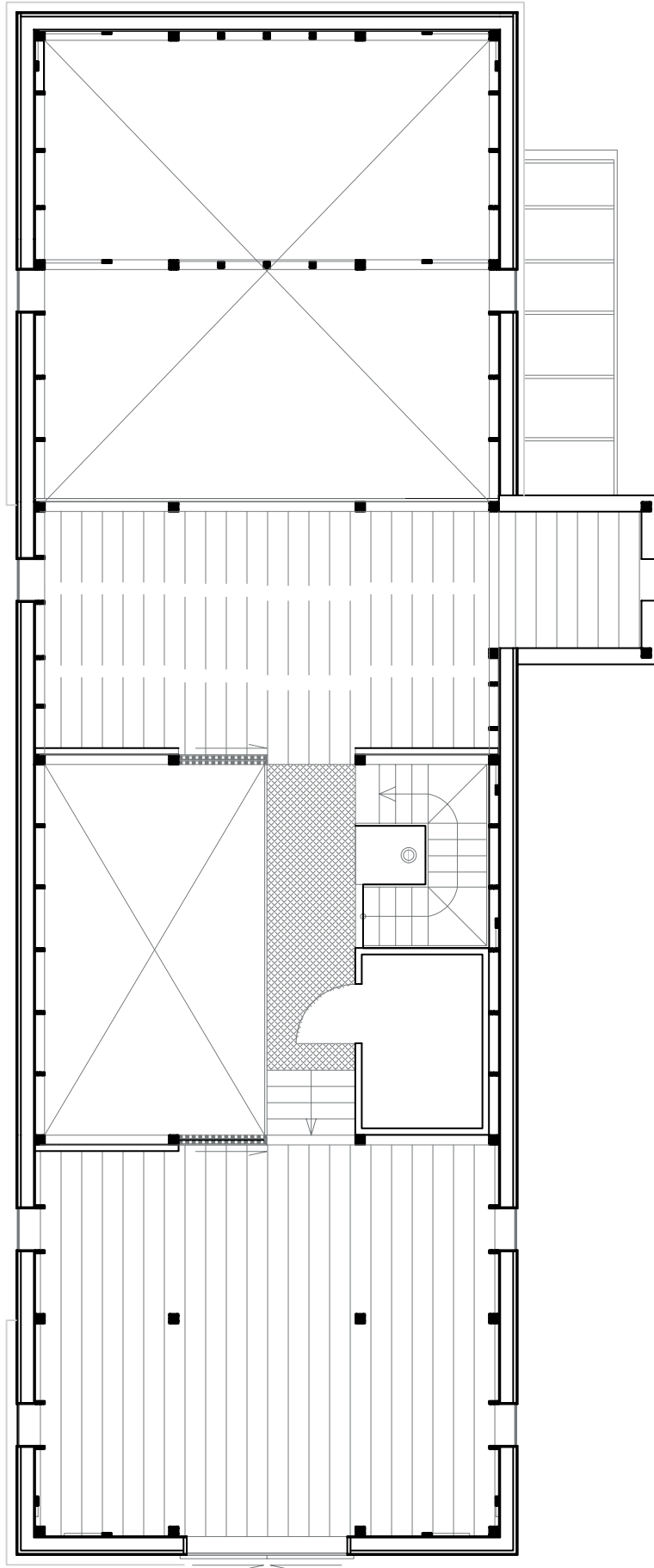


New Plan cellars  
1:100



New Plan ground floor  
1:100





New First floor plan  
1:100





















