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The Oslo School of Architecture and Design

DIPLOMA PROGRAM FALL 2017

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Company cooperation:

Title of project: TWO BIRDS, ONE STONE



TWO BIRDS, ONE STONE

a study in the rescue of
old agricultural buildings

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The Oslo School of Architecture and Design
Pre-diploma report, spring semester 2017*

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01 INTRODUCTION

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.



02 FIELD OF INTEREST

A professor of architecture once said “most buildings are already built”. By this she meant that architecture isn’t just to build completely new structures, but also reuse and refurbish old ones. The reuse of old houses can be economically, culturally and even environmentally sane. In a world where “sustainability” is a much used term, why not reuse fully functional materials instead of seeing them rot and decay?

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 represent 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 old 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.

Norway is a country with a long tradition in farming, and the traces of this tradition has a great importance in the cultural history. It is almost impossible to go anywhere in this country without seeing the iconic “red barn”. But the future of these buildings are now uncertain. Many of them have lost their importance and they are slowly diminishing into ruins, turning into a ghost of the past rather than a monument of it. If this continues, Norway will slowly lose an important element in the landscape of cultural history.

We should pay some attention to this. 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.

When working with the issues of this typology there are several interesting questions that need, if not to be answered, at least to be thought of:

What are the possible new uses of such buildings?

What are their strengths and weaknesses?

Is it possible to make good and modern functions into these old structures?

Where do one draw the line between conservation and modern adaptations?

What effect will the differences in construction methods of the buildings have on the approach of transformation?

03 FOCUS AND METHOD / APPROACH

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.



04 PROGRAM

The most interesting aspect in these kinds of projects may be the way it is transformed into a new function, rather than what function it is transformed into. Keeping this point of view the more relevance it will have to other similar projects. One should keep in mind that the transformation should preserve the general layout of the building, allowing the program to change over time. If this project fails to do so, it has ruined one of the biggest qualities of such constructions.

Rather than having a specific program to apply to the farm, it will be more interesting to see if it is possible to create a system that allows the house to room almost whatever program one desire. Once the system has been created, different programs may be tested.

The chosen farm to investigate is located in immediate vicinity to a town center. The not so typical location makes it suitable to house a wide range of different programs. Public as well as private.

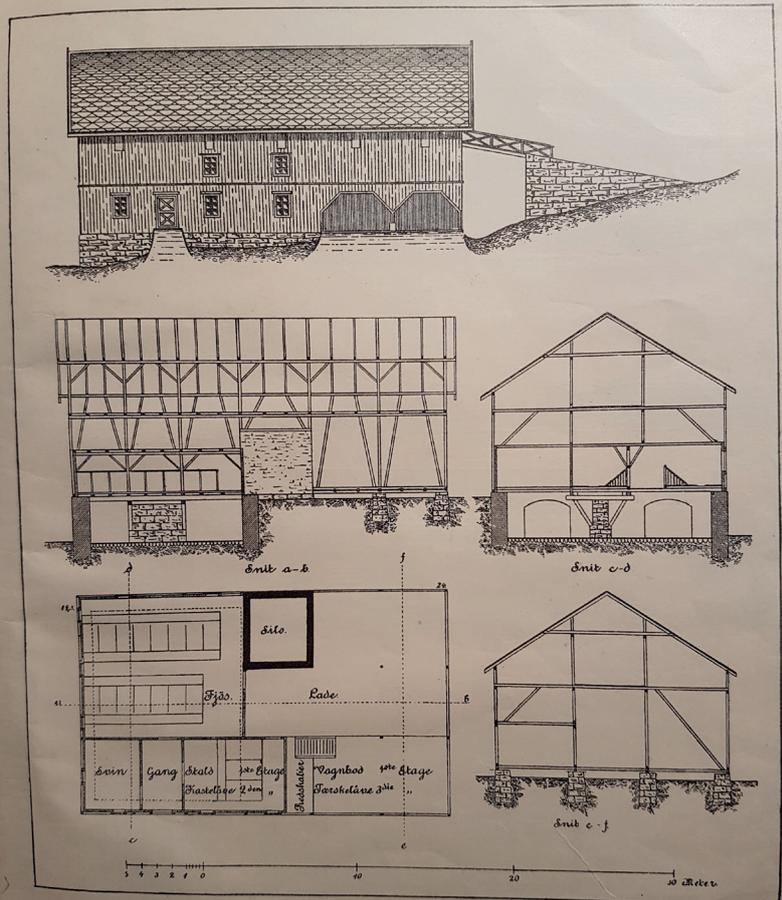


Fig. 356.

05 THE PROJECTS RELATION TO REALITY

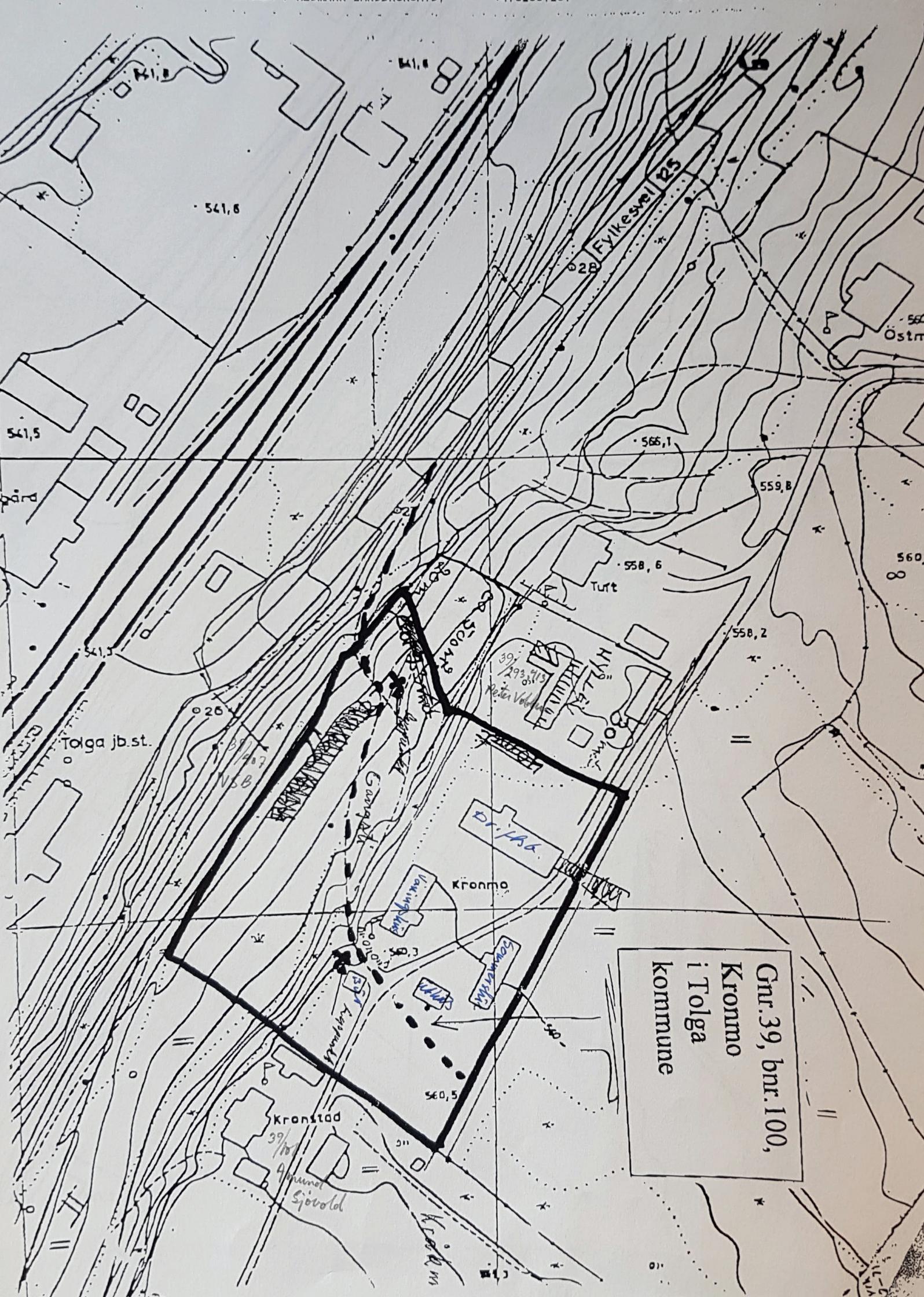
THE SITE

The chosen site lies in the municipality of Tolga. It's a rather small town, but are well connected to Tynset and Røros that acts like the two main centres of the region of Nord-Østerdalen. Originally a farming and mining town, the farms are still present in the center of the town. The plot of interest is an abandoned farm literally a stone's throw away from the main functions of the town, and with it's location in the landscape it should be one of the more attractive plots in the area.

The "Kronmo Gårdstun", Fno. 39 Sfno. 100, lies approximately 100 meters south west of Tolga railway station. Arrival by car via rv26 "Stasjonsbakken", Sjukhusmoen and Kronmoen, 1km route from The center of Tolga. The old agricultural landscape around the farm is today transformed into a residential area. The farm lies on a ridge leaving some of the plot in a quite steep landscape. Including the slope, the "tun" and the "Kronmo road" that pass by, the size of the plot is about 5 acres.

Even though the buildings suffer from bad maintenance the last 20 years, the "tun" as a whole is still quite good preserved, and its presence has a historical value as an example of the local building practice from the early 1900s.

Due to the transformation of the surrounding area, from agricultural farm land to residential housing, the borders around the farm went from being spacious to quite close to the buildings. This has given restrictions to what one can do on the periphery of the plot, but at the same time it has given even more value to the interior space of the "tun". Putting the farm into a residential regulated scheme, is also to say goodbye to the traditional use of the farm. One now has the choice between demolition or transformation.



Gnr. 39, bnr. 100,
Kronmo
i Tolga
kommune



"THE FARMHOUSE"

The main building of the farm was build ca. 1900, and another section was added in the 1920s.

It's a two story building mainly of the traditional log type, but some sections are also timber framed. The ground surface area is about 100 m².

The building is not insulated apart from the traditional padding in between the logs. There are two entrances, one main entrance in the middle, and one side entrance. The foundation is mainly stone but partly concrete. There are two small masoned cellars. There is a wooden pitched roof, slate cladded.

The ground floor plan consists of kitchen, 3 bedrooms, livingroom, bathroom and hallways.

On the first floor there is 3 bedrooms, hallways and a "loftstue".

After a valuation of the house executed in 4th of November 1998 it was concluded that all floors on the ground floor must be changed, the windows most be changed, all elctrical installations must be canged, and the roof must be rehabilitated. All interior surfaces needs attention.



"THE SUMMER HOUSE"

Ground floor area about 78m².

Build in the 1920s.

It has three rooms and an entrance. On each flank of the building is a timber "box" connected by a timber frame construction inbetween. The timber boxes has a foundation of concrete while the mid section has a stone foundation. The roof construction is a traditional "åstak", typical for the area. The roof is clad with eternite slate.

There is a small cellar beneath one of the rooms.

The building is poorly maintained and needs comprehensive restoration. All floors need to be changed.



”STABBURET”

Timber building in two stories.

Groundfloor area ca. 11 m².

The building rests on cobblestone pillars.



"THE SHED"

Uninsulated timber framed building.
Groundfloor area aprox. 32 m².
Simple rock foundation, pitched roof clad with corrugated sheet metal.
It is divided into two compartments.



"THE BARN"

Ground floor area about 181 m² bta.

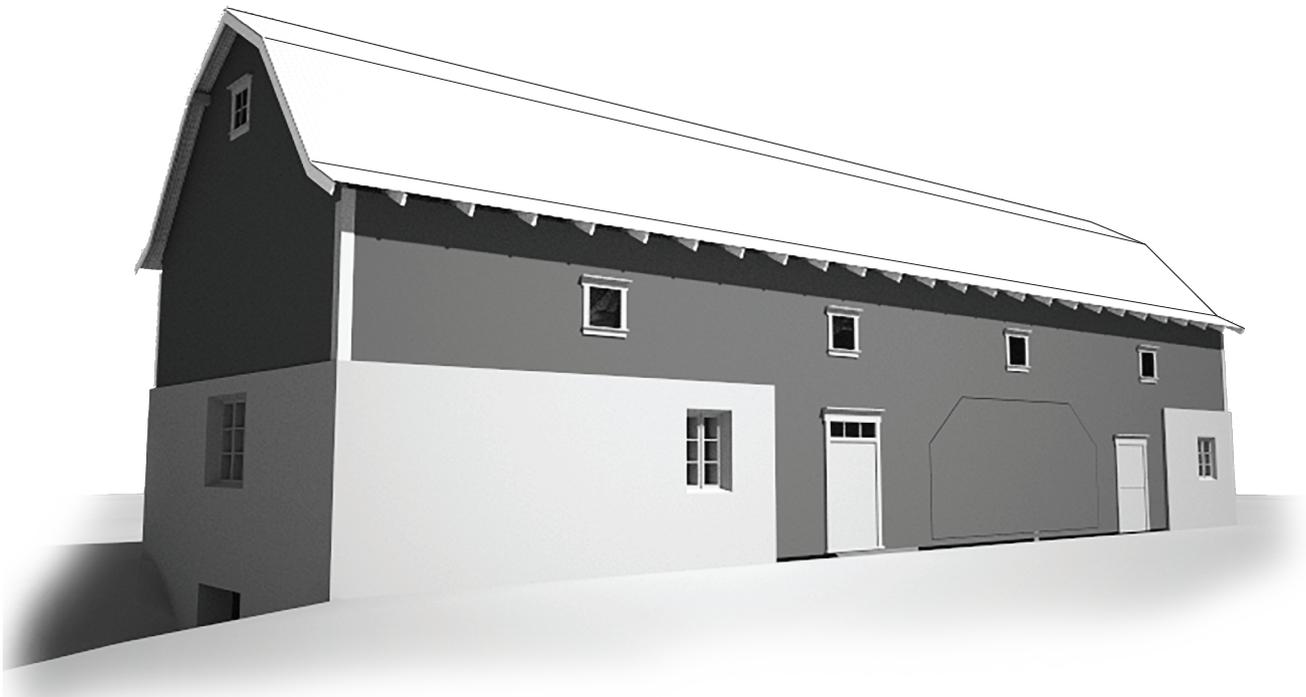
It was build in 1927, but has most likely been extended later. Foundations are mainly of stone or concrete. There small cellars beneath the animals room.

Timberframed walls with some sections of brick wall.

The roof construction is known as a Mansard/Gambrel roof and profits by making more space available than with a normal pitched roof. The roof is clad with corrugated sheet metal.

The building has two floors but with an additional bridge on a third level. The outdoor barn bridge was removed due to residential transformation of the area.

The overall condition is quite critical. The supporting stone walls are seemingly falling out and threatens the whole structure. Some loadbearing elements seems to be rotten.





06 WORK FORMAT / SUBMITTED MATERIAL

BOOKLET

- Project explanation
- General typology analysis
 - Local history
 - Site analysis

MODELS

- Situation model 1:500
- Model "tun" 1:50
- Close up models 1:25

DRAWINGS

- Siteplan 1:500
- General plans 1:100
- General sections 1:100
 - Elevations 1:100
 - Key details 1:25
- Illustrations

07 WORK PLAN / TIME SCHEDULE

Week:	Date:	What to do:	
33	Aug. 14. - 20.	Get back into context Digitalize drawings	<i>Phase 1: investigation</i>
34	Aug. 21. - 27	Make situation model Make working model / construction model	
35	Aug. 28 - Sep. 3.	In depth analysis of existing buildings Empirical research / interviewing municipality and owners	
36	Sep. 4. - 10.	In depth work with program and situation development. Sketch out transformation possibilities	
37	Sep. 11. - 17.	Continue sketch work Presentation Phase 1	
38	Sep. 18. - 24.	Reflect on reviewed material Further development of program and concept	<i>Phase 2: investigation</i>
39	Sep. 25. - Oct. 1.	Spatial experiments Study constructions / models	
40	Oct. 2. - 8.	Spatial experiments Study constructions / research on reference projects / visit projects	
41	Oct. 9. - 15.	Mid term presentation	
42	Oct. 16. - 22.	Reflect on reviewed material Further project development	<i>Phase 3: Design and Concretize</i>
43	Oct. 23. - 29.	Spatial experiments Study constructions	
44	Oct 30. - Nov. 5.	Make estimates of costs and time. Detailing of project	
45	Nov. 6. - 12.	Further project development	
46	Nov. 13. - 19.	Complete textbased work	
47	Nov. 20. - 26.	Project presentation Architectural solutions.	
48	Nov. 27. - Dec. 3.	Production finishing drawing / models	<i>Phase 4: Production</i>
49	Dec. 4. - 10.	Production finishing drawing / models	
50	Dec 11. - 17.	Final touches Delivery	
51	Dec. 18. - 23.	?	

08 RELEVANT EXAMPLES OF SIMILAR WORK

"CASA C"

Architects: Camponovo Baumgartner Architekten

Location: Reckingen-Gluringen, Switzerland

Area: 244.0 sqm

Project Year: 2012

"Due to new animal protection laws, the owner had to permanently close the barn. Tearing down the barn to build a new construction was not possible because it is part of the historic village center and a protected monument. Therefore, the task was to convert the barn without destroying its outer facade."





"GUGALUN"

Architects: Peter Zumthor

Location: Versam, Graubünden, Switzerland

Area: 244.0 sqm

Project Year: 1994

"The project by Zumthor for the conversion treats all these features with respect. The access to the house continues to be the same steep short path that the farmers traversed on foot. Entering the house, and sharing a copper roof, only those things that were considered to be missing according to contemporary standards - a modern kitchen, bathroom and toilet, two rooms with larger windows and an additional hypocaust - were added. The choice to juxtapose, rather than to integrate the old and the new, presented itself from a respect for the building's original characteristics and techniques. In ten years time, when the sun will have darkened the new wooden beams knitted with the old ones, we will be able to see how this goal was achieved.

From being in bad condition and less historically significant, the old kitchen became the place for intervention. Here the necessary enlargement of the building volume was made into the hill side, thus enabling the living room, looking on to the valley, to maintain its original location. Also the interior is juxtaposed where one room interlaces the next. The ground floor was conceived as a sequence from the old living room to the new kitchen, crossing the corridor that contains the new staircase. In the first floor, two bedrooms, one bathroom and a reading room were added like concatenated spaces divided by sliding doors.

An intense feeling of time is present in this house; in the direct contact with nature, in the architecture which evokes the inhabitants' way of life and in the accurate detailing of the joints between the old and new which Zumthor manages to communicate by his sensitivity and his early training as a joiner. In the same way the descendants recuperate the sense of the family's way of life, Zumthor has managed to build an extension to a house which in time, will grow naturally into being part of the form and history of the place, just as serene as looking at the moon."



b



c

”VILLA GUDBRAND”

Architects: Jensen & Skodvin

Location: Lillehammer, Norway

Area: 630.0 sqm

Project Year: 2014

” This house is built in an area with a long and proud fascination for the local architectural traditions. Even though we worked hard to align with local architectural rules the project was turned down by the building authorities in the county. Only after a long process with several appeals, the case was eventually tried by the local politicians who approved it. The project is an attempt to use the traditional barn structure typology from the area. The main structure is freestanding and visible, the walls and roof are attached to the outside of the structural frames. We have used dark plywood as the inside surface of the outer walls and roof.”





”NY BRUK AV LÅVEN”

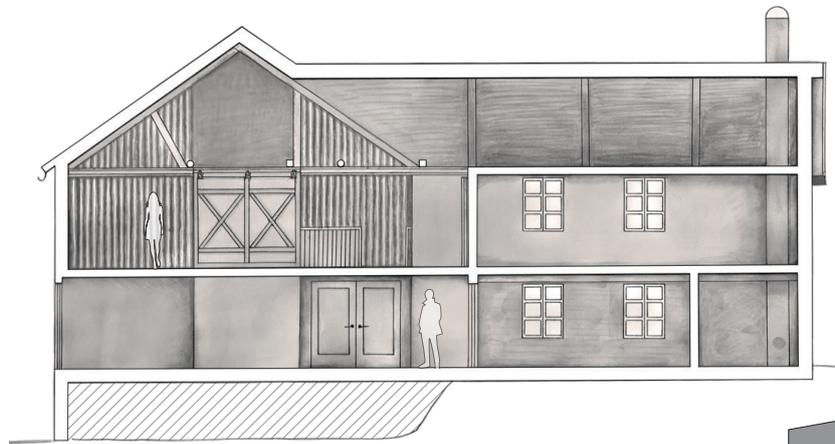
Architects: Siri Sollie Ekholm

Location: Lillehammer, Norway

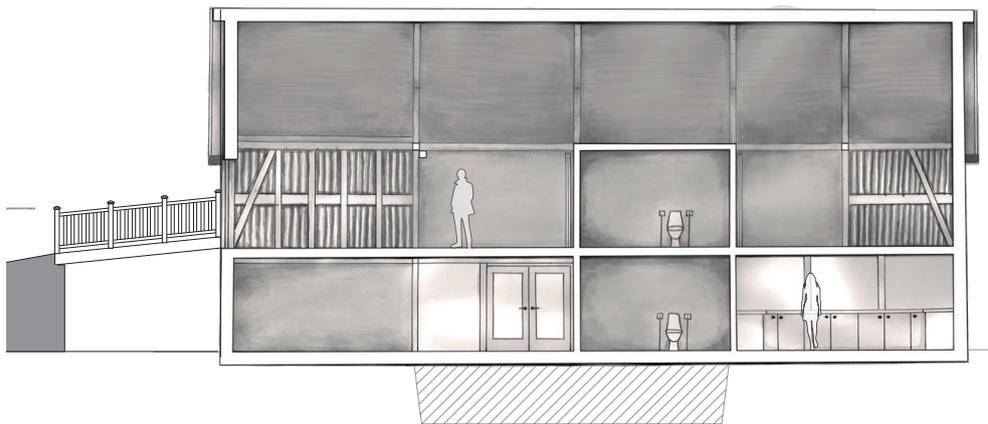
Project year: Masters degree project, spring 2015

Siri Sollie Ekholm did a quite similar project as her master in 2015. Her research and analysis are valuable information when entering the same area of issues in terms of transformation of the barn.





Nytt snitt A-A' 1:100



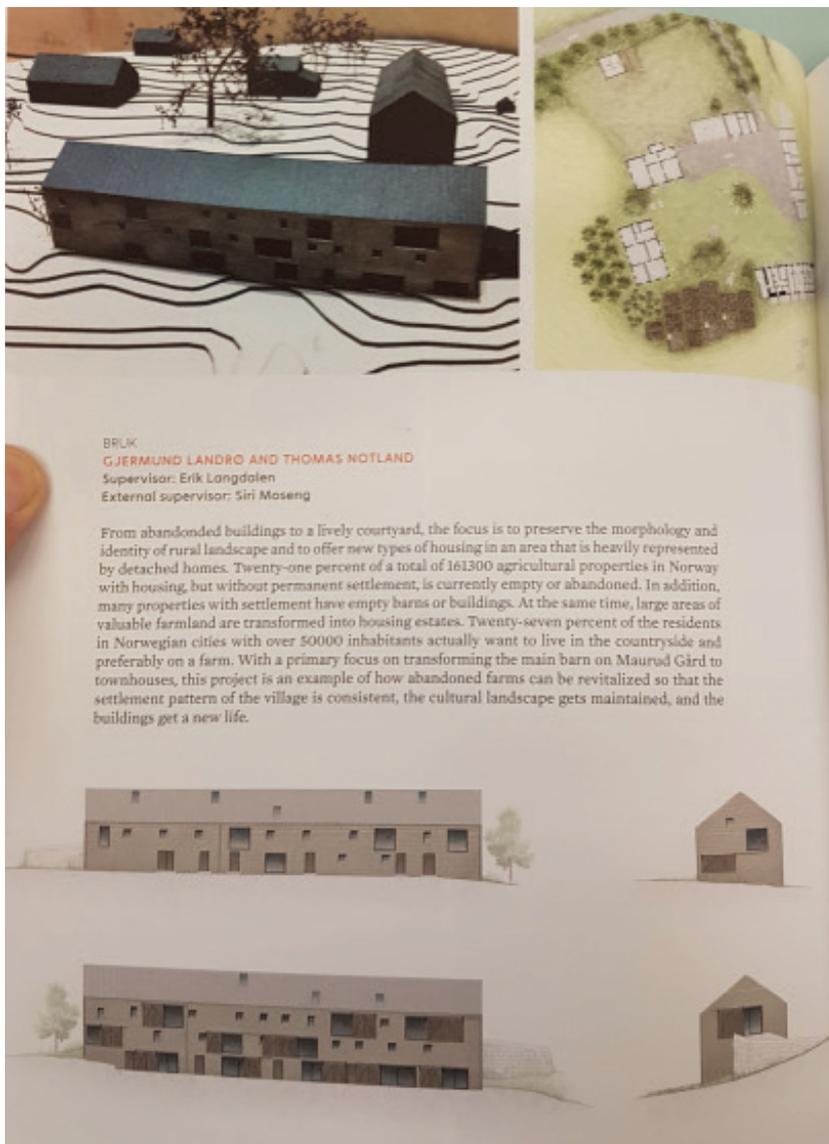
Nytt snitt C-C' 1:100

"BRUK"

Architects: Gjermund Landrø & Thomas Notland

Location: Maarud Gård, Norway

Project year: Diploma project 2013



”STOREGGEN GÅRD”

Owners: Marianne Øverhaug and Stein Øvre

Location: Tynset, Norway

Project year: 2012 -

Stroeggen farm is not a transformation problem but a pure restoration project. The interesting side of it is that the whole farm was in a very poor condition. Little by little the owners brought it back to it's former glory. The knowledge aquired during this process is well documented and can be an important source of information.



09 REFERENCES IN LITERATURE

- Næss, Ivar and G. Tandberg. *Bygningsvesen paa landet*. Kristiania: Aschehoug & co. (W. Nygaard) 1920

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