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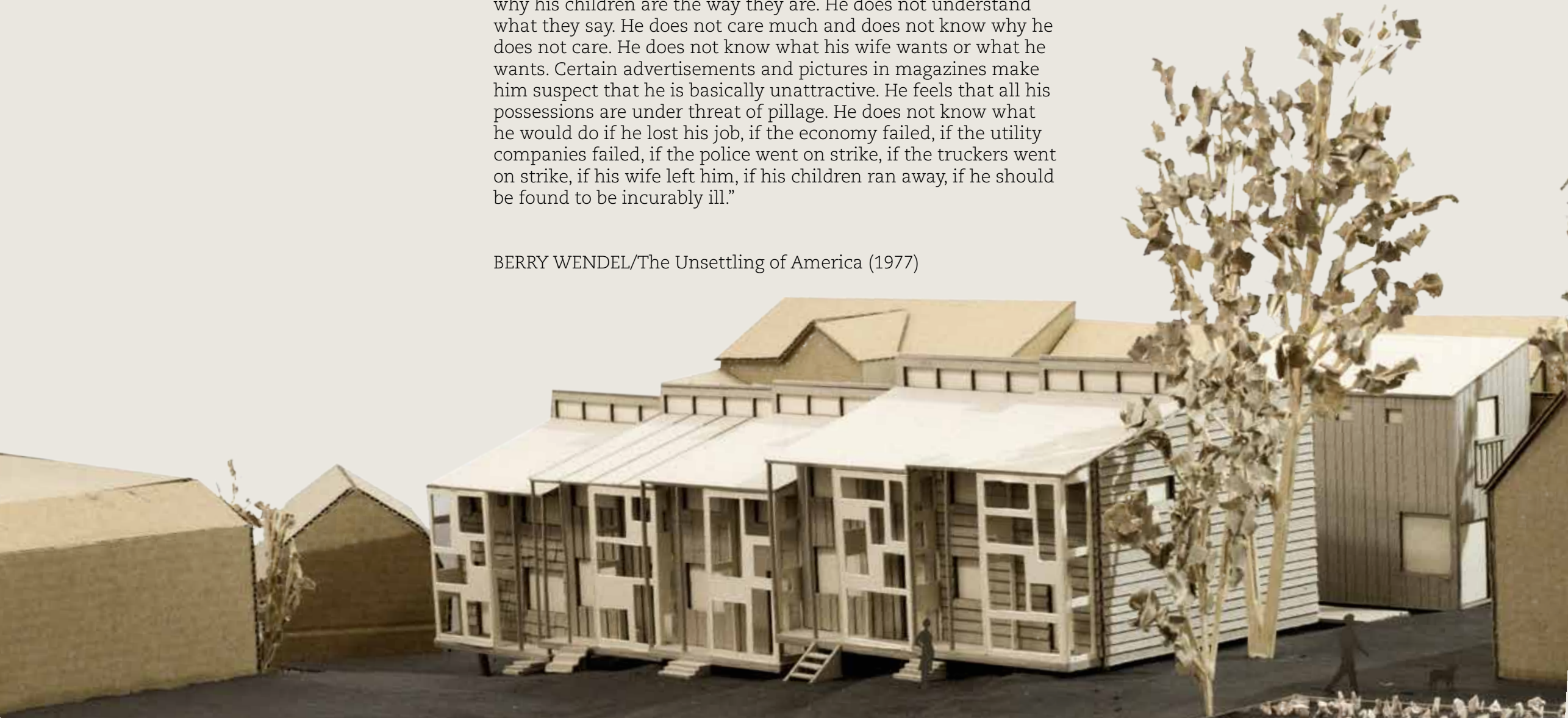
EXPERIMENTAL HOUSING AT SVARTLAMON



Haakon Haanes
Trygve Ohren
NTNU
Trondheim
May 2015

“From morning to night he does not touch anything that he has produced himself, in which he can take pride. For all his leisure and recreation, he feels bad, he looks bad, he is overweight, his health is poor. His air, water, and food are all known to contain poisons. There is a fair chance that he will die of suffocation. He suspects that his love life is not as fulfilling as other people’s. He wishes that he had been born sooner, or later. He does not know why his children are the way they are. He does not understand what they say. He does not care much and does not know why he does not care. He does not know what his wife wants or what he wants. Certain advertisements and pictures in magazines make him suspect that he is basically unattractive. He feels that all his possessions are under threat of pillage. He does not know what he would do if he lost his job, if the economy failed, if the utility companies failed, if the police went on strike, if the truckers went on strike, if his wife left him, if his children ran away, if he should be found to be incurably ill.”

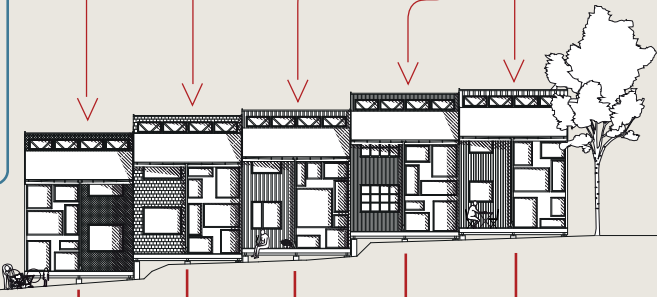
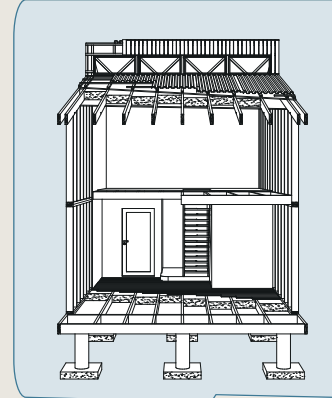
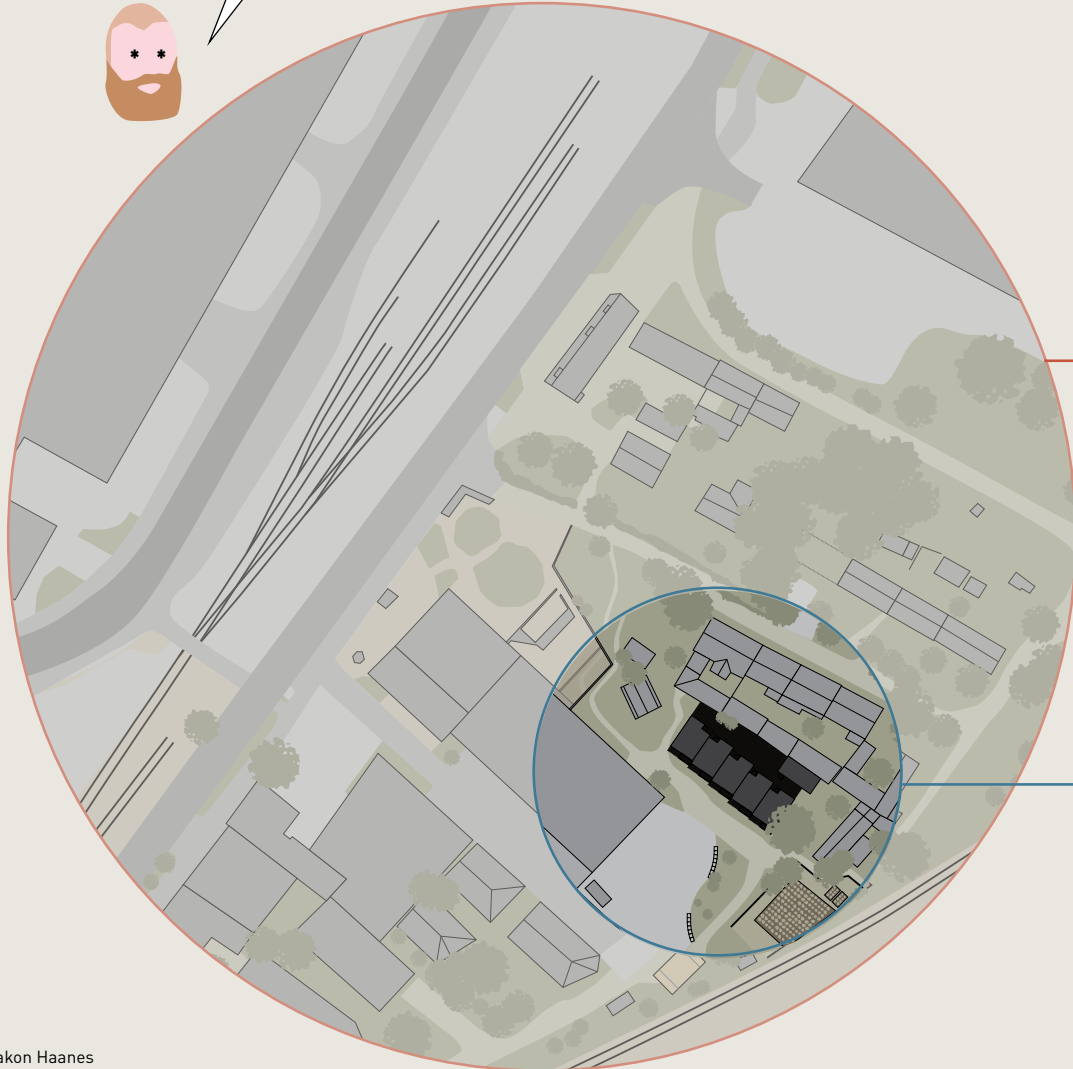
BERRY WENDEL/*The Unsettling of America* (1977)



We see the built environment as a self-regulating socio-ecological system, and are concerned about its lack of long-term sustainability.



How can we as architects help facilitate adaptive capabilities and create opportunities in a postindustrial urban context?



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PART 1

INTRODUCTION

“There are two approaches to complexity. One of them (...) views complexity as anything we do not understand, because there are apparently a large number of interacting elements. (...) An alternative view (...) suggests that the complexity of living systems of people and nature emerges not from a random association of a large number of interacting factors rather from a smaller number of controlling processes. These systems are self-organized, and a small set of critical processes create and maintain this self-organization (p. 390-391)

C.S. HOLLING/ Understanding the Complexity of Economic, Ecological and Social Systems, Ecosystems 2001



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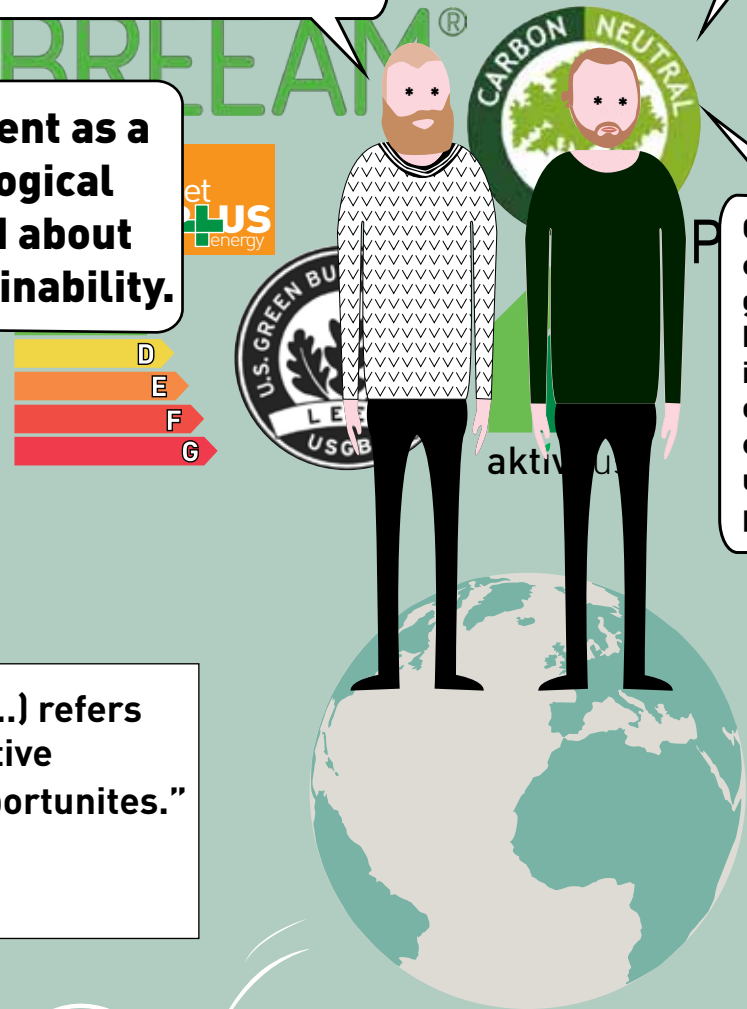
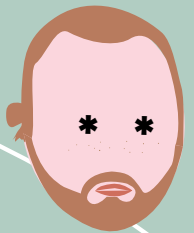
RATIONALE

The goal of a sustainable architecture cannot be reached by incremental increases in energy efficiency or reductions of CO₂ emissions.

The way we should approach sustainability is by creating and maintaining self-regulating systems that facilitate adaptations and innovations that help us cope with the man-made and natural transformations of our society, economy and environment.

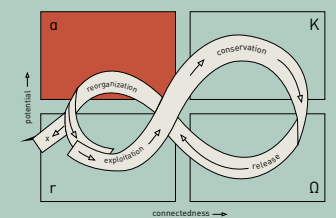
We see the built environment as a self-regulating sosio-ecological system, and are concerned about its lack of long-term sustainability.

One such self-regulating system can be our group of self builders, gradually developing the know-how and confidence to participate in the creation and maintenance of their own habitat, learning to cope with the uncertainty and unpredictability of an open-ended process.



i “Sustainable development (...) refers to the goal of fostering adaptive capabilities and creating opportunities.”

C.S. Holling: Understanding the Complexity of Economic, Ecological and Social Systems, Ecosystems 2001



“Innovation occurs in pulses or surges of innovation when uncertainty is great, potential is high, and controls are weak, so that novel recombinations can form. This is the phase of reorganization where low connectedness allows unexpected combinations of previously isolated or constrained innovations that can nucleate new opportunity.” (Holling 2001)

Taking into account the complexity of the building-builder/user system is actually quite simple:

The more of the building that can be made by the self-builders on site, the easier it is to adapt the building to changing needs and circumstances.



The bulk of the components making up the building should be reused/reuseable without using specialized labour and tools. Unsafe and unhealthy materials should be avoided.



The materials that are not easily reusable or reused should not be harmful to the self builders or other systems, like the soil, river or ocean. They should also be extracted responsibly from renewable or plentiful sources. Petrochemicals and harmful synthetic materials should be avoided.

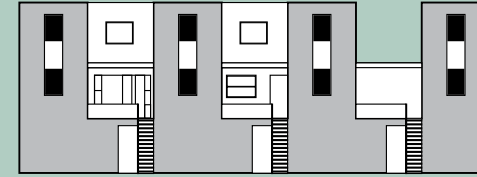


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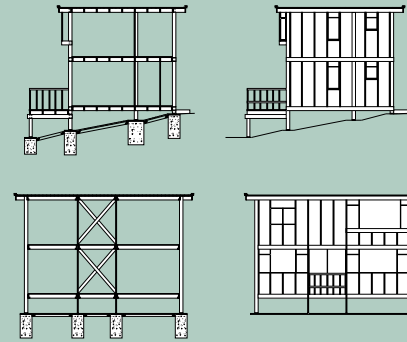
THESIS QUESTION

How can we as architects help facilitate adaptive capabilities and create opportunities in a postindustrial urban context?

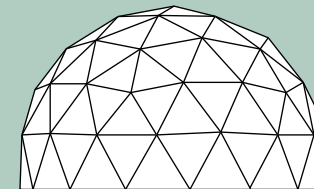
Thesis: By engaging a small group of self builders and, taking them and the chosen site into account, create an architectural framework that they can build and adapt to their needs themselves, encouraging experimentation and environmentally responsible choices throughout the process.



Quinta Monroy, Chile (built 2003) by Elemental Architects. The residents are given a concrete support structure with all necessary domestic functions, and are free to fill in the rest themselves, making it a semi-self built projects.



Our most obvious influence in this project, **Walter's Way, London** (built 1984) by Walter Segal, one of the few realised self build projects by the architect, that several decades earlier devised a ingenious method of self building, modernizing the traditional medieval timber frame house. The building technique however, is not especially suited to our northern climate.



Self built geodesic dome-homes were popular in the late 60s and early 70s. They were, however, not especially practical. "Smart, but not wise" as former dome enthusiast Lloyd Kahn puts it.

Other ways of addressing the problem we have considered

Establish a support-structure that the self builders can fill in later.

Ever since N.J. Habraken published his "Supports: An alternative to Mass Housing" in 1962, working with participation in architecture has often entailed building some sort of support structure with all necessary functions, that can be filled in by the residents later. A good idea for bigger projects, but considering the scale of our project and the cost of contracted labour in Norway, this would just be an expensive and unnecessary cost. The more of the building that can be built by the self-builders, the better.

Inventing a new structural framework that can be applied by self builders anywhere


However tempting it might be for the architect in us to try to devise a new way of building that is tailored to self building and adapting the building to different needs, we cannot escape the fact that such a way of building already exist. The wooden stud frame house is based on a versatile module that is perfect for small-scale building, and is the most available of building materials in Norway; the saw cut wooden plank.

Give the self builders free reigns to decide the shape and construction of their house.

As former dome-enthusiast and green building activist Lloyd Kahn argues in Shelter II (1978), there is a great versatility hidden in the seeming conformity of the rectangular wooden stud frame house. In Norway the small, rectangular wooden house has evolved as a result of our understanding of the laws of gravity, construction and available materials. For these reasons the rectangular stud frame house is the simplest, safest and most economic to build yourself, and also the easiest for the self builders to adapt to different circumstances.

PART 2

CONTEXT



“Svartlamon is the first experimental urban ecological area in Norway (...) The overarching goal is that Svartlamon becomes an alternative space in the city. A space which gives room for experimenting with housing, ways of living, social interaction, participation, ecology, energy, municipal services, art, culture and commercial development.”

Translated from: www.svartlamon.org

2

STARTING FROM THE BEGINNING

Our story started in 2013, when we were introduced to the experimental site B16 (see ch. 3: The site) at Svartlamon in Trondheim. Svartlamon is the first “experimental urban ecological area” in Norway, and its ambitious regulation plan was approved by *Trondheim City Council* in 2006. The plan (R219b) encourages “new sustainable solutions within management, rehabilitation and new buildings, with a focus on low cost and resource use on every level of the process” and “basing the development on LA21 principles (Local Agenda 21) with a large degree of participation, where competence and resources in the area can be utilised, and the connection to the area is strengthened” (our translation).

Our site, even though it was given a special regulation that

allows experimental design and encourages variation in the architectural expression, had not been occupied yet. Trygve, who was involved with Svartlamon at the time, had been informed about this a while ago, and we decided to try to do something with the site. As architecture students we had already worked on projects together that saw sustainability as a result of participation and self building, and this site was perfect to try to put some of these ideas into life.

Participation, or lack thereof, is actually the reason why Svartlamon became what it is today. The area had been threatened with slum-clearance and demolition since the 30s, and in the 80s and 90s it was under constant pressure from commercial interests. As a result *Svartlamon Resident Association* was formed as a grassroots initiative, and soon the

RIGHT: Anne Helga Henning, artist and former resident at Svartlamon, interviewed Oct. 2013



IT'S REALLY GOOD THAT SOMETHING IS HAPPENING AGAIN NOW, IT HAS BEEN A LONG TIME WITHOUT ANY NEW PROJECTS



RIGHT: Svartlamon is a triangular area wedged between the railway and the docks at Nyhavna. It's proximity to the city centre has made it a struggle to conserve its character as an affordable place for people who are willing to share what they have, or live with less, as long as they can do what they want.



residents were joined by prominent artists, intellectuals and politicians in a struggle against demolition. Since then, the main goal of Svartlamon has been to conserve an area that makes it possible for people with alternative lifestyles and low incomes, like artists, students and volunteer workers to live in the city, a group of people whose contribution to society is often overlooked.

The battle was won by Svartlamon and its supporters, and finally the area was given a status as an urban ecological area in 2001. The remaining private land was then acquired by the municipality, and leased to the newly formed *Svartlamon Housing Association*. *The Housing Association* is an ideal organisation run by elected residents and representatives

from the municipality, that has the responsibility to manage and maintain the buildings in the area in a way that adheres to its urban ecological status (see p. 28-29 for an overview of how Svartlamon is run).

Although it is *The Housing Association* that runs the daily operations at Svartlamon, any future projects needs to be rooted in *The Resident Association*. So, we started our process in October 2013 by introducing ourselves to the resident meeting, and explaining our plan to realise an experimental housing project on the site. After Christmas we would come back again and present our proposal, so *The Resident Association* could decide if they would support the project or not.

We arranged three open workshops at Svartlamon in October, November and December, where

we discussed with the participants what they felt the project could give back to the area, what they expected from a home, and how one could live simpler and more sustainably at Svartlamon. We also got advice and feedback on what we had planned so far. Simultaneously we were in a continuous dialogue with *The Housing Association*, and the executive director at the time, Sylvia P. Helle, about funding and the practical implementation of the project. It was decided that *The Housing Association* will own the experimental houses, and in turn rent them out to the self builders for a sum that would cover the interests of the loan.

At the first resident meeting of 2014 we got a wholehearted support for our project and the following autumn it was decided that no other projects could be built on the site


providing we started construction before 2016. One year after we started, Svartlamon made it into a top priority in the period 2015-2016 to realise the project.

We also agreed on a way of choosing the participants in the project. We would set up a project group, consisting of us, the executive director of *The Housing Association* (now Kathrine Emilie Standal) and two members from *FlyKo* (the moving- and coordination committee at Svartlamon) (see p. 27-28). We announced through posters, social media and contacts that we needed people that wanted to build their own experimental house at Svartlamon, and were surprised to get over 20 serious applications in return. Apparently there are a lot of people that are interested in putting their time and energy into building






THERE'S NO LAUNDRY NEARBY, JUST REALLY EXPENSIVE DRYCLEANERS...



IT IS IN THE SPIRIT OF SVARTLAMON, AT LEAST I THINK SO, THAT WE HAVE SHARED LAUNDRIES...



... AND I KNOW THAT MY NEIGHBOURS CARE FOR ME, BECAUSE THEY HANG UP MY CLOTHES AND FOLD THEM WHEN I FORGET THEM IN THE MACHINE

LEFT: Excerpt from the first open workshop we arranged in Oct. 2013

RIGHT: The scale of Svartlamon's dense low-rise wooden houses contrasted with the massive submarine bunker Dora I from WWII at Nyhavna.



own themselves, which we believe shows that policy makers often underestimate the willingness people have to do things differently, if you only let them try. After some hard choices, we were left with a group that we thought would work well together, and that were motivated enough to actually go through with the project (see ch. 5 for a presentation of the self builders).

January 2015 we started to work with our group of future self builders, and through several individual and common meetings this winter and spring, we sketched out an architectural framework that would be able to accommodate their different needs and preferences (for more info on the participation process, see *Part 3 – Participation*). The individual houses are all based on a simple module; a compact wooden stud frame house that is uncomplicated to build for the

self builders, and that they can adapt to their different wants and needs, now and in the future. The dwelling encourages an active use, where adaptations can be done continuously, if it's opening a window to ventilate the house, moving an inner wall or installing a home made solar collector on the roof (see *Part 5 – An Adaptable Architectural Framework*). The module itself however, does not secure that the future residents use their house in a more active way. But developing the framework through a participation process, challenging the self builders to take responsibility for how they want to live, and how to take environmentally responsible choices in both designing and using their surroundings, we can make a framework for a more sustainable built environment. This framework and how the self builders are adapting to it is discussed in depth in part 4, 5 and 6.

16

3

THE SITE

- 1 YAMAHA-HALLEN
- 2 RAKE ARBEIDS-FELLESKAP
- 3 REMIDA
- 4 SVARTLAMON KINDERGÅRDEN
- 5 VERKSTEDHALLEN
- 6 BRAKKA
- 7 SKATE RAMP
- 8 VEGETABLE GARDEN
- 9 BEEHIVES
- 10 BLÅHUSET
- 11 HUSLY
- 12 SAUNA
- 13 THE FREEDOM PARK
- 14 ETERNITY WOODS
- 15 NEW HOUSE
- 16 DORA I
- * SHEDS

1:500





The site we are working on is the area marked in red on the previous page. B16 as it is called in the revised regulation plan of the area from 2006 (R219b), is a long, narrow, slightly downwards sloping site of roughly 15 m by 35 m. The site is defined by a two story wooden house, *Blåhuset* (10), to the southeast, a row of sheds to the northeast (*), a diagonally placed building used to accommodate visiting artists, *Husly* (11) to the northwest and the road *Brodals gate* and the square in front of *Yamaha-hallen* (1).

The site is facing southwest, and has excellent sun conditions. In addition to experiencing direct sunlight most of the day, the last of the summer sun sets behind *Dora I*, over 100 meters on the other side of *Strandveien*. This has led some local skaters to build a ramp (7) in front of the sheds, a popular spot for youths from all over Trondheim, which we hope will be rebuilt somewhere with

similar sun conditions (see *Part 4 – Site strategy* for our proposal).

Because of the railway cutting off Svartlamon from the south, most people access the area from *Strandveien*. The site can be easily accessed by car from *Strandveien* by *Biskop Grimkjells gate* for emergencies etc. It is not allowed to park near the site however, which shouldn't be a problem since Svartlamon is a car-free area. The site can also be accessed through *The Freedom Park* (13), where a group of residents are building a sauna (12) from reused materials. From the south the site can be reached from either side by an unpaved road, following the north side of the railway.

Something we have been concerned about is the noise from the railway. A sound barrier fence takes away most of the high pitch noises, but the site is still in the yellow zone defined by the standard T1442 (miljøstatus.no), where you can expect sounds ranging from

55-60 dB when trains pass. Because of the sound barrier fence there is no reason to try strategic planting or create other sound barriers that just blocks out the same frequencies. Adding new buildings to the site, however, can reduce the noise by 3-5 dB, making it possible to create a more quiet zone behind them that has acceptable noise levels.

As an “experimental urban ecological area” Svartlamon is supposed to encourage new models in sustainable housings, with a special focus on reduced consumption and user participation at all stages of the architectural process. But these are very general claims, that doesn't necessarily makes it any easier to circumvent the strict Norwegian building code.

Our site B16 (and B13 opposite it), however, are not only regulated to allow experimental design, but the regulation plan is actually encouraging it (§4.1.4). This means that it is very realistic to get


dispensation from the strict building code in Norway (*TEK10*) with regard to energy efficiency, universal access etc.

Of course the point is not to break the rules just because it is allowed. But with less strict regulations in an area such as Svartlamon, where economic and social speculation is not that big of a problem, it is easier for the inhabitants themselves to take control over their environment. More specifically, to build their own houses, or keep the old houses as they are, consuming both less resources and space than is the norm in Norway.

Most of Svartlamon is an area of low wooden buildings, and there is a two story limit (+attic and basement) on site B16. The potential versatility of the two story house however, makes it much easier to rely on self building than if we had to build higher, so this is a part of the regulation we have no objections to.

PART 3

PARTICIPATION



"(...) we should not only consider what is being done, but above all *who* does it, and *why*. In a sense it is, as will appear, more important to understand how a dwelling comes about, than what it looks like." (p. 11)

N.J. HABRAKEN/Supports: An Alternative to Mass Housing (1972)

4

PARTICIPATION AND OUR ROLE AS ARCHITECTS

Participation in the architectural process is an overused and often misunderstood concept. All design processes involve other people than the architects: Specialists, like engineers and consultants, have a say, the authorities do too, the entrepreneur is responsible for the execution of the project, and the client needs to be satisfied.

However, with the exception of wealthy clients hiring architects to build their dream house, the client and the end user are often not the same. This means that the needs of the client are often prioritized over the desires of the user. Incidentally this is why our cities are filling up with apartments made for the purpose of being sold or rented out with the highest possible profit margins: Balconies, sea-views and walk-in-closets with this or that many square meters attached to them.

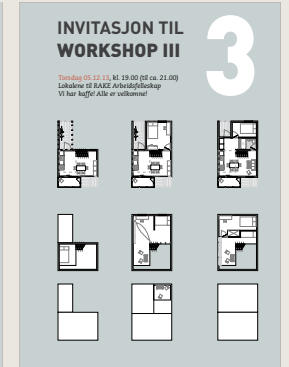
And when it is required to involve

those affected by an architectural intervention, for example on public land, it will often happen through what is called “token participation”, participation for participations sake. That usually means arranging meetings or hearings where the decision makers explain what is being done or show some misleading illustrations, and are forced to listen to complaints for two hours.

Some, however, stick out by not only establishing a dialogue or listening to complaints, but by actively inviting the end users (future residents and neighbours) to participate in the design and execution of the project. This is what we mean by participation.

Before we started our process we studied a lot of different participation projects from Walter Segal’s self build method, urban scale projects like PREVI (Proyecto Experimental de Vivienda) in Lima, Peru, community groups like AVAG (Ashley Vale Action Group) in Bristol,

Invitations to the three open workshops we arranged at Svartlamon in Oct., Nov., and Dec. 2013.



live studio projects like *Rural Studio* at Auburn University and *Bauhäusle* (Little Bauhaus) at Uni. Stuttgart, as well as interventionist groups like *Assemble Architects* and *AAA* (Atelier d’architecture autogérée).

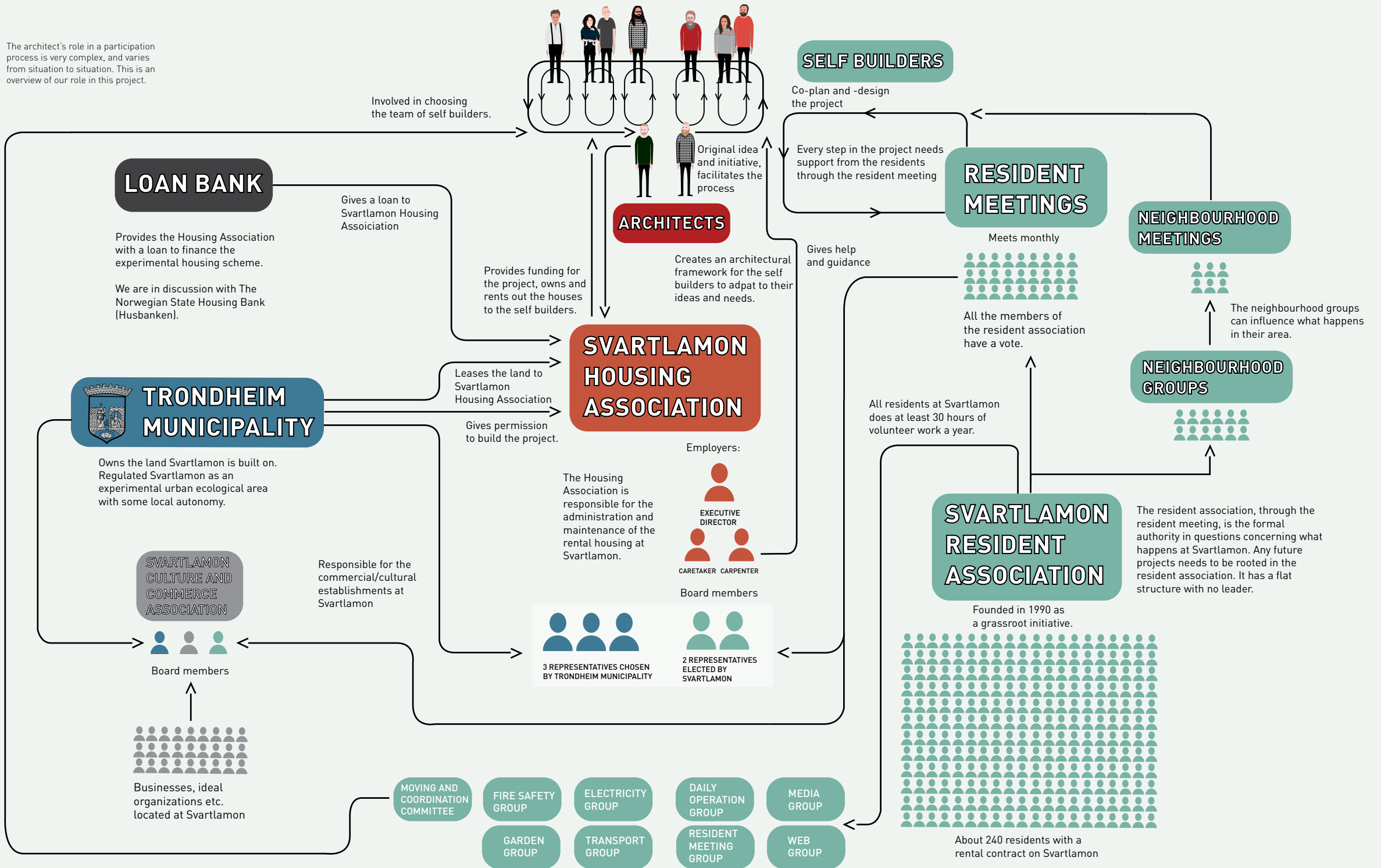
What we learned is that real participation is about helping to create an architectural framework that won’t hinder the future residents in adapting to changing circumstances. A framework for growth, if you will. From Walter Segal’s self build projects, we learned that the most effective way to make sure this is possible is by actually making the future resident build it. *If you can build it, you can change it.*

It is of course not a coincidence that this approach coincides with our goal to help create a more sustainable built environment. We don’t need to look at ant colonies or coral reefs to see functioning ecosystems, we humans are also part of nature, and are master adapters, although we often forget it in our

struggle to invent less and less stupid systems to do our job for us more effectively.

Our role then, as architects in this project, is to work with a group of people who want to have more control over their environment, to find out how we can create an architectural framework that they can adapt to their needs and wants themselves. Through a continuous dialogue with the people living at Svartlamon and the self builders, we do the ground work of making a site strategy (ch. 6-7), a structural strategy (ch. 8) and a plan of execution (ch. 9). We also get the necessary approval of the project, first from the democracy at Svartlamon, then from *The Building Permits Office*. Then we help the self builders do the rest of the job themselves. How much following up we have to do, is up to the self builders, but we hope and think they will do as much as possible themselves.

The architect's role in a participation process is very complex, and varies from situation to situation. This is an overview of our role in this project.



5

PLANNING FOR SELF BUILDING

One of the things we have learned since we started the process with the self builders this winter, is that planning for self building is a bigger and more complex task than we anticipated.

Before we could start the process, we had to find a group of people that would be our self builders. As mentioned in ch. 2 this was not as hard as we thought, and when we started in January we had a group we were very happy with. The people that we chose to build the five houses are introduced in the following pages.

We started our process by arranging a meeting with all the self builders in January. Initially we thought we would develop five unique houses with the self builders based on the site strategy and typology we wanted to work with. We decided to meet each one of them individually, and then meet again with everyone for a presentation of the different proposals.

However, it soon became clear that we needed to establish some

sort of common ground. There was a big gap between how much planning the self builders envisioned doing themselves, from some wanting to do most of it themselves, to some wanting us to just draw them a standardized house they could build.

Before the second meeting with all the self builders in March we had decided that the best way to approach these different attitudes was to create a common architectural framework, a module if you will, that can accommodate all the self builders different ideas and plans, and yet is simple enough to be self-buildable and adaptable during construction.

This framework is discussed in depth in *Part 5 – An adaptable architectural framework*. The way we have tried to adapt this to the different self builders is shown in *Part 6 – The self builder’s Adaptations*. These, however, are not designs that will be built exactly like their drawn, it’s just a starting point for a process that involves taking decisions on site and adapting to changing circumstances.



TOP:
The first meeting
with all the self
builders in
January



BOTTOM:
The second
meeting
with everyone
in March

"We need another way of living and to use resources differently. Our kids need to grow up and experience a different way of doing things. This project would give us opportunities and a freedom we don't see any other places."

"We don't need to own our house as long as we know that we can live there as long as we want, and that our effort and monthly payments benefits our community and not a sleazy landlord."

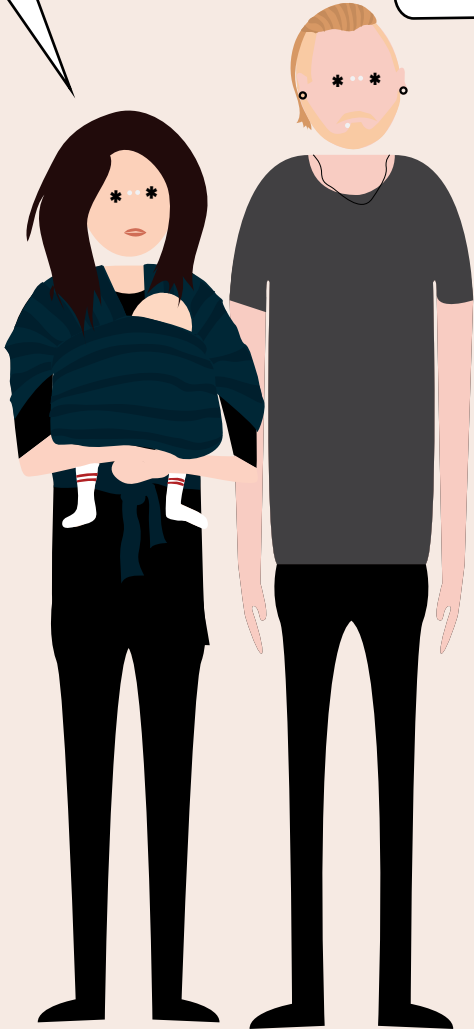
From the letter of motivation, Sep. 2014 (our translation)

GURO AND JOHN

Social workers with aspirations to live more "environmentally, human and animal friendly".

Motivation: Building an environmentally friendly, compact and sustainable home that can help their children grow up with an awareness of environmental concerns.

Builds for: Leoni (1), Linus (4) and themselves



FOR SEVERAL YEARS WE HAVE TALKED ABOUT BUILDING SOMETHING FUN AND SPECIAL AND NEW AND DIFFERENT...

AND WE DON'T NEED TO OWN IT, THAT'S NOT IMPORTANT, WE ARE NOT INTERESTED IN LIVING WITH A LOT OF LOAN, IT'S BETTER TO HAVE FREEDOM...

... UNDER RESPONSIBILITY

HEHE!

WE DON'T WANT SOMETHING BIG THAT USES A LOT OF ENERGY AND SPACE... WE WANT TO LIVE MORE SUSTAINABLY

...BUT IT'S NOT THAT EASY WHEN YOU HAVE TO WORK ALL THE TIME.

SO IF WE COULD LIVE WITHOUT A HOUSE LOAN, AND WITHOUT USING SO MUCH MONEY. IT WOULD BE EASIER TO THINK ABOUT THOSE THINGS...

"A dwelling, from an economical perspective, is so much more than a place to live. It is a stage for showing off a succesful version of yourself, a pension investment, inheritance for your children etc. (...)"

"... I want to explore if it is possible to build a dwelling that, through its form and use of materials can side-step this system. I'm thinking about using recycled and reclaimed materials, but also challenging conventional floor plans and spatial traditions."

From the letter of motivation, Sep. 2014 (our translation)

PER KRISTIAN NYGÅRD

Artist working with visual arts and installations. Has a strong drive to put ideas into reality.

Motivation: Building "the unvisionary house". A house that isn't fullfilling any economic ambitions, proving Bill Clinton wrong in claiming that "no one washes a rental car".

**Builds for:
Kristian (10)
and himself**



"I have always had a feeling that I one day would build my own house (...) It gives me a great sense of freedom that makes me want to try out a lot of different stuff. To be able to try out alternative solutions, that in the best of worlds could change how we build our homes in the future, draws me to this project (...)"

"And I realize that this is more or less my only chance to live in a house in Trondheim with my son, as no bank in Norway would give me a house loan considering that I choose to live outside the box, economically and practically."

From the letter of motivation, Sep. 2014 (our translation)

MARKUS LANTTO

Artist, writer, furniture and instrument maker with great problem solving abilities.

Motivation: Understanding how a house works, and then try out lots of experimental alternatives to conventional ways of doing things, like home made solar collectors made from old radiators.

**Builds for:
Vidar (10)
and himself**



"I can't stomach the uniform, market oriented, and economically driven architecture people are forced to live in today (...)"

"If I had the opportunity to build a house, I would take advantage of a lot of knowledge from vernacular building traditions. I would have combined this traditional approach with new understanding of sustainability."

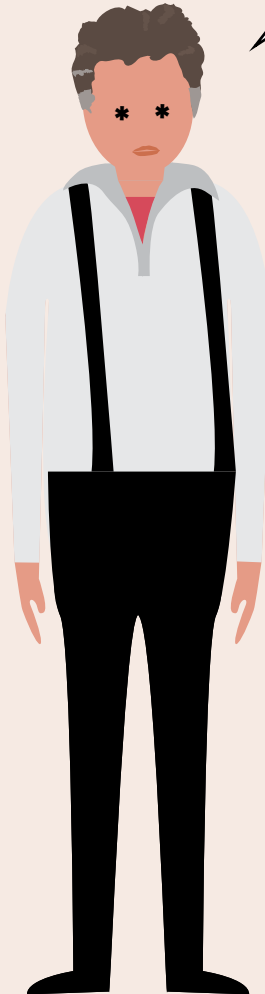
From the letter of motivation, Sep. 2014 (our translation)

IACOB SØMME

Teacher, craftsman and window restorer with an understanding of traditional building.

Motivation: Building a home that combines the knowledge from vernacular building traditions with a new understanding of sustainability.

Buils for: Johannes (10) and himself. Also expects occational visits from Sivert (21).



PART 4

SITE STRATEGY

“Small-scale operations, no matter how numerous, are always less likely to be harmful to the natural environment than large-scale ones, simply because their individual force is small in relation to the recuperative forces of nature.”

E.F. SCHUMACHER/ *Small is Beautiful* (1973)



6

SITE STRATEGY

- 1 YAMAHA-HALLEN
- 2 RAKE ARBEIDS-FELLESKAP
- 3 REMIDA
- 4 SVARTLAMON KINDERGARDEN
- 5 VERKSTEDHALLEN
- 6 BRAKKA
- 7 SKATE RAMP
- 8 VEGETABLE GARDEN
- 9 BEEHIVES
- 10 BLÅHUSET
- 11 HUSLY
- 12 SAUNA
- 13 THE FREEDOM PARK
- 14 ETERNITY WOODS
- 15 NEW HOUSE
- 16 NYHUSET
- * SHEDS

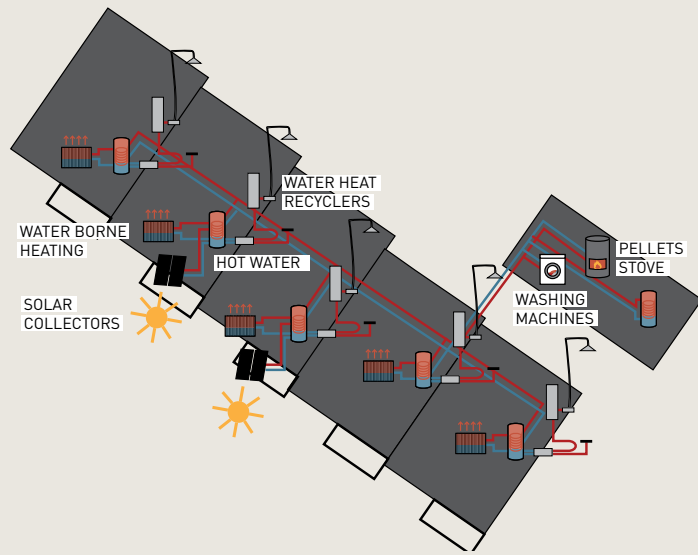


1:500





Having five different families build their own house requires some planning ahead. Because the self builders have the ultimate say when it comes to the expression of the facade, we need to make sure that it doesn't become a mess (after all we are building in a very characteristic area). But because all the houses have the same size and shape, we believe that varying the color, material and placement of windows won't stand in the way of the project being perceived as aesthetically harmonious. Actually we think that the monolithic structures that are allowed to pop up everywhere are doing real harm to the places that are left where small-scale variation can still be seen: A natural variation that is the result of real choices by real people.



RIGHT:
The ground rules of the site strategy were decided during the three open workshops in the autumn 2013

LEFT:
The heating strategy we devised with the help of the self builders. Quite similar to our initial proposal, but with a few added functions.

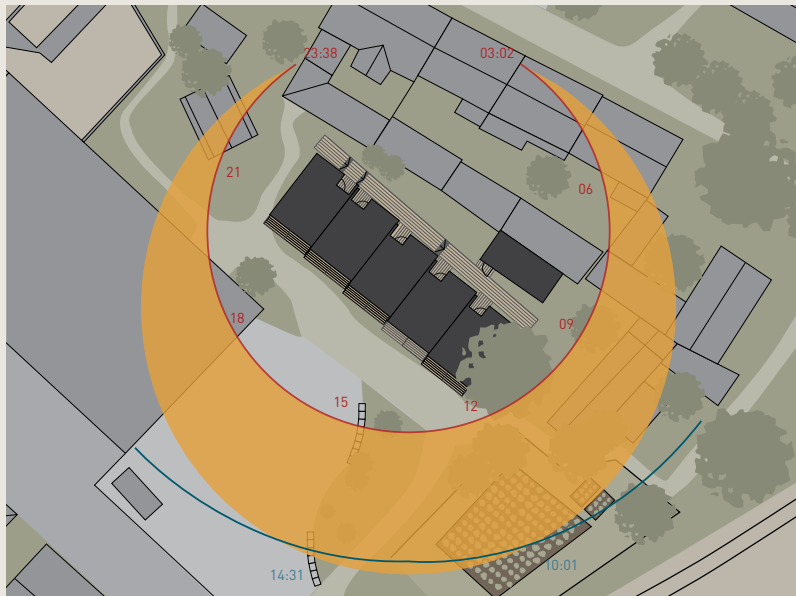
The ground rules for the site strategy was something that we established before we started working with the self builders this winter. And even though we agreed to start the process with (almost) blank slates, including discussing if we really needed a common house (see ch. 7), many of the elements from the original plan was kept.

The strategy consists of placing five small houses in a row, with the front towards the open space in front of Yamaha-hallen (1). To define the now nearly invisible street of Brodals gate, and complete the urban block-like structure our site is part of, we decided to place ourselves outside the building line defined in the regulation plan, on line with the corner of Blåhuset (10) and Husly (11).

The row of houses will be facing southwest to exploit the sun, which shines on the site most of the day, even in winter (see solar diagram on the next page). We have planned green houses made from reused windows attached to this facade, that will function as a double wall to make the most of the sun's energy (see ch. 10 - An Active Module).

The main entrances to the houses, however, are from the back side, as is the norm on Svartlamon. In addition to the green space in front of Blåhuset (10) with its two birch trees, this "inner street", a wooden platform that we will build later, will create a semi-private outdoor area for the residents. Because it is placed behind the new houses, this area will also create an outdoor zone with acceptable noise levels, as explained





LEFT:
The solar path at summer solstice (red line), winter solstice (blue line) and equinox (the outer yellow line).

RIGHT:
Svartlamon is an area where the residents take ownership of the spaces between the buildings and use them – the only trick is not to plan to much!



in ch. 3 - *The Site*.

We have also planned a “common house” behind the row of houses, where we will locate the pellets stove that will be the core of the water borne heating system (see ill. on the previous page). This water borne heating system was also something we discussed in the first workshops in 2013, and after considering the pros and cons of several different systems with the self builders (for example a system with wood fuelled stoves, either one in each house or one in each end of the row) we agreed that a shared pellets oven, fuelling a system where everyone could attach their own heat sources would indeed be the best framework for our project. This also means that those of the self builders that want to

experiment with solar collectors are free to do so (which was a big thing for some). We will also try out simple heat recyclers for the greywater produced by showers and washing machines, which help conserve the energy in the system.

The common house is also where residents can store big things, wash and dry their clothes and prepare food in a small shared kitchen in connection with the green space in front of *Blåhuset* (10) (the common house will be described in more detail in the following chapter).

Fire protection is a big issue on the site because of the many wooden buildings nearby. Initially we were planning to put firewalls in the sheds (*), but after discussing it with the local carpenter, we decided to

place firewalls in the new buildings instead, as we will have to fireproof the roofs anyway.

Svartlamon is an area dominated by low-rise, dense and varied wooden buildings, and the experimental houses will fit well into this picture. It will also be a part of an axis of urban ecological projects, from the four story “massive timber” building *Nyhuset* (16) by Brendeland and Kristoffersen, through *The Freedom Park* (13) with *Husly* (11) and a sauna that is currently being constructed from recycled materials (12), up towards the vegetable garden (8) and the beehives (9) close to the railway line.

Even though the shape and dimensions of the houses are the same, we expect a great deal of

variation in the facades (see p. 52-55), as the self builders are free to try out different cladding, design their own greenhouses in front, and try out different things, like homemade solar collectors made from painted radiators etc. We believe that this will make sure that “creativity and joy” will be expressed, as it is optimistically stated in the guidelines to the regulation plan (R219b).

As has probably become clear by the pictures we show of Svartlamon, this is a place where people have a real sense of ownership, that makes them use almost every inch of space for something. We also expect that our self builders will be able to mark their space in this way too, adding to the area’s diverse and colourful character.



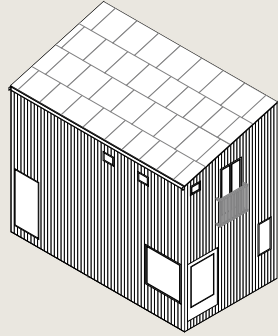
Southwest elevation
(1:100) simulating
individual choices
of cladding and
placement of
windws



Northeast elevation
(1:100)
towards the
"inner street"
simulating individual
choices of cladding
and placement of
windws

7

THE "COMMON HOUSE"



Part of the site strategy, as mentioned in the previous chapter, is to construct a small "common house", where the residents can store stuff they don't need that often, wash and dry their clothes, make a little food and have guests over. This is also where we will put the pellets stove that will function as the main heating source for the five houses (see ch. 6).

The pellets stove and the washing machines are located in the northwestern part of the narrow building, a double high space with stairs that lead you up to the first floor. The first floor is kept open for the self-builders to furnish themselves with shelves for storage of stuff like winter clothes, snow sleds, bikes etc. and ropes (made from plant fibres of course) for drying clothes.

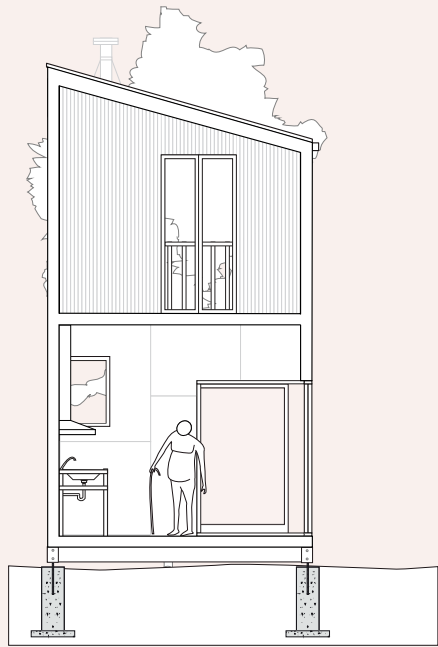
The evening sun shines through

the northwestern facade, clad with reused windows, which, adding the excess heat from the pellets oven, will heat the space up enough for clothes to dry.

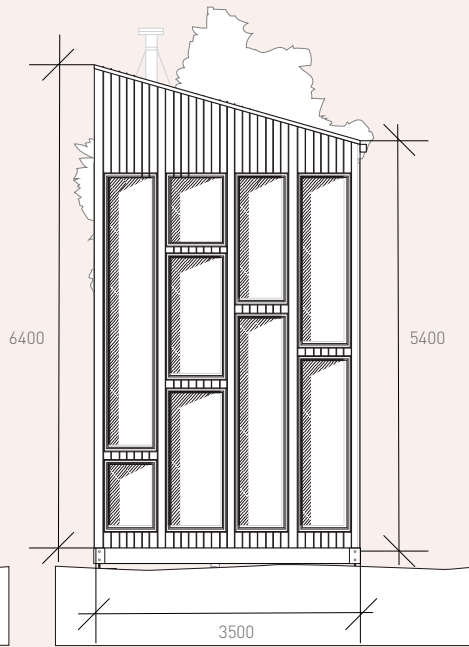
The small shared kitchen is located in the other end of the house, with its own entrance from the green in front of *Blåhuset* (10). Big sliding doors make blur the transition between outdoors and indoors, and makes this part suitable for BBQs etc. in Trondheim's unstable weather.

The construction of the common house, which will be overseen by Svartlamon's carpenter Arnleiv Overgård, will also give the self-builders valuable experience in how to build their own houses. Every step of the building process here will be repeated in the individual houses. How we plan on building the individual houses will be explained in ch. 9 - *Self Building – Step by Step*.

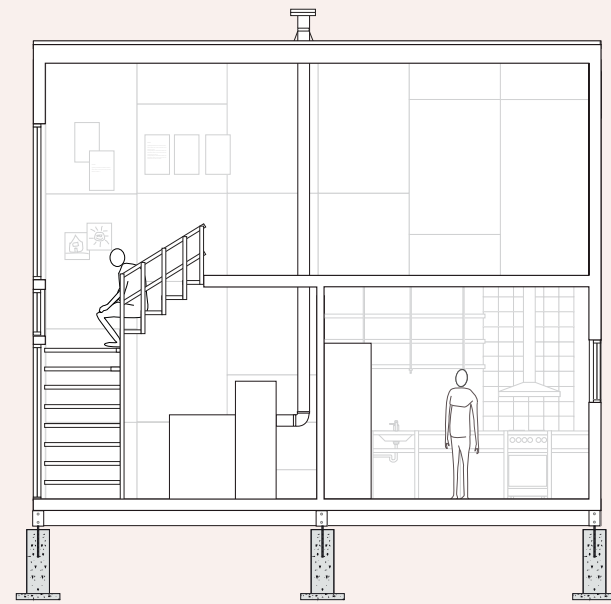




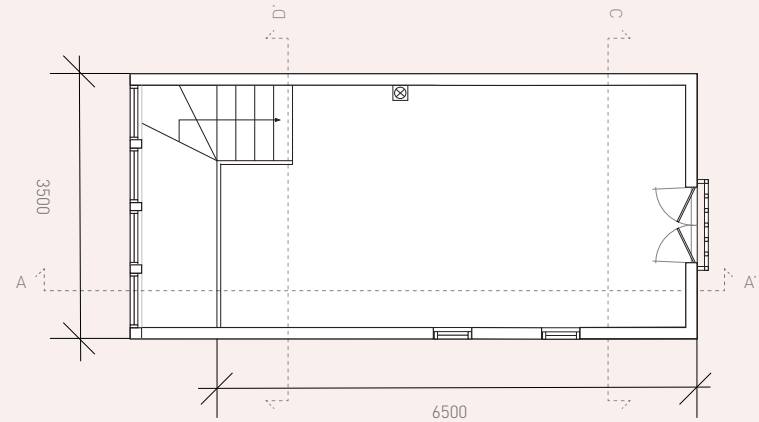
SECTION C-C'



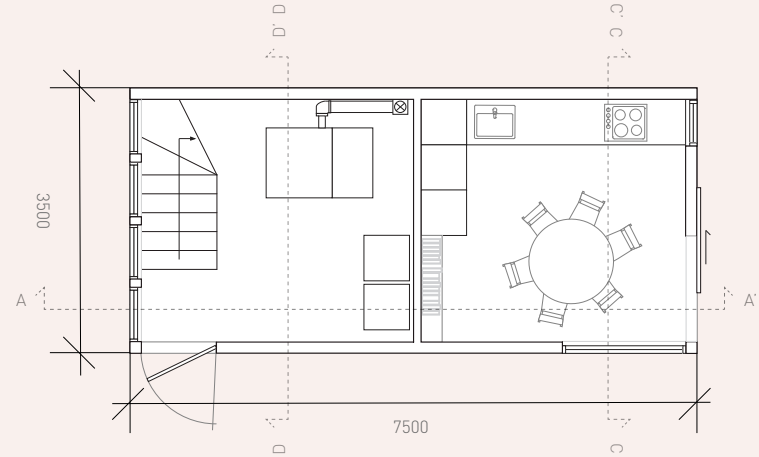
SOUTHWEST ELEVATION



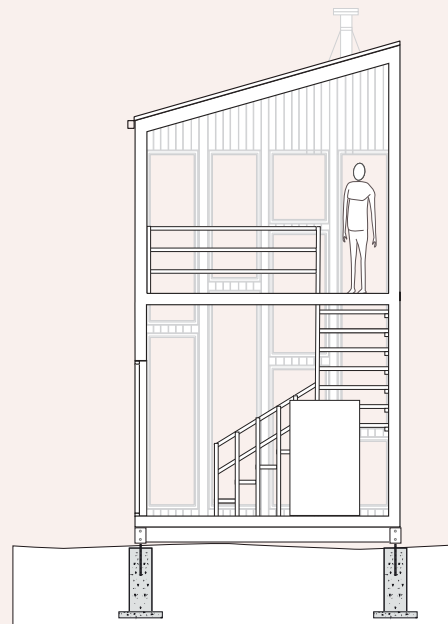
SECTION A-A'



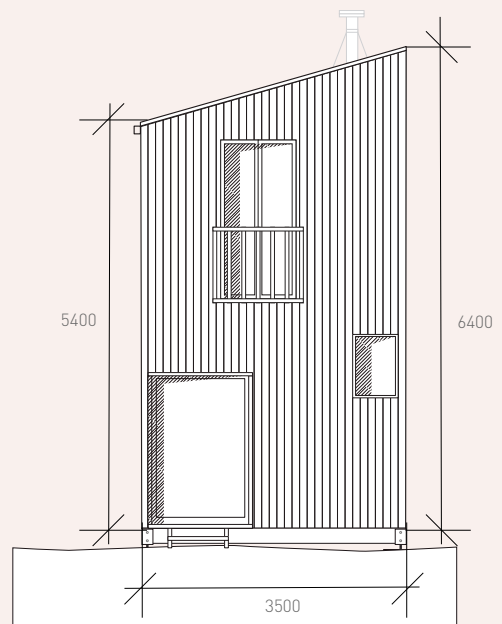
1. FLOOR



GROUND FLOOR



SECTION D-D'

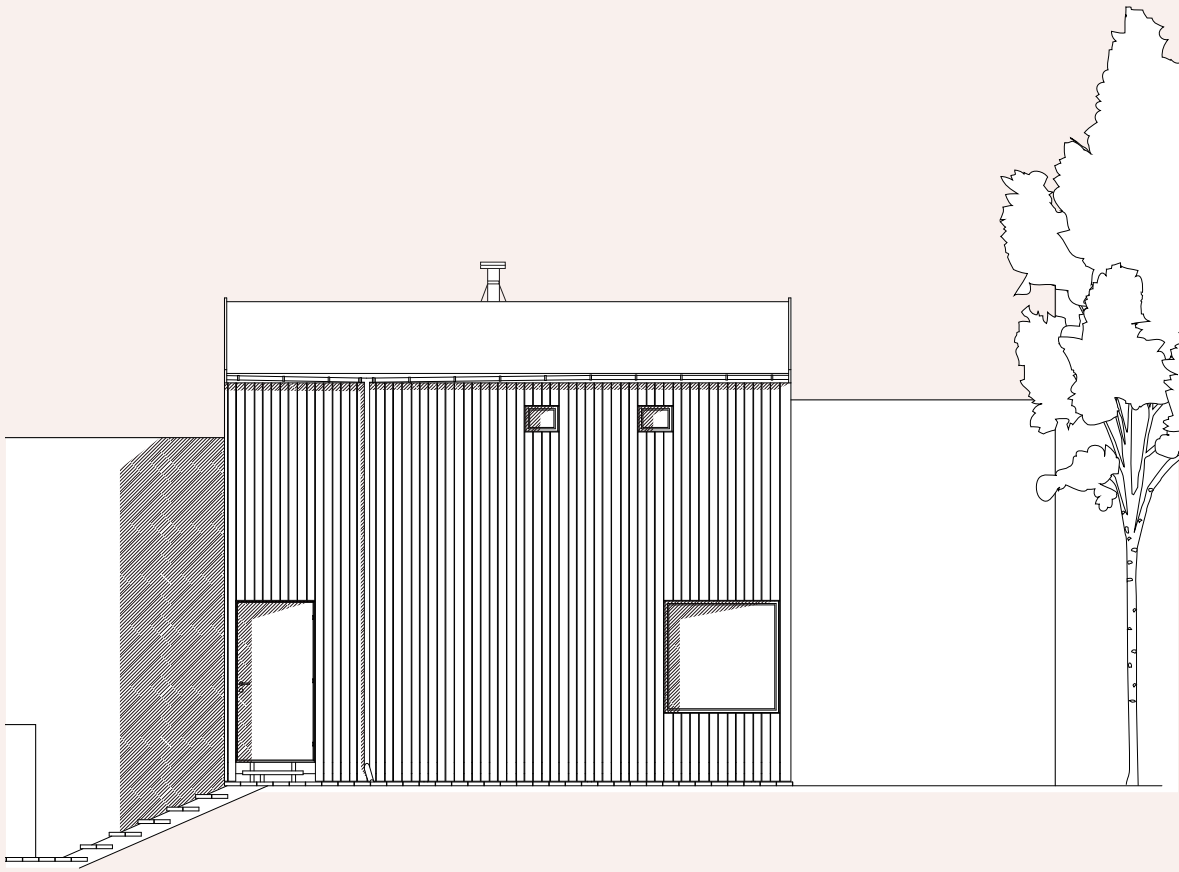


NORTHEAST ELEVATION

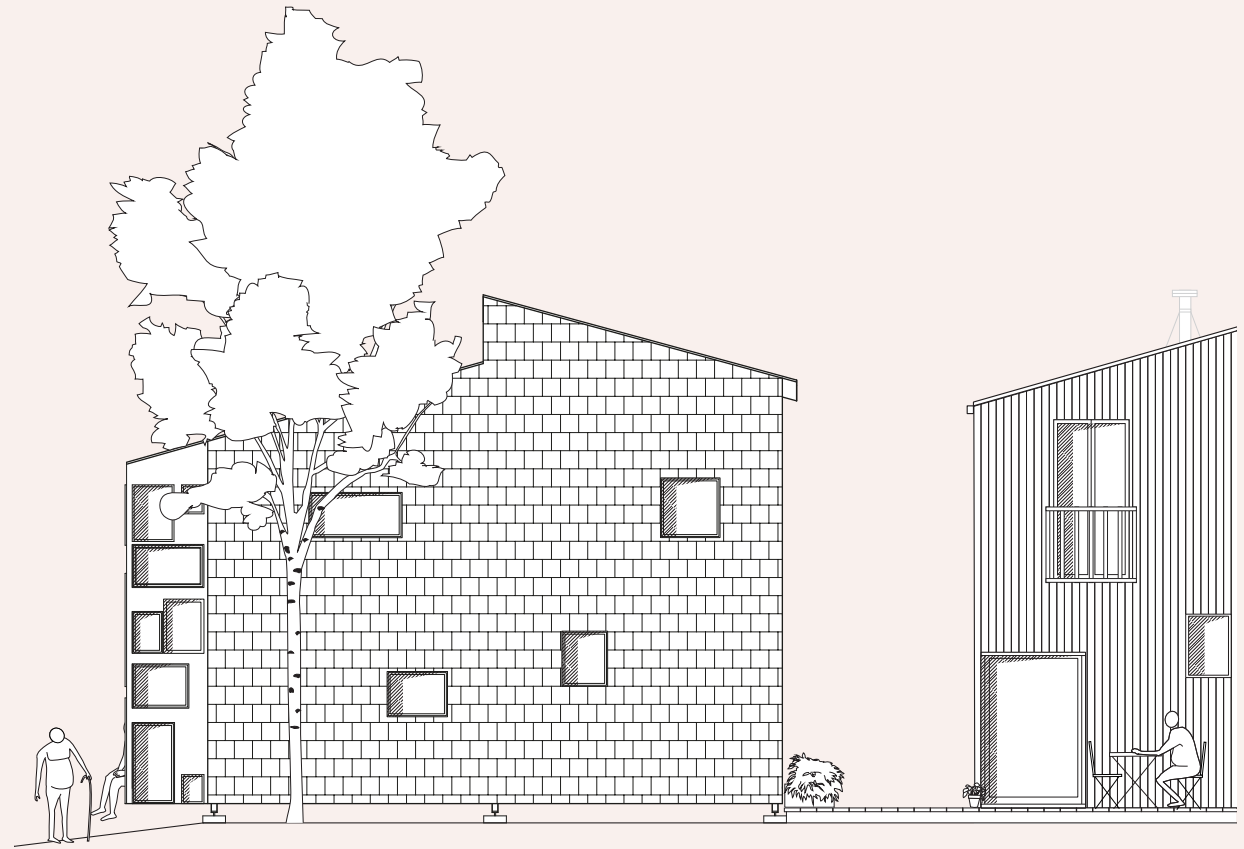
1:100

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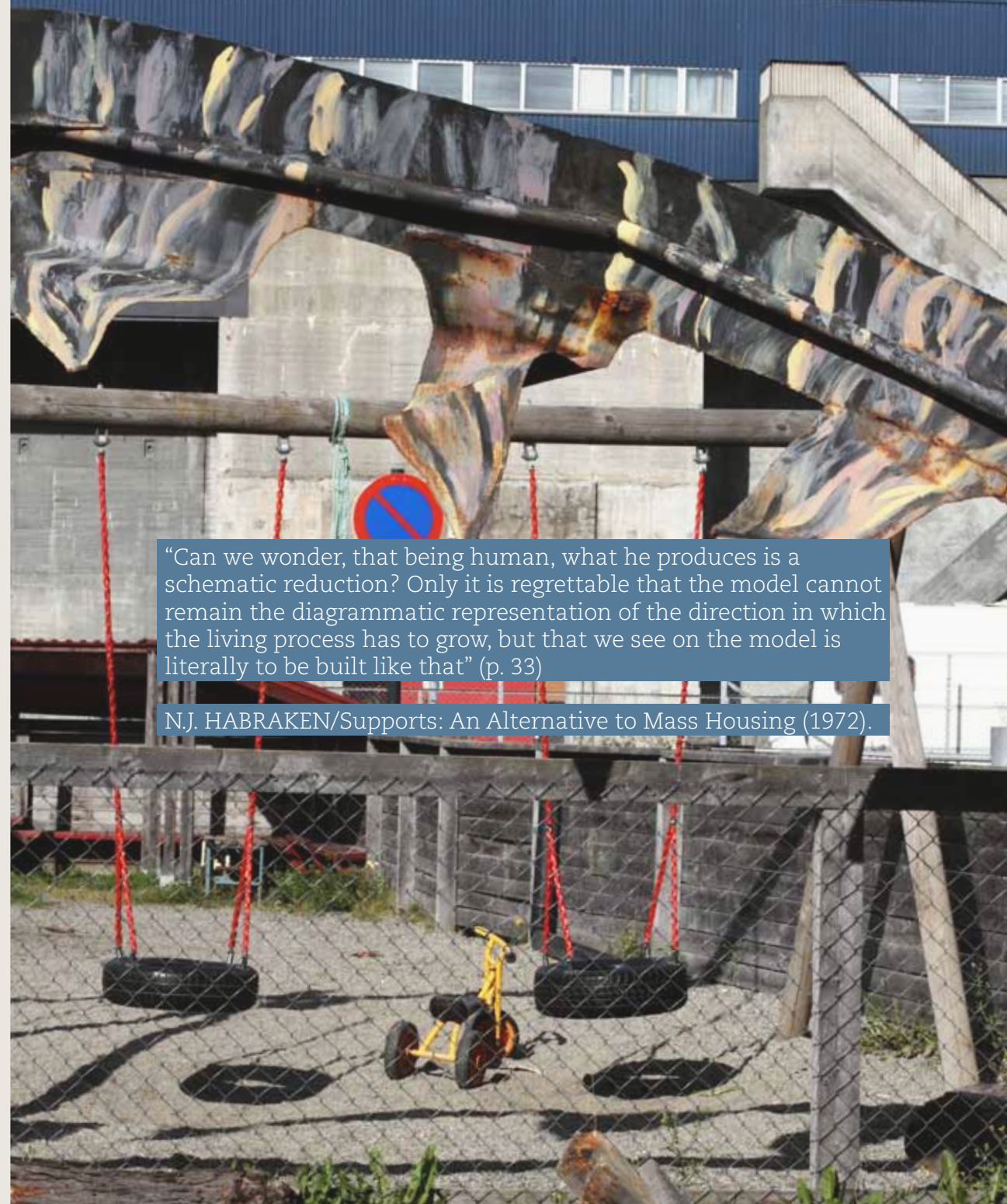
Southwest elevation
(1:100) towards
the row of
experimental
houses



Northeast elevation
(1:100) towards
the green in front of
Blåhuset (10)

PART 5

AN ADAPTABLE ARCHITECTURAL FRAMEWORK



“Can we wonder, that being human, what he produces is a schematic reduction? Only it is regrettable that the model cannot remain the diagrammatic representation of the direction in which the living process has to grow, but that we see on the model is literally to be built like that” (p. 33)

N.J. HABRAKEN/Supports: An Alternative to Mass Housing (1972).

8

A FRAMEWORK, NOT A DESIGN

One of the key discussions in a participation project is who does what? Or in other words, how little can we as architects do, without compromising the quality or overall vision?

It depends on who you're working with, of course, it is not a prerogative of our profession to know how to draw a house or make a site strategy, but in most cases, or in our case at least, we have learned that an architectural framework needs to be in place before the self builders start making their own adaptations.

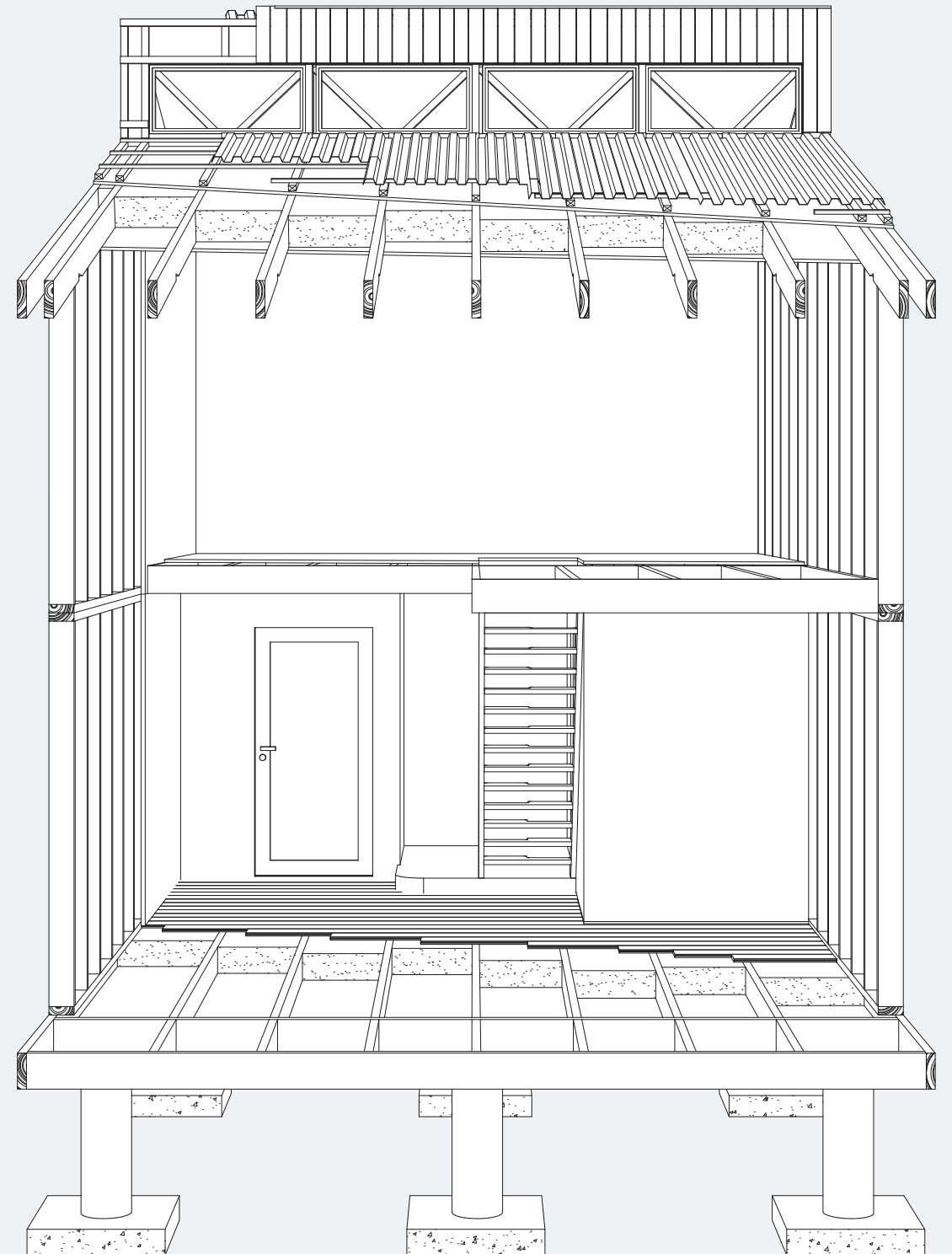
This framework, or "support" as architectural theorist N.J. Habraken calls it in the 1972 English translation of the Dutch classic from 1962, *"Supports: An Alternative to Mass Housing"*, is usually either a *physical structure*, as in the fill-in projects by Alejandro Aravena and Elemental Architects, or a *method* that can be adapted to different needs and situation, like Walter Segal's self build method.

Because we want the future residents to do most of the building themselves, there was no reason (or money) to hire someone to make a

physical structure that they could later fill in. However, neither did we feel like we should create a whole new method of building that could be applied everywhere, as this kind of universal thinking doesn't apply very well on Svartlamon (or in any context for that sake).

What we ended up doing was creating a site strategy-specific module that is self-buildable, and that can be adapted in various ways to meet the desires of its future residents. It is essentially the weatherproofed skeleton of a small stud frame house, leaving the placement of windows, insulation, cladding, internal structures and finishing largely up to the self builders. Of course we will continue to work with the self builders and make sure they follow the original rationale behind this project (see ch. 1), and doesn't start building something completely different. There is also an economic incentive for the self builders to reuse materials and not overspend: The less of the total loan that are allocated to their house, the smaller will their part of the total rent be.

RIGHT:
Section
through the
architectural
framework we
have proposed
to the self
builders



9

AN ACTIVE MODULE

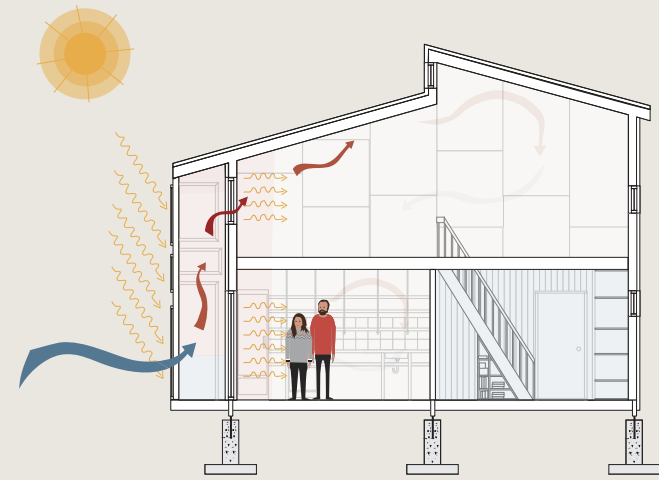
There has been a lot of talk lately about passive houses, especially with the new building code *TEK15* moving towards passive house standard on all new buildings in Norway. As we mentioned in the rationale, we don't believe that saving energy in itself is a move towards a more sustainable built environment, at least as long as every TWh we save is just being exported, or used for something else (it's not really economical to store it). Norway is actually subsidising building hundreds of new small scale hydroelectric dams in previously untouched rivers and streams, with the intention of selling "green energy" to the EU, so the conservation argument isn't really believable.

We need active houses, that encourage the users to take responsibility for living more sustainably, rather than relying on standards that can be easily circumvented. You could even argue that passive house standard, makes

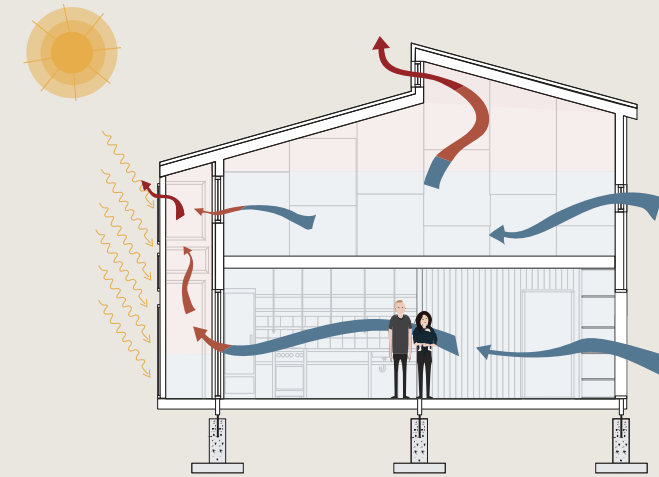
it almost impossible to build your own house, because of the strict demands of execution.

What we mean by an active house, however, goes beyond natural ventilation and vapor diffusion open walls. It is a holistic concept, encouraging the users to actively adapt to their environment, allowing mistakes (or variation if you will) and learning. A house is active if you can ventilate by opening a window, or move a wall without specialist equipment or encountering dangerous materials. Of course, in a modern house there is always some things you would need help to do from a certified builder, an electrician or a plumber, adaptability is not an either/or kind of thing, its something you approach as you learn. The point is that the architecture, including the architectural process, needs to acknowledge and encourage adaptation. This is what we mean by an "active module".

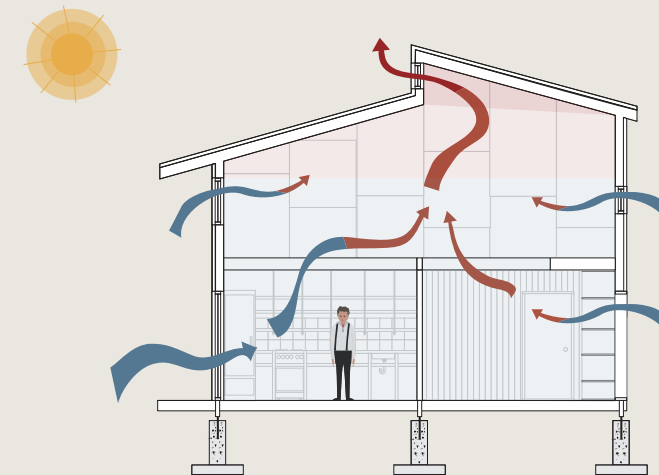
Heating using the greenhouse as a double wall



Ventilation using the greenhouse as a solar chimney



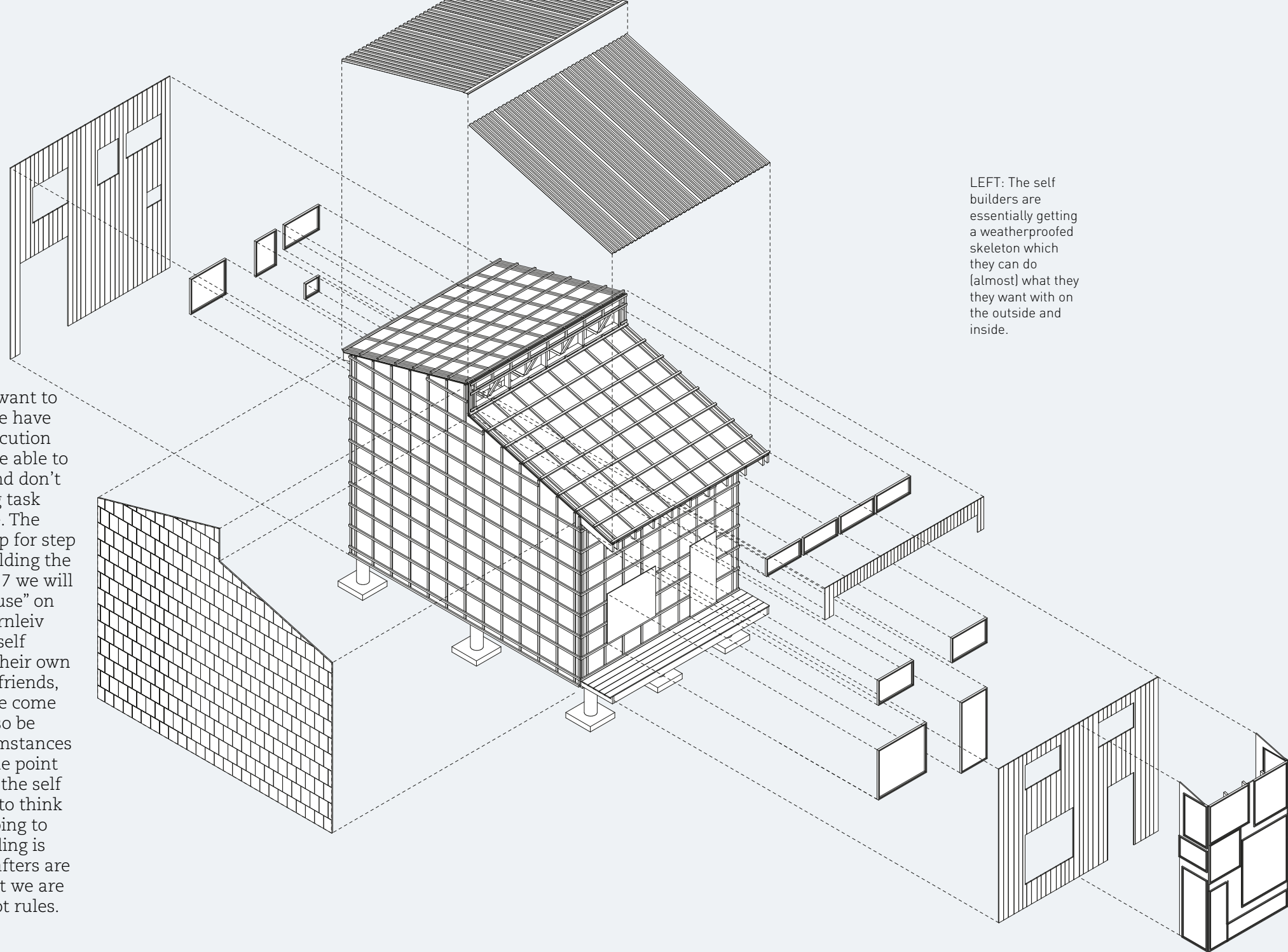
Natural ventilation through the building



10

SELF BUILDING – STEP BY STEP

Even though we don't want to decide every detail, we have to make a plan of execution so the self builders are able to make informed decisions, and don't get lost in the overwhelming task it is to build your own house. The following will be a rough step for step guide of how we plan on building the houses. As mentioned in ch. 7 we will begin with the "common house" on each step with the help of Arnleiv the carpenter, and then the self builders repeat the step on their own house. This is where family, friends, neighbours, and other people come in, and help! Choices will also be made on site and new circumstances adapted to, that's some of the point with this project! But where the self builders really have to start to think about what their house is going to be made of, is after the building is "topped", that is when the rafters are in place (in step 7). After that we are only providing guidelines, not rules.



LEFT: The self builders are essentially getting a weatherproofed skeleton which they can do (almost) what they want with on the outside and inside.

TIME FRAME AND BUDGET

6 WEEKS

NOK 400.000

- Hiring a contractor to connect us to the municipal water and drainage system
- Digging all the holes for the foundations
- Ready-mix concrete, formwork and brackets

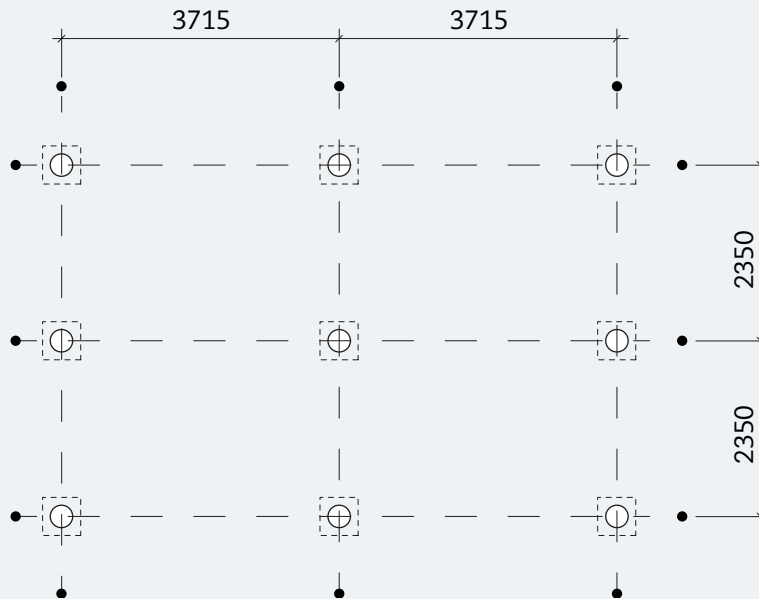
0 CONNECTING TO THE GRID

Getting connected to the municipal water and drainage system is one of the few things we actually need a contractor to do, so a reasonable chunk of our budget will be used in this first phase.



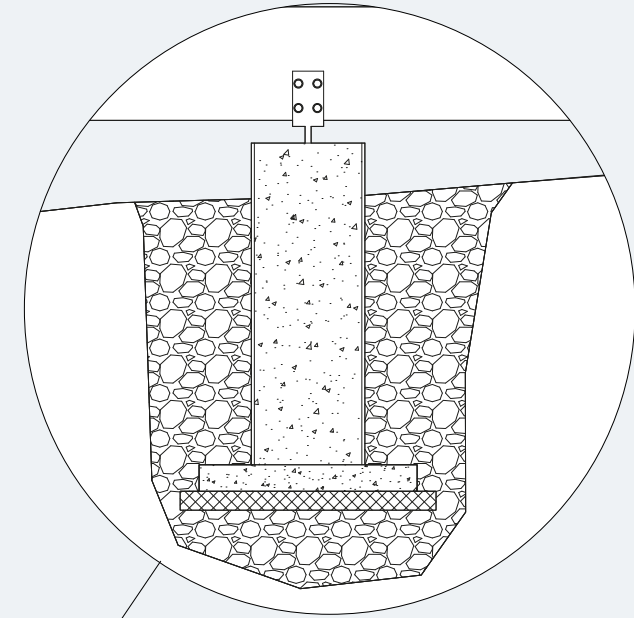
1 SETTING THE FOUNDATIONS

After removing the top soil on the building area, we set out the grid shown on the right side on the ground using sticks and ropes. Where the ropes intersect, the brackets will be placed. So we keep the grid sticks until these are secured in place.



2 DIGGING AND POURING

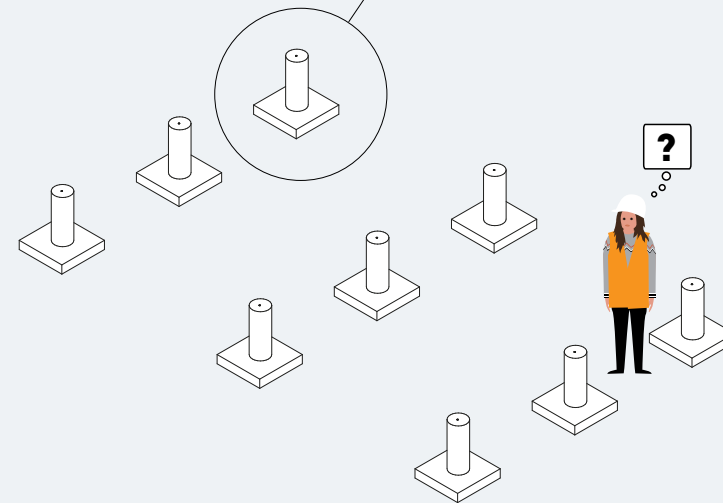
Once the grid is established, we dig holes for the foundations. We will use cardboard tubes as formwork for the concrete, which we will pour ourselves. Below the pier there has to be a footing of at least 1m*1m to make sure it doesn't move (as the ground can be a bit unstable). Even though we go below the frost line, the hole has to be filled with gravel to avoid frozen ground pinching and lifting the piers.



Detail of the pier foundations, which are 300 mm in diameter. We have added some insulation under the pier to avoid frozen ground lifting it up.

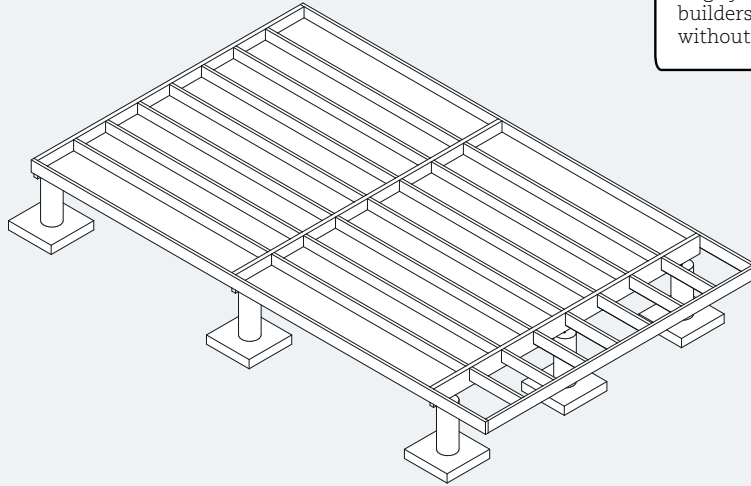
3 CHECKING THE FOUNDATIONS

When we are finished with all the foundations, we make sure they are level and correctly placed on the grid, before we start building the frames. By this point we have put a lot of work and money into something that doesn't really look like a house yet, so we should have a foundation party.



4 BUILDING THE PLATFORMS

At this point the houses begin to take shape quickly. First we screw the three 3"12" glue laminated girders to the brackets on the foundation piers. We have to make sure the girders are level when they are screwed on. After they are checked, we lodge in the 2"8" joists between them, to make an even platform.



NB!

The frames are built with openings for windows and doors. But as their placement largely will be up to the self builders, we show the frames without openings here.

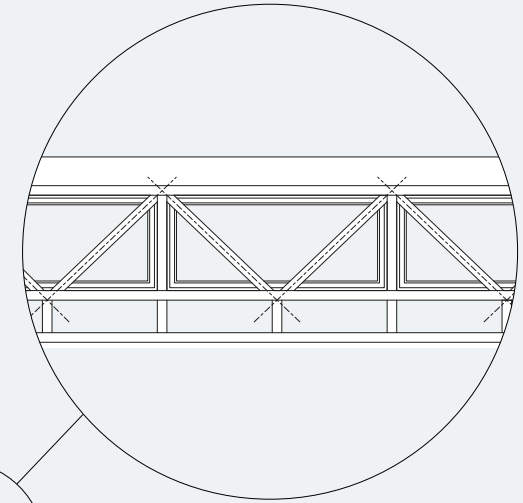


TIME FRAME
AND BUDGET

4 WEEKS

NOK 380.000

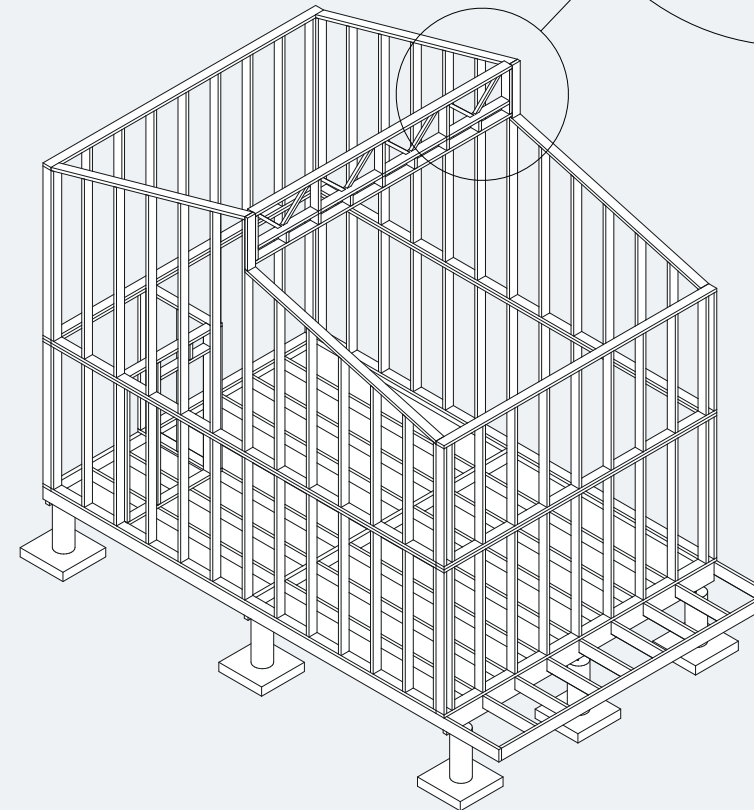
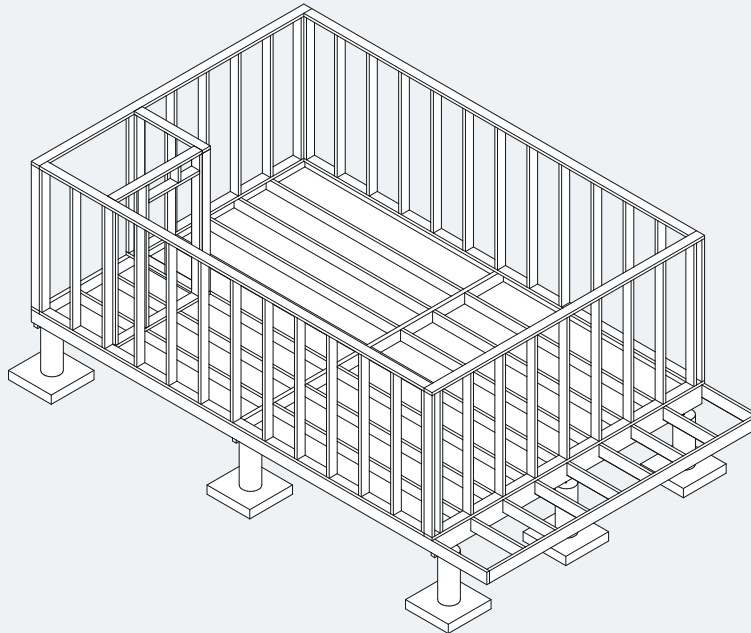
- Timbers and screws for the platforms
- Timbers, screws and bolts for the walls
- Timbers and screws for the roof rafters



Detail of the 960 mm high self built truss beam carrying the weight of the roof.

5 BUILDING THE FRAMES (PT. 1)

Then 2" 6" studs are screwed together between the top and bottom plate on the ground, forming a frame, and then erected onto the platform with temporary bracing. All angles must be checked. Openings for doors and windows are placed depending on the individual designs.

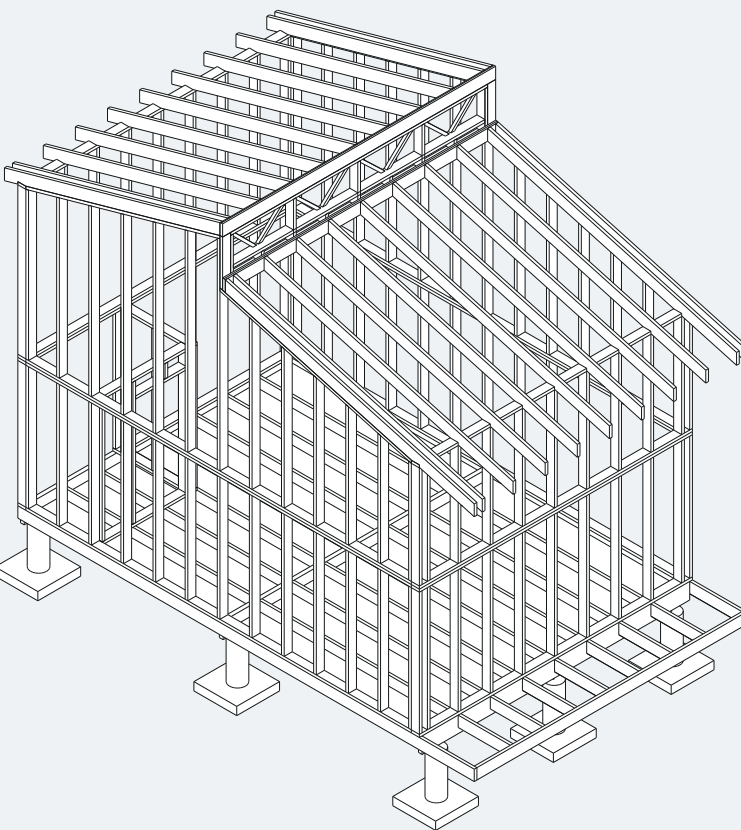


6 BUILDING THE FRAMES (PT. 2)

The second story is then built and erected on top of the first story (platform framing). Where the building splits in the middle a self built timber truss is carrying the weight of the roof. In this way we avoid having to place a post that would make the internal organization less flexible.

7 BUILDING THE ROOF RAFTERS

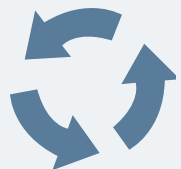
The last work on the frame is to screw the 2"8" rafters onto the top plate of the first floor. Now the frame is ready to be enveloped, depending on the self builders choice of materials, and it's time to celebrate!



From now on the self builders decide what they want to do. We will look out for cheap or reused cladding, and they are free to experiment with insulation, windows etc. as long as it is in line with the rationale behind the project.



After the last rafter is in place we "top out" the building, or have a "kranselag" as its called in Norway. A party for all the builders, celebrating that the houses have roofs (some prefer to celebrate when the roof is waterproof, but we need another party at this point!)

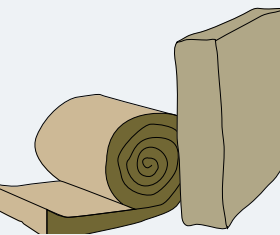


See: Njål Pettersen: "Gjenbrukshus i Trondheim – en bro fra destruksjon til konstruksjon" (2005) for a recent experiment with reusing materials.

Reused or new materials for the structural frame?

Although it is relatively easy to reuse wooden planks, it's hard to get materials that have the same consistent quality as new ones, and very time consuming to test them. As none of us are engineers, we

need to have a predicatable way to make sure all the houses will stand. Wood is also readily available and inexpensive in Norway, so we will reuse materials for cladding etc. but not for the structural frames.



See: www.naturligbyggeri.no/tema/Isolasjon.html

Hemp fibre mats are made from *Cannabis Sativa*, a plant that used to be indispensable to make everything from sailcloth to paper before cheap cotton was brought back to Europe from the colonies. Non-narcotic cannabis is grown industrially today, leaving enough THC so that it can be grown

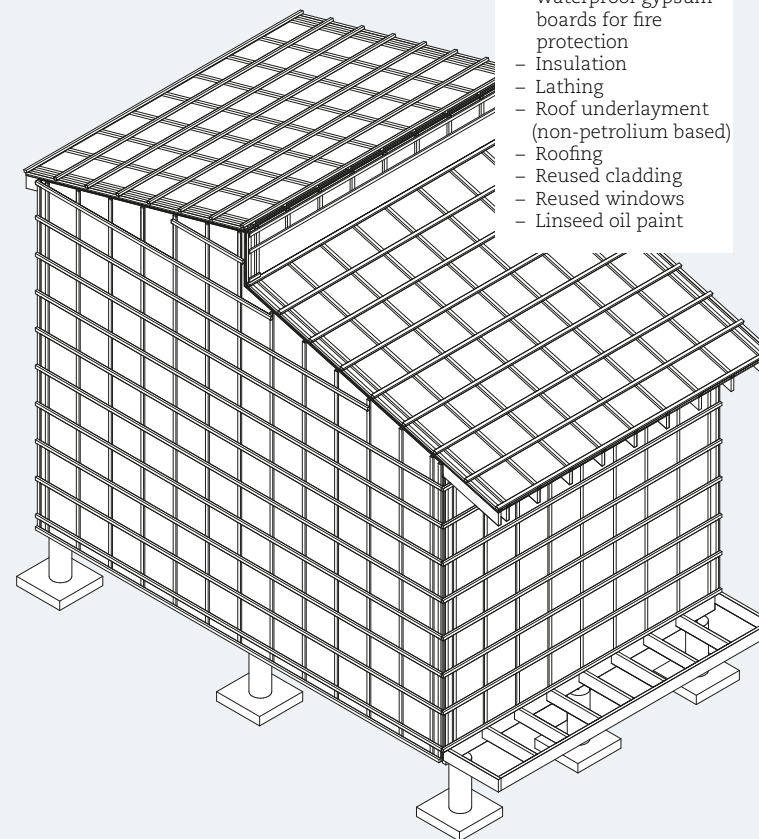
without fertilizer and pesticides. Hemp also has fungistatic and bacteriostatic properties, which means that the insulation mats doesn't need to be treated chemically. The mats have good insulation qualities, both thermal and acoustic, and are produced in our neighbour countries.

TIME FRAME AND BUDGET

16 WEEKS

NOK 650.000

- Waterproof gypsum boards for fire protection
- Insulation
- Lathing
- Roof underlayment (non-petroleum based)
- Roofing
- Reused cladding
- Reused windows
- Linseed oil paint

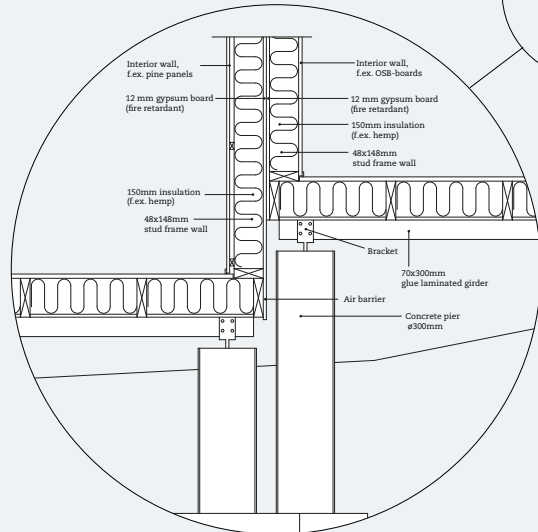
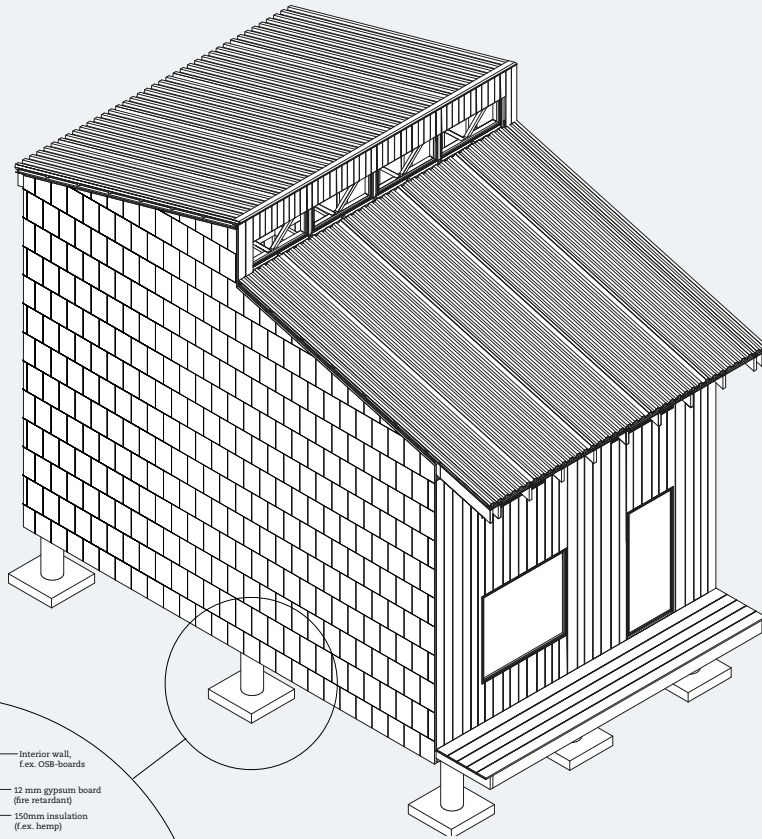


8 ENVELOPING THE FRAMES

We start enveloping the frame by nailing waterproof gypsum boards to the outside that will function as fire protection and brace the frames permanently. On the roof we then fasten an underlayment. We then nail on laths for the cladding, and put insulation in from the inside.

9 EXTERNAL CLADDING

At this point the building is reasonably watertight, but to protect the envelope we start with the roof (which may be tiled, shingled or just sheeted depending on which materials we get our hands on, and the self builder's preferences). Then we put in windows and doors, and put on external cladding depending on the individual schemes.



Detail of the meeting between two houses. Fire protection is ensured by a layer of gypsum board between the buildings. This board also functions as bracing, and gives support so the self builders can insulate their house from the inside.

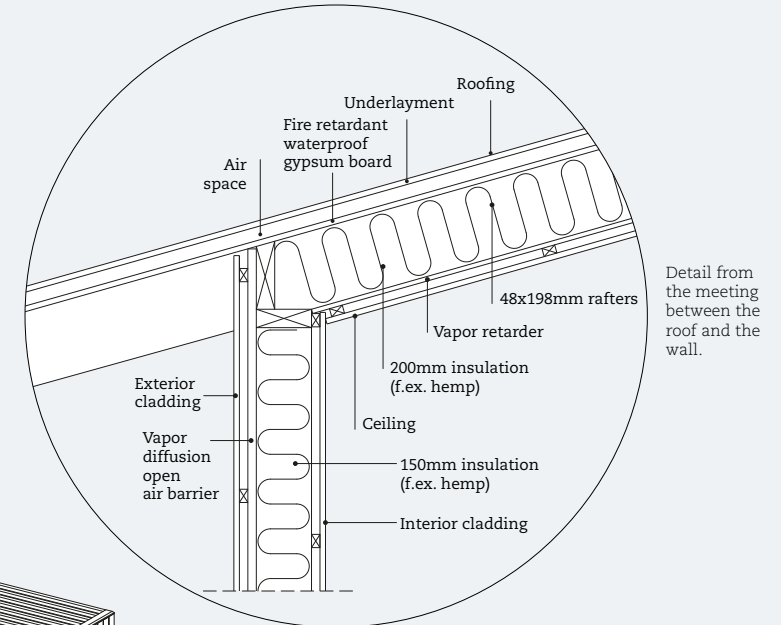
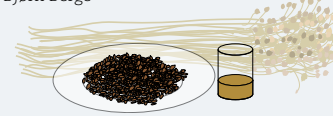


Reusing windows

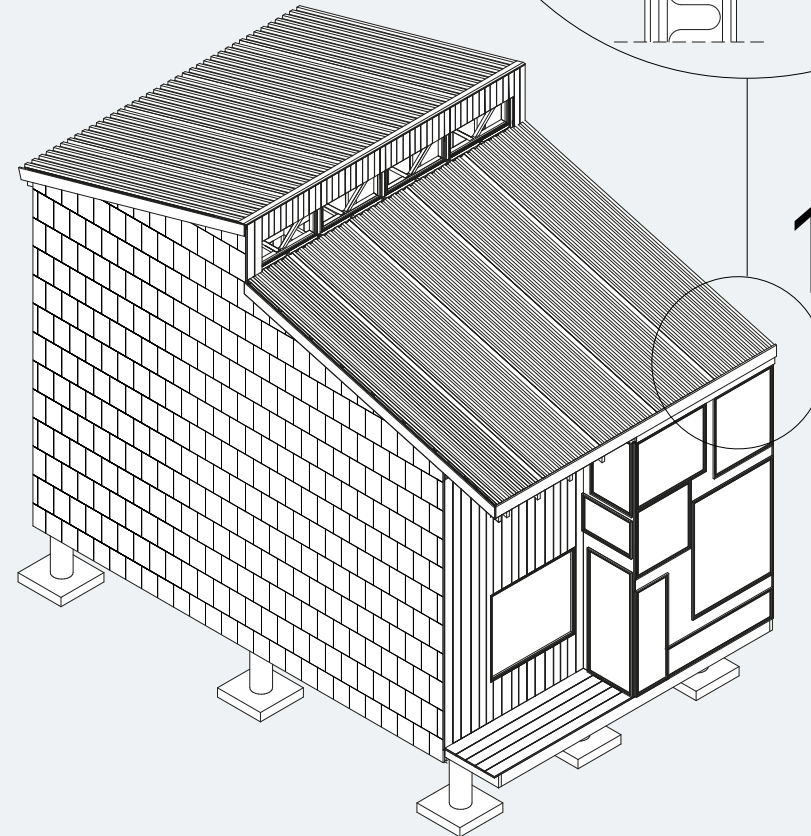
Used windows are often easy to get a hold of, especially when large buildings are being demolished. Avoid windows with PVC, older wooden windows are excellent to reuse, as Jacob can tell you. Just needs a little scraping and painting, and you have a brand new window!

Linseed oil has been used to treat facades in Norway since the 17th century. As the oil dries on the wall, it forms a strong, but elastic substance that is waterproof, while allowing vapor to flow through (see ch. 10). Just remember not to breathe in the gases emitting from the oil while its curing. With pigments added to it, it can be used as a solvent-free paint.

See: *The Ecology of Building Materials* (1992) by Bjørn Berge



Detail from the meeting between the roof and the wall.

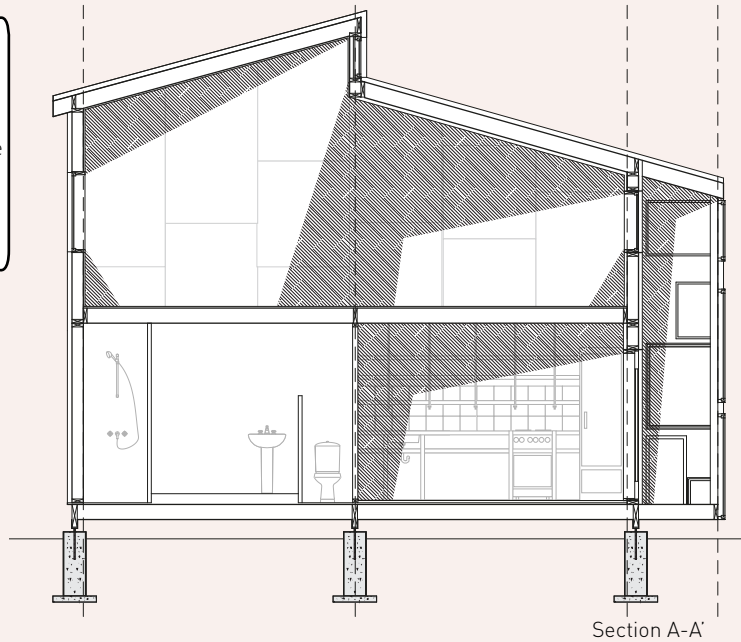
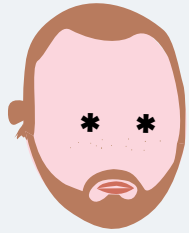


10 FINISHING

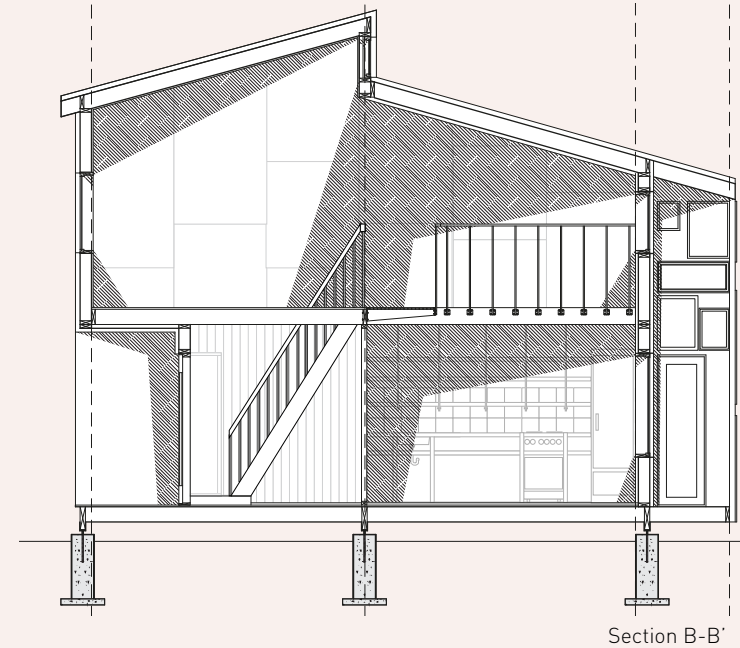
The last work on the exterior is to build the greenhouses, and treat the external cladding. After this the houses look finished from the outside, but a lot of labour-intensive work on the interior still remain. We plan on having this phase finished before Christmas, so we can continue with the interior in the winter months.

NB!

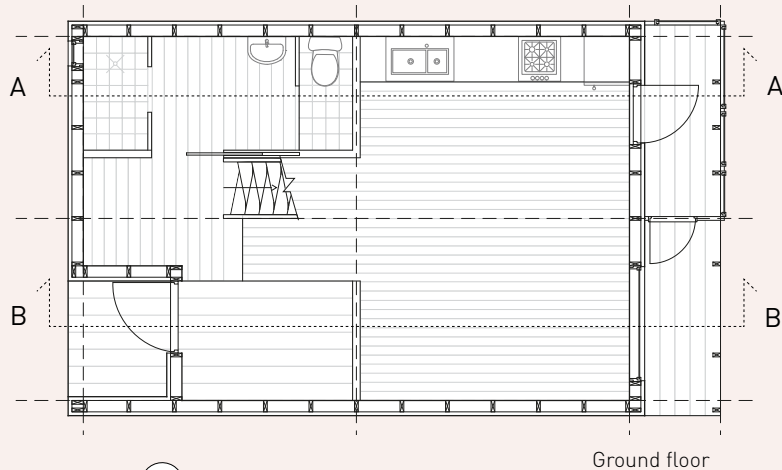
This is the standard layout for one of the modules. After three rounds of interviews and meetings, we have adapted this standard module to each of the self builders (see part 6 for adapted plans and sections)



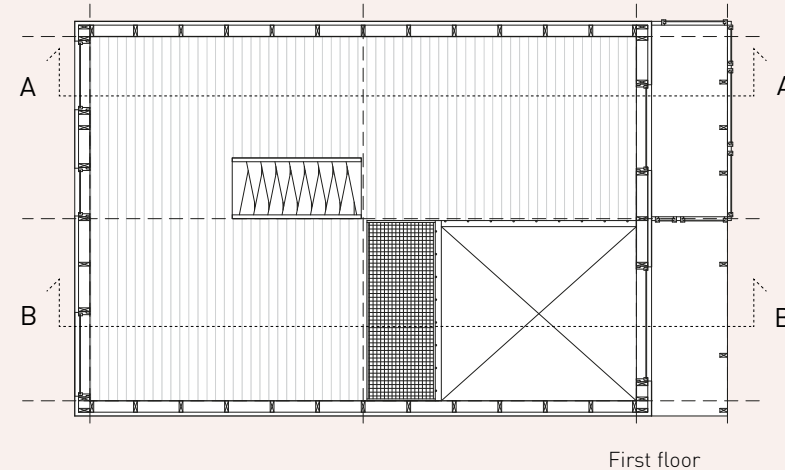
Section A-A'



Section B-B'



Ground floor



First floor

1:100

11 BUILDING THE INTERIOR

Interior walls, floors and structures like the stairs, mezzanines and/or furniture are then built, depending on the different self builder's schemes. How part 11-12 will be executed is dependent on a lot of factors, and will be largely up to the self builders.

TIME FRAME
AND BUDGET

16 WEEKS

NOK 280.000

- Joists for the first floor
- Materials for the internal walls and floors
- Materials for the stairs
- Reused materials for internal cladding

The point of creating a standard interior plan is to have some sort of common ground that makes it easy to see which consequences individual choices have for the overall plan. In the beginning it was very easy for the self builders to have unrealistic ideas about what they had room for, but after a while it became clear that if you f.ex. wanted a bigger bathroom you couldn't have a big pantry as well.

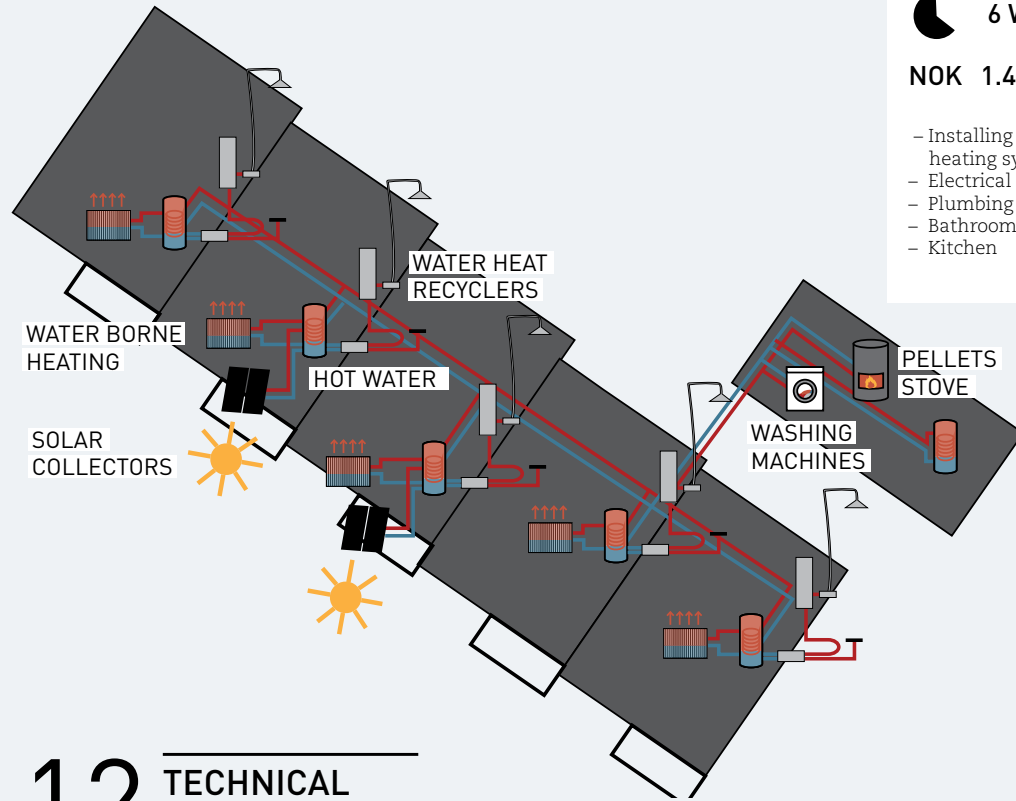
The standard plan also establishes some guidelines to work from, we have f.ex. decided that the double high space should be kept open, as it helps the natural ventilation of the building. A bridge is added in this example to give access to the stairs from both sides, but this could be different. It's all about giving the self builders something to work with!

TIME FRAME
AND BUDGET

6 WEEKS

NOK 1.400.000

- Installing the central heating system
- Electrical installations
- Plumbing
- Bathroom
- Kitchen



12 TECHNICAL INSTALLATIONS

The last piece of the puzzle are all the technical installations. A pellets oven is placed in the “common house” and a central heating system installed. Plumbing, electrical installations

etc. are put in place, and kitchens and bathrooms put in. This is a costly phase, and will require some specialists, like plumbers and electricians coming in.



MOVING IN

After technical installations are in place, the self builders can move in, and get used to living in their own (and our) mistakes. Hopefully this will lead to an urge to keep on improving their house and the shared areas.

PART 6

THE SELF BUILDERS' ADAPTATIONS

Leoni's (1)
interpretation of Guro
and John's house

A child will destroy a toy with which he can do nothing, and content himself with playing with the pieces. A good educator therefore does not tell a child not to touch anything, but teaches it activities such as construction, building, or maintenance and care. He gives a box of building blocks, rather than a finished doll's house (p. 13)

NJ. HABRAKEN/Supports: An Alternative to Mass Housing (1972)



11

FIVE DIFFERENT APPROACHES

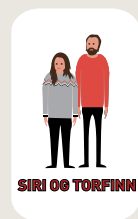


After the very first meeting with the self builders we decided to work with their differences, instead of making them all conform to our idea of an architectural process. So, in the following we will present five unique ways of approaching our framework.

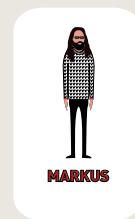
The biggest difference is between the two artists, Per Kristian Nygård and Markus Lantto and the rest. As they already have some experience in completing projects like this, and are quite particular about what they want to explore, we let them pretty much have free reigns to do what they could do with our framework. And as they are very process-driven in their work, it won't be easy to see exactly what their vision will be before they start building. So, in their cases, we will present what they have done, while in the case of the other three, Torfinn and Siri, Guro and John

and Jacob we will present drawings that we have made (after the two common meetings and two to three individual meetings, where we have discussed the project and what their wants and needs are). The drawings we present are our interpretations of the house that they want, but it is up to them, when we start building, what they actually want to do.

In a project like this, there will always be important decisions made on site, the work we are presenting at this point is the work that we as architects have done to make building possible. This work has to be adapted to the people you are working with, the site you are working on and the overall context. This is why we don't just show one way of doing it, but five. In this way we hope to prove the versatility of this way of working with an architectural problem.



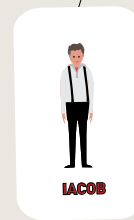
SIRI OG TORFINN



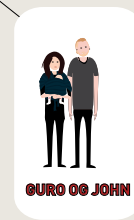
MARKUS



PER KRISTIAN



JACOB



GURO OG JOHN



LEFT:
The self builders agreed amongst themselves (and us) which plot they would get.

RIGHT:
Notes from the self builders explaining some of their ideas





12



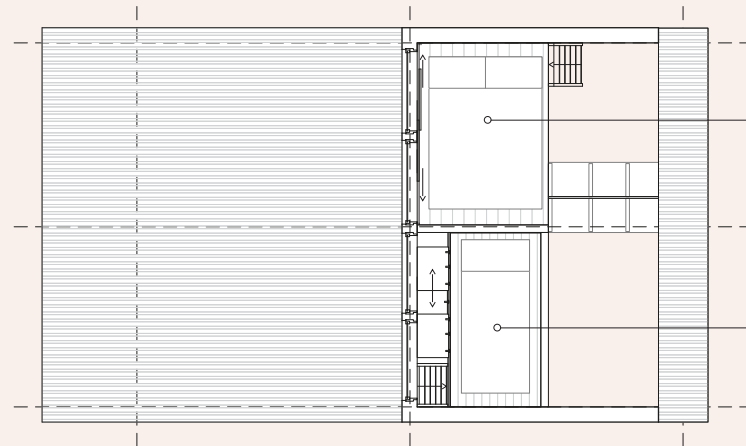
TORFINN AND SIRI'S HOUSE

Siri Gjære
(musician),
Torfinn Borkhus
(radio producer)
Eldrid (5)
and Sivert (7)

Usable floor area:
58 sq.m.

Torfinn and Siri made it clear from the beginning that, as they have never done anything remotely like this before, they preferred to explain to us what their vision was, and then let us draw our interpretation of it. This is the third proposal for their house, after three individual meetings. The meetings with Torfinn and Siri

have also contributed a great deal to the standard module, as they have been very specific about their needs, and pressed us to increase the entrance area and add more storage. As a family of four, their experiment has a lot to do with getting more out of less floor space, as they are currently living in a 80 sq.m. apartment.

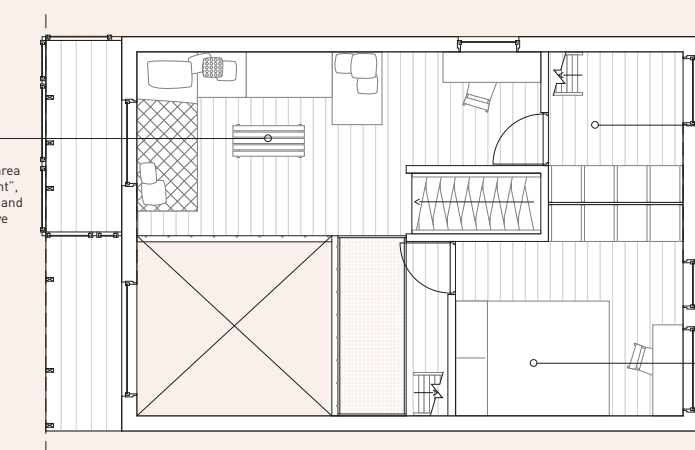


SIRI AND TORFINN'S BED

Big sliding doors make it possible to ventilate the main room through the upper windows

SIVERT'S (7) BEDROOM

Sivert climbs up to his bedroom from the main room. Sliding doors makes it possible to ventilate the main room through the upper windows.

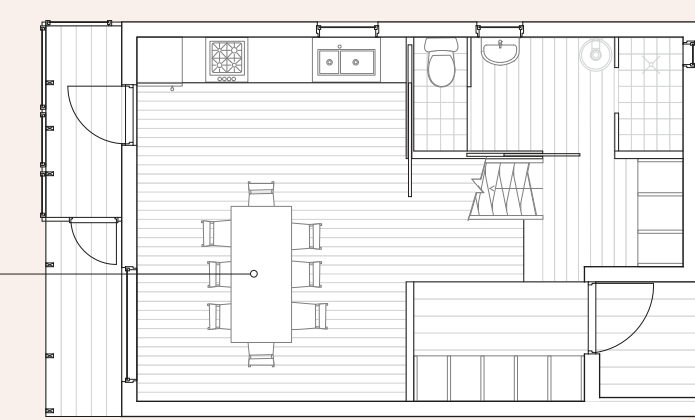


RELAXING AREA

The family wanted a relaxing area "as the corner of a bedouin tent", "somewhere to just lay down" and "an area for when the kids have friends over"

SIRI AND TORFINN'S BEDROOM

ELDRID'S (5) BEDROOM



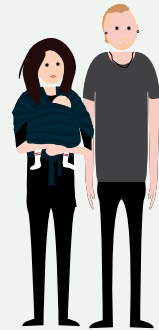
"THE BIG TABLE"

A big table will be the meeting place for the family, to "talk", "have guests over", "eat", "prepare food" etc.



13

GURO AND JOHN'S HOUSE



Guro Sletnes and John Strandskog (social workers), Leoni (1) and Linus (3)

Usable floor area: 58 sq.m.

Guro and John wanted their family to learn how to live more sustainably, and thought that building their own house would be a good start. As with Siri and Torfinn, they wanted us to draw something for them based on our discussions (Guro also made a book with collages of smart solutions she liked), and this is our third proposal

for them as well. They all like to sleep together, so they wanted space for a huge bed for everyone. But as the kids get older, they would like the option to sleep alone, so we drew in two separate bedrooms as well. They also wanted a corner for John's gaming computer, so he wouldn't disturb the others. The rest is pretty standard.

PLAY LOFT

The children can have their own play loft when they get older.

EXTRA BED #2

Even if everyone prefers sleeping in the same bed, this doesn't always apply.

EXTRA BED #1

Even if everyone prefers sleeping in the same bed, this doesn't always apply.

"FAMILY BED"

Guro and John wanted a huge bed for the whole family, as they prefer sleeping together.

JOHN'S "GAMING CORNER"

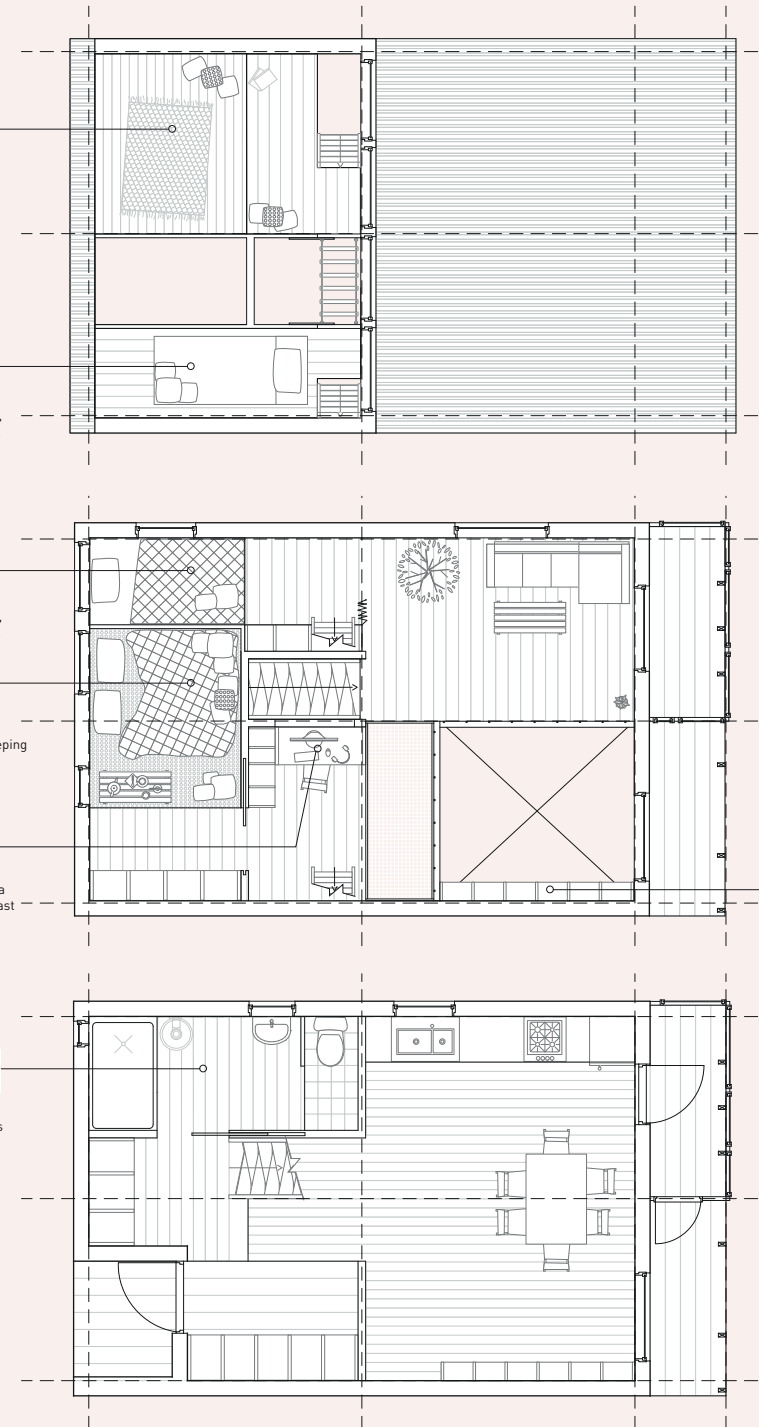
The family really wanted a corner for John's super fast gaming computer.

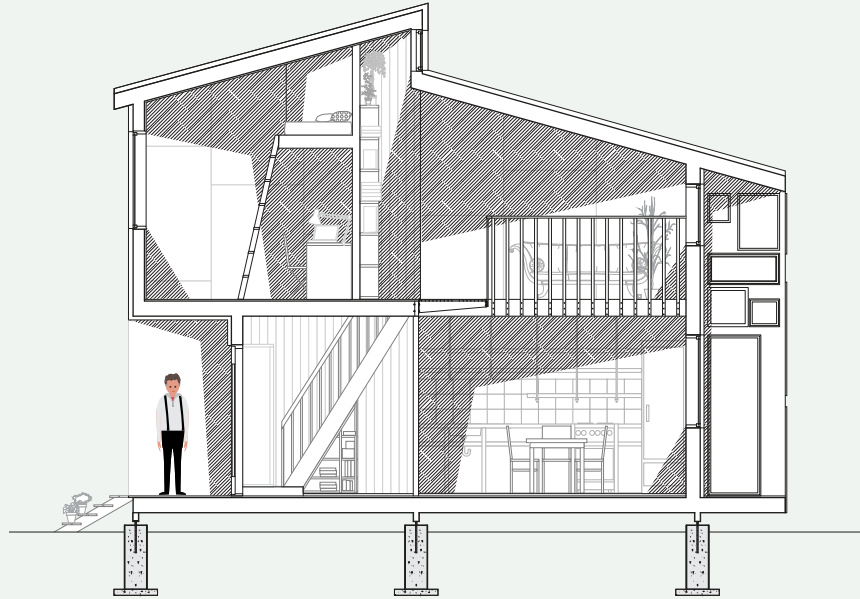
BIG BATHROOM WITH BATHTUB

They wanted to be able to bathe the kids

SHELVES TO THE CEILING

The family wanted it to be possible to have shelves all the way to the ceiling





14

IACOB'S HOUSE



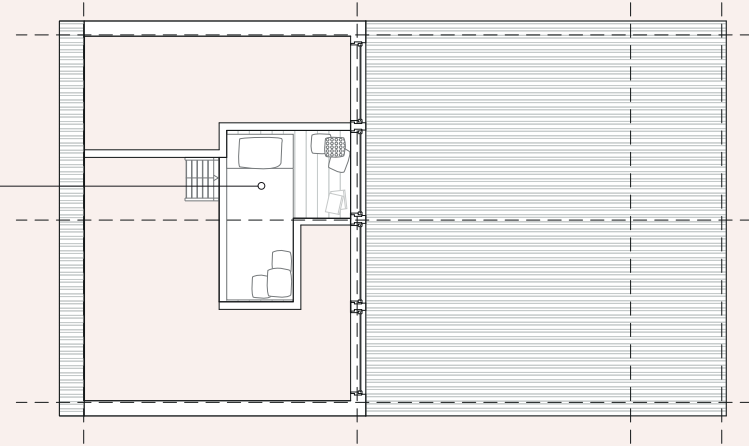
Iacob Sømme (teacher and traditional carpenter), has his son Johannes (10) living with him every other week.

Usable floor area: 58 sq.m.

Iacob has very specific things he cares about in designing his house, and some things he prefers that we work out. He is most interested in what kind of materials he will use, and how he is going to build the house. He really likes traditional ways of doing things, and brings with him some old furniture and windows he wants to use. When it comes to the internal

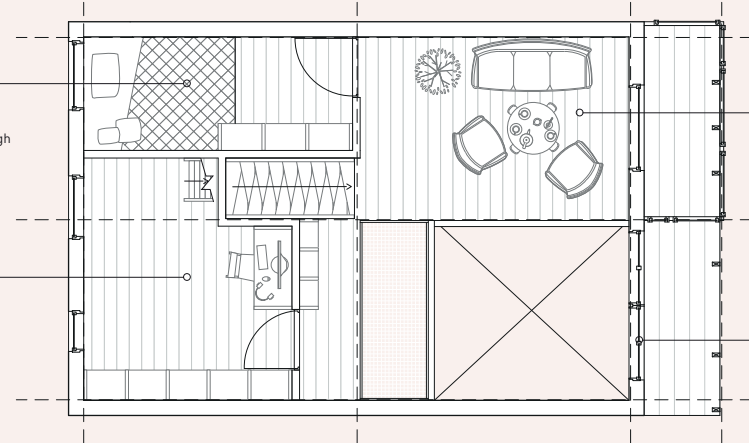
organization, he wanted a quite general plan, although it turned out he had some specific ideas. He didn't need a big bathroom, but wanted a pantry instead, as he wants to experiment with storing food the traditional way. He wanted a big room for his son, but not himself. The rest could be up to us, as long as he had room for his furniture.

JOHANNES' BED



IACOBS ROOM

Iacob just wanted a small room for himself with enough space for his bed.



LIVING ROOM

Iacob has some old furniture that he wants to have room for.

JOHANNES' ROOM

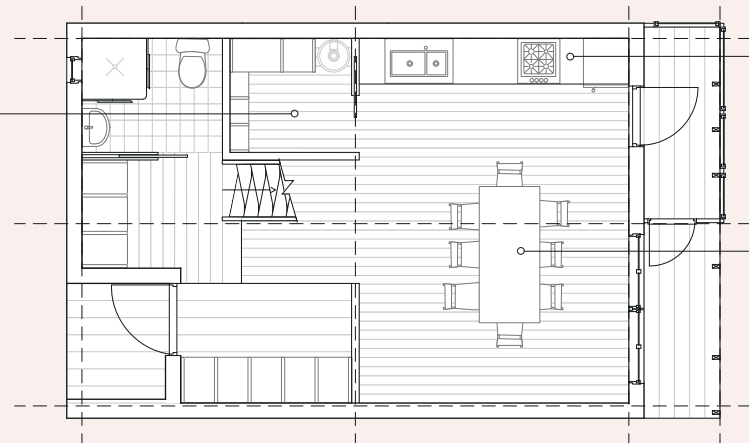
When Johannes (10) is living with Iacob he gets a bigger room, so he can have a bit of privacy.

REUSED WINDOWS

As a professional window restorer Iacob has some old, high quality windows he wants to use.

PANTRY

Iacob wanted a smaller bathroom, so we would have room for a pantry for storing food etc.



OAK WORKTOP

Iacob wants to build his kitchen from a single piece of oak from a tree he felled several years ago

BIG OAK TABLE

An heirloom that Iacob was keen to make the center of daily activities, like eating, talking, playing board games with his son etc.



The trumpet is Markus looking out from his window of his sketch-up model.

15



MARKUS' HOUSE

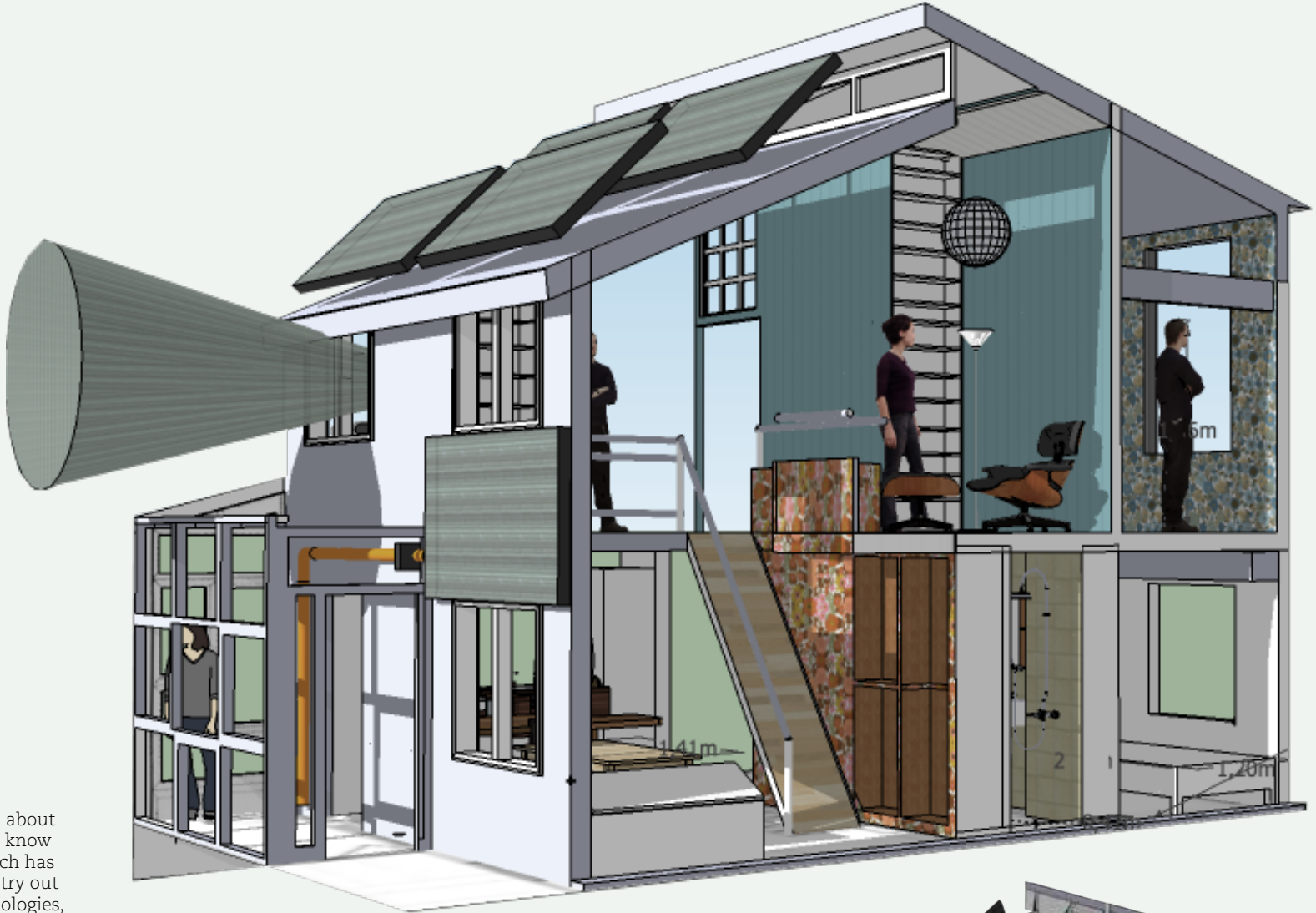
Markus Lantto (artist and instrument maker) and his son Vidar (10)

Usable floor area: max. 60 sq.m.

Markus has had a dream to design his own house for a long time, so the moment he became part of this project he started building his house – in sketch-up!

Figuring it was best to leave him to it while we concentrated on the other houses, we are showing how he has worked with the house. It's not to show what it's going to look like, but to show how he has adapted to the framework and started thinking about what he wants and needs.

Markus' design is all about the process of getting to know how a house works, which has inspired him to want to try out a few home made technologies, like reused radiators as solar collectors for the heating system. This has contributed a lot to the overall strategy as well. Like Per Kristian, it will be interesting to see how his adaptations will be translated to working drawings once we start building, and eventually how his finished house will be.



This, of course, is only a working model, but it has enabled Markus to have a rough idea of how he wants his house before we start with the working drawings (and eventually start building).





Per Kristian wants to enter his house from the front, immediately entering his world of stairs (which there will be more of, he thinks)

Having a direct entrance from the bathroom is a bit unconventional, but may come in handy when you have used the sauna, or need to clean up before you enter the house.

Keeping the second story open, he wants to create a kitchen/living room/studio for his art.

16

PER KRISTIAN'S HOUSE



Per Kristian Nygård (visual artist) and his son Kristian (10)

Usable floor area: Max. 60 sq.m.

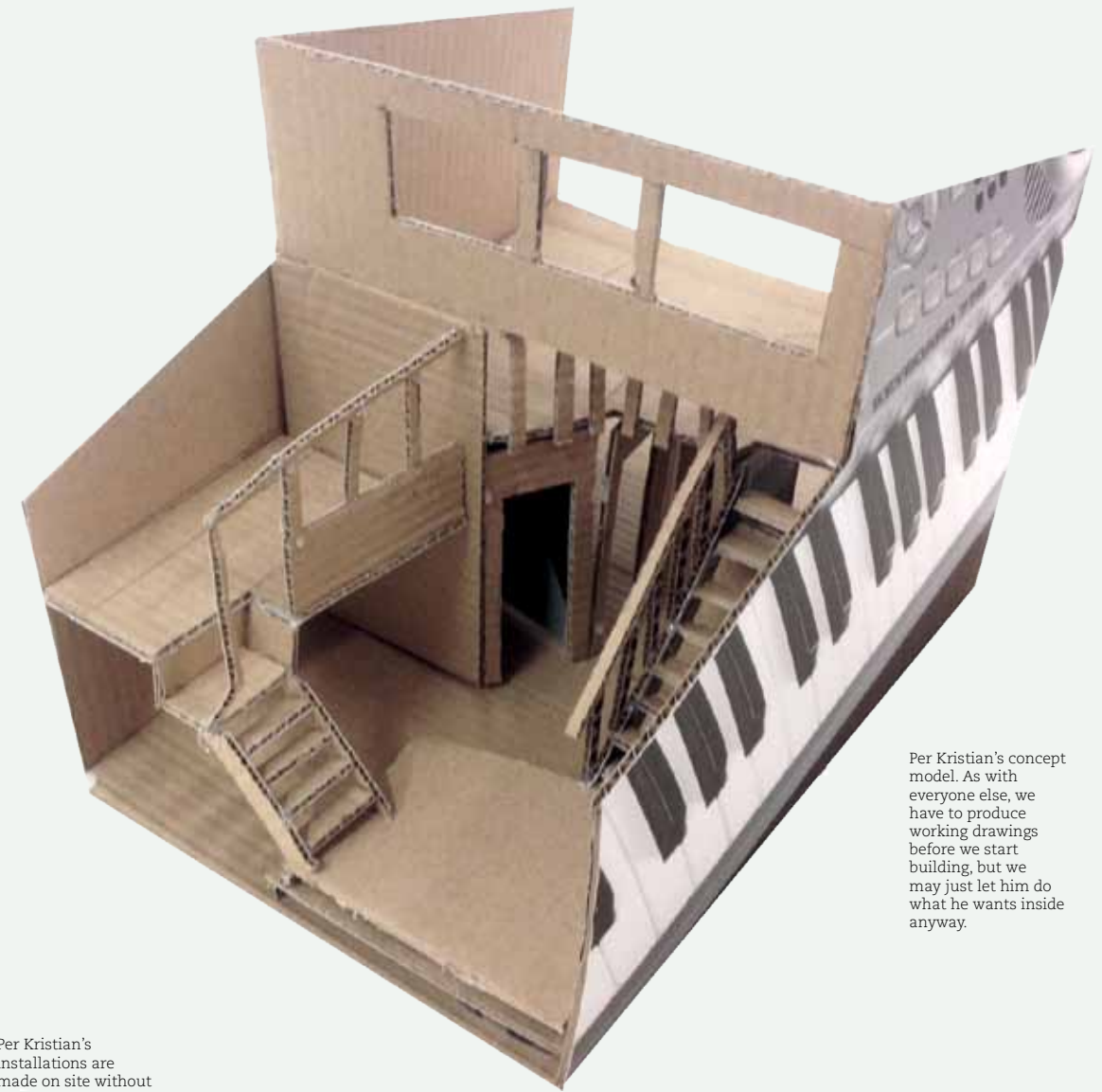
Per Kristian decided from the beginning that he wanted a more independent process, where he made his own design based on the architectural framework and the guidelines we established.

As an installation artist he works with a rough conceptual draft, and then make decisions on site (see pictures on the next page), and so we will just present his concept model here, and we will see how his house turns out. We felt that it's important to show that this is also how a participation process can work. For us as architect's, this is about establishing guidelines that situates the project in a context, while allowing ourselves to lose control where the user wants to

take over.

In the application to be a part of this project Per Kristian intrigued us with his vision about the unvisionary house, a house that doesn't conform to the housing market's demand for getting the most value for each square meter. He wants to make a house that is just right for him, and noone else.

His first concept, shown on the opposite side, is only a rough draft that will be developed more, but shows how he wants to make a house tailored to his current desires. The entrance from the front with all the stairs will be decided on site like his installations, and will hopefully be an interesting space.



Per Kristian's concept model. As with everyone else, we have to produce working drawings before we start building, but we may just let him do what he wants inside anyway.

Per Kristian's installations are made on site without a fixed plan.



17

FURTHER READING

Ecology, Economy and Complexity science

C.S. Holling: "Understanding the Complexity of Economic, Ecological, and Social Systems", *Ecosystems* (2001) 4: 390

Stephen Wolfram: *A New Kind of Science*, (Wolfram Media, 2002)

John H. Holland: *Hidden Order: How Adaptation Builds Complexity* (Addison Wesley Publishing Company, 1995)

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E.F. Schumacher (1973): *Small is Beautiful - Economy as if People Mattered* (Abacus, 1974)

Gilles Deleuze and Felix Guattari (1980): *A Thousand Plateaus. Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987)

Thorstein Veblen (1899): *The Theory of the Leisure Class* (Oxford University Press, 2009)

Nina-Marie Lister: "Insurgent Ecologies: (Re)Claiming Ground in Landscape and Urbanism" in Mohsen Mostafavi and Gareth Doherty (Ed.): *Ecological Urbanism* (Lars Müller Publishers 2010, 536)

Mathieu Hélie: *Conceptualizing The Principles Of Emergent Urbanism* (2009 Archnet-IJAR, Volume 3 - Issue 2 -July 2009- (75-91))

Sustainability

Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, William W. Behrens III: *The Limits to Growth*, (Universe Books, 1972)

Our Common Future: Report of the World Commission on Environment and Development (1987) (<http://www.un-documents.net/ocf-02.htm>)

Julia Bourke: "The Semantics Of Sustainability", Proceedings of the Canadian Design Engineering Network Conference, McGill University, Montreal, QC, July 29-30, 2004, <http://library.queensu.ca/ojs/index.php/PCEEA/article/view/4008/4044>

Anders Skonhoft, "Svarte sertifikater", Klassekampen (16.08.12), <http://www.svt.ntnu.no/iso/anders.skonhoft/Svarte%20sertifikater%20KK%200812.pdf>

Sustainable design

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Christopher Alexander et. al: *A Pattern Language: Towns, Buildings, Construction* (Center for Environmental Structure Series) (Oxford University Press, 1977)

Njål Pettersen: *Gjenbrukshus i Trondheim – en bro fra destruksjon til konstruksjon* (Trondheim kommune, miljøenheten, 2005)

Architecture and participation:

Peter Blundell-Jones, Doina Petrescu, Jeremy Till (2005): *Architecture and Participation* (Taylor & Francis)

N.J. Habraken (1972): *Supports: An Alternative to Mass Housing* (The Architectural Press London, 1972)

"Previ/Lima. Low Cost Housing Project" AD 4 1970. <http://isites.harvard.edu/fs/docs/icb.topic892112.files/Previ/AD.pdf>

"Small Scale Big Change. New Architectures of Social Engagement." *Moma.org* (<http://www.moma.org/interactives/exhibitions/2010/smallscalebigchange/>)

Self-building

John Broome: "Special Issue: The Segal Method", *Architecture's Journal*, AJ Database 1986

Dominic Stevens' self built house in Ireland: <http://www.irishvernacular.com>

Lloyd Kahn and Bob Easton: *Shelter II*, (Shelter Publications, 2010)

Lloyd Kahn: "Refried Domes", October 1989, http://www.shelterpub.com/_shelter/refried_domes.html

Useful web pages:

www.spatialagency.com
www.naturligbyggeri.no (Gaia agenda)
www.simplethings.no

