



LUND UNIVERSITY

Dear Disaster  
: a complex relationship

Degree Project Industrial Design  
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Dear Disaster  
: a complex relationship

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from Lund University, School of Industrial Design

Department of Design Sciences

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# Dear Disaster

: a complex relationship

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# Abstract

In the project a metaphor is used depicting interpretations of a recovery process of overcoming fear and regaining trust in nature after a natural disaster. This is done in order to describe the investigation of a love - hate relationship towards design. The intention with the investigation is to discuss meanings of emotional exchanges in design and analyse relationships between the user and objects.

The result is emerged from a therapeutic background of processing natural disasters as well as from an investigation of visual and tactile structures aimed to instinctively evoke curiosity and fascination.

*I projektet används en metafor som skildrar en psykologisk bearbetning av att återfå förtroende för naturen och överkomma rädsla efter en naturkatastrof. Detta är gjort med syftet att beskriva en undersökning av ett motsägelsefullt förhållande gentemot design. Intentionen med undersökningen är att diskutera mening med emotionella utbyten i design och analysera relationer mellan användare och objekt.*

*De resulterande objekten bottenar i en terapeutisk bearbetningsprocess av en traumatisk händelse likväl som i fördjupningen av visuella och taktila strukturer menade att väcka instinktiv nyfikenhet och fascination.*





# Summary

With the destruction, distress and sadness brought with natural disasters also comes a feeling of fascination and catharsis.

In "*Dear disaster*" this fascination and fear towards natural disasters are compared with contradicting feelings towards design. The main aim of this comparison was to discuss why design aimed to fulfil emotional needs are as important as design aimed to fulfil functional and ecological needs.

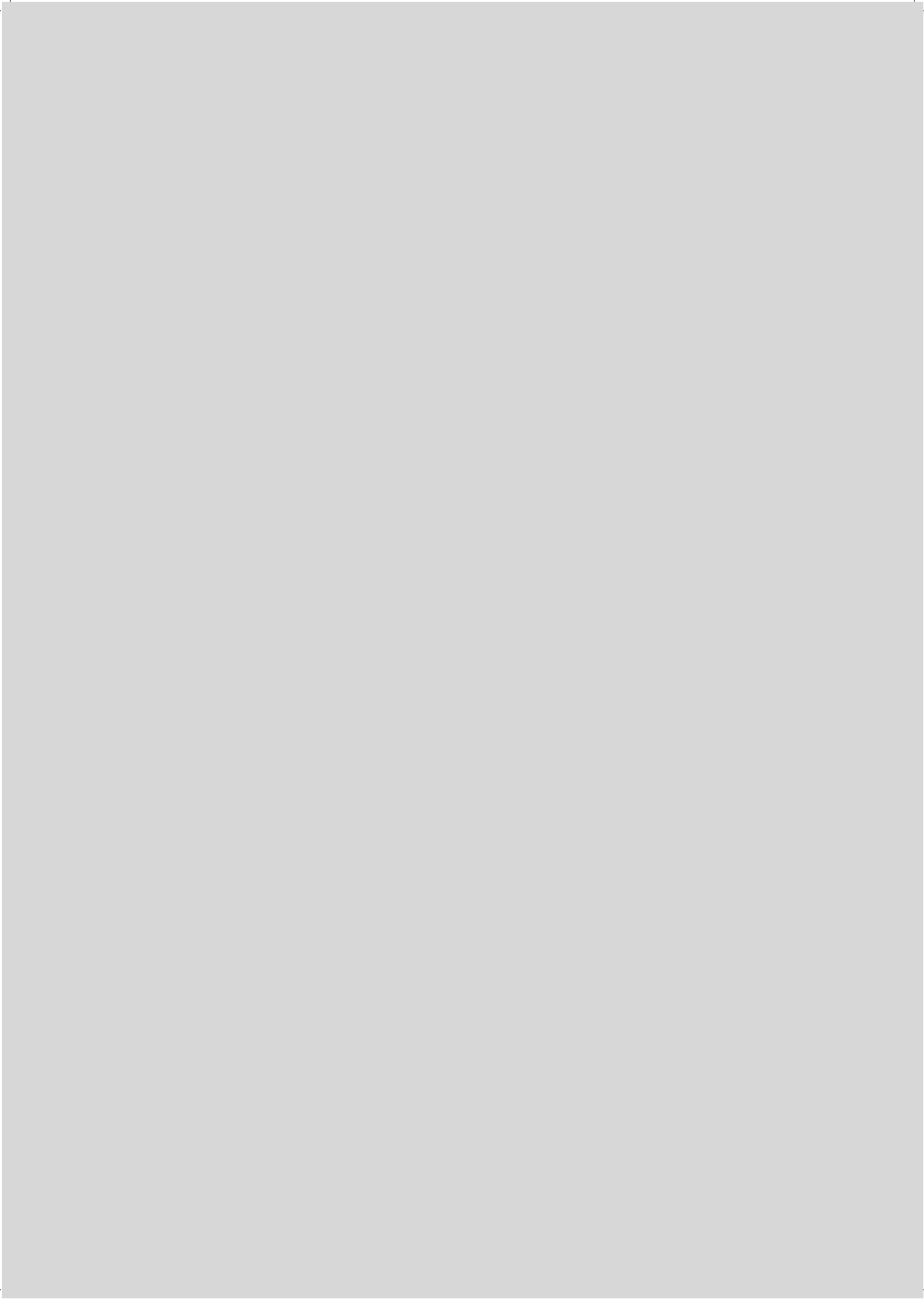
A metaphor depicting human interpretations of natural disasters was used to describe the investigation of emotions in design. Certain shapes, forms, textures, patterns and contexts that all people appreciate and are intrigued by was investigated with the intention of finding how these could be translated into design.

The research was carried out by reading literature discussing the theme natural disasters as well as subjects concerning sustainable design, emotional design and attachment, and conclusions were drawn as a result of personal considerations, reflections, and intuition through out the project.

The result is a scale-covered cabinet and two lamps, all with intriguing moveable or static structures.

The objects are intended to help victims of natural disasters to recover from their traumatic experiences, inspired by the idea that creating graphs and diagrams of natural disasters can aid the psychological recovery process after the event.

With this I wanted to illustrate an emotional exchange between the user and the designed object, where the object has gained a deeper meaning beyond its practical function.



# Introducing Dear disaster

Dear : **Something precious, loved and cherished**

Disaster : **An occurrence causing misfortune, destruction and distress**

It might be quite unexpected to greet a disaster with a word as familiar as “*dear*”. But simultaneously as I am horrified by heart-breaking reports of escalating natural disasters I feel intrigued by the extreme forces of nature and the beauty in some of the devastating events. The disasters work as a visual reminder of how life suddenly can end, but they are also reminders of how life once begun.

This conflict in perception raised questions that I aimed to answer in this project.

*- How can we learn to understand and care for a nature that destroys our homes and kill people we love?*

*- Can I illustrate our connection to nature by design and turn our will for complete control into a relationship of understanding?*

By discussing my fascination to natural disasters that awakes a search for meaning I also came to question my approach and relation towards design.

*- Are we contributing to the disasters by our mass production and consumption of today?*

*- How can I then justify my will to design new, poetic objects with no obvious function or aim for improving ecological issues?*

*- What are the consequences of this approach towards design and can it be motivated today?*

*- Are there different methods, backgrounds or arguments to be discovered that could be applied to similar projects in the future?*

This starting point led me through a process where I investigated my philosophy and aim with design; the communication of stories and emotions by objects, in order to find better arguments for what I can contribute with to the field of design in order to feel meaningful.



*"Through the arts, we try to transform  
not only our joys, but also our tears  
and anguish, paralysis and fear, and the  
unexplained and mysterious into images  
of strength, clarity and control"*

*// L. Steinhardt \**

\* See references

# Brief

“Dear disaster” is a furniture project about understanding and controlling nature. Our relationship to nature is compared with the designer’s aim to understand and control the outcome of a design project.

Interpretations of natural disasters are used as a metaphor describing the importance of emotional and poetic experiences and exchanges in design of today.



# Part 1

: Philosophy and methods

Discussing the meaning of investigating and questioning a preferred approach towards design in order to find new ways for better understanding our decisions.





# Method

**Methodology should not be a fixed track to a fixed destination, but a conversation about everything that could be made to happen.**

In order to create meaningful and innovative design I seek inspiration and ideas in observations, scenarios and experiences that touch upon our memories of sound, sight and movement. When integrated in design I believe that they could help us create objects communicating interesting reflections of our existence.

In design I seek variety, especially during my design process. Therefore my projects do not always seem to follow linear or logical pathways from the start. Even so I believe that my design process are very much based on a logical development of a theme or an area of interest, though my ideas are also the result of personal consideration, reflections, own experiences and an intuitive decision-making through out the process.

The design I choose to develop depends on the occasion, context and my mood.

My greatest interest lies in  
how story telling, emotions  
and poetry can become part  
of a product experience.

# Aim

**To provide objects or experiences that provoke an emotional response from the user – whatever that may be.**

In a society such as ours the multiplication of practical functions serves no real purpose. Therefore I believe that the need for objects communicating emotional aspects is greater than ever.

I want my design to stimulate these individual, psychological needs.

I want to create objects with a character, which tell stories, arise curiosity and stimulate our thoughts. Objects able to co-evolve with its user and keep the story alive over time.

I want my design to reveal a background that has multiple layers to be interpreted. By doing so I hope to intensify the aesthetic experience and enhance the value of the object.

By designing objects aiming to stimulate  
poetic and emotional human needs  
before functionality I want to stretch  
the definition of design of today.

# Discussion

It is of course essential to be aware of the possible consequences of a preferred approach towards design. When not successful it can give way for a continuous consuming of objects, but when successful it can result in objects that are kept forever by their owner, giving him/her important emotional exchange over time.

Therefore I believe it is important to analyse arguments for why or why not you want to work in certain ways. This will give you clues in how to be successful and what to be aware of during the design process, no matter what approach towards design you are interested in.

In order for me to discuss the relevance of my preferred approach towards design and find better arguments for my design philosophy I have read literature that analyses emotional design, attachment and sustainability written by; Jonathan Chapman, Donald A. Norman and Stuart Walker amongst others. \*

\* See references

The aim should always be to design objects that could stand a discussion regarding all design related issues such as function, attachment, emotions, aesthetics and sustainability.

## Part 2

### : Emotions and relationships

Discussing the relevance of a poetic and artistic approach towards design based on literature written by Jonathan Chapman, Donald A. Norman and Stuart Walker amongst others. \*

*- Is it possible to find out what all people like and find attracting and how or if this could be translated into design?*

\* See references





# Fifteen seconds of fame

## How to be successful and what to be aware of.

Today a product needs to get immediate attention. New designs are presented on blogs where an interesting story or process easily gets lost or put outside its context. This seems to happen more often when the approach lies somewhere in the field between art and furniture.

Because of the medias' escalating need for news there is a risk that the spectacular and attention seeking replace the creative process and the intellectual development of the designer.

In order to avoid this I believe that a part of the creative process must aim to stimulate the designer's own thoughts and wishes in order for him/her to learn and develop.

It is hard, almost impossible,  
to succeed creating lasting  
interest in an attention -  
seeking object with an after  
constructed anecdote.



# Sustainable by poetry?

## **An attempt to answer questions regarding how to motivate new design with no obvious function when the world suffers from mass production and consumption.**

It is important to note that I don't believe this chapter to be a manual for sustainable design; instead I have aimed to illustrate reflections and discussions that approach the subject sustainability from a different perspective.

According to Stuart Walker in the book "*Sustainable by design: explorations in theory and practise*" over 90 per cent of the resources taken out of the ground become waste within only three months.

I enjoy designing beautiful objects but I'm devastated by the consequences of our increased consumption. It seem complicated to be a designer of today and seek to stimulate human needs, self-accomplishment, run a business at the same time as you are contributing to a positive environmental development.

Every day you see new design made out of sustainable material or processes. The ideas on sustainability are plenty but I feel that many of the approaches are limited and the root causes are often overlooked.

The main fault as I see it is that the objects too often are lacking interesting depth and lasting values.

This could be because of the absence of a project background or because that the main reason for designing was just to seek attention.

Unfortunately the result of these products is a scenario where the consumer continues to waste on, but perhaps with recycled materials instead of new.

## Designers should attempt to explore alternative ways that address sustainable issues.

I believe that recycling alone is not a single solution to sustainable production and consumption.

Sustainable design must perhaps not necessarily require a return to local production, the use of natural materials, craft processes or a sustainable production. The intent of the design could instead lead to, through the objects properties, background or aesthetic qualities, ethical and environmental considerations.

Designers should aim to combine all the functional design aspects with the poetic and symbolic in order to create durable and sustainable objects.



**A sustainable object is an object that communicates lasting values and has a heritage value.**

All these aspects are important when aiming to design sustainable objects:

1. Life span of materials and sustainable production methods

2. Focus on causes

Not only on how to minimize the after effects of our environmental destruction.

3. Poetic potential

Explore poetic, experimental and interactive forms of product design and innovation.



# Emotion by design

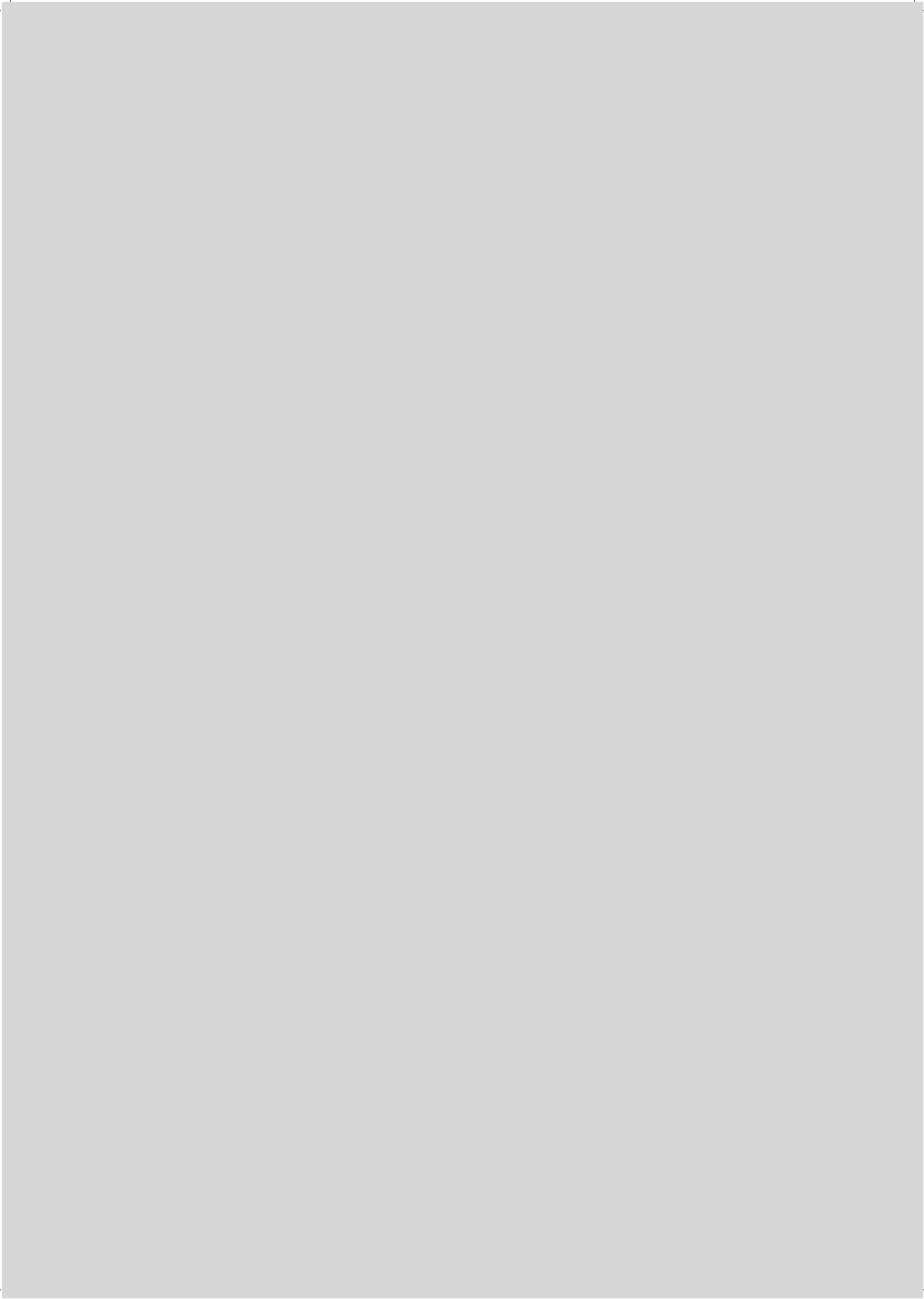
## **The meaning of emotions in design and what that might trigger in us.**

The core of design development is commonly believed to lie in technological innovation. But today objects not only have a practical function, they also provide us with feelings of freedom, independence, control, individuality and status. Favourite objects are symbols that evoke memories or communicate expressions of our individuality.

Emotions play a huge role in design and creation. We use our emotions in order to learn, be curious and creative.

To feel and associate are therefore as important qualities as technical innovation necessary for the evolution of mankind.





# Creating a relationship

**Different product characteristics must be combined in order to encapsulate meaning in a product.**

People are transferring human values and characteristics to their products.

To create this attachment to a product it must be regarded as a precious personal possession. The user will project his/her personality into objects as long as they continue to stimulate a response.

*- Is this quality possible to achieve in a mass produced, everyday object?*



These conclusions are my own interpretation of what I believe to be valuable for creating attachment and communicating emotions based on the literature I have read;

1. First impression

The visual importance of the first appearance of the object. This includes colour, texture, shape and sculptural attributes.

A picture of the design should quickly communicate the thought or background and/or could be presented in an interesting context. For example different kind of media can be used to enhance the experience, such as movies or sound.

2. Association

How the object communicates a meaningful association, metaphor or story. This could be communicated by the appearance or through the context in which the object is presented.

3. Intellectualization

The object's ability to maintain visual interest and stimulate thoughts. This could be achieved by displaying ideas of personalities evolving, to give the appearance that the objects have a mind of their own. It could also be achieved with a certain richness of details or by slowly unfolding, revealing its different layers of meaning to the user.

4. Function, performance, usability

How the function and purpose of the object is communicated and understood by the user.

By adding these qualities to an object the user's perception is allowed to change over time and you are stimulating the user's free will.

As the user evolves so does the object, by taking on new significance and meaning along the way.



# Design heritage

## Why do we keep objects that don't have an obvious function?

Perhaps there are many things to learn from our past and common heritage that could be included in design in order to create meaningful objects.

The human being has always through history needed objects that we associate with beauty and social status as well as objects with technical functions.

After a quick look around your home you will notice that objects we tend to keep actually are quite useless regarding technical function;

Art, poetry, music and religion are things that we always have associated with lasting values.

These values lie not in utility but in qualities that care for our aesthetic and spiritual sensibilities.



Some objects have been in production for at least 5000 years and are still being produced and used today. This testifies that objects with their attributes fulfil important human needs and have held their place in human society irrespective of culture, class, beliefs and language.

They are valued for their functionality as well as their decorative and aesthetic qualities and their symbolic roles.

1. Function: Tools, weapons and everyday-pottery

Objects designed for practical tasks; focus on effectiveness, safety and user comprehension.

2. Social/Status: Jewellery

Objects used to express identity, status and to be decorative. Refer to the human being's need for love, belonging, self-esteem and social acceptance.

3. Inspirational/Spiritual: Religious statuary/ icons and fine arts

Often magical/religious associations, considered deeply meaningful.

They refer to our need to know, our search for meaning, our aesthetic sensibilities, our personal growth and spirituality.



*"...their maker shaped the crude, circular pieces from fragments of ostrich eggshell, thinning each one and drilling a hole through the centre. Many of them broke before they were finished. An unknown Stone Age artisan spent hours crafting these decorations rather than searching for food, tending children or making tools"*

*// Jonathan Chapman \**

\* See references

# Grand- mother's quilts

## The precious craft design.

Folk art and craft design have been around for centuries and have never threatened or competed with mass production.

An explanation to this affection through time for craft design could be that people have a hand in the creation and thereby have a deep understanding of the objects.

## The objects are expressing creativity and represents personal associations.

This understanding is valued above function and appearance and could be something to consider when aiming to design objects able to communicate individuality.

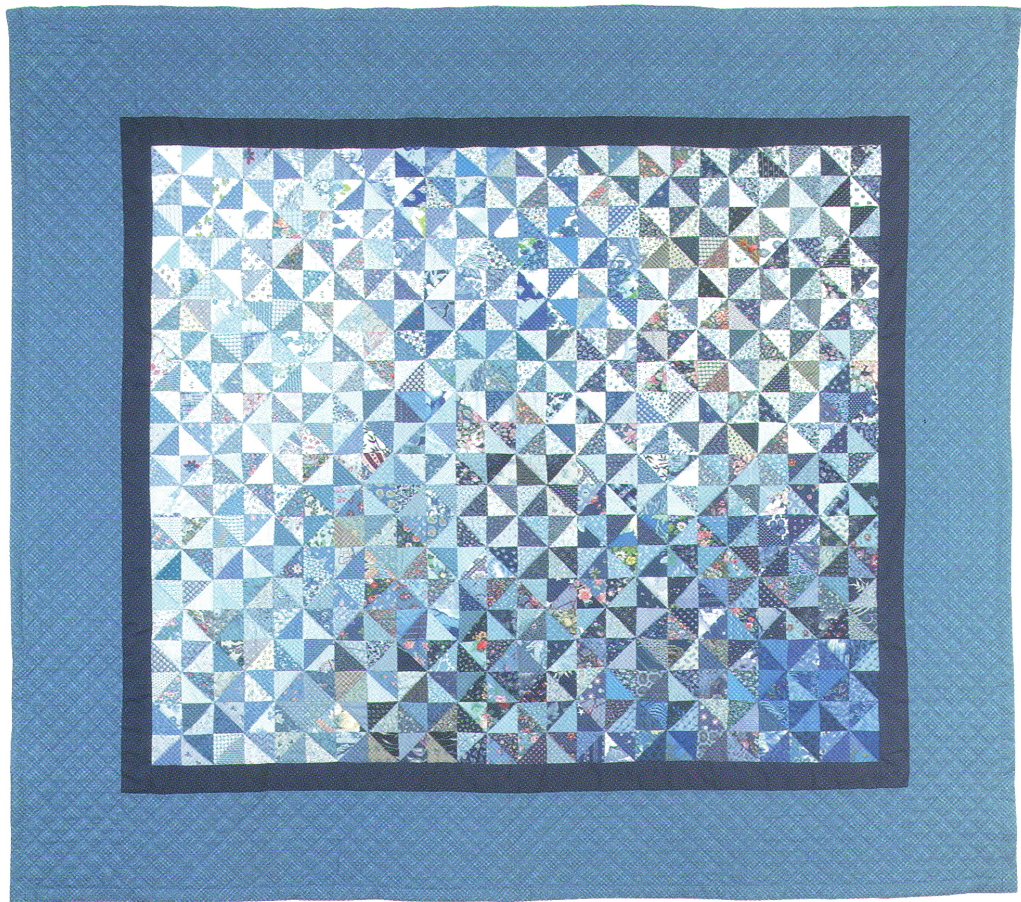
An example of emotional craft design is handmade quilts. Quilts are traditionally designed and made by women and have not been acknowledged in the histories of art and design, even though the artistic skills needed are as advanced as in any other design genre.

*- Is it possible to express my own design heritage in this project, by looking for inspiration in useless but meaningful objects that have been in my life since as long as I can remember?*

*- Could this create a greater meaning and enhance how I value the outcome of the project?*

I have a personal relationship towards quilts since it was my grandmothers greatest passion when she lived. I therefore believe that quilts represent a great part of my own design heritage even though I never found the actual sewing part interesting.

Therefore I found inspiration in pattern making and colour fitting from quilts and quilting tradition for this project.



# Aesthetics by evolution

**Creating an emotional tie with an object based on knowledge of the human beings common design heritage.**

*- Are there some shapes, patterns, textures or other elements that can be recognized and appreciated by most people, no matter background or context in which they are presented in?*

*- Do all people have a common cultural heritage regarding aesthetics and positively interpreted shapes and textures?*



According to Donald A Norman in the book *"Emotional design – why we love (or hate) everyday things"* \* we are genetically programmed for some things that have an automatic positive affect on us;

- *Bright, highly saturated hues*
- *"Soothing" sounds and simple rhythms*
- *Rhythmic beats*
- *Rounded, smooth objects*
- *"Sensuous" feelings, sounds and shapes*
- *Symmetrical objects*
- *Warm, comfortably lit places*
- *If design is interesting, beautiful or playful, the human being will experience it positively.*

Our positive response to rhythm and rhyme are a part of our evolutionary heritage and constant across all societies and cultures.

There are also some aesthetic attributes that instinctively trigger fears. There are hypotheses that sharp contours are coded in our brains as potential threats, even if these contours belong to everyday objects.

This doesn't necessarily mean that we instinctively dislike objects with sharp contours, because when ignoring our fear for these objects we prove that we have control of the situation which stimulates a positive response in our brains.

\* See references



# Patterns and symbols

**Symbols carry meanings.  
They make abstract concepts,  
emotions and beliefs more  
understandable.**

*- How could symbols, patterns and structures be used in design in order to evoke emotions and affection in the user?*

The human being has always been looking for patterns that could simplify our interpretations of life. Symbols and their meanings are often passed from generation to generation.

We look for patterns and therefore we find them, we sort everything into structures and lines in order to better understand our surroundings.

The explanation to this could be that there are too many visual interpretations around us everyday that we just couldn't face all of them without simplifying.

*- All of our buildings, symphonies, fabrics and societies declare patterns.*

*- Our actions such as habits, rules, rituals, daily routines, sports and traditions have patterns that reassure us that life is stable and orderly.*





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## Part 3

:“Dear Disaster” - A metaphor to put theory into practise

Investigating the process people have trying to regain trust in nature and process traumatic events after a natural disaster.

A process similar to how I have processed my design philosophy and relationship towards design.



# The way of nature

In order to explain my contradicting relationship towards mass production and simultaneous love for designing new objects I choose a theme that illustrates a similar love-hate relationship;

*- How can a person find love and appreciation for nature again after a natural disaster?*

*- Is it possible to find some attributes translated into patterns or structures that could turn the terrifying into something that emotionally helps people process these events?*

By understanding what defines a disaster I might be better able understanding how the events could be turned into something that also illustrates beauty and fascination to natural forces.



# We created the disasters

**Without people natural disasters would only be a natural phenomena, a hazard that results in a revolutionary change of the surface of the earth.**

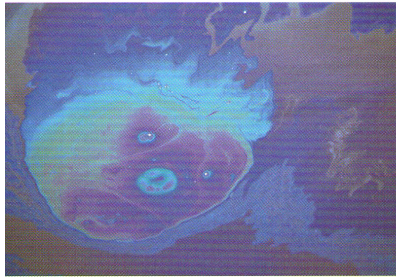
The earth's climate has always been unstable and sea levels have been rising and falling since the beginning of time. These changes do not necessarily happen because of mankind's utilization of nature.

A natural disaster is a consequence when natural hazards affect humans and/or the built environment. Many of the greatest natural events never became disasters simply because there were no people hurt or no one there to report.

The word "catastrophe"  
comes from the Greek word  
"katastroph" which just  
means a big turnover or a  
reversal.

This is the reason I have for not wanting to give the nature the role as an offender and the human being the role of a victim in my project.

Instead I want to illustrate that we are all part of nature; a symbol for a disaster should therefore be a symbol that communicates this relationship in an equal way.



# Understand the incom- prehensible

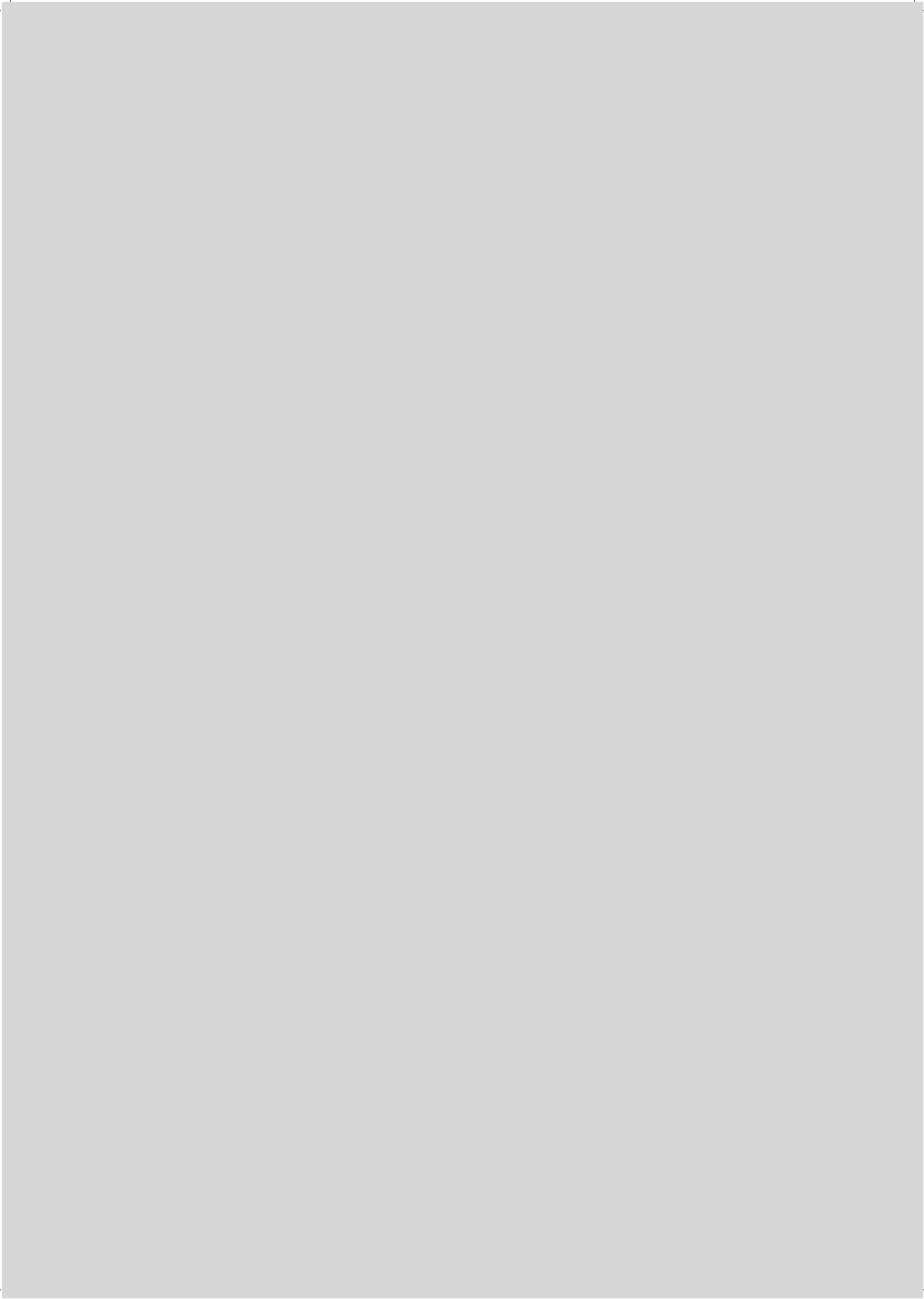
**We translate disasters into human values and symbolic expressions in order to provide us with clues of how we might proceed in life.**

Intuitively we sense that everything that happens to us must have a purpose. Because of the power and because of the destruction of a natural disaster we ask ourselves why it happened and what it meant.

By discussing the psychological processes of understanding traumatic events I wanted to gain knowledge in how and why we interpret patterns, symbols and structures in certain ways and then apply this knowledge on my design to illustrate fascination for natural forces.

*- Could I combine tools used in therapeutic treatment after natural disasters with attributes found during the research that connects people to certain structures and shapes?*





# Processing traumatic events

**Our reactions afterwards  
are very hard to imagine  
in advance.**

A natural disaster or a traumatic event is almost always changing people but they do not necessarily damage them.

The first reaction when facing a natural disaster is often fear or complete panic. Quickly, or eventually, the shock can give way to an overemotional state that includes anxiety, guilt and grief over loss and regressive behaviour.

These feelings are quite soon replaced by the need for someone to listen to the victims' stories of what has happened.

In this project I don't want to illustrate the grieving process as sad, but more as a process of overcoming fear and regaining trust in nature.



# Symbols and Patterns

**After a disaster people use simplified patterns and graphics that more easily could be grasped and provide us with feelings of safety.**

It seems important to translate traumatic events into graphs, diagrams and calculations in order for us to better understand them. The patterns work as something familiar in a chaotic world.

It is very common that symbols arise in media during, and/or after a natural disaster. Symbols which emerge after a natural disaster may appear in a variety of forms such as images, objects, songs, literature and so on.

*- If symbols are needed to cope with traumas, how should these symbols look?*

If you choose a symbol or a monument that is too figurative there is a risk pointing out who's the victim and who's the offender, thereby creating hatred and scapegoats.

If it's too non-figurative there is a risk that no one will understand it.



# Play therapy

After a disaster children get help from a therapy called "play therapy".\*

Repetitive play helps them gain control over their lives and cope with traumas.

One examples of this kind of play therapy is building with blocks. Tearing down and rebuilding will give the child a feeling of power and control.

Puzzles are also used to give a sense of order as the pieces are put back together where they belong.

Adults are often so preoccupied and sometimes frightened by their own reactions and feelings after a traumatic event that they rarely communicate them. But even for adults it is important with psychological processing. You can see proof of this along roadsides where people place flowers, toys or other symbols that marks out a place of accident.

\* See references: Mawson, Anthony R; "Mass panic and social attachment"



# Time and recovery

It takes time to rebuild trust and love in something which meaning you question. Some people never manage to regain trust in nature again after a natural disaster:

The allowance of a process of recovery taking time is important to consider when translating disasters into symbols.

Time could be translated into symbols and patterns in many ways. The most common is time referred to as a cycle, it could be a cycle of birth, growth, death or renewal.

Time is also often  
communicated by repetitions  
and recurrences.

Sometimes you also talk about turning pages in life and move on.





# Why water?

**Most of the natural disasters of the past few years have had to do with water.**

There are many types of natural disasters such as earthquakes, volcanic eruptions, landslides, drought, flooding, cyclones and forest fires. Earthquakes occurring at sea create tsunami waves, which produces a wall of water sweeping over land.

Most deaths of natural disasters are due to drowning and unlike earthquakes the dead from disasters caused by water outnumber the injured.

Though water is also commonly seen as a sign of life.

Without water we wouldn't exist. We are dependent on having fresh water in our everyday lives. Therefore I find it very disturbing when the water turns against us in the shape of a natural disaster.

This is the reason I had to focus on disasters connected with water in this project, since this would symbolize emotions as well as great contrasts between life and death that defines a natural disaster.



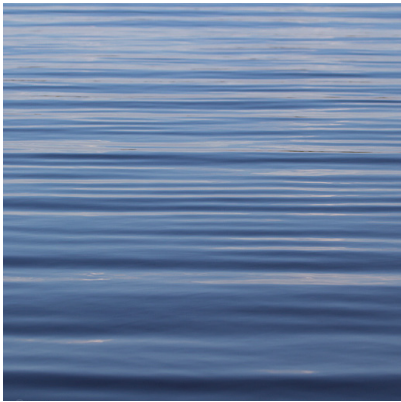
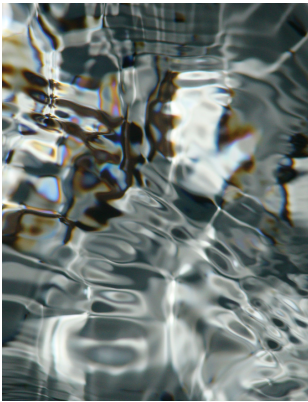
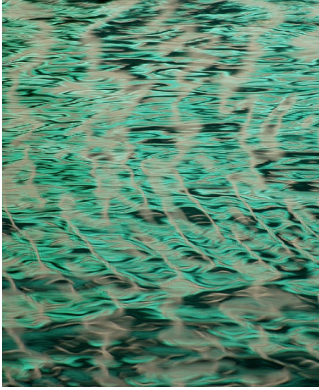
# Colored by water

**Abstract patterns, evolving  
structures and oceans of  
colours.**

Water creates destruction in a manner that  
seems out of control.

This has made water  
traditionally seen as a symbol  
for emotion in human  
culture.

We refer to water in language and music.  
You could for example say that the river  
sings or that music curves, spirals, and flows.



# Patterns of flow

## Ripples and water waves are travelling vibrations.

Flowing water carves curves of a river:

Wind shapes dunes in the sand and ripples  
in the water:

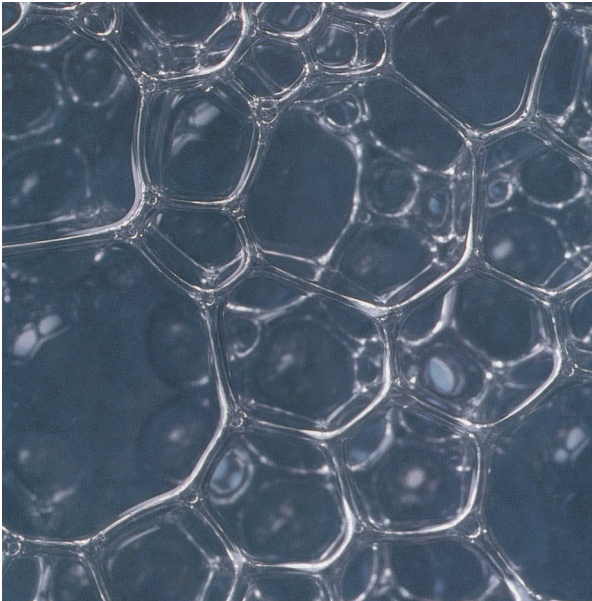
“A ripple of a dune starts with a small  
obstacle – a pebble, a stick, or a footprint” \*

Rivers and streams rarely run straight. The  
water wanders, looping from side to side.

The windward side of dunes slopes where  
one side drops off sharply and form a steep  
angle.

When mud is cracking of  
drought it produces a similar  
three-way pattern than for  
example water bubbles and  
snakeskins have.

\* See references: Murphy, Pat;  
“By nature’s design”









## A safe home

**In a time of natural disasters trends arises in trying to make the home feel safer. Often natural materials become popular such as leather, wood, metal or other raw materials.**

Memories are often evoked by small keepsakes from the past.

Except from choice of materials there are a few other things in a home that I believe to be more connected with safety than others;

- *Light*

Light has always been connected with emitting hope or safety.

Light is also something that the human being almost seems obsessed with, especially when the light is carefully arranged and not completely random. Some say that this is because we are looking for patterns representing the constellations of the stars in the sky.

- *Cabinets, boxes, wardrobes and other closed objects*

Storing precious things inside a cabinet or a cupboard that keeps your possession safe behind a closed door is also something I believe to be connected with safety.



# Part 4

## : Realization

The process of realizing "*Dear disaster*" by building prototypes.

The total time spent in the workshop was 14 weeks, where the first 4 weeks mainly involved experimenting with sketch models and patterns/structures trying out the ideas.

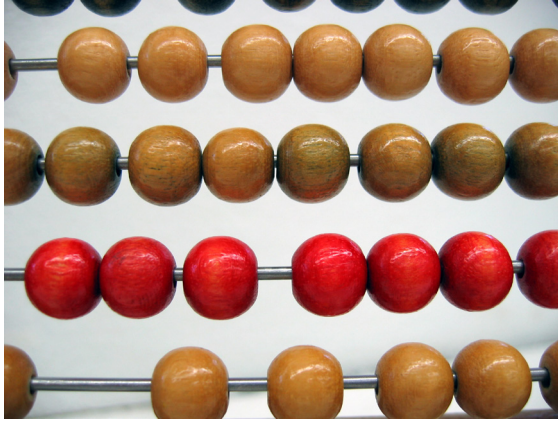
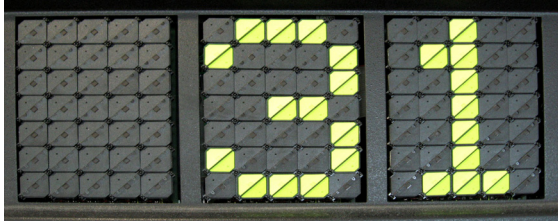


# Cabinet: First ideas

After briefing the broad research sketches of structures and patterns that could represent the conclusions was being made. The decision was to make a cabinet and a lamp, primarily to symbolize safety.

The wooden structure of the cabinet should be moving, created by a pattern that is tactile, involves the user and allows changes in its appearance.

Inspiration was drawn from football games, abacuses, flip dots, dominos, puzzles and moving board games.

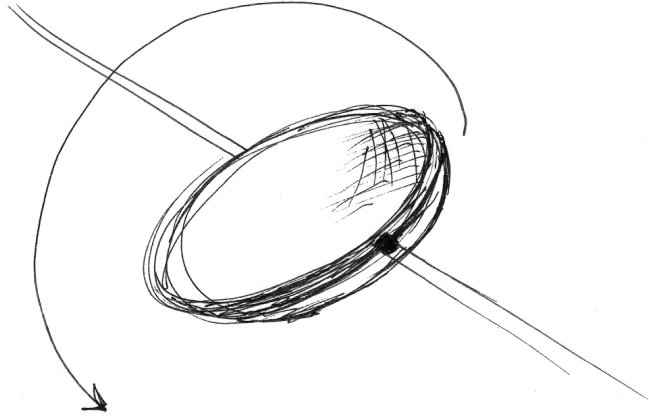
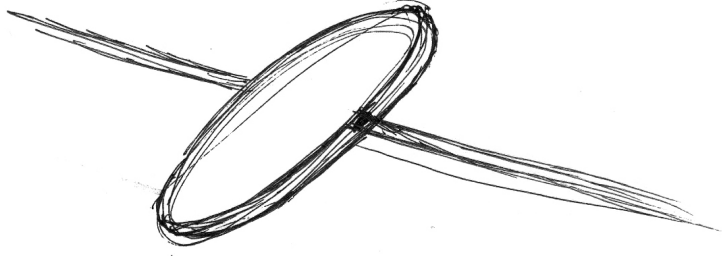


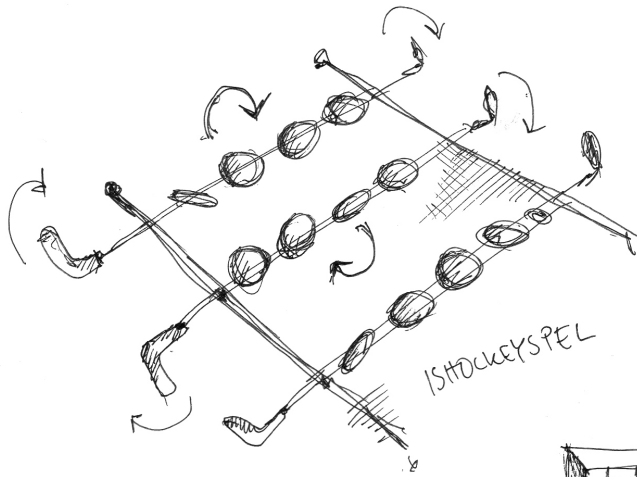
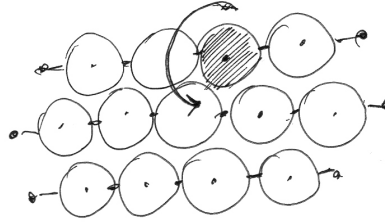
The moving structure should preferably be on the door; then the frame of the door would work similar as a frame for a painting where the pattern is the painting created by the user.

The function of the structure would only lie in mentally pleasing the user by representing his/her personality, feelings and personal imprints.

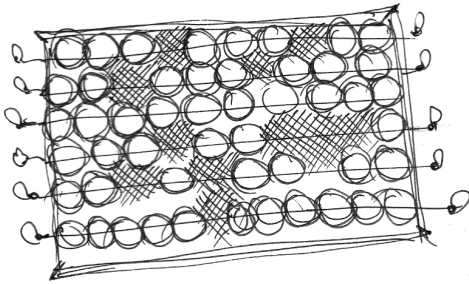
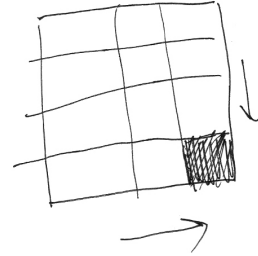
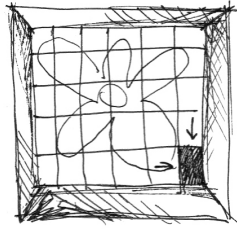
I had in mind a structure that could be turned, where one side had colors on it and the other only wood. The wood would then represent drought and the colors flowing water.



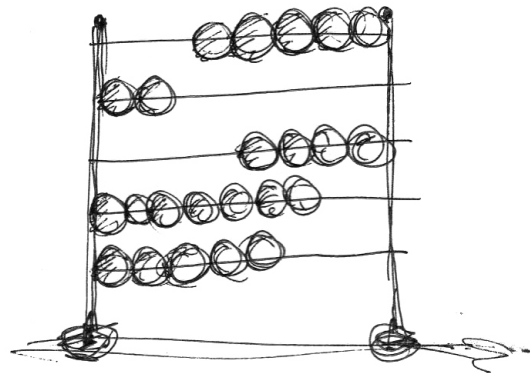




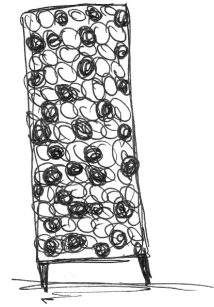
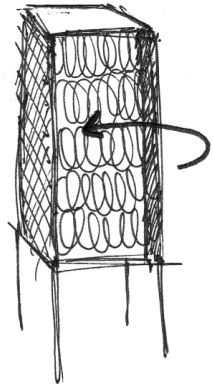
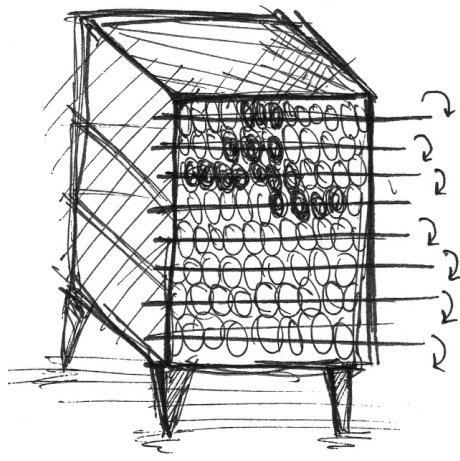
FLIPDOTS!



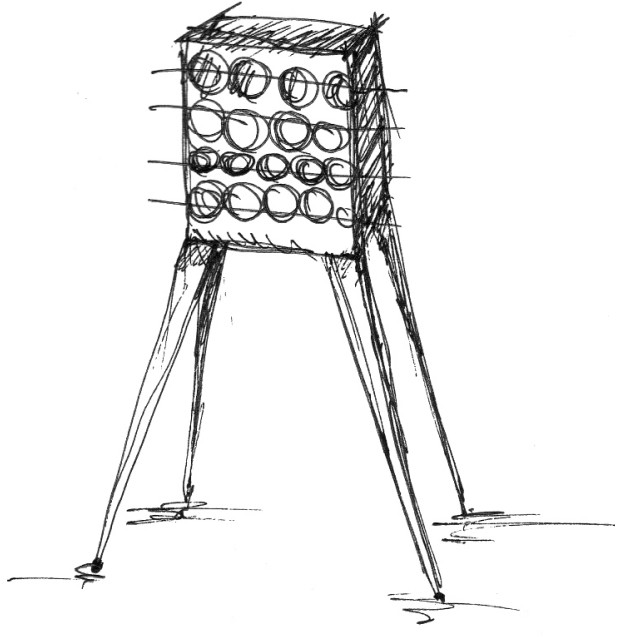
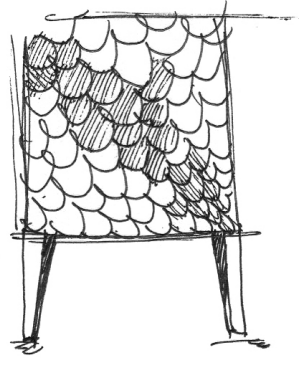
KULRAM



FLOOD!



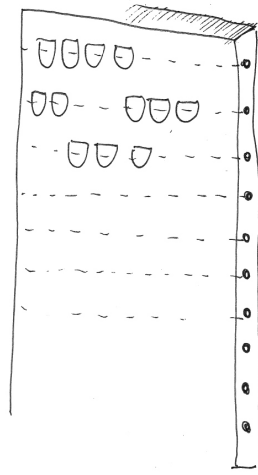
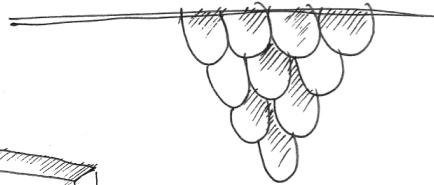
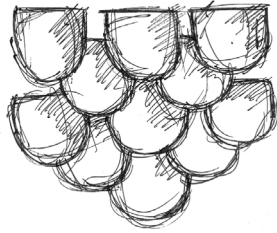
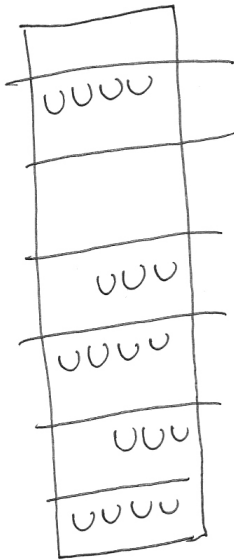
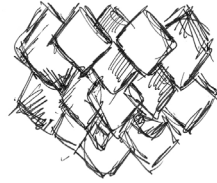
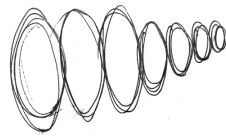
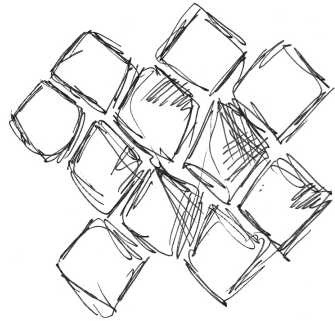
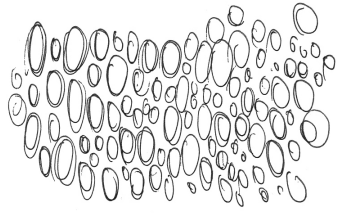
EARTHQUAKE!

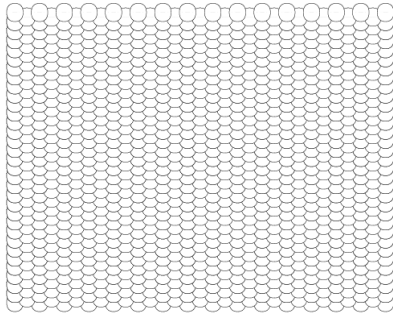


# Structure, pattern and testing ideas

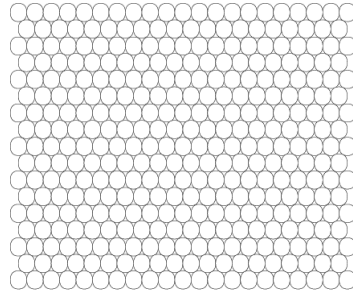
After deciding for a structure based on the same structure water bubbles and cracking mud have, further experiments with the possibilities of this pattern was investigated in order to develop it into a three dimensional structure.

Several sketches was made in illustrator and with cardboard scales to find out what creates an interesting pattern and how it could be put together in order to make a structure that allows interpretation in various ways.

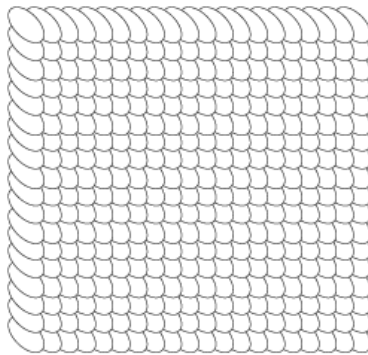
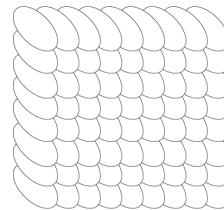
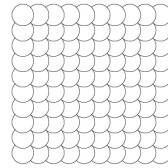
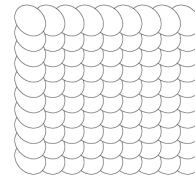
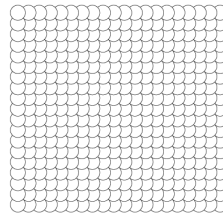
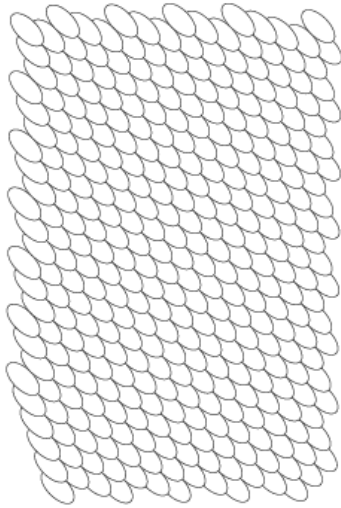


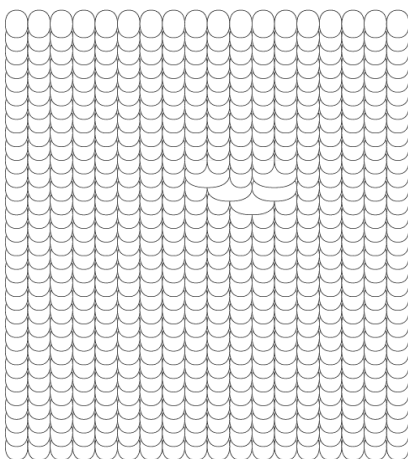
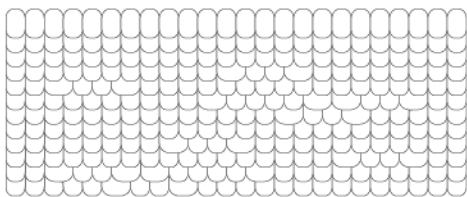
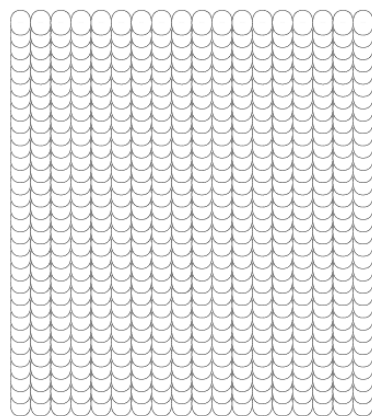
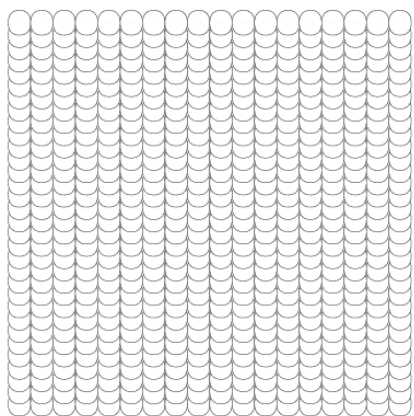


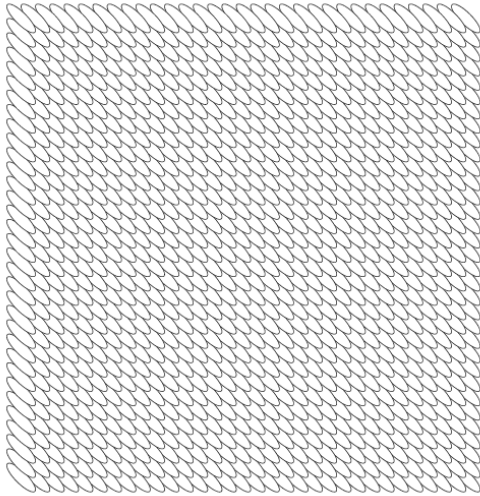
Kort ellips  
1/2 mellanrum



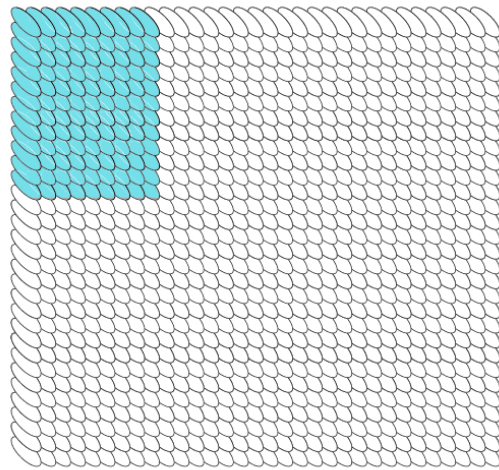
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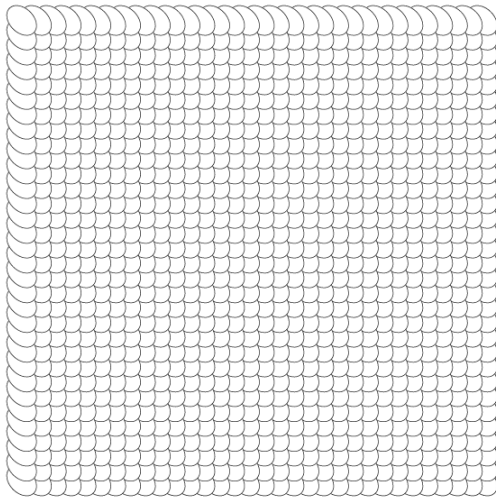




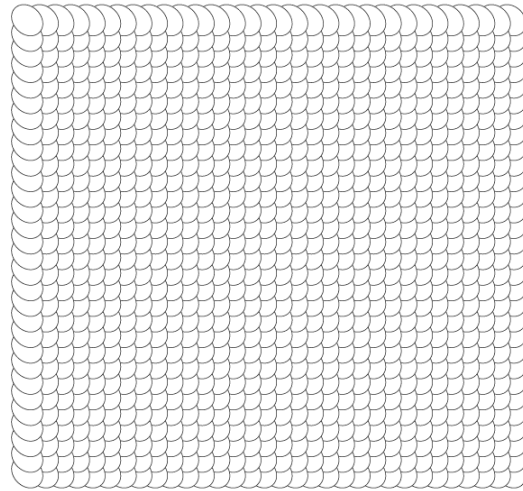
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cirkel 40%

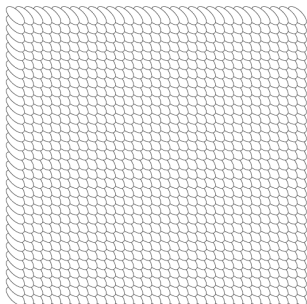


cirkel 70 %

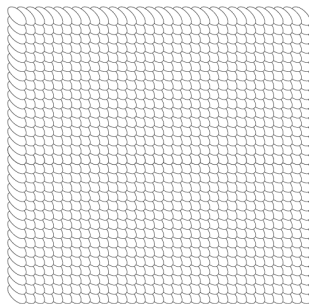


cirkel 80 %

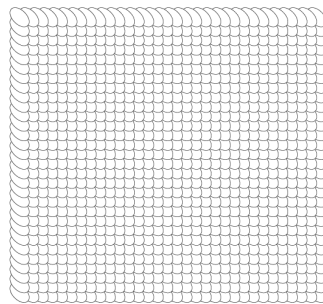




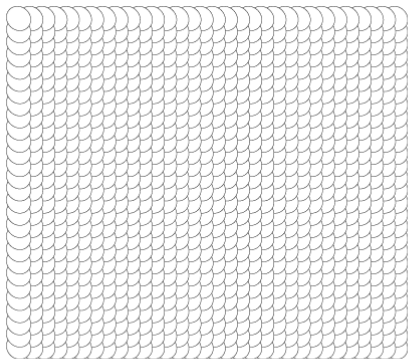
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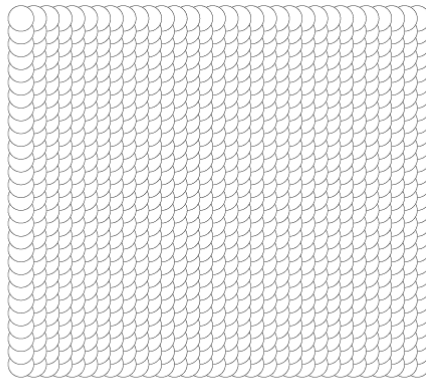
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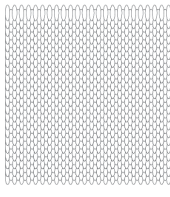
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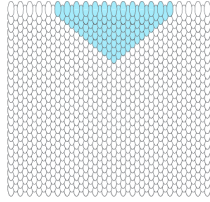
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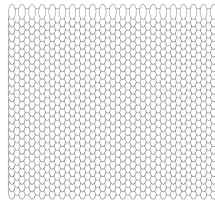
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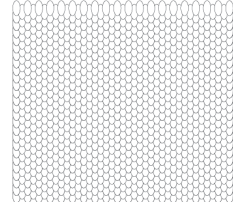
circle 30%  
1/2 melanum



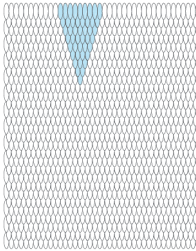
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1/2 melanum



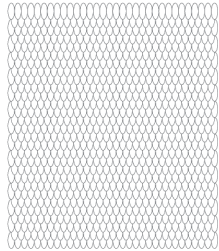
circle 45%  
1/2 melanum



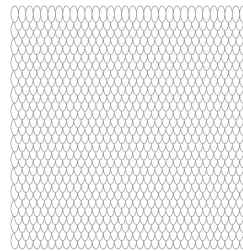
circle 50%  
1/2 melanum



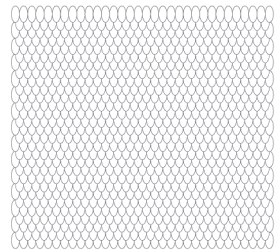
circle 30%



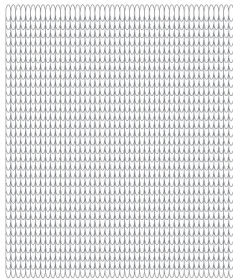
circle 40%



circle 45%



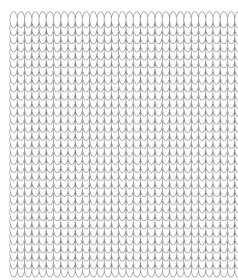
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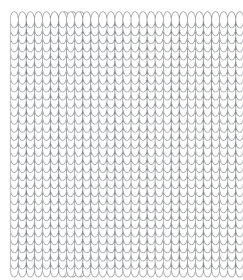
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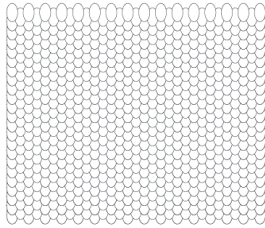
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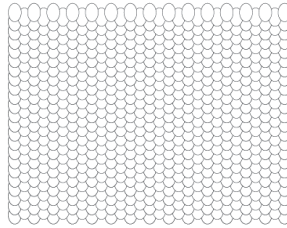
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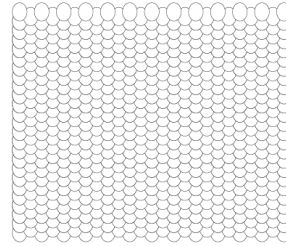
circle 50%



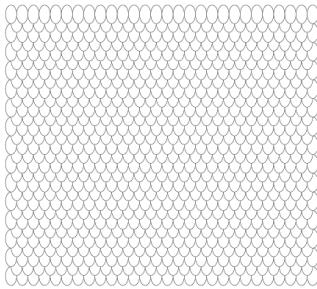
cirkel 60 %  
1/2 meander



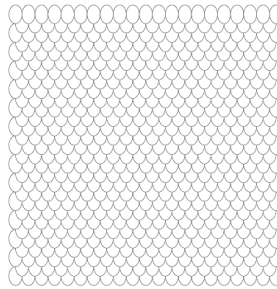
cirkel 70 %  
1/2 meander



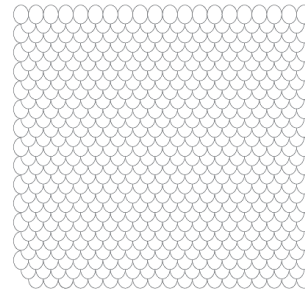
cirkel 80 %  
1/2 meander



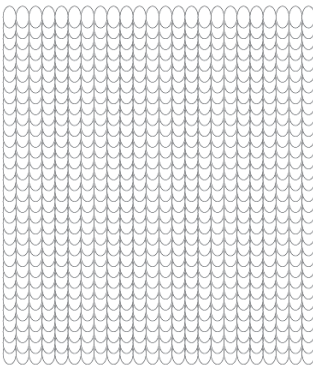
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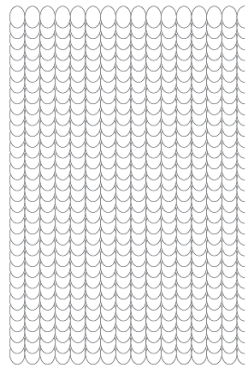
cirkel 70 %



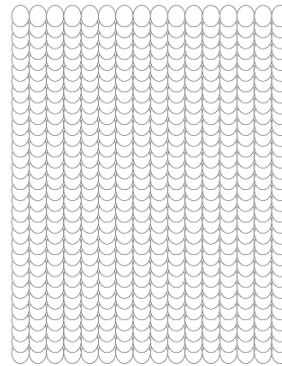
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cirkel 60 %



cirkel 70 %

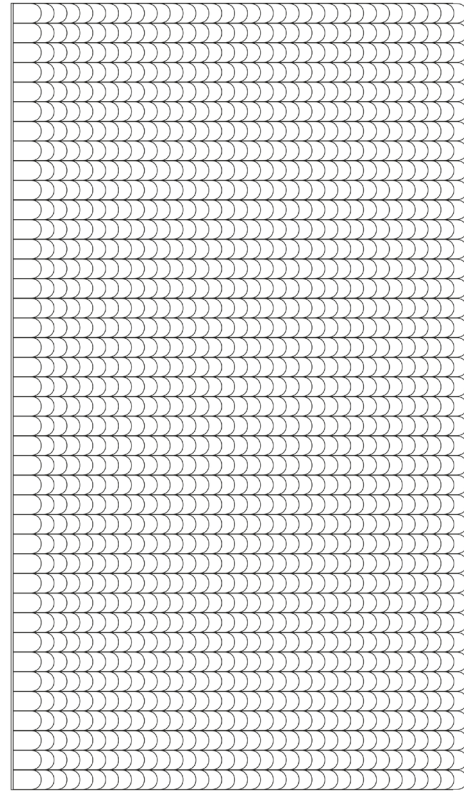
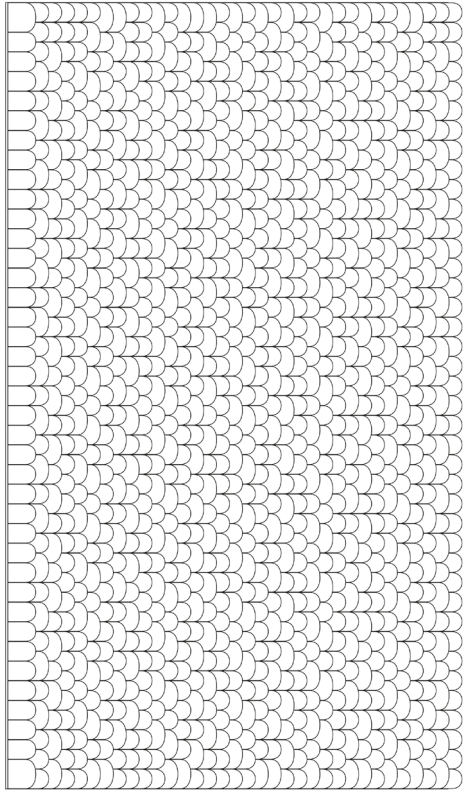


cirkel 80 %

At the same time sketch models was laser cut and the technical issues regarding a moving structure was investigated. *(Please see following chapters for more detailed construction research).*

Working simultaneously with this for a couple of weeks a pattern that could work for the door was developed.

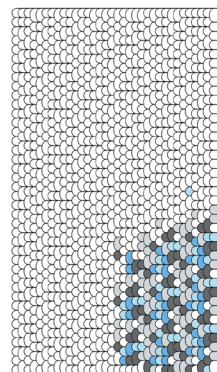
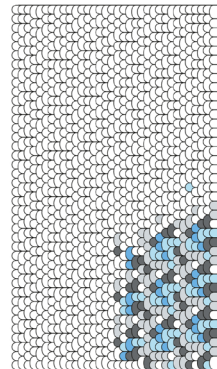
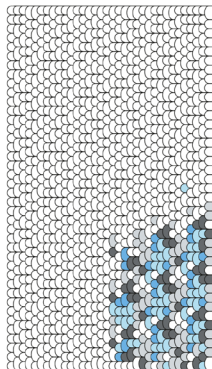
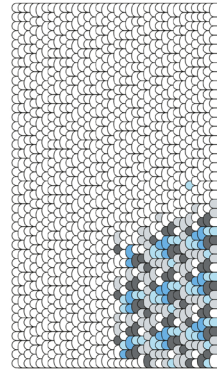
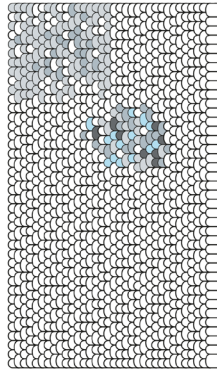
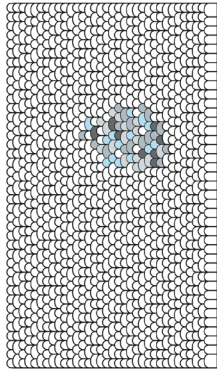
The scales have two different sizes that creates a pattern that seems to be random but is based on a controlled method.

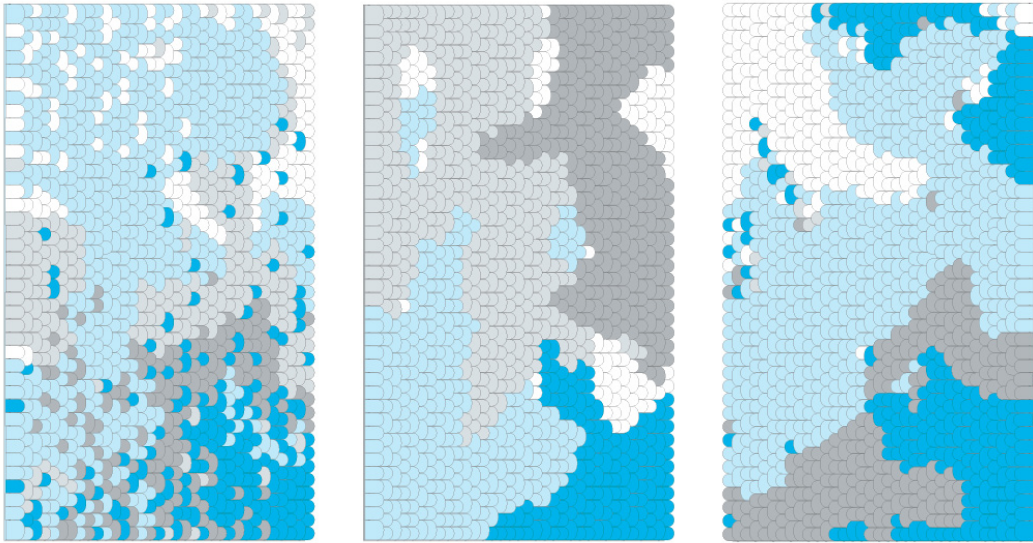


I had in mind a pattern that should be interpreted as moving and unstructured, representing flowing water. At the same time the pattern should be completely decided and controlled by me.

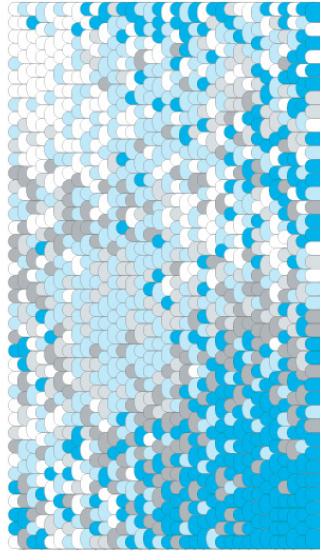
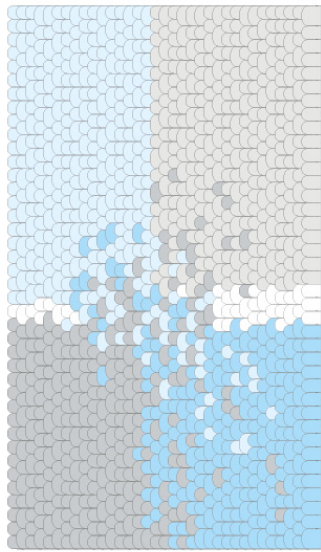
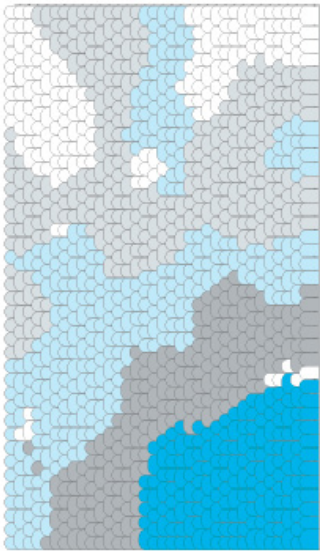
Inspiration was drawn from a gradient technique used on quilts.

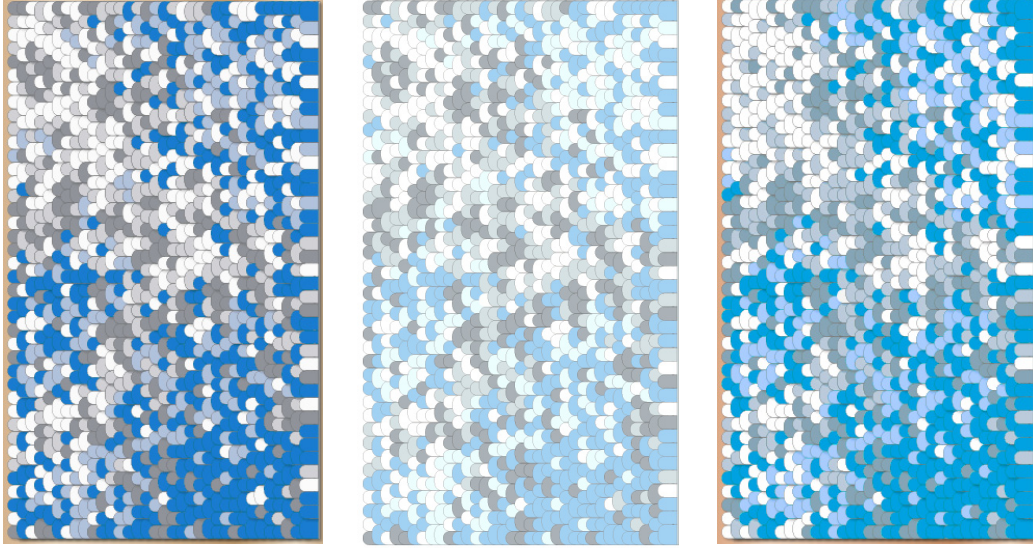
The decided pattern is based on a diagonal gradient where one corner is more monochrome and the other mainly blue. Five different colours are used, light blue, clear blue, light grey, dark grey and white.



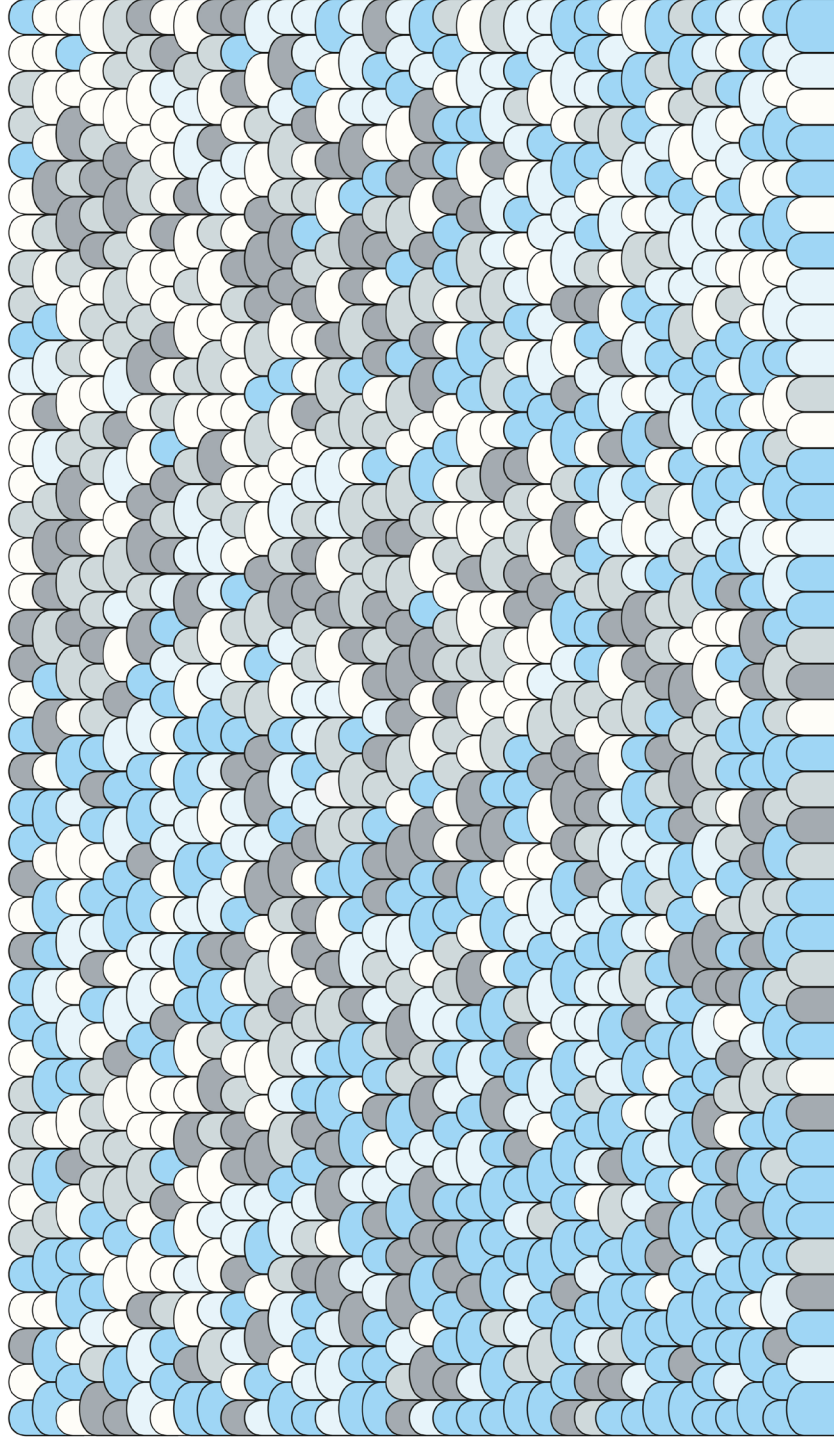




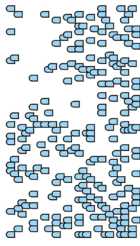




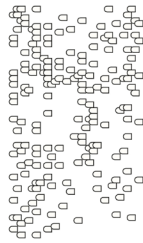




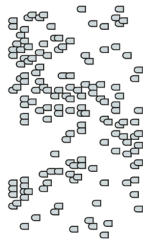
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182



146



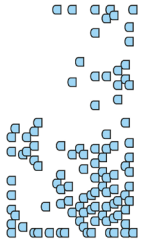
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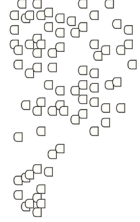
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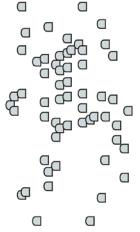
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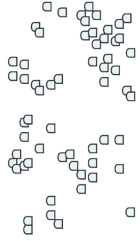
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58



60



56



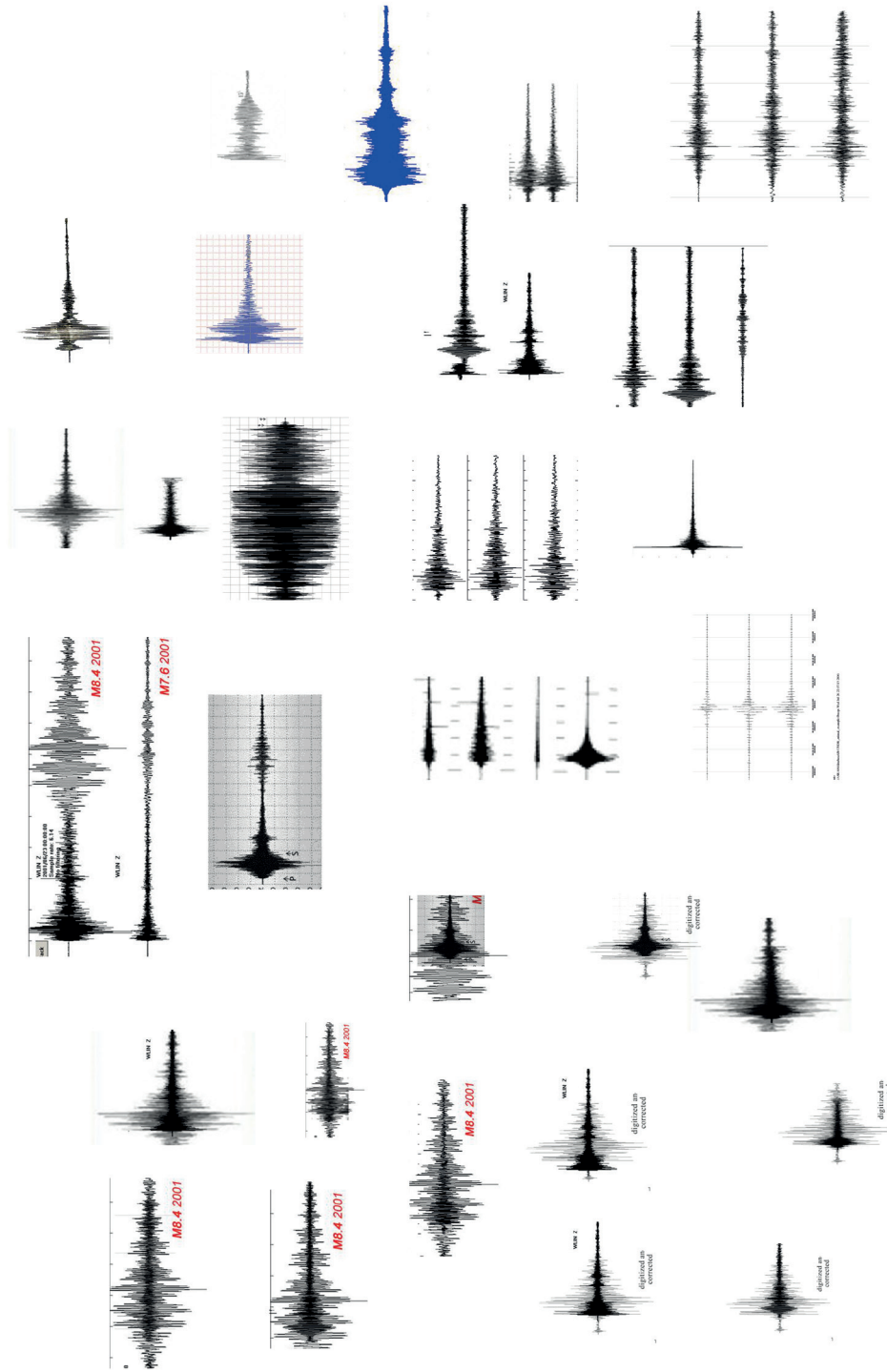
# Lamp: first ideas

For the lamp I had in mind a structure that was connected with water as well as earthquakes. I wanted to use rhythm and vibrations from earthquakes, that looks like travelling vibrations in water.

In difference to the moving structure on the cabinet this structure should be static but still give the impression that it is changing and moving.

Inspiration was drawn from different seismic scales which is a graph measuring vibrations. A geophysicist was visited and a machine measuring the vibrations and translating them into graphs in the computer was used as inspiration.

From these graphs the experimentation with shapes and three-dimensional structures emerged.



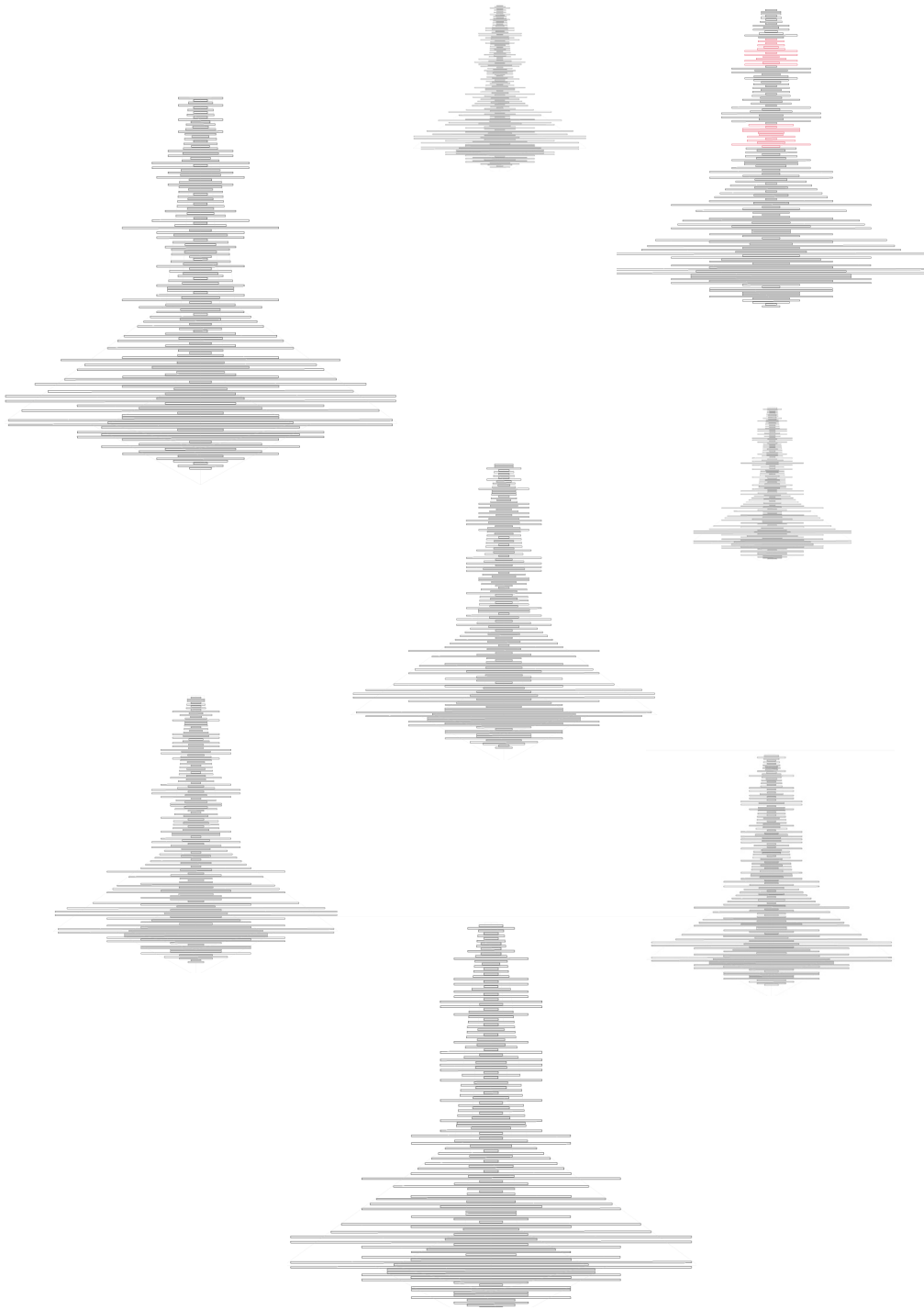
After analyzing the graphs it was discovered that all of them measured a pre-quake before the great "earthquake". It was also learned that the measure of the graph was dependent on the distance to the origin of a quake.

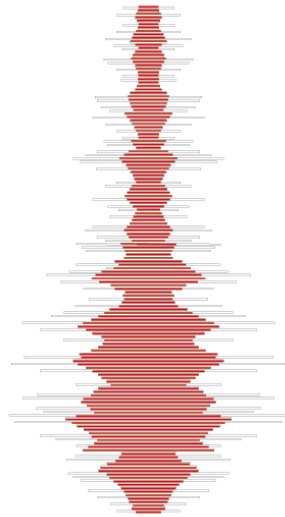
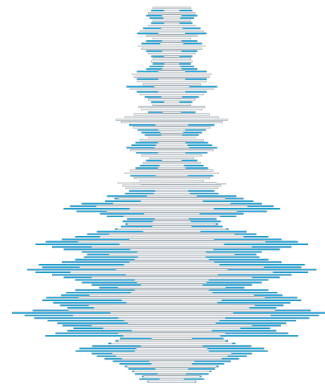
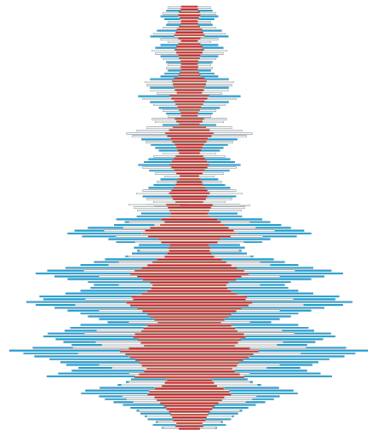
The idea came up of trying to merge different graphs, a small quake together with a great. Seen from the side it then would be possible to distinguish two different shapes since the human being are excellent in connecting lines into pattern.

The small shape would represent being far away from the origin of the quake, and by changing perspective while looking at the lamp the user could decide when wanting to face a traumatic event or when to be far away from it.









# Making the prototypes

## Cabinet: how to tighten 34 “strings” with precision.

Inspiration was gathered from different methods used today such as tensioning piano wires in pianos, guitar strings, harp stringing, the tightening of art frames and bicycle spokes amongst others. There were different requirements that had to be discussed in order to find out which method that could be developed further:

*- It has to be possible to loosen up and tighten the wires also after the frame was put together*

*- The wires can't be thicker than 1 mm*

*- The construction has to allow fastening the ends of the wires in a hidden though still very resistant way that could stand the force of tightening*

*- If scales brake it has to be possible to take the frame and all the small pieces a part in order to fix them*

*- The wires have to be completely steered and straight when tensioned*

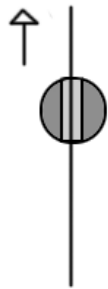
*- The wire has to be very tense and straight and should stand a lot of tensile strength in both directions. If someone leans a hand or an arm on the cabinet door they shouldn't brake or bend/buckle the wires*

By discussing these restrictions three different suggestions of what kind of wire to use came up:

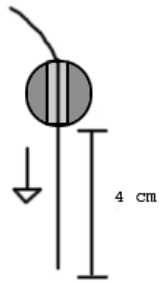
- Piano wire

- Wire

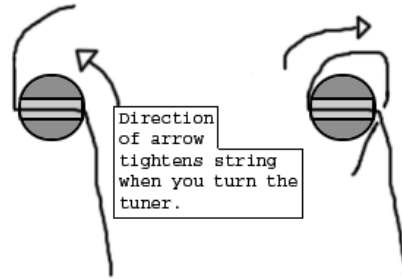
- Stainless steel rods/Steel rods



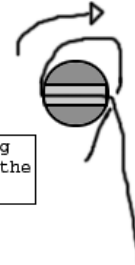
1. Pull string tight through tuner hole.



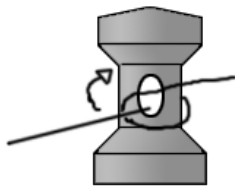
2. Pull back about 4 cm (1 1/2") of string.



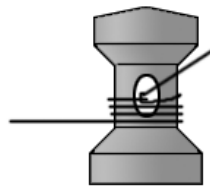
3. Make a kink in the string.



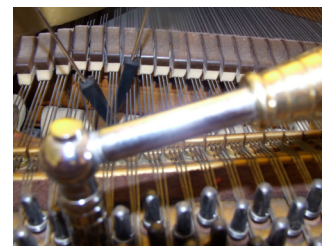
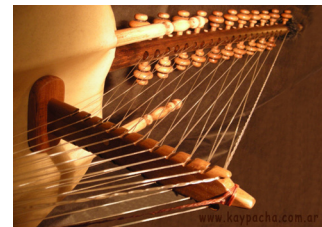
4. Take the end of the string around the tuning post and put the string under itself.



5. Pull the string over itself and pull it tight. This locks the string in place when you start winding the slack around the tuning post.



6. Done! You get 2-3 neat windings when you're in tune and the string is locked against the post. Now just stretch the strings, adjust intonation and play!



After some experiments it was discovered that pianowire would stand the force of tightening best and would therefore be the best alternative to use.

Though it was also noticed that there were different kinds of piano wire, some wires couldn't stand the small bending of the ends and cracked. The guess is that the one that cracked had more stainless steel in the metal than the other. Luckily two types of piano wires were bought from two different places and because of this the important difference was discovered.

It was also soon discovered that the only way of tightening the wires would be to use a method based on the tightening of bicycle spokes, since the other methods wouldn't be as straight and controlled.

Fellow design student Ola Nystedt was consulted for suggestions in how to transform this method into something that could fit the ideas for the cabinet door. After many discussions and experiments we came up with an idea that worked.

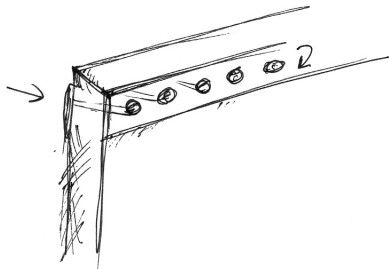
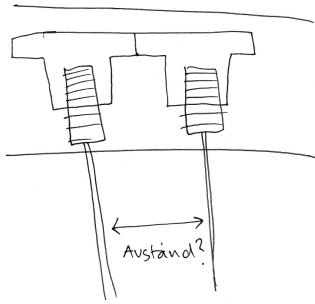
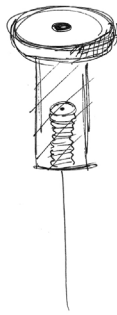
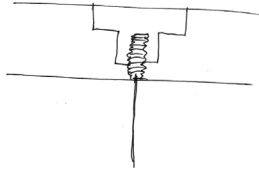
#### Solutions put into practice

In order to put this solution into practice the threaded metal details were manually lathed and 1 mm holes in each of the 68 pieces were drilled.

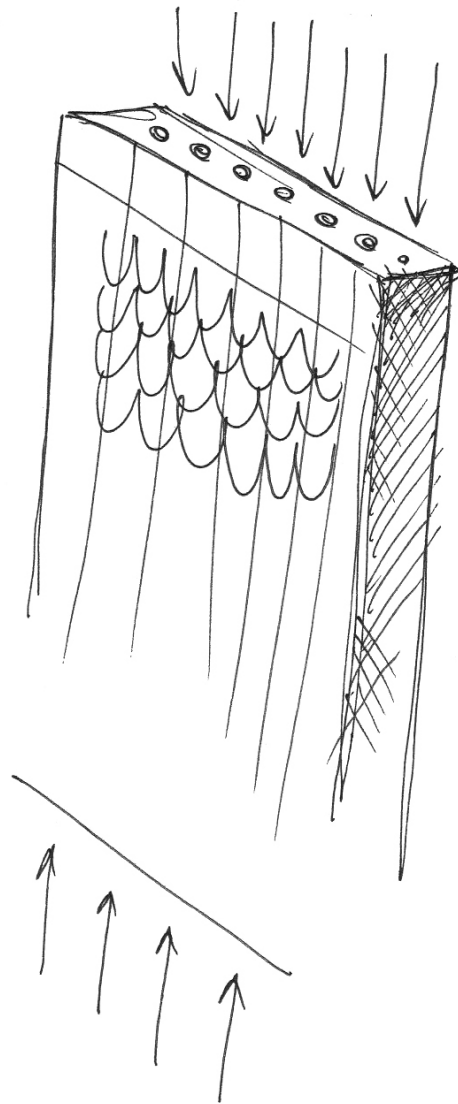
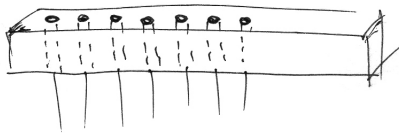
A 1-2 mm slot in each was then manually rasped in order to fasten the bent piano wire.

Also 68 brass pearls were manually lathed to work as the distance between the scales and the frame in the top and bottom.

The piano wires were then bent by hand and fastened in the brass caps after threading the scales and putting the frame together.



CHUCKER?

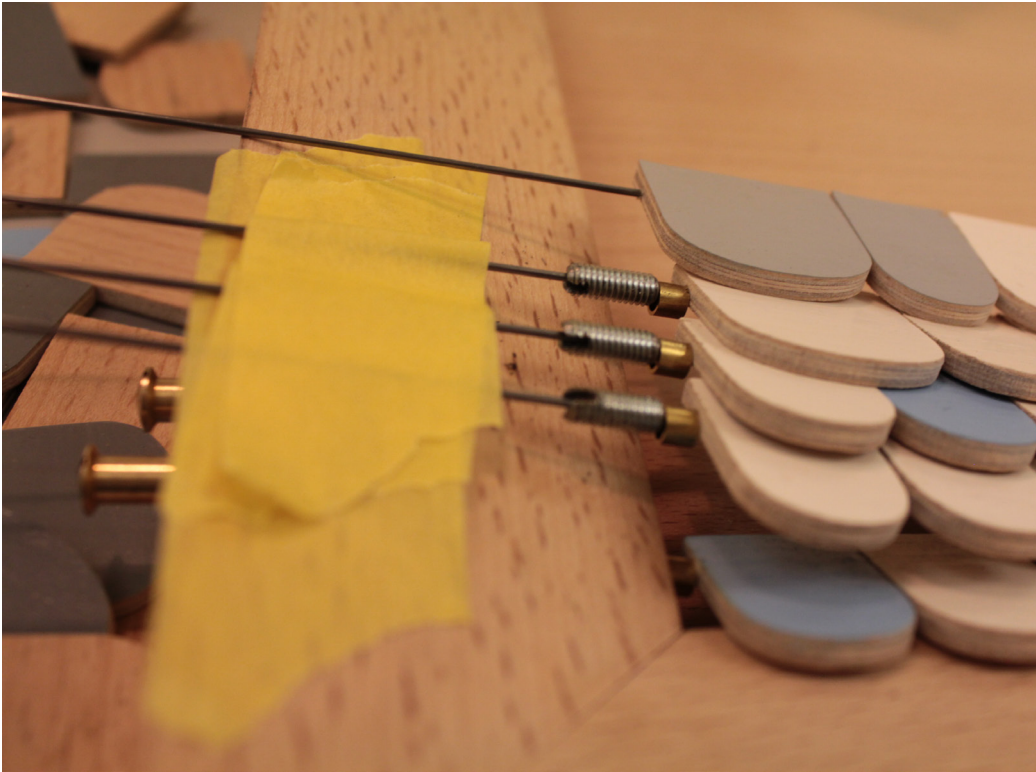
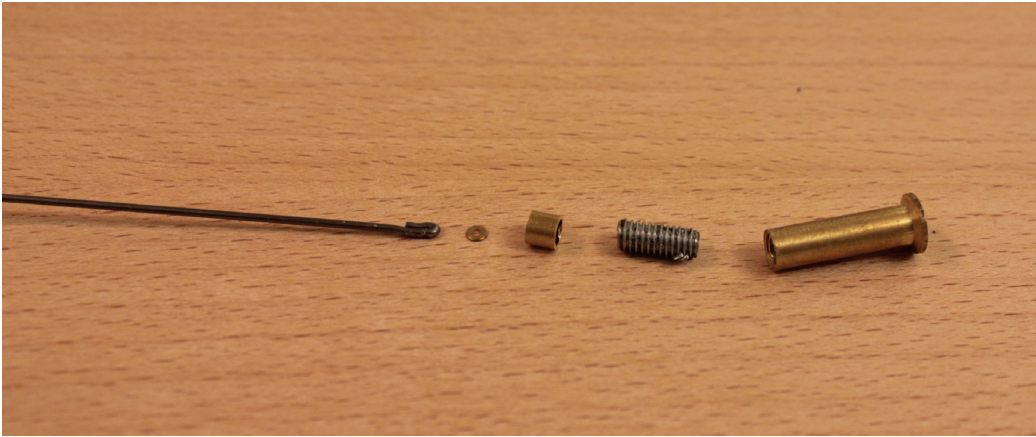


Tensioning a piano wire on a sketch model





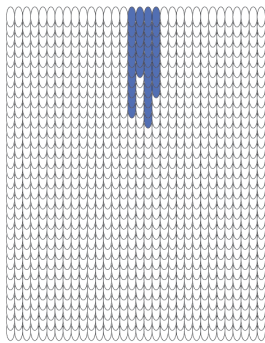
All the parts needed for fastening and tensioning the piano wires in the frame



# Frame structure

The first ideas for the frame was a shape that continued all the way out. Another thought was to have the scale structure diagonal since this could represent movement of water:

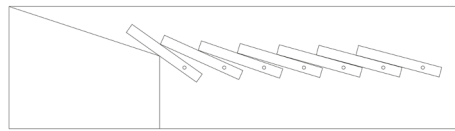
After several experiments with different kind of structures the only structure that would allow the pattern to be interpreted as unstructured and living was based on this method:



cirkel 40%

This affected how the frame would have to look. It was quite soon realized that it would be too complicated to create a diagonal scale structure that would hold the forces of the piano wires, therefore this suggestion was excluded.

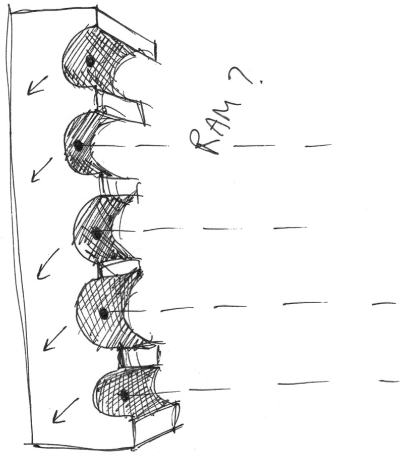
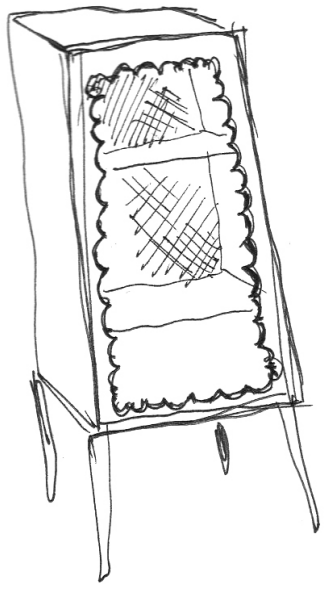
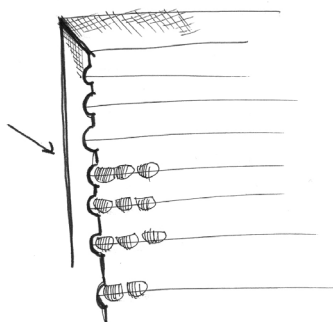
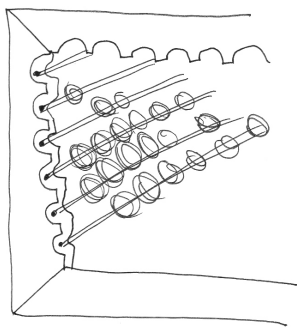
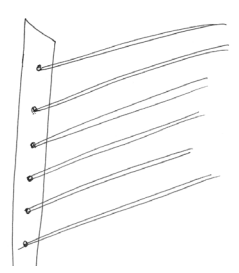
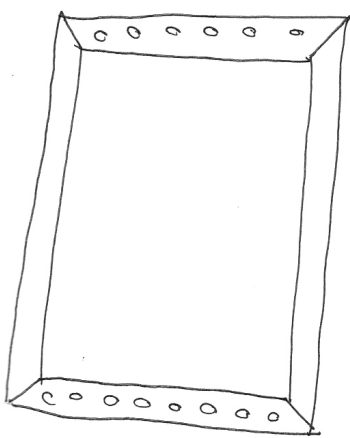
The front of the frame had to have an angle since the scales should be as straight as possible when resting on the edges.



By having the scale structure horizontal and not vertical the problem with gravity that otherwise would have affected the direction of the scales was removed. The horizontality would now make it possible for the scales to stand out in every angle and would make the cabinet door more three dimensional than the previous alternative.

When building the sketch-models it was understood that there was a problem with the brass caps drilling holes in the top of the wooden frame when tensioning the wires. There was also a risk of the wooden frame structure starting to turn by the force when tensioning the wires.

The frame would therefore need some sort of reinforcement in the structure in order to manage the impact of the tightened piano wires.



#### Solutions put into practice

For the top of the frame where the small brass caps goes through the pre-drilled holes a 1.5 mm brass plate was inlayed in order to prevent the caps to damage the wood when tightening the wires. This plate has holes as precise as the holes in the frame, water cut for precision. Later the sides were manually angled so that the plate fitted the milled slot of the top wooden frame part.

Holes were then drilled in the top wooden part and in the bottom part for the piano wires to go through. This was done with a digital milling machine.

80 mm holes was also drilled through the top part of the frame in order to put a 80 mm brass rod in it for stability and to prevent the frame from rotating when tensioning the wires. These inlayed brass rods are covered by the top brass plate and aren't visible after the frame is mounted.



# Choice of wood

After deciding to build and design a wooden cabinet with moving wooden scales, different kinds of wood was investigated.

The wood should preferably have an unusual colour or pattern that could be kept in it's original appearance without treatment. Since the cabinet should be an original piece of furniture, but not an object immediately associated with luxury, this was considered in choosing the right type of wood.

The pale pink colour and freckled appearance of beech caught my interest. The dots in it's structure instead of lines fitted the purpose of the cabinet since lines in the wood would have taken the attention away from the scale structure.

The fact that the wood type is growing wild in Sweden ensured me that this was the right choice of wood for the cabinet.



# 2000 wooden scales

In order to decide the size and thickness of the wooden scales several scales in cardboard was laser cut. These sketch models were based on the first thought of having the scales as a whole oval or circular shape.

After experiments testing the different pattern ideas, shapes and sizes it was clear that there would have to be a distance between the scales. Different ideas were developed such as integrating the distance in the scale itself or adding a small piece of a different material in between them.

It was soon discovered that in order to continue designing the pattern it would have to be decided how to create the holes in the scales where the piano wire would go through.

The wires should be 1 mm in diameter or smaller, and since the scales were many they shouldn't be too complicated to make.

Two ideas for how this could be solved was suggested:

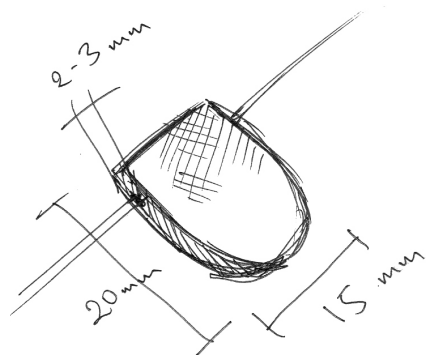
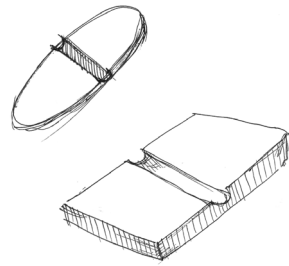
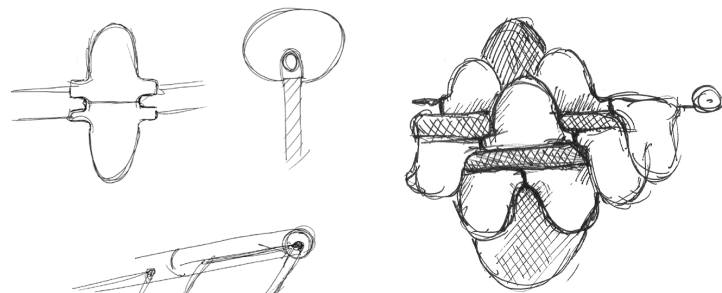
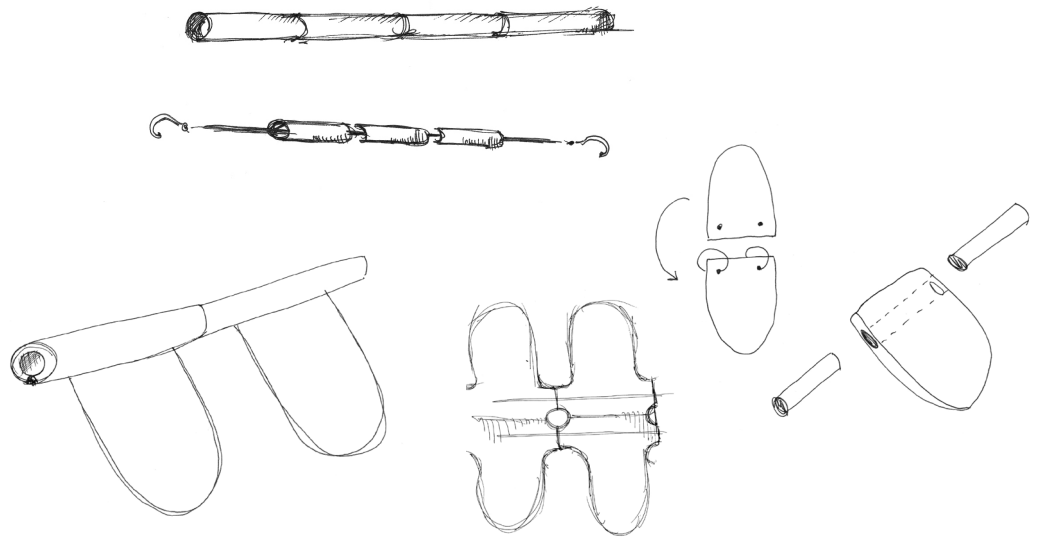
*- Making two shapes of the scale with a milled incision in both that somehow was fastened together*

*- Drill 1 mm holes in each one of the scales*

These solutions weren't optimal and would require a tremendous lot of effort.

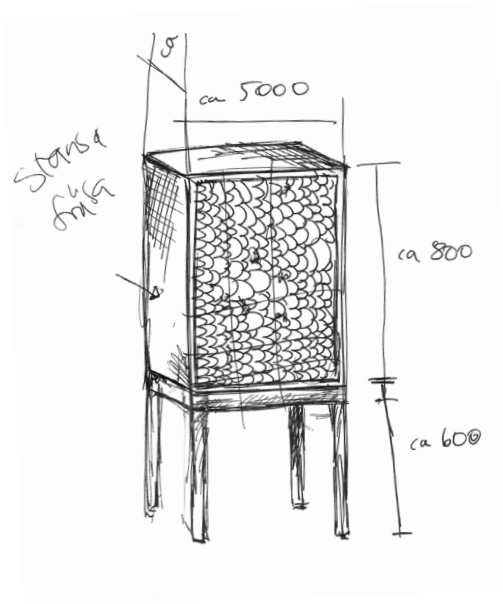
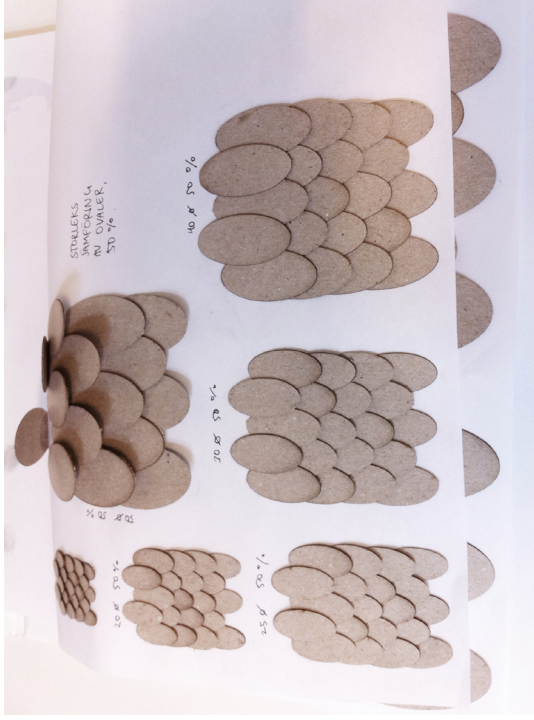
Therefore the carpenter Claes Dorthé working in the school's workshop was consulted for new input regarding this issue.

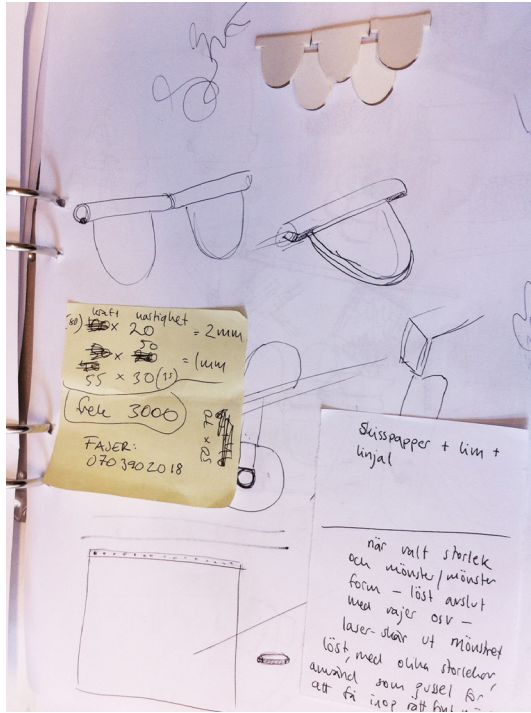




Genomstärning







Together with Claes the idea came up of making veneered plywood where the holes in the plywood was milled before gluing veneer on both sides of it. After checking that beech veneer existed in a thickness of 0.6 mm and was possible to get hold of this solution was decided.

The shape of the scales would have to be changed from a whole oval to half in order for the structure to be easily turned.

It was also decided that distances should be added in between the scales when threading instead of integrating them in the shape since this would make the dimensions of the structure more controllable.

After several trials with the laser cut test scales the size of 3.2 mm thick, 26 mm long and 18 mm wide was decided. 3.2 mm was the thinnest thickness possible to use for the scales since this was depending on the total thickness of 2 mm birch plywood and 0.6 mm beech veneer glued on both sides of it.



# Choice of manufactu- ring process

The starting point for finding suitable manufacturing processes for the scales was seven sheets of veneered plywood with colour on one side that all had to be very precisely cut. Four different ideas of how they could be produced was suggested:

- *CNC-milled*
- *Punched*
- *Laser cut*
- *Water jet cut*

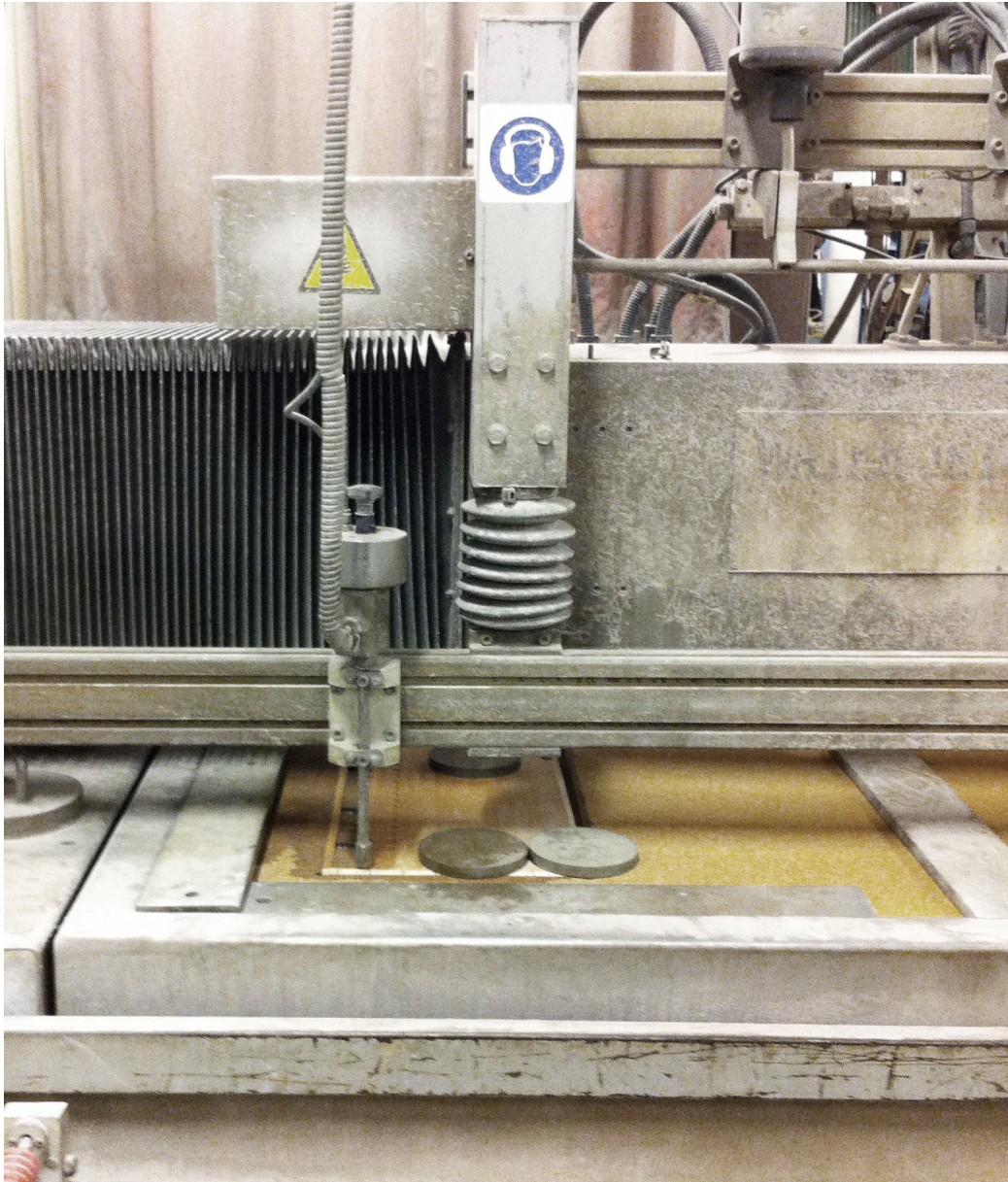
Several companies in southern Sweden was contacted and a lot was learned about advantages and disadvantages of these methods for the purpose of cutting small wooden scales.

The decision not to use punching as a method was made because of three things:

- *The edges of the scales would be quite rough*
- *The scales were too small to fit some companies' machines*
- *The tooling cost would be approximately 6000 SEK, which was over my personal budget*

The CNC-milling companies seemed promising from the beginning though the milling would take very long to finish. But in the end none of them fitted the purpose since the pieces was too small for their machines.

The decision not to go further with using laser cutting was because of the black, burned edges that weren't aesthetically preferable.



The water jet cutting company *Herman Anderssons Plåt AB* in Askeröd, Sweden was then contacted. After discussing the issues in finding possible ways of cutting the scales he suggested that they try to cut them in their machines.

Only water was used when cutting and a small knitted so called “*honey comb net*” and a thick mdf-board was put underneath the scales to prevent them from falling in the water or get destroyed by dirt.

During the first visit a test piece of the veneered plywood was cut in order to see if it worked at all and/or if the presence of water would destroy the veneer.

Many things were realized after cutting the test-scales:

*- The water-based glue used to glue the veneer on the plywood didn't stand the water and therefore the beech veneer started to swell and deformed the scales. A solution to this would be to find a very strong water resistant glue to use instead*

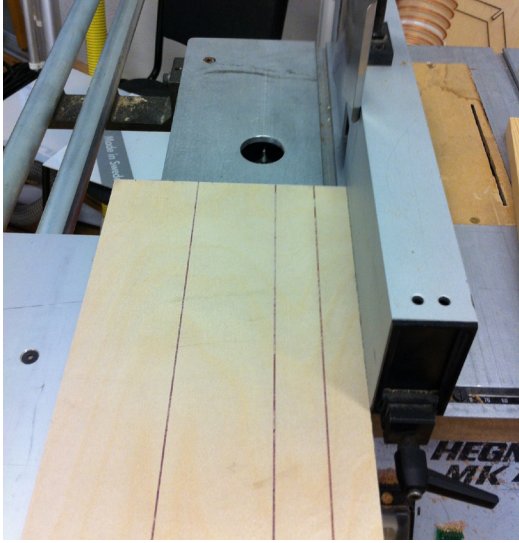
*- The honey comb net and the mdf-board prevented the water from reaching the scales, though it would be even better to put the white spirit based colored side downwards when cutting*

*- Someone would have to stand by the machine the whole time while cutting since the scales started to move and had to be rapidly removed so that they not where destroyed*

*- The drawings for the workshop would have to be constructed so that they later fit the drawings for the water cutting, with margins included for the diameter of the water jet. If the scales would measure 0.2 mm different from the drawing the frame and the cabinet that already was being constructed in the workshop wouldn't fit the scale structure*

The most important thing was to know exactly where to place the plywood in the water-cutting machine and that all of the seven plywood sheets were exactly the same.





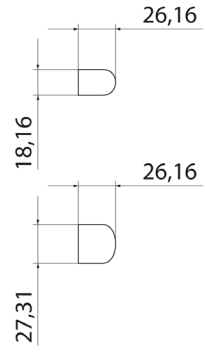
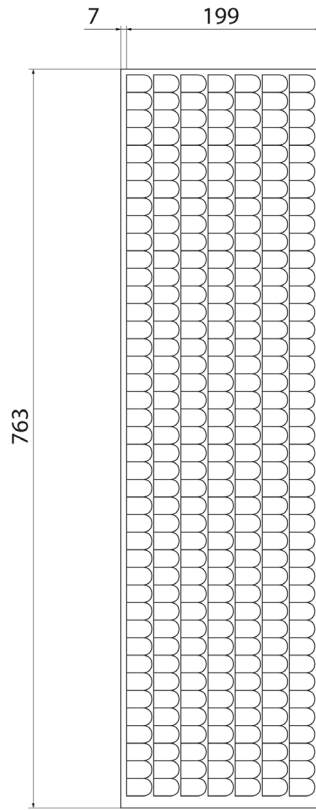
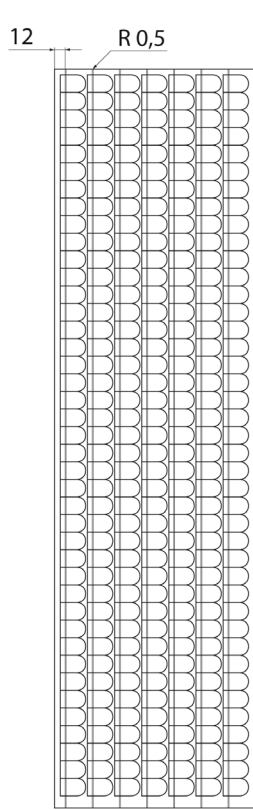
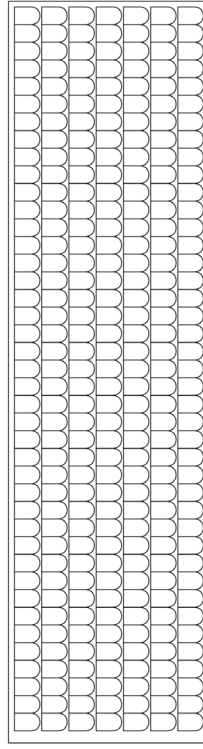
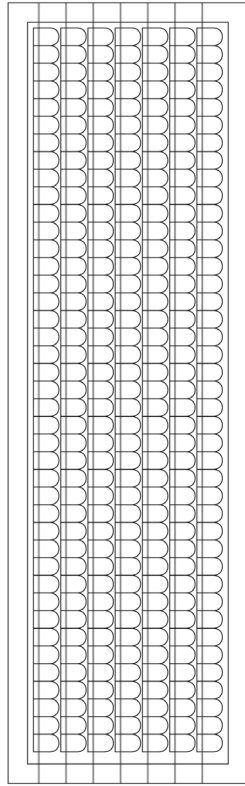
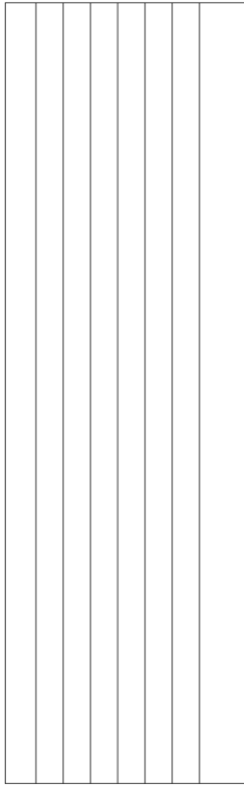
# Veneer & plywood

The drawings was made so that they could be used when making the plywood as well as when bringing the material to the water cutting company.

In these drawings the distance of the water jet was counted with, 0.16 mm, as well as some margins needed in the workshop when gluing the veneer and sawing the edges straight.

These drawings shows what the necessary measures was when starting to saw and mill the seven 1 mm slots in the birch plywood, how much extra material there would be when gluing the veneer and how much of the material that should be removed before the water cutting.

The core piece is in birch plywood with a 2 mm thickness. That means that a 1 mm cutting head was used for milling the slots.



When making this material it was extremely important to get every one of the 42 slots in the right place and all of the seven sheets exactly the same. It took three days to finish the milling. Special tools were made for the 1 mm cutting head.

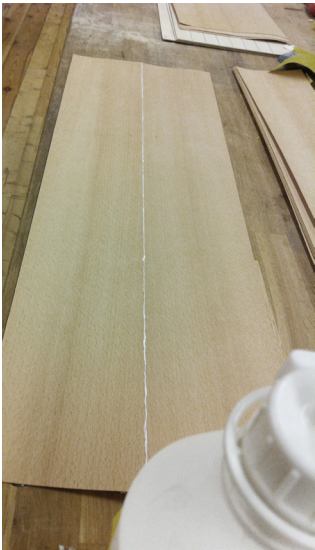
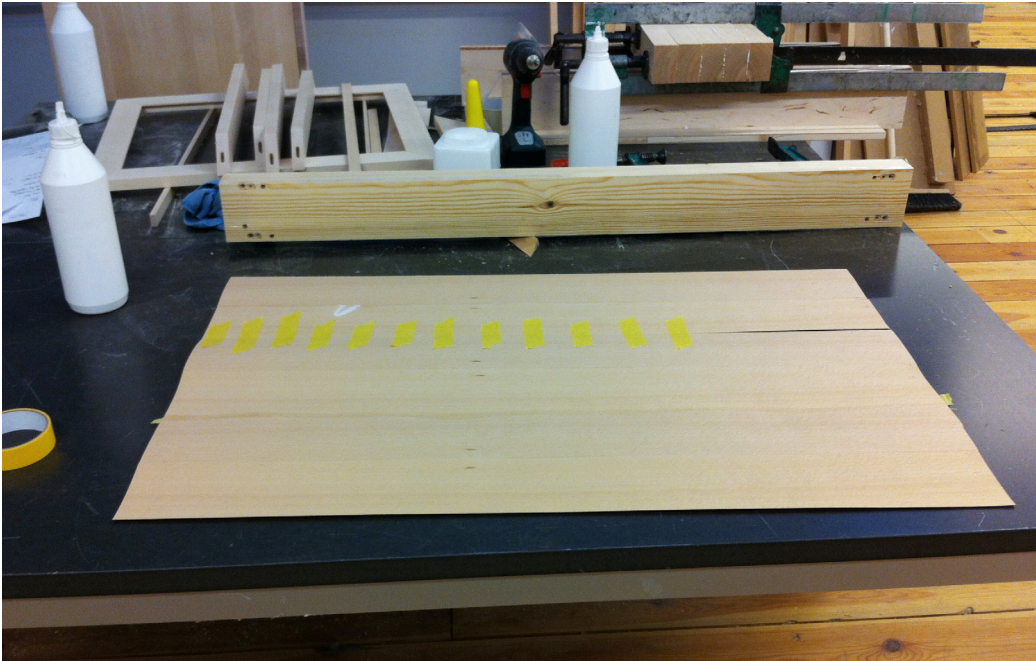
Before the veneer strips could be glued together the edges had to be graded on both sides. After this the strips measured 110 mm \* 1000 mm. They were glued together in order to create larger sheets of veneer by carefully putting masking tape on two strips and force them close together. After this a small string of very water-resistant glue was put on the edges and then the strips were pressed together. This was done repeatedly until there were 14 veneer sheets that fitted the plywood sheets.

Before gluing the veneer on the plywood the milled slots were protected from the glue that otherwise would have filled them. Seven piano wires were covered with water resistant fat and pressed into the holes.

After that a very thin layer of water resistant glue was put on the veneer sheets and the sheets were placed on top of the 2mm plywood core. A lot of pressure was then evenly put on top of everything. After two minutes the piano wires were dragged out from the sides. This was repeated with all of the seven sheets until there was veneer on both sides and holes in the middle free from glue.

Before taking the plywood to the water cutting company the edges were sawed straight and the sheets were checked so that they had exactly the same measurements.

After this the drawings were updated so that there would be no mistakes when cutting the scales.

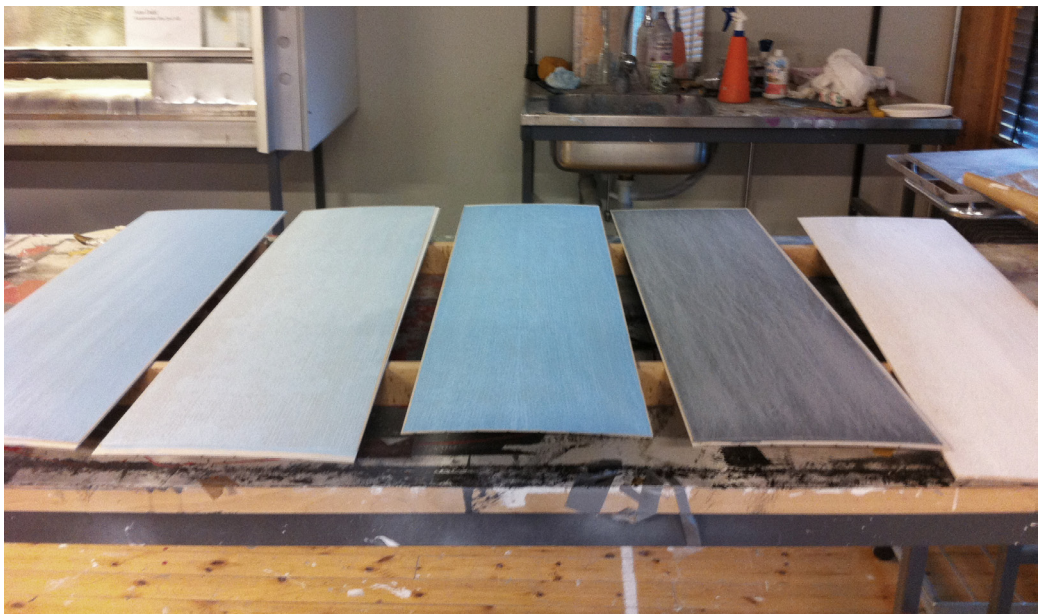


# a complicated world of colors

Thinking of colours and making drawings in the computer is not the same as finding the right colour hue in paint. This was a great difficulty quite soon discovered when facing colour choices.

Over 50 samples of different colour hues were ordered that all had blue, grey and white in common before the right colours was found.

The veneer was painted twice with withe spirit based paint to prevent the water from damaging the veneer.



# Water jet cutting

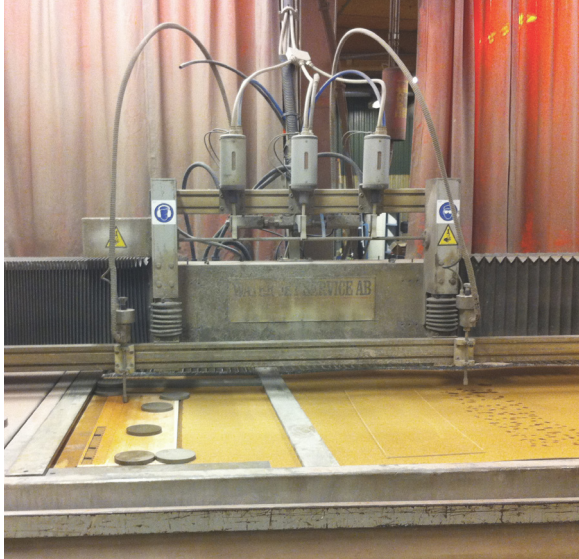
I was welcomed to *Herman Anderssons Plåt AB* in the beginning of January 2012. They helped me make the drawings fit the programs for their machine and explained to me how the machine should be managed. After this I was allowed to use it for 6 hours until all of the wooden scales were cut and control-measured.

The greatest disappointment was that all of the scales from the dark grey sheet either was discolored or broken. Probably the glue on this sheet wasn't spread well enough when making it.

This was fixed by gluing the dark gray scales together by hand.

The scales were then sanded one by one to remove sharp edges that would have stopped them from rotating freely.





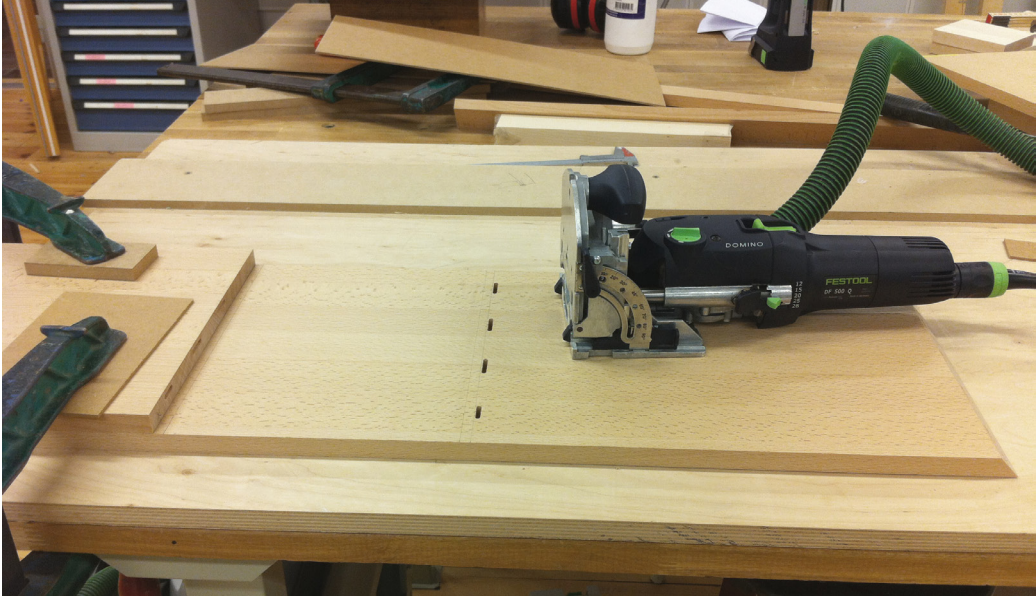
# Carpentry

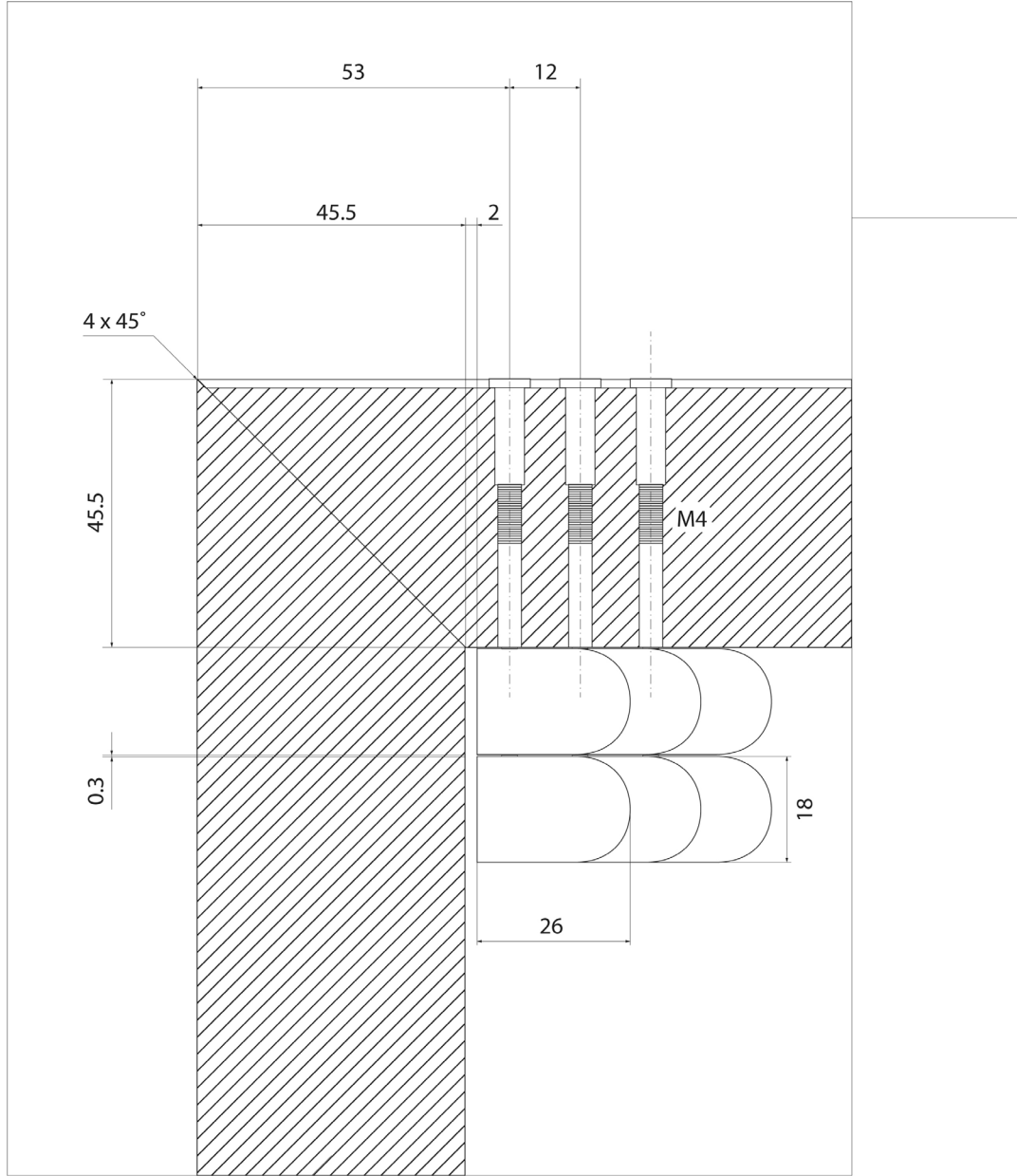
Learning the basics, mentored by Claes Dorthé.

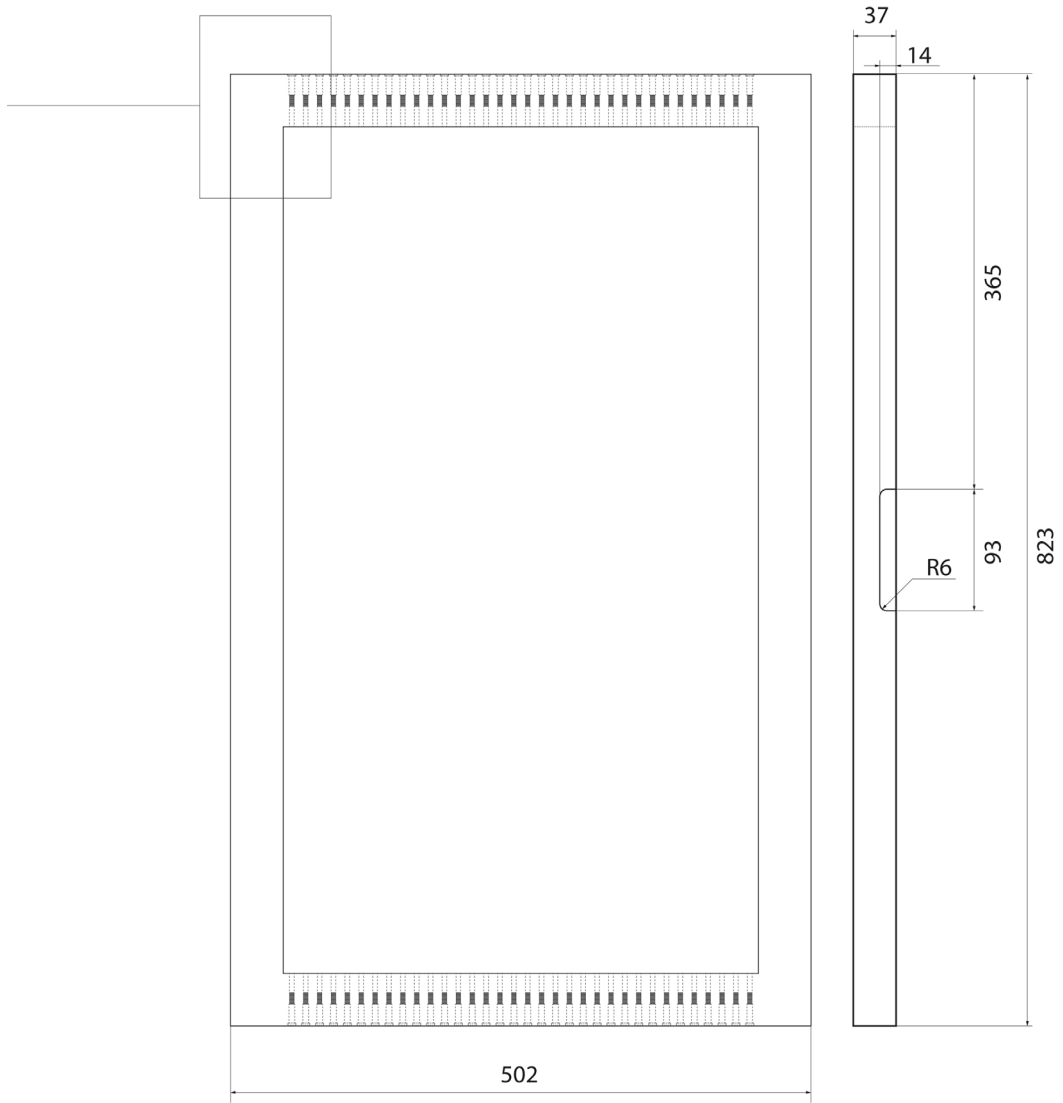
When gluing the solid wood blocks together the pattern of the wood was carefully fitted, creating nice and smooth transitions.

When making the back pieces for the door the carpenter Lars Brag in Genarp in southern Sweden was contacted in order to borrow his veneer press.

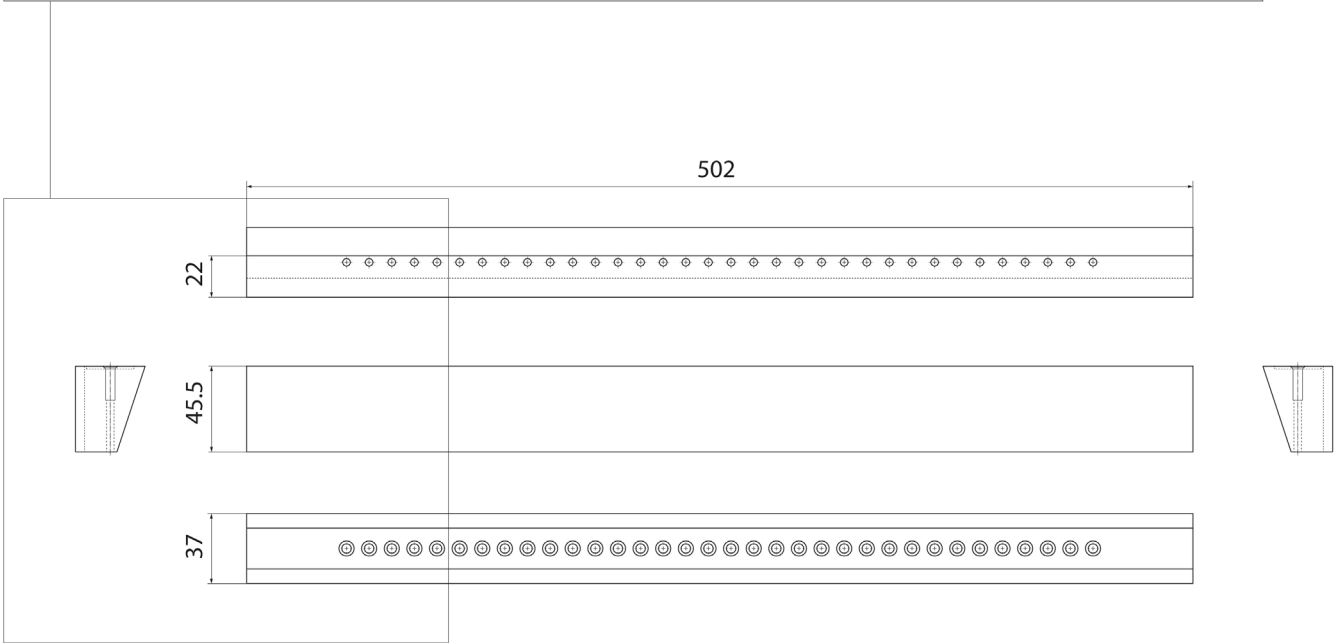
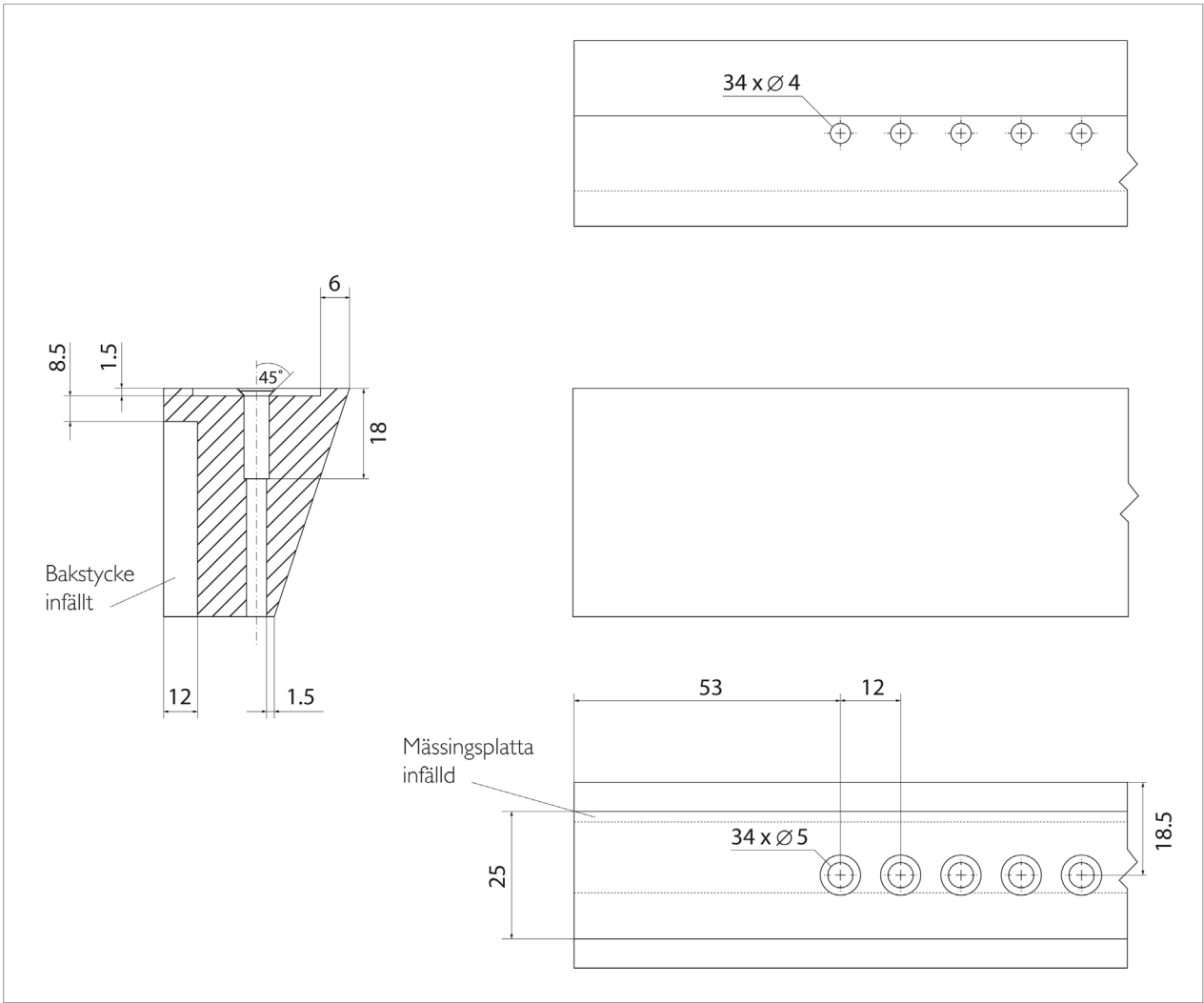
The cabinet is mounted together with wooden plugs and has a small ball-bearing brass lock closing the door and special brass hinges that are visible when opening the cabinet door.

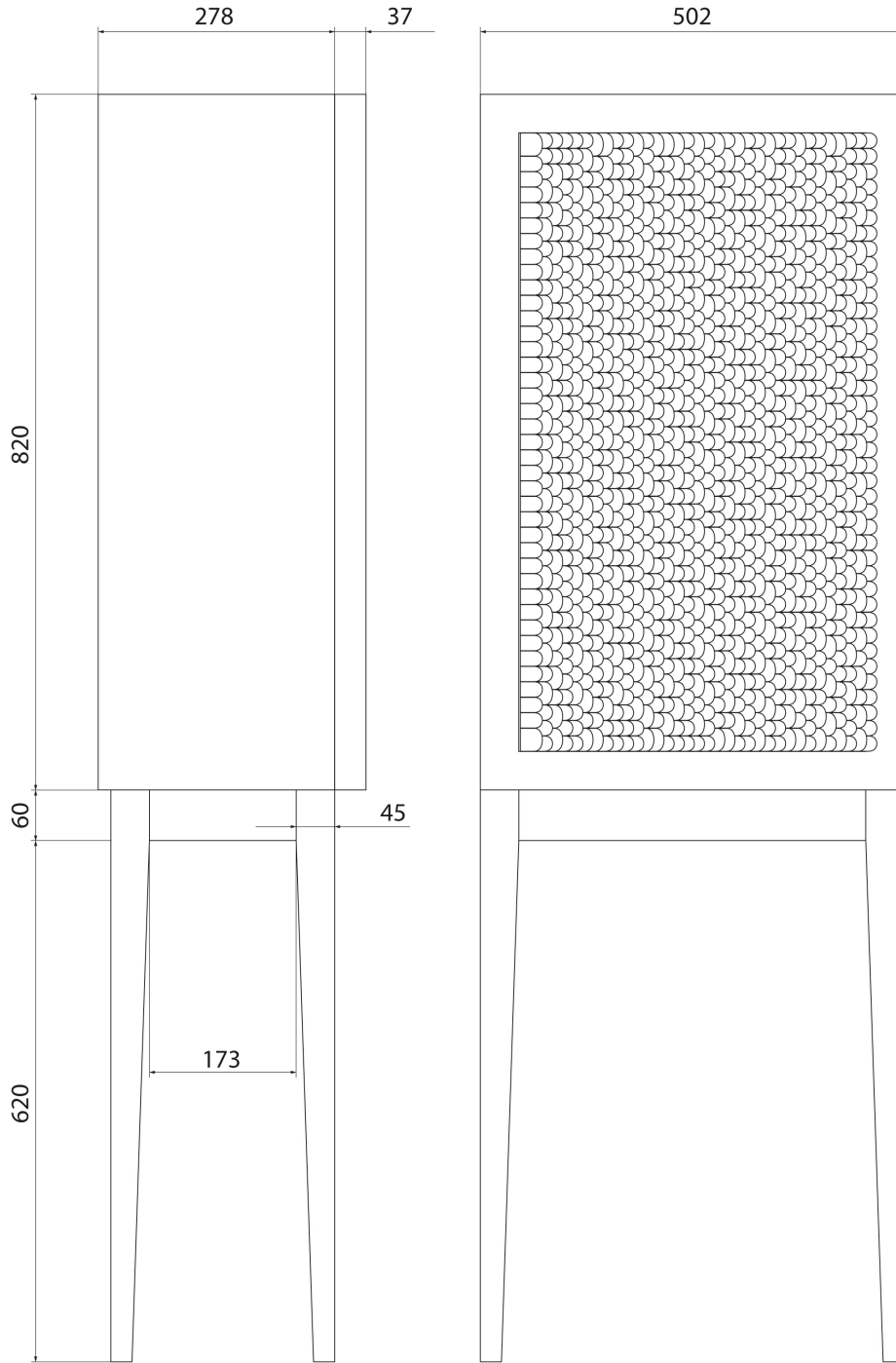




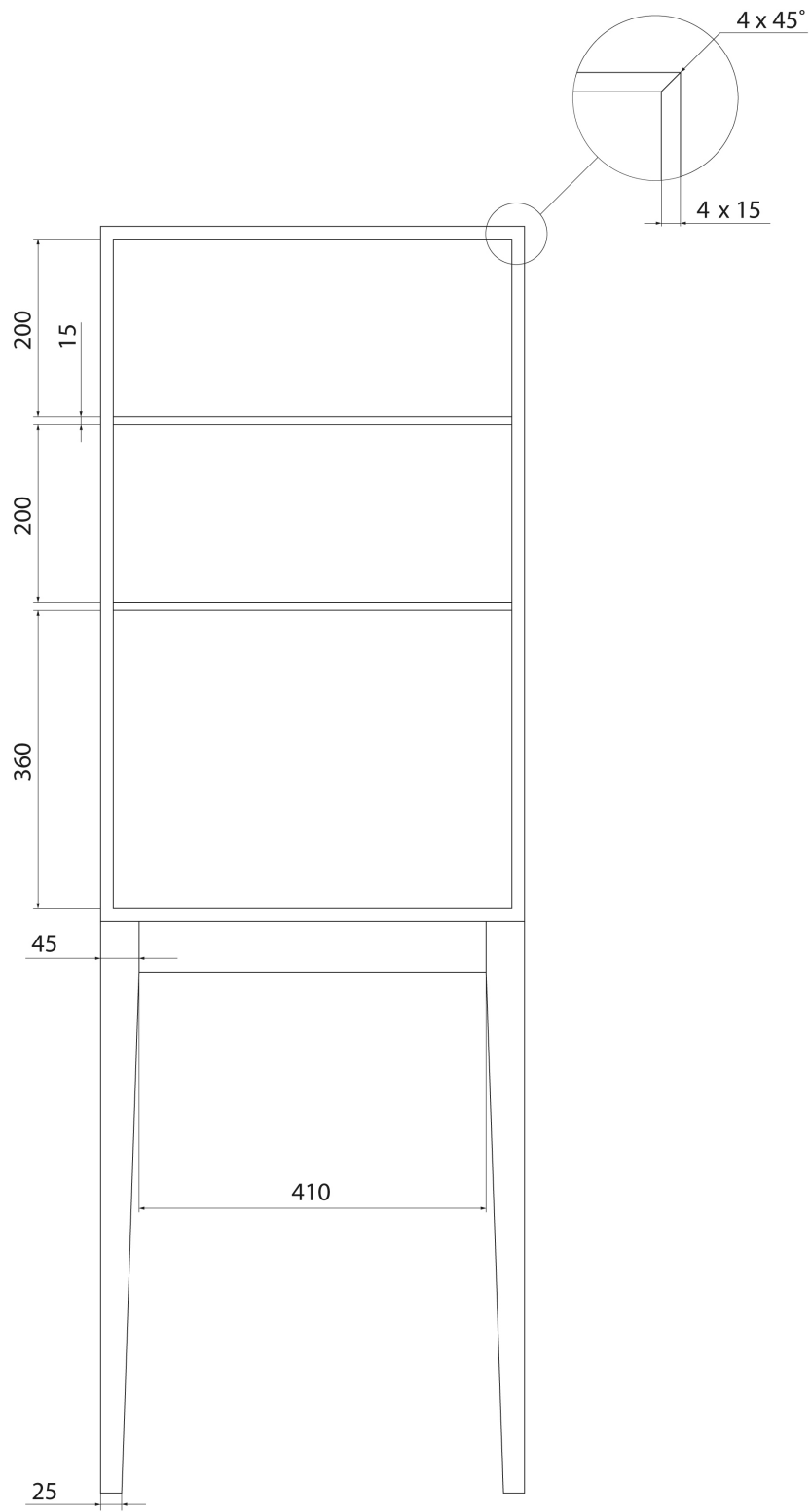










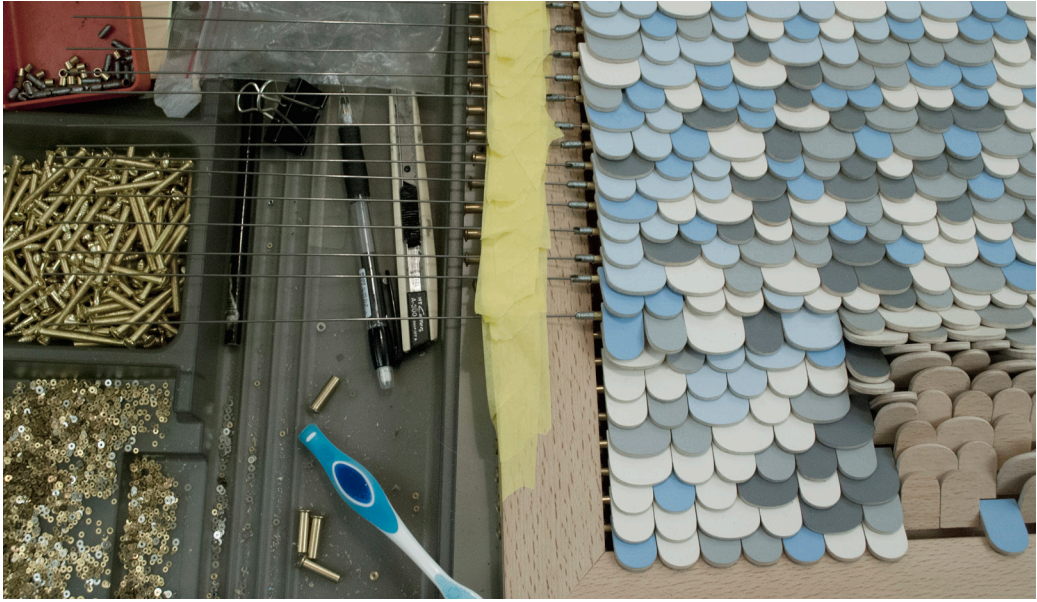


## Putting it all together

Threading the scales and tensioning the piano wires required a lot of patience and steady hands.

Between every scale there is a tiny brass washer, 0.3 mm thick, that works as the distance between the scales for making the rotation smooth.

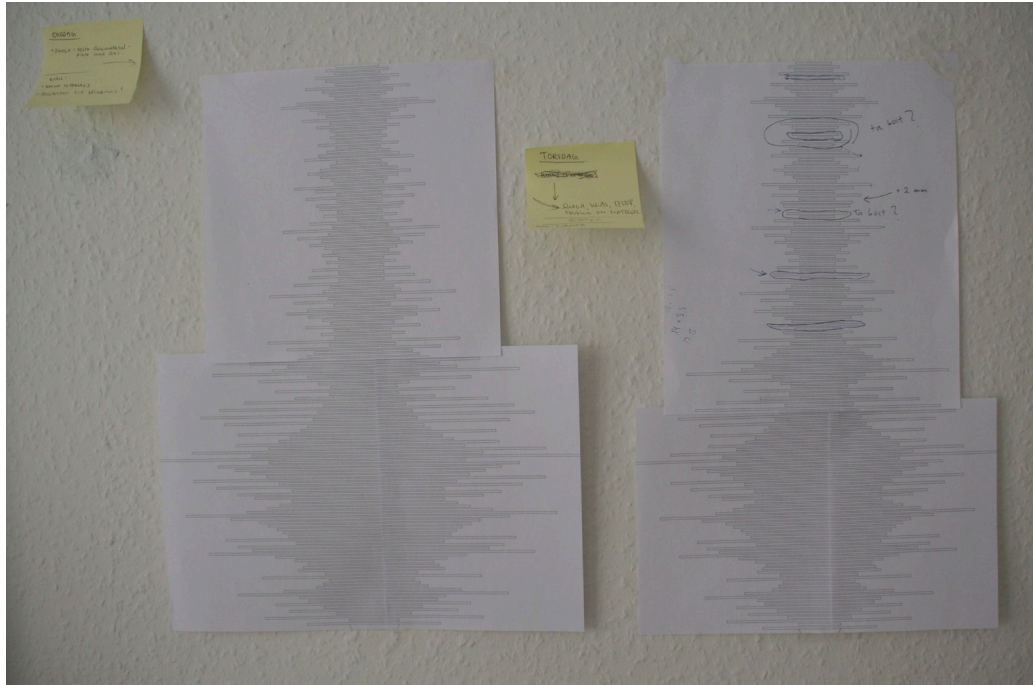
In order to prevent the wooden frame to bend the piano wires were tensioned one by one, every second from the left and every second from the right.

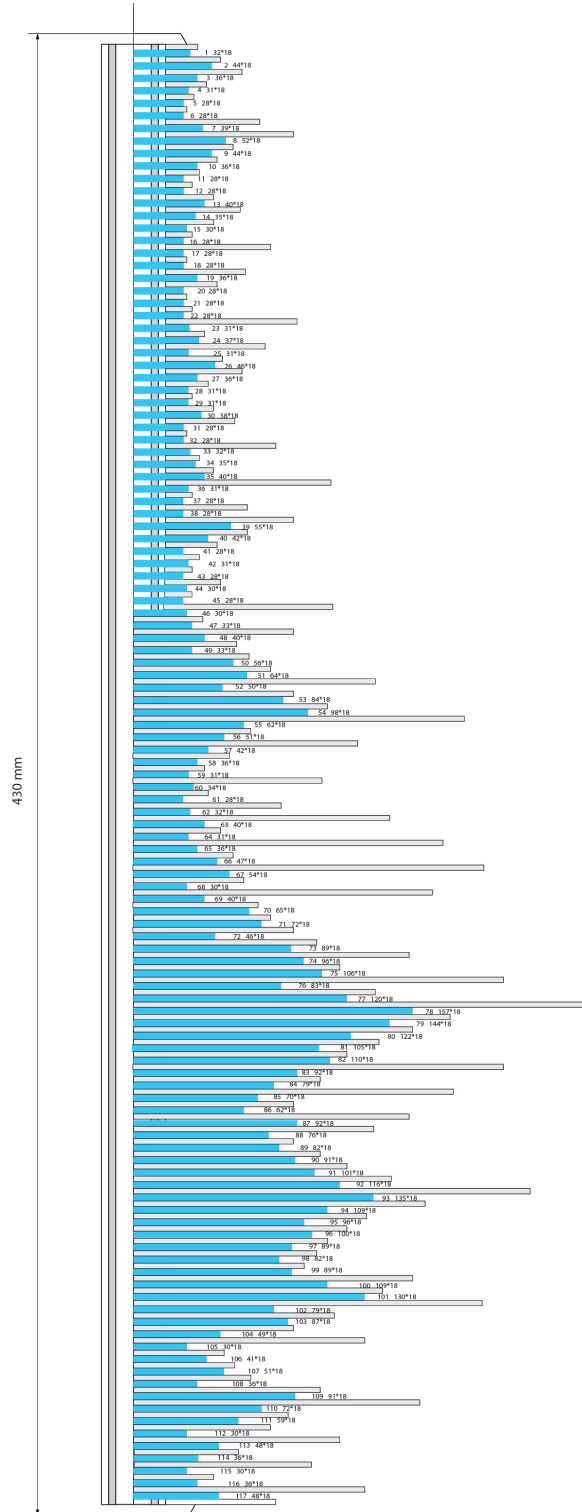


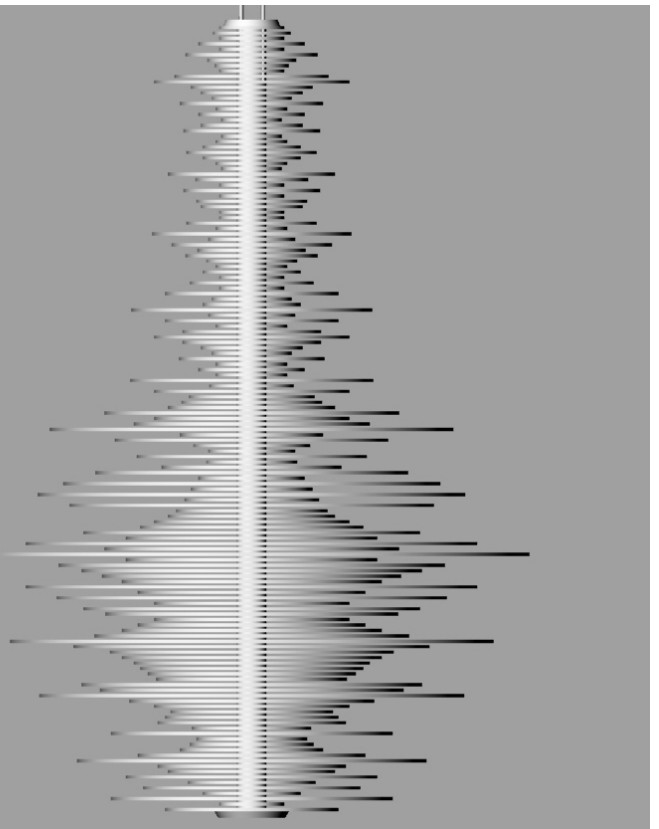
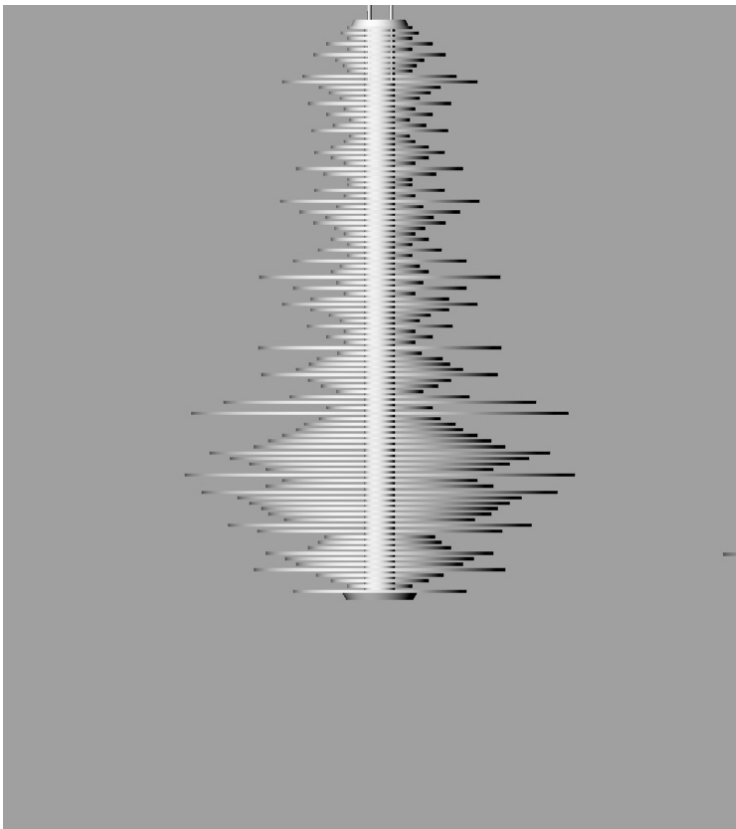
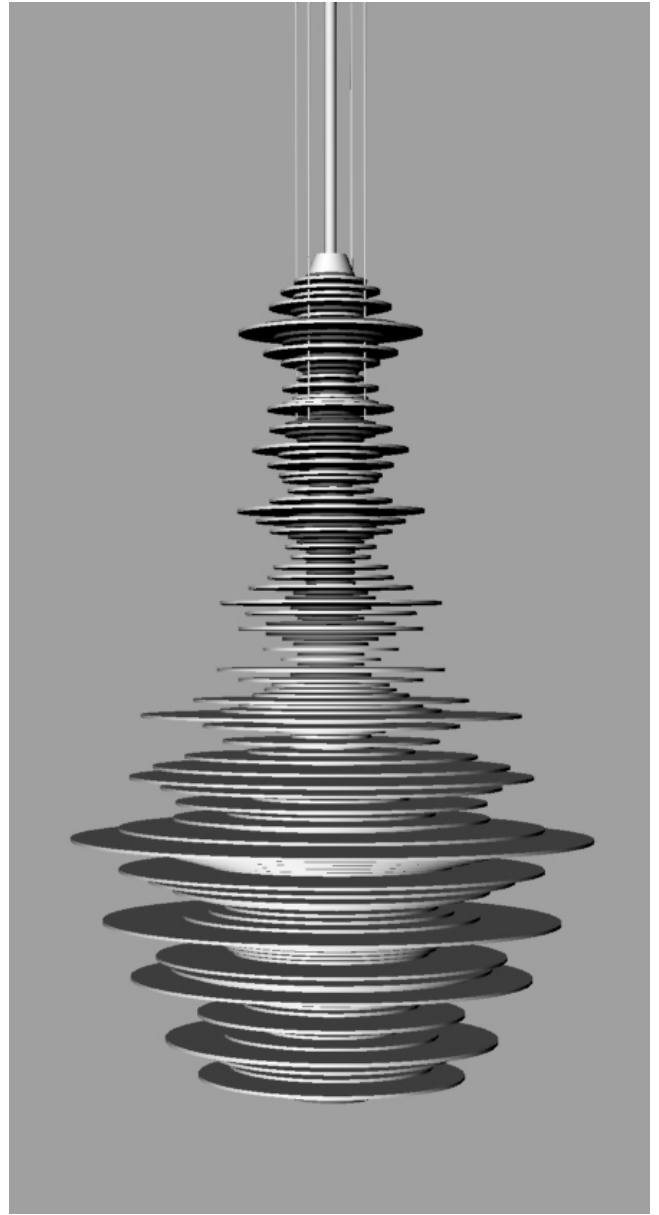
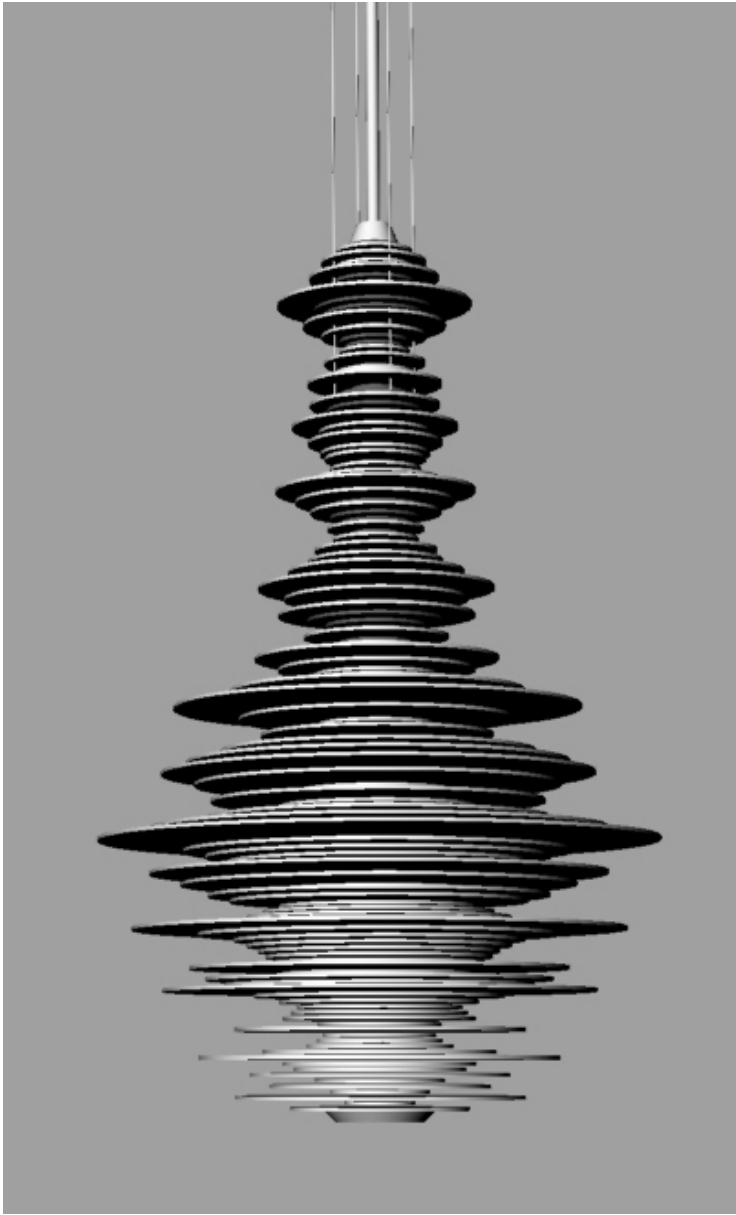
# Lamp building process

After deciding for a structure reminding of seismic graphs several experiments was being made to investigate if this structure also worked in three dimensions.

Cardboard circles was laser cut and glued together with small distances in between, different shapes and sizes of the parts was tried out in order to see what evoked the greatest visual interest.



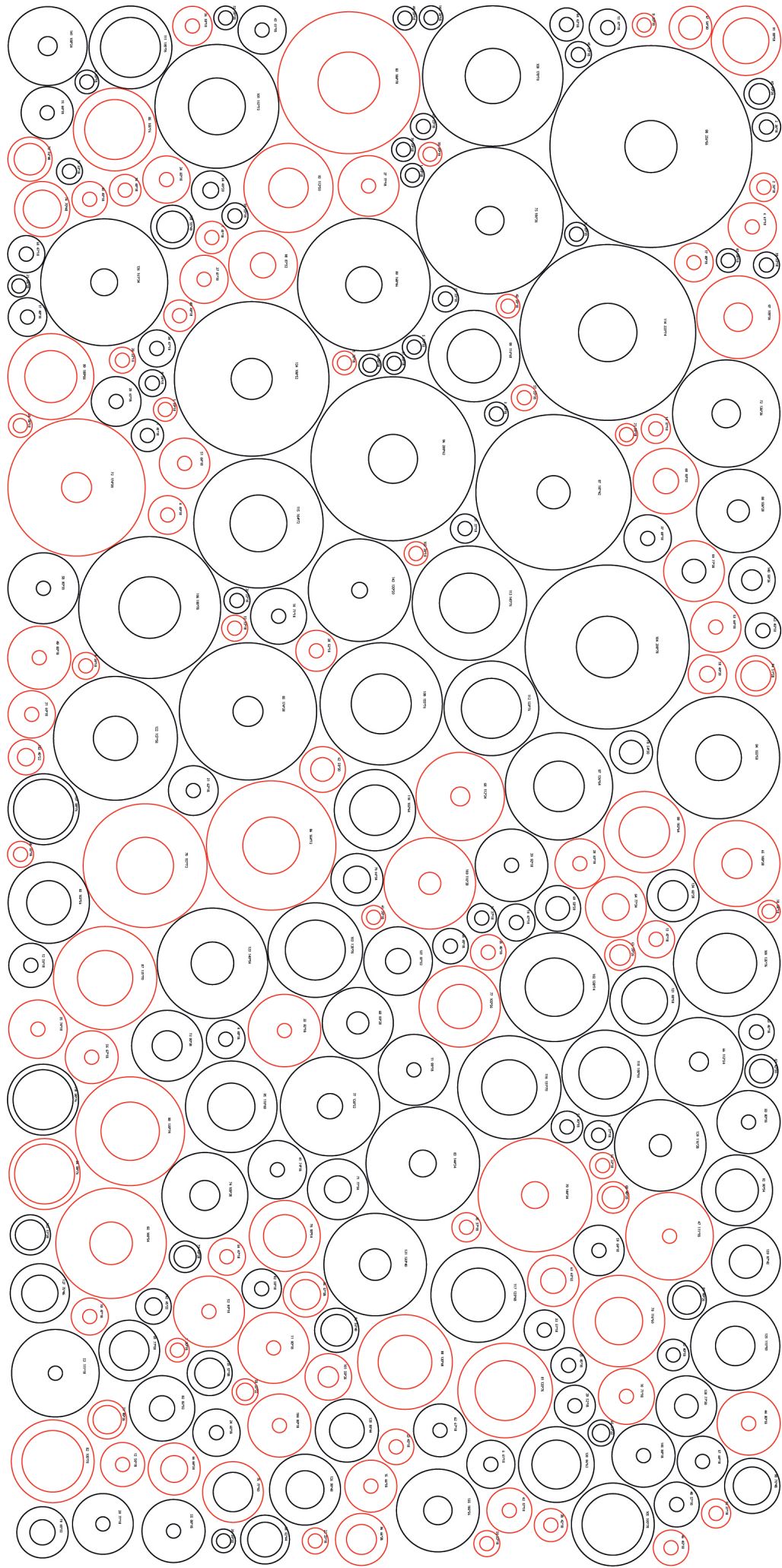




After deciding for two sizes and two shapes of the lamps drawings was made in Illustrator and Rhino for the water jet machine.

The lay out of the circles was made so that one 1.5mm aluminum sheet measuring 2000 x 1000mm was used, with very little rest material.





# Water jet cutting 500 circles

The aluminum circles were water jet cut in the school's water jet machine. To prevent the small circles from falling in the water a small bridge connecting the circles with each other was constructed in the drawing.

After the circles were cut they were sanded to remove sharp edges before the white powder coating.



# Threading the lamps

Before threading the lamps all the circles where measured and sorted after the powder coating.

Laser cut transparent acrylic plastic circles that goes between the aluminum circles where ordered, sorted and measured.

After this the circles where threaded on four 1mm wires, every second aluminum and acrylic plastic.

The light source is a LED plastic cable that directs the light 360 degrees evenly spread around the center of the cable.



## Part 5

### : Result

While natural disasters often are perceived as terrible occurrences, they can also be viewed as awe-inspiring and magnificent.

This conflict in perception was aimed to be resolved in the resulting “*Dear disaster*” objects.



# Dear disaster: a cabinet and two lamps

The objects are meant to give disaster survivors an outlet through which they can express fear and grief as well as their journey in regaining trust in nature after being subject to its destructive forces.

The interaction with the structures on the objects is a way for the user to tell the story, a conversation about sorrow and fear but also about finding meaning and regaining trust in nature after an incomprehensible event.

The function of the structure lies in mentally pleasing the user by showing her personality, feelings and personal marks, and it works as a tactile psychological help by hiding at the same time as it might highlight the event for the user depending on what she decides to do with it, and when.

Hopefully the little exploration and meditation that it facilitates will help in fixing individual worlds gone wrong.





The cabinet is made of beech wood, covered in scales painted blue and grey on one side. The scales can be individually flipped to show either face and create patterns and images based on water and waves. The colors were chosen as a reference to water and the lack of it, symbolizing the great contrasts of many disasters.

The rounded scales and their size mean that the images are soft, fluid and somewhat indistinct but still recognizable.

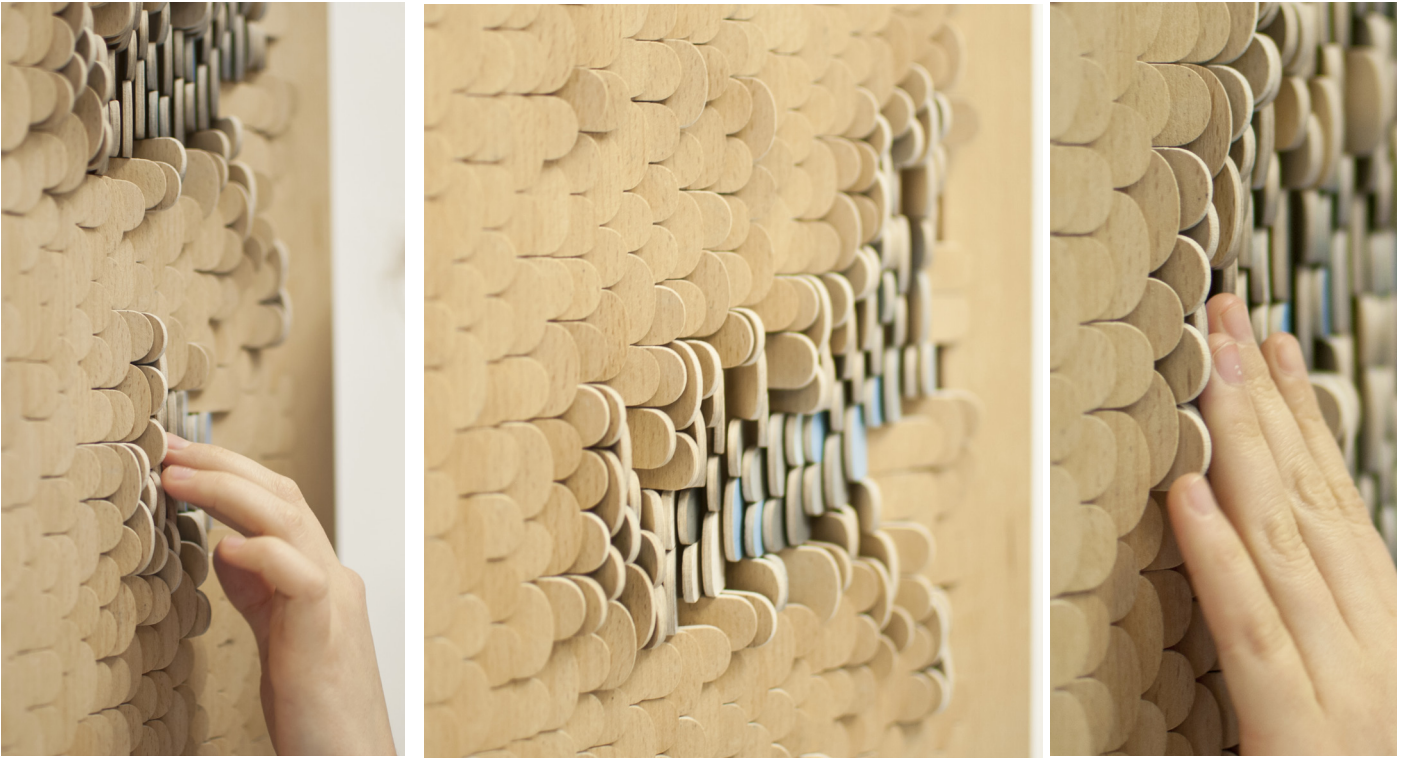
The cabinet is keeping small keepsakes from the past safe behind a closed door and the high legs are preventing the water from reaching them.





"Dear disaster" degree project by Jenny Ekdahl



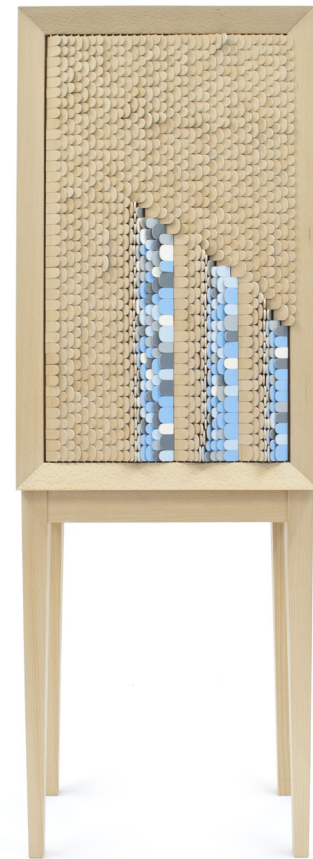
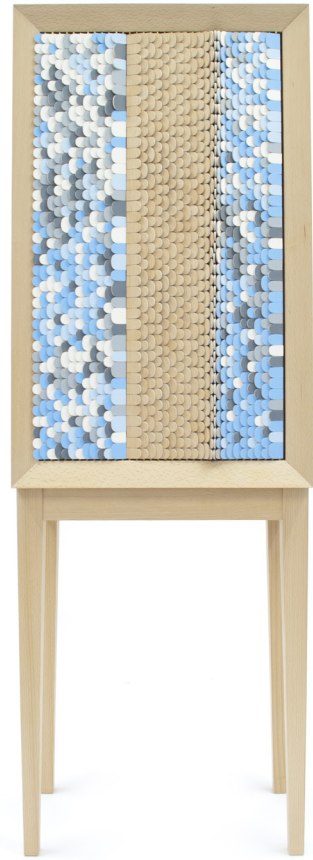
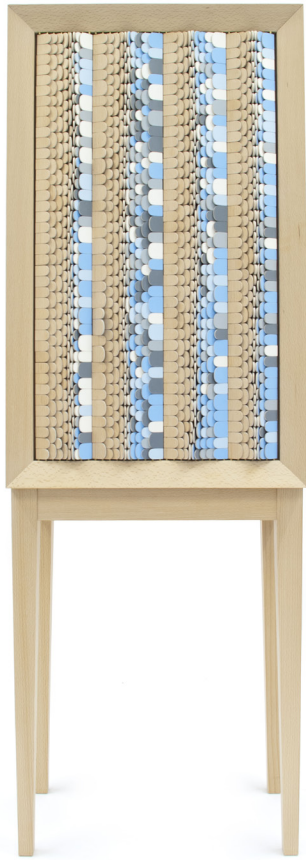


"Dear disaster" degree project by Jenny Ekdahl











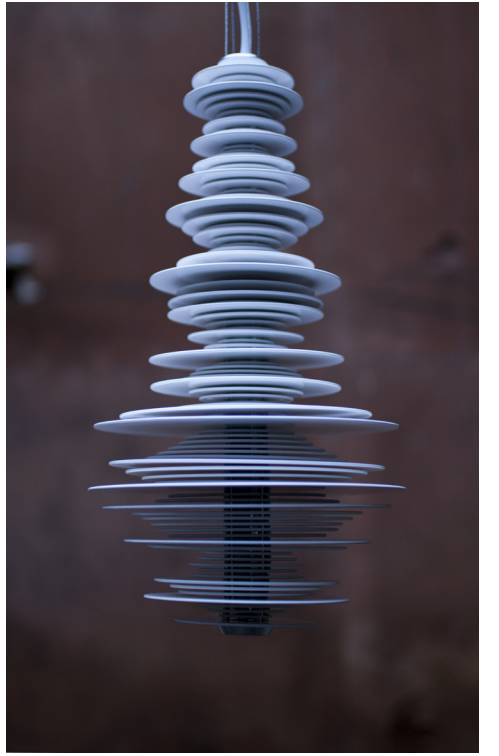


The lamps are an experiment with the brains ability to connect separated lines into whole patterns.

They have a structure reminding of a seismic scale. Seen from different perspectives the shape of the lamp changes, illustrating the graph's dependence to the distance to the earthquake. If you are close to it the graph is wide, if you are far away the graph is narrower.

When not having the courage or will to process a traumatic event you could change perspective when looking at the lamp and by doing so you would automatically remove yourself from the origin of the disaster.

In difference to the cabinet where I wanted the structure to be a tactile experience the lamps uses a form of interaction aiming for a visual sensation instead of using our hands.







# Photo

It was very important to present the objects in their right environment in order to better communicate the background story to the observers. Therefore a lot of effort was put into finding the right environment and suggestive feeling for the photos.

The photo session was carried out with the help of Måns Thorvinger and Ola Nystedt. I staged the objects in the chosen environment and briefed Ola and Måns of what I had in mind regarding the photos.

Together they took a series of images and film clips that later also was combined into a short film of the moving scales on the cabinet.

The chosen environment was found in an abandoned hurricane-damaged barn in the small village Lomma.





# Reflection & conclusion

## Why do I design?

### How important is design for the betterment of our world?

Design has different purposes depending on the designer's perspective. It can be viewed as a mastery of certain skill or as a tool in making a better world for people or for nature. But the purpose can also be to appeal to people's emotions and senses.

In the "Dear disaster" project I investigated personal and general questions concerning purposes with design and the creative process in order to analyse my perspective on design. The aim was to find arguments for a preferred design approach in order to be sure that what you do also have importance to others.

The thorough research determined that a sterile focus on function is not enough for the creative process I am aiming for:

Design for me is about people, events and concerns. It is about communication and emotional exchange with objects surrounding us.

The method developed and the process I have had in this project have given me clues of how to proceed with similar self-initiated projects in the future. It has improved my understanding and curiosity for emotional exchange with the help of patterns and structures. It has also provided me with a framework for a research process aiming to develop abstract themes into meaningful and tangible objects.

The design I will choose to develop in the future will continue to focus on the betterment of our lives experientially, sensuously and emotionally. It should include story telling, how things look, feel and sound, and the objects should promise content and knowledge.

By taking all this under consideration during the design process I believe it truly is possible to improve our world. Aesthetically, poetically and functionally, for man as well as nature.



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