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Erasmus+

Co-funded by the Erasmus+ Programme of the European Union

Design Manual

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Erasmus+ Strategic Partnership
Furniture design and modern manufacturing in European context – development of key competences for trainer, teacher and joiner trainess -
2018-1-DE02-KA202-005058

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Design

There can be many different ways to make designs.

The process can be simple and fast, complex and slow.

The method is chosen according to task, ability, experience desire, time.

It is also important to agree on working method if you work in a group as it can be very difficult to work with others.
The challenge of working alone is that one can be blinded to one idea and have difficulty seeing otherwise. It is available very fast way of working when making your own decisions.
The challenge in working in a group is that many see their own idea as the best and put pressure on it being their ideas that are chosen. Working in a group requires openness.
Available there is an open forum with many potential ideas.

Sometimes you adjust only slightly in existing designs.

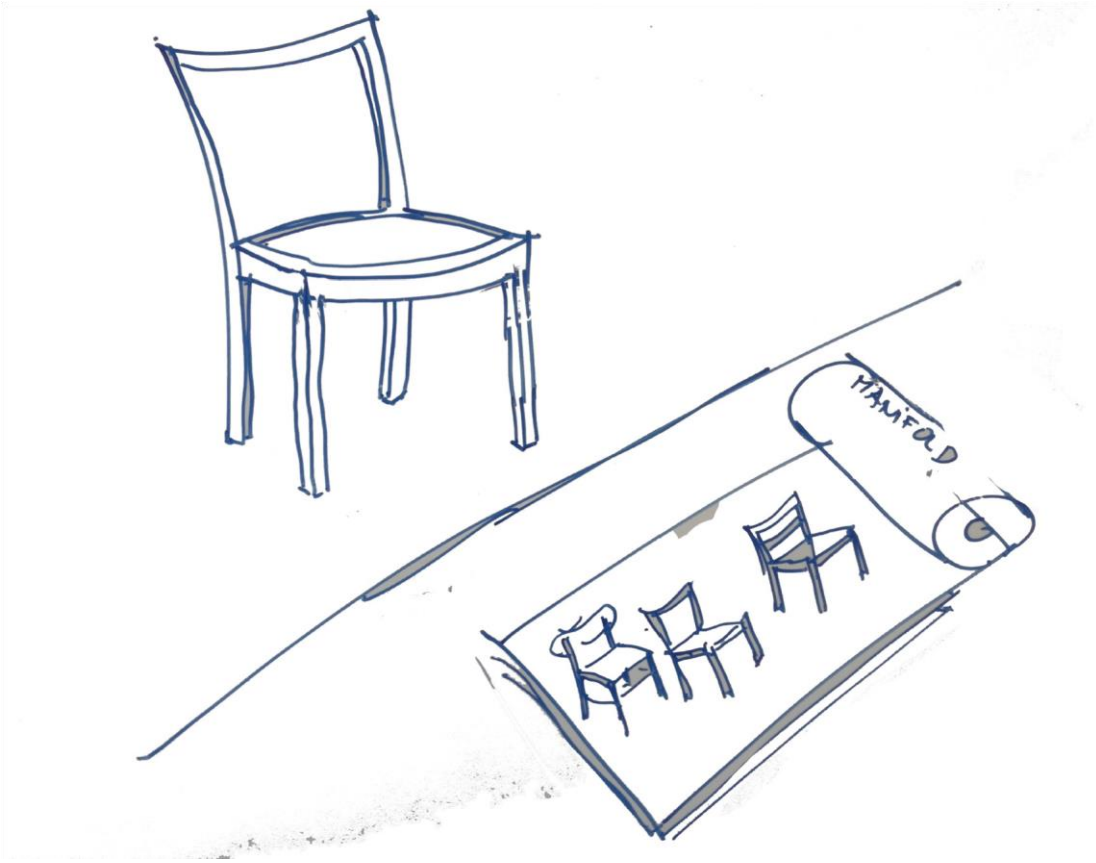
Other times you create something completely unique.

The design process can start if you have been given a task by others, will solve a problem, meet needs, play with shape, examine the material, color, proportions, create salable product, Eeler combination of all.

.

If it’s too early to design, you can copy

If you have no experience, either with design or crafts, you can start copying others. It provides understanding of form, proportions, colors without having to go through complicated processes that require experience and knowledge. Copying gives you access to the experience of others that you can later build upon. Copying is not design, but practice in understanding how to do it. You can copy old furniture as it gives you insight into designs, manufacturing techniques, proportions, sizes. It should preferably be something very beautiful, interesting and of a craftsmanship quality. You can also copy the works of renowned modern designers as it gives you a better understanding of modern design. Measure models up with precision and care, signs on the computer or in the hand. Make model either 1: 5 or best 1: 1. The model does not have to be made in fine materials.



Simpel designproces

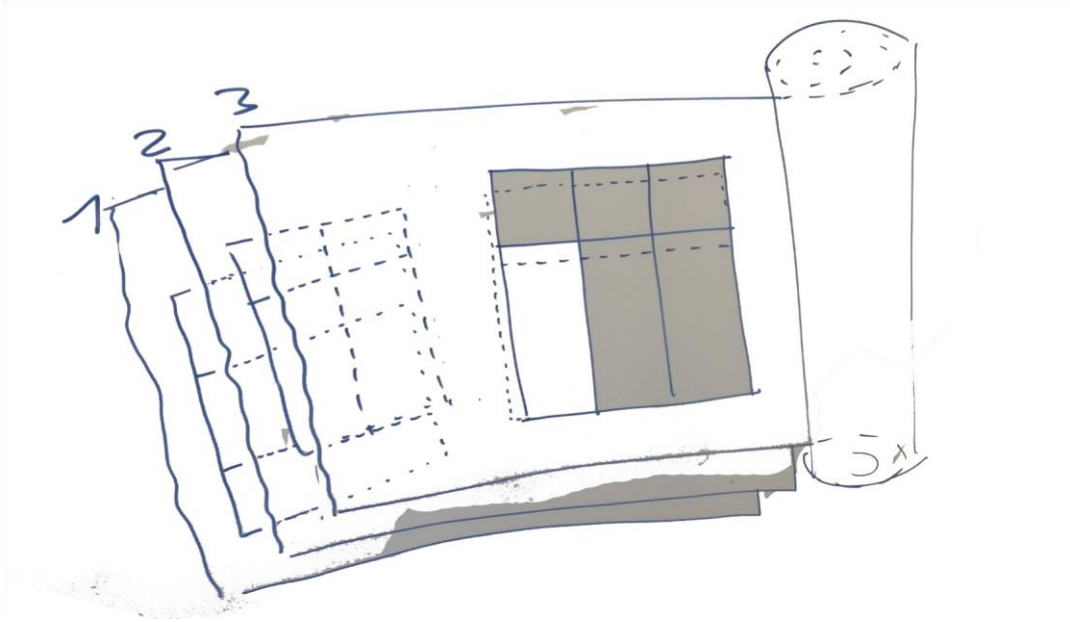
Shape Development / adaptation / Production

What is simple design?
In the simple design process you use experience, existing design methods constructions, designs to create new furniture, objects. Usually, you only slightly change the size, proportions, function to create your own version to suit your needs. The design turns into changed imitation. You use manufacturing methods and materials that are proven and known. Often your choices are determined by pure aesthetics, production options or cases. In this process you can work with:

Form, function, size, materials, colour production

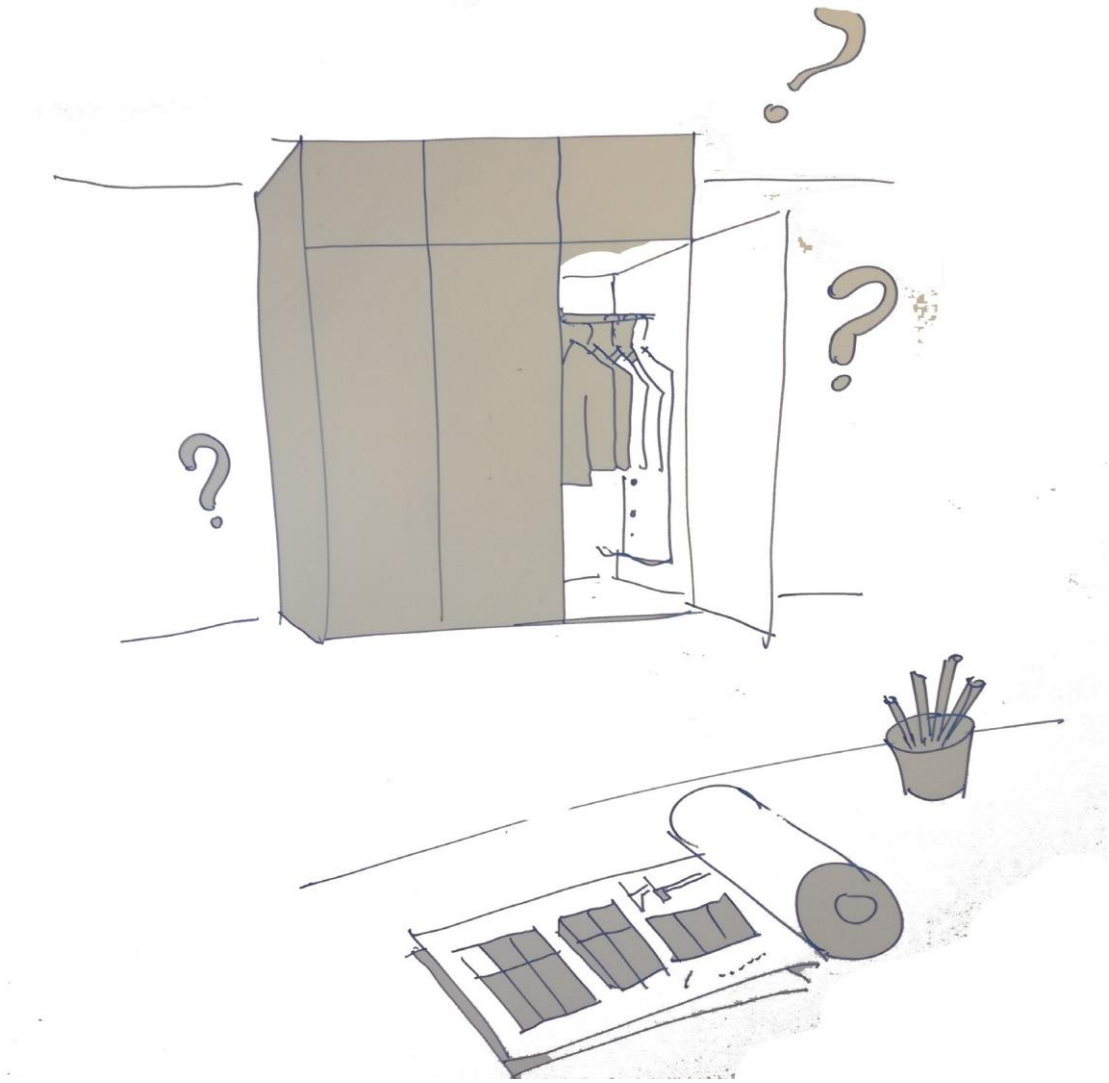
Workflow

Signs of manifold one drawing on top of the other. If you have multiple people to design, you can benefit from drawing on the same piece of manifold (transparent paper)



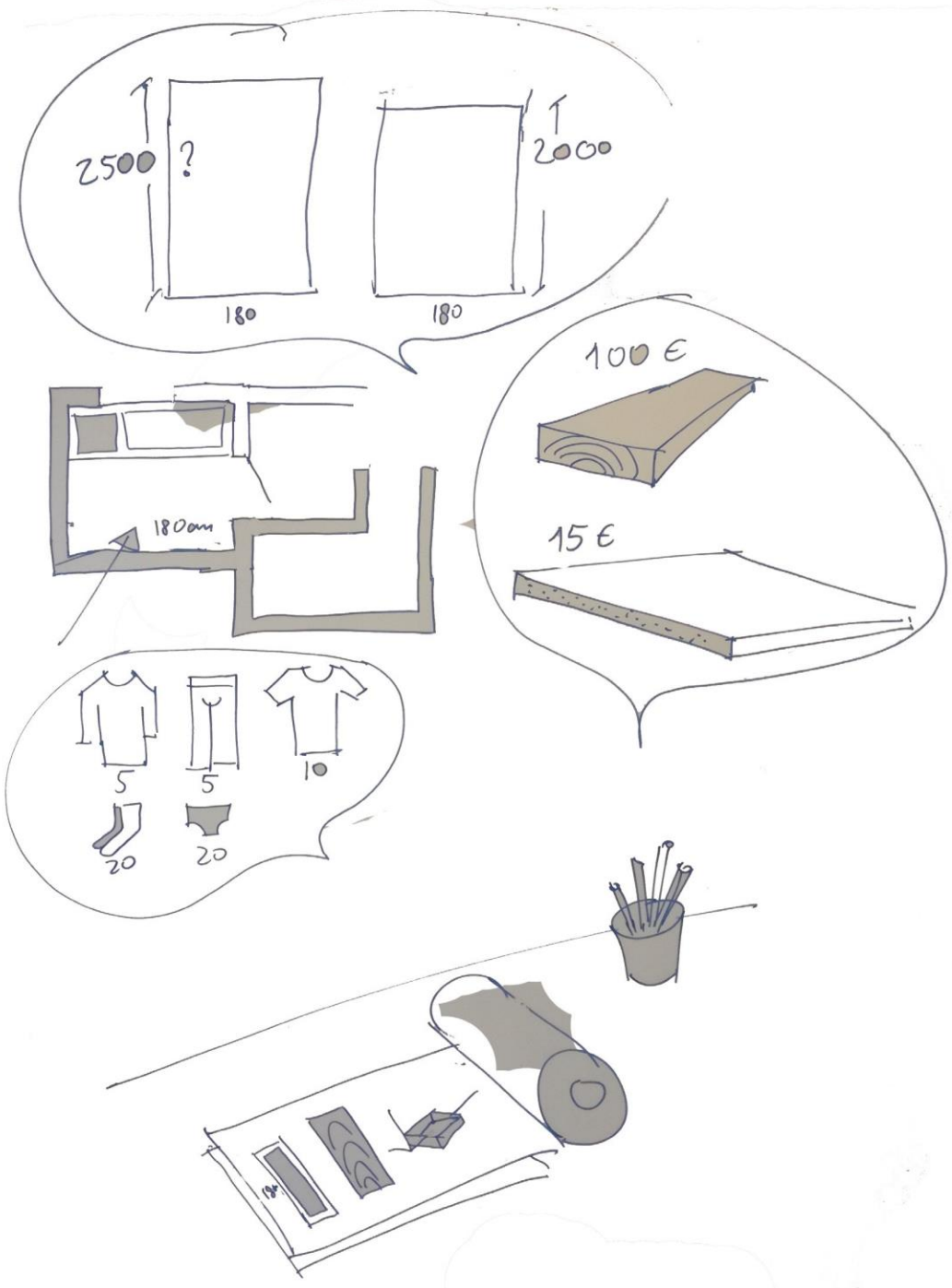
Shape

Here you work with a given well-known furniture such as cabinet, shelf, kitchen chair etc. You have seen the shape before and do not have to reinvent it or make sketches. The idea of given furniture lies on the backbone and can be anything from chair, cupboard, table. The simple startup is just to look at the object and try to draw it. Use transparent paper manifolds to draw on top.



Function/Size

As you draw, consider the practical and propose the solution.
It can be the size of the furniture.
Where should the furniture stand.
What it should be used for.
What materials should it be manufactured in mm.



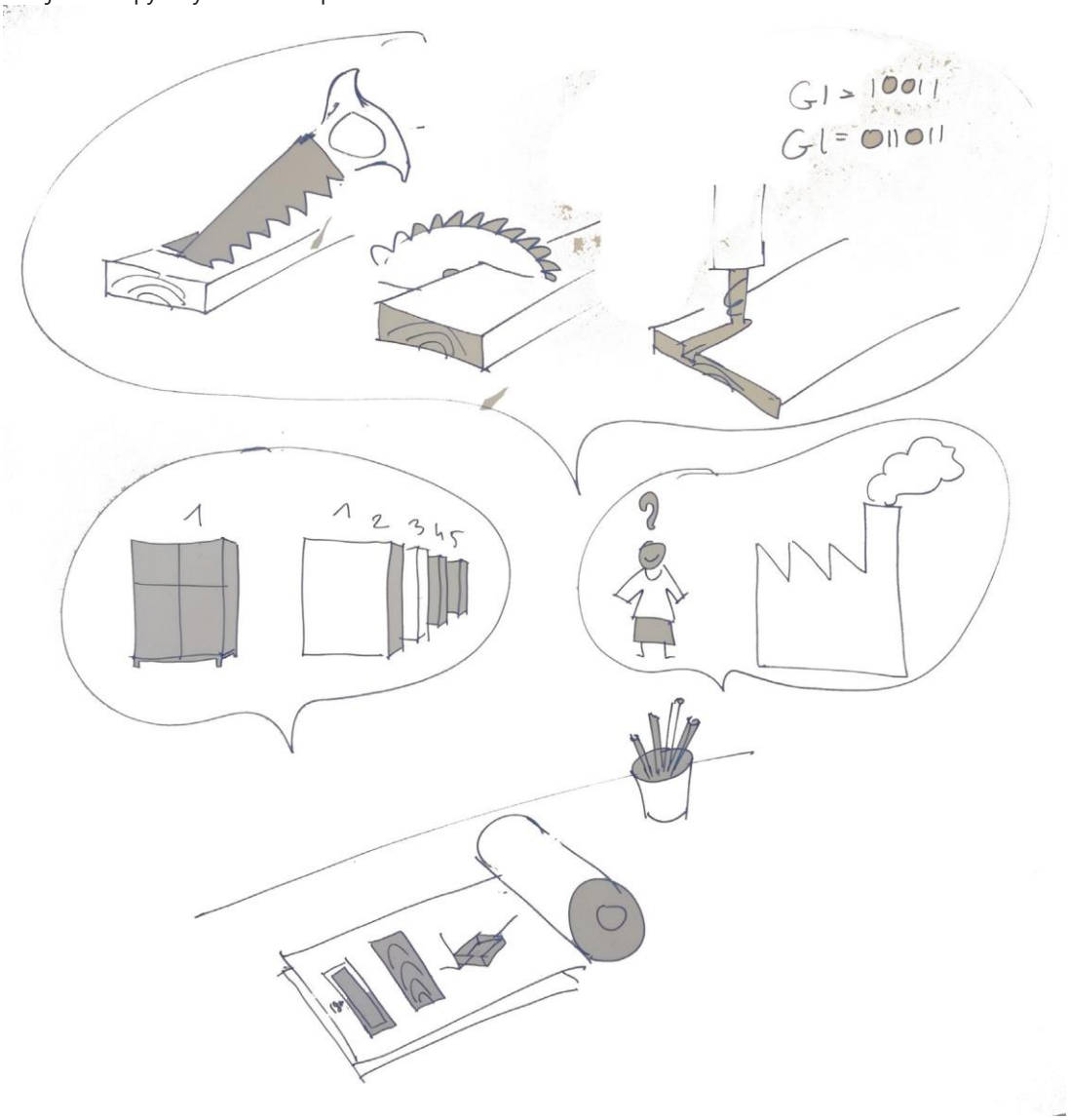
Materials / Colors

It is important that you do not imagine anything, put colors and material samples in front of you and make the decision based on what you see.

Produktion

While drawing, consider how the furniture should be manufactured, on what machines and by whom.

Do you have the necessary machines?
Should others make it for you?
Should it be manufactured by Hand or on CNC
Is it just a copy or you have to produce several.



Design process

This design process is more demanding. It is more in-depth, requires more time, more work. Available as you go deeper into the fabric and get a more qualified solution. There are procedures to follow:

Understand why you are designing
Find an Idea
Choosing an idea
make prototype
Improve
New prototype

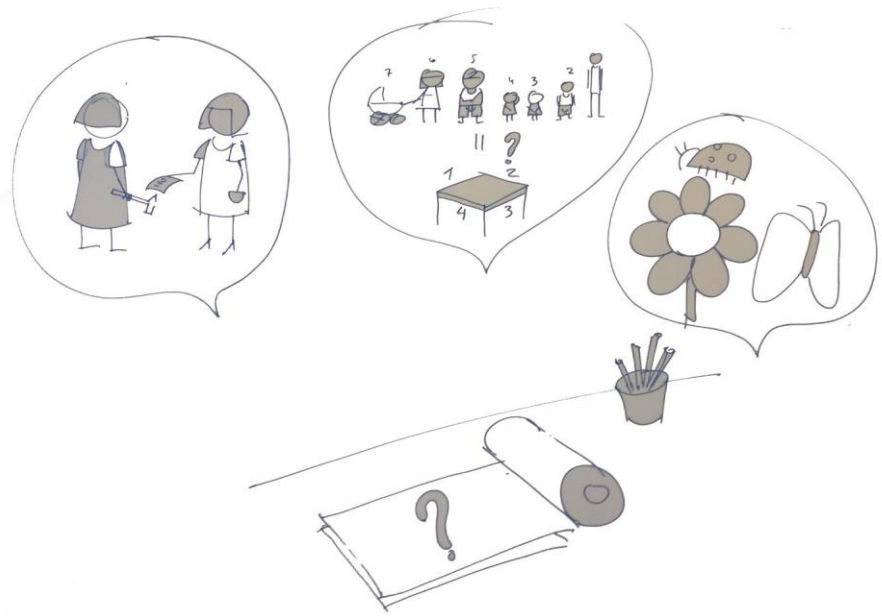
?

Understanding your starting point.

Why do you have to design?

You need to know why you should design because it will influence all your choices. You need to know what you want to achieve to reach there. If you do not have a goal then your choices will be random.

Task goalplay with shape/color/materials...
Sell...



Task

Read, talk to your customer thoroughly. Understand what they need. Notes, make sketches.

Problems

If you have a problem it is important to find the cause of the problem and understand it. There can be many possible causes of a problem. Find out as many causes as possible. Choose something you can do about it.

Play with shape/colors/materials

Define what you want to achieve or what terms you want to work with. Should it imitate a particular style, it must be calm, it must be wild ... **Sell**

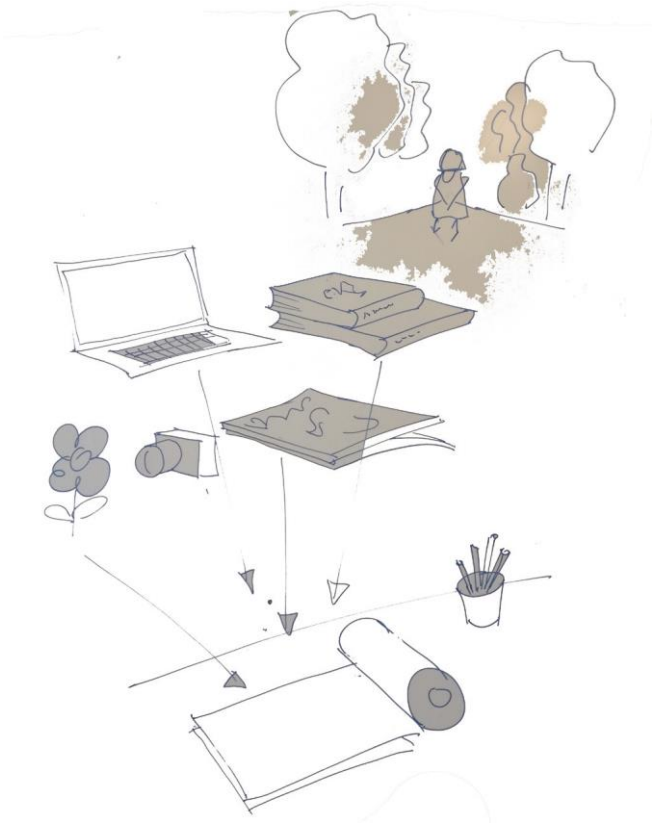
you want to make a marketable product, you must know who we sell to, who to produce. Is it a small exclusive customer group or product for many. Is it you who needs to make it or should it be manufactured in a large factory.

Spend a maximum of 30 minutes understanding your point of startingpoint.

Get an Idea

If you work by you self

Look at pictures, collect what you like, for example pictures of nature, technique, art, colors, shapes, furniture...
Spend 60 minutes gathering inspiration.



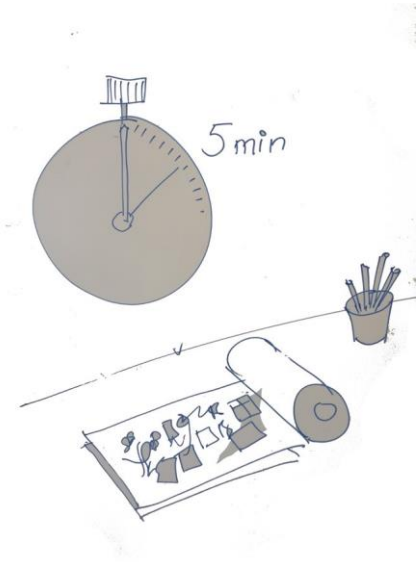
Make a BRAINSTORM of what you would like to do. Make as many ideas in as short a time as possible.

Use max 15 min. on Brainstorm

If you can’t start!

Take paper, pencil or watch in 5 minutes. Now apply to drawing continuously in that space of time. Don’t stop no matter what. It’s minor whether it’s ugly, ruffled or dotted. You can also make a model in paper. Then look at results and start selecting.

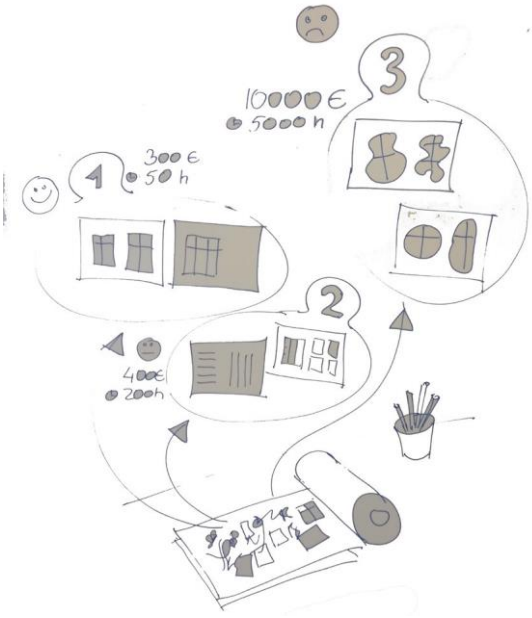
Use 5 min



Choice of idea

Look back at your starting point. What are you designing? What do you want to achieve? Ideas are sorted based on whether they meet set requirements, whether they are possible to produce temporally, economically, technically. Choose the best solution.

Spend a maximum of 60 minutes sorting

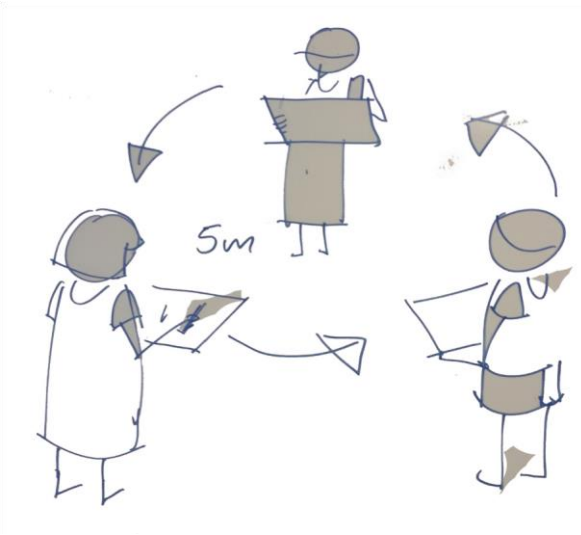


If you work in group

For you to have a common starting point, you can draw together.

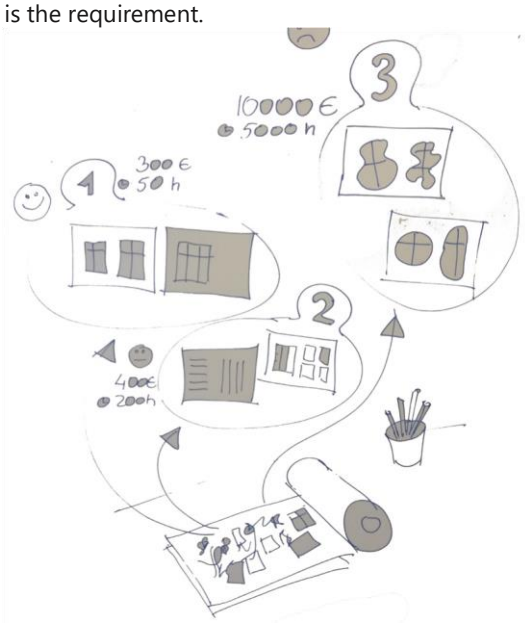
Put yourself in a circle each of you draws for 5 min. Draw loose without thinking. After 5 minutes you give drawings to the person next to you. The person draws on top of your drawing, add, changes, comments according to their needs and needs. The tour is repeated after 5 minutes until your own drawings return.

Accept changes



Choice of Idea

Same principle as before. Ideas are sorted based on whether they meet set requirements, whether they are possible to produce temporally, economically, technically. Choose the best solutions. Make a presentation, show it to others and let them choose. Tell what you want to design and what is the requirement.



Make prototype/improve

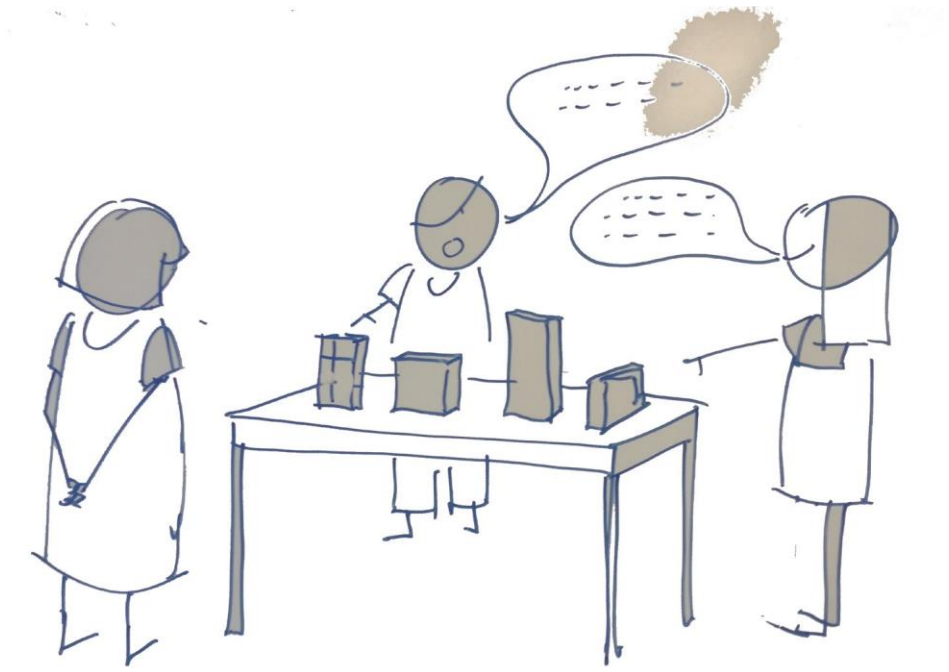
Make models of your ideas.Make them 1: 5 in paper, wood, glue, tape ... It should be quick 3D sketches.

Use 20 min

Position them all side by side and discuss the pros and cons of all of them.Choose the most suitable one.

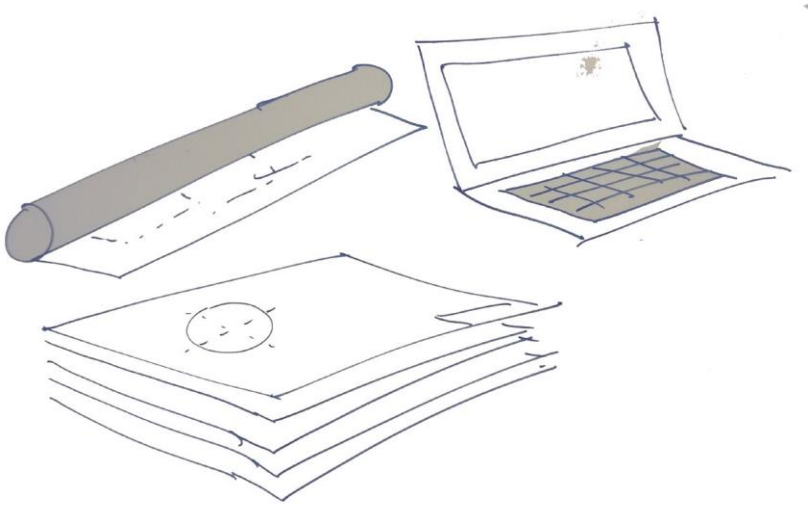
Use 30 min for discussion

If the furniture is not too big make prototype / model / muckup 1: 1 it does not have to be beautiful, beautiful. What you need to see is the proportions, size and ratio of all parts. You cannot detect this by looking at drawing or screen or small model. Here you can also detect design errors and optimize the design.You either fix small details or start over with a look at your ideas. Sometimes you have to let the idea go to waste and start over.



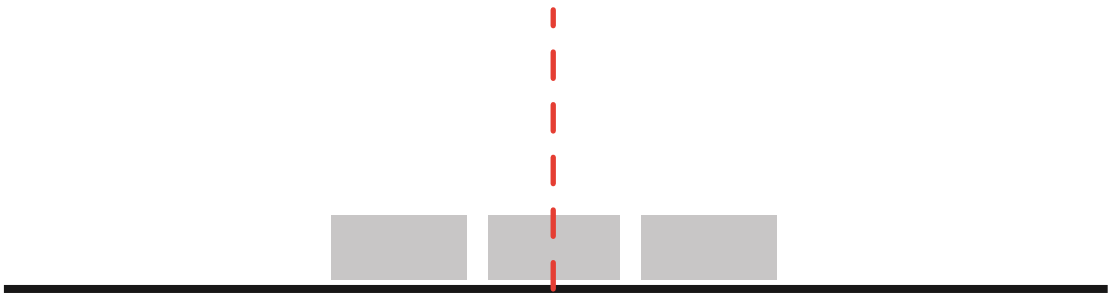
Documentation

If you are satisfied, you must produce work drawings / documentation before you start working on your model. Your first model does not have to be your final model. There is usually the first real prototype in real materials. If you have time, you can optimize the model and recreate it from there. There may be conditions that you couldn't see before. It can be ergonomics where the furniture does not live up to what you want. It may be that the furniture has become too expensive. It may be that your furniture does not live up to your ideas.

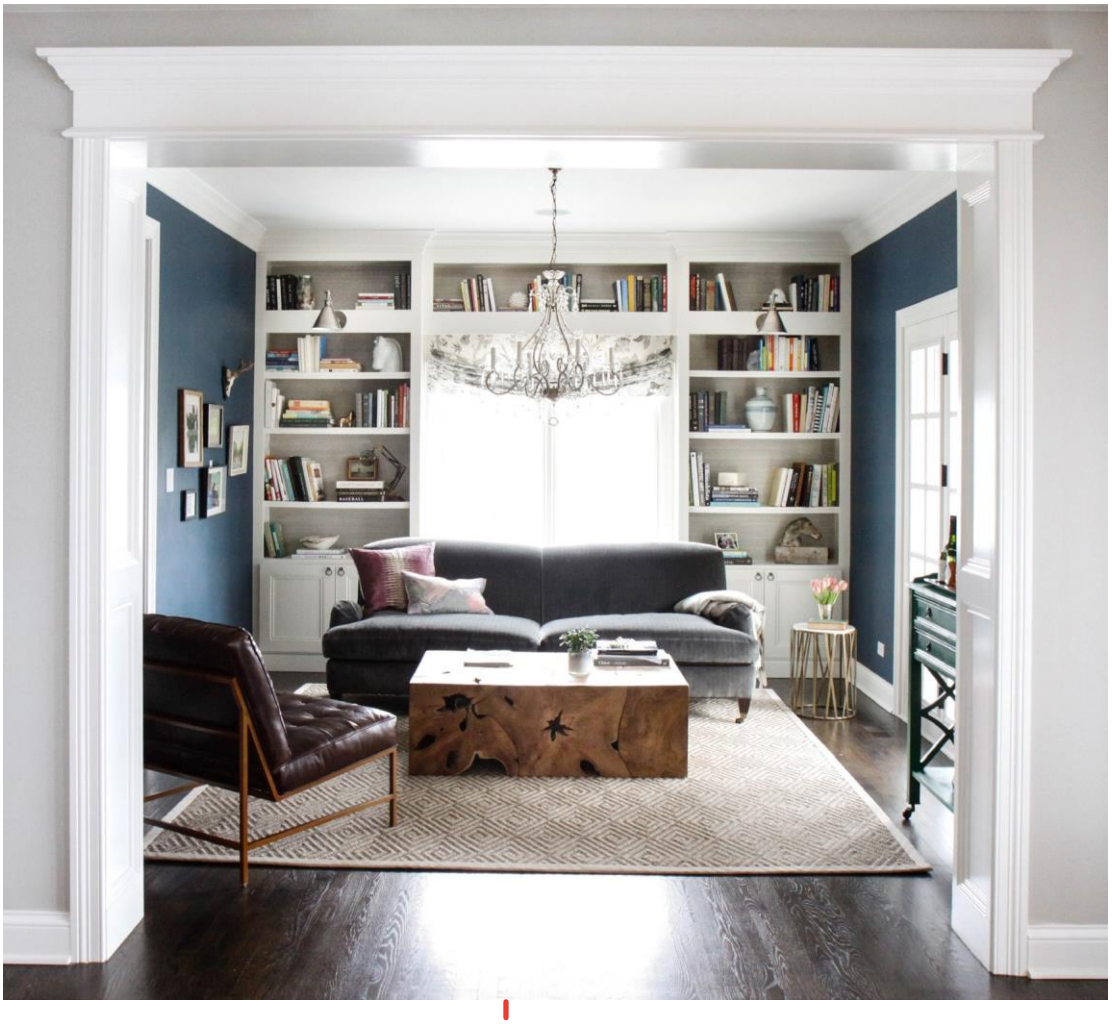


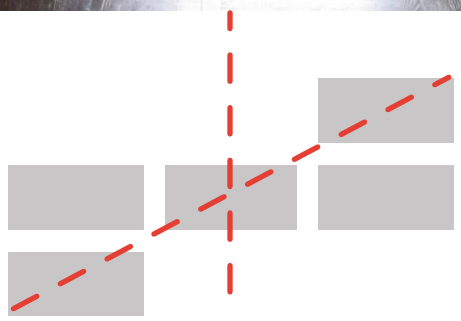
Composition and relationships with each other

Composition / space. Shapes can relate to other shapes and the space they stand in. They can be asymmetrical to each other as here, and posed extremely. There is dynamic / relationship between the two forms.



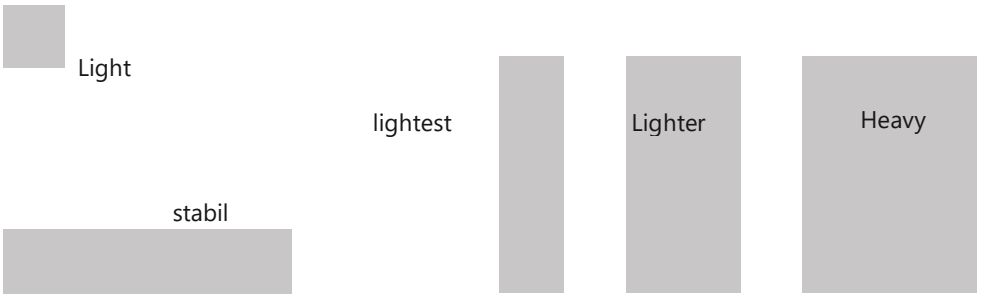
Composition, room. Composition can be symmetrical and centrally placed.

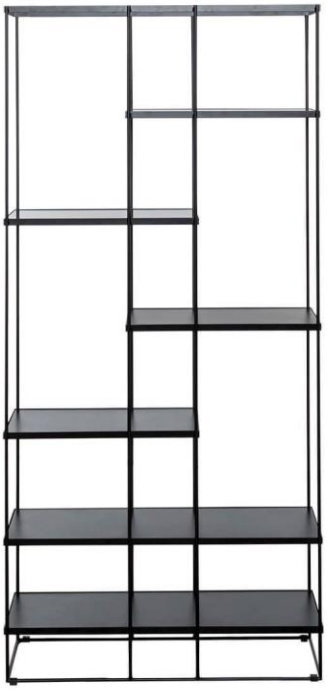


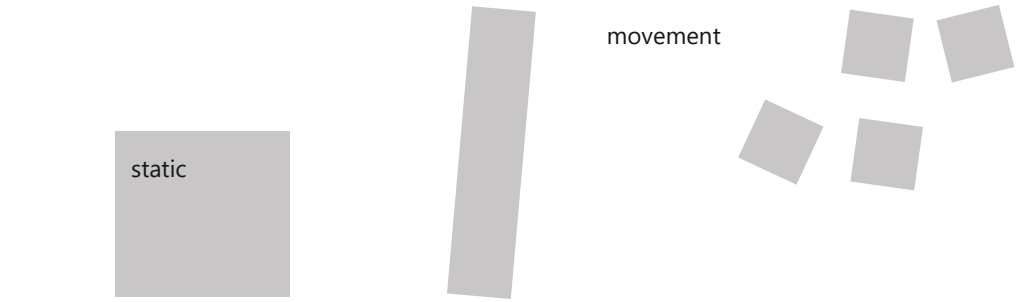


Composition, room. Composition may be asymmetrical and centrally located, with movement within the composition.

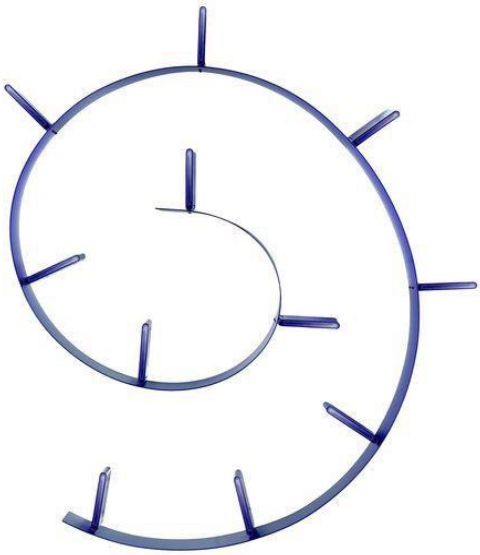
Weight. Shapes can appear light or heavy, stable, depending on their proportions, ie height to width ratio.


Light
lightest
Lighter
Heavy
stabil





Movement. The shapes can be static or o motion. Something looks stable and something feels uneasy.



Materials

You choose from few materials, take them by hand and look at an option. It can be in terms of price, weight appearance, machining or demand options. If you work with wood you have the option of choosing light dark or medium. Colors are added with care and intention, Think about what you want to achieve.

The light woods make the furniture look light and delicate. Visually takes up some space.

Furniture in medium tones is more neutral appear solid and visible. Visually takes up some space.

Furniture in the dark woods seems heavier, they are more visible, visually or more space occupies and looks luxurious.

Furniture in reddish woods is more distinctive, they are not neutral and must be fitted with interiors.They are more visible

Colour

There are different ways of seeing the interrelationships between colors. Balance, warm, cold, dominant, strength, bright, dark are some of the words you can use for reflection and discussion. They can help you achieve what you want with the colors of your design.

Balance in color intensity. The amount of blue does not disturb the bright and delicate colors.

Color intensity. The blue dominates because of its strength.

Color intensity. The blue dominates because of its strength.

Balance. Colors are in balance. No one is particularly keen on eyes.

Radiation. Bright colors immediately pop into the eyes, they dominate.

Contrast. Switch between light

Graduation Transition from light to dark

The background. The blue rectangle in the center has the same color as the one on the left.

Relationships. Colors are proportionate. The dark color steps forward. The bright one is in the back, yellow color is glowing.

cold varm

varm cold

cold varm

Pink determines, seems muted Blue

In balance between colors, delicate, cold

In balance between colors delicate, warm

The color blue lights up, seems freshThe

Pink determines, seems muted

The color pink brightens up a lot, seems fresh and clear. Great contrast.

Blue fields are larger but lighter, dark fields are smaller but heavier.

Different color blending, experimental.

Warm brown and cold gray. There are contradictory conditions

In balance, slightly darker, color fullness

There red dominates, deafens

In balance, calm, subdued, withdrawn

Orange screams a lot but doesn't stutter

The color red dominates, strong signal. the

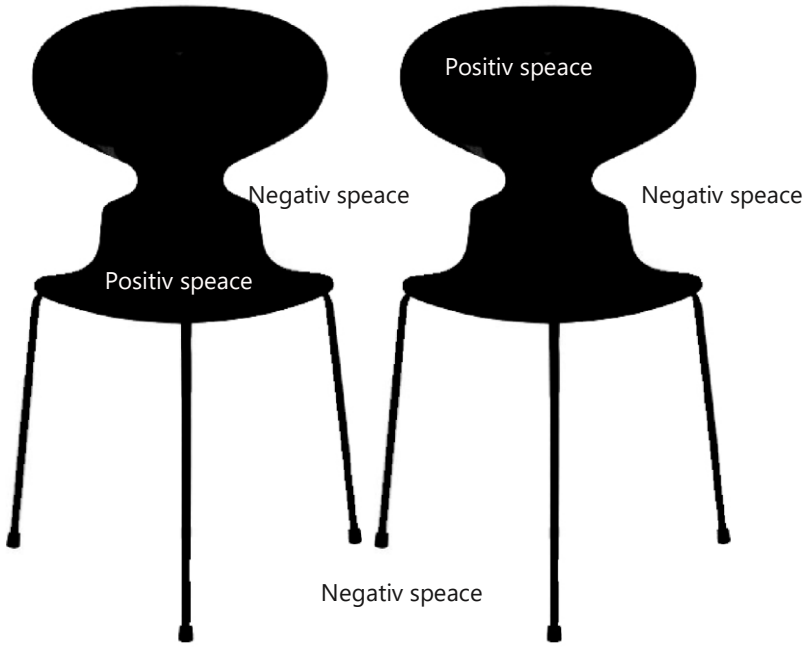
colors are balanced

Different shades. of the same color Slightly dull. They are too close.

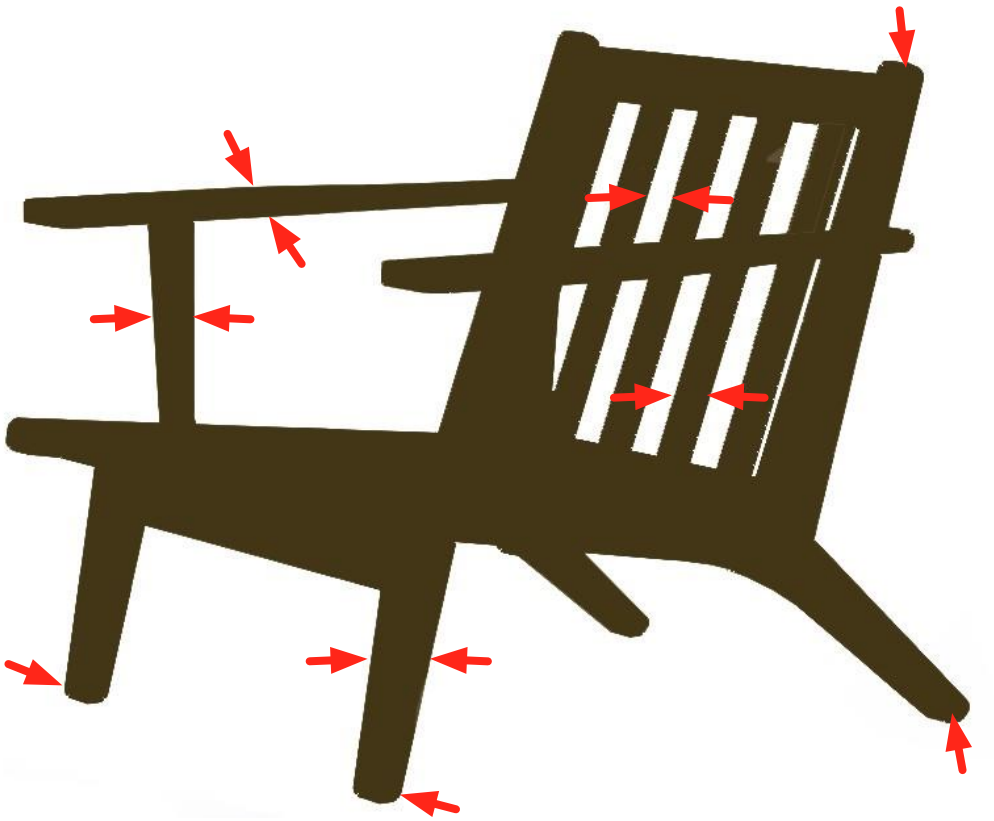
Classic color blending from old furniture

Proportions

It is very important that proportions in your furniture are satisfactory. Proportions mean the ratio of the sizes of the satellite parts to each other.Proportions can not really be seen on screen or in drawing or on small model. At least you can’t imagine it in thinking about it.They will only appear when your furniture is in front of you.The room and its size have a great influence on how you experience a piece of furniture.



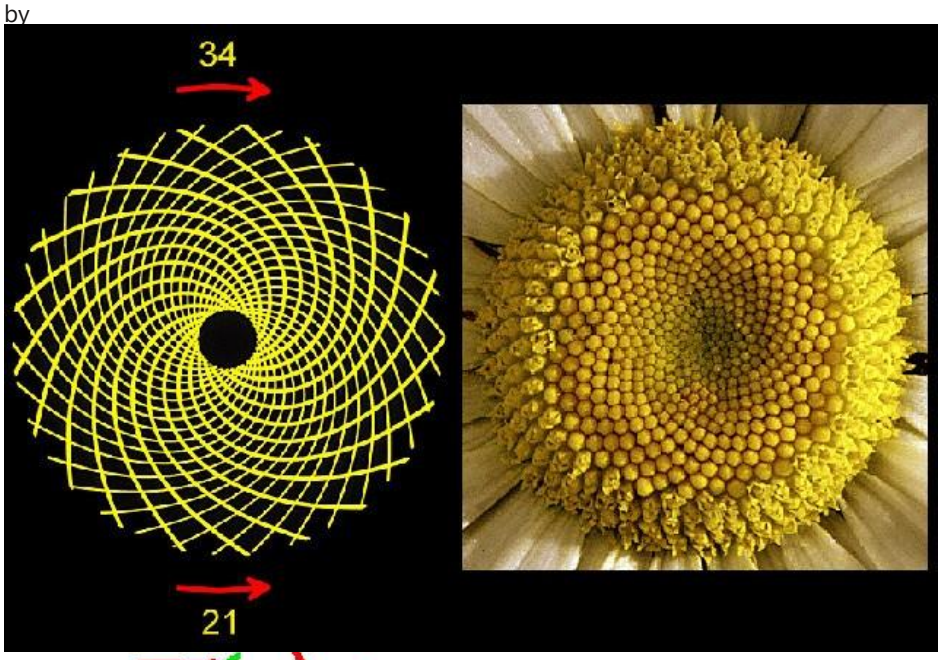
When you look at furniture you can see both the object itself but also the space outside. We call it ”the negative space”.

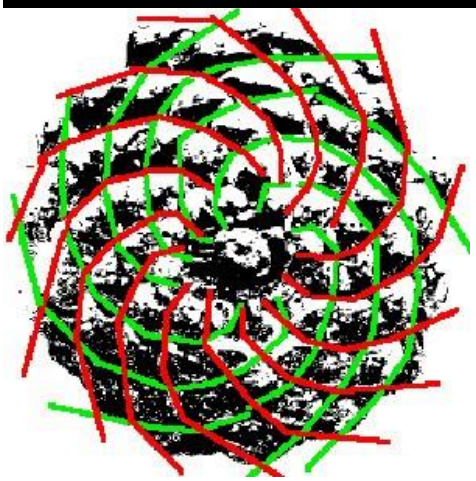


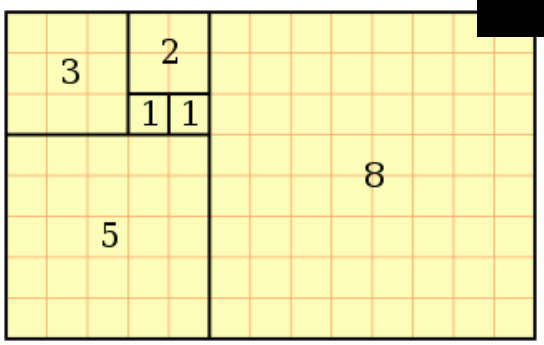
You need to look at the thickness / width / length ratio in each part.As well as the relationship between parts.It is important that you look at height / depth / width among themselves. If possible make more model clays then you have something to compare with.You can also advantageously make scale models 1: 5 but in order to compare they must be very accurate. You might 3D print them.

Golden Ratio or Fibonatti numbers

There is a special nature-created aspect ratio which is called "The Golden ratio" which is also described by







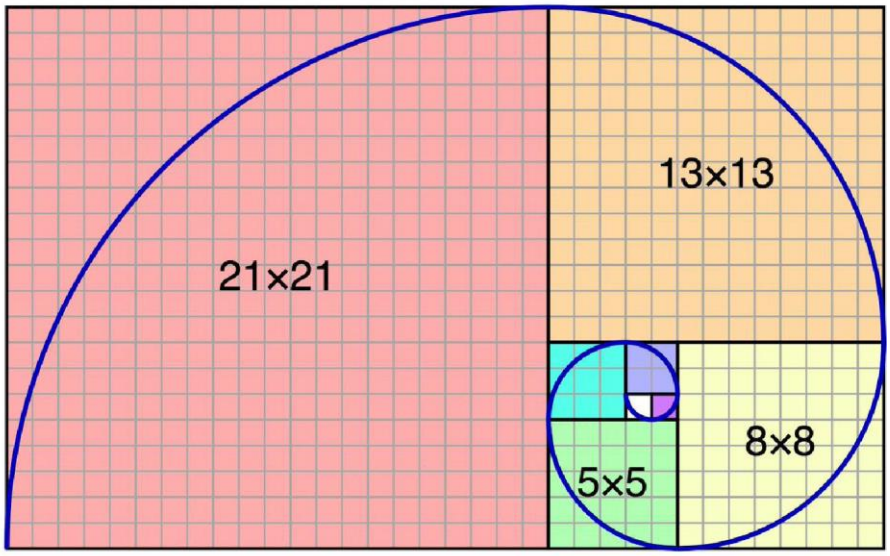
at is called Fibonatti numbers. This ratio is proportional to the appearance of flowers, scales, etc.

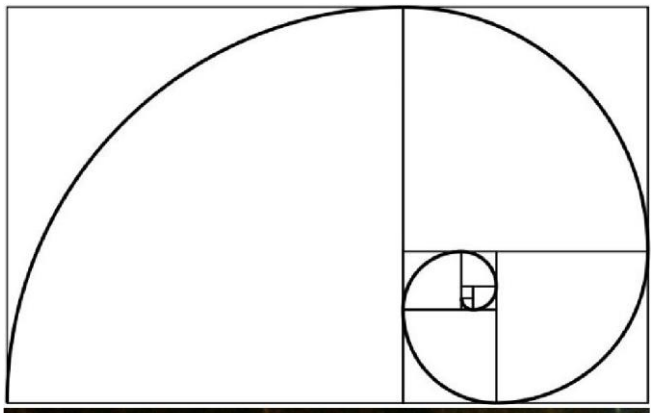
Fibonatti numbers

It is a number row where the ratio of the numbers is ca. 1.618

5:3=1.6

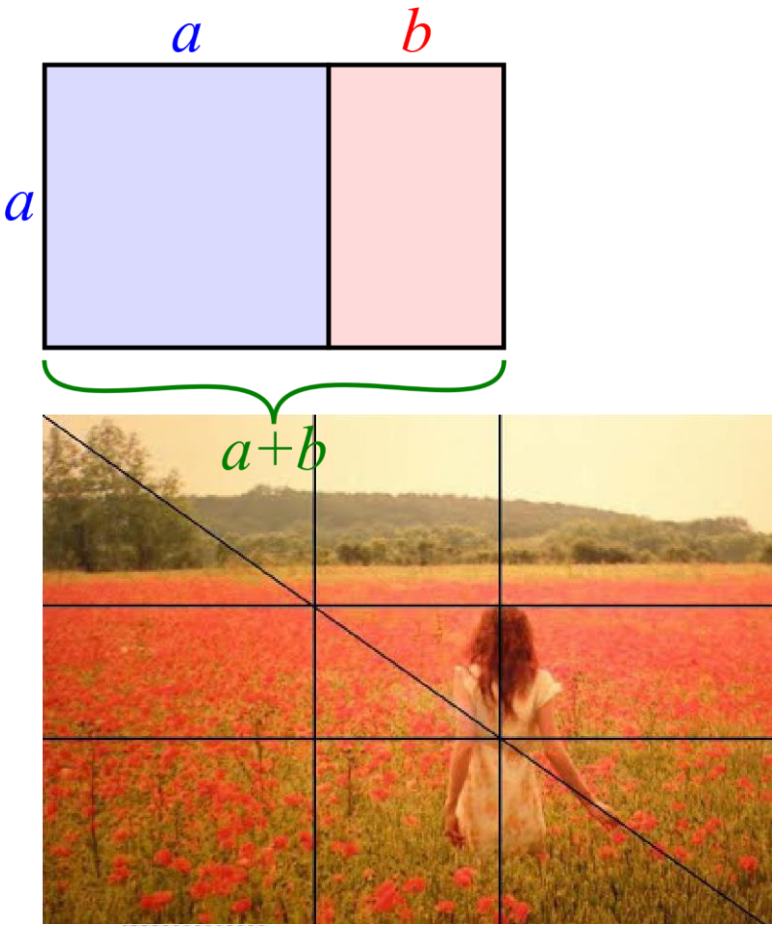
Eksempel of Fobonatti numbers.
1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6

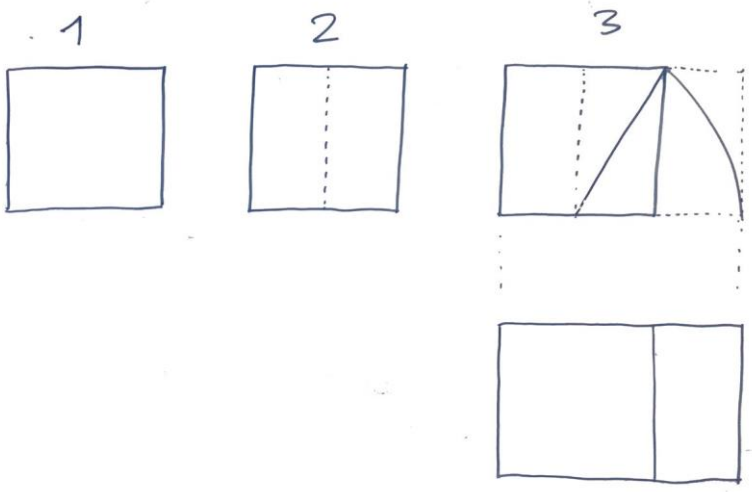




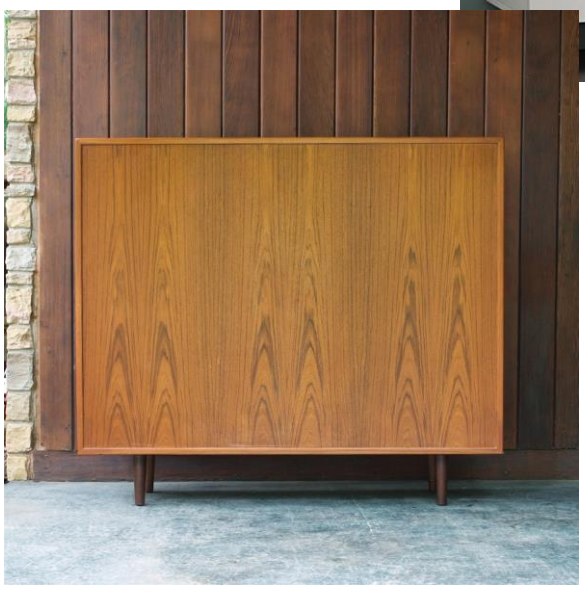
Golden Ratio

The Golden Ratio is a ratio of two figures / sizes. You can use it to compose balanced images, art ect





Inspiration




Spar
10%