
Basic Formgiving Skills - DCB110

A pictorial walkthrough

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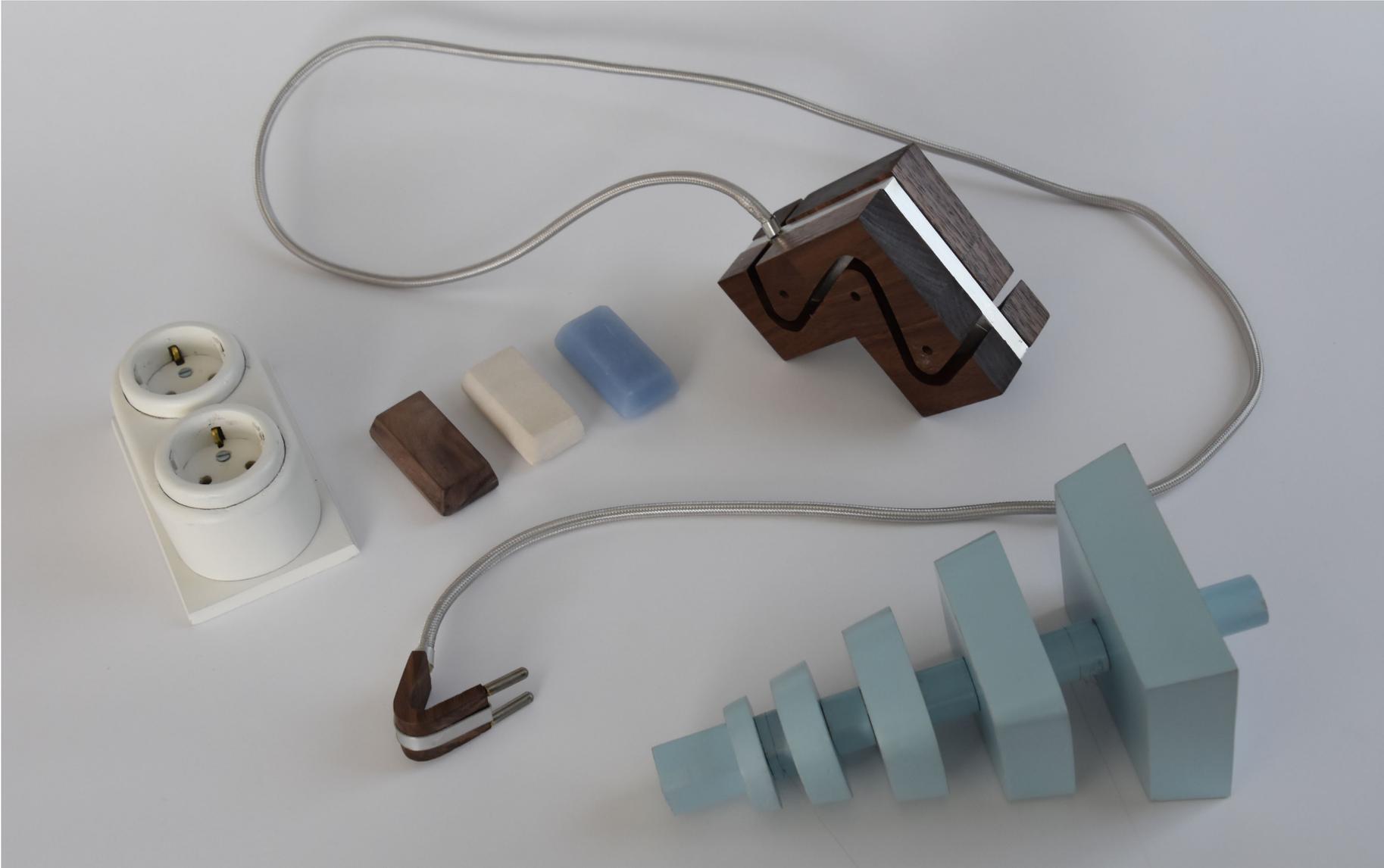
Introduction

This pictorial elaborates on the process of the basic formgiving skills elective and its results.

The goals of the elective were to understand the building blocks of form; in what way their properties and subtleties effect the expressive qualities of a design and to understand the basics of different aspects of formgiving through visualizing and manufacturing.

There will be reflected on the learning experience of the different created products and their feedback.

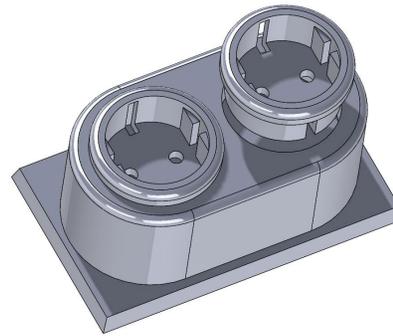
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Product Copy

The objective of this assignment was to make an accurate copy of the power socket presented in class, by only using non-computer controlled machinery. The model, including the back, had to be painted in white. The details, such as screws and earth-prongs, also had to be taken into account.

The finish of the model was important, since it had to look as plastic alike as possible.



Process and result

To achieve an accurate model, I had to make exact measurements of the socket and a building plan. I first made a 3D CAD model in Solid Works. I really like to do that, since you can easily see proportions and (impossible) shapes and connections.

After buying the necessary considered materials, I started executing the plan.

The model consists of multiple layers of MDF for the base, a baseplate and 2 separate sockets. I decided to do this to make the detailing easier.

I used the earth-prongs of an existing power socket. For the finish I used paste filler, to fix the damages that happened during the sawing and sanding. After that, I used primer, spray filler and matt white paint.

Feedback and reflection

In advance of making the model, we received some tips in class.

For example, do not use MDF sealer from the DIY market, but rather use materials from a car materials shop, since they have a higher quality

Furthermore, use a primer and spray filler to fill tiny disturbances. Mount the model on a stick to spray paint it and start with the difficult parts first. When the paint starts to drip, stop and start over, it is hard to remove the drips afterwards.

Use a 180 to 600 grid sanding paper, not only to smoothen the MDF, but also in between the layers of spray filler.

During the process, when sanding, but especially when painting, use PPE.



After presenting the model in class, we also received some feedback, which was mainly general feedback during this session.

The most valuable tip for me was that finish is very important. Sanding, filling and painting determines the main feeling about the model. When a model is properly sanded and painted it already gives an appealing and neat impression.

After that comes detailing, for example the screws and earth-prongs, and proportion, whether or not the height and width are in an accurate relation with each other.

These 3 aspects make a model look appealing and real.

I think I have not done a bad job on all of the 3 aspects, but they are far from perfect.

Although I tried to copy all the details, the holes, screws, earth-prongs as well as the 4 plug guides are not totally accurate in dimensions.



I was struggling with the painting as well as the planning of it. It was hard for me to completely cover the MDF, to prevent it from absorb all the layers of spray filler and paint. Furthermore, pieces of MDF showed cracks, due to the sanding.

I also had some problems with equally painting the model. I tried to place the model on a few nails in order to paint it as a whole. This was not really successful, as can be seen in the picture above.

Moreover, when we compared the different models in class, I immediately saw the difference between matt and gloss paint. The glossy painted ones looked far more plastic alike than my matt painted one. An example of an experience effecting property of the materials.



My decision to paint the base and the sockets apart from each other prevented the sockets from looking MDF layered on the one hand, but did cause the seam between the socket and the base on the other hand. In the original model it was seamless and painting the model as a whole would fill up these tiny gaps.

One of the details that was quite accurately manufactured in my opinion were the four plug guides. They were hard to sand in the right shape, since they were quite small, but had quite accurate dimensions.

These small details were also hard to paint properly. This was because of the small MDF parts that kept on absorbing paint.

Materializations

For the materializations assignment we received a dimension sketch of an object. The objective was to make exact copies of the object in a wood material, a stone like material and a material of our own choice.

Process and Results

For the wood material I chose American Walnut, since I really liked the appearance of it. The wood also worked really easy, it was rigid and did not damage quickly. The dimensions for the wood object were very accurate.

The limestone was a little bit harder to work with, since it could crumble a somewhat when sanded too hard. It was easy to keep the outlines sharp, but it was sometimes hard to sand straight.

The candle wax was the hardest material to work with. I used a rectangular mould to pour the candle wax in. With the resulting beam I was able to properly sand and file it. The candle wax caused a lot of mess while melting and pouring and it can be easily damaged.

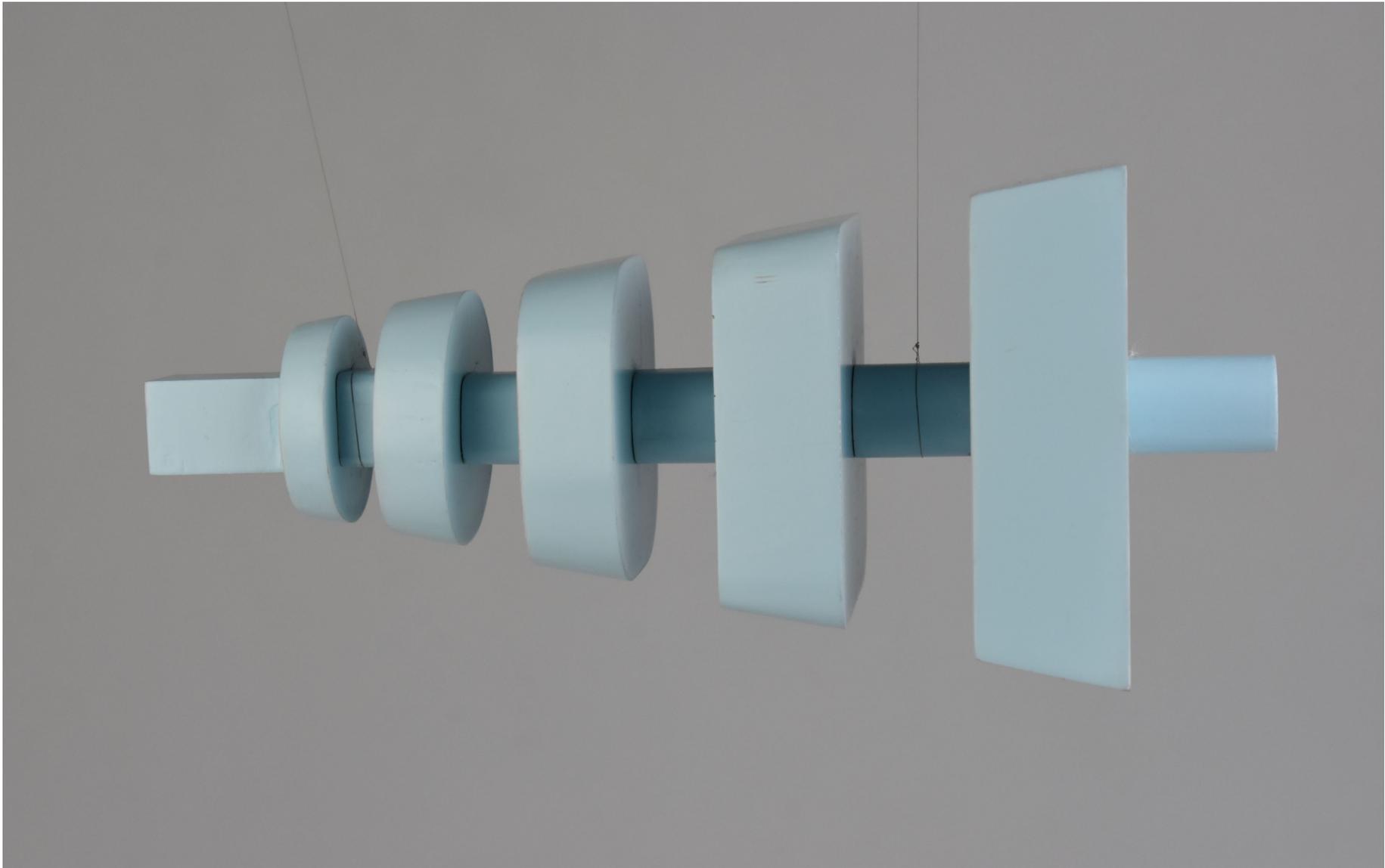
Feedback and Reflection

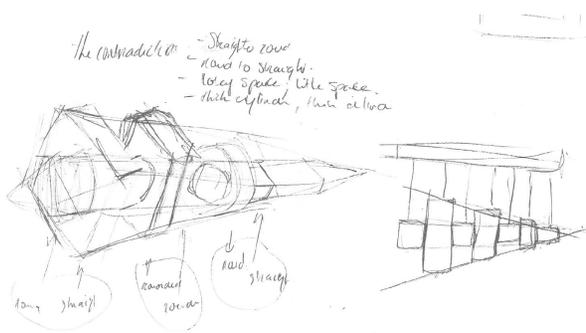
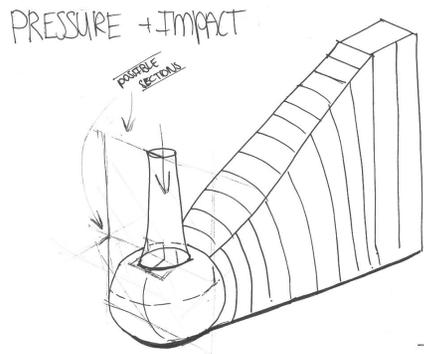
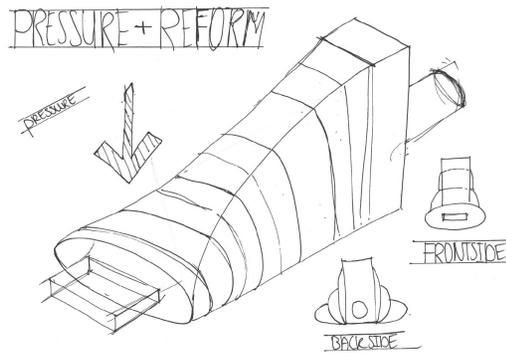
To start with, the dimensions of my object did not really follow the dimension sketch. The corner of the object was missing, which caused a non-round fillet. The edges of the candle wax are a little less sharp.

I would not use candle wax a second time. The model is not completely accurate and gives a lot of mess. I think the limestone is more appropriate for organic shapes instead of exact and straight shapes. The American Walnut is by far the best in several aspects. It has an appealing look and is easy to work with, especially since you can use the wood work machines in the workplace.



Form Integration





During this assignment, we had to design a form integration that connects and integrates two basic shapes, one angular and one rounded shape. Although the shapes should integrate, it was important to keep the original shapes recognizable.

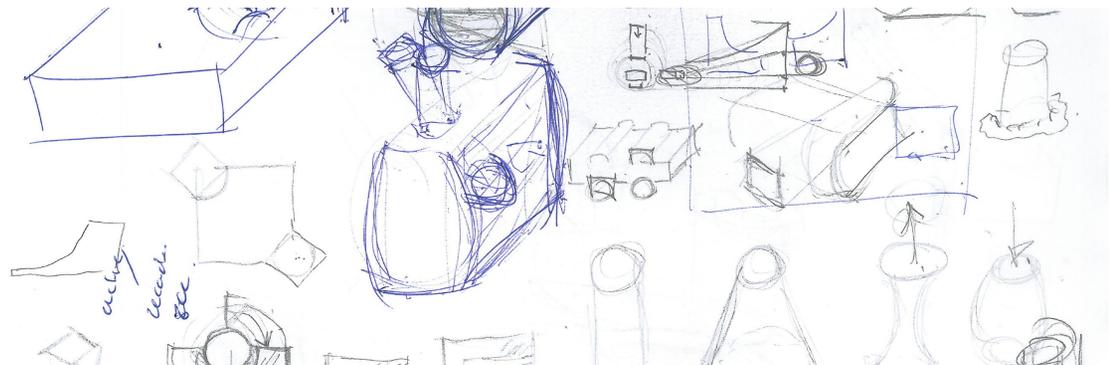
Process and Results

After brainstorming about the form integration I thought it would be interesting to inspire the integration on a physical impact, as can be seen on the left. A cylinder smashes onto a beam, which would deform the both shapes. In addition, the angular shape would take over round characterizations and vice versa.

After coming up with an idea and making some sketches we got feedback in class. Something that became immediately clear is that my integration is an organic alike shape. This makes the shape inaccurate and almost impossible to make. It was, as Miguel would call it, a 'sock-surrounded' shape.

He pointed out that a shape does not need to be completely finished, in order to look finished. In other words, the brain can finish the shape. This phenomenon is better known as Gestalt Psychology [1].

After designing the model I started making it, mostly by using the machines in the workspace. I used oak wood for this assignment. I really liked the American Walnut, but I wanted to try a different wood to see whether it would work as easy as the Walnut. This model had to be painted so the looks of the wood did not matter. I painted the different components separately and assembled them afterwards.



Feedback and Reflection

This assignment was really informative for me, since I learned a lot about assembling in particular.

Because of the defined shapes I could relatively easy make the different components of the model with the machines available in the workplace. Something that provided accuracy. A result of this are the well-defined contours.

Although the components were quite accurate apart from each other, it was hard to put them in the exact place of the model, especially the pierced cylinder.

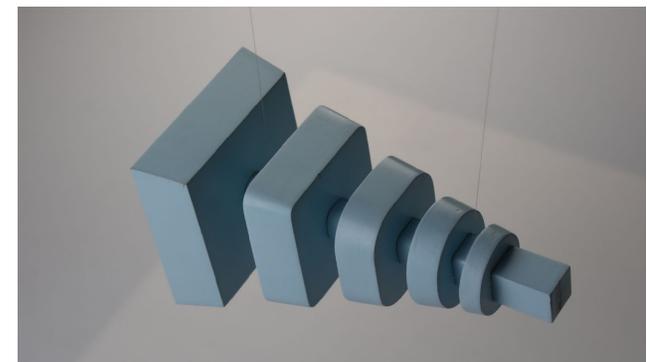
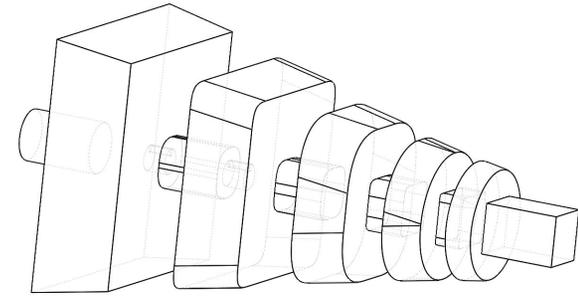
I tried to solve this problem by drilling tiny holes in the exact middle of each component, in order to be able to pull a nylon cord through it and string the components together. As the wood was quite tough, the hole drilled by the tiny wood drill was not completely perpendicular.

In combination with the small imperfections in dimensions of the components, this technique did not really work out. The inaccuracies could be seen by eye.

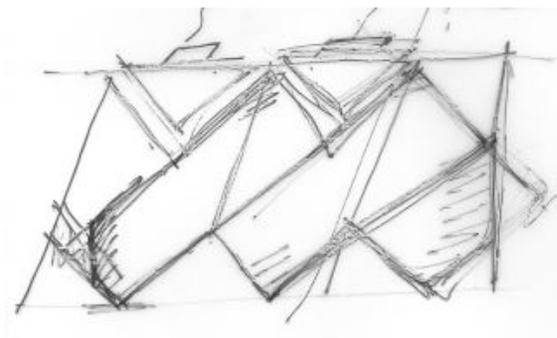
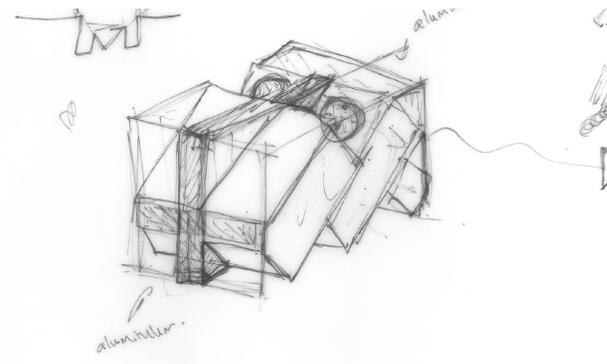
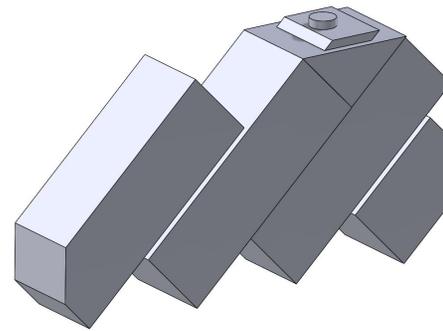
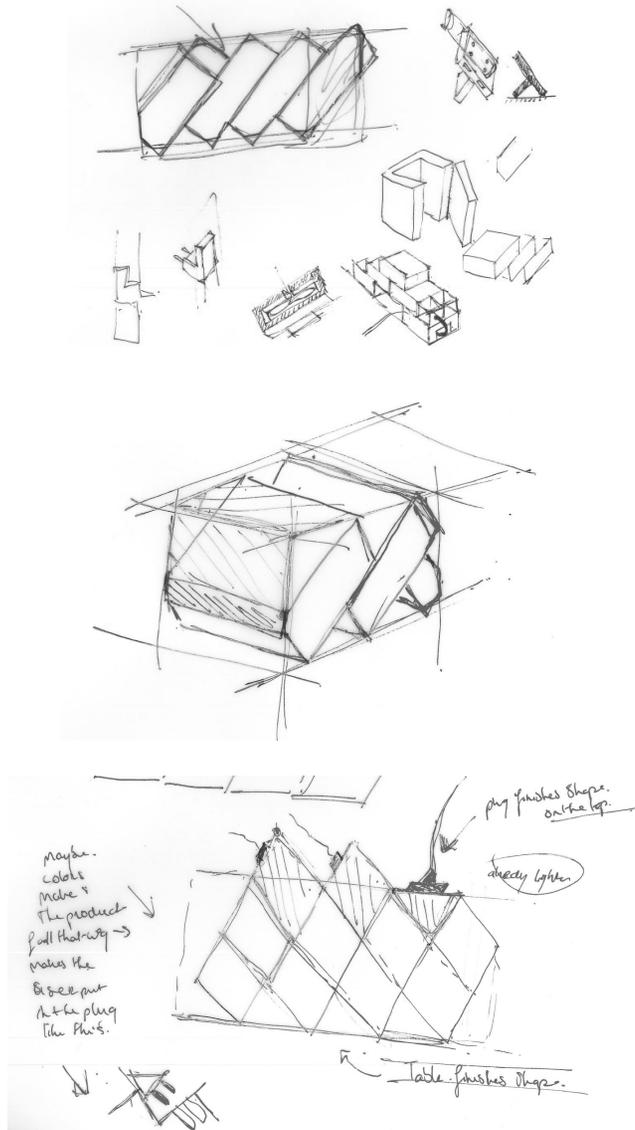
I changed my plan and decided to assemble them by eye. Even though this did work, I did not pay attention to the preparations of the glueing. I painted the whole component and when I tried to glue the parts together, the paint dissolved and the glue did not attach. I solved this by removing layers of paint and filler.

The feedback that I received in class was in general positive. The presentation was appreciated, which was one of the stronger aspects for me as well. The glossy paint gave the model contour and by hanging the model at eye level, the idea behind it spoke for itself to a great extend.

The second smallest or slice of the pyramid, on the other hand, was too rounded. At last, as a creator you should let other people know that the model they are staring at, is yours.



Form Family



In the last assignment, the objective was to design an extension cord that brings into practice all previous lessons. From exploring form to materializations, finishing and form integration. The additional challenge was to make the plug and the sockets of the same form family, which means characterizing them in such a way that they recognizably belong to each other.

Process and Results

I really struggled coming up with a concept for this assignment. I first thought of a concept that consisted of a few falling blocks. The idea was that different components could create a different form combined, without them being a unity apart from each other, known as the Gestalt Psychology [1]. Something I really liked experimenting with this in the previous assignment. A few tiny details as chamfered sides should indicate a rectangle, the plug would finish the shape from above and the table from the bottom.

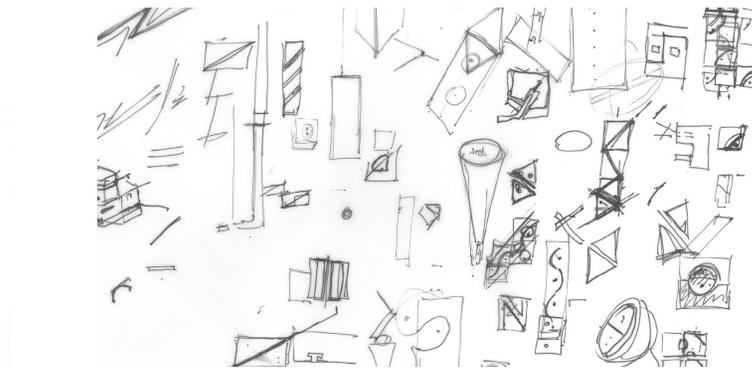
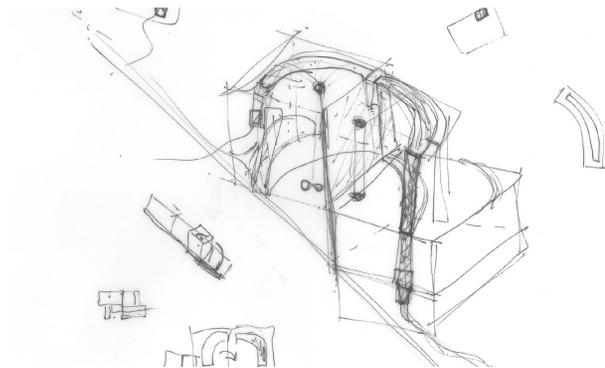


When we received feedback in class, something that I already doubted was confirmed.

I thought that my design lacked in coherency. Design choices were far fetched and made the design far from convincing. Besides, other design related things were not even considered.

I fully agreed with the feedback and decided to completely abandon my first design. One of the few things I liked in my first design was the light, kind of floating, look. This was caused by the relatively small amount of supporting elements touching the table.

After again a lot of brainstorming my final design started to shape. I wanted to integrate a sine wave, representing alternating potential. This wave had to be unbounded as it repeats itself over and over again. The design is made in such a way that it can be repeated infinitely as well, emphasizing this element of repetition. The plug does also support this ongoing effect, since it is shaped as a sine as well.



The idea is that a plug inserted in the model receives power from a strip that runs from the end of the model, through the model (which can be seen as the aluminium), through the wire, the plug and eventually into the power socket.

The wire is the inverse of the sine shaped gap, taking the Gestalt Psychology into account [1], the brain will finish these 2 objects as a whole, also because it is the same color.

I used American Walnut, since I really liked the stylish and valuable appearance of it during the materialization assignment. I also really wanted to work with metal, which was a great opportunity, since the wood had a striking light-dark contrast with the aluminium.





Results and Reflection

I loved to manufacture the model and I learned a lot from it. Coating the wood, working with aluminum in the metal workshop and creating an overall appealing product.

The feedback in class gave me valuable information to improve it even more next time. Starting with the design itself, Miguel was wondering why I did not emphasize the separation between the different wooden blocks. I tried to do that with the sawing lines, but I agree that creating more isolated wooden blocks would emphasize the replication even more. Joep thought that the lines of the sine should have been parallel to each other, something which I agree with as well, since it would reinforce the sine wave shape. Moreover, the plug would barely fit another socket. I have to make sure next time that it looks and actually does fit.

Furthermore, I received some feedback about the glueing, something that I was incredibly struggling with during the crafting. Instead of Bison Kit, I was recommended to use epoxy glue, since Bison Kit might stitch but remains soft and spongy. In other words, it is not appropriate for small surfaces that encounter a lot of mechanical stress, as for example torque.

I learned a lot of finishing and looks-defining techniques this assignment, that make a model look even more real and accurate.





Reflection

Basic formgiving skills is one of the most useful electives I ever followed. During modelling, I first tried to make a functional prototype of, at its best, MDF. Now I can use different materials with different compositions and form transitions to give values, qualities and characteristics to a model, that support the experience of, and the idea behind, a model.

I learned to work with my hands and non-computer controlled machinery, different materials and tools, as can be seen on the left. I got familiar with starter mistakes and how to prevent them from happening. I learned to plan activities ahead. Making a building plan can save you a huge amount of time and mistakes.

I look at existing products in a new, rather analyzing, way. Moreover, I observe how certain products obtain certain appearances. I developed a critical look, also when looking at my own products.

I think this course perfectly adds up to my vision as a designer.

When I want to design a product I aim for a clean, simple and smooth look. The product can be in the centre, and can draw attention, but it improves life without bothering a user.

The user has to be taken into account when designing, but appearance is just as important. The look and feel of a product can manipulate your thoughts and feelings. It's a clean, smooth and simple design that makes a user love your product.

Designing with a strong vision makes sure that all design choices are grounded. Look, feel and function have a reason and contribute to the smoothness and integration of the product, which helps to make the product just look, feel and works the way one person wants on the outside.

This course helped me defining the clean, simple and smooth look even more, as well as the look and feel of a product.



References

[1] Bürdek, B. E. (2015). *Design: History, theory and practice of product design*. Birkhauser