MJUKET

A MULTIFUNCTIONAL WORKSPACE

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Mullet a multifunctional workingspace
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ABSTRACT

In today's design environment we are constantly in movement. Whether it is making models or tracing a sketch, we need to go to specific stations intended for the task. It is not just time consuming but also a problem. Stress might occur due to the fact that you never know whether the light table or the cutting mat will be preoccupied. Designers' needs are not reached and in the end they might end up buying their own "Add-ons" instead of using the stations, which is an extra cost for them. An extra cost that could have been reduced if everything they might need was already installed at their specific workspace.

This project was inspired by watching classmates and hearing other people who work in a creative profession. How they wish that their workspace was "more adapted to their profession, simple and high functioning". With this in mind my product has been developed by the principle of usability, to help designers in their everyday life in various areas. Making prototypes and regular evaluations helped me understand how we as designers work around our workspace and how I can ease our design process.

The result is called MULLET – a multifunctional desk that can be used in various ways, it can be a light table, cutting table and has a big storage so that at the end of the day you can put all your work away. It is also easy to keep it organized so that you can always find the tools you need. It is customazible depending on which design profession you work with. The modularity also invites the user to recycle and switch out the different parts when they are no longer functional. Which prolongs the life cycle of the furniture.

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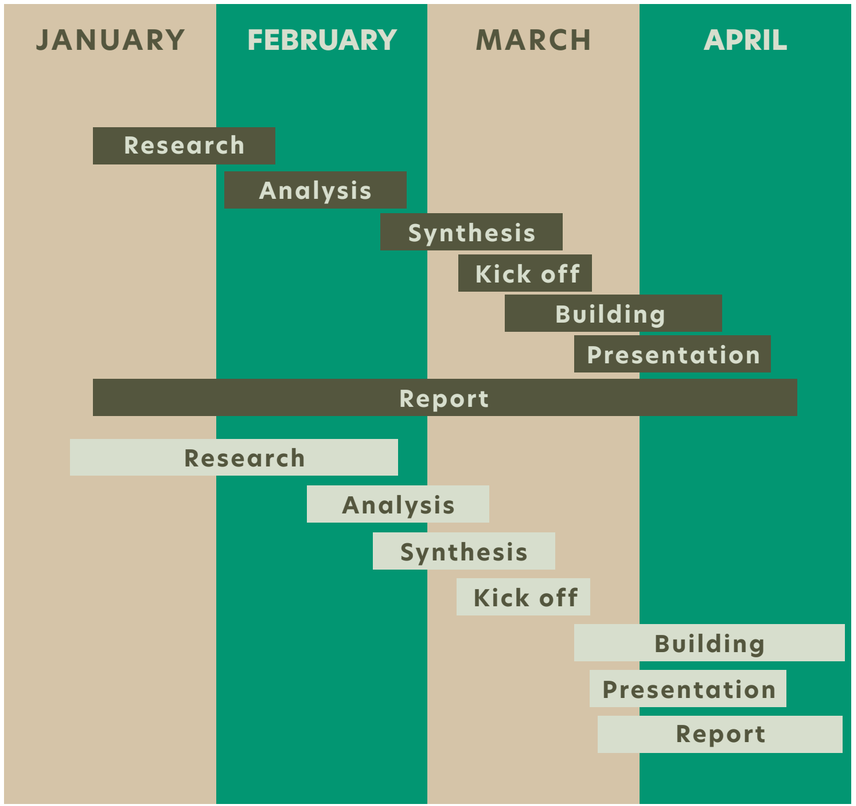
TIME PLAN

THE ESTIMATED PLAN

WHAT IT BECOME



MOTIVATION

My motivation for doing this project is built up from these three years. Where I've constantly felt that something is missing by my workspace and comments from fellow classmates where we have discussed what can be done better.

Before I applied to this school, I would have never seen myself design furniture of any kind. That is something that has been growing during my time here at the industrial design program, I never saw myself as someone creative enough to do such a thing. This started to change thanks to the course Visual Communication where I got to challenge myself and realised that I could do so much more than I initially thought. We designed chairs and I had so much fun working with it without realising it. It is not until this course that I noticed my interest for furniture had grown and I wanted to try to make a furniture design that was completely my own. I could never have done this project in the first or second year because I did not feel ready for it and my brief did not really fit for any of our projects.

I think to be able for the first time to show everyone but above all myself that I too can design furniture in my own style with my own solutions. That is my motivation to finally be able to show what I can do and leave my comfort zone.

BRIEF

A multifunctional desk. The idea is to create one spot/workspace where designers can easily work at and not feel the need to buy add-ons, such as a light table, cutting mat, etc. I want to design a product that is not just a "desk".

INITIAL IDEA

Desks will always be desks no matter what you do with them, it is a working spot for us humans to do our work at whether it is homework or designing the next ultimate car, it is still just a desk, but it can become another new variation of a desk.

A workspace in today's society includes:

» Somewhere to place a computer
» Storage
» Ergonomic
» Clean
» Tolerable

One can assume that the top of the desk is the key to a perfect design. So, therefor my initial design is to be able to create a fully functioning desk where you can switch out the top surface and other functions. This will change later in the process.

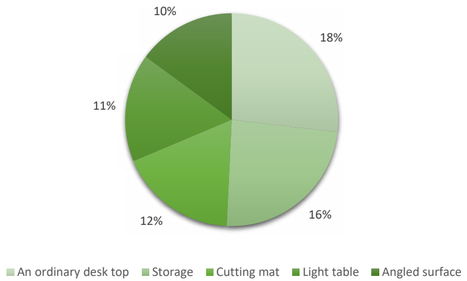
RESEARCH

SURVEY

The first interactive research I did was to create a survey that mostly industrial designers and architects replied to. I asked the users to rank according to what they thought was the most important feature for their desk and what was not as important. The different options where: Light table, cutting mat, storage, whiteboard, cork disk, angled surface, hooks, pencil stand, ordinary desktop and made from reused materials. Through this survey I chose to continue with the top five.

Most to least prioritized:

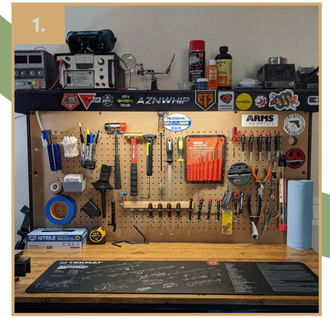
An ordinary desk top 18%
Storage 16%
Cutting mat 12%
Light table 11%
Angled surface 10%



When asked what the users did the most at their desk whether it was at home or at school/work the most common reply was sitting with their computer, sketching or building different models. This only confirmed my assumptions and made it easier for me to understand the work way and the different needs. Extra space for a computer screen is a must and the fact that you should be able to keep all your sketches, books, etc and still be able to make your models. One of my goals is to as little as possible interrupt the work rhythm, if you are working with your 3D models on your computer you should be able to make models at the same time and not move anything to get that extra space.

I also asked to mark the one that they thought most fitted them. Which 31% picked "I store (want to store) all of my tools close to my desk", and that made me focus even more on the storage for the desk and how to include as much storage as possible without taking up too much space. In second place was "My desk is where I work most of the time" with 23% and at third place with 20% "I like to personalize my workspace". These three where the beginning of a thought process, where I started to question whether I should make it as modular as possible or just create this standard that is optimal for "everyone" and this thoughts where constantly in the back of my head.

Five different pictures where shown were the user had to pick one that they would like to have according to their preferences. 40% picked the second one and their motivation was thanks to all the storage, that it looked stable and clean. 25% picked the first one thanks to its easy access of tools and that it is robust, some also commented that they wished it was more aesthetic pleasing and not just functional. Which I questioned because who can really decide whether something is aesthetically speaking beautiful or ugly? 15% picked the third one because it was smart, multifunctional, and easy to clean. These three became the foundation of my way to understand what designers actually want lookswise and functions in some aspects.



INTERVIEW

The one I interviewed has decided to stay anonymous but for the sake of the readers we will call him Ano. He is a designer/ architect who has been working for a well-known car company and has been doing that for more than 15 years. I chose to ask some open questions, to get a raw and clear picture of how Ano works and what he is missing. Before entering the interview, he had no idea what my bachelor's degree project would be about, this was because I wanted to counteract overthinking and just get simple clear answers.

One of the first questions to Ano was to describe a normal working day, and how efficient he thinks their work is.

Ano explained that his days vary from day to day depending on what type of project he has been assigned. But he gave some examples of how he makes models and sit by his desk with different 3D programs. One common denominator for it all is that he is always in a constant movement, thanks to the different stations that they have.

The next question was whether he believed that they would get more work done if they had everything they needed at one single spot.

To this he answered yes quickly, which for me indicated that my brief/product is indeed needed. He also mentioned how it could lead to people feeling more comfortable at work. Because they get something that is like their own, it creates some type of security.

My last question was about how he would describe the "perfect" working space for himself. Which he replied with that it should include:

- A big working area
- Storage
- Somewhere where he can hang up different things for different projects

As a follow up discussion, I asked if it would be optimal to have different tools with easy access. If a light table and a cutting mat would make his work easier? and if he believed that walls on a desk would make him feel trapped.

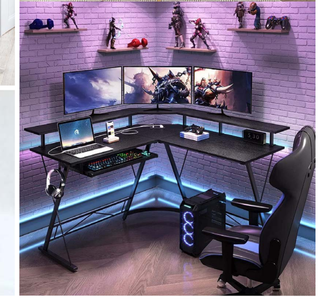
To this he replied that he would like to always be able to just grab the tools he needs and that have his own light table and cutting mat would make him honoured and would ease his work by a lot. During hectic times there is sometimes a que to both stations which creates unnecessary stress and makes the atmosphere at work a little tense. When it comes to the side walls, he said that it would be nice to get that extra privacy while working and that sometimes the best inspiration is just being by yourself in your own shell and reflect and to be able to do that you need privacy.

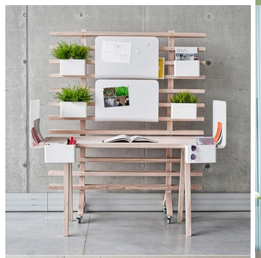
While then later telling Ano about my project we discussed how our working space is so underestimated in the aspect of efficiency. But he stated that "we tend to work better if we can feel comfort and a sense some of our own flavours where we sit. How are we supposed to feel inspired when everything looks black and white".

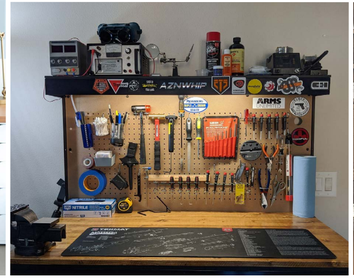
Summary of interview:

A multifunctional workspace is needed not nececarily in all design professions but in most of them. It would help designers all around in their daily life both terms of time but also stress level. It would also resolve the problem with constant movement at the workplace that can be distracting. It would also help with making people feel a sense of comfort because they would have something that is their own.

THE MARKET







ANALYSIS

NEEDS

User

» Adaptable use / change depending on needs
» Easy to recycle, maintain and repair
» Can store a lot in a little area

FUNCTIONALITY ANALYSIS

FUNCTION		*RANK*
Stand	Steady	N
Stand	Robust	N
Express	Creativity	D
Express	Modularity	MF
Allow/simplify	Assembly	N
Allow/simplify	Dissassembly	D
Allow/simplify	Reassembly	D
Maximize	Storage	N
Maximize	Material quality	N
Minimize	Used area	N
Be	Modular	MF
Be	Economical	D

USER

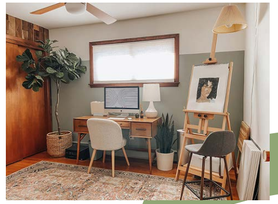
My user is someone who is:

» Creative
» Like details
» Have too little space for their work
» Need various surfaces

SCENARIO

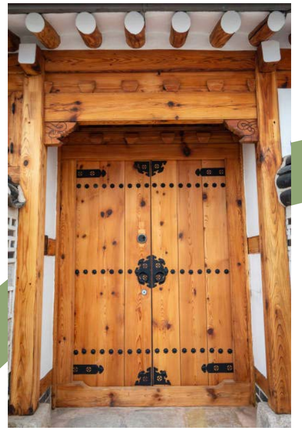
Mingi is a 32 year old industrial designer, he just started his own company and is working from his home studio. The biggest struggle for Mingi is to acquire all the tools he could possibly need as well as all the different workspaces and storages. The list goes on and on and he is unsure if he needs all add-ons, and in general he does not feel like he wants to overspend his money. Currently he is using one desk that he needs to keep clean, this is because he never knows if he needs to use any other type of workspace such as a light table or a cutting mat. If so, he needs to remove everything on the desk to be able to put up the add-on. This is time-consuming and stressful because he can never work with more than one thing at a time. With a better desk and a better layout Mingi could work with several projects at the same time, and he could stay as messy as he wants. A desk in use should not hinder a creative person from working. With one multifunctional desk Mingi would not need to think about what to buy and not because it would come with the desk itself. The time he used to put on cleaning the desk several times a day could be used to finish his different projects faster and have more free time.

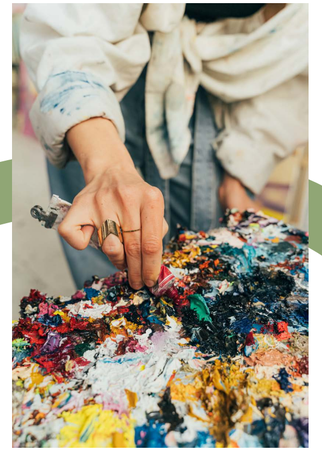
ENVIROMENT - HOME STUDIO



MOODBOARD - FEELING

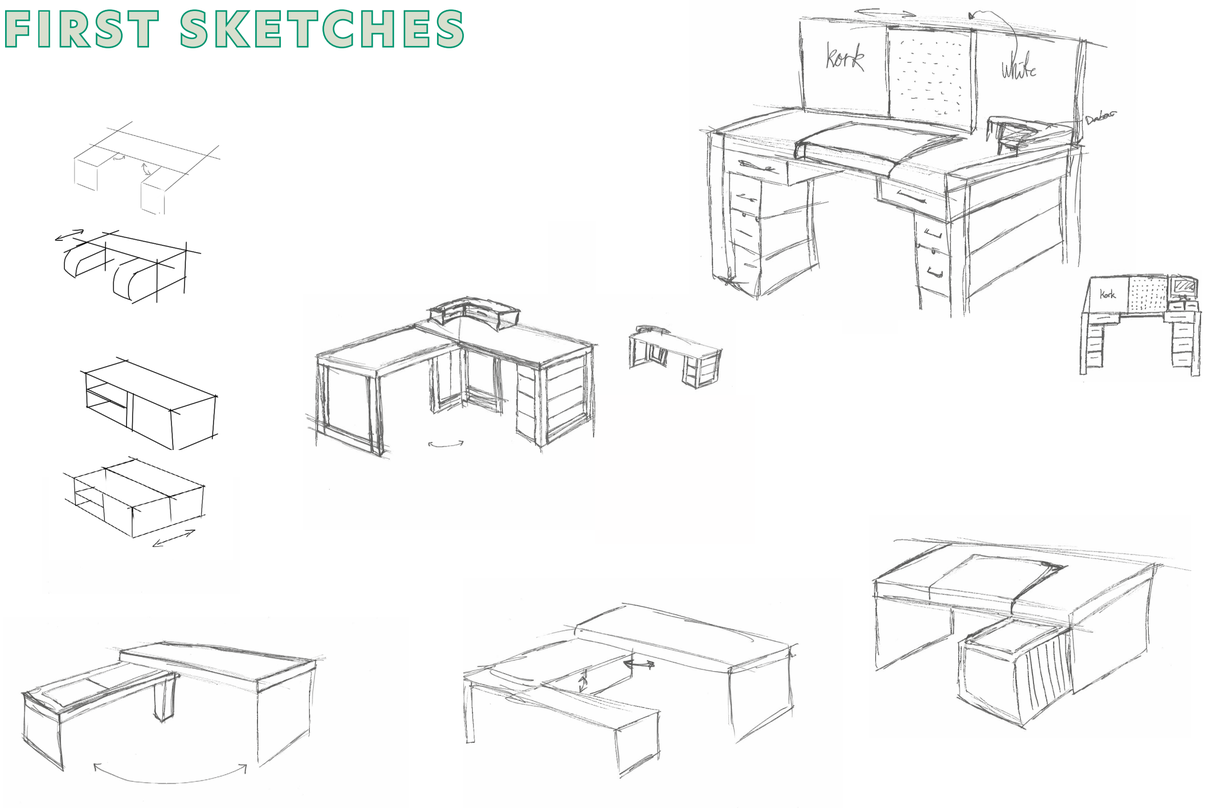
- Cozy
- Calm
- Clean
- Organic



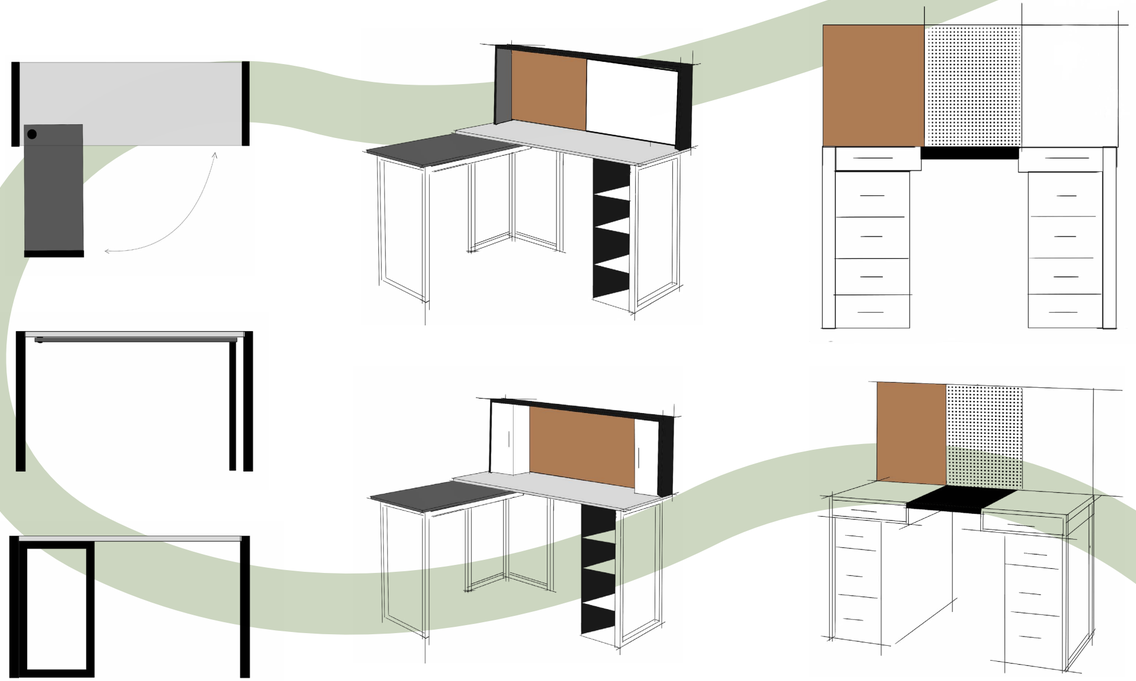


SYNTHESIS

FIRST SKETCHES



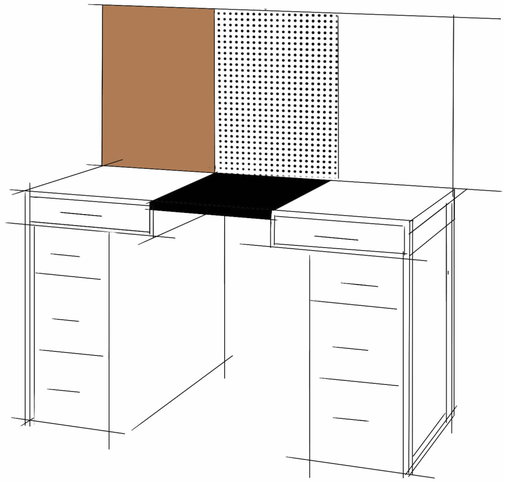
CONTINUED CONCEPT DEVELOPMENT



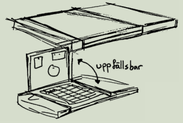
THE CHOOSEN BASE CONCEPT

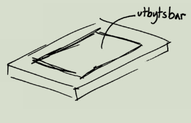
Looking back I think it is funny how I picked to continue with this one. The L shape was the original chosen one and the one I thought was the most challenging to work with but after the feedback sessions with my supervisor I decided to continue with the "hidden treasure" as I call it thanks to all it's different hidden storage and functions everywhere.

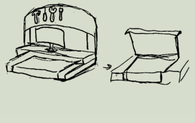
At this time in my working process I started to see a pattern, that I would unconsciously only think about the moving parts - like the mechanism - and make it as complicated as possible instead of actually listening to all the things my research showed. So I decided to work with "You should always be able to have your top filled with things and still be able to use all functions" in mind. Which helped me think clearer and start to see the final concept.

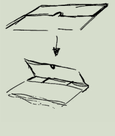


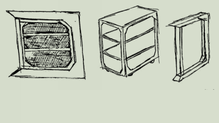
The different concepts that lead up to the final one:











USER TEST

The user test process was as followed:

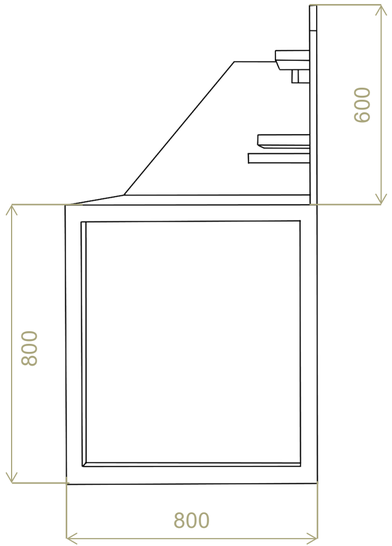
The user gets no directions and has to explain and try out certain parts and functions. Through this I got to know whether I needed to specify the signals the different parts shall give. I got some really valuable information from this that never occurred to me such as that the hutches shall have something in common, they should look like a "family". This made me change the design on the hutches to make them look like they belong to the desk and do not become add-ons. I got inputs on what they want their workspace to look like, as well as measurements such as the depth of the top and the height. I took these different answers for the height and combined them and through that I got an "average" height which was 800mm.

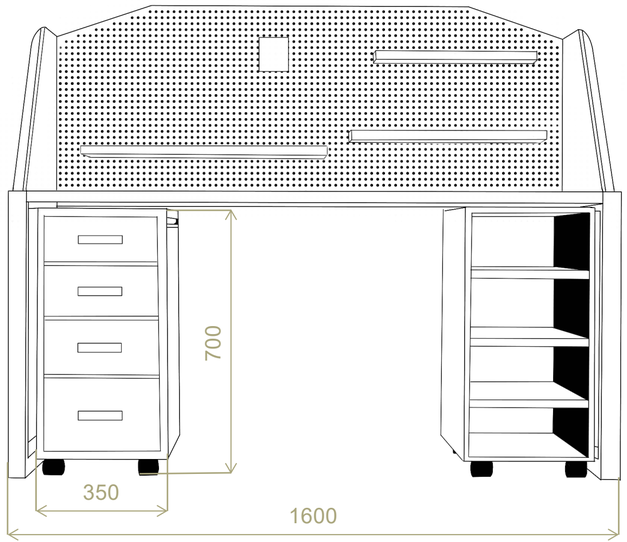
I struggled during this time in the process how I should even combine everything, what it should look like etc. Therefore, I think it was really important for my process to make this test and see things from a different perspective and get into the creative mindset again.

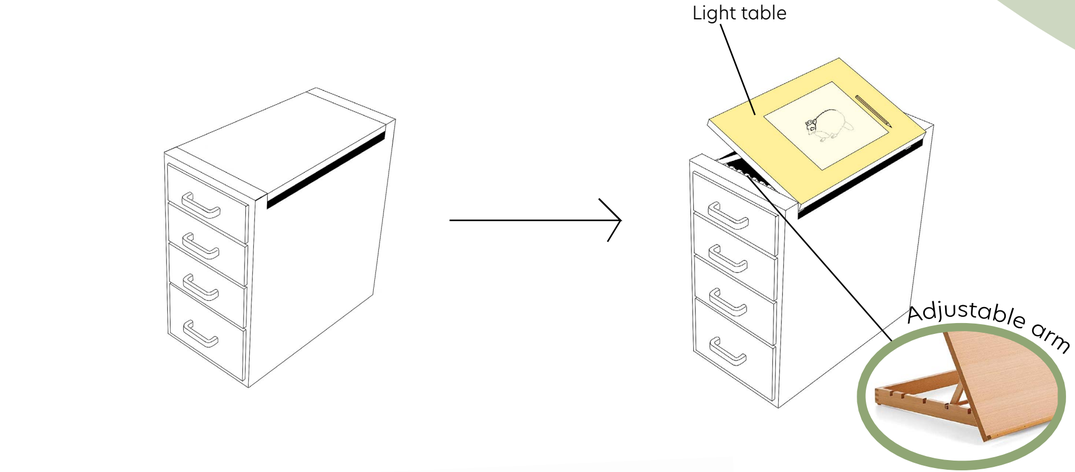
FINAL DESIGN

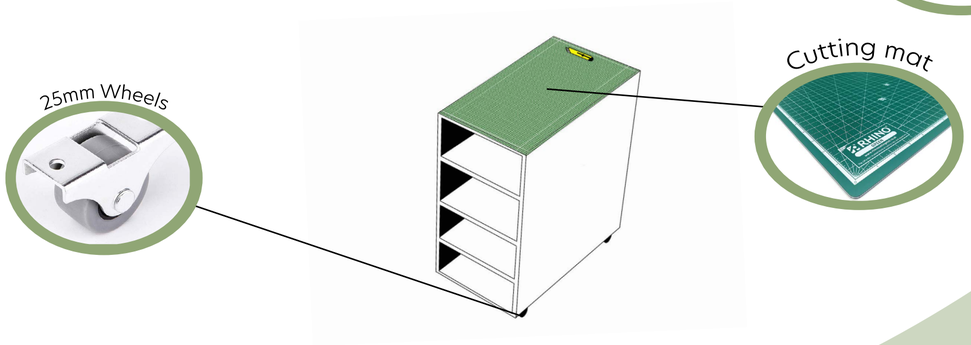
THE DESIGN

When I had the final structure I tested out doing angles on the hutches' sides and on the desk's different parts. But I ended up just doing angles on the walls and pegboard.

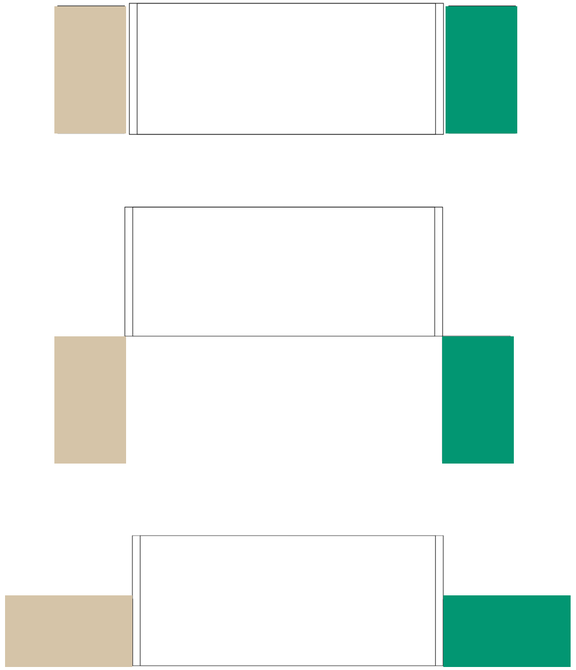


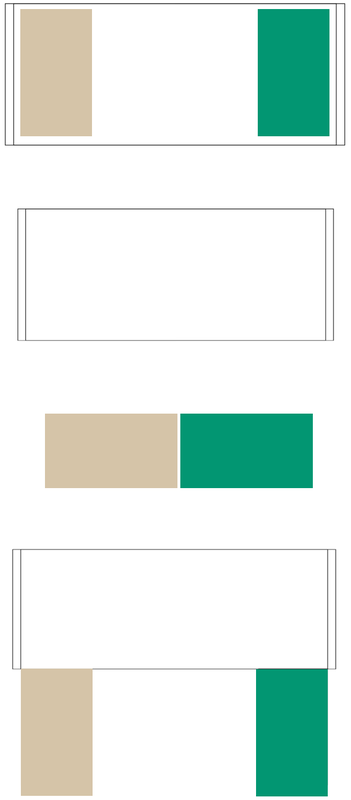






PLACEMENT





FEATURES

1. Corkboard
» Can easily hang up all your favourite pictures and create moodboards

2. A robust tabletop

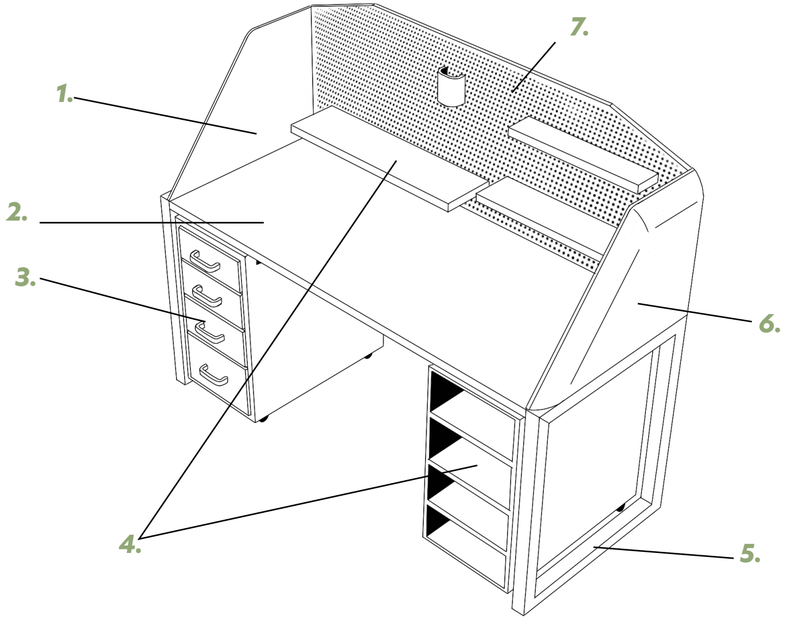
3. Drawers
» So at the end of the day, you can just hide or store anything you want and no one will see it

4. Shelfs
» The shelfs on the pegboard can work as a stand for a screen and the rest act as extra storage

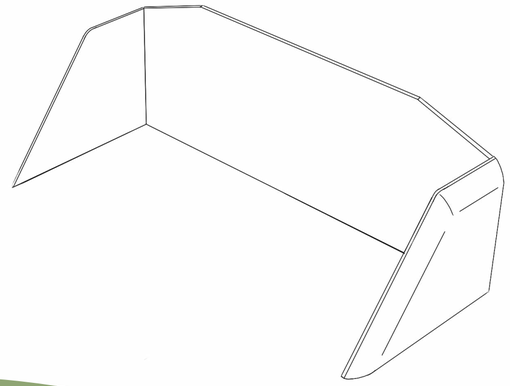
5. Steady metal legs
» Keeps the table from wiggling and can hold a lot of weight

6. Soundproof wall
» Helps with concentration

7. Pegboard
» So that you can always have all your tools nearby and be able to create your own system



SIDE WALLS



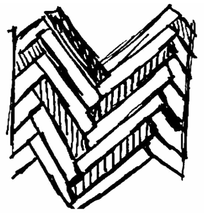
Clamps

The walls are planned to be in three separate parts that will easily be attached with these clamps, so that the possibility to only have the pegboard will always be there.

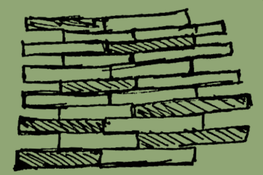
I wanted it to be as modular as possible and for some workspaces the side walls might only be in the way while for others they might help give the privacy that the user needs. As Ano mentioned in the interview.

DESKTOP TEXTURE

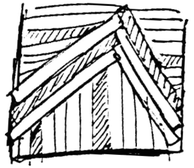
Chosen one



Fishbone



Bricks

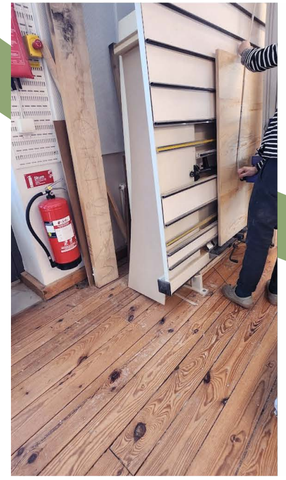


Combination of both

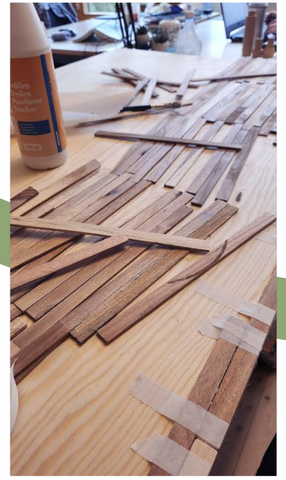
FIRST RENDERING

MODEL BUILDING

PROCESS

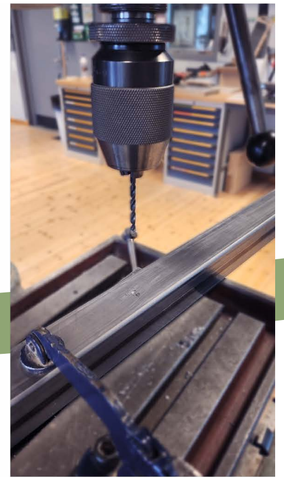


Step one was to cut out the desktop.

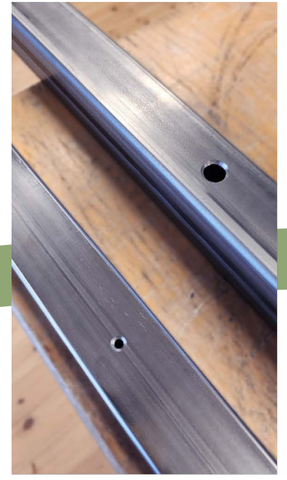


Thereafter I started doing the pattern I wanted for the top. My main goal was to use spill wood which I did. But instead of using solid wood pieces I needed to use sticks and glue them onto the pre-cut plywood with wood glue.

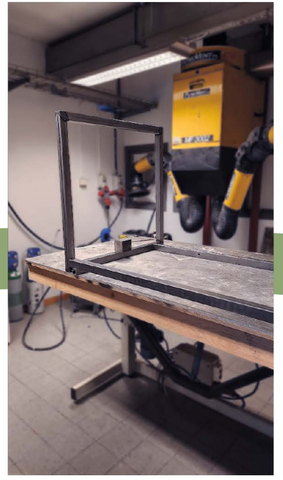
Cutting the metal pieces. This part of the project got delayed by two weeks thanks to some circumstances in the workshop.



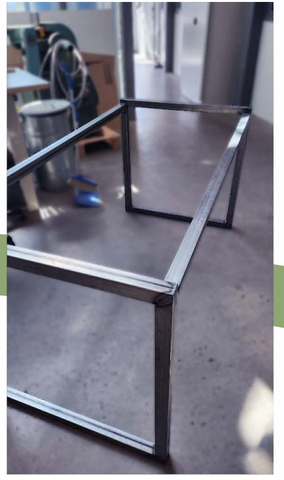
To attach the tabletop onto the legs I needed to screw it from somewhere. I decided to screw it from underneath, which meant that I had to drill holes in the frame before I could weld it.



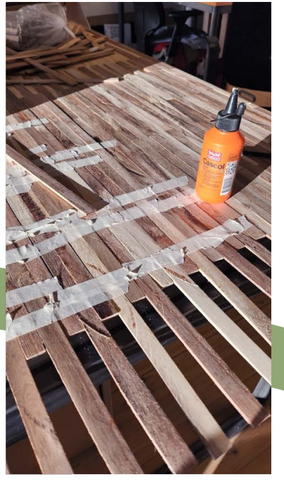
The metal I decided to work with is stainless steel. I used one 40x40mm and one 40x20mm pipe to create the frame.



The different parts were then welded together, sadly I was just moral support during this stage.

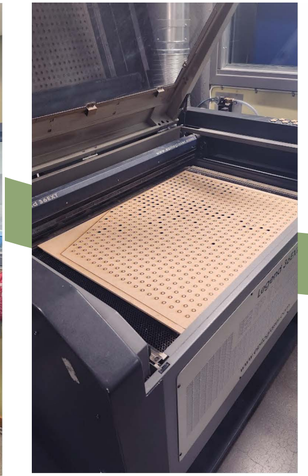


Here it is standing for the first time on its own legs. I felt like a proud mother.

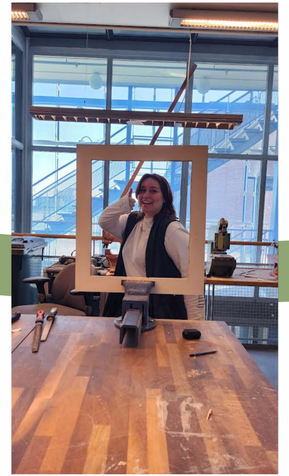


With the frame finally done it was time for me to go back to gluing wood sticks. It took me 13 hours and 487 sticks, but I was finally done with the desk top for now.

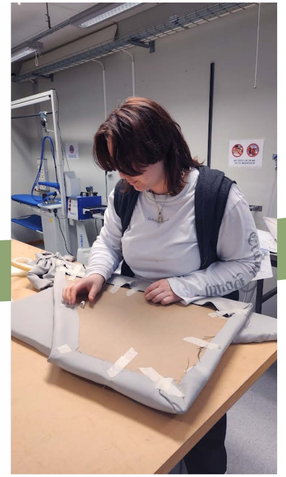
The next step in my journey was to create the pegboard which I made from 16mm MDF.



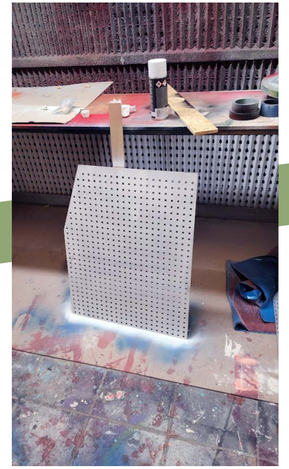
Laser cutting the whole thing took about 5 hours which was 2,3 more hours than I initially thought. During this stage I started to become stressed and anxious because it took longer time than planned but this quickly got resolved. Fun fact, I cut out 784 holes.



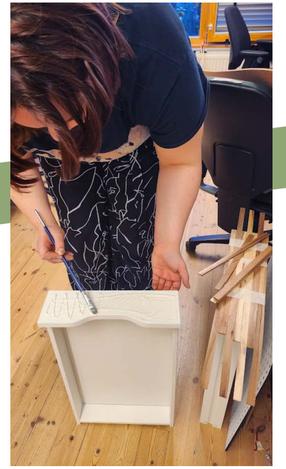
While starting to work with the hutch with the shelfs I realised that if you had things in the way back you had to take out everything to reach that specific tool. Therefore, I changed the design a little and cut out a window at the side.



I also laser cut the structure piece for the walls and here you can see me testing how the foam and the fabric looks before attaching them permanently.

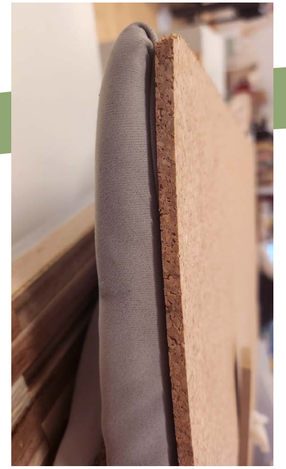


I spray painted the first layer of the pegboard. Unfortunately the colour did not want to attach to the MDF, but being persistent sometimes pays off.



More gluing. It was now time to glue the sticks onto the hutches so that they would match the desktop and look like a family. Even though it was 2am I still found it joyful and calming.

Paper tape will forever be my best friend and saviour after this project.

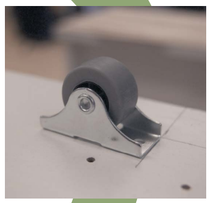


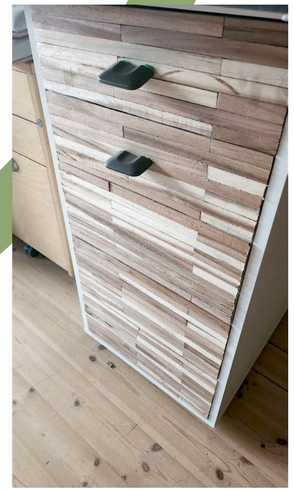
I stapled the fabric onto the sidewalls and right after I cut out and glued the cork on the other side.

Pegboard got attached with the help of brackets.

I painted the 20mm MDF shelves white so that they would match the rest of the hutch.

I screwed the wheels onto the bottom of the hutches.



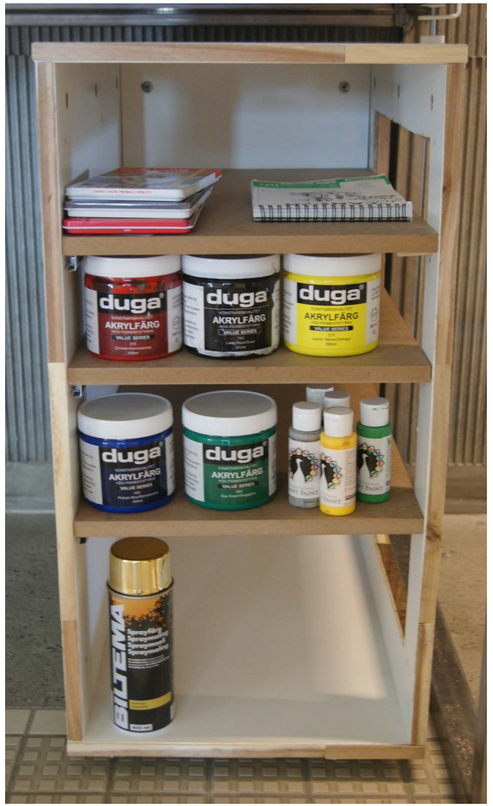


The last thing to do was to add the handles and shelves to the hutches.

FINAL MODEL

MULLET IN ACTION

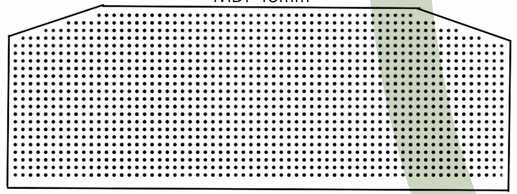
Here is an example of how it will look completely done and in use. Because there is no defined answer to what the actual "perfect workspace" is I could only make it as adaptable as possible which is why most of the parts are moveable and clean so that you can customize it to your needs and standards.



THE DIFFERENT PARTS

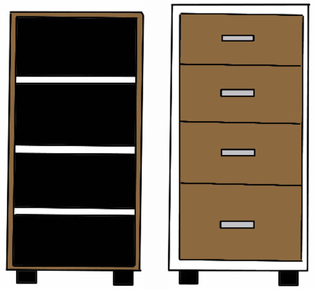
Shelfs of scrapwood in various sizes that get attached through the holes in the pegboard.

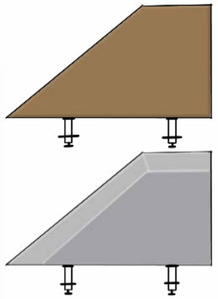
MDF 16mm



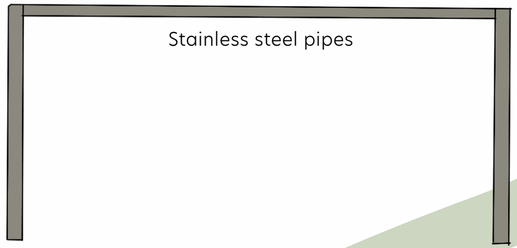
Scrapwood pieces glued together to create the desk top that is 1520x800mm

MDF 20mm, two old hutches, scraped wood, 25mm wheels and handles





Cork board, clips, 16mm MDF, foam and scrap pieces of fabric



Stainless steel pipes

MATERIAL CHOICE

The main goal is to use as many scrap pieces as possible and make it as clean as possible for the users to be able to customize it themselves, therefore it's hard to say which materials the different pieces will be in. But the materials I have used for my model is most likely the materials that will be the ones used in production. There are just two major changes, one of them is that it will not be already used hutches but new ones from scrap pieces. The reason behind this is that there is only that many used hutches out there and I do not want the side effect that completely new hutches need to be made just because all old ones are already used up. The other major change would be the tabletop itself, the plan is to use only solid wood spill pieces and not plywood and spill sticks. Another option could definitely be to use just a big solid wood piece for the whole top, which would be easier to produce, but then it removes my way of thinking around sustainability. I want the desk in general to be made out of as many scrap pieces as possible, even the textiles. Which I have in the model. If I could build it in just a month, then I do not see why an established production chain could not. The only potential problem I can think of is the production cost. However, in my experience people are willing to pay more if they know it is more sustainable and handmade. I also think it is important to highlight that this is not a desk meant for big companies, just small studios.

REFLECTIONS

During this project I have doubted myself more than I should have and after all those ups and downs I am standing with an almost done model. I underestimated every category in my time plan and thought everything would go much faster than it did. I am not fully done with the model; the light table is not attached but hopefully I will be able to do so for the exhibition. I was also planning to sand down the tabletop to make it smooth and even before the exhibition.

As I mentioned in my motivation, I never saw myself as a furniture type of person. I never thought that I could be creative enough to create one let alone build one. But all I have to say is look at me now and in all honestly, I can look at it and feel proud because I poured my soul into this desk for the past couple of months. My main goal during this project was to show how much I have learned during these three years. I have merged all these different techniques, mindsets and all of my knowledge and created a product meant for a certain user.

I think I learned the most during this project not necessarily about different methods per se but about myself and my strengths and weaknesses.

I have reflected upon myself and my way of working and finally found a pattern that I could follow. For once I listened to my own brief by having it printed out and onto my desk so that I would daily be reminded of it.

If I would do anything differently it would be planning for the model making and building, so that the stress could have been avoided. Then of course as I always say, I wish that I started with the documentation in time, which I never seem to do. I also wished that I reached out to my supervisor more instead of sitting for myself and reflecting upon small things that could have been prevented.

For further work I would probably consider more options for the tabletop and try to make it available for mass production. There is also a lot of methods to be evolved to just make the building and assembly much easier and well processed.

But then again, overall I am satisfied with my work and it has been really fun talking and get to know all these different people while doing my research and building.

THANKS TO

I would like to thank my teachers and supervisor during this projects time, thanks to their feedback I constantly see things from different points of view and learn new things.

I would like to thank the guys in the workshop for helping me and not letting me have a mental breakdown when I really tried to and made sure that I finished my model in time.

Mostly I would like to thank my classmates: Alexandra Carlinger, Lisa Christianson, Frida-Tim Otterbeck, Anna Persson, Linnea Petzold och Renée Risberg. They have helped me come up with different solutions when things have not gone my way and really made this project possible for me to pull through.

I would also like to thank the rest of my class for the kindness and help they have showed during these three years together.

REFERENCES

» **VIDEOS:**

» https://www.youtube.com/watch?v=GQ_X-XVit_g

» https://www.youtube.com/watch?v=-pfTroYWnuQ

» https://www.youtube.com/watch?v=T3cwKyFLP28

» https://www.youtube.com/watch?v=WkFLi8aMv7c

» https://www.youtube.com/watch?v=BE-tlPhqwLs

» https://www.youtube.com/watch?v=B8zHJOAd7Xs

» **PICTURES:**

» https://www.calguns.net/calgunforum/showthread.php?t=1618449

» https://www.valeriedeletoile.com/en/how-to-design-an-office-in-small-spaces/

» http://www.home-designing.com/2015/11/unique-home-office-desks

» https://m.media-amazon.com/images/I/71nXEFWm9CL._AC_SL1000_.jpg

» https://m.media-amazon.com/images/I/81FntdYwzbL._AC_SL1500_.jpg

» https://www.laura-james.co.uk/products/white-computer-desk-with-shelves

» https://trendland.com/manoteca-indoor-tabledesk/

» http://cdn.home-designing.com/wp-content/uploads/2014/05/19-Modular-desk-space.jpeg

» https://m.media-amazon.com/images/I/51TmcFDZLNL._AC_SL1482_.jpg

» https://m.media-amazon.com/images/I/91c4epW3y4L._AC_SL1500_.jpg

» https://www.dreamgreendiy.com/2022/02/22/my-combination-home-office-art-studio/

» http://davidcoulsondesign.com/portfolio-items/david-coulson-design-studio-2/

» https://cdn.decoist.com/wp-content/uploads/2018/08/Gorgeous-writers-studio-with-skylights-is-filled-with-ample-natural-light.jpg

» https://www.pinterest.se/pin/9359111705353567/

» http://www.home-designing.com/2008/11/home-offices-and-studios

» https://japanobjects.com/features/feudal-japan

» https://www.istockphoto.com/se/foto/old-korean-wooden-door-with-ornaments-gm1367388157-437665000

» https://www.pexels.com/photo/gray-and-black-tiger-walking-on-forest-2264556/

» https://www.pickpik.com/nerivill1-ocean-women-sea-summer-beach-37909

» https://www.interregeurope.eu/news-and-events/news/european-commission-launches-the-renovation-wave

» https://www.pexels.com/photo/a-person-doing-abstract-painting-4442002/

» https://m.media-amazon.com/images/I/81CgqN+e3eL._SX522_.jpg

» https://m.media-amazon.com/images/I/61p1xbGtV3L._SX522_.jpg

» https://rhinocuttingmat.co.uk/product/rhino-green-a2-cutting-mat/