



**Universidad de Valladolid**



**ESCUELA DE INGENIERÍAS  
INDUSTRIALES**

**UNIVERSIDAD DE VALLADOLID**

**ESCUELA DE INGENIERIAS INDUSTRIALES**

**Grado en Ingeniería de Diseño Industrial  
y Desarrollo de Producto**

# **San Juan: piezas modulares para un doble ensamblaje**

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**TFG REALIZADO EN PROGRAMA DE INTERCAMBIO**

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**TÍTULO: San Juan: modular pieces for easy double assembly**

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**UNIVERSIDAD: Hochschule Anhalt**

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**Palabras clave:** Mueble, modular, sencillo, intuitivo, polivalente

**Resumen:** El objetivo del proyecto era diseñar una pieza de mobiliario que ofreciera más de una solución para diferentes contextos y no supusiera un problema de espacio mientras no esté en uso. Un aspecto clave es que la pieza sea intuitiva de montar y desmontar. Inspirado en el principio básico de dos piezas planas encajando por ranuras formando una X en su encuentro, se obtiene una forma básica flexible en función, con dos posibles alturas dependiendo si esta se dispone en vertical u horizontal. Consta de dos tipos de piezas (ambas planas, de manera que ocupen poco volumen fuera de uso): piezas modulares que encajan entre sí formando la estructura y la pieza superior, con unos carriles para ser dispuesta sobre las otras con estabilidad, formando así dos posibles soluciones (banco o mesa) de dimensiones compatibles y sin elementos de unión.

**Keywords:** Furniture, modular, simple, intuitive, versatile

**Abstract:** The project's objective was to design a piece of furniture that offered more than one solution for different contexts and would not pose a space problem when not in use. A key aspect is that the piece is intuitive to assemble and disassemble. Inspired by the basic principle of two flat pieces fitting together forming an X shape, the result is a basic form that is flexible in function, with two possible heights depending on whether it is arranged vertically or horizontally. It consists of two types of pieces (both flat, so they take up little space when not in use): modular pieces that fit together to form the structure and the upper piece, with rails to be arranged stably on top of each other, thus forming two possible solutions (bench or table) of compatible dimensions and without connecting elements.

## 1. Mission statement

The main objective was to design a piece of furniture that combines simplicity with intuitiveness (it's simple both in form and use), and that takes up very little space when it's not being used.

It should offer more than one solution for different contexts and it's key that it can be easily assembled and disassembled.

## 2. Inspiration

The inspiration comes from the basic principle of sliding two boards together. With a minimum amount of flat elements, it achieves a really easy to assemble shape that can be used polyvalently.

Therefore, the project is based on the following aspects:

- Simplicity
- Not many elements
- Intuitive to assemble
- Flexibility (more than one function)
- Space reduction



— simplicity  
— min. number of elements (2)



seat + storage  
• Double function  
w/o changing shape





### 3. Use case & focus personas

The design should be used in some multi-functional space, where the items needed may vary depending on different activities that space offers (whether it's just chairs, tables or free space).

When thinking for some examples of this scenarios and what people I know that usually attend these places, that lead me to not one but two personas: my friend Laura San Juan and my mom, from a village called La Almunia de San Juan; that's where the name of my design comes from. They're both different in age and background, so I tried to achieve a design that could fit both of their interests.



### About the place

- Gondomatik - Washbar in Valladolid (Spain)

Gondomatik is a multifunctional space located in the city of Valladolid, in Spain. Initially it was a Washbar (a laundry shop with a bar where they offered some drinks while the user is waiting for the washing machine or dryer to finish).

As the time went on, it became more popular and they started to offer a wider range of services. They often host for private and public parties,

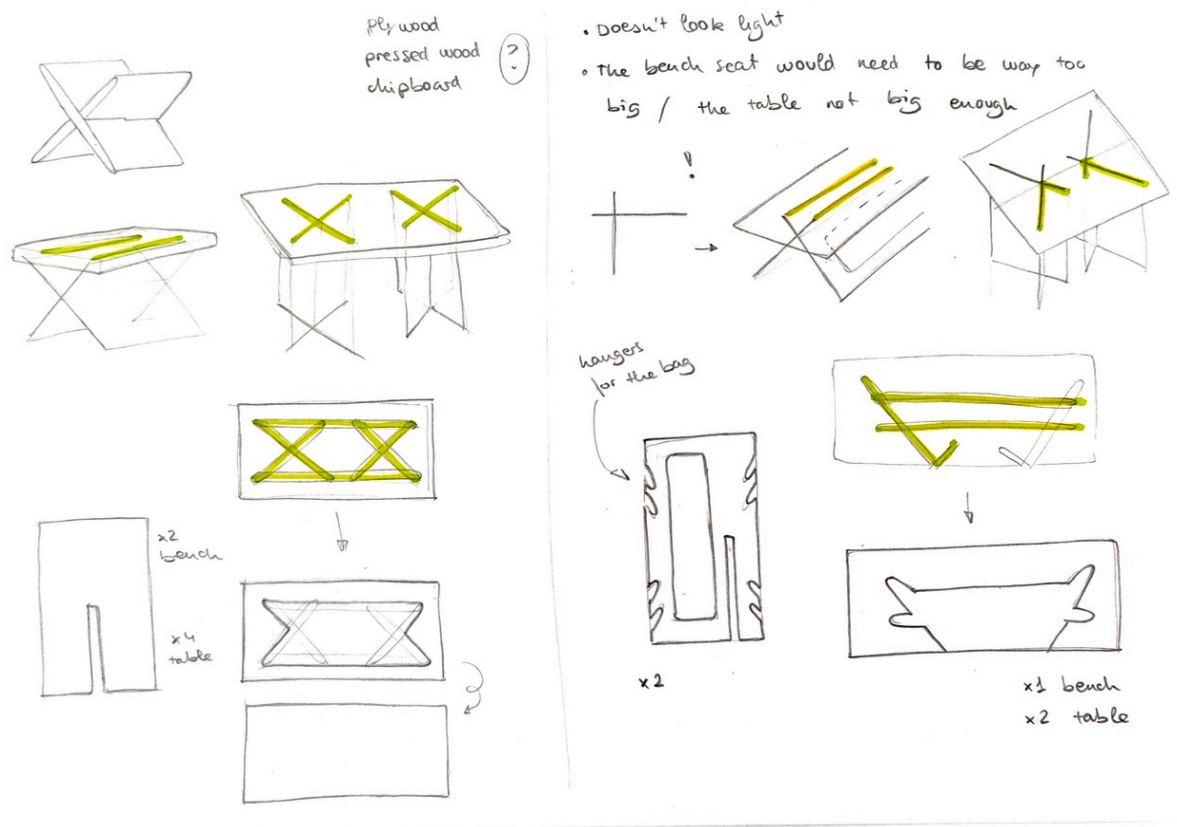
microtheater events, TED presentations and open mic sessions. Even though some customers still use the laundry there, it is mostly used nowadays as a café-bar.



## 4. Process

### Concept

Once you stuck two boards together in an X shape, that can offer two different heights depending on if you display them horizontally or vertically.

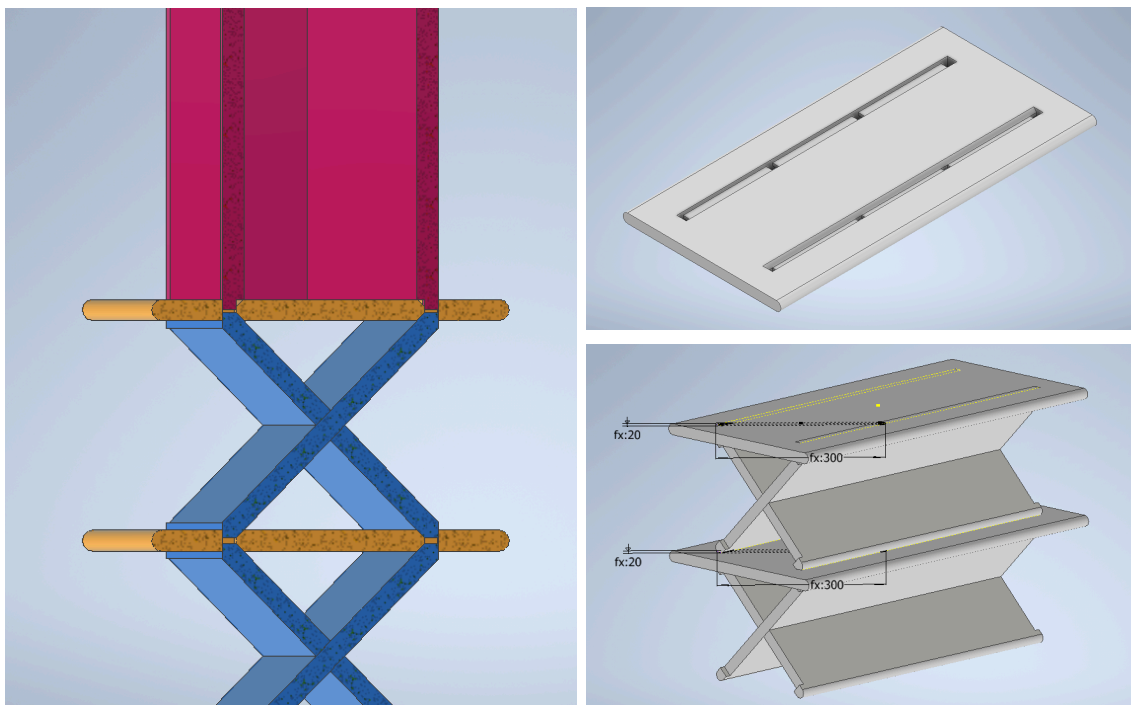


## First ideas

- Table / bench
- Shelving system

Even though the initial intention was to make it work as a bench and a table (which was the final result), I was suggested to study the possibility of applying the concept into a modular shelving system.

I made many digital models to see how the joining parts could work. Pieces needed to be stuck both on the lower and upper faces of each “level”. Since I didn't want to use any extra elements for joints but the geometry of the pieces itself, that meant the pieces should have some holes in it. I didn't find this as the most convenient solution, and that's why it was finally kept as the very first idea, which was simple but effective.

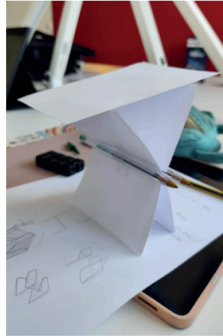


## Prototyping

The sketches showed two versions of the product: first one assembling a symmetrical X on both axis, and second one just on one axis (which will be referred to as 'asymmetrical').

Making a quick prototype of the initial idea was helpful to discard the possibility of making the modular pieces have more than one middle cut,

which would imply assembling a nonsymmetrical X. It was a way of losing therefore simplicity and no improvements were added.



### **Bringing it to life (1:1 model in the wooden workshop)**

- Material used: plywood 15 mm

Pieces are thought to be a simple extruded face, so that it can easily be mechanically cut (e.g. laser cutting) if it were to be produced industrially.

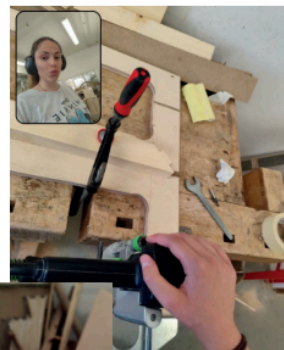
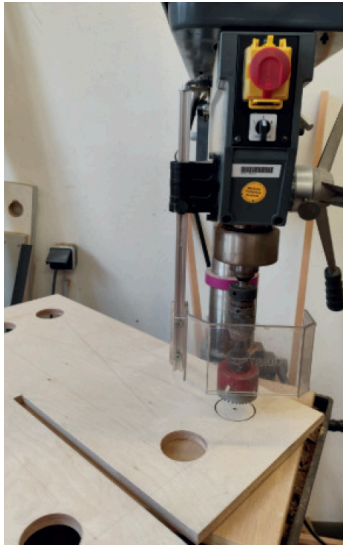
Inner cutouts in the modular piece achieve lighter weight, and avoid the legs from getting in the user's way when sitting at the table. It also helps to grab the piece more comfortably when carrying it around and during the assembly/disassembly.

The Top piece has a blind hole which makes it possible to be laid on top fitting through the others, which provides stability.

Also there's a 45° bevel on the sides of both types of pieces, for picking pieces up more easily from a pile of many units.

[See plans in the respective annex at the end of the document]

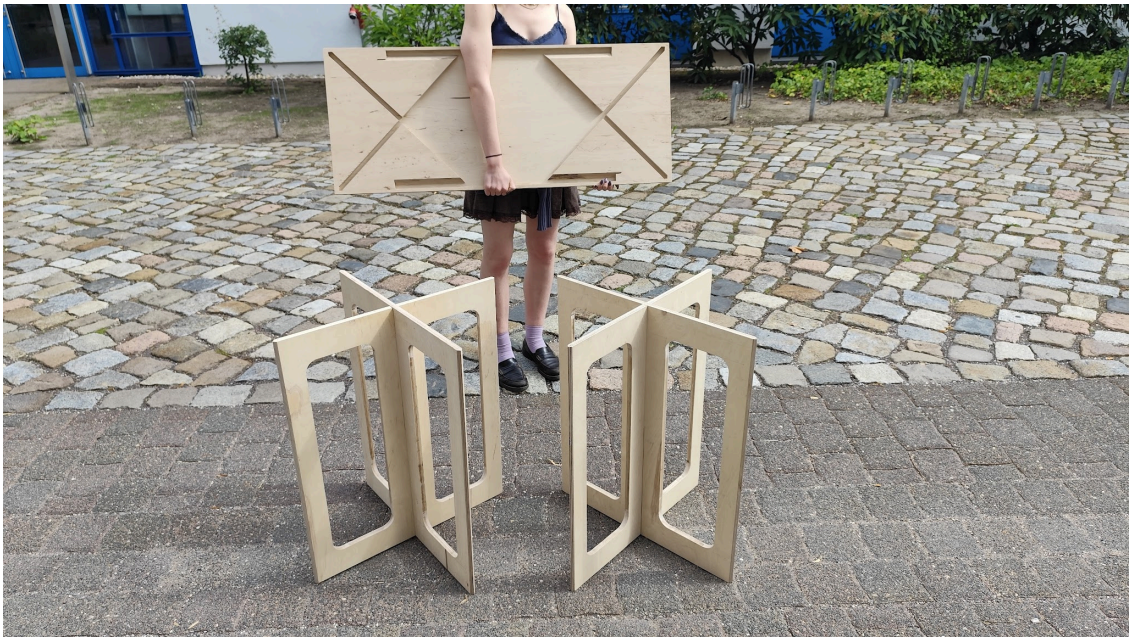




## 5. Final result







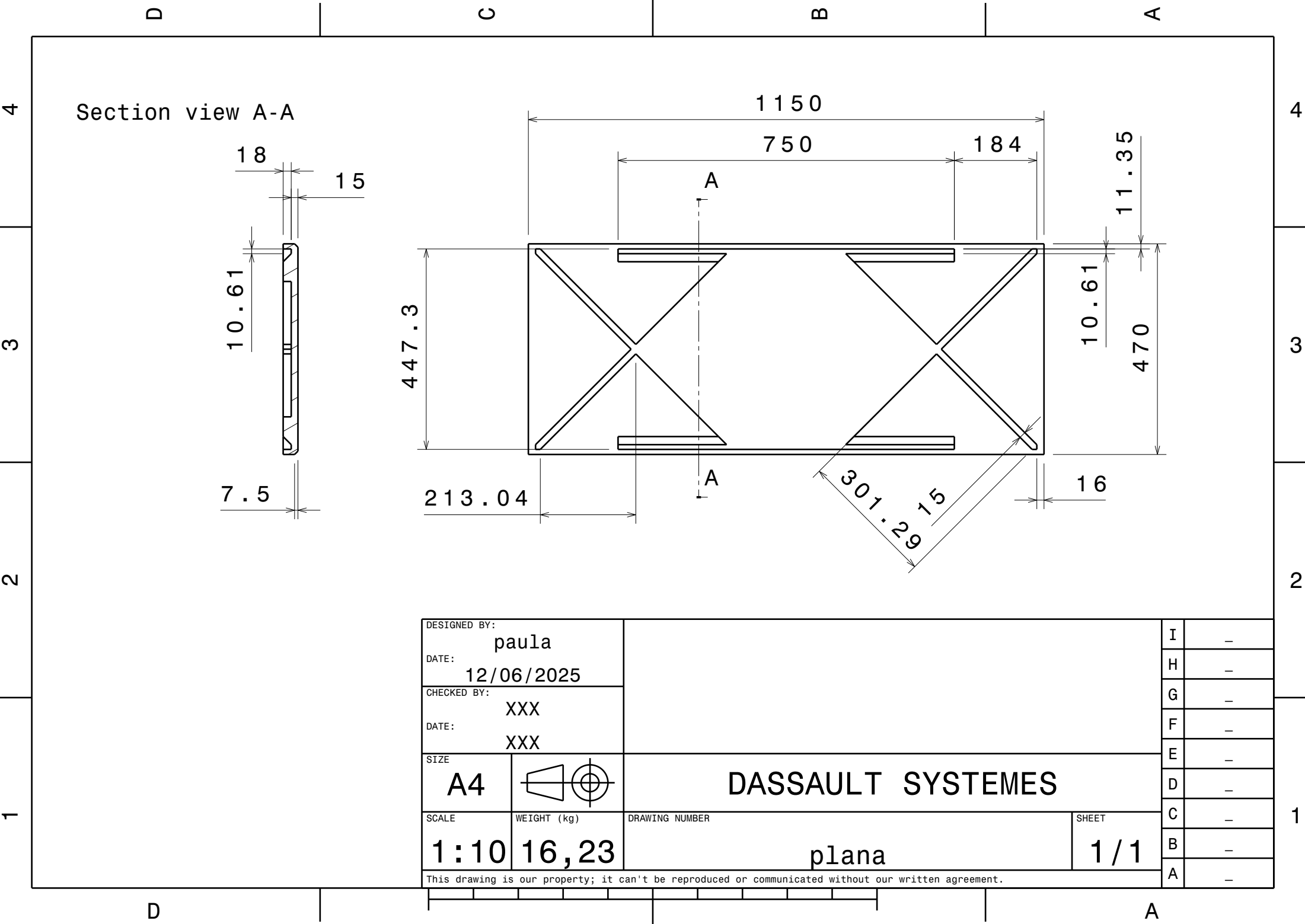
## **6. Conclusion**

If San Juan were to be made industrially, as an improvement aspect, I would change the width of the Top piece to some thinner boards in order to make it more lightweight and easier for a single person to manipulate.

Overall, I'm overly satisfied with the final product and how it sticks to the essence of the initial concept.

## **7. Annexes**

- Plans
- Banners for the DDS



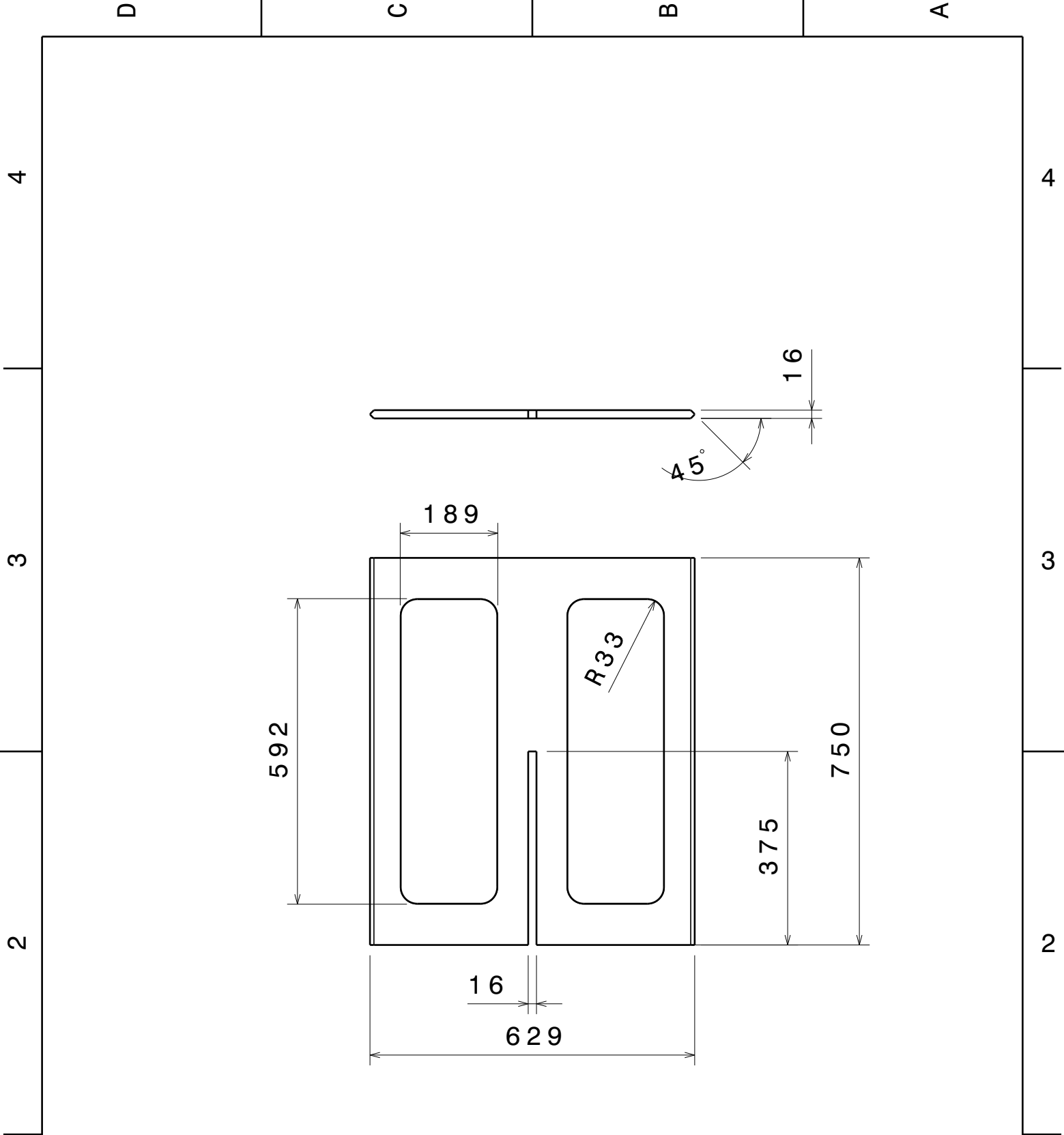
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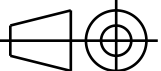
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Forschungsverbundprojekt **New European Bauhaus**  
Hochschule Anhalt, Fachbereich Design in Dessau  
AP 3.4 Exmpl. Innovationen im Möbelbau und Interior Design

# NEW EUROPEAN BAUHAUS

## SHAPING SPACES

Großprojekt im Bachelorstudiengang Integriertes Design  
Sommersemester 2025  
Paula Pérez Clavería

### FOCUSPERSON Laura San Juan (22)

Student

### USECASE Gondomatik

Washbar - Valladolid (Spain)

#### Short description

Laura is a very creative and fun young girl. She loves trying out different crafting activities such as sewing, pottery, painting, digital animation and even carpentry! She's a fan of 70s music, piano and is always down for any plan that involves nature. She can get a bit shy initially, so don't expect of her to initiate the conversation..., but once you get to know her, Laura is truly easy to talk to!



#### About the place

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As the time went on, it became more popular and they started to offer a wider range of services. They often host for private and public parties, microtheater events, TED presentations and open mic sessions. Even though some customers still use the laundry there, it is mostly used nowadays as a café-bar.



#### Users

- Wide range of ages (mainly adults)
- Creative and interested in arts
- Looking forward to social interactions
- Some might be on a hurry, most intend on staying for a long time.

#### Needs:

- Workspace (enough room or surface on the table/desk she's working at)
- Comfort (enough room for legs)
- Easy to move around pieces (not too heavy and ergonomic to manipulate)

#### Usage scenarios:

- Doing some craftsmanship or workshop
- Having a casual drink/snack
- Having a sit during some public presentation or talkshow

#### Challenges:

- Keep her stuff out of the way of her workspace but still have it handy, "I always carry my favourite tote bag with me"

#### Wishes:

- Aesthetic appeal (organic materials are her personal preference)
- Multifunctional, more than one possible displays
- Intuitive and easy to manipulate by a single person.



#### Problems & weak spots with the furniture

- Sometimes not enough seats.
- Tables way too big and heavy.
- Furniture takes up way too much space when it's moved to a side (furniture needed varies).

*„I don't always enjoy asking for help, if it's something I could rather do by myself.“*





# NEW EUROPEAN BAUHAUS

## SHAPING SPACES

Großprojekt im Bachelorstudiengang Integriertes Design  
Sommersemester 2025  
Paula Pérez Clavería



## San Juan

bench, table or both? modular pieces for easy double assembly

### Mission statement

The main objective is to design a piece of furniture that combines simplicity with intuitiveness (it's simple both in form and use), and that takes up very little space when it's not being used.

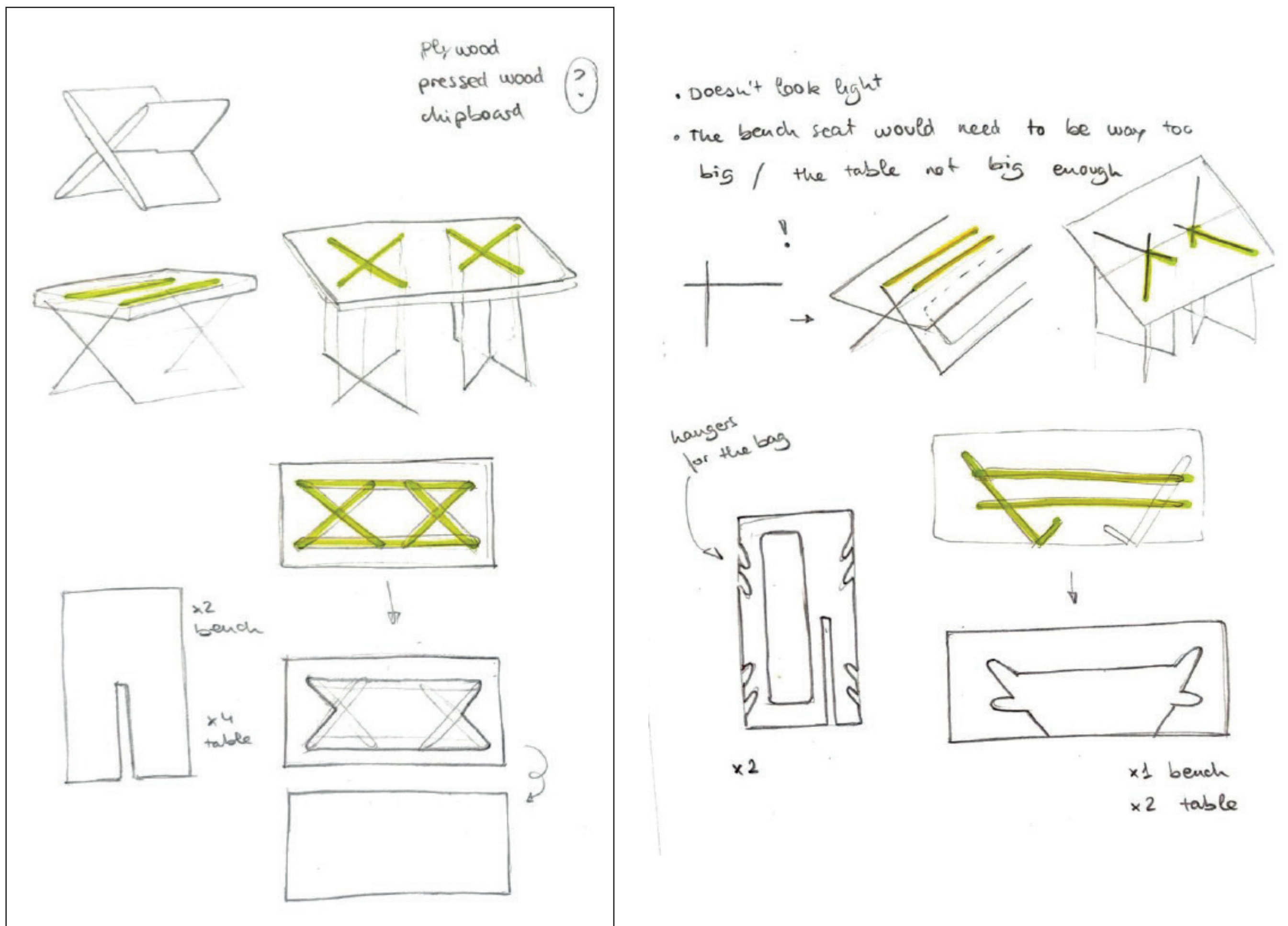
It should offer more than one solution for different contexts and it's key that it can be easily assembled and disassembled.

### Inspiration

The inspiration comes from the basic principle of sliding two boards together. With a minimum amount of flat elements, it achieves a really easy to assemble shape that can be used polyvalently.

Therefore, the project should be based on the following aspects:

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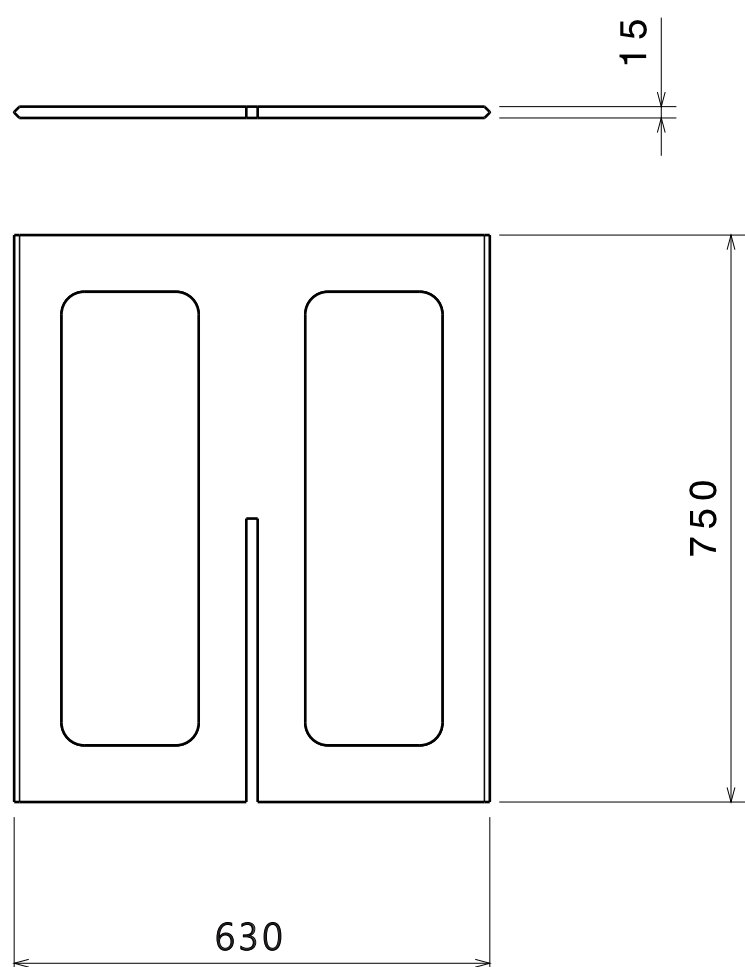
### Concept & Design

Once you stuck two boards together in an X shape, that can offer two different heights depending on if you display them horizontally or vertically.

Playing with that premise, the next step was to find the right measures that would allow the pieces to be assembled into both, a bench and a table, using the same elements.

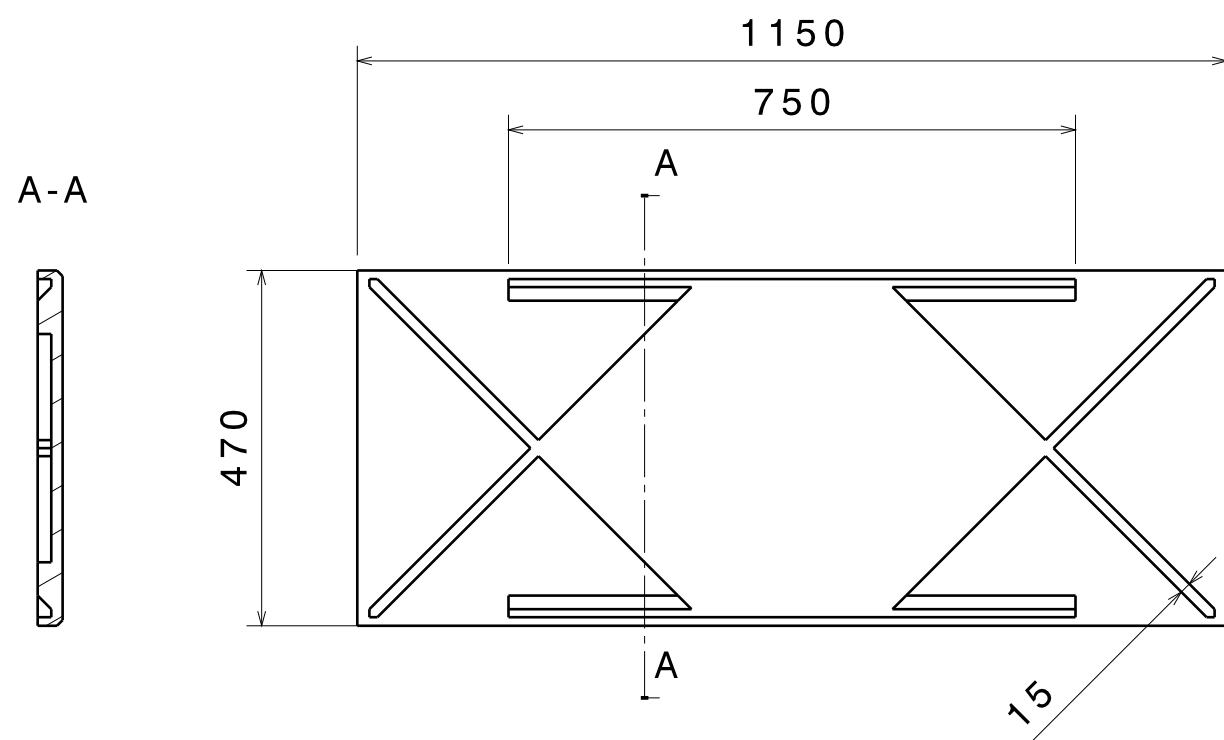
### Details

- MODULAR PIECE  
The inner cutouts in the Modular piece achieve a lighter weight and makes it easier to manipulate, as it helps to grab the piece more comfortably both, when carrying it around and during the assembly and disassembly. It also avoids the legs from getting in the user's way when sitting at the table and can be used as a foot rest on the bench.



- TOP PIECE  
The blind hole on the Top piece makes it possible to be laid on top fitting through the others, which provides stability.

Both types of pieces include a 45° bevel on the sides for picking them up more easily from a pile of many units.



### Method and process

- First prototype  
A quick preliminar cardboard prototype was helpful to discard the possibility of making the modular pieces have more than one middle cut (which would imply assembling a nonsymmetrical X, losing therefore simplicity).
- Model  
Making of process of a 1:1 model in the wooden workshop.  
Material used: plywood 15 mm
- Industrialisation?  
Pieces are thought to be a simple extruded face, so that it can easily be mechanically cut (e.g. laser cutting) if it were to be produced industrially



### Conclusion

If San Juan were to be made industrially, as an improvement aspect, I would change the width of the Top piece to some thinner boards in order to make it more lightweight and easier for a single person to manipulate.

Overall, I'm overly satisfied with the final product and how it sticks to the essence of the initial concept.