IKEA hack: Headboard

T217 Design essentials

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Headboard

Goal

Design a headboard with storage space for small items by repurposing common IKEA furniture piece(s).

Context: Do people still use headboards?

In a blog article, Rachael Thompson notes that headboards were historically used to protect a person sleeping in their bed from getting in contact with the cold wall behind their bed (*Thompson, 2023*). This was back when houses were not well insulated or fitted with central heating.

Nowadays, headboards are mostly decorative pieces that make a bedroom look more stylish. They can also support the back and head for those who like reading or watching TV while in bed. Headboards can also protect a wall from damage or discolouring, which can be important for those who live in rental housing (*Thompson, 2023*).

Why not make a headboard double as an, albeit limited by crucial, storage space? A place to put one's phone or headphones away, keep the hand cream or a lip balm. And maybe put away a book or attach a small light, too? After all, not every bedroom has ample space for nightstands.

Characteristics & Requirements

A good headboard must (constraints):

- Offer support for leaning against while reading, watching TV, or working in bed.
- Complement the bedroom décor while combining functionality with aesthetics.

A good headboard should (criteria):

Incorporate storage options such as shelves or compartments to maximize space efficiency.

Photo credits: Top (https://www.laredoute.ch/de/), Bottom (https://www.ikea.com/ch/de/p/mandal-kopfteil-birke-weiss-70176312/)

The LACK table

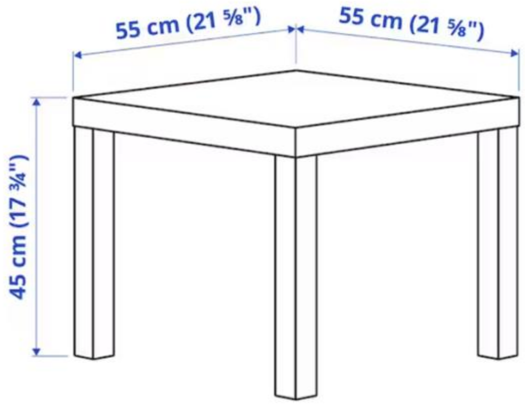
The LACK table was first introduced in 1979 and has remained in the IKEA catalogue ever since (*IKEA, 2024*). It has changed slightly over time, but the key characteristics have remained: it is cheap, easy to put together, light, and can serve almost any context in a home or office environment.

Components

The classic square-top LACK can be purchased in two sizes: 550 mm x 550 mm and 350 mm x 350 mm. The bigger version is 450 mm high, whereas the smaller one is 350 mm tall.

All the components of the individual tables have the same 50 mm thickness. This fact, combined with seeing the LACK table being used as a bedside table (top left), gave me the idea to try to repurpose it as a headboard for a standard double bed (140 cm wide).

The LACK table is characterised by its simplistic, minimal design. At the time of writing, it comes in three different colours: white, brown/black, and light oak. There are no decorative elements, making it a perfect “blank canvas.” It can be decorated, painted on, or added elements.



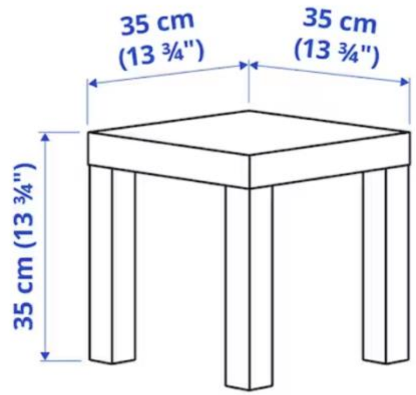
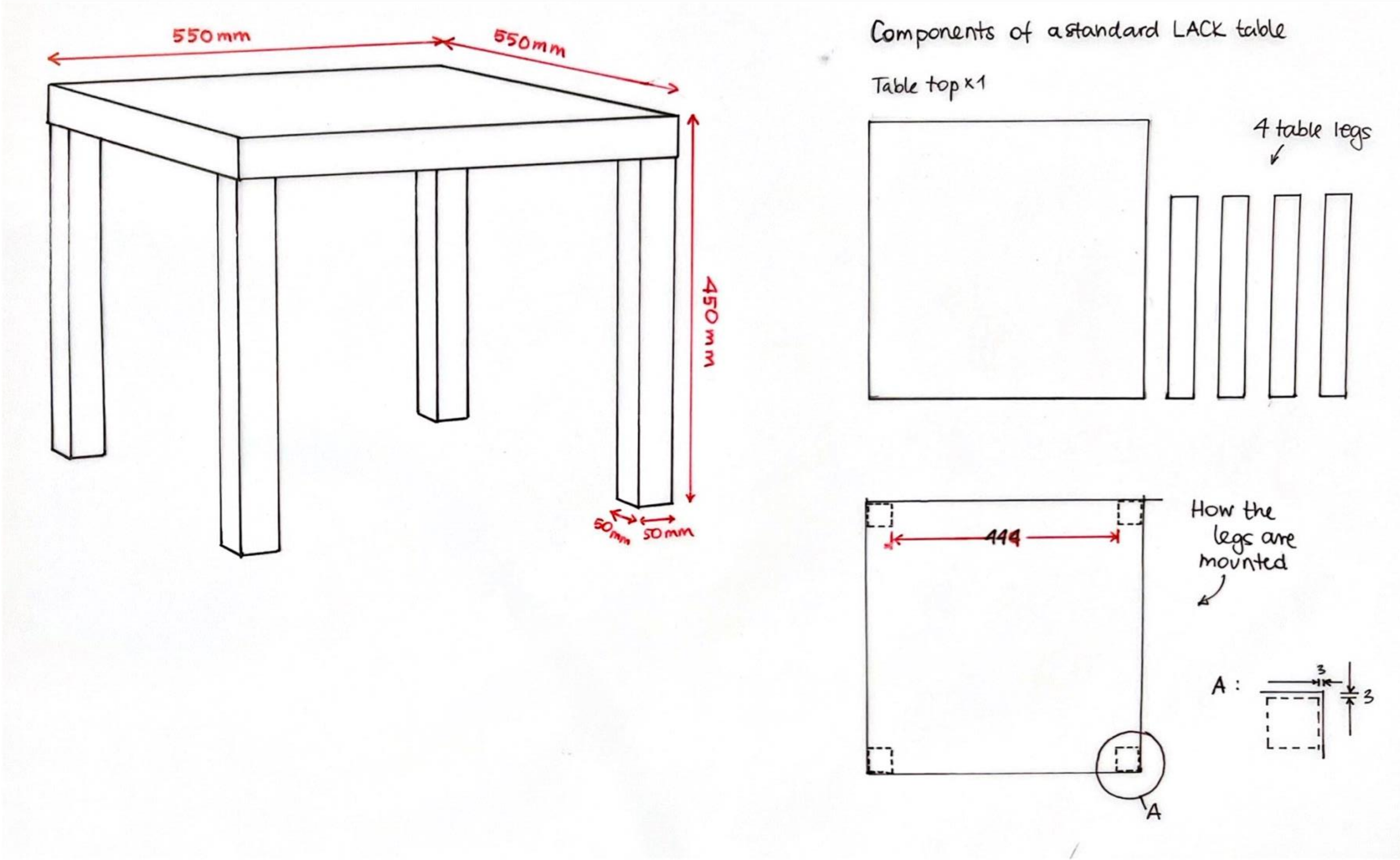
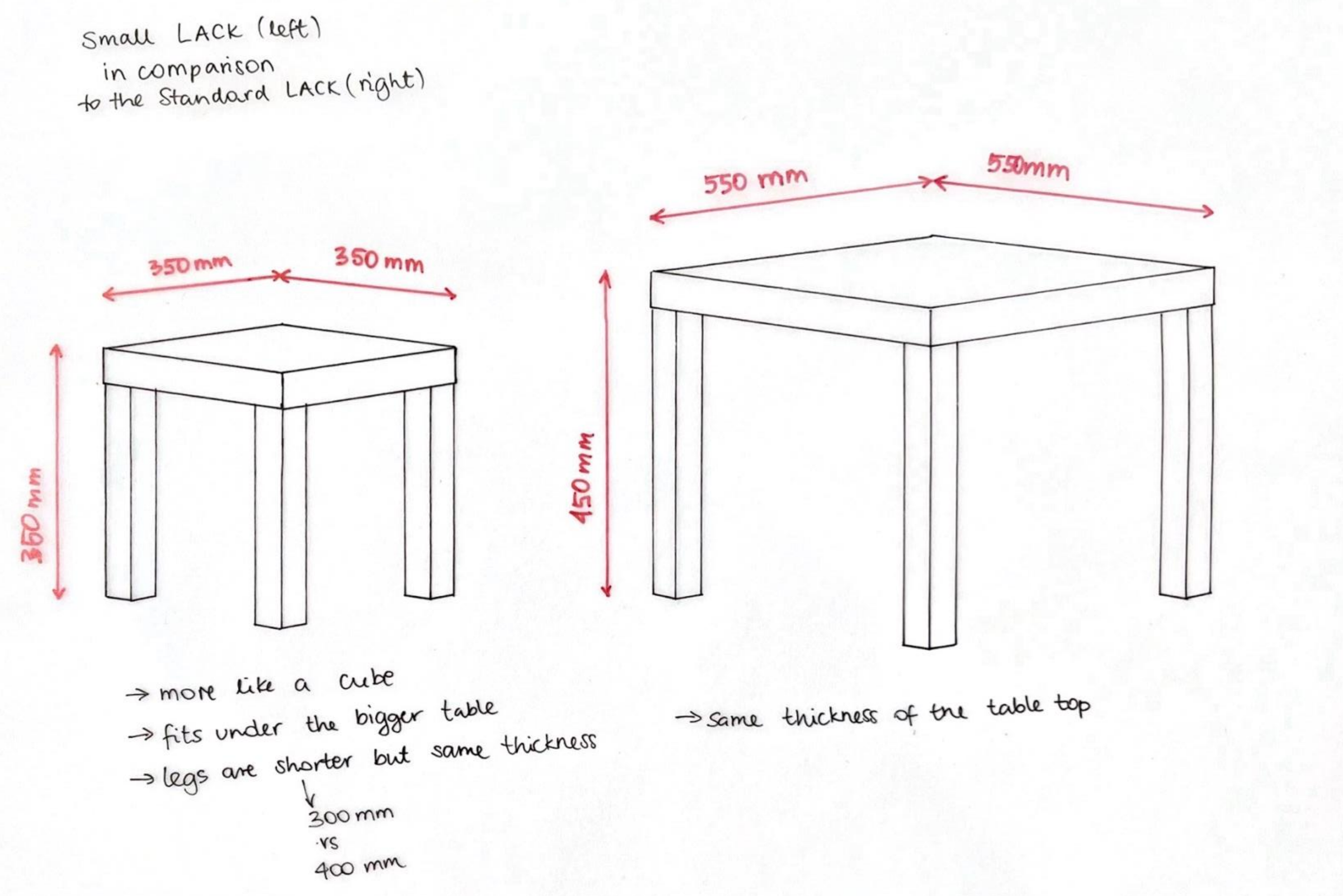


Photo credits: All (https://www.ikea.com/ch/de/p/lack-beistelltisch-weiss-30449908/#content)

Standard LACK table: Components



Small LACK table



According to IKEA's website, the table is made from fibreboard (wood chips) and paper filling (100% recycled) and arranged in a honeycomb structure for better durability. It is covered with acrylic paint and plastic on the edges. Such components make the product extremely light. The maximum load of the standard LACK table is up to 25kg (*IKEA, 2024*).

The lightweight of the components should make it possible to attach them to the wall with minimal impact. No extensive loads are expected to be placed on the storage elements.

The general idea would be to use the table tops as central components of the headboard attached to the wall. The individual legs could be connected to the tabletop on the same plane, serving as tiny shelves. The sketch on the right shows the general repurposing idea.

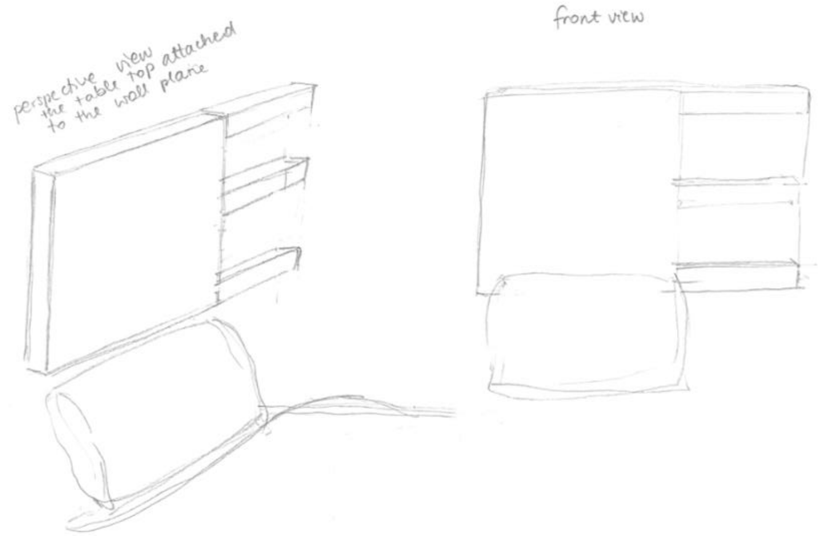


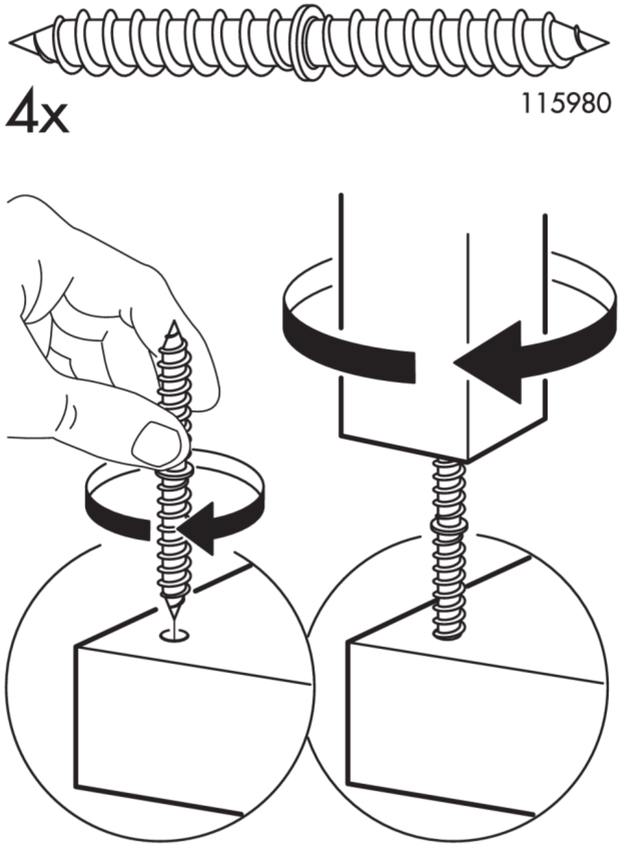
Photo credits: https://www.ikea.com/ch/de/p/lack-beistelltisch-weiss-30449908/#content

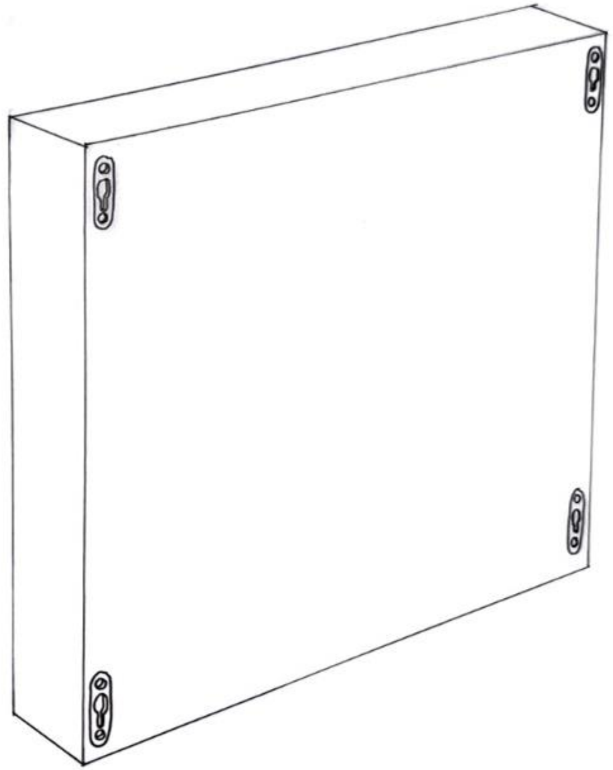
Connections

The legs of a LACK table are connected to the tabletop using four two-sided screws (right). Each screw is divided in half by a protector (red arrow), ensuring that it will only go inside each of the parts it connects halfway.

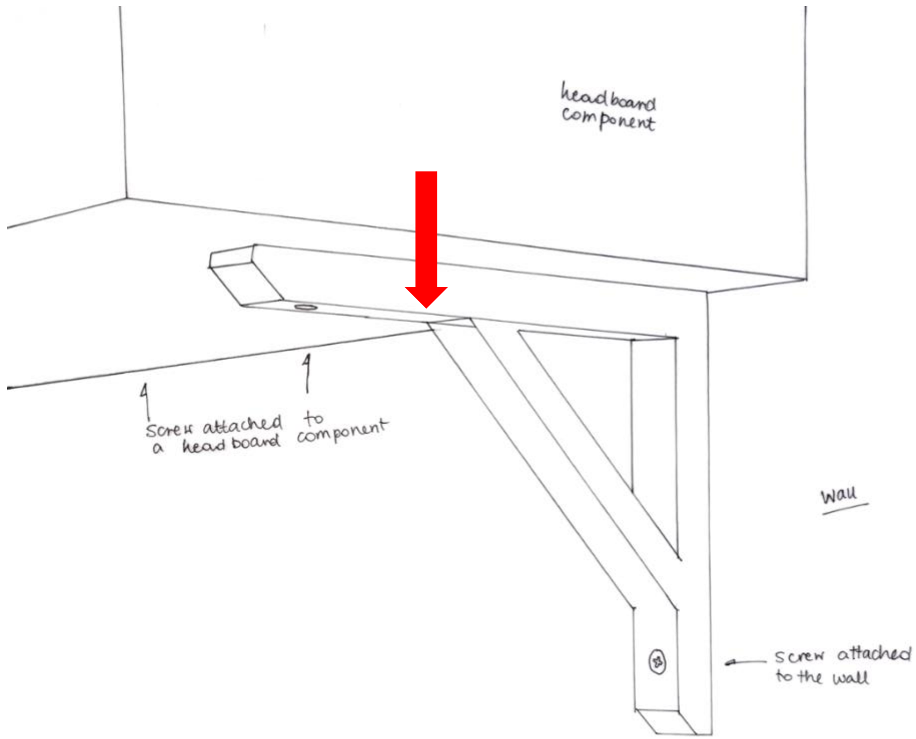
These screws could be repurposed for connecting the legs and tabletop on the same plane, too. One detail to be observed is the existing hole, but it should be possible to avoid potential interference.

Because of the lightness of the elements – one LACK table, when packed, weighs only about 3,5kg (*IKEA, 2024*) – the headboard could be attached to a wall. Something akin to the system used for another IKEA product from the LACK series – a wall shelf – could be utilised for that purpose.





Possible arrangement of wall connectors on the back of a LACK tabletop.



Alternatively, the components could be glued to the wall using strong adhesive. For extra safety, they could be reinforced with wall connectors like those on the right.

Alternative Design Configurations

Exploration

I started the idea generation by exploring possible headboard configurations with two standard LACK tables. In the following steps, I added two small LACK tables.

A/B.

This series generates models by applying different symmetrical operations, e.g., reflection. I also explored intentional rule-breaking (*The Open University, 2023a*).

C.

An idea to explore configurations with two table legs connected to form a deeper, broader shelf. Additionally, as I listed all the items that might be held on such a shelf, an association occurred (*The Open University, 2023b*). The headboard could look like a pair of glasses carelessly put away (photo on the right).

D/E.

By adding the smaller LACK table, I could generate more exciting configurations. I decided to try a new approach where the four legs on the floor additionally support the headboard.

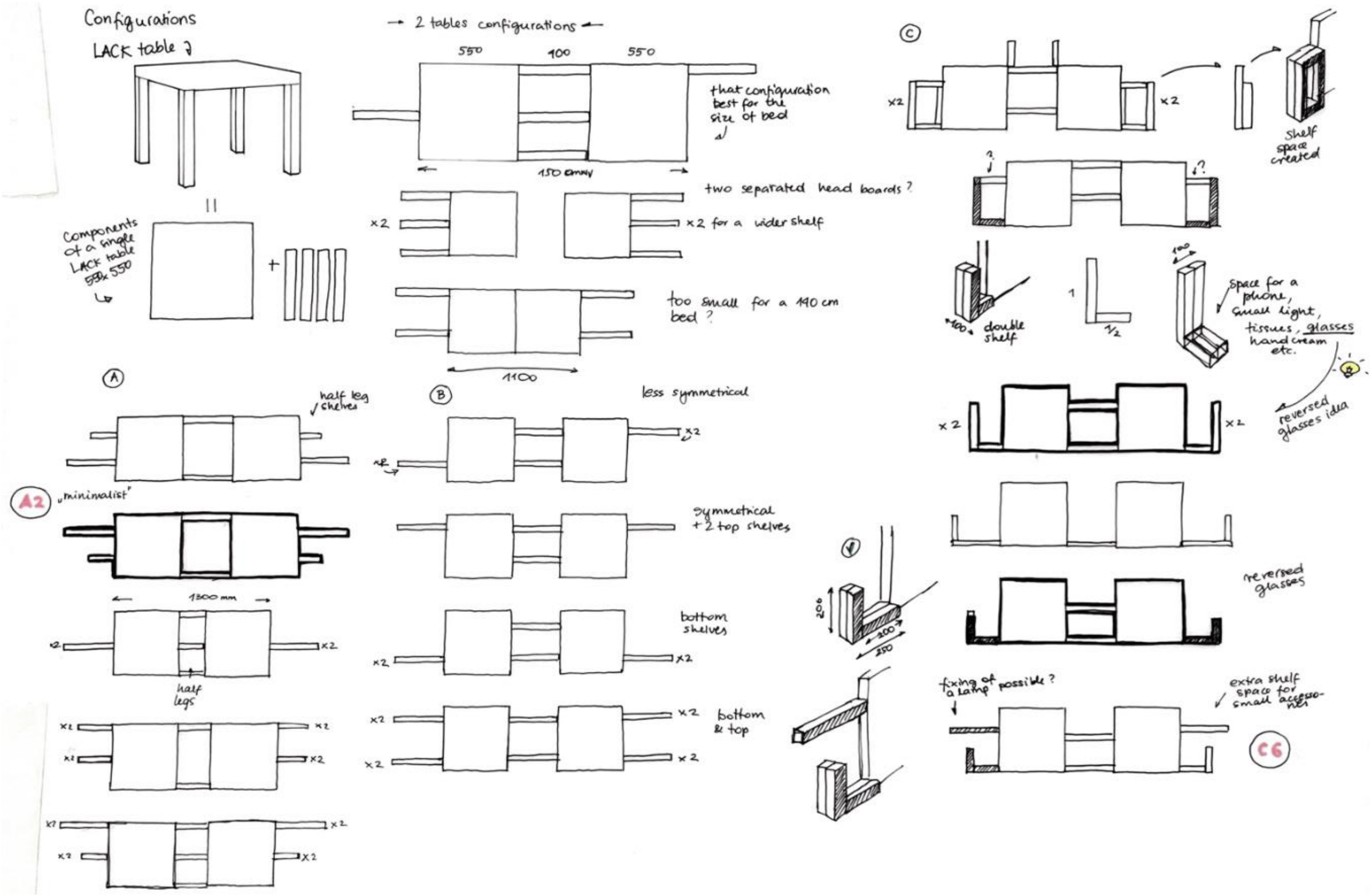
F.

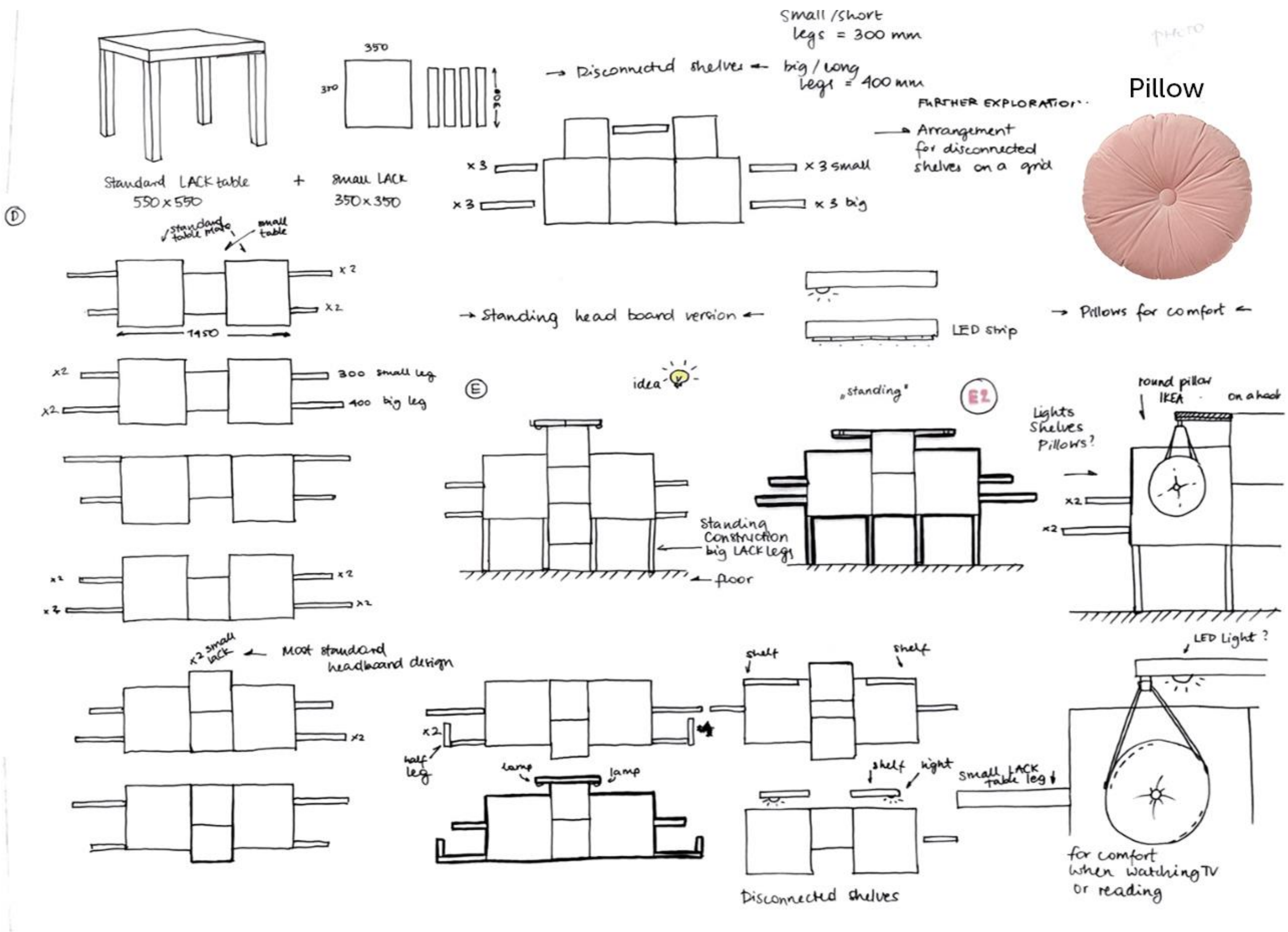
Another arrangement, this time utilising rotation to create a more exciting configuration.

G.

For the last part of this exploration exercise, I employed the grid. This helped me align the elements and define how they relate to each other in the given space (*The Open University, 2023c*).

Photo credit: Spiderplay/Getty Images, https://www.cnet.com/health/personal-care/why-your-glasses-get-foggy-and-how-to-stop-it/

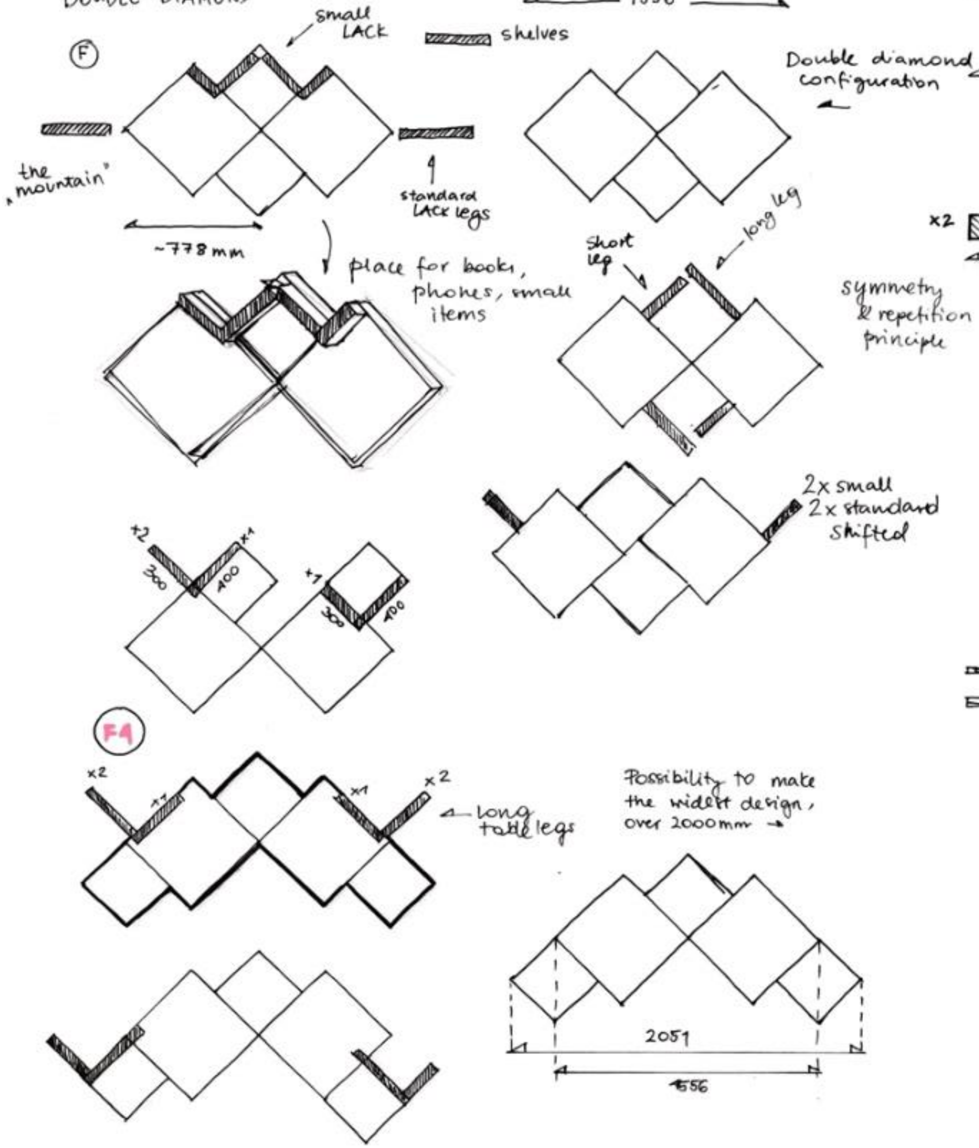

Configurations
LACK table ?
components of a single LACK table 550x550
→ 2 tables configurations ←
550
400
550
that configuration best for the size of bed
150 cm
two separated head boards ?
x2
x2 for a wider shelf
too small for a 140 cm bed ?
1100
A
half leg shelves
A2
„minimalist"
1300 mm
half legs
x2
B
less symmetrical
symmetrical + 2 top shelves
bottom shelves
bottom & top
C
shelf space created
double shelf
1/2
100
space for a phone, small light, tissues, glasses, hand cream etc.
reversed glasses idea
reversed glasses
200
250
fixing of a lamp possible ?
extra shelf space for small accessories
C6



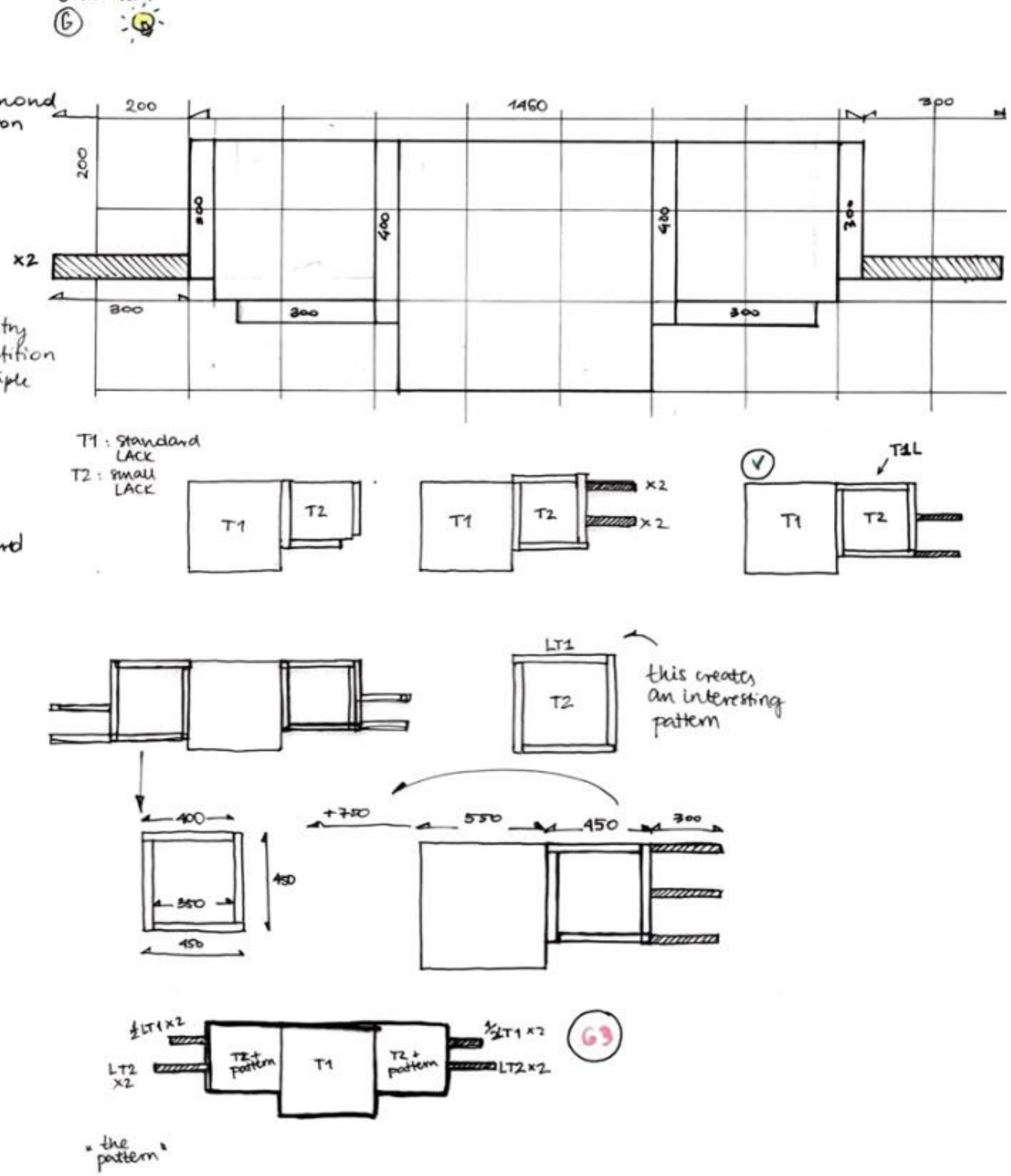
Standard LACK table
550 x 550
+
small LACK
350 x 350
350
350
300
→ Disconnected shelves ←
Small / short legs = 300 mm
big / long legs = 400 mm
FURTHER EXPLORATION..
→ Arrangement for disconnected shelves on a grid
x 3
x 3
x 3 small
x 3 big
Pillow
D
standard table mate
small table
x 2
x 2
1450
→ Standing head board version ←
LED strip
→ Pillows for comfort ←
x2
x2
300 small leg
400 big leg
x2
x2
x2
x2
E
idea
„standing"
E2
Lights
Shelves
Pillows?
round pillow IKEA
on a hook
x2
x2
Standing construction big LACK legs
floor
x2 small lack
← Most standard headboard design
x2
x2
half leg
lamp
lamp
shelf
shelf
shelf
light
small LACK table leg
LED Light?
Disconnected shelves
for comfort when watching TV or reading

→ Different arrangement ←

DOUBLE DIAMOND

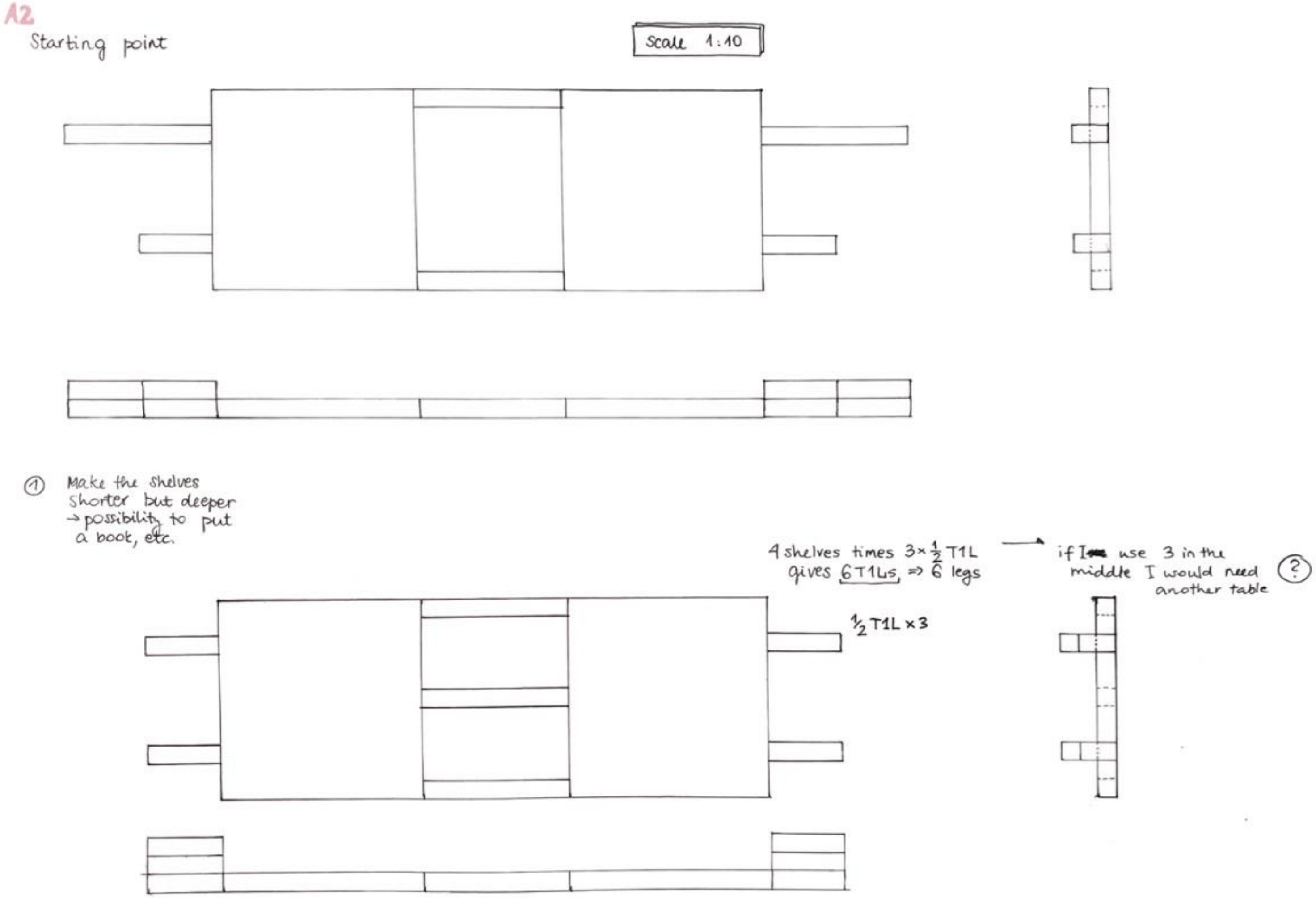


→ Grid idea ←



Idea 1: The minimalist

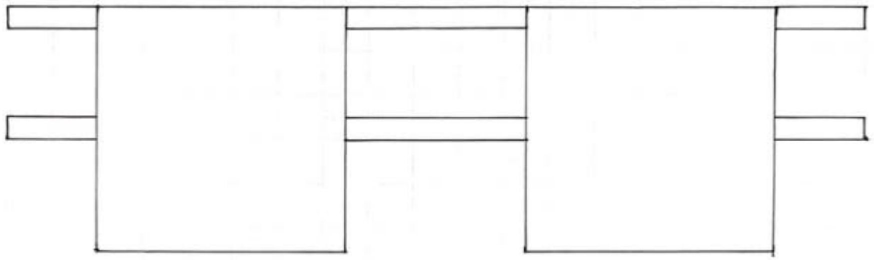
This idea is based on a simple, minimalist configuration using two standard LACK tables. During the progression, broader shelves were created. Additionally, the number of legs available in 2 LACK sets is required to drop one of the middle connections. This prompted a further exploration of forms, where the most aesthetically pleasing one (B) has been chosen. This configuration is also depicted with an outline of a bed in front to visualise it in space better.

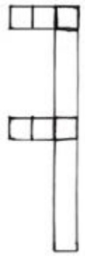


IDEA 1: THE MINIMALIST

Remove one of the middle support shelves/legs

Symmetry + symmetry-breaking





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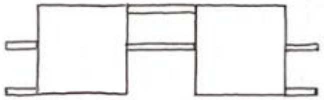

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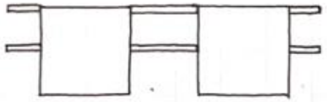

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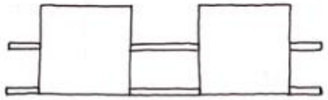

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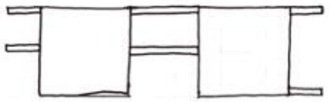

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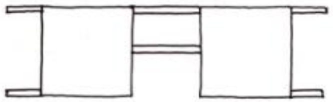

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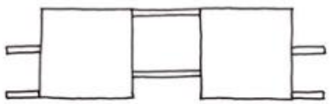

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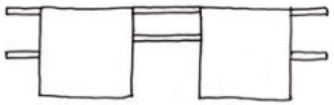
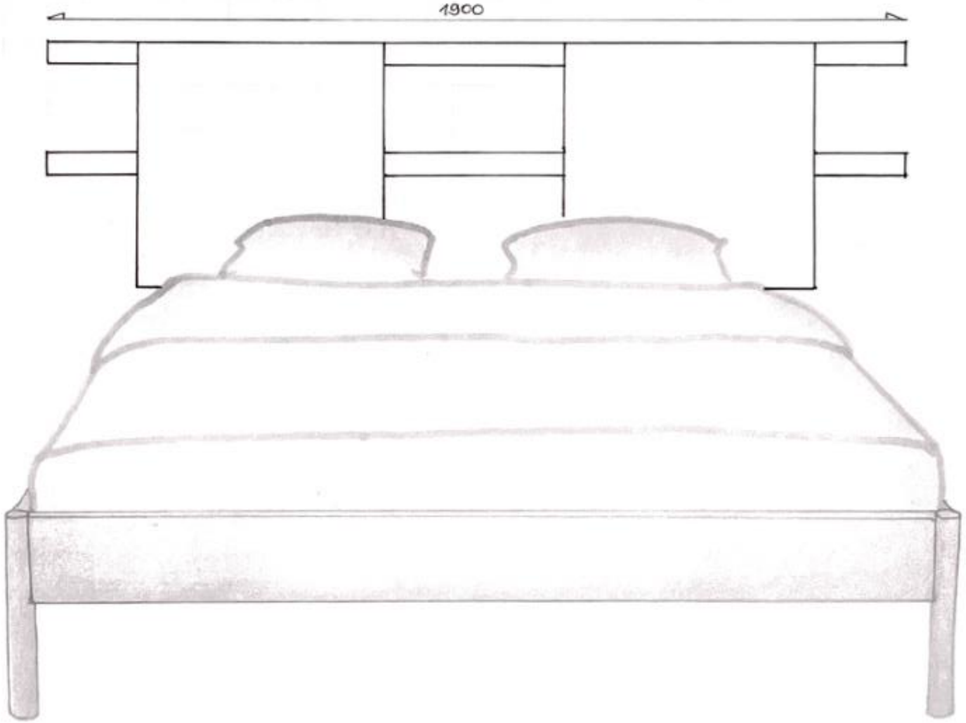
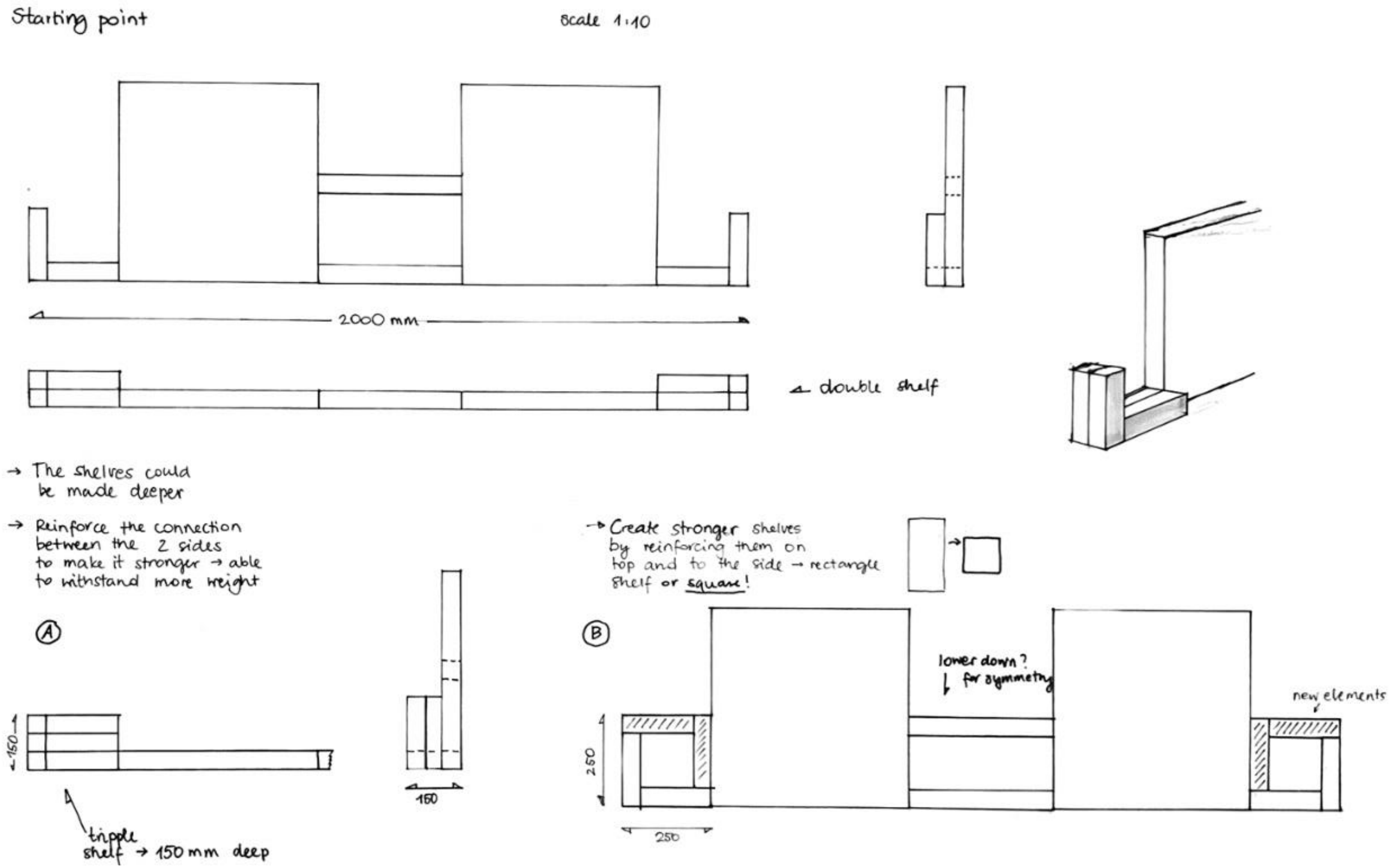




View with a bed in front

Idea 2: Upside down glasses

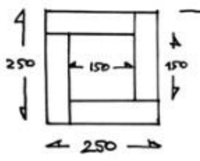
This concept was born as an association with a pair of glasses put away after reading. The idea employs two standard LACK tables. Further development includes studies of different shelf arrangements (symmetric and asymmetric), and the final solution includes broader, reinforced shelves on both sides, with the initial idea of a pair of glasses still embedded in the design.



IDEA 2 : THE GLASSES

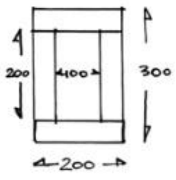
Exploring idea (B) → Square shelves / rectangular shelves

B.1



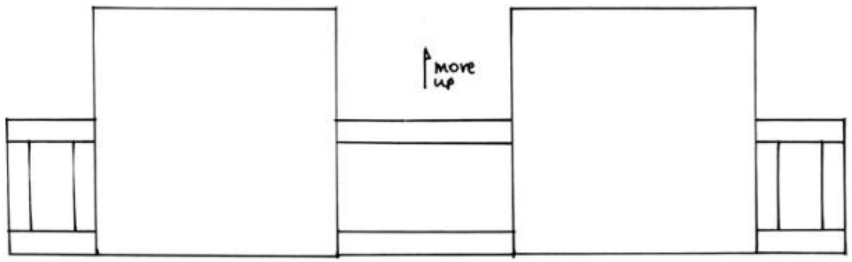
· wider space
· won't fit a book inside

B.2



· narrower
· will fit a book inside

Configuration B.2



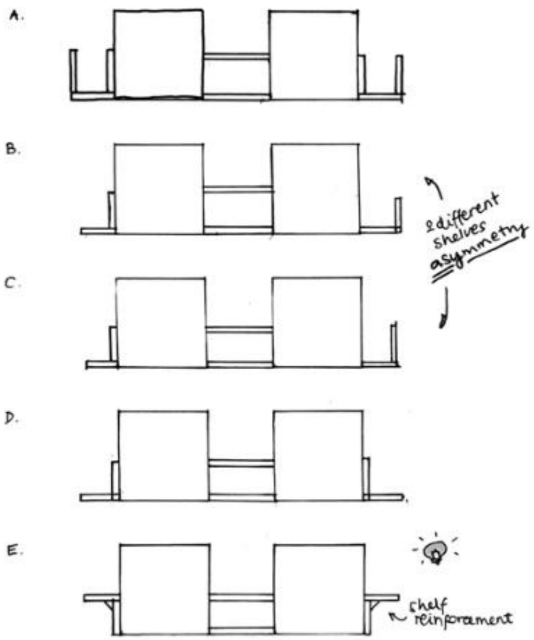
$2\times4\times\frac{1}{2}$ T1L = 4xT1L

4xT1L

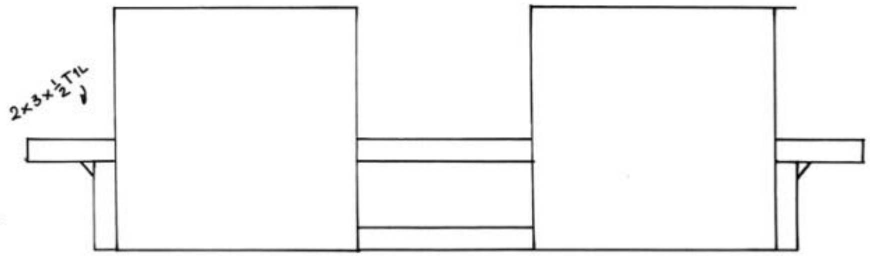
PROBLEM

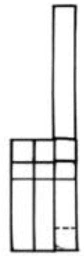
This would require 10 T1L - table 1 legs (standard) → 3 tables

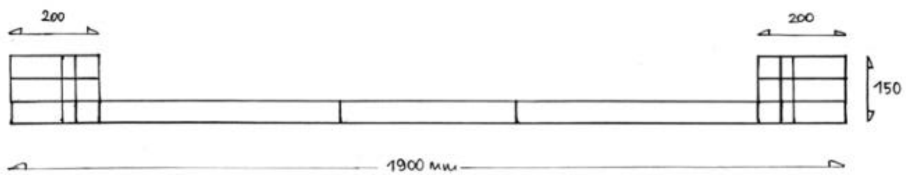
OPTIONS (further exploration)



Option B.2.E

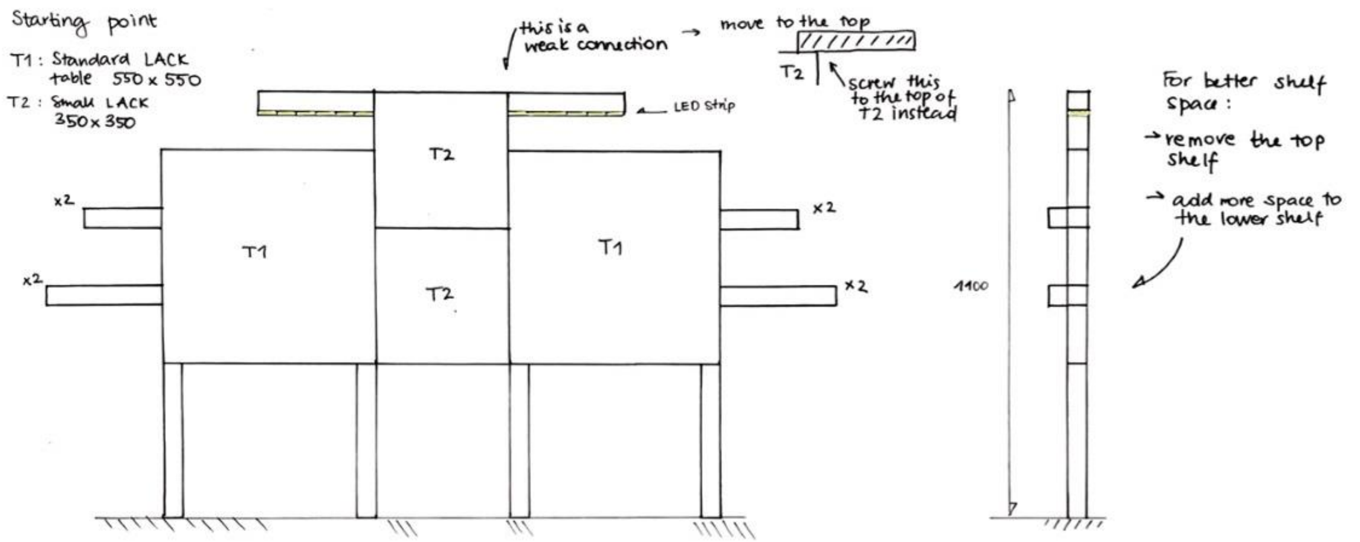


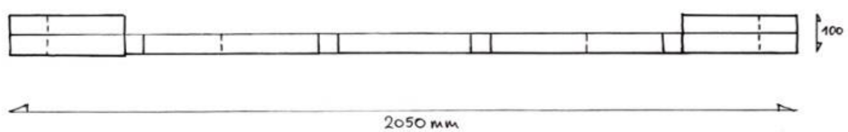


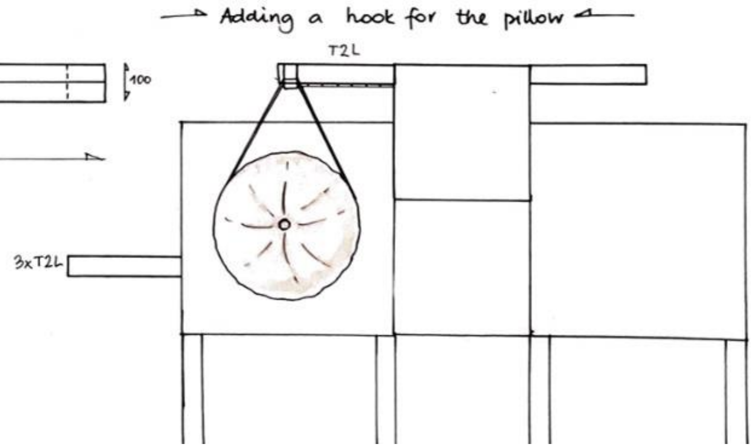


Idea 3: Standing headboard

Once the small LACK tables were included in the configurations, the idea of a standing headboard was possible. This is more aligned with the standard headboard design, allowing additional support for the construction. Because the brief asked me to create a comfortable solution, I decided to add further elements to the board: the KRANSBORRE pillow, hooks, and LED lights. (Photos of the BLECKA hooks from: https://www.ikea.com/ch/de/p/blecka-haken-vernickelt-40031373/)

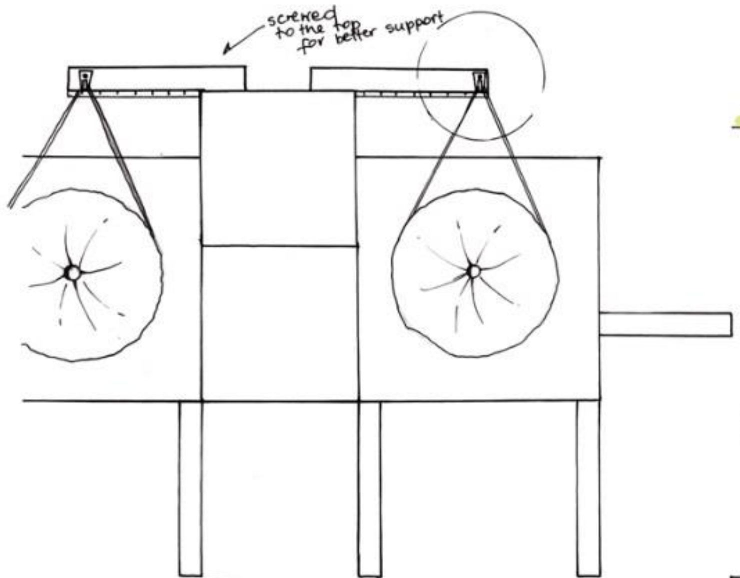




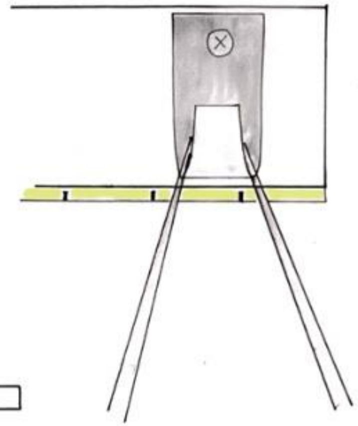


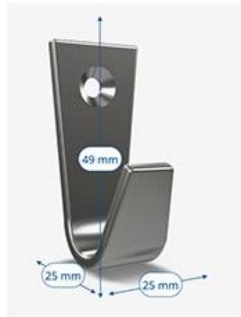
IDEA 3: STANDING HEADBOARD

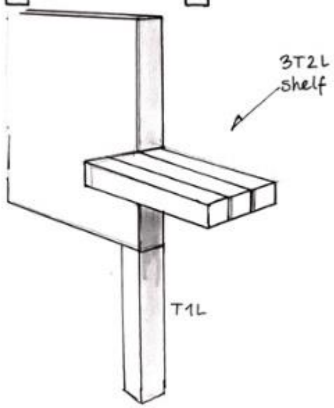
- Extra comfort provided by the pillow
- Light : LED strip
- Broader shelf



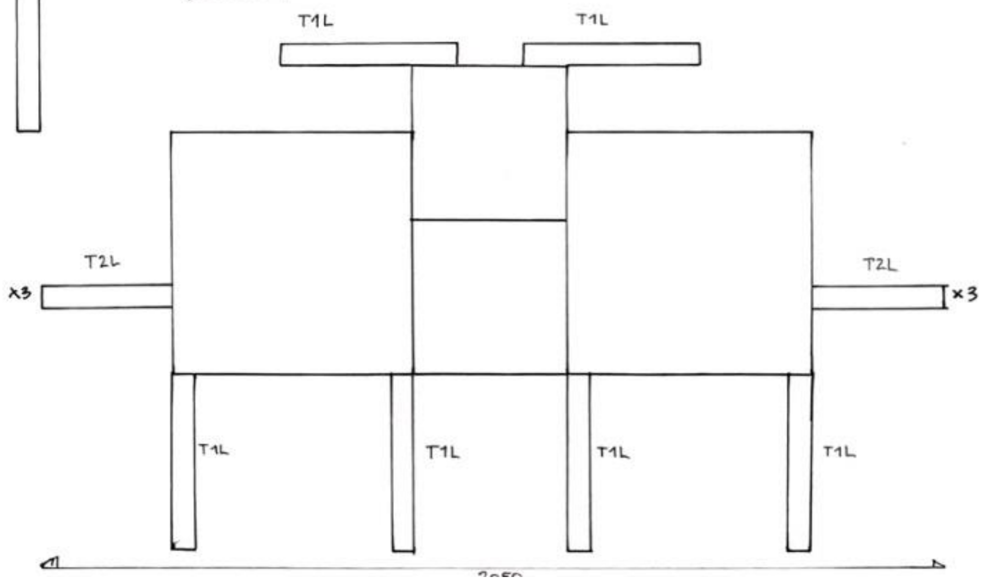
Hook fixing

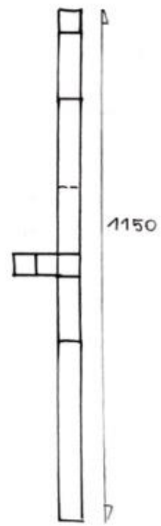






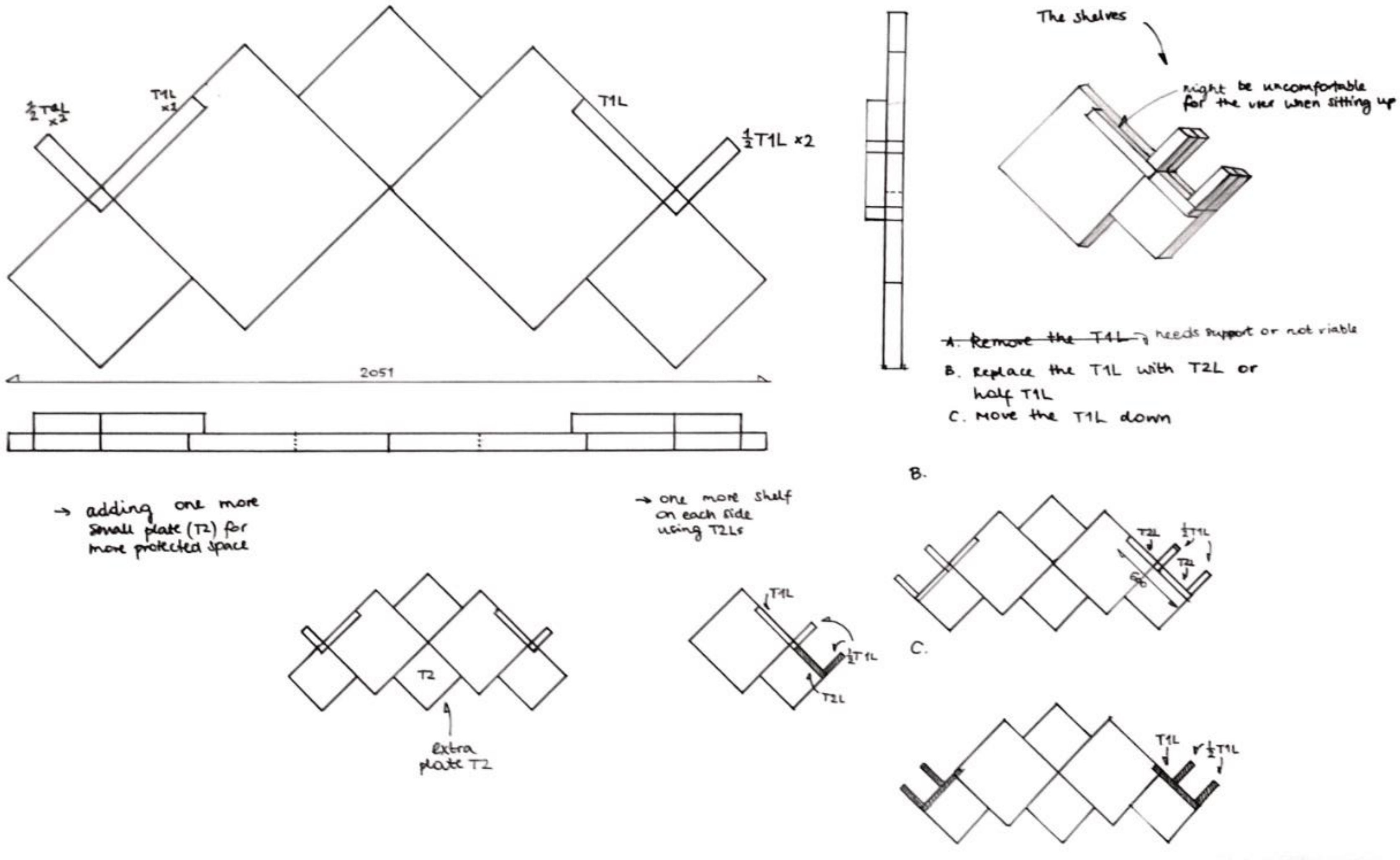
without the pillows :





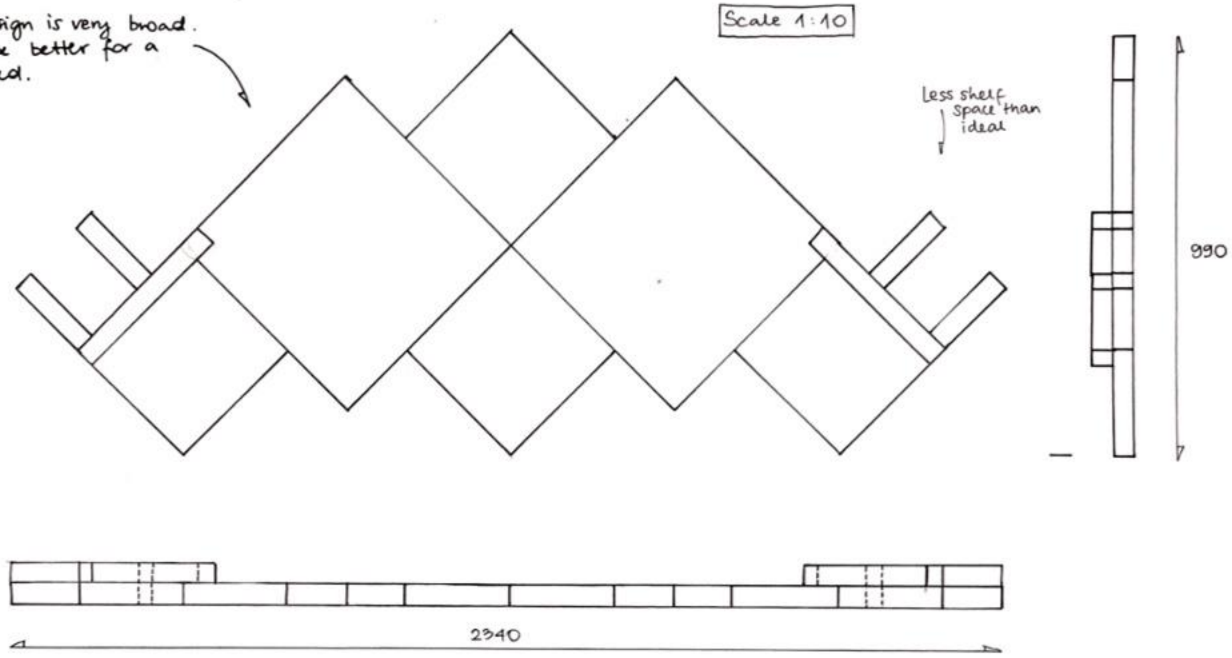
Idea 4: Double Diamond

By experimenting with rotation (*The Open University, 2023d*) I arrived at the double diamond configuration. Further experimentation employs more tabletops for better protection. This is a potential downside because the final configuration includes 6 table tops in total. This idea could be used for a broader, bigger bed.

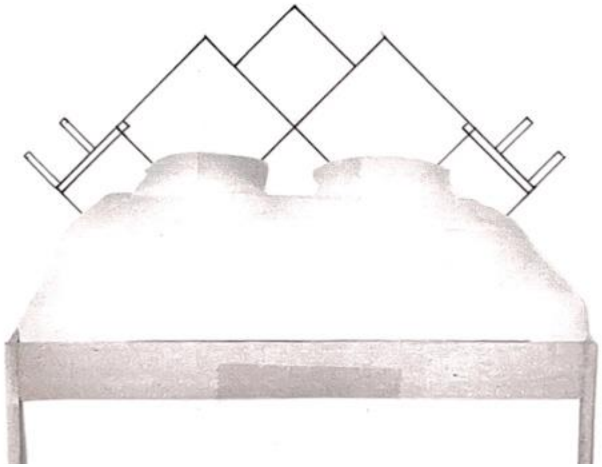


IDEA 4 : DOUBLE DIAMOND

This design is very broad. Could be better for a wider bed.

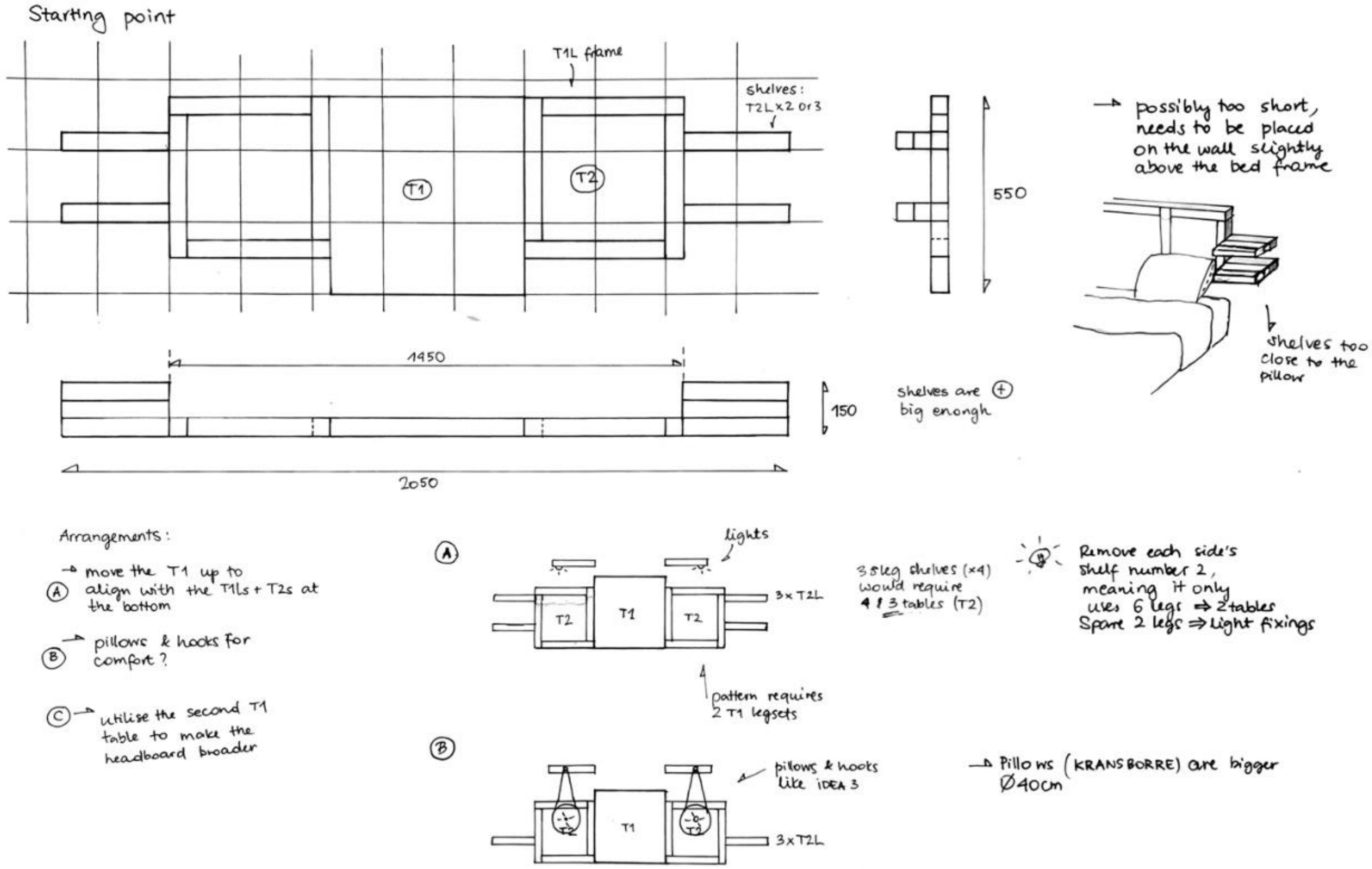


With a bed in front



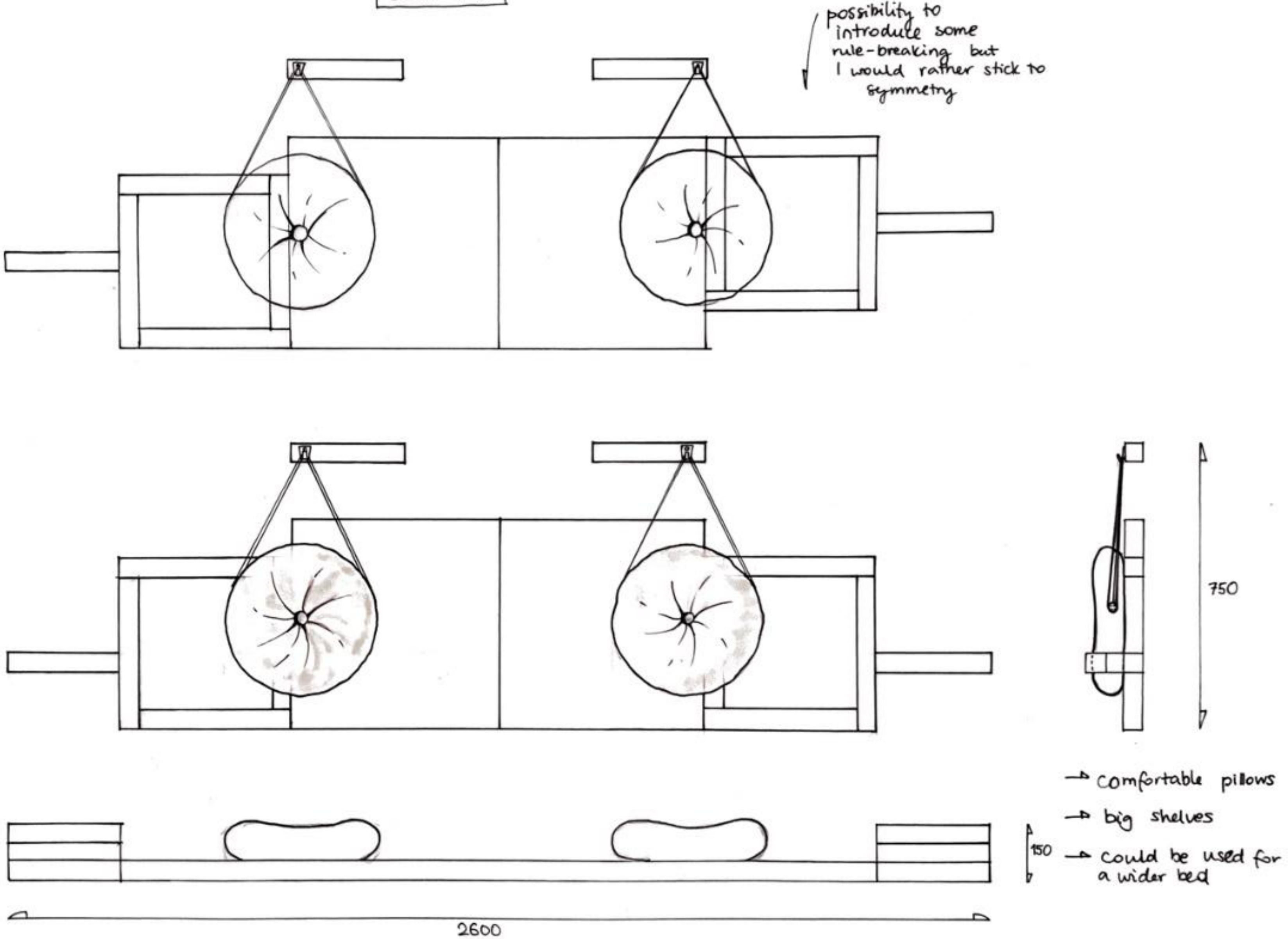
Idea 5: The Grid

For the last idea, a grid was used to help arrange the layout (*The Open University, 2023e).* The chosen size of the grid was 200 x 200 mm since it closely corresponded to the dimensions of the table tops and legs. Initially, the design included two small LACK tables and one standard table; later, the idea evolved to include two standard tables. This allowed for the design to be appropriate for a bigger bed. As with the standing board idea, additional pillows were added for comfort.



IDEA 5 : USING THE GRID

Scale 1:10



Idea Evaluation

Evaluation is key to every design process, helping narrow the idea pool and move forward. A good evaluation process should revisit the requirements, particularly the relevant ones, and help sort the ideas based on how well the set criteria are met (*Bailey, 2023*).

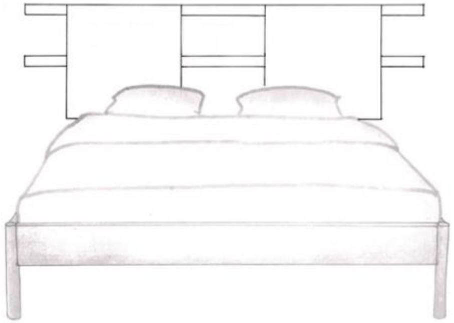
Historically, headboards functioned as a protection and separation from the cold house walls. In the 21st century, they remained decorative pieces and, in terms of practical functionality, support the back and head while a person is reading or watching TV in bed. Based on the above, it is relevant for this design project to evaluate the ideas regarding their **usability** and **aesthetic function**.

The usability of a product is concerned with how a particular arrangement of components affects the experience of using the product (*The Open University, 2023f*). I noticed that the constraint set in the design brief to "offer support for leaning against while reading, watching TV, or working in bed" relates to the function of usability.

Providing storage space for small items, like a pair of glasses, can also affect the usability of a headboard. I will also look at the human factors of usability, mainly how comfortable it is to use a particular headboard and whether it could provide a comfortable solution for a range of users (*The Open University, 2023g*).

When considering aesthetics, I will focus on each design's configuration and the emotional response it invokes. As a framework, I will consider the proportions, colour and texture, and tactile appeal (*The Open University, 2023h*).

As the final evaluation step, I will employ the selection matrix (*The Open University, 2023i*). The matrix assigns tangible scores for each design in the applied categories (constraints and criteria included in the design brief) and helps to make an informed decision about which ideas should be developed further.



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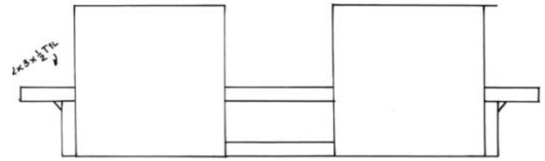

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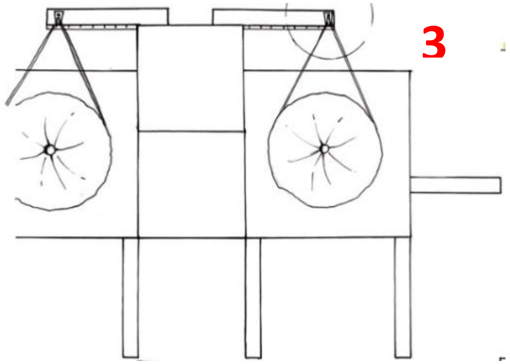

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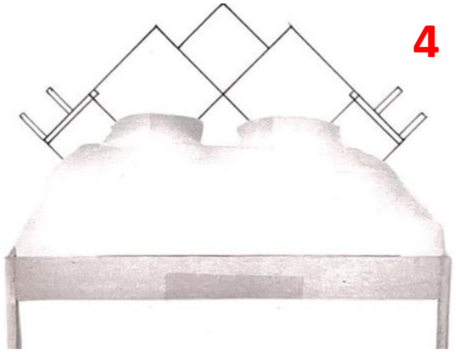

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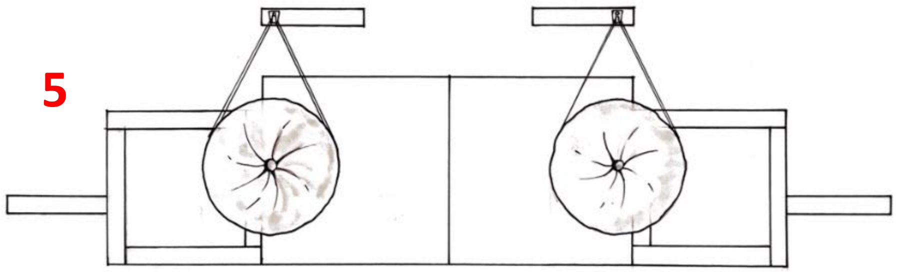
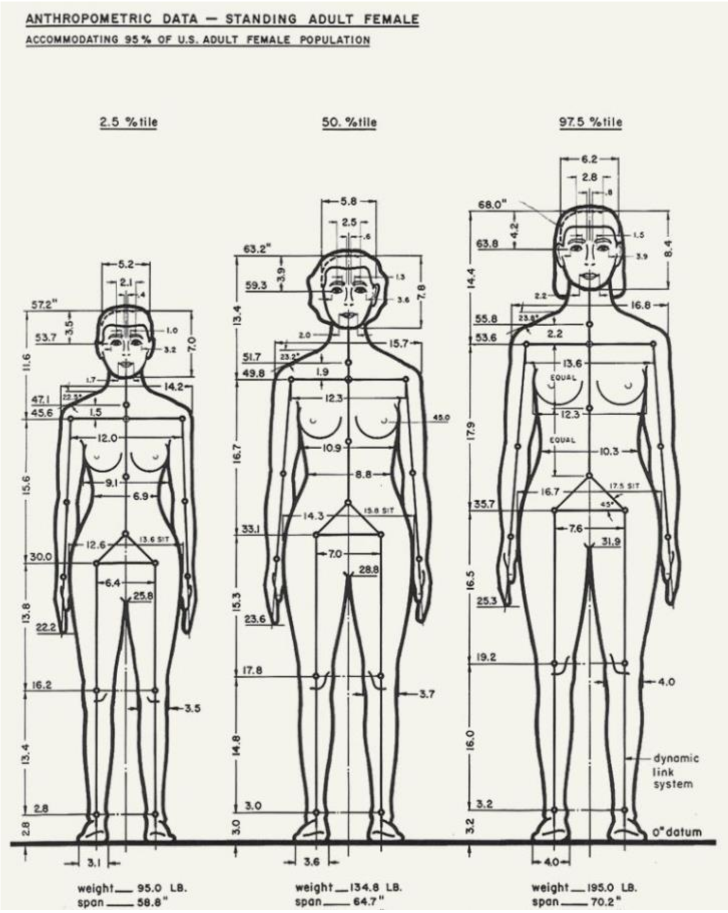


Usability

Famous American industrial designer Henry Dreyfuss was one of the first to recognise the importance of human factors in design. Together with Alvin Tilley, they produced a series of drawings (published as "The Measure of Man" and later "The Measure of Man and Woman") depicting the "average human" (*Kuang and Fabricant, 2020*).

To determine whether the headboard designs are ergonomic for a variety of body types, I will check them against the 2.5 %tile female (upper-body length while sitting: approx. 70 cm) and the 97.5 %tile male (upper-body length while sitting: approx. 90 cm).



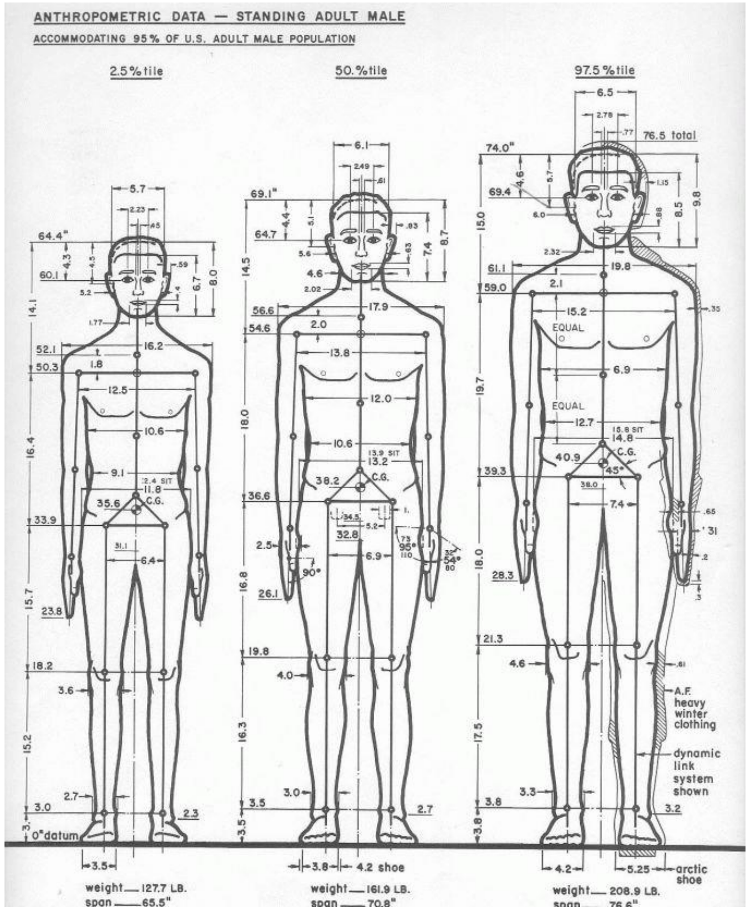
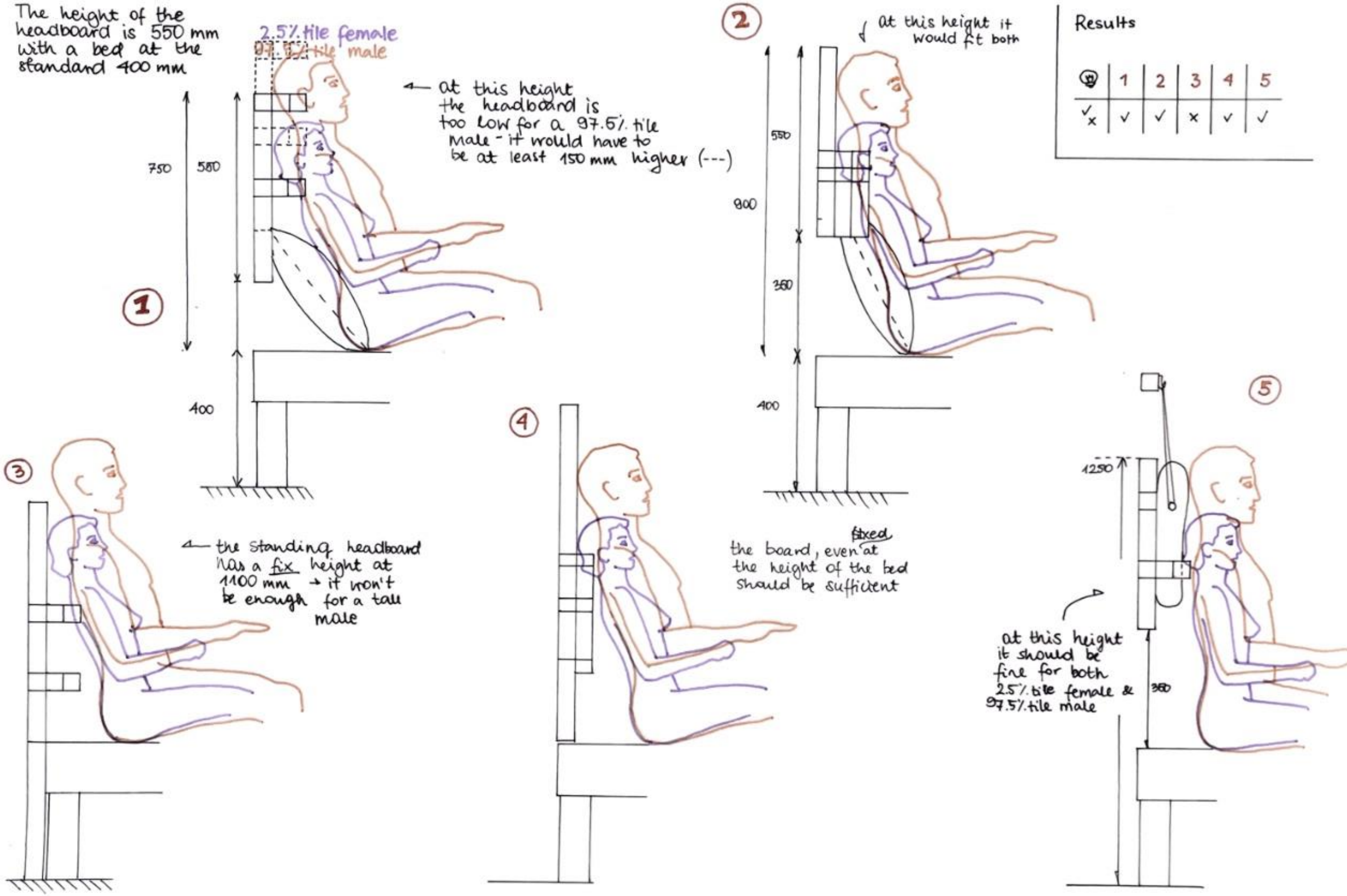
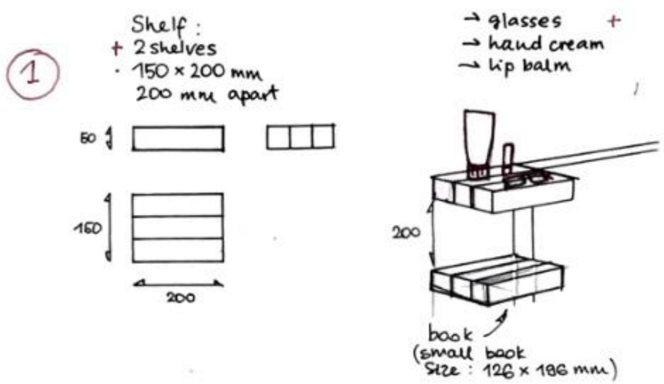


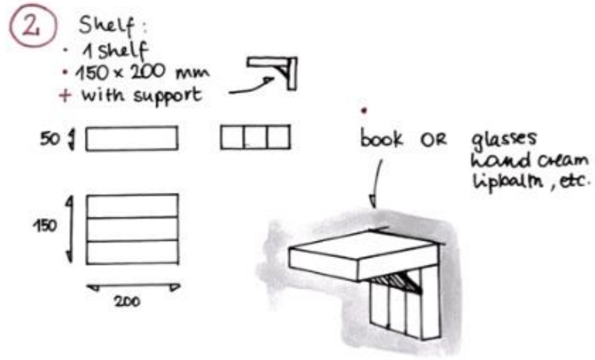
Photo credits: Female: Theo Rosendorf on X: "The Measure of Man; Human Factors in Design, by Henry Dreyfuss http://t.co/f29Djm1Gwn http://t.co/pcgLFVgpmi" / X
Male: https://www.linkedin.com/pulse/complexity-nuance-human-centred-design-beyond-average-john-gibbard-qks3c/

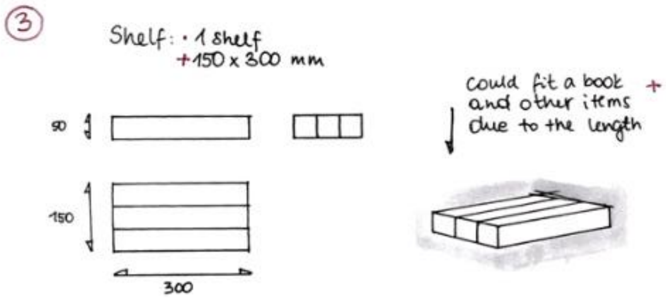
Usability: Human Factors

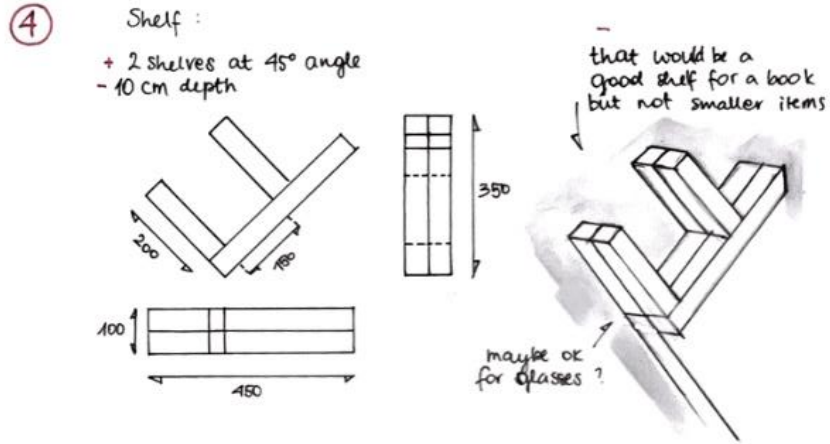


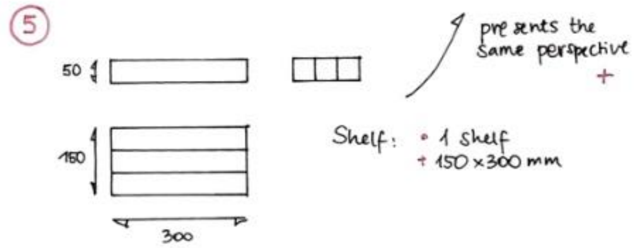
Usability: Storage











Results

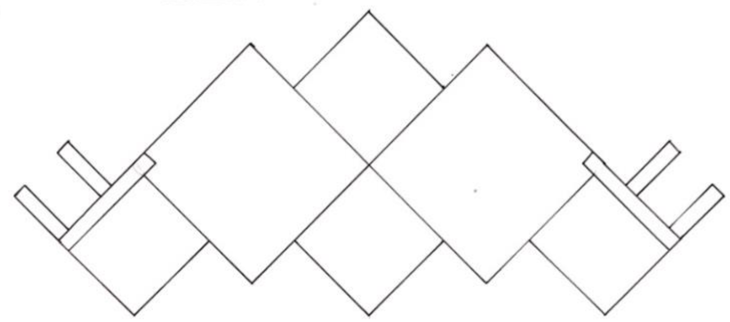
	1	2	3	4	5
No. of Shelves	+	•	•	+	•
Size	•	•	+	−	+
items	+	•	+	−	+
Extras	•	+	•	•	•
	2	1	2	−1	2

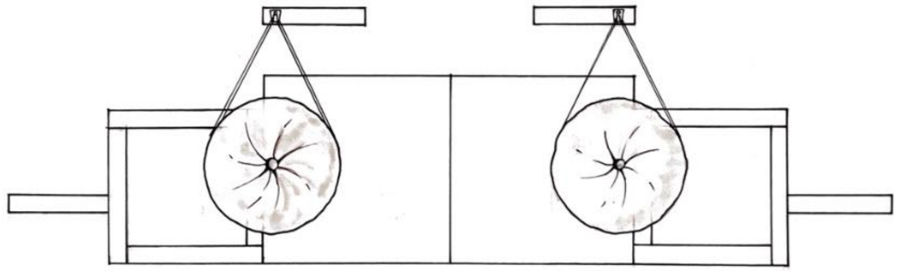
Aesthetics

Based on the design brief, the main purpose of a headboard is to **complement the décor of a room and provide pièce de résistance** – one remarkable feature. Considering that the headboard is a hack made from a piece of IKEA furniture, such a design would fit best in a room with similar furniture choices—possibly other IKEA products from the LACK series. Regarding the uniqueness of the design, I would argue that the double diamond is the most unique of all the proposed designs. With the interesting pattern, the grid design is an eye-catching design element, too.

The shape of the design is heavily influenced by the shape of the furniture item used for the hack. In this case, a LACK table is a symmetrical, simple structure. The proportions of each component have been discussed above. Overall, it could be argued that the grid-based design would be the most organised, with the hierarchy of shapes creating two focal points at two sides of the bed (*The Open University, 2023j*). A very calm, hierarchical structure also characterises the minimalist design.

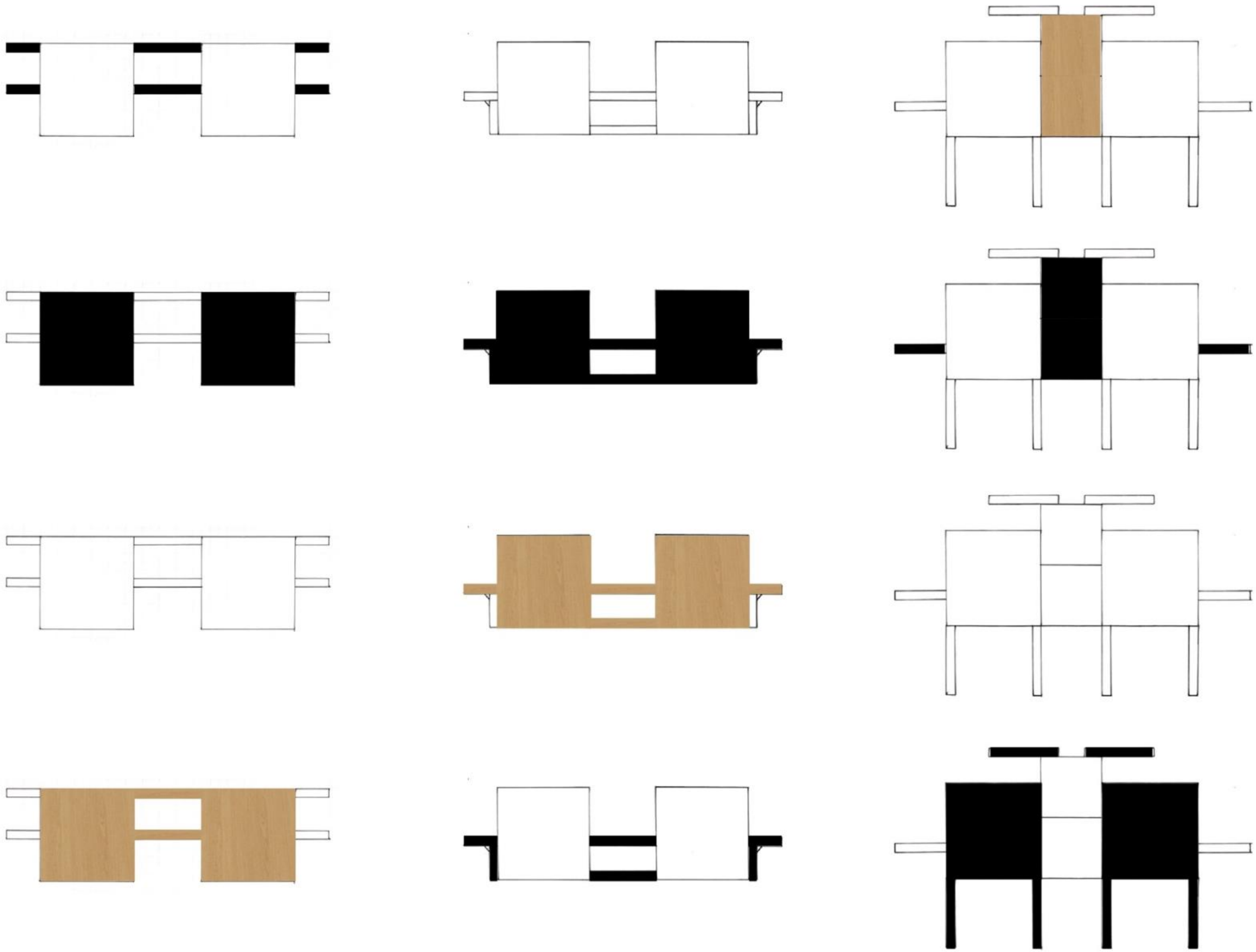
Currently, LACK tables can be purchased in four colours: white, black, and white stained oak. The combination of white and black could provide exciting aesthetics (contrast). Some ideas are supplied on the next page.

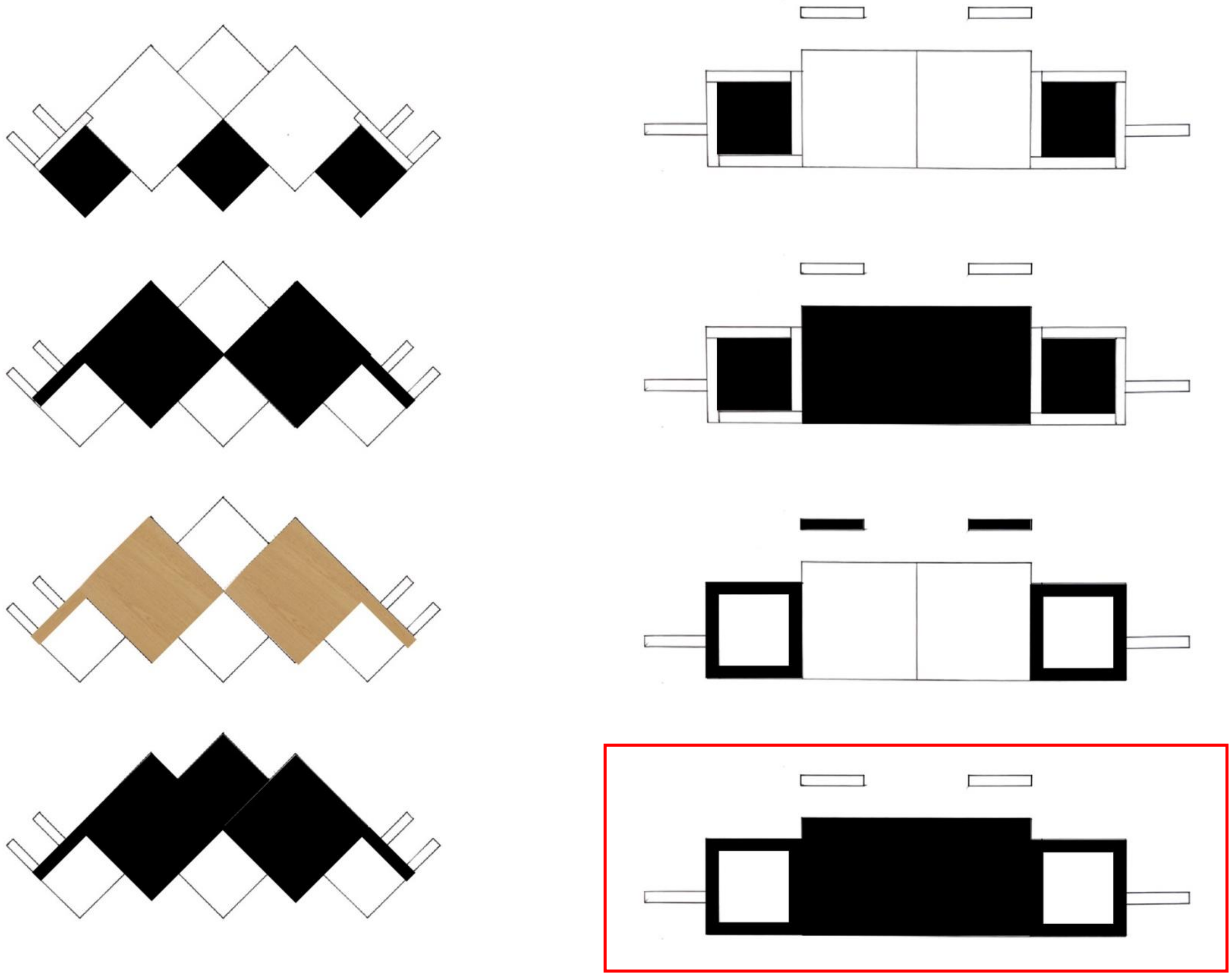




Tactile appeal is determined by the material which was used to create the piece (*The Open University, 2023k*). In this case, the material used is fibreboard (wood chips) and paper filling. It is lacquered and feels smooth to the touch. Adding soft pillows (KRANSBORRE are made with polyester, velvety to the touch) makes the whole piece look and feel softer and more comfortable. This is a crucial characteristic of a piece of furniture that is closely connected to a bed.

Aesthetic: Colour



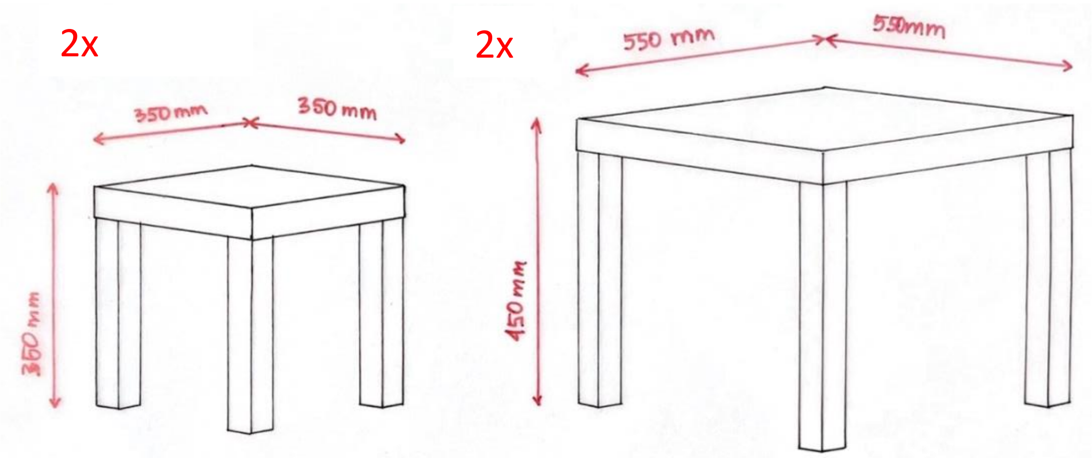


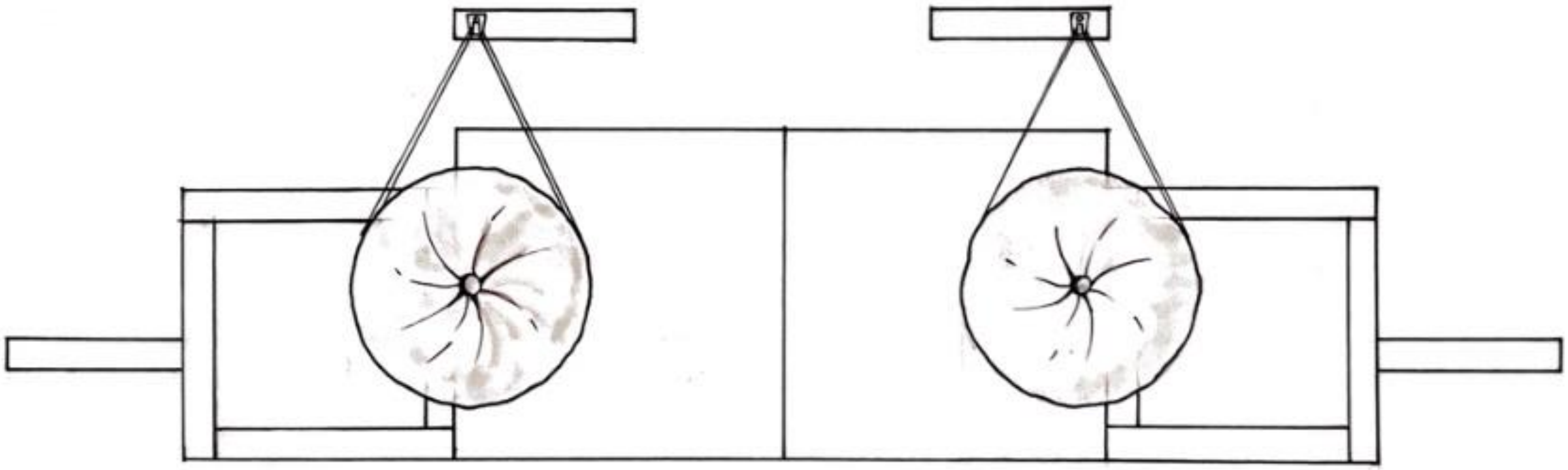
Selection Matrix

Criteria	Concept 1 The minimalist	Concept 2 Upside down glasses	Concept 3 Standing headboard	Concept 4 Double diamond	Concept 5 The grid
Human factors (double)	+	+	–	+	+
Storage: No. of shelves	+	0	0	+	0
Storage: Size	0	0	+	–	+
Storage: Items held	+	0	+	–	+
Storage: Extras	0	+	0	0	0
Comfort	0	0	+	0	+
Aesthetics: complement the décor	0	0	0	+	+
Aesthetics: proportions	+	0	0	0	+
Aesthetics: colour	0	0	0	+	+
Aesthetics: tactile	0	0	+	0	+
Total +	5	3	4	5	9
Total -	0	0	2	2	0
Total + less Total-	4	2	2	3	9

Idea Selection

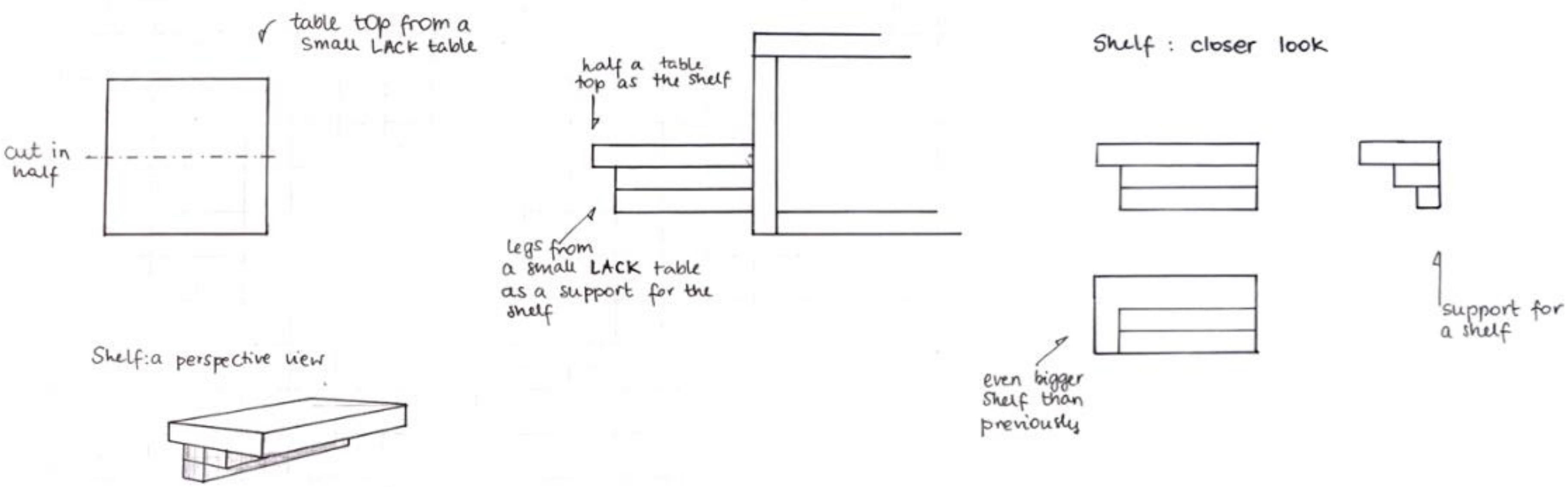
Based on the above evaluation, which considered the functions of usability and aesthetics, the grid idea is the most fitting for further development. It can be installed at any height, and it can be customised to fit the user. It provides a generous amount of shelving for the typical items kept at the side of the bed. The cushions give comfort and are soft to the touch. The colour combination circled in red provides an interesting piece of décor, simultaneously employing the minimum necessary number of tables (2 standard black LACK tables and two small white LACK tables). The design based on a grid is also proportional and harmonious.





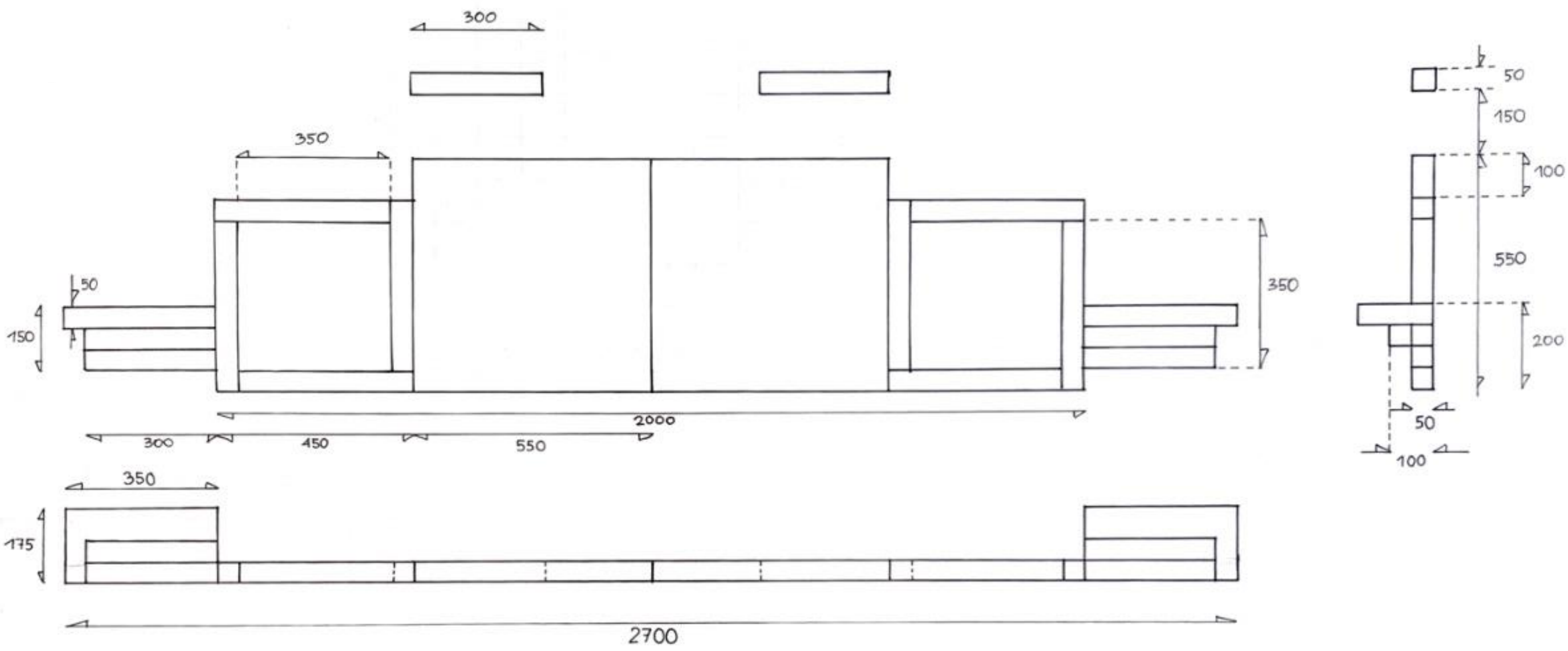
Final Development: New shelf design

A shelf made of three table legs glued together should withstand small weight, like that of a pair of glasses or a single paperback book. However, a much better idea would be to use a single piece of material and fix it with additional support. One of the principles to add strength to a shelf is to use more material towards the fixed end (*The Open University, 2023l*). The legs, which were used as a shelf in the previous version, could serve as a good support. A shelf of table legs was 150mm x 300mm in size. Half a tabletop would be slightly bigger, 175mm x 350mm. The three legs would be arranged as depicted below.



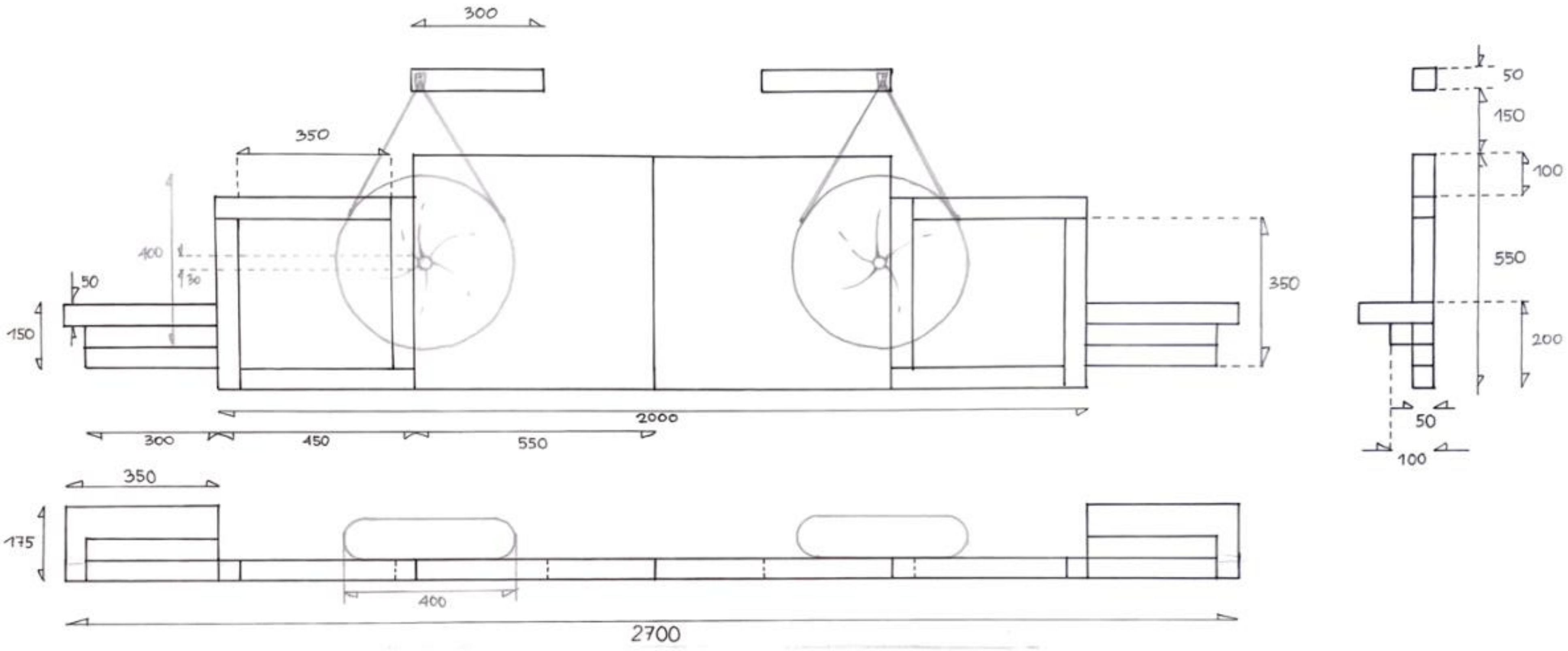
Orthographic drawings with measurements

(all measurements in millimetres; scale 1:10)

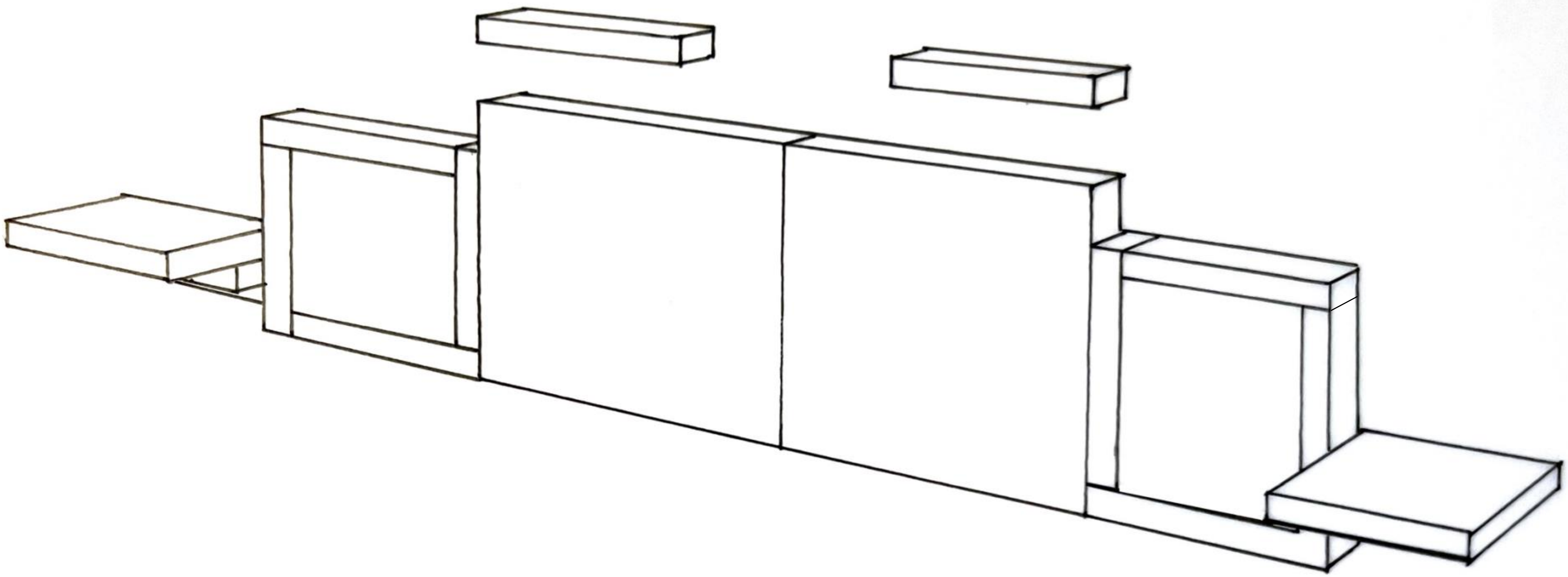


Orthographic drawings with measurements, including the pillows

(all measurements in millimetres; scale 1:10)



Perspective drawing



Perspective drawing with a bed

Photo of the bed: https://www.myadamsfurniture.com/products/felicity-queen-bed-w-led-light

References

Reflections on the possibility of hacking IKEA products: Headboard

Thompson, R. (2023) ***Do You Really Need a Headboard? Here Are 4 Reasons Why You Should Have One?*** Available at: https://bedthreads.com/blogs/journal/do-i-need-a-bedhead (Accessed: 24 February 2024).

https://www.ikea.com/us/en/p/lack-side-table-black-brown-80104268/ (Accessed: 24 February 2024)

Alternative design configurations

Open University (2023a), Book 4 Embodying designs. Chapter 1.2.3 Working on the edge of order, p. 41.

Open University (2023b), Book 4 Embodying designs. Chapter 2.2.1 Generating configurations, p. 56.

Open University (2023c), Book 4 Embodying designs. Chapter 2.2.1 Generating configurations, p. 62.

Open University (2023d), Book 4 Embodying designs. Chapter 1.2.2 Working with order, p. 34.

Open University (2023e), Book 4 Embodying designs. Chapter 1.2.2 Working with order, p. 38.

Idea evaluation and selection

Bailey, S. (2023) ‘Exploring Tutor Marked Assignment (TMA) 04: Layout design’. *T217: Design essentials*. https://ou.adobeconnect.com/pjzw6b5l6qfc/ (Accessed: 6 March 2024).

Open University (2023f), Book 4 Embodying designs. Chapter 2.2.2 Evaluating configurations, p. 65.

Open University (2023g), Book 2 Designing for People. Chapter 9.1 User populations p.93- 95.

Open University (2023h), Book 4 Embodying designs. Chapter 3.5 Aesthetics, p. 77-80.

Kuang, C. and Fabricant, R. (2019) ***User Friendly.*** 2. London: WH Allen.

Open University (2023i), Book 3 Creative Design. Chapter 6.4.2 Selection matrix, p. 109-110.

Open University (2023j), Book 4 Embodying designs. Chapter 1.2.2 Working with order, p. 38.

Open University (2023k), Book 4 Embodying designs. Chapter 3.5.3 The tactile appeal, p. 79.

Open University (2023l), Book 4 Embodying designs. Chapter 4.5.1 Material and shape affect strength, p. 105.

Word Counts

Section 1: Headboard: 617 words

Section 2: Alternative design configurations: 531 words

Section 3: Evaluation and selection: 888 words

Section 4: Selected Design Configuration: 153 words

Total word count (excluding titles, references, photo credits, table descriptions, and in-picture annotations): 2189 words