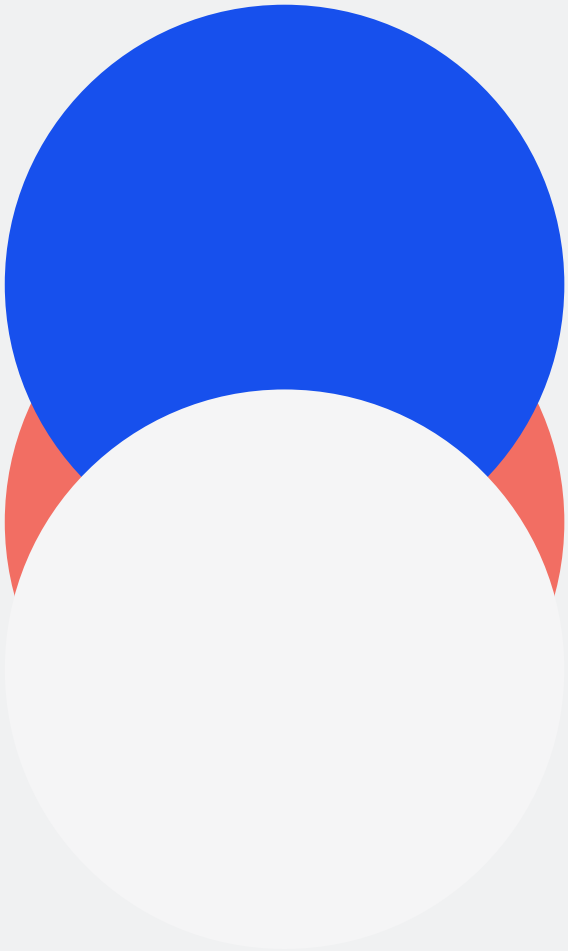

SMALL-SPACE LIVING

LUNDS UNIVERSITET

Ali Safa

2017

SMALL-SPACE LIVING

Ali Safa

Degree Project for Master of Fine Arts in Design, Main Field of Study Industrial Design,

from Lund University, School of Industrial Design

Department of Design Sciences

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Supervisor: Andreas Hopf, *Adjunct Lecturer*

This Master thesis was conducted in 2017

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ABSTRACT

Shifting between living places has become a common routine for many people all over the world. On the other hand, some people like students and commuting workers move only temporary, where the feeling of home and simplicity of moving to a new place might be challenged. The starting-point for this project was to investigate if objects can make it easier to move from place to place both emotionally and physically. However, after research the brief was updated to create a multifunctional product for small-space living, which is how most people live in the cities.

Methods used in the creative process was brainstorming, need finding through interviews, Computer Aided Modelling and prototyping. Material and construction alternatives were analysed and compared with regards to the interplay between the objects and ease of assembly.

The result was presented as a collection of three objects, a stool, a side table and a big circular pad that function as independent furniture, but also creates an additional function when the stool or side table are available together with the circular pad.

PREFACE

This Master Thesis was carried out in the spring of 2017, as the final project of the Master's Degree Program at School of Industrial Design, Faculty of Engineering, LTH.

I would like to give a warm thanks to all the workshop instructors at School of Industrial Design Lund, who were of great help and inspiration with their expertise. Big thanks to the interviewees for participating and letting us visit their homes.

Lastly, I would like to give a special thanks to my supervisor, Andreas Hopf at LTH for his support and guidance throughout the project.

Lund, June 2017

Ali Safa

TABLE OF CONTENTS

BACKGROUND

Shifting between living places and living in small spaces has become a common routine for many people all over the world. People move from rural areas to the cities and within the cities to pursue work opportunities and dreams. Some people on the other hand move only temporarily during education and project employment, which is usually a period of few years. During this period people tend to visit their homes a few times a year, often for a couple of days or during longer holidays. These circumstances can make it hard to really feel at home anywhere, both physically and mentally.

PURPOSE

A home is a place where humans often spend most of their time, therefore, our connection to the objects around us and their functionality is of vital importance to our well-being.

DELIMITATIONS

People that live in small spaces or need to move from a place due to war or other life-threatening circumstances are not a target group for this project.

TARGET-GROUP

People on the move

People with dual residencies

Students and commuters living in small spaces

BRIEF 1.0

Create a functional product that makes it easier to move from place to place, both emotionally and physically.

METHODOLOGY

The main methods used in this project are Brainstorming, Need finding through interviews, Computer Aided Modeling and Prototyping.

Since this is an individual project, several brainstorming sessions were carried out together with colleagues that had similar projects to bounce ideas and give each other feedback. To understand how it is to live in small spaces and to find out what was needed, three field trips and interviews were arranged with people living in small apartments in Lund.

Prototyping and computer aided modeling were used simultaneously due to the iterative process of testing and refining. Before making the final prototypes, several suggestions were created in SolidWorks to attain valuable and realistic information from aspects of visualization and construction in a short amount of time.

RESEARCH

PLACE ATTACHMENT

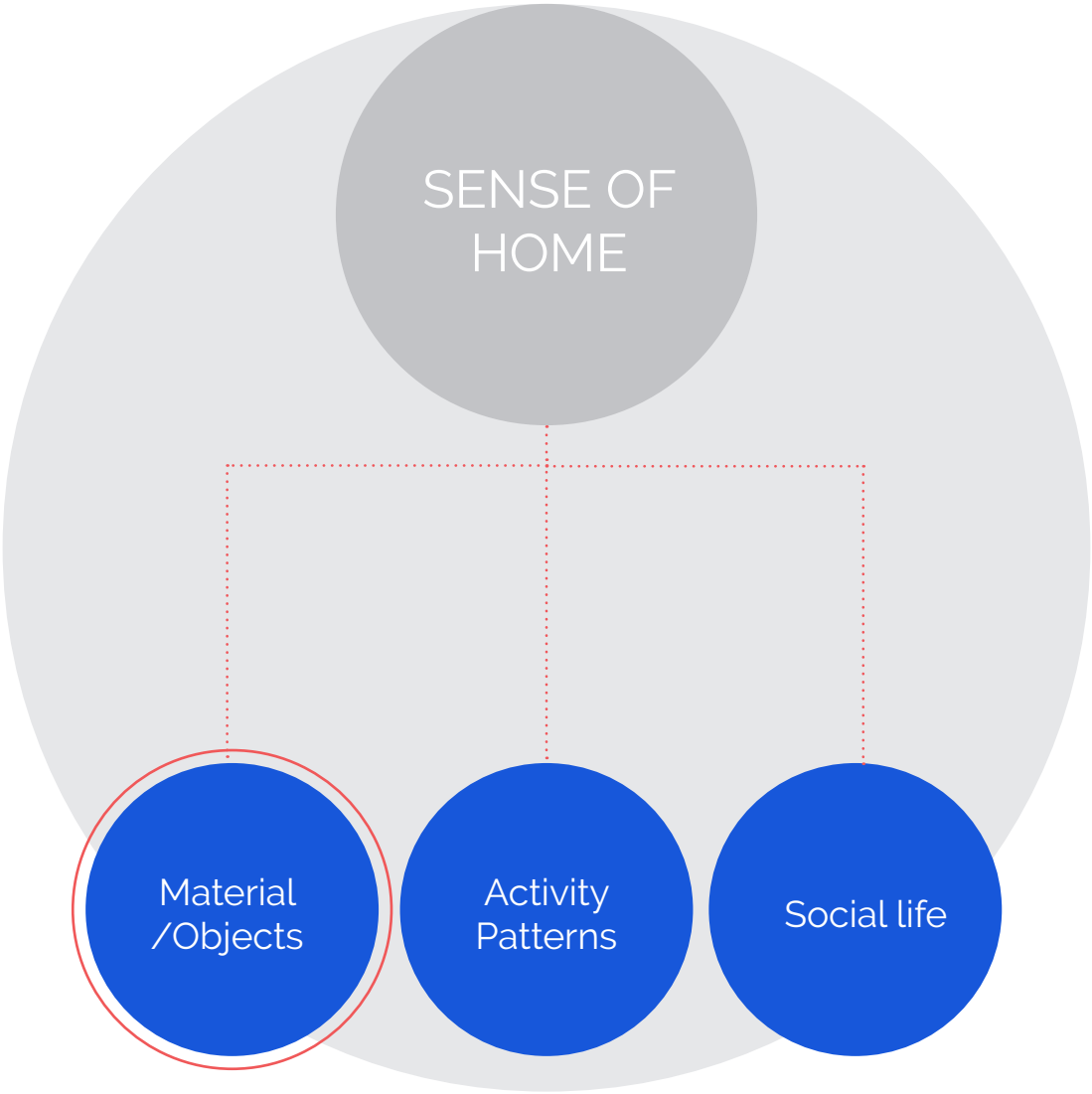
COMMUTERS

Three dimensions of home

Traditionally, the experience of home is grounded in space, like the birth home, birth city, home country etc. Nowadays in many post industrial countries, the experience of home have changed due to new travel and work opportunities. Fast (inter)national railroads and budget airlines have contributed to an expansion in work-related mobility, which for some households lead to a commuter partnership. This means that one partner lives near her or his work for part of the time and away from the family residence. Traditional daily commute is therefore replaced by (bi) weekly long, regional and sometimes international commute between the communal residence and the commuter residence (residence near the work location). These dual living situations creates questions about the experience of a home [Klis, Karsten 2008, 235-236].

The experience of home can be distinguished in three mutually related dimensions, through which a resident construct a meaning of home. The material dimension, which refers to the physical like a residence itself and the objects in it, that can have value for their practical use or as emotionally interpreted items [Clapham, 2005; Mallet, 2004]. The activity patterns dimension refers to the day-to-day activities that reflects the individual's experiences in his or her environment. Through different activites the commuter residence can be transformed from merely a functional space into a familiar place. And perhaps the most widely known condition for experiencing a home is the social dimension, which consist of the social interactions involving family, co-workers, friends and neighbours etc. [Klis, Karsten 2008, 236].

"Through different activites the commuter residence can be transformed from merely a functional space into a familiar place."


SENSE OF HOME
Material /Objects
Activity Patterns
Social life

DIMENSIONS

The material dimensions is most often used to create a sense of home because it is probably the easiest way to do so and has no direct consequences to the social and activity dimensions. Personal objects and decorations can produce a sense of domesticity that can help transform a house into a home [Easthope, 2004].

Although these dimensions are distinguished in analytical sense, it is important to note that the concept of home should be studied as a whole with consideration to its different dimensions [Moore, 2002].

WORLD TRAVELERS
Mobility, Home and Belonging

Ethnographic studies and interviews with migrants and travelers shows that home remains materially and emotionally significant. Many of us change places everyday, both mentally and physically. Some people don't need to go out to travel and some are constantly on the move physically [Molz, 2008, 326]. A home is thought to "involve complex relationships between belongingness and traveling...People can indeed be said to dwell in various mobilities" [Urry, 2000]. In many of the stories that travelers publish on their websites, home refers to not just a place, but also to rituals, regular patterns of behaviour, objects, social connection and emotions that make "feeling at home" a transportable form of attachment and belonging. [Douglas, 1993; Miller, 2001].

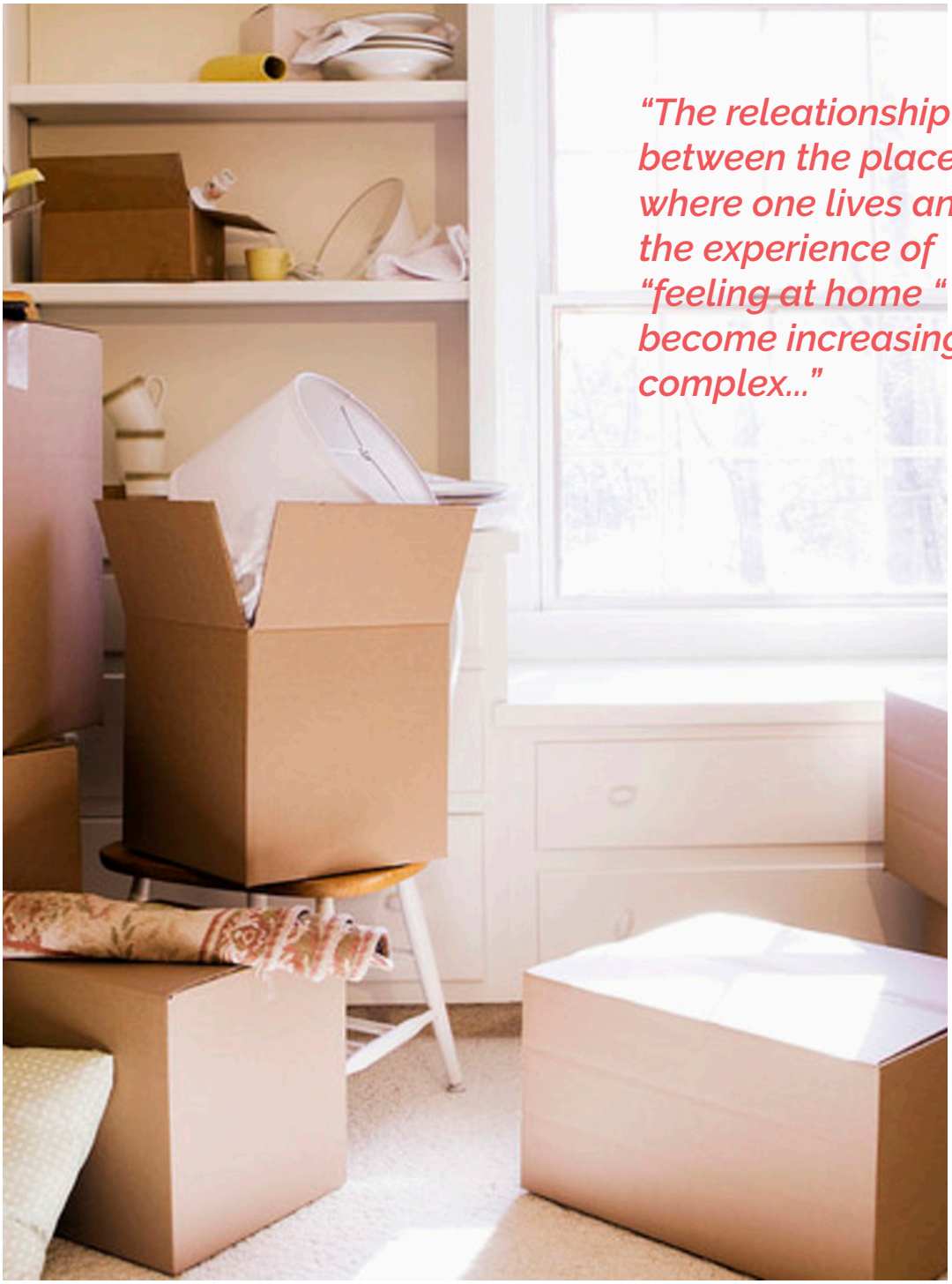
To cope with homesickness, a couple from Alaska that traveled around world with their two young daughters, created homey rituals. They did a few of the same things in each country they visited. In their list they included having one McDonalds meal, watching at least one movie in a cinema and checking out local televison. This traveling family created **a sense of continuity** in the context of displacement, by doing some of the things they might do at home. [WorldHop, 2004].

"Home refers to not just a place, but also to rituals, regular patterns of behaviour, objects, social connection and emotions that make "feeling at home" a transportable form of attachment and belonging"

STUDENTS

Students dwelling strategies in Northern Italy

The releationship between the place where one lives and the experience of “feeling at home “ has become increasingly complex and uncertain in this era of contemporary mobility. Three young students participated in a case study about “temporary homes” in Northern Italy. The three cases are similar in terms of age, current accomodation situation and the “stated” reason for moving. None of them is in a stable relationship and they all live with peers in separate rented flats. Although the three narratives showed different ways of experiencing the initial impact of their new accomodation , they all showed similar approach to the construction of relationship with the new setting. The similarity was based on the ability to feel comfortable in a new place by organising household routines, transforming “objects” into “things”, negotiating personal times and spaces with flatmates and the way they managed the interplay between the domestic interior and urban exterior [Rampazi, 2016].



“The releationship between the place where one lives and the experience of “feeling at home “ has become increasingly complex...”

moretilmernee.dk (2018)

PRODUCT ATTACHMENT

WHAT MAKES A PRODUCT PRECIOUS?

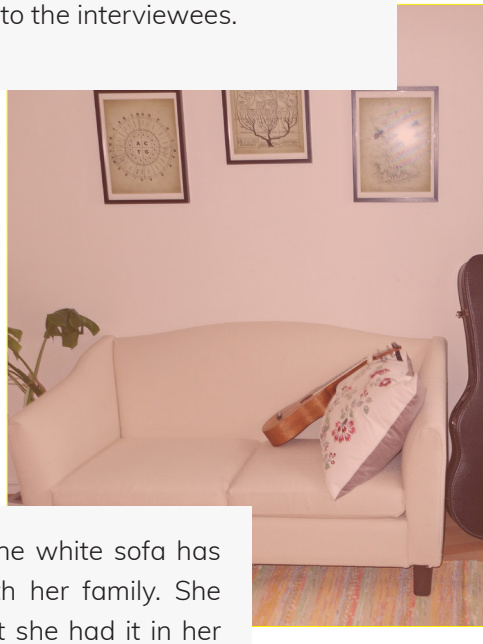
Consumer-product attachment

To strengthen the product-consumer bond, designers are encouraged to consider 7 frameworks; enjoyment, memories, market value, life vision, utility, reliabililty and self-identity. Several authors have noted that memories play a key role in consumer-product attachment. Memories developed through regular interaction with a product affects the experience and usually strengthen the product attachment [Mugge et al, 2005]. To enhance product attachment and memories, Mugge et al suggest that the product should stimulate social contact and allow it to be shared and used with others. This will boost happiness and encourage fond memories to form. Attachment is often highest for very new products and those that have been owned for a long time. By following the mentioned frameworks, designers have the ability encourage attachment to some extent. However, the challenge lies with designing objects that elicit memories and emotions, as these are abstract phenomenon that vary from person to person.

What makes a product precious and valuable to a user is the associations it has with people and places. It acts as a reminder of enjoyable past experiences and trigger previous feelings of happiness. Research even suggests that users have enhanced attachment to the memories a product holds, over the item it self. However, without the items the memories will be lost [Page, 2014].

FIELD TRIP - SMALL SCALE LIVING

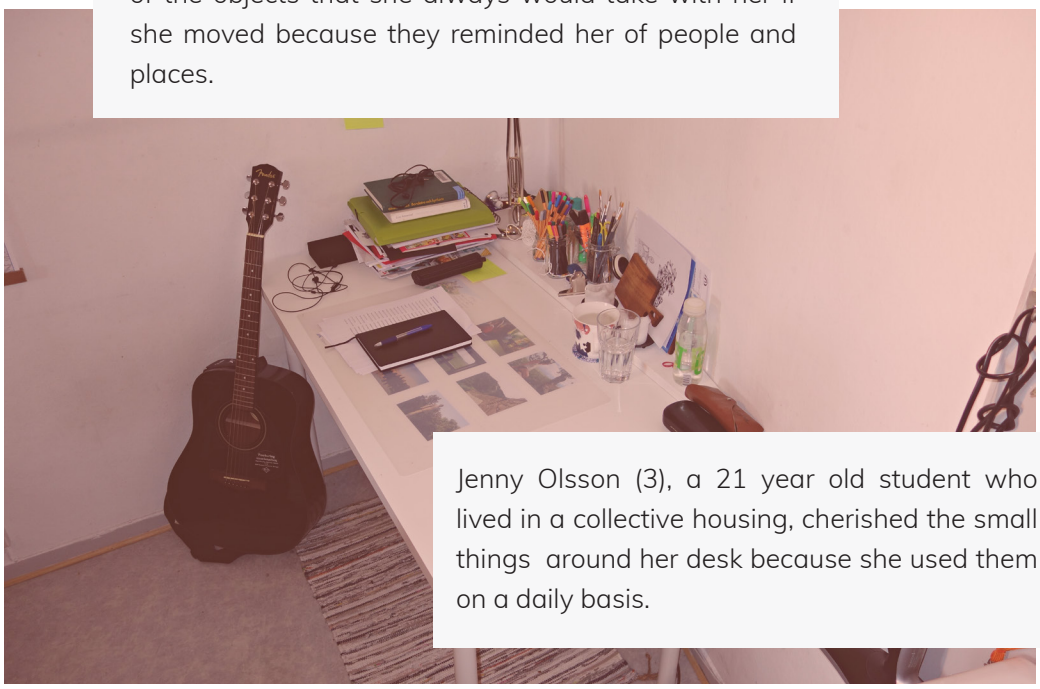
A field trip to three different homes in Lund, Sweden were arranged to get a better understanding of how it is to live in small scale apartments and what makes a place a home from the interviewees perspective. What all three had in common is that during social gatherings they had to move or use furniture in a way that made it possible to fit everyone in the room. To be able to use the furniture in more than one way when it is needed was essential to the interviewees.



In Linnea's (2) apartment, the white sofa has been three generations with her family. She was not really fond of it but she had it in her apartment because it was small enough and she would rather not buy a new one.

(1) Jeanette Larsson, Student, Interview 21 Mars 2017
(2) Linnéa Blomberg, Student, Interview 21 Mars 2017
(3) Jenny Olsson, Student, Interview 21 Mars 2017

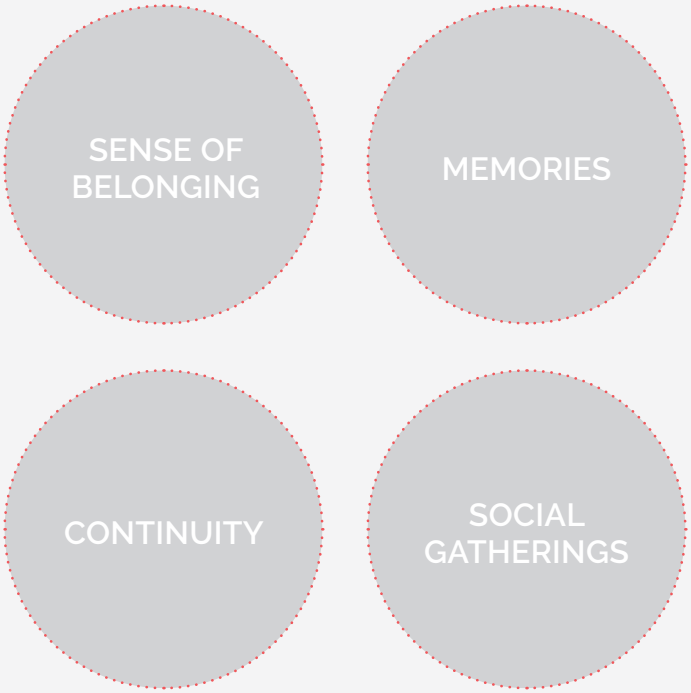
Jeanette Larsson (1), a 25 year old student who lived in a 10 sqm apartment had photos of places she had traveled all over her wall. Souvenirs were also some of the objects that she always would take with her if she moved because they reminded her of people and places.



Jenny Olsson (3), a 21 year old student who lived in a collective housing, cherished the small things around her desk because she used them on a daily basis.

KEY INSIGHTS

PLACE ATTACHMENT / PRODUCT ATTACHMENT / FIELD TRIP



CONCLUSION

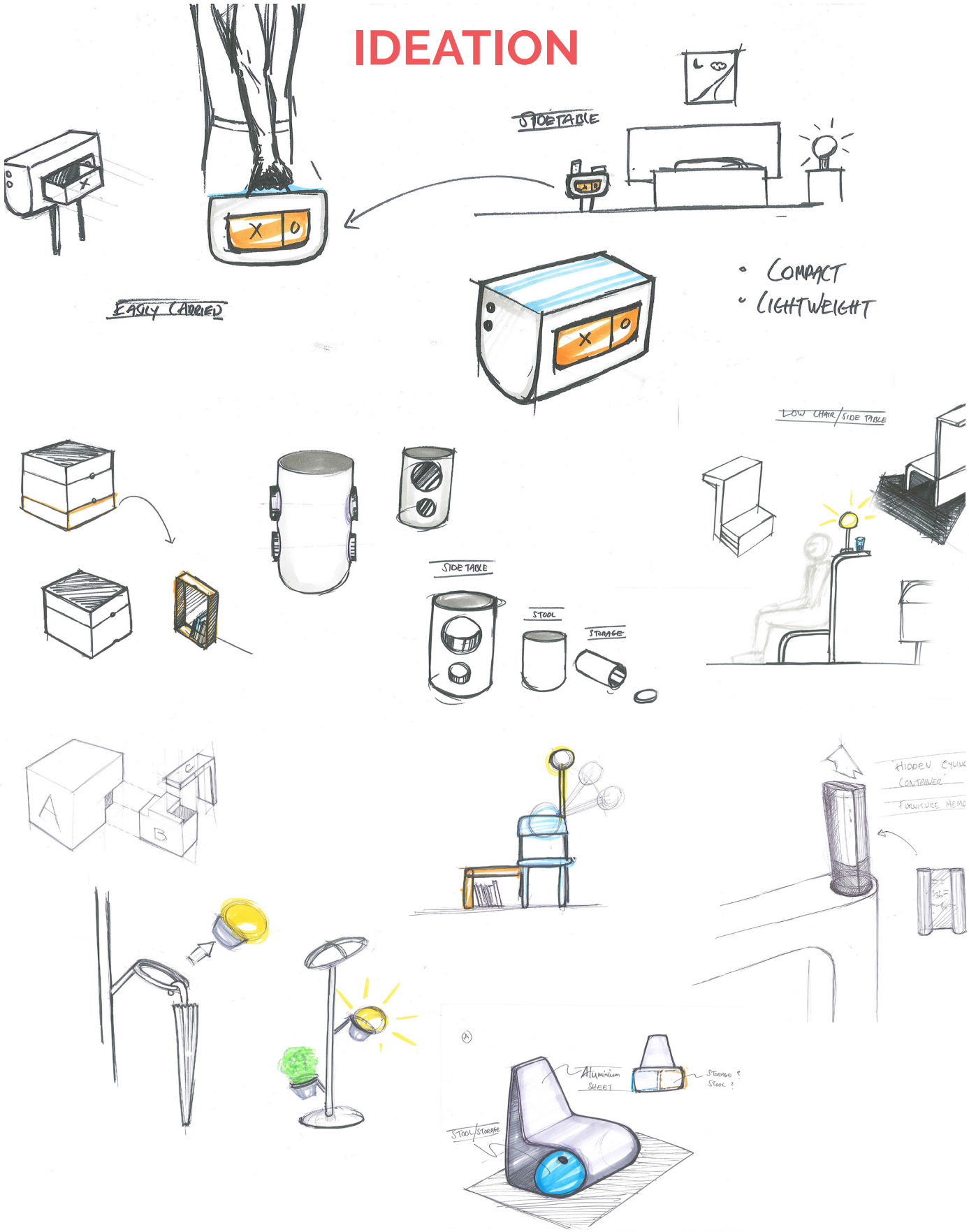
Although keywords such as memories, sense of belonging and continuity are essential to “feeling at home” , designers can only encourage this feeling to some extent since these are complex abstract phenomenon. Designing something for the memory is clearly an impossible task for now as we don’t fully understand the brain yet, one of the largest and most complex organs in the human body.

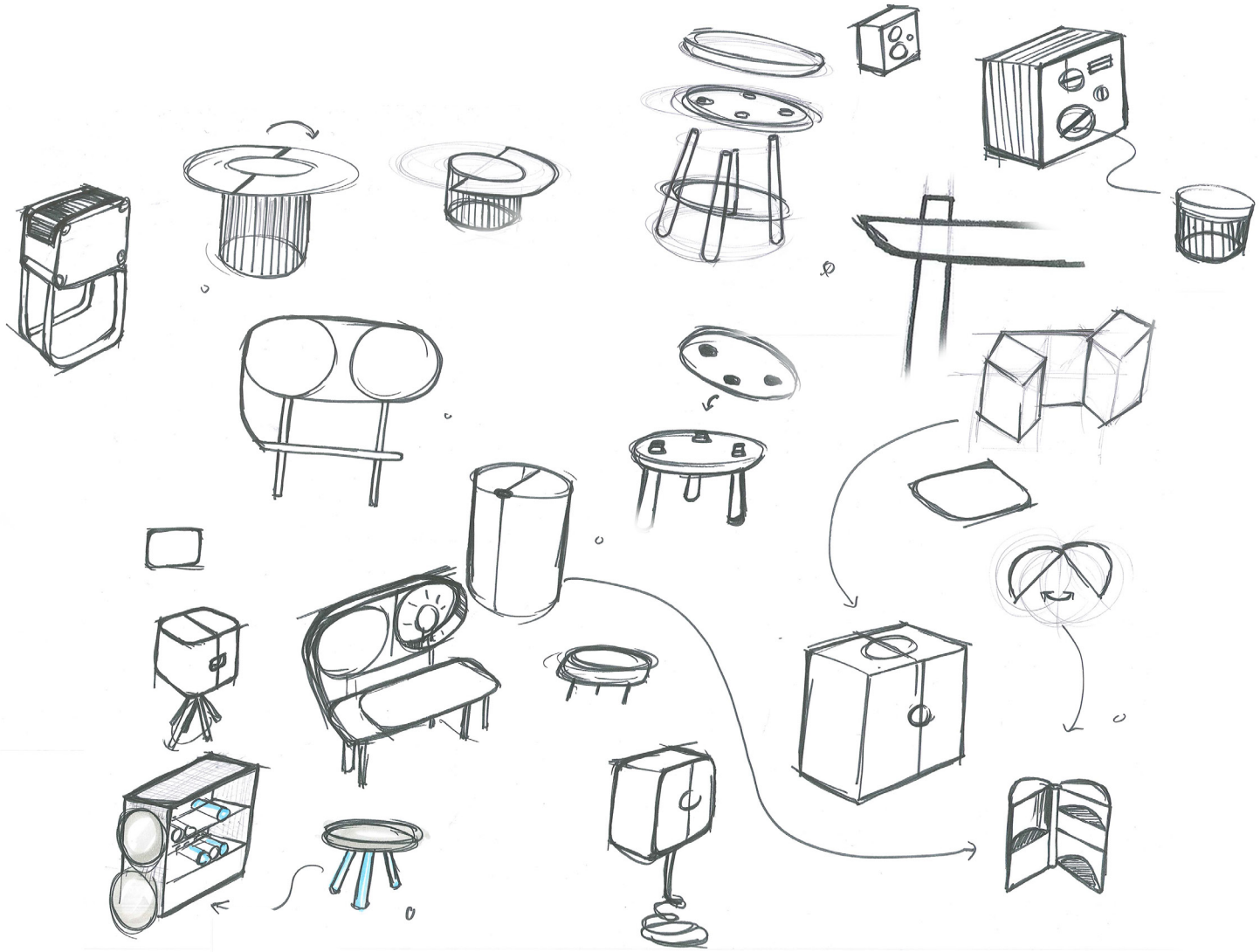
It was clear that the items the interviewees were attached to have sentimental value to them and cannot be replaced. Some photos, souvenirs and an old guitar are some of the things they would rather take with them if they moved. On the other hand a new opportunity emerged, furniture that could be used on different occasions and could have more than one function would be appreciated in small spaces..

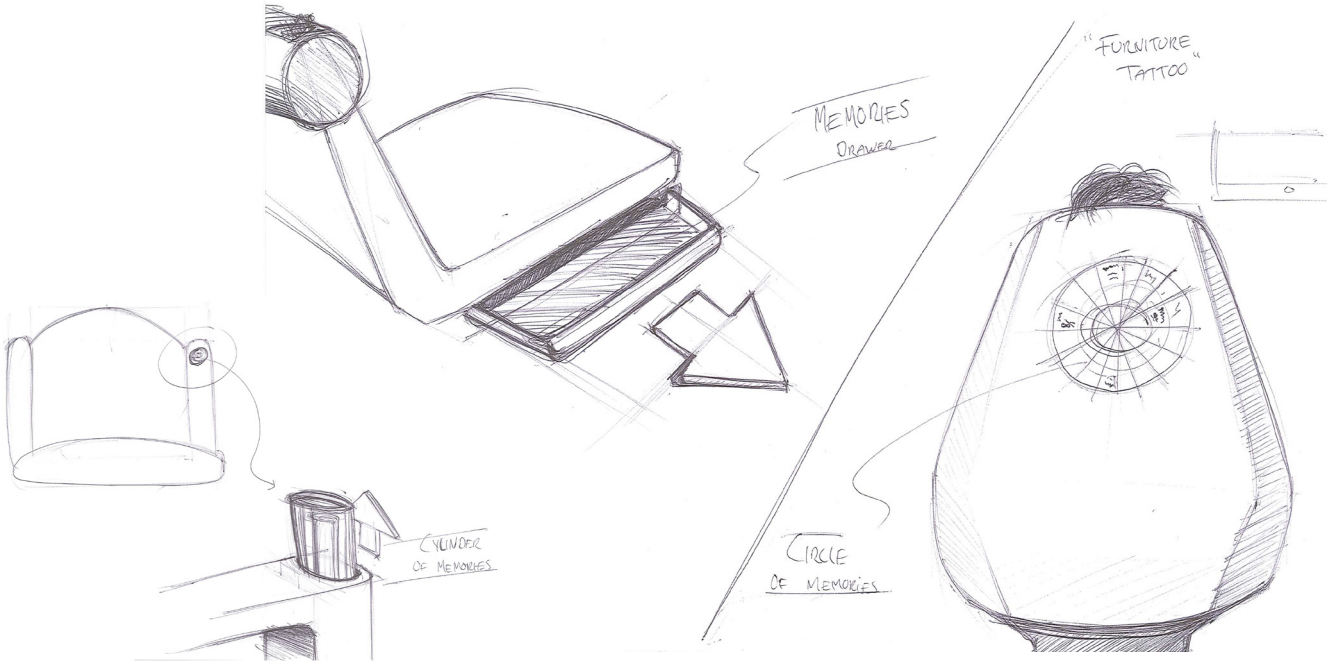
BRIEF 2.0

Create a multifunctional product for small scale living.

IDEATION


STOETABLE
EASILY CARRIED
• COMPACT
• LIGHTWEIGHT
LOW CHAIR/SIDE TABLE
SIDE TABLE
STOOL
STORAGE
A
B
C
HIDDEN CYLIN
CONTAINER
FORMVOICE MEMO
Aluminium SHEET
STORAGE ?
STOOL ?
STOOL/STORAGE




MEMORIES
DRAWER
"FURNITURE
TATTOO"
CYLINDER
OF MEMORIES
CIRCLE
OF MEMORIES

IDEATION CONCEPTS

A. Transformable sofa

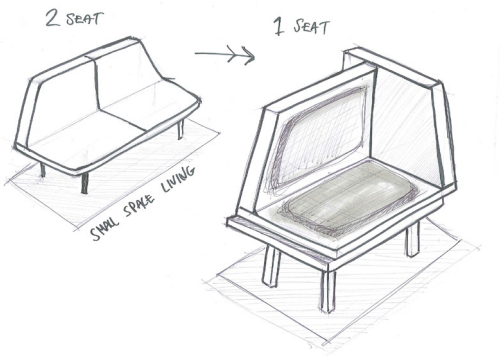
A furniture that could be transformed from a one seat sofa into a two seat sofa for small scale living.

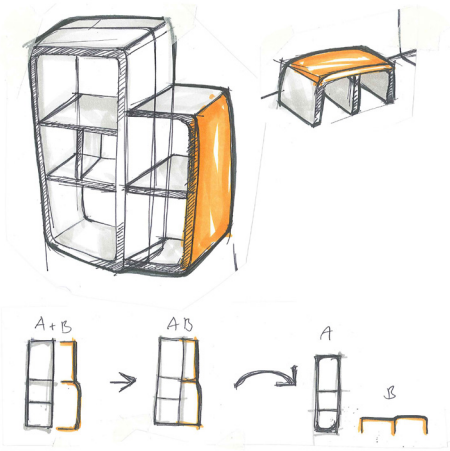
B. Multifunctional Storage system

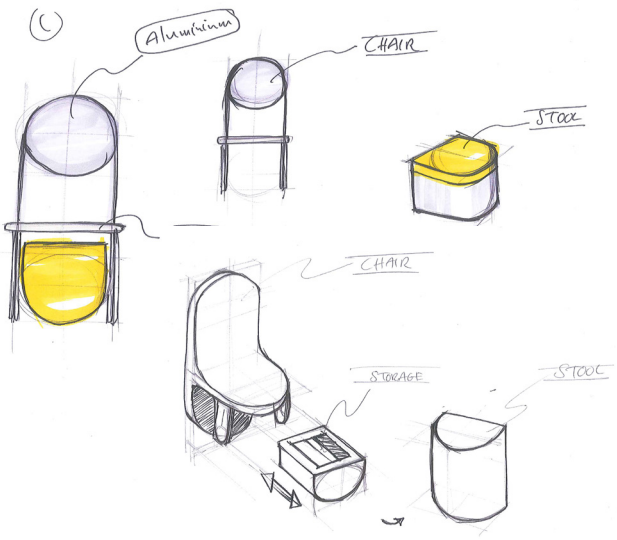
A storage system that could be transformed into a shelf and a bench. Two pieces that are sold separately.

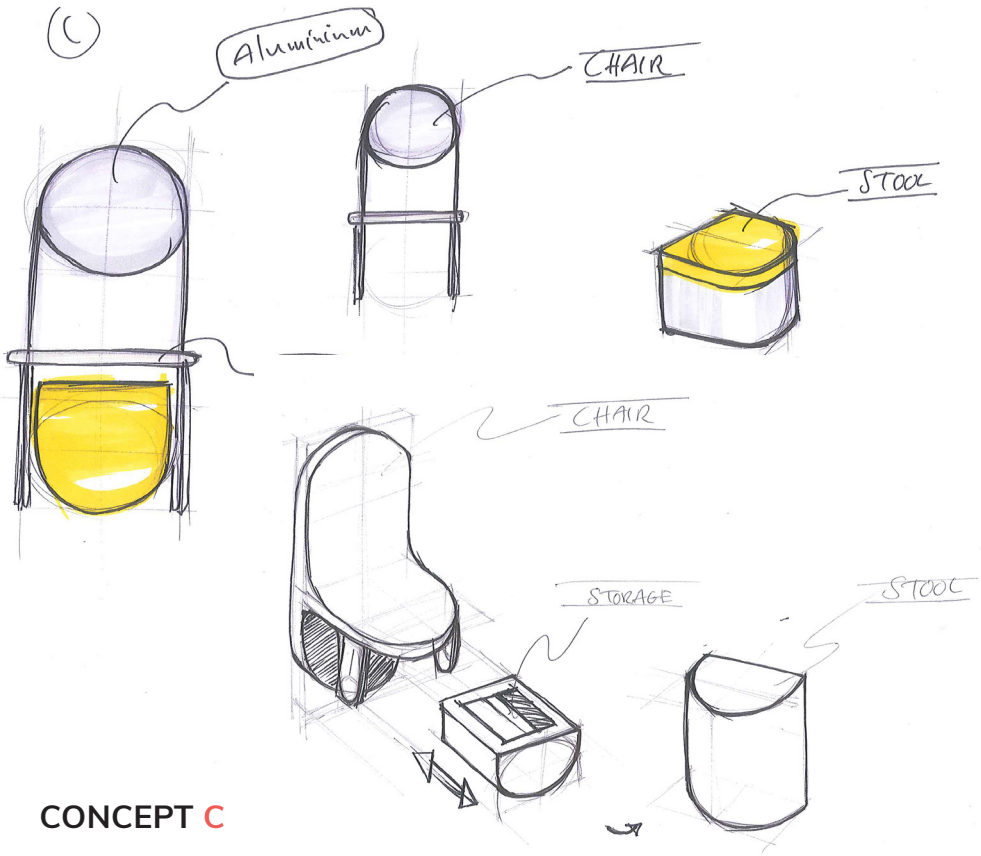
C. A chair and stool /storage

A chair and a stool/storage that function individually but also complete each other aesthetically when attached together.


2 SEAT
1 SEAT
SMAL SPACE LIVING


A+B
AB
A
B


(L)
Aluminium
CHAIR
STOOL
CHAIR
STORAGE
STOOL

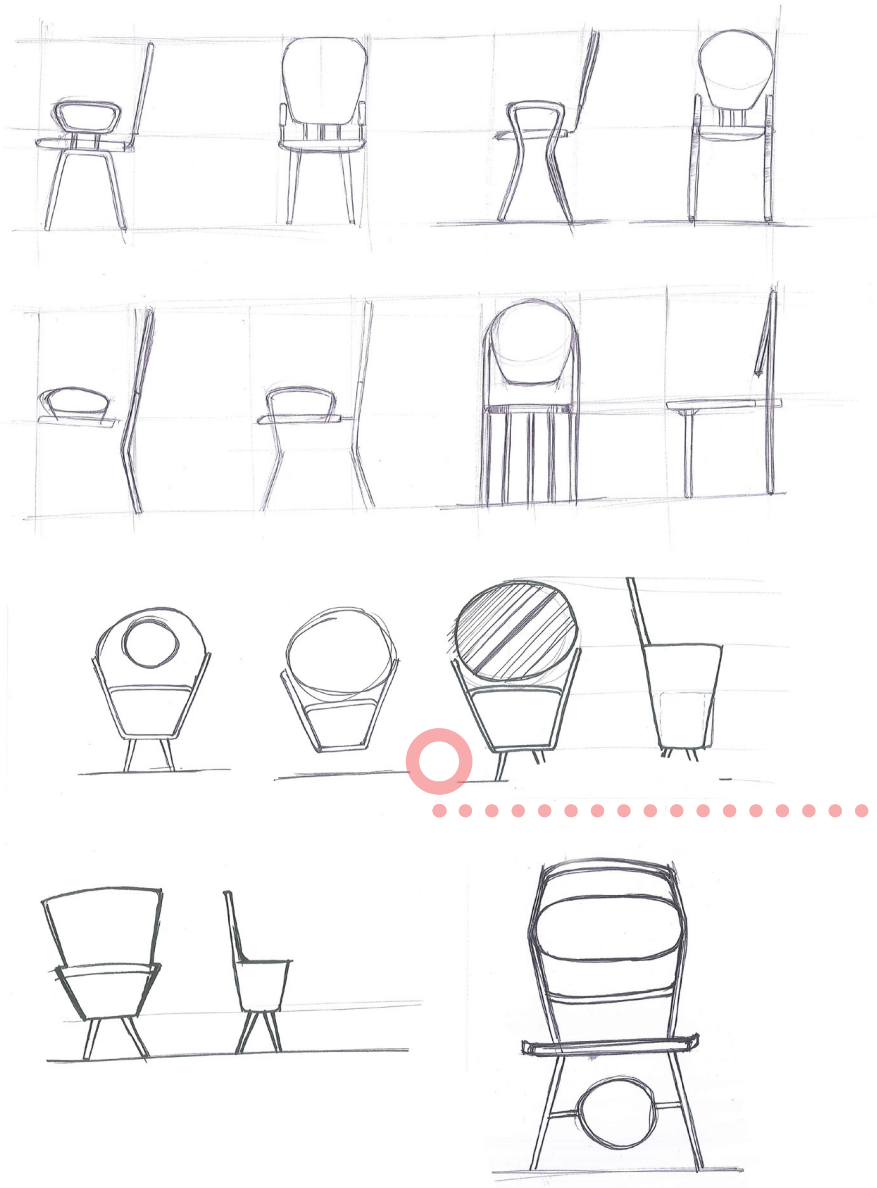


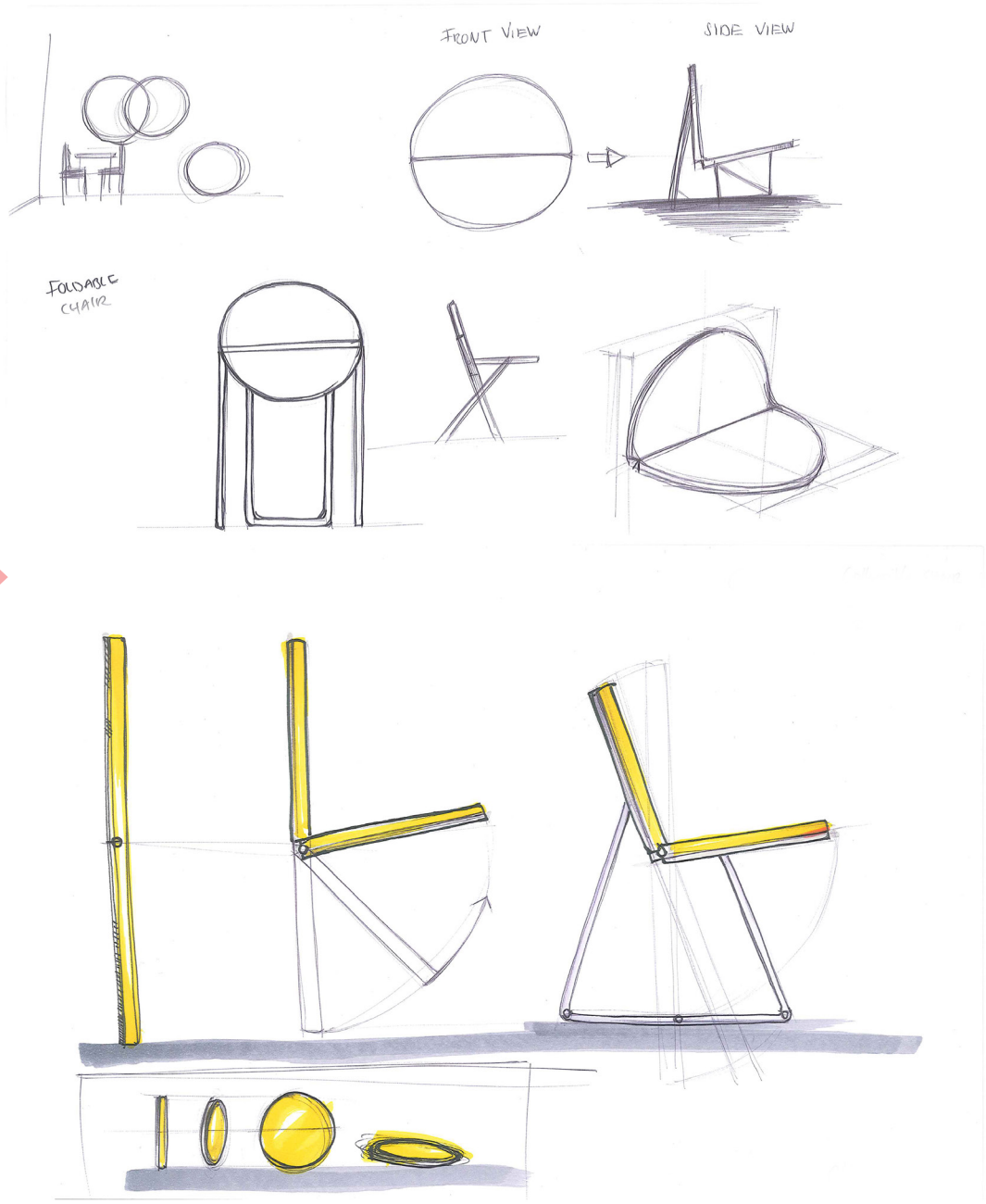
CONCEPT C

CONCEPT C - Chosen concept to develop further

The concept of a chair with a stool/storage was chosen because these are everyday objects that would not take up much space when both is not needed. Therefore, the stool would complete the chair aesthetically, and at the same time be used as storage box.

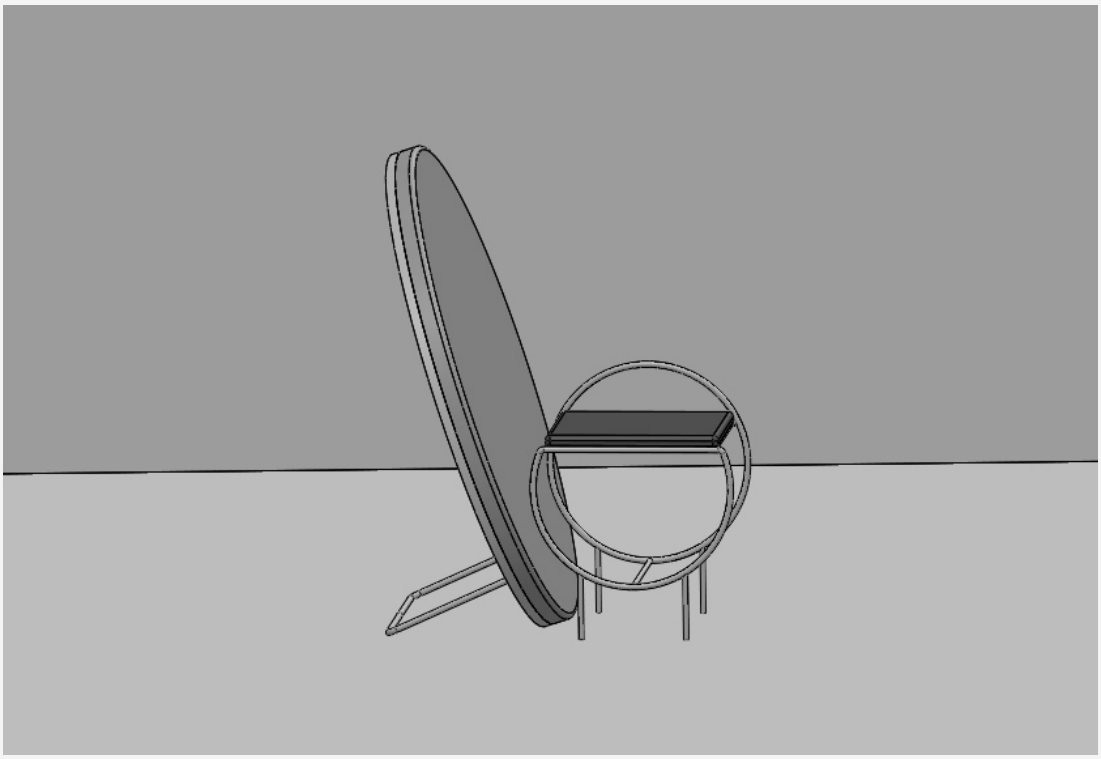
CONCEPT DEVELOPMENT





Inspired by the the round shape of the backrest I started to sketch new ideas of a circular folding chair. Soon lit was clear that it would require testing of different folding techniques to keep it simple and functional. The idea of a big geometric shape in the room was intriguing but to create a new folding technique or adapt a current technique to the shape was not of interest.

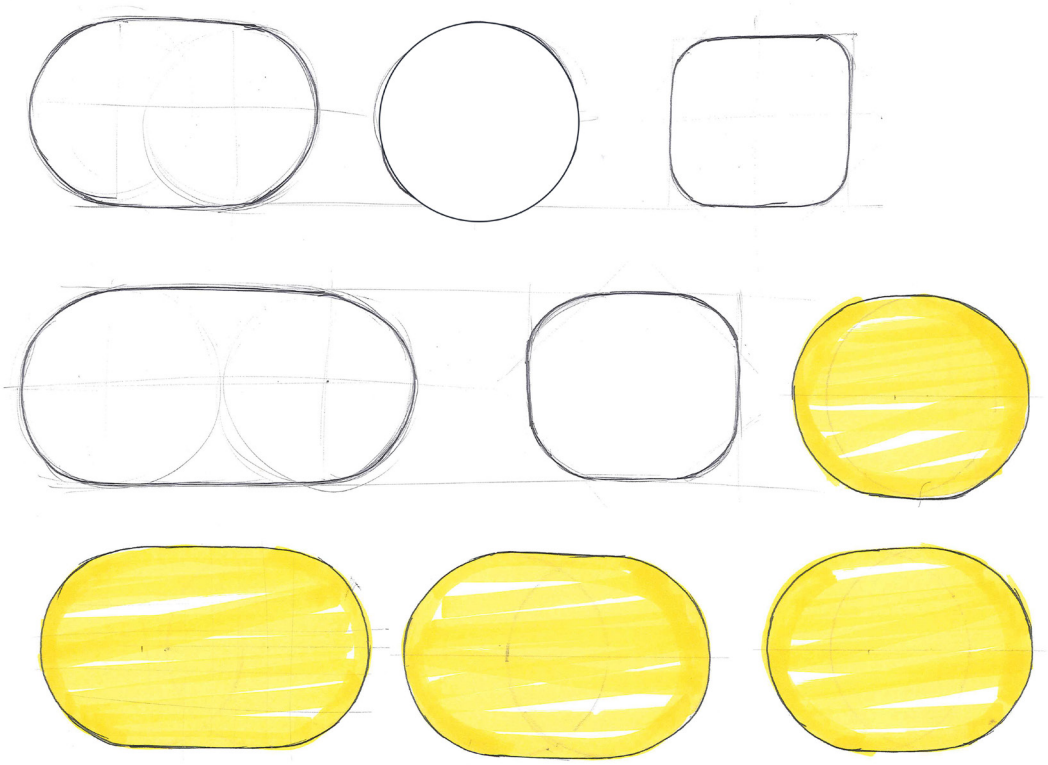
FOLDING BACKREST



The next step was to separate the backrest from the seat

Initial concept was consisting of a soft circular pad and a stool that would create a new function when put together. The circular pad would have backrest support to be used anywhere in the room, and also to tilt against a wall or lay on the floor.

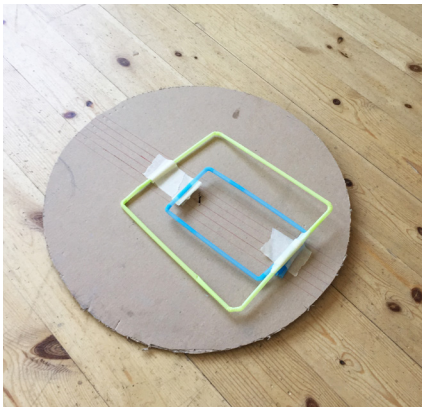
FOLDING BACKREST - FORM EXPLORATION

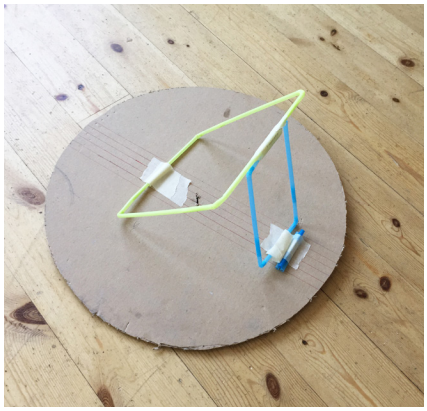


Various shapes of the backrest were explored in full scale get a better feeling of the proportions

FOLDING BACKREST - PROTOTYPING

Foldable support technique for the backrest were investigated in small scale before trying it out in full scale.

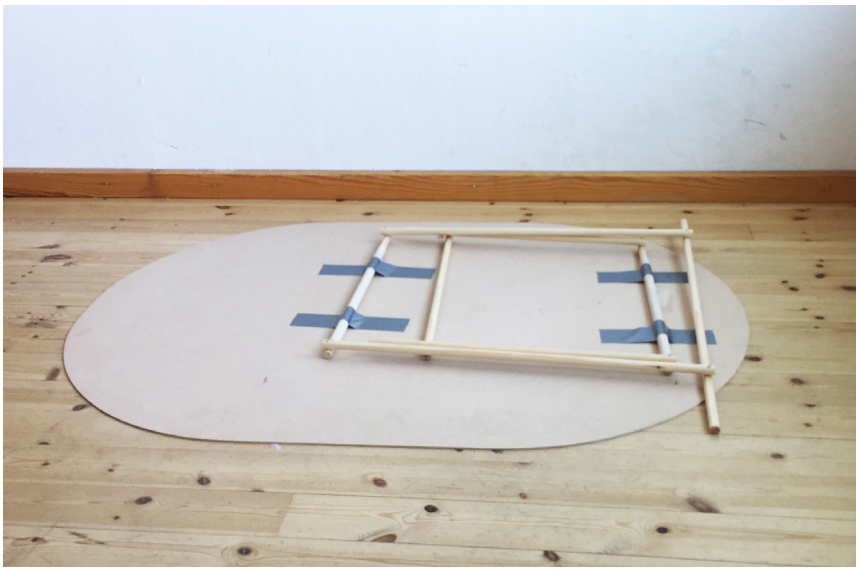




COLLAPSIBLE BACKREST SUPPORT

A full scale prototype with folding support technique showed that this could work. But the support have to be robust enough from a safety perspective. It became evident that this would lead to a construction that would make the backrest thicker and heavier which could ruin the simplicity that was desired.

Another issue was that the backrest would most likely slide back if a person tilted against it. This could be resolved with friction rubber, but factors such as floor material, weight of person and in which angle the person is resting can not be controlled in the design.



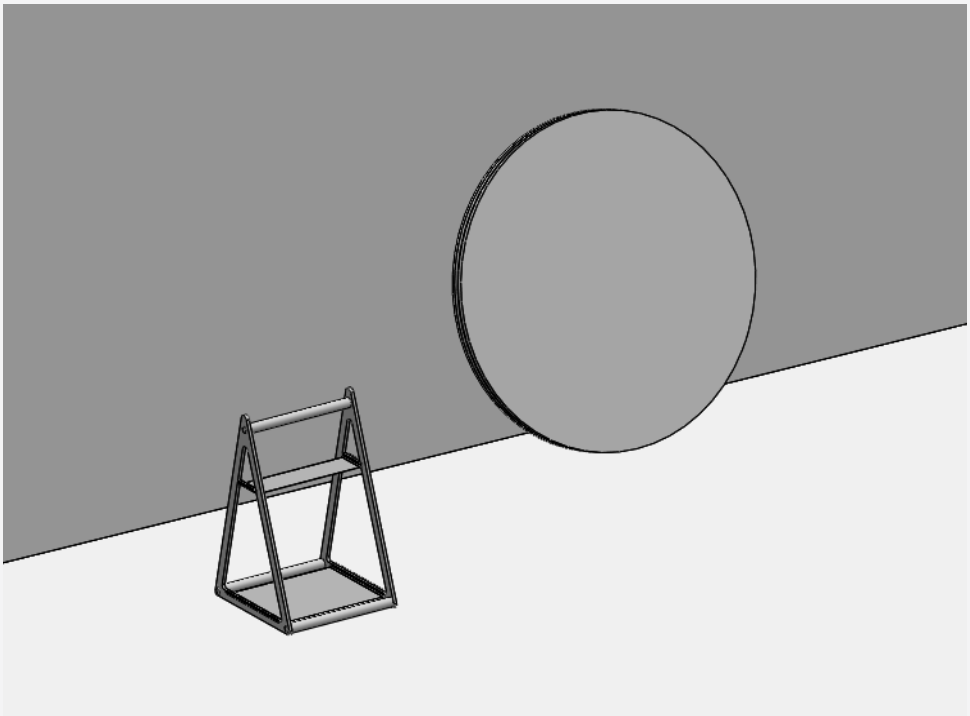
CONCLUSION

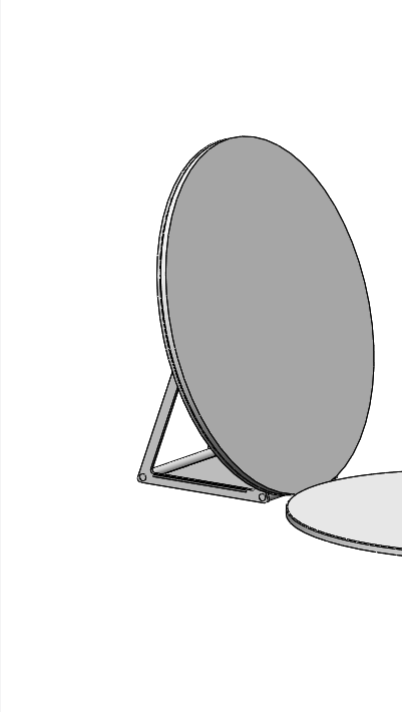
A backrest with foldable support is possible but require a construction that would make it heavy. The geometric backrest should be something that is easily carried around in a home and placed wherever it is needed as a large soft pad. Instead of developing this construction further, a decision was made to investigate the possibilities of separating the support from the backrest.

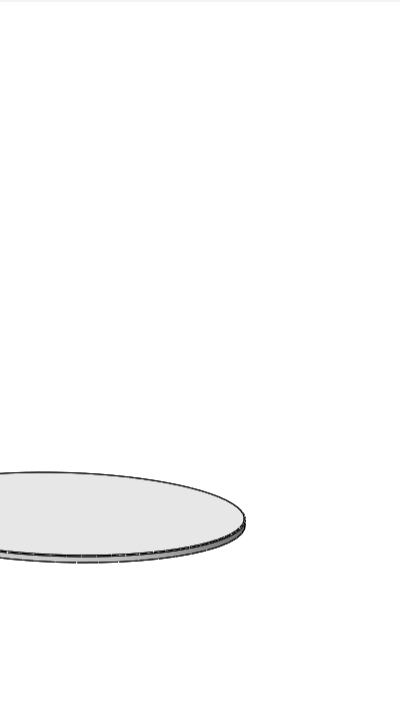
CONCEPTS

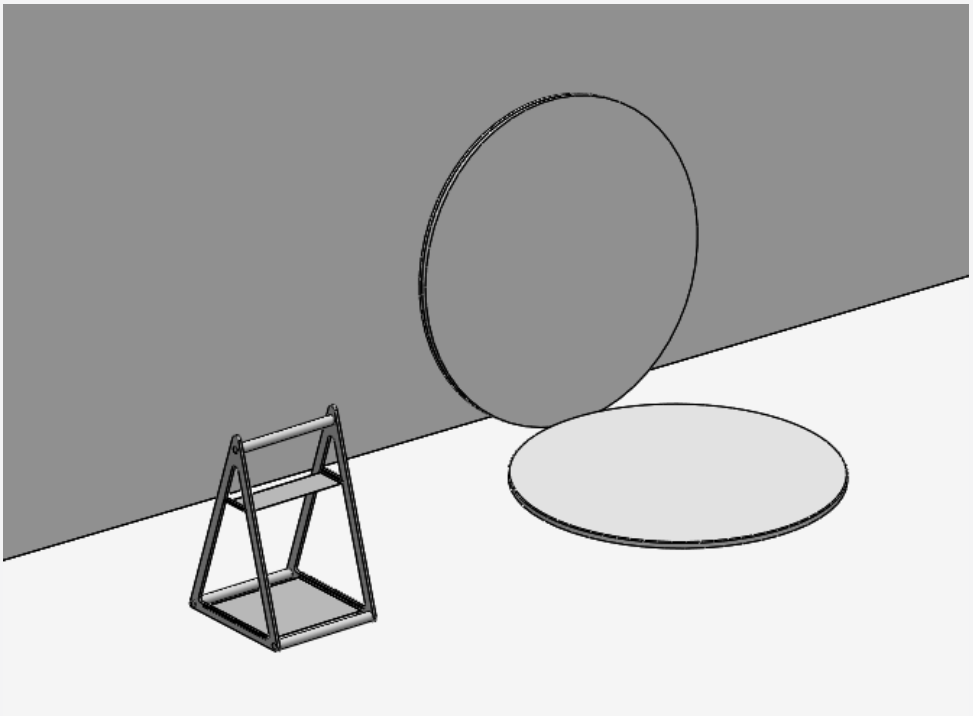
CONCEPT A

This concept separates the circular pad from the support. A triangular side table with two shelves also make a support for the circular pad when tilted upon.



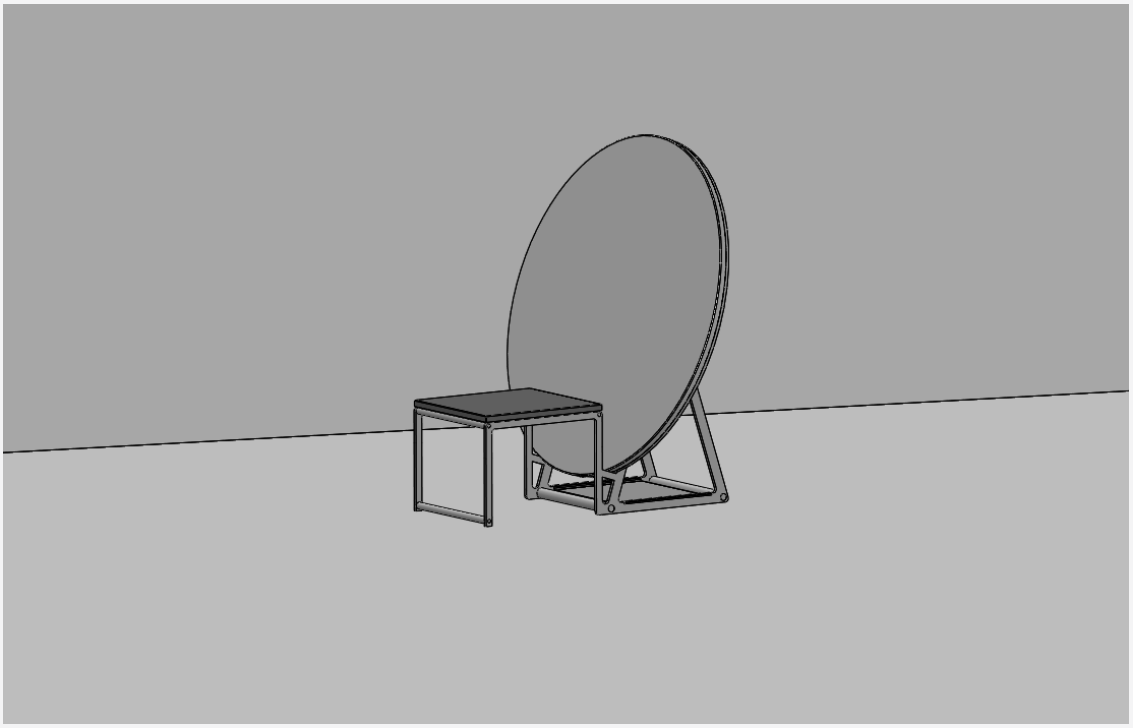




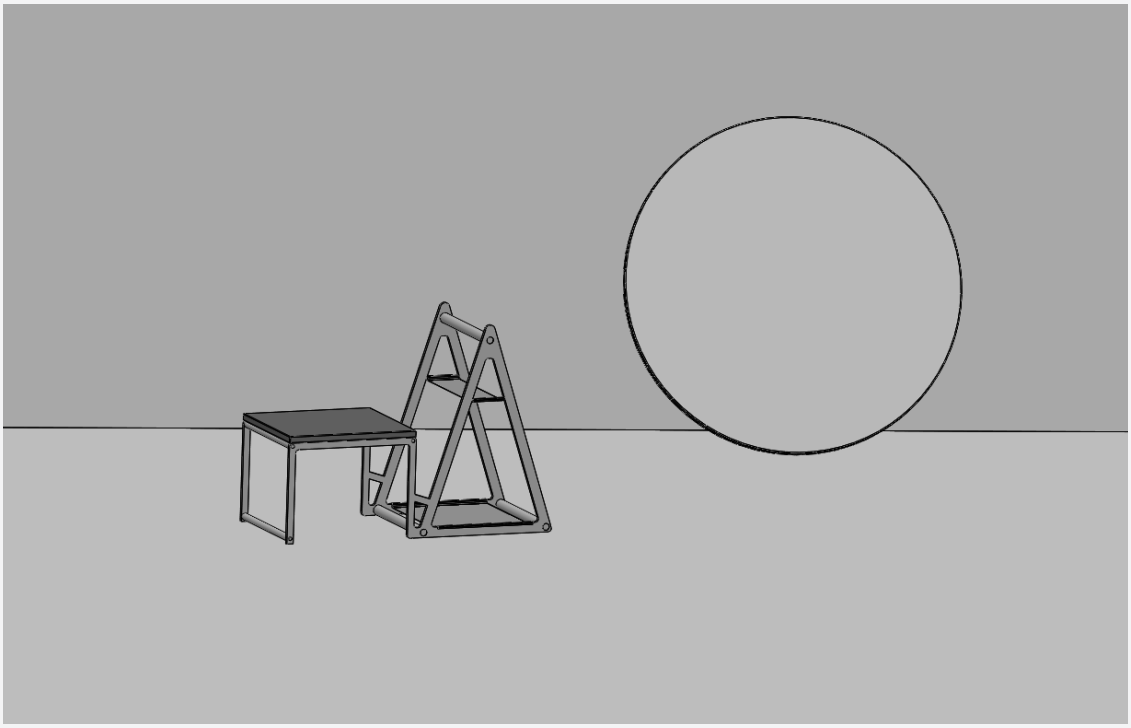


To prevent sliding when leaning against, the circular pad would have two assembled layers that the user would be able to open and close. The layers would be soft with a hard back for tilting against the angled side table, which has a 18° incline, the recommended ergonomic backward tilt for resting chairs. [Berglund, 2007] The circulad pad could also be used to tilt against a wall or as a soft pad to sit on. The sidetable

CONCEPT B

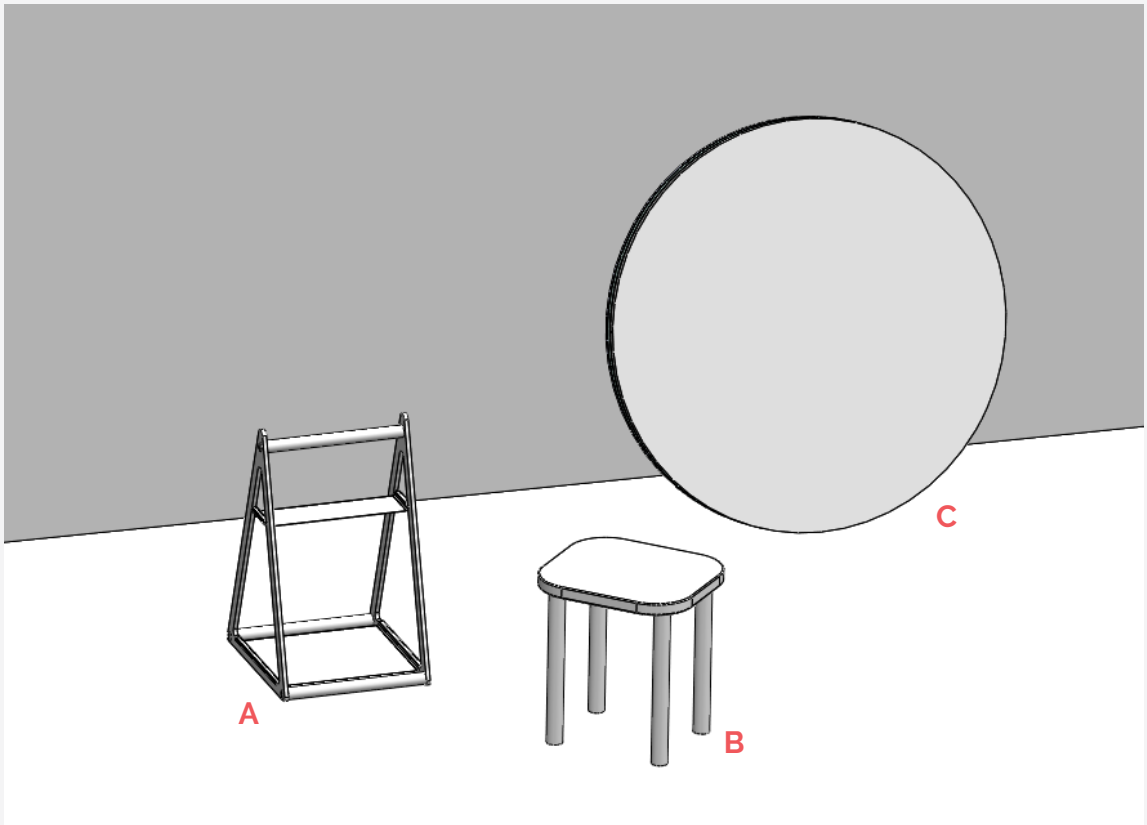


Another concept was a side table and a stool as one object, and a circular pad that would be fixed in between as backrest when needed.

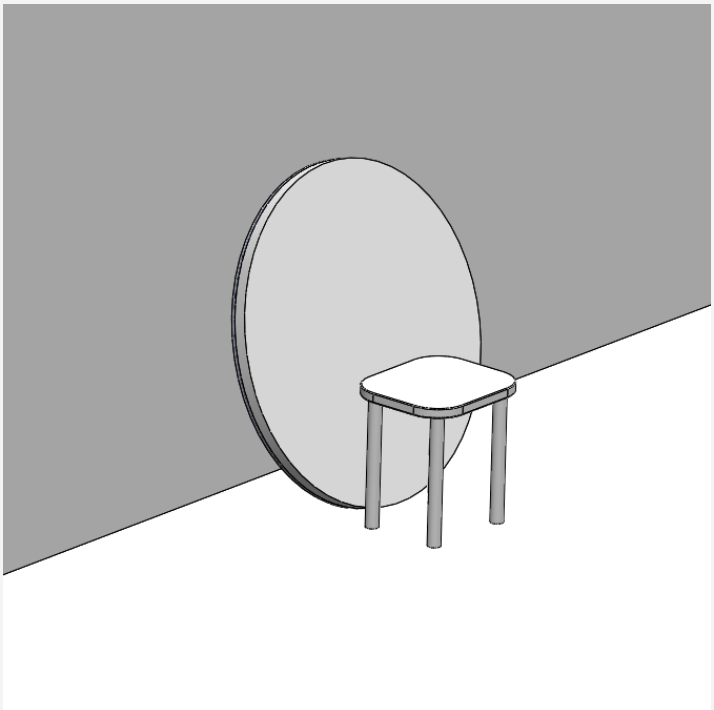


FINAL CONCEPT

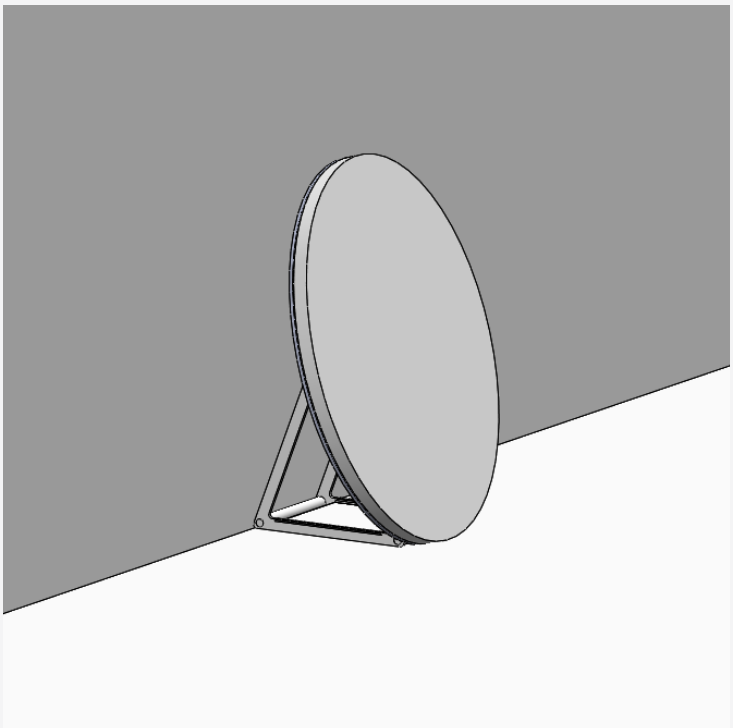
CONCEPT C



The final concept that was chosen is three objects with separate functions, a stool, a sidetable and a circular pad that could be used as a backrest. Where two of the objects are available in the same space, a multifunctional object is created.

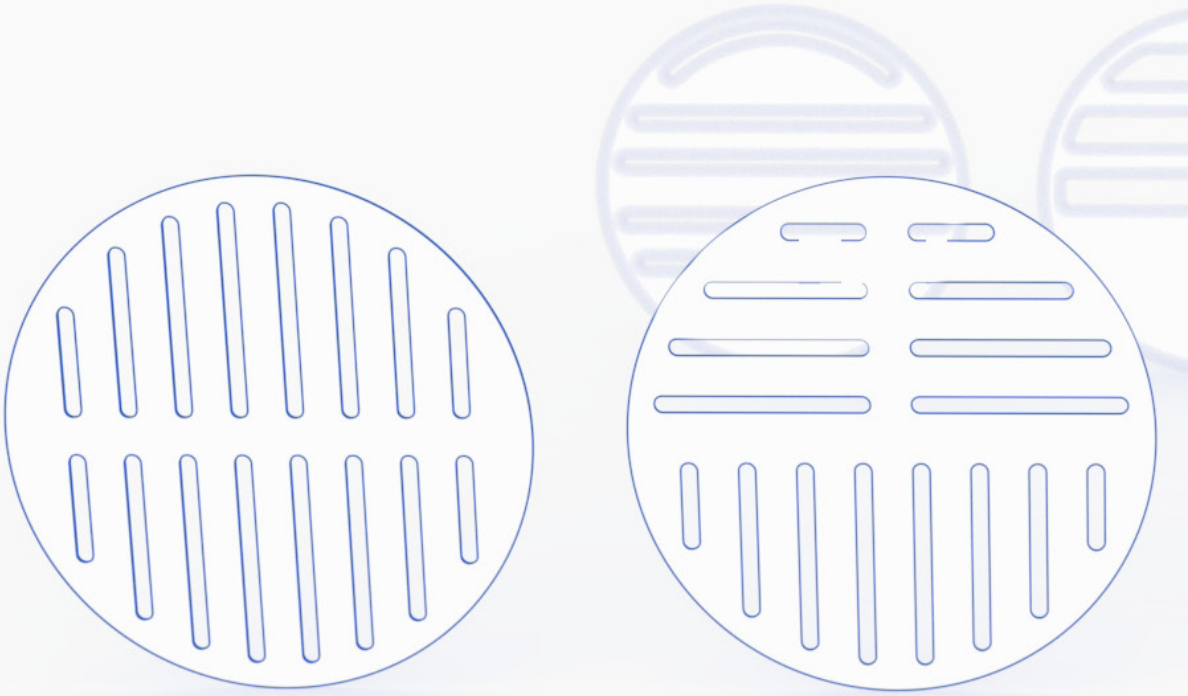


Combination C-B



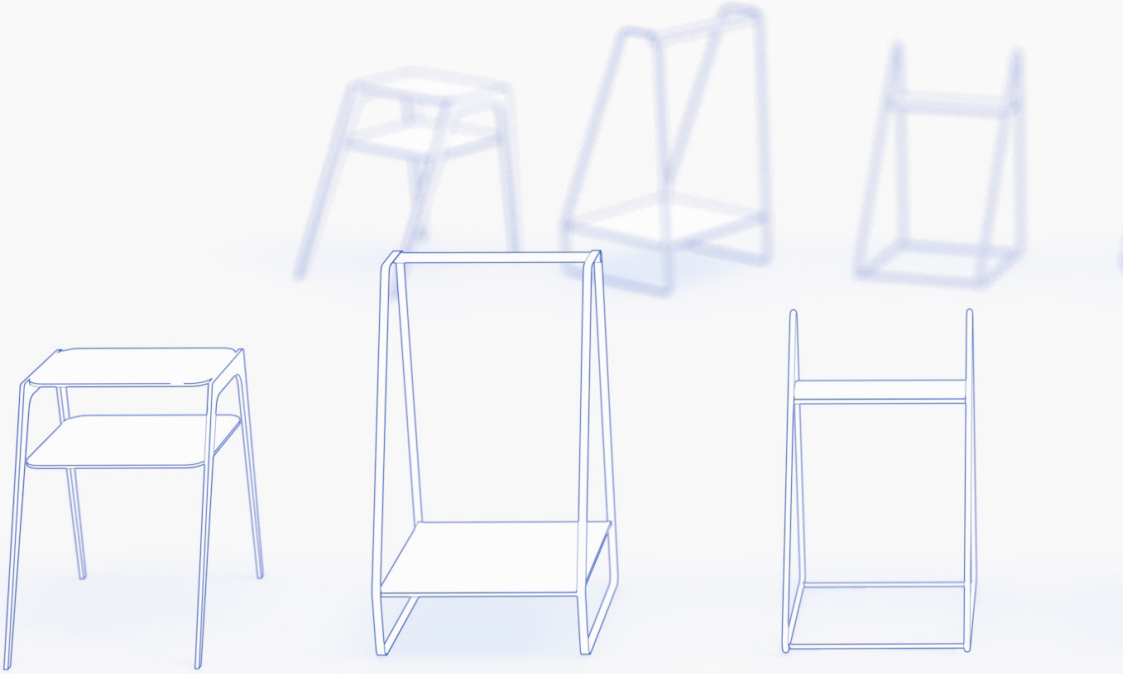
Combination C-A

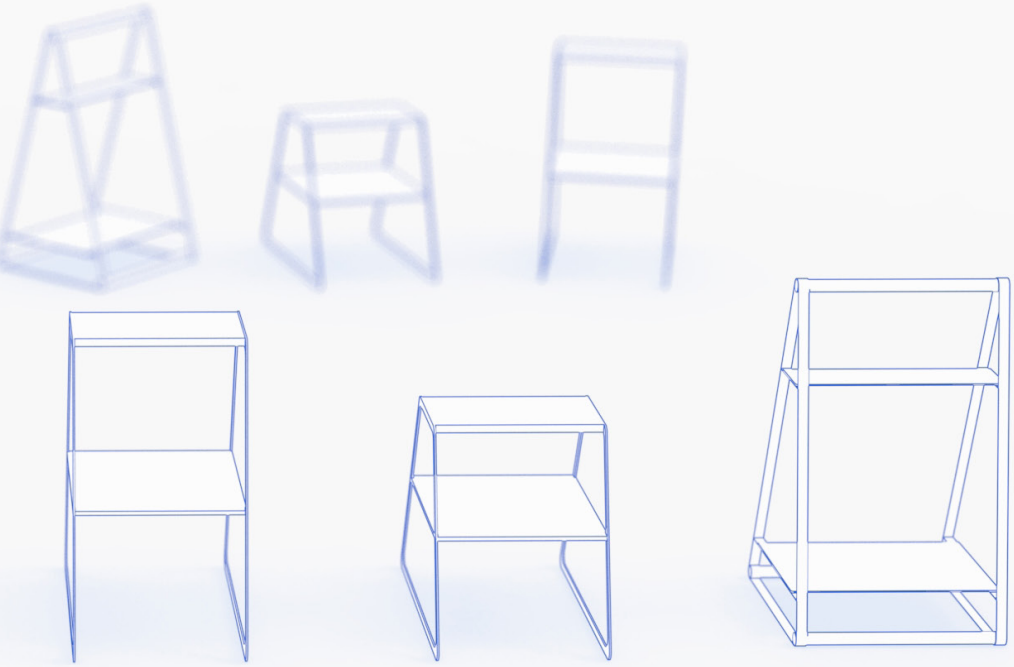
REFINEMENTS



BACKREST

Several suggestions of the pattern on the backrest were made and considered in terms of aesthetics, weight and strength when force is exerted. Three patterns were CNC milled and tested. The pattern that met these requirements was selected.





SIDE TABLE

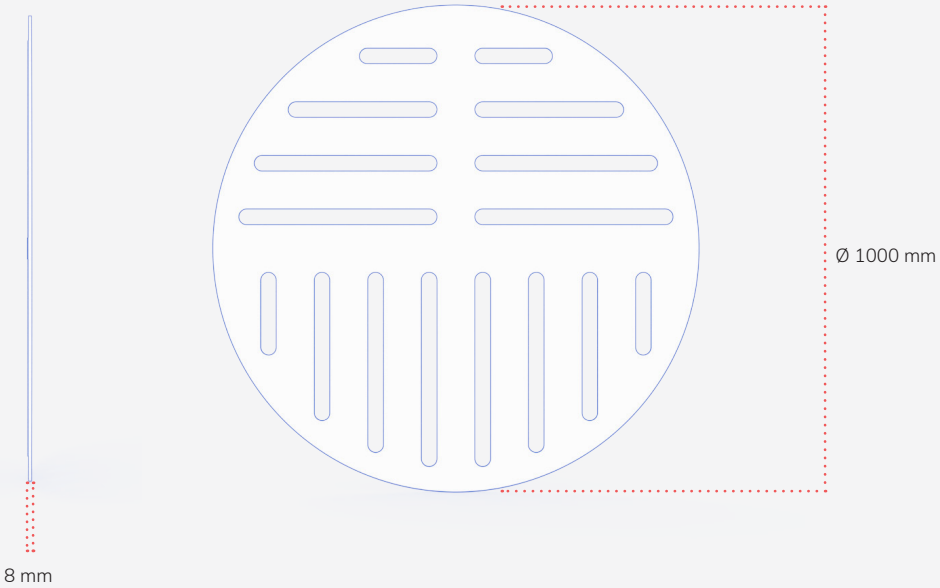
A selection of various side tables were 3D modeled and compared digitally. All concepts had at least one angled side where the backrest could be tilted against. The selected concept had two shelves and would be easy to assemble.

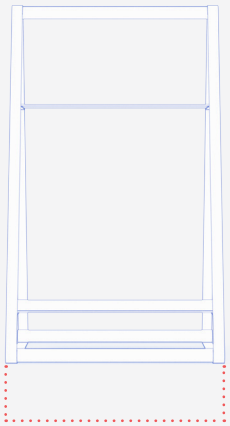
STOOL

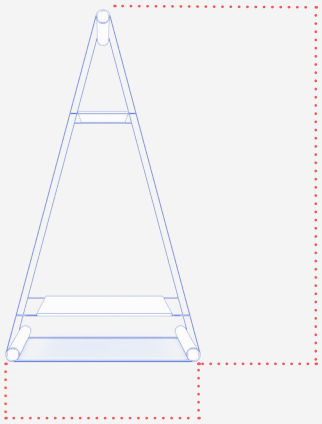
The stool was the third object in the collection and had to have the same aesthetic expression as the two other objects. After many iterations, this stool with strict lines was selected and a quick prototype was made to assure the proportions were right before making the final model.

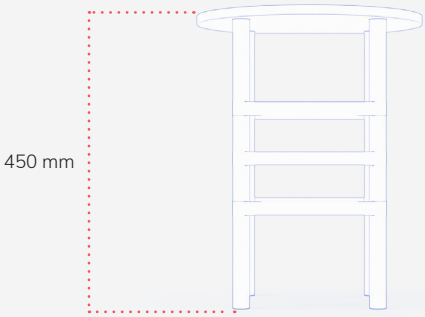
REALISATION

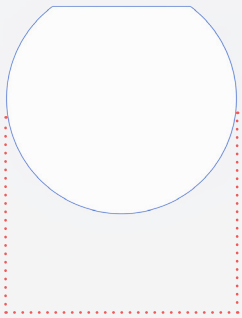
MEASUREMENTS




480 mm


750 mm
400 mm

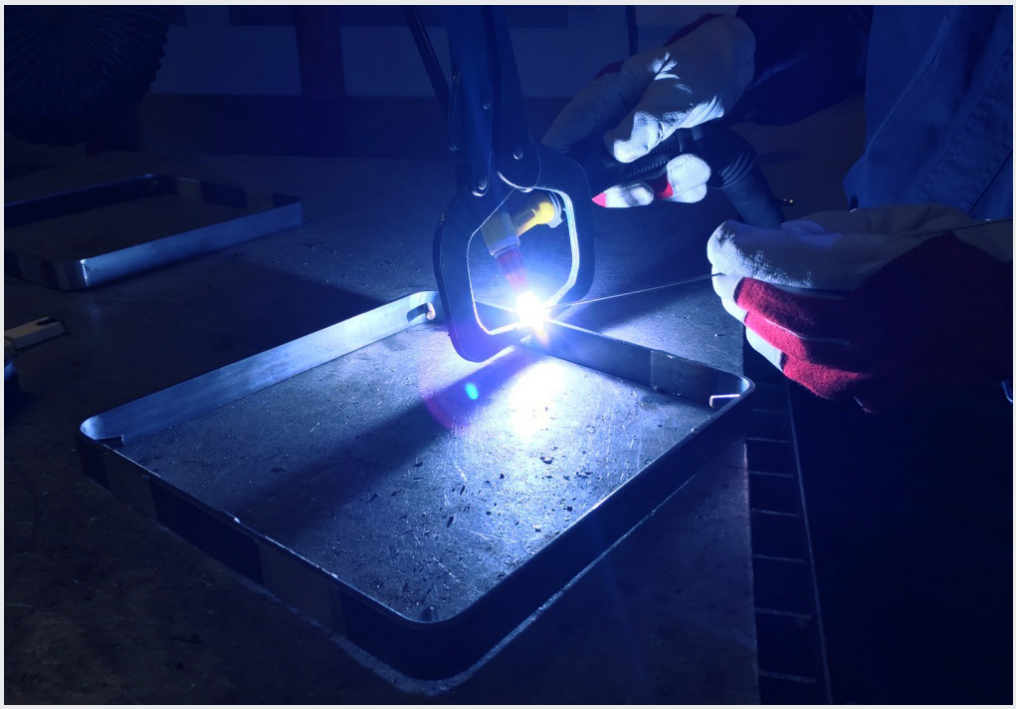

450 mm


Ø 350 mm

MANUFACTURING & ASSEMBLY

MANUFACTURING

Two objects, the stool and the side table were decided to be manufactured from mainly two materials that are easily processed, wood and steel. Standardised parts such as flat steel bars and tubes were used to lower cost and production time if mass produced. The big circular pad would be CNC milled out of birch plywood to keep the weight down and add flexibility.

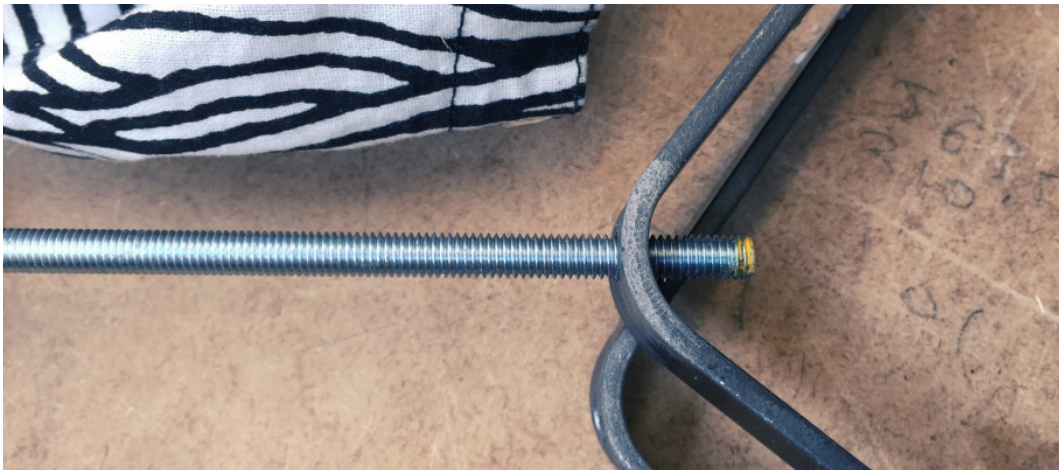


TIG welding were used to weld all flat steel part in the making of the prototypes.

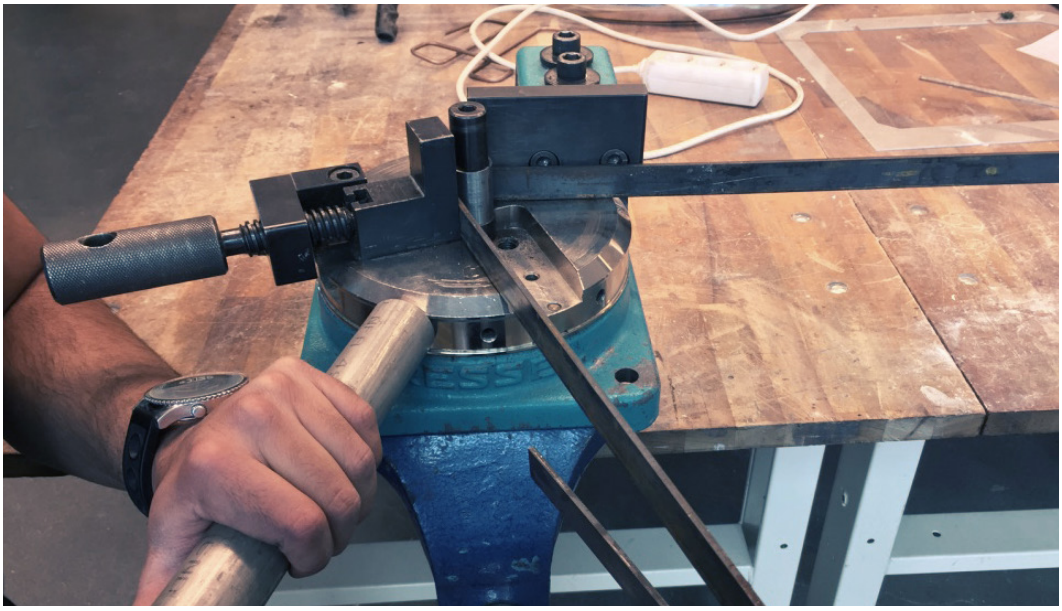
ASSEMBLY

The stool and the side table are designed to be easily assembled by the user with brass screws and brass blind nuts. The triangular side table consists of three identical ash billets, two identical triangular flat steel parts and two ash shelves. The stool consists of four ash legs, three flat steel bars that support the legs, 12 mm thick ash seat with a soft pad.

The big circular pad consists of two parts, a birch hard back and a soft pad that is the same size. The soft pad is attached with velcro on the hard back to be easily removed and washed if necessary.

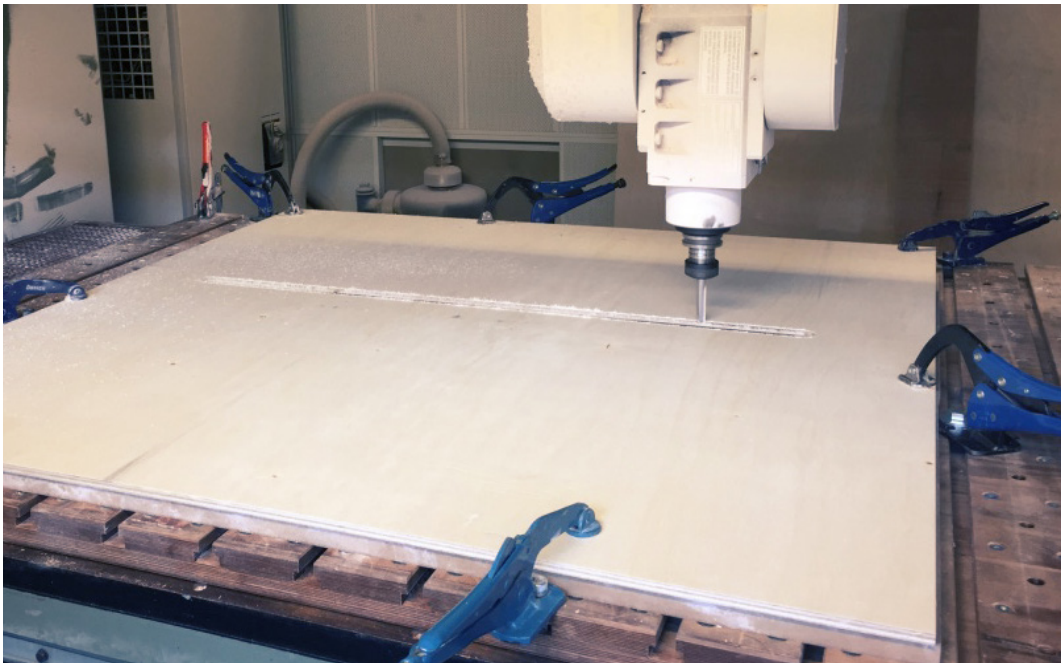


A threaded rod were welded on to the bent flat steel bars that would connect and stabilise the stoo l legs



The steel bars were hand bent several times to get the proper radius.

Selected fabric colurs for the big circular pad



Birch plywood prototype in the CNC mill.

COLOURS & MATERIALS

MATERIALS

Only materials with high availability were considered for the hard parts to maintain low production cost and low environmental impact. For the stool and side table, ash wood was selected as material because of its durable characteristics, light colour and the cozy feeling it brings to the home environment. The other main material chosen for the stool and side table is flat steel bars. For the big circular pad, plastic foam and polyester fabric were used for the prototypes. Other biodegradable materials will be considered if the product goes to production. The hard back is 9 mm thick birch plywood material.

ASH

STEEL

COLOURS

The selected colours were a mix of cold and warm colours that played well with the ash wood, bringing modern and playful colours together with homey materials.

Flat steel bars
Surface treatment - Powder Coating (Matte)
RAL 9011

Soft Circular Pad
Fabric - Cobolt Blue

Soft Circular Pad
Fabric - Light grey

Stool Pad
Upholstery Fabric - Peachy pink

Stool Pad Colour Alternative - Mars red

Pantone Colour of the Year 2017

RESULT

HOMEY COLLECTION

HOMEY COLLECTION

The result is a collection of three objects, a stool, a side table and a big circular pad that function as independent furniture for people living in small spaces. An additional function is created when the stool or side table are available together with the circular pad. This also gives the user the option to combine the furniture in small spaces and on social events, to maximize the usage of what is available.

Circular pads with backrest pattern prototypes

CIRCULAR PAD

The circular pad is perfect for small spaces and social gatherings, it does not take up much space when it is not used and comes to handy when the user need alternative comfortable spots in the room. It can be used as a backrest when tilted against a wall, or as backrest together with the stool. If layed on the floor it could also be used as a soft social point for two to three persons.

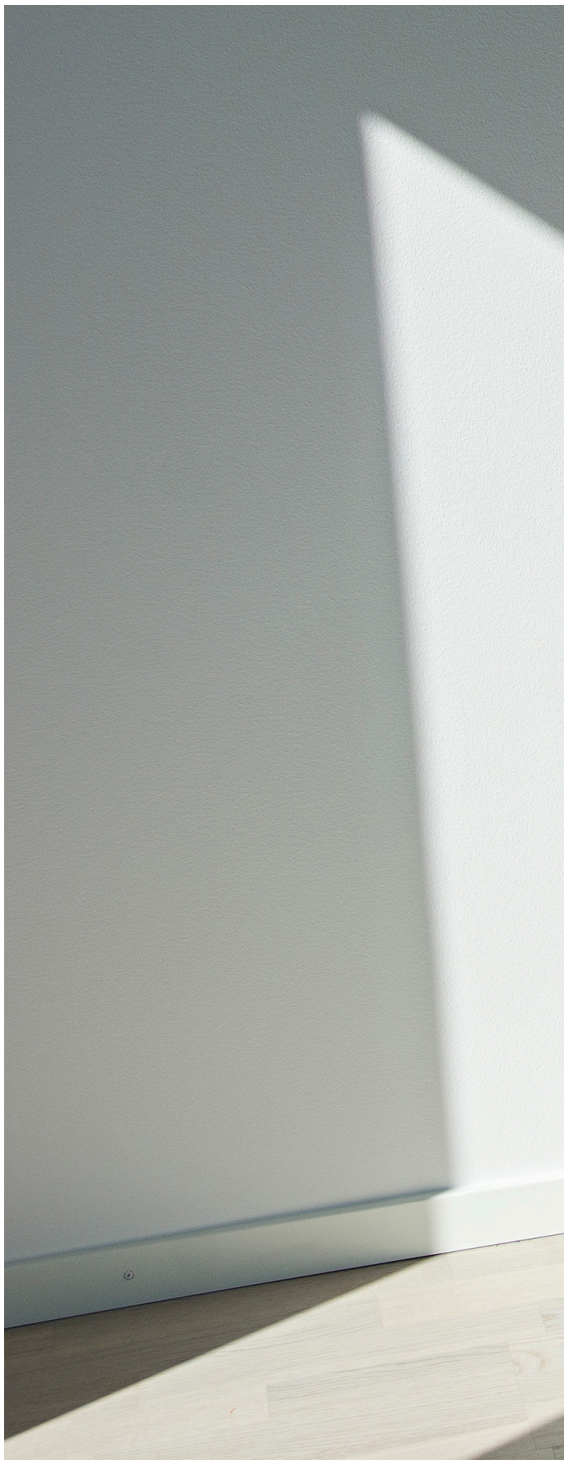
WASHABLE COVER

COMBINING MULTIPLE PADS

VELCRO ATTACHMENT

STOOL + CIRCULAR PAD

Other than the primary functions of the stool being a sitting furniture and a side table. The round stool sitting area has a slightly sawn-off side to maintain the stability of the circular pad when the stool is pushed against it. This is to give the user the option to use the circular pad as backrest where it is available. This detail also make it more suitable to push against any wall when a backrest is needed. The soft stool pad can also be easily detached and used on the floor together with the circular pad as a comfortable backrest.



The combination of the stool and the circular pad allow the user to get more out of their furniture in small spaces.

BRASS DETAILS

WASHABLE PAD

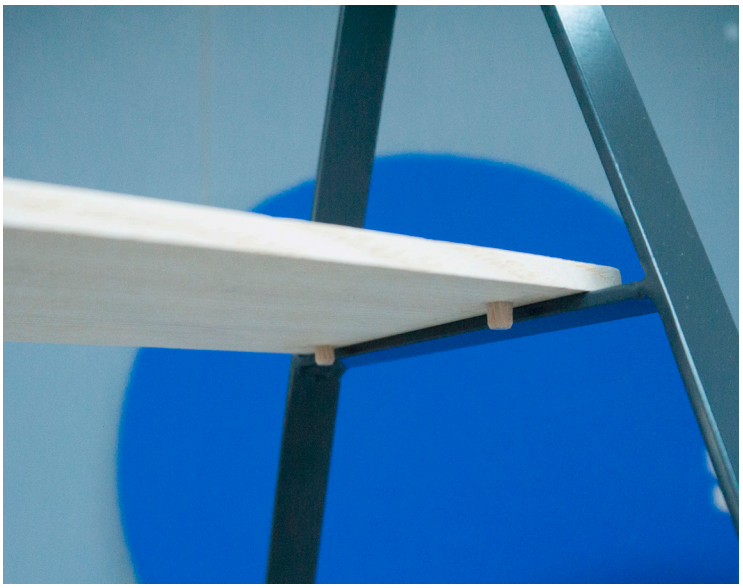
CUT OFF CIRCLE

TRIANGULAR SIDE TABLE

This minimalistic side table has a hollow construction and simple lines which makes it perfect for small spaces due to the light volume, making the space appear bigger. It is easy to assemble and can be used together with the big circular pad.

When the side table is against a wall and the circular pad is placed on the angled steel bars, the user gets a comfortable 18° backrest inclination, the recommended tilting angle for a reclining chair. [Berglund, 2007]

Round grip to easily move around.



Removable trays.

POTENTIAL COLLABORATION

Throughout the project, there was a dialogue with Michael Nikolic, Creative leader at IKEA to possibly consider the objects for the Vitality Collection 2018/2019.

In the summer of 2018, IKEA previewed a collection called Rumtid, which would be a collection of space-saving furniture and homeware inspired by life in space, to cater to customers living in micro homes.

The triangular sidetable that is part of the Homey Collection was included in the preview [IKEA, 2018], however this preview was for a collection that would be released two years later thus the final decision for which products that would be in the collection was not made.

IKEA, Triangular side table in the Rumtid Collection Preview 2018
Photo: PJADAD (2018)

3D knitting technique

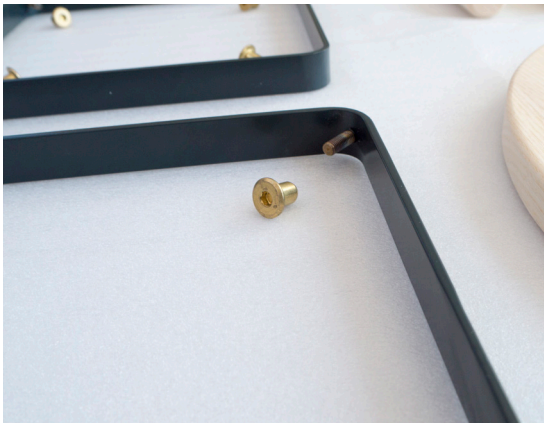
The big circular pad was also considered by Michael Nikolic at IKEA, that had one 3D knitted prototype made to be tested and evaluated. The 3D knitted prototype was made after the end of this project.

FURTHER DEVELOPMENT

The construction of the furniture should be refined and optimized if mass produced. Further development can be made to minimize components, particularly the stool. If fewer steel bars were used in the stool, the construction would probably still be strong although the aesthetic expression would change significantly, however that is a compromise that should be considered to minimize cost and assembly time. Since plastic foam was used for the soft part of the circular pad prototype, it is highly recommended to use a sustainable alternative to reduce the environmental impact, especially if it would be produced in large quantities.

REPLACEMENT OF PLASTIC FOAM

MINIMIZE COMPONENTS



DISCUSSION

To design furniture did not seem to be a big challenge at all, but it is clearly more challenging than expected due to the interplay between materials, joints and details that had to play well with each other to achieve a functional and aesthetically pleasing result. Compared to products that stand out because of a specific function, details become more important when designing furniture.

Unfortunately there was no time to develop the products further and make them fully production ready, although that is not always possible. Design alterations would usually have to be made to be able to produce with the available machines at the manufacturing company.

CONCLUSIONS

Although this project was initiated by questioning if products can make it easier to move from place to place, both emotionally and physically, It became evident after some research that this task can only be partly up to a designer, the rest is individual and cannot be controlled. As designers we can make the products functionally and aesthetically satisfying and just hope that some users will appreciate the craft behind it, and even develop a sentimental value connected to the object.

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SMALL-SPACE LIVING

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