

# SPACE IS A LUXURY

A Bedroom Furniture set for Urban living *By Louise Knutsson De Souza*



Space is a Luxury - A Bedroom Furniture Set for Urban Living by Louise Knutsson De Souza

Master Thesis from Lund University, School of Industrial Design, Design Sciences

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This is my master graduation project in Industrial Design for the year 2010. It contains 24 weeks of work from January to June. The work was overseen by supervisor Lena Sperling, Associate Professor, Oskar Jonsson, PhD. Candidate and examined by Claus Christian Eckhardt, Professor, Industrial Design at The Faculty of Engineering, Lund University.

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## **Introduction**

As an industrial designer student it gives me an opportunity to learn more in depth in various areas and that is one of the things which make this profession so interesting. It is a never ending journey of gathering information and learning new things that can be applied in products to make them better or to develop new ones.

From discovering the need for additional space in the urban apartments, my interest went to the bedroom. The idea is to make the bedroom more of a useful space than just sleeping, also the importance of optimizing space to its full potential. The bedroom has through times been used for different activities. Cultural differences have also played its role.

This project is about designing bedroom furniture set including bed frame with Backrest, night stands, dresser, and a wardrobe. The objectives are to increase living space for people who reside in big cities living in apartments without losing functionality and provide ergonomic sitting in the bed.

## Preliminary Brief

The bedroom is your sanctuary, a place for relaxation.

The bedroom has a distinct role. In Scandinavian and many other countries there are standard measurements that are strictly followed for wardrobes, dressers, nightstands and backrests. Could these standard measurements be changed?

How can the bedroom be more of a useful space and become your personal sanctuary of relaxation. How is space optimized in a practical and organized manner? Could the comfort of sitting in a sofa be achieved in a bed?

From a sustainable awareness these furniture pieces are manufactured in Sweden using local and nearby grown trees. The furniture also has changeable parts that with time can integrate new trends.

In conclusion how can a bedroom set be designed in a space saving, ergonomic, functional, and stylish way for people living in apartments with limited space in developed countries.

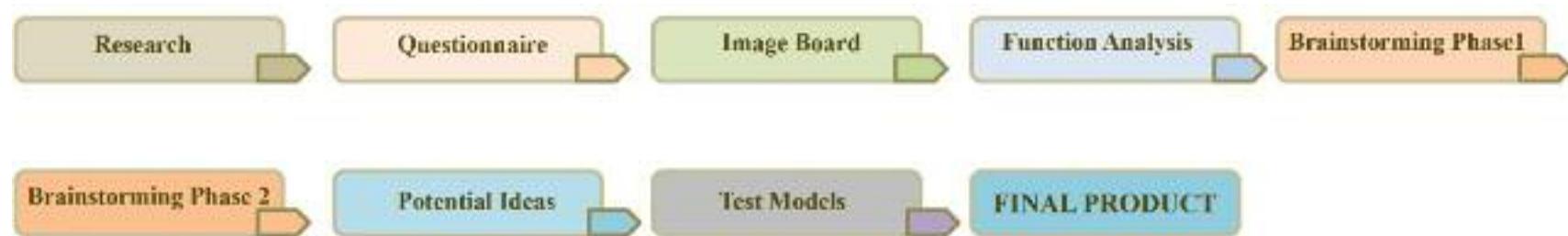
## Design Process

In this design process I utilized professional consultation with different furniture makers in various stages in the design process. I went to different hardware stores to evaluate the available options. Besides the formulated interview questions I also interviewed random people. This gave me a good understanding of their desire and needs.

To make a good design for the backrest I contacted a physiotherapist who is also an industrial designer. This gave me a good base of information for an essential back support. I also consulted with a health store owner which focuses on rehabilitating, prevention, and body support products. Books and lectures contain a wealth of information. Another source is the internet.

Visiting furniture stores and looking at existing constructions and designs is another way to gather knowledge. I visited several furniture stores to see different solutions and to get inspired.

The work method used during this project is summarized on the chart below. As the work moved along, there were times when it was necessary that I stopped and went back to the previous step or even to the beginning to rethink the initial decision. Often these steps overlapped.



## **Research**

### **History**

#### **The Bedroom**

The bedroom is, and remains to be, the most used room in a household for people that work or studies outside of the home.

At the turn of the 19th century many more people occupied the same home together, usually about 10 people per house. Some research even indicates the ratio being six people per room. Clearly the mother and father of a household would room together, and then all of the children get the leftover space.

Being as the rooms were a bit scaled down from today's standards, only basic commodities made into the bedroom themselves. Around 1850 the use of servants began to decrease, and as a result rooms opened up to the rest of the family.

Bedrooms still didn't get much more ornate during the Edwardian and Victorian ages, being as not many people used them but the actual occupants. Around these times though, the use of indoor fireplace began to increase, and they were usually white washed, which is the beginning of the decoration of the bedroom.

During the end of the 1800's the use of pastels and lighter colors for wall paint was becoming more popular, and the old rich, dark colors were being done away with. With these changes to the walls came the use of what we, today, call wallpaper, and was generally adorned with flowers patterns. Now the differences are beginning to show as the old furniture was replaced with newer, more modern versions.

Sometimes a more decorative draping was used. As far as other items found in bedrooms then, you can include a wardrobe which was used for holding clothes.

The addition of other furniture came along as history played out, such as chairs and vanities. Vanities were used for about the same thing as they are today, holding assorted apparel and other little things.

Manufactures have risen to the occasion to uphold the changes to bedrooms implemented by our ancestors, and soon to be our descendants as well. We may not be able to live without the things we have in our bedrooms, but the handy work and simplistic nature of history's furniture is truly beautiful and irreplaceable.



## The Bed

The bed has for many centuries been an important furniture piece in the home. In ancient Egypt the bed was used for more activities than sleeping, such as eating meals and entertaining socially, it was a centerpiece of the home. 3400 BC the Egyptians pharaoh king "Tutankhamen" had a bed of ebony and gold; which was raised from the ground. Common people from that time slept on palm bows layered in the corner of their home.

During the Roman Empire there were luxury beds often decorated with gold, silver or bronze. The mattresses were stuffed with hay, reeds, wool, or feathers. Waterbeds were introduced in Persia as early as 3600 years ago. They were goat skins filled with water.

There have been various selections of different types of beds through the years. In the 1600 most commonly used bed frame was timber with rope or leather support. The mattress was a fabric bag filled with straw, feathers or wool.

Today's beds have a large variety in material, bed frames, Backrest, different heights from the ground, and diverse types of mattresses. The standard sizes of mattresses are individual to each country.



## Backrest

Backrests have been the natural, complimentary accompaniment to beds for as long as beds have existed.

The Ancient Britons made Backrests for comfort from locally available materials. The head of the ancient Greeks bed was raised and usually had a Backrest of wood to allow for eating and resting while semi reclining.

Medieval bed furniture comprised of separate pieces of furniture – the frame, Backrest, mattress and linens. At this time, Backrests emerged as not only utilitarian, but also a striking feature designed to make the bed and the room look better, and to reflect the wealth of the owner of the bed. Some amazingly ornate Backrests from this period still survive.



In colonial times, sumptuous Backrests were exported from Europe across the globe.

The Backrest, having endured since the dawn of time, is a classic piece of furniture which is experiencing something of a renaissance at the moment. The range of contemporary wooden, metal and fabric Backrests is simply enormous. The appearance and mood of the bedroom can be set by the material, color, shape, style and design of the Backrest. Fitting a Backrest is a simple and effective way to update or improve the appearance of the bed and the bedroom as a whole.

Backrests will always be in demand, due to their aesthetic value combined with their practical purposes. One can find a Backrest to suit the widest possible range of décor styles, from traditional to the cutting edge modern. A Backrest makes a statement, and choosing the right Backrest is the easiest way to decide on the mood or theme of the individual bedroom. Once the Backrest is chosen, it provides a focal point, from which the curtains, wall colors and textures, wardrobes, dressing tables and chests of drawers can be chosen. Backrests are used in any type of bedroom, from homes, to hospitals, to hotels and palaces.



## **Wardrobe Closets**

The wardrobe is the English word for the French word armoire. Early in history the armoire was historically used to store weaponry. Armoires with shelves were used as storage place for food. Later the armoire was used to hold clothes and sometimes even dishware and other collectibles.

In the 15th century English Kings utilized the wardrobe to store their fancy apparels folded on shelves. Only after Albert J. Parkhouse created a coat hanger in 1903, inspired by a cloth hook; was the wardrobe used for hanging clothes.

Since the closet hanger has a certain width so are the wardrobes designed to accommodate the hanger's width. In Sweden today the regular size of a wardrobe is 60 cm in width and 60 cm in depth. Wardrobes are located in different places in the bedroom, some are stand alone others are built-in some have mirrors other have additional accessories. Options are diverse.



## **Dresser**

The dresser was first used to store king's personal items. Many were built specifically for each king's needs. During the 17th century as rooms become more popular the dressers become more common.

In the 18th century dressers started to be used as a store all piece and also a mirror was commonly found on top. Later the dresser was enclosed with drawers and doors for storing clothes and often intimate items because of its locking function.



## **Night Stands**

Nightstands are also known as bedside table or night table. Its origin dates back to 1780-90. Nightstands are commonly used for lamps, alarm clocks, eyeglasses, cell phones, picture frames, and others.



## **Interviews with Targeted Consumers**

To design a bedroom set for the consumers, I found that an interview would be of great importance to the proposition of bedroom furniture set. The needs, wishes and taste of these selected potential consumers would give guidelines to this project.

The interview consisted of 9 questions performed in person and over the phone. There were 12 people 6 man and 6 women from ages 25 to 65 all in different stages of life and social levels.

### **Questionnaire**

1. Which furniture would you like to have in your bedroom?
2. If you could create a dream scenario how would your bedroom look like? What would you like to have and why?
3. What is your bedroom used for other than sleeping?
4. What do you store and keep in your bedroom?
5. What do you want available next to your bed?
6. Which colors or wood type would you like to have in your bedroom furniture and why?
7. How much time do you spend in the bedroom other than sleep?
8. What would you like to have in your bedroom that you don't have today?
9. Any other comments?

## **Result of Questionnaire**

The overall wish from these people concerning the bedroom were mainly two, first to be able to store much but to take as little space as possible; second a comfortable sitting in bed for reading writing, or watching TV. Another wish was to have a bigger presence of natural materials such as wood. Regarding storage for clothes their request was good accessibility.

Many of them said "I would like to have lots of storage but hidden in a way, it does not take all the space. Usually the wardrobes are bulky and not very attractive." They also said "I would like to have this or that in my bedroom" and they ended the sentence with "but there is no space for that." So the conclusion is that the floor space is limited for the furniture they desire to have in a bedroom with today's standard measurements. Relaxation can be experienced very differently, for some people an activity such as watching TV can be relaxing, when for others there are other ways of fulfilling a relaxed feeling. To be able to accommodate this desire from the consumers more floor space is needed either for an extra furniture piece such as a desk for a laptop or the simple ambience of open space.

It was difficult to rank the wishes of the interview, because of many desires were of equal importance to them.

1. To have more floor space.  
Ambience of privacy.
2. Invite for more activities in the room, such as reading, writing or watching TV in bed. Maybe a desk for laptop. This can also be a way of achieving relaxation in a bedroom.
3. Storage space behind closed doors or drawers with good accessibility.
4. Natural materials.  
A room of relaxation.
5. Comforting fabrics.  
Simplicity in design.

## **Aspects of the Bedroom**

### **Your Personal Space**

A bedroom to retreat in, a place where privacy is found and a warm welcoming of relaxing evenings can be experienced. The bedroom has a distinct and important role. It is a place where we spend one third of our day. The bedroom is the last impression that we get before going to sleep. Can this affect our ability to get a good night sleep?

It is also the first we see in the morning. How does the atmosphere of the room welcome's you? Is it a room that invites resting, tenderness, piece of mind, warmth, laughter and or tidiness? It can surely be a personal haven in a high paced society. To furnish your bedroom for activities that relaxes you, can help with the daily stress.

To carefully choose the color scheme that suits you personally and adding different textures can give an interest to the room. The choice of natural materials can embrace that invitation for relaxation. Natural materials such as wood can give a rejuvenated feel as if a part of nature is brought into your home.

### **Living in Big Cities**

Population is getting larger and cities are growing, in turn space is limited, this is a growing issue. In relation to the bedroom the majority of people in big cities desire larger rooms and more space for living. By buying or renting a bigger place this can be accomplished, but a rather costly solution and this isn't always financially possible or feasible.

### **A Bedroom's Layout**

Living in a city there is usually standard sizes of bedrooms. Planning a bedroom's interior design with needed furniture usually creates problems. When the furniture pieces are of standard sizes it can easily take up most of the space. To fulfill all the needs there is for a relaxing and functional bedroom compromises must be made.

People have different needs and requirements when it comes to setting a peaceful atmosphere. What one person can feel as an invitation for relaxation can for someone else be experienced the opposite.

Open space in many instances is the desired aspect of tranquility. A room that invites you to draw back from your daily stress and that soothes your mind is fundamental for a good night sleep. Sleep is essential for a person's well being. How a bedroom is shaped with placing of furniture, choices of furniture, choices of material, colors and how everything is displayed affects the atmosphere and functionality of the room.

## Illusion of Space

The illusion of space can be accomplished in many ways. One way can be as simple as tidiness through putting things in closed cabinets, dressers, wardrobes and others. This is a way of creating order and calmness.

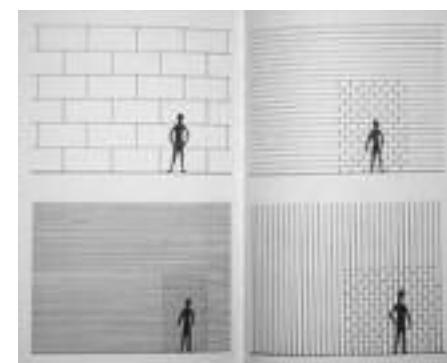
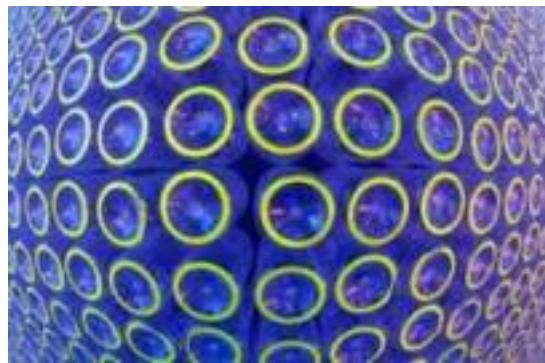
Colors have for centuries been used to create a specific atmosphere, but can also strategically be used to play with the illusion of space. These tools of creating visible space can be used for wall decorations as well as choices of materials and colors of furniture.

Measurements of a furniture piece can also be of great influence to the illusion of space and great importance to the feel of the room. Variety in heights and shapes can work with each other to create balance to the room and give the space its full potential. A piece of furniture can have the same cubic measurement, but can through specific design be perceived differently.

Slender design features tend to open up the space. So a simple solution could be a smaller depth on the piece to the wall and have it designed with colors, patterns, varnish or wood type so that it blend in with its surroundings. To use a light color on the sides or the top of a dresser can give the illusion of the piece is taking up less space, it is almost like erasing a part of the furniture.

You can also create the illusion of space with transparent furniture. To furnish or design a bedroom set in a way that space is perceived to its fullest, it is important to have pieces that the depth is smaller and also be aware of not putting high pieces of furniture on each opposite sides so the perception of the room doesn't get smaller. A combination of a higher piece of furniture on one side of the room and low piece on the other side, gives the illusion of more space than the previous example, even though both provides the same storage.

Simplicity in design features, such as clean lines and moderate in its expression can also affect the perception and the feel of the room. Using mirrors is a way of creating light, which gives the feeling of a more spacious room. It also enlarges receptively the room, creating a visible continuation of the space.



## **Organization**

It is finding a way of storing and displaying things in a manageable and systematic way that reflects order and peace to the eye. Organization and tidiness opens up the space and creates a relaxed atmosphere. It is essential for a good layout to have walking space and empty areas to create ambiance. A room needs to breathe; which means that cramping furniture together taking most of the floor space will close the room. Where do we store things and how?

A proven behavior is that the more storage possibilities we have the more we will fill that space. Storage should be beneficial to the need of organizing our things and not take over the space of the room. A desired storage plan is visibility behind closed doors and simple maneuvering. How you place your furniture and what pieces are used in that specific room, space is experienced in different ways.

## **Simplicity-Relaxing Environment**

What do we want to be seen? What do we want to be hidden? Getting rid of clutter and put it behind closed doors or drawers creates that stress free environment. Always put focus in a few pieces that creates a personal ambiance. The popular saying "less is more" is a very descriptive saying of how a relaxing environment is accomplished.

Bringing greenery and natural materials to the room will draw one closer to the nature. In contrast to the city this can create a rejuvenated feel of open spaces. Greenery and natural materials can make a room come alive. It can defocus from eventual sterile and concrete looking areas.

## **The Influence of Products in General**

There are a multitude of questions that one as a designer must acknowledge and should take a stand for, one of them is which products are needed and what is unnecessary? Other questions might be; can design get people into new habits and different behaviors? Can you through design eliminate products and things we keep and store but might not necessarily be needed or used? Can design of a product invite for a more sustainable approach towards the cycle of "buy-use-throw?"

A thought has grown; we have gotten into a century of products. Are all these products really necessary? The more we have the more storage place we must find. We must have storage for all the things that we need? In an environmentally friendly approach could the furniture we buy be of quality, sustainability, and invite the owner to keep it for many years to come. Possibly even pass it on as a relic.

The interesting thing would be if this furniture piece could minimize our urge to buy more and keep things that are not needed. The "Feng Shui" theory teaches to be surrounded by things that is functional and has a big value to you.

## **Materials for Furniture**

### **Sustainable Materials**

After witnessing the obvious changes to the environment through many years of over usage of materials and additives that harm the earth and the balance, it is an obvious reminder to keep in mind sustainability of design to minimize the current trends of over consumption. To have sustainable thinking when designing also brings other values then just the fact on a healthier earth. It can add quality, grace, and be a long lasting and desired product.

Sustainable materials for furniture making could be from locally grown trees like (birch, oak, ash, and pine), which could also be locally manufactured. The way the product is designed and constructed can in turn minimize waste.

Choices of additives can be crucial for sustainable products. There are many ways for minimizing the strain that products have on nature. To design sustainable you can design in a way that the pattern for the raw material has as little waist as possible. Straight lines and rectangular and square pieces is a way of minimizing waist. Smart constructions could be that you are using existing hardware and the piece of furniture can be designed with a construction so that less material is used.

The composition of the wood pieces can also be of importance, you can use smaller left over pieces to create an interesting pattern. There is also today recycled plastic, which is mixed with wood waist and used in different designs. A varnish or paint can also be made with more environmentally friendlier substances than others. There is off course different levels of a clean sustainable design.

### **Graceful Aging**

Now-a-days materials are in many areas used that are not natural materials and therefore ages differently. The benefit of natural material such as wood is that it ages with grace, especially if the piece is designed in a way that allows that aging to occur gracefully.

Which wood type is used also decides how well the furniture piece can take on daily usage. When deciding to go natural and sustainable it is also important to carefully choose the wood character and a finish that ages the way you prefer.

### **Luxury in Materials**

Through the choices of fabrics, wood, and colors a sense of luxury can be created. There is a whole science behind how they in different ways affect our senses. To mix these elements together in a balanced manner can increase the value of the product and which can in a fulfilling way be satisfying both to the eye and touch.



## Image Board

As a result of the gathered information my inspiration was drawn to natural elements and the diversity of nature. How to capture different senses with materials? How to camouflage surroundings?



Tranquility  
Diversity  
Passion

## **Final Brief**

To go forward with the most promising ideas you have to go back in time when there was only a need and no products made and from human needs together with today's possibilities create something better. My product line is a bedroom furniture set; which includes bed frame with backrest, nightstand, dresser and wardrobe.

The focus lays in designing for people living in apartments in cities in developed countries to give them more floor space. So they can have the choice of adding another piece of furniture, which can invite for a relaxing activity or simply enjoy the ambience of open space. To work with wood types, colors, design features and patterns one can create the illusion of space. The bed need to provide ergonomic seating for reading, writing, or watching TV in bed.

To preserve nature sustainability is the way to go. The strive is to use sustainable materials for both not over consume the natural resources and for a natural feel, quality and graceful aging. To have changeability of the furniture in style, set up, and placement for a long lived product life.

There are standard measurements of furniture pieces such as dresser, wardrobe, nightstand and bed these measurements can vary some depending on the country or from piece to piece. But they are overall similar sizes, which are based on the human majority size and the correlation in between these. I would also like to through my design and new measurements of the furniture invite the consumer to get rid of clutter, clothes and store what is used on a repeated basis.

## Function Analysis for Bed, Night Stand, Dresser and Wardrobe.

Through a wide ranges of ways to gather information, which can be of inspiration and a foundation for my furniture bedroom set, it was important to sort out the most valuable pieces of information.

### Function Areas

This is an example of what you can store and display on and in the different furniture pieces. All the items are optional.

Area 1 Nightstands: Magazines, books, lamp, alarm clock, frames, vases, things that you like to be accessible next to your bed.

Area 2 Wardrobes: Hanging of clothes, blouses, pants, skirts, suits, shirts

Area 3 Wardrobe/ Dresser: Hanging and storage of clothes such as; pants, skirts, shirts, blouses, sweaters, under wares, and socks, also other personal things.

Area 4 Dressers: Storage of clothes such as; pants, skirts, shirts, blouses, sweaters, under wares, and socks, also other personal things.

Area 5 Beds: Adjustable ergonomic Backrest.

### Main Functions

Optimize	Floor Space	N
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### Other Functions

Give (bed)	Comfortable support	N
Give (others)	Storage Space	N
Express	Quality	N
To be	Durable	N
To be	Cleanable	D
Maximize	Usage	N
Attract	The eye	N
Minimize	Complexity	N
To be	Classical	D
To age	Gracefully	D
Give	Illusion of Space	N
Give	Accessibility	N
Give	Storage Possibilities	N
Give	Sitting Place	N
To be	Flexible	N
To be	Changeable	D

N=Necessary Functions, D=Desired Functions

### Ergonomics for the Bed

To be	Comfortable	N
Eliminate	Chronic and short term Injuries	D
Distribute	Back Pressure	N
Simplifying	Back Adjustment	N
To be	Adjustable	N

### Ergonomics for Wardrobe, Dresser and Nightstand

To be	Accessible	N
Eliminate	Chronic and short term injuries	D
To give	Simple maneuvering	N
To be	Adjustable	D
To be	Easily Reachable	N
To be	Visible	N

### Security

Avoid	Weak Construction	N
Avoid	Allergic Materials	D
Coordinate	Balance	N
Maximize	Strong Construction	N

### Production / Construction

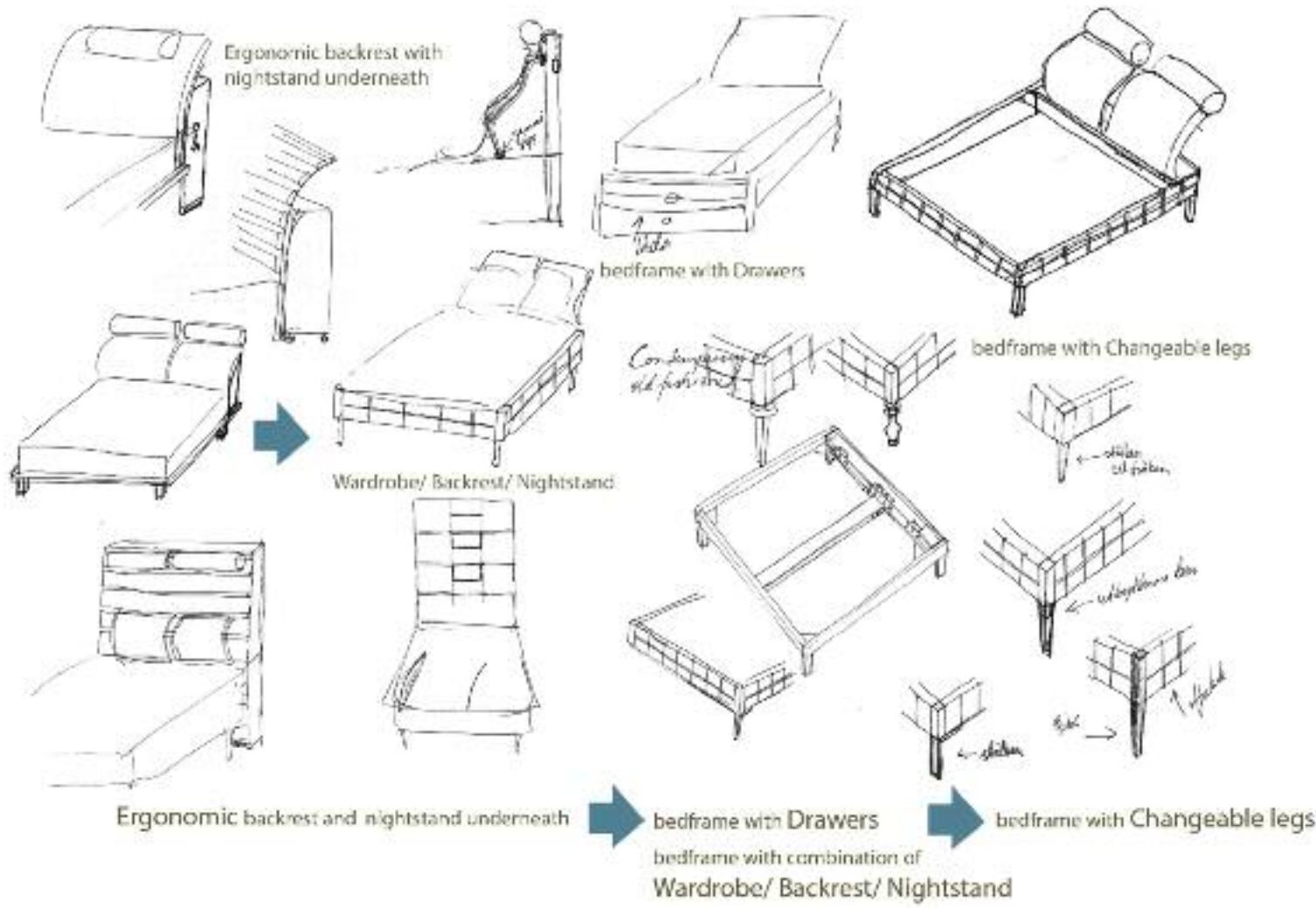
Simplifying	Construction	N
Minimize	Manufacturing costs	D
Optimize	Environment Friendliness	N
Simple	Repair	D
Simplifying	Packaging	N
Maximize	Stability	N
Maximize	Construction Durability	N
Use	Standard Components	D
Hidden	Hardware	N
Minimize	Waste	N
Optimize	Transport	D
Optimize	Storing	D
Use	Standard Machines	D
Use	Local Production	D
Maximize	Strength of Material	N
To be	User Friendly	N
Maximize	Strength	N

N=Necessary Functions, D=Desired Functions

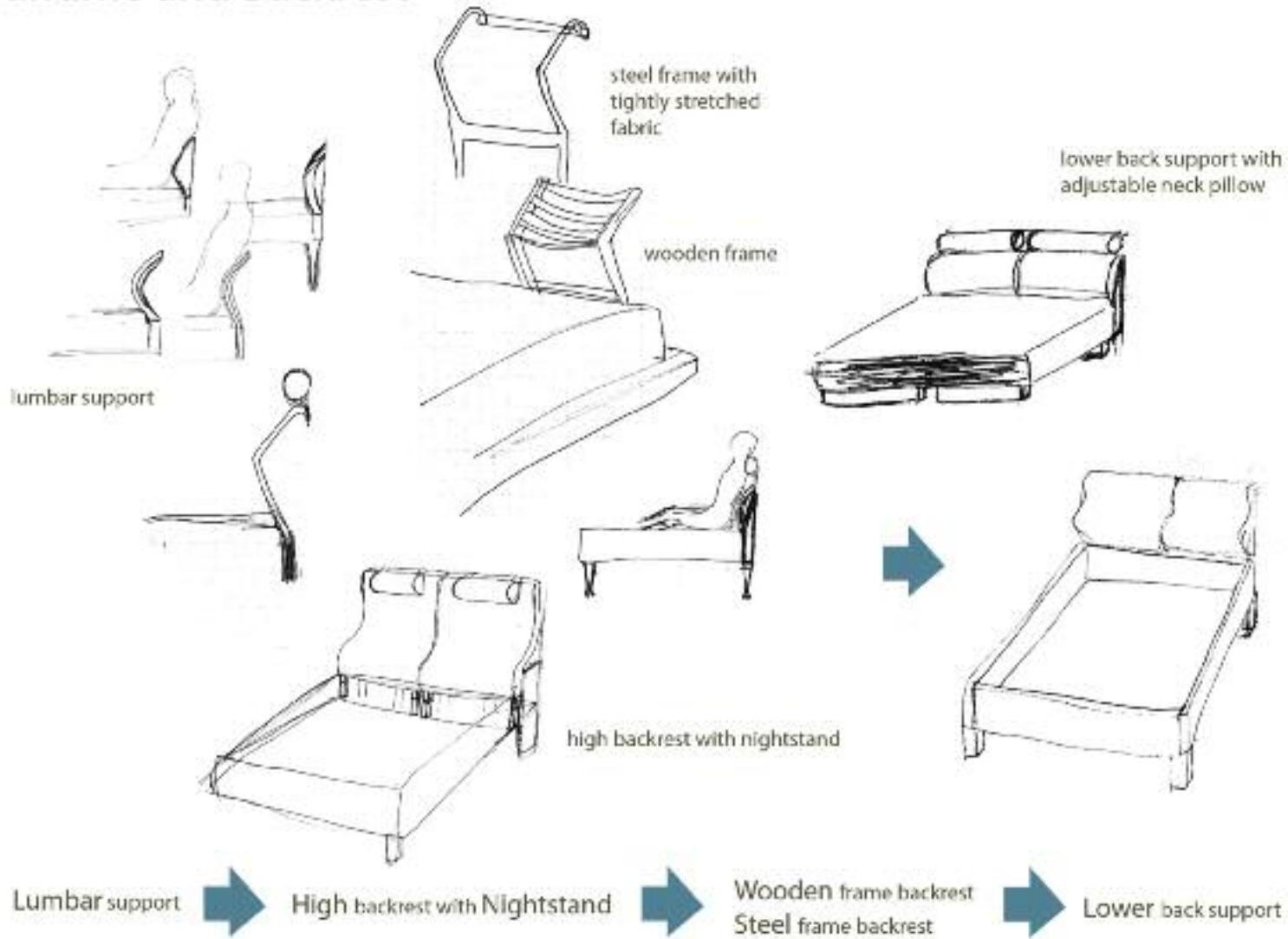
## **Pages of Chaos and Bits of Inspiring Ideas**

Through brainstorming I have put the gathered information into design concepts. This I developed further till I reached potential ideas. My goal is to decrease floor space and to find a possible solution for this without losing the furniture pieces full function.

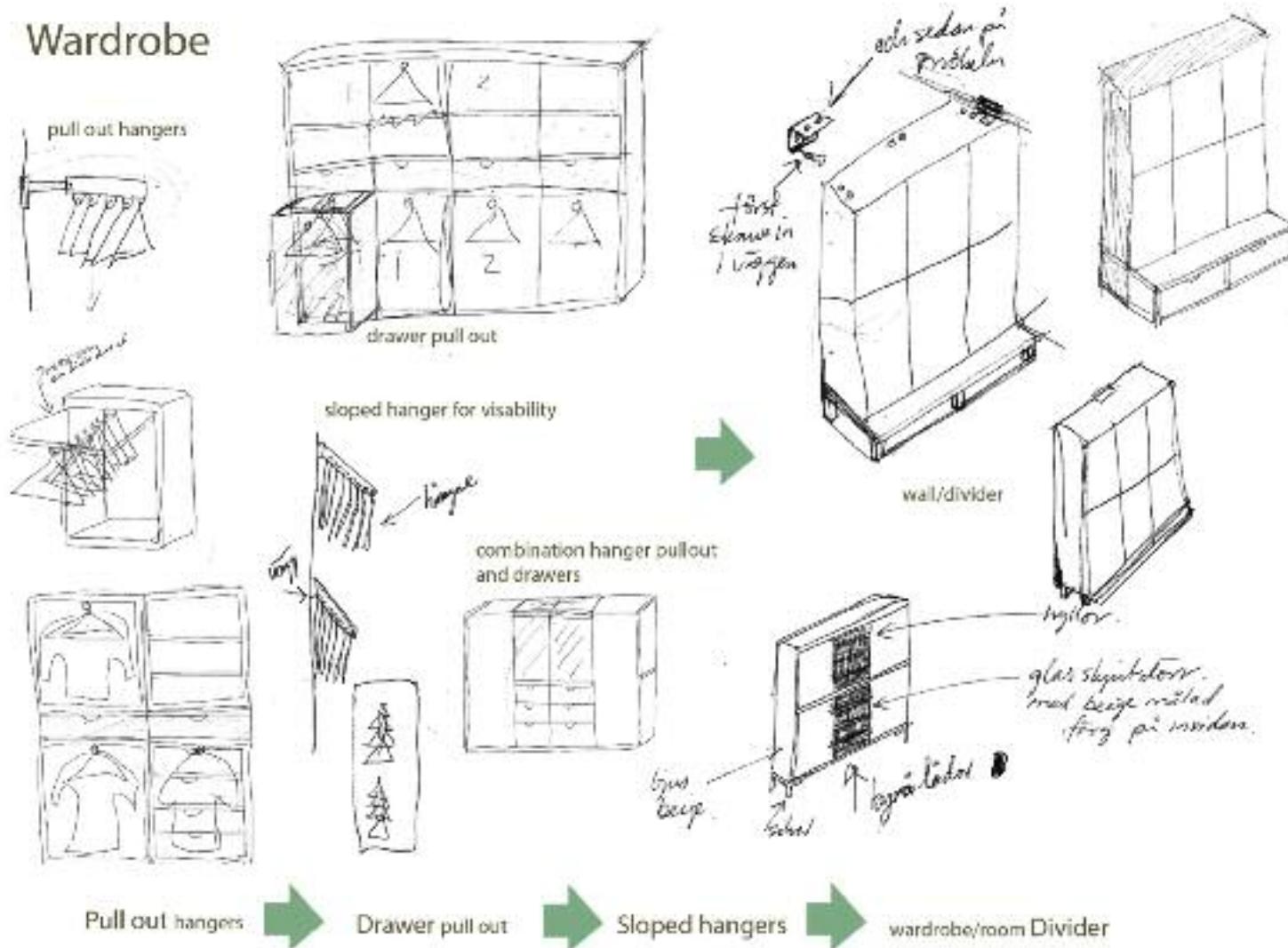
## Bedframe and Backrest



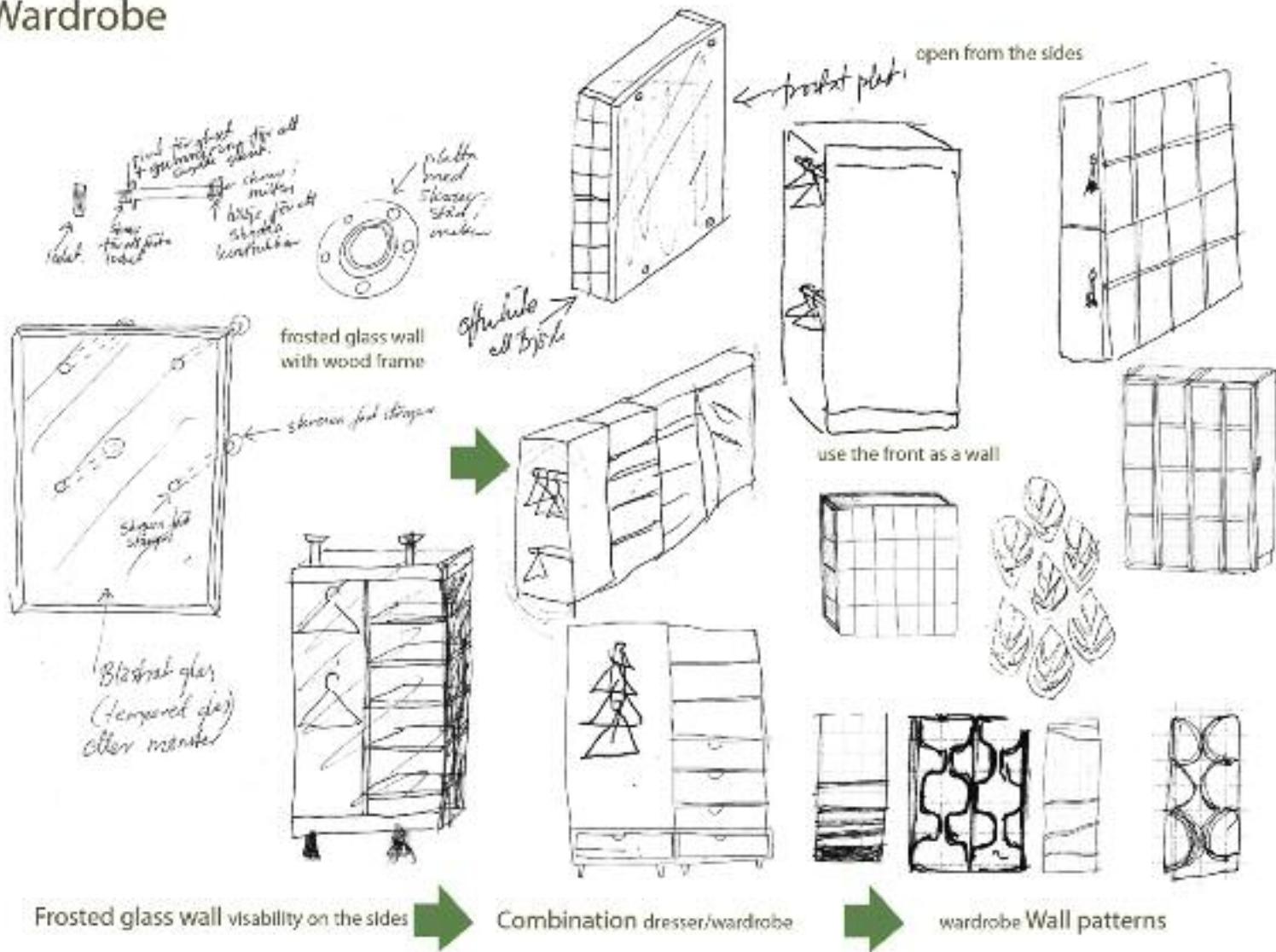
## Bedframe and Backrest



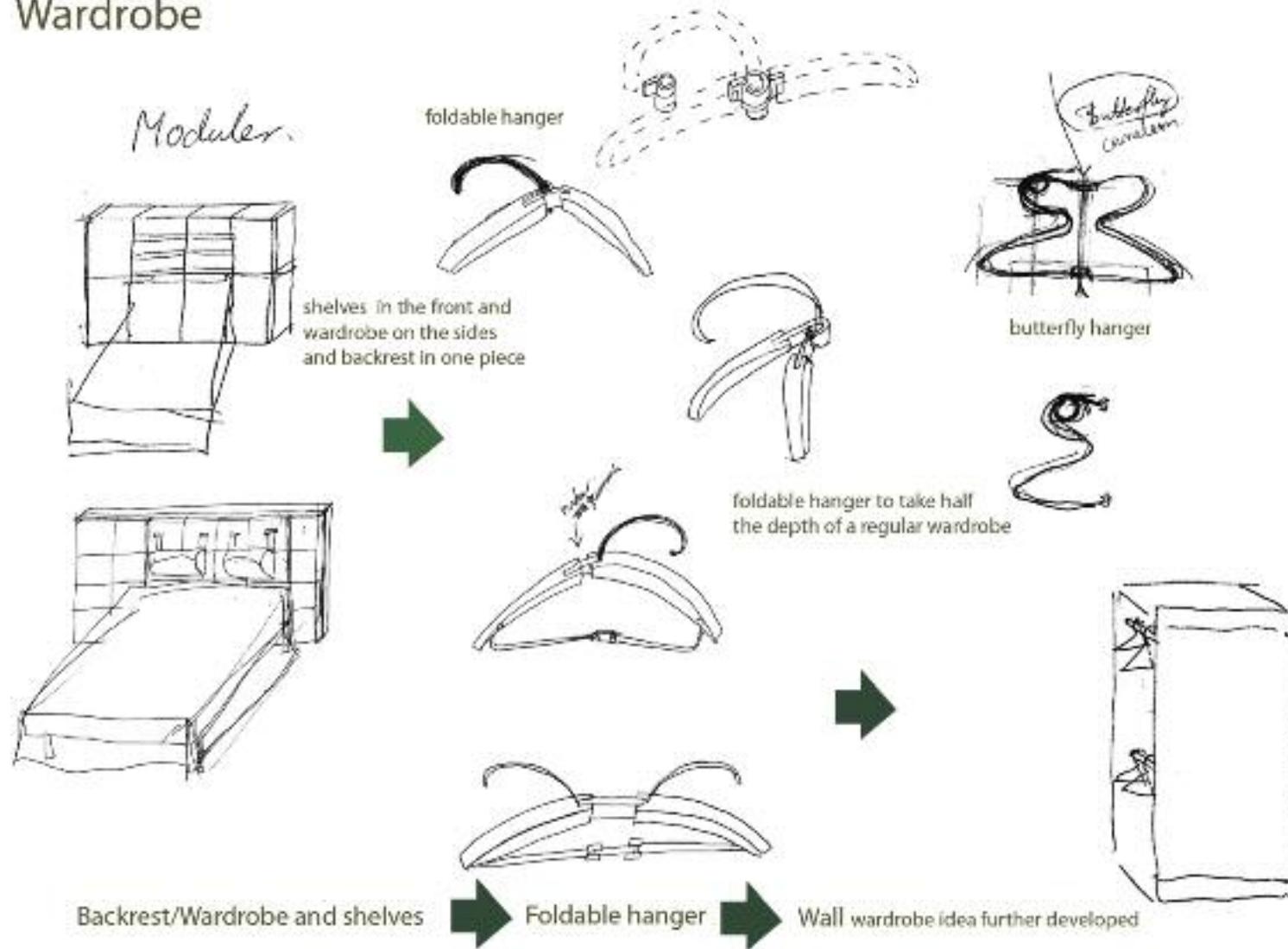
### Wardrobe



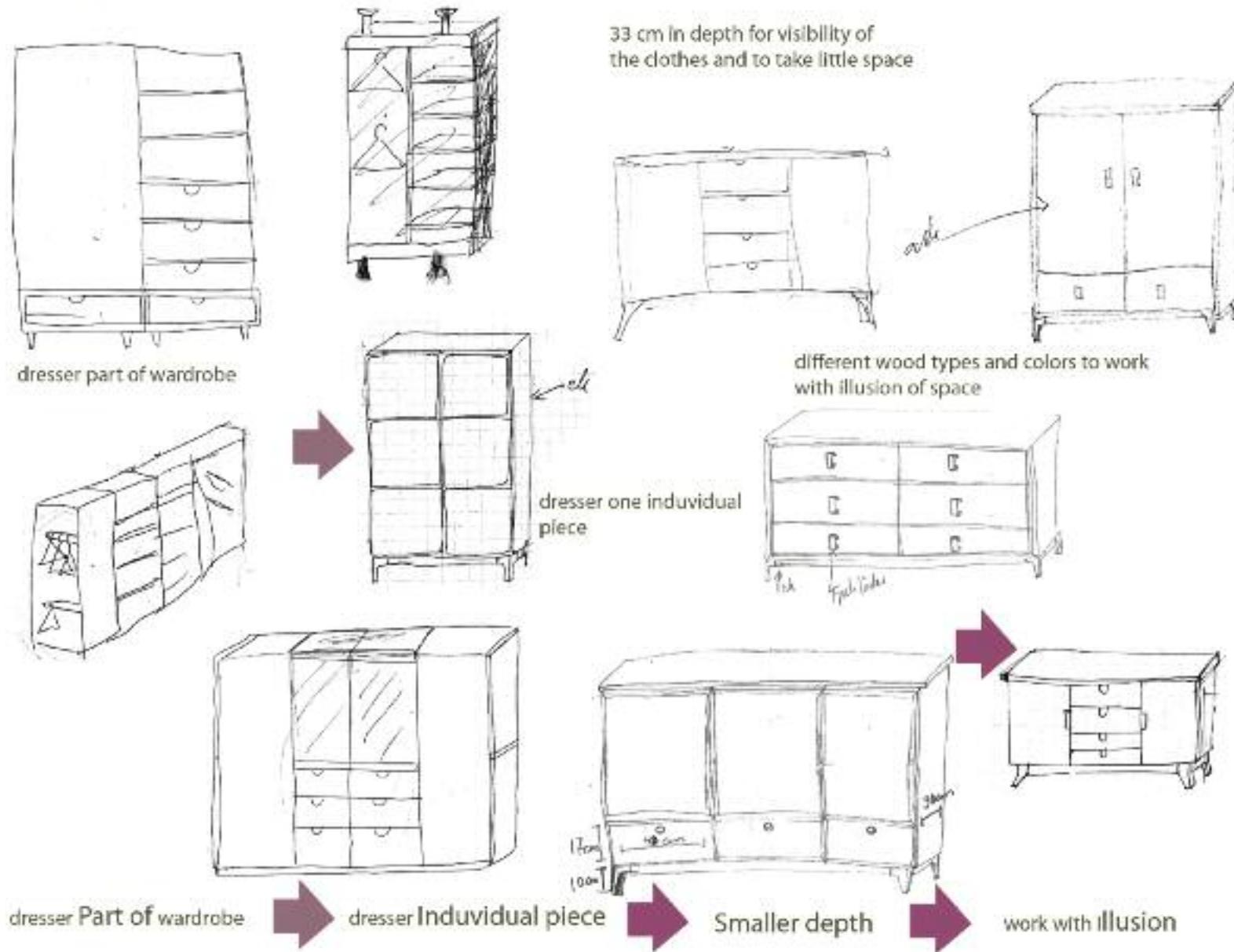
## Wardrobe



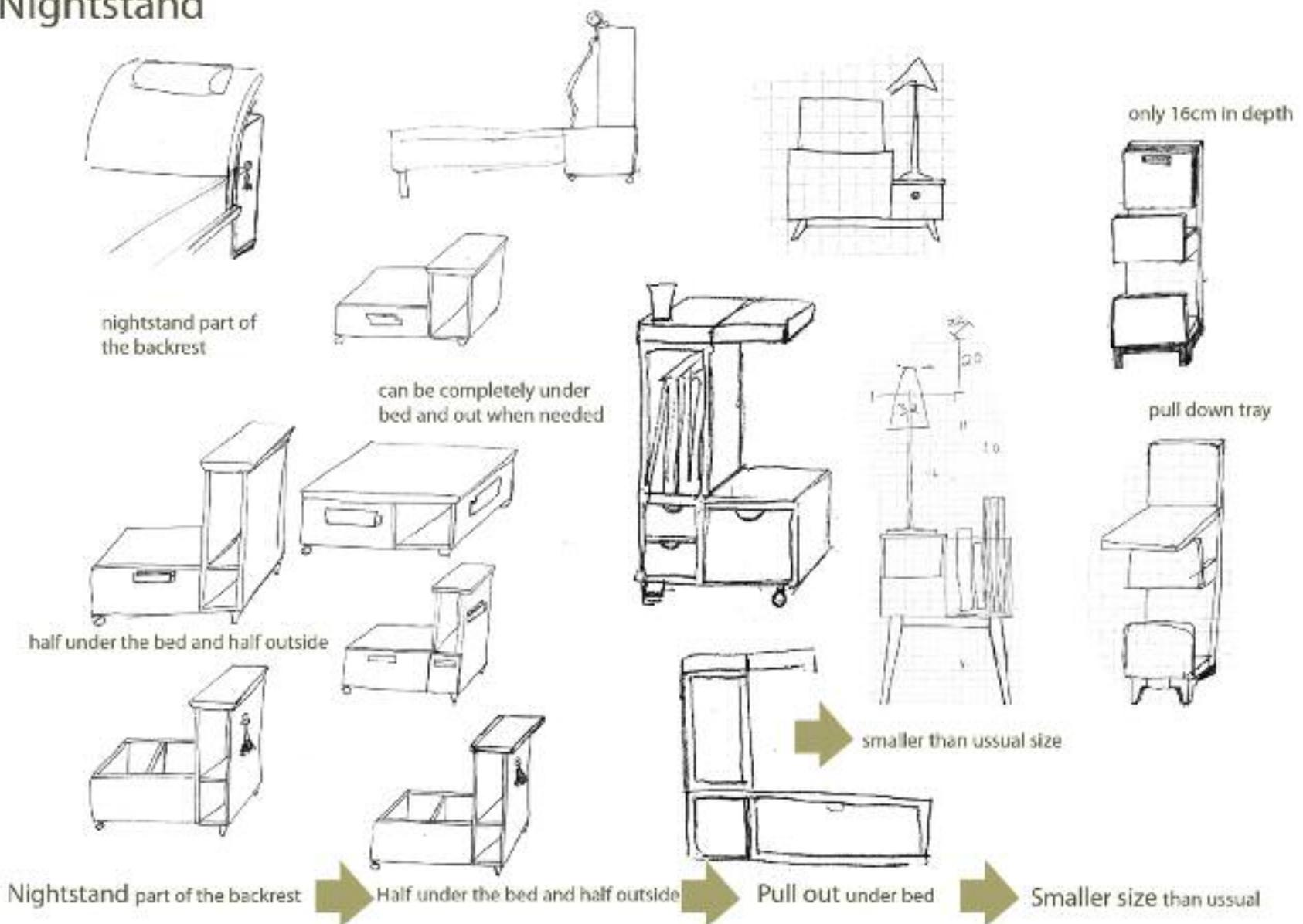
## Wardrobe



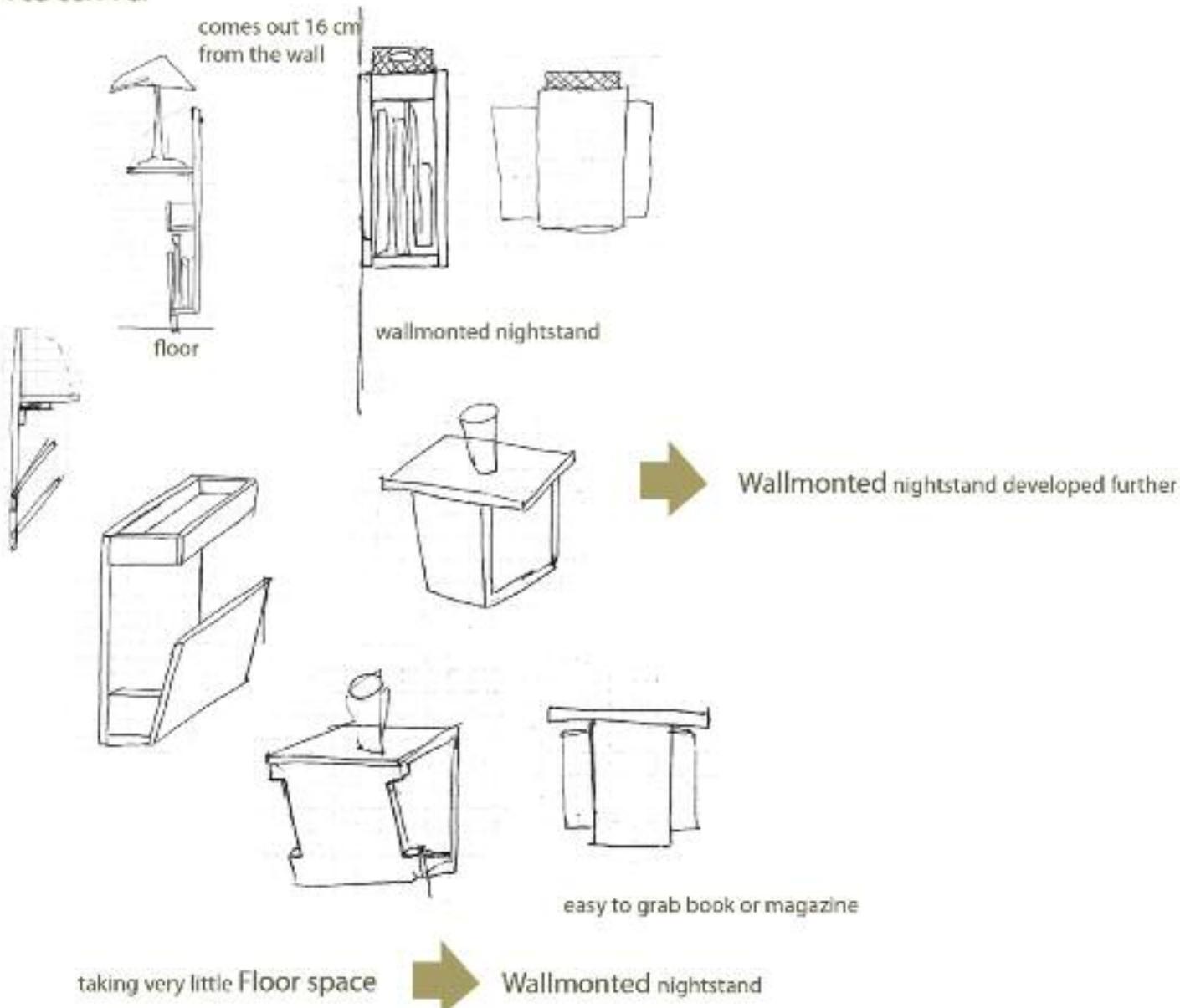
## Dresser



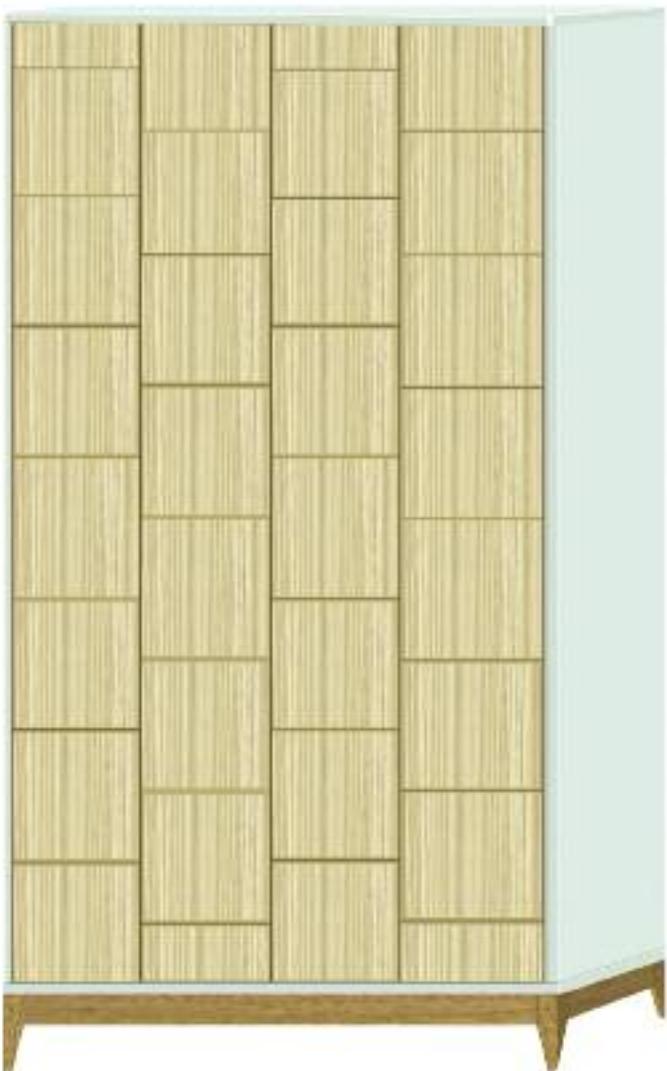
## Nightstand



## Nightstand



## Potential Ideas



**Wardrobe**

Doors on the sides and depth 32 cm, width 107 cm and height 214 cm. Hanging of clothes up and down. Around 60 hangers. Can also be used as a wall to put something else in front if needed.

## Dresser

Depth of the dresser is 32 cm. Light color on the sides and top to play with illusion of space. Frame with legs in oak. Ash front. Less depth than regular measures for better visibility of the folded clothes.



## **Test Models**

Due to time and financial limitations a miniature or real size test model was not feasible; however what I was able to make is a smaller version of the wardrobe just to have the correct understanding of how easy it is to hang clothes when the door is not in the front and how far it sticks out from the wall with the new depth.

For the Dresser I performed tests to ensure that the depth chosen was sufficient for folded clothes. For the Backrest I tested different types of chairs to apply the correct ergonomic seating when legs are stretched out. For all pieces of the bedroom set I applied extra time and effort to research, to ensure that I had designed the correct construction I spent many hours consulting with full time Furniture makers and industry related professionals.

## **Seating**

### **Relaxed Seating**

The ergonomics and comfort of seating comes first and foremost from its purpose; which is to understand the interactions among humans and other elements of a system and methods to design in order to optimize human well-being and overall system performance.

Depending on your activity different seating possibilities can be preferred for a healthy and relaxed spine. Can the same comfort be achieved with the Backrest? Could the bed be a place of comfortable reading? Can it be a place to wonder in thoughts and fly away from the daily stresses of life and enjoy the comfort and tranquility that can be found in a bedroom?

## Ergonomics and Measurement for Seating

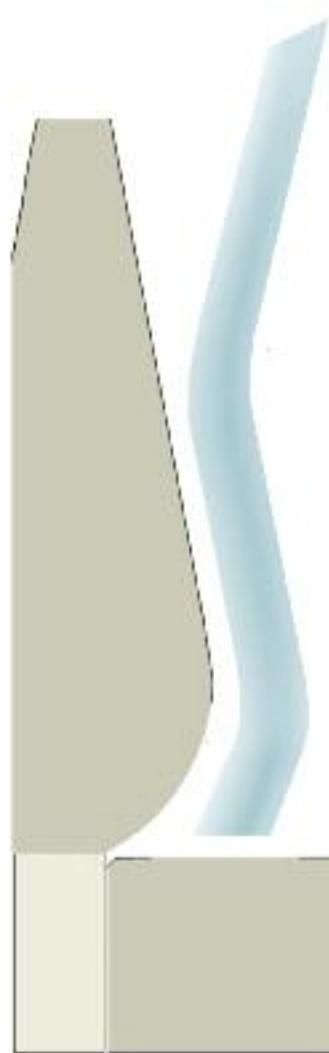
From trying different types of ergonomic seating in chairs, easy chairs, and sofas I came across a chair that is placed in a waiting area of a hospital. The chair has a small angle on the Backrest and is curved which starts above the lumbar.

This was ideal for a simple construction for ergonomic and comfortable seating. Because of the angled back support started above the lumbar this gave much support to the spine and diminished the pressure. In this way the correct form of the spine was accomplished.

The designer of this chair focused on the angle of the mid part of the back so that the correct shape was achieved. Without doing the whole shape of the back; this can vary from person to person. To get an assurance of the comfort of this chair I asked a few people of different heights and widths who were seating on the chairs.

These chairs fulfill their purpose to comfortably accommodate those individual who are waiting for their turn at the hospital.

Having the measurements from the chair gave me a good base for my backrest. I tested the measurements of the chair in a sitting position with the legs stretched out and I realized that some corrections were necessary to accommodate the accurate angles for a comfortable sitting. I also added a height adjustable lumbar support. The added support is a specially designed lumbar pillow. With the correct consistency of material in the right shape gives an ergonomic support.



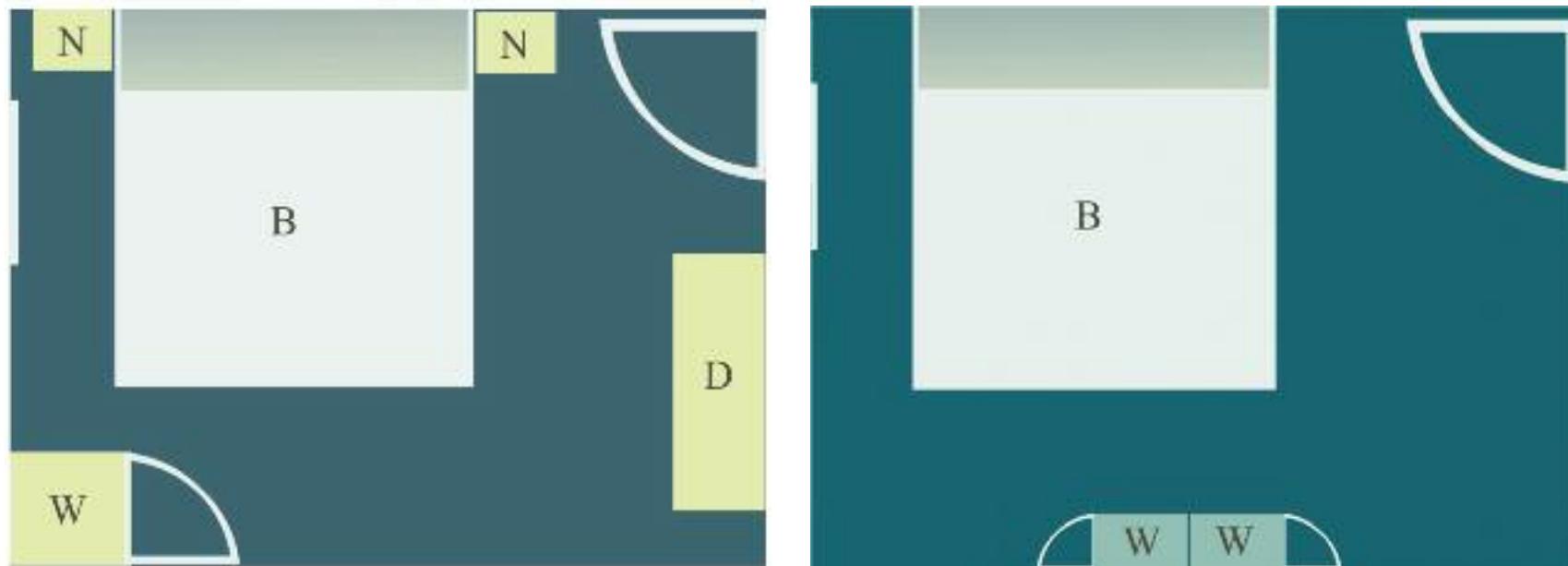
**Picture 1:** How the spine should be for a healthy body. Result of the chair analysis. Measurements for the Backrest. When you sit on the mattress it moves down a little. To compensate for this downward movement I made the correct calculations on the Backrest so that the beginning of the support for the upper back is at the correct location on the person sitting on the bed.

From inspiration from the nature I found the name Cameleon for my furniture set. I chose the name Cameleon, because of its ability of blending in with its surroundings and in a visual way not take any space.

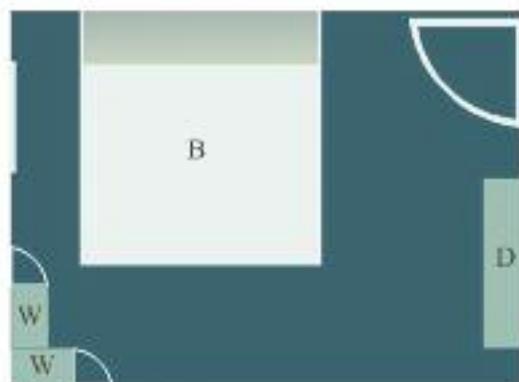
### Today's Urban Bedroom vs. Cameleon Bedroom

Today's standard size of a master bedroom in Sweden is 12m<sup>2</sup> in urban living and single room ranges from 8-10m<sup>2</sup>. This gives a rather small space to fit necessary furniture pieces such as bed, wardrobe, nightstand and dresser and can easily look and feel as a cramp space filled with furniture's with very little floor space. To have a spacious apartment in the big city can be very costly it is sort of a luxury to be able to have those living possibilities. Even though you cannot afford this I would like to through cameleon bedroom furniture set accommodate the felling of a spacious living without losing its storage possibilities and function.

The bedroom in yellow show the layout of a bedroom furniture set with Swedish standard sizes. Following rooms are displayed with the cameleon furniture set to show the difference in available space and storage possibilities. Cameleon bedroom furniture set is designed to accommodate smaller rooms. To be able to store what is needed without taking up all the space. This new standard is more suitable for today's size of rooms and gives more space for living, without losing functionality. In today's urban living space is a form of luxury.

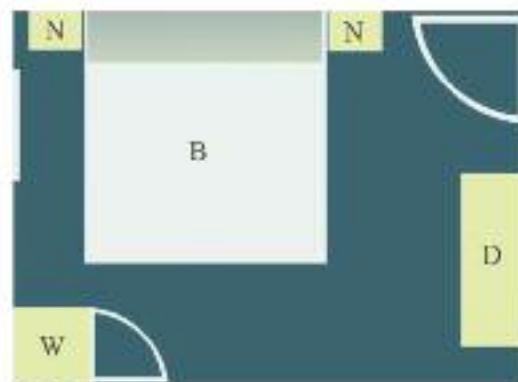


Cameleon bedroom layout



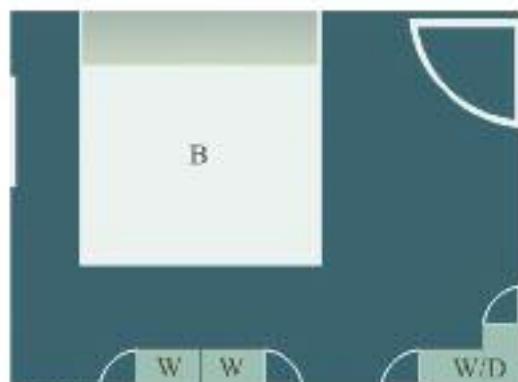
50-60 hanging clothes

Swedish standard measurement



25-30 hanging clothes

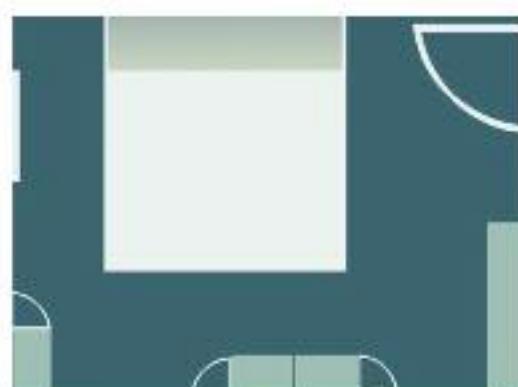
Cameleon bedroom layout without a dresser, because the wardrobe can add shelving and drawers.



65-75 hanging clothes and the rest of the space is for folded clothes and other personal things.



50-60 hanging clothes



75-90 hanging clothes



65-75 hanging clothes and the rest of the space is for folded clothes and other things.

B - Bed

W - Wardrobe

D - Dresser

N - Nightstand

WN - Wallmounted Nightstand

This is why changing standards sizes of dressers, wardrobes, and side table gives this open space for what you really desire to have in your bedroom. It is also why I decide on designing furniture that can easily change its appearance to satisfy different tastes.

## **Result**

After an extensive research work I could there after write down important criteria's for the bedroom furniture set. This became the foundation for my design, which I could always go back to and check of to get an assurance of that the design moved along towards the right direction. I will here present my final proposition for a bedroom furniture set, which again is based on my research, function analysis and all the other steps in the work process that is earlier mentioned.

Cameleon Bedroom furniture set is designed to give an open feel to the room and to maximize floor space. The extra space that is accomplished through new measurements can either be used for other desired or needed furniture pieces or to simply enjoy the environment of open spaces. Since the wardrobe is modular and it serves as a wall, there is a wide range of possibilities of arranging the wardrobe. The reason for creating a wall as the front of the wardrobe is to clear up the walk space, being able to blend in with its surroundings and being able to place something in front of the wardrobe, could be a small desk for a desktop.

The dresser with its smaller depth can also easier be arranged to smaller spaces. In my interview there was a desired need from all the interviewed, which was to have good seating in the room if possible in the bed. So an obvious solution would be an ergonomic backrest for the bed. With this comfortable backrest an extra easy chair is not needed, so in turn less floor space is taken from the bedroom.

To raise the nightstand above ground as a wall unit and make it smaller also saves space without compromising with function.

This bedroom furniture set has a simple and Scandinavian flair to it with subtle hints of Japanese influence. It can with simple means transform its expression or even blend in with its surroundings as aameleon. From a sustainable point of view this bedroom set is designed with solid ash for the bed, dresser and nightstand. The wardrobe is a combination of solid ash, particle board and for the front to protect the wallpaper tempered glass. I also used existing fittings.



Imagepicture

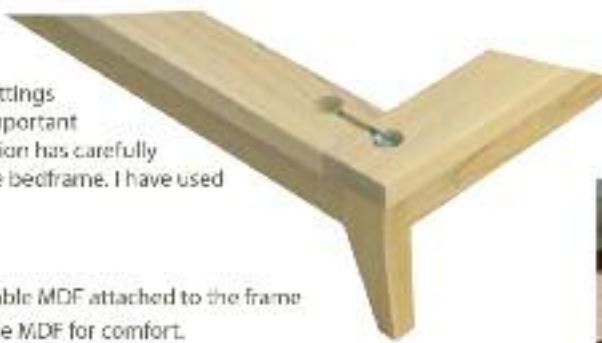
## Bed Construction



The bedframe and backrest have hidden fittings and can easily be put together. This was important for the clean and simple look. The construction has carefully been designed to get a strong and durable bedframe. I have used existing fittings.

### Material

The backrest gets its shape through bendable MDF attached to the frame of the backrest. A cushion is attached to the MDF for comfort.



Fittings to keep the middle support plank in place. An adjustable foot to accommodate uneven floors.



## Bed Construction



### Fittings

With simple fittings and overlap construction, this makes the bedframe very strong. The backrest is easily placed with four bolts per backrest. This makes it tightly attached to the frame.

The pictures show details of the fittings and how they are placed.

With one size wrench this bed can easily be put together.



## Bed Details



My intention with the low frame of the bed is to accomplish a lighter look without hiding the beautiful ash. The frame has plenty of height to be able to vacuum and store things underneath.

### Stopper

Stopper for the spring mattress. The stopper has the same angle as the nightstand and the legs have a resemblance to the stopper. It is painted with a tinted white to go with the rest of the pieces in the bedroom collection.

### Bedframe

I put my focus in few design features to give a classical and relaxing feel. Ash was chosen because of its durability, light color and its diversity and distinct grain.

The legs of the bed are in an angle slimed down to give a lighter look. It also defines the style of the bed.

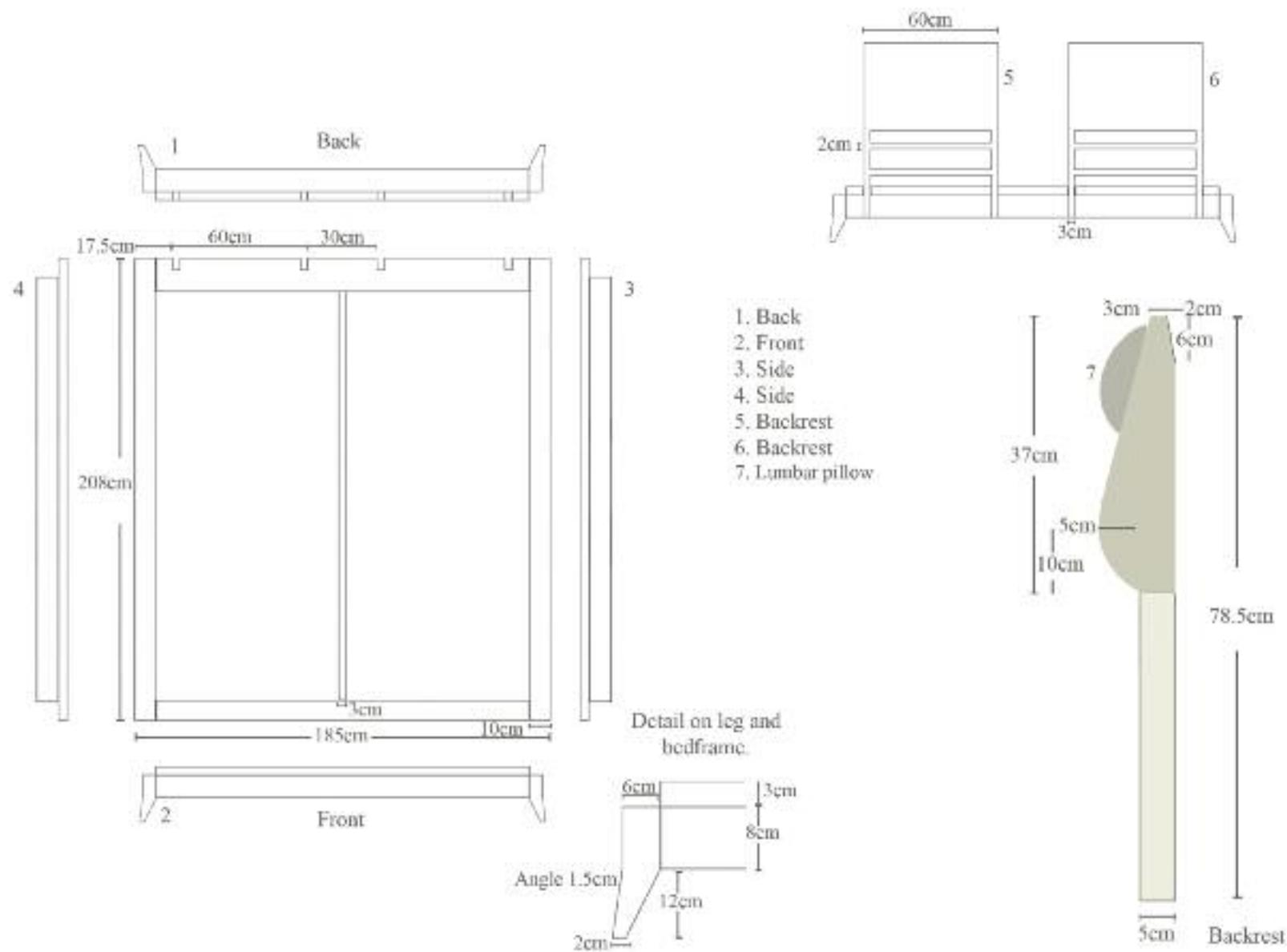
### Backrest

The backrest has an ergonomic support for the lumbar and an extra adjustable lumbar support. The cover for the backrest and the lumbar pillow is washable and changeable for different styles. A simple way of changing the look of the bed.

The framed bottom of the backrest is designed so that less wood is used and also to blend in with the mattress and give interest to the back of the bed, in case it would be used in a way that it is shown.

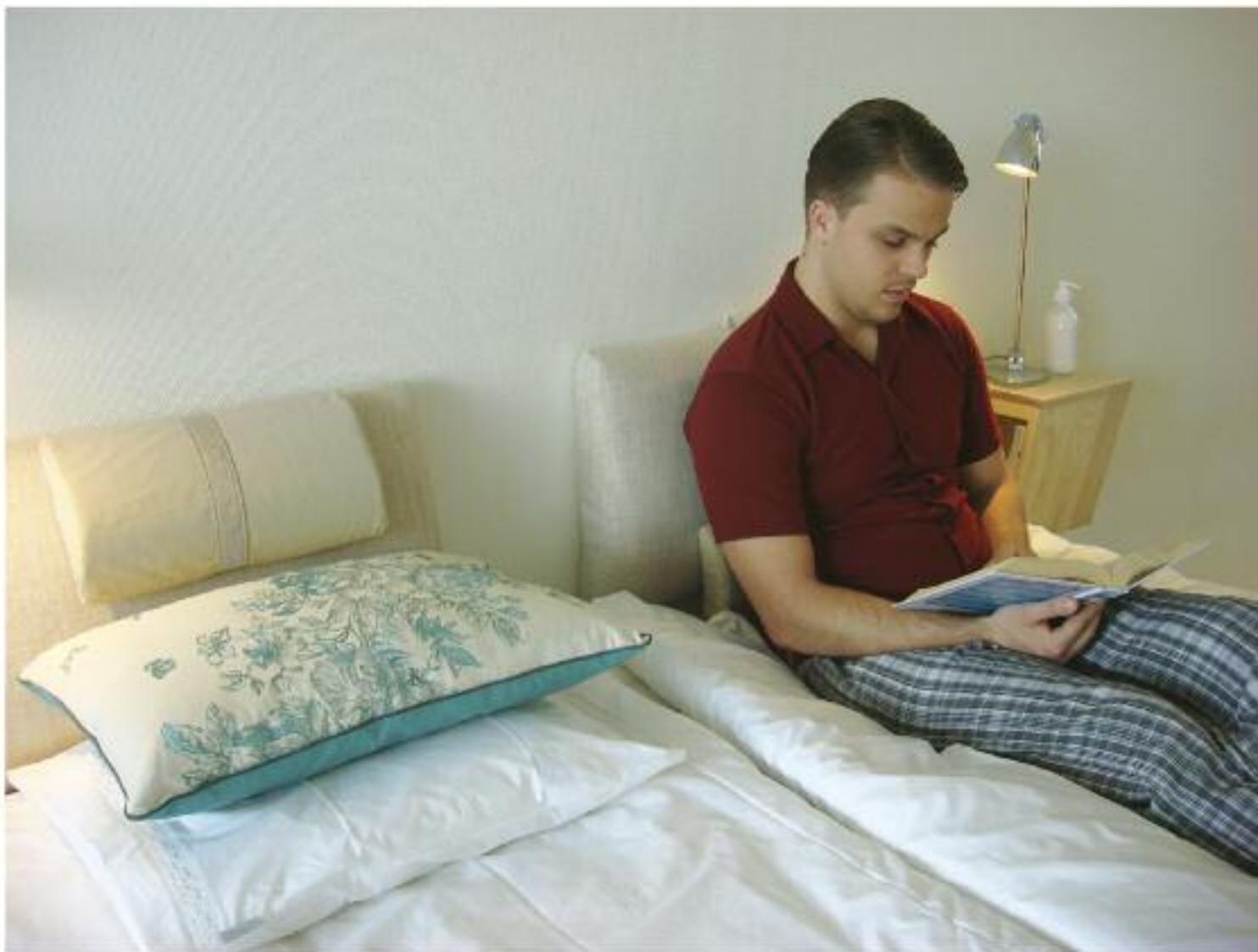


# Bed Measurements

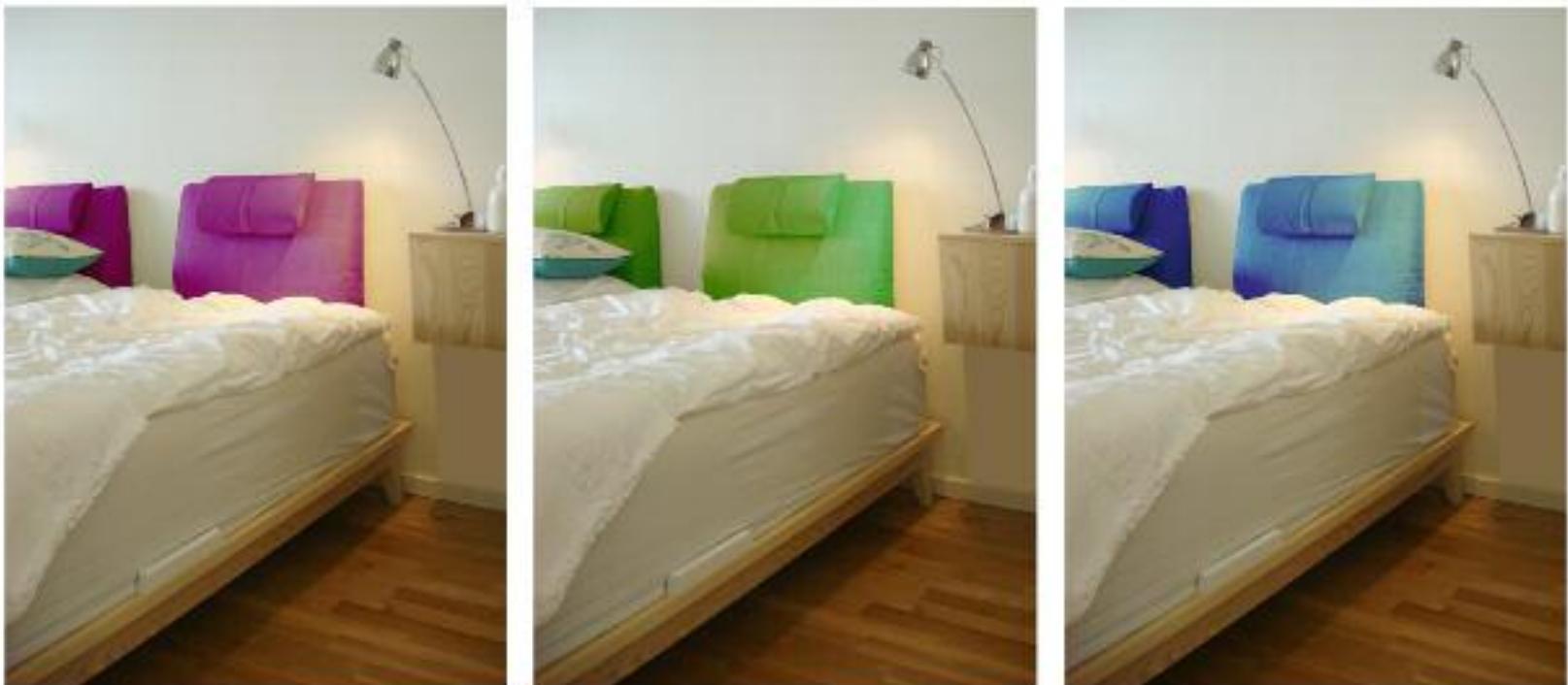




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### Imagepicture

These pictures show examples of different color possibilities of backrest cover.



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Image picture



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# Cameleon Wardrobe

This is a single wardrobe that can be placed in a pair, creating an extended wall. It can also be placed single or in a corner as an L shape.

It comes with an upper and a lower rod for hanging clothes. The number of clothes that can be hung ranges from 25-30 hangers per wardrobe unit.

The wardrobe can also be ordered with combination of rod for hanging and shelves for folded clothes.

## Material

Using a standard size wallpaper mounted to the front of the wardrobe, this can be easily changed after fashion and taste. There will be a 0.6 cm thick tampered glass holding the wallpaper in place and protecting it from damage. It also enhances the look of the wallpaper.

To make this wardrobe blend in with its surroundings you can chose the same wallpaper that you currently are using in your bedroom wall.

The door will be painted in tinted white and for the inside and front of the wardrobe will have white foil paper.

Wardrobe frame is particle board with solid ash on the sides to get a long lasting furniture piece and also to go with the rest of the bedroom collection, the thickness of all the pieces are 1.6 cm, except the top of the wardrobe is 2 cm.



## Cameleon Wardrobe

Cameleon wardrobe can be used as an extension of the wall to have that open space or to place something in front that is desired for the room.

With the small depth of 33 cm it takes up very little of the floor space, almost half of a regular wardrobe which is 60 cm in depth. With it's modular possibilities there is a large range of different setups of the wardrobe in the bedroom.

The picture shows two wardrobes next to each other with doors on each side for hanging clothes, 50-60 hangers.

The wardrobes look can easily be changed through replacing the wallpaper. Here is some examples of that. There is more examples on the image pictures.





Imagepicture

## Wall mounted Nightstand



To accommodate the desire of more space I designed this wall mounted Nightstand. It can hold books, magazines, a lamp and other personal things. It is made of solid ash for its hard and durable wood and also for its diverse and distinct grains. With a layer of linseed oil which has a hint of white in it, the beautiful natural light color of the ash can be sustained through the years.

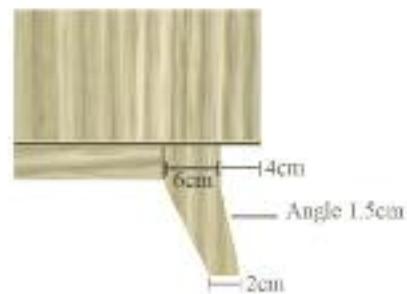
### Design features

The choice of making an angle for the front came first from having as much space as possible both the physical space but also the illusion of space, second to be able to rest the magazines and the books towards the angled wall and third to create an interest to the expression of the piece.



For a durable and simple mounting.

# Dresser



This dresser is about half of the regular sized dresser, this is to make it more visible what clothing you store and more accessible. With these new measurements it also takes up less of the floor space; which gives you a more spacious bedroom.

## Material

The dresser is made out of solid ash, except the back of the dresser and the bottom of the drawers is fiber board to take up little space of the depth. It is varnished with a white tinted linseed oil to keep the original color of ash. The top of the dresser has a tinted white color to go with the rest of the collection and to give an illusion of taking less space, it gives a lighter expression.

## Interior of the dresser

It has three shelves on each side and four drawers in the middle. The drawers can with special hardware be pulled out the whole way.





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## **Summary**

This has been an intense and interesting journey. I have come to a better understanding of how products and materials that we are surrounded by affect in many ways our quality of life to a certain extent. Just this fact alone made this project even more interesting. Through research such as interviewing consumers, reading books regarding the bedroom, research in the internet in various areas, consulting with furniture makers, physiotherapist and other related professionals I have gained a better understanding of the affect and important of the bedroom. I came to realize how many of the today's bedroom furniture set does not accommodate the needs for the consumer to its full extent in urban living.

Through mentioned research my inspiration for the furniture bedroom set was drawn to give people living in big cities more floor space and broaden the usage of the bedroom. At least to give the ability to choose what you would like to have in the room without being constrained by the limited space. It has also been important to create a design that by simple means can change with fashion. I have also focused on designing an ergonomic backrest. Regarding the materials for the furniture set my approach has been sustainable, not only because of obvious reason such as the environment itself, but also for graceful aging.

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