

A2 Product Design

Mood Board

Introduction
I am going to create a collage of images relating to my project in order to provide inspiration for my initial ideas. I will also gain client feedback, giving me an idea of what the clients desire in the design.

Initial Designs

Design 1: Rocking chair
This is the original design for the rocking garden chair. It is made entirely out of wood. There are a variety of woods that could be used, properties such as strength and weather resistance should be considered when choosing. The backrest would be slightly curved to make the user more comfortable.

Design 2: Sunshade chair
The garden chair features an adjustable sunshade, so the user can choose how much light they want coming on them.

Design 3: Rocking chair
The curved arm rests reflect the curve of the rockers and show consistency throughout the design. The chair would have a cushion to ensure the user is comfortable when using the chair. The rockers could be made by steam bending the wood or alternatively they could be cut down and shaped by hand, however it would be difficult to get identical rockers. The rockers are an ellipse shape. The rockers could be made in a few different ways, including steam bending, laminating or flexing. Flexing and laminating could prevent issues for weather resistance as I would have to ensure the glue used would not deteriorate outdoors. If I was to obtain the rockers, I could use a laser which has good weather resistance. The seat and back of the chair would be made from wooden slats, these could be made from teak or mahogany. The slats could be joined using mortise and tenon joints. Using slats rather than sheets of wood allows water to run off more easily and it also uses less material.

Design 4: Sunshade chair
This drawing shows the chair with the sunshade out. The sunshade would be made from curved strips of wood, that would be hinged at the joint and overlap, ensuring there is no gap. A material such as fabric could be used to create the sunshade. Alternatively, canvas, such as tent, could be laminated together to create the sunshade. The shape of the chair is a hemisphere, held at angles at a base. The hemisphere would be made from curved slats of wood. These slats could be made by steam bending strips of wood, such as teak. The slats would be glued together and dowel could be used to reinforce the joints. The base would be made of metal. The base could be hollow and joined at a cross frame. The base could be made from steel or aluminum. The seat of the chair would be made of fabric, which would be suspended inside the hemisphere. It could be hooked onto the edges of the frame. Fabric such as canvas or leather could be used to make the seat. A fabric seat would be softer and more comfortable for the user than wood or metal.

Design 5: Sunshade chair
This is an alternative method for the construction of the hemisphere. It is the same structure that is being used for the sunshade, except it would be fixed, so not adjustable.

Summary
I have created four different initial ideas, some of which I have explored various options of manufacturing and design. I will now show the designs to my clients in order to receive client feedback, and I will also compare each design against my specification and this will allow me to choose which ideas to take forward for development.

Final Design

I have produced a third angle orthographic projection and an isometric drawing of the garden chair in order to demonstrate exactly what the product will look like and its dimensions. The drawings do not include the seat of the chair, which will be suspended between the two slats, in order to show the construction of the frame of the chair clearly. The seat will be made from recycled transparent fabric, and will be hemmed and loops stitched into the ends, in order for it to slot onto the seat slats.

The rockers and frame pieces of the chair are going to be manufactured using a combination of steam bending and laminating, and will be made of white oak.

Manufacturing 10: Laminating & Planing Rockers

Key:
Quality Control Measure
Health and Safety
Modification

This picture shows the first half of the laminates with all of the clamps in place. I also added two such clamps as well as G clamps in places where there were gaps between the laminates to ensure all gaps were removed. I followed each set of laminations to dry for a minimum of 24 hours before removing the clamps. I then repeated the process, adding the next set of laminates on top of the ones above and then removing the rocker from the former and laminating the next rocker in the same way.

Once the glue was dry I removed all the clamps and then released the stretched straps and removed them along with the MDF strip. The strips had stuck to the laminates in places (as shown in the picture above) which would need to be chiselled off and then sanded to ensure the oak is smooth.

The laminates were not perfectly aligned. Due to the rockers size and shape it was difficult to clamp in order to plane. Therefore I decided to put the rocker back on the former to hold it securely whilst planing. I placed blocks beneath the rocker to keep it higher than the top of the former, allowing me to plane the edge down without damaging the former.

I used a long plane and after planing, I sanded down the edges, starting with 60 grit paper and then finishing with 120 grit paper to ensure a smooth finish was achieved.

One side of the rocker after being planed and sanded.

