

Ecological bedframe design

thesis – summary

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Ecological design becomes increasingly more important in the furniture industry, as resources are declining and the risks in supply chains are growing. This is why it is important to start looking at sustainable and ecological alternatives to non-replenishable materials. Riviera has been supporting this idea for many years in the bedding industry with natural latex mattresses and other replenishable sources.

In this report, the design process of an ecological bedframe for Riviera's brand Pure Beds is investigated. The main research question answered in this report is: "How to design a wooden bedframe from ecological friendly materials which shows the sustainability a luxurious design?" This question is answered in the different stages of the design process of the product.

Ecological design can be explained as earth environmental systems that are kept in balance while natural resources within them are consumed by humans at a rate at which they can replenish themselves. There are many ecological materials. However, the challenge will be to find a balance between luxury design and the ecological aspects of the bedframe while staying within the set production cost price of 400,-. To find this balance and to design the best bedframe, an analysis has been carried out with which a requirement list was developed. This list will be the basis and the check of the further design processes.

The analysis consists of competitor analysis to see what is on the market, providing a basis of how Riviera can stand apart with Pure beds. Also, a style analysis of the company was conducted and the wishes of the target group are defined. Furthermore, literature research on possible materials, which are strong enough, affordable and fit within the Pure beds' aesthetics has been executed which resulted in the choice of Rubberwood. Rubberwood fits perfectly within the story of Riviera as they have been making mattresses from natural latex, coming from the rubber tree, for many years. For comfort and the right dimensions, ergonomics have been set up. With all the gathered information the requirements were formulated.

In the design phase the basic steps of ideation, iteration, finalization and development have been followed together with feedback moments with the client, to ensure a design that fit all the requirements and wishes of Riviera. Choices were made concerning the appearance, functionality of the headboard and connection joints.

A final concept has been created in a CAD program and has been further elaborated on in the form of technical drawings, a CNC file and an assembly manual. These documents function as the basis for further development of the bedframe. Also, a rough cost estimation was done on the material and production cost to verify if the design would be able to be manufactured for the set price point.

The technical drawings show all the measurements and give the tolerances of each part. The CNC file has all the parts fitted to a standard size of rubberwood board producing less than 15% waste and the assembly manual shows the steps which need to be taken to assemble the bed.

Before a complete product can be put on the market further strength analysis should be conducted, all technical drawings should be reviewed and checked. As for the CNC file, experts should check and give feedback to optimize the production. With the completed design concepts should be developed to test the entire bedframes to find any flaws or points of optimization not shown on screen.