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SOFT SEATED TALL BACK CHAIR

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SOFT SEATED TALL BACK CHAIR

by

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A thesis submitted in partial fulfillment of the requirements
for graduation with Honors in the Art, Studio

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Thesis Mentor

Fall 2017

All requirements for graduation with Honors in the
Art, Studio have been completed.

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SOFT SEATED TALL BACK CHAIR
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Fall 2017
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For the past two years, I've been working with three dimensional design. I have a special interest in furniture design. My research project is to explore the utilization of materials to make the seat of a tall back chair both look comfortable and actually feel comfortable.

I started with brainstorming designs of the chair and sketching it on paper. After several sketches, I drafted all the possible designs utilizing AutoCAD. I then built three dimensional models using Rhino software. The 3D models provided a straightforward look of all designs and I selected a final model for my chair. In order to make the full size model, I modified the CAD file in a software called "VCarve" which the CNC router can read and process cutting the plywood sheet. After sanding, gluing and assembling, the frame was complete. The next step was selecting the material for the seat. The first category of materials I considered was leather. I first chose the 3/8" thick cow leather because of its strength which is strong enough to hold a person's weight. Then I asked several faculty members and students to sit on the chair. Some of them claimed that the leather appeared to be hard, although it actually felt comfortable. I was disappointed with this comment. I was disappointed that the chair looked uninviting because of the seat material. I eliminated the cow leather. Next, I investigated the lamb and pig skin. The lamb skin is usually used for clothing because of its softness, for the same reason, it was too soft for seating. Although pig skin is harder than lamb skin, however it scratches and breaks easily. Because of these difficulties I gave up the leather category and moved on to felt category. Felt is not like cow leather, it can have the required strength in certain thicknesses, while maintaining a soft look. Felt has lower density than natural leather, so, to make it strong enough to hold a person, I decided to use a woven pattern. I purchased dark brown and light grey 1/8" thick, 2 inch wide, F13 Grade industrial felt strips online. Then I sewed them together with waxed thread, which is a stronger thread than normal cotton sewing thread. I invited professional designers to give me feedback and critiques. One of them pointed out the awkward combination of material, pattern and design I had not realized. The design of the chair itself looks very modern with its simple form, however, the felt and the check pattern was not a good combination with frame because of the crafty looking of the felt. At this point, I revisited the leather category again and contacted a specialist in a Chinese leather company. He suggested a new artificial material called "microfiber polyurethane". This material has the look of natural leather; however, it is stronger than leather and has the benefit of not easily scratching and won't stretch as much as normal polyurethane. I drafted a sketch of the seat in AutoCAD, printed and cut out a 1:1 sketch on paper, then drew the contour on a sheet of canvas and finally sewed a prototype using canvas. After re-adjusting the size of the seating area, I sent the final CAD file to the company and requested one sample.

I learned a lot from this research project. First of all, I realized the way I designed the research was not the most efficient. I focused on one single material at one time not considering that material might not work. In the future, I will develop parallel ideas and design multiple possibilities before I beginning on one, since I cannot tell which idea will work. Secondly, I discovered that I lacked requisite knowledge of possible materials. In exploring this, I learned a lot about new materials that are available. The progress of design is always impacted by new technology, which can create new materials. I learned that I need to move beyond the material I'm comfortable with to explore more. The third thing I learned is the about the integrity and unity of one design. To make harmonious combinations, I need to keep in mind that material is always related to the design of the whole piece. In the future, I hope I can explore more materials on the chair and the combination of different frame materials and seat materials. This has been an important project for my evolution of becoming a professional designer.