



GET BENT

2011 Senior Project
Jonathon Stanton
Gabi Tukeman and
Sarai Villalpando

Table of Contents

Introduction	3
Planning	5
Final Design	9
Management	10
Mistakes	12
Successes	13
Posters	14
The Lamp	18
Final Products	20







Introduction

An enlightenment to “Get Bent”

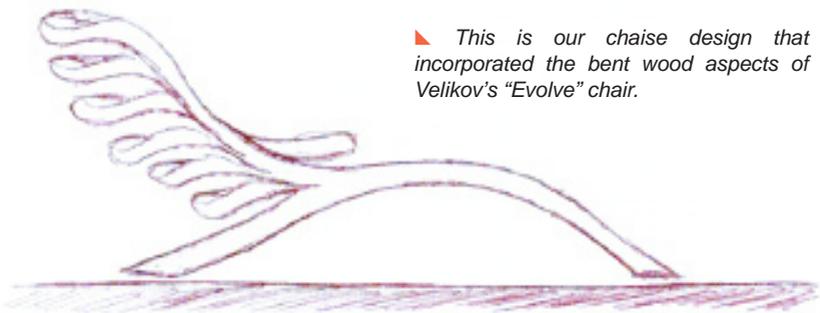
For Senior Project, we were tasked with making a chair, lamp, and book by exhibition night. The idea behind it being that on exhibition night, visitors could relax on a chair and read a book lighted by a lamp. In order to spark some inspiration, we went on a field trip to Little Italy, to view examples of professional chairs and lamps made in specialty furniture shops. During that field trip, it was important that we record the designs we thought were the best or more appealing, so we could base our own designs off those. In class, our first task was to design and build the chair, accompanied by a promotional poster. After drafting up our designs, we created a 1/2 scale model of our chair, to test the overall strength of our chair and potential weak points. During the half-scale build, we also tested the method we would eventually use to bend our wood. Finally, we created our full-sized chair using what we learned from making the half-sized model.

Following the creation of our chair, we starting designing our lamp, which had to be made with left over pieces from chair production. We moved over some of the curves from our chair onto our lamp. We made our lamp into a desk lamp so that it would use fewer materials, and could accompany our low chair.



◀ This chair, named “Evolove”, was designed by Velichko Velikov

While we drafted designs for our chair we also created initial designs for a matching lamp. The lamps we drafted up had the same extreme curves of the chair, and soon after we scrapped the chair design, we also scrapped the lamp designs, favoring instead to wait until our group finished our chair. Seeing the finished chair would help create a lamp design that complimented it well

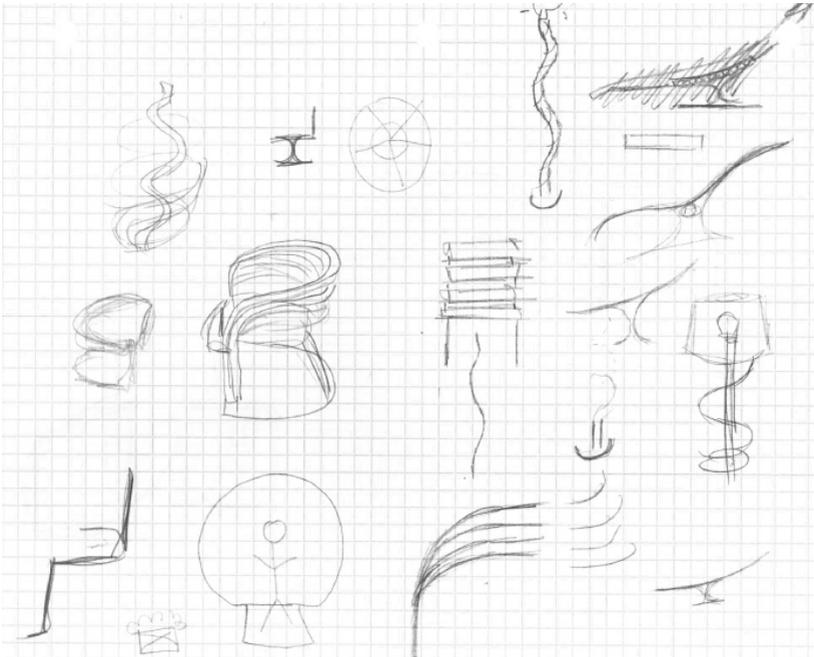


▶ This is our chaise design that incorporated the bent wood aspects of Velikov’s “Evolove” chair.

Planning

A first step for any well-to-do chair

Initially, we went with a chair based on the 'Evolove' chair by Velichko Velikov, however we soon realized that the work involved in creating such a chair was beyond the skill level and amount of time we had. Even simplifying our concepts proved useless, as we would have to bend wood in two different directions in order to get the shape we desired. With the tools we had at hand, we wouldn't be able to bend wood in the two or three directions as we needed.



▲ *A paper full of initial designs for our chair and lamp. Since our chair incorporated wood with sweeping curves, we thought adding that to our lamp would help the two pieces of furniture compliment each other.*

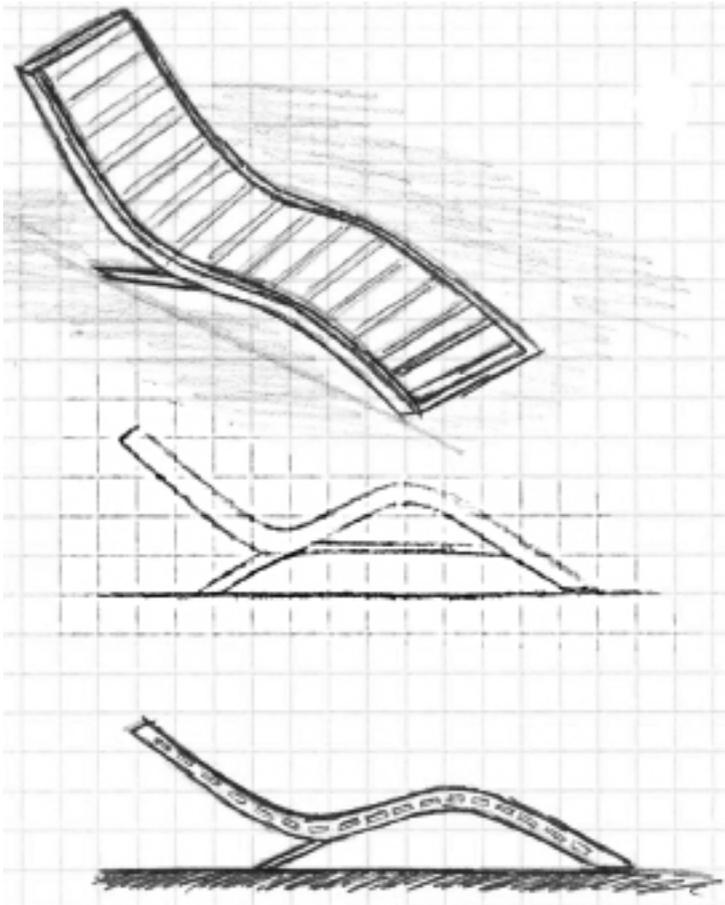
After we scrapped our first idea, we came up with different ideas. We decided that a simpler design would be the better way to go.

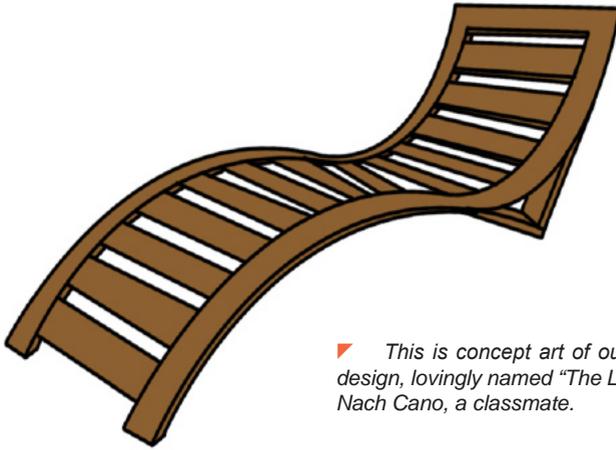
After a class field trip to Ikea, we came up with a new and feasible design. It was based off of the POÄNG Chaise lounge. We liked the chaise because the curves made it very comfortable. that would be easier to construct, and would have a more elegant appearance.



▲ *This is the POÄNG Chaise lounge from Ikea.*

The second chair design integrated the same curves of the Poang chaise from Ikea, but instead of clearly defined legs and armrests, the new chair had one continuous curve that acted as the front legs. For the cross-sections, wooden slats were chosen, so that later on, our group would have the option of adding a bent strip of wood to the top, or a cushion. The rear legs of the chair were redesigned multiple times, ultimately settling on a triangular base to accommodate expected pressures from people laying back on the chair.





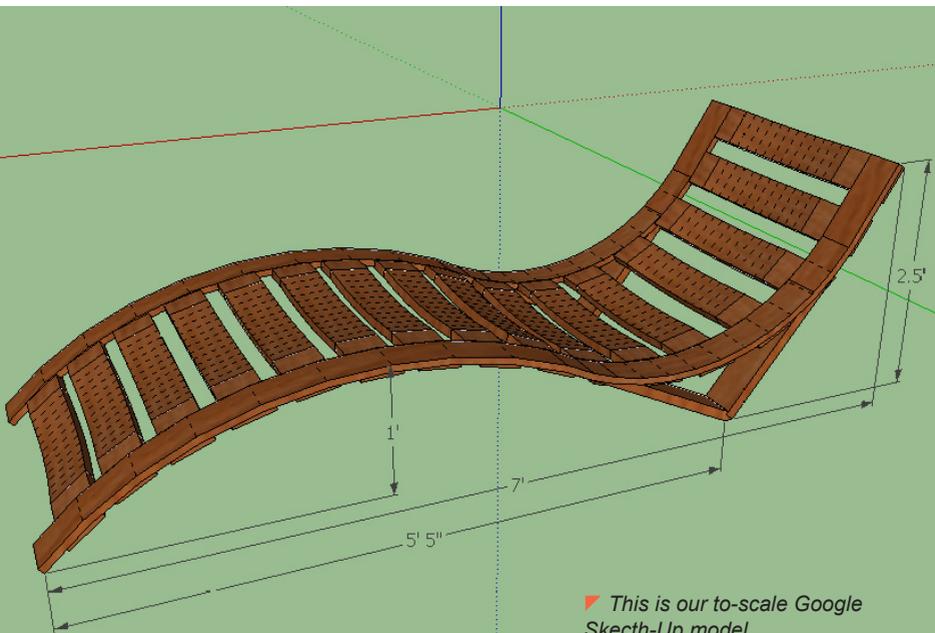
▮ *This is concept art of our final chair design, lovingly named “The Lebowski” by Nach Cano, a classmate.*

Once we finalized a design, we created a 3-D model of it in google sketch-up, in order to determine the exact measurements of the chair, and to get a better feel for how the chair will look like when it was actually built. At this point in our design we created a solid idea for the degree of the curve for the chair, and how a person was to sit in it. At this point, the chair also got an extra rear leg, creating a triangle that would better distribute weight in the most important area; the place where a persons rear would rest. The chair also got a width at this point: just under 2ft, able to accomodate any body in any configuration.

Final Design

"We have a winner!"

The Google Sketch-Up drawing was used as a starting point for creating final measurements for the 1/2 proof model. However, setting lengths and widths that our group thought was reasonable changed the virtual chairs dimensions drastically, and we went through various sets of numbers before settling on a length and height that would be reasonable, fit the design well, and be easily communicated. (No decimals, I like my numbers whole.)



▶ This is our to-scale Google Sketch-Up model

Management

The making of “The Lebowski”

Before starting our build of the full-sized chair, we started out by creating a half-scale chair, in order to determine weak points and areas of improvement. The design called for layering 1/8” strips of wood, then glueing them together in a mold with the proper curve. Two of these strips of wood formed the outline of our chair, and determined the way in which a person would sit on it. From that point, we attached wooden slats perpendicular to the strips of wood, and then created a stand to lift one end of the chair up.



▲ Jon and Sarai work with the nail gun as they place the slats on the half-scale proof model.



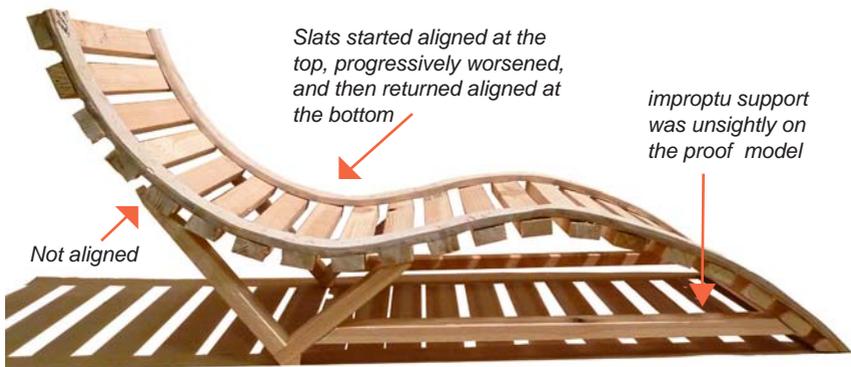
▴ *This is our completed half-sized proof model.*

Initially, our chair design was only a curve and a stand. However, after making our 1/2 scale model we found out that without a supporting brace along the bottom, the arch part of our chair would collapse. The slats on our proof model also got progressively more misaligned as we nailed them onto the chair, and the wood used was too flexible to properly hold a human. We factored this into the making of our final chair, opting for thicker material to bend, adding a support along the bottom, and placing guide slats that helped us make each slat perpendicular. The supporting brace along the bottom was debated for the final chair, and a steel tensioning wire was suggested. However, wood was used in the end because it could withstand compression and was easily available.

Mistakes

The Bad and the Ugly

Our Proof model was a plethora of mistakes, hence its name 'proof model'. Many of these were in one way or another solved for the final model. A couple mistakes dealt with the physics of the chair, and applying weight to it. For those, we were glad we had a proof model so that our final wouldn't snap in half.



While constructing a base on our final model, we initially used bulky 2" x 6" wood for the rear base, which, as it turns out, was slightly warped. In the end, the heavy base was scrapped for a lightweight one made out of the same material as the slats. The new base was more low-profile as the old one, and able to hold just as much weight.

Successes

The Good

Our proof model did support a good deal of weight, and the final chair itself was exceedingly comfortable, which we were very happy about. Building for the final chair went smoothly, and there was no major slip-ups that set us back.



Over the next few pages, a before and after of our promotional poster and math poster can be seen, along with some commentary. Both posters used the proof as the chair, and other parts were added.

LEBOWSKI



The Laid-Back Lounge Chair



2010 Senior Project
Jeff Robin / Andrew Gloag

Our initial promotional poster. Only slightly better than a blueprint or rough sketch

Designed by Gabi, Sarai, Jon



SIT BACK.
RELAX.

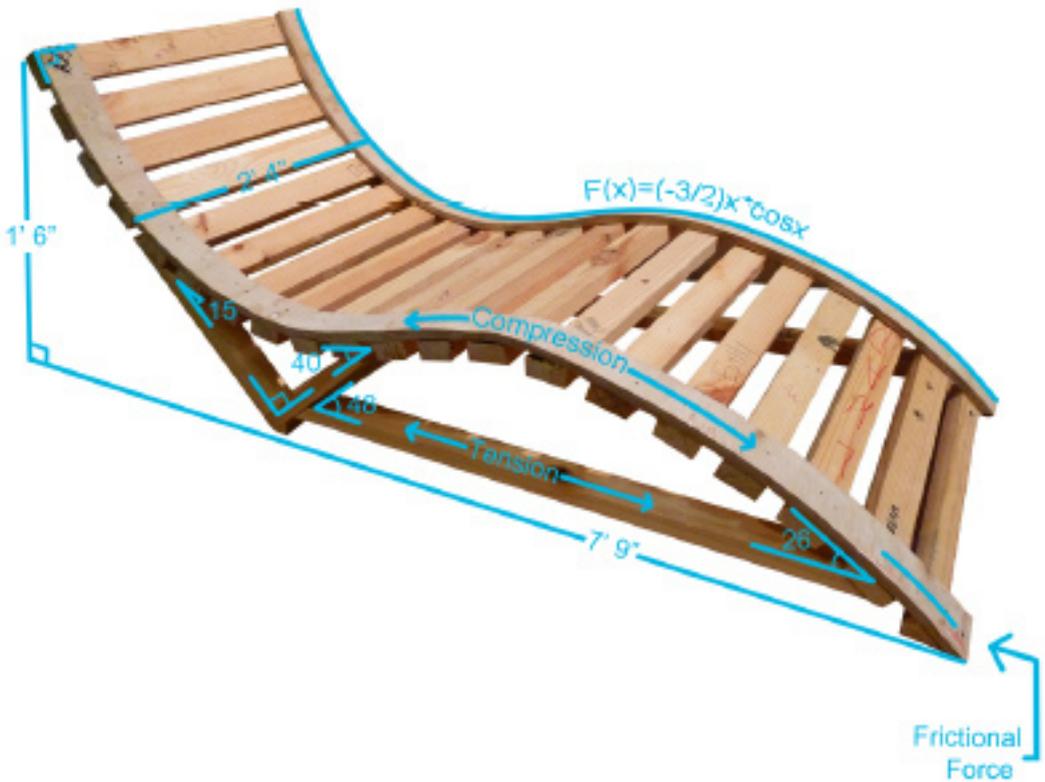
THE LEBOWSKI

2010 Senior Project

Jeff Robin / Andrew Gloag

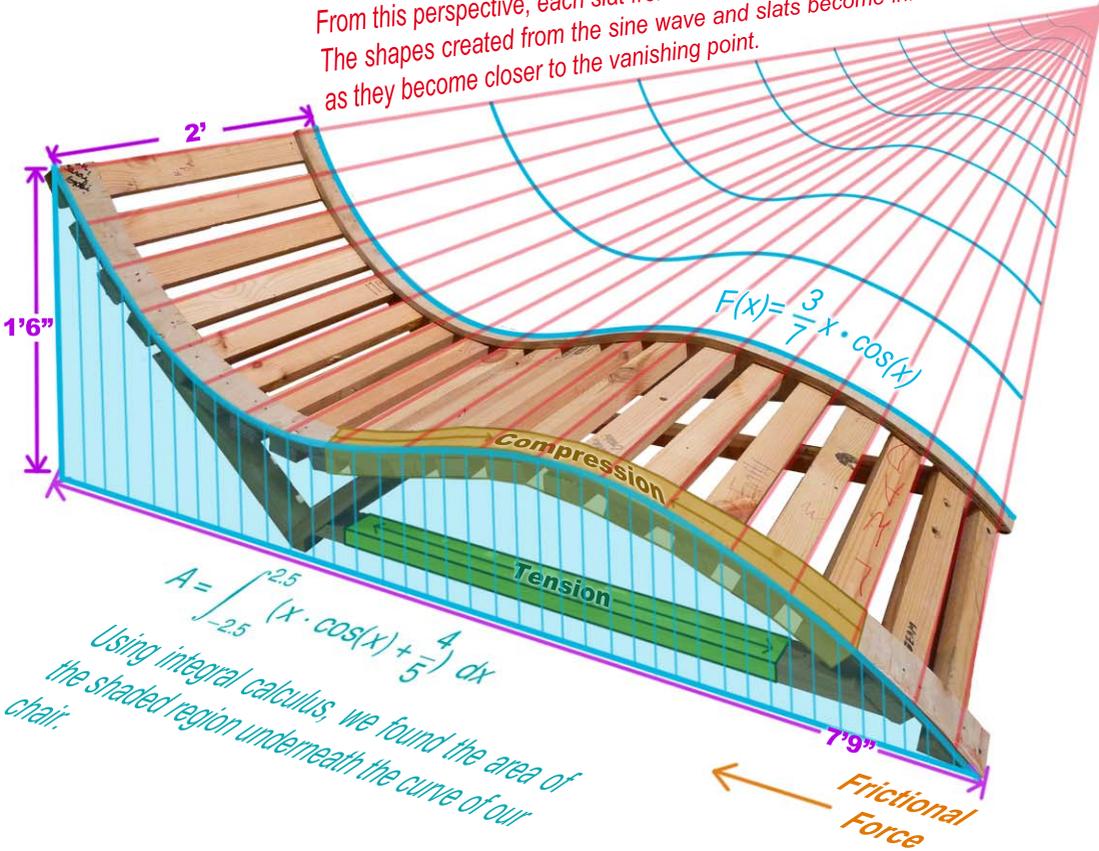
Designed by Gabi, Sarai, and Jon

The initial math that was added to the chair was lacking, to say the least. Many more ideas were thrown around after this poster, and two major math concepts were added following that



THE LEBOWSKI

From this perspective, each slat from our chair goes to one vanishing point. The shapes created from the sine wave and slats become infinitely smaller as they become closer to the vanishing point.



THE LEBOWSKI

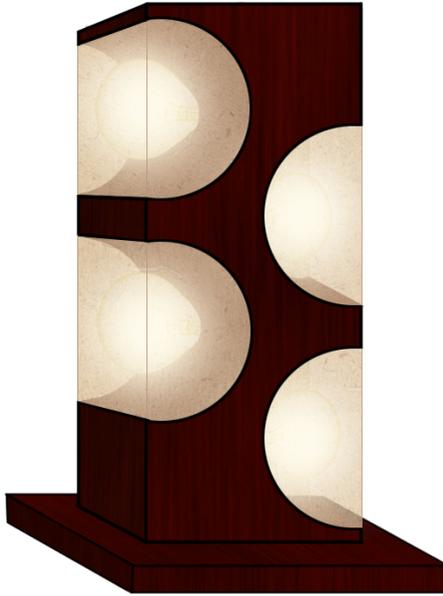
Designed by Gabi, Sarai, and Jon

The Lamp

A chair without a lamp? Nonesense!

While a chaise lounge to relax with in front of a cozy fireplace is enticing, it simply would not be complete without a lamp to illuminate a wonderful book, perhaps even this book. The accompanying lamp is stout and provides excellent lighting. The first design involved four half-circles cut out of a piece of wood, staggered. This lamp would have four bulbs, and the half-circles would be covered with rice paper, keeping a cohesive block look.

The next design however, and the one chosen to be built, was much the same block, but instead draws curves from the chair, and utilizes a sort of positive and negative space where the positive space also happens to shine light. This lamp design also allows the bulb to be well hidden from the side, but give off all of its energy from the top.



◀ This is the concept art of our first lamp design. It is made of rice paper and wood and uses four lightbulbs.



This is the ▶ concept art of our second lamp design. It is made of rice paper and wood and uses only one lightbulb. The curve in the middle is to tie the lamp back to our chair.

Our Final Product

The completed Lebowski chaise and lamp

