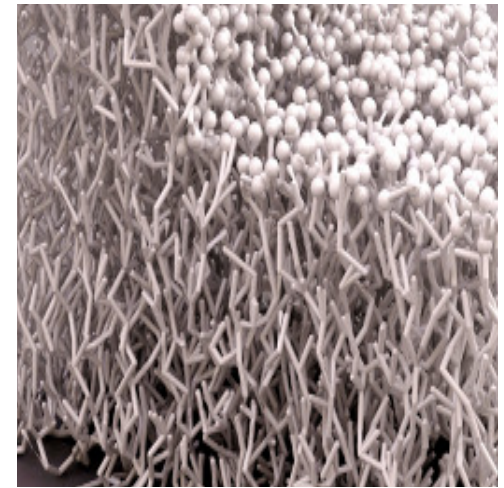




pathos chair

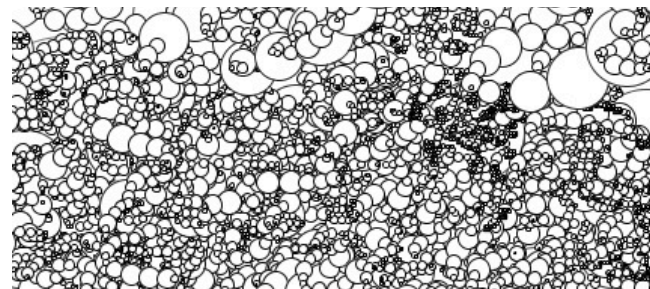
ARTSTUDI 262

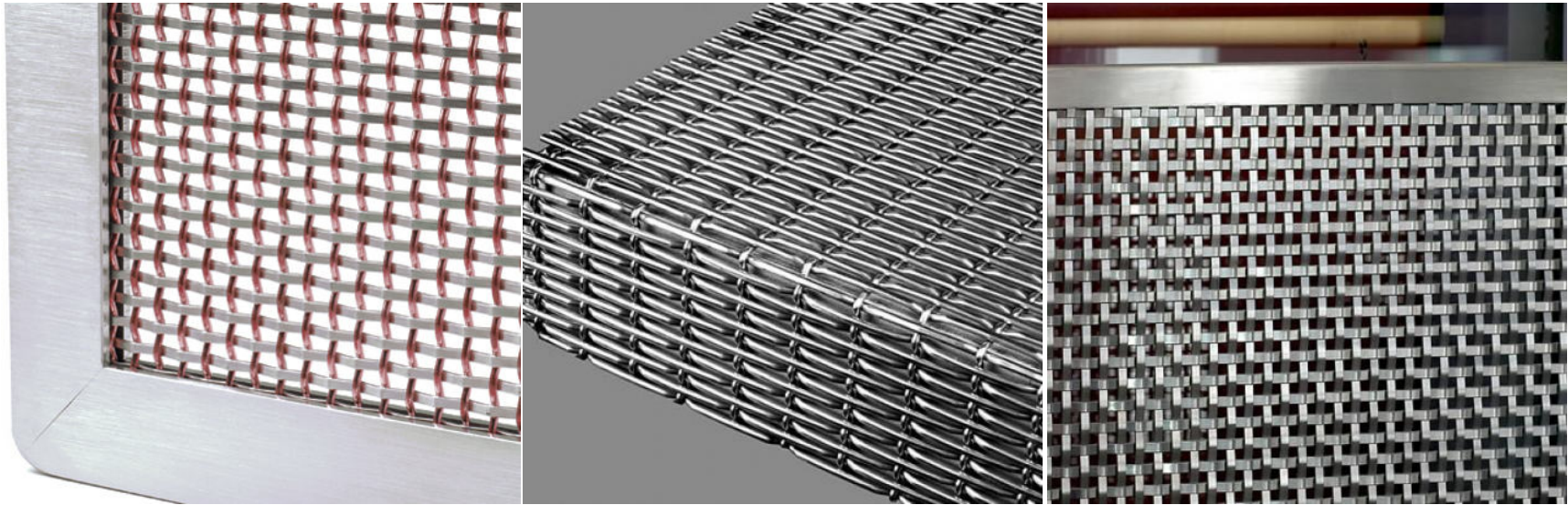
rupa chaturvedi : spring, 2013



Inspiration

My fascination for geometric patterns, fractals and intrinsic textures led me to explore various directions in which one could incorporate these in a chair. I started with a really broad palette of materials and ideas but a singular objective of creating a sculptural object with an iconic form.

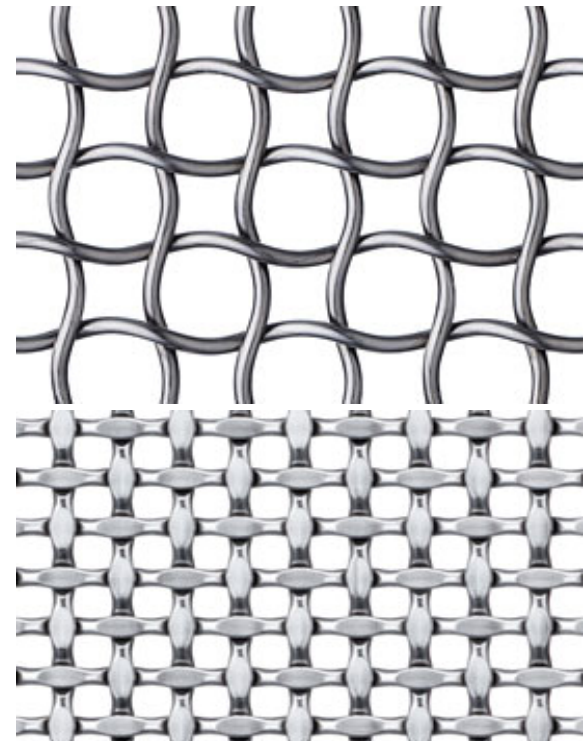




Metal Fabric

Metal fabric is a unique material made from weaving metal wires in innovative designs.

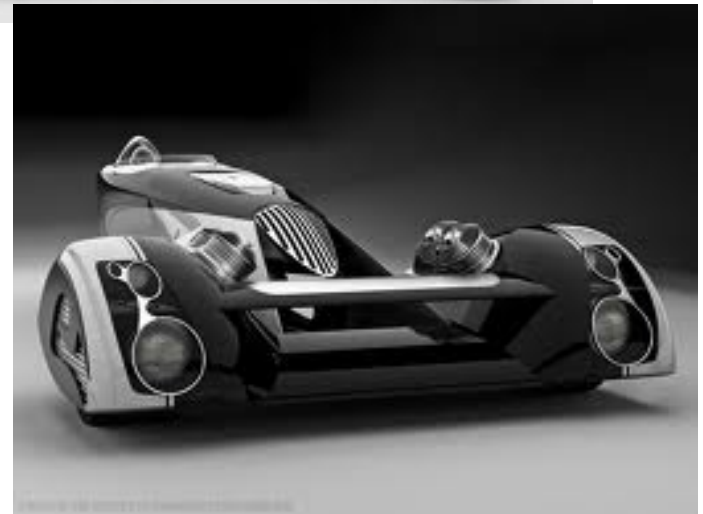
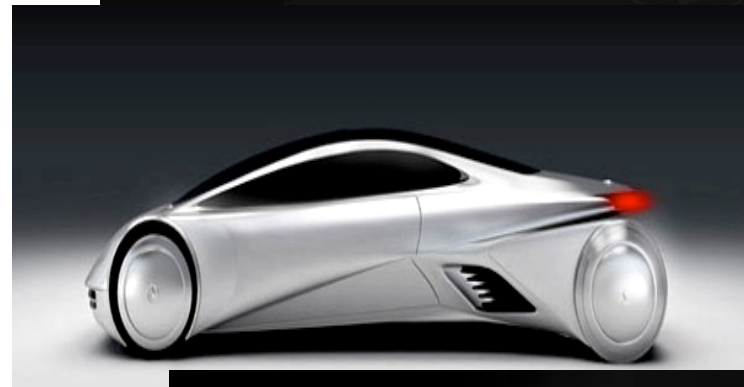
There are several weaves and designs from choose from. |

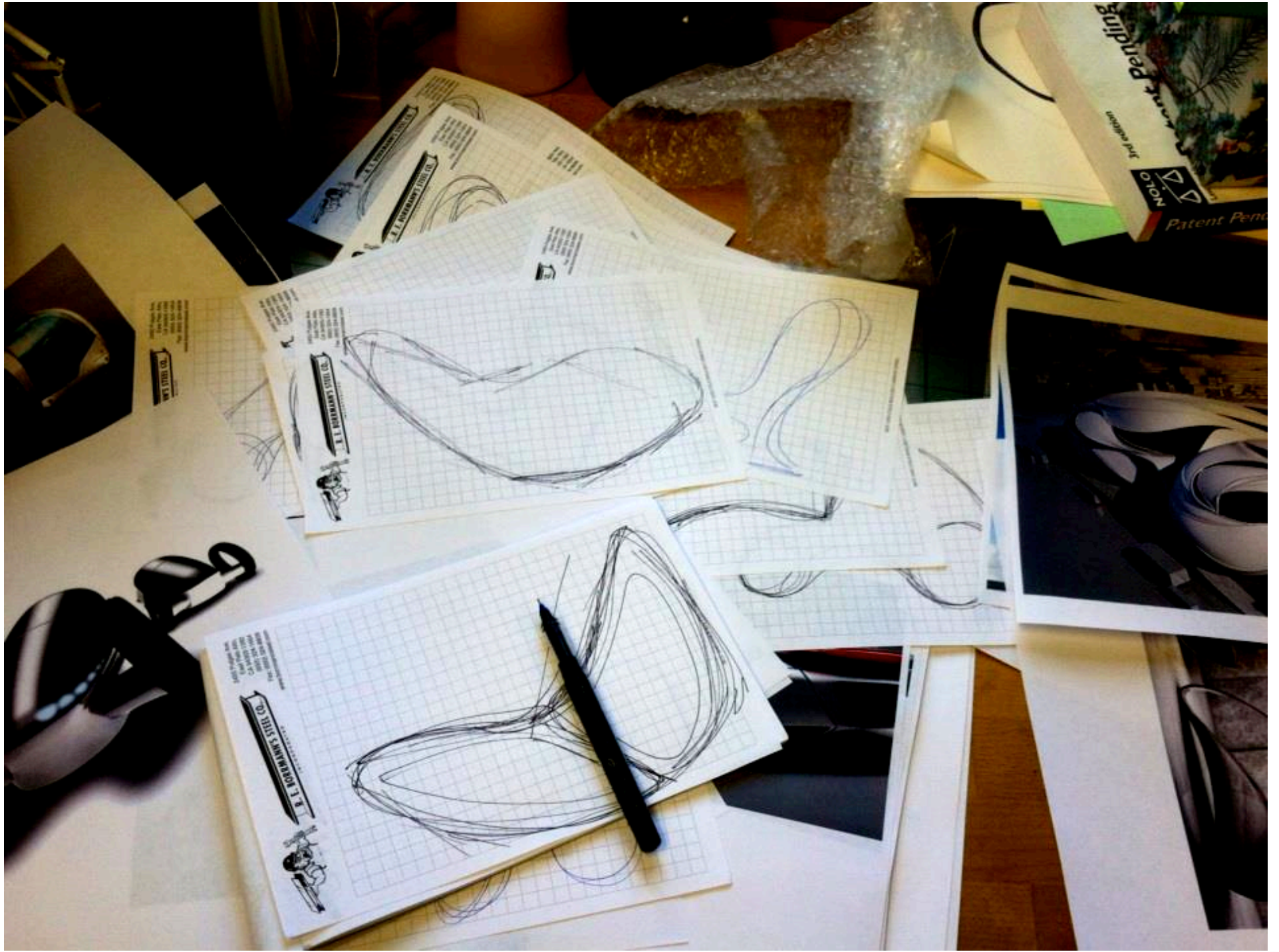


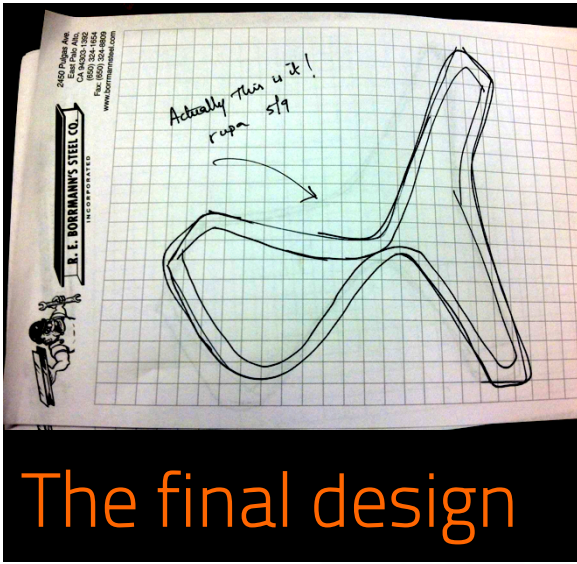


Formgiving

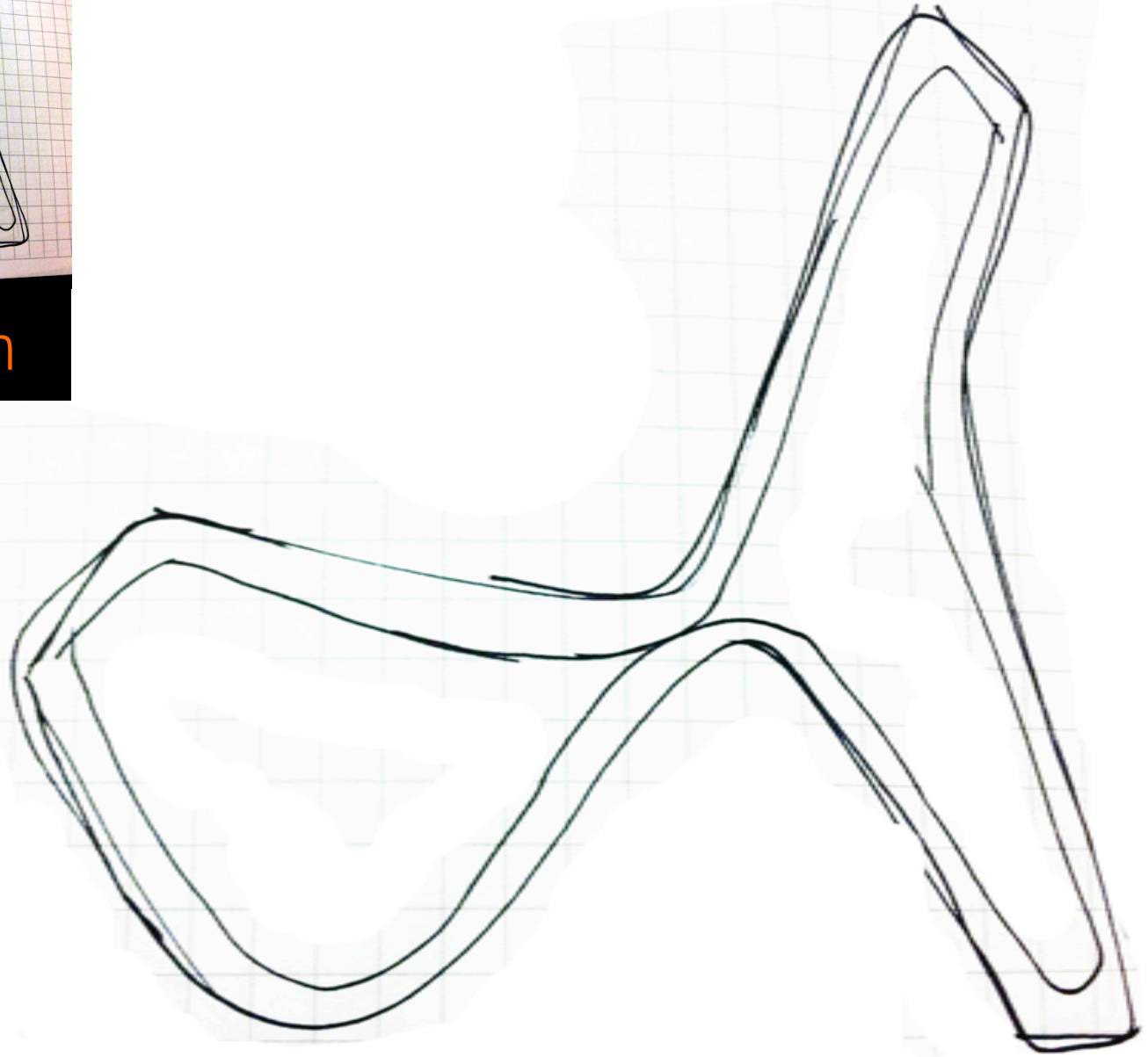
Once I narrowed down the materials, I wanted to create a futuristic feel to the overall creation. The stainless steel mesh was made for a high – tech, fast motion kind of form. I researched several futuristic vehicles and aesthetics to inspire my design.







The final design



Steel bars for frame

I bought several types of steel (round and rectangular tubes) and flat bars and tried attaching the metal weave to them. I finally settled for flat bars. Moving forward I purchased two types of steel bars:

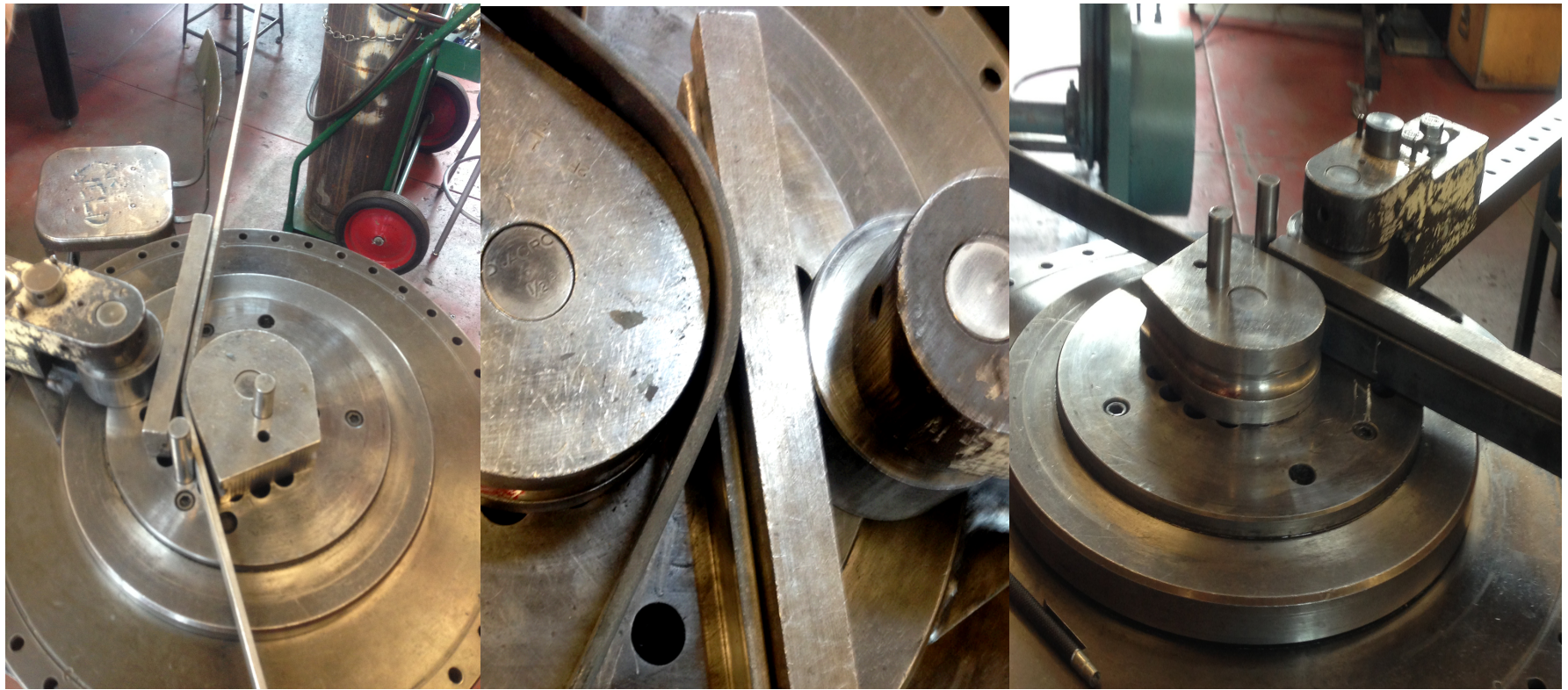
- **Mild steel for practice purposes.**
- **Two different types of Stainless steel**

Mild steel is way more cheaper and easily bendable. I used about 80 feet of mild steel to try various bends and forms for my prototypes.

I also used scrap from my prototypes for learning how to weld.

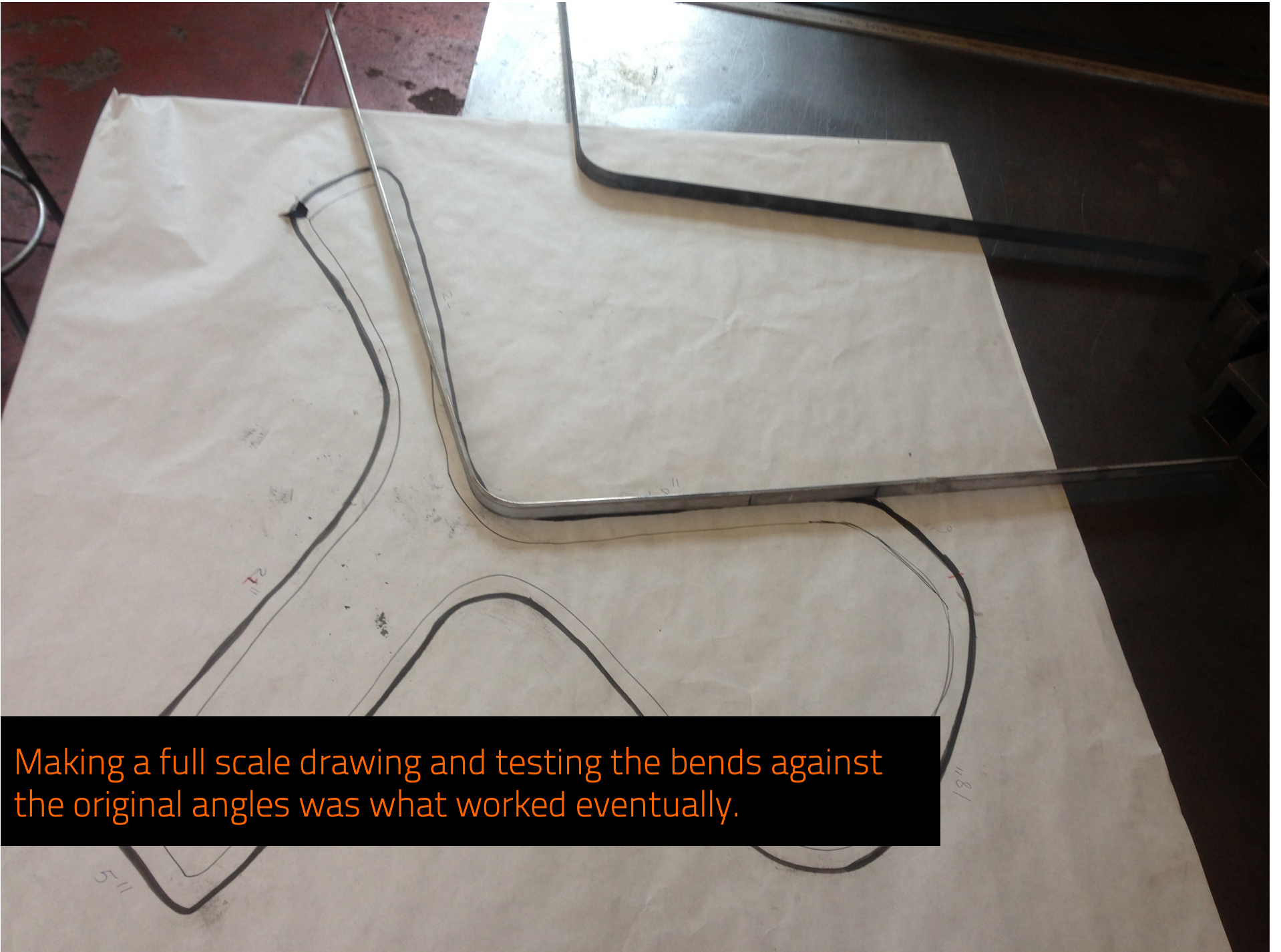
Stainless is extremely expensive although not very difficult to bend. I purchased about 60 feet of stainless bars.



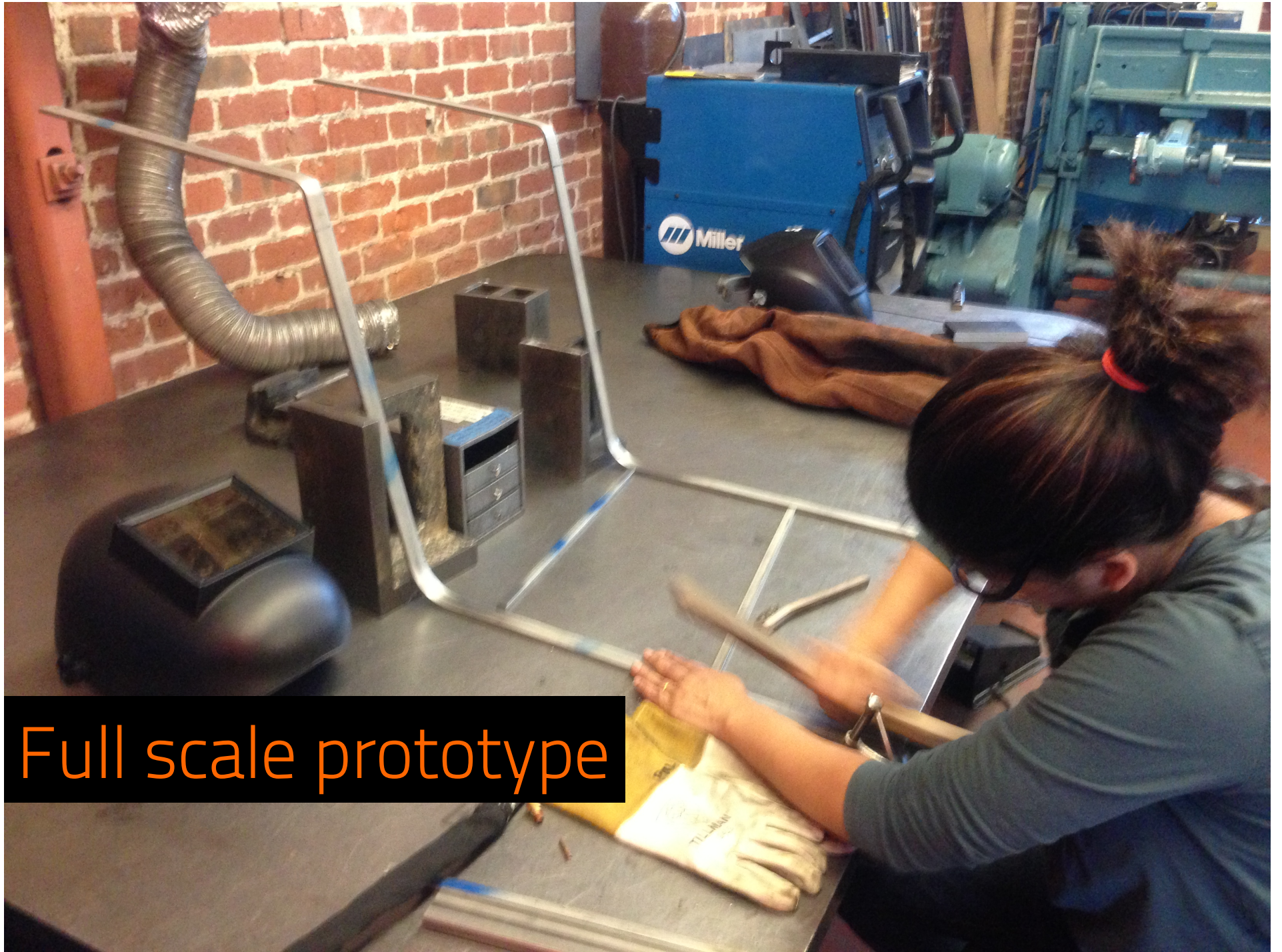


Bending

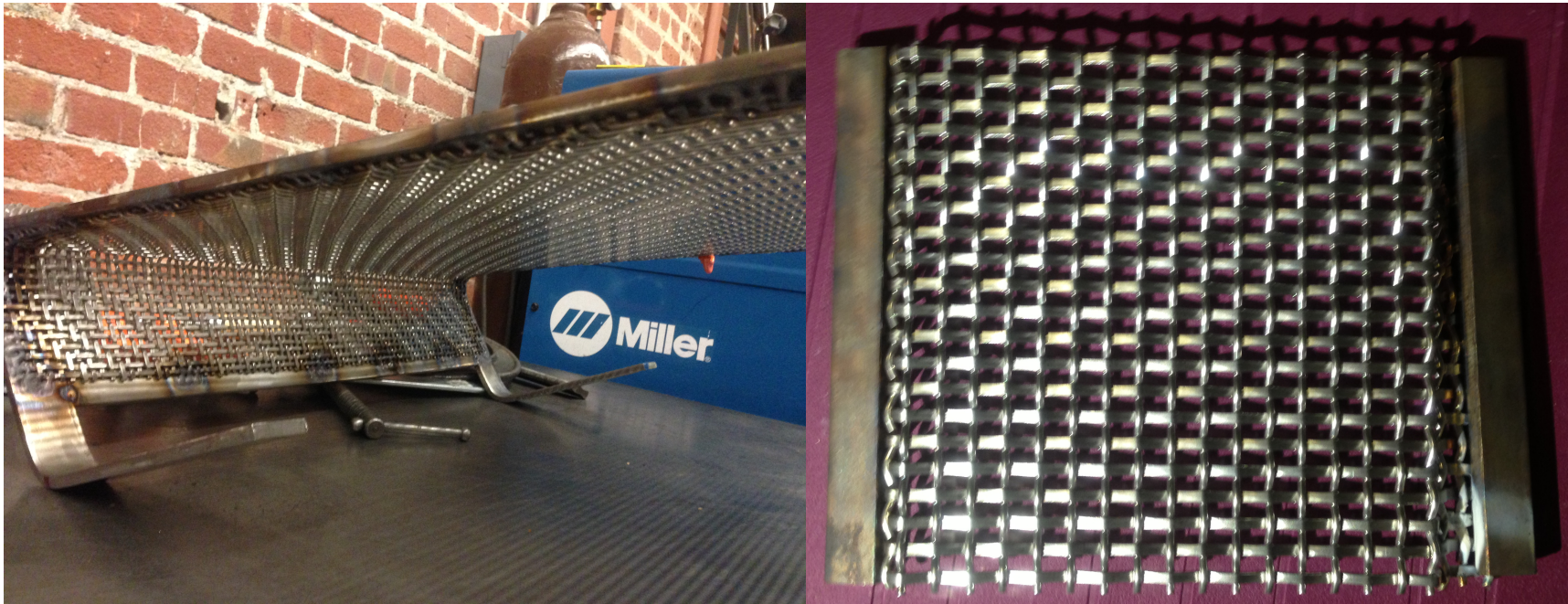
I used the Diacro bender in the foundry for bending the flat steel bars to generate a . Different sized bucks rendered different angles. The equipment is not meant to support flat bars so it took a lot of time to get used to the process of gaining the desired output by tweaking and eyeballing. The greatest challenge was to achieve exactly the same bend in two bars.



Making a full scale drawing and testing the bends against the original angles was what worked eventually.

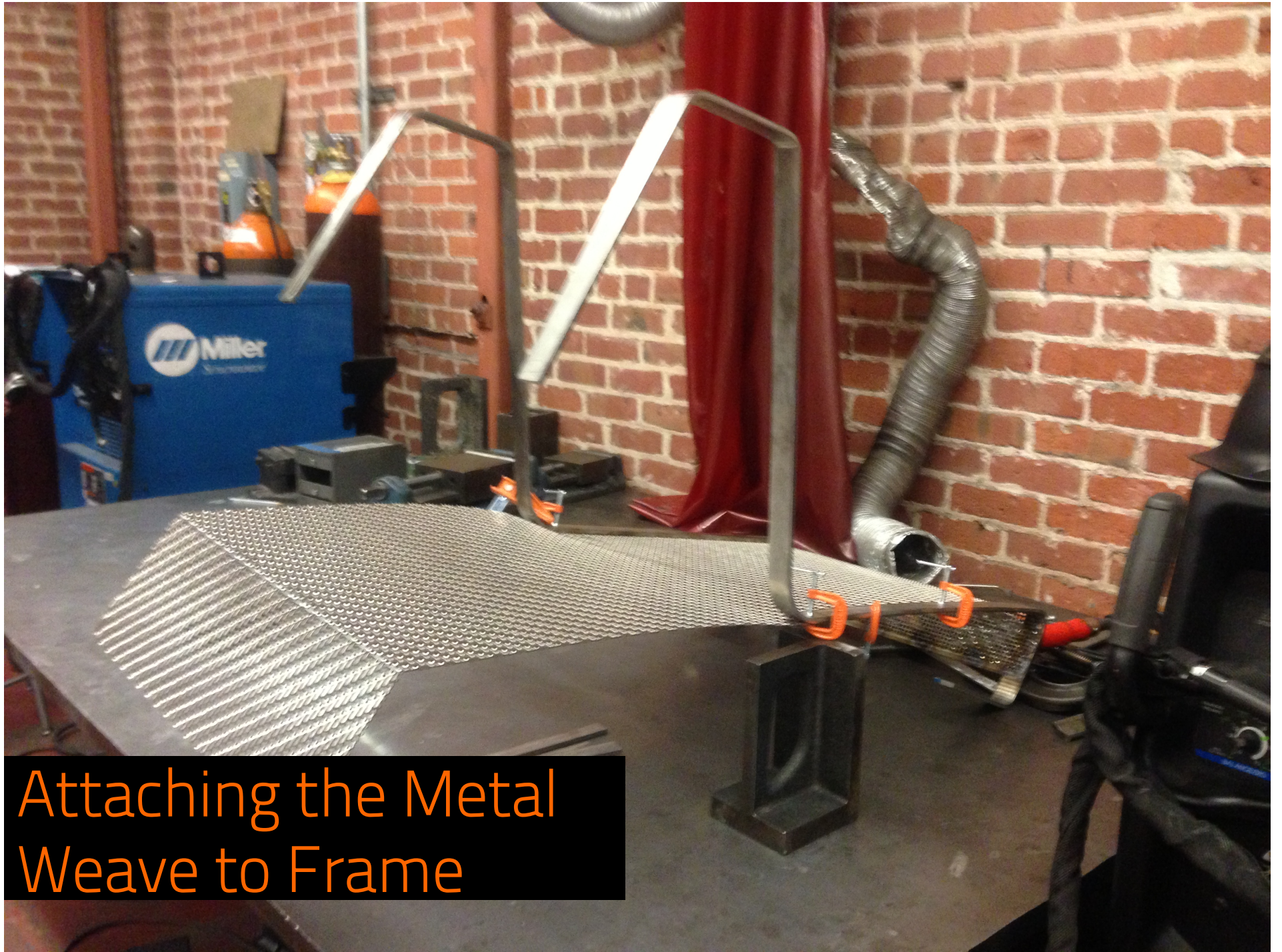


Full scale prototype



Attachment

Attaching the metal fabric to the bars was yet another challenge. After several trials and errors, I settled on attaching the material under the bars by welding every single wire to the bar. I was torn between the aesthetic desired and the structural requirements of this most important component of my design. I also explored several options to sandwich the material between two steel bars. Due to the challenges with bending several bars and ensuring the bends align well, I stuck with a single bar with the material welded underneath.



Attaching the Metal Weave to Frame

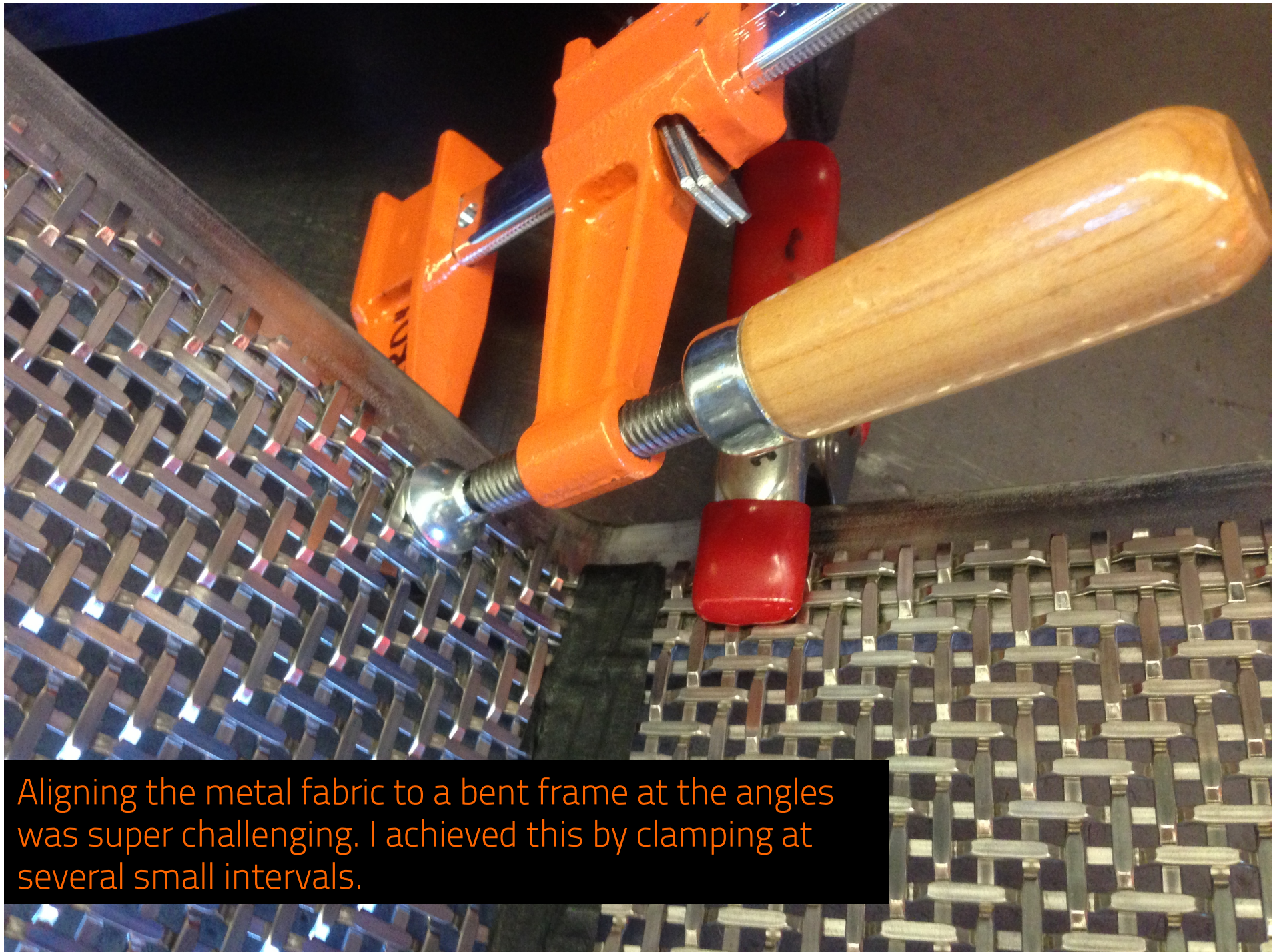


Attaching the Metal Weave to Frame





The metal fabric was bent at two places using the finger bender with the help of 3 people! It's a very difficult material to bend. A steel bar was welded to each side of the chair where the metal fabric terminated.



Aligning the metal fabric to a bent frame at the angles was super challenging. I achieved this by clamping at several small intervals.

Welding

As anyone else who's had any experience with welding will tell you, start as early as you can if this is the first time you are using this technique. I explored silver bracing before settling down for TIG welding.

I learnt and practiced welding for several weeks before I could gather the confidence to apply my skills to the final chair.

Having the right TA to show you the techniques and getting tips on how to improve your welds is key. Cleaning and preparing for welding is as important as the process itself. But the most important lesson I learnt was to go in with a calm, focused mind!



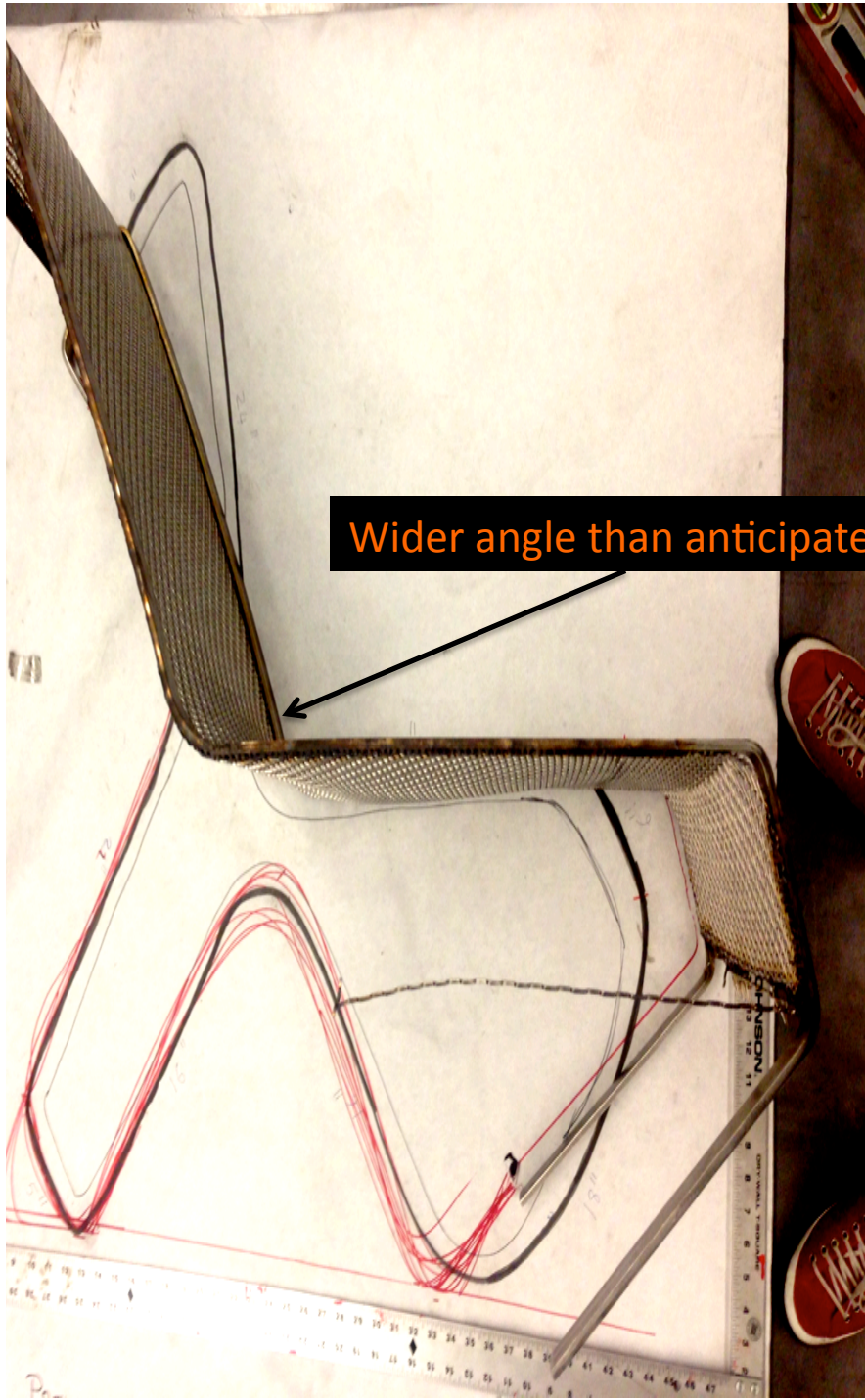


Welding x 4 weeks!



Finishing

This claimed to be the toughest part of my project. An all metal chair with its entire back and seat welded can be difficult to polish and sand. I plan to sandblast the rear sides of the back sand seat and polish the rest of the frame.

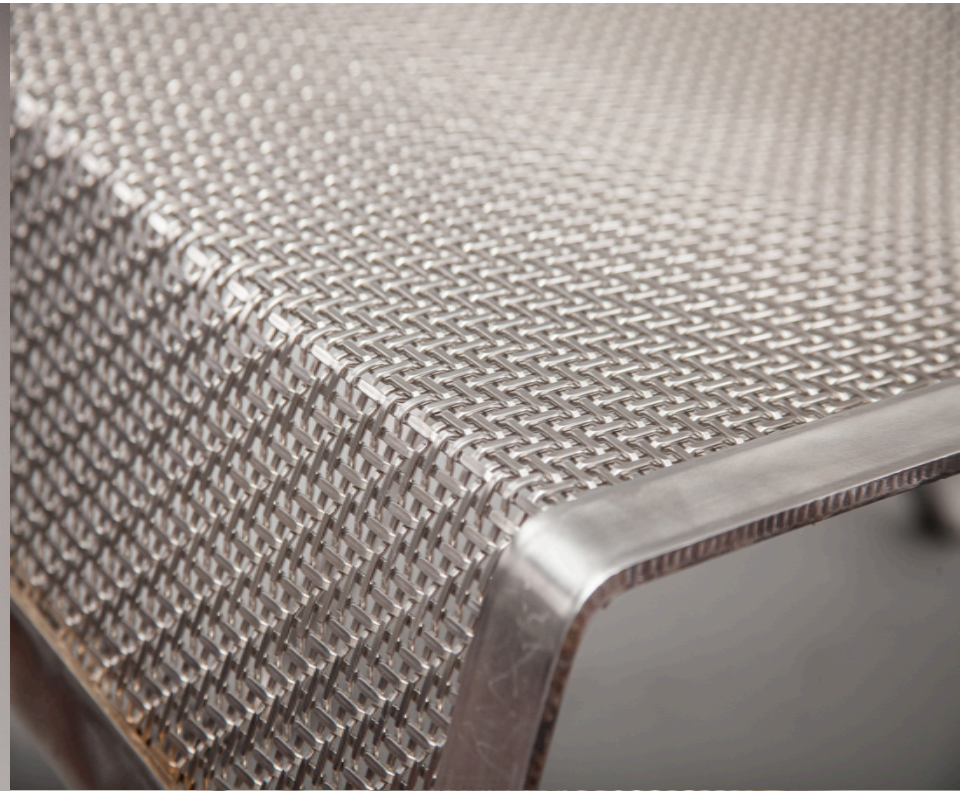


Wider angle than anticipated



Fixing it

MATERIAL	QUANTITY	TOTAL PRICE	SOURCE
MILD STEEL BARS	80 FT	\$112	BORMANN STEEL (EAST PALO ALTO)
STAINLESS STEEL BARS	60 FT	\$540	ALLAN STEEL
METAL WEAVE	52" X 20"	\$1400	BANKERWIRE









Thank you John, Anja, Kevin, Lea, Ravi, Wei, Tom, Xander and all you awesome people!