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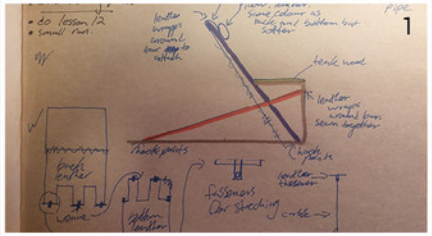
Design Portfolio
Carleton 2017

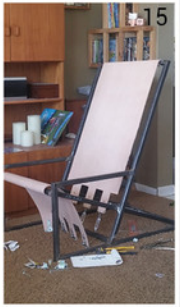
Industrial Stretch Leather Chair

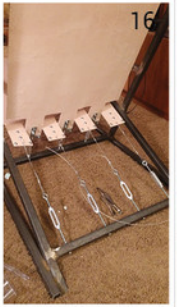
This chair was inspired by stretched leather bike saddles which provides comfort by allowing leather to form around the hip bones of the user. The steel frame has leather attached at one end and tensioned at the other similar to the stretched leather bike saddle. The frame layout was designed to be as minimal as possible with only what is necessary for both strength and functionality. Two sheets of 8 oz vegetable tanned leather create the seat and back. Where the two sheets meet, they intersect the plane of the other by meshing through with the use of leather tabs. These tabs are attached to the frame using tensioners and cables. By doing this, the vegetable tanned leather can shape and soften over time. When it becomes too loose it can easily be retensioned to become taut again. Both the unpainted steel frame and leather are used to allow for graceful aging. Vegetable tanned leather is known for developing a beautiful patina with sun, body oil and wear and tear. The rough unpainted steel is juxtaposed with the natural leather and stained oak armrests to create an industrial yet warm look. When seated, the leather tightens up on the sides bolstering you into a secure seating position. The 90 degree seat to back angle which has been tilted back 22 degrees aids good posture while allowing the backrest to take some of the weight. At the top and bottom, the leather is wrapped around the bar to hide the bolts and to create a tight leather wrapped look and feel. The fasteners were positioned to be the least visible possible. Mink oil has been applied to give the vegetable tanned leather a warmer look.

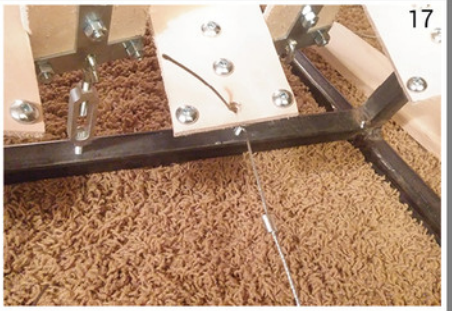


This chair came to me as most ideas come to people: waiting to fall asleep and letting your mind wander. The concept was to use tensioned leather to create a chair that would stretch into a comfortable shape, look modern, industrial and develop patina over time.

1. Ideas down on paper. I decided the necessary bars for the frame and how the leather was going to mesh. I decided how the cable was going to attach to the leather without ripping by using metal fasteners.
2. My grandfather seen in the picture is helping me decide the sizing and angles of the general shape of the chair. We are using meter sticks and clamps seen in picture. At this point I decided to shorten the rear length and to make the angle of the seat to the back 90 degrees with a 22 degree lean back.
3. Frame created on Google Sketchup.
4. Paper model for how the leather was going to mesh together. At this point I decided to have 4 tabs on the bottom and 3 on the back because the bottom was going to take more weight and needed support on the outside edges.
5. Final computer rendering including curved armrests, cables, tensioners and measurements for cutting the metal.
6. Each side was welded flat first then assembled.
7. Grinding down welds.
8. Frame complete.
9. Cutting the leather tabs.
10. Attaching fasteners with nuts and bolts.
11. Attaching leather to metal with bolts in tapped holes. My initial idea was to use self tapping screws but they didn't go into the metal without being sloppy.
12. Using a planer I created slightly bowed out armrests from a solid piece of oak.
13. Sanding to create smooth edges.
14. Stain applied for colour then oil to protect.
15. Back piece is attach with tensioners. Tensioners were modified with longer bolts which go through metal bar. No cables were necessary due to space restrictions on back piece.
16. Tensioners attached with cable to fastener on leather using crimps.
17. Crimp burst. Fixed with more pressure. Applied to all crimps. Also note the T shaped fastener mentioned earlier.







"Cheap" Road Warrior

After getting my bike stolen, while living in Montreal, I set out to design the ultimate "worthless" bike. The idea being a bike which looks beat up and old, yet is lightweight and a smooth ride. I started with just a frame and seat post. The frame's paint was peeling off which reveals chrome and surface rust underneath but "steel is real" so I decided to use it. Being as it was an Italian frame I had to use an Italian bottom bracket. This type does not utilize reverse threading so locktight and leverage were used to set it in place. As I began building up my bike sourcing parts from Kijiji and the local community bike shop (where I did the majority of my work) I realized that to do this project correctly I would be mating many "new style" parts to my "old style frame". For example, new style wheels (700cc) are slightly smaller than the 27 inch wheels which the frame was designed for. This meant regular brakes did not have enough reach when mounted on the frame. A long reach brake caliper was used to accommodate. My proudest accomplishment was mating new style aggressive rake carbon fiber forks to the old style frame. My first hurdle was that the race for the bottom of the headset was very loose so I manufactured two shims out of pop cans (see picture) and doubled those up to create a tight fit. Also, the steerer tube on the forks had to have threads ground into it to mate with the threaded race on the top of the headset. While installing my brakes I broke the hanger to attach the brake. A modified hose clamp fixed it as seen in the picture.

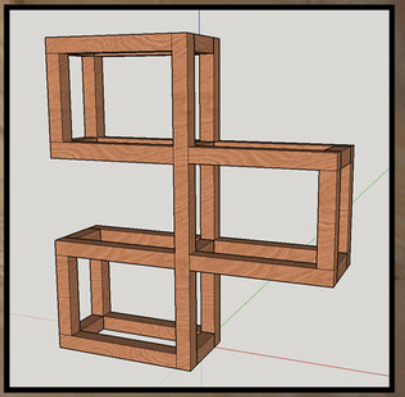
As an industrial designer we don't invent parts. We compile parts such as nuts, bolts, leather and steel to create a chair. I believe what I have done here is exactly that. I sourced all my ingredients to build my concept and the end result is what I envisioned.

CD & DVD Shelf

My first project I rendered on a 3D modeling program was this Scandinavian style CD/DVD shelf. I wanted to create a dual purpose hanging shelf unit that was simple yet versatile. Using only wood and glue, I built a CD shelf that, when turned 90 degrees, functions as a DVD shelf. I designed the CD/DVD areas to the dimensions of CDs and DVD's with room for finger access. To this day, people ask "Where did you buy this?".

"Simplicity is the ultimate sophistication" - Leonardo da Vinci

This is a quote which I subscribe to when designing. Simple to use, simple to fix and simple to manufacture but I also like to add some hidden versatility. In this case, the CD shelf can simply be turned 90 degrees to accommodate DVDs.

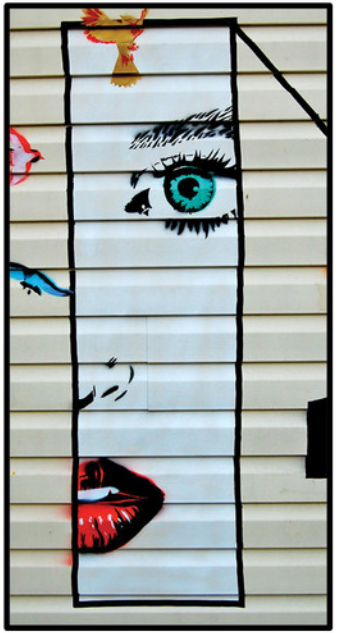


Stencil Art

In addition to Industrial Design I also enjoy creating Visual 2D art. My preferred medium is spray paint using stencils. One of the main reasons I am drawn to this medium is the process and planning. I believe is similar to the process of creating a product. The connections to industrial design will be noted in brackets.

Once a concept is decided (Concept) a finite drawing needs to be created which has each colour as its own layer (computer rendering). After the layers are decided, the cutting process begins in which one must be creative with the restrictions of the medium (restrictions of the materials and cost). Then each layer is sprayed on in the correct order to achieve the end result (Manufacturing process. Building up a product). If everything goes as planned one will end up with a beautiful piece of art (End product).

It should be mentioned that the artwork outside was done with the permission of Wyndham Art Supplies (building owner) and that the piece is a collaboration. My contribution was the face not the birds.



Low profile Fender

This concept aimed to explore a stylish and functional way to prevent water spray while biking. A typical fender does this job well but at the cost of looking bulky, adding significant weight and sometimes rattling. The fender shown here wipes off the water before it has the chance to spray towards the rider. The single bar system is not my idea. As I've seen it's been used in the past with a silicone brush that is fixed which is always rubbing on the wheel. The design I've made has additional benefits to the single bar fender mentioned above. As seen, there is a leather flap which has been cut to the shape of the tire. On sunny days this flap is raised to allow for zero friction and wear. When raining, the flap can be lowered to rest against the tire. The flap stays in place with the help of a lock washers. The leather wipes off enough water to prevent spray. Although the leather against the tire may seem like it adds too much resistance, it doesn't due to the lower levels of friction when wet. The bar is made of lightweight aluminum and is attached to the axle of the bike simply by putting the quick release skewer through holes in the aluminium.

Changes for version 2:
Replace leather with durable rubber/plastic. Same shape.
Create notches instead of holes at the axle for easier installation and removal.
Use aluminium hardware to save weight.