4.510 Digital Design Fabrication
Fall 2008

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Assignment #3

POST INDUSTRIAL CURVE CHAIR

side elevation of chair

The Post-Industrial Curve Chair is a lounge chair that is based on the purity of the curve scene in the elevation at left. Once the profile was determined it was arrayed on the x-axis to create the seating surface. The objective was to maintain the curve and build the chair as simply as possible using a minimum of materials.

The birch 1/2" plywood that was used creates a clean aesthetic with a small amount of sanding and finishing necessary. The initial models were built in Rhino and then translated to the prototype model. Once the prototype was created some minor structural and connection details were identified as areas that needed optimization.

axon of chair

Above: Axon of Design Model - Rhino

DESIGN MODEL

The design model was a sketch of the basic concept for my chair design. It was one of many different sketches and was a great learning tool. It allowed me to explore some of the basic concepts of the 3d model while also imagining how the materialization of the chair might take place. I used the CAD files that were generated from this Rhino model to build my first prototype.

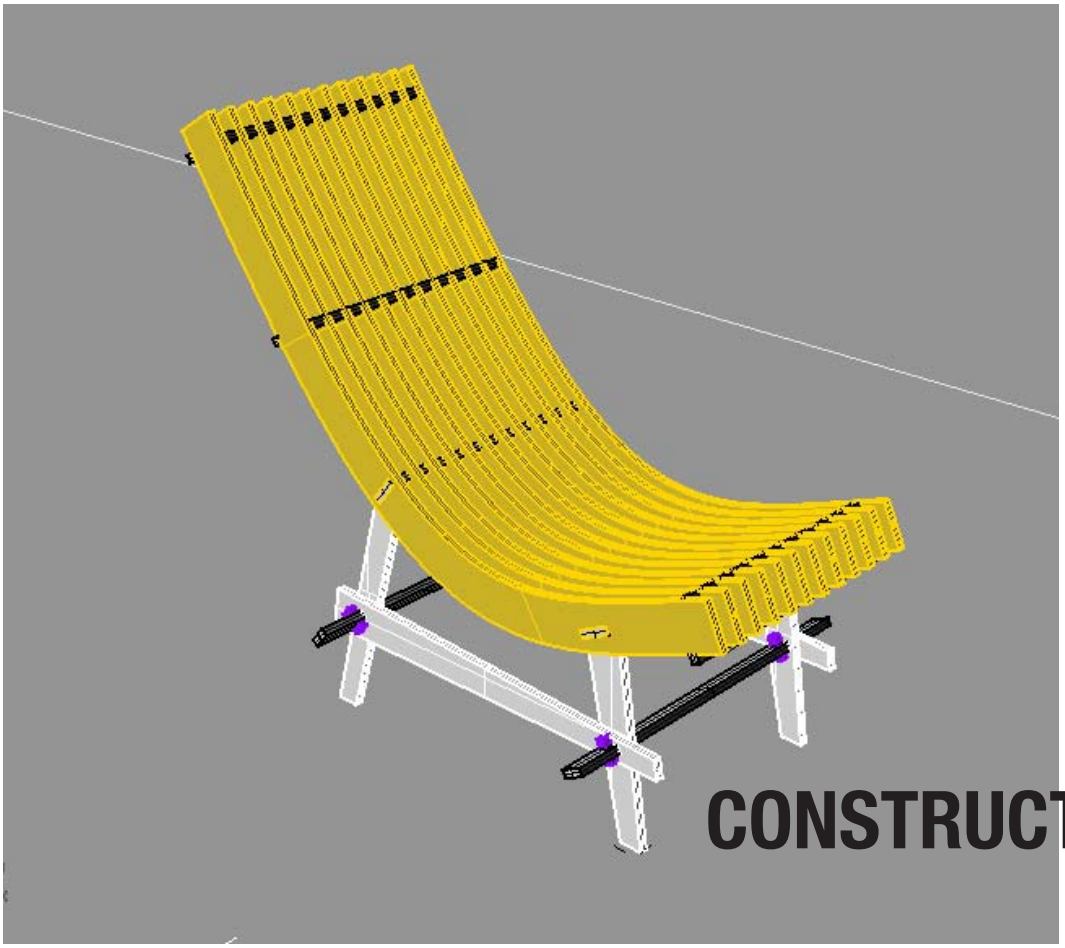
axon of chair prototype

PROTOTYPE

The prototype shown here allowed me to identify potential problems and to improve the ergonomics. Once some slight adjustments were made based on aesthetic decisions, the structural issues were addressed. Connections between the lateral and vertical bracing was improved by adding thickness and extra tension plugs.

Left:
elevation of chair prototype

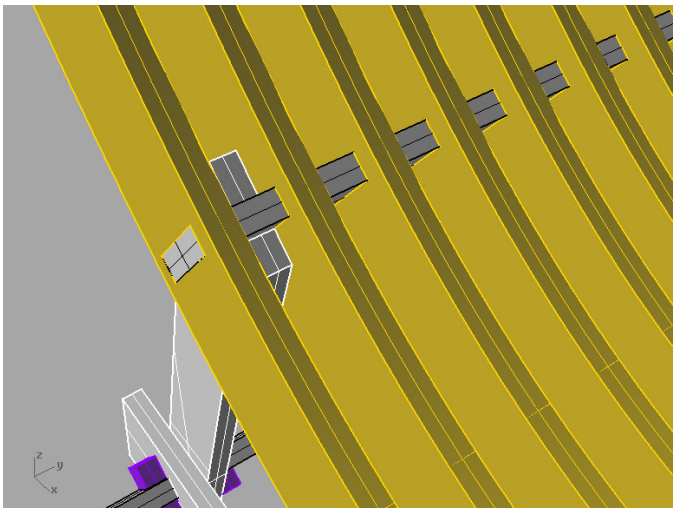
Right:
axon of chair prototype



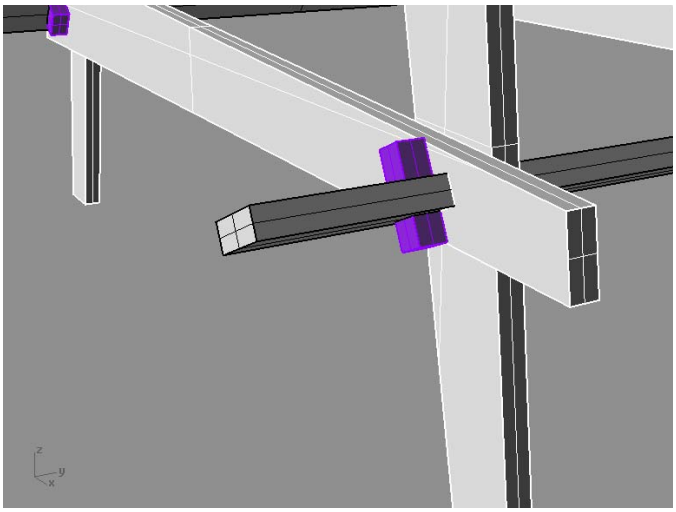
Left:
axon of chair construciton model

CONSTRUCTION MODEL

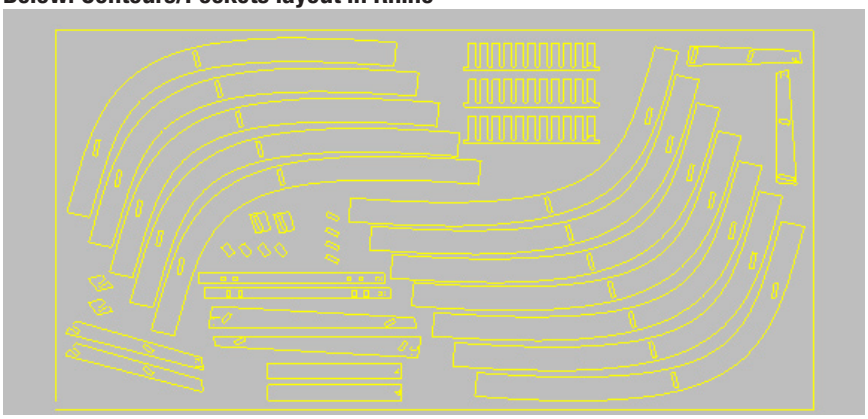
Below: connection detail - construction model



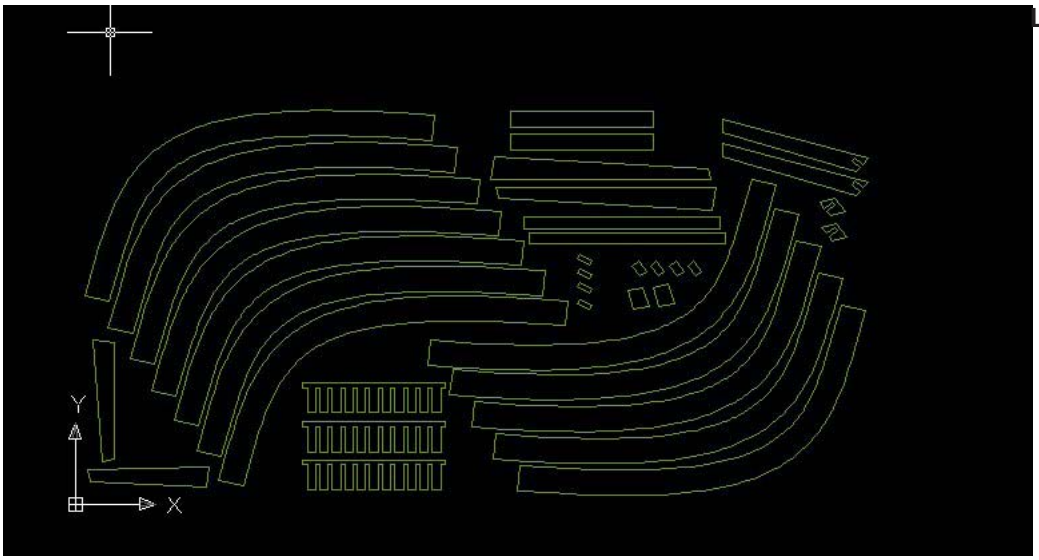
Below: connection detail - construction model



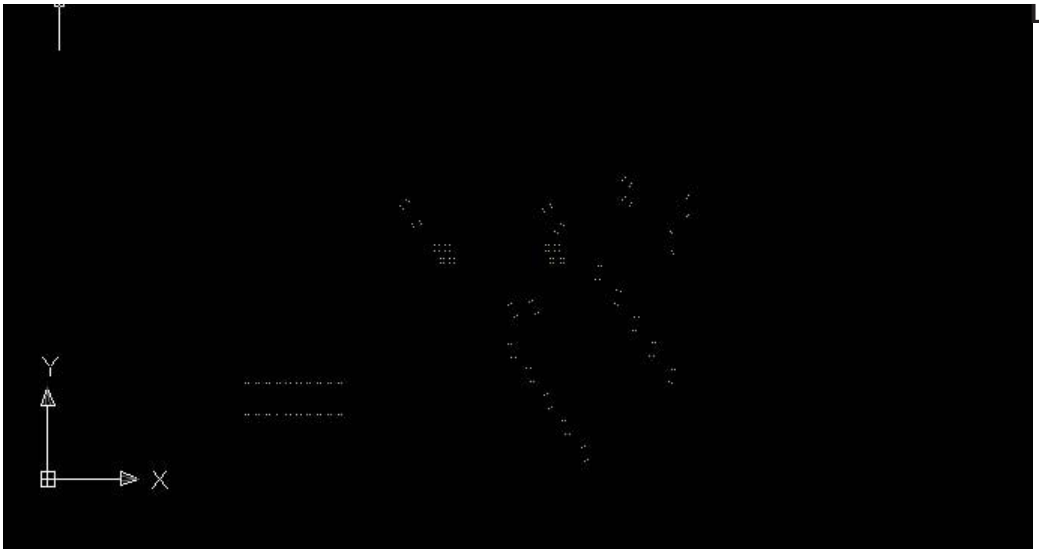
Below: Contours/Pockets layout in Rhino



In the construction model the details that were identified as problem points were addressed. Tension plugs were inserted, cross bracing was bolstered and some minor adjustments to the rib supports were added.



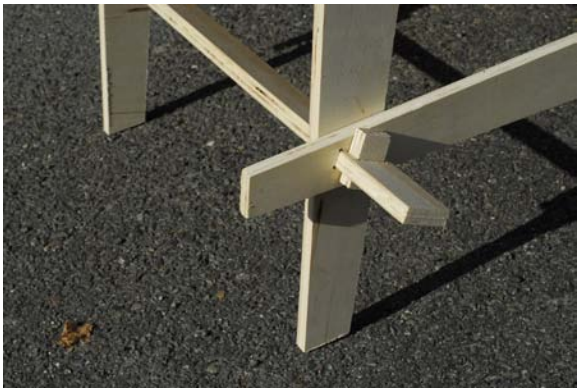
Left: contours - AutoCAD model

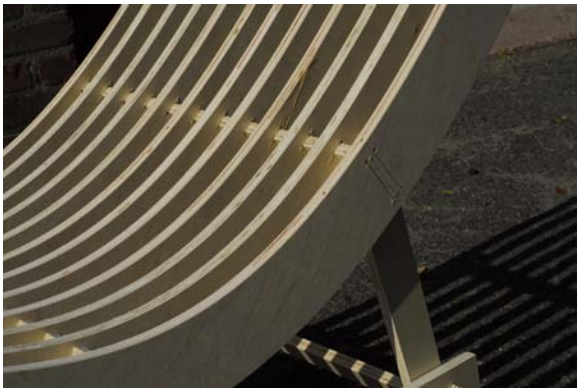


Left: drill sheet- AutoCAD model

CONSTRUCTION MODEL

FINAL PRODUCT





The final plywood chair shown above demonstrates the principles that were originally stated. The two concepts of the purity of the curve and simplicity of construciton are clearly contained in final full scale model. My decision to create a simple design was based on an interest in considering the detailing and expressing the materiality of the object. Based on the outcome some of the things that I might do differently include, one to two more iterations of prototypical models, further detailing of the connections, improvement in the stability of the chair and use of less materials in the seating surface. Overall I learned a lot about chair design and using the CNC router.