Carbon Fiber Ukulele

Modeling and Drafting

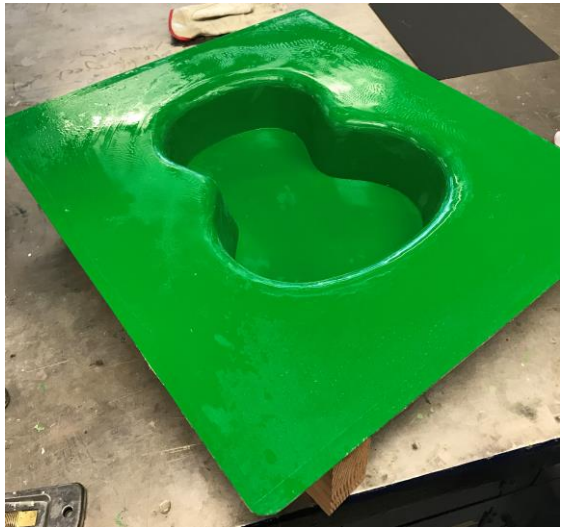
I began the project by creating a full scale assembly model of the carbon fiber ukulele in SolidWorks.

I made engineering drawings to determine the dimensions and tolerances of the bridge, soundhole, and neck.

Making the Fiberglass Mold

I made a plug by attaching an old ukulele to a board and surrounding it with Bondo.

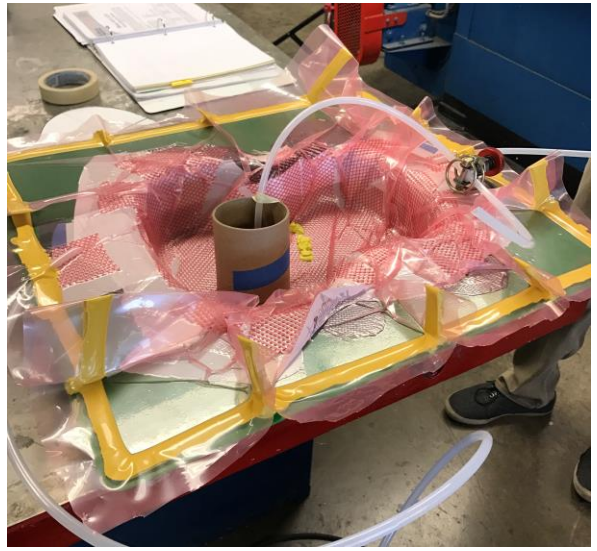
To make the mold, I covered the plug with chopped fiberglass.

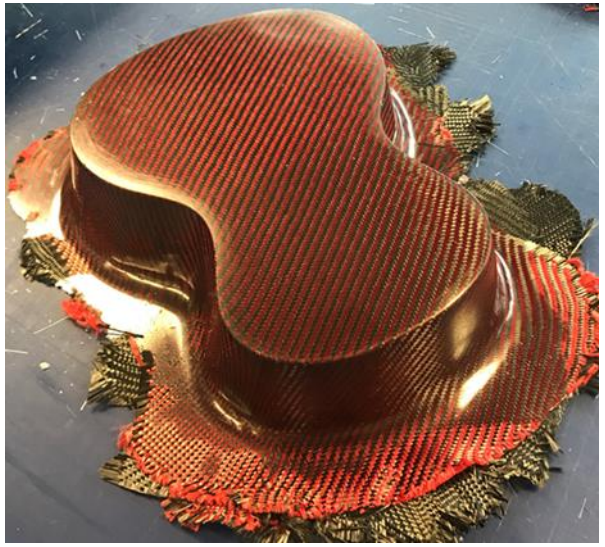


Resin Infusion

I decide to use resin infusion to achieve a uniform wet out and to make the ukulele lightweight. I laid several layers of carbon fiber in the mold, and created a vacuum seal with plastic wrap.

While the mold was under vacuum, I ran the resin through the carbon fiber.





Finishing Details

I cut the sound hold using Brigham Young Universities waterjet cutter.

After cutting, sanding, polishing, and finishing. I was able to attach the neck, fretboard, and bridge to the body of the ukulele.