

Cascadia Windshield Project

Project Outline:

The goal of this project is to research, design and integrate an improved windshield design into the canopy of the solar car. This project aims to improve the windshield in two areas, manufacturing and design. The context of the project stems from poor structural elements in the current design, resulting in fractures along the middle of the windshield and around the bolts. Removing the residual stress in the new windshield is key.



2025 Windshield Issues:



Bottom, Close to the End



Top, Close to the Front



Top, Close to the End



Front Cracking

With the current manufacturing method, we have had many stress cracks occur around the screws that hold the windshield onto the canopy. Furthermore, a large crack along the front of the windshield also appeared during our 2025 competition. This comes down to the residual stress in the windshield, that cannot handle the expansion when put under extreme heat.

Specifications:

Material Thickness: 1/16 inch PolyCarbonate

Quantity: 3

Goal: Receive an optically clear drape formed windshield from Cran plastics(dependable).

Timeline:

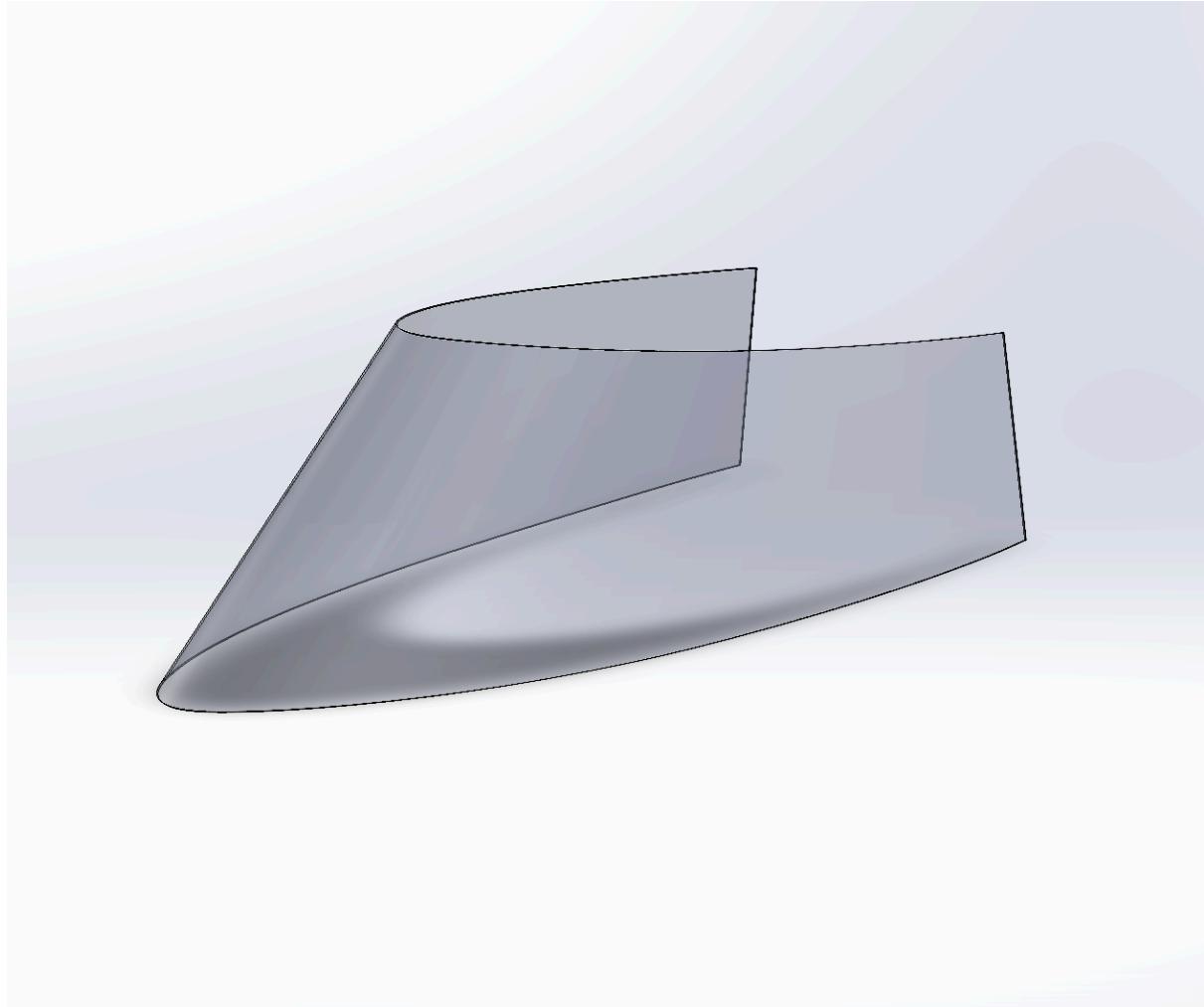
End of <u>Design</u> :	End of <u>Manufacturing</u> :	End of <u>Testing</u> :
Feb 28th, 2026	May 30th, 2026	FSGP 2027

Options:

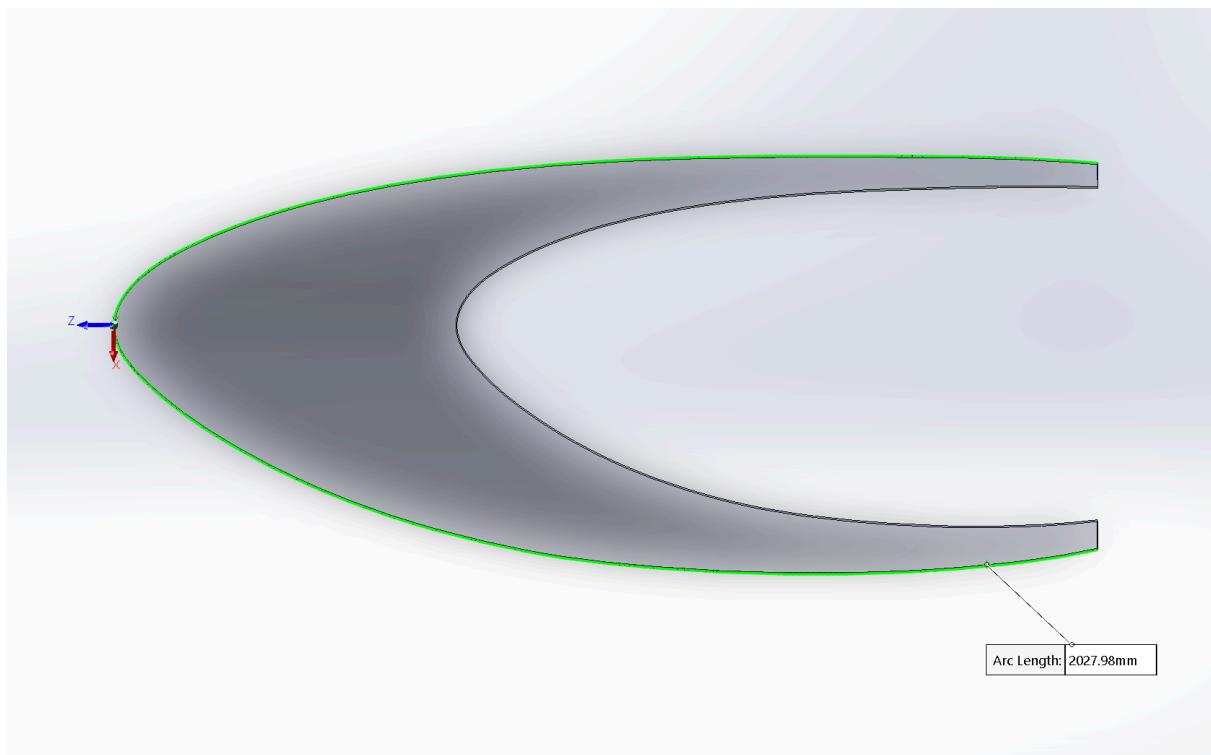
1. The first option are if we were to just drape form a windshield
2. The second option is to drape form(or thermoform) the entire canopy as one piece of 1/16 polycarbonate.

Option 1 | Preliminary CAD and Profile Specifications:

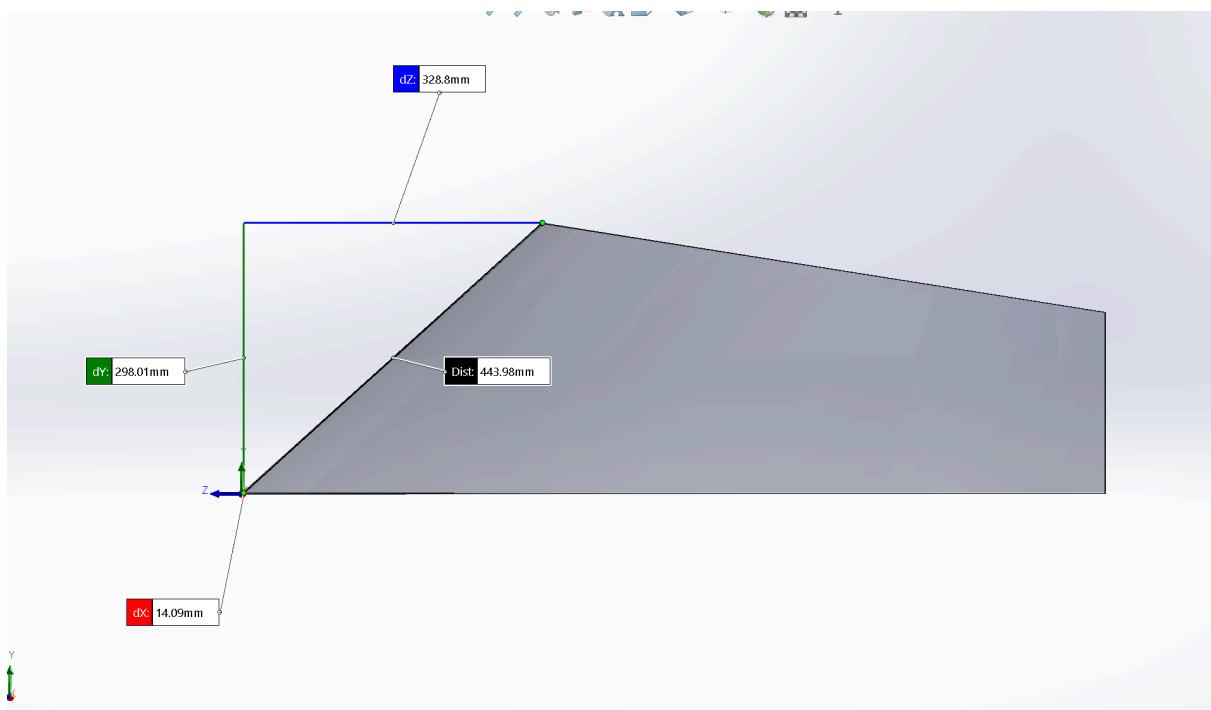
Isometric:



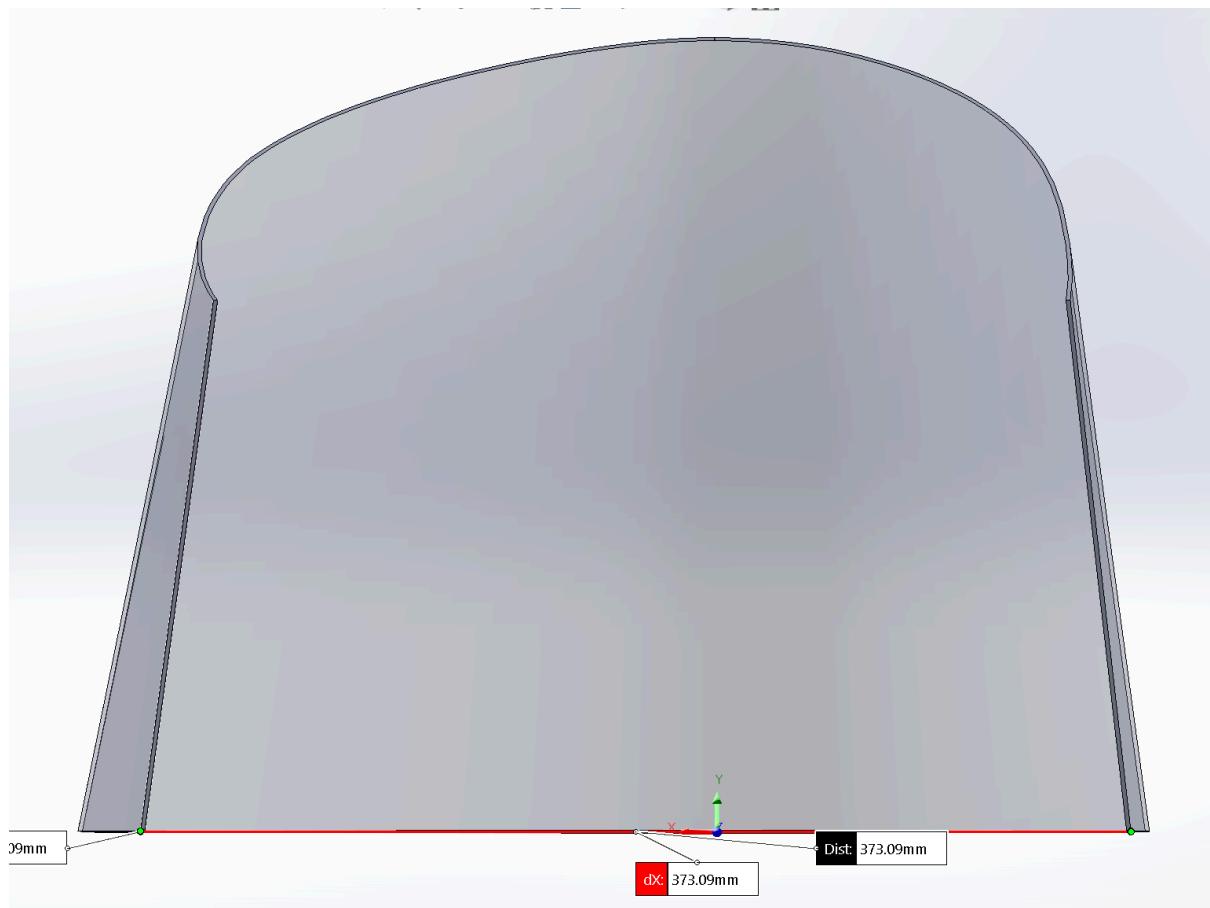
Top View:



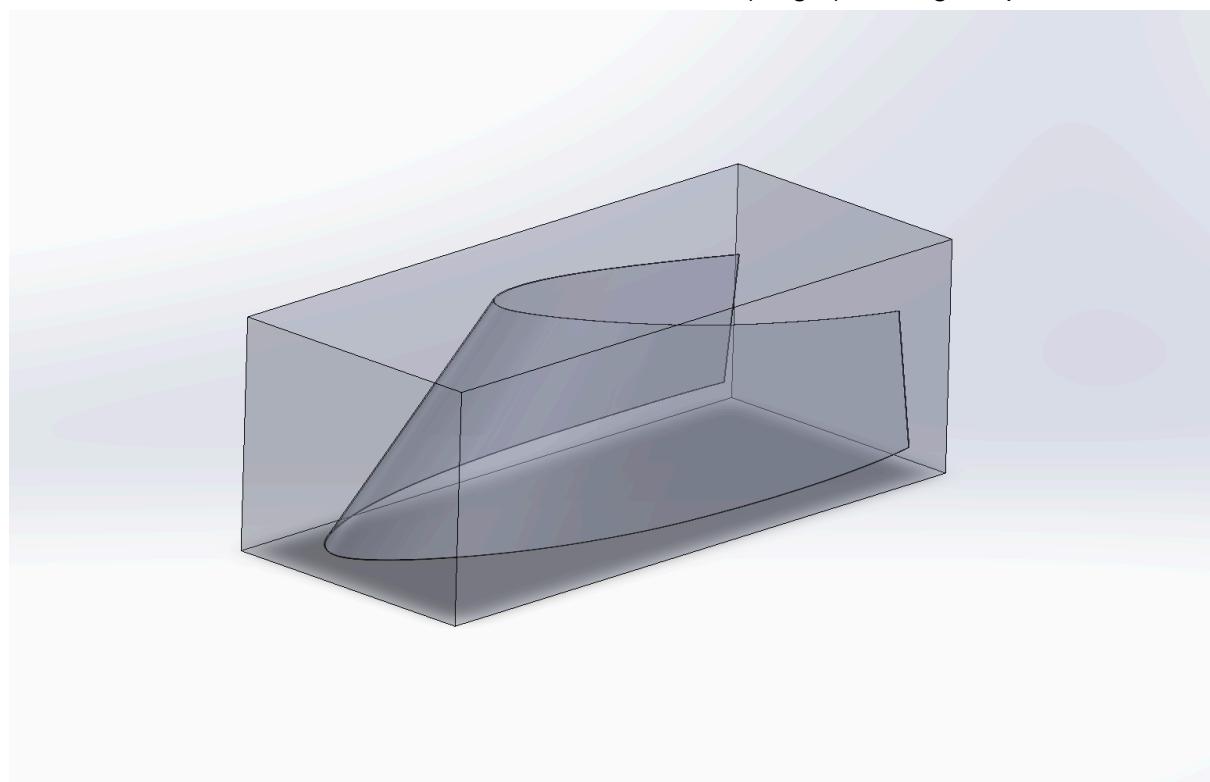
Side View:



Front View:

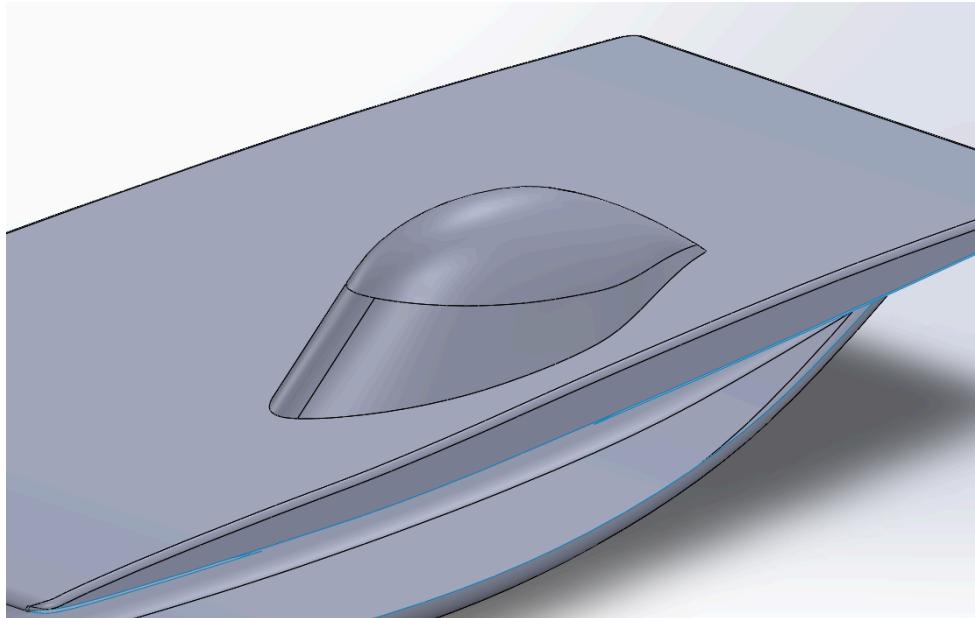


Volume: Windshield fits in a 1000mm x 430mm x 340mm(height) rectangular prism.

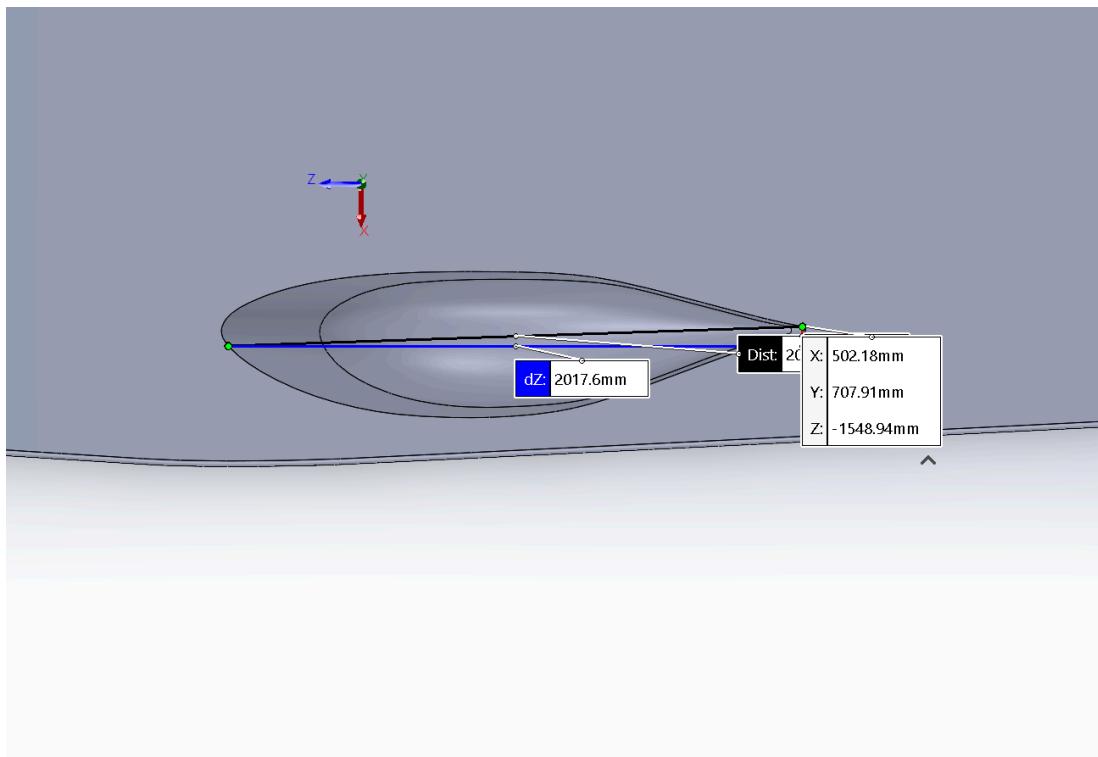


Option 2 | Preliminary CAD and Profile Specifications:

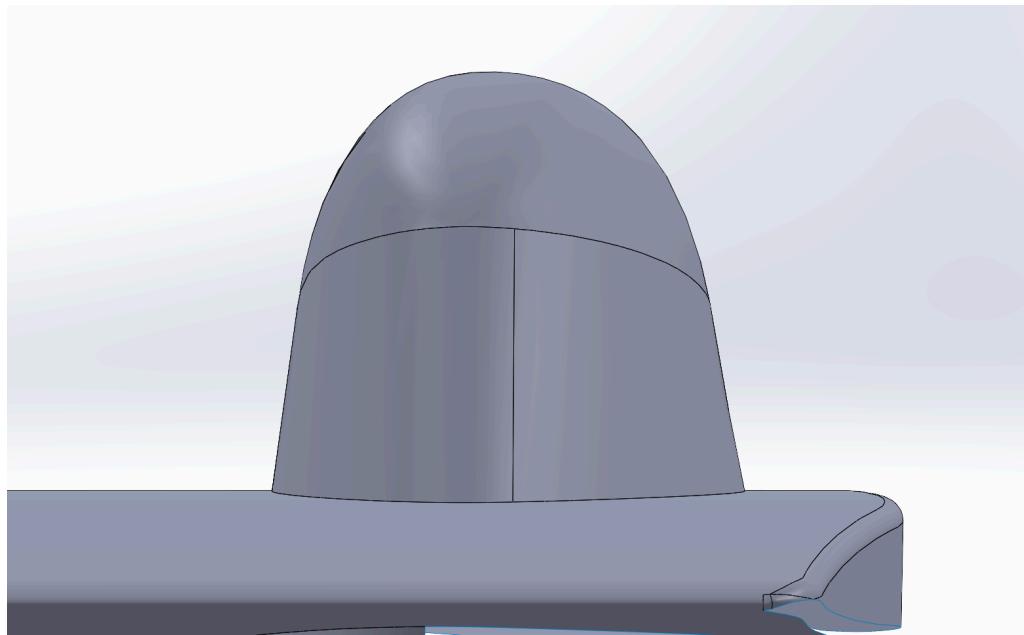
Isometric:



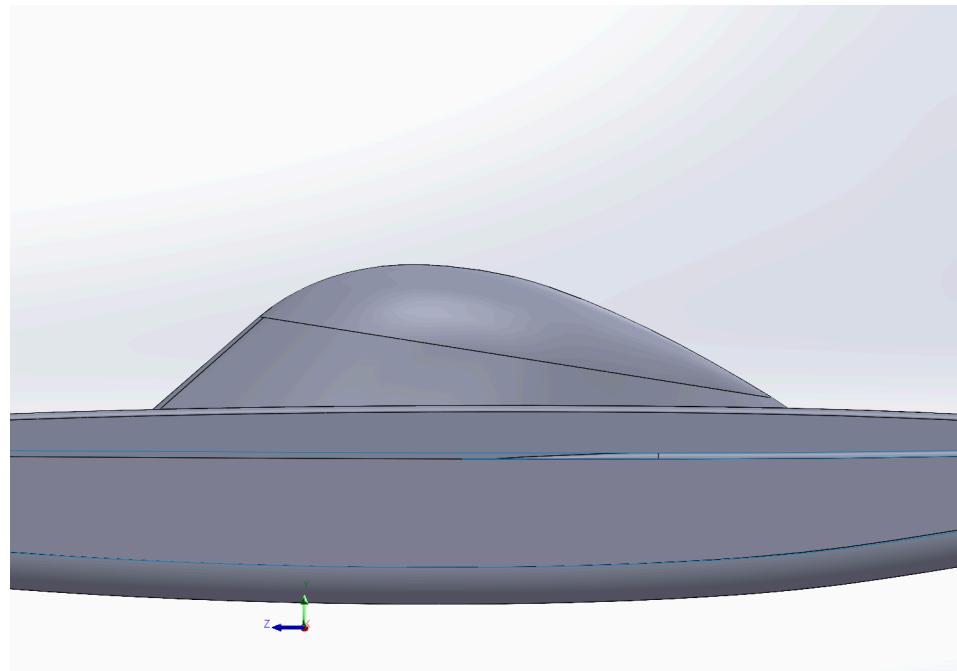
Topview:



Frontview:



Rightview:



Volume: Canopy fits in a 2100mm x 430mm x 400mm cube