

Portable Ramp for Curbs by Team Rampage

PROBLEM STATEMENT

Homeowners with more than one vehicle often don't have a second driveway. The process of creating a new driveway is complicated, long, and expensive. Traditional portable curb ramps are impractical and don't have enough versatility for every curb type and size. They are usually clumsy, heavy, and require continuous assembly and disassembly. The objective of this project is to design, fabricate, test and implement a new ramp system that mitigates traditional curb ramp issues and has the capability to support a large RV transitioning from the roadway, across a curb, and onto a driveway.

TESTING

Transportation

1. Strength of transportation sleeves
2. Ease of movement



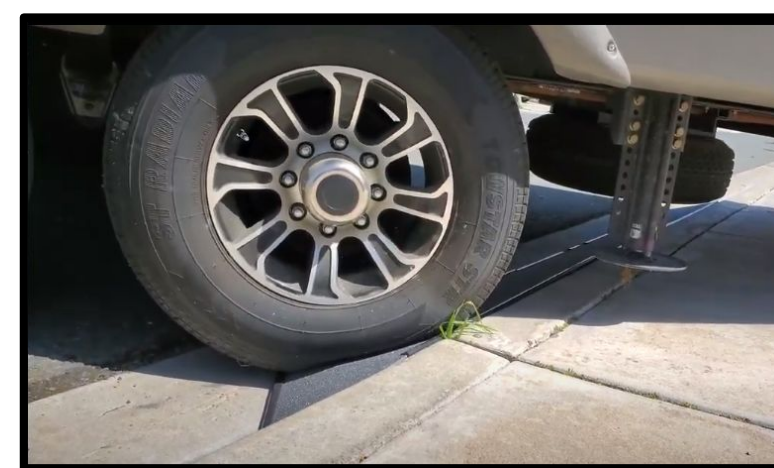
Water Test

1. Water flow/pooling



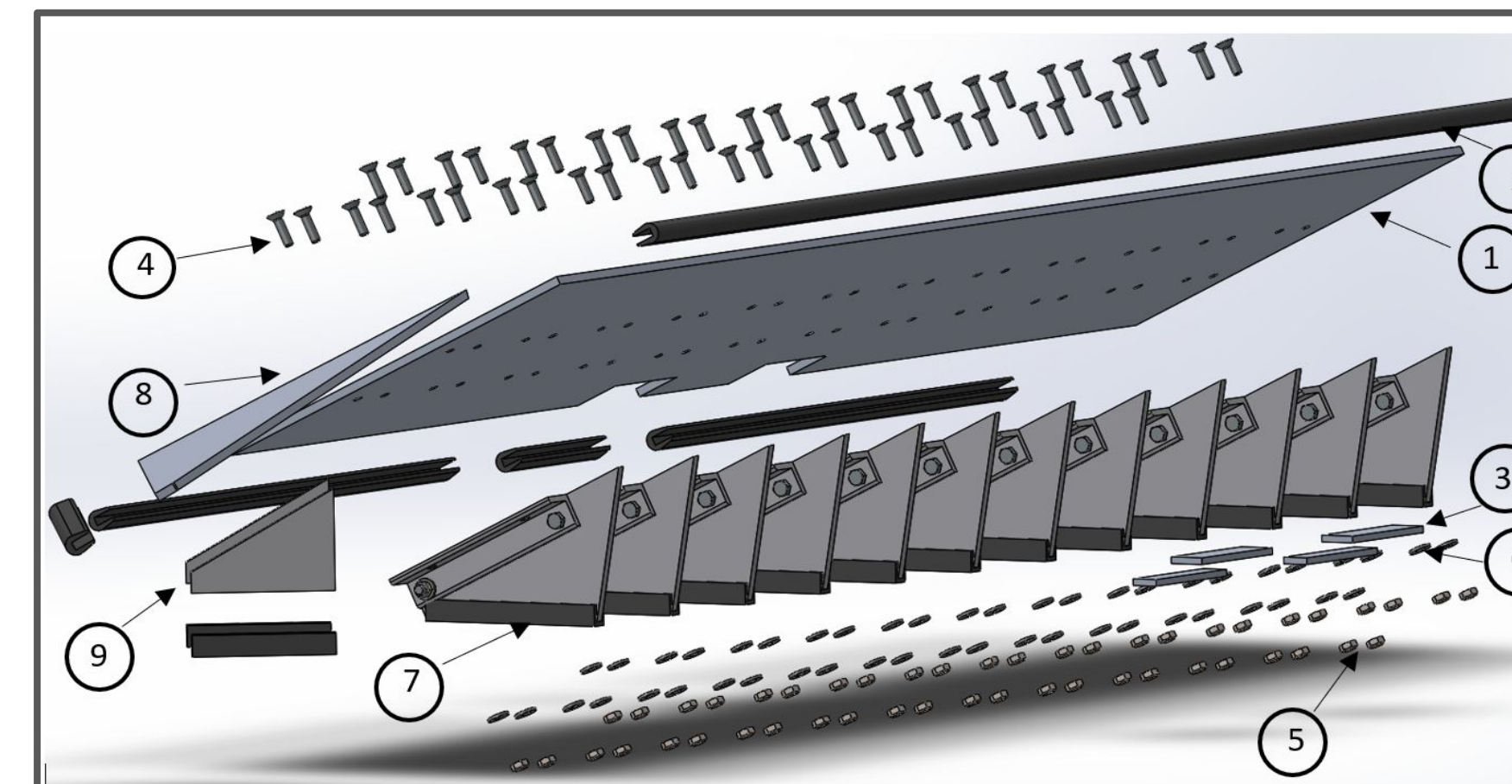
RV Test

1. Test ramp integrity
2. RV usage

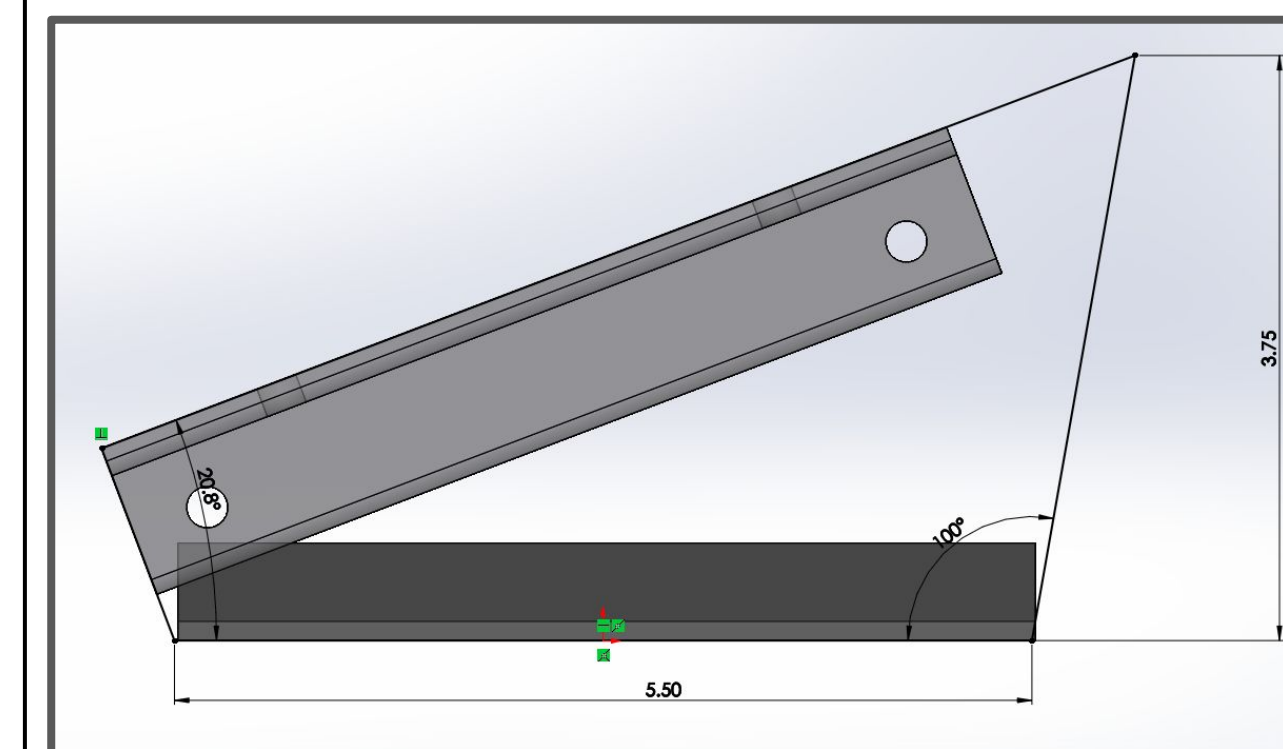


CAD EXPLODED VIEWS, TRANSPORTATION, AND SYSTEM LEVEL DIAGRAM

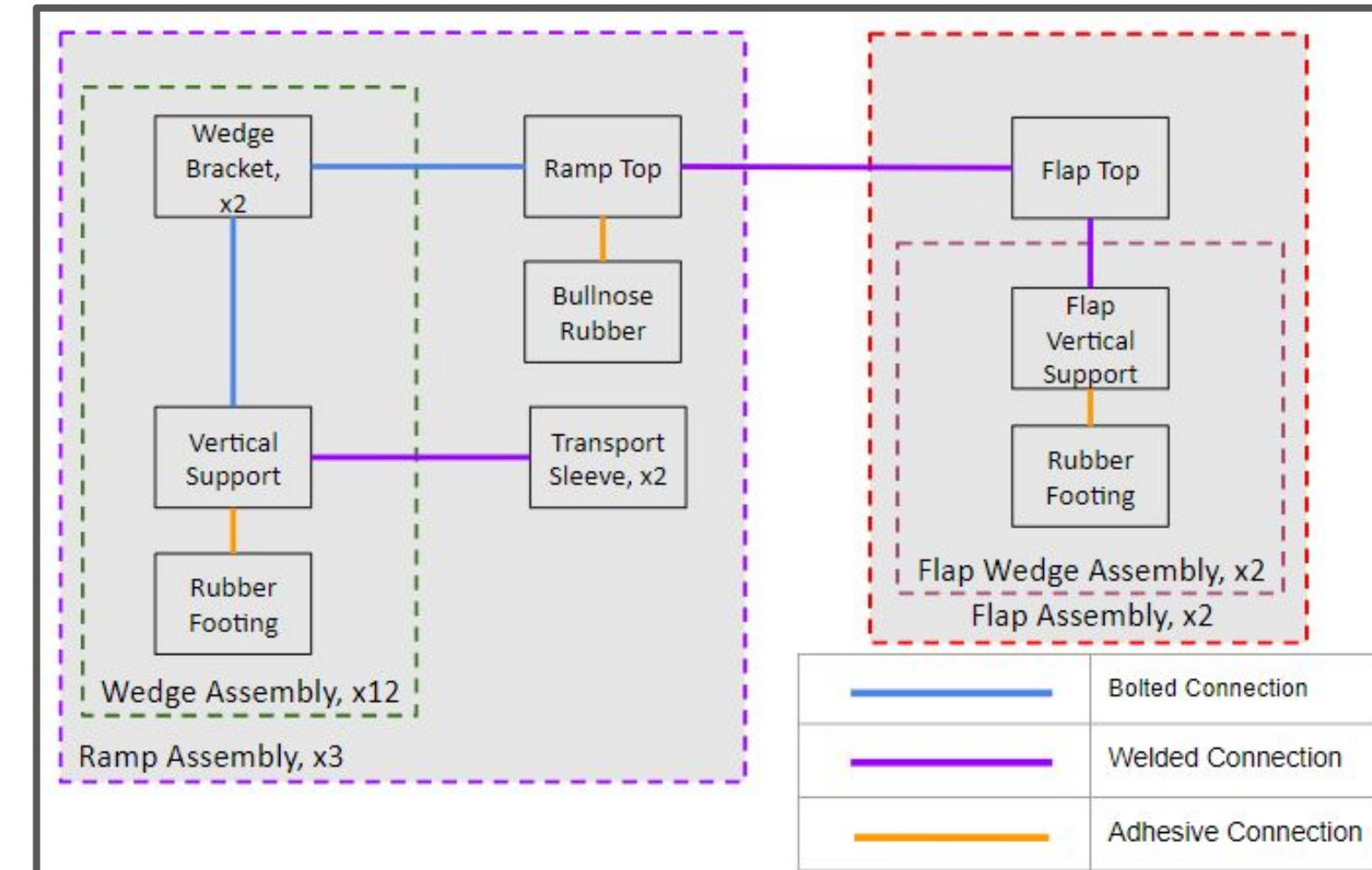
Ramp Exploded View



Height Adjustment



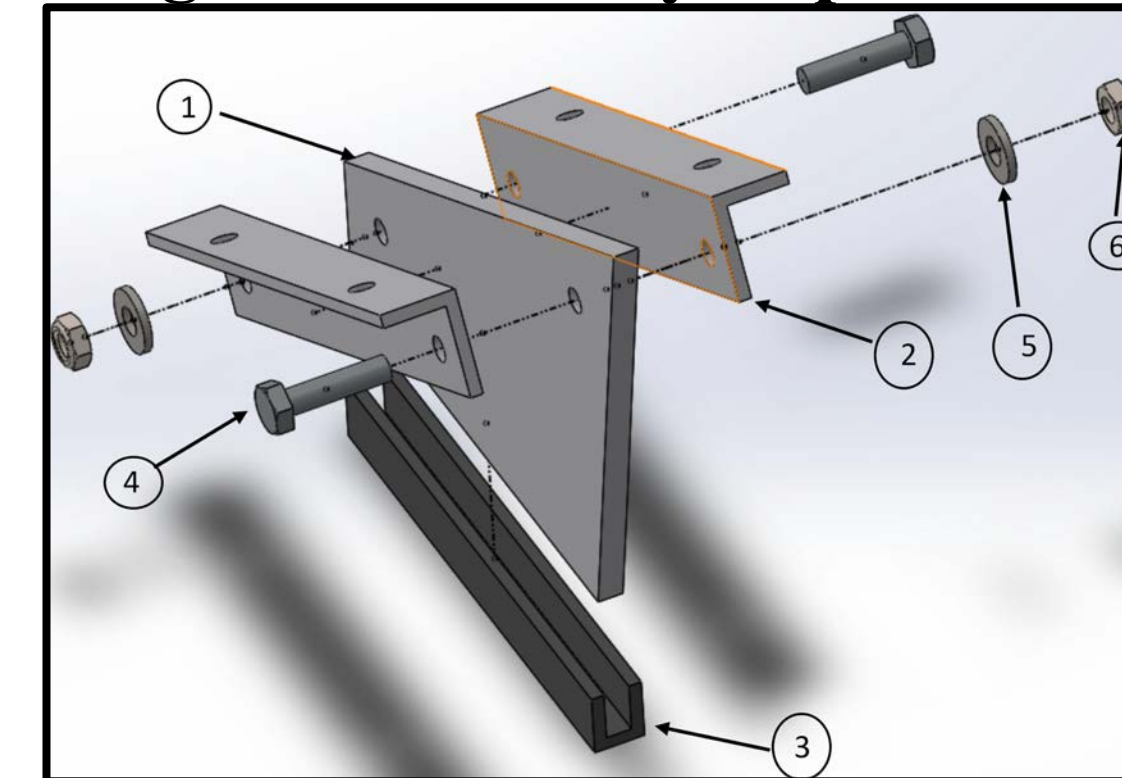
System Level Diagram



Transportation System



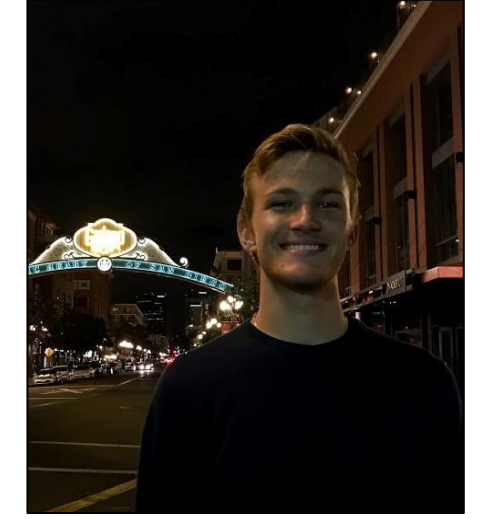
Wedge Subassembly Exploded View



TEAM MEMBERS



Edward Gonzalez-Sainz



Matthew Jensen



Paul Alex Trees



Antonio Vargas

MANUFACTURING



Bandsaw



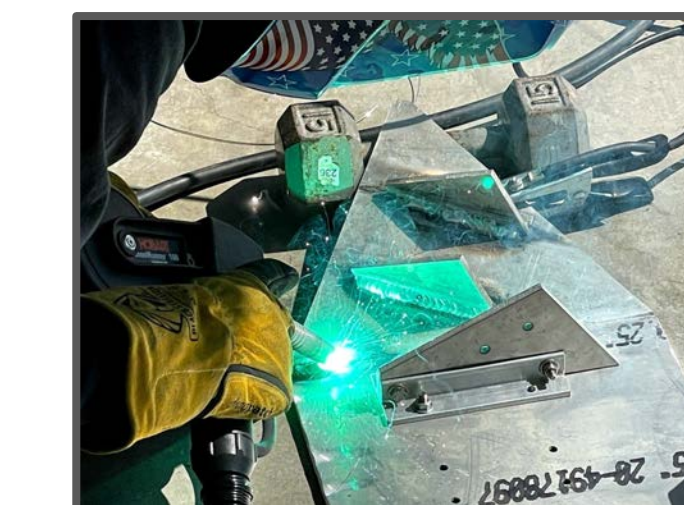
Water Jet



Nut and Bolt Assembly



Countersink Drilling



Aluminum Welding



Hole Drilling

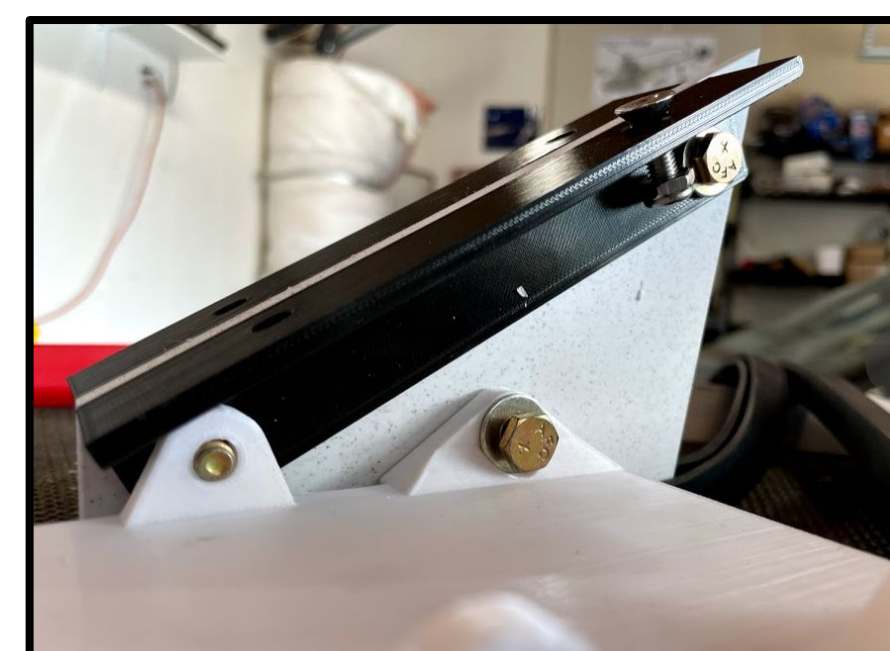
PROTOTYPE PROCESS



Curb Prototype



Dimension and Transportation Prototype



Hardware Prototype



Mini Ramp Prototype

FINAL PRODUCT

Components

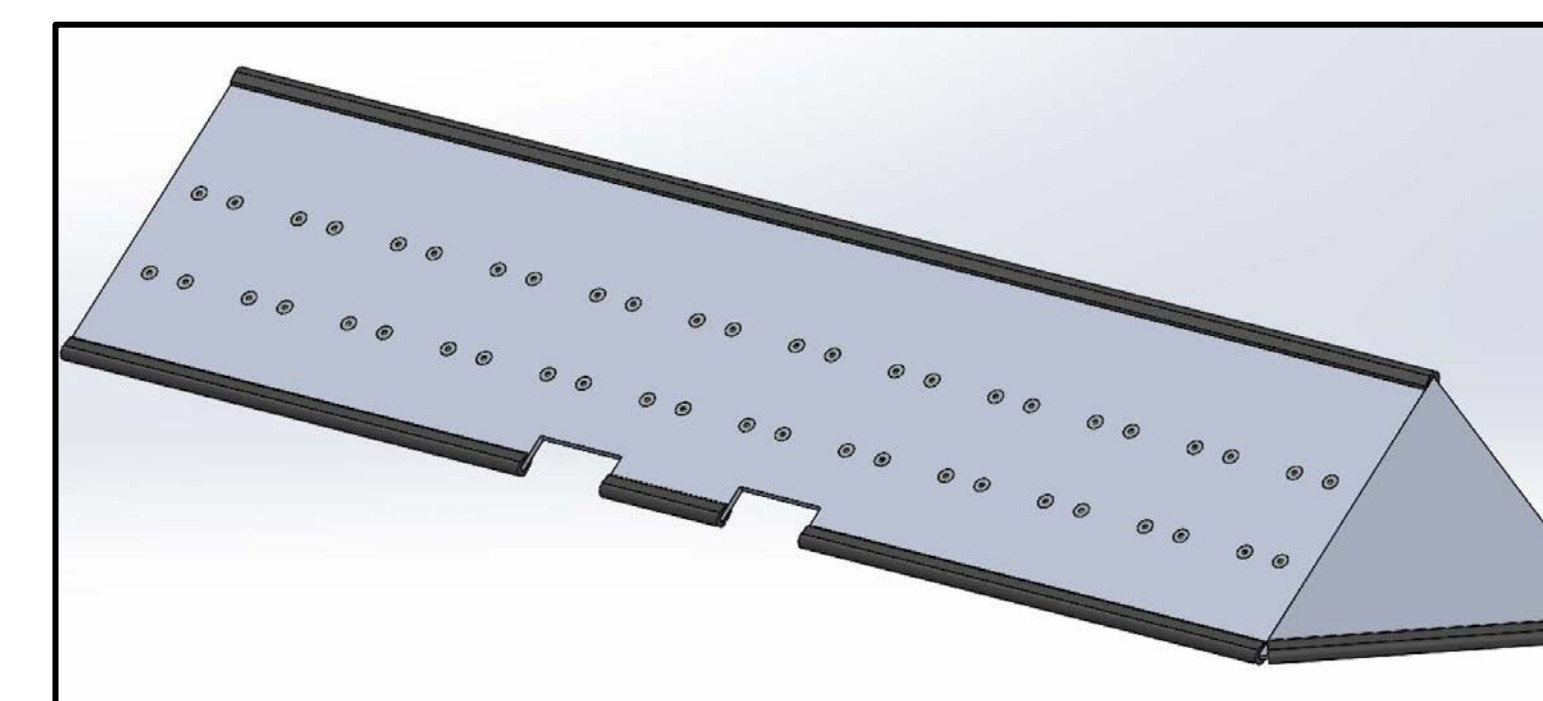
- Three aluminum sections
- 12 wedge supports per section
- Transportation system
- Rubber at all contact points

Features

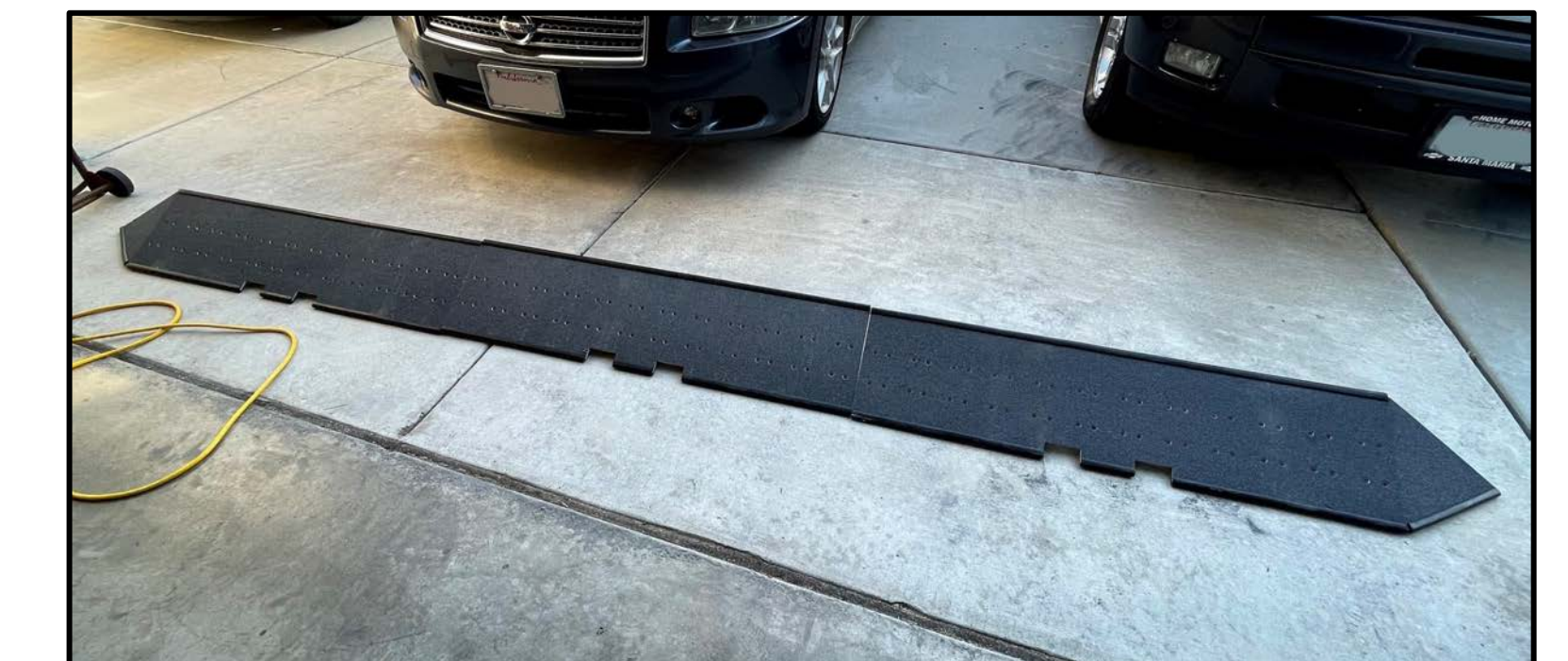
- Support up 12,000 lbs each
- Angled ends for side access
- UV resistance
- Water resistance

Curb Fit

- Designed for 6 inch curb
- 12 feet of total width
- Works with angled curbs
- Allows water flow



SolidWorks Model



Fully Assembled Product