

ARG 25 Battery Structures

Cornell FSAE

Purpose: Design structure to protect battery modules and safety electronics

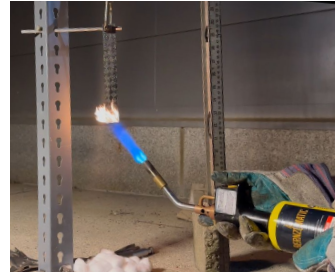
Contributions: Structural design, manufacturing, jigging, integration, composite testing

Technical details:

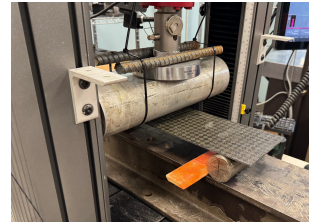
- ❖ Aluminum 5052 bent and **welded sheet metal** enclosure
- ❖ Cutouts in internal walls prevent shorting the battery modules
- ❖ Mounts **calculated** to withstand 40g of acceleration longitudinally and laterally, and 20g vertically
- ❖ Validated **carbon fiber** composite alternatives under **3-point bend test**, **dogbone test** at 60°C, and **perimeter shear test** for 15 test panels
- ❖ **IP65 waterproof rating** validated with in house testing
- ❖ Pressure relief valve limits pressure buildup



Waterproof testing

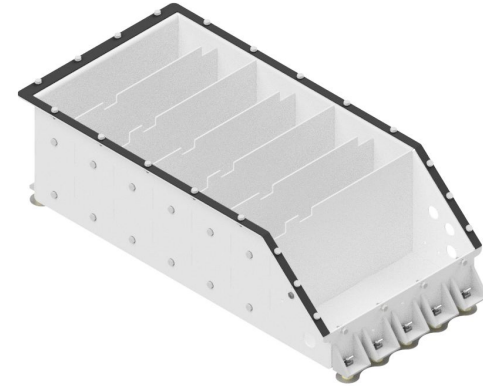


UL94V0 Flammability test

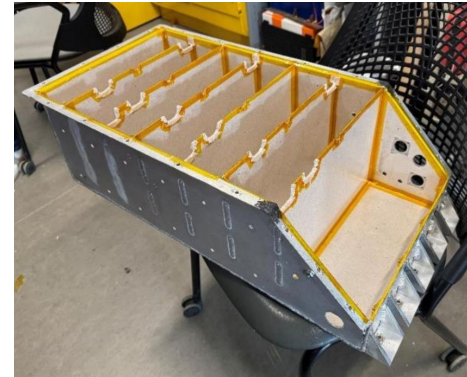


Composite panel 3 point bend test

Project IV



CAD Model



Manufactured structure