

# ARG 25 Battery Structures

Cornell FSAE

**Purpose:** Design structure to protect battery modules and safety electronics

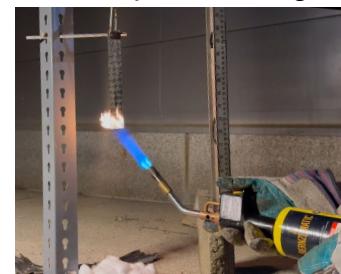
**Contributions:** Structural design, manufacturing, jigging, integration, composite testing

## 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



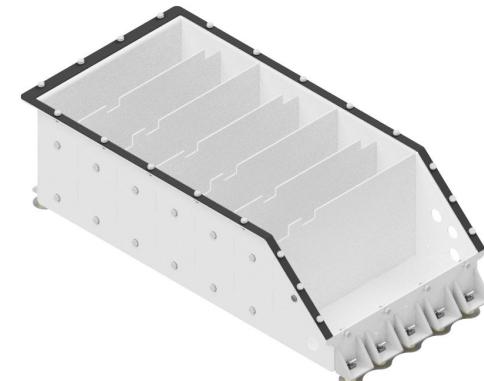
Waterproof testing



UL94V0 Flammability test



Composite panel 3 point bend test



CAD Model



Manufactured structure

## Project IV