

pfRICH updates

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1. Dimensional Stability: Are the end rings dimensionally stable if stored vertically?

Yes we actually did store them vertically here at Purdue as well. They are stable in vertical configuration.

2. Mounting Prior to Machining: Similar to the TPC, we would like to mount the end rings around the shaft before machining the foam. Can they be mounted at the two points shown in the attached diagram?

Yes mounting them at the two points will be okay – you might want to consider mounting it on a third point at top (12 o'clock) along with the 4 and 8 o'clock mounts to keep the in-plane “tilt”

3. Heating the End Rings: For the TPC, the end rings were heated to expand their radii, making them easier to position. Can the pfRICH end rings be heated similarly, or will this process cause any damage?

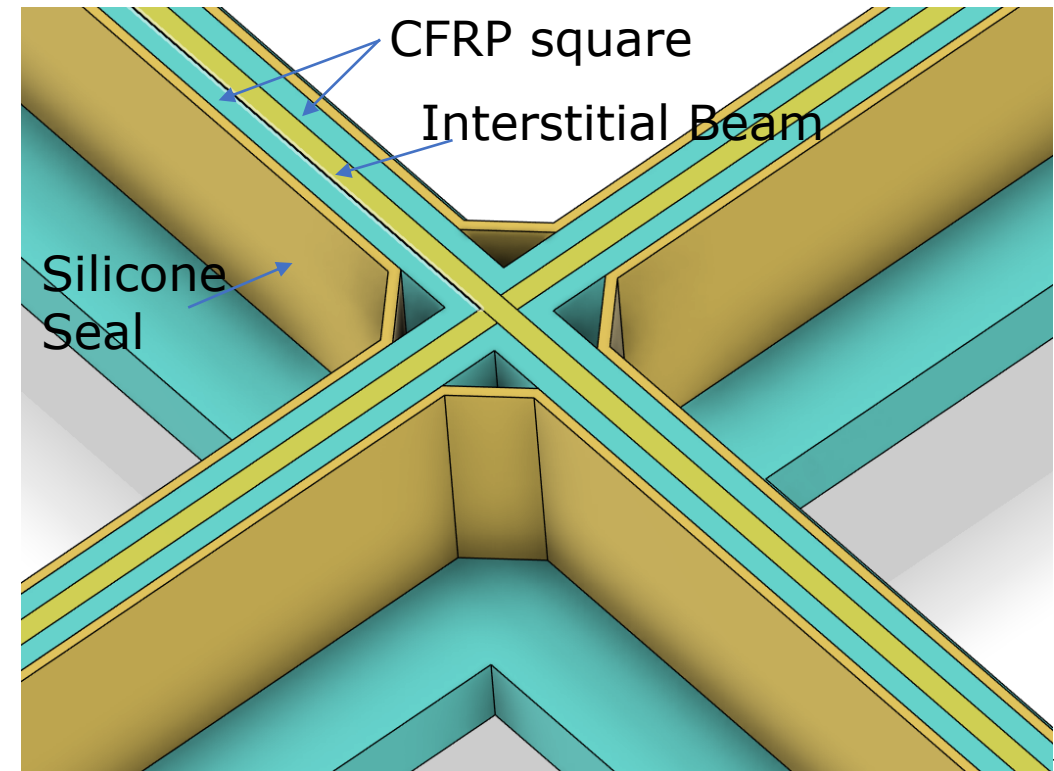
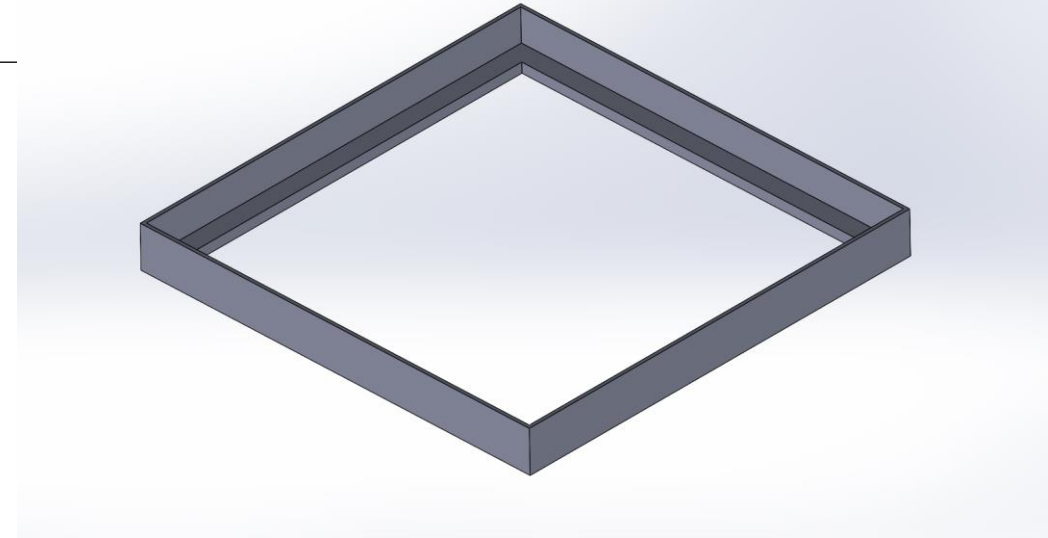
Heating is only possible upto **100 Celsius not more. This might also cause issues with the brass inserts – they will expand much more than the CFRP laminate can lead to unforeseen issues. Suggest to keep this as a very very very last resort.**

Sensor Plate Composite Design Update

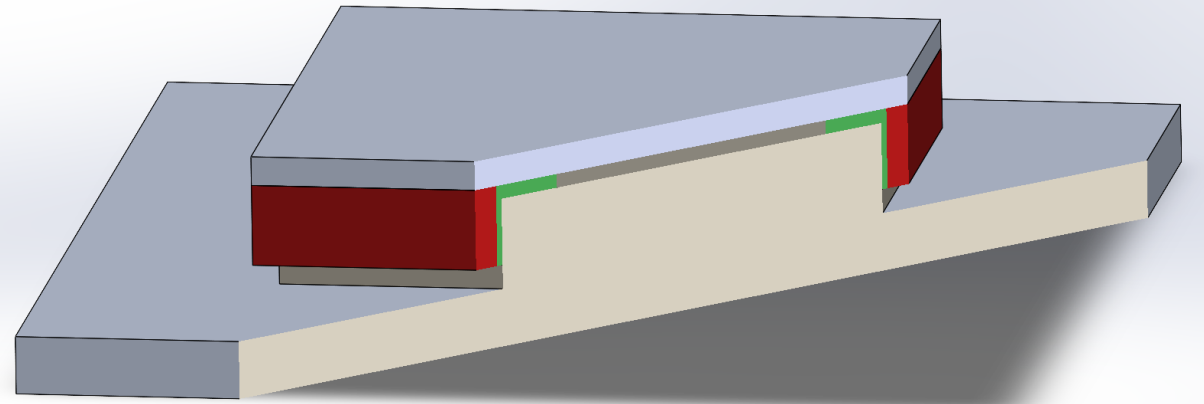
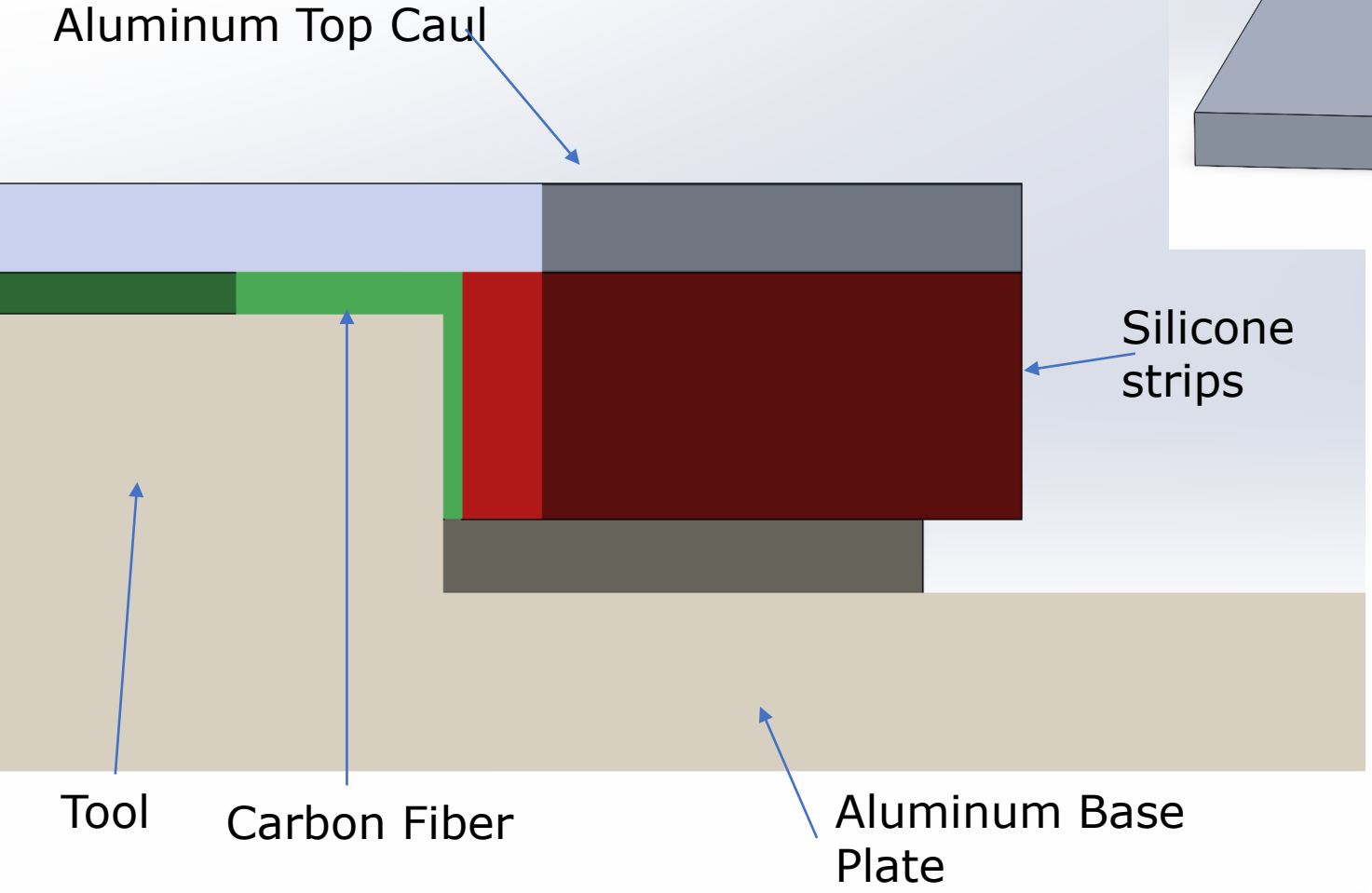
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New construction method

- ⬠ Instead of using interconnection T-beams to form the sensor plate geometry, we will use individual carbon squares glued together with interstitial flat beams
- ⬠ Beams will run continuously in the horizontal to support load
- ⬠ Provide structural support and more controllable thickness than could be achieved with T-beams
- ⬠ Makes composites manufacturing and assembly more straightforward



Layup



- Sidewalls 1 mm thick CFRP
- Top surface 3 mm thick CFRP
- Cured under vacuum bag in autoclave
- Interstitial beams will be simple flat plate layups cut to shape by waterjet

- ⬠ Plan to assemble using tooling board bonding jig
- ⬠ Machine each inner square as a positive extrusion on the board, so each piece slots into place for positioning
- ⬠ Glue using Araldite 2011 with clamps between squares for pressure
- ⬠ For full size sensor plate, may be done in multiple steps to avoid too much constraint during bonding

Shipping pfRICH end rings to SBU - update

The end rings were requested to be packed in a wood box – this made it to be a pallet shipment instead of a fedex one.

It is shipped with Old Dominion on a pallet truck and will be at SBU this week.

