pfRICH Engineering/Design Update

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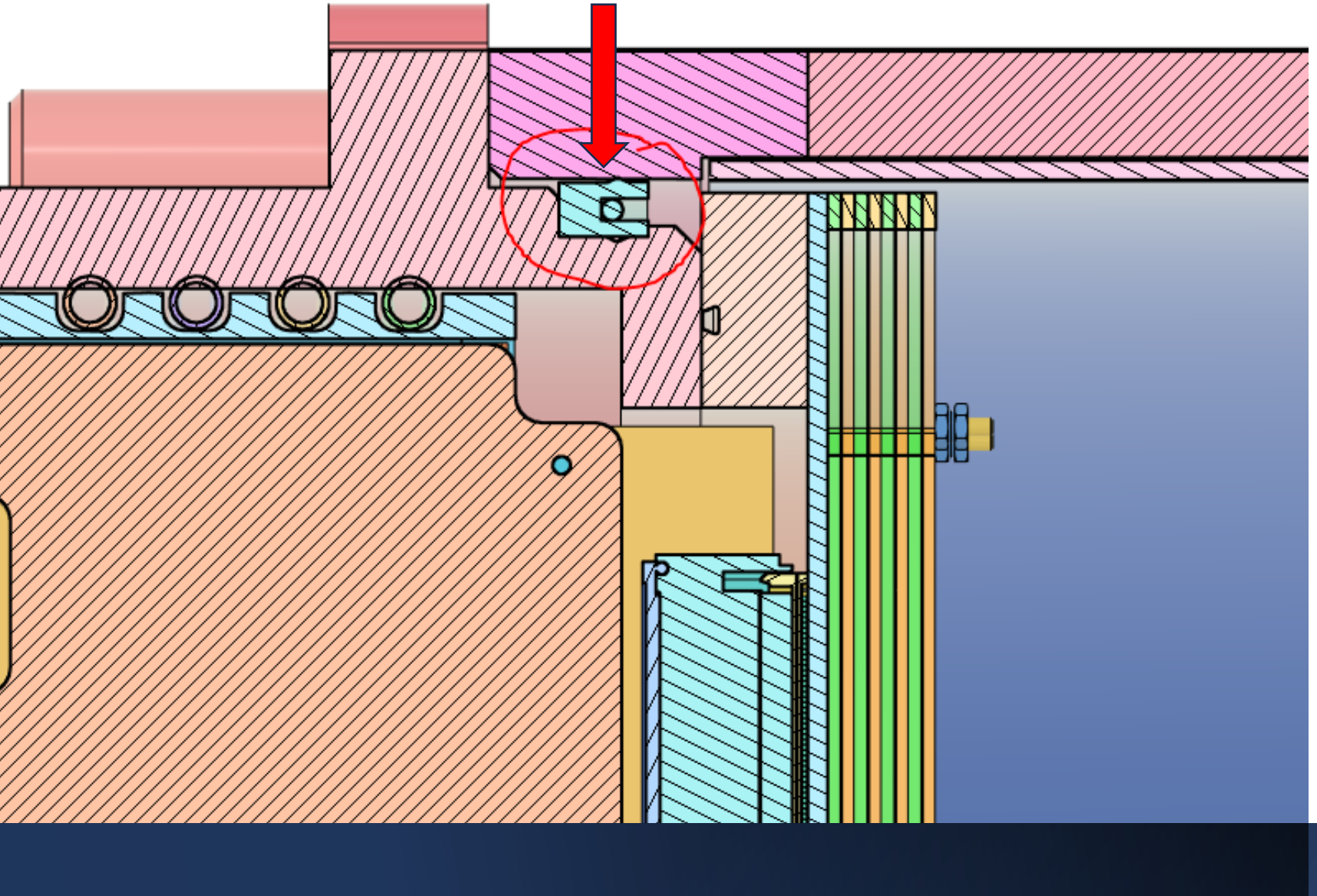
11/30/23

November Engineering/Design Goals

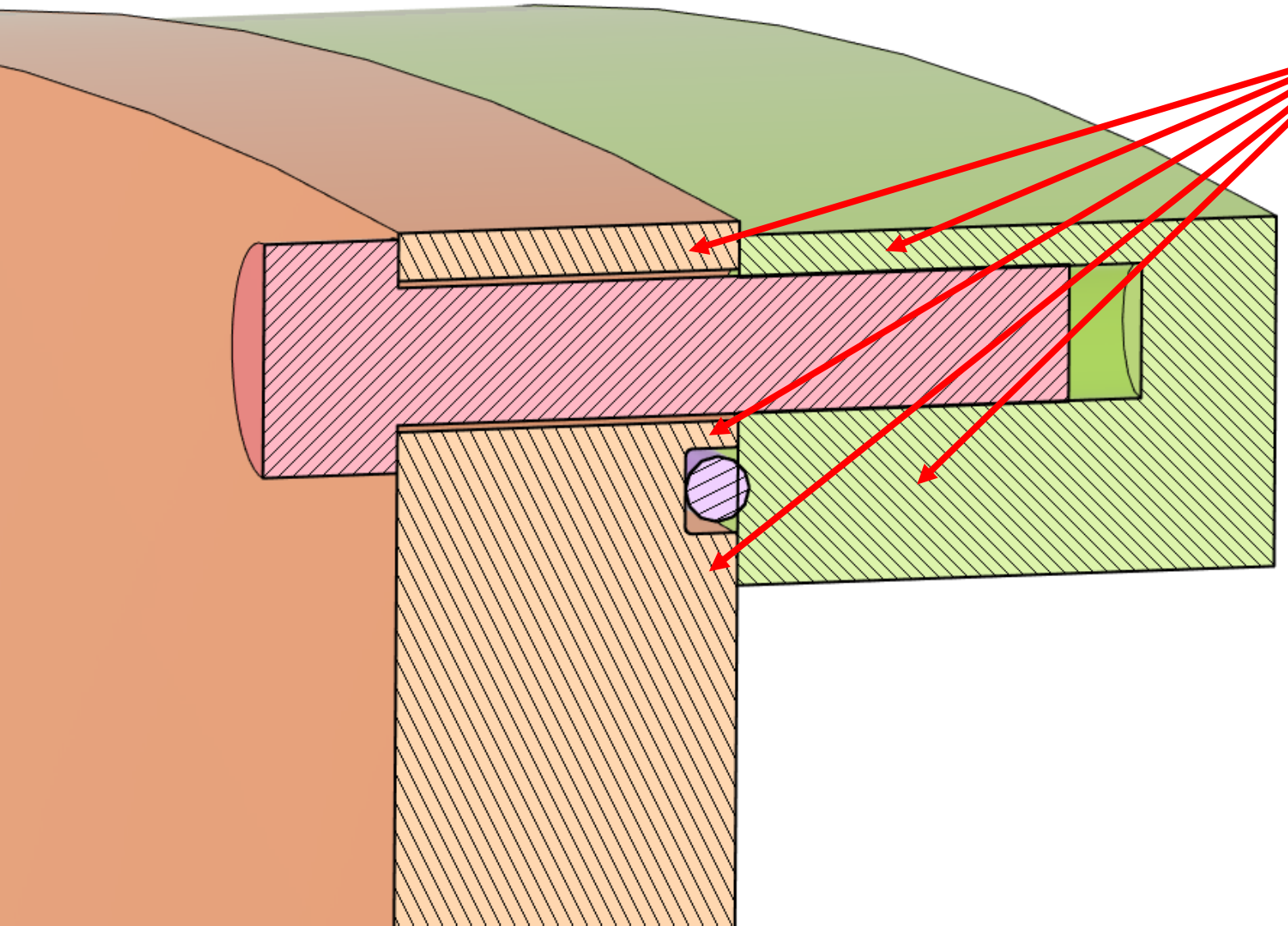
- Manufacturing and tolerancing questions were sent out at the beginning of this month and were answered promptly by SBU and Purdue
- Overall goal after receipt of these answers was to pass the final design stage by the end of November.
  - Ring thickness and depth to be finalized so SBU could order the honeycomb/CF/mandrel foam and Purdue could begin manufacture
  - Mirror thickness to be finalized so that Purdue could begin manufacture
- The final designs were dependent on FEA analysis to determine bolt hole spacing/size, o-ring size, and mirror thickness.

Status

- The FEA analysis (done by myself with help from Dan) is still in progress. I was hoping to have the end ring analysis done by today, but I have run into some software issues causing delays.
- Although the analysis is delayed, I plan to finalize the honeycomb thickness by modifying the design and locking in a reasonable dimension that has enough room for the o-ring and the bolts.



- The original ½” thickness came from the TPC, where they used a radial spring seal instead of a face seal. Our design is not currently utilizing this methodology



- There is a need for a reasonable material thickness between the tapped hole, the o-ring groove and the edge of the parts for both the end ring (green) and the sensor plane (orange).
- The current design is using a M5 bolt and a 3/32” o-ring for sealing, but the bolts might be too small to apply effective sealing without a very large quantity of bolts around the bolt circle.
- Therefore, we may end up having to increase the radial thickness to allow for more room for larger bolts

Other News/Notes

- Aerogel has been received at Jlab from Makoto
  - Three samples plus a fourth sample of lesser quality
- First pass of mirror coatings has been accomplished (SBU)
- All but one of the PR’s has been approved (as of Monday)

Questions?