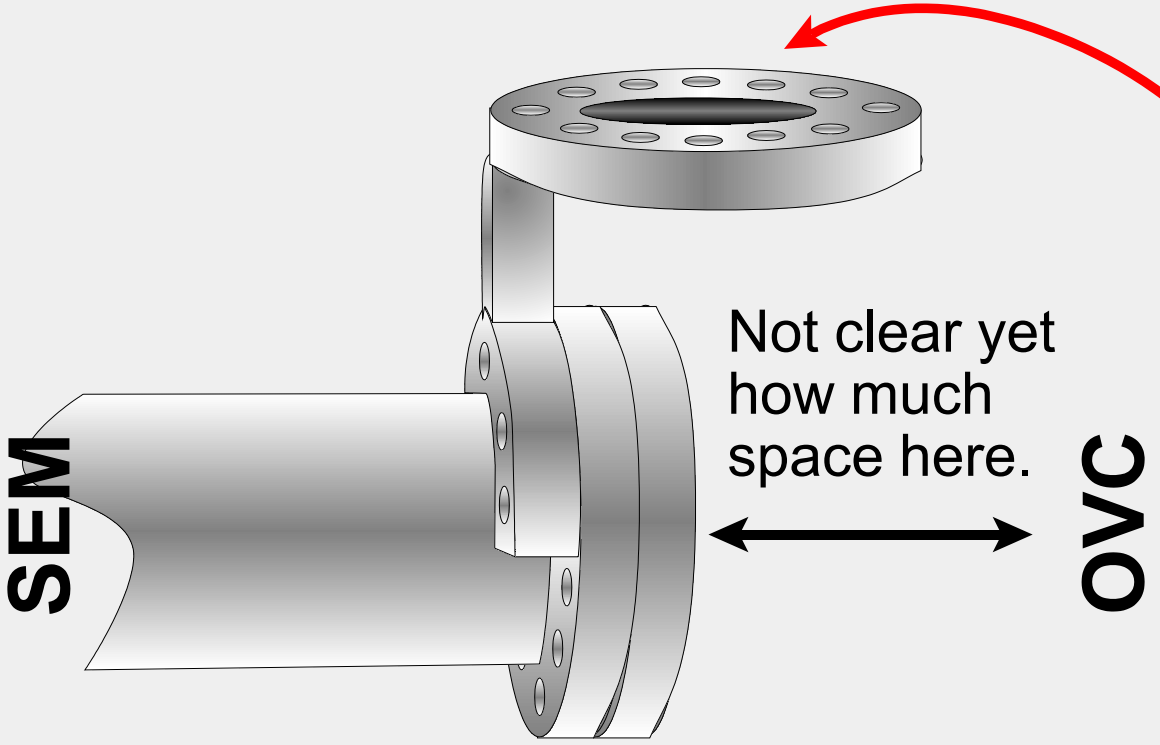
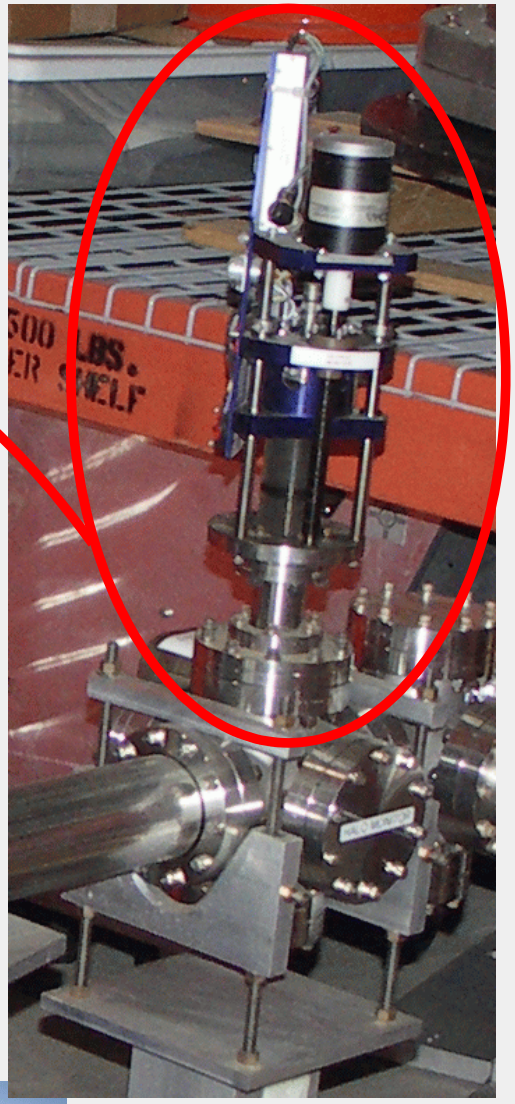
Beam Line

- Radiator
- Radiation Budget
- Extension Piece
- Helium Bag

Radiator

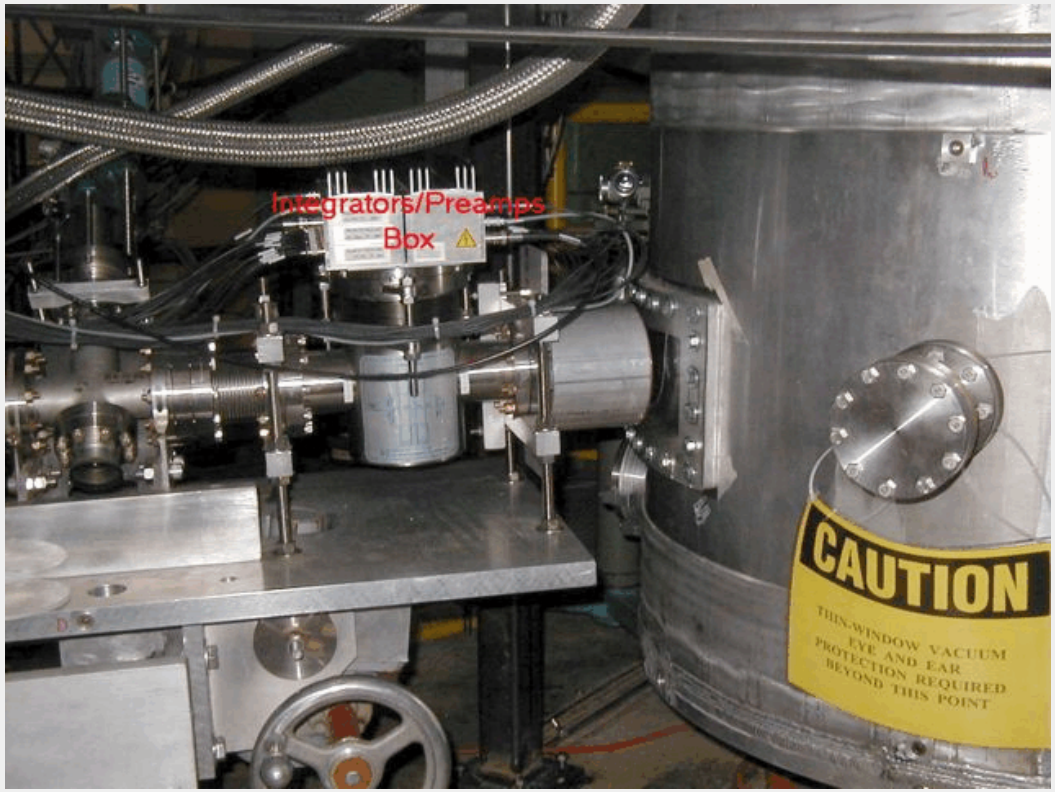
Mount a support for a flange on the end of the beam line. Then mount G0 halo monitor on the flange.





Girder

May need to remove a harp to make radiator fit. Need to design a window cover for safety requirements.



Radiation Budget

Radiation budget form for E07-003 experiment

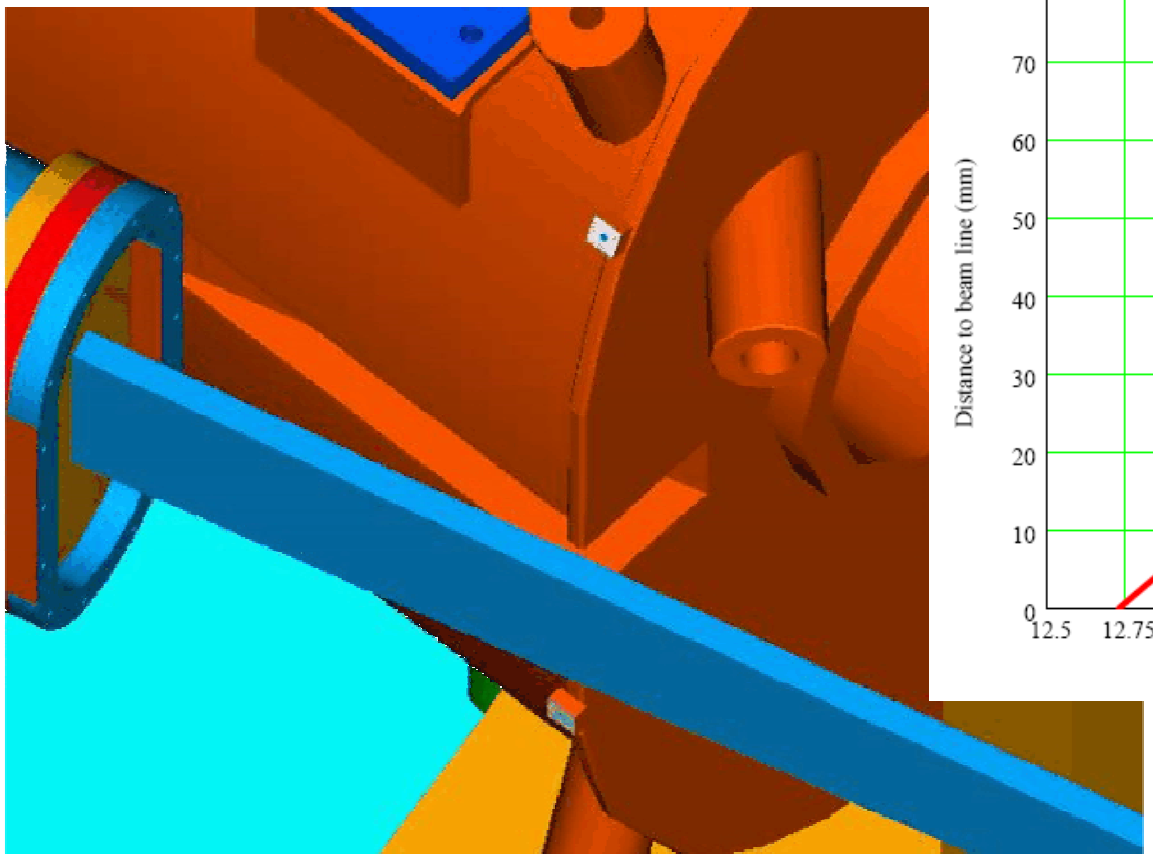
The estimates for the boundary radiation dose from the **E07-003** experiment are given in the attached table. The input data have been provided by Oscar A. Rondon. Please contact me if you see any misprints or inconsistencies in the data.

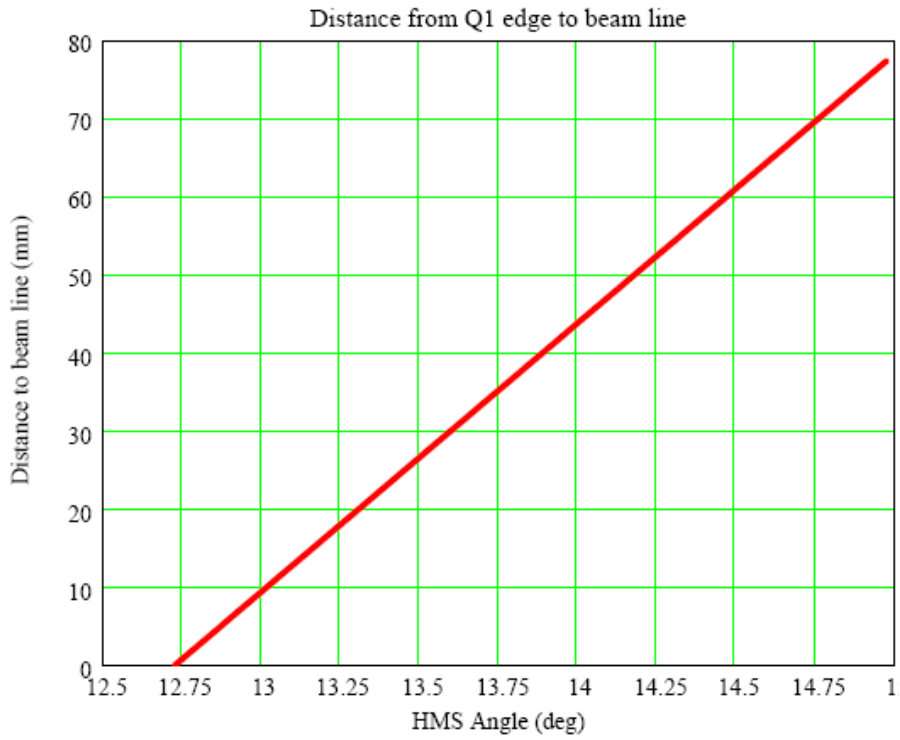
Boundary dose accumulation due to this experiment is estimated to be approximately 0.9 mrem, below the annual design goal not to exceed 10 mrem yearly dose accumulation at the JLab boundary. The dose rate averaged over the run time is about 90% of the design average dose rate, below the alert threshold of 200%.

Boundary dose rates in the runs with the beam directed to the low power in-hall beam dump were conservatively evaluated using the earlier E01-006 model results, without the detailed modeling of the target and the dumpline setup. The estimate is conservative, and the detailed simulation of these setups is presumed not necessary as it will not influence the yearly boundary radiation budget significantly.

The background radiation dose rate levels inside the hall in these runs will be elevated, and high radiation areas are expected around the in-hall dump and at the beam exit line near the target.

Extension Piece





J. Dunne Nov. 9, 2007

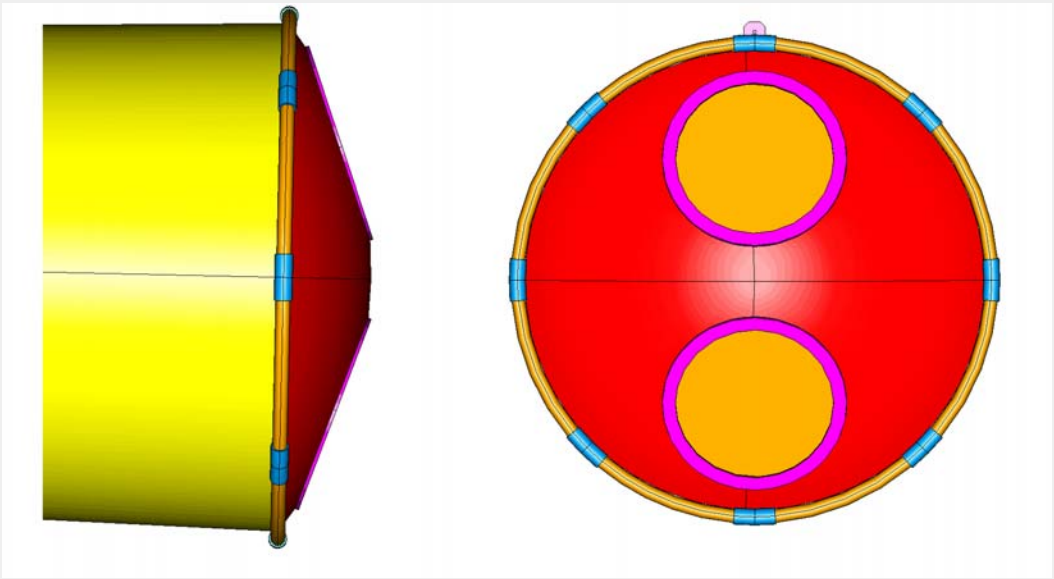
Extension Piece or Air

Message from Keith Welch:

Pavel and I discussed this a day or so ago, and based on a seat-of-the-pants assessment at this point, we don't think it's a problem. I was hoping to have done some rough calculations by now but got overtaken by other events. I might be able to get to it today. In the meantime, if it helps to report that **"Radcon is looking at it and doesn't currently think it's a problem"**, then that's a reasonable description I think. Pavel had suggested possibly filling the space with some kind of helium "bubble" or balloon, if that's feasible, just to try to minimize the air gap.

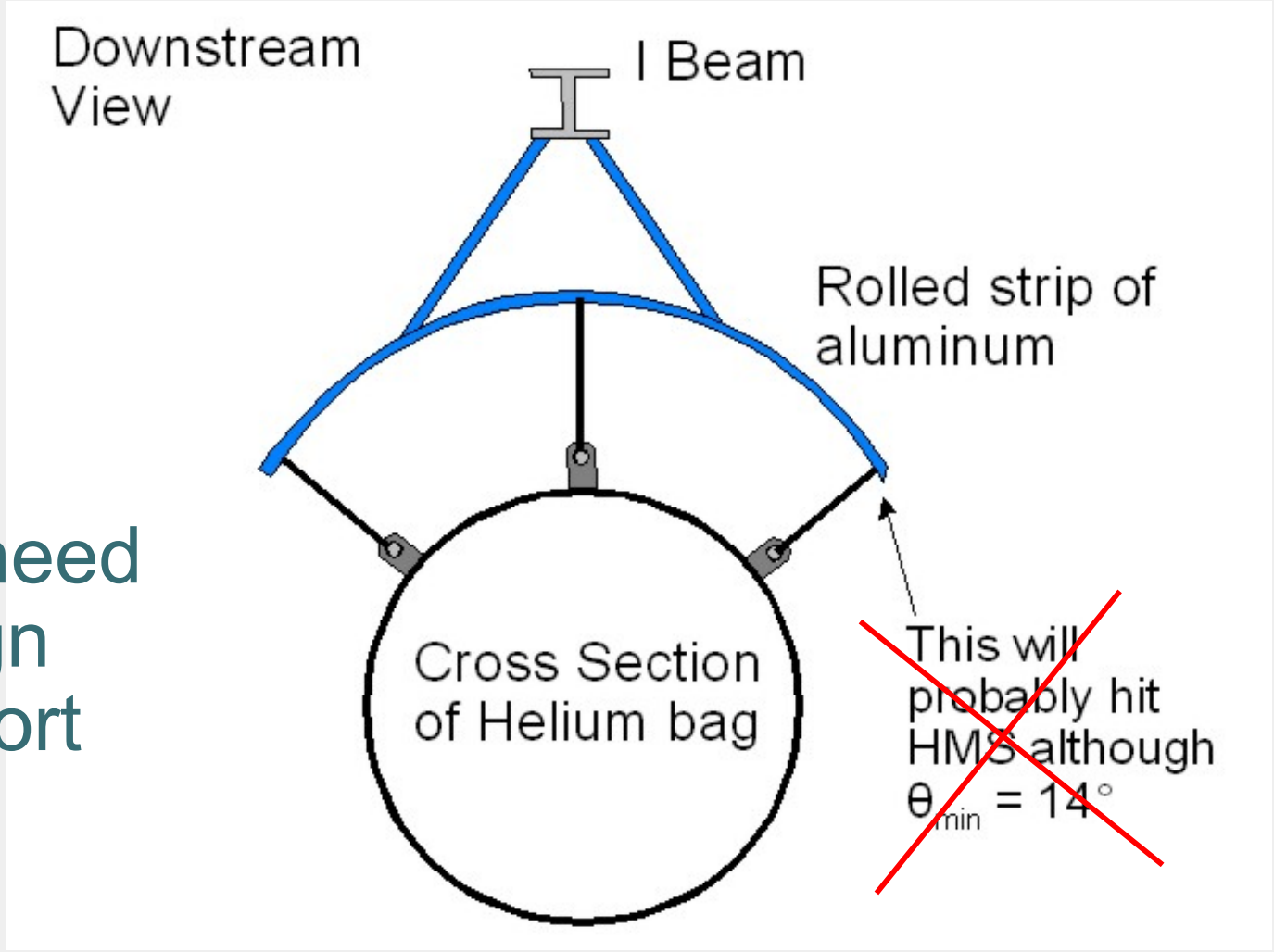
Helium Bag

- Still two things holding up construction:
  - Aluminum windows
  - placement of additional support tabs



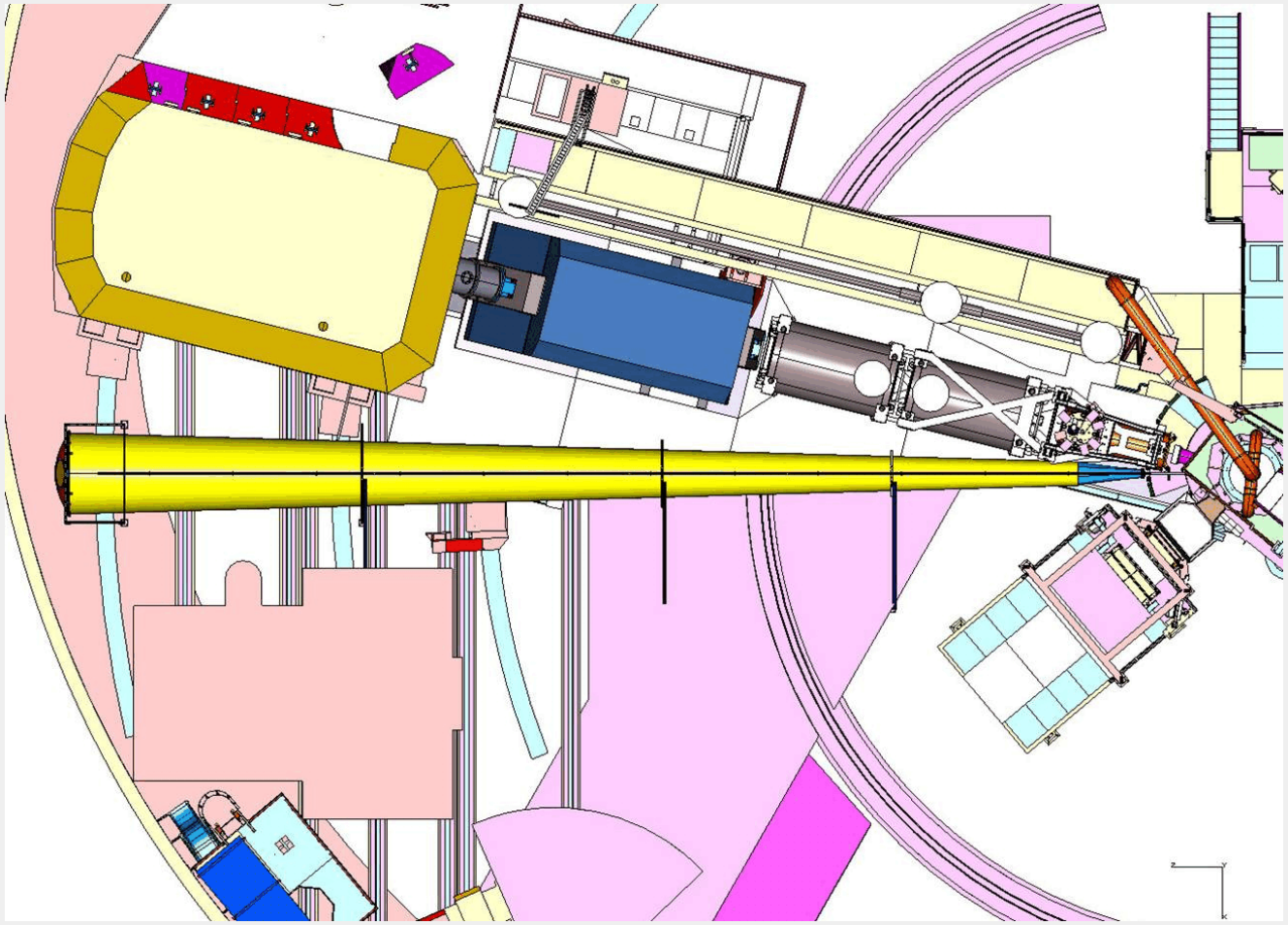
Mike Fowler said that he found a sketch indicating that the window diameter was 28". I need to verify the positions.

Helium Bag Support



Still need design support

Layout



At least based on this picture, it does not appear that the helium bag support will interfere with the HMS.

$\theta_{HMS} = 14°$

Helium Bag Support

Question: The drawing does not show the bottom tabs attached to anything, but this picture does. Did this unistrut run all the way to the target? Is this needed?