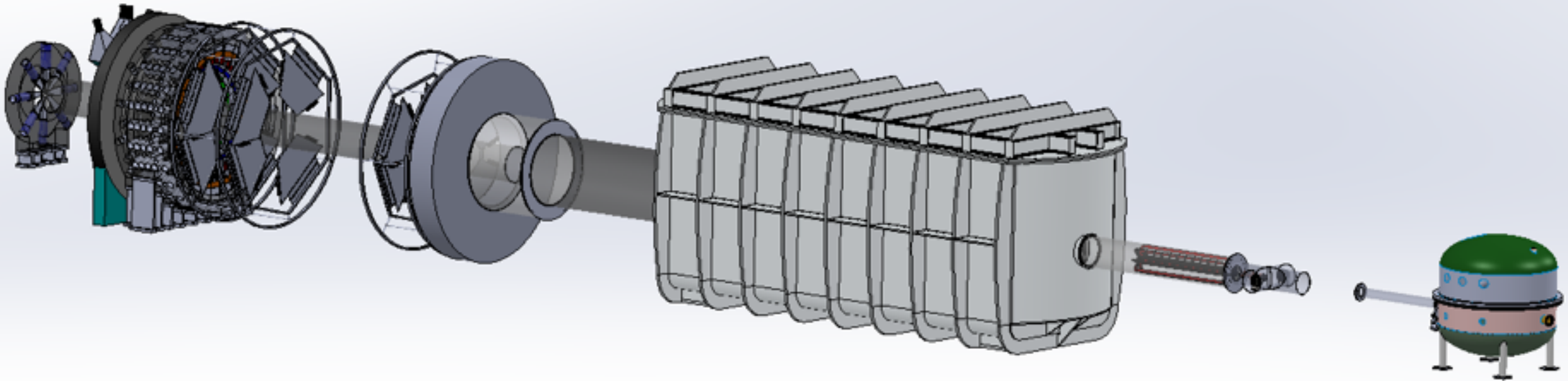
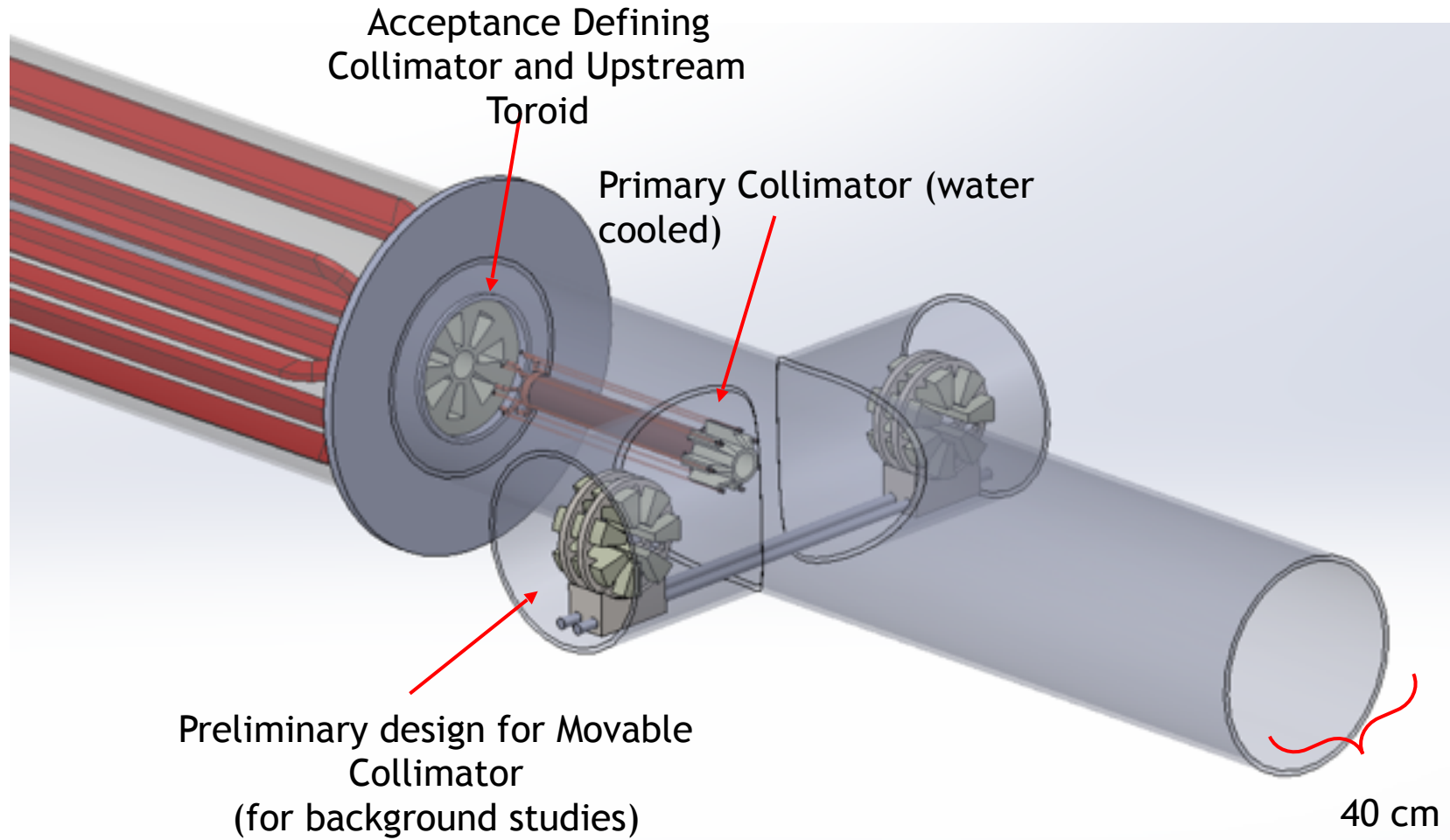


Moller Beamline SolidWorks Assembly at SBU

Krishna Kumar
Cameron Clarke
Tyler Kutz

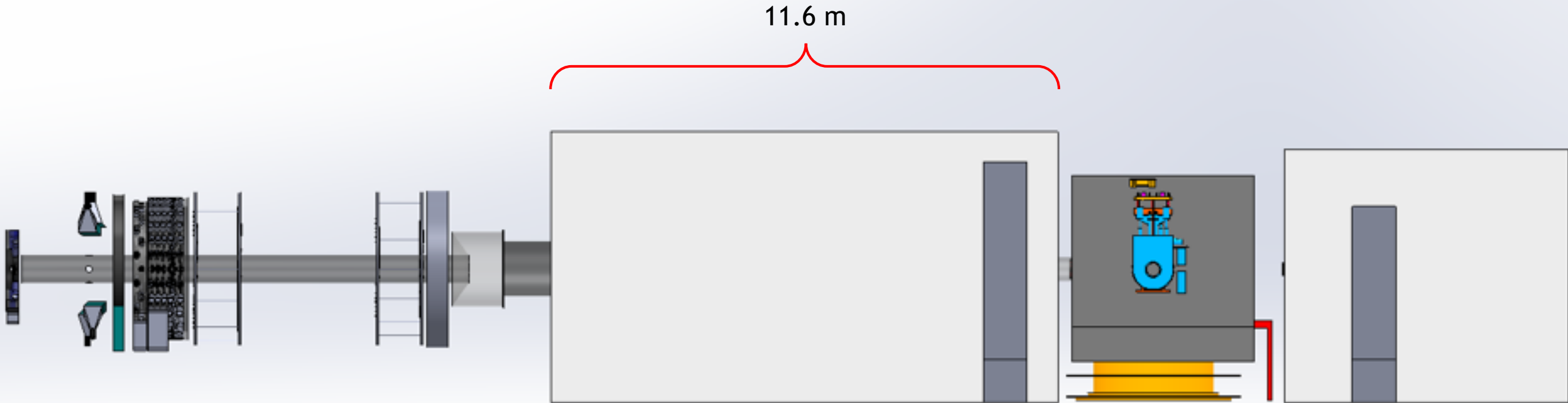


Upstream Collimators – Strong source of radiation along with target



Concrete, Lead and Poly shielding (side view)

- Working off of the parameters supplied by the radiation simulation.
- Modified to fit constraints due to other potential beamline elements.



Target region (top view)

Incoming Beam Direction

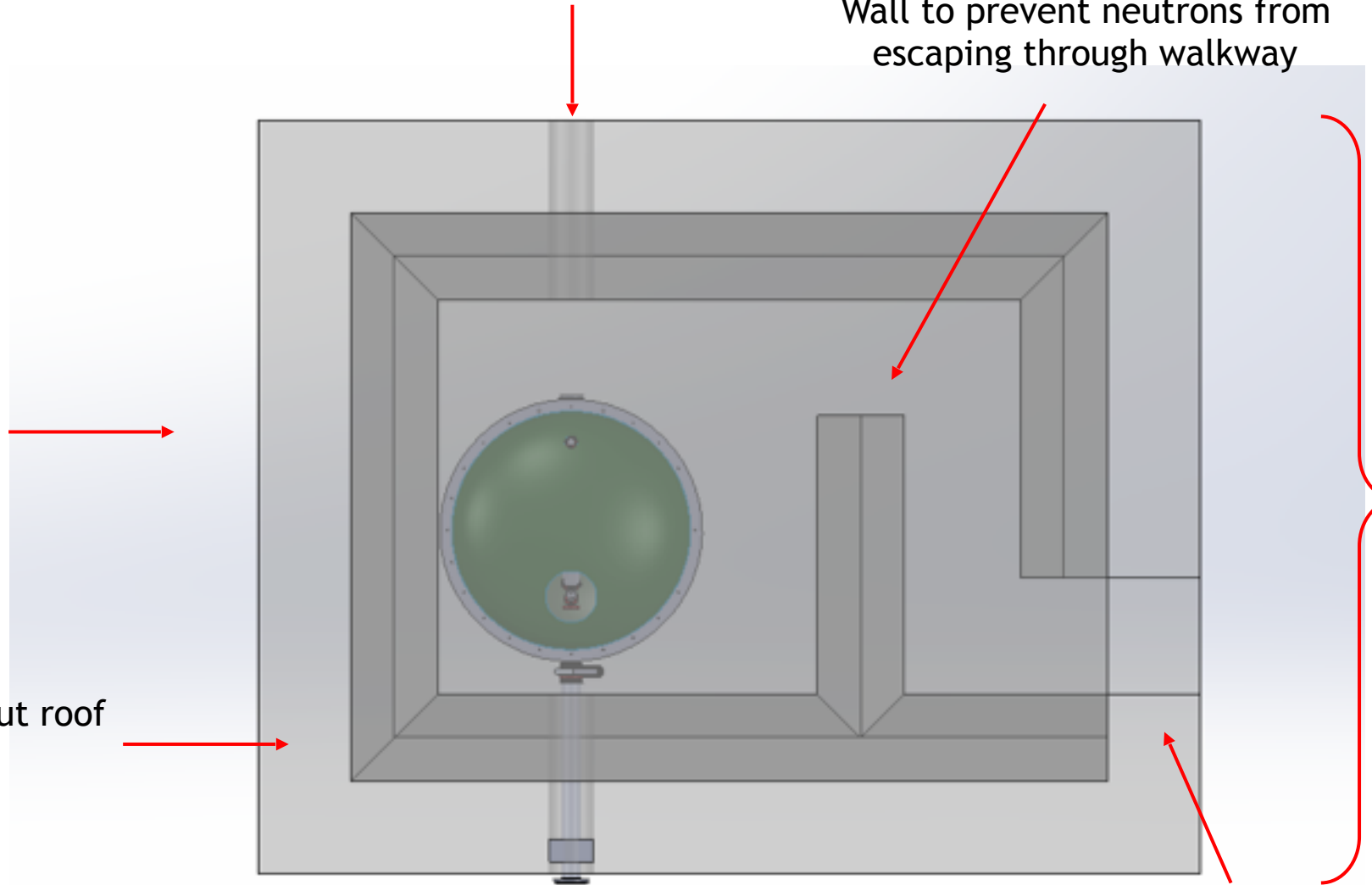
Wall to prevent neutrons from escaping through walkway

Other interior walls are concrete
Exterior walls are polythene

Downstream face and hut roof are made of lead

6.5 m

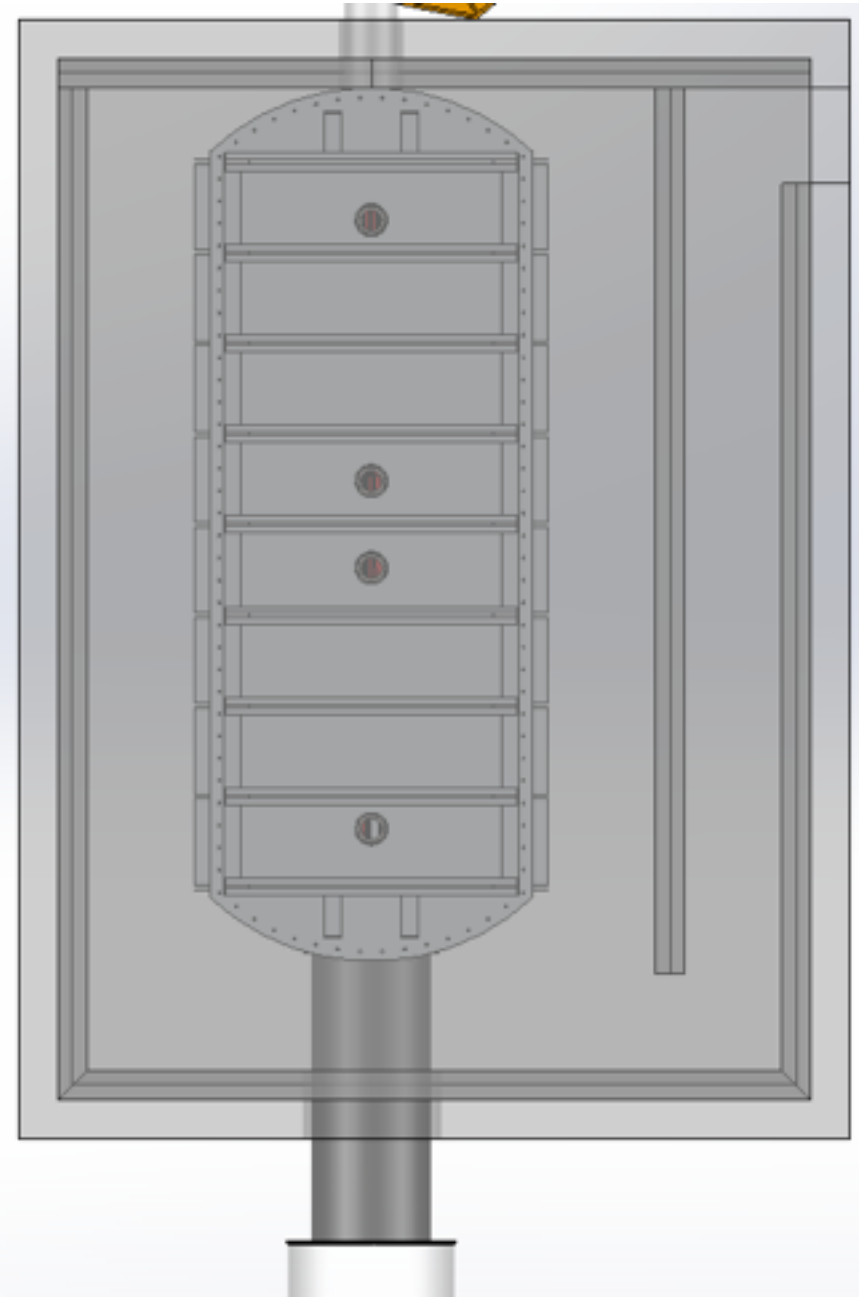
Meter wide walkway for maintenance access



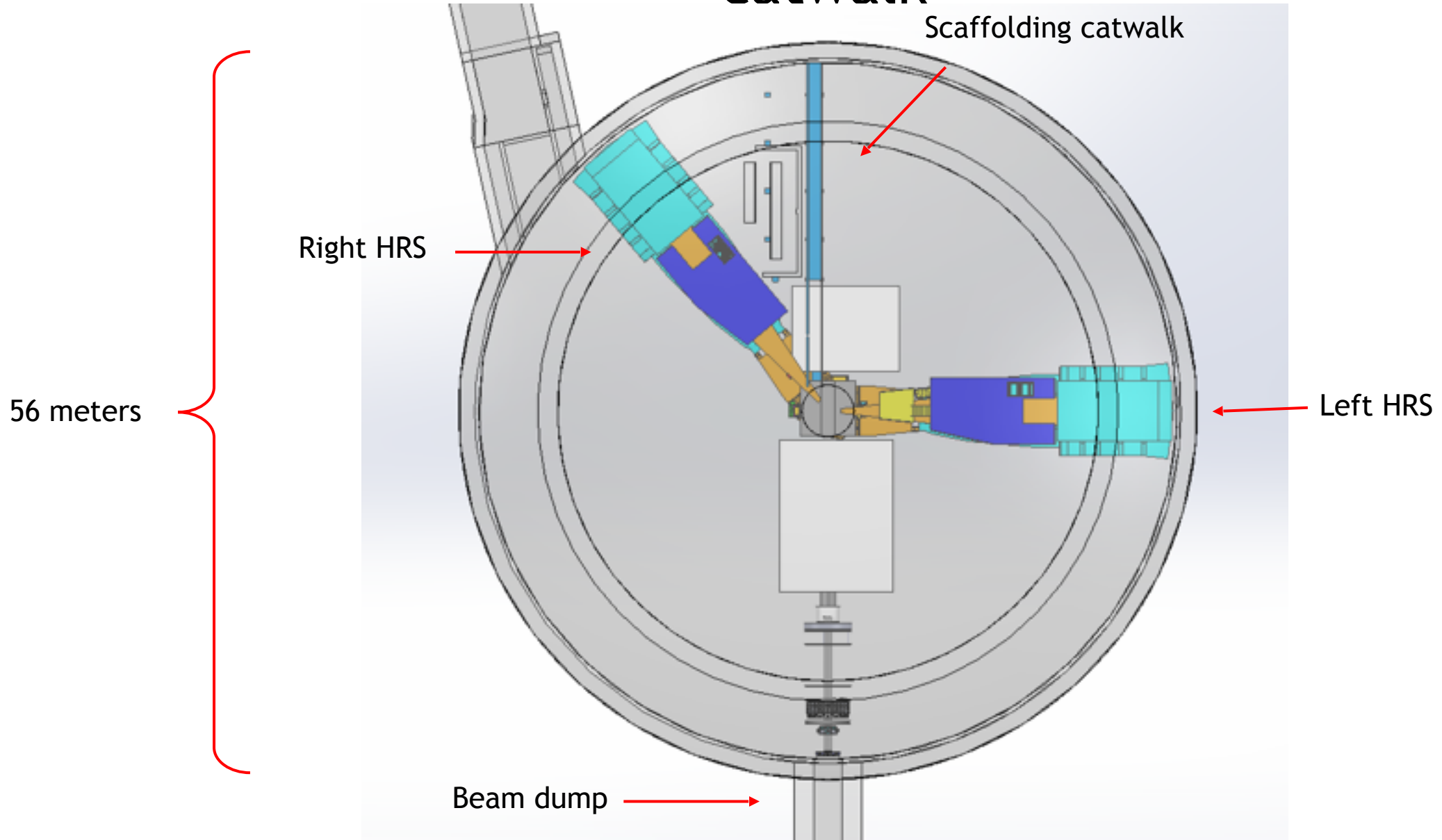
Hybrid Toroid (top view)

11.6 m

- Shielding (transparent) is preliminary.
- Interior is concrete, outer layer is poly.
- More reduction may be possible now that collimator 3 has been removed.



Top down view of the entire hall - with HRS arms + catwalk



HRS, Catwalk, and collimators' shielding

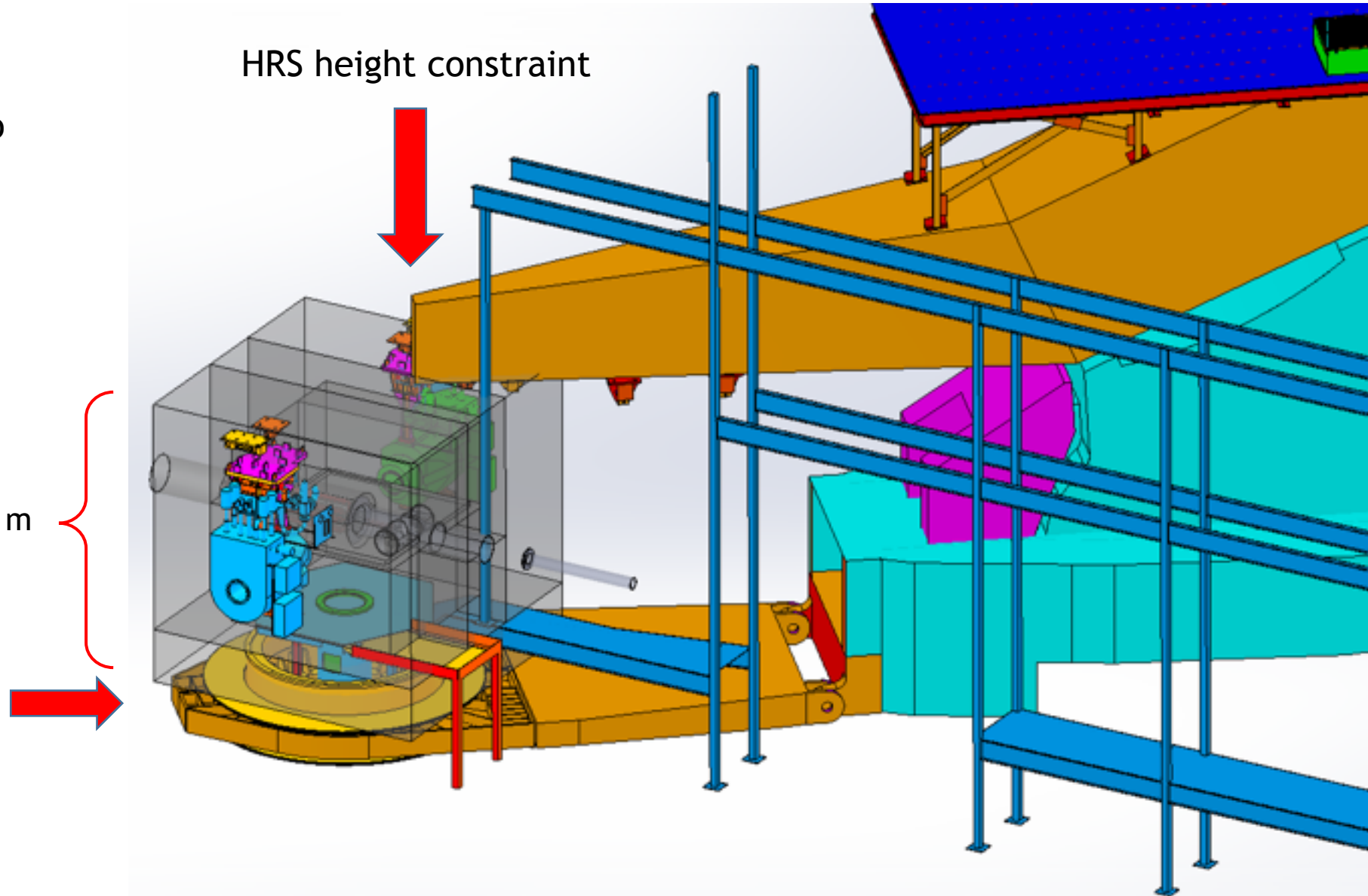
There are several conflicts here:

- Catwalk (blue) protrudes into this shielding block.
- Both HRS's provide a height limit to the shielding.
- The circular pivot constrains downward shielding.

This shielding can be modified to go around the pivots.

4.26 m

HRS height constraint



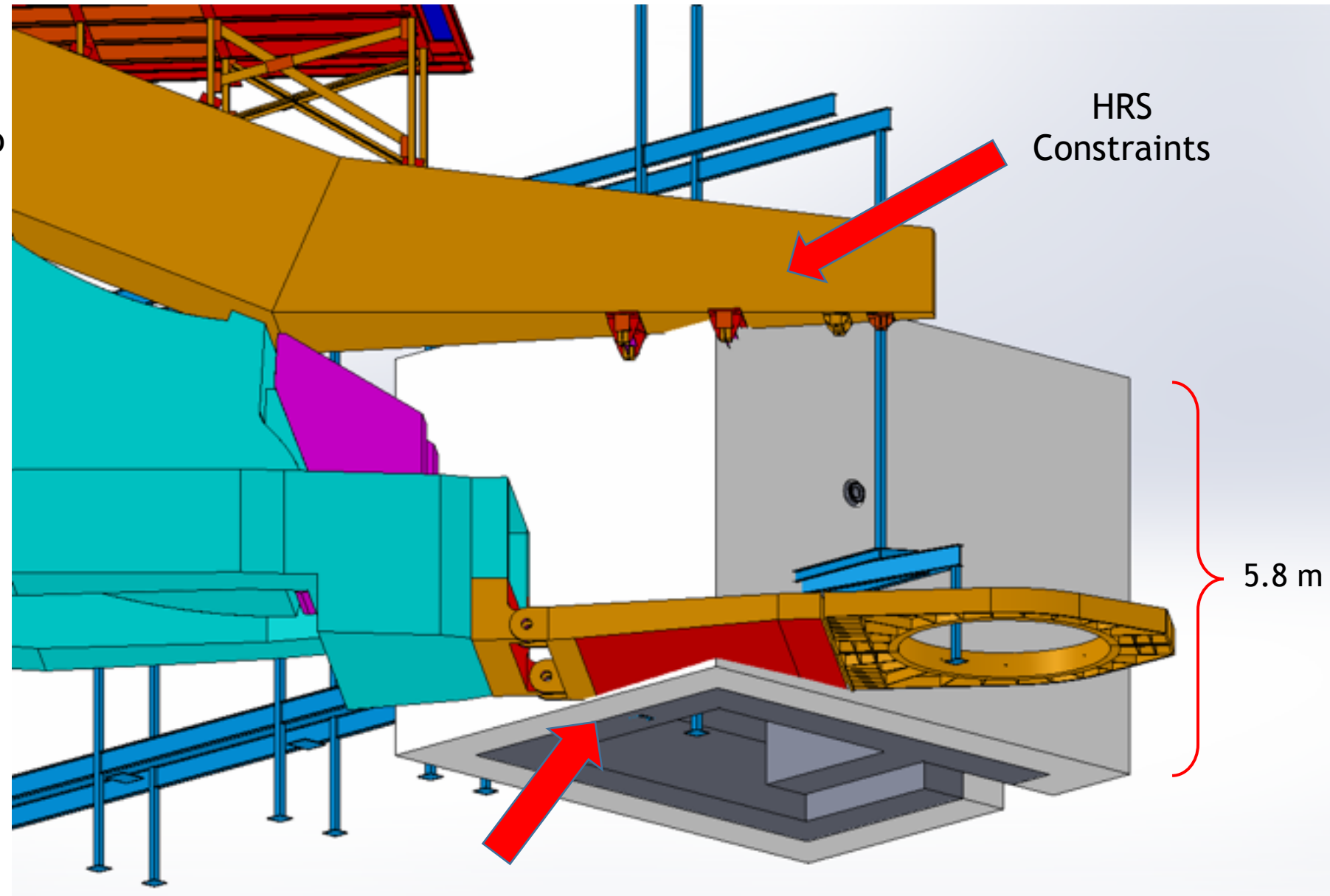
Angled view of target shielding block

There are several conflicts here:

- Catwalk (blue) protrudes into this shielding block.
- The right HRS cuts into the shielding, but only minor.

The shielding can be modified to go around these objects, but care must be taken.

This portion of the catwalk will need to be removed.

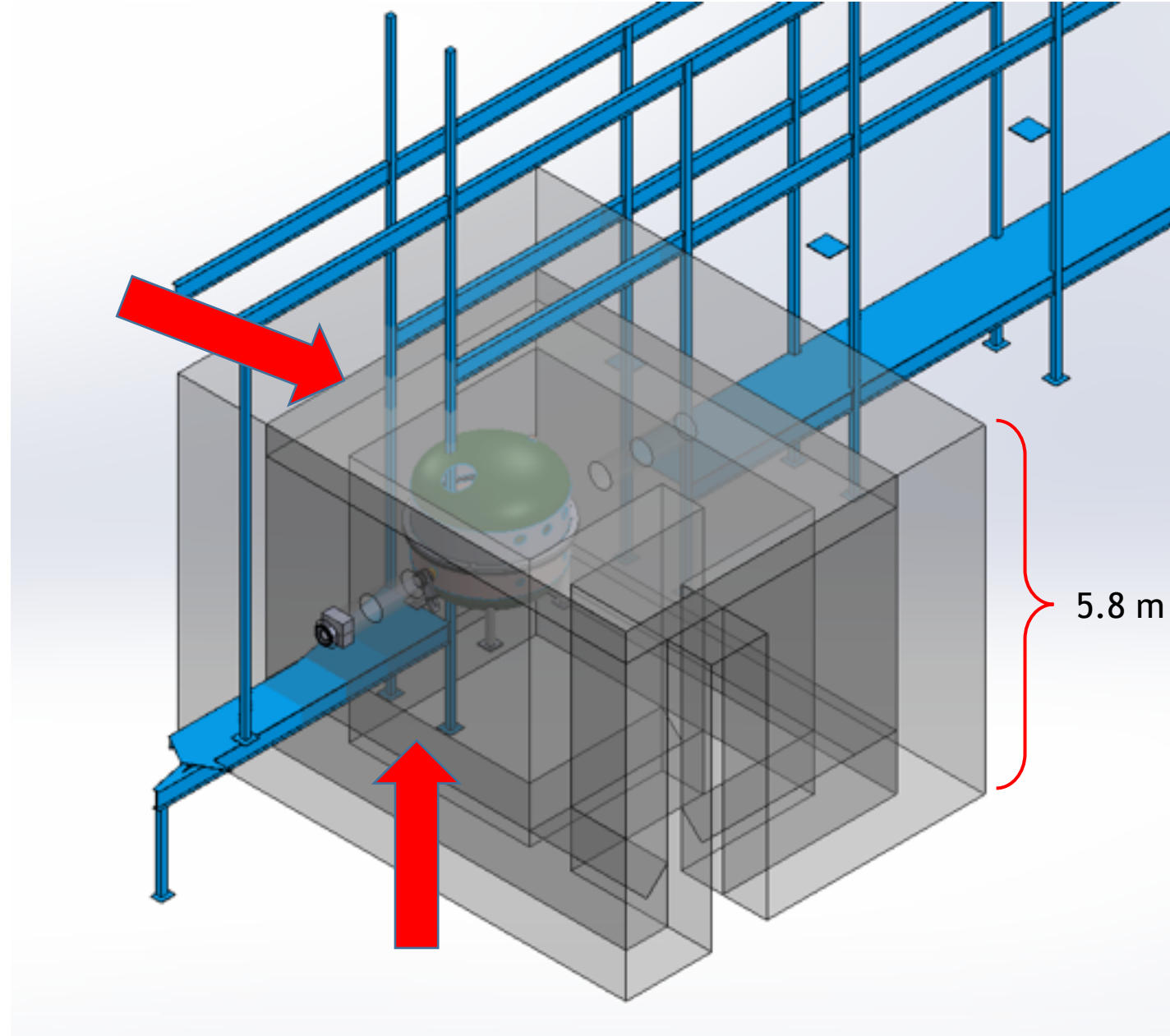


Angled view of target shielding block

There are several conflicts here:

- Catwalk (blue) protrudes into this shielding block.
- Catwalk leg also protrudes directly through the target.

This portion of the catwalk will likely need to be taken out.



Near-Term Plan

- Get feedback on various conflicts from Hall Engineering Staff
- Devise conceptual design of shielding that resolves physical conflicts
- Re-run proof-of-principle simulations to estimate Hall radiation levels and site boundary dose
- Iterate
- Incorporate engineering constraints of spectrometer/collimation system
- Considerations for 2 to 3 installations/de-installations
- ...