



CLICdp Detector Optimisation Meeting

Update on the layout of the inner regions

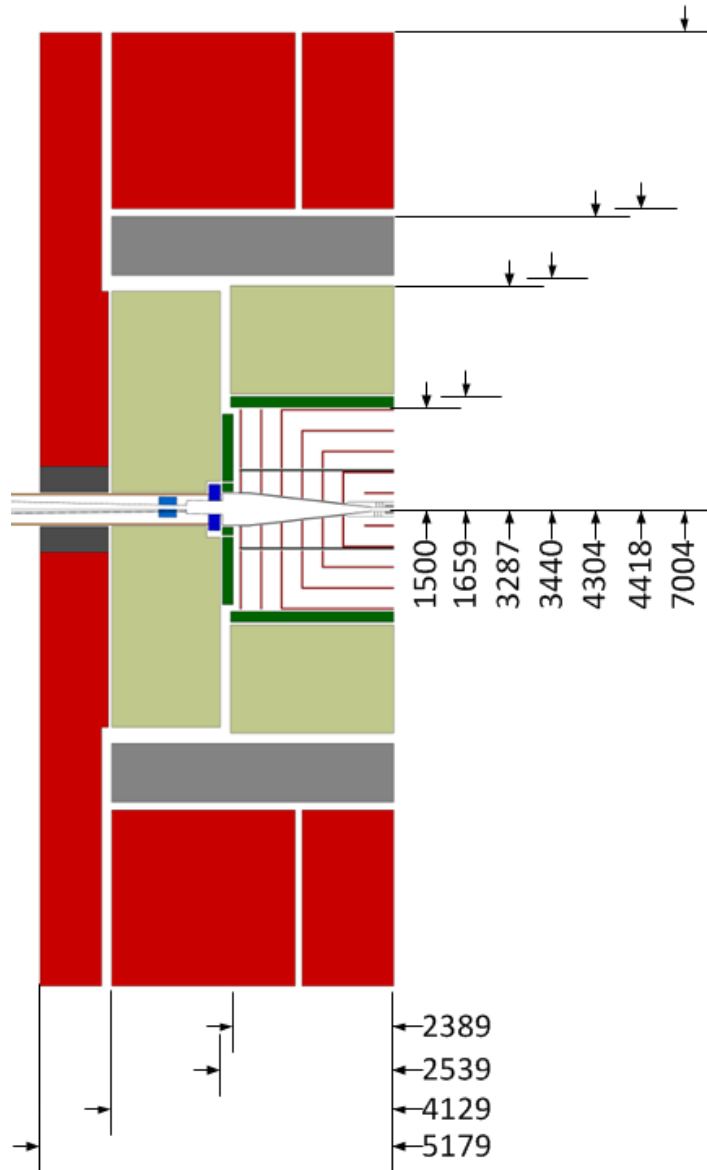
F. Duarte Ramos

March 25, 2015

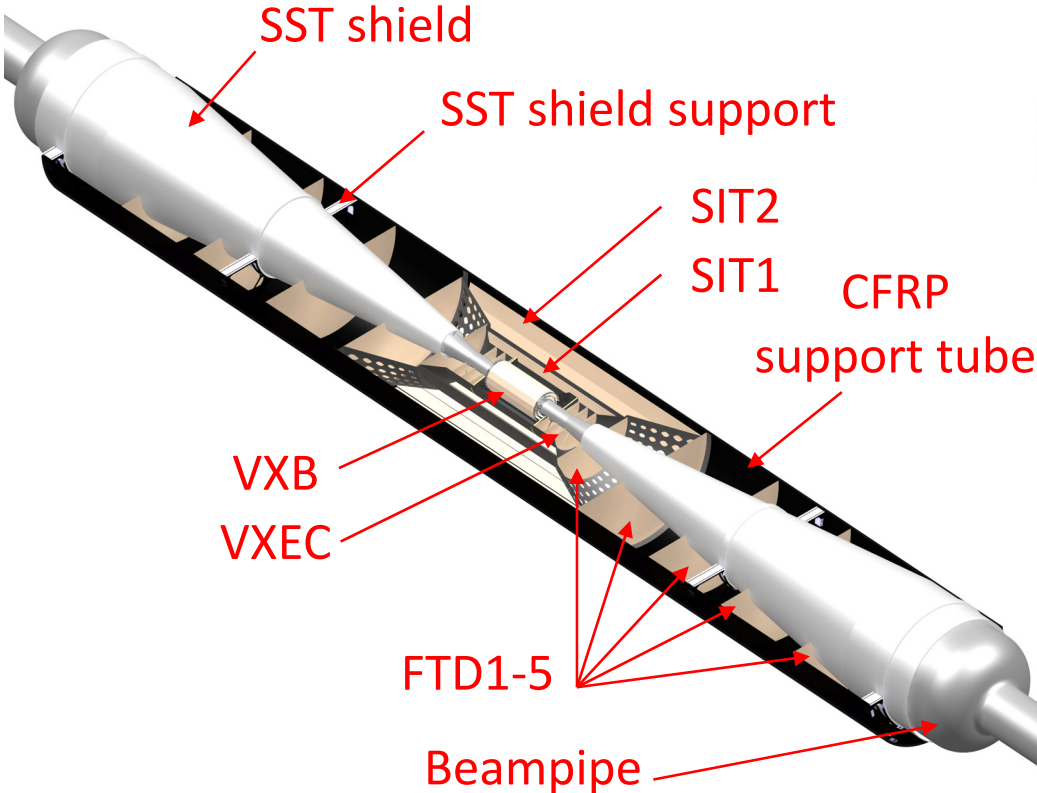
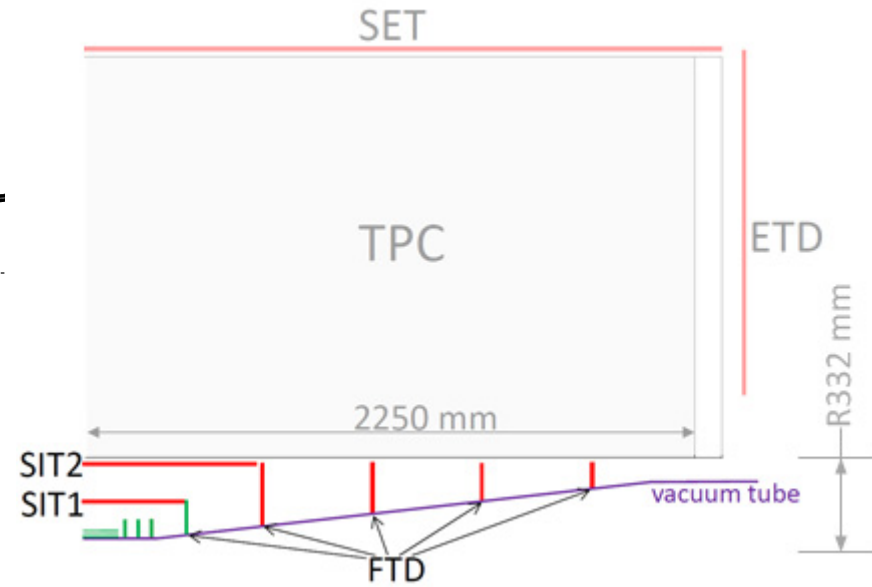
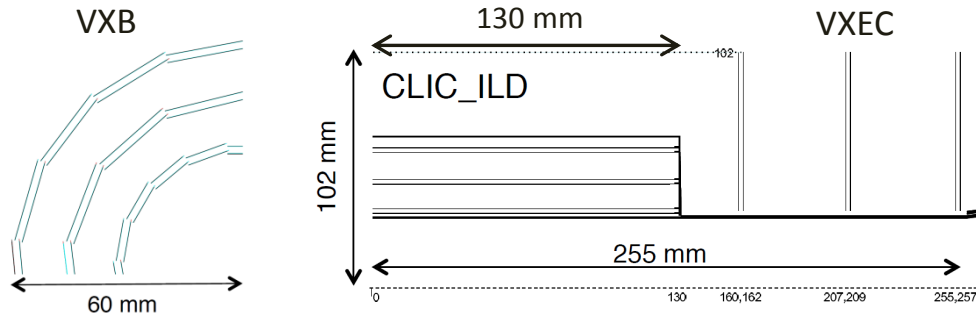
Current detector layout

Top View

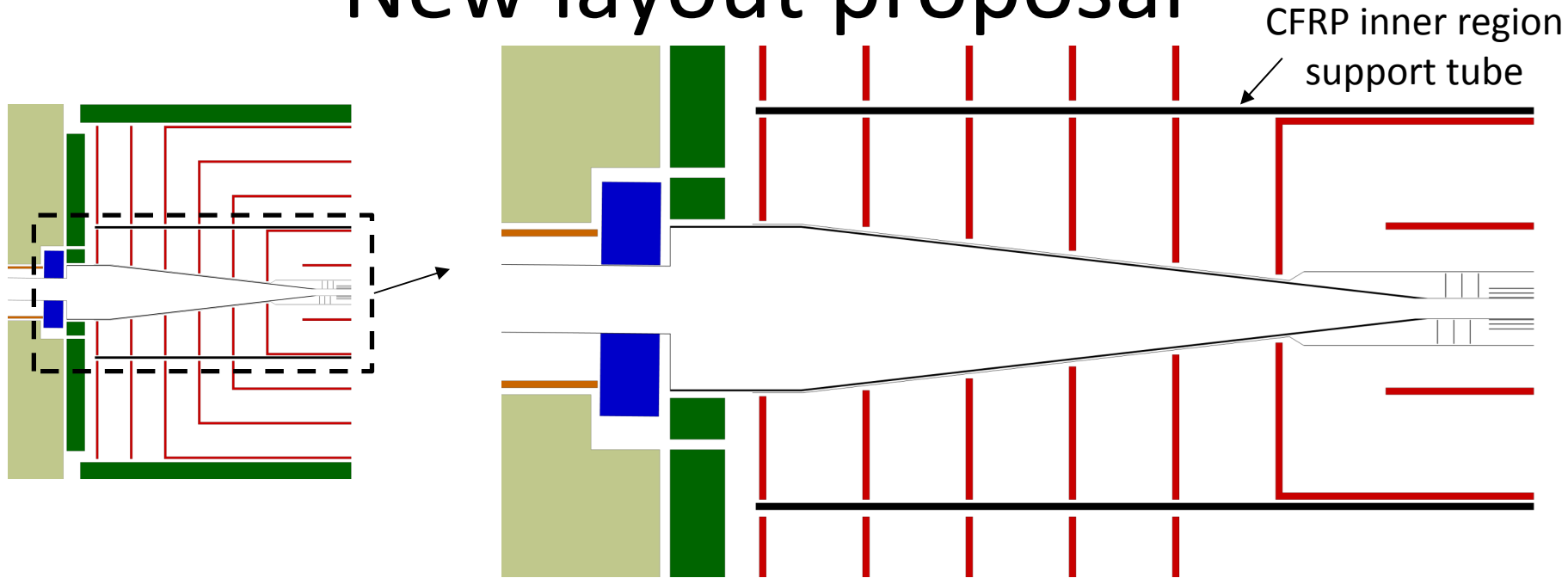
- ECAL
- HCAL
- Vactank
- Yoke
- Anti-solenoid
- Lumical
- Beamcal



CLIC_ILD CDR inner region layout



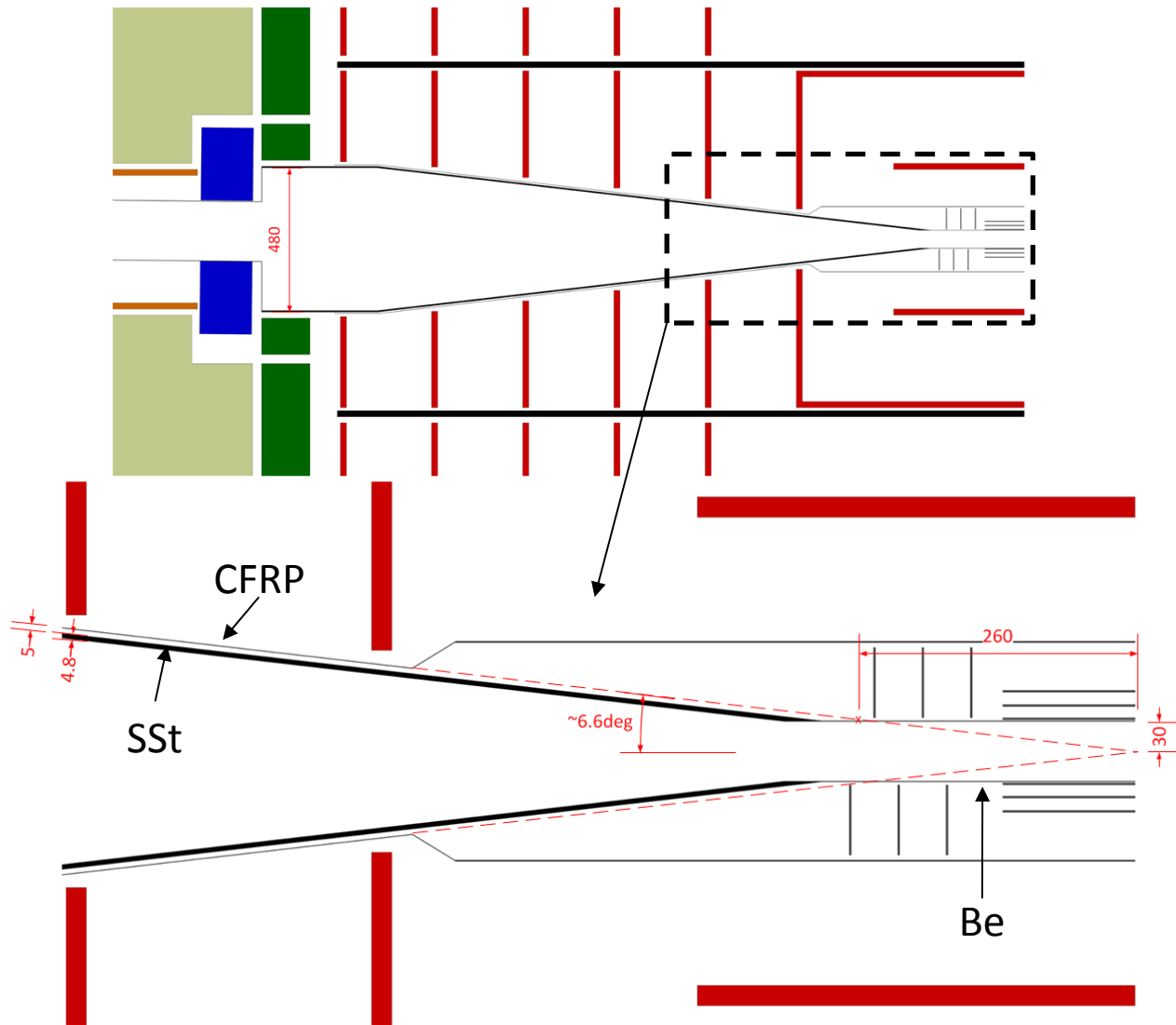
New layout proposal



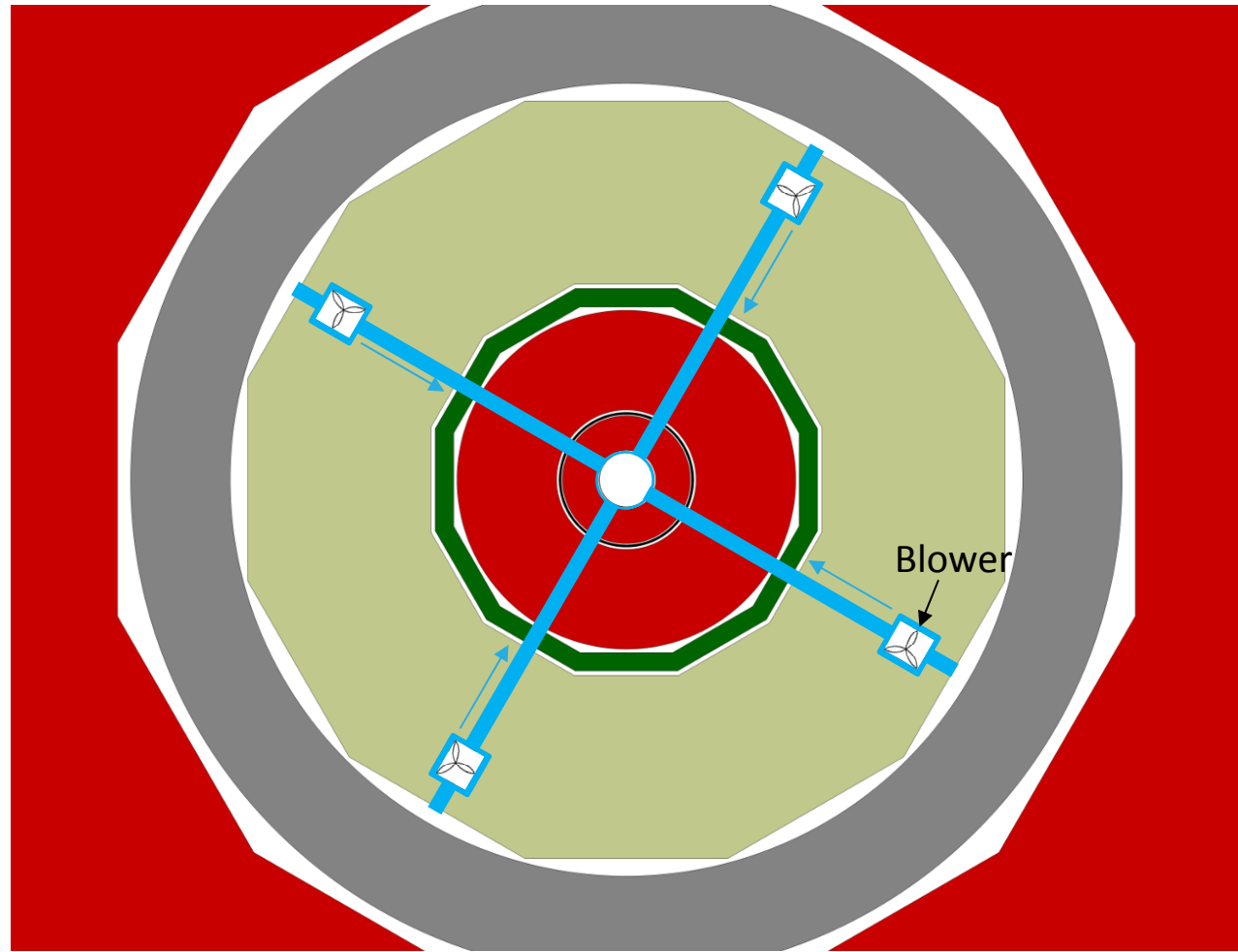
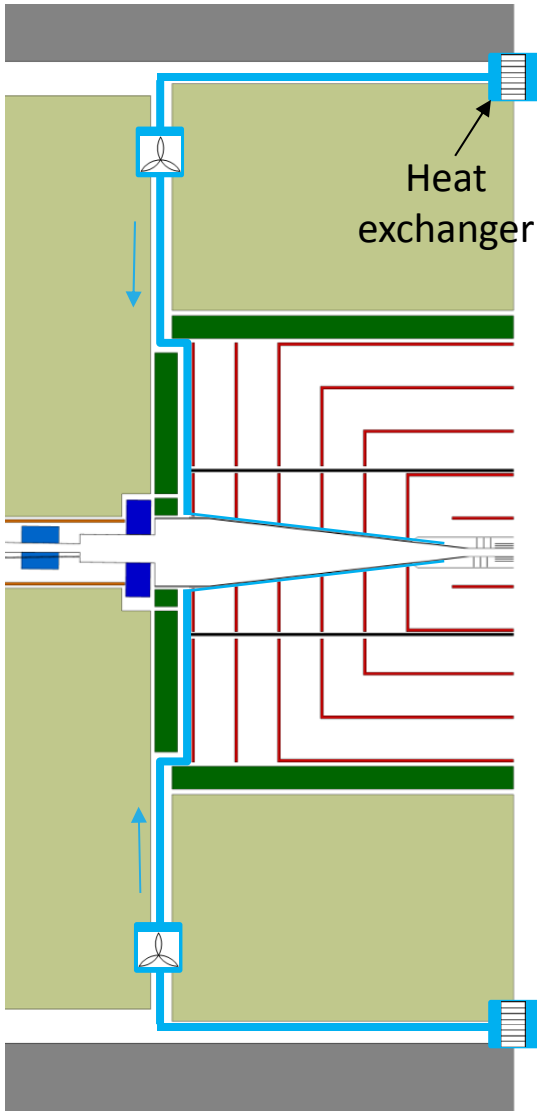
- Keep the inner region support tube concept (provides a stable support for the beampipe and the vertex detector);
- By increasing the radius of the support tube (to $\sim 580\text{mm}$), SIT 1 and 2 can be replaced by the 2 innermost tracker barrel layers (= reduction of material in front of these layers);
- Attaching the modules of the 2nd barrel layer directly to the support tube reduces the need for additional support material (and placing them on the inside makes the insertion of the support tube inside the tracker less risky);
- FTDs are replaced by portions of the tracker endcaps (need feedback on their position).

Beampipe dimensions

(based on modified CLIC_ILD design)

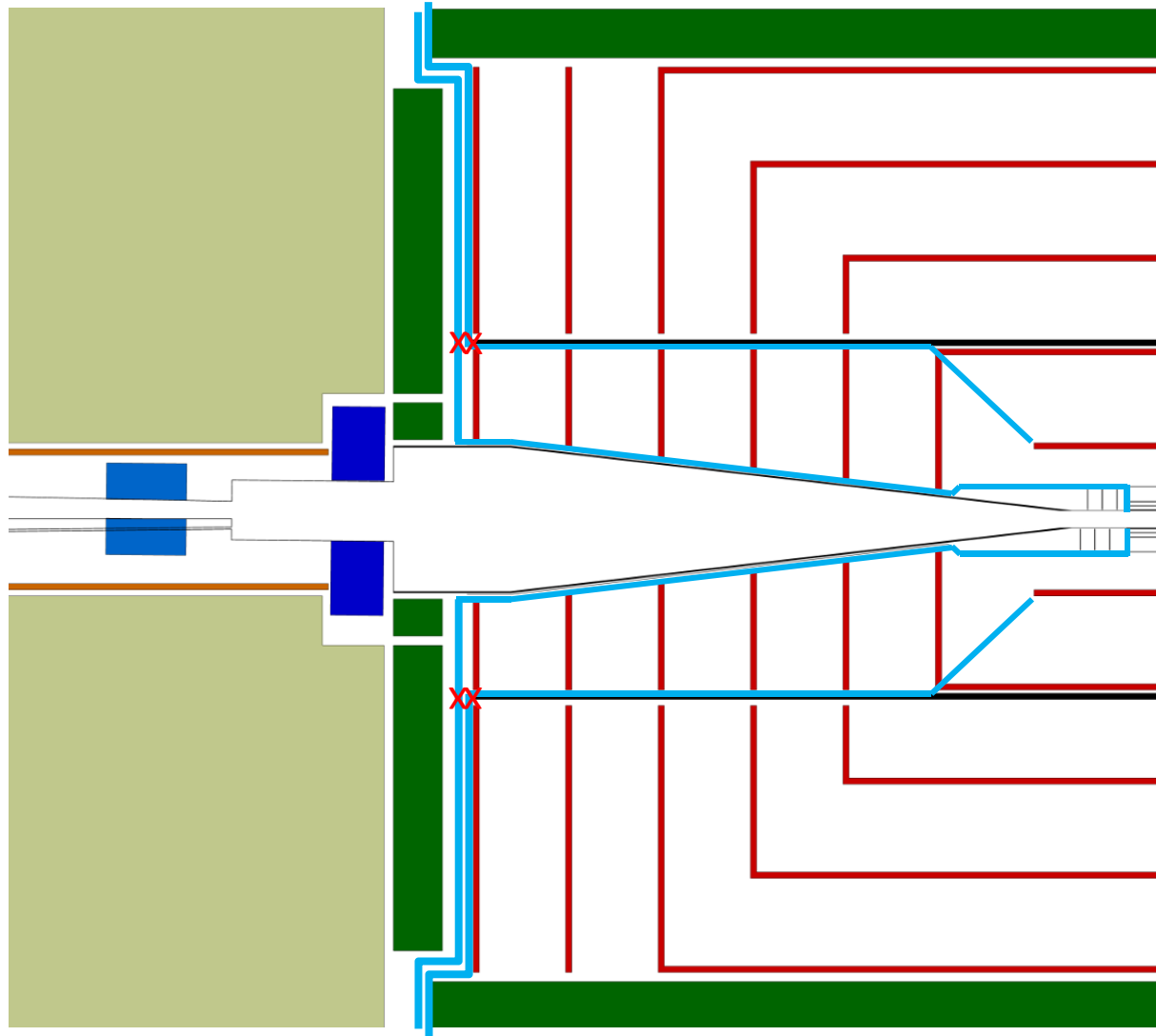


Vertex detector closed air/N₂ circuit



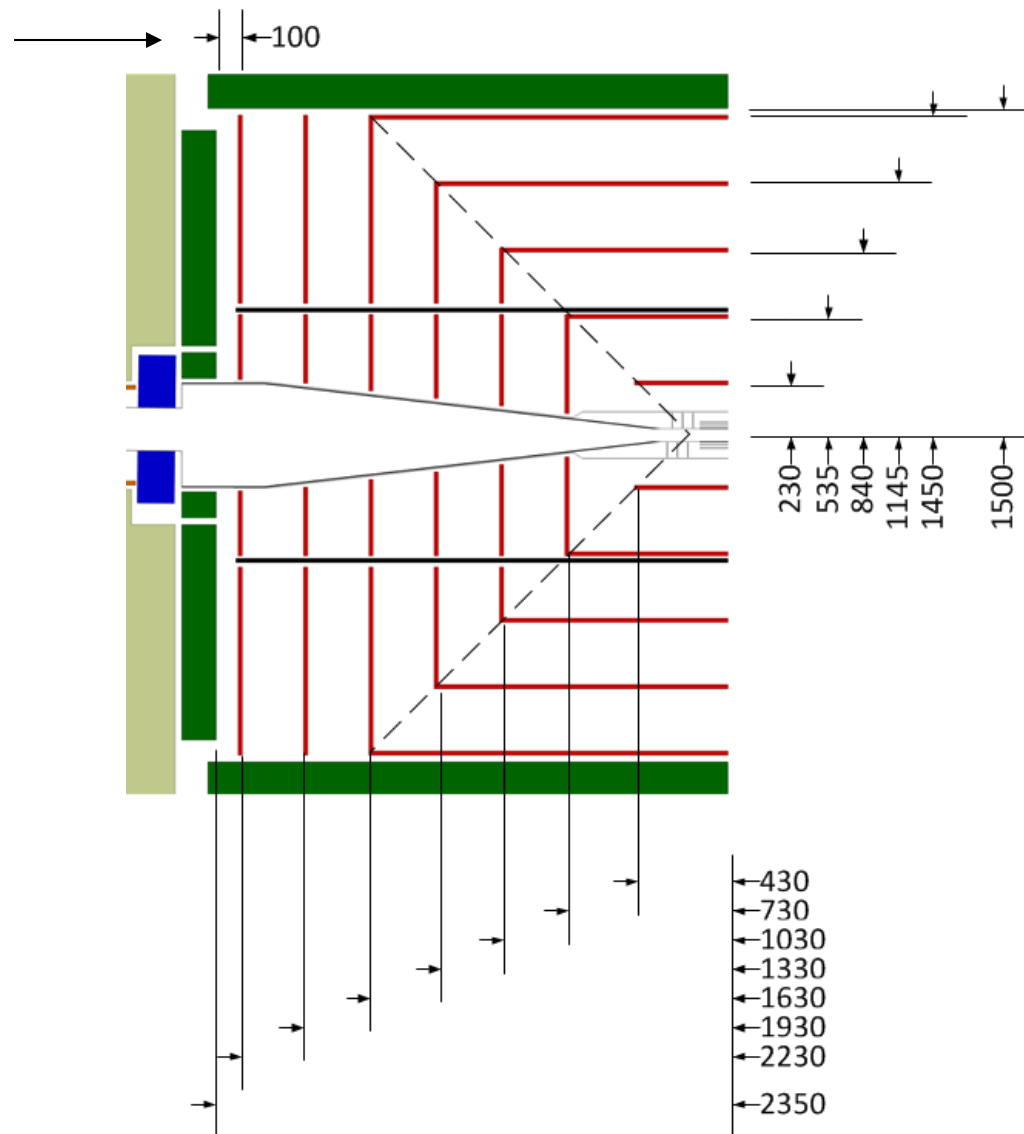
The cross-sectional area of the air duct at the largest diameter of the beampipe (7500 mm^2) is equivalent to 4 $25 \times 75 \text{ mm}^2$ ducts.

Cable layout

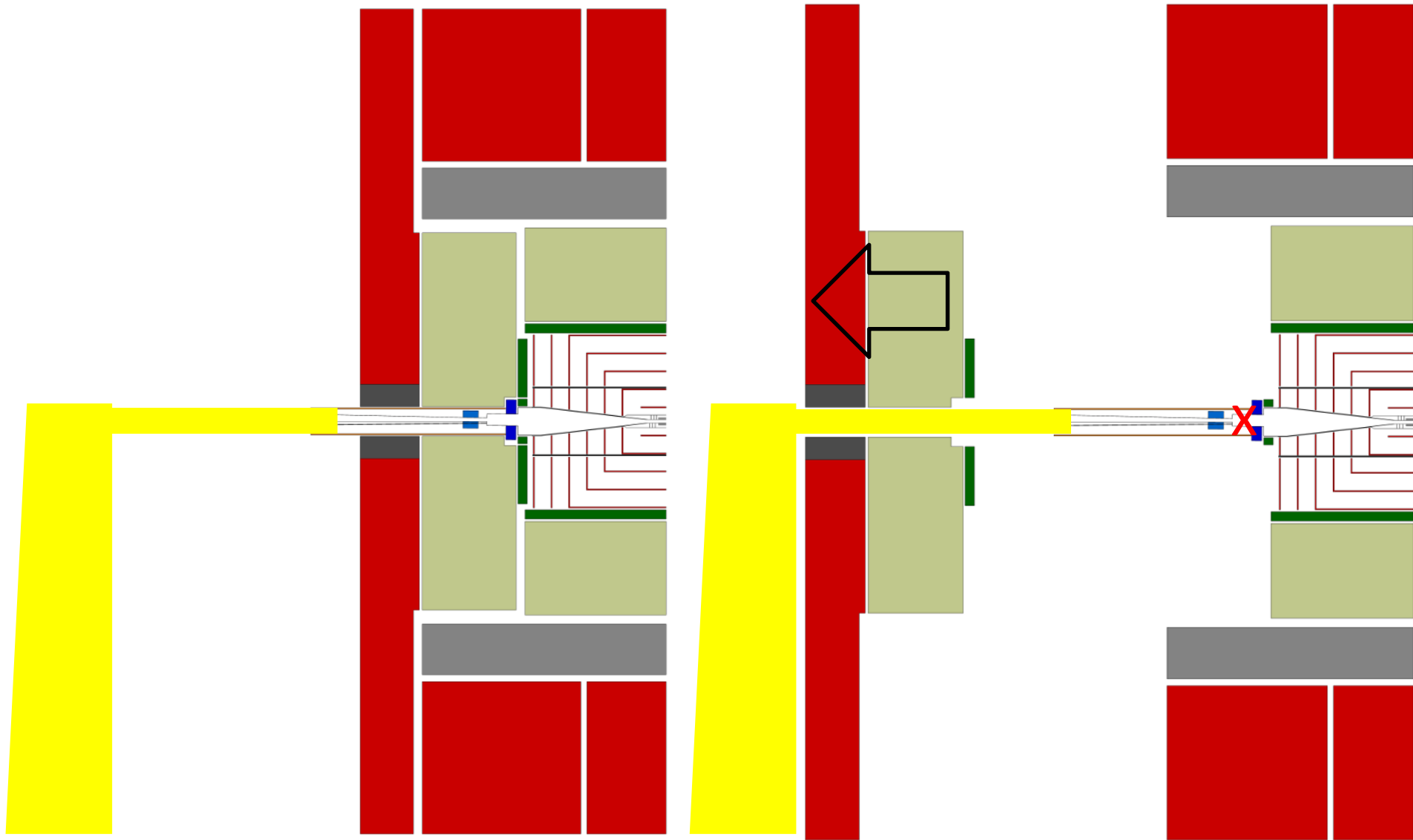


Current tracker dimensions

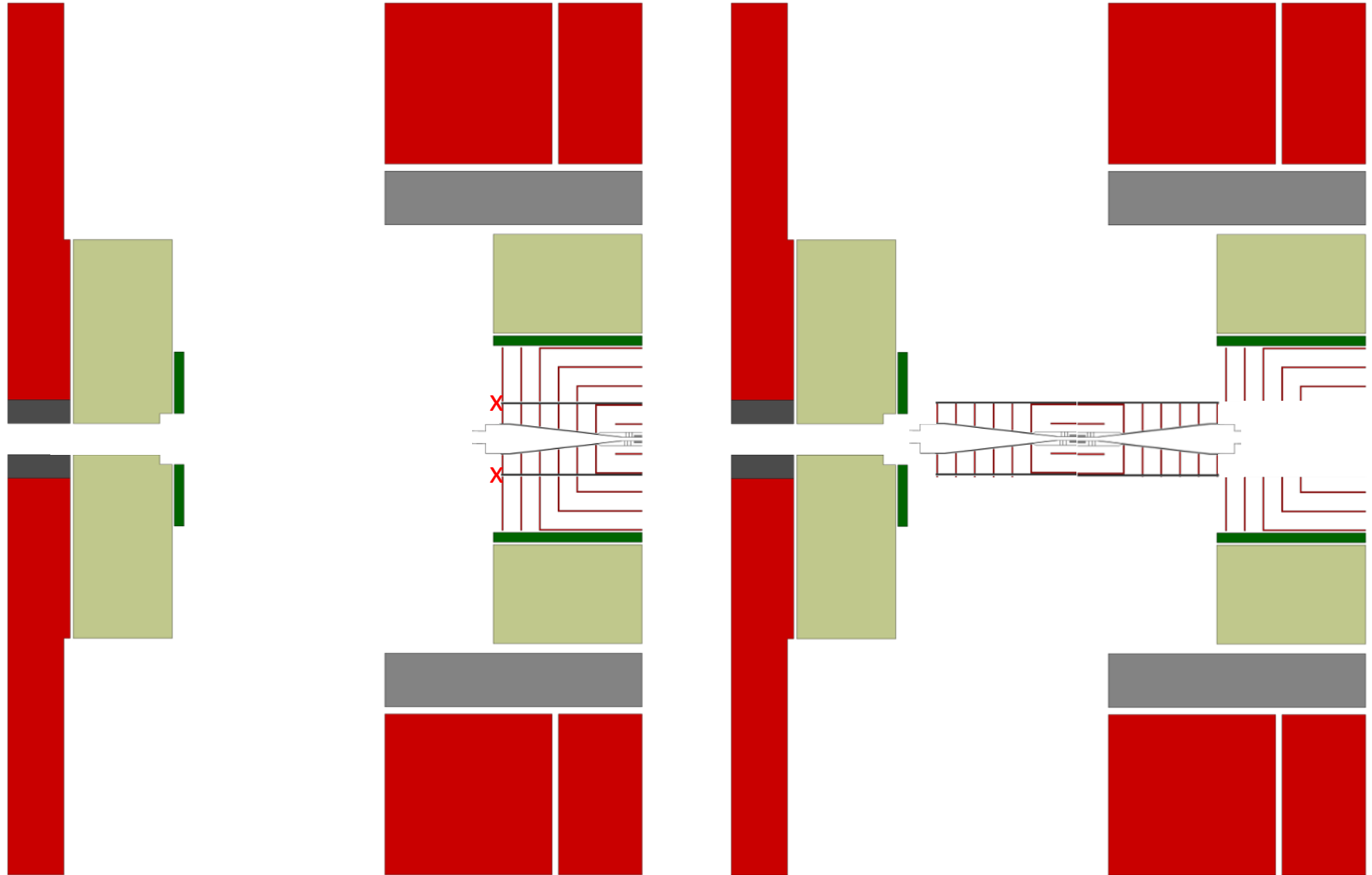
Gap for services of inner region (cables + air cooling ducts) and connection of support tube to the ECAL barrel



Opening scenario



Opening scenario



Feedback?