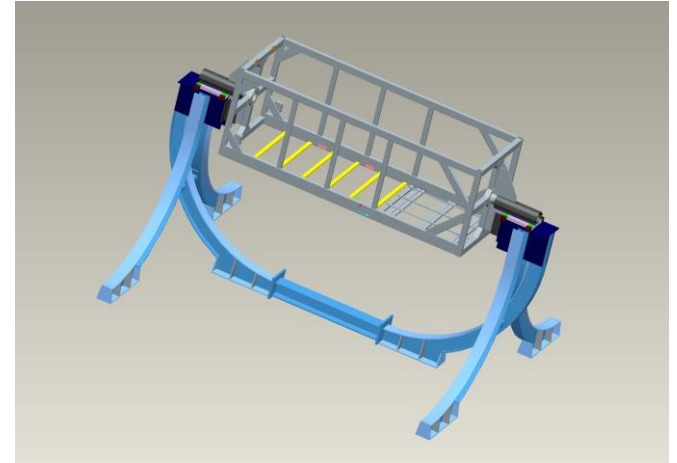
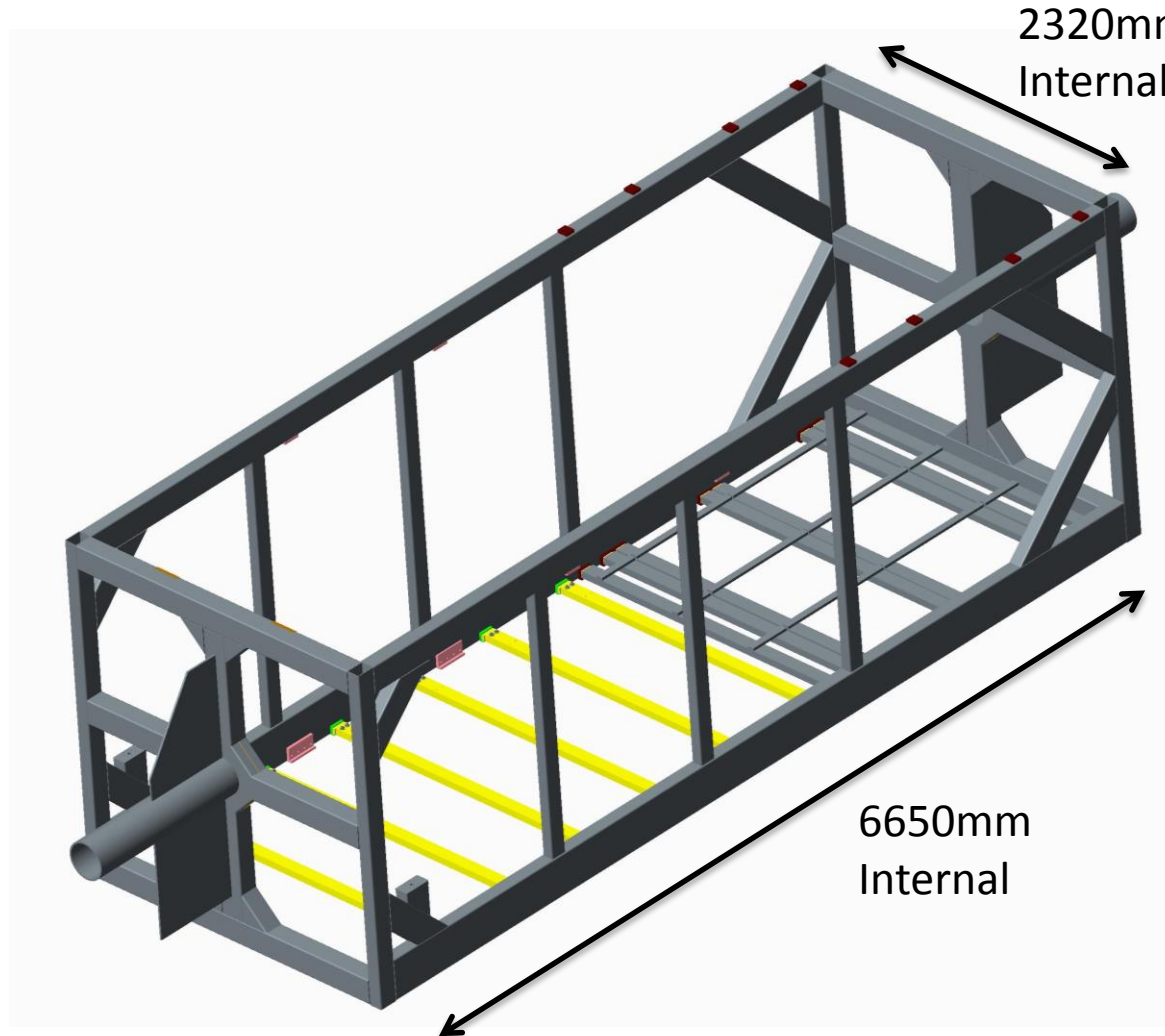


The ND280 Basket Structure



Peter Sutcliffe
University of Liverpool
20th March 2017

Stainless Steel basket Dimensions



- Design comprised of mainly 300 x 100 x 6 and 200 x 100 x 6 Stainless RHS.

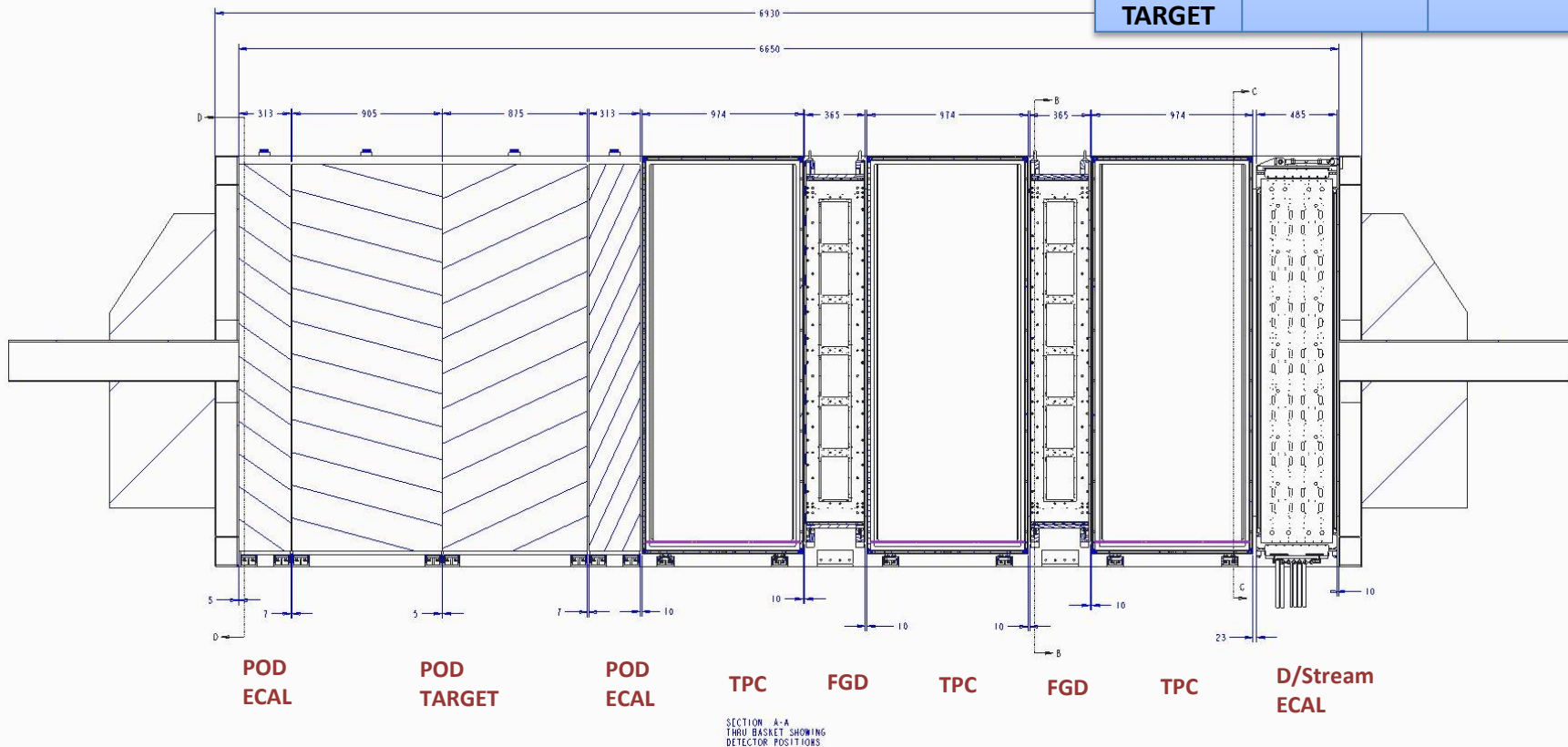
Detector Layout

Total mass of detectors for analysis
29,000Kg



UNIVERSITY OF
LIVERPOOL

Detector	Mass (kg)	No. Off
ECAL	6000	1
TPC	1000	3
FGD	1500	2
POD ECAL	3000	2
POD TARGET	11000	1



SCALE: 0.100 TYPE: ASSEM NAME: NP48-02-02 SIZE: A0 SHEET 1 OF 4

20th March 2017

P.Sutcliffe - ND280 basket

Stainless Steel basket

- Manufactured at Durham Sheet Metal, South Shields' Near Newcastle

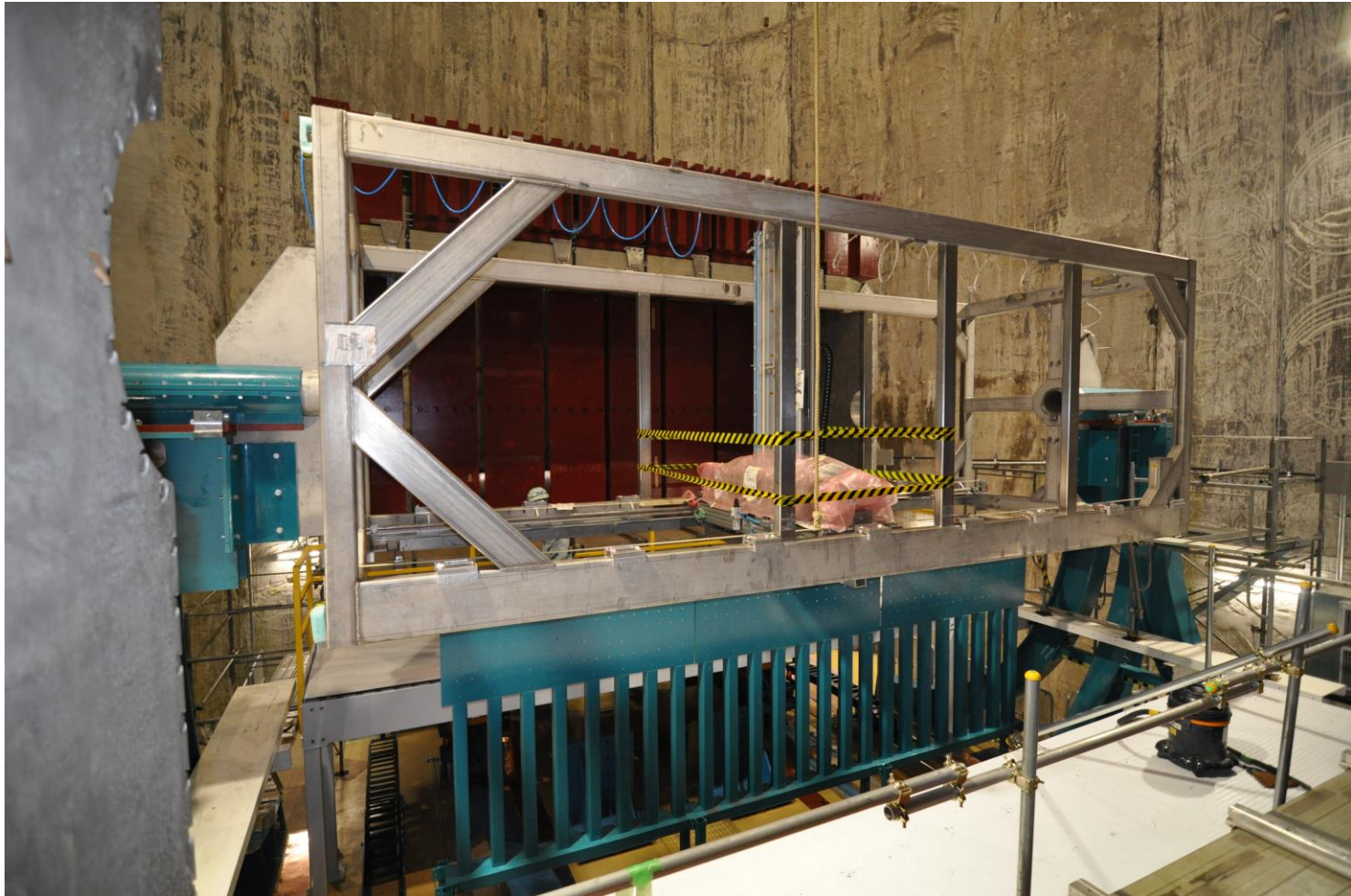


Basket Stand

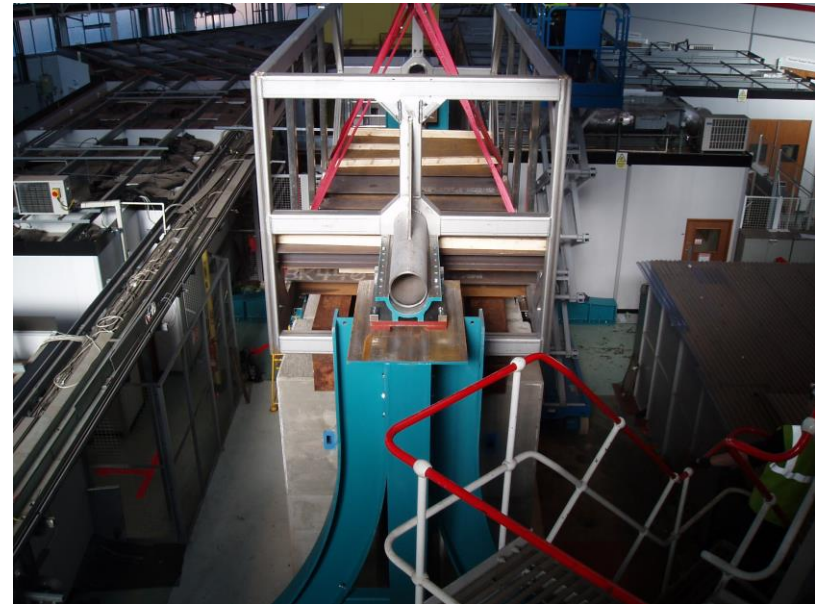
- Basket stand is manufactured from Carbon steel and was made at Priory Engineering on the south coast



Services Rack



Full assembly at Daresbury Lab



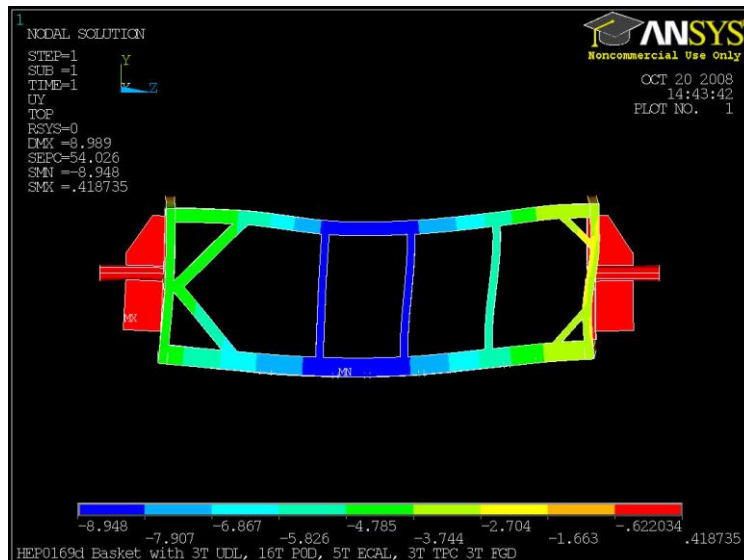


UNIVERSITY OF
LIVERPOOL

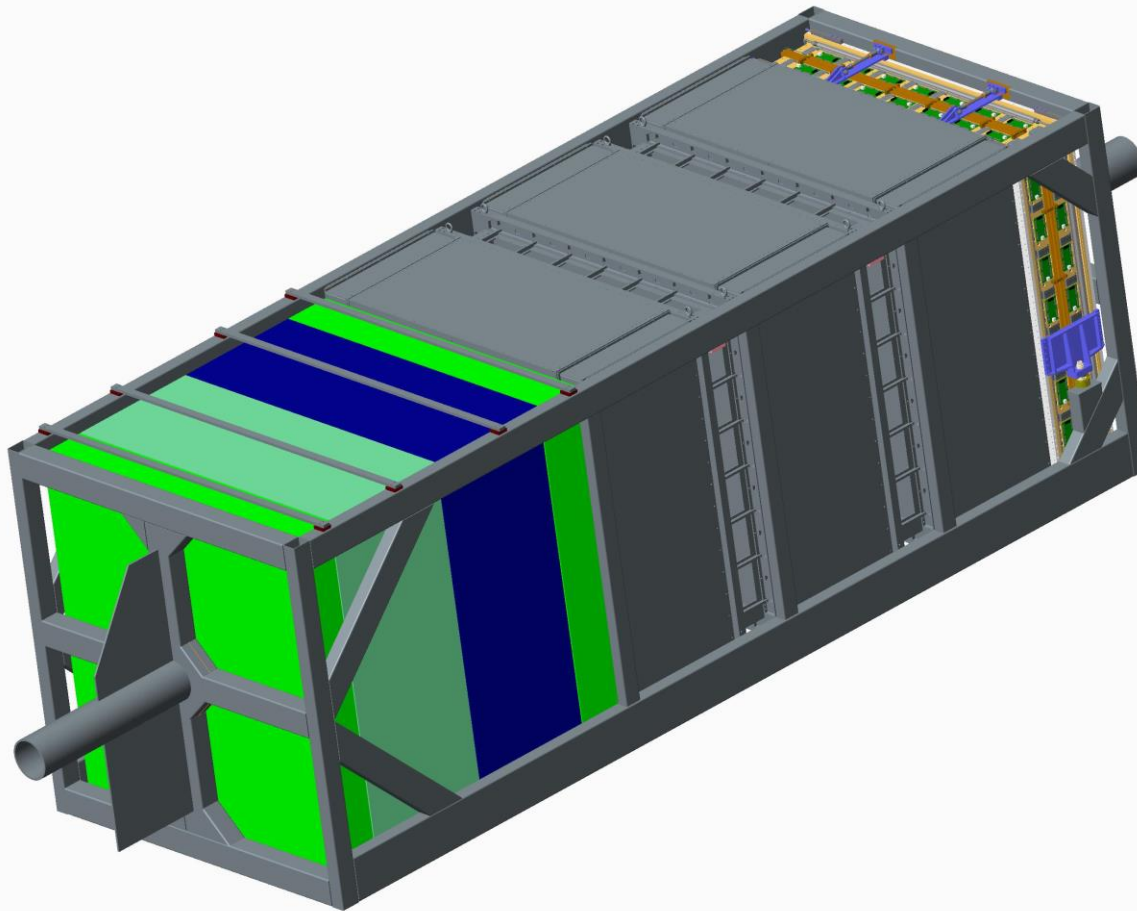
- [illegible]

Testing at Daresbury

- Loaded up to 30 tonnes
- Total deflection 12mm
- ANSYS analysis shows 9mm

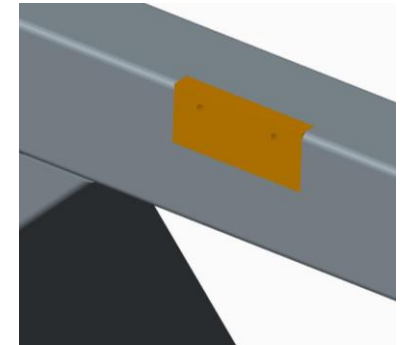
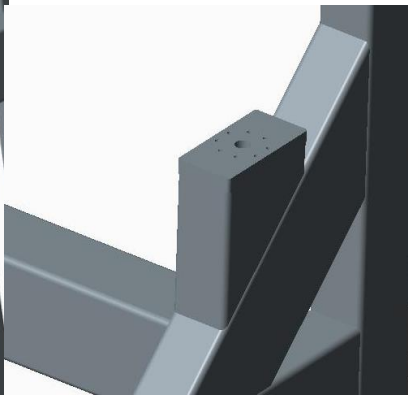
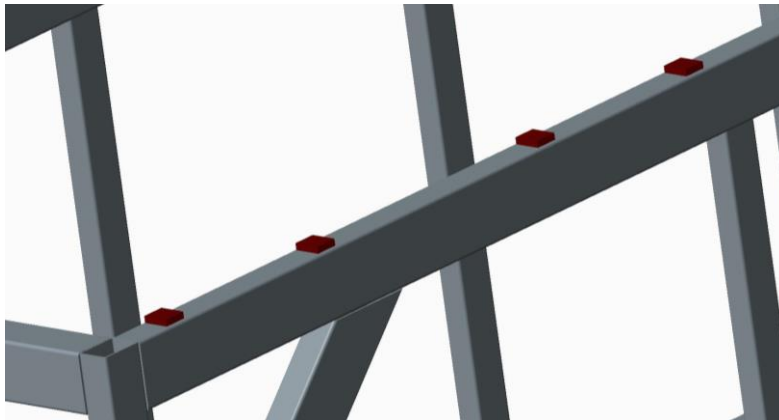
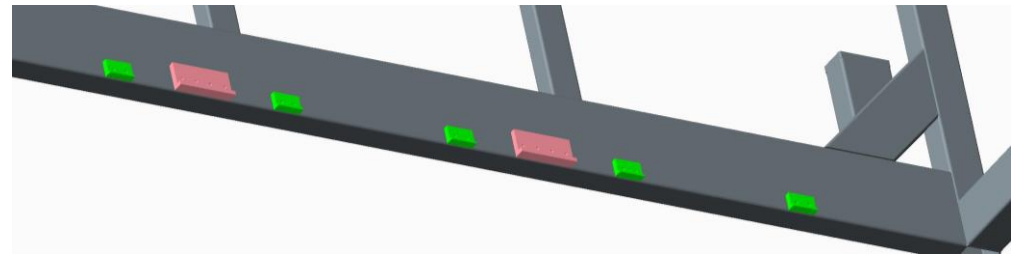
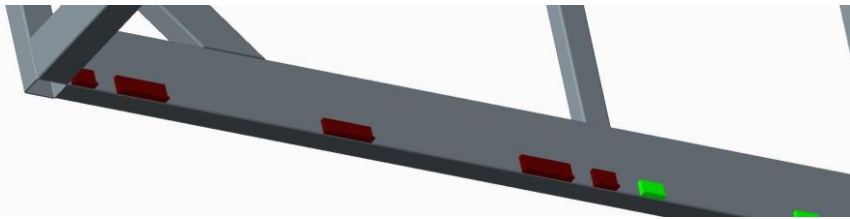


Detector attachment to Basket



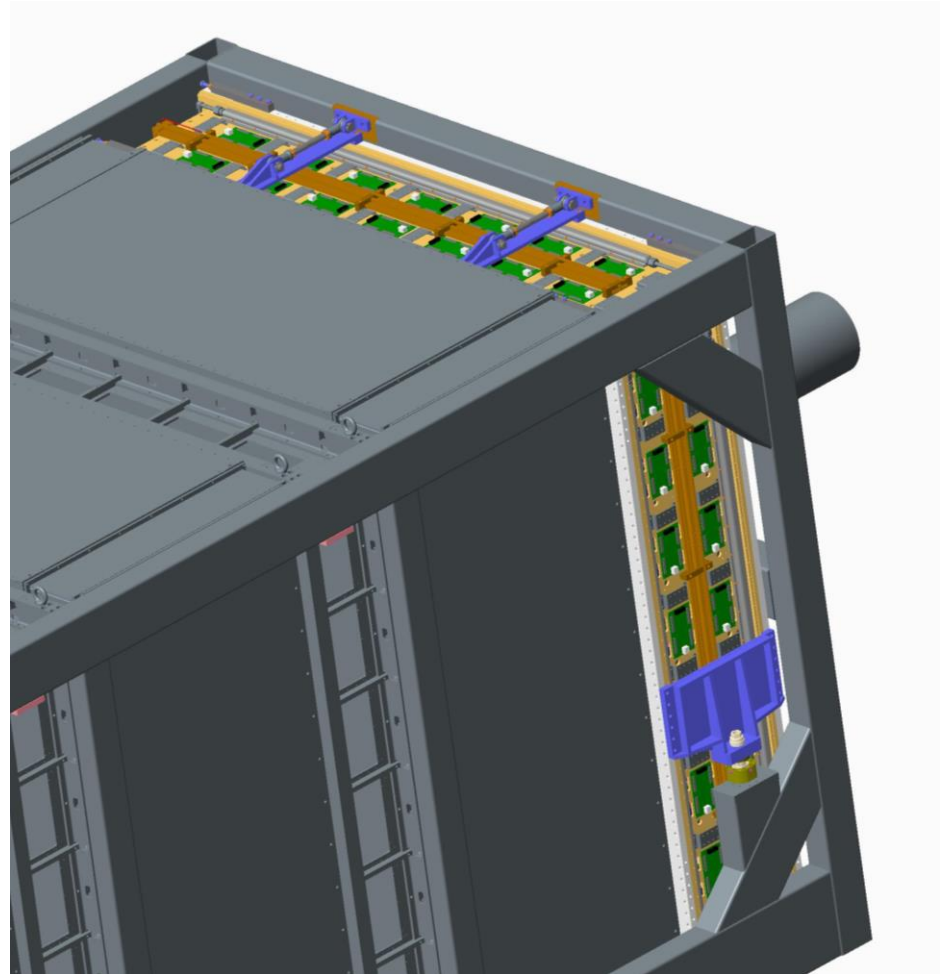
Basket machined bosses

- Basket has several machined bosses which were positioned to attached all the original detectors.



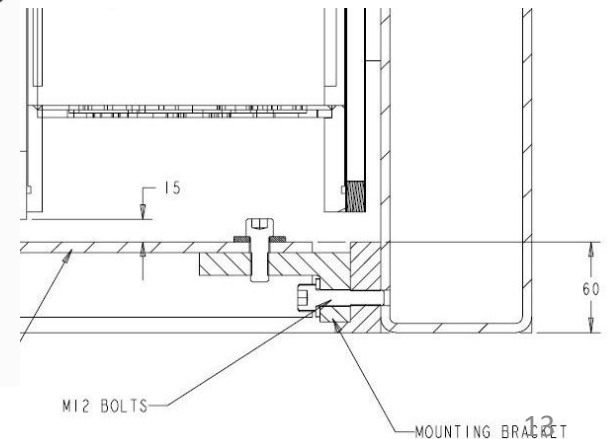
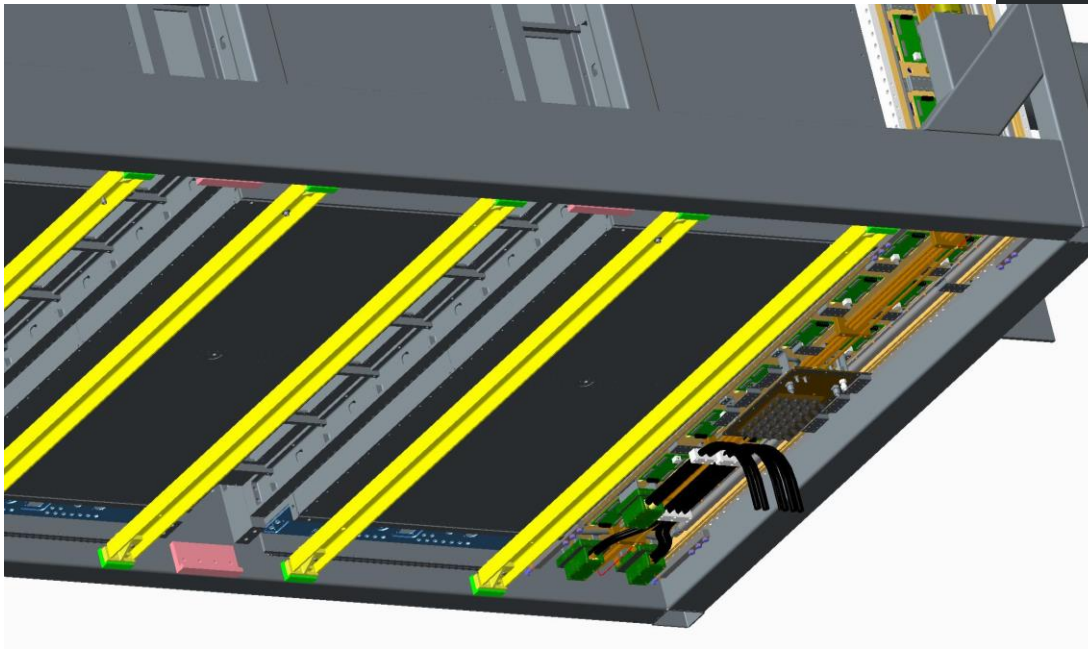
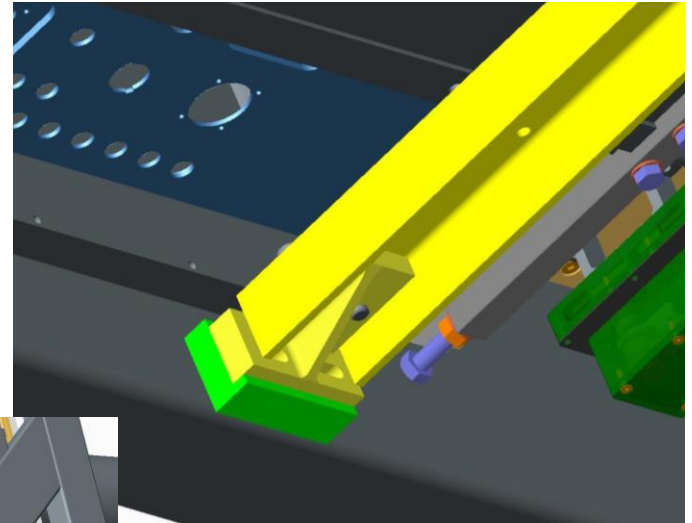
Downstream ECAL

- Main vertical support is on the machined pillar
- 2 machined location bosses to attach tie bars



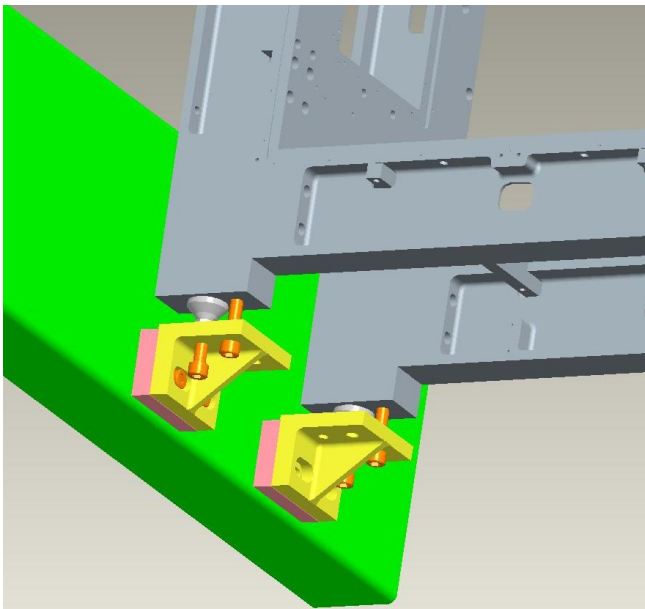
TPC

- TPC is attached to two rails supported on two angle brackets and fastened to machined bosses on the basket

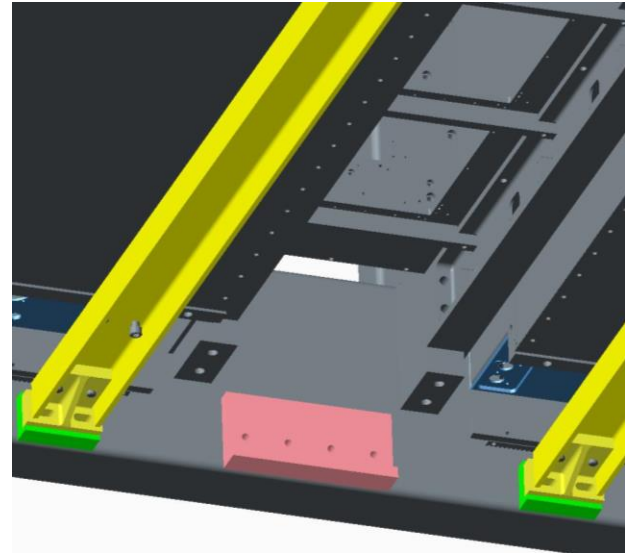


FGD

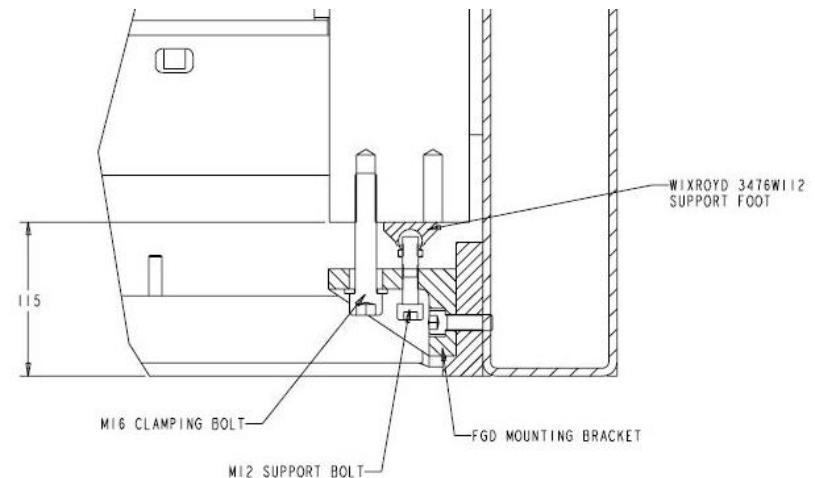
- Attached to two right angle brackets fixed to machined bosses on the basket.
- Unsure of final attachment...



Original design

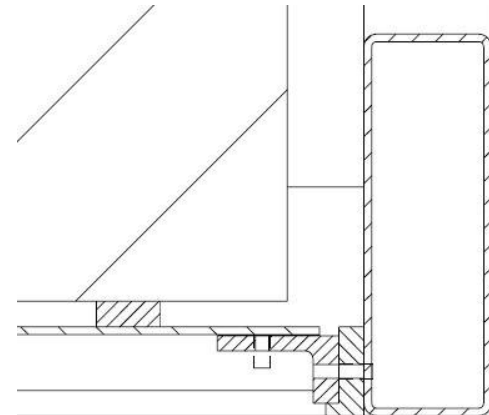
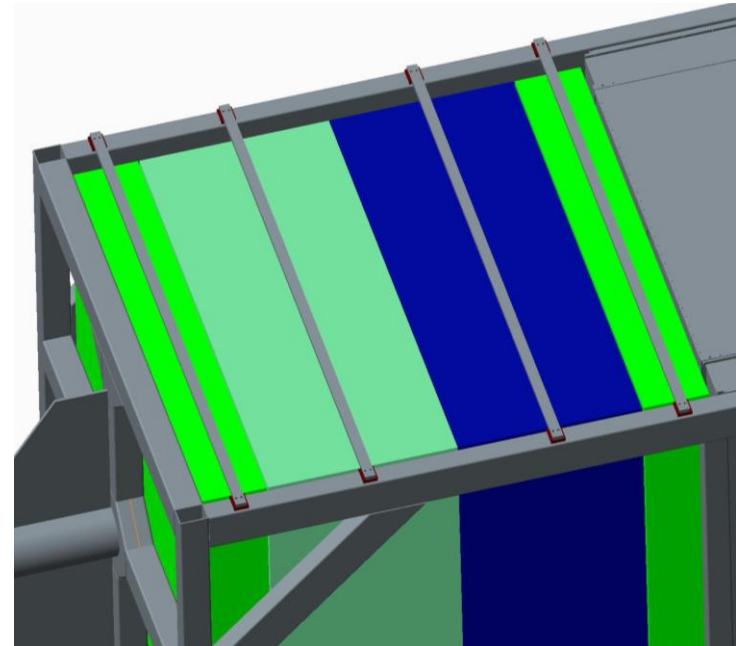
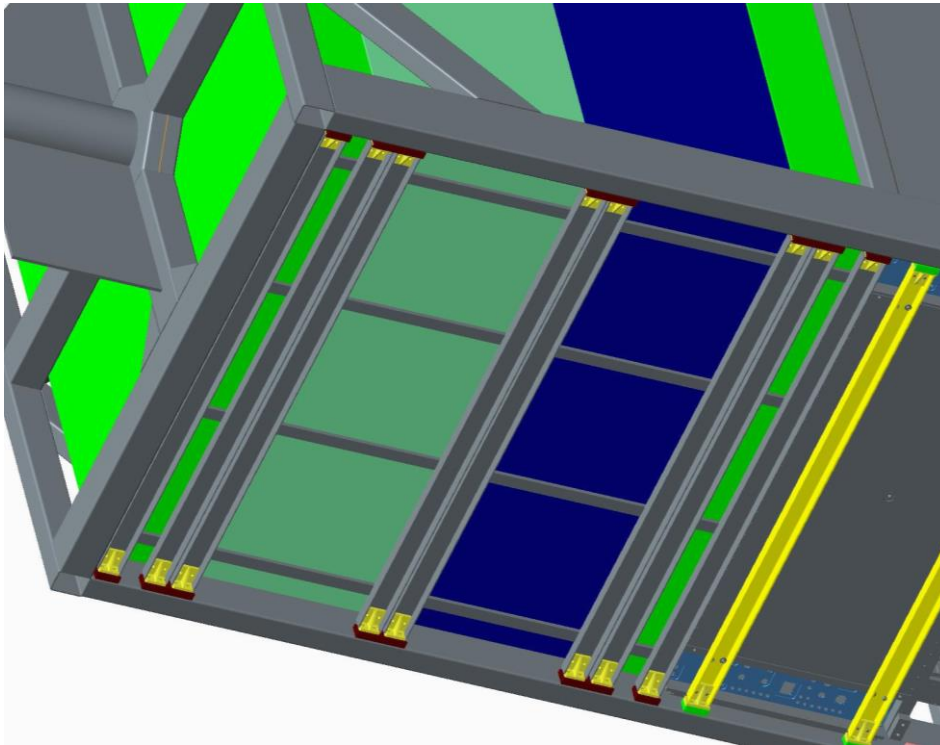


'Final' basket design



P0D detectors

- P0D fixed using cross member lower bars and upper bars.
- Bars fixed using angle brackets attached to machined bosses on the basket



STEP files and Drawings



- Attached are 2 drawings and step files
 - NP48-01-03 Basket
 - NP48-01-26 Basket and support bars

Thanks for Listening