

CDR

Bunker Project

Instruments interface

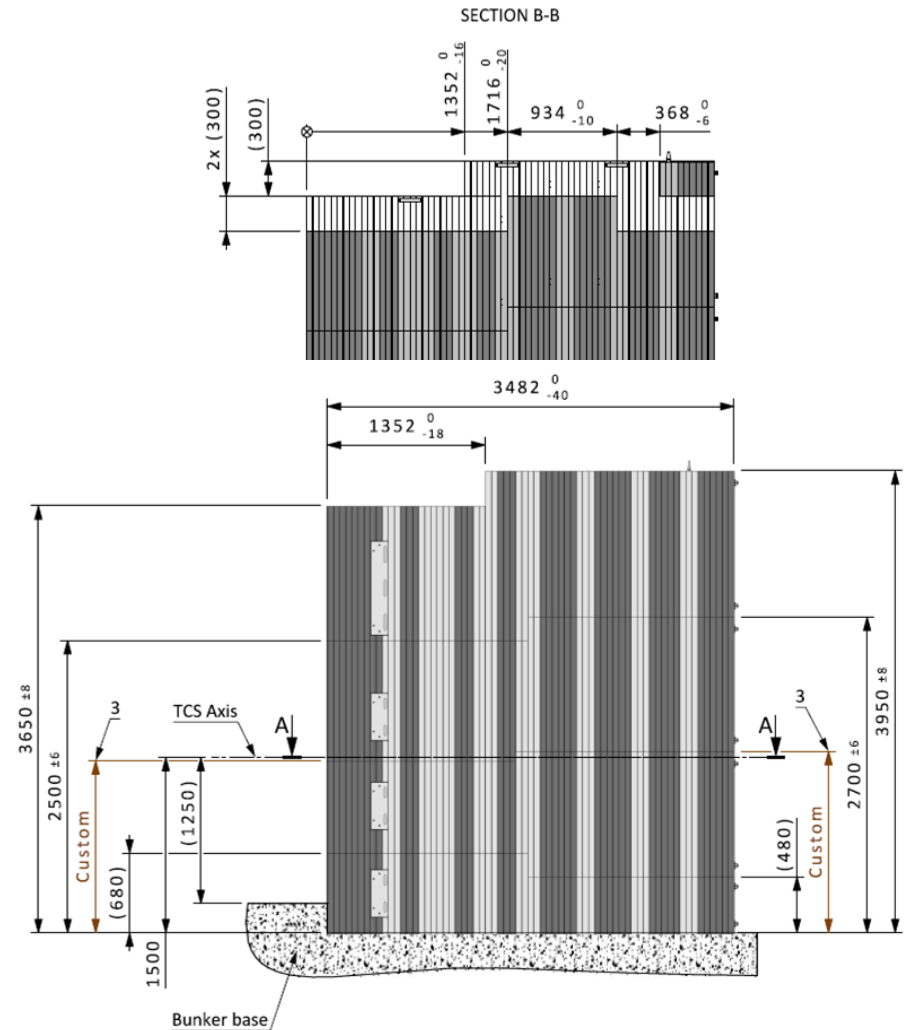
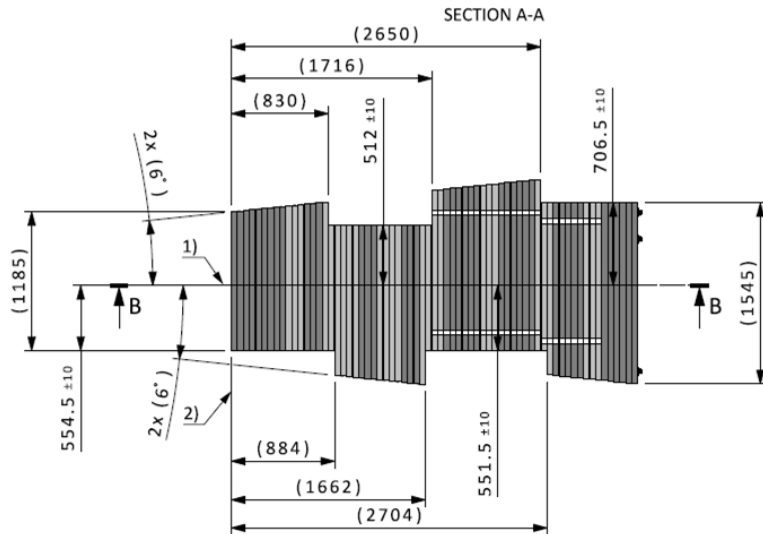
Sebastian Lyrbo
Design engineer

www.europeanspallationsource.se

24 November, 2017

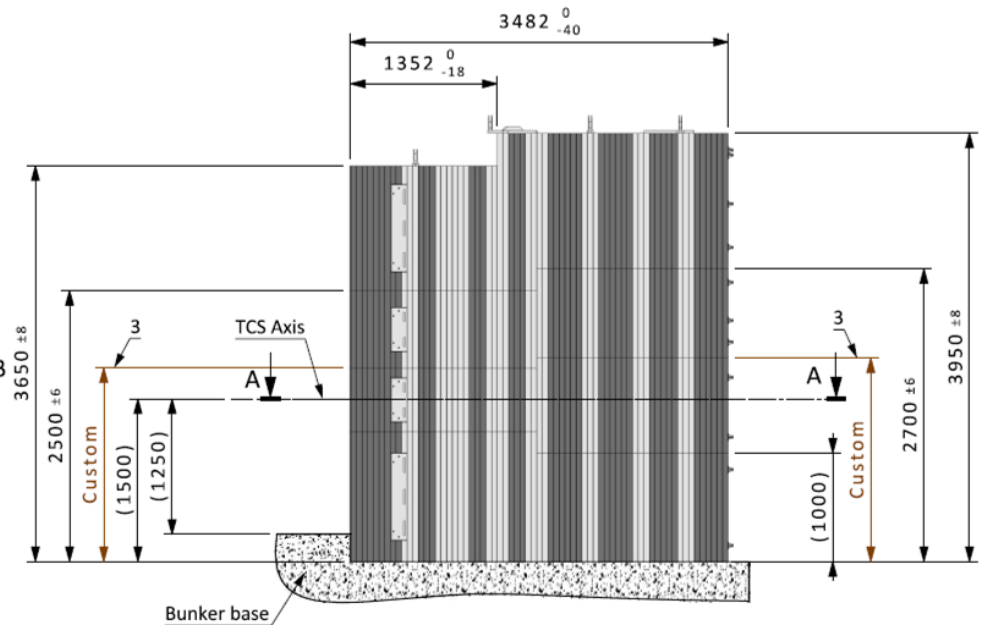
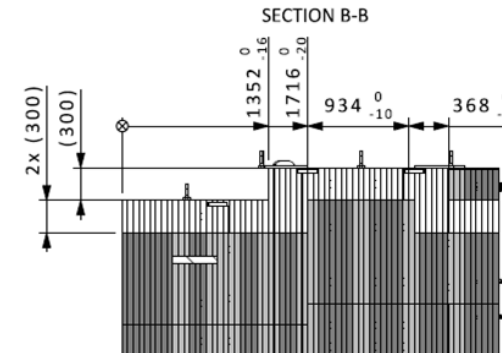
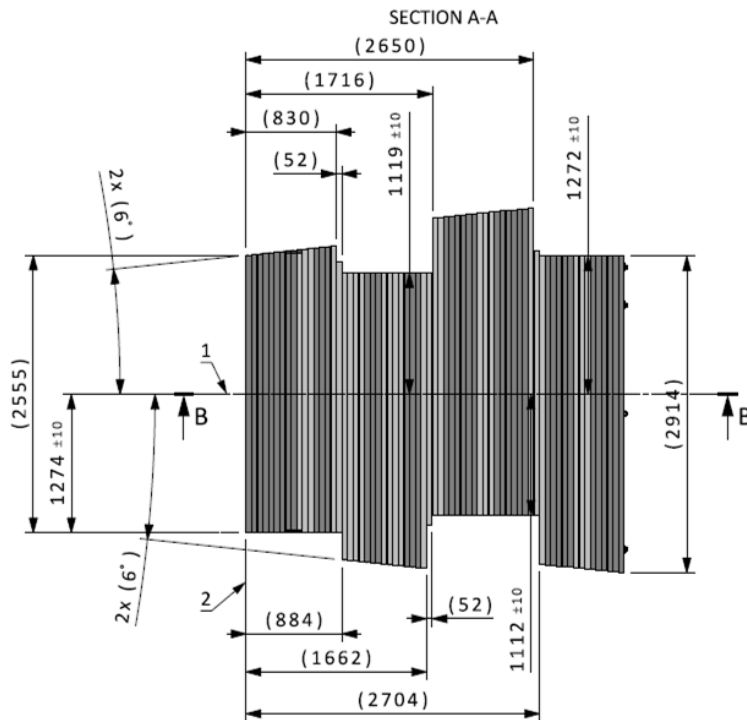
Wall segment drawing R15

- General definition of an R15 wall segment.
- ± 10 tolerance for positioning of each wall block column in respect to the TCS axis.
- The minus tolerances along the TCS axis are based on irregularities in the flatness in each laminate

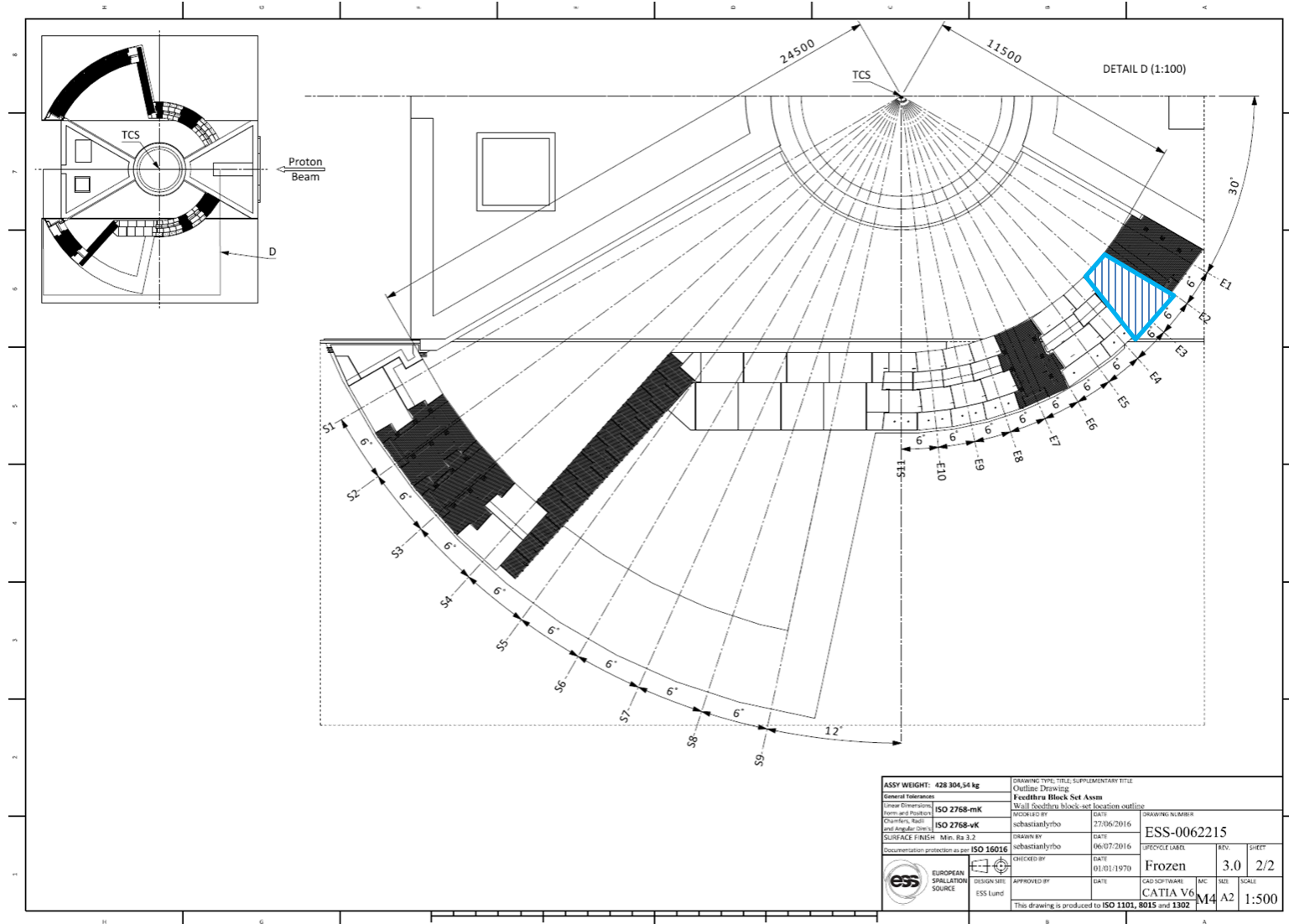



Wall segment drawing R28

- General definition of an R28 wall segment.
- ± 10 tolerance for positioning of each wall block column in respect to the TCS axis.
- The minus tolerances along the TCS axis are based on irregularities in the flatness in each laminate



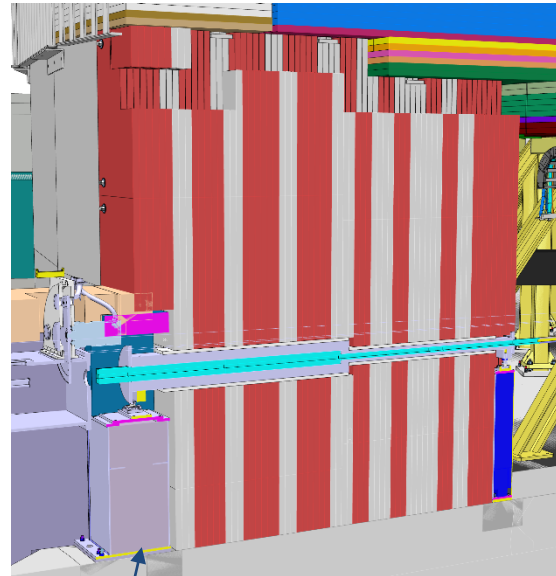
E3 SKADI Wall segment



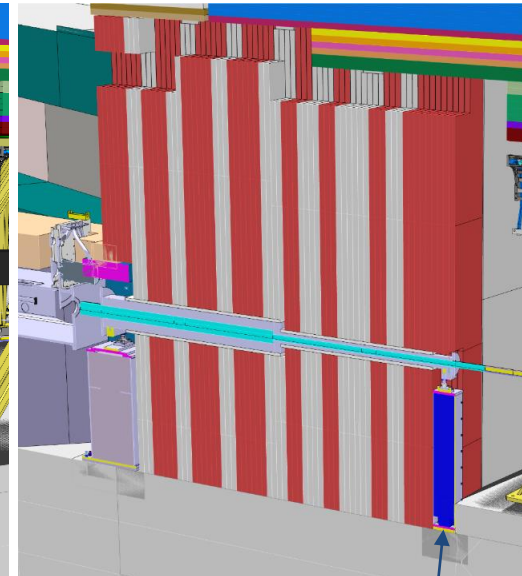
ASSY WEIGHT: 428 304,54 kg		DRAWING TITLE, TITLE, SUPPLEMENTARY TITLE	
General Tolerances		Outline Drawing:	
Linear Dimension from part material		Frothra Block-Set Assm	
ISO 2768-mK		Wall Frothra block-set location outline	
Checked by: sebastianhyrbo	DATE: 27/06/2016	DRAWING NUMBER: ESS-0062215	
Surface Finish: Min. Ra 3.2	DATE: 06/07/2016	REV: 3.0	SHEET: 2/2
Documentation protection as per ISO 16016	DATE: 01/01/1970	LIFECYCLE LABEL: Frozen	
 EUROPEAN SPALLATION SOURCE ESS Lund	DESIGN SITE	APPROVED BY:	CAD SOFTWARE: CATIA V6
	ESS Lund	DATE:	MC: M4
This drawing is produced to ISO 1101, 8015 and 1302		SCALE: A2	SCALE: 1:500

E3 SKADI interface

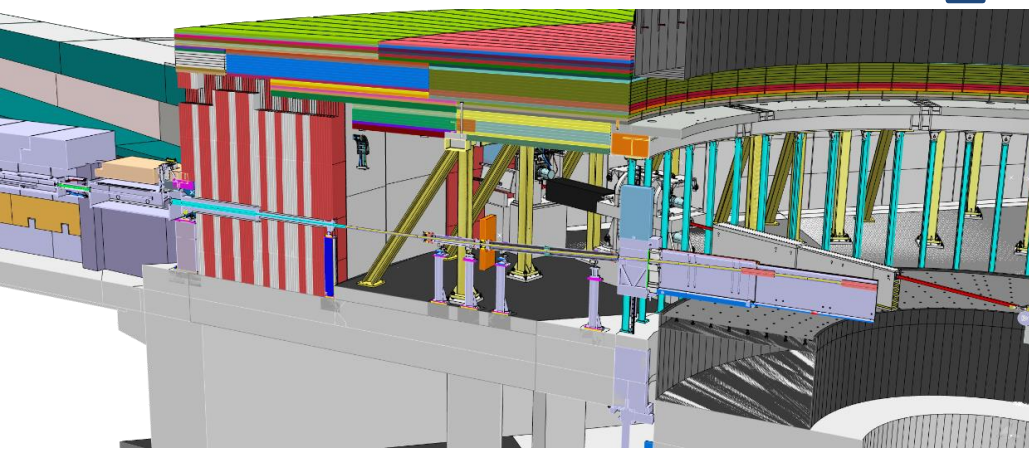
- 1) Upstream side – support pillar mounted to the concrete floor in the in-wall cutout space.
- 2) Downstream side – support pillar mounted to the concrete floor and instrument shielding interfaces with wall cutout.



2



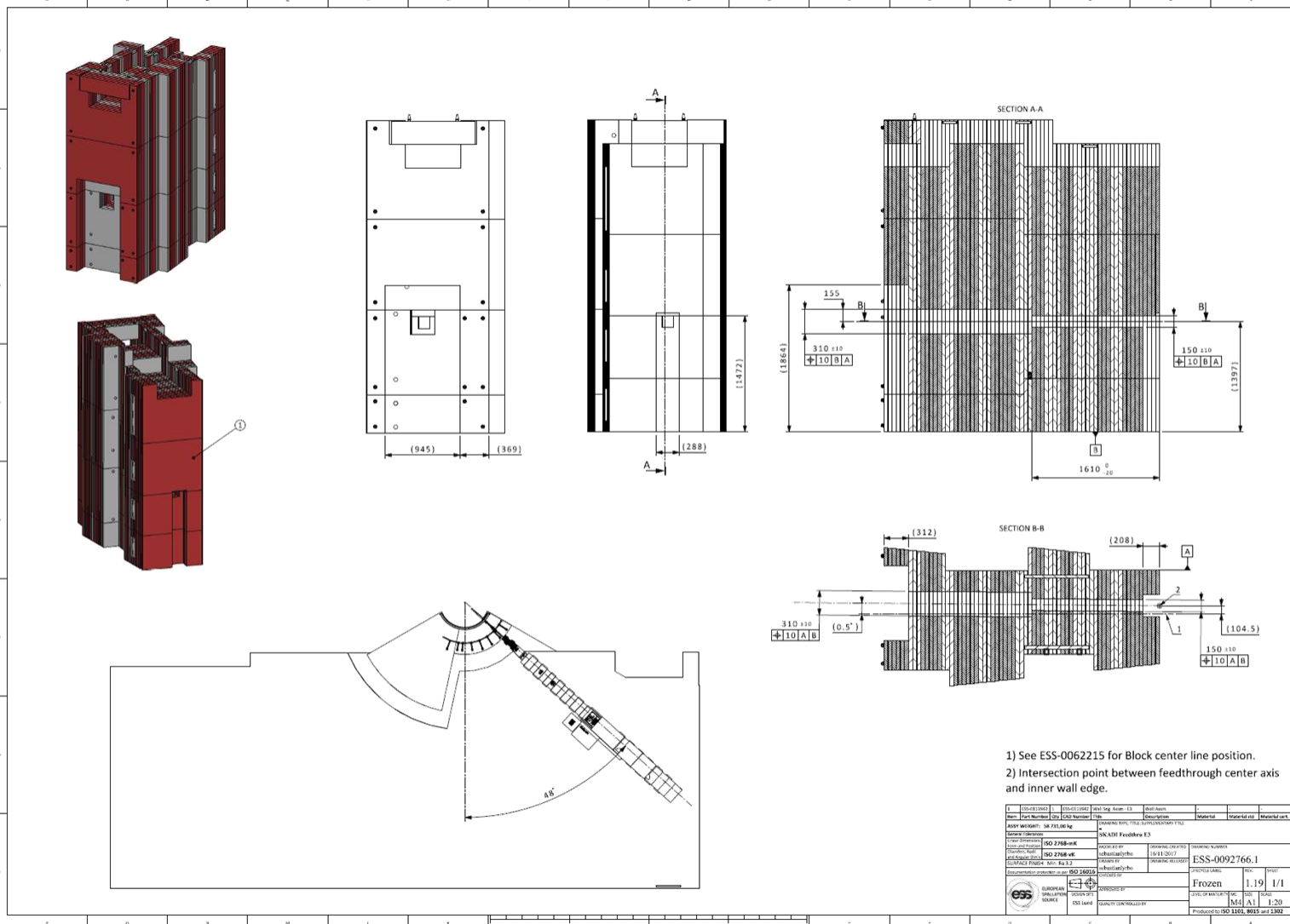
1



E3 SKADI feedthrough drawing

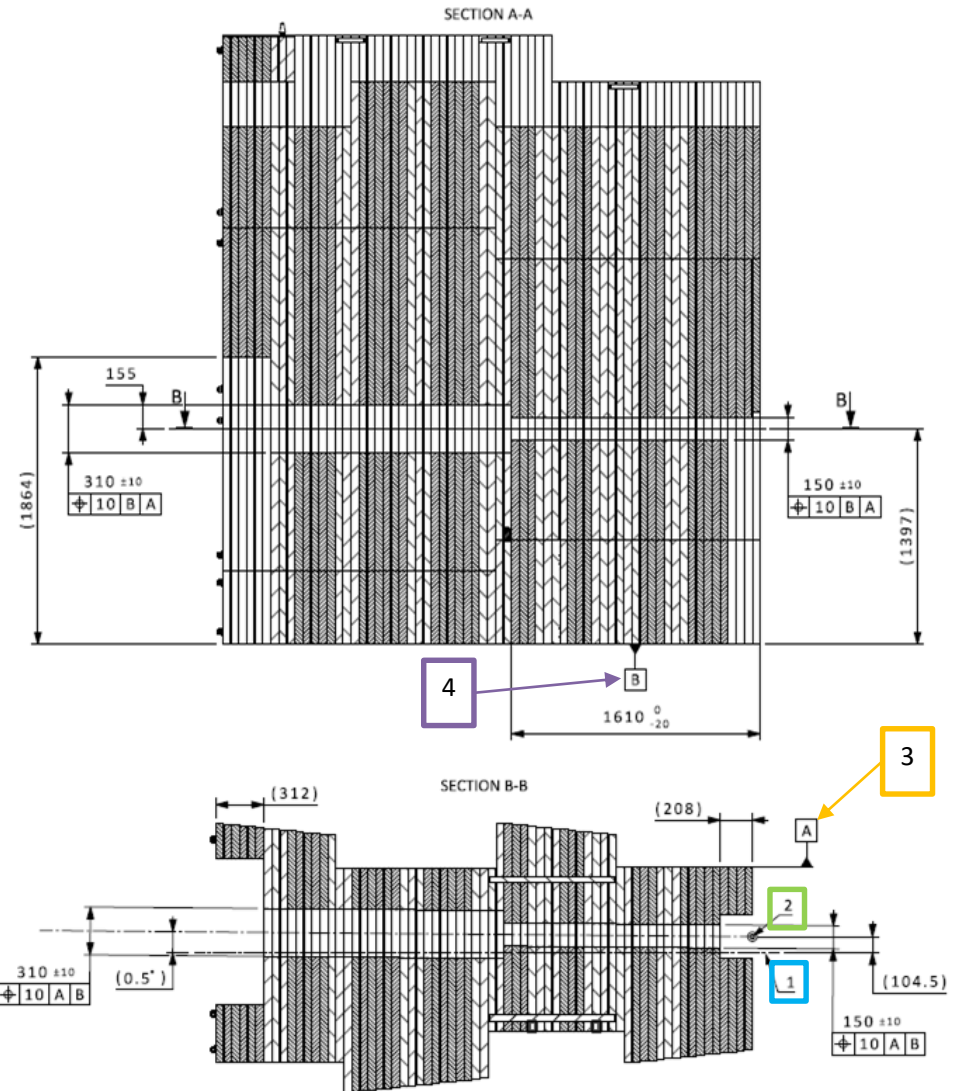


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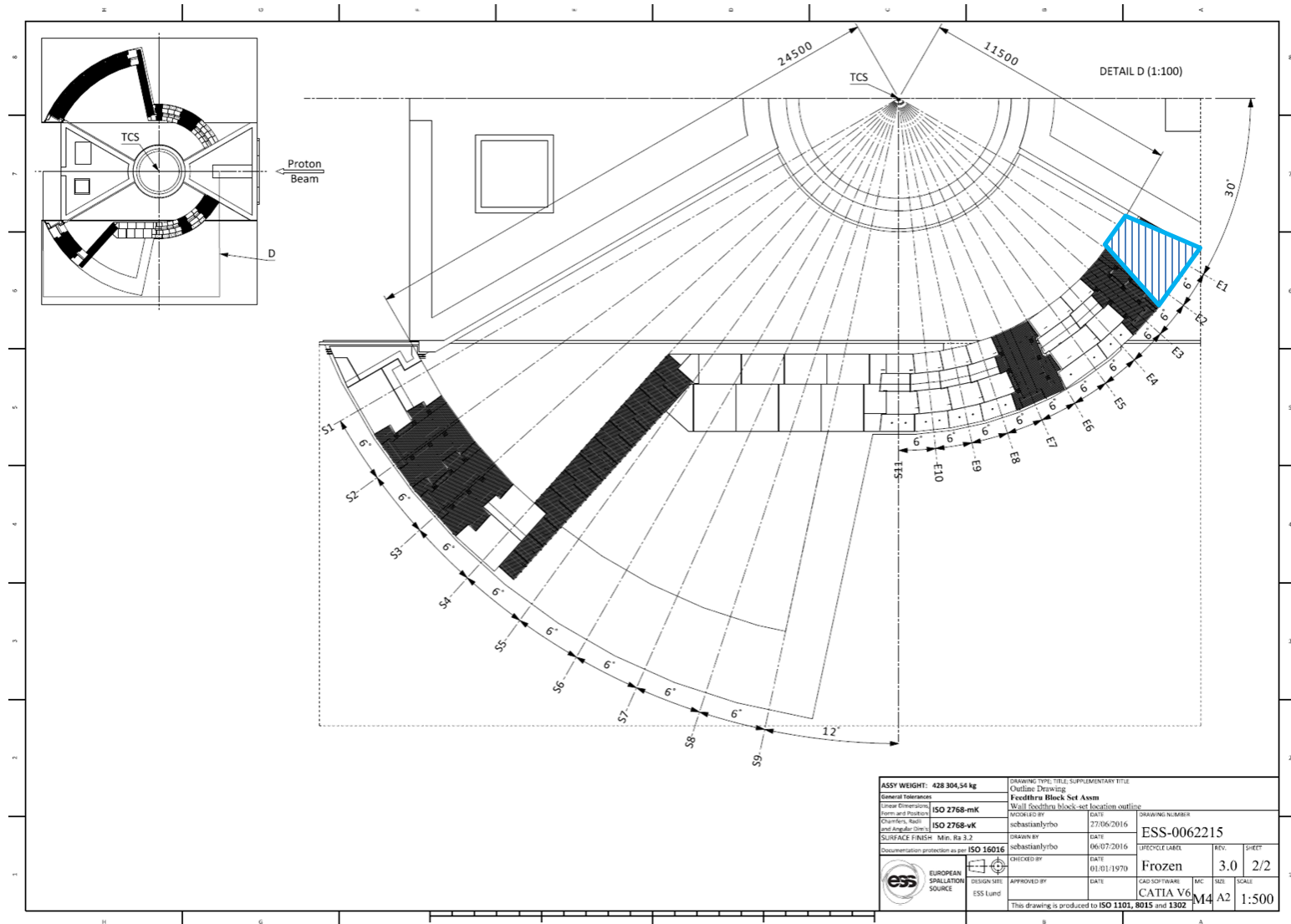


E3 SKADI feedthrough drawing

- 1) Axis originating from TCS is basis for design of all wall segments.
- 2) Feedthrough center axis.
- 3) Common surface zone of straight block edge used as ref. [A] as it's also reference for the block sub assembly itself (same reference from manufacturing to installing).
- 4) Common block surface zone of bottom block edge used as ref. [B].



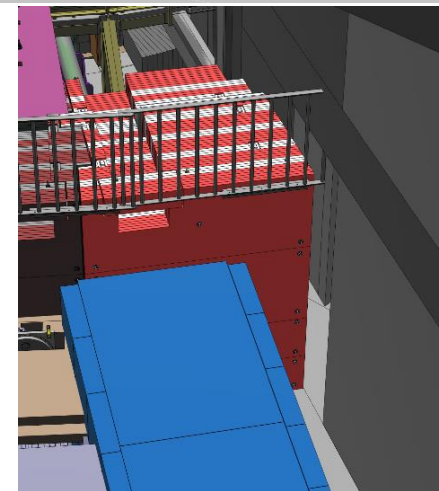
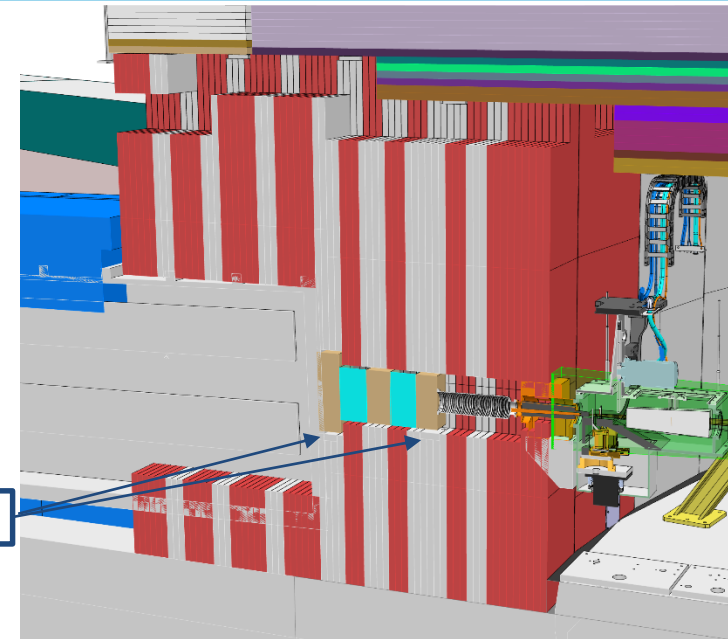
E2-E1 ESTIA Wall segment



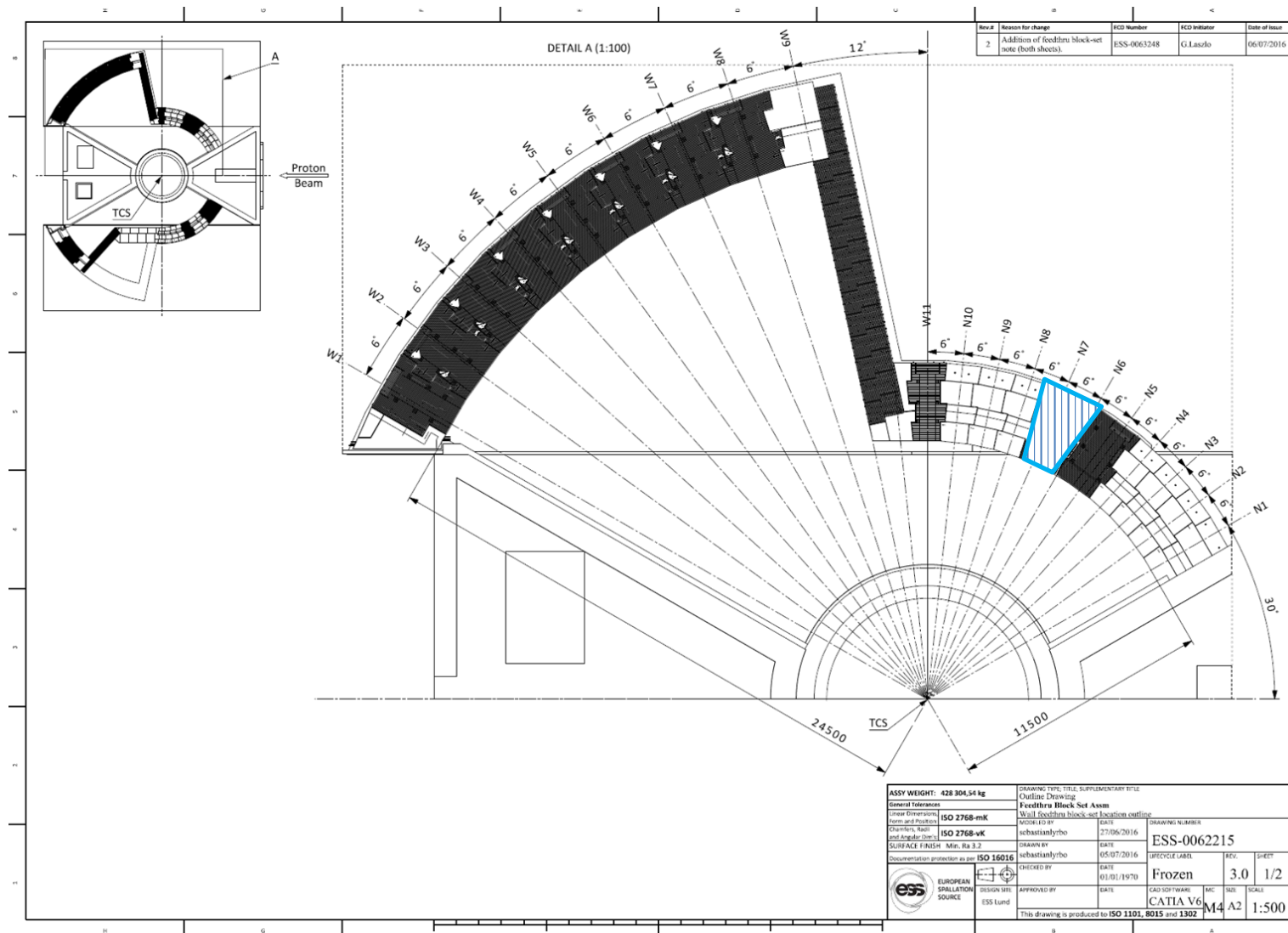
E2+E1 ESTIA interface

Feedthrough geometry to be updated

- 1) Plates for insert support are provided inside bunker - bolted to steel sections
- 2) Wall segments E2 and E1 is merged into one due to ESTIA instrument size and closeness to the CF wall.

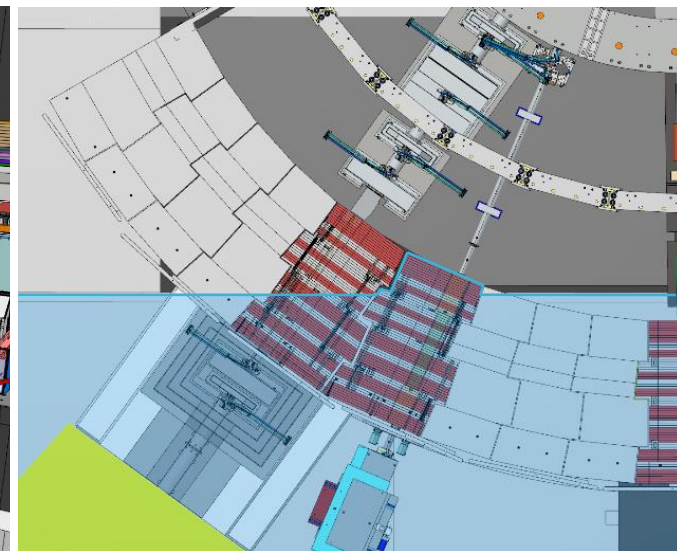
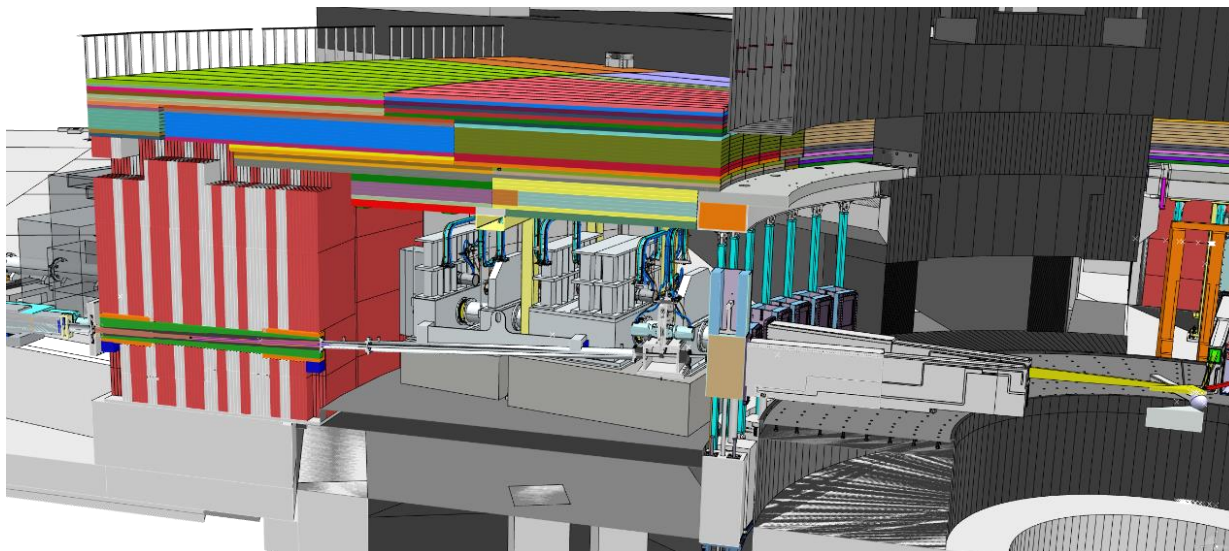
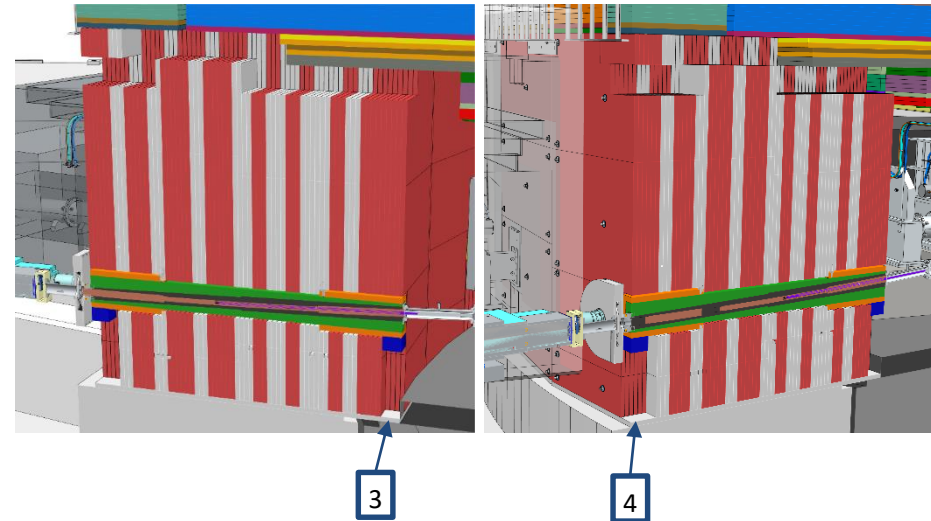


N7 + ½N6 LOKI

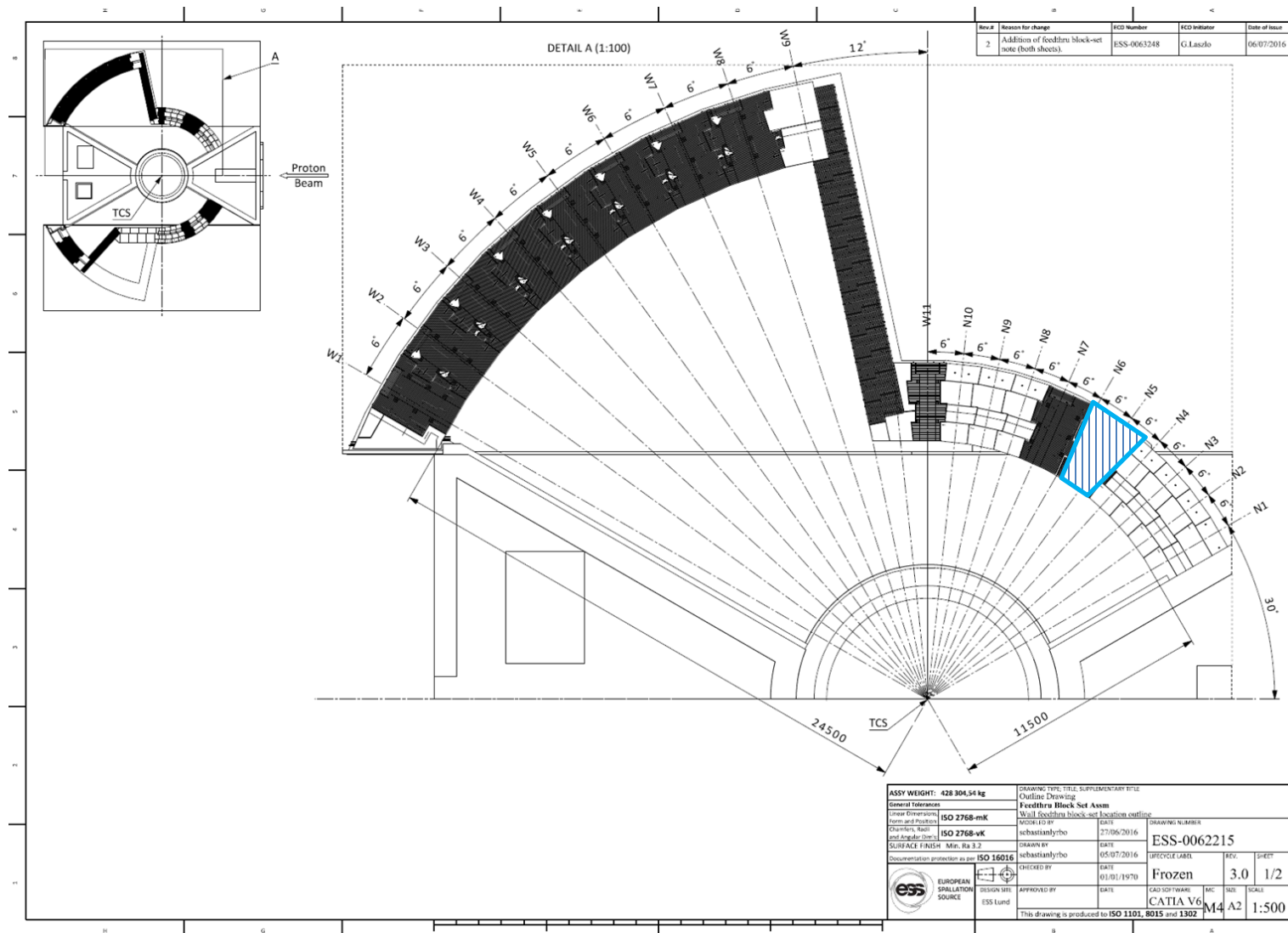


N7 + ½N6 LOKI interface

- 1) Half of N6 merged into N7 segment.
- 2) N7 installed on a steel plate which is bolted to D03 floor to follow it's movement in case of a seismic event.
- 3) Upstream side – support pillar mounted to the 50mm thick steel plate within the in-wall cutout space.
- 4) Downstream side – support pillar mounted to the 50mm thick steel plate within the in-wall cutout space.

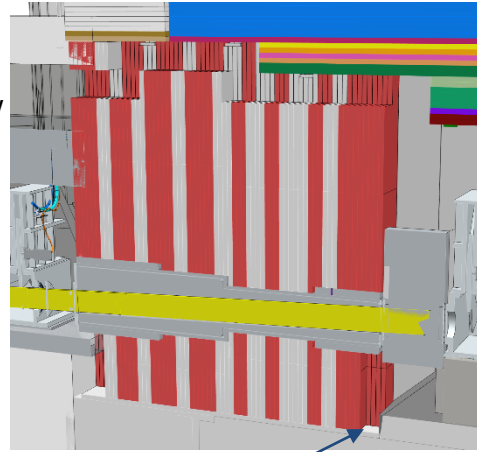


N5 + 1/2N6 FREIA

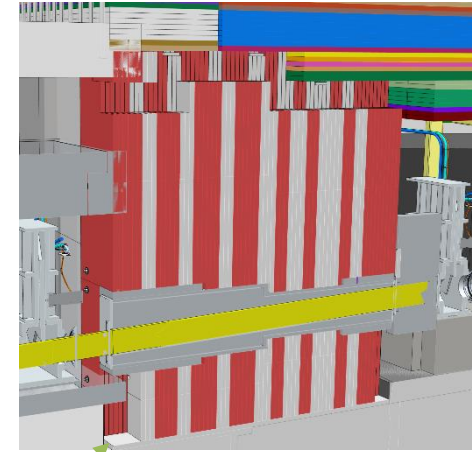


N5 + ½N6 FREIA interface

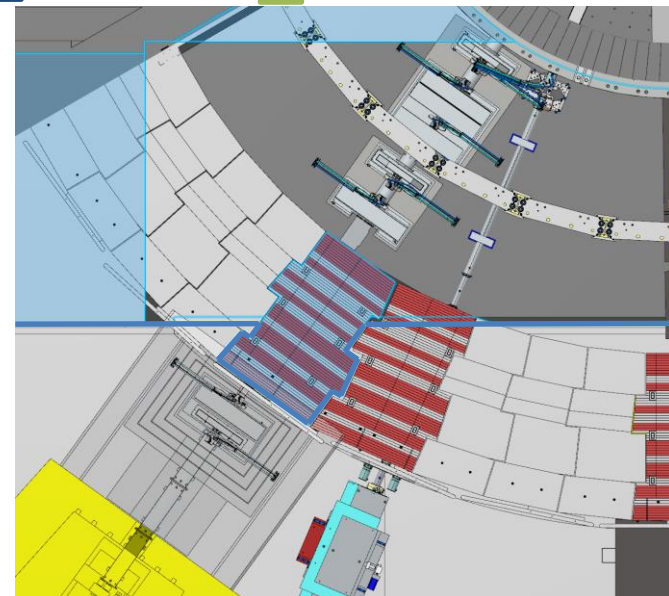
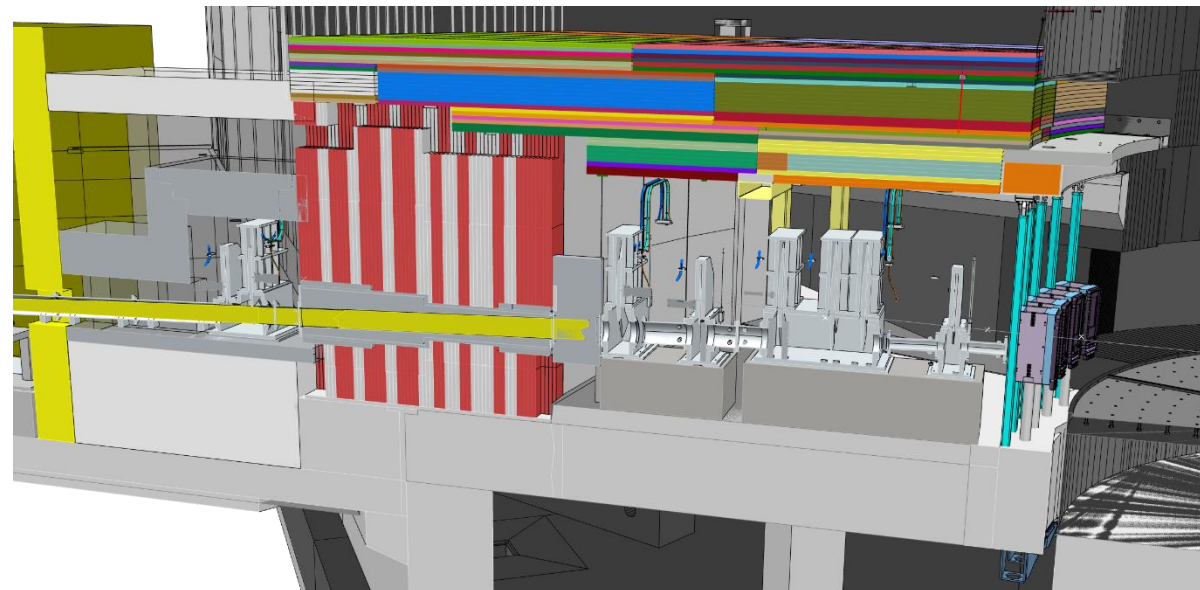
- 1) Half of N6 merged into N5 segment.
- 2) N5 installed on a steel plate which is bolted to D02 floor to follow it's movement in case of a seismic event.
- 3) Upstream side – support pillar mounted to the 50mm thick steel plate within the in-wall cutout space.
- 4) Downstream side – support pillar mounted to the 50mm thick steel plate within the in-wall cutout space.



3



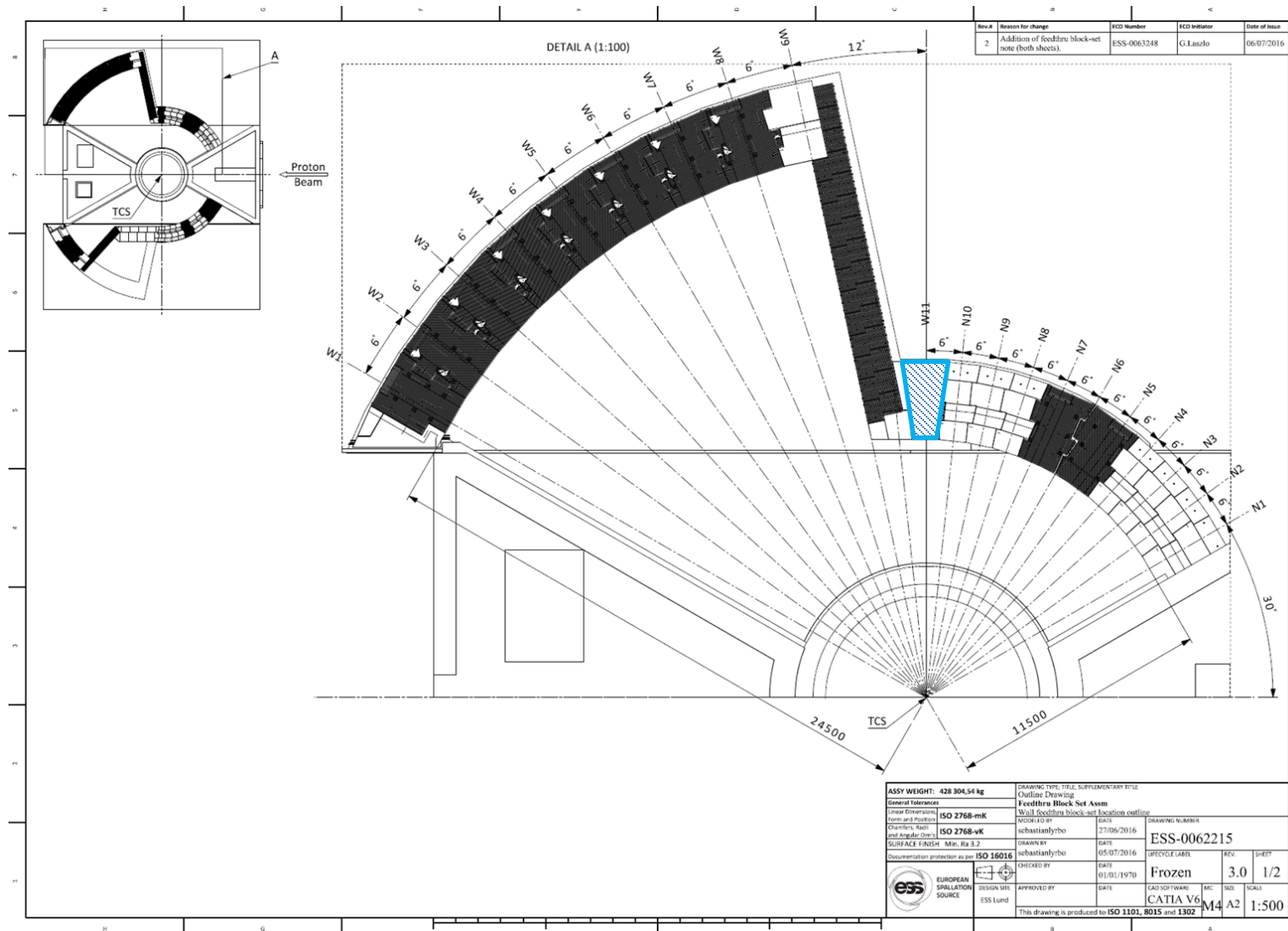
4



W11 Test Beam Line

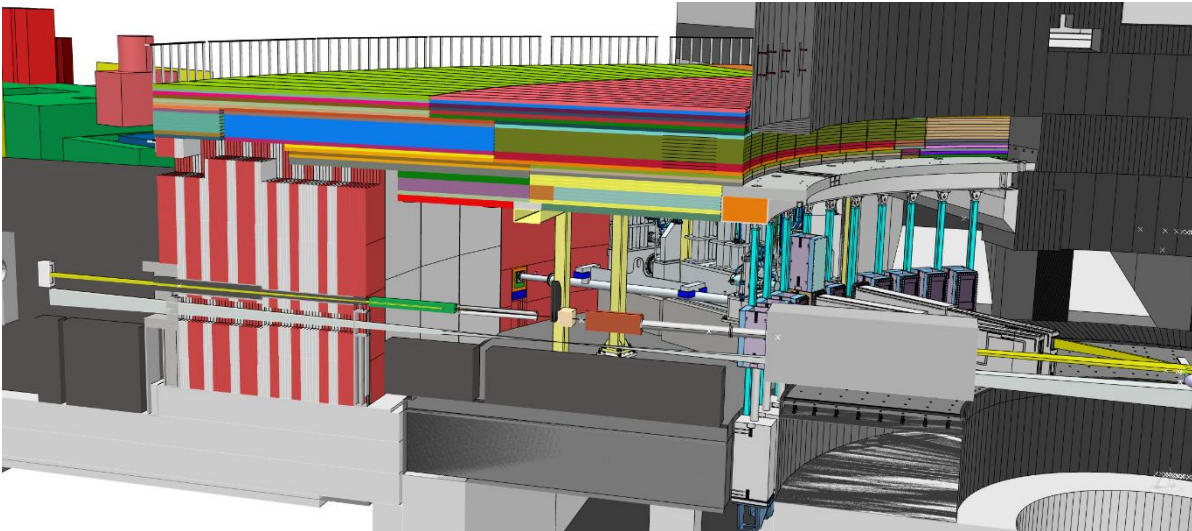
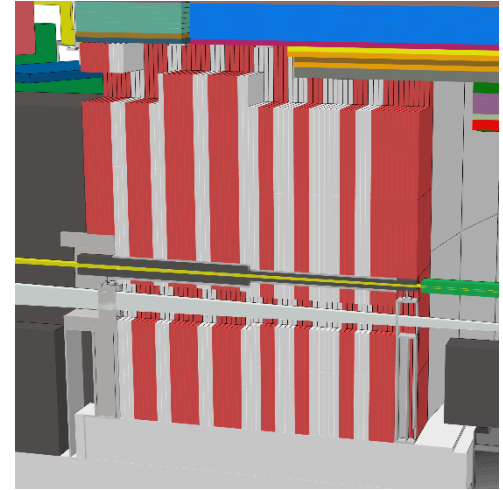


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W11 Test Beam Line

- 1) Upstream side – support pillar mounted to the concrete floor.
- 2) Downstream side – support pillar mounted to the concrete floor within the in-wall cutout space.



Wall Assembly

- First two layers in place
- U-shaped feedthroughs
- 200mm deep cutout in the first HDPE layer to make space for vertical support
- 300mm deep cutout in the outer HDPE layer for interface with instrument shielding
- Laser scanning of feedthrough surface
- Machining of shims on-site



Wall Assembly

- Vertical supports are mounted and bolted to the concrete floor as standard. Supports for inserts which are in dilatation joint areas (FREIA, LOKI, VESPA, E5) are bolted into the steel skid plate.
- Shims are put in place
- Guide insert lifted in from the top



Wall Assembly

- 2nd Instrument block layer mounted



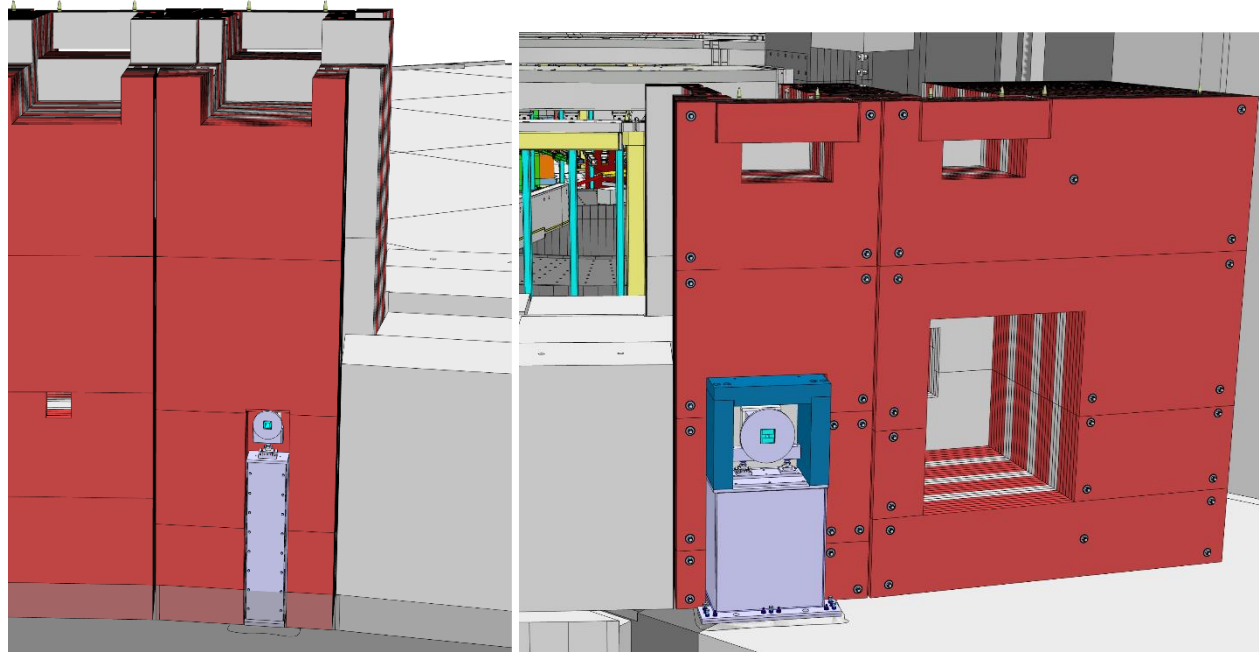
Wall Assembly

- Top block layer mounted
- Instrument utilities to be installed along the utility feedthrough



Wall Assembly

- Utility block put in place



Wall Assembly

Utility block

- Positioned by two pins and cutouts in top layer
- 10mm lower surface than top layer to avoid carrying roof load

