

MICE Integration Engineering



Jason Tarrant - STFC

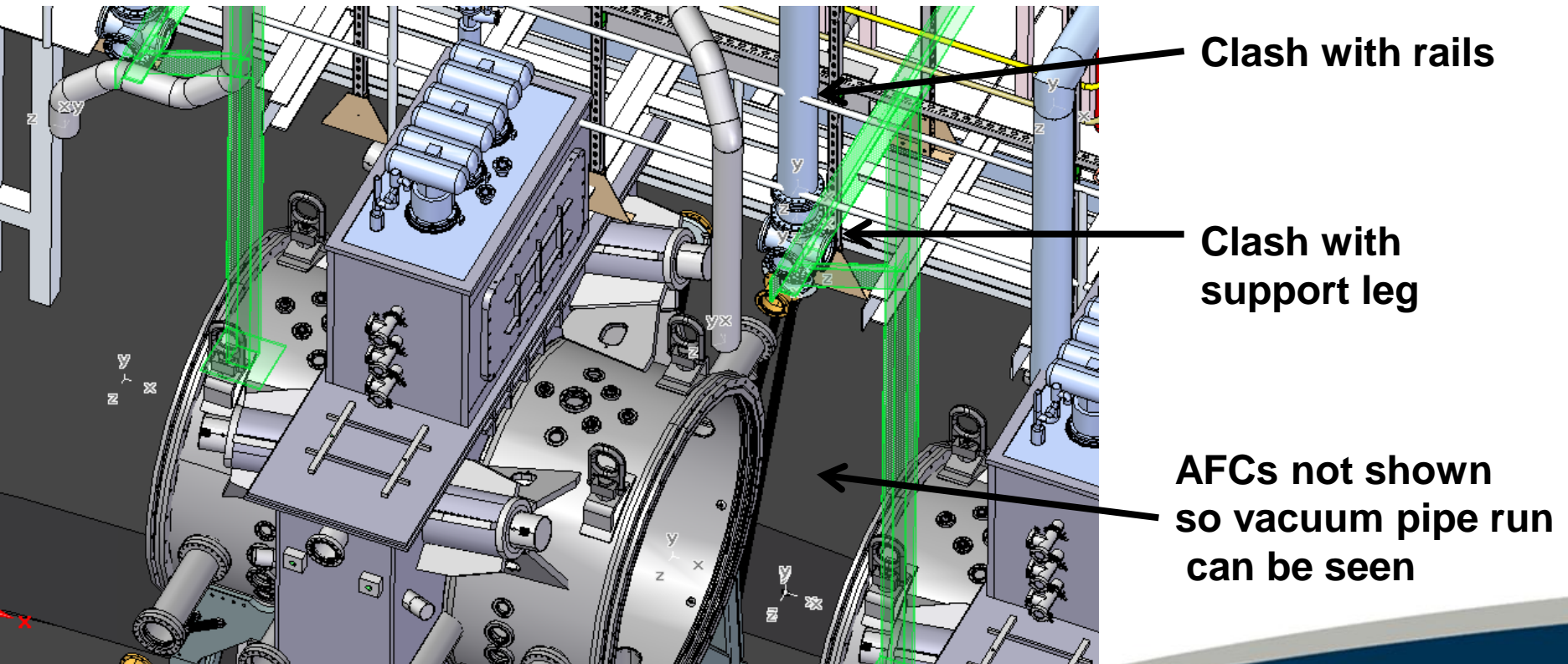
- Contents
 - » South Mezzanine change summary
 - » Integration Envelope Model
 - » A/C Move
 - » Maus Geometry
 - » AFC Frame
 - » Drawing Repository
 - » ECRs
 - » Conclusion

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- AFC

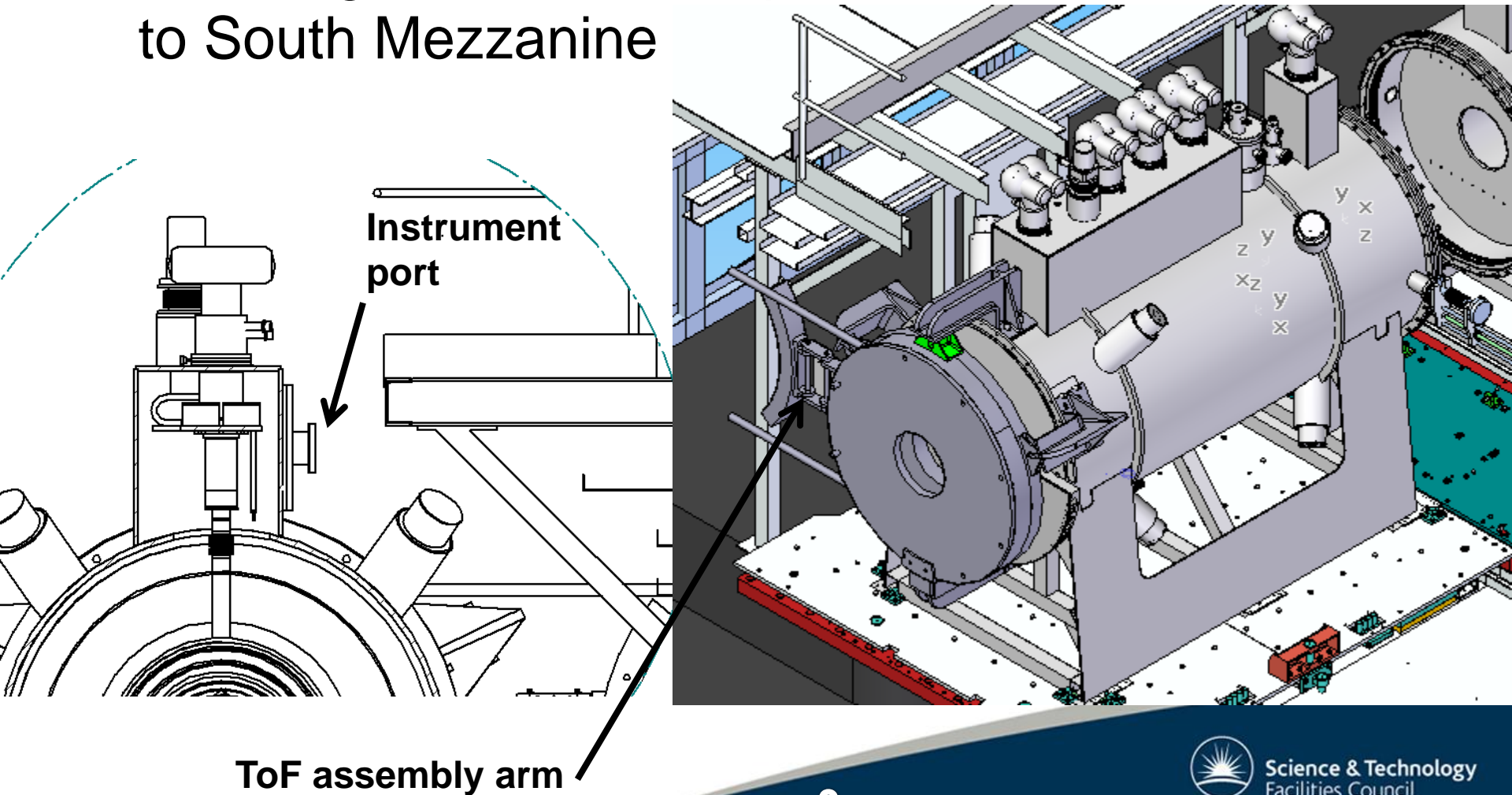
» Hydrogen Safety Vacuum Line itself currently clashes with rails & support leg



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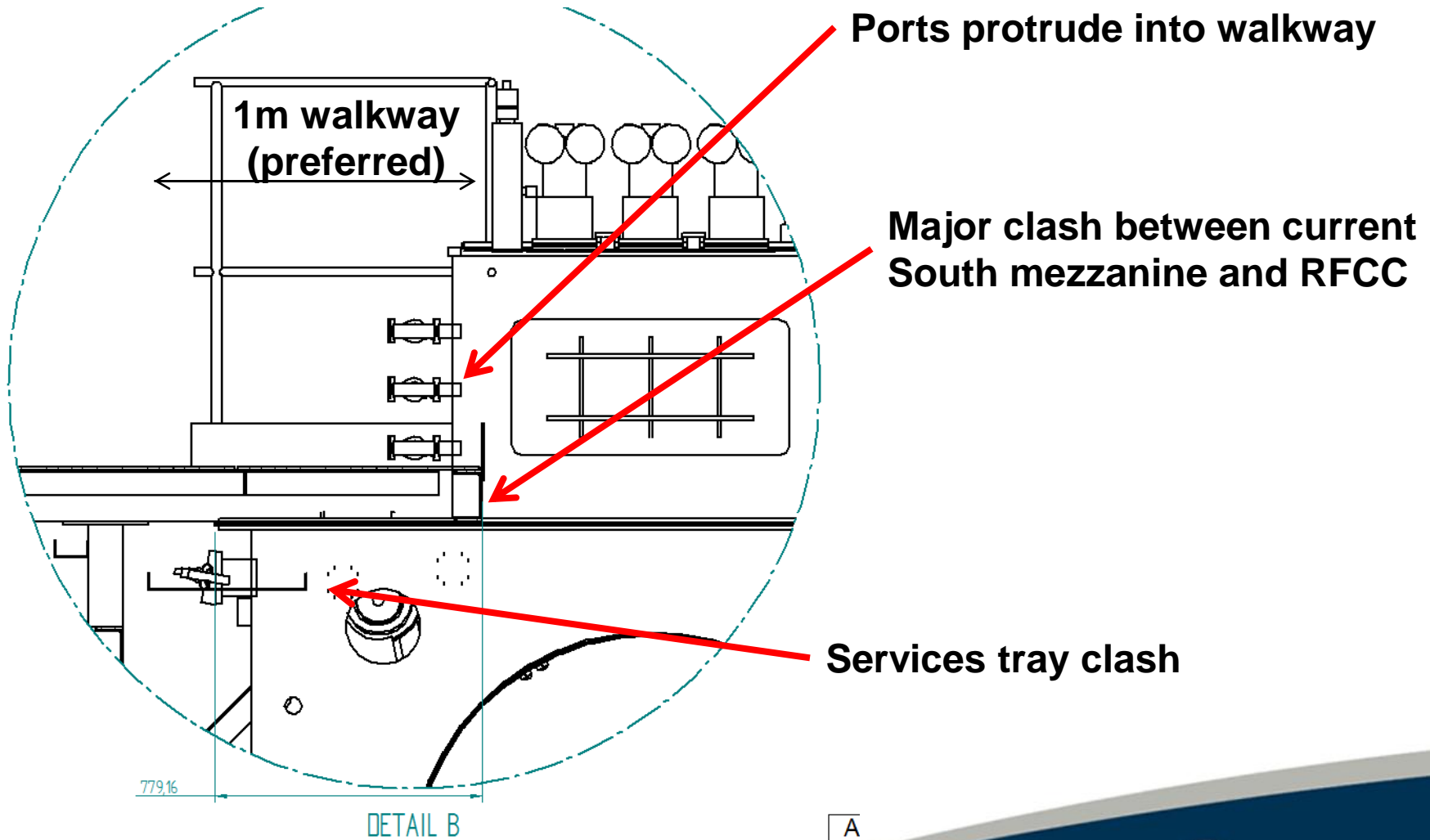
- Spectrometer Solenoid
 - » ToF Cage & instrument port close to South Mezzanine



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- RFCC

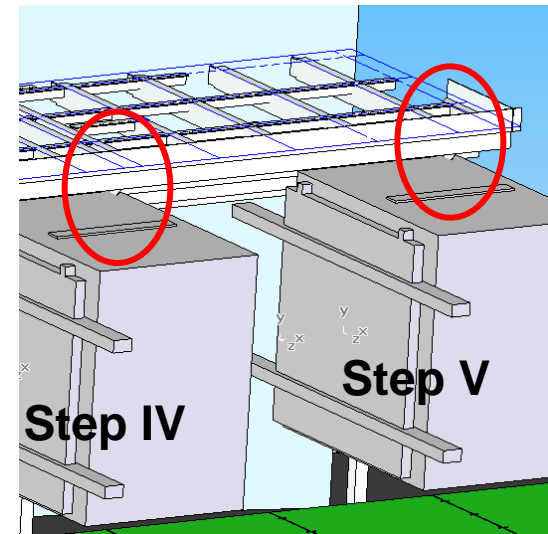
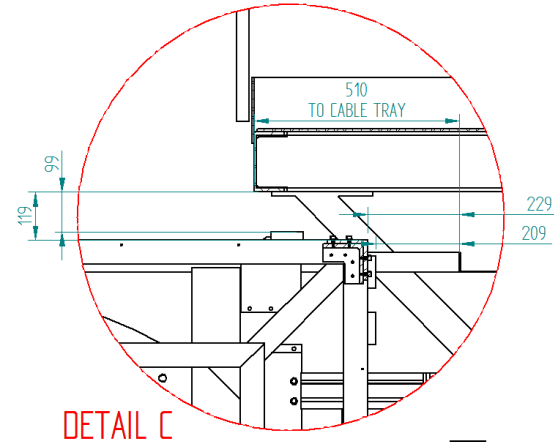
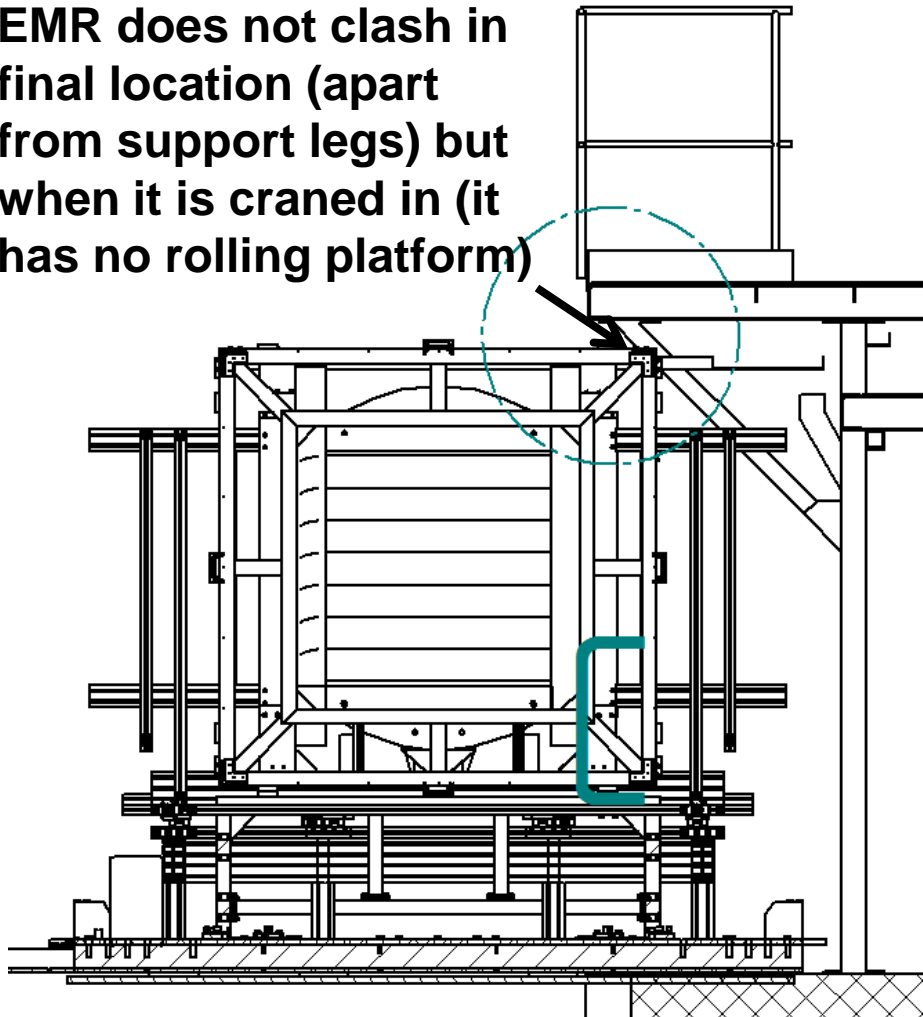


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- EMR

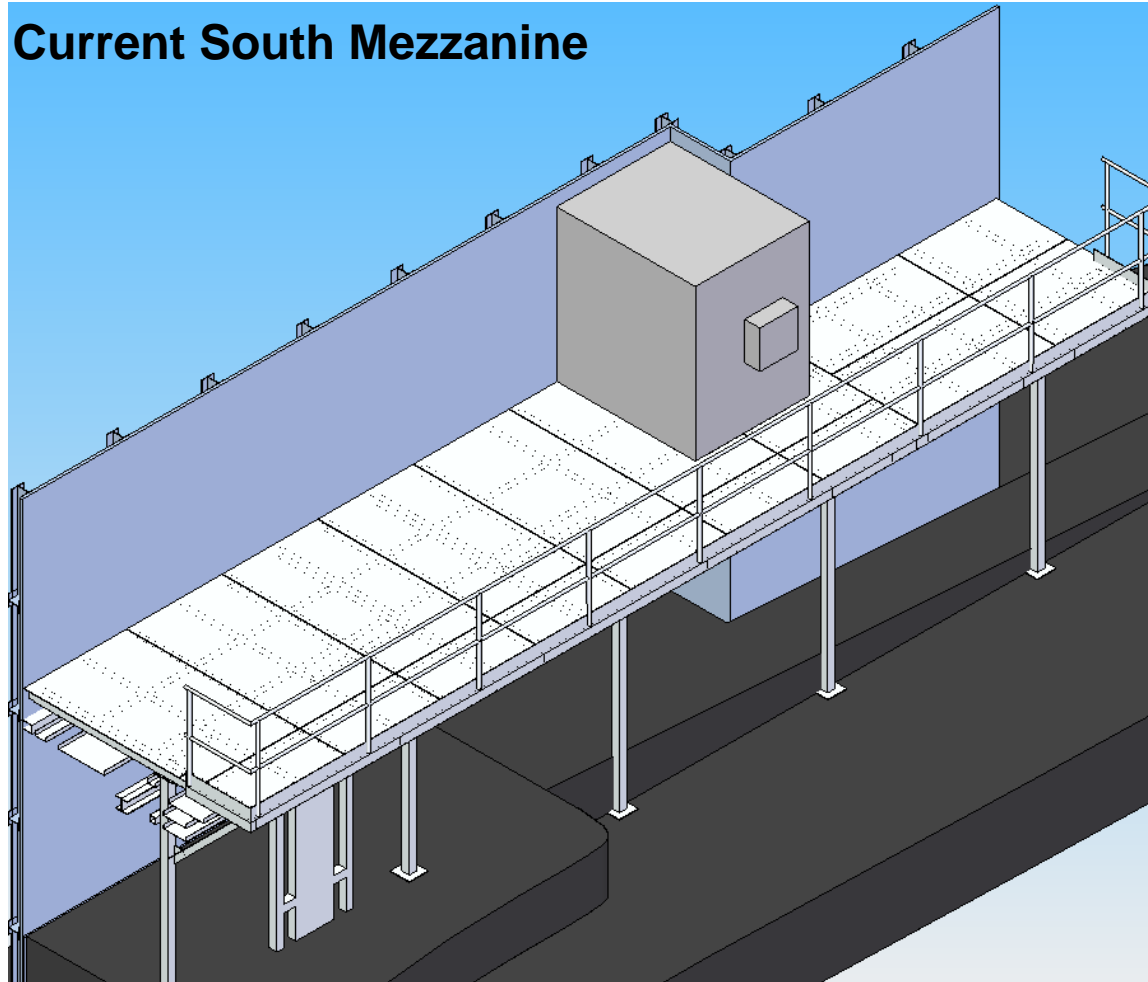
EMR does not clash in final location (apart from support legs) but when it is craned in (it has no rolling platform)



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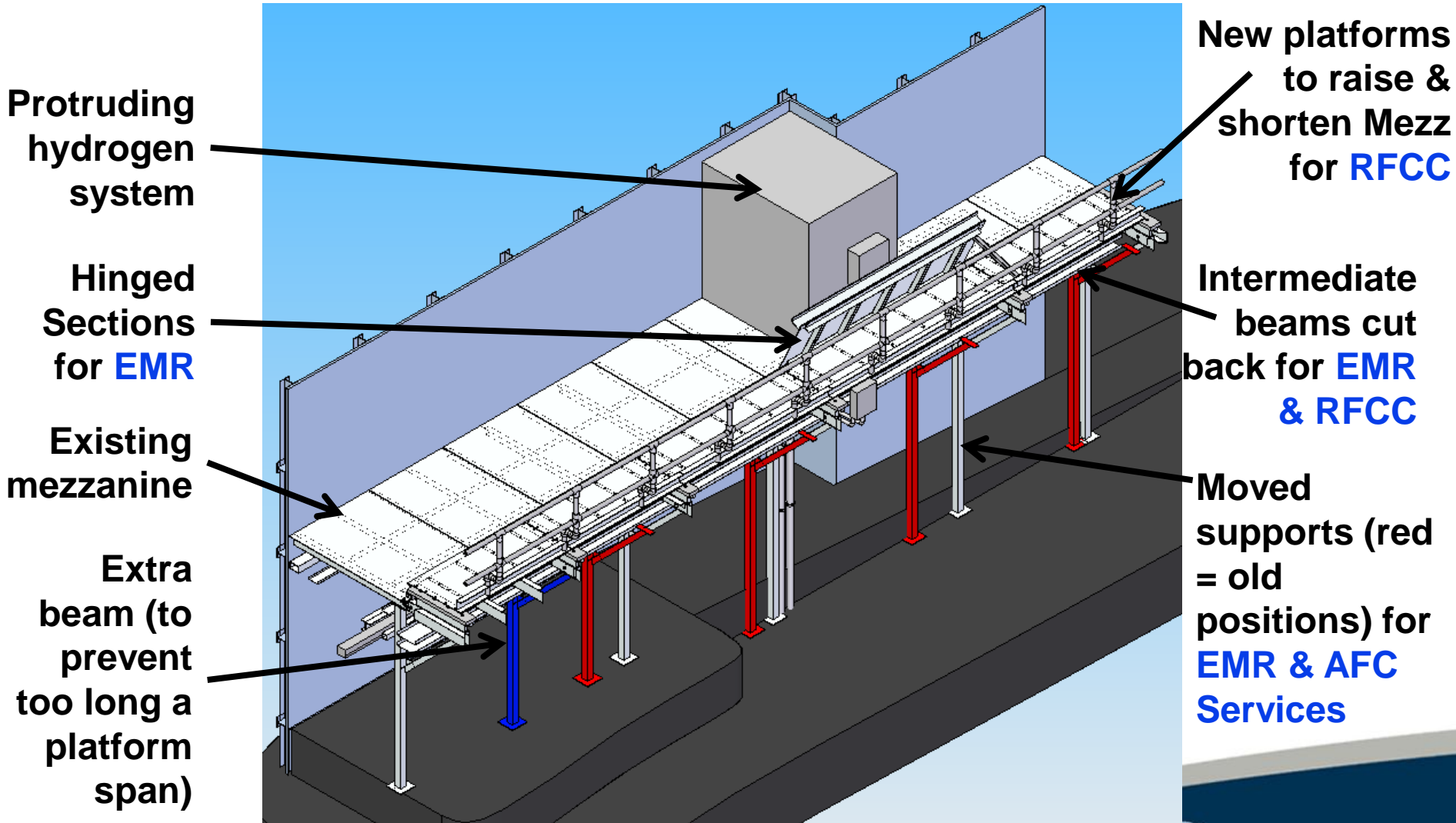
- South Mezzanine change summary



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- South Mezzanine change summary



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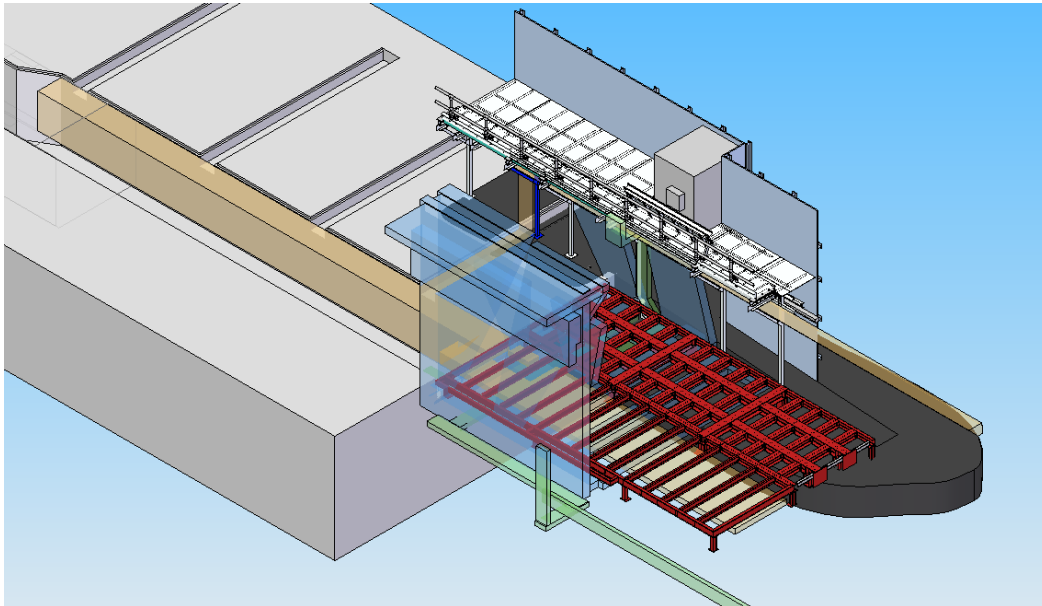


- South Mezzanine Status
 - » Platforms out for manufacture
 - Company has order
 - First meeting 7/2/12
 - Opus reviewing structural change to rest of platform
 - Regal to install after Hydrogen test & before AFC installation (May / June 2012)

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- Integration Envelope Model
 - » Simple 3D blocks to encompass volumes with some contingency (excess)
 - » Services likely to be most troublesome component of any envelopes due to size, semi-rigid nature and complexity of routing



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- Air Conditioning (A/C) Move

- » Required to site A/C near to compressor hot spot on east end of south mezz

- » Requires

- New platform

- Design/Structural OK/Manufacture/Install

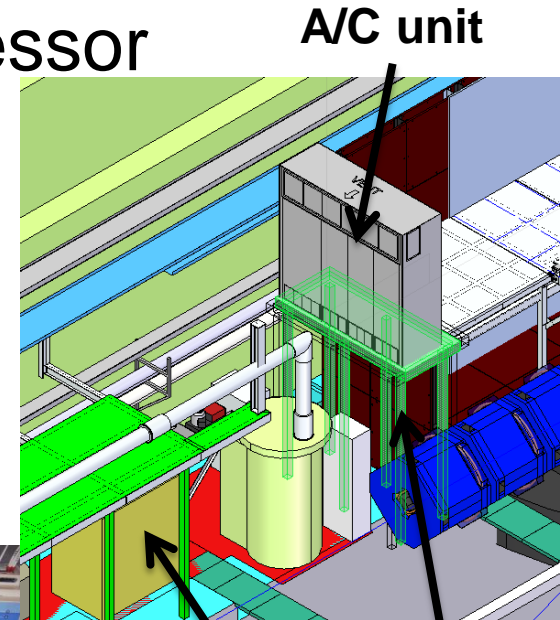
- Careful flow control (hot & cold not fight)

- Services move

- Magnetic compatibility in this region (forces & operation)

- » Future compressor removal (maintenance)

- Temporarily remove A/C



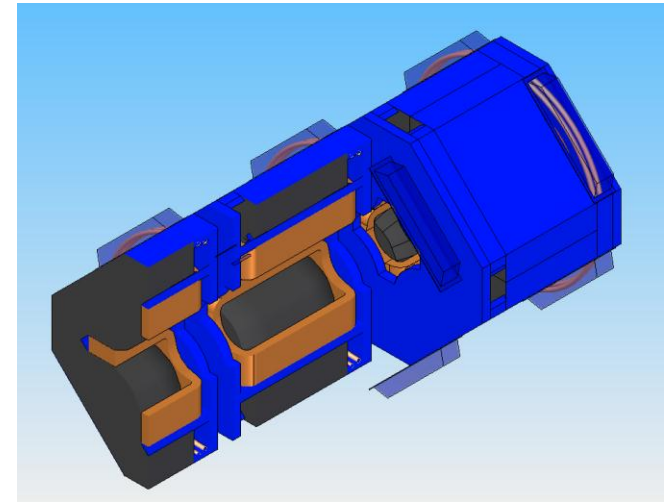
A/C unit

Platform

Compressor

● MAUS

- » Re-model components in simple form with accurate materials & masses
- » Accurate installed locations
- » For detectors a hollow 'frame' placeholder will be used and the information to come from detector groups
- » First version
 - Q4-9
 - TOF0, TOF1 3. Ckov 4. D2 5. KL, TOF2 6



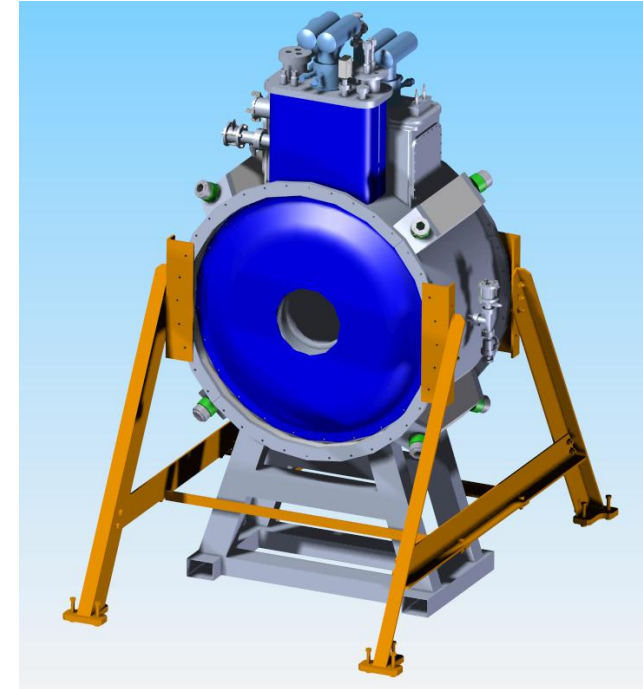
**Section through
MAUS versions
of Q7,8 & 9**

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- AFC Frame

- » Simple anti-topple outrigger design
- » Extent of magnetic forces of AFC in R9 do not interact so no load
- » Order being placed now



**AFC Outrigger assembly
(orange) & the AFC**

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Website Screen dumps

The screenshot shows the MICE Integration Engineering website. The top navigation bar includes links for STEPS I, IV, V, VI; BEAMLINE & COOLING CHANNEL DEVICES; DETECTORS; MICE HALL STRUCTURE; SERVICES; and MISC. The main content area features a 3D rendering of the MICE experiment setup. Below the rendering, there is a search bar and a note about draft drawings. A table titled 'Modification Table' is also visible, showing changes to released drawings.

Top Level	Other Function
	Survey requirements = 1152-9435
	Platform Assembly Generic = 1152-9443
	Hinged Platform Assemblies #1-5 = 1152-9285, 1152-9280, 1152-9277, 1152-9293, 1152-9290
South Mezzanine	Combined Assembly = 1152-9107
	Platform Assemblies #1-5 = 1152-9286, 1152-9282, 1152-9279, 1152-9296, 1152-9292
	Platform Weld Spec (Generic) = 1152-9778
	6x3 Beams #1-5 = 1152-9288, 1152-9283, 1152-9278, 1152-9295, 1152-9291
	Hinged Platform Stay = 1152-9276
	AirCon Modification = 1152-9776
Moving Platforms	Step VI assembly Overview = TD-1152-9014

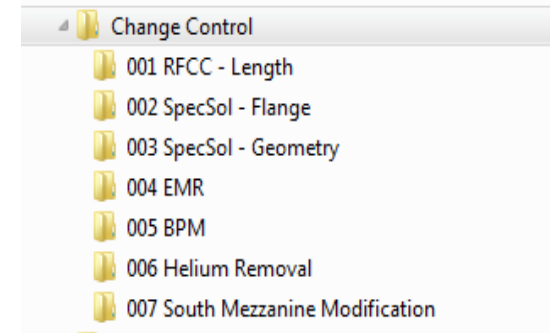
● Drawing Repository

- » 116 drawings & growing (updated generally as changes made)
- » Various states from provisional to released
- » Would appreciate system owners reviewing drawings related to them, info missing or drawings required can be added
- » Access = preferably on as needed only to control information

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- Engineering change control / design change control
 - » RFCC
 - Waiting on JST (me) OK against South Mezz
 - » Spec Sol Flange
 - Should be signed off now flange to be left on
 - » Spec Sol Geom (previous review outcomes)
 - Awaiting info from S Gourlay else use review documentation



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- Engineering change control / design change control

- » BPM & EMR

- Awaiting info from A Blondel

- » Helium Removal

- More a definitive decision than a change; to be recorded in the ECR form if suitable

- » South Mezz

- Structural sign off in progress
- Platform units in manufacture
- TB to OK

...to exclude the possibility of dead channels and also to significantly facilitate the production, a modification to the design was proposed. It implies introducing an optical fiber connector at both ends of a scintillator bar and using a clear fiber to transfer light from the bar to PMTs.

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- Conclusion

- » Step IV preparatory work

- **South Mezzanine** – In progress, platform delivery before April, rest of modifications & install by **May / June**
- **Envelope Model** – In progress, estimate **end April**
- **A/C Move** – In progress, install **May / June** with other South Mezz changes
- **Maus** – In progress, estimate first model by **March**
- **AFC Frame** – In progress, expect delivery **mid March**
- **Drawing Repository** - **Ongoing**
- **ECRs** - **Ongoing**