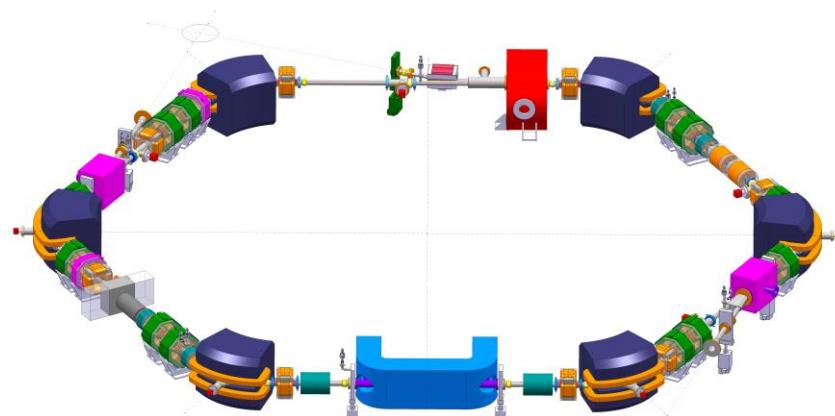


# ELENA

# Integration Layout Infrastructure

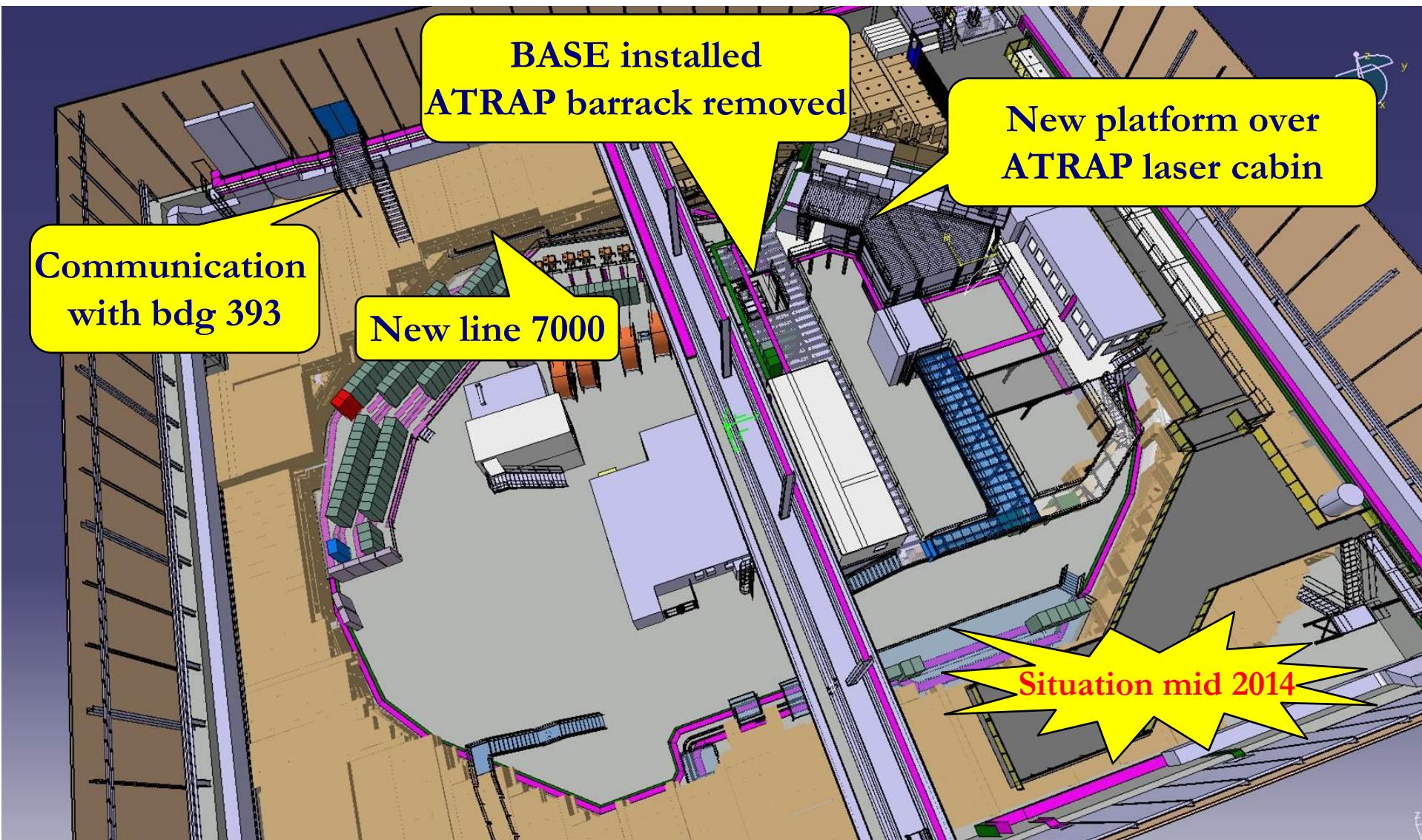


# ELENA

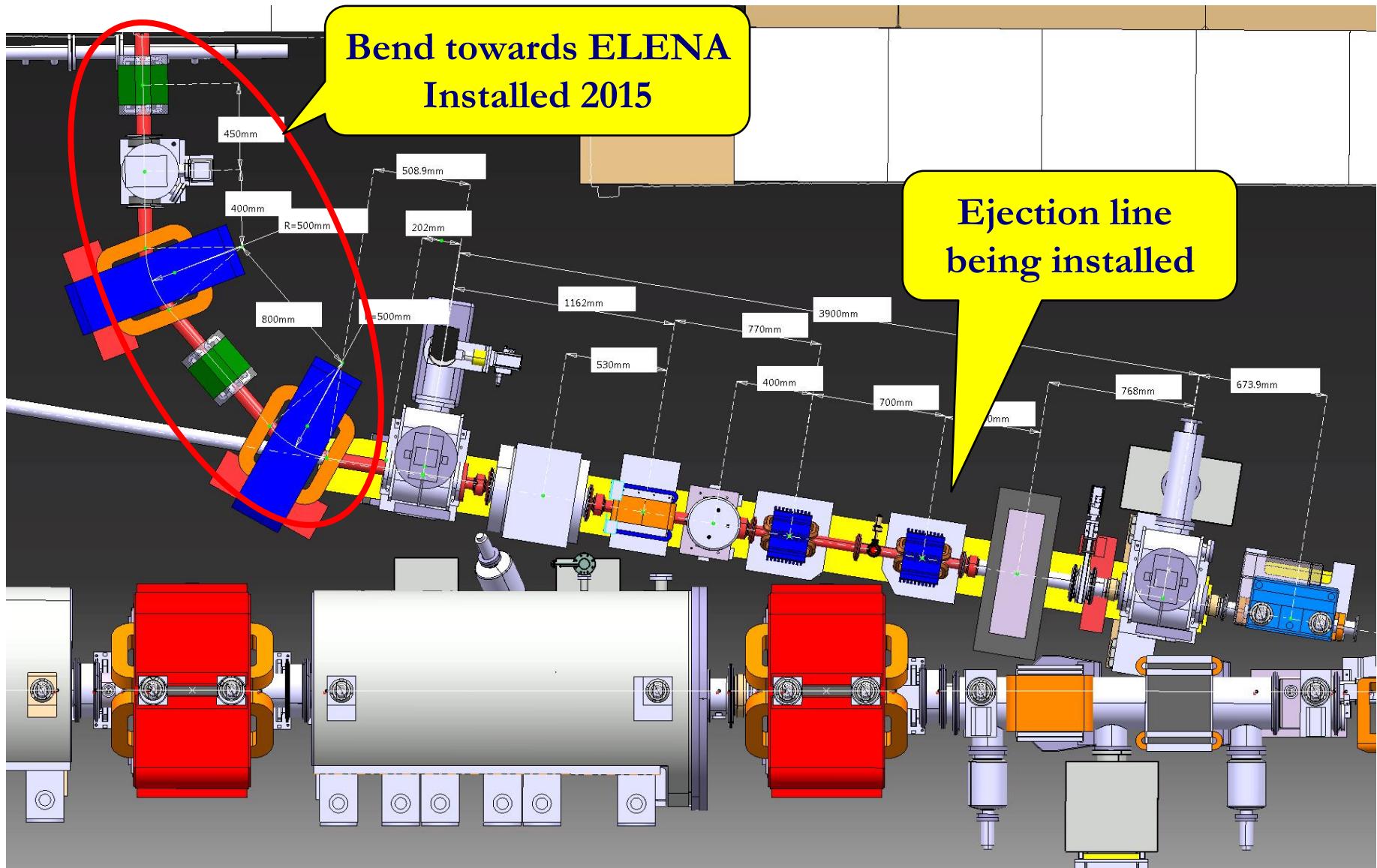
*Extra Low ENergy Antiprotons*

- ELENA comes in a wide context of AD facility consolidation
  - AD machine
  - AD hall infrastructure
  - Experimental areas and control rooms (present and future)
  - Space for experiments preparation and hardware storage (mostly nonexistent today)

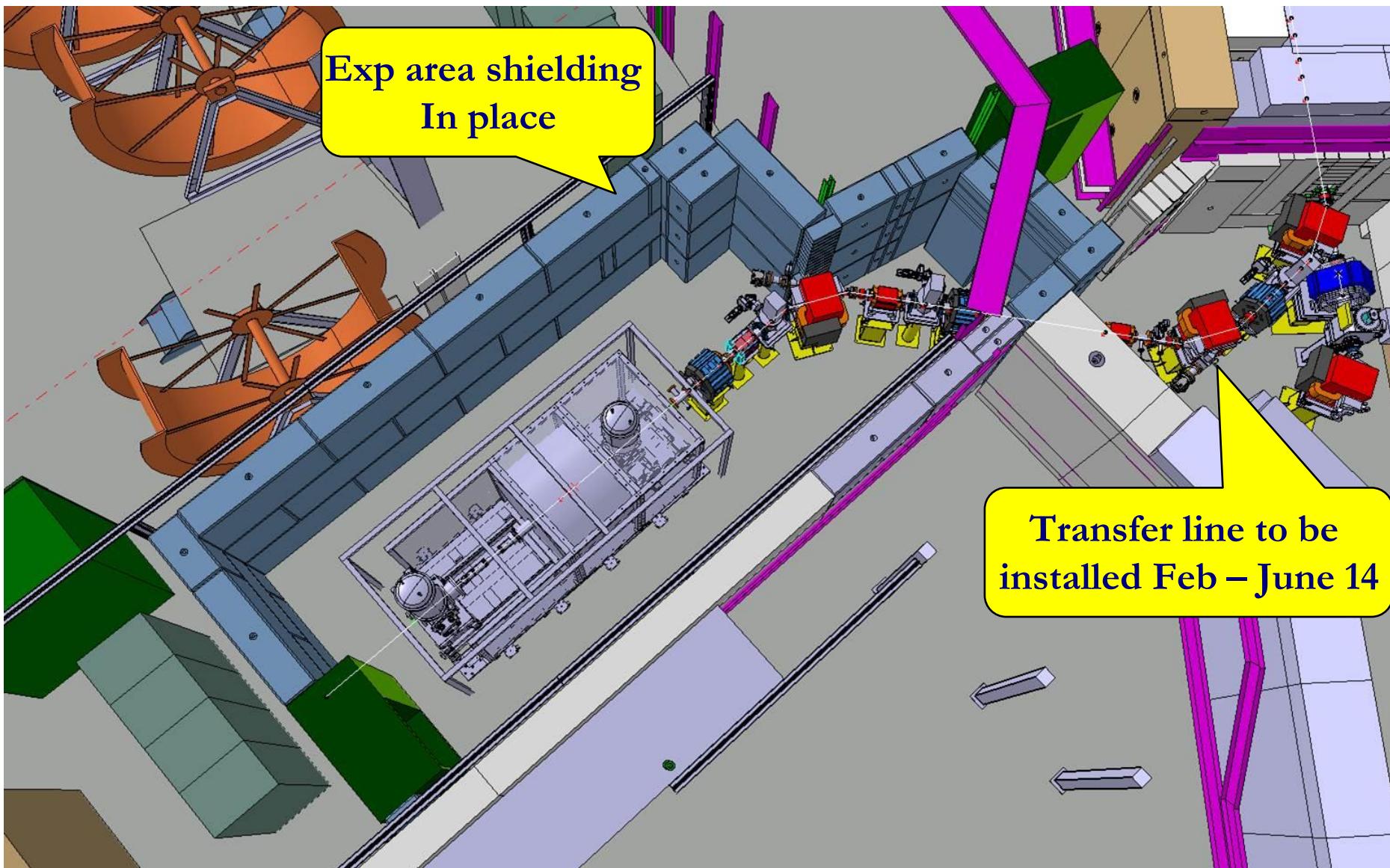
# AD hall adaptation stage 1



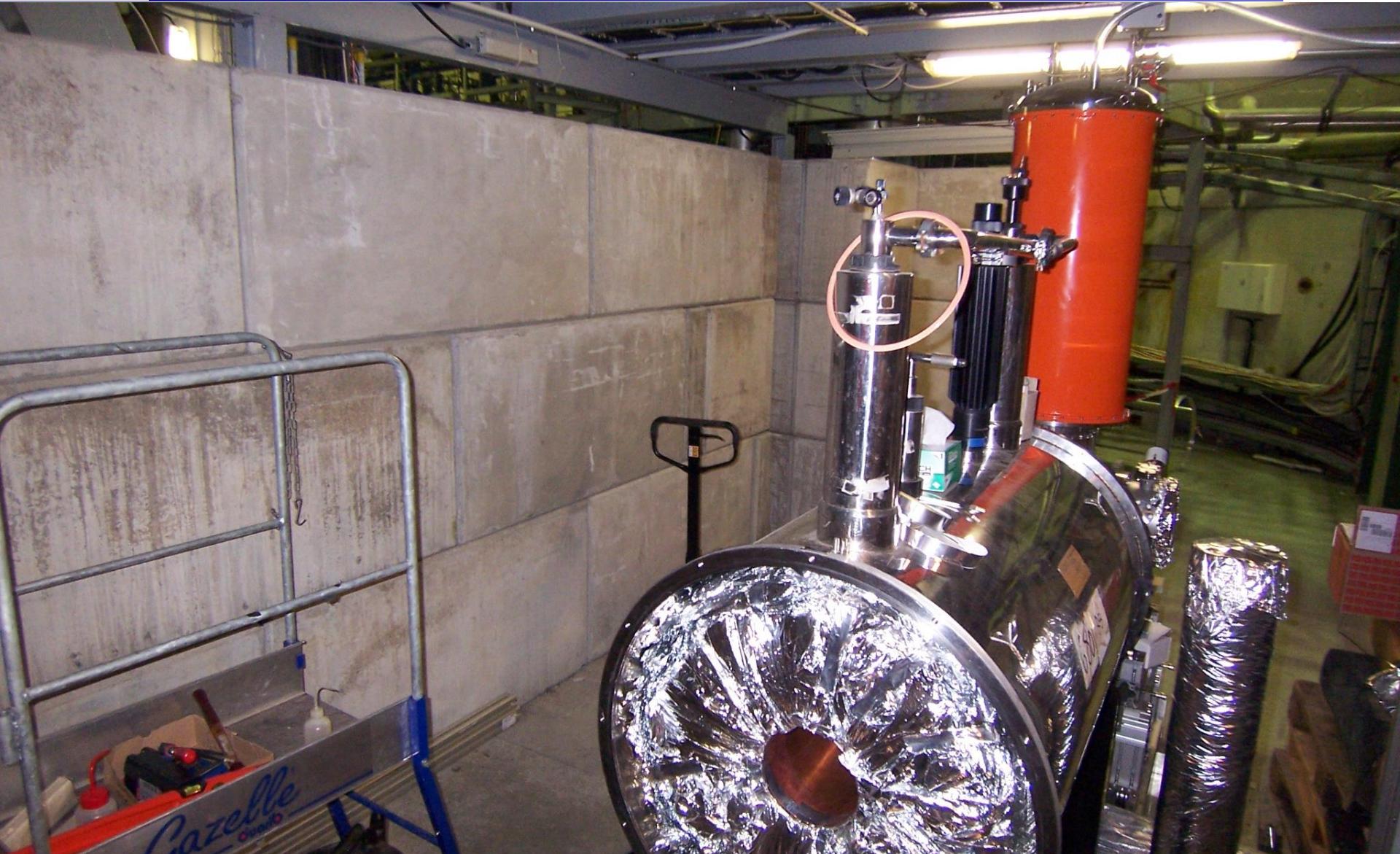
# Line 7000 (ejection)



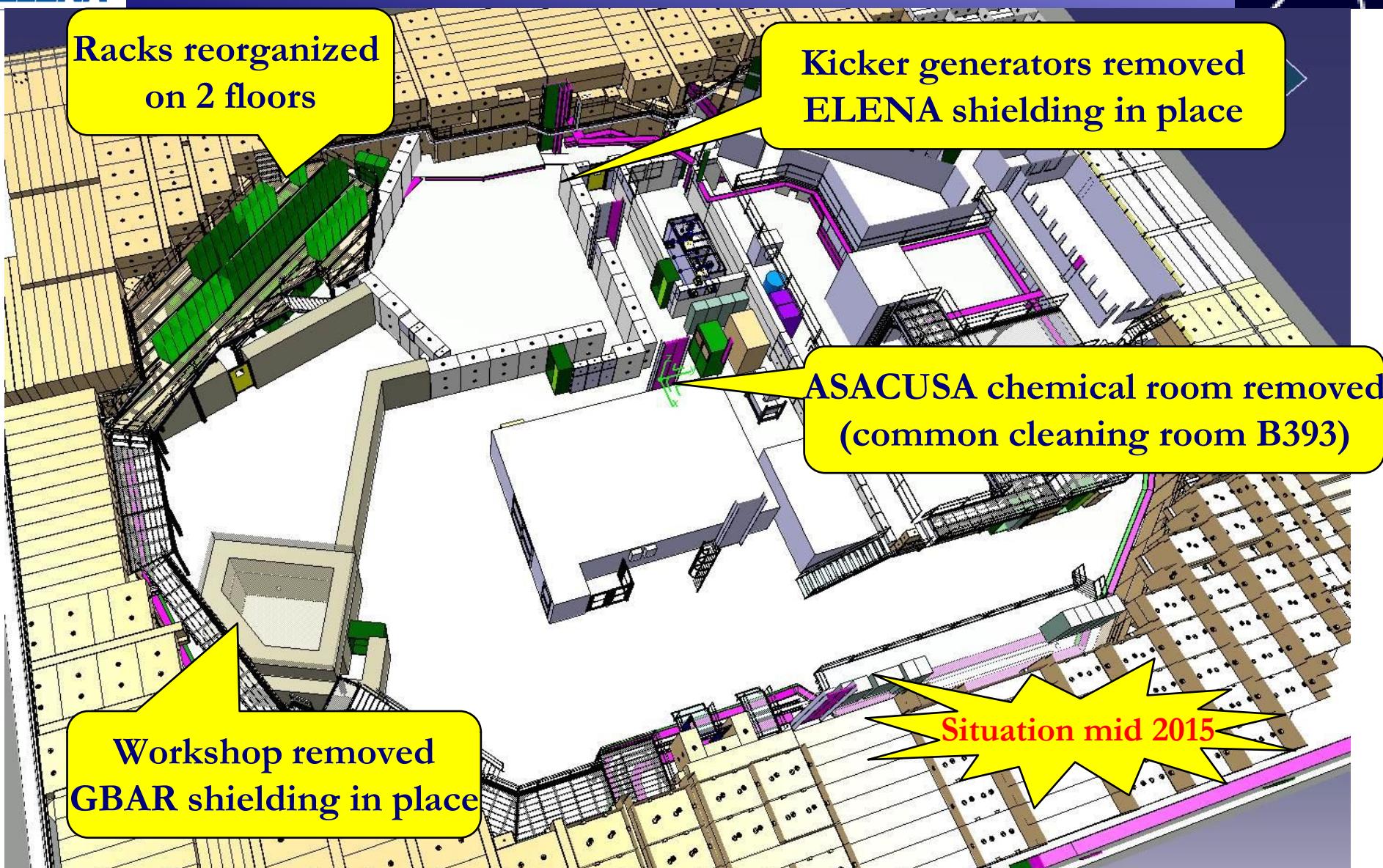
# BASE exp area and transfer line



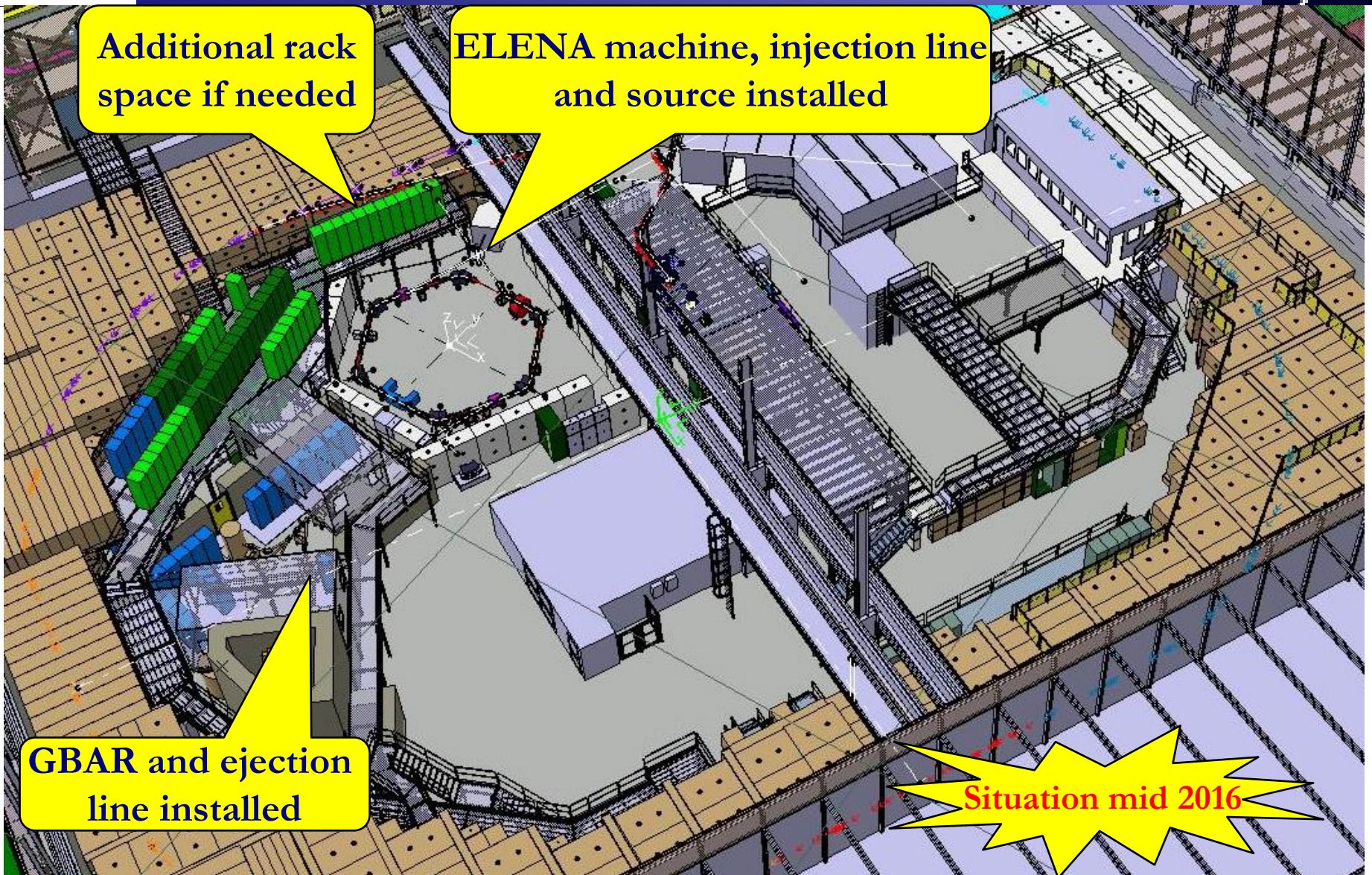
# BASE from inside...



# AD hall adaptation stage 2

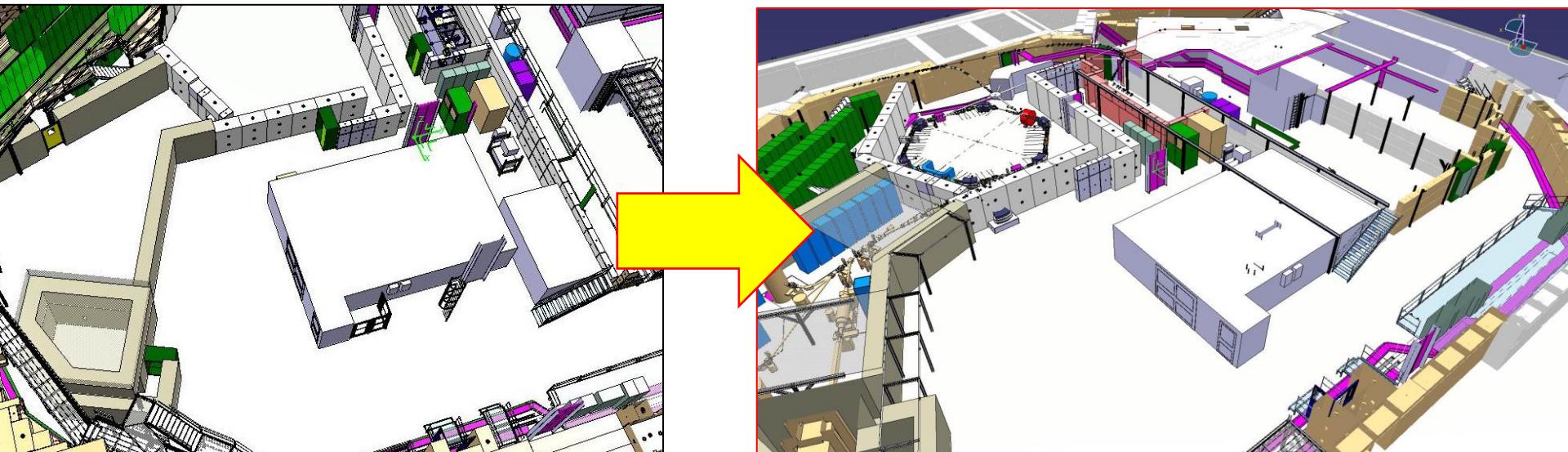


# AD hall adaptation stage 3



# AD hall adaptation stage 4

- During CERN machines LS2 (2018):
  - Upgrade AD hall air conditionning system
  - Proposal to shift ASACUSA laser room by 5m to make space for another experiment in AD hall
  - Adapt to new ideas that will have emerged by then !



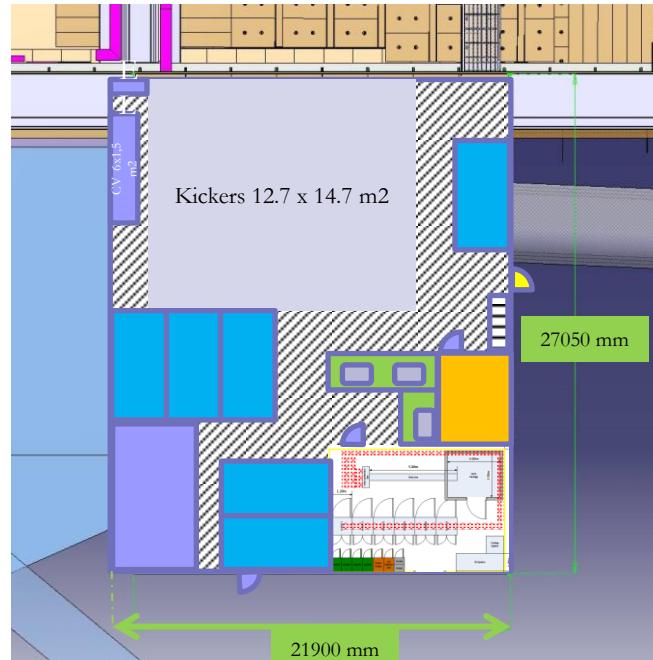
# Layout of ELENA surroundings (1)

- New adjacent building (bdg 93) for experiments control rooms, meeting room and cafeteria:
  - OK for Aegis, ATRAP and BASE
  - Planned for GBAR (2015)
  - Principle agreed for APLHA and ASACUSA (2017)
  - Financing to be secured



# Layout of ELENA surroundings (2)

- New technical building (bdg 393) construction:
  - AD kicker generators and existing workshop relocation
  - Experiments hardware preparation /storage space;
  - Experiments common cleaning room
  - AD magnetic horn test-bench relocation



**Delivery: mid 2014**

# B393 from inside...

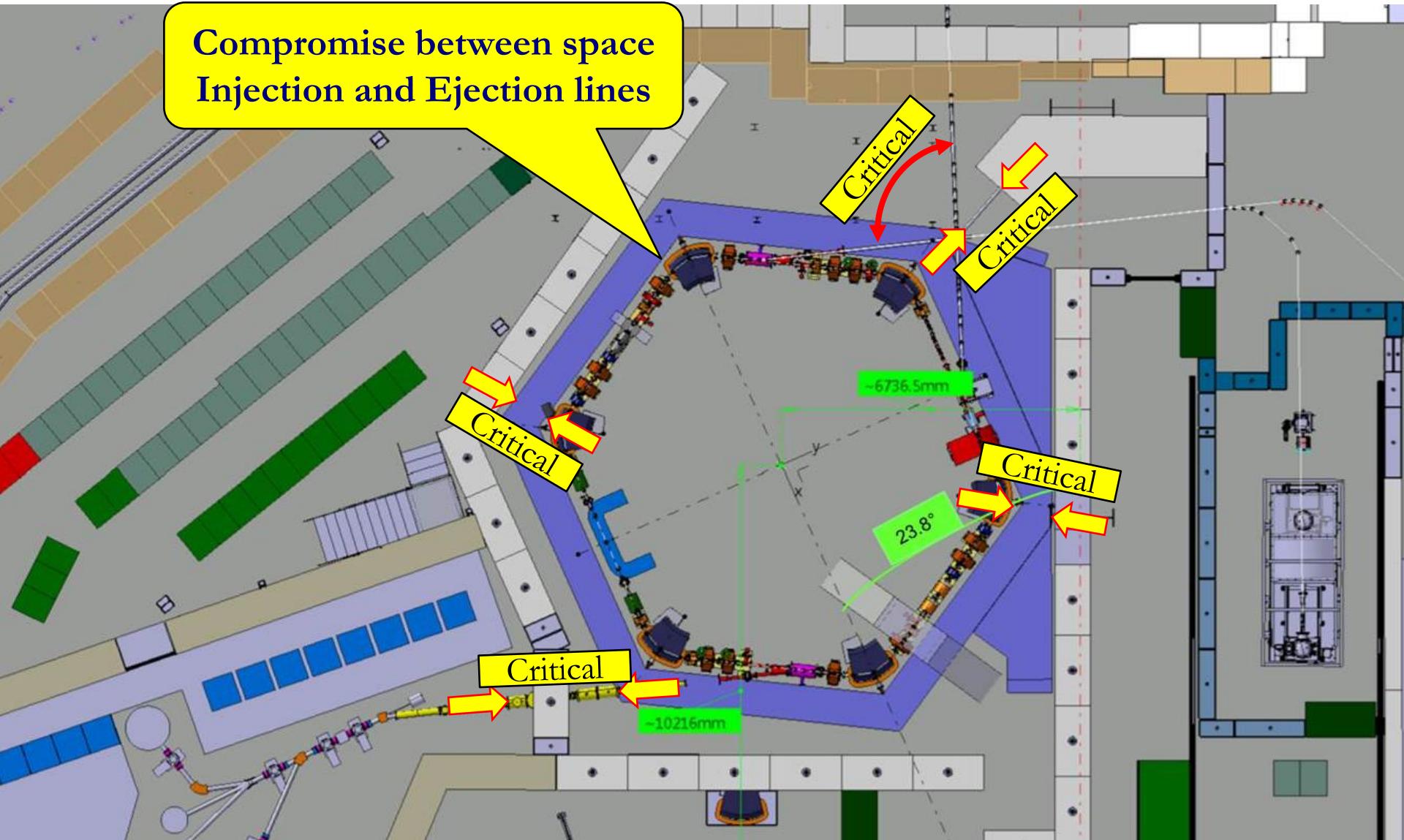


# And from outside...

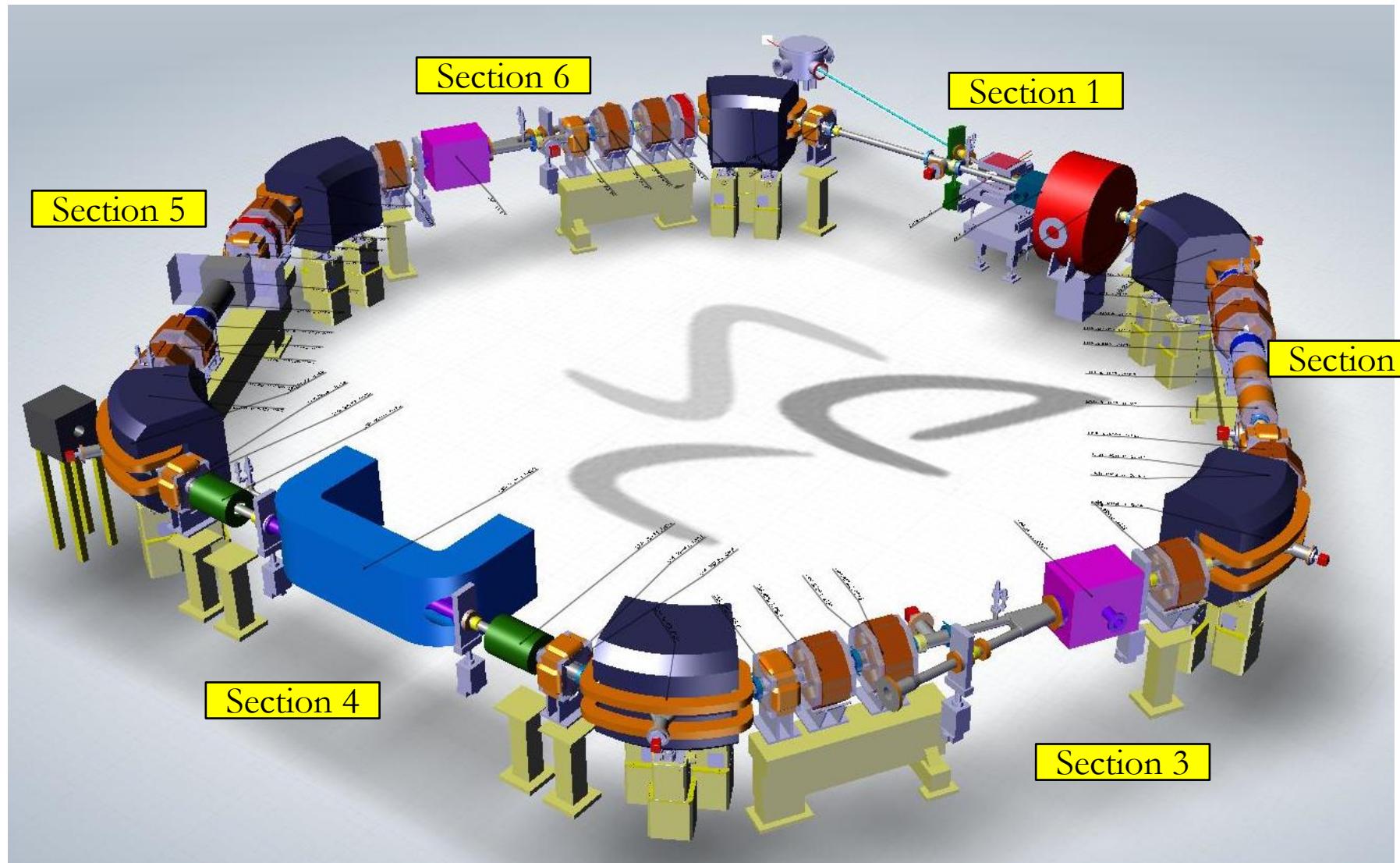


# ELENA position in AD hall

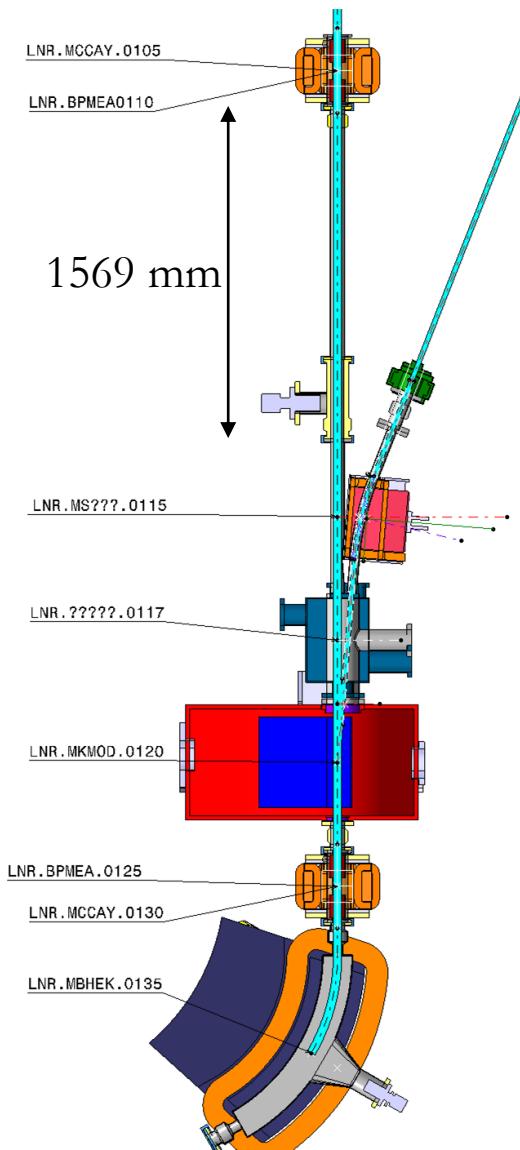
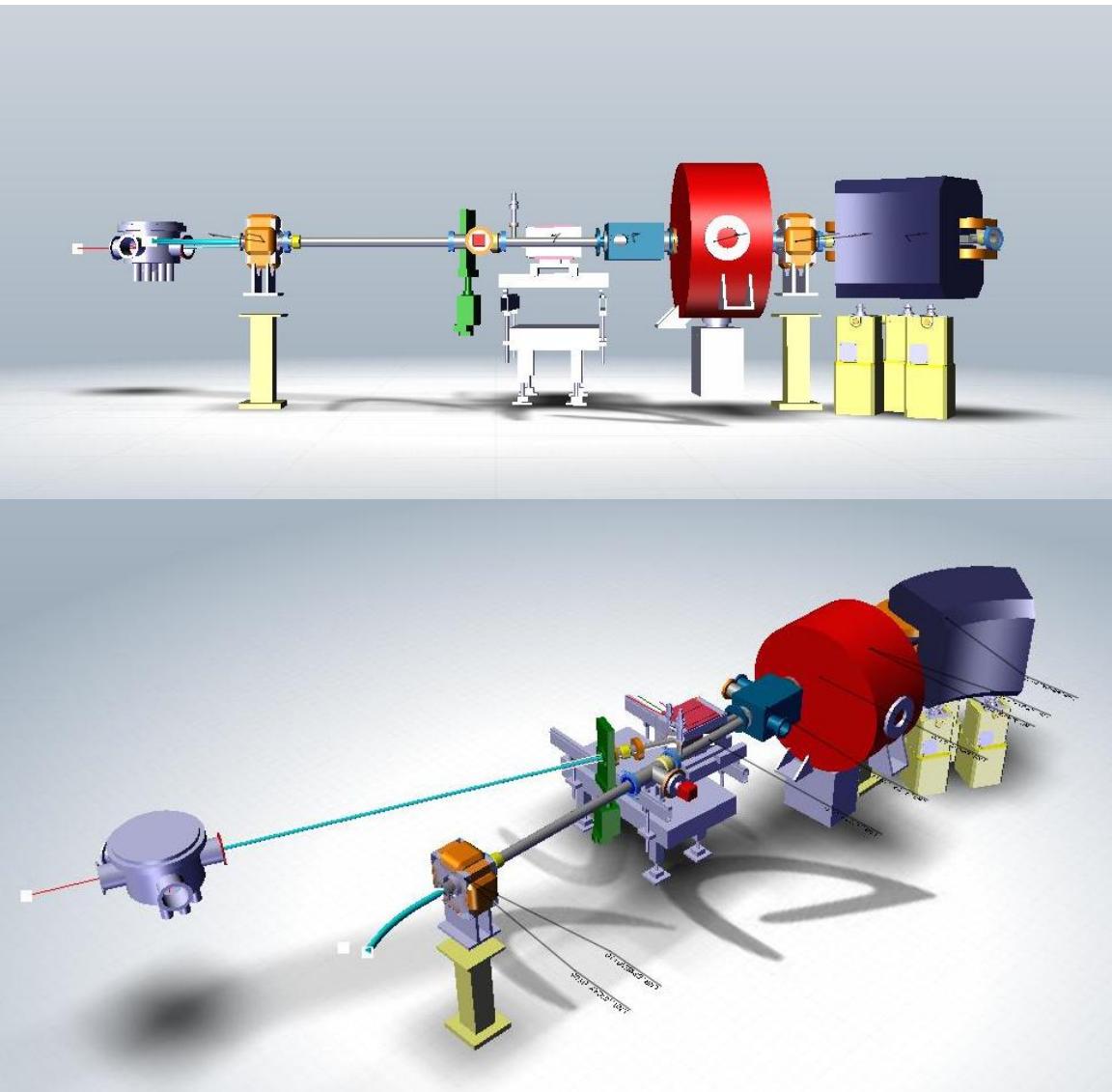
Compromise between space  
Injection and Ejection lines



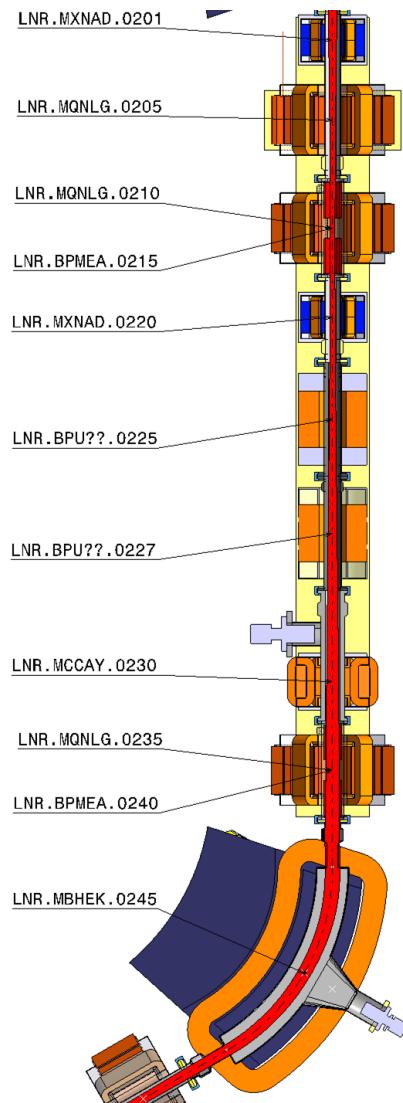
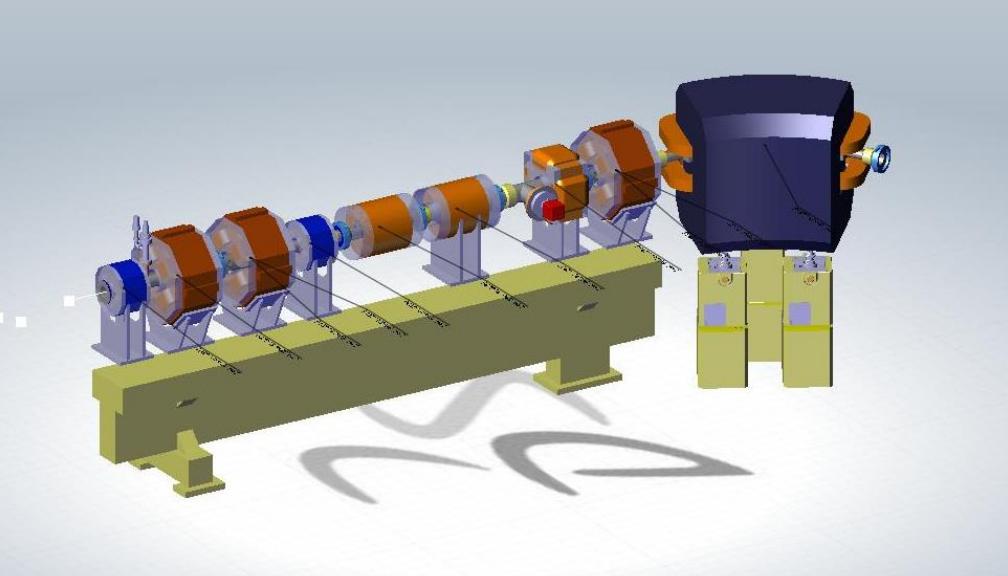
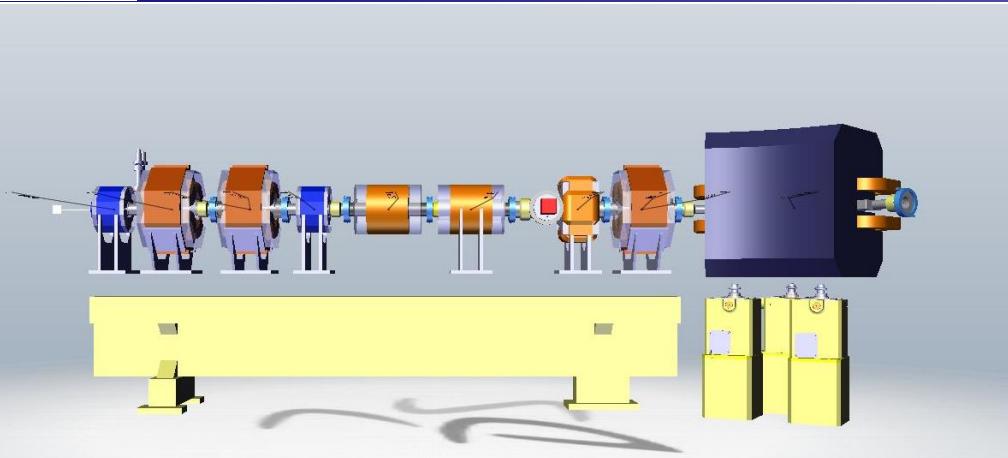
# ELENA machine layout



# ELENA machine section 1

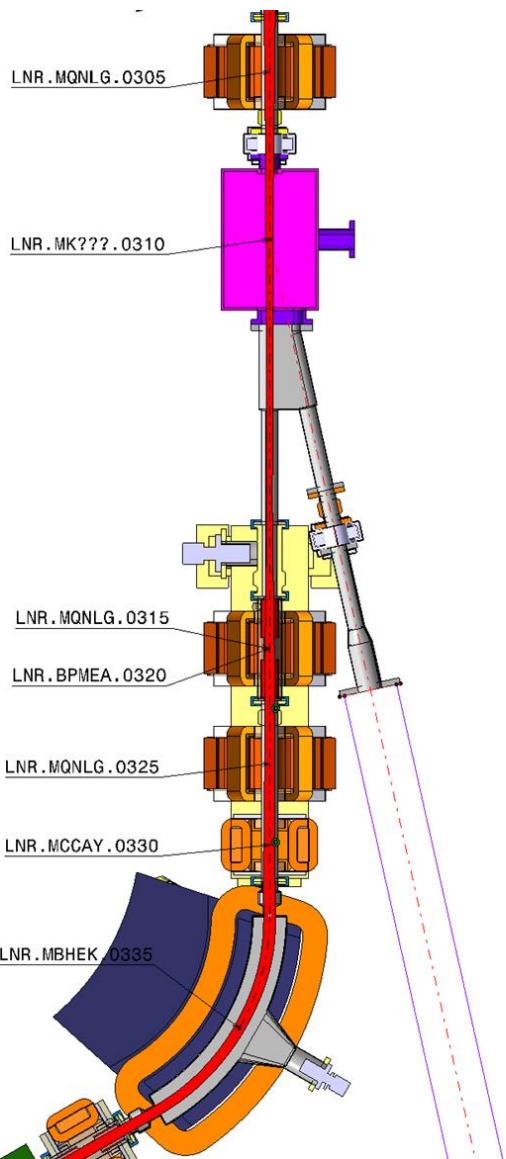
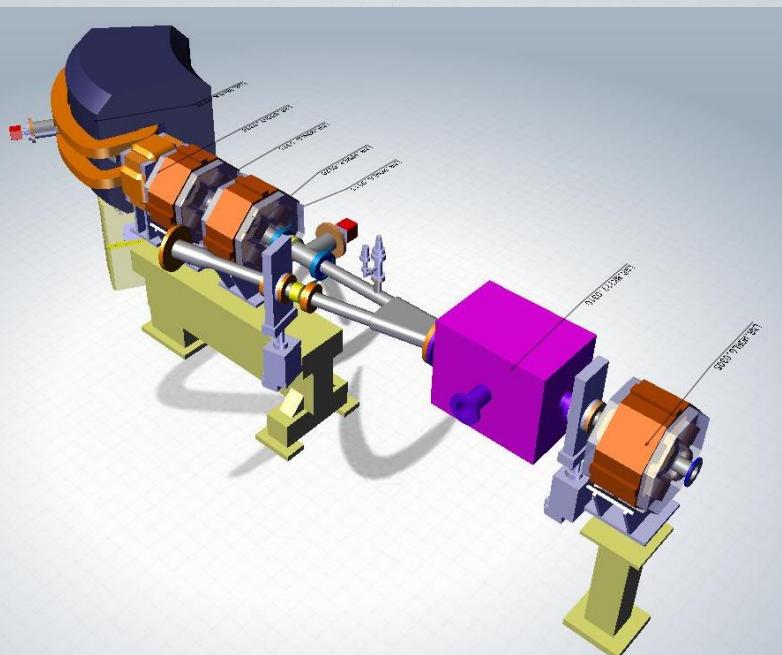
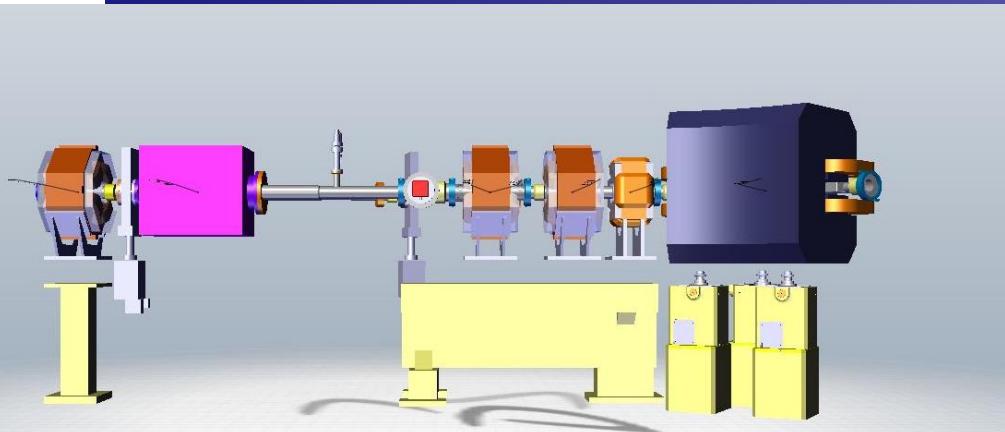


# ELENA machine section 2

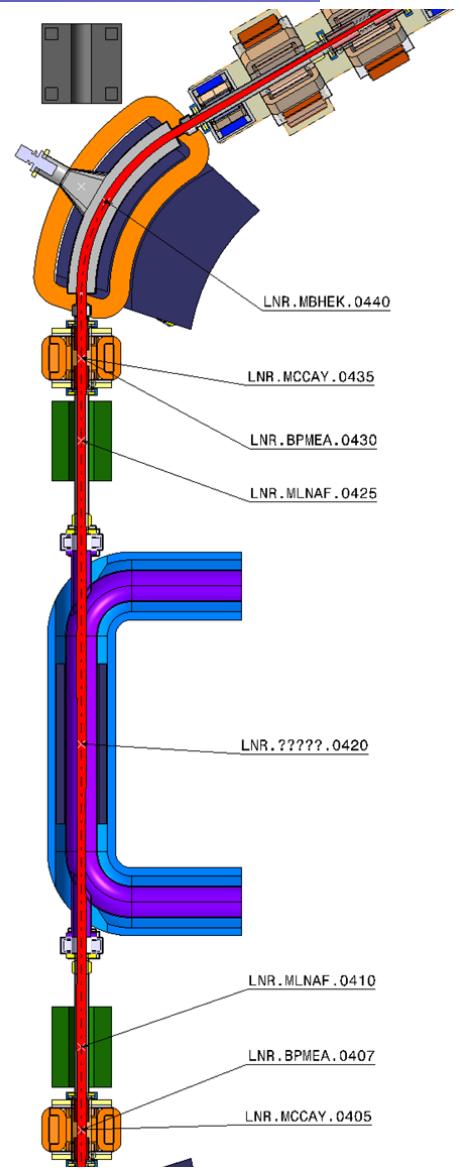
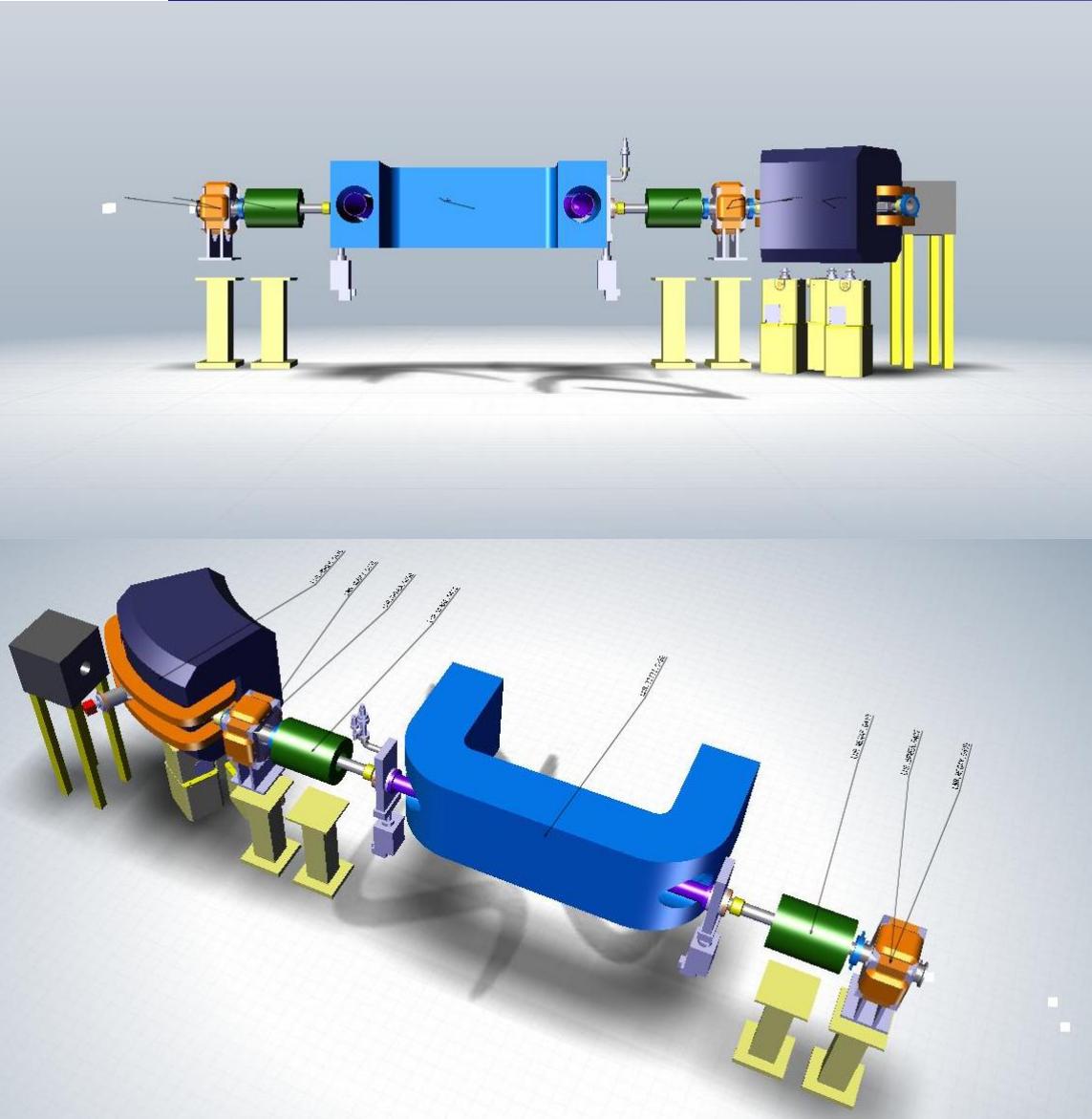




# ELENA machine section 3

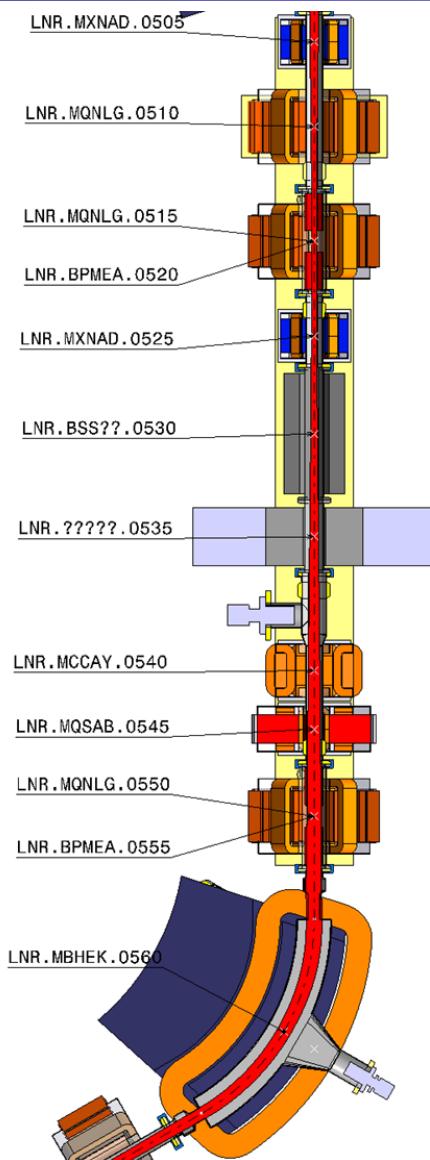
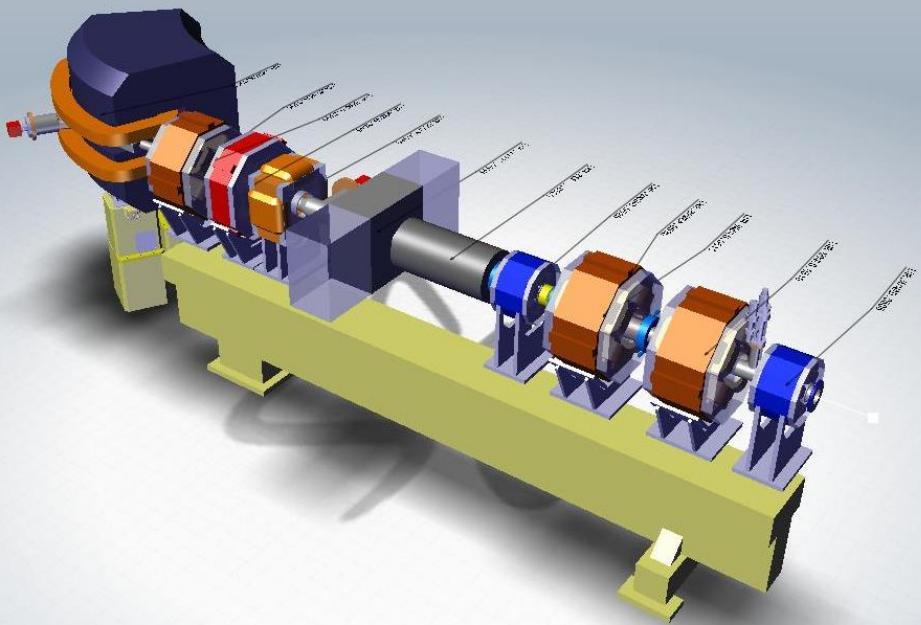
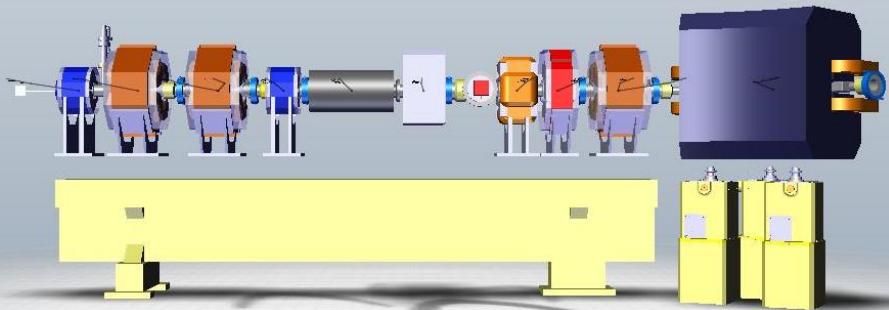


# ELENA machine section 4



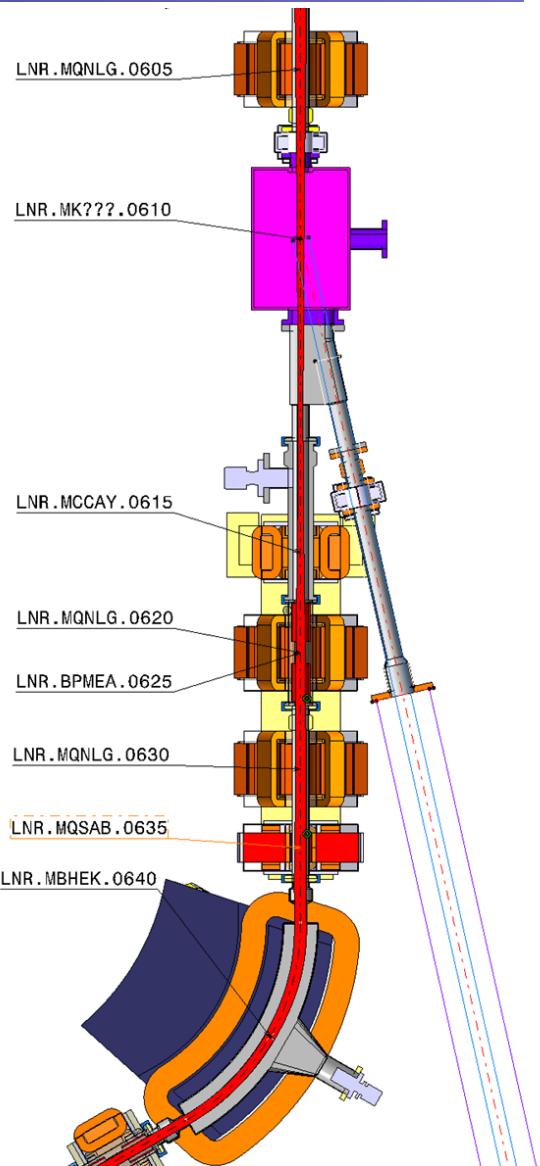
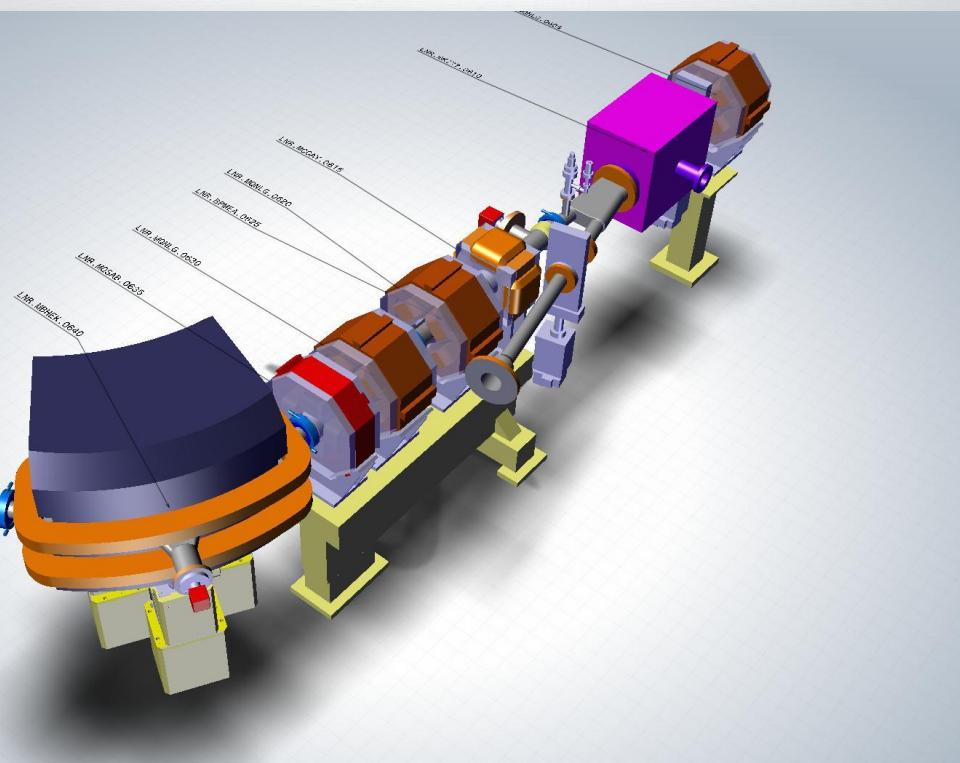
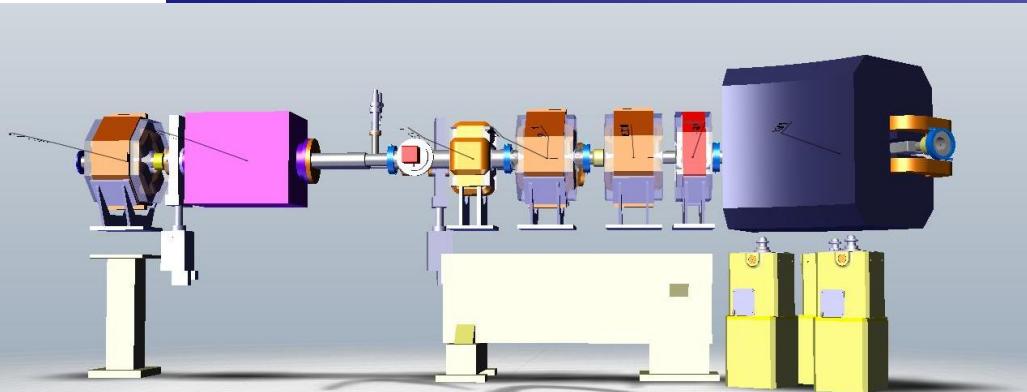


# ELENA machine section 5

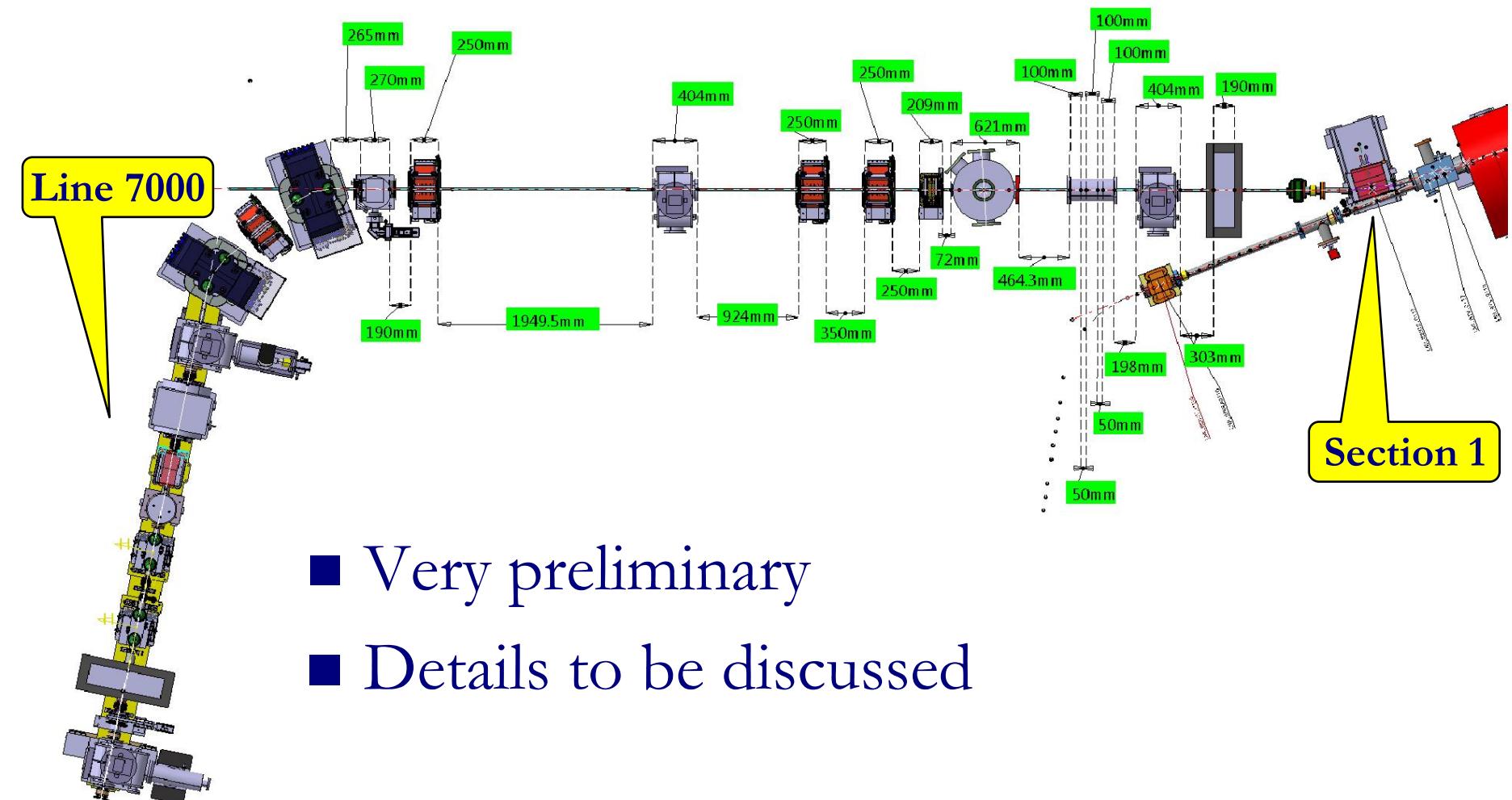




# ELENA machine section 6

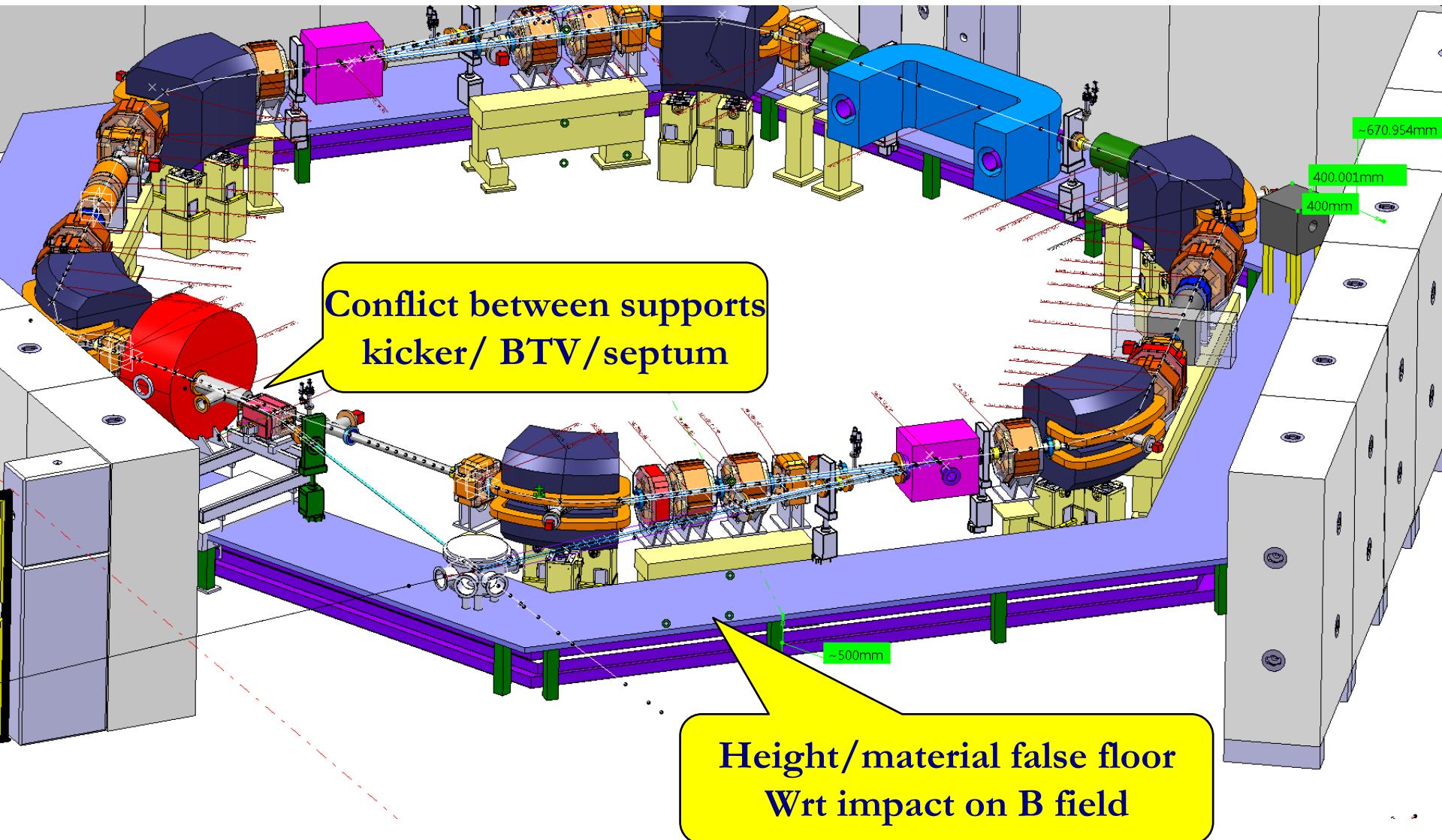


# LNI (AD-ELENA transfer line)



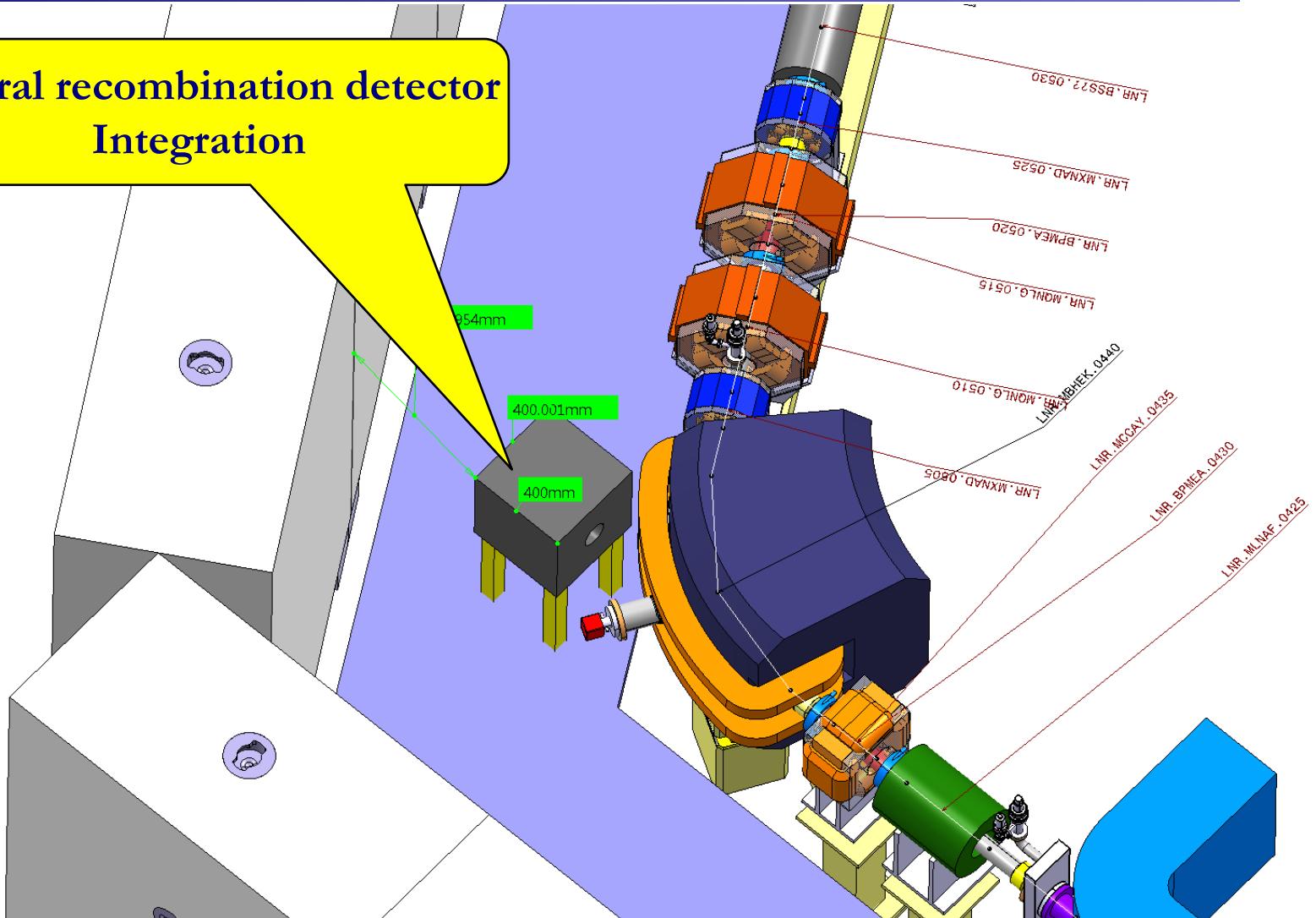
- Very preliminary
- Details to be discussed

# Integration issues



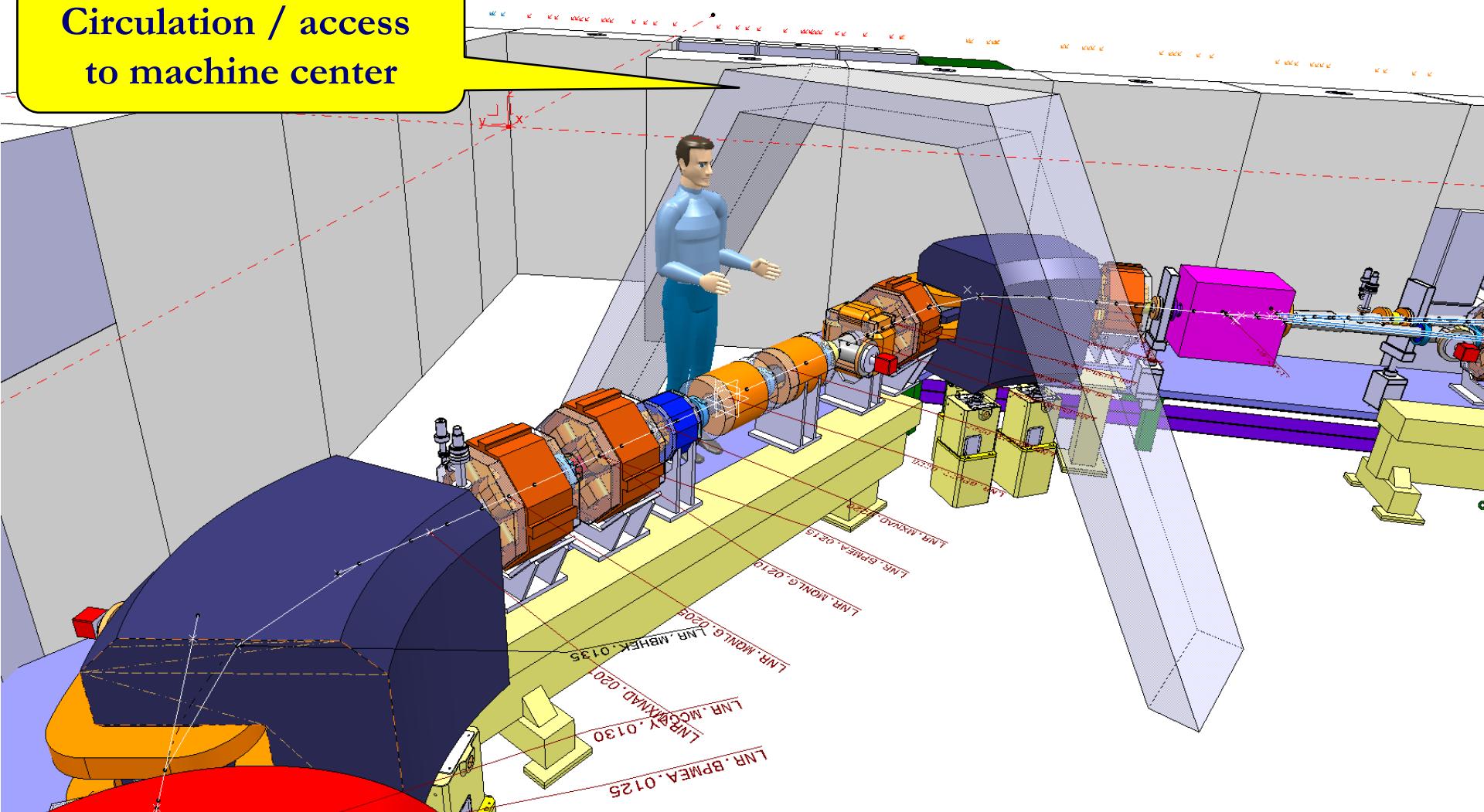
# Integration issues (2)

## Neutral recombination detector Integration

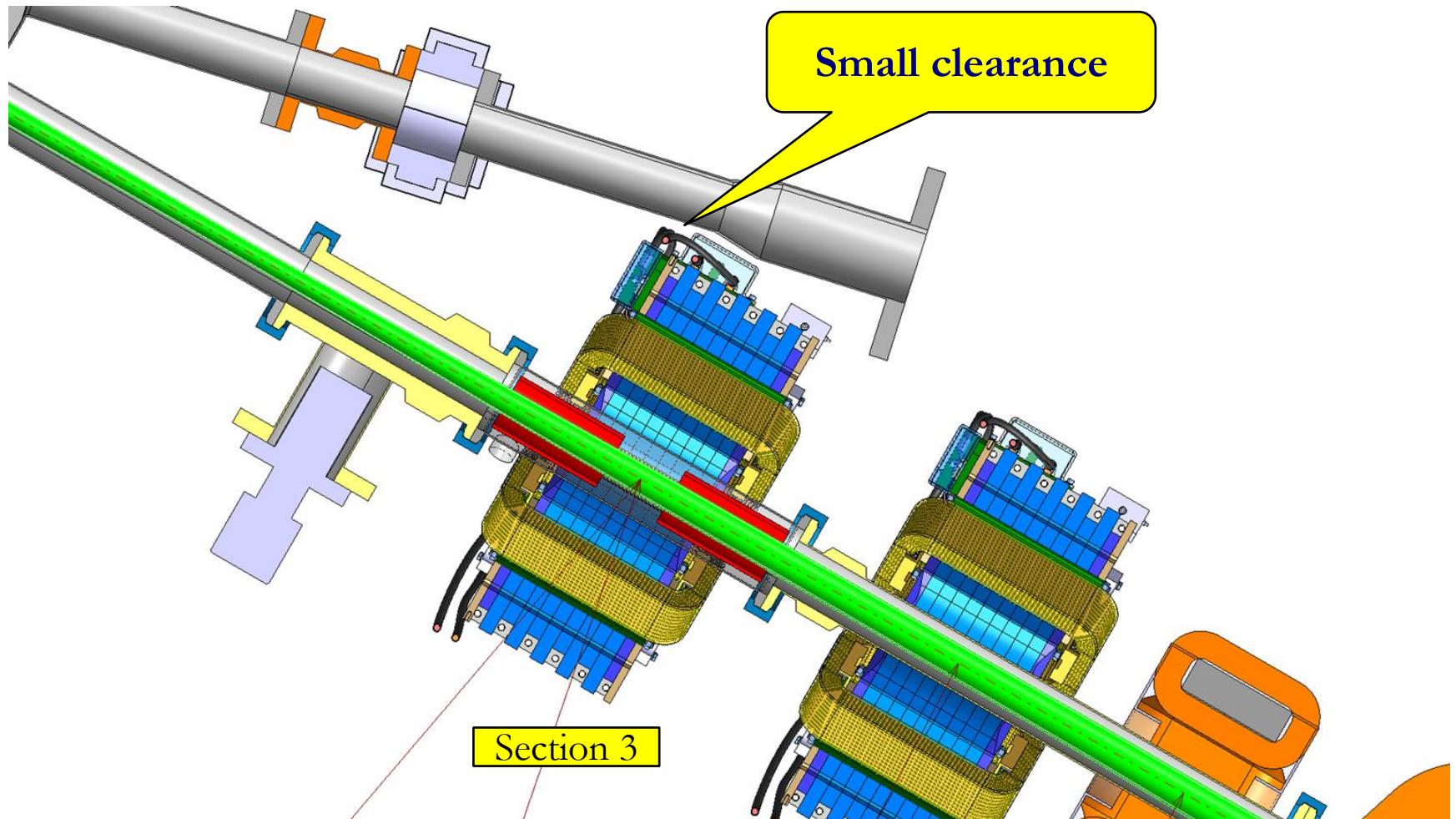


# Integration issues (3)

Circulation / access  
to machine center

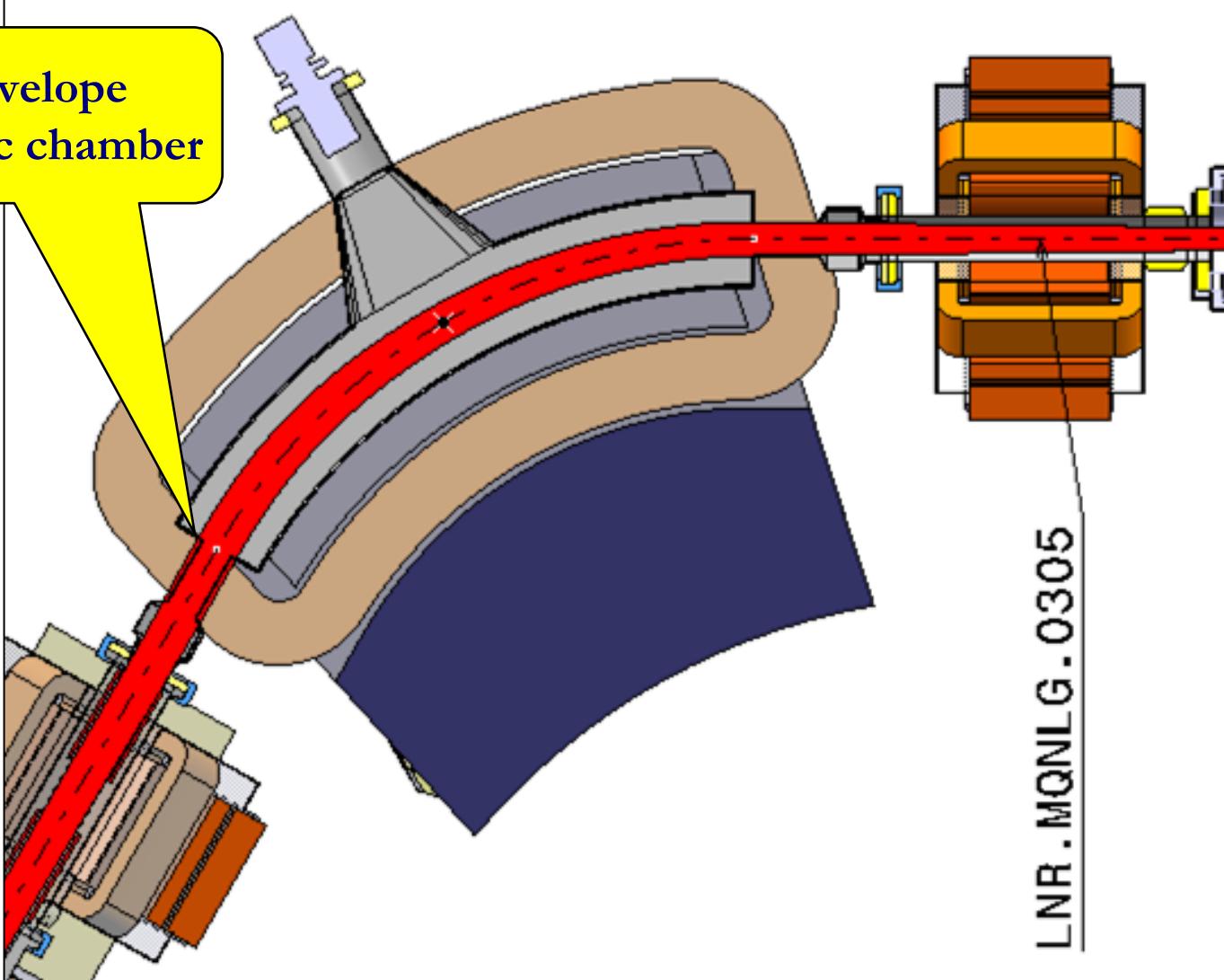


# Integration issues (4)



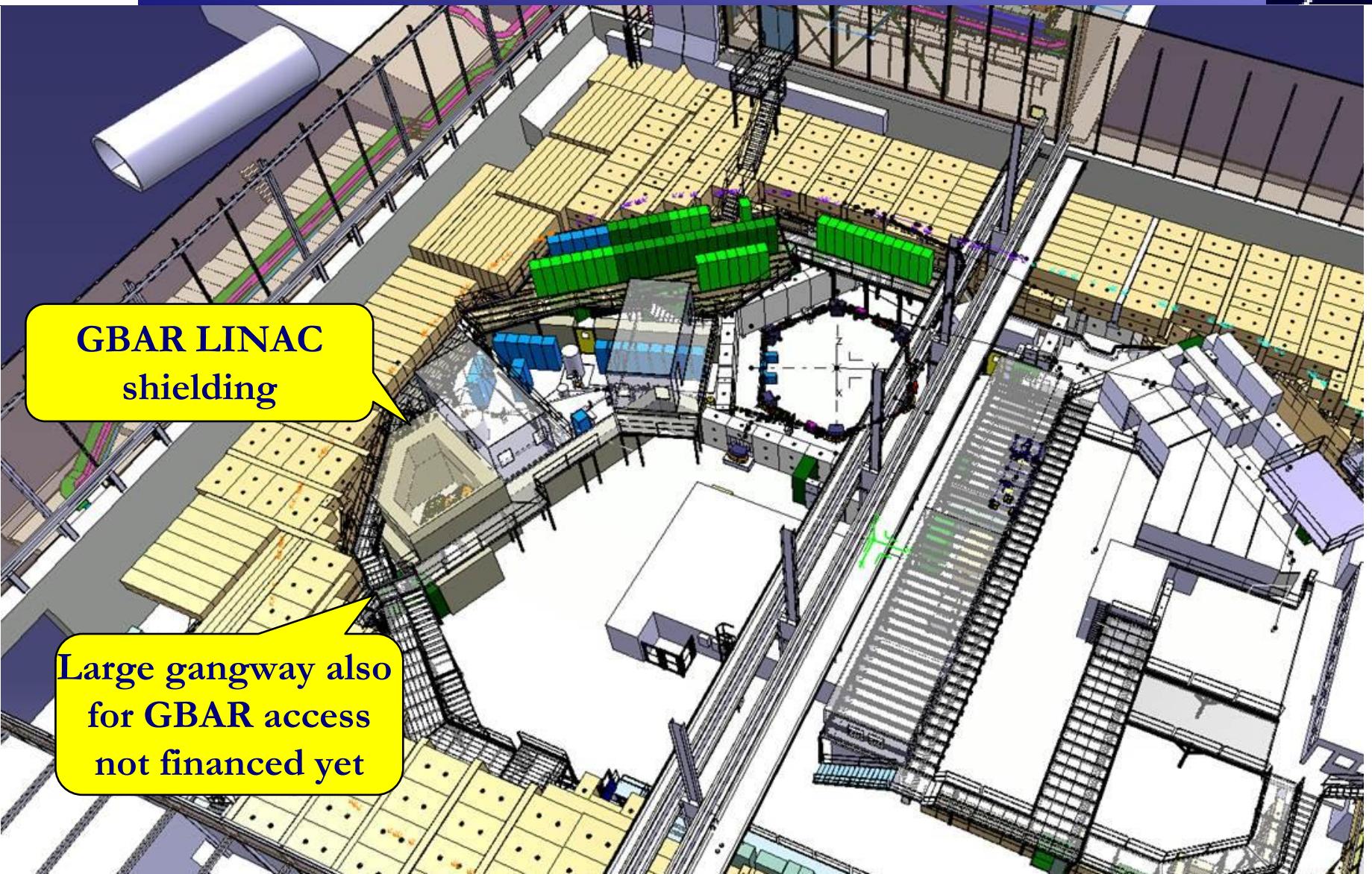
# Integration issues (5)

Beam envelope  
Redesign vac chamber



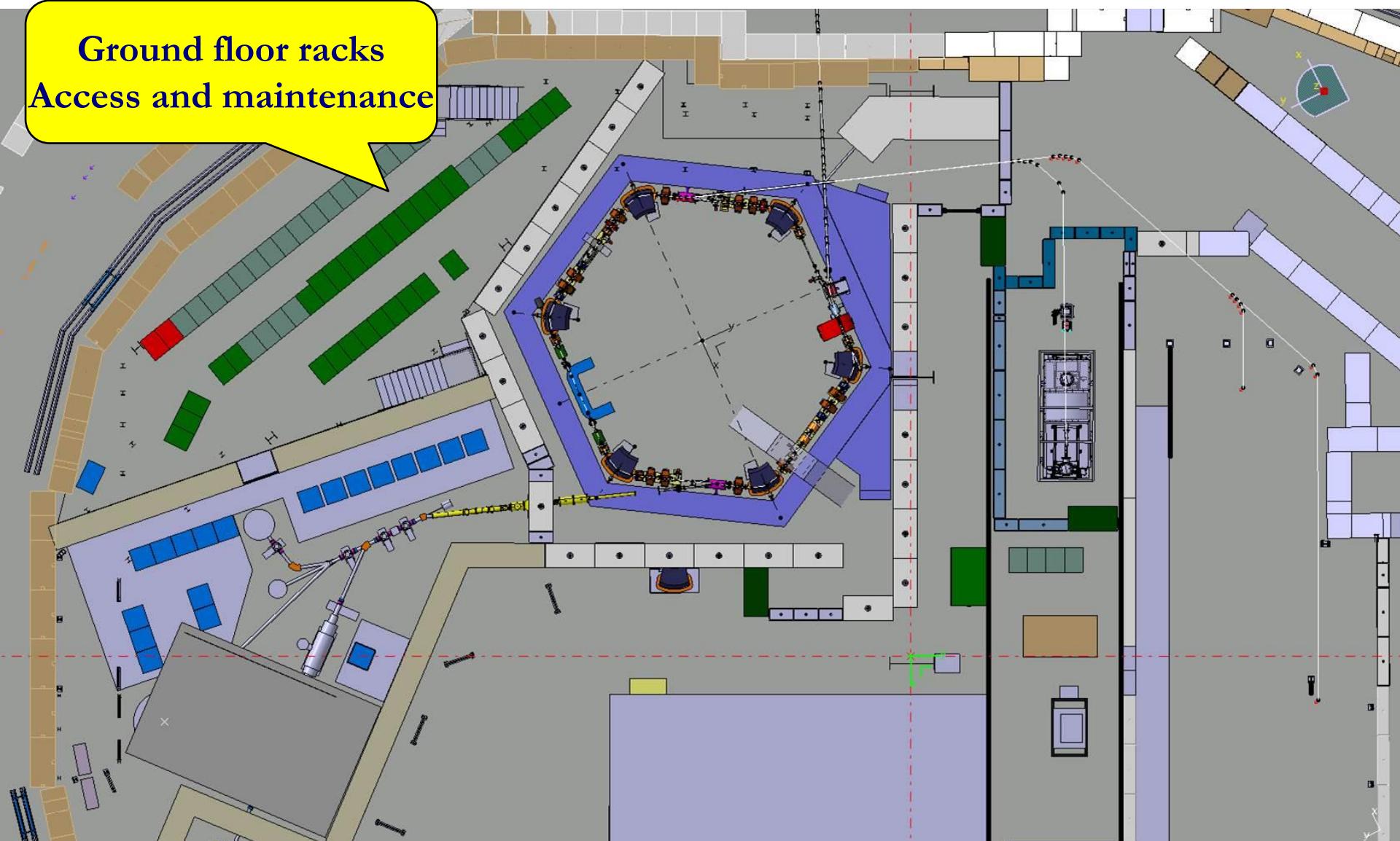
LNR.MQNLG.0305

# Integration issues (6)



# Integration issues (7)

Ground floor racks  
Access and maintenance



- Quality assurance ensured via the quality assurance manager and quality management team.
- EVM being setup, planning being revisited
- Standards are defined in 2 reference docs:

**CERN**  
CH-1211 Geneva 23  
Switzerland

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Released

**REFERENCE**  
LNA-QA-002

Date : 2012-04-02

**Quality Assurance Definition**

**Naming conventions for the layout of ELENA**

**ABSTRACT:**  
This document outlines the naming conventions to be used in the ELENA facility layout naming convention. It concerns the connection with the AD complex and the beam lines, the powering electrical circuits. Large components such as the PS Complex, combined with the beam lines and the beam lines.

**DOCUMENT PREPARED BY:**  
F. Butin EN/MEF

**DOCUMENT APPROVED BY:**  
S. Maury

**DOCUMENT RELEASED BY:**  
F. Butin

**DISTRIBUTION LIST:**  
P. Collier, F. Bordry, R. Saban

**DOCUMENT to be SENT FOR INFORMATION TO:**  
P. Collier, F. Bordry, R. Saban

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LNA-PM-QA-0001

Date: 2013-08-30

**Quality Assurance Definition**

**ELENA QUALITY ASSURANCE PLAN AND PROJECT ORGANISATION**

**ABSTRACT:**  
This document outlines the quality assurance plan and the project organisation to be put in place for the ELENA project, based on experience gained with previous projects such as LINA/C4 and LHC.

**DOCUMENT PREPARED BY:**  
F. Butin EN/MEF

**DOCUMENT APPROVED BY:**  
Francois.Butin@cern.ch

**DOCUMENT RELEASED BY:**  
S. Maury BE/ABP

**DOCUMENT to be RELEASED BY:**  
C. Carlif BE/ABP

**DISTRIBUTION LIST:**  
ELENA Project Members, F. Bordry TE, P. Collier BE, R. Saban EN.

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# ELENA WP progress monitor

ELENA WP's progress monitor

WP ID	WP Name	Owner	TDR status	EVM Data	WP Description functional spec	Design review	Technical Spec	Market Survey	Tender	Contract	Production complete	Installation complete	Commissioning complete
1,1	Optics & Machine Parameters	P. Belochitskii											
1,2	Integration, Commissioning & Operation	T. Eriksson											
1,3	User Interface & safety	H.Breuker											
1,4	Software Definition & Integration	S. Pasinelli											
1,5	External Institutions Contact	W. Oelert											
1,6	Integration, Production & Validation	F. Butin											
1,7	Installation & Planning	F. Butin											
1,8	Integration	S. Maridor											
1,9	Webmaster	S. Pasinelli											
1,1	Radio Protection	R. Froeschl											
2,1	Mechanical Design & Construction	D. Perini											
2,2	Magnets	T. Zickler											
2,3	RF & Schottky Pick-Up	ME. Angoletta											
2,4	Power Converters	J. Baillie											
2,5	Vacuum System	R. Kersevan											
2,6	Electron Cooler	G. Tranquille											
2,7	Beam Instrumentation	G. Tranquille											
2,8	Injection & Ejection Kickers Electronics	E. Carlier											
2,8	Injection & Ejection Kickers	L. Sermeus											
2,9	Injection & Ejection Septa Electronics	E. Carlier											
2,9	Injection & Ejection Septas	J. Borburgh											
2,1	Injection, Extraction & Transfer Lines	W. Bartmann											
2,11	Experimental Areas	I. Efthymiopoulos											
2,12	Controls	M. Cattin											
2,13	B-Train	M. Buzio											
2,14	Interlock System	B. Puccio											
2,15	H-Source	D. Kuchler											
2,16	Magnetic Measurements	P. Galbraith											
3,1	Survey	T. Dobers											
3,2	Handling & Transportation	S. Pelletier											
3,3	Civil Engineering (B393)	L. Lopez-Hernandez											
3,4	Cooling & Ventilation	A. Broche											
3,5	Access System	D. Chapuis											
3,6	Cabling	J.C. Guillaume											
3,7	Electrical Distribution	R. Necca											
3,8	Scrapers	F. Loprete											

