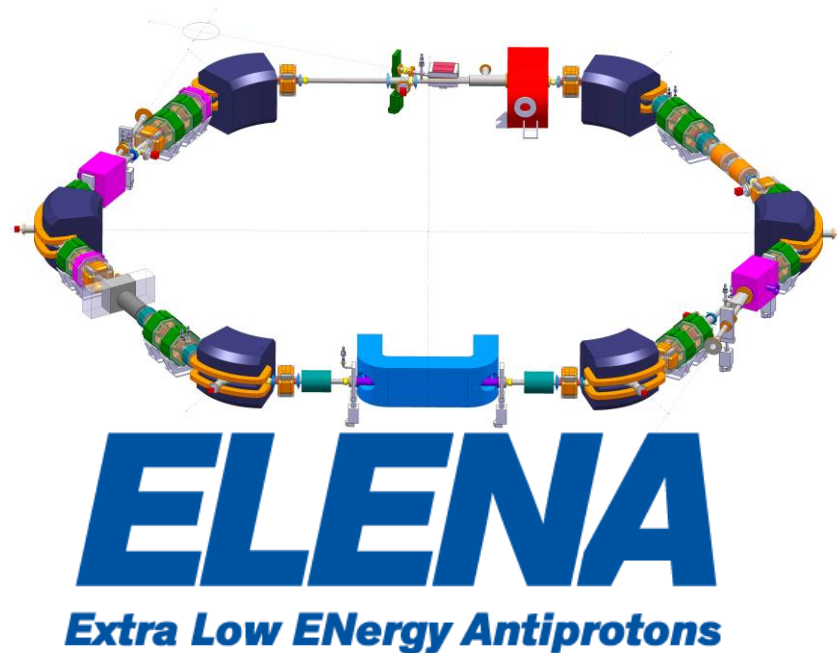
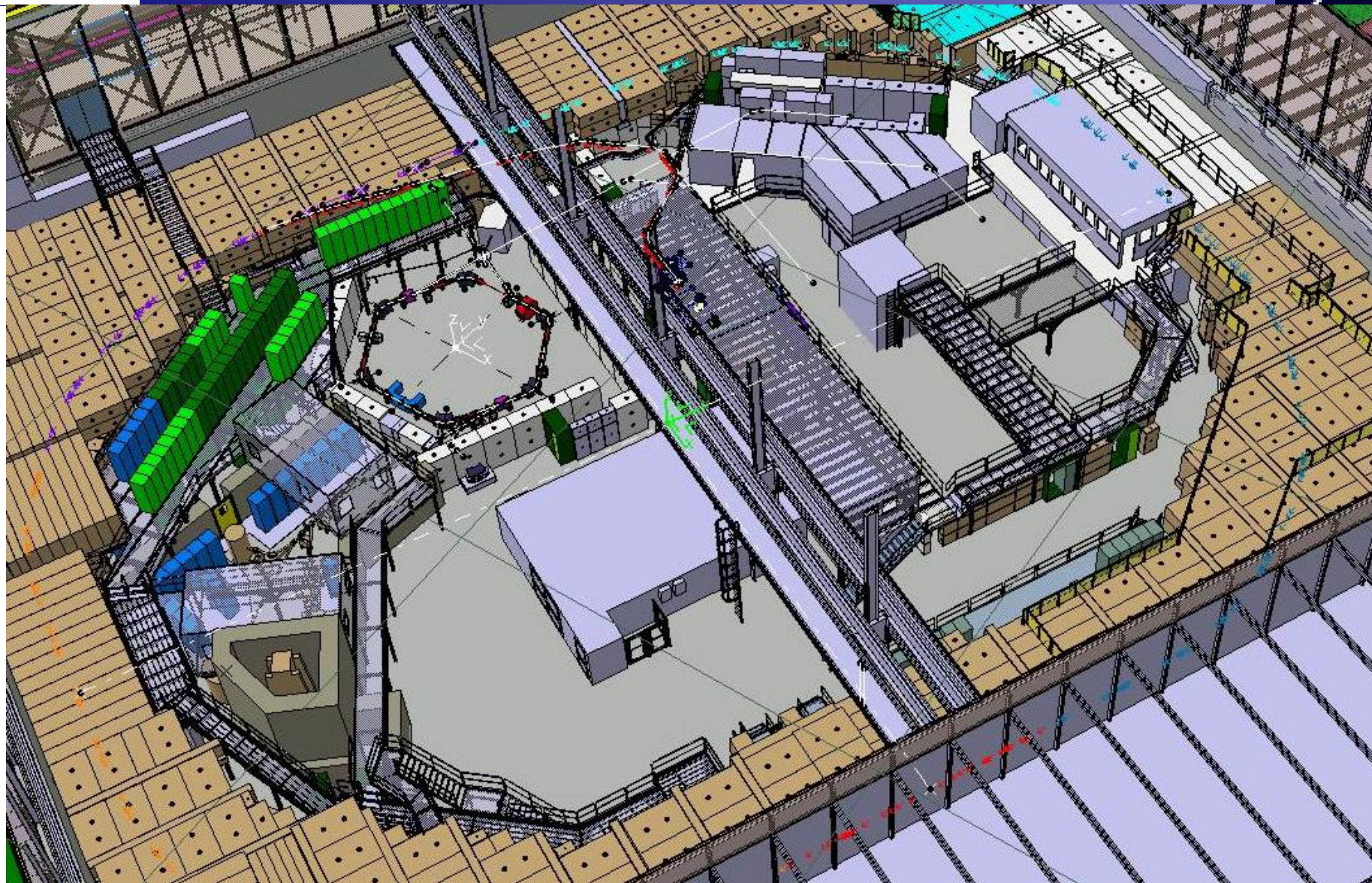


ELENA TDR review

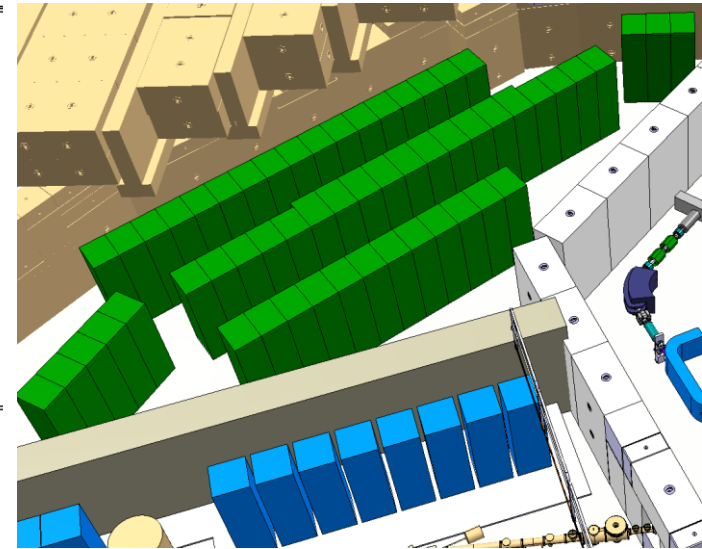
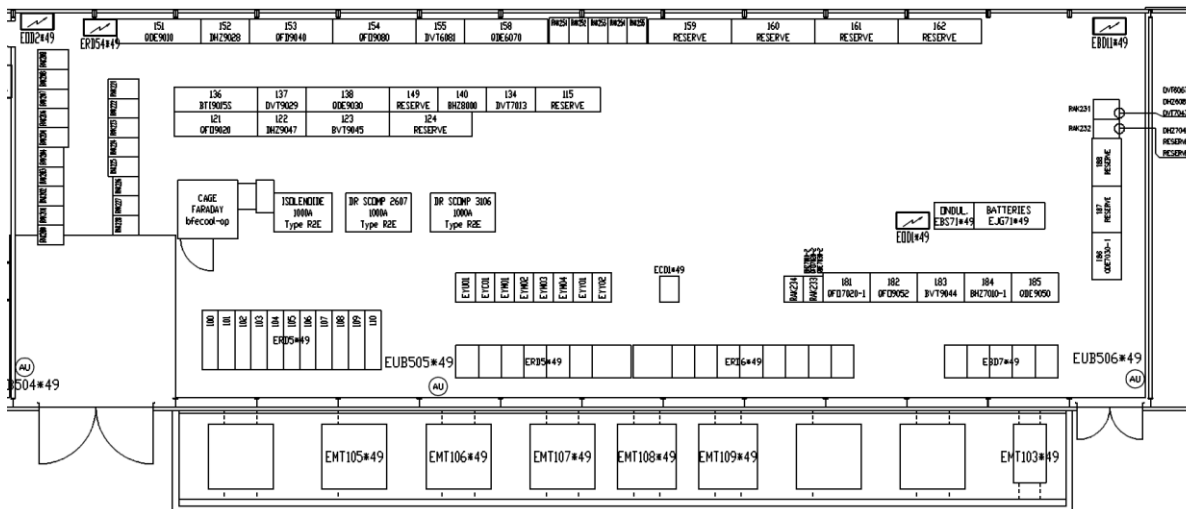
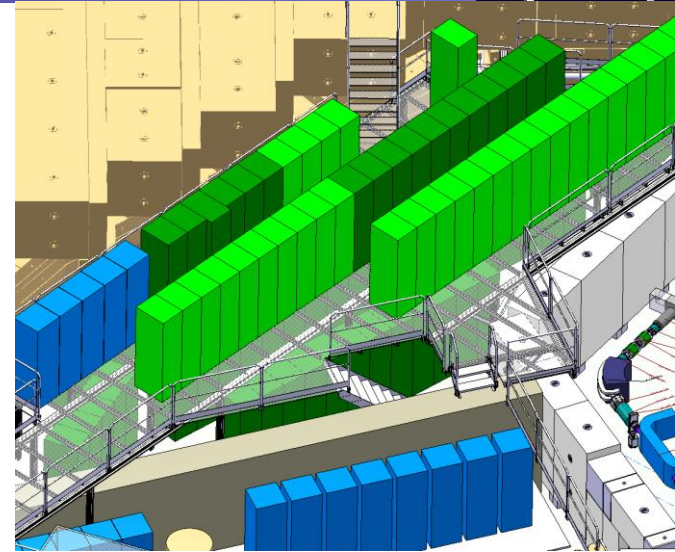
Infrastructure



Infrastructure means...



- Racks will be installed in:
 - AD hall close to the machine (2 floors) for those racks needing short cabling
 - AD rack room for all others



- Routing of cables is not defined yet
- Passages will be kept below the shielding blocks surrounding ELENA
- Main power supply will come from switchboards in the AD rack room

Designation	Manufacturer	Model	Spare Quantity	Room	Location	Output Voltage / V	Output Current / A	Converter Output Power / W
Courtesy: J. Baillie	1 CERN	CERN_AuxPS_TYPE2	1	193_R-407		450	400	180,000
	2 CERN	COBALT	1	193_R-407		50	200	10,000
	3 CERN	CANCUN_50	5	193_R-407		30	50	1,500
	4 Heinzinger	PTN3p 32-1500	1	193_R-407		32	1,500	48,000
	5 CERN	CANCUN_30	0	-		75	20	1,500
	6 FUG	HCE 7 -3500 PAIR	7	193_		7000	0.002	14
	7 FUG	HCE 7 - 1250 PAIR	2	193_		2500	0.0	13
	8 FUG	HCE 7 - 35000 PAIR	2	193_		70000	0.0	14
	9 FUG	HCE 7 - 650 PAIR	8	193_		1300	0.0	13
	10 FUG		0					0

Cabling process

Cabling activities: Strategy for a new project

With the first information given by the users:

Supply of material

Layout

Infrastructure

Cabling

Calculation of quantities

List of racks per system

Passages Génie Civil

Price estimation

Naming of FP (Boxes)

Size of the cable ladders

Installation priorities

Ordering of material

Fonctional Position layout

3D intégration of cable ladders

Definition of the cabling campaign

Cable requests (DIC)

Installation of the cable ladders

Cable database preparation

Rack installation.

Worksite preparation

- Length estimation of each link,
- Definition of the total quantities for each item.

0

12 months
18 months

t

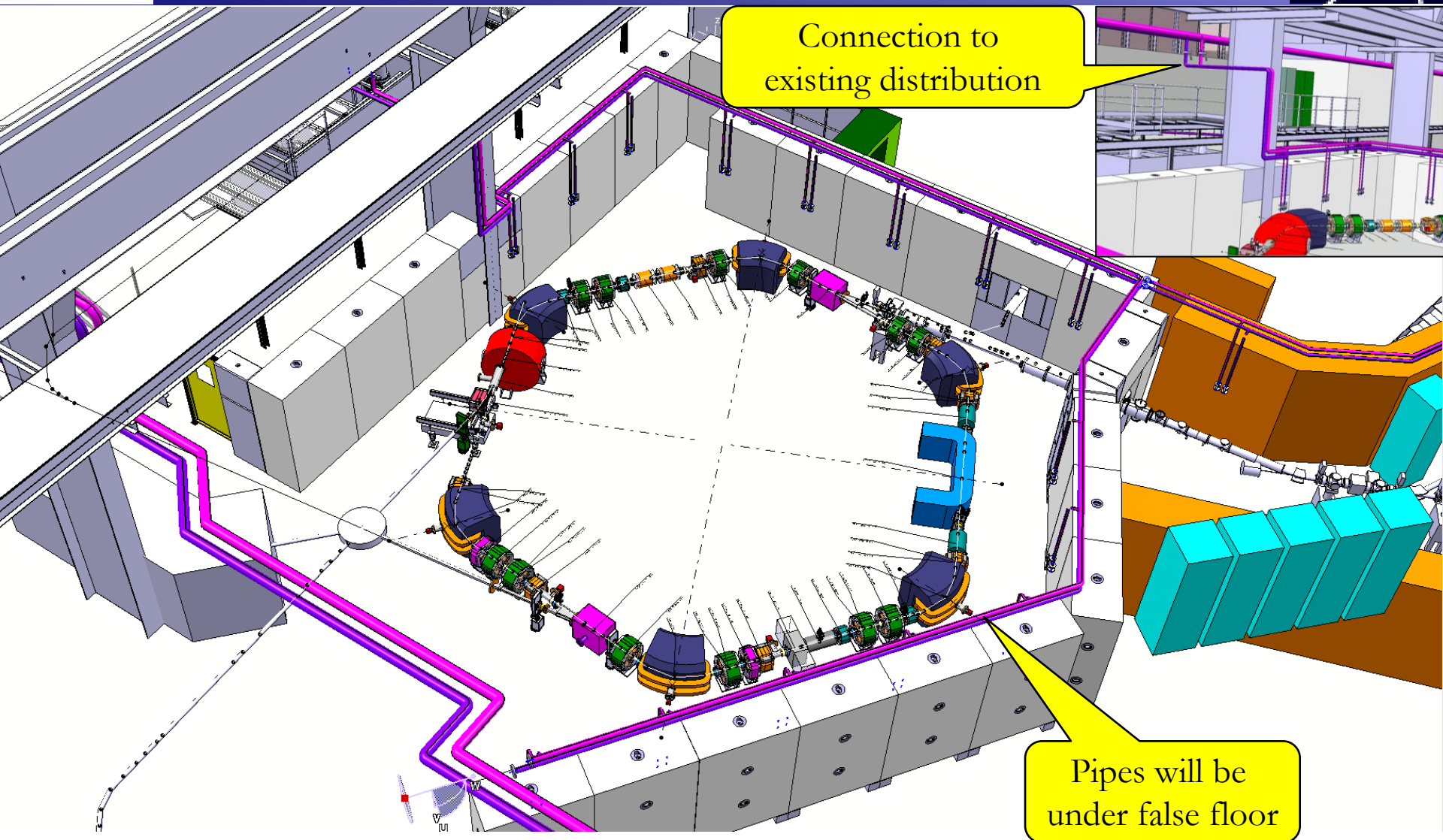
Courtesy: J.C. Guillaume

- Cooling in AD hall: air conditioning (lost water) and mixed water (25 C)
- General Policy : more than 3 kw to be dissipated by a system: must be water cooled

Courtesy: A. Broche

New users	Location	Cooling power (kW)	T _{in} (°C)	ΔT (°C)	ΔP (bar)	Flow (m ³ /h)
ELENA	6 + 1 dipoles	50	24	15	10	3.0
GBAR	electron linac	25	10 to 20	30	3	0.7
	e ⁺ /e ⁻ selector	15	24	10	6	1.3
	e ⁺ trap magnet	2	24	20	0.5 to 0.8	0.1
	e ⁺ trap duct	2	24	20	0.5 to 0.8	0.1
	Neon moderator	2	24	20	< 1	0.1
	Neon re-moderator	2	24	20	< 1	0.1
BASE	B192	?	?	?	10	0.2
SOURCE H ⁺ /H ⁻	B193	10	?	?	6	1.0
B393	kickers	14.5	?	10	4	2.0
Power converter	B193-R-407	10	10	24	3.5	0.9
					Total =	9.5

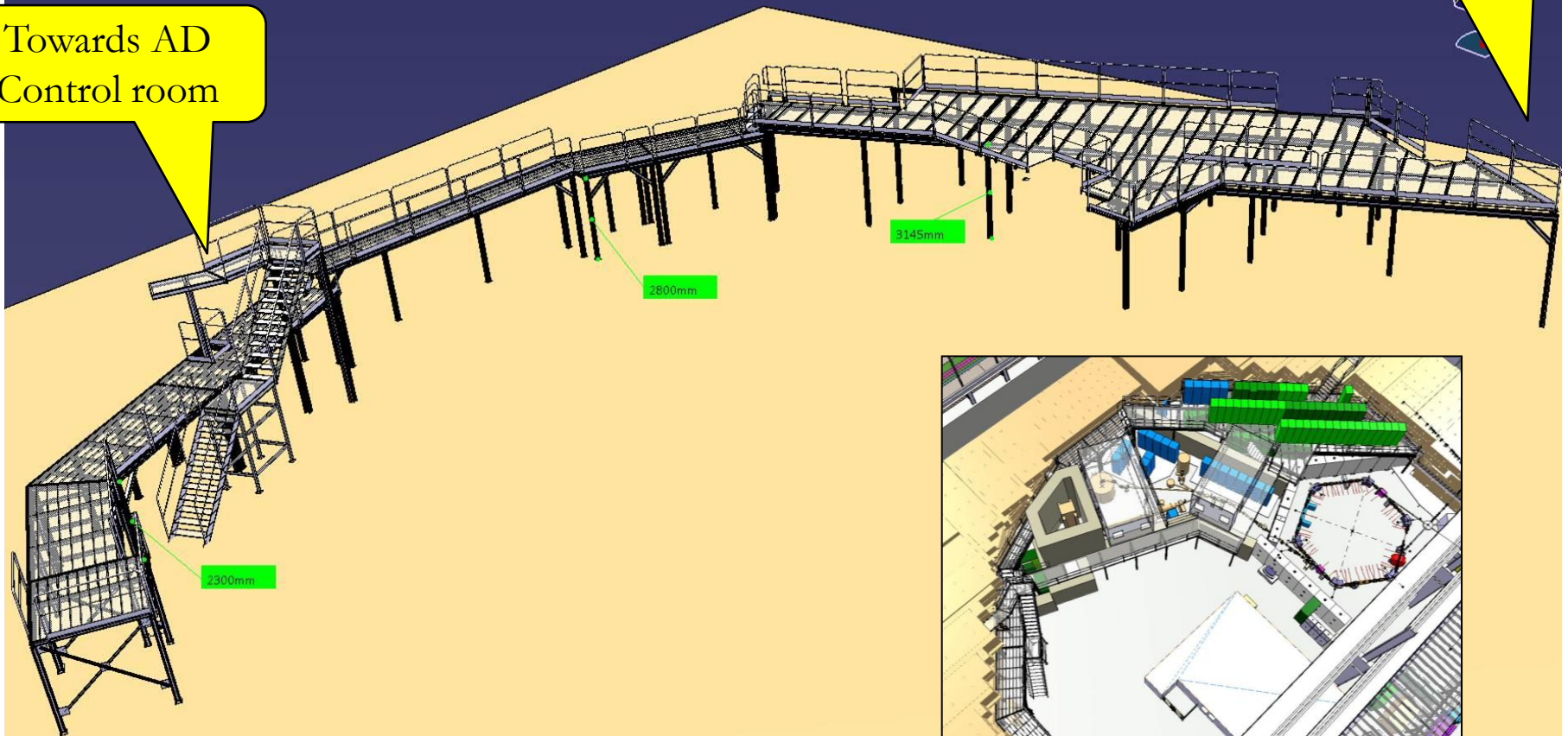
Cooling distribution principle



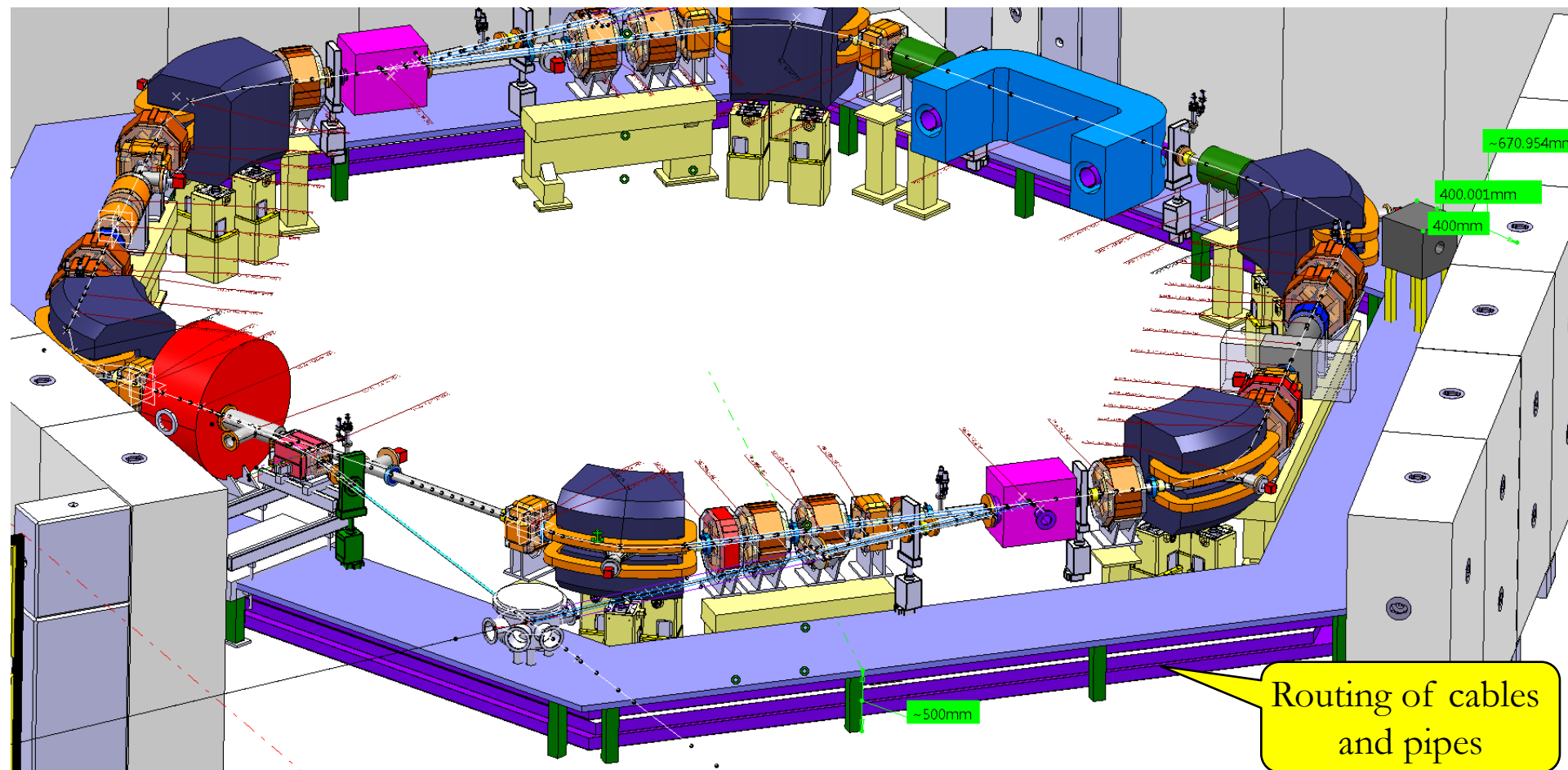
■ Rack platform and circulation gangways

Towards AD
Control room

Towards bldg 393



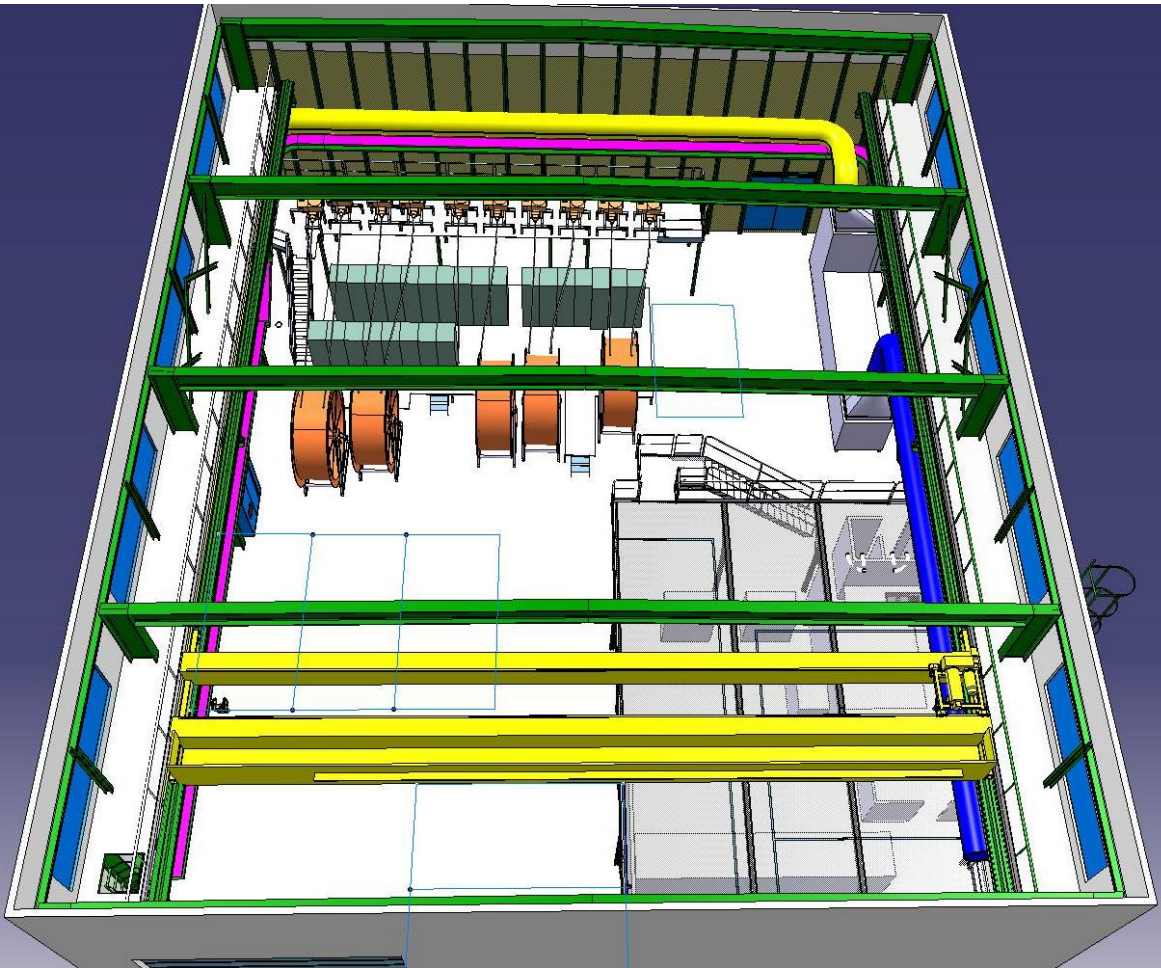
■ False floor around ELENA machine



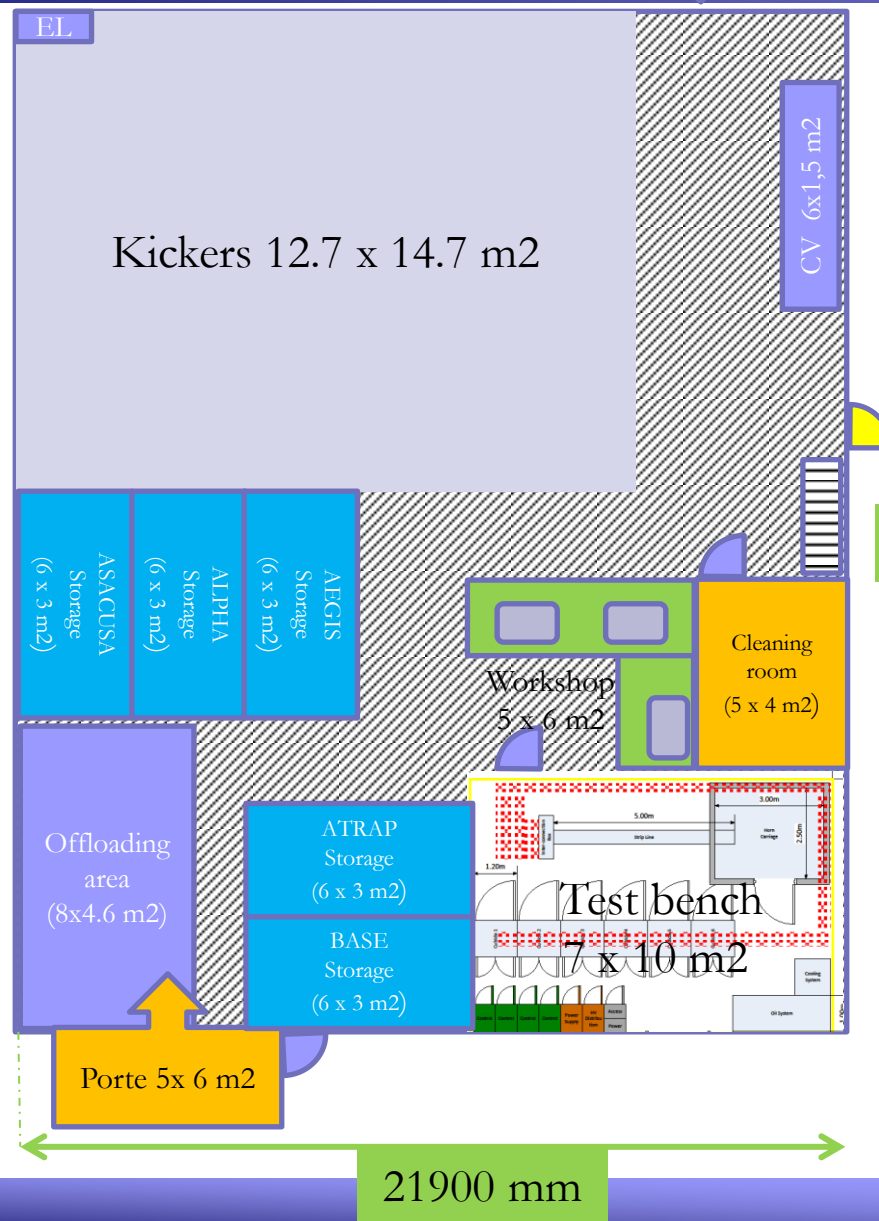
- Construction progressing according to schedule



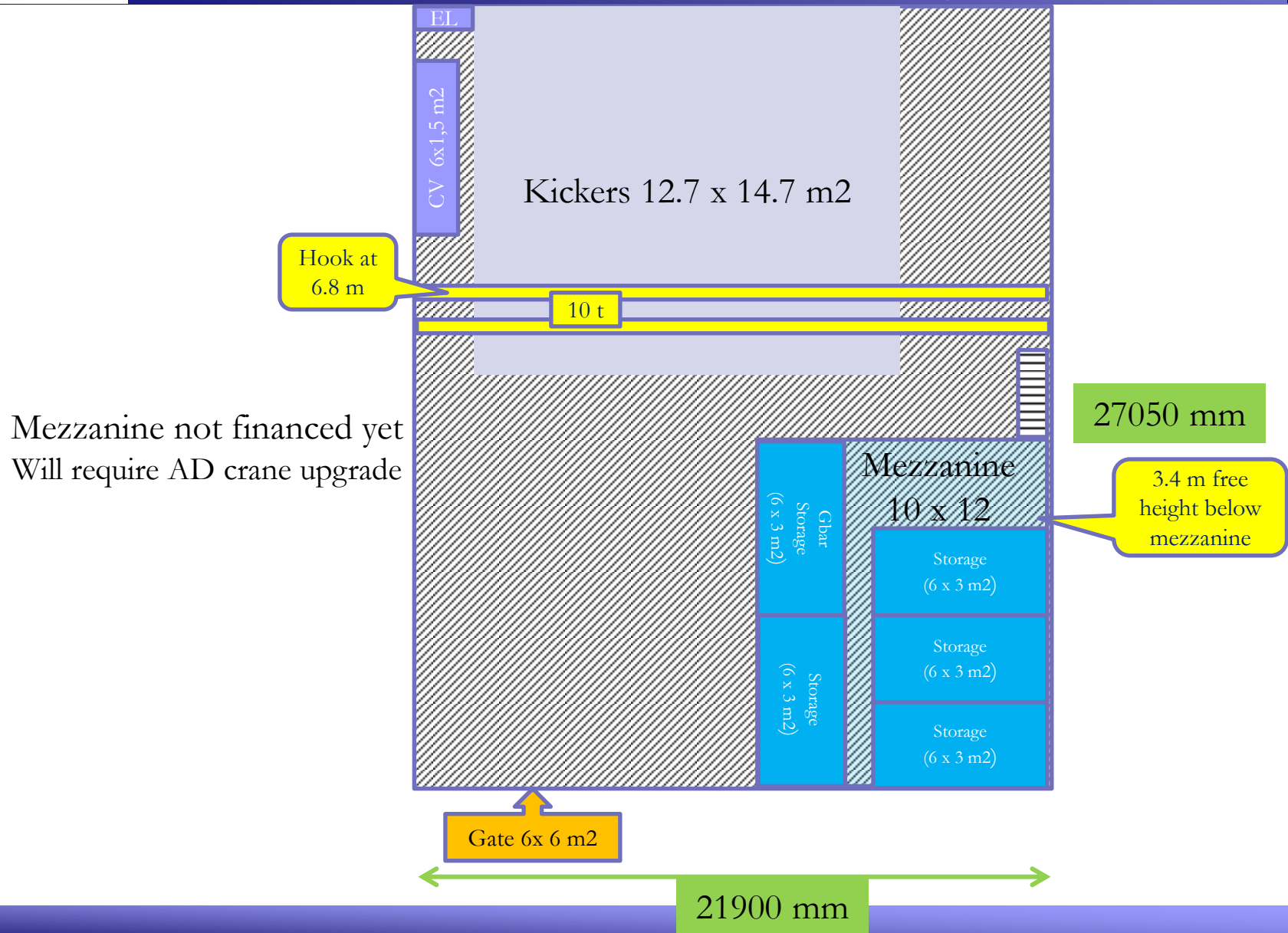
■ Internal distribution



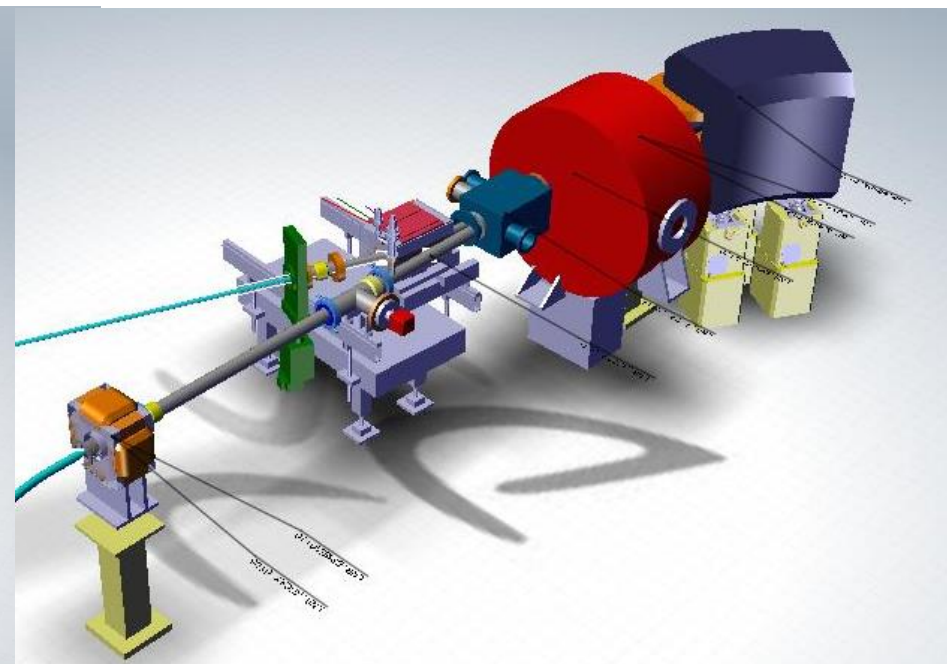
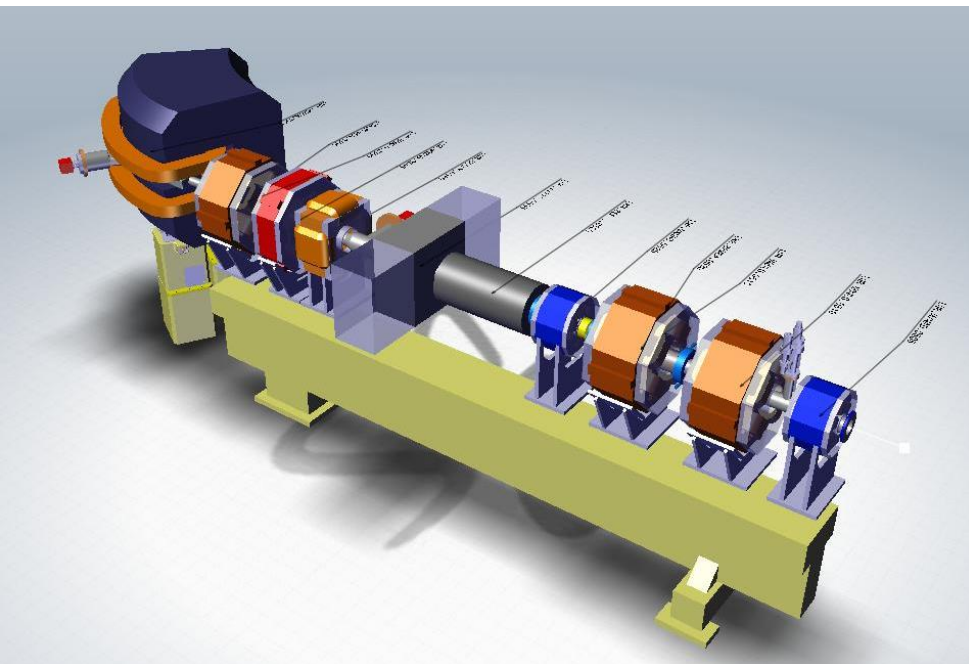
Bdg 393 (3)



Bdg 393 (4)



- ELENA component will be supported as much as possible on common aluminium beams
- Specific support feet will be used when required
- Adjustement systems to be adapted



- SURVEY will, during the whole duration of the project, provide and execute the following tasks for ELENA and its transfer lines:

- ☐ Implement and measure a global geodetic network, starting from the existing one for the AD machine,
- ☐ Mark on the floor every needed position for the beam, the jacks, the girders, and the support posts,
- ☐ Align all magnetic elements within the given tolerances,
- ☐ Give advice for the positioning of the fiducial marks / survey targets on the magnetic elements,
- ☐ Give advice for the construction of the moving table and the jacks,
- ☐ Execute 3D Scans, where needed, for integration purposes.

Courtesy T. Dobers



THANK YOU