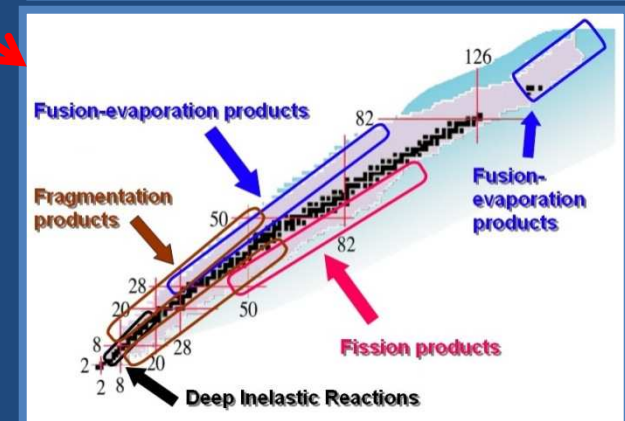
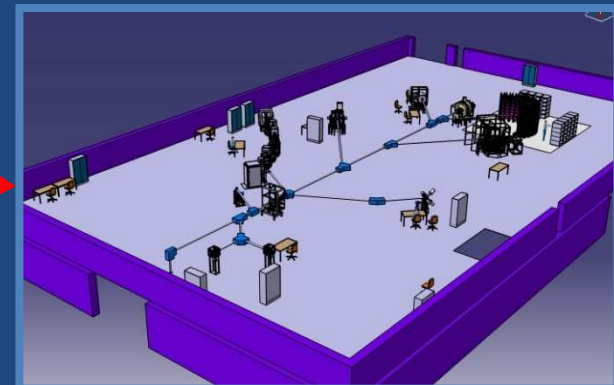
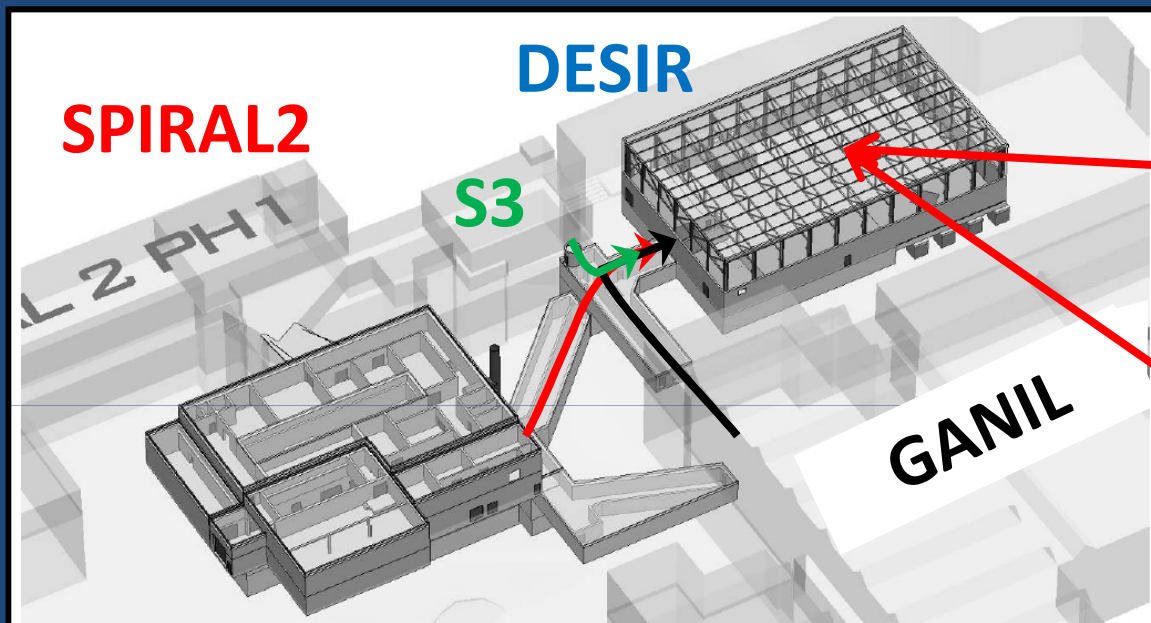


DESIR News within the SPIRAL2 Phase2 context



1. [Update of the SP2 Ph2 construction program](#)
2. [EQUIPEX and beyond](#)
3. [Inputs need for construction](#)
4. [RIB intensity limitations](#)

SPIRAL2-DESIR construction program

Initial SPIRAL2 Phase2 conception & construction planning (Nov. 2010)

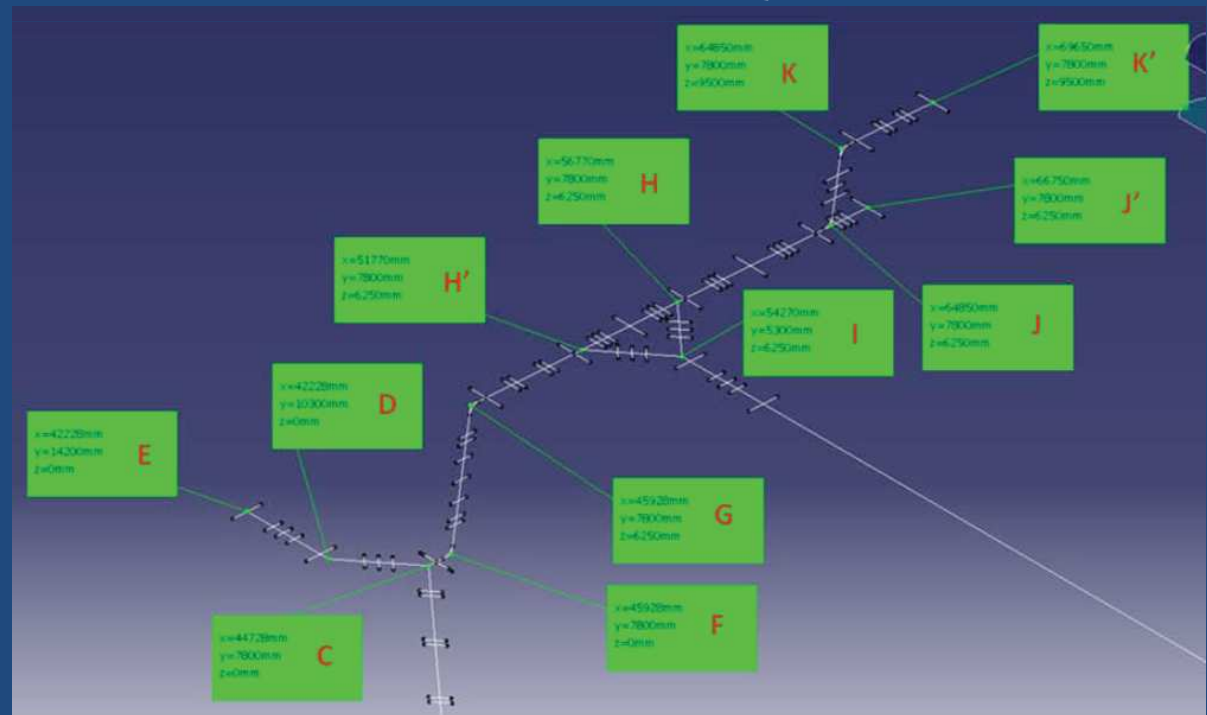
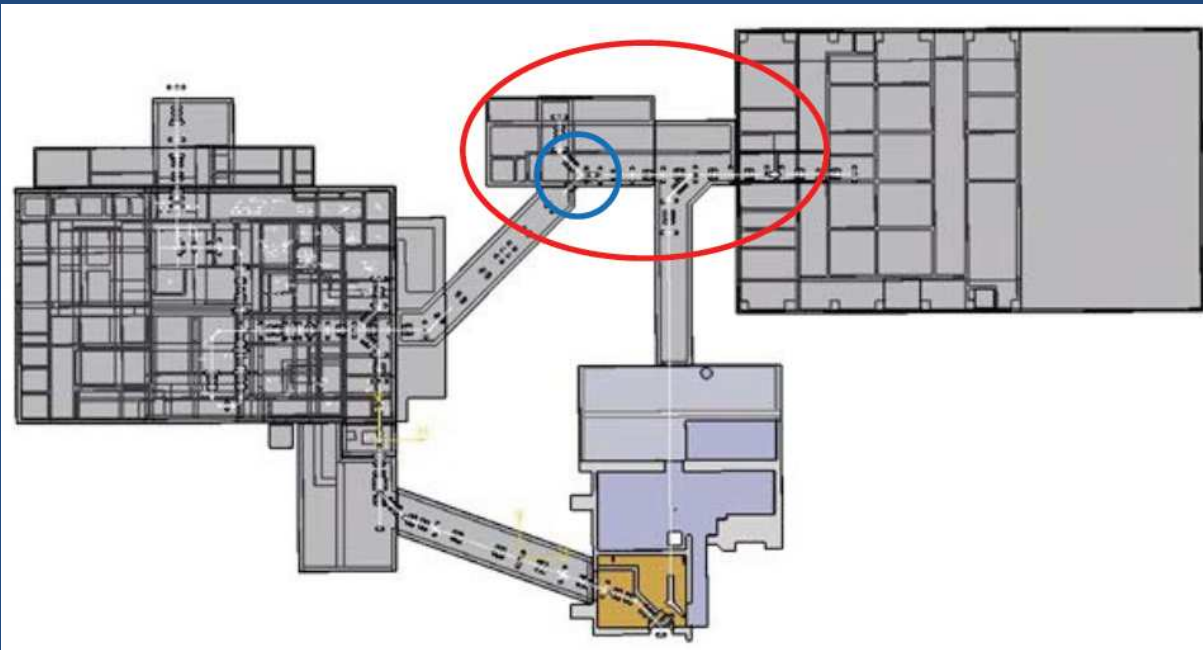
		2011				2012				2013				2014				Start	Stop	Delay
		T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4			
Conception																				
	SDB	■																18/11/2010	02/02/2011	3 months
	APS		■	■														02/01/2011	21/04/2011	> 7 months
	APD		■	■	■													21/04/2011	12/10/2011	
Preparatory work before the construction starts (building contracts with firms)		■				■													26/06/2012	
Construction																				
	Production building					■				■				■				27/06/2012	01/10/2014	?
	DESIR building									■				■						
	S1-DESIR liaison									■				■				08/10/2013	08/07/2014	
	S2-DESIR Liaison									■				■				14/05/2013	12/02/2014	
	S3-DESIR Liaison									■				■				14/05/2013	12/02/2014	

✓ DESIR construction with the SPIRAL2 Phase2 program (initial schedule):

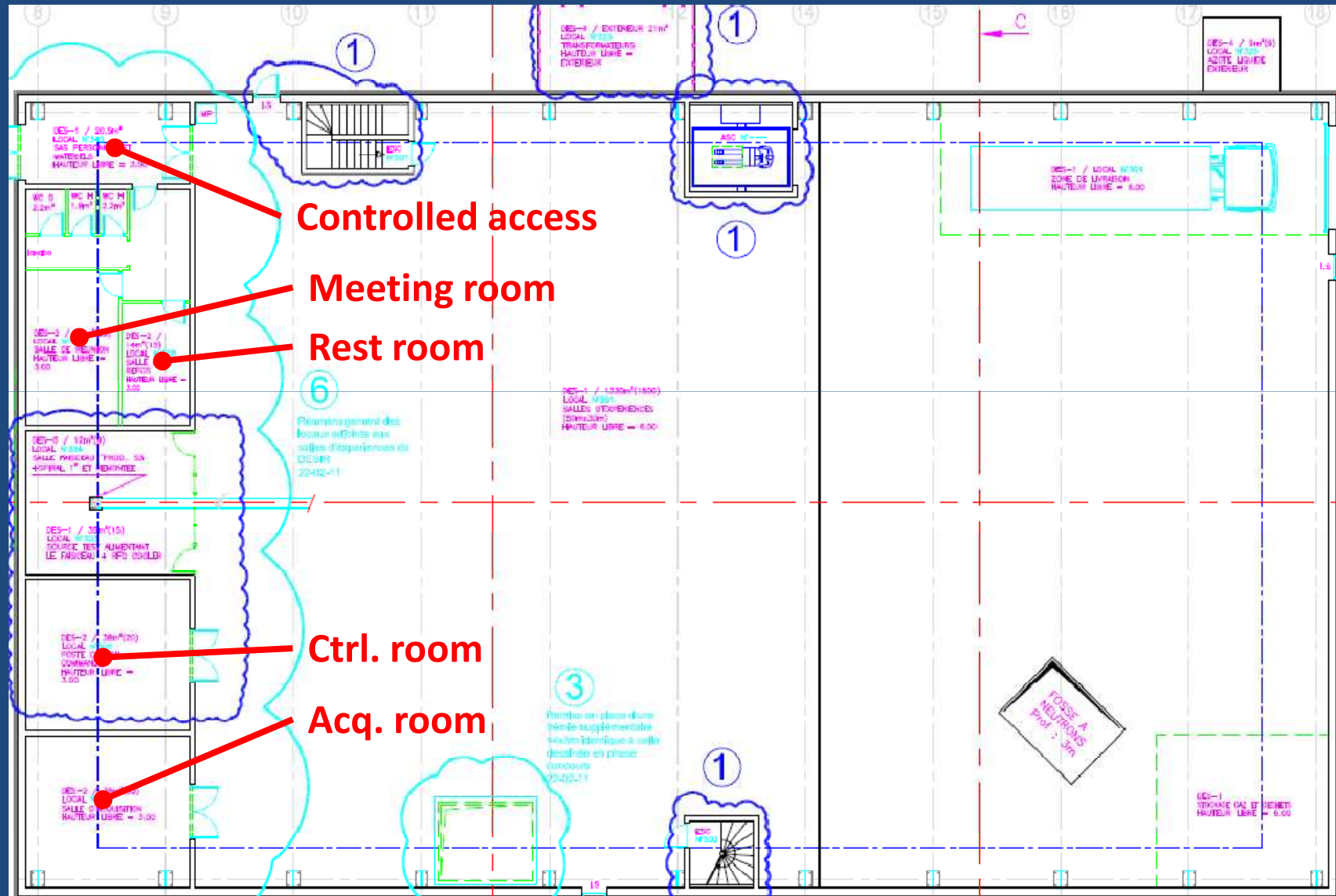
- Availability of the transport tunnels for the installation of the beam lines: **mid February & June 2014**
- Availability of the DESIR building for the installation of the equipment: **mid June 2014**

✓ Current situation of the SPIRAL2 Phase2 construction program:

- APS not closed: Disagreement with the Prime Contractor for the price of the Production building
 - > Verification of the price estimate by an independent company -> at least 3 months
 - > New APS phase for a lighter Production building -> 6 to 12 months?
 - > Possible delay of the Production building and of the DESIR construction: 12 to 18 months??



DESIR hall: Ground floor optimization



DESIR hall: Basement optimization

Fluid Distrib.

Laser room

Storage room

Supply room

Id. Stat.

Gas storage

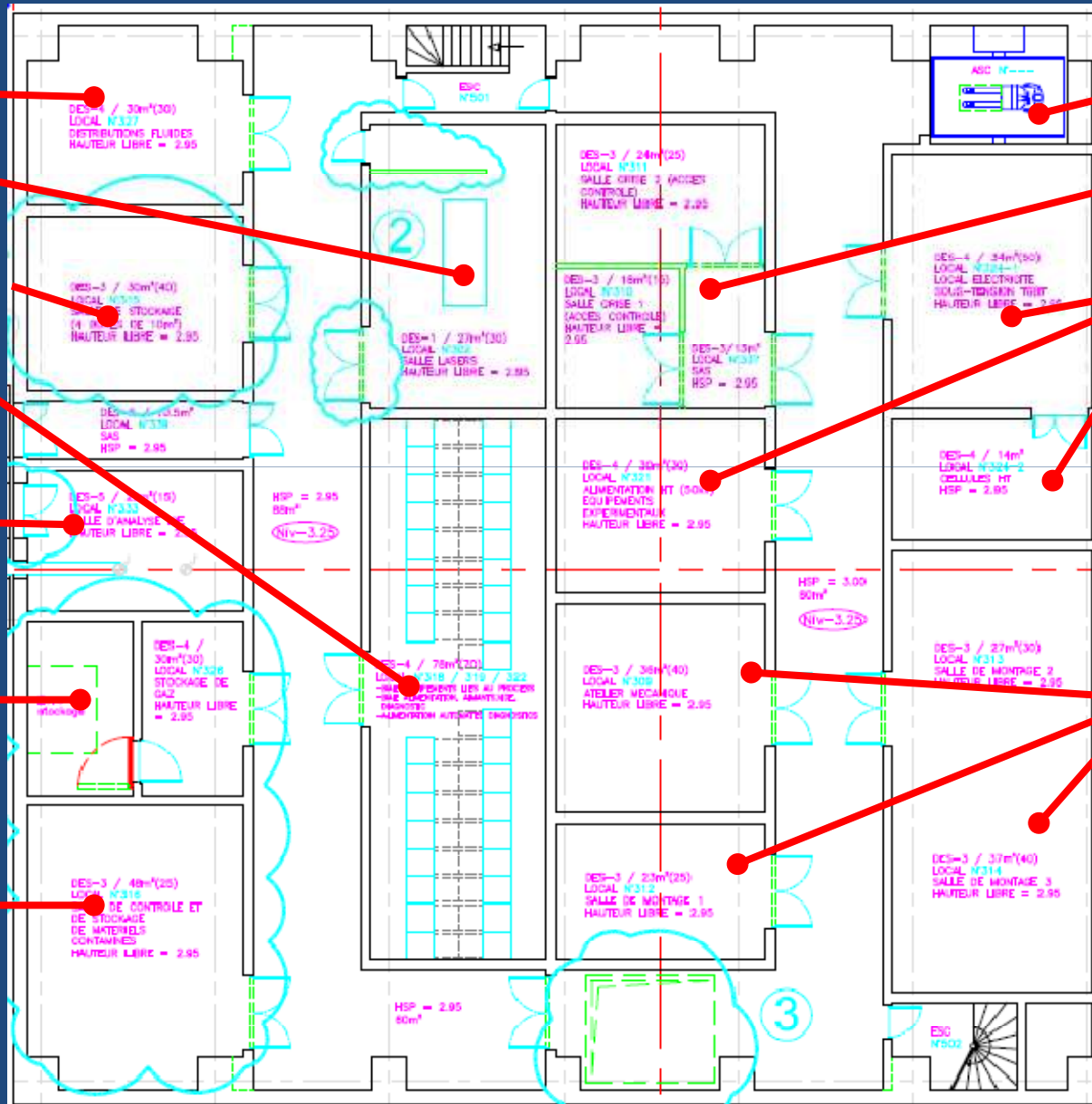
SPR Lab.

Elevator

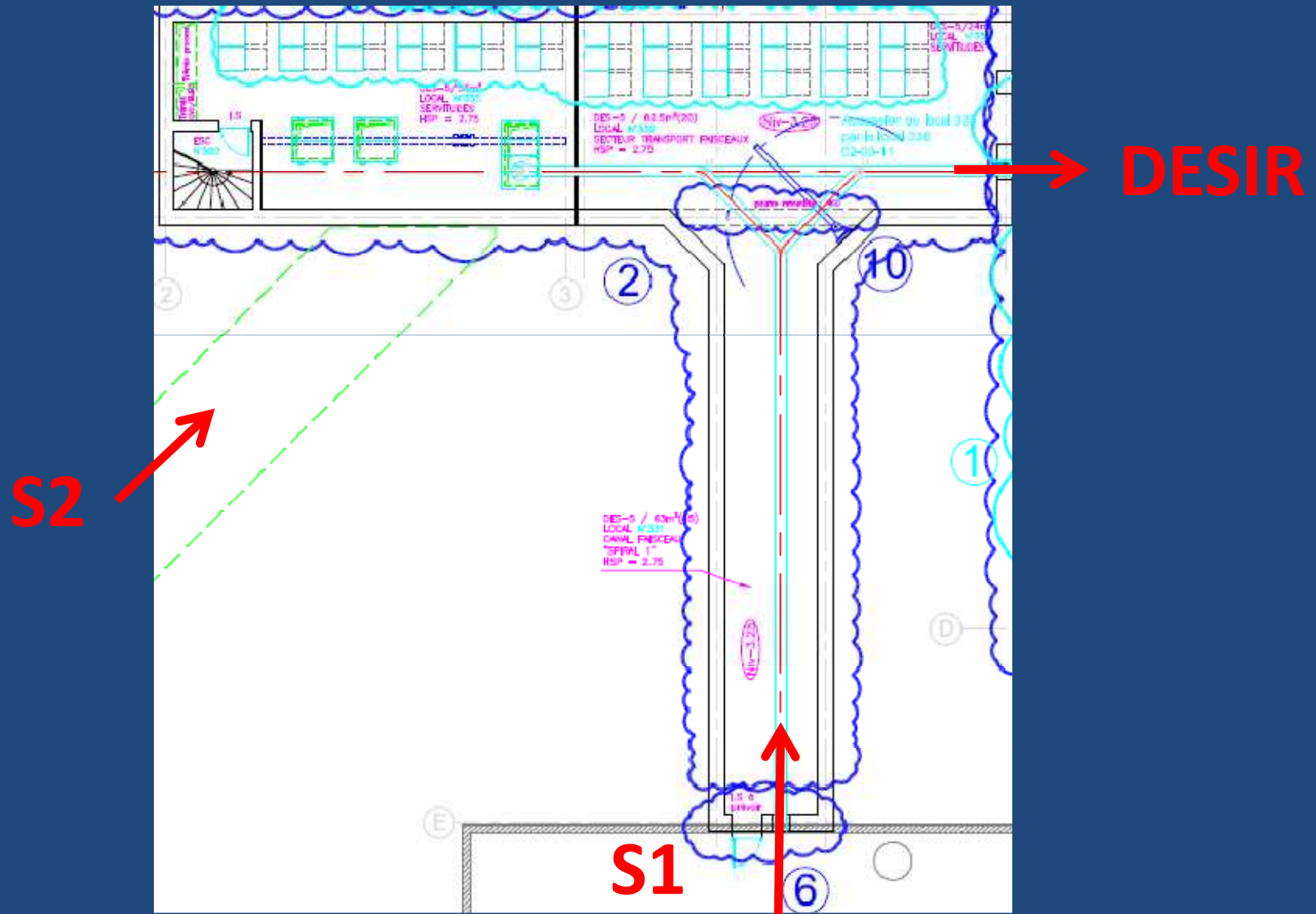
Grey rooms

Electricity

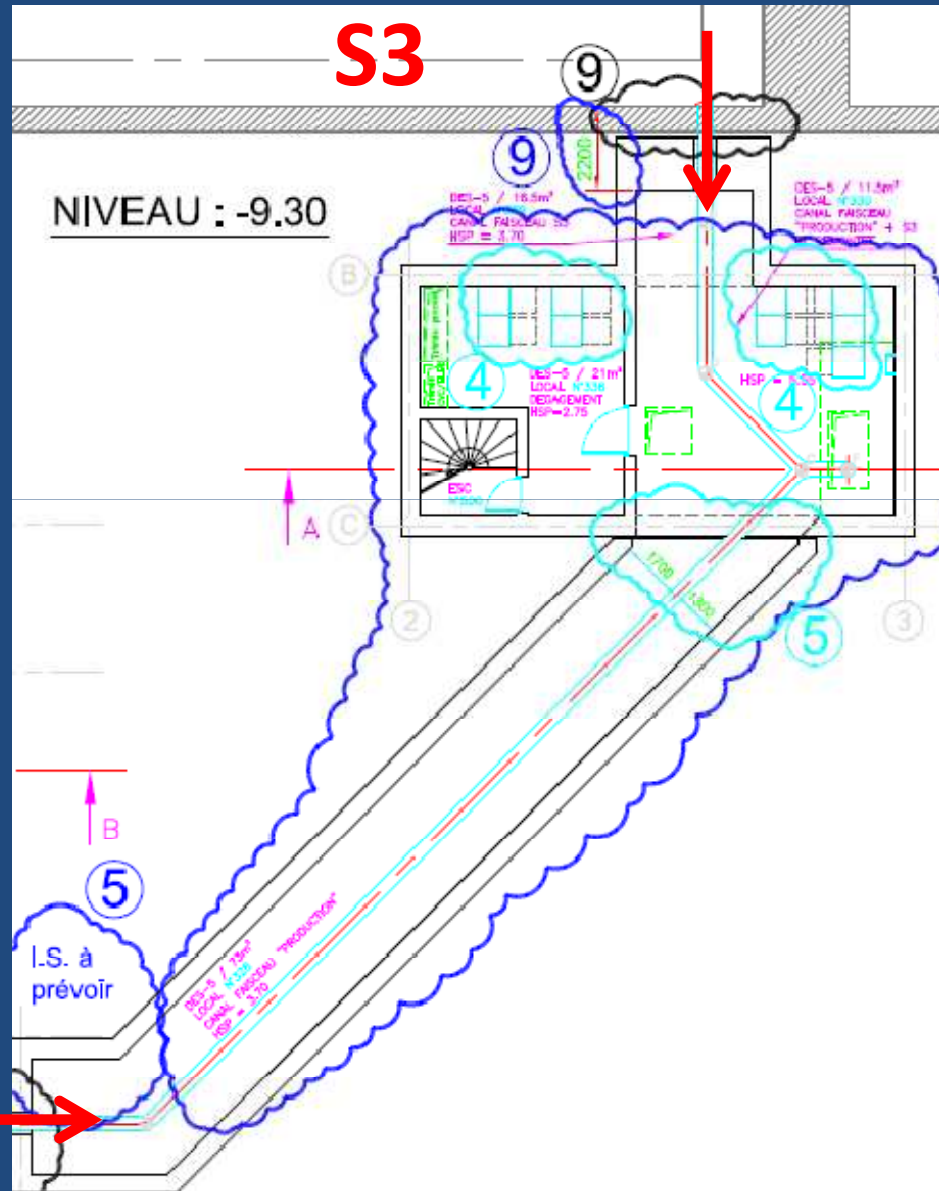
Workshops
& Assembly



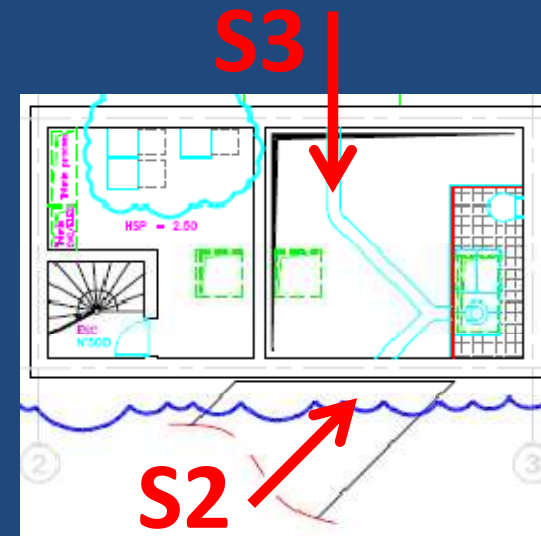
Beam transport tunnels from S1 & towards DESIR



Beam transport tunnels from S2 & S3



Intermediate level



Building modifications (SDB-Spring 2011)

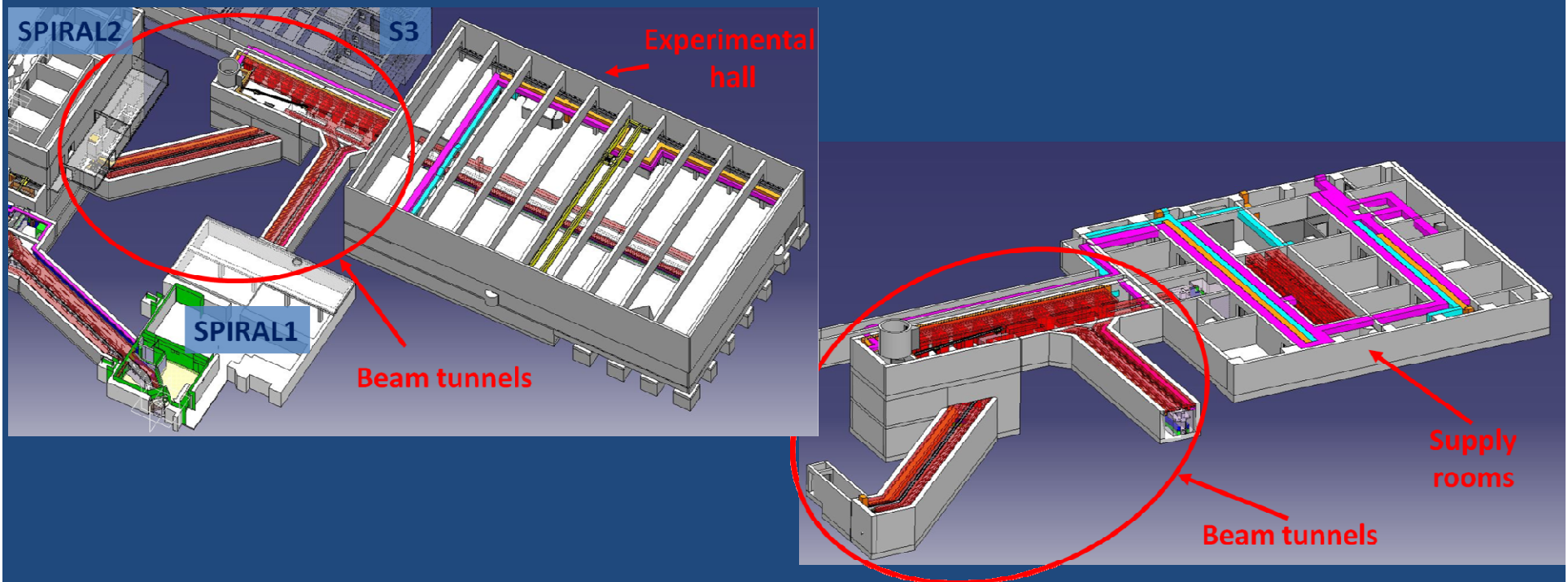
- ✓ Beam transport tunnels viz. beam lines main optical waist points
- ✓ Building optimizations
- ✓ Evaluation of the supply crate requirements and localization
- ✓ Evaluation of the power requirements

Power requirements (APS – April 2011)		Initial evaluation
Total power (400V+220V)	869 kW	1140 kW
Maintained power	81 kW	68 kW
Dissipated power in air	236 kW	314 kW
Cooling power (5 bars)	145 kW	124.5 kW
Water flow	36m ³ /h (including 9,2 m ³ /h for Exp. Equipment)	24.9 m ³ /h

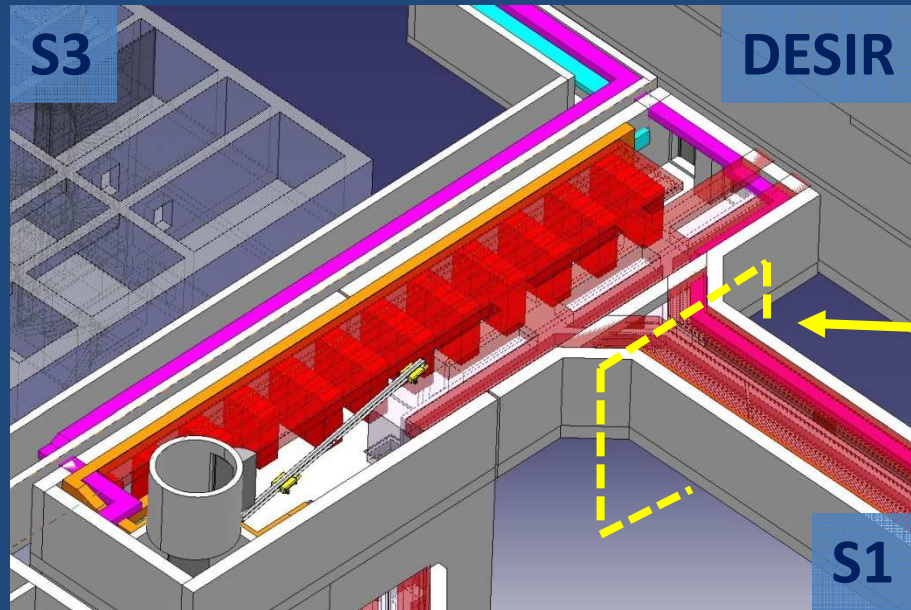
Work in progress: building study (GANIL)

Preliminary design study (APS, coll. AMO):

- distribution of the supply crates
- technical solutions for the handling of the equipment
- distribution of the power, fluids, etc...

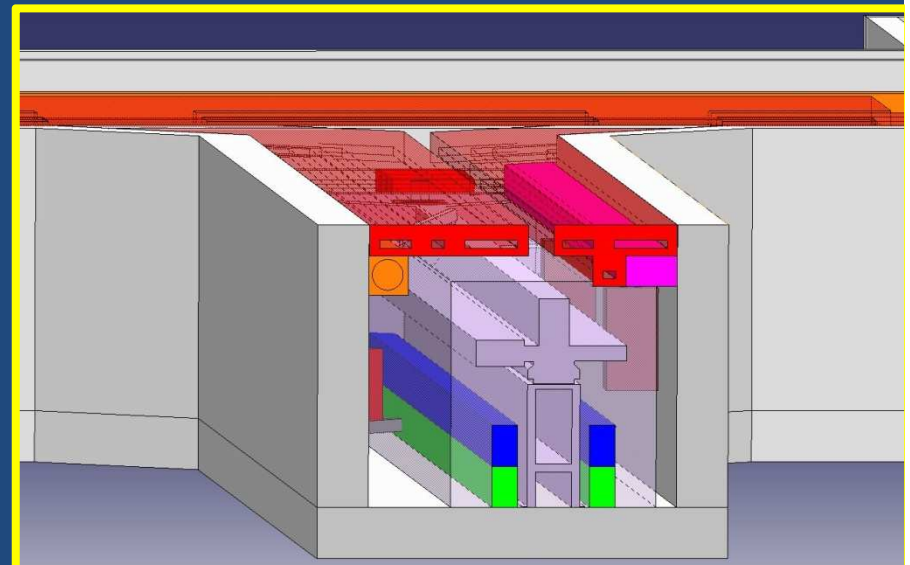


Work in progress: building study (GANIL)

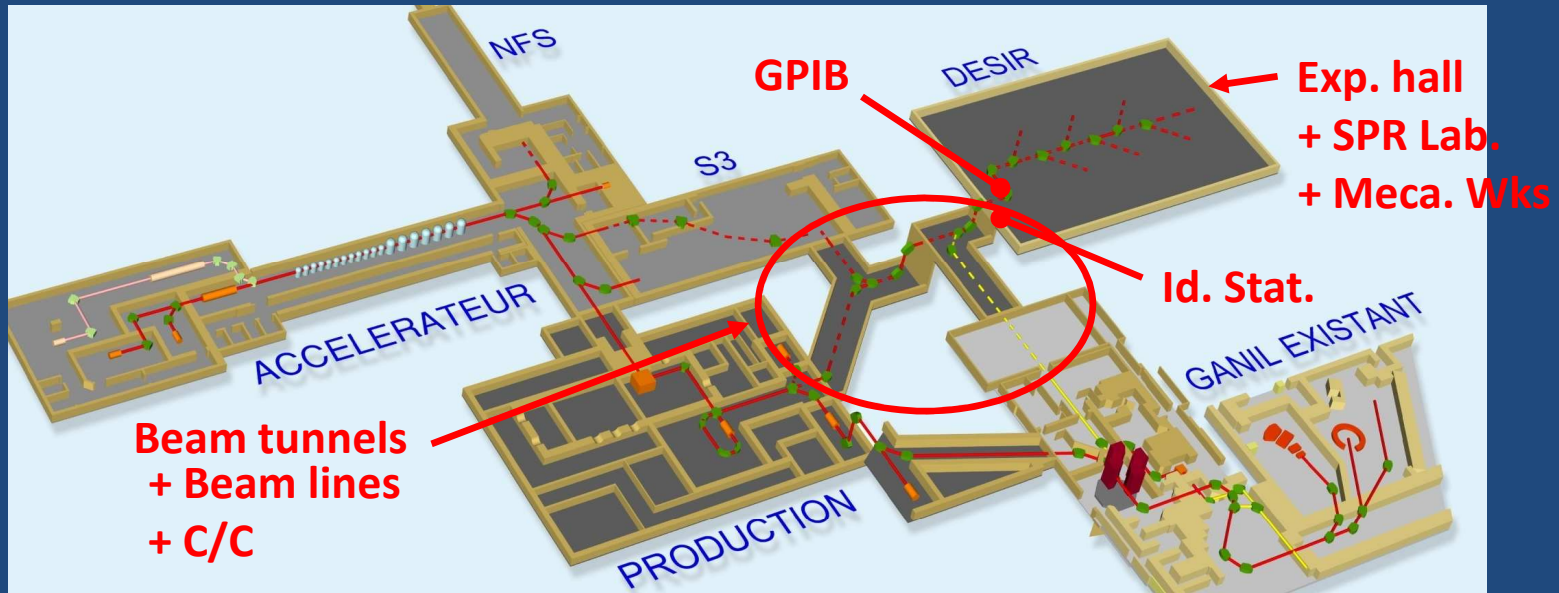


Beam tunnels

Colour code:
In pink and red: Electricity
In blue and in light blue : Fluids
In green: gas pumping
In orange: Ventilation

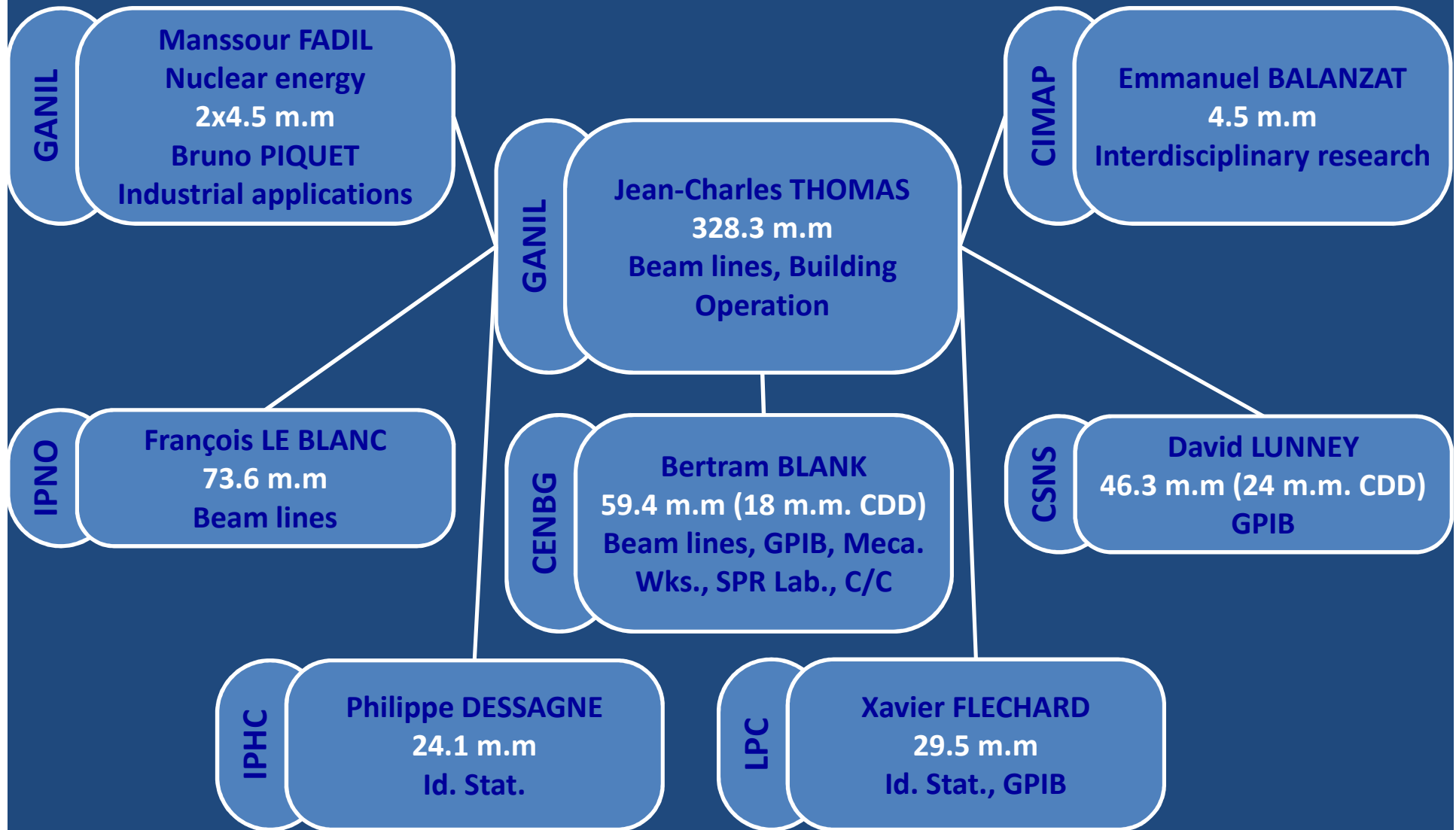


DESIR-EQUIPEX: funding request



Work packages	July2012 -> June 2015 Construction 36 months (k€)	July2015 -> Dec. 2019 Running costs 54 months (k€)	Manpower (man.months)
WP0: Project coordination	82.5	96.7	18
WP1: Buildings	7 415.7	564.3	88.5
WP2: Beam lines	5 477.2	234.0	265.6
WP3: Identification station	219.1	9.4	32.6
WP4: General purpose Ion buncher	487.4	18.7	90.3 (24 Post.D)
WP5: User facilities	420.3	169.7	60.2 (18 CDD)
WP6: Pluridisciplinary and industrial prospective	22.1	17.1	13.5
Total (Phase 1 + Phase 2 = 15 234 k€)	14 124.2	1 109.8	574.7

DESIR-EQUIPEX: collaboration



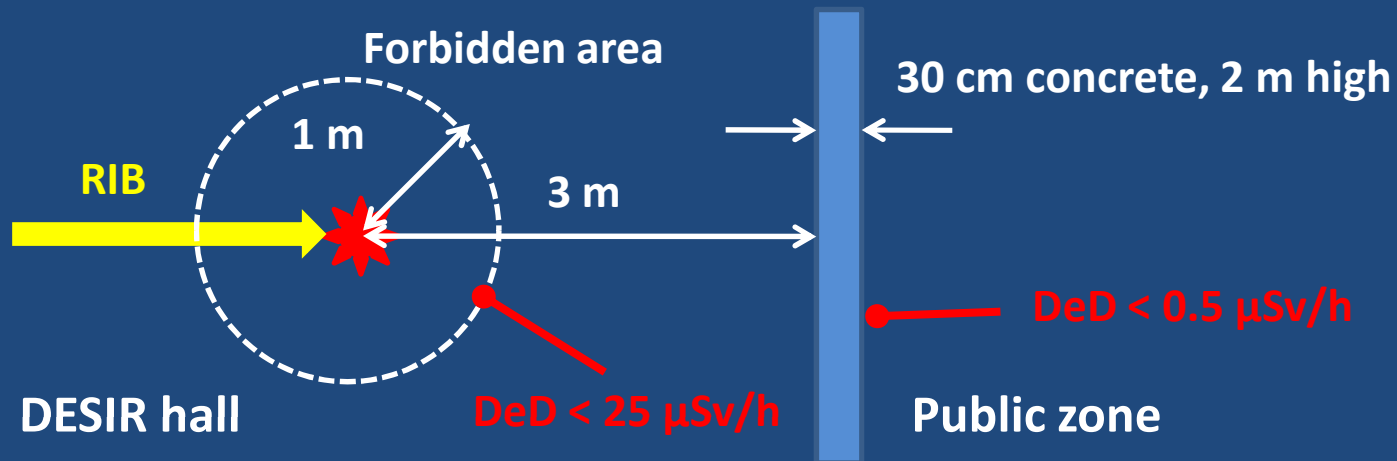
DESIR-EQUIPEX: planning

- ✓ DESIR-EQUIPEX schedule (following the initial SPIRAL2 Phase2 construction program):
 - Beam line installation & commissioning: Feb 2014 -> June 2015 (16 months)
 - General purpose equipment installation & commissioning: June 2014 -> May 2015 (12 months)
 - Experiment equipment installation & commissioning: **June 2014 -> June 2015** (13 months)
- ✓ What if the construction of the Production building is delayed by more than 12 month?
 - > Discussion with the SPIRAL2 Phase2 management board to start the building of DESIR ASAP

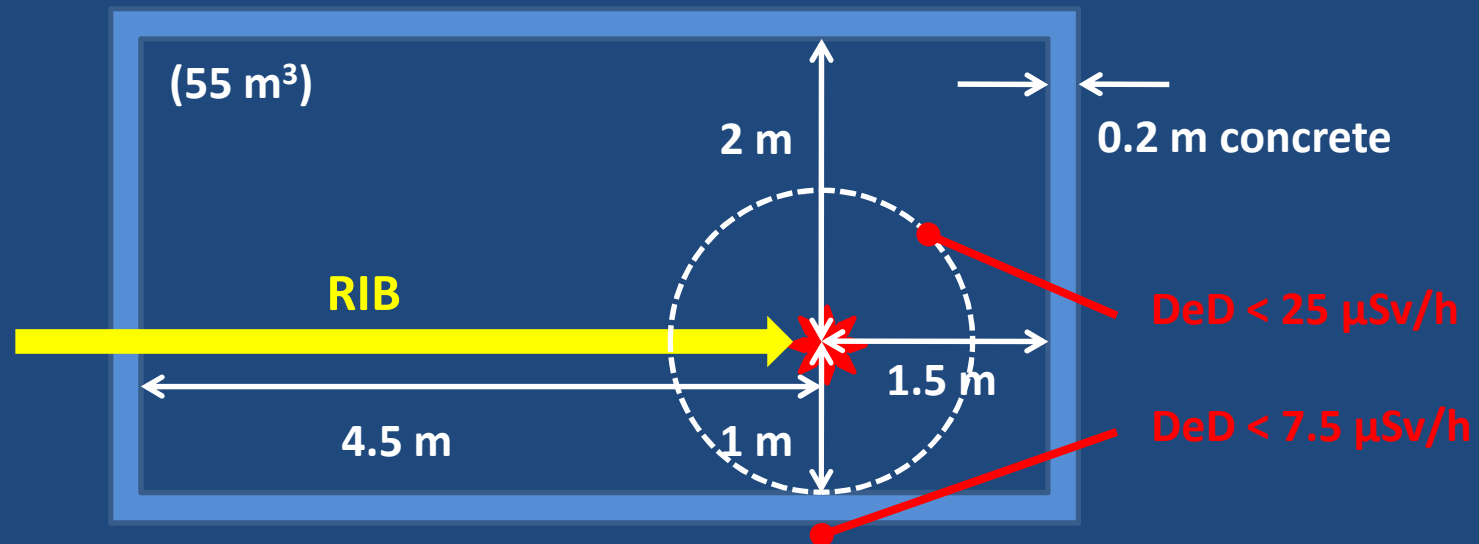
NB: the DECA runs till the end of 2015 -> prolongation to be anticipated

Dose rate constrains

✓ Experimental area

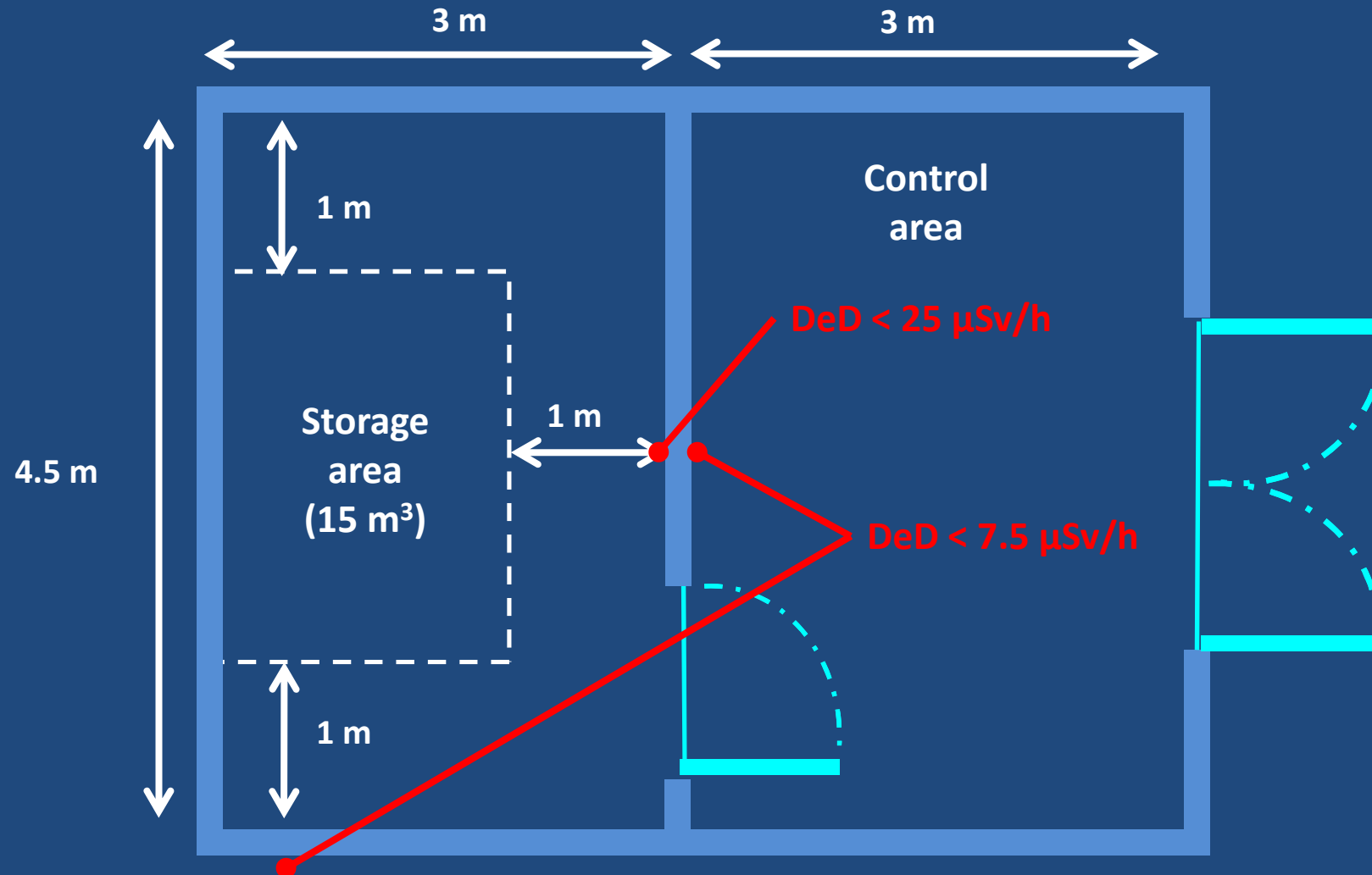


✓ Identification station



Dose rate constrains

- ✓ Gas storage area: requirement = $55 \text{ m}^3/\text{y}$ (primary) + $25 \text{ m}^3/\text{y}$ (secondary)



Beam intensity limitations

(safety study by the prime contractor)

- ✓ With respect to the equivalent dose rate ($DeD < 25 \mu\text{Sv/h}$ at 1 m)

	^{90}Kr (Bq)	^{132}Sn (Bq)
Exp. hall	6.6E+07	3.25+07
Id. Stat.	6.6E+07	3.25+07
Gas storage*	7.4E+07	3.79+07

- ✓ With respect to the accidental release of the activity

	^{90}Kr (Bq)	^{132}Sn (Bq)
Exp. hall	6.6E+07	3.25+07
Id. Stat.	6.6E+07	2,99E+06
Gas storage*	7.4E+07	4,93E+06

/~11

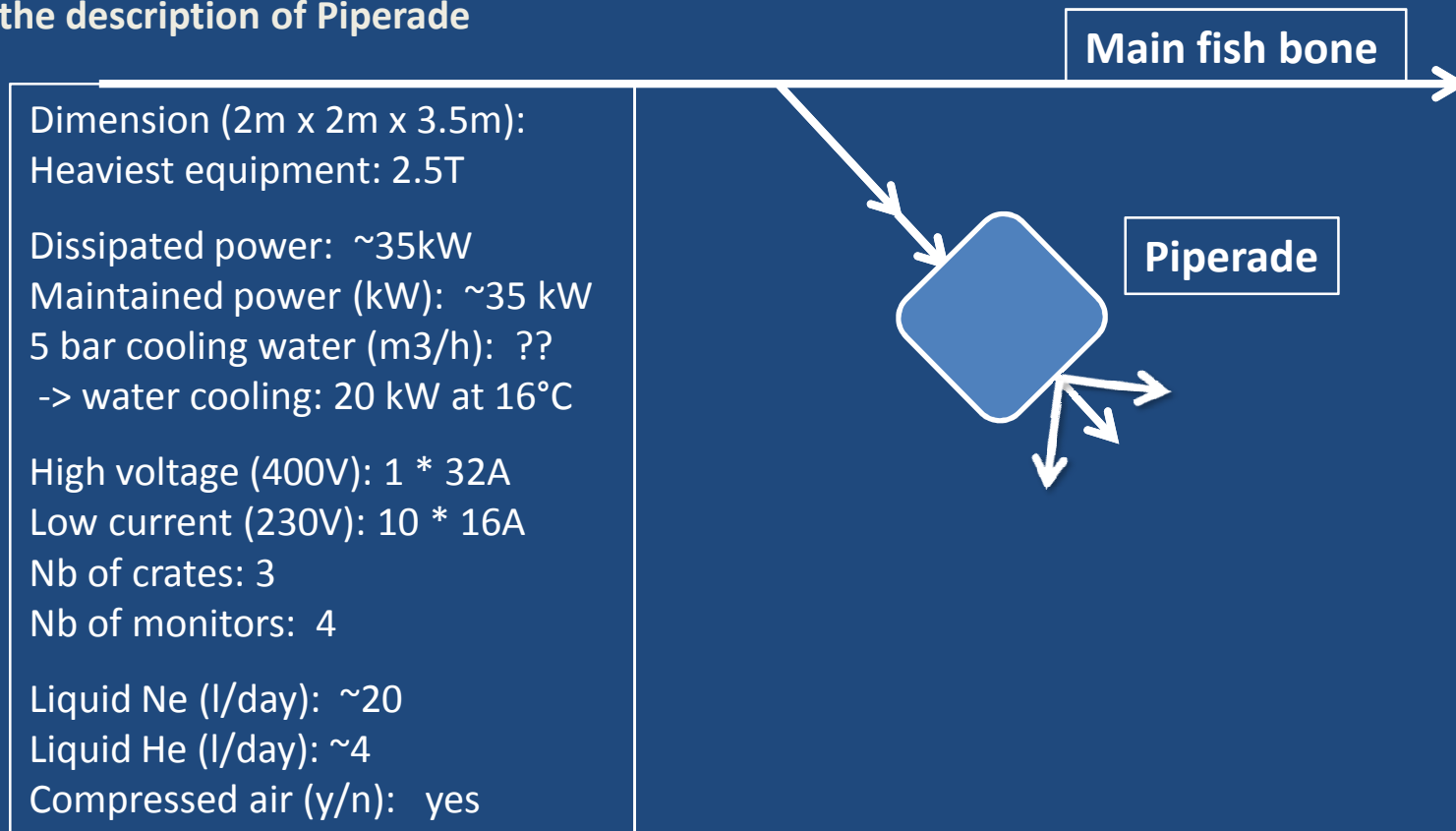
* Storage volume = 20 l

Inputs needed for the APD phase

✓ More detailed description of the experimental equipment:

- Power requirements (consumption, maintained power, dissipation in air and water cooling)
- Size and position with better than 1m precision
- Surfaces and envelope volumes
- Weights : total, /m2, repartition (supports)

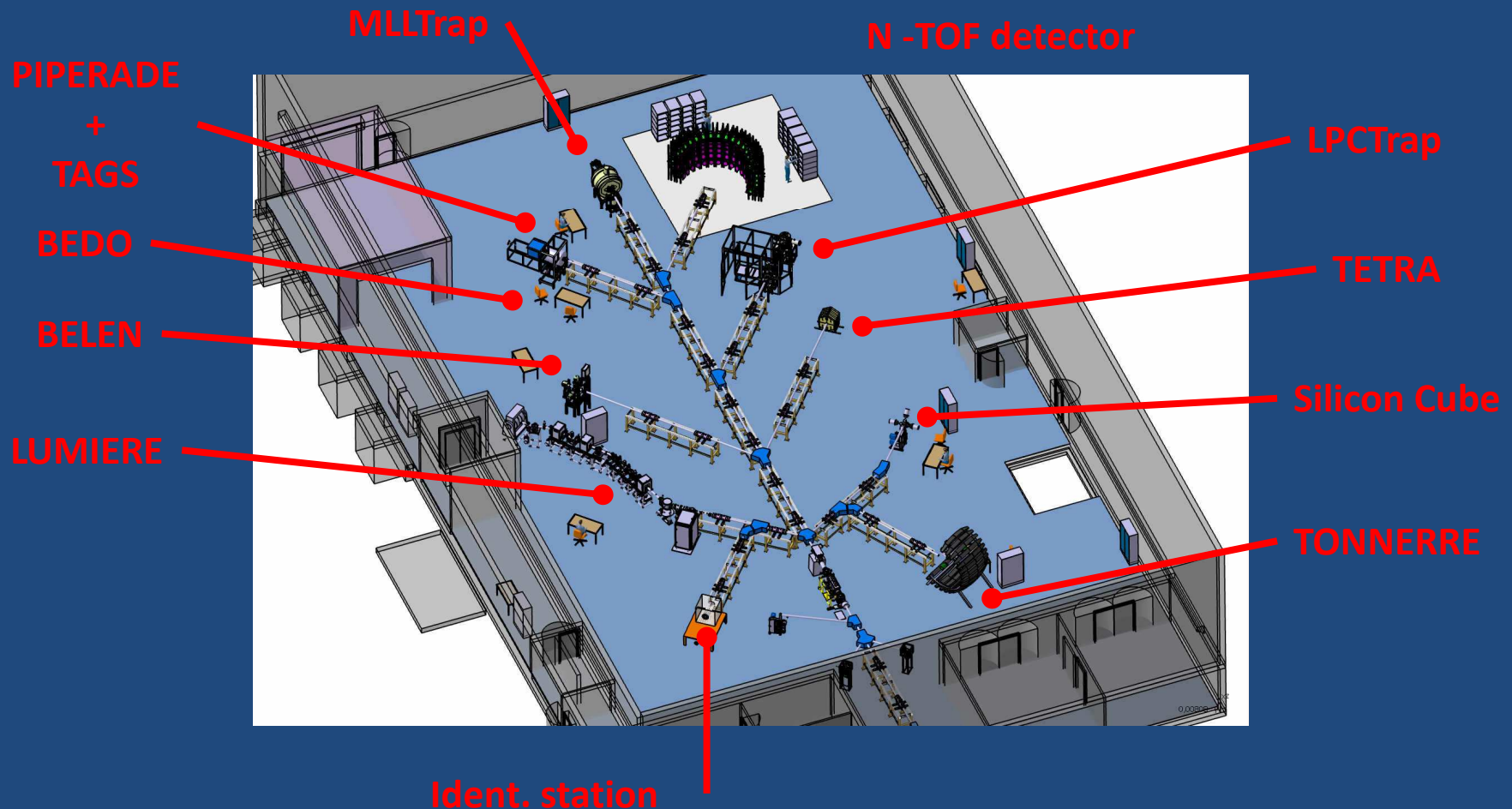
-> c.f. the description of Piperade



Inputs needed for the APD phase

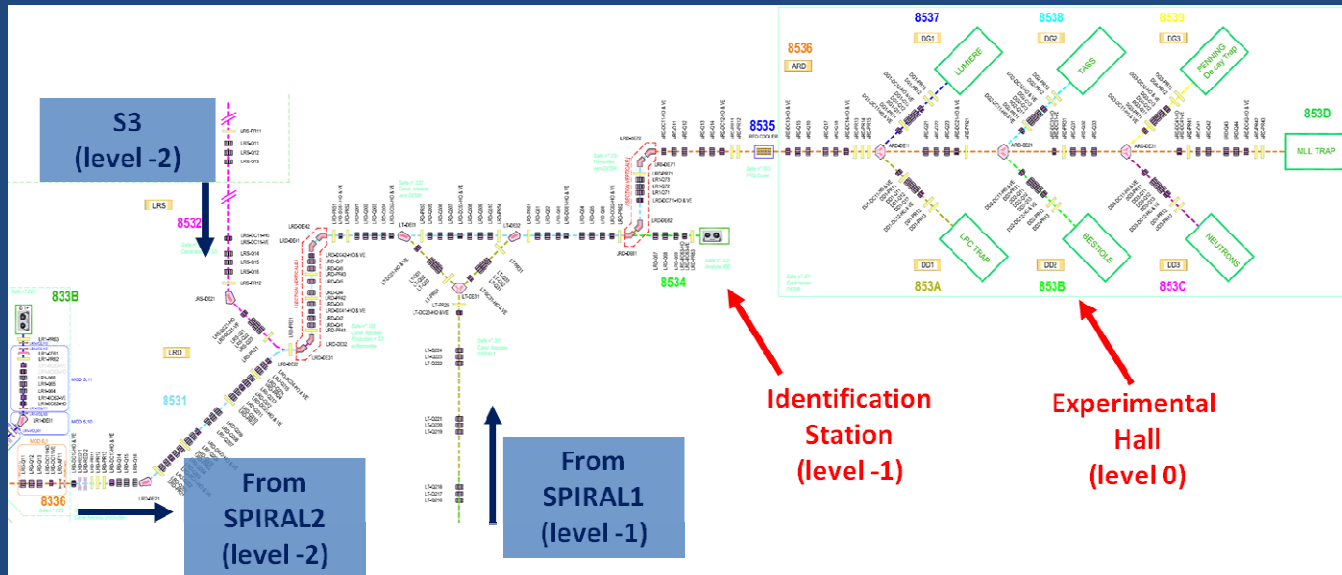
✓ Detailed description of the beam transport lines:

- Optical points of the fish bone : definition of a reference layout of the experimental equipment organization -> c.f. Bertram's proposition below



Backup slides

Work in progress: beam line studies (IPNO)



- $^{122}\text{Sn}^{1+}$ beam at 60 keV along the 73 m transfer line from SPIRAL2 production building up to DESIR building

- collaboration with D. Toprek, VINCA institute for Nuclear Sciences, Serbia

