

# CONSTRUCTION OF THE SPIRAL 2 & DESIR BUILDINGS

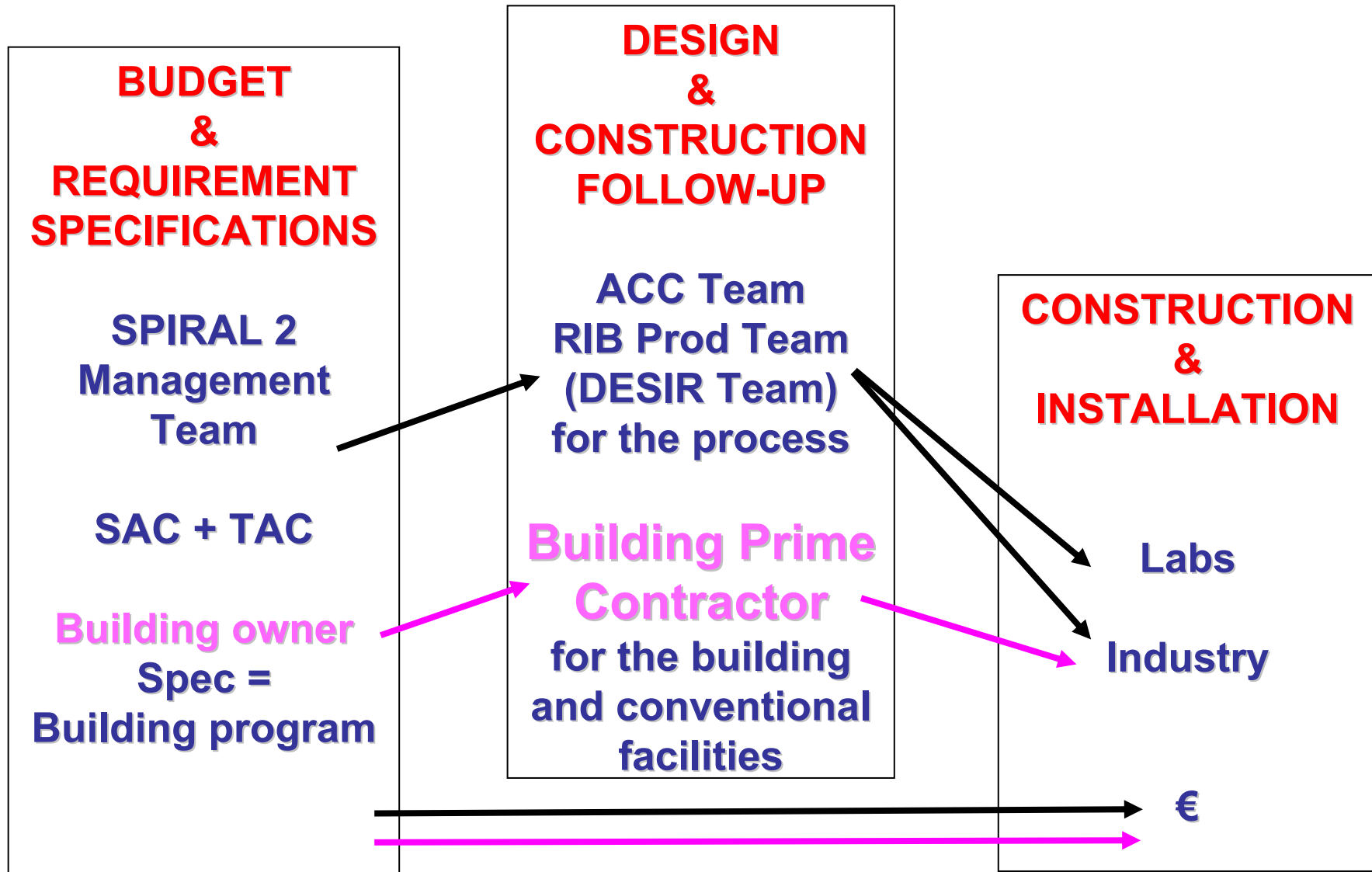
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**-1- Organization for the building construction**

**-2- DESIR in the Phase Two construction**



# Organization – Role of the prime contractor



## The building owner must define his needs



**First** : He must know his needs !

**Second** : He must write up his needs...

in such a way that the building prime contractor understand !

**Third** : He must avoid to modify his needs or rise up new needs every morning !

## Building owner needs defined in terms of :

Building organization (functional sectors)

For each rooms : used surface (m<sup>2</sup>) and specifications : handling system needs, electrical power, cooling system, ground stability, floor load, safety requirement induced by the process...

+ definition of the interfaces ...



## Building Program



## Organization – Prime contractor missions

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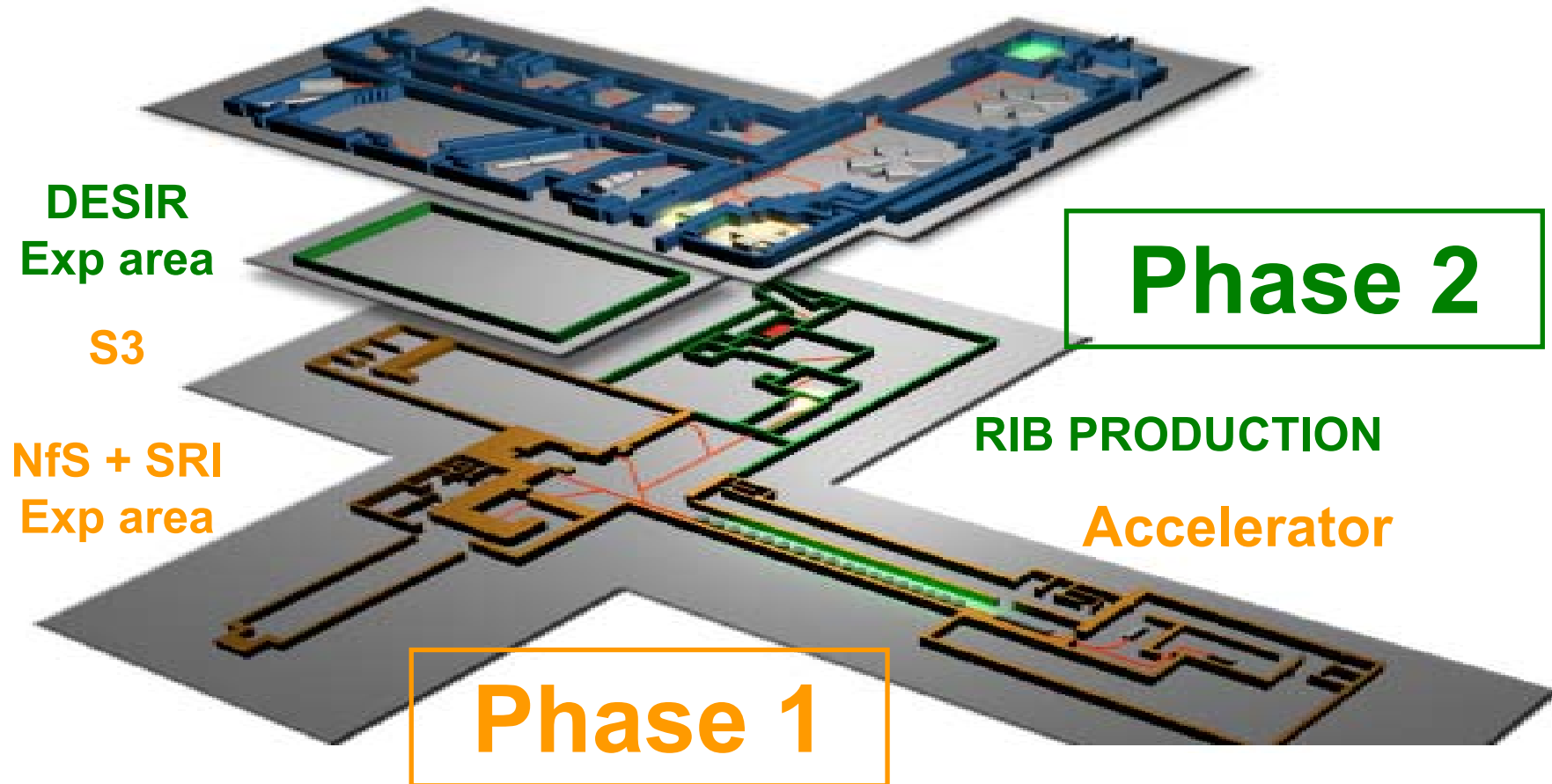
### Missions and competencies of the Building Prime Contractor

**Taking into account that SPIRAL 2 will be a Nuclear Installation (reactor rules)**

- ☞ Industrial building structures engineering  
(including the nuclear aspects – seismic aspects)
  - ☞ Architecture (Industrial building)
  - ☞ Heating – Ventilation – Air conditioning
- ☞ Electrical power distribution (20 kV – 380-220 V - ~10 MW)
  - ☞ Low power networks
  - ☞ Water cooling system
  - ☞ Security (including the fire network)
- ☞ Nuclear safety (waste, pumping gas management)

**Design – Cost optimization – Contract preparation**  
**Construction follow up – Reception**  
**Assistance to the building owner**

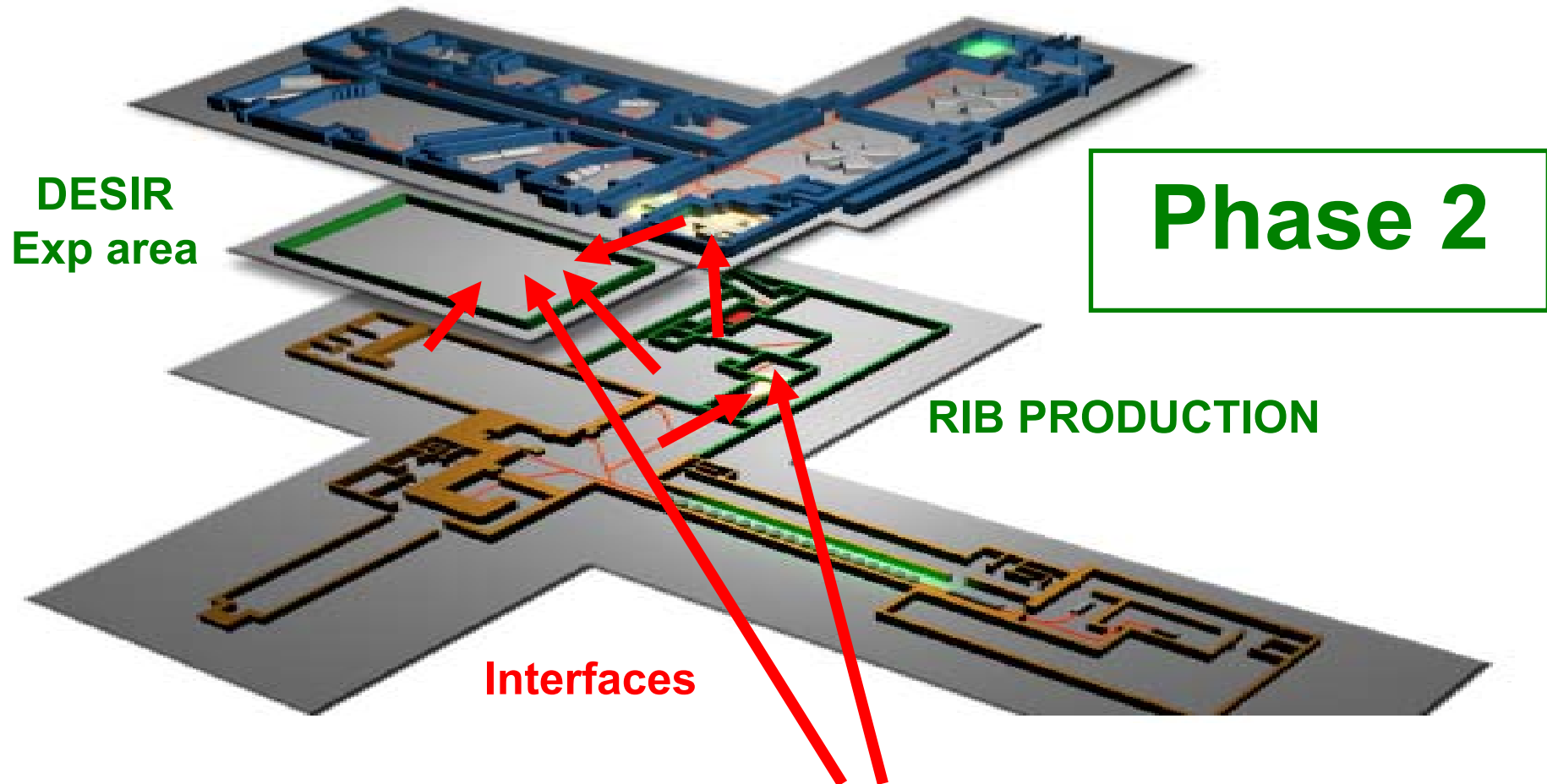
## Existing GANIL facility



+ Annexes = Conventional facilities for Ph 1 & 2

# Phase Two Construction

Phase Two = construction of the PRODUCTION & DESIR buildings



+ Annexes = Conventional facilities for Ph 1 & 2

## Selection of the Building Prime Contractor

**Nov 18, 2008** : Publication of the call for candidates

**PRODUCTION** : Used surface = 3000 m<sup>2</sup> Estimated cost = 23 M€

**DESIR** : Used surface = 2300 m<sup>2</sup> Estimated cost = 5.6 M€

**March 12, 2009** : First meeting of the selection committee

**Competition between 3 to 5 candidates**

**July 15, 2009** : Reception of the 3 to 5 propositions  
(building outlines + cost estimates)

**Sept 16, 2009** : Second meeting of the selection committee

**Oct 28, 2009** : **Signature of the BPC contract**



# Phase Two Construction

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## **PRODUCTION and DESIR Building Programming**

### **5 Volume document :**

Volume 1 = General context (project and site description)

Volume 2 = Functional Program

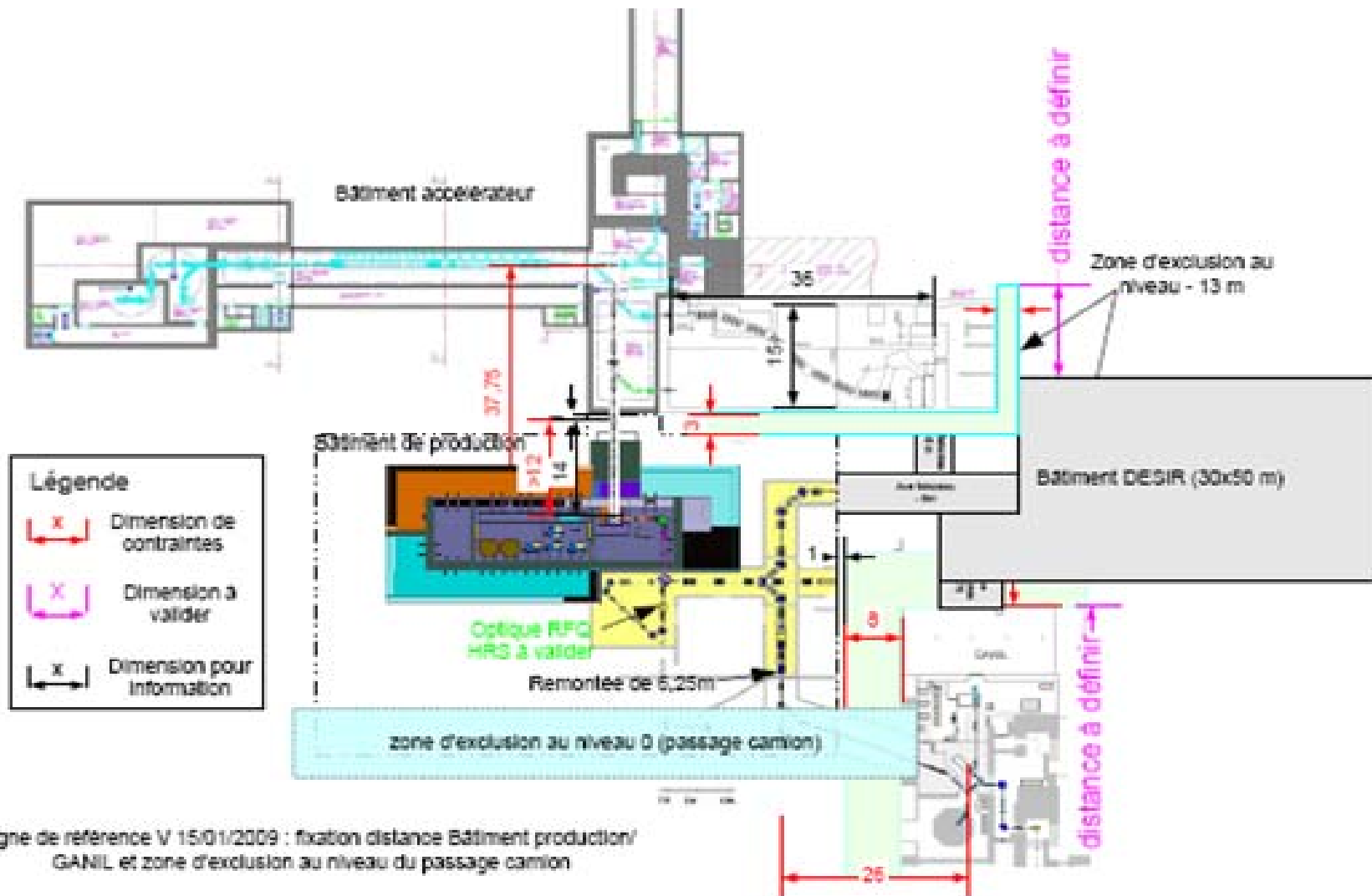
Volume 3 = Technical requirements

Volume 4 = PRODUCTION building room description

Volume 5 = DESIR building room description

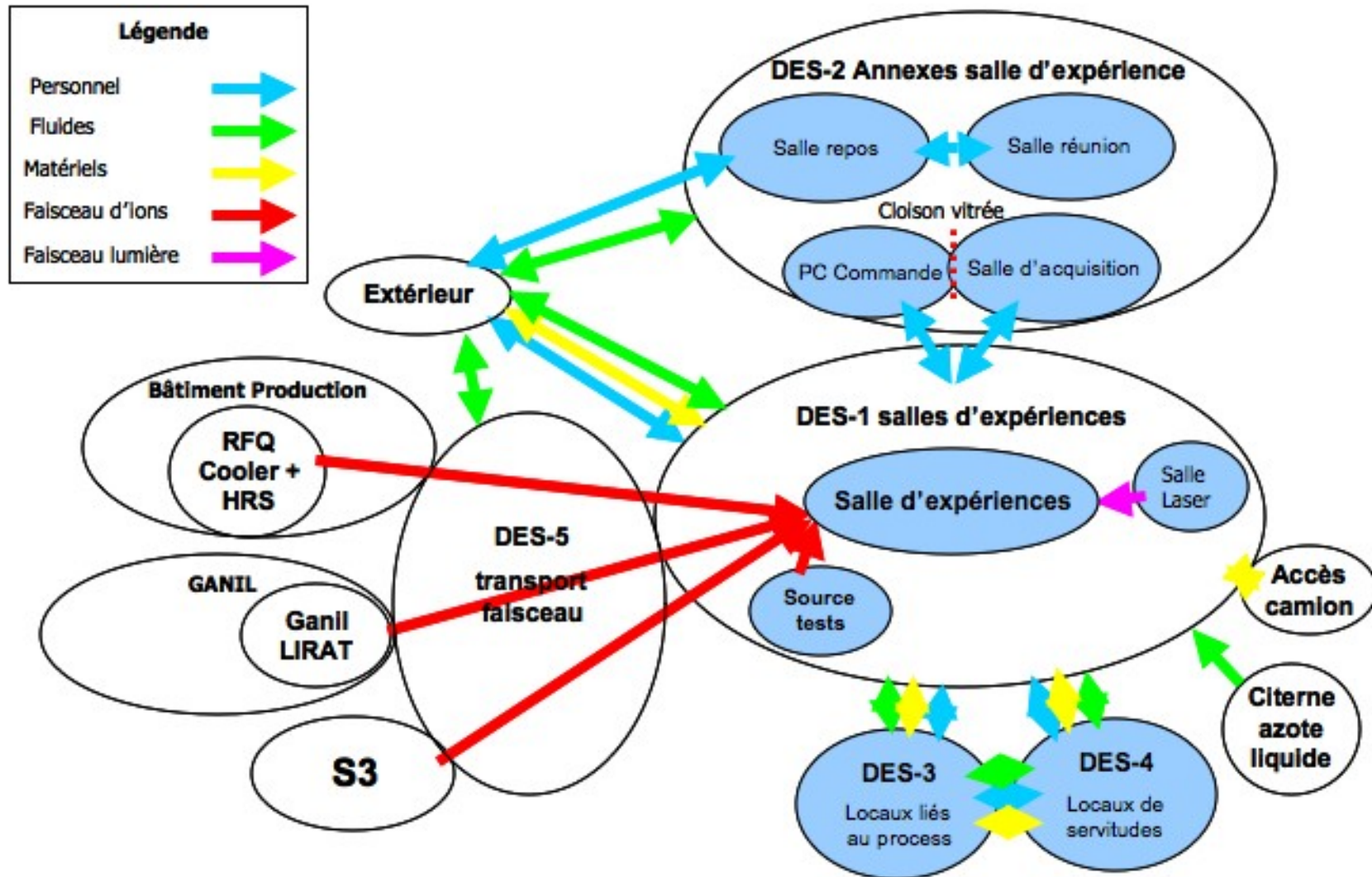
**Expert review on Jan 8, 2009**

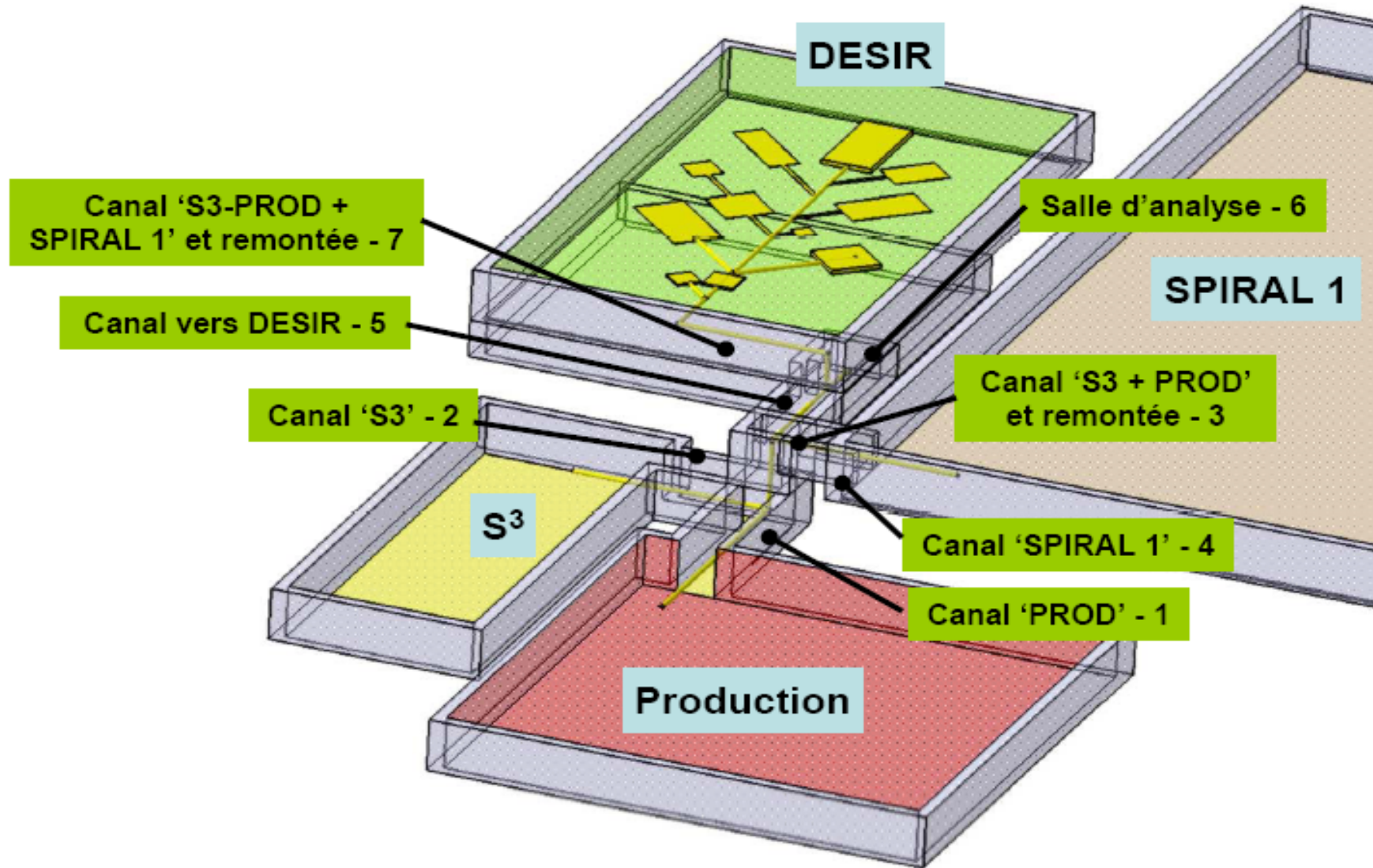




## Phase 2 building design → Phase 1 building position

## Splitting of the DESIR building in 5 functional sectors







# DESIR building

Code secteur	SECTEUR FONCTIONNEL	N° de local	LOCAL	Nbre de locaux	Surface unitaire	surface
DES-1	Salle expériences	301	Salle d'expérience (50*30)	1	1500 m <sup>2</sup>	1500 m <sup>2</sup>
DES-1	Salle expériences	302	Salle laser	1	0 m <sup>2</sup>	0 m <sup>2</sup>
DES-1	Salle expériences	303	Source test alimentant le faisceau	1	0 m <sup>2</sup>	0 m <sup>2</sup>
DES-1	Salle expériences	304	Zone de livraison	1	0	PM
<b>Sous-total Salle d'expériences</b>						<b>1500m<sup>2</sup></b>
DES-2	Annexes salle expériences	305	Poste central commande	1	20 m <sup>2</sup>	20 m <sup>2</sup>
DES -2	Annexes salle expériences	306	Salle acquisition	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES -2	Annexes salle expériences	307	Salle réunion	1	25 m <sup>2</sup>	25 m <sup>2</sup>
DES -2	Annexes salle expériences	308	Salle de repos	1	12 m <sup>2</sup>	12 m <sup>2</sup>
<b>Sous-total Annexe salle d'expériences</b>						<b>87 m<sup>2</sup></b>
DES -3	Locaux liés au procédé	309	Atelier mécanique	1	40 m <sup>2</sup>	40 m <sup>2</sup>
DES -3	Locaux liés au procédé	310	Salle grise 1 (accès contrôlé)	1	15 m <sup>2</sup>	15 m <sup>2</sup>
DES -3	Locaux liés au procédé	311	Salle grise 2 (accès contrôlé)	1	25 m <sup>2</sup>	25 m <sup>2</sup>
DES -3	Locaux liés au procédé	312	Salle montage 1	1	25 m <sup>2</sup>	25 m <sup>2</sup>
DES -3	Locaux liés au procédé	313	Salle montage 2	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES -3	Locaux liés au procédé	314	Salle montage 3	1	40 m <sup>2</sup>	40 m <sup>2</sup>
DES -3	Locaux liés au procédé	315	Salle de stockage (4 boîtes de 10 m <sup>2</sup> )	1	40 m <sup>2</sup>	40 m <sup>2</sup>
DES -3	Locaux liés au procédé	316	Salle de contrôle et de stockage de matériel contaminé	1	25 m <sup>2</sup>	25 m <sup>2</sup>
DES -3	Locaux liés au procédé	317	Salle non affectée	1	25 m <sup>2</sup>	25 m <sup>2</sup>
<b>Sous-total Locaux liés au procédé</b>						<b>265 m<sup>2</sup></b>
DES-4	Locaux de servitudes	318	Baies équipements liés au procédé	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES-4	Locaux de servitudes	319	Baies alimentation, aimants, vide, diagnostic, équipements DES-5	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES-4	Locaux de servitudes	320	Alim HT (50 KW) ligne (aimants)	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES-4	Locaux de servitudes	321	Alim HT (50 KW) équipements expérimentaux	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES-4	Locaux de servitudes	322	Alimentation automates - diagnostic	1	10 m <sup>2</sup>	10 m <sup>2</sup>
DES-4	Locaux de servitudes	323	Local électricité	1	15 m <sup>2</sup>	15 m <sup>2</sup>
DES-4	Locaux de servitudes	324	Azote liquide	1	Citerne extérieur	PM
DES-4	Locaux de servitudes	325	Stockage de gaz	1	ballons	PM
<b>Sous-total Locaux de servitudes</b>						<b>145 m<sup>2</sup></b>
DES -5	Transport faisceaux	326	Canal faisceau 'PROD'	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES -5	Transport faisceaux	327	Canal faisceau 'S3'	1	30 m <sup>2</sup>	30 m <sup>2</sup>
DES -5	Transport faisceaux	328	Salle faisceau ' S3 + PROD' et remontée	1	10 m <sup>2</sup>	10 m <sup>2</sup>
DES -5	Transport faisceaux	329	Canal faisceau 'SPIRAL1'	1	45 m <sup>2</sup>	45 m <sup>2</sup>
DES -5	Transport faisceaux	330	Canal faisceau vers DESIR	1	20 m <sup>2</sup>	20 m <sup>2</sup>
DES -5	Transport faisceaux	331	Salle d'analyse IBE	1	15 m <sup>2</sup>	15 m <sup>2</sup>
DES -5	Transport faisceaux	332	Salle faisceau 'S3-PROD + SPIRAL1' et remontée	1	25 m <sup>2</sup>	25 m <sup>2</sup>
<b>Sous-total Secteur transport faisceaux</b>						<b>175 m<sup>2</sup></b>
<b>TOTAL</b>						<b>2172 m<sup>2</sup></b>

Good building programming of DESIR

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DESIR

Team members know quite precisely what they want to built



## Phase Two milestones

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**June 2010** : Building planning permission registration  
(Epron City)

**~ Feb 2011** : First work for the builder's yard installation  
First ground breaking (?)

**Mid 2012** : Beginning of the process installation

**Summer 2013** : Tests and validations

**November, 2013** : First experiment

## **DESIR will be included in the SPIRAL 2 Phase 2 Building Prime Contractor contract :**

- At the same level as the PRODUCTION building for the design and contract preparation phase (up to the consultation of the construction companies in order to have true industrial prices for DESIR)
- As an option for the realization phase

**DESIR is not included in the SPIRAL 2 budget**



## SPIRAL 2 Phase 2 and DESIR

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**Serious difficulties for DESIR  
if there is no funding  
when the construction of the PRODUCTION building  
will start (mid 2010)**

**DO SOMETHING RAPIDLY !**