Timescale for Ecal assembly : **VERY** preliminary studies

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ILD Regional Integration Meeting

LAL, 12-13/04/2012

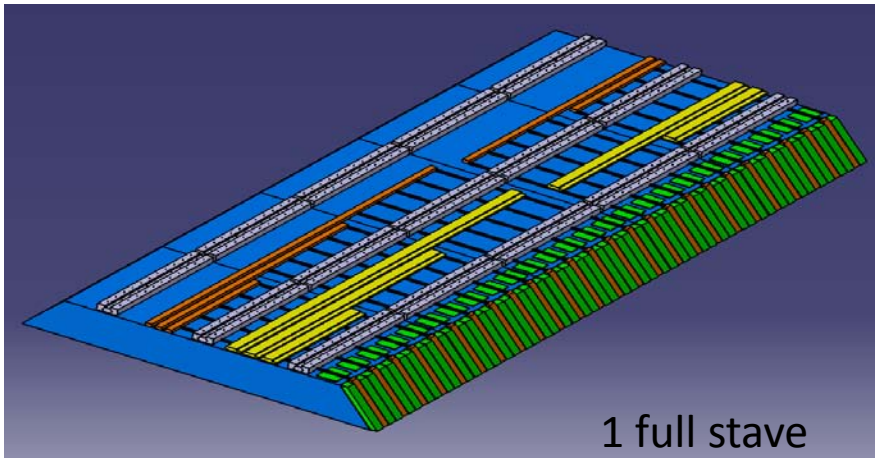
In fact :

- Take it just as a tentative description of the workflow NOT as timescale .
- It as not yet been checked by engineers (mechanical, instrumentation)
- Depends a lot on what can be done in parallel (space and Manpower)

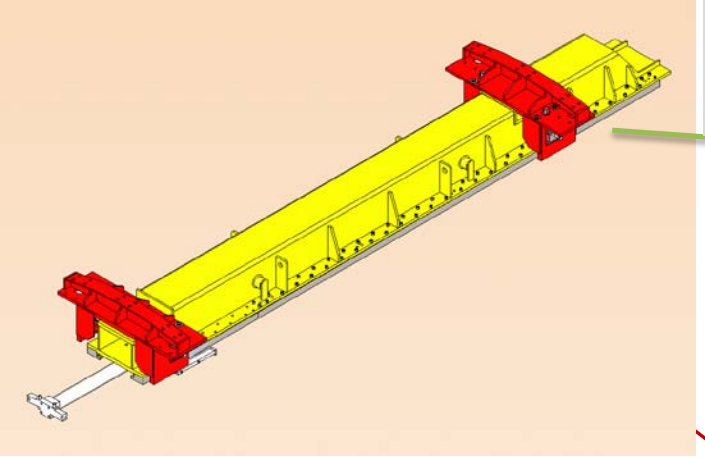
Changes from last meeting :

Ecal to be assembled in full stave (not any more 3/5 and 2/5 substave)
In order to simplify rails alignment
To rigidify the structure.

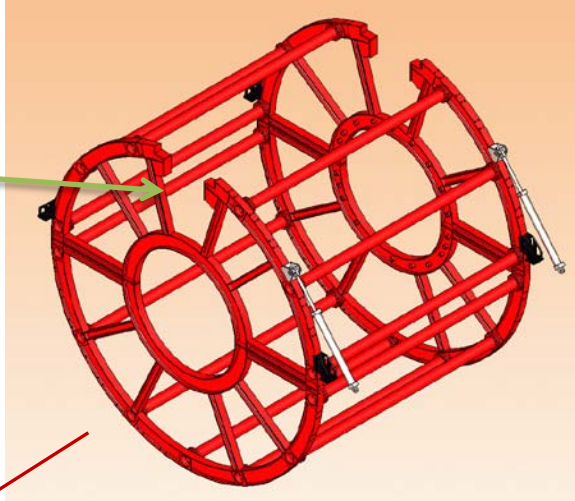
I.e. : insertion in the Hcal from only one side of the detector.



Ecal insertion tool ,
from CMS

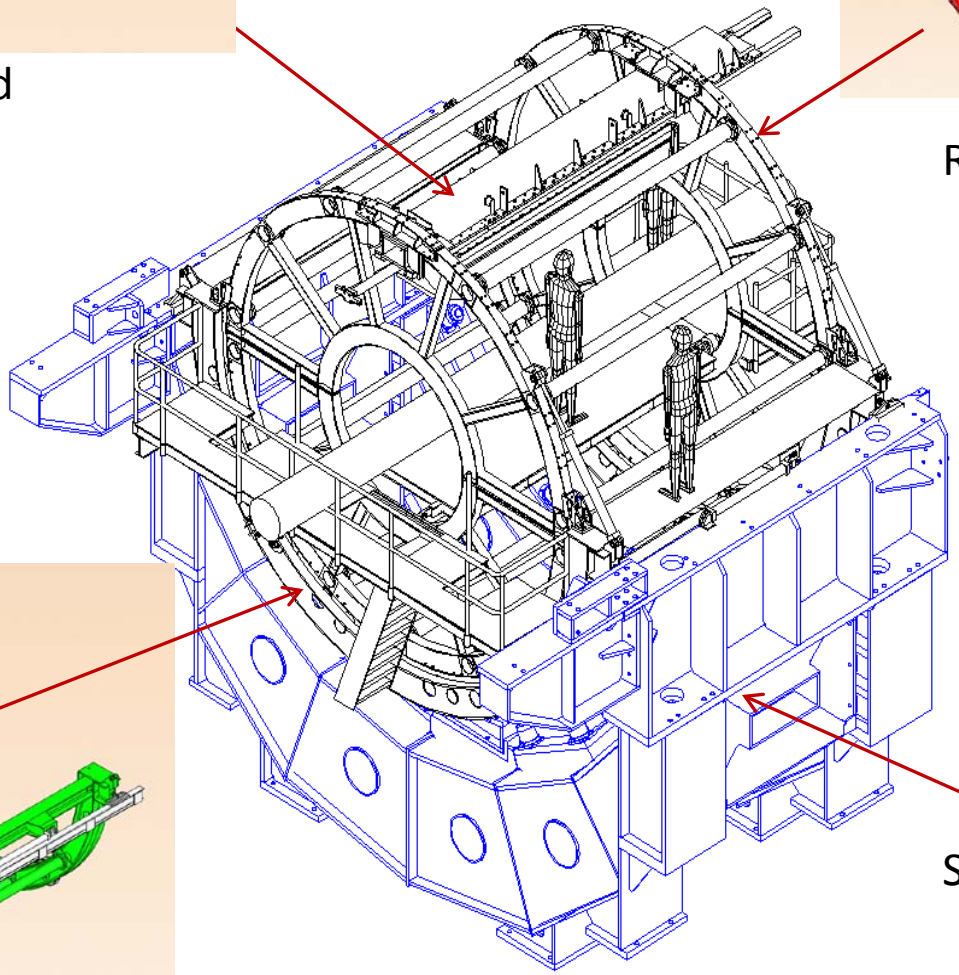


Will be fixed on
free sector of the
cage

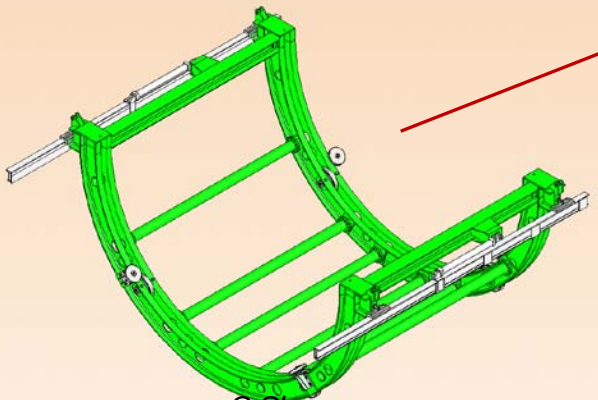


Stave pre-assembled
on frame : beam

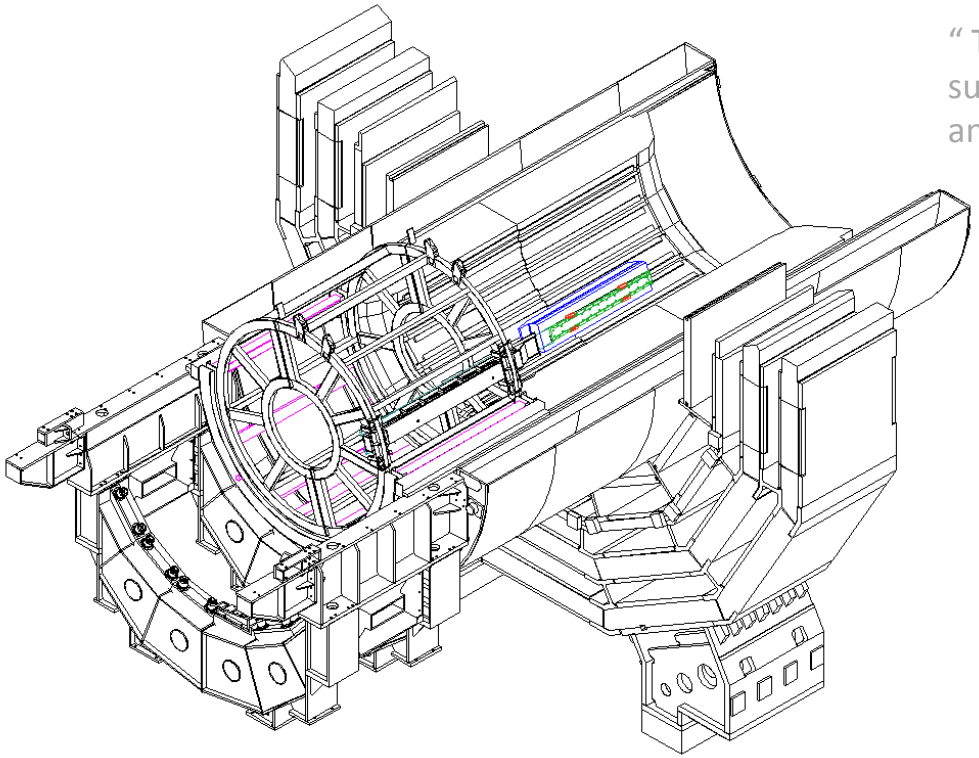
Rotating cage



Sliding cradle



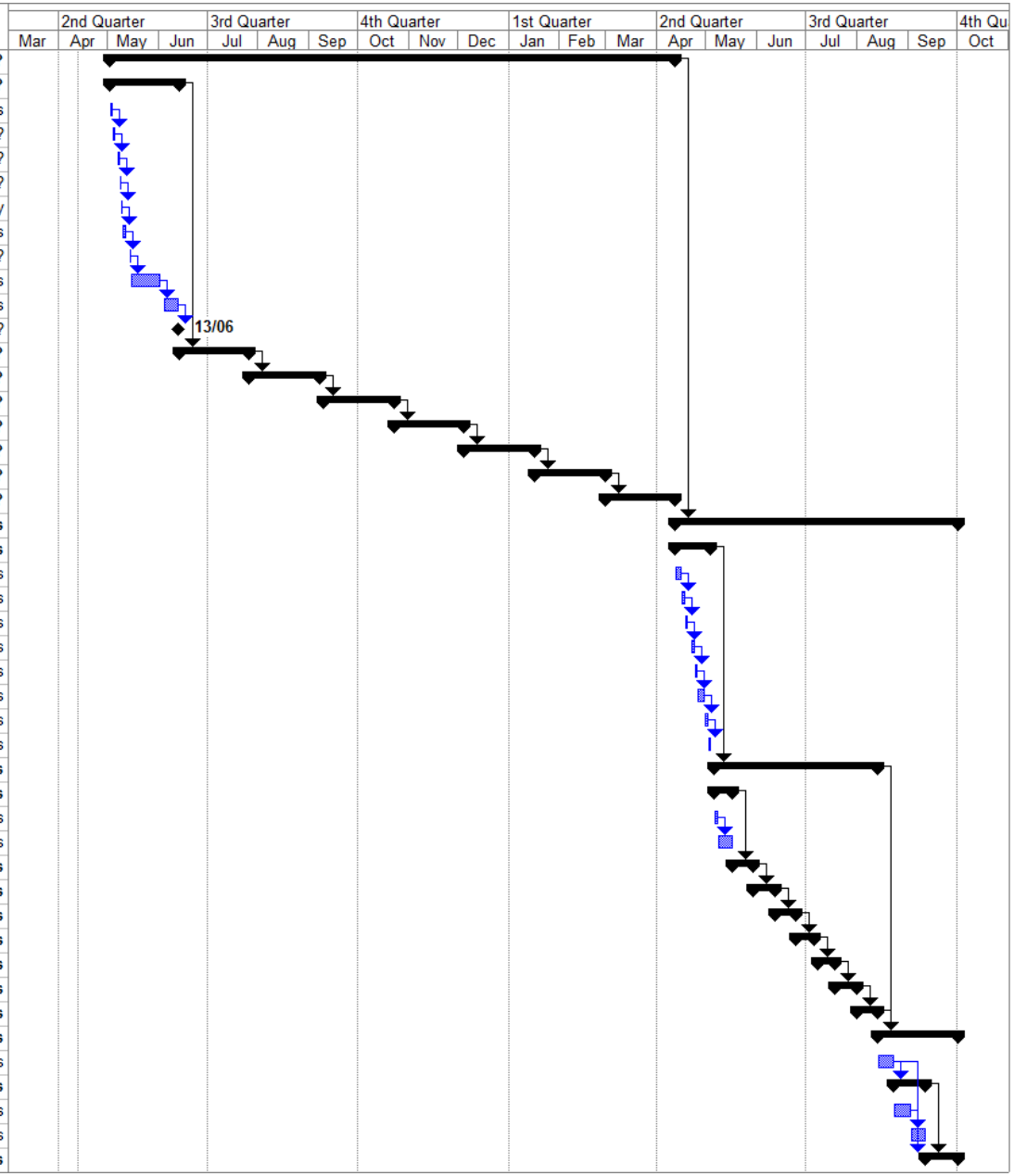
Support cradle



" The CMS electromagnetic calorimeter supermodule insertion tooling" , Sun, Zhihong and all, NIM A, Vol.572, Issue 1, p. 141-144.

Same tooling used for stave and rails to be prepositionned in the Hcal inner radius

ID	Task Name	Duration
1	**Assembly Hall**	**247 days?**
2	**Stave 1**	**31 days?**
3	mechanical assembly of the submodule (5)	2 days
4	handling	1 day?
5	alignment	1 day?
6	rails positionning	1 day?
7	rails alignment	1 day
8	prepositionning and prealignementof the female rails	2 days
9	beam structure in place	1 day?
10	slabs insertion	14 days
11	electrical tests	7 days
12	beam 1 ready	1 day?
13	**Stave 2**	**31 days?**
24	**Stave 3**	**31 days?**
35	**Stave 4**	**31 days?**
46	**Stave 5**	**31 days?**
57	**Stave 6**	**31 days?**
68	**Stave 7**	**31 days?**
79	**Stave 8**	**30 days?**
90	**Experimental Hall**	**123 days**
91	**Female rails in Hcal**	**16 days**
92	transport & fixation of female 1 rails inside the Hcal	2 days
93	transport & fixation of female 2 rails inside the Hcal	2 days
94	transport & fixation of female 3 rails inside the Hcal	2 days
95	transport & fixation of female 4 rails inside the Hcal	2 days
96	transport & fixation of female 5 rails inside the Hcal	2 days
97	transport & fixation of female 6 rails inside the Hcal	2 days
98	transport & fixation of female 7 rails inside the Hcal	2 days
99	transport & fixation of female 8 rails inside the Hcal	2 days
100	**Mechanical insertion of Ecal in Hcal**	**72 days**
101	**Beam 1 insertion**	**9 days**
102	handling of stave 1 from ass. To exp hall	2 days
103	Insertion in Hcal	7 days
104	**Beam 2 insertion**	**9 days**
107	**Beam 3 insertion**	**9 days**
110	**Beam 4 insertion**	**9 days**
113	**Beam 5 insertion**	**9 days**
116	**Beam 6 insertion**	**9 days**
119	**Beam 7 insertion**	**9 days**
122	**Beam 8 insertion**	**9 days**
125	**Wheel services connection**	**35 days**
126	Wheel position calibration	7 days
127	**Face Z-**	**14 days**
128	connection	7 days
129	tests	7 days
130	**face Z+**	**14 days**



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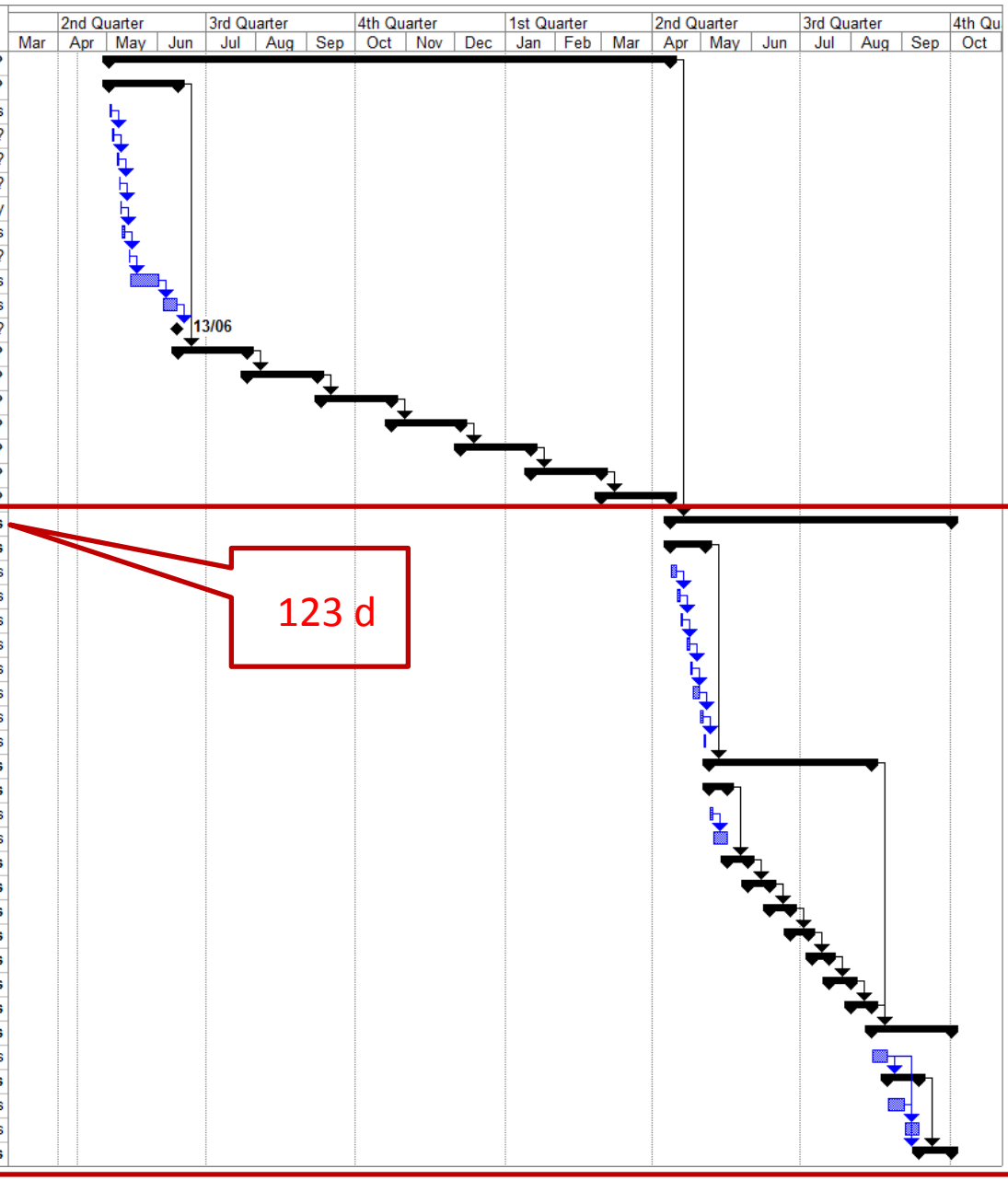

Ecal assembly in the Experimental Hall : 123 days.

But, this is just for Barrel

Same timescale estimate has to be done for endcaps.

Not sur that it is possible to do Endcap & Barrel assembly at the same time..