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

C.Clerc

ILD Regional Integration Meeting

LAL, 12-13/04/2012

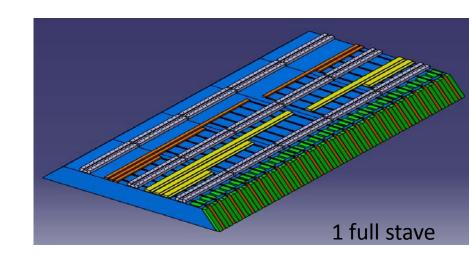
In fact:

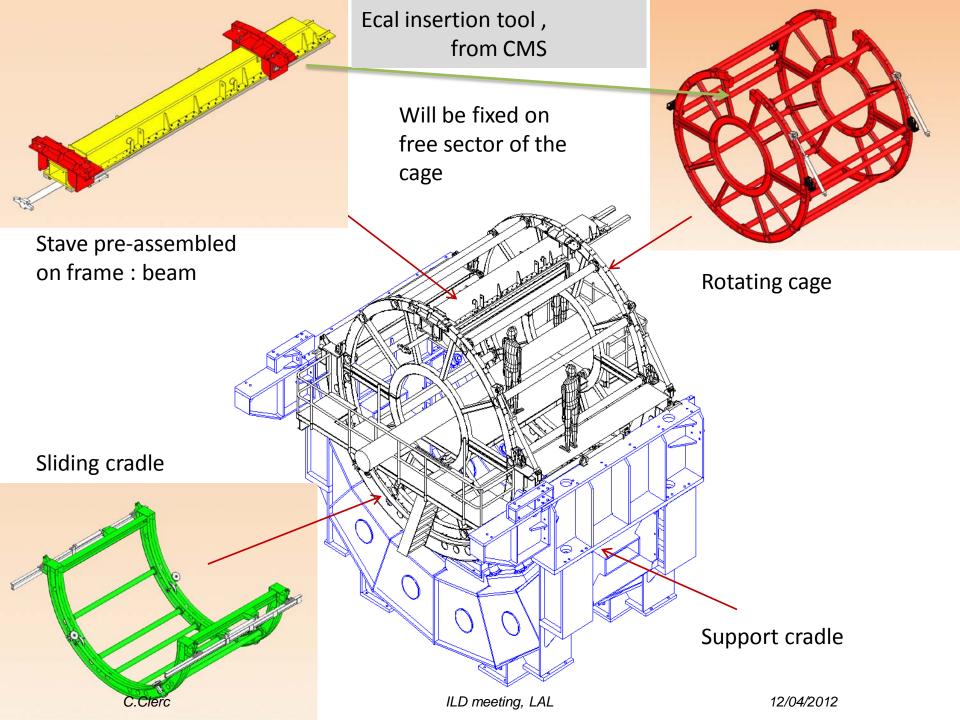
- •Take it just as a tentative description of the workflow NOT as timescale.
- •It as not yet been checked by engineers (mechanical, instrumentation)
- •Depends a lot on what can be done in parallel (space and Manpower)

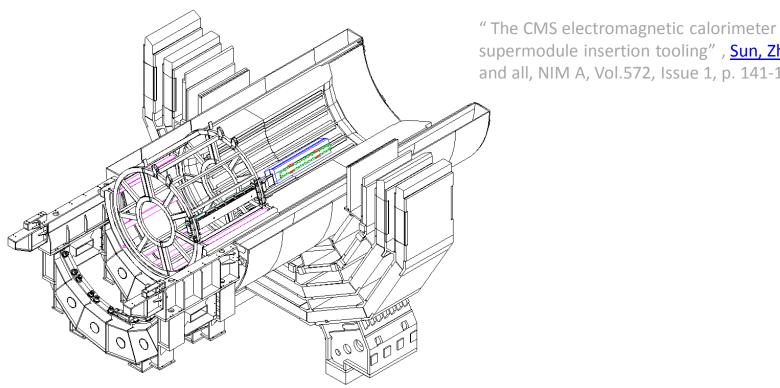
Changes from last meeting:

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.







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			Quart			3rd Quarte	r	4th Quarter		1st Quarter		2nd Qu	uarter		3rd Quarter		4th Qu
	0	A 11 II II	247 1 2	Mar	Ap	or Ma	ay J	un	Jul Au	g Sep	Oct Nov	Dec	Jan Feb	Mar	Apr	May	Jun	Jul Au	g Sep	Oct
1		Assembly Hall	247 days?					_			**************************************									
2		Stave 1	31 days?			•	,													
3		mechanical assembly of the submodule (5)	2 days			- 7														
5	-	handling	1 day? 1 day?			- }														
6		alignment				- 7														
7		rails positionning rails alignment	1 day? 1 day			- 7	•													
8		prepositionning and prealignementof the female rails	2 days																	
9		beam structure in place	1 day?			7														
10		slabs insertion	14 days																	
11		electrical tests	7 days																	
12		beam 1 ready	1 day?					13	3/06											
13		Stave 2	31 days?					\forall												
24		Stave 3	31 days?				•		<u>`</u>											
35		Stave 4	31 days?						•	<u>_</u>	<u> </u>									
46		Stave 5	31 days?							•	<u>*</u>	-								
57	+	Stave 6	31 days?								•	<u>;</u>								
68		Stave 7	31 days?									•	*	P 1						
79		Stave 8	30 days?											<u>*</u>	-					
90		Experimental Hall	123 days											•	*					•
91		Female rails in Hcal	16 days												—	♥ ⊓				
92		transport & fixation of female 1 rails inside the Hcal	2 days												ь					
93		transport & fixation of female 2 rails inside the Hcal	2 days																	
94		transport & fixation of female 3 rails inside the Hcal	2 days												K					
95		transport & fixation of female 4 rails inside the Hcal	2 days												K					
96		transport & fixation of female 5 rails inside the Hcal	2 days												K	'				
97		transport & fixation of female 6 rails inside the Hcal	2 days																	
98		transport & fixation of female 7 rails inside the Hcal	2 days													K.				
99		transport & fixation of female 8 rails inside the Hcal	2 days													1				
100		Mechanical insertion of Ecal in Hcal	72 days													Ť			1	
101		Beam 1 insertion	9 days													•				
102		handling of stave 1 from ass. To exp hall	2 days													L				
103		Insertion in Hcal	7 days													ă,				
104		Beam 2 insertion	9 days													•	1			
107		Beam 3 insertion	9 days													•	—			
110		Beam 4 insertion	9 days														**	Į.		
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																	7
126		Wheel position calibration	7 days																<u></u>	
127		Face Z-	14 days												8 8 8 8 8 8					
128		connection	7 days																1	
129		tests	7 days																$\blacksquare \downarrow$	
130		face Z+	14 days																	<u> </u>

ID		Task Name	Duration		2nd C	Quarter		3rd Qı	uarter		4th Quar	rter	1	st Quarter		2nd	Quarter		3rd Quar	ter	4	th Qu
	0					May	Jun		Aug			Nov De		Jan Feb			May	Jun		Aug		Oct
1		Assembly Hall	247 days?			_										•						
2		Stave 1	31 days?			_																
3	111	mechanical assembly of the submodule (5)	2 days			压																
4		handling	1 day?			Ľ																
5		alignment	1 day?			L																
6		rails positionning	1 day?			<u>K</u>																
7		rails alignment	1 day			┸╇┸╇┸╇┸╇┸																
8		prepositionning and prealignementof the female rails	2 days			Ĺ																
9		beam structure in place	1 day?			<u> </u>																
10		slabs insertion	14 days				L															
11		electrical tests	7 days																			
12		beam 1 ready	1 day?				→ 1	13/06														
13		Stave 2	31 days?				Ť	_	ı													
24		Stave 3	31 days?					Ţ	<u> </u>	~ 1 │												
35		Stave 4	31 days?							Ť	lacksquare											
46		Stave 5	31 days?								Ť											
57		Stave 6	31 days?									Ţ		- 1								
68		Stave 7	31 days?											-	ħ.							
79		Stave 8	30 days?													_	_					
90		Experimental Hall	123 days													7					_	
91		Female rails in Heal	16 days													_	▼					
92		transport & fixation of female 1 rails inside the Hcal	2 days													Ь	.					
93		transport & fixation of female 2 rails inside the Hcal	2 days						4	าว	ا _{لہ}					ľ						
94		transport & fixation of female 3 rails inside the Hcal	2 days							23	u					Ę						
95		transport & fixation of female 4 rails inside the Hcal	2 days														<u> </u>					
96		transport & fixation of female 5 rails inside the Hcal	2 days					_									<u>6</u>					
97		transport & fixation of female 6 rails inside the Hcal	2 days														L					
98		transport & fixation of female 7 rails inside the Hcal	2 days														6					
99		transport & fixation of female 8 rails inside the Hcal	2 days														Ĭ					
1 0		Mechanical insertion of Ecal in Hcal	72 days														Ť			▼		
1 1		Beam 1 insertion	9 days																			
102		handling of stave 1 from ass. To exp hall	2 days														₽ I					
103		Insertion in Hcal	7 days														ď.	,				
104		Beam 2 insertion	9 days														•	▼ ↓				
107		Beam 3 insertion	9 days														•	Ţ				
1 0		Beam 4 insertion	9 days															**	1			
1 3		Beam 5 insertion	9 days															•	₹Ţ			
1 6		Beam 6 insertion	9 days																▼ *_			
1 9		Beam 7 insertion	9 days																*	L		
122		Beam 8 insertion	9 days																-	♥		
125		Wheel services connection	35 days																	Ť	$\overline{}$	
126		Wheel position calibration	7 days																			
12.7		Face Z-	14 days	1																—	v ₁ ∷	
128		connection	7 days																		_	
129		tests	7 days	1																		
130		face Z+	14 days	1																1	~	

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..