Surface Assembly ‚a la CMS'

- Assemble and commission detector parts as far as possible on surface
- Central yoke ring (shortened to ~2.7m) and coil probably have to be lowered together
  - depends on crane capacity underground
- Barrel calorimeter will probably also be installed before lowering
- Weight of this largest component: ~2000t
- Size: 13 x 7m

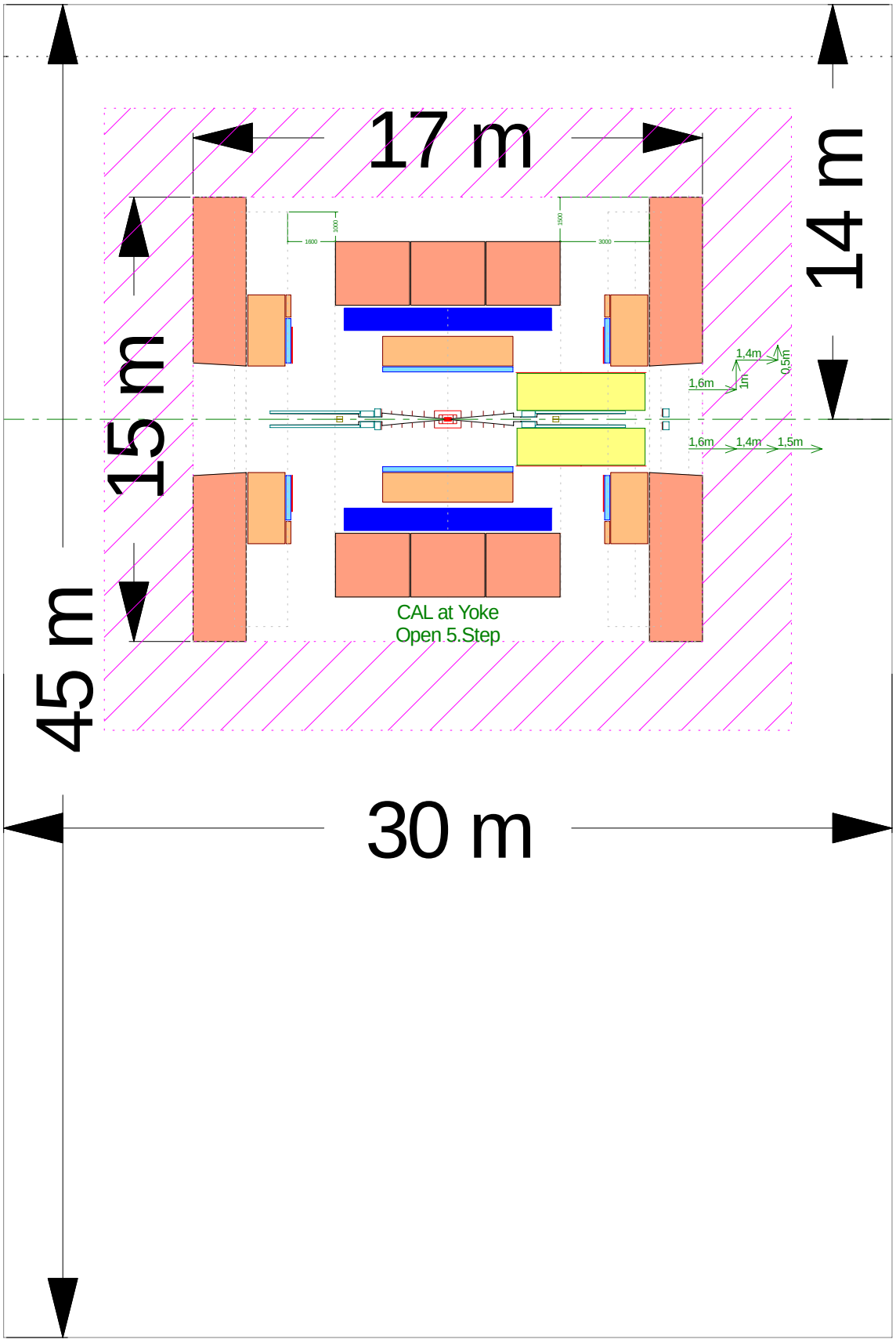
9.1 Weight of Detector Components

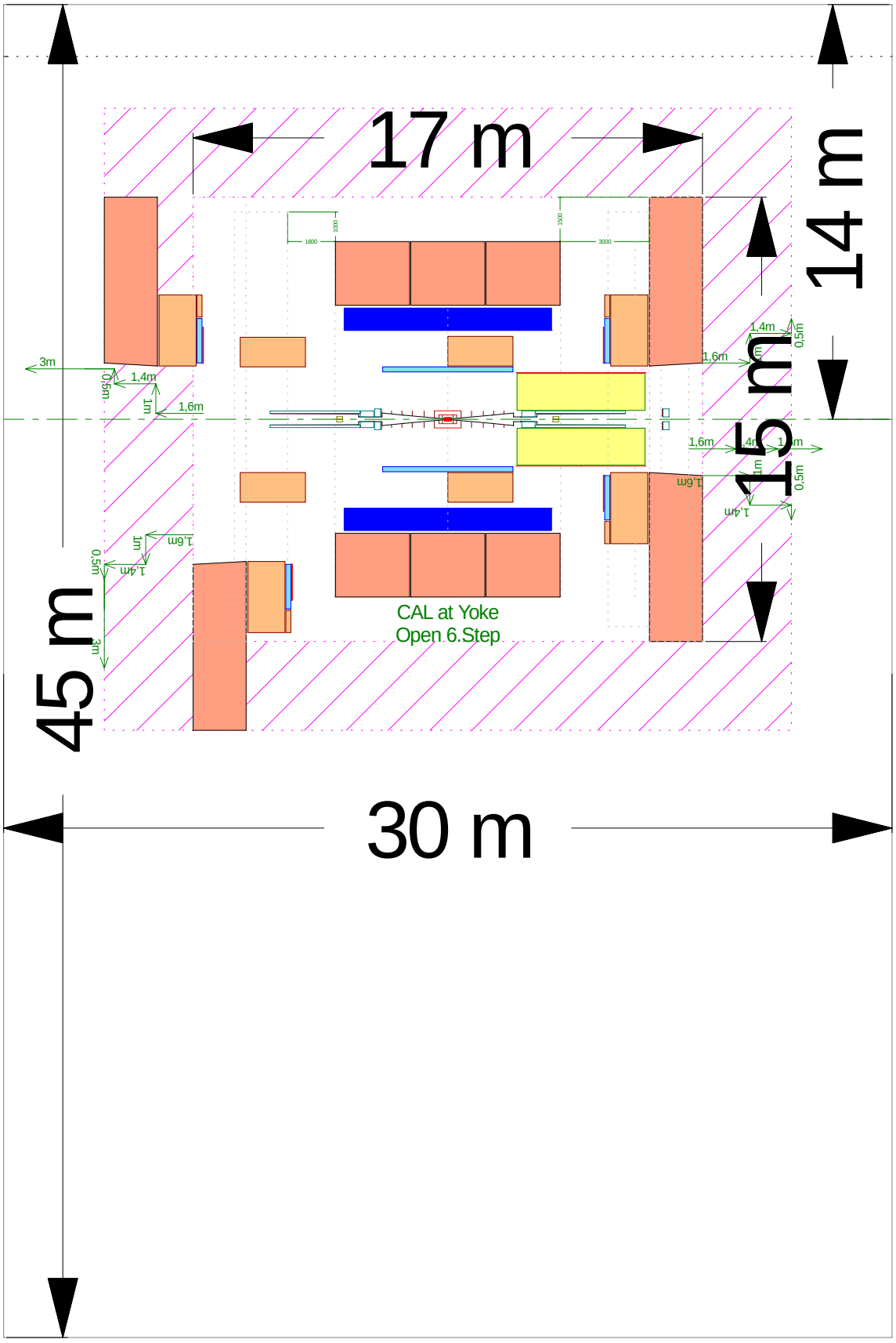
Component	Weight per Module	Number of Modules	Total Weight
Central Yoke Ring	-	1	~4000t
Cold Mass (Coil with Vacuum Tank and Cryostat)	-	1	~200t
HCAL Barrel	15.3t	2 x 16	~490t
HCAL End Caps	49t	2 x 4	~392t
ECAL Barrel	~2.83t	8 x 5	~113t
ECAL End Caps	5.18t	2 x 4	~42t
TPC and FCH	~5t	1	~5t
Sum Central Part			~5240t
Corner Half Shells	~1600t	4	~6400t

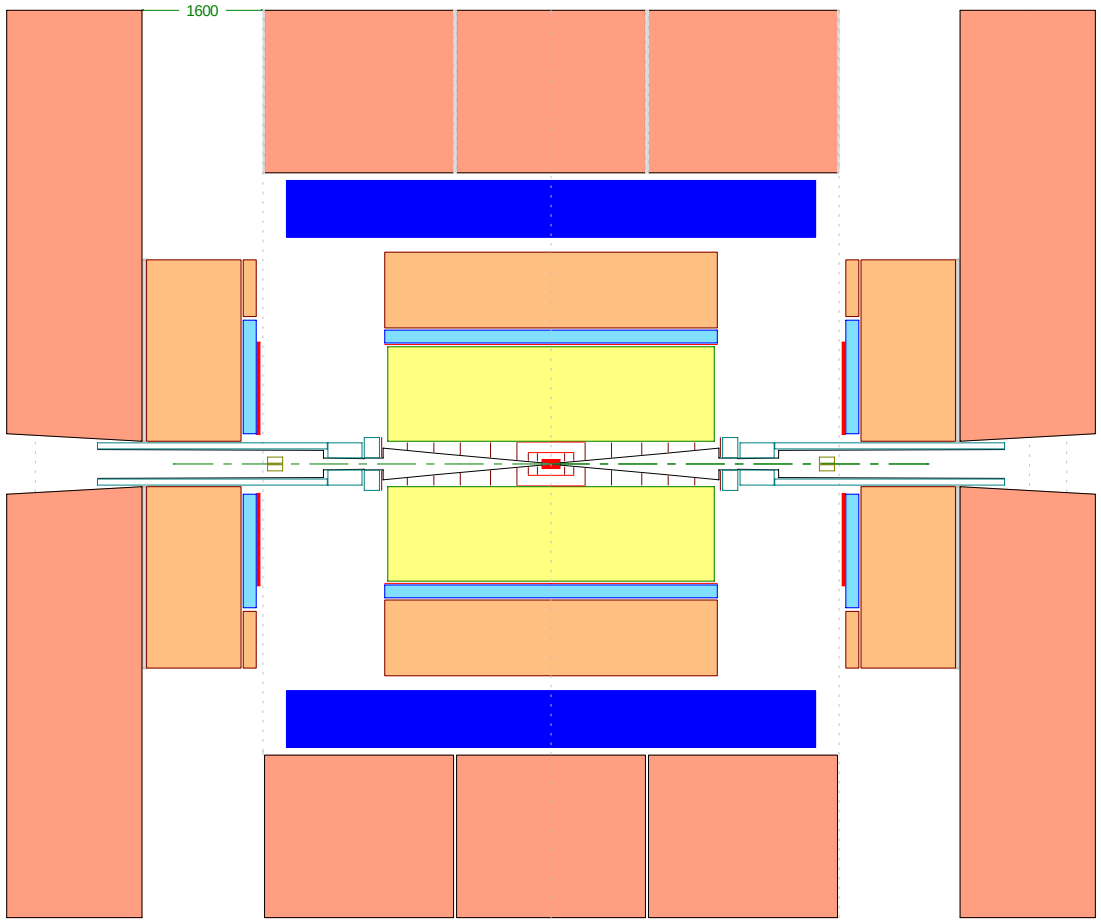
TESLA Numbers!

Minimal Requirements for Surface Assembly

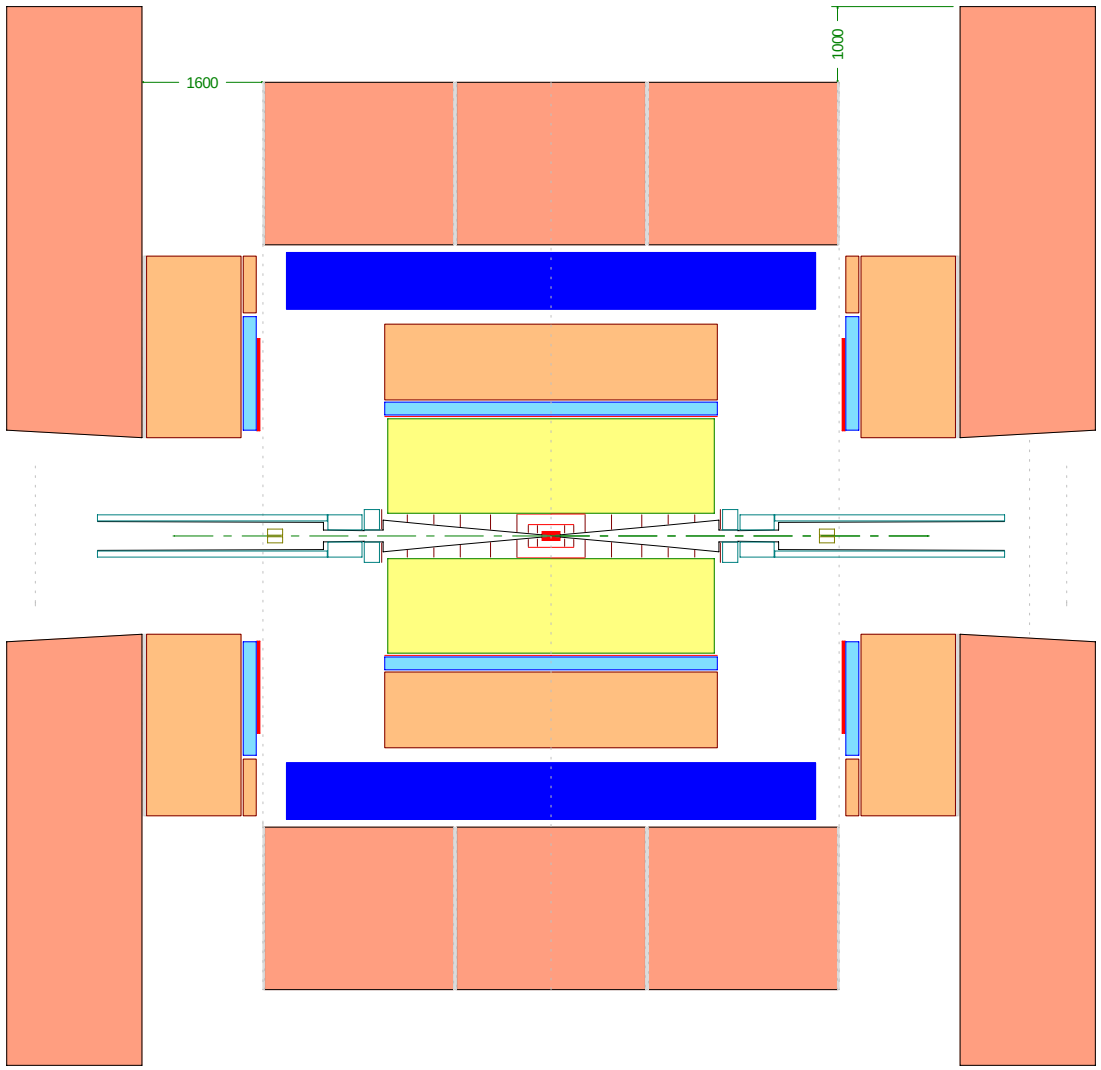
- Assuming surface detector assembly and no need for independent detector parking position:
  - Hall size: 30 x 45m
  - Distance between beam and wall: 12.25m (14m - half concrete wall) is somewhat tight
    - Yoke corners are 6m wide, have to slide back by ~6m to allow for the extraction of the calorimeter endcaps and the TPC
    - Concrete shielding outside of the yoke (additional 1m) can be made thinner on that side?
  - Biggest part: shortened barrel yoke ring mounted with coil and barrel calorimeter
    - Shaft size: 14 x 8m
    - Temporary crane: 2000t
  - Permanent crane (surface - bottom): 120t (calorimeter endcap)
  - Hall crane (bottom): 80t


17 m
14 m
15 m
45 m
30 m
CAL at Yoke
Open 5.Step
1,4m
0,5m
1,6m
1m
1,6m
1,4m
1,5m

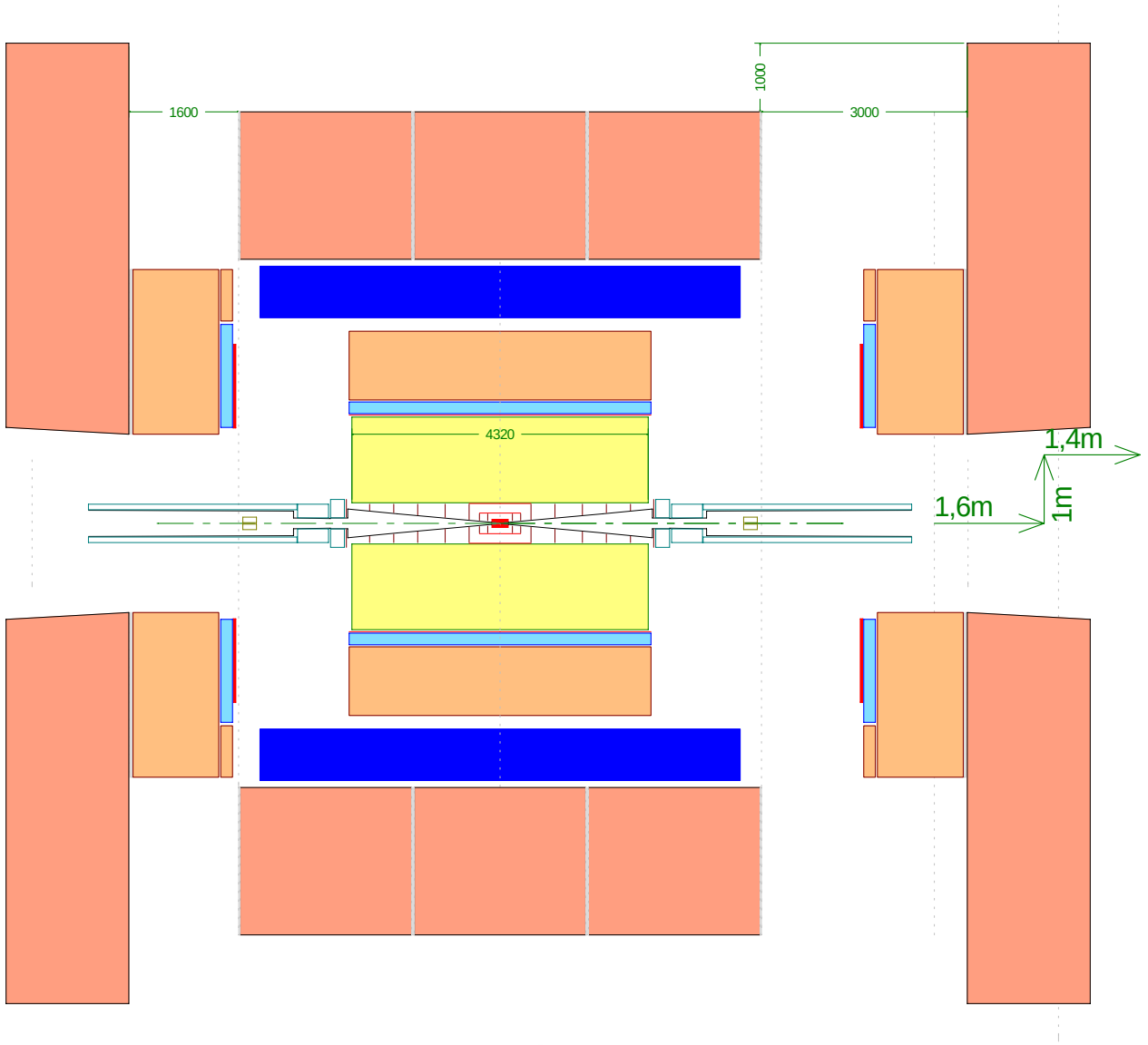

17 m
14 m
15 m
45 m
30 m
CAL at Yoke
Open 6.Step
3m
1,4m
0,5m
1m
1,6m



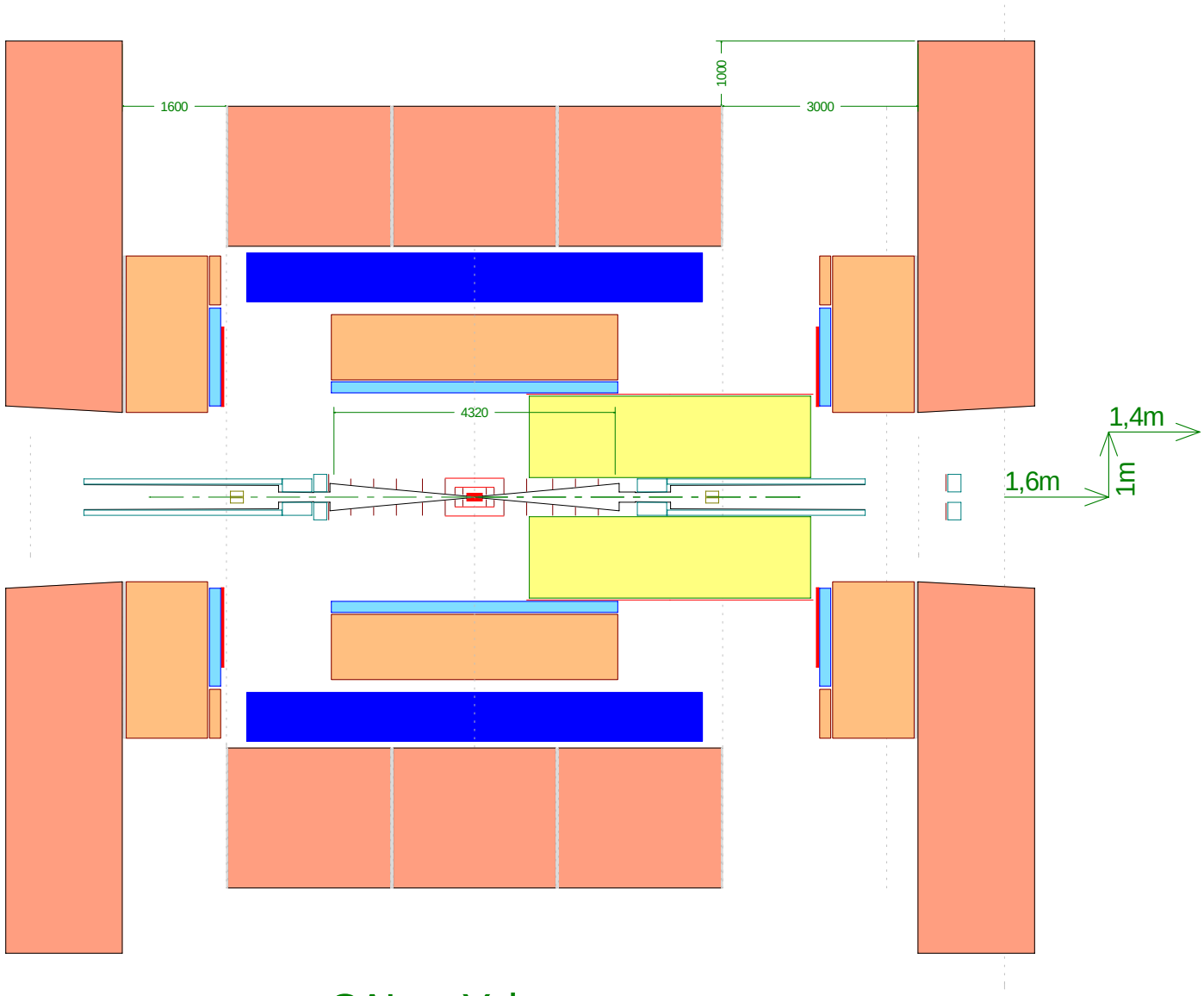
CAL at Yoke
Open 1.Step



CAL at Yoke
Open 2.Step



CAL at Yoke
Open 3.Step



CAL at Yoke
Open 4.Step