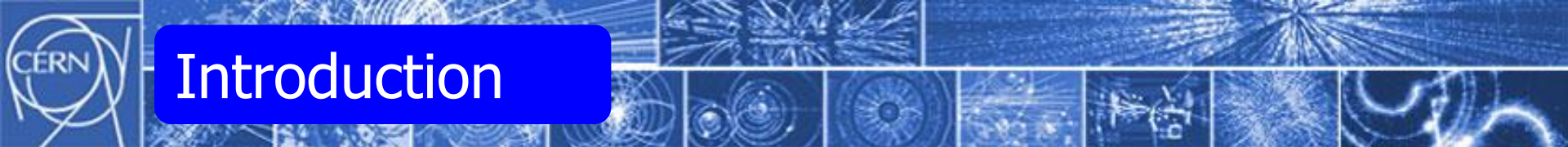


IMPACTS OF INSTALLING THE REFERENCE MAGNET PLACEMENT IN B245

04 december 2014

Fulvio Boattini & Natacha Lopez Hernandez



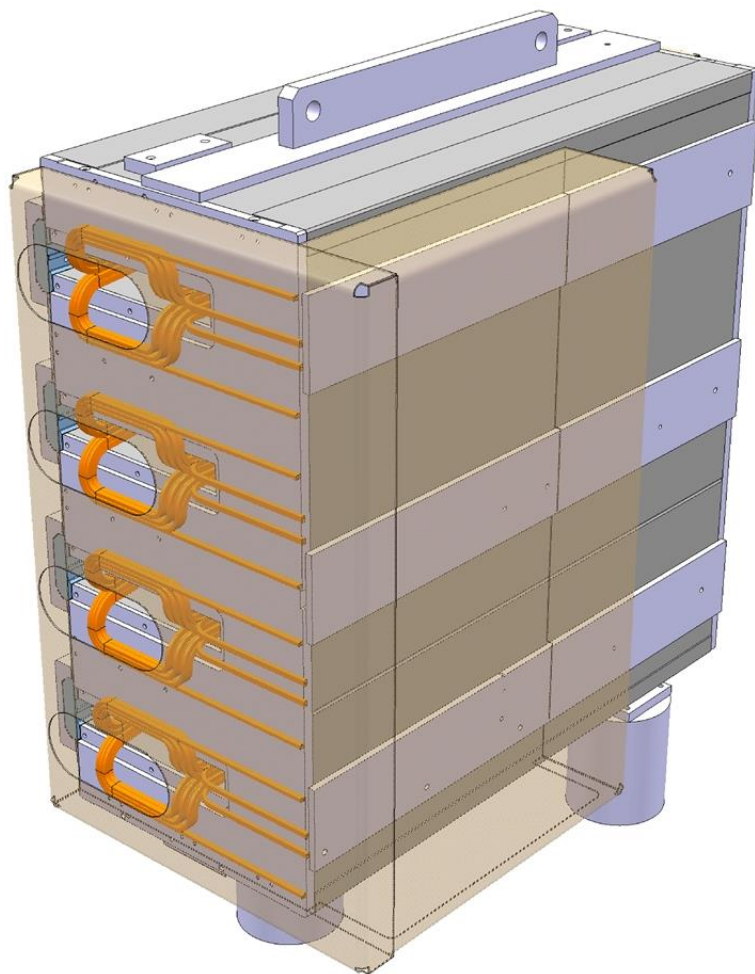
Introduction

The installation of the new ref magnet should obey the following two constraints:

The new ref magnet installed in b245. Only working with the new MPS.

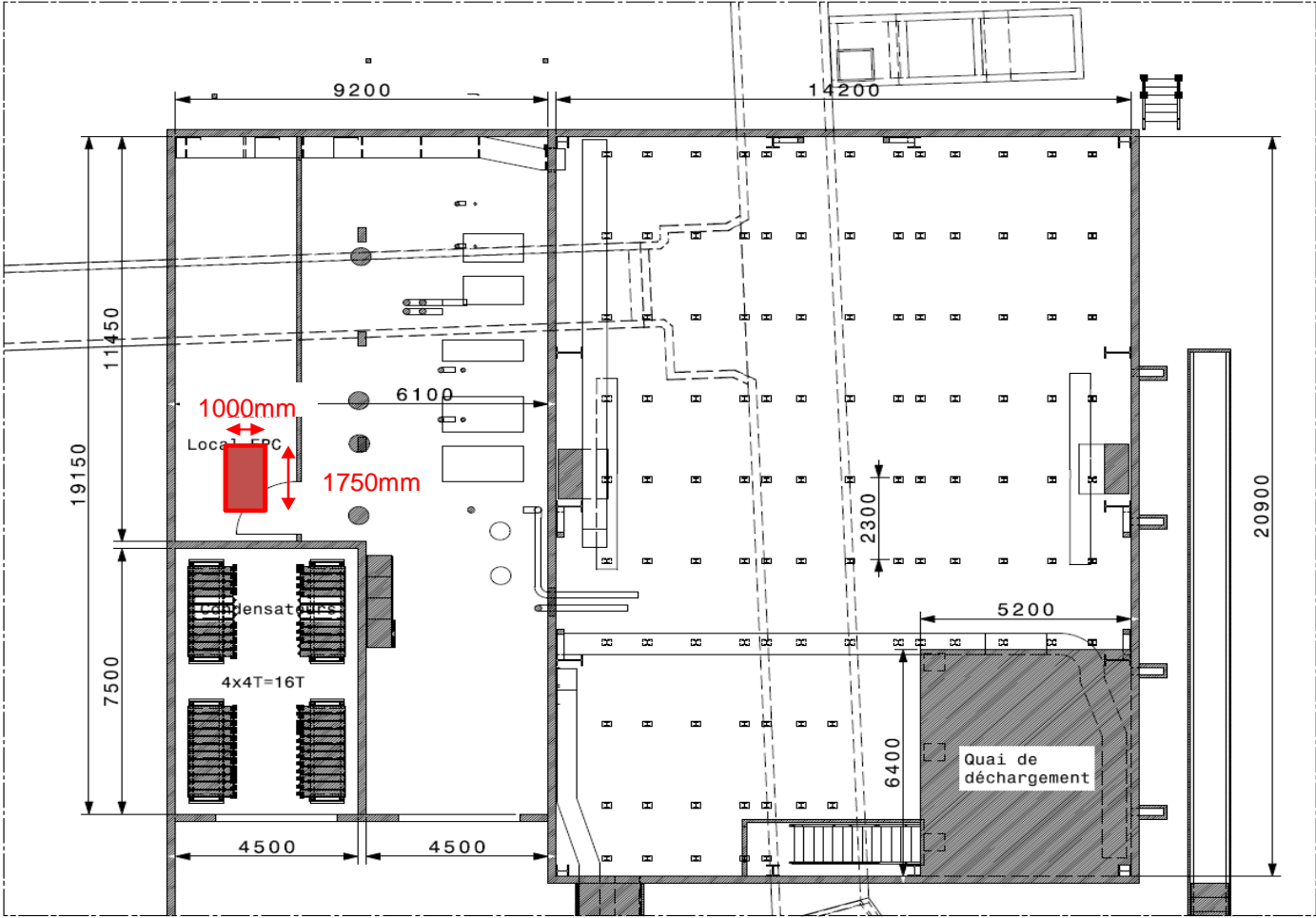
The present ref magnet kept in operation associated with the present MPS only.

Ref magnet characteristics



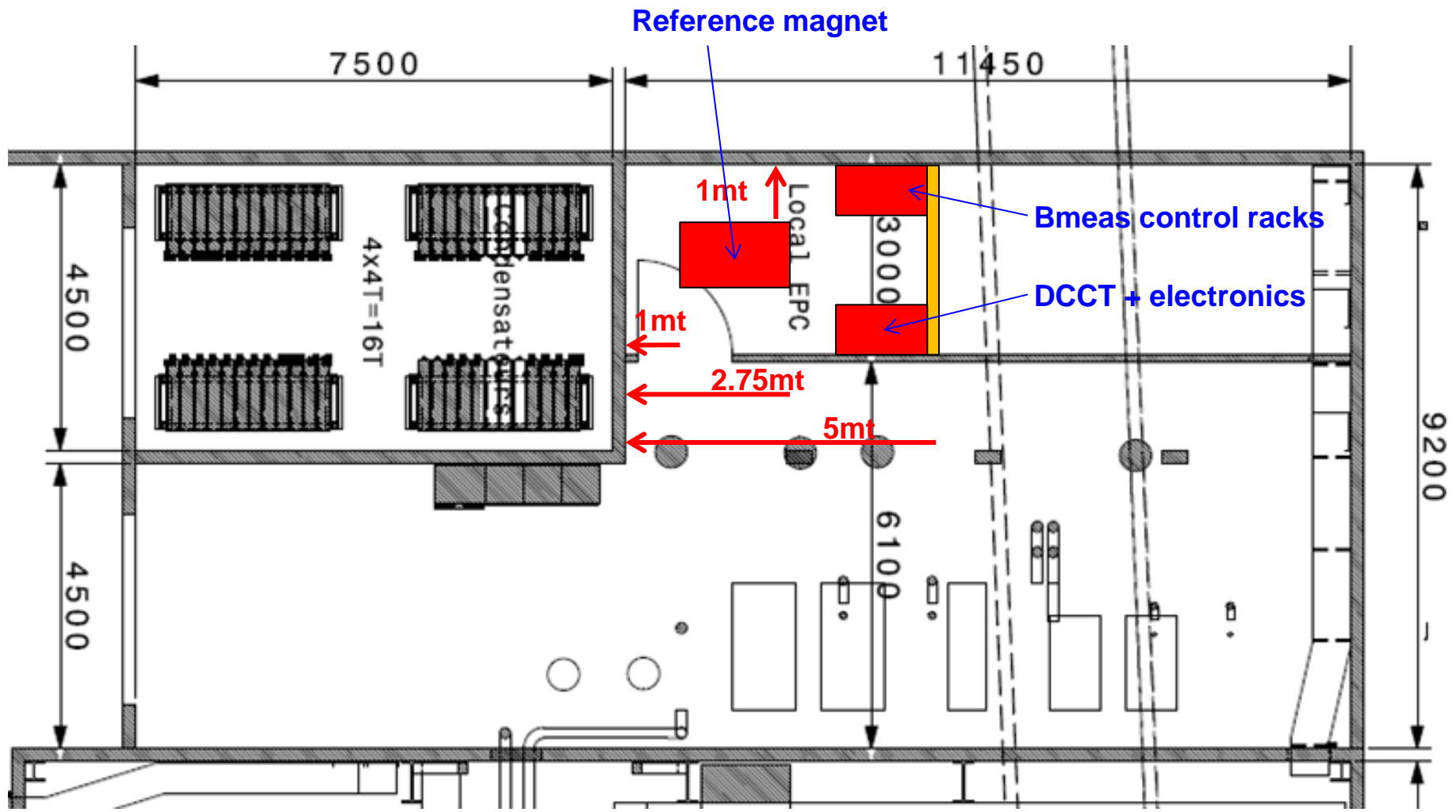
- Max RMS current: 2560 A
- Resistance: 0.01 Ohm
- Power: 65.5 kW
- Pressure Drop : 12 bars
- Flow rate : ~ 30 l/min
- Temperature rise: ~ 31 Deg C
-
- Weight: 12700 kG
- **Total Length 1750 mm**
- **Total Width 980 mm**
- **Total Height 1700 mm**
-
- The magnet must be supported ~ 300 to 500 mm off the ground to allow for the connection of the cables and water.

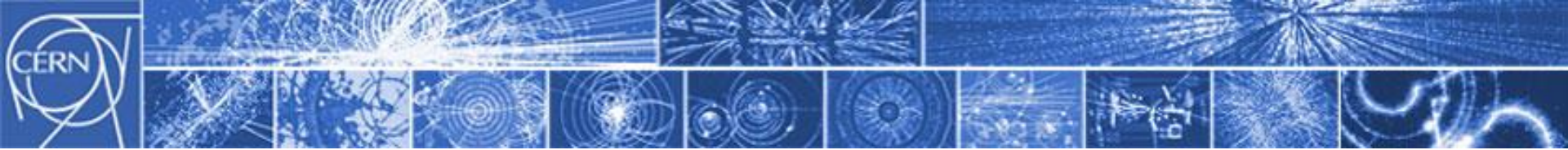
Ref Magnet placement in b245



A-A
1:100

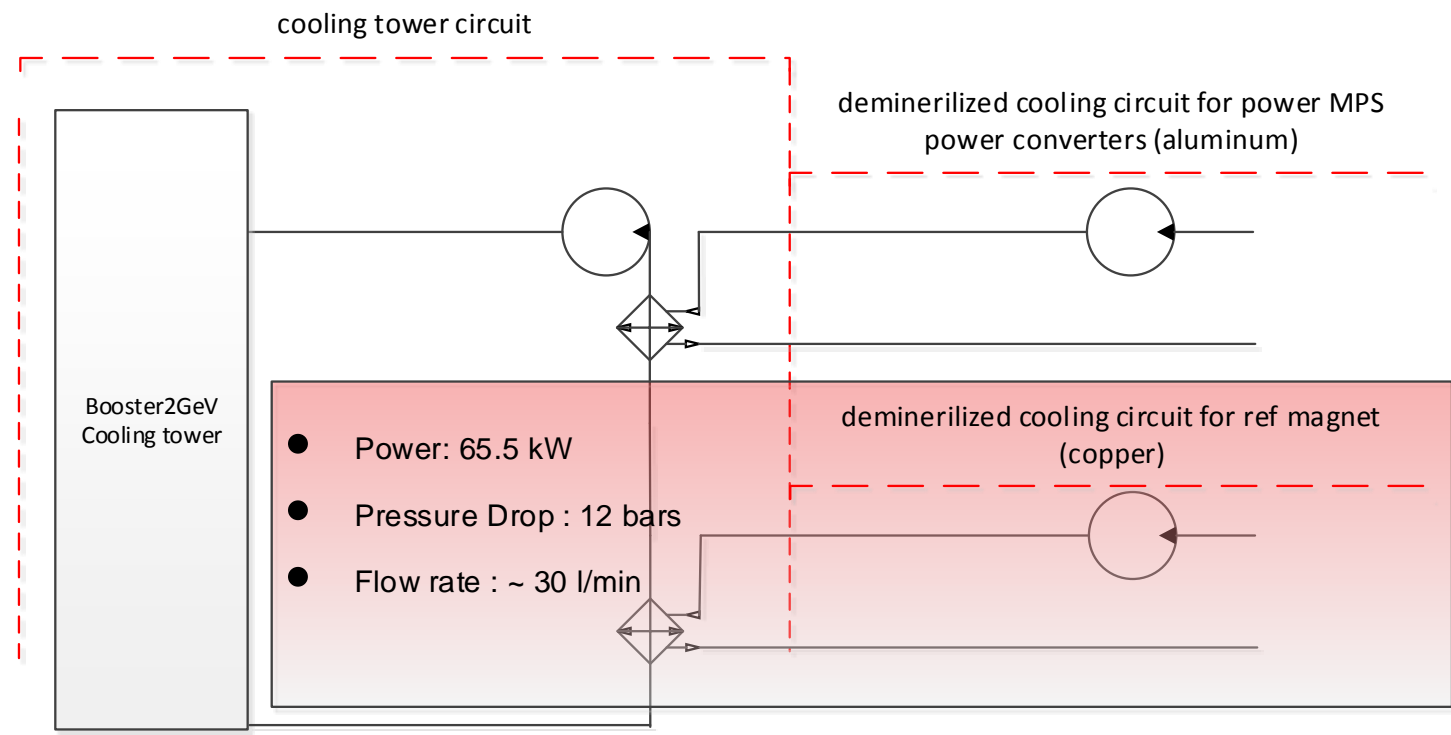
Ref Magnet placement in b245





Required modifications

One additional cooling circuit (copper) dedicated to the ref magnet with performance specified below.

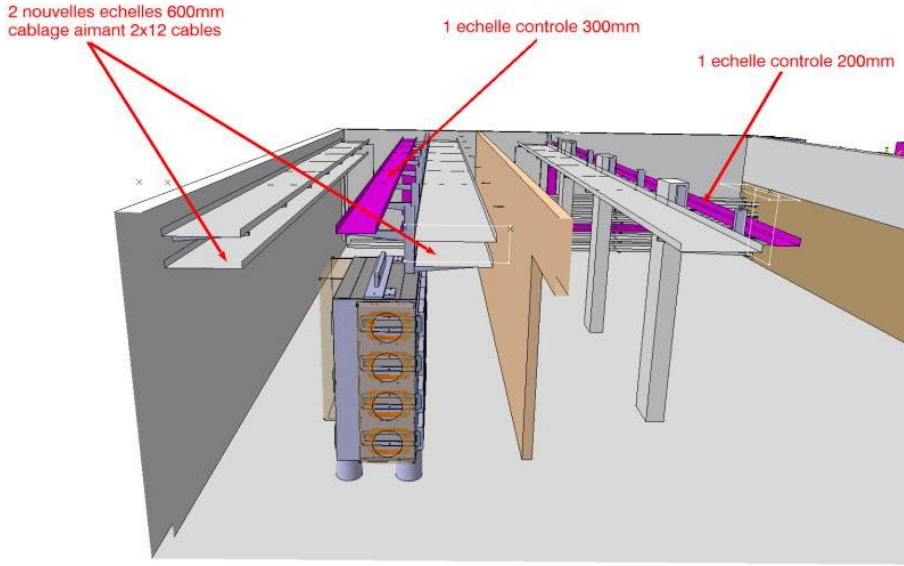
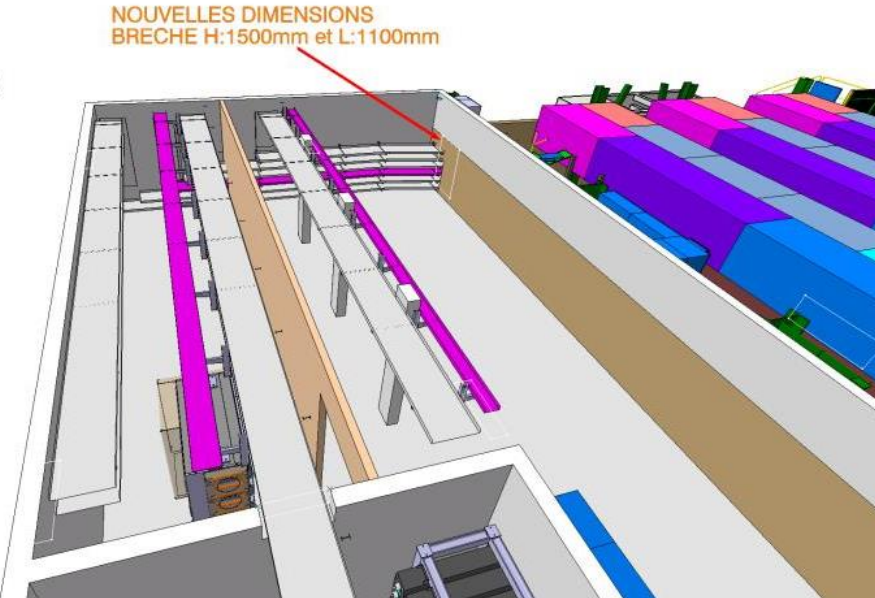


Estimated additional cost: 80kCHF

EN-EL

Additional cable ladders for power connection of the ref magnet with MPS
Additional 230V feeders for control racks in the ref magnet fenced area

5

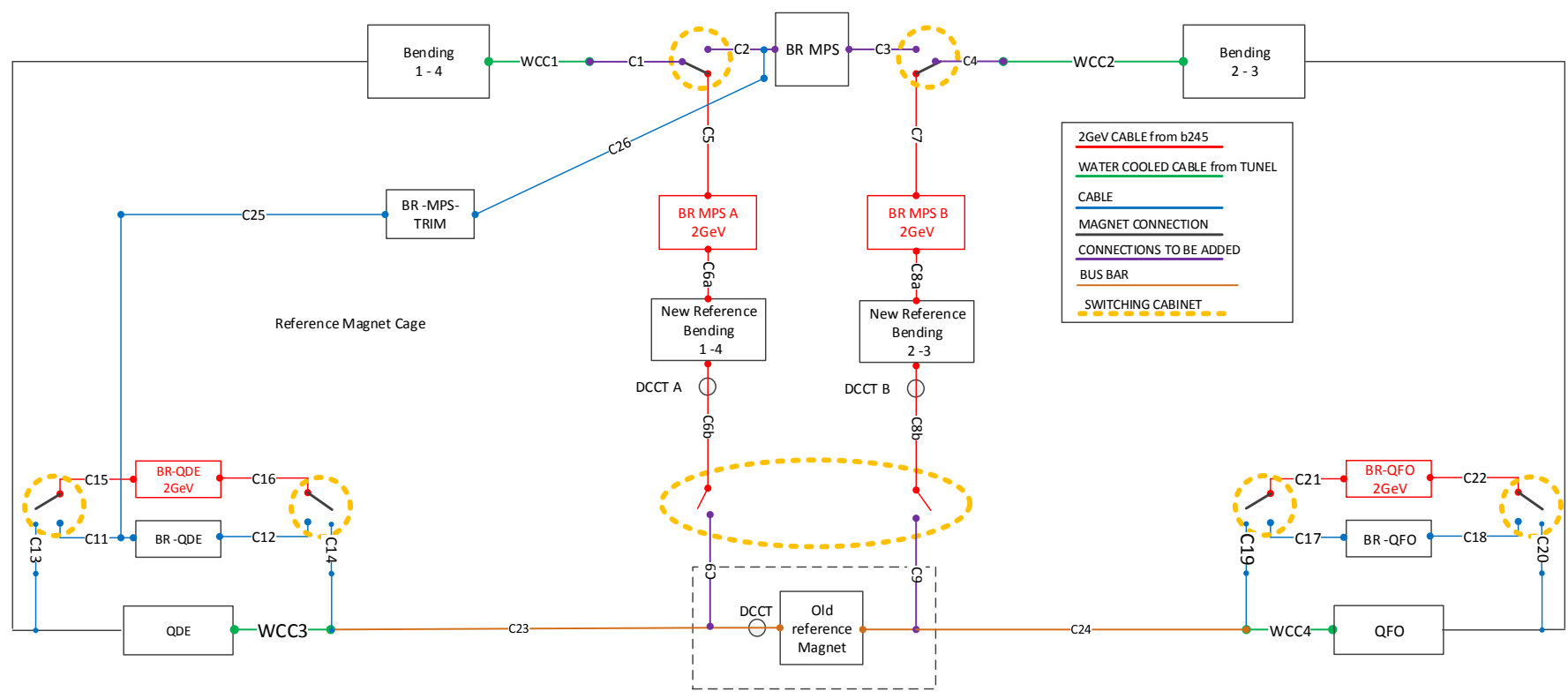


Estimated additional cost: 30kCHF

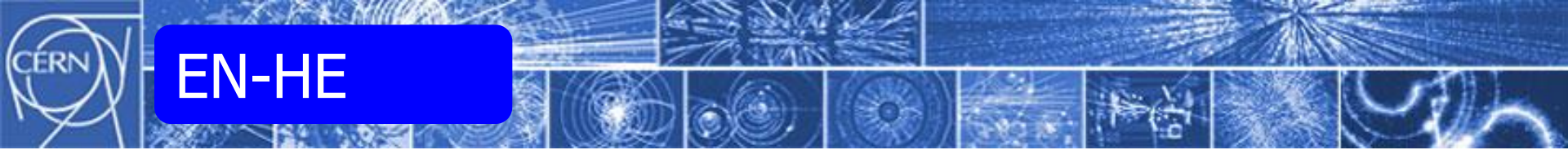


TE-EPC

Additional dc power cable length required for about 300mt

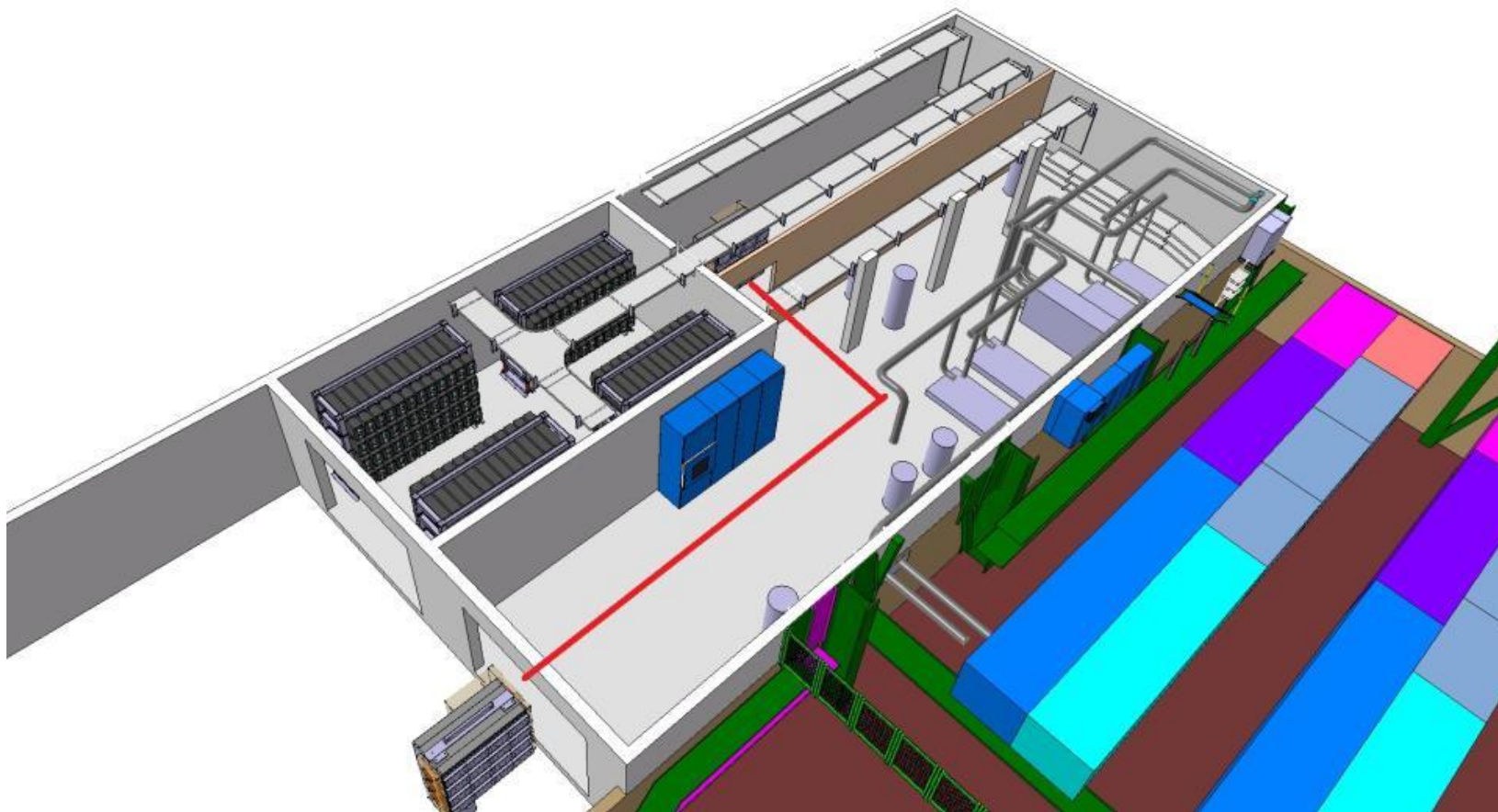


Estimated additional cost: 30kCHF

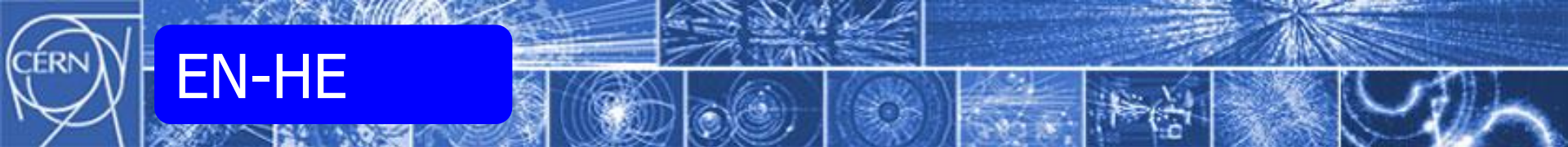


EN-HE

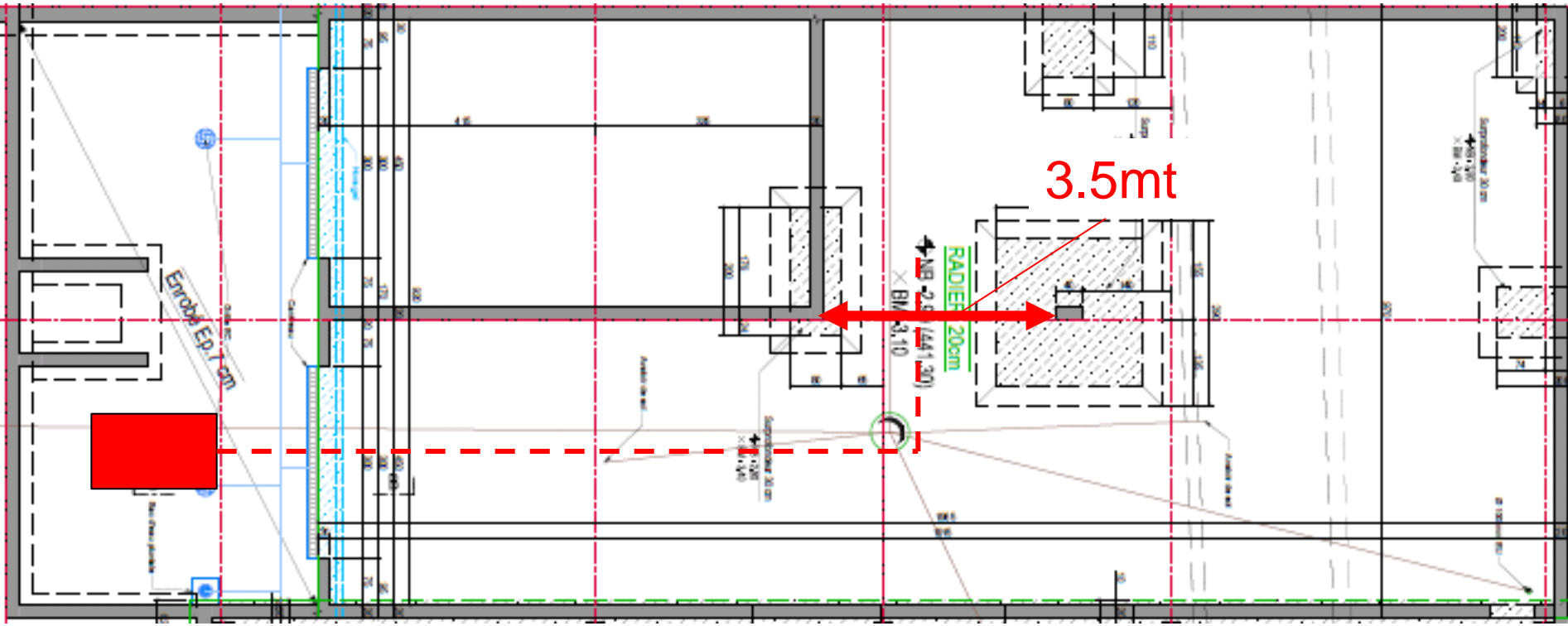
Positioning of the ref magnet on the external concrete slab and transport inside the building along the red path



Estimated additional cost (for tooling): 30 kCHF



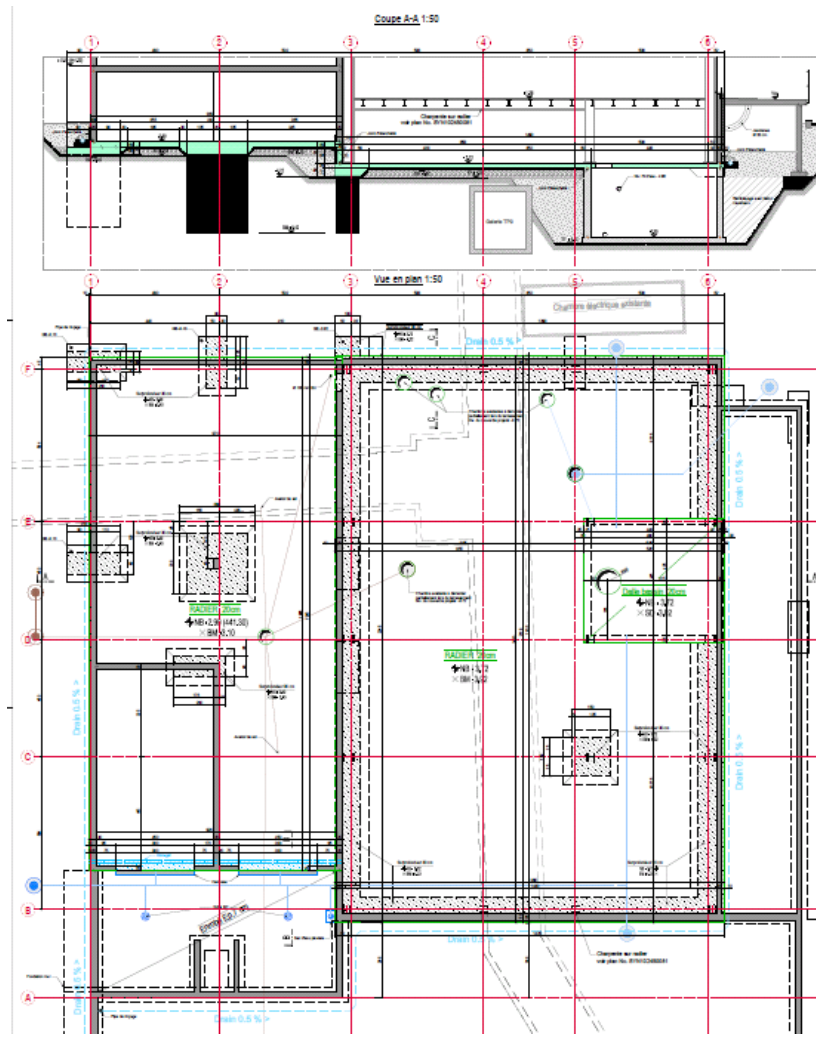
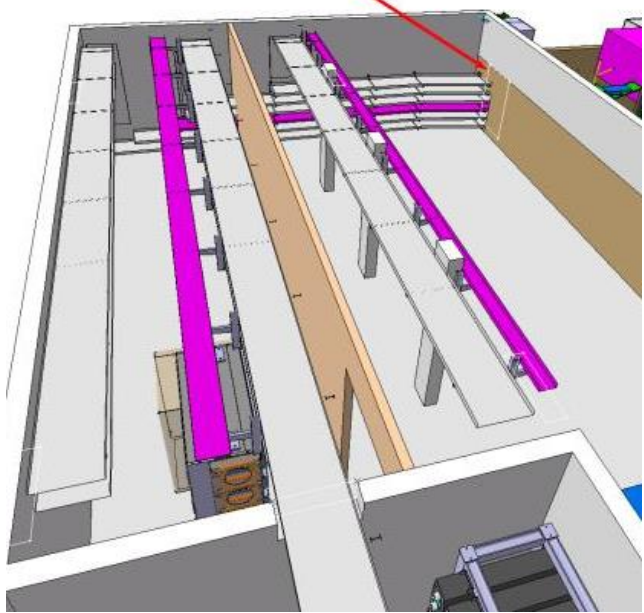
EN-HE



GS-SE

- New loads to be considered on the concrete floor (13 tons on 1.75 x 0.98 m plus transport load) → ok, if outside of technical gallery TP9
- Must increase the dimensions of the “breche” for cable ladders → ok

NOUVELLES DIMENSIONS
BRECHE H:1500mm et L:1100mm



Estimated additional cost: 5 kCHF and without additional delay if decided NOW



Conclusions

Estimated total additional cost : 175kCHF

Estimated delay for the completion of b245: no delay if declared NOW