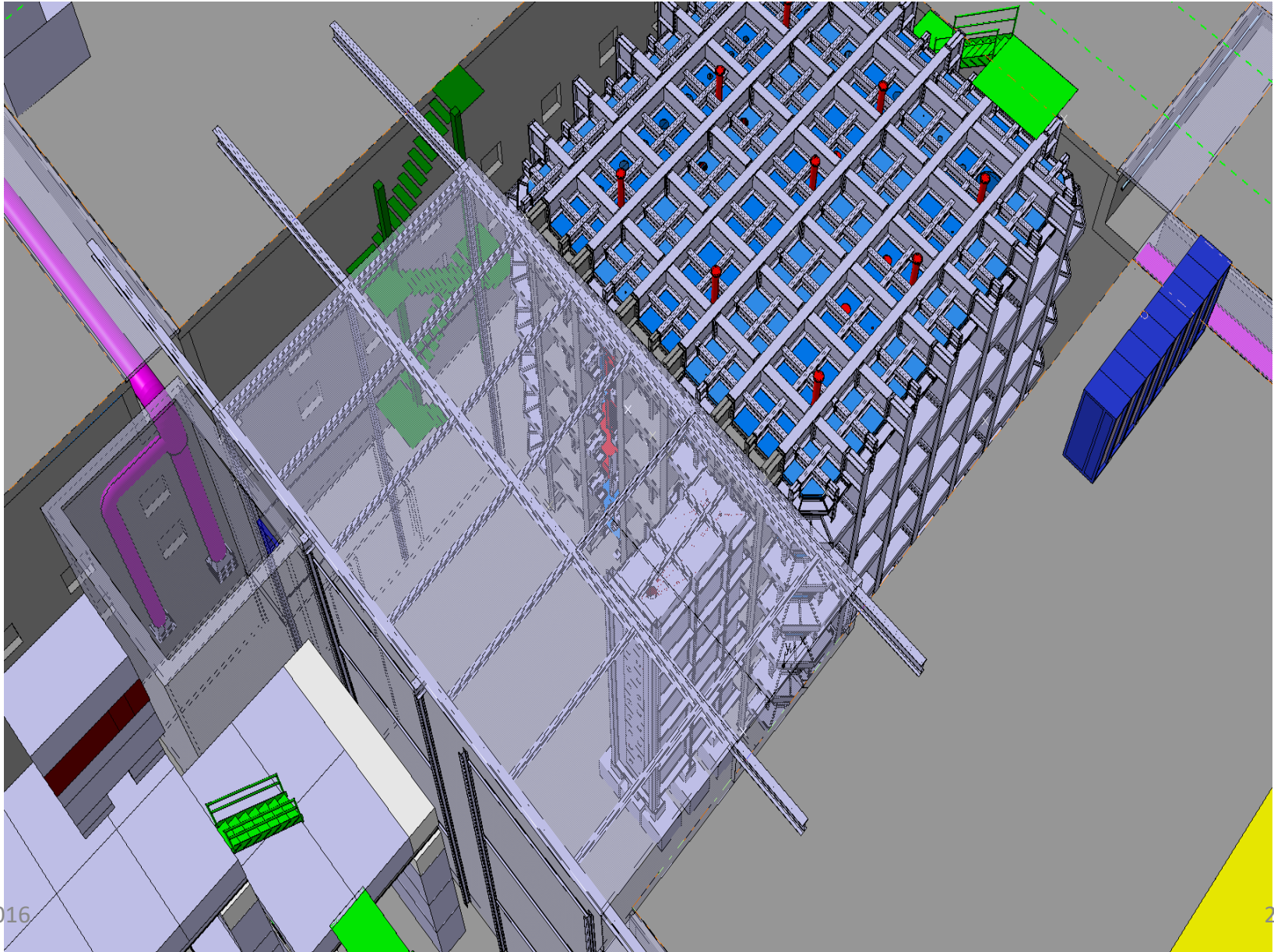


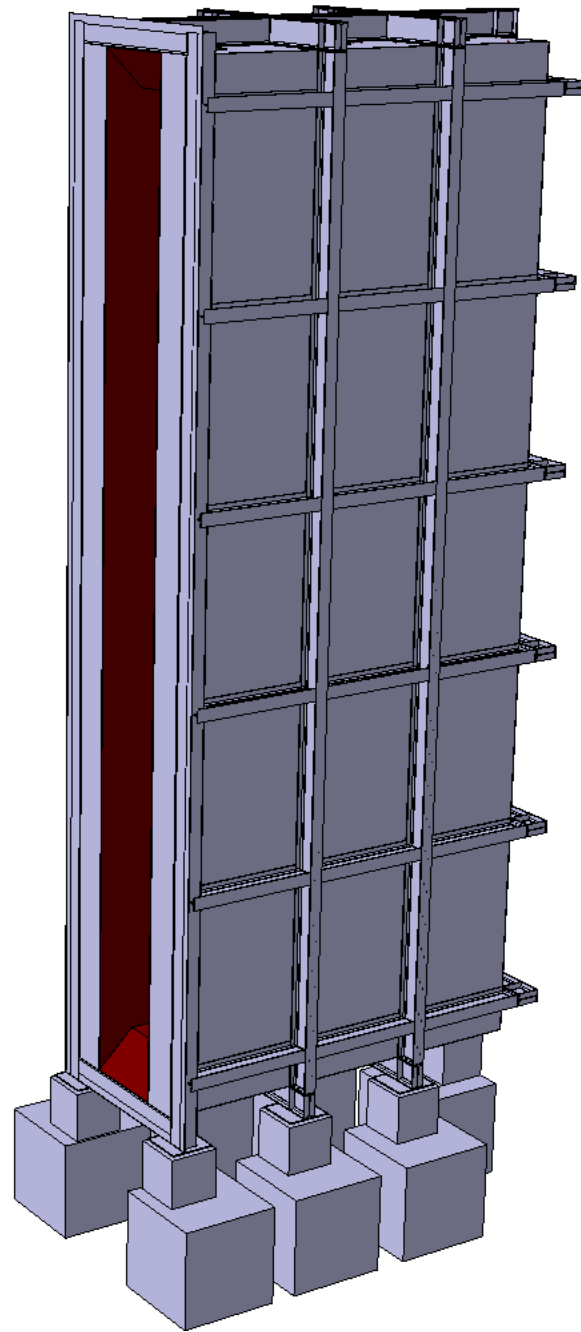
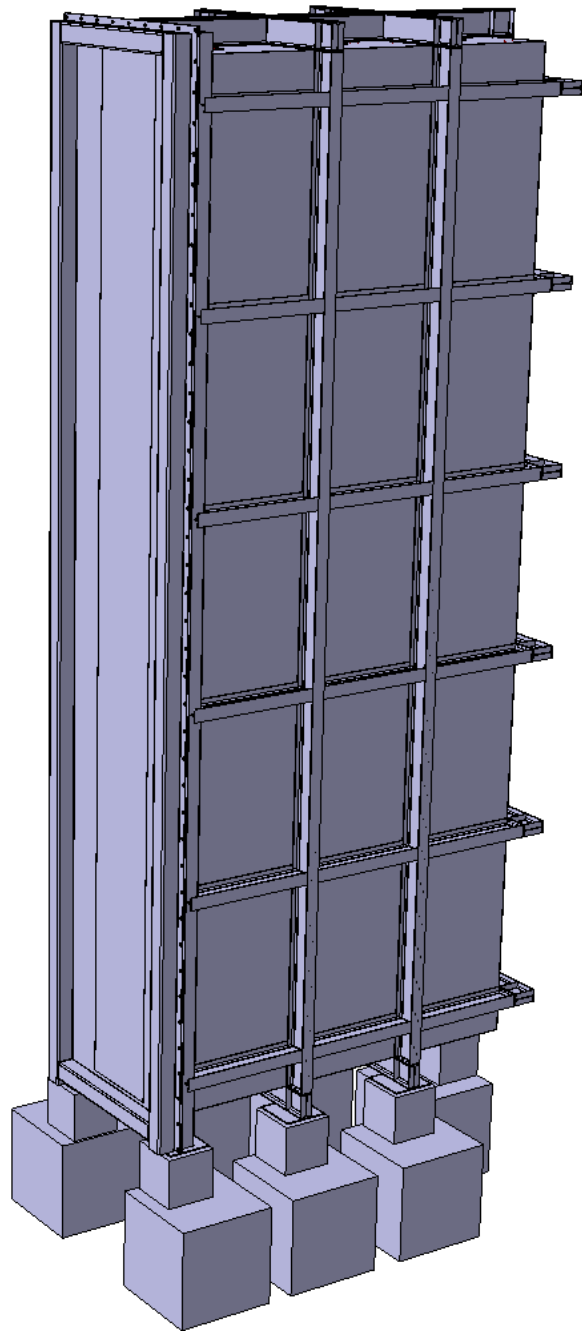
Cold Box for integrated APA tests

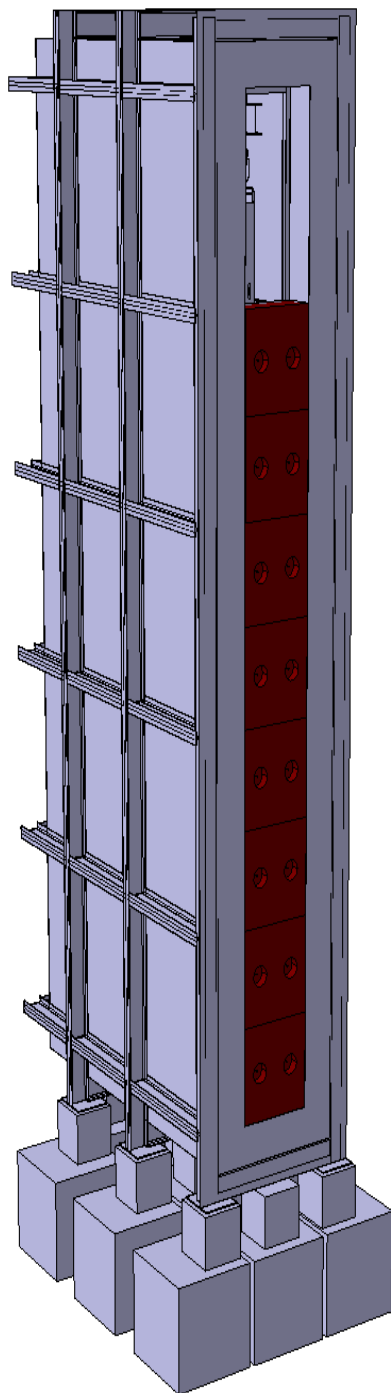
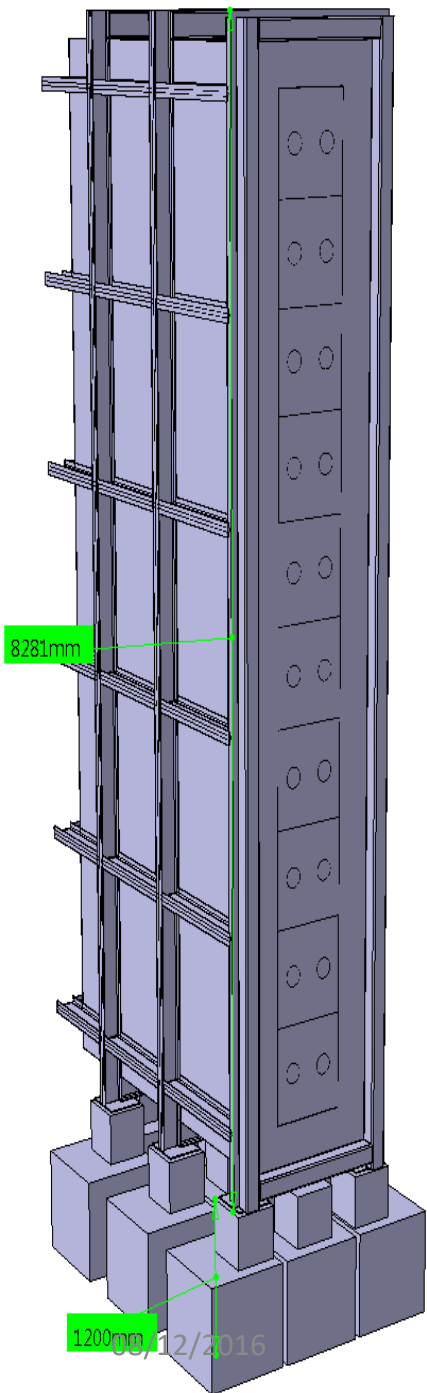
A. Zani (CERN)

08/12/2016

General Layout and Design



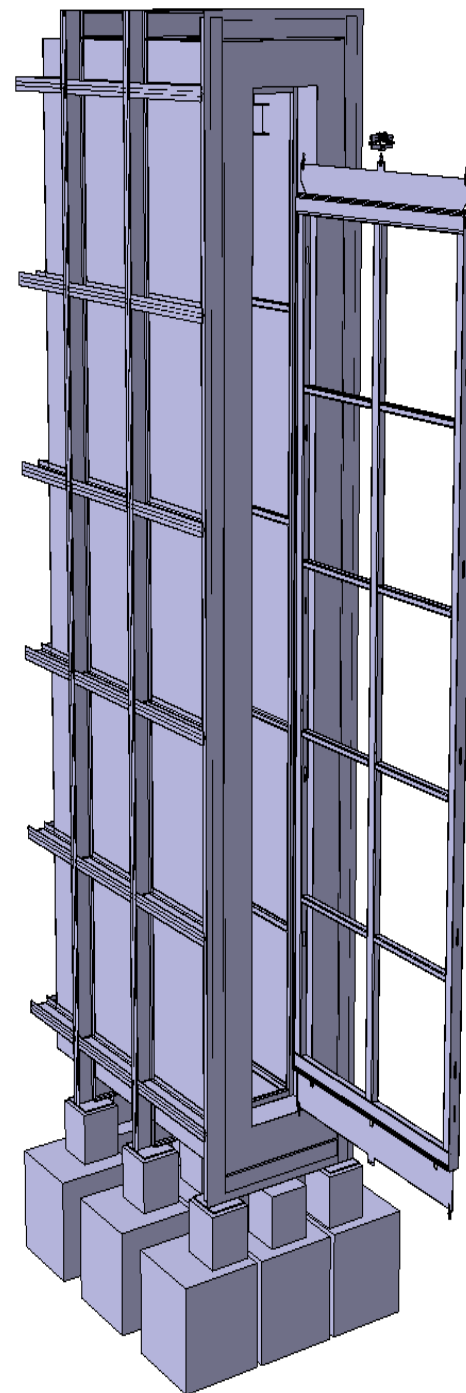




LATERAL INSULATION LAYER BEHIND THE DOOR IS VISIBLE ON THE RIGHT PICTURES.

AN I-BEAM IS FORESEEN INSIDE TO HANG APA, IDENTICAL TO BEAMS INSIDE CRYOSTAT.

APA WILL ARRIVE ON ITS OWN PIECE OF I-BEAM AND SLIDE INSIDE.



Summary of ports

At the moment 5 ports are foreseen on the box top:

- CF250: will hold the T-penetration housing WIB for cold electronics, wire bias and Photon Detectors feedthrough. One such structure (spare) should be available for the test.
- 2 x CF63: gas input and output. A gas analyser should be put on the output line to check that the inner volume is correctly conditioned before injecting cold gas (O₂ and H₂O removed). Last time gas analyzer were mentioned for the main detector: should be use the same model?
- CF63: 4-way for services.
 - One optical fiber for PD flashing;
 - SUB-D feedthrough to read multiple temp. sensors (PT100 ?): 8 to 12 according to the disposition along the box height. Can still be discussed.
 - Safety release valve.
- CF63: spare (camera?)
- One more can be added.

If the number of ports is agreed, space must be reserved for the single SSP crate needed to read the PD's in the APA under test.

Present status

The tender for the procurement of the external structure is being written in these days.

- The box will be built in a separate building, then brought inside the clean room

Insulation will be a different solution from the cryostat, to try and save resources.

Inner layer. Still under discussion whether to use the membrane or a non-metallic cover (plastic-like). Anyways it must ensure the cover of the insulation and stand shrinking. The pressure inside will be slightly higher the atmospheric one, no significant stress foreseen on the walls.

Another issue to be solved, related in general to APA handling in clean room, is how to treat CE cable (20 x 7m) after they are installed.

Is there anything to be added?