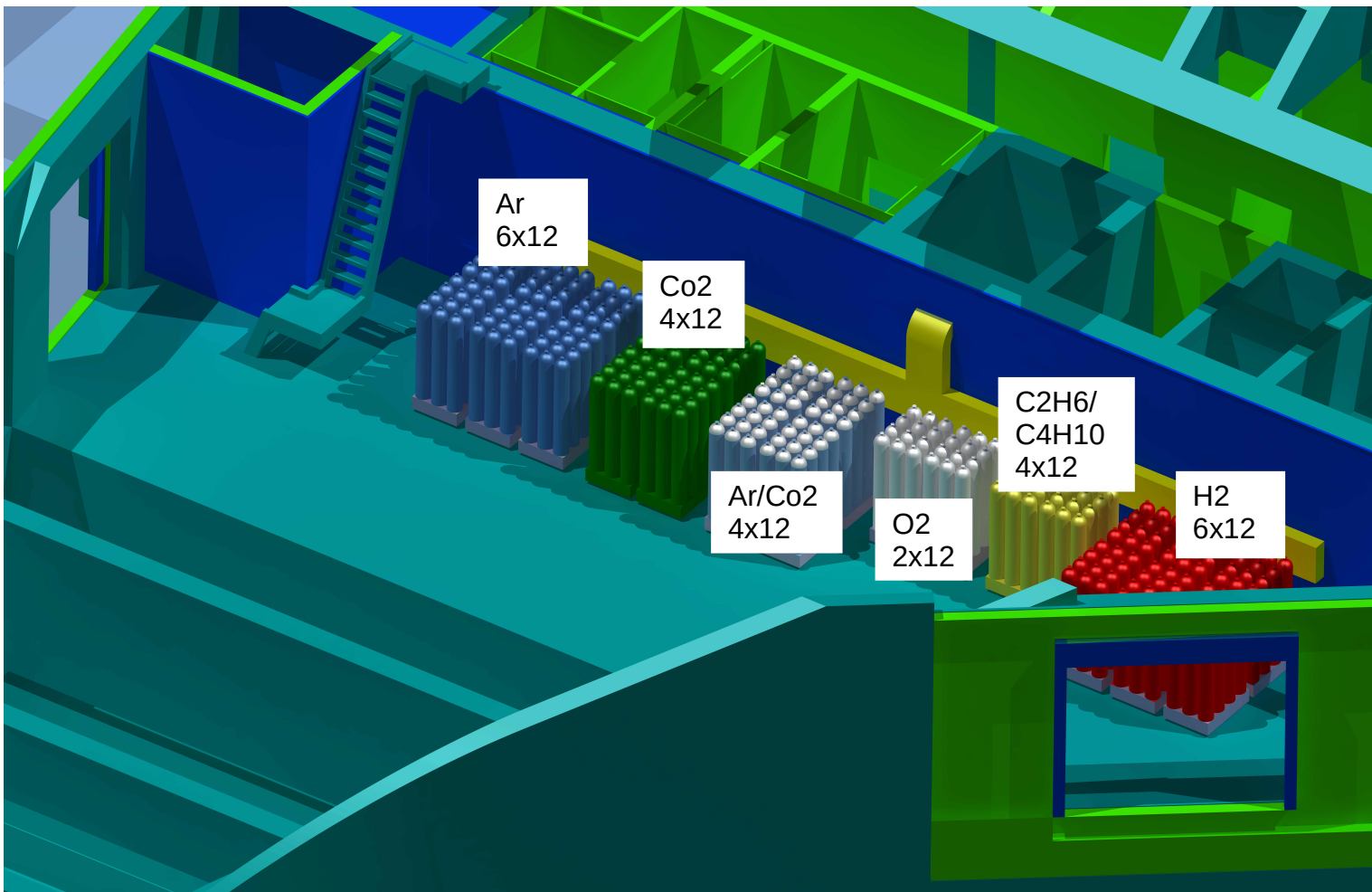


Design of main gas routing and outline of fixed cable tray

Topics

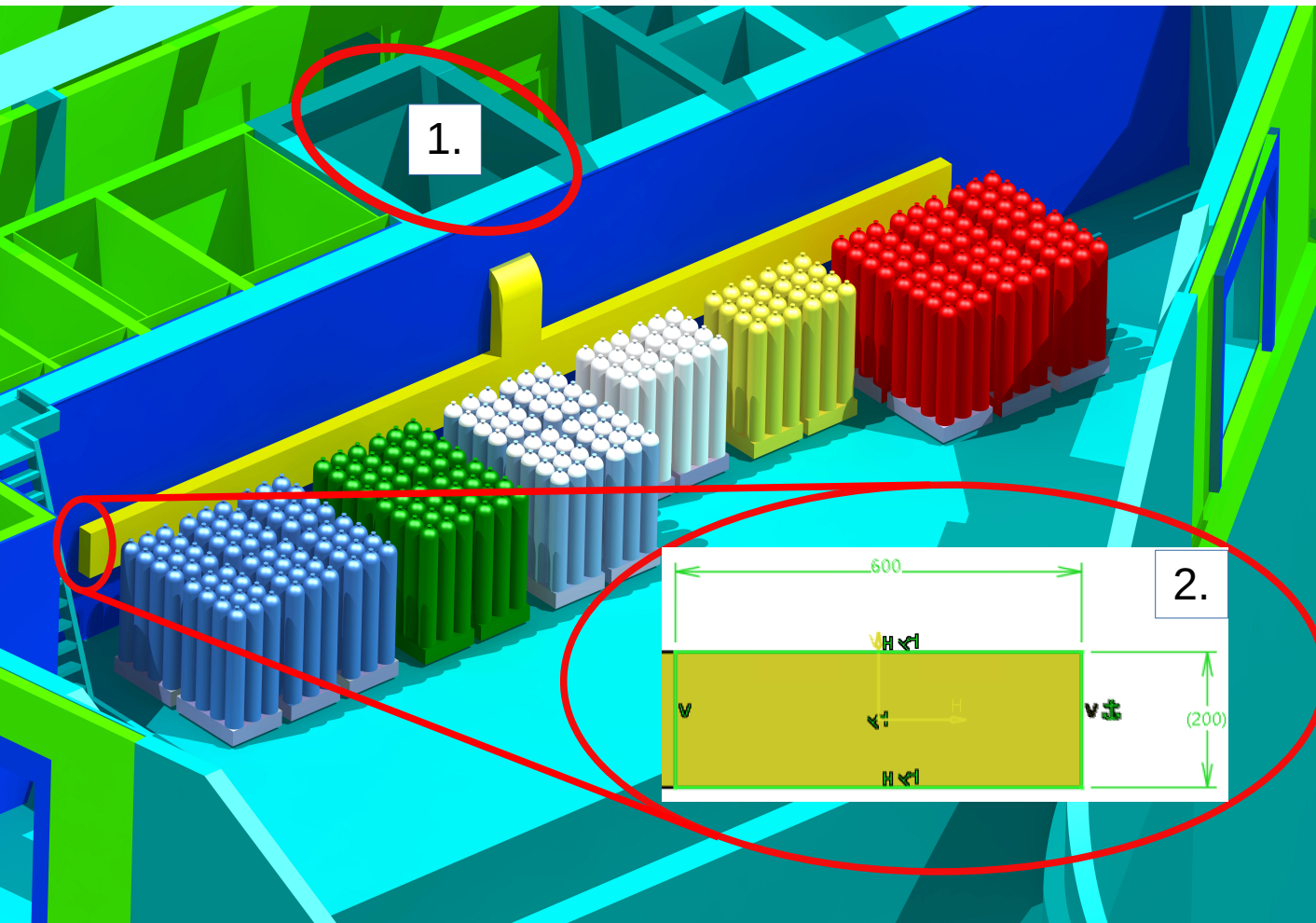
- Layout of Experiment gases in Storage area E40.130
/main gas duct in Supply area E10.103
- Layout of fixed cable ducts for Forward Muon
Filter and Forward Trackers in PANDA Hall

E40.130 Experiment gases - outline of starter set for PANDA -



Gas System Arrangement corresponding to logical gas piping scheme → Technical Report

E40.130 Setup of main gas duct

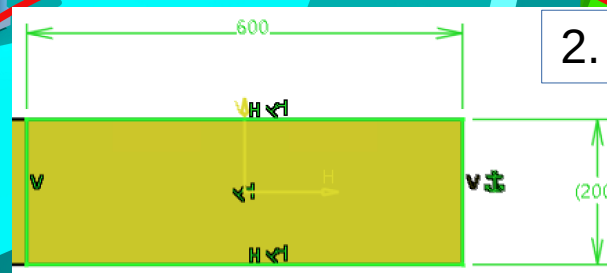


1. Shaft feeding the main gas dummy
Dimension
2.10 m x 2.50 m

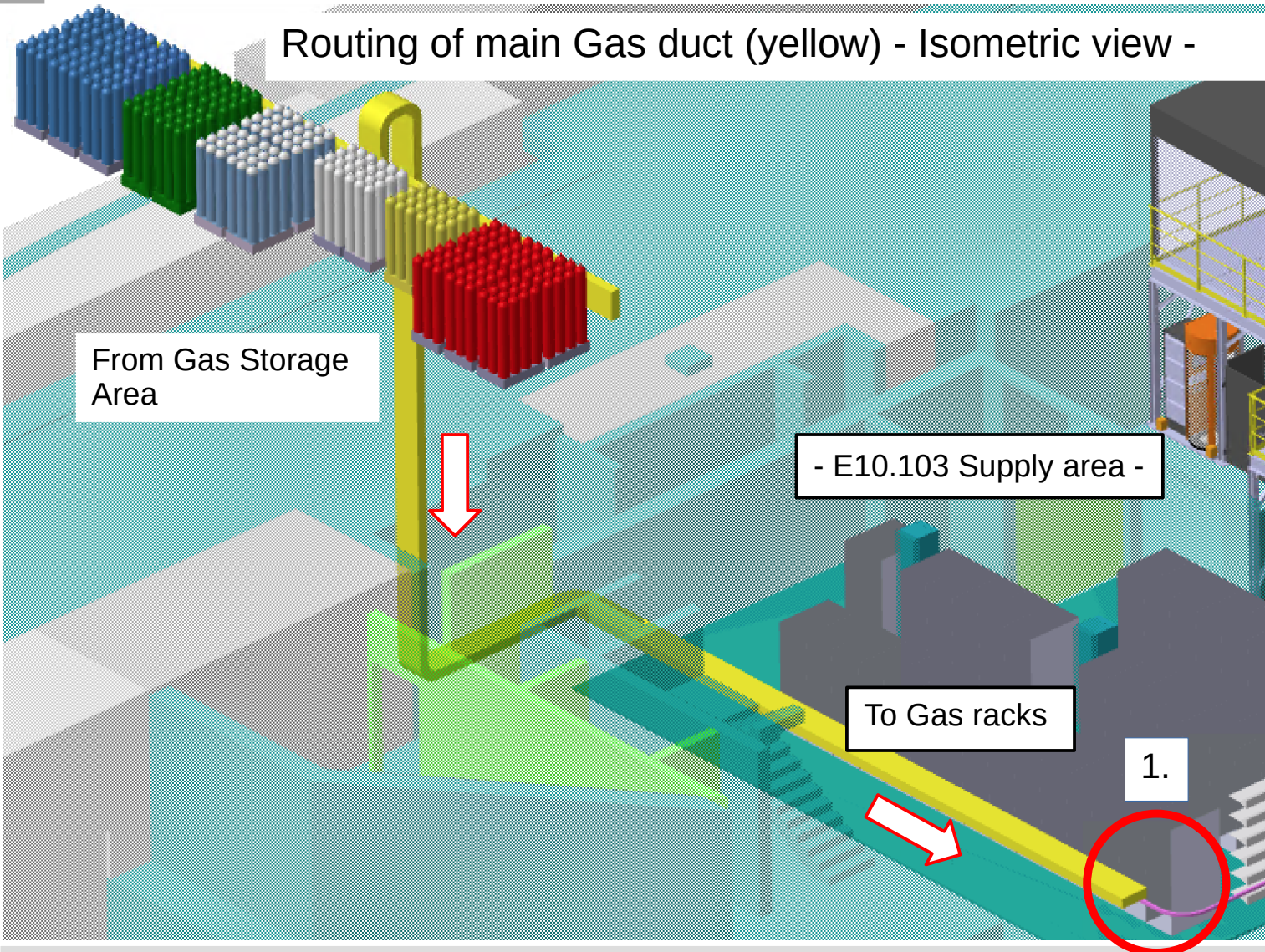
(Nr. 10.184)

Embracing all gas utilities,
sensor & signal cabling

2. Dummy cross
section 1200cm²
mm



Routing of main Gas duct (yellow) - Isometric view -



1. Placement of entering main gas line between wall and gas racks

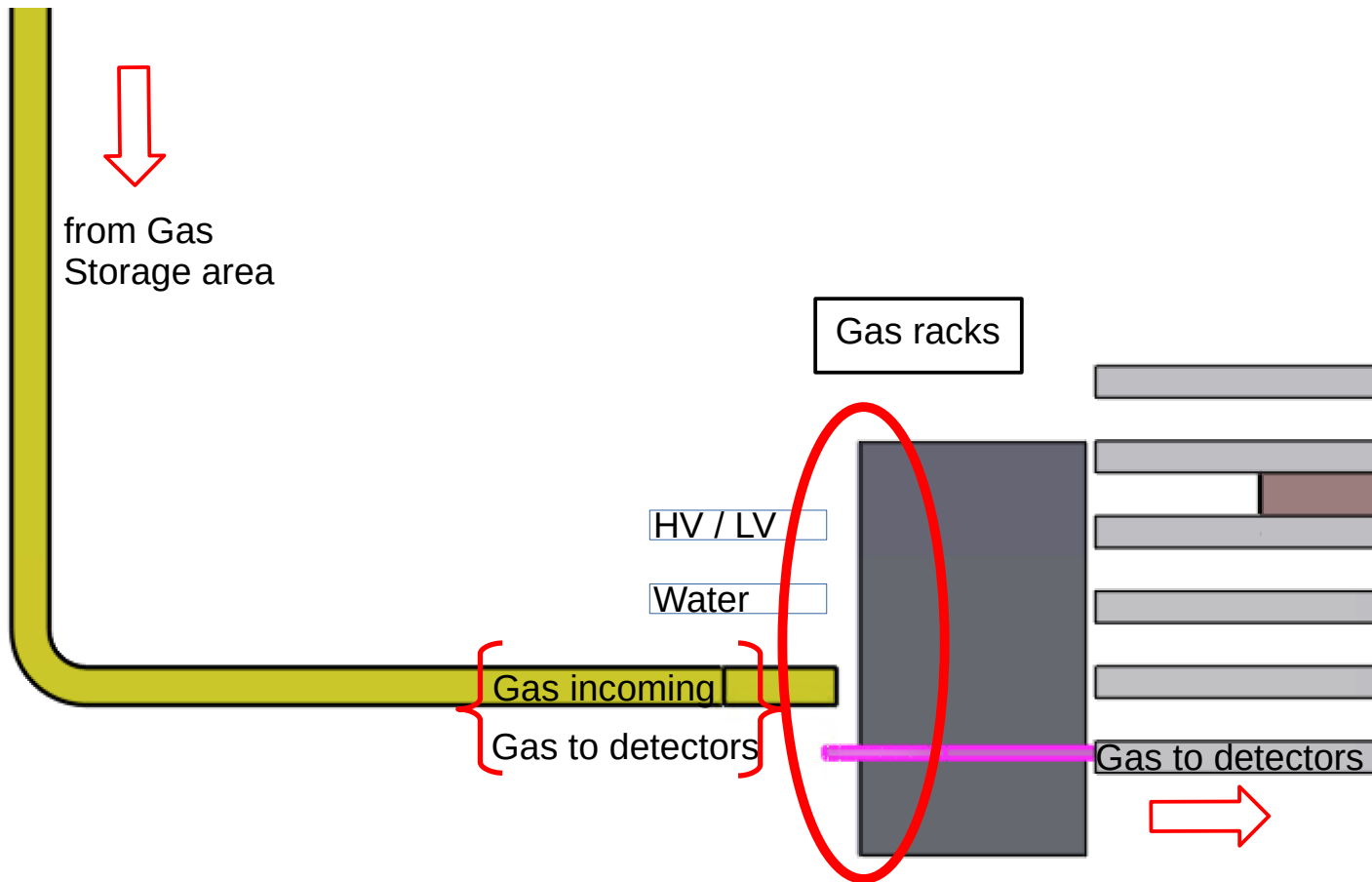
Routing of main Gas duct to gas racks - view from east -

Incoming Gas lines placed in lower half of gas racks

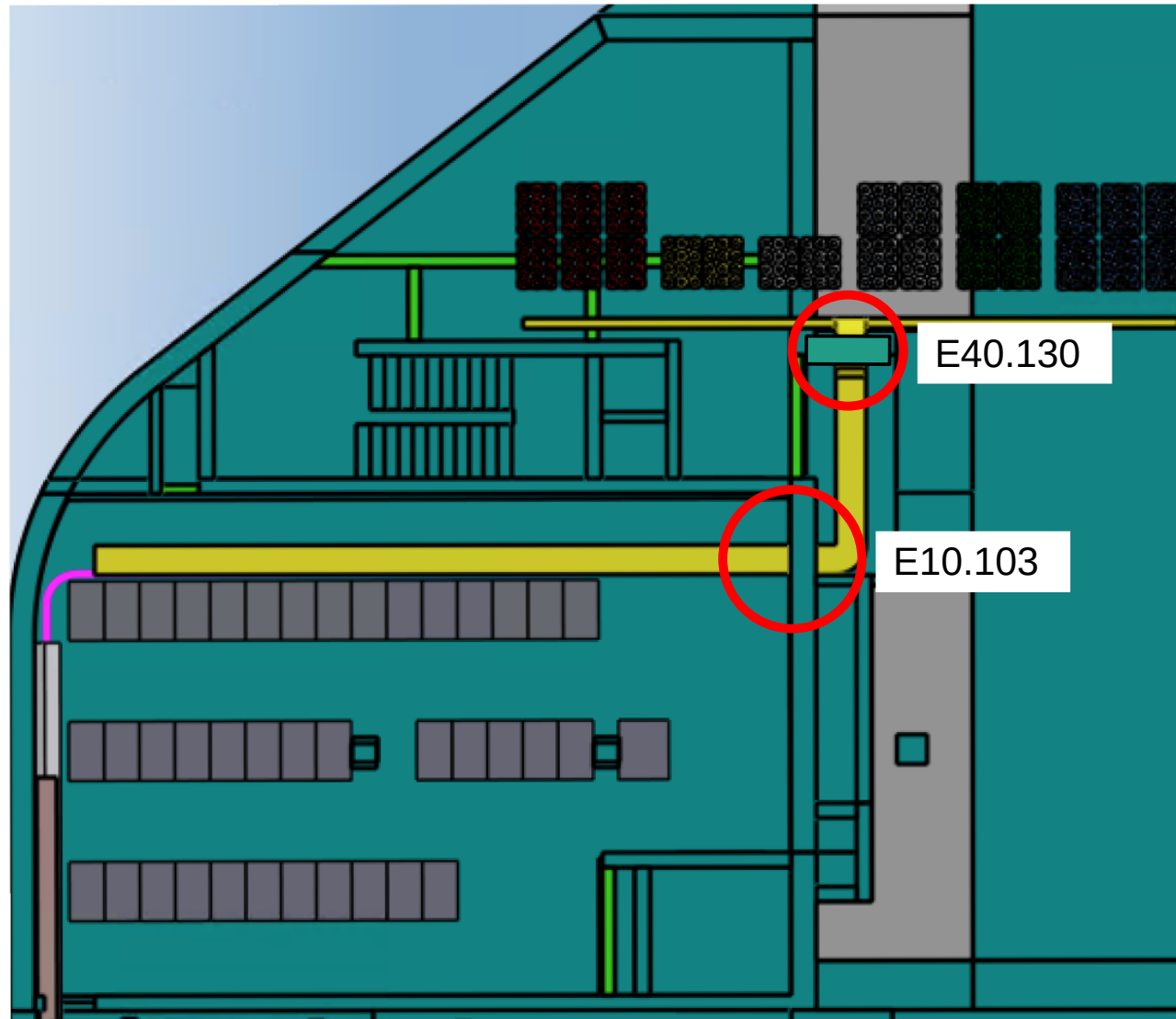
High voltage above cooling water cables so to avoid risks of fire

Placement of both gas ducts on one set of girders is of advantage

Do boundary conditions allow this ?



In - and outbound gas lines stackable by one set of structural elements → costs savings ?

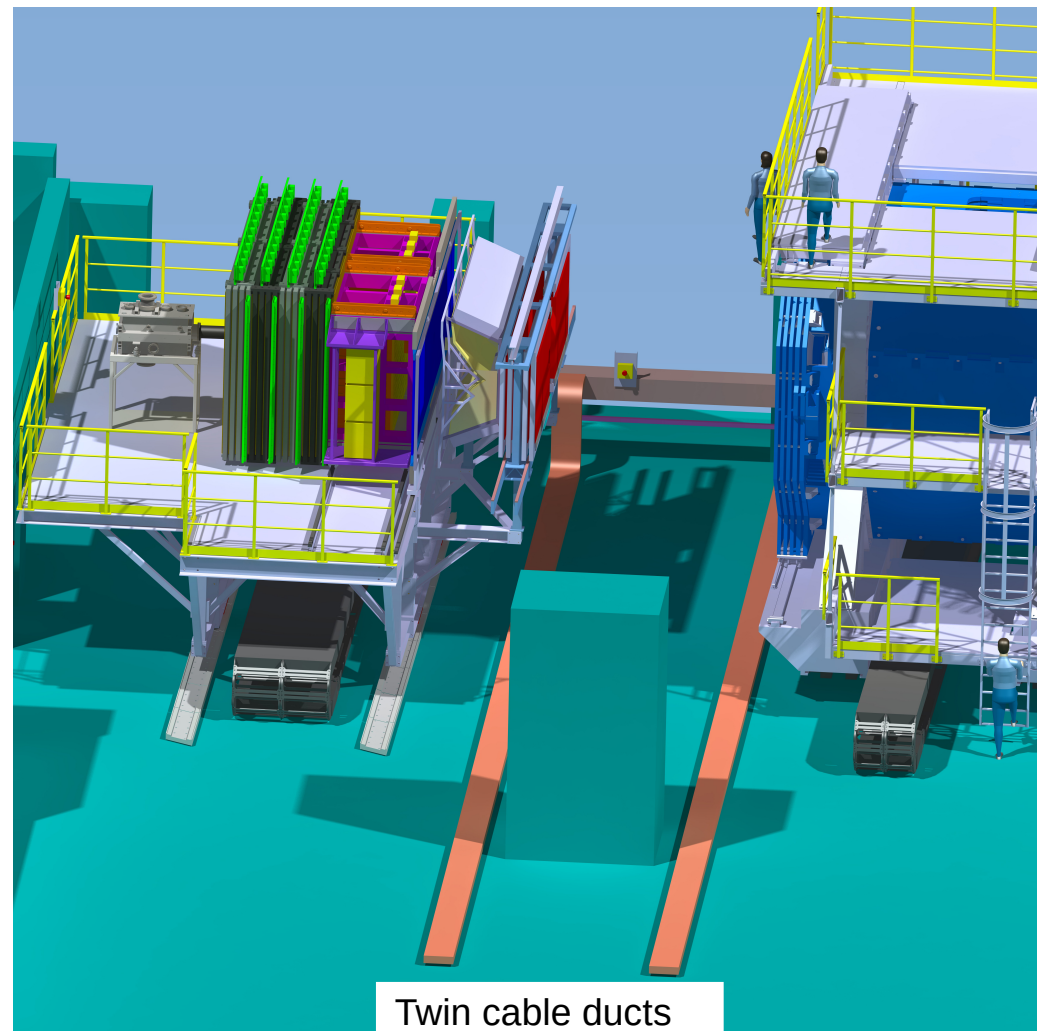


gas line trunk will penetrate concrete walls

Preparation of wall feedthroughs needs attention.

Transferral of CATIA / .step Dummies to FAIR Side building department required

Placement and Layout of fixed cable trays



Supplies for FW MUON-Filter and 6 Forward Tracker Stations inside DIPOL Magnet to be accounted for.

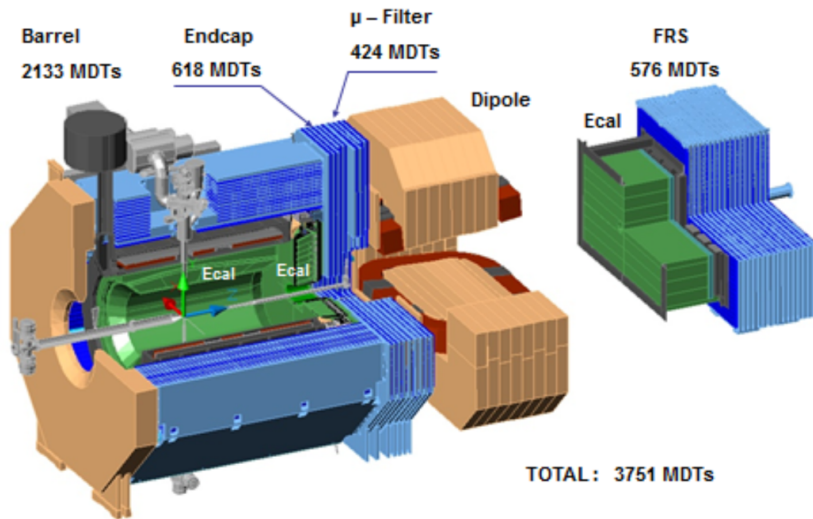
Plenty of MDT's to be fed with HV, LV and signal cabling.

Twin cable ducts proposed for Wire Signals cabling, high voltage and Low voltage cables

Assumed Cross section → 440 cm² each
Assumed length → 20 m.

Placement upstream and downstream of massive concrete pillar.

Some 800 cm² available for additional fixed cables and supplies.

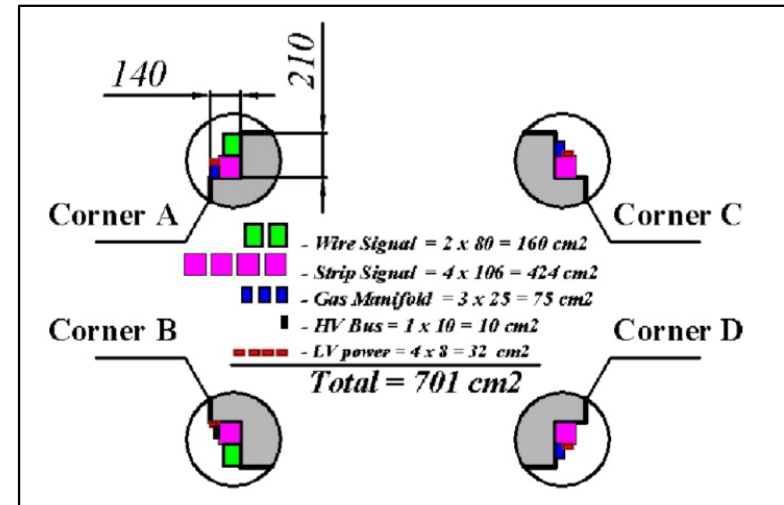


Source: Figure 3.8, The layout of MUON System using the Range System with the number of MDT detectors for each particular subsystem. PANDA MUON System TDR, 2012

.... Question:

Will 800 cm² roughly cover the cross section needs for additional cabling ?
 Do MDT's in Forward Range System exhibit same size as the Barrel Module ?

Barrel module alone consumes 700 cm²



Source: Figure 3.29, Cross sections for different cables and manifolds of the Barrel module, MUON System TDR, 2012

Outlook:

- Assessment regarding the type
And location of gas sensors
(esp. for Hydrogen) for PANDA
Hall needed
- Clarification needed whether
800cm² cross section for the
fixed cable trays will meet the
demands of fixed detectors.

Thank you for your attention