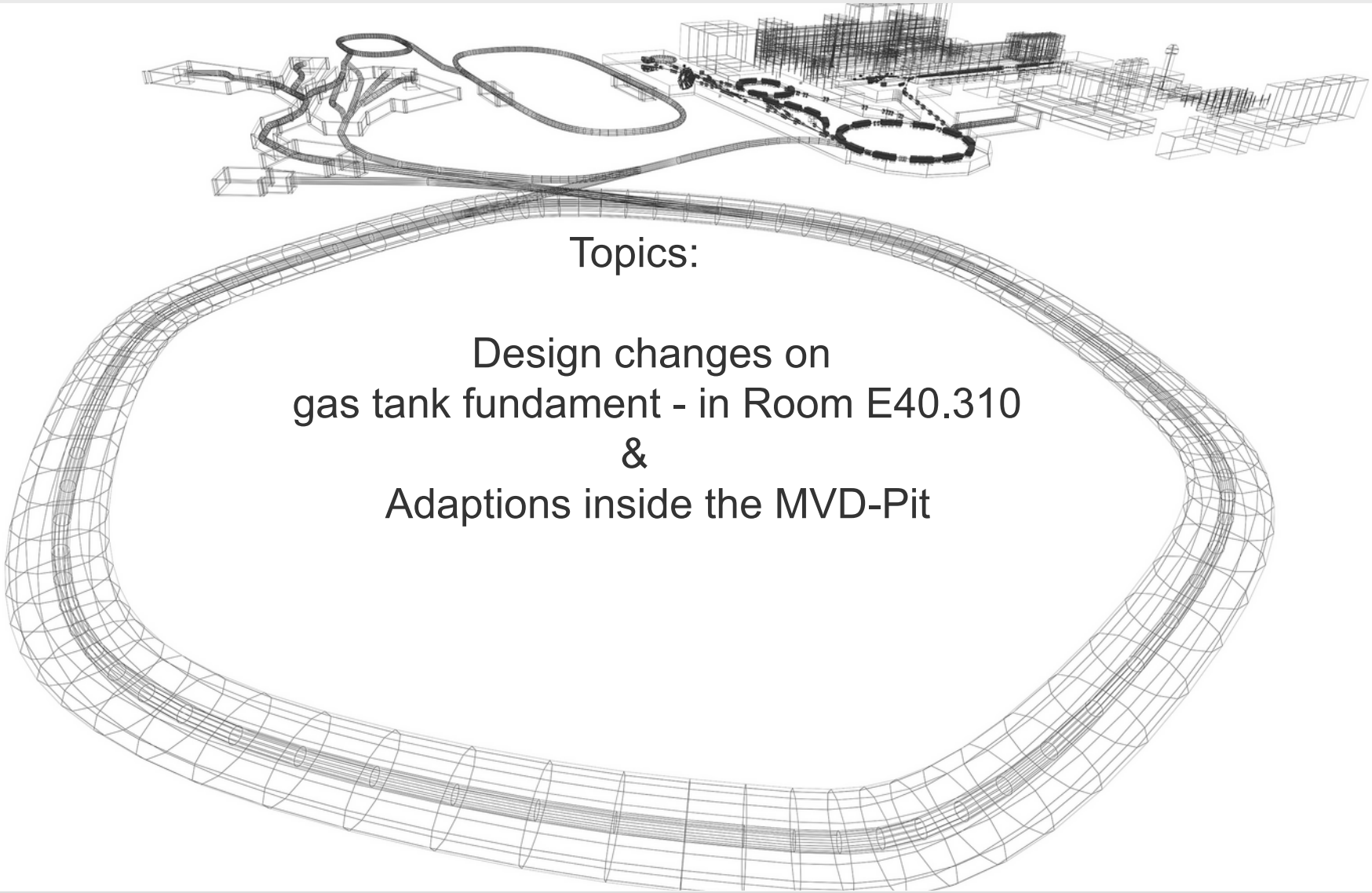
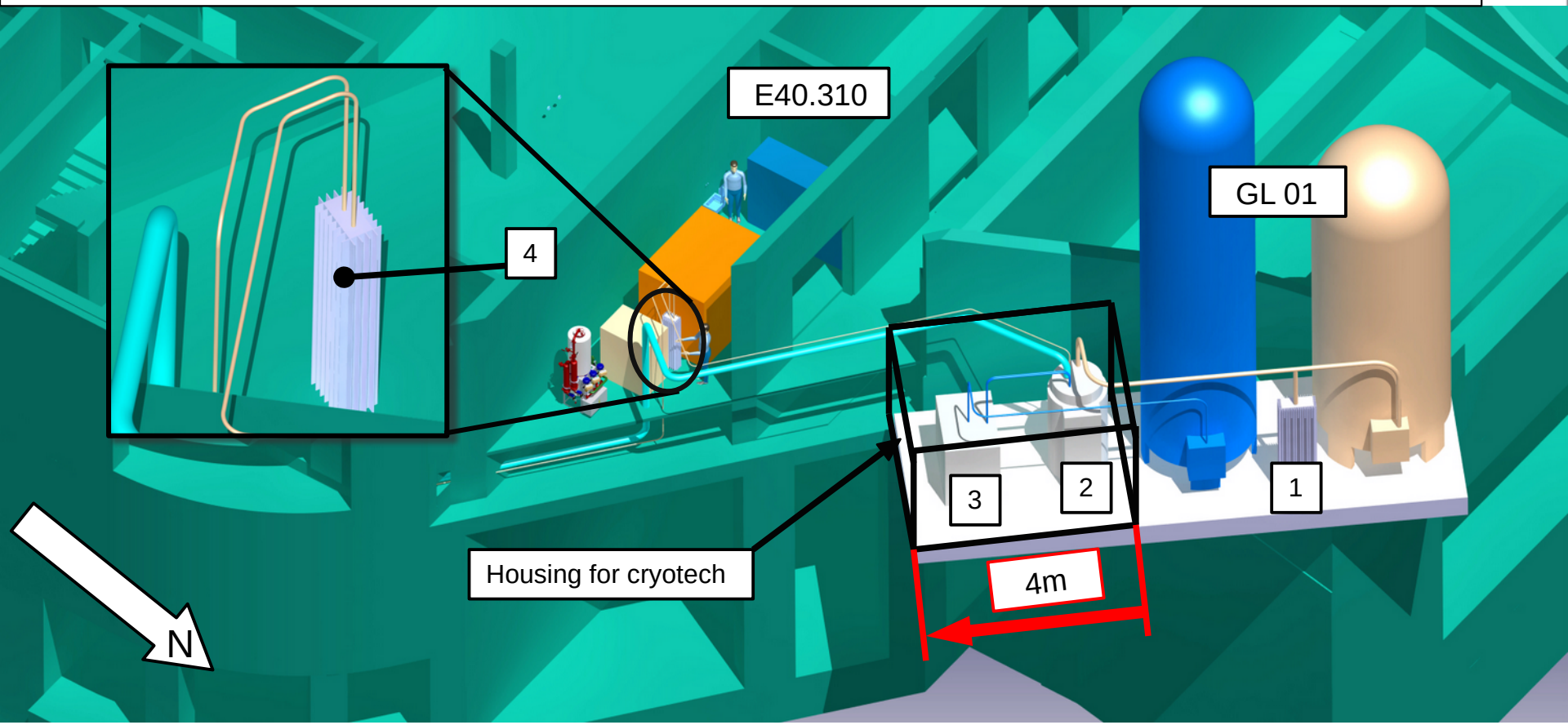


Topics:

Design changes on
gas tank fundament - in Room E40.310
&
Adaptions inside the MVD-Pit

2. Adapted Design of the cryogenic apparatus outside the hall (GL01)



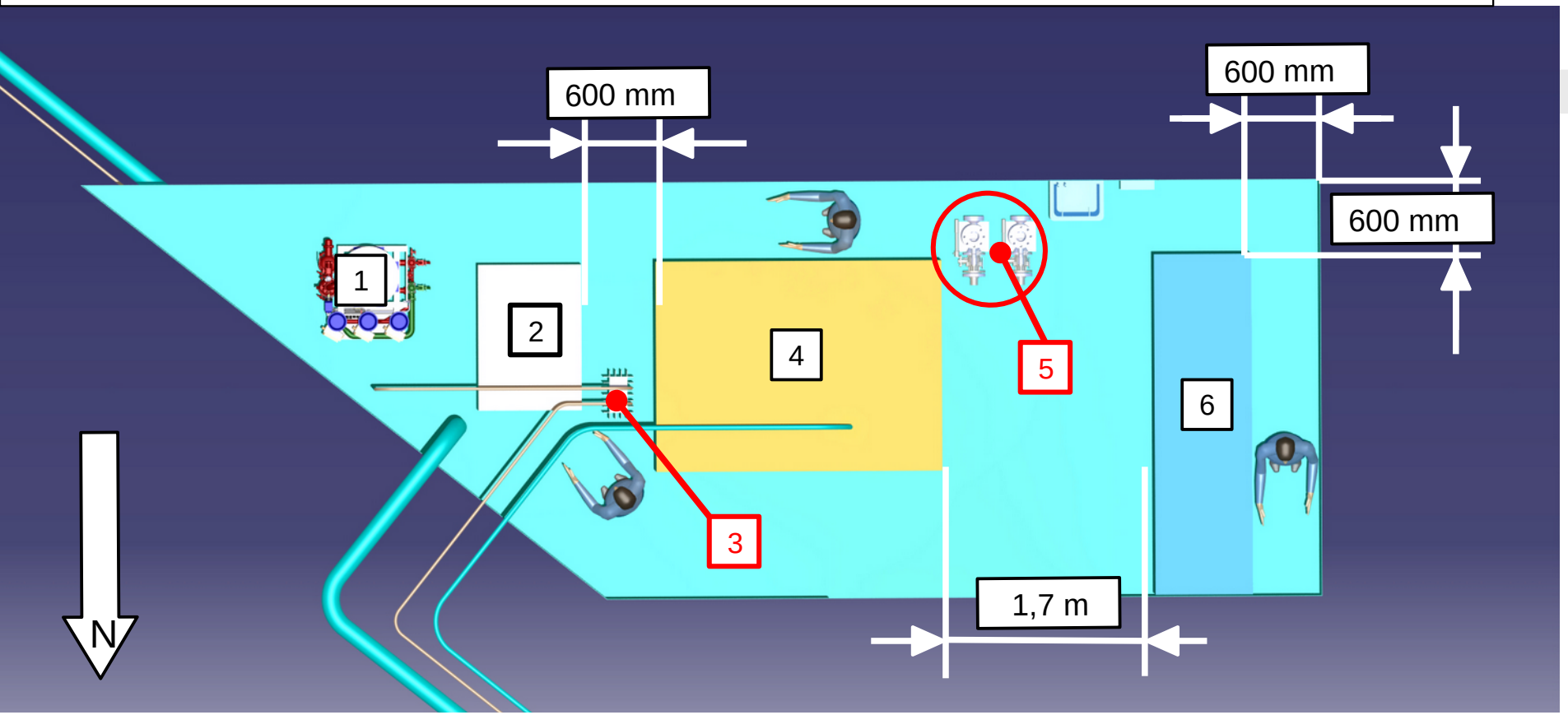
Adaptions on concrete fundament

1. Main evaporator
2. HE-Shield cooling with Cold Box
3. Small Compressor
4. Auxiliary evaporator

- All components moved to the north
- Extension of fundament by 4m towards south
- piping conduit running inside hall from north
- He-Shield cooling combined with 2 evaporators/heaters (Saves N2 consumption)
- Aux.evaporator (4) keeps N2 supply line to Valve terminal dry (no condensation)

Cryotechnical plant in outside region to be enclosed

3. Adapted Design of the cryogenic apparatus inside Room E40.310



Adaptions in Room E40.310

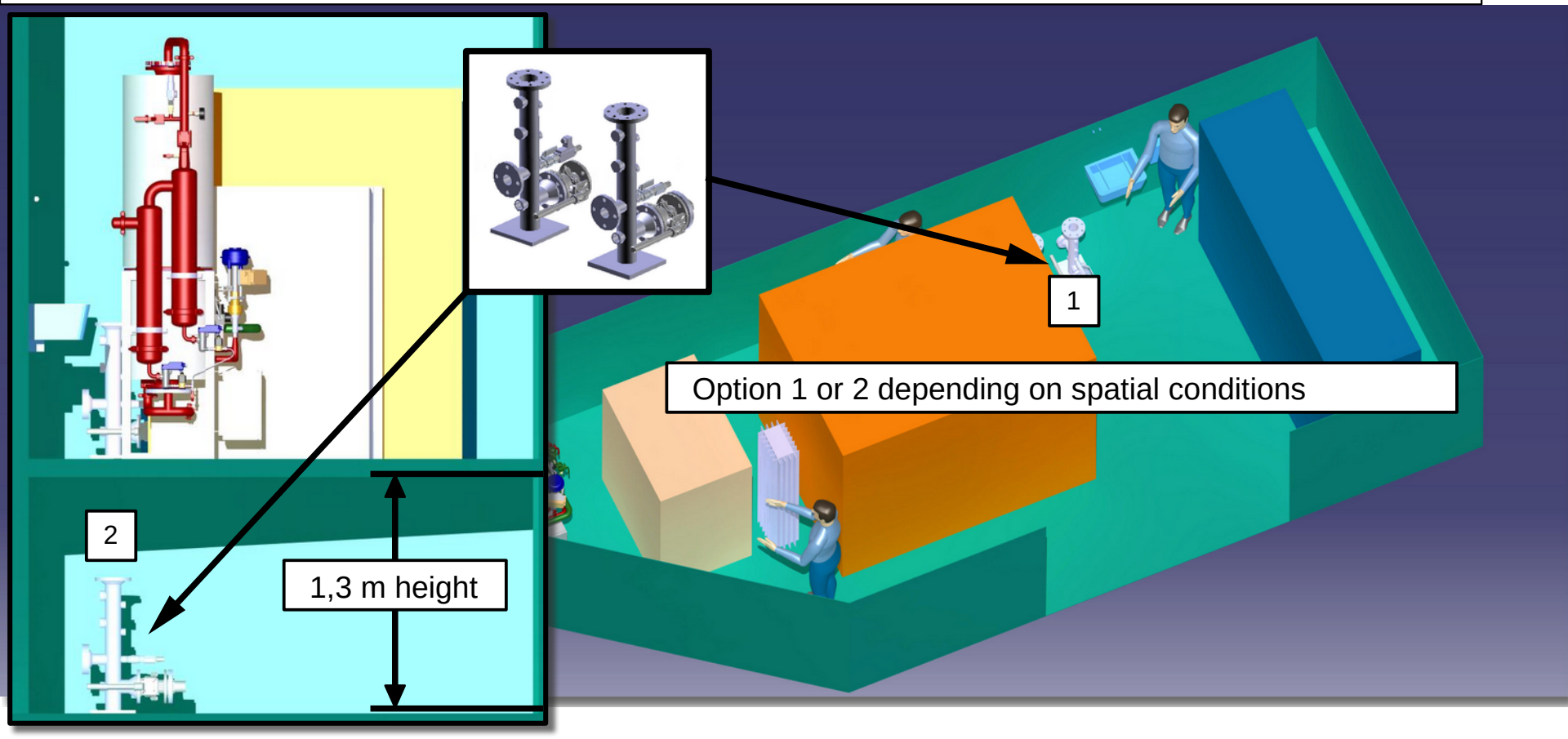
1. Oil Separator
2. CWU (Cool Down Warm up unit, Connected with He-Shield)
3. auxiliary evaporator (**New entry**)
4. Main compressor
5. cooling water manifolds (access and return feed) (**New entry**)
6. DIPOLE Power converter

Current setting in Room:

- CWU, Aux evaporator & main compressor very close to allow access to DIPOLE power converter (clearing space 600 mm)
- Main access route some 1,7m

Placement of water manifolds very close to compressor.
To close ?! Entry behind compressor inhibited …..
Installment elsewhere better

4. Alternative placement for water manifolds inside double floor in E40.310

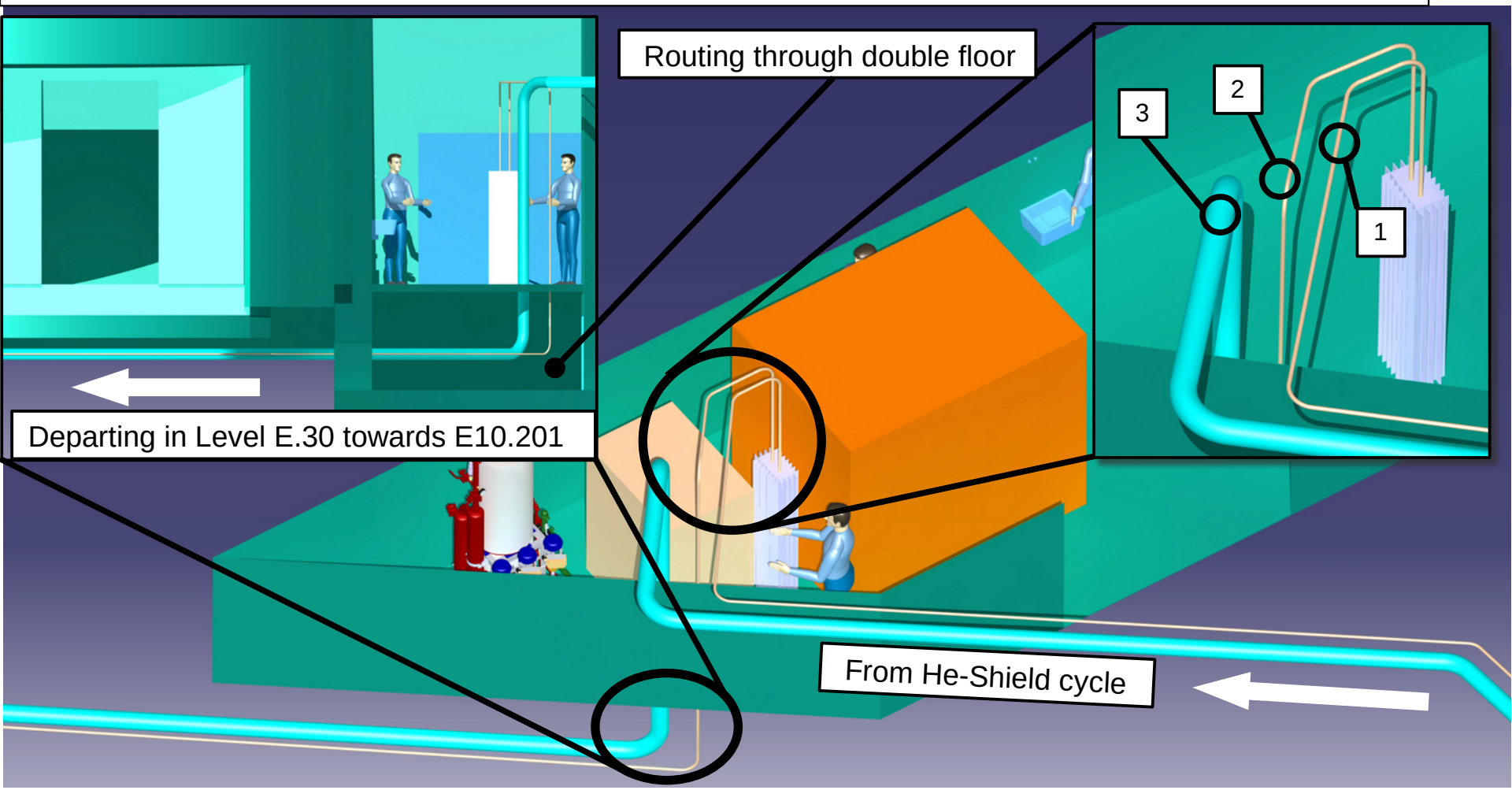


- Placement inside double floor seems better. (No spatial constraints yet inside)
- Space above available for priority installments. (Hoses to be fed through service opening in floor tiles)

- 1,3 m height allowing for maintenance works
- One time installment inside double floor

No maintenance works needed once securely fixed and tightened.

5. Conduit entering and leaving Room E40.310 to the maintenance area



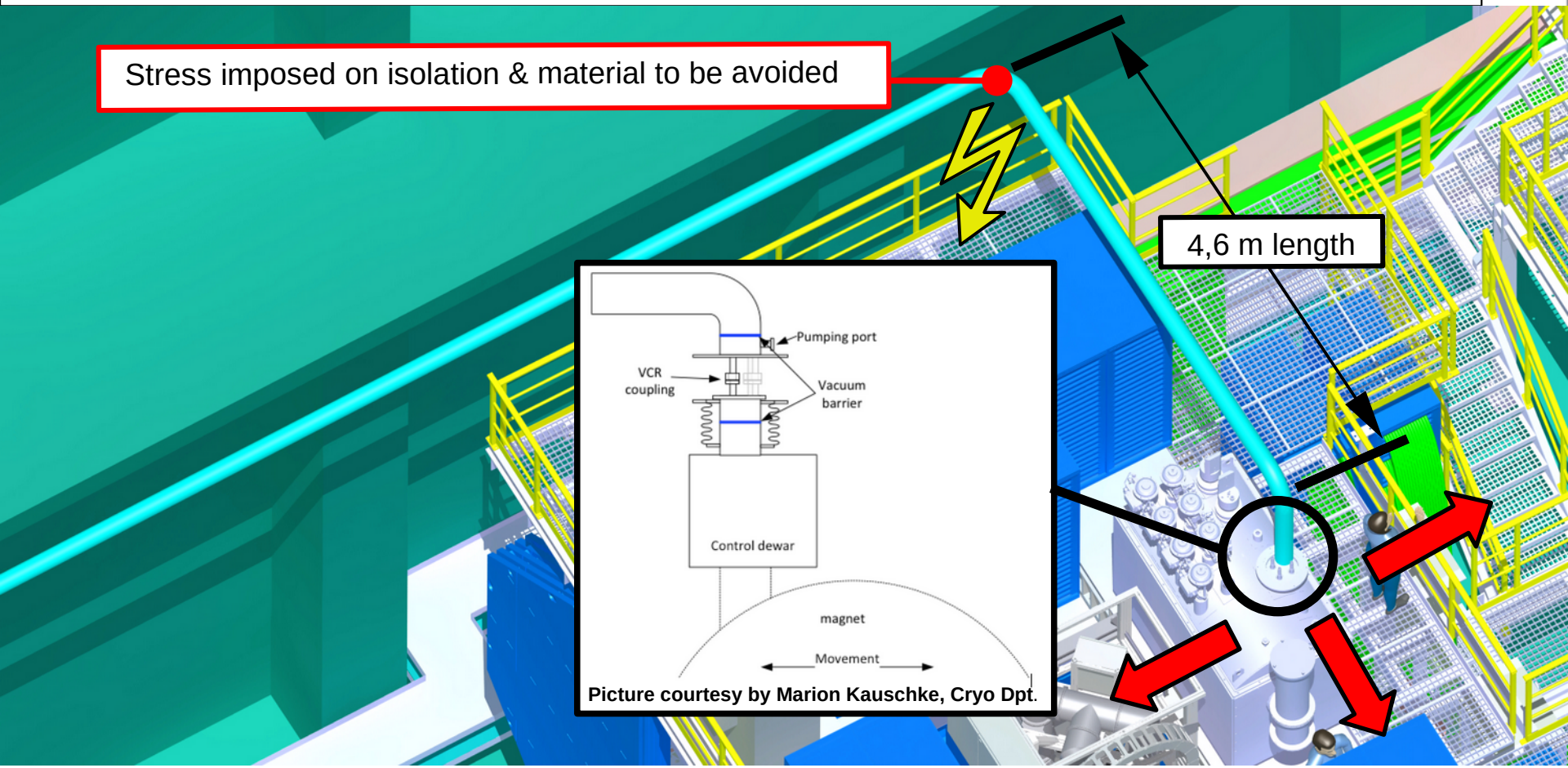
Routing of HE & N2-Lines

1. N2 Line from HE Shield Cooling Cycle (DN20, 15m, not isolated)
2. N2 Line to valve Terminal E10.103 (DN20, 130m, not isolated)
3. HE-Line to Control dewar (Transferline, isolated) 65m

- All conduit entering the hall via room E40.310.
- lines leaving through double floor in E.30 below main truck opening

Less spatial constraints than routing in E.40

6. He-Line (de)coupling to/from Control Dewar - possible issues -



Rigid He-line arriving via **90 degree elbow** from north.

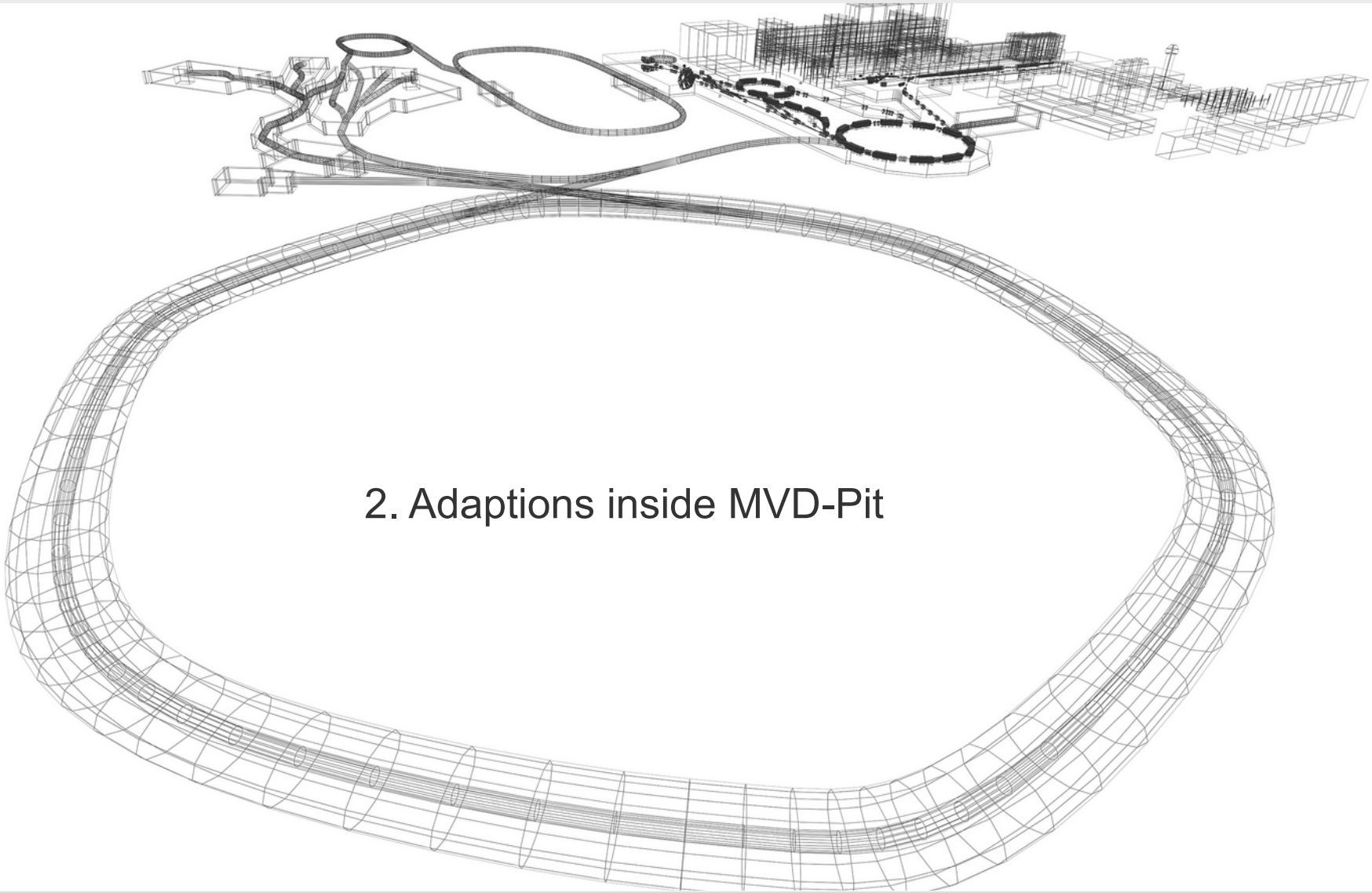
Structural elements for pipe allow no tolerances in positioning.

Any coupling under load will lead to bending stress in 90° elbow.

Degrees of freedom up- & downstream needed to couple line without constraints

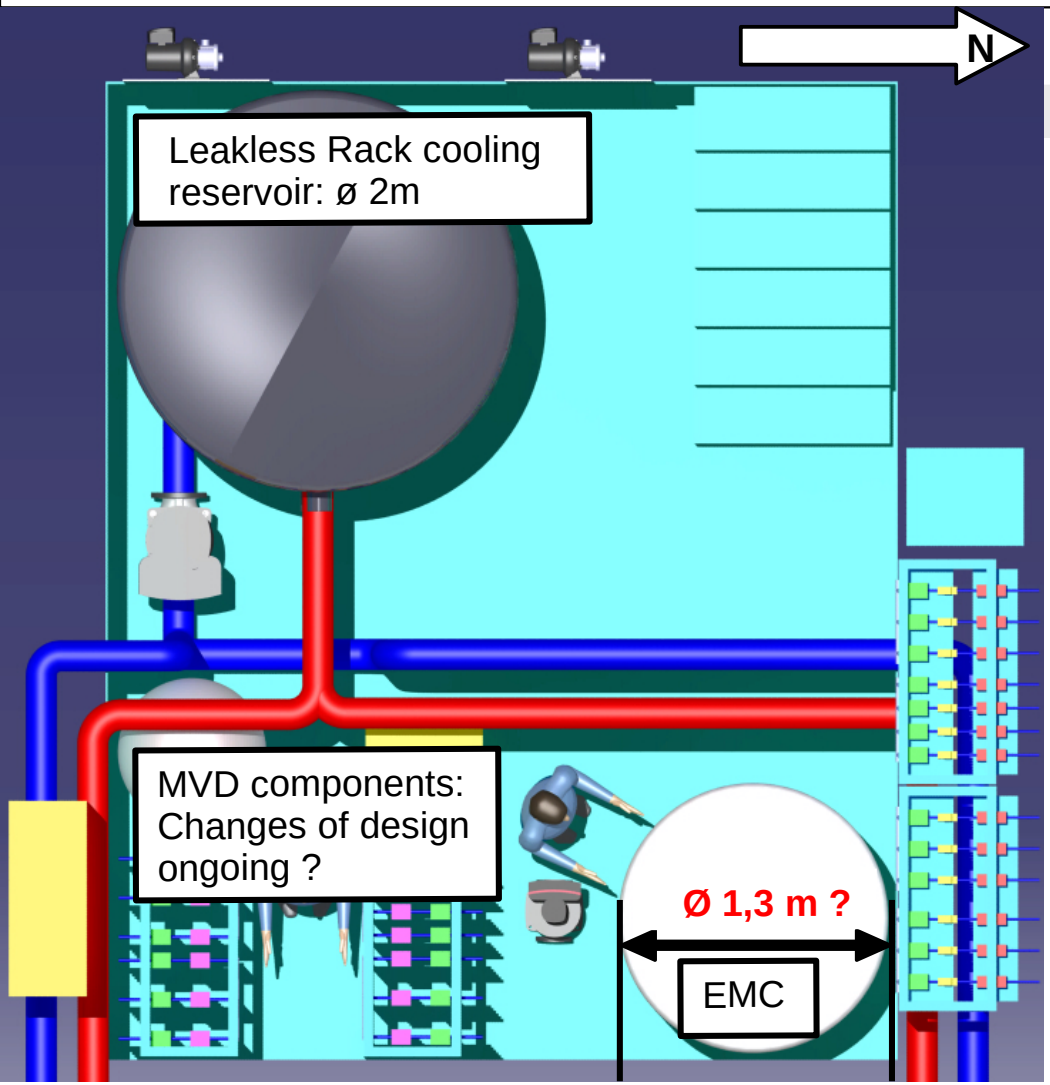
- Helium may blow off
- damage to VCR Connection ?

Can flexible connection hoses be used instead of proposed rigid line by BINP ?



2. Adaptions inside MVD-Pit

8. Situation inside MVD-Pit - Assumptions and Iterations -



Information and question received from Lennart Ahrens.

- isolation cover for EMC assumed with with bigger ø 0,3m + tank = 1,3 m

- extra line for supply of dry air inside tank isolation asked for.

>>…. Der Tank wird also vom Durchmesser noch ein wenig größer werden, **momentan schätze ich ca. 20-30 cm mehr Durchmesser**. *Genau kann ich das aber erst absehen, wenn der Tank hier ist ….*

… da es vermutlich schwierig wird, den Tank komplett Luft-und Feuchtigkeitsdicht eingepackt zu bekommen, denken wir über das **Einleiten trockener Luft unter die Isolierung** *nach.* **Die müsste natürlich irgendwo herkommen**, *und daher wollte ich fragen, ob überhaupt die Möglichkeit bestünde, dafür eine Leitung in den Pit zu legen ? …. <<*

Remark: Where to get a continuous stream of dry air from ?
No plans to employ an air compressor or turbine (lack of space & costly) !

Question: How can condensation be avoided short of using an extra air compressor ?

7. Access routing to area E10.201

Topics to clarify:

Consultation with the cryodepartment regarding flexible He-Line connection to the Dewar.

No (dry) air compressor installation to be planned inside the hall. How else can the condensation problem be solved ?

Space requirements for the EMC tank depending on the status of MVD Components. The smaller the better.

What is the developmental state of the MVD Cooling parts in the pit ?

Thank you for your attention