DFHX cryostat SM18 integration sequence

Different scenarios proposals

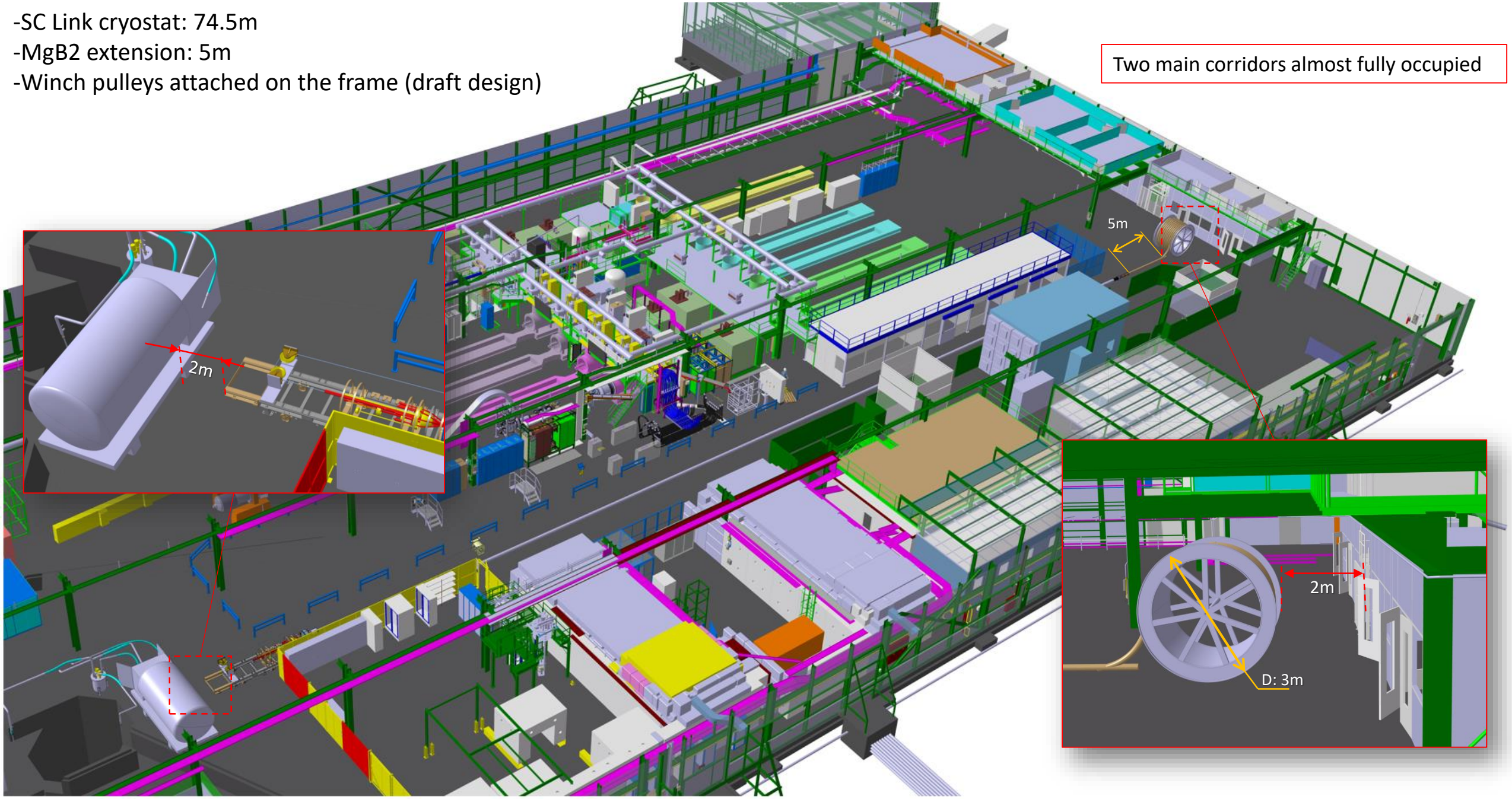
14/04/2022

Scenario 1

Phase 0: Cable insertion

-SC Link cryostat: 74.5m
-MgB2 extension: 5m
-Winch pulleys attached on the frame (draft design)

Two main corridors almost fully occupied



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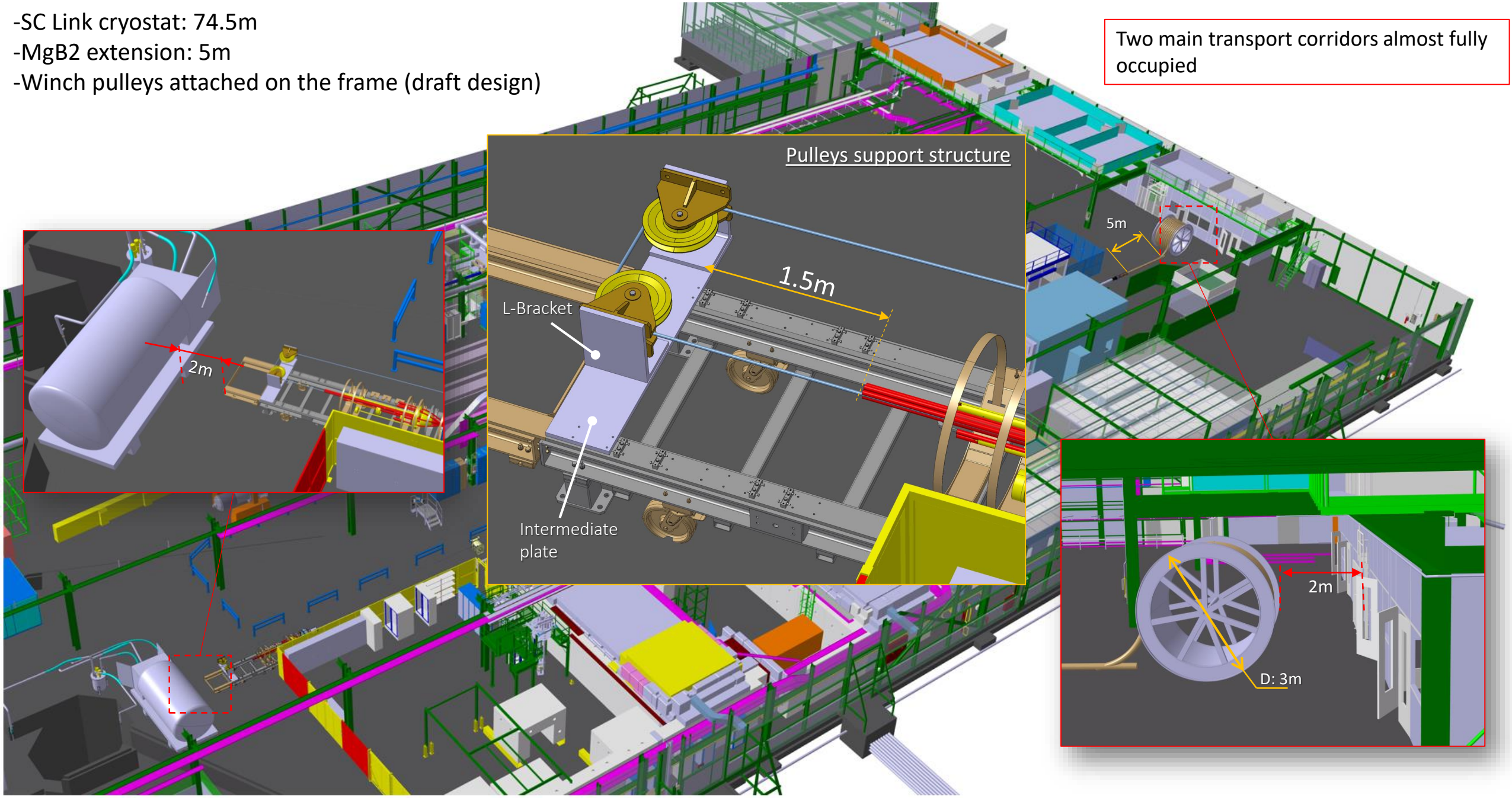
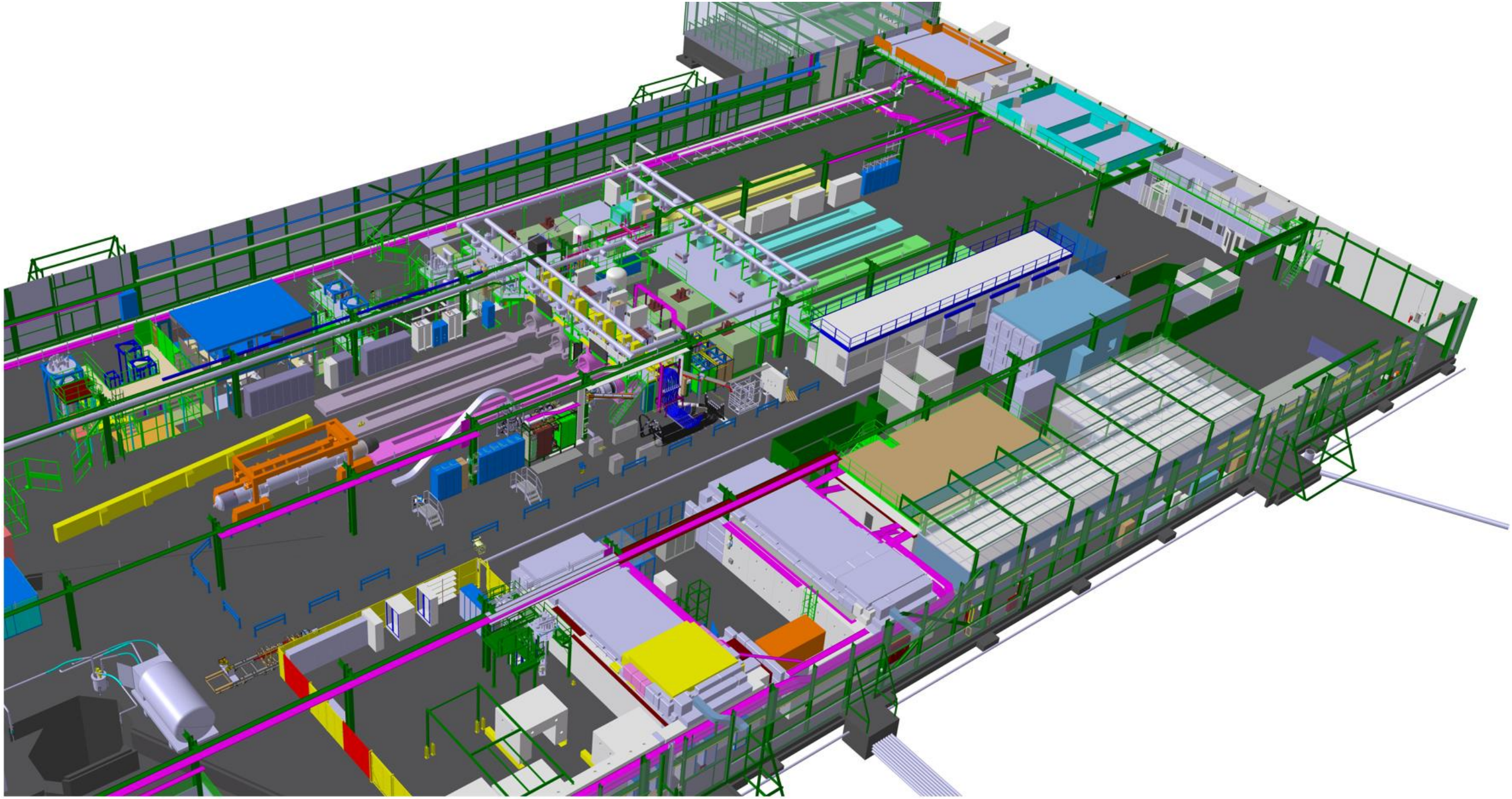
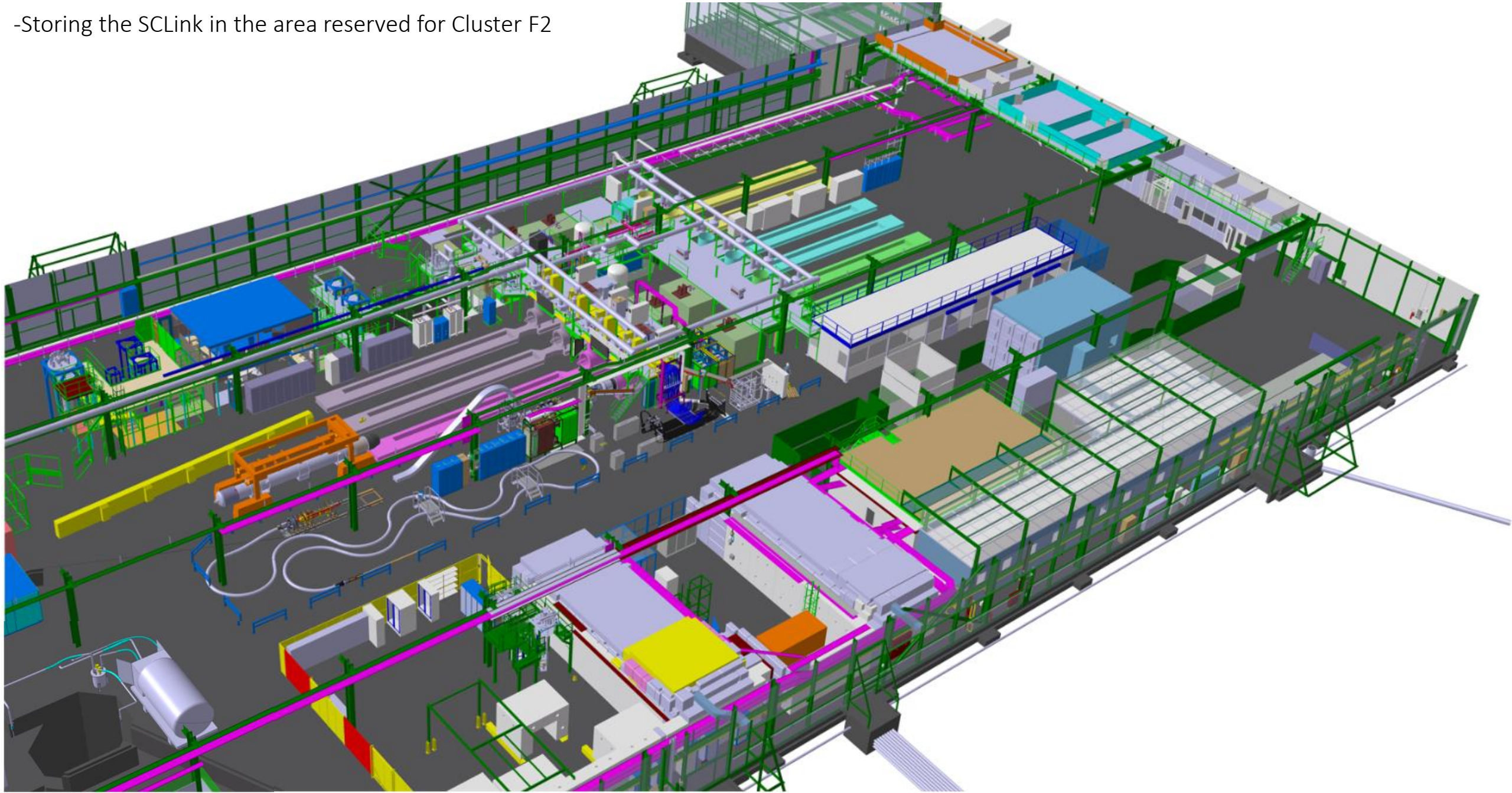


Phase 1: Spool removal



Phase 2: Temporary storage during assembly (SC1)

-Storing the SCLink in the area reserved for Cluster F2



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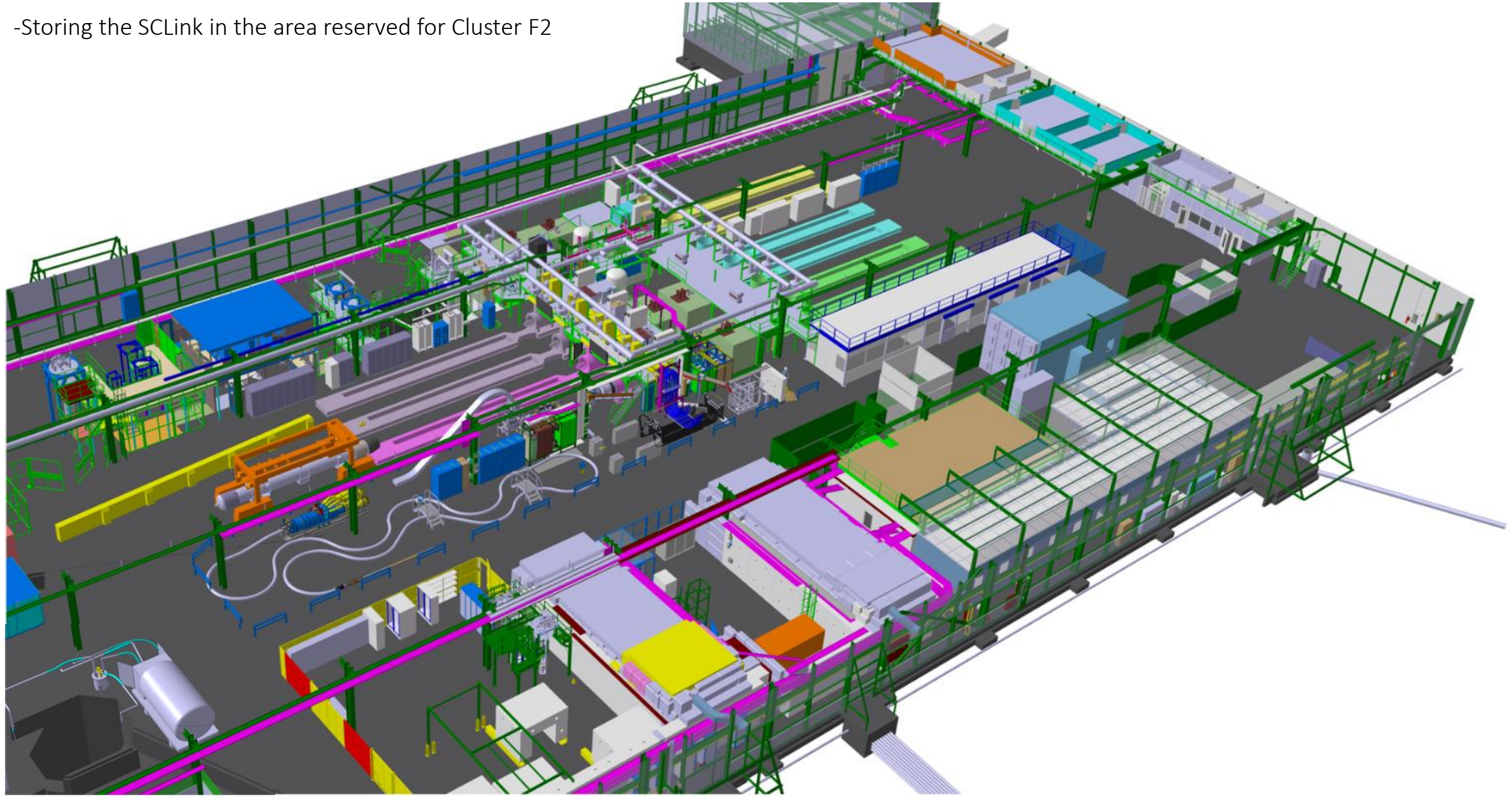
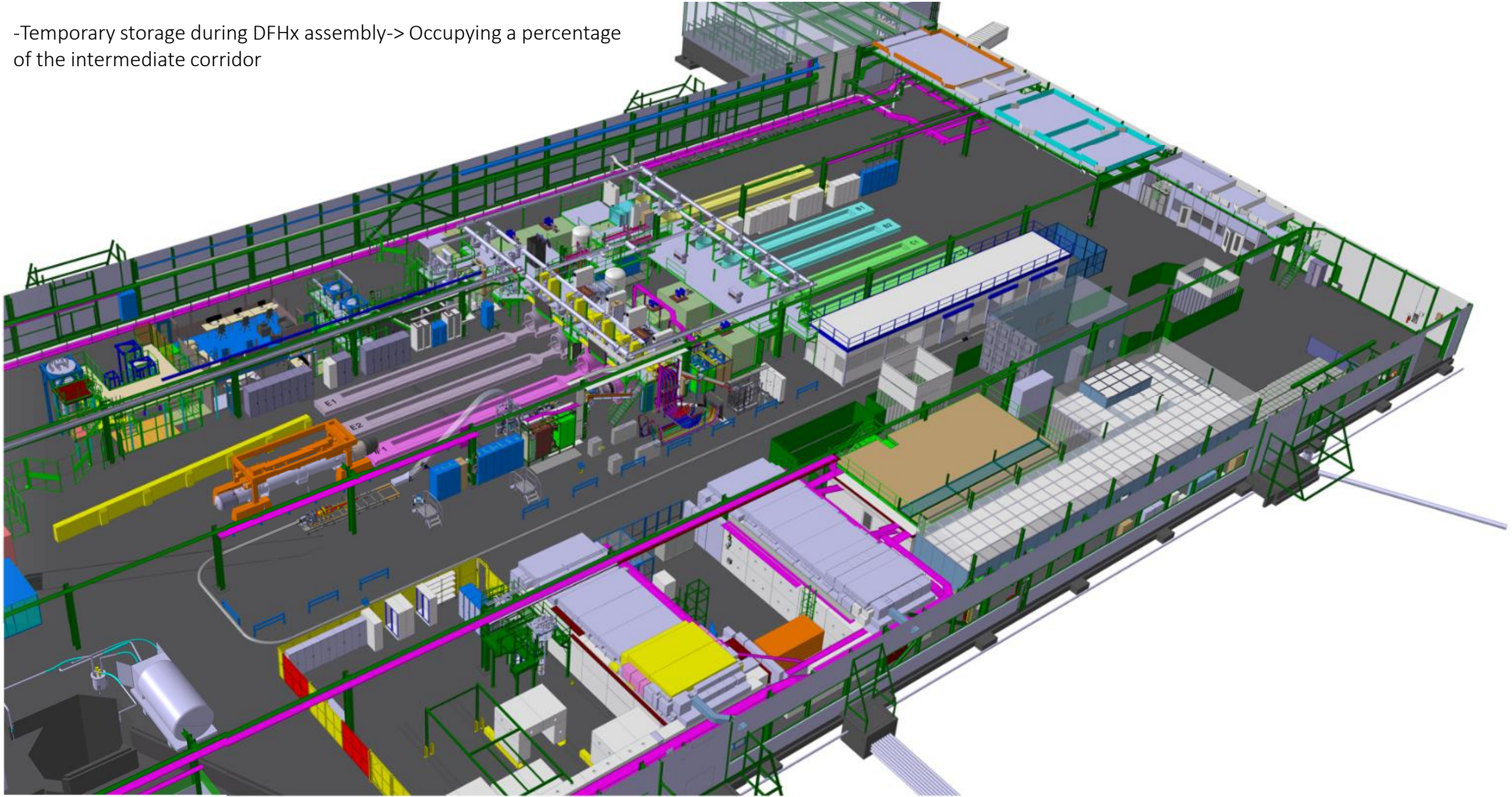


Phase 2: Temporary storage during assembly (SC2)

-Temporary storage during DFHx assembly-> Occupying a percentage of the intermediate corridor



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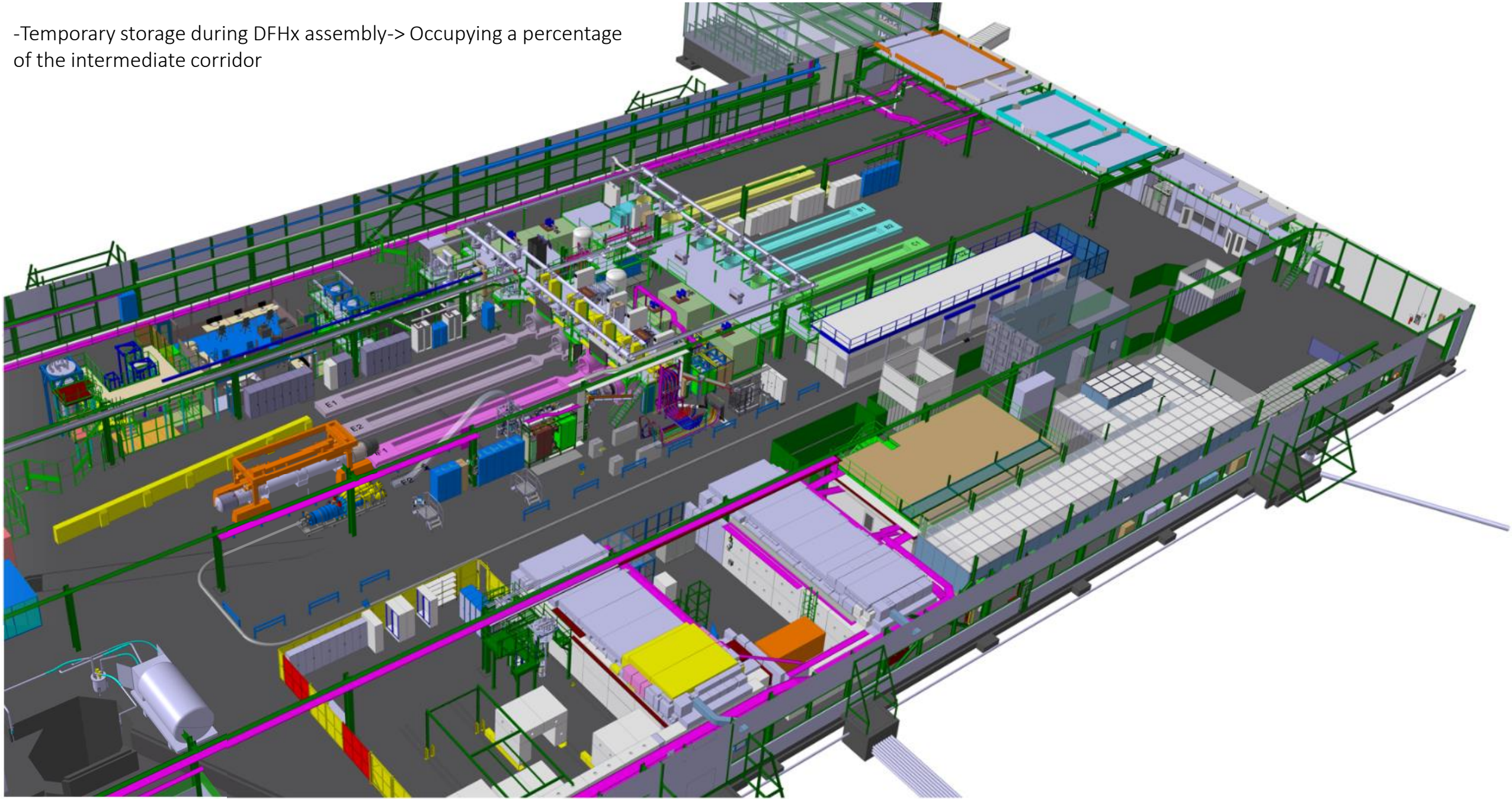
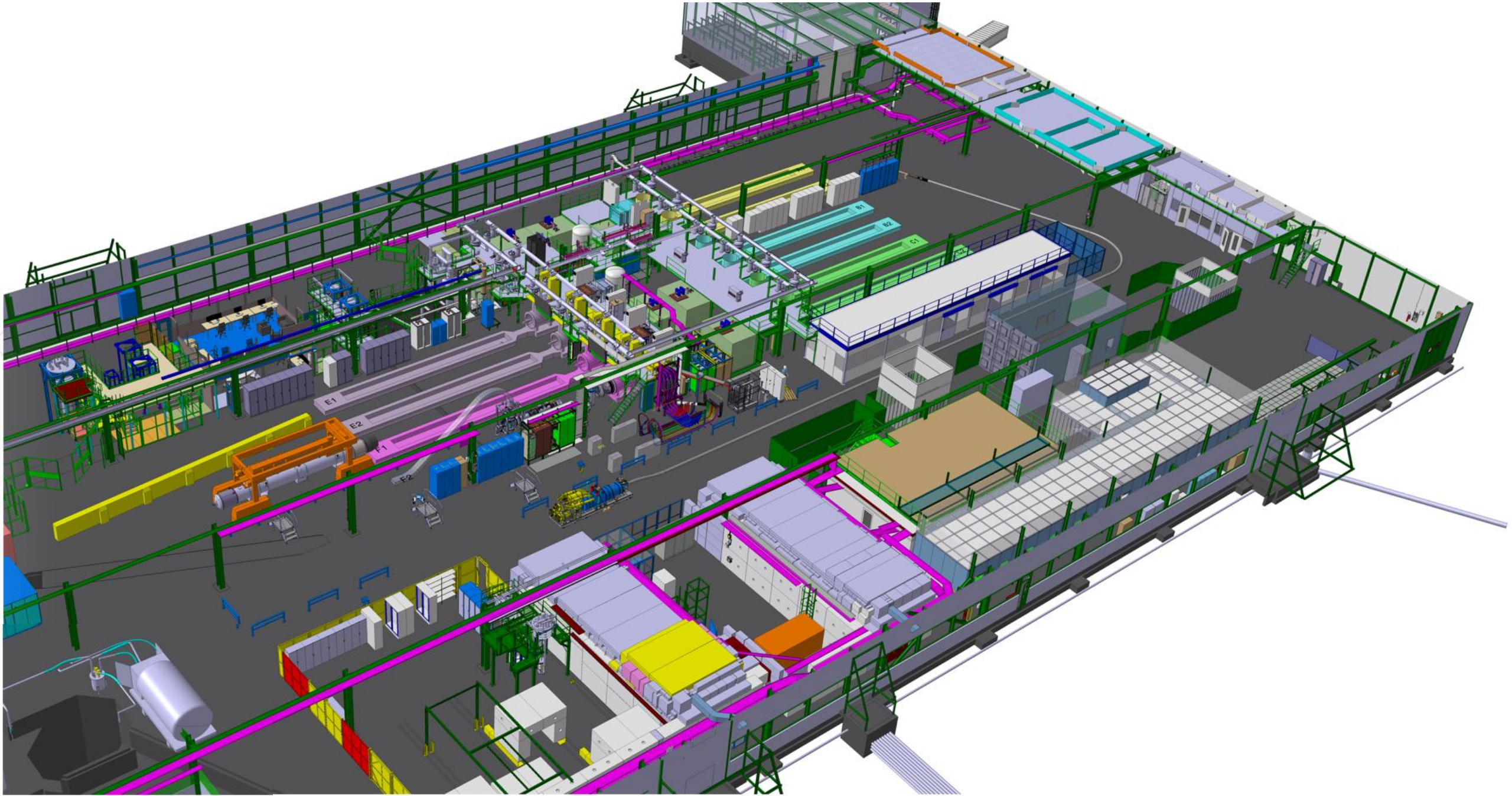
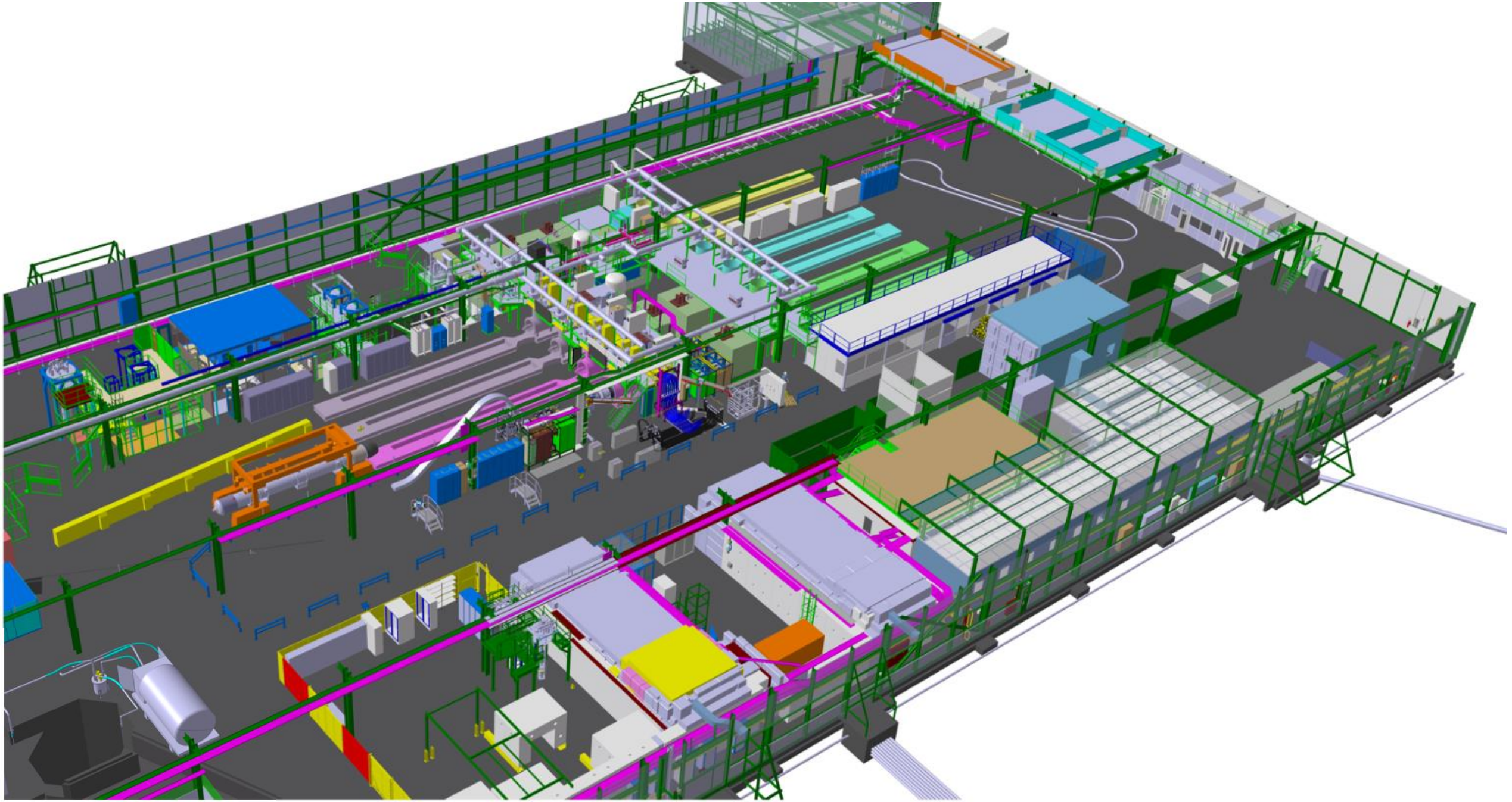


Phase 3: DFHX Cryostat+SCLink rotation

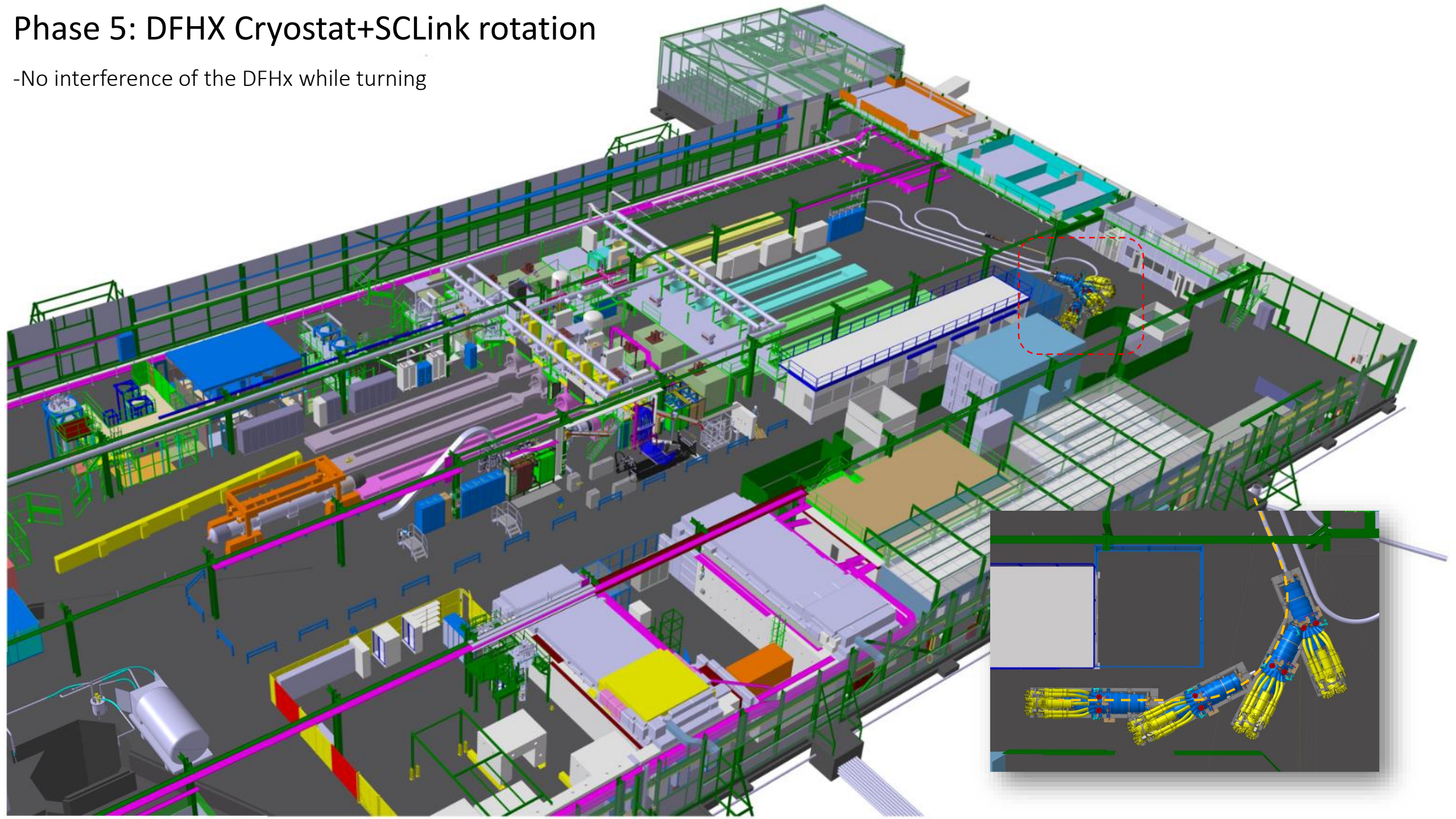


Phase 4: DFHX Cryostat+SCLink rotation

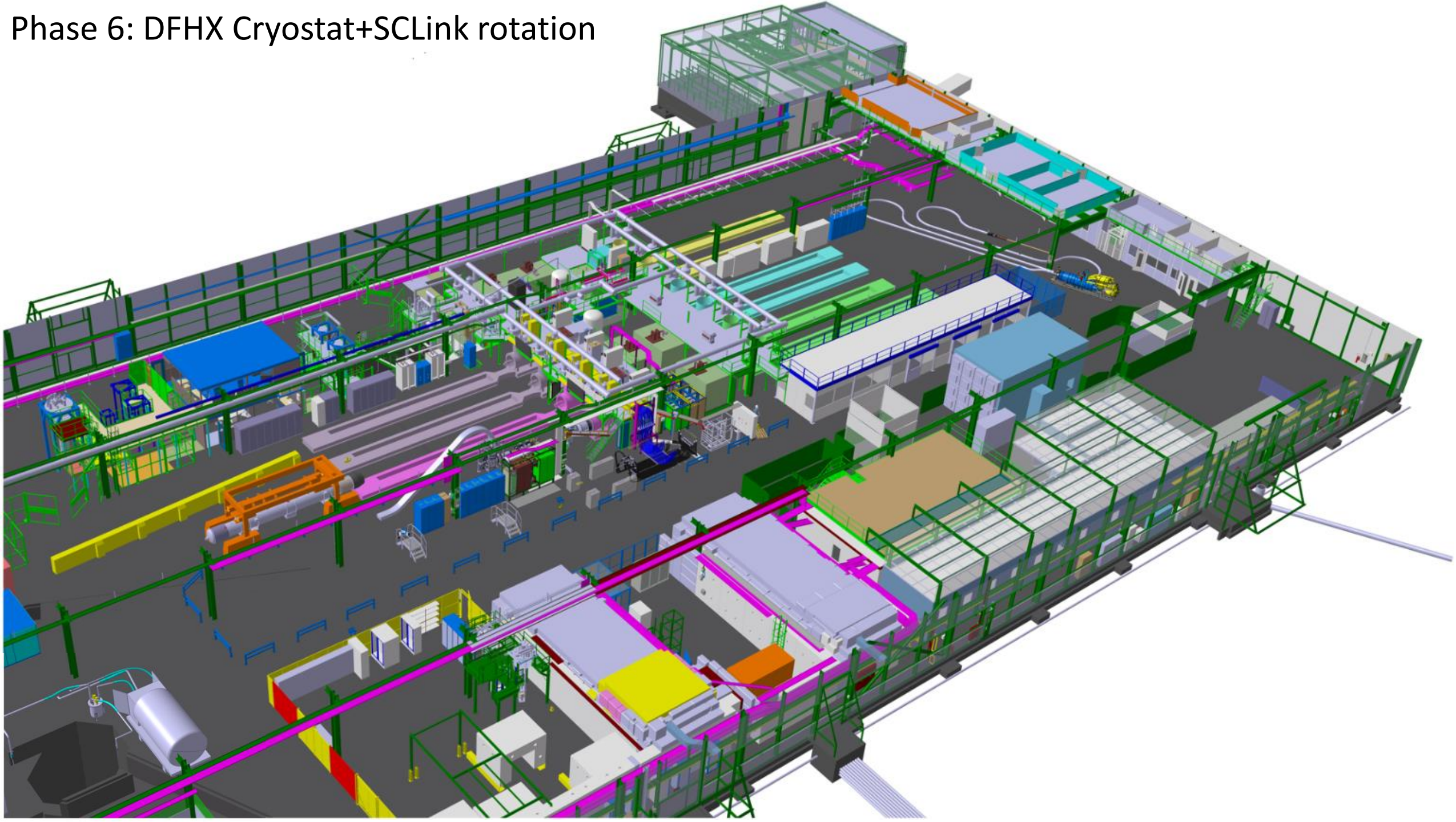


Phase 5: DFHX Cryostat+SCLink rotation

-No interference of the DFHx while turning

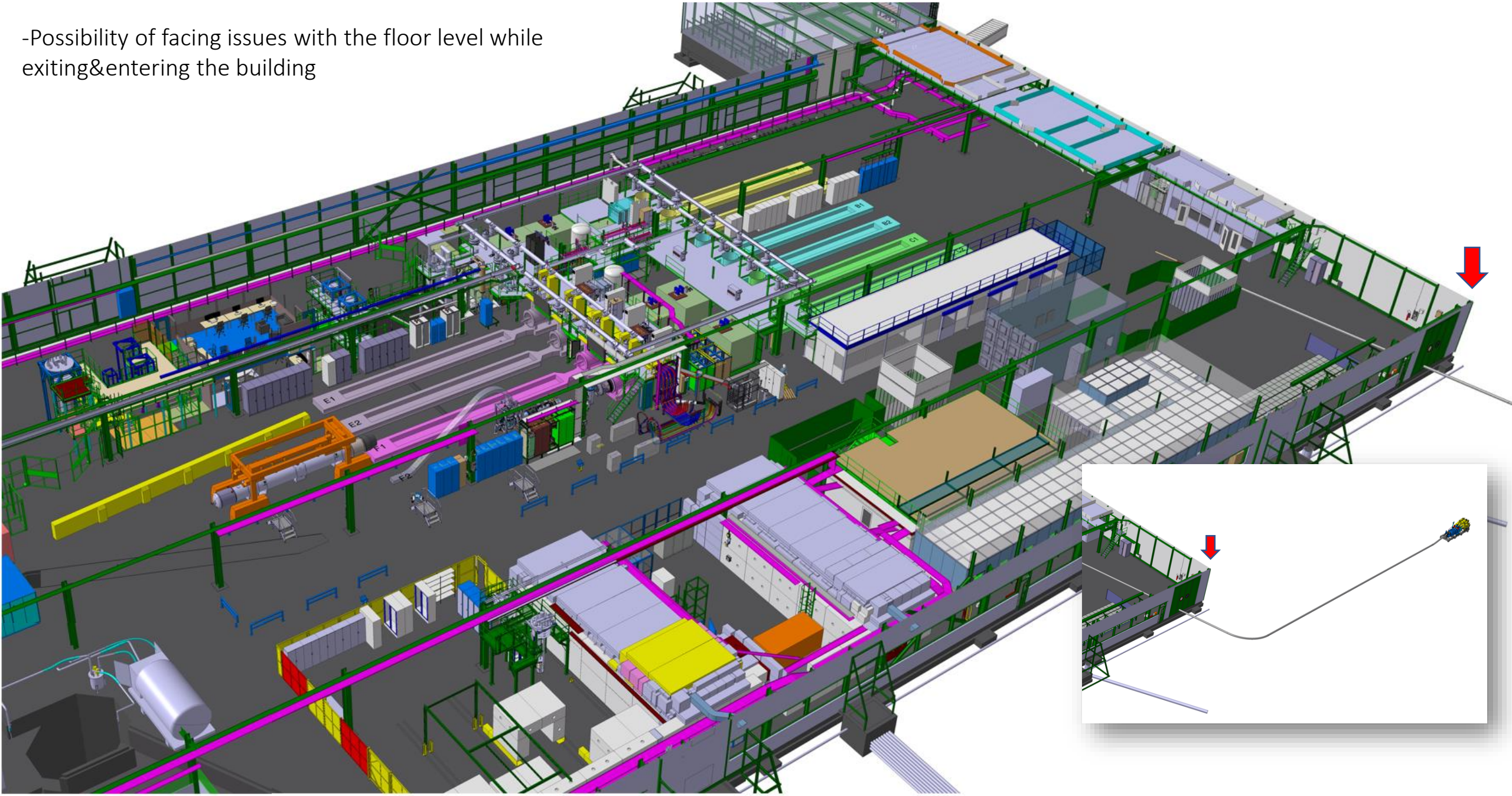


Phase 6: DFHX Cryostat+SCLink rotation



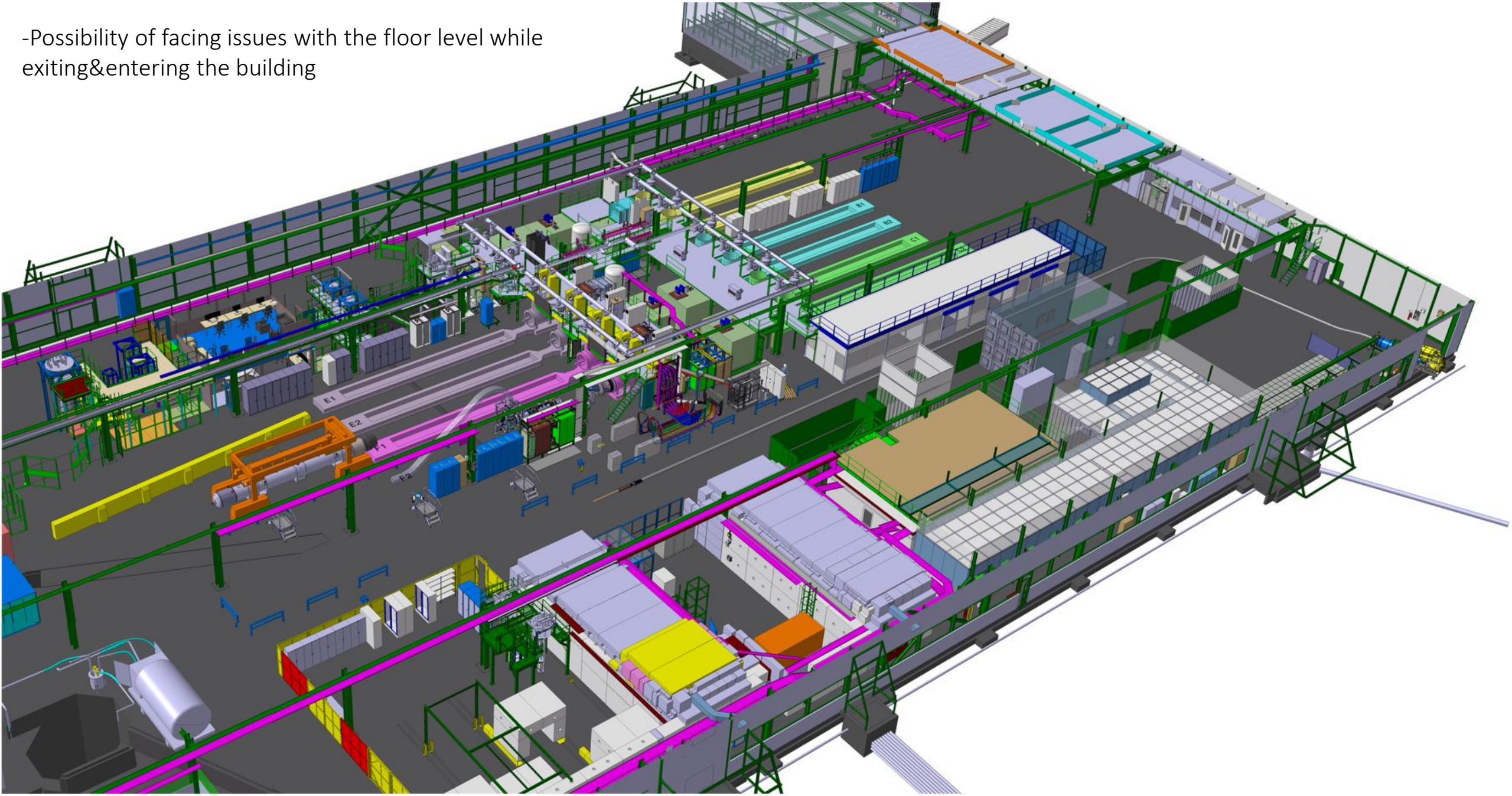
Phase 7: DFHX Cryostat+SCLink rotation

-Possibility of facing issues with the floor level while exiting&entering the building

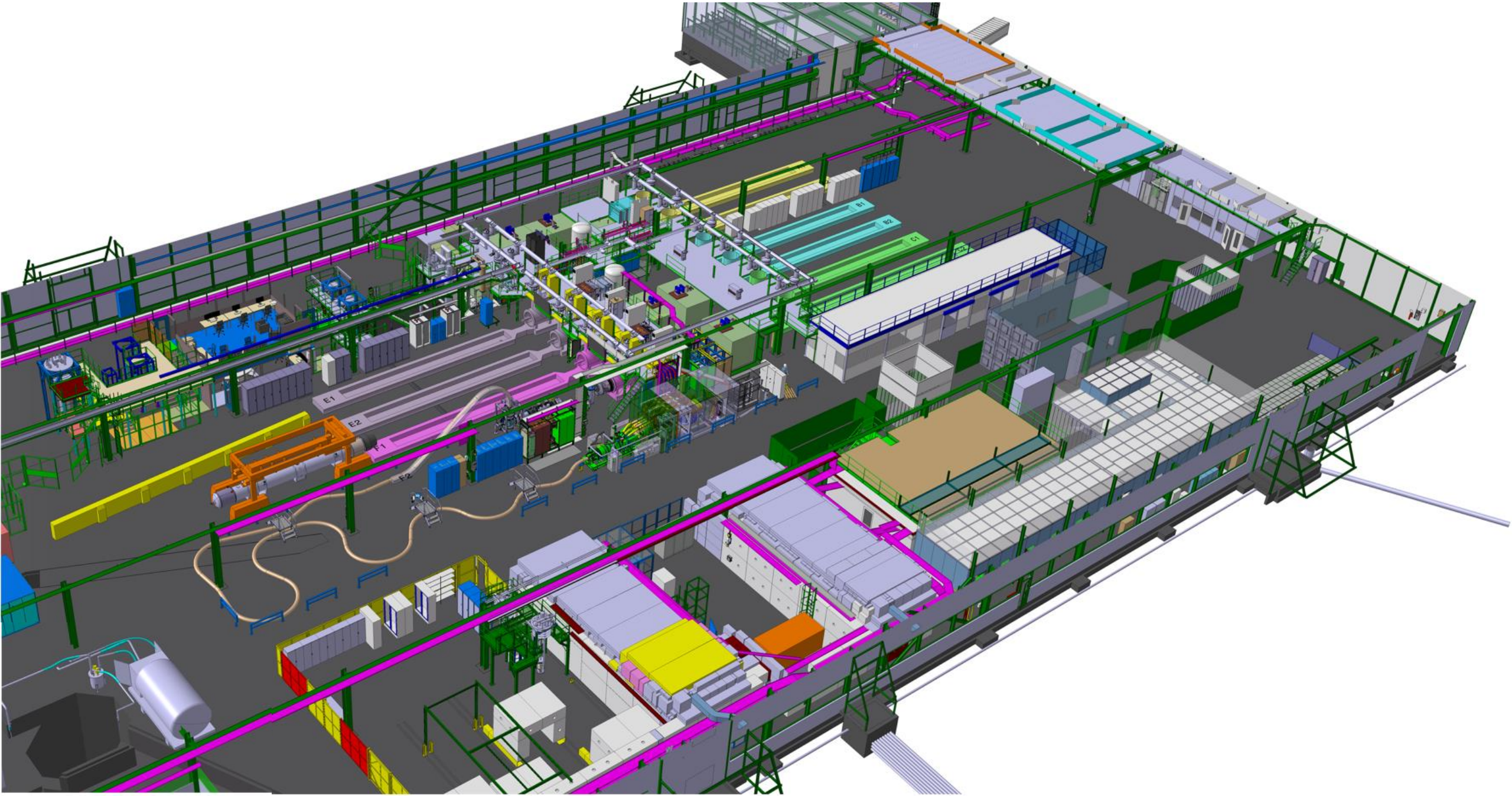


Phase 8: DFHX Cryostat+SCLink rotation

-Possibility of facing issues with the floor level while exiting&entering the building



Phase 9: DFHX Cryostat+SCLink rotation

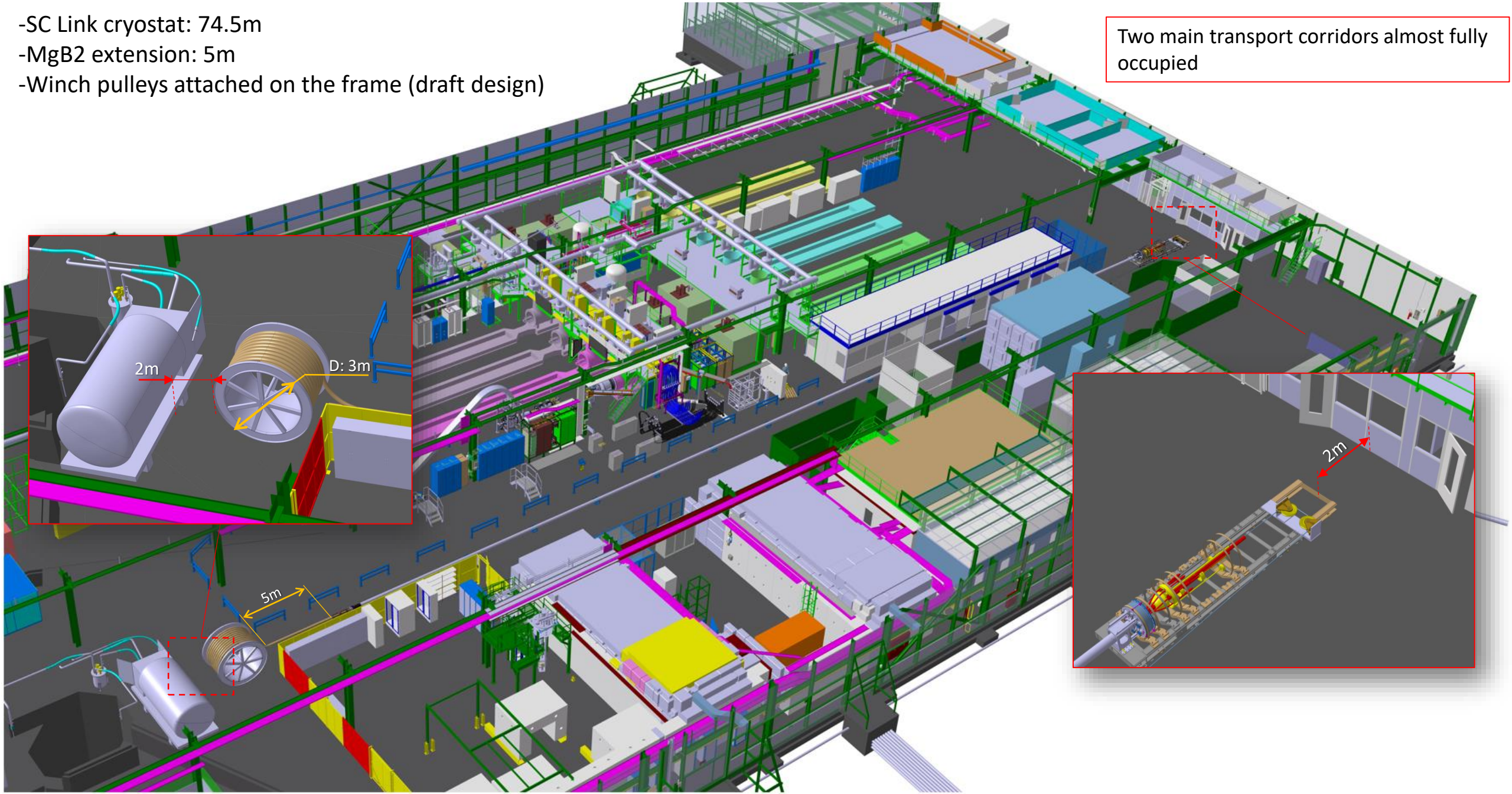


Scenario 2

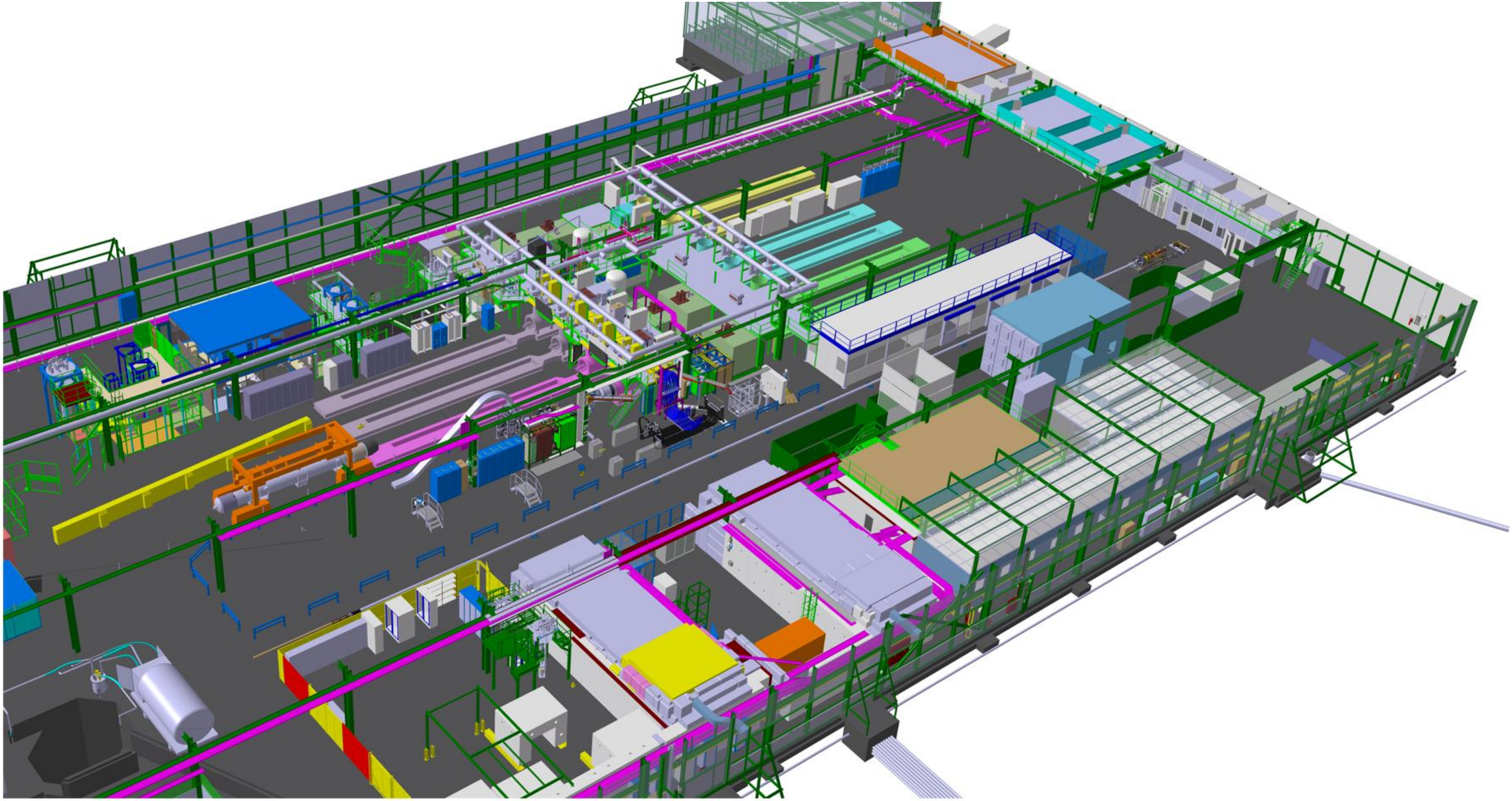
Phase 0: Cable insertion

-SC Link cryostat: 74.5m
-MgB2 extension: 5m
-Winch pulleys attached on the frame (draft design)

Two main transport corridors almost fully occupied

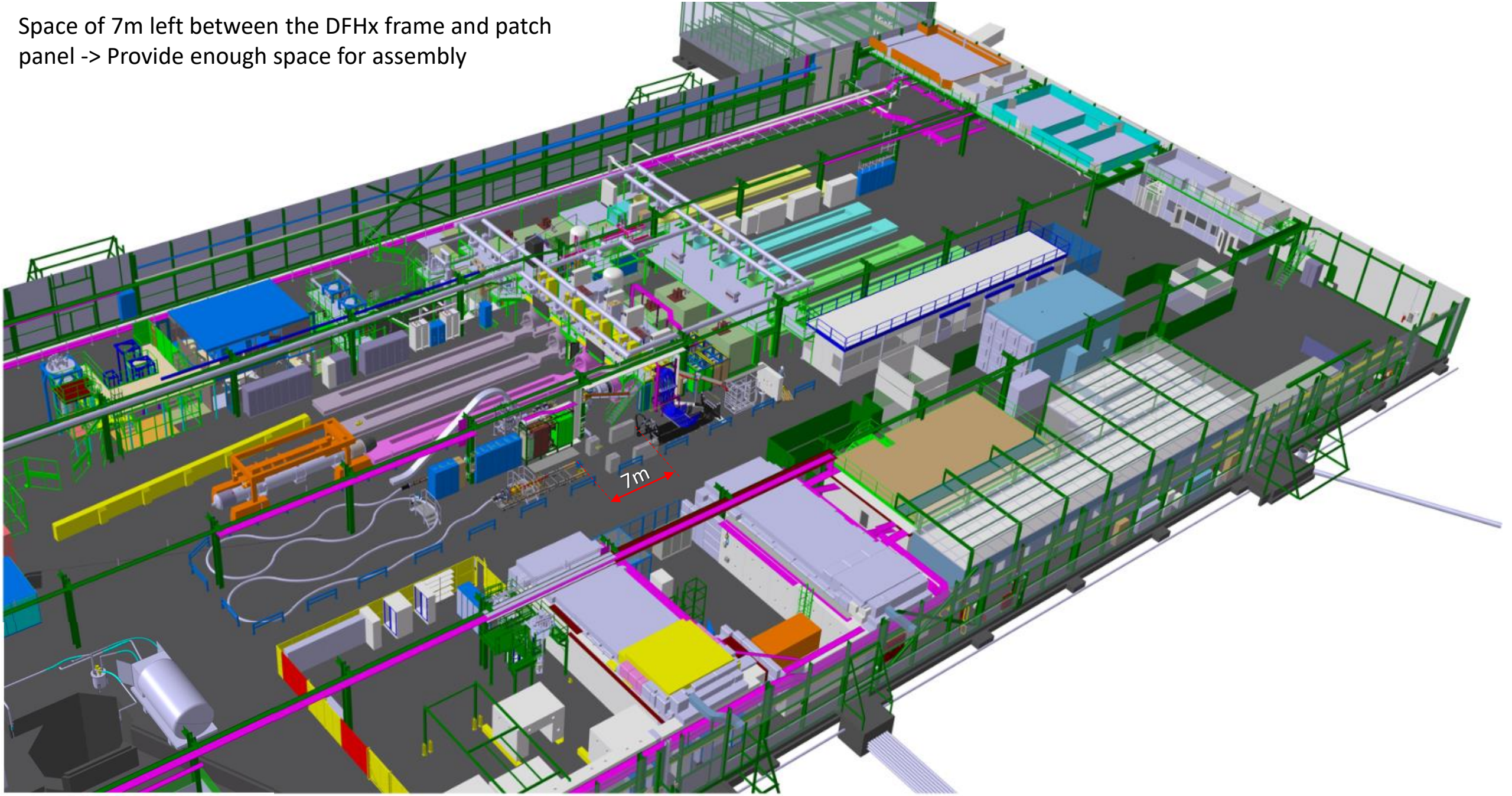


Phase 1: Spool removal



Phase 2: DFHx assembly

Space of 7m left between the DFHx frame and patch panel -> Provide enough space for assembly



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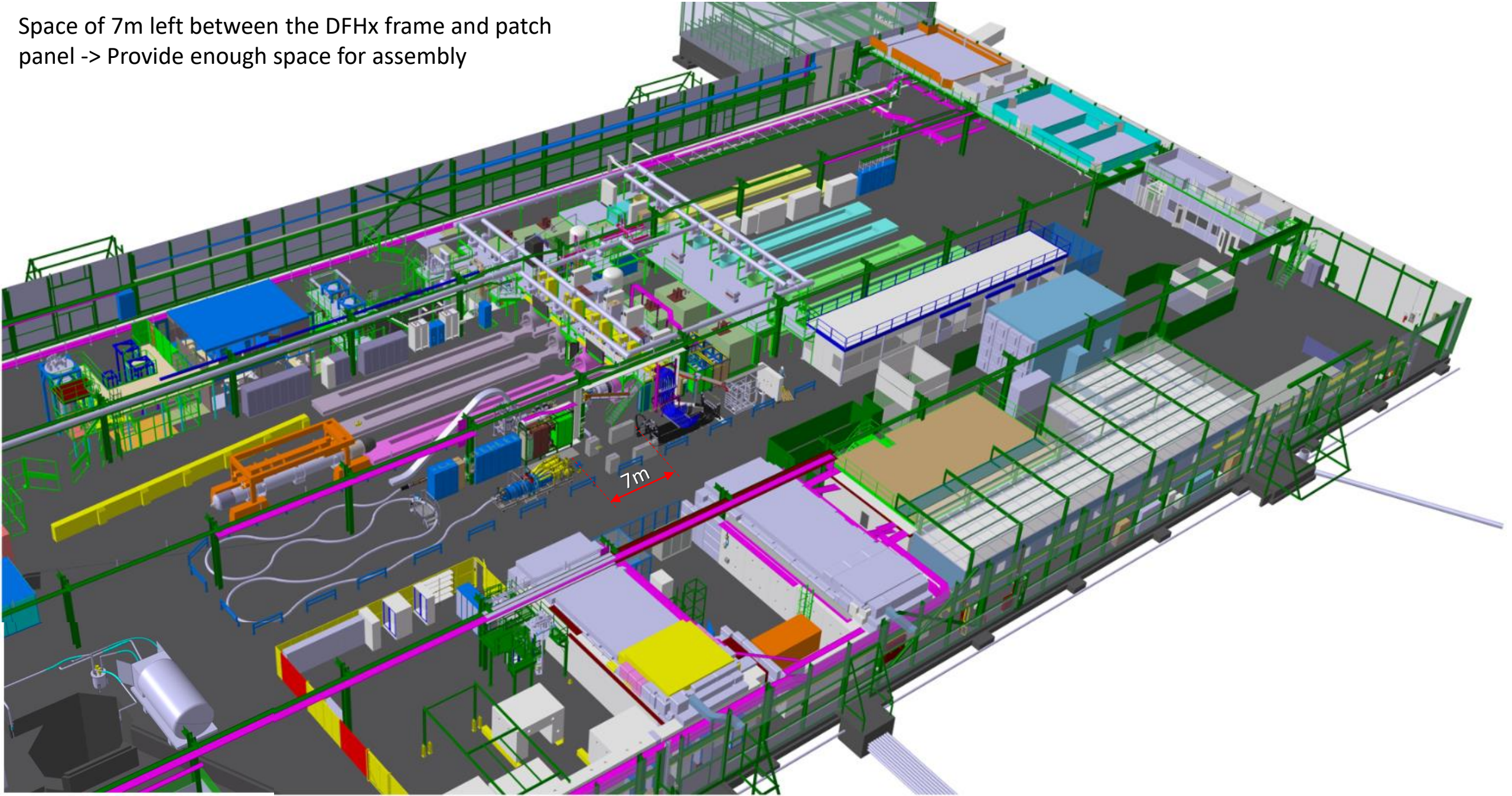

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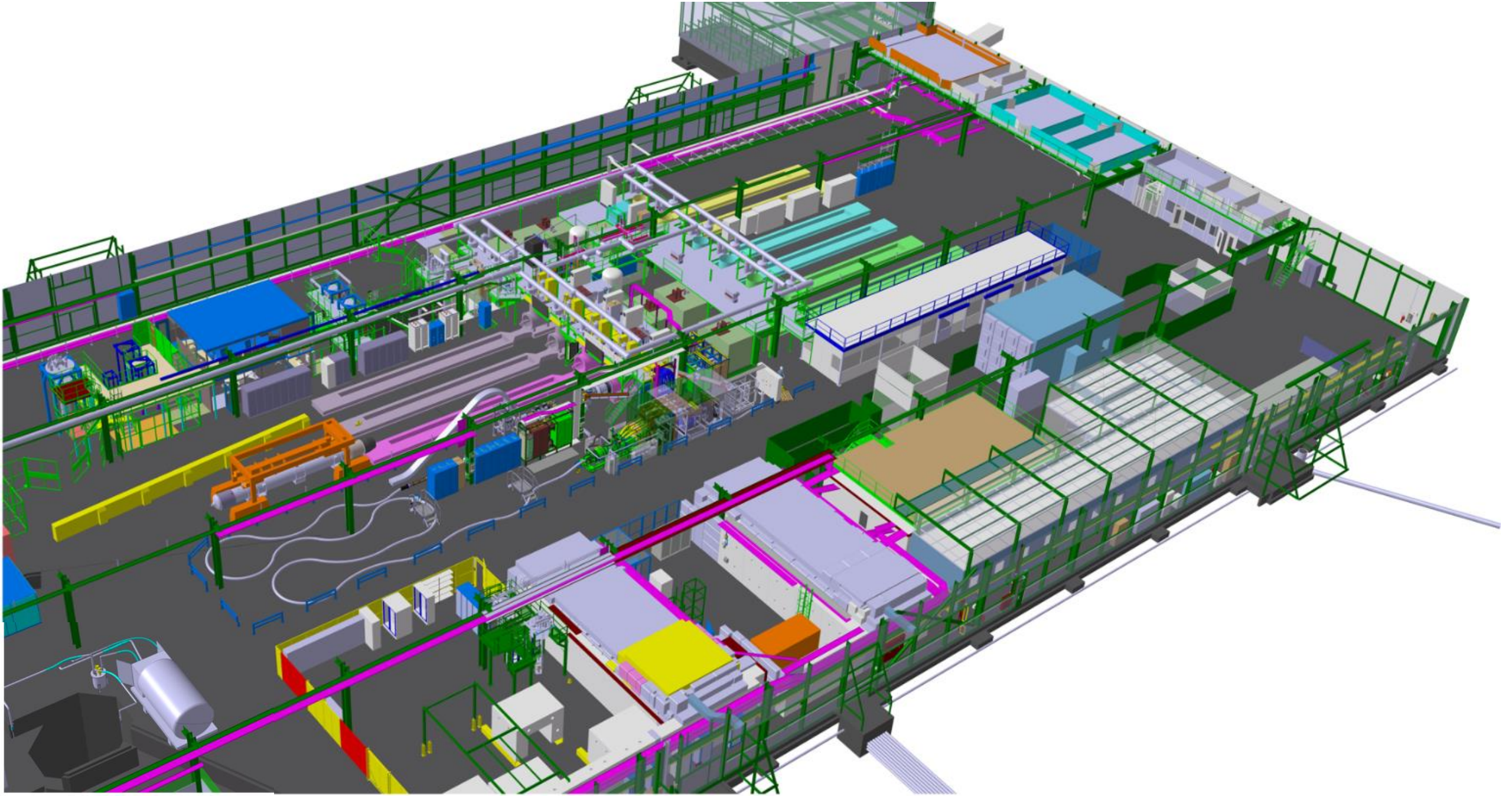


Sum up

Scenario 1:

-Spool will be removed after the cable insertion

-Additional 5m of spare MgB2 cable will be available.

-Both main building corridors will be almost totally blocked during cable insertion process. (2m space left)

-More difficult and time consuming manipulation of the whole subassembly -> Orientation should be changed

-DFHx need to exit SM18 bldg. -> probably facing issues with floor level between the inner and outer area of the bldg

Scenario 2:

-Spool will be removed after the cable insertion.

-Additional 5m of spare MgB2 cable will be available.

-Both main building corridors will be almost totally blocked during cable insertion process. (2m space left)

-Subassembly correctly oriented comparing to the final installation stage -> Easier and faster manipulation

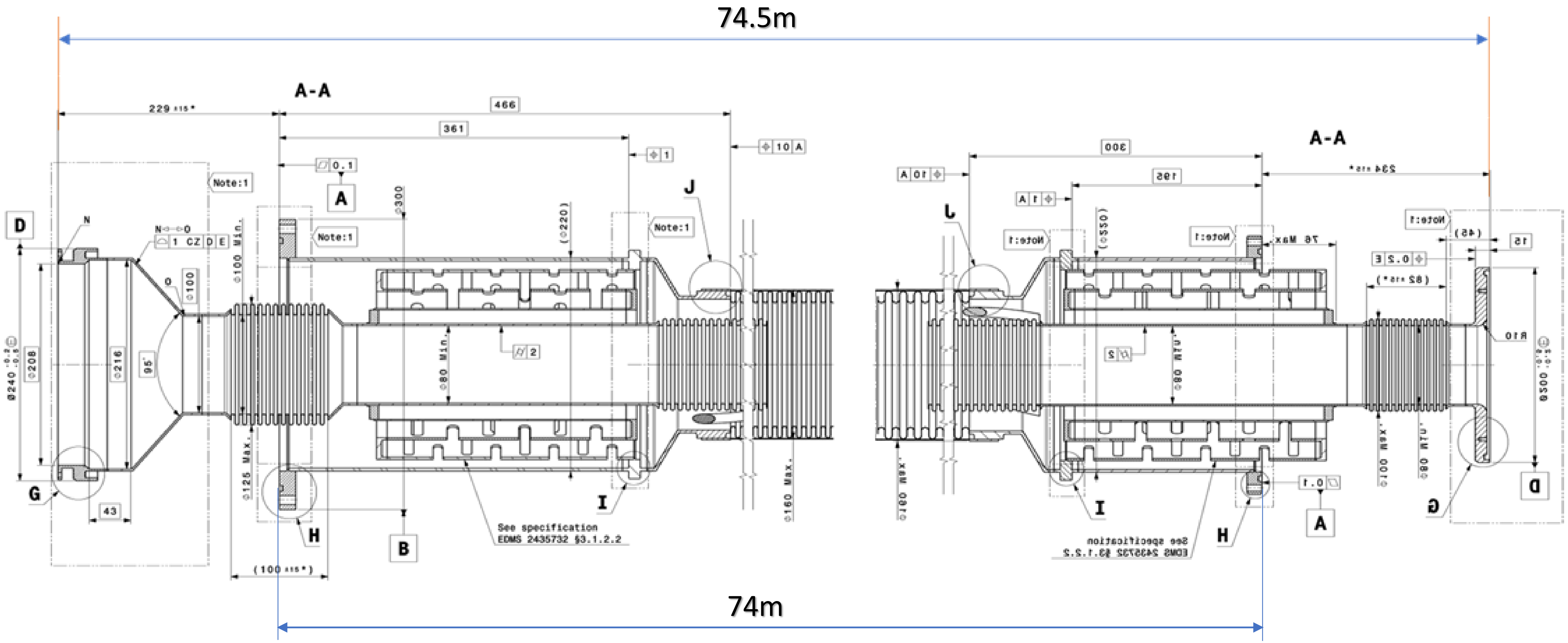
-Scenario 2 seems easier, faster and more feasible plan.

SPARE SLIDES


CRYO DIFFUSION
NE PAS SAISIR LE RESERVOIR

Few questions:

- Is the spool represented 3m or 4m ? – the individual cryostat and cable have max 3m spool. Probably good to also represent the spooler we have in 927. OK
- Is the cryostat length correct – 74 m ? 74.5m
- The space occupation of the cable chain at the DFX isn't required during the DFHX/DSHX assembly phase. To be removed
- Could the winch cable guides be directly mounted to the DFHX frame ? OK (Draft design)
- For scenario 2 – is there a solution with the spool adjacent to the cryo helium reservoir – would require a non-parallel route along the long corridor – this could avoid blocking the transport at the opposite end ? To be designed


74.5m
A-A
229
466
361
0.1
A
1
10 A
Note:1
J
D
N
N O
1 CZ D E
O
100
100 Min.
300
220
Ø240
208
216
95°
2
80 Min.
125 Max.
160 Max.
G
43
H
B
I
(100)
See specification
EDMS 2435732 §3.1.2.2
74m