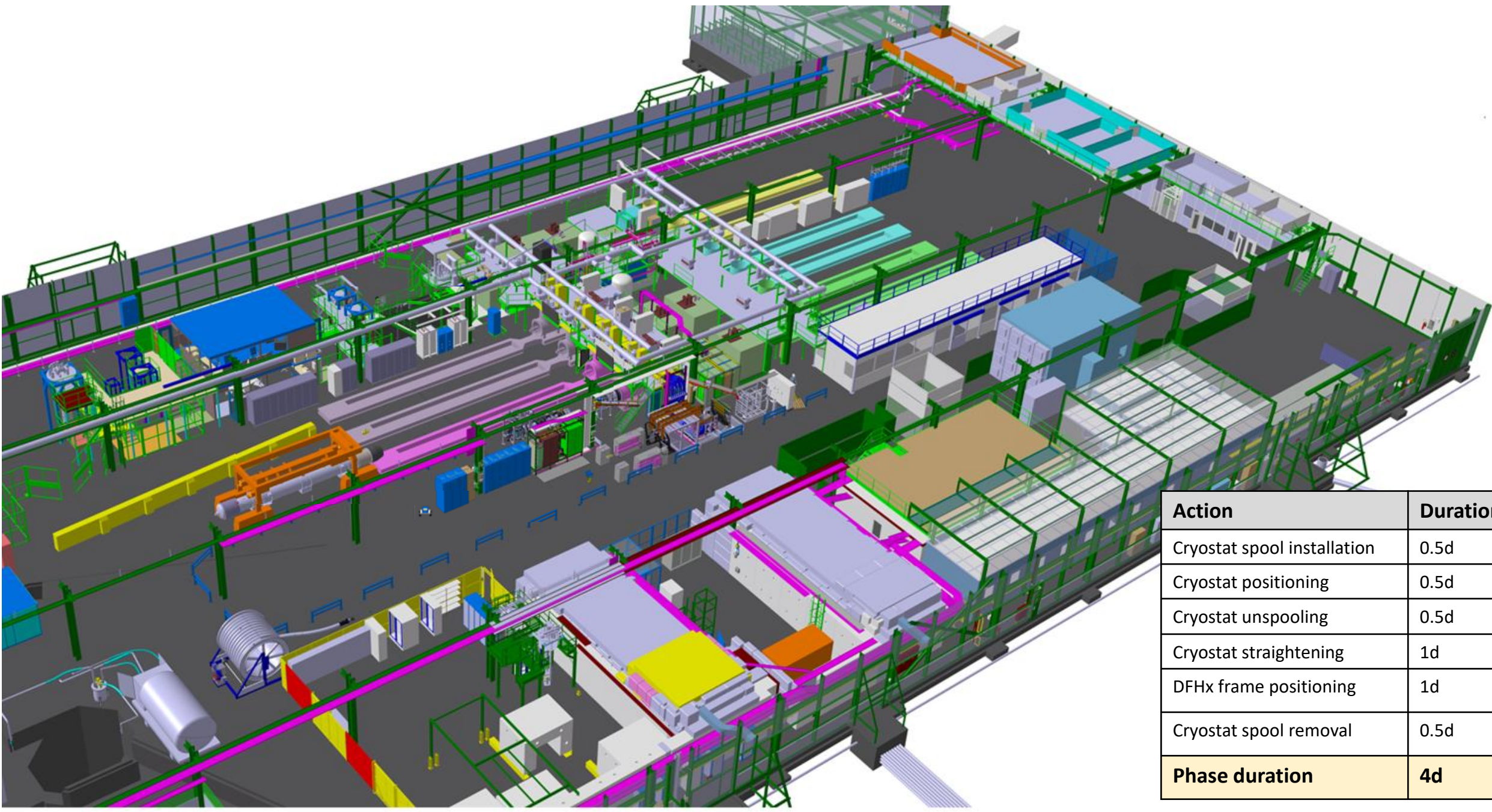


DFHX cryostat SM18 integration sequence Updates

21/04/2022

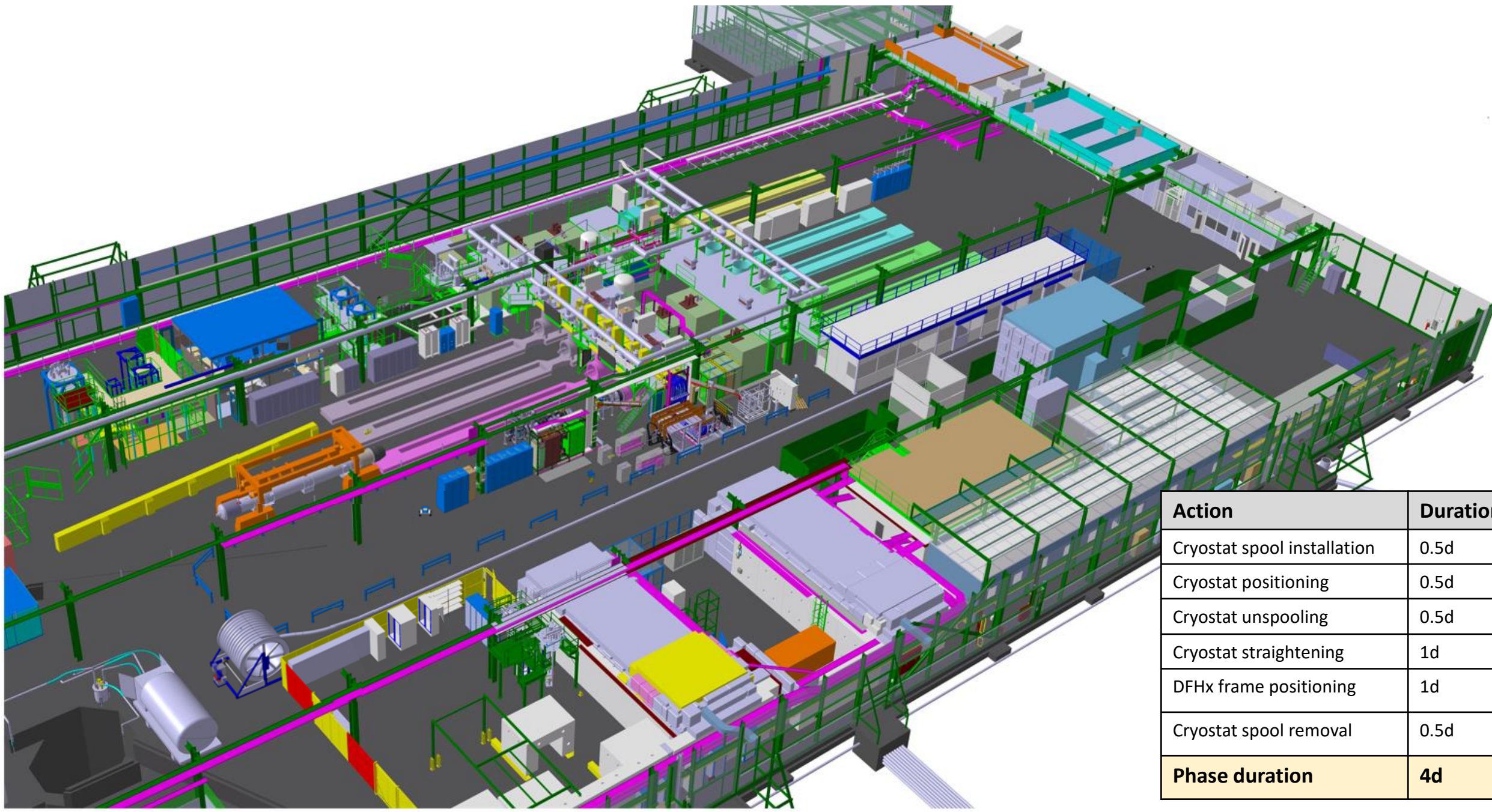
Stefanos Christos Spathopoulos

Phase 0: SCLink Cryostat+DFHx frame installation



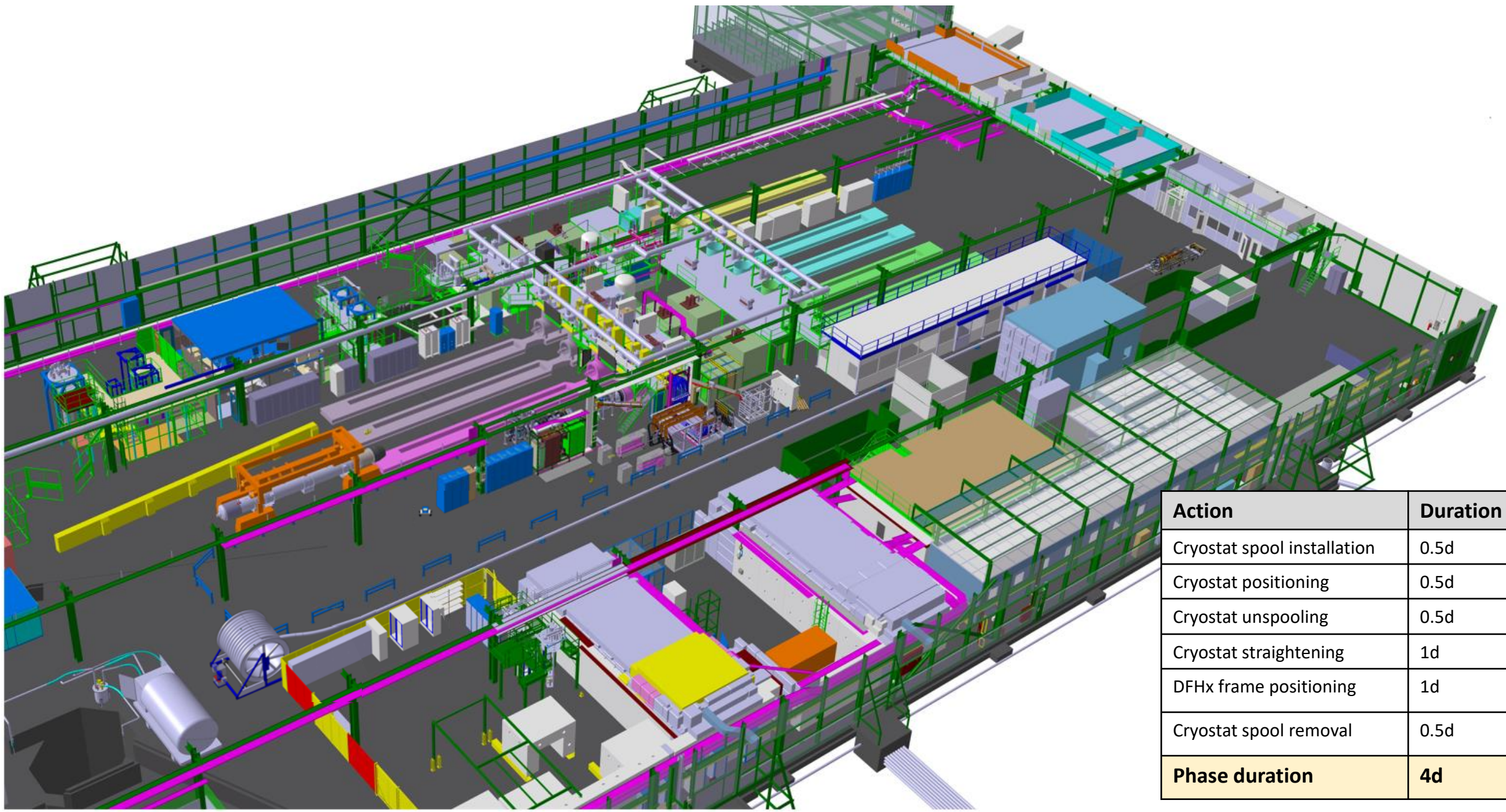
Action	Duration
Cryostat spool installation	0.5d
Cryostat positioning	0.5d
Cryostat unspooling	0.5d
Cryostat straightening	1d
DFHx frame positioning	1d
Cryostat spool removal	0.5d
Phase duration	4d

Phase 0: SCLink Cryostat+DFHx frame installation



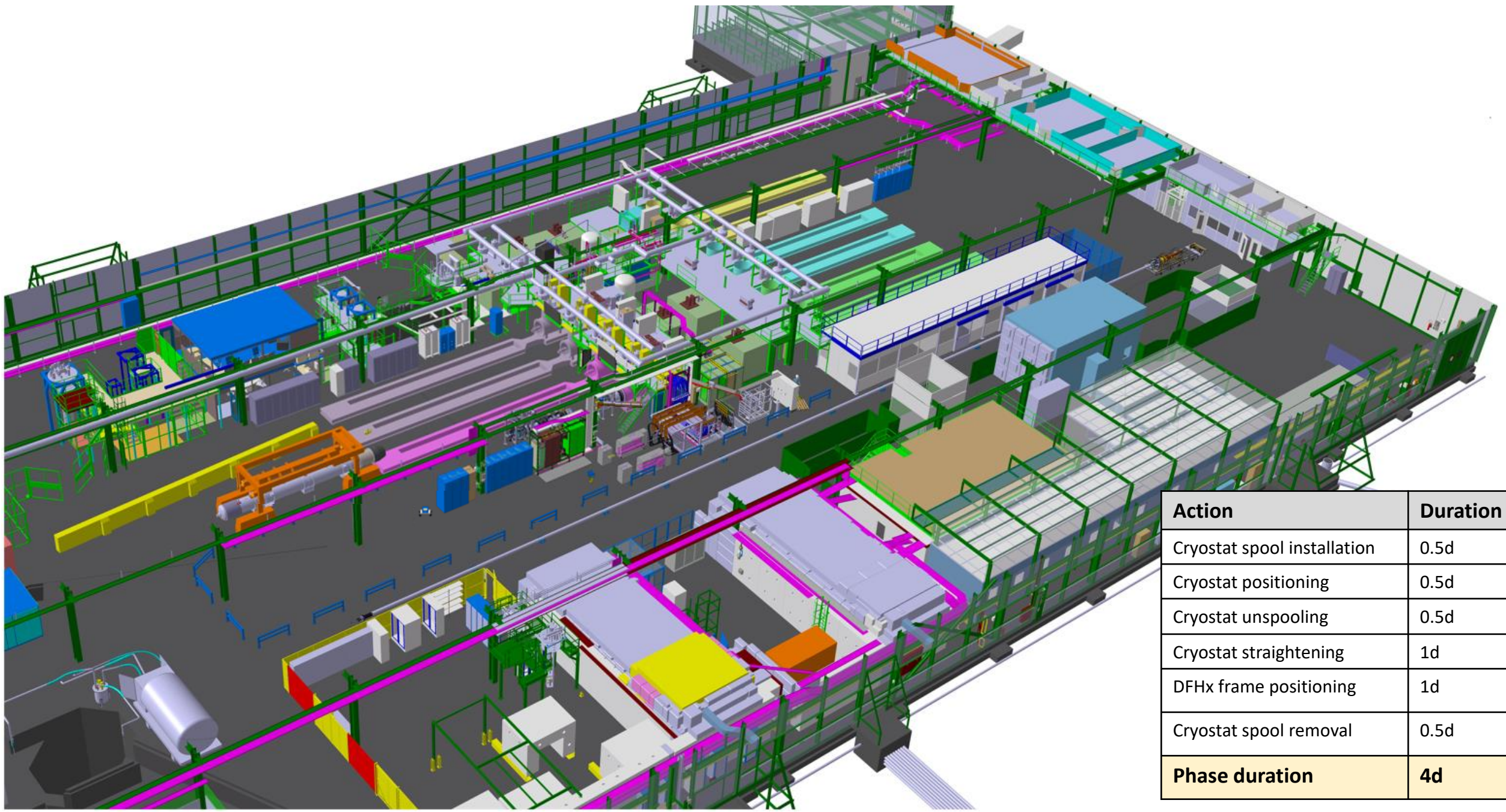
Action	Duration
Cryostat spool installation	0.5d
Cryostat positioning	0.5d
Cryostat unspooling	0.5d
Cryostat straightening	1d
DFHx frame positioning	1d
Cryostat spool removal	0.5d
Phase duration	4d

Phase 0: SCLink Cryostat+DFHx frame installation



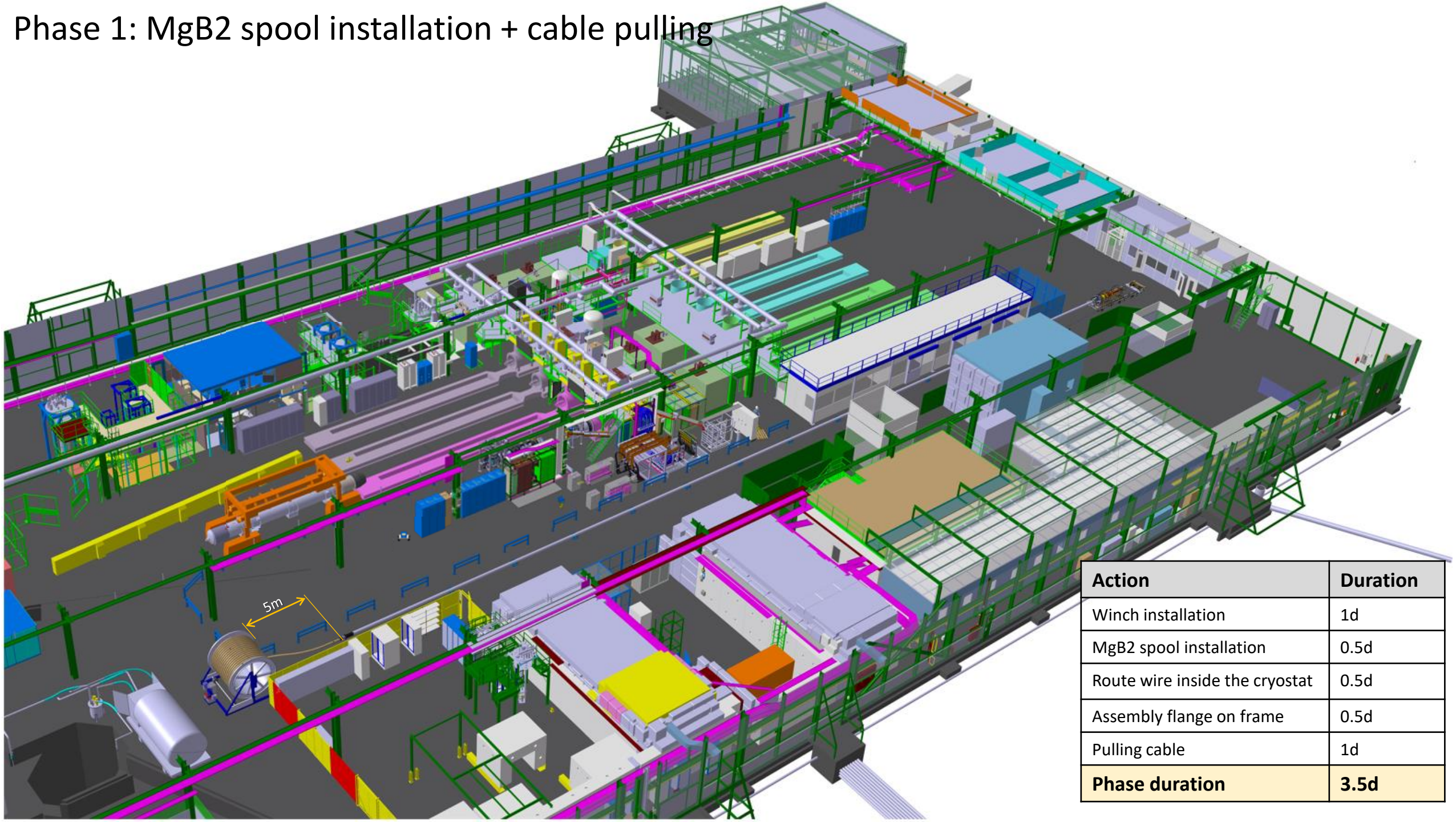
Action	Duration
Cryostat spool installation	0.5d
Cryostat positioning	0.5d
Cryostat unspooling	0.5d
Cryostat straightening	1d
DFHx frame positioning	1d
Cryostat spool removal	0.5d
Phase duration	4d

Phase 0: SCLink Cryostat+DFHx frame installation



Action	Duration
Cryostat spool installation	0.5d
Cryostat positioning	0.5d
Cryostat unspooling	0.5d
Cryostat straightening	1d
DFHx frame positioning	1d
Cryostat spool removal	0.5d
Phase duration	4d

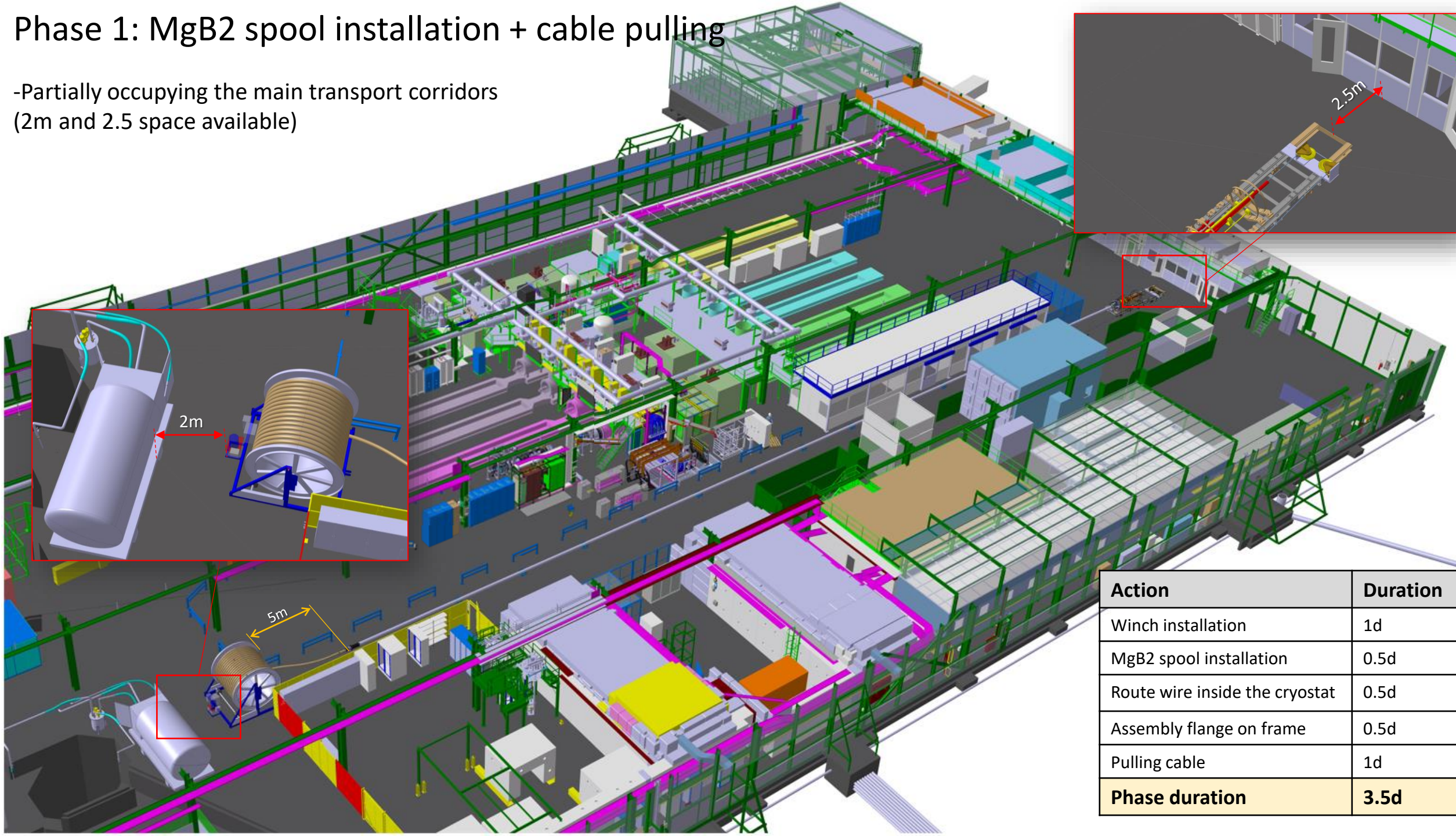
Phase 1: MgB2 spool installation + cable pulling



Action	Duration
Winch installation	1d
MgB2 spool installation	0.5d
Route wire inside the cryostat	0.5d
Assembly flange on frame	0.5d
Pulling cable	1d
Phase duration	3.5d

Phase 1: MgB2 spool installation + cable pulling

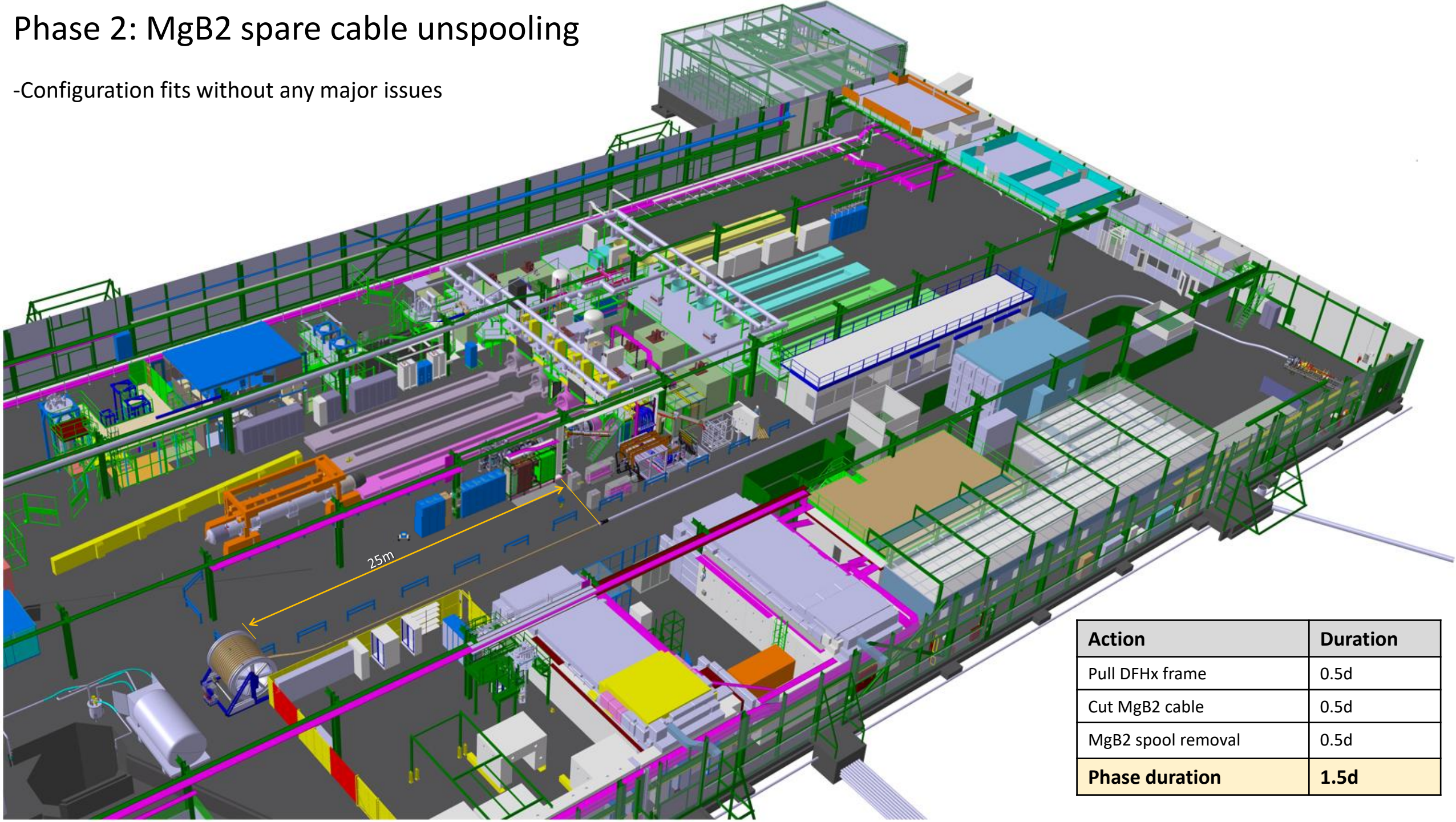
-Partially occupying the main transport corridors
(2m and 2.5 space available)



Action	Duration
Winch installation	1d
MgB2 spool installation	0.5d
Route wire inside the cryostat	0.5d
Assembly flange on frame	0.5d
Pulling cable	1d
Phase duration	3.5d

Phase 2: MgB2 spare cable unspooling

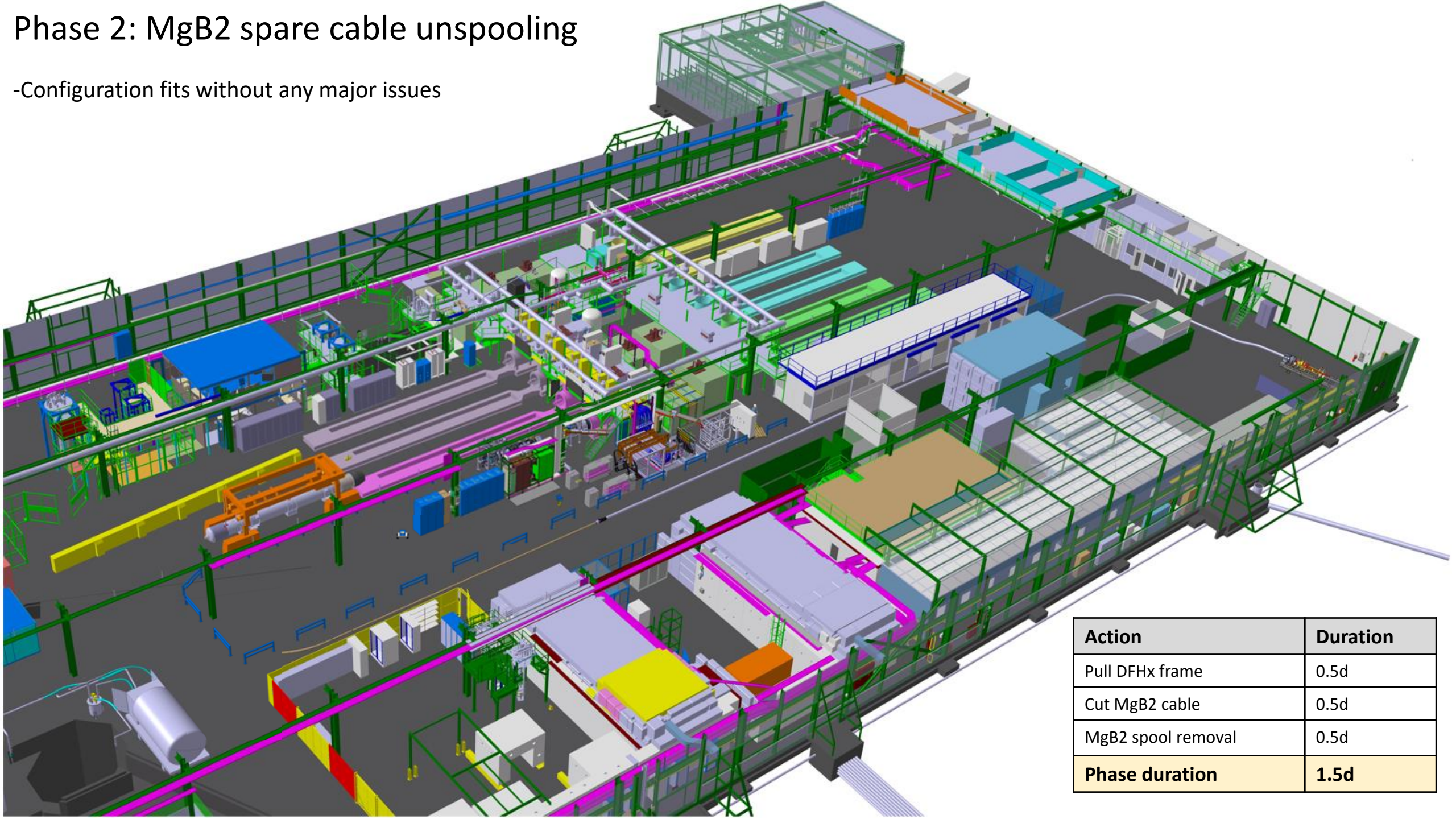
-Configuration fits without any major issues



Action	Duration
Pull DFHx frame	0.5d
Cut MgB2 cable	0.5d
MgB2 spool removal	0.5d
Phase duration	1.5d

Phase 2: MgB2 spare cable unspooling

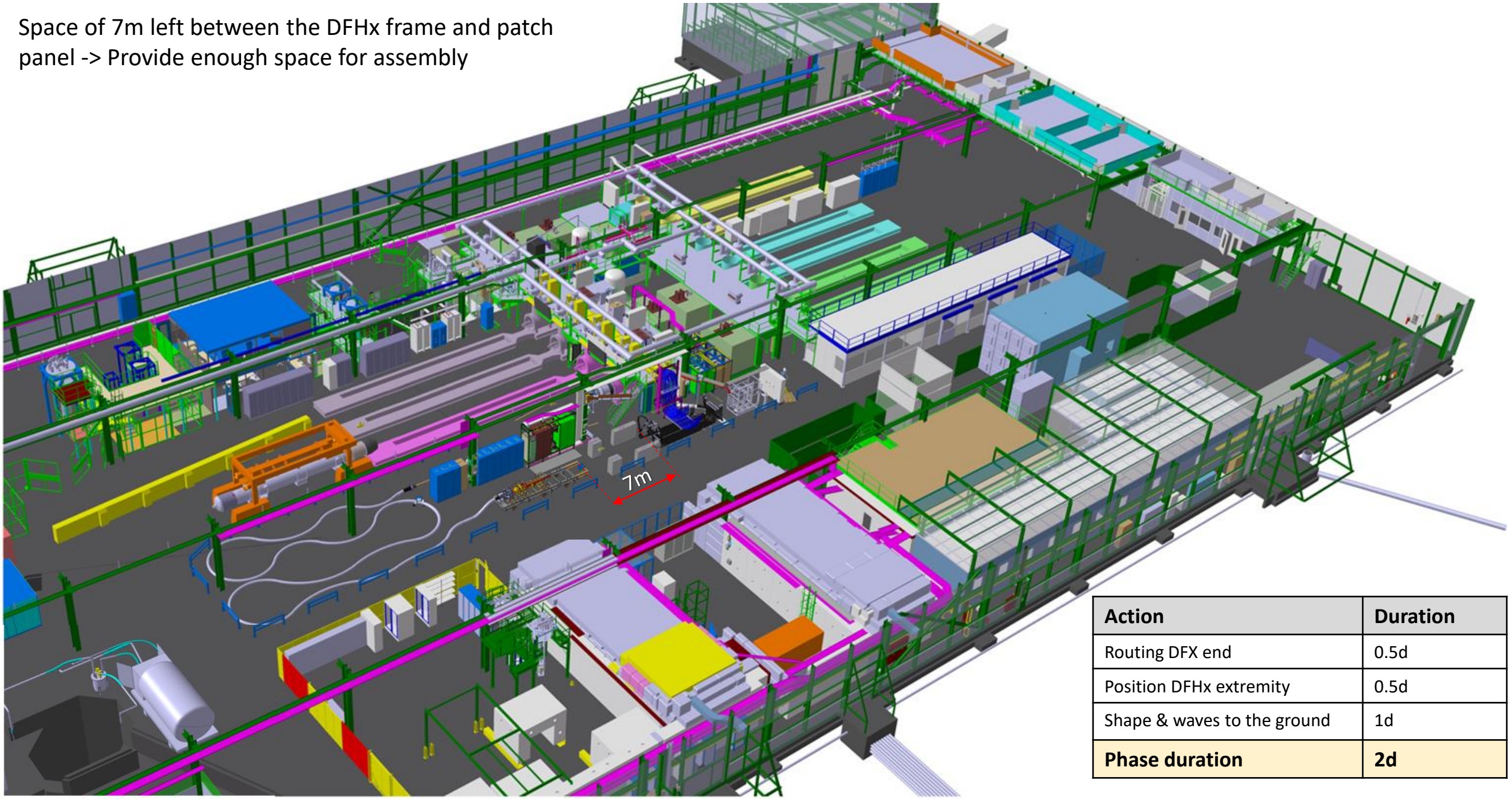
-Configuration fits without any major issues



Action	Duration
Pull DFHx frame	0.5d
Cut MgB2 cable	0.5d
MgB2 spool removal	0.5d
Phase duration	1.5d

Phase 3: DFHx +SCLink positioning in reserved space

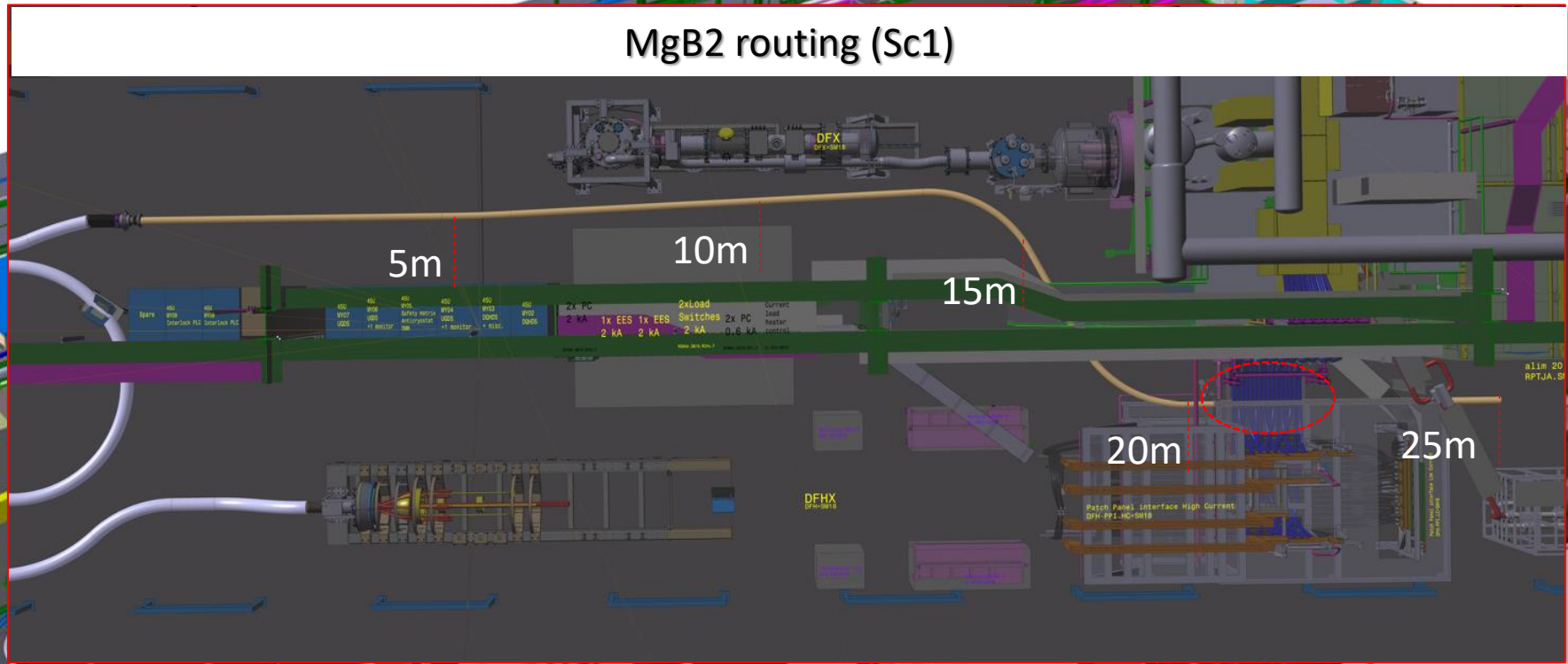
Space of 7m left between the DFHx frame and patch panel -> Provide enough space for assembly



Action	Duration
Routing DFx end	0.5d
Position DFHx extremity	0.5d
Shape & waves to the ground	1d
Phase duration	2d

Phase 3: DFHx +SCLink positioning in reserved space

MgB2 cable pass near the patch panel-> Limited space



Action	Duration
Routing DFHx end	0.5d
Position DFHx extremity	0.5d
Shape & waves to the ground	1d
Phase duration	2d

Phase 4: DFHx assembly & preparation to connect to Cluster F2

Action	Duration
DFHx assembly & Connection to ClusterF2	4.5m

Step 1: Position the frame at the nominal assembly position

Step 2: Install the jacks under the frame

Step 3: Lift the frame till the wheels are detached from the floor [Maintain the whole configuration straight]

Step 4: Assemble the cryostat

Step 5: Lower down the assembled cryostat

Step 6: Slide it towards the patch panel and reach the final installation position

Step 7.1: Install the jacks under the frame

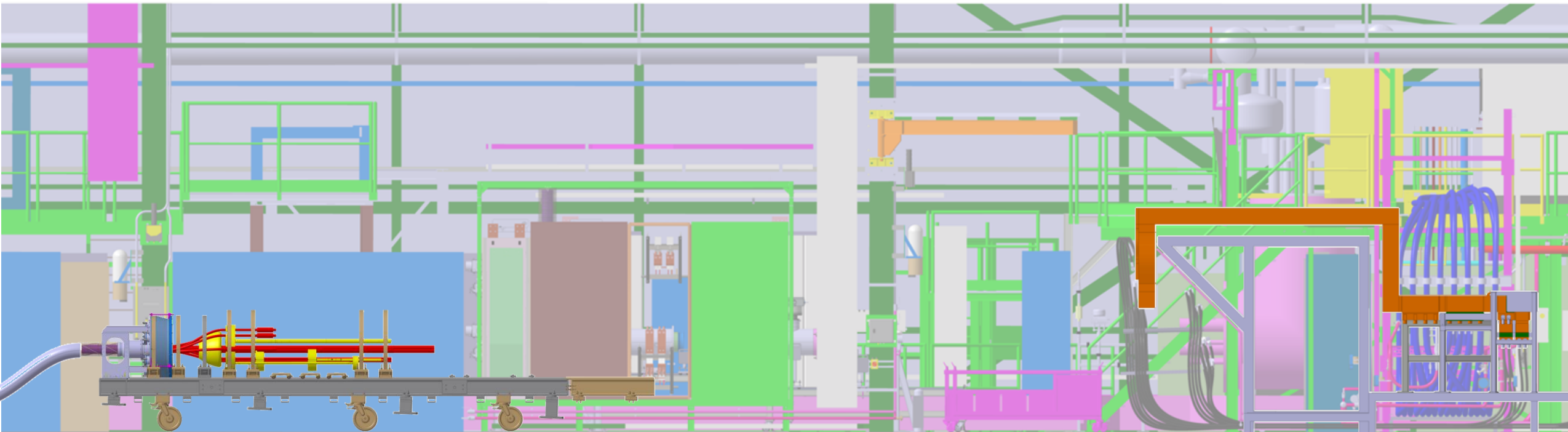
Step 8: Lift the cryostat till the wheels are detached from the floor

Step 9: Remove the wheels

Step 10: Lower down the jacks (or brackets) till the cryostat reach the needed inclined position

Step 11: Add the fixation point

Step 12: Connect the cryostat to the patch panel



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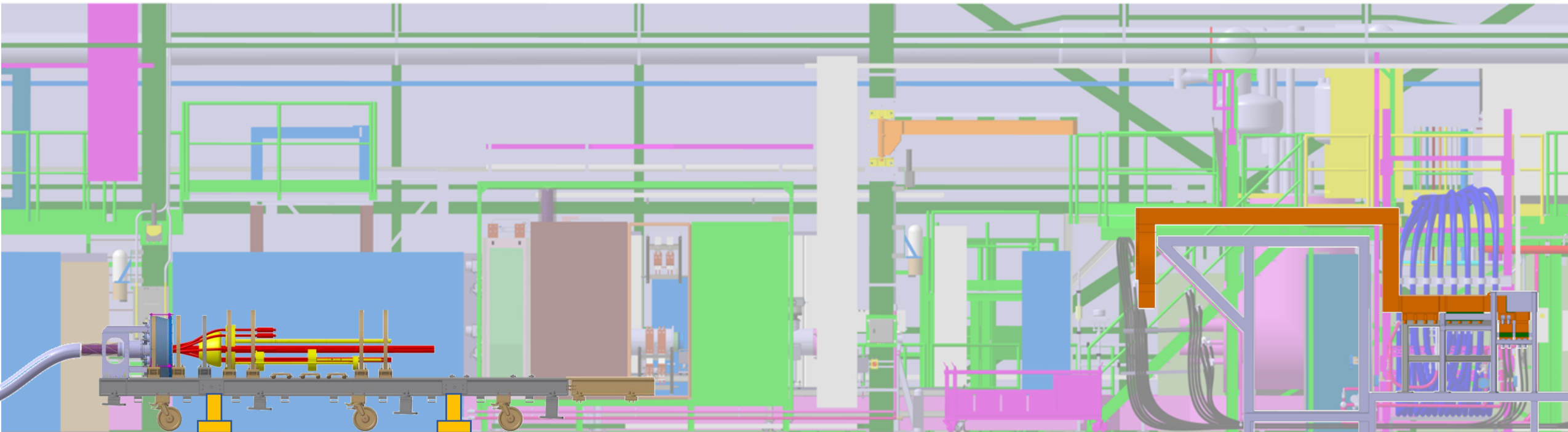
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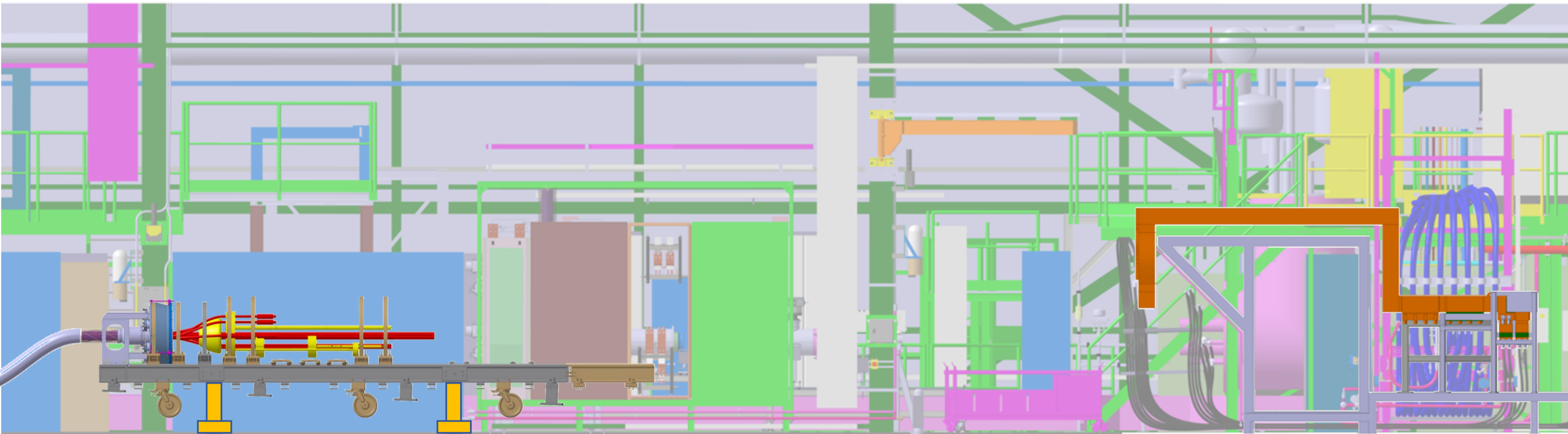
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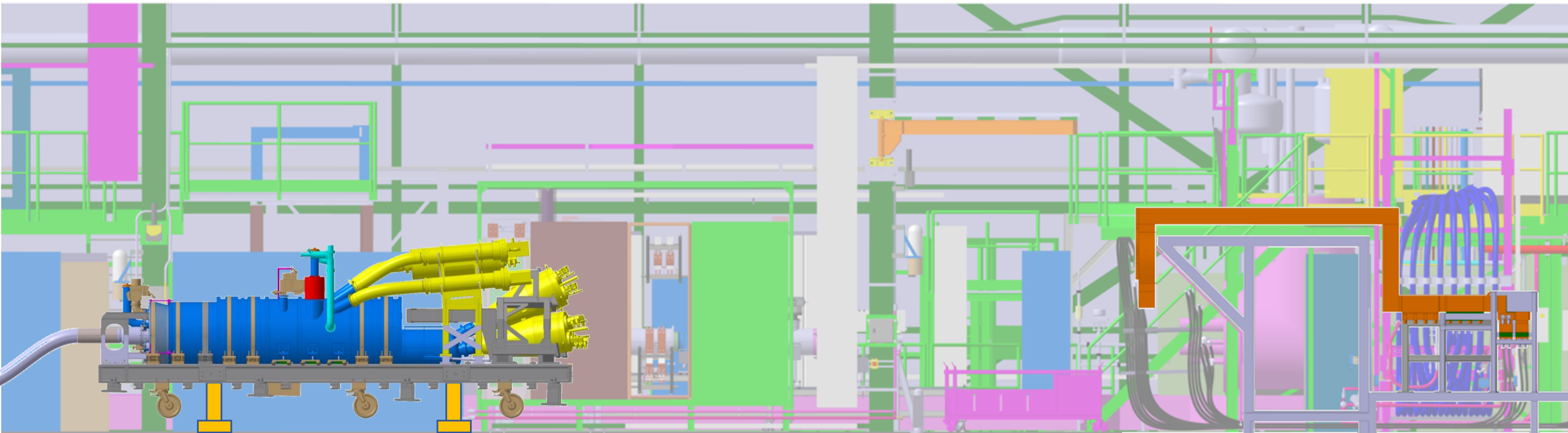
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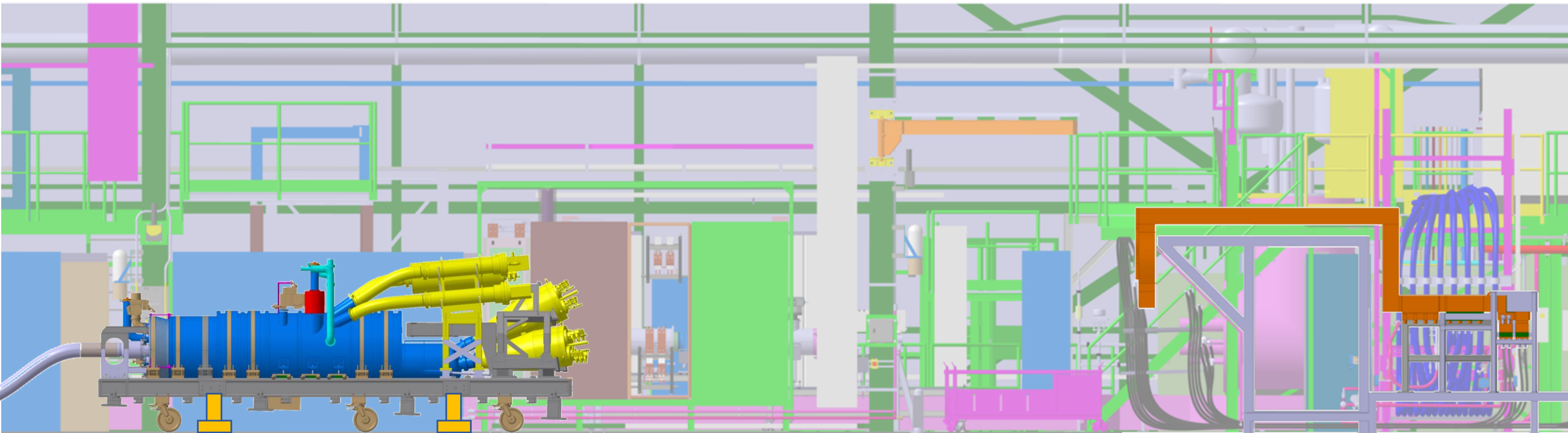
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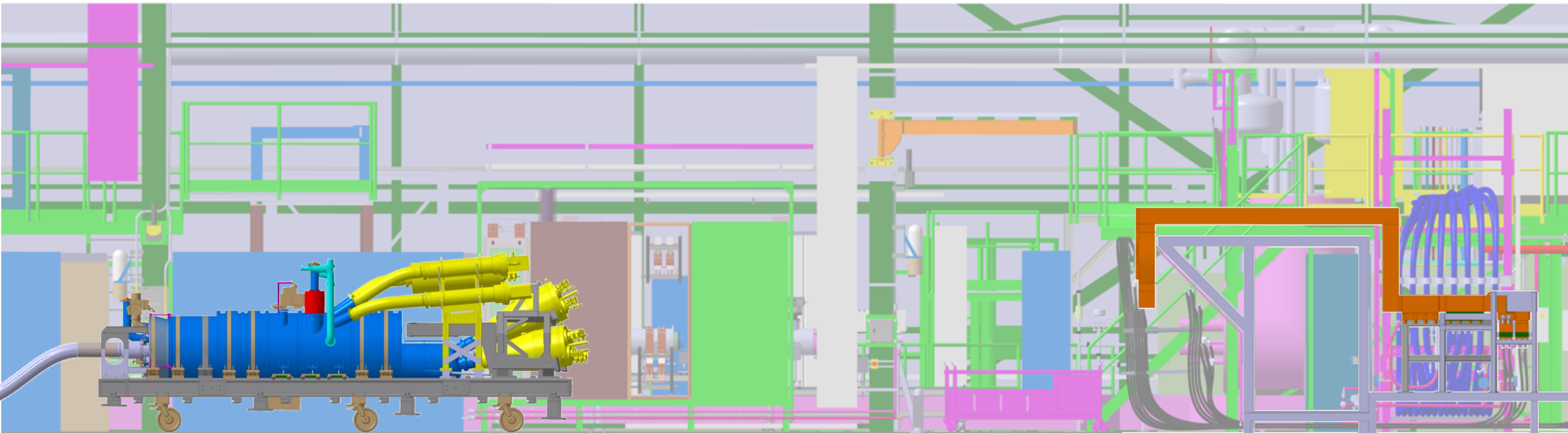
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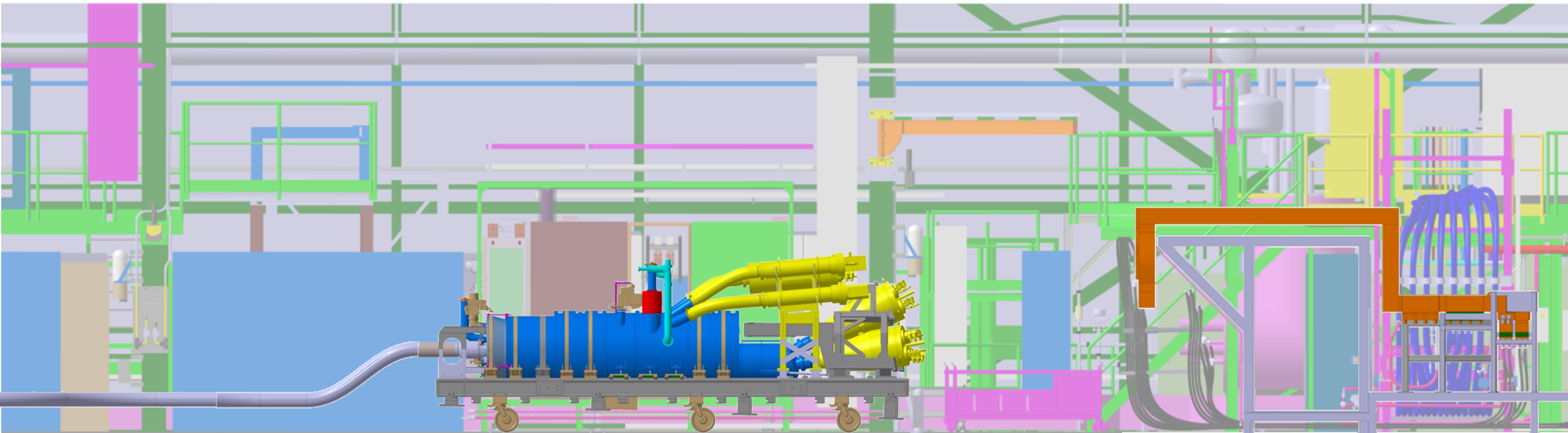
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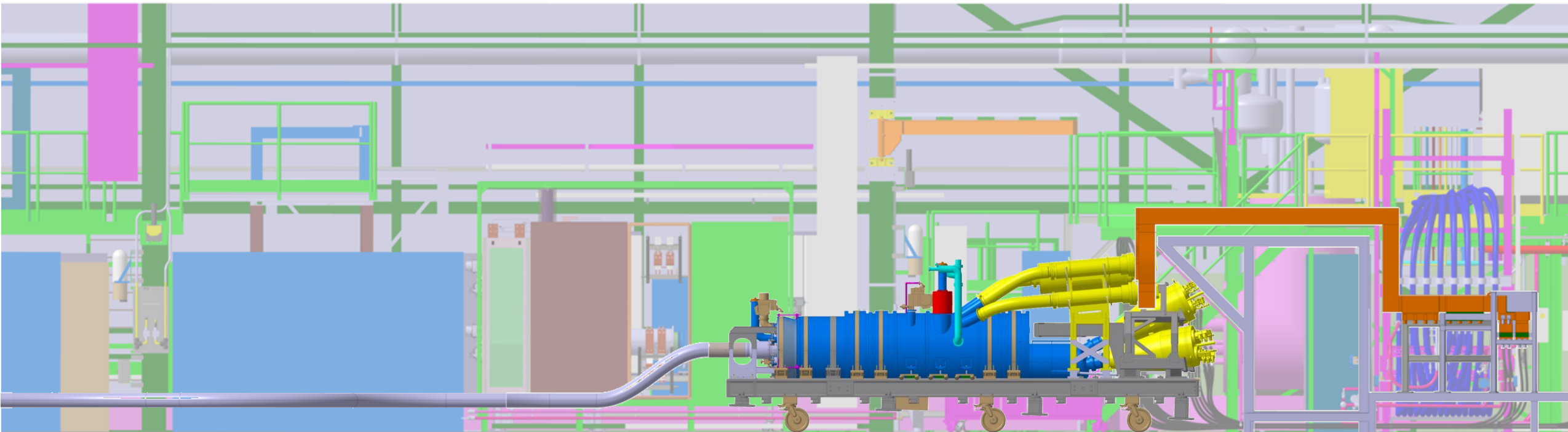
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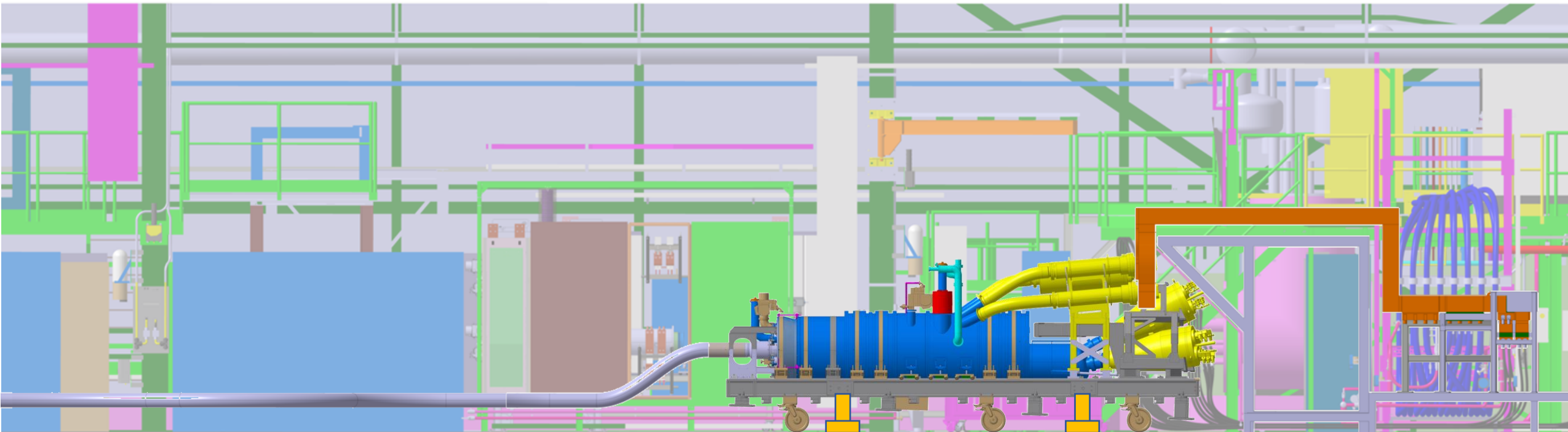
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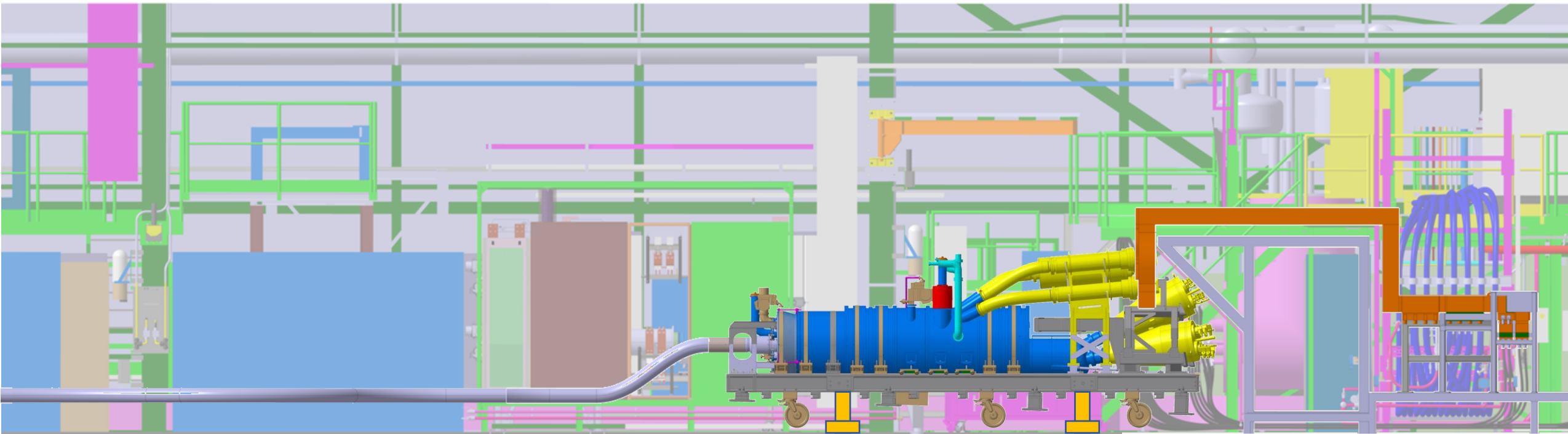
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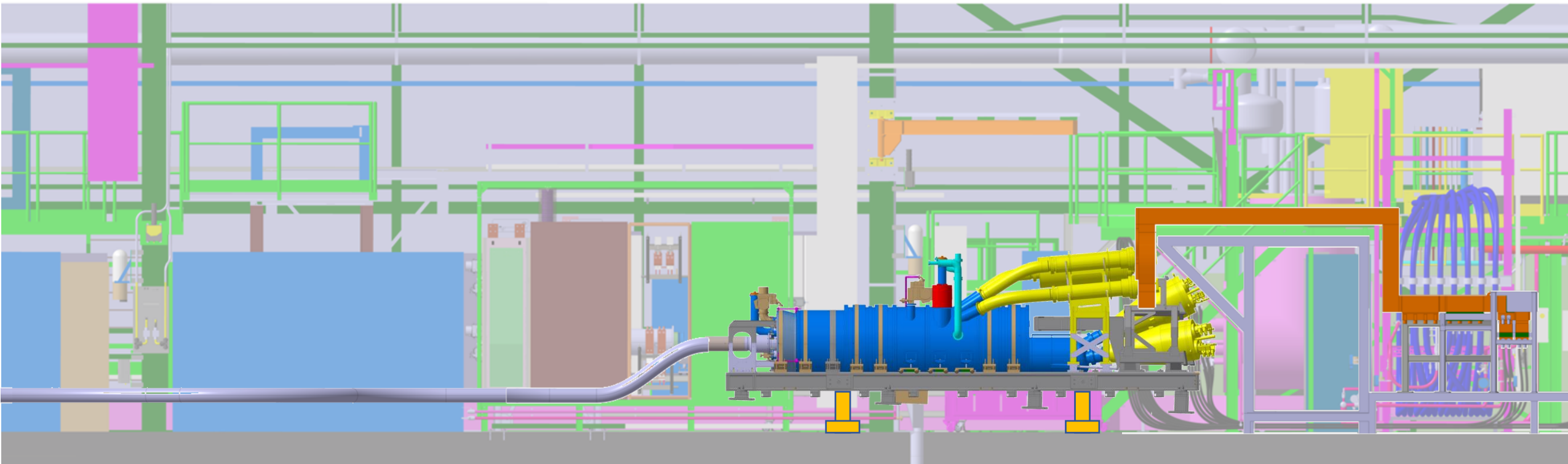
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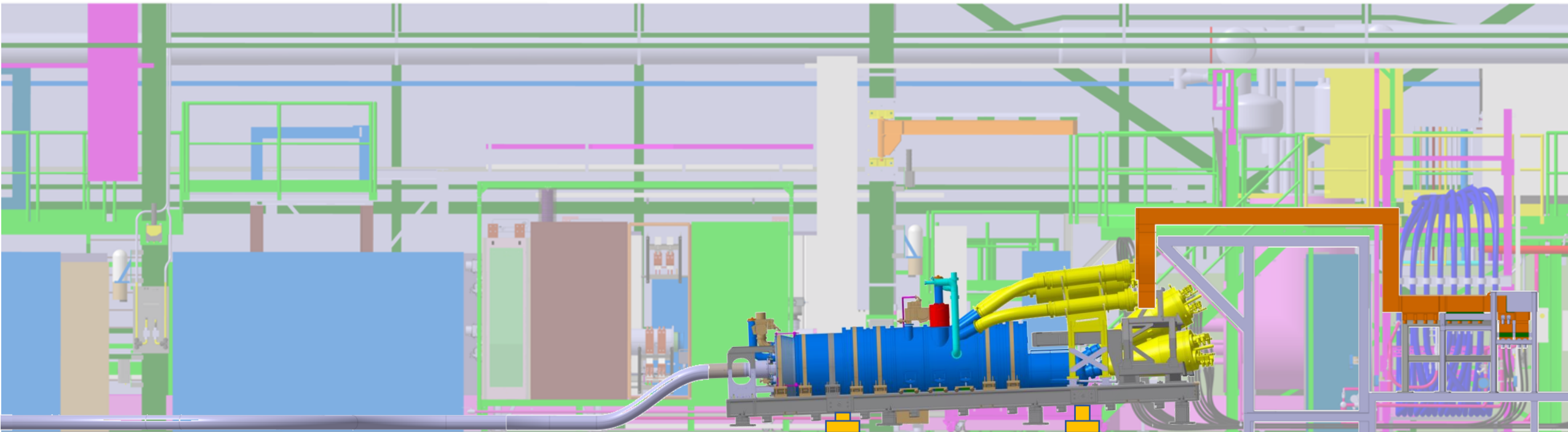
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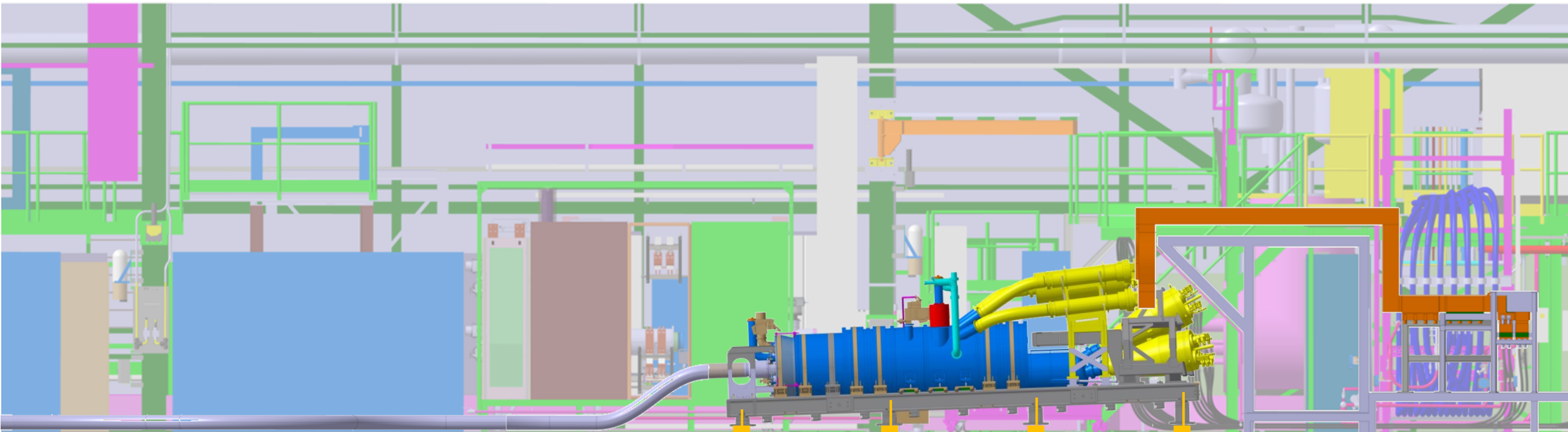
Step 8: Lift the cryostat till the wheels are detached from the floor

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Step 10: Lower down the jacks (or brackets) till the cryostat reach the needed inclined position [Fix cryostat by installing the adjustable feet & Remove the jacks]

Step 11: Add the fixation point

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Phase 4: DFHx assembly & preparation to connect to Cluster F2

Action	Duration
DFHx assembly & Connection to ClusterF2	4.5m

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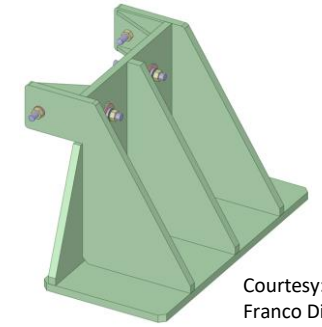
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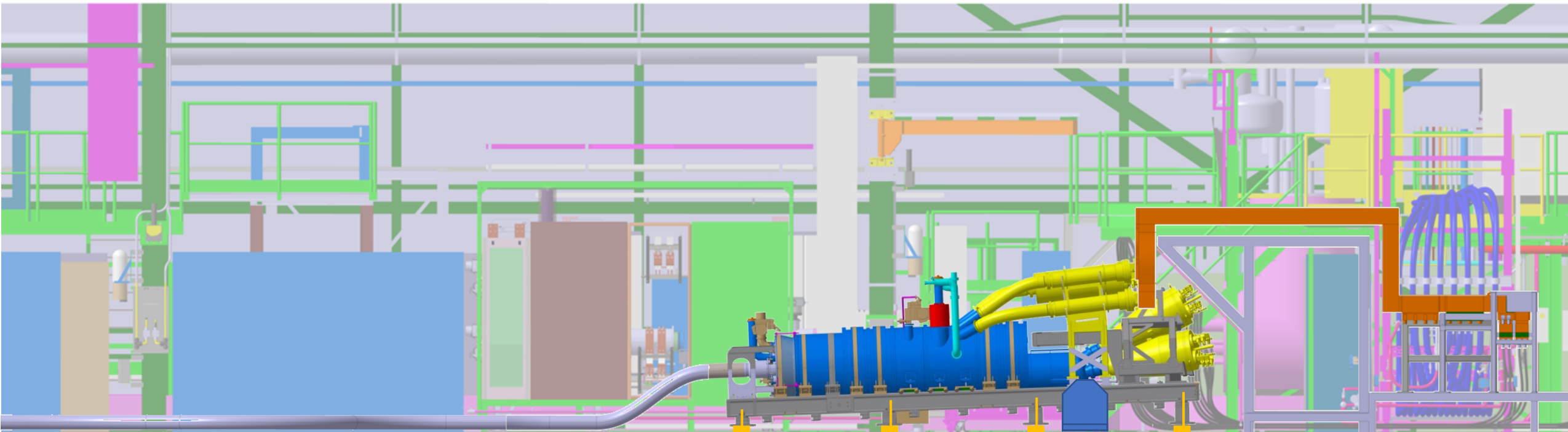
Step 10: Lower down the jacks (or brackets) till the cryostat reach the needed inclined position [Fix cryostat by installing the adjustable feet]

Step 11: Add the fixation point

Step 12: Connect the cryostat to the patch panel



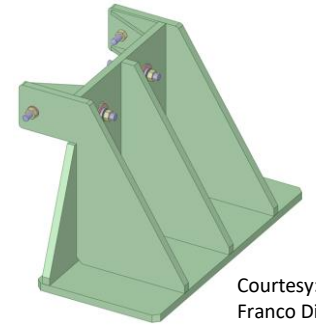
Courtesy:
Franco Di Ciocchis



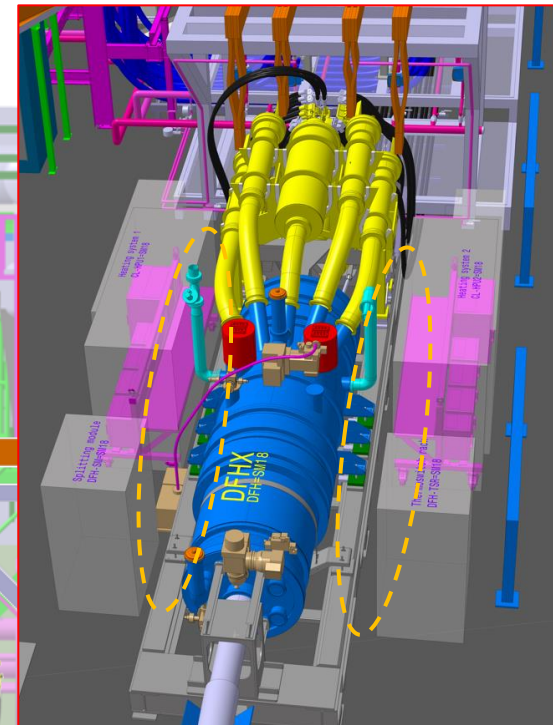
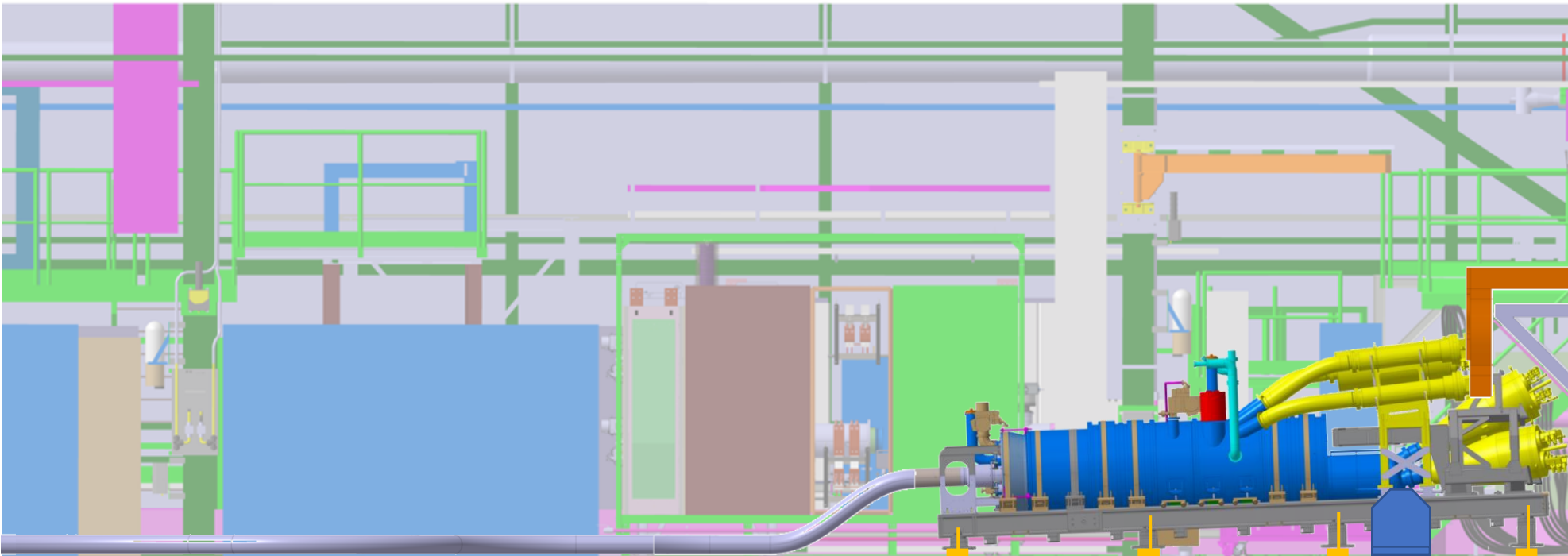
Phase 4: DFHx assembly & preparation to connect to Cluster F2

Action	Duration
DFHx assembly & Connection to ClusterF2	4.5m

- Step 1: Position the frame at the nominal assembly position
- Step 2: Install the jacks under the frame
- Step 3: Lift the frame till the wheels are detached from the floor [Maintain the whole configuration straight]
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- Step 6: Slide it towards the patch panel and reach the final installation position
- Step 7.1: Install the jacks under the frame
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- Step 11: Add the fixation point**
- Step 12: Connect the cryostat to the patch panel



Courtesy:
Franco Di Ciocchis



Enough space around DFHx for the brackets to be installed??

Phase 4: DFHx assembly & preparation to connect to Cluster F2

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DFHx assembly & Connection to ClusterF2	4.5m

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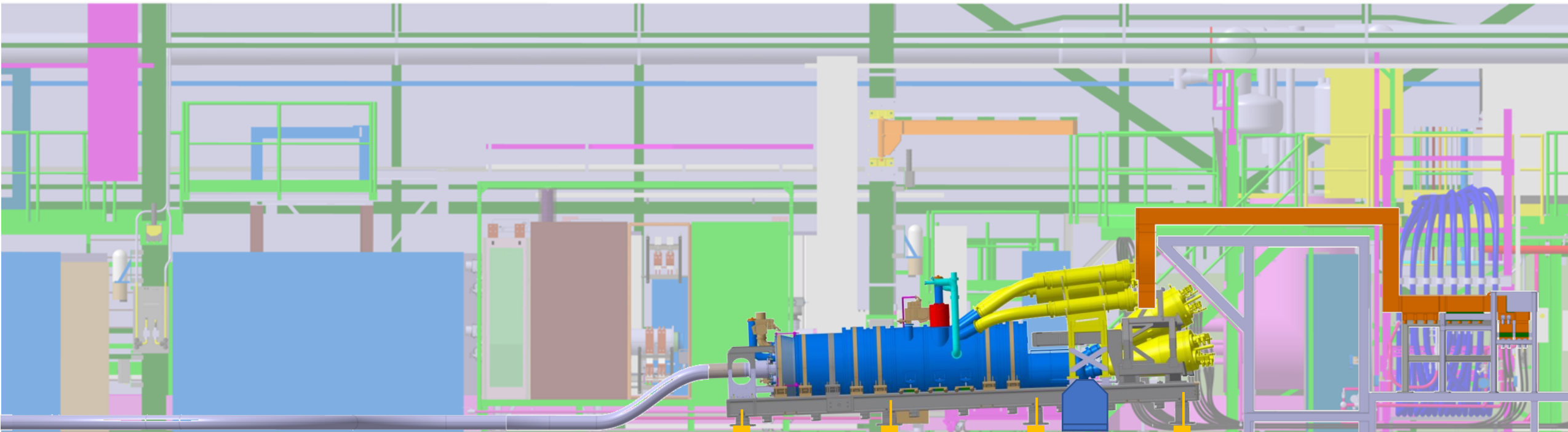
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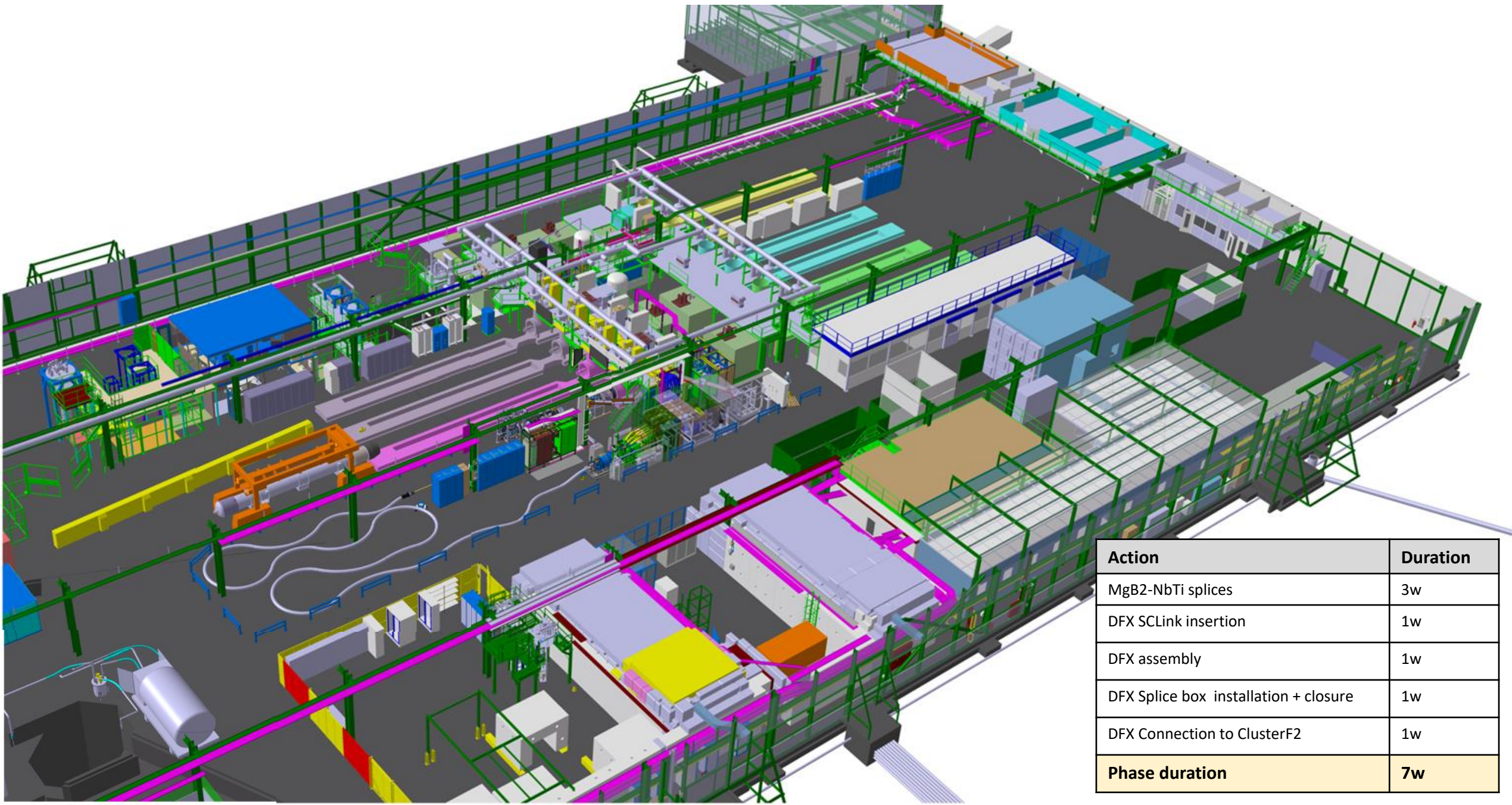
Step 10: Lower down the jacks (or brackets) till the cryostat reach the needed inclined position

Step 11: Add the fixation point

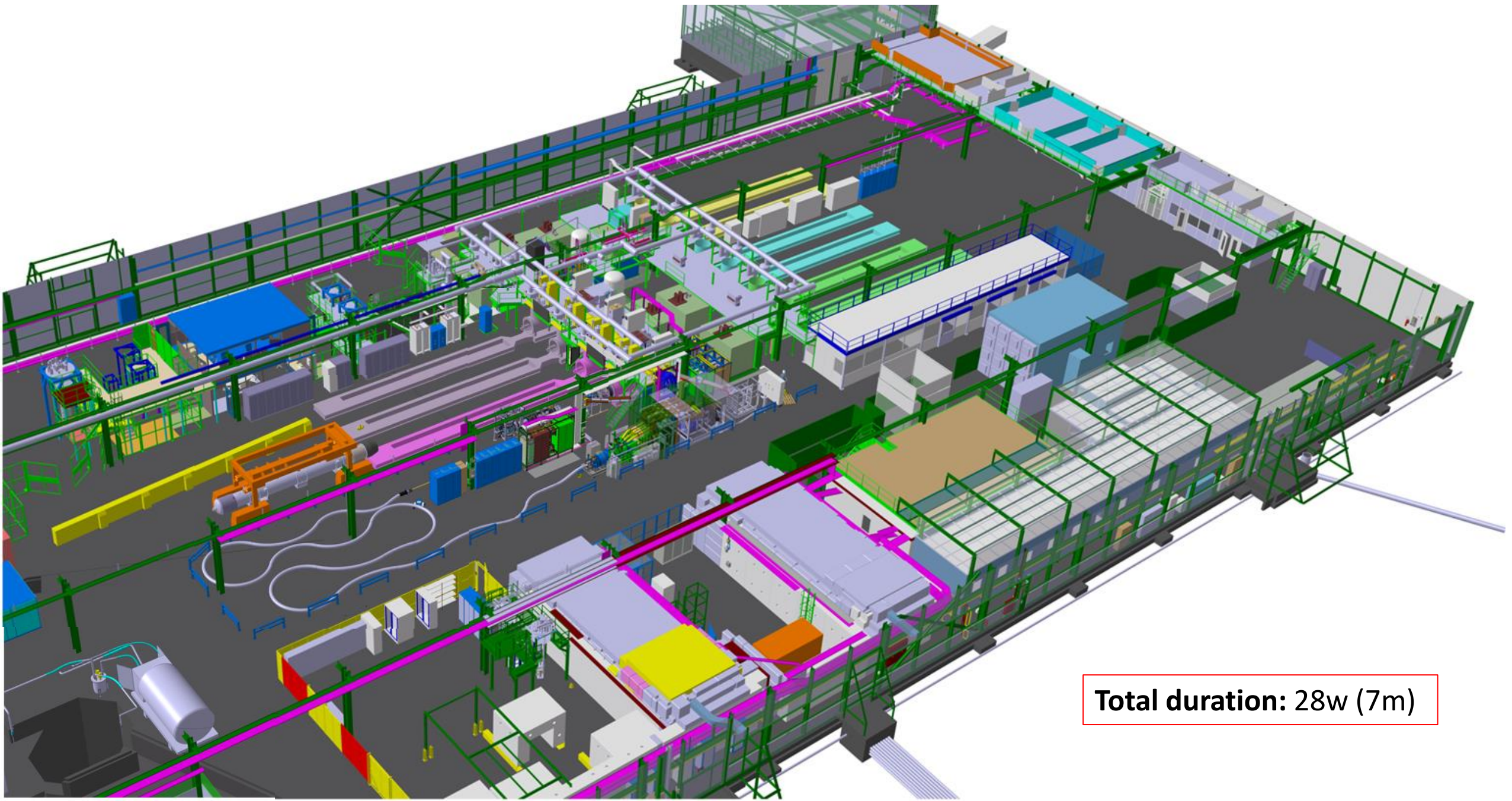
Step 12: Connect the cryostat to the patch panel



Phase 5: DFHx connection to ClusterF



Action	Duration
MgB ₂ -NbTi splices	3w
DFX SCLink insertion	1w
DFX assembly	1w
DFX Splice box installation + closure	1w
DFX Connection to ClusterF2	1w
Phase duration	7w



Total duration: 28w (7m)

Sum up

- No major issues and showstoppers appear during the Sc2 configuration
- Consider the min available space (2m) is enough during the cable pulling process
- Preliminary DFHx assembly & preparation to connect to Cluster F2 procedure
- Total duration of the whole installation process 7months

SPARE SLIDES

74.5m

