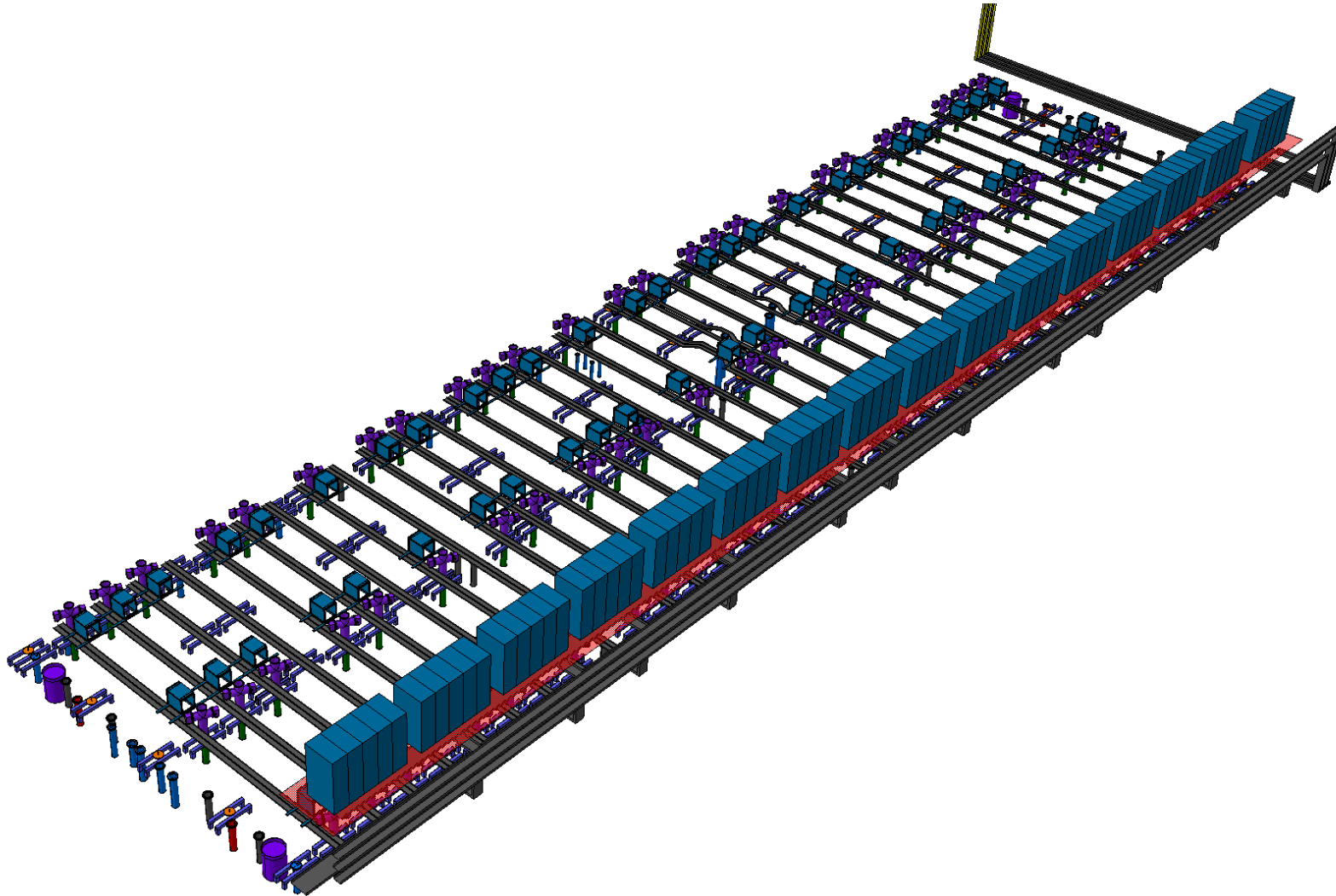


LBNF

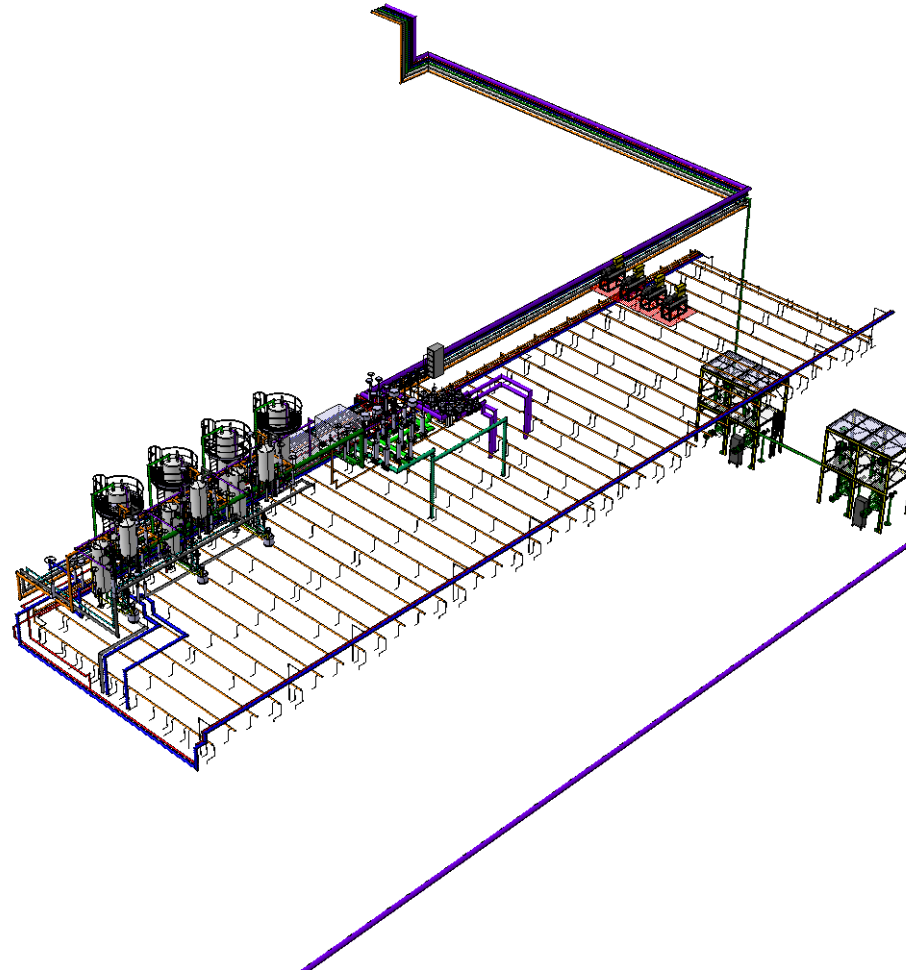
Modification since V4

Detector Mezzanine racks and cable trays



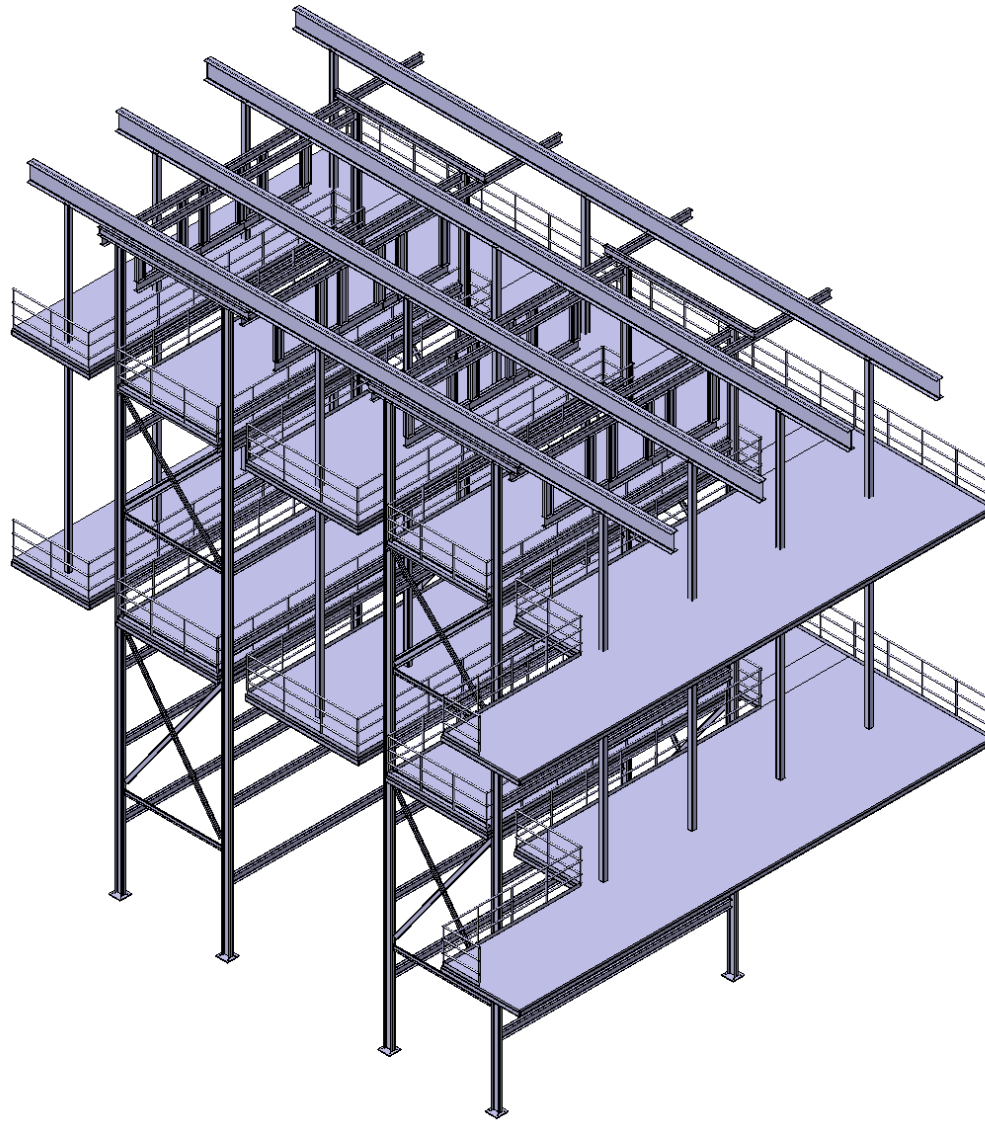
- Racks support position modified
- Detector mezzanine racks: number and dimensions have been changed

Mezzanine Proximity Cryogenics



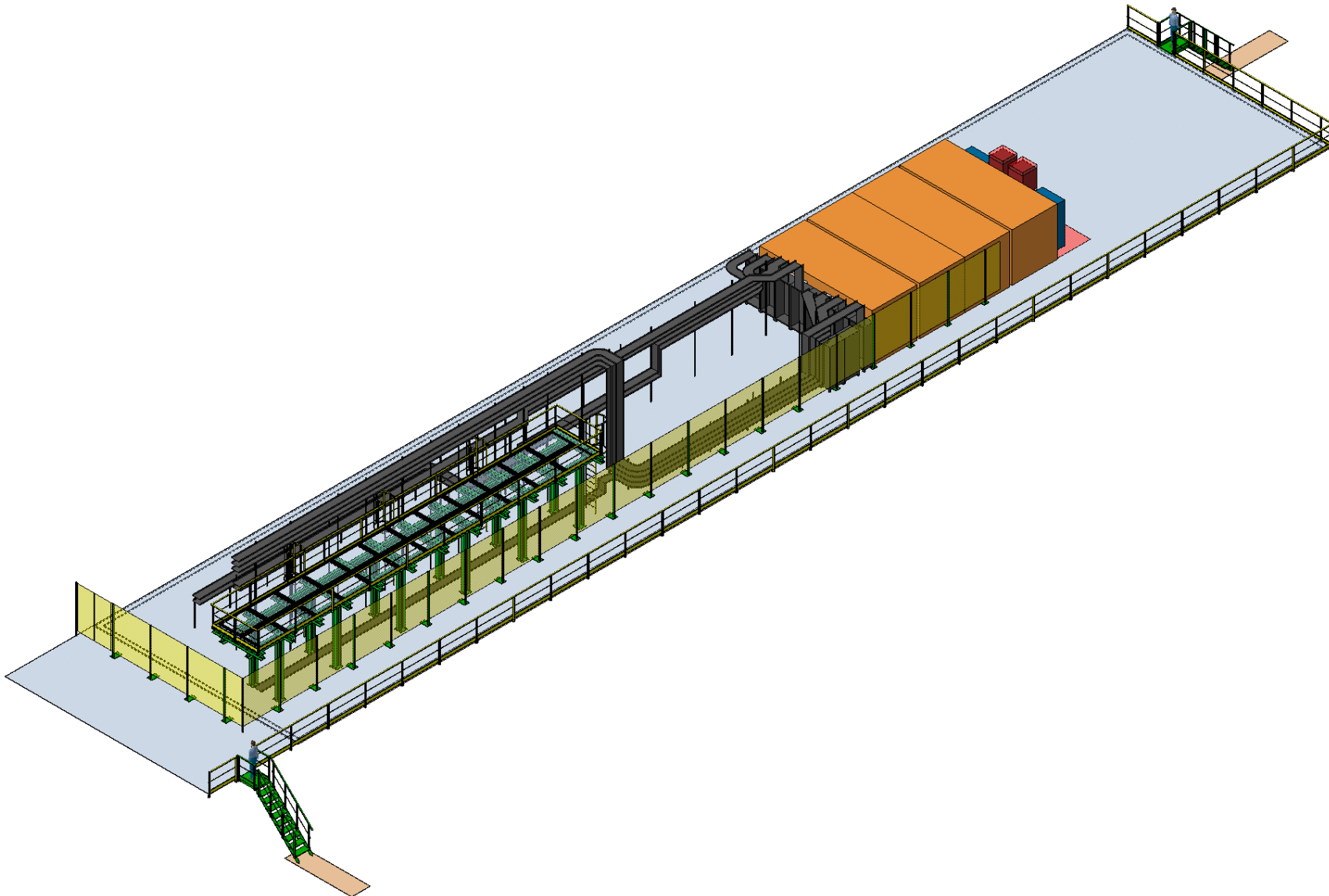
- Additional 4 x SPC 4 generators
- Additional lines on Purge Pipe system to reach condensers
- Layout modification on GAr lines, LAr transfer lines, N₂ Gas lines, N₂ liquid transfer lines and valve box system
- 1 of 4 cryo modules has been removed (LN₂ Phase Separator, LAr Condenser pump, New Condenser and *Desuperheater*)

Clean Room Structure



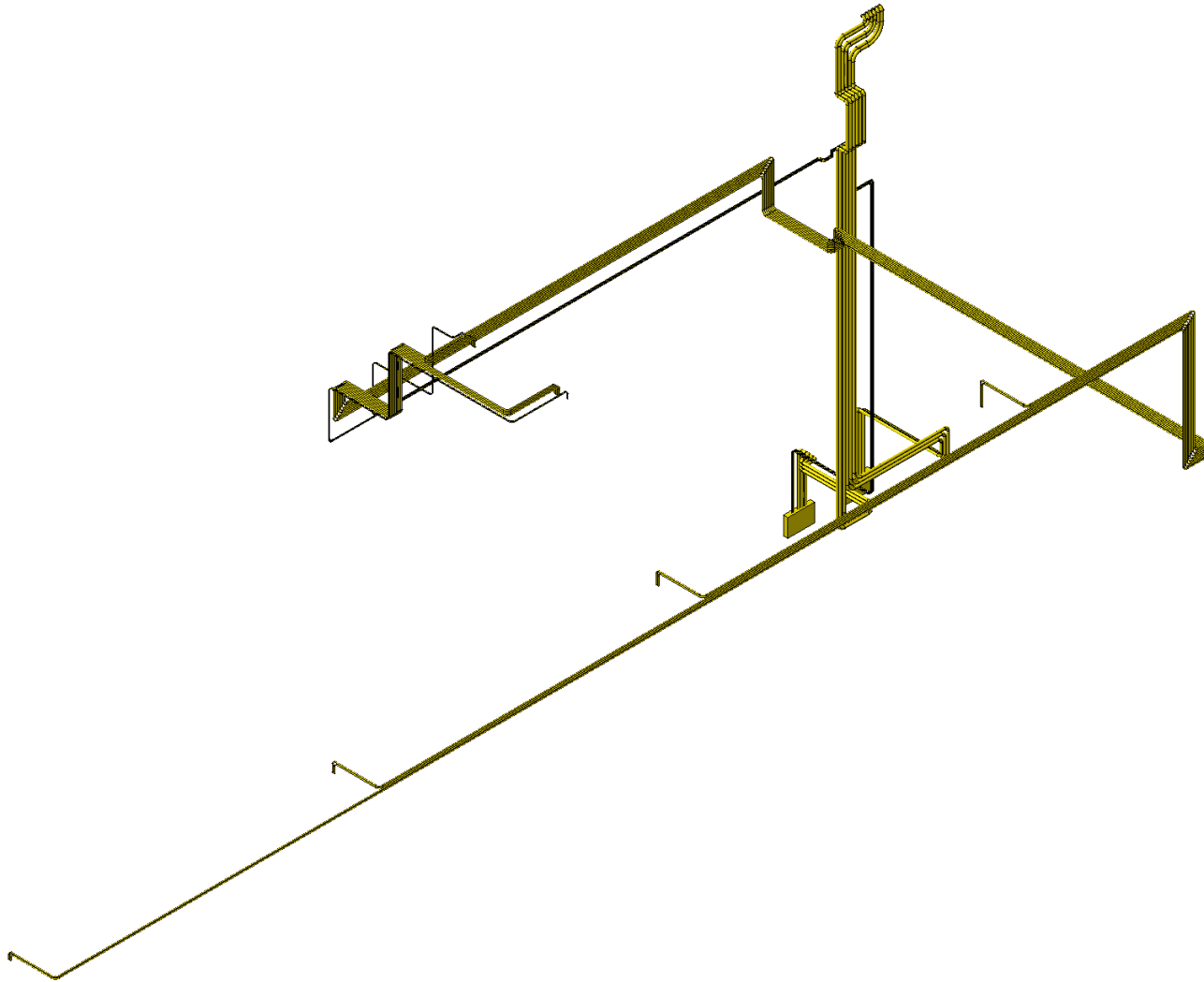
- Additional Clean Room Structure in front of the cryostat

Mezzanine Platform and Access



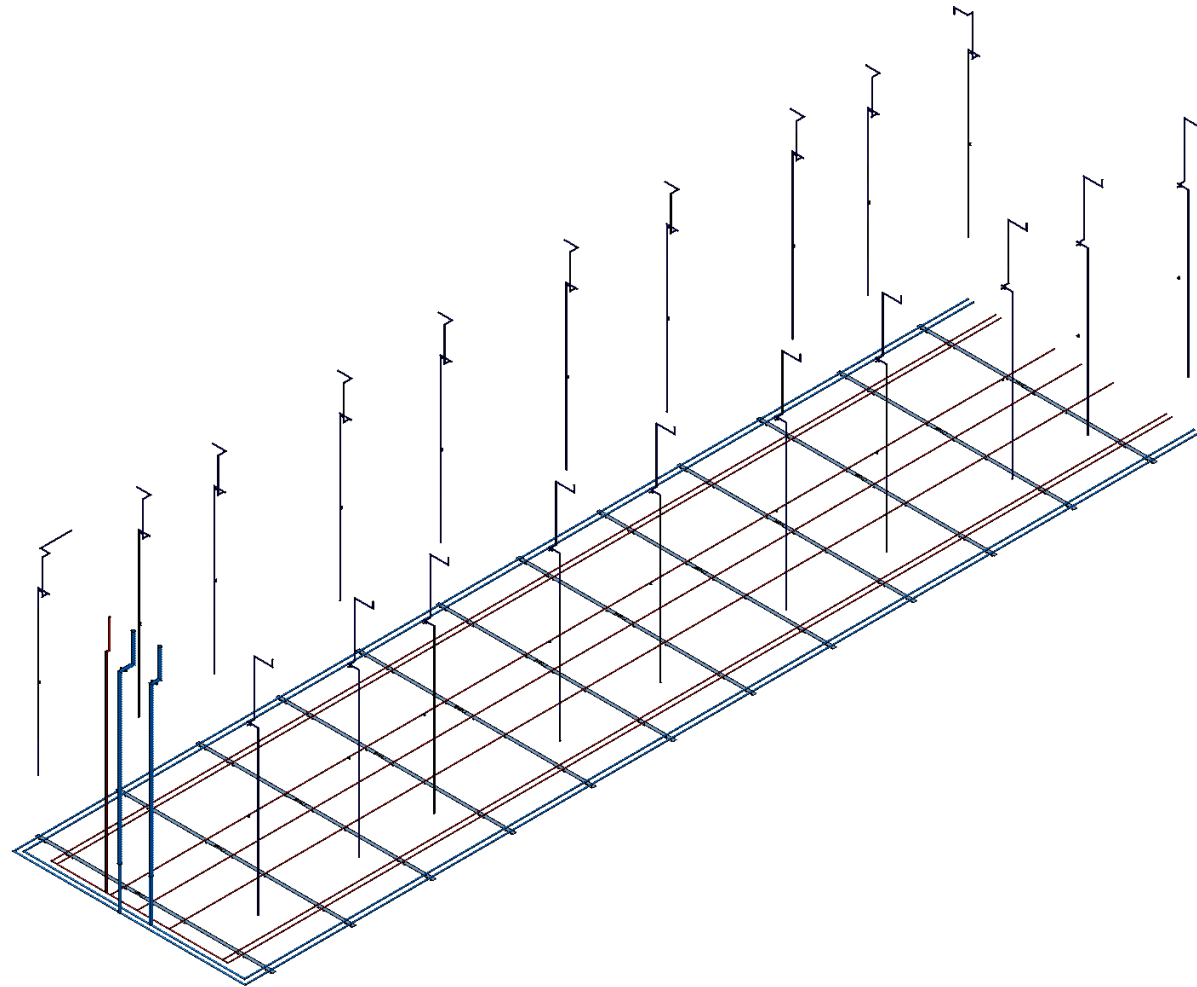
- Offices and racks moved to have more free space on front mezzanine

Additional Electrical Equipment



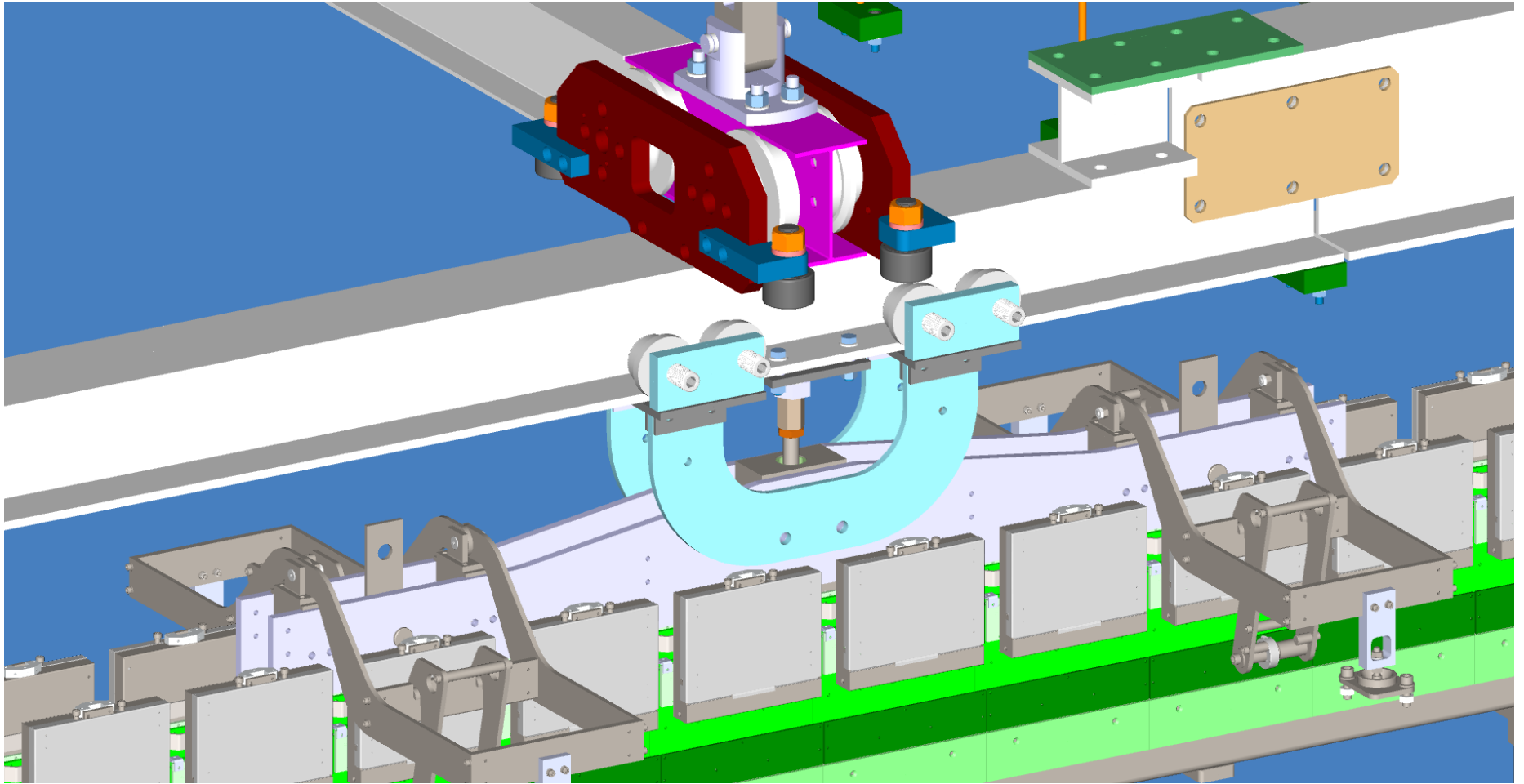
- Additional electrical equipment conduits (connecting the racks behind offices to the racks on the detector mezzanine)

Internal Cryogenics



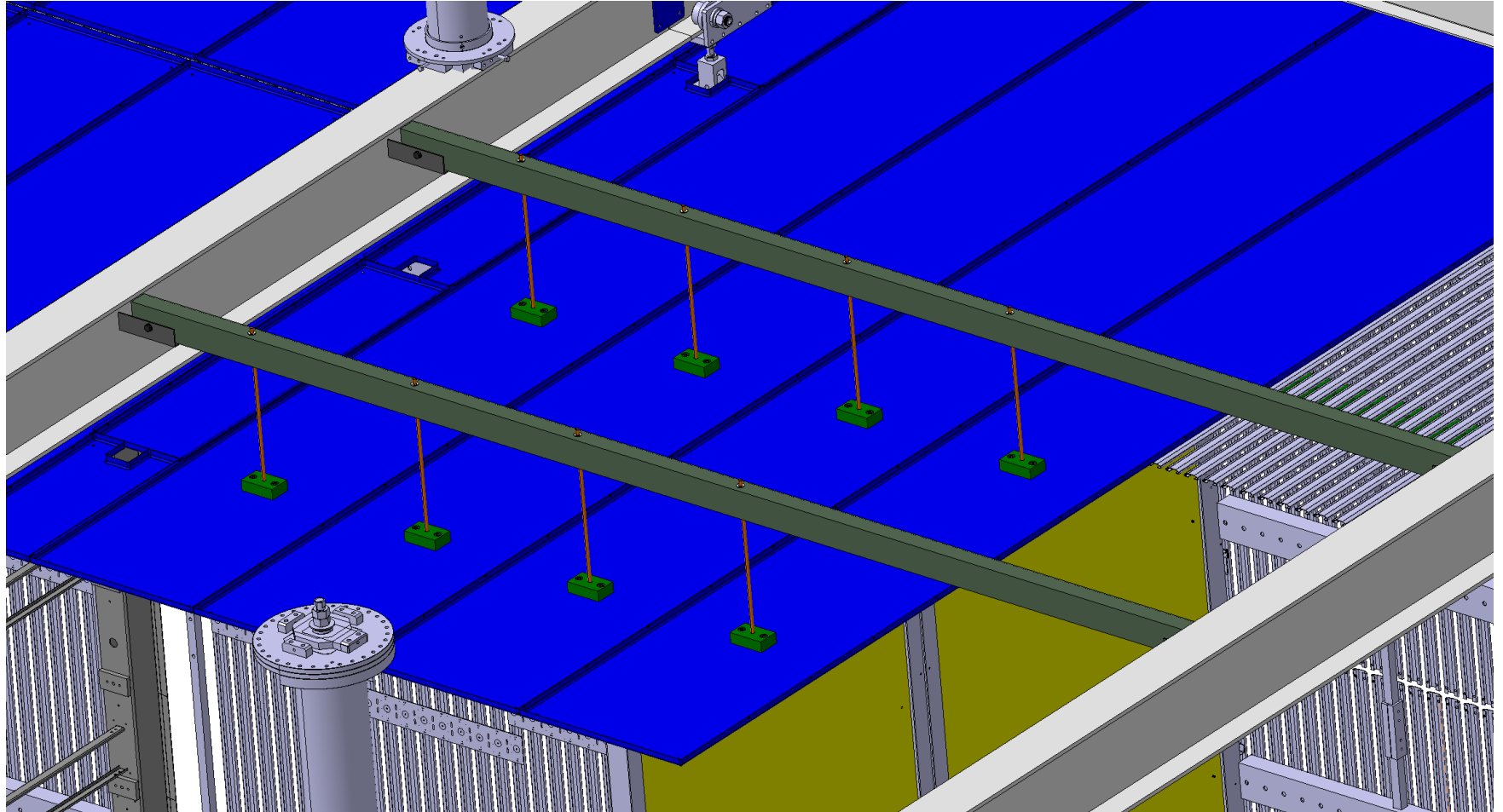
- Complete new layout for the cool down pipes (to avoid interference with the detector)

DSS



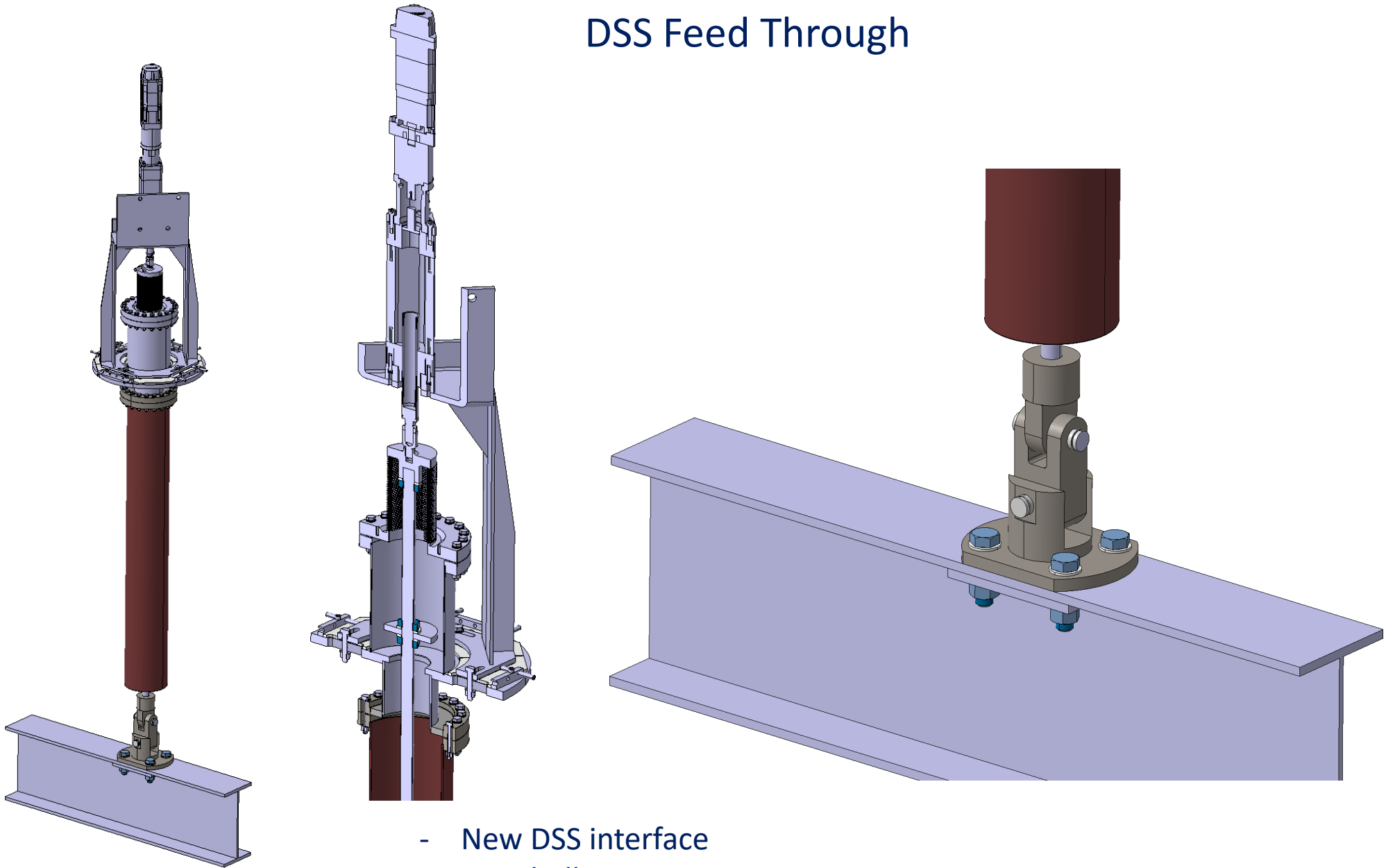
- New Trolley
- New Yoke-to-DSS connection
- New DSS rail-to-DSS rail connection
- New Feedthrough-to-DSS rail connection

Ground Plane to DSS Interface



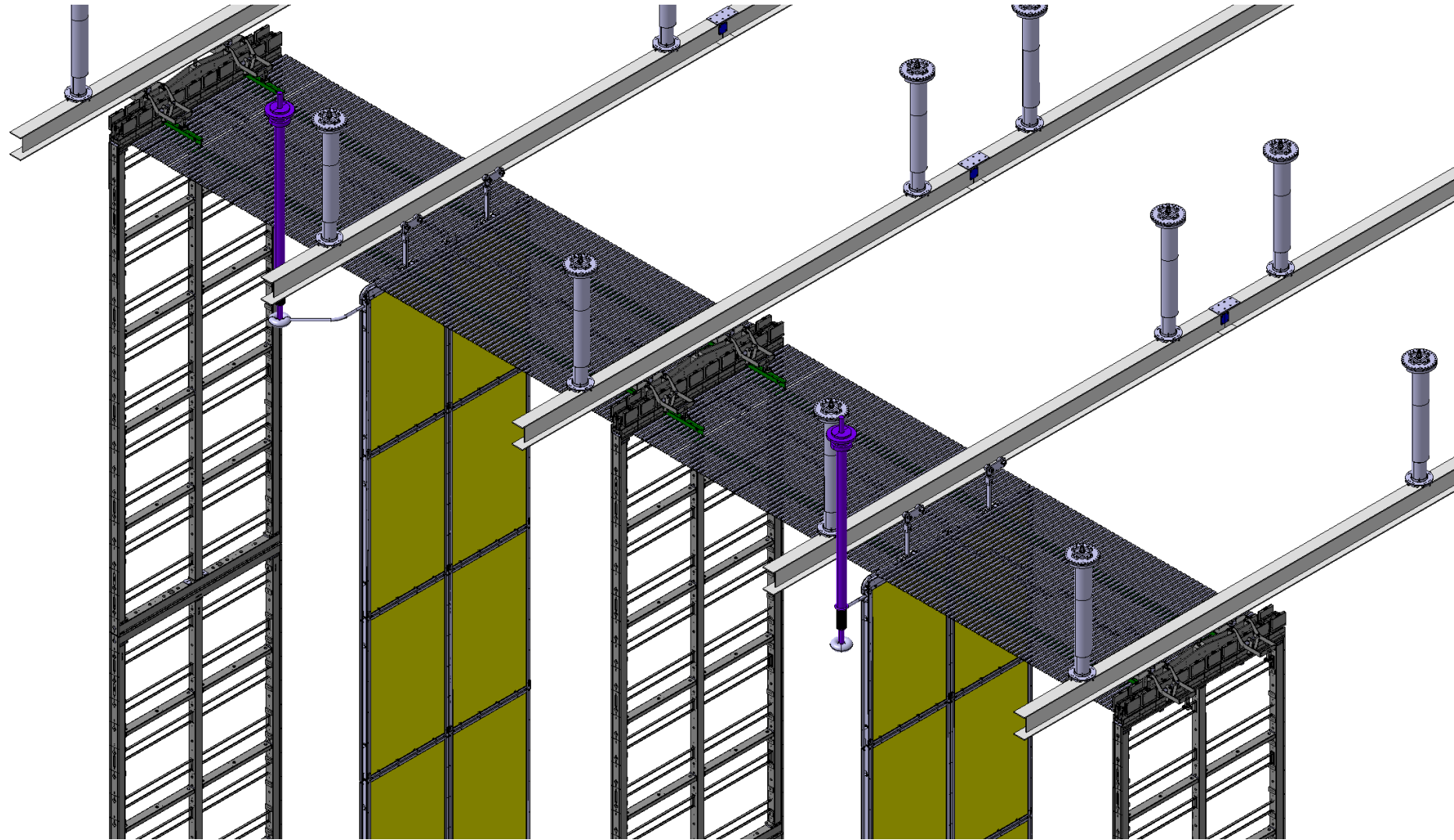
- New Ground Plane-to-DSS Rail interface & supports

DSS Feed Through

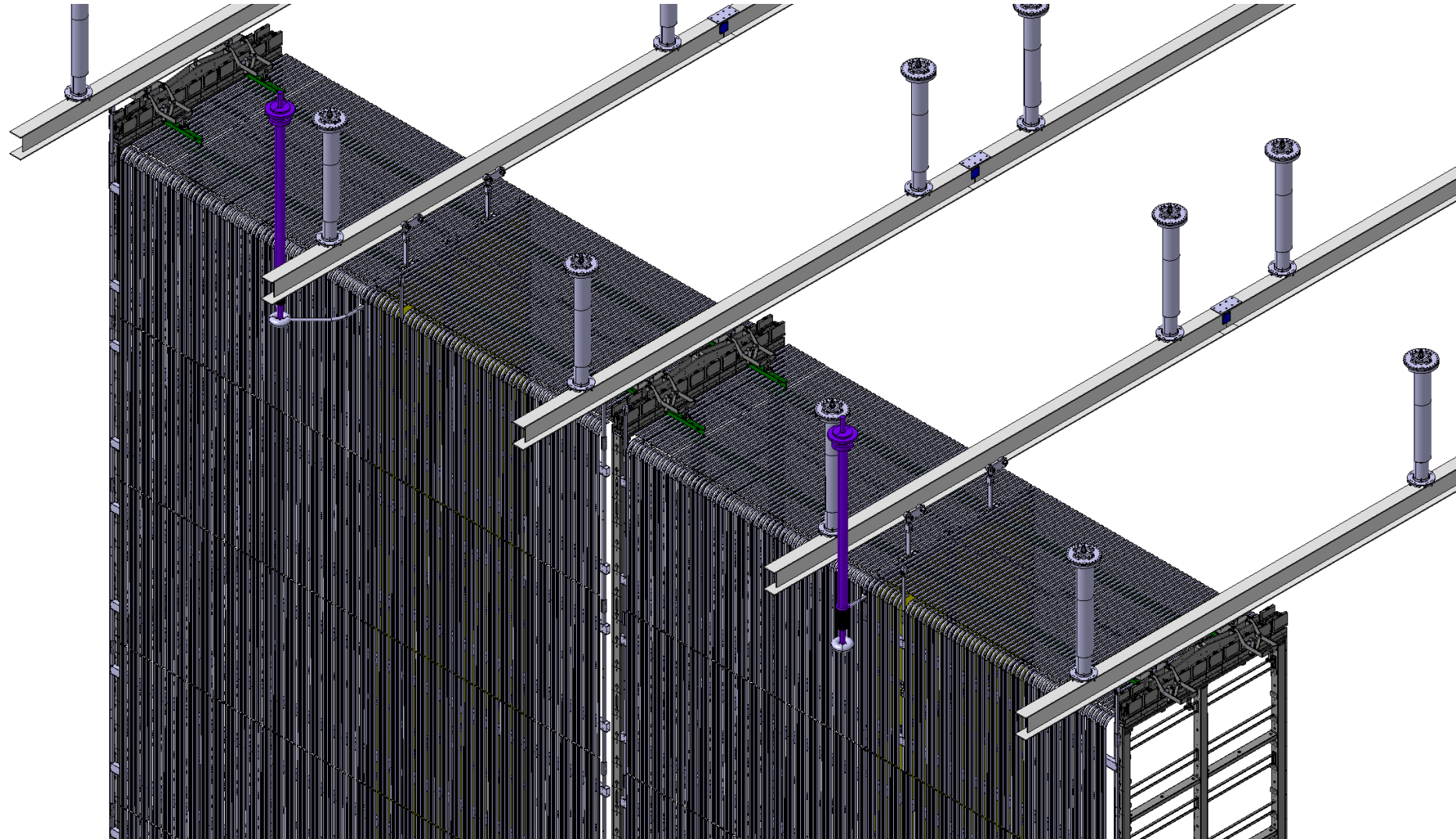


- New DSS interface
- New bellow arrangement
- Added possibility for motorised height advisement

DSS & CPA & APA



DSS & End Wall & CPA & APA



CPA to DSS

