protoDUNE-SP HV System Update

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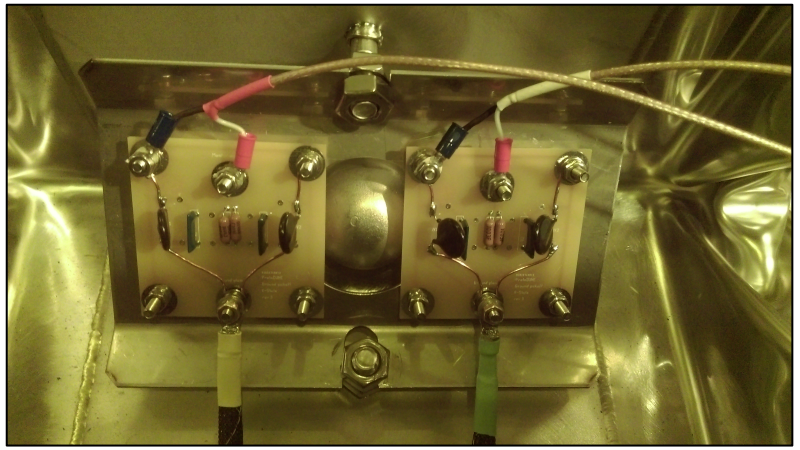
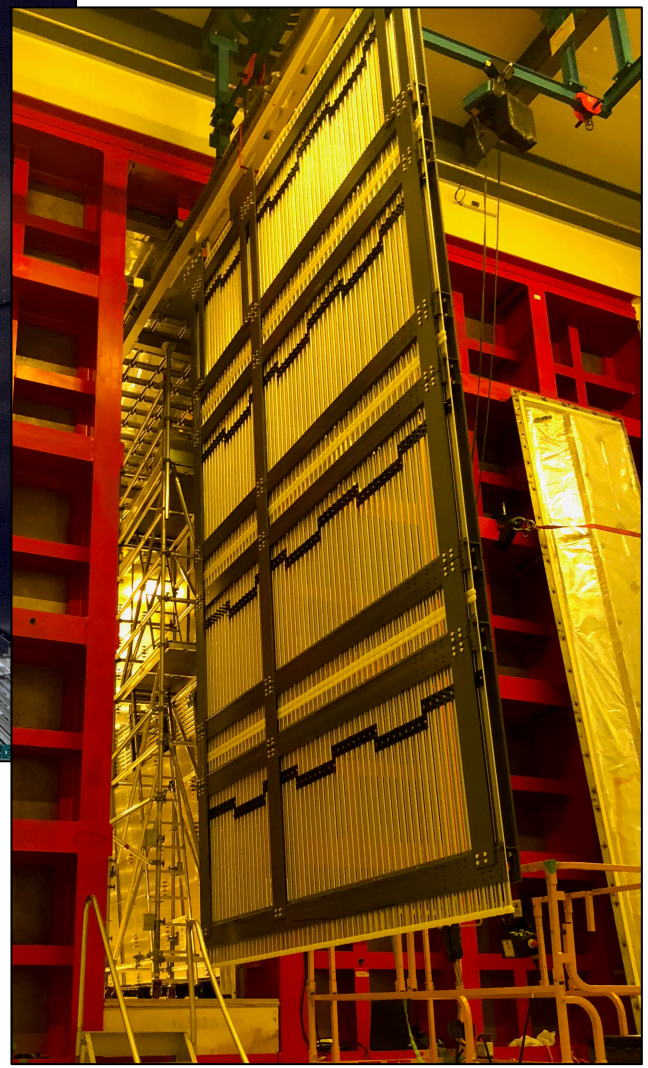
Status

- Beam right drift closed up
  - Understanding some alignment features
- End wall #3 (DS BL) built on April 9
  - Issue with moisture in some interconnecting plates
- Panels for end wall #4 (US BL) in clean room
- Ground planes instrumented with monitoring system





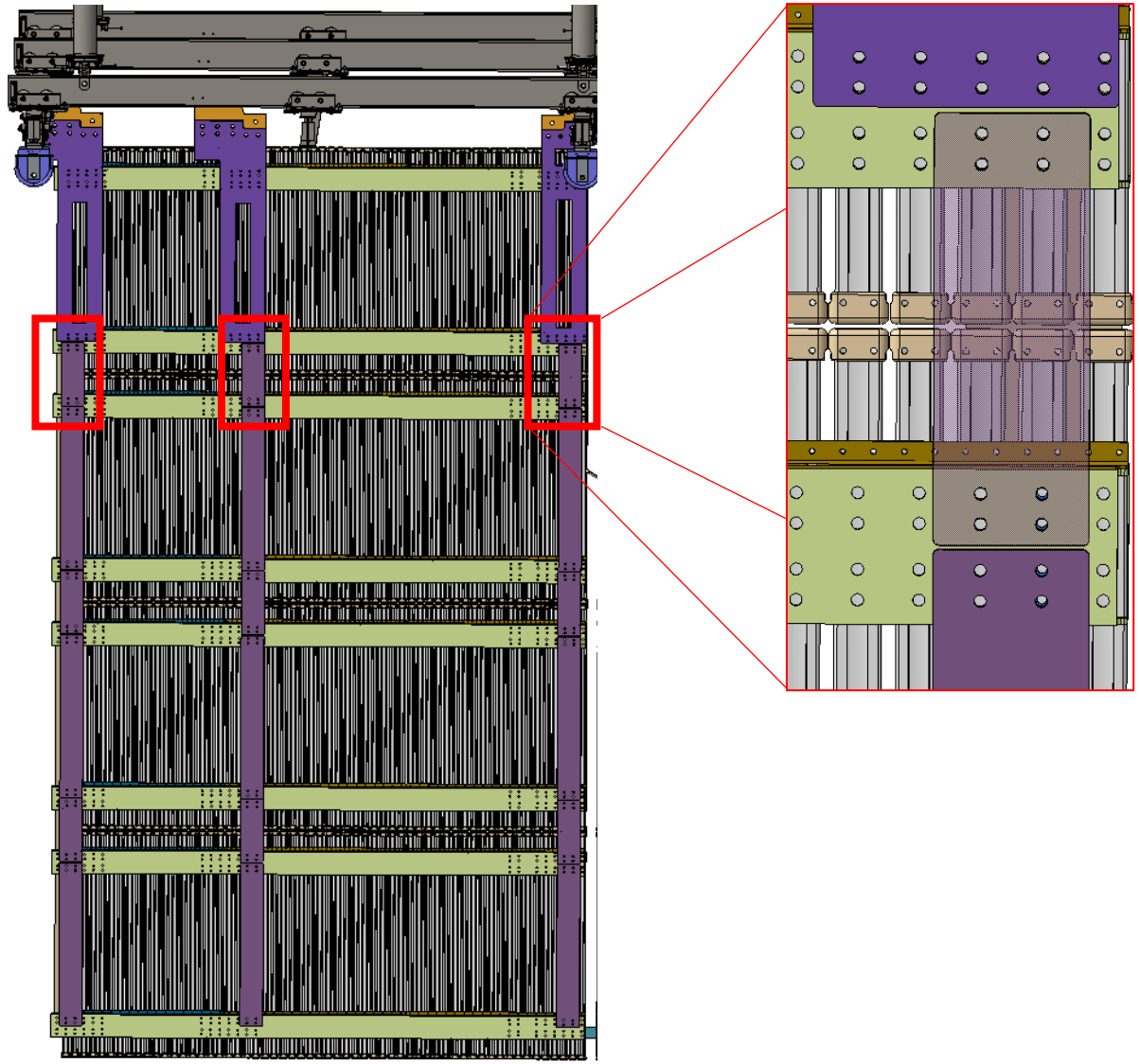
BR drift alignment

- D. Wenman was here the past week and helped us investigate some alignment issues with the beam right drift:
  - Inter-FC module profiles alignment
    - T/B-T/B and EW-T/B
    - Some EW-EW as well, but not much can be done at this point
  - EW-APA and EW-CPA interfaces
    - Drift direction
    - Beam direction
    - Height
  - APA orientations
  - CPA orientations
  - etc.

<u>The verdict</u>:

- We've convinced ourselves that most (~80%)of these issues will correct themselves once the BL drift is deployed.
- The hangers for the EW on the bridge beams should be set more carefully
- Some contribution from the T/B FCs being slightly skewed
  - May want to consider adding diagonal supports to the FRP frame to keep it square for DUNE

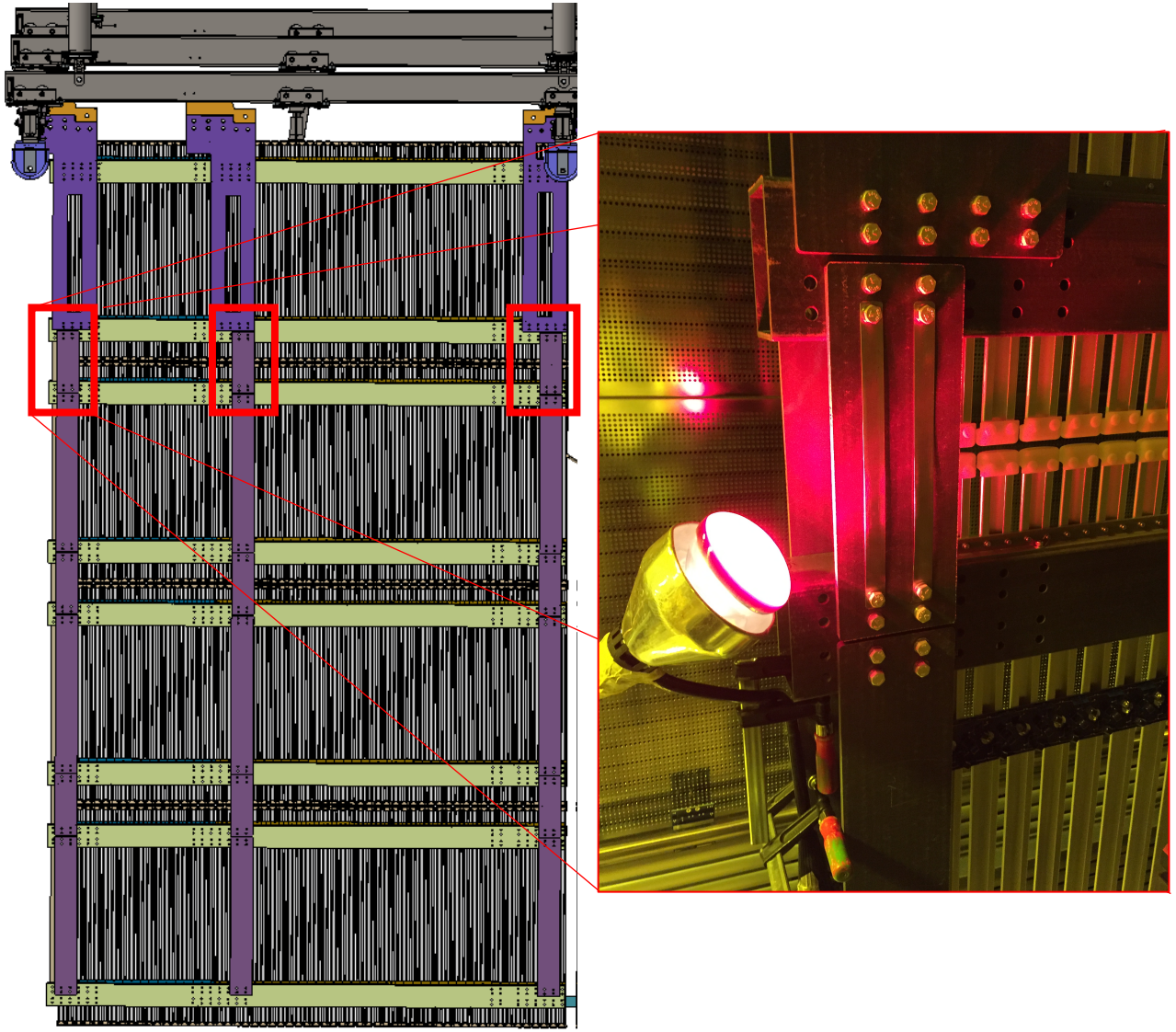
DS BL End Wall



- The bolts that fix the inter-panel connecting plates onto the individual panels are electrically connected to two profiles on each panel
- The package containing the plates for the LD1-LD2 interface was quite wet and moldy

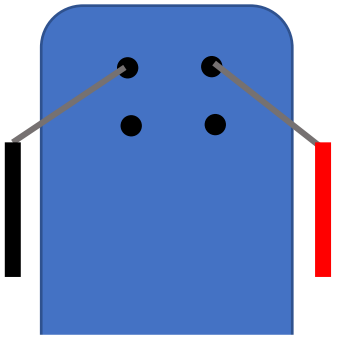
- The moisture inside the plates effectively introduced an additional resistance between these two profiles

DS BL End Wall



- Leaving the plates to dry overnight (while the end wall was hanging) helped a bit
- Shining a heat lamp on the plates helped a bit more
- In the end, we replaced these plates with those from the US BL end wall
- Baking the waterlogged plates so they will be ready for the last end wall (no spares at CERN)
- Use heat lamp to get as much moisture out of the G10 side (membrane side), which doesn't effect the electrical behavior

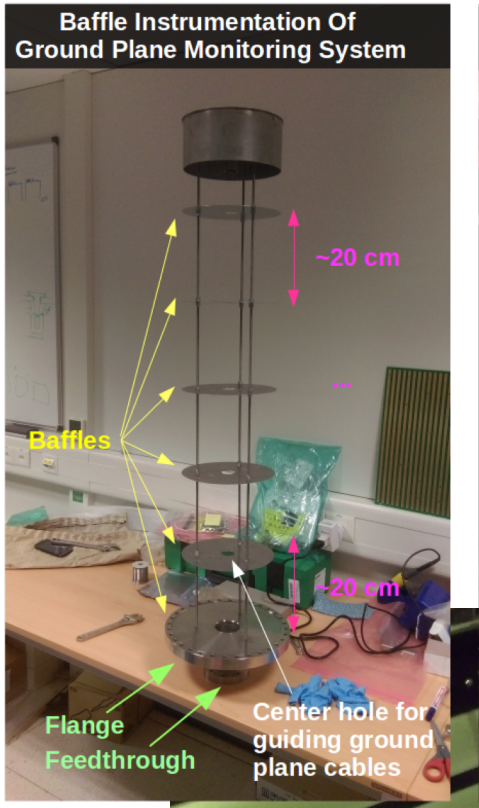
- A dry plate has an effective resistance >200GΩ, a wet plate has an effective resistance O(100MΩ) at its worst

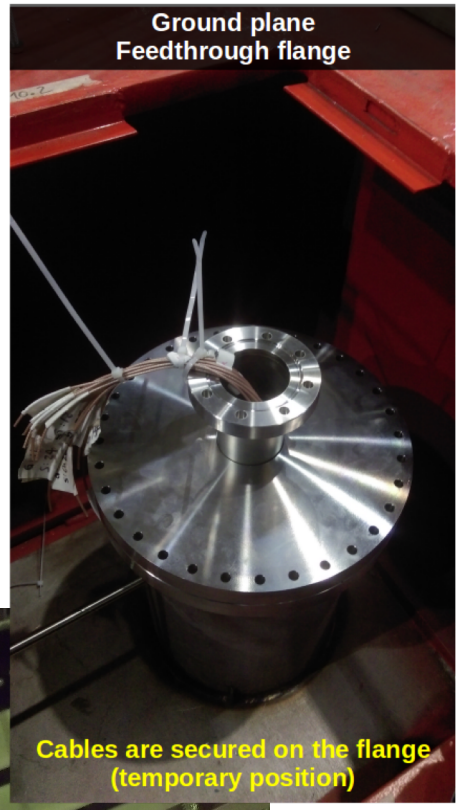


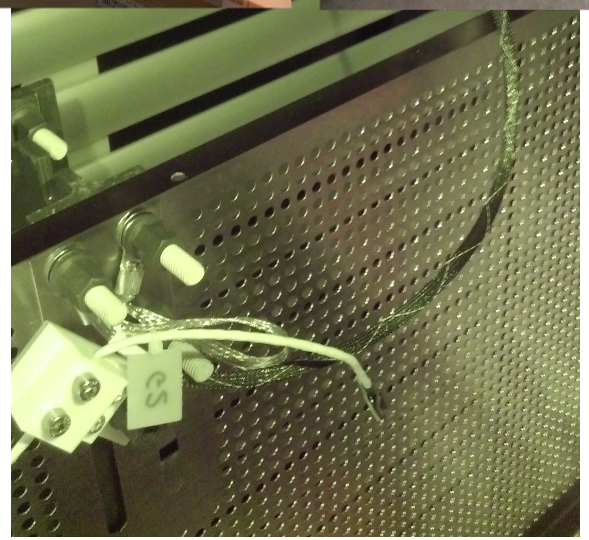
Heng-Ye Liao

Ground Plane Monitoring

- All of the ground plates have been connected to their associates ground plane monitoring (GPM) boards
- The output of the GPM boards have been routed to the 10.2 port
- The baffled feedthrough for the 12 cables was installed on the cryostat and the cables were run through the flange
- Next:
  - QA – charge up a GP to check the cable mapping and verify monitoring system is sound
  - Eventually need to solder cables to 24-pin adapter on flange
  - DAQ
  - Integrate with SC system







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