Mock-Up of DUNE CE Cabling at Upper APA

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Outline

Configuration I:
>	one 8" cable tray in the back side
>	one 12" cable tray in the front side

Configuration II:
>	one 8" cable tray in the back side
>	one 8" cable tray in the front side
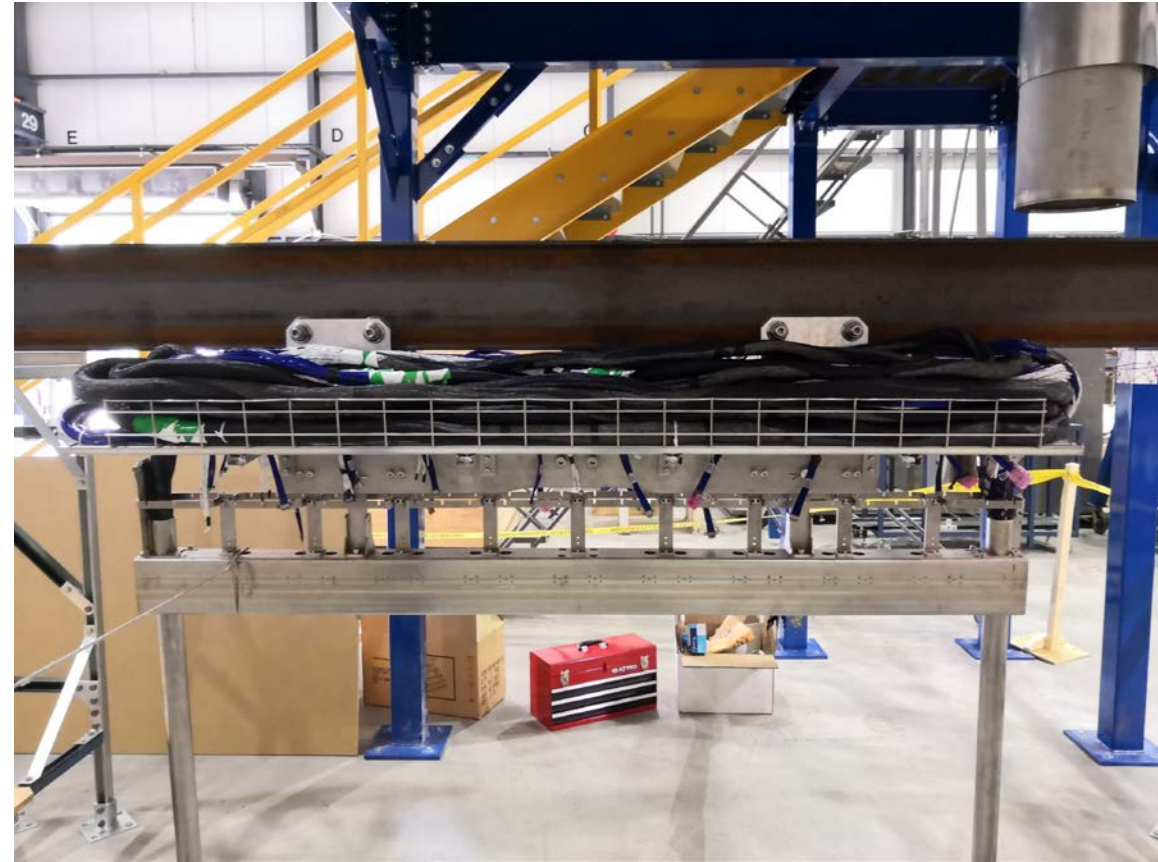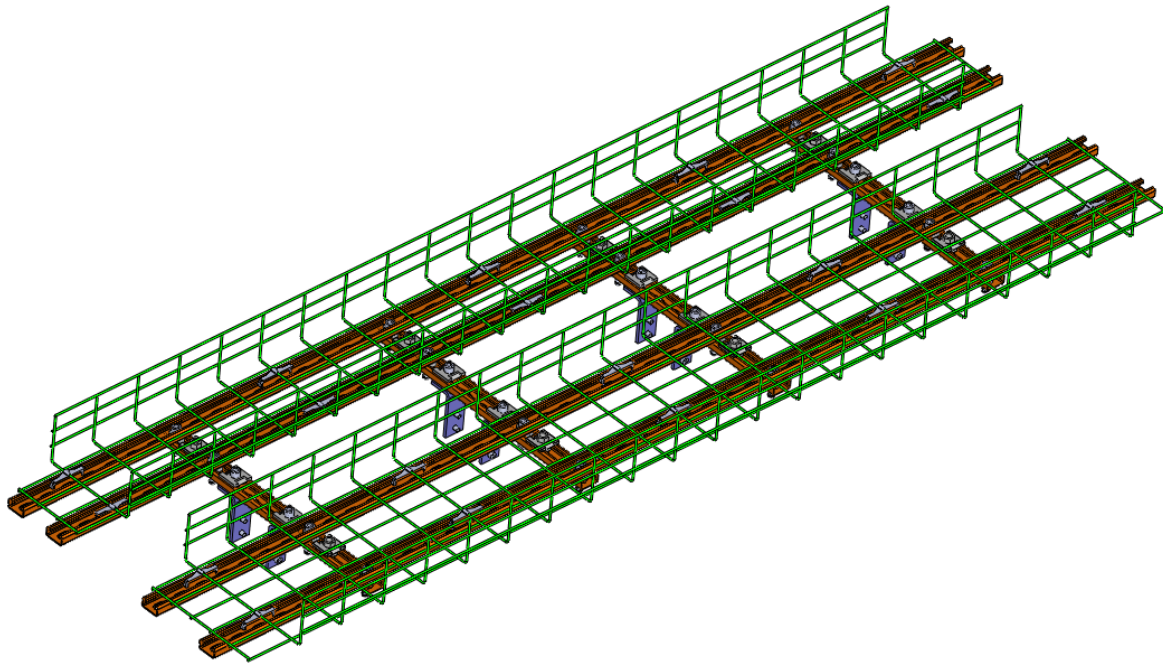>	 plus one 8" temporary cable tray in the front side

Configuration III:
>	one 8" cable tray in the back side
>	one 8" or 12" cable tray in the front side
>	one 12" temporary vertical cable tray

CE box installation

Configuration I:

one 8" cable tray in the back side
one 12" cable tray in the front side

Two big cable bundles for lower APA inserted into the two cable conduits.
Four small cable bundles attached to the front and back cable trays with connectors tied at the CE box locations.
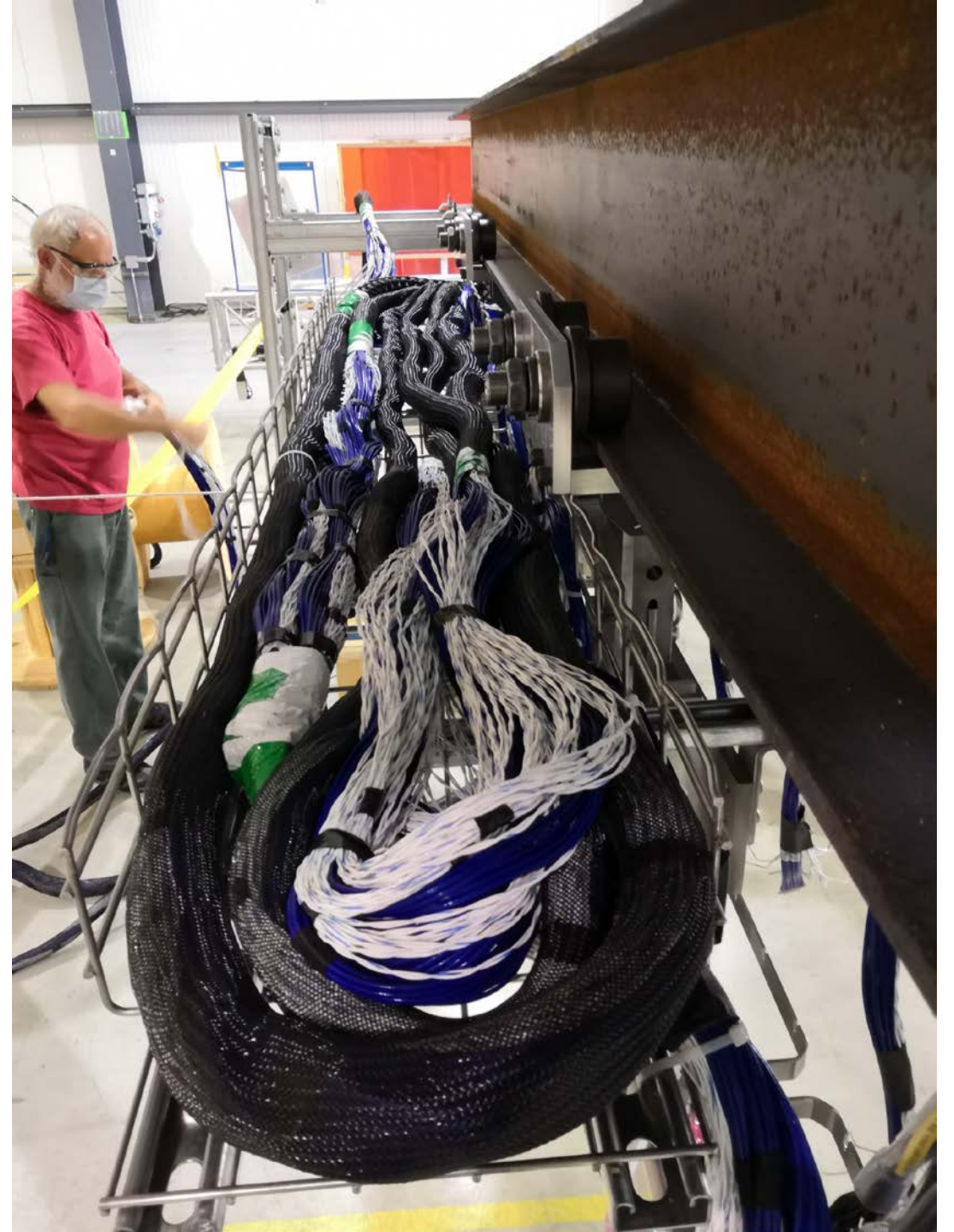

Left End:
One big cable bundle
Two small cable bundles

Right End:
One big cable bundle
Two small cable bundles

Starting from the Left End:
One big cable bundle placed in the front cable tray.

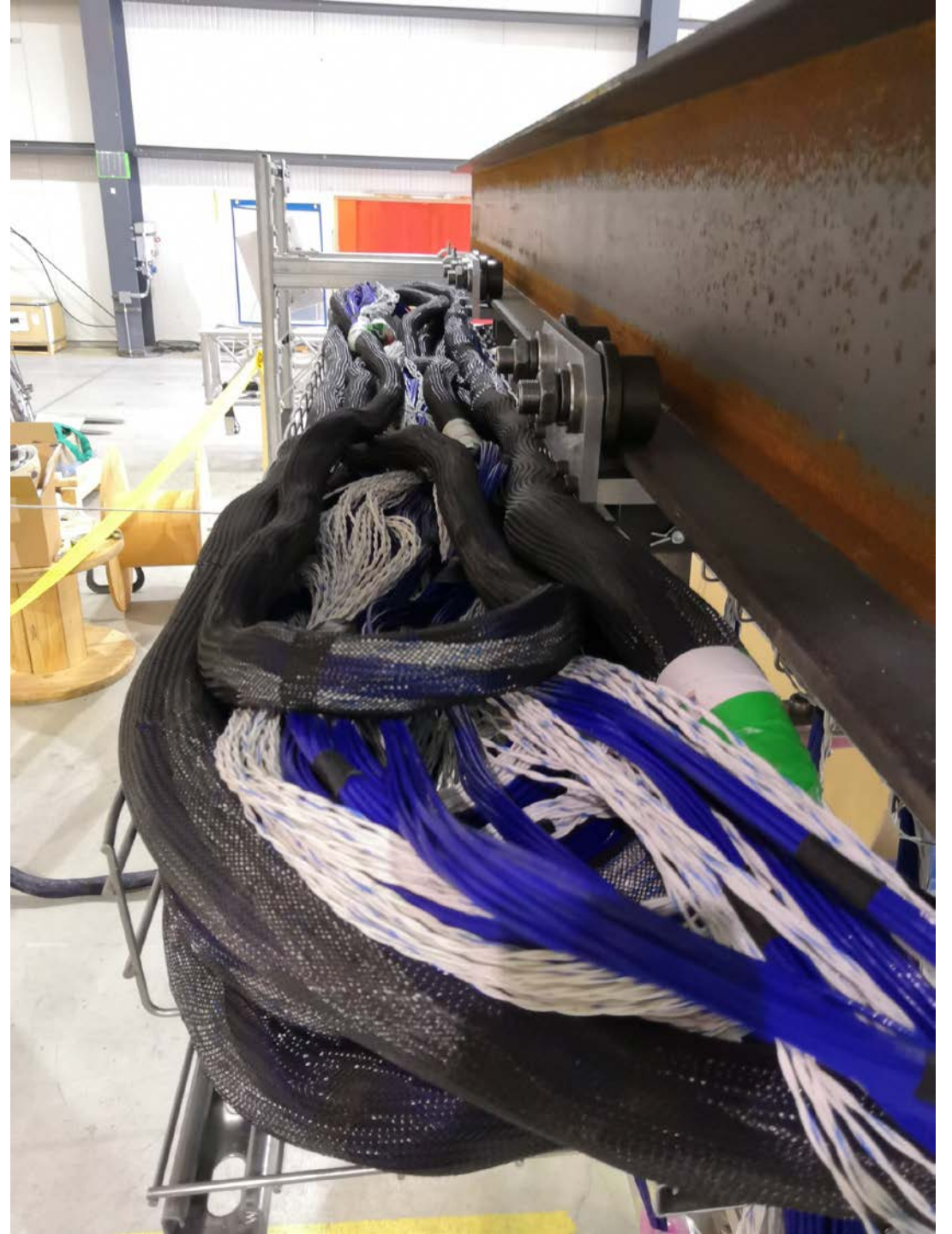One small cable bundle placed in the front cable tray.

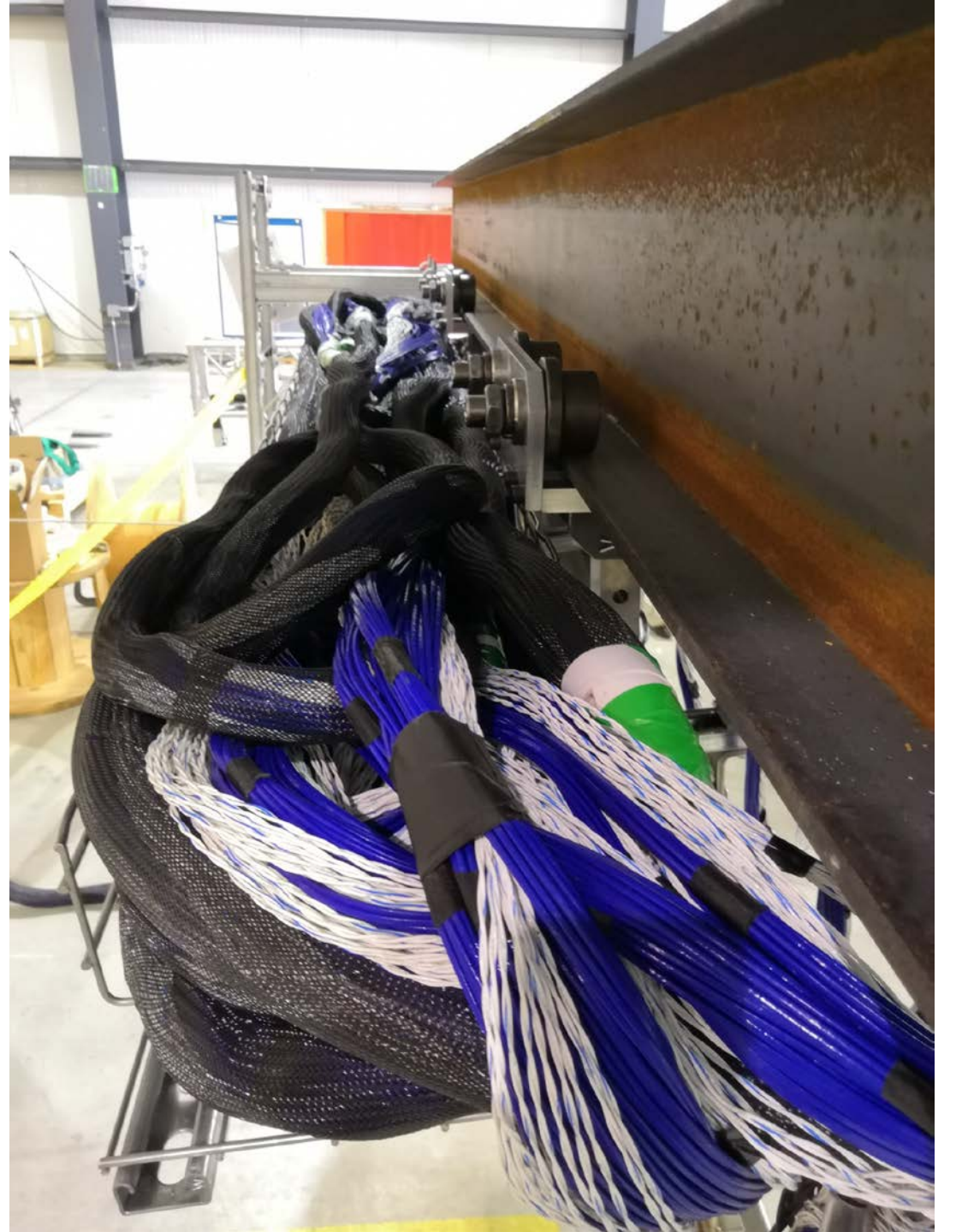Another small cable bundle placed in the front cable tray.

From the Right End:
One big cable bundle placed in the front cable tray.

One small cable bundle placed in the front cable tray.

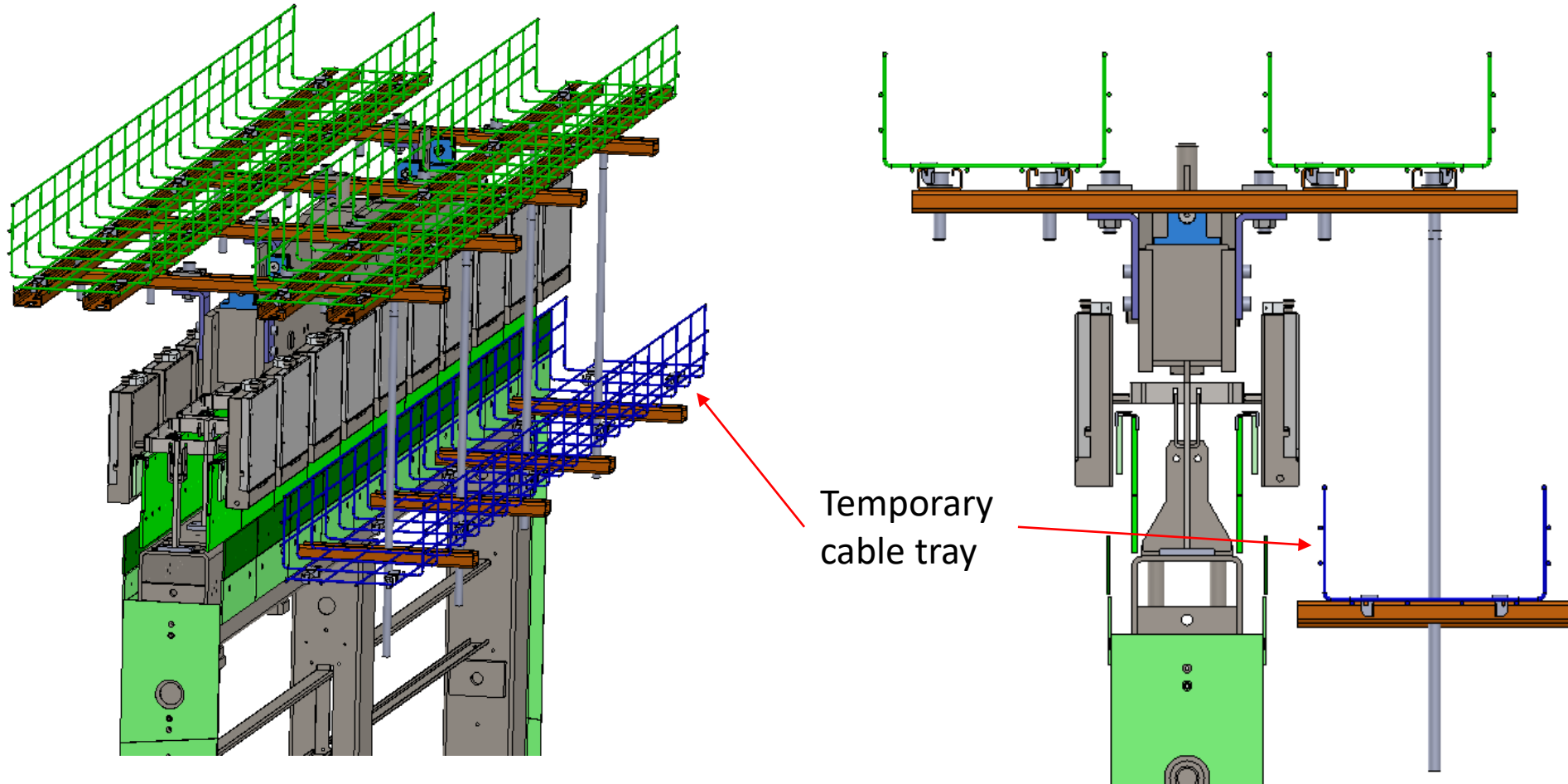Another small cable bundle placed in the front cable tray.
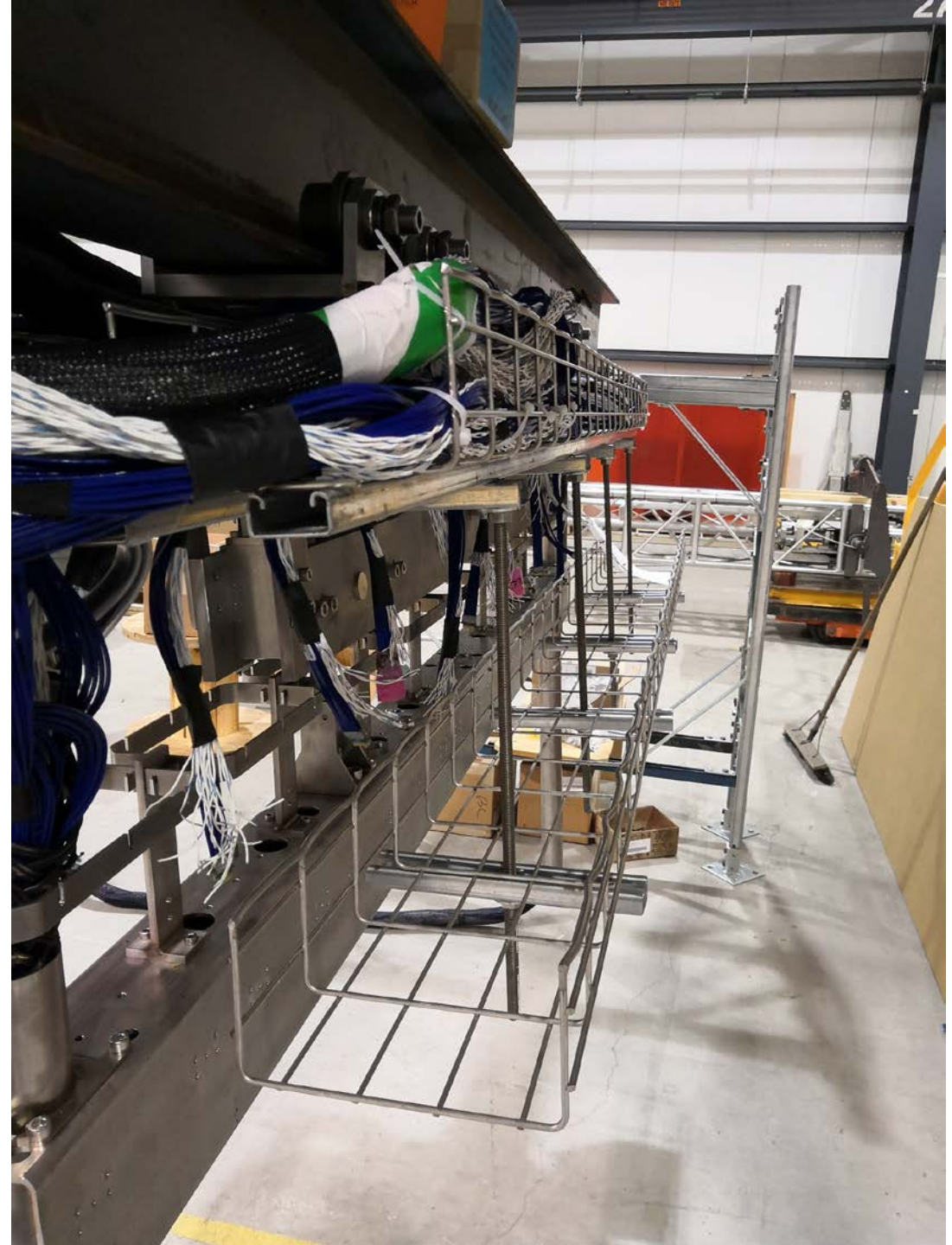
All cables in the cable trays

Configuration II:

       one 8" cable tray in the back side

       one 8" cable tray in the front side

         plus one 8" temporary cable tray in the front side
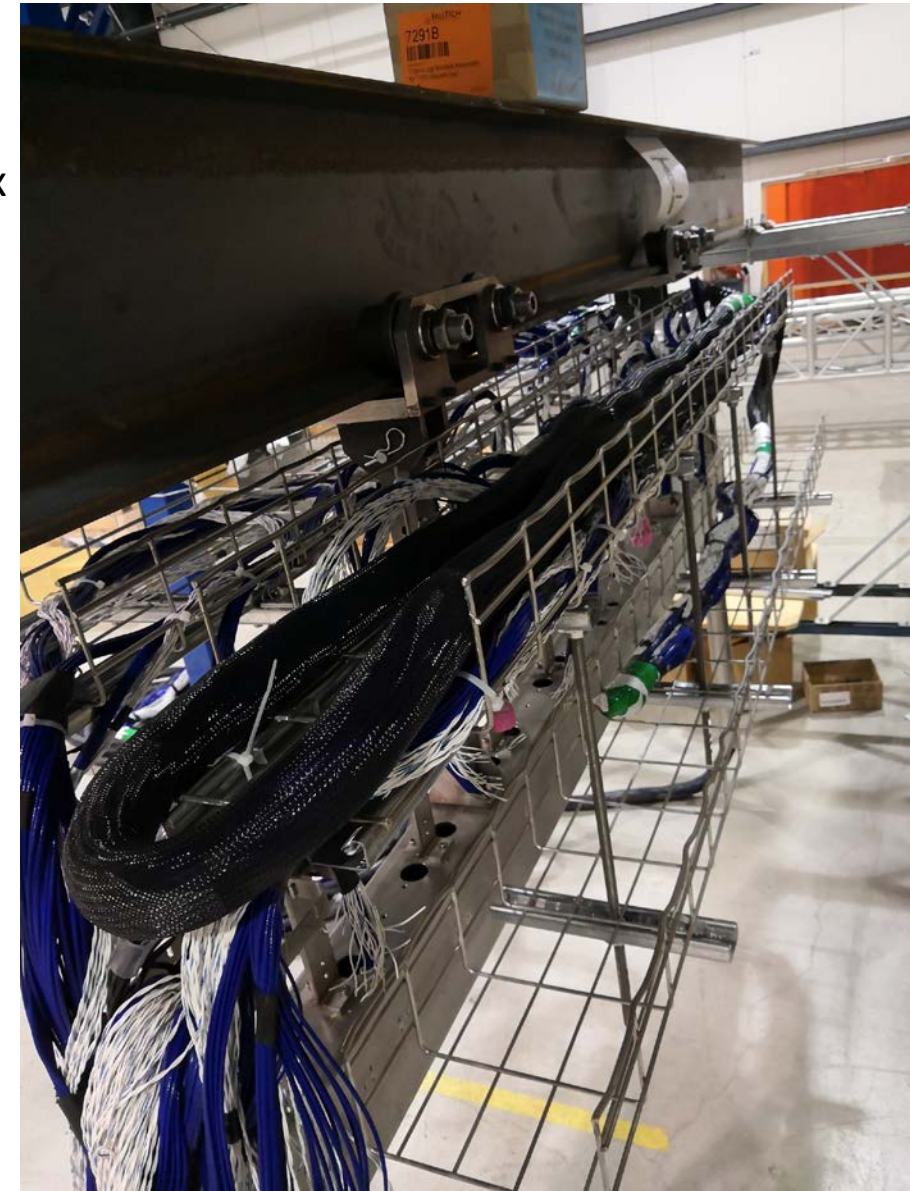

Temporary cable tray

Temporary cable tray installed underneath the front cable tray.

Place a big cable bundle from the right end in the upper cable tray and lower cable tray.

Two runs in the upper cable tray, and then one run in the lower cable tray.

Assume cold box patch panels at this end.

Place a small cable bundle from the right end in the upper cable tray and lower cable tray.

Two runs in the upper cable tray, and
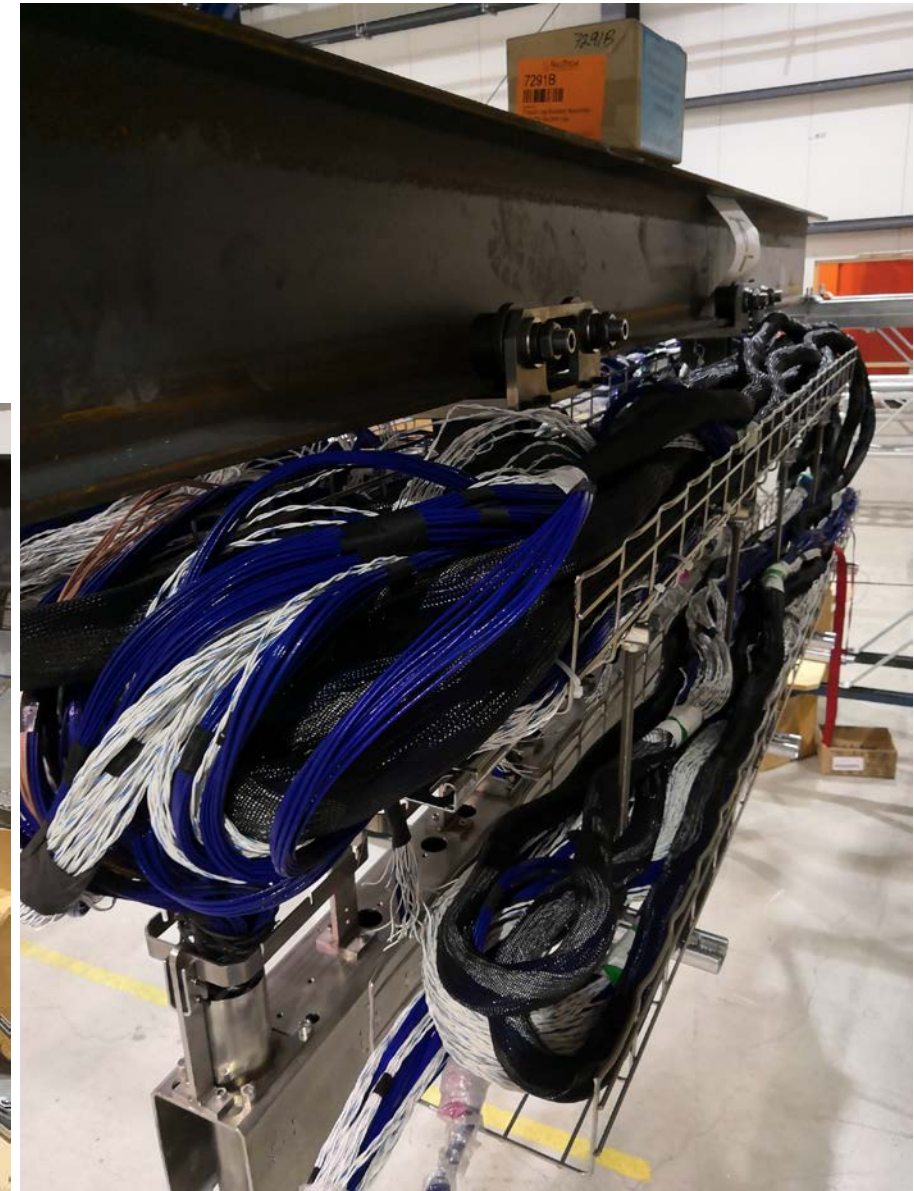then one run in the lower cable tray.

Place another small cable bundle from the right end in the upper cable tray and lower cable tray.

Two runs in the upper cable tray, and
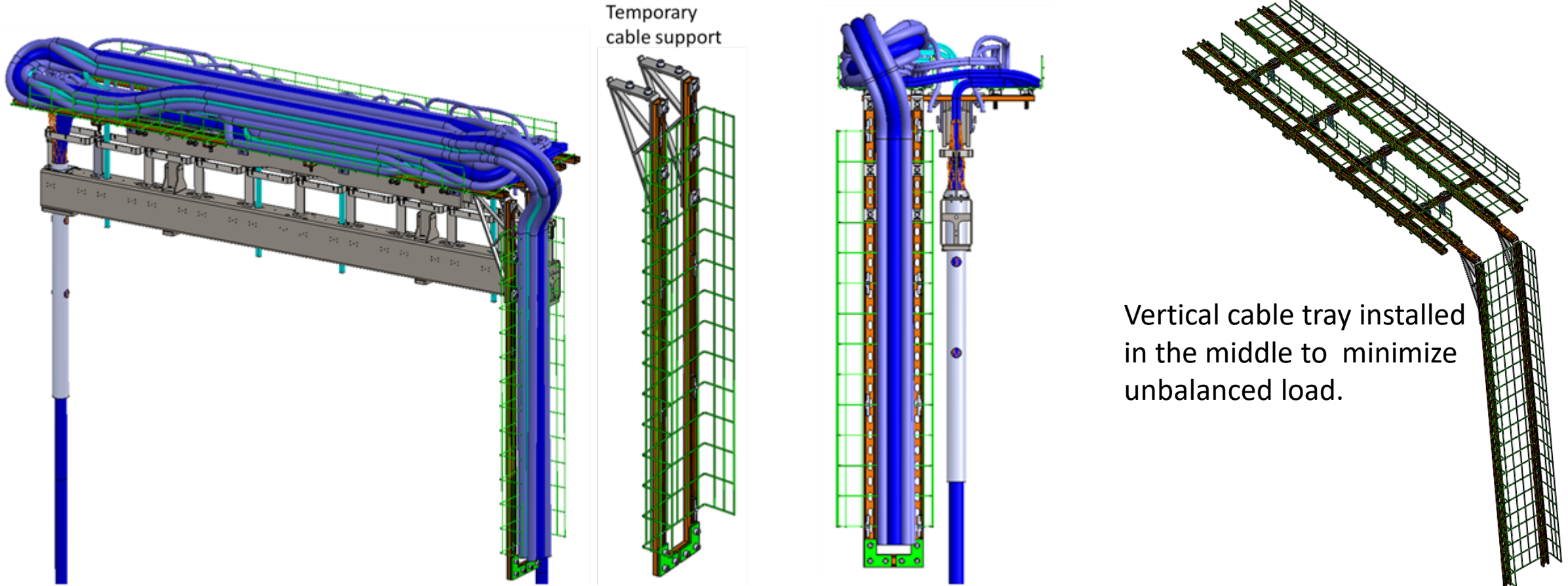then one run in the lower cable tray.

Place all cable bundles from the left end in the upper cable tray and lower cable tray.

One run in the upper cable tray, and
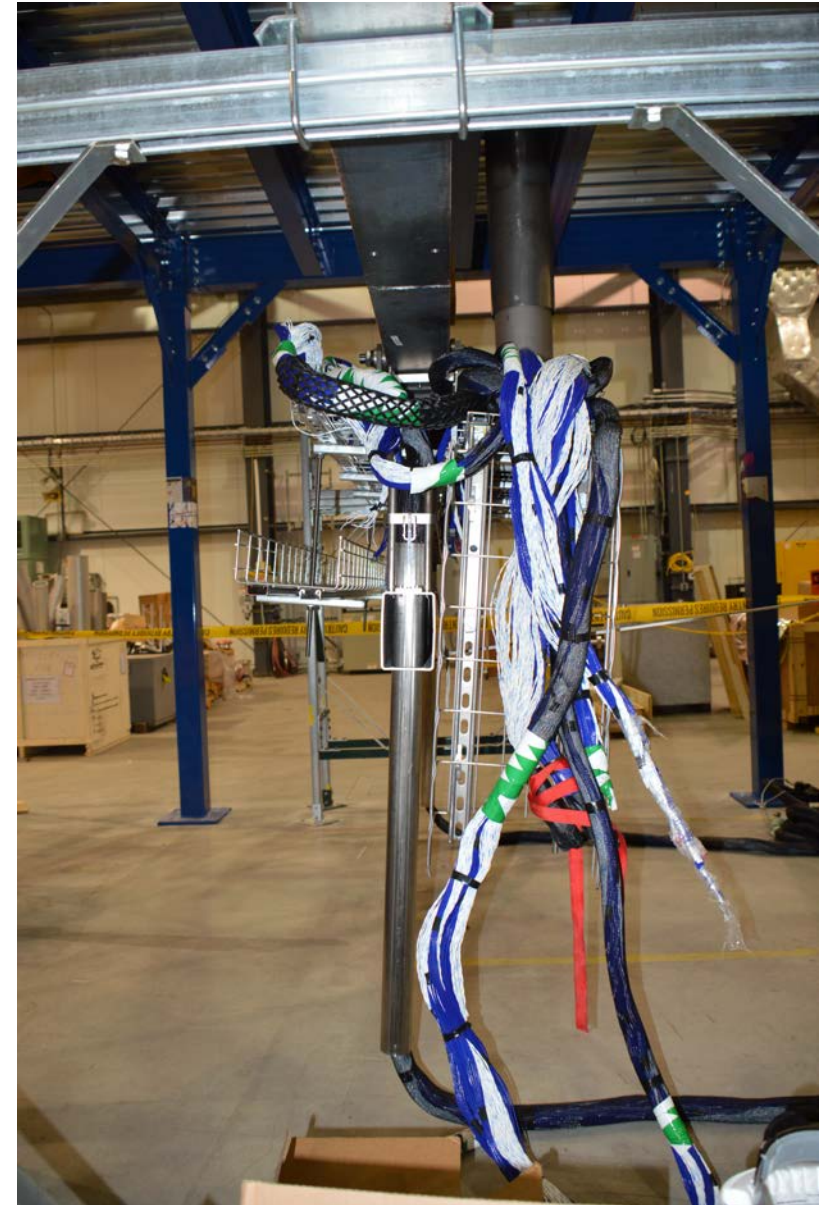then two runs in the lower cable tray.

Configuration III:

one 8" cable tray in the back side
one 8" or 12" cable tray in the front side
one 12" temporary vertical cable tray

Temporary cable support

Vertical cable tray installed on the front side.

Vertical cable tray installed in the middle to minimize unbalanced load.

Vertical cable tray installed on the front side

Vertical cable tray installed in the middle

Start cabling with minimum cables in the cable trays

The lower cable tray is not used in this configuration.

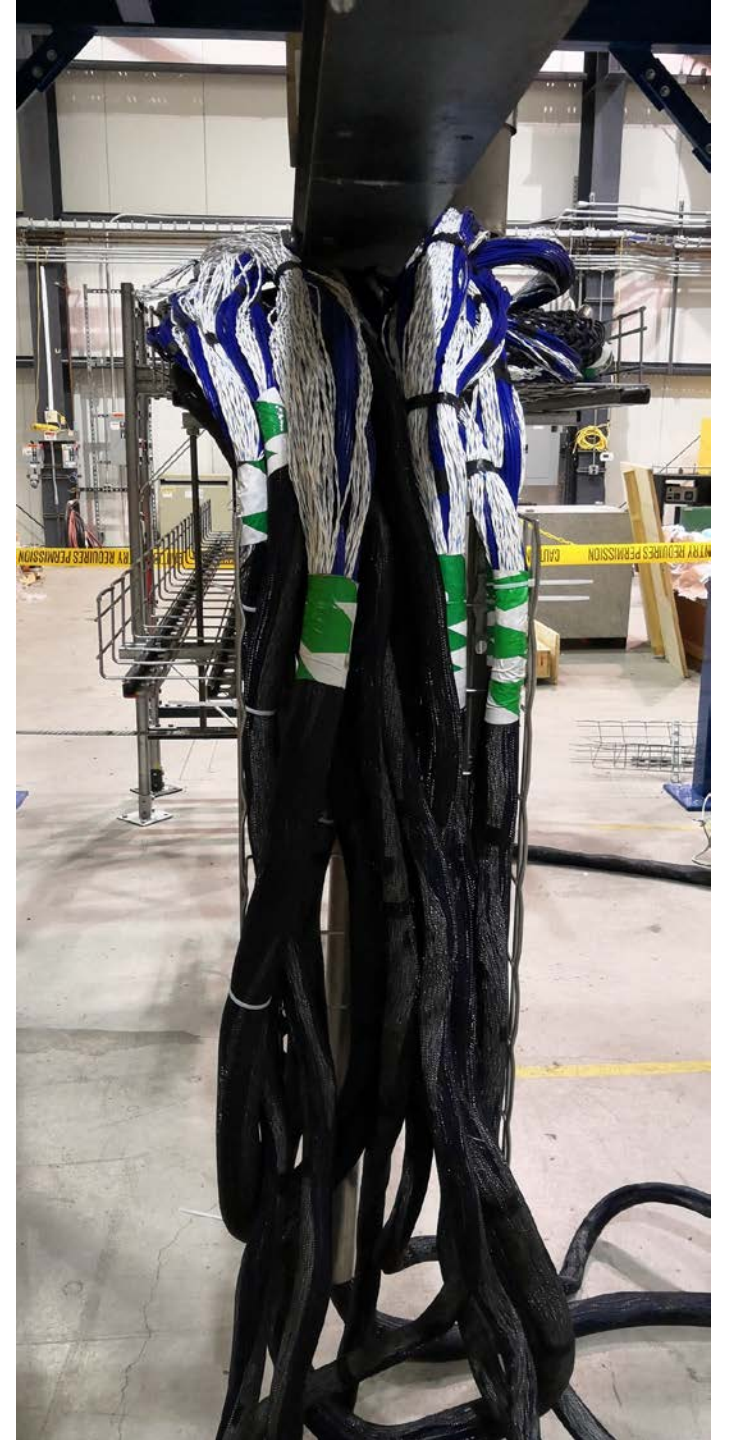All cables placed in the cable trays

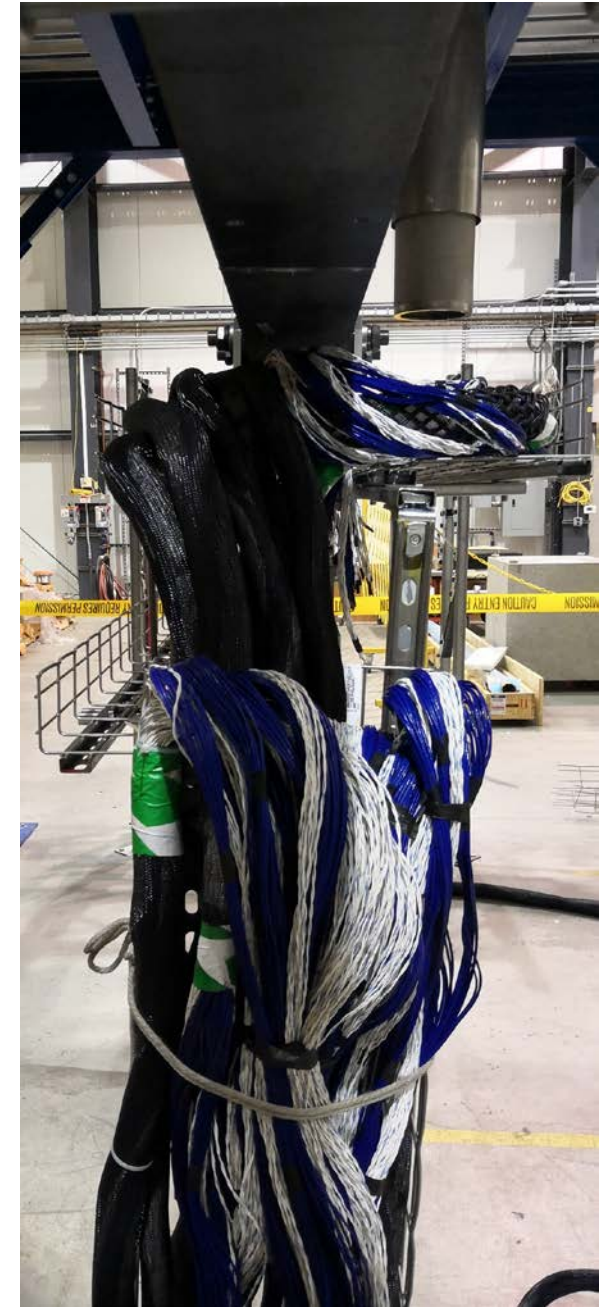5 meter long cables placed in the vertical cable tray
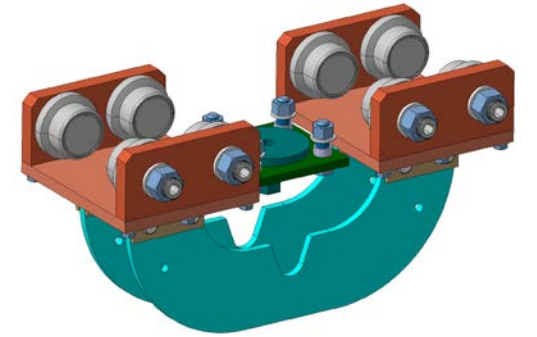
All cables placed in the cable trays

Cables in the vertical cable tray folded once with connector ends placed in the horizontal front cable tray
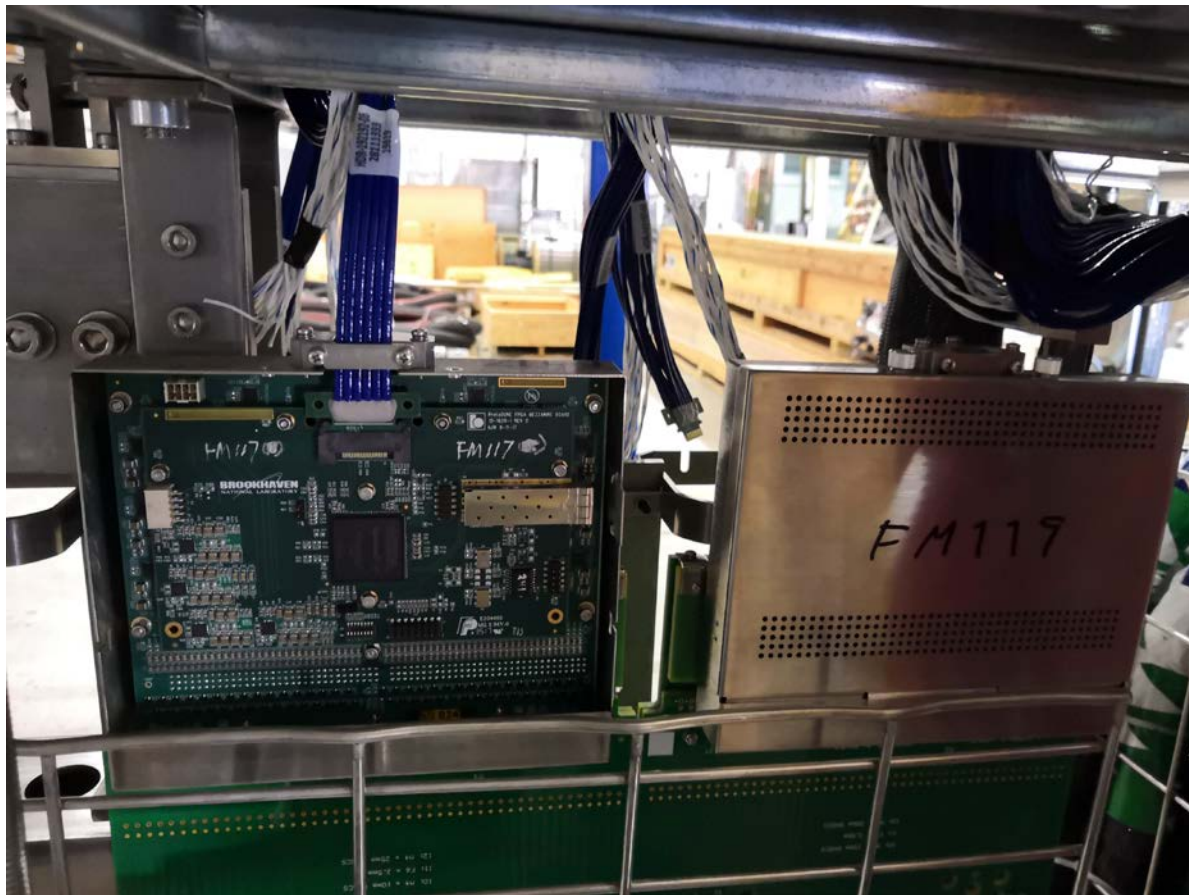
Connector end of the cables can also be folded again and placed in the vertical cable tray.

If the APA stack is free to swing at the new designed trolley plates, the weight of the vertical cable tray and cables will tilt the APA stack by ~6 inches at the bottom. Can the trolley plates be locked onto the yoke? Otherwise, additional support to the vertical cable tray may need to be added.

CE box installation

Suggest add springs to keep the clamp gaps open or add a chamfer to the bracket to facilitate the bracket installation.