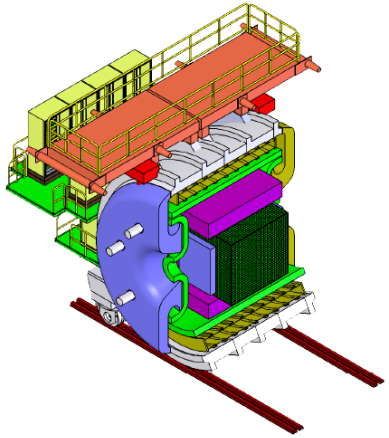
Status of DUNE Near Detector

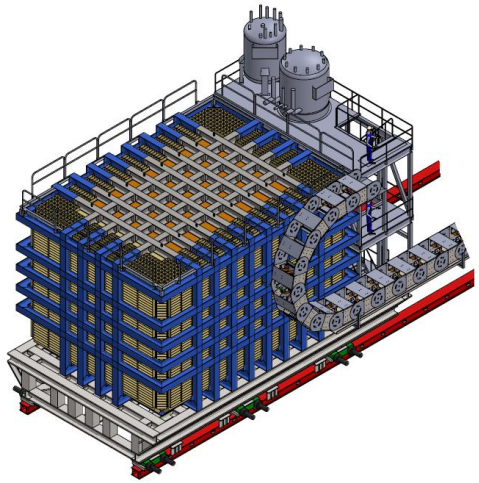
Updates as of March 5, 2020

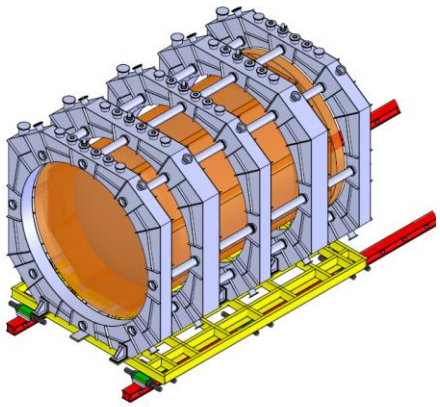
DUNE

- docDB #18180 is our location for updated drawings
- Plans are to also keep relevant drawings and files of the detectors there too, one stop shopping…

3DST-SAND Assy 2020-03-04.PDF
LAr DETECTOR 2020-03-03.PDF
MPD 2020-03-03.PDF
ND Hall Proposal 2020-03-03.pdf

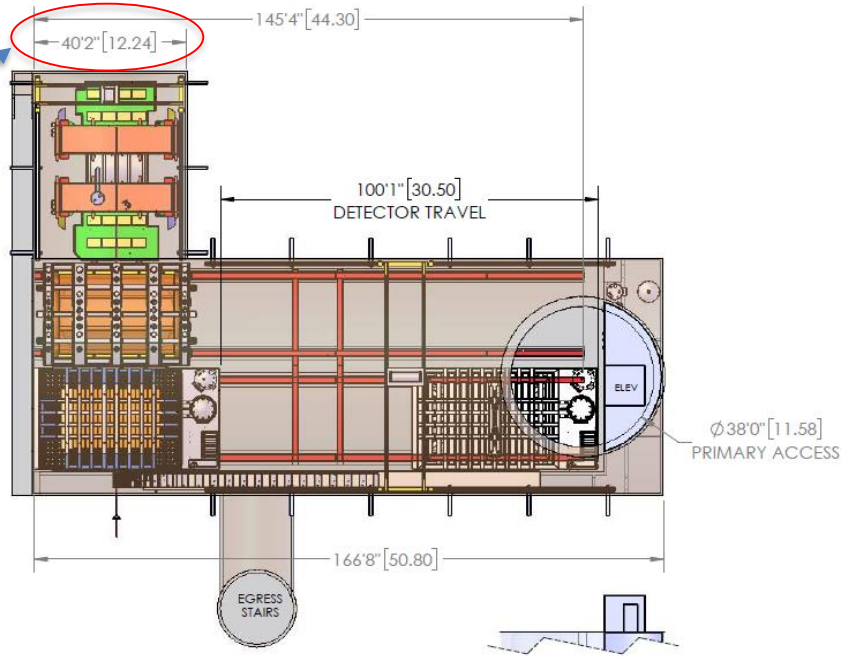


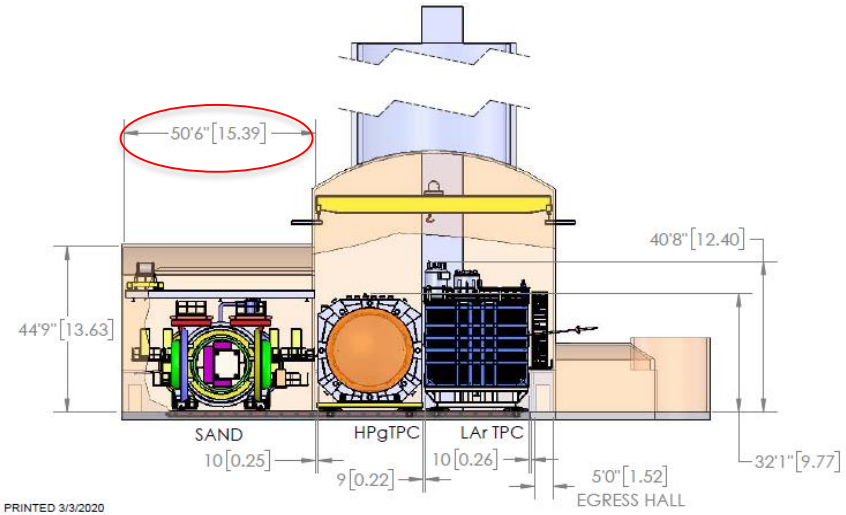


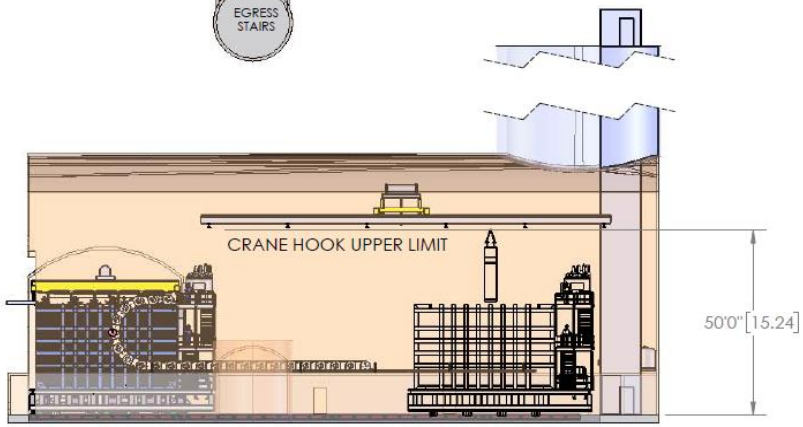


DUNE ≡ DEEP UNDERGROUND NEUTRINO EXPERIMENT

- docDB #18180 is our location for updated drawings
- Alcove size is different from AECOM drawings due to KLOE (renamed SAND) enclosure rack sizes
- Negotiations are in progress to reduce rack sizes
- Otherwise cavern shape matches AECOM drawings, dated 12/31/2019







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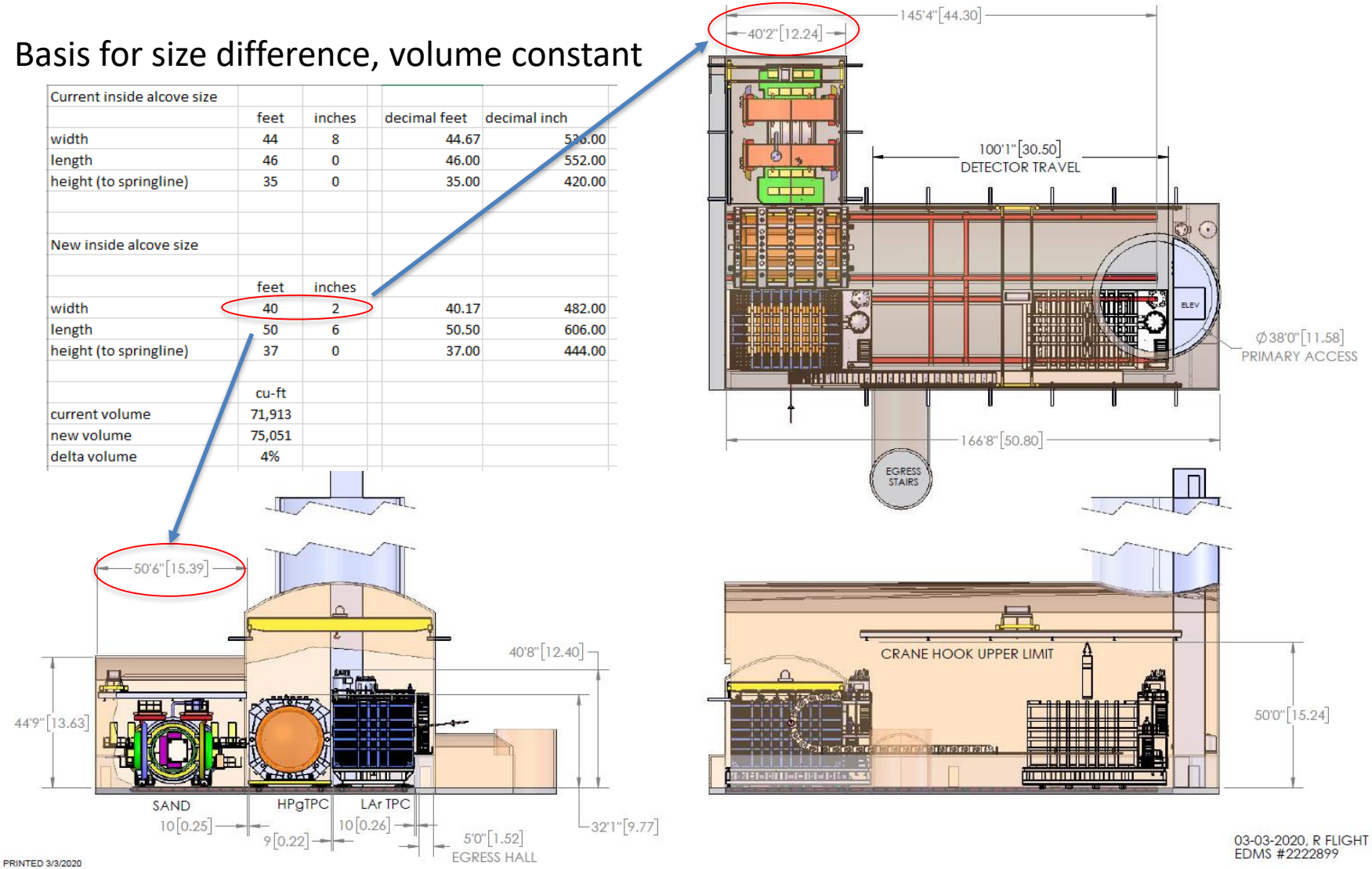
03-03-2020, R FLIGHT
EDMS #2222899

Basis for size difference, volume constant

Current inside alcove size				
	feet	inches	decimal feet	decimal inch
width	44	8	44.67	536.00
length	46	0	46.00	552.00
height (to springline)	35	0	35.00	420.00
New inside alcove size				
	feet	inches		
width	40	2	40.17	482.00
length	50	6	50.50	606.00
height (to springline)	37	0	37.00	444.00
	cu-ft			
current volume	71,913			
new volume	75,051			
delta volume	4%			



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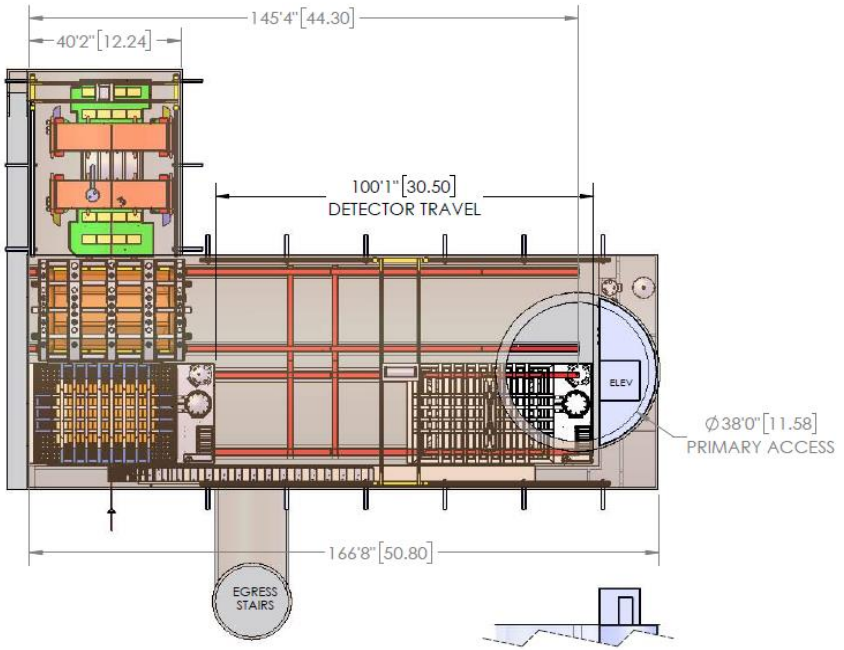
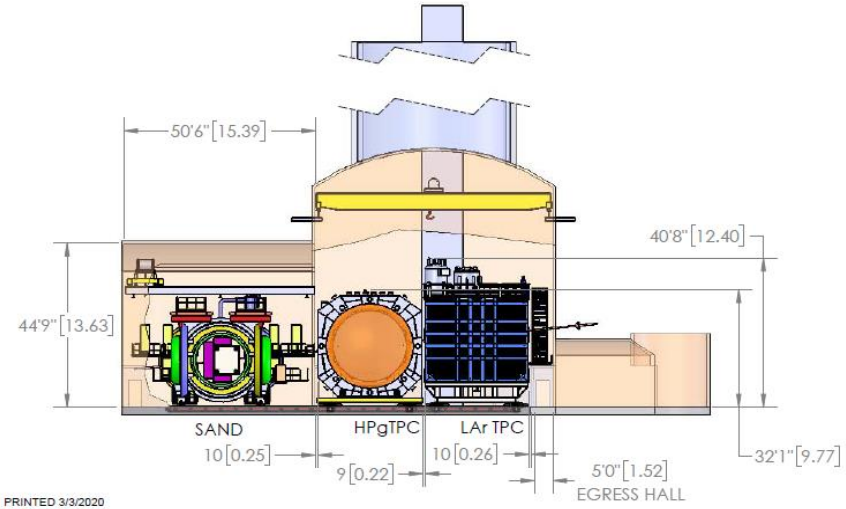
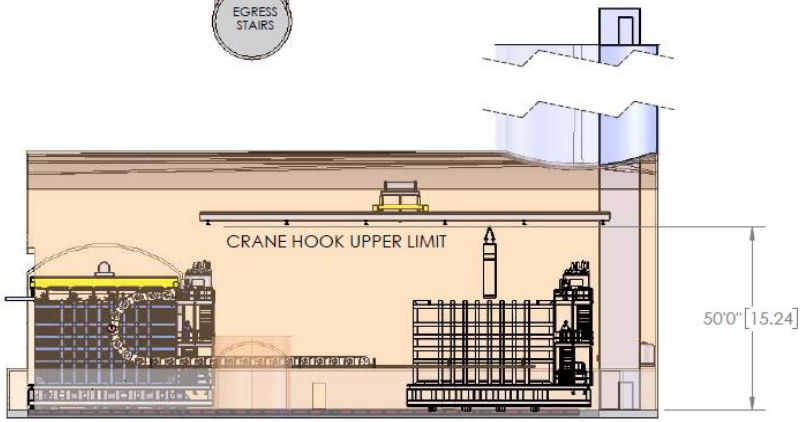
Change highlights-

- Added 15T crane in Alcove
- Retained 50T crane in main hall
- Added Transport System pictorial views







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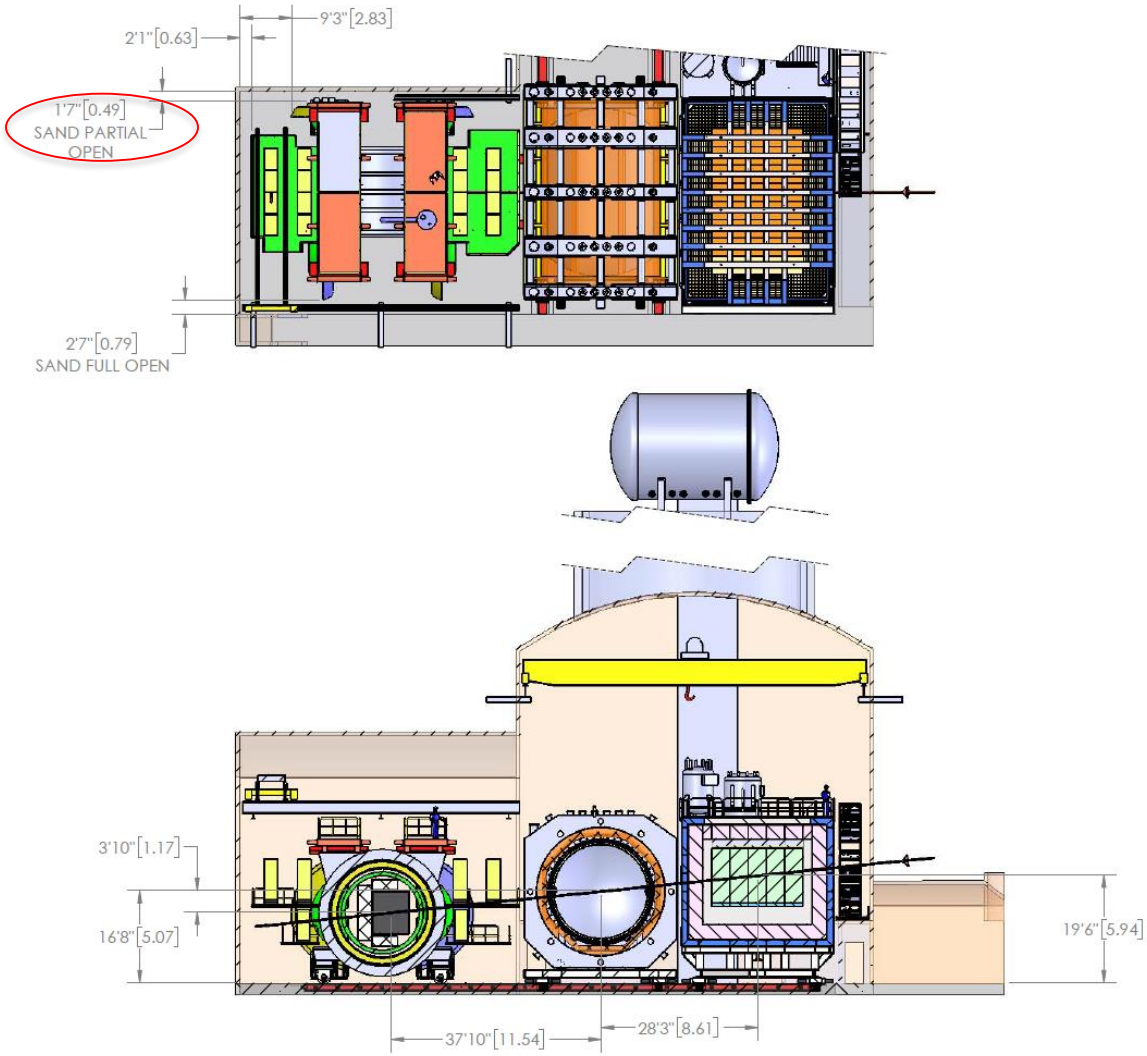
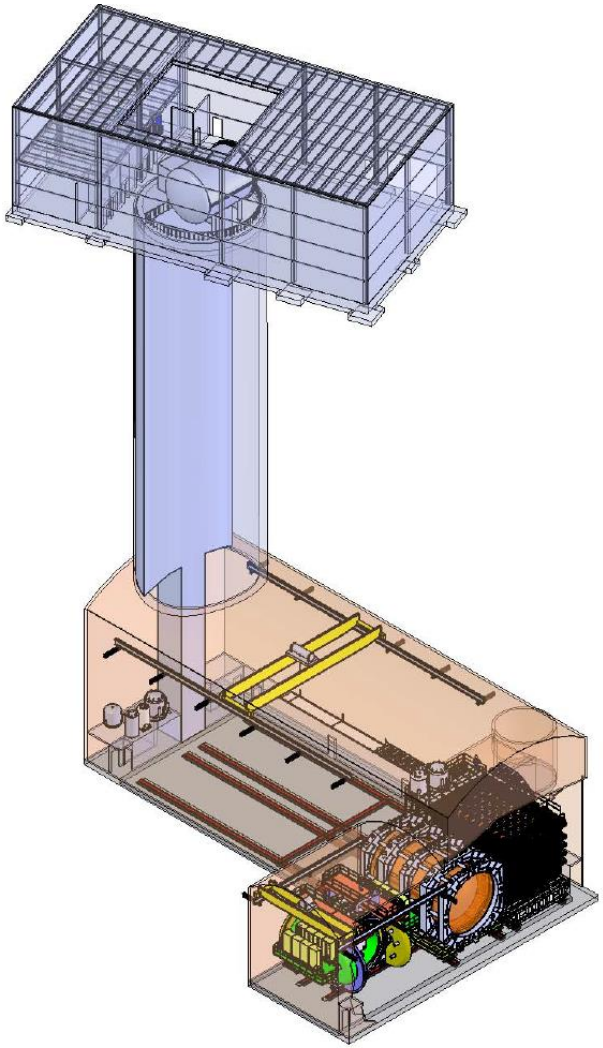
As the alcove size was changed, some egress space was lost, discussions are in progress to determine if the space needs to return

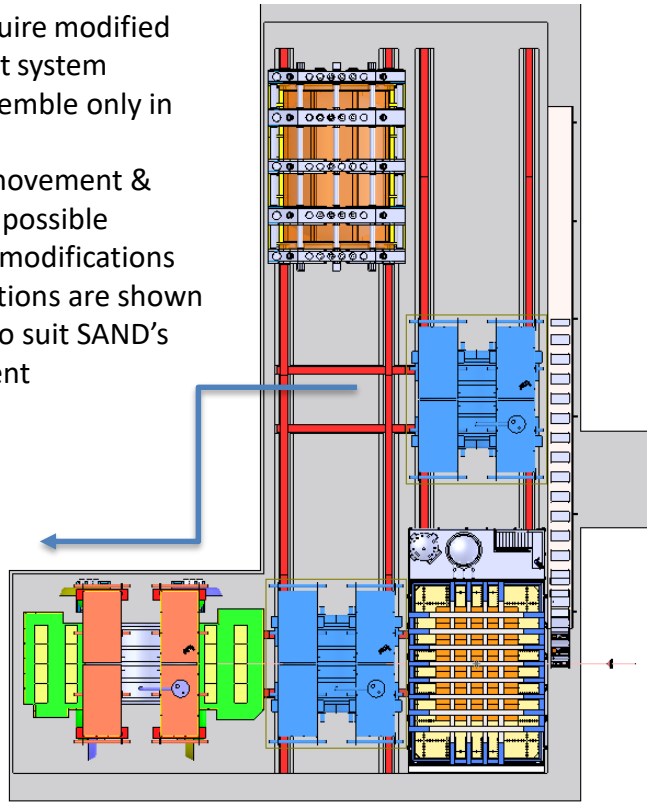


New views include the surface building



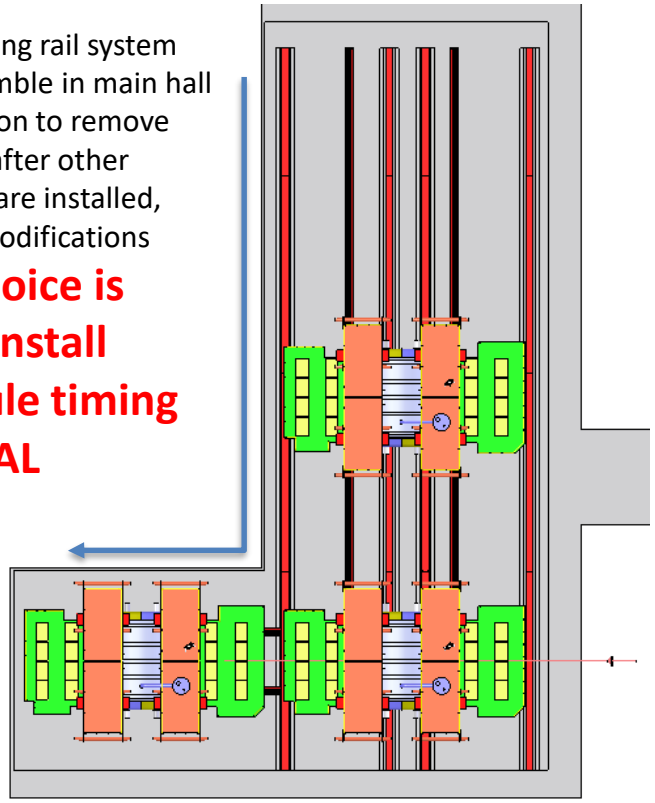
SAND install options

- May require modified transport system
- Fully assemble only in Alcove
- Future movement & removal possible without modifications
- Rail locations are shown spaced to suit SAND's movement



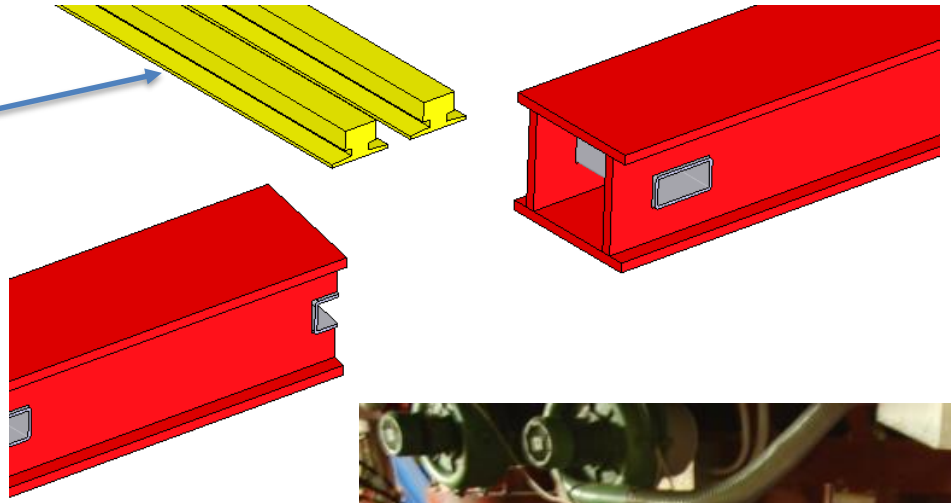
SAND installed after LAr

- Uses existing rail system
- Fully assemble in main hall
- No provision to remove from hall after other detectors are installed, without modifications
- **This choice is initial install schedule timing CRITICAL**



SAND installed first

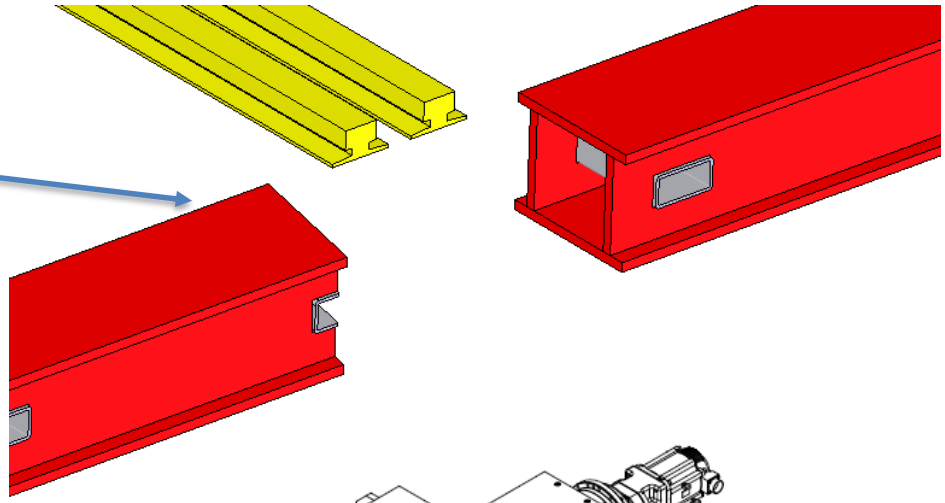
SAND rail is entirely different



TBD- can we make these different systems work together?

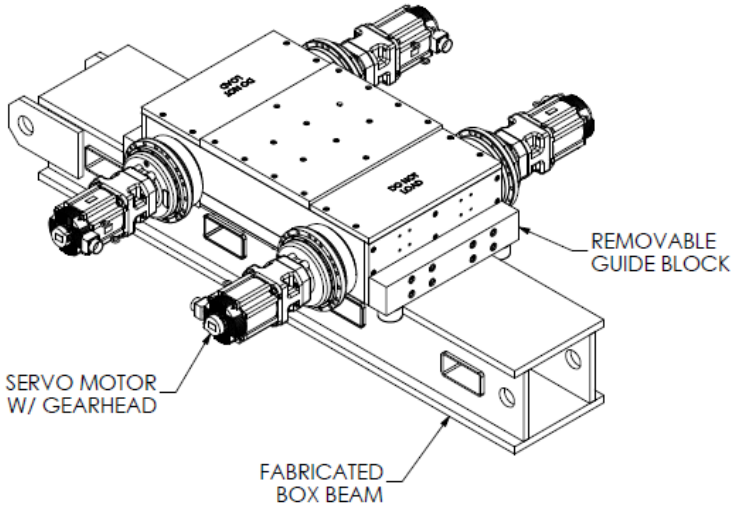
- SAND movement is via a push/pull hydraulic system
- SAND is supported by 4 massive wheels

LAr & MPD rail



TBD- can we make these different systems work together?

LAr & MPD movement uses a electric powered Hilman roller skate system



Discussions