

The New Version of the Monorail for the Drift C3 Area of the Ladder Lab @ Snolab

The new retrofit design of the mounting adapters to the existing 12 ton lifting hitches.

The Main Function of the Monorail:

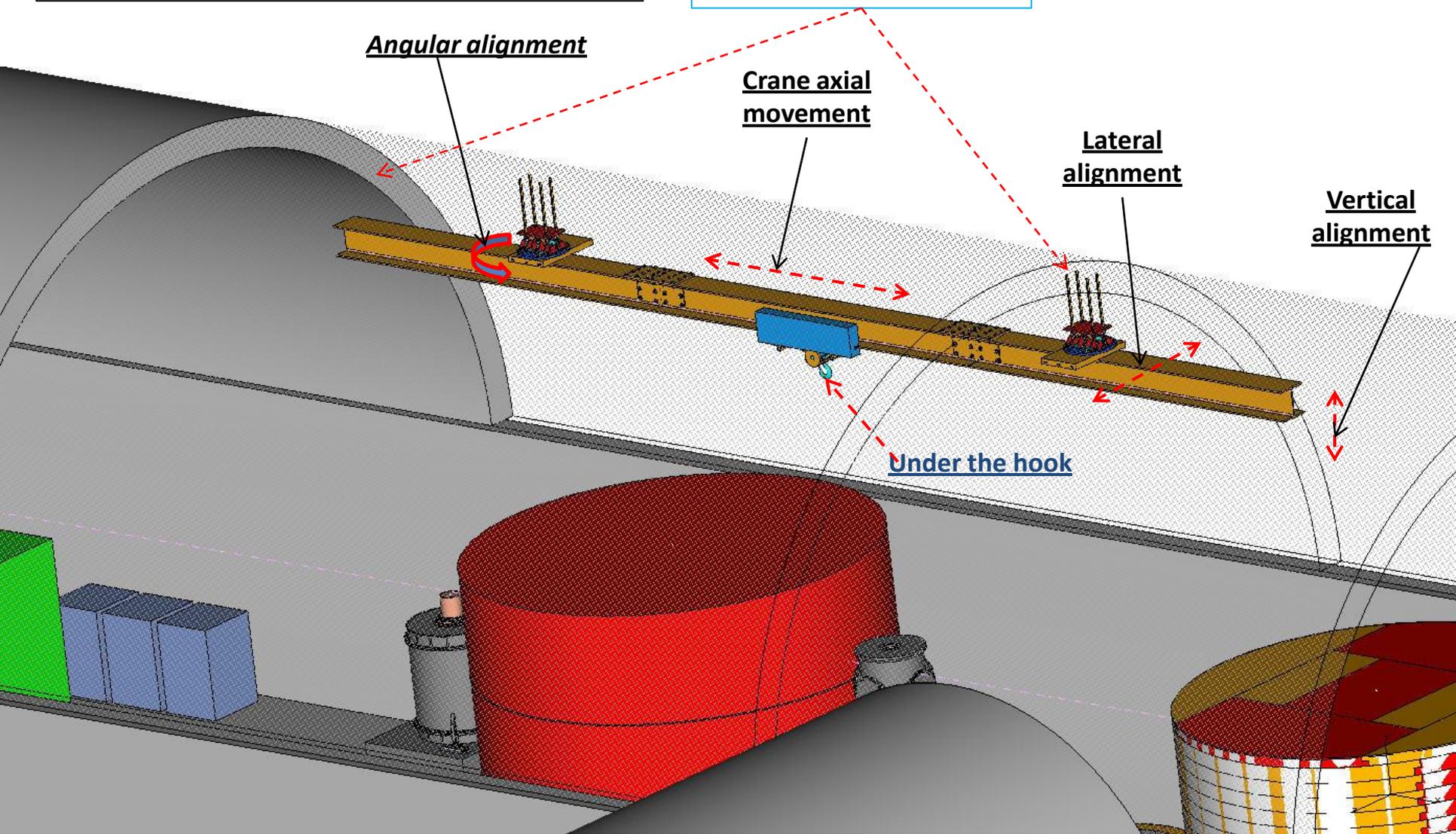
- *As a guide way for the hoist, the crane hoist moves in the axial direction of the Monorail.*
- *As a structural support for the lifting hoist and the lifting objects within its lifting specifications per applicable industrial codes.*

The main feature & specification of the Monorail:

- *Retrofits with the existing 12 ton ceiling lifting hitches*
- *to connect different hitches by the alignment in lateral, vertical and angular dir. through the special design features of the Monorail.*
- *3 ton (metric) lifting capacity, 241" under the hook vertical lifting distance, 39 ft rail axial travel distance.*

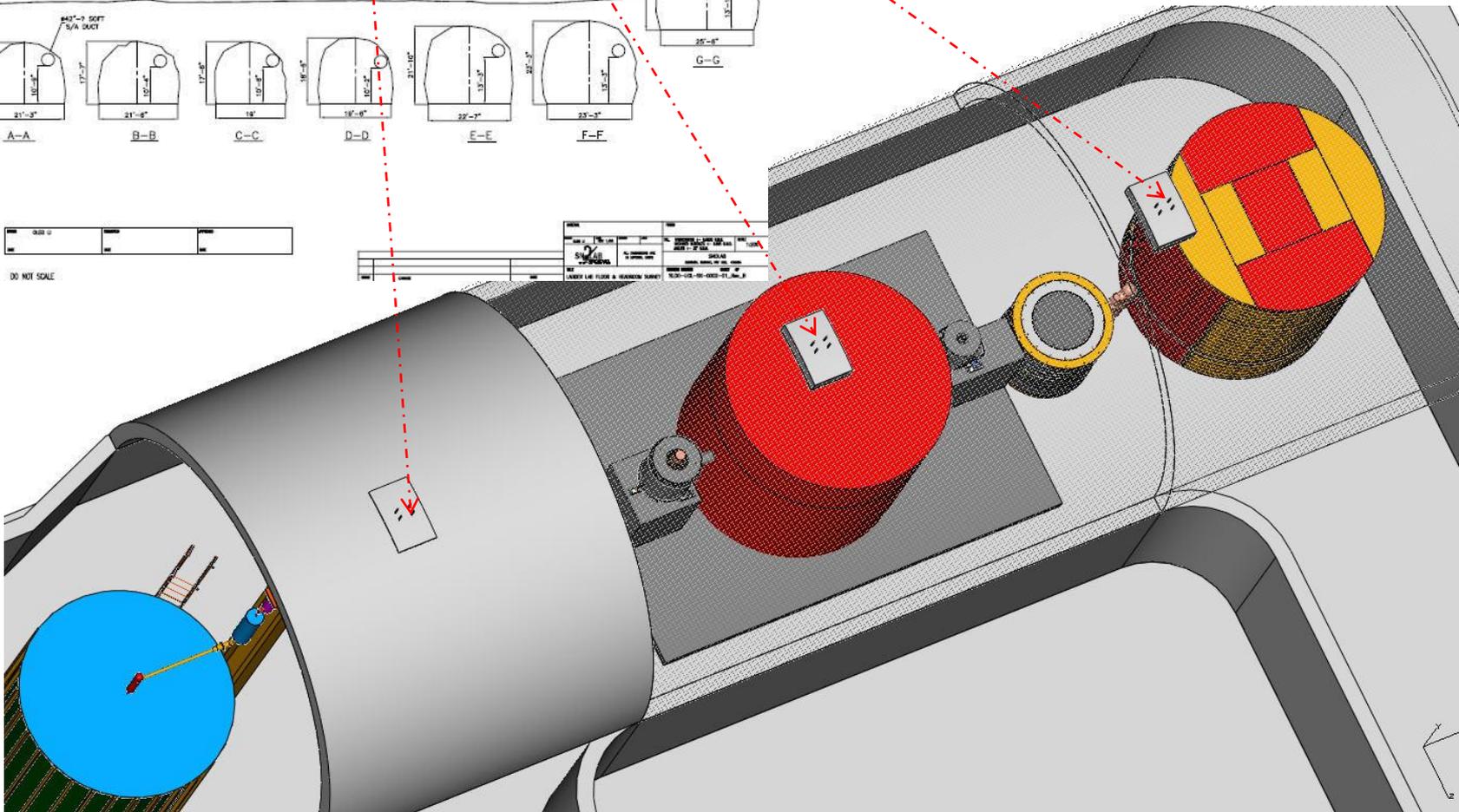
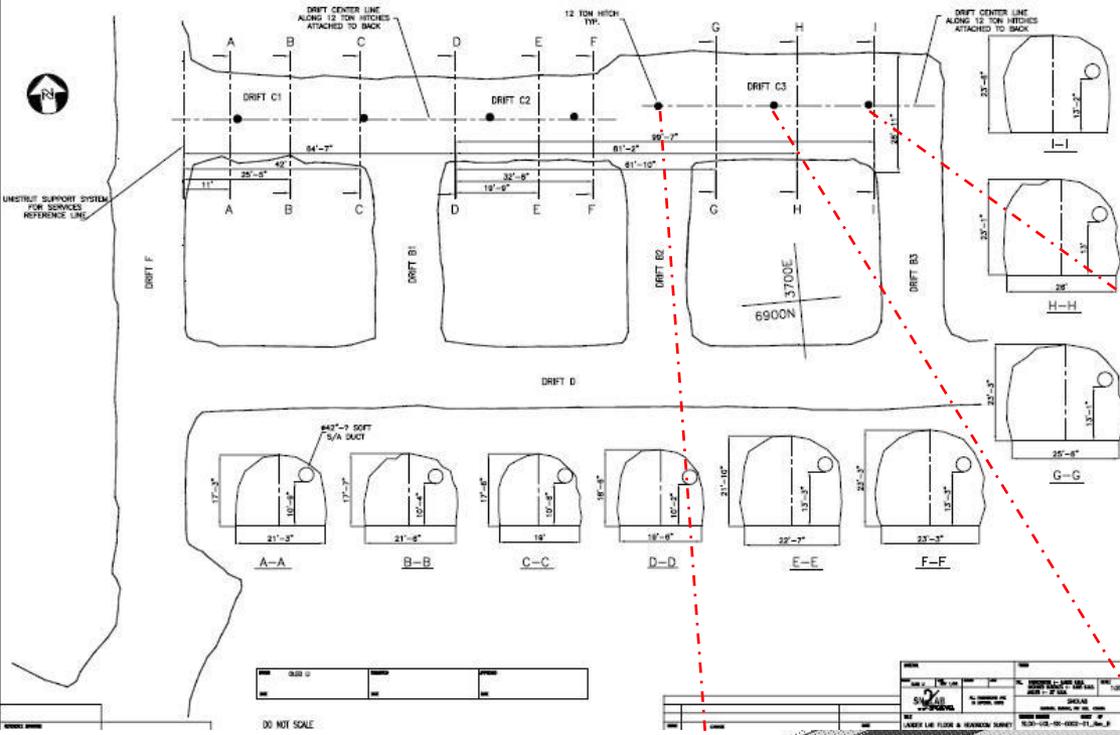
Main features of the new Monorail design

Ladder Lab Drift C3 ceiling

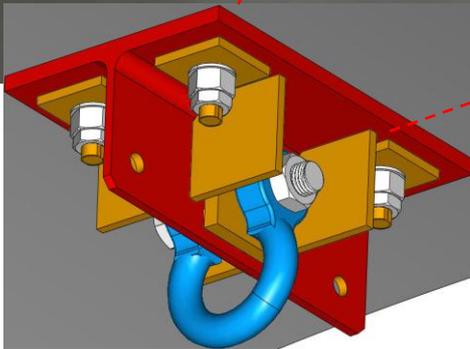


- **Angular alignment:** +/- 13 deg., see page 11
- **Lateral alignment:** 24", see page 12
- **Vertical alignment:** See page 10 & page 13.
- **Crane hoist movement:** 39 ft, see pages 14 & 15.
- **Under hook net height:** 241", see page 15.

**Ladder Lab Floor
and Headroom Area**



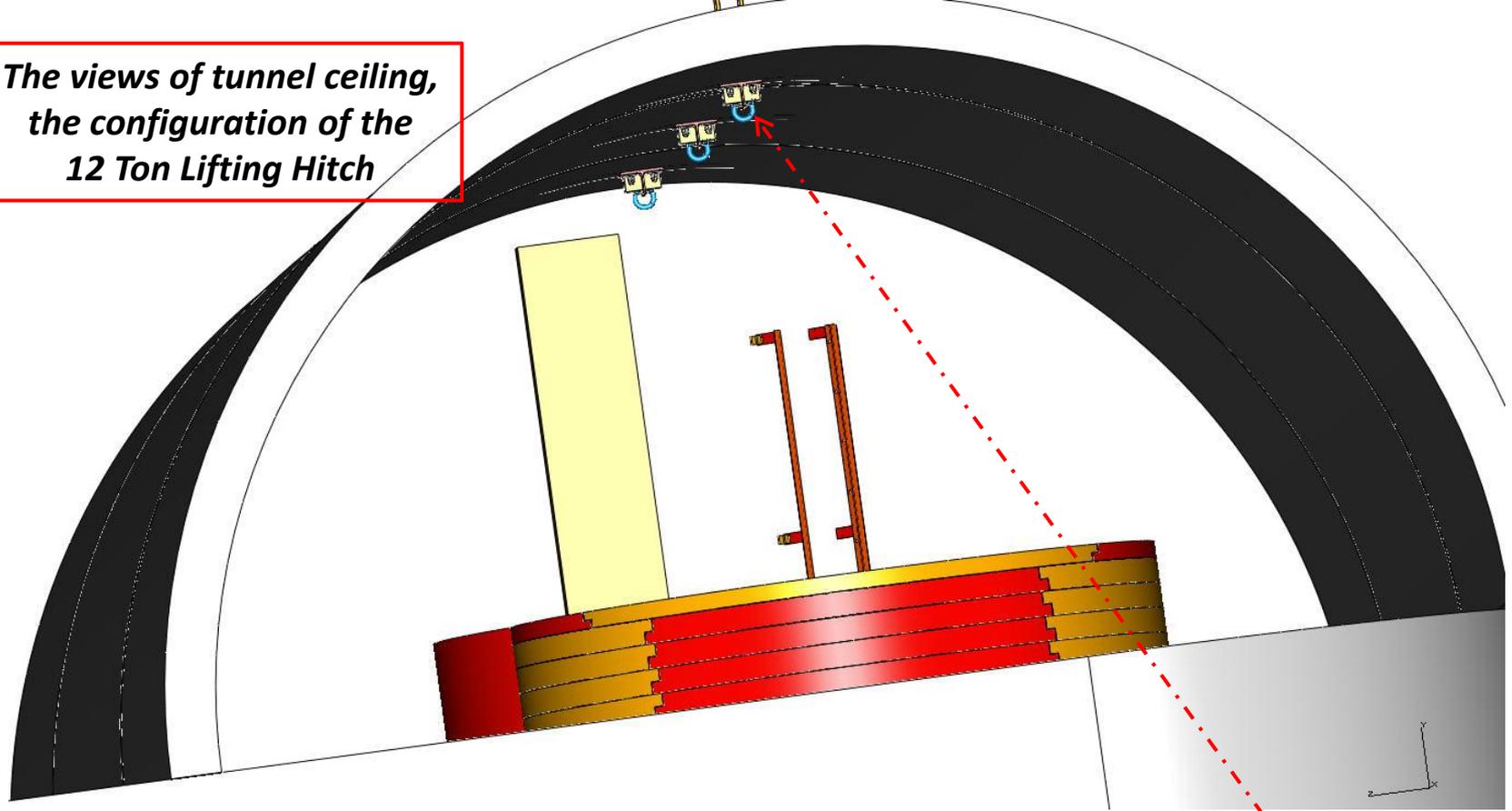
The views of the experimental area



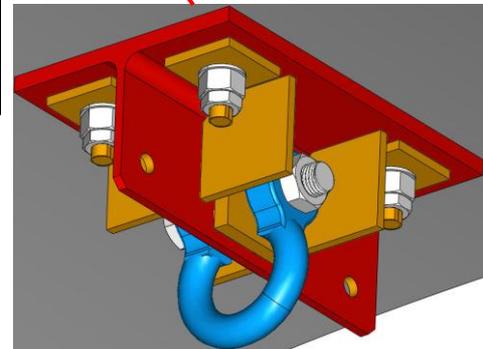
12 ton lifting hitch

Edward Chi, 04/28/2011

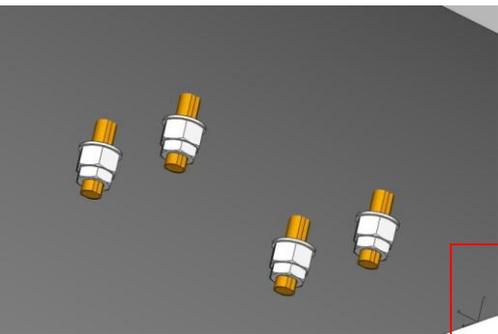
***The views of tunnel ceiling,
the configuration of the
12 Ton Lifting Hitch***



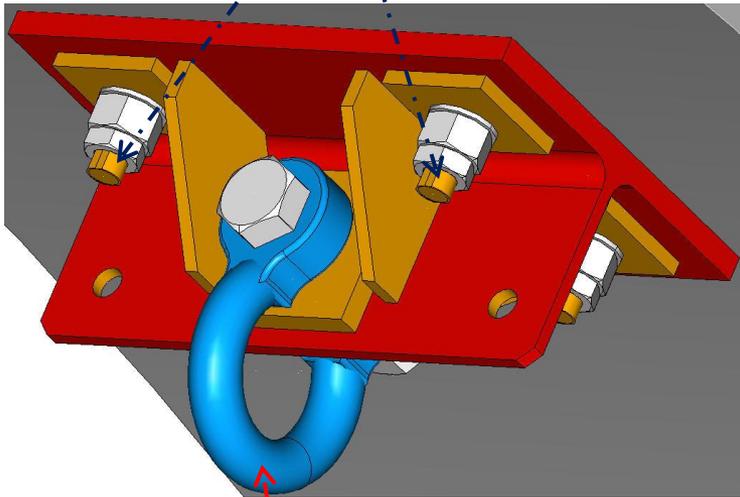
**The view of the existing
12 Ton Lifting Hitch mounted
on the ceiling**
(per dwg. #99-071-E-02649)



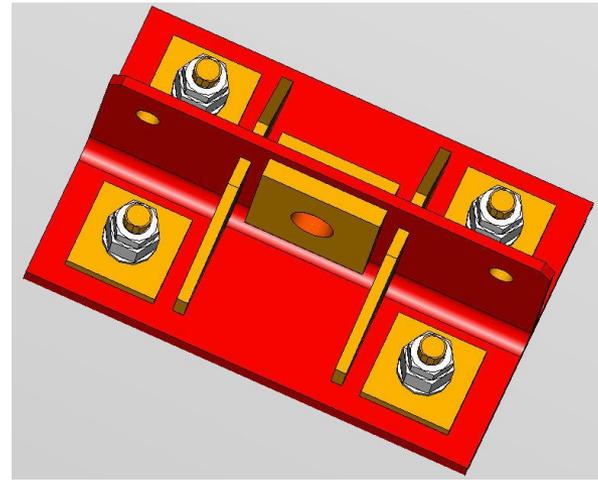
**The view of the existing 4
Dywidag Threadbar
From the tunnel ceiling**
(after removed the existing
mtg. bracket and the 12 Ton
anchor shackle)



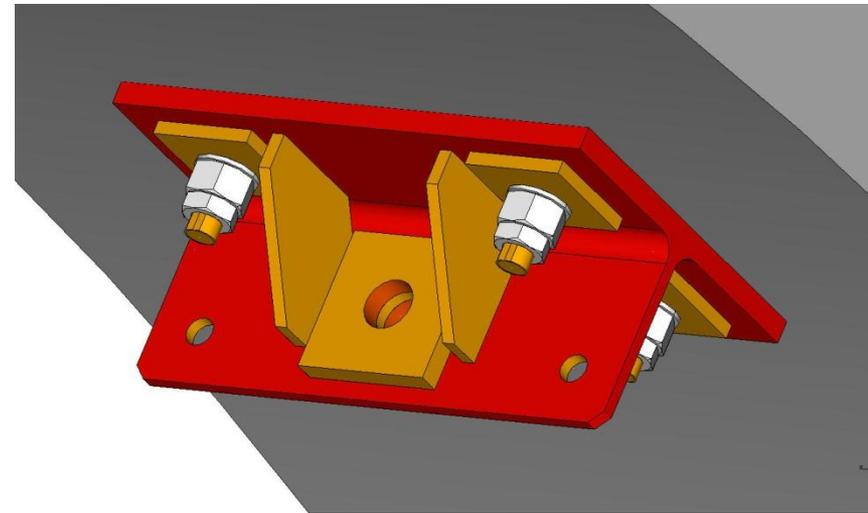
Split ends of the thread Rebars (4)
(Assuming the lifting hitch is not replaceable)



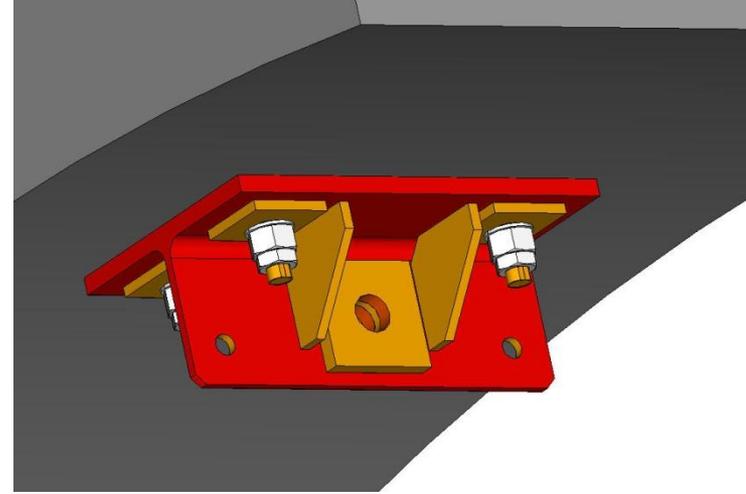
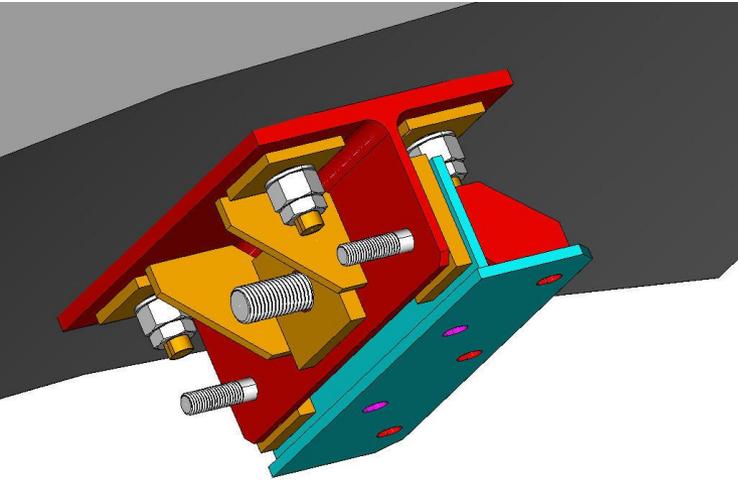
12 Ton Anchor Shackle with its bolt & nut are replaceable



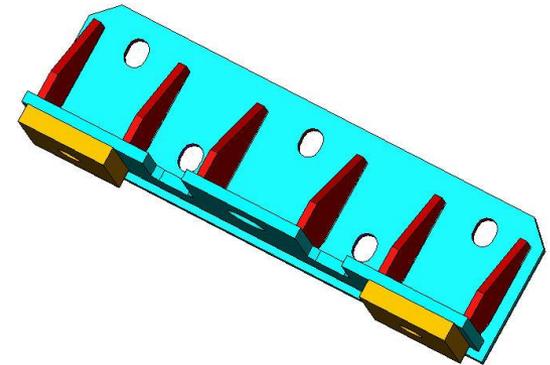
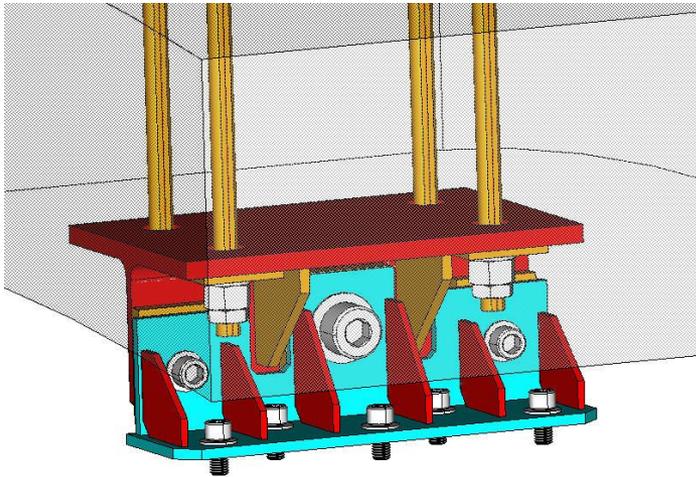
The views after removed the Anchor Shackle & its bolt & nut



Install the adapter bracket #1
(2 views from different angles)

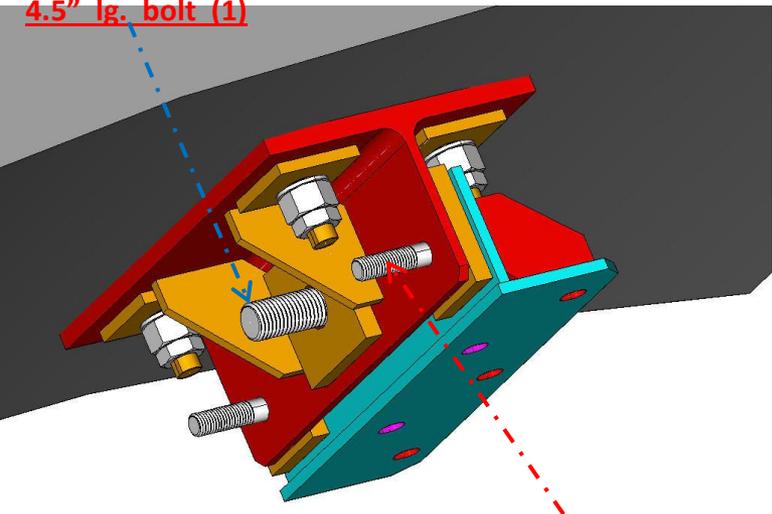


Lifting Hitch w/o Shackle



Adapter bracket 1
(~23 lbs)

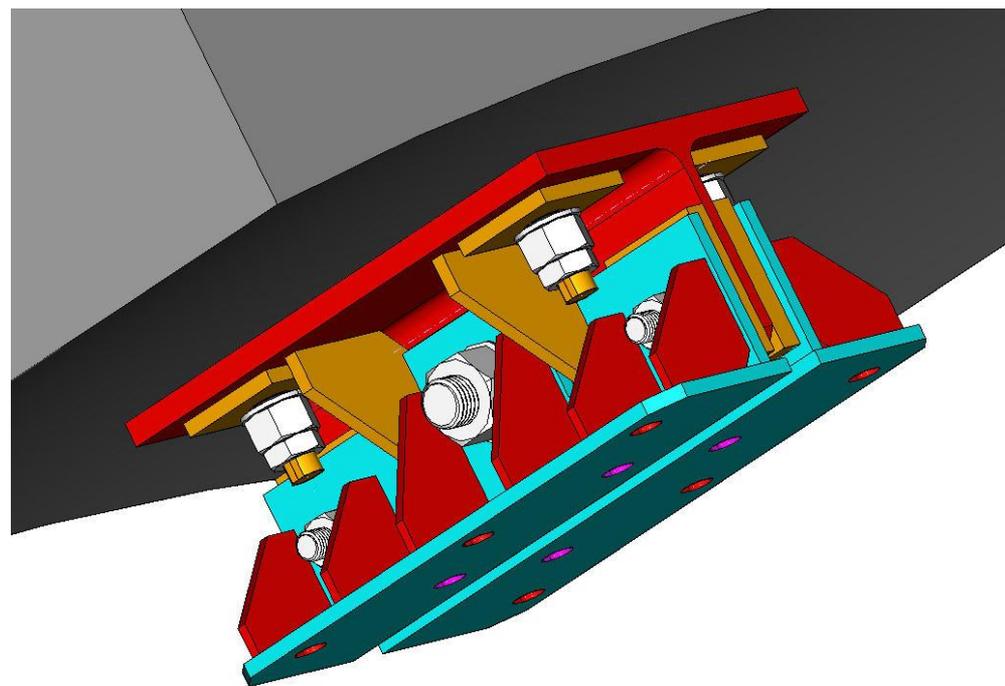
**1.25 x 7 UNC,
4.5" lg. bolt (1)**



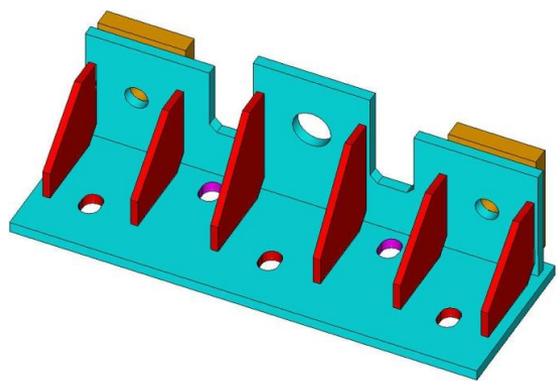
**Lifting Hitch with Adapter
bracket 1 only**

3/4 - 10, UNC, 4" lg. bolts (2)

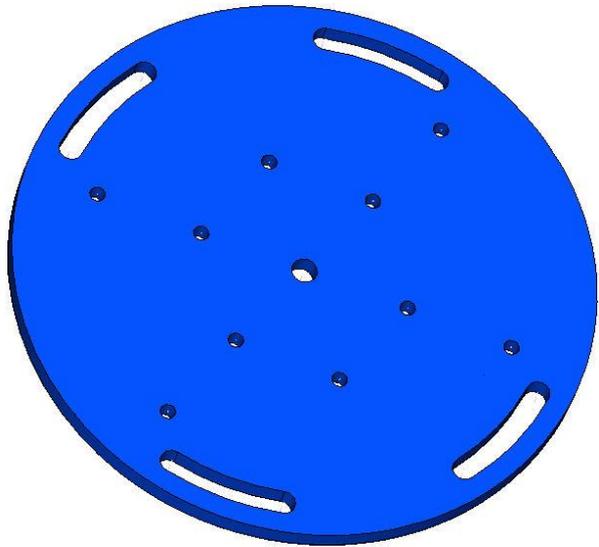
Install both Adapter brackets with the Lifting Hitch



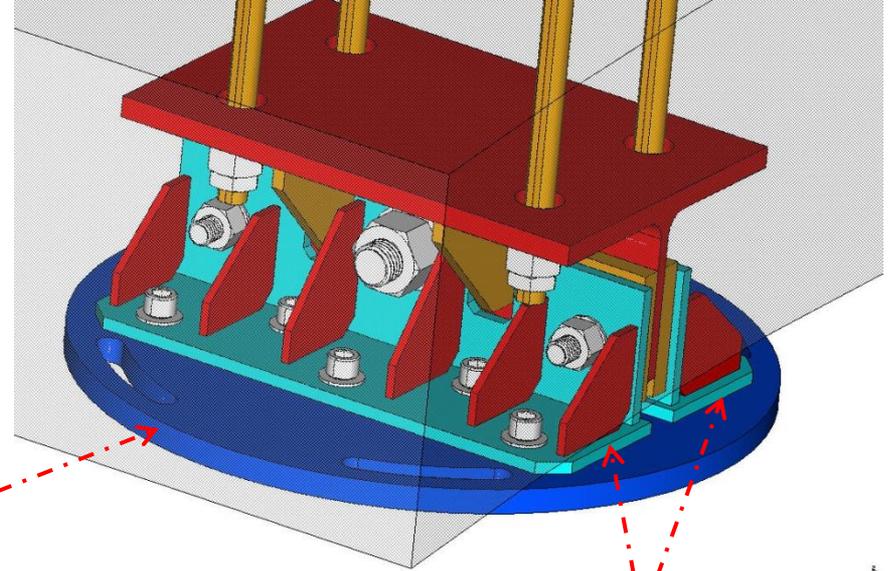
**Lifting Hitch with both Adapter
brackets installed**



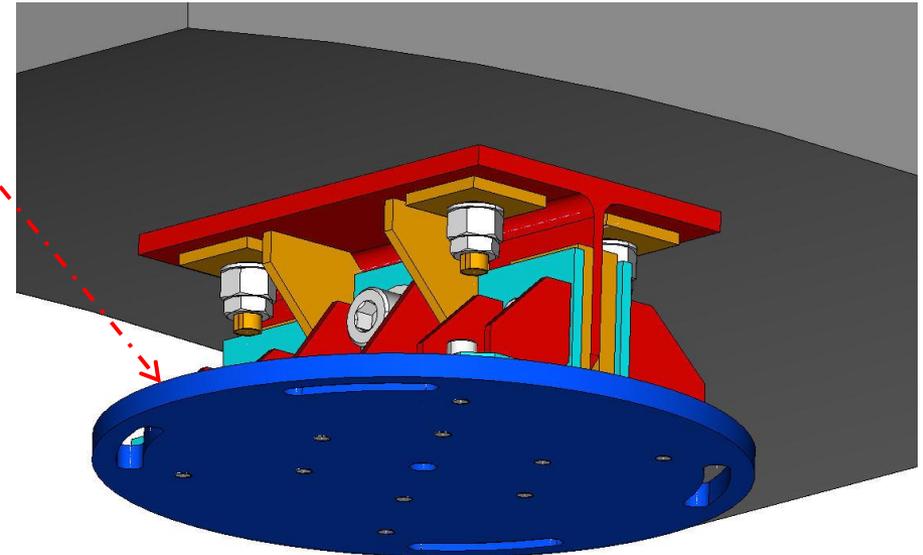
**Adapter bracket #2
(~ 23 lbs)**

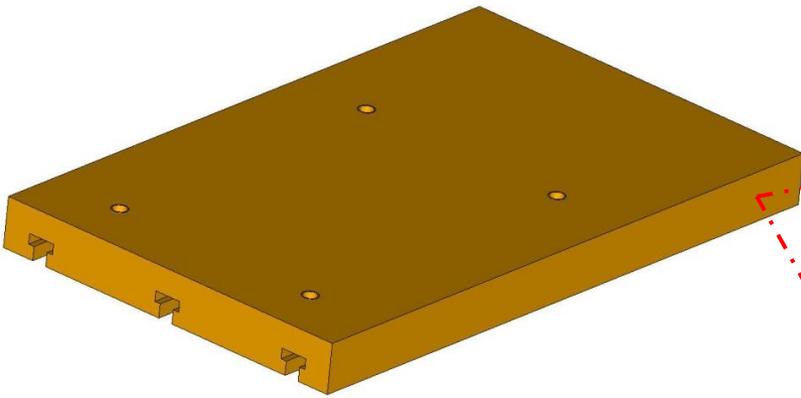


Install the angular adjust connector underneath of the two adapter brackets (63 lbs).

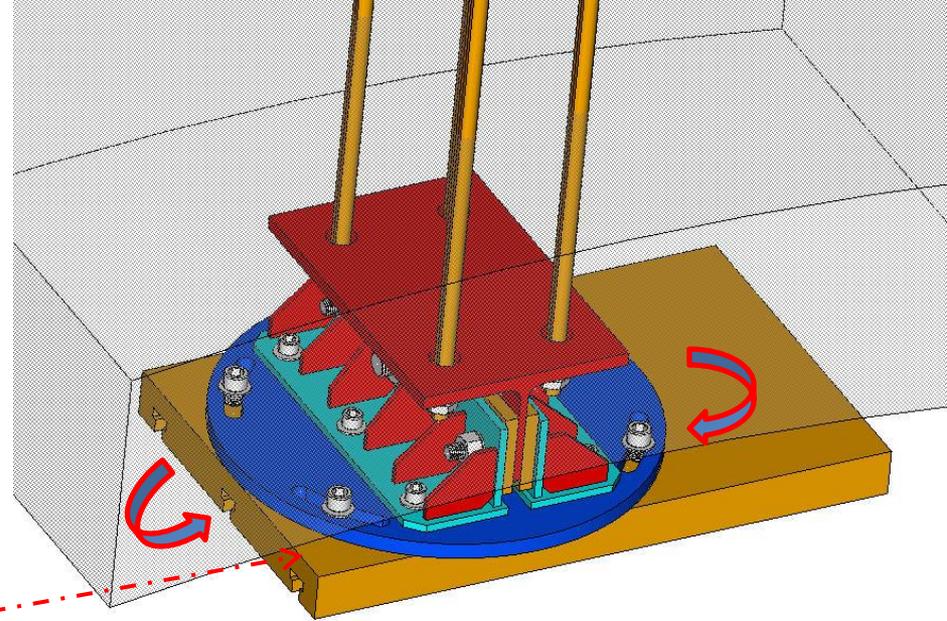


Adding shims for leveling if it's necessary

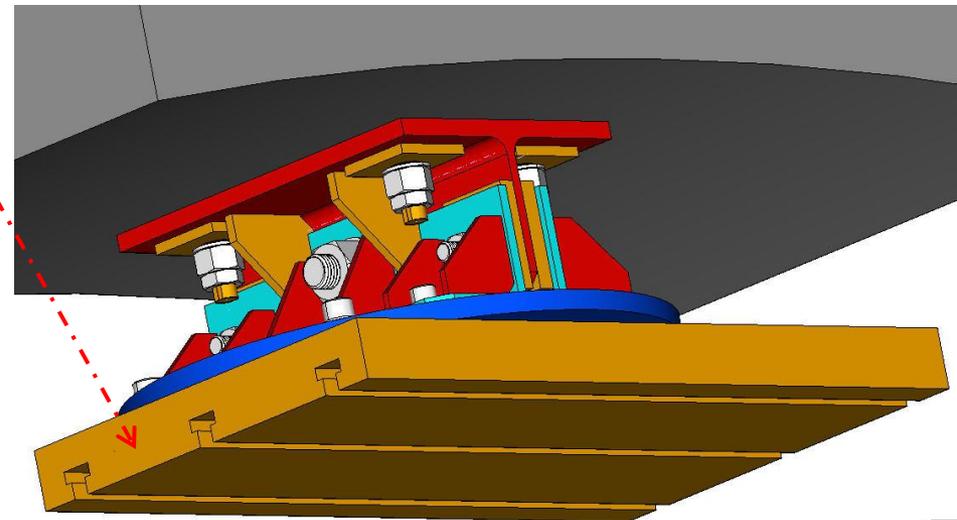




T-slots beam connector
(28" x 17" x 2.25")
(279 lbs)

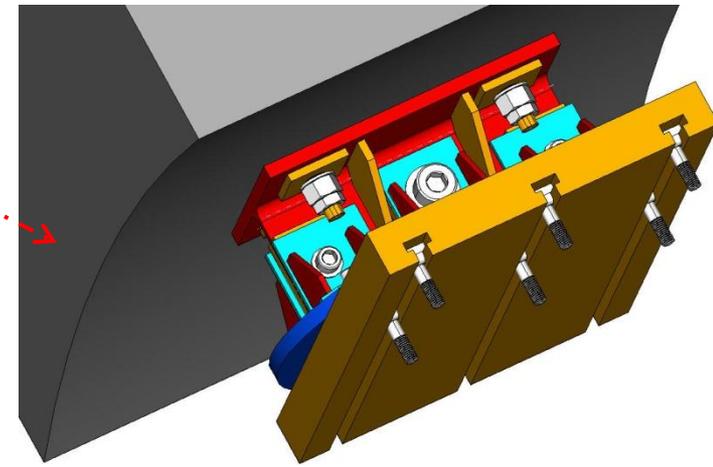


Angular adjustability ~ +/- 13 deg.

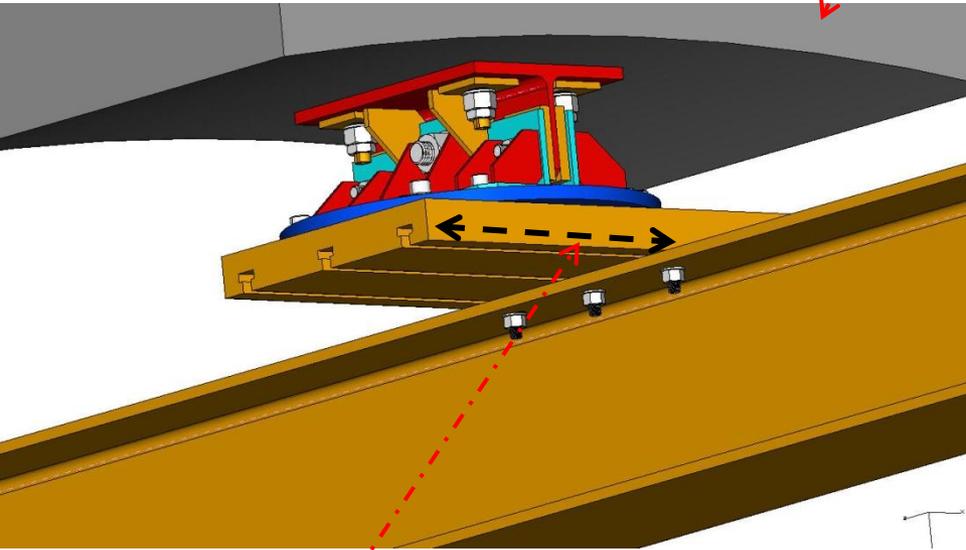


Install the I-Beam with the new version of mounting Adapter.

Ceiling

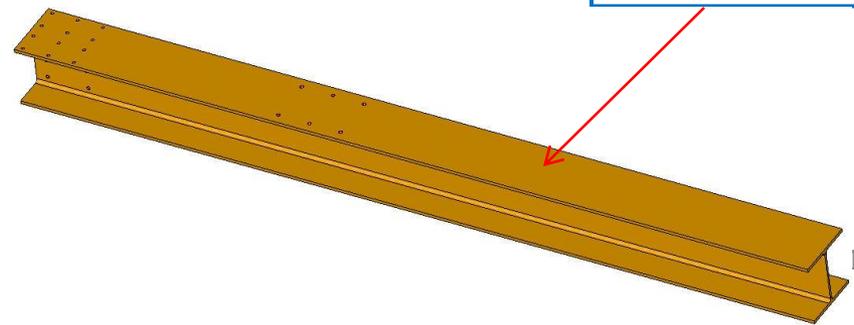


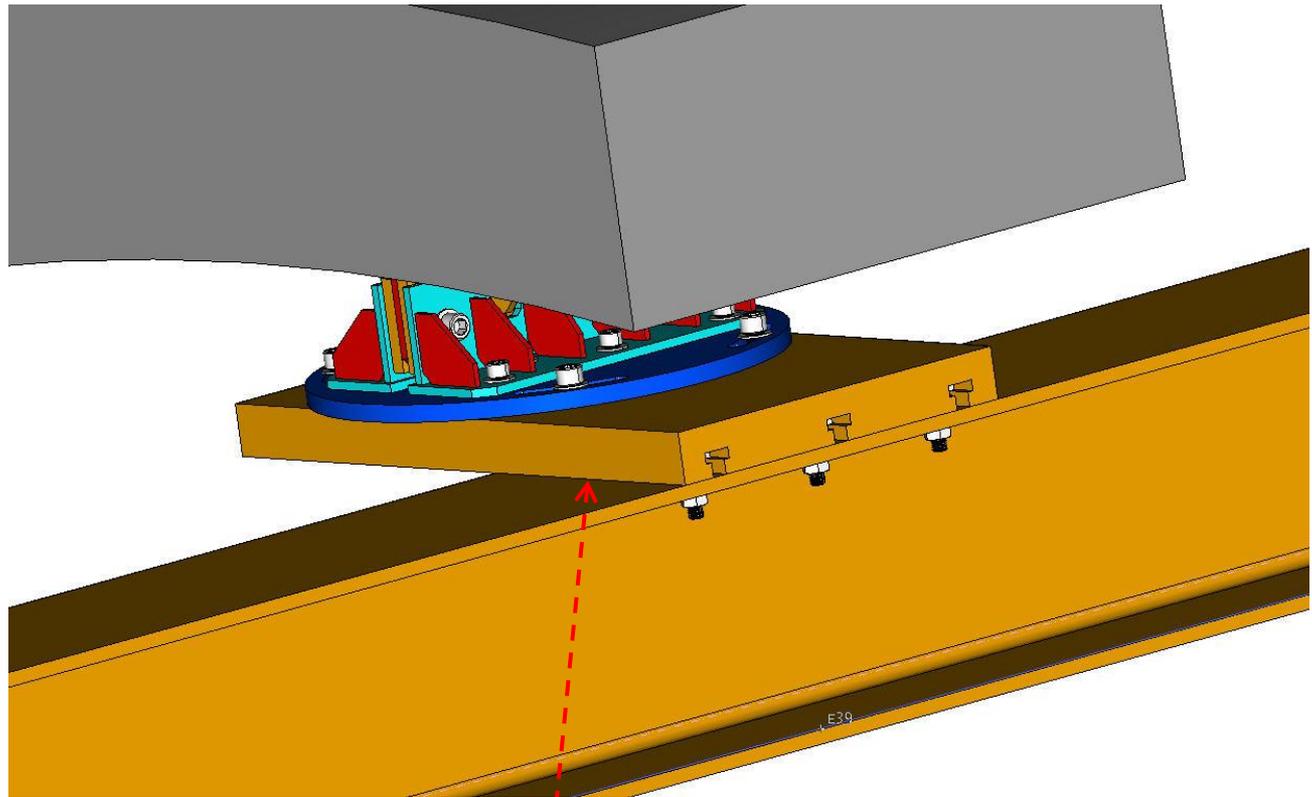
View from the bottom of the Adapter bracket



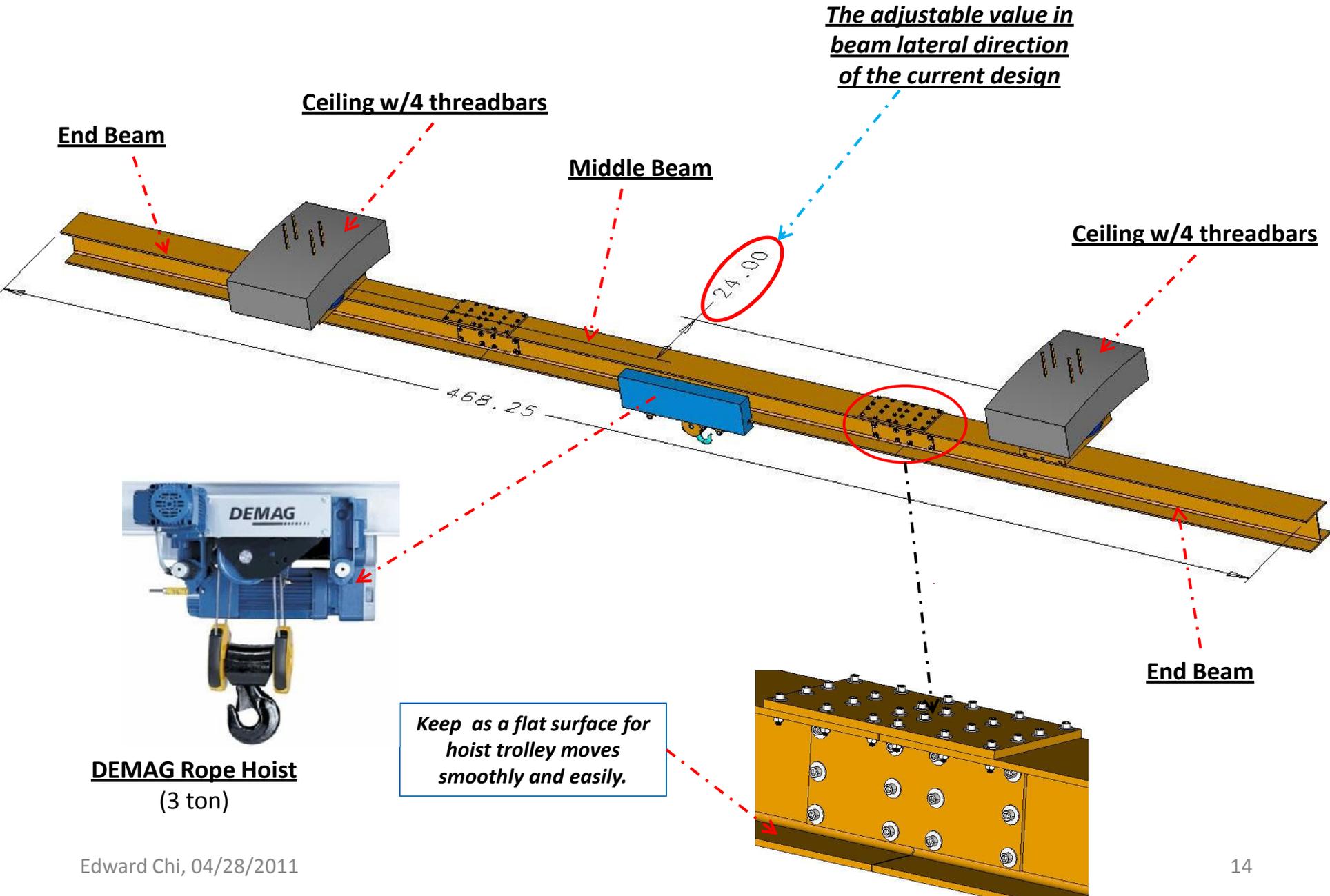
Adjustability along the T-slots (beam lateral direction)

W12 x 65 I-Beam, 156" (13') length, Mounted on the new ceiling bracket.

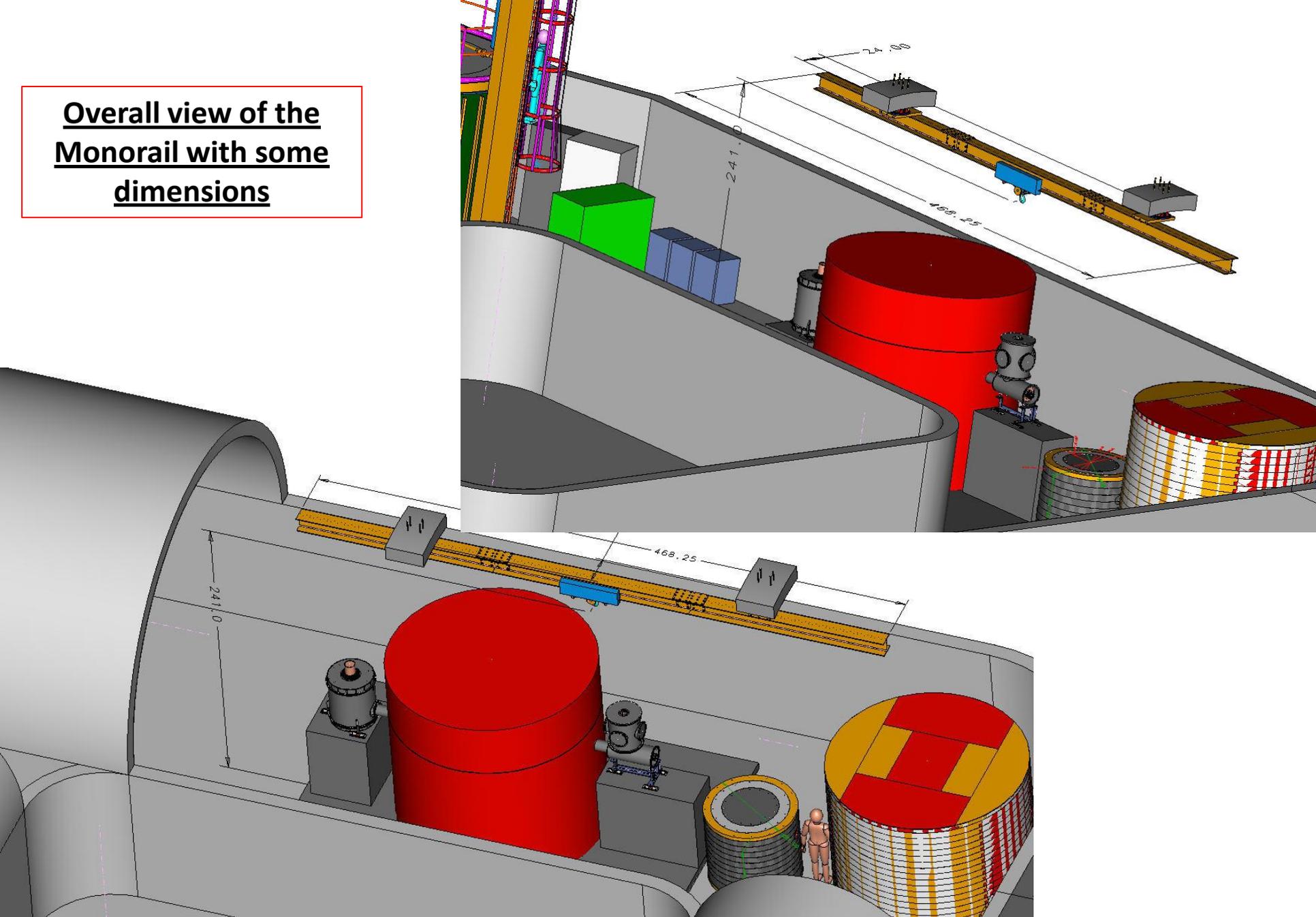




Adding shims between slot connector & the top surface of the beam for vertical (Y dir.) adjustment if it's required.



Overall view of the Monorail with some dimensions



More view from Drift C3 area with some facilities & utilities.

