

EPIC - Forward HCal 8M Tower Design Update

Elliott Fountain

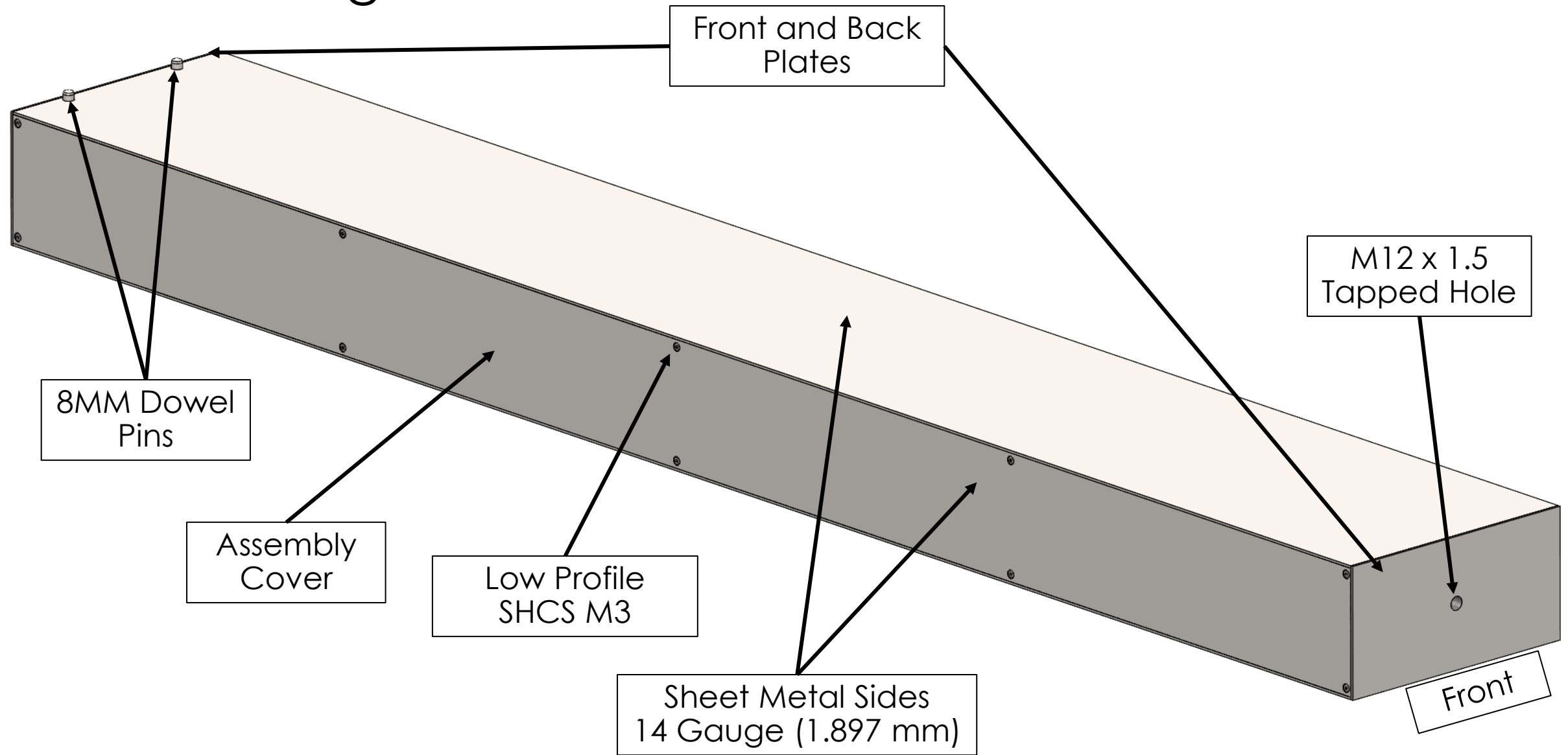
March 13, 2023



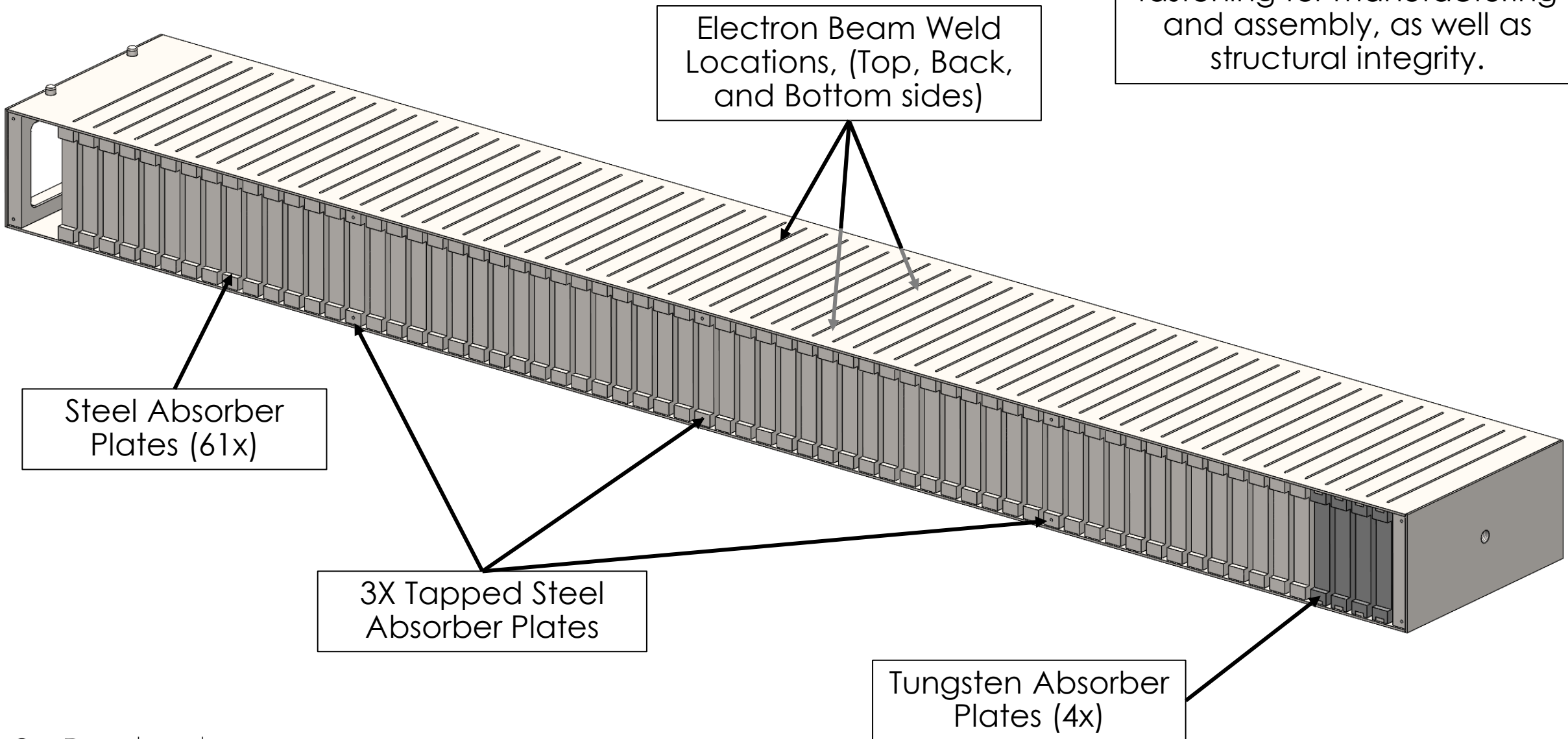
Update Summary

- Tower redesigned based on “Option 1B” from prior meeting.
- Tower is now side-loading for Scintillator tiles and electrical connections.
- Tower housing made from 14-gauge sheet metal sides and machined front & back plates.
- Tower is now 140 CM in length.
- Absorber plates to be Electron Beam welded to the sheet metal sides (automated process at manufacturer). Tungsten plates to have steel ‘keys’ to facilitate welding.
- 8M Tower Weldments can be tolerance checked post-weld to verify size and shape prior to delivery.
- Scintillator / PCB assembly to take place in a custom stand / fixture which allows full rotation of Tower.

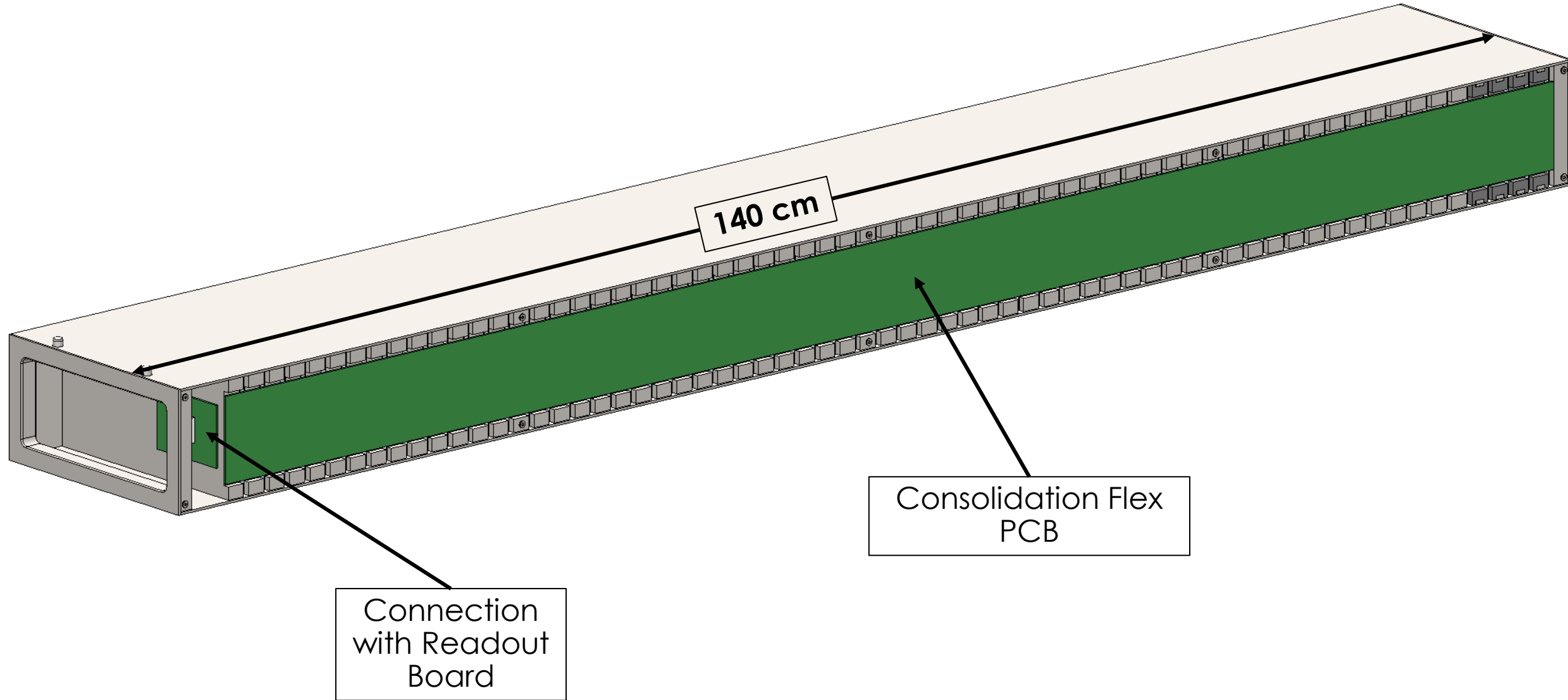
Tower Housing



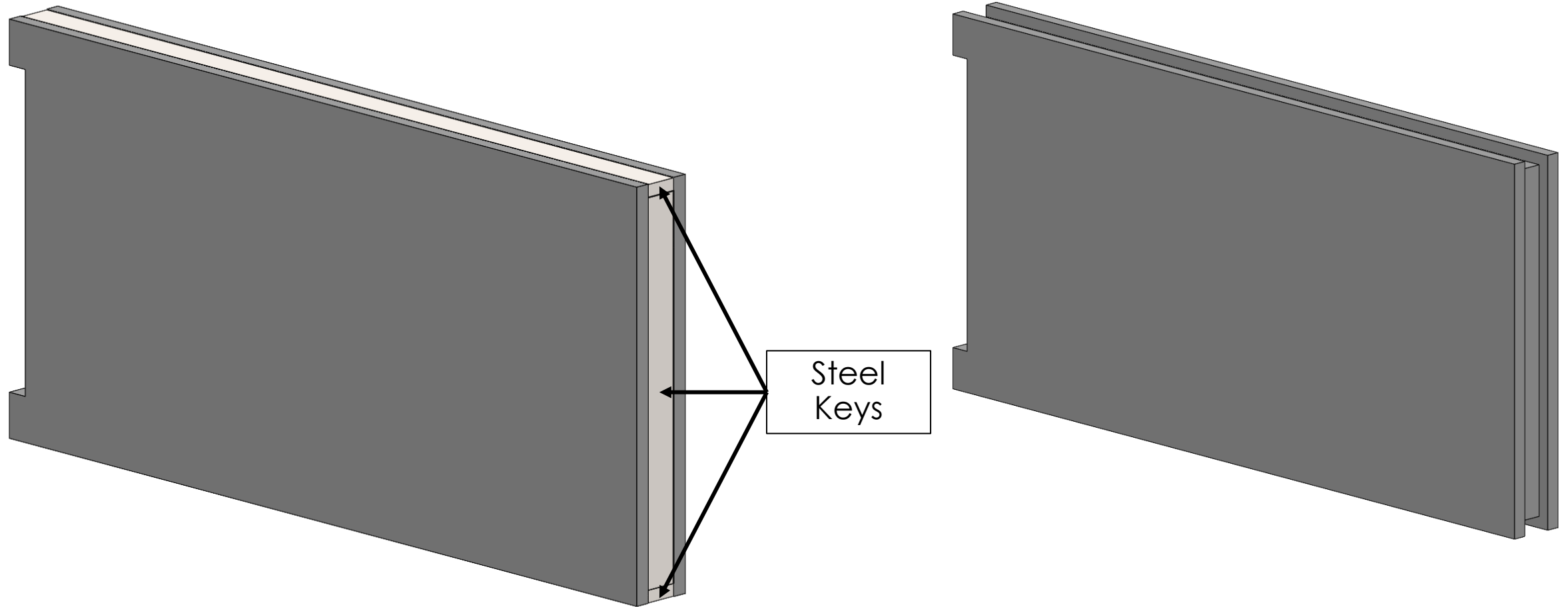
Tower Housing Weldment



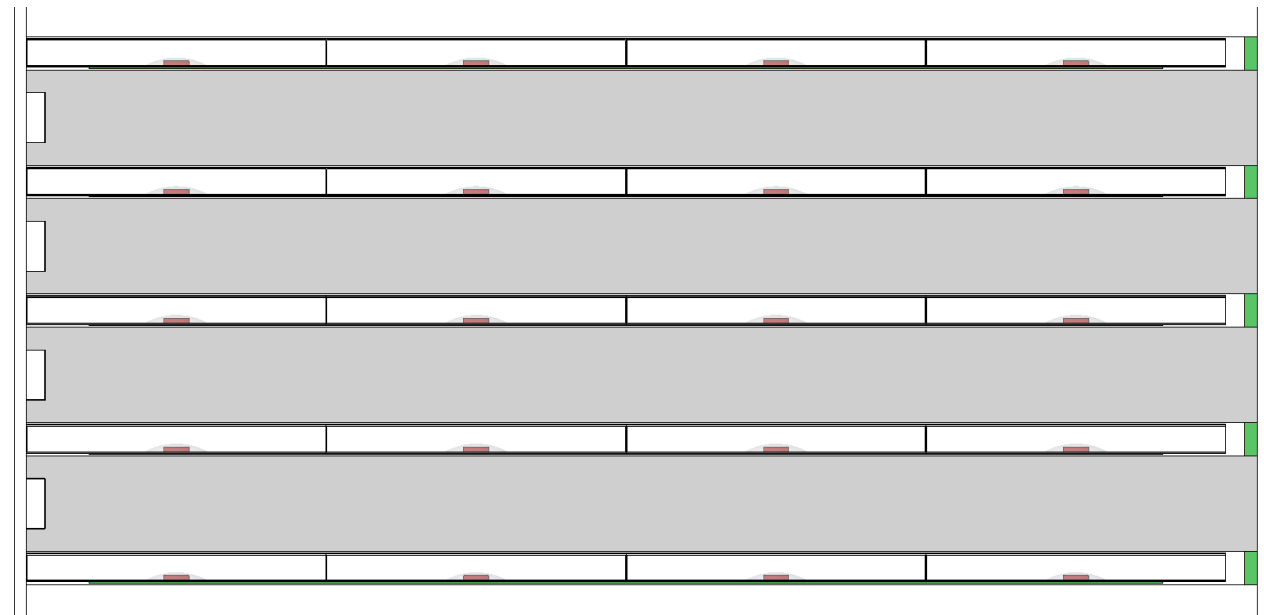
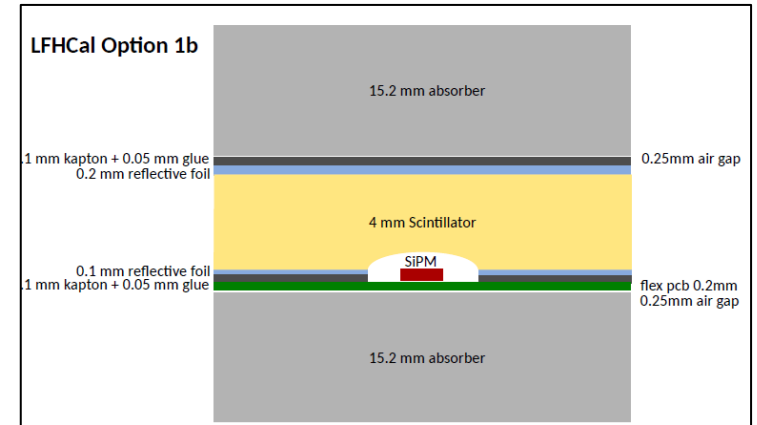
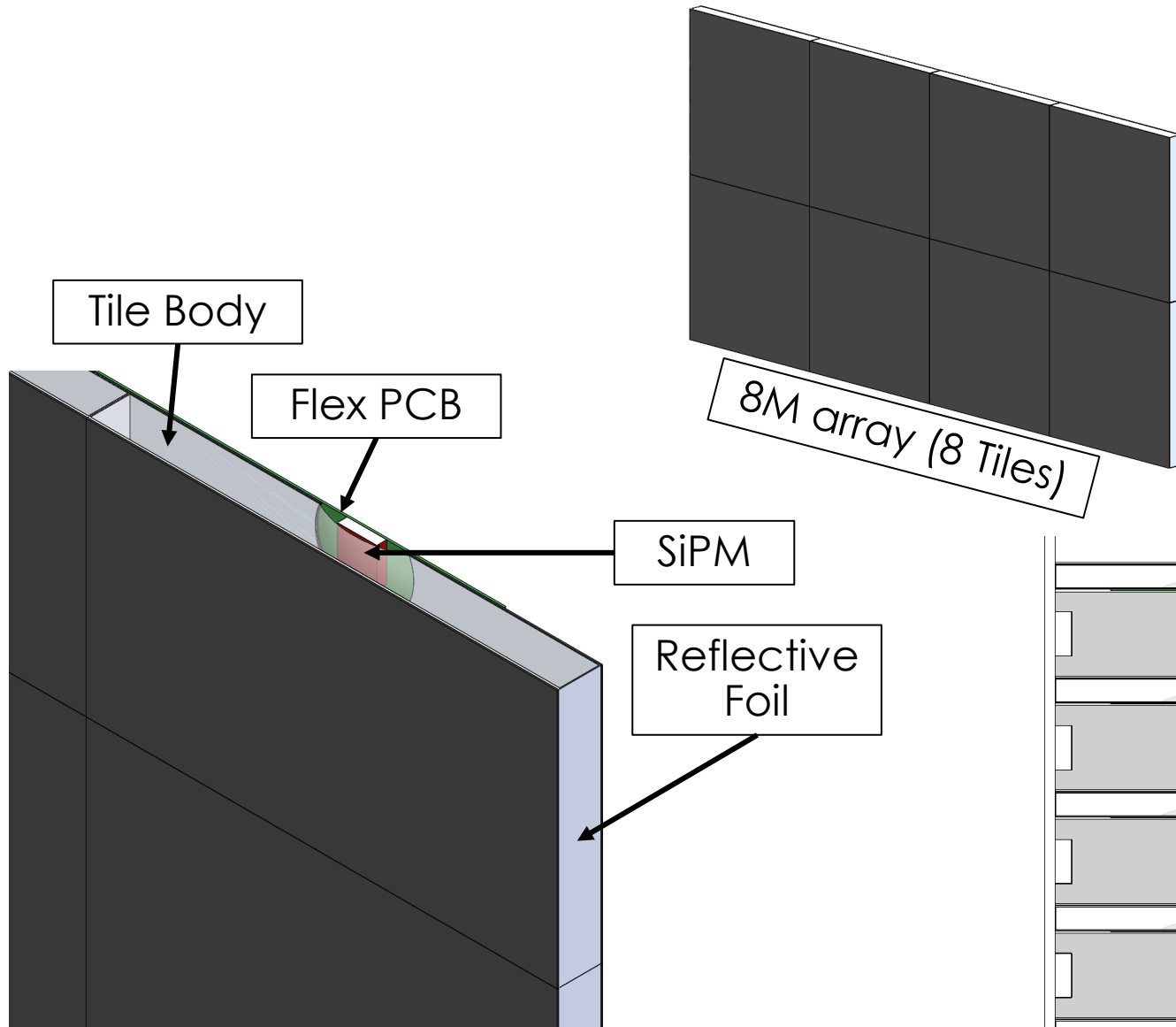
Tower Assembly / PCB Arrangement



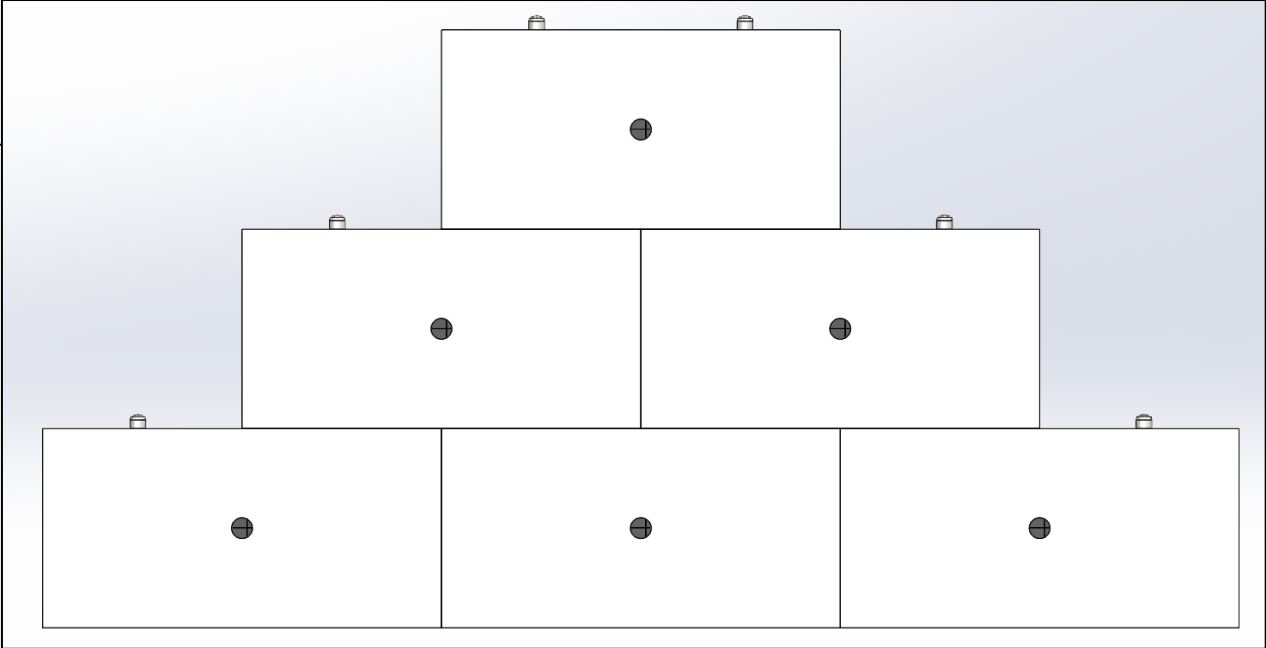
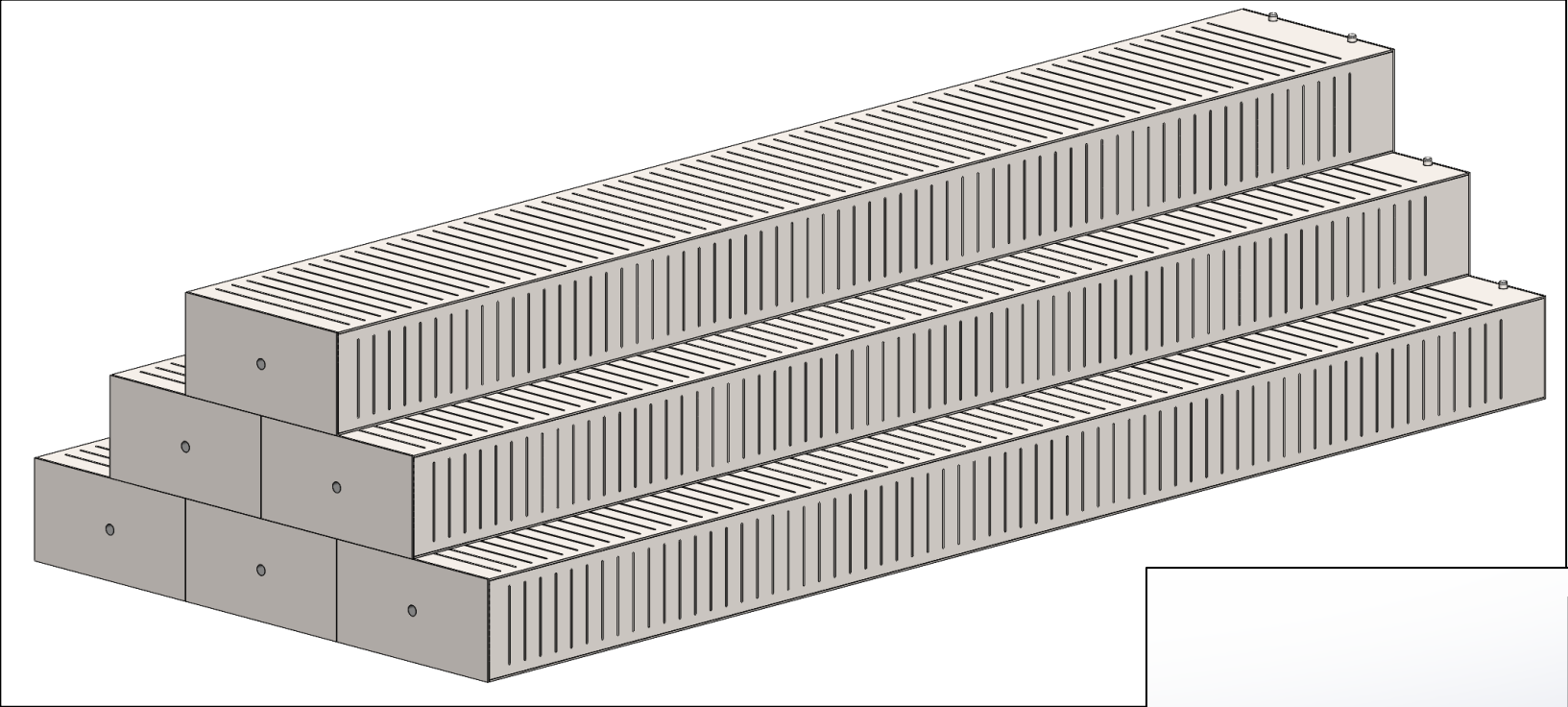
Component Updates (Tungsten Plate)



Component Updates (Scintillator Plates)



Tower Stack



Next Steps

- Structural Analysis / Iteration / Update Tower Design based on comments in meeting.
- Preliminary Assembly Procedure (document)
- Detail PCB arrangement and connections.
- Submit preliminary design drawings for quote.
- Manufacture mockup 8M Tower.
- Manufacture Assembly Stand (80/20 frame, in-house fabrication)
- Other items?

Questions / Comments / Discussion