

SABRE SOUTH ENGINEERING MEETING

22 July 2021

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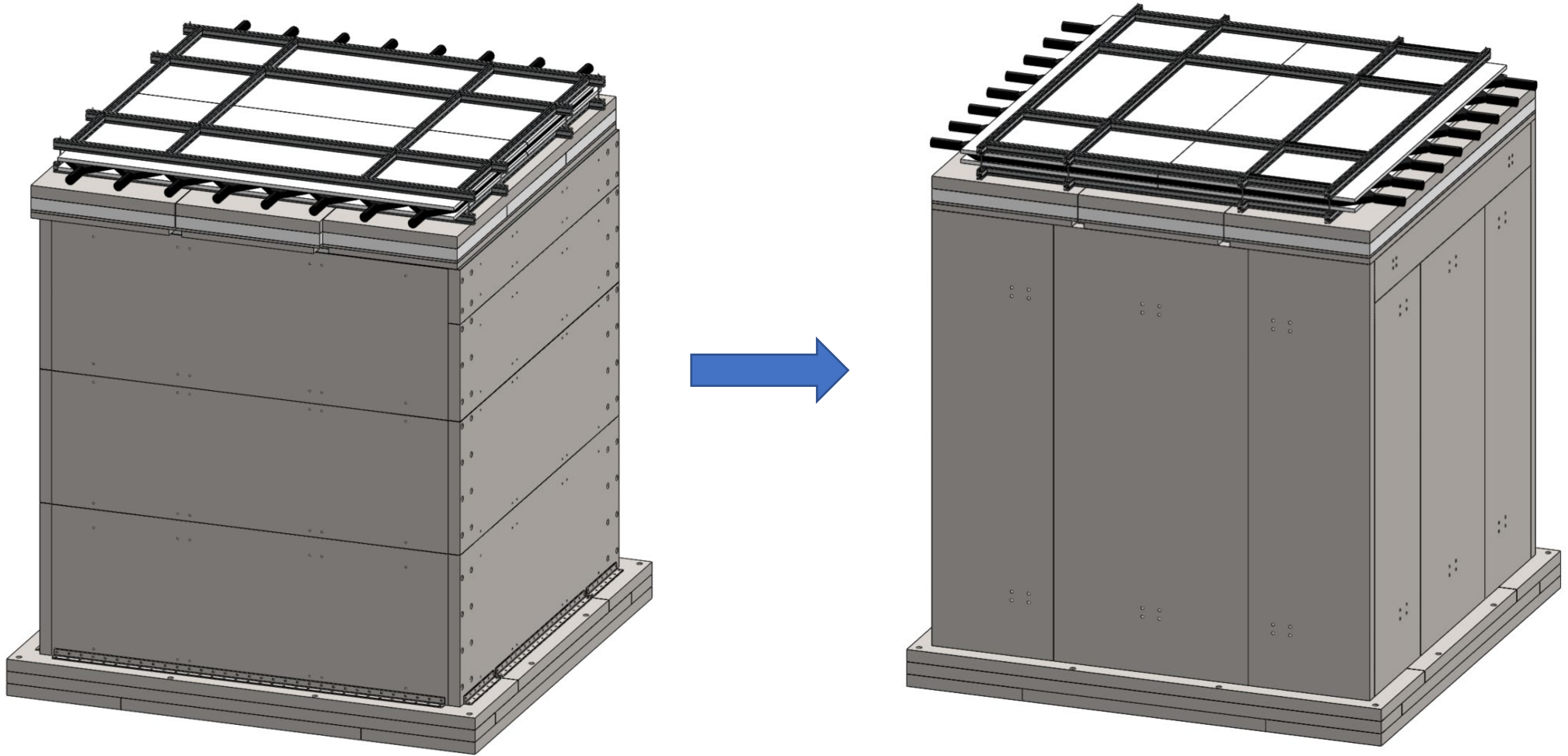
Agenda

- Part 1 – Alternative shielding design
- Part 2– Update on fabrication costs

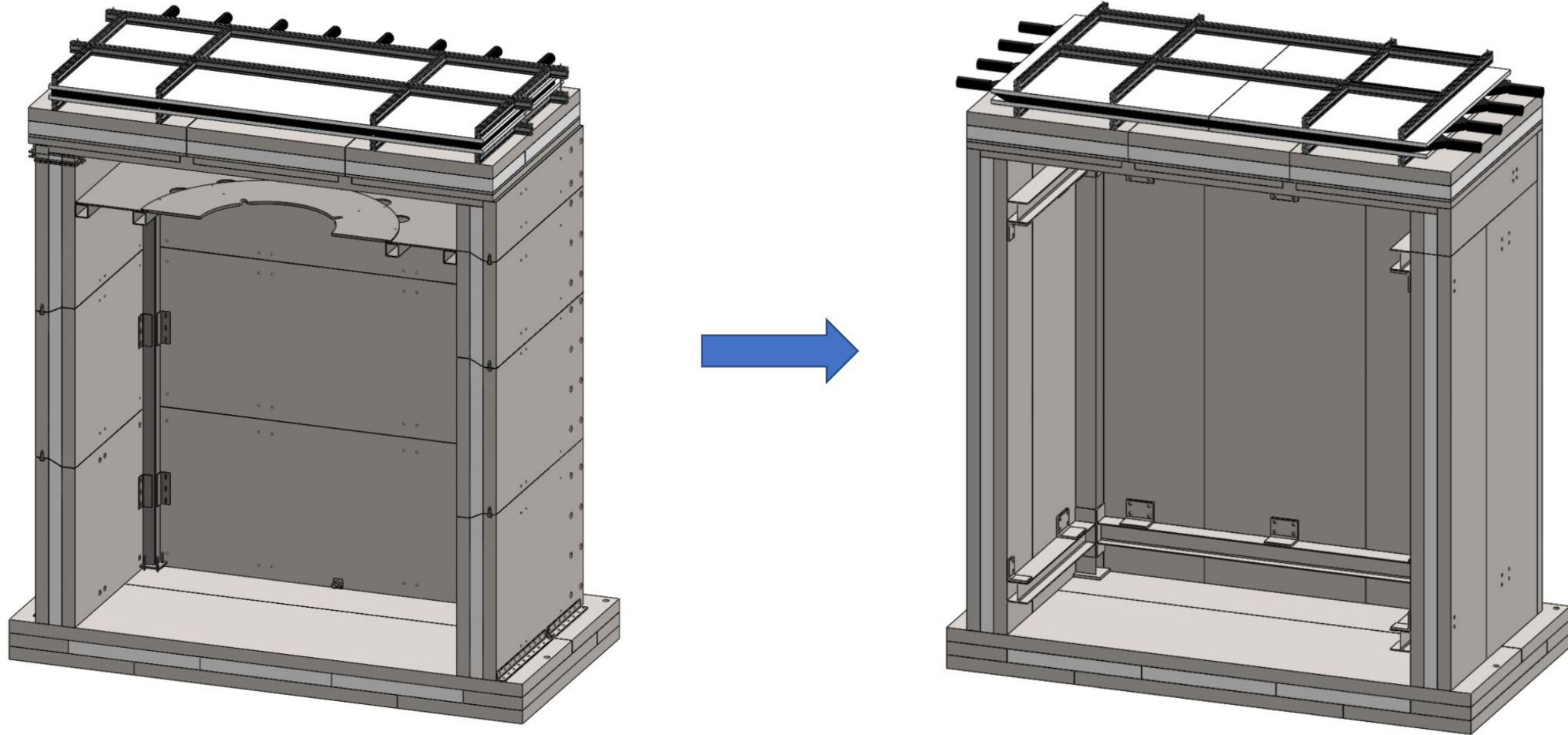
1. Alternative shielding design

- Simplified design to minimise fabrication costs
- More resistant internal steel frame
- Reduction of number of plates (less oxy-cuts)
- Elimination of sandwich sub-assemblies
- Elimination of ~ all tapped holes
- Elimination of all custom holes
- Plates laid vertically
- Simplified transportation/construction processes
- “Internal” space increased by 100 mm in both X-Y directions*

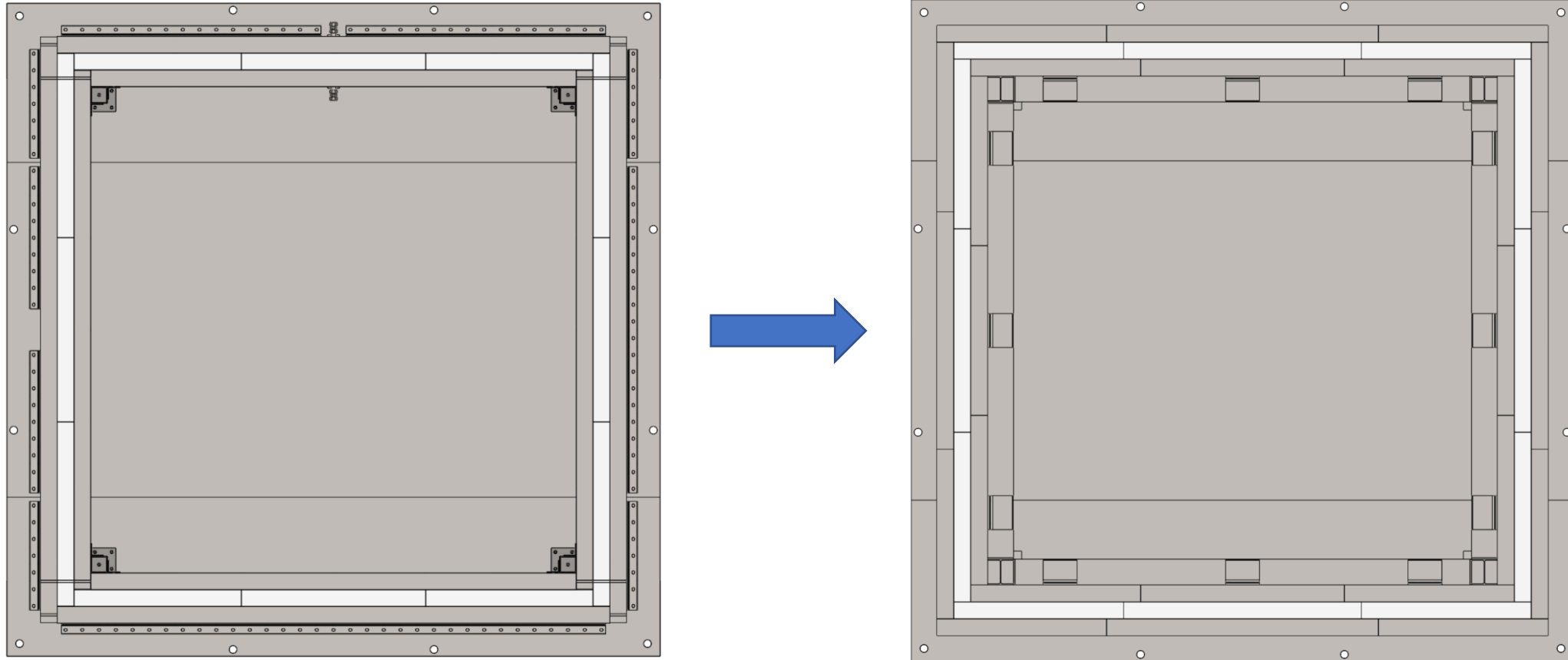
1. Alternative shielding design



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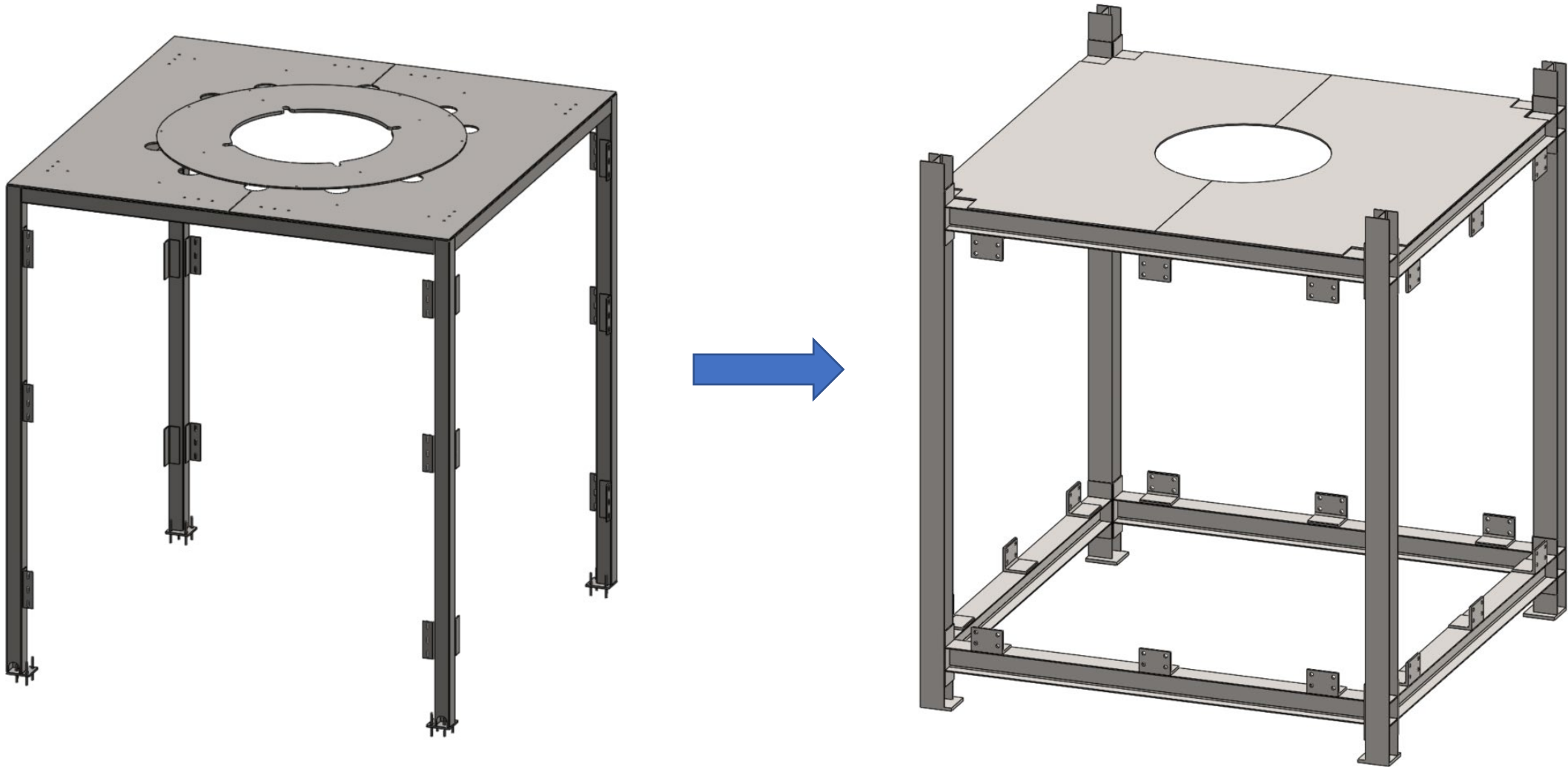
1. Alternative shielding design



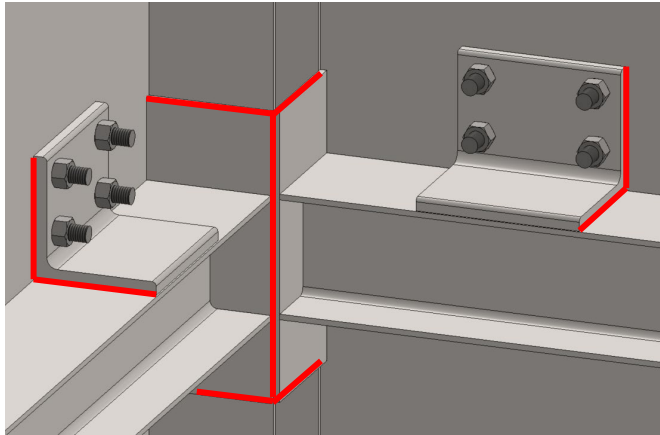
2. Internal structural frame

- I-beams and columns only
- Fully restrained (moment-resistant)
- Fully bolted
- *Local* welding only, to allow for structural connections:
 - I. Equal angles welded onto ISF to connect shielding walls;
 - II. Plates welded onto ISF joints to allow for moment-resistant joints

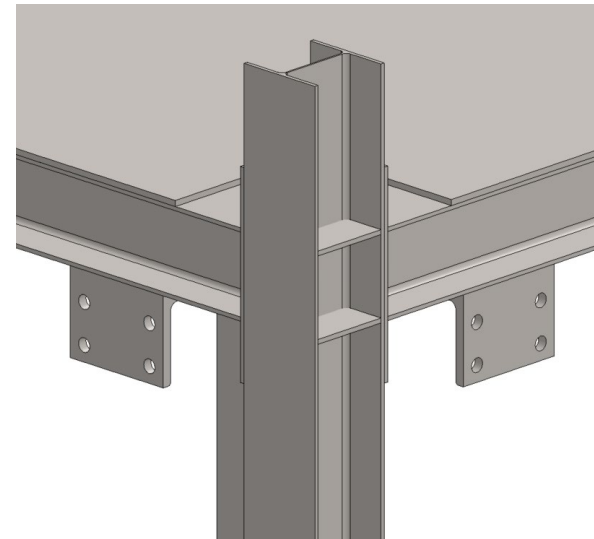
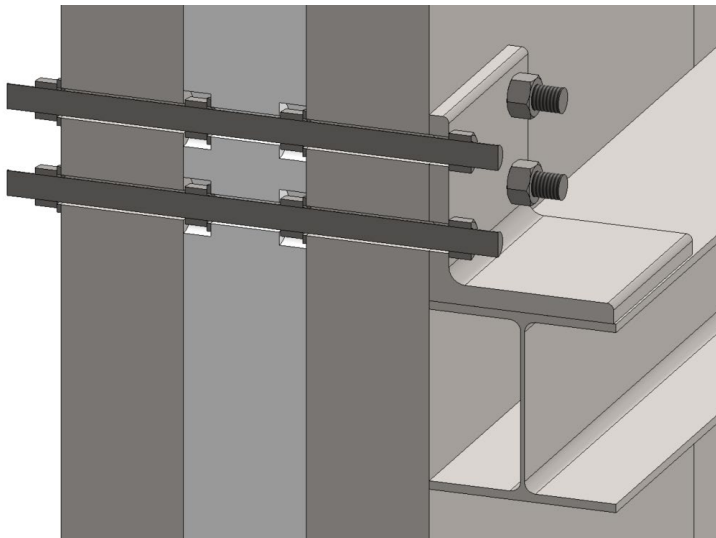
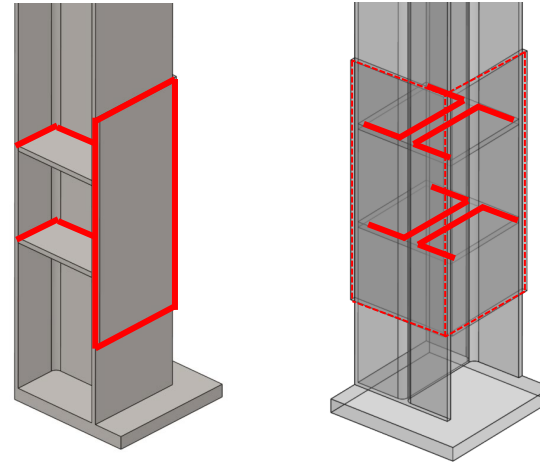
2. Internal structural frame



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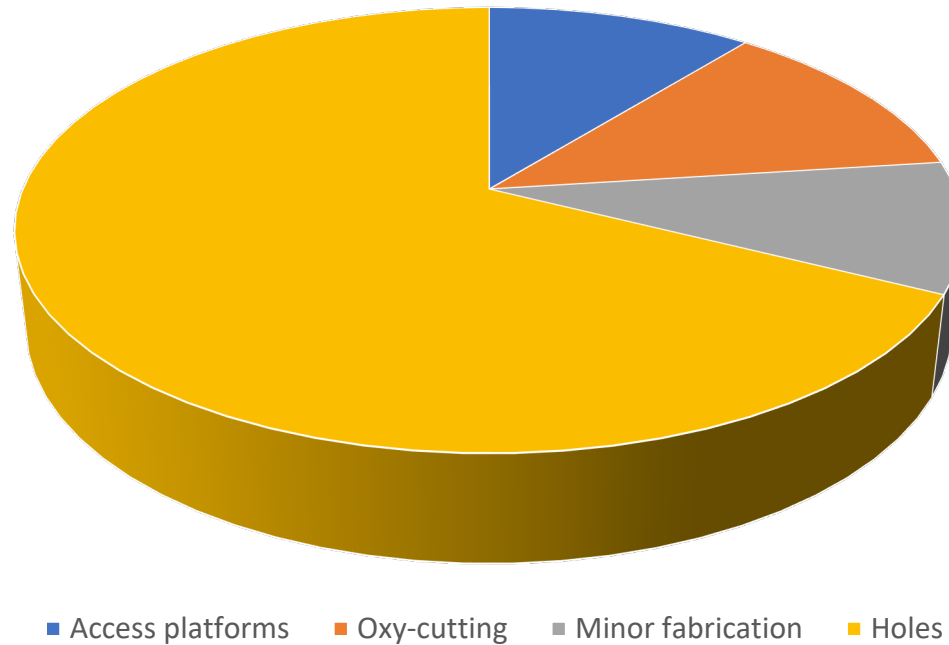


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Welded connection



3. Update on fabrication costs

Fabrication costs (estimated)
(Total estimated = 250k AUD)



3. Update on fabrication costs

PARAMETER	OLD DESIGN	NEW DESIGN	VARIATION
TOTAL HOLES	1422	408	-71.3%
THRU HOLES	692	400	-42.2%
BLIND-TAPPED	658	8	-98.8%
THRU-TAPPED	60	0	-100%
SPECIAL HOLES	12	0	-100%
ESTIMATED COST [AUD]	199k*	16k**	-92.0%

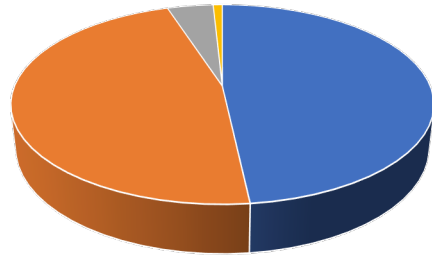
*Cost estimate is based on cost of oxy-cut thru holes = 35\$ per hole (for steel only). Holes on HDPE plates will have to be cut using a different technology (i.e., more expensive);

** Thru holes on HDPE plates will be counterbored on both sides (i.e., more expensive).

3. Update on fabrication costs

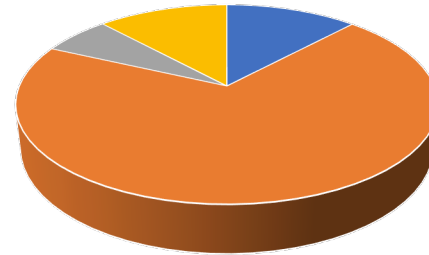
OLD DESIGN

Number of holes



- TOTAL THRU
- TOTAL BLIND - TAPPED
- TOTAL THRU - TAPPED
- TOTAL THRU - TAPPED

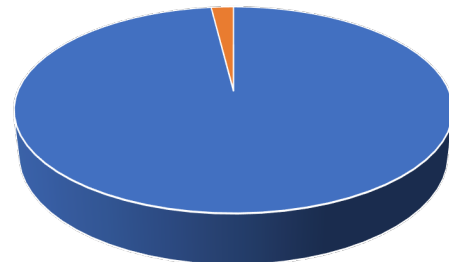
Relative cost



- TOTAL THRU
- TOTAL BLIND - TAPPED
- TOTAL THRU - TAPPED
- TOTAL THRU - TAPPED

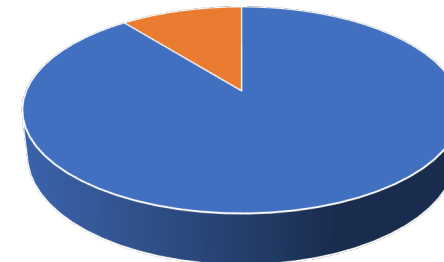
NEW DESIGN

Number of holes



- TOTAL THRU
- TOTAL BLIND - TAPPED

Relative cost

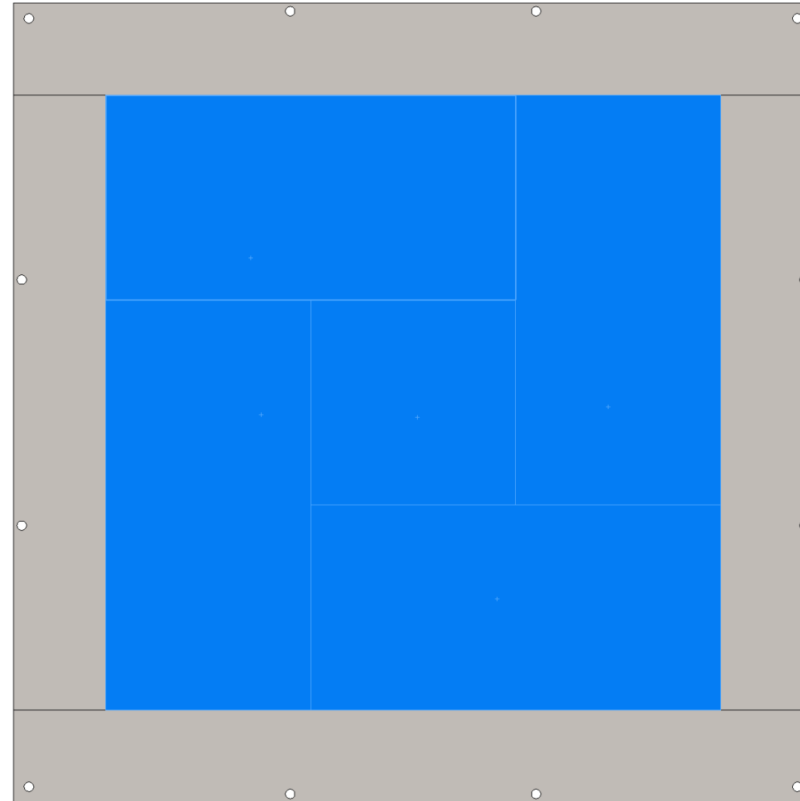
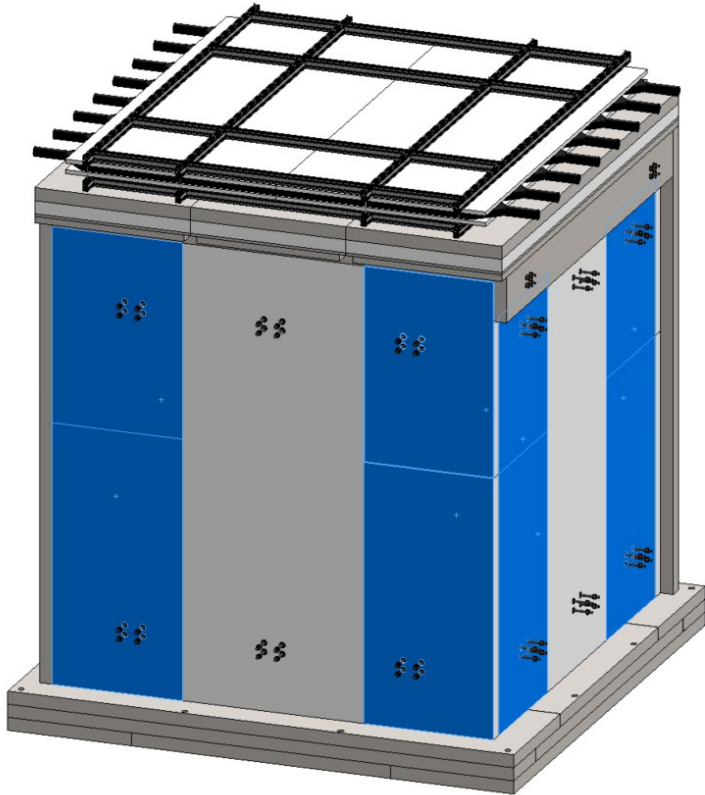


- TOTAL THRU
- TOTAL BLIND - TAPPED

3. Update on fabrication costs

- Formal quote from **Anchor Safe** (procurement, fabrication, installation of access platforms): **39851 \$** incl. GST. (estimate from QS: 130k → **-90k \$**).
- “Informal quote” from **All Plastics** for HDPE plates:
 - Custom plates (3600 x 1200 x 100), origin: Germany: ~13k AUD/pp;
 - Custom plates (3600 x 1200 x 100), origin: Germany: ~4.5k AUD/pp;
 - Standard plates (2000 x 1000 x 100), origin: AU: to be defined*.
- Still awaiting quote from **Tra Engineering** (all fabrication costs).

Backup slide – HDPE plates detail



Custom plates: 3600 x 1200 x 100, QTY = 7;
Standard plates: 2000 x 1000 x 100, QTY = 21.