

Update on Description of Platforms in AGDD

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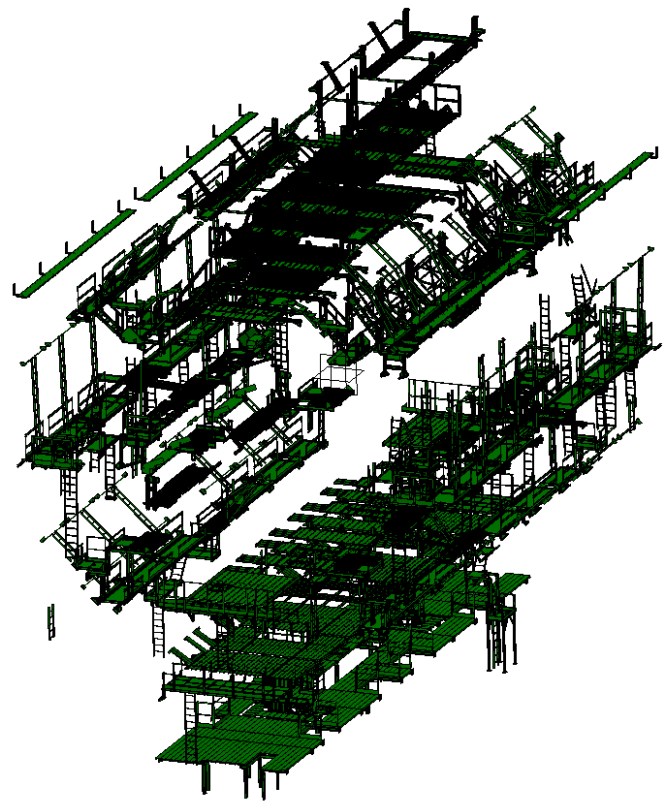


Project overall parameters:

- Started: 15 June 2020
- Involved manpower: 1 FTE – *Niko Tsutskiridze*
- Number of Tasks executed: 19
- Working days spent: 40

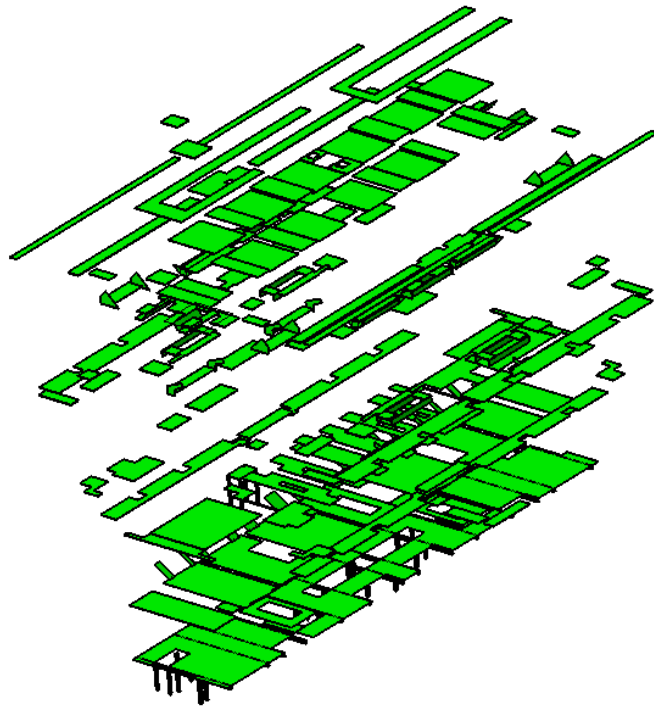
Access Platforms in Sectors: 1, 3, 5, 7, 9, 11, 13, 15

Detailed CATIA



Simplified CATIA

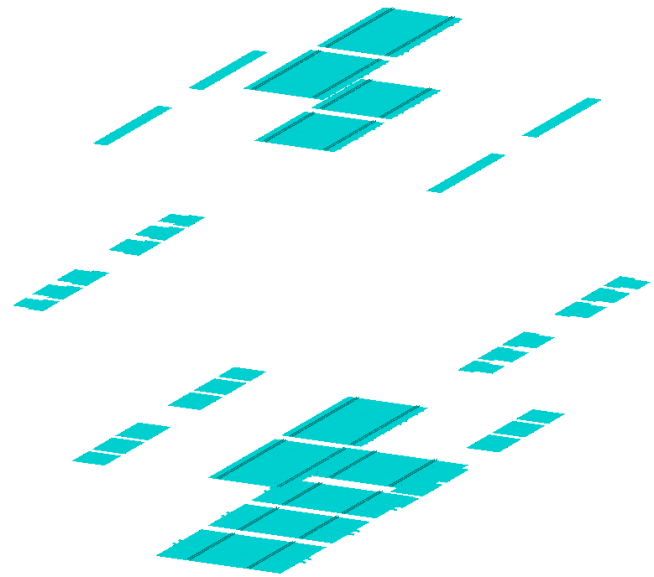
284 parts



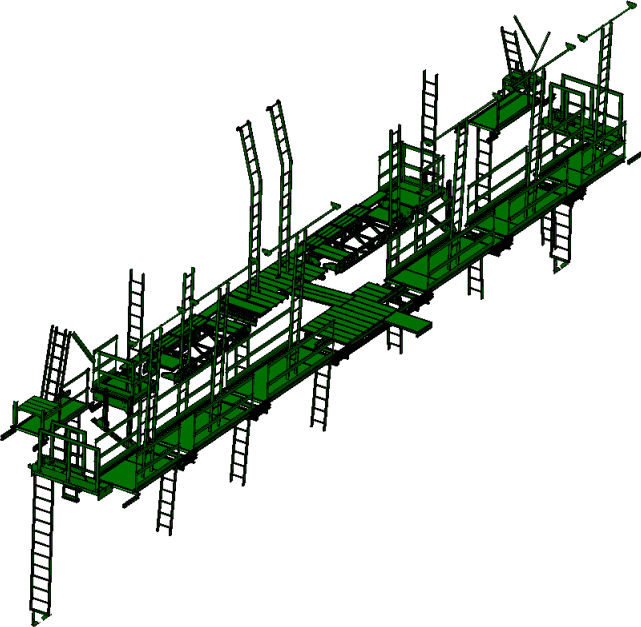
VS

VS

GEANT-4



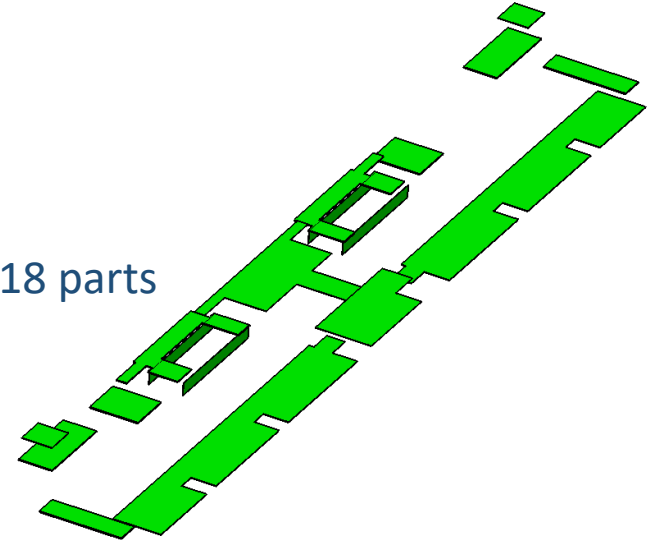
Detailed CATIA



Volume (m ³)	0.6427
Mass (kg)	1'735.3
Material	Aluminum
Density (kg/m ³)	2700

Diff: 0 Kg

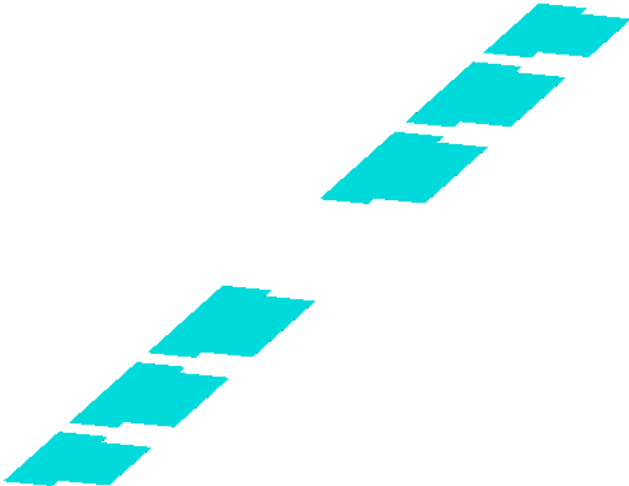
Simplified CATIA



Volume (m ³)	0.6427
Mass (kg)	1'735.3
Material	Aluminum
Density (kg/m ³)	2700

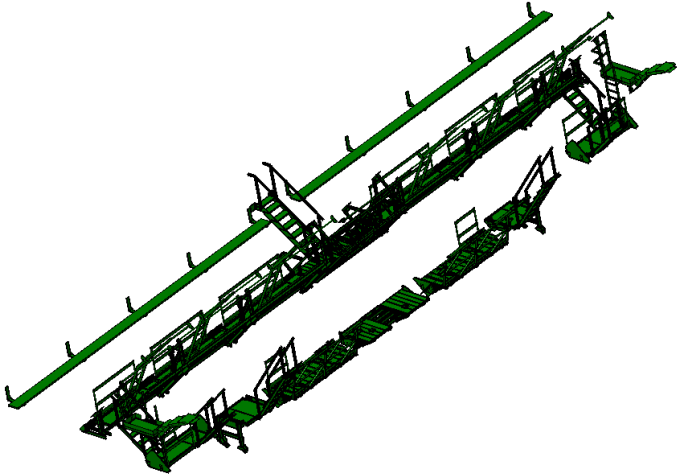
Diff: 1'664.5 Kg

GEANT-4



Volume (m ³)	0.0262
Mass (kg)	70.8
Material	Aluminum
Density (kg/m ³)	2700

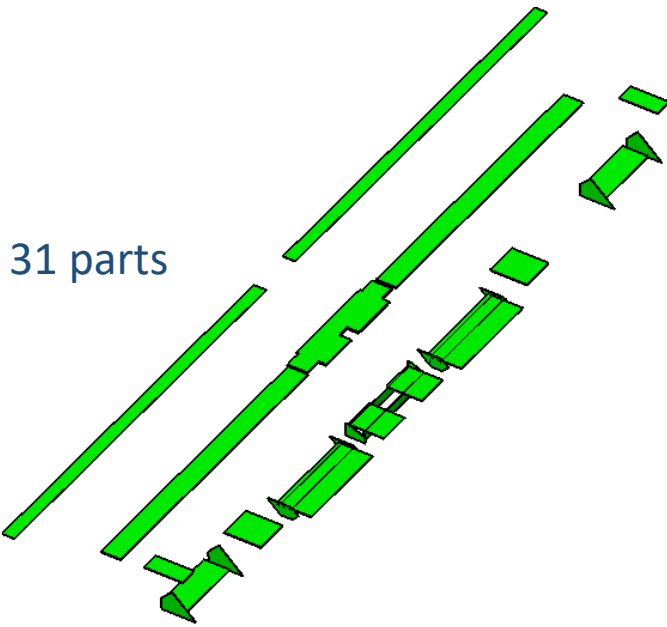
Detailed CATIA



Volume (m ³)	0.9282
Mass (kg)	2'506.2
Material	Aluminum
Density (kg/m ³)	2700

Diff: 0 Kg

Simplified CATIA

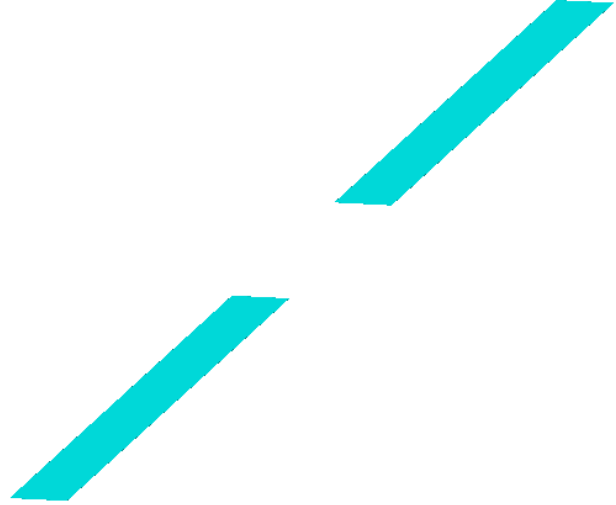


31 parts

Volume (m ³)	0.9282
Mass (kg)	2'506.2
Material	Aluminum
Density (kg/m ³)	2700

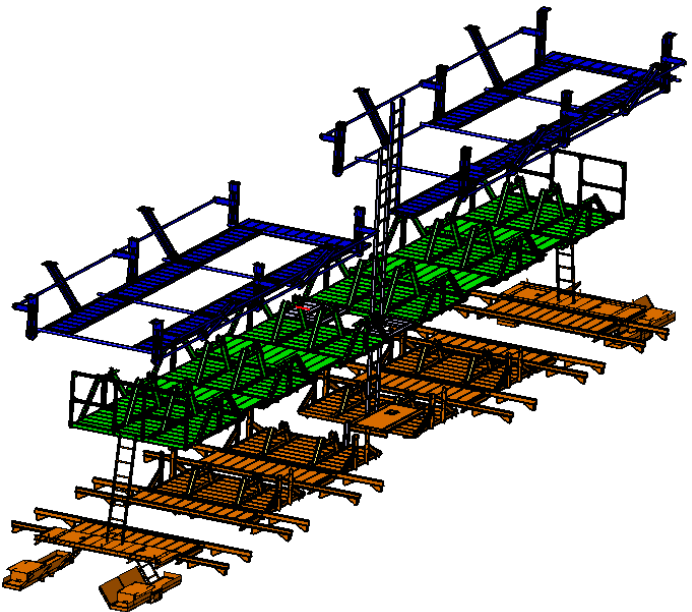
Diff: 2'468.6 Kg

GEANT-4



Volume (m ³)	0.0139
Mass (kg)	37.6
Material	Aluminum
Density (kg/m ³)	2700

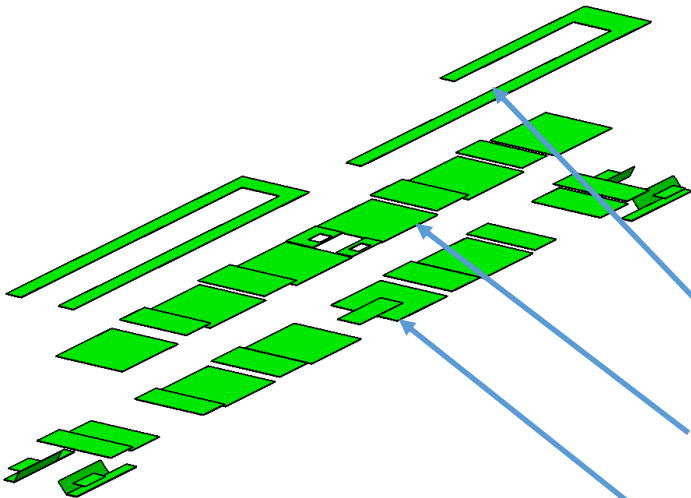
Detailed CATIA



Volume (m ³)	1.498
Mass (kg)	4'043.7
Material	Aluminum
Density (kg/m ³)	2700

VS

Simplified CATIA



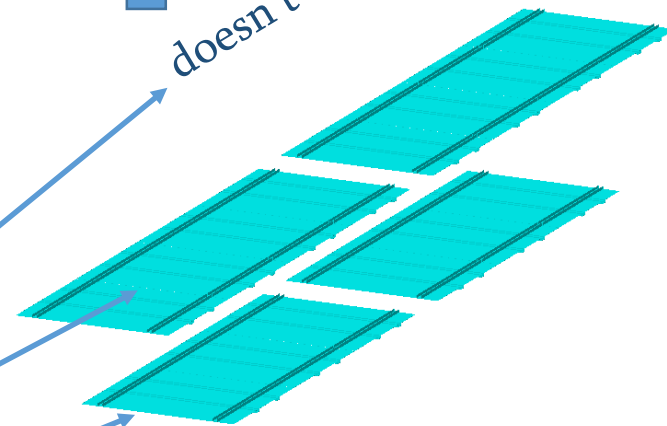
39 parts

Volume (m ³)	1.498
Mass (kg)	4'043.7
Material	Aluminum
Density (kg/m ³)	2700

Diff: 0 Kg

VS

GEANT-4



3rd floor

2nd floor

1st floor

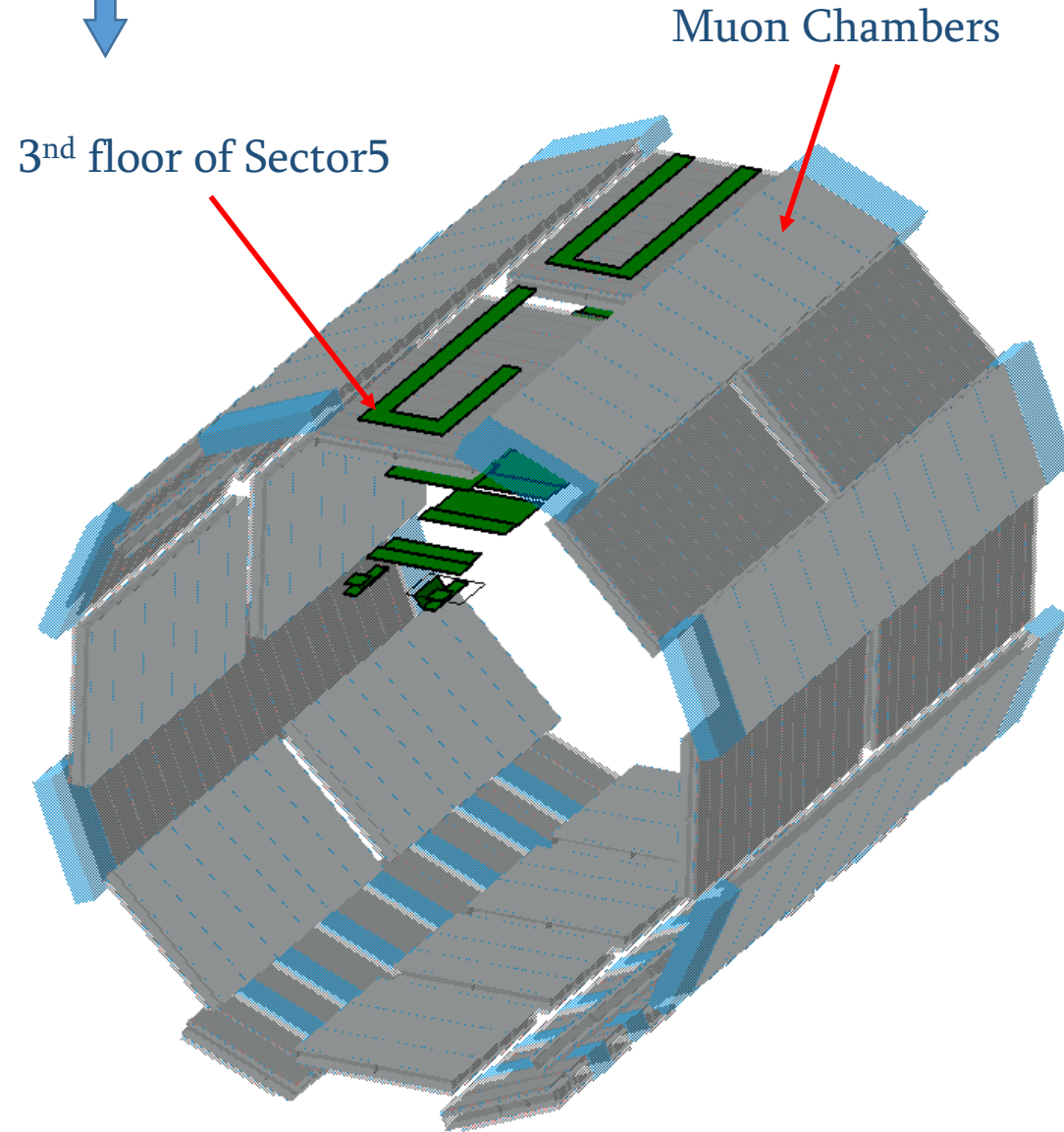
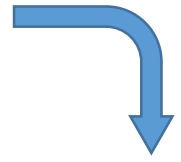
Volume (m ³)	0.3526
Mass (kg)	951.7
Material	Aluminum
Density (kg/m ³)	2700

Diff: 3'092 Kg



Question

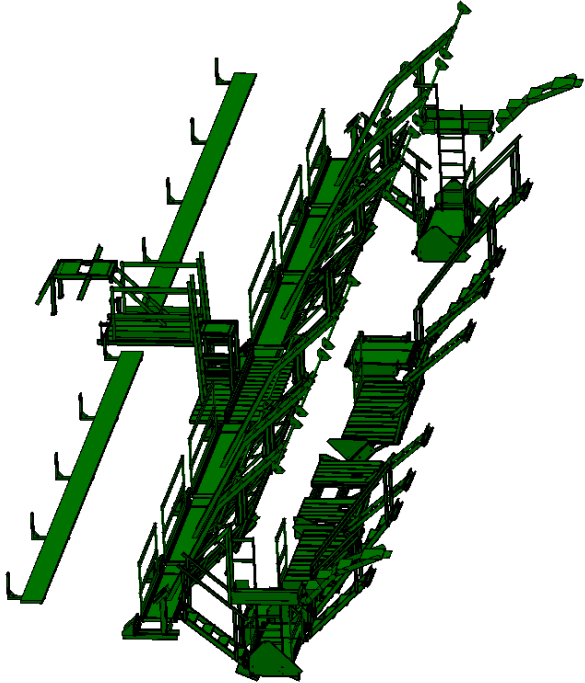
Question



3rd floor of Sector 05 is out of the Muon Chambers

Is it important for the you?

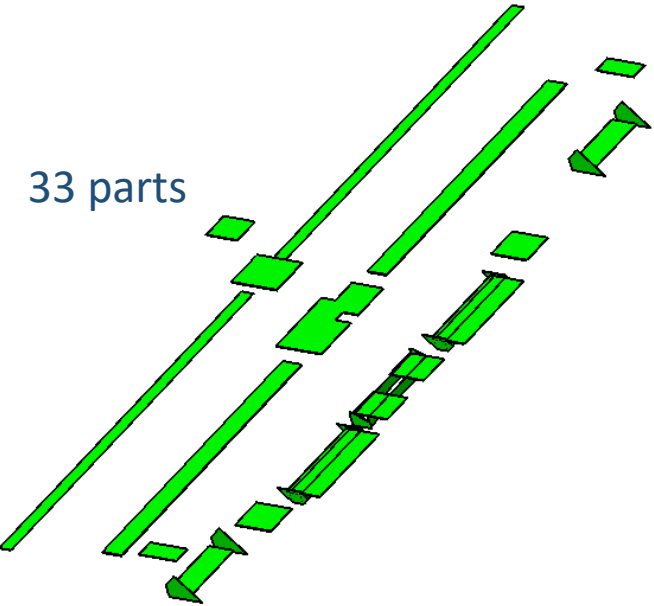
Detailed CATIA



Volume (m ³)	0.8964
Mass (kg)	2'477.9
Material	Aluminum
Density (kg/m ³)	2700

Diff: 0 Kg

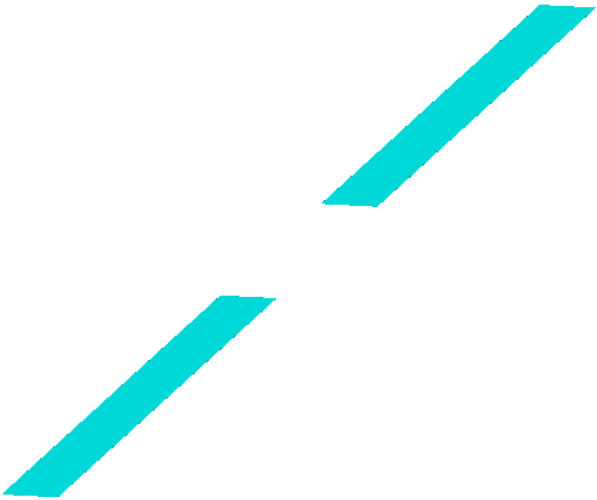
Simplified CATIA



Volume (m ³)	0.8964
Mass (kg)	2'477.9
Material	Aluminum
Density (kg/m ³)	2700

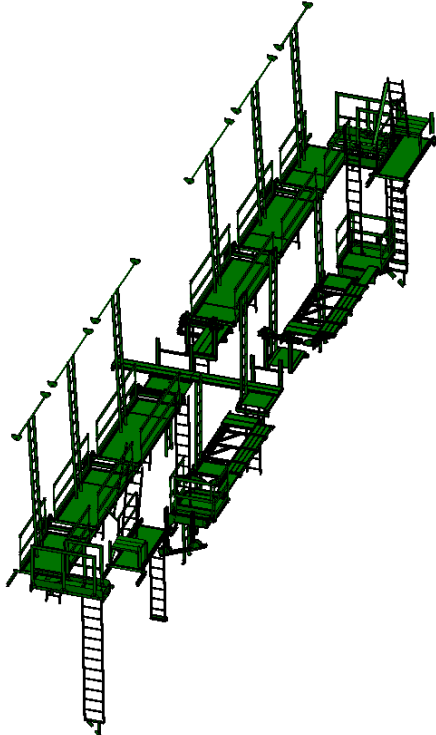
Diff: 2'440.3 Kg

GEANT-4



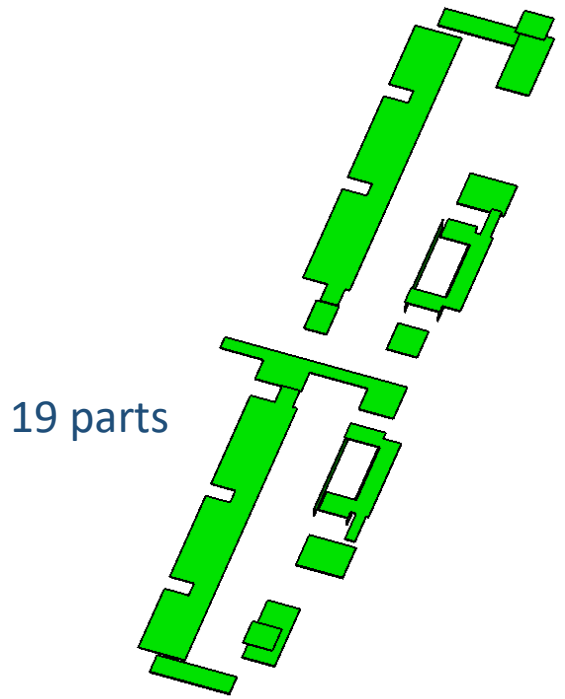
Volume (m ³)	0.0139
Mass (kg)	37.6
Material	Aluminum
Density (kg/m ³)	2700

Detailed CATIA



Volume (m ³)	0.6518
Mass (kg)	1'760
Material	Aluminum
Density (kg/m ³)	2700

Simplified CATIA



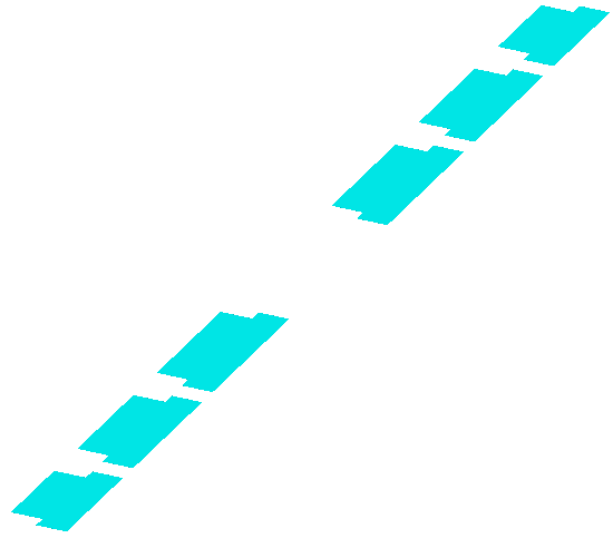
19 parts

VS

Volume (m ³)	0.6518
Mass (kg)	1'760
Material	Aluminum
Density (kg/m ³)	2700

Diff: 0 Kg

GEANT-4

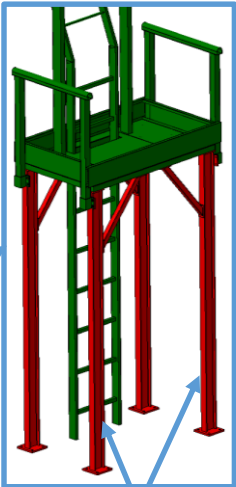
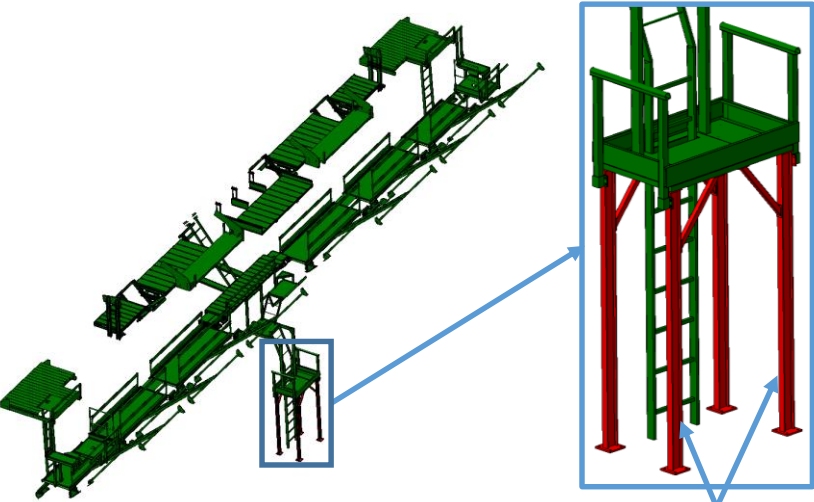


VS

Volume (m ³)	0.0262
Mass (kg)	70.8
Material	Aluminum
Density (kg/m ³)	2700

Diff: 1'689.2 Kg

Detailed CATIA



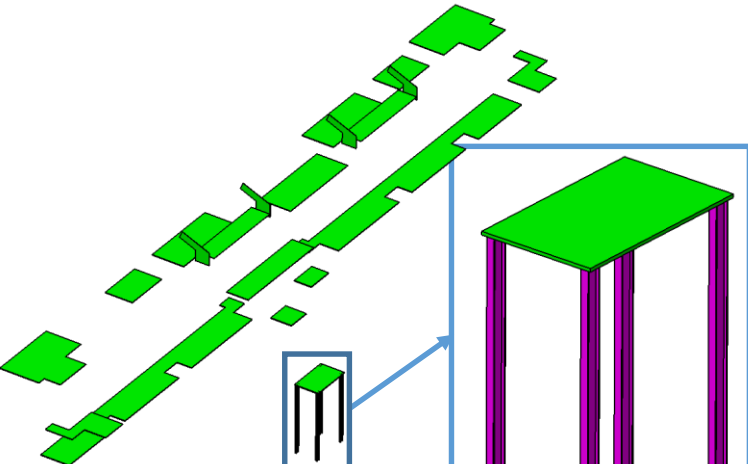
Steel

Volume (m3): 0.0127
Mass (kg): 99.96

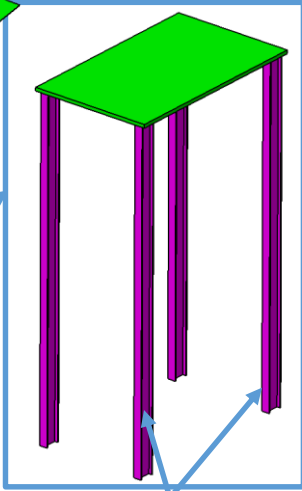
Total Volume (m ³)	0.6
Total Mass (kg)	1'682.3
Material	Aluminum / Steel
Density (kg/m ³)	2700 / 7850

Diff: 0 Kg

Simplified CATIA



26 parts



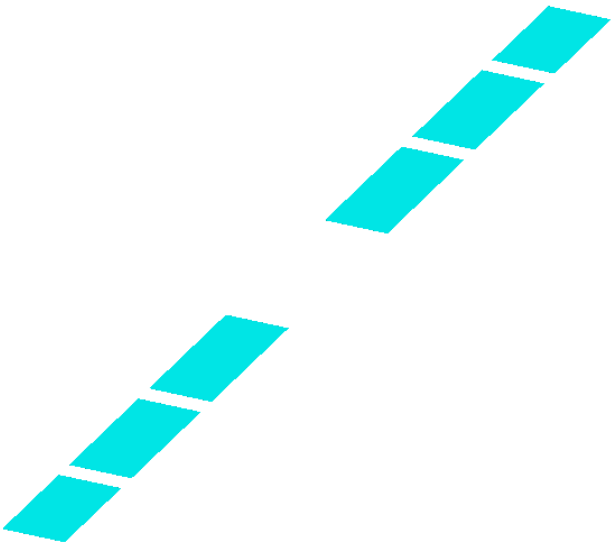
Steel

Volume (m3): 0.0127
Mass (kg): 99.96

Volume (m ³)	0.6
Mass (kg)	1'682.3
Material	Aluminum / Steel
Density (kg/m ³)	2700 / 7850

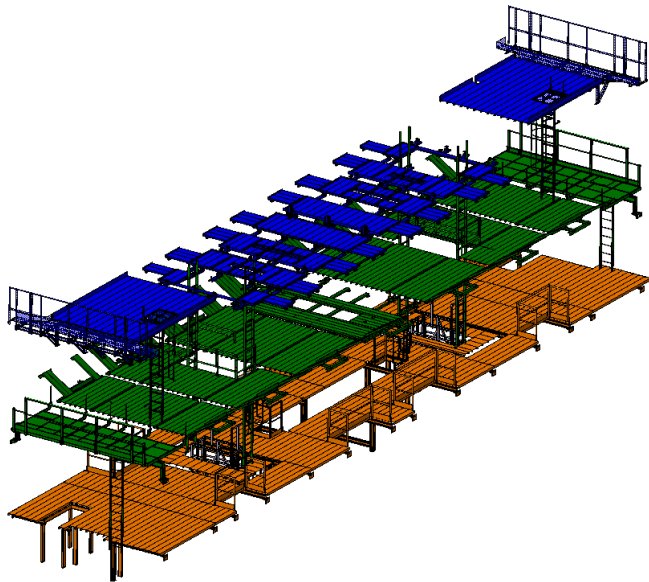
Diff: 1'603.9 Kg

GEANT-4



Volume (m ³)	0.029
Mass (kg)	78.4
Material	Aluminum
Density (kg/m ³)	2700

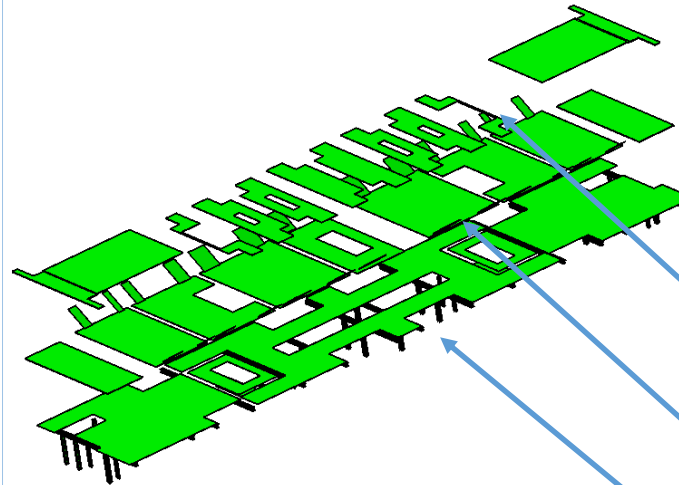
Detailed CATIA



Volume (m ³)	2.1279
Mass (kg)	7'423.9
Material	Aluminum / Steel
Density (kg/m ³)	2700 / 7850

Diff: 0 Kg

Simplified CATIA

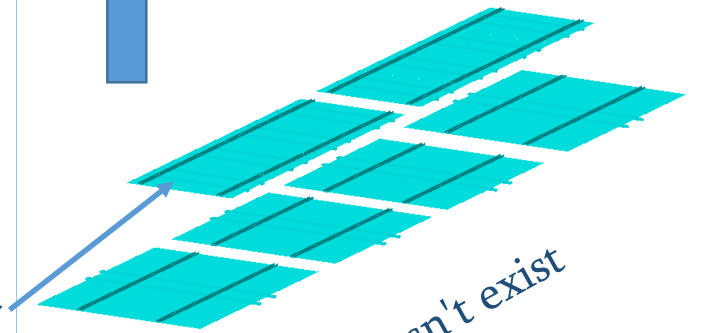


97 Parts

Volume (m ³)	2.1279
Mass (kg)	7'423.9
Material	Aluminum / Steel
Density (kg/m ³)	2700 / 7850

Diff: 6'131.2 Kg

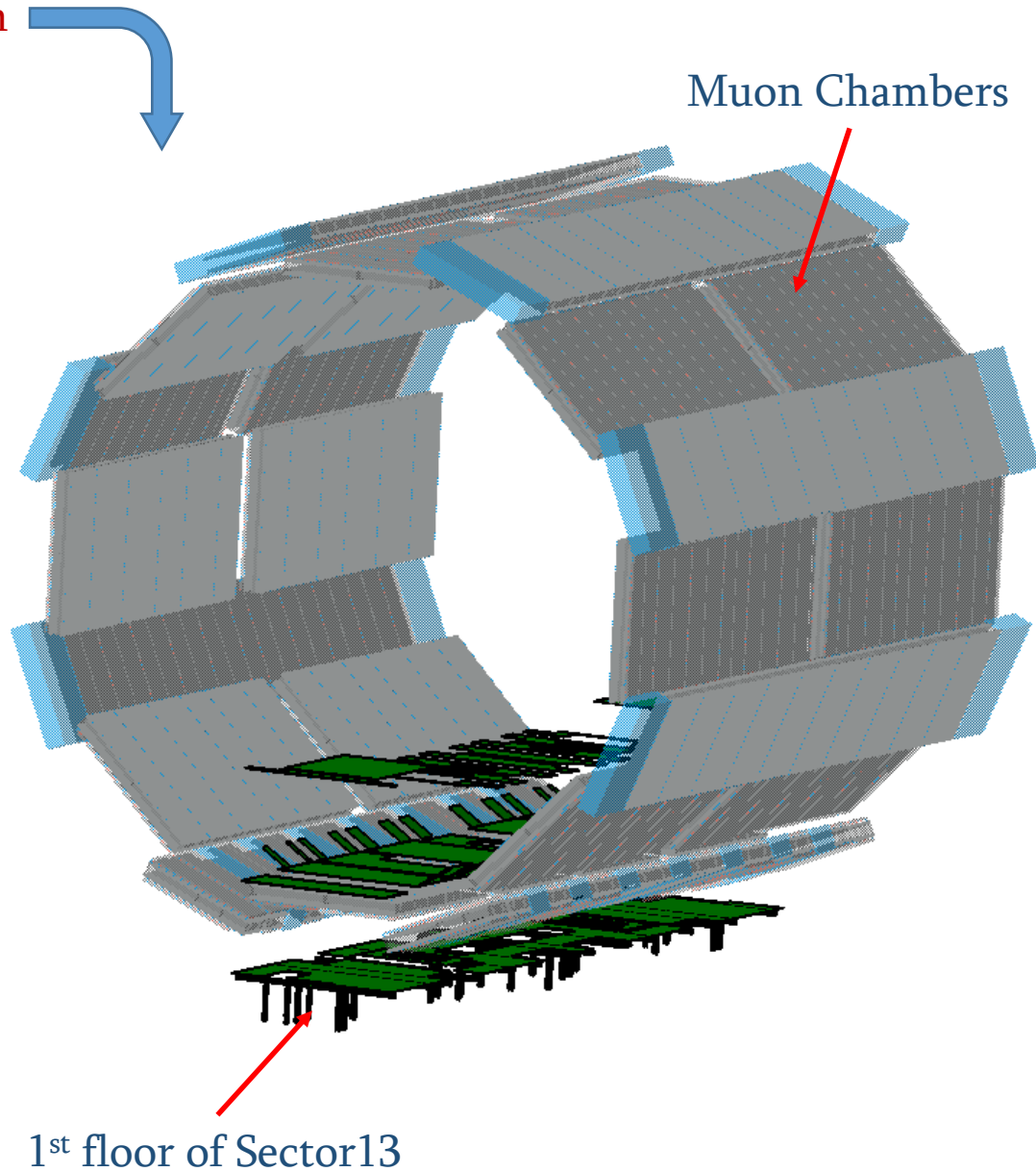
GEANT-4



doesn't exist

Volume (m ³)	0.4788
Mass (kg)	1292.7
Material	Aluminum
Density (kg/m ³)	2700

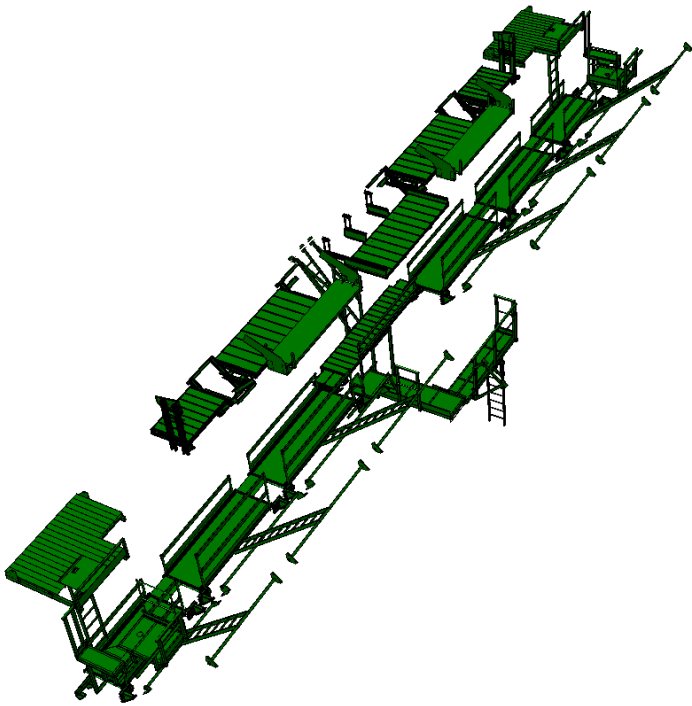
Question



1st floor of Sector13 is out of the Muon Chambers

Is it important for you?

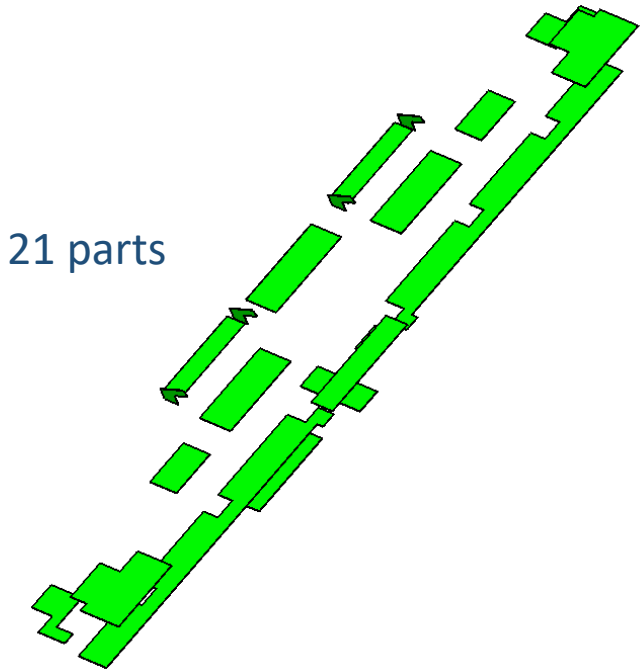
Detailed CATIA



Volume (m ³)	0.614
Mass (kg)	1'657.8
Material	Aluminum
Density (kg/m ³)	2700

VS

Simplified CATIA

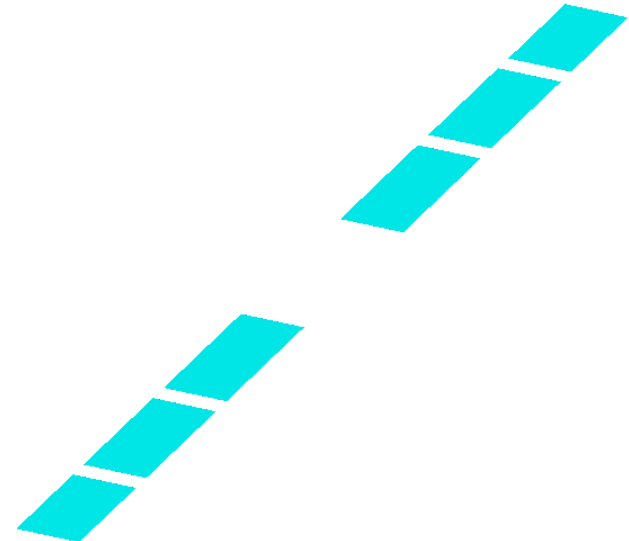


Volume (m ³)	0.614
Mass (kg)	1'657.8
Material	Aluminum
Density (kg/m ³)	2700

Diff: 0 Kg

VS

GEANT-4



Volume (m ³)	0.029
Mass (kg)	78.4
Material	Aluminum
Density (kg/m ³)	2700

Diff: 1'579.4 Kg

Final Results

#	Name	Detailed CATIA		Simplified CATIA		Difference (Detailed vs Simplified)	GEANT-4		Difference (Simplified vs Existing)	Difference (Simplified vs Existing)
		Volume (m ³)	Weight (kg)	Volume (m ³)	Weight (kg)	kg	Volume (m ³)	Weight (kg)	kg	%
1	Sector 1	0.6427	1'735.3	0.6427	1'735.3	0	0.0262	70.8	1664.5	95.9
2	Sector 3	0.9282	2'506.2	0.9282	2'506.2	0	0.0139	37.6	2468.6	98.5
3	Sector 5 (1 st Floor)	0.663	1'790	0.663	1'790	0	0.151	407.7	1'382.3	77.2
	Sector 5 (2 nd Floor)	0.535	1'443.7	0.535	1'443.7	0	0.2015	544	899.7	62.3
	Sector 5 (3 rd Floor)	0.3	810	0.3	810	0	-	-	810	100
4	Sector 7	0.8964	2'477.9	0.8964	2'477.9	0	0.0139	37.6	2440.3	98.5
5	Sector 9	0.6518	1'760	0.6518	1'760	0	0.0262	70.8	1689.2	96
6	Sector 11	0.6	1'682.3	0.6	1'682.3	0	0.029	78.4	1603.9	95.3
7	Sector 13 (1 st Floor)	0.739	3'674	0.739	3'674	0	-	-	3'674	100
	Sector 13 (2 nd Floor)	0.829	2'238.3	0.829	2'238.3	0	0.2773	748.7	1'489.6	66.7
	Sector 13 (3 rd Floor)	0.5597	1'511.2	0.5597	1'511.2	0	0.2015	544	967.2	64
8	Sector 15	0.614	1'657.8	0.614	1'657.8	0	0.029	78.4	1579.4	95.3
		7.959	23'287.1	7.959	23'287.1	0	0.97	2'618	20'669.1	87.47



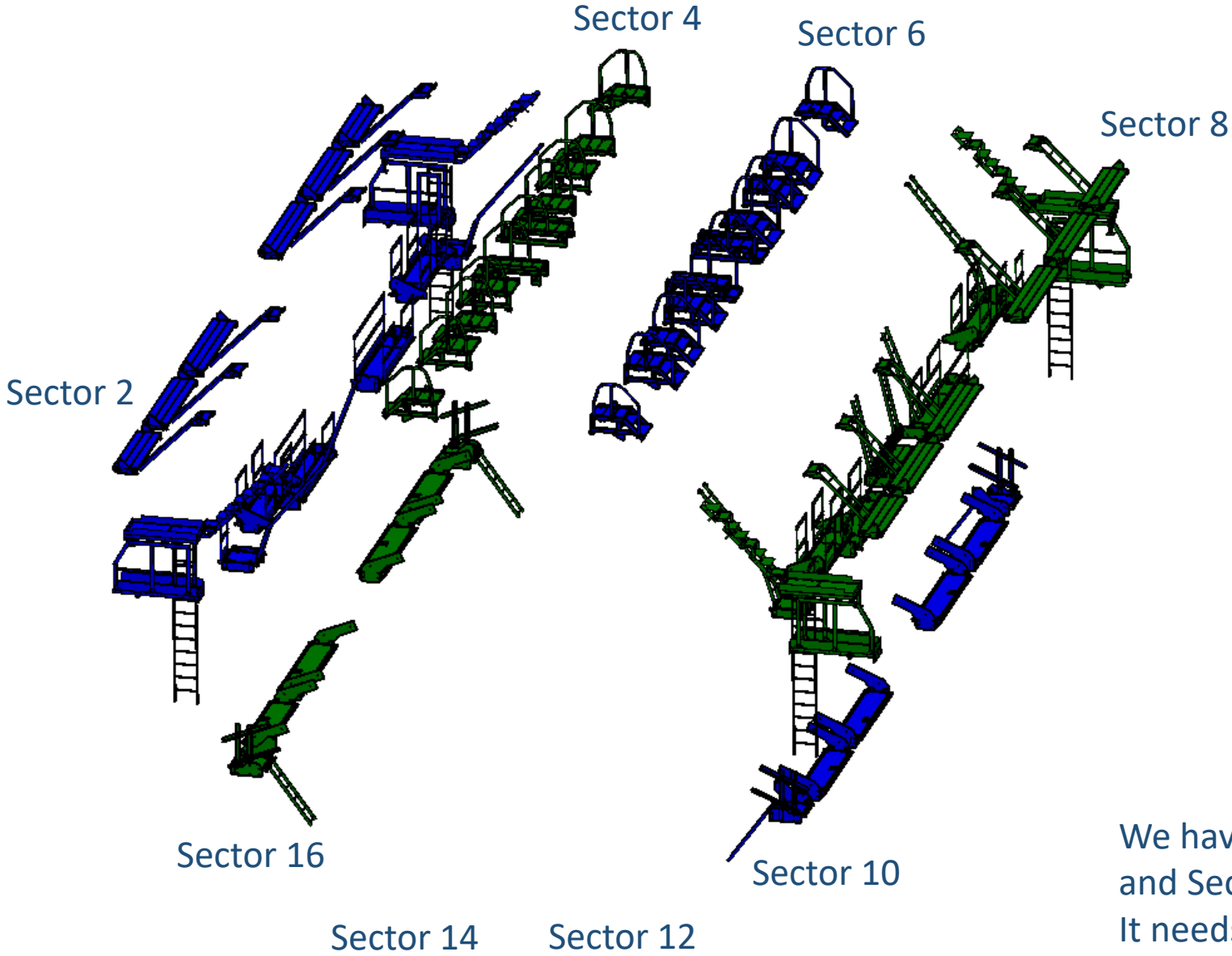
$\Delta \sim 21$ tonnes / 88%

Future Steps

1. Finalizing the Sectors #05 and #13
2. Checking with TCn materials for some undefined volumes
3. XML coding
4. Integration conflicts checking of the new XML
5. Study platforms in the even sectors – all steps done for the platforms in the odd sectors will be repeated for the even sectors

Access Platforms in Sector 2, 4, 6, 8, 10, 12, 14, 16

- ST0056947_01 - Sector 2
- ST0064918_01 - Sector 4
- ST0064923_01 - Sector 6
- ST0087902_01 - Sector 8
- ST0091503_01 - Sector 10
- ST0091479_03 - Sector 16



Access Platforms In Sector 2, 4, 6, 8, 10, 12, 14, 16 Don't exist in Geant4

We have no information about Platforms in Sector 12 and Sector 14 yet.
It needs additional Discussions

Thanks for your attention,