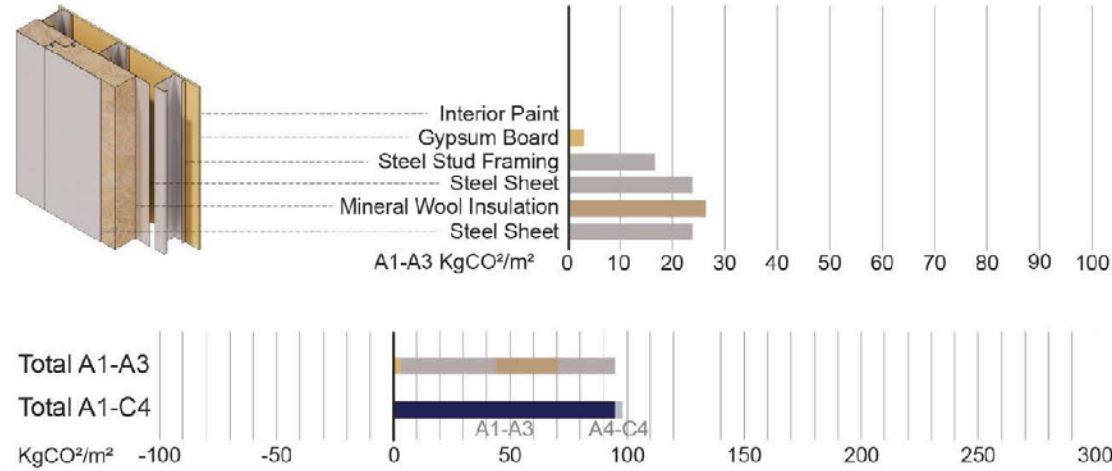


APPENDIX A WALL ASSEMBLY 10

W10: Results Summary

Metrics	Results
Description	Insulated Metal Panel with Mineral Wool Insulation
Effective R-value	RSI-4.4 m ² K/W R-24.9 ft ² ·°F·h/BTU
Embodied Carbon per m ² of Enclosure (A1-A3)	94.49 kgCO ₂ /m ²
Biogenic Carbon per m ² of Enclosure	0 kgCO ₂ /m ²



W10: Assembly Effective R-value Calculation

Description	t _{si}	t _{ip}	k	C (USI)	RSI _{effective}	R _{effective}	R _{nominal}
Units	mm	in	W/mK	W/m ² K	m ² K/W	ft ² ·°F·h/BTU	ft ² ·°F·h/BTU
Interior air film					0.12	0.68	
Steel sheet (interior)	-	-	-	-	-	-	-
Rigid mineral fiber insulation	152	6.00	-	-	4.23	24.0	
Steel sheet (exterior)	-	-	-	-	-	-	-
Exterior air film					0.03	0.17	
TOTALS	152	6.00			4.40	24.9	0

W10: Embodied Carbon Emissions (A1 to A3 Life Stages) for 9m² Assembly Area

Category	Material	Description (from EPD)	Thickness	Material Volume	Carbon Emissions (A1-A3)	% of total
Units			mm	m ³	kgCO ₂ e	%
Finish	Interior Paint	Eggshell acrylic paint, 1294.29 kg/m ³	-	0.0014	0.6	0.07%
Finish	Gypsum Board	Gypsum plaster board, regular, generic, 6.5-25 mm, 10.725 kg/m ² (for 12.5 mm), 858 kg/m ³	12.7 (0.5")	0.114	26.04	3.06%
Interior finish support	Steel Stud Framing	Steel stud framing for drywall/gypsum plasterboard per sq. meter of wall area (incl. air gaps per m3), C-profile: 152.4 mm x 76.2 mm, gauge 20 (40 cm) spacing	152.4 (6")	*	158.39	18.62%
Interior Finish	Steel sheet	Steel façade panel (Metal Construction Association)	1 (0.039")	0.009	211.62	24.88%
Exterior Insulation	Exterior Insulation Mineral Wool (Semi-rigid)	Heavy density mineral wool board, 1 m ² K/W, 34 mm, 4.2 kg/m ² , 123.52 kg/m ³ , Industry average US (NAIMA)	152.4 (6")	1.37	242.18	28.48%
Exterior Finish	Steel sheet	Steel façade panel (Metal Construction Association)	1 (0.04")	0.009	211.62	24.88%
TOTAL					850.45	100.0%

*Software auto-calculates the impact based on the area provided.

W10: Environmental Emissions (A1 to C4 Life Stages) for 9m² Assembly Area

Lifecycle Stage	A1 to C4	A1-A3	A4-A5	B1-B5	C1-C4	A1-A3 Contribution to total	
Category	Units	Total	Construction Materials	Transport to Site & Construction	Material Replacement & Refurbishment	Deconstruction %	
Global Warming	kg CO ₂ e	880.78	850.44	7.08	8.78	14.48	96.56%
Acidification	kg SO	3.02	2.89	0.04	0.05	0.05	95.60%
Eutrophication	kg Ne	0.18	0.16	0.01	0.0028	0.01	88.71%
Ozone Depletion	kg CFC11e	0.00002	0.000012	0.000002	0.000001	0.0000009	77.91%
Formation of Tropospheric Ozone	kg O ₃ e	59.42	56.44	1.14	0.98	0.86	94.98%
Fossil Fuel Primary Energy	MJ	8,324.56	7,913.47	201.28	68.36	141.45	95.06%
Biogenic Carbon Storage	kg CO ₂ e	0	0	0	0	0	