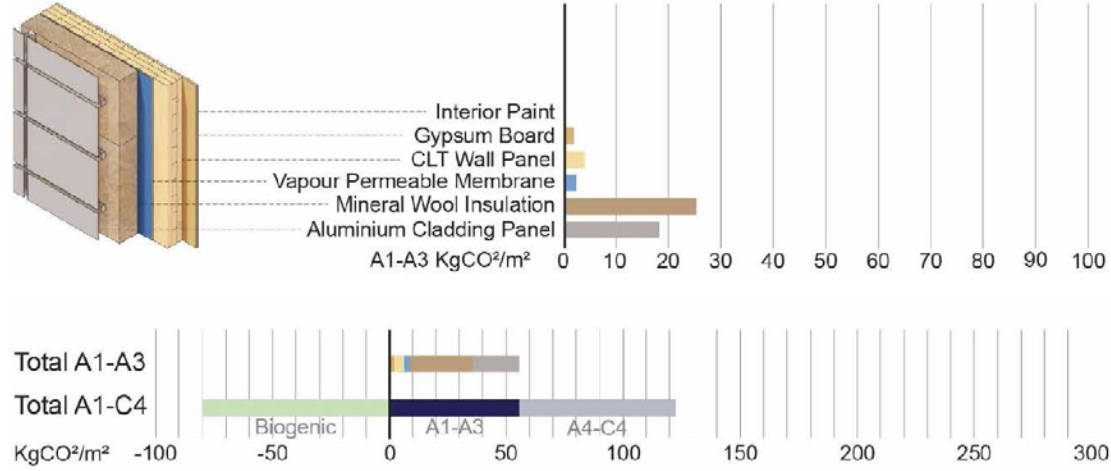


APPENDIX A WALL ASSEMBLY 04

W04: Results Summary

Metrics	Results
Description	Exterior Insulated CLT Wall Panel with Aluminum Panel Cladding
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)	56.43 kgCO ₂ /m ²
Biogenic Carbon per m ² of Enclosure	-80.3 kgCO ₂ /m ²



W04: Assembly Effective R-value Calculation

Description	t _{si}	t _{sp}	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	
Interior gypsum board	12.7	0.50	0.24	18.9	0.05	0.30	
Mass timber wall panel	102	4.00	0.13	1.28	0.78	4.44	
Self-adhered sheet-applied air barrier and WRB membrane (vapour permeable)	0.60	0.02	-	-	-	-	
Semi-rigid mineral fiber exterior insulation with intermittent proprietary fibreglass clips	152	6.00	0.03	0.22	3.41	19.4	25.8
Vertical or horizontal metal girts, air cavity	25.0	0.98	0.03	-	-	-	
Aluminum panel cladding	4.00	0.16	-	-	-	-	
Exterior air film	-	-	-	-	0.03	0.17	
TOTALS	296	11.7			4.40	24.9	25.8

W04: 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
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	5.13%
Interior finish support	CLT Wall Panel	CLT loadbearing internal wall, 3-ply, 105 mm depth, for USA and Canada	101.6 (4")	*	38.96	7.67%
Exterior membrane	Vapour Permeable Membrane	Latex-based membrane, vapor permeable, fluid-applied, fire resistant, 40 mils (1.016 mm), 1.399 kg/L, Perm-A-Barrier® VPL	3 (0.12")	0.027	32.94	6.49%
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")	1.35	241.9	47.63%
Cladding	Aluminium Cladding Panel	Roll formed aluminum cladding, 4.91 kg/m ² (Metal Construction Association)	1 (0.04")	0.009	167.4	32.96%
TOTAL					507.84	100.0%

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

W04: 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	1,105.00	540.93	12.37	382.33	169.37	48.95%
Acidification	kg SO	3.04	2.27	0.07	0.50	0.20	74.74%
Eutrophication	kg Ne	1.33	0.43	0.01	0.51	0.38	32.41%
Ozone Depletion	kg CFC11e	0.000020	0.000006	0.000003	0.000008	0.000002	32.26%
Formation of Tropospheric Ozone	kg O ₃ e	35.56	18.42	1.99	9.50	5.65	51.80%
Fossil Fuel Primary Energy	MJ	2,875.32	1,792.68	351.53	562.58	168.53	62.35%
Biogenic Carbon Storage	kg CO ₂ e	-722.51	722.51	0	0	0	-100.00%