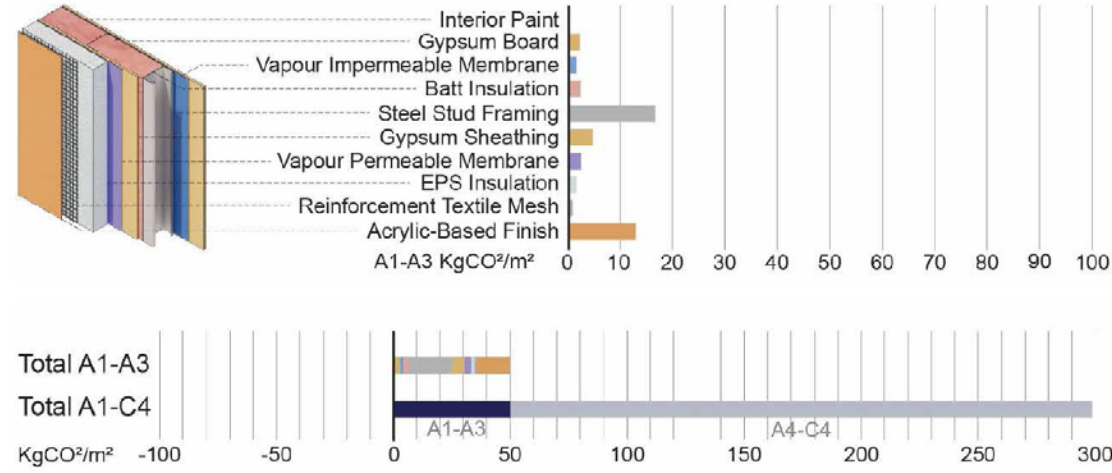


APPENDIX A WALL ASSEMBLY 03

W03: Results Summary

Metrics	Results
Description	Split Insulated Steel Frame with EIFS (EPS)
Effective R-value	RSI-4.51 m ² K/W R-25.6 ft ² ·°F·h/BTU
Embodied Carbon per m ² of Enclosure (A1-A3)	50.12 kgCO ₂ /m ²
Biogenic Carbon per m ² of Enclosure	0 kgCO ₂ /m ²



W03: Assembly Effective R-value Calculation

Description	t _s	t _p	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	-	-	0.05	0.30	
Vapour barrier	1.00	0.04	-	-	-	-	
Steel stud-framed wall with batt insulation	152	6.00	-	-	1.30	7.38	
Exterior sheathing	12.7	0.50	0.13	10.1	0.10	0.56	
Fluid-applied air barrier and WRB membrane (vapour permeable)	3.00	0.12	-	-	-	-	
Expanded polystyrene (EPS) rigid board insulation	102	4.00	0.04	0.34	2.90	16.5	16.5
EIFS base and finish coat	4.00	0.16	-	-	0.01	0.06	
Exterior air film	-	-	-	-	0.03	0.17	
TOTALS	287	11.3			4.50	25.6	16.5

W03: 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	0.13%
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	5.77%
Vapour control	Vapour Impermeable Membrane	Vapor barrier	0.8 (0.032")	0.0072	17.93	3.97%
Interior insulation	Batt Insulation	Mineral fiber batt insulation	152.4 (6")	1.029	31.15	6.91%
Structure	Steel Stud Framing	Steel stud framing for drywall/gypsum plasterboard, C-profile: 152.4 mm x 76.2 mm, gauge 20 (40 cm) spacing	152.4 (6")	*	158.39	35.11%
Sheathing	Exterior Gypsum Sheathing	Glass-mat gypsum board, fire and moisture-resistant; 799 kg/m ³	12.7 (0.5")	0.1143	42.26	9.37%
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	7.30%
Exterior insulation	EPS insulation (rigid)	EPS insulation	101.6 (4")	0.9144	16.66	3.69%
Exterior Finish (EIFS)	Acrylic-based finish	Acrylic-based textured wall finishes, for exterior or interior application, 15.29 kg/m ² , Stolit® R1.5 (Sto)		*	125.1	27.73%
	Fluoropolymer powder coating	Fluoropolymer powder coating, with solar-reflective pigments, exterior use, White, Powdura 5000 Bone White (LWS2-80002) (Sherwin-Williams)		(0.978 kg)	1.6	0.35%
	Reinforcement textile mesh	Reinforcement textile mesh for façade cladding, 0.151 kg/m ² , (Adfors-Saint Gobain)		*	7.17	1.59%
TOTAL					451.07	100.0%

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

W03: 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	2,677.24	439.97	14.40	2,034.52	188.35	16.43%
Acidification	kg SO	11.16	2.06	0.08	8.84	0.18	18.47%
Eutrophication	kg Ne	1.99	0.48	0.01	1.44	0.05	24.14%
Ozone Depletion	kg CFC11e	0.01	0.0010	0.0000037	0.010	0.000002	8.91%
Formation of Tropospheric Ozone	kg O ₃ e	123.22	24.54	2.08	94.76	1.84	19.92%
Fossil Fuel Primary Energy	MJ	41,591.61	6,816.27	404.69	34,207.99	162.66	16.39%
Biogenic Carbon Storage	kg CO ₂ e	0	0	0	0	0	