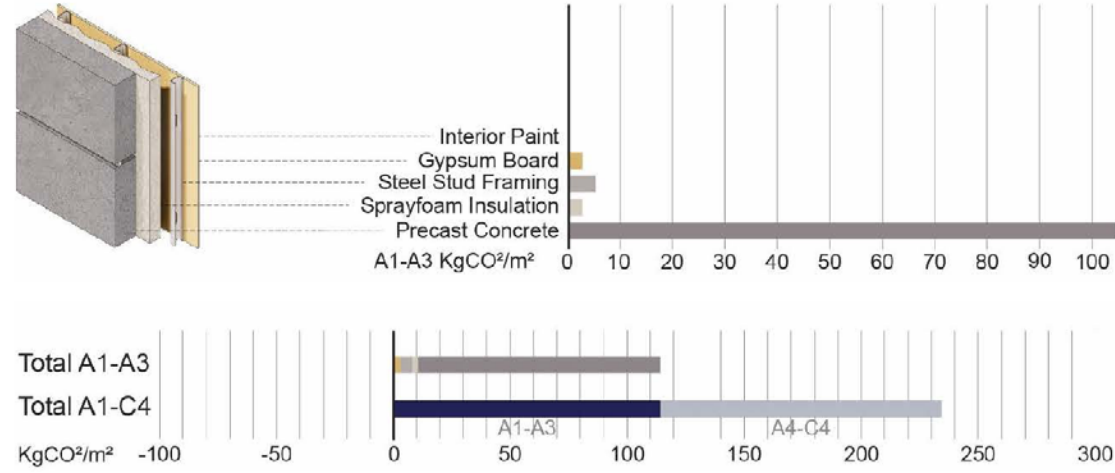


APPENDIX A WALL ASSEMBLY 13

W13: Results Summary

Metrics	Results
Description	Architectural Precast with Spray Foam Interior Insulation
Effective R-value	RSI-4.7 m ² K/W R-26.6 ft ² ·°F·h/BTU
Embodied Carbon per m ² of Enclosure (A1-A3)	114.3 kgCO ₂ /m ²
Biogenic Carbon per m ² of Enclosure	0 kgCO ₂ /m ²



W13: 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	
Steel stud-framed wall	63.5	2.50	0.49	7.75	0.13	0.73	
Closed-cell spray foam insulation	102	4.00	0.02	0.24	4.26	24.2	24.2
Precast concrete panel	152	6.00	1.60	10.5	0.10	0.54	
Exterior air film					0.03	0.17	
TOTALS	330	13.0			4.70	26.6	24.2

W13: 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 (Generic)	0.16 (0.0063")	0.0014	0.56	0.1%
Finish	gypsum board	Gypsum plaster board, regular, (Generic)	12.7 (0.5")	0.1143	26.00	2.5%
Back-up structure	Steel stud framing, no insulation	Steel stud framing for drywall/gypsum plasterboard per sq. meter of wall area (incl. air gaps per m ³), C-profile: 63.5 x 30.48 mm, gauge 25, 3 m height x 406.4 mm (400 mm) spacing (Generic)	-	*	39	3.80%
Exterior Insulation	Sprayfoam insulation (continuous)	Spray polyurethane foam insulation for closed cell, with HFO blowing agent, 0.022 W/mK, 32 kg/m ³ average density, SealTite CC+, Walltite HFO, Walltite CMxx lines, Heatlok®HFO High Lift, Heatlok® HFO Pro, Ultra-Thane 00, UPC 2.0 HFO, GacoOnePass Low GWP, ProSeal HFO™, FOAM-LOK® FL 2000-4G, JM Corbond IV, InsulStar®, InsulBloc®, Nexseal™ 2.0, Nexseal™ 2.0 LE) (Spray Polyurethane Foam Association (SPFA), (Accella, BASF, emilec, General Coatings, Gaco-Western, Icyne-Lapolla, Johns-Manville, NCFI Polyurethanes, SES))	101.6 (4")	0.9144	23	2.30%
Back-up structure	Precast concrete	Precast concrete, architectural wall panel (Generic)	152.4 (6")	1.3716	940	91.40%
TOTAL					1028.56	100.0%

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

W13: 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	2123.42	1033.3	24.58	3.83	1061.71	48.66%
Acidification	kg SO ₂	0.01061744	0.005302	6.46E-06	2.60E-07	0.00530872	49.94%
Eutrophication	kg Ne	38.6018	19.1402	0.1397	0.021	19.3009	49.58%
Ozone Depletion	kg CFC11e	2.030588	0.994944	0.01935	0.001	1.015294	49.00%
Formation of Tropospheric Ozone	kg O ₃ e	462.044	226.569	3.963	0.49	231.022	49.04%
Fossil Fuel Primary Energy	MJ	18279.62	8409.05	698.62	32.14	9139.81	46.00%
Biogenic Carbon Storage	kg CO ₂ e	0	0	0	0	0	