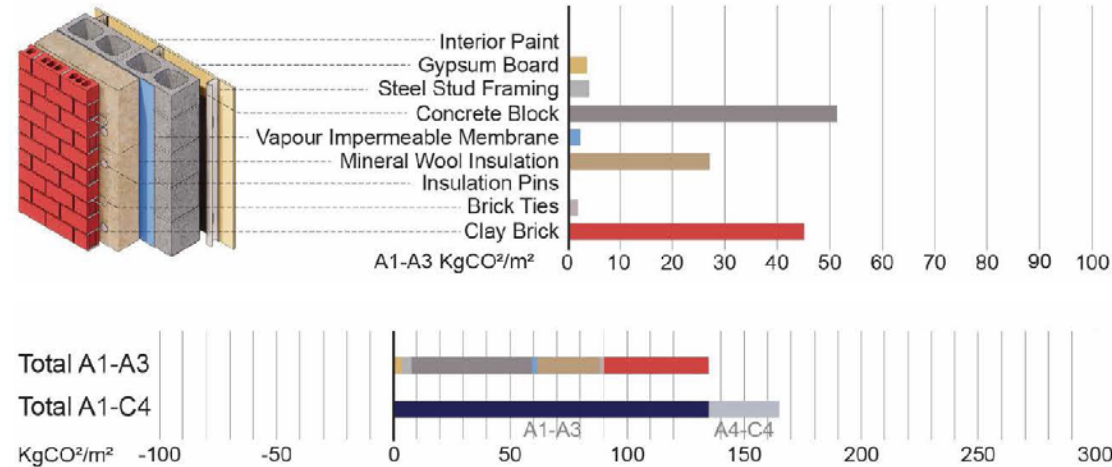


APPENDIX A WALL ASSEMBLY 01

W01: Results Summary

Metrics	Results
Description	Exterior Insulated CMU with Brick Veneer
Effective R-value	RSI-4.6 m ² K/W R-26 ft ² ·°F·h/BTU
Embodied Carbon per m ² of Enclosure (A1-A3)	136.3 kgCO ₂ /m ²
Biogenic Carbon per m ² of Enclosure	0 kgCO ₂ /m ²



W01: Assembly Effective R-value Calculation

Description	t _{s1}	t _{i1}	k	C (USI)	RSI _{effective}	Reffective	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 Film					0.12	0.68	
Interior gypsum board	12.7	0.50	0.16	27.0	0.04	0.21	
Steel stud-framed wall	63.5	2.50	0.49	7.75	0.13	0.73	
Single-wythe CMU wall	203	8.00	1.18	5.81	0.17	0.98	
Self-adhered sheet-applied air, vapour, and water-resistive barrier (AVB/WRB) membrane	1.00	0.03	-	-	-	-	
Semi-rigid mineral fiber exterior insulation with intermittent stainless steel masonry veneer anchors	152	6.00	0.04	0.24	4.09	23.2	25.8
Air cavity	25.0	0.98	0.03	-	-	-	
Anchored masonry veneer	90.0	3.54	0.79	8.78	-	-	
Exterior air film					0.03	0.17	
TOTALS	548	21.6			4.6	26.0	25.8

W01: 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	Interior gypsum board	Gypsum plaster board, regular, generic, 6.5-25 mm, 10.7 kg/m ² , (for 12.5 mm), 858 kg/m ³	12.7	0.114	26.0	2.1%
Interior finish support	Steel Stud Framing	Steel stud framing for drywall/gypsum plasterboard per sq. meter of wall area (incl. air gaps per m3); 63.5 mm x 30.5 mm, gauge 25	63.5	*	39.0	3.2%
Back-up structure	Reinforced Concrete Block Masonry	Concrete masonry unit (CMU), normal weight, 2250 kg/m ³ (Canadian Concrete Masonry Producers Association)	203	1.8	468.0	38.1%
Exterior membrane	Vapour Impermeable Membrane	Latex-based membrane, vapor impermeable, fluid-applied, 40 mils (1mm), 1.15 kg/L, Perm-A-Barrier® NPL 10	1	0.009	22.5	1.8%
Exterior insulation	Exterior Insulation Mineral Wool (Semi-rigid)	Heavy density mineral wool board, Industry average US (NAIMA), 1 m ² K/W, 34 mm (1.3"), 4.2 kg/m ² , 123.52 kg/m ³	152	1.35	241.9	19.7%
Exterior insulation	Insulation Pins	5 insulation pins per panel - 169 pins in total - Hot-dipped galvanized steel; 80% recycled content - 0.28 kg/m ²	-	0.0003	3.7	0.3%
Cladding anchorage	Stainless Steel Brick Ties	Assumed 4-foot spacing for angle support - 17 anchors in total - Composed from hot-dipped galvanized cold-formed steel, USA industry average, 7769 - 7849 kg/m ³ (SFIA)	-	0.001	17.9	1.5%
Cladding	Clay brick	Clay brick (Acme Brick Company, Belden Brick Company, etc.) 2120 kg/m ³	90	0.81	407.4	33.2%
TOTAL					1227.1	100.0%

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

W01: 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	1,480.13	1,221.51	40.35	140.24	78.03	82.5
Acidification	kg SO	5.69	5.04	0.23	0.28	0.14	88.6
Eutrophication	kg Ne	1.15	1.04	0.03	0.03	0.043	90.5
Ozone Depletion	kg CFC11e	0.000079	0.000059	0.000011	0.0000014	0.0000078	74.5
Formation of Tropospheric Ozone	kg O ₃ e	73.50	59.15	6.51	5.12	2.72	80.5%
Fossil Fuel Primary Energy	MJ	18,376	15,327	1,147	1,338	565	83.4%
Biogenic Carbon Storage	kg CO ₂ e	0	0	0	0	0	