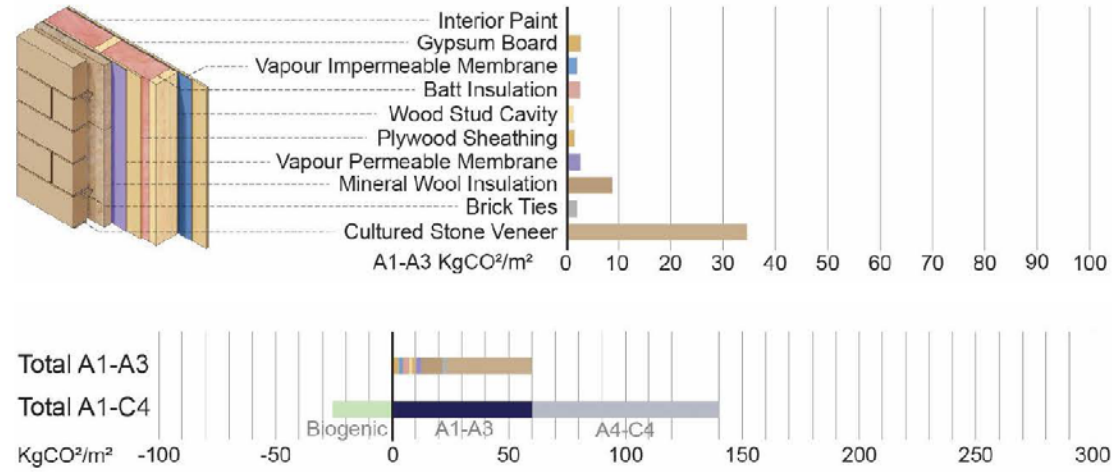


APPENDIX A WALL ASSEMBLY 05

W05: Results Summary

Metrics	Results
Description	Split Insulated Wood Frame with Mineral Wool and Stone Veneer Cladding
Effective R-value	RSI-4.26 m ² K/W R-24.2 ft ² ·°F·h/BTU
Embodied Carbon per m ² of Enclosure (A1-A3)	60.42 kgCO ₂ /m ²
Biogenic Carbon per m ² of Enclosure	-25.8 kgCO ₂ /m ²



W05: 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	
Interior gypsum board	12.7	0.50	-	-	0.05	0.30	
Smart vapour retarder	-	-	-	-	-	-	
Wood stud-framed wall with batt insulation	140	5.50	-	-	2.55	14.5	
Exterior sheathing	12.7	0.50	0.09	7.09	0.14	0.80	
Self-adhered sheet- or fluid-applied air barrier and WRB membrane (vapour permeable)	-	-	-	-	-	-	
Semi-rigid mineral fiber exterior insulation with intermittent stainless steel masonry veneer anchors	50.8	2.00	-	-	1.36	7.74	8.60
Air cavity	25.0	0.98	-	-	-	-	
Anchored stone veneer	102	4.00	-	-	-	-	
Exterior air film					0.03	0.17	
TOTALS	343	13.5			4.30	24.2	8.60

W05: 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	0.11%
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	4.79%
Vapour control	Vapour Impermeable Barrier	Vapor barrier	0.8 (0.032")	0.0072	17.93	3.30%
Interior insulation	Batt Insulation	Mineral fiber batt insulation	139.7 (6")	0.94	28.46	5.23%
Exterior support	Wood Stud Cavity	Wooden stud framing for drywall/gypsum plasterboard per sq. ft. of wall area (incl. air gaps per m ³), 50.8 mm x 152.4 mm, 400 mm spacing, headers incl. for 2.4 m wall height (American Wood Council, Canadian Wood Council)	139.7 (5.5")	*	11.42	2.10%
Sheathing	Plywood Sheathing	Plywood, generic, 4-50 mm, 620 kg/m ³	12.7 (0.5")	0.114	13.95	2.57%
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	6.06%
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)	50.8 (2")	0.457	80.69	14.84%
Cladding anchorage	Stainless Steel Brick Ties	Assumed 4-foot spacing for angle support - 17 anchors in total structural and non-structural framing components composed from hot-dipped galvanized cold-formed steel, USA industry average, 7769 - 7849 kg/m ³ (SFA)		0.001	17.92	3.30%
Cladding	Cultured Stone Veneer	Calcium silicate stone cladding, 346.3 lbs/sqft, 130 lbs/ft ³ (Arriscraft)	101.6 mm (4")	0.91	313.81	57.71%
TOTAL					543.76	100.0%

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

W05: 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	1,265.05	543.75	12.07	458.26	250.97	42.98%
Acidification	kg SO	3.93	2.88	0.07	0.64	0.35	73.23%
Eutrophication	kg Ne	1.16	0.40	0.01	0.52	0.23	34.53%
Ozone Depletion	kg CFC11e	0.000045	0.00003	0.000003	0.0000089	0.000008	55.60%
Formation of Tropospheric Ozone	kg O ₃ e	55.41	33.68	1.93	12.89	6.91	60.78%
Fossil Fuel Primary Energy	MJ	9,238.42	5,308.96	342.88	2,878.62	707.96	57.47%
Biogenic Carbon Storage	kg CO ₂ e	-232	232	0	0	0	-100.00%