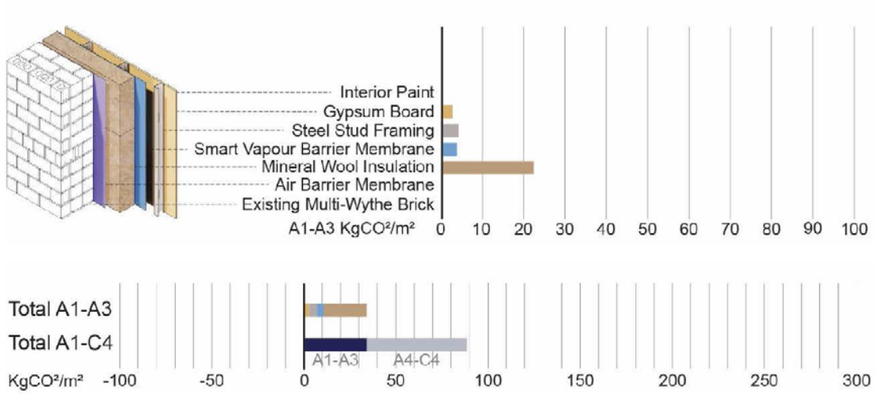
APPENDIX A **WALL ASSEMBLY 14**

W14: Results Summary

Metrics	Results
Description	**Existing Masonry with Interior Mineral Wool Insulation**
Effective R-value	RSI-4.2 m^2K/W | R-24.0 $ft^2 \cdot °F \cdot h/BTU$
Embodied Carbon per m^2 of Enclosure (A1-A3)	33.7 $kgCO_2/m^2$
Biogenic Carbon per m^2 of Enclosure	0 $kgCO_2/m^2$



W14: 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^2K	m^2K/W	$ft^2 \cdot °F \cdot h/BTU$	$ft^2 \cdot °F \cdot h/BTU$
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	
Smart vapour retarder	-	-	-	-	-	-	-
Rigid or semi-rigid mineral fibre board insulation (continuous)	127	5.00	-	-	3.75	21.3	21.5
Fluid-applied air barrier and WRB membrane (vapour permeable)	-	-	-	-	-	-	
Existing multi-wythe brick masonry	203	8.00	1.31	6.45	0.16	0.88	
Exterior air film					0.03	0.17	
TOTALS	**406**	**16.0**			**4.20**	**24.0**	**21.5**

W14: 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	kgCO2e	%
Finish	Interior Paint	Eggshell acrylic paint, 1294.29 kg/m3 (Generic)	0.16 (0.0063")	0.0014	0.56	0.20%
Finish	gypsum board	Gypsum plaster board, regular, (Generic)	12.7 (0.5")	0.1143	26.00	8.60%
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 m3), C-profile: 63.5 x 30.48 mm, gauge 25, 3 m height x 406.4 mm (400 mm) spacing (Generic)	-	*	39	12.80%
Exterior Membrane	Smart vapour barrier membrane	Vapor Barrier (Generic)	-	*	33	10.90%
Exterior Insulation	Mineral wool insulation board	Heavy density mineral wool board, 1 m2K/W, 34 mm (1.34 in), 4.2 kg/m2 (0.86 lb/ft2), 123.52 kg/m3 (7.71 lb/ft3), Industry average US (NAIMA)	127 (5")	1.143	200	66.0%
Air barrier	Liquid applied air barrier membrane	Air and water barrier system, fluid applied, 0.9 kg/m2 (0.184 lbs/ft2), Tyvek (DuPont) (Product specific)	-	*	5.1	1.70%
Existing Structure	Existing Multi-wythe brick	Existing- Not Included in Calculations				
				TOTAL	**303.7**	100.0%

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

W14: 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 CO2e	**805.356**	304.58	3.288	94.81	402.678	37.82%
Acidification	kg SO	**7.61E-06**	1.31E-06	8.67E-07	1.63E-06	3.81E-06	17.21%
Eutrophication	kg Ne	**1.68252**	0.6532	0.01806	0.17	0.84126	38.82%
Ozone Depletion	kg CFC11e	**0.219704**	0.095394	0.002558	0.0119	0.109852	43.42%
Formation of Tropospheric Ozone	kg O3e	**30.102**	10.299	0.502	4.25	15.051	34.21%
Fossil Fuel Primary Energy	MJ	**8004.48**	1725.22	92.85	2184.17	4002.24	21.55%
Biogenic Carbon Storage	kg CO2e	**0**	0				