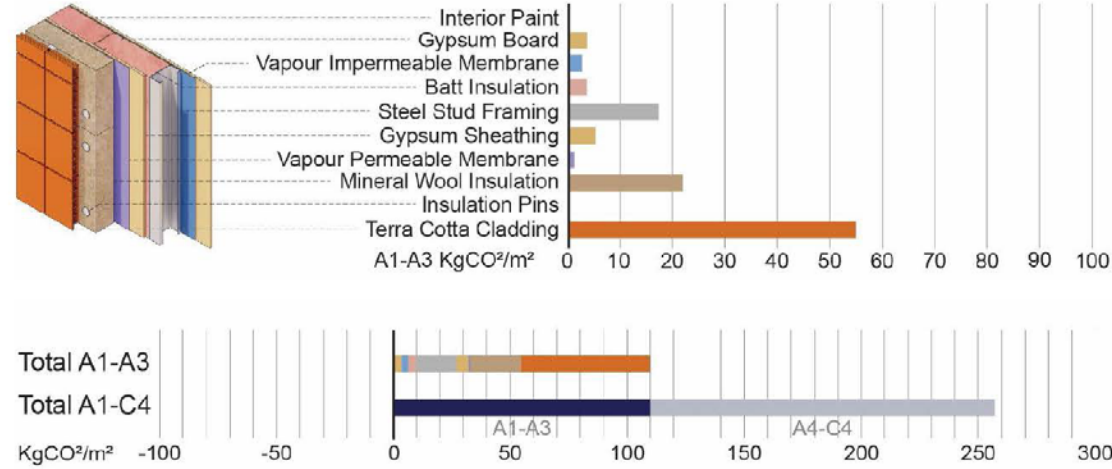


# APPENDIX A WALL ASSEMBLY 02

## W02: Results Summary

Metrics	Results
<b>Description</b>	<b>Split Insulated Steel Frame with Lightweight Cladding</b>
Effective R-value	RSI-4.4 m <sup>2</sup> K/W   R-25.2 ft <sup>2</sup> ·°F·h/BTU
Embodied Carbon per m <sup>2</sup> of Enclosure (A1-A3)	110.3 kgCO <sub>2</sub> /m <sup>2</sup>
Biogenic Carbon per m <sup>2</sup> of Enclosure	-0.4 kgCO <sub>2</sub> /m <sup>2</sup>



## W02: Assembly Effective R-value Calculation

Description	t <sub>SI</sub>	t <sub>IP</sub>	k	C (USI)	RSI <sub>effective</sub>	R <sub>effective</sub>	R <sub>nominal</sub>
Units	mm	in	W/mK	W/m <sup>2</sup> K	m <sup>2</sup> K/W	ft <sup>2</sup> ·°F·h/BTU	ft <sup>2</sup> ·°F·h/BTU
Interior air film					0.12	0.68	
Interior gypsum board	12.7	0.50	-	-	0.05	0.30	
Vapour barrier	-	-	-	-	-	-	
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	
Self-adhered sheet-applied air barrier and WRB membrane (vapour permeable)	1.00	0.04	-	-	-	-	
Semi-rigid mineral fiber exterior insulation with intermittent proprietary fibreglass clips	127	5.00	-	-	2.84	16.1	21.5
Air cavity	25.0	0.98	-	-	-	-	
Terracotta panel cladding	40.0	1.57	-	-	-	-	
Exterior air film	-	-	-	-	0.03	0.17	
<b>TOTALS</b>	<b>371</b>	<b>14.6</b>			<b>4.40</b>	<b>25.2</b>	<b>21.5</b>

## W02: Embodied Carbon Emissions (A1 to A3 Life Stages) for 9m<sup>2</sup> Assembly Area

Category	Material	Description (from EPD)	Thickness	Material Volume	Carbon Emissions (A1-A3)	% of total
Units			mm	m <sup>3</sup>	kgCO <sub>2</sub> e	%
Finish	Interior Paint	Eggshell acrylic paint, 1294.29 kg/m <sup>3</sup>		0.0014	0.6	0.06%
Finish	Gypsum Board	Gypsum plaster board, regular, generic, 6.5-25 mm, 10.725 kg/m <sup>2</sup> (for 12.5 mm), 858 kg/m <sup>3</sup>	12.7 (0.5")	0.114	26.04	2.62%
Vapour control	Vapour Impermeable Membrane	Vapor barrier	0.8 (0.032")	0.0072	17.93	1.81%
Interior insulation	Batt Insulation	Mineral fiber batt insulation, 6.89in	152.4 (6")	1.029	31.15	3.14%
Structure	Steel Stud Framing	Steel stud framing for drywall/gypsum plasterboard per sq. meter of wall area (incl. air gaps per m3), C-profile: 152.4 mm x 76.2 mm, gauge 20 (40 cm) spacing	152.4 (6")	*	158.39	15.95%
Sheathing	Exterior Gypsum Sheathing	Glass-mat gypsum board, fire and moisture-resistant; 799 kg/m <sup>3</sup>	12.7 (0.5")	0.1143	42.26	4.26%
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	1 (0.04")	0.009	11.16	1.12%
Exterior insulation	Exterior Insulation Mineral Wool (Semi-rigid)	Heavy density mineral wool board, 1 m <sup>2</sup> K/W, 1.34 in (34 mm), 0.86 lb/ft <sup>2</sup> (4.2 kg/m <sup>2</sup> ), 7.71 lb/ft <sup>3</sup> (123.52 kg/m <sup>3</sup> ), Industry average US (NAIMA)	127 (5")	1.143	201.82	20.32%
Exterior insulation	Insulation Pins	5 insulation pins per panel - 169 pins in total Hot-dipped galvanised steel sheets; 80% recycled content - 0.28 kg/m <sup>2</sup>	-	0.000302	3.73	0.38%
Cladding	Terra Cotta Cladding	Ceramic floor and wall tiles, 7.9375 mm, avg. weight 17.57 kg/m <sup>2</sup> (Fireclay Tile)	40 (1.6")	0.36	499.9	50.34%
<b>TOTAL</b>					<b>993.0</b>	<b>100.0%</b>

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

## W02: Environmental Emissions (A1 to C4 Life Stages) for 9m<sup>2</sup> 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 <sub>2</sub> e	<b>2,407.78</b>	989.23	10.89	1332.6	75.06	<b>41.08%</b>
Acidification	kg SO <sub>2</sub>	<b>5.30</b>	2.47	0.062	2.68	0.091	<b>46.58%</b>
Eutrophication	kg Ne	<b>0.81</b>	0.31	0.0087	0.4615	0.033	<b>38.12%</b>
Ozone Depletion	kg CFC11e	<b>0.000044</b>	0.0000098	0.0000029	0.000028	0.0000035	<b>22.17%</b>
Formation of Tropospheric Ozone	kg O <sub>3</sub> e	<b>172.06</b>	64.39	1.76	104	1.91	<b>37.42%</b>
Fossil Fuel Primary Energy	MJ	<b>11,129.73</b>	4,886.56	309.53	5654.8	278.84	<b>43.91%</b>
Biogenic Carbon Storage	kg CO <sub>2</sub> e	<b>-3.74</b>	3.74	0	0	0	<b>-100.00%</b>