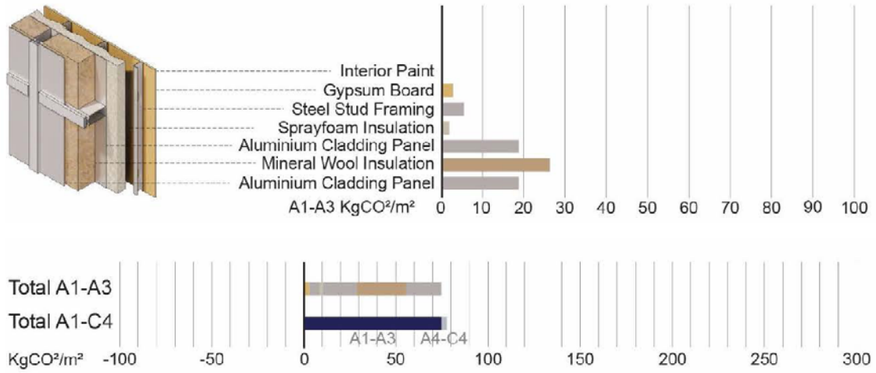
APPENDIX A **WALL ASSEMBLY 09**

W09: Results Summary

Metrics	Results
Description	**Spandrel Panel with 3" Mineral Wool Backpan, Interior Insulated with Sprayfoam**
Effective R-value	RSI-4.3 m^2K/W | R-24.4 $ft^2{\cdot}°F{\cdot}h/BTU$
Embodied Carbon per m^2 of Enclosure (A1-A3)	74.48 $kgCO_2/m^2$
Biogenic Carbon per m^2 of Enclosure	0 $kgCO_2/m^2$



W09: 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	
Closed-cell spray foam insulation (continuous)	76.2	3.00	0.00	0.03	3.17	18.0	18.0
Spandrel Panel with rigid or semi-rigid mineral fiber exterior insulation	152	6.00	-	-	0.79	4.50	
Exterior air film					0.03	0.17	
TOTALS	**305**	**12.0**			**4.30**	**24.4**	**18.0**

W09: 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	-	0.0014	0.6	0.09%
Finish	Gypsum Board	Gypsum plaster board, regular, generic, 6.5-25 mm, 10.725 kg/m2 (for 12.5 mm), 858 kg/m3	12.7 (0.5")	0.114	26.04	3.88%
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 30.48 mm, gauge 25	63.5 (2.5")	*	47.91	7.15%
Exterior Insulation	Sprayfoam insulation	Spray polyurethane foam insulation for closed cell, with HFO blowing agent, 0.022 W/mK, 32 kg/m3 average density, SealTite CC+, Walltite HFO, Walltite CMxx lines, Heatlok®HFO High Lift, Heatlok® HFO Pro, Ultra-Thane 200, 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, Demilec, General Coatings, Gaco-Western, Icynene-Lapolla, Johns-Manville, NCFI Polyurethanes, SES))	76.2 (3")	0.68	18.75	2.80%
Exterior Finish	Aluminium Cladding Panel	Roll formed aluminum cladding, 4.91 kg/m2 (Metal Construction Association)	1 (0.04")	0.009	167.4	24.97%
	Exterior Insulation Mineral Wool (Semi-rigid)	Heavy density mineral wool board, 1 m2K/W, 34 mm, 4.2 kg/m2, 123.52 kg/m3, Industry average US (NAIMA)	152.4 (6")	1.37	242.18	36.13%
				TOTAL	**670.28**	100.0%

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

W09: 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	**698.24**	670.27	4.71	8.78	14.48	95.99%
Acidification	kg SO	**2.48**	2.36	0.03	0.05	0.04	95.28%
Eutrophication	kg Ne	**0.16**	0.14	0.004	0.0028	0.01	87.74%
Ozone Depletion	kg CFC11e	**0.000008**	0.0000049	0.0000012	0.0000006	0.000001	63.95%
Formation of Tropospheric Ozone	kg O3e	**30.47**	27.95	0.76	0.98	0.78	91.73%
Fossil Fuel Primary Energy	MJ	**1,548.95**	1,227.22	133.78	68.36	119.59	79.23%
Biogenic Carbon Storage	kg CO2e	**0**	0	0	0	0	