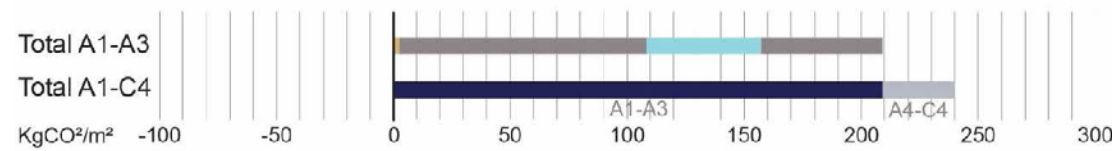
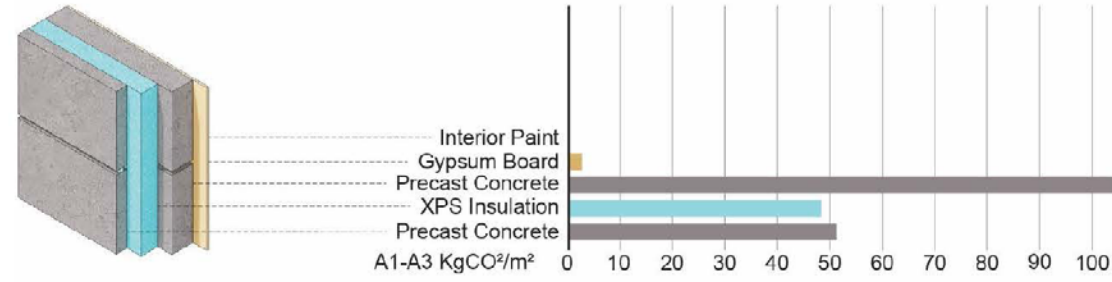


# APPENDIX A WALL ASSEMBLY 07

## W07: Results Summary

Metrics	Results
<b>Description</b>	<b>Double Wythe Insulated Precast with XPS Insulation</b>
Effective R-value	RSI-4.5 m <sup>2</sup> /K/W   R-25.4 ft <sup>2</sup> ·°F·h/BTU
Embodied Carbon per m <sup>2</sup> of Enclosure (A1-A3)	209.30 kgCO <sub>2</sub> /m <sup>2</sup>
Biogenic Carbon per m <sup>2</sup> of Enclosure	0 kgCO <sub>2</sub> /m <sup>2</sup>



## W07: Assembly Effective R-value Calculation

Description	t <sub>s</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	0.16	27.0	0.04	0.21	
Precast concrete panel (interior)	152	6.00	2.10	13.8	0.07	0.41	
Extruded polystyrene (XPS) rigid board insulation	127	5.00	0.03	0.24	4.18	23.8	25.0
Precast concrete panel (exterior)	76.2	3.00	2.10	27.6	0.04	0.21	
Exterior air film	-	-	-	-	0.03	0.17	
<b>TOTALS</b>	<b>368</b>	<b>14.5</b>			<b>4.50</b>	<b>25.4</b>	<b>25.0</b>

## W07: 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	0.03%
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	1.38%
Structure	Precast concrete	Precast concrete, architectural wall panel	152.4 (6")	1.3716	945.43	50.19%
Exterior Insulation	XPS (Rigid Insulation)	XPS insulation (extruded polystyrene)	127 (5")	1.143	438.9	23.30%
Exterior Finish	Precast concrete	Precast concrete, architectural wall panel	76.2 (3")	0.6858	472.71	25.10%
<b>TOTAL</b>					<b>1883.68</b>	<b>100.0%</b>

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

## W07: 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>2,163.63</b>	1,883.68	35.45	8.78	235.72	87.06%
Acidification	kg SO <sub>2</sub>	<b>29.24</b>	28.33	0.20	0.05	0.66	96.90%
Eutrophication	kg Ne	<b>1.69</b>	1.44	0.03	0.00	0.22	85.17%
Ozone Depletion	kg CFC11e	<b>0.01</b>	0.01	0.000009	0.0000006	0.000018	99.67%
Formation of Tropospheric Ozone	kg O <sub>3</sub> e	<b>351.93</b>	333.82	5.72	0.98	11.41	94.85%
Fossil Fuel Primary Energy	MJ	<b>14,305.58</b>	11,614.97	1,008.06	68.36	1,614.19	81.19%
Biogenic Carbon Storage	kg CO <sub>2</sub> e	<b>0</b>	0	0	0	0	