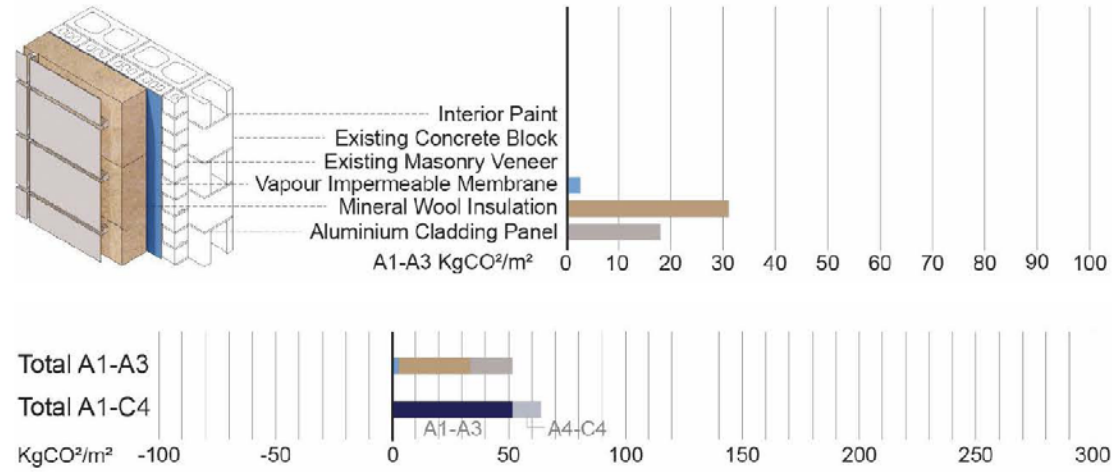


APPENDIX A WALL ASSEMBLY 17

W17: Results Summary

| Metrics | Results |
|---|---|
| Description | Existing Masonry with Exterior Aluminum Panel Overcladding |
| Effective R-value | RSI-4.4 m ² K/W R-24.8 ft ² ·F·h/BTU |
| Embodied Carbon per m ² of Enclosure (A1-A3) | 52.5 kgCO ₂ /m ² |
| Biogenic Carbon per m ² of Enclosure | 0 kgCO ₂ /m ² |



W17: Assembly Effective R-value Calculation

| Description | t _{SI} | t _{IP} | k | C (USI) | RSI _{effective} | Reffective | 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 | |
| Existing multi-wythe CMU wall | 203 | 8.00 | 1.18 | 5.81 | 0.17 | 0.98 | |
| Existing multi-wythe brick masonry | 88.9 | 3.50 | 1.31 | 14.7 | 0.07 | 0.39 | |
| Self-adhered sheet-applied air barrier and water-resistive barrier (WRB) membrane (vapour impermeable) | 3.00 | 0.12 | - | - | - | - | |
| Semi-rigid mineral fiber exterior insulation with intermittent proprietary fibreglass clips | 178 | 7.00 | 0.04 | 0.25 | 3.98 | 22.58 | 30.1 |
| Air cavity | 25.0 | 0.98 | - | - | - | - | |
| Aluminum panel cladding | 3.00 | 0.12 | - | - | - | - | |
| Exterior air film | | | | | 0.03 | 0.17 | |
| TOTALS | 501 | 19.7 | | | 4.40 | 24.8 | 30.1 |

W17: 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 (Generic) | 0.16 (0.0063") | 0.0014 | 0.56 | 0.1% |
| Existing structure | Existing CMU | Not included in calculations | - | - | - | - |
| Exterior Finish | Existing masonry veneer | Not included in calculation | - | - | - | - |
| Exterior Membrane | Vapor impermeable barrier membrane | Latex-based membrane, vapor impermeable, fluid-applied, | 3 (0.12") | 0.027 | 22 | 4.70% |
| Exterior Insulation | Exterior Insulation mineral wool | Heavy density mineral wool board, 1 m ² K/W, 34 mm (1.34 in), 4.2 kg/m ² (0.86 lb/ft ²), 123.52 kg/m ³ (7.71 lb/ft ³), Industry average US (NAIMA) | 177.8 (7") | 1.6002 | 280 | 59.60% |
| Cladding | Aluminum Cladding Panel | Roll formed aluminum cladding, 4.91 kg/m ² (Metal Construction Association) (Generic) | * | * | 170 | 35.5% |
| TOTAL | | | | | 472.56 | 100.0% |

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

W17: 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 | 579.6443 | 471.61 | 2.60E+00 | 64.49 | 40.9443 | 81.36% |
| Acidification | kg SO ₂ | 6.34E-06 | 1.92E-06 | 0.00000068 | 0.00000186 | 1.88E-06 | 30.29% |
| Eutrophication | kg Ne | 1.640114 | 1.2632 | 0.0148 | 0.163 | 0.199114 | 77.02% |
| Ozone Depletion | kg CFC11e | 0.072773 | 0.028244 | 0.00208 | 0.02398 | 0.018469 | 38.81% |
| Formation of Tropospheric Ozone | kg O ₃ e | 20.158409 | 16.549 | 0.412 | 2.69 | 0.507409 | 82.09% |
| Fossil Fuel Primary Energy | MJ | 1583.581 | 820.53 | 74.07 | 674.58 | 14.401 | 51.81% |
| Biogenic Carbon Storage | kg CO ₂ e | 0 | 0 | | | | |