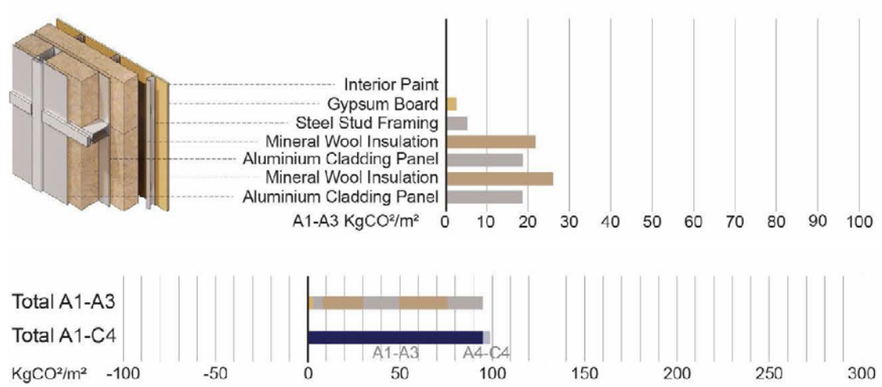
# APPENDIX A **WALL ASSEMBLY 08**

**W08: Results Summary**

| Metrics | Results |
|---|---|
| **Description** | **Spandrel Panel with 3" Mineral Wool Backpan, Interior Insulated with Mineral Wool** |
| Effective R-value | RSI-4.7 $m^2K/W$ \| R-26.7 $ft^2 \cdot °F \cdot h/BTU$ |
| Embodied Carbon per $m^2$ of Enclosure (A1-A3) | 94.82 $kgCO_2/m^2$ |
| Biogenic Carbon per $m^2$ of Enclosure | 0 $kgCO_2/m^2$ |




**W08: 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 | 0.16 | 27.0 | 0.04 | 0.21 | |
| Smart vapour retarder | - | - | - | - | - | - | |
| Steel stud-framed wall | 63.5 | 2.50 | 0.49 | 7.75 | 0.13 | 0.73 | |
| Rigid or semi-rigid mineral fibre board insulation (continuous) | 127 | 5.00 | 0.00 | 0.03 | 3.60 | 20.4 | 21.5 |
| 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** | **356** | **14.0** | | | **4.70** | **26.7** | **21.5** |



**W08: 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 | 0.07% |
| 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 | 3.05% |
| 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 | 5.61% |
| Exterior Insulation | 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) | 127 (5") | 1.143 | 201.82 | 23.65% |
| Exterior Insulated Aluminum Spandrel Panel | Aluminium Cladding Panel | Roll formed aluminum cladding, 4.91 kg/m2 (Metal Construction Association) | 1 (0.04") | 0.009 | 167.4 | 19.62% |
| | 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 | 28.38% |
| | Aluminium Cladding Panel | Roll formed aluminum cladding, 4.91 kg/m2 (Metal Construction Association) | 1 (0.04") | 0.009 | 167.4 | 19.62% |
| | | | | **TOTAL** | **853.35** | 100.0% |

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

**W08: 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 | **887.57** | 853.34 | 5.42 | 8.78 | 20.03 | 96.14% |
| Acidification | kg SO | **2.68** | 2.54 | 0.03 | 0.05 | 0.06 | 94.92% |
| Eutrophication | kg Ne | **0.17** | 0.14 | 0.0043 | 0.0028 | 0.02 | 84.81% |
| Ozone Depletion | kg CFC11e | **0.000008** | 0.000005 | 0.0000014 | 0.00000056 | 0.0000014 | 58.30% |
| Formation of Tropospheric Ozone | kg O3e | **33.85** | 30.95 | 0.87 | 0.98 | 1.05 | 91.43% |
| Fossil Fuel Primary Energy | MJ | **1,607.14** | 1,227.14 | 154.07 | 68.36 | 157.57 | 76.36% |
| Biogenic Carbon Storage | kg CO2e | **0** | 0 | 0 | 0 | 0 | |