

[ESR Westlink Stage 2 - Life Cycle Carbon - Global](#) [Project basic information](#)

Result report: ESR Westlink Stage 2

NSW State Environmental Planning Policy (Sustainable Buildings) 2022

Chapter 3 Standards for non-residential development

3.2 Development consent for non-residential development

(1) In deciding whether to grant development consent to non-residential development, the consent authority must consider whether the development is designed to enable the following—

(a) the minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,

(b) a reduction in peak demand for electricity, including through the use of energy efficient technology,

(c) a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,

(d) the generation and storage of renewable energy,

(e) the metering and monitoring of energy consumption,


(f) the minimisation of the consumption of potable water.

(2) Development consent must not be granted to non-residential development unless the consent authority is satisfied the embodied emissions attributable to the development have been quantified.

Project	Industrial Building - ESR Westlink Stage 2
User	Rivindu Bandara - 30/10/2023
Tool	Life Cycle Carbon - Global
Details	The life-cycle assessment is carried out with One Click LCA, a life-cycle assessment cloud software, in compliancy with EN 15978, EN 15804, ISO 14040, ISO 14044 and ISO 21929. The LCA datasets are compliant with EN 15804 or ISO 14040/14044.

General information

Type	Industrial production buildings
Country	Australia
Address	Mamre Road, Kemp's Creek, NSW
Gross Floor Area (m²)	38640
Frame type	steel
Certifications pursued	Green Star Australia

 **56,592 Tonnes CO₂e**
 **24.41 kg CO₂e / m² / year**
 **1,131,847 \$ Social cost of carbon**

Carbon Heroes Benchmark

Results

Building life-cycle carbon footprint [Download Results Summary](#)

	Result category	Global warming kg CO ₂ e	Biogenic carbon storage kg CO ₂ e bio	Social cost of carbon \$	
A1-A3	Construction Materials	50,904,422	10,519	13,998,716	Details
+ A4	Transportation to site	1,796,077		493,921	Details
+ A5	Construction/installation process	1,996,879		549,142	Details
+ B1	Use phase				Hide empty
+ B2	Maintenance				Hide empty
+ B3	Repair	0		0	Details
+ B4-B5	Material replacement and refurbishment	611,566		168,181	Details
B6	Energy consumption				Hide empty
B7	Water use				Hide empty
+ C1-C4	End of life	1,283,396		352,934	Details
+ D	External impacts (not included in totals)	-16,385,840		-4,506,106	

Result category	Global warming kg CO2e	Biogenic carbon storage kg CO2e bio	Social cost of carbon \$
Total	56,592,340	10,519	15,562,893
Results per denominator			
Gross Internal Floor Area (IPMS/RICS) 38640.0 m ²	1,465	0	403

Biogenic carbon storage is only shown as separate information. Please note that all manufacturers do not yet supply this information, so comparisons based on this data may be misleading.

Project description

Building area

	Answer	Quantity	Comment
Building area	Gross Internal Floor Area (IPMS/RICS)	38640	

Completeness (%) and plausibility checker (-)

Most contributing materials

Graphs

- Overview
- Bubble
- Life-cycle stages
- Classifications
- All graphs

Life-cycle overview of Global warming



Show data table:

☐ Global warming kg CO₂e - Life-cycle stages

☐ Global warming kg CO₂e - Classifications

☐ Global warming kg CO₂e - Resource types

☐ Mass kg - Classifications

Global warming kg CO₂e - Life-cycle stages

Item	Value	Unit	Percentage %
A1-A3 Materials	51,000,000	kg CO ₂ e	89.95 %
A4 Transport	1,800,000	kg CO ₂ e	3.17 %
A5 Construction	2,000,000	kg CO ₂ e	3.53 %
B4-B5 Replacement	610,000	kg CO ₂ e	1.08 %
C2 Waste transport	1,200,000	kg CO ₂ e	2.13 %
C3 Waste processing	79,000	kg CO ₂ e	0.14 %
C4 Waste disposal	630	kg CO ₂ e	0.0 %

Global warming kg CO₂e - Classifications

Item	Value	Unit	Percentage %
Floor slabs, ceilings, roofing decks, beams and roof	43,000,000	kg CO ₂ e	76.75 %
External walls and facade	13,000,000	kg CO ₂ e	23.2 %
Other structures and materials	21,000	kg CO ₂ e	0.04 %
Columns and load-bearing vertical structures	12,000	kg CO ₂ e	0.02 %
Materials and constructions for external areas	720	kg CO ₂ e	0.0 %

Windows and doors	120	kg CO ₂ e	0.0 %
Global warming kg CO ₂ e - Resource types			
Item	Value	Unit	Percentage %
Structural steel and steel profiles	45,000,000	kg CO ₂ e	80.06 %
Ready-mix concrete for external walls and floors	5,900,000	kg CO ₂ e	10.37 %
Ready-mix concrete, high strength	1,900,000	kg CO ₂ e	3.36 %
Sandwich panels, metal	1,500,000	kg CO ₂ e	2.64 %
Asphalt	750,000	kg CO ₂ e	1.33 %
Concrete wall elements	430,000	kg CO ₂ e	0.76 %
Mortar (masonry/bricklaying)	350,000	kg CO ₂ e	0.62 %
Paints, coatings and lacquers	280,000	kg CO ₂ e	0.49 %
Hot-dip galvanized/zinc coated steel	120,000	kg CO ₂ e	0.21 %
Other resource types	93,000	kg CO ₂ e	0.16 %
Mass kg - Classifications			
Item	Value	Unit	Percentage %
Floor slabs, ceilings, roofing decks, beams and roof	92,000,000	kg	91.41 %
External walls and facade	8,500,000	kg	8.42 %
Other structures and materials	110,000	kg	0.11 %
Columns and load-bearing vertical structures	60,000	kg	0.06 %
Materials and constructions for external areas	160	kg	0.0 %
Windows and doors	87	kg	0.0 %

Data sources