

Specifier preparing this design and layout:	Futurebuild Residential Design Service
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Project and site details:

Project details:	123 House Avenue, Auckland	Job No:	FS12345 Plan Type: A, Unit 1
Merchant Ref No:		Date Prepared:	19-Jul-23
Job Name:	Proposed New Dwelling	Revision:	

Environmental Impact Statement – Cradle to Gate

This Environmental Impact Statement – Cradle to Gate provides Global Warming Potential (GWP) data relating to the Futurebuild LVL, Ecoply Plywood and proprietary bracketry detailed on the attached plans and listed below for Life Cycle Analysis (LCA) Production modules only (A1-A3) in accordance with ISO 14025 and EN15804+A2. The determination of GWP data presented in this Environmental Impact Statement is based on the Futurebuild LVL Laminated Veneer Lumber Environmental Product Declaration(s) (EPD) completed by Think-Step-anz Ltd and third party verified by Life Cycle Logic Pty Ltd. CHH developed EPD's are referenced below for further information and/or calculation.

This statement includes calculations for two commonly applied Environmental Impact Indicators, GWP Total (GWP_t) and GWP Fossil (GWP_f). GWP_t represents the total carbon footprint of the product (including GWP_f), whilst for timber products, the most common values used for carbon footprint in ratings tools like Green Star and eTool is the fossil carbon footprint, GWP_f. Consideration of other life cycle stages including construction process use and end of life stages have been excluded as they are dependent on particular scenarios and have not been declared.

Note: "Gate" is taken as the Mill Gate, Marsden Point for Futurebuild LVL products.

The inclusion of Environmental Impact Statements with all LVL floor solutions is an extension of Carter Holt Harvey's continual focus and commitment to sustainability through a science driven, verifiable process with a standard methodology applied across all products.

This Environmental Impact Statement includes an allowance for the products details on:

- First floor joist layout, FS12345 - Type A - FL
- First floor beam layout, FS12345 - Type A - FLB

Table 1. GWP_t and GWP_f calculations for wood based products

Member size	Member specification	Lineal Meters (m)	Volume (m ³)	GWP _t (kg CO ₂ eq)	GWP _f (kg CO ₂ eq)
HJ240 45	hyJOIST	82.4	0.449	-335.8	80.9
240 x 45	hy90 H1.2	18.6	0.201	-164.8	20.2
240 x 90	hy90 H1.2	17.9	0.387	-317.2	39.0
18 x 90	18 x 90 x 2400 mm ply suitable for HJ200-45 & HJ240 45 & HJ300 45 hyJOIST		0.004	-2.9	0.8

Table 2. GWP_t and GWP_f calculations for ancillary products

Accessory	Description	Number of	GWP _t (kg CO ₂ eq)	GWP _f ³ (kg CO ₂ eq)
Brackets	Mitek IBHF24050	20	17.6	17.7
Brackets	Pryda LVSIA-V	2	3.8	3.8
Brackets	Mitek SPH180	1	0.7	0.7
Brackets	By others	1	ND	ND

Table 3. GWP_t and GWP_f Floor Totals

	GWP _t (kg CO ₂ eq)	GWP _f (kg CO ₂ eq)
Project Totals	-798.6	163.1

Notes:

1. GWP_t and GWP_f data accounts for Life Cycle Assessment Production modules only (A1-A3).
2. Negative values represent a long-term carbon store.

3. No current information is available for GWP_f in relation to galvanisation.

4. ND - Not Declared

Further to the inherent sustainability advantages offered by utilizing engineered wood products manufactured from renewable plantation pine, Futurebuild LVL mid-floor solutions can limit the amount of waste on site based on section length optimisation and supply lengths. Table 4. Below details the projected amount of waste that will typically be accumulated during the floor assembly.

Table 4. Projected waste accumulated on site

Member size	Member specification	Total Linear metres (m)	Volume (m ³)
HJ240 45	hyJOIST	0.8	0.004
240 x 45	hy90 H1.2	0.5	0.006
240 x 90	hy90 H1.2	0.3	0.005
		Total (%)	0.015(1.5%)

Notes:

1. Projected wastage may differ based on the tolerances applied at the time of construction.

Limitations:

- GWP_t and GWP_f values are calculated at the time of design based on the layouts referenced above. No allowance has been made for any alterations, substitutions or additional material included in the construction of the final floor/roof framing.
- GWP_t and GWP_f values for proprietary brackets are based on available averages for steel and galvanising applied to individual bracket volumes based on available Australasian EPD data sources (refer References).

Exclusions:

- No allowance has been made for the GWP contribution of fasteners used in the assembly of the floor/roof solution.
- No allowance has been made for bracketry with the exception of proprietary bracketry noted in Table 2.

References:

- Carter Holt Harvey LVL Limited (2023), EPD Registration Number S-P-05514, Futurebuild LVL Laminated Veneer Lumber Environmental Product Declaration, v1.0.
- BlueScope Steel (2020), EPD Registration Number S-P-00558 – XLERPLATE® Steel.
- Galvanizers Association of Australia (2019), EPD Registration Number S-P-01166, Environmental Product Declaration for Galvanisers Association of Australia: Hot Dip Galvanising in Australia

Disclaimer:

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