



# Our Environmental Credentials.



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Structural  
laminated  
timber  
products



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# 1 Environmental Product Declaration

## // A nutrition label for building products

An environmental product declaration (EPD) is a standardised way of providing third-party verified environmental data and other relevant information about the environmental impacts across the life cycle of a product.

The calculated environmental impacts, including the carbon footprint, of building products are included in an EPD. This data can be compared to nutrition labels that are commonly applied to food and drink products.

Techlam contributed operational data and funding to the Wood Processors and Manufacturers Association (WPMA) to produce an industry EPD covering many wood products made in New Zealand from Radiata Pine, including Glulam. This EPD was verified against the international standard ISO 14025<sup>1</sup> as well as the best-practice European Standard EN 15804<sup>2</sup> and registered with the Australasian EPD Programme (registration number [S-P-00997](#)) in 2019.

Environmental impact data for production of two Radiata Pine Glulam products from this industry EPD is provided in Table 1 and Table 2 below.

1m <sup>3</sup> Radiata Pine Glulam – H1.2 Boron	
ENVIRONMENTAL IMPACT	TOTAL*
Climate Change-Fossil (net) [kg CO <sub>2</sub> -eq.]	144.00
Climate Change-Biogenic (net) [kg CO <sub>2</sub> -eq.]	-803.9 <sup>^</sup>
Ozone Hole [kg CFC11-eq.]	0.0
Acid Rain [kg SO <sub>2</sub> -eq.]	0.8
Algal Blooms [kg PO43--eq.]	0.2
Smog Forming [kg C <sub>2</sub> H <sub>4</sub> -eq.]	0.5
Mineral Resources [kg Sb-eq.]	0.0
Fossil Energy Resources [MJ]	2052.9

Table 1: Environmental impact data for production of 1m<sup>3</sup> of New Zealand Radiata Pine Glulam treated to H1.2 with Boron-based preservative and redried after treatment. Source: EPD S-P-00997.

1m <sup>3</sup> Radiata Pine Glulam – H3.2 <sup>#</sup> CCA	
ENVIRONMENTAL IMPACT	TOTAL*
Climate Change - Fossil (net) [kg CO <sub>2</sub> -eq.]	164.0
Climate Change - Biogenic (net) [kg CO <sub>2</sub> -eq.]	- 803.4 <sup>^</sup>
Ozone Hole [kg CFC11-eq.]	0.0
Acid Rain [kg SO <sub>2</sub> -eq.]	1.1
Algal Blooms [kg PO43--eq.]	0.2
Smog Forming [kg C <sub>2</sub> H <sub>4</sub> -eq.]	0.5
Mineral Resources [kg Sb-eq.]	0.0
Fossil Energy Resources [MJ]	2301.8

Table 2: Environmental impact data for production of 1m<sup>3</sup> of Radiata Pine Glulam treated to H3.2 with CCA preservative and redried after treatment. Source: EPD S-P-00997.

\* Total includes industry average data for life cycle stages A1-A3 (production including preservation). Actual impact data will vary from producer to producer. Information on data variability and impacts of end-of-life stages is available in the WPMA EPD S-P-00997. Techlam's specific product impacts will be within the range cited in the EPD.

<sup>^</sup>Biogenic carbon may be released at end-of-life and/or passed on to the next product system. If this data is used to compare products, biogenic carbon will need to be reported separately.

<sup>#</sup>H3 data is presented as a proxy for H3.2 preservative treated timber. H3.2 uses less preservative treatment than H3, therefore this is a conservative assumption.

<sup>1</sup>ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations.

<sup>2</sup>EN 15804:2012+A1:2013 Sustainability of construction works. Environmental product declarations.

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## 2 Ratings & Regulations

### // EPDs, Green Star & Homestar

The WPMA industry EPD complies with the requirements for an industry wide EPD under the Green Building Council of New Zealand's Green Star and Homestar sustainable building rating systems. This is because it is:

- in conformance with ISO 14025 and EN 15804
- verified by an independent third-party
- cradle-to-gate type (minimum).

As Techlam contributed data and funding to the WPMA industry EPD we are eligible to put this forward to cover our applicable products under these rating systems.

The EPD also provides the essential data for whole-building life cycle assessment under those same rating tools.

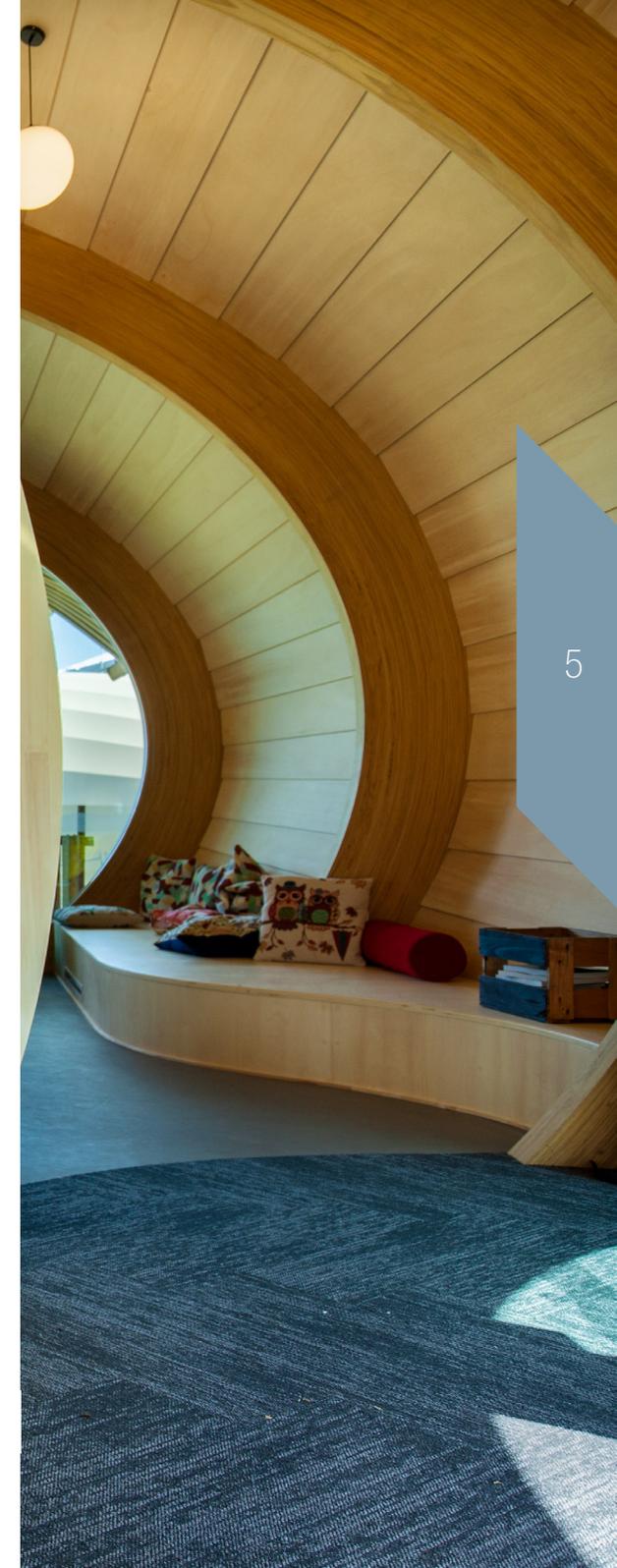
### // Living Building Challenge

No ingredient in our H1.2 Boron treated Radiata Pine Glulam are on the Living Building Challenge Red List, Priority for Red List, or Watch List (lists are available [here](#)). Our boron-treated products are eligible for use in projects seeking Living Building Challenge certification.

CCA treated Radiata Pine Glulam products are ineligible for the Living Building Challenge, as a range of arsenic and chromium containing compounds are on the Red List.

- Techlam can provide H3.2 and H5 Glulam products treated with preservatives which are arsenic and chromium-free such as MCQ (Micronized Copper Quaternary), MCA (Micronized Copper Azole), or ACQ (Alkaline Copper Quaternary). These products, available on request, are eligible for use in projects seeking Living Building Challenge certification.

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## // NZ Government's Building for Climate Change programme

The building and construction sector is a large contributor to greenhouse gas emissions from producing materials, constructing buildings and the energy used in buildings. As the data in the EPD includes a verified embodied carbon footprint, the data may satisfy the requirements under the proposed NZ Government's Building for Climate Change programme. Find out more [here](#).

As can be seen from the data in Table 1 and Table 2, New Zealand Glulam products (which are made from responsibly sourced Radiata Pine) have a negative carbon footprint during the production phase (indicated by the negative numbers for Climate Change impact). This is because the Radiata Pine trees from which they are made have absorbed carbon dioxide from the atmosphere over the many years they have grown. Relatively small amounts of greenhouse gases are released during production.

When it comes to assessing New Zealand Glulam's contribution to impact in a building structure, a whole-of-building life cycle assessment (LCA) should be completed. The LCA will need to ensure that all relevant factors are considered in the context of the building (for example metal connections and fixings, equivalent durability, maintenance, fire performance requirements and so on) so that a fair comparison is made.

## // Indoor air quality – Formaldehyde free and low VOCs

Techlam uses polyurethane adhesives which are entirely formaldehyde free and low emitters of volatile organic compounds (VOCs). We use these adhesives to protect the health of our workers and customers.

Test certificates to support the compliance of our zero-formaldehyde adhesive with Green Star and Living Building Challenge requirements for VOCs and Indoor Air Quality are available on request.

## // Responsible wood sourcing – our FSC commitment

Responsible sourcing of our raw material is very important to us and New Zealand's environment.

To provide certainty for our customers we are certified against the Chain of Custody Standard of the Forest Stewardship Council® (FSC®). FSC is a global forest certification system that provides assurance that forest products come from responsibly managed sources. The system provides two key aspects of assurance:

- Forest Management (FM) certification: forests are managed in a responsible way that meet FSC forest management standards; and
- Chain of Custody (CoC) certification: a business has a rigorous management system in place that verifies that products carry a valid FSC claim. In the case of FSC 100% claim our products are 100% from FSC certified forests, or in the case of an FSC Mix claim at least 70% from FSC certified forests

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and controlled sources.

Techlam have set up a rigorous management system - including regular staff training - to ensure that purchases and claims of FSC certification of our products can be tracked back through the supply chain to FSC certified sawmills, plantations and FSC defined controlled sources. Our FSC CoC system is regularly audited and third-party verified by SGS - the world's leading inspection, verification, testing and certification company (License code FSC-C130502). You can verify the currency of our certification [here](#).

**IMPORTANT NOTE:** FSC certified product is available on request. If an FSC claim is required on invoices for Green Star or Living Building Challenge projects, please make this clear in your order.

### // Our preservative treatments

Preservative treatment increases the resistance of wood to attack by borer and fungal attack and greatly enhances the durability of Techlam – particularly where our glulam is used in outdoor and exposed applications.

Techlam supplies Glulam treated according to the Australian/New Zealand Standard AS/NZS1604.5 for a range of structural applications: H1.2 for indoor above-ground (indoor framing, beams, columns, and flooring for example), H3.2 for outdoor above-ground (exposed framing, beams, and columns for example), and H5 for in-ground applications (critical bridge timbers and poles for example). Untreated glulam can be supplied where our glulam is being used for purely decorative applications.

For framing applications, we use boron-based preservative compounds. Boric-treated timber has been used for many years and has proven to provide effective insecticide and fungicide protection while having low toxicity to people. As boron compounds are water soluble, they do not become 'fixed' in the wood structure and may leach out by a process of diffusion if the timber is subjected to rain wetting over a prolonged time. It is important to keep timber framing exposure to the weather to a minimum during construction<sup>3</sup>.

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For H3.2 and H5 applications Techlam mostly uses the well-proven, traditional wood preservative copper chrome arsenate (CCA). The Environmental Risk Management Authority (ERMA) has concluded that CCA-treated wood does not pose any significant risk to the public. Nevertheless, arsenic is a known human carcinogen and, thus, it would be prudent to avoid unnecessary exposure to arsenic<sup>4</sup>.

Alternatives wood preservatives to CCA are available on request and include MCQ (Micronized Copper Quaternary), MCA (Micronized Copper Azole), or ACQ (Alkaline Copper Quaternary).

Preservative treatment adds very little to the carbon footprint of our products and ensures it stays stronger for longer. Copper-based alternatives to CCA have a slightly higher carbon footprint mainly due to the higher proportions of copper needed to provide equivalent protection.

### // End-of-life management

Anecdotal evidence is that, after a long life in the original structural application, salvage and reuse is the most common end-of-life route for our Glulam. With reuse there are some environmental impacts from associated transport however no other significant impacts could be expected.

In the event of reuse following deconstruction of a project where our products have been used Techlam strongly recommends that the structural properties and efficacy of treatment be assessed by qualified professionals before reuse in subsequent applications.

Any offcuts and end-of-life preservative treated timber can be safely buried in well-managed landfills. CCA and copper-based alternative treated timber can also be used for energy recovery in industrial facilities which have the appropriate environmental controls and licences. CCA treated wood should never be burned in open fires, stoves, fireplaces, or residential boilers.

<sup>3</sup>Elkink, A. (2011) H1.2 FRAMING TIMBER TREATMENT. BUILD 126 October/November 2011. Available at <https://www.buildmagazine.org.nz/index.php/assets/PDF/Build126-16-BuildRight-H1.2FramingTimberTreatment.pdf>

<sup>4</sup>ERMA (2003) Questions and Answers on Copper Chromium Arsenic (CCA) Treated Timber. Environmental Risk Management Authority. Available at <https://www.epa.govt.nz/assets/Uploads/Documents/Hazardous-Substances/Guidance/ERMA-CCA-q-and-a-prepared-in-2003.pdf>



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