



✓ Third party verified
Environmental Product Declaration
In conformance with
ISO14025 | ISO14040 | ISO14044



株式会社竹中工務店
TAKENAKA CORPORATION

Fire-resistant laminated timber Moen-Wood® (Fire resistance specifications 1 hour : Column)



Registration number

SuMPO-EPD-2512-40-1

Verification date

2025/12/16

Publication date

2026/1/20

Expiration date

2030/12/15

EPD type

Single Product EPD

* First publication date

Additional standards in conformance

ISO21930:2017

EPD can be updated or withdrawn during the validity period. To confirm the validity of this EPD, check the following website:
<https://ecoleaf-label.jp/epd/search>

● General Information

> Programme

Programme name	SuMPO EPD Japan
Programme operator	Sustainable Management Promotion Organization (SuMPO)
Address	KANDA SQUARE GATE 4F, 14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo, 101-0047, Japan
Website	https://ecoleaf-label.jp

> GPI and PCR

GPI	SuMPO EPD Japan General Program Instructions v.2.1.1
PCR name	Core-PCR for Construction products v.2.0.1
PCR registration number	SuMPO-PCR-01000-2-0-1
PCR publication date	2025/3/31
PCR review panel chair	Shunji Ikaga
PCR valid until	2030/03/30
PCR issuer	Sustainable Management Promotion Organization (SuMPO)

> Verification

Verification Type	Third-party verification in conformance with ISO14025 and ISO21930:2017		
	☐ Internal	☒ External	
Verifier	☒ Third-party verification by individual verifier	☐ Third-party verification by verification body	☐ Third-party verification by system certification
	Takahiro Ato (Recycling System Center Specified Nonprofit Corporation)		

> Standards

Standards in conformance with;	☒ ISO14040:2006	☒ ISO14044:2006	☒ ISO14067:2018
	☒ ISO14025:2006	☒ ISO21930:2007	☒ ISO21930:2017
	☐ EN15804+A2	☐ EN50693:2019	☐ ISO/IEC63366:2025

EPD owner is responsible for the information contained in the EPD and for environmental claims related to the information. For any inquiries or requests regarding the content of the EPD, please contact the EPD owner.

EPDs are comparable only if they comply with the same standards, use the same sub-PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works. Comparability of EPDs is limited to those applying a functional unit.

The LCIA results are relative expressions and do not predict impacts on category endpoints, the exceedance of thresholds, safety margins or risks.

When using weighted averages for calculation, the life cycle impact assessment results, life cycle inventory analysis-related information, waste-related information, and environmental information on output flows do not correspond to information about a specific product.

● EPD Owner's Information

Name of company and dept.	TAKENAKA CORPORATION Wooden Architecture Promotion Department
Address	1-1-1 Shinsuna, Koto-ku, Tokyo 136-0075, Japan
Contact	tsumura.chikako@takenaka.co.jp
LCA practitioner	Chikako Tsumura (TAKENAKA CORPORATION)
Company description	General Construction (Architecture & Civil Engineering, Urban Development & Construction, Real Estate)

Environmental Product Declaration for Fire-resistant laminated timber Moen-Wood (Fire resistance specifications 1 hour : Column)

●Product Information

Product name		Fire-resistant laminated timber Moen-Wood® (Fire resistance specifications 1 hour : Column)	
Product /model number		Fire-resistant laminated timber (Fire resistance specifications 1 hour : Column)	
Product sepcification	Function	Fire resistance specifications 1 hour : Column	
	Mass	635.89 kg	Conversion factor 0.636g/cm3
	Applications	Structural components for buildings	
	TS*	Fire-resistant laminated timber (Fire resistance specifications 1 hour), Certification by the Minister of Land, Infrastructure, Transport and Tourism (Certification number: FP060CN-0656)	
Service life	Service life	50 years	
	In-use conditions	indoor	
	reference	Service life is equivalent to the service life of steel-framed reinforced concrete and reinforced concrete buildings, and does not refer to durability or warranty periods. Source: National Tax Agency, "Table of Service Lives of Major Depreciable Assets" <2022>	
Manufacturing site(s)		SAITO WOOD INDUSTRY CO.,LTD	
Product description		Fire-resistant laminated timber composed of three layers: a "Load-bearing Center" of solid wood, a "Burn-Stop/Self-Charring-Stop Layer" composed of mortar or gypsum-based materials and larch, and a "Surface/Burning Layer" of solid wood	
Website		https://www.takenaka.co.jp/takenaka_e/solution/environment/moenwood/	

* TS: technical specifications,

●Product Content

Product components	Propotion (%)	Mass (unit)	
Wood	52.4	333.24	kg
Gypsum	45.8	291.11	kg
Adhesive, Paint	1.8	11.53	kg
Packaging materials	Propotion (%)	Mass (unit)	
PP	13.8	0.02	kg
PE	51.7	0.06	kg
Cardboard	34.5	0.04	kg

●Biogenic Carbon Content

Item	Content (kg-C)	Content (kg-CO ₂ eq)
Biogenic carbon content per product	197.53	724.26
Biogenic carbon content in packaging	0.02	0.06

● LCA-related Information

> EPD Type Information

EPD type	Product type	☒ Single product EPD	☐ Multiple products EPD	☐ Industry-wide EPD
	Site type	☒ Single site		☐ Multiple sites
	Value	☒ Specific	☐ Average	☐ Representative ☐ Worst case
Geographical coverage		Japan		
Description of representativeness for multiple-products/sites EPD		—		
Description of variation for multiple-products/sites EPD		—		
Description of products covered in the multiple products EPD		—		

> LCA Information

Declared unit		1m3		
Mass per declared unit (Conversion factor to mass)		636kg		
Reference flow (number of products required to fulfil the function)		—		
System boundary		☒ Cradle-to-Gate	☐ Cradle-to-Gate with options	☐ Cradle-to-Grave
LCA software		MiLCA		
LCI database		IDEA v3.5.1		
Characterization model		GWP IPCC2021 100a、 LIME2		
Use of other background data		—		
Secondary data quality		Calculations were performed using data that meets the secondary data quality requirements specified in the GPI. The data quality assessment was conducted in accordance with Section 4.2.3.6 of ISO 14044:2006 (Environmental management – Life cycle assessment – Requirements and guidelines).		
Primary data collection sites		SAITO WOOD INDUSTRY CO.,LTD		
Primary data collection period		2024/1/1～2024/12/31		
Biogenic carbon		☐ 0/0 approach	☒ -1/+1 approach	
Information about electricity	Use	☒ Average consumption mix	☐ Others	
	Type	System Power (Japan Average)		
	Purchase date	—		
	Issuing body	—		

> Modules

Production stage			Construction stage		Use stage							End-of-life stage				Suppl. info
A1	A2	A3			A4	A5	Use									
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction / Demolition	Transport to waste processing or disposal	Waste processing	Disposal of waste	Potential net benefits
☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

■ : declared module — : module not declared

> Allocation

All inputs and input energy contributing to gypsum product manufacturing were proportionally allocated by production weight and converted per calculation unit of 1m³.

Input energy contributing to laminated timber manufacturing and product manufacturing was proportionally allocated by production volume.

> Cut-off rules

A cut-off was performed on cutting tools, which are consumable items. It was confirmed that the cut-off criteria established by PCR were met.

> System Boundary

The evaluation scope covered the material manufacturing stages (A1-A3) corresponding to the Cradle-to-Gate defined by PCR: "raw material procurement," "transportation to factory," and "manufacturing."

The temporal system boundary is 100 years.

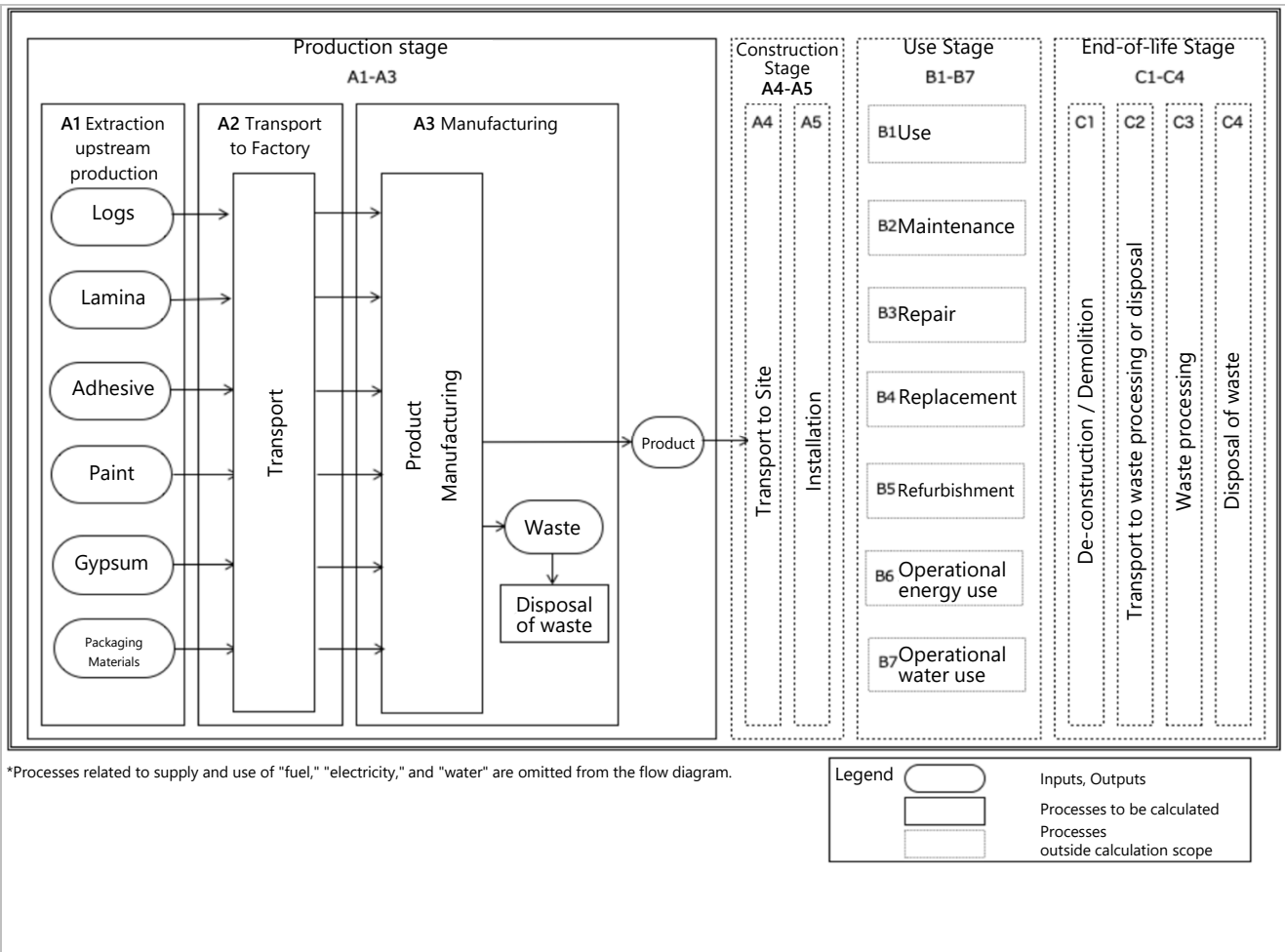
> Scenario

Modules	Description
A2	For the procurement and transportation distances of some raw materials, PCR Annex B was referenced.
A3	For the transportation distances of waste, PCR Annex B was referenced.

> Electricity Modelling

For electricity, the average value for Japan in 2021 was used.

> Life Cycle Sytem Diagram



> LCIA Indicators

[illegible]

> LCI - Primary Resource Use

[illegible]

*RPRE: Renewable primary resources used as an energy carrier, RPRM: Renewable primary resources with energy content used as material, NRPRE: Non-renewable primary resources used as an energy carrier, NRPRM: Non-renewable primary resources with energy content used as material.

> LCI- Secondary Resources Use

[illegible]

> LCI - ADP-fossil and Consumption of freshwater

[illegible]

> Waste Indicators

[illegible]

> Output Flow Indicators

[illegible]

● LCA Result

> LCIA Indicators

		Disclaimer	Product stage			Construction process stage		Use stage							End of life stage				Supple- info
								Use					Operation						
			A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP (Global warming potential) - total	kg-CO ₂ eq	-	-8.40E+02	1.90E+01	9.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP - fossil	kg-CO ₂ eq	-	4.15E+02	1.89E+01	3.66E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP - biogenic	kg-CO ₂ eq	-	-1.26E+03	5.27E-03	5.34E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP - luluc	kg-CO ₂ eq	-	6.00E-01	1.79E-02	3.70E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ODP: Ozone depletion potential	kg-CFC-11eq	-	8.23E-06	2.85E-10	8.14E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acidification	mol-H ⁺ eq	-	1.11E-01	9.49E-08	1.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eutrophication aquatic freshwater	kg-Peq	-	4.11E-01	2.49E-02	6.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eutrophication aquatic marine	kg-Neq	-	5.43E-03	1.66E-04	1.82E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eutrophication terrestrial	mol-Neq	-	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Photochemical ozone formation	kg-NMVOceq	-	7.28E-03	1.02E-07	1.45E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADP - minerals and metals	kg-Sbeq	2																	
ADP - fossil fuels	MJ, net calorific value	2																	
Water use	m ³ world eq deprived	2																	
Optional indicators																			
Particulate Matter emissions	Disease incidence	-																	
Ionizing radiation, humanhealth	kBq-U235eq	1																	
Ecotoxicity (freshwater)	CTUe	2																	
Human toxicity - cancer effects	CTUh	2																	
Human toxicity - non-cancereffects	CTUh	2																	
Land use related impacts/Soil quality	dimensionless	2																	

Disclaimer 1: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

*RPRE or PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw materials, RPRM or PERM: Use of renewable primary energy resources used as raw materials, NRPRE or PENRE: Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw materials, NRPRM or PENRM: Use of non-renewable primary energy resources used as raw materials

[illegible][illegible]

> Description of LCA Results

In the LCA calculation for this EPD, primary data was collected for the activity levels at manufacturing sites, but general secondary data was used for the LCI data multiplied by these activity levels. Additionally, scenarios were applied for some transportation distances. Therefore, the results are approximate values.

In the LCA calculation for this EPD, the -1/+1 approach was adopted for handling biogenic carbon in climate change, but please note that the numerical values of the biogenic lifecycle impact assessment results are calculation results based on the LCI data used (IDEA) and differ from the actual carbon content of timber.

Furthermore, LCA calculation results do not directly indicate the magnitude of environmental impacts, safety, or risk assessments.

The EPD holder bears all responsibility for the information stated in the EPD and environmental claims related to the information stated in the EPD. For any unclear points or confirmation matters regarding the EPD content, please contact the registered business operator.

EPDs may be updated or discontinued when circumstances change. To confirm the latest version and validity of EPDs, please check the following: <https://ecoleaf-label.jp/epd/>

EPD comparisons must be conducted with sufficient consideration of the functions of construction products, therefore it is necessary to consider the entire lifecycle of building materials in construction products and apply scenarios assuming equivalent applications in construction products. Please refer to the PCR used by this declaration for conditions to be considered when comparing EPDs.

This EPD is based on the declared unit, and comparisons must be made per functional unit.

● Additional Environmental Information

> Additional Environmental Information not related to LCA

—

> Information on Hazardous Substances

Hazardous materials name	CAS No.	Standards or regulations
—	—	—

Release of dangerous substances from construction products

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● Definitions of Terms

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● References

- ISO14025:2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- ISO14040:2006 Environmental management - Life Cycle Assessment - Principles and framework
- ISO14044:2006 Environmental management - Life Cycle Assessment - Requirements and guidelines
- ISO21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services

● Version History