Statement of Verification

BREG EN EPD No: 000743 Issue: 02

This is to verify that the Environmental Product Declaration provided by:

Confederation of Forest Industries (Confor)

is in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:
1m^3 of C16 graded Kiln Dried and planed timber with the final density of 460 kg/m^3 (moisture content of 18%) used as a structural timber

Company Address

Confederation of Forest Industries (UK) Ltd.
22 LG1 Forth Street,
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EH1 3LH.

TRUST UK C16 TIMBER

Confor
Promoting forestry and wood

Signed for BRE Global Limited	Hayley Thomson Operator	
17 February 2026 Date of this Issue	30 January 2026 Date of First Issue	29 January 2031 Expiry Date

BRE Global Verified EPD

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ECO PLATFORM EPD VERIFIED

Environmental Product Declaration

EPD Number: 000743

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE 2025 Product Category Rules (PN 514 Rev 3.2) for Type III environmental product declaration of construction products to EN 15804:2012+A2:2019
Commissioner of LCA study	**LCA consultant/Tool**
Confederation of Forest Industries (UK) Ltd. 22 LG1 Forth Street, Edinburgh, EH1 3LH	BRE LINA A2 Bala Subramanian/ Pat Hermon
Declared/Functional Unit	**Applicability/Coverage**
1m^3 of C16 graded Kiln Dried and planed timber with the final density of 460 kg/m^3 (moisture content of 18%) used as a structural timber	Sector Average.
EPD Type	**Background database**
Cradle to Gate with Modules C and D	Ecoinvent 3.8

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☒Internal ☐ External
(Where appropriate [b]) Third party EPD verifier: Francis Yu
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

Comparability
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance

Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Data for this EPD was provided through UK Timber development from the following sawmills:

BSW Timber Ltd,
Fort William Sawmill,
Corpach,
Fort William
PH33 7NH

James Jones & Sons Ltd,
Lockerbie Sawmill,
Stevens Croft,
Lockerbie
DG11 2SQ

BSW Timber Ltd,
Carlisle Sawmill
Cargo,
Carlisle,
CA6 4BA

Glennon Brothers (UK) Ltd,
Portland House,
Harbour Road,
Troon,
KA10 6DN

BSW Timber Ltd,
Kenmuir Sawmill,
Dalbeattie,
DG5 4PL

Construction Product:

Product Description

This Environmental Product Declaration (EPD) covers UK Home Grown and produced C16 kiln dried and planed sawn timber produced by BSW Timber Ltd., James Jones & Sons Ltd., and Glennon Brothers (UK) Ltd. The species included within this declaration are Spruce, Pine, Larch and Douglas Fir. The product intended use is as structural member (e.g. Joist, stud, rafter) in residential and industrial dwellings; however, it can be also used as non-structural components within these buildings or other applications. For the purpose of this EPD, it has been considered that the product is used as structural member. The declared unit is 1m^3 of C16 kiln dried and planed or machine sawn timber with a final moisture content of 18% and an average density of 460 kg/m^3 which is graded according to international standards (i.e. EN14081) to meet the structural grade C16 as defined by EN338.

Technical Information

Property	Value, Unit
Average density (at 18% moisture content)	460 kg/m^3

Main Product Contents

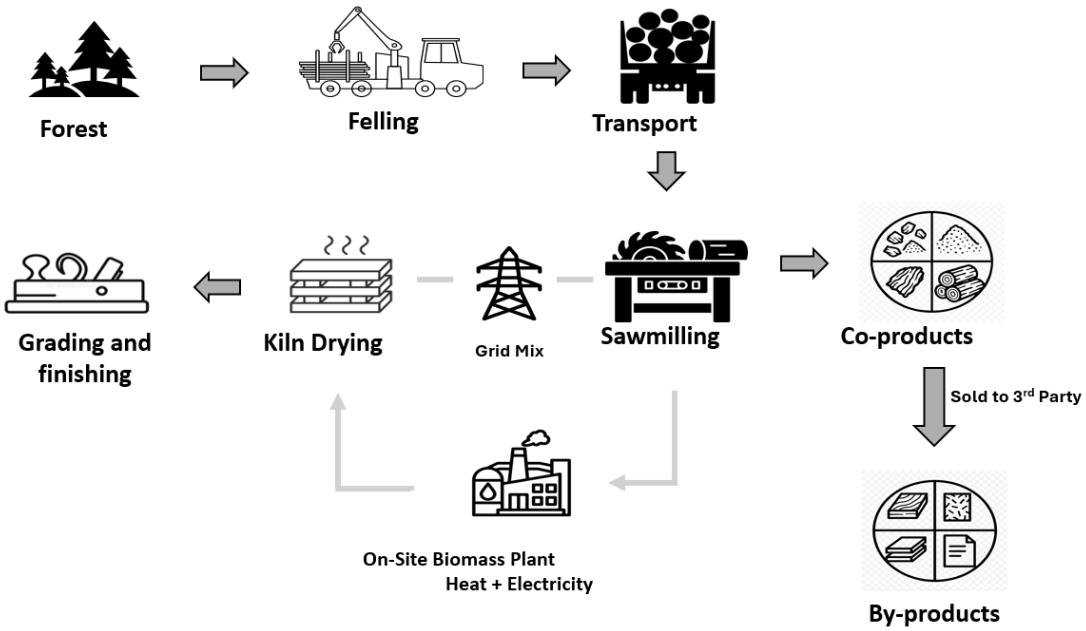
Material/Chemical Input	%
Raw sawn timber	100

Manufacturing Process

The process starts with soil preparation and planting of trees. The forest development is managed using sustainable forestry techniques which comply with approved chain of custody schemes (e.g. FSC, PEFC, Grown in Britain). Once the forest reaches maturity, designated areas are harvested, and trees are converted into logs. These harvested logs are transported to the sawmill which produces sawn timber products and a number of wood co-products such as woodchips, shavings, sawdust and bark. Co-products may be sold or used as fuel for on-site biomass energy. Sawn timber may be sold without kiln drying (green) or with air drying. This EPD covers kiln dried products, with the drying kilns fired by combinations of onsite biomass CHP plants and natural gas depending on the site. Once the kiln dry process is finished, natural timber features are structurally assessed using approved optical or mechanical methods. If all requirements are fulfilled, then timber can be labelled with the structural grade C16, otherwise pieces are rejected and

used for other applications. The successful C16 pieces are planed/machined to improve handling. The final kiln dried planed/machined sawn timber product is packaged for distribution.

Process flow diagram



End of Life

The timber is used in both structural and non-structural applications as part of the building fabric, taking the form of beams, joists, studs, or battens, and remains in place until the building reaches the end of its life. During building demolition, the timber can be removed. Timber is a natural product, making it biodegradable or suitable for end-of-life approaches such as retention, reuse, recycling and energy recovery, with disposal to landfill a last resort, thereby supporting the principles of the circular economy. It can be remanufactured for further use as solid timber or broken down into wood chips or sawdust and used in various applications, such as biomass energy (in the form of chips or pellets), reprocessed into wood-based products (chipboard), or used in horticultural applications. Timber used in the pallet and packaging industry already inherently follows these principles, with timber components going through multiple cycles of reuse and repair over their life.

Life Cycle Assessment Calculation Rules

Declared unit description

1m^3 of C16 graded Kiln Dried and planed timber with the final density of 460 kg/m^3 (moisture content of 18%) used as a structural timber

System boundary

This is a cradle-to-gate with Modules C and D LCA study that follows the modular approach defined in EN 15804:2012+A2:2019, BRE 2025 Product Category Rules (PN 514 Rev 3.2), and following the fundamentals of BS EN 16485. The datasets are derived from Ecoinvent v3.8 (2018), and the LCA tool used was BRE LINA A2. The LCA models and reports the production stage modules (A1 to A3) and end of life stages (C1-C4) and Module D.

Data sources, quality and allocation

Specific data has been collected from five sawmills and covers the UK wood supply of kiln dried wood. The quantities used in the modelling of this LCA represent market-based, weighted-average values of the total quantity of kiln-dried timber produced during the data collection period (01/01/23–31/12/23). The LCA analysis has been conducted for individual sawmills and weighted average results has been included in this EPD report.

Sawmills produce other co-products alongside kiln-dried timber; therefore, an allocation of fuel consumption, water consumption and discharge, and waste emissions was required. The allocation has been made based on the total production output of kiln-dried timber per m³ where applicable. Some sawmills have sub-meters to record the amount of energy and water used for the kiln-drying process, and these meter readings have been used where available. In addition, other sawmills provide quantities for electricity, water usage, transportation, ancillary materials, and packaging based on actual usage. The only exceptions are direct emissions to soil and air, which are not measured by some of the mills. Emissions to air have already been accounted for in the Ecoinvent 3.8 biomass boilers dataset. During the data review and entry process, it was noted that the production input is higher than the production output, resulting in a slight mass balance discrepancy for some of the sawmills. This is due to the kiln drying process, where it is difficult to accurately account for the final moisture content, leading to variations in the weight of the kiln-dried timber.

Many of the sawmills have their own biomass CHP plant, which is fuelled by wood residues from the sawn logs and produces heat and electricity and used for the kiln drying process. There is no timber waste, other residuals wastes are produced, such as boiler ash. All production waste is consumed on site to produce heat and electricity, and some residues, such as bark, chips, sawdust, shavings, etc., have been sold to external customers. Therefore, according to BRE PCR EN15804+A2, the sequestered carbon in the timber entering the sawmill will be allocated to the co-products based on their physical content of sequestered carbon using m^3 allocation.

The timber is sourced from forests and transported to sawmills using heavy trucks or sea transport for processing. Since all activities from extraction up to the arrival at the sawmills are directly related to the mass of the timber, m^3 allocation has been applied for modules A1 and A2. The impacts of the sawmilling process and the processing wastages are allocated to the co-products based on the economic value of the co-products sold. The amount of impact for each co-product is determined by calculating the total revenue stream from all co-products and then allocating it to each co-product based on its proportion of the revenue stream, in this case a value of 20% of manufacturing impacts was allocated to co-products.

Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e., raw material production) from the Ecoinvent 3.8 database. All Ecoinvent datasets are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN15804 A2.

ISO14044 guidance. **Quality Level**	**Geographical representativeness**	**Technical representativeness**	**Time representativeness**
Very Good	Data from area under study.	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e., identical technology).	Less than 3 years difference between the reference year according to the documentation, and the time period for which data are representative.

The data quality assessment presented above has been carried out in accordance with Table E.1 in the Annex section of the BRE PCR EN 15804+A2 V3.2. The specific United Kingdom datasets have been selected from the Ecoinvent LCI for this LCA. The quality level of geographical and technical representativeness is therefore very good. The quality level of time representativeness is very good as the background LCI datasets are based on Ecoinvent 3.8 which was compiled in 2021. Therefore, there is less than 5 years between the Ecoinvent LCI reference year and the time period for which the LCA was undertaken. Timber is cut down from forests; therefore, the sawlog and veneer log softwood dataset—measured as solid wood under bark—has been used for raw material extraction. There is no UK-specific or European dataset for timber extraction in Ecoinvent 3.8. As a result, the Switzerland (CH) country-specific dataset has been used as a proxy.

The background of the dataset begins with site preparation, assuming natural regeneration. It includes all processes related to forest management, such as clearing, tending, pruning, thinning, and harvesting operations, as well as the processing of wood fuel into chips, bundles, and chopped wood (logs for energy) over one rotation period. It also covers the maintenance of forest roads. Therefore, the dataset accounts for the energy used in wood extraction.

Most sawmills use their own on-site biomass boilers, which generate heat and electricity for the kiln-drying process. Timber co-products are typically used as the primary fuel for these biomass boilers. In addition to the energy generated on-site, sawmills also use electricity from the UK grid and Natural gas for processing activities. Location-based approach has been used for electricity in the LCA. The global warming potential (GWP) carbon footprint for using: 1 kWh UK electricity = 0.239 $kgCO_2e$/kWh (Electricity GB, market for electricity, medium voltage). This is the 2022 UK consumption mix electricity and GWP for using 1 kWh of Natural gas is 0.232 $kgCO_2e$/kWh. In contrast, some sawmills produce electricity and heat on-site through biomass cogeneration and has a carbon footprint: 0.010 $kgCO_2e$/kWh of heat and 0.058 $kgCO_2e$/kWh of electricity.

Note: the electricity dataset and the heat and power co-generation, wood chips datasets taken from Ecoinvent 3.8.

Moisture content calculation: The moisture content of both green and dried log products, can vary significantly between different products when harvested. For this LCA analysis, a wet density of 950 kg/m³ has been applied to the logs entering the sawmills to calculate the percentage of co-products from production. This figure was estimated by one of the sawmills, based on a representative sample of loads that were first weighed on the weighbridge and subsequently scanned as they passed through the mill.

The density and moisture content of the harvested forest products impacts the following: -

1. The impacts from the drying operations required during processing

2. The dry density of the logs directly determines the mass of carbon stored per unit volume of the product and resulting sequestration shown in GWP Biogenic.

Cut-off criteria

All raw materials and energy input to the manufacturing process have been included. The inventory process in this LCA includes all data related to raw material, packaging material and consumable items, and the associated transport to the manufacturing site. Process energy, water use, and general waste are included. Emissions to air have already been accounted for in the Ecoinvent 3.8 biomass boilers dataset. The only exceptions are direct emissions to water and soil are considered negligible. In addition, the estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	-7.04E+02	1.04E+01	-7.15E+02	4.34E-01	2.15E-06	5.36E-02	3.96E-03
	Transport	A2	1.56E+01	1.56E+01	1.35E-02	6.27E-03	3.60E-06	7.04E-02	1.02E-03
	Manufacturing	A3	1.23E+01	1.19E+01	3.62E-01	3.88E-02	2.73E-06	2.02E-01	2.51E-03
	Total	A1-3	-6.76E+02	3.79E+01	-7.15E+02	4.79E-01	8.49E-06	3.26E-01	7.50E-03
The UK scenario - 68% to Incineration for energy recovery, 32% to Recycling									
End of life	Deconstruction, demolition	C1	1.66E-01	1.66E-01	5.87E-05	1.66E-05	3.56E-08	1.73E-03	5.16E-06
	Transport	C2	8.27E-03	8.26E-03	7.04E-06	3.24E-06	1.91E-09	3.35E-05	5.32E-07
	Waste processing	C3	7.21E+02	5.82E+00	7.15E+02	4.35E-03	5.96E-07	1.62E-01	4.16E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.77E+02	-3.76E+02	-9.63E-01	-5.40E-01	-2.60E-05	-1.19E+00	-6.05E-02

GWP-total = Global warming potential, total;
GWP-fossil = Global warming potential, fossil;
GWP-biogenic = Global warming potential, biogenic;
GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;
AP = Acidification potential, accumulated exceedance; and
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			EP-marine	EP-terrestrial	POCP	ADP-mineral& metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m^3 world eq deprived	disease incidence
Product stage	Raw material supply	A1	2.07E-02	2.04E-01	1.51E-01	2.98E-05	1.45E+02	2.62E+00	4.95E-07
	Transport	A2	2.08E-02	2.27E-01	6.87E-02	5.69E-05	2.35E+02	1.07E+00	1.35E-06
	Manufacturing	A3	7.24E-02	9.32E-01	1.99E-01	5.10E-05	2.78E+02	-3.92E+00	3.48E-06
	Total	A1-3	1.14E-01	1.36E+00	4.18E-01	1.38E-04	6.59E+02	-2.30E-01	5.33E-06
The UK scenario - 68% to Incineration for energy recovery, 32% to Recycling									
End of life	Deconstruction, demolition	C1	7.66E-04	8.40E-03	2.31E-03	8.56E-08	2.29E+00	5.28E-03	4.63E-08
	Transport	C2	1.01E-05	1.10E-04	3.38E-05	2.87E-08	1.25E-01	5.61E-04	7.13E-10
	Waste processing	C3	7.86E-02	8.47E-01	2.22E-01	2.00E-05	7.20E+01	1.13E+01	1.27E-06
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.85E-01	-3.15E+00	-7.76E-01	-1.06E-03	-9.94E+03	-7.12E+01	-6.25E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
EP-terrestrial = Eutrophication potential, accumulated exceedance;
POCP = Formation potential of tropospheric ozone;
ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;
ADP-fossil = Depletion potential of the stratospheric ozone layer;
WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and
PM = Particulate matter.

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts							
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U^{235} eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	7.74E-01	1.43E+02	1.72E-08	3.46E-07	4.16E+04
	Transport	A2	1.22E+00	1.86E+02	6.37E-09	1.95E-07	1.61E+02
	Manufacturing	A3	4.01E+00	1.44E+03	2.09E-08	5.99E-07	2.56E+03
	Total	A1-A3	6.01E+00	1.77E+03	4.45E-08	1.14E-06	4.44E+04
The UK scenario - 68% to Incineration for energy recovery, 32% to Recycling							
End of life	Deconstruction, demolition	C1	1.03E-02	1.33E+00	5.17E-11	9.69E-10	2.91E-01
	Transport	C2	6.42E-04	9.75E-02	3.16E-12	1.02E-10	8.58E-02
	Waste processing	C3	8.47E-01	1.21E+02	1.50E-07	4.48E-07	1.81E+01
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.47E+02	-4.69E+03	-9.73E-08	-2.73E-06	-3.74E+03

IRP = Potential human exposure efficiency relative to U235;
ETP-fw = Potential comparative toxic unit for ecosystems;
HTP-c = Potential comparative toxic unit for humans;
HTP-nc = Potential comparative toxic unit for humans; and
SQP = Potential soil quality index.

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	3.75E+03	5.28E+03	9.01E+03	1.45E+02	0.00E+00	1.45E+02
	Transport	A2	3.38E+00	0.00E+00	3.38E+00	2.34E+02	0.00E+00	2.34E+02
	Manufacturing	A3	3.19E+02	6.46E+00	3.25E+02	2.51E+02	3.45E+01	2.86E+02
	Total	A1-A3	4.07E+03	5.29E+03	9.34E+03	6.30E+02	3.45E+01	6.64E+02
The UK scenario - 68% to Incineration for energy recovery, 32% to Recycling								
End of life	Deconstruction, demolition	C1	1.28E-02	0.00E+00	1.28E-02	2.24E+00	0.00E+00	2.24E+00
	Transport	C2	1.76E-03	0.00E+00	1.76E-03	1.22E-01	0.00E+00	1.22E-01
	Waste processing	C3	-6.39E+03	6.40E+03	1.43E+00	5.99E+01	0.00E+00	5.99E+01
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.33E+02	-1.46E+03	-1.80E+03	-9.93E+03	0.00E+00	-9.93E+03

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;
PERM = Use of renewable primary energy resources used as raw materials;
PERT = Total use of renewable primary energy resources;

PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
PENRM = Use of non-renewable primary energy resources used as raw materials;
PENRT = Total use of non-renewable primary energy resource

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	6.64E-02
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	2.66E-02
	Manufacturing	A3	7.48E-02	7.92E-05	0.00E+00	-7.31E-02
	Total	A1-A3	7.48E-02	7.92E-05	0.00E+00	1.99E-02
The UK scenario - 68% to Incineration for energy recovery, 32% to Recycling						
End of life	Deconstruction, demolition	C1	8.77E-04	0.00E+00	0.00E+00	1.30E-04
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.39E-05
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	2.67E-01
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-1.81E+00

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories and output flows – at end of life									
			HWD	NHWD	RWD	CRU	MFR	MER	EE
			kg	kg	kg	kg	kg	kg	MJ per energy carrier
Product stage	Raw material supply	A1	4.54E-01	4.04E+00	9.67E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	4.11E-01	7.30E+00	4.87E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	5.88E-01	9.56E+00	1.74E-03	0.00E+00	4.60E-03	3.14E-03	6.33E-02
	Total (A1-A3)	A1-3	1.45E+00	2.09E+01	4.87E+01	0.00E+00	4.60E-03	3.14E-03	6.33E-02
The UK scenario - 68% to Incineration for energy recovery, 32% to Recycling									
End of life	Deconstruction , demolition	C1	3.00E-03	2.11E-02	1.57E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.38E-04	2.44E-03	8.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	2.63E+00	4.66E+02	1.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.08E+01	-2.89E+02	-8.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	Unit	Quantity
Biogenic carbon (product)	kg C	1.95E+02
Biogenic carbon (packaging)	kg C	2.01E-01

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
C1 - Deconstruction	The timber is used in both structural and non-structural applications as part of the building fabric, taking the form of beams, joists, studs, or battens, and remains in place until the building reaches the end of its service life. Therefore, during building demolition, the timber can be removed using heavy machinery. According to Erlandsson et al. (2015), the energy required to deconstruct timber at the demolition site is 0.506 kWh/m³. The product is sold across the UK; therefore, the UK End of life scenario has been modelled. During the deconstruction of the timber, it is assumed that 100% of the wood will be recovered from the demolition site and it be sent to the waste processing facility.		
	Diesel	kWh	0.506
C2 – Transportation – the UK scenario	50km by road has been modelled for module C2 as a typical distance from the demolition site to the waste processing site. However, end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module C2 if required.		
	Road transportation- Lorry 16-32 tonne	km	50
	Litres per km	l/km	0.267
C3 – Waste processing – the UK scenario	According to the UK wood recycling association end of life scenario for the timber products, 32% will be recycled and 68% will be incinerated for energy recovery, according to BRE PCR EN15804+A2.		
	Wood waste to incineration – 68%	kg/m^3	312.8
	Wood waste to recycling – 32%	kg/m^3	147.2
C4- Disposal	100% of the waste timber will be recycled, incinerated, and reused at waste processing facility therefore no timber waste left to landfill		
Module D	In the assumed end-of-life scenario, 68% of waste wood will be incinerated in the UK, so the UK national grid electricity dataset has been selected. The dataset used to calculate the avoided impacts of electricity consumption in a future system was 'Electricity, medium voltage {UK} | market for | Alloc Def, U' and the dataset reference year is 2021. This process is energy-efficient, with 80% of the combustion heat recovered after incineration from the CHP boilers in the UK (Combined heat and power - GOV.UK (www.gov.uk). The efficiency rate has been calculated using reports from Ecoinvent 3.8. Therefore, by using the boiler efficiency and the calorific value of wood, a bespoke dataset has been created, and the incineration benefits have been calculated. It is assumed that there is a 100% yield during the recycling process and no post-consumer waste from the product, as it is made entirely from naturally sourced virgin wood. Therefore, the benefits have been calculated only for virgin products.		
	Benefits due to incineration of waste wood	kg/m^3	312.8
	Benefits due to recycling of waste wood	kg/m^3	147.2

Interpretation of results:

The majority of the environmental impacts are attributed to the extraction and processing of kiln-dried timber, as covered by information modules A1–A3 of EN 15804:2012+A2:2019. Generally, the timber is sourced from forests, and the most significant contributions to production-phase impacts arise from the upstream production of raw materials used in wood processing, the generation and supply of electricity, and the production and use of fuels on-site.

Module A1 (Extraction):
All forestry-related impacts are accounted for in this module. It includes all processes involved in producing the timber, such as growing and planting seedlings.

Module A2 (Transport):
This module covers the transportation of forest outputs to sawmills or manufacturing plants.
Module A3 (Processing):
This includes all processing impacts at the facility. For sawmills, this involves debarking and cutting logs, as well as drying. Hardwood drying may involve preliminary air-drying, whereas softwoods are typically kiln-dried. Sawmills and timber processing plants often use residues (e.g., bark, sawdust, offcuts) as fuel for kilns. Many also operate combined heat and power (CHP) plants to generate both electricity and heat.

Carbon Sequestration:
Carbon sequestration is reported in Module A1, as this is the point at which the biomass enters the technosphere. If the product stages are aggregated, the sequestration is reported within Modules A1–A3.

Global Warming Potential (GWP):
The GWP total is the sum of GWP fossil, GWP biogenic, and GWP land use and land-use change.

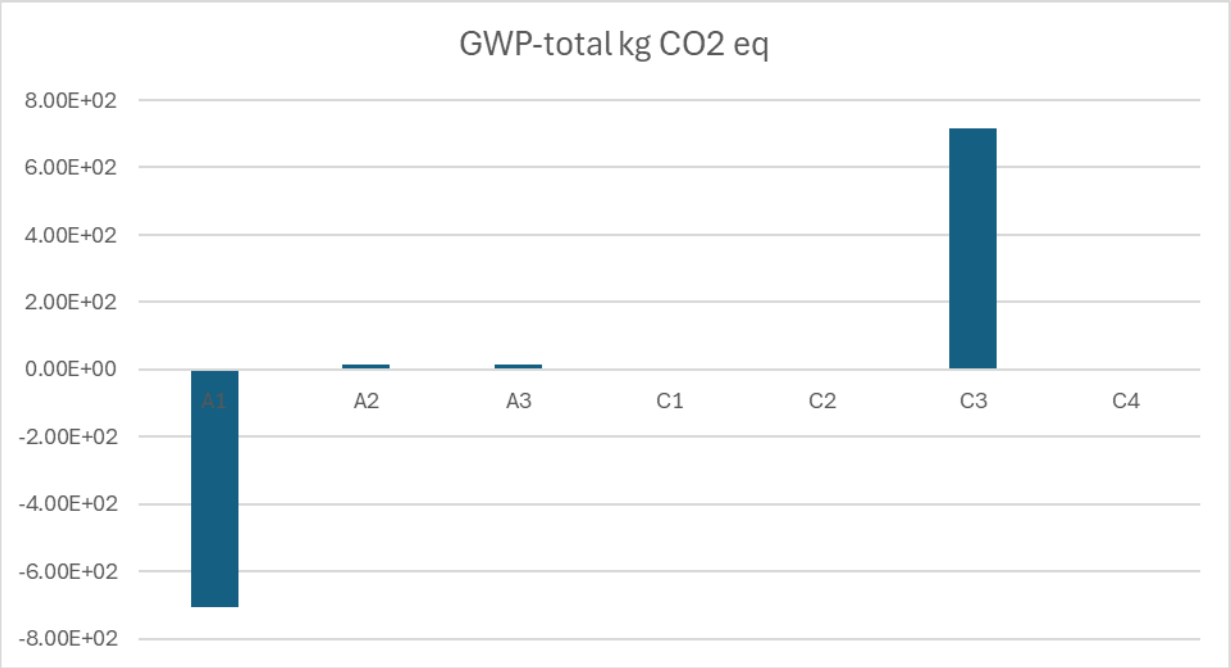
- GWP fossil accounts for greenhouse gas emissions from fossil fuel consumption, such as fuels used by sawmills during processing. However, since most sawmills utilize on-site biomass boilers for heat and electricity, reliance on grid electricity and natural gas is significantly reduced. As a result, the GWP fossil impact is relatively low—approximately 39.4 kg CO_2e/m^3.
- GWP biogenic reflects the carbon sequestered by the wood and is reported as a negative value (i.e., carbon removed from the atmosphere). Based on a density of 460 kg/m³ for kiln-dried timber (at 18% moisture content) with the dry mass calculated at 390kg/m^3, the amount of CO_2 sequestered in 1 m³ is calculated as:

  390kg (dry)/m^3 * 0.5kgC/kg(dry)*(44kgCO_2/12kgC) =715 kg CO_2/m^3

As per BRE PCR EN15804+A2, this is reported as –715 kg CO_2/m^3 under Module A1.

Variance
The LCA analysis has been conducted for the individual sawmills, there is up to 33% variance in GWP fossil (A1-A3) from the average result presented in this EPD.

End-of-Life Considerations:
Once the product leaves the factory gate, the sequestered carbon must continue to be tracked through subsequent modules. At end-of-life, the product is either recycled or incinerated. During these processes, the sequestered carbon is either transferred to another system or released back into the environment. As a result, a corresponding positive impact of +715.4 kg CO_2/m^3 is reported, representing the carbon release or transfer.



References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A2:2019. London, BSI, 2019.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework.
BS EN ISO 14040:2006. London, BSI, 2006.

BSI. Environmental management – Life cycle assessment – requirements and guidelines.
BS EN ISO 14044:2006. London, BSI, 2006.

EN 16485 (2014) EN 16485: Round and sawn timber. Environmental Product Declarations. Product category rules for wood and wood-based products for use in construction.