IMAGINED TIMBER

Program operator, publisher:	Rakennustietosäätiö RTS, The Building Information Foundation RTS Malminkatu 16 A 00100 Helsinki http://cer.rts.fi
Owner of the declaration:	Name of the company
Name of the product:	Imagined timber
Declaration number:	RTSEPD-20-1
Registration number:	RTSEPD-20-1
ECO Platform reference number:	
Issue date:	1.09.2020
Valid to:	26.08.2025
Scope of the declaration	This environmental product declaration covers the environmental impacts of Imagined Timber. The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020). This declaration covers the life cycle stages from cradle-to-gate

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Markku Hedman — Yliasiamies

Verified according to the requirements of EN 15804:2019 (product group rules)

Independent verification of the declaration and data, according to ISO14025:2010 is

☐ Internal	☒ External

Third party verifier:

25.8.2020

< Name of the third party verifier >

YLEISTÄ TIETOA, SELOSTEEN TAVOITE JA TODENNUS (Standardi kohta 7.1)

1. Owner of the declaration, manufacturer

Yritys Oy
Yritystie 1
00100 Helsinki
Etunimi Sukunimi
etunimi.sukunimi@yritys.fi

2. Product name and number

Imagined timber

3. Place of production

Produced in Finland: Haapajärvi, Heinola, Kainuu, Lahti, Savonlinna

4. Additional information

Additional Information from Firstname Lastname.

5. Product Category Rules and the scope of the declaration

The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020)

6. Author of the life-cycle assessment and declaration

Engineer Oy, EPDkatu 4 D 00100 Helsinki, tel +358
(0)20 123 456, www.insinööritoimisto.fi. Compiler Kaisa Engineer.
Evaluation made according to values in 2019.

7. Verification

The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020). The declaration was verified by Insinööritsto Environment Oy, DI Liisa Ympäristö according to abovementioned standards and PCR rules Ympäristökatu 2, FI-33100 Tampere, +358 456 123, www.environment.com.
Third party verification on 26.8.2020. Verification is valid 26.8.2020-25.8.2025.

8. Declaration issue date and validity

Declaration issue date 1.9.2020. The declaration is valid 5 years, 26.8.2020-25.8.2025.

TUOTTEEN TIEDOT

9. Product description

The declaration is made for sawn timber, which is manufactured in several different locations. Pine is used as a raw material. The life cycle assessment of the group's products do not differ by more than ±10%.

10. Results of environmental information reported per kilogram*

Tietosisältö	Yksikkö	A1-A3	A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 ekv/kg	-1,38E+00		1,14E-03	8,99E-03	1,53E+00	0,00E+00	-4,59E-01
Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	kg Sb eq./kg	1,02E-07		3,05E-10	1,16E-08	0,00E+00	0,00E+00	-2,25E-08
Abiotic depletion for fossil resources potential (ADP-fossil)	MJ. Net calorific value/kg	2,52E+00		1,62E-02	1,41E-01	0,00E+00	0,00E+00	-6,26E+00
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	M3world eq. deprived/kg	2,11E-05		2,11E-04	2,11E-05	2,11E-06	2,11E-07	-2,11E-04
Biogenic carbon content in product	kg C/kg		0,377					
Use of secondary material	kg/kg	0						

' Compulsory table

11. Description of product and its use (It is possible to attach a conversion factor table)

Pine wood to be sawn at the site. Width of sawn timber 100 – 450 mm, sawn thickness 15–55 mm, sawn length 100-8000 mm.

12. Product standards (c-PCR)

c-PCR is not used in the calculations.

13. Physical properties

Sawn timber Thickness [t] ≥ 22 mm, Fire class D-s2, d0

14. Raw-materials of the product and product information (used in production)

Compulsory: material, quantity, origin

Product structure / composition / raw-material	quantity p%*	Usability			Origin of the raw materials
		Renewable	Non-renewable	Recycled	
Pine, certified (PEFC, confirmed)	100	x			Finland

*Order of magnitude, not exact composition

Product main composition, at least metals, stone materials, fossil materials, bio-based materials

Product structure / composition / raw-material	quantity p%*	Origin of the raw materials
Metals	0	
Stone-based materials (minerals)	0	
Fossil materials	0	
Bio-based materials	100	Suomi

*Order of magnitude, not exact composition

15. Substances under European Chemicals Agency's REACH, SVHC restrictions

http://echa.europa.eu/web/guest/candidate-list-table ,compulsory CAS-number

Name	EC Number	CAS Number
Does not include	-	-

SCOPE OF LIFE CYCLE ASSESMENT (Standard 7.2.1-2)

Mark all the covered modules of the EPD with X. Mandatory modules are marked with blue in the table below. This declaration covers "cradle-to-gate with options". Please fulfil relevant stages "R" (relevant) and non-relevant stages "NR".

Product stage			Construction process stage		Use stage							End of life stage				Supplementary information beyond the life cycle		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
☒	☒	☒	NR	NR	☐	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒
Raw material supply	Transport	Manufacturing	Transport	Construction-instsallation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Mandatory modules
Mandatory as per the RTS PCR section 6.2.1 rules and terms
Optional modules based on scenarios

16. Functional / declared unit

Indicators are reported per 1m$^{3.}$ The average density of dried sawn timber produced from the pine is 475 kg/m^3. Dryed to 18 % moisture.

17. System boundary

This EPD covers the following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing). The construction stage does not include module A4 (Transport to the site). In addition, in the end of life stage is included information from C1- C4 and beyond the life cycle information from D module.

18. Cut-off criteria

For the purpose of the review, data for A1-A4 and C and additional information on scenarios in Module D have been collected. Modules A1 to A3 include all the raw materials used, energy production (electricity, heat and fuels), including primary production and processing of raw materials and fuels, transport and final disposal or processing of products. All material and energy inputs have been taken into account in the procurement of wood raw material, including both thinning and final felling and the transport of timber along the forest road. In addition, the water load in forest management has been taken into account. It is only transported for short distances. Goods sawn with a mobile sawn saw are used at the cutting site, which means that the transport to the place of use does not give rise to any significant (<1%)

environmental impacts, so part A4 data are not presented. The production of production equipment and means of transport, as well as the machinery, equipment and premises (production goods) needed for production and in production are excluded from the scope of the assessment, as are the commuting of workers. The calculation of Module D is based on a comparison with the average emissions of district heat at the time of calculation in Finland.

19. Production process

The following stages of production have been taken into account during the production phase of dried pine sawn timber: sorting and peeling logs, sawing, drying, sorting and packaging. Sawn timber is cut to predetermined dimensions at the site.

SCOPE OF THE LIFE-CYCLE ASSESSMENT (Standard 7.2.3–7.2.4)

20. Environmental impacts (7.2.3, table 3) (possible to include modules A5, B1-B7. Unit (expressed per declared unit) The results of the impact assessment are relative. They do not predict the effects on the weighted values of the categories, the exceedance limits, safety margins and risks. The unit is expressed per functional or declared unit (e.g. kg/kg). Environmental impact data for A4 and C2 shall be reported per kilometer.

Indicators	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 ekv	-6,56E+02	5,40E-01	4,27E+00	7,28E+02	0,00E+00	-2,18E+02
Global Warming Potential fossil fuels (GWP-fossil)	kg CO2 ekv	7,25E+01	5,40E-01	4,27E+00	0,00E+00	0,00E+00	-2,18E+02
Global Warming Potential biogenic (GWP-biogenic)	kg CO2 ekv	-7,28E+02	0,00E+00	0,00E+00	7,28E+02	0,00E+00	0,00E+00
Global Warming Potential land use and land use change (GWP-luluc)	kg CO2 ekv	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 ekv	1,22E-05	9,44E-08	8,10E-07	0,00E+00	0,00E+00	-1,13E-05
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eqv	4,20E-01	4,00E-03	1,42E-02	0,00E+00	0,00E+00	-1,46E+00
Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater)	kg PO4-ekv	1,00E-01	9,00E-04	3,10E-03	0,00E+00	0,00E+00	-2,20E-01
Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine)	kg N ekv.	1,00E-01	9,00E-05	3,10E-04	0,00E+00	0,00E+00	-2,20E-02
Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	mol N ekv.	1,00E-01	9,00E-06	3,10E-05	0,00E+00	0,00E+00	-2,20E-03
Formation potential of tropospheric ozone (POCP)	kg NMVOC eq.	3,00E-02	1,00E-04	7,00E-04	0,00E+00	0,00E+00	-6,73E-02
Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	kg Sb eq.	4,85E-05	1,45E-07	5,51E-06	0,00E+00	0,00E+00	-1,07E-05
Abiotic depletion for fossil resources potential (ADP-fossil)	MJ. Net calorific value	1,20E+03	7,70E+00	6,69E+01	0,00E+00	0,00E+00	-2,98E+03
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	M3world eq. deprived	1,00E-02	1,00E-01	1,00E-02	1,00E-03	1,00E-04	-1,00E-01

21. Standard 7.2.3.2 Additional environmental impact indicators (voluntary information). Possible to include modules A5, B1-B7. Unit (expressed per declared unit).

Indicator	Unit	A1-A3	A1	A2	A3	C1	C2	C3	C4	D
Potential incidence of disease due to PM emissions (PM)	Incidence of disease	1,01E-08	6,46E-09	9,63E-10	2,68E-09	0,00E+00	4,46E-11	1,05E-09	2,89E-12	-6,37E-10
Potential Human exposure efficiency relative to U235 (IRP)	kBq U235 eq.	1,20E-02	1,06E-02	9,00E-04	5,57E-04	0,00E+00	4,19E-05	1,15E-03	2,26E-06	-3,30E-03
Potential Comparative Toxic Unit for ecosystems (ETP-fw)	CTUh	2,00E-02	1,11E-02	6,86E-03	2,08E-03	0,00E+00	3,18E-04	8,75E-03	2,21E-05	-1,22E-02
Potential Comparative Toxic Unit for humans (HTP-c)	CTUh	5,50E-11	4,56E-11	3,92E-12	5,54E-12	0,00E+00	1,81E-13	2,20E-11	1,85E-14	-5,57E-11
Potential Comparative Toxic Unit for humans (HTP-nc)	CTUh	4,24E-09	3,55E-09	2,24E-10	9,18E-10	0,00E+00	1,27E-11	1,82E-09	1,75E-12	-2,32E-08
Potential soil quality index (SQP)	Dimensionless	3,34E-01	3,19E-02	2,04E-01	7,69E-03	0,00E+00	9,45E-03	1,17E-01	6,82E-04	-1,02E-01

22. Standard 7.2.4 Use of natural resources. Possible to include modules A5, B1-B7. Unit (expressed per declared unit).

Use of natural resources	Unit	A1-A3	A1	A2	A3	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	1,33E+04	1,33E+04	5,30E+00	-3,01E+01	6,00E-02	9,80E-01	0,00E+00	0,00E+00	-3,15E+03
Renewable primary energy resources used as raw materials	MJ	6,60E+03	6,60E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,66E+02
Total use of renewable primary energy resources	MJ	**1,99E+04**	**1,99E+04**	**5,30E+00**	**-3,01E+01**	**6,00E-02**	**9,80E-01**	**0,00E+00**	**0,00E+00**	**-3,32E+03**
Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials	MJ	1,63E+03	1,38E+03	2,57E+02	-6,80E+00	7,80E+00	6,82E+01	0,00E+00	0,00E+00	0,00E+00
Nonrenewable primary energy resources used as raw materials	MJ	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
Total use of non renewable primary energy resources	MJ	**1,63E+03**	**1,38E+03**	**2,57E+02**	**-6,80E+00**	**7,80E+00**	**6,82E+01**	**0,00E+00**	**0,00E+00**	**0,00E+00**
Use of renewable secondary fuels	MJ	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
Use of non-renewable secondary fuels	MJ	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
Net use of fresh water (7.2.3)	m3	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
Use of secondary material	kg	3,60E+00								

OTHER INDICATORS (Standard 7.2.5)

23. Biogenic carbon content table 9, 7.2.5 Unit (expressed per declared unit).

Biogenic carbon content	Unit	A3
Biogenic carbon content in product	kg C	179,3
Biogenic carbon content in packaging	kg	0

24. End of life - Waste Possible to include modules A5, B1-B7. Unit (expressed per declared unit).

Waste categories	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	4,00E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non hazardous waste disposed	kg	4,27E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

25. Other environmental indicators. Possible to include modules A4, A5, B1-B7. Unit (expressed per declared unit).

Other environmental indicators	Unit	A1-A3	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,00E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,37E+01
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy (heat)	MJ/energy source	4,00E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3 152E+00

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION (Standard 7.3)

26. Energy in the manufacturing phase (Standard 7.3. A3)

Parameter	Quantity	Data quality
A3 Electricity information and CO_2 emission kg CO_2 ekv. /kWh	**223**	Electricity emissions have been calculated on the basis of the average distribution of production for five years (2015-2019) based on Statistics Finland's data on Finnish electricity production including imports.

27. Additional technical information, transport to the building site (Standard 7.3.2, A4)

Parameter	Quantity	Data quality
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat etc. Litre of fuel type per distance or vehicle type, Commission Directive 2007/37/EC (European Emission Standard)	-	
Distance (average distance of the transportation) km	-	
Capacity utilisation % (including empty returns)	-	
Bulk density of transproted products kg/m3	-	
Volume capacity utilisation factor (factor = 1 or <1 tai ≥ 1 for compressed or nested packaged products)	-	

28. End-of-life process description (7.3.4), module C

Process flow	Unit (expressed per functional unit or per declared unit of components products or materials and by type of material)	**Value kg/kg** **Data quality**
Collection process specified by type	kg collected separately	1

	kg collected with mixed construction waste	-
Recovery system specified by type	kg for re-use	-
	kg for recycling	-
	kg for energy recovery	1
Disposal specified by type	kg product or material for final deposition	-
Assumptions for scenario development, e.g. transportation	units as appropriate	

*These values are based on current estimation on end-of-life processes

29. Other technical information

Technical information	N/mm^2
Compressive strength in the direction of cause	50
Compressive strength in the direction of cause perpendicular to the	7,0
Tensile strength in the direction of cause	95
Bending strength	91
Modulus module	10900
Shear	9,1
Density	475 kg/m^3

30. Additional information (Standard 7.4)

Emissions to soil

The information is not available

Emissions to water

The information is not available

Emissions to indoor air

The product has emission class M1

31. Product information :

Pine wood timber
ST-quality timber is used as structural timber in visible non-load-bearing structures.
Humidity 18%, special drying according to use,
Density Approx. 475 kg/m$^{at\ 3}$ / 18% moisture
Surface Sawing
Most common widths 100 / 125 / 150 / 175 / 200 / 225 mm
Most common thicknesses 19/ 25/ 25/ 32/ 28/ 44/ 47/ 50/ 75 mm
Extra thicknesses up to 100 mm
Lengths 2,100–5,400 mm, customer-specific lengths

32. Reference of the common information

The Building Information Foundation RTS (RTS EPD Product Category Rules). Rakennustietosäätiö RTS sr (RTS EPD PCR menetelmäohje 15804:2019)
ISO 14025
ISO 14025:2011-10 Environmental labels and declarations. Type III environmental declarations. Principles and procedures
EN 15804
EN15804:2019 Sustainability of construction works. Environmental Product Declarations. Core rules for the product category of construction products

33. Product information (volunteer, verified information)