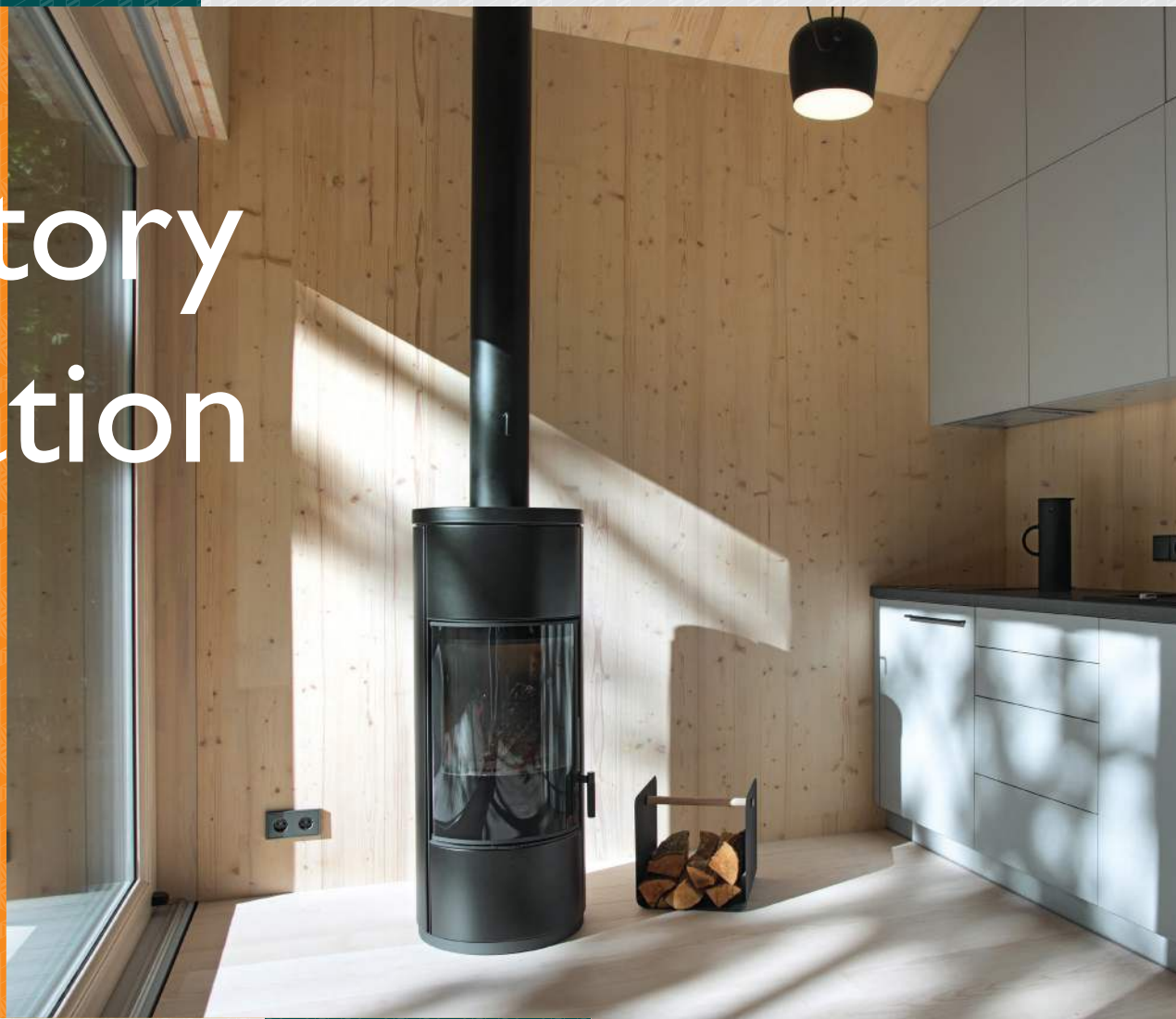


SIA CLT Factory EPD Declaration

in conformity with
EN 15804+A2 Standard



Manufacturer's information

- SIA CLTFACTORY
- LV40203318226
- Darba Street 1 - 17, Talsi, Talsi District, Latvia

Product information

- KLIK-KLIK
- factory address: "Dižroceži", Roceži, Laidze Parish, Talsi District, LV-3280, Latvia

EPD information

EPD Standard – EN15804+A2 un ISO 14025

EPD developer – Ēriks Meinarts

EPD verification – internal in conformity with ISO 14025 standard requirements

EPD testing – Kārlis Dzelzītis

Product description

The **KLIK -KLIK** system is a modular CLT panel system, which is intended for construction of one-storey building structures, providing structurally necessary and load-bearing and connection loads. Panels are made from **ARCWOOD** 5 layer, 100 mm CLT material products whose production process is determined in conformity with EPD requirements.

Product standards

the **KLIK-KLIK** system are made from **ARCWOOD** products which conform to:

- EN14080
- EN15425
- EN338
- EN1995-1-1
- FSC standard requirements

Product dimensions

- panel density: 100 mm
- no. of panel layers: 5 units
- panel width up to 600 mm
- panel height up to 2900mm
- panel layer density: 20mm
- moisture contents in panels: 12+-2 %
- moisture contents in connecting wedges up to 12 %



Product production cycle

Semi-finished product production and supply in a processing plant (A1-A2)

Outsourced service EPD calculation made for the delivery of blanks at a distance of 300 km according to the outsourcer's declaration

Product development A3

The development cycle includes the production of parts in the factory, integration of processing surpluses for the provision of transport materials and the recycling of by-products into thermal energy

Product supply and assembly A4-A5

Transport estimates for delivery to the site factor in transport gas emissions, gas emissions that occur in the fuel production process, as well as emissions that are generated in infrastructure construction. It is planned to use a truck with fossil fuel for delivery. Installation calculations include the re-use use of materials that were formed as surplus during the product development cycle.

Product usage and maintenance BI-B7

Not included in these calculations

Final processing (C1-C4,D)

When dismantling the product, 70% of the materials can be sorted as energy lumber and 30% as mixed construction waste. 97% of the sorted wood is intended to be used by the nearest energy generation company, while it is planned that 3% of the sorted wood and 30% of the mixed building materials will be deposited at the nearest waste recycling centre, without being used in energy production.



Production cycle

Product :

KLIK  **KLIK PANEL**

The period of information included in the production cycle is 2021

Basic production cycle units

- product measuring unit 1 m³
- product density 460 kg/m³
- amount of molecularly attributable carbon 229 kg/m³
- amount of molecularly attributable carbon for packaging 0

Stages examined during the production cycle

- semi-finished product production and supply (A1-A2) A1 - A2
- product manufacturing A3
- supply and assembly A4 - A5
- recycling and energy usage C1 - C4, D

B – usage cycle not included in these calculations.

Explanations of development cycle calculations

- The values included in the A1-A2 module are based on the **ARCWOOD** EPD declaration and the specified delivery distance of 300 km;
- The amount of energy consumed in A3 is determined for the production of 1 m³ relative **KLIK-KLIK** panel - the referred to value is variable based on the specification of each order, but not exceeding the limit of 10%.
- A2/A4/C2 transport emissions are determined based on the delivery of a full load, not including the return trip for empty transport. The assumption is based on the use of a standard transport solution.
- In the A5 module, the amount of energy is set at 8 MJ, for each m³ of **KLIK-KLIK** panels, metal fasteners 3 kg.
- In module C1, it is anticipated that energy consumption for dismantling will be 38 MJ, for each m³ of **KLIK-KLIK** panels, assuming that the panels are dismantled in full.
- In the C2 module, an identical amount of material is provided for processing, without taking into account the climatic effects that could affect the geometry and moisture of the structure. The recycling distance is assumed to be 200 km.
- In the C3 module, the use of 97% of the sorted fraction as energy lumber is provided

Basic values included in cycle calculations

Electricity generation CO₂ emission equivalent CO₂e/kwh 0.56 kg
(based on the average value according to Latvenergo in 2021)

Transport calculation basic values

- CO₂e emission equivalent CO₂e/km 0.0901 kg
- average delivery distance 1300 km
- performance efficiency 100 %
- transport weight 465 kg/m³

B – the duty cycle is not included in these calculations

Recycling calculation basic values

- sorted mass volume per 1m³ of product 325 kg
- total construction debris 139 kg
- recyclable amount 161 kg
- energy lumber 154 kg
- deposited amount 149 kg



Basic calculation in accordance with EU 15804+A2

Category	Unit	A12	A3	a123	a4	a5	C1	C2	C3	C4	D
GWP - total	kg CO ₂ e	-5.49E+02	-6.17E+01	-6.10E+02	5.42E+01	6.06E+00	3.86E+00	2.07E+01	8.25E+02	5.55E+01	-4.34E+02
GWP - fossil	kg CO ₂ e	2.12E+02	2.19E+01	2.33E+02	5.46E+01	6.02E+00	3.86E+00	2.07E+01	2.68E+00	5.55E+01	-2.31E+02
GWP - biogenic	kg CO ₂ e	-7.82E+02	-8.60E+01	-8.68E+02	3.96E-02	3.33E-02	1.05E-03	1.13E-02	8.47E+02	3.20E-03	-2.84E+02
GWP - LULUC	kg CO ₂ e	2.19E+01	2.41E+00	2.43E+01	1.65E-02	3.52E-03	3.18E-04	7.55E-03	6.04E+01	1.28E-03	6.03E+01
Ozone depletion pot.	kg CFC-11e	2.43E-05	2.34E-06	2.66E-05	1.28E-05	3.98E-07	7.36E-07	4.70E-06	2.54E-07	5.54E-07	-2.00E-05
Acidification potential	mol H ⁺ e	1.35E+00	1.43E-01	1.50E+00	2.30E-01	3.64E-02	3.57E-02	8.46E-02	1.68E-02	3.83E-02	-4.40E-01
EP-freshwater	kg Pe	1.07E-02	1.17E-03	1.19E-02	4.43E-04	1.84E-04	1.52E-05	1.57E-04	3.08E-04	7.94E-05	-1.34E-03
EP-marine	kg Ne	3.50E-01	3.67E-02	3.87E-01	6.90E-02	8.32E-03	1.74E-02	2.28E-02	2.19E-03	1.65E-02	-9.41E-02
EP-terrestrial	mol Ne	3.85E+00	4.04E-01	4.25E+00	7.63E-01	9.31E-02	1.72E-01	2.78E-01	2.42E-02	1.67E-01	-1.17E+00
POCP ("smog")	kg NMVOCe	1.15E+00	1.20E-01	1.27E+00	2.46E-01	2.84E-02	4.75E-02	8.50E-02	6.31E-03	4.23E-02	-4.20E-01
ADP-minerals & metals	kg Sbe	2.65E-03	2.67E-04	2.91E-03	9.32E-04	1.51E-04	5.73E-06	5.08E-04	1.14E-05	6.63E-05	-3.64E-04
ADP-fossil resources	MJ	3.37E+03	3.49E+02	3.71E+03	8.49E+02	5.92E+01	5.17E+01	2.83E+02	5.96E+01	4.07E+01	-4.01E+03
Water use	m ³ e depr.	4.64E+01	5.03E+00	5.15E+01	3.16E+00	5.01E+00	8.75E-02	1.01E+02	6.76E-01	4.68E+00	-1.25E+01

Resources used

Category	Unit	A12	A3	a123	a4	a5	C1	C2	C3	C4	D
Renew. PER as energy	MJ	4.95E+03	5.45E+02	5.50E+03	1.07E+01	1.23E+01	2.87E-01	4.41E+00	-9.10E+00	-1.25E+00	-1.03E+03
Renew. PER material	MJ	1.10E+04	1.21E+03	1.22E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.30E+03	-3.80E+03	-7.30E+03
Total use of renew. PER	MJ	1.59E+04	1.75E+03	1.77E+04	1.07E+01	1.23E+01	2.80E-01	4.53E+00	-8.05E+03	-3.46E+03	-6.45E+03
Non-re. PER as energy	MJ	3.19E+03	3.29E+02	3.51E+03	8.49E+02	5.92E+01	5.17E+01	3.21E+02	5.96E+01	-4.07E+01	-4.01E+01
Non-re. PER as material	MJ	1.78E+02	1.96E+01	1.98E+02	0.00E+00	-1.53E+01	0.00E+00	0.00E+00	0.00E+00	-1.13E+02	0.00E+00
Total use of non-re. PER	MJ	3.37E+03	3.49E+02	3.71E+03	8.49E+02	4.38E+01	4.69E+01	3.12E+02	6.13E+01	-1.59E+02	-3.64E+01
Secondary materials	kg	5.81E-02	6.39E-03	6.45E-02	0.00E+00	1.64E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renew. 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	0.00E+00
Non-ren. secondary fuels	MJ	6.19E+01	6.81E+00	6.87E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	6.23E-01	5.91E-02	6.82E-01	3.73E-01	2.29E-02	0.00E+00	5.34E-02	1.70E-02	1.85E-01	1.02E+00

Recycled resources

Category	Unit	A12	A3	a123	a4	a5	C1	C2	C3	C4	D
Hazardous waste	kg	8.62E+00	9.27E-01	9.55E+00	8.25E-01	4.36E+00	5.72E-02	3.16E-01	0.00E+00	3.87E+00	-1.15E+00
Non-hazardous waste	kg	3.08E+02	3.16E+01	3.40E+02	9.13E+01	1.02E+01	6.12E-01	2.18E+01	0.00E+00	1.56E+02	1.18E+02
Radioactive waste	kg	1.55E-02	1.56E-03	1.71E-02	5.82E-03	1.75E-04	3.62E-04	2.20E-03	0.00E+00	1.68E-04	-1.26E-03

Parallel recycling flows

Category	Unit	A12	A3	a123	a4	a5	C1	C2	C3	C4	D
Components for re-use	kg	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
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E+02	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E+02	0.00E+00	0.00E+00
Exported energy	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	0.00E+00

Resource consumption per 1 kg of product

Category	Unit	A12	A3	a123	a4	a5	C1	C2	C3	C4	D
Components for re-use	kg	-1.19E+00	-1.34E+02	-1.33E+00	1.19E-01	1.32E-02	8.40E-03	4.50E-02	1.79E+00	1.21E-01	-9.44E-01
Materials for recycling	kg	5.75E-06	5.81E-07	6.33E-06	2.02E-06	3.28E-07	1.29E-08	1.22E-06	2.25E-08	1.59E-07	-7.18E-07
Materials for energy rec	kg	7.32E+00	7.58E-01	8.07E+00	1.85E+00	1.29E-01	1.12E-01	6.97E-01	1.30E-01	8.85E-02	-8.70E+00
Exported energy	MJ	1.01E-01	1.09E-02	1.12E-01	6.86E-03	1.09E-02	2.10E-04	2.24E-03	1.62E-03	9.22E-03	-3.01E-02
Non-re. PER as material	MJ	1.26E-04	1.39E-05	1.40E-04	0.00E+00	3.56E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00