SHR

ENVIRONMENTAL PRODUCT DECLARATION

10 oktober 2024

STEICOjoist

Average product

client

STEICO

STEICO SE
Otto-Lilienthal-Ring 30
85622 Feldkirchen

Goal and Scope

Norm:	EN 15804:2012+A2:2019 and ISO 14025
PCR:	Assessment Method for Construction Works version 1.1
Scope:	Modules A1-A5, B1-B5, C1-C4 and D
Practitioner:	Ir. A.M. Kloppenburg (SHR)
Report:	SHR-report 23.0053
Verification:	External, F. van der Burgh (Agrodome B.V.)
Product:	STEICOjoist
Functional unit:	1 m^1 I-joist average product (equal to 0,0065 m^3 product)
Lifespan:	75 years
Composition:	89,1% wood or engineered wood products (LVL, Hardboard, wood and OSB), 10% water and 0,9% glue
Goal:	Inform the customers of Steico about the environmental impact of the products, raise awareness within the company about the impact of the different raw materials and production steps.
Validity:	10 October 2024 – 10 October 2029
Hazardous substances, REACH:	The product does not contain any REACH SVHC substances in amounts exceeding 0,1 % (1000 ppm).
Software en databases:	SimaPro version 9.5, EcoInvent 3.6 and NMD processdatabase version 3.7
General:	EPD’s of construction products may not be comparable if not following the EN 15804 + A2. The manufacturer are the sole owner and have liability and responsibility for the EPD.

LIFECYCLE INVENTORY

STEICOjoist is a construction product for roofs, floors and walls. The base products of Steicojoist are either LVL or wood for the flanges and hardboard or OSB for the web. The Steicojoist is made by glueing together the web and the flanges whereafter these are packed and shipped to the customers. The average product as used in the calculation has an hight of 268 mm and a flange width of 60 mm. The majority of the products are of LVL and Hardboard (>90%)

Technical properties	
Height	From 160 – 400 mm
Reaction to fire	D-s2, d0
Width	From 45 – 90 mm
Web thickness	8 mm
Flange thickness	27 - 45 mm
Density (depending on product)	619,5 kg/m^3
Strength properties	According to ETA-20/0995 of 2021/02/24

In modules A1-A3 the extraction of the raw materials, transport to the production site, packaging material and the production is considered. The possible waste streams and byproducts from production are also considered. In modules A4 and A5 are transport to the building site (from production location to Utrecht in the Netherlands) considered and manual installation at the building site. The processing of packaging material is also considered. The modules B1-B5 are empty, there is no maintenance or replacement. In module C1-C4 demolition by hand and the end – of life scenario is considered were incineration after use is assumed. Likely recycling will be present in the future but at this moment no data on recycling is available. In module D the loads and benefits beyond system boundary are considered.

There is 1.7 kg biogenic carbon stored in the product there is therefore 6.3 kg carbon dioxide captured. In the packaging 0.02 kg biogenic carbon is stored thus 0.06 kg carbon dioxide is captured.

LIFECYCLE ANALYSIS AND INTERPRETATION

1 m^1 STEICOjoist characterized effectscores

(Modules B1-B5 and C1 are zero as there is no maintenance or repair and the demolition takes place by hand)

EFFECTCATEGORY	UNIT	A1 – A3	A4	A5	B1 – B5	C1	C2	C3	C4	D
051. Climate change	kg CO2 eq	-2,6E+00	6,0E-01	1,0E-01	0,0E+00	0,0E+00	8,2E-02	7,3E+00	0,0E+00	-9,5E-01
052. Climate change - Fossil	kg CO2 eq	3,7E+00	6,0E-01	6,9E-03	0,0E+00	0,0E+00	8,2E-02	1,1E+00	0,0E+00	-9,5E-01
053. Climate change - Biogenic	kg CO2 eq	-6,3E+00	3,2E-04	9,5E-02	0,0E+00	0,0E+00	3,8E-05	6,2E+00	0,0E+00	-1,4E-04
054. Climate change - Land use and LU ch	kg CO2 eq	1,3E-02	2,1E-04	-4,3E-05	0,0E+00	0,0E+00	3,0E-05	1,0E-05	0,0E+00	-3,3E-03
055. Ozone depletion	kg CFC11 eq	1,7E-07	1,4E-07	-2,3E-09	0,0E+00	0,0E+00	1,8E-08	5,0E-09	0,0E+00	-1,7E-07
056. Acidification	mol H+ eq	2,7E-02	2,4E-03	-1,0E-04	0,0E+00	0,0E+00	4,7E-04	1,2E-03	0,0E+00	-9,8E-03
057. Eutrophication, freshwater	kg P eq	4,5E-04	4,7E-06	-3,8E-07	0,0E+00	0,0E+00	8,2E-07	7,6E-07	0,0E+00	-3,0E-05
058. Eutrophication, marine	kg N eq	4,2E-03	7,2E-04	-2,5E-05	0,0E+00	0,0E+00	1,7E-04	5,6E-04	0,0E+00	-2,9E-03
059. Eutrophication, terrestrial	mol N eq	5,2E-02	8,0E-03	-4,7E-04	0,0E+00	0,0E+00	1,8E-03	6,4E-03	0,0E+00	-4,6E-02
060. Photochemical ozone formation	kg NMVOC eq	1,7E-02	2,5E-03	-7,2E-05	0,0E+00	0,0E+00	5,3E-04	1,7E-03	0,0E+00	-8,4E-03
061. Resource use, minerals and metals	kg Sb eq	2,5E-05	1,6E-05	8,2E-09	0,0E+00	0,0E+00	2,1E-06	2,7E-07	0,0E+00	-4,4E-06
062. Resource use, fossils	MJ	5,5E+01	9,0E+00	-2,3E-01	0,0E+00	0,0E+00	1,2E+00	4,2E-01	0,0E+00	-1,4E+01
063. Water use	m3 depriv.	6,7E-01	2,5E-02	-1,3E-03	0,0E+00	0,0E+00	4,4E-03	7,1E-03	0,0E+00	-7,9E-02
064. Particulate matter	disease inc.	1,3E-07	4,2E-08	-1,4E-09	0,0E+00	0,0E+00	7,3E-09	9,8E-09	0,0E+00	-1,3E-07
065. Ionising radiation	kBq U-235 eq	8,0E-02	3,9E-02	-1,4E-04	0,0E+00	0,0E+00	5,2E-03	1,0E-03	0,0E+00	-1,8E-02
066. Ecotoxicity, freshwater	CTUe	1,1E+02	7,2E+00	-1,2E+00	0,0E+00	0,0E+00	1,1E+00	1,1E+00	0,0E+00	-9,1E+01
067. Human toxicity, cancer	CTUh	7,1E-09	2,0E-10	6,7E-12	0,0E+00	0,0E+00	3,6E-11	2,4E-09	0,0E+00	-1,1E-09
068. Human toxicity, non-cancer	CTUh	7,9E-08	7,9E-09	-4,0E-10	0,0E+00	0,0E+00	1,2E-09	7,5E-09	0,0E+00	-3,8E-08
069. Land use	Pt	5,9E+02	6,2E+00	-4,7E+00	0,0E+00	0,0E+00	1,1E+00	1,4E-01	0,0E+00	-3,5E+02

LIFECYCLE ANALYSIS AND INTERPRETATION

1 m^1 STEICOjoist parameters

(Modules B1-B5 and C1 are zero as there is no maintenance or repair and the demolition takes place by hand)

EFFECTCATEGORY	UNIT	A1 – A3	A4	A5	B1 – B5	C1	C2	C3	C4	D
111. Energy, primary, renewable, excludi	MJ	3,1E+01	1,3E-01	-9,8E-01	0,0E+00	0,0E+00	1,5E-02	7,3E+01	0,0E+00	-7,4E+01
113. Energy, primary, renewable, materia	MJ	7,3E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	-7,3E+01	0,0E+00	0,0E+00
101. Energy, primary, renewable (MJ)	MJ	1,0E+02	1,3E-01	-9,8E-01	0,0E+00	0,0E+00	1,5E-02	1,7E-02	0,0E+00	-7,4E+01
112. Energy, primary, non-renewable, exc	MJ	3,6E+01	9,6E+00	-2,5E-01	0,0E+00	0,0E+00	1,3E+00	2,3E+01	0,0E+00	-1,6E+01
114. Energy, primary, non-renewable, mat	MJ	2,3E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	-2,3E+01	0,0E+00	0,0E+00
102. Energy, primary, non-renewable (MJ)	MJ	5,9E+01	9,6E+00	-2,5E-01	0,0E+00	0,0E+00	1,3E+00	4,5E-01	0,0E+00	-1,6E+01
108. Secondary material (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
109. Secondary fuel, renewable (kg)	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
110. Secondary fuel, non-renewable (kg)	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
104. Water, fresh water use (m3)	m3	1,0E-01	9,5E-04	1,2E-05	0,0E+00	0,0E+00	1,5E-04	1,8E-03	0,0E+00	-1,5E-03
106. Waste, hazardous (kg)	kg	3,5E-05	2,4E-05	-3,4E-07	0,0E+00	0,0E+00	3,1E-06	2,4E-06	0,0E+00	-2,6E-05
105. Waste, non hazardous (kg)	kg	4,3E-01	4,3E-01	-1,6E-04	0,0E+00	0,0E+00	7,8E-02	4,1E-02	0,0E+00	-1,4E-01
107. Waste, radioactive (kg)	kg	8,1E-05	6,1E-05	-2,4E-07	0,0E+00	0,0E+00	8,1E-06	1,2E-06	0,0E+00	-2,7E-05
120. Components for re-use (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
121. Materials for recycling (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
122. Materials for energy recovery (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
123. Exported energy, electric (MJ)	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,7E+01	0,0E+00	0,0E+00
124. Exported energy, thermal (MJ)	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,0E+01	0,0E+00	0,0E+00

SIGNATURE

SHR is not responsible for the information supplied by the client which can have an influence on the validity of the results

Ir. A.M. Kloppenburg
Projectleader