Environmental Product Declaration

According ISO 14025 and EN 15804+A1 for:

EGO-CLT Cross Laminated Timber wood panel

Programme	*The International EPD® System* www.environdec.com
Programme operator	*EPD International AB*
EPD Registration number	*S-P-01314*
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Type of EPD	*Cradle-to-grave*
Product Category Rules	*PCR 2012:01 - Construction products and construction services. Ver 2.2* *Sub-PCR. Wood and wood-based products for use in construction*

egoin
ZUREZKO ERAIKUNTZAK
CONSTRUCCIÓN EN MADERA

1. THE COMPANY

Located in Ea-Natxitua (Bizkaia-Spain), Egoin is from years ago leader in wood construction using advanced and industrializated building and rehabilitation techniques. Our products are used for the construction of tertiary and high-density residential buildings as well as for exclusive private residences. Besides using constructive solutions made of cross-laminated timber (CLT), Egoin offers Timber Frame systems, traditional joining structural systems, long laminated timber, prefabricated modules or series manufacturing for residential developments.

2. DECLARED PRODUCT

EGO-CLT is a high static efficiency wood panel, allowing diaphanous constructions without using primary supporting structures as pillars or beams. This product allows optimized spaces with more volume. This is a prefabricated constructive system, modern, ecological and flexible, highly adaptable to each project, whether it is new construction or building rehabilitation.

The high mechanical resistance allows unlimited lengths, creating clean lines and contemporary trends. EGO-CLT can be used as both inside and outside wall elements, ground joists and roof covers. The versatility of this system makes it ideal for the construction of single-family homes, residential projects of one or more floors, offices, industrial buildings, modular buildings and buildings for public use such as nurseries, schools…

The wood panels are custom made for every project, allowing the latter machining of stair holes in floors, carpentry holes in the walls and even canalizations to allow passing wires.

Wood prefabricated panels are adapted to exact mounting in buildings achieving excellent installation periods, reducing as well the nuisance to neighbors, the building exposure to outdoor climate conditions, risks and labour accidents.

In addition to an excellent resistance and outstanding esthetical properties, our wood panels contribute to the building with a high thermal and acoustic isolation.

FEATURES AND CONTENT DECLARATION	
Density	500-550 Kg/m^3
Moisture	12%
Length	Till 14.000 mm
Width	Till 3.800 mm
Thickness	From 60 to 225 mm
Resistant class	C-24 according EN 338 S10 according DIN 4074
Content	Softwood (99,29%) PUR based adhesive (0,71%)
Hazardous substances	The product does not contain any substance from the REACH candidates list.

Wood is a material with an excellent capability for bearing the pass of time. For this reason, is complex to exactly establish the service life of the product. The CLT panels from Egoin are designed to overcome the building service life so a 100 year period of service life has been estimated for the product, not considering rehabilitation needs.

3. SCOPE OF THE ANALYZED SYSTEM

3.1. FUNCTIONAL UNIT

The functional unit is the reference that exactly defines the element being analyzed and quantifies the function that the product system performs. All the information collected for the study has subsequently been referenced to the functional unit, being defined for the present assessment as:

1 m^3 of EGO-CLT™ cross laminated timber panel used as structural element

3.2. SYSTEM LIMITS

The analyzed system is the complete life cycle of 1 m^3 of cross laminated timber panel EGO-CLT to be used as structural element in a building. All the life cycle stages of the wood panel from cradle-to-grave have been included within the system boundaries. The life cycle has been divided in 17 different stages from A1 to D according to EN 15804:2012 standard.

Product stage			Construction process stage		Use stage							End-of-life stage				Resource recovery stage
Raw material	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X = Included in LCA
MNA = Module not assessed

In the following table, the main elements that have been considered in every of the life cycle stages are shown.

A1 - RAW MATERIAL SUPPLY
- Softwood consumption to manufacture the panels
- Adhesive consumption for the finger and the final gluing
- Electricity generation needed for the CLT manufacturing

A2 - RAW MATERIAL TRANSPORT
- Raw material transport from the providers to Egoin

A3 - WOOD PANEL MANUFACTURING
- Gasoil, water and ancillary materials consumption in the CLT manufacturing process in Egoin, including process waste management

A4 - TRANSPORT TO THE CLIENT
- Transport of the finished CLT panel and their ancillary elements until the construction site

A5 - INSTALLATION
- Ancillary elements needed for the CLT installation
- Machinery consumption associated to the CLT installation

B1 - USE
- No emissions or consumptions take place during use stage

B2 - MAINTENANCE
- No maintenance needed

B3 - REPAIR
- No repairs needed

B4 - REPLACEMENT
- No replacement needed

B5 - REFURBISHMENT
- No refurbishment considered

B6 - OPERATIONAL ENERGY USE
- The wood panel does not consume energy

B7 - OPERATIONAL WATER USE
- The wood panel does not consume water

C1 - DECONSTRUCTION
- Machinery consumption for the structure deconstruction when the end of life stage is met

C2 - WASTE TRANSPORT
- Transport of the panels until the waste treatment location

C3 - RECYCLING, REUSE AND VALORIZATION
- Wood panel recycling process

C4 - DISPOSAL
- All the wood panels are sent to recycling, so no additional aspects have been considered during this stage

D - BENEFITS BEYOND SYSTEM BOUNDARIES
- Recycled wood panels manufacturing using used CLT panels

4. ECO-PROFILE

4.1. POTENTIAL ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACT CATEGORY	UNIT	MANUFACTURING STAGE			INSTALLATION STAGE		USE STAGE							END OF LIFE STAGE				LIFE CYCLE TOTAL	D
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		
Global warming potential (GWP)	Kg CO_2 eq.	-716,18	27,45	3,20	47,82	7,39	0,0	0,0	0,0	0,0	0,0	0,0	0,0	4,99	2,38	859,38	0,0	236,42	-56,52
Acidification potential (AP)	Kg SO_2 eq.	9,2E-01	6,6E-02	2,1E-02	1,1E-01	5,0E-02	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,8E-02	5,7E-03	0,0	0,0	1,22	-3,77E-01
Eutrophication potential (EP)	Kg PO_4^{3-} eq.	2,1E-01	1,4E-02	4,7E-03	2,4E-02	1,3E-02	0,0	0,0	0,0	0,0	0,0	0,0	0,0	8,7E-03	1,2E-03	0,0	0,0	2,78E-01	-9,55E-02
Formation potential of tropospheric ozone (POCP)	Kg C_2H_4 eq.	1,4E-01	4,2E-03	6,5E-04	7,4E-03	2,2E-03	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0E-03	3,7E-04	0,0	0,0	1,58E-01	-3,60E-02
Abiotic depletion potential – Elements	Kg Sb eq.	4,0E-04	8,5E-05	1,2E-06	1,5E-04	3,4E-04	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,5E-06	7,3E-06	0,0	0,0	9,78E-04	-1,55E-04
Abiotic depletion potential – Fossil resources	MJ, net calorific value	1.900,62	440,19	60,12	766,78	116,97	0,0	0,0	0,0	0,0	0,0	0,0	0,0	76,80	38,11	0,0	0,0	3.399,58	-840,35
Ozone layer depletion	Kg CFC-11 eq	1,9E-05	5,2E-06	4,3E-07	9,0E-06	1,2E-06	0,0	0,0	0,0	0,0	0,0	0,0	0,0	9,1E-07	4,5E-07	0,0	0,0	3,57E-05	-6,22E-06
Water pollution[1]	m^3 eq.	195,60	29,07	2,55	50,63	9,51	0,0	0,0	0,0	0,0	0,0	0,0	0,0	4,24	2,52	0,0	0,0	294,12	-87,62
Air pollution[1]	m^3 eq.	35.448,32	2.705,98	341,80	4.713,78	1.320,18	0,0	0,0	0,0	0,0	0,0	0,0	0,0	609,70	234,25	0,0	0,0	45.374,02	-26.828,81

[1] Calculated using the characterization factors extracted from Annex C of the French national supplement standard NF EN 15804 / CN

4.2. RESOURCE USE

CATEGORY		UNIT	MANUFACTURING STAGE			INSTALLATION STAGE		USE STAGE							END OF LIFE STAGE				LIFE CYCLE TOTAL	D
			A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		
Primary energy resources – Renewable	Used as energy carrier	MJ, net calorific value	17.549,94	5,91	1,35	10,29	2,36	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,43	0,51	0,0	0,0	17.570,79	-4.036,34
	Used as raw materials	MJ, net calorific value	9.106,91	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	9106,91	-8.767,50
	TOTAL	MJ, net calorific value	26.656,86	5,91	1,35	10,29	2,36	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,43	0,51	0,0	0,0	26.677,71	-12.803,84
Primary energy resources – Non-renewable	Used as energy carrier	MJ, net calorific value	2.749,65	451,82	63,72	787,04	120,12	0,0	0,0	0,0	0,0	0,0	0,0	0,0	77,46	39,11	0,0	0,0	4.288,93	-869,47
	Used as raw materials	MJ, net calorific value	75,18	0,0	13,01	0,0	12,00	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	100,19	0,00
	TOTAL	MJ, net calorific value	2.824,83	451,82	76,73	787,04	132,12	0,0	0,0	0,0	0,0	0,0	0,0	0,0	77,46	39,11	0,0	0,0	4.389,12	-869,47
Secondary material		Kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Renewable secondary fuels		MJ, net calorific value	0,0	0,0	72,75	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	72,75	0,0
Non-renewable secondary fuels		MJ, net calorific value	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Net use of fresh water		m3	1,12	7,3E-2	0,11	0,13	2,0E-2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	6,5E-3	6,4E-3	0,0	0,0	1,47	-0,23

4.3. WASTE GENERATION

CATEGORY	UNIT	MANUFACTURING STAGE			INSTALLATION STAGE		USE STAGE							END OF LIFE STAGE				LIFE CYCLE TOTAL	D
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		
Hazardous waste disposed	kg	1,9E-03	2,4E-04	1,8E-05	4,2E-04	2,9E-04	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,1E-05	2,1E-05	0,0	0,0	2,9E-03	-1,0E-03
Non-hazardous waste disposed	kg	14,45	20,34	0,08	35,44	0,35	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,07	1,76	0,0	0,0	72,49	-5,5E+00
Radioactive waste disposed	kg	1,5E-02	3,0E-03	2,5E-04	5,2E-03	6,5E-04	0,0	0,0	0,0	0,0	0,0	0,0	0,0	5,1E-04	2,6E-04	0,0	0,0	2,5E-02	-2,9E-03

4.4. OUTPUT FLOWS[2]

CATEGORY	UNIT	MANUFACTURING STAGE			INSTALLATION STAGE		USE STAGE							END OF LIFE STAGE				LIFE CYCLE TOTAL	D
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		
Components for reuse	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Material for recycling	kg	0,0	0,0	0,0	0,0	0,308	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	525,96	0,0	526,27	0,0
Materials for energy recovery	kg	0,0	0,0	3,00E-03	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,00E-03	0,0
Exported energy, electricity	MJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Exported energy, thermal	MJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

[2] Based on Annex G of the French national supplement standard NF EN 15804 / CN

5. INFORMATION ON THE VERIFICATION

The EPD owner is the sole responsible of the content of this EPD. Note that EPDs within the same product category but from different programmes may not be comparable. EPD of construction products may not be comparable if they do not comply with EN 15804

INFORMATION ON THE VERIFICATION	
Programme	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
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EPD Scope	Cradle-to-grave
Product Category Rules:	PCR 2012:01 Construction products and construction services. Ver 2.2 Sub-PCR to PCR 2012:01 Wood and wood-based products for use in construction (EN 16485:2014)
Product group	UN CPC 314 – Wood boards and panels
Independent third-party verification of the declaration and data, according to ISO 14025:2006	☐ EPD process certification ☒ EPD verification
Procedure for follow-up of data during EPD validity involves third-party verifier	☐ Yes ☒ No
External verification	Tecnalia R&I Certificación, S.L. Verifier: Elisabet Amat eli.amat@tecnaliacertificacion.com ENAC. Acreditación no.125/C-PR283
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