ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	European Association for Panels and Profiles
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EPQ-20130169-CBG1-EN
ECO EPD Ref. No.	ECO-0000004
Issue date	12.09.2013
Valid to	11.09.2018

Double skin steel faced sandwich panels with a core made of mineral wool European Association for Panels and Profiles



EN 15804 VERIFIED

www.bau-umwelt.com

Ū,

General Information

European Association for Panels and Profiles

Programme holder

IBU - Institut Bauen und Umwelt e.V. Panoramastraße 1 D-10178 Berlin

Declaration number

EPD-EPQ-20130169-CBG1-EN

This Declaration is based on the Product Category Rules:

Double skin metal faced sandwich panels, 07-2013 (PCR tested and approved by the independent expert committee [SVA])

Issue date

12.09.2013

Valid to 11.09.2018

mennanes

Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)

Prof. Dr.-Ing. Hans-Wolf Reinhardt (Chairman of SVA)

Product

Product description and placing on the market

Prefabricated double skin steel faced sandwich panels with a core made of mineral wool used for loadbearing, self-supporting and non-supporting application in roof, wall and ceiling structures.

The profiled internal and external steel sheets are made of a core of steel, which is protected against corrosion with zinc and organic coatings. The thermal insulating core material is made of mineral wool according to /EN 13162/ with sealing tapes according to /DIN 18542/. The core is linked on both sides with resistance to shear forces to the profiled steel sheets.

The LCA is based on vertical averaging of the specific producer datasets under consideration of the respective yearly production amounts.

The products must comply with the Regulation (EU) No 305/2011 taking into account the harmonised technical specification /DIN EN 14509/; they may be put on the market with the Declaration of Performance and the CE-mark.

Double skin steel faced sandwich panels with a core made of mineral wool

Owner of the Declaration

European Association for Panels and Profiles Europark Fichtenhain A 13a D-47807 Krefeld

Declared product / Declared unit

1m² prefabricated double skin steel faced sandwich panels with a insulating core made of mineral wool

Scope:

The purpose of this document is limited to continuously produced sandwich panels with face sheets made of steel that are manufactured by member companies of the European Association for Panels and Profiles.

Data has been provided by 8 member companies of the European Association for Panels and Profiles for the year 2011. These companies represent between 50% and 62% of the members producing sandwich panels. Production volume of these companies is about 50% to the European market.

The owner of the declaration shall be liable for the underlying information and evidence.

Verification

The CEN Norm EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025

internally x externally

Matthias 9

(Independent tester appointed by SVA)

Application

Application as covering components in roof and wall structures for mainly static loads.

Sandwich panels in wall and roof application overtake tasks of the building physics, especially sound, heat and moisture safely. They perform simultaneously the function of air tightness of the building envelope.

The application takes place according to national regulations.

Technical Data

Technical specifications for sandwich panels with a core made of mineral wool are:

- /EN 14509/
- /EN 13162/

Constructional data

Name		Unit		
Nume	50	100	200	onne
Density of the insulation		115-120		kg/m ³
Thickness of the element.				
When the outer layers are	50	100	200	mm
flat, this is the overall				



European Association for **Panels** and **Profiles**

Name		Unit		
Name	50	100	200	Unit
height of the element (D); on heavily profiled				
elements this is the				
consistent core thickness without profile (dc)				
Thickness of the outer layer	0,6	0,6	0,6	mm
Thickness of the inner	0.5	0.5	0.5	mm
layer	0,5	0,5	0,5	
Calculation value for thermal conductivity of the insulation	0,0440	0,0440	0,0440	W/(mK)
Heat transfer coefficient of the total Element incl. heat bridges due to overlap and fixing elements	0,8115	0,4467	0,2196	W/(m ² K)
Weight	14,6	20,4	32,4	kg/m²

Base materials / Ancillary materials

Composition of the sandwich panels:

matarial	Thickness of the element					
material	50mm	100mm	200mm			
Steel sheet	61%	43%	29%			
Thermal insulation core	36%	55%	70%			
adhesive	3%	2%	1%			

Steel according to /EN 10169/:

S 280 GD to S 320 GD

LCA: Calculation rules

Declared Unit

The declared unit is 1 m² of sandwich element. The averaging is done vertically based on the specific primary data.

Declared unit

MW 50 mm	Value	Unit
Declared unit	1	m²
Surface weight	14,6	kg/m ²
Conversion factor to 1 kg	1/14,6	-
MW 100 mm	Value	Unit
Declared unit	1	m²
Surface weight	20,4	Kg/m²
Conversion factor to 1 kg	1/20,4	-
MW 200 mm	Value	Unit
Declared unit	1	m²
Surface weight	32,4	Kg/m ²
Conversion factor to 1 kg	1/32,4	-

Metallic coating according to /EN 10346/:

Zinc Z 275, coating 275 g/m². The zinc layer has a content of at least 99 weight percent zinc and typical thickness of 20 $\mu m.$

Organic coating according to /EN 12944-1/: Polyester (SP), coil coating, 25 μ m on the application side and max.15 μ m on the back side.

Thermal insulation core according to /EN 13162/: mineral wool

The thermal insulating core is bonded with an organic adhesive between the steel sheets.

The panels contain sealing tapes (amount on total weight < 0,1%) according to DIN 18542.

No /REACH/ materials included.

Reference service life

Double skin steel faced sandwich panels with the use in lightweight metal constructions must withstand a term of protection of at least 15 years minimum. The term of protection is the period until first slight renewals in the surface are needed, only if there is no need of frequently inspections and service.

The term of protection depends on the location, weather conditions and the quality of the coating.

Double skin steel faced sandwich panels exhibit an estimated service life of 40 - 45 years depending on the use conditions.

System boundary

Type of the EPD: cradle to gate - with options

Production stage (modules A1-A3) includes processes that provide materials and energy input for the system, manufacturing and transport processes up to the factory gate, as well as waste processing.

For the end of life it is assumed that the steel proportion is recycled with credit for the recycling potential (declared in module D) and the MW proportion is landfilled (declared in module C4).

Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building context, respectively the product-specific characteristics of performance, are taken into account

LCA: Scenarios and additional technical inform

The following technical information is a basis for the declared modules.

End of life (C1-C4)

Nama		Unit		
Name	50	100	200	Unit
Recycling	8,9	8,8	9,4	kg
Energy retrieving	0	0	0	kg
Landfilling	5,7	11,8	23,0	kg



European Association for Panels and Profiles

LCA: Ergebnisse

DESC	RIP	FION OF	THE	SYSTE	M BO	UNDA	.RY (X :	= INCI	LUDEI	d in LC	CA; MN	D = N	IODUL	E NO	T DEC	LARED)		
PROI	DUCT	STAGE	CONS ON PR ST	TRUCTI OCESS AGE			U	SE STA	GE			EI	BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY S					
Raw material supply	Transport	Manufacturing	Transport	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	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		
Х	Х	Х	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	Х	Х		
RESU	LTS	OF THE	LCA	- ENVI	RONM	ENTA		ACT: 1	l m² S	andwig	ch pan	el						
				4	MW 50) mm				MW 100 r	nm	2		MW	/ 200 mm	n		
Param	eter	Unit		A1 - A3	C	4	D	A1	- A3	C4		D	A1 - A	43	C4	D		
GW	P	[ka CO2-Ä	a.1	20.1	0.4		12.6		7.6	0.7		27	52.2		1.2	12.0		
ODF	P	[kg CFC11-	Äq.]	30,1 4 22E-08	5 96F	5 	1 02E-09	13	3E-08	1 21E-1	- 10'	3,7 3E-09	6 18E-	09 2	1,3 248E-10	-13,9 1.04E-09		
AP		[kg SO ₂ -Ä	.q.]	0,134	0,00	01	-0,052	0,	182	0,001	-0	-0.053		-0,053		3	0,002	-0,053
EP	r	[kg PO43	Äq.]	1,32E-02	7,26E	-05	-4,34E-03	1,88	8E-02	1,48E-04	4 -4,3	9E-03	2,87E-	02 3	3,02E-04	-4,43E-03		
POC	P	[kg Ethen /	Äq.]	1,44E-02	1,23E	-04	-7,77E-03	1,8	1E-02	2,51E-04	4 -7,8	5E-03	2,58E-	02 5	5,12E-04	-7,93E-03		
ADP	Έ	[kg Sb Äd	q.]	1,76E-03	2,79E	-08	-3,68E-07	1,7	5E-03	5,67E-08	3 -3,7	2E-07	1,86E-	03 1	,16E-07	-3,75E-07		
ADP	۶F	[MJ] GWP – Globa	Iwarming	369,0	1,(DP – Der) Diletion not	-127,0	45	53,2	2,1	-1: - Acidificati	28,0	642,7	7 and water	4,3	-130,0		
Captio	on	potential; POC	P = Form	nation poter	itial of trop	ospheric o	zone photo	chemical	oxidants;	ADPE = Ab	iotic depleti	on potent	tial for non	fossil reso	urces; ADF	PF = Abiotic		
depletion potential for fossil resources																		
RESU	LTS	OF THE	LCA	- RESC	DURCE	E USE	: 1 m²	Sandv	wich p	anel								
RESU	LTS	OF THE	LCA	- RESC	DURCE MW 50	<mark>E USE</mark>) mm	: 1 m²	Sandv	vich p	anel MW 100 r	nm			MV	/ 200 mn	n		
RESU Param	LTS eter	OF THE Unit	LCA	- RESC A1 - A3	DURCE MW 50	USE 0 mm 4	: 1 m² D	Sandv A1	vich p I - A3	anel MW 100 r C4	nm	D	A1 - A	MV 43	/ 200 mn C4	n D		
Param PER	eter	OF THE Unit [MJ]	LCA	- RESC A1 - A3 20,0	MW 50	E USE 0 mm 4	<u>: 1 m² :</u> D	Sandv A1	wich p I - A3	anel MW 100 r C4	nm	D -	A1 - A 36,7	MV 43	/ 200 mn C4	n D		
Param PER PER	eter E M	OF THE Unit [MJ] [MJ]		- RESC A1 - A3 20,0 0	MW 50	Omm	2:1 m ² : D -	Sandv A1	vich p - A3	anel MW 100 r C4 -	nm	D -	A1 - 4 36,7 0	MV 43	/ 200 mn C4 -	n D -		
Param PER PER PER	eter E M	OF THE Unit [MJ] [MJ] [MJ]		- RESC A1 - A3 20,0 0 20,0	MW 50 C4 - -	E USE 0 mm 4	D - 2,1	A1	• A3	anel MW 100 r C4 - - 0,2	nm	D - - 2,1	A1 - A 36,7 0 36,7	MV 43	/ 200 mn C4 - - 0,3	n D - 2,1		
Parama PER PER PER PENF	eter E M R R E	OF THE [MJ] [MJ] [MJ] [MJ]		- RESC A1 - A3 20,0 0 20,0 371,5	MW 50 C4 	E USE 0 mm 4	D - 2,1 -	Sandv A1 2 2 4	• A3 • 4,8 0 • 4,8 • 54,8	anel MW 100 r C4 - 0,2 -	nm	D - 2,1 -	A1 - A 36,7 0 36,7 649,7	MW	/ 200 mn C4 - - 0,3 -	n D - 2,1 -		
Param PER PER PER PENF PENF	eter E M C C C C C C C C C C C C C C C C C C	OF THE [MJ] [MJ] [MJ] [MJ] [MJ]		- RESC A1 - A3 20,0 0 20,0 371,5 16,6	MW 50	2 USE 0 mm 4 1	D - 2,1 -	Sandv A1 2 2 44 2	wich p - A3 4,8 0 4,8 54,8 55,4	anel MW 100 r C4 - 0,2 - -	nm	D 	A1 - <i>J</i> 36,7 0 36,7 649,1 39,2	MW	/ 200 mn C4 - - 0,3 - -	n D 2,1 - -		
Param PER PER PER PENF PENF PENF SM	eter E M R R R R R T R T R T 1	OF THE [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [K]		A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0	MW 50 MW 50 - - - - - 1,	2 USE 0 mm 4 1 1 1	D 2,1 	Sandv A1 2 2 4 4 4	vich p - A3 - A3 - 4,8 0 - 4,8 - 54,8 - 54,9 - 54,9	anel WW 100 r C4	nm	D 	A1 - <i>J</i> 36,7 0 36,7 649,7 39,2 688,9	MV A3	/ 200 mm C4 - - 0,3 - - 4,5	n D		
Param PER PER PER PENF PENF SM RSF	eter E M T RE RM RT 1 F	OF THE [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [Kg] [MJ]		- RESC A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0	MW 50 MW 50 	2 USE 0 mm 4 1	D - 2,1 - - - - - 119,0 - 0	Sandv A1 2 43 2 44 2 44	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 0 0	anel WW 100 r C4 - - 0,2 - 2,2 - 0	nm	D 	A1 - <i>A</i> 36,7 0 36,7 649,7 39,2 688,9 0 0	MV A3	/ 200 mm C4 - - 0,3 - - 4,5 - 0	n - - 2,1 - - - - - - - - - - - - -		
Param PER PER PENF PENF PENF SM RSF	eter E M R R R R R R T R R T R T R T R T R T R	OF THE [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [Kg] [MJ]		A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 0 0	MW 50 MW 50 	E USE O mm 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D - 2,1 - - - - - - - - - - 0 0	Sandv A1 2 44 2 44	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 0 0 0 0 0	anel WW 100 r C4 - - - - - - - - - - - - -	nm	D 2,1 21,0 - 0 0	A1 - <i>J</i> 36,7 0 36,7 649,3 9,2 688,9 0 0 0	MW A3 7 9 1 1 1 2 1	/ 200 mm C4 - - 0,3 - - 4,5 - - 0 0	n - - 2,1 - - - 122,0 - 0 0 0		
Param PER PER PER PENF PENF SM RSF NRS FW	eter M RE RE RM RT 1 F SF *	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]		- RESC A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 0 -	MW 50 C - 0,; 0,; 1,; 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,	2 USE 0 mm 4 1 1 1 1 1	D - - - - - - - - - - - - - - - - - - -	Sandv A1 2 44 2 44	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 0 0 0 0 0 -	anel WW 100 r C4 - - 0,2 - 2,2 - 0 0 - - 0 - - - - - - - - - - - - -	nm	D 	A1 - A 36,7 0 36,7 649,1 39,2 688,9 0 0 0 0 -	MW A3 7	/ 200 mn C4 - - - - - - - - - - - - - - - - - -	n D - 2,1 - - 122,0 - 0 0 0 - - - - - - - - - - - - -		
Param PER PER PENF PENF SM RSF NRS FW Captio	eter E M CT R R M CT R R M CT R R M CT S F F * on	OF THE [MJ] [M] [M] [M] [M] [M] [M] [M] [M	LCA	A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 - rable primar otal use of rimar otal use of one walks	MW 50 C C C C C C C C C C C C C	USE O mm 4 1 1 excludin PERT = 1 esources wable pr fuels; FV	D 	A1	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 <tr< td=""><td>anel WW 100 r C4 - - 0,2 - - 2,2 - 0 - resources r y energy re RM = Use of se</td><td>nm</td><td>D - - 2,1 - - 21,0 - 0 0 - - w materi PENRE = ewable p naterial; F</td><td>A1 - A 36.7 0 36.7 649,7 39,2 688,9 0 0 - als; PERM Use of n brimary en RSF = Use</td><td>MW</td><td>/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 - f renewabl able prima urces use vable seco</td><td>n D - 2,1 - 2,1 - - 122,0 - - 0 0 0 - e primary try energy d as raw undary fuels;</td></tr<>	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 - resources r y energy re RM = Use of se	nm	D - - 2,1 - - 21,0 - 0 0 - - w materi PENRE = ewable p naterial; F	A1 - A 36.7 0 36.7 649,7 39,2 688,9 0 0 - als; PERM Use of n brimary en RSF = Use	MW	/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 - f renewabl able prima urces use vable seco	n D - 2,1 - 2,1 - - 122,0 - - 0 0 0 - e primary try energy d as raw undary fuels;		
Param PER PER PENF PENF PENF SM RSF NRS FW Captid	LTS eter M AT AT RE RM RT 1 F F F F F SF * *	OF THE Unit [MJ] [MSF = Use [NSF = Use [OF THE] [MSF = Use [MSF =	LCA	A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 - rable prima d as raw m bls primar otal use of newable s - OUT	MW 50 MW 50 C 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	4 1 1 1 1 1 1 1 1 1 1 1 1 1	D 	A1	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 <tr< td=""><td>anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources r y energy re RM = Use of se</td><td>nm</td><td>D - - - 21,0 - 21,0 - 21,0 - 0 0 - w materix PENRE = ewable p haterial; F</td><td>A1 - A 36,7 0 36,7 649,7 39,2 688,9 0 0 0 - als; PERM s Use of n rimary en RSF = Use and wid</td><td>MW</td><td>/ 200 mm C4 - - 0,3 - - 4,5 - 0 0 - f renewable seccent vable seccent</td><td>n D</td></tr<>	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources r y energy re RM = Use of se	nm	D - - - 21,0 - 21,0 - 21,0 - 0 0 - w materix PENRE = ewable p haterial; F	A1 - A 36,7 0 36,7 649,7 39,2 688,9 0 0 0 - als; PERM s Use of n rimary en RSF = Use and wid	MW	/ 200 mm C4 - - 0,3 - - 4,5 - 0 0 - f renewable seccent vable seccent	n D		
Param PER PER PENF PENF PENF SM RSF NRS FW Captio	LTS eter E M TT RE RM RT I F SF * * on	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	of renewa n renewa NRT = T of non re	A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 - able primar ble prima	MW 50 MW 50 C C C C C C C C C C C C C	USE mm m	. 1 m ² D - - 2,1 - - - - 119,0 - - 0 0 0 - - - - - - - - - - - - - -	A1	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 <tr< td=""><td>anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources resources resources resources resources resources resources RM = Use Use of se TEGOR</td><td>nm</td><td>D </td><td>A1 - A 36,7 0 36,7 649,1 39,2 688,9 0 0 0 - als; PERM - system system - Use of n orimary en RSF = Use</td><td>MW</td><td>/ 200 mm C4 - 0,3 - 4,5 - 0 0 - fable prima urces user vable secc 1el / 200 mm</td><td>n D</td></tr<>	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources resources resources resources resources resources resources RM = Use Use of se TEGOR	nm	D 	A1 - A 36,7 0 36,7 649,1 39,2 688,9 0 0 0 - als; PERM - system system - Use of n orimary en RSF = Use	MW	/ 200 mm C4 - 0,3 - 4,5 - 0 0 - fable prima urces user vable secc 1el / 200 mm	n D		
Param PER PER PENF PENF PENF SM RSF NRS FW Caption	eter eeter M M T T R R M R T R R M R T I F S F * on	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	LCA	A1 - A3 20,0 20,0 20,0 371,5 16,6 388,0 0 0 0 - rable prima d as raw m bloble primare of an arw m blob primare of an arw m b	MW 50 MW 50 C 0, 0, 0, 1, 1, 1, 0 0 0 0 0 0 0 0 0 0 0 0 0	USE Omm 4 1 1 rexcludin PERT = 1 resources wable pri fuels; FV LOWS Omm 4	D 	A1	wich p - A3 44.8 0 44.8 54.8 55.4 80,2 0 <tr< td=""><td>anel WW 100 r C4 - 0,2 - 2,2 - 0 0 - resources r y energy re RM = Use = Use of se Use of se Us</td><td>nm</td><td>D - - - 2,1 - - 21,0 - - 0 0 - - w materin PENRE = ewable p naterial; f m² S</td><td>A1 - A 36.7 0 36.7 649.7 39.2 688.9 0 0 - als; PERM = Use of n orimary en RSF = Us; A1 - A</td><td>MW A3 7 7 9 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 - f renewabl able prima urces used vable secc tel / 200 mn C4</td><td>n D</td></tr<>	anel WW 100 r C4 - 0,2 - 2,2 - 0 0 - resources r y energy re RM = Use = Use of se Use of se Us	nm	D - - - 2,1 - - 21,0 - - 0 0 - - w materin PENRE = ewable p naterial; f m ² S	A1 - A 36.7 0 36.7 649.7 39.2 688.9 0 0 - als; PERM = Use of n orimary en RSF = Us; A1 - A	MW A3 7 7 9 1 1 1 1 1 1 1 1 1 1 1 1 1	/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 - f renewabl able prima urces used vable secc tel / 200 mn C4	n D		
Paramo PER PER PENF PENF PENF SM RSF NRS FW Captio RESU	LTS eter E M M T T R T R T I F F F * * oon	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	LCA	A1 - A3 20,0 20,0 20,0 371,5 16,6 388,0 0 0 0 - able prima d as raw m ble primar otal use of snewable s - OUT A1 - A3 -	MW 50 MW 50 - - - - - - - - - - - - -	USE Omm 4 1 1 rexcludin rexcludin resources wable pr fuels; FV LOWS Omm 4	D - - - - - - - - - - - - -	A1 A	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 <tr< td=""><td>anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources r y energy re RM = Use Use of se IEGOR WW 100 r C4 - - - - - - - - - - - - -</td><td>nm</td><td>D - - - - - 21,0 - - 21,0 - - 21,0 - - 0 0 - - - - - - - - - - - - -</td><td>A1 - A 36,7 0 36,7 649,1 39,2 688,9 0 0 0 - als; PERN - Use of n system A1 - A -</td><td>MW</td><td>/ 200 mn C4 - - - - - - - - - - - - - - - - - -</td><td>n D 2,1 - 2,1 122,0 122,0 - 0 0 - 122,0 0 0 - 4</td></tr<>	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources r y energy re RM = Use Use of se IEGOR WW 100 r C4 - - - - - - - - - - - - -	nm	D - - - - - 21,0 - - 21,0 - - 21,0 - - 0 0 - - - - - - - - - - - - -	A1 - A 36,7 0 36,7 649,1 39,2 688,9 0 0 0 - als; PERN - Use of n system A1 - A -	MW	/ 200 mn C4 - - - - - - - - - - - - - - - - - -	n D 2,1 - 2,1 122,0 122,0 - 0 0 - 122,0 0 0 - 4		
Paramo PER PER PENF PENF PENF SM RSF NRS FW Captio RESU	LTS eter E M CT CT CT CT CT CT CT CT CT CT CT CT CT	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	of renewarces use n renewarces n r	A1 - A3 20,0 20,0 20,0 371,5 16,6 388,0 0 0 0 - able primar otal use of enewable s - OUT A1 - A3 - -	MW 50 MW 50 - - - - - - - - - - - - -	2 USE 0 mm 4 1 1 1 excludin PERT = 1 esources wable pr fuels; FV LOWS 0 mm 4	1 m ² D	A1 2 2 44 2 44 2 44 44 44 44 44 44 44 44 4	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 <tr< td=""><td>anel WW 100 r C4 - - - - - - - - - - - - -</td><td>nm</td><td>D - - 2,1 - - 21,0 - 21,0 - 0 0 0 - ewable p aterial; f m² S: D - -</td><td>A1 - A 36,7 0 36,7 649,1 39,2 688,8 0 0 0 0 0 - als; PERN - Use of n rrimary en RSF = Use andwid A1 - A - -</td><td>MW</td><td>/ 200 mn C4 - - 0,3 - - 4,5 - - 4,5 - 0 0 - f renewabla able prima urces used vable secc 10 1 2 1 200 mn - - - - - - - - - - - - - - - - - - -</td><td>n D - 2,1 - 2,1 - - 122,0 - - 122,0 - - 122,0 - - - 2,1 - - - - - - - - - - - - -</td></tr<>	anel WW 100 r C4 - - - - - - - - - - - - -	nm	D - - 2,1 - - 21,0 - 21,0 - 0 0 0 - ewable p aterial; f m ² S: D - -	A1 - A 36,7 0 36,7 649,1 39,2 688,8 0 0 0 0 0 - als; PERN - Use of n rrimary en RSF = Use andwid A1 - A - -	MW	/ 200 mn C4 - - 0,3 - - 4,5 - - 4,5 - 0 0 - f renewabla able prima urces used vable secc 10 1 2 1 200 mn - - - - - - - - - - - - - - - - - - -	n D - 2,1 - 2,1 - - 122,0 - - 122,0 - - 122,0 - - - 2,1 - - - - - - - - - - - - -		
Param PER PER PER PENF PENF PENF SM RSF NRS FW Captio RESU	LTS eter E M T T R T R T R T F F F F F F F F F F F F	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	LCA	A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 - rable primar otal use of as raw m ble primar otal use of as raw m ble primar otal as raw m otal as raw m ble primar otal as raw m ble primar otal as raw m ble primar otal as raw m otal as raw m	MW 50 MW 50 C 0, 0, 0, 0, 1, 1, 1, 0, 0	2 USE 0 mm 4 1 1 1 1 1 1 1 1 1 1 1 1 1	Image and the second	A1 2 2 4 4 2 4 4 2 4 4 4 4 4 4 4 4 4 4 4	wich p - A3 44,8 0 44,8 54,8 55,4 56,2 0 0 0 0 0 - y energy pole primarials; PEN roces; SM swater - - - - - - - - - - - - - - - - - -	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources r y energy ro RM = Use = Use of sec TEGOR WW 100 r C4 - - - - - - - - - - - - -	nm	D - - - - - - - - - - - - -	A1 - A 36,7 0 36,7 649,7 39,2 688,3 0 0 0 0 - - - - - - - - - - - - -	MW	/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 - frenewabile secco tel / 200 mn C4 - - - - - - - - - - - - - - - - - -	n D - 2,1 - - 2,1 - - - 122,0 - - 122,0 - - - 0 0 0 - - - - - - - - - - - - -		
RESU Param PER PER PER PEN PEN SM RSF NRS FW Captid RSF NRS FW Captid RSF NRS FW Captid RSF RW Captid RSF RW CAPTION RWE RSF	LTS eter E M T R E M T R E M T R T R T F F F F F F F F F F F F F F F	OF THE Unit [MJ] [M] [M] [M] [M] [M] [M] [M] [M	LCA	A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 - able prima d as raw m ble prima d as raw m ble prima d as raw m ble prima A1 - A3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MW 50 MW 50 C 0, 0, 0, - 0, 0, - - 0, 0,	USE O mm 4 1 1 excludin PERT = 1 resources wable pr fuels; FV LOWS O mm 4	I m ² D - 2,1 - 2,1 - - - - 0 0 0 - 0 - 0 - 0 - 0 - 0 - 0 - - 0 2	A1 A	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 0 0 0 - y energy lole primarials; PEN cces; SM = water E CAT - - - 0 - 0 0 0 0 - 0 - 0 - 0	anel WW 100 r C4 - - 0,2 - - 0 - - 0 0 - - - 0 0 - - - 0 0 - - - 0 0 - - - 0 0 - - - 0 - - - 0 - - - 0 - - - - - - - - - - - - -	nm	D - - - 2,1 - - 21,0 - - 0 0 - - ww material; F m ² S: D - - 0 - - - - - - - - - - - - -	A1 - A 36.7 0 36.7 649.7 39.2 688.9 0 0 - als; PERN Use of n rrimary en RSF = Use and wid A1 - A - - - - - 0 - - - - - - - - - - - - -	MW	/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 0 - f renewable ble prima urces used vable secco tel / 200 mn C4 - - - - - - - - - - - - - - - - - -	n D 2,1 2,1 2,1		
Param PER PER PER PENF PENF SM RSF NRS FW Captid RESU	LTS eter	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	LCA	A1 - A3 20,0 0 20,0 371,5 16,6 388,0 0 0 0 - rable prima d as raw m block prima of an evable s - OUT A1 - A3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DURCE MW 50 C	USE Omm 4 1 1 rexcludin PERT = 1 resources wable pr fuels; FV LOWS Omm 4 1 1	D <	A1 2 2 4 4 2 4 4 2 4 4 4 4 4 4 4 4 4 4 4	wich p - A3 44.8 0 44.8 54.8 55.4 80,2 0 0 0 - 0 - y energy of energy	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - - resources r y energy re RM = Use = Use of se Use of se - - - - - - - - - - - - -	nm	D - - - 2,1 - - 21,0 - - 21,0 - - 0 0 - - w materia PENRE = ewable p naterial; F m ² Si D - - 0 0 - - - 0 0 0 - - - - - - - - - - - - -	A1 - A 36.7 0 36.7 649.7 39.2 688.9 0 0 - als; PERM = Use of n or als; PERM = Use of n or als; PERM = Use A1 - A - - 0 0 0 - - - - - 0 0 - - - - - 0 0 - - - - - 0 - - - - - - - - - - - - -	MW A3 A3 A A A A A A A A A A A A A A A A	/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 - - f renewabl able prima urces used vable secco tel / 200 mn C4 - - - - - - - - - - - - - - - - - -	n D - - - - - - - - - - - - -		
RESU Param PER PER PENF PENF PENF SM RSF NRS FW Caption RESU RESU Param HDW NHDV RWU CRU MFR MEF EEE [T	LTS eter	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	LCA	A1 - A3 20,0 20,0 20,0 371,5 16,6 388,0 0 0 0 0 - rable prima d as raw m ble primar otal use of nnewable s - OUT A1 - A3 - - 0 0 0 0 0 0 0 0	DURCE MW 50 C. 0, 0, 0, 1, 0, 1, 0, 0, 1, 0,	USE Omm 4 1 1 1 excludin rexcludin	I m ² D - 2,1 - - - - - - - 0 0 0 0 - - - 0 0 0 0 0 0 - 0 8,3 0	A1 2 2 4 2 4 2 4 2 4 2 4 2 4 4	wich p - A3 44,8 0 44,8 54,8 55,4 80,2 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	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - - - - - 0 0 - - - - - 0 0 - - - - - - 0 0 - - - - - - - - - - - - -	nm	D	A1 - A 36,7 0 36,7 649,7 39,2 688,9 0 0 0 - - - - 0 0 - - - 0 0 0 0 - - - - 0 0 0 - - - - - 0 0 0 0 - - - - - - - - - - - - -	MW A3 A3 A A A A A A A A A A A A A A A A	/ 200 mn C4 - - 0,3 - 4,5 - 0 0 - 4,5 - 0 0 - 1 2 1 2 0 0 - - - - - - - - - - - - -	n D - 2,1 - -122,0 - -122,0 - -122,0 - - 122,0 - - - - - - - - - - - - -		
RESU Paramo PER PER PENF PENF PENF SM RSF NRS FW Captio RESU RESU RESU RESU Captio Captio RESU RESU	LTS eter E M CT CT CT CT CT CT CT CT CT CT	OF THE Unit [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	LCA	A1 - A3 20,0 20,0 20,0 371,5 16,6 388,0 0 0 0 0 - able primar otal use of snewable s - OUT A1 - A3 - - 0 0 0 0 0 0 0 0	DURCE MW 50 C	USE Omm 4 1 1 1 Percent of the second of th	D - - - - - - - - - - - - -	A1 A	wich p - A3 44,8 0 44,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 54,8 0 0 - 0	anel WW 100 r C4 - - 0,2 - - 2,2 - 0 0 - resources r y energy re RM = Use = Use of se IEGOR WW 100 r C4 - - - - - - - - - - - - -	nm	D - - 2,1 - 21,0 - 21,0 - 0 0 - - w material; f m ² S3 D - - 0 3,4 0 - - - - - - - - - - - - -	A1 - A 36,7 0 36,7 649,1 39,2 688,3 0 0 0 0 - als; PER n rimary en RSF = Use andwid A1 - A - - 0 0 0 0 0 0 0 0 0 0 0 0 0	MW A3 A3 A A A A A A A A A A A A A A A A	/ 200 mn C4 - - 0,3 - - 4,5 - 0 0 - f renewable secc 10 f and the prima - - - - - - - - - - - - -	n D - 2,1 - 2,1 - - 122,0 - - 122,0 - - 122,0 - - 122,0 - - - 2,1 - - - - - - - - - - - - -		

*The inventories do not support the methodological approach for the declaration of water and waste indicators. The material amounts, displayed with these inventories contribute significantly > 3% (referring to the mass of the declared unit). The indicators are not declared (decision of IBU advisory board 2013-01-07). ** No credit is given for the amount of recycled steel entering load free the system.

European Association for **Panels** and **Profiles**

References

Institut Bauen und Umwelt e.V., (Ed.):

General principles

for the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2011-06.

PCR Part A

Product Category Rules for Construction Products. Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report, 2013-07.

PCR Part B

Product Category Rules for Construction Products Part B: Requirements on the EPD for Thin walled profiles and profiled panels of metal, 2013-07. www.bau-umwelt.com

AgBB

Committee for Health-related Evaluation of Building Products (Ausschuss zur gesundheitlichen Bewertung von Bauprodukten)

ISO 14025:2011-10: Environmental labels and declarations – Type III environmental declarations – Principles and procedures

EN 15804:2012-04: Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products

DIN 18542:2009-07, Sealing of outside wall joints with impregnated sealing tapes made of cellular plastics - Impregnated sealing tapes - Requirements and testing

EN 10169:2012-06, Continuously organic coated (coil coated) steel flat products - Technical delivery conditions

EN 10346:2009-07, Continuously hot-dip coated steel flat products - Technical delivery conditions

EN 13162:2013-03, Thermal insulation products for buildings - Factory made mineral wool (MW) products – Specification

EN 13501-1: 2010-01, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

EN 14509:2009-04 Self-supporting double skin metal faced insulating panels, Factory made products, Specifications

EN ISO 12944:1998-07, Paints and varnishes -Corrosion protection of steel structures by protective paint systems

GaBi 6: Software and databasis for Life Cycle Engineering. LBP, University of Stuttgart and PE International. 2013.

GaBi Documentation: Documentation of the GaBi 6 datasets. LBP, University of Stuttgart and PE International. 2013. http://documentation.gabi-software.com/

EPAQ European Quality Regulations for Panels

REACH - Regulation concerning the **R**egistration , **E**valuation , **A**uthorisation and Restriction of **CH**emicals Following companies are represented with their products in this EPD:



Institut Bauen und Umwelt e.V.	Publisher Institut Bauen und Umwelt e.V. Panoramastraße 1 10178 Berlin Germany	Tel Fax Mail Web	+49 30 30 877 48-0 +49 30 30 877 48-29 info@bau-umwelt.com www.bau-umwelt.com
Institut Bauen und Umwelt e.V.	Programme holder Institut Bauen und Umwelt e.V. Panoramastraße 1 10178 Berlin Germany	Tel Fax Mail Web	+49 30 30 877 48-0 +49 30 30 877 48-29 info@bau-umwelt.com www.bau-umwelt.com
European Association for Panels and Profiles	Owner of the Declaration European Association for Panels and Profiles Europark Fichtenhain A 13a 47807 Krefeld Germany	Tel Fax Mail Web	+49 2151 93630-0 +49 2151 93630-29 info@panpro.eu www.panpro.eu
PE INTERNATIONAL SUSTAINABILITY PERFORMANCE	Author of the Life Cycle Assessment PE International AG Hauptstraße 111 70771 Leinfelden-Echterdingen Germany	Tel Fax Mail Web	+49 711 34 18 17-0 +49 711 34 18 17-25 info@pe-international.com www.pe-international.com