SUSTAINABILITY CONTRIBUTION DECLARATION

Contribution to LEED v4®
(Leadership in Energy and Environmental Design)

Reference: LEED v4 BD+C: New Construction

Fermacell Gypsum fibreboards

Green Building Certification schemes operate at the scale of the construction project, and so these products will, inevitably, only contribute towards a proportion of the total score achieved under any particular sustainability aspect considered by these schemes.

Product description
FERMACELL gypsum fibreboards (coated) are special structural panels made of plaster and cellulose fibres.
Directive (EU) No. 305/2011 (CPR) applies for placing the product on the market in the EU/EFTA (except Switzerland). The product requires a Declaration of Performance taking consideration of the European Technical Approval /ETA-03/0050/ and CE marking.

Application
FERMACELL gypsum fibreboards are used for cladding and lining components. Use is governed by the respective national regulations.

SUSTAINABILITY CONTRIBUTION DECLARATION

Sustainable Sites (SS)

Not relevant for this product.

Water Efficiency (WE)

Not relevant for this product.

Energy & Atmosphere (EA)

Not relevant for this product.

Innovation (IN)

→ To encourage projects to achieve exceptional or innovative performance.

The high recycled content in gypsum fibre boards may be an example where using Fermacell products will help a project to greatly exceed the LEED requirements for recycled content and therefore qualify for additional credits under this aspect.

Materials & Resources (MR)

Building product disclosure and optimization - environmental product declarations
→ To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. Up to 2 points.

Product information

Item	Value
Critically reviewed LCA acc. to ISO 14044?	Yes
Reviewer	Dr.-Ing. Wolfram Trinius
Author of the LCA	thinkstep AG, Leinfelden-Echterdingen, Germany
EPD number	EPD-FER-20160218-CAD1-EN
Download link of the document/study	https://epd-online.com/EmbeddedEpdList/Download/9697
Industry-wide (generic) EPD (Type III, incl. external	No

verification)?	
Product specific EPD (Type III, incl. external verification)?	Yes
EPD program operator	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin
EPD program operator country	Germany
Declared unit	1 m² (with 14.75 kg/m², average density of 1.18 t/m³)

Results of the LCA – ENVIRONMENTAL IMPACTS for 1 m² Gypsum fibreboard

	Product stage
Declared life cycle stages (DIN EN 15978)	**A1-A3 (Manufacturing)**
GWP [kg CO_2-eq.]	1.14E+0
ODP [kg CFC11-eq.]	2.95E-11
AP [kg SO_2-eq.]	1.74E-03
EP [kg PO_4^{3-}-eq.]	2.99E-04
POCP [kg Ethen eq.]	6.75E-05
ADPE [kg Sb eq.]	1.11E-04
ADPF [MJ]	1.64E+01

Note: Detailed names of the given abbreviations can be found in the glossary.

Results of the LCA – RESOURCE USE

	Product stage
Declared life cycle stages (DIN EN 15978)	**A1-A3 (Manufacturing)**
PE total (= PERT + PENRT) [MJ]	2.10E+01
PERE [MJ]	3.57E+00
PERM [MJ]	8.62E-03
PERT [MJ]	3.58E+00
PENRE [MJ]	1.74E+01
PENRM [MJ]	1.29E-03
PENRT [MJ]	1.74E+01
SM [kg]	3.64E+00
RSF [MJ]	0
NRSF [MJ]	0
FW [m³]	6.97E-03

Results of the LCA – OUTPUT FLOWS AND WASTE CATEGORIES

	Product stage
Declared life cycle stages (DIN EN 15978)	**A1-A3 (Manufacturing)**
HWD [kg]	1.47E-07
NHWD [kg]	2.35E-02
RWD [kg]	4.18E-04
CRU [kg]	0
MFR [kg]	0
MER [kg]	0
EEE [MJ]	0
EET [MJ]	0

SUSTAINABILITY CONTRIBUTION DECLARATION

Materials & Resources (MR)

Building product disclosure and optimization – sourcing of raw materials
→ To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically and socially preferable life-cycle impacts and sourcing. Up to 2 points.

Product information

Option 1. raw material source and extraction reporting (1 point)	
Third-party verified Corporate Sustainability Report (CSR)?	Xella Sustanibility report 2014
Fulltext of link to download the report	https://www.xella.com/de/docs/Xella_Nachhaltigkeitsbericht_2014.pdf
Option 2. leadership extraction practices (1 point)	
Participation in an extended producer responsibility program?	Yes, withdrawal from identified customers
Transport	84 % of all raw materials are sourced (extracted, manufactured, and purchased) within 100 miles.
Preconsumer recycled content (flue gas gypsum)*	28 % (Orejo) / 57 % (Münchehof, Siglingen, Wijchen)
Postconsumer recycled content* (paper fibres from waste paper)	20 % (Orejo) / 19 % (Münchehof, Siglingen, Wijchen)

***Post-consumer material** is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose.

Pre-consumer material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it. Pre-consumer waste has 50% of the weighting of post-consumer waste.

Building product disclosure and optimization – material ingredients
→ To reward the selection of products verified to minimize the use and generation of harmful substances based on an accepted methodology for chemical ingredient listing. Up to 2 points.

Product information

Type of reporting	**Certification program (e.g. Green screen, cradle to cradle version/level, REACH)**	**Value/Comment**
Option 1: material ingredient reporting	Health Product Declaration	no
	Manufacturer Inventory	no

	GreenScreen v1.2 Benchmark	no
	Cradle to Cradle Certified	no
Option 2: Material ingredient optimization	International Alternative Compliance Path – REACH Optimization	Yes The gypsum fibre boards do not contain substances that meet REACH criteria for substances of very high concern.
	USGBC approved program	no
Option 3: Product Manufacturer Supply Chain Optimization	-	-

Indoor Environmental Quality (IEQ)

Low-emitting materials
→ To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment. Up to 3 points.

Product information

Interior paints and coatings, interior adhesives and sealants, flooring products

Item	Value	Unit
Test institute / organization (name)	Eco Institut	-
Test report No.	51333-001-007	-
VOC content	<1	µg/m³
Test method applied	Eco Institut Label	-
Applicable regulation	EG Nr. 1272/2008	-
Regulation requirements met	y	-
TVOC (7 days)	66	µg/m³
Criteria? (CDPH, AgBB, ISO 16000, DIBt method)	Eco Institut Label	-

Projects outside the U.S. may use products tested and deemed compliant in accordance with either (1) the California Department of Public Health (CDPH) standard method (2010) or (2) the German AgBB Testing and Evaluation Scheme (2010). Test products either with (1) the CDPH Standard Method (2010), (2) the German AgBB Testing and Evaluation Scheme (2010), (3) ISO 16000-3: 2010, ISO 16000-6: 2011, ISO 16000-9: 2006, ISO 16000-11:2006 either in conjunction with AgBB, or with French legislation on VOC emission class labeling, or (4) the DIBt testing method (2010). If the applied testing method does not specify testing details for a product group for which the CDPH standard method does provide details, use the specifications in the CDPH standard method. **U.S. projects** must follow the California Department of Public Health (CDPH) standard method.

Indoor Environmental Quality (IEQ)

Acoustic performance
→ To provide workspaces and classrooms that promote occupants' well-being, productivity, and communications through effective acoustic design. Up to point.

SUSTAINABILITY CONTRIBUTION DECLARATION

Product information

HVAC Product	Sound levels	Test Standard

Product	Sound absorption rate (at 500, 1000 and 2000Hz)	Test Standard

Product	Sound transmission class (STC)	Test Standard

Product	Speech transmission Index (STI)	Test Standard

General Information

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Email:	fermacell@jameshardie.com
Homepage:	www.fermacell.de
Date:	29.10.2018

Technical data

Following technical data at delivery state are relevant for the declared product:

Name	Area weight [kg/m^2]	Density [kg/m^3]
Gypsum fibreboards	14.75	1180

Average mass shares of components:

Component	Mass share
Details see in EPD “Gypsum Fibreboard”	

Glossary

GWP	Global warming potential
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential of land and water
EP	Eutrophication potential
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADPE	Abiotic depletion potential for non-fossil resources
ADPF	Abiotic depletion potential for fossil resources
PE total	Total use of primary energy resources (=PERT+PENRT)
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials
PERT	Total use of renewable primary energy resources
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
PENRM	Use of non-renewable primary energy resources used as raw materials
PENRT	Total use of non-renewable primary energy resources
SM	Use of secondary material
RSF	Use of renewable secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water
HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed
gCRU	Components for re-use
MFR	Materials for recycling
MER	Materials for energy recovery
EE	Exported energy per energy carrier