



Environmental Certification of Buildings in Romania

Seville, 16 May 2018

Co-funded by the
Erasmus+ Programme
of the European Union



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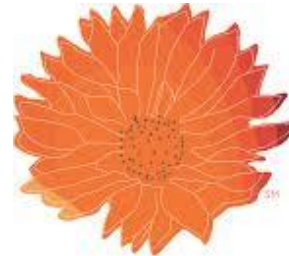


BREEAM[®]



DGNB

Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
German Sustainable Building Council



**LIVING
BUILDING
CHALLENGESM**

Over 200 certified projects in Romania



80 projects certified or under certification, mainly
for new construction



The Bridge by Forte Partners certified LEED Platinum



Bucharest One by Globalworth certified LEED Platinum



Green Court by SKANSKA certified LEED Gold



Campus 6 by SKANSKA aims to obtain LEED Platinum and WELL certification

BREEAM®

69 projects for new construction and
refurbishment + 84 BREEAM in use



Oregon Park by Portland Trust certified BREEAM Excellent



3 DGNB certified projects and
2 Living Building Challenge registered “Full petals”



Ecobiblioteca project

MATERIALS

ENDORISING PRODUCTS THAT ARE SAFE FOR ALL SPECIES THROUGH TIME

One of the materials mentioned on the Red List is the asbestos and as a consequence, the first step on the site construction has been to remove the existing roof and to replace it with a traditional solution, wooden shingles.

The total footprint of embodied carbon of the building is influenced by its structure, as well as the behaviour of the occupants. A life cycle analysis will determine a real estimation of the carbon emissions.

The project encourages the use of recycled and recyclable content products and the building is designed for deconstruction.

Existing finishes were carefully deconstructed and locally reused in the project and inside the village.

EcoBiblioteca promotes the procurement of building materials from socially and environmentally responsible sources, encouraging as much as possible a local Romanian sourcing, compliant with the Living Building Challenge requirements.



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21 residential projects certified and pre-certified, more than 5.000 units



Casa Solaris



Amber Gardens by Alesonor - Tunari



Floreasca1 by 1development



Vision by Studium Green – Cluj



Central District by Forty Management - Bucharest



One Herastrau Park by One United Properties



One Charles de Gaulle by One United Properties



One Herastrau Plaza by One United Properties



AFI City Bucureștii Noi

CREDIT CATEGORIES



**INTEGRATIVE
PROCESS**



**LOCATION AND
TRANSPORTATION
(LT)**



**SUSTAINABLE
SITES
(SS)**



**WATER
EFFICIENCY
(WE)**



**ENERGY AND
ATMOSPHERE
(EA)**



**MATERIALS AND
RESOURCES
(MR)**



**INDOOR
ENVIRONMENTAL
QUALITY (EQ)**



**INNOVATION
(IN)**



**REGIONAL
PRIORITY
(RP)**

The role of materials certification and EDPs

Support tools

- Romania Green Building Council has established procedures for EPDs to be easily integrated into the **environmental building certification tools** such as **GREEN HOMES** and promotes the EPDs for point recognition in the **LEED** or **BREEAM** certification.
- In the case of **Living Building Challenge** certification system, the **Materials petal** is designed to encourage materials that are non-toxic (0 VOCs), with low carbon footprint, locally produced and socially equitable. The Imperatives directly addressed by *Declare* are Imperative 11 – Red List and Imperative 14 – Appropriate Sourcing.



bre

Environmental Product Declaration

BREG EN EPD No.: 000081
ECO EPD Ref. No.: 000181
This is to certify that this verified Environmental Product Declaration provided by:
Knauf Insulation (Northern Europe)

Is in accordance with the requirements of:
EN 15804:2012+A1:2013

This declaration is for:
Glass Mineral Wool (0.04 W/mk)

Company Address

Stafford Road
St. Helens
Merseyside
WA10 3NS

KNAUF

Signed for BRE Global
21 May 2015
Date of First Issue



BF1331ECP Rev 0.2

bre

Environmental Product Declaration

BREG EN EPD No.: 000081
ECO EPD Ref. No.: 000108
This is to certify that this verified Environmental Product Declaration provided by:
Knauf Insulation (Northern Europe)

Is in accordance with the requirements of:
EN 15804:2012+A1:2013

This declaration is for:
Supafil® (0.04 W/mk) insulation

Company Address

Stafford Road
St. Helens
Merseyside
WA10 3NS

KNAUF

Signed for BRE Global
24 December 2015
Date of First Issue



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Environmental Product Declaration

BREG EN EPD No.: 000091
ECO EPD Ref. No.: 000324
This is to certify that this verified Environmental Product Declaration provided by:
Knauf Insulation (Northern Europe)

Is in accordance with the requirements of:
EN 15804:2012+A1:2013

This declaration is for:
Rock Mineral Wool

Company Address

Stafford Road
St. Helens
Merseyside
WA10 3NS

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Signed for BRE Global
08 March 2016
Date of First Issue



BF1331ECP Rev 0.2

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Environmental Product Declaration

BREG EN EPD No.: 000081
ECO EPD Ref. No.: 000331
This is to certify that this verified Environmental Product Declaration provided by:
Knauf Insulation (Northern Europe)

Is in accordance with the requirements of:
EN 15804:2012+A1:2013

This declaration is for:
Polyfoam ECO Standard

Company Address

Stafford Road
St. Helens
Merseyside
WA10 3NS

KNAUF INSULATION
(It's time to save energy.)



Signed for BRE Global Ltd
17 March 2016
Date of First Issue

Laura Critten
Operator

17 March 2016
Date of this Issue

16 March 2021
Expiry Date



BF1331ECP Rev 0.3

This verified Environmental Product Declaration is issued subject to terms and conditions for details visit www.greenbooklive.com/terms
To check the validity of this EPD please visit www.greenbooklive.com/check or contact us
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EDPs in Romania

- EPDs are related to national legislation via the following standards: SR EN ISO 14020:2002; SR EN ISO 14025:2010; SR EN ISO 14040:2002; SR EN ISO 14041:2002; SR EN ISO 14042:2002; SR EN ISO 14043:2003; SR EN ISO 14044:2007.
- no accredited body to emit EPDs and all the declarations are being issued by international entities.
- The National Institute for Research and Development in Buildings, Urbanism and Sustainable Regional Development “URBAN INCERC”, established in 2009, is the only recognized institution to perform testing on materials and emit performance certifications.

Examples of products with EPDs used in Romania

Saint-Gobain is one of the first glass producer to have performed a complete Life Cycle Assessment (LCA) of their products in accordance with international standards (ISO 14025, 14040 & 14044). They have two types of EPDs for:

- EPD For Basic Products (Saint-Gobain Glass). The products in this category include Security Diamant, Antelio, Miralite Revolution, Stadip and Masterglass - Decorglass.
- EPD For Processed Products such as: Climaplus Protect - Silence, Climaplus 4S - Sun, Climaplus Solar Control, Climatop.

Also, Saint-Gobain Construction Products Romania produces and sells Rigips® with EPD according to EN 15804 și ISO 14025 RB 12,5 mm.

- **Holcim** markets the materials with EPD such as aggregates, grey cements and ready mixed concrete.
- **Knauf Insulation** - EPDs are available for the following products: Blowing Wool; Glass Mineral Wool with ECOSE Technology; Mineral Plus; Rock Mineral Wool; Urbanscape; Wood Wool Heraklith and XPS.
- **Rockwool** Stone Wool Thermal Insulation for buildings obtained an EPD according to EN 15804 and ISO 14025 and 3rd party verified ROCKWOOL Group EPD rules and LCA model.
- **Xella** has products as Multipor and Ytong Energy Plus certified Cradle to Cradle.
- **Styronite** has products certified by the Institut Bauen und Umwelt;
- **RHEINZINK** offers EPDs according to ISO 14025 Tip III și EN 15804 for the following product lines: PATINA LINE, PROTECT LINE și INTERIEUR LINE and Cradle to Cradle for Patina line;
- **Hempcrete** has carbon negative concrete, Hempflax (produced and sold in Romania);
- **Holver** has EPDs for their wood products.

Current situation of EPDs in Romania

- small range of choices regarding products with EPDs;
- the importance of EPDs is increasing and is encouraged by the evolution of green building certification market;
- companies are compelled by both demand and high competition to promote greener products with a lower carbon footprint.

Carbon Footprint Case Study



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Vision by Studium Green

177 apartments
60 underground parking spots



LCA study (Optimi 360)

6788 m² (5 floors + 1 underground level)

Concrete structure

Strip footings foundation

1. Foundations and substructure

Materials in the foundations will never be replaced, no matter assessment period length. For BREEAM UK Mat 1 IMPACT equivalent provide the data for site excavation fuel use here, choose resource Excavation works.

Foundation, sub-surface, basement and retaining walls

Search by name, manufacturer, EPD nr. ▼







Resource	Quantity	CO ₂ e	Mat 01 element	Comment	Transport, kilometers	Service life
XPS insulation panel, L=0.034 W/mK, R=2.... ?	68 m2	tn	External walls		175	Permanent
Steel, rebar products (concrete reinforc... ?	870 kg	tn	Foundations (i		438	Permanent
Grey cement, avg. production, CEM I 52,5... ?	1765 kg	tn	Foundations (i		54	Permanent

2. Vertical structures and facade

You may also include finishings, if relevant.

External walls and facade

Search by name, manufacturer, EPD nr. 

Resource	Quantity	 CO ₂ e	Mat 01 element	Comment	Transport, kilometers	Service life
EPS foam insulation with infra red absor... ?	<input type="text" value="84"/> <input type="text" value="m2"/> <input type="text" value="x"/> <input type="text" value="100"/> mm	 tn	<input type="text" value="External walls"/>	<input type="text"/>	<input type="text" value="109"/> <input type="text"/>	As building
Injection insulation, rock wool ?	<input type="text" value="243"/> <input type="text" value="m2"/> <input type="text" value="x"/> <input type="text" value="50"/> mm	 tn	<input type="text" value="External windc"/>	<input type="text"/>	<input type="text" value="465"/> <input type="text"/>	<input type="text" value="50"/>
Cladding panel with rockwool insulation,... ?	<input type="text" value="176"/> <input type="text" value="m2"/>	 tn	<input type="text" value="External walls"/>	<input type="text"/>	<input type="text" value="370"/> <input type="text"/>	As building
Aerated concrete block wall, 0.625x0.25x... ?	<input type="text" value="890"/> <input type="text" value="m2"/>	 tn	<input type="text" value="External walls"/>	<input type="text"/>	<input type="text" value="780"/> <input type="text"/>	<input type="text" value="100"/>
Modified mineral mortars, Group 1, 0.8-1... ?	<input type="text" value="500"/> <input type="text" value="m2"/> <input type="text" value="x"/> <input type="text" value="10"/> mm	 tn	<input type="text" value="External walls"/>	<input type="text"/>	<input type="text" value="80"/> <input type="text"/>	As building

Columns and load-bearing vertical structures

Search by name, manufacturer, EPD nr. 






























Resource	Quantity	 CO ₂ e	Mat 01 element	Comment	Transport, kilometers	Service life
Steel hot rolled, I, H, U, L, T and wide... ?	<input type="text" value="345"/> <input type="text" value="kg"/>	 tn	<input type="text" value="Structural fran"/>	<input type="text"/>	<input type="text" value="80"/> <input type="text"/>	As building

3. Horizontal structures: beams, floors and roofs

You may also include finishings, if relevant.

Floor slabs, ceilings, roofing decks, beams and roof

Search by name, manufacturer, EPD nr. 





























Resource	Quantity	 CO ₂ e	Mat 01 element	Comment	Transport, kilometers	Service life
Soil substrates for green roofs (MDEGD) ?	<input type="text" value="320"/> kg	 tn	Roof (including )	<input type="text"/>	<input type="text" value="32"/> 	<input type="text" value="40"/>
ETICS with EPS insulation glued, 0.031-0... ?	<input type="text" value="70"/>  m2 	 tn	Roof (including )	<input type="text"/>	<input type="text" value="176"/> 	As building
Gypsum block element, 80 & 100/666/500 m... ?	<input type="text" value="120"/>  m2  x <input type="text" value="90"/> mm	 tn	Upper floors (i )	<input type="text"/>	<input type="text" value="125"/> 	As building
Reinforcement steel ?	<input type="text" value="870"/>  kg 	 tn	Upper floors (i )	<input type="text"/>	<input type="text" value="342"/> 	<input type="text" value="50"/>
Cement putty floor filler OSP 31, 10 mm ... ?	<input type="text" value="900"/>  m2  x <input type="text" value="10"/> mm	 tn	Upper floors (i )	<input type="text"/>	<input type="text" value="60"/> 	<input type="text" value="40"/>
Planed timber, conifer (Treindustrien) ?	<input type="text" value="1200"/>  m2  x <input type="text" value="25"/> mm	 tn	Internal floor fl 	<input type="text"/>	<input type="text" value="345"/> 	As building

4. Other structures and materials

Other structures and materials

For example stairs, ramps, balconies or elevator shafts

Search by name, manufacturer, EPD nr. 

Resource	Quantity	CO ₂ e	Mat 01 element	Comment	Transport, kilometers	Service life
Epoxy resin, EU avg., 1-1.25 kg/l, solve... ?	220 m2  x 10 mm	 tn	Balustrades ar 		230 	As building
Solar control glass, 6 mm, 14.63 kg/m2, ... ?	360 m2 	 tn	Balustrades ar 		84 	30
EPS insulation panel for underground wal... ?	220 m2	 tn	Stairs and ran 		870 	50
Buffer tank (stainless steel) ?	3275 kg	 tn	Stairs and ran 		600 	20
Window, double glazed, PVC-U frame, tilt... ?	760 m2	 tn	External windc 		567 	As building
Fiberglass reinforced PE door, 2.68m2/un... ?	653 m2	 tn	Internal doors 		650 	30
Gypsum plasterboard, standard, 12.5 mm, ... ?	2340 m2 	 tn	Internal walls i 		543 	As building
PU insulation, double steel sheet faced,... ?	1650 m2 	 tn	Internal floor fi 		875 	As building

5. External areas and site elements

Materials and constructions for external areas

Search by name, manufacturer, EPD nr.

Resource	Quantity		CO ₂ e	Mat 01 element	Comment	Transport, kilometers	Service life
Natural stone tiles, hard, exterior ?	548	m ² x 75 mm	tn	Hard Landscap		54	50

6. Building technology

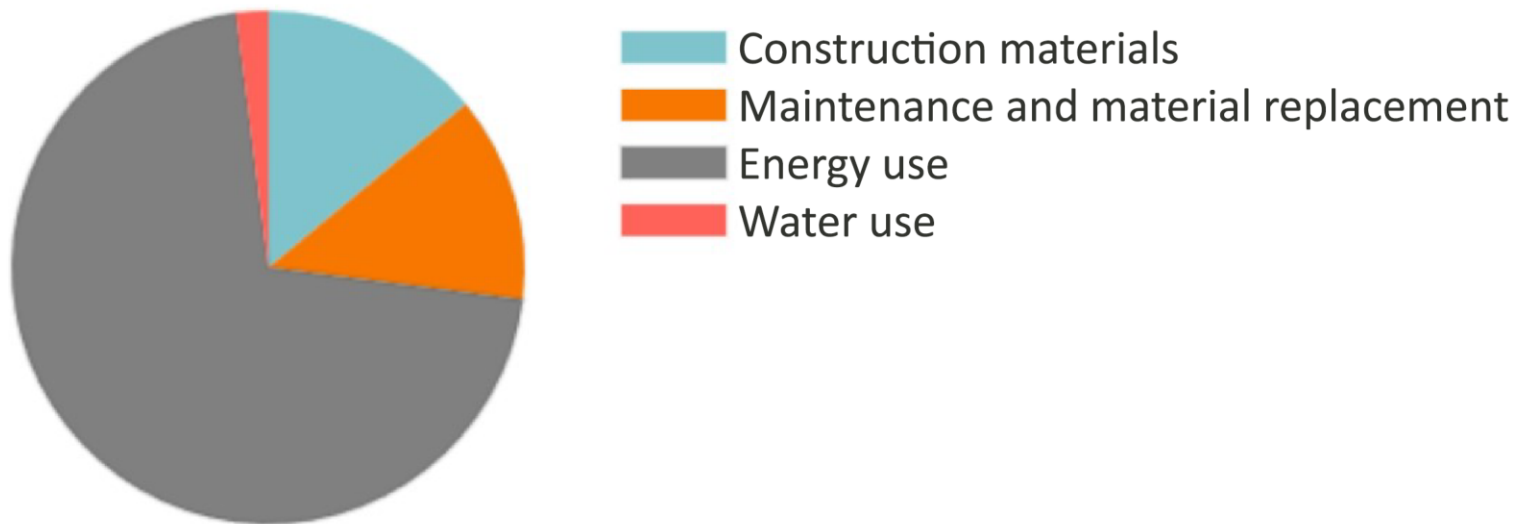
Building systems and installations

Building systems and installations can be added through this section only.

Search by name, manufacturer, EPD nr.

Resource	Quantity	CO ₂ e	Mat 01 element	Comment	Transport, kilometers	Service life
Gas condensing boiler, 20-120 kW (free-s... ?	<input type="text" value="150"/> <div>unit</div>	<div></div> <div>tn</div>	<input type="text" value="Heat Source, ↑ ↓"/>	<input type="text"/>	<div>576</div> <div>↑ ↓</div>	<div>20</div>
Water pipes, multilayer, Cochebat (STRPE... ?	<input type="text" value="1870"/> <div>m</div>	<div></div> <div>tn</div>	<input type="text" value="Sanitary Instal ↓"/>	<input type="text"/>	<div>765</div> <div>↑ ↓</div>	<div>50</div>

LCA Results



Results visualisation for Global warming (GWP)

 3 873 tons CO₂e

 10 kg CO₂e / m² / year

 193 650 Social cost of carbon



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Thank you!



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