



BRE Global Limited

Scheme Document

SD 028: Issue No. 9.1

June 2017

Environmental Profile of Construction Products

Commercial-in-Confidence

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Introduction

This certification scheme has been established to provide on-going independent, third party assessment and certification of materials and products for their environmental performance. It allows product and system build manufacturers to demonstrate the environmental performance of their products – in manufacture and in use.

The scheme was launched in 2001 for certification of Environmental Profiles for construction products using Life Cycle Assessment (LCA) method developed by BRE Global and an updated methodology was introduced in 2008. The certification process is outlined in appendix 1.

Environmental Profiles are used to measure the environmental impacts of the materials and manufacturing processes, and the emphasis is on continual improvement. They demonstrate that a Company is interested in their environmental performance and can be used to differentiate products from others in the marketplace. The scheme is highly complementary to Environmental Management Systems.

An Environmental Profile consists of 13 environmental indicators and a BRE Global Ecopoints score. This compares the environmental impact of a product against a typical person. 100 Ecopoints equal the impact of one European person for one year.

By generating an Environmental Profile for a product, manufacturers can access other BRE Global tools. They can obtain Green Guide rating(s) for their product(s), where appropriate element categories exist. These are used to award credits in BREEAM, for use of materials with lower environmental impact.

The 2008 Green Guide Online provides information for a wide range of generic specifications. The overall environmental impact is given a simple A+ to E summary rating, and a rating is also given for each of the environmental indicators, where A+ represents good environmental performance. The ratings are based on the Ecopoints score for each specification within a given range.

Following successful validation and certification, the relevant company and product details will appear on GreenBookLive (www.greenbooklive.com).

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1. Scope

Products are assessed using the LCA methodology (SD6050) developed by the Sustainable Products Team at BRE Global: Methodology for Environmental Profiles of Construction Products: Product Category Rules (PCR) for Type III environmental product declaration of construction products. This methodology is used to generate Environmental Profiles for 1 tonne of each product as well as various elemental profiles to show their environmental performance as a square meter of a building construction. Appendix 2 provides more information about the document and how it was developed.

Which products are certified within this Scheme?

The Environmental Profile Certification Scheme focuses on those materials and construction products with significant embodied environmental impacts and those for which credits are available in BREEAM.

Within these schemes credits are awarded for the use of materials with low embodied environmental impact. The building elements that allow the achievement of credits and the schemes to which they are applicable are shown below:

Elements	Non-Domestic Schemes												Domestic
	BREEAM												
	Bespoke	Offices - Design	Offices – Fit Out	Retail - Design	Retail – Fit Out	NEAT (NHS)	Healthcare	Prisons	Schools	Courts	Industrial	Further Education	Multi-Residential
Upper Floors	Y	Y		Y		Y	Y	Y	Y	Y		Y	Y
Ground Floors													
External Walls	Y	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y
Roofs	Y	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y
Floor Finishes	Y		Y		Y	Y	Y		Y	Y		Y	Y
Windows	Y	Y		Y		Y	Y		Y	Y		Y	Y
Internal Walls / Partitions	Y		Y		Y	Y	Y		Y	Y		Y	Y
Hard Landscaping	Y			Y		Y	Y	Y	Y	Y	Y	Y	Y
Boundary Protection	Y			Y		Y	Y	Y	Y	Y	Y	Y	Y

This scheme provides ongoing independent, third party assessment and certification of construction products to ensure that the performance, marking and classification requirements of the appropriate standards are met and maintained. The Scheme Document must be read in conjunction with PN 110 - the product certification process

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2. Applications to join the Scheme

To apply for product certification of Environmental Profiles, application form (BF1703) needs to be completed and returned to BRE Global and a quotation will be prepared. For more information or help with your application contact BRE Global on +44 (0) 333 321 8811.

Retrospective certification against Environmental Profiles generated by BRE Global is possible, provided that the profile is less than twelve months old.

On receipt, all applications are checked for eligibility and completeness. A quotation is prepared which includes the scope of certification and all of the fees for the collection and verification of data, environmental report and profiling, including visits to site(s).

3. Assessment Process

Application and quotation

As detailed above, the process starts with the completion of our application form and a quotation for the certification and environmental profiling work. Once the quotation has been accepted, we ask for the data required for the life cycle analysis to be sent to us for a desk top evaluation. The data requested will cover the most recent 12 months production of the product(s) being certified. Where this is not possible, a minimum of 6 months production data will be accepted to meet the requirement of the scheme. For first time applicants, this is immediately followed by a mandatory pre-assessment meeting. At this meeting the nominated client representative(s) will be briefed of the data collection process, details of data required and any other relevant information pertaining to the profiling process. This meeting is vital to enabling the client to successfully complete the data collection form.

Data review

This process is to evaluate the completeness and accuracy of the data, and queries are raised where information is not clear or where further information or objective evidence is required.

Data validation

The next step is for us to visit the sites/facilities detailed in the application to validate the data that has been supplied. At this visit, we are looking for objective evidence to substantiate the documentation submitted for the desk top review. This will include energy and utility bills, delivery notes, sub metering records and discussions with the nominated environmental manager and other staff as necessary. The evidence provided for the 12 month production period (known as the "Verified Time Period") must be 'original' and verifiable. A file containing a copy of all the evidence provided will be maintained by BRE Global.

The visit starts with an opening meeting to explain the purpose of the visit and an approximate plan of the activities and information that will need to be seen. At the end of the visit, a closing meeting is held with the relevant staff to discuss the findings and to report on any issues that require further information before a profile can be generated.

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Where a company holds a certificate to ISO 14001 or EMAS, this will be noted but it will not eliminate the need for site visits to verify the data.

On completion of the site visit, a Data Validation Letter is compiled of all data collected during the visit and any assumptions or calculations made, for the client to review and agree to.

Generating the Environmental Profiles

When the Data Validation letter has been agreed, the data is processed using the BRE Global 2008 methodology to produce an Environmental Profile and elemental profiles as required. At this point, the rules and inventories that are in use at the time are set for that profile. The profiles are then reviewed by the Scheme Manager and if all of the aspects are satisfactory, a recommendation for a certificate and appendices is made in an internal report.

Deliverables to the manufacturer-

- Certificate and Environmental Profiles (also known as Environmental Product Declarations (EPDs)) for Cradle-to-Gate (per tonne/m²), Cradle-to-Site (as installed) and Cradle-to-Grave (60yr study period).
- Details of the contribution of different inputs to the overall environmental impact of one tonne of product.
- Details of the contribution of different products to the overall environmental impact of the building elements.
- Green Guide rating of building product within a building element (where applicable)
- Entry onto www.greenbooklive.com website.

4. Certification

A certificate is awarded following satisfactory completion of the above assessment programme.

5. Maintenance of Certification

Certificates are valid for three years and are subject to annual review through the completion of a questionnaire, where the following 12 month production period data will be requested. A full recalculation and validation will be required after 3 years, using the most recent production data that does not conflict with data that has been provided for the annual review.

Where the annual review shows a variation of more than 10% in overall environmental impact against the original data, the certificate may be withdrawn and the client will be invited to have their products reassessed against more recent data. The data that is required for each product will be specified in advance of the annual review.

To ensure continuous certification, the re-certification process must be completed prior to the certificate expiry date. Following the successful completion of the second year annual review, the certified company will be sent an application form to begin the recertification

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process, which will be done approximately twelve months prior to the certificate expiry date.

It is not the policy of BRE Global to extend certification validity beyond the expiry date and the existing certificate will be withdrawn, regardless of whether re-certification is being undertaken.

If the manufacturing site, production and/ or processes change the certificated company must inform BRE Global of the change, in writing, within 20 days of the change taking place. A recalculation of the environmental profile maybe required, at an additional cost. If a change in management or ownership occurs, the certificated company must notify BRE Global of the change, within 7 days of the change taking place. Failure to do so may result in the withdrawal of the certification as part of the continual improvement; a certificated company may request a data re- valuation at any time.

6. Listing

Following successful validation and certification, the relevant company and product details will appear on GreenBookLive (www.greenbooklive.com). For a list of fees, please see Fee Sheet FS059.

7. Marking

For product certification, the BRE Global Certification mark may be used as directed in the publication PN242 'General Rules and Guidance for the uses of the BRE Global Certification Mark'. For this scheme, the Mark and accompanying wording that can be used is as follows:



Environmental Profiles
Certificate Number ENP XXX

8. Complaints & Appeals

BRE Global operates procedures for complaints and appeals. Further details are available on request.

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9. Additional Products

Certified companies wanting to add additional products to their current certificate are able to do so, as long as the following apply:

- The product(s) must be manufactured at the same site.
- The product(s) must be manufactured on the same production lines as the existing certified products with no differences in the production process.
- Use the same inputs materials and/ or have the same suppliers as the existing certified product(s).
- Have at least six months' worth of production data

Where products do not meet the above criteria, they will be looked at in detail and a decision will be made as to whether or not they can be added to a current certificate. Where products cannot be added to a current certificate, a new certificate project can be undertaken resulting in a new certificate being issued.

10. Cross Listing of Certified Products

Products that have completed an assessment and hold current certification under the Environmental Profile Certification Scheme, and are listed on the GreenBookLive may, with the agreement of the Owner of the product, be certified and listed on the GreenBookLive under the name of another company, using a different name or brand.

This can be done without having to undergo the full approval process so long as the actual product has not changed in design, construction or function. Cross-listed product(s) certificate(s) are valid for the remaining duration of the certificate that it is being cross listed against, and are bound by the same terms and conditions for listing and certification.

11. Life Time Performance

BRE have standard default replacement rates and maintenance regimes that are applied to generic and proprietary products, which have been derived by whole life performance experts at BRE. If a company has evidence or wishes to obtain evidence to modify these default rates, the evidence must be independently reviewed. This is available as a supplementary service from Whole Life Performance experts at BRE Ltd.

12. Publications referred to

BF 1730	Application for Certification
FS 059	Environmental Profiles of Construction Products Fee Sheet
PN 242	'General Rules and Guidance for the uses of the of the BRE Global Certification Mark'

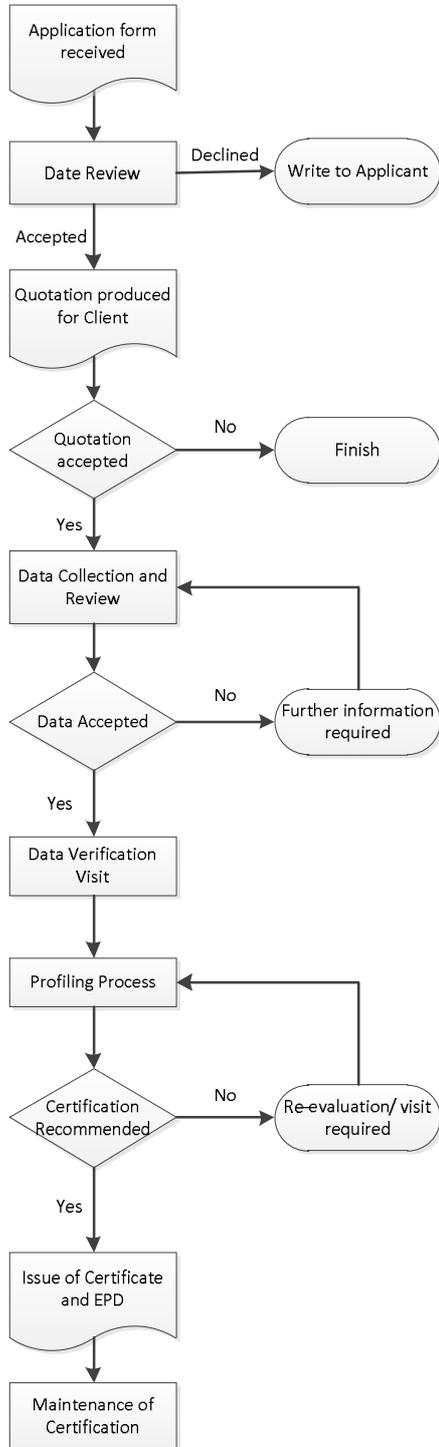
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SD6050 Methodology for Environmental Profiles

For undated references please refer to the most recent dated issue.

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Appendix 1 – The Environmental Profiles Certification Process



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Appendix 2 - Excerpt from document "BRE Global Methodology of construction materials, components and buildings: Product Category Rules for Type III environmental product declaration of construction products 2008 ", document BES 6050.

THE BRE Global METHODOLOGY FOR ENVIRONMENTAL PROFILES OF CONSTRUCTION MATERIALS, COMPONENTS AND BUILDINGS: Product Category Rules for Type III environmental product declaration of construction products 2008

Jane Anderson, Kristian Steele, Jo Mundy, Suzy Edwards

The Environmental Profiles methodology was first published in 1999. This 2008 update has been made possible with the kind support of:

- BRE Trust
- Department for Education and Skills
- Department of Trade and Industry
- Energy Savings Trust
- English Partnership
- HSBC
- National House Building Council (NHBC)
- Office of Government Commerce
- Royal Bank of Scotland
- Willmott Dixon
- WRAP

This updated methodology has been developed by BRE Global in consultation with the wider industry. It is the view of the steering group that the methodology set out in this document is a practical, consistent and comprehensive method for the life cycle assessment (LCA) of all types of building materials and components. Environmental Profiles may be calculated for materials, components and complete building elements and systems. This can include complete building solutions. Appendix 3 is an example of an Environmental Profile and the data that would appear on it.

PEER REVIEW STATEMENT

The following experts in LCA and buildings have undertaken a peer review of this methodology:

Wayne Trusty, Athena Sustainable Materials Institute, Canada (Chair)
 John Bowdidge, Independent LCA expert, UK
 Eva Schminke, Five Winds Consultancy, Germany

The peer review team congratulates BRE Global on the production of a well-researched and well-developed PCR methodology. The PCR methodology closely follows the requirements of the relevant ISO standards, while at the same time providing the necessary detail to enable the derivation of Type III Environmental Product Declarations (EPD).

Suggestions to improve the clarity of the report and to modify a number of technical issues were made and these were implemented by BRE Global.

This document has been compiled to reflect the conclusions of the industry consultation exercise including discussions with the Construction Products Association and its members, the Project Steer Group, and the BRE Global Sustainability Board. Every attempt to accurately reflect the agreed conclusions of these discussions has been made.

Manufacturers of construction products, designers, users and owners of buildings and others active in the building and construction sector are increasingly demanding information that will enable them to make decisions which address environmental impacts of buildings and other construction works. An increasingly popular approach is to create environmental product declarations.

Environmental product declarations are similar to the nutritional information found on the back of food packets. They list the impacts caused throughout the life of a particular product.

It is essential that there be uniformity in the means of expressing environmental product declarations. This includes having a consistent way of arriving at the declaration and providing the information. The user expects

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unbiased, accurate and verified information, which is consistent with the best current practice and understanding.

To help achieve this, work has been ongoing at both national and international levels. According to the International Standards of the ISO 14020 series, environmental labels and declarations are divided into three principal types:

- Type I (ISO 14024) – label: a defined environmental standard with “ecolabels” awarded to those who pass
- Type II (ISO 14021) – claims: self declared claims (e.g. “recyclable”)
- Type III (ISO 14025) – declaration: ‘nutritional labelling’ style environmental product declarations within a prescribed formula

These documents are supported by a fourth document: ISO 14020, *Environmental labels and declarations – General principles*. Additionally, a further ISO Standard has been specifically developed to create appropriate rules for applying the ISO 14025 standard to construction products:

- ISO FDIS 21930 *Sustainability in building construction – Environmental declaration of construction products*.

Type III environmental product declarations must be based on Life Cycle Assessment (LCA), an area which has been covered by the ISO standards:

- ISO 14040:2006, *Environmental management - Life cycle assessment. Principles and framework*
- ISO 14044:2006, *Environmental management - Life cycle assessment - Requirements and guidelines*.

This document provides information about the Environmental Profiles methodology for construction products, a “type III” environmental labelling scheme for construction products and elements. The methodology has been prepared to be in conformity with the relevant ISO standards – FDIS 21930, ISO 14025, and standards relating to Life Cycle Assessment in general, ISO 14040 and 14044.

BRE Global first published the Environmental Profiles methodology, “BRE Methodology for Environmental Profiles of construction materials, components and buildings” in 1999, with funding from the DETR and the involvement of over 20 trade associations and industry bodies. Following developments in LCA techniques and the work undertaken for the ISO Standards, BRE Global chose to update the methodology, a process which has involved extensive stakeholder consultation.

The purpose of this methodology is to describe the principles and framework for environmental declarations of construction products, including consideration of the reference service life of construction products over a building’s life cycle. This methodology forms the basis for the Environmental Profiles Scheme, a Type III environmental declaration programme which enables manufacturers and trade associations to make Type III environmental declarations of construction products as described in ISO 14025.

The overall goal of Environmental Profiles is to encourage the demand for, and supply of, construction products that cause less stress on the environment, through communication of verifiable and accurate information on environmental aspects of those construction products, thereby stimulating the potential for market-driven continuous environmental improvement.

This document will be of interest to individual construction product manufacturers and construction product trade associations wishing to prepare an Environmental Profile and data users, including designers and clients, who wish to have a detailed understand of the basis of the information they are using.

There are two clear benefits to having a single, industry agreed method that is applicable to all types of building product:

- 1) The application of the Environmental Profiles methodology will allow manufacturers and trade associations to publish data about their products on the basis of a “level playing field”, i.e. in a way that is comparable and robust for competing product types.

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2) Using data produced by this methodology will give confidence to designers and building clients who wish to ensure that they have taken full account of the life cycle environmental impacts of the construction products they are using, using the latest developments in life cycle assessment and that the data they are using has been produced such that competing products have been evaluated in a fair and independent manner.

For more information about the Environmental Profiles Scheme see <http://www.greenbooklive.com>

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Appendix 3 – Example of data which would appear on a certificate annexe.



Appendix to Certificate of Approval
Appendix Number: ENPXXXa Issue: 1

Company Name
Address

Characterised and normalised data for:

Product Specification
1 m² over 60-year study period

Quality of data for profiled material	
Start date	01/01/2016
End Date	31/12/2016
Representativeness	1 site representing 100% production
LCA Methodology	BRE Environmental Profiles Methodology 2008
Allocation	100% to product
Date of data entry	01/01/2017
Boundary	Cradle to Grave over 60-year study period
Applicable buildings	All building types
Source of data	Company records
Geography	UK

(Data for other constituent materials are available from BRE Global)

BRE Ecopoints score: 0.22 Ecopoints

This certificate appendix is maintained and held in force through annual review and verification.

Signed for BRE Global Ltd.	Scheme Manager	Date of issue	Expiry Date
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To check the validity of this certificate please visit www.greenbooklive.com/check, scan the QR Tag, or contact us.

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Appendix No: ENPXXXa

Issue: 1

Company Name

Company Address

Product Specification

1 m² over 60-year study period

Characterised Data

Issue	Value	Unit
Climate Change	46.5	kg CO ₂ eq. (100 yr.)
Water Extraction	0.515	m ³
Mineral Resource Extraction	0.00997	tonnes
Stratospheric Ozone Depletion	0.00011	kg CFC11 eq.
Human Toxicity	14	kg 1,4-DB eq.
Ecotoxicity to Freshwater	1.3	kg 1,4-DB eq.
Nuclear Waste (higher level)	0.00000144	m ³ high level waste
Ecotoxicity to Land	0.147	kg 1,4-DB eq.
Waste Disposal	12.6	kg
Fossil Fuel Depletion	959	MJ
Eutrophication	0.0194	kg PO ₄ eq.
Photochemical Ozone Creation	0.0464	kg ethene eq.
Acidification	0.16	kg SO ₂ eq.

Normalised data

Issue	Value	Western European Citizen's Annual Impacts
Climate Change	0.00379	12300 kg CO ₂ eq. (100 yr.)
Water Extraction	0.00136	378 m ³
Mineral Resource Extraction	0.000409	24.4 tonnes
Stratospheric Ozone Depletion	0.000504	0.217 kg CFC11 eq.
Human Toxicity	0.000707	19700 kg 1,4-DB eq.
Ecotoxicity to Freshwater	0.000988	1320 kg 1,4-DB eq.
Nuclear Waste (higher level)	0.00609	2.37 x 10 ⁻⁴ m ³ high level waste
Ecotoxicity to Land	0.00119	123 kg 1,4-DB eq.
Waste Disposal	0.00335	3750 kg
Fossil Fuel Depletion	0.00352	273 GJ
Eutrophication	0.000596	32.5 kg PO ₄ eq.
Photochemical Ozone Creation	0.00215	21.5 kg ethene eq.
Acidification	0.00224	71.2 kg SO ₂ eq.

BRE Ecopoints score: 0.22 Ecopoints

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Scheme Manager

Date of Issue

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