

Sustainability of construction works - Environmental
product declarations - Product Category Rules for
concrete and concrete elements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 16757:2017 sisaldab Euroopa standardi EN 16757:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 16757:2017 consists of the English text of the European standard EN 16757:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 21.06.2017.	Date of Availability of the European standard is 21.06.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 91.100.30

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

**Sustainability of construction works - Environmental
product declarations - Product Category Rules for concrete
and concrete elements**

Contribution des ouvrages de construction au
développement durable - Déclarations
environnementales sur les produits - Règles régissant
la catégorie de produits pour le béton et les éléments
en béton

Nachhaltigkeit von Bauwerken -
Umweltproduktdeklarationen -
Produktkategorieregeln für Beton und Betonelemente

This European Standard was approved by CEN on 11 May 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	7
4 Abbreviations	10
5 General aspects.....	11
5.1 Objective of this PCR	11
5.2 Types of EPD with respect to life cycle stages covered.....	11
5.3 Comparability of EPD for construction products	13
5.4 Additional information	13
5.5 Ownership, responsibility and liability for the EPD	13
5.6 Communication formats	13
6 Product Category Rules for LCA	13
6.1 Product category	13
6.2 Life cycle stages and their information modules to be included	13
6.3 Calculation rules for the LCA.....	15
6.4 Inventory analysis	31
6.5 Impact assessment.....	31
7 Content of the EPD	32
7.1 Declaration of general information.....	32
7.2 Declaration of environmental parameters derived from LCA.....	32
7.3 Scenarios and additional technical information.....	32
7.4 Additional information on release of dangerous substances to indoor air, soil and water during the use stage.....	34
7.5 Aggregation of information modules.....	34
8 Project report.....	34
9 Verification and validity of an EPD	34
Annex A (normative) Requirements and guidance on the reference service life.....	35
Annex B (informative) Waste.....	36
Annex C (informative) Characterization factors for GWP, ODP, AP, EP, POCP and ADP	37
Annex AA (informative) Scenarios.....	38
Annex BB (informative) CO ₂ uptake by carbonation — Guidance on calculation.....	43
BB.1 General.....	43
BB.2 Potential CO ₂ uptake for totally carbonated concrete.....	45
BB.3 Use stage, (module B) method of calculation of CO ₂ uptake.....	45
BB.4 End of life, module C.....	49

BB.5	Beyond the system boundary, module D.....	50
BB.6	Additional information.....	50
BB.7	Regional, national or product specific calculation	50
BB.8	References.....	50
BB.9	Some recent literature on CO₂ uptake.....	51
	Bibliography	52

European foreword

This document (EN 16757:2017) has been prepared by Technical Committee CEN/TC 229 “Precast Concrete Products”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The European Standard EN 15804:2012+A1:2013 provides core rules for all construction products and services.

It provides a structure to ensure that all Environmental Product Declarations (EPD) of construction products, construction services and construction processes are derived, verified and presented in a harmonized way.

This European Standard provides additional rules for Environmental Product Declarations (EPD) specifically for concrete and concrete elements. It complements the core rules for all construction products and services as established in EN 15804:2012+A1:2013.

An EPD communicates verifiable, accurate, non-misleading environmental information for products and their applications, thereby supporting scientifically based, fair choices and stimulating the potential for market-driven continuous environmental improvement.

The standardization process has taken place in accordance with ISO 14025. All common issues are covered horizontally for all product types in order to minimize vertical (branch specific) deviations. All common issues are covered horizontally for all concrete and concrete elements in order to minimize intra-sectorial deviations.

EPD information is expressed in information modules as defined in EN 15804:2012+A1:2013, which allow easy organization and expression of data packages throughout the life cycle of concrete and concrete elements. The approach requires that the underlying data should be consistent, reproducible and comparable.

In line with EN 15804:2012+A1:2013 the EPD is expressed in a form that allows aggregation (addition) to provide complete information for buildings. This standard does not deal with aggregation at the building level nor does this standard describe the rules for applying EPD in a building assessment.

The standard deals with a limited number of quantifiable parameters as predefined in EN 15804:2012+A1:2013. Future revisions of EN 15804 may lead to the incorporation in this standard of additional predetermined parameters. This European Standard provides the means for developing a Type III environmental declaration of concrete and concrete elements in the context of the suite of standards that are intended to assess the sustainability of construction works.

This suite of standards includes:

- EN 15643-1, *Sustainability of construction works — Sustainability assessment of buildings — Part 1: General framework*
- EN 15643-2, *Sustainability of construction works — Assessment of buildings — Part 2: Framework for the assessment of environmental performance*
- EN 15978, *Sustainability of construction works — Assessment of environmental performance of buildings — Calculation methods*
- EN 15804:2012+A1:2013, *Sustainability of construction works — Environmental product declaration — Core rules for the product category of construction products*
- CEN/TR 15941, *Sustainability of construction works — Environmental product declarations — Methodology for selection and use of generic data*
- EN 15942, *Sustainability of construction works — Environmental product declarations — Communication format - business to business*
- CEN/TR 16970:2016, *Sustainability of construction works - Guidance for the implementation of EN 15804*

1 Scope

This European Standard complements the core rules for the product category of construction products as defined in EN 15804:2012+A1:2013 and is intended to be used in conjunction with that standard.

This European Standard applies to concrete and concrete elements for building and civil engineering, excluded autoclaved aerated concrete.

This document defines the parameters to be reported, what EPD types (and life cycle stages) to be covered, what rules to be followed in order to generate Life Cycle Inventories (LCI) and conduct Life Cycle Impact Assessment (LCIA) and the data quality to be used in the development of EPDs.

In addition to the common parts of EN 15804:2012+A1:2013, this European Standard for concrete and concrete elements:

- defines the system boundaries;
- defines the modelling and assessment of material-specific characteristics;
- defines allocation procedures for multi-output processes along the production chain;
- defines allocation procedures for reuse and recycling;
- includes the rules for calculating the LCI and the LCIA underlying the EPD;
- provides guidance/specific rules for the determination of the reference service life (RSL);
- gives guidance on the establishment of default scenarios;
- gives guidance on default functional units for concrete elements.

This document is intended to be used either for cradle to gate, cradle to gate with options or cradle to grave assessment, provided the intentions are properly stated in the system boundary description.

Within the construction works context, a cradle to grave declaration delivers a more comprehensive understanding of the environmental impact associated with concrete and concrete elements.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 206:2013+A1:2016, *Concrete - Specification, performance, production and conformity*

EN 15804:2012+A1:2013, *Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*