
**Sustainability in buildings and civil
engineering works — Core rules for
environmental product declarations of
construction products and services**

*Développement durable dans les bâtiments et les ouvrages de génie
civil — Règles principales pour les déclarations environnementales
des produits de construction et des services*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 17, *Sustainability in buildings and civil engineering works*.

This second edition cancels and replaces the first edition (ISO 21930:2007), which has been technically revised with the following changes:

- updated to apply as the core set of product category rules (PCR) for environmental product declarations (EPDs) of any construction product or service used in any type of construction works;
- updated to apply to all construction products and services used in any type of construction works;
- guidance on PCR for sub-categories of construction products has been added;
- specific requirements on how to define system boundaries, allocation principles and activities to be included in information modules has been revised;
- framework for documentation of technical data and guidance for defining scenarios has been added;
- an option to provide supplementary environmental information (module D), which contains supplementary LCA-based information that describes potential environmental aspects (benefits and loads) if the primary product is reused, recycled or recovered for energy at the end-of-life has been added;
- process on how to develop an average EPD for product groups has been added;
- data requirements and data quality have been specified;
- accounting and reporting of biogenic carbon during the life cycle has been added;
- accounting and reporting of delayed emissions of biogenic carbon – biogenic carbon sinks has been added;
- accounting and reporting of carbonation has been added;

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- mandatory reporting of radioactive waste has been added;
- optional impact category abiotic depletion potentials (ADP_{elements}) and the mandatory inventory indicator abiotic depletion potential (ADP_{fossil}) have been added;
- an informative annex discussing possible approaches for reporting product volatile organic compound (VOC) emissions to indoor air and gamma radiation emitted during the use stage of the life cycle has been added;
- information on methods for reporting product emissions to air, soil and water during the use stage of the life cycle has been added.

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Introduction

Designers, manufacturers, users, owners and other stakeholders in the building and construction sector are increasingly demanding information that enables them to make decisions to address environmental impacts of construction works. These demands are currently addressed only through various national initiatives applying a variety of approaches.

It is essential that there is uniformity in the means and methods of expressing environmental product declarations (EPDs) using a modular approach, which enables consistent assessment at the construction works level. This includes a consistent outline and process for developing the parts of the EPD that are based on basic life cycle inventory data, as well as additional information not based on life cycle assessment (LCA). The different interested parties expect non-biased information that is consistent with the current best practice and understanding.

Type III environmental declarations (see ISO 14025) are EPDs providing quantified environmental data using predetermined parameters that are based on ISO 14040 and ISO 14044 and, where relevant, additional environmental information.

This document is one in a suite of documents dealing with sustainability in construction works that includes the following:

- a) ISO 15392;
- b) ISO 16745-1;
- c) ISO 16745-2;
- d) ISO 21929-1;
- e) ISO 21931-1;
- f) ISO/TS 12720;
- g) ISO/TS 21929-2;
- h) ISO/TR 21932;
- i) ISO/CD 20887;¹⁾
- j) ISO/DIS 21931-2.¹⁾

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This document deals only with environmental impacts and aspects and excludes consideration of the social and economic aspects of sustainability. The relationship among the documents is elaborated in [Figure 1](#).

1) Under preparation.

<p>Methodological basics</p>	<p>ISO 15392: Sustainability in building construction — General principles ISO/TS 12720: Sustainability in buildings and civil engineering works — Guidelines on the application of the general principles in ISO 15392 ISO/TR 21932: Sustainability in buildings and civil engineering works — A review of terminology ISO/CD 20887: Sustainability in buildings and civil engineering works — Design for disassembly and adaptability of buildings (under preparation)</p> <p>ISO 21929-1: Sustainability in building construction — Sustainability indicators — Part 1: Framework for the development of indicators and a core set of indicators for buildings ISO/TS 21929-2: Sustainability in building construction — Sustainability indicators — Part 2: Framework for the development of indicators for civil engineering works</p>		
<p>Construction works</p>	<p>ISO 16745-1: Sustainability in buildings and civil engineering works — Carbon metric of an existing building during use stage — Part 1: Calculation, reporting and communication</p> <p>ISO 16745-2: Sustainability in buildings and civil engineering works — Carbon metric of an existing building during use stage — Part 2: Verification</p> <p>ISO 21931-1: Sustainability in building construction — Framework for methods of assessment of the environmental performance of construction works — Part 1: Buildings</p>	<p>ISO 21930:2017 http://www.iso.org/standards/catalog/standards/sist/0f1fd0af-a5b8-46c1-b3f5-5a9afacade/iso-21930-2017</p>	<p>ISO/DIS 21931-2: Sustainability in buildings and civil engineering works — Framework for methods of assessment of the sustainability performance of construction works — Part 2: Civil engineering works (under preparation)</p>
<p>Construction products and services</p>	<p>ISO 21930: Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services</p>		
	<p>Environmental aspects</p>	<p>Economic aspects</p>	<p>Social aspects</p>

Figure 1 — Suite of related documents for sustainability in buildings and civil engineering works

Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services

1 Scope

This document provides the principles, specifications and requirements to develop an environmental product declaration (EPD) for construction products and services, construction elements and integrated technical systems used in any type of construction works.

This document complements ISO 14025 by providing specific requirements for the EPD of construction products and services.

This document establishes a core set of requirements to be considered as core product category rules (PCR) to develop an EPD for any construction product or service.

In addition, this document, as the core PCR document for construction products, construction elements and integrated technical systems:

- a) includes the rules for calculating the life cycle inventory analysis (LCI), the predetermined environmental indicators and the life cycle impact assessment (LCIA) results that are reported in the EPD;
- b) describes which life cycle stages are considered in a particular type of EPD, which processes are to be included in the life cycle stages and how the stages are subdivided into information modules;
- c) defines rules for the development of scenarios;
- d) includes the rules for reporting relevant environmental and technical information that are not covered by LCA;
- e) defines the core elements to be included in an EPD;
- f) establishes the structure of a project report;
- g) defines the conditions under which construction products can be compared, based on the information provided by an EPD;
- h) provides requirements and guidelines on PCR for sub-categories of construction products;
- i) includes mandatory and unalterable requirements for any PCR based on this document.

EPDs for construction products, as described in this document, are primarily intended for use in B2B communication, but their use in B2C communication under certain conditions is not precluded. For EPDs intended for B2C communication, refer to ISO 14025 (see 5.4).

The assessment of social and economic impacts at the product level is not covered by this document.

NOTE 1 In this document, unless otherwise designated, the term construction product is used for any good(s) or service(s) related to construction works.

NOTE 2 Construction assemblies, construction elements and integrated technical systems, incorporated within construction works, can be considered construction products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6707-1, *Buildings and civil engineering works — Vocabulary — Part 1: General terms*

ISO 14020:2000, *Environmental labels and declarations — General principles*

ISO 14025:2006, *Environmental labels and declarations — Type III environmental declarations — Principles and procedures*

ISO 14044:2006, *Environmental management — Life cycle assessment — Requirements and guidelines*

ISO 14046:2014, *Environmental management — Water footprint — Principles, requirements and guidelines*

ISO 14050:2009, *Environmental management — Vocabulary*

ISO 15392:2008, *Sustainability in building construction — General principles*

ISO 15686-1:2011, *Buildings and constructed assets — Service life planning — Part 1: General principles and framework*

ISO 15686-2, *Buildings and constructed assets — Service life planning — Part 2: Service life prediction procedures*

ISO 15686-7, *Buildings and constructed assets — Service life planning — Part 7: Performance evaluation for feedback of service life data from practice*

ISO 15686-8, *Buildings and constructed assets — Service-life planning — Part 8: Reference service life and service-life estimation*

ISO 21931-1:2010, *Sustainability in building construction — Framework for methods of assessment of the environmental performance of construction works — Part 1: Buildings*

ISO/TR 21932, *Sustainability in buildings and civil engineering works — A review of terminology*

EN 15804, *Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6707-1, ISO 14050, ISO/TR 21932 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 Terms relating to environmental labelling and declarations

3.1.1

environmental product declaration

EPD

Type III environmental declaration

environmental declaration (ISO 14025:2006, 3.1) providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information

Note 1 to entry: The predetermined parameters are based on ISO 14040 and ISO 14044.

Note 2 to entry: The additional environmental information can be quantitative or qualitative.

Note 3 to entry: The shorter initialism, EPD, is used as the primary preferred term in this document.

[SOURCE: ISO 14025:2006, 3.2, modified — Two new preferred terms and Note 3 to entry have been added.]

3.1.2

programme operator

body or bodies that conduct an *EPD programme* (ISO 14025:2006, 3.3)

Note 1 to entry: A programme operator can be a company or a group of companies, industrial sector or trade association, public authority or agency, or an independent scientific body or other organization.

Note 2 to entry: The responsibilities of a programme operator are summarized in ISO 14025:2006, 6.3.

[SOURCE: ISO 14025:2006, 3.4, modified — Note 2 to entry has been added.]

3.1.3

product category

group of *construction products* (3.2.2), *construction elements* (3.2.3) or *integrated technical systems* (3.2.4) that can fulfil equivalent functions

Note 1 to entry: Where the function of the construction product is not otherwise described, the product category can be established on the basis of using the same rules when assessing the *environmental performance* (3.2.9) within an *EPD* (3.1.1). An example of this would be a product category for solid *wood* (ISO 6707-1:2004, 6.3.1), where EPDs based on the same *PCR* (3.1.3) are published for a number of different *timber* (ISO 6707-1:2004, 6.3.2) construction products, e.g. softwood *plywood* (ISO 6707-1:2004, 6.3.29), *sawn timber* (sawn wood) (ISO 6707-1:2004, 6.3.18), *oriented strandboard* (ISO 16894:2009, 3.1.1), etc.

Note 2 to entry: This definition reflects and allows for current practice, in that it provides the ability for a product category to be established and not include the necessity of common functionality within such a product category.

[SOURCE: ISO 14025:2006, 3.12, modified — Notes 1 and 2 to entry have been added to allow for the establishment of the product category and basis for assessment to be either equivalent function or equivalent PCR.]

3.1.4

product category rules

PCR

set of specific rules, requirements and guidelines for developing *EPDs* (3.1.1) for one or more *product categories* (3.1.3)

Note 1 to entry: The shorter initialism, PCR, is used as the primary preferred term in this document.

[SOURCE: ISO 14025:2006, 3.5, modified — Note 1 to entry has been added.]

3.1.5

sub-category PCR

set of specific rules, requirements and guidelines, which provide additional, consistent requirements to the core PCR (3.1.4), for developing EPDs (3.1.1) for sub-categories of the overall *product category* (3.1.3) of *construction products* (3.2.2)

Note 1 to entry: A sub-category PCR is meant to be used together with this document.

3.1.6

PCR review

process whereby a *third party* (3.1.7) panel verifies the PCR (3.1.4)

[SOURCE: ISO 14025:2006, 3.6]

3.1.7

third party

person or body that is recognized as being independent of the parties involved concerning the issues in question

Note 1 to entry: “Parties involved” are usually the *supplier* (ISO 6707-1:2004, 8.6) or *manufacturer* (ISO 6707-1:2004, 8.5) (“first party”), the LCA practitioner conducting the LCA (3.3.2) and/or developing the EPD (3.1.1) (“second party”) and the *verifier* (ISO 14050:2009, 5.3) (“third party”).

[SOURCE: ISO 14024:1999, 3.7, modified— Note 1 to entry has been revised.]

3.1.8

scenario

collection of assumptions and information relevant to possible future events

[SOURCE: EN 15804:2012 +A1:2013, 3.27, modified — Reference to “concerning an expected sequence” has been removed.]

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3.1.9

information module

compilation of data to be used as a basis for an EPD (3.1.1), covering a *unit process* (3.4.1) or a combination of unit processes that are part of the *life cycle* (ISO 14040:2006, 3.1) of a *product* (ISO 14050:2009, 3.2)

[SOURCE: ISO 14025:2006, 3.13]

3.1.10

additional technical information

information (ISO 6707-1:2004, 7.2.1) that forms part of the EPD (3.1.1) by providing a basis for the development of *scenarios* (3.1.8)

[SOURCE: EN 15804:2012 +A1:2013, 3.1]

3.1.11

declared unit

quantity of a *construction product* (3.2.2) for use as a reference unit in an EPD (3.1.1) based on LCA (3.3.2), for the expression of environmental information needed in *information modules* (3.1.9)

EXAMPLE Mass (kilogram or metric tonne), volume (cubic metre).

Note 1 to entry: The declared unit is used where the *function* (ISO 15686-10:2010, 3.10) and the reference *scenario* (3.1.8) for the whole *life cycle* (3.3.1), on the *construction works* (3.2.1) level, cannot be stated.

3.1.12

average EPD

EPD (3.1.1) based on *average data* (3.5.6)

3.2 Terms relating to construction works and construction products

3.2.1

construction works

everything that is constructed or results from construction operations

Note 1 to entry: Construction works covers all *buildings* (ISO 6707-1:2004, 3.1.3) and *civil engineering works* (ISO 6707-1:2004, 3.1.2).

[SOURCE: ISO 6707-1:2004, 3.1.1, modified — Note 1 to entry has been added.]

3.2.2

construction product

item manufactured or processed for incorporation in *construction works* (3.2.1)

Note 1 to entry: Construction products are items supplied by a single responsible body.

Note 2 to entry: In this document, unless otherwise designated, the term construction product is used for any good(s) or service(s) related to construction works.

Note 3 to entry: *Construction assemblies* (ISO 6707-1:2004, 5.5.5), *construction elements* (3.2.3) and *integrated technical systems* (3.2.4), incorporated within construction works, can be considered construction products.

[SOURCE: ISO 6707-1:2004, 6.1.2, modified — “Construction product” has been indicated as the primary preferred term used to designate this concept and Notes to entry have been added.]

3.2.3

construction element

part of a *construction* (ISO 6707-1:2004, 5.5.6) containing a defined combination of *construction products* (3.2.2)

[SOURCE: EN 15804:2012 +A1:2013, 3.9] ISO 21930:2017

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3.2.4

integrated technical systems

installed technical equipment to support the operation of *construction works* (3.2.1)

Note 1 to entry: This includes technical equipment for heating, cooling, ventilation, domestic hot water, lighting and electricity production and other systems for sanitation, security, fire safety and internal transport.

Note 2 to entry: This can include technical systems that are integrated into *construction products* (3.2.2), such as interfaces for electronic controls.

Note 3 to entry: Derived from the definition of “technical building systems” in ISO 16818:2008, 3.225.

3.2.5

product group

group of *construction products* (3.2.2), *construction elements* (3.2.3) or *integrated technical systems* (3.2.4) that can fulfil equivalent functions for a specific *sub-category PCR* (3.1.5)

Note 1 to entry: The product group can be made by the same *manufacturer* (ISO 6707-1:2004, 8.5) or made by different manufacturers.

3.2.6

construction service

activity that supports the *construction works* (3.2.1) or subsequent *maintenance* (ISO 6707-1:2004, 7.1.40)

[SOURCE: EN 15804:2012 +A1:2013, 3.6, modified — Reference to construction works has been inserted.]

3.2.7

performance

ability of a *construction product* (3.2.2) or *construction service* (3.2.6) to fulfil required functions under intended use conditions

[SOURCE: ISO 6707-1:2004, 9.1.1, modified — Specific reference to construction product and construction service have been added and the second intension, “behaviour in use”, has been removed.]

3.2.8

functional equivalent

quantified functional requirements and/or technical requirements for a *construction works* (3.2.1) or a *construction* (ISO 6707-1: 2004, 5.5.6) (part of works) for use as a basis for comparison

[SOURCE: ISO 21931-1:2010, 3.7, modified — References have been added to expand concept to apply to all construction works and also indicate that a construction (part of the works) can also be assigned a functional equivalent.]

3.2.9

environmental performance

performance (3.2.7) related to *environmental impacts* (ISO 15392:2008, 3.13.2) and *environmental aspects* (ISO 15392:2008, 3.10)

[SOURCE: ISO 15392:2008, 3.12]

3.2.10

construction site

area where *construction work* (ISO 6707-1:2004, 7.1.1) is undertaken or *construction services* (3.2.6) are provided

[SOURCE: ISO 6707-1:2004, 3.1.6, modified — To indicate “construction site” as the preferred term, generalize the concept to an “area”, and to include construction services and exclude other development.]

3.2.11

service life

period of time after installation during which a *construction works* (3.2.1) or its parts meet or exceed the *performance requirement(s)* (ISO 6707-1:2004, 9.1.16)

[SOURCE: ISO 6707-1:2004, 9.3.84, modified — Reference to building has been changed to construction works.]

3.2.12

reference service life

RSL

service life (3.2.11) of a *construction product* (3.2.2) which is known to be expected under a set of *reference in-use conditions* (3.2.16) and which can form the basis for estimating the service life under other *in-use conditions* (3.2.15)

Note 1 to entry: The RSL is described as part of the *functional unit* (3.4.5) and considered in the calculation of replacements at both the construction product level and *construction works* (3.2.1) level (B4) and *refurbishment* (ISO 6707-1:2004, 7.19) (B5) (see 7.1.7.4).

Note 2 to entry: The shorter initialism, RSL, is used as the primary preferred term in this document.

[SOURCE: ISO 15686-1:2011, 3.22, modified — Reference to construction product has been inserted to capture broad group and Notes to entry have been added.]

3.2.13**estimated service life****ESL**

service life (3.2.11) that part(s) of a *construction works* (3.2.1) would be expected to have in a set of specific *in-use conditions* (3.2.15), determined from *RSL data* (3.2.17) after taking into account any differences from the *reference in-use conditions* (3.2.16)

Note 1 to entry: The ESL is considered in the calculation of replacements at both the *construction product* (3.2.2) level and *construction works* (3.2.1) level (B4) and *refurbishment* (ISO 6707-1:2004, 7.19) (B5) (see 7.1.7.4).

Note 2 to entry: The shortened term, ESL, is used as the primary preferred term in this document.

[SOURCE: ISO 15686-1:2011, 3.7, modified — Specific reference has been made to (a) part(s) of a construction works and Notes to entry have been added.]

3.2.14**required service life**

service life (3.2.11) required by the client or through regulations

Note 1 to entry: The required service life is considered in the calculation of replacements at both the *construction product* (3.2.2) level and *construction works* (3.2.1) level (B4) and *refurbishment* (ISO 6707-1:2004, 7.19) (B5) (see 7.1.7.4).

3.2.15**in-use condition**

any circumstance that can impact on the *performance* (3.2.7) of a *construction works* (3.2.1) or a *constructed asset* (ISO 15686-1:2011, 3.1.15), or a part thereof, under normal use

Note 1 to entry: See ISO 15686-8 for further discussion.

[SOURCE: ISO 15686-1:2011, 3.10, modified — Reference to building has been changed to construction works and Note 1 to entry has been revised.]

3.2.16**reference in-use condition**

in-use condition (3.2.15) under which the reference *RSL data* (3.2.17) are valid

Note 1 to entry: See ISO 15686-8 for further discussion.

Note 2 to entry: The reference in-use conditions can be based upon information gathered through testing or from recorded *performance* (3.2.7) and actual *service life* (3.2.11) data of a *component* (ISO 6707-1:2004, 6.1.3).

[SOURCE: ISO 15686-1:2011, 3.21, modified — Note 1 to entry has been revised.]

3.2.17**reference service life data****RSL data**

information that includes the *RSL* (3.2.12) and any qualitative or quantitative data describing the validity of the RSL

Note 1 to entry: Typical data describing the validity of the RSL include the description of the *component* (ISO 6707-1:2004, 6.1.3) for which it applies, the *reference in-use conditions* (3.2.16) under which it applies and its *quality* (ISO 6707-1:2004, 9.1.12).

Note 2 to entry: The shortened term, RSL data, is used as the primary preferred term in this document.

[SOURCE: ISO 15686-1:2011, 3.23, modified — Note 1 entry has been replaced by Note 2 to entry and a new Note 2 to entry has been added.]