
**Sustainability in building construction —
Environmental declaration of building
products**

*Bâtiments et ouvrages construits — Développement durable dans la
construction — Déclaration environnementale des produits de
construction*

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ISO 21930:2007

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 21930 was prepared by Technical Committee ISO/TC 59, *Building construction*, Subcommittee SC 17, *Sustainability in building construction*.

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Introduction

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

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 that is based on basic life-cycle inventory data and additional information not based on life-cycle assessment (LCA). The user expects non-biased information, which is expected to be consistent with the best current practice and understanding over the lifetime of the standard.

According to the set of four International Standards dealing with environmental labelling, (ISO 14020, ISO 14021, ISO 14024 and ISO 14025), environmental labels and declarations are divided into three principal types:

- General principles: ISO 14020;
- Self-declared environmental claims, type II environmental labelling (ISO 14021);
- Principles and procedures of environmental labels and declarations, types I and III environmental labelling (ISO 14024 and ISO 14025).

This International Standard is one in a suite of International Standards dealing with sustainability in building construction that includes the following:

- a) ISO 15392 Sustainability in building construction — General principles;
- b) ISO 21932 Buildings and constructed assets — Sustainability in building construction — Terminology;
- c) ISO/TS 21929-1 Sustainability in building construction — Sustainability indicators — Part 1: Framework for development of indicators for buildings;
- d) ISO 21930 Sustainability in building construction — Environmental declaration of building products;
- e) ISO/TS 21931-1 Sustainability in building construction — Framework for methods of assessment for environmental performance of construction works — Part 1: Buildings.

Unlike the International Standards listed in a), b), c) and e), ISO 21930 (this International Standard) deals only with environmental impacts and aspects and excludes consideration of the social and economic aspects of sustainability. The relationship among the International Standards is elaborated in Figure 1.

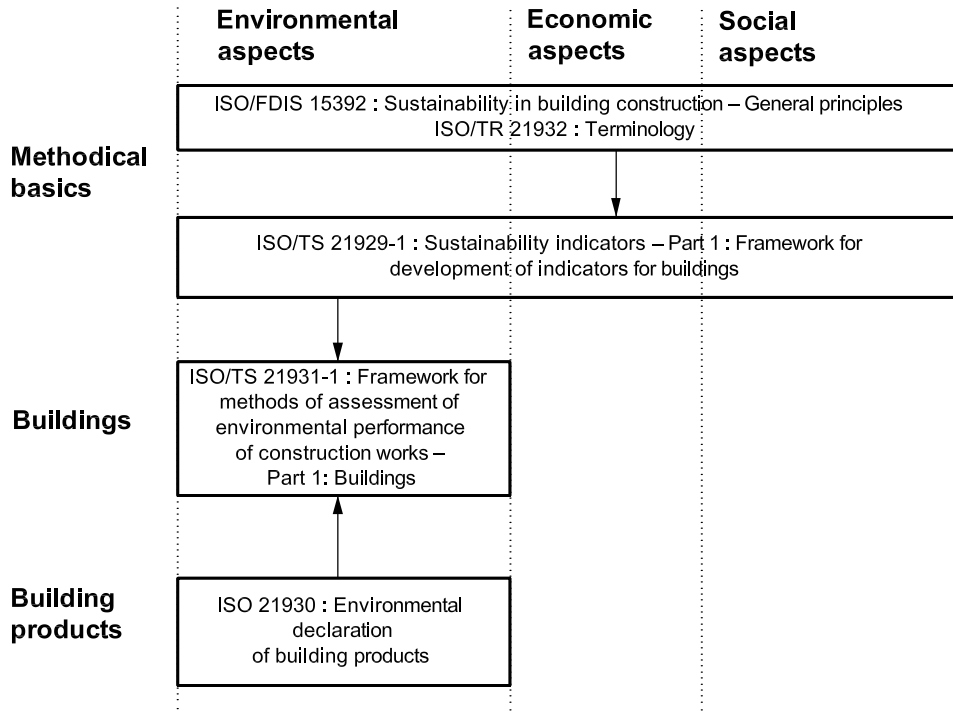


Figure 1 – Suite of related International Standards for sustainability in building construction and construction works (standards.iteh.ai)

The purpose of this International Standard is to describe the principles and framework for environmental declaration of building products, including consideration of the reference service life of the building products, seen over a building's life cycle. This International Standard is expected to form the basis for type III environmental declaration programmes leading to type III environmental declarations of building products as described in ISO 14025.

Sustainability in building construction — Environmental declaration of building products

1 Scope

This International Standard provides the principles and requirements for type III environmental declarations (EPD) of building products.

This International Standard contains specifications and requirements for the EPD of building products. Where this International Standard contains more specific requirements, it complements ISO 14025 for the EPD of building products.

This International Standard provides a framework for and the basic requirements for product category rules (PCR) as defined in ISO 14025 for type III environmental declarations of building products. Type III environmental declarations for building products, as described in this International Standard, are primarily intended for use in business-to-business communication, but their use in business-to-consumer communication under certain conditions is not precluded.

This International Standard does not define requirements for developing type III environmental declaration programmes. Requirements for type III environmental declaration programmes are found in ISO 14025.

The working environment is not included in this International Standard because it is normally a subject for national legislation.

NOTE In this International Standard, EPD is an abbreviation used to represent both the single and plural full form designation of “environmental product declaration”, which is intended to be synonymous with the designation “type III environmental declaration”. In the practice of developing EPD, programmes or their declarations are referred to by various names such as eco-leaf, eco-profile, environmental declaration of product, environmental product declaration (EPD), and environmental profile.

2 Normative references

The following referenced documents are indispensable for the application 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, *Building and civil engineering — Vocabulary — Part 1: General terms*

ISO 14001, *Environmental management systems — Requirements with guidance for use*

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

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

ISO 14040, *Environmental management — Life cycle assessment — Principles and framework*

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

ISO 14050, *Environmental management — Vocabulary*

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

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

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6707-1, ISO 14001, ISO 14025, ISO 14040 and ISO 14050, and the following apply.

NOTE The terms and definitions in ISO 21932, under preparation at the publication date of this International Standard, will apply when the document is available.

3.1 ancillary product
complementary product
building product (3.2) that enables another building product to fulfil its purpose in the intended application

EXAMPLE Fasteners used to attached structural panels to framing members.

3.2 building product
goods or services used during the life cycle of a building or other construction works

[Adapted from ISO 6707-1 and ISO 14021] [ISO 21930:2007](https://standards.iteh.ai/catalog/standards/sist/85d524-6fd2-4b49-9e5e-10c3012-0154-21930-2007)

NOTE 1 In this International Standard, the term “product” used alone relates not only to goods or product systems but can also include service systems. In either case, the declaration is presented in a manner that clearly indicates whether the declaration applies to goods, or to only a part of the goods or packaging, or to an element of service. This is discussed in ISO 14025:2006, 7.2.2.

NOTE 2 The manufacturing or processing of goods used as building products can take place at the factory or on the construction site.

NOTE 3 The use of services can occur at any stage of the life cycle of the building or other construction works.

NOTE 4 It is possible to have an **EPD** (3.16) for a material, a building product, a component, an assembly and/or a building element. The EPD of a component, assembly or building element can incorporate the results of the EPD of all the assembled materials and building products. This is described in ISO 14025:2006, 5.4.

3.3 characterization factor
factor derived from a characterization model which is applied to convert an assigned life-cycle inventory analysis (LCI) result to the common unit of the category indicator

[Adapted from ISO 14044]

3.4 declared unit
quantity of a **building product** (3.2) for use as a reference unit in an **EPD** (3.16), based on LCA, for the expression of environmental information needed in **information modules** (3.7)

EXAMPLES Mass (kilogram), volume (cubic metre).

NOTE The declared unit is used where the function and the reference scenario for the whole life cycle, on the building level, cannot be stated.

3.5**functional unit**

quantified performance of a product system for a **building product** (3.2) for use as a reference unit in an **EPD** (3.16) based on LCA

[Adapted from ISO 14040]

3.6**gate**

point at which the **building product** (3.2) or material leaves the factory before it becomes an input into another manufacturing process or before it goes to the distributor, a factory or building site

3.7**information module**

compilation of data to be used as a basis for a **type III environmental declaration** (3.16), covering a unit process or a combination of unit processes that are part of the life cycle of a product

[ISO 14025]

3.8**non-renewable resource**

resource that exists in a fixed amount that cannot be replenished on a human time scale

3.9**PCR review**

process whereby a **third party** (3.15) verifies the **product category rules** (3.11)

[ISO 14025]

3.10**product category**

group of **building products** (3.2) that can fulfill equivalent functions

[Adapted from ISO 14025]

3.11**product category rules****PCR**

set of specific rules, requirements and guidelines for developing **type III environmental declarations** (3.16) for one or more **product categories** (3.10)

[ISO 14025]

3.12**reference service life**

service life of a **building product** (3.2) that is known or expected under a particular set, i.e., a reference set, of in-use conditions and that may form the basis of estimating the service life under other in-use conditions

[Adapted from ISO 15686-1]

NOTE The reference service life is applied in the **functional unit** (3.5)/**declared unit** (3.4).

3.13**renewable resource**

resource that is grown, naturally replenished or cleansed on a human time scale

EXAMPLES Trees in forests, grasses in grasslands and fertile soil.

NOTE A renewable resource is capable of being exhausted but can last indefinitely with proper stewardship.

**3.14
secondary fuels**

fuels or fuel products that are derived from primary fuels

EXAMPLES Gasoline, gasified coal and lubricants.

**3.15
third party**

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

[ISO 14024]

NOTE "Parties involved" are usually supplier ("first party") and purchaser ("second party").

**3.16
type III environmental declaration
environmental product declaration
EPD**

environmental declaration providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information

NOTE 1 The predetermined parameters are based on ISO 14040 and ISO 14044.

NOTE 2 The additional environmental information may be quantitative or qualitative.

[ISO 14025]

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**3.17
waste**

substances or objects which the holder intends or is required to dispose of

[ISO 21930:2007](https://standards.iteh.ai/catalog/standards/sist/85dbb524-6fd2-4b49-9e5e-7b3c25e6f276/iso-21930-2007)

[ISO 14040]

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NOTE The definition is taken from the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal* (22 March 1989) but is not confined in this International Standard to hazardous waste.

4 Units and abbreviated terms

4.1 Units

energy mega joule or kilowatt hour

mass tonne (metric ton) or kilogram or gram

surface square metres

volume cubic metres

4.2 Abbreviated terms

EPD environmental product declaration

PCR product category rules

LCA life-cycle assessment

LCI	life-cycle inventory analysis
LCIA	life-cycle impact assessment

5 General aspects of type III environmental product declarations (EPD) of building products

5.1 Objectives of EPD of building products

The overall goal of environmental declarations is to encourage the demand for, and supply of, building products that cause less stress on the environment, through communication of verifiable and accurate information on environmental aspects of those building products that is not misleading, thereby stimulating the potential for market-driven, continuous environmental improvement.

This International Standard is provided to ensure the transparency of the methodology applied for developing the EPD for building products. The methodology should be consistent, scientifically robust and should ensure that all environmental impacts are completely accounted for without double counting.

In addition to the requirements of this International Standard, the principles and procedures set out in ISO 14025 and ISO 15392 shall apply. This International Standard contains additional specifications and requirements for the EPD of building products. Where this International Standard contains more specific requirements, it complements ISO 14025 for the EPD of building products. In addition, the environmental declaration principles as described in ISO 14020 apply.

The EPD of building products are intended to provide information for planning and assessing buildings. EPD can also be used by other interested parties, such as purchasers, architects, etc., to compare the environmental impacts of building products under certain conditions.

EPD are based on LCA, LCI and/or information modules. Relevant environmental aspects that have not been covered by LCA are addressed as additional environmental information; see 8.2.4.

5.2 Involvement of interested parties

The process of developing EPD should include an open, participatory consultation with interested parties. Reasonable efforts should be made to achieve a consensus throughout the process; see ISO 14020:2000, 4.9.1, Principle 8.

The interested parties for type III environmental declaration programmes may include, but are not limited to, material suppliers, manufacturers, trade associations, purchasers, users, consumers, non-governmental organizations, public agencies and, when relevant, independent parties and certification bodies.

“Open consultation” is strongly recommended, but does not necessarily imply a public consultation. The programme operator has a responsibility for ensuring that appropriate consultations take place to ensure credibility and transparency in the operation of the programme; see ISO 14025:2006, 6.5. Open consultation may include competitors of the organization(s) developing the programme or the PCR.

5.3 Responsibility for the EPD

The manufacturer, or group of manufacturers, of the building product is the sole owner of the data and takes liability and responsibility for the EPD of the building product, according to the PCR. Apart from these manufacturers, no one is authorized to declare the environmental performance of the building product.

The development of type III environmental declarations is voluntary and is based on the type III environmental declaration programme; see ISO 14025:2006, Clause 6.

5.4 Use of EPD of building products

The environmental information on building products is intended mainly for business-to-business communication and its prime purpose is to provide measurable and verifiable input for the assessment of the environmental performance of buildings. However, some EPD may be used in the business-to-consumer marketplace and the user of this International Standard shall follow the provisions of ISO 14025:2006, Clause 9.

The users of this International Standard are both the information providers and information users, including those setting up type III environmental declaration programmes.

5.5 Building product information modules

An EPD of a building product provides information for the assessment of the environmental performance of buildings; see ISO/TS 21931-1. The way in which this information can be used for such an assessment is to combine the environmental impacts of the individual life-cycle stages from materials, products, components or services; see ISO 14025:2006, 5.4 and 7.2.5.

In many cases, EPD are prepared for building products for which specific stages of the life cycle are not considered. This can be the case for building materials or components where multiple functions in a building are possible and, therefore, stages of use and disposal are not known.

Where appropriate and justified, the environmental impact of the building product may be given for any part of the life cycle, [e.g. only the production stage, “*cradle to gate*” or as a “*cradle to gate with option*”; see Figure 2)]. In this case, the EPD is not based on a LCA but on one or more information modules; see ISO 14025:2006, 5.4.

When the EPD includes only certain life-cycle stages, the EPD becomes an information module. In this case, the EPD is expressed per declared unit; see 6.2.4.

However, where the EPD includes all life-cycle stages, such as production, installation into the building, use and maintenance, replacements, demolition, recycling and disposal, the EPD is said to be “*cradle to grave*” and becomes an EPD of building products based on LCA. The material and energy flows for an EPD based on LCA are expressed per functional unit; see 6.2.3.

If the information modules considered in a type III environmental declaration do not cover the life cycle, then it shall be stated.

NOTE 1 A modular build-up of the information sets from the life-cycle stages can be envisaged from the data in the building chain. This reflects the fact that a building or any other construction works is the end product of a project-based process that encompasses the construction and assembly of building products and/or customised building elements from various industries. An EPD of construction materials or components can be considered as information modules of an EPD of the finished building product. An EPD of a finished building product can be based on, but is not limited to, the combination of these information modules in order to achieve a complete EPD.

NOTE 2 It is possible to have an EPD for a material, for a building product and for a component, an assembly and/or a building element. The EPD of a component, assembly or building element can incorporate the results of the EPD of all the assembled materials and building products. This is described in ISO 14025:2006, 5.4.

NOTE 3 Annex A gives a practical illustration of a typical product chain for a building, including materials, intermediate products and final products. Annex A also gives the example of a window, illustrating how information modules related to different materials and parts of a building product and different stages of the life cycle can be combined in order to obtain the information for a product system for which LCA results can be determined.