SLOVENSKI STANDARD
SIST EN ISO 22057:2022

01-julij-2022

Trajnostnost stavb in gradbenih inženirskih objektov - Podatkovne predloge za uporabo okoljskih deklaracij proizvodov (EPD) za gradbene proizvode v informacijskem modeliranju stavb (BIM) (ISO 22057:2022)

Sustainability in buildings and civil engineering works - Data templates for the use of environmental product declarations (EPDs) for construction products in building information modelling (BIM) (ISO 22057:2022)

Nachhaltigkeit von Bauwerken - Datenvorlagen für die Verwendung von EPDs für Bauprodukte in BIM (ISO 22057:2022)

Développement durable dans les bâtiments et ouvrages de génie civil - Modèles de données pour l'utilisation des déclarations environnementales de produits (DEP) pour les produits de construction dans la modélisation des informations de la construction (BIM) (ISO 22057:2022)

Ta slovenski standard je istoveten z: **EN ISO 22057:2022**

ICS:

35.240.67	Uporabniške rešitve IT v gradbeništvu	IT applications in building and construction industry
91.040.01	Stavbe na splošno	Buildings in general

SIST EN ISO 22057:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 22057

April 2022

ICS 91.040.01; 35.240.67

English Version

Sustainability in buildings and civil engineering works - Data templates for the use of environmental product declarations (EPDs) for construction products in building information modelling (BIM) (ISO 22057:2022)

Développement durable dans les bâtiments et ouvrages de génie civil - Modèles de données pour l'utilisation des déclarations environnementales de produits (DEP) pour les produits de construction dans la modélisation des informations de la construction (BIM) (ISO 22057:2022)

Nachhaltigkeit von Bauwerken - Datenvorlagen für die Verwendung von EPDs für Bauprodukte in BIM (ISO 22057:2022)

This European Standard was approved by CEN on 13 March 2022.

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European foreword

This document (EN ISO 22057:2022) has been prepared by Technical Committee ISO/TC 59 "Buildings and civil engineering works" in collaboration with Technical Committee CEN/TC 350 “Sustainability of construction works” 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of an identical text or by endorsement, at the latest by October 2022, and conflicting national standards shall be withdrawn at the latest by October 2022.

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

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Endorsement notice

The text of ISO 22057:2022 has been approved by CEN as EN ISO 22057:2022 without any modification.

INTERNATIONAL STANDARD

ISO 22057

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Sustainability in buildings and civil engineering works — Data templates for the use of environmental product declarations (EPDs) for construction products in building information modelling (BIM)

Développement durable dans les bâtiments et ouvrages de génie civil — Modèles de données pour l'utilisation des déclarations environnementales de produits (DEP) pour les produits de construction dans la modélisation des informations de la construction (BIM)

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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).

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For an explanation of 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 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,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 350, *Sustainability of construction works,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Environmental product declarations (EPDs) are Type III environmental declarations (see ISO 14025) that provide quantified environmental data using predetermined parameters based on ISO 14040 and ISO 14044 and, where relevant, additional environmental information. ISO 21930, EN 15804:2012+A1:2013 and EN 15804:2012+A2:2019 are standardized sources of the core product category rules (PCR) to develop EPDs for construction products to provide modular data to enable consistent assessment of environmental impacts at the construction works level.

All types of assessment at construction works level are complex; and building information modelling (BIM) provides a process for describing and displaying information required in the planning, design, construction, operation and end-of-life of constructed facilities. The BIM approach is expanding to encompass all aspects of the built environment, including civil infrastructure, utilities and public spaces. Designers, owners and other stakeholders in the construction sector are increasingly looking to BIM to assist them in addressing the environmental impacts of construction works.

The ISO 19650 series sets out the recommended concepts and principles for business processes to support the management and production of information during the life cycle of constructed assets when using BIM. To do this, standardization is of the highest importance. Machine-interpretable data are essential to providing a reliable and sustainable exchange of information; and a data template supports the standardized provision of data in machine-interpretable data sheet formats for use in BIM. The data provided in EPDs, like other construction product data, are therefore needed in a machine-interpretable format to enable their use in BIM.

Data templates enable construction project stakeholders to exchange information about construction objects throughout the life cycle of a constructed asset, using the same data structure, terminology, and globally unique identifiers to enable the data to be machine-interpretable and interoperable. Data templates should be standardized and made available across the built environment sector through data dictionaries based on ISO 12006-3.

This document provides and explains the data template structure to support the provision of both EPD and generic life cycle assessment (LCA) data in standardized machine-interpretable data sheet formats to assist in the assessment of the environmental performance of the construction works over its life cycle. The mechanism used in this document to enable this is a data template created following ISO 23386 and ISO 23387 and the resulting data sheet.

This includes both mandatory and optional data from different types of EPD, such as, average EPD (see ISO 21930:2017, Annex B), and other relevant information necessary for use of EPDs at the construction works level within a BIM environment. Figure 1 shows the relationship between data, data templates, data sheets, BIM and environmental assessment at the construction works level.

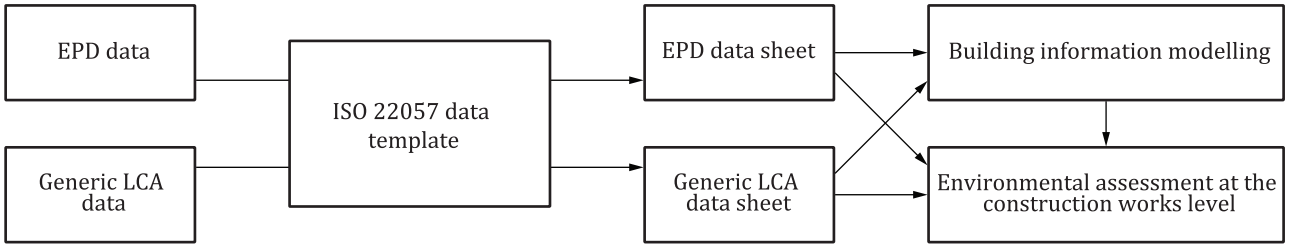

Figure 1 — Relationship between data, data templates, data sheets, BIM and environmental assessment at the construction works level

Providing the data from an EPD according to ISO 21930, EN 15804:2012+A1:2013 or EN 15804:2012+A2:2019 in machine-interpretable format means some information needs to be standardized in ways not considered in those standards. Historically, the indicator data for gate-to-grave information modules from a machine-interpretable EPD were often not used because the description of the scenario information was not concurrently provided in machine-interpretable format; and/or the data were not provided in a sufficiently flexible fashion to allow adaption for different scenarios at

the construction works level. Responding to these needs, this document provides specifications for the provision of gate-to-grave scenario data for an EPD in machine-interpretable formats, so the data are more appropriate for environmental assessment at the construction works level when using BIM.

Figure 2 shows the relationship between this document and other standards for buildings and civil engineering works related to BIM and sustainability.

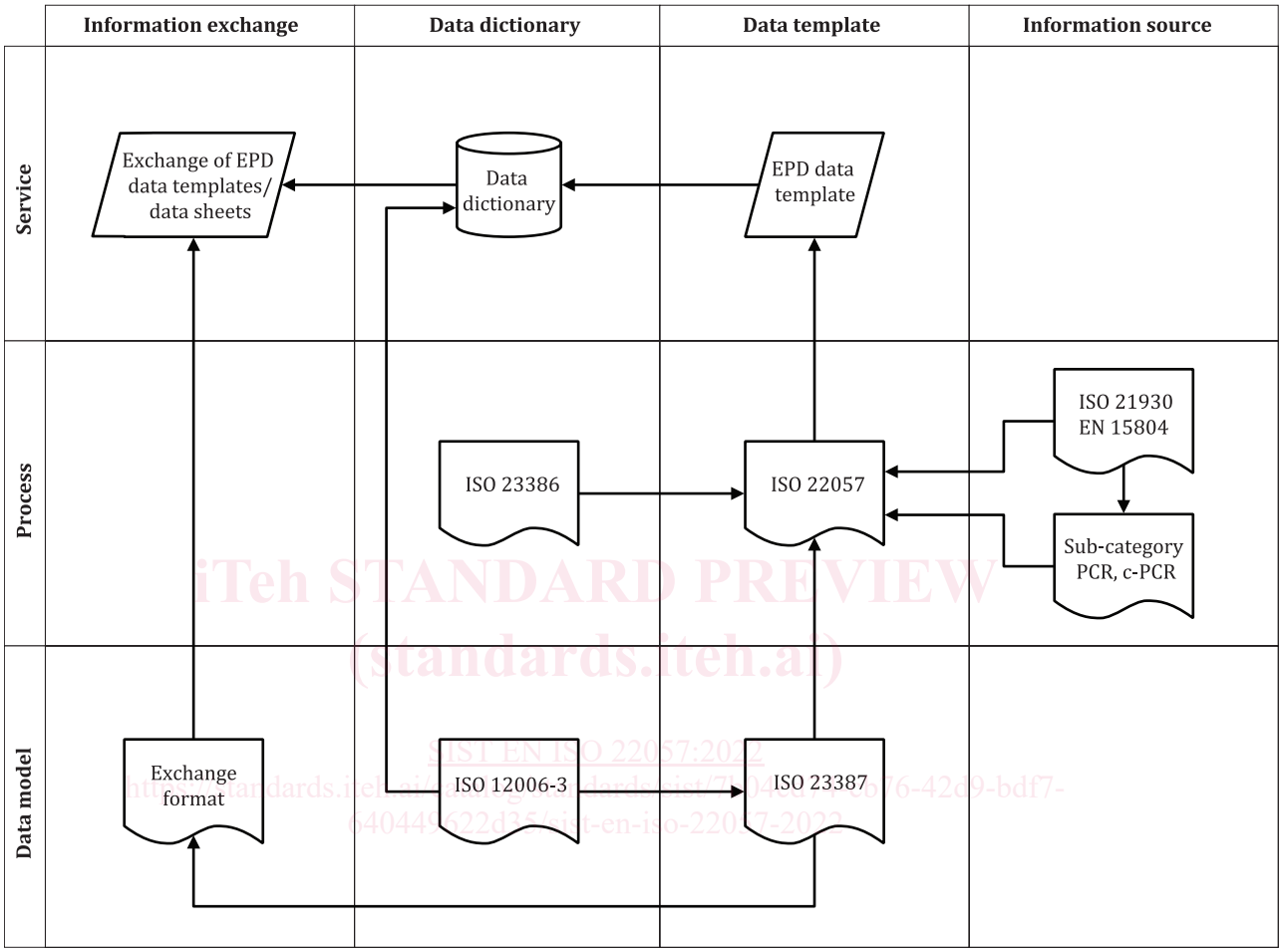

Figure 2 — Relationship between BIM standards and sustainability standards

The requirements in this document are further supplemented by technical information about construction products and services, construction elements and integrated technical systems so they can be machine-interpretable. Technical information means requirements and conditions as stated in standards and specifications relevant for construction products. This document recommends the use of the same principles for structuring information (data template concepts) and the use of existing technical information created by other domain experts. Annex D offers guidance on the delivery of information according to the principles of this document according to the principles described in CWA 17316 and smart CE marking.

EXAMPLE In Europe, Construction Products Regulation (CPR) experts are responsible for creating and maintaining technical information based on European harmonized standards.

This technical information in standards or technical specifications can already exist in a data dictionary; and EPD/LCA experts can use it for the technical description of products in an EPD.

This document is intended to help in understanding the different template concepts and their relation to EPD information and to enable users to create new concepts according to their specific needs.

NOTE For example, experts developing sub-category PCR according to ISO 21930 or complementary PCR (c-PCR) according to EN 15804:2012+A2:2019 can create a data template for additional specific requirements in the sub-category PCR or c-PCR for the relevant product group.

Users of this document should be able to find the data template described in this document in existing data dictionaries; but in case there is a data dictionary that does not support the structure, they should be able to recreate the data template structure in their own implementations using the information provided in Annex A.

This document also ensures the alignment between the proposed approach in it and already existing formats like ILCD + EPD, INIES and OpenEPD (see Annex B).

Sustainability in buildings and civil engineering works — Data templates for the use of environmental product declarations (EPDs) for construction products in building information modelling (BIM)

1 Scope

This document provides the principles and requirements to enable environmental and technical data provided in EPDs for construction products and services, construction elements and integrated technical systems to be used in BIM to assist in the assessment of the environmental performance of a construction works over its life cycle.

This document gives requirements on structuring EPD information using a data template according to ISO 23386 and ISO 23387, to make EPD data machine-interpretable and to enable their integration into information-driven design, construction, use and end-of-life stages.

This document is applicable to structuring generic LCA data for use within a BIM environment, as these data are required in the absence of suitable EPD data to enable assessment of the environmental performance at the construction works level.

The assessment of environmental performance at the construction works level is not covered by this document.

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

ISO 14050, *Environmental management — Vocabulary*

ISO 21930, *Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services*

ISO 23386, *Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries*

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

EN 15804:2012+A2:2019, *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 14040, ISO 14050, ISO 21930, EN 15804:2012+A2:2019 and the following apply.