SLOVENSKI STANDARD
oSIST prEN ISO 23387:2024

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Informacijsko modeliranje gradenj (BIM) - Podatkovne predloge za gradnike, ki se uporabljajo v življenjskem ciklu gradbenega objekta (ISO/DIS 23387:2024)

Building information modelling (BIM) - Data templates for objects used in the life cycle of assets (ISO/DIS 23387:2024)

Bauwerksinformationsmodellierung (BIM) - Datenvorlagen für Objekte während des Lebenszyklus von Assets (ISO/DIS 23387:2024)

Modélisation des informations de la construction (BIM) - Modèles de données pour les objets utilisés durant le cycle de vie des biens (ISO/DIS 23387:2024)

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Building information modelling (BIM) — Data templates for objects used in the life cycle of assets

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 442, *Building Information Modelling (BIM)*, in collaboration with ISO Technical Committee TC 59, *Buildings and civil engineering works*, Subcommittee SC 13, *Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM)*, 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

Building information modelling (BIM) provides a digital process for describing and displaying information required in the planning, design, construction and operation of assets. This approach encompasses all aspects of the built environment, including civil infrastructure, utilities and public space.

ISO 19650 (all parts) sets out the recommended concepts and principles for business processes across the built environment sector in support of the management and production of information during the life cycle of assets when using building information modelling (BIM). To support the management and production of information in these business processes, standardization is of the highest importance. Machine-interpretable information is essential to provide a reliable and sustainable exchange of information in an asset life cycle process.

Data templates provide a standardized data structure to describe the characteristics of objects, enabling seamless information exchanges of construction industry business semantics through the life cycle of assets.

Data templates should be standardized and made available across the built environment sector, and where applicable through data dictionaries based on ISO 12006-3:2022.

Data templates can be used in conjunction with Industry Foundation Classes (IFC) in ISO 16739-1.

The target audience of this document is:

— Software developers, for embedding the data structure in software, platform etc.

— Construction industry domain experts appointed to create data templates based on sources describing information needs.

— Industry practitioners, as they will be providing the demand, use of data, and process etc.

— Authorities, as they will be reviewing, checking all relevant submission.

— R&D, as they will support the innovation and continuous development of data templates.

— Institutions, as the concept of data templates, same as BIM, and digital information principles shall be merged into education and training program.

— Developers (Asset owners), as they need a more clear vision on data template, hence to put this as part of the tender documents.

Building information modelling (BIM) — Data templates for objects used in the life cycle of assets

1 Scope

This document provides a data model for data templates. The data model is developed to enable machine-interpretability based on a standard data structure, carrying the alphanumerical information for any type of object used in the life cycle of assets.

This document provides a data template representation following ISO 12006-3:2022 to ensure compatibility between data templates and data dictionaries.

This document provides a methodology to create and maintain data templates in data dictionaries.

This document provides rules for linking between data templates and classification systems within a data dictionary based on ISO 12006-3.

This document provides an XML Schema Definition (XSD) expressing the rules in this document.

It is not in the scope of this document to provide the content of any data templates. It is intended to be used for developing specific data templates based on standards developed in ISO/IEC, CEN/CENELEC, national standardization organizations, or other sources describing information needs. This document provides the framework supporting different use cases.

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 23386:2020, *Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries*

ISO 12006-3:2022, *Building construction — Organization of information about construction works — Part 3: Framework for object-oriented information*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
data
reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing

[SOURCE: ISO 8000-2:2020, 3.2.2]

3.2
data dictionary
centralized repository of information about data such as meaning, relationships to other data, origin, usage and format

Note 1 to entry: The definition is from IBM Dictionary of Computing.

[SOURCE: ISO 23386:2020, 3.9]

3.3
data template
data structure used to describe the characteristics of *objects* (3.5)

EXAMPLE 1 A data template provides a view based on an information exchange, e.g. a heating, ventilation and air conditioning (HVAC) system designer is asking for the descriptions of the HVAC products that can be loaded into the design system.

EXAMPLE 2 A data template provides manufacturers a standardized data structure that can be applied to any internal system and/or process of handling product data, e.g. one or several product information management systems can apply or map to this structure to enable machine readability, both internally and with any requests from any software using the same data template structure. An HVAC product manufacturer can then answer the request from any stakeholder including the HVAC system designer.

Note 1 to entry: The relevant scope of the data template can be used together with the term "data template". E.g. a data template for a *product* (3.12) can be named "product data template". A data template for a *system* (3.15) can be named "system data template", etc.

Note 2 to entry: A data template can be used in an information exchange for a specific purpose for an object in the inception, brief, design, production, operation and demolition of facilities.

3.4
data sheet
data input in accordance with a data template, that represents a real-world product, asset or requirement

EXAMPLE 1 Product using property thermal transmittance with unit W/mK is of value 0,9.

EXAMPLE 2 Requirement using property height with unit millimetre is of value 600.

3.5
object
any part of the perceivable or conceivable world

Note 1 to entry: An object may be a design object, intermediate product, finished product, finishing tool or equipment, system, assembly, space, building, etc

Note 2 to entry: The role of the Object is to classify the Data template

EXAMPLE 1 The object "wall" is a type of *system* (3.15).

EXAMPLE 2 The object "calcium silicate masonry unit" is a type of *product* (3.12).

[SOURCE: ISO 12006-2:2015, 3.1.2, modified — EXAMPLEs 1 and 2 have been added.]

3.6
group of properties
collection enabling the *properties* (3.13) to be prearranged or organized

[SOURCE: ISO 23386:2020]

3.7
set of properties
specialization of *group of properties* (3.6) where the collection of properties belong to a domain

EXAMPLE 1 "Logistics properties" is a set of properties.

EXAMPLE 2 “Environmental indicators” from ISO 21930 is a set of properties.

3.8
purpose
specialization of *group of properties* (3.6) where the collection of properties is used for a specific information delivery

EXAMPLE “Delivery ticket” is a purpose for a group of properties needed for ordering and delivering ready mixed concrete.

3.9
intended use
specialization of *group of properties* (3.6) where the collection of properties is needed to specify the functional requirements of the *object* (3.5)

EXAMPLE “On escape routes” is an intended use for Doors.

3.10
user defined
specialization of *group of properties* (3.6) where further specializations can be established in data dictionaries or in other documents referring to this document

EXAMPLE “Waste handling” is a scenario in Environmental Product Declarations (EPD) based on ISO 21930.

3.11
machine-interpretable data
data that is in a specific context and format and can be read and stored in a computer system such that action may be taken based on the content of the data

[SOURCE: ISO 10303-232:2002, 3.5.3, modified — The preferred term has been changed from "computer interpretable data " to "machine-interpretable data"; the EXAMPLE has been removed.]

3.12
product
construction product
item manufactured or processed for incorporation in construction works

[SOURCE: ISO 6707-1:2017, 3.4.1.3, modified — Note 1 to entry has been removed.]

3.13
property
inherent or acquired feature of an item

EXAMPLE 1 Length, sound reduction index (properties).

EXAMPLE 2 Length according to EN 12058, sound reduction index according to ISO 10140-4 (specific properties).

Note 1 to entry: When a property is named together with reference to a technical specification, where the instructions to assess the performance are available (usually standards), it is to be regarded as a specific property. The relationship between the property and the specific property is modelled as a parent child relationship.

[SOURCE: ISO 6707-1:2017, 3.7.1.3, modified — EXAMPLES 1 and 2 and Note 1 to entry have been added.]

3.14
reference document
publication that is consulted to find specific information, particularly in a technical or scientific domain

EXAMPLE See EN 771-1:2011+A1:2015.

Note 1 to entry: A reference document can be associated with any data present in a *data dictionary* (3.2). It can include document date and version.

[SOURCE: ISO 23386:2020, 3.18, modified — EXAMPLE has been added; in Note 1 to entry, the second sentence has been added.]