SLOVENSKI STANDARD
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Podatkovne strukture digitalnih knjižnic gradnikov stavbnih sistemov - 4. del: Podatkovni slovarji za kataloge izdelkov (ISO/DIS 16757-4:2024)

Data structures for electronic product catalogues for building services - Part 4: Dictionary structures for product catalogue (ISO/DIS 16757-4:2024)

Datenstrukturen für elektronische Produktkataloge der Technischen Gebäudeausrüstung - Teil 4: Datenwörterbücher für Produktkataloge (ISO/DIS 16757-4:2024)

Structures de données pour catalogues électroniques de produits pour les services du bâtiment - Partie 4: Titre manque (ISO/DIS 16757-4:2024)

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DRAFT International Standard

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Data structures for electronic product catalogues for building services —

Part 4: Dictionary structures for product catalogue

ICS: 91.010.01

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The main changes compared to the previous edition are as follows:

— xxx xxxxxxx xxx xxxx

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Introduction

Building information modelling (BIM) provides a digital technology for describing and displaying information required in the planning, design, construction and operation of constructed facilities. Increasingly this modelling approach is expanding to encompass all aspects of the built environment, including civil infrastructure, utilities and public space.

The standard EN ISO 16757 defines the structure of a product catalogue model for data sharing and data exchange of product models in catalogues. It contains the definitions for

— Selection of products from different product classes and product variants

— Combining product components and accessory to products

— Geometrical representation in technical systems

— Connectivity to other products in models of technical systems

— Calculation of dynamic property values according to the product behaviour in technical systems

The standard EN ISO 16757 consists of the following standards:

— EN ISO 16757-1:2015 Data structures for electronic building services product catalogues - Concepts, architecture and model

This standard describes the fundamental concepts and assumptions about the creation of manufacturer-related product catalogues as BIM data exchange models. It describes the content of catalogues and the mapping of the content to a data format.

This data format delivers the opportunity to search and select product data together with accessory data which can be read in into software applications for planning, designing, calculating and simulating as well as for facility managing.

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— EN ISO 16757-2:2017 Data structures for electronic building services product catalogues – Geometry

This standard describes the concept of geometry of the Building Services product data of a catalogue in form of 2D symbols and 3D shape models and specifies the required spaces and ports.

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It contains the fundamental concepts and assumptions about the parametric geometry of special products, used in planning software applications e.g. for air condition systems such as ducts and transitions between different forms. Also it contains a concept for representing products as 3D solid models, which are made from thin sheet metal.

— EN ISO 16757-4: (E) Data structures for electronic building services product catalogues – Dictionaries for product catalogues (This Part of the standard)

— EN ISO 16757-5: (E) Data structures for electronic building services product catalogues – Product catalogue exchange format

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Data structures for electronic product catalogues for building services —

Part 4:
Dictionary structures for product catalogue

1 Scope

ISO 12006-3 defines the underlying data model for BIM related dictionaries. This will be the foundation of this standard.

Engineering tools are used to define, simulate and operate building services systems (including e.g. HVAC systems and building automation systems). To build such a system basically means to interconnect different products in a way that the resulting system fits into the building and works according to the functional requirements. The products are selected from product catalogues of manufactures or distributors. Important aspects of these products are information on their behaviour in different situations and the connection points that allow to connect the products and to build the system.

The goal of this standard is to support the engineering tools by enabling them to identify the relevant information easily in different dictionaries. In the area of building services, a few generic concepts are widely used:

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— Dynamic properties describing the behaviour of products in different situations and load cases that are dependent on external properties describing external conditions

— A distinction of product classes and specific groups of properties which describe specific aspects of products (like subfunctions or ports)

This standard defines some common high-level elements and some design patterns which provide a way to identify these basic structures across dictionaries. This prevents tools from the necessity to be adapted to each dictionary they have to deal with, and it ensures that basic dictionary elements can be used with the same semantics across dictionaries.

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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.

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

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

3 Terms and definitions

3.1
property
defined characteristic suitable for the description and differentiation of the *objects* in a class

[SOURCE: EN ISO 12006-3:2022, 3.5]

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3.2
independent property
property that is (in the context of the dictionary) independent from other properties

EXAMPLE *Length, width, maximal voltage* are independent properties.

Note 1 to entry: Whether a property is independent is related to the universe of discourse: Of course, the length of an object may be seen as dependent on temperature, but this is normally neglected and a normal temperature range is assumed. In other areas, this may be very relevant and then length would be defined as depending on other properties.

3.3
dependent property
property where the value is derived from other properties' values

EXAMPLE *Volume* can be defined as a dependent property: its value depends on the values of properties *length, width*, and *depth*.

Note 1 to entry: Dependent properties do not have values in a catalogue. Rather, the catalogue provides a means to determine the value of the dependent property on the basis of the values of its parameters. This is done in most cases by an algorithmic function, a mathematical function, or a table of values.

3.4
parameter
property that determines (in most cases together with other properties) the value of a dependent property

EXAMPLE In the example of *volume* the properties *length*, *width*, and *depth* are parameters of *volume*.

3.5
product property
property that describes a product in a catalogue

EXAMPLE In case of a radiator, examples of product properties are *length*, *width*, and *depth.*

Note 1 to entry: Product properties may be dependent properties or independent properties.

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3.6
external property
property that describes an aspect that is external to a product but influences the behavior of the product

EXAMPLE In case of a radiator, examples of external properties are *temperature of the incoming medium* and *room temperature.*

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Note 1 to entry: External properties do not describe the product itself.

Note 2 to entry: External properties may be dependent properties or independent properties.

Note 3 to entry: External properties may describe aspects of the environment in which a product will be operating (e.g. room temperature) or aspects of the system into which the product will be integrated (e.g. input pressure).

Note 4 to entry: External properties do not have a value in a catalogue, their value is only available in a simulation (provided by the simulation system) or in the operation phase (measurements).

3.7
static property
product property which is either independent or does not have an external property as (direct or indirect) parameter

EXAMPLE In case of a radiator, examples of static properties are *length, width and depth* as independent properties and volume as dependent property having only product properties as parameters.

3.8
dynamic property
dependent product property where at least one parameter is an external property

EXAMPLE In case of a radiator, an example of a dynamic property is the *temperature of the outgoing medium.*

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