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**Informacijsko modeliranje gradenj (BIM) - Podatkovne predloge za gradnike, ki se uporabljajo v življenjskem ciklu gradbenega objekta - Podatkovne predloge na podlagi harmoniziranih tehničnih specifikacij v skladu z Uredbo o gradbenih proizvodih (CPR)**

Building information modelling (BIM) - Data templates for construction objects used in the life cycle of any built asset - Data templates based on harmonised technical specifications under the Construction Products Regulation (CPR)

**iTeh STANDARD PREVIEW**

Vorlagen für auf CEN/CENELEC-Normen basierende Produktdaten eines offenen europäischen Datenkatalogs - Teil 2: Struktur für Produktdatenvorlagen, die auf harmonisierten technischen Spezifikationen unter der EU-BauPVO basieren und Inbeziehungsetzung der Produktdatenvorlagen zu IFC-Klassen

**Ta slovenski standard je istoveten z: prEN 17473**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**DRAFT**  
**prEN 17473**

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English Version

**Building information modelling (BIM) - Data templates for  
construction objects used in the life cycle of any built asset -  
Data templates based on harmonised technical specifications  
under the Construction Products Regulation (CPR)**

Modélisation des informations de la construction (BIM)  
- Modèles de données pour les objets de construction  
utilisés durant le cycle de vie de tout actif bâti -  
Modèles de données basés sur les spécifications  
techniques harmonisées dans le cadre du Règlement  
Produits de construction (RPC)

Vorlagen für auf CEN/CENELEC-Normen basierende  
Produktdaten eines offenen europäischen  
Datenkatalogs - Struktur für Produktdaten vorlagen, die  
auf harmonisierten technischen Spezifikationen unter  
der EU-BauPVO basieren und Inbeziehungsetzung der  
Produktdaten vorlagen zu IFC-Klassen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 442.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (prEN 17473:2020) has been prepared by Technical Committee CEN/TC 442, "Building Information Modelling (BIM)".

This document is currently submitted to the CEN Enquiry.

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**prEN 17473:2020 (E)****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.

EN ISO 19650-1:2018 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 built assets when using building information modelling (BIM). To support the management and production of information in these business processes, the significance of standardization is of the highest importance. Machine-readable data is essential to provide a reliable and sustainable exchange of information in an asset life cycle process.

Data templates will enable construction project stakeholders to exchange information about construction objects used in construction works through an asset life cycle, using the same data structure, terminology, and globally unique identifiers to enable machine-readability. Data templates will be standardized and made available across the built environment sector through data dictionaries based on EN ISO 12006-3.

The data template structure in this standard is based on the general data template structure in prEN ISO 23387.

In Europe, various regulations and directives lay down harmonised rules for the marketing of products and systems, and the CEN/CENELEC standards provide a common technical language to assess the performance of products and systems for construction works. The common technical language should be the foundation when creating a digital terminology for the European construction industry. The digital terminology should be used in standardized structures, data templates, for describing construction products. The regulatory nature of the common technical language requires that the digital terminology is compatible and does not conflict with the regulatory declaration.

Building regulations, together with standards and specifications are intended to ensure that basic requirements for construction works (Annex I of EU Regulation 305/2011 – Construction Products Regulation) and other technical performances are met. Basic requirements for construction works and other technical performances should be made digitally available and used as part of the business processes across the built environment sector in support of the management and production of information during the life cycle of built assets when using building information modeling (BIM).

## 1 Scope

This document provides a methodology and process to create data templates for construction products that are covered by harmonised technical specifications (harmonised product standards (hEN) and European Assessment Documents (EAD)), under Regulation (EU) No 305/2011 - the Construction Products Regulation (CPR).

## 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.

prEN ISO 23386:2019, *Building information modelling and other digital processes used in construction -- Methodology to describe, author and maintain properties in interconnected dictionaries*

prEN ISO 23387:2019, *Building Information Modelling (BIM) — Data templates for construction objects used in the life cycle of any built asset — Concepts and principles*

EN ISO 80000 series, *Quantities and units (ISO 80000 series)*

## 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/>

<https://standards.iteh.ai/catalog/standards/sist/490ecb66-523b-4fa7-8cb9-3a24f1557063/osist-pren-17473-2020>

### 3.1

#### **data dictionary**

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

[SOURCE: IBM Dictionary of Computing]

### 3.2

#### **construction object**

object of interest in the context of a construction process

EXAMPLE 1 The construction object “wall” is a type of system.

EXAMPLE 2 The construction object “calcium silicate masonry unit” is a type of product.

Note 1 to entry: Construction products covered by the scope of a harmonised technical specification are considered to be types of construction objects in this document.

[SOURCE: ISO 12006-2:2015, 3.1.2, modified — EXAMPLES 1 and 2, and Note 1 to entry have been added.]

### 3.3

#### **data template**

schema providing a standardized data structure used to describe the characteristics of construction objects

[SOURCE: prEN ISO 23387:2019]

**prEN 17473:2020 (E)****3.4  
reference document**

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

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

EXAMPLE EN 771-1:2011+A1:2015, Specification for masonry units, Part 1: Clay masonry units.

[SOURCE: prEN ISO 23387:2019]

**3.5  
group of properties**

group of properties enabling the properties to be organised

Note 1 to entry: There are multiple types of possible groups, e.g. class, domain, reference document, interdependent properties.

Note 2 to entry: A property can be member of several groups of properties.

**3.6  
property**

feature or quality of an object

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.

EXAMPLE 1 Length, sound reduction index (properties).

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

[SOURCE: ISO 1087, modified – EXAMPLES 1 and 2 have been added.]

**3.7  
quantity**

property of a phenomenon, body, or substance, where the property has a magnitude that can be expressed by means of a number and a reference

EXAMPLE 1 Length, mass, electric current (ISQ base quantities).

EXAMPLE 2 Plane angle, force, power (derived quantities).

Note 1 to entry: Quantities can appear as base quantities or derived quantities

[SOURCE: EN ISO 80000-1:2013, 3.1, modified — EXAMPLES 1 and 2, and Note 1 to entry have been added.]

**3.8  
unit**

unit of measurement

measurement unit

real scalar *quantity* (3.7), defined and adopted by convention, with which any other quantity of the same kind can be compared to express the ratio of the second quantity to the first one as a number

EXAMPLE 1 Metre, kilogram, ampere (SI base units).



EXAMPLE 2 Radian, newton, watt (derived units).

Note 1 to entry: Units can appear as base units or derived units.

[SOURCE: EN ISO 80000-1:2013, 3.9, modified — EXAMPLEs 1 and 2, and Note 1 to entry have been added.]

### 3.9

#### **enumerated value**

data type consisting of a set of named values called elements, members, enumerals, or enumerators of the type

### 3.10

#### **harmonised technical specification**

harmonised standards and European Assessment Documents

[SOURCE: Regulation (EU) No 305/2011]

### 3.11

#### **harmonised standard (hEN)**

standard adopted by one of the European standardisation bodies listed in Annex I to Directive 98/34/EC, on the basis of a request issued by the Commission, in accordance with Article 6 of that Directive

Note 1 to entry: The European standardization body for the CPR is CEN/CENELEC.

### 3.12

#### **European Assessment Document (EAD)**

document adopted by the organisation of TABs for the purposes of issuing European Technical Assessments

### 3.13

#### **construction product**

any product or kit which is produced and placed on the market for incorporation in a permanent manner in construction works or parts thereof and the performance of which has an effect on the performance of the construction works with respect to the basic requirements for construction works

[SOURCE: Regulation (EU) No 305/2011]

### 3.14

#### **kit**

construction product placed on the market by a single manufacturer as a set of at least two separate components that need to be put together to be incorporated in the construction works

[SOURCE: Regulation (EU) No 305/2011]

### 3.15

#### **essential characteristic**

characteristics of the construction product which relate to the basic requirements for construction works

[SOURCE: Regulation (EU) No 305/2011]

Note 1 to entry: These are the characteristics listed in the Declaration of Performance as requested by the CPR and included in the CE marking.

### 3.16

#### **Annex ZA**

clauses of the harmonised standard which cover the essential characteristics

**prEN 17473:2020 (E)****3.17****UML**

Unified Modelling Language

language to provide system architects, software engineers, and software developers with tools for analysis, design, and implementation of software-based systems as well as for modeling business and similar processes

[SOURCE: ISO/IEC 19505]

**4 Terminology variation between prEN ISO 23387 and CPR**

In prEN ISO 23387, a general data structure has been introduced to define data templates for construction objects. The terminology used in prEN ISO 23387 is aligned with terminology used in other BIM standards developed in ISO/TC 59/SC 13 and CEN/TC 442.

The CPR lays down harmonised rules for the marketing of construction products in the EU. The Regulation provides a common technical language to assess the performance of construction products.

Both terminology approaches differ in some parts. In order to define a specialized template for the area of CPR, the variation of terminology is explained in Table 1.

The concept names from prEN ISO 23387 are reused in the UML in Figure 1 in this document, and clarification is provided in Table 1, to make the terminology more understandable for use cases related to the CPR.

The terminology from prEN ISO 23387 is used throughout this document where description of creation of concepts is provided. For text related to the content in harmonised technical specifications, CPR related terminology is used.

Table 1 provides a list with concept names from prEN ISO 23387, together with a clarification which is more in line with the CPR terminology.

**Table 1 — prEN ISO 23387 and CPR naming clarification**

| <b>prEN ISO 23387 terminology</b> | <b>CPR related terminology</b>                |
|-----------------------------------|---|
| Data template                     | Data template                                 |
| Reference document                | Harmonised technical specification            |
| Construction object               | Construction product                          |
| Group of properties               | Essential characteristics/group of properties |
| Property                          | Property                                      |
| Quantity                          | Quantity                                      |
| Unit                              | Unit  |
| Enumerated value                  | Enumerated value/class                        |

**5 Data template structure****5.1 UML diagram**

The structure of data templates created according to this document shall follow the concepts and principles in prEN ISO 23387. The rules given in the UML diagram in Figure 1 are according to the UML diagram in prEN ISO 23387, whereas in this document a simplified version is provided.

Figure 1 provides a UML diagram with the data structure for data templates that will be created based on harmonised technical specifications.

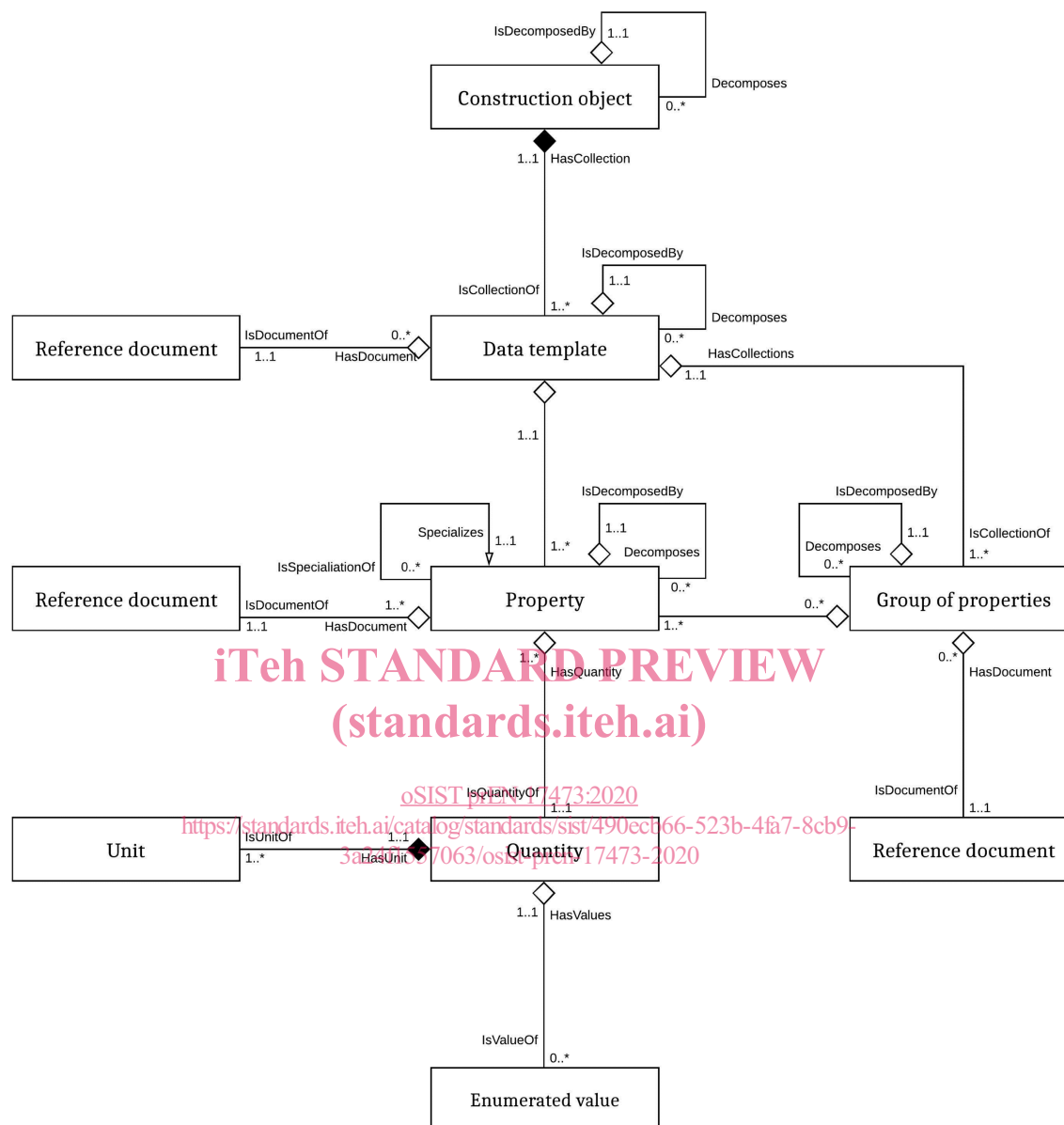


Figure 1 — Data template UML diagram

For some concepts, self-relationships are provided. This mechanism allows for relating two concepts of the same kind to each other. There are several use cases that require self-relationships, as described below in subclauses 5.2 to 5.4. The following UML diagrams are extracts from Figure 1.

## 5.2 Data templates for construction products as kits

The self-relationship supports creation of data templates for kits. For this purpose, self-relations are applicable for construction object concepts, representing construction products, and data template concepts. UML representations of these relationships are provided in Figures 2 and 3.