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Library objects for architecture, engineering, construction and use (ISO 22014:2024)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Library objects for architecture, engineering, construction and use (ISO 22014:2024)

Objets de bibliothèque pour l'architecture, l'ingénierie, la construction et l'utilisation (ISO 22014:2024)

Bibliotheksobjekte für Architektur, Ingenieur- und Bauwesen und Gebrauch (ISO 22014:2024)

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

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European foreword

This document (EN ISO 22014:2024) has been prepared by Technical Committee ISO/TC 10 "Technical product documentation" in collaboration with Technical Committee CEN/TC 442 “Building Information Modelling (BIM)” the secretariat of which is held by SN.

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of an identical text or by endorsement, at the latest by November 2024, and conflicting national standards shall be withdrawn at the latest by November 2024.

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International Standard

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Library objects for architecture, engineering, construction and use

Objets de bibliothèque pour l'architecture, l'ingénierie, la construction et l'utilisation

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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 document 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 10, *Technical product documentation*, Subcommittee SC 8, *Construction documentation*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 442, *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

0.1 General

This document describes best practice for the development and application of library objects to support building information modelling (BIM)-based design, specification, construction and operational processes, including giving additional recommendations for specific use cases such as assemblies.

A library object is intended for reuse within project teams and across organizations. This serves to improve accuracy and constructability of designs and to improve the handover of information through the supply chain to the owner or operator. Objects in a digital format combining properties, shape and graphical symbols offer scope for greater accuracy and efficiency.

This document includes principles and definitions for the symbolic and simplified visual presentation of library objects in connection with BIM and their organization into libraries.

0.2 Purpose and justification

The purpose of this document is to offer a standard for developers, library providers, designers and manufacturers to improve the exchange and reuse of library objects.

Library objects and their corresponding graphical symbols are now commonly provided in a digital format by model authoring software. Traditional paper-based methods for graphical symbols have therefore become less useful and are in some cases outdated. Several national standards have been withdrawn due to lack of maintenance and conflicting International Standards. Still, documentation of complex entities such as buildings and civil engineering works requires clear and uniform presentation so as to be legible and easily understood. This document is intended to give a framework for the presentation of library objects, with respect to those purposes, and also the structuring of graphical symbols into libraries.

Library objects, by combining properties, shape and graphical symbols, offer scope for greater accuracy and efficiency. Current technology gives the opportunity to adjust the views of library objects (content and visual presentation) to the many purposes that occur during the life cycle of a information model and to connect symbol graphics to library objects.

0.3 Relationship to other standards

The increased adoption of data dictionaries, along with ISO 23386 and ISO 23387, is expected to facilitate the preparation of data templates with properties for the non-graphical aspects of library objects and ISO 7817-1 to facilitate specifying the level of information need for geometrical and alphanumerical information and documentation.

The ISO 7817-1 concepts and principles can be applied for a general information exchange and, while in progress, for a generally agreed way of information exchange between parties in a collaborative work process, as well as for an appointment with specified information delivery. Therefore, ISO 7817-1 concepts and principles support the preparation of libraries outside of any individual project and are applied in this document.

This document recommends that ISO 16739-1 is used as a basis for the naming of objects.

Project and asset information references provided by the appointing party, such as object libraries, are covered in ISO 19650-2:2018, 5.1.6, and ISO 19650-3:2020, 5.1.8.

Guidance on graphical presentation for specific types of objects is provided by ISO 7519-1.

International Standard **ISO 22014:2024(en)**

Library objects for architecture, engineering, construction and use

1 Scope

This document specifies requirements for defining structure and content for library objects to support project inception, brief, design, tendering, construction, operations, use and demolition, supporting the development of information throughout the process, in connection with building information modelling (BIM) and the organization of the objects into libraries.

This document does the following:

— Establishes requirements for defining template objects, generic objects and product objects in data-driven library and design processes.

— Establishes requirements for graphical symbols and other graphic conventions for use on drawings for the built environment, giving principles and definitions for the symbolic and simplified visual presentation of objects. It also describes a rationale of symbolism which establishes rules for the design of graphical symbols and other graphic conventions and gives recommendations for the application of those rules and the ways in which symbolism should be used.

— Defines the purposes of characterizing the shape and measurement of library objects.

— Defines the purposes of specifying and assessing properties for library objects. It defines the information appropriate for specific uses, including specification of the desired outcome (typically by designers and engineers) and the selection of identified products (typically by contractors and subcontractors). It also gives recommendations for the application of assemblies in integrated BIM working.

— Refers to the Industry Foundation Classes (IFC) schema as a common object model.

This document is applicable to all professionals and service providers who produce and use library objects with generic and product-specific information. This group includes, but is not limited to, product manufacturers and suppliers, library authors, designers and engineers, contractors, owners, maintainers and commissioners.

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 13567-1, *Technical product documentation — Organization and naming of layers for CAD — Part 1: Overview and principles*

ISO 13567-2, *Technical product documentation — Organization and naming of layers for CAD — Part 2: Concepts, format and codes used in construction documentation*

ISO 16739-1, *Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries — Part 1: Data schema*

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

ISO 23387, *Building information modelling (BIM) — Data templates for construction objects used in the life cycle of built assets — Concepts and principles*