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Technical product documentation (TPD) — Construction documentation — Drawings for the assembly of prefabricated structures

Documentation technique de produits (DTP) — Documentation de construction — Dessins d'assemblage des structures préfabriquées

FDIS stage

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Contents

Foreword

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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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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/SS F01, *Technical drawings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 4172:1991), which has been technically revised.

The main changes are as follows:

— ~~— validation~~update of normative references;

— ~~— provisions~~provision of wider levels of drawings;

— ~~—~~replacement of the term “location drawings” by “general arrangement drawings”.

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~~www.iso.org/members.html.

Introduction

This document sets out the requirements for representing prefabricated structures with assembly drawings. Prefabricated structures are construction components that are more likely to be considered as products comprising assemblies, rather than traditional components.

The purpose of this document is to aid with the following aspects:

— ~~—~~defining the drawing types and their hierarchy clearly;

— ~~—~~providing the technical rules within each type of drawing;

— ~~—~~giving guidelines for the application of representation techniques.

Those who draw prefabricated structures are encouraged to think about the methods they use to collect, demonstrate and disseminate product information ~~across~~to all stakeholders, including designers, engineers, manufacturers and contractors. Product information supports stakeholders to recognize product definitions, relations and other requirements identified within the life cycle. It is recognised that the drawing of products, using common lines, symbols and other graphic representations, aids in the ~~organisation~~organization of the information on the basis of concepts and relationships. Therefore, this document is intended to be adopted in coordination with ISO 7519 and other applicable standards.

ISO 7519 provides a method ~~to organize~~for organizing presentation approaches for a building, system, assembly, component~~,~~ or part, therefore providing ~~a~~ comprehensive information hierarchically. Such a delivery method is advanced to regularize the flow of information within the supply chain. It does this by specifying a clear scope for requirements or specific objects using ~~BIM (~~building information modelling (BIM) or other ~~CAD (~~computer-~~-~~aided design and drafting (CAD) applications~~,~~, thereby enhancing the effectiveness of the processes involved by presenting unambiguous and sufficient data.

This document establishes the rules for prefabricated structures following the principles in ISO 7519 while maintaining symbolic representation applicable in the built environment sector. International Standards relating to technical product documentation developed by ISO/TC 10, as well as BIM ~~standards~~International Standards developed by ISO/TC 59/SC 13, are considered helpful in adopting this document.

The figures included in this document are intended to illustrate the text and~~/or to~~ provide examples of the related technical drawing specification. These figures are not fully dimensioned and toleranced, showing only the relevant general principles. In all figures, the leader lines using an arrow and text ending with “type” and numbers indicate the line types used for the representations. They are not elements ~~which~~that are presented ~~on~~in a construction drawing.

Technical product documentation (TPD)— — Construction documentation — Drawings for the assembly of prefabricated structures

1 Scope

This document specifies general rulesrequirements for the preparation of construction drawings intended for the field assembly of prefabricated structures for building and civil engineering works.

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 128-3, *Technical product documentation (TPD) — General principles of representation — Part 3: Views, sections and cuts* ISO 129-ISO 129-1, *Technical product documentation (TPD) — Presentation of dimensions and tolerances — Part 1: General principles*

ISO 4157--1, *Construction drawings — Designation systems — Part 1: Buildings and parts of buildings*

ISO 6284, *Technical product documentation — Construction documentation — Indication of limit deviations*

ISO 6707--1:2020, *Buildings and civil engineering works — Vocabulary — Part 1: General terms*

ISO 7200, *Technical product documentation — Data fields in title blocks and document headers*

ISO 7519[1], *Technical product documentation (TPD) — Construction documentation — General principles of presentation for general arrangement and assembly drawings*

ISO 7573, *Technical product documentation — Parts lists*

ISO 10209:2022, *Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation*

ISO 14405 (all parts), *Geometrical product specifications (GPS) — Dimensional tolerancing*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6707-1 and ISO 10209 and the following apply.

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

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

[1] Under preparation. Stage at the time of publication: ISO/FDIS 7519— —:2023.

— ——IEC Electropedia: available at ~~https://www.electropedia.org/~~https://www.electropedia.org/

3.1
assembly
set of related components attached to each other

Note- 1- to entry:- An assembly can be an aggregation which performs a systematic function, e.g. a structural frame, truss or modular container.

Note- 2- to entry:- An assembly can be a nested form, i.e. it can consist of sub-assemblies.

[SOURCE: ISO 6707-1:2020, 3.3.5.5, modified — Notes 1 and 2 to entry added.]

3.2
prefabricated structure
structure consisting of prefabricated *structural members* ~~(3.3)~~(3.3)

3.3
structural member
part of a structure intended to resist forces

Note- 1- to- entry:- In this document, a structural member is commonly a component, sometimes an assembly, such as a modular unit or an assembled truss, which is delivered to the construction site as a purpose part.

[SOURCE: ISO 6707-1:2020, 3.3.1.3, modified — Note 1 to entry added.]

4 Documentation

4.1 General

4.1.1 Types of drawings and documents

The documentation for prefabricated structures shall comprise ~~of~~ the following documents:

— ——general arrangement drawings;

— ——assembly drawings (as required);

— ——component drawings;

— ——detail drawings;

— ——either component schedules ~~and/~~or a parts list or both;

— ——specifications.

Structural members and other relevant objects represented on each type of drawing shall be appropriately detailed to clearly communicate design information in accordance with ISO 7519.

4.1.2 Application of lines

The application of lines for the designated components shall be as follows:

— ——continuous extra-wide lines (type 01.3) indicating outlines in the cutting plane~~,~~ (see ~~Figures 1, 2~~Figures 1, 2 and ~~3~~;3);

— ——continuous wide lines (type 01.2) indicating edges for visible linear components and dashed wide lines (type 02.2) for hidden components, see Figures 1 and 2; (see Figures 1 and 2);

— ——continuous wide lines (type 01.2) indicating edges for visible panels, slabs, or blocks and dashed wide lines (type 02.2) for hidden components, (see Figures 3Figures 3 and 4;4);

— ——in cases where all linear components are represented with single lines, as extremely simplified presentations, continuous extra-wide lines (type 01.3) indicating axial lines for visible linear components and dashed extra-wide lines (type 02.3) for hidden components, see Figures 2 and 5. (see Figures 2 and 5).

NOTE 1 In this document, the line type numbers are given in accordance with ISO 128-2.

The reference grid shall be drawn with grid lines and the modular grid shall be drawn with modular lines (see ISO 8560). The application of lines shall be as follows:

— ——continuous narrow lines (type 01.1) for modular lines, for the first stage, and continuous wide linelines (type 01.2) for the second stage;

— ——long-dashed dotted narrow lines (type 04.1) for grid lines or modular lines in an axial position, (see Figures 1Figures 1 and 8.8).

Leader lines and reference lines shall be executed as a continuous narrow line (type 01.1),) (see Figure 8.Figure 8).

NOTE 2 See ISO 128-2 for more information about the basic conventions and applications for leader lines and reference lines.

4.1.3 Presentation of dimensions

The general principles for presentation of dimensions shall be in accordance with ISO 129-1.

4.1.4 Indications of tolerances and limit deviations

Dimensional tolerances shall be in accordance with the ISO 14405 series.

Indications of limit deviations shall be in accordance with ISO 6284 when presenting the following information:

— ——allowable manufacture tolerance;

— ——allowable construction tolerance.

4.1.5 Instructional information

Instructional information for the assembling process, including design charts or loading schemes, may be given in the space for text on drawings defined by ISO 9431.

The design charts or loading schemes can indicate loading limitations, erection procedures and other details concerning erection.

4.2 General arrangement drawings

4.2.1 General

A general arrangement drawing shall be a simplified representation of a prefabricated structure and the location of designated structural members.