

<b>STN</b>	<b>Priemyselné systémy, inštalácie a zariadenia a priemyselné výrobky Zásady štrukturalizácie a referenčné označovanie Časť 1: Základné pravidlá</b>	<b>STN EN IEC 81346-1</b>  01 3710
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Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 1: Basic rules

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/22

Obsahuje: EN IEC 81346-1:2022, IEC 81346-1:2022

Oznámením tejto normy sa od 04.05.2025 ruší  
STN EN 81346-1 (01 3710) z apríla 2010

EUROPEAN STANDARD

**EN IEC 81346-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2022

ICS 01.110; 29.020

Supersedes EN 81346-1:2009

English Version

**Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 1: Basic rules (IEC 81346-1:2022)**

Systèmes industriels, installations et appareils, et produits industriels - Principes de structuration et désignations de référence - Partie 1: Règles de base (IEC 81346-1:2022)

Industrielle Systeme, Anlagen und Ausrüstungen und Industrieprodukte - Strukturierungsprinzipien und Referenzkennzeichnung - Teil 1: Allgemeine Regeln (IEC 81346-1:2022)

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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## EN IEC 81346-1:2022 (E)

### European foreword

The text of document 3/1541/FDIS, future edition 2 of IEC 81346-1, prepared by IEC/TC 3 "Documentation, graphical symbols and representations of technical information" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 81346-1:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-02-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-05-04

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60297-3-100	NOTE Harmonized as EN 60297-3-100
IEC 60297-3-101:2004	NOTE Harmonized as EN 60297-3-101:2004 (not modified)
IEC 61175-1:2015	NOTE Harmonized as EN 61175-1:2015 (not modified)
IEC 61355-1:2008	NOTE Harmonized as EN 61355-1:2008 (not modified)
IEC 61666:2010	NOTE Harmonized as EN 61666:2010 (not modified)
IEC 61666:2010/A1:2021	NOTE Harmonized as EN 61666:2010/A1:2021 (not modified)
IEC 62023	NOTE Harmonized as EN 62023
IEC 62027	NOTE Harmonized as EN 62027
IEC 62424:2016	NOTE Harmonized as EN 62424:2016 (not modified)
IEC 62491:2008	NOTE Harmonized as EN 62491:2008 (not modified)
IEC 81714-3	NOTE Harmonized as EN 81714-3
IEC 82045-1	NOTE Harmonized as EN 82045-1
IEC 82045-2:2004	NOTE Harmonized as EN 82045-2:2005 (not modified)

**EN IEC 81346-1:2022 (E)**

IEC/IEEE 82079-1:2019	NOTE Harmonized as EN IEC/IEEE 82079-1:2020 (not modified)
ISO 3166-1	NOTE Harmonized as EN ISO 3166-1
ISO 4157 (series)	NOTE Harmonized as EN ISO 4157 (series)
ISO 4157-3	NOTE Harmonized as EN ISO 4157-3
ISO 9000:2015	NOTE Harmonized as EN ISO 9000:2015 (not modified)

**EN IEC 81346-1:2022 (E)****Annex ZA**  
(normative)**Normative references to international publications  
with their corresponding European publications**

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 81346-2	2019	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 2: Classification of objects and codes for classes	EN IEC 81346-2	2019
ISO/IEC 646	-	Information technology; ISO 7-bit coded character set for information interchange	-	-
ISO 81346-10	— <sup>1</sup>	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designation - Part 10: Power plants	-	-
ISO 81346-12	2018	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 12: Construction works and building services	-	-

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<sup>1</sup> In preparation. Stage at time of publication: ISO DIS 81346-10:2021.



IEC 81346-1

Edition 2.0 2022-03

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



HORIZONTAL PUBLICATION  
PUBLICATION HORIZONTALE

**Industrial systems, installations and equipment and industrial products –  
Structuring principles and reference designations –  
Part 1: Basic rules**

**Systemes industriels, installations et appareils, et produits industriels –  
Principes de structuration et désignations de référence –  
Partie 1: Règles de base**



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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 01.110; 29.020

ISBN 978-2-8322-1077-7

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## CONTENTS

FOREWORD.....	8
INTRODUCTION.....	11
1 Scope.....	13
2 Normative references .....	13
3 Terms and definitions .....	14
4 Concepts .....	16
4.1 Object.....	16
4.2 Aspect .....	17
4.3 Systems.....	19
4.4 Structuring .....	19
4.5 Function.....	19
4.6 Products and components.....	20
4.7 Location.....	21
4.8 Types.....	21
4.9 Object occurrences and product individuals .....	21
4.10 Relations between concepts .....	22
5 Structuring principles.....	23
5.1 General.....	23
5.2 Forming structures .....	26
5.3 Function-oriented structure .....	28
5.4 Product-oriented structure.....	29
5.5 Location-oriented structure .....	30
5.6 Type-oriented structure .....	31
5.7 Structures based on "other aspects" .....	31
5.8 Structures based on more than one aspect .....	33
6 Construction of reference designations .....	34
6.1 General.....	34
6.2 Format of reference designations.....	35
6.2.1 Single level.....	35
6.2.2 Multi-level.....	36
6.2.3 Use of letter codes .....	36
6.3 Different structures within the same aspect.....	37
7 Reference designation set.....	37
8 Designation of locations .....	39
8.1 General.....	39
8.2 Assemblies .....	39
9 Presentation of reference designations .....	41
9.1 Reference designations .....	41
9.2 Reference designation set .....	42
9.3 Presentation of identifiers for the top-node.....	43
10 Labelling.....	44
11 Presentation of properties for an object .....	45
12 Application of the reference designation system .....	46
Annex A (informative) Information model on the reference designation system .....	47
A.1 General.....	47

A.2	EXPRESS-G model.....	47
A.3	Entity descriptions .....	48
A.3.1	object .....	48
A.3.2	aspect .....	48
A.3.3	object_occurrence .....	48
A.3.4	function_occurrence .....	48
A.3.5	product_occurrence .....	49
A.3.6	location_occurrence.....	49
A.3.7	type_occurrence .....	49
A.3.8	other_aspect_occurrence.....	49
A.3.9	reference_designation .....	49
A.3.10	single_level_reference_designation .....	49
A.3.11	multi_level_reference_designation.....	50
A.3.12	reference_designation_set.....	50
A.3.13	classification_scheme .....	50
A.3.14	class.....	50
A.3.15	top_node_identifier .....	51
A.3.16	product_individual .....	51
A.4	Enumerations.....	51
A.4.1	aspect_kind .....	51
A.4.2	81346_classification_domain .....	51
A.5	EXPRESS code .....	52
Annex B (informative)	Establishment and life cycle of objects .....	54
B.1	Establishment and validity of objects .....	54
B.2	Life cycle story of an object.....	55
B.2.1	Overview .....	55
B.2.2	Function aspect and function based on a function-oriented structure (A).....	55
B.2.3	Functional requirement specification FR1 (B).....	57
B.2.4	Location aspect and reference designation based on a location-oriented structure (C) .....	57
B.2.5	Component type specification CT1 (D).....	57
B.2.6	Function list for system design FL1 and location list for physical design LL1 (E) .....	58
B.2.7	Product specification PS1 (F) .....	58
B.2.8	Parts list for manufacturing/installation PL1 (G) .....	58
B.2.9	Transport specification (H).....	59
B.2.10	Installation (J).....	59
B.2.11	Commissioning (K) .....	59
B.2.12	Acceptance and individual log IL1 (L) .....	59
B.2.13	Operation and maintenance (M).....	59
B.2.14	Alternative motor product individual (N) .....	60
B.2.15	Alternative motor type and supplier CT2, PS2 (P) .....	60
B.2.16	Process modification (R).....	60
B.2.17	Location extension (S) .....	60
B.2.18	Etc. (T) .....	60
B.2.19	Closing down (U) .....	60
B.2.20	Dismantling (V).....	60
B.2.21	Life cycle end (X).....	61
B.3	Discussion on the concept "object" .....	61

B.3.1	Different meanings of "motor" .....	61
B.3.2	Definition of "object" .....	61
B.4	Discussion on different life cycles .....	62
Annex C (informative)	Manipulation of objects .....	63
C.1	General.....	63
C.2	Establishment and validity of objects .....	63
C.2.1	Structuring.....	63
C.2.2	Ending the structuring.....	64
C.2.3	Relations between closely related objects.....	64
C.2.4	The roles of the reference designations set .....	66
C.2.5	Example .....	66
C.3	Life cycle situations .....	71
C.3.1	One object for all aspects .....	71
C.3.2	One object for each aspect.....	72
Annex D (informative)	Interpretation of reference designations using different aspects .....	74
Annex E (normative)	Object represented with several top nodes in an aspect .....	77
E.1	General.....	77
E.2	Example using aspect shift in structures .....	77
E.3	Example using aspect-oriented structures .....	78
Annex F (informative)	Examples of multiple structures based on the same aspect .....	80
F.1	Different function-oriented structures for a process plant .....	80
F.2	Topographical location of a system versus locations within an assembly.....	81
F.3	Different structuring for different needs .....	82
Annex G (normative)	Incorporating sub-objects in object structures .....	84
G.1	General.....	84
G.2	Example.....	84
Annex H (informative)	Example of reference designations within a system.....	88
Annex I (normative)	Designation of relations between objects .....	94
I.1	General.....	94
I.2	Basic principles.....	94
I.3	Designation of associative relations .....	94
I.4	Classification of relation kinds.....	95
I.5	Example of designation of associative relations .....	95
Annex J (normative)	Requirements for developing sector-specific parts of the International Standard 81346 series .....	97
J.1	General.....	97
J.2	81346 framework information model.....	97
J.2.1	EXPRESS-G model .....	97
J.2.2	Entity descriptions .....	98
J.2.3	Enumerations – 81346_classification_domain.....	100
J.2.4	EXPRESS code .....	102
Annex K (informative)	Metadata resource for structure management.....	103
Annex L (informative)	Recommendations for documentation of the application of the reference designation system .....	105
Annex M (informative)	Fundamental ideas for this document.....	111
M.1	General.....	111
M.2	Basic requirements for a reference designation system.....	111
M.3	Required properties for a reference designation system.....	111

Annex N (informative) Relationship to other standards.....	112
N.1 General.....	112
N.2 Use together with ISO/IEC/IEEE 42010:2011 .....	112
N.2.1 General .....	112
N.2.2 Architecture description and architecture description language .....	112
N.3 Use together with IEC 61355-1:2008.....	113
N.3.1 General .....	113
N.3.2 Document designation .....	113
N.4 Use together with IEC 61175-1:2015.....	114
N.4.1 General .....	114
N.4.2 Signal designation .....	114
N.5 Use together with IEC 61666:2010.....	115
N.5.1 General .....	115
N.5.2 Terminal designation .....	115
Bibliography.....	116

Figure 1 – International Standards providing a consistent system for designation, documentation and presentation of information .....	12
Figure 2 – Illustration of an object.....	17
Figure 3 – Aspects of an object.....	18
Figure 4 – Generic relation between the functionality of a technical system and a technical process .....	19
Figure 5 – Example of functionality of a technical system and a technical process .....	20
Figure 6 – Illustration of the concept's product, component, type, individual and occurrence.....	22
Figure 7 – Illustration of structural decomposition of an object from different aspects .....	24
Figure 8 – Illustration of a function-oriented decomposition and product-oriented composition .....	25
Figure 9 – Structure tree of object A (alternative 1).....	26
Figure 10 – Structure tree of object A (alternative 2).....	26
Figure 11 – Constituents in one aspect of object type 1 .....	27
Figure 12 – Constituents in one aspect of object type 2 .....	27
Figure 13 – Constituents in one aspect of object type 5 .....	27
Figure 14 – Structure tree of object type 1 .....	28
Figure 15 – Illustration of a function-oriented structure .....	29
Figure 16 – Illustration of a product-oriented structure .....	30
Figure 17 – Illustration of a location-oriented structure.....	31
Figure 18 – Example of the use of "other aspect" .....	32
Figure 19 – Example of the use of "other aspect" .....	33
Figure 20 – Illustration of an object accessible from three aspects, and where these aspects are used also for internal structuring.....	33
Figure 21 – Illustration of an object identified by means of one aspect and with sub-objects identified by means of another aspect.....	34
Figure 22 – Relation between a multi-level reference designation and its single-level reference designations.....	36
Figure 23 – Example of reference designation sets .....	38
Figure 24 – Example of designation of mounting planes inside a factory build assembly .....	40

Figure 25 – Examples of designation of locations inside a factory build assembly .....	41
Figure 26 – Different objects on a site identified with top node identifiers.....	44
Figure 27 – The common initial portion of reference designations .....	44
Figure 28 – Labelling of reference designations .....	45
Figure 29 – Presentation of a property in combination with a reference designation.....	45
Figure A.1 – EXPRESS-G model of the reference designation system .....	47
Figure B.1 – Development situations of objects.....	54
Figure B.2 – The object's life cycle .....	56
Figure C.1 – Three independently defined objects .....	65
Figure C.2 – Three separate objects with mutual relations .....	65
Figure C.3 – The three objects are merged into one.....	66
Figure C.4 – Overview of the process system .....	67
Figure C.5 – Tree-like structures of the system.....	67
Figure C.6 – Completed structures of the system.....	68
Figure C.7 – Structures with designated sub-objects.....	69
Figure C.8 – Structures with some merged-and-shared objects.....	69
Figure C.9 – Relations expressed by reference designation sets in which both designations are unambiguous.....	70
Figure C.10 – Relations expressed by reference designation sets in which one designation is ambiguous.....	71
Figure C.11 – Situations in the beginning of an object's life cycle accessible from three aspects.....	71
Figure C.12 – Situations in the beginning of the life cycle of closely related objects, each accessible from one aspect .....	72
Figure D.1 – Shift from function to product aspect.....	74
Figure D.2 – Shift from product to function aspect.....	74
Figure D.3 – Shift from product to location aspect.....	75
Figure D.4 – Shift from location to product aspect.....	75
Figure D.5 – Shift from function to location aspect .....	76
Figure D.6 – Shift from location to function aspect .....	76
Figure E.1 – Object represented with several independent top nodes in one aspect.....	77
Figure E.2 – Example of multi-level reference designations using different aspects of an object with several independent top nodes in one aspect .....	78
Figure E.3 – Object represented with several independent top nodes in one aspect using aspect-oriented structures .....	79
Figure F.1 – Illustration of the concept of additional functional views of an industrial process plant.....	80
Figure F.2 – Location-oriented structure of a plant.....	81
Figure F.3 – Location-oriented structure within an assembly unit .....	81
Figure F.4 – Location-oriented structures of the plant .....	82
Figure F.5 – Example of additional product-oriented structures .....	83
Figure G.1 – Sub-contractor's design .....	85
Figure G.2 – Receiving organization's design .....	85
Figure G.3 – Full structure of the receiving organization's design.....	86
Figure H.1 – Process flow diagram for a material handling plant .....	88

Figure H.2 – Overview diagram of part of the process system (=V1) and part of the power supply system (=Q1).....	89
Figure H.3 – Structure tree for parts of the material handling plant .....	90
Figure H.4 – Layout drawing of the components of the MCC =Q1=W1 .....	91
Figure H.5 – Layout drawing indicating the location of the MCC .....	91
Figure H.6 – Layout drawing of the locations of the MCC =Q1=W1 .....	92
Figure H.7 – Motor starter .....	92
Figure H.8 – Product- and location-oriented structure trees for the MCC .....	93
Figure I.1 – Structure of a relation designation.....	95
Figure J.1 – International Standard 81346 framework – An EXPRESS-G model .....	98
Figure N.1 – Principle of document designation .....	113
Figure N.2 – Signal designation and signal connection identification .....	114
Figure N.3 – Principle of terminal designation .....	115
Table 1 – Identification of types, occurrences and individuals within different contexts .....	23
Table 2 – Examples of single-level reference designations .....	35
Table 3 – Examples of multi-level reference designations with multiple prefix signs .....	37
Table 4 – Examples of presentations of multi-level reference designations .....	42
Table 5 – Presentation of reference designations of a reference designation set .....	43
Table C.1 – Possible reference designation sets .....	70
Table G.1 – Reference designations in the receiver's design .....	87
Table H.1 – Reference designation set for the constituents of the products MCC and motor starter .....	93
Table I.1 – Example of classification scheme for associative relations .....	96
Table I.2 – Examples of relation designations .....	96
Table K.1 – Metadata elements for reference designation systems .....	104
Table L.1 – Documentation on the application of the rules .....	105

# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## **INDUSTRIAL SYSTEMS, INSTALLATIONS AND EQUIPMENT AND INDUSTRIAL PRODUCTS – STRUCTURING PRINCIPLES AND REFERENCE DESIGNATIONS –**

### **Part 1: Basic rules**

#### **FOREWORD**

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IEC 81346-1 has been prepared by IEC technical committee 3: Documentation, graphical symbols and representations of technical information, in close cooperation with ISO technical committee 10: Technical product documentation. It is an International Standard.

It is published as a double logo standard and has the status of a horizontal publication in accordance with IEC Guide 108.

This second edition cancels and replaces the first edition published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) the scope includes a reference to IEC Guide 108 for being a horizontal publication;
- b) synchronization with IEC 81346-2:2019 and ISO 81346-12:2018;

- c) the introduction of the type aspect;
- d) introduction of an information model of the reference designation system;
- e) introduction of an information model for the framework of reference designation system to comply with International Standard 81346 series;
- f) introduction of recommendation for metadata for design structure management;
- g) introduction of rules and method for designation of relations between objects;
- h) introduction of requirements for development of sector-specific parts of the International Standard 81346 series;
- i) introduction of requirements for incorporation of sub-object in object structures;
- j) introduction of recommendations for documentation of the application of the International Standard 81346 series;
- k) introduced definition of new terms used;
- l) new rules added and existing rules modified;
- m) notes related to rules are converted to normative text as "Comment to Rule nn".

The text of this International Standard is based on the following documents:

Draft	Report on voting
3/1541/FDIS	3/1548/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table. In ISO, the standard has been approved by 10 members out of 11 having cast a vote.

The language used for the development of this International Standard is English.

A list of parts of the 81346 International Standard, published under the general title *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

In this document, *italic type* is used as follows:

- terms defined in Clause 3 (applies to the text of Clause 3 only);
- in the description of the EXPRESS model, entity names and attribute identifiers;
- commenting on the story from a structuring and reference designation perspective in Clause B.2.



The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

**IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.**

## INTRODUCTION

This document establishes a further development of earlier and withdrawn standards on item designation. It provides the basics for establishing models of plants, machines, buildings, infrastructure, etc.

This document specifies:

- principles for structuring of objects including associated information;
- rules on forming of reference designations based on the resulting structure.

By applying the structuring principles, even very large sets of information describing a complex system can be handled efficiently. In Annex B, the life-cycle story of an object shows how different structures and aspects are related to the sets of information.

The structuring principles and the rules for reference designations:

- are applicable to objects of both physical and non-physical character;
- provide a system that is easy to navigate within and easy to maintain;
- provide an excellent overview on a technical system since composite structures are simple to establish and understand;
- support alternative design and engineering processes in the life cycle of an object since they are based on the successively established results of this process and not on how the engineering process itself is carried out;
- allow, by accepting more than one aspect, that more than one coding principle can be applied;
- allow "old structures" to be handled together with "new structures" by using multiple unambiguous identifiers;
- support individual management for the establishment of reference designations and enable subsequent integration of modules into larger constructs;
- support the establishment of reusable modules, either as functional specifications or as physical deliverables;

**NOTE** The concept of reusable modules encompasses for example, for manufacturers: the establishment of contract independent modules, and, for operators of complex assemblies: the description of requirements in terms of supplier independent modules.

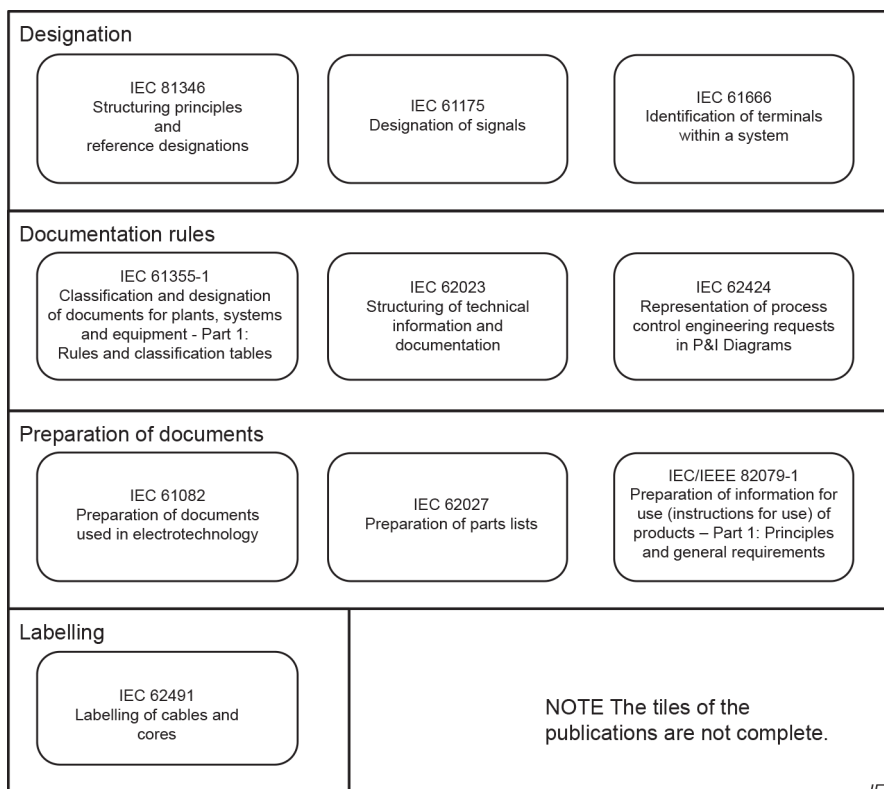
- support concurrent work and allow different partners within a project to add and/or remove data to the structured project result as it proceeds; and
- recognize time factor within the life cycle as important for the application of different structures based on different views on the considered technical system.

The rules for structuring of information and for the construction of reference designations forms the basis for creating a reference designation system (RDS) complying with the International Standard 81346 series. Such systems are used for structuring and designating objects based on the needs of the organization using them.

The rules listed above are based on the fundamental ideas provided in Annex M that were defined for the development of the predecessor document for this document.

Annex A provides an information model of the framework described in this document and in IEC 81346-2. Annex A includes also elements related to other publications where the application of the reference designation in accordance with International Standard 81346 is considered.

Figure 1 provides an overview on International Standards providing a consistent system for designation, documentation, and presentation of information. Annex A provides more information on the relations between the International Standard 81346 series and other publications applying reference designations.



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**Figure 1 – International Standards providing a consistent system for designation, documentation and presentation of information**

This document describes the fundamental rules and methods for structuring of information and for the definition of reference designation of objects within buildings, infrastructure, industrial systems, installations and equipment and industrial products. These rules form a basis for the establishment of specific reference designation systems (RDS) for use by industries, enterprises, projects or other organizational contexts.

IEC 81346-2 establishes classification schemes with defined object classes and their associated letter codes. It is primarily intended for use in reference designations and for designation of generic types. Classes can also be used for other purposes, for example, by manufacturers to show multiple potential use of a product. In this way, the classification can enhance searchability.

Used in combination, this document and IEC 81346-2 define a fundamental framework for reference designations that is independent of the context in which reference designations are applied. This is applicable for objects in all technical disciplines and all branches of industry, and is applicable through the whole life-cycle of objects.

The International Standard 81346 series additionally includes parts that define sector-specific reference designation frameworks that tailor the fundamental reference designation framework of this document and IEC 81346-2 to the needs of specific sectors. Requirements for developing sector-specific parts of the International Standard 81346 series are given in Annex J.

# INDUSTRIAL SYSTEMS, INSTALLATIONS AND EQUIPMENT AND INDUSTRIAL PRODUCTS – STRUCTURING PRINCIPLES AND REFERENCE DESIGNATIONS –

## Part 1: Basic rules

### 1 Scope

This part of 81346 International Standard, published jointly by IEC and ISO, establishes general principles for the structuring of systems including structuring of information about systems.

Based on these principles, rules and guidance are given for the formulation of unambiguous reference designations for objects in any system.

The reference designation identifies objects for the purpose of creation and retrieval of information about an object and, where realized, about its corresponding component.

A reference designation labelled at a component is the key to finding information about that object among different kinds of documents.

The principles are general and are applicable to all technical areas (for example mechanical engineering, electrical engineering, construction engineering, process engineering). They can be used for systems based on different technologies or for systems combining several technologies.

This document is also a horizontal publication intended for use by technical committees in preparation of publications related to reference designations in accordance with the principles laid down in IEC Guide 108.

### 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.

IEC 81346-2:2019, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 2: Classification of objects and codes for classes*

ISO/IEC 646, *Information technology – ISO 7-bit coded character set for information interchange*

ISO 81346-10:—, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 10: Power supply systems*<sup>1</sup>

ISO 81346-12:2018, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 12: Construction works and building services*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**

<sup>1</sup> Second edition under preparation. Stage at the time of publication: ISO DIS 81346-10:2021.