

इंटरनेट

मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

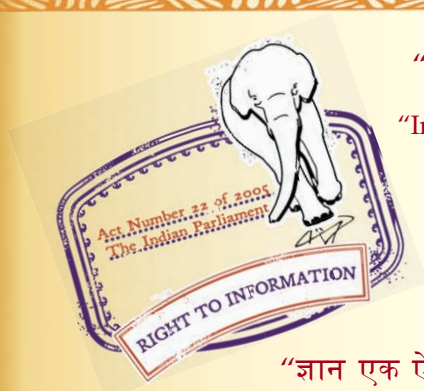
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

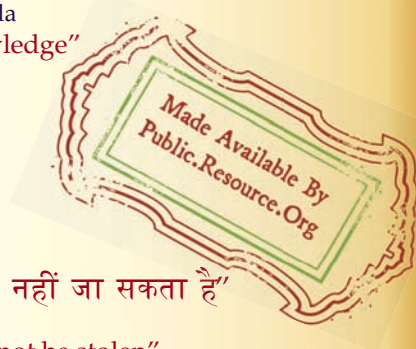
IS/ISO 13567-1 (1998): Technical Product Documentation - Organization and Naming of Layers for CAD, Part 1: Overview and Principles [PGD 24: Drawings]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

तकनीकी उत्पाद प्रलेखन — सी ए डी हेतु लेअर्स के संघटन एवं नामित

भाग 1 ओवरव्यू एवं सिद्धांत

Indian Standard

TECHNICAL PRODUCT DOCUMENTATION —
ORGANIZATION AND NAMING OF LAYERS FOR CAD

PART 1 OVERVIEW AND PRINCIPLES

ICS 01.110; 35.240.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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NATIONAL FOREWORD

This Indian Standard (Part 1) which is identical with ISO 13567-1 : 1998 'Technical product documentation — Organization and naming of layers for CAD — Part 1: Overview and principles' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Drawings Sectional Committee and approval of the Production and General Engineering Division Council.

This standard is published in two parts. The other part is:

Part 2 Concepts, format and codes used in construction documentation

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminology and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

The technical committee has reviewed the provision of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

<i>International Standard</i>	<i>Title</i>
ISO 10303-201 : 1994	Industrial automation systems and integration — Product data representation and exchange — Part 201: Application protocol: Explicit draughting

Annex A of this Indian Standard is for information only.

Indian Standard

**TECHNICAL PRODUCT DOCUMENTATION —
ORGANIZATION AND NAMING OF LAYERS FOR CAD**

PART 1 OVERVIEW AND PRINCIPLES

1 Scope

This part of ISO 13567 establishes the general principles of layer structuring within CAD files. Layers are used to control visibility and to manage and communicate CAD file data. Layer names are used to represent this structure.

The principles are applicable to all parties involved in preparing and using technical documentation on computer systems. Although these principles are primarily for users, CAD system developers are expected to provide software tools capable of implementing and supporting this part of ISO 13567. An important use is also to structure data in component libraries produced by third parties.

2 Normative reference

The following standard contain provisions which, through reference in this text, constitute provisions of this part of ISO 13567. At the time of publication, the edition indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 13567 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 10303-201:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 201: Application protocol: Explicit draughting*.

3 Definitions

For the purposes of this part of ISO 13567, the definitions for CAD draughting given in ISO 10303-201 and the following definitions apply.

3.1 layer: Organizational attribute of entities in a CAD data file, used to separate data in order to manage and communicate those data and to control visibility on the computer screen and on plotted drawings.

NOTE — In CAD systems, synonyms for "layer" are used, for example "level".

3.2 CAD model: Structured CAD data file(s) organized according to the physical parts of the objects represented, for example a building or a mechanical device.

NOTE — Models can be two-dimensional or three-dimensional, and can include graphical as well as non-graphical data attached to the objects.

3.3 CAD drawing: Selected parts of a CAD model as presented on screen or on paper.

NOTE — Visibility on the drawing can be controlled by views and layers. The drawing can contain additional graphics, such as border-lines, title-block and legends. CAD drawings can also be produced independently without an underlying CAD model (a drawing-oriented approach as opposed to the model-oriented approach).

3.4 plot: Graphic image created by a numerically controlled draughting machine and presented on draughting media.

3.5 reference file: CAD file that is displayed and printed together with information from another file which can be stored and updated independently of the first file.

NOTE — A typical use is a CAD drawing consisting of a file for the sheet and using the CAD model as a reference file. The view of the model in each drawing where it is referenced can thus be automatically updated.

3.6 wildcarding: Using a special character to match any character, or group of characters, in a string comparison.

4 General

When data is transferred between different systems, companies and countries, their structure needs to be understood in order to define responsibilities for parts of that data, to select from them to suit the needs of different specialists and to manage the data.

Layering is a commonly used technique to achieve such an organization of CAD data. Each graphical primitive, or collections of such primitives, in a CAD model is assigned to a layer. Layers are given unique names, from simple numbers to relatively long mnemonic codes, and can be selectively viewed or plotted.

A more sophisticated variation additionally allows the information in a CAD model to be split into different files which are combined with each other in addition to the use of layering, i.e. reference file techniques.

Data classification techniques based on distributed databases, object-oriented programming, product modelling etc., will be increasingly used in the future. For all these techniques the same fundamental principles for organizing information apply.

5 Fundamental principles

5.1 Organizational convention

The principle of organizing layers is based on the clear separation of the logical organization of information (conceptual level) from the way this information is coded in particular CAD implementations (internal level). This is a fundamental principle of database design. The primary focus is to establish clear organization of information which fulfils the functional requirements of the information users. The possibilities for coding this information using current technology (i.e. restricted number of layers or characters for layer names in some systems) has not been allowed to dominate the structure of ISO 13567.

5.2 Layer name format convention

A second basic principle is based on the many ways of classifying information independently of each other so that they can be applied in combinations, often referred to as faceted classification. To achieve this, different classifiers are placed in different parts of the layer name. Among the benefits of this approach is that it makes it easy to split up the information in a CAD file according to the different needs of end users of the information.

5.3 Code convention

A third principle is the use of existing international or national classification whenever appropriate. ISO 13567 does not contain any reserved codes where such tables exist.

Annex A **(informative)**

Bibliography

- [1] ISO 5455:1979, *Technical drawings — Scales*.
- [2] ISO/TR 10127:1990, *Computer-Aided Design (CAD) Technique — Use of computers for the preparation of construction drawings*.
- [3] ISO 10209-1:1992, *Technical product documentation — Vocabulary — Part 1: Terms relating to technical drawings: general and types of drawings*.
- [4] ISO 11442-1:1993, *Technical product documentation — Handling of computer-based technical information — Part 1: Security requirements*.
- [5] ISO 11442-2:1993, *Technical product documentation — Handling of computer-based technical information — Part 2: Original documentation*.
- [6] ISO 11442-3:1993, *Technical product documentation — Handling of computer-based technical information — Part 3: Phases in the product design process*.
- [7] ISO 11442-4:1993, *Technical product documentation — Handling of computer-based technical information — Part 4: Document management and retrieval systems*.
- [8] ISO 13567-2:1998, *Technical product documentation — Organization and naming of layers for CAD — Part 2: Concepts, format and codes used in construction documentation*.

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Review of Indian Standards

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Amendments Issued Since Publication

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.org.in

Regional Offices:

Telephones

Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 260 3843 260 9285
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
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