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Informacijska tehnologija - Vzpostavitev podatkovnega centra in infrastruktura - 1. del: Splošna zasnova

Information technology - Data centre facilities and infrastructures - Part 1: General concepts

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren - Teil 1: Allgemeine Konzepte

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ICS:

35.020	Informacijska tehnika in tehnologija na splošno	Information technology (IT) in general

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Information technology - Data centre facilities and infrastructures - Part 1: General concepts

To be completed

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren - Teil 1: Allgemeine Konzepte

This draft European Standard is submitted to CENELEC members for CENELEC enquiry.
Deadline for CENELEC: 2012-05-04.

It has been drawn up by CLC/TC 215.

If this draft becomes a European Standard, CENELEC 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.

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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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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Contents

40 **Foreword**

41 This document (prEN 50600-1:2011) has been prepared by CLC/TC 215 "Electrotechnical aspects of
42 telecommunication equipment".

43 This document is currently submitted to the Enquiry.

44 This document has been prepared under a mandate given to CENELEC by the European Commission
45 and the European Free Trade Association.

Introduction

The unrestricted access to internet-based information demanded by the information society has led to an exponential growth of both internet traffic and the volume of stored/retrieved data. Data centres, are housing and supporting the information technology and network telecommunications equipment for data processing, data storage and data transport. They are required both by network operators (delivering those services to customer premises) and by enterprises within those customer premises.

Data centres need to provide modular, scalable and flexible facilities and infrastructures to easily accommodate the rapidly changing requirements of the market. In addition, energy consumption of data centres has become critical both from an environmental point of view (reduction of carbon footprint) and with respect to economical considerations (cost of energy) for the data centre operator.

The implementation of data centres varies in terms of

a) purpose (enterprise, co-location, co-hosting or network operator facilities),

b) physical size,

c) accommodation (mobile, temporary and permanent constructions).

The needs of data centres also vary in terms of availability of service, the provision of security and the objectives for energy efficiency. These needs and objectives influence the design of data centres in terms of building construction, power distribution, environmental control and physical security. Effective management and operational information is required to monitor achievement of the defined needs and objectives.

This series of European Standards specifies requirements and recommendations to support the various parties involved in the design, planning, procurement, integration, installation, operation and maintenance of facilities and infrastructures within data centres. These parties include

1) owners, facility managers, ICT managers, project managers, main contractors,

2) consultants, architects, building designers and builders, system and installation designers,

3) suppliers of equipment,

4) installers, maintainers.

At the time of publication of this European Standard, EN 50600 series will comprise the following standards:

EN 50600-1: Information technology - Data centre facilities and infrastructures - Part 1: General concepts

EN 50600-2-1: Information technology - Data centre facilities and infrastructures - Part 2-1: Building construction

EN 50600-2-2: Information technology - Data centre facilities and infrastructures - Part 2-2: Power distribution

EN 50600-2-3: Information technology - Data centre facilities and infrastructures - Part 2-3: Environmental control

EN 50600-2-4: Information technology - Data centre facilities and infrastructures - Part 2-4: Telecommunications cabling infrastructure

EN 50600-2-5: Information technology - Data centre facilities and infrastructures - Part 2-5: Security systems

EN 50600-2-6: Information technology - Data centre facilities and infrastructures - Part 2-6: Management and operational information

The inter-relationship of the standards within the EN 50600 series is shown in Figure 1.

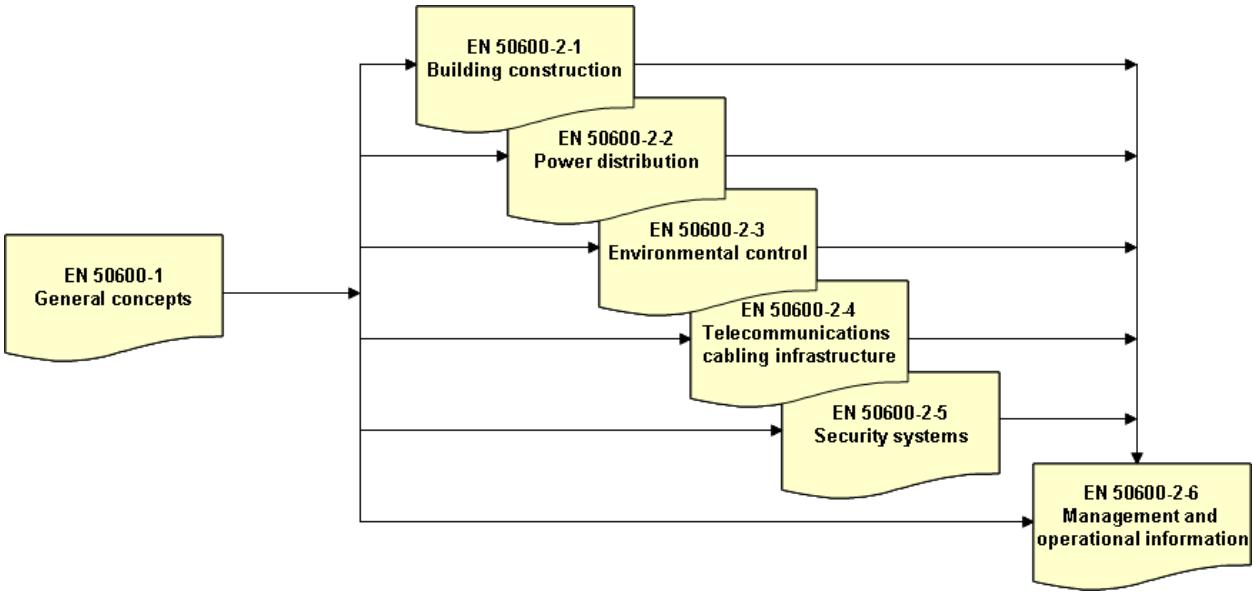

Figure 1 – Schematic relationship between EN 50600 series of standards

1 Scope and conformance

1.1 Scope

This European standard

a) details the issues to be addressed in a business risk and operating cost analysis enabling application of an appropriate classification of the data centre,

b) defines the common aspects of data centres including terminology, parameters and reference models (functional elements and their accommodation) addressing both the size and complexity of their intended purpose,

c) describes general aspects of the facilities and infrastructures required to support effective operation of telecommunications within data centres,

d) specifies a classification system, based upon the key criteria of “availability”, “security” and ‘energy-efficiency” over the planned lifetime of the data centre, for the provision of effective facilities and infrastructure,

e) describes the general design principles for data centres upon which the requirements of the EN 50600 series are based including symbols, labels, coding in drawings, quality assurance and education,

f) specifies the measurement methodologies and report formats to monitor the performance of the data centre facilities and infrastructures and to provide the necessary management and operational information specified in EN 50600-2-X standards.

The following topics are outside of the scope of this series of European standards:

1) the selection of information technology and network telecommunications equipment, software and associated configuration issues are outside the scope of this European Standard;

2) safety and electromagnetic compatibility (EMC) requirements (covered by other standards and regulations. However, information given in this European Standard may be of assistance in meeting these standards and regulations).

1.2 Conformance

For a data centre design to conform to this European Standard

a) a business risk analysis according to Clause 4 shall be done,

b) an appropriate availability class in 6.2 shall be selected using a business risk analysis in Clause 4,

c) an appropriate protection class in 6.3 shall be selected using a business risk analysis in Clause 4,

d) an appropriate energy efficiency enablement level in 6.4 shall be selected,

e) the general design principles in Annex A shall be applied.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 50174-2, *Information technology – Cabling installation – Part 2: Installation planning and practices inside buildings*

EN 50310, *Application of equipotential bonding and earthing in buildings with information technology equipment*

EN 50600-2-1 [1)], *Information technology – Data centre facilities and infrastructures – Part 2-1: Building construction*

EN 50600-2-2 [1)], *Information technology – Data centre facilities and infrastructures – Part 2-2: Power distribution*

EN 50600-2-3 [1)], *Information technology – Data centre facilities and infrastructures – Part 2-3: Environmental control*

EN 50600-2-4 [1)], *Information technology – Data centre facilities and infrastructures – Part 2-4: Telecommunications cabling infrastructure*

EN 50600-2-5 [1)], *Information technology – Data centre facilities and infrastructures – Part 2-5: Security systems*

EN 62305 (all parts), *Protection against lightning* (IEC 62305 (all parts))

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document the following definitions apply.

3.1.1
availability
ratio of time (or equivalent measure) during which the facilities and infrastructures of the data centre provide functional capability of the data centre to the total time (functional capability and non-functional capability) expressed as a percentage

3.1.2
building entrance facility
facility that provides all necessary mechanical and electrical services for the entry of telecommunications cables into a building and which may allow for transition from external to internal cable

[EN 50173-1:2011, 3.1.17]

3.1.3
building security
facilities and systems necessary to provide the required levels of security at the entrance to and within the building containing the data centre

3.1.4
cabinet
enclosed construction for housing closures and other information technology equipment

[EN 50174-1:2009, 3.1.4]

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1) Under consideration.

3.1.5
co-hosting data centre
data centre in which multiple customers are provided with access to network(s), servers and storage equipment on which they operate their own services/applications

NOTE Both the information technology equipment and the support infrastructure of the building are provided as a service by the data centre operator.

[EN 50174-2:2009/A1:2011, 3.1.2]

3.1.6
co-location data centre
data centre in which multiple customers locate their own network(s), servers and storage equipment

NOTE The support infrastructure of the building (such as power distribution and environmental control) is provided as a service by the data centre operator.

[EN 50174-2:2009/A1:2011, 3.1.3]

3.1.7
computer room space
area within the data centre that accomodates the data processing, data storage and telecommunication equipment that provides the primary function of the data centre

3.1.8
control room space
area within the data centre used to control the operation of the data centre and to act as a central point for all control and monitoring functions

3.1.9
data centre
building or space, whose primary function is to accommodate equipment that processes, delivers and/or stores information

NOTE A data centre can consist of multiple spaces with specific functions to support the primary function.

[EN 50174-2:2009/A1:2011, 3.1.5]

3.1.10
data centre security
facilities necessary and systems that provide the required levels of security at the entrance to and within the data centre

3.1.11
demarcation point
point where the operational control or ownership changes

3.1.12
downtime planned
period of time during which a system or sub-system does not provide functional capability whilst it undergoes maintenance or is switched off to test the response of a related system or sub-system

3.1.13
downtime unplanned
time taken, following a failure of functional capability, to repair the relevant infrastructure together with the “re-boot” time necessary to recover functional capability following that repair