BS EN 50600-2-5:2016

BSI Standards Publication

Information technology — Data centre facilities and infrastructures

Part 2-5: Security systems

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National foreword

This British Standard is the UK implementation of EN 50600-2-5:2016.

The UK participation in its preparation was entrusted to Technical Committee TCT/7/3, Telecommunications; Installation requirements: Facilities and infrastructures.

A list of organizations represented on this committee can be obtained on request to its secretary.

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European foreword

This document (EN 50600-2-5:2016) has been prepared by CLC/TC 215 “Electrotechnical aspects of telecommunication equipment”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2017-01-25
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2019-01-25

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Regarding the various parts in the EN 50600 series, see the Introduction.

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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);

b) security level;

c) physical size;

d) 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) architects, consultants, building designers and builders, system and installation designers;

3) facility and infrastructure integrators, suppliers of equipment;

4) installers, maintainers.

At the time of publication of this European Standard, the EN 50600 series currently comprises 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*;

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— 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 50600-3-1, *Information technology — Data centre facilities and infrastructures — Part 3-1: Management and operational information*;

— FprEN 50600-4-1, *Information technology — Data centre facilities and infrastructures — Part 4-1: Overview of and general requirements for key performance indicators*;

— FprEN 50600-4-2, *Information technology — Data centre facilities and infrastructures — Part 4-2: Power Usage Effectiveness*;

— FprEN 50600-4-3, *Information technology — Data centre facilities and infrastructures — Part 4-3: Renewable Energy Factor*;

— CLC/TR 50600-99-1, *Information technology — Data centre facilities and infrastructures — Part 99-1: Recommended practices for energy management*.

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

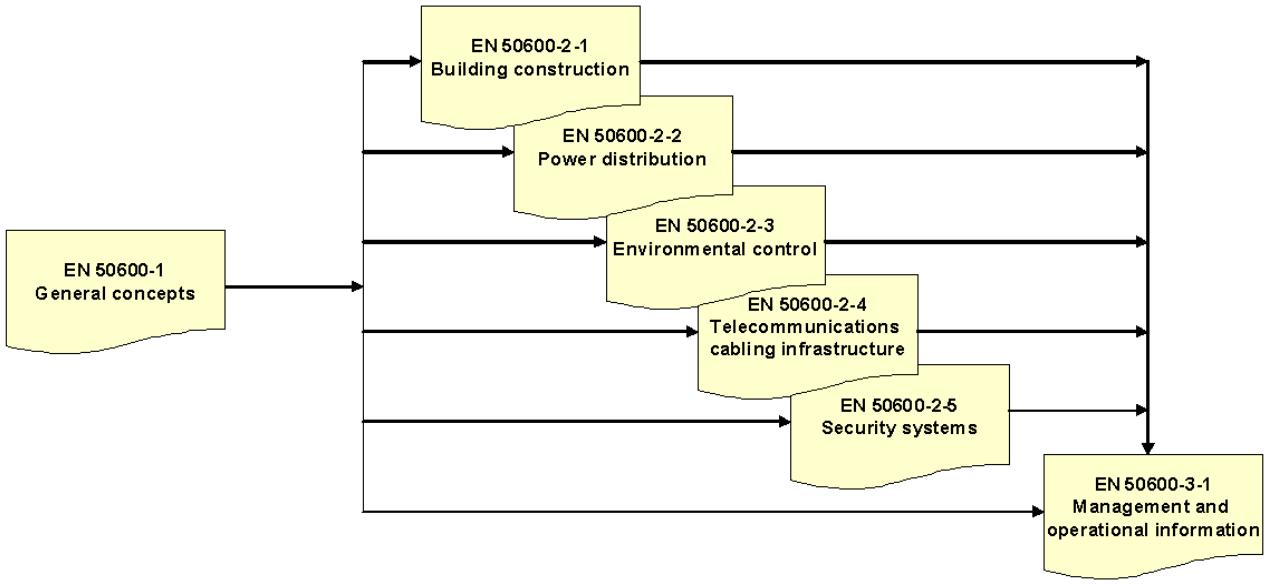

Figure 1 — Schematic relationship between the EN 50600 standards

EN 50600-2-X standards specify requirements and recommendations for particular facilities and infrastructures to support the relevant classification for “availability”, “physical security” and “energy efficiency enablement” selected from EN 50600-1.

EN 50600-3-X documents specify requirements and recommendations for data centre operations, processes and management.

This European Standard addresses the physical security of facilities and infrastructure within data centres together with the interfaces for monitoring the performance of those facilities and infrastructures in line EN 50600-3-1 (in accordance with the requirements of EN 50600-1).

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This European Standard is intended for use by and collaboration between architects, building designers and builders, system and installation designers and security managers among others.

This series of European Standards does not address the selection of information technology and network telecommunications equipment, software and associated configuration issues.

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1 Scope

This European Standard addresses the physical security of data centres based upon the criteria and classifications for “availability”, “security” and “energy efficiency enablement” within EN 50600-1.

This European Standard provides designations for the data centres spaces defined in EN 50600-1.

This European Standard specifies requirements and recommendations for those data centre spaces, and the systems employed within those spaces, in relation to protection against:

a) unauthorized access addressing constructional, organizational and technological solutions;

b) fire events igniting within data centres spaces;

c) other events within or outside the data centre spaces, which would affect the defined level of protection.

Safety and electromagnetic compatibility (EMC) requirements are outside the scope of this European Standard and are covered by other standards and regulations. However, information given in this European Standard may be of assistance in meeting these standards and regulations.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 3 (all parts), *Portable fire extinguishers*

EN 54 (all parts), *Fire detection and fire alarm systems*

EN 54-13, *Fire detection and fire alarm systems — Part 13: Compatibility assessment of system components*

EN 54-20:2006, *Fire detection and fire alarm systems — Part 20: Aspirating smoke detectors*

EN 1047-2, *Secure storage units — Classification and methods of test for resistance to fire — Part 2: Data rooms and data container*

EN 1366-3, *Fire resistance tests for service installations — Part 3: Penetration seals*

EN 1627:2011, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Requirements and classification*

EN 1634 (all parts), *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware*

EN 12845, *Fixed firefighting systems — Automatic sprinkler systems — Design, installation and maintenance*

EN 13565-2, *Fixed firefighting systems — Foam systems — Part 2: Design, construction and maintenance*

CEN/TS 14816, *Fixed firefighting systems — Water spray systems — Design, installation and maintenance*

CEN/TS 14972, *Fixed firefighting systems — Watermist systems — Design and installation*

prEN 16750, *Fixed firefighting systems — Oxygen reduction systems — Design, installation, planning and maintenance*

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EN 50131 (all parts), *Alarm systems — Intrusion and hold-up systems*

EN 50136 (all parts), *Alarm systems — Alarm transmission systems and equipment*

EN 50518 (all parts), *Monitoring and alarm receiving centre*

EN 50600–1, *Information technology — Data centre facilities and infrastructures — Part 1: General concepts*

EN 50600–2-1:2014, *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 60839-11-1, *Alarm and electronic security systems — Part 11-1: Electronic access control systems — System and components requirements (IEC 60839-11-1)*

EN 62676-1-1:2014, *Video surveillance systems for use in security applications — Part 1-1: System requirements — General (IEC 62676-1-1:2014)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50600-1 and the following apply.

3.1.1
forcible threat
threat exhibited by physical force

3.1.2
hold time
time during which a concentration of fire extinguishant is maintained at an effective level with the space being protected

3.1.3
information technology equipment
equipment providing data storage, processing and transport services together with equipment dedicated to providing direct connection to core and/or access networks

3.1.4
residual risk
remaining risk(s) posed to the data centre assets requiring protection following the deployment of appropriate countermeasures

3.1.5
security manager
individual with overall responsible for all operational security aspects of the data centre, including logical and physical control mechanisms or processes

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3.1.6
surreptitious attack
compromise of an asset via logical or physical means with the objective that the attack remains undetected

3.1.7
surreptitious threat
threat of a surreptitious attack by entities via logical or physical means leading to the compromise of that asset

3.2 Abbreviations

For the purposes of this document, the abbreviations given in EN 50600-1 and the following apply.

I&HAS intruder and holdup alarm systems

VSS video surveillance system

4 Conformance

For a data centre to conform to this European Standard:

1) the required Protection Class of Clause 5 shall be applied to each of the spaces of the data centre;

2) the requirements of the relevant Protection Class of Clauses 6, 7, 8 and 9 shall be applied;

3) the systems to support the requirements of Clause 6 shall be in accordance with Clause 10;

4) local regulations, including safety, shall be met.

5 Physical security

5.1 General

The degree of physical security applied to the facilities and infrastructures of a data centre has an influence on both the availability of function of, and the integrity/security of the data stored and processed within, the data centre.

Subclause 5.3 provides minimum requirements for the data centres spaces defined in EN 50600-1. The requirements and recommendations for those data centre spaces, and the systems employed within those spaces, address protection against:

a) unauthorized access (see Clause 6);

b) fire events originating within data centres spaces (Clause 7);

c) other events within (see Clause 8) or outside (see Clause 9) the data centre spaces, which would affect the defined level of protection.

Constructional requirements for walls and penetrations are provided in EN 50600-2-1 and relevant cross-references are provided from this standard.

In order for a space within the data centre to be considered to be of a given Protection Class the architectural and engineering design of the space (or entry to that space) shall meet or exceed that Protection Class for all aspects detailed above.

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5.2 Risk assessment

The requirements for operational security should be determined by the organization responsible for data centre assets. The requirements should be determined following a risk assessment based on the threats posed to the data, and the “classification” of that data. See EN 50600-1 for further information regarding risk assessment methodologies.

Figure 2 illustrates the concept of the risk assessment which is described as follows:

a) asset value: the classification of the material should be determined at an early stage, so that is is possible to deploy appropriate protection countermeasures. The nature of the “classification” maybe “native”, or “raised” due to the effects of data aggregation;

b) likelihood: the probability of some form of attack against the protected assets;

c) threat (forcible or surreptitious) analysis: for example, posed by unauthorized access to the assets resulting in loss or unavailability of the assets;

d) vulnerability analysis: for example, inadequate physical security or technical controls of the hosted data.

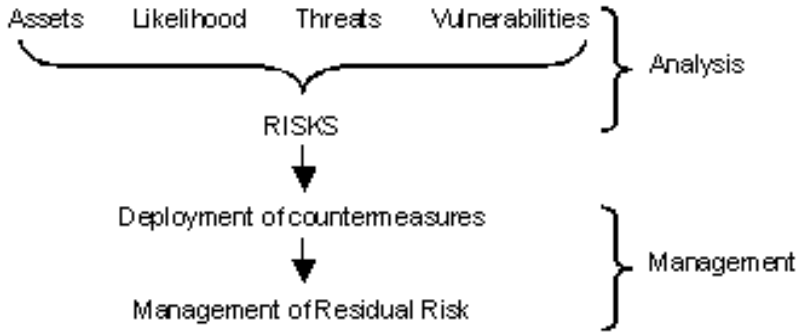

Figure 2 — Risk assessment concepts

These four items are analyzed during the risk assessment process, to identify the baseline risk posed to the data centre. Management of the identified baseline risk employs appropriate technical, physical and procedural countermeasures or a combination thereof.

Following the deployment of baseline countermeasures, further decisions shall be taken relating to the residual risk(s) as follows, driven by the acceptance of risk of the asset owner:

1) toleration - the remaining risk(s) are accepted and no additional countermeasures deployed;

2) treatment - additional measures are deployed to counter the remaining risk(s);

3) transferral - the risk(s) are transferred to another party, for example obtaining additional insurance cover the mitigate the risk(s);

4) termination - the activity posing the risk is terminated.

5.3 Designation of data centre spaces - Protection Classes

Each of the data centre spaces, independent of the size or purpose of the data centre, is designated as being of a particular Protection Class. There is no concept of a data centre of a given Protection Class.

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