



# SLOVENSKI STANDARD

## oSIST prEN 50600-2-3:2013

01-oktober-2013

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### Informacijska tehnologija - Naprave in infrastruktura podatkovnega centra - 2-3. del: Nadzor okolja

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

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren -- Teil 2-3:  
Überwachung der Umgebung

Technologie de l'information - Installation et infrastructures des centres de traitement de  
données -- Partie 2-3: Contrôle environnemental

**Ta slovenski standard je istoveten z: prEN 50600-2-3:2013**

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#### **ICS:**

35.020	Informacijska tehnika in tehnologija na splošno	Information technology (IT) in general
35.110	Omreževanje	Networking
91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

**oSIST prEN 50600-2-3:2013**

**en**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**DRAFT**  
**prEN 50600-2-3**

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ICS 35.020; 35.110; 35.160

English version

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

Technologie de l'information -  
Installation et infrastructures des centres  
de traitement de données -  
Partie 2-3: Contrôle environnemental

Informationstechnik -  
Einrichtungen und Infrastrukturen von  
Rechenzentren --Teil 2-3: Überwachung  
der Umgebung

This draft European Standard is submitted to CENELEC members for CENELEC enquiry.  
Deadline for CENELEC: 2013-11-22.

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.

This draft European Standard was established by CENELEC in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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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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## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 50600-2-3:2014](https://standards.iteh.ai/catalog/standards/sist/6ded7081-b61a-4994-a07f-831d304ed1b6/sist-en-50600-2-3-2014)

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41

**Foreword**

42 This document (prEN 50600-2-3:2013) has been prepared by CLC/TC 215 "Electrotechnical aspects of  
43 telecommunication equipment".

44 This document is currently submitted to the Enquiry.

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

**iTeh STANDARD PREVIEW**  
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## 47 Introduction

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

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

57 The implementation of data centres varies in terms of:

- 58 a) purpose (enterprise, co-location, co-hosting or network operator facilities);
- 59 b) security level;
- 60 c) physical size;
- 61 d) accommodation (mobile, temporary and permanent constructions).

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

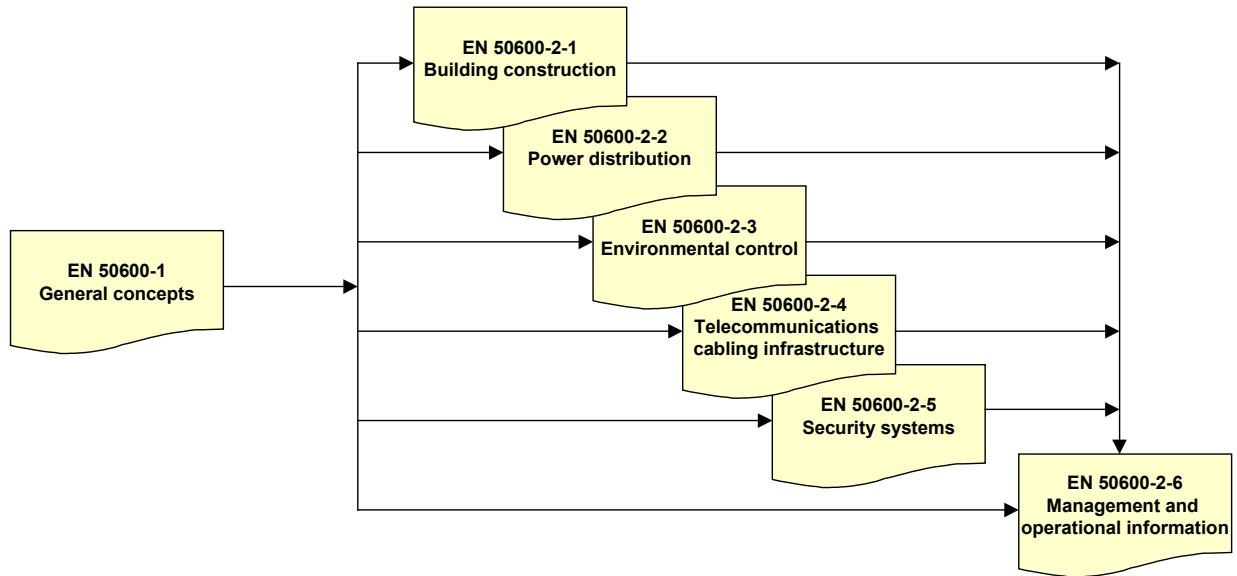
66 This series of European Standards specifies requirements and recommendations to support the various  
67 parties involved in the design, planning, procurement, integration, installation, operation and maintenance of  
68 facilities and infrastructures within data centres. These parties include:

- 69 1) owners, facility managers, ICT managers, project managers, main contractors;
- 70 2) architects, building designers and builders, system and installation designers;
- 71 3) facility and infrastructure integrators, suppliers of equipment;
- 72 4) installers, maintainers.

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

- 74 – EN 50600-1: Information technology – Data centre facilities and infrastructures – Part 1: General  
75 concepts;
- 76 – EN 50600-2-1: Information technology – Data centre facilities and infrastructures – Part 2-1: Building  
77 construction;
- 78 – EN 50600-2-2: Information technology – Data centre facilities and infrastructures – Part 2-2: Power  
79 distribution;
- 80 – EN 50600-2-3: Information technology – Data centre facilities and infrastructures – Part 2-3:  
81 Environmental control;
- 82 – EN 50600-2-4: Information technology – Data centre facilities and infrastructures – Part 2-4:  
83 Telecommunications cabling infrastructure;
- 84 – EN 50600-2-5: Information technology – Data centre facilities and infrastructures – Part 2-5: Security  
85 systems;
- 86 – EN 50600-2-6: Information technology – Data centre facilities and infrastructures – Part 2-6:  
87 Management and operational information.

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



89  
90

**Figure 1 - Schematic relationship between the EN 50600 standards**

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

94 This European Standard addresses the environmental control facilities and infrastructure within data centres  
95 together with the interfaces for monitoring the performance of those facilities and infrastructures in line with  
96 EN 50600-2-6 (in accordance with the requirements of EN 50600-1).

97 This European Standard is intended for use by and collaboration between architects, building designers and  
98 builders, system and installation designers. EN 50600-2-3:2014

99 NOTE The “intended for” text above needs to be reviewed and definitions need to be created for each of the “responsible persons”.  
<https://standards.iteh.ai/catalog/standards/sist/6ded7081-b61a-4994-a07f-85fd504ed160/sist-en-50600-2-3-2014>

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



## 102 **1 Scope and conformance**

### 103 **1.1 Scope**

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

106 This European Standard specifies requirements and recommendations for the following:

- 107 a) temperature control
- 108 b) fluid movement control
- 109 c) humidity control
- 110 d) particulate control
- 111 e) vibration
- 112 f) floor layout and equipment locations
- 113 g) energy saving practices
- 114 h) physical security of environmental control systems

115 For issues related to electromagnetic environment see EN 50600-2-5.

### 116 **1.2 Conformance**

117 For a data centre to conform to this European Standard:

- 118 a) it shall feature an environmental control solution that meets the requirements of Clause 4 for each  
119 identified space, which is predicted to meet the relevant availability requirements of Clause 5 where the  
120 space has scalable requirements;
- 121 b) it shall feature an approach to physical security in relation to the environmental control solution that  
122 meets the requirements of Clause 6;
- 123 c) it shall feature an energy efficiency enablement solution that meets the requirements of the relevant  
124 Complexity Level of Clause 7;
- 125 d) local regulations, including safety, shall be met.

## 126 **2 Normative references**

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

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

131 EN 50600-2-1<sup>1)</sup>, *Information technology — Data centre facilities and infrastructures – Part 2-1: Building*  
132 *construction*

133 EN 50600-2-5,<sup>2)</sup> *Information technology — Data centre facilities and infrastructures – Part 2-5: Security*  
134 *systems*

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1) Approved for formal vote.

2) Under consideration.

### 135 3 Terms, definitions and abbreviations

#### 136 3.1 Terms and definitions

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

##### 138 3.1.1

##### 139 **adiabatic cooling**

140 adiabatic cooling is a cooling system that is using the evaporative cooling principle to reduce the air  
141 temperature

##### 142 3.1.2

##### 143 **absolute humidity**

144 quantity of water vapour in a given volume of air, expressed by mass

##### 145 3.1.3

##### 146 **access floor**

147 system consisting of completely removable and interchangeable floor panels that are supported on  
148 adjustable pedestals, pedestals connected by stringers to allow access to the area beneath

149 Note 1 to entry: also known as raised floor

150 [SOURCE: prEN 50600-2-1:2012, 3.1.1]

##### 151 3.1.4

##### 152 **dew point**

153 temperature at which the water vapour in a gas begins to deposit as a liquid or ice, under standardized  
154 conditions

155 [SOURCE: IEC 60050-212:2010, 212-18-11]

##### 156 3.1.5

##### 157 **enthalpy** <https://standards.iteh.ai/catalog/standards/sist/6ded7081-b61a-4994-a07f->

158 for any system, that is, the volume of substance under discussion, enthalpy is the sum of the internal energy  
159 of the system plus the system's volume multiplied by the pressure exerted by the system on its surroundings

##### 160 3.1.6

##### 161 **exhaust air temperature**

162 the temperature of the air leaving the data centre building

##### 163 3.1.7

##### 164 **free cooling**

165 cooling system that uses the external ambient conditions to cool the data centre without using a refrigeration  
166 cycle (no compressor operation)

##### 167 3.1.8

##### 168 **fresh air cooling**

169 cooling system that uses the external air to cool the data centre either directly or indirectly

##### 170 3.1.9

##### 171 **fresh air make up**

172 form of air handler that "conditions" fresh air as it is continuously introduced into the data centre

173 Note 1 to entry: It is designed to remove moisture and a range of other airborne particulates that could in time erode the integrity and  
174 quality of the environment.

175 Note 2 to entry: Removal of the particulate matter results in a cleaner overall environment.

- 176 **3.1.10**  
 177 **heat load**  
 178 thermal power that is produced
- 179 **3.1.11**  
 180 **information technology equipment**  
 181 equipment providing data storage, processing and transport services together with equipment dedicated  
 182 to providing direct connection to core and/or access networks
- 183 **3.1.12**  
 184 **latent heat**  
 185 amount of heat which is absorbed or evolved in changing the state of a substance without changing its  
 186 temperature, e.g., in freezing or vaporizing water.
- 187 **3.1.13**  
 188 **outdoor air temperature**  
 189 temperature of the air measured outside of the data centre building
- 190 **3.1.14**  
 191 **relative humidity**  
 192 ratio, expressed as a percentage, of the vapour pressure of water vapour in moist air to the saturation  
 193 vapour pressure with respect to water or ice at the same temperature  
 194 [SOURCE: IEC 60050-705:1995, 705-05-09]
- 195 **3.1.15**  
 196 **return air temperature**  
 197 temperature of the air entering the air handling unit
- 198 **3.1.16**  
 199 **sensible heat**  
 200 heat absorbed or evolved by a substance during a change of temperature that is not accompanied by a  
 201 change of state
- 202 **3.1.17**  
 203 **supply air temperature**  
 204 temperature of the air entering the IT equipment.
- 205 **3.1.18**  
 206 **ventilation**  
 207 supply of air motion in a space by circulation or by moving air through the space  
 208 Note 1 to entry: Ventilation can be produced by any combination of natural or mechanical supply and exhaust.  
 209 Note 2 to entry: Such systems may include partial treatment such as heating, humidity control, filtering or purification, and, in some  
 210 cases, evaporative cooling.
- 211 **3.2 Abbreviations**
- 212 For the purposes of this document, the abbreviations given in EN 50600-1 and the following apply.
- 213 UPS      Uninterruptible Power Supply
- 214 CRAC      Computer Room Air Conditioning (Unit)
- 215 IT      Information technology
- 216 ITE      Information technology equipment