Norsk
Elektroteknisk
Komite

NEK 703:2024

Anlegg og infrastruktur i datasentre

Norsk elektroteknisk standardsamling

Engelsk utgave

NEK 703:2024

Engelsk utgave

Norsk elektroteknisk standardsamling

Informasjonsteknologi
Anlegg og infrastruktur i data sentre

Norwegian electrotechnical standard collection

Information technology
Data centre facilitites and infrastructure

Norsk Elektroteknisk Komite

Innhold

Nasjonalt forord ……..….4

NEK EN 50600-1:2019 ……..…5

NEK EN 50600-2-1:2021 ..……..36

NEK EN 50600-2-2:2019 ……..75

NEK EN 50600-2-3:2019 ……118

NEK EN 50600-2-4:2023 ……...147

NEK EN 50600-2-5:2021 ……208

NEK EN 50600-3-1:2016 ……247

NEK EN 50600-4-1:2016 ……295

NEK EN 50600-4-2:2016+A1:2019 ……...311

NEK EN 50600-4-3:2016+A1:2019 ……...345

NEK EN 50600-4-6:2020 ……..365

NEK EN 50600-4-7:2020 ……..386

NEK EN 50600-4-8:2022 ……..404

NEK EN 50600-4-9:2022……..428

Forord

Kabling for informasjonsteknologi og kommunikasjonssystemer for tele, data og TV (jf. elektronisk kommunikasjon - ekom i norske forskrifter) er en viktig del i samfunnets infrastruktur. Dette reflekteres også i forskrifter og regler fra myndighetens side. Kvalitet, pålitelighet og oppetid er samfunnskritisk, og alle deler av samfunnet har behov for at kommunikasjonsløsninger til enhver tid fungerer.

NEK 700-serien er verktøyet myndighetene henviser til som fundament for planlegging og bygging av funksjonelle kablingsinstallasjoner i alle typer bygg og utendørsområder. Det er også det verktøyet bransjen bør benytte for å sikre at minimumskravene til kvalitet ivaretas i alle deler av infrastrukturen.

NEK 700-serien bygger på internasjonale standarder og er oversatt til norsk og gitt veiledninger for norske forhold av Norsk Elektroteknisk Komite NK 215 «Sammenkobling av IT-utstyr».

NEK 700:2024 består av:

NEK 701:2024 Felles kablingssystemer

NEK 702:2024 Installasjon av kabling

NEK 703:2024 Anlegg og infrastruktur i datasentre

Sistnevnte er ikke oversatt til norsk, men foreligger som en samling i engelsk versjon.

NEK 700:2024-serien inneholder alle standardene slik de forelå hos NEK 1. mai 2024.

NEK 700-serien må også sees i sammenheng med andre relevante standarder på tilgrensende fagområder, f.eks. NEK 400 Elektriske lavspenningsinstallasjoner, NEK 399 Tilknytningspunkt for el- og ekomnett og NEK TR 750: Fiberoptisk tilgang for sluttbrukere.

Denne publikasjonen du leser nå er NEK 703:2024 Anlegg og infrastruktur i datasentre.

Kommentar fra komiteen:

Det gjøres oppmerksom på at myndighetene i sitt lovverk bruker begrepet ekomnett (elektroniske kommunikasjonsnett) som samlebetegnelse for alle typer nett hvor det går elektromagnetiske signaler.

NEK 700 har valgt å bruke de internasjonale betegnelsene informasjonsteknologi og kabling for informasjonsteknologi.

Brukerne av NEK 700 bør være oppmerksom på dette.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50600-1

June 2019

ICS 35.020; 35.160

Supersedes EN 50600-1:2012

English Version

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

Technologie de l'information - Installation et infrastructures de centres de traitement de données - Partie 1: Concepts généraux

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

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

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Contents

European foreword **3**
Introduction **4**
1 Scope **6**
2 Normative references **6**
3 Terms, definitions and abbreviations **7**
3.1 Terms and definitions 7
3.2 Abbreviations 11
4 Conformance **11**
5 Business risk analysis **12**
5.1 General 12
5.2 Business impact analysis 12
5.3 Risk analysis 13
6 Data centre design overview **14**
6.1 General 14
6.2 Spaces and facilities 15
7 Classification system for the design of data centre facilities and infrastructures **17**
7.1 General 17
7.2 Availability 17
7.2.1 General 17
7.2.2 Single-site data centres 17
7.2.3 Multi-site data centres 20
7.3 Physical security 20
7.3.1 General 20
7.3.2 Protection against unauthorised access 20
7.3.3 Protection against intrusion 20
7.3.4 Protection against environmental events 21
7.4 Energy efficiency enablement 21
7.4.1 General 21
7.4.2 Power distribution system 22
7.4.3 Environmental monitoring and control 22
7.4.4 Operational processes and KPIs 22
8 Design and implementation process **22**
8.1 General 22
8.2 Design phases 23
8.2.1 Phase 1 - Strategy 23
8.2.2 Phase 2 - Objectives 24
8.2.3 Phase 3 - System specifications 24
8.2.4 Phase 4 - Design proposal 24
8.2.5 Phase 5 - Decision 25
8.2.6 Phase 6 - Functional design 25
8.2.7 Phase 7 - Approval 25
8.2.8 Phase 8 - Final design and project plan 25
8.2.9 Phase 9 - Contract 25
8.2.10 Phase 10 - Construction 25
8.2.11 Phase 11 - Operation 25
9 Design Principles **26**
9.1 Design reference documentation 26
9.2 Design principles to support energy efficiency 26
9.3 Design principles for EMI 26
9.4 Design principles to support operational excellence 26
Annex A (informative) Overall availability and infrastructure availability **27**
Annex B (informative) Availability description **30**
Bibliography **31**

European foreword

This document (EN 50600-1:2019) 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) 2020–04–29
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2022–04–29

This document supersedes EN 50600-1:2012.

The following major modifications have been made compared to EN 50600-1:2012:

a) reference to Key Performance Indicators of EN 50600-4-X included;

b) Clause 7 (Availability) has been revised;

c) the design processes (Clause 8) and design principles (Clause 9) have been moved from an annex to the main body of the document;

d) existing Annex A has been removed;

e) new Annexes A and B have been added.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission 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 usually 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 environmental 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) 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, telecommunications cabling and physical security as well as the operation of the data centre. Effective management and operational information is required to monitor achievement of the defined needs and objectives.

Recognizing the substantial resource consumption, particularly of energy, of larger data centres, it is also important to provide tools for the assessment of that consumption both in terms of overall value and of source mix and to provide Key Performance Indicators (KPIs) to evaluate trends and drive performance improvements.

At the time of publication of this European Standard, EN 50600 series is designed as a framework of standards and technical reports covering the design, the operation and management as well as the key performance indicators for energy efficient operation of the data centre.

The EN 50600-2 series defines the requirements for the data centre design.

The EN 50600-3 series defines the requirements for the operation and the management of the data centre.

The EN 50600-4 series defines the key performance indicators for the data centre.

The CLC/TR 50600-99-X Technical Reports cover recommended practices and guidance for specific topics around data centre operation and design.

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, operators, facility managers, ICT managers, project managers, main contractors;

2) consulting engineers, architects, building designers and builders, system and installation designers, auditors, test and commissioning agents;

3) facility and infrastructure integrators, suppliers of equipment;

4) installers, maintainers.

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

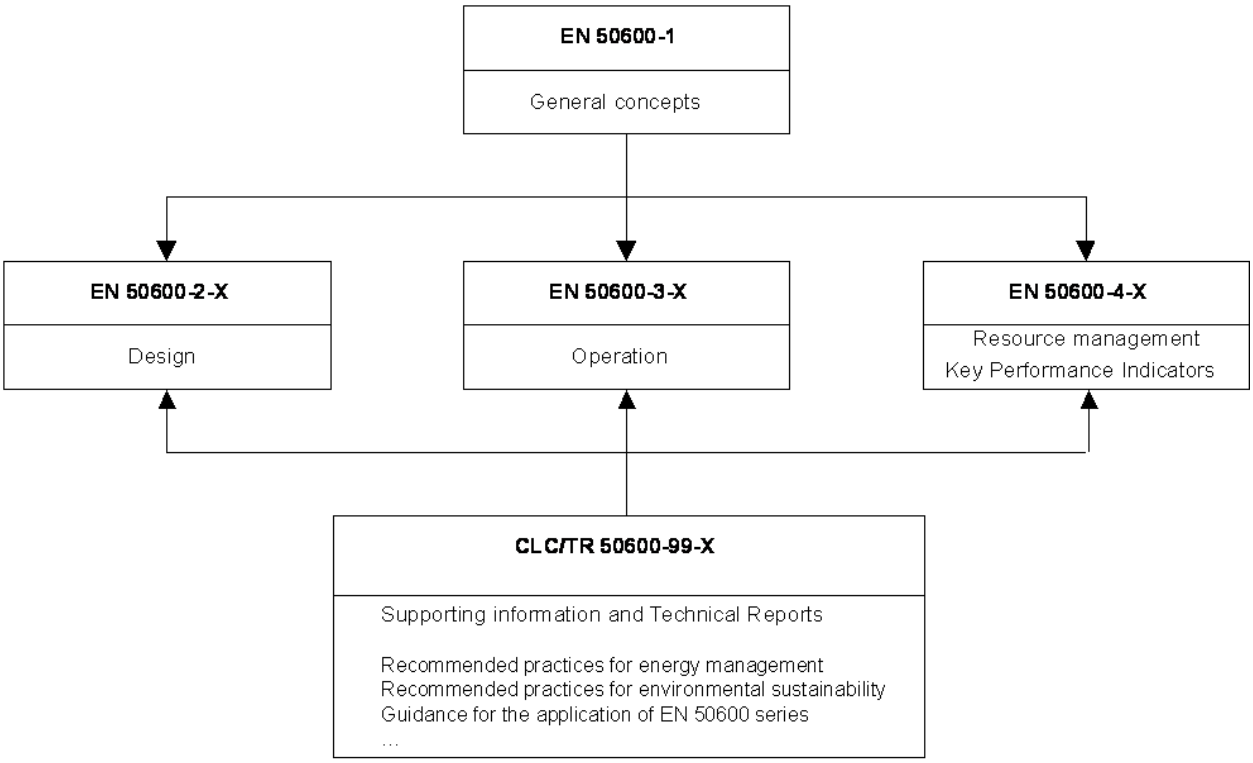

Figure 1 – Schematic relationship between EN 50600 series of standards

This European Standard specifies general requirements for data centres for all kinds of data centres irrespective of their size and physical construction. It introduces a classification system for availability, physical security and energy efficiency enablement.

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.

EN 50600-4-X documents specify requirements and recommendations for key performance indicators (KPIs) used to assess and improve the resource usage efficiency and effectiveness, respectively, of a data centre.

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

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

1 Scope

This document:

a) describes the general principles for data centres upon which the requirements of the EN 50600 series are based;

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

f) provides reference to operation and management of data centres;

g) introduces the concepts of Key Performance Indicators (KPIs) for resource management of data centre facilities and infrastructures.

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) quantitative analysis of overall service availability resulting from multi-site data centres;

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

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.

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 supply and 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*