

**Infotehnoloogia. Juhtmete  
paigaldamine. Osa 3: Väljaspool  
hooneid asuvate süsteemide  
planeerimine ja paigaldamine**

Information technology - Cabling installation - Part 3:  
Installation planning and practices outside buildings

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50174-3:2004 sisaldab Euroopa standardi EN 50174-3:2003 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 25.05.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50174-3:2004 consists of the English text of the European standard EN 50174-3:2003.</p> <p>This document is endorsed on 25.05.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This European Standard specifies the basic requirements for the planning, implementation and operation of information technology cabling using balanced copper cabling and optical fibre cabling. This standard is applicable to a) cabling designed to support particular analogue and digital communications services including voice services; b) generic cabling systems designed in accordance with series EN 50173 and intended to support a wide range of communications services.</p>	<p><b>Scope:</b></p> <p>This European Standard specifies the basic requirements for the planning, implementation and operation of information technology cabling using balanced copper cabling and optical fibre cabling. This standard is applicable to a) cabling designed to support particular analogue and digital communications services including voice services; b) generic cabling systems designed in accordance with series EN 50173 and intended to support a wide range of communications services.</p>
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**Information technology -  
Cabling installation**

**Part 3: Installation planning and practices outside buildings**

Technologies de l'information -  
Installation de câblage  
Partie 3: Planification et pratiques  
d'installation à l'extérieur des bâtiments

Informationstechnik -  
Installation von  
Kommunikationsverkabelung  
Teil 3: Installationsplanung  
und -praktiken im Freien

This European Standard was approved by CENELEC on 2003-09-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

This European Standard was prepared by Technical Committee CENELEC TC 215, Electrotechnical aspects of telecommunication equipment, under the framework of the Mandates M/212 on “Telecommunication cables and cabling systems” and M/239 on “Air traffic management equipment and systems”.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50174-3 on 2003-09-01.

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2004-09-01
- latest date by which the national standards  
conflicting with the EN have to be withdrawn (dow) 2006-09-01

This standard comprises three parts. All three parts support the specification, implementation and operation of information technology cabling using both balanced copper and optical fibre cabling components. These components may be combined to provide cabling solutions either in accordance with the design requirements of series EN 50173 or to meet the requirements of one or more application-specific standards (such as EN 50098-1 or EN 50098-2).

This part, EN 50174-3, contains detailed requirements and guidance relating to the installation planning and practices outside buildings and is intended to be used by the personnel directly involved in the planning and installation of information technology cabling. It shall be used during the different implementation phases when installing information technology cabling, i.e. during the planning phase, the design phase and installation phase.

Annexes designated “informative” are given for information only.  
In this standard, Annexes A and B are informative.

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## Introduction

The importance of the information technology cabling infrastructure is similar to that of other fundamental building utilities such as heating, lighting and mains power supplies. As with other utilities, interruptions to service can have serious impact. Poor quality of service due to lack of planning, use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten an organisation's effectiveness.

There are four phases in the successful installation of information technology cabling. These are

- a) design - the selection of cabling components and their configuration,
- b) specification - the detailed requirement for the cabling, its accommodation and associated building services addressing specific environment(s) identified within the premises together with the quality assurance requirements to be applied,
- c) implementation - the physical installation in accordance with the requirements of the specification,
- d) operation - the management of connectivity and the maintenance of transmission performance during the life of the cabling.

This European Standard is in three parts and addresses the specification, implementation and operational aspects. The design issues are covered in series EN 50173 and / or other application standards.

EN 50174-1 is intended to be used by personnel during the specification phase of the installation together with those responsible for the quality planning and operation of the installation. It contains requirements and guidance for the specification and quality assurance of the information technology cabling by defining

- aspects to be addressed during the specification of the cabling,
- quality assurance documentation and procedures,
- requirements for the documentation and administration of cabling,
- recommendations for repair and maintenance.

EN 50174-2 and this part, EN 50174-3, are intended to be used by the personnel directly involved in the implementation phase of the installation. EN 50174-2 is applicable inside buildings and EN 50174-3 is applicable outside buildings.

This part, EN 50174-3, contains detailed requirements and guidance relating to the installation planning and practices by defining

- 1) planning strategy (road map) and guidance depending on the application and physical environment (climatic, mechanical, electromagnetic, etc.),
- 2) design and installation rules for metallic and optical fibre cabling depending on the application, electromagnetic environment, physical environment, etc.,
- 3) requirements on satisfactory operation of the cabling depending on the application, electromagnetic environment, physical environment, etc.,
- 4) the practices and procedures to be adopted to ensure that the cabling is installed in accordance with the specification.

Figure 1 shows the relationships between the standards produced by TC 215 for information technology cabling, namely cabling design standards (EN 50098 series, EN 50173 series), cabling installation standards (EN 50174 series) and equipotential bonding requirements (EN 50310).

Building design phase	Cabling design phase	Planning phase	Implementation phase	Operation phase
EN 50310  5.2: Common bonding network (CBN) within a building  6.3: AC distribution system and bonding of the protective conductor (TN-S)	EN 50173 (series)  <b>or (and)</b>  EN 50098-1  <b>or (and)</b>  EN 50098-2  <b>or (and)</b>  Other application standards	EN 50174-1  4: Specification considerations  5: Quality assurance  7: Cabling administration  <b>and</b>  EN 50174-2  4: Safety requirements  5: General installation practices for metallic and optical fibre cabling  6: Additional installation practice for metallic cabling  7: Additional installation practice for optical fibre cabling  <b>and</b>  EN 50174-3  <b>and</b>  <b>(for equipotential bonding)</b>  EN 50310  5.2: Common bonding network (CBN) within a building  6.3: AC distribution system and bonding of the protective conductor (TN-S)	EN 50174-1  6: Documentation  7: Cabling administration  <b>and</b>  EN 50174-2  4: Safety requirements  5: General installation practices for metallic and optical fibre cabling  6: Additional installation practice for metallic cabling  7: Additional installation practice for optical fibre cabling  <b>and</b>  EN 50174-3  <b>and</b>  <b>(for equipotential bonding)</b>  EN 50310  5.2: Common bonding network (CBN) within a building  6.3: AC distribution system and bonding of the protective conductor (TN-S)  <b>and</b>  EN 50346  4: General requirements  5: Test parameters for balanced copper cabling  6: Test parameters for optical fibre cabling	EN 50174-1  5: Quality assurance  7: Cabling administration  8: Repair and maintenance

Figure 1 - Relationship between series EN 50174 and other design standards

## 1 Scope

This European Standard specifies the basic requirements for the planning, implementation and operation of information technology cabling using balanced copper cabling and optical fibre cabling. This standard is applicable to

- a) cabling designed to support particular analogue and digital communications services including voice services;
- b) generic cabling systems designed in accordance with series EN 50173 and intended to support a wide range of communications services.

This standard is intended for those involved in the procurement, installation and operation of information technology cabling. Furthermore this standard is addressed to

- architects, building designers and builders;
- main contractors;
- designers, suppliers, installers, maintainers and owners of information technology cabling;
- public network providers and local service providers;
- end users.

This standard is applicable to certain hazardous environments but does not exclude additional requirements which are applicable in particular circumstances, e.g. in the presence of electricity supply and electrified railways.

This part of the standard

- c) sets out requirements for satisfactory installation and operation of information technology cabling outside buildings; it is not restricted to campus areas,
- d) excludes specific requirements applicable to other cabling systems (e.g. power cabling, coaxial cabling); however, it takes account of the effects other cabling systems may have on the installation of information technology cabling (and vice versa) and gives general advice.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

EN 12613, *Plastics warning devices with visual characteristics for underground cables and pipelines*

EN 41003, *Particular safety requirements for equipment to be connected to telecommunication networks*

EN 50173-1, *Information technology – Generic cabling systems – Part 1: General requirements and office areas*

EN 50174-1, *Information technology – Cabling installation - Part 1: Specification and quality assurance*

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 60950-1, *Information technology equipment – Safety – Part 1: General requirements (IEC 60950-1:2001, modified)*

EN 60950-21, *Information technology equipment – Safety – Part 21: Remote power feeding (IEC 60950-21:2002)*

EN 61663-1, *Lightning protection – Telecommunication lines – Part 1: Fibre optic installations (IEC 61663-1:1999 + corrigendum Oct. 1999)*

EN 61663-2, *Lightning protection – Telecommunication lines – Part 2: Lines using metallic conductors (IEC 61663-2:2001)*

HD 384.4.41 S2, *Electrical installations of buildings – Part 4: Protection for safety - Chapter 41: Protection against electric shock (IEC 60364-4-41:1992, modified)*

HD 384.4.47 S2, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 47: Application of protective measures for safety – Section 470: General – Section 471: Measures of protection against electric shock (IEC 60364-4-47:1981 + A1:1993, modified)*

HD 384.4.482 S1, *Electrical installations of buildings - Part 4: Protection for safety - Chapter 48: Choice of protective measures as a function of external influences - Section 482: Protection against fire where particular risks or danger exist*

ITU-T K.33, *Limits for people safety related to coupling into telecommunications system from a.c. electric power and a.c. electrified railway installations in fault conditions*

ITU-T K.50, *Safe limits of operation voltages and currents for telecommunication systems powered over the network*

ITU-T K.51, *Safety criteria for telecommunication equipment*

ITU-T K.53, *Values of induced voltages on telecommunication installations to establish telecom and a.c. power and railway operators responsibilities*

### 3 Definitions and abbreviations

#### 3.1 Definitions

For the purposes of this European Standard the following definitions apply:

##### 3.1.1

##### **bonding network (BN)**

set of interconnected conductive structures that provides an “electromagnetic shield” for electronic systems and personnel at frequencies from Direct Current (DC) to low Radio Frequency (RF)

NOTE The term “electromagnetic shield” denotes any structure used to divert, block or impede the passage of electromagnetic energy. In general, a BN does not need to be connected to earth, but all BNs considered in the present document will have an earth connection

[3.1.2 of EN 300 253:2002]