

Information technology - Cabling installation - Part 2:  
Installation planning and practices inside buildings

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 50174-2:2018 sisaldab Euroopa standardi EN 50174-2:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 50174-2:2018 consists of the English text of the European standard EN 50174-2:2018.
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English Version

**Information technology - Cabling installation - Part 2: Installation  
planning and practices inside buildings**

Technologies de l'information - Installation de câblages -  
Partie 2 : Planification et pratiques d'installation à l'intérieur  
des bâtiments

Informationstechnik - Installation von  
Kommunikationsverkabelung - Teil 2: Installationsplanung  
und Installationspraktiken in Gebäuden

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (EN 50174-2:2018) has been prepared by Technical Committee 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) 2019-05-21
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2021-05-21

This document supersedes EN 50174-2:2009, EN 50174-2:2009/A1:2011 and EN 50174-2:2009/A2:2014.

EN 50174 comprises three parts. All three parts support the specification, implementation and operation of information technology cabling. There are specific requirements for cabling systems that are in accordance with the design requirements of the EN 50173 series. However, the three parts also apply to cabling systems of any design including those in accordance with standards such as EN 50700.

This part, EN 50174-2, is concerned with the planning and installation of information technology cabling using metallic cabling and optical fibre cabling inside buildings. It provides guidance as to the responsibilities of those involved and is intended to be referenced in relevant contracts.

It does not cover those aspects of installation associated with the transmission of signals in free space between transmitters, receivers or their associated antenna systems (e.g. wireless, radio, microwave or satellite).

This edition of EN 50174-2:

- a) revises requirements of Clause 4 and Clause 5, respectively, regarding closures, cables, the stacking height of pathway systems, surge protective devices;
- b) introduces a new subclause 4.11 and Annex C on planning and assessment of cabling in support of remote powering objectives;
- c) amends requirements in Clause 6 on segregation;
- d) modifies Clause 7 on electricity distribution systems and lightning protection;
- e) introduces minor changes to Clauses 8, 9, 10, 11;
- f) removes the previous Annex A;
- g) introduces Clause 12 on cabling for distributed services cabling within buildings, Clause 13 on common infrastructures within multi-tenant buildings, Annex B installation conditions and Annex D on equipment accommodation environments.

## Introduction

The importance of services delivered by information technology cabling infrastructure is similar to that of utilities such as heating, lighting and electricity supplies. As with those utilities, interruptions to service can have a 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 implementation of information technology cabling. These are:

- a) design;
- b) specification – the detailed requirement for the cabling, including the planning of its accommodation and associated building services addressing specific environments (e.g. electromagnetic) together with the quality assurance requirements to be applied;
- c) 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, installation and operational aspects. The EN 50173 series and other application standards cover design issues.

EN 50174-1 is used during the specification phase. It addresses the:

- installation specification, quality assurance procedures and documentation;
- documentation and administration;
- operation and maintenance.

This part, EN 50174-2, and EN 50174-3 are intended to be used by the personnel directly involved in the planning aspects (of the specification phase) and installation phase. EN 50174-2 is applicable inside buildings and EN 50174-3 is applicable outside buildings.

This European Standard is also relevant to:

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

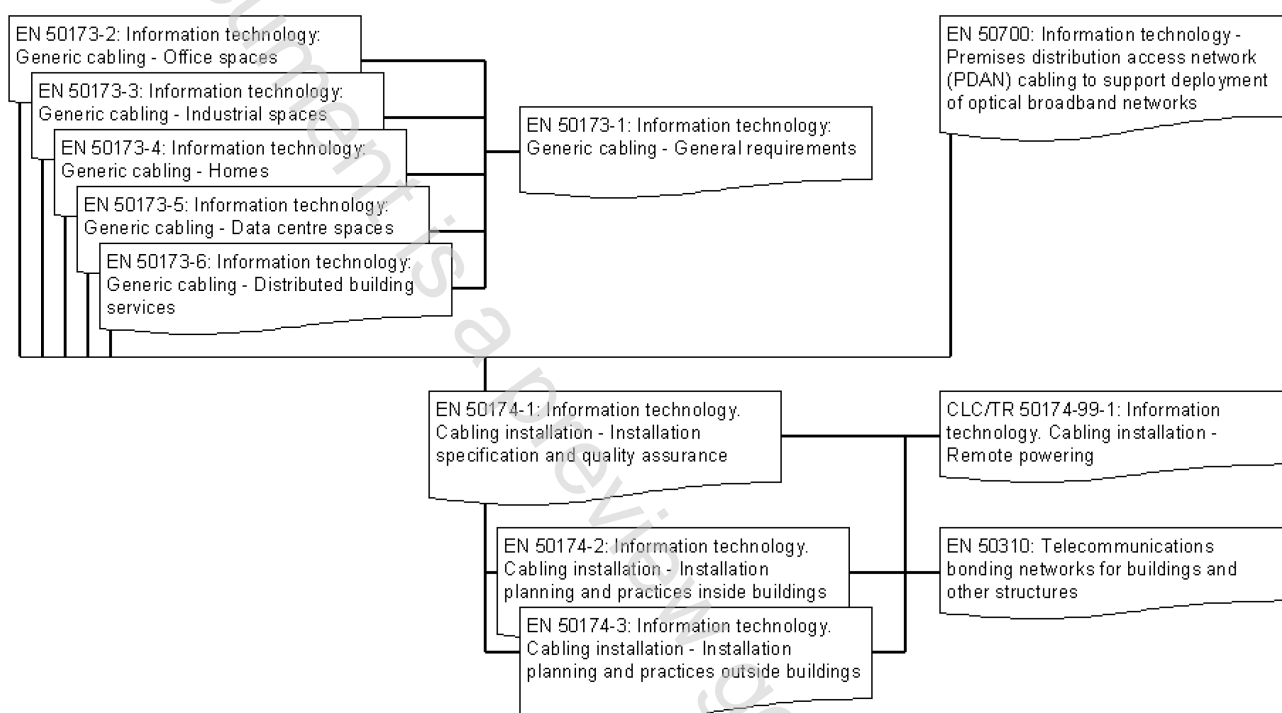
This part, EN 50174-2, contains requirements and recommendations relating to the installation planning and practices by defining:

- i) planning strategy (road map) and guidance depending on the application, electromagnetic environment, building infrastructure and facilities, etc.;
- ii) planning and installation requirements for metallic and optical fibre information technology cabling depending on the application, electromagnetic environment, building infrastructure and facilities, etc.;
- iii) the practices and procedures to be adopted to ensure that the cabling is installed in accordance with the specification.

In addition, this document describes the methodology for the assessment of spaces, pathways (and pathway systems) and cabling (either installed or planned) in support of remote powering objectives.

Figure 1 and Table 1 show the schematic and contextual relationships between the standards produced by CLC/TC 215 for information technology cabling, namely:

- 1) this and other parts of the EN 50174 series;
- 2) generic cabling design (EN 50173 series);
- 3) application dependent cabling design (e.g. EN 50700);
- 4) bonding requirements (EN 50310).



**Figure 1 — Schematic relationship between the EN 50174 series and other relevant standards**

**Table 1 — Contextual relationship between EN 50174 series and other standards relevant for information technology cabling systems**

Building design phase	Generic cabling design phase	Specification phase	Installation phase	Operation phase
EN 50310	EN 50173-2	EN 50174-1	EN 50174-2 EN 50174-3 EN 50310	EN 50174-1
	EN 50173-3	Planning phase		
	EN 50173-4 EN 50173-5 EN 50173-6 (these ENs reference general requirements of EN 50173-1)	EN 50174-2 EN 50174-3 EN 50310		

# 1 Scope and conformance

## 1.1 Scope

This European Standard specifies requirements for the following aspects of information technology cabling:

- a) planning;
- b) installation practice.

This European Standard is applicable to all types of information technology cabling inside buildings (and may be applied to cabling that is defined as part of the building) including generic cabling systems designed in accordance with the EN 50173 series.

NOTE Planning and installation of certain types of application-specific cabling can be supplemented by other standards e.g. EN 50491-6-1 for Home Building Electronics System (HBES) and Building Automation and Control Systems (BACS).

The requirements of Clauses 4, 5 and 6 of this standard are premises-independent unless amended by the requirements of premises-specific clauses.

This European Standard:

- 1) details the considerations for satisfactory installation and operation of information technology cabling;
- 2) describes the methodology for the assessment of spaces, pathways (and pathway systems) and cabling (either installed or planned) in support of remote powering objectives;
- 3) excludes specific requirements applicable to other cabling systems (e.g. power supply cabling); however, it takes account of the effects other cabling systems have on the installation of information technology cabling (and vice versa) and gives general advice;
- 4) excludes those aspects of installation associated with the transmission of signals in free space between transmitters, receivers or their associated antenna systems.

This standard is applicable to certain hazardous environments. It does not exclude additional requirements which are applicable in particular circumstances, defined by e.g. electricity supply and electrified railways.

## 1.2 Conformance

For a cabling installation to conform to this European Standard:

- a) the planning of the installation shall meet the requirements of Clause 4;
- b) the installation practices shall meet the requirements of Clause 5;
- c) the additional requirements of the applicable premises-specific clause shall be met;
- d) the bonding system within the premises shall be in accordance with EN 50310;
- e) where a lightning protection system is required, it shall conform to the "integrated lightning protection system" according to EN 62305-4;
- f) other lightning protection systems, including the "isolated lightning protection system" according to EN 62305-3 are allowed provided that specific restrictions are applied both to the implementation of the information technology cabling and the requirements of EN 50310 as agreed between the planners of the lightning protection system and the information technology cabling;
- g) local regulations shall be met.

The responsibilities for specific elements of conformance may be made by national-specific amendment of Annex A.

## 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 13501-6, *Fire classification of construction products and building elements – Part 6: Classification using data from reaction to fire tests on electric cables*

EN 50085-1, *Cable trunking systems and cable ducting systems for electrical installations – Part 1: General requirements*

EN 50085-2-X (all parts), *Cable trunking systems and cable ducting systems for electrical installations*

EN 50173-1:2018, *Information technology – Generic cabling systems – Part 1: General requirements*

EN 50173-2, *Information technology – Generic cabling systems – Part 2: Office spaces*

EN 50173-3:2018, *Information technology – Generic cabling systems – Part 3: Industrial spaces*

EN 50173-4, *Information technology – Generic cabling systems – Part 4: Homes*

EN 50173-5, *Information technology – Generic cabling systems – Part 5: Data centre spaces*

EN 50173-6, *Information technology – Generic cabling systems – Part 6: Distributed building services*

EN 50174-1:2018, *Information technology – Cabling installation – Part 1: Installation specification and quality assurance*

EN 50174-3, *Information technology – Cabling installation – Part 3: Installation planning and practices outside buildings*

EN 50288 (all parts), *Multi-element metallic cables used in analogue and digital communication and control*

EN 50310, *Telecommunications bonding networks for buildings and other structures*

EN 50491 (all parts), *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)*

EN 50491-6-1:2014, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) – Part 6-1: HBES installations – Installation and planning*

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 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements (IEC 60079-0:2004)*

EN 60079-14, *Explosive atmospheres – Part 14: Electrical installations design, selection and erection (IEC 60079-14)*

EN 60079-17, *Explosive atmospheres – Part 17: Electrical installations inspection and maintenance (IEC 60079-17)*

EN 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame (IEC 60332-1-2)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 60825-2, *Safety of laser products – Part 2: Safety of optical fibre communication systems (OFCS) (IEC 60825-2)*

EN 61000-6, *(all parts), Electromagnetic compatibility (EMC) – Part 6: Generic standards (IEC 61000-6 (all parts))*

EN 61300-3-35, *Fibre optic connecting devices and passive components - Basic test and measurements procedures. Examinations and measurements – Fibre optic connector endface visual and automated inspection*

EN 61386-1, *Conduit systems for cable management – Part 1: General requirements (IEC 61386-1)*

EN 61386-2X, *(all parts), Conduit systems for cable management – Part 2X: Particular requirements (IEC 61386-2X all parts)*

EN 61534 *(all parts), Powertrack systems (IEC 61534 all parts)*

EN 61537, *Cable management – Cable tray systems and cable ladder systems (IEC 61537)*

EN 61558-1, *Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests (IEC 61558-1)*

EN 61643 *(all parts), Low voltage surge protective devices (IEC 61643 all parts, modified)*

EN 61784-1, *Industrial communication networks – Profiles – Part 1: Fieldbus profiles (IEC 61784-1)*

EN 61784-2, *Industrial communication networks – Profiles – Part 2: Additional fieldbus profiles for realtime networks based on ISO/IEC 8802-3 (IEC 61784-2)*

EN 61784-3, *Industrial communication networks – Profiles – Part 3: Functional safety fieldbuses – General rules and profile definitions (IEC 61784-3)*

EN 61784-3-1, *Industrial communication networks – Profiles – Part 3-1: Functional safety fieldbuses - Additional specifications for CPF 1 (IEC 61784-3-1)*

EN 61784-5, *Industrial communication networks – Profiles (IEC 61784-5 series)*

EN 61918, *Industrial communication networks – Installation of communication networks in industrial premises (IEC 61918)*

EN 62305-4, *Protection against lightning – Part 4: Electrical and electronic systems within structures (IEC 62305-4)*

EN 62368-1, *Audio/video, information and communication technology equipment – Part 1: Safety requirements (IEC 62368-1:2014)*

EN 62368-3, *Audio/video, information and communication technology equipment – Safety – Part 3: DC power transfer through information technology communication cabling (IEC 62368-3)*

EN 62949, *Particular safety requirements for equipment to be connected to information and communication networks (IEC 62949)*

HD 60364 *(all parts), Low-voltage electrical installations (IEC 60364 series, modified)*

HD 60364-1, *Low-voltage electrical installations – Part 1: Fundamental principles, assessment of general characteristics, definitions* (IEC 60364-1, modified)

HD 60364-4-41:2017, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock* (IEC 60364-4-41:2005, modified + A1:2017, modified)

HD 60364-4-443, *Electrical installations of buildings – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances – Clause 443: Protection against overvoltages of atmospheric origin or due to switching* (IEC 60364-4-44 (Clause 443), modified)

HD 60364-5 (all parts), *Electrical installation of buildings – Part 5: Selection and erection of electrical equipment* (IEC 60364-5 (all parts), modified)

HD 60364-5-534, *Low-voltage electrical installations – Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control – Clause 534: Devices for protection against overvoltages* (IEC 60364-5-53 (Clause 534), modified)

### 3 Terms, definitions and abbreviations

#### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50174-1, EN 50310 and the following apply.

Where the cabling is designed in accordance with standards in the EN 50173 series, the additional definitions of those standards are applicable.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.1.1

##### **closed pathway system**

cable management system which does not allow installation of cables by laying without tensile load

##### 3.1.2

##### **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 1 to entry: Both the information technology equipment and the support infrastructure of the building are provided as a service by the data centre operator.

##### 3.1.3

##### **co-location data centre**

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

Note 1 to entry: The support infrastructure of the building (such as power distribution and environmental control) is provided as a service by the data centre operator.

##### 3.1.4

##### **data centre**

structure, or group of structures, dedicated to the centralized accommodation, interconnection and operation of information technology and network telecommunications equipment providing data storage, processing and transport services together with all the facilities and infrastructures for power distribution and