

SLOVENSKI STANDARD

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Informacijska tehnologija - Univerzalni sistemi polaganja kablov - 4. del: Bivalni prostori

Information technology - Generic cabling systems - Part 4: Homes

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Informationstechnik - Anwendungsneutrale Kommunikationskabelanlagen - Teil 4: Wohnungen

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Technologies de l'information - Systèmes de câblage générique - Partie 4: Locaux d'habitation

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33.040.50	Vodi, zveze in tokokrogi	Lines, connections and circuits
35.110	Omreževanje	Networking
91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

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EUROPEAN STANDARD

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Information technology - Generic cabling systems - Part 4: Homes

Technologies de l'information - Systèmes de câblage
générique - Partie 4: Locaux d'habitation

Informationstechnik - Anwendungsneutrale
Kommunikationskabelanlagen - Teil 4: Wohnungen

This European Standard was approved by CENELEC on 2018-03-19. 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 CEN-CENELEC Management Centre or to any CENELEC member.

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

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European foreword

This document (EN 50173-4:2018) has been prepared by the Technical Committee CENELEC TC 215 "Electrotechnical aspects of telecommunication equipment" in cooperation with the Technical Committee CENELEC TC 209 "Cable networks for television signals, sound signals and interactive services".

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) 2019-03-19
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2021-03-19

This document supersedes the text of EN 50173-4:2007 + A1:2010 + A2:2012.

The European Standards EN 50173:1995 and EN 50173-1:2002 have been developed to enable the application-independent cabling to support ICT applications in office premises. Their basic principles, however, are applicable to other types of applications and in other types of premises.

TC 215 has decided to establish relevant European Standards which address the specific requirements of these premises. In order to point out the commonalities of these cabling design standards, these EN are published as individual parts of the series EN 50173, thus also acknowledging that standards users recognize the designation "EN 50173" as a synonym for generic cabling design.

At the time of publication of this European Standard, series EN 50173 comprises the following standards:

EN 50173-1	Information technology — Generic cabling systems — Part 1: General requirements
EN 50173-2	Information technology — Generic cabling systems — Part 2: Office spaces
EN 50173-3	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

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 edition of EN 50173-4:

- a) introduces new components 8.1 and 8.2 for balanced cabling to support new channel Classes I and II as well as optical fibre cabling (OM5) as defined in EN 50173-1:2018;
- b) revises the functional elements in Clause 4;
- c) clarifies the relation of generic home cabling systems to the network access cabling subsystem in Clause 4;
- d) introduces relevant design objectives for home cabling systems;
- e) introduces cable sharing requirements;
- f) removes CCCB cabling and relevant component requirements;

- g) removes Annex B of the previous edition;
- h) aligns the document structure across the EN 50173 series and updates the document both technically and editorially.

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Introduction

The importance of cabling infrastructure is similar to that of other fundamental utilities such as water and energy supply and interruptions to the services provided over that infrastructure can have a serious impact. A lack of design foresight, the use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten quality of service and have commercial consequences for all types of users.

This standard specifies generic cabling within a single home.

The home can contain one or more buildings or can be within a building which contains more than one home (e.g. one home in a multi-dwelling building).

The campus or backbone cabling connecting individual homes within multi-tenant premises is specified according to the relevant standard (for instance EN 50173-1 or EN 60728 series).

Generic cabling for distributed building services in homes is specified in EN 50173-6 which addresses all of the above premises and spaces within them.

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

- 1) this and other parts of the EN 50173 series;
- 2) installation (EN 50174 series);
- 3) bonding (EN 50310).

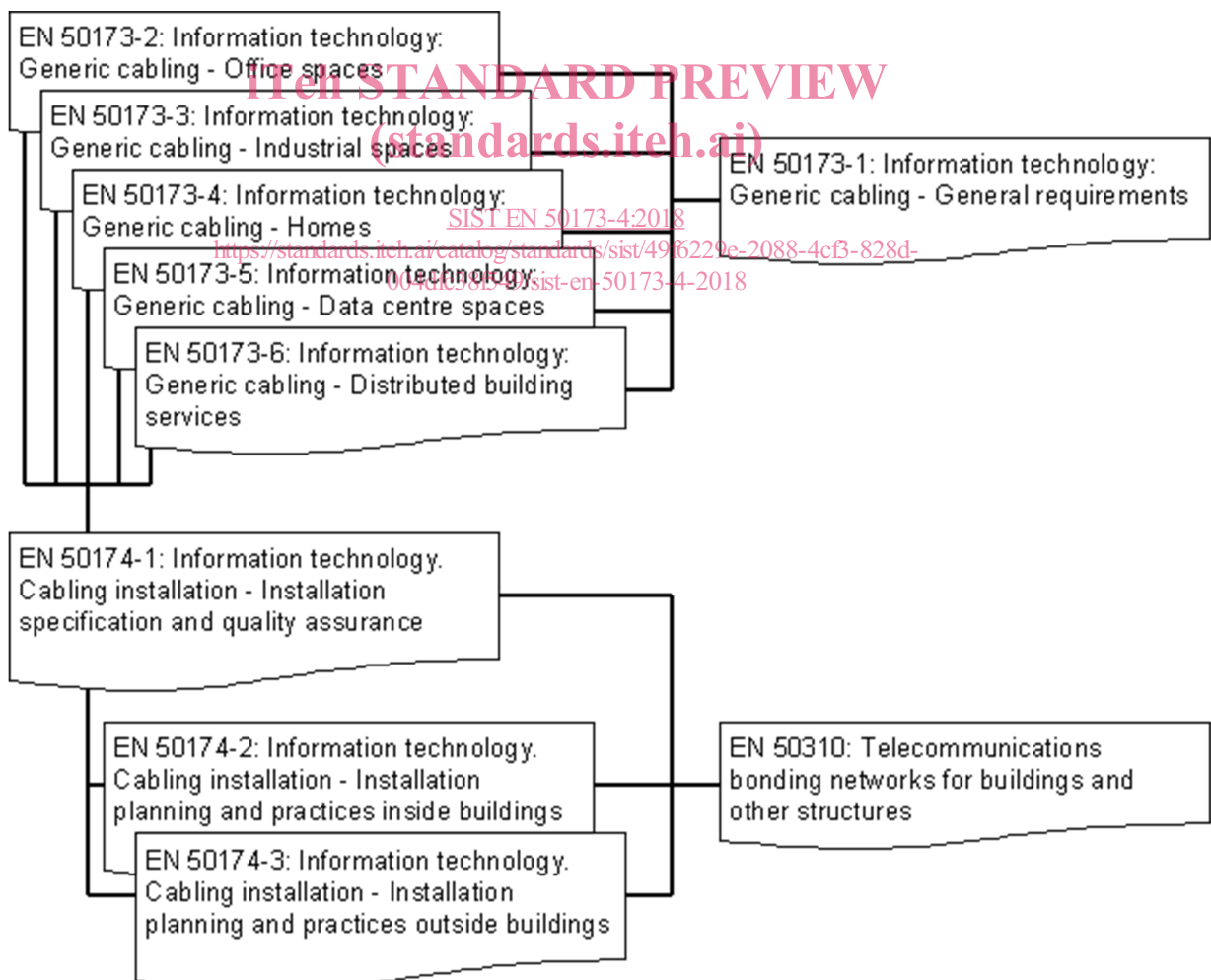


Figure 1 — Schematic relationship between the EN 50173 series and other relevant standards

Table 1 — Contextual relationship between EN 50173 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		

In addition, a number of Technical Reports have been developed to support or extend the application of these standards, including:

- CLC/TR 50173-99-1, *Cabling guidelines in support of 10 GBASE-T*;
- CLC/TR 50173-99-2, *Information technology — Implementation of BCT applications using cabling in accordance with EN 50173-4*;
- CLC/TR 50173-99-3, *Information technology — Generic cabling systems — Part 99-3: Home cabling infrastructures up to 50 m in length to support simultaneous and non simultaneous provision of applications.*

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In addition, a number of cabling design standards have been developed using components of EN 50173-1 (e.g. EN 50098 series and EN 50700).

The generic cabling specified by this standard provides users with:

- an application independent system capable of supporting a wide range of applications in a range of installation and operating environments;
- a flexible scheme such that modifications are both easy and economical;
- a multi-vendor supply chain within an open market for cabling components.

In addition this standard provides:

- a) relevant industry professionals with guidance allowing the accommodation of cabling before specific requirements are known; i.e. in the initial planning either for construction or refurbishment and for further deployment as the requirements of areas are defined;
- b) industry and standardization bodies with a cabling system which supports current products and provides a basis for future product development and applications standardization.

Applications addressed in this standard include those developed by the Technical Committees of IEC (including the subcommittees of ISO/IEC JTC 1) and study groups of ITU-T as used to support the following services:

- Information and Communications Technologies (ICT);
- Broadcast and Communications Technologies (BCT).

This standard provides guidance where cabling is designed to support only one of the services listed above.

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Physical layer requirements for the applications listed in EN 50173-1:2018, Annex F, have been analysed to determine their compatibility with the cabling performance specified in this standard and, together with statistics concerning premises geography from different countries and the models described in Clause 4, have been used to develop the requirements for cabling components and to stipulate their arrangement into cabling systems.

As a result, this standard:

- a) specifies a structure for generic cabling supporting a wide variety of applications including, but not restricted to, those in EN 50173-1:2018, Annex F;
- b) adopts balanced cabling channel and link Classes D, E, E_A, F, F_A and BCT-B specified in EN 50173-1;
- c) adopts coaxial cabling channel and link Classes BCT-C specified in EN 50173-1;
- d) adopts optical fibre cabling channel and link requirements specified in EN 50173-1;
- e) adopts component requirements, specified in EN 50173-1, and specifies cabling implementations that ensures performance of links and of channels meeting the requirements of a specified group (e.g. Class) of applications.

Life expectancy of generic cabling systems can vary depending on environmental conditions, supported applications, aging of materials used in cables, and other factors such as access to pathways (campus pathways are more difficult to access than building pathways).

With appropriate choice of components, generic cabling systems meeting the requirements of this standard are expected to have a life expectancy of at least ten years.

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1 Scope and conformance

1.1 Scope

This standard specifies generic cabling for homes. A home can contain one or more buildings or can be within a building that contains more than one home.

It covers balanced cabling, optical fibre cabling, and coaxial cabling.

This standard specifies generic cabling for two groups of applications:

- Information and Communications Technologies (ICT);
- Broadcast and Communications Technologies (BCT).

This standard specifies directly or via reference to EN 50173-1 the:

- structure and minimum configuration for generic cabling within homes;
- interfaces at the telecommunications outlet (TO) and broadcast outlet (BO);
- performance requirements for cabling links and channels;
- implementation requirements and options;
- performance requirements for cabling components;
- conformance requirements and verification procedures.

This standard has taken into account requirements specified in application standards listed in EN 50173-1.

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

1.2 Conformance

For a cabling installation to conform to this standard the following applies.

- a) The configuration and structure shall conform to the requirements of Clause 4.
- b) Channels shall meet the requirements of Clause 5.

This shall be achieved by one of the following:

- 1) a channel design and implementation ensuring that the prescribed channel performance of Clause 5 is met;
 - 2) attachment of appropriate components to a permanent link design meeting the prescribed performance class of Annex A. Channel performance shall be ensured where a channel is created by adding more than one cord to either end of a link meeting the requirements of Annex A;
 - 3) for E₁ environments, using the reference implementations of Clause 6 and compatible cabling components conforming to the requirements of Clauses 7, 8 and 9 based upon a statistical approach of performance modelling.
- c) The interfaces to the cabling at the TO and BO shall conform to the requirements of Clause 8 with respect to mating interfaces and performance;