SVENSK STANDARD SS-EN 50173-6

Fastställd	Utgåva	Sida	Ansvarig kommitté
2018-09-12	2	1 (1+52)	SEK TK 215

Fastighetsnät för informationsöverföring – Generella kabelnät – Del 6: Fastighetsfunktioner

Information technology – Generic cabling systems – Part 6: Distributed building services

Som svensk standard gäller europastandarden EN 50173-6:2018. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50173-6:2018.

Nationellt förord

Tidigare fastställd svensk standard SS-EN 50173-6, utgåva 1, 2014, gäller ej fr o m 2021-03-19.

ICS 35.110.00

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: www.elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard
Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50173-6

June 2018

ICS 35.110

Supersedes EN 50173-6:2013

English Version

Information technology - Generic cabling systems - Part 6: Distributed building services

Technologies de l'information - Systèmes de câblage générique - Partie 6 : Services distribués dans les bâtiments

Informationstechnik - Anwendungsneutrale Kommunikationskabelanlagen - Teil 6: Verteilte Gebäudedienste

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.

This European Standard exists 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

Ref. No. EN 50173-6:2018 E

SEK Svensk Elstandard

SS-EN 50173-6, utg 2:2018

Contents Page

Figures

Tables

European foreword

This document (EN 50173-6:2018) 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)	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 EN 50173-6:2013.

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.

Therefore, CLC/TC 215 has established relevant European Standards which address the specific requirements of these premises. In order to point out the commonalities of these cabling design standards, these European Standards are published as individual parts of the EN 50173 series, 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, EN 50173 series 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 50173-6:

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 Annex B on services and applications;

c) revises Annex D on optical fibres used in the Type B service distribution type cabling system;

d) aligns the document structure across the EN 50173 series and updates the document both technically and editorially.

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 for distributed building services and can be used as a stand-alone infrastructure or in conjunction with all the space-specific standards of the EN 50173 series.

It has been prepared to reflect the increasing use of generic cabling in support of non-user specific services and the sharing of information between such services, many of which require the use of remote powered devices. The distribution of these services is implemented either as a stand-alone structure and configuration or as an overlay provided to locations other than those specified by space-specific standards in the EN 50173 series.

This standard is not intended to replace the application of other space-specific standards in EN 50173 series but has been prepared in recognition of the fact that, although certain functional elements of distributed building services cabling can be co-located with those of other generic cabling infrastructures, it can be:

— specified, installed and operated by different entities than those responsible for other generic cabling infrastructures that are be installed within the premises;

— specified and installed at a different time than other generic cabling infrastructures that are be installed within the premises.

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).

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*.

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).

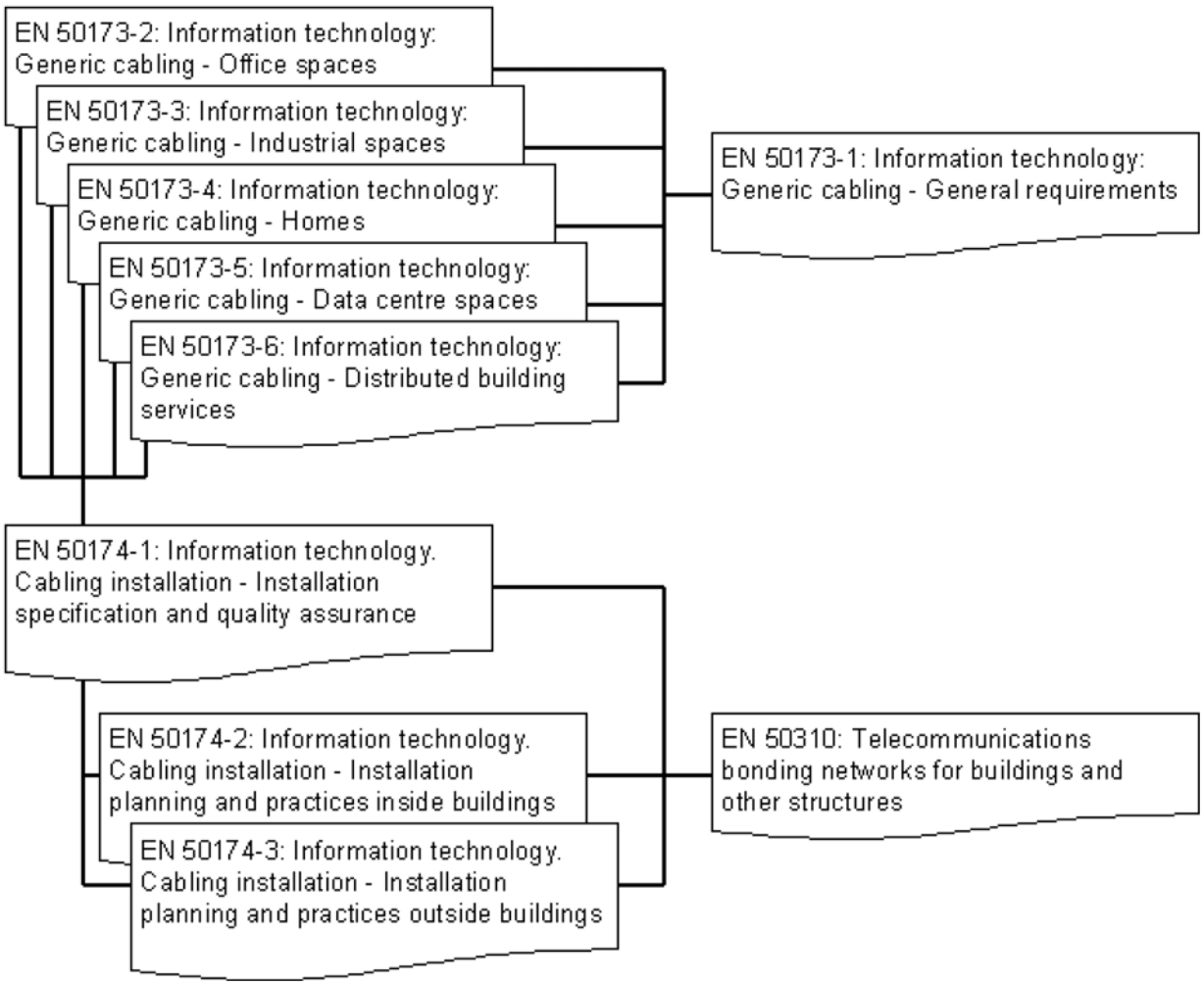

Figure 1 — Schematic relationship between the EN 50173 series and other relevant standards

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**		

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 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:

— telecommunications, e.g. wireless access points, distributed antenna systems;

— energy management, e.g. lighting, power distribution, incoming utility metering;

— environmental control, e.g. temperature, humidity;

— personnel management, e.g. access control, cameras, passive infrared (PIR) detectors, time and attendance monitoring, electronic signage, audio-visual (AV) projectors;

— personal information and alarms, e.g. paging, patient monitoring, nurse call, infant security;

— “intelligent” building systems.

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 50173-1:2017, Annex F;

b) adopts balanced cabling channel and link Classes E_A, F and F_A, specified in EN 50173-1;

c) adopts optical fibre cabling channel and link requirements specified in EN 50173-1;

d) 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.

1 Scope and conformance

1.1 Scope

This standard specifies generic cabling for distributed building services and can be used in conjunction with all the space-specific standards of the EN 50173 series.

It covers balanced cabling and optical fibre cabling.

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

— structure and minimum configuration for generic cabling for distributed building services;

— interfaces at the service outlet (SO);

— 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 or SCP 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 E_1 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 SO shall conform to the requirements of Clause 8 with respect to mating interfaces and performance.

d) Connecting hardware at other places in the cabling structure shall meet the performance requirements specified in Clause 8 independent of the interface used.

e) The requirements of EN 50174 series standards and EN 50310 shall be met.

f) Local regulations, including those concerning safety and EMC, shall be met.

This standard does not specify which tests and sampling levels should be adopted. Test methods to assess conformance with the channel and link requirements of Clause 5 and Annex A respectively are specified in EN 50173-1. The test parameters to be measured, the sampling levels and the treatment of measured results to be applied for a particular installation shall be defined in the installation specification and quality plans for that installation prepared in accordance with EN 50174-1.

In the absence of the channel, the conformance of the link shall be used to verify conformance with the standard.

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

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

EN 50174-2, *Information technology — Cabling installation — Part 2: Installation planning and practices inside buildings*

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

EN 61076-3-106:2006, *Connectors for electronic equipment — Product requirements — Part 3-106: Rectangular connectors — Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface (IEC 61076-3-106:2006)*