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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 50173-6:2018 sisaldab Euroopa standardi EN 50173-6:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 50173-6:2018 consists of the English text of the European standard EN 50173-6:2018.
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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

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

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<b>Contents</b>	<b>Page</b>
<b>European foreword</b> .....	<b>6</b>
<b>Introduction</b> .....	<b>7</b>
<b>1 Scope and conformance</b> .....	<b>10</b>
1.1 Scope .....	10
1.2 Conformance .....	10
<b>2 Normative references</b> .....	<b>11</b>
<b>3 Terms, definitions and abbreviations</b> .....	<b>11</b>
3.1 Terms and definitions.....	11
3.2 Abbreviations .....	12
<b>4 Structure of the generic cabling for distributed building services</b> .....	<b>12</b>
4.1 General.....	12
4.2 Functional elements .....	13
4.2.1 Stand-alone structure.....	13
4.2.2 Overlay structure.....	13
4.3 Structure and hierarchy.....	13
4.3.1 Type A generic cabling.....	13
4.3.2 Type B generic cabling.....	15
4.3.3 Centralized cabling .....	16
4.4 Cabling subsystems .....	16
4.4.1 Service distribution cabling subsystem (Type A generic cabling).....	16
4.4.2 Service distribution cabling subsystem (Type B generic cabling).....	17
4.4.3 Associated cabling subsystems .....	17
4.5 Design objectives.....	17
4.5.1 General.....	17
4.5.2 Service distribution cabling (Type A generic cabling) .....	18
4.5.3 Service distribution cabling subsystem (Type B generic cabling).....	18
4.5.4 Backbone cabling.....	19
4.5.5 Tie cabling .....	19
4.6 Accommodation of functional elements.....	19
4.6.1 General.....	19
4.6.2 Service Outlets.....	20
4.6.3 Distributors.....	20
4.6.4 Cables .....	20
4.6.5 Service Concentration Points .....	20
4.7 Interfaces.....	21
4.7.1 Equipment interfaces and test interfaces.....	21
4.7.2 Channels and links.....	22
4.8 Dimensioning and configuring .....	22
4.8.1 General.....	22
4.8.2 Type A generic cabling.....	24
4.8.3 Type B generic cabling.....	25
4.8.4 Service Concentration Point.....	26
4.8.5 Connecting hardware .....	26
4.9 Relevant building services .....	26

<b>5</b>	<b>Requirement of channels for distributed building services</b> .....	<b>27</b>
5.1	General.....	27
5.2	Environmental performance.....	28
5.3	Transmission performance.....	28
5.3.1	General.....	28
5.3.2	Balanced cabling.....	28
5.3.3	Optical fibre cabling.....	29
<b>6</b>	<b>Reference implementations for distributed building services</b> .....	<b>29</b>
6.1	General.....	29
6.2	Balanced cabling.....	29
6.2.1	General.....	29
6.2.2	Service distribution cabling (Type A generic cabling).....	30
6.2.3	Service distribution cabling (Type B generic cabling).....	33
6.2.4	Backbone cabling.....	34
6.3	Optical fibre.....	34
6.3.1	Service distribution cabling (Type A generic cabling).....	34
6.3.2	Service distribution cabling (Type B generic cabling).....	34
6.4	Backbone cabling.....	34
<b>7</b>	<b>Requirements of cables for distributed building services</b> .....	<b>34</b>
7.1	General.....	34
7.2	Balanced cables of Category 6 <sub>A</sub> , 7, 7 <sub>A</sub> , 8.1 and 8.2.....	34
7.3	Optical fibre cables of Category OM3, OM4, OM5, OS1a and OS2.....	34
<b>8</b>	<b>Requirements of connecting hardware for distributed building services</b> .....	<b>35</b>
8.1	General requirements.....	35
8.2	Balanced connecting hardware.....	35
8.2.1	General requirements.....	35
8.2.2	Electrical, mechanical and environmental performance.....	35
8.3	Connecting hardware for optical fibre cabling.....	35
8.3.1	General requirements.....	35
8.3.2	Optical, mechanical and environmental performance.....	35
<b>9</b>	<b>Requirements for cords and jumpers for distributed building services</b> .....	<b>36</b>
9.1	Jumpers.....	36
9.2	Balanced cords of Category 6 <sub>A</sub> , 7, 7 <sub>A</sub> , 8.1 and 8.2.....	36
9.2.1	General.....	36
9.2.2	Additional requirements for certain cords.....	36
9.3	Optical fibre cords of Category OM3, OM4, OM5, OS1a and OS2.....	36
<b>Annex A</b>	<b>(normative) Link performance limits</b> .....	<b>37</b>
<b>A.1</b>	<b>General</b> .....	<b>37</b>
<b>A.2</b>	<b>Balanced cabling</b> .....	<b>37</b>
<b>A.3</b>	<b>Optical fibre cabling</b> .....	<b>38</b>
<b>Annex B</b>	<b>(informative) Services and applications</b> .....	<b>39</b>
<b>B.1</b>	<b>Introduction</b> .....	<b>39</b>
<b>B.2</b>	<b>Service sectors and services</b> .....	<b>39</b>
<b>B.2.1</b>	<b>Access control</b> .....	<b>39</b>
<b>B.2.2</b>	<b>Burglar alarms</b> .....	<b>40</b>
<b>B.2.3</b>	<b>Asset management</b> .....	<b>40</b>

<b>B.2.4</b>	<b>Audio-visual</b>	<b>40</b>
<b>B.2.5</b>	<b>Building information systems</b>	<b>40</b>
<b>B.2.6</b>	<b>Building well-being and structural sensor systems</b>	<b>41</b>
<b>B.2.7</b>	<b>Energy management</b>	<b>41</b>
<b>B.2.8</b>	<b>Environmental control</b>	<b>41</b>
<b>B.2.9</b>	<b>Fixed IT services</b>	<b>42</b>
<b>B.2.10</b>	<b>Personal well-being</b>	<b>42</b>
<b>B.2.11</b>	<b>Shared IT services</b>	<b>42</b>
<b>B.3</b>	<b>SCP grid density</b>	<b>45</b>
<b>B.4</b>	<b>Cabling provision to SCPs</b>	<b>45</b>
<b>Annex C</b>	<b>(informative) Overlay</b>	<b>47</b>
<b>C.1</b>	<b>Functional elements</b>	<b>47</b>
<b>C.1.1</b>	<b>Type A generic cabling</b>	<b>47</b>
<b>C.1.2</b>	<b>Type B generic cabling</b>	<b>47</b>
<b>C.2</b>	<b>General structure and hierarchy</b>	<b>47</b>
<b>C.2.1</b>	<b>Type A generic cabling</b>	<b>47</b>
<b>C.2.2</b>	<b>Type B generic cabling</b>	<b>48</b>
<b>Annex D</b>	<b>(informative) Optical fibre within the Type B service distribution cabling subsystem</b>	<b>49</b>
<b>D.1</b>	<b>Overview</b>	<b>49</b>
<b>D.2</b>	<b>Implementation recommendations</b>	<b>49</b>
<b>D.2.1</b>	<b>Channel performance</b>	<b>49</b>
<b>D.2.2</b>	<b>Reference implementation</b>	<b>49</b>
<b>D.2.3</b>	<b>Cables</b>	<b>50</b>
<b>D.2.4</b>	<b>Connecting hardware</b>	<b>51</b>
<b>D.2.5</b>	<b>Cords</b>	<b>51</b>
	<b>Bibliography</b>	<b>52</b>

## Figures

Figure 1 — Schematic relationship between the EN 50173 series and other relevant standards .....	8
Figure 2 — Structure of Type A generic cabling .....	14
Figure 3 — Hierarchical structure of Type A generic cabling .....	14
Figure 4 — Structure of Type B generic cabling .....	15
Figure 5 — Hierarchical structure of Type B generic cabling .....	15
Figure 6 — Structures for centralized generic cabling .....	16
Figure 7 — Examples of cabling implementation to improve reliability .....	18
Figure 8 — Accommodation of functional elements .....	19
Figure 9 — Accommodation of TEs (Type B generic cabling) .....	20
Figure 10 — Example of direct connection to SCP .....	21
Figure 11 — Test and equipment interfaces (Type A generic cabling) .....	21
Figure 12 — Test and equipment interfaces (Type B generic cabling) .....	22
Figure 13 — Example of a Type A generic cabling system with combined BD and SD .....	23
Figure 14 — Transmission performance of a service distribution channel .....	27
Figure 15 — Example of a system showing the location of cabling interfaces .....	28
Figure 16 — Service distribution cabling models .....	32
Figure A.1 — Link options .....	37
Figure B.1 — Wireless application coverage area grid .....	44
Figure D.1 — Combined optical fibre backbone/service distribution channels .....	50

## Tables

Table 1 — Contextual relationship between EN 50173 series and other standards relevant for information technology cabling systems .....	8
Table 2 — Maximum channel lengths for Type A reference implementations .....	23
Table 3 — Maximum channel lengths for Type B reference implementations .....	25
Table 4 — Service distribution channel formulae .....	33
Table B.1 — Supported wireless applications .....	42
Table B.2 — Recommended SCP grid dimensions .....	45
Table B.3 — Estimated SOs per SCP .....	46

## 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 to be installed within the premises;
- specified and installed at a different time than other generic cabling infrastructures that are to 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).

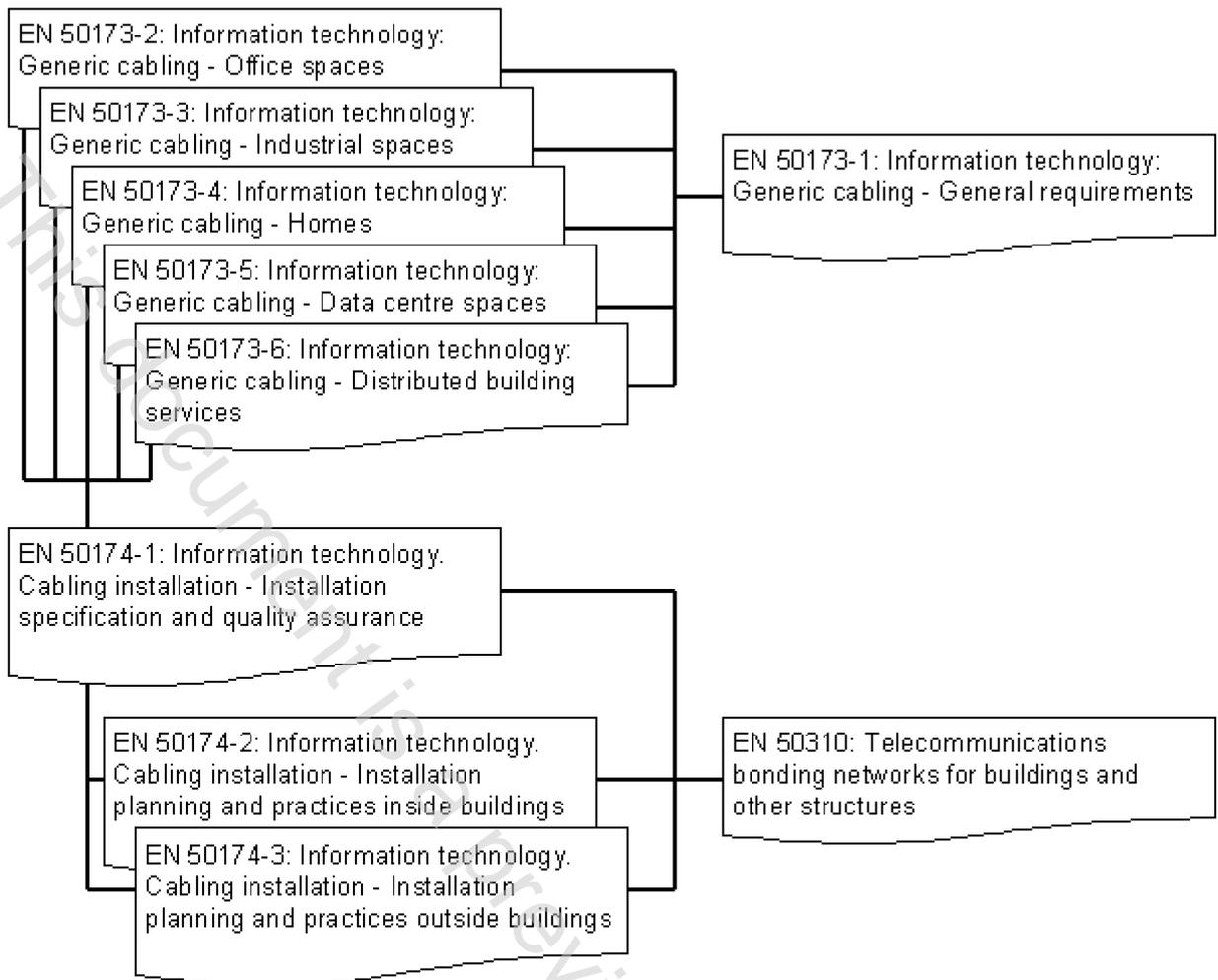


Figure 1 — Schematic relationship between the EN 50173 series and other relevant standards

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<sub>A</sub>, F and F<sub>A</sub>, 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<sub>1</sub> 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)*

## 3 Terms, definitions and abbreviations

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50173-1, EN 50174-1 and the following apply.

#### 3.1.1

##### **building service**

non-user specific service within premises including, but not restricted to, building automation, security, access control, building management, wireless access points, information displays and alarm systems

#### 3.1.2

##### **distributed building service**

building service provided to locations additional to those specified in premises-specific standards in EN 50173 series

#### 3.1.3

##### **network conversion interface**

passive or active device allowing the attachment of cabling of different network topologies to a service concentration point

#### 3.1.4

##### **service area**

area in a room or other space where non-user specific equipment is placed and connected to the same SCP or groups of SOs