
Informacijska tehnologija - Kabelska inštalacija - 1. del: Specifikacija in zagotavljanje kakovosti

Information technology - Cabling installation - Part 1: Installation specification and quality assurance

Informationstechnik - Installation von Kommunikationsverkabelung - Teil 1: Installationsspezifikation und Qualitätssicherung

Technologies de l'information - Installation de câblage - Partie 1 : Spécification de l'installation et assurance de la qualité

Ta slovenski standard je istoveten z: prEN 50174-1:2026

ICS:

33.040.50	Vodi, zveze in tokokrogi	Lines, connections and circuits
35.110	Omreževanje	Networking

oSIST prEN 50174-1:2026

en

Sample Document

get full document from standards.iteh.ai

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 50174-1

July 2026

ICS 35.110

Will supersede EN 50174-1:2018; EN 50174-1:2018/A1:2020

English Version

Information technology - Cabling installation - Part 1: Installation specification and quality assurance

Technologies de l'information - Installation de câblages -
Partie 1 : Spécification de l'installation et assurance de la
qualité

Informationstechnik - Installation von
Kommunikationsverkabelung - Teil 1:
Installationspezifikation und Qualitätssicherung

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2026-09-25.

It has been drawn up by CLC/TC 215.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CENELEC 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

Contents	Page
1 European foreword	5
2 Introduction	6
3 1 Scope	8
4 2 Normative references	8
5 3 Terms, definitions and abbreviations	9
6 3.1 Terms and definitions	9
7 3.2 Abbreviations	14
8 4 Conformance	15
9 5 Project process	15
10 6 Requirements for specifying installations of information technology cabling	16
11 6.2 Planning	28
12 6.3 Products and processes	34
13 6.4 External network service provision	36
14 6.5 Operating procedures	36
15 6.6 Maintenance	40
16 7 Requirements for installers of information technology cabling	41
17 7.1 Documentation and administration	41
18 7.2 Products and processes	43
19 7.3 Power supplies.....	44
20 7.4 Surveys	44
21 8 Installation and operational complexity	45
22 8.1 Requirements.....	45
23 8.2 Recommendations	45
24 Annex A (normative) Minimum requirements for technical specifications and quality plans	47
25 A.1 General	47
26 A.2 Technical specification	47
27 A.3 Quality plan	47
28 Annex B (normative) Polarity maintenance: Connecting hardware for multiple optical fibres	48
29 B.1 General	48
30 B.2 Duplex connecting hardware interfaces	48
31 Annex C (informative) Polarity maintenance: Connecting hardware interfaces for arrays	53
32 C.1 Connecting hardware interfaces for arrays with 12 or more optical fibres per row	53
33 C.2 Connecting hardware interfaces for arrays with more than 12 optical fibres per row	57

34	Annex D (informative) Terminating balanced cables on terminating blocks in distributors	58
35	D.1 General	58
36	D.2 The use of the same type of connector at each end of a cable.....	58
37	D.3 The use of a different type of connector at each end of a cable	58
38	D.4 Relation between the pins of connectors according to EN 60603-7 series and the tags of a	
39	terminating block.....	58
40	Annex E (informative) Compatibility between transmission systems (balanced and unbalanced)	
41	sharing the same cable sheath within information technology cabling.....	60
42	E.1 General	60
43	E.2 Recommendations concerning cable sharing	60
44	E.3 Factors to be taken into account to ensure satisfactory performance	60
45	E.4 Guidelines for reducing interference between transmission systems within the same cable	
46	sheath	62
47	E.5 Cabling qualification	62
48	E.6 Particular installation requirements and recommendations	62
49	E.7 Cable management	62
50	E.8 Regulatory aspects	63
51	Annex F (normative) Sampling plans and marginal results.....	64
52	F.1 Sampling plans.....	64
53	F.2 Marginal results	68
54	F.3 Non-compliant results	69
55	Annex G (informative) “Reaction to fire” performance of cables	70
56	G.1 Class designation.....	70
57	G.2 Application of cables of a given Class designation	70
58	Bibliography.....	72
59	Figures	
60	Figure 1 — Schematic relationship between the EN 50174 series and other relevant documents	7
61	Figure 2 — Flowchart of Project Process.....	16
62	Figure 3— Conductor current for ISO/IEC/IEEE 8802-3 remote powering applications for 4-pair cabling	
63		21
64	Figure 4 — Example of dual pathway entrance	25
65	Figure 5 — Examples of labels indicating RP Category of remote powering installation	39
66	Figure 6 – Examples for labelling of remote powering installations	39
67	Figure B.1 — Duplex connecting hardware connector.....	49
68	Figure B.2 — Duplex connecting adapter	49
69	Figure B.3 — Duplex patch cord	49
70	Figure B.4 — Views of crossover patch cords	50

71	Figure B.5 — Optical fibre sequences and adapter orientation in patch panel for the Symmetrical	
72	Position Method.....	51
73	Figure B.6 — Optical fibre sequences and adapter orientation in patch panel for the Reverse-Pair	
74	Position Method.....	52
75	Figure B.7 — Optical fibre sequences and adapter orientation in patch panel for the Reverse-Pair	
76	Position Method.....	52
77	Figure C.1 — Array connector cable or patch cord (key-up to key-up).....	54
78	Figure C.2 — Array adapter with aligned keyways	54
79	Figure C.3 — Transition assembly	55
80	Figure C.4 — Example of connectivity method for duplex cabling.....	56
81	Figure C.5 — Example of connectivity method for array cabling	57
82	Figure F.1 — Schematic of test result boundaries	68
83	Tables	
84	Table 1 — Contextual relationship between EN 50174 series and other documents relevant for	
85	information technology cabling systems	7
86	Table 2 — Remote powering 4-pair cabling installation Categories and controls.....	20
87	Table 3 — Remote powering 1-pair cabling installation Categories and controls.....	21
88	Table 4 — Conductor current for ISO/IEC/IEEE 8802-3 remote powering applications for 1-pair cabling	
89		22
90	Table 5 — Minimum requirements of administration systems	37
91	Table 6 — Minimum requirements of operational administration systems	37
92	Table 7 — Level of installation complexity	46
93	Table 8 — Level of operational complexity	46
94	Table A.1 — Minimum requirements for technical specification	47
95	Table A.2 — Minimum requirements for quality plan	47
96	Table B.1 — Example of optical fibre colour code scheme.....	48
97	Table D.1 — Examples of the relations between the EN 60603–7 series pins and the tags of the	
98	terminating block	59
99	Table F.1 — Installed balanced cabling test parameters	64
100	Table F.2 — Minimum sample sizes for alien (exogenous) crosstalk testing	67
101	Table F.3 — Installed optical fibre cabling test parameters	67
102	Table G.1 — Class designations and their foundation standards	71

European foreword

This document (prEN 50174-1:2026) has been prepared by Technical Committee CLC/TC 215, "Electrotechnical aspects of telecommunication equipment".

This document is currently submitted to the Enquiry.

This document supersedes EN 50174-1:2018 and EN 50174-1:2018/A1:2020.

prEN 50174-1:2026 includes the following significant technical changes with respect to EN 50174-1:2018 and EN 50174-1:2018/A1:2020:

- a) the conformance requirements (previously subclause 1.2) have been moved into a new Clause 4 and the existing clause numbers were updated accordingly;
- b) a new Clause 5 on project process has been added;
- c) requirements and recommendations for 1-pair cabling have been added in the relevant clauses;
- d) the fire behaviour of pathway systems has been revised (subclause 6.3.2);
- e) the document has been revised in various clauses to refine and improve the content;
- f) terms and definitions were revised to reflect the changes in the document.

EN 50174 comprises four parts:

- 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 (the present document);
- EN 50174-4, Information technology — Cabling installation — Part 4: Testing of installed optical fibre cabling.

There are specific requirements for cabling systems that are in accordance with the design requirements of the EN 50173 series. However, the four parts also apply to cabling systems of any design including those in accordance with standards such as EN 50700.

This part, EN 50174-1, is concerned with specification, quality assurance, documentation and administration of information technology cabling to be installed, together with its subsequent operation and maintenance. It sets out the responsibilities of information technology cabling installers and premises owners or appointed representatives separately, 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).

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 organization'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, reaction to fire, remote powering) 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.

EN 50174 series is in four parts and addresses the specification, installation, operational aspects of information technology cabling and the testing of installed optical fibre cabling. The EN 50173 series and other application standards cover design issues.

EN 50174-1, 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 the installation phase. EN 50174-2 is applicable inside buildings and EN 50174-3 is applicable outside buildings. EN 50174-4 is applicable for testing of installed optical fibre cabling.

EN 50174 series 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.

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

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

The requirements and recommendations of Clause 6 are primarily for owners of premises housing information technology systems. The owners can delegate selected responsibilities to designers, specifiers, operators and maintainers of installed information technology cabling.

The requirements and recommendations of Clause 7 are primarily for the installers of information technology cabling.

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

- 1) this and other parts of the EN 50174 series;

- 174 2) generic cabling design (EN 50173 series);
- 175 3) application dependent cabling design (e.g. EN 50700);
- 176 4) bonding requirements (EN 50310) - the principles of which can be employed in installations outside
- 177 buildings.

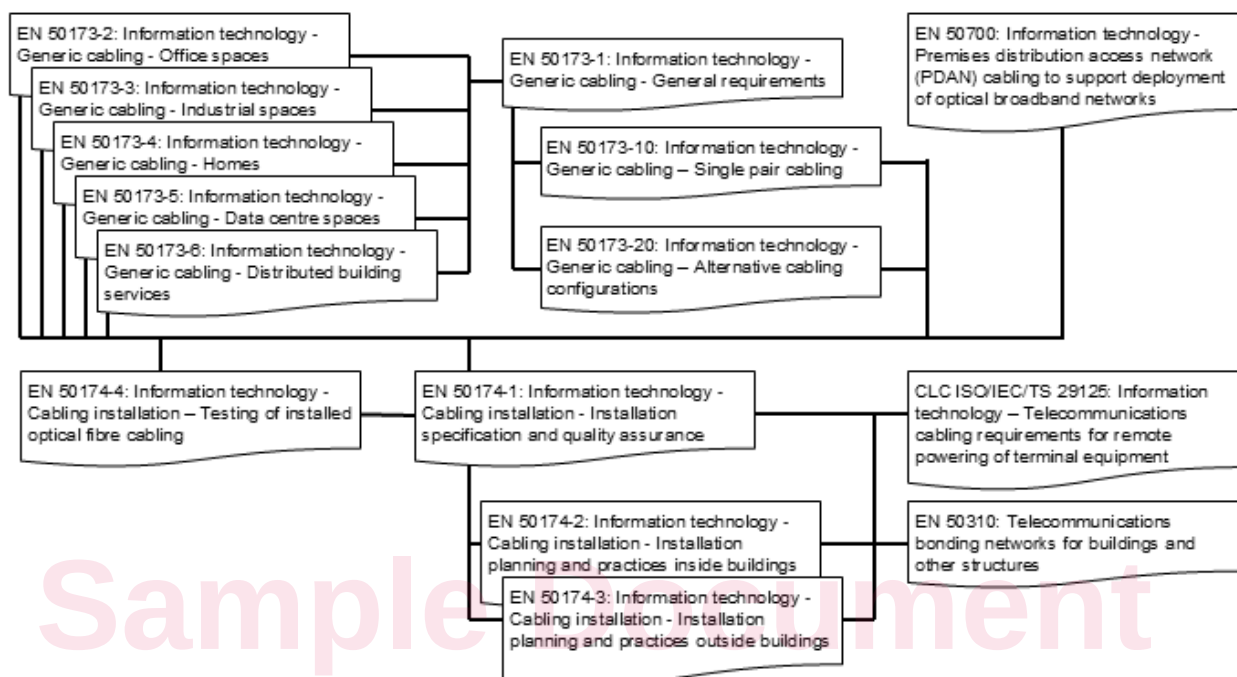


Figure 1 — Schematic relationship between the EN 50174 series and other relevant documents

Table 1 — Contextual relationship between EN 50174 series and other documents 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 50174–4 EN 50310	EN 50174–1 EN 50174–4
	EN 50173–3	Planning phase		
	EN 50173–4	EN 50174–2 EN 50174–3 EN 50174–4 EN 50310		
	EN 50173–5			
	EN 50173–6			
	(these ENs reference general requirements of EN 50173–1)			
	EN 50173-10			
	EN 50173-20			

1 Scope

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

- a) installation specification, quality assurance documentation and procedures;
- b) documentation and administration;
- c) operation and maintenance.

This document is applicable to all types of information technology cabling including but not limited to generic cabling systems designed in accordance with the EN 50173 series. Examples of other types of information technology cabling covered by this document are:

- Cable TV;
- CCTV;
- alarm and access control;
- building control.

NOTE Local regulations can also apply to the above mentioned cabling types.

Safety (electrical safety and protection, optical power, fire, etc.) and electromagnetic compatibility (EMC) requirements are outside the scope of this document and are covered by other standards and regulations. However, information given in this document might be of assistance in meeting these standards and regulations.

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 50173 (all parts), *Information technology - Generic cabling systems*

EN 50174-2,¹ *Information technology - Cabling installation - Part 2: Installation planning and practices inside buildings*

EN 50174-3,² *Information technology - Cabling installation - Part 3: Installation planning and practices outside buildings*

EN 50174-4, *Information technology - Cabling installation - Part 4: Testing of installed optical fibre cabling*

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

EN 50667, *Information technology - Automated infrastructure management (AIM) systems - Requirements, data exchange and applications*

¹ Under preparation. Stage at the time of publication: prEN 50174-2:2026.

² Under preparation. Stage at the time of publication: prEN 50174-3:2026.

215 EN IEC 62305-4, *Protection against lightning - Part 4: Electrical and electronic systems within structures (IEC*
 216 *62305-4)*

217 EN IEC 62368-3, *Audio/video, information and communication technology equipment - Part 3: Safety aspects*
 218 *for DC power transfer through communication cables and ports (IEC 62368-3)*

219 ISO/IEC/TR 14763-2-1, *Information technology — Implementation and operation of customer premises cabling*
 220 *— Part 2-1: Planning and installation - Identifiers within administration systems*

221 IEC 61935-1, *Specification for the testing of balanced and coaxial information technology cabling – Part 1:*
 222 *Installed balanced cabling as specified in ISO/IEC 11801-1 and related standards*

223 **3 Terms, definitions and abbreviations**

224 **3.1 Terms and definitions**

225 For the purposes of this document, the following terms and definitions apply.

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

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

229 — IEC Electropedia: available at <https://www.electropedia.org/>

230 — ISO Online browsing platform: available at <https://www.iso.org/obp>

231 **3.1.1** 232 **access provider**

233 operator or another entity providing the means to enable external telecommunications service provision to a
 234 subscriber

235 [SOURCE: EN 50700:2023, 3.1.1]

236 **3.1.2** 237 **access provider space**

238 location of access provider transmission and support equipment

239 **3.1.3** 240 **administration**

241 methodology defining the documentation requirements of a cabling system and its containment, the labelling
 242 of functional elements and the process by which moves, additions and changes are recorded

243 [SOURCE: EN 50173-1:2018, 3.1.1]

244 **3.1.4** 245 **automated infrastructure management system**

246 integrated hardware and software which automatically records the nature of, and identifies changes to,
 247 connections between the cabling infrastructure and of the interconnected transmission and terminal equipment

248 **3.1.5** 249 **building entrance facility**

250 facility that provides all necessary mechanical and electrical services for the entry of telecommunications
 251 cables into a building and which may allow for transition from external and internal cable

252 [SOURCE: EN 50173-1:2018, 3.1.18]

253 **3.1.6**
 254 **cabinet**
 255 enclosed construction, typically self-supporting and floor-mounted, for housing closures and other information
 256 technology equipment

257 **3.1.7**
 258 **cable element**
 259 smallest construction unit in a cable

260 Note 1 to entry: A cable element may have a screen.

261 Note 2 to entry: A pair, a quad, a single isolated lead with coaxial screen and a single optical fibre are examples of a
 262 cable element.

263 [SOURCE: EN 50173-1:2018, 3.1.20]

264 **3.1.8**
 265 **cable management system**
 266 system used for the support and/or containment, retention, protection of all types of cables, information and
 267 communication lines, electrical power distribution conductors and their associated accessories (includes ducts
 268 and tubes housing, or intended to house, blown information technology cables and/or cable elements)

269 **3.1.9**
 270 **cabling component**
 271 any product associated with the cabling installation including cables, connecting hardware, closures, cabinets,
 272 frames and racks and pathway systems together with components used to provide earth connections for the
 273 cabling installation

274 **3.1.10**
 275 **closure**
 276 fixture or fitting of either open or closed construction intended to contain connecting hardware

277 **3.1.11**
 278 **discoverable equipment**
 279 equipment with a network address

280 Note 1 to entry: Discoverable equipment can be treated as non-discoverable equipment per end user choice.

281 **3.1.12**
 282 **draw-box**
 283 space in a pathway that allows the routing of cables during the cable installation process

284 **3.1.13**
 285 **electrostatic discharge**
 286 transfer of electric charge between bodies of different electrostatic potential in proximity or through direct
 287 contact

288 [SOURCE: IEC 60050-161:1990, 161-01-22]

289 **3.1.14**
 290 **electromagnetic disturbance**
 291 any electromagnetic phenomenon which may degrade the performance of a device, equipment or system, or
 292 adversely affect living or inert matter

293 Note 1 to entry: An electromagnetic disturbance may be an electromagnetic noise, an unwanted signal or a change in
 294 the propagation medium itself.

295 [SOURCE: IEC 60050-161:1990, 161-01-05]

- 296 **3.1.15**
 297 **entrance room**
 298 space within, or at the boundary of, a building housing the demarcation point where facilities owned by access
 299 and/or service providers interface with the premises cabling
- 300 Note 1 to entry: For generic cabling in accordance with EN 50173–5, the demarcation point is the external network
 301 interface (ENI) and the data centre cabling at that point is the network access cabling.
- 302 **3.1.16**
 303 **external network interface**
 304 termination point providing demarcation of external telecommunications service provision
- 305 [SOURCE: EN 50173-1:2018, 3.1.42]
- 306 **3.1.17**
 307 **external fire barrier**
 308 boundary, designated by local fire authorities, that demarcates the extent of the fire zones or compartments of
 309 a building
- 310 **3.1.18**
 311 **fire barrier**
 312 separating element that exhibits fire integrity or fire stability or thermal insulation, or a combination thereof, for
 313 a period of time under specified conditions
- 314 [SOURCE: ISO 13493:2023, 3.141]
- 315 **3.1.19**
 316 **fire-stop materials**
 317 sealing products that, at all times, take up imperfections of fit or design tolerance between the fire resisting
 318 fixed elements of a building and which provide the same fire performance as the fixed elements in order to
 319 restrict the passage of fire and smoke
- 320 **3.1.20**
 321 **fire-stopping techniques**
 322 processes, products and materials that reinstate the original fire rating of a fire barrier
- 323 **3.1.21**
 324 **frame**
 325 open construction, typically wall-mounted, for housing closures and other information technology equipment
- 326 **3.1.22**
 327 **identifier**
 328 unique item of information to distinguish a specific component of the cabling installation
- 329 **3.1.23**
 330 **information technology**
 331 **telecommunications**
 332 technology concerned with the transmission, emission and reception of signs, signals, writing, images and
 333 sounds by cable, radio, optical or other electromagnetic systems
- 334 Note 1 to entry: The term telecommunications has no legal meaning when used in this document.
- 335 [SOURCE: EN 50173-1:2018, 3.1.49]

336 **3.1.24**
 337 **information technology cabling**
 338 system of telecommunications cables, cords and connecting hardware that supports the operation of
 339 information technology equipment

340 Note 1 to entry: This is not restricted to the cabling defined in the EN 50173 series of standards.

341 **3.1.25**
 342 **information technology equipment**
 343 active or passive equipment necessary to deliver a specific application

344 Note 1 to entry: Examples include hubs, switches, routers, adapters.

345 **3.1.26**
 346 **installer**
 347 person installing cabling components

348 Note 1 to entry: No design functions are assumed.

349 **3.1.27**
 350 **internal cable**
 351 cable intended for indoor use and with relevant fire rating

352 [SOURCE: EN 50173-1:2018, 3.1.54]

353 **3.1.28**
 354 **jumper**
 355 one or more cable elements without connectors used to make a connection between terminated cables

356 **3.1.29**
 357 **label**
 358 means of marking a specific component of the information technology infrastructure with its identifier and
 359 (optionally) other information and intended to be fixed to, or be part of, the component

360 **3.1.30**
 361 **maintenance hole (telecommunications)**
 362 vault/chamber located in the ground or earth as part of an underground conduit system and used to facilitate
 363 placing, connectorization, and maintenance of cables as well as the placing of associated equipment, in which
 364 it is expected that a person will enter to perform work

365 [SOURCE: prEN 50174-2:2026, 3.1.15]

366 **3.1.31**
 367 **microduct**
 368 small, flexible, tube with an outer diameter typically less than or equal to 16 mm

369 [SOURCE: EN 50411-2-8:2009, 3.1.2]

370 **3.1.32**
 371 **fibre unit**
 372 unit of fibre elements suitable for installation by blowing into a microduct

373 Note 1 to entry: it differs from a microduct optical fibre cable in that it provides less protection to the fibres that it contains.

374 **3.1.33**
 375 **microduct optical fibre cable**
 376 optical fibre cable suitable for installation by blowing into a microduct

377 [SOURCE: EN 50411-6-1:2022, 3.3]

- 378 **3.1.34**
 379 **minimum bend radius during operation – static**
 380 minimum radius as specified by the cable manufacturer, supplier or in accordance with the relevant product
 381 standard to which a cable or cable element is allowed to be subjected following installation and fixed in its final
 382 operating position
- 383 **3.1.35**
 384 **minimum bend radius during operation – dynamic**
 385 minimum radius as specified by the cable manufacturer, supplier or in accordance with the relevant product
 386 standard to which a cable or cable element is allowed to be subjected under conditions where the cable or
 387 cable element is subject to movement
- 388 **3.1.36**
 389 **pathway**
 390 defined route for cables between termination points
- 391 **3.1.37**
 392 **pathway system**
 393 cable management system, or other area or volume defined by markings
- 394 **3.1.38**
 395 **rack**
 396 open construction, typically self-supporting and floor-mounted, for housing closures and other information
 397 technology equipment
- 398 **3.1.39**
 399 **record**
 400 collection of information about, or related to, a specific element of the information technology infrastructure
- 401 **3.1.40**
 402 **remote powering**
 403 delivery of power to a device using the cable elements of information technology cable
- 404 **3.1.41**
 405 **scope of work**
 406 document that specifies and describes the goods, services, or construction works which are to be provided,
 407 and any other requirements and constraints relating to the manner in which the contract work is to be performed
- 408 [SOURCE: ISO 10845-3:2021, 3.15]
- 409 **3.1.42**
 410 **service loop**
 411 excess length of cable or cable element(s)
- 412 **3.1.43**
 413 **service provider**
 414 operator of any service that furnishes telecommunications content (transmissions) delivered over access
 415 provider facilities
- 416 Note 1 to entry: The access provider and the service provider can be a single entity
- 417 [SOURCE: EN 50700:2023, 3.1.21]
- 418 **3.1.44**
 419 **space**
 420 specified volume within premises allocated to information technology cabling infrastructure (e.g. entrance
 421 facilities, functional elements in accordance with EN 50173 series standards)