



DRAFT INTERNATIONAL STANDARD ISO/IEC 14763-1

ISO/IEC JTC 1

Secretariat: ANSI

Voting begins on
1998-02-05Voting terminates on
1998-06-05INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION
INTERNATIONAL ELECTROTECHNICAL COMMISSION • МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ • COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

Information technology — Implementation and operation of customer premises cabling —

Part 1: Administration

*Technologies de l'information — Implémentation et fonctionnement du câblage dans les réseaux d'utilisateurs —
Partie 1: Administration*

ICS 35.200

Descriptors: data processing, information interchange, telecommunications, communication cables, cabling, implementation, operation, management.

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**14763-1 Information technology-
Implementation and operation of customer premises cabling
Part 1: Administration**

8 **Introduction**

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10 To utilize the wide variety of modern telecommunications services requires an
11 effective telecommunications infrastructure. Cabling is a component of this
12 infrastructure. It is needed to transport information, in the form of electrical and
13 optical signals, between equipments. An effective cabling system is one that is
14 properly installed, maintained and updated. In order to maintain and update a
15 cabling system, in an efficient manner, an adequate administration system is
16 required (figure 1).

17 An administration system consists of records that document the location of all
18 telecommunications components and the unique identifiers that have been assigned
19 to those components (considering clause 4.4). It details the procedures for
20 assigning identifiers to the components and placing labels on the components. The
21 administration system provides a structure wherein additions, changes and
22 deletions can be easily incorporated into the administration documentation.

23
24
25 **1 Scope**

26
27 This standard does not recommend a specific type of administration system. Rather,
28 it identifies fundamental principles such that individuals and organisations that own,
29 or are responsible for a telecommunications infrastructure can, by use of this
30 document, develop an administration system that is suitable to their needs.

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32
33 **2 Normative references**

- 34
35 ISO / IEC 11801: 1995 Information technology - Generic Cabling for Customer
36 Premises
37 IEC 61082-1:1991 Preparation of documents used in electrotechnology -
38 Part 1: General requirements
39 IEC 61082-2:19xx Preparation of documents used in electrotechnology -
40 Part 2:
41 IEC 61082-3:19xx Preparation of documents used in electrotechnology -
42 Part 3:
43

44 **3 Definitions and abbreviations**

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46 **3.1 Definitions**

47 For the purposes of this standard the definitions of ISO/IEC 11801 shall apply in
48 addition to the following ones:

49

50

51 **3.1.1**52 **identifier:**

53 A unique item of information that enables a specific component of the
54 telecommunication infrastructure to be differentiated in the administration records

55

56 **3.1.2**57 **Label:**

58 A label is used to clearly mark a specific component of the telecommunication
59 infrastructure with its identifier and (optionally) other information

60

61 **3.1.3**62 **Pathway**

63 Cable route (e.g., conduit, ductwork, tray, or tube) used to accommodate cables
64 between termination points defined by a physical structure

65

66 **3.1.4**67 **Record:**

68 Collection of information about or related to a specific element of the
69 telecommunication infrastructure

70

71 **3.1.5**72 **Space:**

73 Area (e.g., closet, cabinet, manhole, or equipment room) used to house cable
74 terminations or equipments

75

76 **3.1.6**77 **Work order:**

78 Collection of information which documents the changes requested and the
79 operations carried out on the telecommunication infrastructure

80

81 **3.2 Abbreviations**

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83 CAD Computer Aided Design

84 HVAC Heating, Ventilation, Air condition

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86 **4 Cabling Administration**

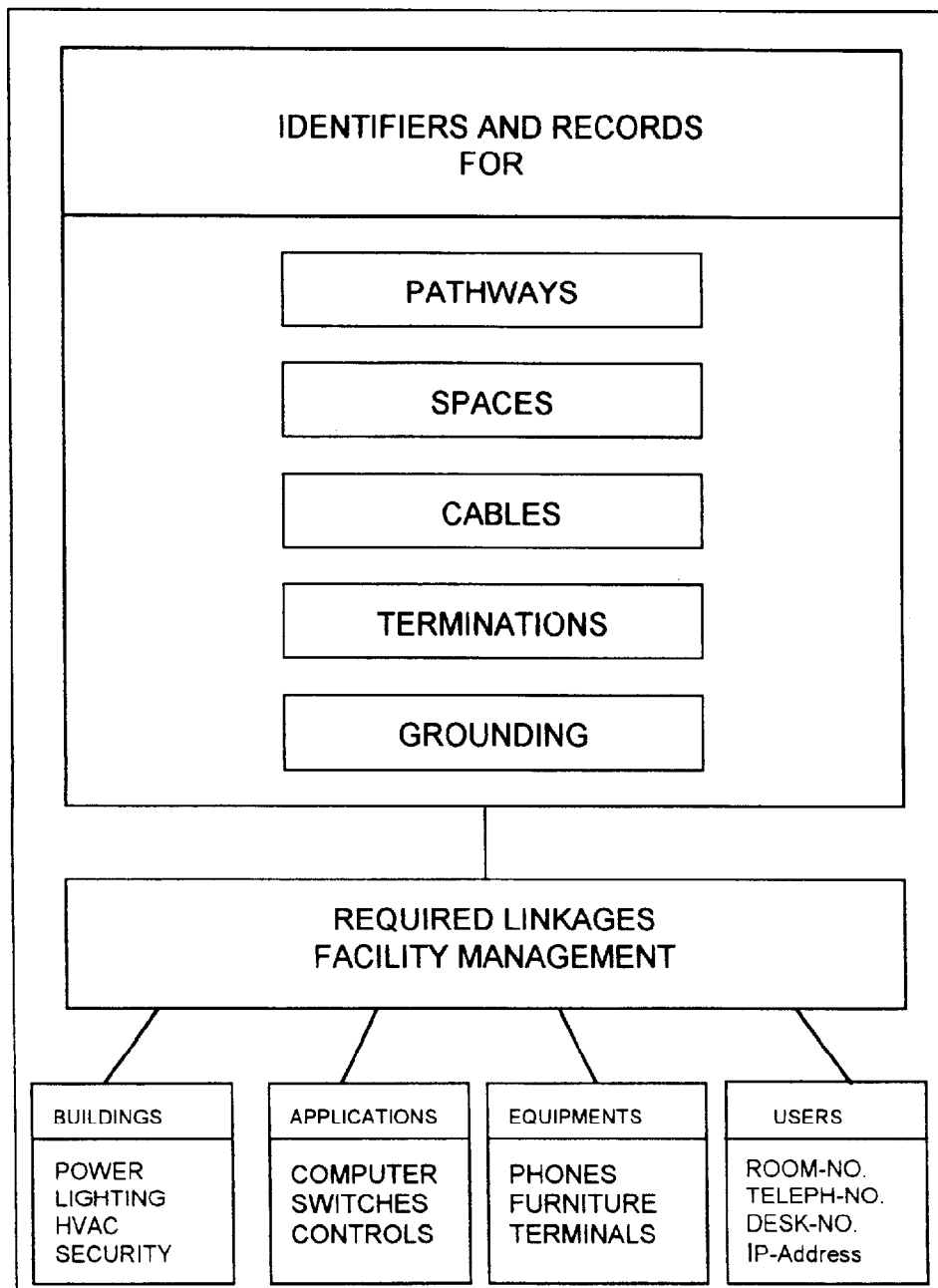
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88 **4.1 General**

89 Cabling administration is a system for managing cabling and connections. The
90 administration system enables the components of the cabling to be identified in
91 terms of their type, location, usage and other criteria.

92 The administration system may use a data base of records to maintain up-to-date
93 information relating to the cabling. It enables the user to keep control of moves,
94 additions and changes to the cabling and to generate reports on the state of the
95 cabling system. Figure 1 gives a review of criteria for administration, necessary

96 identifiers, records and examples of linkages. The relevant cabling standards are
 97 shown in an informative flow diagram of annex D.



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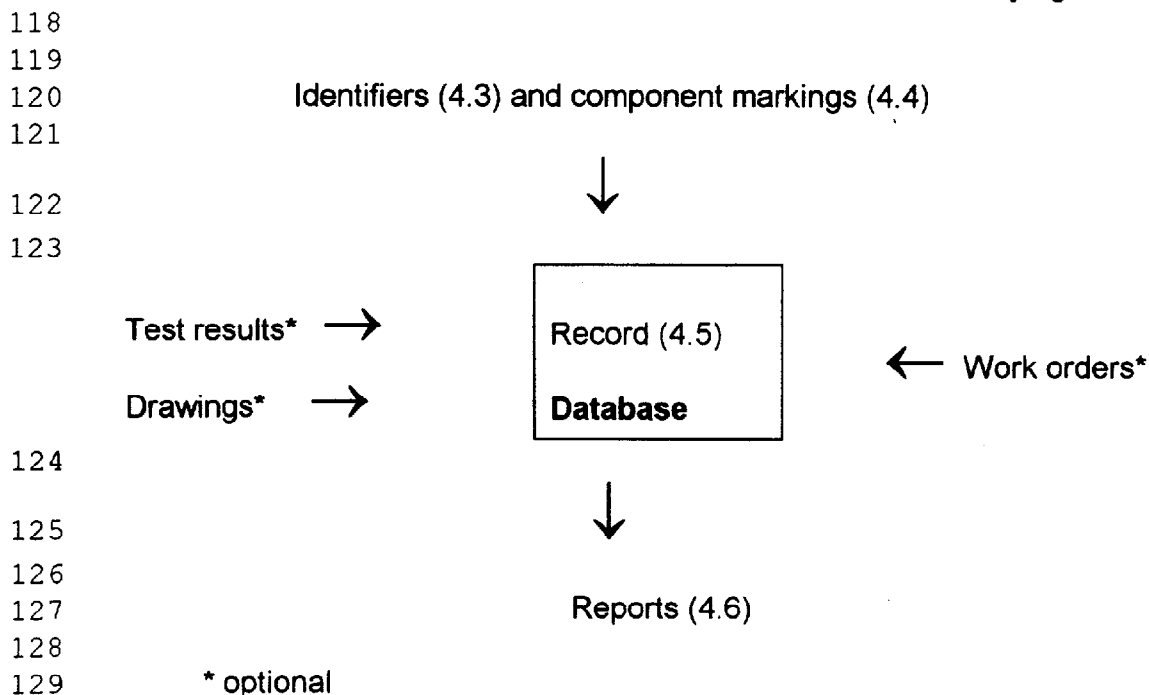
Figure 1: Components to be identified and recorded

4.2 Database

It is recommended that the principles of administration outlined in this clause be implemented using a computer based administration system (figure 2).For smaller,

107 less complex systems, a well designed paper based administration system may be
 108 adequate (annex B). The complexity of the administration system may be related to
 109 the size of the telecommunications infrastructure. For a small system, a customised
 110 commercial database programme may be adequate. For a large organisation, the
 111 cabling administration system may require a sophisticated database, an efficient
 112 data retrieval program and additional features. For example, the computer
 113 administration package may input drawings directly from CAD programs or may
 114 output reports to external packages or e-mail works orders and automatically update
 115 records on completion of work and may also serve as a cabling design tool.

116
 117 The basic administration database information flow is illustrated by figure 2.



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 130
 131 **Figure 2: Basic cabling administration structure**

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 133 **4.3 Identifiers**

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 135 Every component related to cabling as well as pathways and spaces should be
 136 readily identified. As an example an identifier for a telecommunications outlet (TO)
 137 may be a single unique number. Alternatively an identifier may indicate through a
 138 code its location, type and other information (see annex A).

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 140
 141 **4.4 Component markings**

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 143 Each component shall be clearly marked with its identifier. Marking may be achieved
 144 by securely attaching labels to the components or the component itself may be
 145 marked. Markings shall be permanent, accessible and readable.

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152 **4.5 Records**

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154 Records may be produced and maintained using a computer or paper based
155 administration system.

156 Records regarding components of cabling, pathways and spaces should be linked to
157 each other using their identifiers and may make reference to further premises
158 records on power, heating, air conditioning systems, lighting, etc.

159 Records should include the date of installation and shall be updated whenever
160 changes are made to cabling infrastructure.

161

162

163 **4.5.1 Minimum records**

164

165 The following minimum records regarding cabling infrastructure shall be provided:

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167 a) for cables: locations of end points, type, number, pairs;

168

169 b) for outlets: number, type, location;

170

171 c) for distributors: designation, drawings;

172

173

174 **4.5.2 Optional records**

175

176 When changes are made to the cabling infrastructure including pathways and
177 spaces additional records may be necessary:

178

179 **4.5.2.1 Cable records:**

180 type of optical fibre or copper cable / typical cable data (e.g. part number, sheath
181 color) / sheath and core identification / manufacturer / number of unterminated
182 conductors and those with failures / length/data like attenuation and crosstalk
183 / identification of pin connections at both ends and of splices and branching
184 points / performance and location of earthing / treatment of screens/
185 transmission system under operation / date code

186

187 **4.5.2.2 Telecommunications outlet records:**

188 type/ single mode or multimode fibre / shielded or unshielded design /
189 manufacturer / number and arrangement of terminated pins if not all pins are
190 terminated / identification number / locations of installation / identification of
191 ports and cables connected

192

193 **4.5.2.3 Distributor records:**

194 type /location, number of available and used cables, fibres or pairs /
 195 manufacturer / identification of terminations together with numbers of
 196 conductors / cable identifiers / part number

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202 **4.5.2.4** Pathway records:
 203 type / metal or non metal design / dimensions, mechanical data / branching points /
 204 manufacturer/ identification / length / location / data of cables being installed
 205 in that pathway / location of earthing

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207 **4.5.2.5** Spaces records:
 208 location / dimensions / identification / equipments located in the spaces / space type
 209 /

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211 **4.5.2.6** drawings and work orders

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213 **4.5.2.7** Results of link measurements

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215 **4.5.2.8** Active components records: Type of device / model number /
 216 availability of cables (number of ports) / identifier / adaption of ports /
 217 identification of ports / location of device / manufacturer / name of user,
 218 department, telephone extension / location of telecommunications outlets /
 219 serial number, date of installation

220
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221 **4.5.2.9** Details of protocols may also be recorded.

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 223

224 **4.6 Reports**

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226 Reports are generated from information in the data base. Reports may take the form
 227 of lists, tables, diagrams pro formas, etc.(like example in Annex B). Reports may be
 228 used for status determination, trouble shooting and may help for planning purposes.

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231 **5 Symbols and Preparation of documents**

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233 Symbols to be used for records should be based on local or national regulations. A
 234 selected set of symbols shall be consistently employed for all documents through
 235 the customer premises cabling and the user has to be familiar with those symbols.
 236 Preparation of documents shall be based upon IEC 61082-1 to IEC 61082-3.
 237 Examples of symbols are shown in annex C.

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239 **6 Annexes regarding typical implementations (informative)**

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241	Annex A:	database formats
242		
243	Annex B:	paper forms cabling record
244		
245	Annex C:	symbols for cabling components
246		
247	Annex D:	application of telecommunications cabling standards
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Annex A (informative): Database formats

The following identifier fields are recommended for use in a data base.

Table A.1: Summary of identifier fields

field 1	field 2	field 3	field 4	field 5
general	specific	component	port number	physical data
location	location	identifier		

examples of identifiers fields:

a) Field 1 for defining the building or the location of the building

-HSE 01 defines the building "house 01".

-AB 005 defines the coordinates (see figure A.1) of a square on a plan, where "house 03" is located.

In both cases a minimum of 5 alphanumeric digits for the identification is needed.

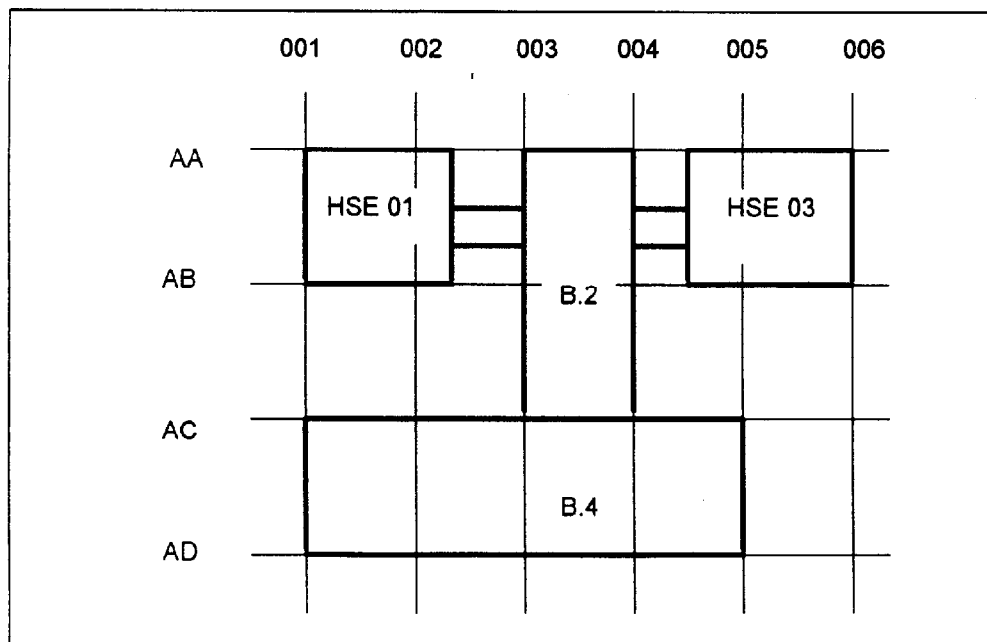


Figure A.1: Coordinate system (example)

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32 b) Field 2 for defining rooms or locations of the rooms within the building.
33 -01 RO123 designates room 0123 in floor 01
34 -01 AR021 designates the floor 01 and the coordinates of a square on the
35 plan where the room 123 is located
36

37 In both cases a minimum of 7 alphanumeric digits for the identification is needed.
38

- 39 c) Field 3 is the identifier for the components of the network.
40

41 F001 Identifies fibre 001. The minimum number of digits are 4. One
42 digit for the identifier and 3 digits for the number.
43

- 44 d) Field 4 expresses the number of the ports on an active component.
45

- 46 e) Field 5 defines specific data of components. On each component only that
47 information should be mentioned which is really necessary to identify.
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49 **Annex B (informative): Proforma cabling record**

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51 Table B.1 shows an example of a proforma used for a telecommunications record.
52 The meaning of the entries is the following:
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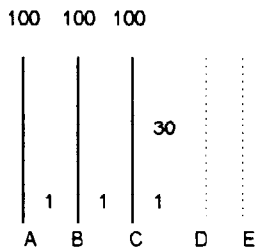
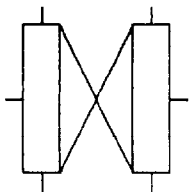
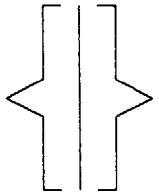
54 Entry	55 Explanation
56 Location	57 address of building
58 Floor	59 floor of building to which this sheet belongs
60 Distributor No	61 designation of distributor. Can be alphanumeric, e.g. 1A,
62 Appearance	
63 Panel/Block	64 panel or block number in a field
65 Port/Pair	66 individual circuit pair on a particular panel or block
67 Service Type	68 voice circuit (V), data circuit (D), combined voice and 69 data circuit (V/D) i.e. ISDN, audio/video (AV), CCCB (C)
70 Appearance Source	71 origin of circuit appearance (i.e. LAN hub, PABX port 72 number, etc.)
73 Cross-Connect	
74 Panel/Block	75 panel or block to which the appearance circuit is cross- 76 connected
77 Port/Pair	78 individual outlet or circuit to which the appearance port 79 or pair is cross connected
80 Cable Length	81 length of cable run for this particular port or pair 82 (expressed in meters)

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Annex C (informative): Symbols for components used in telecommunications and information technology cabling

The following tables contain symbols for the various components used in telecommunications and information technology cabling.

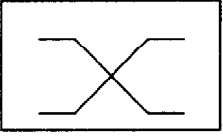
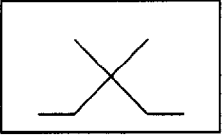
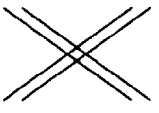
Table C.1: Symbols for distributors

No.	Symbol	Description
1.		Distributor
2.		Distributor (in schematic diagrams)
3.		Distributor (usually provided with PABX installations and located near the PABX)

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Table C.2: Symbols for active telecommunication equipment

No.	Symbol	Description
1.		Active telecommunication equipment (A description may be included in the symbol, i.e. HUB, MUX, etc.)
2.		PABX
3.		Carrier exchange / switching equipment

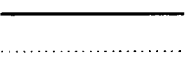
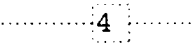
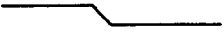
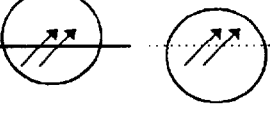
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Table C.3: Symbols for pathway

No.	Symbol	Description
1.		Riser Shaft
2.		Horizontal channel

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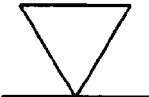

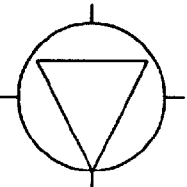
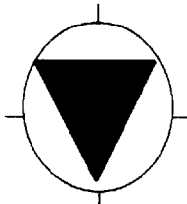
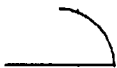
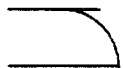
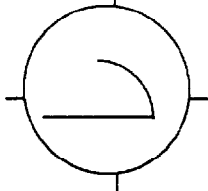
Table C.4: Symbols for cables

No.	Symbol	Description
1.		outdoor cable with solid copper conductors indoor cable with solid copper conductors
2.		indoor cable, 4 pair with solid copper conductors
3.		patch cable, flexible, stranded conductors
4.		Optical fibre cable (outdoor) Optical fibre cable (indoor)

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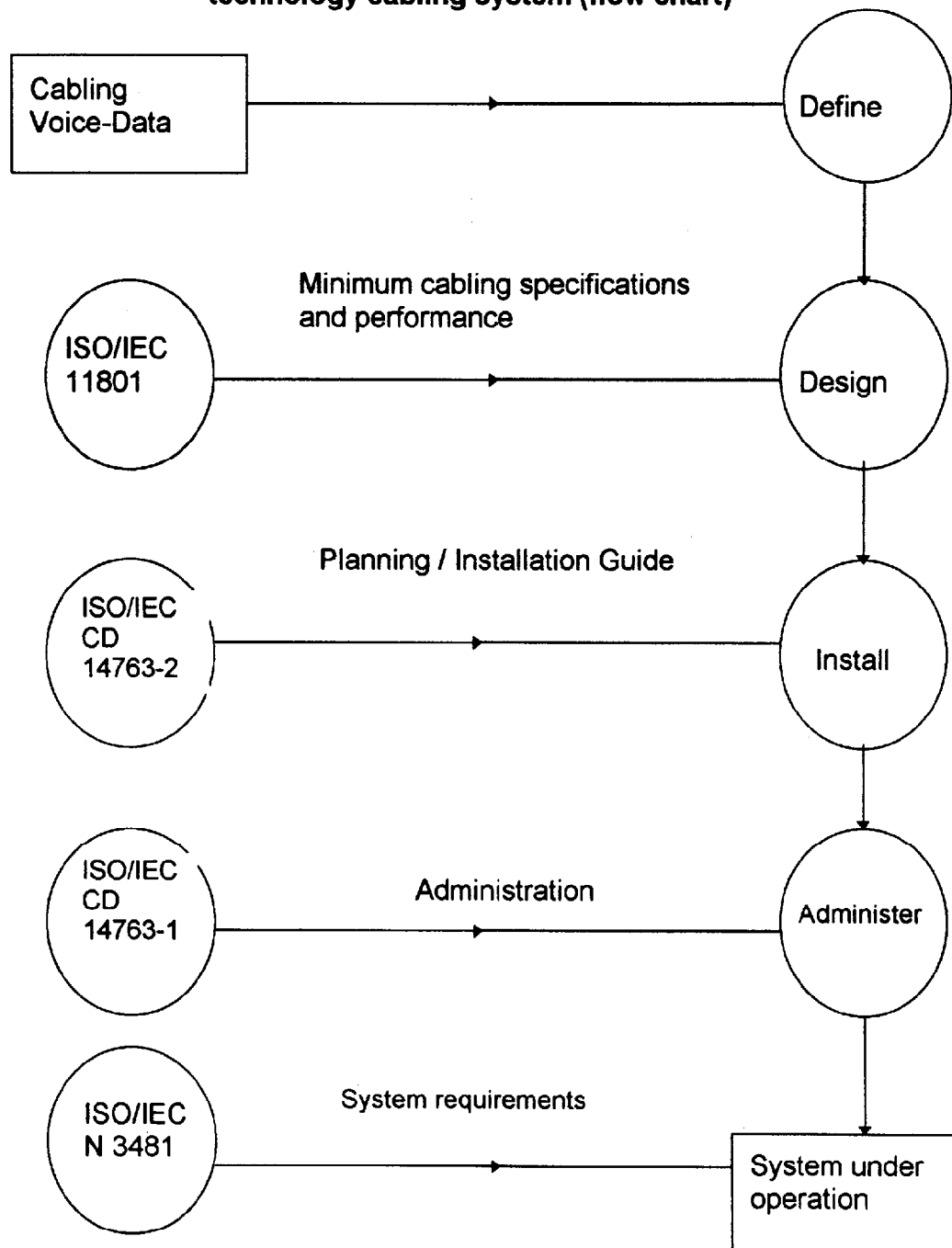
Table C.5: Symbols for telecommunications outlets

No.	Symbol	Description
1.		Telecommunications outlet, single. Wall mounted.
2.		Telecommunications outlet, double. Wall mounted
3.		Telecommunications outlet, single. Floor mounted
4.		Telecommunications outlet, double. Floor mounted
5.		Telecommunications outlet, single. Ceiling mounted
6.		Telecommunications outlet, double. Ceiling mounted
7.		Capped or unterminated cable in wall or skirting conduit
8.		Capped or unterminated cable under floor
9.		Capped or unterminated cable in ceiling

Annex D (informative): Application of telecommunications cabling standards

Figure D.1 contains a flow chart for the application of the relevant International Standards (and working drafts of ISO/IEC JTC 1/SC25/WG3) to be used for the purposes of defining, designing, installing and administering a telecommunications and information technology cabling system.

Figure D.1: Realisation of a telecommunications and information technology cabling system (flow chart)





EXPLANATORY REPORT	ISO/IEC DIS 14763-1
ISO/IEC JTC 1/SC 25 N 412	
Will supersede: SC 25 N 316	Secretariat: Germany

This form should be sent to ITTF, together with the committee draft, by the secretariat of the joint technical committee or sub-committee concerned

The accompanying document is submitted for circulation to member body vote as a DIS, following consensus of the P-members of the committee obtained on:	
	1994-07-08 1995-06-09 1996-06-21 1997-06-27
X	at the 7th plenary of ISO/IEC JTC 1/SC 25 in Buzios, 1997-06-27 (See Resolution Number 26 in document SC 25 N 395)
P-members in favour:	Australia, Brazil, Canada, Czech Republic, Denmark, Germany, Japan, Netherlands, Sweden, Switzerland, Ukraine*, United Kingdom,
P-members voting against:	USA
P-members abstaining:	
P-members who did not vote:	Belgium, Canada, Finland, France, Italy, New Zealand, Norway, Spain,
	* late vote, not included in count

Remarks:
The voting recorded above is that on the CD prior to resolving any comments. This vote was taken by correspondence.
The resolution requesting that the document should be forwarded to ITTF for approval as an International Standard was approved unanimously at the above mentioned plenary.
The collation of comments on the CD was circulated as SC 25 N 356A.
The Disposition of Comments Report was circulated as SC 25 N 389A

Project: JTC 1.25.03.02.03	
I hereby confirm that this draft meets the requirements of part 3 of the IEC/ISO Directives	
Date: 1997-10-13	Name and signature of the secretary: Dr.-Ing. Walter P. von Pattay