

Australian/New Zealand Standard[®]

**Preparation of documents used in
electrotechnology**

**Part 4: Location and installation
documents**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee TE/13, Symbols, Units and Quantities for Electrotechnology. It was approved on behalf of the Council of Standards Australia on 30 January 1998 and on behalf of the Council of Standards New Zealand on 9 February 1998. It was published on 5 April 1998.

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Preparation of documents used in electrotechnology

Part 4: Location and installation documents

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STANDARDS AUSTRALIA
1 The Crescent,
Homebush NSW 2140 Australia

STANDARDS NEW ZEALAND
Level 10, Radio New Zealand House,
155 The Terrace,
Wellington 6001 New Zealand

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TE/13, Symbols, Units and Quantities for Electrotechnology.

The objective of this Standard is to provide those who use and develop electrotechnical diagrams with the rules for preparing location and installation documents for the purpose of uniform and efficient presentation of information.

This Standard is identical with and has been reproduced from IEC 61082-4:1996, *Preparation of documents used in electrotechnology, Part 4: Location and installation documents*.

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

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		1102.102	Part 102: Symbol elements, qualifying symbols and other symbols having general application
617-3	Graphical symbols for diagrams— Part 3: Conductors and connecting devices	1102.103	Part 103: Conductors and connecting devices
617-4	Graphical symbols for diagrams— Part 4: Passive components	1102.104	Part 104: Basic passive components
617-6	Graphical symbols for diagrams— Part 6: Production and conversion of electrical energy	1102.106	Part 106: Production and conversion of electrical energy
617-7	Graphical symbols for diagrams— Part 7: Switchgear, controlgear and protective devices	1102.107	Part 107: Switchgear, controlgear and protective devices
617-8	Graphical symbols for diagrams— Part 8: Measuring instruments, lamps and signalling devices	1102.108	Part 108: Measuring instruments, lamps and signalling devices
IEC		AS/NZS	
617-9	Graphical symbols for diagrams— Part 9: Telecommunications: Switching and peripheral equipment	1102.109	Part 109: Telecommunications— Switching and peripheral equipment

617-10	Graphical symbols for diagrams— Part 10: Telecommunications: Transmission	1102.110	Part 110: Telecommunications— Transmission
617-11	Graphical symbols for diagrams— Part 11: Architectural and topographical installation plans and diagrams	1102.111	Part 111: Architectural and topographical installation plans and diagrams
1082-1	Preparation of documents used in electrotechnology—Part 1: General requirements	4383	Preparation of documents used in electrotechnology
		4383.1	Part 1: General requirements
1082-2	Preparation of documents used in electrotechnology—Part 2: Function- oriented diagrams	4383.2	Part 2: Function-oriented diagrams
1082-3	Preparation of documents used in electrotechnology—Part 3: Connection diagrams, tables and lists	4383.3	Part 3: Connection diagrams, tables and lists
1346-1	Structuring principles and reference designation—Part 1: Basic rules	—	
ISO			
10209-1	Technical product documentation— Part 1: Terms relating to technical drawings: general and types of drawings	—	

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AUSTRALIAN/NEW ZEALAND STANDARD

PREPARATION OF DOCUMENTS USED IN ELECTROTECHNOLOGY —**Part 4: Location and installation documents****1 General****1.1 Scope**

This part of IEC 1082 provides rules for location and installation documents mainly used for installation work. It covers different systems and objects such as arrangement or installation drawings for site, buildings and equipment, installation drawings or diagrams for site or buildings, and drawings for location on or in components.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 1082. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 1082 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 617-2: 1983, *Graphical symbols for diagrams — Part 2: Symbol elements, qualifying symbols and other symbols having general application*

IEC 617-3: 1983, *Graphical symbols for diagrams — Part 3: Conductors and connecting devices*

IEC 617-4: 1983, *Graphical symbols for diagrams — Part 4: Passive components*

IEC 617-6: 1983, *Graphical symbols for diagrams — Part 6: Production and conversion of electrical energy*

IEC 617-7: 1983, *Graphical symbols for diagrams — Part 7: Switchgear, controlgear and protective devices*

IEC 617-8: 1983, *Graphical symbols for diagrams — Part 8: Measuring instruments, lamps and signalling devices*

IEC 617-9: 1983, *Graphical symbols for diagrams — Part 9: Telecommunications: Switching and peripheral equipment*

IEC 617-10: 1983, *Graphical symbols for diagrams — Part 10: Telecommunications: Transmission*

IEC 617-11: 1983, *Graphical symbols for diagrams — Part 11: Architectural and topographical installation plans and diagrams*

IEC 1082-1: 1991, *Preparation of documents used in electrotechnology — Part 1: General requirements*

IEC 1082-2: 1993, *Preparation of documents used in electrotechnology — Part 2: Function-oriented diagrams*

IEC 1082-3: 1993, *Preparation of documents used in electrotechnology — Part 3: Connection diagrams, tables and lists*

IEC 1346-1: 1996, *Structuring principles and reference designation — Part 1: Basic rules*

ISO 10209-1: 1992, *Technical product documentation — Part 1: Terms relating to technical drawings: general and types of drawings*

2 Definitions

For the purpose of this part of IEC 1082, the following definitions apply.

installation:

- a) Activities of arranging facilities for electrical equipment and of placing and interconnecting it on site with the purpose of making it ready for functioning together.
- b) Result of these activities, e.g. the lighting system of a house.

NOTES

- 1 Installation may be part of the manufacturing process of pre-assembled units. Documents for these activities are not the subject of this standard.
- 2 The term "installation" is used for the set-up of computer software. Documents for this activity are not the subject of this standard.
- 3 The term "installation" is often used for an object (e.g., the lighting system of a house).

installation phase: Period in the lifetime of a plant or system between delivery and commissioning of electrical equipment during which the installation work (erecting, installing, connecting, etc.) is done (see figure 1).

NOTE — It is considered, as far as the preparation of documents is concerned, that the lifetime begins when the plant or system is designed and planned.

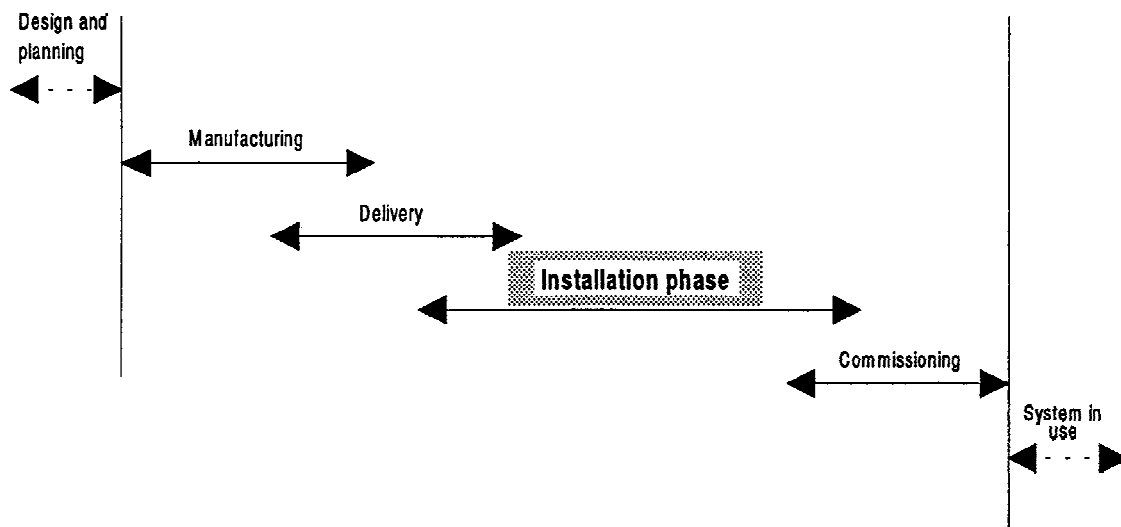


Figure 1 — Periods in the lifetime of a plant or system

installation documents: Documents mainly supporting the activities in relation to the installation phase of a project

Further definitions of terms used in this standard are presented in IEC 1082-1.

3 Electrical installations, documents and information

3.1 Kinds of electrical installations

Electrical installations can be divided into separate systems, e.g. lighting, power supply, etc. The systems can be installed in different objects like ships, buildings, mines, etc. (see table 1). The rules and principles presented in this standard apply basically to all systems and are not restricted to any object. Specific requirements for the different fields of technology or different branches are not treated.

NOTE — The definition of kinds of electrical installations or systems is not the subject of this standard.

Table 1 shows examples of systems and objects. Any combination of these is possible. The letters in the table represent examples of different installation projects.

Project A: Telecommunication and security system in a commercial building

Project B: Power and light system in the same commercial building as project A

Project C: Alarm system in a mine

Project D: Control and data system and air-conditioning system in an aircraft

Each system within one installation project should normally be documented separately, taking into account the complexity of the installation. Different systems may have different requirements concerning the information necessary for their installation. A combined presentation shall only be used if the different systems are clearly distinguishable from one another.

Table 1 — Examples of systems and objects

Object	System					
	Lighting	Power supply	Air conditioning*	Control and data	Telecommunication	Security, alarm
Networks						
Residential buildings						
Commercial buildings	B	B			A	A
Factories						
Power stations						
Hospitals						
Shops						
Aircraft			D	D		
Trains						
Railways						
Roads/streets						
Airports						
Mines						C
Ports/harbours						
Off-shore platforms						
Spacecraft						
* Heating, ventilation and air conditioning systems						
NOTES						
1 A system may contain sub-systems (e.g. a heating, ventilation and air-conditioning system consists of a control and power supply system).						
2 Objects may be subdivided (e.g. a railway in a mine).						

3.2 Installation documents

Installation documents may serve as a basis for:

- installing conduits, ducts, racks, etc.;
- laying conductors and cables;
- placing equipment;
- interconnecting equipment;
- inspecting the installation;
- etc.

They may also serve as a basis for activities outside the installation phase, e.g.:

- specification and calculation of material and work;
- design of equipment supports (e.g. foundations);
- design of other systems.

In practice supplementary documents may be required for such purposes as manufacturing, operation or maintenance, but they also contain information of importance for installation.

Function-oriented diagrams and connection diagrams, tables and lists are covered in IEC 1082-2 and IEC 1082-3. Parts lists are under consideration as a separate part of this standard.

Rules for the preparation of location documents are presented in clause 4 of this standard.

NOTE — Location documents may be combined with other documents, e.g. function-oriented or connection documents.

Which kinds of document are to be prepared and supplied depends on the information required for the specific task or installation project according to its size and complexity. This is subject to agreement between the parties involved.

3.3 *Information for installation purposes*

For each installation activity a certain amount of information is required. This shall be provided by different kinds of installation documents and supplementary documents to the extent agreed upon, e.g. in a contract.

The amount of information to be presented in the documents may differ considerably according to the complexity of the system to be installed, the availability of established rules, regulations, standards, customer stipulations, etc., or the skill of the installation personnel.

Table 2 shows examples of information needed for different activities, and presents those kinds of documents in which this information may be given.

NOTE — Rules and guidelines for communication between parties involved in a project concerning documentation for plants and systems, including the content of information required in documents, are under consideration.

The table may be used as a checklist when contractors are negotiating about the documents necessary for a certain installation project. A certain document to be delivered shall contain the minimum content of information, indicated in the table below by “O”, unless otherwise agreed. Information indicated in the table by “⊕” (additional information) may become mandatory if so agreed. The table can be supplemented by further columns or rows, covering the requirements for a given purpose or project.

Table 2 — Information for installation activities

- Minimum content of information
⊕ Additional information

Activities Information for activities	Kinds of documents													
	Overview diagram	Network map	Circuit diagram	Assembly drawing	Arrangement drawing	Cable routing drawing	Earthing plan	Installation diagram	Connection documents	Cable laying documents	Parts list	Label list	Data sheet	Installation instruction
Preparation for placing equipment on site														
Location outdoors		○			○		⊕	⊕						⊕
Location indoors					○		⊕	○						⊕
Reference points		○		○	○		⊕	○						
Distances		⊕		⊕	○		⊕	⊕						⊕
Main dimensions of objects		⊕		⊕	○			⊕					○	
Fixing information													○	⊕
Preparation for cable laying														
Location outdoors		○			○	○								⊕
Location indoors					○	○		⊕						⊕
Reference points		○			○	○		⊕						
Routes		⊕			⊕	○		⊕						⊕
Placing of cable or conductor supports														
Routes		⊕		⊕	⊕	○		⊕						⊕
Distances		⊕			⊕	○								⊕
Dimensions						⊕				⊕				⊕
Type of material or parts					⊕	⊕		⊕		○				⊕
Designation					○			⊕			⊕			⊕
Assembling of units (on site)														
Identification of parts				○	⊕					⊕	⊕			⊕
Location of parts				○	⊕									⊕
Special tools or procedures				⊕	⊕					⊕		○		⊕
Placing of assemblies and units														
Location outdoors	⊕	○			○	⊕	⊕							
Location indoors	⊕				○	⊕	⊕	○						
Special tools or procedures														⊕
Identification	○	○			○			○		○	⊕			
Max. carrying load (kg/m ²)					⊕			⊕						⊕
Weight					⊕			⊕		⊕		⊕		⊕
Placing of single items														
Approximate location		⊕			○	⊕		○						⊕
Location to scale		⊕			⊕	⊕		⊕						⊕
Kind of item	⊕	⊕			○			○						⊕
Type designation of item	⊕	⊕			⊕			⊕		○				⊕
Reference designation	⊕	○			○			○		○	⊕			
Laying of cables and conductors														
Type	⊕	⊕			⊕	⊕	⊕	⊕	⊕	○				⊕
Length										⊕				
Endpoints	⊕	⊕			⊕	○	⊕	○	⊕	○				
Route		⊕			⊕	○	⊕	⊕		⊕				⊕
Reference designation	⊕	⊕			⊕	○		⊕	⊕	○		⊕		⊕
Special treatment										⊕				⊕

Table 2 — Information for installation activities (concluded)

○ Minimum content of information

⊕ Additional information

Activities Information for activities	Document kinds													
	Overview diagram	Network map	Circuit diagram	Assembly drawing	Arrangement drawing	Cable routing drawing	Earthing plan	Installation diagram	Connection documents	Cable laying documents	Parts list	Label list	Data sheet	Installation instruction
Labelling														
Location							⊕					○		
Identification												○		
Ratings												○		
Connection work														
Terminal designation	⊕		⊕		⊕		⊕		○					
Reference designation	⊕		⊕				⊕		○	⊕		⊕		
Core designation	⊕		⊕						○					⊕
Special tools or procedures									⊕				⊕	⊕
Cable type	⊕		⊕				⊕		○					⊕
Verification, visual inspection														
Location	⊕	⊕		⊕	⊕	⊕	⊕	⊕		⊕		⊕		⊕
Designation	⊕	⊕		⊕	⊕		⊕	⊕	⊕	⊕		⊕		⊕
Connection	⊕		⊕				⊕	⊕	⊕					⊕
Type of material or parts	⊕				⊕		⊕	⊕			⊕			⊕
NOTE — An arrangement drawing may cover any size of area or object of installation where electrical equipment or components are located, e.g. a site, a building, a cubicle or a printed circuit board.														

4 Common rules for presentation of location documents

4.1 General

Location documents shall be prepared in accordance with the rules in IEC 1082-1 and with the rules given in this part of IEC 1082.

They mainly describe the relative or absolute position and/or dimensions of objects by:

- simplified shapes of objects;
- main dimensions of objects and/or distances between them;
- symbols representing objects.

Information on aspects other than “location” may be included if this is agreed. The location information shall be presented together with necessary information about the surroundings in which the electrical objects are (to be) located.