



AS/NZS 3000:2000
(Incorporating Amendment Nos. 1, 2 and 3)

Australian/New Zealand Standard™

Wiring rules



Wiring Rules

AS/NZS 3000:2000

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL/1. It was approved on behalf of the Council of Standards Australia on 23 August 1999 and on behalf of the Council of Standards New Zealand on 06 September 1999. It was published on 15 September 1999, however it is designated a year 2000 edition.

The following interests are represented on Committee EL/1:

The Association of Consulting Engineers Australia
Australian Building Codes Board
Australian Electrical and Electronic Manufacturers Association
Communications, Electrical Plumbing Union
Electrical Contractors Association of New Zealand
Electrical Contractors Association Qld
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(Incorporating Amendment Nos 1, 2 and 3)

Australian/New Zealand Standard™

ELECTRICAL INSTALLATIONS
(known as the Australian/New Zealand
Wiring Rules)

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/1, Wiring Rules, to supersede, in Australia, AS 3000 — 1991, *Electrical installations — Buildings, structures and premises (known as the SAA Wiring Rules)* and, in New Zealand, selected parts of NZS 3000:1997 *Electrical installations — Buildings, structures and premises (known as the NZS Wiring Rules)* as nominated by the appropriate regulator.

This Standard incorporates Amendment No. 1 (September 2001) and Amendment No. 2 (April 2002) and Amendment No. 3 (July 2003). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

This edition of the Standard is based on the following considerations:

- (a) Requests from large sections of the electrical industry for a document more relevant to the present electrical regulatory structure.
- (b) Requests for a joint Australian/New Zealand document.
- (c) Experience gained in the application of the tenth (1991) edition as expressed to Standards Australia.

During preparation of this Standard, reference was made to IEC 60364, *Electrical installations of buildings* (all parts), BS 7671:1992, *Requirements for electrical installations* and the *National Rules For Electrical Installations* (Second Edition) of Ireland, and acknowledgment is made of the assistance received from these sources.

The presentation of this edition differs from previous editions of AS 3000. Sections 1 to 5 cover essentially the same aspects of the subject as Sections 1 to 5 of the previous edition but there is no close correlation between clause numbers. Other major changes to the content of the previous edition include the following:

- (i) The introduction of internationally accepted performance based requirements for the integration of the characteristics of protective devices with the earthing system impedance (fault-loop impedance), touch-voltage limits and maximum disconnection times under fault conditions (see Clause 1.7.4.3).
- (ii) The deletion of many prescriptive 'work practices' and the allowance of alternative methods provided they satisfy the fundamental requirements of Section 1.
- (iii) The introduction of a new Section 6, covering visual inspection and testing.
- (iv) The introduction of an IEC-style Section 7 containing particular requirements for special locations and situations, e.g. swimming pools, extra-low voltage installations and emergency systems.

- (v) The deletion of the limited range of current-carrying capacities for cables and busbars.
- (vi) The inclusion of guidance on the calculation of maximum demand in Appendix C.
- (vii) The application of the requirements to electrical installations which might affect livestock.

Some of these provisions were included in NZS 3000.

Equations have been given the same number as the clause in which they appear.

An electric shock survival (resuscitation) chart is provided only for guidance; persons associated with the installation and repair of electrical installations and electrical equipment should obtain training in resuscitation methods.

This Standard may be applied through legislative requirements, as indicated in Clause 1.2. As this Standard supersedes AS 3000—1991, in Australia, and NZS 3000:1997, in New Zealand, it would normally apply to electrical installations from its date of publication, but it is recommended that it not be applied on a mandatory basis before a date at least six months after publication. However, if work on an installation was commenced before publication of this edition, the relevant regulatory authority or electricity distributor may grant permission for the installation to be completed in accordance with AS 3000—1991 or NZS 3000:1997.

The attention of users of this Standard is drawn to Doc 3000 N (2000) *What's new in the Wiring Rules*, which outlines the major changes to this Standard as compared to AS 3000—1991.

Supplement No 1 (1991), which contained current-carrying capacities for cables with imperial dimensions, has been withdrawn.

All Rulings to AS 3000—1991 have either been incorporated into this Standard or withdrawn. New Rulings will be prepared as requested and when published will be available for purchase from Standards Australia or Standards New Zealand.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

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

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FOREWORD

Application of different typefaces. There are four different typefaces used in this Standard and each of these has a specific purpose. The typefaces and their application are as follows:

- (a) **Bold print** These are opening statements defining the fundamental principle and are generally positioned at the beginning of a clause or major part of a section.
- (b) Normal print These are mandatory requirements which form the substance of a clause in that they indicate certain methods which satisfy the essential requirements.
- (c) *Italic print* These are exceptions or variations to mandatory requirements. These generally give specific examples where the essential requirements do not apply or where they are varied for certain applications.
- (d) Reduced normal print These are explanatory notes which may give advice. They are preceded by 'NOTE' in the manner used in previous editions.

It is important not to read any single typeface by itself as the preceding or following paragraphs may contain additional or modifying requirements.

Cross-references Throughout this Standard, where reference to another clause or portion of a clause has been made to avoid repetition, such reference, unless otherwise stated, shall include all appropriate subclauses and paragraphs of the clause or portion thereof referred to.

Rulings and interpretations Rulings and interpretations applicable throughout Australia and New Zealand will be given by the Joint Standards Australian/Standards New Zealand Committee EL/1, Wiring Rules. This committee is represented in all States and New Zealand by Wiring Rules subcommittees, each of which may be empowered to interpret the Wiring Rules as applying to specific questions arising within the particular area concerned and to recommend to Committee EL/1 the issue of Rulings in the 3000 R series of documents.

Provision for revision This Standard necessarily deals with existing conditions, but it is not intended to discourage invention or to exclude materials, equipment and methods which may be developed in the future. Revisions will be made from time to time in view of such developments and amendments to this edition will be made only where absolutely necessary.

A2

Special national requirements Certain provisions of the Standard have a different application in Australia and New Zealand. The following symbols appearing in the outer margin indicate that the identified Section or Clause is:

- 1 Applicable in Australia only.
- 2 Applicable in New Zealand only.
- 3 A regulatory requirement in New Zealand.

A

NZ

NZR

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Electrical installations
(known as the Australian/New Zealand Wiring Rules)

A2

SECTION 1 SCOPE AND FUNDAMENTAL
SAFETY PRINCIPLES

NZR

1.1 SCOPE

This Standard sets out the minimum requirements for the design, construction and testing of electrical installations, including the selection and installation of electrical equipment forming part of such electrical installations.

The requirements are intended to protect persons, livestock and property from electric shock, fire and physical injury hazards that may arise from an electrical installation that is used with reasonable care and with due regard to the intended purpose of the electrical installation.

1.2 APPLICATION

This Standard may be applied through legislative requirements, made in each State and Territory of Australia and in New Zealand, concerned with the safety of electrical installations. The Standard may also be applied in conjunction with any additional requirements, exemptions or restrictions contained in such legislation.

The principal application of this Standard is to electrical installations in all types of premises and land used by electricity consumers. However, the Standard may also be referenced or applied through legislative or other requirements relating to the effect of electrical installations in matters such as the following:

(a) Safety of workplaces.

NOTE: For example, Occupational Health and Safety legislation and associated codes.

(b) Safe design and construction of buildings.

NOTE: For example, Building Code of Australia, New Zealand Building Code and the associated referenced Standards.

(c) Electricity generation, transmission and distribution systems.

(d) Safe connection to electricity distribution systems.

NOTE: For example, service rules and conditions provided by local electricity distributors.