

Australian/New Zealand Standard™

**Electrical installations—Marinas and
recreational boats**

Part 2: Recreational boats installations



AS/NZS 3004.2:2008

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The following are represented on Committee EL-001:

Australasian Corrosion Association
Canterbury Manufacturers Association New Zealand
Electrical Regulatory Authorities Council
Electrical Safety Organisation, New Zealand
Energy Networks Association
Marine Queensland
National Marine Safety Committee

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Part 2: Recreational boats installations

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Constituted Subcommittee EL-001-13, Boats and Boating Marinas Installations, on behalf of the Joint Standards Australia/Standards New Zealand Committee EL-001, Wiring Rules to supersede, in part, AS/NZS 3004:2002, *Electrical installations—Marinas and pleasure craft at low-voltage*.

The objective of this Standard is to provide designers, manufacturers, boat builders and regulators with safety requirements for small boats. This edition was prepared to update requirements for electrical installations of recreational boats in association with the issue of the new edition of AS/NZS 3000:2007.

This Standard differs from AS/NZS 3004:2002 in several areas including the following:

1. The Standard is now presented as two parts—Part 1 covers the electrical installations associated with marinas, and Part 2 covers the installation of electrical systems in recreational boats.
2. Part 1 updates wording and verification requirements.
3. Part 2 provides more extensive guidance for the design, installation and ongoing verification of the on-board installation.

In the preparation of this Standard special consideration was given to—

- (a) IEC 60092-507: Ed.1.0 (2000), *Electrical installations in ships, Part 507: Pleasure craft*
- (b) ISO 10133, *Small craft—Electrical systems—Extra-low-voltage d.c. installations*
- (c) ISO 13297, *Small craft—Electrical systems—Alternating current installations*
- (d) American Boat and Yacht Council (ABYC), E-11 – *a.c. and d.c. electrical systems on boats*

and acknowledgement is made of the assistance received therefrom.

This Standard may be applied through legislative requirement, from a date to be set by the relevant regulating authority. 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 under AS/NZS 3004:2002.

It is not the intention of this Standard to limit the introduction and use of emerging technologies. Designers are reminded that it is essential that the basic tenets of electrical and marine safety be addressed before any other equipment and installation design elements are considered.

Any requirements that may be applicable in Australia only or New Zealand only are indicated in the text and by a symbol in the right margin as follows:

‘In Australia.....’

A

‘In New Zealand.....’

NZ

The word ‘shall’ introduces a requirement that is to be followed strictly in order to comply with the Standard. The word ‘should’ introduces a suggestion or recommendation only.

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

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Part of AS/NZS 3004 specifies requirements for the design, construction and installation of electrical systems in recreational boats that have a length of up to 50 m, and are designed for use on inland waters or at sea. It is not intended to apply to small boats equipped with a battery supplying circuits for engine starting and navigation lighting only that are recharged from an inboard or outboard engine driven alternator.

NOTES:

- 1 Attention is drawn to the *International Regulations for the Preventing of Collisions at Sea, 1972 (COLREG)* as amended, which govern specific requirements for navigation lights for boats.
- 2 Attention is drawn to regulations in Australia and New Zealand which govern specific requirements for the safety of electronic and electrical equipment; electromagnetic compatibility requirements; marine safety requirements; energy and water usage; telecommunications and radio communication requirements.
- 3 For high speed boats, attention is drawn to the Australian *National Standard for Commercial Vessels (NSCV), Part F: Special vessels, Section 1: Fast craft* and the *New Zealand Maritime Rules*.

This Standard applies to the following types of d.c. and a.c. electrical systems, individually or in combination:

- (a) Direct current systems which operate at a nominal voltage not exceeding 1500 V.
 NOTE: For example, for many small recreational boats this will be the main electrical system. Alternatively a boat equipped with an a.c. system as its principal electrical system may be also equipped with a d.c. system for navigation and communications equipment supplied from batteries.
- (b) Single-phase alternating current systems which operate at a nominal voltage not exceeding 1000 V.
 NOTE: Such a system may be the principal electrical power system of a recreational boat, or a system which may only be energized when connected to a shore supply, a.c. extra-low voltage, safety extra-low voltage etc. circuits may also comprise part of a single-phase a.c. system. A boat may also be equipped with d.c. system(s) as in (a) above.
- (c) Three-phase alternating current systems which operate at a nominal voltage not exceeding 1000 V.
 NOTE: Three-phase systems are likely to be the principal electrical power system of a recreational boat's electrical installation. Such a boat may also be equipped with single-phase a.c. subsystem(s) and d.c. subsystem(s).

Recreational boats whose electrical installation complies with the requirements of an international maritime classification society which is recognized by AMSA or New Zealand Maritime can be used to show compliance where appropriate with this Standard.

NOTE: Exemptions based on the above paragraph must be supported by appropriate and current certification.