



*Setting Standards for Safer Boating*

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ABYC reviews each standard at least every five years at which time it may be reaffirmed, revised, or withdrawn. ABYC welcomes any written comments on the Standards and Technical Information Reports.

**ABYC E-11 July, 2015**

**Electrical Division Standard  
Electrical Project Technical Committee**

## ***ABYC E-11***

# ***AC AND DC ELECTRICAL SYSTEMS ON BOATS***

This is a preview of "ABYC E-11-2015". [Click here to purchase the full version from the ANSI store.](#)

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NOTE: Membership on a committee shall not in and of itself constitute an endorsement of ABYC or any document developed by the committee on which the member serves.

This standard was developed under procedures accredited as meeting the criteria for American National Standards. The Project Technical Committee that approved the standard was balanced to ensure that individuals from competent and concerned interests have had an opportunity to participate.

This standard, which is the result of extended and careful consideration of available knowledge and experience on the subject, is intended to provide minimum performance requirements.

ABYC's Project Technical Committee meetings are open to the public. All inquiries regarding standards activity, interpretations, or meeting attendance should be directed to the ABYC Technical Department at [comments@abycinc.org](mailto:comments@abycinc.org).

ABYC and its committees do not "approve", "certify", or "endorse" any item, construction, or proprietary device.

### ***REQUEST FOR INTERPRETATIONS***

Upon written request the Electrical PTC will render an interpretation of any requirement of the standard. The request for interpretation should be clear and unambiguous. Requests should be presented to the PTC in a manner in which they may be answered in a yes or no fashion.

The committee reserves the right to reconsider any interpretation when or if additional information which might affect it becomes available to the PTC. Persons aggrieved by an interpretation may appeal to the Committee for reinterpretation.

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## **E-11 AC AND DC ELECTRICAL SYSTEMS ON BOATS**

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## E-11 AC & DC ELECTRICAL SYSTEMS ON BOATS

Based on ABYC's assessment of the existing technology, and the problems associated with achieving the goals of this standard, ABYC recommends compliance with this standard for all systems and associated equipment manufactured and/or installed after July 31, 2016.

### 11.1 PURPOSE

This standard is a guide for the design, construction, and installation of alternating current (AC) electrical systems on boats and of direct current (DC) electrical systems on boats.

#### NOTES:

1. *The United States Coast Guard has promulgated mandatory requirements for electrical systems in Title 33, CFR 183 Subpart I. Refer to the CFR for current federal requirements.*
2. *ABYC Technical Information Report [TE-30, Electric Propulsion Systems](#), outlines information for voltages over 300V AC and 50V DC for the purposes of electric/hybrid propulsion.*
3. *3-Phase power systems pose different risks from those encountered with single phase systems and should only be installed and maintained by properly trained technicians under appropriate engineering supervision, and in accordance with specifications detailed in any of the various recognized standards including IEEE, ABS, Det Norske Veritas, etc.*

### 11.2 SCOPE

This standard applies:

11.2.1 to alternating current (AC) electrical systems on boats operating at frequencies of 50 or 60 hertz and less than 300 volts, including shore powered systems up to the point of connection to the shore outlet and including the shore power cable and,

11.2.2 to direct current (DC) electrical systems on boats operating at nominal 50 volts or less.

#### EXCEPTIONS:

1. *Any conductor that is part of an outboard engine assembly and does not extend beyond the outboard engine manufacturer's supplied cowling.*
2. *Engine manufacturer supplied engine management systems and their associated conductors up to and including 20 AWG.*

### 11.3 REFERENCES

The following references form a part of this standard. Unless otherwise noted, the latest version of the referenced standards shall apply.

11.3.1 ABYC - American Boat & Yacht Council, Inc., 613 Third Street, Suite 10, Annapolis, MD 21403  
Phone: (410) 990-4460, Fax: (410) 990-4466. Website: [www.abycinc.org](http://www.abycinc.org)

- [ABYC A-1, Marine Liquefied Petroleum Gas \(LPG\) Systems](#)
- [ABYC A-3, Galley Stoves](#)
- [ABYC A-16, Electric Navigation Lights](#)
- [ABYC A-22, Marine Compressed Natural Gas \(CNG\) Systems](#)
- [ABYC A-28, Galvanic Isolators](#)
- [ABYC A-31, Battery Chargers and Inverters](#)
- [ABYC A-32, Power Conversion Equipment and Systems](#)
- [ABYC C-1500, Ignition Protection for Marine Products](#)
- [ABYC E-2, Cathodic Protection](#)
- [ABYC E-10, Storage Batteries](#)
- [ABYC H-2, Ventilation of Boats Using Gasoline](#)
- [ABYC H-24, Gasoline Fuel Systems](#)
- [ABYC H-33, Diesel Fuel Systems](#)
- [ABYC T-5, Safety Signs and Labels](#)
- [ABYC TE-4, Lightning Protection](#)
- [ABYC TE-30, Electric Propulsion Systems](#)
- [ABYC TH-22, Educational Information about Carbon Monoxide](#)