The ABYC Standards and Technical Information Reports for Small Craft are the product of a consensus of representatives of government, industry and public sectors. It is intended solely as a guide to aid manufacturers and the marine community in the design, construction, equipage and maintenance of small craft.

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**ABYC E-11**

**AC AND DC ELECTRICAL SYSTEMS ON BOATS**
This list represents the membership at the time the Committee was balloted.

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.

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 & 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, 2019.

11.1 PURPOSE

This standard is a guide for the design, construction, and installation of alternating current (AC) electrical systems and 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. See E-30, Electric Propulsion Systems, for voltages over 300 VAC and 60 VDC for the purposes of electric/hybrid propulsion.
3. Three phase power systems pose different risks from those encountered with single phase systems and should only be installed and maintained in accordance with specifications detailed in any of the various recognized standards development organizations including IEEE, ABS, Det Norske Veritas, etc.

11.2 SCOPE

This standard applies to:

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

11.2.2 direct current (DC) electrical systems on boats operating at 60 volts nominal 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.

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

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 E-30, Electric Propulsion Systems
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 TH-22, Educational Information About Carbon Monoxide
ABYC TH-23, Design, Construction, and Testing of Boats in Consideration of Carbon Monoxide