



*Setting Standards for Safer Boating*

*ABYC E-30 JULY, 2017*

**Electrical Division Standard**

**Electrical Project Technical Committee**

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.

ABYC reviews each standard at least every five years at which time it may be reaffirmed, revised, or withdrawn.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-30***

# ***ELECTRIC PROPULSION SYSTEMS***



## ELECTRICAL PROJECT TECHNICAL COMMITTEE

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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](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-30 ELECTRIC PROPULSION SYSTEMS

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, 2018.

### 30.1 PURPOSE

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

#### 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 E-11, AC and DC Electrical Systems on Boats](#) outlines information for voltages less than 300V AC and 50V DC.
3. *3-Phase power systems pose different and significant 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.*

### 30.2 SCOPE

This standard applies to:

30.2.1 alternating current (AC) systems on boats operating at more than 300 VAC, but less than 1000 VAC and

30.2.2 direct current (DC) systems on boats operating at more than 50 VDC nominal but less than 1000 VDC, including battery banks, motors, and controllers for the purpose of propulsion.

NOTES: *The electric propulsion system can include several components including but not limited to:*

1. *Generators*
2. *Inverters*
3. *Battery chargers*
4. *Batteries*
5. *Electric propulsion motors*
6. *Transformers*
7. *AC/DC, DC/DC, DC/AC, AC/AC converters*
8. *Motor control devices*

### 30.3 REFERENCES

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

30.3.1 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 E-10, Storage Batteries](#)  
[ABYC E-11, AC and DC Electrical Systems on Boats](#)  
[ABYC P-24, Electric/Electronic Propulsion Control Systems](#)  
[ABYC P-27, Electric/Electronic Steering Control Systems](#)  
[ABYC T-5, Safety Signs and Labels](#)

30.3.2 NFPA – National Fire Protection Association, Referenced Orgs 1 Batterymarch Park, Quincy, MA 02169-7471 Phone: (617) 770-3000 Fax: (617) 770-0700 Website: [www.nfpa.org](http://www.nfpa.org)

NFPA 70, *National Electrical Code*  
NFPA 70E, *Standard for Electrical Safety in the Workplace*