

§ 111.60-3

- (2) At least every 15 meters (46 feet) horizontally;
- (3) At each penetration of an A or B Class boundary;
- (4) At each location where the cable enters equipment; or
- (5) In a cableway that has an A-60 fire rating.

[CGD 94-108, 61 FR 28280, June 4, 1996]

§ 111.60-3 Cable application.

(a) Cable constructed according to IEEE Std 45 must meet the cable application provisions of section 19 of IEEE Std 45. Cable constructed according to IEC 92-3, IEC 92-353, or UL 1309 must meet the provisions of section 19 of IEEE Std 45, except 19.6.1, 19.6.4, and 19.8. Cable constructed according to IEC 92-3 and IEC 92-353 must comply with the ampacity values of IEC 92-352, Table 1.

(b) Type T/N cables must meet section 19 of IEEE Std 45 for Type T insulation.

(c) Cable constructed according to IEEE Std 45 must be derated according to Table A6, Note 6, of IEEE Std 45. Cable constructed according to IEC 92-3 or IEC 92-353 must be derated according to IEC 92-352, paragraph 8. MIL-C-24640A and MIL-C-24643A cable must be derated according to MIL-HDBK-299(SH).

(d) Cables for special applications defined in section 19 of IEEE Std 45 must meet the provisions of that section.

[CGD 94-108, 61 FR 28280, June 4, 1996, as amended at 62 FR 23908, May 1, 1997; USCG-1999-6096, 66 FR 29911, June 4, 2001]

§ 111.60-4 Minimum cable conductor size.

Each cable conductor must be #18 AWG (0.82 mm²) or larger except—

- (a) Each power and lighting cable conductor must be #14 AWG (2.10 mm²) or larger; and

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- (b) Each thermocouple, pyrometer, or instrumentation cable conductor must be #22 AWG (0.33 mm²) or larger.

[CGD 94-108, 61 FR 28280, June 4, 1996]

§ 111.60-5 Cable installation.

(a) Each cable installation must meet—

- (1) Sections 20 and 22, except 20.11, of IEEE Std 45; or

- (2) IEC 92-3 and paragraph 8 of IEC 92-352.

(b) Each cable installation made in accordance with paragraph 8 of IEC 92-352 must utilize the conductor ampacity values of Table I of IEC 92-352.

(c) Cable must not be located in any tanks except to supply equipment or instrumentation specially designed for and compatible with such location and whose function require its installation in the tank. The cable must be compatible with the liquid or gas in the tank or be protected by an enclosure.

(d) Braided cable armor or cable metallic sheath must not be used as the grounding conductor.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28280, June 4, 1996]

§ 111.60-6 Fiber optic cable.

Each fiber optic cable must—

- (a) Be constructed to pass the flammability test contained in IEEE Std 45, IEEE Std 1202, ANSI/UL 1581 test VW-1, or IEC 332-3 Category A; or

- (b) Be installed in accordance with § 111.60-2.

[CGD 94-108, 61 FR 28280, June 4, 1996]

§ 111.60-7 Demand loads.

Generator, feeder, and bus-tie cables must be selected on the basis of a computed load of not less than the demand load given in Table 111.60-7.

TABLE 111.60-7—DEMAND LOADS

Type of circuit	Demand load
Generator cables	115 percent of continuous generator rating.
Switchboard bus-tie, except ship's service to emergency switchboard bus-tie.	75 percent of generating capacity of the larger switchboard.
Emergency switchboard bus-tie	115 percent of continuous rating of emergency generator.
Motor feeders	Article 430, National Electrical Code.

TABLE 111.60-7—DEMAND LOADS—Continued

Type of circuit	Demand load
Galley equipment feeder	100 percent of either the first 50 KW or one-half the connected load, whichever is the larger, plus 65 percent of the remaining connected load, plus 50 percent of the rating of the spare switches or circuit breakers on the distribution panel.
Lighting feeder	100 percent of the connected load plus the average active circuit load for the spare switches or circuit breakers on the distribution panels.
Grounded neutral of a dual voltage feeder	100 percent of the capacity of the ungrounded conductors when grounded neutral is not protected by a circuit breaker overcurrent trip, or not less than 50 percent of the capacity of the ungrounded conductors when the grounded neutral is protected by a circuit breaker overcurrent trip or overcurrent alarm.

§ 111.60-9 Segregation of vital circuits.

(a) *General.* A branch circuit that supplies equipment vital to the propulsion, control, or safety of the vessel must not supply any other equipment.

(b) *Passenger vessels.* (1) Each passenger vessel with firescreen bulkheads that form main fire zones must have distribution systems arranged so that fire in a main fire zone does not interfere with essential services in another main fire zone.

(2) Main and emergency feeders passing through a main fire zone must be separated vertically and horizontally as much as practicable.

§ 111.60-11 Wire.

- (a) Wire must be in an enclosure.
- (b) Wire must be component insulated.
- (c) Wire, other than in switchboards, must meet the requirements in sections 19.6.4 and 19.8 of IEEE Std 45; MIL-W-76D; MIL-W-16878F; UL 44; UL 83; or equivalent standard.
- (d) Switchboard wire must meet subpart 111.30 of this part.
- (e) Wire must be of the copper stranded type.

[CGD 94-108, 61 FR 28281, June 4, 1996, as amended at 62 FR 23908, May 1, 1997; 62 FR 27659, May 20, 1997]

§ 111.60-13 Flexible electric cord and cables.

- (a) *Construction and testing.* Each flexible cord and cable must meet the requirements in section 19.6.1 of IEEE Std 45, article 400 of the NEC, NEMA WC 3, NEMA WC 8, or UL 62.
- (b) *Application.* A flexible cord must be used:

(1) Only as allowed under Sections 400-7 and 400-8 of the National Electrical Code; and

(2) In accordance with Table 400-4 of the National Electrical Code.

(c) *Allowable current-carrying capacity.* A flexible cord must not carry more current than allowed under Table 400-5 of the National Electrical Code, NEMA WC 3 or NEMA WC 8.

(d) *Conductor size.* Each flexible cord must be No. 18 AWG (0.82 mm²) or larger.

(e) *Splices.* Each flexible cord and cable must be without splices or taps except for a cord or cable No. 12 AWG (3.3 mm²) or larger spliced for repairs in accordance with § 111.60-19.

(f) *Pull at joints and terminals.* Each flexible cord and cable must be connected to a device or fitting by a knot, tape, or special fitting so that tension is not transmitted to joints or terminal screws.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28281, June 4, 1996]

§ 111.60-17 Connections and terminations.

(a) In general, connections and terminations to all conductors must retain the original electrical, mechanical, flame-retarding, and, where necessary, fire-resisting properties of the cable. All connecting devices must be suitable for copper stranded conductors.

(b) If twist-on type of connectors are used, the connections must be made within an enclosure and the insulated cap of the connector must be secured to prevent loosening due to vibration.

(c) Twist-on type of connectors may not be used for making joints in cables,