Coast Guard, DHS

Subpart 111.52—Calculation of Short-Circuit Currents

§ 111.52–1 General.

The available short-circuit current must be computed—
(a) From the aggregate contribution of all generators that can simultaneously operate in parallel;
(b) From the largest probable motor load; and
(c) With a three phase fault on the load terminals of the protective device.


§ 111.52–3 Systems below 1500 kilowatts.

The following short-circuit assumptions must be made for a system with an aggregate generating capacity below 1500 kilowatts, unless detailed computations in accordance with § 111.52–5 are submitted:
(a) The maximum short-circuit current of a direct current system must be assumed to be 10 times the aggregate normal rated generator currents plus six times the aggregate normal rated currents of all motors that may be in operation.
(b) The maximum asymmetrical short-circuit current for an alternating current system must be assumed to be 10 times the aggregate normal rated generator currents plus four times the aggregate normal rated currents of all motors that may be in operation.
(c) The average asymmetrical short-circuit current for an alternating-current system must be assumed to be 8½ times the aggregate normal rated generator currents plus 3½ times the aggregate normal rated currents of all motors that may be in operation.

§ 111.52–5 Systems 1500 kilowatts or above.

Short-circuit calculations must be submitted for systems with an aggregate generating capacity of 1500 kilowatts or more by utilizing one of the following methods:
(a) Exact calculations using actual impedance and reactance values of system components.
(b) Estimated calculations using NAVSEA DDS 300–2 (incorporated by reference, see 46 CFR 110.10–1).
(c) Estimated calculations using IEC 61363–1 (incorporated by reference; see 46 CFR 110.10–1).
(d) The estimated calculations using a commercially established analysis procedure for utility or industrial applications.


Subpart 111.53—Fuses

§ 111.53–1 General.

(a) Each fuse must—
(1) Meet the general provisions of Article 240 of NFPA NEC 2002 or IEC 92–202 (both incorporated by reference; see 46 CFR 110.10–1) as appropriate.
(2) Meet subpart 111.55 of this part;
(3) Have an interrupting rating sufficient to interrupt the asymmetrical RMS short-circuit current at the point of application; and
(4) Be listed by an independent laboratory.
(b) Renewable link cartridge-type fuses must not be used.
(c) Each fuse installation must provide for ready access to test the condition of the fuse.


Subpart 111.54—Circuit Breakers

§ 111.54–1 Circuit breakers.

(a) Each Circuit breaker must—
(1) Meet the general provision of Article 240 of NFPA NEC 2002 or IEC 92–202 (both incorporated by reference; see 46 CFR 110.10–1) as appropriate;
(2) Meet subpart 111.55 of this part; and
(3) Have an interrupting rating sufficient to interrupt the maximum asymmetrical short-circuit current available at the point of application.
(b) No molded-case circuitbreaker may be used in any circuit having a nominal voltage of more than 600 volts (1,000 volts for a circuit containing a circuitbreaker manufactured to the standards of the IEC). Each molded-case circuitbreaker must meet section
§ 111.54–3 Remote control.

Remotely controlled circuit breakers must have local manual means of operation.

[CGD 81–030, 53 FR 17847, May 18, 1988]

Subpart 111.55—Switches

§ 111.55–1 General.

(a) Each switch must meet Article 404 of NFPA NEC 2002 (incorporated by reference; see 46 CFR 110.10–1).

(b) Each switch that is in the weather must be in a watertight enclosure and be externally operable.


§ 111.55–3 Circuit connections.

Each load side of each circuit must be connected to the fuse end of a fused-switch or to the coil end of a circuit breaker, except a generator which is connected to either end of a circuit breaker.

Subpart 111.59—Busways

§ 111.59–1 General.

Each busway must meet Article 368 of NFPA NEC 2002 (incorporated by reference; see 46 CFR 110.10–1).


§ 111.59–3 No mechanical cooling.

A busway must not need mechanical cooling to operate within its rating.


Subpart 111.60—Wiring Materials and Methods

§ 111.60–1 Construction and testing of cable.

(a) Each marine shipboard cable must meet all the requirements for construction and identification of either IEEE 1580, UL 1309, IEC 92–353, or NPFC MIL–C–24640A or NPFC MIL–C–24643A (all five standards incorporated by reference; see 46 CFR 110.10–1), including the respective flammability tests contained therein, and must be of a copper-stranded type.