

## § 111.01-15

where the item is solidly mounted by machine screws or their equivalent, unless the porcelain piece is resiliently mounted.

### § 111.01-15 Temperature ratings.

(a) In this subchapter, an ambient temperature of 40°C (104°F) is assumed except as otherwise stated.

(b) A 50°C (122°F) ambient temperature is assumed for all rotating electrical machinery in boiler rooms, engine rooms, auxiliary machinery rooms, and weather decks, unless it can be shown that a 45°C (113°F) ambient temperature will not be exceeded in these spaces.

(c) A 45°C (113°F) ambient temperature is assumed for cable and all other non-rotating electrical equipment in boiler rooms, in engine rooms, in auxiliary machinery rooms, and on weather decks. For installations using UL 489 SA marine type circuit breakers the ambient temperature for that component is assumed to be 40°C (104°F). For installations using Navy type circuit breakers the ambient temperature for that component is assumed to be 50°C (122°F).

(d) Unless otherwise indicated in this subchapter, a 55°C (131°F) ambient temperature is assumed for all control and instrumentation equipment.

(e) If electrical equipment is utilized in a space in which the equipment's rated ambient temperature is below the assumed ambient temperature of the space, its load must be derated. The assumed ambient temperature of the space plus the equipment's actual temperature rise at its derated load must not exceed the equipment's total rated temperature (equipment's rated ambient temperature plus its rated temperature rise).

[CGD 94-108, 61 FR 28276, June 4, 1996, as amended at 62 FR 23907, May 1, 1997; USCG-2004-18884, 69 FR 58348, Sept. 30, 2004]

### § 111.01-17 Voltage and frequency variations.

Unless otherwise stated, electrical equipment must function at variations of at least  $\pm 5$  percent of rated frequency and +6 percent to -10 percent

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of rated voltage. This limitation does not address transient conditions.

[CGD 94-108, 61 FR 28276, June 4, 1996]

### § 111.01-19 Inclination of the vessel.

(a) All electrical equipment must be designed and installed to operate for the particular location and environment in which it is to be used. Additionally, electrical equipment necessary for the maneuvering, navigation, and safety of the vessel or its personnel must be designed and installed to operate under any combination of the following conditions:

(1) 15 degrees static list, 22.5 degrees dynamic roll; and

(2) 7.5 degrees static trim.

(b) All emergency installations must be designed and installed to operate when the vessel is at 22.5 degrees list and 10 degrees trim.

[CGD 94-108, 61 FR 28276, June 4, 1996, as amended at 62 FR 23907, May 1, 1997]

## Subpart 111.05—Equipment Ground, Ground Detection, and Grounded Systems

### § 111.05-1 Purpose.

This subpart contains requirements for the grounding of electric systems, circuits, and equipment.

NOTE: Circuits are grounded to limit excessive voltage from lightning, transient surges, and unintentional contact with higher voltage lines, and to limit the voltage to ground during normal operation. Conductive materials enclosing electric conductors and equipment, or forming part of that equipment, are grounded to prevent a voltage above ground on the enclosure materials.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28276, June 4, 1996]

#### EQUIPMENT GROUND

### § 111.05-3 Design, construction, and installation; general.

(a) An electric apparatus must be designed, constructed, and installed to prevent any person from accidentally contacting energized parts.

(b) Exposed, noncurrent-carrying metal parts of fixed equipment that may become energized because of any condition must be grounded.