

**§ 111.81-3 Cables entering boxes.**

Each cable entering a box or fitting must be protected from abrasion and must meet the following:

- (a) Each opening through which a conductor enters must be closed.
- (b) Cable armor must be secured to the box or fitting.
- (c) Each cable entrance in a damp or wet location must be made watertight by a terminal or stuffing tube.

**Subpart 111.83—Shore Connection Boxes****§ 111.83-1 General.**

Each shore connection box must be of a size that accommodates the connections of the flexible and fixed cables.

**§ 111.83-5 Bottom entrance and protected enclosures.**

Each shore connection box must have a bottom entrance for the shore connection cable. The box must provide protection to the shore connection when the connection is in use.

**Subpart 111.85—Electric Oil Immersion Heaters****§ 111.85-1 Electric oil immersion heaters.**

Each oil immersion heater must have the following:

- (a) An operating thermostat.
- (b) Heating elements that have no electrical contact with the oil.
- (c) A high temperature limiting device that:
  - (1) Opens all conductors to the heater;
  - (2) Is manually reset; and
  - (3) Actuates at a temperature below the flashpoint of the oil.
- (d) Either—
  - (1) A low-fluid-level device that opens all conductors to the heater if the operating level drops below the manufacturer's recommended minimum safe level; or
  - (2) A flow device that opens all conductors to the heater if there is inadequate flow.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28283, June 4, 1996]

**Subpart 111.87—Electric Air Heating Equipment****§ 111.87-1 Applicability.**

This subpart applies to electrically energized units or panels for heating a room or compartment. This subpart does not apply to electrically energized units for heating the air in an enclosed apparatus, such as a motor or controller.

**§ 111.87-3 General requirements.**

(a) Each electric heater must meet applicable UL 484 or UL 1042 construction standards (both incorporated by reference; see 46 CFR 110.10-1) or equivalent standards under § 110.20-1 of this chapter

(b) Each heater element must be an enclosed type. The heater element case or jacket must be of a corrosion-resistant material.

(c) Each heater must have a thermal cutout of the manually-reset type that prevents overheating and must have a thermal regulating switch.

(d) Each heater for bulkhead mounting must have its top slanted or otherwise designed to prevent hanging anything on the heater. If a heater is portable, it must have a clip or bracket to hold the heater in a fixed position.

(e) The external temperature of a heater enclosing case must not be over 125 degrees C, except that the external temperature of the enclosing case of a flush-mounted heater must not be over 100 degrees C. If a heater is mounted on or next to a deck or bulkhead, the heater must not cause the temperature of the nearest deck or bulkhead to be over 55 degrees C. For test purposes, an ambient temperature of 25 degrees C must be used.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28283, June 4, 1996; 61 FR 33045, June 26, 1996; 61 FR 36608, July 11, 1996; USCG-2003-16630, 73 FR 65199, Oct. 31, 2008]

**Subpart 111.91—Elevators and Dumbwaiters****§ 111.91-1 Power, control, and interlock circuits.**

Each electric power, control, and interlock circuit of an elevator or