

electric heater inside the enclosure that is energized from a separate circuit, the heater circuit must be disconnected from its source of potential by a disconnect device independent of the enclosure containing the heater. The heater disconnecting device must be adjacent to the equipment disconnecting device. A fixed sign, warning the operator to open both devices, must be on the enclosure of the equipment disconnect device, except as in paragraph (b) of this section.

(b) If the location of the enclosure for a motor, master switch, or other equipment for deck machinery is remote from the motor and controller disconnect device, a sign must be fixed to the enclosure if the disconnect arrangement required by paragraph (a) of this section is not used. The sign must warn the operator of the presence of two sources of potential within the enclosure and show the location of the heater circuit disconnect device.

(c) Electric heaters installed within motor controllers and energized from a separate circuit must be disconnected in the same manner as required by paragraph (a) of this section or by § 111.70-7(d).

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28282, June 4, 1996]

**§ 111.70-7 Remote control, interlock, and indicator circuits.**

(a) *Overcurrent protection.* A conductor of a control, interlock, or indicator circuit of a motor controller must be protected against overcurrent unless:

(1) The conductor is wholly within the controller enclosure;

(2) The rating or setting of the branch circuit overcurrent device is not more than 300 percent of the current-carrying capacity of the control, interlock, or indicator circuit conductor;

(3) There is an overcurrent device in each side of the line that has a rating or setting of not more than 300 percent of the current-carrying capacity of the control, electrical interlock, or indicator circuit conductor, except if under operating conditions there is no appreciable difference in potential between the external conductors, overcurrent

protection need only be at the supply of that side of the line; or

(4) The opening of the control, interlock, or indicator circuit creates a hazard.

NOTE: For overcurrent protection of steering gear control and indicator circuits, see Subpart 111.93 of this chapter.

(b) *Accidental ground.* The controller must be designed to prevent an accidental ground in a remote control circuit from causing the stop switches to fail to operate or causing the motor to start.

(c) *Source of potential.* The potential for a control, interlock, or indicator circuit must be derived from the load side of the motor and controller disconnect device, except if the control functions require circuits that must be common to two or more controllers, the switching arrangement in paragraph (d) of this section must be met.

(d) *Switching.* In the design of a control, interlock, or indicator circuit, all practicable steps must be taken to eliminate all but one source of power in an enclosure. If the control functions make it impracticable to energize a control interlock or indicator circuit from the load side of a motor and controller disconnect device and the voltage of the control, interlock, or indicator circuit is more than 24 volts, there must be one of the following alternative methods of switching:

(1) Each conductor of a control, interlock, or indicator circuit must be disconnected from all sources of potential by a disconnect device independent of the motor and controller disconnect device. The two independent devices must be adjacent to each other, and a fixed sign, warning the operator to open both devices to disconnect completely the motor and controller, must be on the exterior of the door of the main disconnect device.

(2) Each conductor of a control, interlock, or indicator circuit must be disconnected from all sources of power by a disconnect device actuated by the opening of the controller door, or the power must first be disconnected to allow opening of the door. The disconnect device and its connections, including each terminal block for terminating the vessel's wiring, must have no electrically uninsulated or

unshielded surface. When this type of disconnect device is used for vital auxiliary circuits, a nameplate must be affixed to the vital auxiliary motor controller door that warns that opening the door will trip a vital auxiliary off-line.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28282, June 4, 1996; 62 FR 23909, May 1, 1997]

### Subpart 111.75—Lighting Circuits and Protection

#### § 111.75-1 Lighting feeders.

(a) *Passenger vessels.* On a passenger vessel with fire bulkheads forming main vertical and horizontal fire zones, the lighting distribution system, including low location egress lighting where installed, must be arranged so that, to the maximum extent possible, a fire in any main vertical and horizontal fire zone does not interfere with the lighting in any other fire zone. This requirement is met if main and emergency feeders passing through any zone are separated both vertically and horizontally as widely as practicable.

(b) *Machinery spaces.* Lighting for engine rooms, boiler rooms, and auxiliary machinery spaces must be supplied from two or more feeders. One of these feeders must be a ship's service feeder.

NOTE: Special requirements for emergency lighting, feeders, and branch circuits are in subpart 112.43 of this chapter.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28282, June 4, 1996; 61 FR 33045, June 26, 1996]

#### § 111.75-5 Lighting branch circuits.

(a) *Loads.* A lighting distribution panel must not supply branch circuits rated at over 30 amperes.

(b) *Connected Load.* The connected loads on a lighting branch circuit must not be more than 80 percent of the rating of the overcurrent protective device, computed on the basis of the fixture ratings and in accordance with IEEE 45-2002 (incorporated by reference; see 46 CFR 110.10-1), section 5.4.2.

(c) *Lighting fixtures on lighting circuits.* Each lighting fixture must be on a lighting branch circuit.

(d) *Overcurrent protection.* Each lighting branch circuit must be protected by an overcurrent device rated at 20 amperes or less, except as allowed under paragraph (e) of this section.

(e) *25 or 30 ampere lighting branch circuits.* Lighting branch circuits rated at 25 and 30 amperes supplying only fixed nonswitched lighting fixtures for cargo hold or deck lighting having only lampholders of the mogul type, or other lampholding devices required for lamps of more than 300 watts, may be supplied by a 30 ampere branch circuit wired with at least No. 10 AWG (5.3 mm<sup>2</sup>) conductors if each fixture wire used in wiring each lighting fixture is No. 12 AWG (3.3 mm<sup>2</sup>) or larger.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28282, June 4, 1996; 62 FR 23909, May 1, 1997; USCG-2003-16630, 73 FR 65199, Oct. 31, 2008]

#### § 111.75-15 Lighting requirements.

(a) *Lights in passageways, public spaces, and berthing compartments.* The supply to lights in each passageway, public space, or berthing compartment accommodating more than 25 persons must be divided between two or more branch circuits, one of which may be an emergency branch circuit.

(b) *Lights in machinery spaces.* Alternate groups of lights in an engine room, boiler room, or auxiliary machinery space must be arranged so that the failure of one branch circuit does not leave an area without light.

(c) *Illumination of passenger and crew spaces.* (1) Each space used by passengers or crew must be fitted with lighting that provides for a safe habitable and working environment under normal conditions.

(2) Sufficient illumination must be provided by the emergency lighting source under emergency conditions to effect damage control procedures and to provide for safe egress from each space.

(d) *Berth lights.* Each crew berth must have a fixed berth light that is not wired with a flexible cord. The berth light must have minimum horizontal projection so that the light may not be covered with bedding.

(e) *Exit lights.* Each exit light required on passenger vessels under § 112.15-1 of this subchapter must have