

the insulation resistance of the generator to ground before the generator is connected to the bus.

(c) Ground detection must be provided that:

(1) For an alternating current system, meets §111.05-27 in subchapter J of this chapter; and

(2) For a direct current system, meets §111.05-29 in subchapter J of this chapter.

#### **§ 183.330 Distribution panels and switchboards.**

(a) Each distribution panel and switchboard must be in as dry a location as practicable, adequately ventilated, and protected from falling debris and dripping or splashing water.

(b) Each distribution panel or switchboard must be totally enclosed and of the dead front type.

(c) Each switchboard must be fitted with a dripshield.

(d) Distribution panels and switchboards that are accessible from the rear must be constructed to prevent a person from accidentally contacting energized parts.

(e) Working space must be provided around all main distribution panels and switchboards of at least 610 millimeters (24 inches) in front of the switchboard, and at least 455 millimeters (18 inches) behind the switchboard. Rear access is prohibited when the working space behind the switchboard is less than 455 millimeters (18 inches).

(f) Nonconducting mats or grating must be provided on the deck in front of each switchboard and, if accessible from the rear, on the deck in the rear of the switchboard.

(g) All uninsulated current carrying parts must be mounted on noncombustible, nonabsorbent, high dielectric insulating material.

(h) Equipment mounted on a hinged door of an enclosure must be constructed or shielded so that a person will not accidentally contact energized parts of the door mounted equipment when the door is open and the circuit energized.

(i) In the design of a control, interlock, or indicator circuit, the disconnect device and its connections, including each terminal block for terminating the vessel's wiring, must not

have any electrically unshielded or uninsulated surfaces.

(j) Switchboards and distribution panels must be sized in accordance with §111.30-19(a) in subchapter J of this chapter.

[CGD 85-080, 61 FR 997, Jan. 10, 1996, as amended by CGD 97-057, 62 FR 51050, Sept. 30, 1997]

#### **§ 183.340 Cable and wiring requirements.**

(a) If individual wires, rather than cable, are used in systems greater than 50 volts, the wire must be in conduit.

(b) All cable and wire must:

(1) Have stranded copper conductors with sufficient current carrying capacity for the circuit in which they are used;

(2) Be installed in a manner to avoid or reduce interference with radio reception and compass indication;

(3) Be protected from the weather;

(4) Be installed with metal supports spaced not more than 610 millimeters (24 inches) apart, and in such a manner as to avoid chafing and other damage. The use of plastic tie wraps must be limited to bundling or retention of multiple cable installations, and not used as a means of support, except that on vessels of not more than 19.8 meters (65 feet) in length, installations in accordance with paragraph 14.h of ABYC E-8 and paragraph 15.h of ABYC E-9 (both incorporated by reference; see 46 CFR 175.600) are acceptable as meeting the requirements of this section;

(5) Not be installed with sharp bends;

(6) Be protected by metal coverings or other suitable means if in areas subject to mechanical abuse. Horizontal pipes used for protection shall have 6 millimeter (.25 inch) holes for drainage every 1,520 millimeters (5 feet);

(7) Be suitable for low temperature and high humidity if installed in refrigerated compartments;

(8) Not be located in a tank unless the cable provides power to equipment in the tank; and

(9) Have sheathing or wire insulation compatible with the fluid in a tank when installed as allowed by paragraph (b)(8) of this section.

(c) Conductors in power and lighting circuits must be No. 14 American Wire Gauge (AWG) or larger. Conductors in