

use on the fire system at all times. In no case shall a pump having connection to an oil line be used as a fire pump. Branch lines connected to the fire main for purposes other than fire and deck wash shall be so arranged that adequate water can be made continuously available for firefighting purposes.

(g) The total area of the pipes leading from a pump shall not be less than the discharge area of the pump.

(h) On vessels with oil fired boilers, either main or auxiliary, or with internal combustion propulsion machinery, where 2 fire pumps are required, they shall be located in separate spaces, and the arrangement, pumps, sea connections, and sources of power shall be such as to insure that a fire in any one space will not put all of the fire pumps out of operation. However, where it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size or arrangement of the vessel, or for other reasons, the installation of a total flooding carbon dioxide system may be accepted as an alternate method of extinguishing any fire which would affect the powering and operation for the required fire pumps.

(i) Except as provided for in §193.10-10(e), a sufficient number of hose streams for fire fighting purposes must be immediately available from the fire main at all times by either of the following methods:

(1) *Maintenance of water pressure.* (i) Water pressure must be maintained on the fire main at all times by the continuous operation of:

(A) One of the fire pumps; or

(B) Another suitable pump capable of supplying one hose stream at a Pitot tube pressure of not less than 50 p.s.i. (35 p.s.i. for ¾-inch hose); or,

(C) A pressure tank capable of supplying one hose stream at a Pitot tube pressure of not less than 50 p.s.i. (35 p.s.i. for ¾-inch hose) for five minutes.

(ii) An audible alarm must be installed to sound in a continuously manned space if the pressure in the fire main drops to less than that necessary to maintain the minimum Pitot tube pressures specified in §193.10-5(i)(1)(i).

(2) *Remote control of fire pumps.* (i) At least one fire pump must be capable of remote activation and control.

(ii) If the fire pump is in a continuously manned machinery space, the controls for operating it and the controls for all necessary valves must be located on the manned operating platform in that space.

(iii) If the fire pump is in an unmanned machinery space, the controls for its operation and the controls for all necessary valves must be located in:

(A) The fire control station, if any; or,

(B) The bridge, if there is no fire control station; or,

(C) A readily accessible space acceptable to the Officer in Charge, Marine Inspection.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 75-031, 40 FR 48349, Oct. 15, 1975; CGD 95-028, 62 FR 51220, Sept. 30, 1997]

§ 193.10-10 Fire hydrants and hose.

(a) The size of fire hydrants, hose, and nozzles and the length of hose required shall be as noted in Table 193.10-5(a).

(b) In lieu of the 2½-inch hose and hydrants specified in Table 193.10-5(a), on vessels over 1,500 gross tons, the hydrants in interior locations may have siamese connections for 1½-inch hose. In these cases the hose shall be 75 feet in length, and only one hose will be required at each fire station; however, if all such stations can be satisfactorily served with 50-foot lengths, 50-foot hose may be used.

(c) On vessels of 500 gross tons and over there must be at least one shore connection to the fire main available to each side of the vessel in an accessible location. Suitable cutout valves and check valves must be provided for furnishing the vessel's shore connections with couplings mating those on the shore fire lines. Vessels of 500 gross tons and over on an international voyage, must be provided with at least one international shore connection complying with ASTM F 1121 (incorporated by reference, see §193.01-3). Facilities must be available enabling an international shore connection to be used on either side of the vessel.

(d) Fire hydrants must be of sufficient number and so located that any

part of the vessel, other than main machinery spaces, may be reached with at least 2 streams of water from separate outlets, at least one of which must be from a single length of hose. In main machinery spaces, all portions of such spaces must be capable of being reached by at least 2 streams of water, each of which must be from a single length of hose from separate outlets; however, this requirement need not apply to shaft alleys containing no assigned space for the stowage of combustibles. Fire hydrants must be numbered as required by §196.37-15 of this subchapter.

(e) All parts of the fire main located on exposed decks shall either be protected against freezing or be fitted with cutout valves and drain valves so that the entire exposed parts of such piping may be shut off and drained in freezing weather. Except when closed to prevent freezing, such valves shall be sealed open.

(f) The outlet at the fire hydrant shall be limited to any position from the horizontal to the vertical pointing downward, so that the hose will lead horizontally or downward to minimize the possibility of kinking.

(g) Each fire hydrant shall be provided with a single length of hose with nozzle attached and a spanner. A suitable hose rack or other device shall be provided for the proper stowage of the hose. If the hose is not stowed in the open or behind glass so as to be readily seen, the enclosures shall be marked in accordance with §196.37-15 of this subchapter.

(h) Fire hose shall be connected to the outlets at all times. However, at open decks where no protection is afforded to the hose in heavy weather, the hose may be temporarily removed from the hydrant and stowed in an accessible nearby location.

(i) Each fire hydrant must have at least 1 length of firehose. Each firehose must have a combination solid stream and water spray nozzle that is approved under subpart 162.027 of this subchapter, except 19 millimeters (3/4 inch) hose may have a garden hose nozzle that is bronze or metal with strength and corrosion resistance equivalent to bronze. Combination solid stream and water spray nozzles

previously approved under subpart 162.027 of this chapter may be retained so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

(j) When the firehose nozzle in the below locations was previously approved under subpart 162.027 of this chapter, a low-velocity water spray applicator, also previously approved under subpart 162.027, of this chapter must be installed as follows:

(1) At least 1 length of firehose on each fire hydrant outside and in the immediate vicinity of each laboratory;

(2) Each firehose in each propulsion machinery space containing oil-fired boiler, internal combustion machinery, or oil fuel unit on a vessel of 1000 gross tons or more—the length of each applicator must be 1.2 meters (4 feet).

(k) Fixed brackets, hooks, or other means for stowing an applicator must be next to each fire hydrant that has an applicator under paragraph (j) of this section.

(1) Firehose shall not be used for any other purpose than fire extinguishing, drills, and testing.

(m) Fire hydrants, nozzles, and other fittings shall have threads to accommodate the hose connections noted in this paragraph. Firehose and couplings shall be as follows:

(1) Couplings shall be of brass, bronze, or other equivalent metal. National Standard firehose coupling threads shall be used for the 1½-inch and 2½-inch sizes, *i.e.*, 9 threads per inch for 1½-inch hose and 7½ threads per inch for 2½-inch hose.

(2) Unlined hose shall not be used in the machinery spaces.

(3) Where ¾-inch hose is permitted by Table 193.10-5(a), the hose and couplings shall be of good commercial grade.

(4) Each section of fire hose used after January 1, 1980 must be lined commercial fire hose that conforms to Underwriters' Laboratories, Inc. Standard 19 or Federal Specification ZZ-H-451E. Hose that bears the label of Underwriters' Laboratories, Inc. as lined fire hose is accepted as conforming to this requirement. Each section of replacement fire hose or any section of new fire hose placed aboard a vessel after January 1, 1977 must also conform

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to the specification required by this paragraph.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 74-60, 41 FR 43152, Sept. 30, 1976; CGD 76-086, 44 FR 2394, Jan. 11, 1979; CGD 88-032, 56 FR 35830, July 29, 1991; CGD 95-027, 61 FR 26012, May 23, 1996; USCG-2000-7790, 65 FR 58465, Sept. 29, 2000]

§ 193.10-15 Piping.

(a) All piping, valves, and fittings, shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) All distribution cut-off valves shall be marked as required by § 196.37-10 of this subchapter.

(c) For vessels on an international voyage, the diameter of the fire main shall be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously. This requirement is in addition to § 193.10-5(c). The discharge of this quantity of water through hoses and nozzles at a sufficient number of adjacent hydrants must be at a minimum Pitot tube pressure of 50 pounds per square inch.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 75-031, 40 FR 48349, Oct. 15, 1975]

§ 193.10-90 Installations contracted for prior to March 1, 1968.

Installations contracted for prior to March 1, 1968, must meet the following requirements:

(a) Except as specifically modified by this paragraph, vessels must comply with the requirements of §§ 193.10-5 through 193.10-15 insofar as the number and general type of equipment is concerned.

(b) Existing equipment, except firehose nozzles and low-velocity water spray applicators, previously approved but not meeting the applicable requirements of §§ 193.10-5 through 193.10-15, may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original installations. However, all new installations or major replacements must meet the applicable

requirements in this subpart for new installations.

(c) Vessels must comply with the general requirements of § 193.10-5 (c) through (g), § 193.10-10 (d) through (m), and § 193.10-15 insofar as is reasonable and practicable.

(d) Each firehose nozzle must meet § 193.10-10(i), and each low-velocity water spray applicator must meet § 193.10-10(j).

[CGD 95-027, 61 FR 26013, May 23, 1996]

Subpart 193.15—Carbon Dioxide Extinguishing Systems, Details

§ 193.15-1 Application.

(a) The provisions of this subpart shall apply to all new installations contracted for on or after March 1, 1968.

(b) Installations contracted for prior to March 1, 1968, shall meet the requirements of § 193.15-90.

(c) The requirements of this subpart are based on a "high pressure system," *i.e.*, one in which the carbon dioxide is stored in liquid form at atmospheric temperature. Details for "low pressure systems," *i.e.*, those in which the carbon dioxide is stored in liquid form at a continuously controlled low temperature, may be specifically approved by the Commandant where it is demonstrated that a comparable degree of safety and fire extinguishing ability is achieved.

§ 193.15-5 Quantity, pipe sizes, and discharge rates.

(a) *General.* The amount of carbon dioxide required for each space shall be as determined by paragraphs (b) through (d) of this section.

(b) *Total available supply.* A separate supply of carbon dioxide need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(c) *Enclosed ventilation systems for rotating electrical propulsion equipment.* (1) The number of pounds of carbon dioxide required for the initial charge shall be equal to the gross volume of the system divided by 10 for systems having a volume of less than 2,000 cubic feet, and