

cordance with Subpart 160.036 of Subchapter Q (Specifications) of this chapter. The service use of the distress signals shall be limited to a period of 3 years from date of manufacture, and replacement of outdated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within 12 months after the date of expiration.

(b) All vessels of less than 150 gross tons in ocean and coastwise service carrying persons in addition to the crew shall carry within the pilothouse six hand red flare distress signals and six hand orange smoke distress signals or 12 hand combination flare and smoke distress signals constructed in accordance with Subparts 160.021 and 160.037 or Subpart 160.023 of Subchapter Q (Specifications) of this chapter. Such distress signals shall be stowed in a portable watertight container. The service use of the distress signals shall be limited to a period of 3 years from date of manufacture.

[CGFR 68-32, 33 F.R. 5719, Apr. 12, 1968]

**§ 94.90-10 Vessels in Great Lakes service.**

(a) All vessels of 150 gross tons and over in Great Lakes service shall carry within the pilothouse or on the navigator's bridge, 12 approved hand-held red flare distress signals, contained in a portable watertight container, constructed in accordance with Subpart 160.021 or Subpart 160.023 of Subchapter Q (Specifications) of this chapter. The service use of distress signals shall be limited to a period of 3 years from date of manufacture, and replacement of outdated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within 12 months after the date of expiration.

[CGFR 68-32, 33 F.R. 5719, Apr. 12, 1968]

**§ 94.90-15 Vessels on short runs.**

(a) Distress signals are not required on vessels operating on short runs. A vessel is considered to be on a short run when its operating time away from a dock is limited to approximately 30 minutes.

[CGFR 68-32, 33 F.R. 5719, Apr. 12, 1968]

**PART 95—FIRE PROTECTION EQUIPMENT**

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- 95.50-1 Application.
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**Subpart 95.60—Fire Axes**

- 95.60-1 Application.  
 95.60-5 Number required.  
 95.60-10 Location.

**AUTHORITY:** The provisions of this Part 95 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, sec. 10, 35 Stat. 428, as amended 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 68 Stat. 675, sec. 6(b) (1), 80 Stat. 938; 50 U.S.C. 198, 49 U.S.C. 1655(b); F.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965, Supp.; 49 CFR 1.46(b) (35 F.R. 4959).

**SOURCE:** The provisions of this Part 95 contained in CGFR 65-50, 30 F.R. 17001, Dec. 30 1965, unless otherwise noted.

**Subpart 95.01—Application**

**§ 95.01-1 General.**

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

**§ 95.01-5 Equipment installed but not required.**

(a) Where fire detecting or extinguishing systems or equipment are not required, but are installed, the system or equipment and its installation shall meet the requirements of this part.

**Subpart 95.05—Fire Detecting and Extinguishing Equipment, Where Required**

**§ 95.05-1 Fire detecting, manual alarm, and supervised patrol systems.**

(a) Fire detecting, manual alarm, and supervised patrol systems are not required except in special cases; but if installed, the systems shall meet the applicable requirements of Part 76 of Subchapter H (Passenger Vessels) of this chapter.

(b) In each compartment containing explosives, and in adjacent cargo compartments, there shall be provided a smoke detecting or other suitable type fire detecting system.

(c) Enclosed spaces which are "specially suitable for vehicles" shall be fitted

with an approved fire or smoke detecting system.

[CGFR 66-33, 31 F.R. 15285, Dec. 6, 1966]

**§ 95.05-5 Fire main system.**

(a) Fire pumps, hydrants, hose, and nozzles shall be installed on the following vessels:

(1) On all self-propelled vessels.

(2) On all barges with sleeping accommodations for more than 12 persons.

(b) The arrangements and details of the fire main system shall be as set forth in Subpart 95.10.

**§ 95.05-10 Fixed fire extinguishing systems.**

(a) Approved fire extinguishing systems may be used or required in locations delineated in this section on the following vessels:

(1) On all self-propelled vessels other than yachts and fishing vessels.

(2) On all barges with sleeping accommodations for more than 12 persons.

(b) A fixed carbon dioxide or other approved system shall be installed in all cargo compartments and tanks for combustible cargo except that vessels engaged exclusively in the carriage of coal or grain in bulk need not be fitted with such system. For cargo compartments and tanks fitted with a fixed carbon dioxide or other approved system a deck foam system is not required. The provisions of this paragraph shall not apply to motorboats contracted for prior to November 19, 1952. In lieu of the carbon dioxide or other approved system the following systems may be used or required in special cases:

(1) A fixed foam system may be used in cargo tanks.

(2) In cases where a cargo compartment is normally accessible and is considered to be a part of the working or living quarters, a water sprinkling system may be required, and the details of such system will be subject to special approval.

(3) On vessels contracted for prior to January 1, 1962, a steam smothering system may be accepted. However, although existing steam smothering systems may be repaired, replaced, or extended, no new systems contracted for on or after January 1, 1962, will be permitted.

(4) Spaces "specially suitable for vehicles" shall be fitted with an approved carbon dioxide system. Alternately, the Commandant may permit the installation of an approved water sprinkler system or other suitable system.

(c) On vessels other than motorboats a fixed carbon dioxide or other approved system shall be installed in all lamp and paint lockers, oil rooms, and similar spaces. On vessels contracted for prior to January 1, 1962, a steam smothering system may be accepted in lieu of the carbon dioxide system. However, although existing steam smothering systems may be repaired, replaced, or extended, no new systems contracted for on or after January 1, 1962, will be permitted.

(d) On vessels of 1,000 gross tons and over, contracted for on or after November 19, 1952, or where conversion from coal to oil is contracted for on or after November 19, 1952, a fixed carbon dioxide, foam, or water spray system shall be installed in all spaces containing oil fired boilers, either main or auxiliary, or their fuel oil units, valves, or manifolds in the line between the settling tanks and the boilers.

(e) Fire extinguishing systems shall be provided for internal combustion installations in accordance with the following:

(1) If a fixed fire-extinguishing system is installed to protect an internal combustion propelling machinery installation, the system shall be of the carbon dioxide type.

(2) On vessels of 1,000 gross tons and over on an international voyage, the construction or conversion of which is contracted for on or after May 26, 1965, a fixed carbon dioxide system shall be installed in all spaces containing internal combustion or gas turbine main propulsion machinery, auxiliaries with an aggregate power of 1,000 b. hp. or greater, or their fuel oil units, including purifiers, valves, and manifolds.

(3) On vessels, the construction, conversion or automation of which is contracted for on or after July 1, 1968, the systems shall be in accordance with the following:

(1) A fixed carbon dioxide system shall be installed in any space containing machinery using fuel having a flashpoint of less than 110° F.

(ii) On vessels of 1,000 gross tons and over, a fixed carbon dioxide system shall be installed in all spaces containing internal combustion or gas turbine main propulsion machinery, auxiliaries with an aggregate power of 1,000 b. hp. or greater, or their fuel oil units, including purifiers, valves, and manifolds.

(f) On vessels contracted for on or after November 19, 1952, where an enclosed ventilating system is installed for electric propulsion motors or generators, a fixed carbon dioxide extinguishing system shall be installed in such system.

(g) The arrangements and details of the fixed fire extinguishing systems shall be as set forth in Subparts 95.13 through 95.17.

[CGFR 65-50, 30 F.R. 17001, Dec. 30, 1965, as amended by CGFR 66-33, 31 F.R. 15285, Dec. 6, 1966; CGFR 67-90, 33 F.R. 1016, Jan. 26, 1968]

**§ 95.05-15 Hand portable fire extinguishers and semiportable fire extinguishing systems.**

(a) Approved hand portable fire extinguishers and semiportable fire extinguishing systems shall be installed on all vessels, other than unmanned barges and fishing vessels, as set forth in Subpart 95.50.

**§ 95.05-20 Sand.**

(a) On vessels of over 1,000 gross tons there shall be in each space containing oil fired boilers a metal receptacle containing not less than 10 cubic feet of sand, sawdust impregnated with soda, or other approved dry materials together with a scoop or shaker for distributing the same. On vessels of 1,000 gross tons or less, at least 5 cubic feet of such materials shall be similarly carried.

(b) In lieu of the requirements in paragraph (a) of this section, one B-II fire extinguisher may be substituted.

**Subpart 95.10—Fire Main System, Details**

**§ 95.10-1 Application.**

(a) The provisions of this subpart, with the exception of § 95.10-90, shall apply to all fire main installations contracted for on or after May 26, 1965. Installations contracted for prior to May 26, 1965, shall meet the requirements of § 95.10-90.

§ 95.10-5 Fire pumps.

(a) Vessels shall be equipped with independently driven fire pumps in accordance with Table 95.10-5(a).

TABLE 95.10-5 (a)

| Gross tons |          | Minimum number of pumps | Hose and hydrant size, inches | Nozzle orifice size, inches | Length of hose, feet |
|------------|----------|-------------------------|-------------------------------|-----------------------------|----------------------|
| Over       | Not over |                         |                               |                             |                      |
| .....      | 100      | 1                       | 1 1/2                         | 1 1/2                       | 50                   |
| 100        | 1,000    | 1                       | 1 1/2                         | 3/4                         | 50                   |
| 1,000      | 1,500    | 2                       | 1 1/2                         | 3/4                         | 50                   |
| 1,500      | .....    | 2                       | 2 1/2                         | 3/4                         | 50                   |

<sup>1</sup> On vessels of 65 feet in length or less, 3/4-inch hose of good commercial grade together with a commercial garden hose nozzle may be used. The pump may be hand operated and the length of hose shall be sufficient to assure coverage of all parts of the vessel.

<sup>2</sup> 75 feet of 1 1/2-inch hose and 3/8-inch nozzle may be used where specified by § 95.10-10 (b) for interior locations and 50 feet of 1 1/2-inch hose may be used in exterior locations on vessels in other than ocean or coastwise service.

(b) On vessels of 1,000 gross tons and over on an international voyage, each required fire pump, while delivering water thru the fire main system at a pressure corresponding to that required by paragraph (c) of this section, shall have a minimum capacity of at least two-thirds of that required for an independent bilge pump. However, in no case shall the capacity of each fire pump be less than that otherwise required by this section.

(c) Each pump shall be capable of delivering water simultaneously from the two highest outlets at a Pitot tube pressure of approximately 50 p. s. i. Where 1 1/2-inch hose is permitted in lieu of 2 1/2-inch hose by footnote 2 of Table 95.10-5

(a), the pump capacity shall be determined on the same basis as if 2 1/2-inch hose had been permitted. Where 3/4-inch hose is permitted by Table 95.10-5 (a), the Pitot tube pressure need be only 35 p. s. i.

(d) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 p. s. i. in excess of the pressure necessary to maintain the requirements of paragraph (c) of this section or 125 p. s. i., whichever is greater. Relief valves may be omitted if the pumps, operating under shut-off conditions, are not capable of developing a pressure exceeding this amount.

(e) Fire pumps shall be fitted with a pressure gage on the discharge side of the pumps.

(f) Fire pumps may be used for other purposes provided at least one of the required pumps is kept available for use on the fire system at all times. Unless specifically approved by the Commandant, no branch lines shall be connected to the fire mains for other than fire and deck wash purposes. Other discharge lines shall lead from a discharge manifold near the fire pump. In no case shall a pump having connection to an oil line be used as a fire pump.

(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 of 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 of at least one of the required fire pumps.

[CGFR 65-50, 30 F.R. 17001, Dec. 30, 1965, as amended by CGFR 66-33, 31 F.R. 15235, Dec. 6, 1966]

§ 95.10-10 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 95.10-5(a).

(b) In lieu of the 2 1/2-inch hose and hydrants specified in Table 95.10-5 (a), on vessels over 1,500 gross tons, the hydrants in interior locations may have siamese connections for 1 1/2-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 1,000 gross tons and over there shall be at least one shore con-

nection to the fire main available to each side of the vessel in an accessible location. Suitable cut-out valves and check valves shall be provided. Suitable adapters also shall be provided for furnishing the vessel's shore connections with couplings mating those on the shore fire lines. Such vessels on an international voyage, shall be provided with at least one international shore connection. Facilities shall be available enabling such a connection to be used on either side of the vessel. The international shore connection shall be in accordance with specification Subpart 162.034 of Subchapter Q (Specifications) of this chapter.

(d) Fire hydrants shall be of sufficient number and so located that any part of the vessel, other than main machinery spaces, accessible to persons on board while the vessel is being navigated and all cargo holds may be reached with at least 2 streams of water from separate outlets, at least one of which shall be from a single length of hose. In main machinery spaces, all portions of such spaces shall be capable of being reached by at least 2 streams of water, each of which shall 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 shall be numbered as required by § 97.37-15 of this subchapter.

(e) All parts of the fire main located on exposed decks shall either be protected against freezing or be fitted with cut-out 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 enclosure shall be marked in accordance with § 97.37-15 of this subchapter.

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

(i) Hose nozzles shall be as follows:

(1) All nozzles shall be of good grade bronze or equivalent metal.

(2) Where smooth bore type nozzles are used, they shall have an orifice of the size indicated in Table 95.10-5 (a).

(3) Where combination solid stream and water spray fire hose nozzles are used, they shall be of approved type. New installations and replacements shall be constructed in accordance with subpart 162.027 of subchapter Q (Specifications) of this chapter. The detachable applicator shall be stowed adjacent to the fire hydrant, except where combination nozzles are not required, in which case the applicator may be stowed at the discretion of the master.

(4) Except as noted in subparagraphs (5) and (6) of this paragraph, all hose nozzles shall be of either the smooth bore type or the approved type combination nozzle.

(5) On all vessels of 1,000 gross tons and over, the hose attached to the hydrants in propulsion machinery spaces containing oil fired boilers, internal combustion machinery, or oil fuel units shall be fitted with an approved combination nozzle. The applicator shall be not more than 6 feet in length.

(6) Where ¾-inch hose is permitted by Table 95.10-5 (a), a good commercial grade garden hose nozzle or equivalent will be accepted.

(7) Where approved combination nozzles are used, but are not required, the applicators with low velocity fog spray heads and the self-cleaning strainers may be fitted, but will not be required.

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

(k) Fire hydrants, nozzles, and other fittings shall have threads to accommodate the hose connections noted in paragraph (l) of this section.

(1) Firehose and couplings shall be as follows:

(1) Couplings shall be of brass, bronze, or other equivalent metal. For installations on vessels contracted for on or after July 1, 1954, National Standard fire hose 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 95.10-5 (a), the hose and couplings shall be of good commercial grade

(4) All lined and unlined hose installed after January 1, 1961, shall be of fire hose quality, in conformance with Underwriters' Laboratories, Inc., Standard 18 or 19, or Federal Specification JJ-H-571 or ZZ-H-451a. Hose which bears the label of Underwriters' Laboratories, Inc., as inspected lined or unlined fire hose will be accepted as conforming to this requirement.

**§ 95.10-15 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 § 97.37-10 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 § 95.10-5(c). The discharge of this quantity of water through hoses and nozzles at a sufficient number of adjacent hydrants shall be at a minimum Pitot tube pressure of approximately 50 pounds per square inch.

**§ 95.10-90 Installations contracted for prior to May 26, 1965.**

(a) Installations contracted for prior to May 26, 1965, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 95.10-5 through 95.10-15 shall be complied with insofar as the number and general type of equipment is concerned. Existing equipment previously approved, but not meeting the applicable require-

ments of §§ 95.10-5 through 95.10-15 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 shall meet the applicable requirements in this subpart.

(2) All vessels contracted for prior to November 19, 1952, other than motorboats, shall be fitted with fire pumps, hoses, and nozzles in accordance with Table 95.10-90(a) (2).

TABLE 95.10-90(a)(2)

| Gross tons |          | Minimum number of pumps | Minimum hose and hydrant size, inches | Nozzle orifice size, inches | Length of hose, feet |
|------------|----------|-------------------------|---------------------------------------|-----------------------------|----------------------|
| Over       | Not over |                         |                                       |                             |                      |
| ----       | 100      | 1                       | 1 ½                                   | 1 ½                         | 150                  |
| 100        | 1,000    | 1                       | 2 ½                                   | 2 ½                         | 250                  |
| 1,000      | ----     | 2                       | 2 ½                                   | 2 ½                         | 250                  |

<sup>1</sup> On vessels of 65 feet in length or less, ¾-inch hose of good commercial grade together with a commercial garden hose nozzle may be used. The pump may be hand operated and the length of hose shall be sufficient to assure coverage of all parts of the vessel.

<sup>2</sup> May use 50 feet of 2½-inch hose with ¾-inch nozzles for exterior stations. 75 feet of 1½-inch hose with ¾-inch nozzles may be used for interior station in which case such interior stations shall have siamese connections.

(3) Vessels contracted for prior to July 1, 1935, need not meet the requirements of § 95.10-5(h), and vessels contracted for on or after July 1, 1935, but prior to November 19, 1952, may have a carbon dioxide "bilge" in lieu of "total flooding" system. However, in vessels of both categories where a conversion from coal to oil is contracted for on or after November 19, 1952, the provisions of § 95.10-5(h) shall apply.

(4) The general requirements of § 95.10-5 (c) through (g), § 95.10-10 (d) through (i), and § 95.10-15 shall be complied with insofar as is reasonable and practicable.

**Subpart 95.13—Steam Smothering System, Details**

**§ 95.13-1 Application.**

(a) In accordance with § 95.05-10, steam smothering systems are not permitted on vessels contracted for on or after January 1, 1962, nor for new in-

stallations on vessels contracted for prior to that date.

(b) Where a steam smothering system is installed, the provisions of this subpart shall apply.

(c) This does not preclude the introduction of steam into such confined spaces as boiler casings or into tanks for steaming out purposes. Such installations are not to be considered as part of any required fire extinguishing system.

**§ 95.13-90 Installations contracted for prior to January 1, 1962.**

(a) Installations contracted for prior to July 1, 1935, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original installation.

(2) The main pipes and their branches to the cargo compartments and similar spaces shall be not less than 1½-inch pipe size and shall emanate from not more than two stations in easily accessible locations. If located on the open deck, the distribution manifolds shall be suitably protected by an enclosing cabinet or casing which shall be marked as required by § 97.37-13 of this subchapter. Each branch line shall have a valve at the manifold which shall be marked as required by § 97.37-10 of this subchapter.

(3) Branches to paint lockers and similar small spaces may be taken from the nearest steam supply line and shall be not less than ¾-inch pipe size. The valve shall be marked as required by § 97.37-10 of this subchapter.

(b) Installations contracted for on or after July 1, 1935, but prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

Minor repairs and alterations may be made to the same standard as the original installation.

(2) Steam shall be available from the main or auxiliary boilers to provide at least one pound of steam per hour for each 50 cubic feet of gross volume of the largest compartment protected. Where reasonable and practicable, the steam pressure shall be at least 100 p. s. i.

(3) The piping system shall meet the general requirements of subparagraphs (5) through (12) of paragraph (c) of this section insofar as is reasonable and practicable.

(4) The minimum size of distribution piping and the number of branches to the various spaces shall be as given in Table 95.13-90 (b) (4) or by the following formula:

$$D = \sqrt{\frac{C}{30,000}} \quad (1)$$

where:

*D* = Required diameter of pipe in inches.  
*C* = Volume of compartment in cubic feet.

TABLE 95.13-90(b)(4)

| Volume of compartment in cubic feet |          | Number of branches to compartment | Pipe size in each branch, inches |
|-------------------------------------|----------|-----------------------------------|----------------------------------|
| Over                                | Not over |                                   |                                  |
| .....                               | 30,000   | 1                                 | 1                                |
| 30,000                              | 46,000   | 1                                 | 1¼                               |
| 46,000                              | 67,000   | 1                                 | 1½                               |
| 67,000                              | 94,000   | 2                                 | 1¼                               |
| 94,000                              | 135,000  | 2                                 | 1½                               |
| 135,000                             | 203,000  | 3                                 | 1½                               |

(5) The minimum size of the steam supply line from the boiler to the distribution manifold shall be as given by the following formula:

$$D = \sqrt{\frac{C}{60,000}} \quad (2)$$

where:

*D* = Diameter of pipe in inches.  
*C* = Volume of all compartments in cubic feet.

(c) Installations contracted for on or after November 19, 1952, but prior to January 1, 1962, shall meet the following requirements:

(1) Existing arrangements, materials and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of

this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original installation.

(2) Steam shall be available from main or auxiliary boilers to provide at least 1 pound of steam per hour for each 12 cubic feet of the gross volume of the largest compartment to be protected.

(3) Although separate piping shall be led to each cargo hold and 'tween deck, for the purpose of determining the amount of steam required, a cargo compartment will be considered as the space between adjacent watertight bulkheads and from tank top or lowest deck to the deck head of the uppermost deck on which cargo may be carried. If a trunk extends beyond such deck, the trunk space shall be included. Tonnage openings shall be considered as sealed for this purpose.

(4) A steam pressure of at least 100 p.s.i. shall be available unless specifically approved otherwise.

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

(6) The distribution piping shall emanate from not more than three stations in easily accessible locations on the weather deck, and shall lead to the lower portion of each cargo hold, cargo 'tween deck, and other compartments protected. However, lines to paint lockers and similar small spaces may be taken from the nearest steam supply line.

(7) The distribution line to each compartment shall be fitted with a shutoff valve. The valve shall be marked as required by § 97.37-10 of this subchapter.

(8) The manifold steam supply line shall be fitted with a master valve at the manifold.

(9) Provisions shall be made for draining the manifold and distribution lines to prevent them from freezing.

(10) If located on the open deck, the distribution manifolds shall be suitably protected by an enclosing cabinet or casing. In any case, it shall be marked as required by § 97.37-13 of this subchapter.

(11) Piping shall not be led into or through spaces accessible to the persons

on board while the vessel is being navigated, with the exception of machinery spaces and corridors. However, in special cases, arrangements to run piping through such spaces may be specifically approved by the Commandant, provided all joints are welded, suitable expansion bends are provided, and all piping is extra heavy.

(12) Piping shall be used for no other purposes except that it may be incorporated with the fire-detecting system, if installed, and where suitable provisions are made, it may be used for steaming out tanks.

(13) The minimum size and number of branches to the various spaces shall be as given in Table 95.13-90(c)(13). The distribution piping from the manifold to the branch lines shall have an area approximately equal to the combined areas of the branch lines served.

TABLE 95.13-90 (c)(13)

| Volume of space in cubic feet |          | Number of branches to space | Pipe size of each branch, inches |
|-------------------------------|----------|-----------------------------|----------------------------------|
| Over                          | Not over |                             |                                  |
| -----                         | 500      | 1                           | ¾                                |
| 500                           | 5,000    | 1                           | 1                                |
| 5,000                         | 15,000   | 1                           | 1¼                               |
| 15,000                        | 30,000   | 1                           | 1½                               |
| 30,000                        | 60,000   | 2                           | 1½                               |
| 60,000                        | 100,000  | 3                           | 1½                               |
| 100,000                       | 190,000  | 4                           | 1½                               |

(14) The steam supply line from the boiler to any distribution manifold shall be of sufficient size to supply all the branch lines to the largest compartment and to all adjacent compartments.

**Subpart 95.15—Carbon Dioxide Extinguishing Systems, Details**

**§ 95.15-1 Application.**

(a) Where a carbon dioxide extinguishing system is installed, the provisions of this subpart, with the exception of § 95.15-90, shall apply to all installations contracted for on or after November 19, 1952. Installations contracted for prior to November 19, 1952, shall meet the requirements of § 95.15-90.

(b) 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.

§ 95.15-5 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 (e) 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) *Cargo spaces.* (1) The number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space in cubic feet divided by 30.

(2) Although separate piping shall be led to each cargo hold and 'tween deck, for the purpose of determining the amount of carbon dioxide required, a cargo compartment will be considered as the space between watertight or fire-screen bulkheads and from the tank top or lowest deck to the deck head of the uppermost space on which cargo may be carried. If a trunk extends beyond such deck, the trunk volume shall be included. Tonnage openings shall be considered as sealed for this purpose.

(3) Branch lines to the various cargo holds and 'tween decks shall not be less than ¾-inch standard pipe size.

(4) No specific discharge rate need be applied to such systems.

(d) *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 divided by 12 for systems having a volume of 2,000 cubic feet or more.

(2) The piping for the initial charge shall be in accordance with Table 95.15-5(e)(4), and the discharge of the required amount shall be completed within 2 minutes.

(3) In addition to the above there shall be sufficient carbon dioxide available to permit delayed discharges of such quantity as to maintain at least a 25 percent concentration until the equipment can be stopped. If the initial discharge is such as to achieve this concentration until the equipment is stopped, no delayed discharge need be provided.

(4) The piping for the delayed discharge shall not be less than ½-inch standard pipe, and no specific discharge rate need be applied to such systems. On small systems, this pipe may be incorporated with the initial discharge piping.

(e) *Machinery spaces, paint lockers, tanks, and similar spaces.* (1) Except as provided in subparagraph (3) of this paragraph, the number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space divided by the appropriate factor noted in Table 95.15-5(e)(1). If fuel can drain from the compartment being protected to an adjacent compartment, or if the compartments are not entirely separate, the requirements for both compartments shall be used to determine the amount of carbon dioxide to be provided. The carbon dioxide shall be arranged to discharge into both such compartments simultaneously.

TABLE 95.15-5(e)(1)

| Gross volume of compartment, cubic feet |           | Factor |
|---|-----------|--------|
| Over—                                   | Not over— |        |
| -----                                   | 500       | 15     |
| 500                                     | 1,600     | 16     |
| 1,600                                   | 4,500     | 18     |
| 4,500                                   | 50,000    | 20     |
| 50,000                                  | -----     | 22     |

(2) For the purpose of the requirements of this paragraph, the volume of the machinery space shall be taken as exclusive of the normal machinery casing unless the boiler, internal combustion machinery, or fuel oil installation extend into such space, in which case the volume shall be taken to the top of the casing or the next material reduction in casing area, whichever is lower. For installations contracted for on or after October 1, 1959, "normal machinery casing" and

“material reduction in casing area” shall be defined as follows:

(1) By “normal machinery casing” shall be meant a casing the area of which is not more than 40 percent of the maximum area of the machinery space.

(1) By “material reduction in casing area” shall be meant a reduction to at least 40 percent of the casing area.

(3) For vessels on an international voyage contracted for on or after May 26, 1965, the amount of carbon dioxide required for a space containing propulsion boilers or internal combustion propulsion machinery shall be as given by subparagraphs (1) and (2) of this paragraph or by dividing the entire volume, including the casing, by a factor of 25, whichever is the larger.

(4) Branch lines to the various spaces shall be as noted in Table 95.15-5(e) (4)

TABLE 95.15-5(e)(4)

| Maximum quantity of carbon dioxide required, pounds | Minimum pipe size, inches | Maximum quantity of carbon dioxide required, pounds | Minimum pipe size, inches |
|---|---------------------------|---|---------------------------|
| 100   | 1/8                       | 2,500   | 2 1/2                     |
| 225   | 3/8                       | 4,450   | 3                         |
| 300   | 1                         | 7,100   | 3 1/2                     |
| 600   | 1 1/4                     | 10,450  | 4                         |
| 1,000   | 1 1/2                     | 15,000  | 4 1/2                     |
| 2,450   | 2                         |   |                           |

(5) Distribution piping within the space shall be proportioned from the supply line to give proper distribution to the outlets without throttling.

(6) The number, type, and location of discharge outlets shall be such as to give a uniform distribution throughout the space.

(7) The total area of all discharge outlets shall not exceed 85 percent nor be less than 35 percent of the nominal cylinder outlet area or the area of the supply pipe, whichever is smaller. The nominal cylinder outlet area in square inches shall be determined by multiplying the factor 0.0022 by the number of pounds of carbon dioxide required, except that in no case shall this outlet area be less than 0.110 square inches.

(8) The discharge of at least 85 percent of the required amount of carbon dioxide shall be complete within 2 minutes.

(f) *Spaces specially suitable for vehicles.* (1) The number of pounds of carbon dioxide required shall be equal to the gross volume of the largest “tight” space divided by 22. In no case, however, shall the quantity be less than that required by paragraph (c) (2) of this section.

(2) The arrangement of valves and piping shall be such that the required quantity of carbon dioxide may be discharged into any “tight” space. The discharge of the required quantity of carbon dioxide shall be completed within 2 minutes.

(3) Except as noted in subparagraphs (1) and (2) of this paragraph, the requirements of paragraph (e) of this section shall apply.

[CGFR 65-50, 30 F.R. 17001, Dec. 30, 1965 as amended by CGFR 66-33, 31 F.R. 15285 Dec. 6, 1966]

§ 95.15-10 Controls.

(a) Except as noted in § 95.15-20(b) all controls and valves for the operation of the system shall be outside the space protected, and shall not be located in any space that might be cut off or made inaccessible in the event of fire in any of the spaces protected.

(b) If the same cylinders are used to protect more than one hazard, a manifold with normally closed stop valves shall be used to direct the carbon dioxide into the proper space. If cylinders are used to protect only one hazard, a normally closed stop valve shall be installed between the cylinders and the hazard except for systems of the type indicated in § 95.15-5(e) which contain not more than 300 pounds of carbon dioxide.

(c) Distribution piping to the various cargo spaces shall be controlled from not more than two stations. One of the stations controlling the system for the main machinery space shall be located as convenient as practicable to one of the main escapes from the space. All control stations and the individual valves and controls shall be marked as required by §§ 97.37-10 and 97.37-13 of this subchapter.

(d) Systems of the type indicated in § 95.15-5(e) shall be actuated by one control operating the valve to the space and a separate control releasing at least

the required amount of carbon dioxide. These two controls shall be located in a box or other enclosure clearly identified for the particular space. Those systems installed without a stop valve shall be operated by one control releasing at least the required amount of carbon dioxide.

(e) Where provisions are made for the simultaneous release of a given amount of carbon dioxide by operation of a remote control, provisions shall also be made for manual control at the cylinders. Where gas pressure from pilot cylinders is used as a means for releasing the remaining cylinders, not less than two pilot cylinders shall be used for systems consisting of more than two cylinders. Each of the pilot cylinders shall be capable of manual control at the cylinder, but the remaining cylinders need not be capable of individual manual control.

(f) Systems of the type indicated in § 95.15-5(e), other than systems for tanks, which are of more than 300 pounds of carbon dioxide, shall be fitted with an approved delayed discharge so arranged that the alarm will be sounded for at least 20 seconds before the carbon dioxide is released into the space. Such systems of not more than 300 pounds of carbon dioxide shall also have a similar delayed discharge, except for those systems for tanks and for spaces which have a suitable horizontal escape. This paragraph shall be applicable only to systems installed on or after July 1, 1957

(g) All distribution valves and controls shall be of an approved type. All controls shall be suitably protected.

(h) Complete but simple instructions for the operation of the system shall be located in a conspicuous place at or near the releasing control device.

(i) If the space or enclosure containing the carbon dioxide supply or controls is to be locked, a key to the space or enclosure shall be in a break-glass-type box conspicuously located adjacent to the opening.

#### § 95.15-15 Piping.

(a) The piping, valves, and fittings shall have a bursting pressure of not less than 6,000 pounds per square inch.

(b) All piping, in nominal sizes not over  $\frac{3}{4}$  inch shall be at least Schedule 40 (standard weight) and in nominal sizes

over  $\frac{3}{4}$  inch, shall be at least Schedule 80 (extra heavy).

(c) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(d) A pressure relief valve or equivalent set to relieve between 2,400 and 2,800 pounds per square inch shall be installed in the distributing manifold or such other location as to protect the piping in the event that all branch line shut-off valves are closed.

(e) All dead-end lines shall extend at least 2 inches beyond the last orifice and shall be closed with cap or plug.

(f) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(g) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture. Drains and dirt traps shall be located in accessible locations where possible.

(h) Piping shall be used for no other purpose except that it may be incorporated with the fire-detecting system.

(i) Piping passing through living quarters shall not be fitted with drains or other openings within such spaces.

(j) Installation test requirements are:

(1) Upon completion of the piping installation, and before the cylinders are connected, a pressure test shall be applied as set forth in this paragraph. Only carbon dioxide or other inert gas shall be used for this test.

(2) The piping from the cylinders to the stop valves in the manifold shall be subjected to a pressure of 1,000 pounds per square inch. With no additional gas being introduced to the system, it shall be demonstrated that the leakage of the system is such as not to permit a pressure drop of more than 150 pounds per square inch per minute for a 2-minute period.

(3) The individual branch lines to the various spaces protected shall be subjected to a test similar to that described in the preceding subparagraph with the exception that the pressure used shall be 600 pounds per square inch in lieu of 1,000 pounds per square inch. For the purpose of this test, the distribution piping shall be capped within the space protected at the first joint ahead of the nozzles.

(4) In lieu of the tests prescribed in subparagraphs (1) through (3) of this paragraph, small independent systems protecting spaces such as emergency generator rooms, lamp lockers, etc., may be tested by blowing out the piping with air at a pressure of at least 100 pounds per square inch.

#### § 95.15-20 Carbon dioxide storage.

(a) Except as provided in paragraph (b) of this section, the cylinders shall be located outside the spaces protected, and shall not be located in any space that might be cut off or made inaccessible in the event of a fire in any of the spaces protected.

(b) Systems of the type indicated in § 95.15-5(e), consisting of not more than 300 pounds of carbon dioxide, may have the cylinders located within the space protected. If the cylinder stowage is within the space protected, the system shall be arranged in an approved manner to be automatically operated by a heat actuator within the space in addition to the regular remote and local controls.

(c) The space containing the cylinders shall be properly ventilated and designed to preclude an anticipated ambient temperature in excess of 130 degrees F.

(d) Cylinders shall be securely fastened and supported, and where necessary, protected against injury.

(e) Cylinders shall be so mounted as to be readily accessible and capable of easy removal for recharging and inspection. Provisions shall be available for weighing the cylinders.

(f) Where subject to moisture, cylinders shall be so installed as to provide a space of at least 2 inches between the flooring and the bottom of the cylinders.

(g) Cylinders shall be mounted in an upright position or inclined not more than 30 degrees from the vertical. However, cylinders which are fitted with flexible or bent siphon tubes may be inclined not more than 80 degrees from the vertical.

(h) Where check valves are not fitted on each independent cylinder discharge, plugs or caps shall be provided for closing outlets when cylinders are removed for inspection or refilling.

(i) All cylinders used for storing carbon dioxide shall be fabricated, tested

and marked in accordance with the regulations of the Interstate Commerce Commission as noted in § 147.04-1 of Subchapter N (Dangerous Cargoes) of this chapter.

#### § 95.15-25 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

#### § 95.15-30 Alarms.

(a) Spaces which are protected by a carbon dioxide extinguishing system and are normally accessible to persons on board while the vessel is being navigated, other than paint and lamp lockers and similar small spaces, shall be fitted with an approved audible alarm in such spaces which will be automatically sounded when the carbon dioxide is admitted to the space. The alarm shall be conspicuously and centrally located and shall be marked as required by § 97.37-9 of this subchapter. For systems installed on or after July 1, 1957, alarms will be mandatory only for systems required to be fitted with a delayed discharge. Such alarms shall be so arranged as to sound during the 20 second delay period prior to the discharge of carbon dioxide into the space, and the alarm shall depend on no source of power other than the carbon dioxide.

#### § 95.15-35 Enclosure openings.

(a) Where mechanical ventilation is provided for spaces other than cargo and similar spaces which are protected by a carbon dioxide extinguishing system, provisions shall be made so that the ventilation system is automatically shut down with the operation of the system to that space.

(b) Where natural ventilation is provided for spaces protected by a carbon dioxide extinguishing system, provisions shall be made for easily and effectively closing off the ventilation.

(c) Means shall be provided for closing all other openings to the space protected from outside such space. In this respect, relatively tight doors, shutters, or dampers shall be provided for openings in the lower portion of the space. The construction shall be such that openings in the upper portion of the space can be closed off either by permanently installed means or by the use of canvas

or other material which is normally carried by the vessel.

§ 95.15-40 Pressure relief.

(a) Where necessary, relatively tight compartments such as refrigeration spaces, paint lockers, etc., shall be provided with suitable means for relieving excessive pressure accumulating within the compartment when the carbon dioxide is injected.

§ 95.15-90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 95.15-5 through 95.15-40 insofar as is reasonable and practicable, with the exception of § 95.15-5(e) (1), (2) and (4) covering spaces other than cargo spaces, which systems may be installed in accordance with subparagraphs (3) through (6) of this paragraph.

(3) In boilerrooms, the bilges shall be protected by a system discharging principally below the floor plates. Perforated pipe may be used in lieu of discharge nozzles for such systems. The number of pounds of carbon dioxide shall be equal to the gross volume of the boilerroom taken to the top of the boilers divided by 36. In the event of an elevated boiler room which drains to the machinery space, the system shall be installed in the engineroom bilge and the gross volume shall be taken to the flat on which the boilers are installed.

(4) In machinery spaces where main propulsion internal combustion machinery is installed, the number of pounds of carbon dioxide required shall be equal to the gross volume of the space taken to the under side of the deck forming the hatch opening divided by 22.

(5) In miscellaneous spaces other than cargo or main machinery spaces the number of pounds of carbon dioxide required shall be equal to the gross volume of the space divided by 22.

(6) Branch lines to the various spaces other than cargo and similar spaces shall be as noted in Table 95.15-90 (a) (6). This table is based on cylinders having discharge outlets and siphon tubes of 3/8 inch diameter.

TABLE 95.15-90(a) (6)

| Number of cylinders |          | Nominal pipe size, inches |
|---------------------|----------|---------------------------|
| Over                | Not over |                           |
| -----               | 2        | 1½—standard.              |
| 2                   | 4        | ¾—standard.               |
| 4                   | 6        | 1—extra heavy.            |
| 6                   | 12       | 1¼—extra heavy.           |
| 12                  | 16       | 1½—extra heavy.           |
| 16                  | 27       | 2—extra heavy.            |
| 27                  | 39       | 2½—extra heavy.           |
| 39                  | 60       | 3—extra heavy.            |
| 60                  | 80       | 3½—extra heavy.           |
| 80                  | 104      | 4—extra heavy.            |
| 104                 | 165      | 5—extra heavy.            |

Subpart 95.17—Foam Extinguishing Systems, Details

§ 95.17-1 Application.

(a) Where a foam extinguishing system is installed, the provisions of this subpart, with the exception of § 95.17-90, shall apply to all installations contracted for on or after November 19, 1952. Installations contracted for prior to November 19, 1952, shall meet the requirements of § 95.17-90.

§ 95.17-5 Quantity of foam required.

(a) *Area protected.* (1) For machinery and similar spaces, the system shall be so designed and arranged as to spread a blanket of foam over the entire tank top or bilge of the space protected. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(2) Where an installation is made to protect an oil fired boiler installation on a flat which is open to or can drain to the lower engineroom or other space, both the flat and the lower space shall be protected simultaneously. The flat

shall be fitted with suitable coamings on all openings other than deck drains to properly restrain the oil and foam at that level. Other installations of a similar nature will be considered in a like manner.

(3) Where a system is installed to protect a tank, it shall be so designed and arranged as to spread a blanket of foam over the entire liquid surface of the tank within the range of usual trim. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(b) *Rate of application.* (1) For spaces other than tanks, the rate of discharge to foam outlets protecting the hazard shall be at least as set forth in this subparagraph.

(1) For chemical foam systems with stored "A" and "B" solutions, a total of at least 1.6 gallons per minute of the two solutions shall be discharged for each 10 square feet of area protected.

(ii) For other types of foam systems, the water rate to the dry powder generators or air foam production equipment shall be at least 1.6 gallons per minute for each 10 square feet of area protected.

(2) For tanks, the rate of discharge to foam outlets protecting the hazard shall be as set forth in subparagraph (1) of this paragraph, except that the value of 1 gallon per minute shall be substituted in both cases for the value of 1.6 gallons per minute.

(c) *Supply of foam producing material.* (1) There shall be provided a quantity of foam producing material sufficient to operate the equipment at the discharge rate specified in paragraph (b) of this section for a period of at least 3 minutes for spaces other than tanks, and for at least 5 minutes for tanks.

(d) *Separate supply of foam agent.* A separate supply of foam agent need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(e) *Water supply for required pumps.* Where pumps are required, the water supply shall be from outside the space protected and shall in no way be dependent upon power from the space protected.

### § 95.17-10 Controls.

(a) The foam agent, its container, and all controls and valves for the operation of the system shall be of an approved type.

(b) The foam agent container and all controls and valves for the operation of the system shall be outside the space protected and shall not be located in such space as might be cut off or made inaccessible in the event of fire in any of the spaces protected. The control space shall be as convenient as practicable to one of the main escapes from the spaces protected, and shall be marked as required by § 97.37-13 of this subchapter. Where pumps are required, it shall not be necessary that they be started from the control space.

(c) Complete, but simple instructions for the operation of the system shall be located in a conspicuous place at or near the controls.

(d) The valves to the various spaces served shall be marked as required by § 97.37-10 of this subchapter.

### § 95.17-15 Piping.

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

(b) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(c) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(d) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(e) Piping shall be used for no other purpose.

### § 95.17-20 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

### § 95.17-25 Additional protection required.

(a) In order that any residual fires above the floor plates may be extinguished when a foam system is installed for the protection of spaces other than tanks, at least 2 fire hydrants, in addi-

tion to those required for the machinery space by Subpart 95.10, shall be installed outside of the machinery space entrance. Such hydrants shall be fitted with sufficient hose so that any part of the machinery space may be reached with at least 2 streams of water, and each hose shall be equipped with an approved combination nozzle, applicator, and self-cleaning strainer as described in § 95.10-10 (1) (3).

**§ 95.17-90 Installations contracted for prior to November 19, 1952.**

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 95.17-5 through 95.17-20, with the exception of § 95.17-5(a)(2), insofar as is reasonable and practicable. A 6-inch blanket of foam in 5 minutes for tanks and 3 minutes for other spaces will be considered as meeting the requirements of § 95.17-5.

**Subpart 95.50—Hand Portable Fire Extinguishers and Semiportable Fire Extinguishing Systems; Arrangements and Details**

**§ 95.50-1 Application.**

(a) The provisions of this subpart, with the exception of § 95.50-90, shall apply to all vessels, other than unmanned barges and fishing vessels, contracted for on or after November 19, 1952. Such vessels contracted for prior to November 19, 1952, shall meet the requirements of § 95.50-90.

**§ 95.50-5 Classification.**

(a) Hand portable fire extinguishers and semiportable fire extinguishing systems shall be classified by a combination letter and number symbol. The letter indicating the type of fire which the unit could be expected to extinguish, and the number indicating the relative size of the unit.

(b) The types of fire will be designated as follows:

(1) "A" for fires in ordinary combustible materials where the quenching and cooling effects of quantities of water, or solutions containing large percentages of water, are of first importance.

(2) "B" for fires in flammable liquids, greases, etc., where a blanketing effect is essential.

(3) "C" for fires in electrical equipment where the use of nonconducting extinguishing agent is of first importance.

(c) The number designations for size will start with "I" for the smallest to "V" for the largest. Sizes I and II are considered hand portable fire extinguishers and sizes III, IV, and V are considered semiportable fire extinguishing systems which shall be fitted with suitable hose and nozzle or other practicable means so that all portions of the space concerned may be covered. Examples of size graduations for some of the typical hand portable and semiportable fire extinguishing systems are set forth in Table 95.50-5 (c).

TABLE 95.50-5 (c)

| Classification |          | Soda-acid and water, gallons | Foam, gallons | Carbon dioxide, pounds | Dry chemical, pounds |
|----------------|----------|------------------------------|---------------|------------------------|----------------------|
| Type           | Size     |                              |               |                        |                      |
| A.....         | II.....  | 2½                           | 2½            | 4                      | 2                    |
| B.....         | I.....   | 1¼                           | 1¼            | 15                     | 10                   |
| B.....         | II.....  | 2½                           | 2½            | 35                     | 20                   |
| B.....         | III..... | 12                           | 12            | 50                     | 30                   |
| B.....         | IV.....  | 20                           | 20            | 100                    | 50                   |
| B.....         | V.....   | 40                           | 40            | 150                    | 75                   |
| C.....         | I.....   | —                            | —             | 4                      | 2                    |
| C.....         | II.....  | —                            | —             | 15                     | 10                   |

(d) All hand portable fire extinguishers and semiportable fire extinguishing systems shall have permanently attached thereto a metallic name plate giving the name of the item, the rated capacity in gallons, quarts, or pounds, the name and address of the person or firm for whom approved, and the identifying mark of the actual manufacturer.

(e) Vaporizing-liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other toxic vaporizing liquids shall be removed from all vessels.

**§ 95.50-10 Location.**

(a) Approved hand portable fire extinguishers and semiportable fire extin-

gushing systems shall be installed in accordance with Table 95.50-10(a). The location of the equipment shall be to the satisfaction of the Officer in Charge, Marine Inspection. Nothing in this

paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional equipment as he deems necessary for the proper protection of the vessel.

TABLE 95.50-10 (a)—HAND PORTABLE FIRE EXTINGUISHER AND SEMI-PORTABLE FIRE-EXTINGUISHING SYSTEMS

| Space   | Classification (see § 95.50-5) | Quantity and location   |
|---|--------------------------------|---|
| <i>Safety areas</i> <sup>1</sup>  |                                |   |
| Wheelhouse or fire control room.....  | .....                          | None required.  |
| Stairway and elevator enclosures.....   | .....                          | Do.   |
| Communicating corridors.....  | A-II.....                      | 1 in each main corridor not more than 150 feet apart. (May be located in stairways.)                                |
| Lifeboat embarkation and lowering stations.....   | .....                          | None required.  |
| Radio room.....   | C-I <sup>2</sup> .....         | 2 in vicinity of exit.  |
| <i>Accommodations</i>   |                                |   |
| Staterooms, toilet spaces, public spaces, offices, lockers, isolated storerooms, and pantries, open decks, etc. | .....                          | None required   |
| <i>Service spaces</i> <sup>1</sup>  |                                |   |
| Galleys.....  | B-II or C-II.....              | 1 for each 2,500 square feet or fraction thereof suitable for hazards involved.                                     |
| Paint and lamp rooms.....   | B-II.....                      | 1 outside space in vicinity of exit   |
| Accessible baggage, mail, and specie rooms, and storerooms.   | A-II.....                      | 1 for each 2,500 square feet or fraction thereof located in vicinity of exits, either inside or outside the spaces. |
| Carpenter shop and similar spaces.....  | A-II.....                      | 1 outside the space in vicinity of exit   |
| <i>Machinery spaces</i>   |                                |   |
| Coal-fired boilers: Bunker and boiler space.....  | .....                          | None required.  |
| Oil-fired boilers: Spaces containing oil-fired boilers, either main or auxiliary, or their fuel-oil units.      | B-II.....<br>B-V.....          | 2 required. <sup>3</sup><br>1 required. <sup>4</sup>  |
| Internal combustion or gas turbine propelling machinery spaces.   | B-II.....                      | 1 for each 1,000 brake horsepower, but not less than 2 nor more than 6. <sup>5</sup>                                |
| Electric propulsive motors or generators of open type   | B-III.....<br>C-II.....        | 1 required. <sup>6</sup><br>1 for each propulsion motor or generator unit.  |
| Enclosed ventilating systems for motors and generators of electric propelling machinery.                        | .....                          | None required.  |
| <i>Auxiliary spaces:</i>  |                                |   |
| Internal combustion or gas turbines.....  | B-II.....                      | 1 outside the space in vicinity of exit. <sup>7</sup>   |
| Electric emergency motors or generators.....  | C-II.....                      | 1 outside the space in vicinity of exit. <sup>8</sup>   |
| Steam.....  | .....                          | None required.  |
| Trunks to machinery spaces.....   | .....                          | Do.   |
| Fuel tanks.....   | .....                          | Do.   |
| <i>Cargo spaces</i>   |                                |   |
| Inaccessible during voyage, including trunks and cargo tanks.   | .....                          | None required.  |
| Accessible during voyage.....   | .....                          | Do.   |

<sup>1</sup> For motorboats, the total number of hand portable fire extinguishers required for safety areas, accommodation spaces, and service spaces shall be 1 B-II for motorboats of less than 50 gross tons and 2 B-II for motor boats of 50 gross tons and over. Two B-I hand portable fire extinguishers may be substituted for 1 B-II

<sup>2</sup> For vessels on an international voyage, substitute 1 C-II in vicinity of exit.

<sup>3</sup> Vessels of less than 1,000 gross tons require 1.

<sup>4</sup> Vessels of less than 1,000 gross tons may substitute 1 B-IV

<sup>5</sup> Only 1 required for motorboats.

<sup>6</sup> If oil burning donkey boiler fitted in space, the B-V previously required for the protection of the boiler may be substituted. Not required where a fixed carbon dioxide system is installed.

<sup>7</sup> Not required on vessels of less than 300 gross tons if fuel has a flashpoint higher than 110° F.

<sup>8</sup> Not required on vessels of less than 300 gross tons

(b) Semiportable fire extinguishing systems shall be located in the open so as to be readily seen.

(c) If hand portable fire extinguishers are not located in the open or behind glass so that they may be readily seen, they may be placed in enclosures to-

gether with the fire hose, provided such enclosures are marked as required by § 97.37-15 of this subchapter.

(d) Hand portable fire extinguishers and their stations shall be numbered in accordance with § 97.37-23 of this subchapter.

(e) Hand portable or semiportable extinguishers, which are required on their nameplates to be protected from freezing, shall not be located where freezing temperatures may be expected.

§ 95.50-15 Spare charges.

(a) For all vessels other than motorboats spare charges shall be carried for at least 50 percent of each size and each variety, i.e. foam, soda-acid, carbon dioxide, etc., of hand portable fire extinguisher required by § 95.50-10(a). However, if the unit is of such variety that it cannot be readily recharged by the vessel's personnel, one spare unit of the same classification shall be carried in lieu of spare charges for all such units of the same size and variety.

(b) Spare charges shall be so packaged as to minimize the hazards to personnel while recharging the units. Acid shall be contained in a Crown stopper type of bottle.

§ 95.50-90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) The provisions of §§ 95.50-5 through 95.50-15 shall be met with the exception that existing installations in safety areas and service spaces may be maintained if in the opinion of the Officer in Charge, Marine Inspection, they are in general agreement with the degree of safety prescribed by Table 95.50-10 (a). In such cases, minor modifications may be made to the same standard as the original installation: *Provided*, That in no case will a greater departure from the standards of Table 95.50-10 (a) be permitted than presently exists.

Subpart 95.60—Fire Axes

§ 95.60-1 Application.

(a) The provisions of this subpart shall apply to all vessels other than motorboats.

§ 95.60-5 Number required.

(a) All vessels except barges shall carry at least the minimum number of fire axes as set forth in Table 95.60-5(a). Nothing in this paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional fire axes as he deems necessary for the proper protection of the vessel.

TABLE 95.60-5 (a)

| Gross tons |          | Number of axes |
|------------|----------|----------------|
| Over       | Not over |                |
| -----      | 50       | 1              |
| 50         | 200      | 2              |
| 200        | 500      | 4              |
| 500        | 1,000    | 6              |
| 1,000      | -----    | 8              |

(b) Manned barges shall carry at least two fire axes.

§ 95.60-10 Location.

(a) Fire axes shall be distributed throughout the spaces available to persons on board so as to be most readily available in the event of emergency.

(b) If fire axes are not located in the open, or behind glass, so that they may be readily seen, they may be placed in enclosures together with the fire hose, provided such enclosures are marked as required by § 97.37-15 of this subchapter.

PART 96—VESSEL CONTROL AND MISCELLANEOUS SYSTEMS AND EQUIPMENT

Subpart 96.01—Application

Sec.

96.01-1 General.

Subpart 96.03—Marine Engineering Systems

96.03-1 Installation and details.

Subpart 96.05—Electrical Engineering and Interior Communications Systems

96.05-1 Installation and details.

Subpart 96.07—Anchors, Chains, and Hawsers

96.07-1 Application.

96.07-5 Ocean, coastwise, or Great Lakes service.

96.07-10 Lakes, bays, and sounds, or river service.

96.07-90 Vessels contracted for prior to November 19, 1952.

Subpart 96.13—Radiotelegraph and Radiotelephone

96.13-1 Required by Federal Communications Commission.

Subpart 96.15—Radio Direction Finder

96.15-1 When required.

Subpart 96.20—Navigation Lights and Shapes Whistles, Foghorns, Fog Bells, and Gongs

96.20-1 Vessels operating on waters governed by the International Rules of the Road.