

propelled by internal combustion engines, the quantity of carbon dioxide required may be determined approximately by the following formula:

$$W = \frac{L \times B \times D}{22} \quad (2)$$

where:

- W=the weight of CO<sub>2</sub> required in pounds.
- L=the length of machinery space in feet.
- B=breadth of the machinery space in feet.
- D=distance in feet from tank top or flat forming lower boundary to the underside of deck forming the batch opening.

(c) The whole charge of gas shall be capable of being released simultaneously by operating one valve and control. All cylinders shall be completely discharged in not more than two minutes. The arrangement of the piping shall be such as to give a general and fairly uniform distribution over the entire area protected. An alarm which shall operate automatically with the operation of the system shall be provided to give a warning in the space when the carbon dioxide is about to be released. Provision shall be made to prevent the admission of air into the lower parts of the boiler or engine room while the system is in operation.

**§ 167.45-50 Foam smothering system requirements.**

(a) When a foam-type system is fitted, its capacity shall be such as to rapidly discharge over the entire area of the bilge (tank top) of the largest boiler room a volume of foam 6 inches deep in not more than 3 minutes. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(b) The foam-type system may be of a type approved by the Navy or Coast Guard. All containers and valves by which the system is operated shall be easily accessible and so placed that control valves and containers will not readily be cut off from use by an outbreak of fire.

**§ 167.45-60 Emergency breathing apparatus and flame safety lamps.**

Each nautical-school ship must be equipped with the following devices:

(a) Two pressure-demand, open circuit, self-contained breathing apparatus,

approved by the Mine Safety and Health Administration (MSHA) and by the National Institute for Occupational Safety and Health (NIOSH) and having at a minimum a 30-minute air supply, a full face piece, and a spare charge for each. A self-contained compressed-air breathing apparatus previously approved under part 160, subpart 160.011, of this chapter may continue in use as required equipment if it was part of the vessel's equipment on November 23, 1992, and as long as it is maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

(b) One flame safety lamp approved by the Coast Guard or Navy.

[CGD 86-036, 57 FR 48326, Oct. 23, 1992, as amended by CGD 95-028, 62 FR 51217, Sept. 30, 1997]

**§ 167.45-65 Portable fire extinguishers in accommodation spaces.**

(a) All nautical school ships shall be provided with such number of good and efficient portable fire extinguishers approved by the Navy or Coast Guard as follows:

(1) Nautical school ships less than 150 feet in length shall have at least two fire extinguishers on each passenger deck.

(2) Nautical school ships 150 feet and over in length shall be provided with at least one fire extinguisher for every 150 linear feet of corridor length or fraction thereof in the spaces occupied by passengers and crew.

(3) In all public spaces fire extinguishers shall be located not more than 150 feet apart.

(b) The number of required fire extinguishers is based on the capacity of the ordinary fire extinguisher, which is about 2½ gallons, and no fire extinguisher of larger capacity shall be allowed a greater rating than that of the ordinary fire extinguisher. Fire extinguishers of approved types of less capacity are allowable when their total contents equal the required quantity.

**§ 167.45-70 Portable fire extinguishers, general requirements.**

(a) Extra charges shall be carried on board for 50 percent of each size and variety of fire extinguishers provided. If 50 percent of each size and variety of

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fire extinguishers carried gives a fractional result, extra charges shall be provided for the next largest whole number.

(1) The following is an example:

Fire extinguishers carried:	Extra charges re- quired
1 .....	1
2 .....	1
3 .....	2
4 .....	2
5 .....	3

(2) When the portable fire extinguisher 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) Recharges, particularly the acid, used in charging soda-and-acid type of fire extinguishers, shall be packed in such manner that the filling operation (i.e., in recharging the extinguisher) can be performed without subjecting the person doing the recharging to undue risk of acid burns and shall be contained in Crown stopper type of bottle.

(c) [Reserved]

(d) Fire extinguishers shall be located in such places as in the judgment of the Officer in Charge, Marine Inspection, will be most convenient and serviceable in case of emergency and so arranged that they may be easily removed from their fastenings.

(e) Every fire extinguisher provided shall be examined at each annual inspection to determine that it is still in good condition. Soda-and-acid and foam fire extinguishers shall be tested by discharging the contents, cleaning thoroughly, and then refilling. Carbon dioxide fire extinguishers shall be checked by weighing to determine contents and if found to be more than 10 percent under required contents of carbon dioxide shall be recharged. Pump tank fire extinguishers shall be tested by pumping and discharging the contents, cleaning thoroughly, and then refilling or recharging. Cartridge-operated type fire extinguishers shall be checked by examining the extinguishing agents to determine if in still good condition and by examining the pressure cartridge. If the cartridge end

is punctured, or if the cartridge is otherwise determined to have leaked or to be in an unsuitable condition, the pressure cartridge shall be rejected and a new one inserted. Stored pressure type extinguishers shall be checked by determining that the pressure gage is in the operating range, and the full charge of extinguishing agent is in the chamber. The hoses and nozzles of all fire extinguishers shall be inspected to see that they are clear and in good condition.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 54-46, 19 FR 8708, Dec. 18, 1954; CGFR 59-21, 24 FR 7196; Sept. 5, 1959; CGFR 60-17, 25 FR 2667, Mar. 30, 1960; CGFR 62-17, 27 FR 9047, Sept. 11, 1962]

**§ 167.45-75 Fire extinguishers for emergency powerplants.**

In compartments where emergency lighting and wireless units are located, two fire extinguishers approved by the Coast Guard or the Navy, of either carbon dioxide or dry chemical type, shall be permanently located at the most accessible points. In addition, two fire extinguishers of the above types, or foam type, shall be permanently located so as to be readily accessible to the emergency fuel tanks containing gasoline, benzine or naphtha.

[CGFR 58-29, 23 FR 6882, Sept. 6, 1958, as amended by CGD 95-028, 62 FR 51217, Sept. 30, 1997]

**§ 167.45-80 Fire axes.**

(a) All nautical school ships shall be provided with fire axes, as follows:

Gross tons of nautical school ships:	Number of axes
All not over 50 tons .....	1
All over 50 tons and not over 200 tons .....	2
All over 200 tons and not over 500 tons .....	4
All over 500 tons and not over 1,000 tons .....	6
All over 1,000 tons .....	8

(b) All fire axes shall be located so as to be readily found in time of need, shall not be used for general purposes, and shall be kept in good condition.