Coast Guard, DHS

§ 167.45 Steam, carbon dioxide, Halon 1301, and clean agent fire extinguishing systems.

(a) General requirements. (1) Nautical school ships shall be provided with an inert-gas fire-extinguishing system when required.

(2) All nautical school ships carrying combustible cargo in the holds, between decks, or other closed cargo compartments shall be equipped with means for extinguishing fire in such compartments by the use of any inert-gas fire-extinguishing system approved by the Coast Guard or Navy. However, in specific cases where by reason of the design, such compartments are normally accessible and considered to be part of the working or living quarters,

§ 167.43–25 Additional requirements for hybrid work vests.

(a) In addition to the other requirements in this subpart, commercial hybrid PFD’s must be—

(1) Used, stowed, and maintained in accordance with the procedures set out in the manual required for these devices by §160.077–29 of this chapter and any limitations(s) marked on them; and

(2) Of the same or similar design and have the same method of operation as each other hybrid PFD carried on board.


Subpart 167.45—Special Firefighting and Fire Prevention Requirements

§ 167.45–1 Steam, carbon dioxide, Halon 1301, and clean agent fire extinguishing systems.

(a) General requirements. (1) Nautical school ships shall be provided with an inert-gas fire-extinguishing system when required.

(2) All nautical school ships carrying combustible cargo in the holds, between decks, or other closed cargo compartments shall be equipped with means for extinguishing fire in such compartments by the use of any inert-gas fire-extinguishing system approved by the Coast Guard or Navy. However, in specific cases where by reason of the design, such compartments are normally accessible and considered to be part of the working or living quarters,
a water sprinkling system may be installed in lieu of an inert-gas fire-extinguishing system. On such vessels contracted for prior to January 1, 1962, a steam smothering system may be accepted in lieu of the inert gas system for the protection of cargo holds, paint lockers, and similar spaces. 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.

(3) Cabinets, boxes, or casings enclosing manifolds or valves must be marked in conspicuous red letters at least 2 inches high: "[STEAM/CARBON DIOXIDE/HALON/CLEAN AGENT—as appropriate] FIRE APPARATUS."

(4) Steam or gas piping fitted for extinguishing fire shall not be used for any other purpose except that it may be used for fire-detecting purposes.

(5) Pipes for conveying steam from the boilers for the purpose of extinguishing fire shall not be led into the cabins, other living spaces, or working spaces. Pipes for conveying carbon dioxide or other extinguishing vapors for the purpose of extinguishing fire shall not be led into the cabins or other living spaces.

(6) Steam smothering lines shall be tested with at least 50 pounds air pressure with ends of the smothering lines capped, or by blowing steam through the lines, and a survey made for detecting corrosion and defects, using the hammer test or such other means as may be necessary.

(7) At annual inspections, each carbon dioxide cylinder, whether fixed or portable, each Halon 1301 cylinder, and each clean agent cylinder must be examined externally and replaced if excessive corrosion is found; and:

(i) Each carbon dioxide cylinder must be weighed and recharged if its weight loss exceeds 10 percent of the charge;

(ii) Each Halon 1301 and halocarbon cylinder must be weighed and checked, and recharged or replaced if weight loss exceeds 5 percent of required weight of charge or if cylinder pressure loss exceeds 10 percent of specified gauge pressure, adjusted for temperature; and

(iii) Each inert gas cylinder must be checked and recharged or replaced if cylinder pressure loss exceeds 5 percent of specified gauge pressure adjusted for temperature.

(8) Carbon dioxide, Halon 1301, and clean agent cylinders carried on board nautical school ships must be tested and marked in accordance with the requirements of 46 CFR 147.60, 147.65, 147.66, and 147.67.

(9) On all systems test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed.

(b) Steam systems. (1) As noted in subparagraph (a)(2) of this section, steam smothering systems are not permitted on nautical school ships contracted for or after January 1, 1962, nor for new installations on vessels contracted for prior to that date. Where steam smothering systems are installed, the provisions of this paragraph shall be met.

(2) Steam for fire-extinguishing systems shall be available at a suitable pressure from the main boilers or a donkey or auxiliary boiler.

(3) The pipe lines shall be led from not more than three stations in easily accessible locations on the weather deck to each cargo hold, cargo 'tween-decks, or other closed cargo compartments, and to each cargo-oil deep tank, lamp locker, oil room, and like compartments, which lamp locker, oil room, and like compartments, shall be wholly and tightly lined with metal. The steam connections to the lamp lockers, oil rooms, and like compartments may be taken from the nearest steam supply line, independent of the extinguishing manifolds. In lamp lockers, oil rooms, and like compartments, adequate means may be provided for ventilation if suitable dampers capable of being operated from outside the spaces are fitted in each vent duct.

(4) Each pipe in the extinguishing manifolds shall be fitted with a shut-off valve plainly and permanently marked to indicate into which compartment it discharges. This requirement also applies to independent extinguishing lines.

(5) Manifold steam supply pipes shall be fitted with master valves at the manifolds, and provision shall be made
for draining the manifold and individual lines to protect them against freezing. If the manifolds are located on an open deck, they shall be enclosed in a metal box.

(6) The minimum diameter of any steam fire-extinguishing pipe to a cargo hold, cargo ‘tween-decks, other closed cargo compartments, or cargo-oil deep tank shall be one inch, the size and number of pipes to be governed by the size of the compartment. The minimum diameter of any steam fire-extinguishing pipe to a lamp locker, oil room, or like compartments, shall be three-fourths of an inch.

(c) Inert-gas systems. (1) When a carbon dioxide (CO\textsubscript{2}) smothering system is fitted in the cargo hold, cargo ‘tween-decks, or other closed cargo compartments, or cargo-oil deep tanks, the quantity of carbon dioxide shall be sufficient to give a gas saturation of 30 percent of the gross volume of the largest cargo hold. The quantity in pounds of carbon dioxide required may be determined approximately by the following formula:

\[ W = \frac{L \times B \times D}{30} \]  

where:

- \( W \): the weight of CO\textsubscript{2} required, in pounds.
- \( L \): the length of the hold, in feet.
- \( B \): the mean breadth of the hold, in feet.
- \( D \): the depth from tank top or flat forming lower boundary to top of uppermost space in which freight may be carried, in feet.

(2) When a carbon dioxide (CO\textsubscript{2}) smothering system is fitted in the lamp locker, oil room, or like compartments, the quantity in pounds of carbon dioxide required may be determined by dividing the gross volume of the space by a factor of 22. Lamp lockers, oil rooms, and like compartments, in all classes of vessels, shall be wholly and tightly lined with metal. The whole charge of gas shall be capable of being released simultaneously by operating one valve and control, and all cylinders shall be completely discharged in not more than two minutes.

(3) Pipes used for supplying carbon dioxide to the cargo holds, cargo ‘tween-decks, other closed cargo compartments, and cargo-oil deep tanks shall be not less than three-fourths inch inside diameter. Pipes used for supplying carbon dioxide to lamp lockers, oil rooms, and like compartments shall not be less than one-half inch inside diameter.

(4) The control(s) releasing the inert gas shall be located in a position(s) outside the space(s) protected and shall be readily accessible when the vessel is being navigated. All valves shall be permanently marked to indicate into which compartment they discharge. A space which is protected by a carbon dioxide extinguishing system, and is normally accessible to crew while the nautical school ship is being navigated shall be fitted with an approved audible alarm in such space, which will be automatically sounded when the carbon dioxide is admitted to the space.

(5) Provisions shall be made to prevent the admission of air into the lower parts of cargo holds, cargo ‘tween-decks, and other closed cargo compartments while the inert-gas system is in operation.

(6) Cylinders, piping, and controls for the inert-gas system shall be protected from damage and shall be securely fastened and supported.

§ 167.45–5 Steam fire pumps or their equivalent.

(a) All nautical school ships shall be equipped with fire pumps.

(b) Nautical school ships of 100 gross tons and under shall be equipped with one hand fire pump with a pump-cylinder capacity not less than 100 cubic inches, or a power-driven pump of equivalent discharge capacity.

(c) Nautical school ships over 100 gross tons shall be equipped with fire pumps and piping as follows:

1. All nautical school ships shall be provided with powerful pumps available for use as fire pumps. When of less than 1,000 gross tons it shall have 1, and when larger it shall have at least 2 independently driven pumps connected to the fire main. Each pump shall be capable of delivering two powerful jets