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satisfied that a sufficient level of safety exists.

[CGD 85–080, 61 FR 975, Jan. 10, 1996, as amended by CGD 97–057, 62 FR 51050, Sept. 30, 1997; USCG–2014–0688, 79 FR 58288, Sept. 29, 2014]

§ 180.210 Rescue boats.

(a) A vessel of more than 19.8 meters (65 feet) in length must carry at least one rescue boat unless the cognizant OCMI determines that:

(1) The vessel is sufficiently maneuverable, arranged, and equipped to allow the crew to recover a helpless person from the water;

(2) Recovery of a helpless person can be observed from the operating station; and

(3) The vessel does not regularly engage in operations that restrict its maneuverability.

(b) A vessel of not more than 19.8 meters (65 feet) in length is not required to carry a rescue boat unless:

(1) The vessel carries passengers on an open or partially enclosed deck; and

(2) The cognizant OCMI determines that the vessel is designed, arranged, or involved in operations so that the vessel itself cannot serve as an adequate rescue craft.

(c) In general, a rescue boat must be a small, lightweight boat with built-in buoyancy and capable of being readily launched and easily maneuvered. In addition, it must be of adequate proportion to permit taking an unconscious person on board without capsizing.

(d) On a vessel of more than 19.8 meters (65 feet) in length operating on protected waters, a rescue boat approved under approval series 160.056 is acceptable in meeting the intent of this section. On a vessel of more than 19.8 meters operating on exposed or partially protected waters, a rescue boat approved under approval series 160.156 is acceptable in meeting the intent of this section. On a vessel of not more than 19.8 meters (65 feet) in length, a required rescue boat must be acceptable to the cognizant OCMI.

[CGD 85–080, 61 FR 975, Jan. 10, 1996, as amended at 62 FR 51357, Sept. 30, 1997; 62 FR 64306, Dec. 5, 1997]

PART 181—FIRE PROTECTION EQUIPMENT

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AUTHORITY: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; DHS Delegation 00170.1, Revision No. 01.4.

SOURCE: CGD 85–080, 61 FR 982, Jan. 10, 1996, unless otherwise noted.

Subpart A—General Provisions

§ 181.115 Applicability; preemptive effect.

(a) Except as otherwise required by paragraphs (b) and (c) of this section, an existing vessel must comply with the fire protection equipment regulations applicable to the vessel on March 10, 1996, or, as an alternative, the vessel may comply with the regulations in this part.

(b) An existing vessel with a hull, or a machinery space boundary bulkhead

or deck, composed of wood or fiber reinforced plastic, or sheathed on the interior in fiber reinforced plastic, must comply with the requirements of §181.400 of this part on or before March 11, 1999.

(c) New installations of fire protection equipment on an existing vessel, which are completed to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI) on or after March 11, 1996, must comply with the regulations of this part. Replacement of existing equipment installed on the vessel prior to March 11, 1996, need not comply with the regulations in this part.

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

[CGD 85–080, 61 FR 982, Jan. 10, 1996, as amended by USCG–2006–24797, 77 FR 33891, June 7, 2011]

§181.120 Equipment installed but not required.

(a) Fire extinguishing equipment installed on a vessel in excess of the requirements of §§181.400 and 181.500 must be designed, constructed, installed, and maintained in accordance with a recognized industry standard acceptable to the Commandant (CG–ENG–4).

(b) Use of non-approved fire detection systems may be acceptable as excess equipment provided that—

(1) Components are listed by an independent, nationally recognized testing laboratory as set forth in 29 CFR 1910.7, and are designed, installed, tested, and maintained in accordance with an appropriate industry standard and the manufacturer's specific guidance;

(2) Installation conforms to the requirements of 46 CFR chapter I, subchapter J (Electrical Engineering), especially the hazardous location electrical installation regulations in 46 CFR 111.105; and

(3) Coast Guard plan review is completed for wiring plans.

[USCG–2012–0196, 81 FR 48299, July 22, 2016]

Subpart B [Reserved]

Subpart C—Fire Main System

§181.300 Fire pumps.

(a) A self priming, power driven fire pump must be installed on each vessel:

(i) Of not more than 19.8 meters (65 feet) in length which is a ferry vessel;

(ii) Of not more than 19.8 meters (65 feet) in length that carries more than 49 passengers; or

(iii) Of more than 19.8 meters (65 feet) in length.

(b) On a vessel of not more than 19.8 meters (65 feet) in length carrying more than 49 passengers, and on a vessel of more than 19.8 meters (65 feet) in length, the minimum capacity of the fire pump must be 189 liters (50 gallons) per minute at a pressure of not less than 414 kPa (60 psi) at the pump outlet. The pump outlet must be fitted with a pressure gauge.

(c) On a ferry vessel of not more than 19.8 meters (65 feet) in length carrying not more than 49 passengers, the minimum capacity of the fire pump must be 38 liters (10 gallons) per minute. The fire pump must be capable of projecting a hose stream from the highest hydrant, through the hose and nozzle required by §181.320 of this part, a distance of 7.6 meters (25 feet).

(d) A fire pump may be driven by a propulsion engine. A fire pump must be permanently connected to the fire main and may be connected to the bilge system to meet the requirements of §182.520 of this chapter.

(e) A fire pump must be capable of both remote operation from the operating station and local operations at the pump.

[CGD 85–080, 61 FR 982, Jan. 10, 1996, as amended at 62 FR 51358, Sept. 30, 1997]

§181.310 Fire main and hydrants.

(a) A vessel that has a power driven fire pump must have a sufficient number of fire hydrants to reach any part of the vessel using a single length of firehose.

(b) Piping, valves, and fittings in a fire main system must comply with subpart G, part 182, of this chapter.

(c) Each fire hydrant must have a valve installed to allow the firehose to be removed while the fire main is under pressure.

(d) Spanner wrenches must be provided where a 40 millimeter (1.5 inch) diameter firehose is required by §181.320(b). Existing vessels as of July 22, 2016 have 180 days to comply with this requirement.

[CGD 85–080, 61 FR 982, Jan. 10, 1996, as amended at 62 FR 51358, Sept. 30, 1997; USCG–2012–0196, 81 FR 48299, July 22, 2016]

§181.320 Fire hoses and nozzles.

(a) A fire hose with a nozzle must be attached to each fire hydrant at all times. For fire hydrants located on open decks or cargo decks, where no protection is provided, hoses may be temporarily removed during heavy weather or cargo handling operations, respectively. Hoses so removed must be stored in nearby accessible locations.

(b) On a vessel of not more than 19.8 meters (65 feet) in length carrying more than 49 passengers, and on a vessel of more than 19.8 meters (65 feet) in length, each hose must:

(1) Be lined commercial fire hose that conforms to UL 19 (incorporated by reference, see 46 CFR 175.600) or hose that is listed and labeled by an independent laboratory recognized by the Commandant as being equivalent in performance;

(2) Be 15.25 meters (50 feet) in length and 40 millimeters (1.5 inches) in diameter; and

(3) Have fittings of brass or other suitable corrosion-resistant material that comply with NFPA 1963 (incorporated by reference, see 46 CFR 175.600) or other standard specified by the Commandant.

(c) Each fire hose on a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 49 passengers must:

(1) Comply with paragraphs (b)(1) and (b)(3) of this section or be garden type hose of not less than 16 millimeters (0.625 inches) nominal inside diameter;

(2) Be of one piece not less than 7.6 meters (25 feet) and not more than 15.25 meters (50 feet) in length; and

(3) If of the garden type, be of a good commercial grade constructed of an inner rubber tube, plies of braided fabric reinforcement, and an outer cover of rubber or equivalent material, and of sufficient strength to withstand the maximum pressure that can be produced by the fire pump. All fittings on the hose must be of suitable corrosion-resistant material.

(d) Each nozzle must be of corrosion-resistant material and be capable of being changed between a solid stream and a spray pattern. A nozzle on a vessel of not more than 19.8 meters (65 feet) in length carrying more than 49 passengers, and on a vessel of more than 19.8 meters (65 feet) in length, must:

(1) Be of a type approved in accordance with approval series 162.027; or

(2) Be of a type recognized by the Commandant as being equivalent in performance.

[CGD 85–080, 61 FR 982, Jan. 10, 1996; 61 FR 20557, May 7, 1996; 61 FR 24464, May 15, 1996, as amended at 62 FR 51358, Sept. 30, 1997; USCG–2003–16630, 73 FR 65206, Oct. 31, 2008]

Subpart D—Fixed Fire Extinguishing and Detection Systems

§181.400 Spaces required to have fixed fire extinguishing systems.

(a) The following spaces must be equipped with a fixed gas fire extinguishing system, in compliance with §181.410, or other fixed fire extinguishing system specifically approved by the Commandant, except as otherwise allowed by paragraph (b) of this section:

(1) A space containing propulsion machinery;

(2) A space containing an internal combustion engine of more than 37.3 kW (50 hp);

(3) A space containing an oil fired boiler;

(4) A space containing machinery powered by gasoline or other fuels having a flash point of 43.3 °C (110 °F) or lower;

(5) A space containing a fuel tank for gasoline or any other fuel having a flash point of 43.3 °C (110 °F) or lower;

(6) A space containing combustible cargo or ship's stores inaccessible during the voyage (in these types of spaces only carbon dioxide, and not Halon, systems will be allowed);

(7) A paint locker; and

(8) A storeroom containing flammable liquids (including liquors of 80

proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater).

(b) Alternative system types and exceptions to the requirements of paragraph (a) of this section are:

(1) A fixed gas fire extinguishing system, which is capable of automatic discharge upon heat detection, may only be installed in a normally unoccupied space with a gross volume of not more than 170 cubic meters (6,000 cubic feet);

(2) A pre-engineered fixed gas fire extinguishing system must be in compliance with §181.420 of this part and may only be installed in a normally unoccupied machinery space, a paint locker, or a storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater), with a gross volume of not more than 57 cubic meters (2,000 cubic feet);

(3) A 40-B portable fire extinguisher installed outside the space may be substituted for a fixed gas fire extinguishing system in a storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater) or a paint locker, with a volume of not more that 5.7 cubic meters (200 cubic feet);

(4) A space which is so open to the atmosphere that a fixed gas fire extinguishing system would be ineffective, as determined by the cognizant OCMI, is not required to have a fixed gas fire extinguishing system; and

(5) Where the amount of carbon dioxide gas required in a fixed fire extinguishing system can be supplied by one portable extinguisher or a semi-portable extinguisher, such an extinguisher may be used subject to the following:

(i) The cylinder must be installed in a fixed position outside the space protected;

(ii) The applicator must be installed in a fixed position so as to discharge into the space protected; and

(iii) Controls must be installed in an accessible location outside the space protected.

[CGD 85–080, 61 FR 982, Jan. 10, 1996, as amended at 62 FR 51358, Sept. 30, 1997; USCG–1999–6216, 64 FR 53228, Oct. 1, 1999; USCG–2012–0196, 81 FR 48299, July 22, 2016]

§ 181.405 Spaces required to have fire detection systems.

(a) The following spaces must be equipped with a fire detection and alarm system of an approved type installed in accordance with 46 CFR part 76, except when a fixed-gas fire extinguishing system that is capable of automatic discharge upon heat detection is installed or when the space is manned:

(1) A space containing propulsion machinery.

(2) A space containing an internal combustion engine of more than 50 hp.

(3) A space containing an oil-fired boiler.

(4) A space containing machinery powered by gasoline or any other fuels having a flash point of 43.3 °C (110 °F) or lower.

(5) A space containing a fuel tank for gasoline or any other fuel having a flash point of 43.3 °C (110 °F) or lower.

(b) All griddles, broilers, and deep fat fryers must be fitted with a grease extraction hood in compliance with §181.425.

(c) Vessels described by 46 CFR 175.110(c) must have an interconnected fire detection system in compliance with §181.450 installed in all enclosed areas where passengers and crew have routine access, including accommodation spaces and machinery spaces.

(d) An enclosed vehicle space must be fitted with an automatic sprinkler system that meets the requirements of 46 CFR part 76 and a fire detection and alarm system of an approved type that is installed in accordance with 46 CFR part 76.

(e) A partially enclosed vehicle space must be fitted with a manual sprinkler system that meets the requirements of 46 CFR part 76.

[USCG–2012–0196, 81 FR 48300, July 22, 2016; as amended by USCG–2021–0306, 86 FR 73172, Dec. 27, 2021]

§ 181.410 Fixed gas fire extinguishing systems.

(a) *General.* (1) A fixed gas fire extinguishing system aboard a vessel must be approved by the Commandant, and be custom engineered to meet the requirements of this section unless the system meets the requirements of § 181.420.

(2) System components must be listed and labeled by an independent laboratory. A component from a different system, even if from the same manufacturer, must not be used unless included in the approval of the installed system.

(3) System design and installation must be in accordance with the Marine Design, Installation, Operation, and Maintenance Manual approved for the system by the Commandant.

(4) A fixed gas fire extinguishing system may protect more than one space. The quantity of extinguishing agent must be at least sufficient for the space requiring the greatest quantity as determined by the requirements of paragraphs (f)(4) and (g)(2) of this section.

(b) *Controls.* (1) Controls and valves for operation of fixed gas fire extinguishing system must be:

(i) Located outside the space protected by the system; and

(ii) Not located in a space that might be inaccessible in the event of fire in the space protected by the system.

(2) Except for a normally unoccupied space of less than 170 cubic meters (6000 cubic feet), release of an extinguishing agent into a space must require two distinct operations.

(3) A system must have local manual controls at the storage cylinders capable of releasing the extinguishing agent. In addition, a normally manned space must have remote controls for releasing the extinguishing agent at the primary exit from the space.

(4) Remote controls must be located in a breakglass enclosure to preclude accidental discharge.

(5) Valves and controls must be of an approved type and protected from damage or accidental activation. A pull cable used to activate the system controls must be enclosed in conduit.

(6) A system protecting more than one space must have a manifold with a normally closed stop valve for each space protected.

(7) A gas actuated valve or device must be capable of manual override at the valve or device.

(8) A system, that has more than one storage cylinder for the extinguishing agent and that relies on pilot cylinders to activate the primary storage cylinders, must have at least two pilot cylinders. Local manual controls, in compliance with paragraph (b)(3) of this section, must be provided to operate the pilot cylinders but are not required for the primary storage cylinders.

(9) A system protecting a manned space must be fitted with an approved time delay and alarm arranged to require the alarm to sound for at least 20 seconds or the time necessary to escape from the space, whichever is greater, before the agent is released into the space. Alarms must be conspicuously and centrally located. The alarm must be powered by the extinguishing agent.

(10) A device must be provided to automatically shut down power ventilation serving the protected space and engines that draw intake air from the protected space prior to release of the extinguishing agent into the space.

(11) Controls and storage cylinders must not be in a locked space unless the key is in a breakglass type box conspicuously located adjacent to the space.

(c) *Storage space.* (1) Except as provided in paragraph (c)(2) of this section, a storage cylinder for a fixed gas extinguishing system must be:

(i) Located outside the space protected by the system; and

(ii) Not located in a space that might be inaccessible in the event of a fire in the space protected by the system.

(2) A normally unoccupied space of less than 170 cubic meters (6,000 cubic feet) may have the storage cylinders located within the space protected. When the storage cylinders are located in the space:

(i) The system must be capable of automatic operation by a heat actuator within the space; and

(ii) Have manual controls in compliance with paragraph (b) of this section except for paragraph (b)(3).

(3) A space containing a storage cylinder must be maintained at a temperature within the range from −30 °C (−20 °F) to 55 °C (130 °F) or at another temperature as listed by the independent laboratory and stated in the manufacturer's approved manual.

(4) A storage cylinder must be securely fastened, supported, and protected against damage.

(5) A storage cylinder must be accessible and capable of easy removal for recharging and inspection. Provisions must be available for weighing each storage cylinder in place.

(6) Where subject to moisture, a storage cylinder must be installed to provide a space of at least 51 millimeters (2 inches) between the deck and the bottom of the storage cylinder.

(7) A Halon 1301 storage cylinder must be stowed in an upright position unless otherwise listed by the independent laboratory. A carbon dioxide cylinder may not be inclined more than 30° from the vertical unless fitted with flexible or bent siphon tubes, in which case it may be inclined not more than 80° from the vertical. Cylinders for clean agent systems must be installed in an upright position unless otherwise specified in the system's instruction manual.

(8) Where a check valve is not fitted on an independent storage cylinder discharge, a plug or cap must be provided for closing the outlet resulting from storage cylinder removal.

(9) Each storage cylinder must meet the requirements of §147.60 in subchapter N of this chapter, or other standard specified by the Commandant.

(10) A storage cylinder space must have doors that open outwards or be fitted with kickout panels installed in each door.

(d) *Piping.* (1) A pipe, valve, or fitting of ferrous material must be protected inside and outside against corrosion unless otherwise approved by the Commandant. Aluminum or other low melting material must not be used for a component of a fixed gas fire extinguishing system except as specifically approved by the Commandant.

(2) A distribution line must extend at least 51 millimeters (2 inches) beyond the last orifice and be closed with a cap or plug.

(3) Piping, valves, and fittings must be securely supported, and where necessary, protected against damage.

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

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

(6) Piping passing through accommodation spaces must not be fitted with drains or other openings within such spaces.

(7) Installation test requirements for carbon dioxide systems. The distribution piping of a carbon dioxide fixed gas extinguishing system must be tested as required by this paragraph, upon completion of the piping installation, using only carbon dioxide, compressed air, or nitrogen gas.

(i) Piping between a storage cylinder and a stop valve in the manifold must be subjected to a pressure of 6,894 kPa (1,000 psi), except as permitted in paragraph (d)(7)(iii) of this section. Without additional gas being introduced to the system, the pressure drop must not exceed 2,068 kPa (300 psi) after two minutes.

(ii) A distribution line to a space protected by the system must be subjected to a test similar to that described in paragraph (d)(7)(i) of this section except the pressure used must be 4,136 kPa (600 psi). For the purpose of this test, the distribution piping must be capped within the space protected at the first joint between the nozzles and the storage cylinders.

(iii) A small independent system protecting a space such as a paint locker may be tested by blowing out the piping with air at a pressure of not less than 689 kPa (100 psi) instead of the tests prescribed in the paragraphs (d)(7)(i) and (d)(7)(ii) of this section.

(8) Installation test requirements for Halon 1301 systems. The distribution piping of a Halon 1301 fixed gas extinguishing system must be tested, as required by this paragraph, upon completion of the piping installation, using only carbon dioxide, compressed air, or nitrogen.

(i) When pressurizing the piping, pressure must be increased in small increments. Each joint must be subjected

to a soap bubble leak test, and all joints must be leak free.

(ii) Piping between the storage cylinders and the manifold stop valve must be subjected to a leak test conducted at a pressure of 4,136 kPa (600 psi). Without additional gas being added to the system, there must be no loss of pressure over a two minute period after thermal equilibrium is reached.

(iii) Distribution piping between the manifold stop valve and the first nozzle in the system must be capped and pneumatically tested for a period of 10 minutes at 1,034 kPa (150 psi). At the end of 10 minutes, the pressure drop must not exceed 10% of the test pressure.

(e) *Pressure relief.* When required by the cognizant OCMI, spaces that are protected by a fixed gas fire extinguishing system and that are relatively air tight, such as refrigeration spaces, paint lockers, etc., must be provided with suitable means for relieving excessive pressure within the space when the agent is released.

(f) *Specific requirements for carbon dioxide systems.* A custom engineered fixed gas fire extinguishing system, which uses carbon dioxide as the extinguishing agent, must meet the requirements of this paragraph.

(1) Piping, valves, and fittings must have a bursting pressure of not less than 41,360 kPa (6,000 psi). Piping, in nominal sizes of not more than 19 millimeters (0.75 inches), must be at least Schedule 40 (standard weight), and in nominal sizes of over 19 millimeters (0.75 inches), must be at least Schedule 80 (extra heavy).

(2) A pressure relief valve or equivalent set to relieve at between 16,550 and 19,300 kPa (2,400 and 2,800 psi) must be installed in the distribution manifold to protect the piping from over-pressurization.

(3) Nozzles must be approved by the Commandant.

(4) When installed in a machinery space, paint locker, a space containing flammable liquid stores, or a space with a fuel tank, a fixed carbon dioxide system must meet the following requirements.

(i) The quantity of carbon dioxide in kilograms (pounds) that the system must be capable of providing to a space must not be less than the gross volume of the space divided by the appropriate factor given in Table 181.410(f)(4)(i). If fuel can drain from a space being protected to an adjacent space or if the spaces are not entirely separate, the volume of both spaces must be used to determine the quantity of carbon dioxide to be provided. The carbon dioxide must be arranged to discharge into both such spaces simultaneously.

TABLE 181.410(f)(4)(i)

Factor	Gross volume of space in cubic meters (feet)	
	Over	Not Over
0.94 (15)	.....	14 (500)
1.0 (16)	14 (500)	45 (1,600)
1.1 (18)	45 (1,600)	125 (4,500)
1.2 (20)	125 (4,500)	1400 (50,000)
1.4 (22)	1400 (50,000)	.....

(ii) The minimum size of a branch line to a space must be as noted in Table 181.410(f)(4)(ii).

TABLE 181.410(f)(4)(ii)

Maximum quantity of carbon dioxide required kg (lbs)	Minimum nominal pipe size mm (inches)
45.4 (100)	12.7 (0.5)
102 (225)	19 (0.75)
136 (300)	25 (1.0)
272 (600)	30 (1.25)
454 (1000)	40 (1.5)
1111 (2450)	50 (2.0)
1134 (2,500)	65 (2.5)
2018 (4,450)	75 (3.0)
3220 (7,100)	90 (3.5)
4739 (10,450)	100 (4.0)
6802 (15,000)	113 (4.5)

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

(iv) The number, type, and location of discharge outlets must provide uniform distribution of carbon dioxide throughout a space.

(v) The total area of all discharge outlets must 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 millimeters (inches) is determined by multiplying the factor 0.015 (0.0022 if

using square inches) by the total capacity in kilograms (pounds) of all carbon dioxide cylinders in the system, except in no case must the outlet area be of less than 71 square millimeters (0.110 square inches if using pounds).

(vi) The discharge of at least 85 percent of the required amount of carbon dioxide must be completed within two minutes.

(5) When installed in an enclosed ventilation system for rotating electrical propulsion equipment a fixed carbon dioxide extinguishing system must meet the following requirements.

(i) The quantity of carbon dioxide in kilograms (pounds) must be sufficient for initial and delayed discharges as required by this paragraph. The initial discharge must be equal to the gross volume of the system in cubic meters divided by 0.624 (10 if using pounds) for ventilation systems having a volume of less than 57 cubic meters (2,000 cubic feet), or divided by 0.749 (12 if using pounds) for ventilation systems having a volume of at least 57 cubic meters (2,000 cubic feet). In addition, there must be sufficient carbon dioxide available to permit delayed discharges to maintain at least a 25 percent concentration until the equipment can be stopped. If the initial discharge achieves this concentration, a delayed discharge is not required.

(ii) The piping sizes for the initial discharge must be in accordance with Table 181.410(f)(4)(ii) and the discharge of the required amount must be completed within two minutes.

(iii) Piping for the delayed discharge must not be less than 12.7 millimeters (0.5 inches) nominal pipe size, and need not meet specific requirement for discharge rate.

(iv) Piping for the delayed discharge may be incorporated with the initial discharge piping.

(6) When installed in a cargo space a fixed carbon dioxide extinguishing system must meet the following requirements.

(i) The number of kilograms (pounds) of carbon dioxide required for each space in cubic meters (feet) must be equal to the gross volume of the space in cubic meters (feet) divided by 1.88 (30 if using pounds).

(ii) System piping must be of at least 19 millimeters (0.75 inches).

(iii) No specific discharge rate is required.

(7) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after [July 9, 2013. ''Altered'' means modified or refurbished beyond the maintenance required by the manufacturer's design, installation, operation and maintenance manual.

(i) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(ii) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(iii) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(iv) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(v) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

(8) Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. ''Altered'' means modified or refurbished beyond the maintenance required by the manufacturer's design, installation, operation and maintenance manual.

(g) *Specific requirements for Halon 1301 systems.* (1) A custom engineering fixed gas fire extinguishing system, which uses Halon 1301, must comply with the

applicable sections of UL 1058 (incorporated by reference, see 46 CFR 175.600) and the requirements of this paragraph (g).

(2) The Halon 1301 quantity and discharge requirements of UL 1058 apply, with the exception that the Halon 1301 design concentration must be 6 percent at the lowest ambient temperature expected in the space. If the lowest temperature is not known, a temperature of −18 °C (0 °F) must be assumed.

(3) Each storage cylinder in a system must have the same pressure and volume.

(4) Computer programs used in designing systems must have been approved by an independent laboratory.

NOTE TO §181.410(g): As of Jan. 1, 1994, the United States banned the production of Halon. The Environmental Protection Agency placed significant restrictions on the servicing and maintenance of systems containing Halon. Vessels operating on an international voyage, subject to SOLAS requirements, are prohibited from installing fixed gas fire extinguishing systems containing Halon.

[CGD 85–080, 61 FR 982, Jan. 10, 1996; 61 FR 20557, May 7, 1996, as amended at 62 FR 51358, Sept. 30, 1997; USCG–2000–7790, 65 FR 58465, Sept. 29, 2000; USCG–2003–16630, 73 FR 65206, Oct. 31, 2008; USCG–2006–24797, 77 FR 33891, June 7, 2012; USCG–2012–0196, 81 FR 48300, July 22, 2016]

§ 181.420 Pre-engineered fixed gas fire extinguishing systems.

(a) A pre-engineered fixed gas fire extinguishing system must:

(1) Be approved by the Commandant;

(2) Be capable of manual actuation from outside the space in addition to automatic actuation by a heat detector;

(3) Automatically shut down all power ventilation systems and all engines that draw intake air from within the protected space; and

(4) Be installed in accordance with the manufacturer's instructions.

(b) A vessel on which a pre-engineered fixed gas fire extinguishing system is installed must have the following equipment at the operating station:

(1) A light to indicate discharge;

(2) An audible alarm that sounds upon discharge; and

(3) A means to reset devices used to automatically shut down ventilation systems and engines as required by paragraph (a)(3) of this section.

(c) Only one pre-engineered fixed gas fire extinguishing system is allowed to be installed in each space protected by such a system.

§ 181.425 Galley hood fire extinguishing systems.

(a) A grease extraction hood required by 46 CFR 181.400 must meet UL 710 (incorporated by reference, see 46 CFR 175.600) or other standard specified by the Commandant.

(b) A grease extraction hood must be equipped with a dry or wet chemical fire extinguishing system meeting the applicable sections of NFPA 17 or NFPA 17A (both incorporated by reference, see 46 CFR 175.600), or other standard specified by the Commandant, and must be listed by an independent laboratory recognized by the Commandant.

[USCG–2003–16630, 73 FR 65206, Oct. 31, 2008]

§ 181.450 Interconnected detection and alarm system.

(a) An interconnected detection and alarm system must:

(1) Consist of multiple-station smoke detectors listed by an NRTL, or independent laboratory accepted by the Commandant according to 46 CFR subpart 159.010, as meeting UL 217 (incorporated by reference, see 46 CFR 175.600);

(2) Be installed such that the actuation of alarm in one area results in both audible and visual alarms in all areas required by 46 CFR 181.405(c) or 118.400(d) to be protected by the interconnected detection and alarm system;

(3) Contain an independent power source; and

(4) Alarm on low power.

(b) A fire detection and alarm system of an approved type installed in accordance with 46 CFR part 76 would satisfy the requirements of this section.

[USCG–2021–0306, 86 FR 73172, Dec. 27, 2021]

Subpart E—Portable Fire Extinguishers

§ 181.500 Required number, type, and location.

(a) Each portable fire extinguisher on a vessel must be of an approved type. The minimum number of portable fire extinguishers required on a vessel must be acceptable to the cognizant Officer in Charge, Marine Inspection, but must not be fewer than the minimum number required by table 1 to §181.500(b) and other provisions of this section.

(b) Table 1 to §181.500(b) indicates the minimum required classification for each space listed. Extinguishers with larger numerical ratings or multiple letter designations may be used if the extinguishers meet the requirements of the table.

TABLE 1 TO §181.500(b)—REQUIRED PORTABLE FIRE EXTINGUISHERS

Space	Portable fire extinguishers	
	Minimum required rating	Quantity and location
Operating Station	10–B:C	1.
Machinery Space	40–B:C	1 in the vicinity of the exit.
Open Vehicle Deck	40–B	1 for every 10 vehicles.
Accommodation Space	2–A	1 each for each 2,500 square feet (232.3 square meters) or fraction thereof.
Galley	40–B:C	1.
Pantry, concession stand	2–A	1 in the vicinity of the exit.

(c) A vehicle deck without a fixed sprinkler system and exposed to weather must have one 40–B portable fire extinguisher for every five vehicles, located near an entrance to the space.

(d) The frame or support of each semi-portable fire extinguisher permitted by paragraph (a) of this section must be welded or otherwise permanently attached to a bulkhead or deck.

[USCG–2012–0196, 81 FR 48300, July 22, 2016, as amended by USCG–2020–0519, 89 FR 76707, Sept. 18, 2024]

§ 181.520 Installation and location.

Portable fire extinguishers must be located so that they are clearly visible and readily accessible from the space being protected. The installation and location must be to the satisfaction of the Officer in Charge, Marine Inspection.

Subpart F—Additional Equipment

§ 181.600 Fire axe.

A vessel of more than 19.8 meters (65 feet) in length must have at least one fire axe located in or adjacent to the primary operating station.

§ 181.610 Fire bucket.

A vessel not required to have a power driven fire pump by §181.300 must have at least three 9.5 liter (2½ gallon) buckets, with an attached lanyard satisfactory to the cognizant OCMI, placed so as to be easily available during an emergency. The words ''FIRE BUCKET'' must be stenciled in a contrasting color on each bucket.

[CGD 85–080, 61 FR 982, Jan. 10, 1996, as amended at 62 FR 51358, Sept. 30, 1997]

PART 182—MACHINERY INSTALLATION

Subpart A—General Provisions

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182.100 Intent.
182.115 Applicability; preemptive effect.
182.130 Alternative standards.

Subpart B—Propulsion Machinery

182.200 General.
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Subpart C—Auxiliary Machinery

182.310 Installations.
182.320 Water heaters.
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