

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 fire hose.

(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 fire hose to be removed while the fire main is under pressure.

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

§ 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 Underwriters Laboratory (UL) 19 "Lined Fire Hose and Hose Assemblies," 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 National Fire Protection Association (NFPA) 1963 "Standard for Fire Hose Connections," 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]

Subpart D—Fixed Fire Extinguishing and Detecting Systems

§ 181.400 Where required.

(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:

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(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 B-II 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 than 5.7 cubic meters (200 cubic feet);

(4) A space which is so open to the atmosphere that a fixed gas fire extin-

guishing 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 semiportable extinguisher, such an extinguisher may be used subject to the following:

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

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

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

(c) The following spaces must be equipped with a fire detecting system of an approved type that is installed in accordance with §76.27 in subchapter H of this chapter, 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; and

(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.

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

(e) Each overnight accommodation space on a vessel with overnight accommodations for passengers must be fitted with an independent modular smoke detecting and alarm unit in compliance with §181.450.

(f) An enclosed vehicle space must be fitted with an automatic sprinkler system that meets the requirements of §76.25 in subchapter H of this chapter; and

(1) A fire detecting system of an approved type that is installed in accordance with §76.27 in subchapter H of this chapter; or

(2) A smoke detecting system of an approved type that is installed in accordance with §76.33 in subchapter H of this chapter.

(g) A partially enclosed vehicle space must be fitted with a manual sprinkler system that meets the requirements of §76.23 in subchapter H of this chapter.

[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]

§ 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 capa-

ble 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