

used by the Coast Guard to determine whether or not to withdraw, revoke or suspend the Cargo Ship Safety Construction Certificate.

[CGFR 65-50, 30 FR 16662, Dec. 30, 1965, as amended by CGD 90-008, 55 FR 30660, July 26, 1990; CGD 96-041, 61 FR 50726, Sept. 27, 1996; USCG-2000-7790, 65 FR 58459, Sept. 29, 2000]

## **PART 32—SPECIAL EQUIPMENT, MACHINERY, AND HULL REQUIREMENTS**

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**Subpart 32.90—Pilot Boarding Equipment**

- 32.90-1 Pilot boarding equipment.

AUTHORITY: 46 U.S.C. 2103, 3306, 3703, 3719; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46; Subpart 32.59 also issued under the authority of Sec. 4109, Pub. L. 101-380, 104 Stat. 515.

SOURCE: CGFR 65-50, 30 FR 16671, Dec. 30, 1965, unless otherwise noted.

**Subpart 32.01—General**

**§ 32.01-1 Incorporation by reference.**

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish notice of change in the FEDERAL REGISTER and make the material available to the public. All approved material is on file at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC and at the U.S. Coast Guard, Office of Design and Engineering Standards (G-MSE), 2100 Second Street SW., Washington, DC 20593-0001 and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this part and the sections affected are:

*American Bureau of Shipping (ABS)*

ABS Plaza, 16855 Northchase Drive, Houston, TX 77060

Rules for Building and Classing Steel Vessels, 1989.....32.15-15; 32.60-10; 32.65-40

*American Society for Testing and Materials (ASTM)*

100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 4986-98, Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials.....32.57-10

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ASTM F 1273-91 (1997), Standard Specification for Tank Vent Flame Arresters.....32.20-10

[CGD88-032, 56 FR 35820, July 29, 1991, as amended by CGD 95-072, 60 FR 50461, Sept. 29, 1995; CGD 96-041, 61 FR 50727, Sept. 27, 1996; CGD 97-057, 62 FR 51043, Sept. 30, 1997; USCG-1999-5151, 64 FR 67177, Dec. 1, 1999; USCG-2000-7790, 65 FR 58459, Sept. 29, 2000]

**Subpart 32.02—Safety Requirements**

**§ 32.02-1 Means of escape—T/ALL.**

On all tankships where the plans and arrangements will possibly permit, all passageways leading to living quarters, or places where anyone may be regularly employed, shall be provided with not less than two avenues of escape so located that if one of such avenues is not available another may be. The locality and arrangement of such additional means of escape shall be determined by the inspectors as will in their judgment best carry out the purpose for which this provision was made.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965. Redesignated by CGD 88-032, 56 FR 35820, July 29, 1991]

**§ 32.02-5 Communication between deckhouses—TB/OCLB.**

On all tank vessels where the distance between deckhouses is more than 46 meters (150 feet), a fixed means of facilitating communication between both ends of the vessel, such as a raised fore and aft bridge or side tunnels, must be provided. Previously approved arrangements may be retained so long as they are maintained in satisfactory condition to the satisfaction of the Officer in Charge, Marine Inspection.

[CGD 95-027, 61 FR 25997, May 23, 1996]

**§ 32.02-10 Rails—TB/ALL.**

(a) All tank vessels, except unmanned tank barges, contracted for on or after July 1, 1969, shall have efficient guard rails or bulwarks on decks and bridges. The height of rails or bulwarks shall be at least 39½ inches from the deck except that where this height would interfere with the normal operation of the vessel, a lesser height may be approved by the Commandant. At exposed peripheries of the freeboard

and superstructure decks the rails shall be in at least three courses including the top. The opening below the lowest course shall not be more than 9 inches. The courses shall not be more than 15 inches apart. In the case of ships with rounded gunwales, the guard rail supports shall be placed on the flat of the deck. On other decks and bridges the rails shall be in at least two courses, including the top, approximately evenly spaced. All rails shall consist of solid or tubular sections or chains or wire rope or a combination thereof.

(b) Where it can be shown to the satisfaction of the Commandant that a vessel is engaged exclusively on voyages of a sheltered nature, the provisions of paragraph (a) of this section may be relaxed.

(c) Tank vessels contracted for prior to July 1, 1969, except unmanned tank barges, assigned a deeper load line under part 42 of subchapter E (Load Lines) of this chapter shall have efficient guard rails or bulwarks as required by paragraph (a) of this section. Otherwise, existing rails and bulwarks previously approved will be considered satisfactory so long as they are maintained in good condition. Minor repairs and alterations may be made to the same standards as the original construction.

(d) All tank vessels in ocean and coastwise service, except unmanned tank barges, constructed on or after June 15, 1987, must have suitable storm rails installed in all passageways and at the deckhouse sides on weather decks where persons on board might have normal access. Storm rails must be installed on both sides of passageways which are six feet or more in width. Tank vessels to which this paragraph applies constructed prior to June 15, 1987, may retain previously accepted or approved installations so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

[CGFR 69-72, 34 FR 17481, Oct. 29, 1969, as amended by CGD 84-073; 52 FR 18362, May 15, 1987; 52 FR 22751, June 15, 1987. Redesignated by CGD 88-032, 56 FR 35820, July 29, 1991]

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### § 32.02-15 Guards at dangerous places—TB/ALL.

All exposed and dangerous places such as gears and machinery shall be properly protected with covers, guards or rails in order that the danger of accidents may be minimized. On vessels equipped with radio communication, the lead-ins shall be efficiently incased or insulated to insure against accidental shock. Such lead-ins shall be located so as not to interfere with the launching of lifeboats and life rafts.

[CGFR 65-50, 30 FR 16671, Dec 30, 1965. Redesignated by CGD 88-032, 56 FR 35820, July 29, 1991]

## Subpart 32.05—Markings

### § 32.05-1 Draft marks and draft indicating systems—TB/ALL.

(a) All vessels must have draft marks plainly and legibly visible upon the stem and upon the sternpost or rudderpost or at any place at the stern of the vessel as may be necessary for easy observance. The bottom of each mark must indicate the draft.

(b) The draft must be taken from the bottom of the keel to the surface of the water at the location of the marks.

(c) In cases where the keel does not extend forward or aft to the location of the draft marks, due to raked stem or cutaway skeg, the datum line from which the drafts shall be taken, shall be obtained by projecting the line of the bottom of the keel forward or aft, as the case may be, to the location of the draft marks.

(d) In cases where a vessel may have a skeg or other appendage extending locally below the line of the keel, the draft at the end of the vessel adjacent to such appendage shall be measured to a line tangent to the lowest part of such appendage and parallel to the line of the bottom of the keel.

(e) Draft marks must be separated so that the projections of the marks onto a vertical plane are of uniform height equal to the vertical spacing between consecutive marks.

(f) Draft marks must be painted in contrasting color to the hull.

(g) In cases where draft marks are obscured due to operational constraints or by protrusions, the vessel must be

fitted with a reliable draft indicating system from which the bow and stern drafts can be determined.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGD 89-037, 57 FR 41821, Sept. 11, 1992]

### § 32.05-5 Vessel's name on equipment—TB/ALL.

The equipment of all tank vessels, such as fire hose, fire axes, lifeboats, life rafts, life preservers, and lifeboats, shall be painted or branded with the name of the vessel upon which they are used.

### § 32.05-10 Name of tankship—T/ALL.

Every tankship shall have the name marked upon each bow and upon the stern, and the home port shall also be marked upon the stern. The name shall be in a light color on a dark ground, or in a dark color on a light ground, and shall be distinctly visible. The smallest letters used shall be not less than 4 inches in size. In addition, every tankship shall have her name conspicuously displayed in distinct plain letters, of not less than 6 inches in size, on each outer side of the pilothouse.

[CGFR 65-50, 30 FR 16657, Dec. 30, 1965, as amended by CGFR 72-104R, 37 FR 14233, July 18, 1972]

### § 32.05-15 Name of tank barge—B/ALL.

Every tank barge shall have its name or number carved, punch-marked, or welded on the main beam, inside the cargo hatch, or other suitable permanent part of the vessel's structure for the purpose of identification. The vessel's name or number shall be so displayed at the highest part of the vessel's hull or permanent structure that the name or number can be seen from either side.

[CGFR 65-50, 30 FR 16657, Dec. 30, 1965, as amended by CGFR 72-104R, 37 FR 14233, July 18, 1972]

## Subpart 32.15—Navigation Equipment

### § 32.15-5 Whistles—T/ALL.

(a) [Reserved]

(b) On tankships contracted for on and after November 19, 1955 means shall be provided to operate the whistle

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from a position adjacent to the main steering station and from the steering station on top of the pilothouse where such steering station is fitted. Details of the whistle operating devices shall meet the requirements of subchapter J (Electrical Engineering) of this chapter.

NOTE: Appendix A in 33 CFR subchapter D contains the International Regulations for Preventing Collisions at Sea, 1972.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGD 74-125A, 47 FR 15230, Apr. 8, 1982; CGD 82-036, 48 FR 654, Jan. 6, 1983]

**§ 32.15-10 Sounding machines—T/OCL.**

All mechanically propelled vessels in ocean or coastwise service of 500 gross

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tons and over, and all mechanically propelled vessels in of 500 gross tons and over and certificated for service on the River St. Lawrence eastward of the lower exit of the St. Lambert Lock at Montreal, Canada, must be fitted with an efficient electronic deep-sea sounding apparatus.

[CGD 95-027, 61 FR 25997, May 23, 1996]

**§ 32.15-15 Anchors, Chains, and Hawsers—TB/ALL**

(a) *Application.* Use the following table to determine which provisions of this section apply to you:

If you own . . .	And . . .	Then . . .
(1) A tankship or a manned seagoing barge.	It was constructed before June 15, 1987,	It must meet the requirements of paragraphs (d) and (f).
(2) A tankship or a manned seagoing barge.	It was constructed on or after June 15, 1987,	It must meet all the requirements of this section except paragraphs (d) and (e).
(3) An unmanned barge equipped with anchors.		It must meet the requirements of paragraphs (e) and (f).

(b) *Ocean, Coastwise, or Great Lakes Service.* Tankships in ocean, coastwise, or Great Lakes service and manned seagoing barges must be fitted with anchors, chains and hawsers in general agreement with the standards established by the American Bureau of Shipping. The current standards of other recognized classification societies may also be accepted upon approval by the Commandant.

(c) *Lakes, Bays, and Sounds, or River Service.* Tankships in lakes, bays, and sounds, or river service must be fitted with such ground tackle and hawsers as deemed necessary by the Officer in Charge, Marine Inspection, depending upon the size of the tankship and the waters on which it operates.

(d) *Tankships and Barges Constructed Before June 15, 1987.* For each tankship or manned seagoing barge constructed before June 15, 1987, except a barge specified in paragraph (e) of this section, the equipment previously accepted or approved is satisfactory for the same service so long as it is maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection (OCMI). If the service of the

vessel changes, the OCMI will evaluate the suitability of the equipment.

(e) *Barges Equipped with Anchors to Comply with 33 CFR 155.230(b)(1).* Each barge equipped with an anchor, to comply with 33 CFR 155.230(b)(1), must be fitted with an operable anchoring system that includes a cable or chain, and a winch or windlass. All components of the system must be in general conformity with the standards issued by a recognized classification society. A list of recognized classification societies, including information for ordering copies of approved standards, is available from Commandant (G-MSE), 2100 Second Street SW., Washington, DC 20593-0001; telephone (202) 267-6925 or fax (202) 267-4816. If the Coast Guard finds that your anchoring system is not in general conformity with an approved standard, it will advise you how to bring it into such conformity.

(f) *Operation and Performance.* Each anchor, exposed length of chain or cable, and hawser must be visually inspected before the barge begins each voyage. The anchor must be stowed so that it is ready for immediate use in an emergency. The barge must have a

working means for releasing the anchor that can be operated safely by one or two persons.

rocompass is illuminated and is at the main steering stand.

[CGD 74-074, 42 FR 5963, Jan. 31, 1977]

[CGD 84-073, 52 FR 18362, May 15, 1987; 52 FR 22751, June 15, 1987, as amended by USCG 1998-4443, 63 FR 71764, Dec. 30, 1998; USCG 1998-4443, 65 FR 31813, May 19, 2000]

**Subpart 32.16—Navigation Bridge Visibility**

EFFECTIVE DATE NOTE: By USCG 1998-4443, 63 FR 71764, Dec. 30, 1998, §32.15-15 was amended by adding paragraph (e), effective Dec. 11, 2000. By USCG 1998-4443, 65 31813, May 19, 2000, §32.15-15 was further amended by revising paragraph (e), effective Dec. 11, 2000. For the convenience of the user, paragraph (e) published Dec. 30, 1998, is set forth as follows:

**§ 32.16-1 Navigation bridge visibility-T/ALL.**

Each tankship which is 100 meters (328 feet) or more in length and contracted for on or after September 7, 1990, must meet the following requirements:

**§ 32.15-15 Anchors, Chains, and Hawsers-TB/ALL.**

\* \* \* \* \*

(e) *Barges Equipped with Anchors to Comply with 33 CFR 155.230(b)(1).* Each barge equipped with an anchor, to comply with 33 CFR 155.230(b)(1), must be fitted with an operable anchoring system that includes a cable or chain, and a winch or windlass. All components of the system must be in substantial agreement with the standards issued by the American Bureau of Shipping (ABS). The current standards of other recognized classification societies are acceptable if they are approved by the Commandant (G-MSE).

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**§ 32.15-30 Radar—T/OC.**

All tankships of 1,600 gross tons and over in ocean or coastwise service must be fitted with a marine radar system for surface navigation. Facilities for plotting radar readings must be provided on the bridge.

[CGD 74-074, 42 FR 5963, Jan. 31, 1977]

**§ 32.15-35 Magnetic Compass and Gyrocompass—T/OC.**

- (a) All tankships in ocean or coastwise service must be fitted with a magnetic compass.
- (b) All tankships of 1,600 gross tons and over in ocean or coastwise service must be fitted with a gyrocompass in addition to the magnetic compass.
- (c) Each tankship must have an illuminated repeater for the gyrocompass required under paragraph (b) that is at the main steering stand unless the gy-

(a) The field of vision from the navigation bridge, whether the vessel is in a laden or unladen condition, must be such that:

(1) From the conning position, the view of the sea surface is not obscured forward of the bow by more than the lesser of two ship lengths or 500 meters (1,640 feet) from dead ahead to 10 degrees on either side of the vessel. Within this arc of visibility any blind sector caused by cargo, cargo gear, or other permanent obstruction must not exceed 5 degrees.

(2) From the conning position, the horizontal field of vision extends over an arc from at least 22.5 degrees abaft the beam on one side of the vessel, through dead ahead, to at least 22.5 degrees abaft the beam on the other side of the vessel. Blind sectors forward of the beam caused by cargo, cargo gear, or other permanent obstruction must not exceed 10 degrees each, nor total more than 20 degrees, including any blind sector within the arc of visibility described in paragraph (a)(1) of this section.

(3) From each bridge wing, the field of vision extends over an arc from at least 45 degrees on the opposite bow, through dead ahead, to at least dead astern.

(4) From the main steering position, the field of vision extends over an arc from dead ahead to at least 60 degrees on either side of the vessel.

(5) From each bridge wing, the respective side of the vessel is visible forward and aft.

(b) Windows fitted on the navigation bridge must be arranged so that:

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(1) Framing between windows is kept to a minimum and is not installed immediately in front of any work station.

(2) Front windows are inclined from the vertical plane, top out, at an angle of not less than 10 degrees and not more than 25 degrees;

(3) The height of the lower edge of the front windows is limited to prevent any obstruction of the forward view previously described in this section; and

(4) The height of the upper edge of the front windows allows a forward view of the horizon at the conning position, for a person with a height of eye of 1.8 meters (71 inches), when the vessel is at a forward pitch angle of 20 degrees.

(c) Polarized or tinted windows must not be fitted.

[CGD 85-099, 55 FR 32247, Aug. 8, 1990]

**Subpart 32.20—Equipment Installations**

**§ 32.20-1 Equipment installations on vessels during World War II—TB/ALL.**

Boilers, pressure vessels, machinery, piping, electrical and other installations, including lifesaving, firefighting and other safety equipment, installed on vessels during the Unlimited National Emergency declared by the President on May 27, 1941, and prior to the termination of title V of the Second War Powers Act, as extended (sec. 501, 56 Stat. 180, 50 U.S.C. 635), which do not fully meet the detailed requirements of the regulations in this chapter, may be continued in service if found to be satisfactory by the Commandant for the purpose intended. In each instance prior to final action by the Commandant, the Officer in Charge, Marine Inspection, shall notify Headquarters of the facts in the case, together with recommendations relative to suitability for retention.

**§ 32.20-5 Pressure vacuum relief valves—TB/ALL.**

The pressure vacuum relief valve shall be of a type and size approved by the Commandant for the purpose intended. For specifications and procedures re approval, see subpart 162.017 of

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subchapter Q (Specifications) of this chapter.

**§ 32.20-10 Flame arresters—TB/ALL.**

Flame arresters must be of a type and size suitable for the purpose intended and meet ASTM F 1273 (incorporated by reference, see § 32.01-1).

[CGD 88-032, 56 FR 35821, July 29, 1991, as amended by USCG-2000-7790, 65 FR 58459, Sept. 29, 2000]

**§ 32.20-20 Liquid level gaging—T/ALL.**

On tankships, the construction or conversion of which is started on or after July 1, 1951, a method for determining the level of the liquid in a cargo tank without opening ullage holes, cargo hatches, or Butterworth plates, shall be provided on all tankships certificated for the carriage of Grade A liquids: *Provided*, That ullage holes fitted with sounding pipes tightly secured to the underside of the tank tops, open at the bottom, and extending to within 18 inches or less of the bottom of the tank shall be considered as complying with the foregoing requirement.

**Subpart 32.22T—Tank Level or Pressure Monitoring Devices**

SOURCE: CGD 90-071, 62 FR 14830, Mar. 28, 1997, unless otherwise noted.

**§ 32.22T-1 Scope and applicability.**

(a) *Effective period.* This subpart is effective for 2 years from April 28, 1997.

(b) *Applicability.* The standards set forth in this subpart apply to tank level or pressure monitoring devices developed for use on single-hull tank vessels over 5,000 gross tons carrying oil in bulk as cargo.

(c) *Scope.* This subpart sets performance standards for tank level or pressure monitoring devices. If a device meeting these standards is developed during the effective period of this subpart, the Coast Guard will address installation requirements separately. During the effective period of this subpart no owner or operator is required to install any tank level or pressure

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monitoring device meeting the performance standards of this subpart unless required by the Coast Guard in a separate regulation.

### § 32.22T-5 Performance standards for tank level or pressure monitoring devices.

(a) A tank level or pressure monitoring device shall determine the level of the liquid in a cargo tank without opening ullage holes, cargo hatches, or butterworth plates.

(b) A tank level or pressure monitoring device shall meet the following standards:

(1) Automatically compensate for changes in cargo volume due to temperature.

(2) Meet the requirements in § 111.105 of this chapter when used in hazardous locations.

(3) Indicate any loss of power or failure of the tank level or pressure monitoring device and monitor the condition of the alarm circuitry and sensor by an electronic self-testing feature.

(4) Alarm before cargo in the cargo tank declines to a level of 0.5 percent below the quantity to which it was loaded, or 1,000 gallons of cargo, whichever is less.

(5) Operate without degradation in heavy seas, moisture, and varying weather conditions.

(6) Not alarm when loading or off loading cargo.

(7) Have audible and visible alarm indicators that can be seen and heard on the navigation bridge of the vessel, or towing vessel for non-self-propelled vessels, which are distinctly identifiable as cargo tank level or pressure monitoring alarms.

### Subpart 32.25—General Alarm Systems

#### § 32.25-1 General alarm systems for tankships and manned tank barges.

A general alarm system must be installed on tankships and manned tank barges which meets the requirements in subchapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74-125A, 47 FR 15230, Apr. 8, 1982]

### Subpart 32.30—Sound Powered Telephone, Voice Tube, and Engine Order Telegraph Systems

#### § 32.30-1 Voice tubes or telephone equipment—T/ALL.

Each tankships must have communication equipment which meets the requirements in subchapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74-125A, 47 FR 15230, Apr. 8, 1982]

#### § 32.30-5 Engine order telegraph equipment—T/ALL.

Each tankship must have an engine order telegraph system which meets the requirements in subchapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74-125A, 47 FR 15230, Apr. 8, 1982]

### Subpart 32.35—Main and Auxiliary Machinery

#### § 32.35-1 Boilers and machinery—TB/ALL.

Boilers, main and auxiliary machinery, and piping systems shall conform to the requirements of subchapter F (Marine Engineering) of this chapter, except as otherwise provided for in this subchapter.

#### § 32.35-5 Installation of internal combustion engines—TB/ALL.

Each internal combustion engine located on the weather deck shall be provided with a ventilated metal hood or, where space permits, with a well-ventilated metal housing of sufficient size to allow for proper operation and maintenance.

#### § 32.35-10 Steering apparatus on tank vessels—TB/ALL.

Tank vessels shall be provided with steering apparatus as required by part 58 of subchapter F (Marine Engineering) of this chapter.

[CGFR 68-82, 33 FR 18805, Dec. 18, 1968]

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**§ 32.35-15 Installation of air compressors on tank vessels contracted for on or after June 15, 1977—TB/ALL.**

No tank vessel, except an oil pollution clean-up vessel, that carries petroleum products grades A thru D contracted for on or after June 15, 1977 may have an air compressor on an air compressor intake installed in any of the following cargo areas:

- (a) A cargo handling room.
- (b) An enclosed space containing cargo piping.
- (c) A space in which cargo hose is stowed.
- (d) A space adjacent to a cargo tank or cargo tank hold.
- (e) A space within three meters of any of the following:
  - (1) A cargo tank opening.
  - (2) An outlet for cargo gas or vapor.
  - (3) A cargo pipe flange.
  - (4) A cargo valve.
  - (5) An entrance or ventilation opening to a cargo handling room.
- (f) Except for tank barges, the cargo deck space. For the purpose of this paragraph, *cargo deck space* means the volume bounded by the open deck over the cargo tank block, including all ballast tanks within the cargo tank block, extending to the full width of the vessel, plus three meters (about 10 feet) fore and aft of the cargo tank block and up to a height of 2.4 meters (about 8 feet) above the deck.
- (g) An enclosed space having an opening into a location described in paragraphs (a)-(f) of this section.
- (h) A location similar to those described in paragraphs (a)-(g) of this section in which cargo vapors or gases may be present.

[CGD 75-017, 42 FR 25735, May 19, 1977, as amended by CGD 75-017, 42 FR 45677, Sept. 12, 1977]

**Subpart 32.40—Accommodations for Officers and Crew**

SOURCE: CGD 95-027, 61 FR 25997, May 23, 1996, unless otherwise noted.

**§ 32.40-1 Application—TB/ALL.**

(a) The provisions of this subpart, except § 32.40-60 and § 32.40-65, apply to all tankships of 100 gross tons and over constructed on or after June 15, 1987.

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(b) Tankships of less than 100 gross tons and manned tank barges must meet the requirements of § 32.40-60.

(c) Tankships of 100 gross tons and over constructed prior to June 15, 1987, must meet the requirements of § 32.40-65.

**§ 32.40-5 Intent—T/ALL.**

The accommodations provided for officers and crew on all vessels must be securely constructed, properly lighted, heated, drained, ventilated, equipped, located, arranged and insulated from undue noise, heat and odors.

**§ 32.40-10 Location of crew spaces—T/ALL.**

(a) Crew quarters must not be located farther forward in the vessel than a vertical plane located at 5 percent of the vessel's length abaft the forward side of the stem at the designed summer load water line. However, for vessels in other than ocean or coastwise service, this distance need not exceed 8.5 meters (28 feet). For the purposes of this paragraph, the vessel's length must be as defined in § 43.15-1 of subchapter E (Load Lines) of this chapter. Unless approved by the Commandant, no section of the deck head of the crew spaces may be below the deepest load line.

(b) There must be no direct communication, except through solid, close fitted doors or hatches between crew spaces and chain lockers, or machinery spaces.

**§ 32.40-15 Construction—T/ALL.**

All crew spaces are to be constructed and arranged in a manner suitable to the purpose for which they are intended and so that they can be kept in a clean, workable and sanitary condition.

**§ 32.40-20 Sleeping accommodations—T/ALL.**

(a) Where practicable, each licensed officer shall be provided with a separate stateroom.

(b) Sleeping accommodations for the crew must be divided into rooms, no one of which may berth more than 4 persons.

(c) Each room must be of such size that there is at least 2.78 square meters

(30 square feet) of deck area and a volume of at least 5.8 cubic meters (210 cubic feet) for each person accommodated. The clear head room must not be less than 190 centimeters (75 inches). In measuring sleeping accommodations any furnishings contained therein for the use of the occupants are not to be deducted from the total volume or from the deck area.

(d) Each person shall have a separate berth and not more than one berth may be placed above another. The berth must be composed of materials not likely to corrode. The overall size of a berth must not be less than 68 centimeters (27 inches) wide by 190 centimeters (75 inches) long, except by special permission of the Commandant. Where two tiers of berths are fitted, the bottom of the lower berth must not be less than 30 centimeters (12 inches) above the deck. The berths must not be obstructed by pipes, ventilating ducts, or other installations.

(e) A locker must be provided for each person accommodated in a room.

**§ 32.40-25 Washrooms and toilet rooms—T/ALL.**

(a) At least 1 toilet, 1 washbasin, and 1 shower or bathtub must be provided for each 8 members or portion thereof in the crew who do not occupy sleeping accommodations to which private or semi-private facilities are attached.

(b) The toilet rooms and washrooms must be located convenient to the sleeping quarters of the crew to which they are allotted but must not open directly into such quarters except when they are provided as private or semi-private facilities.

(c) All washbasins, showers, and bathtubs must be equipped with adequate plumbing, including hot and cold running water. All toilets must be installed with adequate plumbing for flushing.

(d) At least 1 washbasin must be fitted in each toilet room, except where private or semi-private facilities are provided and washbasins are installed in the sleeping rooms.

(e) Where more than 1 toilet is located in a space or compartment, each toilet must be separated by partitions.

**§ 32.40-30 Messrooms—T/ALL.**

(a) Messrooms must be located as near to the galley as is practicable except where the messroom is equipped with a steam table.

(b) Each messroom must seat the number of persons expected to eat in the messroom at one time.

**§ 32.40-35 Hospital space—T/ALL.**

(a) Each vessel which in the ordinary course of its trade makes voyages of more than 3 days duration between ports and which carries a crew of 12 or more, must be provided with a hospital space. This space must be situated with due regard to the comfort of the sick so that they may receive proper attention in all weathers.

(b) The hospital must be suitably separated from other spaces and must be used for the care of the sick and for no other purpose.

(c) The hospital must be fitted with berths in the ratio of 1 berth to every 12 members of the crew or portion thereof who are not berthed in single occupancy rooms, but the number of berths need not exceed 6.

(d) The hospital must have a toilet, washbasin, and bathtub or shower conveniently situated. Other necessary suitable equipment such as a clothes locker, a table, and a seat must be provided.

**§ 32.40-40 Other spaces—T/ALL.**

Each vessel must have—

(a) Sufficient facilities where the crew may wash and dry their own clothes, including at least 1 sink supplied with hot and cold fresh water;

(b) Recreation spaces; and

(c) A space or spaces of adequate size available on an open deck to which the crew has access when off duty.

**§ 32.40-45 Lighting—T/ALL.**

Each berth must have a light.

**§ 32.40-50 Heating and cooling—T/ALL.**

(a) All manned spaces must be adequately heated and cooled in a manner suitable to the purpose of the space.

(b) The heating and cooling system for accommodations must be capable of maintaining a temperature of 21 °C (70

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°F) under normal operating conditions without curtailing ventilation.

(c) Radiators and other heating apparatus must be so placed and shielded, where necessary, to avoid risk of fire, danger or discomfort to the occupants. Pipes leading to radiators or heating apparatus must be insulated where those pipes create a hazard to persons occupying the space.

**§ 32.40-55 Insect screens—T/ALL.**

Provisions shall be made to protect the crew quarters against the admission of insects.

**§ 32.40-60 Crew accommodations on tankships of less than 100 gross tons and manned tank barges—TB/ALL.**

(a) The crew accommodations on all tankships of less than 100 gross tons and all manned tank barges must have sufficient size and equipment, and be adequately constructed to provide for the protection of the crew in manner practicable for the size, facilities, and service of the tank vessel.

(b) The crew accommodations must be consistent with the principles underlying the requirements for crew accommodations of tankships of 100 gross tons or more.

**§ 32.40-65 Crew accommodations on tankships constructed before June 15, 1987—T/ALL.**

All tankships of 100 gross tons and over constructed before June 15, 1987, may retain previously accepted or approved installations and arrangements so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

**Subpart 32.45—Electrical Installations**

**§ 32.45-1 Installation and details.**

The installation of all electrical engineering or interior communications systems, together with the details of design, construction, and installation, must meet the requirements of subchapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74-125A, 47 FR 15230, Apr. 8, 1982]

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**Subpart 32.50—Pumps, Piping, and Hose for Cargo Handling**

**§ 32.50-1 Cargo pumps for tank vessels constructed on or after November 10, 1936—TB/ALL.**

On all tank vessels, the construction or conversion of which is started on or after November 10, 1936, the cargo pumps shall be designed and installed to minimize the danger of sparking. Special care shall be exercised in the design of packing spaces in order to secure ample depth and accessibility of glands. Where cargo pump shafts pierce gastight bulkheads, stuffing boxes with readily accessible gastight glands shall be provided.

**§ 32.50-3 Cargo discharge—TB/ALL.**

(a) Pumps or other acceptable means shall be used to discharge cargo from gravity type cargo tanks vented at gauge pressures of 4 pounds per square inch or less.

(b) The use of compressed air as the primary means of discharging cargo from such tanks is prohibited.

**§ 32.50-5 Cargo pump gauges on tank vessels constructed on or after November 10, 1936—TB/ALL.**

(a) [Reserved]

(b) A pressure gage shall be installed for each pump discharge, and it shall be located at a point visible with respect to the pump controls.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGD 73-254, 40 FR 40163, Sept. 2, 1975]

**§ 32.50-10 Cargo pumps on tank vessels with independent cargo tanks which were constructed prior to November 10, 1936—TB/ALL.**

(a) Cargo pumps on tank vessels, the construction or conversion of which was started prior to November 10, 1936, may be located in a hold space containing independent cargo tanks or on deck. If the pump driving unit is of the type permitted in cargo pumprooms, it also may be located in the hold space. If other types of driving units are used, they shall be located on deck or in an engine compartment. If the pump drive shaft passes through decks or bulkheads into a hold space or pumproom,

it shall be provided with suitable stuffing boxes at such points.

**§32.50-15 Cargo piping on tank vessels constructed on or after July 1, 1951—TB/ALL.**

(a) On all tank vessels, the construction or conversion of which is started on or after July 1, 1951, the cargo piping shall be:

(1) A fixed cargo piping system shall be installed on a tank vessel carrying Grade A, B, or C cargo. The piping shall be arranged so as to avoid excessive stresses at the joints. For sizes exceeding 2 inches in diameter, flanged, welded, or other approved types of joints shall be employed. Packing material shall be suitable for the cargo carried. Connections at bulkheads shall be made so that the plating does not form part of a flanged joint. Piping may be carried through bunker spaces and deep tanks provided it is run through a pipe tunnel. The tunnel may be omitted where the pipe is extra heavy, all joints are welded, and bends are installed to provide for expansion and contraction.

(2) Tank vessels carrying only Grades D and E cargo may use a portable piping system in lieu of a fixed piping system meeting the requirements of paragraph (a)(1) of this section, provided:

(i) The hose complies with 33 CFR 154.500 or the portable piping complies with part 56 of this chapter;

(ii) The connections comply with 33 CFR 156.130;

(iii) A shutoff valve is at or near the point of entry into the tank;

(iv) Except for the carriage of animal fats and vegetable oils, the system has a closure which forms a vapor-tight seal on the tank opening through which the cargo is transferred, is bolted or dogged in place, and has the hose and drop line connected to it; and

(v) Except for the carriage of animal fats and vegetable oils, the system has a metallic drop line which complies with 46 CFR 153.282.

(3) Cargo piping shall not pass through spaces containing machinery where sources of vapor ignition are normally present: *Provided*, That, in special cases the Commandant may permit the piping to pass through such

spaces if Grade E liquids only are involved.

(b) Valve operating rods in cargo tanks shall be solid, except that tank barges having plug cocks inside the cargo tanks may have operating rods of extra heavy pipe with the annular space between the lubricant tube and the pipe wall sealed with a nonsoluble material to prevent penetration of the cargo. Valve operating rods shall be of ample size, well guided and supported, and attached to the valve stems in a manner so as to prevent the operating rods from working loose. Where the operating rods pass through a deck, gas-tight stuffing boxes shall be fitted. The leads of operating rods shall be as direct as possible. Valves shall be of suitable design for the intended service.

(c) All cargo loading and discharge hose connections shall be fitted with valves or blind flanges.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGD 80-009, 48 FR 36458, Aug. 11, 1983]

**§32.50-20 Cargo piping for tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.**

(a) On tank vessels, the construction or conversion of which is started on or after November 10, 1936, and prior to July 1, 1951, the piping shall be arranged so as to avoid excessive stresses at the joints. For sizes exceeding 2 inches in diameter, flanged, welded, or other approved types of joints shall be employed. Packing material shall be suitable for the cargo carried. Connections at bulkheads shall be made so that the plating does not form part of a flanged joint. Piping may be carried through bunker spaces and deep tanks provided it is run through a pipe tunnel. The tunnel may be omitted where the pipe is extra heavy, all joints are welded, and bends are installed to provide for expansion and contraction.

(b) Cargo piping shall not pass through spaces containing machinery where sources of vapor ignition are normally present: *Provided*, That in special cases the Commandant may permit the piping to pass through such spaces if Grade E liquids only are involved.

(c) Valve operating rods in the cargo tanks shall be solid and of ample size,

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well guided and supported, and attached to the valve stems in a manner to guard against their working loose. Where such valve rods pass through the deck, gas tight stuffing boxes shall be fitted. The leads of valve rods shall be as direct as possible. All valves and fittings shall be of material, design, and manufacture for the intended service on the cargo system; either rising or nonrising stem valves may be used.

**§ 32.50-25 Cargo pumps and piping on tank vessels constructed prior to November 10, 1936—TB/ALL.**

On tank vessels, the construction or conversion of which was started prior to November 10, 1936, cargo pumps and piping which do not fully comply with the regulations in this subchapter shall be made as nearly equal to the requirements for tank vessels constructed between November 10, 1936, and July 1, 1951, as is necessary in the interest of safety. Cargo pipe lines may pass through cargo pump engine compartments provided no cargo valves are located therein.

**§ 32.50-30 Cargo hose—TB/ALL.**

Cargo hose carried on tank vessels must be suitable for oil service and designed to withstand the pressure of the shutoff head of the cargo pump or pump relief valve setting, less static head, but in no case less than 150 pounds per square inch.

NOTE: For additional requirements concerning cargo hose, see 33 CFR 154.500, 155.800 and 156.170.

[CGD 80-009, 48 FR 36458, Aug. 11, 1983]

**§ 32.50-35 Remote manual shutdown for internal combustion engine driven cargo pump on tank vessels—TB/ALL.**

(a) Any tank vessel which is equipped with an internal combustion engine driven cargo pump on the weather deck shall be provided with a minimum of one remote manual shutdown station, conspicuously marked, and located at the midpoint of such vessel, or 100 feet from the engine, whichever is the more practical. The remote quick acting manual shutdown shall be installed on the engine so as to provide a quick and effective means of stopping the engine (such as by cutting off the intake air).

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(b) This regulation applies to all installations of this type on tank vessels, but for such installations now on existing tankships at the date of next biennial inspection or October 1, 1963, whichever occurs later.

**Subpart 32.52—Bilge Systems**

**§ 32.52-1 Bilge pumps on tank vessels constructed or converted on or after November 19, 1952—TB/ALL.**

The number and arrangement of bilge pumps on each tank vessel shall conform to the requirements of subchapter F (Marine Engineering) of this chapter, except as hereinafter provided in this subpart.

**§ 32.52-5 Bilge piping for pump rooms and adjacent cofferdams on tank vessels constructed or converted on or after November 19, 1952—TB/ALL.**

(a) Provisions shall be made for removing drainage from the pumproom bilges and adjacent cofferdams. A separate bilge pump, ejector, or bilge suction from a cargo pump or cargo stripping pump may be provided for this purpose. The bilge pump shall not be located in nor shall the piping pass through spaces containing machinery where sources of vapor ignition are normally present.

(b) Where a bilge suction is provided from a cargo or stripping pump, a stopcheck valve shall be fitted in the suction branch, and an additional stop valve shall be fitted also if the bilge suction branch can be subjected to a head of oil from the filling line.

(c) Means shall be provided for controlling the cargo or pump room bilge pumps and their suctions or discharges in order that a flooded pump room may be pumped out. Suitable portable or manually operated pumps may be accepted as complying with this provision, or alternatively, the pump controls shall be arranged so that they are operable from inside the pump room and either from an accessible position outside the pump room, or from the pump room casing above the freeboard deck.

**§ 32.52-10 Bilge pumps and piping on tank vessels constructed or converted prior to November 19, 1952—TB/ALL.**

(a) On tank vessels, the construction or conversion of which was started prior to November 19, 1952, bilge pumps and piping which do not fully comply with the regulations of this subchapter shall be made as nearly equal to the requirements for tank vessels constructed on or after November 19, 1952, as is necessary in the interest of safety.

(b) Bilge suction from hold spaces containing independent cargo tanks may be connected to cargo pumps or stripping pumps, provided the installation complies with the requirements of § 32.52-5(b).

**Subpart 32.53—Inert Gas System**

SOURCE: CGD 74-127, 41 FR 3843, Jan. 26, 1976, unless otherwise noted.

**§ 32.53-1 Application—T/ALL.**

(a) Except as provided in paragraphs (b) and (c) of this section, this subpart applies to:

(1) A U.S. crude oil tanker or product carrier of 100,000 DWT tons (metric) or more or combination carrier of 50,000 DWT tons (metric) or more, that has a keel laying date on or after January 1, 1975.

(2) A new (as defined in 46 U.S.C. 3701) crude oil tanker or product carrier, or foreign flag crude oil tanker or product carrier of 20,000 DWT tons or more entering the navigable waters of the U.S.

(3) A crude oil tanker that is equipped with a cargo tank cleaning system that uses crude oil washing.

(4) An existing product carrier of 20,000 deadweight tons (metric) or more that has tank washing machines with a capacity of more than 60 cubic meters per hour after May 31, 1983.

(5) Any other U.S. or foreign flag:

(i) Crude oil tanker or product carrier of 70,000 deadweight tons (metric) and over after May 31, 1981;

(ii) Crude oil tanker between 20,000 and 70,000 deadweight tons (metric) after May 31, 1983;

(iii) Product carrier between 40,000 and 70,000 deadweight tons (metric) after May 31, 1983.

(b) This subpart does not apply to vessels designed to carry only:

(1) Liquefied gas cargo; or

(2) Grade E cargo that is carried at a temperature lower than 5° C below its flash point.

(c) This part does not apply to vessels as stated in 46 U.S.C. 3702.

[CGD 77-057a, 44 FR 66501, Nov. 19, 1979, as amended by CGD 97-057, 62 FR 51043, Sept. 30, 1997; CGD 95-028, 62 FR 51198, Sept. 30, 1997]

**§ 32.53-3 Exemptions.**

(a) The Assistant Commandant for Marine Safety and Environmental Protection grants exemptions for crude oil tankers of less than 40,000 deadweight tons not fitted with high capacity tank washing machines, if the vessel's owner can show that compliance would be unreasonable and impracticable due to the vessel's design characteristics.

(b) Requests for exemptions must be submitted in writing to: Commandant (G-MSO), U.S. Coast Guard, Washington, DC 20593-0001.

(c) Each request must be supported by documentation showing that:

(1) The system would be detrimental to the safe operation of the vessel;

(2) It is physically impracticable to install the system; or

(3) Adequate maintenance of the system would be impossible.

(d) The vessel's owner may request a conference. The exemption request file will be available for use in the conference and additional arguments or evidence in any form may be presented. The conference will be recorded. The presiding officer summarizes the material presented at the conference and submits written recommendations to the Assistant Commandant for Marine Safety and Environmental Protection.

(e) The Assistant Commandant for Marine Safety and Environmental Protection reviews the exemption request file and decides whether to grant or deny the exemption. The decision shall include an explanation of the basis on

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which the exemption is granted or denied, and constitutes final agency action.

[CGD 77-057a, 44 FR 66502, Nov. 19, 1979, as amended by CGD 82-063b, 48 FR 29486, June 27, 1983; CGD 88-070, 53 FR 34534, Sept. 7, 1988; CGD 95-072, 60 FR 50461, Sept. 29, 1995; CGD 96-041, 61 FR 50727, Sept. 27, 1996; CGD 97-057, 62 FR 51043, Sept. 30, 1997]

**§ 32.53-5 Operation—T/ALL.**

The master of each tankship to which this subpart applies shall ensure that the inert gas system is operated as necessary to maintain an inert atmosphere in the cargo tanks at the pressure required under § 32.53-30, except when the cargo tanks are gas free.

**§ 32.53-10 General—T/ALL.**

(a) Each tankship to which this subpart applies must have an inert gas system that meets the requirements of this subpart and is approved in accordance with 46 CFR 50.20.

(b) Each inert gas system must be designed, constructed and installed in accordance with the provisions of SOLAS II-2, regulation 62, with the following provisions:

(1) Acceptable types of water seals include the wet and semiwet type. Other types of seals may be accepted on a case by case basis if approval is given by the Coast Guard Marine Safety Center.

(2) If a vapor collection system required to meet part 39 of this subchapter is connected to the inert gas system, the instruction manual required by SOLAS II-2, regulation 62.21 must include procedures relating to vapor collection operations.

[CGD 74-127, 41 FR 3843, Jan. 26, 1976, as amended by CGD 95-028, 62 FR 51198, Sept. 30, 1997]

**Subpart 32.55—Ventilation and Venting**

**§ 32.55-1 Ventilation of tank vessels constructed on or after July 1, 1951—TB/ALL.**

(a) On all tanks vessels, the construction or conversion of which is started on or after July 1, 1951, all enclosed parts of the vessel, other than cargo, fuel and water tanks, cofferdams and

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void spaces, shall be provided with efficient means of ventilation.

(b) Compartments containing machinery where sources of vapor ignition are normally present shall be ventilated in such a way as to remove vapors from points near the floor level or the bilges. Effective steam or air actuated gas ejectors, blowers or ventilators fitted with heads for natural ventilation, with at least one duct extending to immediately below the floor plates will be approved for this purpose. Machinery spaces below the freeboard deck, in which fuels with flash point of 110° F or lower are used, shall be equipped with power ventilation. (See § 32.60-20 for other requirements concerning pumprooms.)

**§ 32.55-5 Ventilation of tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.**

(a) On tank vessels, the construction or conversion of which was started on or after November 10, 1936, and prior to July 1, 1951, all enclosed parts of the vessel, other than cargo, fuel, and water tanks and cofferdams, shall be provided with efficient means of ventilation.

(b) Pumprooms and compartments containing machinery where sources of vapor ignition are normally present shall be ventilated in such a way as to remove vapors from points near the floor level or the bilges. Effective steam or air actuated gas ejectors or blowers or ventilators fitted with heads for natural ventilation, will be approved for this purpose. (See § 32.65-20 for other requirements concerning pumprooms.)

**§ 32.55-10 Ventilation of tank vessels contracted prior to November 10, 1936—TB/ALL.**

Ventilation of tank vessels, the construction or conversion of which was started prior to November 10, 1936, shall be equal to the requirements of tank vessels constructed before July 1, 1951, where the changes are, in the opinion of the Officer in Charge, Marine Inspection, necessary in the interest of safety.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 66-33, 31 FR 15268, Dec. 6, 1966]

**§ 32.55-15 Ventilation for hold spaces—  
TB/ALL.**

Hold spaces containing independent cargo tanks shall be considered to be equivalent to cargo pumprooms and shall be ventilated and safeguarded as such.

**§ 32.55-20 Venting of cargo tanks of tankships constructed on or after July 1, 1951—T/ALL.**

(a) *Venting required.* (1) On all tankships, the construction or conversion of which is started on or after July 1, 1951, each cargo tank shall be equipped with a vent. The diameter of a vent shall be not less than 2½ inches.

(2) In any case where a venting system is required for a particular grade of liquid, the venting system permitted for a higher grade of liquid may be used instead.

(b) *Grade A liquids.* (1) Cargo tanks in which Grade A liquids are to be transported must be fitted with a venting system consisting of a branch vent line from each cargo tank connected to a vent header which must extend to a height above the weather deck equal to at least 13.1 feet and must terminate at a comparable distance from any living or working space, ventilator inlet, or source of ignition. When special conditions will prevent the vent line or header outlets being permanently installed at a height above the deck of 13.1 feet an adjustable system must be provided which, when extended vertically, is capable of reaching a height of 13.1 feet.

(2) A weather hood may be installed at the vent outlet providing it is of such design as not to direct the flow of vapor below the horizontal.

(3) The branch vent lines shall consist of either:

(i) Pipe with no valves or other hindrances to a free flow of gas; or,

(ii) Piping fitted with a pressure vacuum relief valve, provided means are supplied for relieving all internal pressure on cargo tanks by fitting the valve with a positive means for opening its pressure valve to allow free passage of gases through the branch vent line or by the installation of a by-pass fitted with a manually operated stop valve.

(4) The vent header shall be fitted with a flame arrester or pressure vacuum relief valve. If a pressure vacuum relief valve is used in the header, means shall be provided for relieving all internal pressure on cargo tanks by fitting the valve with a positive means for opening its pressure valve to allow free passage of gases through the header or by the installation of a by-pass fitted with a manually operated stop valve. A suitable means of relieving pressure shall be fitted in the header in order to prevent excess pressure being built up in the tanks, in the event of overfilling of the latter. The vent header system shall be provided with suitable connections for flushing and draining. The vent header system shall be of sufficient capacity as to be able to carry off all displaced air and vapors during loading of the cargo tanks without opening of ullage plates, cargo hatches, etc. See § 32.20-20 for liquid level gaging requirements.

(c) *Grade B or C liquids.* Cargo tanks in which Grade B or C liquids are to be transported shall be fitted with either individual pressure-vacuum relief valves which shall extend to a reasonable height above the weather deck or shall be fitted with a venting system consisting of branch vent lines connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a flame arrester or a pressure-vacuum relief valve. The vent header system, if fitted, shall be provided with suitable connections for flushing and draining, and if desired, stop valves may be placed in the individual branch vent lines provided that each stop valve is bypassed by a pressure-vacuum relief valve.

(d) *Grade D or E liquids.* Cargo tanks in which Grade D or E liquids only are to be transported shall be fitted with gooseneck vents and flame screens.

(e) Tank vents which meet the requirements of SOLAS will be considered equivalent to the provisions of this section.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGD 73-96, 42 FR 49024, Sept. 26, 1977; CGD 95-028, 62 FR 51198, Sept. 30, 1997]

**§ 32.55-25 Venting of cargo tanks of tank barges constructed on or after July 1, 1951—B/ALL.**

(a) *Venting required.* (1) On all tank barges, subject to the provisions of this subchapter the construction or conversion of which is started on or after July 1, 1951, each cargo tank shall be equipped with a vent. The diameter of a vent shall be not less than 2½ inches.

(2) In any case where a venting system is required for a particular grade of liquid, the venting system permitted for a higher grade of liquid may be used instead.

(b) *Grade A, B, or C liquids.* Cargo tanks in which Grade A, B, or C liquids are to be transported shall be fitted with either individual pressure-vacuum relief valves which shall extend to a reasonable height above the weather deck or shall be fitted with a venting system consisting of branch vent lines connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a pressure-vacuum relief valve. The vent header system, if fitted, shall be provided with suitable connections for flushing and draining, and if desired, stop valves may be placed in the individual branch vent lines: *Provided*, That each such stop valve is bypassed by a pressure-vacuum relief valve.

(c) *Grade D or E liquids.* Cargo tanks in which Grade D or E liquids only are to be transported shall be fitted with gooseneck vents and flame screens.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 70-10, 35 FR 3709, Feb. 25, 1970]

**§ 32.55-30 Venting of cargo tanks of tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.**

(a) *Venting required.* On all tank vessels, the construction or alteration of which is started on or after November 10, 1936, and prior to July 1, 1951, each cargo tank shall be equipped with a vent. The details of the venting system shall meet the requirements of this section, or alternatively, the requirements of either § 32.55-20 or § 32.55-25, as applicable, shall be met.

(b) *Grade A liquids.* (1) Cargo tanks in which Grade A liquids are to be transported shall be fitted with a venting

system consisting of branch vent line from each cargo tank connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a flame arrester or pressure-vacuum relief valve. Each branch vent line may be provided with a manually operated control valve, provided it is bypassed with a pressure-vacuum relief valve or each cargo tank to which such a branch vent line is connected is fitted with an independent pressure-vacuum relief valve. The vent header system shall be provided with suitable connections for flushing and draining.

(2) In barges with independent tanks carrying Grade A liquids, separate discharge pipes may be fitted to each pressure-vacuum relief valve, or the pressure-vacuum relief valve may be elevated, so that in either case the discharge from such valve will not be less than 7 feet above the deck where practicable.

(c) *Grade B or C liquids.* Cargo tanks in which Grade B or C liquids are to be transported shall be fitted with individual pressure-vacuum relief valves or shall be fitted with a venting system consisting of branch vent lines connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a flame arrester or a pressure-vacuum relief valve.

(d) *Grade D or E liquids.* Cargo tanks in which Grade D or E liquids only are to be transported shall be fitted with gooseneck vents and flame screens unless such tanks are vented by pressure-vacuum relief valves or a venting system of branch vent lines and a vent header.

**§ 32.55-35 Venting of cargo tanks on tank vessels constructed prior to November 10, 1936—TB/ALL.**

The venting of cargo tanks of tank vessels, the construction or alteration of which was started prior to November 10, 1936, shall be made to equal the requirements of tank vessels constructed before July 1, 1951, where the changes are, in the opinion of the Officer in Charge, Marine Inspection, necessary in the interests of safety: *Provided*, That on such vessels carrying Grade A

cargo the requirements in § 32.55-30(b) shall be met.

**§ 32.55-45 Venting of cofferdams and void spaces of tank vessels constructed on or after November 10, 1936—TB/ALL.**

(a) Except as provided in paragraph (b) of this section, on all tank vessels, the construction or conversion of which was started on or after November 10, 1936, cofferdams and void spaces shall be provided with gooseneck vents fitted with a flame screen or pressure-vacuum relief valves. The diameter of a vent shall be not less than 2½ inches.

(b) On unmanned tank barges not fitted with fixed bilge systems in the cofferdams and void spaces, vents for cofferdams and void spaces will not be required.

**§ 32.55-50 Ventilation of tankships that have a keel laying date on or after January 1, 1975—T/ALL.**

Each tankship that has a keel laying date on or after January 1, 1975, must have deckhouse and superstructure ventilation inlets and outlets and other openings to the exterior arranged to minimize the admission of flammable gas to enclosed spaces that contain a source of ignition.

[CGD 74-127, 41 FR 3844, Jan. 26, 1976]

**Subpart 32.56—Structural Fire Protection for Tank Ships With a Keel Laying Date On or After January 1, 1975**

SOURCE: CGD 74-127, 41 FR 3844, Jan. 26, 1976, unless otherwise noted.

**§ 32.56-1 Application—T/ALL.**

(a) This subpart applies to all tankships that have a keel laying date on or after January 1, 1975.

(b) SOLAS-certificated vessels may be considered equivalent to the provisions of this subpart.

[CGD 74-127, 41 FR 3844, Jan. 26, 1976, as amended by CGD 95-028, 62 FR 51198, Sept. 30, 1997]

**§ 32.56-5 General—T/ALL.**

(a) Except as provided in paragraphs (c) and (d) of this section, each cat-

egory A machinery space must be aft of the cargo area and pumprooms.

(b) Except as provided in paragraphs (c), (d), and (e) of this section, each accommodation space, service space except isolated storage spaces, and control space and each main cargo control station must be aft of:

(1) The cargo area;

(2) All cargo pumprooms; and

(3) All cofferdams that isolate the cargo area from category A machinery spaces.

(c) Except as provided in paragraph (e) of this section, any pumproom may be recessed below accommodation, service, and control spaces and recessed into any category A machinery space if the distance between the deckhead of the recess and the underside of the accommodation, service, or control space is at least equal to the height of the recess.

(d) Accommodation, service, control and certain machinery spaces, such as spaces for bow thrusters, windlass, and emergency fire pumps, may be located forward of the cargo area and pumprooms if it is demonstrated to the Commandant that the overall degree of safety of the vessel is improved and that the degree of fire and life safety for these spaces is not less than the degree of fire and life safety for similar spaces located aft.

(e) On liquefied gas carriers:

(1) Main cargo control stations may be located in the cargo area;

(2) Accommodation, service, and control spaces may be located over cofferdams that isolate cargo tanks other than integral tanks from category A machinery spaces;

(3) Pumprooms may not be recessed into any space below deck.

**§ 32.56-10 Navigation positions—T/ALL.**

(a) No navigation position may be above the cargo area unless it is approved by the Commandant as necessary for the safe operation of the vessel.

(b) Each navigation position that is above the cargo area must be separated from the deck by an unenclosed space that extends at least 2 meters (6.6 feet) from the deck to the navigation position.

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(c) Openings to navigation positions above cargo areas, except air locks, must be at least 2.4 meters (7.9 feet) above the deck.

**§ 32.56-15 Deck spills—T/ALL.**

A coaming or other barrier at least .3 meters (1 foot) higher than adjacent spill containment barrier must be provided to prevent cargo spills from flowing aft of the housefront.

**§ 32.56-20 Insulation of exterior boundaries: Superstructures and deckhouses—T/ALL.**

The following exterior boundaries of superstructures and deckhouses that contain accommodation, service, and control spaces, except wheelhouses, must be insulated to "A-60" Class:

(a) The exterior boundaries that face the cargo area.

(b) The portion of the exterior bulkheads and decks within 3 meters (10 feet) of these boundaries.

**§ 32.56-21 Openings in exterior boundaries: Accommodation, service, and control spaces—T/ALL.**

The following exterior boundaries of accommodation, service, and control spaces, except wheelhouses, must have no openings, and portlights must be of a fixed type with easily operable steel covers on the inside:

(a) The exterior boundaries that face the cargo area.

(b) The portion of the exterior boundaries within 3 meters (10 feet) or the length of the vessel divided by 25, whichever is greater, except that the distance need not exceed 5 meters (16.4 feet), of these boundaries.

**§ 32.56-22 Openings in and insulation of boundaries: Other spaces—T/ALL.**

If openings are fitted into the following exterior boundaries of any space other than an accommodation, service, or control space, the interior of the space must be insulated to "A-60" Class and the space must not provide access to any accommodation, service, or control space:

(a) The exterior boundaries that face the cargo area.

(b) The portion of the exterior boundaries within 3 meters (10 feet) or the

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length of the vessel divided by 25, whichever is greater, except that the distance need not exceed 5 meters (16.4 feet), of these boundaries.

**§ 32.56-25 Category A machinery spaces: Windows and port lights—T/ALL.**

(a) Except as provided in paragraph (b) of this section and subpart 111.105, of this chapter, boundaries of category A machinery spaces and boundaries of cargo pumprooms must not be pierced for windows or portlights.

(b) Skylights that can be closed from outside the spaces they serve may be fitted in boundaries of category A machinery spaces.

[CGD 74-127, 41 FR 3844, Jan. 26, 1976, as amended by CGD 74-125A, 47 FR 15230, Apr. 8, 1982]

**§ 32.56-30 Category A machinery spaces: Bulkheads and decks—T/ALL.**

(a) Bulkheads and decks that separate category A machinery spaces from cargo pumprooms must be "A" Class construction.

(b) Bulkheads and decks that separate category A machinery spaces or cargo pumprooms, including the pump-room entrance, from accommodation, service, or control spaces must be "A-60" Class construction.

**§ 32.56-35 Doors—T/ALL.**

(a) Casing doors in category A machinery spaces and all elevator doors must be self-closing and must meet the requirements of 46 CFR 72.05-25(b).

(b) If a means of holding a door open is used, it must be a magnetic holdback or equivalent device that is operated from the bridge or other suitable remote control position.

**§ 32.56-40 Category A machinery spaces: Insulation—T/ALL.**

Structural insulation within category A machinery spaces must have a barrier such as metal foil, sheet metal, cementitious coating, or other vapor barrier so that the surface of that insulation is impervious to oil and oil vapors.

[CGD 74-127, 41 FR 3844, Jan. 26, 1976, as amended by CGD 74-127, 41 FR 4826, Feb. 2, 1976]

§ 32.56-45 **Draft stops—T/ALL.**

(a) Where ceilings or linings are fitted in accommodation, service, or control spaces, "B" Class bulkheads, except those that form passageways, may stop at the ceiling or lining if draft stops of "B" Class construction are fitted between the ceiling or lining and the deck or shell at intervals of 14 meters (45 feet) or less.

(b) Spaces behind the linings of stairways and other trunks must have draft stops at each deck.

§ 32.56-50 **Combustible veneers—T/ALL.**

(a) Except as provided in paragraph (b) of this section combustible veneers on bulkheads, linings, and ceilings within accommodation, service, or control spaces must be 2 millimeters (.079 inches) or less in thickness.

(b) Veneers on bulkheads, linings, and ceilings in concealed spaces, corridors, stairway enclosures, or control spaces must be an approved interior finish material or a reasonable number of coats of paint.

§ 32.56-55 **Control spaces—T/ALL.**

Bulkheads and decks that separate control spaces from adjacent spaces must be "A" Class construction and insulated against fire. 46 CFR Table 72.05-10(e) of the Passenger Vessel Regulations may be used as a guide.

§ 32.56-60 **Ventilation ducts—T/ALL.**

(a) Each duct for ventilation of Category A machinery spaces that passes through accommodation, service, or control spaces must be:

(1) Constructed of steel and insulated to "A-60" Class; or

(2) Constructed of steel, fitted with an automatic fire damper at each boundary where it enters and leaves the Category A machinery space, and insulated to "A-60" Class for a distance of 5 meters (16.4 feet) beyond each machinery space boundary.

(b) Each duct for ventilation of accommodation, service, and control spaces that passes through Category A machinery spaces must be constructed of steel and be fitted with an automatic fire damper at each Category A machinery space boundary.

**Subpart 32.57—Structural Fire Protection for Tank Vessels Contracted for On or After January 1, 1963**

§ 32.57-1 **Application—TB/ALL.**

(a) The provisions of this subpart shall apply to all tank vessels contracted for on or after January 1, 1963.

(b) SOLAS-certificated vessels may be considered equivalent to the provisions of this subpart.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGD 95-028, 62 FR 51198, Sept. 30, 1997]

§ 32.57-5 **Definitions—TB/ALL.**

(a) *Standard fire test.* A "standard fire test" is one which develops in the test furnace a series of time temperature relationships as follows:

5 minutes—	1,000° F.
10 minutes—	1,300° F.
30 minutes—	1,550° F.
60 minutes—	1,700° F.

(b) *"A" Class divisions.* "A" Class divisions such as bulkheads and decks, means divisions that are composed of steel or an equivalent metal, suitably stiffened, and made intact with the main structure of the vessel, including the shell, structural bulkheads, or decks. They are constructed so that, if subjected to the standard fire test, they are capable of preventing the passage of flame and smoke for one hour. In addition, they are insulated with approved structural insulation, bulkhead panels, or deck coverings so that the average temperature on the unexposed side does not rise more than 139° C (250° F) above the original temperature, nor does the temperature at any one point, including any joint, rise more than 181° C (325° F) above the original temperature, within the time listed below:

Class A-60 .....	60 minutes
Class A-30 .....	30 minutes
Class A-15 .....	15 minutes
Class A-0 .....	0 minutes with no insulation requirement

(c) *"B" Class bulkheads.* Bulkheads of the "B" Class shall be constructed with approved incombustible materials and made intact from deck to deck and to shell or other boundaries. They shall be so constructed that, if subjected to the

standard fire test, they would be capable of preventing the passage of flame for one-half hour.

(d) *“C” Class divisions.* Bulkheads or decks of the “C” Class shall be constructed of approved incombustible materials, but need meet no requirements relative to the passage of flame.

(e) *Steel.* Where the term “steel or other equivalent metal” is used in this subpart, it is intended to require a material which, by itself or due to insulation provided, has structural and integrity qualities equivalent to steel at the end of the applicable fire exposure.

(f) *Approved material.* Where in this subpart approved materials are required, they refer to materials approved under the applicable subparts of subchapter Q (Specifications) of this chapter, as follows:

Deck Coverings .....	164.006
Structural Insulations .....	164.007
Bulkhead Panels .....	164.008
Incombustible Materials .....	164.009
Interior Finishes .....	164.012

(g) *Stairtower.* A stairtower is a stairway which penetrates more than a single deck within the same enclosure.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 67-90, 33 FR 1015, Jan. 26, 1968; CGD 74-127, 41 FR 3845, Jan. 26, 1976; CGD 75-032, 41 FR 17910, Apr. 29, 1976]

**§ 32.57-10 Construction—TB/ALL.**

(a) The hull, superstructure, structural bulkheads, decks, and deckhouses shall be constructed of steel. Alternately, the Commandant may permit the use of other suitable material in special cases, having in mind the risk of fire.

(b) Bulkheads of galleys, paint and lamp lockers, and emergency generator rooms shall be of “A” Class construction.

(c) The boundary bulkheads and decks separating the accommodations and control stations from cargo, and machinery spaces and from galleys, main pantries and storerooms other than small service lockers shall be of “A” Class Construction.

(d) The following conditions apply within accommodation, service, and control spaces:

(1) Corridor bulkheads in accommodation areas shall be of “A” or “B” Class intact from deck to deck State-

room doors in such bulkheads may have a louver in the lower half.

(2) Stairtowers, elevator, dumbwaiter, and other trunks shall be of “A” Class construction.

(3) Bulkheads not already specified to be of “A” or “B” Class construction may be of “A”, “B”, or “C” Class Construction.

(4) The integrity of any deck in way of a stairway opening, other than a stairtower, shall be maintained by means of “A” or “B” Class divisions or bulkheads and doors at one level. The integrity of a stairtower shall be maintained by “A” Class doors at every level. The doors shall be of the self-closing type. No means shall be provided for locking such doors, except that crash doors or locking devices capable of being easily forced in an emergency may be employed provided a permanent and conspicuous notice to this effect is attached to both sides of the door. Holdback hooks or other means of permanently holding the door open will not be permitted. However, magnetic holdbacks operated from the bridge or from other suitable remote control positions are acceptable.

(5) Interior stairs, including stringers and treads shall be of steel or other suitable material having in mind the risk of fire. This is not intended to preclude the use of other material for nosing, walking surfaces, etc., over the steel.

(6) Except for washrooms and toilet spaces, deck coverings within accommodation spaces shall be of an approved type. However, overlays for leveling or finishing purposes which do not meet the requirements for an approved deck covering may be used in thicknesses not exceeding 3/8 of an inch.

(7) Except as provided in paragraph (d)(7-a) of this section, ceilings, linings, and insulation, including pipe and duct laggings, must be made of approved incombustible material.

(7-a) Combustible insulations and vapor barriers that have a maximum extent of burning of 122 millimeters (5 inches) or less when tested in accordance with ASTM D 4986, “Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials” (incorporated by reference,

see § 32.01-1), may be used within refrigerated compartments.

(8) Any sheathing, furring or holding pieces incidental to the securing of any bulkhead, ceiling, lining, or insulation shall be of approved incombustible materials.

(9) Bulkheads, linings and ceilings may have a combustible veneer within a room not to exceed 2 millimeters (.079 inch) in thickness. However, combustible veneers, trim, decorations, etc., shall not be used in corridors or hidden spaces. This is not intended to preclude the use of an approved interior finish or a reasonable number of coats of paint.

(e) Wood hatch covers may be used between cargo spaces or between stores spaces. Hatch covers in other locations shall be of steel or equivalent metal construction. Tonnage openings shall be closed by means of steel plates or equivalent metal construction.

(f) Nitrocellulose or other highly flammable or noxious fume-producing paints or lacquers shall not be used.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 66-33, 31 FR 15268, Dec. 6, 1966; CGFR 67-90, 33 FR 1015, Jan. 26, 1968; CGD 74-127, 41 FR 3845, Jan. 26, 1976; CGD 95-028, 62 FR 51198, Sept. 30, 1997; USCG-1998-4442, 63 FR 52190, Sept. 30, 1998; USCG-1999-5151, 64 FR 67177, Dec. 1, 1999]

### Subpart 32.59—Minimum Longitudinal Strength and Plating Thickness Requirements for Unclassed Tank Vessels That Carry Certain Oil Cargoes—TB/ALL

#### § 32.59-1 Minimum section modulus and plating thickness requirements—TB/ALL.

(a) As used in this section, *Rule* means the current Rules of the American Bureau of Shipping or other recognized classification society, as appropriate for the vessel's present service and regardless of the year the vessel was constructed.

(b) The requirements of this section apply to all in-service, unclassified tank vessels certificated to carry a pollution category I oil cargo listed in 46 CFR Table 30.25-1.

(c) For all vessels except those limited on their Certificate of Inspection

to river routes only, the minimum midship section modulus must be—

(1) At least 90 percent of that required by Rule; or

(2) Where there is no specific Rule requirement, at least 100 percent of that which is necessary to meet the bending moment developed under a full load condition in still water, using a permissible bending stress of 12.74 kN/cm<sup>2</sup> (1.30 t/cm<sup>2</sup>, 8.25 Ltf/in<sup>2</sup>).

(d) Within the 40-percent midship length, the average flange and web thicknesses of each longitudinal stiffener must be as follows:

(1) For deck and bottom stiffeners: at least 85 percent of Rule thickness, unless a buckling analysis demonstrates that lesser thicknesses can be safely tolerated. However, the average thickness must never be less than 80 percent of Rule thickness; and

(2) For side stiffeners: at least 75 percent of Rule thickness.

(e) Within the 40-percent midship length, the average thickness for longitudinal strength plating must be at least as follows:

(1) Weather deck: 75 percent of Rule thickness;

(2) Hatch: 70 percent of Rule thickness;

(3) Trunk: 75 percent of Rule thickness;

(4) Sheer strake: 75 percent of Rule thickness;

(5) Outer sideshell: 75 percent of Rule thickness;

(6) Inner sideshell: 75 percent of Rule thickness;

(7) Outer bottom: 75 percent of Rule thickness;

(8) Inner bottom: 70 percent of Rule thickness;

(9) Keel: 75 percent of Rule thickness;

(10) Bulkheads: 75 percent of Rule thickness.

[CGD 91-209, 58 FR 52602, Oct. 8, 1993]

### Subpart 32.60—Hull Requirements for Tank Vessels Constructed On or After July 1, 1951

NOTE: Requirements for double hull construction for vessels carrying oil, as defined in 33 CFR 157.03, in bulk as cargo are found in 33 CFR 157.10d.

**§ 32.60-1 Scantlings, material, and workmanship—TB/ALL.**

(a) All tank vessels, the construction or conversion of which is started on or after July 1, 1951, shall conform to the requirements in this subpart in construction of hulls. The hull and deck-houses shall be of steel or iron construction except that the pilothouse and decks over quarters may be constructed of wood. Scantlings, material, and workmanship, subdivision of cargo spaces, fitting of cofferdams, and testing of tanks shall be at least equivalent to the requirements of the American Bureau of Shipping or other recognized classification society.

(b) See subpart 32.57 for structural fire protection requirements for tank vessels contracted for on or after January 1, 1963.

**§ 32.60-5 Subdivision of cargo space—TB/ALL.**

The cargo space shall be divided into tight compartments as necessary to avoid excessive stresses and to provide stability.

**§ 32.60-10 Segregation of cargo; Grade A, B, C, or D—TB/ALL.**

(a) *General.* The galleys, living quarters, navigation spaces, general cargo spaces, boiler rooms, and enclosed spaces where sources of vapor ignition are normally present, shall be segregated from cargo tanks by cofferdams or pump rooms or tanks, either empty or used to carry liquid having a flashpoint of 150° F. or above, or deck spaces enclosed or open.

(b) *Cargo tank spaces.* Cargo tank spaces shall extend to the main deck, with hatches and vents located on the weather deck. Liquids having a flash point of not less than 150° F. may be carried in the bulk tanks located beyond the segregating cofferdams and/or pump rooms.

(c) *Enclosed spaces.* (1) Cargo and vent piping passing through enclosed spaces immediately above the bulk cargo tanks shall be continuous except that flanged joints connecting pipe sections will be permitted.

(2) No openings to cargo tank shall be permitted other than stuffing boxes through which valve control rods or permanently installed gage tapes ex-

tend and openings for use of tank cleaning machines. Openings for tank cleaning machines, when not in use, shall be kept closed by means of gastight bolted plates and when in use shall be made essentially gas and watertight by covers through which hose or pipe to the tank cleaning machines extend.

(3) The overhead in way of quarters shall be gastight.

(d) *Stowage spaces.* The spaces described in paragraph (c) of this section may be used for stowage purposes and for general cargo provided that adequate ventilation is furnished.

(e) *Openings.* (1) Except as provided in paragraph (c) of this section, there shall be no manholes or other openings from cargo tanks to any other enclosed spaces. An exception may be made to allow direct access from cargo tanks to innerbottoms through gas tight bolted manholes, provided:

(i) The innerbottom tanks are voids or ballast tanks only, and

(ii) The innerbottom tanks are protected from sources of ignition similar to the cargo tanks, and any bilge or ballast pumping system serving the innerbottom tanks are treated like cargo pumping systems.

(2) Any vents, sounding tubes, and similar piping passing through such tanks shall be run in a suitable trunk; or such piping shall have a wall thickness equal to or greater than the innerbottom plating, but not less than schedule 80, and shall be welded continuously on both sides of the innerbottom plating.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 69-72, 34 FR 17481, Oct. 29, 1969]

**§ 32.60-15 Segregation of cargo; Grade E—TB/ALL.**

(a) *General.* The galleys, living quarters, navigation spaces, general cargo spaces, boilerrooms, and enclosed spaces containing machinery, where sources of vapor ignition are normally present, shall be segregated from the cargo tanks by tight bulkheads and intervening spaces are not required.

(b) *Cargo tank spaces.* Cargo tank spaces can be terminated at any deck with hatches on the same deck, but the vent lines shall be extended to the

weather deck. Butterworth openings and extension rods may be located on the tank top.

**§ 32.60-20 Pumprooms on tank vessels carrying Grade A, B, C, D and/or E liquid cargo—TB/ALL.**

(a) *Cargo pumps.* In tank vessels carrying Grade A, B, C, or D liquid cargo, cargo pumps shall be isolated from source of vapor ignition by gastight bulkheads. A gastight bulkhead between the pumproom and the pump engine room may be pierced for drive shaft and pump engine control rods provided such openings are fitted with stuffing boxes or other approved gland arrangement. A steam driven pump shall not be considered a source of vapor ignition provided the steam temperature does not exceed 500° F.

(b) *Ventilation for pumprooms on tank vessels the construction or conversion of which is started between July 1, 1951, and January 1, 1963.* (1) Pumprooms of all tank vessels, the construction or conversion of which is started between July 1, 1951, and January 1, 1963, shall be ventilated in such a way as to remove vapors from points near the floor level or bilges. Pumprooms on tankships handling Grade A, B, or C liquid cargo, with machinery located below the freeboard deck, shall be equipped with power ventilation. Pumprooms equipped with power ventilation shall have the ventilation outlets terminate more than six feet from any opening to the interior part of the vessel which normally contains sources of vapor ignition.

(2) For all tank vessels, the construction or conversion of which is started between October 1, 1959, and January 1, 1963, the power ventilation shall not produce a source of vapor ignition in either the pumproom or the ventilation systems associated with the pumproom. The capacity of power ventilation units shall be sufficient to effect a complete change of air in not more than 3 minutes, based upon the volume of the pumproom and associated trunks up to the deck at which access from the weather is provided.

(c) *Ventilation for pumprooms on tank vessels the construction or conversion of which is started on or after January 1, 1963.* (1) For all tank vessels, the con-

struction or conversion of which is started on or after January 1, 1963, the cargo pumprooms shall be fitted in accordance with paragraphs (a) and (d) of this section. Cargo pumprooms on these vessels shall be ventilated in such a way as to remove vapors from points near the floor level or bilges. Cargo pumprooms on tank vessels handling Grade A, B, or C liquid cargo, shall be equipped with power ventilation of the exhaust type having capacity sufficient to effect a complete change of air in not more than 3 minutes based upon the volume of the pumproom and associated trunks up to the deck at which access from the weather is provided.

(2) The power ventilation units shall not produce a source of vapor ignition in either the pumproom or the ventilation systems associated with the pumproom. Inlets to exhaust ducts shall be provided and located near the floor level at points where concentrations of vapors may be expected. Ventilation from the weather deck shall be provided. Power supply ventilation may be fitted in lieu of natural ventilation, but when fitted shall be arranged to avoid turbulence in the cargo pumproom. Cargo pumprooms equipped with power ventilation shall have the ventilation outlets terminate more than 6 feet from any opening to the interior part of the vessel which normally contains sources of vapor ignition, and shall be so located as to minimize the possibility of recirculating contaminated air through the pumproom.

(3) Cargo pumprooms handling Grade D and/or E liquid cargo only shall be fitted with at least two ducts extended to the weather deck, one of which shall be extended to a point near the floor level. This does not preclude installation of power ventilation, if desired.

(4) The ventilation required in this paragraph shall be sufficient to properly ventilate the pumproom with the access openings closed.

(d) *Access.* The access to a cargo pumproom in a tank vessel carrying Grade A, B, C, or D liquid cargo shall be from the open deck.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 70-143, 35 FR 19905, Dec. 30, 1970]

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**§ 32.60-25 Living quarters—TB/ALL.**

For living quarters the partitions and sheathing shall be of an approved fire resistive construction. The specification for incombustible materials is in subchapter Q (Specifications) of this chapter.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGD 95-028, 62 FR 51198, Sept. 30, 1997]

**§ 32.60-30 Tank vessels with independent tanks—TB/ALL.**

(a) Independent cargo tanks may be located in hold spaces or in other cargo tanks; however, a working space of at least 15 inches shall be maintained around each independent tank, or else provisions shall be made for moving such tanks to furnish such working space, except that less than 15 inches around such tanks may be permitted if in the judgment of the Officer in Charge, Marine Inspection, having jurisdiction, a satisfactory inspection of the cargo tanks and hull structure can be made.

(b) When an independent cargo tank is located in an enclosed space other than a cargo tank, such enclosed space shall be considered as equivalent to a pumproom and shall be safeguarded as such as required by this subpart.

(c) Cargo tanks independent of the hull structure shall be supported in saddles or on foundations of steel or other suitable material and securely attached in place to preclude the cargo from being damaged or shifting as a result of collision. The arrangement shall be such as to permit longitudinal and circumferential, or athwartship and vertical, expansion of the cargo tanks. Each tank shall be supported so as to prevent the concentration of excessive loads on the supporting portion of the shell.

**§ 32.60-35 Tank vessels carrying Grade A liquid cargo—TB/ALL.**

(a) Grade A liquids having a Reid vapor pressure in excess of 25 pounds per square inch shall be transported in cargo tanks which are independent of the hull.

(b) Barges carrying Grade A liquids having a Reid vapor pressure in excess of 25 pounds per square inch shall be of

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a Type III barge hull as defined in § 32.63-5(b)(3).

[CGFR 70-10, 35 FR 3709, Feb. 25, 1970]

**§ 32.60-40 Construction and testing of cargo tanks and bulkheads—TB/ALL.**

(a) All cargo tanks vented at gage pressure of 4 pounds per square inch or less shall be constructed and tested as required by standards established by the American Bureau of Shipping or other recognized classification society. The design of cargo tanks integral with the hull and vented at a gage pressure exceeding 4 pounds per square inch but not exceeding 10 pounds per square inch gage pressure will be given special consideration by the Commandant.

(b) Cargo tanks vented at a gage pressure exceeding 10 pounds per square inch are considered to be pressure vessels and shall be of cylindrical or similar design and shall meet the requirements of subchapter F (Marine Engineering) of this chapter.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 68-82, 33 FR 18805, Dec. 18, 1968]

**§ 32.60-45 Segregation of spaces containing the emergency source of electric power—TB/ALL.**

(a) The provisions of this section shall apply to all vessels contracted for on or after October 1, 1958.

(b) When a compartment containing the emergency source of electric power, or vital components thereof, adjoins a space containing either the ship's service generators or machinery necessary for the operation of the ship's service generators, all common bulkheads and/or decks shall be protected by approved "structural insulation" or other approved material. This protection shall be such as to be capable of preventing an excessive temperature rise in the space containing the emergency source of electric power, or vital components thereof, for a period of at least one hour in the event of fire in the adjoining space. Bulkheads or decks meeting Class A-60 requirements, as defined by § 72.05-10 of subchapter H (Passenger Vessels) of this chapter, will be considered as meeting the requirements of this paragraph.

**Subpart 32.63—Hull and Cargo Tank Requirements for Tank Barges Constructed or Converted On or After July 1, 1964, and Carrying Certain Dangerous Bulk Cargoes**

**§ 32.63-1 Application—B/ALL.**

(a) The requirements of this subpart shall apply to all tank barges, the construction or conversion of which is started on or after July 1, 1964, and carrying those cargoes listed in Table 30.25-1 which are defined as:

(1) Flammable liquids having a Reid vapor pressure in excess of 25 pounds per square inch, absolute, in independent tanks (part 32).

(2) Liquefied flammable gases (part 38 of this subchapter).

[CGFR 70-10, 35 FR 3709, Feb. 25, 1970]

**§ 32.63-5 Barge hull classifications—B/ALL.**

(a) Each barge subject to the provision of this subpart shall be assigned a hull type number. The Commandant will designate the barge hull types to be used for carrying cargoes in order to insure that the vessel is designed consistent with the degree and nature of the hazard of the commodity carried.

(b) For this purpose the barge hull types shall be as follows:

(1) *Type I barge hull.* Barge hulls classed as Type I are those designed to carry products which require the maximum preventive measures to preclude the uncontrolled release of the cargo to the waterways and/or atmosphere.

(2) *Type II barge hull.* Barge hulls classed as Type II are those designed to carry products which require substantial preventive measures to preclude uncontrolled release to the atmosphere, but whose uncontrolled release to the waterways does not constitute a longlasting public or operating personnel hazard, though local and temporary pollution may occur.

(3) *Type III barge hull.* Barge hulls classed as Type III are those designed to carry products of sufficient hazard to require a moderate degree of control.

**§ 32.63-8 Alternative arrangements—B/ALL.**

(a) Alternative arrangements, differing from those specifically required by this subpart, may be considered and approved by the Commandant, if it is demonstrated to his satisfaction that a degree of safety is obtained which is consistent with the intent of this subpart.

**§ 32.63-10 Rakes and coamings—B/ALL.**

(a) Each barge hull shall be constructed with a suitable blow form (length, shape, and height of headlog) to protect against diving at the maximum speed at which the barge is designed to be towed. In any integrated tow, only the lead barge need comply with this requirement. In any case, the operator of the towing vessel shall be guided by appropriate speed limitations.

(b) All open hopper type barge hulls shall be provided with coamings around the hopper space and, additionally, a 36-inch minimum height plowshare breakwater on the forward rake. Coamings shall have a minimum height of 36 inches forward graduated to a minimum height of 24 inches at midlength and 18 inches thereafter.

**§ 32.63-20 Hull structure—B/ALL.**

(a) *General.* In addition to complying with the requirements of § 32.60-1, as applicable, barge hulls of Types I and II shall comply with the provisions of this section.

(b) *Types I and II barge hull.* Under an assumed grounding condition such that the forward rake bulkhead rests upon a pinnacle at the water surface, the maximum hull bending stress shall not exceed the following limits:

(1) Independent tanks may be installed in such a manner that they do not contribute to the strength and stiffness of the barge. In such case, the hull stress shall not exceed either 50 percent of the minimum ultimate tensile strength of the material or 70 percent of the yield strength when specified, whichever is greater.

(2) The Commandant may consider a reduction in hull stress when independent tanks are installed in such a manner as to contribute to the

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strength and stiffness of the barge and this is accounted for in determining the effective section modulus of the barge. In such case, the hull stress shall not exceed the percentage stress values prescribed in paragraph (b)(1) of this section multiplied by the quantity  $(1.5 - \text{SWT}/\text{UTS})$ , where SWT is the stress calculated without including the effect of the tanks, and UTS is the minimum ultimate tensile strength of the material. The value SWT, however, shall in no case be more than 75 percent of UTS.

**§ 32.63-25 Cargo tanks and supports—B/ALL.**

(a) *General.* Saddles and hold-down securing straps for independent cargo tanks shall be designed to prevent tank failure due to loads induced in the saddles or straps by barge deflection.

(b) *Collision protection.* (1) All independent cargo tanks installed on Type I and Type II barge hulls shall be protected with suitable collision chocks or collision straps to withstand a longitudinal collision load of one and one-half times the weight of the tank and cargo. All other independent cargo tanks shall be provided with suitable collision chocks or collision straps to withstand a longitudinal collision load equal to the weight of the tank and cargo.

(2) All cargo tanks shall be so located as to reduce the likelihood of their being damaged in the event of collision. This protection shall be obtained by locating the cargo tanks not less than 4 feet from the side shell and box-end for Type I hulls and 3 feet for Type II barge hulls, and not less than 25 feet from the headlog at the bow for both types.

(c) *Cargo tank design—(1) Types I and II barge hulls.* (i) In addition to requirements provided for in applicable regulations for a specific commodity, cargoes subject to the provisions of this subpart shall be transported in cargo tanks meeting the requirements of this paragraph. Pressure vessel-type cargo tanks shall have sufficient additional strength so as to limit the maximum combined tank stress, including saddle horn and bending stresses, to 1.5 times the maximum allowable hoop stress in still water, and to the yield strength of

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the tank material or 70 percent of the minimum ultimate tensile strength of the tank material, if less, in the grounded condition as required by § 32.63-20(b).

(ii) Gravity type cargo tanks shall have sufficient additional strength to limit the maximum combined tank stress, including saddle horn and bending stresses, to the yield strength of the tank material or 70 percent of the minimum ultimate tensile strength of the tank material, if less, in the grounded condition as required by § 32.63-20(b).

(2) *Type III barge hulls.* In addition to the requirements of this paragraph, pressure vessel-type cargo tanks shall have sufficient additional strength so as to limit the maximum combined stress, including saddle horn and bending stresses, to 1.5 times the maximum allowable hoop stress.

**Subpart 32.65—Hull Requirements for Tank Vessels Constructed On or After November 10, 1936, and Prior to July 1, 1951**

**§ 32.65-1 Application—TB/ALL.**

The requirements in this subpart apply to all tank vessels, the construction or conversion of which was started on or after November 10, 1936, and prior to July 1, 1951.

**§ 32.65-5 Scantlings, material, and workmanship—TB/ALL.**

The hull and deck houses shall be of steel or iron construction except that the pilothouse and decks over quarters may be constructed of wood. Scantlings, material, and workmanship, subdivision of cargo spaces, fitting of cofferdams, and testing of tanks shall be at least equivalent to the requirements of the American Bureau of Shipping or other recognized classification society.

**§ 32.65-10 Subdivision of cargo space—TB/ALL.**

The cargo space shall be divided into tight compartments as necessary to avoid excessive stresses and to provide stability.

**§ 32.65-15 Cofferdams—TB/ALL.**

Tank vessels equipped to carry Grade A, B, C, or D liquids shall have their galleys, living quarters, general cargo spaces, boiler rooms, and enclosed spaces containing propelling machinery or other machinery where sources of vapor ignition are normally present, segregated from their cargo tanks by cofferdams or equivalent pumprooms, tanks, or air spaces.

**§ 32.65-20 Pumprooms—TB/ALL.**

(a) Tank vessels handling Grade A, B, C, or D liquids shall have their cargo pumps isolated from all sources of vapor ignition by gastight bulkheads. Totally enclosed motors of the "explosion proof" type, motors ventilated on both the intake and exhaust by ducts to atmosphere, and engines driven by steam shall not be considered to be sources of vapor ignition. The gastight bulkhead between the pumproom and the pump-engine compartment may be pierced by fixed lights, drive shaft and pump-engine control rods, provided that the shafts and rods are fitted with stuffing boxes where they pass through the gastight bulkheads. The access to a cargo pumproom handling such liquids shall be from the open deck. (See § 32.60-20.0.)

**§ 32.65-25 Living quarters—TB/ALL.**

Partitions and sheathing shall be of approved fire-resistive construction.

**§ 32.65-30 Tank vessels with independent tanks—TB/ALL.**

Independent cargo tanks may be located in hold spaces or in other cargo tanks but in all cases a working space of at least 15 inches shall be provided around such independent tanks, or else provisions shall be made for moving them to secure such space. When independent cargo tanks are located in an enclosed space other than a cargo tank, such enclosed space shall be considered as equivalent to a pumproom, and shall be safeguarded as such, as required in the regulations in this subchapter.

**§ 32.65-35 Tank vessels carrying Grade A liquids—TB/ALL.**

Cargo tanks for Grade A liquids having a Reid vapor pressure in excess of

25 pounds shall be independent of the hull.

**§ 32.65-40 Construction and testing of cargo tanks and bulkheads—TB/ALL.**

(a) All cargo tanks to be vented at gage pressures of 4 pounds per square inch or less shall be constructed and tested as required by the requirements of the American Bureau of Shipping or other recognized classification society.

(b) All cargo tanks to be vented at gage pressures above 4 pounds per square inch shall be considered as pressure vessels and shall meet the requirements for such vessels as to construction and testing, as set forth in subchapter F (Marine Engineering) of this chapter.

(c) Gastight bulkheads shall be subjected to a thorough hose test.

[CGFR 65-50, 30 FR 16671, Dec. 30, 1965, as amended by CGFR 68-82, 33 FR 18805, Dec. 18, 1968]

**Subpart 32.70—Hull Requirements for Steel Hull Tank Vessels Constructed Prior to November 10, 1936****§ 32.70-1 Application—TB/ALL.**

All steel hull tank vessels, the construction or conversion of which was started prior to November 10, 1936, shall conform to the requirements in this subpart.

**§ 32.70-5 Hull requirements; general—TB/ALL.**

The scantlings, material, and workmanship, the subdivision of cargo spaces, the arrangement of cofferdams, the testing of tanks and cofferdams, shall be at least equivalent to the requirements of a recognized classification society for the particular service specified in the application for the certificate of inspection and permit for the transportation of liquid flammable cargoes in bulk as of the date when the tank vessel was built or as of the date when the vessel was converted into a tank vessel. In the absence of such classification requirements, the Officer in Charge, Marine Inspection, shall satisfy himself that the vessel's structure as specified in this section is safe for

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the service to be specified in its certificate of inspection.

[CGFR 66-33, 31 FR 15268, Dec. 6, 1966]

**§ 32.70-10 Cofferdams—TB/ALL.**

Tank vessels carrying Grade A, B, or C liquids shall be required to conform to the construction requirements in regard to vertical cofferdams in § 32.65-15, except that a dry cargo compartment shall be considered to be equivalent to a cofferdam, and except as provided for in § 32.70-20.

**§ 32.70-15 Pumprooms—TB/ALL.**

Tank vessels handling Grade A, B, C or D liquid cargo shall meet the requirements for tank vessels in § 32.65-20 except that the electrical installation shall comply with the requirements of § 32.45-10(c).

**§ 32.70-20 Pump-engine compartment—TB/ALL.**

No cofferdam will be required between a cargo tank and a compartment containing pumping engines and their auxiliaries which are used exclusively during pumping operations, provided the pumping engine compartment contains no cargo valves and is well ventilated and provided further that internal combustion exhaust within the compartment are completely water jacketed or insulated and that gasoline engine intakes are fitted with effective flame arresters.

**§ 32.70-25 Cargo tanks—TB/ALL.**

Cargo tanks shall comply with the conditions specified in §§ 32.65-30 and 32.65-35, and shall pass the tests required in § 32.65-40: *Provided, however,* That less than 15 inches around such tanks may be accepted if in the judgment of the Officer in Charge, Marine Inspection, making the inspection, a satisfactory inspection of the cargo tanks and hull structure can be made.

**Subpart 32.75—Hull Requirements for Wood Hull Tank Vessels Constructed Prior to November 10, 1936**

**§ 32.75-1 Application—TB/ALL.**

All wood hull tank vessels, the construction or conversion of which was

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started prior to November 10, 1936, shall conform to the requirements in this subpart.

**§ 32.75-5 Hull requirements; general—TB/ALL.**

The scantlings, material, and workmanship, and the fitting and fastening of parts shall be at least equivalent to the requirements of a recognized classification society for the particular service specified in the application for certificate of inspection and permit for the transportation of liquid flammable cargoes in bulk as of the date when the tank vessel was built, or as of the date when the vessel was converted into a tank vessel. In the absence of such classification requirements, the Officer in Charge, Marine Inspection, shall satisfy himself that the vessel's structure as specified in this section is safe for the service to be specified in its certificate of inspection.

**§ 32.75-10 Cargo tanks—TB/ALL.**

Cargo tanks shall be independent of the wood hull, shall be made of steel or iron, and shall pass the tests required in § 32.65-40 (a), (b). Where cargo tanks in wood hulls are not arranged to provide working space around them they shall be so constructed as to allow inspection of the hull, tanks, and bilges, and they shall be so installed that they can be moved to allow repairs to the hull structure and to themselves.

**§ 32.75-15 Electric bonding and grounding for tanks—TB/ALL.**

All independent cargo tanks in wood hull tank vessels shall be electrically bonded together with stranded copper cable of not less than No. 4B and S gage and one end of this cable shall be grounded to a copper or brass plate of not less than 2 square feet in area and one-sixteenth inch in thickness and this plate shall be securely fastened to the hull, on the outside, at a point where it shall be covered by water when the tank vessel is unloaded.

**§ 32.75-20 Hold spaces and bulkheads—TB/ALL.**

In wood hull tank vessels containing independent cargo tanks for the transportation of Grade A, B, C, or D liquids, the hold spaces shall be considered as

equivalent to a pumproom and shall be safeguarded and ventilated as such as required by §32.65-20. Where the hold spaces contain equipment or operations which are sources of vapor ignition, such equipment or operations shall be isolated from other spaces by gastight bulkhead or, if it is impracticable to construct a gastight bulkhead, two structurally tight bulkheads without openings, separated by a well-ventilated air space 24 inches wide, where possible may be used.

### Subpart 32.80—Tank Barges Constructed of Materials Other Than Steel or Iron

#### § 32.80-1 General requirements—B/ALL.

All tank barges with hulls constructed of materials other than iron or steel, the construction or conversion of which was started prior to September 2, 1945, and to which certificates of inspection were issued prior to March 2, 1946, shall be considered the same as tank barges constructed prior to November 10, 1936.

### Subpart 32.85—Lamp and Paint Rooms and Similar Compartments on Tankships

#### § 32.85-1 Fireproofing of lamp, oil and paint rooms—T/ALL.

Lamp, oil and paint rooms shall be wholly and tightly lined with metal.

### Subpart 32.90—Pilot Boarding Equipment

#### § 32.90-1 Pilot boarding equipment.

(a) This section applies to each vessel that normally embarks or disembarks a pilot from a pilot boat or other vessel.

(b) Each vessel must have suitable pilot boarding equipment available for use on each side of the vessel. If a vessel has only one set of equipment, the equipment must be capable of being easily transferred to and rigged for use on either side of the vessel.

(c) Pilot boarding equipment must be capable of resting firmly against the vessel's side and be secured so that it is clear from overboard discharges.

(d) Each vessel must have lighting positioned to provide adequate illumination for the pilot boarding equipment and each point of access.

(e) Each vessel must have a point of access that has:

(1) A gateway in the rails or bulwark with adequate handholds; or

(2) Two handhold stanchions and a bulwark ladder that is securely attached to the bulwark rail and deck.

(f) The pilot boarding equipment required by paragraph (b) of this section must include at least one pilot ladder approved under subpart 163.003 of this chapter. Each pilot ladder must be of a single length and capable of extending from the point of access to the water's edge during each condition of loading and trim, with an adverse list of 15°.

(g) Whenever the distance from the water's edge to the point of access is more than 30 feet, access from a pilot ladder to the vessel must be by way of an accommodation ladder or equally safe and convenient means.

(h) Pilot hoists, if used, must be approved under subpart 163.002 of this chapter.

[CGD 79-032, 49 FR 25455, June 21, 1984]

## PART 34—FIREFIGHTING EQUIPMENT

### Subpart 34.01—General

34.01-1 Applicability—TB/ALL.

34.01-5 Equipment installed but not required—TB/ALL.

34.01-10 Protection for unusual arrangements or special products—TB/ALL.

34.01-15 Incorporation by reference.

### Subpart 34.05—Firefighting Equipment, Where Required

34.05-1 Fire main system—T/ALL.

34.05-5 Fire-extinguishing systems—T/ALL.

34.05-10 Portable and semiportable extinguishers—TB/ALL.

34.05-20 Fire axes—T/ALL.

### Subpart 34.10—Fire Main System, Details

34.10-1 Application—TB/ALL.

34.10-5 Fire pumps—T/ALL.

34.10-10 Fire station hydrants, hose and nozzles—T/ALL.

34.10-15 Piping—T/ALL.

34.10-90 Installations contracted for prior to May 26, 1965—T/ALL.