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barriers must meet the standards of the American Bureau of Shipping published in ''Rules for Building and Classing Steel Vessels'', 1981.

(b) The longitudinal contiguous hull structure of a vessel having cargo containment systems with secondary barriers must be designed for a temperature that is:

(1) Colder than the calculated temperature of this hull structure when:

(i) The temperature of the secondary barrier is the design temperature; and

(ii) For any waters in the world except Alaskan waters, the ambient cold condition of:

(A) Five knots air at −18°C (0°F); and

(B) Still sea water at 0°C (32°F); or

(iii) For Alaskan waters the ambient cold condition of:

(A) Five knots air at −29°C (−20°F); and

(B) Still sea water at −2°C (28°F); or

(2) Maintained by the heating system under §154.178, if, without heat, the contiguous hull structure is designed for a temperature that is colder than the calculated temperature of the hull structure assuming the:

(i) Temperature of the secondary barrier is the design temperature; and

(ii) Ambient cold conditions of still air at 5°C (41°F) and still sea water at 0°C (32°F).

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 77–069, 52 FR 31630, Aug. 21, 1987]

§154.178 Contiguous hull structure: Heating system.

The heating system for transverse and longitudinal contiguous hull structure must:

(a) Be shown by a heat load calculation to have the heating capacity to meet §154.174(b)(2) or §154.176(b)(2);

(b) Have stand-by heating to provide 100% of the required heat load and distribution determined under paragraph (a); and

(c) Meet Parts 52, 53, and 54 of this chapter.

§154.180 Contiguous hull structure: Welding procedure.

Welding procedure tests for contiguous hull structure designed for a temperature colder than −18°C (0°F) must meet §54.05–15 and subpart 57.03 of this chapter.

§154.182 Contiguous hull structure: Production weld test.

If a portion of the contiguous hull structure is designed for a temperature colder than −34°C (−30°F) and is not part of the secondary barrier, each 100m (328 ft.) of full penetration butt welded joints in that portion of the contiguous hull structure must pass the following production weld tests in the position that the joint is welded:

(a) Bend tests under §57.06–4 of this chapter.

(b) A Charpy V-notch toughness test under §57.06–5 of this chapter on one set of 3 specimens alternating the notch location on successive tests between the center of the weld and the most critical location in the heat affected zone.[2]

(c) If the contiguous hull structure does not pass the test under paragraph (b) of this section, the retest procedures under §54.05–5(c) must be met.

§154.188 Membrane tank: Inner hull steel.

For a vessel with membrane tanks, the inner hull plating thickness must meet the deep tank requirements of the American Bureau of Shipping published in ''Rules for Building and Classing Steel Vessels'', 1981.

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 77–069, 52 FR 31630, Aug. 21, 1987]

§154.195 Aluminum cargo tank: Steel enclosure.

(a) An aluminum cargo tank and its dome must be enclosed by the vessel's hull structure or a separate steel cover.

(b) The steel cover for the aluminum cargo tank must meet the steel structural standards of the American Bureau of Shipping published in ''Rules for Building and Classing Steel Vessels'', 1981.

(c) The steel cover for the aluminum tank dome must be:

[2] The most critical location in the heat affected zone of the weld is based on procedure qualification results, except austenitic stainless steel need have notches only in the center of the weld.

(1) At least 3.2 mm (⅛ in.) thick;
(2) Separated from the tank dome, except at the support points; and
(3) Thermally isolated from the dome.

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 77–069, 52 FR 31630, Aug. 21, 1987]

SHIP SURVIVAL CAPABILITY AND CARGO TANK LOCATION

§ 154.200 Stability requirements: General.

Each vessel must meet the applicable requirements in subchapter S of this chapter.

[CGD 79–023, 48 FR 51009, Nov. 4, 1983]

§ 154.235 Cargo tank location.

(a) For type IG hulls, cargo tanks must be located inboard of:
(1) The transverse extent of damage for collision penetration specified in Table 172.180 of this chapter;
(2) The vertical extent of damage for grounding penetration specified in Table 172.180 of this chapter; and
(3) 30 inches (760 mm) from the shell plating.
(b) For type IIG, IIPG, and IIIG hulls, cargo tanks must be located inboard of:
(1) The vertical extent of damage for grounding penetration specified in Table 172.180 of this chapter; and
(2) 30 inches (760 mm) from the shell plating.
(c) In vessels having membrane and semi-membrane tanks, the vertical and transverse extents of damage must be measured to the inner hull.
(d) For type IIG, IIPG, and IIIG hulls, cargo tank suction wells may penetrate into the area of bottom damage specified as the vertical extent of damage for grounding penetration in Table 172.180 of this chapter if the penetration is the lesser of 25% of the double bottom height or 13.8 in. (350 mm).

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 79–023, 48 FR 51010, Nov. 4, 1983]

SHIP ARRANGEMENTS

§ 154.300 Segregation of hold spaces from other spaces.

Hold spaces must be segregated from machinery and boiler spaces, accommodation, service and control spaces, chain lockers, potable, domestic and feed water tanks, store rooms and spaces immediately below or outboard of hold spaces by a:
(a) Cofferdam, fuel oil tank, or single gastight A–60 Class Division of all welded construction in a cargo containment system not required by this part to have a secondary barrier;
(b) Cofferdam or fuel oil tank in a cargo containment system required by this part to have a secondary barrier; or
(c) If there are no sources of ignition or fire hazards in the adjoining space, single gastight A–O Class Division of all welded construction.

§ 154.305 Segregation of hold spaces from the sea.

In vessels having cargo containment systems required by this part to have a secondary barrier, hold spaces must be segregated from the sea by:
(a) A double bottom if the cargo tanks meet this part for design temperatures colder than −10°C (14°F); and
(b) Wing tanks if the cargo tanks meet this part for design temperatures colder than −55°C (−67°F).

§ 154.310 Cargo piping systems.

Cargo liquid or vapor piping must:
(a) Be separated from other piping systems, except where an interconnection to inert gas or purge piping is required by § 154.901(a);
(b) Not enter or pass through any accommodation, service, or control space;
(c) Except as allowed under § 154.703, not enter or pass through a machinery space other than a cargo pump or compressor room;
(d) Be in the cargo area except:
(1) As allowed under § 154.703;
(2) Bow and stern loading piping; and
(3) Emergency jettisoning piping.
(e) Be above the weather deck except:
(1) As allowed under § 154.703;
(2) Pipes in a trunk traversing void spaces above a cargo containment system; and
(3) Pipes for draining, venting, or purging interbarrier and hold spaces;
(f) Connect into the cargo containment system above the weather deck except: