(3) *Range of stability.* Through an angle of 20 degrees beyond its position of equilibrium after flooding, an OSV must meet the following conditions:

(i) The righting arm curve must be positive.

(ii) The righting arm must be at least 100 millimeters (4 inches).

(iii) Each submerged opening must be weathertight. (A tank vent fitted with a ball check-valve is weathertight.)

(4) *Progressive flooding.* Piping, ducts, or tunnels within the assumed extent of damage must be either—

(i) Equipped with arrangements, such as stop check-valves, to prevent progressive flooding of the spaces with which they connect; or

(ii) Assumed in the calculations required by paragraph (a) of this section to permit progressive flooding of the spaces with which they connect.

(d) *Buoyancy of superstructure.* For paragraph (a) of this section, the buoyancy of any superstructure directly above the side damage must be considered in the most unfavorable condition.

TABLE 174.207(a)—EXTENT OF DAMAGE

Collision Penetration	
Longitudinal extent (vessels with LBP not greater than 45 meters [143 feet]).	.1L or 1.8 meters (6 feet):, whichever is greater in length.
Longitudinal extent (vessels with LBP greater than 45 meters [143 feet]).	3 meters (10 feet) + .03L.
Transverse extent*	760 millimeters (30 inches).
Vertical extent.	From baseline upward without limit.

*The transverse penetration applies inboard from the side of the vessel, at right angles to the centerline, at the level of the deepest load waterline.

TABLE 174.207(b)—PERMEABILITY OF SPACES

Spaces and tanks	Permeability
Storerooms	60 percent.
Accommodations	95 percent.
Machinery	85 percent.
Voids and passageways	95 percent.
Dry-bulk tanks	0 (*) or 95 percent.
Consumable-liquid tanks	0 (*) or 95 percent.
Other liquid tanks	0 (*) 0 (**) or 95 percent.

*Whichever results in the more disabling condition.

**If tanks are partly filled, the permeability must be determined from the actual density and amount of liquid carried.

§ 174.210 Watertight doors in watertight bulkheads.

(a) This section applies to each vessel with watertight doors in bulkheads made watertight in compliance with this chapter.

(b) Except as provided by paragraph (c) of this section, each watertight door must comply with subpart H of part 170 of this chapter.

(c) A Class-1 door may be installed at any place if—

(1) The door has a quick-acting closing-device operative from both sides of the door;

(2) The door is designed to withstand a head of water equivalent to the depth from the sill of the door to the bulkhead deck or 3 meters (10 feet), whichever is greater; and

(3) The vessel's pilothouse contains a visual indicator showing whether the door is open or closed.

(d) Each watertight door must be marked in compliance with § 131.893 of this chapter.

(e) If a Class-1 door is installed, the vessel's stability letter will require the master to ensure that the door is always closed except when being used for access.

§ 174.215 Drainage of weather deck.

The weather deck must have open rails to allow rapid clearing of water, or must have freeing ports in compliance with § 42.15–70 of this chapter.

§ 174.220 Hatches and coamings.

(a) Each hatch exposed to the weather must be watertight, except that the following hatches may be only weathertight:

(1) Each hatch on a watertight trunk that extends at least 430 millimeters (17 inches) above the weather deck.

(2) Each hatch in a cabin top.

(b) Each hatch cover must—

(1) Have securing-devices; and

(2) Be attached to the hatch frame or coaming by hinges, captive chains, or other devices to prevent its loss.

(c) Each hatch that provides access to quarters or to accommodation spaces for crew members or offshore workers must be capable of being opened and closed from either side.

(d) Except as provided by paragraph (e) of this section, a weathertight door

with a permanent watertight coaming at least 380 millimeters (15 inches) high must be installed for each opening in a deckhouse or companionway that—

(1) Gives access into the hull; and

(2) Is in an exposed place.

(e) If an opening in a deckhouse or companionway has a Class-1 watertight door installed, the height of the watertight coaming need only accommodate the door.

§ 174.225 Hull penetrations and shell connections.

Each overboard discharge and shell connection except an engine exhaust must comply with §§ 56.50–95 and 128.230 of this chapter.

Subpart H—Special Rules Pertaining to Liftboats

SOURCE: CGD 82–004 and CGD 86–074, 62 FR 49355, Sept. 19, 1997, unless otherwise noted.

§ 174.240 Applicability.

Each liftboat inspected under subchapter L of this chapter must comply with this subpart.

§ 174.245 General.

Each liftboat must comply with §§ 174.210 through 174.225.

§ 174.250 Unrestricted service.

Each liftboat not limited to restricted service must comply with subpart C of this part in each condition of loading and operation.

§ 174.255 Restricted service.

This section applies to each liftboat unable to comply with § 174.250 and limited to restricted service as defined by § 125.160 of this chapter.

(a) *Intact stability*. (1) Each liftboat must be shown by design calculations to meet, under each condition of loading and operation afloat, the following requirements:

(i) Those imposed by § 174.045, given a ''K'' value of at least 1.4.

(ii) A range of positive stability of at least 10 degrees extending from the angle of the first intercept of the curves of righting moment and wind heeling moment, either to the angle of the second intercept of those curves or to the angle of heel at which downflooding would occur, whichever angle is less.

(iii) A residual righting energy of at least 0.003 meter radians (5 foot-degrees) between the angle of the first intercept of the curves of righting moment and wind heeling moment, either to the angle of the second intercept of those curves or to the angle of heel at which downflooding would occur, whichever angle is less.

(2) For this section, each wind heeling moment must be calculated as prescribed by § 174.055 of this part using winds of 60 knots for normal conditions of operation afloat and of 70 knots for severe-storm conditions of operation afloat.

(3) For paragraph (a)(1) of this section, the initial metacentric height must be at least 300 millimeters (1 foot) for each leg position encountered while afloat including the full range of leg positions encountered while jacking.

(b) *Damaged stability*. (1) Each liftboat must be designed so that, while it is in each of its normal operating conditions, its final equilibrium waterline will remain below the lowest edge of any opening through which additional flooding can occur if the liftboat is subjected simultaneously to—

(i) Damage causing flooding described by paragraph (b)(4) of this section; and

(ii) A wind heeling moment calculated in compliance with § 174.055(b) using a wind speed of 50 knots.

(2) Each liftboat must have a means of closing off each pipe, ventilation system, and trunk in each compartment described by paragraph (b)(4) of this section if any part of the pipe, ventilation system, or trunk is within 760 millimeters (30 inches) of the hull.

(3) For compliance with paragraph (b)(1) of this section, no compartment on the liftboat may be ballasted or pumped out to compensate for the flooding described by paragraph (b)(4) of this section.

(4) For compliance with paragraph (b)(1) of this section, each compartment within 760 millimeters (30 inches) of the hull, excluding the bottom of the liftboat, between two adjacent main