

Chief Surveyor not more than 8 per cent of the length of the ship.

(3) Where any part of the ship below the waterline extends forward of the forward perpendicular, e.g. a bulbous bow, the distances stipulated in sub-clause (2) of this clause shall be measured from a point either:

- (a) at the mid-length of such extension; or
- (b) at a distance 1.5 per cent of the length of the ship forward of the forward perpendicular; or
- (c) at a distance 3m forward of the forward perpendicular; whichever gives the smallest measurement.

(4) The bulkhead may have steps or recesses provided they are within the limits prescribed in sub-clauses (2) or (3) of this clause. Pipes piercing the collision bulkhead shall be fitted with suitable valves operable from above the freeboard deck and the valve chest shall be secured at the bulkhead inside the forepeak. The valves may be fitted on the after side of the collision bulkhead provided that the valves are readily accessible under all service conditions and the space in which they are located is not a cargo space. All valves shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable. No door, manhole, ventilation duct or any other opening shall be fitted in this bulkhead.

(5) Where a long forward superstructure is fitted the collision bulkhead shall be extended weathertight to the deck next above the freeboard deck. The extension need not be fitted directly above the bulkhead below provided it is located within the limits prescribed in sub-clauses (2) or (3) of this clause with the exemption permitted by sub-clause (6) of this clause, and the part of the deck which forms the step is made effectively weathertight.

(6) Where bow doors are fitted and a sloping loading ramp forms part of the extension of the collision bulkhead above the freeboard deck the part of the ramp which is more than 2.3m above the freeboard deck may extend forward of the limit specified in sub-clauses (2) or (3) of this clause. The ramp shall be weathertight over its complete length.

(7) The number of openings in the extension of the collision bulkhead above the freeboard deck shall be restricted to the minimum compatible with the design and normal operation of the ship. All such openings shall be capable of being closed weathertight.

**21. Construction and Initial Testing of Watertight Bulkheads—**(1) The requirements of clause 11 of this Code apply to the construction and initial testing of watertight bulkheads for cargo ships.

**22. Construction and Initial Testing of Watertight Doors—**(1) Each watertight door shall be tested by water pressure to a head up to the bulkhead deck or freeboard deck respectively. The test shall be made before the ship is put into service, either before or after the door is fitted.

**23. Construction and Initial Testing of Watertight Decks, Trunks, etc.—**(1) The requirements of clause 18 of this Code apply to the construction and initial testing of watertight decks, trunks, tunnels, duct keels and ventilators for cargo ships.

#### SECTION C—STABILITY—

**24. Stability Information for Passenger Ships and Cargo Ships—**(1) Every ship to which this Code applies, shall be inclined upon its completion and the elements of its stability determined. Stability information in the form required by Rule 32 of the Load Line Rules 1970 shall be supplied to the Master of every ship to which this Code applies.

(2) Where any alterations are made to a ship so as to materially affect the stability information supplied to the Master, amended stability information shall be provided. If necessary the ship shall be re-inclined.

(3) The Chief Surveyor may allow the inclining test of an individual ship to be dispensed with provided basic stability data are available from the inclining test of a sister ship and it is shown to the satisfaction of the Chief Surveyor that reliable stability information for the exempted ship can be obtained from such basic data.

(4) The Chief Surveyor may also allow the inclining test of an individual ship or class of ships especially designed for the carriage of liquids or ore in bulk to be dispensed with when reference to existing data for similar ships clearly indicates that due to the ship's proportions and arrangements more than sufficient metacentric height will be available in all probable loading conditions.

(5) Every ro-ro passenger ship of Class I or II if engaged in services which afford only short periods in port shall be provided with an on board loading and stability computer approved by the Chief Surveyor, unless either of the following means, approved by the Chief Surveyor, are provided for calculating the vessel's stability prior to departure.

(a) A shore based loading and stability computer system with means of rapidly transmitting the stability condition to the ship.

(b) Other means of rapidly calculating the stability condition of the ship are carried on board.

#### **25. Stability of Passenger Ships in Damaged Condition—**

(1) Sufficient intact stability shall be provided in all service conditions so as to enable the ship to withstand the final stage of flooding of any one main compartment which is required to be within the floodable length.

(2) Where two adjacent main compartments are separated by a bulkhead which is stepped under the conditions of clause 8 of this Code, the intact stability shall be adequate to withstand the flooding of those two adjacent main compartments.

(3) Where the required factor of subdivision is .50 or less but more than .33 intact stability shall be adequate to withstand the flooding of any two adjacent main compartments.

(4) Where the required factor of subdivision is .33 or less the intact stability shall be adequate to withstand the flooding of any three adjacent main compartments.

(5) The requirements of sub-clause (1) of this clause shall be determined by calculations which are in accordance with sub-clauses (7), (8), (9) and (10) of this clause and which take into consideration the proportions and design characteristics of the ship and the arrangement and configuration of the damaged compartments. In making these calculations the ship is to be assumed in the worst anticipated service condition as regards stability.

(6) Where it is proposed to fit decks, inner skins or longitudinal bulkheads of sufficient tightness to seriously restrict the flow of water, the Chief Surveyor shall be satisfied that proper consideration is given to such restrictions in the calculations.

(7) The stability required in the final condition after damage, and after equalisation where provided, shall be determined as follows:

(a) The positive residual righting lever curve shall have a minimum range of 15° beyond the angle of equilibrium.

(b) The area under the righting lever curve shall be at least 0.015 m-rad, measured from the angle of equilibrium to the lesser of:

- (i) the angle at which progressive flooding occurs;
- (ii) 22° (measured from the upright) in the case of one-compartment flooding, or 27° (measured from the upright) in the case of the simultaneous flooding of two or more adjacent compartments.

(c) A residual righting lever is to be obtained within the range specified in (a), taking into account the greatest of the following heeling moments: