

## **MSC/Circ.541**

### **GUIDANCE NOTES ON THE INTEGRITY OF FLOODING BOUNDARIES ABOVE THE BULKHEAD DECK OF PASSENGER SHIPS FOR PROPER APPLICATION OF REGULATIONS II-1/8 AND 20, PARAGRAPH 1, OF THE 1974 SAFETY OF LIFE AT SEA CONVENTION, AMENDED**

The amendment to regulation II-1/8 of the 1974 SOLAS Convention that came into force on 29 April 1990, concerning the survival of passenger ships after damage, led to uncertainty in the interpretation of regulation II-1/20 on the integrity of flooding boundaries above the bulkhead deck. The Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its thirty-fourth session, developed amendments to regulations II-1/8 and 20 that would ensure a consistent interpretation of the amendment to regulation 8 that came into force on 29 April 1990.

Recognizing that flooding boundaries also serve as fire protection boundaries, the Maritime Safety Committee, at its fifty-eighth session, referred the amendments proposed by the SLF Sub-Committee to the Sub-Committee on Fire Protection, for its consideration.

Further recognizing the need for interim guidance, the Maritime Safety Committee, at its fifty-eighth session, adopted a guidance note concerning the integrity of flooding boundaries above the bulkhead deck of passenger ships. The note is annexed for the information of Member Governments and the commercial shipbuilding industry.

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#### **ANNEX**

### **GUIDANCE NOTES ON THE INTEGRITY OF FLOODING BOUNDARIES ABOVE THE BULKHEAD DECK OF PASSENGER SHIPS FOR PROPER APPLICATION OF REGULATIONS II-1/8 AND 20, PARAGRAPH 1, OF THE 1974 SAFETY OF LIFE AT SEA CONVENTION, AS AMENDED**

1 Damage stability requirements for passenger ships are set forth in regulation II-1/8 of the International Convention for the Safety of Life at Sea, 1974, as amended. The 1989 amendment to this regulation requires specific stability characteristics at angles of heel beyond the angle of equilibrium. For the purpose of calculating the required righting arms, it is necessary to establish flooding boundaries above the bulkhead deck.

2 Regulation II-1/20 addresses watertight integrity above the margin line, which is effectively equivalent to the bulkhead deck. Although paragraph 1 addresses the spread of water above the bulkhead deck, it is insufficient to establish boundaries for calculation purposes. For the purpose of establishing boundaries to satisfy the residual stability requirements of regulation II-1/8, enclosed spaces included in the damage stability calculations may have weathertight subdivision if they do not become submerged during any stage of flooding, otherwise the subdivision should be watertight. This procedure extends the principle of a weathertight envelope, put forward in paragraph 2, for boundaries which are intermittently submerged.

3 A primary concern with the integrity of boundaries above the bulkhead deck is the design and control of doors. Modern passenger ships often have doors in main vertical zone bulkheads and other bulkheads that are routinely used. Compliance with regulation II-1/8 necessitates that such doors be power operated and remotely controlled sliding watertight doors. Watertight doors installed in the spaces included in the damage stability calculations should meet the requirements of regulation II-1/15 for power operated sliding watertight doors, except that the scantlings and sealing requirements could be reduced to the maximum head of water for their location.

4 The use of watertight sliding doors above the bulkhead deck affects the escape provisions of regulation II-2/28. When such doors are used above the bulkhead deck, there should be at least two means of escape from each main vertical zone or similarly restricted space or group of spaces, at least one of which should be independent of watertight doors and at least one of which should give access to a stairway forming a vertical escape. Sliding doors that will be used frequently by passengers must not create a tripping hazard.

5 Doors fitted above the bulkhead deck which are required to meet both fire-protection and watertight requirements shall comply with the fire requirements in regulation II-2/30 and the watertight requirements in 3 above. Notwithstanding the ultimate sentence of regulation II-2/30.2, watertight doors fitted above the bulkhead deck should be insulated to the standard required by table 26.1 and regulation II-2/24.1.1. The door must be capable of operation using both the remote fire door control circuit and the remote watertight door control circuit. If two doors are fitted, they must be capable of independent operation. The operation of either door separately must not preclude closing of the other door. Both doors must be capable of being operated from either side of the bulkhead.

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