

# Regulations of 15 June 1987 No. 507 on safety measures, etc. on passenger ships, cargo ships and lighters

**Legal basis:** Laid down by the Norwegian Maritime Authority on 15 June 1987 under the Act of 9 June 1903 No. 7 relating to Public Control of the Seaworthiness of Ships, etc.

**Added legal basis:** Legal basis amended to Act of 16 February 2007 relating to ship safety and security (Ship Safety and Security Act) sections 2, 6, 9, 11, 12, 21, 22, 28a and 43, cf. Formal Delegation of 16 February 2007 No. 171, Formal Delegation of 31 May 2007 No. 590 and Formal Delegation of 19 August 2013 No. 1002.

**EEA references:** EEA Agreement Annex II Chapter XXII point 1 (Directive 89/686/EEC) and Annex XVIII point 11 (Directive 89/655/EEC and Directive 2001/45/EC).

**Amendments:** Amended by Regulations of 5 November 1987 No. 876, 24 July 1989 No. 662, 20 October 1989 No. 1118, 15 September 1992 No. 696, 6 July 1993 No. 746 (in force 1 July 1995 according to regulation 9 May 1995 No. 467), 14 December 1995 No. 1097, 14 December 1995 No. 1103, 25 January 2000 No. 169, 4 June 2002 No. 1074, 21 September 2004 No. 131, 1 January 2005 No. 8, 4 February 2005 No. 95, 29 June 2007 No. 1006 (i.a. legal basis), 29 June 2012 No. 891, 19 August 2013 No. 1036, 30 August 2013 No. 1091, 5 September 2014 No. 1159.

## Chapter 1 General provisions

### Section 1 *Scope of application*

(1) These Regulations apply to Norwegian cargo ships, passenger ships and lighters.

(2) Unless otherwise provided for in the individual sections, the provisions pursuant to the first paragraph apply to ships of 50 gross tonnage and upwards.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 5 September 2014 No. 1159 (in force on 15 September 2014).

### Section 2 *Definitions*

For the purpose of these Regulations, the following definitions shall apply:

- a) “*Manned lighter*”: A lighter which is manned in accordance with the regulations currently in force relating to manning of Norwegian ships.
- b) “*Gross tonnage*”: The numeric value indicated as gross tonnage in the Tonnage Certificate. If safety tonnage is entered in the “Remarks” column of the Tonnage Certificate, the numeric value for such tonnage shall apply as gross tonnage.
- c) “*Deck cargo*”: Cargo which is carried on exposed decks.
- d) “*Fixed means of access*”: Fixed ladders, fixed gangways and platforms.
- e) “*Portable means of access*”: Rope/ladders, gangways, etc. which are temporarily arranged for particular purposes.
- f) “*Approved, type-approved or accepted*”:
  1. In respect of equipment covered by the regulations on marine equipment. Type-approved by a Notified Body and marked in accordance with the said regulations.
  2. In respect of other equipment:
    - 2.1 Approved: A single piece of equipment approved by the Norwegian Maritime Authority, with the exception of radio equipment approved by the Norwegian Post and Telecommunications Authority.
    - 2.2 Type-approved: Prototype approved by the Norwegian Maritime Authority with or without spot checks of mass production.
    - 2.3 Accepted: Equipment accepted by the Norwegian Maritime Authority on the basis of approval or type-approval by a recognized classification society, any other public or private institution, or the administration of a country which has ratified the SOLAS Convention.
- g) “*Helicopter deck*”: Special deck constructed for landing and take-off of helicopters.
- h) “*ISO*”: The International Standards Organization.
- i) “*Landing area*”: Area on the ship which is marked for landing and take-off of helicopters (e.g. part of tank deck, hatch cover, etc.).
- j) “*Load Line Convention*”: The International Convention on Load Lines signed in London on 5 April 1966 with subsequent amendments, including amendments set out in the Protocol of 1988 to the Load Line Convention of 1966.

- k) “*Cargo ship*”: Any ship which is not a passenger ship, a fishing vessel, a lighter or a pleasure craft.
- l) “*Lighter*”: A hull or ship with no propulsion machinery which has to be towed or pushed whenever it is to be moved, and which is used for carrying cargo.
- m) “*Area for winching operations*”: Area on the ship which is marked for winching operations, but not for landing (e.g. part of tank deck, hatch cover, etc.).
- n) “*Passenger ship*”: A ship that can carry more than 12 passengers or which is required to have official permission to carry passengers.
- o) “*SOLAS Convention*”: The International Convention for the Safety of Life at Sea, 1974, with subsequent amendments.
- p) “*Ship of historical importance*”: Ship/vessel which has been given such status in accordance with approval by the Central Office of Historic Monuments or whoever is authorized by this Office. This status is maintained for as long as the Central Office of Historic Monuments, through a separate agreement with the owner, finds the antiquarian conditions to be sustained.

Amended by Regulation of 29 June 2007 No. 1006 (in force on 1 July 2007).

## Section 3

(Repealed on 15 September 2014 by Regulation of 5 September 2014 No. 1159.)

## Section 4

### *Exemptions*

The Norwegian Maritime Authority may upon written application permit other solutions than those required by these Regulations when it is established that such solutions are equivalent to the requirements of the Regulations.

The Norwegian Maritime Authority may exempt a ship from one or more of the requirements of the Regulations when the company applies for an exemption in writing and one of the following conditions is met:

- a) it is established that the requirement is not essential and that the exemption is justifiable in terms of safety;
- b) it is established that compensating measures will maintain the same level of safety as the requirement of these Regulations.

Amended by Regulation of 5 September 2014 No. 1159 (in force on 15 September 2014).

## Section 5

(Repealed on 15 September 2014 by Regulation of 5 September 2014 No. 1159.)

## Section 6

(Repealed on 15 September 2014 by Regulation of 5 September 2014 No. 1159.)

## Chapter 2

### Means of access, etc.

## Section 7

### *Inspection, etc. of fixed and portable means of access and of passages on board*

(1) Fixed and portable means of access shall be properly maintained. In case of damage to a means of access, it shall, if required, be fenced off until the necessary repairs have been carried out.

(2) Movable platforms with appurtenant equipment shall be inspected and marked in accordance with the regulations currently in force on cargo-handling appliances on ships.

(3) When a ship carries deck cargo, manropes, and if necessary, safe passageways on top of the deck cargo shall be provided in places frequented by people on board. Manropes or railings shall also be provided to prevent anyone from falling overboard, or into holds, tanks, etc.

## Section 8

(Repealed on 15 September 2014 by Regulation of 5 September 2014 No. 1159.)

## Section 9

### *Gangways, accommodation ladders, passenger lifts, etc.*

(1) All ships shall be provided with satisfactory means of access on board to ensure safe embarkment and disembarkment.

(2) Means of access must be positioned so as not to impede safe launching of the lifeboats, at a safe distance from openings in the ship's side and, as far as practicable, so that nobody will have to pass below suspended cargo. Means of access such as accommodation ladders should point aft, and shall in suspended position rest against a straight ship's side. Where this is not practical owing to the structure of the ship, an adequate supporting arrangement must be provided.

(3) For ships of less than 300 gross tonnage, it is sufficient that the means of access is to the Norwegian Maritime Authority's satisfaction, but it shall, to the greatest possible extent, comply with the requirements for approved equipment.

(4) When means of access for embarking and disembarking shall be fitted, the following shall be complied with:

- a) Under the means of access, a net shall be fitted between ship's side and shore. Further, the means of access shall be provided with adequate lighting.
- b) In railing or bulwark there shall be an opening or similar to place the accommodation ladder or gangway. If the means of access, nevertheless, have to be placed over the bulwark/railing, stairs or steps with handrail shall be fitted, leading from the means of access down to the deck. The bulwark ladder shall be secured in a reliable manner.
- c) If means of access from ashore are used, these shall be in proper condition, and they shall be fitted in a reliable manner.
- d) When the ship is at anchor, an accommodation ladder with a platform fitted at the lower end shall be used.
- e) Rail ropes and rope nets shall be fitted on the sides of the means of access and at both platforms when the means of access are in use.
- f) The maximum angle of inclination permitted for gangways is 35 degrees. The maximum angle of inclination for combined gangways and accommodation ladders is 50 degrees.

(5) Accommodation ladders with appurtenant platforms shall meet the requirements of NS 6249 or ISO standard No. 5488.

(6) Gangways shall meet the requirements stated in the appendix to these Regulations or ISO standard No. 7061.

(7) The accommodation ladder shall be of such a length that at 55 degrees (50 degrees for fixed steps) to the horizontal, it will at least reach down to 1 metre above the surface of the water at the most adverse trim and draught. If the distance from the deck to the water surface exceeds 10 metres, the accommodation ladder shall, at an angle of 50 degrees to the horizontal, at least reach down to 1 metre above the surface of the water at the most adverse trim and draught. Telescopic accommodation ladders are permitted for lengths of up to 30 metres.

(8) Lifts shall be maintained and inspected in accordance with ISO standard 8383-1985.

Amended by Regulation of 5 September 2014 No. 1159 (in force on 15 September 2014).

## Chapter 3

### Closing arrangements, stowing of cargo etc.

## Section 10

### *Hatches, hatch covers, etc.*

(1) All hatches and closing appliances shall be securely closed and battened down when the ship is not in port.

(2) During loading or discharging from holds where all hatches or hatch covers/pontoons have not been removed, adequate safety devices shall be provided to prevent these from falling down.

(3) Hatches, shifting beams, pontoons, etc. shall, when removed, be placed on deck at a distance of at least 600 mm from hatch coamings or hatch openings. Hatch covers shall be secured when left in an open position.

(4) Mechanically operated hatch covers must be handled only by persons who are familiar with their operation.

(5) Deck openings, which are not protected by hatch coamings or similar, having a net height of 750 mm above deck, shall be effectively fenced off. Deck openings shall be adequately lighted.

(6) Where truck guards are required and these are demountable, it shall be ensured that these are in their proper place before truck work is started.

(7) Swimming pools shall be effectively safe-guarded by means of a net or similar device stretched over the pools when not in use.

Amended by Regulation of 5 September 2014 No. 1159 (in force on 15 September 2014).

## Section 11

### *Ports in the ship's side*

(1) Manoeuvring levers/wheels for mechanically operated ports in the ship's side shall be properly secured when not in use.

(2) Before the ports in the ship's sides, bow or stern are opened, adequate railings and security devices shall be in place. The ports shall be handled only by persons who are familiar with their operation.

(3) Ports in exposed positions in the ship's sides, bow and stern shall be closed and properly battened before the ship leaves the quay or berth and other ports in the ship's sides shall be closed and properly battened before the ship leaves port. Instructions for operating, opening and closing of such ports shall be available.

## Section 12

### *Carriage of deck cargo*

(1) The following general requirements apply to the carriage of deck cargo:

- a) ---
- b) ---
- c) Hatch openings in weatherdecks which are covered by cargo shall be closed and battened down according to regulations. Ventilators and air pipes shall be effectively protected.
- d) Deck cargo shall be stowed in a safe and proper manner and such as to allow water to drain freely from the deck.
- e) When temporary bulkheads (bins) are used for the carriage of deck cargo, openings shall be arranged so as to prevent water from accumulating.
- f) The deck cargo shall be effectively stowed and shored so that it cannot shift.
- g) Lashings are to be such that they can be readily loosened or tightened during the voyage.
- h) When the cargo is so placed that the effective height of the bulwarks or railings is reduced, railings or manropes shall be provided in accordance with section 7, third paragraph.
- i) Deck cargo shall not block exits from accommodation and machinery spaces or emergency exits.
- j) The deck cargo shall not be placed so as to impede the immediate use of the lifesaving equipment.
- k) It shall be possible at all times to sound tanks and bilges.
- l) ---
- m) There shall be ready access to fire hydrants.
- n) Deck cargo shall not prevent access to or use of anchors, windlasses, winches or other mooring gear.

(2) When carrying fish and the like in bins on deck, the provisions of the Regulations on the construction of passenger ships and cargo ships currently in force shall be complied with.

(3) Ships of less than 15 metres in overall length or of less than 50 gross tonnage which do not possess stability data for the carriage of deck cargo shall before departure with deck cargo, if possible, be inclined sufficiently or in other ways examined, so that the ship's master has been assured that the ship has sufficient stability for the voyage to be undertaken. The characteristics of the cargo, as well as conditions which may occur during the voyage, shall be taken into consideration.

Amended by Regulation of 5 September 2014 No. 1159 (in force on 15 September 2014).

## Section 13

### *Embarking, disembarking, and stowage, etc. of vehicles on ferries*

(1) The following shall apply to all ferries:

- a) Passengers may remain seated in their vehicles during embarkation and disembarkation when the arrangement for mooring and locking etc. the ferry to the vehicle ramp is in compliance with the Regulations currently in force on the construction of passenger ships and cargo ships. During vehicle embarkation and disembarkation the vehicle ramp from ferry to quay shall be securely locked to the recess of the ferry.
- b) If the same gangway is used for passengers and cars, provisions shall be made for passengers to move across the gangway and to and from the passenger accommodation unimpeded by cars.
- c) Exits from the car deck shall be clearly marked, and a public address system which also covers the car deck shall be installed for the communication of information to the passengers.
- d) Propulsion engines in motor vehicles and other combustion engines fitted in motor vehicles or trailers shall be turned off during the voyage. For appliances operated using open flames, the main valve on the gas or fuel container shall be closed so that all flames are extinguished. Notices to this effect shall be clearly visible on board.
- e) Permission may be granted for combustion engines apart from a vehicle's propulsion engine to be left running during the voyage on partially enclosed ferries if the car or trailer is positioned in the open section of the car deck, and on open ferries if the car or trailer is positioned in the afterpart of the car deck.

Permission will be granted as deemed necessary due to the length of the journey and for what purpose the combustion engine will be used, etc.

- f) While vehicles are parked on board, the handbrake shall be applied with the engine in lowest gear.
- g) When required, vehicles shall be lashed down and secured against shifting.
- h) Ports on the car deck shall be closed and battened down during the crossing.
- i) Smoking and the use of naked flames is not permitted on the car deck. Signs to this effect shall be clearly visible.

(2) In open or partially open ferries passengers may remain seated in their vehicles during the crossing when the ferry is operating in trade area 2 or a lesser trade area, and the following requirements have been met:

- a) Vehicles shall be stowed to leave a clearance of at least 60 cm on one side of the vehicle and adequate passageways giving free access to the sides of the ferry.
- b) Passageways to the accommodation, emergency exits, fire and rescue equipment shall be kept free of obstructions.

(3) In open or partially open ferries operating in trade area 3 / Class D or a greater trade area and on enclosed ferries, passengers are not permitted to remain on the car deck during the crossing between ports. Before the ship leaves port, the crew shall check that all the passengers have left the car deck, and the means of access to the car deck shall be locked during the crossing. On ferries operating on short ferry links between main highways, the Norwegian Maritime Authority may give special permission for passengers to remain seated in their vehicles during the crossing.

(4) On all ferries, persons may remain seated in emergency response vehicles and other similar means of transport during vehicle embarkation and disembarkation and during the crossing. For ships for which an evacuation analysis is required, the analysis shall also include evacuation of such transport. The company shall prepare procedures for such transport and the master shall, before the transport begins, particularly ensure:

- a) that the service personnel in the vehicle is familiar with how to act in an emergency and how the ship is evacuated;
- b) that there is sufficient space around the vehicle so that everyone can get out and to the muster stations; and
- c) that radio contact between the vehicle and the bridge has been established.

Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 30 August 2013 No. 1091 (in force on 1 November 2013).

## Section 14

### *Stability*

(1) All ships shall have the following stability data and other aids which shall be kept on board:

- a) An approved copy of each of the drawings and calculations documenting the stability of the ship, both in the intact condition and damaged condition.
- b) A calculation example shall also be included showing the use of KG limit curves, and possible other aids for controlling the stability of the ship for the various loading conditions. Aids which are used in addition to – or as a substitute for – KG limit curves for evaluating the stability of the ship, including loading instruments, shall be approved by the Norwegian Maritime Authority for approval.

(2) During normal operation it shall be ensured that:

- a) Stability information as well as the relevant conditions for approval thereof, are taken into consideration, such as: weathertight/watertight closing appliances, towing, distribution of cargo, passengers, heavy vehicles, timber<sup>1</sup>, icing and possible use of water ballast, roll damping tanks, exchange/alternate tanks, etc.
- b) The ship shall be loaded in such a manner that adequate stability is achieved in all loading conditions, and that the master, according to his own judgement of e.g. the ship's manoeuvring characteristics, take the necessary precautions to achieve a reliable trim during the whole voyage for the current loading condition of the ship.
- c) The condition on departure and arrival corresponds to the stability data, and that the ship's centre of gravity lies on the permitted side of the KG limitation curves.
- d) The total weight of the deck cargo does not exceed 3% of the ship's deadweight, or 30,000 kg if 3% of the deadweight exceeds this, unless otherwise stated in the approved stability calculations.
- e) Increase in weight due to the fact that the deck cargo can absorb or collect water is taken into consideration. Including the presupposed increase of weight, the ship shall not be loaded to a depth greater than to the load line for the trade and season concerned.
- f) If the ship is engaged in waters where there is a danger of icing, approved loading conditions under conditions of icing shall be on board. When loading during winter, expected icing and change of draught and stability during the voyage shall also be given reasonable consideration. Under such conditions the ship must not be loaded to the load line for the trade and season concerned.
- g) The consequences of loss of crane cargo shall be specially considered if, during loading/ discharging operations at sea, counter ballast is used to balance the heeling moment caused by the weight of the crane.

Amended by Regulation of 5 September 2014 No. 1159 (in force on 15 September 2014).

<sup>1</sup> Concerning stowing of timber, reference is made to IMO Code of Safe Practice for Ships Carrying Timber Deck Cargo (A-287 VIII), and the International Convention on Load Lines, 1966, if the ship has timber freeboard.

Chapter 3a  
Damage control information and prevention  
and control of water ingress, etc.

Section 14a  
*Scope of application of chapter 3a on damage control  
information and prevention and control of water ingress, etc.*

- (1) Chapter 3a applies to Norwegian:
- a) cargo ships of 500 gross tonnage and upwards engaged on foreign voyages;
  - b) passenger ships engaged on foreign voyages.

Section 14b  
*Damage control information (SOLAS regulation II-1/19)*

(1) There shall be permanently exhibited, or readily available on the navigation bridge, for the guidance of the officer in charge of the ship, plans showing clearly for each deck and hold the boundaries of the watertight compartments, the openings therein with the means of closure and position of any controls thereof, and the arrangements for the correction of any list due to flooding. In addition, booklets containing the aforementioned information shall be made available to the officers of the ship.

(2) Watertight doors in passenger ships permitted to remain open during navigation shall be clearly indicated in the ship's stability information.

(3) General precautions to be included shall consist of a listing of equipment, conditions, and operational procedures, considered by the Norwegian Maritime Authority to be necessary to maintain watertight integrity under normal ship operations.

(4) Specific precautions to be included shall consist of a listing of elements (i.e. closures, security of cargo, sounding of alarms, etc.) considered by the Norwegian Maritime Authority to be vital to the survival of the ship, passengers and crew.

(5) In case of ships to which damage stability requirements of section 3, cf. SOLAS part B 1, of the Regulations of 1 July 2014 No. 1072 on the construction of ships apply, damage stability information shall provide the master with a simple and easily understandable way of assessing the ship's survivability in all damage cases involving a compartment or group of compartments.

Section 14c  
*Loading of passenger ships (SOLAS regulation II-1/20)*

(1) On completion of loading of a passenger ship and prior to its departure, the master shall determine the ship's trim and stability and also ascertain and record that the ship is in compliance with stability criteria in relevant regulations. The determination of the ship's stability shall always be made by calculation. The Norwegian Maritime Authority may accept the use of an electronic loading and stability computer or equivalent means for this purpose.

(2) Water ballast should not in general be carried in tanks intended for oil fuel. In ships in which it is not practicable to avoid putting water in oil fuel tanks, oily-water separating equipment to the satisfaction of the Norwegian Maritime Authority shall be fitted, or other alternative means, such as discharge to shore facilities, acceptable to the Norwegian Maritime Authority shall be provided for disposing of the oily-water ballast.

(3) The provisions of this section do not affect the provisions of Regulations of 30 May 2012 No. 488 on environmental safety for ships and mobile offshore units.

Section 14d  
*Periodical operation and inspection of watertight doors, etc.,  
in passenger ships (SOLAS regulation II-1/21)*

(1) Drills for the operating of watertight doors, sidescuttles, valves and closing mechanisms of scuppers, ash-chutes and rubbish-chutes shall take place weekly. In ships in which the voyage exceeds one week in duration a complete drill shall be held before leaving port, and others thereafter at least once a week during the voyage.

(2) All watertight doors, both hinged and power-operated, in watertight bulkheads, in use at sea, shall be operated daily.

(3) The watertight doors and all mechanisms and indicators connected therewith, all valves the closing of which is necessary to make a compartment watertight, and all valves the operation of which is necessary for damage control cross-connections shall be periodically inspected at sea at least once a week.

(4) A record of all drills and inspections required by this section shall be entered in the log-book with an explicit record of any defects which may be disclosed.

## Section 14e

### *Prevention and control of water ingress, etc.*

#### *(SOLAS regulation II-1/22)*

(1) All watertight doors shall be kept closed during navigation except that they may be opened during navigation as specified in the third and fourth paragraphs. Watertight doors of a width of more than 1.2 m in machinery spaces as permitted by section 3 of the Regulations on the construction of ships, cf. SOLAS regulation II-1/13.10, may only be opened in the circumstances detailed in that paragraph. Any door which is opened in accordance with this paragraph shall be ready to be immediately closed.

(2) Watertight doors located below the bulkhead deck having a maximum clear opening width of more than 1.2 m shall be kept closed when the ship is at sea, except for limited periods when absolutely necessary as determined by the Norwegian Maritime Authority.

(3) A watertight door may be opened during navigation to permit the passage of passengers or crew, or when work in the immediate vicinity of the door necessitates it being opened. The door must be immediately closed when transit through the door is complete or when the task which necessitated it being open is finished.

(4) Certain watertight doors may be permitted to remain open during navigation only when considered absolutely necessary; that is, being open is determined essential to the safe and effective operation of the ship's machinery or to permit passengers normally unrestricted access throughout the passenger area. Such determination shall be made by the Norwegian Maritime Authority only after careful consideration of the impact on ship operations and survivability. A watertight door permitted to remain thus open shall be clearly indicated in the ship's stability information and shall always be ready to be immediately closed.

(5) Portable plates on bulkheads shall always be in place before the ship leaves port, and shall not be removed during navigation except in case of urgent necessity at the discretion of the master. The necessary precautions shall be taken in replacing them to ensure that the joints are watertight. Power-operated sliding watertight doors permitted in accordance with section 3 of the Regulations on the construction of ships, cf. SOLAS regulation II-1/13.10, shall be closed before the ship leaves port and shall remain closed during navigation except in case of urgent necessity at the discretion of the master.

(6) Watertight doors fitted in watertight bulkheads dividing cargo between deck spaces in accordance with section 3 of the Regulations on the construction of ships, cf. SOLAS regulation II-1/13.9.1, shall be closed before the voyage commences and shall be kept closed during navigation. The time of opening such doors in port and of closing them before the ship leaves port shall be entered in the log-book.

(7) Gangway, cargo and fuelling ports fitted below the bulkhead deck shall be effectively closed and secured watertight before the ship leaves port, and shall be kept closed during navigation.

(8) The following doors, located above the bulkhead deck, shall be closed and locked before the ship proceeds on any voyage and shall remain closed and locked until the ship is at its next berth:

- a) cargo loading doors in the shell or the boundaries of enclosed superstructures;
- b) bow visors fitted in positions as indicated in subparagraph a);
- c) cargo loading doors in the collision bulkhead;
- d) ramps forming an alternative closure to those defined in the eighth paragraph subparagraphs a) to c).

(9) Where a door cannot be opened or closed while the ship is at berth, such a door may be opened or left open while the ship approaches or draws away from berth, but only so far as may be necessary to enable the door to be immediately operated. In any case, the inner bow door must be kept closed.

(10) Notwithstanding the requirements of the eighth paragraph subparagraphs a) and b), the Norwegian Maritime Authority may permit that particular doors can be opened at the discretion of the master, if necessary for the operation of the ship or the embarking and disembarking of passengers when the ship is at safe anchorage and provided that the safety of the ship is not impaired.

(11) The master shall ensure that an effective system of supervision and reporting of the closing and opening of the doors referred to in the eighth paragraph is implemented.

(12) The master shall ensure, before the ship proceeds on any voyage, that an entry in the log-book is made of the time of the last closing of the doors specified in the thirteenth paragraph and the time of any opening of particular doors in accordance with the fourteenth paragraph.

(13) Hinged doors, portable plates, sidescuttles, gangway, cargo and bunkering ports and other openings, which are required by these rules to be kept closed during navigation, shall be closed before the ship leaves port. The time of closing and the time of opening (if permissible under these rules) shall be recorded in such log-book as may be prescribed by the Norwegian Maritime Authority.

(14) Where in a between-decks, the sills of any of the sidescuttles referred to in section 3 of the Regulations on the construction of ships, cf. SOLAS regulation II-1/15.3.2, are below a line drawn parallel to the bulkhead deck at side and having its lowest point 1.4 m plus 2.5% of the breadth of the ship above the water when the ship departs from any port, all the sidescuttles in that between-decks shall be closed watertight and locked before the ship leaves port, and they shall not be opened before the ship arrives at the next port. In the application of this provision the appropriate

allowance for fresh water may be made when applicable. The time of opening such sidescuttles in port and of closing and locking them before the ship leaves port shall be entered in such log-book as may be prescribed by the Norwegian Maritime Authority. For any ship that has one or more sidescuttles so placed that the requirements of this paragraph would apply when it was floating at its deepest subdivision draught, the Norwegian Maritime Authority may indicate the limiting mean draught at which these sidescuttles will have their sills above the line drawn parallel to the bulkhead deck at side, and having its lowest point 1.4 m plus 2.5% of the breadth of the ship above the waterline corresponding to the limiting mean draught, and at which it will therefore be permissible to depart from port without previously closing and locking them and to open them at sea on the responsibility of the master during the voyage to the next port. In tropical zones, as defined in the International Convention on Load Lines in force, this limiting draught may be increased by 0.3 m.

(15) Sidescuttles and their deadlights which will not be accessible during navigation shall be closed and secured before the ship leaves port.

(16) If cargo is carried in spaces referred to in section 3 of the Regulations on the construction of ships, cf. SOLAS regulation II-1/15.5.2, the sidescuttles and their deadlights shall be closed watertight and locked before the cargo is shipped and such closing and locking shall be recorded in such log-book as may be prescribed by the Norwegian Maritime Authority.

(17) When a rubbish-chute, etc., is not in use, both the cover and the valve required by section 3 of the Regulations on the construction of ships, cf. SOLAS regulation II-1/15.10.2 shall be kept closed and secured.

## Section 14f

### *Special requirements for ro-ro passenger ships (SOLAS regulation II-1/23)*

(1) Special category spaces and ro-ro spaces shall be continuously patrolled or monitored by effective means, such as television surveillance, so that any movement of vehicles in adverse weather conditions and unauthorized access by passengers thereto can be detected whilst the ship is under way.

(2) Documented operating procedures for closing and securing all shell doors, loading doors and other closing appliances which, if left open or not properly secured, could, in the opinion of the Norwegian Maritime Authority, lead to flooding of a special category space or ro-ro space, shall be kept on board and posted at an appropriate place.

(3) All accesses from the ro-ro deck and vehicle ramps that lead to spaces below the bulkhead deck shall be closed before the ship leaves the berth on any voyage and shall remain closed until the ship is at its next berth.

(4) The master shall ensure that an effective system of supervision and reporting of the closing and opening of such accesses referred to in the third paragraph is implemented.

(5) The master shall ensure, before the ship leaves the berth on any voyage, that an entry in the log-book, as required by the thirteenth paragraph of section 14e, is made of the time of the last closing of the accesses referred to in the third paragraph.

(6) Notwithstanding the requirements of the third paragraph, the Norwegian Maritime Authority may permit some accesses to be opened during the voyage, but only for a period sufficient to permit through passage and, if required, for the essential working of the ship.

(7) All transverse or longitudinal bulkheads which are taken into account as effective to confine the seawater accumulated on the ro-ro deck shall be in place and secured before the ship leaves the berth and remain in place and secured until the ship is at its next berth.

(8) Notwithstanding the requirements of the seventh paragraph, the Norwegian Maritime Authority may permit some accesses within such bulkheads to be opened during the voyage but only for a period sufficient to permit through passage and, if required, for the essential working of the ship.

(9) In all ro-ro passenger ships, the master or the designated officer shall ensure that, without the expressed consent of the master or the designated officer, no passengers are allowed access to an enclosed ro-ro deck when the ship is under way.

## Section 14g

### *Prevention and control of water ingress, etc., in cargo ships (SOLAS regulation II-1/24)*

(1) Openings in the shell plating below the deck limiting the vertical extent of damage shall be kept permanently closed while at sea.

(2) Notwithstanding the requirements of the third paragraph, the Norwegian Maritime Authority may permit that particular doors may be opened at the discretion of the master, if necessary for the operation of the ship and provided that the safety of the ship is not impaired.

(3) Watertight doors or ramps fitted internally to subdivide large cargo spaces shall be closed before the voyage commences and shall be kept closed during navigation; the time of opening such doors in port and of closing them before the ship leaves port shall be entered in the log-book.

(4) The use of access doors and hatch covers intended to ensure the watertight integrity of internal openings shall be authorized by the officer of the watch.

## Chapter 4

### Safety measures concerning the danger of gas formation, lack of oxygen, etc. in enclosed spaces etc.

#### Section 15

##### *Inspection to ascertain gas hazard, etc.*

(1) Before anyone enters a tank, small enclosed spaces, tunnels, etc. where there is a possibility of gas or insufficient oxygen without wearing approved breathing protection, the necessary inspection shall have been conducted to ascertain that the air inside these spaces is safe. Measurements shall be taken at different heights and if necessary several times.

(2) To carry out this examination, at least one instrument for measuring hydrocarbons and at least one instrument for measuring the oxygen content of the air or to establish whether the air in the space contains noxious or health hazardous gases shall be provided on board. Tankers and tank lighters shall be provided with at least two instruments for measuring hydrocarbons. If cargo requiring special equipment for the measurement of noxious, health hazardous or explosive gas concentration is carried, such equipment shall be provided on board. Instruments required under this paragraph shall satisfy the requirements stipulated by CENELEC (European Committee for Electrotechnical Standardization) or IEC International Electrotechnical Commission).

(3) Persons responsible for carrying out the measurements shall have received the necessary instruction in the use of the equipment.

(4) Compressed air apparatus shall be checked at least once a month. These apparatus shall be inspected at least once a year by a competent person. The compressed air apparatus shall undergo water pressure testing at least every 5 years. (Paragraph (3) corresponds with 14.2.5 in the IBC Code and 3.16.8 in the BCH Code.)

#### Section 16

##### *Danger charts etc.*

(1) All doors, hatches, manhole covers, etc. providing access to spaces where there may be gas or insufficiency of oxygen, shall be clearly marked with signs or adhesive notices giving warning of the danger of gas poisoning and/or lack of oxygen to which a person may be exposed in the space in question.

(2) In places where the sign or adhesive notice can be easily damaged or dirtied, the actual hatch, cover or similar shall also be painted in the same colour code as the signs.

(3) The colour of the warning signs and adhesive notices shall be in conformity with Norwegian Standard NS 6033, or NS 4210, with necessary text in Norwegian and English texts clearly expressing the following:

FARE  
OKSYGEN MANGEL

DANGER  
LACK OF OXYGEN

(Symbol)

FARE  
GIFTIG GASS

DANGER  
POISON GAS

(Symbol)

FARE  
EKSPLOSIV ATMOSFÆRE

DANGER  
EXPLOSIVE ATMOSPHERE

(Symbol)

#### Section 17

##### *Safety measures in connection with inspections, work, etc.*

(1) When work must be carried out in a tank, space, tunnel, etc. where there may be danger of poisoning or lack of oxygen, this is only permitted on the condition that an approved self-contained breathing apparatus or a breathing mask with hose is used. Before work is started in a tank, in narrow confined spaces, tunnels, and other places where

there might be a danger of gas concentrations, thorough ventilation shall be carried out, and in larger spaces mechanical ventilation equipment shall be applied. There shall be continuous ventilation while work is in progress.

(2) On board every ship of more than 200 gross tonnage fitted with tanks or enclosed spaces where the conditions make inspection etc. necessary, there shall be an approved self-contained breathing apparatus. Ships of more than 500 gross tonnage shall have at least two approved self-contained breathing apparatus on board. Breathing apparatus belonging to the fireman's outfit may be included in the prescribed number of self-contained breathing apparatus. The ship shall have a sufficient number of spare air containers or a special air compressor for the compressed air containers. The air compressor shall have a water and oil separator, and shall have an arrangement for the fitting of a filter in the air inlet.

(3) Prior to any inspection of, or anyone staying in or commencing work in a tank or space where there is a danger that gas may have developed or of a lack of oxygen, and during cleaning of a tank containing cocoa nut oil, fish oil, tallow or similar, as well as removal of rust etc. from tanks or spaces, superiors shall be notified, and the oxygen content and gas concentration in the space/tank shall be checked, cf. section 15, first paragraph.

(4) As long as the inspection and the work is in progress, the oxygen content and the gas concentration in the space/tank shall be checked at short intervals. The work shall be supervised by at least two persons, one of whom shall be equipped with a self-contained breathing apparatus and specially trained in its use, and the other shall be equipped with radio-communication equipment approved for use in gas-hazardous areas, so as to warn as quickly as possible the persons in charge, cf. the Regulations currently in force regarding precautions to be taken in connection with welding or other use of open flames, etc. on board tankers in operation.

(5) For the lighting of tanks and spaces where very inflammable cargo is carried, or of spaces and tanks which are not gasfree, only approved lighting arrangement (safety lamps) must be used. Portable lamps shall be air powered or have a battery.

## Section 18

### *Ventilation of cargo holds etc. where vehicles are used*

(1) Fork lift trucks etc. powered by a combustion engine may only be used in cargo holds or other spaces when the space is provided with effective mechanical ventilation equipment as stated in the Regulations on the construction of passenger ships, cargo ships and lighters. The ventilation shall be in operation as long as a truck or other machinery powered by a combustion engine is in use in the cargo holds or spaces. It must, moreover, be ensured that petrol, propane and diesel engines are correctly adjusted and properly maintained.

(2) Trucks shall never be left with the engine running.

(3) In cargo holds where trucks are used, signs shall be posted up pointing out the danger of exhaust poisoning.

(4) On ships where vehicles are to be used in cargo holds as mentioned under the first paragraph, there shall be instruments on board to measure the CO concentration. The measuring instruments shall be used during loading and discharging, and if there is otherwise reason to suspect that the spaces may contain exhaust gas.

## Section 19

### *Driving of truck or crane*

Members of the crew required to drive a truck or crane shall be adequately trained for this operation, and it must be ensured that they are over 18 years of age.

## Chapter 5

### Safety measures during helicopter operations on ships with helicopter deck/landing deck/landing area/emergency area/area for winching operations

## Section 20

### *Safety measures etc.*

(1) The following safety measures shall be fulfilled during helicopter operations:

- a) Instructions and check lists shall be prepared, adopted to the type of helicopter operations (landing/emergency landing/winching operations) relevant to the ship in question. The instructions shall contain information about maximum helicopter size, permissive weight, and rotor diameter by landing/emergency landing on the ship in question, and shall correspond to the approval pursuant to the Regulations currently in force on the construction of passenger ships, cargo ships and barges.

- b) All persons on board shall be instructed in accordance with the instructions. Notices prohibiting smoking, and notices stating that no unauthorized person shall be present in the area during helicopter operations, must be posted up in easily visible positions. The text of the notices shall be in Norwegian and English.

## Section 21

### *Basis for helicopter operations*

(1) Before a helicopter is permitted used in helicopter operations, to and from the ship, it must be confirmed that the following provisions have been complied with:

(2) The helicopter shall be registered in a company licensed by the national authorities in the country where the company is registered to operate a helicopter service in connection with ships.

(3) Documentation (arrangement drawing), or information in some other way, regarding the position and size (diameter) of the helicopter deck/landing area/winch area inside marked areas, the maximum weight for which the helicopter deck is approved (as regards strength), distance from centre to nearby hindrances, heights, and the type of such hindrances, marking, lighting, etc. shall be submitted to the helicopters/ helicopter service companies/national aviation authorities.

(4) Immediately prior to landing or winching operations it must be possible, if necessary, to inform the helicopter pilot about the ship's rolling and pitching, the wind force, and relative wind direction, to enable the pilot, based on the information mentioned in the third paragraph above, and considering the course and manoeuvring, etc. of the ship, to evaluate whether the intended helicopter operations can be safely performed.

(5) For helicopter landing in strict emergency situations, the same procedures as in the third and fourth paragraphs above apply, in principle, but particular emphasis shall be put on the specification of the size of free deck area, etc. which is available for an emergency. Likewise, adequate fire equipment shall be easily accessible and ready for use.

(6) The helicopter must be fitted with communication equipment suitable for safe communication with the ship. Regarding transmission/communication equipment in connection with helicopter operations, reference is made to the Regulations currently in force relating to radiotelegraphy and radiotelephony for ships.

## Section 22

### *Communication etc. during helicopter operations*

(1) In preparation for helicopter operations such as landing/winch operations, the following shall be observed:

(2) The ship's radio station shall be ready for immediate use when a helicopter is in flight to or from the ship and during landing/winch operations. The ship's radio operator is under an obligation to acquaint himself with the local communication instructions and to relay messages to and from given coast stations. In the case of helicopter arrivals in darkness and in conditions of poor visibility in areas with heavy ship traffic, other ships should, whenever it is considered necessary, be informed by transmission of the safety signal on the frequency which is in each case most appropriate.

(3) For transmission of radio direction-finding signals for navigational assistance during helicopter transport the ship station shall use the frequency in accordance with the provisions of the International Radio Regulations, either by manual keying of the main or the reserve transmitter, or by automatic transmission from a radio beacon. The ship shall always inform the helicopter of the frequency, class of emission, and the ship's signal letters. The radio operator shall from the position where the VHF radio equipment is operated, have full visual control of the helicopter area and its immediate surroundings, or be in direct communication with the guard on the helicopter deck who has full visual control as mentioned above.

(4) In the case of failure of radio contact, a satisfactory arrangement shall be agreed upon for communication between ship and helicopter, for example by use of a signal lamp, as follows:

- a) Constant light – ship ready to receive helicopter.
- b) A series of short flashes – ship cannot receive helicopter, but waiting time will not exceed 15 minutes.
- c) Prolonged series of "N" (- .) – ship cannot receive helicopter, and waiting time will exceed 15 minutes.
- d) Flashing red light – helicopter must get clear of the ship.

(5) Moreover, the signals at any time established in the International Code of Signals shall apply.

## Section 23

### *Other special requirements during helicopter operations*

(1) Prior to and during helicopter operations the necessary safety measures shall be established on board, and a rescue boat shall be ready for immediate launching. For supply vessels and auxiliary vessels the provisions about safety measures on board may be limited if the ship master finds this to be adequately safe.

(2) Prior to helicopter operations the area shall be free from obstructions. It shall be checked that rigging, ventilation cowls, railings, etc. have been removed and secured in accordance with an approved plan.

(3) If a net is used for sliding safety at the helicopter deck, etc. it must be ascertained that the net is securely tightened and fastened at all fastening points, ensuring an even tightness.

(4) Prior to helicopter operations there shall be pressure on the fire main on deck. Fire hoses and equipment shall be ready for use, but not loose on the deck.

(5) Two lifebuoys shall be equipped with self-igniting lights, smoke signals and lifelines of adequate length, be stowed and ready for use in their proper place in the immediate vicinity of the helicopter deck.

(6) Personnel taking part in the helicopter operation shall be equipped with work vests/life-jackets and approved safety helmets.

(7) Prior to helicopter operations at night it must be checked that all lighting around the deck and flood-lighting of the deck is in order.

## Section 24

### *Special requirements for tankers and OBO ships*

At landing/winch operations on tankers and OBO ships which are not gas free, the following measures shall be observed in addition to the provisions of section 21:

- a) Immediately prior to landing or winching operations helicopters shall discharge into the sea any build-up of static electricity in the helicopters.
- b) Only twin-engined helicopters shall be used.
- c) Pressure/vacuum valves to cargo tanks shall be lifted and closed less than half an hour before helicopter operations.
- d) All openings in cargo tanks shall be closed before landing.
- e) Tank cleaning shall not be carried out during helicopter operations.
- f) The rotor shall be kept running during the stay on the ship. If in an emergency the rotor has to be stopped, the helicopter's engines shall also be stopped and all electrical equipment shall be switched off and batteries disconnected. Restarting is not permitted until it has been checked that there is no dangerous gas/air mixture around the helicopter. Prior to starting, the ship must be so manoeuvred that the wind will blow any gas that may be present away from the helicopter's starting area.

## Section 25

(Repealed on 15 September 2014 by Regulation of 5 September 2014 No. 1159.)

## Chapter 6

(Repealed by Regulation of 1 January 2005 No. 8.)

## Chapter 7

### Other safety measures

## Section 30

### *Special operational conditions for vessels with passenger certificate*

(1) The following provisions apply to all vessels using sails:

- a) Sails may be used only when there is sufficient manning on board to handle sails and rigging, and when the master otherwise finds this safe and secure, taking the safety of the passengers and the vessel into consideration.
- b) Master and crew must be experienced in the use of sails and rigging.
- c) If there is reason to assume that the use of sails and rigging may jeopardize the vessel and its passengers, the sails shall be dismantled and the engine shall be used.

(2) To vessels with permission only for restricted carriage of passengers, particular emphasis must be put on the vessel operating only under the sea and weather conditions which are well within the safety margin for which the vessel is suited in relation to size, type, speed, trade area, etc. This applies especially to operation beyond sheltered waters.

(3) The master of the vessel shall ensure that the provisions of this section are complied with.

Amended by Regulation of 5 September 2014 No. 1159 (in force on 15 September 2014).

## Section 31

(Repealed on 15 September 2014 by Regulation of 5 September 2014 No. 1159.)

## Section 32

### *Signs and notices*

- (1) The required signs and notices in all ships engaged in foreign trade, and in passenger ships in domestic trade shall be in Norwegian and English. For other ships in domestic trade, the text shall be in Norwegian.
- (2) The text of signs and notices shall be clearly legible at all times and if necessary lighted.
- (3) Warning signs shall have letters at least 20 millimetres in height, and prohibition signs shall have letters at least 30 millimetres in height.
- (4) Unless otherwise provided, the colours shall be in accordance with Norwegian Standard NS 6033 or NS 4210.

## Section 33

### *Storage and use of fuel and explosives*

- (1) If it is required to store engine fuel on board other than permanently installed tanks, such fuel shall be stored in suitable containers placed in a locker/room which is easily accessible and properly ventilated, with door opening only towards open deck. Bulkhead and door into this room/locker shall have a fire insulation corresponding to A60.
- (2) When explosives are stored on board, they must be kept in their original packages in steel boxes, and stored in separate lockable locker/room, separate from fire hazardous and poisonous products. Explosives and percussion caps shall be stored separately, and the amount of explosives shall be limited to a minimum.

Amended by Regulation of 5 September 2014 No. 1159 (in force on 15 September 2014).

## Section 34

### *Warning signs at radar scanners*

While work in the radar mast is in progress, radar apparatus shall be switched off. A clearly visible sign shall be affixed at each radar apparatus with the following warning: Work in progress in the radar mast.

## Chapter 8

### Concluding provisions

## Section 35

### *Entry into force, etc.*

- (1) These Regulations enter into force on 1 July 1987.
- (2) As from the same date the following regulations are repealed:
  - a) Regulations of 13 August 1970 concerning deck cargo.
  - b) Regulations of 13 December 1976 concerning arrangements on and below deck, and concerning the ship's protection equipment.
  - c) Regulations of 1 March 1978 concerning the prohibition on the use of asbestos on board ships.

## Annex 1

### Provisions regarding platforms (accommodation ladders), suspension arrangements and gangways

The annex is amended by Regulations of 25 January 2000 No. 166 (in force 1 April 2000), 29 June 2012 No. 891 (in force on 1 July 2012).

1. Platforms (accommodation ladders), suspension arrangements and gangways shall comply with the provisions below:
2. Requirements for platforms (accommodation ladders)
  - 2.1. The upper platform and the inbetween platforms, if any, shall be calculated for a static load of 500 kp/m<sup>2</sup>, plus the load from accommodation ladder or gangway suspended in the most adverse position with a load as stated in NS 6249, subparagraph 6.1.4.
  - 2.2. The lower platform shall be calculated for a static load of 500 kp/m<sup>2</sup>. (The platforms shall be horizontal when the accommodation ladder is in use.) If a hatch is provided in the lower platform with access to/from the pilot ladder through the hatch, the opening shall not be less than 750 x 750 mm.
  - 2.3. The platforms shall have a free surface of minimum 600 x 600 mm and a 1000 mm high railing.

- 2.3.1. The railing shall be calculated for a load of 50 kp per stanchion, or 50 kp per metre of rail evenly distributed on the stanchions if this gives a greater load. The force is assumed to work horizontally on the top of the stanchions.
- 2.3.2. The rail stanchions shall be secured so that they cannot loosen. Collapsible or adjustable railing shall be secured against folding together/collapsing.
- 2.4. Rails shall be fixed between the stanchions, or a connection by means of rail, rope, wire rope, chain or similar. The maximum distance permitted between the rail ropes is 330 mm. In addition, there shall be an arrangement for a rope-net or canvas for the whole height of the railing. Rope-net or canvas shall be delivered by the manufacturer.
- 2.5. The lower platform shall have a hoop or an extra strong railing designed for use during embarkation and disembarkation of a boat.
- 2.6. Lugs, lashing fastenings, rings and suspension arrangement shall be of ageing-resistant steel, or be made of a material equally resistant to wear and tear.
- 2.7. Detailed drawings and calculations of the platforms shall be available together with drawings of the relevant types of accommodation ladders and/or gangways which are to be used in conjunction with the platform.
  - 2.7.1. Platforms which are to be used together with accommodation ladders and/or gangways, shall be test-loaded together with the relevant type of accommodation ladders and/or gangways.
- 2.8. For the upper platform and the in-between platforms, if any, the test load shall be 600 kp/m<sup>2</sup> plus 50% of the total weight of accommodation ladder or gangway according to NS 6249, subparagraph 6.1.4., for the in-between platforms 50% of the part suspended below the platform. During the test, the platform shall be suspended in a normal position as on board, and the test load from accommodation ladder or gangway shall be suspended in the fastening device for these purposes.
 

The lower platform shall be suspended in a normal way on accommodation ladder and/or gangway and shall be test loaded with 600 kp/m<sup>2</sup>.
- 3. Requirements for suspension arrangements, etc.
  - 3.1. Where an accommodation ladder is required, a davit or similar shall be arranged for the accommodation ladder on either side of the ship.
 

The davit shall be designed and constructed with a safety factor of not less than 2.5 in relation to the guaranteed yield point of the material and for the loads from the means of access suspended in the most adverse position as stated in NS 6249, subparagraph 6.1.4 (for aluminium the yield point shall be calculated at 0.2% permanent elongation).
  - 3.2. Accommodation ladder winches shall be designed and constructed for the forces transferred from the accommodation ladder in the most adverse position and with a load as mentioned in NS 6249, subparagraph 6.1.3. The forces shall be designed to work in the outermost steel wire layer.
    - 3.2.1. In all cases, the winch shall be self-locking for the forces transferred from the accommodation ladder in the most adverse position with a load 1.5 times the load mentioned in NS 6249 subparagraph 6.1.3.
    - 3.2.2. A crank for manual operation of a winch must be so arranged that it will not rotate if the winch is driven by a motor.
  - 3.3. An accommodation ladder winch or a prototype must be tested with a static load and moment of 1.5 times the load mentioned in NS 6249, subparagraph 6.1.3. During this test, the strength of the wire fastening to the drum and to the self-locking shall be checked.
  - 3.4. All winches shall be fitted with signs which clearly state designation and maximum load permitted in the outermost steel wire layer.
  - 3.5. Chains, wire rope, shackles, rings, etc. which are used for suspension/heaving of accommodation ladders/gangways, shall be certified. All loose parts shall be listed on the arrangement plan with position number, S.W.L., and breaking load. Position number shall be stamped on the part, so that it is possible to check that each separate part has been placed in its correct position. The arrangement plan shall show the whole installation and shall be sent on board together with each delivery. The certificates for chain, shackles, rings, wire rope, cordage, etc. shall be kept on board together with the arrangement plan.
- 4. Requirements for gangways
  - 4.1. Gangways to be used by persons shall be calculated for a static load of 300 kp/m<sup>2</sup> plus the weight of the gangway. The area subjected to the load is calculated as the length of the gangway multiplied by the light opening between the bearers.
  - 4.2. Gangways to be used for cargo and by persons where the load will exceed what corresponds to 300 kp/m<sup>2</sup>, as well as special gangways for passenger ships, shall be assessed and approved in each individual case. The desired permissible load must be stated.
  - 4.3. Gangways shall have a free breadth between the rails of minimum 600 mm and, on either side, a railing of minimum 1000 mm in height. Gangways which are to be used on passenger ships in regular traffic, shall have a clear breadth between the rails of no less than 850 mm or adjusted for use of wheel chairs.
  - 4.4. Railings shall be calculated for a load of 50 kp per stanchion, or of 50 kp per metre of rail evenly distributed on the stanchions if this will result in a greater load. The force is assumed to be working

horizontally on the top of the stanchions. Maximum distance permitted between the stanchions is 1.5 metres. The stanchions shall be secured against collapsing or folding.

A fixed railing shall be fitted between the stanchions, or these shall be connected with railing, rope, wire rope, chain or similar. Maximum distance permitted between the rail ropes is 330 mm. In addition, a rope-net, canvas or the like shall be fitted throughout the height of the railing to prevent persons from falling down. The ropenet or canvas shall be delivered by the manufacturer, together with the gangway. If the distance between the rail ropes not exceed 250 mm, the rope-net may be omitted.

- 4.5. The gangway shall be fitted with steps providing a good foothold when the gangway is placed in an inclined position. The maximum angle of inclination permitted for gangways is 35°. Gangways fitted with such steps as used on accommodation ladders, may be approved for use at an angle of inclination of up to 55°. The gangway shall be fitted with signs which clearly state the maximum angle of inclination permitted.
- 4.6. If the gangway is to be used in addition as an accommodation ladder, the provisions in NS 6249 shall apply.
- 4.7. The gangway, or a prototype, shall be test-loaded in a horizontal position without railing and supported at both ends. The test load shall be 400 kp/m<sup>2</sup> evenly distributed, and the deflection shall not exceed 1/100 for steel and 1/75 for aluminium of the free span of the gangway. The test shall not cause permanent deformation. Gangways with rigid (non-folding) rails constituting an integral part of the gangway, may be included in the strength and need not be removed during the loading test.

Amended by Regulations of 25 January 2000 No. 169 (in force 1 April 2000), 29 June 2012 No. 891 (in force on 1 July 2012).

## Annex 2 (Repealed)

Repealed on 15 September 2014 by Regulation of 5 September 2014 No. 1159.