Regulations of 13 June 2000 No. 660 on the construction, operation, equipment and surveys of fishing vessels of 15 m in overall length (LOA) and upwards

Legal basis: Laid down by the Norwegian Maritime Authority on 13 June 2000 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 No. 9 relating to Ship Safety and Security (Ship Safety and Security Act) sections 6, 9, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 25, 26, 28a, 29, 30, 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 reference: The EEA Agreement, Annex XIII point 55a (Directive 2002/59/EC, as amended by Directive 2009/17/EC, Directive 2011/15/EC), point 56g (Directive 97/70/EC, Directive 1999/19/EC), Annex II Chapter XXII point 1 (Directive 89/686/EC), and Annex XVIII point 16g (Directive 93/103/EC and Directive 2002/35/EC).
Amendments: Amended by Regulations of 13 Nov 2000 No. 1135 (i.a. title), 20 March 2001 No. 340 (i.a. title), 27 Sep 2002 No. 1087 30 Dec 2002 No. 1847 30 June 2003 No. 912, 1 Oct 2003 No. 1205, 17 Dec 2004 No. 1858, 1 Jan 2005 No. 8, 30 June 2005 No. 747 (i.a. legal basis), 29 June 2007 No. 1006 (i.a. legal basis), 26 Nov 2008 No. 1260, 28 Nov 2008 No. 1318, 26 March 2012 No. 283, 13 Aug 2012 No. 802, 14 Aug 2012 No. 805, 19 Aug 2013 No. 1036, 22 Dec 2014 No. 1893, 10 Nov 2017 No. 1778, 20 Dec 2017 No. 2379.

Chapter 1
General provisions

Part A – Introductory provisions

Section 1-1.[1] *Scope of application*

(1) These Regulations apply to new Norwegian fishing vessels of 15 metres in overall length (LOA) and upwards and to existing Norwegian vessels of 15 metres in overall length (LOA) and upwards where this is set out in each individual chapter.

(2) An existing vessel that undergoes repairs, modifications, conversions or is outfitted in connection with such work shall at least comply with the regulations in force at the time of construction of the vessel. These provisions need nevertheless not be enforced more rigorously than what is expressed in these Regulations, provided that due consideration is given to maintaining safety standards.

(3) When an existing vessel undergoes major repairs, modifications or conversions or is outfitted in connection with such work, the vessel shall only comply with the requirements applicable to new vessels to the extent deemed reasonable and practicable by the Norwegian Maritime Authority.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 29 June 2007 No. 1006 (in force on 1 July 2007).

1 See, *inter alia*, the provisions of sections 6-1, 7-1, 8-1, 9-1 and 10-1.

Section 1-1a. *Requirements for vessels constructed after dates specified in the text of these Regulations*

(1) Where requirements are laid down for fishing vessels constructed after dates specifically described in the Regulations, such requirements shall apply to fishing vessels where:

1. The building or major conversion has been contracted on or after the specific date, or

2. The building or major conversion has been contracted on or after the specific date, or after this date, or
3. in the absence of a building contract:
   a. The keel is laid on or after the specific date, or
   b. a construction identifiable with a specific vessel begins on or after the specific date, or
   c. assembly has commenced, comprising at least 50 tonnes or 1 per cent of the estimated mass of all structural material on or after the specific date, whichever is less.

(2) For fishing vessels to which the first paragraph does not apply, sections 1-1 paragraphs (2) and (3) shall apply correspondingly.

0 Added by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003), amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 1-2. *Definitions*

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

1. *Recognised classification society:* Classification societies with which the Ministry has entered into an agreement pursuant to section 41 of the Ship Safety and Security Act:
   a) Det Norske Veritas (DNV)
   b) Lloyd's Register of Shipping (LRS)
   c) Bureau Veritas (BV)
   d) Germanischer Lloyd (GL)
   e) American Bureau of Shipping (ABS)
2. *Recognised standards:* Standards issued by the bodies NS, BS, ISO, CEN or similar national or international standards recognised by the Norwegian Maritime Authority by individual decisions.
3. *Working deck:* Generally the lowest complete deck above the deepest operating waterline from which fishing is undertaken. In vessels fitted with two or more complete decks, the Norwegian Maritime Authority may approve a lower deck as a working deck provided that the deck is situated above the deepest operating waterline.
4. *Service spaces:* Spaces used as galleys, pantries containing a cooking appliance, storerooms and workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces.

4a. *Automatic identification system (AIS):* A system which enables the exchange of information on the ship's identity, type, position, course, speed, navigational status and other safety-related information between ships fitted with AIS and between ships and shore-based AIS facilities.

5. *Crew:* The master and any person on board who carries out work in the ship's service.
6. *Breadth (B):* The maximum breadth of a vessel, measured amidships to the moulded line of the frame in a vessel with a metal shell and to the outer surface of the hull in a vessel with a shell of any other material.

6a. *Gross tonnage:* The numeric value entered as gross tonnage in the Tonnage Certificate. If safety tonnage is entered in the remarks column of the Tonnage Certificate, this tonnage shall be used as gross tonnage.

7. *Drinking water:* Water intended for drinking, cooking and personal hygiene.

8. *Moulded depth:* The vertical distance measured from the top of the keel to the top of the freeboard deck beam at side.

    a. In vessels having rounded deck stringer plates, the moulded depth shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the deck stringer plate were of angular design.

    b. Where the working deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

9. *Depth (D):* The moulded depth amidships.

10. *Deepest operating waterline:* The waterline related to the maximum permissible operating draught.

11. *Existing ship:* A fishing vessel which is not a new vessel.

12. *EEA:* The European Economic Area. The EEA comprises the member states of the EU and the EFTA member states Norway, Iceland and Liechtenstein.

13. *Trade area:* The clearly defined waters in which a fishing vessel may trade, so as to directly influence the construction, equipment and operation of the vessel. The trade area includes all waters within the outer geographical boundaries set out. The vessel and equipment shall be considered as a whole unit, so that the certificate which imposes the greatest restriction shall be decisive with regard to the trade area permitted.

14. *Public spaces:* The parts of the accommodation spaces used as mess rooms, lounges and similar spaces.

14a. *Voyage data recorder (VDR):* Equipment which continuously and automatically records navigational and safety-related information.

15. *Fishing vessel:* Vessels equipped and used commercially for catching fish, including whales, seals, seaweed and sea tangle or other living resources of the sea.

16. *Forward and aft perpendiculars:* The forward and aft ends of the length (L). The forward perpendicular shall be coincident with the foreside of the stem on the waterline on which the length is measured.

17. *Point of flooding:* Lowest edge of openings to volumes presumed to provide buoyancy when calculating stability and which may cause flooding of the volumes.

18. *Angle of flooding θ_f:* The angle of heel at which openings in the hull, superstructure or deckhouse that cannot rapidly be closed weathertight begin to submerge. Small openings, for instance for passing wires, chains, etc. need not be considered open if immersion takes place at an angle of heel of 30 degrees or more. In connection with the stability criteria of section 3-2 subparagraph (1)1, section 3-4 subparagraph (2)b, and section 3-6 subparagraph (3)2, hatches which periodically need to be kept open during fishing shall in addition be considered openings of flooding despite their being arranged so as to be capable of being rapidly closed weathertight.

19. *Approved, type-approved or accepted:*

a. In respect of equipment covered by the Regulations of 30 August 2016 No. 1042 on marine equipment: Type-approved by a Notified Body and marked in accordance with said Regulations.

b. In respect of other equipment:

- *Approved:* A single piece of equipment approved by the Norwegian Maritime Authority, excluding radio installations which is approved by the Norwegian Post and Telecommunications Authority.
- *Type-approved:* Prototype approved by the Norwegian Maritime Authority with or without sampling inspection of mass production.
- *Accepted:* Equipment accepted by the Norwegian Maritime Authority on the basis of its approval or type-approval by a recognised classification society, another public or private institution, or the administration of a country which has ratified the SOLAS Convention.

20. *Baseline:* The horizontal line intersecting the keel line amidships.

20a. *GZ curve:* Curve showing the righting lever as a function of angle of heel.

21. *Height of a superstructure or other erection:* The least vertical distance measured at side from the top of the deck beams of a superstructure or an erection to the top of the working deck beams.

22. *IMO:* The International Maritime Organization.

23. *Accommodation:* Sleeping rooms, mess rooms, offices, chartrooms, radio rooms, corridors, day rooms, sanitary spaces, recreational spaces, hospital accommodation, galleys, provision rooms, cold store and freezer rooms, etc.

24. *ISO:* The International Organization for Standardization.

25. *Keel line:* The line parallel to the slope of keel passing amidships through

a. the top of the keel or line of intersection of the inside of the shell plating with the keel where a bar keel extends above that line of a vessel with a metal shell; or

b. the rabbet lower line of the keel of a vessel with a shell of wood or a composite vessel; or

c. the intersection of a fair extension of the outside of the shell contour at the bottom with the centreline of a vessel with a shell of material other than wood and metal.

26. *Collision bulkhead:* A watertight bulkhead up to the working deck in the forepart of the vessel which meets the following conditions:

a. The bulkhead shall be located at a distance from the forward perpendicular:

- no less than 0.05L and no more than 0.08L for vessels of 45 metres in length (L) and upwards,
- no less than 0.05L and no more than 0.05L plus 1.35 metres for vessels of less than 45 metres in length (L),
- in no case less than 2.0 metres for vessels of 24 metres in length (L) and upwards.

b. Where any part of the underwater body extends forward of the forward perpendicular, e.g. a bulbous bow, the distance stipulated in subparagraph a. shall be measured from a point at mid-length of the extension forward of the forward perpendicular or from a point 0.015L forward of the forward perpendicular, whichever is less.

c. The bulkhead may have steps or recesses provided they are within the limits prescribed in subparagraph a.

27. *Length (L):* 96 per cent of the total length on a waterline at 85 per cent of the least moulded depth measured from the top of the keel, or the length from the fore side of the stem to the axis of the rudder stock on that waterline, if that be greater. In vessels designed with a rake of keel, the waterline on which this length is measured shall be parallel to the designed waterline.

28. *Light ship condition:* The vessel's displacement or weight in metric tons when operational, excluding cargo, fuel, lubricating oil, freshwater, ballast water, stores, and crew and their belongings. Fixed fishing gear shall be included in the weight.

29. *Enclosed superstructure:* A superstructure with:

    a. enclosing bulkheads of efficient construction;

    b. access openings, if any, in such bulkheads, fitted with permanently attached weathertight doors of a strength equivalent to the unpierced structure which can be operated from each side of the bulkhead; and

    c. other openings in sides or ends of the superstructure fitted with efficient weathertight means of closing.

    A bridge or poop shall not be regarded as enclosed unless access is provided for the crew to reach machinery and other service spaces inside those superstructures by alternative means which are available at all times when bulkhead openings are closed.

30. *Rating:* A member of the crew other than the master and the officers.

31. *Amidships:* The mid-length of the length (L).

32. *Midship section:* The section of the hull defined by the intersection of the moulded surface of the hull with a vertical plane perpendicular to the waterline and centreline planes passing through amidships.

33. *Northern waters:* The waters north of the boundary shown on the map in appendix 1, and where the Baltic Sea is excluded. This boundary is defined as the parallel of latitude 62°N from the west coast of Norway to the longitude 4°W, from there the meridian of longitude 4°W to the latitude 60°30'N, from there the parallel of latitude 60°30'N to the longitude 5°W, from there the meridian of longitude 5°W to the latitude 60°N, from there the parallel of latitude 60°N to the longitude 15°W, from there the meridian of longitude 15°W to the latitude 62°N, from there the parallel of latitude 62°N to the longitude 27°W, from there the meridian of longitude 27°W to the latitude 59°N, and from there the parallel of latitude 59°N westwards.

34. *New fishing vessel:* A fishing vessel for which:

    a. the building or major conversion[4] is contracted after the entry into force[5] of these Regulations; or

    b. the building or major conversion has been contracted before the date of entry into force of these Regulations, and which is delivered three years or more after the date of entry into force; or

    c. in the absence of a building contract after the entry into force of these Regulations:

        - the keel is laid after the entry into force; or

        - construction identifiable with a specific vessel begins after the entry into force; or

- assembly has commenced, comprising at least 50 tonnes or 1 per cent of the estimated mass of all structural material after the entry into force, whichever is less.

35. *Officer:* A crew member other than the master, employed in a capacity for which a certificate of competency is required under the Regulations currently in force, with the exception of cooks.
36. *Operate:* To catch or refine fish, including whale, seal, seaweed and sea tangle or other living resources in the sea.
37. *Accommodation spaces:* Rooms used as public spaces, corridors, toilets, cabins, offices, hospitals, hobby rooms and pantries not containing cooking appliances, and similar rooms.
38. *Superstructure:* The decked structure on the working deck extending from side to side of the vessel or with side plating not being inboard of the shell plating more than 0.04B.
39. *Superstructure deck:* The complete or partial deck forming the top of a superstructure, deckhouse or other erection situated at a height of no less than 1.8 metres above the working deck. Where this height is less than 1.8 metres, the top of such deckhouses or other erections shall be treated in the same way as the working deck.
40. *Council Directive 97/70/EC:* Directive setting up a harmonised safety regime for fishing vessels of 24 metres in length and upwards.
41. *SOLAS Convention:* The International Convention for the Safety of Life at Sea, 1974, with subsequent additions and amendments (SOLAS Convention).
42. *Overall length (LOA):* The overall length from the fore side of the foremost part of the hull to the aft side of the aftermost part of the hull.
43. *Southern waters:* The Mediterranean and the coastal areas within 20 miles of the coast of Spain and Portugal in the summer zone of the Atlantic as defined by the Chart of Zones and Seasonal Areas in Annex II to the International Convention on Load Lines, 1966, as amended.
44. *Heavy drift ice concentration:* Ice covering 8/10 or more of the sea surface.
45. *Ton:* Tonnage units/gross register tons.
46. *Watertight:* Capable of preventing the passage of water through the structure in any direction under a head of water for which the surrounding structure is designed.
47. *Weathertight:* Means that in any sea conditions water will not penetrate into the vessel.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 30 June 2003 No. 912 (in force on 1 July 2003), 29 June 2007 No. 1006 (in force on 1 July 2007), 28 November 2008 No. 1318 (in force on 1 January 2009), 20 December 2017 No. 2379 (in force on 1 January 2018).

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3 See appendix 1.

4 Cf. section 1-1 (3).

5 See section 12-2.

Section 1-3.[1] *Exemptions*

(1) The Norwegian Maritime Authority may exempt any vessel which embodies features of a novel kind from any of the requirements of chapters 2, 3, 4, 5, 6, 7, and 11 if the application of which might seriously impede research into the development of such features and their incorporation in vessels. Any exempted vessel shall nevertheless comply with safety requirements deemed necessary by the Norwegian Maritime Authority for the service for which it is intended and which are such as to ensure the overall safety of the vessel.

(2) The Norwegian Maritime Authority may exempt any vessel of 24 metres in length (L) and upwards solely engaged in fishing near the coast from any of the requirements of these Regulations if it considers that the application is unreasonable or impracticable in view of the distance from the vessel's operating area to its base port on the coast, the type of vessel, the weather conditions and the absence of general navigational hazards. Any exempted vessel shall nevertheless comply with safety requirements deemed necessary by the Norwegian Maritime Authority for the service for which it is intended and which are such as to ensure the overall safety of the vessel.

(3) In exceptional cases, the Norwegian Maritime Authority may, upon written application, exempt any vessel of less than 24 metres in length (L) from the requirements of these Regulations where such exemption is justifiable in terms of safety.

(4) Decisions pursuant to this provision shall not contravene international agreements to which Norway has acceded, and shall be made in accordance with international requirements relating to procedures.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 30 December 2002 No. 1847 (in force on 1 January 2003).

1 See, inter alia, section 1-16 (2), section 9-3 and section 10-2.

Section 1-4. *Responsibility*

The company, the employer, the master and other persons working on board shall see to, ensure and contribute to compliance with these Regulations in accordance with the provisions relating to responsibility laid down in the Ship Safety and Security Act and these Regulations.

0 Amended by Regulations of 29 June 2007 No. 1006 (in force on 1 July 2007), 19 August 2013 No. 1036 (in force on 20 August 2013).

Section 1-5. *Approval of equipment*

Equipment required under these Regulations shall be approved, type-approved or accepted by the Norwegian Maritime Authority, as prescribed by the individual provisions.[1] Equipment manufactured and marked in accordance with the Regulations of 30 August 2016 No. 1042 on marine equipment shall be regarded as approved.

0 Amended by Regulation of 20 December 2017 No. 2379 (in force on 1 January 2018).

1 See, inter alia, section 7-3, section 9-13 and section 10-3 (10).

Section 1-6. *Equivalents*

Where the present Regulations require that a particular fitting, material, appliance or apparatus shall be fitted or carried in a vessel, or that any particular provision shall be made, the Norwegian Maritime Authority may allow equivalents or that other particular provisions

are made. The equivalent must, however, be tested or otherwise proven to be at least as effective as set out in the requirements of these Regulations.

Section 1-7. *Notification of newbuilding and submission of drawings and other documentation*

(1) The construction of a fishing vessel shall be notified to the Norwegian Maritime Authority in accordance with section 47 (1) and (2) of the Ship Safety and Security Act, immediately after building contract has been agreed. The notification shall be submitted on the form prescribed by the Norwegian Maritime Authority, by the construction yard in the case of a vessel which is to be built in Norway and by the shipping company or whoever has contracted with the yard in the case of a vessel which is to be built abroad. For electrical installations, notification is to be sent to the Norwegian Directorate for Civil Protection and Emergency Planning (DSB).

(2) For newbuildings and vessels undergoing conversions or repairs, drawings and other documentation shall be submitted to the Norwegian Maritime Authority in accordance with the applicable list of drawings, cf. appendix 3 to these Regulations.

In the event of cancellation, variations in the contractual relationship, or similar circumstances implying that the ship is no longer to be registered under the Norwegian flag, or in the event of modifications in the design of the vessel, the company shall immediately send a notification to the Norwegian Maritime Authority, or to whomever is authorised by the Authority, cf. section 47 (1) of the Ship Safety and Security Act.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 29 June 2007 No. 1006 (in force on 1 July 2007), 28 November 2008 No. 1318 (in force on 1 January 2009).

Part B (Repealed)

0 Part B with sections 1-8 to 1-11 repealed on 1 January 2015 by Regulations of 22 Dec 2014 No. 1893.

Part C (Repealed)

0 Part C with sections 1-13 to 1-15 repealed on 1 January 2015 by Regulations of 22 Dec 2014 No. 1893.

Part D (Repealed)

0 Part D with sections 1-16 to 1-20 repealed on 1 January 2015 by Regulations of 22 Dec 2014 No. 1893.

Part E – Trade areas

Section 1-21. *Fjord fishing*

Fishing and sealing/whaling in waters on the Norwegian coast where unsheltered stretches do not exceed 5 nautical miles, or unsheltered waters up to 3 nautical miles from harbours or other protected waters.

Section 1-22. *In-shore fishing*

Fishing and sealing/whaling within 12 nautical miles from the base line.

Section 1-23. *Bank fishing*

(1) Bank fishing I:

Fishing and sealing/whaling within the area bounded by the following coordinates:

Coordinate No. 1 N 69°52′ E 32°20′

Coordinate No. 2 N 70°25′ E 32°55′

Coordinate No. 3 N 71°10′ E 31°25′

Coordinate No. 4 N 71°48′ E 28°40′

Coordinate No. 5 N 71°47′ E 27°12′

Coordinate No. 6 N 71°52′ E 25°50′

Coordinate No. 7 N 71°44′ E 23°45′

Coordinate No. 8 N 71°28′ E 22°36′

Coordinate No. 9 N 71°12′ E 18°55′

Coordinate No. 10 N 70°47′ E 17°00′

Coordinate No. 11 N 69°25′ E 13°33′

Coordinate No. 12 N 68°32′ E 12°00′

Coordinate No. 13 N 68°00′ E 10°20′

Coordinate No. 14 N 66°53′ E 10°40′

Coordinate No. 15 N 66°00′ E 09°08′

Coordinate No. 16 N 64°50′ E 09°34′

Coordinate No. 17 N 64°38′ E 08°22′

Coordinate No. 18 N 64°15′ E 07°40′

Coordinate No. 19 N 63°38′ E 04°50′

Coordinate No. 20 N 62°00′ E 02°30′

Coordinate No. 21 N 60°18′ E 03°15′

Coordinate No. 22 N 59°30′ E 03°13′

Coordinate No. 23 N 58°54′ E 04°00′

Coordinate No. 24 N 58°07′ E 04°06′

Coordinate No. 25 N 57°20′ E 06°24′

Coordinate No. 26 N 57°30′ E 07°54′

and the Skagerrak, in the waters within an area bounded by a line between Lindesnes in Norway to Hanstholm in Denmark and the Skaw in Denmark to Tistlarna in Sweden.

(2) Bank fishing II:

Fishing and sealing/whaling within 200 nautical miles from the base line, and shelter and rest near Bear Island in the period from 1 May to 31 August within the area bounded by the following coordinates:

Coordinate No. 1 N 74°08′ E 19°58′

Coordinate No. 2 N 73°58′ E 18°26′

Coordinate No. 3 N 74°36′ E 19°36′

Coordinate No. 4 N 74°36′ E 18°28′.

0 Amended by Regulation of 30 June 2005 No. 747.

Section 1-24. *Deepsea fishing*

(1) Deepsea fishing I:

Fishing and sealing/whaling within the area defined as bank fishing II, and also the North Sea, the Skagerrak, the Cattegat with adjacent waters, limited between 50°N to 62°N and 10°W.

(2) Deepsea fishing II:

Fishing and sealing/whaling in all waters except waters with open or scattered drift ice concentration (4/10 - 6/10) or higher beyond 200 nautical miles from the base line.

Section 1-25. *Fishing in ice-covered waters*

(1) Ice-covered waters I:

Fishing and sealing/whaling in all waters except waters with a heavy drift ice concentration[1] beyond 200 nautical miles from the base line.

(2) Ice-covered waters II:

Fishing and sealing/whaling in all waters.

1 See definition in section 1-2 subparagraph 44.

Chapter 2 Construction, watertight integrity and equipment

Section 2a. *Scope of application*

Unless provided otherwise, this chapter shall apply to new fishing vessels of 15 metres in overall length (LOA) and upwards.

0 Added by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 2-1. *Construction*

(1) The strength and construction of hull, superstructures, deckhouses, machinery casings, companionways and any other structures and the vessel's equipment shall be sufficient to withstand all foreseeable conditions of the intended service and shall in addition to satisfying the requirements of this chapter also satisfy the following requirements:

1. Classed vessels shall be built in accordance with the rules of the recognised classification society concerned. Unclassed vessels shall be built in accordance with the rules of Det Norske Veritas (DNV) or equivalent rules of another recognised classification society. Where the rules of the classification society conflict with any provision of this chapter, the provisions of these Regulations shall apply.
2. Vessels of special construction or vessels partly or wholly not covered by the rules of a recognised classification society in respect of design, materials, service, etc., shall be considered by the Norwegian Maritime Authority on an individual basis.

3. Standards for the design, construction and maintenance of hull, main and auxiliary machinery, and electrical and automatic installations shall comply with the rules of the recognised classification society in force at the time of construction.

(2) The hull of vessels intended for trade in ice shall be strengthened in accordance with the anticipated conditions of navigation and trade areas. Any vessel intended to be certified for trade in ice-covered waters shall be 24 metres in length (L) or above, have a hull of steel, and shall comply with the following requirements:

1. Ice-covered waters I:

   Construction of hull, strength, rudder arrangement, etc. shall be in accordance with the DNV ice class ICE 1B or equivalent ice class of another recognised classification society.

2. Ice-covered waters II:

   Construction of hull, strength, rudder arrangement, etc. shall be in accordance with the DNV ice class ICE 05 or equivalent ice class of another recognised classification society. Sealers/whalers shall comply with the DNV ice class SEALER or equivalent ice class of another recognised classification society.

(3) Bulkheads, closing devices and closures of openings in these bulkheads, as well as methods for their testing, shall be in accordance with paragraph (1). Vessels constructed of material other than wood shall be fitted with a collision bulkhead[1] and shall at least have watertight bulkheads bounding the main machinery space. Such bulkheads shall be extended up to the working deck. In vessels constructed of wood such bulkheads, which as far as practicable shall be watertight, shall also be fitted.

(4) Pipes piercing the collision bulkhead shall be fitted with suitable valves operable from above the working deck, and the valve chest shall be secured at the collision bulkhead inside the forepeak. No door, manhole, ventilation duct or any other opening shall be fitted in the collision bulkhead below the working deck.

(5) Where a long forward superstructure is fitted, the collision bulkhead shall be extended weathertight to the first deck above the working deck. The extension need not be fitted directly over the bulkhead below provided it is located within the limits given in section 1-2 subparagraph 26 and the part of the deck which forms the step is made effectively weathertight.

(6) The number of openings in the collision bulkhead above the working deck shall be reduced to the minimum compatible with the design and normal operation of the vessel. Such openings shall be capable of being closed weathertight.

(7) In vessels of 75 metres in length (L) and upwards, a watertight double bottom shall be fitted, as far as practicable, between the collision bulkhead and the afterpeak bulkhead.

1 See definition in section 1-2 subparagraph 26.

Section 2-2. *Watertight doors*

(1) The number of openings in watertight bulkheads, as set out in section 2-1 (3) shall be reduced to the minimum compatible with the general arrangements and operational needs of the vessel. Openings shall be fitted with watertight closing appliances in accordance with section 2-1 (1). Watertight doors shall be of an equivalent strength to the bulkhead in which they are fitted.

(2) In vessels of less than 45 metres in length (L), such doors may be of the hinged type. They shall be capable of being operated locally from each side of the door and shall normally be kept closed at sea. A notice shall be attached to the door on each side to state that the door shall be kept closed at sea.

(3) In vessels of 45 metres in length (L) and upwards, watertight doors shall be of the sliding type in:

1. spaces where it is intended to open them at sea and if located with their sills below the deepest operating waterline; and
2. the lower part of a machinery space where there is access from it to a shaft tunnel.

Otherwise watertight doors may be of the hinged type.

(4) Sliding watertight doors shall be capable of being operated when the vessel is listed up to 15 degrees either way.

(5) Sliding watertight doors, whether manually operated or otherwise, shall be capable of being operated locally from each side of the door. In vessels of 45 metres in length (L) and upwards, these doors shall also be capable of being operated via remote control from an accessible position above the working deck, except when the doors are fitted in crew accommodation spaces.

(6) Means shall be provided at remote operating positions to indicate when a sliding door is open or closed.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 2-3. *Watertight integrity*

(1) External openings shall be capable of being closed weathertight so as to prevent water from entering the vessel.[1] Hatches in decks which may be open during fishing operations shall normally be arranged near to the vessel's centreline. For larger hatch covers of more than 4 m^2, smaller hatch covers for use during operations shall be arranged as close as possible to the vessel's centreline. Where hinges are fitted, larger hatch covers shall have clamping devices also on the side of the hinges. Hinged hatch covers shall be capable of being secured in the open position. The Norwegian Maritime Authority may approve different arrangements provided that the safety of the vessel will not be impaired.

(2) Fish flaps on stern trawlers shall be power-operated and capable of being controlled from any position which provides an unobstructed view of the flaps.

1 See also the provision in section 2-16.

Section 2-3a. *Protection against flooding through penetrations in the hull below the waterline*

(1) In new vessels constructed after 1 January 2010 with moving parts penetrating the hull below the deepest operating waterline, e.g. sonar, an internal watertight barrier shall be arranged, which prevents the further flooding of the vessel in the event of a leak. The compartment that can be flooded shall not be greater than what is necessary to be able to carry out maintenance, repairs and similar. Access openings fitted below the working deck shall have watertight means of closure of a strength equivalent to the adjacent structure. A notice shall be attached to the hatch/door on each side to state that the hatch/door shall be kept closed at sea.

(2) In vessels constructed prior to 1 January 2010 which have not been arranged with a watertight barrier in accordance with paragraph (1), an evaluation of the consequences in the event of a flooding shall be carried out within the first certificate renewal after 1 January 2010. If necessary, stability calculations shall be carried out with flooding of the compartment concerned in the most unfavourable loading condition in order to show whether the vessel can remain afloat with positive stability.[1] A report on the evaluation and calculations, if any, shall be kept on board the vessel together with approved stability calculations.

(3) New and existing vessels having compartments with openings in the hull for sonar/asdic and similar equipment, shall within the first certificate renewal after 1 January 2010 be arranged with flood detector initiating an alarm in the wheelhouse in the event of a flooding.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See "Guidance on subdivision and damage stability calculations" given in item 5 (3) (a), (b) and (c) under "Attachment 3 - Recommendations by the Conference" in Torremolinos.

Section 2-4. *Weathertight doors*

(1) All access openings in bulkheads of enclosed superstructures and other outer structures through which water could enter and endanger the vessel shall be fitted with doors permanently attached to the bulkhead. The doors shall be capable of being closed weathertight and shall be framed and stiffened so that the whole structure is of equivalent strength to the unpierced structure. The means for securing these doors weathertight shall consist of gaskets and clamping devices or other equivalent means and shall be permanently attached to the bulkhead or to the doors themselves. The doors shall be so arranged that they can be operated from each side of the bulkhead.

(2) Weathertight doors to spaces below the working deck and to the enclosed superstructure included in the buoyancy when calculating stability shall be fitted as close as practicable to the vessel's centreline. Weathertight doors shall be in accordance with the requirements of appendix 4 or equivalent. Spray-tight doors in accordance with the requirements of appendix 4 or equivalent may be considered to be weathertight in vessels certified for operation within 200 nautical miles and in general for doors facing aft and doors on an enclosed working deck. The doors shall be clearly marked by notices indicating that the doors shall be kept closed while the vessel is at sea.

(3) The height above deck of sills in those doorways, in companionways, erections and machinery casings which give direct access to parts of the deck exposed to the weather and sea shall be at least 600 mm on the working deck and at least 300 mm on the superstructure deck.

(4) Where operating experience has shown justification and on approval of the Norwegian Maritime Authority, these heights may be reduced to not less than 380 mm and 150 mm respectively. Exceptions are not granted, however, for height above deck of sills in doorways giving direct access to machinery spaces.

0 Amended by regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 2-5. *Hatchways closed by wood covers*

(1) The height above deck of hatchway coamings shall be at least 600 mm on exposed parts of the working deck and at least 300 mm on the superstructure deck.

(2) The finished thickness of wood hatchway covers shall include an allowance for abrasion due to rough handling. In any case, the finished thickness of these covers shall be at least

4 millimetres for each 100 mm of unsupported span subject to a minimum thickness of 40 mm. The width of their bearing surfaces shall be at least 65 mm.

(3) Arrangements for securing wood hatchway covers weathertight shall comply with the requirements of appendix 4.

0 Amended by regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 2-6. *Hatchways closed by covers other than wood*

(1) The height above deck of hatchway coamings shall be as set out in section 2-5 (1). The height above deck of hatchway coamings on exposed working decks may be reduced to 300 mm provided that the freeboard is increased proportionally. On enclosed working decks, such hatchways may be reduced without increasing the freeboard. The height above deck of small weathertight hatches, e.g. emergency exits, etc. that are normally kept closed at sea, may be minimum 300 mm on working decks and 100 mm on superstructure decks without increasing the freeboard. The Norwegian Maritime Authority may permit additional reduction of the height above deck of hatchway coamings on superstructure decks if operational considerations so require and such hatchways are kept open only temporarily. The hatchway openings shall in such cases be kept as small as practicable. The covers shall be permanently attached by hinges or equivalent means and be capable of being rapidly closed and battened down.

(2) For the purpose of strength calculations, it shall be assumed that hatchway covers are subjected to the weight of cargo intended to be carried on them or to the following static loads, whichever is the greater:

1. 10.0 kilonewtons per square metre for vessels of 24 metres in length (L);
2. 17.0 kilonewtons per square metre for vessels of 100 metres in length (L) and upwards.

   For intermediate lengths the load values shall be determined by linear interpolation. The Norwegian Maritime Authority may permit the reduction of loads to not less than 75 per cent of the above values for covers to hatchways situated on the superstructure deck in a position abaft a point located 0.25 L from the forward perpendicular.

(3) Where covers are made of steel, the maximum stress calculated according to paragraph (2) multiplied by 4.25 shall not exceed the minimum ultimate strength of the material. Under these loads the deflections shall not be more than 0.0028 times the span.

(4) Covers made of materials other than steel shall be at least of equivalent strength to those made of steel, and their construction shall be of sufficient stiffness ensuring weathertightness under the loads specified in paragraph (2).

(5) Covers shall be fitted with clamping devices and gaskets sufficient to ensure weathertightness.

Section 2-7. *Machinery space openings*

(1) Machinery space openings shall be framed and enclosed by casings of a strength equivalent to the adjacent superstructure. External access openings therein shall be fitted with doors complying with the requirements of section 2-4.

(2) Openings other than access openings shall be fitted with means of closure of equivalent strength to the unpierced structure which are permanently attached thereto and weathertight.

Section 2-8. *Other deck openings*

(1) Where it is essential for fishing operations, flush deck scuttles of the screw, bayonet or equivalent type and manholes may be fitted. Such devices shall be permanently attached to the adjacent structure and the openings shall be capable of being closed watertight. Having regard to the size and disposition of the openings and the design of the closing devices, metal-to-metal closures may be fitted.

(2) Openings other than hatchways, machinery space openings, manholes and flush scuttles in the working or superstructure deck shall be protected by enclosed structures fitted with weathertight doors or their equivalent. Companionways shall be situated as close as practicable to the centreline of the vessel.

Section 2-9. *Ventilators*

(1) In vessels of 45 metres in length (L) and upwards, the height above deck of ventilator coamings shall be at least 900 millimetres on the working deck and at least 760 millimetres on the superstructure deck. In vessels of less than 45 metres in length (L), the height of these coamings shall be 760 millimetres and 450 millimetres respectively.

(2) Coamings of ventilators shall be of equivalent strength to the adjacent structure and capable of being closed weathertight by closing appliances permanently attached to the ventilator or adjacent structure. Where the coaming of any ventilator exceeds 900 millimetres in height it shall be specially supported.

(3) In vessels of 45 metres in length (L) and upwards, closing appliances need not be fitted to ventilators the coamings of which extend to more than 4.5 metres above the working deck or more than 2.3 metres above the superstructure deck. In vessels of less than 45 metres in length (L), closing appliances need not be fitted to ventilators the coamings of which extend to more than 3.4 metres above the working deck or more than 1.7 metres above the superstructure deck

(4) In vessels constructed on 1 January 2003 or later, the height above deck of coamings of machinery space ventilators which are necessary for the continuous supply of air to the machinery space or immediate supply of air to the generator room shall be in accordance with paragraph (3). Where the size or design of the vessel makes such arrangement impractical, the Norwegian Maritime Authority may approve a height reduction, provided that the ventilator is fitted with a weathertight closing appliance in accordance with paragraph (2), in combination with appropriate means for ensuring uninterrupted supply of air to the spaces concerned. Notwithstanding the above, the height shall be at least 900 mm above the working deck or superstructure deck.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 2-10. *Air pipes*

(1) Where air pipes to tanks and void spaces below deck extend above the working or the superstructure decks, the exposed parts of the pipes shall be of strength equivalent to the adjacent structures and fitted with appropriate protection. Openings of air pipes shall be provided with means of closing, permanently attached to the pipe or adjacent structure.

(2) The height of air pipes above deck to the point where water may have access below shall be at least 760 mm on the working deck and at least 450 mm on the superstructure deck. The Norwegian Maritime Authority may accept reduction of the height of an air pipe to avoid interference with the fishing operations.

Section 2-11. *Sounding devices*

(1) Sounding devices shall be fitted:

1. to the bilges of those compartments which are not readily accessible at all times during the voyage; and
2. to all tanks and cofferdams.

(2) Where sounding pipes are fitted, their upper ends shall be extended to a readily accessible position and, where practicable, above the working deck. Their openings shall be provided with permanently attached means of closing. Sounding pipes which are not extended above the working deck shall be fitted with automatic self-closing devices.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 2-12. *Side scuttles and windows*

(1) Side scuttles to spaces below the working deck and to spaces within the enclosed structures on that deck shall be fitted with hinged deadlights capable of being closed watertight.

(2) No side scuttle shall be fitted in such a position that its sill is less than 500 millimetres above the deepest operating waterline.

(3) Side scuttles fitted less than 1000 mm above the deepest operating waterline shall be of the fixed type.

(4) Side scuttles, together with their glasses and deadlights shall be of an approved construction. Those prone to be damaged by fishing gear shall be suitably protected.

(5) Toughened safety glass or its equivalent shall be used for the wheelhouse windows.

(6) The Norwegian Maritime Authority may accept side scuttles and windows without deadlights in side and aft bulkheads of deckhouses located on or above the working deck if satisfied that the safety of the vessel will not be impaired. Such acceptance is subject to compliance with the standards set out in appendix 4.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 2-13. *Inlets and discharges*

(1) Discharges let through the shell either from spaces below the working deck of from spaces in superstructures or deckhouses on the working deck fitted with doors complying with the requirements of section 2-4 shall be fitted with effective and accessible means for preventing water from passing inboard. Normally each separate discharge shall have an automatic non-return valve with a device for positive closure from an accessible position above the working deck. However, where the vertical distance from the deepest operating waterline to the inboard end of the discharge pipe exceeds 0.01L, the discharge may be fitted with two non-return valves with no means of positive closure, provided that the innermost valve is always accessible for inspection during the operation of the vessel. Where the vertical distance exceeds 0.02L, a single self-closing valve with no means of positive closure may be accepted. The means for operating the positive action valve shall be readily accessible and shall be provided with an indicator showing whether the valve is open or closed.

(2) In manned machinery spaces main and auxiliary sea inlets and discharges essential for the operation of machinery may be controlled locally. The controls shall be accessible and shall be provided with indicators showing whether the valves are open or closed.

(3) Fittings attached to the shell and the valves required by this Section shall be of steel, bronze or other approved ductile material. All pipes between the shell and the valves shall be of steel. With the exception of machinery spaces, other materials may be used in vessels constructed of material other than steel.

Section 2-14. *Freeing ports*

(1) Where bulwarks on weather parts of the working deck form wells, the minimum freeing port area (A) in square metres, on each side of the vessel for each well on the working deck, shall be determined as follows:

1. For vessels of 24 metres in length (L) and upwards, the area in m^2 shall be at least:

   A = 0.07 x l (l need not be taken as greater than 0.7L)

   l = length of well

   a. Where the bulwark is more than 1,200 mm in average height the required area shall be increased by 0.004 m^2 per metre of length of well for each 100 mm difference in height.

   b. Where the bulwark is less than 900 mm in average height, the required area may be decreased by 0.004 m^2 per metre of length of well for each 100 mm difference in height.

2. For vessels of less than 24 metres in length (L), the area in m^2 shall be at least:

   A = 0.02 x V

   V = Volume in m^3 of well formed by bulwark;

   however for net bins and other short wells of up to 5 metres in length (L), the following formula may instead be used:

   A = 0.175 x l.

(2) The freeing port area calculated according to paragraph (1) shall be increased where the Norwegian Maritime Authority considers that the vessel's sheer is not sufficient to ensure that the deck is rapidly and effectively freed of water.

(3) Subject to the approval of the Norwegian Maritime Authority the minimum freeing port area for each well on the superstructure deck shall be not less than one half the area (A) given in paragraph (1).

(4) Freeing ports shall be so arranged along the length of bulwarks as to ensure that the deck is freed of water most rapidly and effectively. Lower edges of freeing ports shall be as near the deck as practicable.

(5) Poundboards and means for stowage of the fishing gear shall be arranged so that the effectiveness of freeing ports will not be impaired. Poundboards shall be so constructed that they can be locked in position when in use and shall not hamper the discharge of shipped water.

(6) Freeing ports over 300 millimetres in depth shall be fitted with bars spaced not more than 230 mm nor less than 150 mm apart or provided with other suitable protective arrangements. Freeing port covers, if fitted, shall be of approved construction.[1]

(7) In vessels intended to operate in areas subject to icing, covers and protective arrangements for freeing ports shall be capable of being easily removed to restrict ice accretion. The size of openings and means provided for removal of these protective arrangements shall be to the satisfaction of the Norwegian Maritime Authority.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 2-16 (1) subparagraph 5 and section 6-11 (2).

Section 2-15. *Anchor and mooring equipment*

(1) Anchor equipment designed for quick and safe operation shall be provided. The anchor equipment shall consist of anchors, anchor chains or wire ropes, stoppers and a windlass or other arrangements for dropping and hoisting the anchor. The anchor equipment shall also be capable of holding the vessel at anchor in all foreseeable service conditions. Vessels shall also be provided with adequate mooring equipment for safe mooring in all operating conditions.

(2) Vessels of 24 metres in length (L) and upwards shall have anchor and mooring equipment in accordance with section 2-1 (1).

(3) Vessels of less than 24 metres in length (L) shall at least have the following anchor equipment:

1. Total weight of anchor: $0.1 \times L_{OA}^{2.43}$ [kg], where L_{OA} is overall length.[3]
2. The choice between one or two anchors is free. Where two anchors are used, one of the anchors shall have the following minimum weight: $5 \times (L_{OA} - 15)^{1.4} + 50$ [kg].
3. The anchor chain shall have the following length: $L_{min} = 5 \times L_{OA} / 3 + 55$ [m]. The chain may be replaced by wire provided that a 12.5 metre chain foreganger is fitted and the length of the wire is increased by 50 per cent in relation to the requirement for chains and the breaking strength of the wire is at least equivalent to that of a chain.
4. The chain shall at least be of the quality NVK1 according to DNV's steel ship rules. The dimension shall be not less than indicated in the below table.

L_{OA}	< 18	22	25	[m]
Diameter	12.5	14	16	[mm]

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres and upwards but less than 24 metres in length (L)), 30 December 2002 No. 1847 (in force on 1 January 2003).

1 ---

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3 See definition in section 1-2 subparagraph 42.

Section 2-16.[1] *Enclosed working and production decks*

(1) Such decks shall be provided with an effective bilge system having a capacity sufficient to remove production and washing water and any overflow from RSW tanks, etc. as well as water that may enter the vessel through openings in the vessel's sides or stern. Such bilge systems shall be arranged as follows:

1. Separate bilge pumps:

   Drainage shall be ensured by separate pumps in bilge wells located at side at the lowest point of the deck. Where the length of the space exceeds nine metres, bilge wells shall be arranged in the forward and after edge of the space. Where the breadth of the space exceeds half the vessel's breadth (B/2), bilge wells shall correspondingly be arranged on both sides of the space. In spaces of autoline vessels where line reels are located, a bilge well shall be arranged with a pump at the forward edge of the space by the line washing point. If the space exceeds nine metres, it shall be provided with two pumps.

   The volume of each bilge well shall be at least:

   V = 0,5 x As x l x B = volume in cubic decimetres.

   As = area of drag hatches (and any other similar hatches) or stern hatches in square metres.

   l = length of space in metres.

   B = breadth of vessel in metres.

   V shall be not less than 150 cubic decimetres. The depth of each bilge well shall be at least 0.35 metres. The bilge wells shall be so designed and arranged as to ensure effective drainage of waste water and a suction side that is not fouled by hooks, fish offal, or similar. On enclosed working decks a level alarm connected to the wheelhouse shall be arranged. The alarm shall be activated when the bilge wells on the deck are full.

   The capacity of each pump in such bilge wells shall at least be the greater of:

   a. Q = 4 x B x As (at least ND 75) = capacity in cubic metre per hour.

      B = breadth of vessel in metres.

      As = area of drag hatches (and any other similar hatches) or stern hatches in square metres.

   b. 1.25 x maximum wash water capacity in the working space.

   The bilge pumps shall be fitted with manual start and stop controls (locally) and be capable of being started and stopped from the wheelhouse. They shall be so designed as to enable fish offal to be pumped overboard together with the bilge water. Overboard outlets shall be in accordance with subparagraph 2.

2. Overboard outlets from bilge pumps:

   Openings for drainage by pumps from bilge wells, pounds, etc. shall be provided with a flap valve capable of being closed and operated from an easily accessible position (about 1.5 metres above deck). The outboard end or alternatively the top of the pipe coil shall be arranged 0.02L or at least 700 mm above the deepest operating waterline. Where a pipe coil is used, a thick-walled or corrosion-resistant pipe shall be used.

3. Fish offal chutes.

   The inboard end of chutes for fish offal disposal shall be located at least 700 mm above the deepest operating waterline. The inboard end shall be fitted with a weathertight cover. The outboard end shall be fitted with a flap capable of being closed and operated (locally) from a position about 1.5 metres above the deck. The arrangement shall as far as practicable be self-cleaning and easily accessible for inspection.

4. Bilge flaps:

   In addition to the drainage arrangement referred to in subparagraph (1)1, bilge wells may be permitted to be fitted with bilge flaps leading water directly overboard from bilge

wells on enclosed working decks if there is a need for such an arrangement. Such bilge flaps shall be kept to a minimum in terms of both their number and size and shall be fitted into the hull to avoid damage. The bilge flaps shall have vulcanized seal faces and be so designed as to be self-cleaning to the greatest possible degree. The bilge flaps shall be easily accessible for cleaning and inspection. They shall be capable of being closed by remote operation from the wheelhouse as well as by manual operation (locally) from a place about 1.5 metres above the deck. A panel in the wheelhouse shall indicate which bilge flaps are open or closed.

5. Freeing ports:

   As an alternative to the drainage arrangement referred to in subparagraph (1)1, ordinary freeing port openings without flaps or with easily movable flaps hinged by their upper edge and which cannot be locked may be permitted on enclosed decks. The vessel is considered to be an open shelterdecker and the space within the freeing ports shall not be included in the vessel's buoyancy. For freeing port area requirements, refer to section 2-14.

6. Means of closure for openings from parts of the enclosed deck within fishing hatches and other openings in the vessel's side and stern to spaces below deck or to an enclosed superstructure which is fully included in the buoyancy when calculating stability shall be in accordance with section 2-4. The means of closure shall be kept closed when not used for entry. The means of closure that separate the forward and after parts of the enclosed working deck shall be monitored from the wheelhouse by means of closed-circuit television, delayed alarm or indicator lights showing whether the openings are open or closed.

(2) In new and existing vessels, all openings necessary for fishing operations shall be provided with means enabling a crew member to close them quickly and effectively. Side and stern hatches shall be arranged as follows:

1. Their number and size shall be limited to what is absolutely necessary.
2. The lower edge of hatch openings shall normally be positioned not lower than one metre above the working deck.
3. Their means of closure shall at least have the same strength as the vessel's side shell and the hatches shall be capable of being closed weathertight.
4. The hatches shall be power-operated and shall be capable of being operated locally and remote-operated from an operating panel in the wheelhouse.
5. The hatches shall also be capable of being closed from an operating panel in the wheelhouse under a dead ship condition (in this connection the vessel's emergency source of power is considered to be operative insofar as the system's capacity is sufficient to meet all other emergency power supply requirements) and shall also be capable of being closed manually and locally by one person without the use of any tools.
6. The hatches shall be operative at all times without any kind of preparation. They shall be capable of being operated freely, i.e. unobstructed by objects such as nets or line reels and shall not be "locked" in the open position by cordage or similar objects.
7. Each hatch shall be capable of being closed in 15 seconds.
8. Good visual monitoring of hatch areas from the operating panel in the wheelhouse shall be ensured, for instance by means of closed-circuit television.

9. Audible and visual alarms shall be arranged at the hatches, immediately activated when the hatches are set in motion. In addition, a panel on the bridge shall indicate whether the hatch is open or closed.
10. The hatches shall be clearly marked by signs with the following text: “At sea this hatch shall never be kept open except during fishing operations. Never leave the hatch unattended while in the open position.”
11. Hatches on “open shelterdeckers” will be considered by the Norwegian Maritime Authority on an individual basis.

(3) External openings in the vessel’s side and stern are not permitted in new and existing vessels of 15 metres in overall length (LOA) and upwards unless they are necessary for fishing operations.

(4) In the event that the catch is brought onto a deck intended for the handling or processing of the catch, the catch shall be placed in a pound or similar structure. Such pounds shall comply with the requirements of section 3-11. They shall be provided with an effective drainage system. Means shall be provided for effective protection against unintended ingress of water to the deck on which the pound is located.

(5) There shall be at least two exits from such decks.

(6) On enclosed working and production decks, the unobstructed height shall nowhere be less than two metres.

(7) A ventilation system shall be arranged ensuring at least six exchanges of air per hour. In “open shelterdeckers”, the ventilation of the working deck shall be satisfactory.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

1 Cf. section 4-11.

Section 2-17. *Draught marks*

(1) All vessels shall be provided with draught marks on both sides forward and aft. The marks shall indicate the draught of that particular part of the vessel measured in decimetres from the lower edge of the keel.

(2) Such marks shall be positioned on the perpendiculars or as close to the perpendiculars as possible.

Section 2-18. *Fish tanks containing refrigerated or cold sea water*

(1) Where fish tanks filled with refrigerated or cold sea water or similar tank systems are used, such tanks shall be provided with a separate and permanent arrangement for filling and discharging water.

(2) If such tanks are also intended for the carriage of dry cargo, the tanks shall be provided with a bilge system and suitable means for preventing the ingress of water from the bilge system to the tanks.

Section 2-19. *Location of accommodation*

For the location of accommodation, refer to the requirements of Chapter 11.

Section 2-20. *Trawl, purse-seine/power-operated block and Danish seine arrangements*

(1) Arrangements and their components and equipment shall be dimensioned and arranged according to experience and good practice and under the supervision of a person possessing both the requisite experience and good knowledge of the type of equipment concerned.

(2) For information on certification, marking, inspection and internal control pertaining to loose equipment such as blocks, shackles, chains, steel ropes, etc., refer to Regulations concerning cargo-handling appliances in ships. The initial control of such equipment shall be carried out by a competent person type A and in-depth examinations every 5 years by a competent person type A or B. Initial control, in-depth examinations and internal controls shall be recorded in the control register.

(3) Winches and machinery for trawl-heaving shall be so arranged that the desired traction force can be set with automatic slackening of the winch if the pre-set traction force is exceeded.

(4) Stern trawlers shall be arranged with a gate or other barrier which is at least one metre high forward of the trawl slipway. The gate or other barrier shall be easy to open and close and should be capable of being remote-operated (Council Directive 93/103/EEC).[1]

(5) A hydraulically operated suspension arrangement for the power-operated block shall be so arranged that a failure in the oil supply or ruptured hoses, etc. do not cause the arrangement to fall down in an uncontrolled manner.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 6-4 (5).

Section 2-21. *Personnel lifts and personnel and cargo combination lifts*

The construction, installation and operation of personnel lifts and personnel and cargo combination lifts shall comply with the rules of the recognised classification society but shall at least be equivalent to the requirements set out in appendix 4. Controls and issue of documents shall be carried out by a qualified person in accordance with section 6-7 (4). Lifts intended for cargo only shall comply with the requirements of the Regulations of 17 January 1978 No. 4 concerning cargo-handling appliances in ships.

Chapter 3 Stability and associated seaworthiness

Section 3-1. *General*

(1) Vessels shall be so designed and constructed that the requirements of this chapter will be satisfied in the operating conditions referred to in section 3-7. Hydrostatics, cross curves, gross and net tonnages and supporting documentation shall be produced by means of an approved computer program. The same database shall be used for stability and tonnage calculation.

For vessels of 24 m in length (L) and upwards constructed on or after 1 January 2003 the righting lever curves (GZ curve) shall be calculated as set out in appendix 4.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 3-2. *Stability criteria*

(1) The following minimum stability criteria shall be met:

1. The area under the righting lever curve (GZ curve) shall not be less than 0.055 m-rad up to 30 degrees angle of heel and not less than 0.090 m-rad up to 40 degrees or the angle of flooding θ_f if this angle is less than 40 degrees. Additionally, the area under the curve between the angles of heel of 30 degrees and 40 degrees or between 30 degrees and θ_f if this angle is less than 40 degrees shall not be less than 0.030 m-rad.
2. The righting lever GZ shall be at least 200 millimetres at an angle of heel equal to or greater than 30 degrees.
3. The maximum righting lever GZ_{max} shall occur at an angle of heel preferably exceeding 30 degrees but not less than 25 degrees.
4. A vessel having a special hull design may, upon the approval of the Norwegian Maritime Authority, comply with the minimum stability requirements set out in appendix 4.
5. The initial metacentric height (GM) shall not be less than 350 mm.
6. The vessel's metacentric height (GM) in the light ship condition shall be positive.
7. In vessels of less than 24 metres in length (L), additionally the righting lever (GZ) for angles of heel between 40 and 65 degrees shall nowhere be less than 100 mm, and positive up to 80 degrees, not taking into account flooding through hatches, doors, bilge valves, etc. which must remain open during operation but which can rapidly be closed weathertight.

(2) Where arrangements other than bilge keels are provided to limit the angles of roll, the stability criteria given in paragraph (1) shall be maintained in all operating conditions.

(3) Permanent ballast shall not be liquid or capable of being pumped.. Ballast shall be located and secured so that it cannot shift. Permanent ballast shall not be removed or moved from the vessel without the approval of the Norwegian Maritime Authority.

(3) Vessels constructed after 1 January 2010

Where ballast is used to satisfy the criteria of paragraph (1), its nature and arrangement shall be to the satisfaction of the Norwegian Maritime Authority. Such ballast shall be permanently arranged. In vessels of 45 metres in length (L) and upwards, variable ballast in other conditions than the light ship condition and full load conditions may be permitted to be used in addition to permanent ballast, in order to satisfy the criteria of paragraph (1).

Where the ballast is required to be permanent, it shall be of solid matter and secured so that it cannot shift. The Norwegian Maritime Authority may nevertheless accept liquid ballast as permanent ballast, provided that it is stored in completely full tanks and that these are not connected to the vessel's pumping systems. Where liquid ballast is used as permanent ballast in order to satisfy the criteria in paragraph (1), detailed information thereof shall be included in the trading certificate and the trim and stability booklet.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 3-3. *Flooding of fish-holds*

The angle of heel at which progressive flooding of fish-holds could occur through hatches which remain open during fishing operations and which cannot rapidly be closed shall be at

least 20 degrees unless the stability criteria of section 3-2 (1) can be satisfied with the respective fish-holds partially or completely flooded.

Section 3-4. *Particular fishing methods*

Vessels engaged in particular fishing methods where additional external forces are imposed on the vessel during fishing operations, shall in addition to meeting the stability criteria of section 3-2 (1) also comply with the following:

1. For vessels equipped for fishing with purse-seine, power-operated block, trawl, etc., the effect of the fishing gear on stability shall be examined. This also applies to operations whereby the catch is hoisted on board by means of a crane, etc. The maximum pulling force for a trawl winch, power-operated block, etc. shall be assumed combined with the least favourable direction of impact and the least favourable loading condition for the vessel during fishing. For fishing gear that is fastened to the vessel in two places, e.g. a trawl, the loss of any one of them, such as the breaking of a trawl wire, shall be taken into account.
2. For boom trawlers, the following stability criteria shall be applied:
   a. The requirements of section 3-2 subparagraphs (1)1 and 2 shall be increased by 20%.
   b. The initial metacentric height (GM) shall not be less than 500 mm.
   c. If the vessel's engine power N (brake horsepower) is greater than

      $No = c \times L^2$ where

      $c = 0.8$ for $L \leq 35$ m

      $c = 0.05L - 0.95$ for $35 \text{ m} < L \leq 37$ m

      $c = 0.9$ for $L > 37$ m

      and L(m) is the lesser of the vessel's overall length (LOA) and $1.12L_{PP}$, the area and GZ requirements referred to above shall be additionally increased, N in the relation N/ N0.

   d. For vessels constructed on or after 1 January 2003, the requirements of subparagraph a. shall only apply to vessels with a propulsion output not exceeding:
      - $N = 0.6 \times L^2$ for vessels of 35 metres in length (L) or less
      - $N = 0.7 \times L^2$ for vessels of 37 metres in length (L) or over
      - For vessels of between 35 and 37 metres in length (L), the coefficient of L is obtained by interpolation between 0.6 and 0.7.

      Where the vessel's propulsion output exceeds the standard output values of the above formulae, the requirements of subparagraph a. shall be increased in direct proportion to the increased propulsion output.
   e. For the calculation of stability, the boom shall be raised to an angle of 45 degrees.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 3-5. *Severe wind and rolling*

All vessels shall be able to withstand the effect of severe wind and rolling in associated sea conditions, taking account of the seasonal weather and sea conditions of the waters in which

the vessel will operate, the type of vessel and its mode of operation. Vessels of 24 metres in length (L) and upwards shall comply with the requirements set out in appendix 4.

Section 3-6. *Water on deck*

(1) Vessels shall be able to withstand the effect of water on deck, taking account of the seasonal weather and sea conditions of the waters in which the vessel will operate, the type of vessel and its mode of operation.

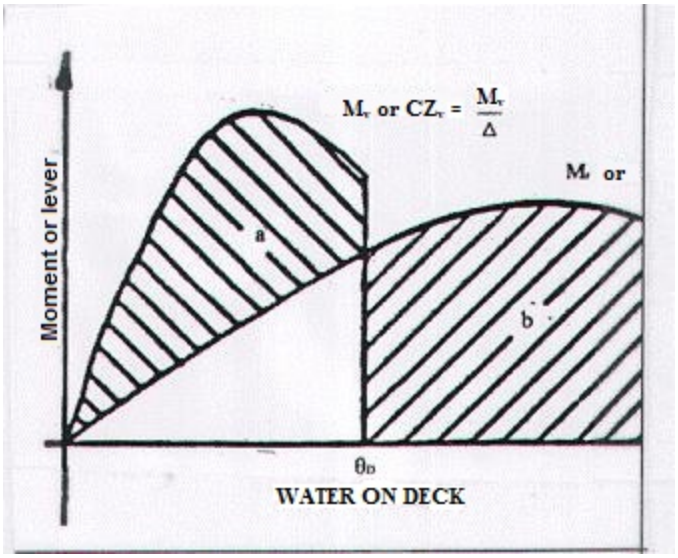
(2) Flooding of decks and open spaces

1. For vessels so arranged as to allow water to accumulate in open depressions on weather-exposed decks, the stability calculations shall take account of the effect of such flooding, cf. paragraph (3).
2. For vessels in which hatches and similar openings must periodically remain open during operation, calculations shall be made of the vessel's stability after the flooding of the space or spaces that may be flooded, if the angle of flooding for the opening concerned is less than 30 degrees.

(3) The vessel's ability to withstand the heeling effect caused by flooding of decks and open spaces

1. The vessel's ability to withstand the heeling effect caused by water on deck may be shown by a quasi-static method with reference to the below figure when the following requirements are met with the vessel in the least favourable operating condition:

   The relation C_v = [areal b/area a] shall not be less than 1.
2. The angle limiting the area "b" shall be equal to the angle of flooding θ_f or 40 degrees, whichever is the smaller.
3. The value of the heeling moment M_v or CZ_v the corresponding heeling lever. caused by water on deck shall be determined by assuming that the deck depression is filled to the top of the lowest point of the bulwark or to the point of flooding[1] for an open space and that the vessel is heeling to the angle θ_d where this point is submerged.
4. The curve for the heeling moment or the corresponding heeling lever is terminated for the angle at which the lowest point of the bulwark or the point of flooding is submerged. In calculating M_v the following conditions shall be met:
   a. Initially, the vessel is upright.
   b. When heeling the vessel's trim and displacements are constant and equal to the values for the vessel without water on deck.
   c. The effect of freeing ports shall be disregarded.
   d. M_v shall be calculated for a sufficient number of angles for each draught and normally for waterlines without trim only.



(4) Other methods for calculating the effect of water on deck may be used.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See definition in section 1-2 subparagraph 17.

Section 3-7. *Operating conditions*

(1) Loading conditions

The vessel's GZ curves (curves showing the righting lever) corrected for trim and the free surface effects of fuel oil, fresh water and any other tanks shall at least be calculated for the following loading conditions:

1. Departure for the fishing ground with full fuel, fresh water, stores, fishing gear, and all other appropriate equipment.
2. If appropriate to the mode of operation, on the fishing ground with maximum catch on deck, an empty hold and 50 per cent fuel, fresh water, stores, and full equipment.
3. Departure from the fishing ground without catch with 30 per cent fuel, fresh water, stores, and full equipment.
4. For vessels constructed on 1 January 2010 or later: Arrival at port without catch with 10 per cent fuel, fresh water, stores, and full equipment. Condition in accordance with subparagraph 3 may be omitted.
5. Departure from the fishing ground with full holds, loaded to the maximum permissible operating draught, not less than 30 per cent fuel, fresh water, stores, and full equipment.
6. Arrival at port with full holds and 10 per cent fuel, fresh water, stores, and full equipment.
7. Arrival at port with 20 per cent of full catch and 10 per cent fuel, fresh water, stores, and full equipment.

(2) Additional stability calculations

In addition to the specific loading conditions given above, the minimum stability requirements shall be satisfied at all other loading conditions, including those which produce the lowest values of the stability parameters contained in the criteria of section 3-2. Special conditions associated with a change in the vessel's operating condition or mode or areas of operation as referred to in this chapter which affect stability shall be taken into account.

(3) Concerning the conditions referred to in paragraph (1), the calculations shall include the following:

1. Allowance for the weight of wet fishing nets and tackle, etc. on the deck.
2. Allowance for ice accretion, if anticipated, in accordance with the provision of section 3-8.
3. The catch shall be homogeneously distributed among all holds, hatch coamings and trunks, if any. Homogeneously distributed cargo means that a volumetric centre of gravity and invariable density shall be used for all spaces available for the carriage of cargo.
4. The maximum catch permitted on the deck, at the operating conditions mentioned in subparagraphs (1)4 and 5 as well as paragraph (2).
5. Water ballast if carried either in tanks which are especially provided for this purpose or in other tanks also equipped for carrying water ballast, including combination tanks. See also section 3-2 (3) concerning restrictions in relation to the use of water ballast.
6. Allowance for the free surface effect of liquids carried and, if applicable, cargoes where a free surface effect may occur.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 3-8. *Ice accretion*

(1) For vessels operating in areas where ice accretion is likely to occur, the following icing allowance shall be made in the stability calculations:

1. 30 kilogrammes per square metre on exposed weather decks and gangways and on forward bulkheads of superstructures and deckhouses.
2. 7.5 kilogrammes per square metre for projected lateral area of each side of the vessel above the water plane.
3. The projected lateral area of discontinuous surfaces of rail, spars (except masts) and rigging of vessels having no sails and the projected lateral area of other small objects shall be computed by increasing the total projected area of continuous surfaces by 5 per cent and the static moments of this area by 10 per cent.

(2) Vessels intended for operation in areas where ice accretion is known to occur shall be:

1. designed to minimize the accretion of ice; and
2. equipped with means for removing ice.

(3) The requirements of subparagraphs (1)1, 2, and 3 and subparagraphs (2)1 and 2 shall be satisfied for vessels operating in areas as shown in appendix 2.

(4) Notwithstanding the provisions of subparagraphs (1)1 and 2, consideration shall be given to the following ice accretion in the stability calculations for vessels operating in the area north of the latitude 63°N, between the longitudes 28°W and 11°W:

1. 40 kilogrammes per square metre on exposed weather decks and gangways and on forward bulkheads of superstructures and deckhouses.
2. 10 kilogrammes per square metre for projected lateral area of each side of the vessel above the water plane.

3. The projected lateral area of discontinuous surfaces of rail, spars (except masts) and rigging of vessels having no sails and the projected lateral area of other small objects shall be computed by increasing the total projected area of continuous surfaces by 5 per cent and the static moments of this area by 10 per cent.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 3-9. *Inclining test*

(1) Every vessel shall undergo an inclining test upon its completion according to a procedure laid down by the Norwegian Maritime Authority and the actual displacement and position of the centre of gravity shall be determined for the light ship condition.

(2) Where alterations are made to a vessel affecting its light ship condition and the position of the centre of gravity, the vessel shall, if the Norwegian Maritime Authority considers this necessary, be re-inclined and the stability information revised.

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

(4) An inclining test and the determination of matters prescribed by paragraph (1) shall be undertaken at least every ten years.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 3-10. *Stability information*

(1) Suitable stability information such as trim and stability booklet shall be made available to the master by the company to enable the former to assess with ease and certainty the stability of the vessel under various operating conditions. Such information shall include specific instructions to the master warning him of those operating conditions which could adversely affect either the stability or the trim of the vessel. A copy of the stability information shall be submitted to the Norwegian Maritime Authority for approval.

(2) The approved stability information shall be kept on board, readily accessible at all times and inspected in connection with surveys of the vessel to ensure that it has been approved for the actual operating conditions.[1]

(3) Where alterations are made to a vessel affecting its stability, revised stability calculations shall be prepared and submitted to the Norwegian Maritime Authority for approval.

1 See section 1-10.

Section 3-11. *Portable fish-hold divisions*

The catch shall be properly secured against shifting which could cause dangerous trim or heel of the vessel. The scantlings of portable fish-hold divisions, if fitted, shall be in accordance with the rules of the recognised classification society.

Section 3-12. *Bow height*

(1) The bow height shall be sufficient to prevent unreasonable amounts of water being sprayed over the weather deck.

(2) The bow height in millimetres measured vertically at the stem from the untrimmed waterline with freeboard amidships corresponding to the greatest permissible operating draught, cf. section 3-13, to the exposed deck shall be at least.

1. $48 \cdot L_{OA} + 190$ for vessels of 24 metres length (L) and upwards, and
2. $43 \cdot L_{OA} + 310$ for vessels of less than 24 metres length (L).
3. Where the bow height required in subparagraphs 1 and 2 is obtained by sheer, the sheer shall extend over at least $0.20 \cdot L_{OA}$ measured from the forwardmost part of the hull. Where the bow height is obtained by a superstructure arrangement, such superstructure shall be enclosed and extend from the stem to a point at least $0.10 \cdot L_{OA}$ abaft the forwardmost part of the hull.

(3) For vessels of 24 metres in length (L) and upwards constructed after 1 January 2003, the bow height shall meet the following requirements:

1. For vessels taking on board their catch through openings arranged on the open weather deck forward of a deckhouse or superstructure, the bow height in millimetres measured vertically at the stem from the untrimmed waterline with freeboard amidships corresponding to the greatest permissible operating draught, cf. section 3-13, to the exposed deck shall be at least:

   $$H = 1{,}000 \cdot K_1 \cdot L \cdot (1 + (L/ K_2))$$

   where:

L	K_1	K_2
24 m ≤ L < 110 m	0.117	-220
L ≥ 110 m	5.991/L	1484

2. For vessels taking on board their catch through openings arranged on the open weather deck protected by a deckhouse or superstructure, the bow height in millimetres measured vertically at the stem from the untrimmed waterline with freeboard amidships corresponding to the greatest permissible operating draught, cf. section 3-13, to the exposed deck shall be the greater of the following values:

   $$H = 56 \cdot L \cdot (1 – (L/ 500)) \cdot (1.36/ (C_B + 0.68))$$

   where:

   C_B is the block coefficient which is to be taken as not less than 0.68.

   or:

   2,000 millimetres.
3. In calculating the bow height in accordance with subparagraph 1, a bulwark may be taken into account for a height of up to 1 metre provided that the bulwark is fitted at that height from the stem to a point at least $0.15 \cdot L$ abaft the forward perpendicular. For vessels always trimmed by the stern in service conditions, cf. section 3-7, the minimum trim by the stern may be taken into account in calculating the bow height in accordance with subparagraph 1.

4. Where the bow height required by subparagraph 1 is obtained by sheer, the sheer shall extend for a length of at least $0.15 \cdot L$ abaft the forward perpendicular.
5. Where the bow height required by subparagraph 2 is obtained by sheer, the sheer shall extend for a length of at least $0.15 \cdot L$ abaft the forward perpendicular. Where the bow height is obtained by a superstructure arrangement, such superstructure shall be enclosed and extend from the stem to a point at least $0.07 \cdot L$ abaft the forward perpendicular.

The Norwegian Maritime Authority may permit a reduced bow height for vessels holding a certificate for the Fjord Fishing trade area, cf. section 1-21.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 3-13. *Maximum permissible operating draught*

A maximum permissible operating draught shall be approved by the Norwegian Maritime Authority and shall be such that, in the associated operating condition, the stability criteria of this chapter and the requirements of chapters 2 and 6 as appropriate are satisfied.

Section 3-14. *Subdivision and damage stability*

(1) Vessels of 100 metres in length (L) and upwards, where the total number of persons carried is 100 or more, shall be capable of remaining afloat with positive stability after the flooding of any one compartment assumed damaged, having regard to the type of vessel, the intended service and the area of operation.

(2) For vessels constructed on or after 1 January 2003, the calculations shall be performed as set out in appendix 4.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 3-15. *Freeboard*

(1) Summer freeboards determined from the surface of the working deck at side amidships shall correspond to the maximum permissible operating draught, cf. section 3-13, and shall not be less than zero. The winter freeboard is the summer freeboard increased by 25 millimetres.

(2) For vessels constructed after 1 January 2003, the freeboard shall be at least 300 millimetres.

(3) Regardless of the date of construction of the vessel, the freeboard of vessels with a shelter deck and, where applicable, drainage in accordance with section 2-16 subparagraphs (1)1 and 2, shall be in accordance with paragraph (1). Vessels with a shelter deck and a drainage arrangement in accordance with section 2-16 subparagraphs (1)4 and 5 shall have freeboard in accordance with paragraph (2).

(4) The size of the freeboard shall be determined by the Norwegian Maritime Authority and indicated in the trading certificate. The minimum freeboard shall be indicated by loading marks on the vessel's sides in accordance with the standard marking form.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 22 December 2014 No. 1893 (in force on 1 January 2015, previously section 1-12).

Chapter 4 Machinery, electrical installations and periodically unattended machinery spaces

Part A – General provisions

Section 4-1. *Scope of application*

Unless provided otherwise, this chapter shall apply to new fishing vessels of 15 metres in overall length (LOA) and upwards.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 4-2. *Definitions*

(1) *Steering gear:* Machinery, the steering gear power units, if any, and ancillary equipment and the means of applying torque to the rudder stock (e.g. tiller or quadrant) necessary for the purpose of steering the vessel under normal service conditions.

(2) *Emergency steering gear:* Equipment provided for effecting movement of the rudder for the purpose of steering the vessel in the event of failure of the steering gear.

(3) *Steering gear power unit:*

1. In the case of electric steering gear: An electric motor and its associated electrical equipment.
2. In the case of electro-hydraulic steering gear: An electric motor and its associated electrical equipment and connected pump.
3. In the case of other hydraulic steering gear: A driving engine and connected pump.

(4) *Maximum ahead service speed:* The greatest speed which the vessel is designed to maintain in service at sea at its maximum permissible operating draught.

(5) *Maximum astern speed:* The speed which it is estimated the vessel can attain at the designed maximum astern power at its maximum permissible operating draught.

(6) *Fuel oil unit:* Equipment used for the preparation of fuel oil for delivery to an oil-fired boiler, or equipment used for the preparation of oil for delivery to an internal combustion engine, including any oil pressure pumps, filters and heaters dealing with oil at a pressure greater than 0.18 N per square millimetre.

(7) *Normal operational and habitable conditions:* Conditions under which the vessel as a whole, its machinery services, means of main and auxiliary propulsion, steering gear and associated equipment, aids to safe navigation and to limit the risks of fire and flooding, internal and external means of communicating and signalling, means of escape and winches for rescue boats, are in proper working order and conditions of habitability are satisfactory.

(8) *Dead ship condition:* The condition under which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power.

(9) *Main switchboard:* A switchboard directly supplied by the main source of electrical power and intended to distribute electrical energy.

(10) *Periodically unattended machinery spaces:* Spaces containing main propulsion and associated machinery and all sources of main electrical supply which are not at all times manned under all operating conditions, including manoeuvring.

Section 4-3.[1] *General*

(1) Machinery installations

1. For classed vessels, main propulsion, control, steam pipe, fuel oil, compressed air, electrical and refrigeration systems; auxiliary machinery; steering gear; boilers and other pressure vessels; piping and pumping arrangements; steering equipment and gears, shafts and couplings for power transmission shall be designed, constructed, tested, installed and serviced in accordance with the rules of the recognised classification society concerned and shall at least comply with the requirements of this chapter. Unclassed vessels shall comply with the rules of Det Norske Veritas (DNV) or equivalent rules of another recognised classification society and shall at least comply with the requirements of this chapter. Steering gear installations, boiler installations and pressure vessels having a working pressure of 3.5 bar or more and propulsion and auxiliary machinery, gears, etc. with a 100 kW rating or more shall be approved by the recognised classification society. In manufacturing propulsion and auxiliary machinery, gears, etc. with a rating above 400 kW and which are type-approved the production shall be subject to a quality assurance system that complies with the requirements of the recognised classification society. Machinery and equipment, as well as fish handling and fish processing equipment shall be protected so as to reduce to a minimum any danger to persons on board.
2. For vessels required to have a trading certificate for ice-covered waters, the following requirements shall apply: [2]
    a. Ice-covered waters I: Machinery installations shall be in accordance with the DNV ice class ICE 1B or equivalent ice class of another recognised classification society.
    b. Ice-covered waters II: Machinery installations shall be in accordance with the DNV ice class ICE 05 or equivalent ice class of another recognised classification society. Sealers/whalers shall at least comply with the DNV ice class SEALER or equivalent ice class of another recognised classification society.
3. Machinery spaces shall be so designed as to provide safe and free access to all machinery and its controls as well as to any other parts which may require servicing. Such spaces shall be adequately ventilated.
4. With regard to the operation of the machinery, the following shall receive special attention:
    a. Means shall be provided whereby the operational capability of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative. Special consideration shall be given to the functioning of:
        - The arrangements which supply fuel oil pressure for main propulsion machinery.
        - The normal sources of lubricating oil pressure.
        - The hydraulic, pneumatic and electrical means for the control of main propulsion machinery, including controllable pitch propellers.
        - The sources of water pressure for main propulsion cooling systems.
        - An air compressor and an air receiver for starting or control purposes.

Nevertheless, the Norwegian Maritime Authority may, having regard to overall safety considerations, accept a partial reduction in capability in lieu of full normal operation.

b. Means shall be provided whereby the machinery can be brought into operation from the dead ship condition without external aid.

5. Main propulsion machinery and all auxiliary machinery essential to the propulsion and the safety of the vessel shall, as fitted, be capable of operating whether the vessel is upright or listed up to 15 degrees either way under static conditions and up to 22.5 degrees either way under dynamic conditions, i.e. when rolling either way and simultaneously pitching (inclined dynamically) up to 7.5 degrees by bow or stern. The Norwegian Maritime Authority may permit deviation from these angles, taking into consideration the type, size and service conditions of the vessel.
6. Special consideration shall be given to the design, construction and installation of propulsion machinery systems so that any mode of their vibrations shall not cause undue stresses in such machinery systems in the normal operating ranges.

(2) Electrical installations

Electrical installations shall be in accordance with the rules of a recognised classification society, cf. paragraph (1), but shall at least comply with the Maritime Electrical Installations Regulations, laid down by the Norwegian Directorate for Civil Protection and Emergency Planning (DSB), and shall be so designed and constructed as to provide

1. the services necessary to maintain the vessel in normal operational and habitable conditions without having recourse to an emergency source of power;
2. the services essential to safety when failure of the main source of electrical power occurs; and
3. protection of the crew and vessel from electrical hazards.

(3) Periodically unattended machinery spaces

1. Sections 4-19 to 4-24 shall apply, in addition to sections 4-3 to 4-18 and sections 5-1 to 5-44, to vessels with periodically unattended machinery spaces.
2. Measures shall be taken to ensure that all equipment is functioning in a reliable manner in all operating conditions, including manoeuvring, and that arrangements to the satisfaction of the Norwegian Maritime Authority are made for regular inspections and routine tests to ensure continuous reliable operation.
3. Vessels shall be provided with documentary evidence in conformity with the requirements of the Norwegian Maritime Authority of their fitness to operate with periodically unattended machinery spaces. [3]

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 ---

2 See section 2-1 (2).

3 See section 8 of Regulations of 15 September 1992 concerning operating arrangements on Norwegian ships.

Part B – Machinery installations

Section 4-4. *Machinery*

(1) Main and auxiliary machinery essential for the propulsion and safety of the vessel shall be provided with effective means of control.

(2) Internal combustion engines of a cylinder diameter greater than 200 millimetres or a crankcase volume greater than 0.6 cubic metres shall be provided with crankcase explosion relief valves of an approved type with sufficient relief area.

(3) Where main or auxiliary machinery including pressure vessels or any parts of such machinery are subject to internal pressure and may be subject to dangerous overpressure, means shall be provided, where applicable, which will protect against such excessive pressure.

(4) All gearing and every shaft and coupling used for transmission of power to machinery essential for the propulsion and safety of the vessel or the safety of persons on board shall be so designed and constructed that it will withstand the maximum working stresses to which it may be subjected in all service conditions. Due consideration shall be given to the type of engines by which it is driven or of which it forms part.

(5) Main propulsion machinery and, where applicable, auxiliary machinery shall be provided with automatic shut-off arrangements in the case of failures, such as lubricating oil supply failure, which could lead rapidly to damage, complete breakdown or explosion. An advance alarm shall also be provided so that warning is given before automatic shut-off. The Norwegian Maritime Authority may exempt vessels from the provisions of this paragraph, giving consideration to the type of vessel or its trade area.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 4-5. *Means of going astern*

(1) Vessels shall have sufficient power for going astern to secure proper control of the vessel in all normal circumstances.

(2) The ability of the machinery to reverse the direction of thrust of the propeller in sufficient time and so to bring the vessel to rest within a reasonable distance from maximum ahead service speed shall be demonstrated at sea.

Section 4-6. *Steam boilers, feed systems and steam piping arrangements*

(1) Every steam boiler and every unfired steam generator shall be provided with not less than two safety valves of adequate capacity. The Norwegian Maritime Authority may nevertheless, having regard to the output or any other features of any steam boiler or unfired steam generator, permit only one safety valve to be fitted if satisfied that adequate protection against overpressure is thereby provided.

(2) Every oil-fired steam boiler which is intended to operate without manual supervision shall have safety arrangements which shut off the fuel supply and give an alarm in the case of low water level, air supply failure or flame failure.

(3) Special consideration shall be given to steam boiler installations to ensure that feed systems, monitoring devices, and safety provisions are adequate in all operating conditions to ensure the safety of boilers, steam pressure vessels and steam piping arrangements.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 4-7. *Communication between the wheelhouse and machinery space*

Two separate means of communication between the wheelhouse and the position from which the propulsion machinery is controlled shall be provided, one of which may be an engine-room telegraph. In vessels of less than 45 metres in length (L) where the propulsion machinery is directly controllable from the wheelhouse and means for emergency manoeuvring from the machinery space is also provided, there shall be satisfactory means of communication between the wheelhouse and the machinery space.

Section 4-8. *Wheelhouse control of propulsion machinery, etc.*

(1) Where remote control of propulsion machinery is provided from the wheelhouse, the following shall apply:

1. Under all operating conditions, including manoeuvring, the speed, direction of thrust and, if applicable, the pitch of the propeller shall be fully controllable from the wheelhouse.
2. The remote control referred to in subparagraph 1 above shall be performed by means of a control device that complies with the requirements of the recognised classification society and fitted with, where necessary, means of preventing overload of the propulsion machinery.
3. The main propulsion machinery shall be provided with an emergency stopping device in the wheelhouse and independent from the wheelhouse control system referred to in subparagraph 1 above.
4. Remote control of the propulsion machinery shall be possible only from one station at a time. At any control station interlocked control units may be permitted. There shall be at each station an indicator showing which station is in control of the propulsion machinery. The transfer of control between the wheelhouse and machinery space shall be possible only in the machinery space or control room. In vessels of less than 45 metres in length (L) the Norwegian Maritime Authority may permit that the control station in the machinery space is an emergency station only, provided that wheelhouse supervision and control is sufficient.
5. Indicators shall be fitted in the wheelhouse for:
    a. propeller speed and direction in the case of fixed propellers;
    b. propeller speed and pitch position in the case of controllable pitch propellers; and
    c. advance alarm as required in section 4-4 (5).
6. It shall be possible to control the propulsion machinery locally even in the case of failure in any part of the remote control system.
7. Unless the Norwegian Maritime Authority considers it impracticable, the design of the remote control system shall be such that if it fails an alarm will be given and the pre-set speed and direction of thrust will be maintained until local control is in operation.
8. Special arrangements shall be provided to ensure that automatic starting shall not exhaust the starting possibilities. An alarm shall be provided to indicate low starting air pressure and shall be set at a level which will still permit main engine starting operations.

(2) Where the main propulsion and associated machinery including sources of main electrical supply are provided with various degrees of automatic or remote control and are under continuous manned supervision from a control room, the control room shall be so designed,

equipped and installed that the machinery operation will be as safe and effective as if it were under direct supervision.

(3) If the propulsion and auxiliary machinery is controlled from the machinery space, such control shall be from a special room that is acoustically and thermally insulated. The control room shall be accessible by other means than through the machinery space. A wheelhouse is considered to satisfy the control room requirement (Council Directive 93/103/EEC).

(4) In general, automatic starting, operational and control systems shall include means for manually overriding the automatic means, even in the case of failure of any part of the automatic and remote control system.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 4-9. *Air pressure systems*

(1) Means shall be provided to prevent excess pressure in any part of compressed air systems and wherever water-jackets or casings of air compressors and coolers might be subjected to dangerous excess pressure due to leakage into them from air pressure parts. Suitable pressure-relief arrangements shall be provided.

(2) The main starting air arrangements for main propulsion internal combustion engines shall be adequately protected against the effects of backfiring and internal explosion in the starting air pipes.

(3) All discharge pipes from starting air compressors shall lead directly to the starting air receivers and all starting pipes from the air receivers to main or auxiliary engines shall be entirely separate from the compressor discharge pipe system.

(4) Provision shall be made to reduce to a minimum the entry of oil into the air pressure systems and to drain these systems.

Section 4-10. *Arrangements for oil fuel, lubrication oil and other flammable oils*

(1) Fuel oil which has a flashpoint of less than 60 degrees Celsius (closed cup test) as determined by an approved flashpoint apparatus shall not be used as fuel, except in emergency generators, in which case the flashpoint shall be not less than 43 degrees Celsius. The Norwegian Maritime Authority may nevertheless permit the general use of fuel oil having a flashpoint of not less than 43 degrees Celsius subject to such additional precautions as it may consider necessary and on condition that the temperature of the space in which such fuel is stored or used shall not rise to within 10 degrees Celsius below the flashpoint of the fuel.

(2) Safe and efficient means of ascertaining the amount of fuel oil contained in any oil tank shall be provided. If sounding pipes are installed, their upper ends shall terminate in safe positions and shall be fitted with suitable means of closure. Gauges made of glass of substantial thickness and protected with a metal case may be used, provided that automatic closing valves are fitted. Other means of ascertaining the amount of fuel oil contained in any fuel oil tank may be permitted providing their failure or overfilling of the tanks will not permit release of fuel.

(3) Provision shall be made to prevent overpressure in any oil tank or in any part of the fuel oil system including the filling pipes. Relief valves and air or overflow pipes shall discharge to a position and in a manner which is safe.

(4) Fuel oil pipes which, if damaged, would allow oil to escape from a storage, settling or daily service tank situated above the double bottom, shall be fitted with a cock or valve on the tank capable of being closed from a safe position outside the space concerned in the event of a

fire arising in the space in which such tanks are situated. In the special case of deep tanks situated in any shaft or pipe tunnel or similar space, valves on the tank shall be fitted but control in the event of fire may be effected by means of an additional valve on the pipe or pipes outside the tunnel or similar space. If such additional valve is fitted in the machinery space it shall be capable of being operated outside this space.

(5) Pumps forming part of the fuel oil system shall be separated from any other system and the connections of any such pumps shall be provided with an efficient relief valve which shall be in closed circuit. Where fuel oil tanks are alternatively used as liquid ballast tanks, proper means shall be provided to isolate the fuel oil and ballast systems.

(6) No oil tank shall be situated where spillage or leakage therefrom can constitute a hazard by falling on heated surfaces. Precautions shall be taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces.

(7) Pipelines intended for fuel oil, lubricating oil, etc. shall be as follows:

1. Fuel oil pipes and their valves and fittings shall be of steel or other equivalent material, provided that restricted use of flexible pipes may be permitted in positions where the Norwegian Maritime Authority is satisfied that they are necessary. Such flexible pipes and end attachments shall be of adequate strength and shall be constructed of approved fire-resistant materials or have fire-resistant coatings which comply with the requirements of the recognised classification society. In vessels constructed after 1 January 2003, end attachments shall be in accordance with the requirements set out in appendix 4.
2. Where necessary, fuel oil and lubricating oil pipelines shall be screened or otherwise suitably protected to avoid, as far as practicable, oil spray or oil leakage on heated surfaces or into machinery air intakes. The number of joints in piping systems shall be kept to a minimum.

(8) As far as practicable, fuel oil tanks shall be part of the vessel’s structure and shall be located outside machinery spaces of category A. Where fuel oil tanks, other than double bottom tanks, are necessarily located adjacent to or within machinery spaces of category A, at least one of their vertical sides shall be contiguous to the machinery space boundaries, and shall preferably have a common boundary with the double bottom tanks where fitted. The area of the tank boundary common with the machinery space shall be kept to a minimum. When such tanks are sited within the boundaries of machinery spaces of category A they shall not contain fuel oil having a flashpoint of less than 60 degrees Celsius (closed cup test). In general, the use of free-standing fuel oil tanks shall be avoided in fire hazard areas, and particularly in machinery spaces of category A. When free-standing fuel oil tanks are permitted, they shall be placed in an oil-tight spill tray of ample size having a suitable drain pipe leading to a suitably sized spill oil tank.

(9) The ventilation of machinery spaces shall be sufficient under all normal conditions to prevent accumulation of oil vapour.

(10) The arrangements for the storage, distribution and use of oil employed in pressure lubrication systems shall comply with the requirements of the recognised classification society. Such arrangements in machinery spaces of category A and, wherever practicable, in other machinery spaces shall at least comply with the provisions of paragraphs (1), (3), (6) and (7) and in so far as the Norwegian Maritime Authority may consider necessary with paragraphs (2) and (4). This does not preclude the use of sight flow glasses in lubrication systems provided they are shown by test to have a suitable degree of fire resistance.

(11) The arrangements for the storage, distribution and use of flammable oils other than oils referred to in paragraph (10) which are employed under pressure in power transmission systems, control and activating systems and heating systems shall comply with the requirements of the recognised classification society. In locations where means of ignition are present, such arrangements shall at least comply with the provisions of paragraphs (2) and (6) and with the provisions of paragraphs (3) and (7) in respect of strength and construction.

(12) Fuel oil, lubricating oil and other flammable oils shall not be carried in forepeak tanks.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 4-11. *Bilge pumping arrangements*

(1) An efficient bilge pumping plant shall be provided which under all practical conditions shall be capable of pumping from and draining any watertight compartment which is neither a permanent oil tank nor a permanent water tank whether the vessel is upright or listed. Wing suctions shall be provided if necessary for that purpose. Arrangements shall be provided for easy flow of water to the suction pipes. Provided that the Norwegian Maritime Authority is satisfied that the safety of the vessel is not impaired, the bilge pumping arrangements may be dispensed with in particular compartments.

(2) Bilge pumps shall be provided as follows:

1. At least two independently driven power bilge pumps shall be provided, one of which may be driven by the main engine. A ballast pump or other general service pump of sufficient capacity may be used as a power driven bilge pump.
2. Power bilge pumps shall be capable of giving a speed of water of at least two metres per second through the main bilge pipe which shall have an internal diameter of at least:

   $d = 25 + 1.68\sqrt{L(B + D)}$

   where d is the internal diameter in millimetres and L, B, and D are in metres.

   However, the actual internal diameter of the bilge main may be rounded off to the nearest standard size.
3. Each of the bilge pumps provided in accordance with this provision shall be provided with a direct bilge suction, one of these suctions drawing from the starboard side of the machinery space and the other from the port side. In vessels of less than 75 metres in length (L), however, only one bilge pump need be provided with a direct bilge suction.
4. No bilge suction shall have an inside diameter of less than 50 millimetres. The arrangement and sizing of the bilge system shall be such that the full rated capacity of the pump specified above can be applied to each of the watertight compartments located between the collision and afterpeak bulkheads.

(3) A bilge ejector in combination with an independently driven high pressure sea-water pump may be installed as a substitute for one independently driven bilge pump required by subparagraph (2)1 provided this arrangement complies with the requirements of the Norwegian Maritime Authority.

(4) In vessels where fish handling or processing may cause quantities of water to accumulate in enclosed spaces, adequate drainage shall be provided. Refer also to section 2-16 (1).

(5) Bilge pipes shall not be led through fuel oil, ballast or double bottom tanks, unless these pipes are of heavy gauge steel construction.

(6) Bilge and ballast pumping systems shall be so arranged as to prevent water passing from the sea or from water ballast spaces into holds or into machinery spaces or from one watertight compartment to another. The bilge connection to any pump which draws from the sea or from water ballast spaces shall be fitted with either a non-return valve or a cock which cannot be opened simultaneously either to the bilges and to the sea or to the bilges and water ballast spaces. Valves in bilge distribution boxes shall be of a non-return type.

(7) Any bilge pipe piercing a collision bulkhead shall be fitted with a positive means of closing at the bulkhead with remote control from the working deck with an indicator showing the position of the valve. If the valve is fitted on the after side of the bulkhead and is readily accessible under all service conditions the remote control may be dispensed with.

(8) New and existing vessels shall satisfy the provisions of Regulations of 30 May 2012 No. 488 on environmental safety for ships and mobile offshore units as regards the retention and treatment of oily bilge water.

0 Amended by Regulations of 28 November 2008 No. 1318 (in force on 1 January 2009), 20 December 2017 No. 2379 (in force on 1 January 2018).

Section 4-12. *Protection against noise*

Measures shall be taken to reduce the effects of noise upon personnel in machinery spaces. For guidance on noise level standard, refer to appendix 4.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 4-13. *Steering gear*

(1) Vessels shall be provided with steering gear and an emergency means of actuating the rudder. The steering gear and the emergency steering gear shall be arranged so that so far as is reasonable and practicable failure in one of them will not render the other one inoperative.

(2) Where the steering gear comprises two or more identical power units, emergency steering gear need not be fitted if the steering gear is capable of operating the rudder as required by paragraph (10) when any one of the units is out of operation. Each of the power units shall be operated from a separate circuit.

(3) The position of the rudder, if power-operated, shall be indicated in the wheelhouse. The rudder angle indication for power-operated steering gear shall be independent of the steering gear control system.

(4) In the event of failure of any of the steering gear units an alarm shall be given in the wheelhouse.

(5) Indicators for running indication of the motors of electric and electrohydraulic steering gear shall be installed in the wheelhouse. Short circuit protection, an overload alarm and a no-voltage alarm shall be provided for these circuits and motors. Protection against excess current, if provided, shall be for not less than twice the full load current of the motor or circuit so protected, and shall be arranged to permit the passage of the appropriate starting currents.

(6) The steering gear shall be of adequate strength and sufficient to steer the vessel at maximum service speed. The steering gear and rudder stock shall be so designed that they will not be damaged at maximum speed astern or by manoeuvring during fishing operations.

(7) The steering gear shall, with the vessel at its maximum permissible operating draught, be capable of putting the rudder over from 35 degrees on one side to 35 degrees on the other side with the vessel running ahead at maximum service speed. The rudder shall be capable of

being put over from 35 degrees on either side to 30 degrees on the other side in not more than 28 seconds, under the same conditions. The steering gear shall be operated by power where necessary to fulfil these requirements.

(8) The steering gear power unit shall be arranged to start either by manual means in the wheelhouse or automatically when power is restored after a power failure.

(9) The emergency steering gear shall be of adequate strength and sufficient to steer the vessel at navigable speed and capable of being brought speedily into action in an emergency.

(10) The emergency steering gear shall be capable of putting the rudder over from 15 degrees on one side to 15 degrees on the other side in not more than 60 seconds with the vessel running at one half of its maximum service speed ahead or 7 knots whichever is the greater. The emergency steering gear shall be operated by power where necessary to fulfil these requirements. Where the source of this power is electrical the emergency source of electrical power shall be capable of maintaining the emergency steering for at least ten minutes.

(11) Electric or electrohydraulic steering gear in vessels of 75 metres in length (L) and upwards shall be served by at least two circuits fed from the main switchboard and these circuits shall be as widely separated as possible.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 4-14. *Engineers' alarm*

In vessels of 75 metres in length (L) and upwards an engineers' alarm shall be provided to be operated from the engine control room or at the manoeuvring platform as appropriate, and shall be clearly audible in the engineers' accommodation.

Section 4-15. *Refrigeration systems for preservation of the catch*

(1) Refrigeration systems shall be so designed, constructed, tested and installed as to take account of the safety of the system and also the emission of chlorofluorocarbons (CFCs) or any other ozone-depleting substances from the refrigerant held in quantities or concentrations which are hazardous to human health or to the environment. For classed vessels, the rules of the recognised classification society concerned shall be complied with. For unclassed vessels, DNV rules or equivalent rules of another recognised classification society shall be complied with where practicable and shall be to the satisfaction of the Norwegian Maritime Authority.

(2) Refrigerants to be used in refrigeration systems shall be to the satisfaction of the Norwegian Maritime Authority. However, methyl chloride or CFCs whose ozone-depleting potential is higher than 5 per cent of CFC-11 shall not be used as refrigerants.

(3) Refrigerating installations shall be adequately protected against vibration, shock, expansion, shrinkage, etc. and shall be provided with an automatic safety control device to prevent a dangerous rise in temperature and pressure.

(4) Refrigeration systems in which toxic or flammable refrigerants are used shall be provided with drainage devices leading to a place where the refrigerant presents no danger to the vessels or to persons on board.

(5) The location of refrigerating installations and associated equipment shall be as follows:

1. Any space containing refrigerating machinery including condensers and gas tanks utilizing toxic refrigerants shall be separated from any adjacent space by gastight bulkheads. Any space containing the refrigerating machinery including condensers and gas tanks shall be fitted with a leak detection system having an indicator outside the

space adjacent to the entrance and shall be provided with an independent ventilation system and a water spray system.

2. When such containment is not practicable, due to the size of the vessel, the refrigeration system may be installed in the machinery space provided that the quantity of refrigerant used will not cause danger to persons in the machinery space, should all the gas escape, and provided that an alarm is fitted to give warning of a dangerous concentration of gas should any leakage occur in the compartment.

(6) In refrigerating machinery spaces and refrigerating rooms, alarms shall be connected to the wheelhouse or control stations or escape exits to prevent people being trapped. At least one exit from each such space shall be capable of being opened from the inside. Where practicable, exits from the spaces containing refrigerating machinery using toxic or flammable gas shall not lead directly into any accommodation spaces.

(7) Where any refrigerant harmful to persons is used in a refrigeration system, at least two sets of breathing apparatus shall be provided, one of which shall be placed in a position not likely to become inaccessible in the event of leakage of refrigerant. Breathing apparatus provided as part of the vessel's fire-fighting equipment may be considered as meeting all or part of this provision provided their location meets both purposes. Where a self-contained breathing apparatus is used, spare cylinders shall be provided.

(8) Adequate guidance for the safe operation and emergency procedures for the refrigeration system shall be provided by suitable notices displayed on board the vessel.

Part C – Electrical installations[1]

1 See section 4-3 (2).

Section 4-16. *Main source of electrical power*

(1) The vessel's main source of electrical power shall comply with the following:

1. Where electrical power constitutes the only means of maintaining auxiliary services essential for the propulsion and the safety of the vessel, a main source of electrical power shall be provided which shall include at least two generating sets, one of which may be driven by the main engine. The Norwegian Maritime Authority may accept other arrangements having equivalent electrical capability.
2. The power of these sets shall be such as to ensure the functioning of the services referred to in section 4-3 subparagraph (2)1, excluding the power required in fishing activities, processing and preservation of the catch, in the event of any one of these generating sets being stopped. For vessels of less than 45 metres in length (L), only the functioning of the services essential for the propulsion and the safety of the vessel is required to be ensured in the event of any one of the generating sets being stopped.
3. The arrangements of the vessel's main source of electrical power shall be such that the services referred to in section 4-3 subparagraph (2)1 can be maintained regardless of the number of revolutions and direction of the main propelling engines or shafting.
4. Where transformers constitute an essential part of the supply system required by this paragraph, the system shall be so arranged as to ensure continuity of the supply.

(2) The main and emergency lighting systems shall comply with the following:

1. The arrangement of the main lighting system shall be such that a fire or other casualty in the space or spaces containing the main source of electrical power, including transformers, if any, will not render the emergency lighting system inoperative.
2. The arrangement of the emergency lighting system shall be such that a fire or other casualty in the space or spaces containing the emergency source of electrical power, if any, will not render the main lighting system inoperative.

(3) Navigational lights shall, if solely electrical, be supplied through a separate switchboard and adequate means for the supervision of such lights shall be provided.

Section 4-17. *Emergency source of electrical power*

(1) A self-contained emergency source of electrical power shall be located outside the machinery spaces above the main deck. It shall be so arranged as to ensure its functioning in the event of fire or other causes of failure of the main electrical installations.

(2) The emergency source of electrical power shall be capable, having regard to starting current and the transitory nature of certain loads, of serving simultaneously:

1. the VHF radio installation required by section 9-6 subparagraphs (1)1 and 2, and if applicable
    a. the MF radio installation required by section 9-8 subparagraphs (1)1 and 2 and section 9-9 subparagraphs (1)2 and 3;
    b. the ship-earth station required by section 9-9 subparagraph (1)1; and
    c. the MF/HF radio installation required by section 9-9 subparagraphs (2)1 and 2 and section 9-10 (1);
2. internal communication equipment, fire detecting systems and signals which may be required in an emergency;
3. the navigational lights if solely electrical and the emergency lights:
    a. of launching stations and overside of the vessel;
    b. in all alleyways, stairways and exits;
    c. in spaces containing machinery or the emergency source of power;
    d. in control stations; and
    e. in fish handling and fish processing spaces; and
4. the operation of the emergency fire pump, if any.
5. The emergency source of electrical power shall be capable of serving simultaneously the installations referred to in subparagraphs 1 to 4, for a period of at least eight hours for vessels of 45 metres in length (L) and upwards and at least three hours for vessels of less than 45 metres in length (L)

(3) The emergency source of electrical power may be either a generator or an accumulator battery.

(4) The emergency source of electrical power shall comply with the following:

1. Where the emergency source of electrical power is a generator, it shall be provided both with an independent fuel supply and with efficient starting arrangements. Unless a second independent means of starting the emergency generator is provided the single

source of stored energy shall be protected to preclude its complete depletion by the automatic starting system.

2. Where the emergency source of electrical power is an accumulator battery it shall be capable of carrying the emergency load without recharging whilst maintaining the voltage of the battery throughout the discharge period within plus or minus 12 per cent of its nominal voltage. In the event of failure of the main power supply this accumulator battery shall be automatically connected to the emergency switchboard and shall immediately supply at least those services specified in subparagraphs (2)2 and 3. The emergency switchboard shall be provided with an auxiliary switch allowing the battery to be connected manually in case of failure of the automatic connection system.

(5) The emergency switchboard shall be installed as near as is practicable to the emergency source of power and shall be located in accordance with paragraph (1). Where the emergency source of power is a generator, the emergency switchboard shall be located in the same place unless the operation of the emergency switchboard would thereby be impaired.

(6) Any accumulator battery fitted in accordance with this Section other than batteries serving radio transmitters/receivers in vessels of less than 45 metres in length (L) shall be installed in a well-ventilated space which shall not be the space containing the emergency switchboard. An indicator shall be mounted in a suitable place on the main switchboard or in the machinery control room to indicate when the battery constituting the emergency source of power is being discharged. The emergency switchboard is to be supplied in normal operation from the main switchboard by an inter-connector feeder which is to be protected at the main switchboard against overload and short circuit. The arrangement at the emergency switchboard shall be such that in the event of a failure of the main power supply an automatic connection of the emergency supply shall be provided. When the system is arranged for feedback operation, the inter-connector feeder shall also be protected at the emergency switchboard at least against short circuit.

(7) The emergency generator and its prime mover and any accumulator battery shall be so arranged as to ensure that they will function at full rated power when the vessel is upright and when rolling up to an angle of 22.5 degrees either way and simultaneously pitching 10 degrees by bow or stern, or is in any combination of angles within those limits.

(8) The emergency source of electrical power and automatic starting equipment shall be so constructed and arranged as to enable adequate testing to be carried out by the crew while the vessel is in operating condition.

Section 4-18. *Precautions against shock, fire and other hazards of electrical origin*

In respect of precautions against shock, fire and other hazards of electrical origin, Chapter V of the Maritime Electrical Installations Regulations, laid down by the Norwegian Directorate for Civil Protection and Emergency Planning (DSB), shall be complied with.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Part D – Periodically unattended machinery spaces

Section 4-19. *Fire safety*

(1) Fire prevention

1. Special consideration shall be given to high pressure fuel oil pipes. Such pipes shall be screened and secured and any leakages from such piping systems shall be collected in a suitable drain tank which shall be provided with a high level alarm.
2. Where daily service fuel oil tanks are filled automatically or by remote control, means shall be provided to prevent overflow spillages. Similar consideration shall be given to other equipment which treats flammable liquids automatically, e.g. fuel oil purifiers, which whenever practicable shall be installed in a special space reserved for purifiers and their heaters.
3. Where daily service fuel oil tanks or settling tanks are fitted with heating arrangements, a high temperature alarm shall be provided if the flashpoint of the fuel oil can be exceeded.

(2) Fire detection

1. An approved fire detection system based on a self-monitoring principle and including facilities for periodical testing shall be installed in machinery spaces.
2. The detection system shall initiate both audible and visual alarm in the wheelhouse and in sufficient appropriate spaces to be heard and observed by persons on board.
3. The fire detection system shall be fed automatically from an emergency source of power if the main source of power fails.
4. Internal combustion engines of 2,500 kilowatts and over shall be provided with crankcase oil mist detectors or engine bearing temperature detectors or equivalent devices.

(3) Fire-fighting

1. A fixed fire-extinguishing system shall be provided in machinery spaces in accordance with the requirements of sections 5-22 and 5-40.
2. In vessels of 75 metres in length (L) and upwards provision shall be made for immediate water delivery from the fire main system either by:
    a. remote starting arrangements of one of the main fire pumps in the wheelhouse and at the fire control station, if any, or
    b. permanent pressurisation of the fire main system, due regard being paid to the possibility of freezing.
3. Regular inspection and maintenance of the fire integrity of the machinery spaces shall be ensured. Cabinets for release of fire-extinguishing systems shall be located in readily accessible places.

Section 4-20. *Protection against flooding*

(1) Bilges in machinery spaces shall be provided with a high level alarm in such a way that the accumulation of liquids is detected at normal angles of trim and heel. The alarm shall be indicated in the wheelhouse and be audible in mess rooms and other accommodation spaces.

(2) The controls of any valve serving a sea inlet, a discharge below the waterline or a bilge injection system shall be so sited as to allow adequate time for operation in case of influx of water to the space.

Section 4-21. *Communications*

In vessels 75 metres in length (L) and upwards one of the two separate means of communication referred to in section 4-7 shall be a reliable vocal communication. An additional reliable means of vocal communication shall be provided between the wheelhouse and the engineers' accommodation.

Section 4-22. *Alarm system*

(1) An alarm system shall be provided which shall indicate any fault requiring attention.

(2) Alarm systems shall comply with the following:

1. The alarm system shall be capable of sounding in the machinery space an audible alarm and indicate visually each separate alarm function at a suitable position. In vessels of less than 45 metres in length (L) the Norwegian Maritime Authority may nevertheless permit that the system will only sound an audible alarm and indicate visually each separate alarm function in the wheelhouse.
2. In vessels of 45 metres in length (L) and upwards the alarm shall have a connection to the engineers' cabins through a selector switch to ensure connection to one of those cabins and to the engineers' public spaces, if any. The Norwegian Maritime Authority may permit alternative arrangements which provide an equivalent measure of safety.
3. In vessels of 45 metres in length (L) and upwards an engineers' alarm and an alarm to the wheelhouse for persons on watch shall be activated if an alarm function has not received attention within a period not exceeding 30 minutes.
4. Audible and visible alarm shall be activated in the wheelhouse in all situations requiring action to be taken by the person in charge of the navigational watch or all situations to which that person's attention should be directed.
5. The alarm system shall as far as practicable be designed according to the "fail-to-safe" principle.

(3) The alarm system shall be:

1. continuously powered with automatic change-over to the emergency source of power in case of loss of main power supply; and
2. activated by failure of the main power supply.

(4) Additionally, the alarm system shall have the following functions:

1. The alarm system shall be capable of indicating at the same time more than one fault and the acceptance of any alarm shall not inhibit another alarm.
2. Acceptance at the position referred to in the subparagraph (2)1 shall be indicated at the positions where it was shown. Alarms shall be maintained until they are accepted and the visual indications shall remain until the fault has been corrected. All alarms shall automatically reset when the fault has been rectified.

Section 4-23. *Special requirements for machinery, boiler and electrical installations*

(1) In vessels of 75 metres in length (L) and upwards the main source of electrical power shall be supplied as follows:

1. Where the electrical power can normally be supplied by one generator, there shall be provided suitable load shedding arrangements to ensure the integrity of supplies to

services required for propulsion and steering. To cover the case of loss of the generator in operation, there shall be adequate provisions for automatic starting and connecting to the main switchboard of a stand-by generator of sufficient capacity to permit propulsion and steering and with automatic restarting of the essential auxiliaries including, where necessary, sequential operations. Means may be provided to the satisfaction of the Norwegian Maritime Authority for remote (manual) starting and connection of the stand-by generator to the main switchboard as well as means of repeated remote starting of essential auxiliaries.

2. If the electrical power is normally supplied by more than one generating set simultaneously, there shall be provisions, e.g. by load shedding, to ensure that in the case of loss of one of these generating sets, the remaining ones are kept in operation without overload to permit propulsion and steering.

(2) Where required to be duplicated, other auxiliary machinery essential to propulsion shall be fitted with automatic change-over devices allowing transfer to a stand-by machine. An alarm shall be given on automatic change-over.

(3) Automatic control and alarm system shall be provided as follows:

1. The control system shall be such that through the necessary automatic arrangements the services needed for the operation of the main propulsion machinery and its auxiliaries are ensured.
2. Means shall be provided to keep the starting air pressure or electrical power for starting purposes at the required level where internal combustion engines are used for main propulsion.
3. An alarm system complying with section 4-22 shall be provided for all important pressures, temperatures, fluid levels, etc.
4. Where necessary, an adequate central position shall be arranged with the necessary alarm panels and instrumentation indicating any alarmed fault.

Section 4-24. *Safety system*

A safety system shall be provided so that serious malfunction in machinery and boiler operations, which presents an immediate danger, shall initiate the automatic shut-down of that part of the plant and an alarm shall be given. Shut-down of the propulsion system shall not be automatically activated except in cases which could lead to serious damage, complete breakdown, or explosion. Where arrangements for overriding the shut-down of the main propelling machinery are fitted these shall be such as to preclude inadvertent activation. Visual means shall be provided to show whether or not the arrangement has been activated.

Chapter 5 Fire protection, fire detection, fire extinction and fire fighting

Part A – General provisions

Section 5-1. *General*

(1) One of the following methods of fire protection shall be adopted in accommodation and service spaces:

1. Method IF: The construction of all internal divisional bulkheads of non-combustible 'B' or 'C' class divisions generally without the installation of a detection or sprinkler system in the accommodation and service spaces.
2. Method IIF: The fitting of an automatic sprinkler and fire alarm system for the detection and extinction of fire in all spaces in which fire might be expected to originate, generally with no restrictions on the type of internal divisional bulkheads.
3. Method IIF: The fitting of an automatic fire alarm and detection system in all spaces in which a fire might be expected to originate, generally with no restriction on the type of internal divisional bulkheads, except that in no case shall the area of any accommodation space or spaces bounded by an 'A' or 'B' class division exceed 50 square metres. However, the Norwegian Maritime Authority may permit that the floor area of public spaces is increased up to 75 square metres.

(2) The requirements for use of non-combustible materials in construction and insulation of the boundary bulkheads of machinery spaces, control stations, etc., and the protection of stairway enclosures and corridors shall be common to all three methods.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-2. *Definitions*

(1) *Non-combustible material:* A material which neither burns nor gives off flammable vapours in sufficient quantity for self-ignition when heated to approximately 750 degrees Celsius, as tested in accordance with the requirements set out in appendix 4. Any other material is a combustible material.

(2) *Standard fire test:* A test in which specimens of the relevant bulkheads or decks are exposed in a test furnace to temperatures corresponding approximately to the standard time-temperature curve. The specimen shall have an exposed surface of not less than 4.65 square metres and a height (or length of deck) of 2.44 metres, resembling as closely as possible the intended construction and including where appropriate at least one joint. The standard time-temperature curve is defined by a smooth curve drawn through the following temperature points, measured inside the furnace:

The initial furnace temperature		20°C
at the end of the first	5 minutes	576°C
at the end of the first	10 minutes	679°C
at the end of the first	15 minutes	738°C
at the end of the first	30 minutes	841°C
at the end of the first	60 minutes	945°C

The test method shall comply with the requirements set out in appendix 4.

(3) *'A' class divisions:* Divisions formed by bulkheads and decks which comply with the following:

1. They shall be constructed of steel or equivalent material.
2. They shall be suitably stiffened.
3. They shall be so constructed as to be capable of preventing the passage of smoke and flame to the end of the one-hour standard fire test.

4. They shall be insulated with approved non-combustible materials such that the average temperature of the unexposed side will not rise more than 139 degrees Celsius above the original temperature, nor will the temperature, at any one point, including any joint, rise more than 180 degrees Celsius above the original temperature, within the time listed below:

   Class A-60 60 minutes

   Class A-30 30 minutes

   Class A-15 15 minutes

   Class A-0 0 minutes

5. The Norwegian Maritime Authority may require a test of a prototype bulkhead or deck to ensure that it meets the above requirements for integrity and temperature rise and is in accordance with the requirements set out in appendix 4. For vessels constructed after 1 January 2003, such a test is required to be conducted.

(4) *'B' class divisions:* Divisions formed by bulkheads, decks, ceilings or linings which comply with the following:

1. They shall be so constructed as to be capable of preventing the passage of smoke and flame to the end of the first one-half hour of the standard fire test.
2. They shall have an insulation value such that the average temperature of the unexposed side will not rise more than 139 degrees Celsius above the original temperature, nor will the temperature at any one point, including any joint, rise more than 225 degrees Celsius above the original temperature, within the time listed below:

   Class B-15 15 minutes

   Class B-0 0 minutes

3. They shall be constructed of approved non-combustible materials and all materials entered into the construction and erection of 'B' class divisions shall be non-combustible. Combustible veneers may be permitted provided they meet the relevant requirements of this chapter.
4. The Norwegian Maritime Authority may require a test of a prototype division to ensure that it meets the above requirements for integrity and temperature rise and is in accordance with the requirements set out in appendix 4. For vessels constructed after 1 January 2003, such a test is required to be conducted.

(5) *'C' class divisions:* Divisions constructed of approved non-combustible materials. They need meet no requirements relative to the passage of smoke and flame nor the limiting of temperature rise. Combustible veneers are permitted provided they meet other requirements of this chapter.

(6) *'F' class divisions:* Divisions formed by bulkheads, decks, ceilings or linings which comply with the following:

1. They shall be so constructed as to be capable of preventing the passage of flame to the end of the first one-half hour of the standard fire test.
2. They shall have an insulation value such that the average temperature of the unexposed side will not rise more than 139 degrees Celsius above the original temperature, nor will the temperature at any one point, including any joint, rise more than 225 degrees Celsius above the original temperature, up to the end of the first one-half hour of the standard fire test.

3. The Norwegian Maritime Authority may require a test of a prototype division to ensure that it meets the above requirements for integrity and temperature rise and is in accordance with the requirements set out in appendix 4. For vessels constructed after 1 January 2003, such a test is required to be conducted.

(7) *Continuous 'B' class ceilings or linings:* 'B' class ceilings or linings which terminate only at an 'A' or 'B' class division.

(8) *Steel or other equivalent material:* Steel or any material, e.g. aluminium alloy with appropriate insulation, which by itself or due to insulation provided has structural and integrity properties equivalent to steel at the end of the applicable fire exposure to the standard fire test.

(9) *Low flame spread:* The surface thus described will adequately restrict the spread of flame in accordance with the requirements set out in appendix 4.

(10) *Control stations:* Spaces in which the vessel's radio or main navigation equipment or the emergency source of power is located, or where the fire recording and fire control equipment is centralised

(11) *Machinery spaces of category 'A':* Spaces which contain internal combustion type machinery used either

1. for main propulsion; or
2. for other purposes where such machinery has in the aggregate a total power of not less than 375 kilowatts;

or which contain any oil-fired boiler or fuel oil unit.

(12) *Machinery spaces:* Machinery spaces of category A and all other spaces containing propulsion machinery, boilers, oil fuel units, steam and internal combustion engines, generators, steering gear, major electrical machinery, oil filling stations, refrigerating, stabilising, ventilating and air conditioning machinery and similar spaces, and trunks to such spaces.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Part B – Fire safety measures in vessels of 60 metres in length (L) and upwards

0 Title amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 5-3. *Structure*

(1) The hull, superstructure, structural bulkheads, decks and deckhouses shall be constructed of steel or other equivalent material except as otherwise specified in paragraph (4).

(2) The insulation of aluminium alloy components of 'A' or 'B' class divisions, except structures which are non-load bearing, shall be such that the temperature of the structural core does not rise more than 200 degrees Celsius above the ambient temperature at any time during the applicable fire exposure to the standard fire test.

(3) Special attention shall be given to the insulation of aluminium alloy components of columns, stanchions and other structural members required to support survival craft stowage, launching and embarkation areas, and 'A' and 'B' class divisions, to ensure:

1. that for such members supporting survival craft areas and 'A' class divisions the temperature rise limitation specified in paragraph (2) shall apply at the end of one half-hour; and
2. that for such members required to support 'B' class divisions, the temperature rise limitation specified in paragraph (2) shall apply at the end of one half-hour.

(4) Crowns and casings of machinery spaces of category 'A' shall be of steel construction and adequately insulated and any openings therein shall be suitably arranged and protected to prevent the spread of fire.

Section 5-4. *Bulkheads within the accommodation and service spaces*

(1) Within the accommodation and service spaces, all bulkheads required to be 'B' class divisions shall extend from deck to deck and to the shell or other boundaries, unless continuous 'B' class ceilings or linings are fitted on both sides of the bulkheads. In the latter case the bulkhead may terminate at the continuous ceiling or lining.

(2) Method IF. All bulkheads not required by this provision or other provisions of this Part to be 'A' or 'B' class divisions shall be at least 'C' class divisions.

(3) Method IIF. There shall be no restriction on the construction of bulkheads not required by this provision or other provisions of this Part to be 'A' or 'B' class divisions, except in individual cases where 'C' class bulkheads are required in accordance with table 1 in section 5-7.

(4) Method IIIF. There shall be no restriction on the construction of bulkheads not required by this provision or other provisions of this Part to be 'A' or 'B' class divisions. In no case shall the area of any accommodation space or spaces bounded by a continuous 'A' or 'B' class division exceed 50 square metres, except in individual cases where 'C' class bulkheads are required in accordance with table 1 in section 5-7. However, the Norwegian Maritime Authority may increase this area for public spaces, cf. section 5-1 subparagraph (1)3.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-5. *Protection of stairways and lift trunks in accommodation spaces, service spaces and control stations*

(1) Stairways which penetrate only a single deck shall be protected at least at one level by at least 'B-0' class divisions and self-closing doors. Lifts which penetrate only a single deck shall be enclosed by 'A-0' class divisions with steel doors at both levels. Stairways and lift trunks which penetrate more than a single deck shall be enclosed by at least 'A-0' class divisions and protected by self-closing doors at all levels.

(2) All stairways shall be of steel frame construction except where the Norwegian Maritime Authority permits the use of other equivalent material.

Section 5-6. *Doors in fire-resistant divisions*

(1) Doors shall have resistance to fire as far as practicable equivalent to the division in which they are fitted. Doors and door frames in 'A' class divisions shall be constructed of steel. Doors in 'B' class divisions shall be non-combustible. Doors fitted in boundary bulkheads of machinery spaces of category 'A' shall be self-closing and reasonably gastight. The Norwegian Maritime Authority may permit the use of combustible materials in doors

separating cabins from the individual interior sanitary accommodation, such as showers, if constructed according to method IF.

(2) Doors required to be self-closing shall not be fitted with hold-back hooks. However, hold-back arrangements fitted with remote release fittings of the fail-safe type may be used.

(3) Ventilation openings may be permitted in and under the doors in corridor bulkheads except that such openings shall not be permitted in and under stairway enclosure doors. The openings shall be provided only in the lower half of a door. Where such opening is in or under a door the total net area of any such opening or openings shall not exceed 0.05 square metres. When such opening is cut in a door it shall be fitted with a grille made of non-combustible material.

(4) Watertight doors need not be insulated.

Section 5-7. *Fire integrity of bulkheads and decks*

(1) In addition to the specific provisions for fire integrity of bulkheads and decks required elsewhere in this Part, the minimum fire integrity of bulkheads and decks shall be as prescribed in tables 1 and 2 of this section.

(2) The following requirements shall govern application of the tables:

1. Tables 1 and 2 shall apply respectively to bulkheads and decks separating adjacent spaces.
2. For determining the appropriate fire integrity standards to be applied to divisions between adjacent spaces, such spaces are classified according to their fire risk as follows:
   a. Control stations (1).

      Spaces containing emergency sources of power and lighting.

      Wheelhouse and chartroom.

      Spaces containing the vessel's radio equipment.

      Fire-extinguishing rooms, fire-control rooms and fire-recording stations.

      Control room for propulsion machinery when located outside the machinery space.

      Spaces containing centralized fire alarm equipment.

   b. Corridors (2).

      Corridors and lobbies.

   c. Accommodation spaces (3).

      Spaces as defined in section 1-2 subparagraph 37, excluding corridors.

   d. Stairways (4).

      Interior stairways, lifts and escalators other than those wholly contained within the machinery spaces and enclosures thereto. In this connection, a stairway which is enclosed only at one level shall be regarded as part of the space from which it is not separated by a fire door.

   e. Service spaces of low fire risk (5).

      Lockers and store-rooms having areas of less than 4 square metres, drying rooms and laundries.

   f. Machinery spaces of category 'A' (6).

      Spaces as defined in section 5-2 (11).

g. Other machinery spaces (7).

Spaces as defined in section 5-2 (12), including fishmeal processing spaces, but excluding machinery spaces of category 'A'.

h. Cargo spaces (8).

All cargo spaces, including cargo oil tanks, and ducts and hatchways to such spaces.

i. Service spaces of high fire risk (9).

Galleys, pantries containing cooking appliances, paint rooms, lamp rooms, lockers and store-rooms having areas of 4 square metres or more, and workshops other than those forming part of the machinery spaces.

j. Open decks (10).

Open deck spaces and enclosed promenades, spaces for processing fish in the raw state, fish washing spaces and similar spaces containing no fire risk.

The title of each category is intended to be typical rather than restrictive. The number in parenthesis following each category refers to the applicable column or row in the tables.

Table 1 – Fire integrity of bulkheads separating adjacent spaces

Spaces		**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Control stations	**(1)**	A-0[e/]	A-0	A-60	A-0	A-15	A-60	A-15	A-60	A-60	*
Corridors	**(2)**		C	B-0	B-0 A-0[c/]	B-0	A-60	A-0	A-0	A-0	*
Accommodation spaces	**(3)**			C[a,b/]	B-0 A-0[c/]	B-0	A-60	A-0	A-0	A-0	*
Stairways	**(4)**				B-0 A-0[c/]	B-0 A-0[c/]	A-60	A-0	A-0	A-0	*
Service spaces of low fire risk	**(5)**					C	A-60	A-0	A-0	A-0	*
Machinery spaces of category 'A'	**(6)**						*	A-0	A-0	A-60	*
Other machinery spaces	**(7)**							A-0[d/]	A-0	A-0	*
Cargo spaces	**(8)**								*	A-0	*
Service spaces of high fire risk	**(9)**									A-0[d/]	*
Open decks	**(10)**										-

Table 2 – Fire integrity of decks separating adjacent spaces

Space above → / Space below ↓		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Control stations	**(1)**	A-0	A-0	A-0	A-0	A-0	A-60	A-0	A-0	A-0	*
Corridors	**(2)**	A-0	*	*	A-0	*	A-60	A-0	A-0	A-0	*
Accommodation spaces	**(3)**	A-60	A-0	*	A-0	*	A-60	A-0	A-0	A-0	*
Stairways	**(4)**	A-0	A-0	A-0	*	A-0	A-60	A-0	A-0	A-0	*
Service spaces of low fire risk	**(5)**	A-15	A-0	A-0	A-0	*	A-60	A-0	A-0	A-0	*
Machinery spaces of category 'A'	**(6)**	A-60	A-60	A-60	A-60	A-60	*	A-60[f/]	A-30	A-60	*
Other machinery spaces	**(7)**	A-15	A-0	A-0	A-0	A-0	A-0	*	A-0	A-0	*
Cargo spaces	**(8)**	A-60	A-0	A-0	A-0	A-0	A-0	A-0	*	A-0	*
Service spaces of high fire risk	**(9)**	A-60	A-0	A-0	A-0	A-0	A-0	A-0	A-0	A-0[d]	*
Open decks	**(10)**	*	*	*	*	*	*	*	*	*	-

Notes: To be applied to both tables 1 and 2, as appropriate.

a/ No special requirements are imposed upon these bulkheads in methods IIF and IIIF fire protection.

b/ In case of method IIIF, 'B' class bulkheads of 'B-0' rating shall be provided between spaces or groups of spaces of 50 square metres and over in area.

c/ For clarification as to which applies, see sections 5-4 and 5-5.

d/ Where spaces are of the same numerical category and superscript [d] appears, a bulkhead or deck of the rating shown in the tables is only required when the adjacent spaces are for a different purpose, e.g. in category (9). A galley next to a galley does not require a bulkhead but a galley next to a paint room requires an 'A-0' bulkhead.

e/ Bulkheads separating the wheelhouse, chartroom and radio room from each other may be of 'B-0' rating.

f/ Fire insulation need not be fitted if the machinery space in category (7), in the opinion of the Norwegian Maritime Authority, has little or no fire risk.

* Where an asterisk appears in the tables, the division is required to be of steel or other equivalent material but is not required to be of 'A' class standard. Where electrical cables, pipelines and ventilation ducts pass through a deck or bulkhead, the penetration should be so tight as to prevent the passage of smoke and heat.

(3) Continuous 'B' class ceilings or linings, in association with the relevant decks or bulkheads, may be accepted as contributing, wholly or in part, to the required insulation and integrity of a division.

(4) Windows and skylights to machinery spaces shall be as follows:

1. Where skylights can be opened they shall be capable of being closed from outside the space. Skylights containing glass panels shall be fitted with external shutters of steel or other equivalent material permanently attached.
2. Glass or similar materials shall not be fitted in machinery space boundaries. This does not preclude the use of wire-reinforced glass for skylights and glass in control rooms within the machinery spaces.
3. In skylights referred to in subparagraph 1, wire-reinforced glass shall be used.

(5) External boundaries which are required by section 5-3 (1) to be of steel or equivalent material may be pierced for the fitting of windows and side scuttles provided there is no requirement elsewhere in this Part for such boundaries to have 'A' class integrity. Similarly, in such boundaries which are not required to have 'A' class integrity, doors may be of materials to the satisfaction of the Norwegian Maritime Authority.

Section 5-8. *Details of construction*

(1) Method IF. In accommodation and service spaces and control stations, all linings, draught stops, ceilings and their associated grounds shall be of non-combustible materials.

(2) Methods IIF and IIIF. In corridors and stairway enclosures serving accommodation and service spaces and control stations, ceilings, linings, draught stops and their associated grounds shall be of non-combustible materials.

(3) Methods IF, IIF and IIIF

1. Except in cargo spaces or refrigerated compartments of service spaces insulating materials shall be non-combustible. Vapour barriers and adhesives used in conjunction with insulation, as well as the insulation of pipe fittings for cold service systems need not be of non-combustible material, but they shall be kept to the minimum quantity practicable and their exposed surfaces shall have qualities of resistance to the propagation of flame in accordance with the requirements set out in appendix 4. In machinery spaces, the surface of insulation shall be impervious to oil or oil vapour.
2. Where non-combustible bulkheads, linings and ceilings are fitted in accommodation and service spaces they may have a combustible veneer not exceeding 2.0 millimetres in thickness. However, in corridors, stairway enclosures and control stations, veneers shall not exceed 1.5 millimetres in thickness.
3. Air spaces enclosed behind ceilings, panellings or linings shall be divided by close-fitting draught stops spaced not more than 14 metres apart. In the vertical direction, such spaces, including those behind linings of stairways, trunks, etc., shall be closed at each deck.

Section 5-9.[1] *Ventilation systems*

(1) General requirements

1. Ventilation ducts shall be of non-combustible material. Short ducts, however, not generally exceeding 2 metres in length and with a cross section not exceeding 0.02 square metres need not be non-combustible, subject to the following conditions:
   a. These ducts shall be of a low flame spread material and tested in accordance with the requirements set out in appendix 4.
   b. They may only be used at the end of the ventilation device.
   c. They shall not be situated less than 600 millimetres, measured along the duct, from an opening in an 'A' or 'B' class division including continuous 'B' class ceilings.
2. Where the ventilation ducts with a free cross-sectional area exceeding 0.02 square metres pass through 'A' class bulkheads or decks, the openings shall be lined with a steel sheet sleeve unless the ducts passing through the bulkheads or decks are of steel in the vicinity of passage through the deck or bulkhead and comply in that portion of the duct with the following:

a. For ducts with a free cross-sectional area exceeding 0.02 square metres the sleeves shall have a thickness of at least 3 millimetres and a length of at least 900 millimetres. When passing through bulkheads this length shall preferably be divided evenly on each side of the bulkhead. Ducts with a free cross-sectional area exceeding 0.02 square metres shall be provided with fire insulation. The insulation shall have at least the same fire integrity as the bulkhead or deck through which the duct passes. Equivalent penetration protection may be provided to the satisfaction of the Norwegian Maritime Authority.

b. Ducts with a free cross-sectional area exceeding 0.085 square metres shall be fitted with fire dampers in addition to the requirements of subparagraph a. The fire damper shall operate automatically, but shall also be capable of being closed manually from both sides of the bulkhead or deck. The damper shall be provided with an indicator which shows whether the damper is open or closed. Fire dampers are not required, however, where ducts pass through spaces surrounded by 'A' class divisions, without serving those spaces, provided those ducts have the same fire integrity as the divisions which they penetrate.

3. Ventilation ducts for machinery spaces of category 'A' or galleys shall not in general pass through accommodation spaces, service spaces or control stations. Where the Norwegian Maritime Authority permits this arrangement the ducts shall be constructed of steel or equivalent material and so arranged as to preserve the integrity of the divisions.

4. Ventilation ducts of accommodation spaces, service spaces or control stations shall not in general pass through machinery spaces of category 'A' or through galleys. Where the Norwegian Maritime Authority permits this arrangement the ducts shall be constructed of steel or equivalent material and so arranged as to preserve the integrity of the divisions.

5. Where ventilation ducts with a free cross-sectional area exceeding 0.02 square metres pass through 'B' class bulkheads the openings shall be lined with steel sheet sleeves of at least 900 millimetres in length, unless the ducts are of steel for this length in way of the bulkheads. When passing through a 'B' class bulkhead this length shall preferably be divided evenly on each side of the bulkhead.

6. Such measures as are necessary shall be taken in respect of control stations outside machinery spaces to ensure that ventilation, visibility and freedom from smoke are maintained, so that in the event of fire the machinery and equipment contained therein may be supervised and continue to function effectively. Alternative and separate means of air supply shall be provided. Air inlets of the two sources of supply shall be so disposed that the risk of both inlets drawing in smoke simultaneously is minimised. The Norwegian Maritime Authority may decide that such requirements need not apply to control stations situated on, and with openings on to, an open deck, or where local closing arrangements are equally effective.

7. Where they pass through accommodation spaces or spaces containing combustible materials, the exhaust ducts from galley ranges shall be constructed of 'A' class divisions. Each exhaust duct shall be fitted with:

   a. a grease trap readily removable for cleaning;

   b. a fire damper located in the lower end of the duct;

   c. arrangements, operable from within the galley, for shutting off the exhaust fan; and

d. fixed means for extinguishing a fire within the duct, except where the Norwegian Maritime Authority considers such fittings impractical in a vessel of less than 75 metres in length (L).

(2) The main inlets and outlets of all ventilation systems shall be capable of being closed from outside the spaces being ventilated. Power ventilation of accommodation spaces, service spaces, control stations and machinery spaces shall be capable of being stopped from an easily accessible position outside the space being served. This position should not be readily cut off in the event of a fire in the spaces served. The means provided for stopping the power ventilation of the machinery spaces shall be entirely separate from the means provided for stopping ventilation of other spaces.

(3) Means shall be provided for closing, from a safe position, the annular spaces around funnels.

(4) Ventilation systems serving machinery spaces shall be independent of systems serving other spaces.

(5) Store-rooms containing appreciable quantities of highly flammable products shall be provided with ventilation arrangements which are separate from other ventilation systems. Ventilation shall be arranged at high and low levels and the inlets and outlets of ventilators shall be positioned in safe areas and fitted with spark arresters.

1 See section 11-5.

Section 5-10. *Heating installations*

(1) Electric radiators shall be fixed in position and so constructed as to reduce fire risks to a minimum. No such radiator shall be fitted with an element so exposed that clothing, curtains or other similar materials can be scorched or set on fire by heat from the element.

(2) Heating by means of open fires shall not be permitted. Heating stoves and other similar appliances shall be firmly secured and adequate protection and insulation against fire shall be provided beneath and around such appliances and in way of their uptakes. Uptakes of stoves which burn solid fuel shall be so arranged and designed as to minimise the possibility of becoming blocked by combustion products and shall have a ready means for cleaning. Dampers for limiting draughts in uptakes shall, when in the closed position, still leave an adequate area open. Spaces in which stoves are installed shall be provided with ventilators of sufficient area to provide adequate combustion air for the stove. Such ventilators shall have no means of closure and their position shall be such that closing appliances in accordance with section 2-9 are not required.

(3) Open gas flame appliances, except cooking stoves and water heaters, shall not be permitted. Spaces containing any such stoves or water heaters shall have adequate ventilation to remove fumes and possible gas leakage to a safe place. All pipes conveying gas from container to stove or water heater shall be of steel or other approved material. Automatic safety gas shut-off devices shall be fitted to operate on loss of pressure in the gas main pipe or flame failure on any appliance.

(4) Where gaseous fuel is used for domestic purposes, the arrangements, storage, distribution and use of the fuel shall be to the satisfaction of the Norwegian Maritime Authority and in accordance with section 5-12.

Section 5-11. *Use of materials, penetrations, etc.*

(1) All exposed surfaces in corridors and stairway enclosures and surfaces including grounds in concealed or inaccessible spaces in accommodation and service spaces and control stations shall have low flame spread characteristics.[1] Exposed surfaces of ceilings in accommodation and service spaces and control stations shall have low flame spread characteristics.

(2) Paints, varnishes and other finishes used on exposed interior surfaces shall be approved, have low flame spread characteristics and shall not be capable of producing excessive quantities of smoke or toxic gases or vapours, and shall meet the requirements set out in appendix 4.

(3) Primary deck coverings within accommodation and service spaces and control stations shall be of approved material which will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures. Primary deck coverings shall be in accordance with the requirements set out in appendix 4.

(4) Where 'A' or 'B' class divisions are penetrated for the passage of electrical cables, pipes, trunks, ducts, etc., or for the fitting of ventilation terminals, lighting fixtures and similar devices, arrangements shall be made to ensure that the fire integrity of the divisions is not impaired. Penetrations shall be in accordance with the requirements set out in appendix 4.

(5) In accommodation and service spaces and control stations, pipes penetrating 'A' or 'B' class divisions shall be of approved materials having regard to the temperature such divisions are required to withstand. Where oil and combustible liquids are conveyed through accommodation and service spaces, the pipes conveying oil or combustible liquids shall be of an approved material having regard to the fire risk.

(6) Materials readily rendered ineffective by heat shall not be used for overboard scuppers, sanitary discharges, and other outlets which are close to the waterline and where the failure of the material in the event of fire would give rise to danger of flooding.

(7) Cellulose-nitrate-based film shall not be used on board.

(8) All waste receptacles other than those used in fish processing shall be constructed of non-combustible materials with no openings in the sides or bottom.

(9) Machinery driving fuel oil unit pumps and other similar fuel pumps shall be fitted with remote controls situated outside the space concerned so that they can be stopped in the event of a fire arising in the space in which they are located.

(10) Drip trays shall be fitted where necessary to prevent oil leakage.

(11) Within compartments used for stowage of fish, combustible insulation shall be protected by close-fitting cladding.

1 See definitions in section 5-2 (9).

Section 5-12.[1] *Storage of gas cylinders and dangerous materials*

(1) Cylinders for compressed, liquefied or dissolved gases shall be clearly marked by means of prescribed identifying colours, have a clearly legible identification of the name and chemical formula of their contents and be properly secured.

(2) Cylinder containing flammable or other dangerous gases and expended cylinders shall be stored, properly secured, in compartments on open decks. All valves, pressure regulators and pipes leading from such cylinders shall be protected against damage. Cylinders shall be protected against excessive variations in temperature, direct rays of the sun, and accumulation of snow.

(3) Spaces containing highly flammable liquids, such as volatile paints, paraffin, benzole, etc., and where permitted, liquefied gas, shall have direct access from open decks only. Pressure-adjusting devices and relief valves shall exhaust within the compartment. Where boundary bulkheads of such compartments adjoin other enclosed spaces they shall be gastight.

(4) Except as necessary for service within the space, electrical wiring and fittings shall not be permitted within compartments used for the storage of highly flammable liquids or liquefied gases. Where such electrical fittings are installed, they shall comply with the Maritime Electrical Installations Regulations, laid down by the Norwegian Directorate for Civil Protection and Emergency Planning (DSB). Sources of heat shall be kept clear of such spaces and "No smoking" and "No naked light" notices shall be displayed in a prominent position.

(5) Separate storage shall be provided for each type of compressed gas. Compartments used for the storage of such gases shall not be used for storage of other combustible products nor for tools or objects not part of the gas distribution system. However, the Norwegian Maritime Authority may relax these requirements considering the characteristics, volume and intended use of such compressed gases.

(6) For welding gases, the special provisions of Regulation of 25 April 2002 No. 422 concerning welding, etc. on board ship shall apply.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See Regulations of 20 October 1983 No. 1580 concerning safety precautions for gasfired installations, etc. operating on propane or other liquefied hydrocarbon gases used on board vessels and Regulations of 21 July 1988 No. 653 on the storage and use of health hazardous substances on board.

Section 5-13.[1] *Means of escape*

(1) Stairways and ladders leading to and from all accommodation spaces and in spaces in which the crew is normally employed, other than machinery spaces, shall be so arranged as to provide ready means of escape to the open deck and thence to the survival craft. In particular in relation to these spaces:

1. At all levels of accommodation at least two widely separated means of escape shall be provided which may include the normal means of access from each restricted space or group of spaces.
2. The means of escape shall be arranged as follows:
    a. Below the weather deck the main means of escape shall be a stairway and the second escape may be a trunk or a stairway.
    b. Above the weather deck the means of escape shall be stairways or doors to an open deck or a combination thereof.
3. Only one means of escape may be permitted, due regard being paid to the nature and location of spaces and to the number of persons who normally might be accommodated or employed there.
4. A corridor or part of a corridor from which there is only one route of escape shall not exceed 7 metres in length.
5. The width of the means of escape shall be at least 700 millimetres.
6. In vessels constructed after 1 January 2003, corridors, stairways, doors or any other opening which forms part of a means of escape shall have an unobstructed width of at least 700 millimetres.

7. For means of escape from wheelhouses with only one door, refer to section 10-6 (1) 9 e).
8. For vessels constructed after 1 January 2009 escape hatches shall have a clear opening of 700 x 700 millimetres.

(2) Two means of escape shall be provided from every machinery space of category 'A' by one of the following means:

1. Two sets of steel ladders as widely separated as possible leading to doors in the upper part of the space similarly separated and from which access is provided to the open deck. In general, one of these ladders shall provide continuous fire shelter from the lower part of the space to a safe position outside the space. However, such shelter may not be required if, due to special arrangements or dimensions of the machinery space, a safe escape route from the lower part of this space is provided. The shelter shall be protected by steel of 'A-60' standard and be provided with a self-closing door of 'A-60' standard at the lower end; or
2. one steel ladder leading to a door in the upper part of the space from which access is provided to the open deck and additionally, in the lower part of the space and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides access to a safe escape route from the lower part of the space to the open deck.

(3) From machinery spaces other than those of category 'A', escape routes shall be provided to the satisfaction of the Norwegian Maritime Authority, having regard to the nature and location of the space and whether persons are normally employed in that space.

(4) Lifts shall not be considered as forming one of the required means of escape.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 11-3 (2).

Section 5-14. *Automatic sprinkler and fire alarm and fire detection systems (Method IIF)*[1]

(1) In vessels in which method IIF is adopted, an automatic sprinkler and fire alarm system of an approved type and complying with the requirements of this provision shall be installed and so arranged as to protect accommodation spaces and service spaces except spaces which afford no substantial fire risks, such as void spaces and sanitary spaces.

(2) Details on system requirements

1. The system shall be capable of immediate operation at all times and no action by the crew shall be necessary to set it in operation. It shall be of the wet pipe type but small exposed sections may be of the dry pipe type where this is a necessary precaution. Any parts of the system which may be subjected to freezing temperatures in service shall be suitably protected against freezing. It shall be kept charged at the necessary pressure and shall have provision for a continuous supply of water as required in subparagraph (6)2.
2. Each section of sprinklers shall include means for giving a visible and audible alarm signal automatically at one or more indicating units whenever any sprinkler comes into operation. Such units shall indicate in which section served by the system fire has occurred. The units shall be centralised in the wheelhouse. In addition, visible and audible alarms from the unit shall be placed in positions other than in the wheelhouse, so as to ensure that the indication of fire is immediately received by the crew. Such an alarm system shall be so constructed as to indicate if any fault occurs in the system.

(3) Sprinkler sections

1. Sprinklers shall be grouped into separate sections, each of which shall contain not more than 200 sprinklers.
2. Each section of sprinklers shall be capable of being isolated by one stop valve only. The stop valve in each section shall be readily accessible and its location shall be clearly and permanently indicated. Means shall be provided to prevent the operation of the stop valves by any unauthorised person.
3. A gauge indicating the pressure in the system shall be provided at each section stop valve and at a central station.
4. The sprinklers shall be resistant to corrosion. In accommodation and service spaces the sprinklers shall come into operation within the temperature range of 68 degrees Celsius and 79 degrees Celsius, except that in locations such as drying rooms, where high ambient temperatures might be expected, the operating temperature may be increased by not more than 30 degrees Celsius above the maximum deck head temperature.
5. A list or plan shall be displayed at each indicating unit showing the spaces covered and the location of the zone in respect of each section. Instructions for testing and maintenance shall be available.

(4) Sprinklers shall be placed in an overhead position and spaced in a suitable pattern to maintain an average application rate of not less than 5 litres per square metre per minute over the nominal area covered by the sprinklers. Alternatively, the Norwegian Maritime Authority may permit the use of sprinklers providing such quantity of water suitably distributed as has been shown to be not less effective. In such cases, the guidelines set out in appendix 4 shall be observed.

(5) Pressure tank

1. A pressure tank having a volume equal to at least twice that of the charge of water specified in this subparagraph shall be provided. The tank shall contain a standing charge of fresh water, equivalent to the amount of water which would be discharged in one minute by the pump referred to in subparagraph (6)2. The arrangements shall also provide for maintaining such air pressure in the tank as to ensure that, where the standing charge of fresh water in the tank has been used, the pressure will not be less than the working pressure of the sprinkler, plus the pressure due to a head of water measured from the bottom of the tank to the highest sprinkler in the system. Suitable means of replenishing the air under pressure and of replenishing the fresh water charge in the tank shall be provided. A glass gauge shall be provided to indicate the correct level of the water in the tank.
2. Means shall be provided to prevent the passage of sea-water into the tank.

(6) Power pump requirements

1. An independent power pump shall be provided solely for the purpose of continuing automatically the discharge of water from the sprinklers. The pump shall be brought into action automatically by the pressure drop in the system before the standing fresh water charge in the pressure tank is completely exhausted.
2. The pump and the piping system shall be capable of maintaining the necessary pressure at the level of the highest sprinkler to ensure a continuous output of water sufficient for the simultaneous coverage of the maximum area separated by fire-resisting bulkheads of

'A' and 'B' class divisions or an area of 280 square metres whichever is less at the application rate specified in paragraph (4).

3. The pump shall have fitted on the delivery side a test valve with a short open-ended discharge pipe. The effective area through the valve and pipe shall be adequate to permit the release of the required pump output while maintaining the pressure in the system specified in subparagraph (5)1.
4. The sea inlet to the pump shall wherever possible be in the space containing the pump and shall be so arranged that when the vessel is afloat it will not be necessary to shut off the supply of sea-water to the pump for any purpose other than the inspection or repair of the pump.

(7) The sprinkler pump and tank shall be situated in a position reasonably remote from any machinery space of category 'A' and shall not be situated in any space required to be protected by the sprinkler system.

(8) Sources of power supply, etc.

1. There shall not be less than two sources of power supply for the sea-water pump and the automatic fire alarm and fire detection system. If the pump is electrically driven it shall be connected to the main source of electrical power, which shall be capable of being supplied by at least two generators.
2. The feeders shall be arranged so as to avoid galleys, machinery spaces and other spaces of high fire risk except in so far as it is necessary to reach the appropriate switchboard. One of the sources of power supply for the fire alarm and fire detection system shall be an emergency source of power. Where one of the sources of power supply for the pump is an internal combustion-type engine it shall, in addition to complying with the provisions of paragraph (7), be so situated that a fire in any protected space will not affect the air supply to that engine.

(9) The sprinkler system shall have a connection from the vessel’s fire main by way of a lockable screw-down non-return valve at the connection which will prevent a backflow from the sprinkler system to the fire main.

(10) Means of testing

1. A test valve shall be provided for testing the automatic alarm for each section of sprinklers by a discharge of water equivalent to the operation of one sprinkler. The test valve for each section shall be situated near the stop valve for that section.
2. Means shall be provided for testing the automatic operation of the pump on reduction of pressure in the system.
3. Switches shall be provided at one of the indicating positions referred to in subparagraph (2)2 which will enable the alarm and the indicators for each section of sprinklers to be tested.

(11) Spare sprinkler heads for each section of sprinklers shall be carried on board. For vessels constructed after 1 January 2003, spare sprinkler heads shall comprise all types fitted and the number carried shall be as follows:

- fewer than 100 sprinkler heads: 3 spare sprinkler heads
- fewer than 300 sprinkler heads: 6 spare sprinkler heads
- 300 to 1,000 sprinkler heads: 12 spare sprinkler heads.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

1 See section 5-1 subparagraph (1)2.

Section 5-15. *Automatic fire alarm and fire detection systems (Method IIIF)*[1]

(1) In vessels in which method IIIF is adopted an automatic fire alarm and fire detection system of an approved type and complying with the requirements of this provision shall be installed and so arranged as to detect the presence of fire in all accommodation spaces and service spaces except spaces which afford no substantial fire risk, such as void spaces and sanitary spaces.

(2) Indicating units, etc.

1. The system shall be capable of immediate operation at all times and no action by the crew shall be necessary to set it in operation.
2. Each section of detectors shall include means for giving a visible and audible alarm signal automatically at one or more indicating units whenever any detector comes into operation. Such units shall indicate in which section served by the system a fire has occurred and shall be centralised in the wheelhouse and such other positions as will ensure that any alarm from the system is immediately received by the crew. Additionally, arrangements shall be provided to ensure that an alarm is sounded on the deck on which the fire has been detected. Such an alarm and detection system shall be so constructed as to indicate if any fault occurs in the system.

(3) Detectors shall be grouped into separate sections, each covering not more than 50 rooms served by such a system and containing not more than 100 detectors. Detectors shall be zoned to indicate on which deck a fire has occurred.

(4) The system shall be operated by an abnormal air temperature, by an abnormal concentration of smoke or by other factors indicative of incipient fire in any one of the spaces to be protected. Systems which are sensitive to air temperature shall not operate at less than 54 degrees Celsius and shall operate at a temperature not greater than 78 degrees Celsius when the temperature increase to those levels is not more than 1 degree Celsius per minute. The Norwegian Maritime Authority may accept that the permissible temperature of operation is increased to 30 degrees Celsius above the maximum deckhead temperature in drying rooms and similar places of normally high ambient temperature. Systems which are sensitive to smoke concentration shall operate on the reduction of the intensity of a transmitted light beam. Smoke detectors shall operate before the smoke concentration exceeds 12.5 per cent light intensity reduction per metre but not before the smoke concentration exceeds 2 per cent light intensity reduction per metre. The Norwegian Maritime Authority may approve other system operation methods. The detection system shall not be used for any purpose other than fire detection.

(5) The detectors may be arranged to operate the alarm by the opening or closing of contacts or by other appropriate methods. They shall be fitted in an overhead position and shall be suitably protected against impact and physical damage. They shall be suitable for use in a marine atmosphere. They shall be placed in an open position clear of beams and other objects likely to obstruct the flow of hot gases or smoke to the sensitive element. Detectors operated by the closing of contacts shall be of the sealed contact type and the circuit shall be continuously monitored to indicate fault conditions.

(6) At least one detector shall be installed in each space where detection facilities are required and there shall be not less than one detector for each 37 square metres of deck area approximately. In large spaces the detectors shall be arranged in a regular pattern so that no

detector is more than 9 metres from another detector or more than 4.5 metres from a bulkhead.

(7) There shall be not less than two sources of power supply for the electrical equipment used in the operation of the fire alarm and fire detection system, one of which shall be an emergency source. The supply shall be provided by separate feeders reserved solely for that purpose. Such feeders shall run to a change-over switch situated in the control station for the fire detection system. The wiring system shall be so arranged as to avoid galleys, machinery spaces and other enclosed spaces having a high fire risk except in so far as it is necessary to provide for fire detection in such spaces or to reach the appropriate switchboard.

(8) Means of testing, etc.

1. A list or plan shall be displayed adjacent to each indicating unit showing the spaces covered and the location of the zone in respect of each system. Instructions for testing and maintenance shall be available.
2. Provision shall be made for testing the correct operation of the detectors and the indicating units by supplying means for supplying hot air or smoke at detector positions.

(9) Spare detector heads for each section of detectors shall be carried on board.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

1 See section 5-1 subparagraph (1)2.

Section 5-16. *Fixed fire-extinguishing arrangements in cargo spaces of high fire risk*

Cargo spaces of high fire risk shall be protected by a fixed gas fire-extinguishing system or by a fire-extinguishing system which gives equivalent protection, to the satisfaction of the Norwegian Maritime Authority.

Section 5-17. *Fire pumps*

(1) At least two fire pumps shall be provided.

(2) If a fire in any one compartment could put all the fire pumps out of action, there shall be an alternative means of providing water for fire fighting. In vessels of 75 metres in length and upwards this alternative means shall be a fixed emergency pump independently driven. This emergency fire pump shall be capable of supplying two jets of water at a pressure of at least 0.25 newtons per square millimetre.

(3) Fire pump capacity

1. The fire pumps other than the emergency pump shall be capable of delivering for fire-fighting purposes a quantity of water at a minimum pressure of 0.25 newtons per square millimetre, with a total capacity (Q) of at least:

   $$Q = \left(0.15\sqrt{L(B+D)} + 2.25\right)^2 \text{ m}^3/\text{h}$$

   where: *L*, *B* and *D* are in metres.

   However, the total required capacity of the fire pumps need not exceed 180 cubic metres per hour.
2. Each of the required fire pumps other than any emergency pump shall have a capacity of not less than 40 per cent of the total capacity of fire pumps required by subparagraph 1

and shall in any event be capable of delivering at least the jets of water required by section 5-19 subparagraph (2)1. These fire pumps shall be capable of supplying the fire main systems under the required conditions. Where more than two pumps are installed the capacity of such additional pumps shall be to the satisfaction of the Norwegian Maritime Authority.

(4) Specific requirements for power pumps, emergency fire pumps and operation

1. Fire pumps shall be independently driven power pumps. Sanitary, ballast, bilge or general service pumps may be accepted as fire pumps provided that they are not normally used for pumping oil. If they are subject to occasional duty for the transfer or pumping of fuel oil, suitable change-over arrangements shall be fitted.
2. Relief valves shall be provided in conjunction with all fire pumps if the pumps are capable of developing a pressure exceeding the design pressure of the water service pipes, hydrants and hoses. These valves shall be so placed and adjusted as to prevent excessive pressure in any part of the fire main system.
3. Emergency power-operated fire pumps shall be independently driven self-contained pumps with their own diesel engine prime mover and fuel supply fitted in an accessible position outside the compartment which contains the main fire pumps. Emergency power-operated fire pumps may also be driven by a self-contained generator, which may be the emergency generator referred to in section 4-17, of sufficient capacity. The emergency fire pump shall be positioned in a safe place outside the machinery space and preferably above the working deck. The emergency fire pump shall be capable of operating for a period of at least 3 hours.
4. Emergency fire pumps, sea-suction valves and other necessary valves shall be operable from outside compartments containing main fire pumps in a position not likely to be cut off by a fire in those compartments.

Section 5-18. *Fire mains*

(1) Fire mains shall be provided as follows:

1. Where more than one hydrant is required to provide the number of jets specified in section 5-19 subparagraph (2)1, a fire main shall be provided.
2. Fire mains shall have no connections other than those required for fire fighting except for the purpose of washing the deck and anchor chains, and operation of bilge ejectors, subject to the efficiency of the fire-fighting system being maintained.
3. Where fire mains are not self-draining, suitable drain cocks shall be fitted where frost damage could be expected.

(2) Fire mains shall have the following capacity:

1. The diameter of the fire main and water service pipes shall be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously or of 140 cubic metres per hour, whichever is the less.
2. With the two pumps simultaneously delivering through nozzles specified in section 5-19 (5) the quantity of water specified in subparagraph 1 through any adjacent hydrants, the minimum pressure of 0.25 newtons per square millimetre shall be maintained at all hydrants.

Section 5-19. *Fire hydrants, fire hoses and nozzles*

(1) The number, material and equipment of fire hoses shall be as follows:

1. The number of fire hoses provided shall be equal to the number of fire hydrants arranged according to paragraph (2) and additionally one spare hose. This number does not include any fire hoses required in any engine or boiler room. The Norwegian Maritime Authority may require a higher number of fire hoses so as to ensure that hoses in sufficient number are available and accessible at all times, having regard to the size of the vessel.
2. Fire hoses shall be of approved material and sufficient in length to project a jet of water to any of the spaces in which they may be required to be used. Their maximum length shall be 20 metres. Every fire hose shall be provided with a nozzle and the necessary couplings. Fire hoses shall together with any necessary fittings and tools be kept ready for use in conspicuous positions near the water service hydrants or connections.

(2) The number and equipment of fire hydrants shall be as follows:

1. The number and position of the hydrants shall be such that at least two jets of water not emanating from the same hydrant, one of which shall be from a single length of fire hose, may reach any part of the vessel normally accessible to the crew while the vessel is being navigated.
2. All required hydrants shall be fitted with fire hoses having dual purpose nozzles (spray/jet) as required by paragraph (5). One hydrant shall be located near the entrance of the space to be protected.

(3) Materials readily rendered ineffective by heat shall not be used for fire mains and hydrants unless adequately protected. The pipes and hydrants shall be so placed that the fire hoses may be easily coupled to them. In vessels where deck cargo may be carried, the positions of the hydrants shall be such that they are always readily accessible and the pipes shall be arranged as far as practicable to avoid risk of damage by such cargo. Unless one fire hose and nozzle is provided for each hydrant, there shall be complete interchangeability of fire hose couplings and nozzles.

(4) A cock or valve shall be fitted to serve each fire hose so that any fire hose may be removed while the fire pumps are operating.

(5) Nozzles shall meet the following requirements:

1. Standard nozzle sizes shall be 12 millimetres, 16 millimetres and 19 millimetres or as near thereto as possible. The Norwegian Maritime Authority may permit larger diameter nozzles.
2. For accommodation and service spaces, a nozzle size greater than 12 millimetres need not be used.
3. For machinery spaces and exterior locations, the nozzle size shall be such as to obtain the maximum discharge possible from two jets at the pressure specified in section 5-18 subparagraph (2)2 from the smallest pump. However, a nozzle size greater than 19 millimetres need not be used.

Section 5-20. *Fire extinguishers*

(1) Fire extinguishers shall be of approved types. The capacity of required portable fluid extinguishers shall be not more than 13.5 litres and not less than 9 litres. Other extinguishers

shall not be in excess of the equivalent portability of the 13.5 litre fluid extinguisher and shall not be less than the fire-extinguishing equivalent of a 9 litre fluid extinguisher. The following types of fire extinguisher shall be regarded as equivalent:

Portable fire extinguisher	**Capacity**	**Effective extinguishing periods (sec.)**	**Range (m)**
Foam	9-13.5 litres	35 or more	3 or more
CO_2	5-9 kg	25 or more	3 or more
Dry powder	5-9.5 kg	12 or more	5 or more

(2) For fire extinguishers of a type that can be recharged on board, spare charges shall be provided at a 100 per cent level for the first ten extinguishers and a 50 per cent level for the remainder, limited upwards to 60 spare charges. For fire extinguishers of a type that cannot be recharged, the excess number of extinguishers of the same type and capacity shall be at least 50 per cent. Instructions shall be provided for the recharging of rechargeable fire extinguishers on board and only spare charges approved for use with any particular type of fire extinguisher provided on board shall be used.

(3) Fire extinguishers containing an extinguishing medium which either by itself or under expected conditions of use gives off toxic gases in such quantities as to endanger persons shall not be permitted.

(4) Fire extinguishers shall be inspected annually and undergo service in accordance with the maintenance intervals indicated. Inspections and service shall be in accordance with the requirements of appendix 4, and the date on which the extinguisher was checked shall be marked on each extinguisher. All fire extinguishers under pressure and propellant-gas cartridges for fire extinguishers which are not under pressure shall be pressure-tested hydraulically at least every ten years. Inspections and service shall be undertaken by a competent person holding the qualification document prescribed in appendix 4 or who is able to document equivalent competence.

(5) Normally, one of the portable fire extinguishers intended for use in any space shall be stowed near an entrance to that space.

(6) For fire extinguishers which may be exposed to frost, the extinguishing agent shall be of a frost-proof type.[2]

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

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2 Special requirement applicable to Norwegian vessels.

Section 5-21. *Portable fire extinguishers in control stations and accommodation and service spaces*

(1) At least five approved portable fire extinguishers shall be provided in control stations and accommodation and service spaces.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-22.[1] *Fire-extinguishing appliances in machinery spaces*

(1) General requirements

1. Machinery spaces of category 'A' shall be provided with one of the following approved fixed fire-extinguishing systems:
    a. A pressure water-spraying installation in accordance with the requirements set out in appendix 4.
    b. A fire-smothering gas installation in accordance with the requirements set out in appendix 4.
    c. A fire-extinguishing installation using high expansion foam in accordance with the requirements set out in appendix 4.
    d. A fire-extinguishing installation using vapours from low toxicity vapourising liquids.

    Where the engine and boiler rooms are not entirely separate, or if fuel oil can drain from the boiler room into the machinery space, the combined engine and boiler rooms shall be considered as one compartment.
2. New installations of halogenated hydrocarbon systems used as fire-extinguishing media shall be prohibited on new and existing vessels.
3. Every boiler room shall be provided with at least one set of portable air-foam equipment.
4. At least two approved portable extinguishers discharging foam or equivalent shall be provided in each firing space and in each boiler room and each space in which a part of the fuel oil installation is situated. At least one approved foam-type extinguisher of at least 135 litres capacity or equivalent shall be provided with hoses on reels suitable for reaching any part of the boiler room. The Norwegian Maritime Authority may relax the requirements of this subparagraph, having regard to the size and nature of the space to be protected.
5. In each firing space there shall be a receptacle containing sand, sawdust impregnated with soda or other approved dry material. Alternatively, an approved portable extinguisher may be provided in the space.

(2) Spaces containing internal combustion machinery used either for main propulsion or for other purposes, when such machinery has a total power output of not less than 750 kilowatts, shall be provided with the following arrangements:

1. One of the fire-extinguishing systems required by subparagraph (1)1.
2. At least one set of portable air-foam equipment, which shall consist of an air-foam nozzle of the inductor type which can be connected to the fire main by a fire hose, in conjunction with a portable tank containing at least 20 litres of foam-producing liquid and a reserve tank. The nozzle shall be capable of producing effective foam suitable for extinguishing an oil fire, at a rate of at least 1.5 m^3 per min.
3. Approved foam-type fire extinguishers in each such space, each of at least 45 litres capacity, or equivalent, sufficient in number to enable foam or its equivalent to be directed on to any part of the fuel and lubricating oil pressure systems, gearing and other installations constituting a fire hazard. In addition, there shall be provided a sufficient number of portable foam extinguishers or equivalent which shall be so located that an extinguisher is not more than 10 metres walking distance from any point in the space, and there shall be at least two such extinguishers in each such space. For smaller spaces, the Norwegian Maritime Authority may relax these requirements.

(3) Spaces containing steam turbines or enclosed steam engines used either for main propulsion or for other purposes, when such machinery has a total power output of not less than 750 kilowatts, shall be provided with the following arrangements:

1. Foam fire extinguishers each of at least 45 litres capacity, or equivalent, sufficient in number to enable foam or its equivalent to be directed on to any part of the pressure lubrication system, on to any part of the casings enclosing pressure lubricating parts of the turbines, engines or associated gearing, and any other installations constituting a fire hazard. Such extinguishers shall not be required if protection at least equivalent to that prescribed by this subparagraph is provided in such spaces by a fixed fire-extinguishing system fitted in compliance with subparagraph (1)1; and
2. a sufficient number of portable foam extinguishers, or equivalent, which shall be so located that an extinguisher is not more than 10 metres walking distance from any point in the space. There shall be at least two such extinguishers in each such space, but such extinguishers shall not be required in addition to any provided in compliance with subparagraph (2)3.

(4) Where a fire hazard exists in any machinery space for which no specific provisions for fire-extinguishing appliances are prescribed in paragraphs (1), (2) and (3), there shall be provided in, or adjacent to, that space a number of approved portable fire extinguishers or other means of fire extinction to the satisfaction of the Norwegian Maritime Authority.

(5) Where fixed fire-extinguishing systems not required by this Part are installed, such systems shall comply with the requirements set out in appendix 4.

(6) For any machinery space of category 'A' to which access is provided at a low level from an adjacent shaft tunnel, there shall be provided in addition to any watertight doors and on the side remote from that machinery space a light steel fire-screen door which shall be capable of being operated from each side of the door.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See definition in section 5-2 (11) and (12).

Section 5-23. *International shore connection*

(1) At least one international shore connection complying with paragraph (2) shall be provided.

(2) Standard dimensions of flanges for the international shore connection shall be in accordance with the following table:

Description	Dimension
Outside diameter	178 millimetres
Inner diameter	64 millimetres
Bolt circle diameter	132 millimetres
Slots in flange	4 holes; 19 millimetres in diameter equidistantly placed on a bolt circle of the above diameter, slotted to the flange periphery
Flange thickness	14.5 millimetres (minimum)
Bolts and nuts	4; each of 16 millimetres in diameter and 50 millimetres in length

(3) This connection shall be constructed of material suitable for 1.0 newton per square millimetre service pressure.

(4) The flange shall have a flat face on one side and the other shall have a coupling permanently attached thereto that will fit the vessel's hydrant and hose. The connection shall be kept aboard the vessel together with a gasket of any material suitable for 1.0 newton per square millimetre service pressure, together with four 16 millimetre bolts 50 millimetres in length and eight washers.

(5) Facilities shall be available enabling such a connection to be used on either side of the vessel.

Section 5-24. *Fireman's outfits*

(1) At least two fireman's outfits shall be carried. The fireman's outfits shall be stored in widely separated positions, be easily accessible and ready for use. For every fresh air breathing apparatus there shall be two spare charges.

(2) The fireman's outfits shall comply with requirements as specified in appendix 4.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-25. *Fire control and safety plan*

(1) A fire control and safety plan showing the location of fire safety equipment and life-saving appliances shall be carried on board. The plan shall be permanently exhibited in a central and conspicuous position and be on a scale sufficient to give a clear picture of the installations. The plan shall be in accordance with requirements as specified in appendix 4.

(2) The plan shall contain the following information for each deck:

1. Entrances to and escape routes from the different spaces, decks, etc., including emergency exits.
2. The location of manual call stations and release arrangements for fixed gas fire-extinguishing systems in machinery spaces. Likewise, the position from which remote-operated fuel oil valves and controls for starting and stopping machinery, ventilation fans, fire dampers and fire pumps are activated must be indicated on the plan.
3. The location of the hose stations, fire extinguishers and fireman's outfits.
4. The location of international shore connections and any other information considered to be essential in the event of fire.
5. The location of spare charges for fire extinguishers.
6. The number and location of lifejackets and immersion suits.
7. The number of lifebuoys.
8. Life-saving appliances.
9. Line-throwing apparatus.
10. Distress and smoke signals.
11. Emergency ladder(s).
12. Launching arrangement for life-saving appliance.
13. Emergency radio equipment.
14. Radar transponders.

(3) The fire and safety plan shall be approved by the Norwegian Maritime Authority.

(4) The plan should indicate whether the vessel is provided with an emergency power supply and exterior and interior lighting in conformity with applicable rules and that a personnel alarm is fitted in the machinery space.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 5-26. *Ready availability of fire-extinguishing appliances*

Fire-extinguishing appliances shall be kept in good order and available for immediate use at all times.

Section 5-27. *Acceptance of substitutes*

Where in this Part any special type of appliance, apparatus, extinguishing medium or arrangement is specified, any other type of appliance, etc. may be allowed, provided that the Norwegian Maritime Authority is satisfied that it is not less effective.

Part C – Fire safety measures in vessels of 24 metres in length (L) and upwards but less than 60 metres

Section 5-28. *Structural fire protection*

(1) The hull, superstructure, structural bulkheads, decks and deckhouse shall be constructed of non-combustible materials. The Norwegian Maritime Authority may permit combustible materials provided the requirements of this Section and the additional fire-extinguishing requirements of section 5-40 (3) are complied with.

(2) Decks and bulkheads in machinery spaces shall comply with the following:

1. In vessels the hull of which is constructed of non-combustible materials, the decks and bulkheads separating machinery spaces of category 'A' from accommodation spaces, service spaces or control stations shall be constructed to 'A-60' class standard where the machinery space of category 'A' is not provided with a fixed fire-extinguishing system and to 'A-30' class standard where such a system is fitted. Decks and bulkheads separating other machinery spaces from accommodation, service spaces and control stations shall be constructed to 'A-0' class standard. Decks and bulkheads separating control stations from accommodation and service spaces shall be constructed to 'A-0' class standard and insulated to the satisfaction of the Norwegian Maritime Authority. The Norwegian Maritime Authority may permit the fitting of 'B-15' class bulkheads for separating such spaces as master’s cabin from the wheelhouse. For vessels constructed after 1 January 2003, this shall apply only in cases where such spaces are considered to form part of the wheelhouse.
2. In vessels the hull of which is constructed of combustible materials, the decks and bulkheads separating machinery spaces from accommodation spaces, service spaces or control stations shall be constructed to 'F' class or 'B-15' class standard. In addition, machinery space boundaries shall as far as practicable prevent the passage of smoke. Decks and bulkheads separating control stations from accommodation and service spaces shall be constructed to 'F' class standard.

(3) Corridor bulkheads shall comply with the following:

1. In vessels the hull of which is constructed of non-combustible materials, bulkheads of corridors serving accommodation spaces, service spaces and control stations shall be of 'B-15' class divisions.
2. In vessels the hull of which is constructed of combustible materials, bulkheads of corridors serving accommodation spaces, service spaces and control stations shall be of 'F' class divisions.
3. Any bulkhead required by subparagraph 1 or subparagraph 2 shall extend from deck to deck unless a continuous ceiling of the same class as the bulkhead is fitted on both sides of the bulkhead. In such cases, the bulkhead may terminate at the continuous ceiling.

(4) Interior stairways serving accommodation spaces, service spaces or control stations shall be of steel or other equivalent material. Such stairways shall be within enclosures constructed of 'F' class divisions in vessels the hull of which is constructed of combustible materials, or 'B-15' class divisions in vessels the hull of which is constructed of non-combustible materials, provided that where a stairway penetrates only one deck it need be enclosed at one level only.

(5) Doors and other closures of openings in bulkheads and decks referred to in paragraphs (2) and (3), doors fitted to stairway enclosures referred to in paragraph (4) and doors fitted in engine and boiler casings shall be as far as practicable equivalent in resisting fire to the divisions in which they are fitted. Doors to machinery spaces of category 'A' shall be self-closing.

(6) Lift trunks which pass through the accommodation and service spaces shall be constructed of steel or equivalent material and shall be provided with means of closing which will permit control of draught and smoke.

(7) Requirements for divisions of upper deck and bulkheads

1. In vessels the hull of which is constructed of combustible materials, the boundary bulkheads and decks of spaces containing any emergency source of power and bulkheads and decks between galleys, paint rooms, lamp rooms or any store-rooms which contain appreciable quantities of highly flammable materials and accommodation spaces, service spaces or control stations shall be constructed of 'F' class or 'B-15' class divisions.
2. In vessels the hull of which is constructed of non-combustible materials, the decks and bulkheads referred to in subparagraph 1 shall be 'A' class divisions insulated to the satisfaction of the Norwegian Maritime Authority, having in mind the risk of fire. However, the Norwegian Maritime Authority may accept 'B-15' class divisions between a galley and accommodation spaces, service spaces and control stations when the galley contains electrically heated furnaces, electrically heated hot water appliances and other electrically heated appliances only.
3. Highly flammable products shall be carried in suitably sealed containers.

(8) Where bulkheads or decks required by paragraphs (2), (3), (5) or (7) to be 'A' class, 'B' class or 'F' class divisions are penetrated for the passage of electrical cables, pipes, trunks, ducts, shafts, etc., arrangements shall be made to ensure that the fire integrity of the division is not impaired.

(9) Air spaces enclosed behind ceilings, panellings or linings in accommodation spaces, service spaces and control stations shall be divided by close-fitting draught stops spaced not more than 7 metres apart.

(10) Windows and skylights to machinery spaces shall be as follows:

1. Where skylights can be opened they shall be capable of being closed from outside the space. Skylights containing glass panels shall be fitted with external shutters of steel or other equivalent material permanently attached.
2. Glass or similar materials shall not be fitted in machinery space boundaries. This does not preclude the use of wire-reinforced glass for skylights and glass in control rooms within the machinery spaces.
3. In skylights referred to in subparagraph 1, wire-reinforced glass shall be used.

(11) Insulating materials in accommodation spaces, service stations except domestic refrigerating compartments, control stations and machinery stations shall be non-combustible. The surface of the insulation fitted within machinery spaces of category 'A' shall be impervious to oil or oil vapours.

(12) Within compartments used for stowage of fish, combustible insulation shall be protected by close-fitting cladding.

(13) Notwithstanding the requirements of this section, the Norwegian Maritime Authority may accept 'A-0' class divisions in lieu of 'B-15' or 'F' class divisions, having regard to the amount of combustible materials used in adjacent spaces.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 5-29.[1] *Ventilation systems*

(1) Except as provided for in section 5-30 (2), means shall be provided to stop fans and close main openings to ventilation systems from outside the spaces served.

(2) Means shall be provided for closing, from a safe position, the annular spaces around funnels.

(3) Ventilation openings may be permitted in and under the doors in interior corridor bulkheads except that such openings shall not be permitted in and under stairway enclosure doors. The openings shall be provided only in the lower half of a door. Where such opening is in or under a door the total net area of any such opening or openings shall not exceed 0.05 square metres. Where such opening is cut in a door it shall be fitted with a grille made of non-combustible material.

(4) Ventilation ducts for machinery spaces of category 'A' or galleys shall not in general pass through accommodation spaces, service spaces or control stations. Where the Norwegian Maritime Authority permits this arrangement, the ducts shall be constructed of steel or equivalent material and arranged to preserve the integrity of the divisions.

(5) Ventilation ducts of accommodation spaces, service spaces or control stations shall not in general pass through machinery spaces of category 'A' or through galleys. Where the Norwegian Maritime Authority permits this arrangement, the ducts shall be constructed of steel or equivalent material and arranged to preserve the integrity of the divisions.

(6) Store-rooms containing appreciable quantities of highly flammable products shall be provided with ventilation arrangements which are separate from other ventilation systems. Ventilation shall be arranged at high and low levels and the inlets and outlets of ventilators shall be positioned in safe areas. Suitable spark arresters shall be fitted over inlet and outlet ventilation openings.

(7) Ventilation systems serving machinery spaces shall be independent of systems serving other spaces.

(8) Where trunks or ducts serve spaces on both sides of 'A' class bulkheads or decks, dampers shall be fitted so as to prevent the spread of fire and smoke between compartments. Manual dampers shall be operable from both sides of the bulkhead or the deck. Where the trunks or ducts with a free cross-sectional area exceeding 0.02 square metres pass through 'A' class bulkheads or decks, automatic self-closing dampers shall be fitted. Trunks serving compartments situated only on one side of such bulkheads shall comply with section 5-9 subparagraph (1)2.

1 See section 11-5.

Section 5-30. *Heating installations*

The provisions of section 5-10 shall apply.

Section 5-31. *Use of materials, penetrations, etc.*

(1) Exposed surfaces within accommodation spaces, service spaces, control stations, corridor and stairway enclosures and the concealed surfaces behind bulkheads, ceilings, panellings and linings in accommodation spaces, service spaces, and control stations shall have low flame spread characteristics. [1] Such surfaces shall be tested in accordance with the requirements set out in appendix 4.

(2) All exposed surfaces of glass reinforced plastic construction within accommodation and service spaces, control stations, machinery spaces of category 'A' and other machinery spaces of similar fire risk shall have the final lay-up layer of approved resin having inherent fire-retardant properties or be coated with an approved fire-retardant paint or be protected by non-combustible materials.

(3) Paints, varnishes and other finishes used on exposed interior surfaces shall be approved, have low flame spread characteristics and shall not be capable of producing excessive quantities of smoke or toxic gases or vapours. Tests shall be conducted in accordance with the requirements set out in appendix 4.

(4) Primary deck coverings within accommodation and service spaces and control stations shall be of approved material which will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures.

(5) In accommodation and service spaces and control stations, pipes penetrating 'A' or 'B' class divisions shall be of approved materials having regard to the temperature such divisions are required to withstand. Where oil and combustible liquids are conveyed by pipes through accommodation and service spaces, the pipes conveying oil or combustible liquids shall be of an approved material having regard to the fire risk.

(6) Materials readily rendered ineffective by heat shall not be used for overboard scuppers, sanitary discharges, and other outlets which are close to the waterline and where the failure of the material in the event of fire would give rise to danger of flooding.

(7) All waste receptacles other than those used in fish processing shall be constructed of non-combustible materials with no openings in the sides and bottom.

(8) Machinery driving fuel oil unit pumps and other fuel pumps shall be fitted with remote controls situated outside the space concerned so that they can be stopped in the event of a fire arising in the space in which they are located.

(9) Drip trays shall be fitted where necessary to prevent oil leaking into bilge sumps and bilges.

1 See definitions in section 5-2 (9).

Section 5-32. *Storage of gas cylinders and dangerous materials*

The provisions of section 5-12 shall apply.

Section 5-33.[1] *Means of escape*

(1) Stairways and ladders leading to and from all accommodation spaces and in spaces in which the crew is normally employed, other than machinery spaces, shall be so arranged as to provide ready means of escape to the open deck and thence to the survival craft. In particular in relation to these spaces:

1. At all levels of accommodation at least two widely separated means of escape shall be provided which may include the normal means of access from each restricted space or group of spaces.
2. Means of escape shall be arranged as follows:
   a. Below the weather deck the main means of escape shall be a stairway and the second escape may be a trunk or a stairway.
   b. Above the weather deck the means of escape shall be stairways or doors to an open deck or a combination thereof.
3. Only one means of escape may be permitted, due regard being paid to the nature and location of spaces and to the number of persons who normally might be accommodated or employed there.
4. A corridor or part of a corridor from which there is only one route of escape shall preferably not exceed 2.5 metres in length and in no case be greater than 5.0 metres in length.
5. The width of the means of escape shall be at least 700 millimetres.
6. In vessels constructed after 1 January 2003, corridors, stairways, doors or any other opening which forms part of a means of escape shall have an unobstructed width of at least 700 millimetres.
7. For means of escape from wheelhouses with only one door, refer to section 10-6 (1) 9 e).
8. For vessels constructed after 1 January 2009 escape hatches shall have a clear opening of 700 x 700 millimetres.

(2) Two means of escape shall be provided from every machinery space of category 'A' which shall be as widely separated as possible. Vertical escapes shall be by means of steel ladders. Where the size of the machinery space makes it impracticable, one of these means of escape may be omitted. In such cases special consideration shall be given to the remaining exit.

(3) Lifts shall not be considered as forming one of the required means of escape.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 11-3 (2).

Section 5-34. *Automatic fire alarm and fire detection systems*

Where the Norwegian Maritime Authority has permitted under section 5-28 (1) a combustible construction, or where otherwise appreciable amounts of combustible materials are used on

the construction of accommodation spaces, service spaces and control stations, special consideration shall be given to the installation of an automatic fire alarm and fire detection system in those spaces. In such cases, due regard shall be had to the size of those spaces, their arrangement and location relative to control stations as well as, where applicable, the flame-spread characteristics of the furniture.

Section 5-35. *Fire pumps*

(1) Vessels shall be fitted with at least two fire pumps, at least one of which is a power-operated pump not dependent on the main machinery for its motive power.

(2) Sanitary, bilge, ballast, general service or any other pumps may be used as fire pumps if they comply with the requirements of this chapter and do not affect the ability to cope with pumping of the bilges. Fire pumps shall be so connected that they cannot be used for pumping oil or other flammable liquids.

(3) Centrifugal pumps or other pumps connected to the fire main through which backflow could occur shall be fitted with non-return valves.

(4) Vessels not fitted with a power-operated emergency fire pump and without a fixed fire-extinguishing system pursuant to section 5-40 shall be provided with additional fire-extinguishing means to the satisfaction of the Norwegian Maritime Authority.

(5) Where fitted, emergency power-operated fire pumps shall be independently driven self-contained pumps either with their own prime mover and fuel supply fitted in an accessible position outside the compartment which contains the main fire pumps, or be driven by a self-contained generator of sufficient capacity and which is positioned in a safe place outside the machinery space and preferably above the working deck.

(6) For any emergency fire pump, where fitted, the pump, sea-suction valves and other necessary valves shall be operable from outside compartments containing main fire pumps in a position not likely to be cut off by a fire in those compartments.

(7) The total capacity (Q) of main power-operated fire pumps shall be at least:

$$Q = \left(0.15\sqrt{L(B+D)} + 2.25\right)^2 \text{ m}^3\text{/h}$$

where: L, B and D are in metres.

(8) Where two independent power-operated fire pumps are fitted, the capacity of each pump shall not be less than 40 per cent of the quantity required by paragraph (7) or 25 m^3/h, whichever is the greater.

(9) When main power fire pumps are delivering the quantity of water required by paragraph (7) through the fire main, fire hoses and nozzles, the pressure maintained at any hydrant shall be not less than 0.25 newtons per square millimetre.

(10) Where power-operated emergency fire pumps are delivering the maximum quantity of water through the jet required by section 5-37 (1), the pressure maintained at any hydrant shall be at least 0.25 newtons per square millimetre.

Section 5-36. *Fire mains*

(1) Where more than one hydrant is required to provide the number of jets required by section 5-37 (1), a fire main shall be provided.

(2) Materials readily rendered ineffective by heat shall not be used for fire mains, unless adequately protected.

(3) Where fire pump delivery pressure can exceed the designed working pressure of the fire main, relief valves shall be fitted.

(4) Fire mains shall have no connections other than those required for fire fighting, except for the purpose of washing the deck and anchor chains and operation of bilge ejectors, subject to the efficiency of the fire-fighting system being maintained.

(5) Where fire mains are not self-draining, suitable drain cocks shall be fitted where frost damage may be expected.

Section 5-37. *Fire hydrants, fire hoses and nozzles*

(1) Fire hydrants shall be positioned so as to allow easy and quick connection of fire hoses and so that at least one jet can be directed into any part of the vessel which is normally accessible during navigation.

(2) The jet required in paragraph (1) shall be from a single length of fire hose.

(3) In addition to the requirements of paragraph (1), machinery spaces of category 'A' shall be provided with at least one hydrant complete with fire hose and dual purpose nozzle (spray/jet). The fire hydrant shall be located outside the space and near the entrance.

(4) For every required fire hydrant there shall be one fire hose. At least one spare fire hose shall be provided in addition to this requirement.

(5) Single lengths of fire hose shall not exceed 20 metres.

(6) Fire hoses shall be of an approved material. Each fire hose shall be provided with couplings and dual purpose nozzle (spray/jet). Fire hoses shall together with any necessary fittings and tools be kept ready for use in conspicuous positions near the water service hydrants or connections.

(7) Except where fire hoses are permanently attached to the fire main, the couplings of fire hoses and nozzles shall be completely interchangeable.

(8) The nozzle as required by paragraph (6) shall be appropriate to the delivery capacity of the fire pumps fitted, but in any case shall have a diameter of not less than 12 millimetres.

Section 5-38. *Fire extinguishers*

(1) For vessels of 45 metres in length (L) and upwards, section 5-20 shall apply in its entirety.

(2) In vessels constructed after 1 January 2003 of 24 metres length (L) and upwards, but less than 45 metres in length (L), the excess number of extinguishers of the same type and capacity as those prescribed by section 5-39 and section 5-40 shall be 50 per cent. The provisions of section 5-20 paragraphs (1), (3), (4), (5) and (6) shall apply correspondingly to such vessels.

(3) For vessels constructed before 1 January 2003 of 24 metres in length (L) and upwards, but less than 45 metres in length (L), section 5-20 shall apply in its entirety until 1 January 2006. After that date, paragraph (2) shall also apply to those vessels.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-39. *Portable fire extinguishers in control stations and accommodation and service spaces*

(1) A sufficient number of approved portable fire extinguishers shall be provided in control stations and accommodation and service spaces to ensure that at least one extinguisher is

readily available for use in any part of such spaces. However, the total number of extinguishers in these spaces shall not be less than three.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-40.[1] *Fire-extinguishing appliances in machinery spaces*

(1) General requirements

1. Machinery spaces of category 'A' shall be provided with one of the following approved fixed fire-extinguishing systems:
   a. A pressure water-spraying installation in accordance with the requirements set out in appendix 4.
   b. A fire-smothering gas installation in accordance with the requirements set out in appendix 4.
   c. A fire-extinguishing installation using high expansion foam in accordance with the requirements set out in appendix 4.
   d. A fire-extinguishing installation using vapours from low toxicity vapourising liquids.
2. New installations of halogenated hydrocarbon systems used as fire-extinguishing media shall be prohibited on new and existing vessels.
3. Where the engine and boiler rooms are not entirely separate, or if fuel oil can drain from the boiler room into the machinery space, the combined engine and boiler rooms shall be considered as one compartment.

(2) Installations listed in the subparagraph (1)1 shall be controlled from readily accessible positions outside such spaces not likely to be cut off by a fire in the protected space.

(3) Vessels which are constructed mainly or wholly of wood or fibre reinforced plastic and fitted with oil-fired boilers or internal combustion machinery and which are decked in way of the machinery space with such material, shall be provided with one of the extinguishing systems referred to in paragraph (1).

(4) In all machinery spaces of category 'A' at least two portable extinguishers shall be provided, of a type suitable for extinguishing oil fires. Where such spaces contain machinery which has a total power output of 250 kilowatts or more, at least three such extinguishers shall be provided. One of the extinguishers shall be stowed near the entrance to the space.

(5) Vessels having machinery spaces not protected by a fixed fire-extinguishing system as prescribed by paragraph (1) shall be provided with at least a 45 litre foam extinguisher or its equivalent, suitable for fighting oil fires. Where the size of the machinery spaces makes this provision impracticable, the Norwegian Maritime Authority may accept an additional number of portable fire extinguishers.

1 See definitions in section 5-2 paragraphs (11) and (12).

Section 5-41. *Fireman's outfits*

Vessels of 45 metres in length (L) and upwards shall carry two fireman's outfits in accordance with the requirements of section 5-24.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-42. *Fire control and safety plan*

A fire control and safety plan as prescribed by section 5-25 shall be permanently exhibited.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-43. *Ready availability of fire-extinguishing appliances*

Fire-extinguishing appliances shall be kept in good order and available for immediate use at all times.

Section 5-44. *Acceptance of substitutes*

The provisions of section 5-27 shall apply.

Part D – Fire safety measures in vessels of less than 24 metres in length (L)

Section 5-45. *Structural fire protection*

1. Where steel decks or steel bulkheads in accommodation spaces form the top or side of a fuel oil tank, they shall be insulated using a non-combustible material with a thickness of at least 40 millimetres. No manhole or other opening for fuel oil tanks shall be fitted in accommodation spaces.

2. External bulkheads or ship’s sides forming a boundary to an accommodation space shall be insulated using approved insulation material with a thickness of at least 50 millimetres. Bulkheads between accommodation spaces and machinery spaces or holds shall be of steel in a steel vessel. In vessels constructed of materials other than steel, such bulkheads shall at least be constructed to 'B-15' class standard.

3. Where a door is fitted between an accommodation space and a machinery space, this door shall be a self-closing gas-tight steel door. No direct access between a control station and a machinery space of category 'A' shall be permitted.

4. Bulkheads forming the boundary between a service space and an accommodation space shall at least be constructed to 'B-15' class standard.

5. Surfaces of bulkheads and linings in corridors and stairway enclosures below deck shall ensure low flame spread and limited smoke development.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-46. *Ventilation systems*[1]

1. Ventilation openings may be permitted in and under the doors of bulkheads forming the boundary to a corridor except that such openings shall not be permitted in and under stairway enclosure doors. The openings shall be provided only in the lower half of a door and the total area of any such opening or openings shall not exceed 0.05 square metres. The openings shall be fitted with a grille made of non-combustible material.

2. Ventilation ducts for machinery spaces of category 'A' or galleys shall not in general pass through accommodation spaces, service spaces or control stations. In exceptional cases, the Norwegian Maritime Authority may nevertheless permit such an arrangement where the ventilation ducts are constructed of steel or equivalent material and arranged to preserve the fire integrity of the divisions.

3. Ventilation ducts for accommodation spaces, service spaces or control stations shall not in general pass through machinery spaces of category 'A' or through galleys. In exceptional cases, the Norwegian Maritime Authority may nevertheless permit such an arrangement where the ventilation ducts are constructed of steel or equivalent material and arranged to preserve the fire integrity of the divisions.

4. Ventilation systems serving machinery spaces shall be independent of systems serving other spaces. All doors, ventilators, annular spaces around funnels and other openings to machinery spaces shall be capable of being closed from the outside.

5. Ventilation fans serving machinery spaces and accommodation spaces shall be capable of being stopped from a position outside the spaces concerned. Main inlets and outlets of ventilation systems shall be capable of being closed from a safe position.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

1 See section 11-5.

Section 5-47. *Heating installations*

The provisions of section 5-10 shall apply.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-48. *Surface materials, pipelines, etc.*

1. All exposed surfaces of glass reinforced plastic construction within accommodation and service spaces, control stations, machinery spaces of category 'A' and other machinery spaces of similar fire risk shall have the final lay-up layer of approved resin having inherent fire-retardant properties or be coated with an approved fire-retardant paint or be protected by non-combustible materials. Such surfaces shall be tested in accordance with the requirements set out in appendix 4.

2. Paints, varnishes and other finishes used on exposed interior surfaces shall not be capable of producing excessive quantities of smoke or toxic products. It shall be documented to the satisfaction of the Norwegian Maritime Authority that they are not of a nature to offer an undue fire hazard. Tests shall be conducted in accordance with the requirements set out in appendix 4.

3. Primary deck coverings within accommodation and service spaces and control stations shall be of an approved material.

4. Seawater pipes, bilge pipes, pipes conveying oil and other pipelines required for the safety of the ship shall be made of non-combustible material. Short, flexible pipe connections may be accepted on seawater pipes when these connections are made of a material which is not easily rendered ineffective by heat, for instance hoses of heat-resistant rubber with a steel armoured layer. Flexible piping connections may be permitted for pipes transporting oil, but the length of the connections shall be carefully adapted to withstand the effects of vibrations. The connections shall be resistant to oil, reinforced and made of a material which is not easily rendered ineffective by heat. Materials which are easily rendered ineffective by heat, shall not be used for overboard scuppers, sanitary discharges or other outlets close to the waterline where the failure of the material in the event of fire would give rise to danger of flooding.

5. All waste receptacles other than those used in fish processing shall be constructed of non-combustible materials with no openings in the sides and bottom.

6. All fuel oil pumps shall be capable of being stopped from a position outside the space in which the pumps are located.

7. Fuel oil lines from storage, settling or service tanks which are situated above a double bottom shall be provided with a valve fitted on the tank. The valve shall be capable of being closed from outside the space where the tanks are located. Where deep tanks are adjacent to shaft or pipe tunnel a valve shall be provided on the tanks. Moreover, the pipeline outside the tunnel shall be fitted with an extra valve.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-49. *Storage of gas cylinders and dangerous materials*

The provisions of section 5-12 shall apply.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-50. *Means of escape*[1]

1. Stairways and ladders leading to and from all accommodation spaces and in spaces in which the crew is normally employed, other than machinery spaces, shall be so arranged as to provide ready means of escape to the open deck and thence to the survival craft.

2. At all levels of accommodation at least two widely separated means of escape shall be provided which may include the normal means of access from each restricted space or group of spaces.

3. Below the weather deck the main means of escape shall be a stairway and the second escape may be a trunk or a stairway. Above the weather deck the means of escape shall be stairways or doors to an open deck or a combination thereof.

4. Only one means of escape may be permitted, due regard being paid to the nature and location of spaces and to the number of persons who normally might be accommodated or employed there.

5. A corridor or part of a corridor from which there is only one route of escape shall preferably not exceed 2.5 metres in length and in no case be greater than 5.0 metres in length.

6. The width of the means of escape shall be at least 700 millimetres. In vessels constructed after 1 January 2003, corridors, stairways, doors or any other opening which forms part of a means of escape shall have an unobstructed width of at least 700 millimetres.

7. Lifts shall not be considered as forming one of the required means of escape.

8. For means of escape from wheelhouses with only one door, refer to section 10-6 (1) 9 e).

9. For vessels constructed after 1 January 2009 escape hatches shall have a clear opening of 700 x 700 millimetres.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 11-3 (2).

Section 5-51. *Automatic fire detection and fire alarm systems*

1. An automatic fire detection and fire alarm system shall be installed in machinery spaces of category 'A', irrespective of whether the machinery space is manned or periodically unmanned. The number of fire detectors shall be sufficient in relation to the size of the space, however at least one smoke detector and one heat detector shall be provided.[1]

2. In vessels of combustible construction or where otherwise appreciable amounts of combustible materials are used on the construction of accommodation spaces, service spaces and control stations, an automatic fire detection system shall be installed in such spaces. In the installation of any such system, due regard shall be had to the size of the space, its arrangement and location relative to control stations as well as, where applicable, the flame-spread characteristics of the installed furniture.

3. Where five or more detectors are installed in the machinery space or more than ten detectors are installed in the accommodation, the detectors shall be distributed in one loop serving the machinery space and another serving the accommodation.

4. Audible alarms shall be fitted in sufficient number and at least one for each deck so that an alarm will be audible in any part of the vessel.

5. In the event that the combination of a high noise level on board the vessel and the use of ear protection may make it difficult to hear an acoustic fire alarm, a visual fire alarm shall be fitted.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

1 See section 4-19.

Section 5-52. *Fire pumps*

1. Vessels shall be fitted with at least one power-operated fire pump.

2. Sanitary, bilge, ballast or any other general service pumps may be used as fire pumps if they comply with the requirements of this chapter and do not affect the ability to cope with pumping of the bilges. Fire pumps shall be so connected that they cannot be used for pumping oil or other flammable liquids.

3. Centrifugal pumps or other pumps connected to the fire main through which backflow could occur shall be fitted with non-return valves.

4. The total capacity (Q) of power-operated fire pumps shall be at least:

$$Q = \left(0.15\sqrt{L(B+D)} + 2.25\right)^2 \text{ m}^3/\text{h}$$

where L, B and D are in metres.

5. When power-operated fire pumps are delivering the quantity of water required by paragraph (4) through fire mains, fire hoses and nozzles, the pressure maintained at any hydrant shall be not less than 0.25 newtons per square millimetre. No fire pump shall have a capacity less than 16 m^3/ hour.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-53. *Fire mains*

1. Vessels shall be provided with fire mains to ensure effective distribution of the prescribed quantity of water.

2. Materials used in fire mains shall be non-combustible and heat-resistant.

3. Where fire pump delivery pressure can exceed the designed working pressure of the fire main, relief valves shall be fitted. Where fire mains are not self-draining, suitable drain cocks shall be fitted where frost damage could be expected.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-54. *Fire hydrants, fire hoses and nozzles*

The provisions of section 5-37 shall apply.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-55. *Fire extinguishers*

(1) In vessels constructed after 1 January 2003 the excess number of extinguishers of the same type and capacity as those prescribed by sections 5-56 and 5-57 shall be 50 per cent. The provisions of section 5-20 paragraphs (1), (3), (4), (5) and (6) shall apply correspondingly to such vessels.

(2) For vessels other than the above, section 5-20 shall apply in its entirety until 1 January 2006. After that date, paragraph (1) shall apply also to those vessels.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-56. *Portable fire extinguishers in control stations and accommodation and service spaces*

1. At least three approved portable fire extinguishers shall be provided in control stations and accommodation and service spaces.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 5-57. *Fire-extinguishing appliances in machinery spaces*

1. Machinery spaces of category 'A' shall be provided with one of the following approved fixed fire-extinguishing systems:

1. A pressure water-spraying installation in accordance with the requirements set out in appendix 4.
2. A fire-smothering gas installation in accordance with the requirements set out in appendix 4.
3. A fire-extinguishing installation using high expansion foam in accordance with the requirements set out in appendix 4.

2. Installations listed in paragraph (1) shall be capable of being controlled from readily accessible positions outside machinery spaces which are not likely to be cut off by a fire in the protected space. Arrangements shall be made to ensure the supply of power and water necessary for the operation of the system in the event of fire in the protected space.

3. In addition to the fixed fire-extinguishing system prescribed by paragraph (1), at least two portable fire extinguishers shall be provided in machinery spaces of category 'A', of a type suitable for extinguishing fires involving fuel oil. One of the extinguishers shall be stowed near the entrance to the machinery space.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 5-58. *Fire control and safety plan*

A fire control and safety plan in accordance with section 5-25 shall be permanently exhibited in a central and conspicuous position and be on a scale sufficient to give a clear picture of the installations.

0 Added by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 5-59. *Ready availability of fire-extinguishing appliances*

Fire-extinguishing appliances shall be kept in good order and available for immediate use at all times.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), 28 November 2008 No. 1318 (in force on 1 January 2009, previously section 5-58).

Section 5-60. *Acceptance of substitutes*

The provisions of section 5-27 shall apply.

0 Added by Regulation of 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), amended by Regulations of 28 November 2008 No. 1318 (in force on 1 January 2009, previously section 5-59).

Chapter 6 Protection of the crew

Section 6-1. *Scope of application*

This chapter applies to new and existing vessels of 15 metres in overall length (LOA) and upwards. Section 6-4 (2) does not apply to existing vessels.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 6-2. *General provisions*

(1) Deck openings provided with coamings or sills of less than 600 mm in height shall be provided with guards, such as hinged or portable railings or nettings. The Norwegian Maritime Authority may exempt small openings such as fish scuttles from compliance with these requirements.

(2) Skylights or other similar openings shall be fitted with protective bars not more than 350 mm apart. The Norwegian Maritime Authority may exempt small openings from compliance with this requirement.

(3) There shall be satisfactory access to tanks and cargo spaces. Reference is made to appendix 4 as the guiding norm.

(4) External hatches and doors[1] shall be closed when the vessel is at sea. All openings[2] occasionally required to be kept open during fishing and which may lead to flooding, shall be closed immediately if such danger of filling occurs with subsequent loss of buoyancy and stability. During setting of lines the drag hatches shall be closed as a general rule. The hatch is nevertheless permitted to be open to the extent and for the period of time necessary to set drags etc.

(5) The surface of all decks used by personnel shall be so designed or treated as to minimize the possibility of personnel slipping. In particular, decks of working areas, such as in machinery spaces, in galleys, at winches and where fish is handled, as well as at the foot and head of ladders and in front of doors, shall be provided with anti-skid surfaces (Council Directive 93/103/EEC).

(6) Fixed and portable means of access shall be properly maintained. In the event of damage to a means of access, this shall, if necessary, be replaced by another means of access until the necessary repair has been carried out.

(7) The master or the company shall ensure that equipment referred to in this chapter has been examined and tested by the manufacturer and the installer and complies with the requirements laid down by the Norwegian Maritime Authority for the equipment, as specified in the individual provisions. This does not apply to personal protective equipment carrying CE marking.

(8) A system of lifelines shall be arranged to cover all needs effectively, and the necessary wires, shackles, padeyes and fittings shall be available on board.

(9) Due consideration shall be given to weather reports, including rough sea warnings, reports of drifting ice, icing, etc.

1 See the provisions of sections 2-2 and 2-4.

2 See the provision of section 2-16, cf. section 2-3.

Section 6-3. *Deck openings*

(1) Hinged covers of hatchways, manholes and other openings shall be protected against accidental closing. In particular, heavy covers on escape hatches shall be equipped with counterweights and so constructed as to be capable of being opened from each side of the cover.

(2) Dimensions of access hatches shall not be less than 600 mm by 600 mm or 600 mm in diameter.

(3) Where practicable, hand-holds shall be provided in appropriate height above the level of the deck over escape openings.

Section 6-4. *Bulwarks, rails and guards*

(1) Efficient bulwarks or guard rails shall be fitted on all exposed parts of the working deck and on superstructure decks if they are working platforms. The height of bulwarks or guard rails above deck shall be at least 1 m. Where this height would interfere with the normal

operation of the vessel, a lesser height may be approved by the Norwegian Maritime Authority, though not less than 600 mm.

(2) The minimum vertical distance from the deepest operating waterline to the lowest point of the top of the bulwark, or to the edge of the working deck if guard rails are fitted, shall ensure adequate protection of the crew from water shipped on deck, taking into account the sea states and the weather conditions in which the vessel may operate, the areas of operation, the type of vessel and its method of fishing.[1]

(3) Clearance below the lowest course of guard rails shall not exceed 230 mm. Other courses shall not be more than 380 mm apart, and the distance between stanchions shall not be more than 1.5 m. In a vessel with rounded gunwales, guard rail supports shall be placed on the flat of the deck. Rails shall be free from sharp points, edges and corners and shall be of adequate strength.

(4) Satisfactory means, such as lifelines, guard rails, gangways or underdeck passages shall be provided to protect the crew in moving between accommodation, machinery and other working spaces. Rails or similar equipment shall be fitted as necessary to the outside of all deckhouses and casings to secure safety of passage or work for the crew (Council Directive 93/103/EEC).

(5) Miscellaneous safety aspects (Council Directive 93/103/EEC)

1. The gate or other barrier in front of the trawl slipway shall be kept open only during setting and pulling-in of the trawl and shall not prevent draining of the deck.[2]
2. Precautions shall be taken to stabilise pulled-in catch etc. This applies in particular to
   a. devices to secure trawl doors, and
   b. devices to prevent the landing net from swinging out.

1 See section 3-13.

2 See the provision of section 2-20 (4).

Section 6-5. *Stairways and ladders*

For the safety of the crew, stairways and ladders of adequate size and strength with handrails and non-slip treads shall be provided. Their design and arrangement shall be in accordance with the ISO standard in force at any time.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 6-6. *Means of access for pilots etc.*

(1) Vessels which are to take pilot, and vessels which are likely to be boarded in the open sea by Coast Guard inspectors or others authorised to carry out boarding or inspections, shall be fitted with pilot ladder or pilot hoist. Pilot ladders and pilot hoists shall be in accordance with the requirements set out in appendix 4.

(2) Pilot ladders and pilot hoists shall be periodically inspected and kept in proper working order.

(3) The company shall ensure that pilot ladders and pilot hoists have been examined and tested by manufacturer and installer in accordance with the requirements set out in appendix 4, and that they are inspected and kept in proper working order.

(4) Equipment and devices delivered prior to 1 July 2013 shall as a minimum satisfy the requirements of the regulations applicable at the time of procurement of the equipment or devices.

0 Amended by Regulation of 13 August 2012 No. 802.

Section 6-7. *Gangways, accommodation ladders, personnel lifts etc.*

(1) All vessels shall be provided with satisfactory means of access so that embarkation and disembarkation may be effected in a safe and proper manner. Means of access shall be fitted at a safe distance from openings in the vessel side, and shall, as far as practicable, be such that no person must pass below hanging cargo when used.

(2) For vessels of 45 m in length (L) and upwards the means of access shall be in accordance with the requirements set out in appendix 4. Vessels of less than 45 m in length (L) shall have means of access complying with the standards of appendix 4 to the greatest possible extent.

(3) The arrangement of means of access for embarkation and disembarkation shall satisfy the following requirements:

1. As far as practicable a net shall be arranged under the means of access between the vessel and shore, or passage to and from the vessel shall be secured by other means. Means of access shall be fitted with adequate lighting in darkness.
2. If the means of access must be arranged over the bulwark or gunwale, a stairway or steps with handrails shall lead from the means of access to the deck. Gunwale stairs shall be adequately secured.
3. When the vessel is at anchor or is otherwise without connection to a quay etc., the master is responsible for ensuring that passage to and from the vessel may take place in a safe and proper manner.
4. If a gangway is used, rail ropes and rope nets shall be provided on the sides of the means of access and at both platforms when the means of access is in use.

(4) Personnel lifts and personnel and cargo combination lifts

1. Lift installations shall be kept in good working order. The master or the company shall ensure that a qualified person carries out an annual check of the lift in accordance with section 2-21. After this check a qualified person shall issue a document verifying that the check has been made. This document shall be displayed in the lift car.
2. The term "qualified person" means a person possessing qualifications to carry out calculations, design, control, testing and certification of personnel lifts and personnel and cargo combination lifts installed in a vessel.

Section 6-8. *Suspension arrangement requirements for accommodation ladders, etc.*

(1) Where an accommodation ladder is required, a davit or similar arrangement is required for accommodation ladder on either side of the vessel. The davit shall be designed and manufactured with a safety margin of at least 2.5 in relation to the guaranteed yield strength of the material and for the loads as specified in appendix 4 with the means of access placed in the most adverse position. For aluminium the yield strength is calculated at 0.2 per cent permanent elongation.

(2) Accommodation ladder winches shall be designed and manufactured for the forces transferred from the accommodation ladder in the most adverse position, and with a load as

specified in appendix 4. The forces shall also be designed to apply to the outermost steel wire layer.

1. The winch shall in all cases be self-locking for the forces transferred from the accommodation ladder in the most adverse position with a load of 1.5 times the load as specified in appendix 4.
2. A crank for manual operation of the winch must be arranged so as to be unable to rotate if the winch is motor-driven.

(3) Winches shall be provided with a sign clearly indicating the type designation and maximum permitted load in the outermost steel wire layer.

(4) Chains, wire ropes, shackles, rings etc. which are used for suspension/heaving of accommodation ladders or gangways shall be certified. All loose parts shall be listed on the arrangement plan with position number, SWL and breaking load. The position number shall be stamped on the part so that it is possible to verify that each individual part has been placed in its correct position. The arrangement plan shall show the whole installation and shall be provided with every delivery on board Certificates for chains, shackles, rings, wire ropes, cordage etc. shall be kept available on board together with the arrangement plan.

(5) After installation on board the entire accommodation ladder arrangement shall be undergo a functional test carried out by the manufacturer or installer in accordance with the requirements set out in appendix 4.

Section 6-9.[1] *Drainage of enclosed working deck, etc.*

(1) Where bilge flaps have been arranged for drainage of enclosed working decks, such flaps shall normally be kept closed when the vessel is at sea.

(2) If during operation bilge flaps are needed to be used instead of or as a supplement to separate bilge pumps, this may be done only during normal operational conditions.

(3) If flooding through hatches in the side cladding occurs or if heeling (transverse list) should occur for other reasons causing the bilge flags to be submerged, the bilge flaps shall be closed immediately and bilge pumps shall be started in order to drain any water shipped on deck.

1 See sections 2-3, 3-16 and 4-11.

Section 6-10. *Carriage of deck cargo and loose fish in hold*

(1) The total weight of deck cargo shall not exceed three per cent of the vessel’s deadweight or 30 tons, if three per cent of the deadweight is greater, unless otherwise specified in the approved stability calculations.

(2) Fishing tackle, including tackle for spare use taken on board, such as seines, nets, lines, trawls, trawl doors etc. stored outside cargo holds, shall be considered deck cargo.

(3) Approved stability calculations shall be available on board. Information about any deck cargo permitted and the total cargo permitted, as well as the minimum freeboard, shall be displayed on board.[1]

(4) General requirements for the carriage of deck cargo.

1. Hatch openings on weather decks covered by cargo shall be securely closed and battened. Ventilators and air pipes shall be effectively protected.
2. Deck cargo shall be properly stowed and secured.

3. If fish is carried in bins on deck, adequate overboard drainage shall be provided from the bins.
4. Lashings shall be capable of being tightened and released in a simple manner during the voyage.
5. Exits from the accommodation and machinery spaces and emergency exits shall not be blocked by deck cargo. Deck cargo shall not be placed so as to hamper immediate use of the life-saving appliances.
6. Tanks shall be capable of being sounded at all times.
7. Deck cargo shall be placed so that it does not impede navigation and manoeuvring of the vessel. The cargo, including tackle, equipment etc., shall not block the view from the bridge, obstruct the view to lights and signals or render difficult the use of mandatory equipment.
8. Easy access to fire hydrants shall be ensured.
9. Deck cargo shall not prevent access to or use of anchor equipment, anchor winches, mooring winches or mooring arrangements.

1 See section 3-10.

Section 6-11.[1] *Loading, drainage of open deck*

(1) Vessels shall be loaded so as to have adequate freeboard under the various conditions, due consideration being given to the construction, stability, waters and season, and so that seaworthiness is not jeopardised. The permitted freeboard in accordance with the draught marks on the vessel's sides shall be complied with at all times. Under no circumstances shall the vessel be loaded so that trim, negative sheer etc. cause submersion of any part of the exposed working deck in salt water.

(2) Unobstructed outlet shall be provided for water from open decks through freeing ports[2] or slots having an area in accordance with these Regulations, or through open railings. Flaps in freeing ports shall not be fixed with wedges or otherwise be blocked, but shall be kept open and in good working order so that the sea is drained unobstructed overboard. Fish pounds, fishing tackle or other equipment shall also not be placed so as to hamper overboard discharge.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 2-17.

2 See sections 2-14 and 2-16.

Section 6-12. *Stability*

(1) Vessels shall be loaded so as to have sufficient stability in all loading conditions. The master shall, on the basis of an assessment of the vessel's manoeuvrability, take the necessary precautions to obtain adequate trim during the whole voyage with the loading condition of the vessel. Due account shall be taken of any weight increase as a consequence of deck cargo absorbing or trapping water.

(2) When loading in wintertime reasonable account shall also be taken of anticipated icing and altered draught and stability during the voyage.

(3) Means of closure shall undergo regular inspection and maintenance, and be used as prescribed in provisions concerning stability and freeboard, cf. chapter 3.

(4) The assessment of the vessel's stability shall take into account the distribution of cargo, towing and any use of water ballast, anti-rolling tanks, combination tanks etc.

(5) The possible reduction in stability due to consumption of fuel, water etc. during the voyage shall be taken into consideration.

(6) Seines or other fishing tackle which are braced or otherwise attached to the vessel shall be capable of being released/cut efficiently and rapidly.

(7) For vessels for which stability calculations have not previously been made, a tonnage measurement shall be made if necessary, and drawings, hydrostatic curves and stability calculations shall be made and submitted to the Norwegian Maritime Authority for approval.

(8) The stability norm of vessels which have not previously been subject to requirements for stability calculations shall be based on section 6 of the Regulation of 2 October 1968 no. 8943 concerning the construction of fishing vessels.

(9) The provisions of paragraphs (7) and (8) do not apply to vessels certified for fjord fishing when those vessels fish with seines and to not take their catch aboard, or vessels having such certificate when fishing with other tackle.

Section 6-13. *Inspection to ascertain gas hazard etc.*

(1) Before any person enters tanks, cargo holds, narrow enclosed spaces, tunnels or other spaces presenting a risk of gas or insufficient oxygen, without wearing approved or accepted breathing protection, the necessary checks shall be made out to ascertain that the air in those spaces is safe. Measurements shall be taken at various heights and repeated measurements shall be taken if necessary.

(2) Vessels engaged in fishing for industrial raw material shall have at least one approved or accepted instrument for measurement of the oxygen content in the air.

Section 6-14. *Danger charts etc.*

(1) All doors, hatches, manhole covers etc. providing access to gas-hazardous spaces or spaces presenting a risk of insufficient oxygen shall be clearly marked with signs or adhesive notices giving warning of the hazard of gas poisoning or lack of oxygen to which a person may be exposed in the space in question. In places where the sign or adhesive notice can easily be damaged or dirtied the actual hatch, cover or similar shall also be painted in the same colour as the signs. The colour of the warning signs and adhesive notices shall be in accordance with the requirements specified in appendix 4 and have the following Norwegian text:

FARE	DANGER
OKSYGENMANGEL	LACK OF OXYGEN
(Symbol)	
FARE	DANGER
GIFTIG GASS	POISON GAS
(Symbol)	
FARE	DANGER
EKSPLOSIV ATMOSFÆRE	EXPLOSIVE ATMOSPHERE

(Symbol)

(2) In vessels calling at ports outside Scandinavia, Iceland and Greenland the warning signs etc. shall also be provided with English text.

Section 6-15. *Safety measures in connection with inspections, work etc.*

(1) Work in cargo holds, tanks or other spaces presenting a risk of poisoning or lack of oxygen is permitted only on the condition that an approved or accepted self-contained breathing apparatus is used. Such spaces shall be thoroughly ventilated before work is started in them, and larger spaces shall be provided with mechanical ventilation. There shall be continuous ventilation while work is in progress.

(2) Special caution shall be shown when entering a tank or cargo hold in connection with the delivery of raw fish materials to factories, and during cleaning of such spaces. Special caution shall also be shown when entering unventilated tanks or spaces which have been closed or which have considerable rust formation.

(3) While inspection or work is in progress in tanks and spaces referred to in paragraphs (1) and (2) the oxygen content and any gas concentration shall be measured at short intervals. The work or inspection shall be supervised by two persons, one of whom shall have easy access to a self-contained breathing apparatus and be trained in its use.

Section 6-16. *Ventilation in cargo holds etc. where vehicles are used*

(1) Trucks or similar vehicles powered by an internal combustion engine may only be used in cargo spaces if those spaces are provided with efficient mechanical ventilation. The ventilation shall be in operation for as long as the truck or other machinery powered by an internal combustion engine is used in the spaces. It must also be ensured that petrol engines, propane engines and diesel engines are correctly adjusted and properly maintained. Trucks shall not be left with the engine running (Council Directive 93/103/EEC).

(2) Spaces in which trucks having internal combustion engines are used shall be provided with signs warning of the risk of exhaust fume poisoning.

(3) Crew members required to drive trucks shall have received the necessary training and shall be over 18 years of age.

Sections 6-17 to 6-20. (Repealed by Regulation of 1 January 2005 No. 8.)

Section 6-21. *Storage and use of fuel, explosives and certain toxic products*

(1) If extra fuel cannot be placed on open deck it shall be stored in suitable containers in a separate, easily accessible and well ventilated room or locker with a door communicating only with open deck. Bulkheads and door to the room or locker shall have fire insulation equivalent to A-60.

(2) If explosives are stored on board, these must be kept in their original packages in steel boxes and stored in a separate, lockable room or locker, and be kept separate from fire-hazardous and toxic products. Explosives and their triggering devices shall be stored separately, and the quantity of explosives shall be kept to the necessary minimum.

(3) For each assignment where explosives, gunpowder, detonation means etc. are to be used, the Directorate for Civil Protection and Emergency Planning shall be contacted for the preparation of instructions for their use.

(4) Storage and use of toxic substances, and prohibition on the procurement, storage and use of methanol, and the procurement, storage and use of absolute alcohol on board ships shall be in accordance with chapter 11 of the Regulation of 1 January 2005 No. 8 concerning the working environment, health and safety of workers on board ship.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 6-22. *Signs and notices*

(1) The text of signs and notices shall always be clearly legible. The text shall be in Norwegian, unless otherwise prescribed by the Norwegian Maritime Authority.

(2) Warning signs shall have lettering at least 20 mm high and prohibition signs shall have lettering at least 30 mm high. Unless otherwise prescribed the colour shall be in accordance with the requirements set out in appendix 4.

Section 6-23. *Warning sign at radar scanners*

The radar apparatus shall be switched off during work in the radar mast. A clearly visible sign shall be displayed at every radar apparatus, with the following warning: “Work in progress in the radar mast.”

Section 6-24. *Radar reflector*

Wooden vessels which do not have a superstructure of steel or equivalent material with regard to radar reflectivity shall be provided with an efficient radar reflector.

Section 6-25. *Working clothes made of fire-retardant material*

Working clothes of fire-retardant material shall be used during welding or other work exposing working clothes to intense heat or open flame.

Chapter 7 Life-saving appliances and arrangements

Part A – General provisions

Section 7-1. *Scope of application*

Unless provided otherwise, this chapter shall apply to new vessels of 15 metres in overall length (LOA) and upwards.

(2) Sections 7-8, 7-9, 7-11, 7-12, 7-13 and 7-14 shall also apply to existing vessels.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), 27 September 2002 No. 1087, 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 7-2.[1] *Definitions*

(1) *Float-free launching:* that method of launching a survival craft whereby the craft is automatically released from a sinking vessel and is ready for use.

(2) *Free-fall launching:* that method of launching a survival craft whereby the craft with its complement of persons and equipment on board is released and allowed to fall into the sea without any restraining apparatus.

(3) *Inflatable appliance:* an appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is normally kept uninflated until ready for use.

(4) *Inflated appliance:* an appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is kept inflated and ready for use at all times.

(5) *Launching appliance or arrangement:* means of transferring a survival craft or a rescue boat from its stowed position safely to the water.

(6) *Rescue boat:* boat designed to rescue persons in distress and to marshall survival craft.

(7) *Retro-reflective material:* material which reflects in the opposite direction a beam of light directed on it.

(8) *Survival craft:* craft capable of sustaining the lives of persons in distress from the time of abandoning the vessel.

(9) *Life-saving appliances and arrangements:* all live-saving and safety appliances with associated arrangements mentioned in these Regulations.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See definitions in section 1-2.

Section 7-3. *Evaluation, testing and approval of life-saving appliances and arrangements*

(1) Except as provided in the fourth paragraph, life-saving appliances and arrangements required by this chapter shall be type-approved, approved or accepted by the Norwegian Maritime Authority. [1]

(2) Life-saving appliances and arrangements shall:

1. be tested, to confirm that they comply with the requirements of this chapter, in accordance with the requirements specified in appendix 4, or
2. be marked in accordance with the Regulations of 30 August 2017 No. 1042 on marine equipment, or
3. for vessels constructed before 1 January 2003 have successfully undergone and passed tests which are substantially equivalent to the tests specified in appendix 4.

(3) Life-saving appliances or arrangements with novel features which are not fully covered by the provisions of this chapter, but which provide an at least equivalent standard of safety, shall be tested in accordance with the Regulations of 30 August 2016 No. 1042 on marine equipment.

(4) Life-saving appliances required by this chapter, but for which detailed specifications are not given in part C, shall comply with the requirements specified in appendix 4.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 20 December 2017 No. 2379 (in force on 1 January 2018).

1 See definition in section 1-2 (19).

Section 7-4. *Production tests*

Life-saving appliances shall be subjected to such production tests as are necessary to ensure that the life-saving appliances are manufactured to the same standard as the approved prototype.

Part B – Vessel requirements

Section 7-5. *Number and types of survival craft and rescue boats*

(1) Every vessel shall be provided with at least two survival craft.

(2) The number, capacity and type of survival craft and rescue boats of vessels of 45 metres in length (L) and upwards shall comply with the following:

1. One survival craft on each side of the vessel, of sufficient aggregate capacity to accommodate at least the total number of persons on board.
2. In addition a rescue boat shall be provided, unless the vessel is provided with a lifeboat which fulfils the requirements for a rescue boat and which is capable of being recovered after the rescue operation.

(3) Vessels of 24 metres in length (L) and upwards, but less than 45 metres in length (L), shall be provided with:

1. survival craft of sufficient aggregate capacity to accommodate 200 per cent of the total number of persons on board. It shall be possible from each side of the vessel to launch a sufficient number of these survival craft to accommodate the total number of persons on board.
2. one rescue boat when the vessel is certified for trade area Bank fishing II or greater, unless the vessel is provided with a lifeboat which fulfils the requirements for a rescue boat and which is capable of being recovered after the rescue operation.

(4) Vessels of less than 24 metres in length (L) shall be provided with survival craft of sufficient aggregate capacity to accommodate 200 per cent of the total number of persons on board, which shall be capable of being launched as described in subparagraph (3)1.

(5) In lieu of meeting the requirements of the subparagraph (2)1 or subparagraph (3)1, vessels may carry a lifeboat capable of being free-fall launched over the stern of the vessel of sufficient capacity to accommodate the total number of persons on board and with liferafts of sufficient capacity to accommodate the total number of persons on board.

(6) The survival craft and rescue boats shall comply with the applicable requirements of sections 7-17 to 7-23 inclusive.

(7) For vessels operating in waters with heavy drift-ice[1] and certified for trade area Ice-covered waters I or greater and constructed to an ice class of a recognised classification society in accordance with section 2-1(2),[2] the rescue boat or lifeboat referred to in subparagraph (2)2 and subparagraph (3)2 shall be partly enclosed in accordance with section 7-18 and of sufficient capacity to accommodate the total number of persons on board.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

1 See definitions in section 1-2 subparagraph 44.

2 See also section 4-3 subparagraph (1)2.

Section 7-6. *Availability and stowage of survival craft and rescue boats*

(1) Survival craft shall:

1. be of such availability that they are at all times
    a. capable of being prepared for use within 5 minutes,
    b. capable of being launched safely and rapidly under the conditions required by section 7-32 subparagraph (1)1, and
    c. capable of rapid recovery if fulfilling also the requirements for a rescue boat.
2. be so stowed that
    a. the marshalling of persons at the embarkation deck is not impeded,
    b. their prompt handling is not impeded,
    c. embarkation can be effected rapidly and in good order, and
    d. the operation of any other survival craft is not interfered with.

(2) Where the distance from the embarkation deck to the waterline of the vessel in the lightest operating condition exceeds 4.5 m, survival craft, except float-free liferafts, shall be capable of being davit-launched with a full complement of persons or be provided with equivalent launching arrangement.

(3) Survival craft and launching appliances shall be in working order and available for immediate use before the vessel leaves port and kept so at all times when at sea.

(4) More detailed requirements for the stowage of survival craft:

1. Survival craft shall be stowed to the satisfaction of the stations of the Norwegian Maritime Authority.
2. Every lifeboat shall be attached to a launching appliance.
3. Survival craft shall be positioned as close to accommodation and service spaces as possible, stowed in suitable positions to ensure safe launching, with particular regard to clearance from the vessel's propeller. Lifeboats for lowering down the vessel's side shall be stowed with regard to steeply overhanging portions of the hull, so ensuring, as far as practicable, that they can be launched down the straight side of the vessel. If positioned forward, they shall be stowed abaft of the collision bulkhead in a sheltered position.
4. The method of launching and recovering rescue boats shall be approved, taking into account the weight of the rescue boat including its equipment and 50 per cent of the number of persons it is certified to carry in section 7-23 subparagraph (1)2b and section 7-23 subparagraph (1)3, the construction and size of the rescue boat and its position of stowage above the waterline in the vessel's lightest operating condition. However, every rescue boat stowed at a height of more than 4.5 m above the waterline in the vessel's lightest operating condition shall be provided with arrangements for launching and recovery.
5. Launching and embarkation appliances shall comply with the requirements of section 7-32.
6. Liferafts shall be stowed as follows:
    a. Liferafts shall be so stowed as to be readily available in case of emergency in such a manner as to permit them to float free from their stowage, inflate and break free from the vessel in the event of its sinking.
    b. Lashings, if used, shall be fitted with an automatic (hydrostatic) release system.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 7-7. *Embarkation into survival craft*

Suitable arrangements shall be made for embarkation into the survival craft, which shall include:

1. at least one ladder, or other approved means, on each side of the vessel to afford access to the survival craft when waterborne, except where the distance from the embarkation deck to the surface of the water is less than 2 m with the vessel in its lightest operating condition in ballast.
2. means for illuminating the stowage position of survival craft and their launching appliances during preparation for and the process of launching, and also for illuminating the water into which the survival craft are launched until the process of launching is completed. The power for such illumination shall be capable of being supplied from the emergency source required by section 4-17.
3. arrangements for warning all persons on board that the vessel is about to be abandoned.
4. means for preventing any discharge of water into the survival craft.

Section 7-8. *Lifejackets*

(1) For every person on board, a lifejacket complying with the requirements of section 7-24 shall be carried.

(2) Lifejackets shall be so placed as to be readily accessible in the vicinity of the life-saving appliances, and their position shall be plainly indicated.

Section 7-9. *Immersion suits*

(1) The vessel shall carry at least one immersion suit complying with the requirements of section 7-25 for every person on board. [1]

(2) Immersion suits shall normally be designed for use by persons between 1.50 and 1.95 metres tall. Immersion suits of other sizes and shapes shall be specially marked so as to be easily recognisable, also when it is dark.

(3) Immersion suits shall be stowed in a suitable place in or in the immediate vicinity of the wheelhouse. For vessels with more than one immersion suit per person, the additional immersion suits shall be available in the cabins or in an easily accessible place in the vicinity of the cabins. Notices providing information about the location, treatment and use of immersion suits shall be posted in the wheelhouse and the mess room.

(4) For vessels of less than 45 metres in length (L) operating in southern waters[2] two immersion suits will be sufficient. Such immersion suits shall comply with section 7-25(5).

1 Partly special requirement for Norwegian vessels.

2 Cf. definition in section 1-2 subparagraph 43.

Section 7-10. *Lifebuoys*

(1) At least the following number of lifebuoys complying with the requirements of section 7-27(1) shall be provided:

1. eight lifebuoys in vessels of 75 metres in length (L) and upwards.

2. six lifebuoys in vessels of 45 metres in length (L) and upwards, but less than 75 metres in length (L).
3. four lifebuoys in vessels of 24 metres in length (L) and upwards, but less than 45 metres in length (L).
4. three lifebuoys in vessels of less than 24 metres in length (L).

(2) At least half the number of lifebuoys referred to in subparagraphs (1)1 to 3 shall be provided with self-igniting lights complying with the requirements of section 7-27(2). Vessels referred to in subparagraph (1)4 shall be provided with at least one self-igniting light.

(3) At least two of the lifebuoys provided with self-igniting lights in accordance with the second paragraph shall be provided with self-activating smoke signals complying with the requirements of section 7-27(3) and shall be capable of quick release from the wheelhouse/navigating bridge. In vessels referred to in subparagraph (1)4 at least one lifebuoy shall be provided with self-activating smoke signal.

(4) At least one lifebuoy on each side of the vessel shall be fitted with a buoyant lifeline complying with the requirements of section 7-27(4) equal in length to not less than twice the height at which it is stowed above the waterline in the lightest seagoing condition, or 30 m, whichever is greater. Such lifebuoys need not have self-igniting lights. In vessels referred to in subparagraph (1)4 at least one lifebuoy shall be provided with a buoyant lifeline as described above.

(5) All lifebuoys shall be so placed as to be readily accessible to the persons on board, and shall always be capable of being readily cast loose and shall not be permanently secured in any way.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 7-11. *Line-throwing appliances*

Vessels of 24 metres in length (L) and upwards shall carry a line-throwing appliance complying with the requirements of section 7-28.

Section 7-12. *Distress signals*

(1) Every vessel shall be provided with means of making effective distress signals by day and by night, including at least 12 rocket parachute flares in vessels of 24 metres in length (L) and upwards and four rocket parachute flares in vessels of less than 24 metres in length (L). The rocket parachute flares shall comply with the requirements of section 7-29.

(2) The number and type of distress signals shall, in addition to those referred to in paragraph (1), be:

1. ten red hand flares on vessels operating in trade area Deepsea fishing II or greater, regardless of the size of the vessel.
2. ten red hand flares on vessels of 45 metres in length (L) and upwards.
3. six red hand flares on vessels of 24 metres in length (L) and upwards, but less than 45 metres in length (L).
4. four red hand flares on vessels of less than 24 metres in length (L).
5. two smoke signals on any vessel.

(3) Vessels operating only in trade area In-shore fishing or lesser may reduce the number of distress signals to three rocket parachute flares and three red hand flares.

(4) Distress signals shall be so placed as to be readily accessible and their position shall be plainly indicated.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 7-13.[1] *Radio life-saving appliances*

(1) Every vessel[2] shall carry at least one portable two-way VHF radiotelephone apparatus for each survival craft, including rescue boat. Such apparatus shall conform to the requirements as specified in appendix 4. If a fixed two-way VHF radiotelephone apparatus is fitted in a survival craft it shall conform to the same performance standards as for portable VHF.

(2) The minimum standard for such appliances is specified in appendix 4.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 27 September 2002 No. 1087.

1 Amended by Regulation of 27 September 2002 No. 1087: For existing vessels of 24 metres in length (L) and upwards but less than 45 metres in length (L) the amendments will enter into force on 1 January 2004. For existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L) the amendments will enter into force on 1 January 2005

2 See section 7-1 (2).

Section 7-14.[1] *Radar transponders*

(1) General requirements

Radar transponders shall comply with the Regulations currently in force concerning EEA approval of maritime radio equipment laid down by the Norwegian Post and Telecommunications Authority and such requirements as are specified in appendix 4, and they shall be capable of operating in the 9 GHz frequency band.

(2) Special requirements for vessels of 24 metres in length (L) and upwards

Every survival craft and rescue boat carried on any vessel of 24 metres in length (L) and upwards shall be permanently provided with a radar transponder. [2] [4]

(3) Special requirements for vessels of less than 24 metres in length (L)[4]

1. Every vessel of less than 24 metres in length (L) operating in the trade areas Inshore fishing or Bank fishing I shall be provided with one radar transponder so stowed as to be capable of being quickly moved to a survival craft.
2. Every vessel of less than 24 metres in length (L) operating in trade area Bank fishing II or greater shall be provided with one radar transponder on each side of the vessel, so stowed as to be capable of being quickly moved to a survival craft. One of these radar transponders may be replaced by a manual emergency position-indicating radio beacon capable of operating at 406/121 MHz.[3] Alternatively, one radar transponder may be carried in each survival craft.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 27 September 2002 No. 1087.

1 See section 7-1 (2).

2 Partly special requirement for Norwegian vessels.

3 See section 9-6 (2).

4 Amended by Regulation of 27 September 2002 No. 1087: For existing vessels of 24 metres in length (L) and upwards but less than 45 metres in length (L) the amendments will enter into force on 1 January 2004. For existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L) the amendments will enter into force on 1 January 2005

Section 7-15. *Retro-reflective materials on life-saving appliances*

All survival craft, rescue boats, lifejackets and lifebuoys shall be fitted with retro-reflective material in accordance with the requirements specified in appendix 4.

Section 7-16. *Operational readiness, maintenance and inspections*

(1) Operational readiness

Before the vessel leaves port and at all times during the voyage, all life-saving appliances shall be in working order and ready for immediate use.

(2) Maintenance and inspection

1. Instructions for on-board maintenance of life-saving appliances shall be provided. Maintenance shall be carried out according to instructions given by the manufacturer.
2. If instructions as referred to in subparagraph 1 are not available, a shipboard planned maintenance programme shall be prepared. The maintenance programme shall be in writing.
3. All maintenance of life-saving appliances shall be recorded in the vessel's deck log book, if the vessel is required to keep such log book.

(3) Maintenance of falls

Falls used in launching of survival craft shall be turned end for end at intervals of not more than 30 months and be renewed when necessary due to deterioration, or at intervals of not more than 5 years.

(4) Spares and repair equipment

Spares and repair equipment shall be provided for life-saving appliances and their components which are subject to excessive wear or consumption and need to be replaced regularly.

(5) Weekly inspection

The following tests and inspections shall be carried out weekly and entered in the deck log-book if the vessel is required to keep such log-book:[1]

1. All survival craft, rescue boats and launching arrangements shall be inspected to ensure that they are ready for use.
2. All engines in lifeboats and rescue boats shall be run ahead and astern for a total period of not less than 3 minutes, provided the ambient temperature is above the minimum temperature required for starting the engine.
3. The general alarm system shall be tested.

(6) Monthly inspection

Inspection of all life-saving appliances, including lifeboat equipment, shall be carried out monthly using a checklist to ensure that they are complete and in good order. A report of the

inspection shall be entered in the deck log-book if the vessel is required to keep such log-book.

(7) Servicing of inflatable liferafts, inflatable lifejackets, and inflated rescue boats

1. Every inflatable liferaft and inflatable lifejacket shall be serviced at an approved servicing station at intervals of 12 months. If inflatable liferafts are also fitted with a radar transponder, this shall be inspected at the same time.[2] In cases where it appears proper and reasonable, the Norwegian Maritime Authority may extend this period to 17 months.
2. All repairs and maintenance of inflated rescue boats shall be carried out in accordance with the manufacturer's instructions. Emergency repairs may be carried out on board the vessel; however, permanent repairs shall be effected at an approved servicing station.

(8) Periodic servicing of hydrostatic release units

Disposable hydrostatic release units shall be replaced when their date of expiry has passed. If not disposable, hydrostatic release units shall be serviced at an approved servicing station at intervals of 12 months. In cases where it appears proper and reasonable, the Norwegian Maritime Authority may extend this period to 17 months.

(9) In cases of vessels where the nature of fishing operations may cause difficulty for compliance with the requirements of paragraphs (7) and (8), the Norwegian Maritime Authority may allow the extension of the service intervals to 24 months, provided that the NMA are satisfied that such appliances are so manufactured and arranged that they will remain in satisfactory condition until the next period of servicing.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 Cf. section 10 of the Regulation of 15 September 1992 No. 693 concerning the form and keeping of log books for ships and mobile offshore units.

2 Cf. section 12-3 (2).

Part C – Life-saving appliances requirements

Section 7-17. *General requirements for lifeboats*

(1) Construction of lifeboats

1. All lifeboats shall be properly constructed and shall be of such form and proportions that they have ample stability in a seaway and sufficient freeboard when loaded with their full complement of persons and equipment. All lifeboats shall have rigid hulls and shall be capable of maintaining positive stability when in an upright position in calm water and loaded with their full complement of persons and equipment and holed in any one location below the waterline, assuming no loss of buoyancy material and no other damage.
2. All lifeboats shall be of sufficient strength to enable them to be safely lowered into the water when loaded with their full complement of persons and equipment.
3. Hulls and rigid covers shall be fire-retardant or non-combustible.
4. Seating shall be provided on thwarts, benches or fixed chairs fitted as low as practicable in the lifeboat and constructed so as to be capable of supporting the number of persons, each weighing 100 kg, for which spaces are provided in compliance with the requirements of subparagraph (2)1b.

5. Each lifeboat shall be of sufficient strength to withstand the following load, without residual deflection on removal of that load:
    a. In the case of boats with metal hulls: 1.25 times the total mass of the lifeboat when loaded with its full complement of persons and equipment.
    b. In the case of other boats: twice the total mass of the lifeboat when loaded with its full complement of persons and equipment.
6. Each lifeboat shall be of sufficient strength to withstand, when loaded with its full complement of persons and equipment and with, where applicable, skates or fenders in position, a lateral impact against the vessel's side at an impact velocity of at least 3.5 m/s and also a drop into the water from a height of at least 3 m.
7. The vertical distance between the floor surface and the interior of the enclosure or canopy over 50 per cent of the floor area shall be not less than:
    a. 1.3 m for a lifeboat permitted to accommodate nine persons or less.
    b. 1.7 m for a lifeboat permitted to accommodate 24 persons or more.
    c. the distance as determined by linear interpolation between 1.3 m and 1.7 m for a lifeboat permitted to accommodate between 9 and 24 persons.

(2) Carrying capacity of lifeboats

1. The number of persons which a lifeboat shall be permitted to accommodate shall be equal to or less than:
    a. the number of persons having an average mass of 75 kg, all wearing lifejackets, that can be seated in a normal position without interfering with the means of propulsion or the operation of any of the lifeboat's equipment, or
    b. the number of spaces that can be provided on the seating arrangements in accordance with figure 1 below. The shapes may be overlapped as shown, provided footrests are fitted and there is sufficient room for legs and the vertical separation between the upper and lower seat is not less than 350 mm.

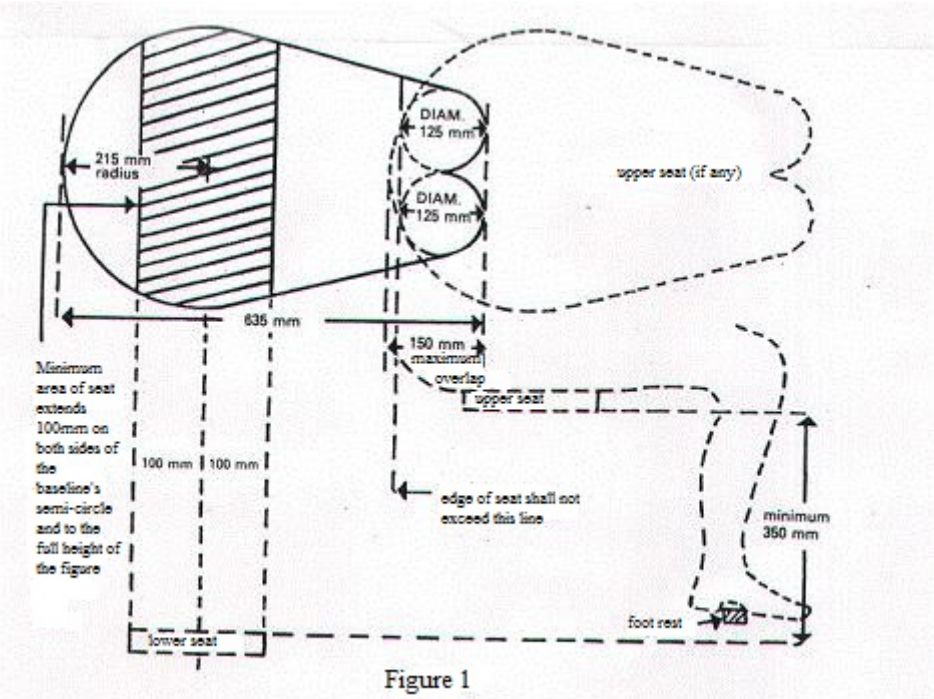


Figure 1

2. Each seating position shall be clearly indicated in the lifeboat.

(3) Access into lifeboats

1. Every vessel lifeboat shall be so arranged that it can be boarded by its full complement of persons in not more than 3 minutes from the time the instruction to board is given. Rapid disembarkation shall also be possible.
2. Lifeboats shall have a boarding ladder that can be used on either side of the lifeboat to enable persons in the water to board the lifeboat. The lowest step of the ladder shall be not less than 0.4 m below the lifeboat's light waterline.
3. The lifeboat shall be so arranged that helpless people can be brought on board either from the sea or on stretchers.
4. All surfaces on which persons might walk shall have a non-skid finish.

(4) Lifeboat buoyancy

All lifeboats shall have inherent buoyancy or shall be fitted with inherently buoyant material which shall not be adversely affected by seawater, oil or oil products, sufficient to float the lifeboat with all its equipment on board when flooded and open to the sea. Additional inherently buoyant material, equal to 280 N of buoyant force per person shall be provided for the number of persons the lifeboat is permitted to accommodate. Buoyant material, unless in addition to that required above, shall not be installed external to the hull of the lifeboat.

(5) Lifeboat freeboard and stability

All lifeboats, when loaded with 50 per cent of the number of persons the lifeboat is permitted to accommodate seated in their normal positions to one side of the centreline, shall have a freeboard, measured from the waterline to the lowest opening through which the lifeboat may become flooded, of at least 1.5 per cent of the lifeboat's length or 100 mm, whichever is greater.

(6) Lifeboat propulsion

1. Every lifeboat shall be powered by a compression ignition engine. No engine shall be used for any lifeboat if its fuel has a flashpoint of 43°C or less (closed cup test).
2. The engine shall be provided with either a manual starting system, or a power starting system with two independent rechargeable energy sources. Necessary starting aids shall also be provided. The engine's starting systems and starting aids, if any, shall start the engine at an ambient temperature of -15°C within 2 minutes of commencing the start procedure unless, in the opinion of the Norwegian Maritime Authority having regard to the vessel's trade area, a different temperature is appropriate. The starting systems shall not be impeded by the engine casing, thwarts or other obstructions.
3. The engine shall be capable of operating for not less than 5 minutes after starting from cold with the lifeboat out of the water.
4. The engine shall be capable of operating when the lifeboat is flooded up to the centreline of the crankshaft.
5. The propeller shafting shall be so arranged that the propeller can be disengaged from the engine. Provision shall be made for ahead and astern propulsion of the lifeboat.
6. The exhaust pipe shall be so arranged as to prevent water from entering the engine in normal operation.
7. All lifeboats shall be designed with due regard to the safety of persons in the water and to the possibility of damage to the propulsion system by floating debris.

8. The speed of a lifeboat when proceeding ahead in calm water, when loaded with its full complement of persons and equipment and with all engine-powered auxiliary equipment in operation, shall be at least 6 knots and at least 2 knots when towing a 25-person liferaft loaded with its full complement of persons and equipment or its equivalent. Sufficient fuel, suitable for use throughout the temperature range expected in the area in which the vessel operates, shall be provided to run the fully loaded lifeboat at 6 knots for a period of not less than 24 hours.
9. The lifeboat engine, transmission and engine accessories shall be enclosed in a fire-retardant casing or other suitable arrangements providing similar protection. Such arrangements shall also protect persons from coming into accidental contact with hot or moving parts and protect the engine from exposure to weather and sea. Adequate means shall be provided to reduce the engine noise. Starter batteries shall be provided with casings which form a watertight enclosure around the bottom and sides of the batteries. The battery casings shall have a tight fitting top which provides for necessary gas venting.
10. The lifeboat engine and accessories shall be designed to limit electromagnetic emissions so that engine operation does not interfere with the operation of radio life-saving appliances used in the lifeboat.
11. Means shall be provided for recharging all engine-starting, radio and searchlight batteries. Radio batteries shall not be used to provide power for engine starting. Means shall be provided for recharging lifeboat batteries from the vessel's power supply at a supply voltage not exceeding 55 V which can be disconnected at the lifeboat embarkation station.
12. Water-resistant instructions for starting and operating the engine shall be provided. These shall be mounted in a conspicuous place near the engine starting controls.

(7) Lifeboat fittings

1. All lifeboats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open to drain water from the hull when the lifeboat is not waterborne and shall automatically close to prevent entry of water when the lifeboat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve, which shall be attached to the lifeboat by a lanyard, a chain, or other suitable means. Drain valves shall be readily accessible from inside the lifeboat and their position shall be clearly indicated.
2. All lifeboats shall be provided with a rudder and tiller. When a wheel or other remote steering mechanism is also provided the tiller shall be capable of controlling the rudder in case of failure of the steering mechanism. The rudder shall be permanently attached to the lifeboat. The rudder shall be permanently installed on, or linked to, the rudder stock; however, if the lifeboat has a remote steering mechanism, the tiller may be removable and securely stowed near the rudder stock. The rudder and tiller shall be so arranged as not to be damaged by operation of the release mechanism or the propeller.
3. Except in the vicinity of the rudder and propeller, a buoyant lifeline shall be becketed around the outside of the lifeboat.
4. Lifeboats which are not self-righting when capsized shall have suitable handholds on the underside of the hull to enable persons to cling to the lifeboat. The handholds shall be fastened to the lifeboat in such a way that, when subjected to an impact sufficient to cause them to break away from the lifeboat, they break away without damaging the lifeboat.

5. All lifeboats shall be fitted with sufficient watertight lockers or compartments to provide for the storage of the small items of equipment, water and provisions required by paragraph (8). Means shall be provided for the storage of collected rainwater.
6. Every lifeboat to be launched by a fall or falls shall be fitted with a release mechanism complying with the following requirements:
   a. The mechanism shall be so arranged that all hooks are released simultaneously.
   b. The mechanism shall have two release capabilities as follows:
      - A normal release capability which will release the lifeboat when it is waterborne or when there is no load on the hooks, or
      - an on-load release capability which will release the lifeboat with a load on the hooks. This release shall be so arranged as to release the lifeboat under any conditions of loading from no-load with the lifeboat waterborne to a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment. This release capability shall be adequately protected against accidental or premature use.
   c. The release control shall be clearly marked in a colour that contrasts with its surroundings.
   d. The mechanism shall be designed with a factor of safety of 6 based on the ultimate strength of the materials used, assuming the mass of the lifeboat is equally distributed between the falls.
7. Every lifeboat shall be fitted with a release device to enable the forward painter to be released when under tension.
8. Every lifeboat which is fitted with a fixed two-way VHF radiotelephone apparatus with an antenna which is separately mounted shall be provided with arrangements for siting and securing the antenna effectively in its operating position.
9. Lifeboats intended for launching down the side of a vessel shall have skates and fenders as necessary to facilitate launching and prevent damage to the lifeboat.
10. A manually controlled lamp visible on a dark night with a clear atmosphere at a distance of at least 2 miles for a period of not less than 12 hours shall be fitted to the top of the cover or enclosure. If the light is a flashing light, it shall initially flash at a rate of not less than 50 flashes per minute over the first 2 hours of operation of the 12-hour operating period.
11. A lamp or source of light shall be fitted inside the lifeboat to provide illumination for not less than 12 hours to enable reading of survival and equipment instructions. However, oil lamps shall not be permitted for this purpose.
12. Unless expressly provided otherwise, every lifeboat shall be provided with effective means of bailing or be automatically self-bailing.
13. Every lifeboat shall be so arranged that an adequate view forward, aft and to both sides is provided from the control and steering position for safe launching and manoeuvring.

(8) Lifeboat equipment

All required items of lifeboat equipment shall be secured by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements or other suitable means. However, boat-hooks shall be kept ready for use. The equipment shall be secured in such a manner as not to interfere with any abandonment procedures. All items of lifeboat equipment

shall be as small and of as little mass as possible and shall be packed in a suitable compact form. Except where otherwise stated, the normal equipment of every lifeboat shall consist of:

1. sufficient buoyant oars to make headway in calm seas. Thole pins, crutches or equivalent arrangements shall be provided for each oar provided. Thole pins or crutches shall be attached to the boat by lanyards or chains,
2. two boat-hooks,
3. a buoyant bailer and two buckets,
4. a survival manual,
5. a binnacle containing an efficient compass which is luminous or provided with suitable means of illumination. In a totally enclosed lifeboat, the binnacle shall be permanently fitted at the steering position. In any other lifeboat, it shall be provided with suitable mounting arrangements,
6. a sea-anchor of adequate size fitted with a shock-resistant hawser and a tripping line which provides a firm hand grip when wet. The strength of the sea-anchor, hawser and tripping line shall be adequate for all sea conditions,
7. two efficient painters of a length equal to not less than twice the distance from the stowage position of the lifeboat to the waterline in the lightest seagoing condition or 15 m, whichever is the greater. One painter attached to the release device required by subparagraph (7)7 shall be placed at the forward end of the lifeboat and the other shall be firmly secured at or near the bow of the lifeboat ready for use,
8. two hatchets, one at each end of the lifeboat,
9. watertight receptacles containing a total of 3 litres of fresh water for each person the lifeboat is permitted to accommodate, of which 1 litre per person may be replaced by a de-salting apparatus capable of producing an equal amount of fresh water in two days,
10. a rustproof dipper with lanyard,
11. a rustproof graduated drinking vessel,
12. a food ration totalling not less than 10,000 kJ for each person the lifeboat is permitted to accommodate. These rations shall be kept in airtight packaging and be stowed in a watertight container,
13. four rocket parachute flares complying with the requirements of section 7-29,
14. six hand flares complying with the requirements of section 7-30,
15. two buoyant smoke signals complying with the requirements of section 7-31,
16. one waterproof electric torch suitable for Morse signalling together with one spare set of batteries and one spare bulb in a waterproof container,
17. one daylight signalling mirror with instructions for its use for signalling to ships and aircraft,
18. one copy of the life-saving signals prescribed by appendix 4, on a waterproof card or in a waterproof container,
19. one whistle or equivalent sound signal,
20. a first-aid outfit in a waterproof case capable of being closed tightly after use,
21. six doses of anti-seasickness medicine and one seasickness bag for each person,
22. a jack-knife to be kept attached to the boat by a lanyard,

23. three tin-openers,
24. two buoyant rescue quoits, attached to not less than 30 m of buoyant line,
25. a manual pump,
26. one set of fishing tackle, complete with sinker and hooks,
27. sufficient tools for minor adjustments to the engine and its accessories,
28. portable fire-extinguishing equipment suitable for extinguishing oil fires,
29. a searchlight capable of effectively illuminating a light-coloured object at night having a width of 18 metres at a distance of 180 metres for a total period of 6 hours and of working for not less than 3 hours continuously,
30. an efficient radar reflector, unless a survival craft radar transponder is stowed in the lifeboat,
31. thermal protective aids complying with the requirements of section 7-26 sufficient for at least 10 per cent of the number of persons the lifeboat is permitted to accommodate or two, whichever is greater,
32. radar transponder, where such is required by section 7-14.

If the vessel is engaged only in trade area In-shore fishing or lesser, equipment referred to in subparagraphs 12 and 26 may be dispensed with.

(9) Lifeboat markings

1. The dimensions of the lifeboat and the number of persons which it is permitted to accommodate shall be marked on it in clear permanent characters.
2. The name and port of registry of the vessel to which the lifeboat belongs shall be marked on each side of the lifeboat's bow.
3. Means of identifying the vessel to which the lifeboat belongs and the number of the lifeboat shall be marked in such a way that they are, as far as practicable, visible from above.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 7-18. *Self-righting partially enclosed lifeboats*

(1) Self-righting partially enclosed lifeboats shall comply with the requirements of section 7-17 and, in addition, shall comply with the requirements of this section.

(2) Enclosure

1. Permanently attached rigid covers shall be provided extending over not less than 20 per cent of the length of the lifeboat from the stem and not less than 20 per cent of the length of the lifeboat from the aftermost part of the lifeboat.
2. The rigid covers shall form two shelters. If the shelters have bulkheads they shall have openings of sufficient size to permit easy access by persons each wearing an immersion suit or warm clothes and a lifejacket. The interior height of the shelters shall be sufficient to permit persons easy access to their seats in the bow and stern of the lifeboat.
3. The rigid covers shall be so arranged that they include windows or translucent panels to admit sufficient daylight to the inside of the lifeboat with the openings or canopies closed so as to make artificial light unnecessary.

4. The rigid covers shall have railings to provide a secure handhold for persons moving about the exterior of the lifeboat.
5. Open parts of the lifeboat shall be fitted with a permanently attached foldable canopy so arranged that:
    a. it can be easily erected by not more than two persons in not more than 2 minutes,
    b. it is insulated to protect the occupants against cold by means of not less than two layers of material separated by an air gap or other equally efficient means.
6. The enclosure formed by the rigid covers and canopy shall be so arranged:
    a. as to allow launching and recovery operations to be performed without any occupant having to leave the enclosure,
    b. that it has entrances at both ends and on each side, provided with efficient adjustable closing arrangements which can be easily and quickly opened and closed from inside or outside so as to permit ventilation but exclude seawater, wind and cold. Means shall be provided for holding the entrances securely in the open and in the closed position,
    c. that with the canopy erected and all entrances closed, sufficient air is admitted for the occupants at all times,
    d. that it has means for collecting rainwater,
    e. that the exterior of the rigid covers and canopy and the interior of that part of the lifeboat covered by the canopy is of a highly visible colour. The interior of the shelters shall be of a colour which does not cause discomfort to the occupants,
    f. that it is possible to row the lifeboat.

(3) Capsizing and re-righting

1. A safety belt shall be fitted at each indicated seating position. The safety belt shall be so designed as to hold a person of a mass of 100 kg securely in place when the lifeboat is in a capsized position.
2. The stability of the lifeboat shall be such that it is inherently or automatically self-righting when loaded with its full or a partial complement of persons and equipment and the persons are secured with safety belts.

(4) Propulsion

1. The engine and transmission shall be controlled from the helmsman’s position.
2. The engine and engine installation shall be capable of running in any position during capsize and continue to run after the lifeboat returns to the upright or shall automatically stop on capsizing and be easily restarted after the lifeboat returns to the upright and the water has been drained from the lifeboat. The design of the fuel and lubricating systems shall prevent the loss of fuel and the loss of more than 250 ml of lubricating oil from the engine during capsize.
3. Air-cooled engines shall have a duct system to take in cooling air from, and exhaust it to, the outside of the lifeboat. Manually operated dampers shall be provided to enable cooling air to be taken in from, and exhausted to, the interior of the lifeboat.

(5) Construction and fendering

1. Notwithstanding section 7-17 subparagraph (1)6, a self-righting partially enclosed lifeboat shall be so constructed and fendered as to ensure that the lifeboat renders

protection against harmful accelerations resulting from an impact of the lifeboat, when loaded with its full complement of persons and equipment, against the vessel's side at an impact velocity of not less than 3.5 m/s.

2. The lifeboat shall be automatically self-bailing.

Section 7-19. *Totally enclosed lifeboats*

(1) Totally enclosed lifeboats shall comply with the requirements of section 7-17 and, in addition, shall comply with the requirements of this section.

(2) Enclosure

Every totally enclosed lifeboat shall be provided with a rigid watertight enclosure which completely encloses the lifeboat. The enclosure shall be so arranged that:

1. it protects the occupants against heat and cold,
2. access to the lifeboat is provided by hatches which can be closed to make the lifeboat watertight,
3. hatches are positioned so as to allow launching and recovery operations to be performed without any occupant having to leave the enclosure,
4. access hatches are capable of being opened and closed from both inside and outside and are equipped with means to hold them securely in open positions,
5. it is possible to row the lifeboat,
6. it is capable, when the lifeboat is in the capsized position with the hatches closed and without significant leakage, of supporting the entire mass of the lifeboat, including all equipment, machinery and its full complement of persons,
7. it includes windows or translucent panels on both sides which admit sufficient daylight to the inside of the lifeboat with the hatches closed to make artificial light unnecessary,
8. its exterior is of a highly visible colour and its interior of a colour which does not cause discomfort to the occupants,
9. handrails provide a secure handhold for persons moving about the exterior of the lifeboat, and aid embarkation and disembarkation,
10. persons have access to their seats from an entrance without having to climb over thwarts or other obstructions,
11. the occupants are protected from the effects of dangerous subatmospheric pressures which might be created by the lifeboat's engine.

(3) Capsizing and re-righting

1. A safety belt shall be fitted at each indicated seating position. The safety belt shall be so designed as to hold a person of a mass of 100 kg securely in place when the lifeboat is in a capsized position.
2. The stability of the lifeboat shall be such that it is inherently or automatically self-righting when loaded with its full or a partial complement of persons and equipment and all entrances and openings are closed watertight and the persons are secured with safety belts.
3. The lifeboat shall be capable of supporting its full complement of persons and equipment when the lifeboat is in the damaged condition described in section 7-17 subparagraph

(1)1 and its stability shall be such that, in the event of capsizing, it will automatically attain a position that will provide an above-water escape for its occupants.

4. The design of all engine exhaust pipes, air ducts and other openings shall be such that water is excluded from the engine when the lifeboat capsizes and re-rights.

(4) Propulsion

1. The engine and transmission shall be controlled from the helmsman's position.
2. The engine and engine installation shall be capable of running in any position during capsize and continue to run after the lifeboat returns to the upright or shall automatically stop on capsizing and be easily restarted after the lifeboat returns to the upright. The design of the fuel and lubricating systems shall prevent the loss of fuel and the loss of more than 250 ml of lubricating oil from the engine during capsize.
3. Air-cooled engines shall have a duct system to take in cooling air from, and exhaust it to, the outside of the lifeboat. Manually operated dampers shall be provided to enable cooling air to be taken in from, and exhausted to, the interior of the lifeboat.

(5) Construction and fendering

Notwithstanding section 7-17 subparagraph (1)4, a totally enclosed lifeboat shall be so constructed and fendered as to ensure that the lifeboat renders protection against harmful accelerations resulting from an impact of the lifeboat, when loaded with its full complement of persons and equipment, against the vessel's side at an impact velocity of not less than 3.5 m/s.

(6) Free-fall lifeboats

A lifeboat arranged for free-fall launching shall be so constructed that it is capable of rendering protection against accelerations resulting from being launched, when loaded with its full complement of persons and equipment, from at least the maximum height at which it is designed to be stowed above the waterline with the vessel in its lightest seagoing condition, under unfavourable conditions of trim of up to 10° and with the vessel listed not less than 20° either way.

Section 7-20. *General requirements for liferafts*

(1) Construction of liferafts

1. Every liferaft shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all sea conditions.
2. The liferaft shall be so constructed that when it is dropped into the water from a height of 18 metres, the liferaft and its equipment will operate satisfactorily. If the liferaft is to be stowed at a height of more than 18 metres above the waterline in the lightest seagoing condition, it shall be of a type which has been satisfactorily drop-tested from at least that height.
3. The floating liferaft shall be capable of withstanding repeated jumps on to it from a height of at least 4.5 metres above its floor both with and without the canopy erected.
4. The liferaft and its fittings shall be so constructed as to enable it to be towed at a speed of 3 knots in calm water when loaded with its full complement of persons and equipment and with one of its sea-anchors streamed.

5. The liferaft shall have a canopy to protect the occupants from exposure which is automatically set in place when the liferaft is launched and waterborne. The canopy shall comply with the following:
    a. it shall provide insulation against heat and cold by means of either two layers of material separated by an air gap or other equally efficient means. Means shall be provided to prevent accumulation of water in the air gap;
    b. its interior shall be of a colour that does not cause discomfort to the occupants;
    c. each entrance shall be clearly indicated and be provided with efficient adjustable closing arrangements which can be easily and quickly opened from inside and outside the liferaft so as to permit ventilation but exclude seawater, wind and cold. Liferafts accommodating more than eight persons shall have at least two diametrically opposite entrances;
    d. it shall admit sufficient air for the occupants at all times, even with the entrances closed;
    e. it shall be provided with at least one viewing port;
    f. it shall be provided with means for collecting rainwater;
    g. it shall have sufficient headroom for sitting occupants under all parts of the canopy.

(2) Minimum carrying capacity and mass of liferafts

1. No liferaft shall be approved which has a carrying capacity of less than six persons calculated in accordance with the requirements of section 7-21 (3) or section 7-22 (3) as appropriate.
2. Unless the liferaft is to be launched by an approved launching appliance complying with the requirements of section 7-32 and is not required to be portable, the total mass of the liferaft, its container and its equipment shall not be more than 185 kg.

(3) Liferaft fittings

1. Lifelines shall be securely becketed around the inside and outside of the liferaft.
2. The liferaft shall be fitted with an efficient painter of length equal to not less than twice the distance from the stowed position to the waterline in the lightest seagoing condition or 15 metres, whichever is the greater.

(4) Davit-launched liferafts

1. In addition to the above requirements a liferaft for use with an approved launching appliance shall:
    a. when the liferaft is loaded with its full complement of persons and equipment, be capable of withstanding a lateral impact against the vessel’s side at an impact velocity of not less than 3.5 m/s and also a drop into the water from a height of not less than 3 metres without damage that will affect its function.
    b. be provided with means for bringing the liferaft alongside the embarkation deck and holding it securely during embarkation.
2. Every davit-launched liferaft shall be so arranged that it can be boarded by its full complement of persons in not more than 3 minutes from the time the instruction to board is given.

(5) Equipment

1. The normal equipment of every liferaft shall consist of:
    a. one buoyant rescue quoit, attached to not less than 30 metres of buoyant line,
    b. one knife of the non-folding type having a buoyant handle and lanyard attached and stowed in a pocket on the exterior of the canopy near the point at which the painter is attached to the liferaft. In addition, a liferaft which is permitted to accommodate 13 persons shall be provided with a second knife which need not be of the non-folding type,
    c. for a liferaft which is permitted to accommodate not more than 12 persons, one buoyant bailer, and for a liferaft which is permitted to accommodate 13 persons or more, two buoyant bailers,
    d. two sponges,
    e. two sea-anchors each with a shock-resistant hawser and tripping line, one being spare and the other permanently attached to the liferaft in such a way that when the liferaft inflates or is waterborne it will cause the liferaft to lie oriented to the wind in the most stable manner. The strength of each sea-anchor and its hawser and tripping line shall be adequate for all sea conditions. The sea-anchors shall be fitted with a swivel at each end of the line and shall be of a type which is unlikely to get entangled between the lines of the sea-anchor's crowfoot,
    f. two buoyant paddles,
    g. three tin-openers. Jack-knives containing special tin-opener blades are satisfactory for this requirement,
    h. one first-aid outfit in a waterproof case capable of being closed tightly after use,
    i. one whistle or equivalent sound signal,
    j. four rocket parachute flares complying with the requirements of section 7-29,
    k. six hand flares complying with the requirements of section 7-30,
    l. two buoyant smoke signals complying with the requirements of section 7-31,
    m. one waterproof electric torch suitable for Morse signalling together with one spare set of batteries and one spare bulb in a waterproof container,
    n. an efficient radar reflector, unless a survival craft radar transponder is stowed in the liferaft,
    o. one daylight signalling mirror with instructions for its use for signalling to ships and aircraft,
    p. one copy of the life-saving signals prescribed by appendix 4, on a waterproof card or in a waterproof container,
    q. one set of fishing tackle, complete with sinker and hooks,
    r. a food ration totalling not less than 10,000 kJ for each person the liferaft is permitted to accommodate; these rations shall be kept in airtight packaging and be stowed in a watertight container,
    s. watertight receptacles containing a total of 1.5 litres of fresh water for each person the lifeboat is permitted to accommodate, of which 0.5 litre per person may be replaced by a de-salting apparatus capable of producing an equal amount of fresh water in two days,
    t. a rustproof graduated drinking vessel,

u. six doses of anti-seasickness medicine and one seasickness bag for each person the liferaft is permitted to accommodate,

v. instructions on how to survive,

w. instructions for immediate action,

x. thermal protective aids complying with the requirements of section 7-26 sufficient for at least 10 per cent of the number of persons the lifeboat is permitted to accommodate or two, whichever is greater,

y. radar transponder, where such is required by section 7-14.

2. The marking required by section 7-21 subparagraph (7)3 e. and section 7-22 subparagraph (7) g. on liferafts equipped in accordance with item 1 shall be “SOLAS A PACK”.

3. Where appropriate the equipment shall be stowed in a container which, if it is not an integral part of, or permanently attached to, the liferaft, shall be stowed and secured inside the liferaft and be capable of floating in water for at least 30 minutes without damage to its contents.

(6) Float-free arrangements for liferafts

1. Painter system

The liferaft painter system shall provide a connection between the vessel and the liferaft and shall be so arranged as to ensure that the liferaft when released and, in the case of an inflatable liferaft, inflated is not dragged under by the sinking vessel.

2. Weak link

If a weak link is used in the float-free arrangements, it shall:

a. not be broken by the force required to pull the painter from the liferaft container,

b. be of sufficient strength to permit the inflation of the liferaft,

c. break under a strain of 2.2 ± 0.4 kN.

3. Hydrostatic release units

If a hydrostatic release unit is used in the float-free arrangements, it shall:

a. be constructed of compatible materials so as to prevent malfunction of the unit. Galvanizing or other forms of metallic coating on parts of the hydrostatic release unit shall not be accepted,

b. automatically release the liferaft at a depth of not more than 4 metres,

c. have drains to prevent the accumulation of water in the hydrostatic chamber when the unit is in its normal position,

d. be so constructed as to prevent release when seas wash over the unit,

e. be permanently marked on its exterior with its type and serial number,

f. be provided with a document or identification plate stating the date of manufacture, type and serial number,

g. be such that each part connected to the painter system has a strength of not less than that required for the painter,

h. if disposable, have instructions for determining the date of expiry and means for marking the date on the unit.

Section 7-21. *Inflatable liferafts*

(1) Inflatable liferafts shall comply with the requirements of section 7-20 and, in addition, shall comply with the requirements of this section.

(2) Construction of inflatable liferafts

1. The main buoyancy chamber shall be divided into not less than two separate compartments, each inflated through a non-return inflation valve on each compartment. The buoyancy chambers shall be so arranged that, in the event of any one of the compartments being damaged or failing to inflate, the intact compartments shall be able to support, with positive freeboard over the liferaft's entire periphery, the number of persons which the liferaft is permitted to accommodate, each having a mass of 75 kg and seated in their normal positions.
2. The floor of the liferaft shall be waterproof and shall be capable of being sufficiently insulated against cold either:
    a. by means of one or more compartments that the occupants can inflate, or which inflate automatically and can be deflated and reinflated by the occupants, or
    b. by other equally efficient means not dependent on inflation.
3. The liferaft shall be inflated with a non-toxic gas. Inflation shall be completed within a period of 1 minute at an ambient temperature of between 18°C and 20°C and within a period of 3 minutes at an ambient temperature of -30°C. After inflation the liferaft shall maintain its form when loaded with its full complement of persons and equipment.
4. Each inflatable compartment shall be capable of withstanding a pressure equal to at least three times the working pressure and shall be prevented from reaching a pressure exceeding twice the working pressure either by means of relief valves or by a limited gas supply. Means shall be provided for fitting the topping-up pump or bellows required by subparagraph (10)1a., so that the working pressure can be maintained.

(3) Carrying capacity of inflatable liferafts

The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of:

1. the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic metres, of the main buoyancy tubes (which for this purpose shall include neither the arches nor the thwarts, if fitted) when inflated, or
2. the greatest whole number obtained by dividing by 0.372 the inner horizontal cross-sectional area of the liferaft measured in cubic metres (which for this purpose may include the thwart or thwarts, if fitted) measured to the innermost edge of the buoyancy tubes, or
3. the number of persons having an average mass of 75 kg, all wearing lifejackets, that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

(4) Access into inflatable liferafts

1. At least one entrance shall be fitted with a semi-rigid boarding ramp to enable persons to board the liferaft from the sea. The ramp shall be so arranged as to prevent significant deflation of the liferaft if the ramp is damaged. In the case of a davit-launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite the bowsing lines and embarkation facilities.

2. Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be situated not less than 0.4 m below the liferaft's light waterline.
3. There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

(5) Stability of inflatable liferafts

1. Every inflatable liferaft shall be so constructed that, when fully inflated and floating with the canopy uppermost, it is stable in a seaway.
2. The stability of the liferaft when in the inverted position shall be such that it can be righted in a seaway and in calm water by one person.
3. The stability of the liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speeds of up to 3 knots in calm water.

(6) Inflatable liferaft fittings

1. The breaking strength of the painter system including its means of attachment to the liferaft, except the weak link required by section 7-20 subparagraph (6)2, shall be not less than 10.0 kN for a liferaft permitted to accommodate nine persons or more, and not less than 7.5 kN for any other liferaft. The liferaft shall be capable of being inflated by one person.
2. A manually controlled lamp visible on a dark night with a clear atmosphere at a distance of at least 2 n. miles for a period of not less than 12 hours shall be fitted to the top of the liferaft canopy. If it is a flashing light it shall flash at a rate of not less than 50 flashes per minute for the first 2 hours of operation of the 12-hour operating period. The lamp shall be powered by a sea-activated cell or a dry chemical cell and shall light automatically when the liferaft inflates. The cell shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft.
3. A manually controlled lamp shall be fitted inside the liferaft capable of continuous operation for a period of at least 12 hours. It shall light automatically when the liferaft inflates and be of sufficient intensity to enable reading of survival and equipment instructions.

(7) Containers for inflatable liferafts

1. The liferaft shall be packed in a container that is:
   a. so constructed as to withstand hard wear under conditions encountered at sea,
   b. of sufficient inherent buoyancy, when packed with the liferaft and its equipment, to pull the painter from within and to operate the inflation mechanism should the vessel sink,
   c. as far as practicable watertight, except for drain holes in the container bottom.
2. The liferaft shall be packed in its container in such a way as to ensure, as far as possible, that the waterborne liferaft inflates in an upright position on breaking free from its container.
3. The container shall be marked with:
   a. maker's name or trade mark,
   b. serial number,
   c. name of approving authority and the number of persons it is permitted to carry,

d. the letters SFV,

e. type of emergency pack enclosed,

f. date when last serviced,

g. length of painter,

h. maximum permitted height of stowage above waterline (depending on drop-test height and length of painter),

i. launching instructions.

(8) Markings on inflatable liferafts

1. The liferaft shall be marked with:

a. maker's name or trade mark,

b. serial number,

c. date of manufacture (month and year),

d. name of approving authority,

e. name and place of servicing station where it was last serviced,

f. number of persons it is permitted to accommodate over each entrance in characters not less than 100 mm in height of a colour contrasting with that of the liferaft.

(9) Davit-launched inflatable liferafts

1. In addition to complying with the above requirements, a liferaft for use with an approved launching appliance shall, when suspended from its lifting hook or bridle, withstand a load of:

a. 4 times the mass of its full complement of persons and equipment, at an ambient temperature and a stabilised liferaft temperature of 20 ± 3°C with all relief valves inoperative, and

b. 1.1 times the mass of its full complement of persons and equipment, at an ambient temperature and a stabilised liferaft temperature of -30°C with all relief valves operative.

2. Rigid containers for liferafts to be launched by a launching appliance shall be so secured that the container or parts of it are prevented from falling into the sea during and after inflation and launching of the contained liferaft.

(10) Additional equipment for inflatable liferafts

1. In addition to the equipment required by section 7-20 (5), every inflatable liferaft shall be provided with:

a. one repair outfit for repairing punctures in buoyancy compartments,

b. one topping-up pump or bellows.

2. The knives required by section 7-20 subparagraph (5)1 b. shall be safety knives.

Section 7-22. *Rigid liferafts*

(1) Rigid liferafts shall comply with the requirements of section 7-20 and, in addition, shall comply with the requirements of this section.

(2) Construction of rigid liferafts

1. The buoyancy of the liferaft shall be provided by approved inherently buoyant material placed as near as possible to the periphery of the liferaft. The buoyant material shall be fire-retardant or be protected by a fire-retardant covering.
2. The floor of the liferaft shall prevent the ingress of water and shall effectively support the occupants out of the water and insulate them from cold.

(3) Carrying capacity of rigid liferafts

1. The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of:
   a. the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic metres, of the buoyancy material multiplied by a factor of 1 minus the specific gravity of that material, or
   b. the greatest whole number obtained by dividing by 0.372 the horizontal cross-sectional area of the floor of the liferaft measured in square metres, or
   c. the number of persons having an average mass of 75 kg, all wearing lifejackets, that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

(4) Access into rigid liferafts

1. At least one entrance shall be fitted with a rigid boarding ramp to enable persons to board the liferaft from the sea. In the case of a davit-launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite the bowsing lines and embarkation facilities.
2. Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be situated not less than 0.4 m below the liferaft's light waterline.
3. There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

(5) Stability of rigid liferafts

1. Unless the liferaft is capable of operating safely whichever way up it is floating, its strength and stability shall be such that it is either self-righting or can be readily righted in a seaway and in calm water by one person.
2. The stability of the liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speeds of up to 3 knots in calm water.

(6) Rigid liferaft fittings

1. The liferaft shall be fitted with an efficient painter. The breaking strength of the painter system including its means of attachment to the liferaft, except the weak link required by section 7-20 subparagraph (6)2, shall be not less than 10.0 kN for a liferaft permitted to accommodate nine persons or more, and not less than 7.5 kN for any other liferaft.
2. A manually controlled lamp visible on a dark night with a clear atmosphere at a distance of at least 2 n. miles for a period of not less than 12 hours shall be fitted to the top of the liferaft canopy. If the light is a flashing light it shall flash at a rate of not less than 50 flashes per minute for the first 2 hours of operation of the 12-hour operating period. The lamp shall be powered by a sea-activated cell or a dry chemical cell and shall light automatically when the liferaft canopy is set in place. The cell shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft.

3. A manually controlled lamp shall be fitted inside the liferaft capable of continuous operation for a period of at least 12 hours. It shall light automatically when the canopy is set in place and be of sufficient intensity to enable reading of survival and equipment instructions.

(7) Markings on rigid liferafts

1. The liferaft shall be marked with:
   a. name and port of registry of the vessel to which it belongs,
   b. maker's name or trade mark,
   c. serial number,
   d. name of approving authority,
   e. number of persons it is permitted to accommodate over each entrance in characters not less than 100 mm in height of a colour contrasting with that of the liferaft,
   f. the letters SFV,
   g. type of emergency pack enclosed,
   h. length of painter,
   i. maximum permitted height of stowage above waterline (drop-test height),
   j. launching instructions.

(8) Davit-launched rigid liferafts

In addition to the above requirements, a rigid liferaft for use with an approved launching appliance shall, when suspended from its lifting hook or bridle, withstand a load of 4 times the mass of its full complement of persons and equipment.

Section 7-23. *Rescue boats*

(1) General requirements

1. Except as provided by this section, all rescue boats shall comply with the requirements of section 7-17 paragraphs (1) to (7) subparagraph 4 inclusive, and section 7-17 subparagraphs (7)6, 7, 9, 12, and section 7-17 (9).
2. Rescue boats may be either of rigid or inflated construction or a combination of both and shall:
   a. be not less than 3.8 metres and not more than 8.5 metres in length. Exceptions from these requirements are cases where this length, owing to the size of the vessel or other reasons, is considered unreasonable or impracticable. The Norwegian Maritime Authority may in these cases accept a rescue boat of a lesser length but not less than 3.3 m.
   b. be capable of carrying at least five seated persons and a person lying down or in the case of a rescue boat less than 3.8 metres in length, such lesser number as may be determined by the Norwegian Maritime Authority. For vessels of less than 45 metres in length (L) which are constructed after 1 January 2003, any rescue boat less than 3.8 metres in length shall at least accommodate 4 seated persons and a person lying down.
3. The number of persons which a boat shall be permitted to accommodate shall be determined by the Norwegian Maritime Authority. For vessels constructed after 1

January 2003, where the existing boat is replaced, the number of persons shall be decided after a practical test.

4. Rescue boats which are a combination of rigid and inflated construction shall comply with the appropriate requirements of this section and the requirements of the Norwegian Maritime Authority.
5. Unless the rescue boat has adequate sheer, it shall be provided with a bow cover extending for not less than 15 per cent of its length.
6. Rescue boats shall be capable of manoeuvring at speeds of up to 6 knots and maintaining that speed for a period of at least 4 hours.
7. Rescue boats shall have sufficient mobility and manoeuvrability in a seaway to enable persons to be retrieved from the water, marshal liferafts and tow the largest liferaft carried on the vessel when loaded with its full complement of persons and equipment or its equivalent at a speed of at least 2 knots.
8. A rescue boat shall be fitted with an inboard engine or outboard motor. If it is fitted with an outboard motor, the rudder and tiller may form part of the engine. Notwithstanding the requirements of section 7-17 subparagraph (6)1, petrol-driven outboard engines with an approved fuel system may be fitted in rescue boats provided the fuel tanks are specially protected against fire and explosion.
9. Arrangements for towing shall be permanently fitted in rescue boats and shall be sufficiently strong to marshal or tow liferafts as required by subparagraph 7.
10. Rescue boats shall be fitted with watertight stowage for small items of equipment.

(2) Rescue boat equipment

1. All items of rescue boat equipment, with the exception of boat-hooks which shall be kept free for fending off purposes, shall be secured within the rescue boat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements or other suitable means. The equipment shall be secured in such a manner as not to interfere with any launching or recovery procedures. All items of rescue boat equipment shall be as small and of as little mass as possible and shall be packed in a suitable compact form.
2. The equipment of every rescue boat shall consist of at least:
    a. sufficient buoyant oars or paddles to make headway in calm seas. Thole pins, crutches or equivalent arrangements shall be provided for each oar. Thole pins or crutches shall be attached to the boat by lanyards or chains,
    b. a buoyant bailer,
    c. a binnacle containing an efficient compass which is luminous or provided with suitable means of illumination,
    d. a sea-anchor and tripping line with a hawser of adequate strength not less than 10 metres in length,
    e. a painter of sufficient length and strength, attached to the release device complying with the requirements of section 7-17 subparagraph (7)7 and placed at the forward end of the rescue boat,
    f. one buoyant line, not less than 50 metres in length, of sufficient strength to tow a liferaft as required by subparagraph (1)6,
    g. one waterproof electric torch suitable for Morse signalling together with one spare set of batteries and one spare bulb in a waterproof container,

h. one whistle or equivalent sound signal,

i. a first-aid outfit in a waterproof case capable of being closed tightly after use,

j. two buoyant rescue quoits, attached to not less than 30 m of buoyant line,

k. a searchlight capable of effectively illuminating a light-coloured object at night having a width of 18 metres at a distance of 180 metres for a total period of 6 hours and of working for not less than 3 hours continuously,

l. an efficient radar reflector, unless a survival craft radar transponder is stowed in the lifeboat,

m. thermal protective aids complying with the requirements of section 7-26 sufficient for at least 10 per cent of the number of persons the rescue boat is permitted to accommodate or two, whichever is greater,

n. radar transponder, where such is required by section 7-14.

3. In addition to the equipment required by subparagraph (2)2 the normal equipment of every rigid rescue boat shall include at least:

a. a boat-hook,

b. a bucket,

c. a knife or hatchet.

4. In addition to the equipment required by subparagraph (2)2 the normal equipment of every inflated rescue boat shall include at least:

a. a buoyant safety knife,

b. two sponges,

c. an efficient manually operated bellows or pump,

d. a repair kit in a suitable container for repairing punctures,

e. a safety boat-hook.

(3) Additional requirements for inflated rescue boats

1. The requirements of section 7-17 subparagraphs (1)3 and 5 do not apply to inflated rescue boats.

2. An inflated rescue boat shall be constructed in such a way that, when suspended by its bridle or lifting hook:

a. it is of sufficient strength and rigidity to enable it to be lowered and recovered with its full complement of persons and equipment,

b. it is of sufficient strength to withstand a load of 4 times the mass of its full complement of persons and equipment, at an ambient temperature of 20 ± 3°C with all relief valves inoperative,

c. it is of sufficient strength to withstand a load of 1.1 times the mass of its full complement of persons and equipment, at an ambient temperature of -30°C with all relief valves operative.

3. Inflated rescue boats shall be so constructed as to be capable of withstanding exposure:

a. when stowed on an open deck on a vessel at sea,

b. for 30 days afloat in all sea conditions.

4. In addition to complying with the requirements of section 7-17 (9), inflated rescue boats shall be marked with a serial number, the maker's name or trade mark and the date of manufacture.
5. The buoyancy of an inflated rescue boat shall be provided by either a single tube subdivided into at least five separate compartments of approximately equal volume or two separate tubes neither exceeding 60 per cent of the total volume. The buoyancy tubes shall be so arranged that, in the event of any one of the compartments being damaged, the intact compartments shall be able to support the number of persons which the rescue boat is permitted to accommodate, each having a mass of 75 kg, when seated in their normal positions with positive freeboard over the rescue boat's entire periphery.
6. The buoyancy tubes forming the boundary of the inflated rescue boat shall on inflation provide a volume of not less than 0.17 m^3 for each person the rescue boat is permitted to accommodate.
7. Each buoyancy compartment shall be fitted with a non-return valve for manual inflation and means for deflation. A safety relief valve shall also be fitted if deemed necessary by the Norwegian Maritime Authority.
8. Underneath the bottom and on vulnerable places on the outside of the inflated rescue boat, rubbing strips shall be provided.
9. Where a transom is fitted, it shall not be inset by more than 20 per cent of the overall length of the rescue boat.
10. Suitable patches shall be provided for securing the painters fore and aft and the becketed lifelines inside and outside the boat.
11. The inflated rescue boat shall be maintained at all times in a fully inflated condition.

0 Amended by Regulation of 30 December 2002 No. 1847 (in force on 1 January 2003).

Section 7-24. *Lifejackets*

(1) General requirements for lifejackets

1. A lifejacket shall not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds.
2. A lifejacket shall be so constructed that:
   a. after demonstration, a person can correctly don it within a period of 1 minute without assistance,
   b. it is capable of being worn inside-out or is clearly capable of being worn in only one way and, as far as possible, cannot be donned incorrectly,
   c. it is comfortable to wear,
   d. it allows the wearer to jump from a height of at least 4.5 metres into the water without injury and without dislodging or damaging the lifejacket.
3. A lifejacket shall have sufficient buoyancy and stability in calm fresh water to:
   a. lift the mouth of an exhausted or unconscious person not less than 120 mm clear of the water with the body inclined backwards at an angle of not less than 20° and not more than 50° from the vertical position,
   b. turn the body of an unconscious person in the water from any position to one where the mouth is clear of the water in not more than 5 seconds.

4. A lifejacket shall have buoyancy which is not reduced by more than 5 per cent after 24 hours submersion in fresh water.
5. A lifejacket shall allow the person wearing it to swim a short distance and to board a survival craft.
6. Each lifejacket shall be fitted with a whistle firmly secured by a cord.

(2) Inflatable lifejackets

1. A lifejacket which depends on inflation for buoyancy shall have not less than two separate compartments and comply with the requirements of paragraph (1) and shall:
   a. inflate automatically on immersion, be provided with a device to permit inflation by a single manual motion and be capable of being inflated by mouth,
   b. in the event of loss of buoyancy in any one compartment be capable of complying with the requirements of subparagraphs (1) 2, 3, and 5,
   c. comply with the requirements of subparagraph (1)4 after inflation by means of the automatic mechanism.

(3) Lifejacket lights

1. Each lifejacket shall have a light which shall:
   a. have a luminous intensity of not less than 0.75 cd,
   b. have a source of energy capable of providing a luminous intensity of 0.75 cd for a period of at least 8 hours,
   c. be visible over as great a segment of the upper hemisphere as is practicable when attached to a lifejacket.
2. If the light referred to in subparagraph (3)1 is a flashing light it shall, in addition:
   a. be provided with a manually operated switch,
   b. not be fitted with a lens or curved reflector to concentrate the beam,
   c. flash at a rate of not less than 50 flashes per minute with an effective luminous intensity of at least 0.75 cd.

Section 7-25.[1] *Immersion suits*

(1) General requirements for immersion suits

1. The immersion suit shall be constructed with waterproof materials such that:
   a. it can be unpacked and donned without assistance within 2 minutes taking into account any associated clothing, and lifejacket if the immersion suit is to be worn in conjunction with a lifejacket,
   b. if will not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds,
   c. it will cover the whole body with the exception of the face. Hands shall also be covered unless permanently attached gloves are provided,
   d. it is provided with arrangements to minimise or reduce free air in the legs of the suit,
   e. following a jump from a height of not less than 4.5 metres into the water there is no undue ingress of water into the suit.

2. An immersion suit which also complies with the requirements of section 7-24 may be classified as a lifejacket.
3. An immersion suit shall permit the person wearing it, and also wearing a lifejacket if the immersion suit is to be worn in conjunction with a lifejacket, to:
   a. climb up and down a vertical ladder at least 5 metres in length,
   b. perform normal duties during abandonment,
   c. jump from a height of not less than 4.5 metres into the water without damaging or dislodging the immersion suit, or being injured,
   d. swim a short distance through the water and board a survival craft.
4. An immersion suit shall be fitted with a light complying with the requirements of section 7-24 (3) and the whistle prescribed by section 7-24 subparagraph (1)6.
5. If the immersion suit is to be worn in conjunction with a lifejacket, the lifejacket shall be worn over the immersion suit. A person wearing such an immersion suit shall be able to don a lifejacket without assistance.

(2) Thermal performance requirements for immersion suits[2]

1. The immersion suit shall be made of material which has inherent thermal insulation. It shall provide sufficient thermal protection for the wearer following a jump into the water from a height of 4.5 metres to ensure that when it is worn for a period of 6 hours in calm circulating water at a temperature of between 0°C and 2°C the wearer's body core temperature does not fall more than 2°C.
2. The immersion suit shall permit the person wearing it with hands covered to pick up a pencil and write after being immersed in water at 5°C for a period of 1 hour.

(3) Buoyancy requirements

A person in fresh water wearing an immersion suit shall be able to turn from a face-down to a face-up position in not more than 5 seconds. The immersion suit shall have sufficient buoyancy to lift the mouth of an exhausted or unconscious person not less than 120 mm clear of the water with the body inclined backwards at an angle of not less than 20° and not more than 50° from the vertical position.

(4) In addition, immersion suits shall be fitted with:[3]

1. A loop/strap or similar device with an appropriate hooking and holding arrangement for use with hoisting tackle. The suit and the loop/strap shall not be damaged when exposed to a load of at least 300 kgf constituted by a human being wearing the suit.
2. A life-line (buddy line) with a single handle. The line shall be minimum 1 m in length with a breaking strength of at least 100 kgf. The line shall be fitted with a connecting hook (snap hook) of a size and design ensuring reasonably easy operation under extreme conditions.

(5) In vessels engaged in southern waters[4] the immersion suit shall, in addition to complying with the requirements of paragraphs (1), (3) and (4), also satisfy the following requirements:

1. If the suit is made of a material which does not have inherent thermal insulation it shall also be:
   a. marked with instructions to be worn in conjunction with warm clothes, and
   b. made so that when worn in conjunction with warm clothes, and with a lifejacket if the immersion suit shall be worn in conjunction with a lifejacket, it continues to

provide sufficient thermal protection for the wearer following a jump into the water from a height of 4.5 metres to ensure that when it is worn for a period of 1 hour in calm circulating water at a temperature of 5°C the wearer's body core temperature does not fall more than 2°C.

2. The immersion suit shall permit the person wearing it with hands covered to pick up a pencil and write after being immersed in water at 5°C for a period of 1 hour.

(6) Inspection and pressure testing

Immersion suits which are 8 years old or over shall be pressure-tested/tested for tightness at an approved servicing station. The suit shall thereafter be pressure-tested/tested for tightness at intervals of 2.5 years. Documentation of pressure-testing/tightness-testing shall be kept on board. Immersion suits which cannot be repaired in accordance with current approval criteria are not permitted kept on board.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 7-9.

2 Partly special requirement for Norwegian vessels.

3 Special requirement applicable to Norwegian vessels.

4 Cf. definition in section 1-2 item 43. See also section 7-9 (4).

Section 7-26.[1] *Thermal protective aids*

(1) A thermal protective aid shall be made of waterproof material having a thermal conductivity of not more than 0.25 W/m.K and shall be so constructed that, when used to enclose a person, it shall reduce both the convective and evaporative heat loss from the wearer's person.

(2) The thermal protective aid shall:

1. cover the whole body of a person wearing a lifejacket with the exception of the face. Hands shall be also covered unless permanently attached gloves are provided,
2. be capable of being unpacked and easily donned without assistance in a survival craft or rescue boat,
3. permit the wearer to remove it in the water in not more than 2 minutes, if it impairs ability to swim.

(3) The thermal insulation of the immersion suit shall function properly throughout an air temperature range of -30°C to +20°C.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See section 7-17 subparagraph (8)31 and section 7-20 subparagraph (5) x.

Section 7-27. *Lifebuoys*

(1) Lifebuoy specification

1. Every lifebuoy shall:
   a. have an outer diameter of not more than 800 mm and an inner diameter of not less than 400 mm,

b. be constructed of inherently buoyant material. It shall not depend upon rushes, cork shavings or granulated cork, any other loose granulated material or any air compartment which depends on inflation for buoyancy,

c. be capable of supporting not less than 14.5 kg of iron in fresh water for a period of 24 hours,

d. have a mass of not less than 2.5 kg,

e. not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds,

f. be constructed to withstand a drop into the water from the height at which it is stowed above the waterline in the lightest seagoing condition or 30 metres, whichever is the greater, without impairing either its operating capability or that of its attached components,

g. if it is intended to operate the quick-release arrangement provided for the self-activated smoke signals and self-igniting lights, have a mass sufficient to operate the quick-release arrangement or 4 kg, whichever is the greater,

h. be fitted with a grabline not less than 9.5 millimetres in diameter and not less than four times the outside diameter of the body of the buoy in length. The grabline shall be secured at four equidistant points around the circumference of the buoy to form four equal loops,

i. be marked with the vessel's name and port of registry.

(2) Lifebuoy self-igniting lights

1. Self-igniting lights required by section 7-10 (2) shall:

a. be such that they cannot be extinguished by water,

b. be capable of either burning continuously with a luminous intensity of not less than 2 cd in all directions of the upper hemisphere or flashing (discharge flashing) at a rate of not less than 50 flashes per minute with at least the corresponding effective luminous intensity,

c. be provided with a source of energy capable of meeting the requirement of subparagraph b. for a period of at least 2 hours,

d. be capable of withstanding the drop test required by subparagraph (1)1f.

(3) Lifebuoy self-activating smoke signals

1. Self-activating smoke signals required by section 7-10 (3) shall:

a. emit smoke of a highly visible colour at a uniform rate for a period of at least 15 minutes when floating in calm water,

b. not ignite explosively or emit any flame during the entire smoke emission time of the signal,

c. not be swamped in a seaway,

d. continue to emit smoke when fully submerged in water for a period of at least 10 seconds,

e. be capable of withstanding the drop test required by subparagraph (1)1f.

(4) Buoyant lifelines

1. Buoyant lifelines required by section 7-10 (4) shall:

a. be non-kinking,

b. have a diameter of not less than 8 mm,

c. have a breaking strength of not less than 5 kN.

Section 7-28. *Line-throwing appliance*

(1) Every line-throwing appliance shall:

1. be capable of throwing a line with reasonable accuracy,
2. include not less than four projectiles each capable of carrying the line at least 230 metres in calm weather,
3. include not less than four lines each having a breaking strength of not less than 2 kN,
4. have brief instructions or diagrams clearly illustrating the use of the line-throwing appliance.

(2) The rocket, in the case of a pistol-fired rocket, or the assembly, in the case of an integral rocket and line, shall be contained in a water-resistant casing. In addition, in the case of a pistol-fired rocket, the line and rockets together with the means of ignition shall be stowed in a container which provides protection from the weather.

Section 7-29. *Rocket parachute flares*

(1) The rocket parachute flare shall:

1. be contained in a water-resistant casing,
2. have brief instructions or diagrams clearly illustrating the use of the rocket parachute flare printed on its casing,
3. have integral means of ignition,
4. be so designed as not to cause discomfort to the person holding the casing when used in accordance with the manufacturer’s operating instructions.

(2) The rocket shall, when fired vertically, reach an altitude of not less than 300 metres. At or near the top of its trajectory, the rocket shall eject a parachute flare, which shall:

1. burn with a bright red colour,
2. burn uniformly with an average luminous intensity of not less than 30 000 cd,
3. have a burning period of not less than 40 seconds,
4. have a rate of descent of not more than 5 m/s,
5. not damage its parachute or attachments while burning.

Section 7-30. *Hand flares*

(1) The hand flare shall:

1. be contained in a water-resistant casing,
2. have brief instructions or diagrams clearly illustrating the use of the hand flare printed on its casing,
3. have a self-contained means of ignition,

4. be so designed as not to cause discomfort to the person holding the casing and not endanger the survival craft by burning or glowing residues when used in accordance with the manufacturer's operating instructions.

(2) The hand flare shall:

1. burn with a bright red colour,
2. burn uniformly with an average luminous intensity of not less than 15 000 cd,
3. have a burning period of not less than 1 minute,
4. continue to burn after having been immersed for a period of 10 seconds under 100 mm of water.

Section 7-31. *Buoyant smoke signals*

(1) The buoyant smoke signal shall:

1. be contained in a water-resistant casing,
2. not ignite explosively when used in accordance with the manufacturer's operating instructions,
3. have brief instructions or diagrams clearly illustrating the use of the buoyant smoke signal printed on its casing,

(2) The buoyant smoke signal shall:

1. emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 minutes when floating in calm water,
2. not emit any flame during the entire smoke emission time,
3. not be swamped in a seaway,
4. continue to emit smoke after having been immersed for a period of 10 seconds under 100 mm of water.

Section 7-32. *Launching and embarkation arrangements*

(1) General requirements

1. Each launching arrangement together with all its lowering and recovery gear shall be so arranged that the fully equipped survival craft or rescue boat it serves can be safely lowered against a trim of up to 10° and a list of up to 20° either way:
   a. when boarded by its full complement of persons,
   b. without persons in the survival craft or rescue boat.

   In vessels of 45 metres and above in length (L) constructed after 1 January 2003, survival craft other than liferafts intended for float-free launching shall be so stowed that the craft in the embarkation position is at least 2 metres above the waterline when the vessel is fully loaded with a trim of 10° and a list of up to 20° either way or to the angle at which the vessel's main deck is submerged.
2. A launching arrangement shall not depend on any means other than gravity or stored mechanical power which is independent of the vessel's power supplies to launch the survival craft or rescue boat it serves in the fully loaded and equipped condition and also in the light condition.

3. A launching mechanism shall be so arranged that it may be actuated by one person from a position on the vessel's deck. The survival craft shall be visible to the person on deck operating the launching mechanism.
4. Each launching arrangement shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the vessel's crew shall be readily accessible and easily maintained.
5. The winch brakes of a launching arrangement shall be of sufficient strength to withstand:
    a. a static test with a proof load of not less than 1.5 times the maximum working load, and
    b. a dynamic test with a proof load of not less than 1.1 times the maximum working load at maximum lowering speed.
6. The launching arrangement and its attachments other than winch brakes shall be of sufficient strength to withstand a static proof load on test of not less than 2.2 times the maximum working load.
7. Structural members and all blocks, falls, padeyes, links, fastenings and all other fittings used in connection with launching equipment shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all davit and winch structural members, and a minimum factor of safety of 6 shall be applied to falls, suspension chains, links and blocks.
8. Each launching arrangement shall, as far as practicable, remain effective under conditions of icing.
9. A lifeboat launching arrangement shall be capable of recovering the lifeboat with its crew.
10. The launching arrangement shall be such as to enable safe boarding of the survival craft in accordance with the requirements of section 7-20 subparagraph (4)2 and section 7-17 subparagraph (3)1.

(2) Launching appliances using falls and a winch

1. Falls shall be of rotation-resistant and corrosion-resistant steel wire rope.
2. In the case of a multiple drum winch, unless an efficient compensatory device is fitted, the falls shall be so arranged as to wind off the drums at the same rate when lowering, and to wind on to the drums evenly at the same rate when hoisting.
3. Every rescue boat launching arrangement shall be fitted with a powered winch motor of such capacity that the rescue boat can be raised from the water with its full complement of persons and equipment.
4. An efficient hand gear shall be provided for recovery of each survival craft and rescue boat. Hand gear handles or wheels shall not be rotated by moving parts of the winch when the survival craft or rescue boat is being lowered or when it is being hoisted by power.
5. Where davit arms are recovered by power, safety devices shall be fitted which will automatically cut off the power before the davit arms reach the stops in order to avoid overstressing the falls or davits, unless the motor is designed to prevent such overstressing.

6. The speed at which the survival craft or rescue boat is lowered into the water shall be not less than that obtained from the formula:

   $S = 0.4 + 0.02\,H$

   where S = speed of lowering in metres per second, and

   H = height in metres from davit head to the waterline in the lightest seagoing condition.

7. The maximum lowering speed shall be established by the Norwegian Maritime Authority having regard to the design of the survival craft or rescue boat, the protection of its occupants from excessive forces, and the strength of the launching arrangements taking into account inertia forces during an emergency stop. Means shall be incorporated in the arrangement to ensure that this speed is not exceeded.
8. Every rescue boat launching arrangement shall be capable of hoisting the rescue boat when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 m/s.
9. Every launching arrangement shall be fitted with brakes capable of stopping the descent of the survival craft or rescue boat and holding it securely when loaded with its full complement of persons and equipment. Brake pads shall, where necessary, be protected from water and oil.
10. Manual brakes shall be so arranged that the brake is always applied unless the operator, or a mechanism activated by the operator, holds the brake control in the “off” position.

(3) Float-free launching

Where a survival craft requires a launching arrangement and is also designed to float free, the float-free release of the survival craft from its stowed position shall be automatic.

(4) Free-fall launching

Every free-fall launching arrangement using an inclined plane shall, in addition to complying with the applicable requirements of paragraph (1), also comply with the following requirements:

1. The launching arrangement shall be so arranged that excessive forces are not experienced by the occupants of the survival craft during launching.
2. The launching arrangement shall be a rigid structure with a ramp angle and length sufficient to ensure that the survival craft effectively clears the vessel.
3. The launching arrangement shall be effectively protected against corrosion and be so constructed as to prevent incendive friction or impact sparking during the launching of the survival craft.

(5) Evacuation-slide launching and embarkation

Every evacuation-slide launching appliance shall, in addition to complying with the applicable requirements of paragraph (1), also comply with the following requirements:

1. The evacuation slide shall be capable of being deployed by one person at the embarkation station.
2. The evacuation slide shall be capable of being used in high winds and in a seaway.

(6) Liferaft launching arrangement

Every liferaft launching arrangement shall comply with the requirements of paragraphs (1) and (2), except with regard to use of gravity for turning out the arrangement, embarkation in the stowed position and recovery of the loaded liferaft. The launching arrangement shall be so

arranged as to prevent premature release during lowering and shall release the liferaft when waterborne.

(7) Embarkation ladders

1. Handholds shall be provided to ensure a safe passage from the deck to the head of the ladder and vice versa.
2. The steps of the ladder shall be:
   a. made of hardwood, free from knots or other irregularities, smoothly machined and free from sharp edges and splinters, or of suitable material of equivalent properties,
   b. provided with an efficient non-slip surface either by longitudinal grooving or by the application of an approved non-slip coating,
   c. not less than 480 mm long, 115 mm wide and 25 mm in depth, excluding any non-slip surface or coating,
   d. equally spaced not less than 300 mm or more than 380 mm apart and secured in such a manner that they will remain horizontal.
3. The side ropes of the ladder shall consist of two uncovered manila ropes not less than 65 mm in circumference on each side. Each rope shall be continuous with no joints below the top step. Other materials may be used provided the dimensions, breaking strain, weathering, stretching and gripping properties are at least equivalent to those of manila rope. All rope ends shall be secured to prevent unravelling.

Chapter 8 Emergency procedures, musters and drills

Section 8-1. *Scope of application*

The provisions of this chapter shall apply to new and existing vessels of 15 m in overall length (LOA) and upwards.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 8-2. *General emergency alarm system, muster list and emergency instructions*

(1) All vessels shall be provided with a general emergency alarm system for warning those on board. The general emergency alarm system shall be capable of sounding the general alarm signal consisting of seven or more short blasts followed by one long blast from the vessel's whistle or siren. After activation of the alarm, it shall automatically continue to sound until it is manually turned off. In vessels of 24 metres in length (L) and upwards an additional alarm shall be provided by means of an electrically operated bell or klaxon or other equivalent warning system, which shall be powered from the vessel's main supply and the emergency source of electrical power required by section 4-17.

(2) All vessels shall be provided with clear instructions for each crew member which shall be followed in case of emergency.

(3) The muster list shall be posted up in the wheelhouse, mess rooms and the machinery space. The muster list shall include the information specified in the following paragraphs.

(4) The muster list shall specify details of the general alarm signal prescribed by paragraph (1) and also the action to be taken by the crew when this alarm is sounded. The muster list shall also specify how the order to abandon ship will be given.

(5) The muster list shall show the duties assigned to the different members of the crew, including:

1. closing of watertight doors, fire doors, valves, scuppers, overboard shoots, side scuttles, skylights, portholes and other similar openings in the vessel,
2. equipping the survival craft and the life-saving appliances,
3. preparation and launching of survival craft,
4. general preparation of other life-saving appliances;
5. use of communication equipment, and
6. manning of fire parties assigned to deal with fires.

(6) Vessels of less than 24 metres in length (L) may alternatively be permitted to have a simplified muster list, including the location of life-saving equipment, life-saving appliances, fire-fighting equipment, pyrotechnical equipment, closing of doors, valves, hatches etc., the meaning of the alarm signals and the precautions to be taken.

(7) The muster list shall specify which persons are assigned to ensure that the life-saving and fire appliances are maintained in good condition and are ready for immediate use.

(8) The muster list shall specify substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions.

(9) The muster list shall be prepared before the vessel proceeds to sea. After the muster list has been prepared, if any change takes place in the crew which necessitates an alteration in the muster list, the master shall either revise the list or prepare a new list.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 8-3. *Abandon ship training and drills*

(1) Practice musters and drills

1. Each member of the crew shall participate in at least one abandon ship drill and one fire drill every month. Vessels of less than 24 metres in length (L) shall hold at least one abandon ship drill and one fire drill every three months. The drills of the crew shall take place within 24 hours of the vessel leaving port if more than 25 per cent of the crew have not participated in abandon ship and fire drills on board that particular vessel in the previous muster. The Norwegian Maritime Authority may accept other arrangements that are at least equivalent for those classes of vessel for which this is impracticable.
2. Each abandon ship drill shall include:
    a. Summoning of crew to muster stations with the general emergency alarm. It shall be ensured that everyone is aware of the order to abandon ship specified in the muster list.
    b. Reporting to stations and preparing for the duties described in the muster list.
    c. Checking that crew are suitably dressed.
    d. Checking that lifejackets are correctly donned.

e. Instructions in the use of immersion suits.

f. Lowering of at least one lifeboat.

g. Starting and operating the lifeboat engine.

h. Checking liferaft davits, if provided.

i. Bringing and checking emergency radio equipment and radar transponder if such equipment is located in the wheelhouse.

3. Each fire drill shall include:

a. Reporting to stations and preparing for the duties described in the fire muster list.

b. Starting of a fire pump to show that the system is in proper working order.

c. Checking of fireman's outfit, where such is required, and other personal rescue equipment.

d. Checking of relevant communication equipment.

e. Checking the operation of watertight doors and fire doors where provided, ventilation openings, fire dampers and means of escape.

f. Checking the necessary arrangements for subsequent abandoning of the vessel.

4. Different lifeboats shall, as far as practicable, be lowered in compliance with the requirements of subparagraph 2 f.

5. Drills shall, as far as practicable, be conducted as if there were an actual emergency.

6. Each lifeboat shall be launched with its assigned operating crew aboard and manoeuvred in the water at least once every three months during an abandon ship drill.

7. As far as reasonable and practicable, rescue boats shall be launched each month with their assigned crews aboard and manoeuvred in the water. In all cases this requirement shall be complied with at least once every three months.

8. If lifeboat and rescue boat launching drills are carried out with the vessel making headway, such drills shall, because of the dangers involved, be practised in sheltered waters and under the supervision of an officer experienced in such drills.

9. Emergency lighting for mustering and abandonment shall be tested at each abandon ship drill.

10. The drills may be adjusted according to the relevant equipment required by relevant regulations. However, if equipment is carried on a voluntary basis, it shall be used in the drills and the drills shall be adjusted accordingly.

(2) On-board training and instructions

1. On-board training in the use of the vessel's life-saving appliances, including survival craft equipment, shall be given as soon as possible but not later than two weeks after a crew member joins the vessel. However, if the crew member is on a regularly scheduled rotating assignment to the vessel, such training shall be given not later than two weeks after the time of first joining the vessel.

2. Instructions in the use of the vessel's life-saving appliances and in survival at sea shall be given at the same intervals as the drills. Individual instruction may cover different parts of the vessel's life-saving system, but all the vessel's life-saving equipment and appliances shall be covered within any period of two months. Each member of the crew shall be given instructions which shall include but not necessarily be limited to:

a. operation and use of the vessel's inflatable liferafts;

b. problems of hypothermia, first-aid treatment for hypothermia and other appropriate first-aid procedures; and

c. any special instructions necessary for use of the vessel's life-saving appliances in severe weather and severe sea conditions.

3. On-board training in the use of davit-launched liferafts shall take place at intervals of not more than four months on every vessel fitted with such appliances. Whenever practicable this shall include the inflation and lowering of a liferaft. This liferaft may be a special liferaft intended for training purposes only, which is not part of the vessel's life-saving equipment. Such a special liferaft shall be conspicuously marked.

(3) Records

The date when musters are held, details of abandon ship drills and fire drills, drills of other life-saving appliances and on-board training shall be recorded in a deck log-book if the vessel is required to keep such a log-book.[1] If a full muster, drill or training session is not held at the appointed time, an entry shall be made in the log-book stating the circumstances and the extent of the muster, drill or training session held.

(4) Training manual

1. A training manual shall be provided in each crew mess room, the wheelhouse and accommodation space on board. The training manual shall contain instructions and information, in easily understood terms illustrated wherever possible, on the life-saving appliances provided in the vessel. Any part of such information may be provided in the form of audio-visual aids in lieu of the manual. The training manual may be included in the safety manual, if the vessel is equipped with such. The following shall be explained in detail:

a. donning of lifejackets and immersion suits,

b. muster at the assigned stations,

c. boarding, launching, and clearing the survival craft and rescue boats,

d. method of launching from within the survival craft,

e. release from launching arrangement,

f. illumination in launching areas,

g. use of all survival equipment,

h. use of all detection equipment,

i. with the assistance of illustration, the use of radio life-saving appliances,

j. use of drogues,

k. use of engine and accessories,

l. recovery of survival craft and rescue boats including stowage and securing,

m. hazards of exposure and the need for warm clothing,

n. best use of the survival craft facilities in order to survive,

o. methods of retrieval, including the use of helicopter rescue gear (slings, baskets, stretchers), breeches-buoy, shore life-saving apparatus and vessel's line-throwing apparatus,

p. all other functions contained in the muster list and emergency instructions,

q. instructions for emergency repair of the life-saving appliances.

2. On vessels of less than 45 metres in length (L) the Norwegian Maritime Authority may permit relaxation of the requirements of subparagraph 1 above. However, appropriate safety information shall be carried on board.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 Cf. section 10 of the Regulation of 15 September 1992 No. 693 concerning the form and keeping of log books for ships and mobile offshore units.

Section 8-4. *Training in emergency procedures*

The master and the company shall ensure that the crew has been given the safety training for fishermen in accordance with the Regulation of 10 February 1989 no. 88 concerning safety training for fishermen. The master and the company shall also ensure that the crew is given adequate on-board training in the duties incumbent on the individual crew member in an emergency, cf. section 8-3.

Chapter 9 Radiocommunications

Part A – Application and definitions

Section 9-1. *Scope of application*

(1) Unless expressly provided otherwise, this chapter shall apply to new and existing vessels of 15 metres in overall length (LOA) and upwards.[1]

(2) No provision in this chapter shall prevent the use by any vessel, survival craft or person in distress, of any means at their disposal to attract attention, make known their position and obtain help.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 27 September 2002 No. 1087.

1 Amended by Regulation of 27 September 2002 No. 1087: For existing vessels of 24 metres in length (L) and upwards but less than 45 metres in length (L) the amendments will enter into force on 1 January 2004. For existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L) the amendments will enter into force on 1 January 2005

Section 9-2. *Terms and definitions*

(1) For the purpose of this chapter, the following definitions shall apply:

1. *Bridge-to-bridge communications:* Safety communications between vessels from the position from which the vessels are normally navigated.
2. *Continuous watch:* The radio watch concerned shall not be interrupted other than for brief intervals when the vessel's receiving capability is impaired or blocked by its own communications or when the facilities are under periodical maintenance or checks.
3. *Digital selective calling (DSC):* A technique using digital codes which enables a radio station to establish contact with, and transfer information to, another station or group of

stations, and complying with the relevant recommendations of the International Telecommunications Union radiocommunication sector (ITU Radiocommunication sector (ITU-R)).

4. *Direct-printing telegraphy:* Automated telegraphy techniques which comply with the relevant recommendations of the ITU.
5. *General radiocommunications:* Operational and public correspondence traffic, other than distress, urgency and safety messages, conducted by radio.
6. *Inmarsat:* The organisation established by the Convention on the International Maritime Satellite Organization adopted on 3 September 1976.
7. *International NAVTEX service:* The coordinated broadcast and automatic reception on 518 kHz of maritime safety information by means of narrow-band direct-printing telegraphy using the English language.
8. *Locating:* The finding of ships, vessels, aircraft, units or persons in distress.
9. *Maritime safety information:* Navigational and meteorological warnings, meteorological forecasts and other urgent safety related messages broadcast to vessels.
10. *Polar orbiting satellite service:* A service which is based on polar orbiting satellites which receive and relay distress alerts from satellite emergency position-indicating radio beacons and which provides their position.
11. *Radio Regulations (RR):* The Radio Regulations annexed to, or regarded as being annexed to, the most recent International Telecommunication Convention which is in force at any time.
12. *Sea area A1:* An area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC alerting is available, with geographical limitations as set out in appendix 5.
13. *Sea area A2:* An area, excluding sea area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available, with geographical limitations as set out in appendix 5.
14. *Sea area A3:* An area, excluding sea areas A1 and A2, within the coverage of an Inmarsat geostationary satellite in which continuous alerting is available.
15. *Sea area A4:* An area outside sea areas A1, A2 and A3.

(2) All other terms and abbreviations which are used in this chapter and which are defined in the Radio Regulations shall have the meanings as defined in those Regulations.

0 Amended by Regulation of 1 October 2003 No. 1205.

Section 9-3.[1] *Exemptions*

(1) The Norwegian Maritime Authority may grant partial or conditional exemptions from the provisions of sections 9-6 to 9-10 and section 9-14 (7), provided that such vessels comply with the functional requirements of section 9-4. Exemptions shall be granted on the basis of an assessment taking into account the effect such exemptions may have on the general efficiency of the service for the safety of all ships and vessels.

(2) An exemption may be granted under paragraph (1) only:

1. if the conditions affecting safety are such as to render the full application of sections 9-6 to 9-10 and section 9-14 (7) unreasonable or unnecessary, or

2. in exceptional circumstances, for a single voyage outside the sea area or sea areas for which the vessel is equipped, or
3. when the vessel will be taken permanently out of service before 1 February 2001.

1 See sections 1-3 and 1-16 (2).

Section 9-4. *Functional requirements*

Every vessel, while at sea, shall be capable:

1. except as provided in section 9-7 subparagraph (1)1 or section 9-9 subparagraph (1)4 c., of transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service,
2. of receiving shore-to-ship distress alerts,
3. of transmitting and receiving ship-to-ship distress alerts,
4. of transmitting and receiving search and rescue coordinating communications,
5. of transmitting and receiving on-scene communications,
6. of transmitting and, as required by section 10-3 (3) (radar), receiving signals for locating, when the vessel is certified for trade area In-shore fishing or greater or has a length (L) of 24 metres or above,[1]
7. of transmitting and receiving maritime safety information,
8. of transmitting and receiving general radiocommunications to and from shore-based radio systems or networks subject to section 9-14 (8),
9. of transmitting and receiving bridge-to-bridge communications.

0 Amended by Regulation of 27 September 2002 No. 1087.

1 Amended by Regulation of 27 September 2002 No. 1087: For existing vessels of 24 metres in length (L) and upwards but less than 45 metres in length (L) the amendments will enter into force on 1 January 2004.

Part B – Vessel requirements

Section 9-5. *Radio installations*

(1) Every vessel shall be provided with radio installations capable of complying with the requirements of sections 9-4 and 9-6 throughout its intended voyage, and shall be equipped in accordance with sections 9-7, 9-8, 9-9 or 9-10, as appropriate for the sea area through which it will pass during its voyage.

(2) Every radio installation shall:

1. be so located that no harmful interference of mechanical, electrical or other origin affects its proper use, and so as to ensure electromagnetic compatibility and avoidance of harmful interaction with other equipment and systems;
2. be so located as to ensure the greatest possible degree of safety and operational availability;
3. be protected against harmful effects of water, extremes of temperature and other adverse environmental conditions;

4. be provided with reliable, permanently arranged electrical lighting, independent of the main and emergency sources of electrical power, for the adequate illumination of the radio controls for operating the radio installation; and
5. be clearly marked with the call sign, the ship station identity and other codes as applicable for the use of the radio installation.

(3) Control of the VHF radiotelephone channels, required for navigational safety, shall be immediately available on the navigating bridge or in the wheelhouse convenient to the conning position. Where necessary, facilities should be available to permit radiocommunications from the wings of the navigating bridge. Portable VHF equipment may be used to meet the latter provision.

Section 9-6. *Radio equipment – general*

(1) Except as provided in section 9-9 (4) every vessel shall be provided with:

1. a VHF radio installation capable of transmitting and receiving;
   a. DSC on the frequency 156.525 MHz (channel 70). It shall be possible to initiate the transmission of distress alerts on channel 70 from the position from which the ship is normally navigated; and
   b. radiotelephony on the frequencies 156.300 MHz (channel 6), 156.650 MHz (channel 13) and 156.800 MHz (channel 16);
2. a radio installation capable of maintaining a continuous DSC watch on VHF channel 70 which may be separate from, or combined with, that required by subparagraph 1 a.
3. a radar transponder operating in the 9 GHz band when the vessel is certified for trade area In-shore fishing or greater or has a length (L) of 24 metres or above. The radar transponder:
   a. shall be so stowed that it can be easily utilised; and
   b. may be one of those required by section 7-14 for survival craft.[4]
4. a receiver capable of receiving international NAVTEX service broadcasts if the vessel is engaged on voyages in any area in which an international NAVTEX service is provided. For vessels of less than 24 metres in length (L) certified for trade area In-shore fishing or lesser, such receiver is not required if the vessel is capable of otherwise obtaining a weather forecasting service.[4]
5. a radio facility for reception of maritime safety information by the Inmarsat enhanced group calling system (EGC) if the vessel is engaged on voyages in any area of Inmarsat coverage but in which an international NAVTEX service is not provided. However, vessels engaged exclusively on voyages in areas where an HF direct-printing telegraphy maritime safety information service is provided and fitted with equipment capable of receiving such service, may be exempted from this requirement.
6. a satellite emergency position-indicating radio beacon (satellite EPIRB) when the vessel is certified for trade area In-shore fishing or greater or has a length (L) of 24 metres or above, which shall be:
   a. capable of transmitting a distress alert either through the polar orbiting satellite service operating in the 406 MHz band or, if the vessel is engaged only on voyages within Inmarsat coverage, through the Inmarsat geostationary satellite service operating in the 1.6 GHz band;

b. installed in an easily accessible position;

c. ready to be manually released and capable of being carried by one person into a survival craft;

d. capable of floating free if the vessel sinks and of being automatically activated when afloat; and

e. capable of being activated manually.

For vessels engaged exclusively on voyages in sea area A1 this requirement may be replaced with the emergency position-indicating radio beacon required by section 9-7 (3).[4]

(2) The satellite emergency position-indicating radio beacon (satellite EPIRB) referred to in paragraph (1) 6 above shall be placed so as to satisfy at all times the provision of subparagraph 6 d.[1] Where the provisions of subparagraph 6 a. to e. cannot be fully complied with by one single emergency position-indicating radio beacon[2], the Norwegian Maritime Authority may require an additional emergency position-indicating radio beacon which may be of a manually operated type.[3]

0 Amended by Regulation of 27 September 2002 No. 1087.

1 The emergency position-indicating radio beacon shall be located so as not to be caught by the vessel's hull or superstructure in the event that the vessel sinks.

2 A steeply inclined/vertically mounted ladder is not regarded as satisfactory for access in an emergency. Access must in addition be such that it poses no risk to life or health when the emergency position-indicating radio beacon must be manually operated or brought by one person to a survival craft.

3 See also the provision of section 7-14 subparagraph (3)2.

4 Amended by Regulation of 27 September 2002 No. 1087: For existing vessels of 24 metres in length (L) and upwards but less than 45 metres in length (L) the amendments will enter into force on 1 January 2004. For existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L) the amendments will enter into force on 1 January 2005.

Section 9-7. *Radio equipment – Sea area A1*

(1) In addition to meeting the requirements of section 9-6, every vessel engaged on voyages exclusively in sea area A1 shall be provided with a radio installation capable of initiating the transmission of ship-to-shore distress alerts from the position from which the vessel is normally navigated, operating either:

1. on VHF using DSC. This requirement may be fulfilled by the EPIRB prescribed by paragraph (3), either by installing the EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
2. through the polar orbiting satellite service on 406 MHz; this requirement may be fulfilled by the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
3. if the vessel is engaged on voyages within coverage of MF coast stations equipped with DSC, on MF using DSC; or
4. on HF using DSC; or
5. through the Inmarsat geostationary satellite service. This requirement may be fulfilled by:
   a. an Inmarsat ship earth station; or

b. the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated.

(2) The VHF radio installation required by section 9-6 subparagraph (1)1 shall also be capable of transmitting and receiving general radiocommunications using radiotelephony.

(3) Vessels engaged on voyages exclusively in sea area A1 may carry, in lieu of the satellite EPIRB required by section 9-6 subparagraph (1)6 an EPIRB which shall be:

1. capable of transmitting a distress alert using DSC on VHF channel 70 and providing for locating by means of a radar transponder operating in the 9 GHz band,
2. installed in an easily accessible position,
3. ready to be manually released and capable of being carried by one person into a survival craft;
4. capable of floating free if the vessel sinks and of being automatically activated when afloat; and
5. capable of being activated manually.

(4) Irrespective of the requirements of section 9-4 subparagraph 1 the Norwegian Maritime Authority may exempt new vessels of 15 metres in overall length (LOA) and upwards, but less than 45 metres in length (L), engaged exclusively on voyages within sea area A1, from the requirement for a satellite EPIRB prescribed by section 9-6 subparagraph (1)6 and EPIRB prescribed by paragraph (3) above. The exemption may be granted on condition that the vessel is fitted with a VHF radio installation as described in section 9-6 subparagraph (1)1 and in addition a VHF radio installation using DSC for transmission of ship-to-shore distress alerts as required by subparagraph (1) 1 above (Commission Directive 99/19/EC).

(5) The requirements of paragraphs (1) to (4) shall not be applicable to vessels of less than 24 metres in length (L) certified for trade area Fjord fishing if the vessel is fitted with a VHF radio installation capable of transmitting and receiving as described in section 9-6 subparagraph (1)1, as well as a portable two-way VHF as described in section 7-13.[1]

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 27 September 2002 No. 1087.

1 Added by Regulation of 27 September 2002 No. 1087: For existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L) the amendments will enter into force on 1 January 2005.

Section 9-8. *Radio equipment – Sea areas A1 and A2*

(1) In addition to meeting the requirements of section 9-6, every vessel engaged on voyages beyond sea area A1, but remaining within sea area A2, shall be provided with:

1. an MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:
   a. 2,187.5 kHz using DSC; and
   b. 2,182 kHz using radiotelephony;

2. a radio installation capable of maintaining a continuous DSC watch on the frequency 2,187.5 kHz. The installation may be separate from, or combined with, that required by subparagraph 1 a.; and
3. means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either:
    a. through the polar orbiting satellite service on 406 MHz. This requirement may be fulfilled by the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
    b. on HF using DSC; or
    c. through the Inmarsat geostationary satellite service. This requirement may be fulfilled by an Inmarsat ship earth station, or by the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated.

(2) It shall be possible to initiate transmission of distress alerts by the radio installations specified in subparagraphs (1)1 and 3 from the position from which the vessel is normally navigated.

(3) The vessel shall, in addition, be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by either:

1. a radio installation operating on working frequencies in the bands between 1,605 and 4,000 kHz or between 4,000 kHz and 27,500 kHz – this requirement may be fulfilled by the equipment prescribed by subparagraph (1)1; or
2. an Inmarsat ship earth station.

(4) The Norwegian Maritime Authority may exempt[1] vessels constructed before 1 February 1997 which are engaged exclusively on voyages within sea area A2 from the requirements of section 9-6 subparagraph (1)1a. and section 9-6 subparagraph (1)2 provided such vessels maintain, where practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

1 See section 9-3.

Section 9-9. *Radio equipment – Sea areas A1, A2 and A3*

(1) In addition to meeting the requirements of section 9-6, every vessel engaged on voyages beyond sea areas A1 and A2, but remaining within sea area A3, shall, if it does not comply with the requirements of paragraph (2), be provided with:

1. an Inmarsat ship earth station capable of:
    a. transmitting and receiving distress and safety communications using direct-printing telegraphy;
    b. initiating and receiving distress priority calls;
    c. maintaining watch for shore-to-ship distress alerts, including those directed to specifically defined geographical areas;
    d. transmitting and receiving general radiocommunications, using either radiotelephony or direct-printing telegraphy; and

2. an MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:
    a. 2,187.5 kHz using DSC; and
    b. 2,182 kHz using radiotelephony; and
3. a radio installation capable of maintaining a continuous DSC watch on the frequency 2,187.5 kHz. This may be separate from, or combined with the equipment required by subparagraph 2 a.; and
4. means of initiating the transmission of ship-to-shore distress alerts by other radio service operating either:
    a. through the polar orbiting satellite service on 406 MHz. This requirement may be fulfilled by the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
    b. on HF using DSC; or
    c. through the Inmarsat geostationary satellite service by an additional ship earth station or by the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated.

(2) In addition to meeting the requirements of section 9-6, every vessel engaged on voyages beyond sea areas A1 and A2, but remaining within sea area A3, shall, if it does not comply with the requirements of paragraph (1), be provided with:

1. an MF/HF radio installation capable of transmitting and receiving, for distress and safety purposes, on all distress and safety frequencies in the bands between 1,605 and 4,000 kHz and between 4,000 and 27,500 kHz:
    a. using DSC;
    b. using radiotelephony; and
    c. using direct-printing telegraphy; and
2. equipment capable of maintaining DSC watch on 2,187.5 kHz, 8,414.5 kHz and on at least one of the distress and safety DSC frequencies 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz at any time. It shall be possible to select any of these DSC distress and safety frequencies. This equipment may be separate from, or combined with the equipment required by subparagraph 1; and
3. means of initiating the transmission of ship-to-shore distress alerts by a radiocommunication service other than HF operating either:
    a. through the polar orbiting satellite service on 406 MHz. This requirement may be fulfilled by the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
    b. through the Inmarsat geostationary satellite service. This requirement may be fulfilled by an Inmarsat ship earth station, or by the satellite EPIRB required by section 9-6 subparagraph (1)6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; and
4. in addition, vessels shall be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by an MF/HF

radio installation operating on working frequencies in the bands between 1,605 and 4,000 kHz or between 4,000 and 27,500 kHz. This requirement may be fulfilled by the equipment required by subparagraph 1.

(3) It shall be possible to initiate transmission of distress alerts by the radio installations specified in subparagraphs (1)1 and 2 and subparagraphs (2)1 and 3 from the position from which the vessel is normally navigated.

(4) The Norwegian Maritime Authority may exempt[1] vessels constructed before 1 February 1997 which are engaged exclusively on voyages within sea areas A2 and A3 from the requirements of section 9-6 subparagraph (1)1a. and section 9-6 subparagraph (1)2 provided such vessels maintain, where practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

1 See section 9-3.

Section 9-10. *Radio equipment – Sea areas A1, A2, A3 and A4*

(1) In addition to meeting the requirements of section 9-6 vessels engaged on voyages in all sea areas shall be provided with the radio installations and equipment required by section 9-9 (2). Equipment required by section 9-9 subparagraph (2)3b. shall not be accepted as an alternative to that required by section 9-9 subparagraph (2)3a., which shall always be provided. In addition, vessels engaged on voyages in all sea areas shall comply with the requirements of section 9-9 (3).

(2) The Norwegian Maritime Authority may exempt vessels constructed before 1 February 1997 which are engaged exclusively on voyages within sea areas A2, A3 and A4 from the requirements of section 9-6 subparagraph (1)1a. and section 9-6 subparagraph (1)2 provided such vessels maintain, where practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

Section 9-11. *Watches*

(1) Every vessel, while at sea, shall maintain a continuous watch:

1. on VHF DSC channel 70, if the vessel, in accordance with the requirements of section 9-6 subparagraph (1)2, is fitted with a VHF radio installation.
2. on the distress and safety DSC frequency 2,187.5, if the vessel, in accordance with the requirements of section 9-8 subparagraph (1)2 or section 9-9 subparagraph (1)3 is fitted with an MF radio installation.
3. on the distress and safety DSC frequencies 2,187.5 kHz and 8,414.5 kHz and also on at least one of the distress and safety DSC frequencies 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz, appropriate to the time of day and the geographical position of the vessel, if the vessel, in accordance with the requirements of section 9-9 subparagraph (2)2 or section 9-10 (1), is fitted with an MF/HF radio installation. This watch may be kept by means of a scanning receiver.
4. for satellite shore-to-ship distress alerts, if the vessel in accordance with the requirements of section 9-9 subparagraph (1)1, is fitted with an Inmarsat ship earth station.

(2) Every vessel, while at sea, shall maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the vessel is navigating.

(3) Every vessel shall maintain, where practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

Section 9-12. *Sources of energy*

(1) There shall be available at all times, while the vessel is at sea, a supply of electrical energy sufficient to operate the radio installations and to charge any batteries used as part of a reserve source or energy for the radio installations.

(2) A reserve source or sources of energy shall be provided on every vessel, to supply radio installations, for the purpose of conducting distress and safety radiocommunications, in the event of failure of the vessel's main and emergency sources of electrical power. The reserve source or sources of energy shall be capable of simultaneously operating the VHF radio installation required by section 9-6 subparagraph (1)1 and, as appropriate for the sea area or sea areas for which the vessel is equipped, either the MF radio installation required by section 9-8 subparagraph (1)1, the MF/HF radio installation required by section 9-9 subparagraph (2) 1 or section 9-10 (1), or the Inmarsat ship earth station required by section 9-9 subparagraph (1)1 and any of the additional loads mentioned in paragraphs (4), (5) and (8) for a period of at least:

1. on new vessels:
    a. 3 hours; or
    b. 1 hour, if the emergency source of electrical power complies fully with all relevant requirements of section 4-17, including the requirements to supply the radio installations so that there is at all times sufficient electrical power to operate the radio installations and to charge any batteries used as reserve source or sources of energy for the radio installations for a period of at least 6 hours.
2. on existing vessels:
    a. 6 hours, if the emergency source of electrical power is not provided or does not comply fully with all relevant requirements of section 4-17, including the requirements to supply the radio installations; or
    b. 3 hours, if the emergency source of electrical power complies fully with all relevant requirements of section 4-17, including the requirements to supply the radio installations; or
    c. 1 hour, if the emergency source of electrical power complies fully with all relevant requirements of section 4-17, including the requirements to supply the radio installations so that there is at all times sufficient electrical power to operate the radio installations and to charge any batteries used as reserve source or sources of energy for the radio installations for a period of at least 6 hours.

The reserve source or sources of energy need not supply independent HF and MF radio installations at the same time.

(3) The reserve source or sources of energy shall be independent of the propelling power of the vessel and the vessel's electrical system.

(4) Where, in addition to the VHF radio installation, two or more of the other radio installations, referred to in paragraph (2), can be connected to the reserve source or sources of

energy, they shall be capable of simultaneously supplying, for the period specified, as appropriate, in subparagraph (2)1 or 2, the VHF installation and:

1. all other radio installations which can be connected to the reserve source or sources of energy at the same time; or
2. whichever of the other radio installations will consume the most power, if only one of the other radio installations can be connected to the reserve source or sources of energy at the same time as the VHF radio installation.

(5) The reserve source or sources of energy may be used to supply the electrical lighting required by section 9-5 subparagraph (2)4.

(6) Where a reserve source of energy consists of a rechargeable accumulator battery or batteries:

1. a means of automatically charging such batteries shall be provided which shall be capable of recharging them to minimum capacity requirements within 10 hours; and
2. the capacity of the battery or batteries shall be checked, using an appropriate method, at intervals not exceeding 12 months, when the vessel is not at sea.

(7) The siting and installation of accumulator batteries which provide a reserve source or sources of energy shall be such as to ensure:

1. the highest degree of service;
2. a reasonable lifetime;
3. reasonable safety;
4. that battery temperatures remain within the manufacturer's specifications whether under charge or idle; and
5. that, when fully charged, the batteries will provide at least the minimum required hours of operation under all weather conditions.

(8) If an input of information from the vessel's navigational or other equipment to a radio installation required by this chapter is needed to ensure its proper performance, means shall be provided to ensure the continuous supply of such information in the event of failure of the vessel's main or emergency source of electrical power.

Section 9-13.[1] *Approval*

(1) All equipment to which this chapter applies shall be in compliance with provisions issued by the Norwegian Post and Telecommunications Authority. [2]

(2) Equipment installed prior to the date of entry into force of these Regulations may be exempted from full compliance with the appropriate performance standards, provided that the equipment is equivalent to equipment complying with the performance standards.

0 Amended by Regulation of 27 September 2002 No. 1087.

1 See section 1-2 subparagraph 19 and section 1-5.

2 Amended by Regulation of 27 September 2002 No. 1087: For existing vessels of 24 metres in length (L) and upwards but less than 45 metres in length (L) the amendments will enter into force on 1 January 2004. For existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L) the amendments will enter into force on 1 January 2005

Section 9-14. *Maintenance requirements*

(1) Equipment shall be so designed that the main units can be replaced readily, without elaborate recalibration or readjustment.

(2) Where applicable, equipment shall be so constructed and installed that it is readily accessible for inspection and on-board maintenance purposes.

(3) Adequate information shall be provided on board to enable the equipment to be properly operated and maintained.

(4) Adequate tools and spares shall be provided to enable the equipment to be maintained.

(5) The radio equipment required by this chapter shall be maintained to provide the availability of the functional requirements specified in section 9-4.

(6) On vessels engaged on voyages in sea areas A1 and A2, the availability shall be ensured by using such methods as duplication of equipment, shore-based maintenance or at-sea maintenance or a combination of these.

(7) On vessels engaged on voyages in sea areas A3 and A4, the availability shall be ensured by using a combination of at least two methods such as duplication of equipment, shore-based maintenance or at-sea maintenance. However, the Norwegian Maritime Authority may exempt a vessel from the requirement of using two methods and allow the use of one method, taking account of the type of vessel and its mode of operation.[1]

(8) While all reasonable steps shall be taken to maintain the equipment in efficient working order to ensure compliance with all the functional requirements specified in section 9-4, malfunction of the equipment for providing general radiocommunications shall not be considered as making a vessel unseaworthy or as a reason for delaying the vessel in ports where repair facilities are not readily available, provided the vessel is capable of performing all distress and safety functions.

(9) Every five years the satellite emergency position-indicating radio beacon (satellite EPIRB) shall undergo periodical maintenance. Such maintenance shall be performed by the equipment manufacturer or a service station approved by the manufacturer. When the periodical maintenance is finished, the satellite emergency position-indicating radio beacon (satellite EPIRB) shall comply with relevant testing standards as described in the Regulations of 30 August 2016 No. 1042 on marine equipment. The date of the most recent periodical maintenance shall be entered on the satellite emergency position-indicating radio beacon.[2]

0 Amended by Regulations of 17 December 2004 No. 1858 (in force on 1 January 2005), 20 December 2017 No. 2379 (in force on 1 January 2017).

1 See section 9-3.

2 Special requirement applicable to Norwegian vessels.

Section 9-15. *Radio personnel*

(1) Every vessel shall carry personnel qualified for distress and safety radiocommunication purposes. The personnel shall be holders of certificates specified in the Radio Regulations, any one of whom shall be designated to have primary responsibility for radiocommunications during distress incidents.

(2) Personnel who are to operate radio equipment required by this chapter shall be holders, as a minimum, of the following:

1. restricted radio operator’s certificate (ROC/GMDSS) for operating radio equipment required in sea area A1; and

2. general radio operator's certificate (GOC/GMDSS) for operating radio equipment required in sea areas A2, A3 and A4.

(3) Radio equipment required by this chapter is permitted to be operated only by personnel holding the relevant radio operator's certificate.[1]

1 See also the provision of section 9-1 (2).

Section 9-16. *Radio records*

A record shall be kept as described in the Radio Regulations, of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea. Such records may be kept in the vessel's deck log-book in lieu of a separate radio log-book.

Chapter 10 Shipborne navigational equipment and arrangements

Section 10-1. *Scope of application*

Unless expressly provided otherwise, this chapter shall apply to new and existing vessels of 15 metres in overall length (LOA) and upwards.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 10-2.[1] Exemptions

The Norwegian Maritime Authority may exempt any vessel from any of the requirements of this chapter where it considers that the nature of the voyage or the vessel's proximity to land does not warrant such requirements.

1 See sections 1-3 and 1-16 (2).

Section 10-3. *Shipborne navigational equipment*

(1) Magnetic compass

1. Vessels of less than 24 metres in length (L) shall be fitted with a magnetic compass.
2. Vessels of 24 metres in length (L) and upwards shall be fitted with:
   a. a standard magnetic compass with reflector reading;
   b. a steering magnetic compass, unless heading information provided by the standard compass required under subparagraph a. is made available and is clearly readable by the helmsman at the main steering position;
   c. adequate means of communication between the standard compass position and the normal navigation control position; and
   d. means for taking bearings as nearly as practicable over an arc of the horizon of 360°.
3. It is the master's responsibility[1] to ensure that every compass referred to in subparagraphs 1 and 2 is adjusted[2], and that its table or curve of residual deviations is available at all times.

4. Vessels of 24 metres in length (L) and upwards shall be fitted with an additional magnetic compass, interchangeable with the standard compass, unless the steering compass mentioned in subparagraph 2 b. or a gyro-compass is fitted.
5. If the vessel is engaged on voyages in trade area Bank fishing I or lesser, the Norwegian Maritime Authority may exempt individual vessels from the requirement for a standard magnetic compass, provided that an appropriate steering compass is fitted on board.
6. Compasses referred to in subparagraphs 1, 2, 4, and 5 shall satisfy the requirements specified in appendix 4. In addition the following shall be complied with:
    a. Equipment dependent on electrical power for its operation shall be automatically connected to the vessel's emergency source of power or a separate emergency source of power in the event of a failure of the main power supply.
    b. The illumination arrangement of the compass installation shall have a built-in dimmer which can be adjusted from the helmsman's position.

(2) Gyro-compass installations

1. Vessels of 45 metres in length (L) and upwards constructed on or after 1 September 1984 shall be fitted with a gyro-compass complying with the following requirements:
    a. The master gyro-compass or a gyro-repeater shall be clearly readable by the helmsman at the main steering position.
    b. On vessels of 75 metres in length (L) and upwards a gyro-repeater or gyro-repeaters shall be provided and shall be suitably placed for taking bearings as nearly as practicable over an arc of the horizon of 360°.
    c. The gyro-compass installation shall satisfy the requirements specified in appendix 4.
2. Vessels of 75 metres in length (L) and upwards constructed before 1 September 1984 shall be fitted with a gyro-compass complying with the requirements of subparagraph 1.
3. Vessels with emergency steering positions shall at least be provided with a telephone or other means of communication for relaying heading information to such positions. In addition, vessels of 45 metres in length (L) and upwards constructed on or after 1 February 1992 shall be provided with arrangements for supplying visual compass readings to the emergency steering position.

(3) Radar installations

1. Any vessel of 24 metres or above in length (L) shall be fitted with a radar installation capable of operating in the 9 GHz frequency band. Vessels of less than 24 metres in length (L) with a trade certificate for Bank Fishing I or a greater trade area shall also be fitted with a radar installation capable of operating in the 9 GHz frequency band. The equipment shall satisfy the requirements specified in appendix 4. In vessels of less than 24 metres in length (L), the radar installation shall have an indicating screen with an effective diameter of at least 180 mm. In vessels of 24 metres or above in length (L), the effective diameter shall be at least 250 mm.
2. Facilities for plotting radar readings shall be provided on the navigating bridge of vessels required by subparagraph 1 to be fitted with a radar installation. In vessels of 75 metres in length (L) and upwards constructed on or after 1 September 1984 the plotting facilities shall be at least as effective as a reflection plotter.

(4) Echo-sounding device

1. Vessels of 75 metres in length (L) and upwards constructed before 25 May 1980 and vessels of 45 metres in length (L) and upwards constructed on or after 25 May 1980 shall be fitted with an echo-sounding device. The equipment shall satisfy the requirements specified in appendix 4.
2. Vessels of less than 45 metres in length (L) shall be provided with suitable means for determining the depth of water under the vessel.
3. As an alternative to subparagraphs 1 and 2, equipment used for searching for fish may be accepted.

(5) Devices to indicate speed and distance

Vessels of 45 metres in length (L) and upwards constructed after 1 September 1984 shall be fitted with devices to indicate speed and distance. The equipment shall satisfy the requirements specified in appendix 4. Vessels of less than 45 metres in length (L) shall be fitted with means of determining the vessel's speed and distance run.

(6) Rudder angle and rate of revolution indicators

Vessels of 75 metres in length (L) and upwards constructed before 1 September 1984 and vessels of 45 metres in length (L) and upwards constructed on or after 1 September 1984 shall be fitted with indicators showing the rudder angle, the rate of revolution of each propeller and in addition, if fitted with variable pitch propellers or lateral thrust propellers, the pitch and operational mode of such propellers. All these indicators shall be readable from the conning position.

(7) Maintenance etc.

In addition to the requirements of section 1-11 the equipment referred to in paragraphs (1) to (6) shall be kept in efficient working order. An operation and maintenance manual shall be available on board. Malfunctions of the equipment shall not be considered as making a vessel unseaworthy or as a reason for delaying the vessel in ports where repair facilities are not readily available.

(8) Radio direction-finding apparatus

Vessels of 75 metres in length (L) and upwards shall be fitted with a radio direction-finding apparatus. The Norwegian Maritime Authority may exempt a vessel from this requirement if it considers it unreasonable or unnecessary for such apparatus to be carried or if the vessel is provided with other radionavigation equipment suitable for use throughout its intended voyages. The equipment shall satisfy the requirements specified in appendix 4.

(9) Automatic pilot installation, rousing and calling-up installation[3]

In vessels fitted with an automatic pilot installation, such installation shall satisfy the requirements specified in appendix 4. In addition such vessels of 24 metres in length (L) and upwards shall be fitted with a rousing and calling-up installation satisfying the requirements specified in appendix 4.

(10) Evaluation and approval of equipment

All equipment fitted in compliance with paragraphs (1) to (9) shall be of a type approved[4] by the Norwegian Maritime Authority. Equipment installed on board vessels on or after 1 September 1984 shall conform to appropriate performance standards not inferior to the standards referred to in appendix 4. Equipment fitted prior to the adoption of related performance standards may be exempted from full compliance with those standards at the discretion of the Norwegian Maritime Authority, having due regard to the recommended criteria which the EU might adopt in connection with the standards concerned.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

1 The master may, if necessary, seek assistance for adjustment purposes from the supplier, installer or adjuster.

2 The compass shall have an adjustment arrangement which, as far as practicable, is capable of reducing deviation to ± 5 degrees.

3 See section 11 of the Regulations of 15 September 1992 No. 704 concerning operating arrangements on Norwegian ships.

4 See section 1-2 subparagraph 19 and section 1-5.

Section 10-4. *Nautical instruments and publications*

In every vessel the navigator shall have access at all times to a clock, barometer, thermometer, binoculars, adequate and up-to-date charts, sailing directions, list of lights, tide tables and all other nautical publications necessary for the intended voyage.

Section 10-4a. *Automatic Identification Systems (AIS)*

(1) Vessels of 15 metres in overall length (LOA) and upwards constructed on or after 1 September 2012, calling at ports in Norway or other EEA country, shall be fitted with an Automatic Identification System (AIS). All existing vessels of 300 gross tonnage and upwards and of 45 metres in length (L) and upwards shall be fitted with an Automatic Identification System (AIS).

(2) Vessels of 15 metres in overall length (LOA) and upwards constructed before 1 September 2012, calling at ports in Norway or other EEA country, shall be fitted with an Automatic Identification System (AIS) in accordance with the deadlines below:

a) for vessels of 24 metres in overall length (LOA) and upwards but less than 45 metres in length (L); not later than 1 January 2013;

b) for vessels of 18 metres in overall length (LOA) and upwards but less than 24 metres in overall length (LOA); not later than 31 May 2013;

c) for vessels of 15 metres in overall length (LOA) and upwards but less than 18 metres in overall length (LOA); not later than 31 May 2014.

If the vessel calls at ports in an EEA country other than Norway, an Automatic Identification System (AIS) shall be installed within 1 July 2004.

(3) The Automatic Identification System (AIS) shall comply with the requirements specified in appendix 4.

(4) The system shall be maintained in operation at all times, except where international agreements, rules or standards provide for the protection of navigational information.

0 Added by Regulation of 30 June 2003 No. 912 (in force on 1 July 2003), amended by Regulation of 26 March 2012 No. 283.

Section 10-4b. *Voyage data recorder (VDR)*

(1) Vessels of 3,000 gross tonnage and upwards constructed on or after 1 July 2002, calling at ports in Norway or other EEA country, shall be fitted with a voyage data recorder (VDR).

(2) Vessels of 3,000 gross tonnage and upwards constructed before 1 July 2002, calling at ports in Norway or other EEA country, shall be fitted with a voyage data recorder (VDR) if

they are engaged on international voyages. Ships as referred to in the first sentence may, if it can be documented that the coupling of the VDR or the simplified voyage data recorder (S-VDR) and the ship's other system is unreasonable and not practicable, as an alternative be fitted with:

a) S-VDR; or

b) no VDR.

(3) The voyage data recorder (VDR and S-VDR) shall comply with the requirements specified in appendix 4.

(4) Data which have been collected from the VDR system shall be made available to the EEA country concerned in the event of an investigation of a marine casualty which has occurred in waters under the jurisdiction of an EEA country.

0 Added by Regulation of 30 June 2003 No. 912 (effective from 1 July 2003). Amended by Regulation of 14 August 2012 No. 805.

Section 10-5.[1] *Lights, shapes and signalling equipment*

(1) Every vessel shall be provided with lights and shapes in accordance with the Regulations of 1 December 1975 No. 5 for preventing collisions at sea (Rules of the Road at Sea), part C.

(2) Vessels of 24 metres in length (L) and upwards shall be provided with a daylight signalling lamp. The signalling lamp shall be capable of being connected to a portable battery. Vessels of 15 metres in length and upwards shall be provided with at least a searchlight.

(3) Vessels of 24 metres in length (L) and upwards shall carry the International Code of Signals.

(4) Vessels of 45 metres in length (L) and upwards shall be provided with a full complement of flags and pennants to enable communications to be sent using the International Code of Signals. Vessels of less than 45 metres in length (L) engaged on voyages where the use of a pilot or where calling at a foreign port may be expected shall be provided with flags G, H and Q and the flags forming part of the vessel’s call sign.

(5) In addition to the requirements of this section every vessel shall, when navigating in waters where drifting ice may occur, also be provided with at least one searchlight providing illumination of at least 1 lux. measured at a distance of 750 metres.[2]

0 Amended by Regulation of 28 November 2008 No. 1318 (in force on 1 January 2009).

1 See the provisions of section 4-16 (3) and section 4-17 subparagraph (2)3. For existing vessels, see section 20 of the Regulations of 18 August 1978 No. 9154 and section 22 subparagraph 2 of the Regulations of 11 February 1997 No. 127 concerning navigational aids and arrangements on the bridge.

2 Partly special requirement for Norwegian vessels.

Section 10-6. *Navigating bridge visibility*

(1) The navigating bridge visibility in new vessels of 15 metres in overall length (LOA) and upwards shall satisfy the requirements below and the requirements specified in appendix 4.

1. The view of the sea surface from the conning position shall not be obscured by more than two vessel lengths, or 500 m, whichever is less, forward of the bow to 10° on either side irrespective of the vessel’s draught and trim.
2. No blind sector caused by fishing gear or other obstructions outside of the wheelhouse forward of the beam which obstructs the view of the sea surface as seen from the

conning position, shall exceed 10°. The total arc of blind sectors shall not exceed 20° The clear sectors between blind sectors shall be at least 5°. However, in the view described in subparagraph 1 each individual blind sector shall not exceed 5°

3. The height of the lower edge of the navigating bridge front windows above the bridge deck shall be kept as low as possible. In no case shall the lower edge present an obstruction to the forward view as described in this section.
4. The upper edge of the navigating bridge front windows shall allow a forward view of the horizon for a person with a height of eye of 1,800 mm above the bridge deck at the conning position when the vessel is pitching in heavy seas. However, the Norwegian Maritime Authority, being satisfied that a 1,800 mm height of eye is unreasonable and impractical, may reduce the height of eye but not to less than 1,600 mm.
5. The horizontal field of vision from the conning position shall extend over an arc of not less than 225°, that is from right ahead to not less than 22.5° abaft the beam on either side of the vessel.
6. From each bridge wing or side of the wheelhouse/bridge the horizontal field of vision shall extend over an arc of at least 225° that is from at least 45° on the opposite bow through right ahead and then from right ahead to right astern through 180° on the same side of the vessel.
7. From the main steering position the horizontal field of vision shall extend over an arc from right ahead to at least 60° on each side of the vessel.
8. The vessel's side shall be visible from the bridge wing.
9. Windows shall meet the following requirements:
    a. Framing between navigating bridge windows shall be kept to a minimum and not be installed immediately forward of any workstation.
    b. To help avoid reflections, the bridge front windows shall be inclined from the vertical plane top out, at an angle of not less than 10° and not more than 25°.
    c. Polarised and tinted windows shall not be fitted.
    d. A clear view through at least two of the navigating bridge front windows shall be provided at all times regardless of weather conditions. Depending on the bridge configuration, an additional two clear view windows shall be provided.
    e. In a wheelhouse having only one door at least one of the windows on the side opposite the door shall be capable of being used as emergency exit.
10. The wheelhouse shall not be used for other purposes than navigation, communication and functions necessary for handling the vessel, machinery and cargo.

(2) Existing vessels[1] shall, where practicable, meet the requirements of subparagraphs (1)1 and 2. However, structural alterations or additional equipment need not be required.

(3) On vessels of unconventional design which, in the opinion of the Norwegian Maritime Authority cannot comply with the requirements of this section, arrangements shall be provided to achieve a level of visibility that is as near as practicable to that prescribed above.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 For existing vessels, see sections 25, 26 and 27 of the Regulations of 11 February 1997 No. 127 concerning navigational aids and arrangements on the bridge.

Chapter 11 Accommodation and catering

Part A – General provisions

Section 11-1. *The company's responsibility for accommodation checks etc.*

(1) When a vessel is built, altered or purchased the company or shipowner is responsible for verifying that the following matters satisfy the requirements of this chapter:

1. the size of rooms, corridors and exits;
2. hygienic and sanitary conditions etc.;
3. equipment, furnishings, drainage and sewerage arrangements;
4. insulation and noise reduction measures, including the necessary measurements to verify whether the noise levels are acceptable, cf. section 11-3 subparagraph (1)1; and
5. ventilation, heating, and lighting, including the necessary measurements to verify whether the requirements have been met.

(2) Before building or alteration is commenced the Norwegian Maritime Authority shall be notified of the way in which verification under paragraph (1) will be made. Verification shall be carried out by a person possessing the necessary professional qualifications to carry out appropriate verification.

Section 11-2. *Location and size of accommodation spaces etc.*

(1) The size of the accommodation and the number of berths shall be sufficient for the crew present on board the vessel at any time.

(2) Accommodation spaces shall be located aft of the collision bulkhead and shall be arranged so as to provide easy evacuation with access to life-saving appliances. There shall be no access from accommodation spaces to cargo holds, paint stores, deck or machinery part stores or similar rooms. Sleeping rooms shall be located so that noise, vibrations and ventilation fumes from other spaces are limited as much as possible (Council Directive 93/103/EEC).

1. Accommodation spaces[1] are not permitted below a deck situated below the deepest operating waterline.
2. In the accommodation side scuttles in the hull shall be located in accordance with section 2-12. The Norwegian Maritime Authority may permit side scuttles to be dispensed with where the construction so requires, cf. section 11-7 subparagraph (1)1.

1 See definition in section 1-2 subparagraphs 23 and 37.

Section 11-3. *Construction*

(1) General requirements

1. The accommodation shall provide satisfactory protection against weather, sea, heat, cold, excessive noise levels and ventilation fumes from other spaces. Appropriate measures shall be taken to reduce noise in accommodation spaces and workplaces to a reasonable level. The norm specified in appendix 4 shall be complied with as far as practicable.
2. Materials used in the accommodation shall be approved. Steel decks and steel bulkheads forming ceilings, walls or floors in accommodation spaces and exposed to weather or

bounding unheated or highly heated spaces, lift or cable shafts etc., shall be insulated at a K value not exceeding 0.75. The insulation material shall be approved and securely applied to avoid condensation. The insulation on bulkheads and in ceilings shall be covered with cladding. Bulkheads and ceilings in sanitary rooms shall be of steel or other approved watertight material and insulated as specified above.

a. Bulkheads between cabins and corridors etc. shall be made of materials providing adequate noise protection. The materials shall also satisfy the requirements of chapter 5 concerning fire protection.

b. Sufficient drainage of water shall be arranged between panels and external bulkheads in accommodation spaces on the main deck and decks below. The drainage shall be arranged so that an edge profile not less than 50 mm high has been made within the frames or stiffeners on the deck to form a ditch to the drains or plug holes to an open deck at the lowest points, where water can accumulate.

c. Bulkheads, ceilings and floors bounding machinery spaces, heated tanks and galley bulkheads directly adjacent to the accommodation shall have sufficient insulation. Steam, hot water and other pipes in the accommodation shall be enclosed and insulated.

d. The headroom in accommodation spaces shall be not less than 1,980 mm. A reduction in headroom in an area of the accommodation may be accepted when deemed reasonable and provided the reduction will not cause inconvenience to the crew.

e. On fishing vessels of 24 metres in length (L) and upwards constructed on or after 1 January 2019, the headroom in accommodation spaces shall be not less than 2,000 mm. A reduction in headroom to 1,900 mm in an area may be accepted when deemed reasonable and provided the reduction will not cause inconvenience to the crew.

(2) Corridors[1]

1. In vessels of 45 metres in length (L) and upwards the free width of the corridor shall be not less than 900 mm. In vessels of 24 metres in length (L) but less than 45 metres in length (L) the free width of the corridor shall be 850 mm. In vessels of less than 24 metres in length (L) the free width of the corridor shall be not less than 700 mm. In corridors and other alleyways guard rails or grab rails or other means to ensure safe passage shall be arranged. Exits, including emergency exits, and alleyways shall be fitted with emergency lighting, cf. section 4-17 subparagraph (2)3b (Council Directive 93/103/EEC).
2. Companionways shall have at least the same width as the corridor.

(3) Doors

The width of doorways to private day rooms, sleeping rooms and sanitary rooms shall have a net clear opening in the frame of not less than 580 mm. The width of doorways to other accommodation spaces than those referred to in paragraph (2), doors separating accommodation spaces, corridors, doors to stairwells and exit doors shall have a clear opening in the frame of not less than 630 mm. Doors from larger common accommodation spaces shall open outwards or be fitted with a kick plate. Where a kick plate is required in the door, it shall be not less than 400 mm x 500 mm. Doors to machinery spaces shall be of steel or equivalent material, insulated as the bulkhead in which they are situated, and be self-closing and gastight.

(4) Manholes

Manholes or other openings in the accommodation to fuel oil tanks are permitted only in corridors.

(5) Marking

Access to ordinary exits and emergency exits shall be marked with direction indicators in the form of luminescent arrows, green lights or similar. Exits shall be marked in a conspicuous manner above or beside the door, with the wording “Utgang” (Exit) and “Nødutgang” (Emergency exit) respectively in Norwegian, and if necessary in English. Signs, the dimensions of lettering, colours etc. shall be in accordance with the requirements specified in appendix 4.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels with an overall length (LOA) of 15 metres or above but less than 24 metres in length (L)), 28 November 2008 No. 1318 (in force on 1 January 2009), 10 November 2017 No. 1778 (in force on 16 November 2017).

1 See sections 5-13, 5-33 and 5-50. See also the provision in section 2-2.

Section 11-4.[1] *Drinking water*

The master shall be responsible for ensuring sufficient quantities of drinking water on board. The water shall be hygienically safe and also clear, with no distinct smell, taste or colour, and otherwise satisfy the quality standards for drinking water. The drinking water shall be checked regularly by competent personnel. The equipment necessary to perform such checks shall be available. The Ministry of Health and Social Affairs may issue more detailed regulations concerning requirements for and inspection of drinking water and drinking water installations to be complied with.

1 Cf. ILO Convention No. 68 concerning the diet and board of ships’ crews. See also the provision of section 1-2 subparagraph 7.

Section 11-5.[1] *Ventilation*

(1) The accommodation shall be adequately ventilated with clean air. The ventilation system shall ensure a comfortable temperature and sufficient air circulation with no unpleasant draught. In vessels of 24 metres in length (L) and upwards, where the accommodation is situated immediately above fuel oil tanks, mechanical air extract shall be arranged direct to the open air (Council Directive 93/103/EEC).

(2) Washrooms and toilets in vessels of 24 metres in length (L) and upwards shall be fitted with mechanical extract direct to the open air.

(3) Hospital accommodation shall be provided with extract directly to the open air, independently of any other extract ducts. This also applies to natural ventilation.

(4) In vessels of 24 metres in length (L) and upwards mechanical ventilation shall be arranged.

1. The capacity of the ventilation system shall be sufficient to supply every accommodation space with not less than 30 m^3 of fresh air per person per hour. Radio rooms shall have at least 10 air exchanges per hour.
2. Ventilation air intakes and outlets shall be adjustable. Outlets from sleeping rooms to corridors, and otherwise where necessary, shall be fitted with a sound trap. It must be possible to shut off the air in every sleeping room and accommodation space. If no automatic shut-off has been arranged, the ventilation system shall be capable of being shut off from one or more locations outside of the accommodation, and from the

navigating bridge. The main intakes and outlets in all ventilation systems shall be capable of being shut from outside of the fan room in the event of fire.

3. Ventilation ducts, outlets and any insulation of the system shall be made of non-combustible materials.

(5) In vessels engaged in fishing between 40 degrees N and 40 degrees S accommodation spaces shall be fitted with an air-conditioning plant which shall be designed to satisfy at least the following requirements:

1. At an outside temperature of +35°C and approx. 70 per cent relative air humidity it shall be possible to attain an inside temperature of +29°C with approx. 50 per cent relative air humidity. No more than 30 per cent return air may be used.
2. The refrigeration machinery and air coolers of the system shall moreover be so adjusted that at an outside temperature of +28°C with approx. 80 per cent relative humidity, an inside temperature of 24°C with approx. 50 per cent humidity shall be attainable.
3. Conditions referred to in subparagraphs 1 and 2 shall be attainable on the basis of the quantity of fresh air specified in paragraph (4).

(6) Vessels constructed on or after 1 January 2019 engaged in fishing between 40 degrees N and 40 degrees S shall be fitted with air-conditioning system in recreation rooms, the bridge, the radio room and any centralised machinery control room. The air-conditioning system shall satisfy the requirements of the fifth paragraph of this section.

(7) In vessels of 24 metres in length (L) and upwards the galley and provisions room shall be fitted with mechanical ventilation.

1. The galley shall be adequately ventilated, with mechanical ventilation giving not less than 30 injection air exchanges and 40 extraction air exchanges per hour. In provision rooms the mechanical ventilation system shall give not less than 10 air exchanges per hour where there is no separate cold store and freezer room on board. The ventilation system shall be adjustable.
2. The galley shall be fitted with extractor fans having washable filters above kitchen ranges and other cooking or frying places. The mechanical ventilation system in the galley and provision room shall be independent of other ventilation systems.

0 Amended by Regulation of 10 November 2017 No. 1778 (in force on 16 November 2017).

1 See sections 5-9, 5-29 and 5-46.

Section 11-6. *Heating*

The accommodation shall be capable of being heated sufficiently to maintain a minimum temperature of +22°C in all accommodation spaces at an outside temperature of -15°C. Heaters shall be permanently fixed and shielded to avoid any fire hazard or inconvenience to those on board.

Section 11-7. *Lighting*

(1) General requirements

The accommodation shall be sufficiently lighted by daylight and shall also be provided with artificial lighting (Council Directive 93/103/EEC).

1. Where the accommodation is permitted to be located so that the requirement for natural lighting through side scuttles in the ship’s side cannot be met, artificial lighting shall be

provided. The light sources shall not be of a type or so arranged that they will expose persons to danger or injury, and shall be capable of being shielded to avoid impeding the navigation and manoeuvring of own or other vessels.

2. Electrical lighting material shall be approved by a public authority, a technical supervisory body or a recognised classification society. For vessels built or repaired abroad the electrical lighting material may be approved by the vessel's classification society or other recognised survey institution, and shall comply with European standards. Installations shall comply with the rules of a recognised classification society, but shall at least satisfy the Regulations of 4 December 2001 No. 1450 concerning maritime electrical installations, issued by the Norwegian Directorate for Civil Protection and Emergency Planning (DSB).
3. For measurement of the average illumination in a room, all electric lights normally in use shall be turned on. When measuring the lighting all daylight shall be screened off. Five measurements shall be made; in the middle of the room and in all corners. Measurements shall be taken 1 m above the floor.

(2) Daylight

The requirement for daylight is considered satisfied when the following requirements for glass surfaces are met:

1. In sleeping rooms fitted with round portholes the glass surface shall be not less than 0.14 m^2. Portholes must be not less than 0.3 m in diameter. In sleeping rooms fitted with a rectangular porthole the glass surface shall be not less than 0.25 m^2. If the sleeping room is fitted with two rectangular portholes, the glass surface of each porthole shall be not less than 0.15 m^2.
2. In mess rooms and living rooms fitted with round portholes the glass surface shall be not less than 0.03 m^2 for every person for which the room is designed. The total glass surface of every such room shall be not less than 0.14 m^2 divided between two portholes. In mess rooms and living rooms fitted with rectangular portholes the glass surface shall be not less than 0.06 m^2 for every person for which the room is designed. The total glass surface of every such room shall be not less than 0.30 m^2 divided between two portholes.

(3) Artificial lighting

Artificial lighting shall satisfy the following requirements:

1. The average artificial lighting in each accommodation space shall be not less than 150 lux. Every berth shall be fitted with a reading lamp of at least 100 lux.
2. Medical treatment rooms or combined hospital and treatment rooms shall have at least 300 lux above instrument tables and desks. The luminous intensity shall be not less than 750 lux at treatment benches.
3. Bathrooms and toilets shall have at least 100 lux.
4. Corridors shall have at least 50 lux.
5. Galleys shall have at least 200 lux. The luminous intensity shall be not less than 400 lux above kitchen ranges, work benches, dishwashing benches and similar.
6. Provision, cold store and freezer rooms shall have at least 100 lux. The luminous intensity shall be not less than 200 lux above work benches and similar, if fitted.

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 28 November 2008 No. 1318 (in force on 1 January 2009).

Part B – Special provisions for different accommodation space types etc.

Section 11-8. *Sleeping rooms*

(1) Sleeping rooms shall be furnished for a maximum of two persons

(2) In vessels of 24 metres in length (L) and upwards the master and the officers shall have individual sleeping rooms fitted with a washbasin with hot and cold drinking water.

(3) Vessels of 45 metres in length (L) and upwards shall normally have individual sleeping rooms for every crew member, if the vessel's service and the arrangement on board makes this reasonable and practicable.

(4) Doors to sleeping rooms shall be lockable.

(5) There shall be no openings into sleeping rooms from machinery spaces, cargo spaces, galleys, common laundry rooms, common drying rooms, common bathrooms, common toilets and mess rooms. Fishing vessels constructed on or after 1 January 2019 shall not have openings into sleeping rooms from storerooms.

(6) Smoking is not permitted in a sleeping room with more than one person if one of the persons is a non-smoker (Council Directive 93/103/EEC).

0 Amended by Regulation 10 November 2017 No. 1778 (in force on 16 November 2017).

Section 11-9. *Size and furnishings of sleeping rooms*

(1) The floor area of a sleeping room for one crew member shall be at least:

1. 3.50 m^2 in vessels of less than 24 metres in length (L).
2. 4.00 m^2 in vessels of 24 metres in length (L) and upwards.

(2) The floor area of a sleeping room for two crew members shall be at least:

1. 5.00 m^2 in vessels of less than 24 metres in length (L).
2. 6.00 m^2 in vessels of 24 metres in length (L) and upwards.

(3) The floor area of sleeping rooms for the master and officers shall be at least:

1. 4.50 m^2 in vessels of less than 24 metres in length (L).
2. 6.50 m^2 in vessels of 24 metres in length (L) and upwards.

(4) The calculation of the floor area shall include the area taken up by berths, closets, dressers and seating, but not small parts of the floor area of irregular shape which do not increase the area of movement. Sections of inclined bulkheads where berths, closets, dressers and seating are arranged shall not be included in the calculation of floor area. The distance from the edge of a berth to the opposite bulkhead shall be an average of not less than 700 mm.

(5) Sleeping rooms shall be fitted with the following:

1. Lockable closet for every person the room is intended for. The inside height of the closet shall be at least 1,800 mm, with a shelf and devices for hanging clothes. The standard for closets and drawers specified in appendix 4 may be applied.
2. At least one lockable drawer for every person.
3. A table and comfortable seating for at least one person more than the room is intended for.

4. Mirrors, small cabinets or drawers for toilet requisites, bookshelf and clothes pegs. Mirrors and cabinets for toilet requisites may be located in a bathroom in conjunction with the sleeping room. The mirror shall be fitted with an outlet for electrical shaver, with an indication of the voltage. Windows and side scuttles shall be provided with curtains.
5. A berth for every person the room is intended for. The inside measurements of the berths shall be not less than 1,980 mm × 800 mm.
    a. In vessels of less than 24 metres in length (L) the width of the berth at one end may be reduced to 600 mm.
    b. If a berth is fitted above another berth in a sleeping room for two persons, the bottom of the upper berth shall be placed at mid-distance between the bottom of the lower berth and the underside of the ceiling. The bottom of the lower berth shall not be closer to the floor than 300 mm.
    c. A berth fitted above another berth shall have dust-proof bedboards. Berths shall not be placed beside each other. Berths shall be provided with a reading lamp.
    d. Berths in sleeping rooms for two persons shall be provided with draw curtains.
6. Where possible berths shall not be placed along the ship's side or along a deckhouse side when these are located at side. If berths are placed along external bulkheads or the ship's side the insulation's K value shall not exceed 0.3.
7. A sign shall be provided above the entrance door to each sleeping room that states the maximum number of persons allowed to use the room at any one time.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 10 November 2017 No. 1778 (in force on 16 November 2017).

Section 11-10. *Mess rooms, day rooms, etc.*

(1) Mess rooms

1. The crew shall have a separate mess room. In vessels of less than 24 metres in length (L) a combined galley and mess room may be used, cf. section 11-11 subparagraph (1)2. Mess rooms shall normally be arranged so that all persons the room is intended for may have their meals at the same time.
2. Mess rooms shall be provided with one or more tables. The table area per person shall be at least 0.6 m × 0.4 m. The chairs shall be of appropriate material capable of withstanding moisture and easy to clean.
3. The mess room shall be equipped with tableware and cutlery for all persons on board.
4. Vessels of 24 metres in length (L) and upwards shall be provided with arrangements for hot and cold drinks.

(2) Day rooms

1. In vessels of less than 45 metres in length (L) which are not provided with a separate day room the mess room shall be dimensioned, arranged, furnished and equipped so as to be suitable as day room. The floor area of combined day rooms and mess rooms shall be at least 2 m^2 for every person the room is intended for.
2. Vessels of 45 metres in length (L) and upwards shall have a separate day room.
3. In the day room, recreational facilities, equipment and services shall be available.

(3) In mess rooms, day rooms, offices and other rooms where more than one person stays appropriate measures shall be taken to protect non-smokers from tobacco smoke (Council Directive 93/103/EEC).

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)), 10 November 2017 No. 1778 (in force on 16 November 2017).

Section 11-11. *Size of the galley, equipment, etc.*

(1) Furnishing of galley etc.

1. Vessels of 24 metres in length (L) and upwards shall be fitted with a separate room furnished as galley.
2. In vessels of less than 24 metres in length (L) a combined mess room and galley may be used, divided into two sections. The entire room shall be considered a galley with regard to fire protection.
3. Bulkheads and ceilings in galleys shall be of steel or other approved material. They shall be flushwater-proof. A service hatch arrangement between galley and mess room shall have the same fire safety standard as the bulkhead in which the hatch is arranged. Piping, ducts, cables and similar shall be enclosed as far as practicable.
4. The floor in the galley shall have tile covering or other approved slip-resistant material and have sufficient drainage of water, account being taken of the vessel's trim etc. in various loading conditions.

(2) The layout, construction and design of the galley shall be appropriate to the size of the ship and the number of persons on board, ensuring a satisfactory standard of hygiene and quality. The quality of the galley and its furnishings shall be such as to ensure a satisfactory catering service at all times.

(3) The galley shall be arranged with adequate equipment for preparing food, and for keeping the galley and its equipment hygienic and clean.

1. Vessels of 24 metres in length (L) and upwards shall be fitted with at least two dish-washing sinks with hot and cold water, as well as a separate slop sink and an arrangement for placing/disposal of garbage in accordance with the regulations currently in force.
2. Vessels of less than 24 metres in length (L) shall be fitted with at least one dish-washing sink with hot and cold water in the galley or the dish-washing section.
3. Appropriate cupboards and shelves shall be provided for utensils, etc. Cleaning equipment shall be kept in a separate closet.
4. All vessels shall be fitted with a washbasin with hot and cold running water for hand washing in the galley.

(4) Vessels having more than 15 persons on board shall be equipped with a dish-washing machine satisfying the requirements of the Regulations of 12 November 1997 no. 1239 concerning food hygiene, issued by the Ministry of Health and Social Affairs. Instructions for the cleaning and maintenance of the dish-washing machine shall be displayed beside the machine.

(5) The tops of workbenches and dish-washing sinks shall be of stainless steel or other approved material. Sinks and the surface covering of the bench in which they are located shall be in one piece.[1]

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

1 Cf. ILO Convention No. 68 concerning the diet and board of ships' crews.

Section 11-12. *Provision rooms, cold store and freezer rooms*

(1) Vessels required to have a separate galley under section 11-11 subparagraph (1)1 shall be fitted with a separate provision room. For the location of galley, considerations shall be taken to avoid deterioration of provisions due to condensation, intense heat, pollution and infestations etc., and to locate store rooms as close to the galley as practicable. Provision rooms shall be of adequate size and have functional furnishings for appropriate storage of provisions. The rooms shall be arranged so that goods cannot be placed directly on the floor.

(2) Vessels whose area of operation requires foodstuffs to be refrigerated during storage shall be fitted with a refrigerator or cold store room. It shall be possible to keep a temperature in cold store rooms or similar rooms of between -1°C and +4°C in all climatic conditions.

(3) Vessels whose area of operation requires foodstuffs to be frozen during storage shall be fitted with chest freezers, upright freezers or freezer rooms. It shall be possible to keep a temperature of -25°C or lower in all climatic conditions. It shall be possible to store fish separate from other foodstuffs.

(4) The temperature in cold store and freezer rooms shall be capable of being read from the outside.

(5) Doors to cold store and freezer rooms shall be capable of being opened from either side and shall be arranged so that transport of provisions through the mess room and galley is avoided. Where cold store and freezer rooms are large enough for personnel to enter, an alarm system shall be provided from these rooms to the galley or other appropriate location.

Section 11-13. *Hospital accommodation*

(1) The following vessels shall be fitted with hospital accommodation:

a. vessels with a crew of 15 persons or more;

b. vessels constructed on or after 1 January 2019 of 45 metres in length (L) and upwards.

(2) Hospital accommodation shall be located as far away as possible from sources of noise, such as machinery spaces, propellers, bow propellers etc. Hospital accommodation shall be located close to the other accommodation spaces so as to be easily accessible for care and treatment of a patient. The door(s) shall be arranged so as to provide easy transport of a person on a stretcher to and from hospital accommodation spaces.

(3) Hospital accommodation shall have a separate sanitary room with a bathtub, washbasin and water closet.

(4) Hospital accommodation shall have a floor area of not less than 6 m and shall be equipped with a detached bed of standard hospital type with bedrails capable of being folded down and elevating headboard and footboard. A bedside table and chair shall also be provided.

(5) Where no separate treatment room has been arranged in conjunction with the hospital accommodation, such accommodation shall be equipped with a treatment bench, instrument table, desk, refrigerator, medicine cabinet, cabinet for other medical supplies and washbasin with hot and cold water. There shall also be room for a stretcher.

(6) Door(s) to hospital accommodation spaces shall be not less than 730 mm wide.

(7) Emergency lighting and electric socket outlet connected to the vessel's emergency source of power shall be installed. The room shall be connected to the vessel's intercom system. In vessels which do not have such systems a direct telephone connection shall be arranged with the bridge.

(8) A bell wire shall be arranged at the bed, with connection to the bridge and mess room or similar rooms where persons stay.

(9) The door to the hospital accommodation shall be marked "Sykerom" (Norwegian for "sick room").

0 Amended by Regulation of 10 November 2017 No. 1778 (in force on 16 November 2017).

Section 11-14. *Bathrooms etc.*

(1) Vessels of less than 24 metres in length (L) shall have at least one washroom or bathroom located near the sleeping rooms. Vessels of 24 metres in length (L) and upwards shall have separate washrooms and bathrooms for officers and crew, with a possibility for separate sanitary rooms for male and female crew members.

(2) The washroom, or a separate room in the vicinity of that room, shall be fitted with one shower with hot and cold water for every fourth person the room is intended for. If the shower is located in the washroom, the drain from the shower must be arranged to prevent water from flowing into the room.

(3) Washrooms shall be fitted with at least one washbasin for every third person the room is intended for. In vessels where, owing to catch processing activities, there are more than a total of 30 persons on board, the washrooms shall be fitted with a washbasin for every fourth person the room is intended for.

(4) The calculation of the number of washbasins and showers under paragraphs (2) and (3) shall not include those crew members who have a separate washbasin in their sleeping rooms.

(5) In cases where the ship is provided with a sauna-bath, the door shall open outwards, and shall be capable of being opened from either side. The door and door frame shall be slanted to prevent the door from being jammed. The sauna shall be provided with an alarm connected to an alarm bell in the corridor outside cabins/sleeping rooms and on the bridge.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Section 11-15. *Laundry and drying-rooms for clothes*

Facilities shall be arranged for washing and drying clothes, with a capacity sufficient for the size of the crew and the normal duration of the voyage. If a vessel of 15 metres in overall length (LOA) and upwards is not fitted with a separate washing machine for the crew and no special laundry room for clothes has been arranged, the washroom/bathroom shall be provided with sinks for such washing. Drying-rooms shall be well ventilated and heated.

Section 11-16. *Water closets*

(1) The following number of water closets shall be provided as a minimum:

1. One water closet in vessels of less than 24 metres in length (L).

2. Two water closets in vessels of 24 metres in length (L) and upwards, but less than 45 metres in length (L).
3. Three water closets in vessels of 45 metres in length (L) and upwards, or one for every six persons, whichever is the greater.

(2) Water closets shall be located with easy access from the bridge and machinery space/control room.

(3) If there is more than one water closet in a room or if water closets are located in communal washrooms or bathrooms, the water closets shall be separate and fitted with a door.

(4) Drains from water closets, washbasins and washrooms shall be fitted with drain traps.

0 Amended by Regulations of 13 Nov 2000 No. 1135, 20 March 2001 No. 340 (in force on 1 April 2001 for new and existing vessels of 15 metres in overall length (LOA) and upwards but less than 24 metres in length (L)).

Part C – Diet, cleaning, etc.

Section 11-17. *Diet etc.*

The diet shall be satisfactory with regard to health, and to the greatest extent possible composed according to diet standards given by the Norwegian National Nutrition Council. The preparation and service of food shall be carried out with proper consideration to hygiene. The diet shall be adapted to the needs of the persons working on board, and religious and cultural practices shall be taken into account.

0 Amended by Regulation of 10 November 2017 No. 1778 (in force on 16 November 2017).

Section 11-18. *Diet responsibility*

The master is responsible for ensuring that the diet is sufficient and balanced, that provisions are properly stored and that a sufficient quantity of provisions is available on board at all times.

Section 11-19. *Manuals, etc.*

Appropriate manuals, brochures, wall charts, etc. regarding nutrition and the purchase, storage, preparation and service of food shall be provided on board.

Section 11-20. *Precautions in the event of the outbreak of disease caused by foodstuffs or drinking water*

If serious disease is assumed to have been caused by the hygienic or nutritional condition of provisions or drinking water, it shall be considered whether the ship should proceed to a port. Samples of food and drinking water assumed to have caused disease shall be kept refrigerated or frozen in clean and properly closed containers. The master shall send a written report to the Norwegian Maritime Authority and the Norwegian Board of Health Supervision. The report shall include the entries made in the deck log book regarding the disease, specifying the assumed cause and the measures taken to prevent the spread of the disease and to treat/nurse the sick person(s).

Section 11-21. *General cleaning in the galley and accommodation spaces etc.*

(1) Galleys and recreation rooms shall be subject to proper cleaning.

(2) Spraying with insecticides shall be carried out only when closed containers do not provide adequate protection against insects. Disposal of garbage shall be carried out in accordance with the regulations currently in force concerning disposal of garbage, etc. When the vessel is close inshore garbage shall be disposed of in accordance with the requirements of local authorities.

(3) Persons engaged in the preparation and serving of food may be required to undergo special health control.

(4) In ships purchased from abroad and which are not newbuildings, all rooms intended for the use of the crew shall be disinfected and cleaned before use.

(5) The master or the person authorised by him shall regularly supervise cleaning of, *inter alia*, all rooms intended for the use of the crew. In vessels required to keep a deck log book[1] entries shall be made regarding drinking water and provisions.

1 Cf. section 10 of the Regulation of 15 September 1992 No. 693 concerning the form and keeping of log books for ships and mobile offshore units.

Section 11-22. *Fishing in tropical waters*

In vessels engaged in fishing in tropical waters or other waters infested with insects, the crew accommodation spaces shall be protected by insect screens over side scuttles, air pipes, air inlets to mechanical ventilation plants and doors to open decks. Air-conditioned accommodation spaces need to be fitted with insect screens only in the exit doors to corridors. Such vessels shall be provided with awnings/sun shades above recreation places on deck.

Chapter 12 Final provisions

Section 12-1. *Entry into force*

These Regulations enter into force on 1 July 2000 for new and existing vessels of 24 metres in length (L) and upwards to which these Regulations are applicable.

0 Amended by Regulations of 13 November 2000 No. 1135, 29 June 2007 No. 1006 (in force on 1 July 2007, previously section 12-2).

Section 12-2. *Transitional Provisions*

(1) Existing vessels shall be surveyed and issued with certificates under these Regulations at the first renewal of certificates or intermediate survey after the entry into force of these Regulations.

(2) For existing vessels of 24 metres in length (L) and upwards it is the company's or master's responsibility to ensure that radar transponders are fitted at the first regular inspection after the entry into force[1] of these Regulations of inflatable liferafts in accordance with section 7-16 paragraph (7), cf. section 7-14.

0 Amended by Regulations of 27 September 2002 No. 1087, 29 June 2007 No. 1006 (in force on 1 July 2007, previously section 12-3), 28 November 2008 No. 1318 (in force on 1 January 2009).

1 The Regulations entered into force on 1 April 2001 for vessels of 15 metres in overall length (LOA) and upwards, but less than 24 metres in length (L).

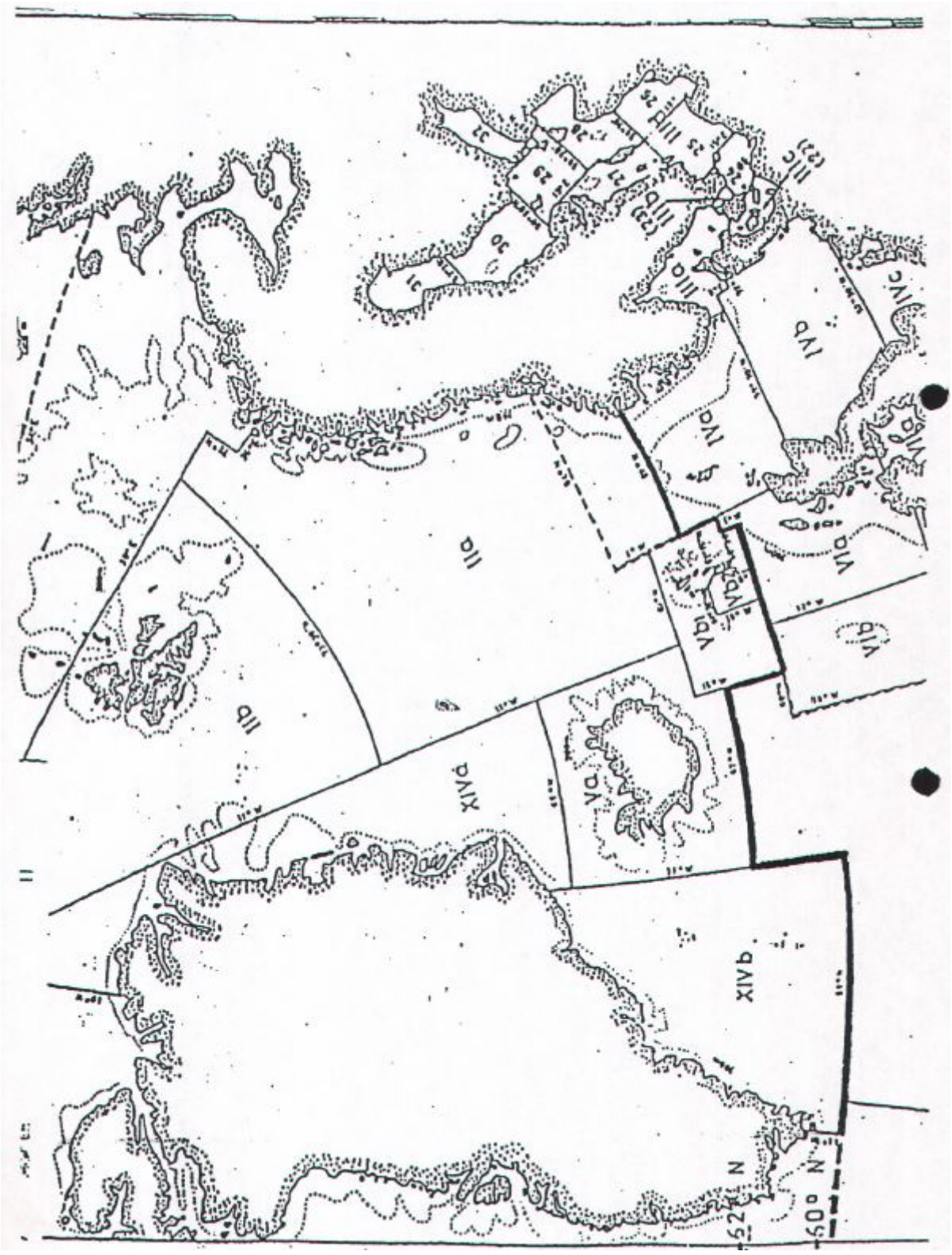
Section 12-3. *Amendments to other regulations*

As from the dates on which the present Regulations enter into force in accordance with section 12-2, the Regulations of 15 October 1991 no. 712 concerning the construction of fishing vessels 15 m in overall length (LOA) and upwards is repealed with respect to new vessels of 24 metres in length (L) and upwards.

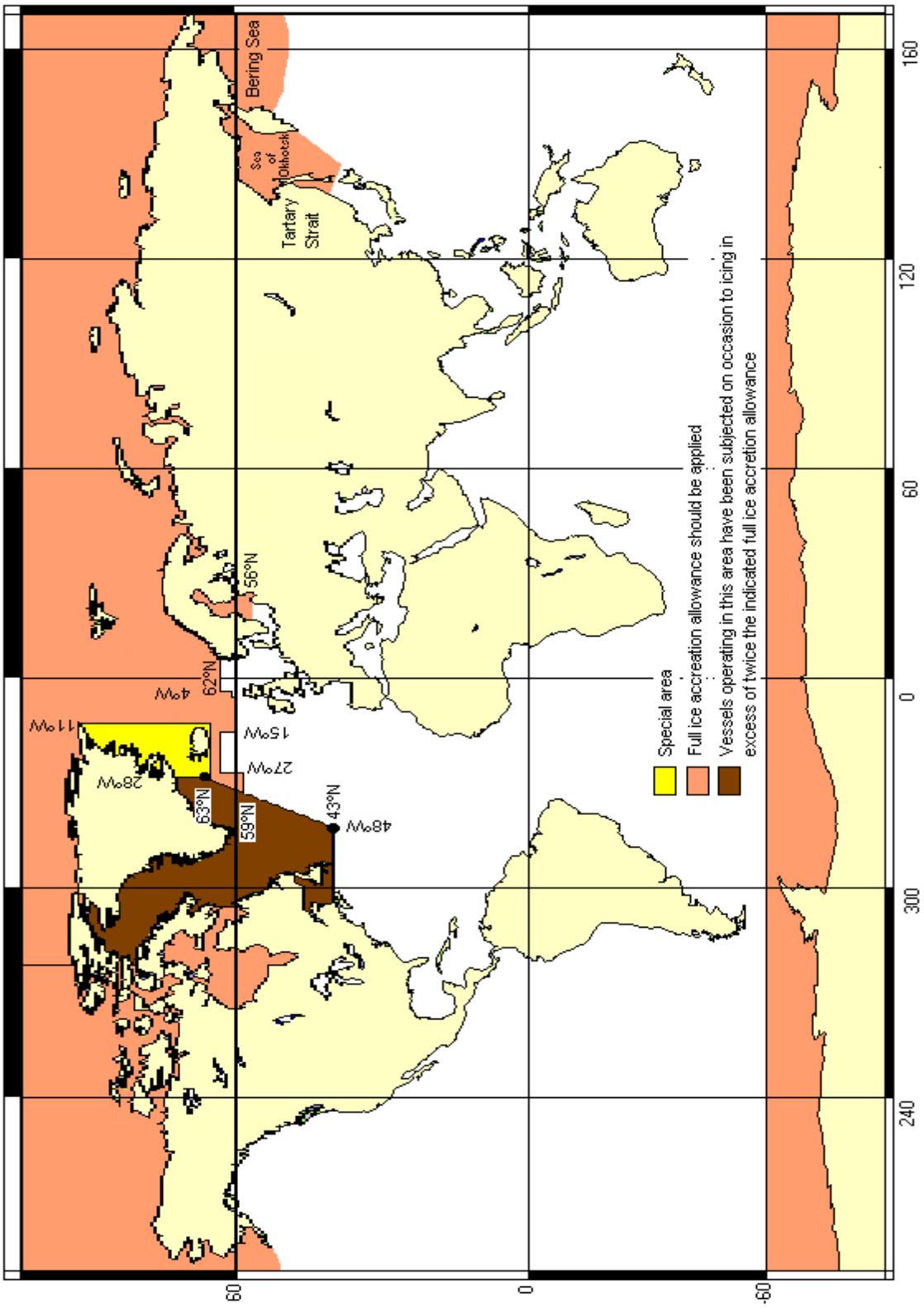
0 Amended by Regulations of 13 November 2000 No. 1135, 29 June 2007 No. 1006 (in force on 1 July 2007, previously section 12-4).

Appendix 1 Northern waters

The bold line on the map marks the limit of northern waters, ref. section 1-3 subparagraph 33.



Appendix 2


Bering Sea
Sea of Okhotsk
Tartary Strait
62°N
56°N
63°N
59°N
43°N
40W
110W
15°W
27°W
28°W
48°W
Special area
Full ice accretion allowance should be applied
Vessels operating in this area have been subjected on occasion to icing in excess of twice the indicated full ice accretion allowance
60
0
-60
120
160
240
300

Appendix 3 List of drawings

Fishing vessels of 15 metres in overall length (LOA) and upwards

The list specifies the drawings and supporting documents normally to be submitted to the Norwegian Maritime Authority via its local station for approval or information regarding newbuildings and purchased vessels. For conversions and modifications it will normally be necessary to submit only documentation of the features affected by such conversions and modifications. Items marked **K** do not normally apply to classed vessels, as this documentation will be assessed by the classification society. Items marked **G** indicate documentation subject to approval. Items marked **I** are documentation which is generally to be submitted to the Norwegian Maritime Authority for information, but which will be subject to random checks. All drawings must bear a field reserved for titles, which is to contain the title of the drawing, its number, date, scale, name of the person responsible, number/letter of revision and date of revision, with any modifications described and marked. Further documentation may be required submitted to the Norwegian Maritime Authority or to a local station of the NMA.

Name of vessel / Building No:

Call sign / yard:

Remarks	***Type***	***Min. No.***	***Description***	***In***	***Processed***	***Completed***
1. GENERAL						
I	General arrangement drawing(s) (GA) in plane and profile/cross-section.	3	The drawing shall specify: - Main dimensions, including overall length, moulded breadth and moulded depth. - Baseline, maximum draught. - Type of vessel (trawl, line etc.), including combination modes of operation, and the intended trade area. - Cargo holds, tanks, machinery spaces, service spaces, day rooms, cabins, hospital, mess room, galley, bathrooms and toilets. - The floor area of cabins, galley, hospital and bathrooms. - Breadth of corridors and stairways/exits. - Emergency exits with doors, door widths, stairs and ladders to decks and to stowage places for life-saving appliances, and the embarkation ladder(s). - Deck machinery and lifting gear. - Location of any gas cylinder central for welding gases, and			

			spaces for storage of gases for hazardous substances. - Location of anchor-handling gear.			
I	Building contract	1	An excerpt of the contract showing when it was made.			
2. CONSTRUCTION						
I/K	Profile and deck plan	3	Shall inter alia indicate the main dimensions of the vessel, baseline, maximum draught and distance between frames.			
I/K	Drawing(s) of frames	3	Shall indicate the frames decisive to the design, in general at least one frame per space. Main frame drawing to contain information about the vessel's equipment number and anchor-handling gear. The baseline shall be drawn for every frame.			
I/K	Fore and aft ship structure	3				
I/K	Hull plating	3				
I/K	Drawing(s) of bulkheads	3				
I/K	Superstructures and deck houses	3				
I/K	Rudder arrangements	3				
I/K	Engine base	3				
I/K	Bases for deck machinery	3	The drawings shall show the bases incl. underlying structures for anchor winches, fishing winches, davits, etc. Actual loads shall be illustrated by a force diagram. The capacity of the various loaded components shall be specified on the drawings.			
I/K	Arrangement of appliances	3	The drawing shall show: - force diagrams of devices and equipment subjected to loads in connection with fishing, and confirm that these components are dimensioned for actual loads - location of deck machinery (winches, davits, etc.), launching appliances etc. - fishing and production equipment incl. workplaces and access.			
I/K	Design calculations	1	To be enclosed as a separate booklet.			
3. STABILITY AND FREEBOARD						
I	Lines drawing / constr. body plan	1	In accordance with NS 2598. May be omitted if drawing is enclosed with tonnage calculations and if			

			tonnage and stability calculations are submitted.			
I	Control data	1	Verification of basis for the stability calculations. - Computer print-out of hull description and description of spaces, tanks, hatches and superstructures. - Plots of data (isometric, body plan and SAK curve). - Calculation of angle of flooding. - Outline of buoyancy volumes.			
I	Hydrostatic data, cross curves	2	Tables for trimmed waterlines and control plots.			
I	Tank plan	3	Capacities, contents, specific gravity, volumetric centre of gravity, free liquid surface effect, heights to top of air pipes.			
I/G	Capacity data	2	Tables for spaces and tanks (sounding tables) to be submitted for information. Ullage tables (RSW) and cargo space certificate to be submitted for approval when applicable.			
G	Inclining test report*	2	On standard form. Report to be submitted with the local station of the NMA for approval, which will forward one copy to the NMA main office. For standard form and procedure for carrying out inclining tests, see www.sjofartsdir.no. * One copy of lines drawing to be submitted to local station together with inclining test report.			
G	Trim and stability (loading conditions)	2	All calculations to be based on data prepared by means of software approved by the NMA. Information for on-board use shall be in Norwegian.			
G	KG limit curves	2	Only for vessels of 45 metres in length (L) and upwards.			
I	Report and stability calculations with regards to flooding	2	If necessary stability calculations shall be prepared showing flooding through openings for sonar or through other openings in the hull, cf. section 2-3a.			
G	Instructions for use of water ballast	2	Information about limited cargo carrying capacity, if any, shall be included in such instructions. For standard form and procedure for instructions for use of water ballast, see www.sjofartsdir.no.			
G	Instructions for use of anti-rolling tank	2	For standard form and procedure for instructions for use of anti-			

			rolling tank, see www.sjofartsdir.no.			
I	Stability manual	2	Shall contain description explaining the effects of cargo placement, use of lifting gear, free liquid surface effect in tanks, ice accretion, flooding, reserve buoyancy and following seas.			
I	Freeboard drawing	3	Drawing shall as a minimum contain the following information: - baseline, maximum draught - main dimensions, incl. calculation of length (L), depth from baseline to the underside of the deck at side at L/2 and at $L_{PP}/2$ - deck thickness at side for freeboard decks at L/2 and desired position of deckline - doors and hatches: types, materials, height of coamings and sills - air pipes and ventilators: location, height above deck, material, type, means of closure - side scuttles/windows: location, size, fixed/capable of opening, hinged/loose deadlights - outlets in side and bottom: height above/below loaded waterline, valves and means of closure - railings/bulwark: height, freeing port area - drainage of enclosed working deck: pumps and bilge wells/bilge ports, if any, means of closure - offal chutes: height above loaded waterline, means of closure - arrangement of side and stern hatches			
4. MACHINERY AND OUTFITTING						
I/K	Machinery space arrangement	3	Calculations of air requirements in machinery spaces shall be noted on the machinery space arrangement.			
I/K	Arrangement drawing of spaces for refrigerating machinery	3	The drawing shall show: - location of the spaces containing refrigerating machinery in the vessel - type and amount of cooling medium - exits/emergency exits from the space - vital components in the refrigerating system, incl. compressors, containers for cooling medium, evaporators, etc.			

			- ventilation system and the system's control organs - location of safety appliances - detection for cooling medium			
I/K	Piping systems	3	Drawing of fire main, bilge, fuel oil, RSW and sea cooling water systems, indicating relevant data for pumps and other components necessary to the vessel's safety and operation.			
I/K	Report of torsional oscillation check	1	Applies to engine power greater than 500 kW and to engine power greater than 300 kW when the shaft length exceeds 6 metres.			
I/K	Facilities and equipment for prevention of oil pollution + SOPEP.	3	Documentation to be submitted for all unclassed vessels, as well as for classed vessels of less than 400 gross tonnage.			
I/K	Shaft arrangement	3	Shall show the shaftline, propeller and rudder.			
I/K	Arrangement drawing of personnel lift and cargo and personnel combination lift	(1)	Arrangement drawing showing safety appliances for personnel lift and goods and personnel combination lift to be made available as necessary to the inspector at survey or audit on board, and may be required submitted in one copy if considered necessary.			
5. FIRE SAFETY AND LIFE-SAVING APPLIANCES						
G	Structural fire safety*	3	To be categorised in accordance with chapt. 5, section 5-7 of the Regulations. Penetrations for ventilation ducts, pipes etc. in fire-classified bulkheads/decks shall be shown on the drawing. * Does not apply to vessels of less than 24 metres in length (L)			
I	Ventilation system in accommodation	3	Penetrations for ventilation ducts, pipes etc. in fire-classified bulkheads/decks shall be shown on the drawing.			
I	Door plan	3				
I	Fixed fire-extinguishing system for machinery spaces.	3	System documentation in accordance with the applicable circular on fire-extinguishing systems.			
G/I	Fire control and safety plan*	3	Plan shall include information as described in chapt. 5, sections 5-25 and 5-42 of the Regulations. * For vessels of less than 24 metres in length (L) the plan shall be submitted for information only.			

I	Muster list	3	Instruction shall include information in accordance with chapt. 8, section 8-2 of the regulation.			
I	Launching arrangements*	3	Drawing and copy of type-approval certificates to be submitted. The drawing shall show arrangement used for the angles of trim and heel specified in the Regulations. * Does not apply to vessels of less than 24 metres in length (L).			
6. RADIO AND ELECTRICAL INSTALLATIONS						
	Radio arrangements, antennas and wiring arrangements for radio		Drawing shall be submitted directly with Telenor Maritim Radio. Drawing shall show the completed radio arrangement and include the following information, inter alia: - Equipment location and indication of make and type. - Sea area - Antenna location, as viewed from fore or aft, starboard or port side and from above. Antenna means all antennas, including antennas for navigational aids. - Radio equipment's connection to the main, emergency and reserve source of energy and location of fuses.			
	Electrical installation		Drawings of electrical installations to be sent, with a prior notification of electrical installation, direct to the Norwegian Directorate for Civil Protection and Emergency Planning (DSB) or to the classification society for classed vessels.			
7. NAVIGATION						
G	Arrangement of lights	3	Shall show the location of lights (in profile, plane and section), sound signalling apparatus and fixed signalling equipment.			
I	Arrangement of wheelhouse	3	Drawing shall include information about visibility from wheelhouse and equipment and instruments and their location			
8. TONNAGE						
I	Request for measurement (Report 94)	1	To be submitted to the Norwegian Maritime Authority's local station.			
I	General arrangement	1	To be enclosed with the request for tonnage measurement.			
I	Profile and deck plan	1				
I	Midship section	1				

I	Design of fore and after half	1				
I	Lines drawing/constr. body plan	1	NS 2598			
I	Off-set tables	(1)	May be required if the lines drawing/constr. body plan contains inadequate information.			
I	Capacity plan	1				
I	Detailed drawing(s) showing openings in bulkheads, decks or ship sides, with possible means of closure.	1				
I	Detailed drawings showing dimensioned geometrical (steel) construction of cargo holds/cargo tanks, cargo hatches, superstructures, deck houses and funnel.	1				
I	Reference drawing/ dimensioned sketch, identifying spaces/volumes forming part of gross and net tonnage.	1				
I	Tonnage calculations	1	Tonnage calculations to be prepared by means of a calculation program approved by the Norwegian Maritime Authority. The same calculation program shall be used for stability and tonnage.			
I	Any manual calculations of volumes forming part of or required to be excluded from gross volume.	1				
I	Input data for all volumes forming part of or required to be excluded from gross volume.	1				
I	Input data for all volumes forming part of net volume.	1	When length (L) is equal to or greater than 24 metres.			

I	Plots in transverse section of all volumes.	1				
I	Isometric plot of all volumes.	1				
I	Plots in profile of all volumes.	1				
I	Plots of sectional area curve for the hull incl. indication of sectional areas and hull volume (the lower deck volume).	1				
I	Tabular presentation of volumes forming part of or required to be excluded from gross volume.	1				
I	Tabular presentation of volumes forming part of net volumes.	1	When length (L) is equal to or greater than 24 metres.			
I	Summary of volumes/spaces forming part of net tonnage.	1	When length (L) is equal to or greater than 24 metres.			

Appendix 4 List of IMO resolutions, MSC/Circs., standards, Codes and conventions required by the present regulation.

	Section	IMO Res. and MSC/Circ.	Conventions and Codes	Standards
Chapter 2				
Weather-tight doors Spraytight doors	Section 2-4 (2) Section 2-4 (2)			NS 6090 NS 6091
Hatchways closed by wood covers	Section 2-5 (3)		Load Line Convention, 1966, Regulations 14 and 15	
Side scuttles and windows	Section 2-12 (6)			NS 6141 (ISO 1751, 1977 lysventiler - side scuttles) NS 6149 (ISO 3903, 1977 vinduer - windows)
Personnel lifts and personnel and cargo combination lifts	Section 2-21			ISO standard 8383 Lifts on ships-specific requirements
Chapter 3				
General	Section 3-1 (2)	IMO Res. A.749(18) MSC.75(69)		
Stability criteria	Section 3-2(a) sub. 4	IMO Res. A.749(18) para. 4.2.6.2.1–4.5.6.2.4		
Severe wind and rolling	Section 3-5	IMO Res. A.749(18) para. 4.2.4.		
Subdivision and damage stability	Section 3-14		Torremolinos Protocol, 1993, Attachment 3 recommendation 5	
Chapter 4				

Arrangements for fuel oil, lubricating oil and other flammable oils	Section 4-10 (7) sub. 1	MSC/Circ.647		
Protection against noise	Section 4-12	IMO Res. A.468(XII)		
Chapter 5				
Definitions	Section 5-2 (1) Section 5-2 (2) Section 5-2 (3) sub. 5 Section 5-2 (4) sub. 4 Section 5-2 (6) sub. 3 Section 5-2 (9)		IMO FTP Code* IMO FTP Code IMO FTP Code IMO FTP Code IMO FTP Code IMO FTP Code * International Code for Application of Fire Test Procedure	
Details of construction	Section 5-8 (3) sub. 1		IMO FTP Code	
Ventilation systems	Section 5-9 (1) sub. 1a		IMO FTP Code	
Use of materials, penetrations	Section 5-11 (2) Section 5-11 (3) Section 5-11 (4)		IMO FTP Code IMO FTP Code IMO FTP Code	
Automatic sprinkler and fire alarm and fire detection systems	Section 5-14 (4)	IMO Res. A.800(19)		
Fire extinguishers	Section 5-20 (4)			NS 3910
Fire extinguishing appliances in machinery spaces	Section 5-22 (1), sub. 1a sub. 1b sub. 1c	MSC/Circ.728	SOLAS, II-2/5* SOLAS, II-2/9 SOLAS, II-2/5 or 9, or MSC/Circ.	

	Section 5-22 (5)		728 where applicable * In addition to the CO_2 gas, argonite, inergen and halotron II B gases are also accepted	
Fireman's outfits	Section 5-24 (2)		SOLAS II-2/17 Breathing apparatus in accordance with regulation 17.1.2.1 is not accepted. For vessels constructed after 1 January 2003: IMO Fire Safety Systems Code, Chap. III 2.1, 2.1.1 and 2.1.2	
Fire control and safety plan	Section 5-25 (1)	IMO Res. A.654(16) and A.760(18) and A.756(18)		
Use of materials, penetrations	Section 5-31 (1) Section 5-31 (3)		IMO FTP Code IMO FTP Code	
Fire extinguishing appliances in machinery spaces	Section 5-40 (1) sub.1a. sub.1b. sub.1c.	MSC/Circ.728	SOLAS, II-2/5* SOLAS, II-2/9 * In addition to the CO_2 gas, argonite, inergen and halotron II B gases are also accepted.	
Surface materials, pipelines	Section 5-48 (1)		IMO FTP Code IMO FTP Code	

	Section 5-48 (2)			
Fire extinguishing appliances in machinery spaces	Section 5-57 (1) sub.1 sub.2 sub.3	MSC/Circ.728	SOLAS, II-2/5* SOLAS, II-2/9 * In addition to the CO_2 gas, argonite, inergen and halotron II B gases are also accepted.	
Chapter 6				
General provisions	Section 6-2 (3)		ILO Conv. No. 152	NS 6200
Pilot arrangements etc., pilot ladder, pilot hoist	Section 6-6 (1) (pilot ladder) Section 6-6 (1) (pilot hoist)	IMO Res. A.667 (16) IMO Res. A.426 (XI), MSC/Circ.568/Rev.1	SOLAS Chapt. V regulation 17 b SOLAS Chapt. V regulation 17 b	NS 6248 ISO standard 799 ISO standard 799
Gangways, accommodation ladders	Section 6-7 (2)			ISO standard 7061, 5488, NS 6249
Suspension arrangement requirements for accommodation ladders etc.	Section 6-8 (1) Section 6-8 (2) Section 6-8 (5)			NS 6249 para. 6.1.4 NS 6249 para. 6.1.3 NS 6249
Marking of tanks, spaces etc.	Section 6-13 (1)			NS 6033, NS 4210
Signs and notices	Section 6-22 (2)			NS 6033, NS 4210,
Chapter 7				
Evaluation, testing and approval of life-saving appliances and arrangements	Section 7-3 (2) sub. 1 and sub. 3 Section 7-3 (4)	IMO Res. A.689 (17), IMO Res. MSC.54(66)		

			SOLAS Chapt. III, cf. Life-Saving Appliance Code	
Radio life-saving appliances	Section 7-13 (4)	IMO Res. A.694 (17) IMO Res. A.762 (18) I-ETS 300.225 IEC 945		
Radar transponders	Section 7-14 (1)	IMO Res. A.530 (13), IMO Res. A.694 (17), IMO Res. A.802 (19), IMO Res. A.813 (19), ITU-R M628-2		
Retro-reflective materials on life-saving appliances	Section 7-15	IMO Res. A.658 (16) IMO Res. MSC.48(66)	SOLAS Chapt. III regulation 34, cf. LSA Code, Chapt. 1, para. 1.2.2.7	
General requirements for lifeboats	Section 7-17 (8), sub.18		SOLAS V/16	
General requirements for liferafts	Section 7-20 (5) sub. 1p		SOLAS V/16	
Chapter 10				
Shipborne navigational equipment	Section 10-3 (1) sub. 6 (compasses)	IMO Res. A.382(X) IMO Res. A.694(17)	SOLAS Chapt. V regulation 12 (b)	ISO standard 449 ISO standard 2269 ISO standard 10316
	Section 10-3 (2) sub.1c (gyro)	IMO Res. A.694(17) IMO Res. A.424(X) IMO Res. A.813(XI) (19)	SOLAS Chapt. V regulation 12 (d) and (e)	ISO standard 8728
	Section 10-3 (3) sub. 1 (radar installation)	IMO Res. A.477(XII) IMO Res. A.694(17) IMO Res. A.813(19)	SOLAS Chapt. V regulation 12 (g) and (h)	
	Section 10-3 (4) sub. 1	IMO Res. A.224(VII) IMO Res. A.694(17) IMO Res. A.813(19)	SOLAS Chapt. V regulation 12 (k)	ISO standard 9875

	(echo-sounding device) Section 10-3 (5) (device to indicate speed and distance) Section 10-3 (8) (radio direction-finding apparatus) Section 10-3 (9) (automatic pilot) Section 10-3 (9) (rousing and calling-up installation)	IMO Res. A.478(XII) IMO Res. A.694(17) IMO Res. A.813(19) IMO Res. A.824(19) IMO Res. A.529(13)(16) IMO Res. A.694(17) IMO Res. A.813(19) IMO Res. A.342(IX) IMO Res. A.694(17) IMO Res. A.813(19) IMO Res. A.481(XII) IMO Res. A.574(14)	SOLAS Chapt. V regulation 12 (l) SOLAS Chapt. V regulation 12 (p) SOLAS V/19	ISO/TR A.674
Automatic Identification System (AIS)	Section 10-4a	Res. MSC.74(69) IEC 61993-2 SN/Circ.227		
Voyage data recorder (VDR)	Section 10-4b	IMO Res. A.861(20) IEC 61996		
Simplified voyage data recorder (S-VDR)	Section 10-4b	IMO Res. MSC.214(81) and 163(78)		
Navigating bridge visibility	Section 10-6 (1)	IMO Res. A.708(17) MSC/Circ. 403		ISO standard 8468
Chapter 11				
Construction	Section 11-3 (1) Section 11-3 (5)	IMO Res. A.468(XII)		NS 6033 and NS 6033 T

Size and furnishings of sleeping rooms	Section 11-9 (5) sub. 1			NS 2761

0 Amended by Regulations of 30 December 2002 No. 1847 (in force on 1 January 2003), 30 June 2003 No. 912 (in force on 1 July 2003), 13 August 2012 No. 802, 14 August 2012 No. 805.

Appendix 5

This appendix sets out a geographical boarder for the sea areas A1 and A2. All information is taken from the Admirality List of Radio Signals, Global Maritime Distress and Safety System (GMDSS), Volume 5, NP 285, 2001/02.

Sea area A1

Station	**MMSI**	**Position**	**Range (nm)**	**Status**
Bergen	002570400			Operational (MRCC Stavanger)
Remote-controlled stations:				
Bergen		60° 25′N, 5° 22′E	65	
Frigg (rig)		59° 53′N, 2° 04′E	30	Planned
Grimo		60° 24′N, 6° 40′E	69	
Heimdal (rig)		59° 34′N, 2° 13′E	30	Planned
Lindas		60° 35′N, 5° 20′E	59	
Oseberg (rig)		60° 30′N, 2° 50′E	30	
Sotra		60° 19′N, 5° 07′E	53	
Stord		59° 52′N, 5° 30′E	74	
Bjørnøya	002570700	74° 31′N, 19° 01′E	40	Operational (MRCC Bodø)
Remote-controlled by Bodø Radio				
Bodø	002570700			Operational (MRCC Bodø)
Remote-controlled stations:				
Andenes		69° 17′N, 16° 01′E	54	
Fornesfjell		67° 26′N, 15° 27′E	68	
Fredvang		68° 06′N, 13° 11′E	21	
Hadsel		68° 33′N, 14° 53′E	61	
Hagskaret		68° 10′N, 13° 42′E	36	

Station	MMSI	Position	Range (nm)	Status
Harstad		68° 48′N, 16° 31′E	36	
Hillesøy		69° 39′N, 18° 00′E	41	
Hova		66° 01′N, 12° 49′E	57	
Kistefjell		69° 18′N, 18° 08′E	85	
Kvalnes		68° 21′N, 13° 58′E	40	
Lødingen		68° 24′N, 15° 58′E	13	
Meløy		66° 51′N, 13° 38′E	50	
Mo i Rana		66° 12′N, 13° 45′E	71	
Myre/Vesterdalen		68° 57′N, 15° 01′E	30	
Narvik		68° 28′N, 17° 10′E	48	
Rønvikfjell/Bodø		67° 18′N, 14° 27′E	41	
Sandøy		70° 03′N, 18° 32′E	57	
Sorollness		68° 44′N, 16° 50′E	13	
Stamnes		68° 49′N, 15° 29′E	13	
Steigen		67° 50′N, 15° 00′E	77	
Svolvær		68° 24′N, 15° 07′E	18	
Traenfjord		66° 32′N, 12° 49′E	53	
Værøy		67° 40′N, 12° 38′E	59	
Tønsnes		69° 43′N, 19° 08′E	47	
Tromsø		69° 39′N, 18° 57′E	36	
Vega		65° 38′N, 11° 54′E	75	
Farsund	002570200			Operational (MRCC Stavanger)
Remote-controlled stations:				
Arendal		58° 27′N, 8° 45′E	36	
Farsund		58° 04′N, 6° 45′E	29	
Kristiansand		58° 04′N, 7° 59′E	36	
Lindesnes		58° 01′N, 7° 04′E	40	
Storefjell		58° 09′N, 6° 43′E	52	
Florø	002570500			Operational (MRCC Stavanger)
Remote-controlled stations:				
Bremanger		61° 52′N, 5° 00′E	74	
Gulen		61° 02′N, 5° 09′E	73	
Gulfax (rig)		61° 11′N, 2° 11′E	30	
Kinn		61° 34′N, 4° 46′E	52	
Raudeberg		62° 00′N, 5° 09′E	38	
Sagtennene		61° 54′N, 6° 07′E	85	
Snorre (rig)		61° 27′N, 2° 09′E	31	
Sogndal		61° 10′N, 7° 07′E	93	

Station	MMSI	Position	Range (nm)	Status
Rogaland	002570300			Operational (MRCC Stavanger)
Remote-controlled stations:				
Bjerkreim		58° 38′N, 5° 58′E	66	
Bokn		59° 13′N, 5° 26′E	50	
Draupner (rig)		58° 11′N, 2° 28′E	30	
Ekofisk (rig)		56° 32′N, 3° 13′E	30	
Haugesund		59° 25′N, 5° 20′E	47	
Sleipner A (rig)		58° 22′N, 1° 54′E	30	
Stavanger		58° 56′N, 5° 43′E	40	
Ula (rig)		57° 07′N, 2° 51′E	30	
Valhall (rig)		56° 17′N, 3° 24′E	30	Planned
Yme (rig)		57° 49′N, 4° 31′E	30	Planned
Svalbard	002570900			Operational (MRCC Bodø)
Remote-controlled stations:				
Isfjord		78° 02′N, 13° 40′E	23	
Kongsvegpasset		78° 45′N, 13° 30′E	78	
Longyearbyen		78° 15′N, 15° 24′E	21	
Tjøme	002570100			Operational (MRCC Stavanger)
Remote-controlled stations:				
Drammen		59° 40′N, 10° 26′E	24	
Halden		59° 11′N, 11° 26′E	53	
Oslo		59° 59′N, 10° 40′E	62	
Porsgrunn		59° 14′N, 9° 42′E	66	
Risør		58° 43′N, 9° 12′E	35	
Tjøme		59° 05′N, 10° 25′E	30	
Vardø	002570800			Operational (MRCC Bodø)
Remote-controlled stations:				
Båtsfjord		70° 40′N, 29° 42′E	49	
Berlevåg		70° 52′N, 29° 05′E	40	
Fuglen		70° 39′N, 21° 58′E	55	
Havøysund		71° 00′N, 24° 36′E	49	
Helligfjell		70° 07′N, 22° 56′E	63	
Honningsvåg		70° 59′N, 25° 54′E	56	
Kirkenes		69° 45′N, 30° 08′E	44	

Station	MMSI	Position	Range (nm)	Status
Mehamn		71° 03′N, 28° 07′E	49	
Oksen		70° 58′N, 27° 21′E	51	
Skjervøy		70° 01′N, 20° 59′E	37	
Tana		70° 28′N, 28° 13′E	65	
Torsvåg		70° 15′N, 19° 30′E	23	
Trolltind		70° 04′N, 20° 26′E	78	
Tyven		70° 38′N, 23° 42′E	57	
Varangerfjord		70° 05′N, 29° 49′E	41	
Vardø		70° 20′N, 31° 02′E	40	
Ørlandet	002570600			Operational (MRCC Stavanger/Bodø)
Remote-controlled stations:				
Aksla		62° 29′N, 6° 12′E	41	
Åsgård B (rig)		65° 07′N, 6° 47′E	30	
Draugen (rig)		64° 21′N, 7° 47′E	30	Planned
Forbordsfjell		63° 32′N, 10° 54′E	66	
Gamlemstvet		62° 35′N, 6° 19′E	80	
Heidrun (rig)		65° 20′N, 7° 19′E	30	
Hjørunganes		62° 21′N, 6° 07′E	19	
Kopparen		63° 48′N, 9° 45′E	64	
Kristiansund		63° 07′N, 7° 42′E	34	
Litlefonni		63° 23′N, 8° 43′E	56	
Molde		62° 45′N, 7° 08′E	59	
Mosvik		63° 46′N, 10° 58′E	55	
Namsos		64° 27′N, 11° 32′E	58	
Nerlandshorn		62° 21′N, 5° 33′E	59	
Njord A (rig)		64° 16′N, 7° 12′E	30	Planned
Norne (rig)		66° 02′N, 8° 05′E	30	Planned
Reinsfjell		62° 57′N, 7° 56′E	84	
Rørvik		64° 53′N, 11° 14′E	43	
Yttervåg		64° 18′N, 10° 18′E	34	

Sea area 2

Station	MMSI	Position	Range (nm)	Status
Bjørnøya (Norway)				
Bjørnøya (remote-controlled by Bodø Radio)	002570700	74° 31′N, 19° 01′E	200	Operational (MRCC Bodø)
Denmark				

Station	MMSI	Position	Range (nm)	Status
(incl. Germany, the North Sea and the Baltic coast)				
Lyngby	002191000			Operational (MRCC Århus) (MRCC Bremen)
Remote-controlled stations				
Blåvand		55° 33′N, 8° 07′E	153	
Skagen		57° 44′N, 10° 35′E	148	
The Faeroe Islands (Denmark)				
Torshavn	002311000	62° 00′N, 6° 47′W	225	Operational (MRCC Corsen)
Greenland (Denmark)				
Aasiaat	003313000	69° 14′N, 53° 31′W	280	Operational (MRCC Grønnedal)
Remote-controlled stations:				
Sisimiut		66° 55′N, 53° 40′W	270	
Upernavik		72° 47′N, 56° 10′W	280	
Nuuk	003312000	64° 04′N, 52° 01′W	250	Operational (MRCC Grønnedal)
Remote-controlled station:				
Paamiut		62° 00′N, 49° 43′W	230	
Qaqortoq	003311000	60° 41′N, 46° 36′W	220	Operational (MRCC Grønnedal)
Remote-controlled station:				
Ikerassuaq		60° 03′N, 43° 10′W	220	
Ammassilik	003314000	65° 36′N, 37° 38′W	280	Operational (MRCC Grønnedal)
Island				

Station	MMSI	Position	Range (nm)	Status
Reykjavik	002510100		200	Operational (MRCC Coastal/Oceanic)
Remote-controlled stations:				
Arnarnes - T_x site		66° 05′N, 23° 02′W	200	
Garðskagi - R_x site		64° 04′N, 22° 41′W	200	
Grimsey - R_x site		66° 31′N, 17° 59′W	200	
Gufunes - R_x site		64° 05′N, 21° 50′W	200	
Hóll - R_x site		65° 35′N, 14° 15′W	200	
Hornafjorður - T_x site		64° 15′N, 15° 13′W	200	
Nes - T_x site		65° 42′N, 13° 42′W	200	
Þverfjalli - R_x site		66° 02′N, 23° 18′W	200	
Raufarhöfn - T_x site		66° 27′N, 15° 56′W	200	
Rjúpnahæð - T_x site		64° 05′N, 21° 50′W	200	
Sæfjall		63° 25′N, 20° 16′W	200	
Sauðanes		66° 11′N, 18° 57′W	200	
Streite - R_x site		64° 43′N, 13° 59′W	200	
Suðurnes - T_x site		64° 09′N, 22° 02′W	200	
The Republic of Ireland				
Malin Head	002500100	55° 22′N, 7° 20′W	150	Operational (MRCC Dublin)
Valentia	002500200	51° 56′N, 10° 21′W	150	Operational (MRCC Dublin)
Jan Mayen I (Norway)				
Jan Mayen (remote-controlled by Bodø Radio)	002570700	70° 57′N, 8° 40′W	200	Operational (MRCC Bodø)
The Netherlands				

Station	MMSI	Position	Range (nm)	Status
The Dutch Coast Guard Radio	002442000			Operational (JRCC IJmuiden)
Remote-controlled stations:				
Scheveningen - T_x site		52° 06′N, 4° 16′E	250	
IJmuiden - R_x site		52° 27′N, 4° 35′E	150	
Noordwjik - R_x site		52° 17′N, 4° 28′E	150	
Terchelling - R_x site		53° 21′N, 5° 12′E	150	
Norway (mainland)				
Bergen	002570400	60° 42′N, 4° 52′E	200	Operational (MRCC Stavanger)
Bodø	002570700	67° 16′N, 14° 23′E	200	Operational (MRCC Bodø)
Remote-controlled stations:				
Andenes		69° 18′N, 16° 04′E	200	
Sandnessjøen		66° 01′N, 12° 37′E	200	
Farsund	002570200	58° 04′N, 6° 45′E	200	Operational (MRCC Stavanger)
Florø	002570500	61° 36′N, 5° 00′E	200	Operational (MRCC Stavanger)
Ørlandet	002570600	63° 41′N, 9° 36′E	200	Operational (MRCC Stavanger/Bodø)
Rogaland	002570300	58° 39′N, 5° 36′E	200	Operational (MRCC Stavanger)
Tjøme	002570100	59° 26′N, 10° 37′E	200	Operational (MRCC Stavanger)
Vardø	002570800	70° 22′N, 31° 06′E	200	Operational (MRCC Bodø)
Remote-controlled stations:				
Berlevåg		70° 52′N, 29° 04′E	200	
Hammerfest		70° 40′N, 23° 40′E	200	
Tromsø		69° 39′N, 18° 57′E	200	
Russia (Arctic coastline)				
Arkhangelsk	002734414	64° 32′N, 40° 32′E	*	Trial (MRSC Arkhangelsk)
Kandalaksha	NI	67° 08′N, 32° 25′E	150	Planned (MRSC Arkhangelsk)

Station	MMSI	Position	Range (nm)	Status
Murmansk	002733744	68° 58′N, 33° 01′E	170	Operational (MRCC Murmansk)
* Beloye More (the White Sea) to 66° N				
Great Britain				
MRCC Aberdeen	002320004	57° 25′N, 1° 51′W	150	Operational (MRCC Aberdeen)
MRCC Clyde	002320022	55° 58′N, 4° 48′W	150	Operational (MRCC Clyde)
MRCC Falmouth	002320014	50° 08′N, 5° 07′W	150	Operational (MRCC Falmouth)
MRSC Holyhead	002320018	53° 19′N, 4° 38′W	150	Operational (MRSC Holyhead)
MRSC Humber	002320007	55° 05′N, 0° 10′W	150	Operational (MRSC Humber)
MRSC Milford Haven	002320017	51° 41′N, 5° 03′W	150	Operational (MRSC Milford Haven)
MRSC Shetland	002320001	60° 09′N, 1° 08′W	150	Operational (MRSC Shetland)
MRSC Stornoway	002320024	58° 13′N, 6° 20′W	150	Operational (MRSC Stornoway)
MRSC Tyne Tees	002320006	55° 01′N, 1° 25′W	150	Operational (MRSC Tyne Tees)
Svalbard (Norway)				
Svalbard	002570900	78° 02′N, 13° 40′E	200	Operational (MRCC Bodø)

0 Added by Regulation of 1 October 2003 No. 1205.