Maritime Rules

Part 40D: Design, Construction and Equipment – Fishing Ships

MNZ Consolidation

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Part objective

Part 40D prescribes the requirements for the design, construction and equipment of New Zealand fishing ships registered under the Fisheries Acts of 1983 or 1996.

For fishing ships of more than 6 metres in length, and any boats of lesser length which may operate beyond enclosed waters and more than 2 miles from the coast, the requirements are specifically stated in the body of Part 40D. For fishing boats of 6 metres or less in length which do not proceed beyond enclosed limits or more than 2 miles from the coast, owners are required to gain approval of a Safe Operating Plan in accordance with Appendix 5 to Part 40D. Owners of the latter boats are in this way relieved of the requirement to operate the ship under a Maritime Transport Operator Plan, as would otherwise be the case.

For ships beyond 45 metres in length, the requirements reflect, in many respects, those of the 1993 Protocol to the Torremolinos International Convention for the Safety of Fishing Vessels. However it is not the intention of this Part to implement the Protocol fully in New Zealand law because the survey and certification requirements are inconsistent with current New Zealand maritime safety policy and rules.

The authority for making Part 40D is found in sections 36(a), 36(b), 36(c), 36(d), 36(j), 36(l), 36(p), 36(q), 36(t) and 36(u)(ii) of the Maritime Transport Act 1994.

Maritime Rules are subject to the Regulations (Disallowance) Act 1989. Under that Act the rules are required to be tabled in the House of Representatives. The House of Representatives may, by resolution, disallow any rules. The Regulations Review Committee is the select committee responsible for considering rules under this Act.

Please Note: The text within the document in green are identified amendments that will be addressed in the next rule amendment.

Disclaimer:

This document is the current consolidated version of Maritime Rules Part 40D produced by Maritime New Zealand, and serves as a reference only. It has been compiled from the official rules that have been signed into law by the Minister of Transport. Copies of the official rule and amendments as signed by the Minister of Transport may be downloaded from the Maritime New Zealand website. www.maritimenz.govt.nz

History of Part 40D

Part 40D first came into force on 1 February 2000 and now incorporates the following amendments:

Amendment	Effective date
Amendment 1	27 May 2004
Amendment 2	23 November 2006
Amendment 3	4 September 2008
Amendment 4	30 July 2009
Amendment 5	1 April 2010
Amendment 6	2 August 2012
Amendment 7	1 April 2014
Amendment 8	1 July 2014
Amendment 9	7 August 2014
Amendment 10	1 January 2015
Amendment 11	1 April 2015
Amendment 12	1 November 2016
Amendment 13	15 March 2018
Amendment 14	1 January 2019
Amendment 15	13 December 2019

Summary of amendments

Amendment 1

Maritime Rules Amendments Parts 20 – 90	PO, 40D.2, 40D.4, 40D.7(1)(b) & (c), 40D.13(1), 40D.13(2), 40D.13(3), 40D.30-30D, 40D.32A-C, 40D.72, 40D.74. Appendix 2: Clauses 2.1 & 2.2 Appendix 5: Clauses 5.9.1, 5.10.1, 5.10.4, 5.11.2

Amendment 2

Maritime (EPIRBS) Amendment Rules 2006	40D.6(a)(iv), 40D.85. Appendix 3: Clauses 3.1 & 3.2. Appendix 5: Clause 5.8(2)(e)

Amendment 3

Maritime (Various Amendments) Rules 2008	40D.2, 40D.3(1)(d)&(e), 40D.8(b), 40D.25(1), 40D.33, 40D.34, 40D.35(2), (3) & (4). Appendix 2: Clause 2.3 Appendix 3: Clause 3.3 Appendix 5: Clause 5.8(1)(d)

Amendment 4

Maritime (Various Amendments) Rules 2009, Parts 21-80	Appendix 5: Clause 5.11(3) & Annex 1

Amendment 5

Part 40E: Design, Construction and Equipment – Sailing Ships	40D.3(3)

Amendment 6 Part 40D: Amendment 2012	40D.2, 40D.3, 40D.8, 40D.9(2), 40D.9(4), 40D.11(3), 40D.11 Table 1, 40D.12(1), 40D.12(5), 40D.13 Table 2, 40D.14, 40D.15(2), 40D.16, 40D.17, 40D.20(4), 40D.21, 40D.22, 40D.23, 40D.27(4)-(5), 40D.28, 40D.28A-C, 40D.29(3)-(5), 40D.30, 40D.30A(1), 40D.30B-40D.30E, 40D.31, 40D.32C, 40D.34(5)(b), 40D.35, 40D.66, 40D.67(12), 40D.75(3), 40D.83(1), Appendix 2: Clause 2.2 & 2.3, Appendix 5: Clause 5.2, Clause 5.6-5.8, Clause 5.9A
Amendment 7 Parts 20, 31, 32, 34 and 35: Consequential Amendments	40D.2, 40D.6, Appendix 1
Amendment 8 Parts 19 and 44: Consequential Amendments	40D.2, references to 'new ship' and 'existing ship', 40D.3, 40D.7, 40D.8, 40D.9, 40D.30A, 40D.83, 40D.85
Amendment 9 Part 40A, Part 40C, Part 40D, Part 40E, Part 40F, and Part 42A: Amendment 2014	40D.2, 40D.8, 40D.25, 40D.30A, 40D.30C, 40D.30E, 40D.32C, 40D.34, 40D.35, Appendix 1.1, Appendix 1.2, Appendix 1.3, Appendix 5
Amendment 10 Maritime Rules Various Amendments 2014	40D.2, 40D.9(2)(a)(iii), 40D.9(2)(a)(iv), 40D.92(a), 40D.38, 40D.57, 40D.68(2), Appendix 1
Amendment 11 Maritime Rules Various Amendments 2015	40D.2, 40D.23(1)(a), 40D.32A(3), 40D.67(5), Appendix 4
Amendment 12 Maritime Rules Various Amendments 2016	40D.9, 40D.33, Appendix 2.1, Appendix 2.2, Appendix 2.3, Appendix 3.1, Appendix 3.2, Appendix 3.3, Appendix 4
Amendment 13 Maritime Rules Part 40 Series Amendments 2017	40D.2, 40D.6, 40D.68, 40D: Appendix 3
Amendment 14 Maritime Rules Part 40 Series Amendments 2017	Appendix 3, Clause 3.1 & 3.2
Amendment 15 Maritime Rules Various Amendments 2019	40D.2, 40D.6, 40D.7, 40D.9, 40D.83

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https://www.maritimenz.govt.nz/Rules/

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General

40D.1 Entry into force

Part 40D shall come into force on the first day of February 2000.

40D.2 Definitions

In Part 40D, unless the context otherwise requires—

Act means the Maritime Transport Act 1994:

AIS means Automatic Identification System:

AIS-SART means AIS Search And Rescue Transmitter:

certificate of survey means—

(a) a certificate of survey issued by a surveyor under rule 44.41 of Part 44; or

(b) any document that is deemed under Part 44 to be a current Certificate of Survey described in paragraph (a); or

(c) a certificate of survey issued under section 219 of the Shipping and Seamen Act 1952 and deemed to be issued or recognised as a maritime document under Part V of the Act pursuant to section 468(5) of the Act; or

(d) a certificate of survey issued under section 143 of the Act and saved under section 468(8) of the Act:

Certificate of Surveyor Recognition—

(a) has the same meaning as in Part 44; and

(b) includes any document that is deemed under Part 44 to be a valid Certificate of Surveyor Recognition:

closed cup test means a test for determining the flashpoint of a flammable liquid as prescribed in Australian Standard AS 2106-1980 *Methods for the determination of the flashpoint of flammable liquids (closed cup):*

coastal limits has the same meaning as in Part 20:

cockpit means an exposed recess in the weather deck of a ship, extending not more than one half the length overall of the ship:

commercial ship means a ship that is not—

(a) a pleasure craft; or

(b) solely powered manually; or

(c) solely powered by sail:

competent person means a person who in relation to a ship's lifting appliances and loose cargo gear is authorised by—

(a) the manufacturer of that equipment; or

(b) a classification society in pursuance of a scheme of classification or certification of such equipment; or

(c) a testing establishment recognised by—

  (i) for a New Zealand ship or a foreign ship, the Director; and

  (ii) for a foreign ship, the Flag State Administration; or

(d) an international or national inspection agency approved by—

  (i) for a New Zealand ship or a foreign ship, the Director; or

  (ii) for a foreign ship, the Flag State Administration; or

(e) a Flag State Administration,

to carry out any testing, thorough examination and issue of certificates of test required by this Part:

constructed under survey means construction subject to an initial survey conducted from the time of commencement of building of the ship until completion of the building of that ship:

current, in relation to a document means that it is valid, has not expired, and, in the case of a maritime document, has not been suspended or revoked by the Director:

deepest operating waterline means the waterline that corresponds to the minimum permissible operating freeboard:

design waterline means the deepest waterline at which the ship is designed to operate:

enclosed water limits has the same meaning as in Part 20:

EPIRB means an electronic position indicating radio beacon:

exposed recess means a recess that is not completely enclosed by a weathertight superstructure:

Flag State Administration means the Government of the State under whose authority a ship is operating, or the Government of the State whose flag the ship is entitled to fly:

foreign ship means any ship that is not a New Zealand ship:

freeboard deck means the first continuous deck above the marked load line required by rule 40D.35(4) that has means of closing weathertight all openings in that deck leading below:

IMO means the International Maritime Organization:

IMO GMDSS Master Plan means the GMDSS Master Plan adopted by the IMO:

inshore fishing limits has the same meaning as in Part 20:

inshore limits has the same meaning as in Part 20:

length means the length overall of the ship measured from the foreside of the head of the stem to the aftermost part of the transom or stern of the ship. Fittings (such as beltings, bowsprits, platforms, gantries, trim tabs, jet and outboard drive units) projecting beyond these terminal points must not be included in the overall length. Structures (such as bulbous bows, deckhouses and free flooding bait tanks) and buoyancy tubing projecting beyond these terminal points are to be included in the overall length[1]:

lightship condition means the ship without fish catch, ice, cargo, fuel oil, lubricating oil, ballast water, fresh water and feed water in tanks, consumable stores, and crew and their effects:

machinery spaces of category A means those spaces, and trunks to such spaces, which contain—

(a) internal combustion machinery used for main propulsion; or

(b) internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 kW; or

(c) any oil-fired boiler or oil fuel unit:

[1] For further explanation and diagrams illustrating 'length overall' see the Advisory Circular to Part 40A.

major alteration or **modification** means an alteration or modification of a ship, including the replacement, removal or addition of any part of the ship, that is likely to—

(a) significantly affect the structural integrity, tonnage, freeboard, cargo or passenger capacity, crew or passenger accommodation, conditions of assignment of load line, watertight subdivision, stability, structural fire protection; or

(b) result in significant changes to the propulsion machinery, auxiliary machinery, steering or method of propulsion of the ship:

major repair means a repair in respect of any damage, defect, breakdown or grounding of the ship that is likely to significantly affect the structural integrity, conditions of assignment of load line, watertight subdivision, stability, structural fire protection, main propulsion machinery, method of propulsion, steering gear, or vital auxiliary machinery of the ship:

maritime transport operation—

(a) has the same meaning as in Part 19; and

(b) includes the operation of one or more ships for which a New Zealand Safe Ship Management Certificate is held that under rule 19.81 is deemed, either alone or in combination, to be a Maritime Transport Operator Certificate:

Maritime Transport Operator Plan—

(a) means a plan required by rule 19.41; or

(b) for a ship operating under rule 19.81(3), the equivalent requirements under the New Zealand Safe Ship Management Code that applied prior to the revocation of section 2 of Part 21 by Part 19:

master means any person (except a pilot) having command or charge of any ship:

moulded depth means the vertical distance measured from the top of the keel to the underside of the upper deck at side. In wood and composite ships the distance must be measured from the lower edge of the keel rabbet:

National Standard for Commercial Vessels means the National Standard for Commercial Vessels published by the Standing Council on Transport and Infrastructure or, if no such entity exists, the entity responsible for the publication of those standards:

NAVAREA has the same meaning as defined in Annex 1 of IMO Resolution A.706(17); it is used to describe geographical sea areas for the purpose of coordinating the transmission of radio navigational warnings; the term NAVAREA followed by an identifying roman numeral is used as a short title to represent such an area:

New Zealand inland waters means all rivers and other inland waters of New Zealand which are navigable:

New Zealand ship means a ship that is registered under the Ship Registration Act 1992; and includes a ship that is not registered under that Act but is required or entitled to be registered under that Act:

offshore limits has the same meaning as in Part 20:

open boat is a boat not protected from entry of water by means of a complete deck or by a combination of a partial weather deck and a weathertight superstructure or deckhouse:

owner means—

(a) In relation to a ship registered in New Zealand under the Ship Registration Act 1992, the registered owner of the ship:

(b) In relation to a ship registered in any place outside New Zealand, the registered owner of the ship:

(c) In relation to a ship to which paragraph (a) or (b) of this definition applies, where by virtue of any charter or demise or for any other reason, the registered owner is not responsible for the management of the ship, the charterer or other person who is for the time being so responsible:

(d) In relation to an unregistered ship or a registered ship that does not have a registered owner, the person who is for the time being responsible for the management of the ship:

Part means a group of rules made under the Maritime Transport Act 1994:

post-27 May 2004 ship—

(a) means a ship—

(i) for which construction commences; or

(ii) which is converted into a fishing ship to which Part 40D applies, on or after 27 May 2004; and

(b) **post-27 May** in relation to a boat or ship has a corresponding meaning.

pre-27 May 2004 ship—

(a) means a ship—

(i) for which construction commences; or

(ii) which is converted into a fishing ship to which Part 40D applies, before 27 May 2004:; and

(b) **pre-27 May 2004** in relation to a boat or ship has a corresponding meaning.

restricted coastal limits has the same meaning as in Part 20:

restricted limits has the same meaning as in Part 20:

sailing ship means a ship that—

(a) is designed to be navigated under wind power alone and for which any motor provided is an auxiliary means of propulsion; or

(b) possesses a non-dimensional ratio of (sail area) divided by (volume of displacement)$^{2/3}$ of more than 9:

Sea Area A4 has the same meaning as defined in SOLAS Chapter IV regulation 2:

series production boat means a boat which is one of a series of boats built to a standard design:

ship means, for the purposes of this Part, every description of boat or craft used in navigation, whether or not it has any means of propulsion:

ship's design for the purposes of this Part, includes the ship's structural integrity, watertightness and weathertightness, means of egress and access, intact stability and reserve of buoyancy, the ship's damage stability and buoyancy requirements, and the provision of machinery and other installed systems and equipment necessary for the safe working of the ship:

sister ship means a ship that is—

(a) built to the same lines plan as a pre-27 May 2004 ship that has approved stability data; and

(b) in all respects, similar in construction and outfit as a pre-27 May 2004 ship that has approved stability data:

SOLAS means the International Convention for the Safety of Life at Sea 1974:".

superstructure means the decked structure on the working deck extending from side to side of the ship, or with the side plating not being inboard of the shell plating more than 4 percent of the maximum breadth of the ship measured amidships:

superstructure deck means the complete or partial deck forming the top of a superstructure, deckhouse, or other erection situated at a height of not less than 1.8 metres above the working deck. The top of such superstructure, deckhouse, or other erection must be treated in the same way as the working deck if less than 1.8 metres above the working deck:

surveyor means a person who holds a current Certificate of Surveyor Recognition under Part 44:

unlimited area has the same meaning as in Part 20:

VHF (very high frequency) means the frequency spectrum between 30MHz and 300MHz:

VHF coverage area means an area within the defined coverage of a 24 hour VHF coast station on channel 16 (radio telephony) and VHF coverage has a corresponding meaning:

watertight means 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:

weathertight means that in any sea condition water will not penetrate into the ship:

well deck is a weather deck, watertight against a head of 1.2 metres of seawater, which is fitted with solid bulwarks such as would impede the drainage of solid water over the sides. If the freeboard to this deck, measured from the designed load waterline is less than 250 mm the vessel shall be considered as an open boat for the purposes of subdivision, stability, and drainage requirements. The deck within the bulwarks is considered to be a weather deck unless it is completely enclosed by a weathertight superstructure:

working deck means the lowest complete deck above the deepest operating waterline from which fishing is undertaken. Where two or more complete decks are fitted a lower deck may be accepted as a working deck provided that the deck is situated above the deepest operating waterline.

40D.3 Application and compliance

(1) Except as provided in rules 40D.3(2), (3), and (4), this Part applies to—

(a) every New Zealand ship that is required to be registered under New Zealand fisheries legislation, or recognised by the Director as being engaged in fisheries research, that is used in a maritime transport operation; and

(b) every foreign ship that—

(i) is required to be registered under New Zealand fisheries legislation; and

(ii) does not have certificates that can be recognised by the Director under section 41 of the Act; and

(iii) is used in a maritime transport operation.

(2) Rules 40D.4 to 40D.82 inclusive do not apply to any ship of 6 metres or less in length to which rule 40D.83 applies.

(3) Rules 40D.33 to 40D.36 do not apply to sailing ships, which must comply with the intact stability requirement of Appendix 1 of Part 40E.

(4) This Part does not apply where a permit has been issued under section 91 of the Fisheries Act 1996 to the owner of a ship, and the ship is being used for eel fishing only.

40D.4 Maritime Safety Authority number

REVOKED 27 MAY 2004 by Maritime Rules Amendments 2004

40D.5 Additional safety equipment

The owner and master of any ship that is provided with any—

(a) life saving appliances additional to those required by rule 40D.37; or

(b) fire appliances additional to those required by rule 40D.64; or

(c) radiocommunications equipment additional to that required by rule 40D.68; or

(d) navigation lights, shapes and sound signals additional to those required by Part 22; or

(e) navigation equipment additional to that required by Part 45—

must ensure that such additional appliances and equipment meet the applicable standard required by this Part, and are well maintained and in good working order.

40D.6 Conditions under which restricted limit or coastal limit ships are permitted to make voyages in the coastal or offshore limits

The owner and master of any ship that has been assigned restricted or coastal limits under rule 20.20 and is making a single voyage into coastal or offshore limits (as applicable) as permitted under rule 20.43 must ensure that—

(a) the ship is provided with at least the following safety equipment:

(i) a liferaft that complies with rule 42A.5 and which is able to carry the number of persons carried on the ship; and

(ii) one lifejacket that has a buoyancy of 100N and complies with rule 42A.12 for each person carried on the ship; and

(iii) 4 rocket parachute flares that comply with rule 42A.15 and 2 buoyant smoke floats that comply with rule 42A.15; and

(iv) a 406 MHz EPIRB that complies with the requirements of rule 43.19, if the ship is more than 7.5 metres in length and less than 24 metres in length; and

(v) a 406 MHz EPIRB that complies with the requirements of rule 43.18A or 43.19, if the ship is 7.5 metres in length or less or 24 metres or more in length; and

(vi) a VHF radio that complies with rule 43.12; and

(vii) in the case of a ship making a single voyage in offshore limits, if proceeding outside the VHF coverage area, a radio installation that meets the requirements of rule 43.14; and

(b) the ship is provided with up to date charts and nautical publications relevant to the areas covered by the proposed voyage; and

(c) the crew of the ship meet the minimum crewing and qualification requirements of Part 31 of the maritime rules for a ship that proceeds into coastal or offshore limits, as applicable; and

(d) the voyage is made under favourable weather conditions with a favourable weather forecast.

Design, survey, construction and structural strength

40D.7 Design

(1) The owner of any ship must ensure that—

(a) if the ship is a post-27 May 2004 ship to which rule 40D.7(2) does not apply, either:

(i) the ship's design is approved by a surveyor who holds a current Certificate of Surveyor Recognition that entitles the surveyor to perform that function as—

(aa) fit for its intended service and intended operating limits; and

(bb) complying with all applicable maritime and marine protection rules; or[2]

(ii) where rule 40D.9(2) applies, the ship is certificated in accordance with that rule; and

(b) if the ship is a pre-27 May 2004 ship to which rule 40D.7(3) or rule 40D.7(4) or rules 40D.9(4)(a), (b) and (c) do not apply, the ship's design is approved by a surveyor who holds a current Certificate of Surveyor Recognition that entitles the surveyor to perform that function as—

(i) fit for its intended service and intended operating limits; and

(ii) complying with all applicable maritime and marine protection rules; and

(c) if the ship undergoes major alteration or permanently changes its operating limits, the ship's design is approved by a surveyor who holds a current Certificate of Surveyor Recognition that entitles the surveyor to perform that function as—

(i) fit for its intended service and intended operating limits; and

(ii) complying with all the applicable maritime and marine protection rules.

(2) Any post-27 May 2004 ship of less than 7.5 metres in length is not required to have the ship's design approved if it is a series production boat of a design that has a record of at least 5 years of safe operation under similar conditions to that intended for the post-27 May 2004 ship.

(3) Any pre-27 May 2004 ship that has had a certificate of survey issued before 1 February 1998 is considered to have had its design approved for the operating limits indicated on the certificate of survey.

(4) Any pre-27 May 2004 ship of less than 12 metres in length to which rule 40D.7(3) does not apply is not required to have the ship's design approved if the ship, or a ship of the same design and construction, has a record of at least 5 years of safe operation in the intended service and a similar area of operation.

40D.8 Survey

(1) A surveyor must not issue a certificate of survey unless he or she is satisfied that the ship—

(a) has had its design approved in accordance with rule 40D.7; and

(b) complies with all applicable maritime rules and marine protection rules.

(c) the ship and the ship's equipment are in all respects fit for its intended use and operating limits.

(2) The owner and the master of a ship must ensure that after the survey that takes into account those matters prescribed in subrule (1), no changes are made in the structure, equipment, arrangements, material, or scantlings covered by those matters without the approval of a surveyor.

40D.9 Ships of 12 metres or more in length

(1) Any ship of 12 metres or more in length must—

(a) be fitted with a weathertight weather deck throughout the length of the ship; and

(b) be such that the strength and construction of the hull, superstructures, deckhouses, machinery casings, companionways and any other structures are sufficient to withstand the sea and weather conditions likely to be encountered in the ship's operating limits.

(2) A post-27 May 2004 ship of 12 metres or more in length complies with subrule (1)(b) if—

[2] Approval of the ship's design does not guarantee any performance of the ship other than in respect of safety and compliance with maritime and marine protection rules.

(a) the ship was constructed under survey and has been certified as being constructed in accordance with hull or full certification standards for the ship's operating limits, by any one of the following classification societies:

a) American Bureau of Shipping:

b) Bureau Veritas:

c) DNV GL AS, DNV GL, DNV, or GL

d) Lloyd's Register of Shipping:

e) Nippon Kaiji Kyokai; or

(b) the ship was constructed under survey, and—

a) has been certified by a marine safety authority of one of the States or Territories of Australia, or the Australian Maritime Safety Authority, as complying with the design and construction requirements, that applied as at the vessel's date of build, of either the—

(aa) Uniform Shipping Laws Code; or—

(bb) National Standard for Commercial Vessels; and

b) the Director considers the operating limits stated in the certificate are equivalent to the ship's operating limits in New Zealand; or

(c) the ship—

(i) has undergone design approval in accordance with rule 40D.7; and

(ii) has undergone a structural survey by a surveyor who holds a current Certificate of Surveyor Recognition that entitles the surveyor to perform that function; and

(iii) is fit for its intended purpose to the satisfaction of a surveyor.

(3) Any post-27 May 2004 ship of 12 metres or more in length that is not built in accordance with rule 40D.9(2) must be constructed under survey by a surveyor who holds a current Certificate of Surveyor Recognition that entitles the surveyor to perform that function for that purpose.

(4) Any pre-27 May 2004 ship of 12 metres or more in length is considered to comply with subrule (1)(b) if it is in good repair and—

(a) was built to one of the standards defined by rule 40D.9(2) for post-27 May 2004 ships, and a current certificate referred to in either rule 40D.9(2)(a) or 40D.9(2)(b) exists for the ship; or

(b) was built to one of the standards defined by rule 40D.9(2) for post-27 May 2004 ships, and where no current certificate referred to in either rule 40D.9(2)(a) or 40D.9(2)(b) exists for the ship, has undergone a structural survey by a surveyor to determine that the ship's condition remains satisfactory; or

(c) has a valid certificate of survey; or

(d) has undergone:

(i) design approval in accordance with rule 40D.7(1)(b); and

(ii) a satisfactory survey by a surveyor.

40D.10 Ships of less than 12 metres in length

(1) For any ship of less than 12 metres in length the design and the construction of hull and any deckhouse must provide strength and service life for the safe operation of the ship, at its service draught and maximum service speed, to withstand the sea and weather conditions likely to be encountered in the intended operating limits.

(2) A surveyor must not assign any non-decked ship, or partially decked ship, of less than 12 metres in length any limits other than enclosed water limits or, at the surveyor's discretion, inshore limits. Such ships must not operate towed gear for trawling or dragging.

40D.11 Watertight bulkheads

(1) Except as provided in rule 40D.11(2) and 40D.11(7), every ship of 12 metres or more in length must be fitted with a vertically continuous watertight collision bulkhead that extends to the uppermost continuous deck.

(2) For ships of less than 20 metres in length, the bulkhead may be stepped above the waterline, provided the continuation of the bulkhead above the step is not less than 0.0375L metres abaft the stem at any point.

(3) The position of the collision bulkhead, required by rule 40D.11(1), measured aft of the foreside of the stem at the design waterline must be—

(a) to the satisfaction of the surveyor for any pre-27 May 2004 ships and ships constructed or converted into a fishing ship to which Part 40D applies before 2 August 2012; or

(b) between the limits given in Table 1 for ships for which construction commences or which is converted into a fishing ship to which Part 40D applies on or after 2 August 2012..

Table 1

Ship Length (L) (metres)	Minimum (metres)	Maximum (metres)
Less than 24	0.05L	0.15L
24–45	0.05L	0.05L + 1.35
45 or more	0.05L	0.08L

(4) Any ship of 16 metres or more in length must be fitted with watertight bulkheads extending to the first deck above the design waterline, at each end of the machinery space.

(5) Any ship of 24 metres or more in length must be fitted with an after peak watertight bulkhead forward of the rudder stock which—

(a) encloses the stern tubes in a watertight compartment; and

(b) extends to the first deck above the design waterline.

(6) Any ship of 75 metres or more in length must be fitted with a watertight double bottom, as far as practicable, between the collision bulkhead and the after peak bulkhead.

(7) Wood bulkheads in any wooden boat must be watertight as far as practicable.

(8) For any ship the openings in watertight bulkheads must be—

(a) the minimum number compatible with the general arrangement and operational needs of the ship; and

(b) fitted with satisfactory watertight closing appliances of an equivalent strength to the adjacent unpierced structure, except as indicated in rule 40D.11(11)(c)(iii).

(9) Except as provided in rule 40D.11(10), pipes piercing the collision bulkhead of any ship, must be fitted with suitable valves operable from above the working deck with the valve chest secured at the collision bulkhead inside the fore peak.

(10) In any ship of 16 metres or less in length, the fore peak may be drained by a self closing cock on the after side of the bulkhead, provided the space aft of the bulkhead is used for accommodation. The cock must be readily accessible and have means of indicating if it is open or closed.

(11) (a) In any ship of 24 metres or more in length, no door, manhole, ventilation duct or any other opening must be fitted in the collision bulkhead below the working deck.

(b) In any ship of less than 24 metres in length, a manhole may be provided in a collision bulkhead if it is:

(i) located as high as practicable; and

(ii) suitably compensated; and

(iii) fitted with a bolted watertight cover.

(c) In any ship of less than 16 metres in length, where there is no other means of access to the fore peak space, a manhole may be provided in a collision bulkhead if it is:

(i) located as high as practicable; and

(ii) is suitably compensated; and

(iii) closed weathertight to the satisfaction of a surveyor; and

(iv) kept closed at sea.

(12) If a pipe, scupper, electric cable, or other equipment is carried through a watertight bulkhead in any ship—

(a) it must be located as high as practicable; and

(b) such provisions as are necessary must be made to ensure the watertightness of the bulkhead is maintained.

(13) Where a forecastle is fitted to any ship, and the forecastle extends aft of the position of the collision bulkhead, the bulkhead must be extended weathertight to the forecastle deck.

(14) The extension required by rule 40D.11(13), is not required to be fitted directly over the bulkhead below provided—

(a) it is located within the limits given in rule 40D.11(3); and

(b) the part of the deck that forms the step is made weathertight.

(15) Any openings in the extension required by rule 40D.11(13) must be—

(a) kept to a minimum compatible with the design and operation of the ship; and

(b) capable of being closed weathertight.

40D.12 Watertight doors

(1) In any ship of less than 45 metres in length, watertight doors must be of the sliding type or hinged type that—

(a) are capable of being operated locally from each side of the door; and

(b) are normally kept closed at sea; and

(c) have a notice attached on each side of the door to state that the door must be kept closed at sea.

(2) In any ship of 45 metres or more in length, watertight doors must be—

(a) of the sliding type in—

(i) spaces where it is intended to open them at sea and if located with their sills below the deepest operating waterline, unless the surveyor considers it to be impracticable or unnecessary taking into account the type and operation of the ship; and

(ii) the lower part of a machinery space where there is access from it to a shaft tunnel; and

(b) in all other cases, of either—

(i) the sliding type; or

(ii) the hinged type, provided they comply with the requirements in rule 40D.12(1)(a) to (c).

(3) Sliding watertight doors must be capable of being operated when the ship is listed up to 15° either way.

(4) Sliding watertight doors, whether manually operated or otherwise, must—

(a) be capable of being operated locally from each side of the door; and

(b) in any ship of 45 metres or more in length, be capable of being operated by remote control from an accessible position above the working deck, except when the doors are fitted in crew accommodation spaces.

(5) There must be provided at remote operating positions a means to indicate when a sliding watertight door is open or closed.

40D.13 Weathertight doors

(1) All access openings in enclosed superstructures and enclosed deck erections through which water could enter and endanger the ship must be fitted with doors—

(a) permanently attached to the deck superstructure, framed and stiffened so that the whole structure is of equivalent strength to the unpierced structure, and weathertight when closed; and

(b) capable of being opened from each side.

(2) The height above deck of sills in those doorways, in companionways, superstructure and machinery casings that give direct access to parts of the deck exposed to the weather and sea must be as given in Table 2.

(3) Where an opening is provided in the side of a superstructure or deck erection for the purpose of discharging fish waste overboard, a weathertight closing arrangement must be fitted to prevent water entering the enclosed superstructure or deck erection from that opening.

Table 2

Ship Length	Minimum height of sill on working deck	Minimum height of sill on superstructure deck
24 metres or more	600 mm*	300 mm*
12 metres or more but less than 24 metres	300 mm	150 mm
less than 12 metres and constructed or converted into a fishing ship to which Part 40D applies before 2 August 2012	150 mm	Nil
less than 12 metres and for which construction commences or which is converted into a fishing ship to which Part 40D applies on or after 2 August 2012	300 mm	Nil

* Where operating experience has shown justification, and on approval of the surveyor, these heights, except in the doorways giving direct access to machinery spaces, may be reduced to not less than 380 mm on the working deck and 150 mm on a superstructure deck.

40D.14 Hatchway openings and covers and other deck openings

(1) All hatchway openings—

(a) must be provided with covers[3]; and

(b) if intended to be open during fishing operations, must be arranged near to the ship's centreline, except where other hatch positions are approved by the surveyor.

(2) On a ship of 24 metres or more in length, metal covers must—

(a) be fitted with clamping devices and gaskets sufficient to ensure weathertightness; and

(b) have their strength calculated for the following loads:

(i) 10.0 kN/m^2 for ships of 24 metres in length; and

(ii) 17.0 kN/m^2 for ships of 100 metres or more in length.

For lengths of more than 24 metres and less than 100 metres, the load values must be determined by interpolation.

The surveyor may permit reduced loads of not less than 75% of the above values for covers to hatchways situated on the superstructure deck in a position abaft a point located 0.25L from the forward perpendicular. If the cover is subject to a cargo load greater than that given above, this must be used in the calculation. For mild steel covers, the maximum stress calculated from the above loading and multiplied by 4.25 is not to exceed the minimum ultimate strength of the mild steel. Also the deflections must not be greater than 0.0028 times the span. Covers made of other metals must be of equivalent strength to those of mild steel and must have sufficient stiffness to ensure weathertightness under the loads specified above.

(3) On a ship of less than 24 metres in length, every metal cover must be—

(a) fitted and secured weathertight to the satisfaction of the surveyor with hinges, clamping devices, and gaskets if it is—

(i) 600 mm x 600 mm or over; or

(ii) 600 mm diameter or over and is not a flush hatch; and

(b) secured weathertight to the satisfaction of the surveyor if it is—

(i) less than 600 mm x 600 mm; or

(ii) less than 600 mm in diameter and is not a flush hatch; and

(c) of a strength that is satisfactory to the surveyor.[4]

(4) Non-metal covers—

(a) must not be used on any ship of 24 metres or more in length; and

(b) where fitted on any ship of less than 24 metres in length, must be of adequate strength and secured weathertight to the satisfaction of the surveyor.

(5) The height above deck of hatchway coamings must be as given in Table 3.

Table 3

Ship length	Minimum height of coaming on working deck	Minimum height of coaming on superstructure deck
24 metres or more	600 mm	300 mm
Ships of 12 metres or more in length but less than 24 metres in length for which construction commences or which is converted into a	300 mm	300 mm

[3] Normally hinged covers of hatches on open decks should be arranged with the hinges on the aft side if the hatch is aft of amidships, and on the forward side if the hatch is forward of amidships

[4] See the Advisory Circular for information about the strength of hatch covers.

fishing ship to which Part 40D applies on or after 2 August 2012		
12 metres or more but less than 24 metres, and less than 12 metres for ships for which construction commences or which is converted into a fishing ship to which Part 40D applies on or after 2 August 2012	300 mm	150 mm*
Less than 12 metres for pre-27 May 2004 ships and ships constructed or converted into a fishing ship to which Part 40D applies before 2 August 2012	150 mm	Nil

Where operating experience has shown justification, and on approval by the surveyor, and where the covers are other than wood, the height of coamings may be reduced, or the coamings omitted entirely, provided that the safety of the ship is not thereby impaired. In such cases, the hatchway opening must be kept as small as practicable and the covers permanently attached by hinges or equivalent means. The covers must be capable of being rapidly closed, and battened down or otherwise secured by arrangements that are acceptable to the surveyor.

(6) If a manhole, flush deck scuttle or hatch in the deck is required to be fitted in relation to a fishing operation, the manhole, flush deck scuttle or hatch must—

(a) be of the screw, bayonet, or equivalent type; and

(b) be capable of being closed watertight; and

(c) in the case of a hatch, have a cover that can be permanently attached to an adjacent structure.

(7) Every opening in the working or superstructure deck must be protected by an enclosed structure fitted with one or more weathertight doors or devices equivalent to weathertight doors, unless the opening is a hatchway, machinery space opening, manhole, or flush deck scuttle.

(8) Every companionway must be situated—

(a) as close as practicable to the centreline of the ship; and

(b) to comply with the applicable stability requirements in rules 40D.33 and 40D.34.

(9) Every hinged cover of a hatchway or other opening must be protected against accidental closure by a positive securing device.

(10) The owner of a fishing ship must ensure that—

(a) every escape hatch must be capable of being opened from each side of its cover; and

(b) every hinged escape hatch cover must be protected against accidental closing; and

(c) every heavy cover on an escape hatch must be fitted with appropriate counterweights; and

(d) the dimensions and location of escape hatches must be to the satisfaction of the surveyor; and

(e) if deemed necessary by a surveyor, hand holds or other aids must be fitted to enable effective use of the escape hatch.

40D.15 Machinery space openings

(1) Machinery space openings in weather decks must be—

(a) framed and enclosed by casings of a strength equivalent to the adjacent superstructure; and

(b) if they are external access openings in the casings, fitted with doors that comply with rule 40D.13; and

(c) if they are openings in the casing other than access openings, fitted with covers of equivalent strength to the unpierced structure, permanently attached to the casing, and capable of being closed weathertight.

(2) Inboard engines fitted in open boats, and where applicable in cockpit boats, must be provided, to the satisfaction of a surveyor, with a casing that is secured weathertight, having regard to—

(a) access for maintenance; and

(b) the natural ventilation requirements of the engine.

40D.16 Other deck openings

Revoked 2 August 2012 by Part 40D: Amendment 2012

40D.17 Ventilators

(A1) A ventilator opening must not be located below the working deck or in the side of the hull.

(1) Coamings of ventilators must be—

(a) of equivalent strength to the adjacent structure; and

(b) except as provided in rule 40D.17(2), capable of being closed weathertight by closing appliances permanently attached to the ventilator or adjacent structure.

(2) Closing appliances need not be fitted to ventilators the coamings of which extend to more than the heights above the deck shown in Table 4.

Table 4

Length of ship	Height above working deck	Height above superstructure deck
45 metres or more	4.5 metres	2.3 metres
24 metres or more but less than 45 metres	3.4 metres	1.7 metres
less than 24 metres	2.5 metres	1.0 metres

If a surveyor is satisfied that the design and location of a ventilator on any ship of less than 24 metres in length is such that it may be considered weathertight, then such ventilator need not be fitted with a closing appliance.

(3) *Revoked 2 August 2012 by Part 40D: Amendment 2012.*

(4) Where the coaming of any ventilator exceeds 900 mm in height it must be adequately supported.

(5) The height above deck of machinery space ventilator coamings must be acceptable to the surveyor. Other ventilator coaming heights above deck must be in accordance with Table 5.

Table 5

Length of ship	Minimum height above working deck	Minimum height above superstructure deck

45 metres or more	900 mm	760 mm
24 metres or more but less than 45 metres	760 mm	450 mm
less than 24 metres for pre-27 May 2004 ships and ships constructed or converted into a fishing ship to which Part 40D applies before 2 August 2012	As high as practicable	As high as practicable
less than 24 metres for which construction commences or which is converted into a fishing ship to which Part 40D applies on or after 2 August 2012	As high as practicable	On or above the level of the ship's bulwark, if fitted

(6) Every ship must have a means of closing off the air to every engine room vent.[5]

40D.18 Air pipes

(1) Where air pipes to tanks and void spaces below deck extend above the working or superstructure decks—

(a) the exposed parts of the pipes must be:

(i) of equivalent strength to the adjacent structures; and

(ii) fitted with appropriate protection; and

(b) openings of air pipes of more than 30 mm bore must be provided with a means of closing that is permanently attached to the pipe or adjacent structure.

(2) In any ship of 12 metres or more in length, the height of air pipes above deck to the point where water may have access below must be—

(a) at least 760 mm on the working deck; and

(b) at least 450 mm on the superstructure deck;

provided that the surveyor may accept a reduction in the height of an air pipe to avoid interference with the fishing operations.

(3) The height above deck of any air pipe fitted in a ship of less than 12 metres in length must be to the satisfaction of the surveyor.

40D.19 Sounding devices

(1) In any ship of 24 metres or more in length, sounding devices that are to the satisfaction of the surveyor must be fitted—

(a) to the bilges of those compartments that are not readily accessible at all times during the voyage; and

(b) to all tanks and cofferdams.

(2) Where sounding pipes are fitted—

(a) their upper ends must be extended:

(i) to a readily accessible position; and

(ii) where practicable, above the working deck; and

(b) their openings must be provided with a permanently attached means of closing.

[5] See the Advisory Circular for acceptable means of closing off the air to engine room vents.

(3) Sounding pipes that are not extended above the working deck, as referred to in rule 40D.19(2)(a)(ii), must be fitted with automatic self-closing devices.

40D.20 Portlights and windows

(1) Portlights to spaces below the working deck and to spaces within the enclosed structures on that deck must be fitted with hinged deadlights capable of being closed watertight. The surveyor may accept portlights without deadlights in side and aft bulkheads of deckhouses on the working deck if satisfied the safety of the ship will not be impaired.

(2) A portlight must not be fitted in such a position that its sill is less than 500 mm above the design waterline.

(3) Portlights fitted less than 1000 mm above the design waterline must be of the fixed type.

(4) Portlights, together with their glasses and deadlights must be—

(a) of construction to the satisfaction of the surveyor[6]; and

(b) suitably protected if prone to be damaged by fishing gear.

(5) Toughened safety glass or suitable permanently transparent material must be fitted in all wheelhouse windows and the windows of other structures above the working deck. The thickness of glass or other material used, and the means of securing the windows and the width of the bearing surfaces must be to the satisfaction of the surveyor.[7]

40D.21 Inlets, discharges and sea water piping

(1) Discharges led through the shell, either from spaces below the working deck or from within enclosed superstructures or deckhouses on the working deck fitted with doors that comply with rule 40D.13, must be fitted with accessible means for preventing water from passing inboard.

(2) Except as provided in rule 40D.21(4), in any ship of 24 metres or more in length, each separate discharge led through the shell must have an automatic non-return valve with a positive means of closing it from an accessible position, unless the surveyor considers that the entry of water into the ship through the opening is not likely to lead to dangerous flooding and that the thickness of piping is sufficient.

(3) The means for operating any positive action valve must be provided with an indicator for the means of operating the valve that shows whether the valve is open or closed.

(4) In machinery spaces where crew are present during a voyage, the main and auxiliary sea inlets and discharges may be controlled locally. The controls must be accessible and provided with indicators showing whether the valves are open or closed.

(5) Fittings attached to the shell and the valves required by rule 40D.21(1) and (2) must be of steel, bronze, or other material acceptable to the surveyor.

(6) All pipes that carry sea water from a sea inlet must be of marine quality metal, except that—

(a) in any ship of less than 24 metres in length, non-metallic piping may be used; and

(b) suitable reinforced synthetic rubber piping may be used in short lengths for vibration damping.

(7) Where non-metallic piping or reinforced synthetic rubber piping is used it must—

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6 See ISO 12216:2002 Small Craft – Windows, portlights, hatches, deadlights and doors or NZS 5238:1986 Specification for ships' windows and rule 40D.69 (Navigating bridge visibility).

7 It is recommended that a suitable number of storm shutters are provided for the windows of a wheelhouse or deckhouse on the working deck of any ship to which rule 40D.21 applies and which proceeds beyond restricted limits.

(a) have a high resistance to salt water, fuel oil, heat and vibration; and

(b) be capable of operating under suction without collapse and resultant reduction in effective area; and

(c) for non-metallic piping, have resistance to impact damage; and

(d) be readily visible and protected against mechanical damage and contact with hot surfaces.

(8) Flammable material[8] must not be used for inlet, discharge, or sea water piping in engine room spaces.

(9) In a ship of less than 24 metres in length, non-metallic inlet and discharge valves attached to the shell and below the waterline must be protected against potential impact damage.

(10) Engine exhaust outlets that penetrate the hull below the deck must be provided with an efficient means to prevent backflooding into the hull through the exhaust system.

(11) The materials used in the piping system and their connection to the ship must be metallurgically compatible.

40D.22 Bulwarks and guardrails

(1) Efficient bulwarks or guard rails must be fitted on all exposed parts of the working deck and on superstructure decks to which crew have normal access except as provided in subrule (1A).

(1A) If a bulwark or guardrail will impede the safe navigation of the ship, other means of protecting the safety of the crew may be used.[9]

(2) Except as provided in rule 40D.22(3), the height of bulwarks or guard rails above deck must be—

(a) for any ship of 24 metres or more in length, at least 1 metre; and

(b) for any ship of less than 24 metres in length, at least 750 mm.

(3) Where the prescribed heights for bulwarks and guard rails would interfere with the normal fishing operations of the ship, a lesser height may be approved by the surveyor, provided that—

(a) a reduction in height is not permitted in way of wheelhouse and deckhouse doors; and

(b) a fixed bulwark must not be less than 450 mm in height.

(4) Clearance below the lowest course of guard rails is not to exceed 230 mm. Other courses must not be more than 380 mm apart, and the distance between stanchions must not be more than 1.5 metres. On a ship with rounded gunwales, guard rail supports must be placed on the flat of the deck. Rails must be free from sharp points, edges and corners and be of sufficient strength to prevent persons from falling overboard.

(5) Storm rails must be fitted as necessary to the outside of all deckhouses and casings to secure safety of passage or work for the crew.

(6) Stern trawlers must be provided with suitable protection such as doors, gates or nets at the top of the stern ramp at the same height as the adjacent bulwark or guard rails.

(7) Every fishing ship, other than a stern trawler, that has an opening between bulwarks must be provided with adequate protection for the crew from falling overboard, to the satisfaction of the surveyor.

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8 See the Advisory Circular for examples of such flammable material.

9 See the Advisory Circular for examples of other means of protecting the crew.

40D.23 Water freeing arrangements

(1) Where bulwarks on open weather parts of the working deck form wells, the minimum freeing port area (A) in square metres, on each side of the ship for each well on the working deck must be determined in relation to the length *(ℓ)*[10] and height of bulwark in the well as follows—

(a) $A = K \times \ell$

where: K = 0.07 for ships of 24 metres or more in length
K = 0.035 for ships of 12 metres or less in length

for ships of less than 24 metres but more than 12 metres the value of K should be obtained by linear interpolation; and

(ℓ need not be taken as greater than 70 percent of the ship's length)

(b) where the bulwark is more than 1.2 metres in average height the required area must be increased by 0.004 square metres per metre of length of well for each 100 mm difference in height; and

(c) where the bulwark is less than 900 mm in average height, the required area may be decreased by 0.004 square metres per metre of length of well for each 100 mm difference in height.

(2) The freeing port area calculated according to rule 40D.23(1) must be increased where the surveyor considers that the ship's sheer is not sufficient to ensure that the deck is rapidly and effectively freed of water.

(3) The minimum freeing port area for each well on an open weather superstructure deck must be not less than one half the area (A) given in rule 40D.23(1).

(4) For any ship to which this rule applies where the sea may enter over the stern and flood the deck into a superstructure that is open at its aft end, freeing ports must be fitted in the sides of the open superstructure that are acceptable to the surveyor.

(5) Freeing ports must 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 must be as near to the deck as practicable.

(6) Freeing ports over 300 mm in depth must be fitted with bars spaced not more than 230 mm nor less than 150 mm apart, or with other suitable protective arrangements approved by the surveyor. If fitted, the construction of freeing port covers must be approved by the surveyor. Sliding covers must not be fitted and no locking devices must be fitted to hinged covers.

(7) The master must ensure that freeing ports are maintained and kept free of any obstruction or means of permanent closing when the ship is at sea.

(8) Where cockpits are fitted in weather decks they must comply with rules 40D.34(7) and 40D.35(7) and efficient non-return means of drainage overboard must be provided.

Machinery

40D.24 General

(1) Main propulsion, control, steam pipe, fuel oil, compressed air, refrigeration systems, auxiliary machinery, boilers and other pressure vessels, piping and pumping arrangements, steering equipment and gears, shafts and couplings for power transmission must be—

(a) designed; and

[10] If the bulwark extends for the full length of the well, the length *ℓ* is the length of the well.

(b) constructed; and
(c) tested; and
(d) installed; and
(e) serviced;

to the satisfaction of the surveyor. The surveyor must also be satisfied that this machinery and equipment is protected so as to reduce to a minimum any danger to persons on board.[11]

(2) Where the main engine or engines are not fitted with hand starting arrangements, provision must be made for an alternative method of starting that—
(a) is on board the ship; and
(b) operates without external aid.

(3) Machinery spaces must be designed and constructed so as to provide safe and free access to all machinery and its controls as well as to any parts that may require servicing. Such spaces must be adequately ventilated.

40D.25 Propulsion and auxiliary machinery

(1) Sufficient astern power must be provided for adequate manoeuvrability of the ship under all normal operating conditions.

(2) Main and auxiliary machinery essential for the propulsion and safety of the ship must be provided with effective means of control, and visual instrumentation indicating essential operating characteristics.

(3) Where applicable, means must be provided to protect against overpressure of main or auxiliary machinery including pressure vessels.

(4) A ship fitted with outboard petrol engines—
(a) must not proceed beyond the coastal limit; and
(b) must have the engines securely fastened to the hull; and
(c) if the engines are not permanently secured, must provide the engines with a safety chain or cable; and
(d) must have effectively drained engine wells that are long enough for the engine to be tilted up.

(5) Any sailing ship must be provided with an auxiliary motor as means of propulsion with adequate forward and astern power to safely navigate the ship without the assistance of sails.

40D.26 Steering gear

(1) Every ship must be provided with efficient means of steering.

(2) If a steering gear is fitted with remote control, arrangements must be made for emergency steering in the event of failure of the control. Such arrangements must provide power steering for ships exceeding 15 metres in length. The main steering gear and the means of emergency steering must be arranged so that a single failure in one of them will not render the other inoperative. Where the main steering gear comprises two or more identical power units an emergency steering gear need not be fitted if the main steering gear is capable of fully operating the rudder when any one of the units is out of operation.

(3) The position of the rudder, if power operated, must be indicated at the steering position.

[11] Special attention should be paid to moving parts, hot surfaces and other dangers.

(4) Indicators showing the motors of electric and electrohydraulic steering gear are operating must be installed at the steering position.

40D.27 Fuel systems

(1) Fuel tanks and their associated fittings must be constructed, tested and installed to the satisfaction of the surveyor.

(2) In any ship of 45 metres or more in length, free-standing fuel oil tanks must not be used in machinery spaces of category A. No tank sited within the boundaries of machinery spaces of category A, in any such ship, may contain fuel oil having a flashpoint of less than 60°C (closed cup test).

(3) Oil fuel must not be carried forward of the collision bulkhead.

(4) In any non-portable oil tank, safe and efficient means must be provided for—

(a) ascertaining the amount of fuel oil contained; and

(b) preventing overpressure.

Vents and filling connections of fuel tanks must be located in a safe open-air position.

(4A) Gauges made of glass or plastic to the satisfaction of the surveyor and protected with a metal case may be used to ascertain the amount of fuel oil contained in a fuel tank, provided that automatic closing valves are fitted.

(5) A shut-off valve or cock must be fitted directly onto each oil fuel tank outlet line where it attaches to the fuel tank. On post-27 May 2004 ships the valve or cock must be capable of being operated locally and from outside the machinery space.

(6) Precautions must be taken to ensure that any oil that may escape from any tank, piping or fitting cannot constitute a hazard by coming into contact with a heated surface.

(7) Pumps forming part of the fuel oil system must be separate from any other system.

(8) In any pre-27 May 2004 ship to which this rule applies, an inboard engine using fuel oil having a flashpoint of less than 60° (closed cup test) must not be used unless the installation—

(a) complies with the requirements of rule 40D.63; and

(b) meets the fire protection requirements of Appendix 2.

(9) Petrol tanks must not be integral with the hull structure. Where a free-standing inboard petrol tank is fitted, its installation must comply with the requirements of rule 40D.63.

(10) If petrol in portable containers for use in outboard motors is carried on board, the containers must be—

(a) clearly identifiable; and

(b) stowed in the open where they can be readily jettisoned and where spillage will drain directly overboard.

40D.28 Bilge pumping arrangements

(1) Except as provided for in subrules (2) and (3), every ship must have a bilge pumping system that, under all practical conditions and regardless of whether the ship is upright or listed, is capable of efficiently pumping and draining any watertight compartment, other than a permanent oil or water tank, to a standard that is satisfactory to a surveyor.

(2) With the approval of the surveyor, each watertight compartment of less than 7% of the total under deck volume may be drained into an adjacent compartment by means of a self-closing valve or cock that must be—

(a) fitted outside the compartment being drained; and

(b) operable from a readily accessible position.

(3) Every ship of less than 12 metres in length having one or more watertight compartments filled with a buoyancy material approved by a surveyor is not required to have bilge pumping arrangements from those compartments.

(4) If the ship is 24 metres or more in length, the bilge system must be provided with a bilge distribution box located in an accessible position and the valves in that bilge distribution box must be of a non-return type.

(5) In a ship where fish handling or processing may cause quantities of water to accumulate in enclosed spaces, adequate drainage must be provided.

40D.28A Bilge pumps

(1) In ships of less than 24 metres in length, the surveyor may permit at least one fixed heavy duty electrically driven submersible pump to be fitted in an individual watertight compartment instead of a piped suction.

(2) If such a pump is fitted, the surveyor must be satisfied that the following standards are met:

(a) the pump's capacity in an individual watertight compartment must be at least eight metres^3/hour, unless more than one such pump is fitted in the compartment, in which case the combined capacity of the pumps must be at least eight metres^3/hour; and

(b) the compartment must have at least one other means of bilge suction that is not a heavy duty electrically driven submersible bilge pump, if the compartment is the main machinery space; and

(c) the pump must be fitted with a float switch that—

(i) automatically operates the audible alarm required by rule 40D.28C(1); and

(ii) is protected from being jammed by bilge debris; and

(d) the pump must be accessible for inspection, removal, or maintenance without the removal of permanent ship structure; and

(e) the pump must comply with the International Standard *ISO 8849:1990 Small Craft – Electrically operated bilge pumps* or an equivalent standard, if it is rated for 12V, 24V or 32V DC; and

(f) the ship must have two sources of electrical supply which are capable of running the pump in any one compartment for 12 hours; and

(g) the compartment must be provided with emergency bilge pumping arrangements, such as a portable submersible self-priming pump of eight metres^3/hour that is stowed with its hoses in a readily accessible location, unless—

(i) more than one pump is fitted in the compartment; or

(ii) the compartment is the main machinery space; or

(iii) the ship is less than 12 metres in length; and

(h) the discharge piping arrangements must be provided with at least two automatic non-return devices fitted between the watertight compartment and the overboard discharge, and, in particular, one of the devices—

(i) must be an automatic valve situated at or near the shell; and

(ii) may be a pipe-work loop taken up to the highest practical point below the weather tight deck.

40D.28B Bilge piping

(1) Bilge and ballast pumping systems must be arranged so as to prevent water passing from the sea or from water ballast spaces into holds or machinery spaces, or from one watertight compartment to another.

(2) The bilge connection to a pump that draws from the sea or from water ballast spaces must be fitted with a non-return valve, or a cock that cannot be opened simultaneously, to either—

(a) the bilges and the sea; or

(b) the bilges and the water ballast spaces.

(3) All manually operated bilge valves must be readily accessible.

(4) A strum box or strainer must be provided if the surveyor considers it necessary to protect the bilge suction line from obstruction.

(5) Strum box or strainer holes must not be greater than 10 mm in diameter and the aggregate area of the holes must be at least twice the area of the suction pipe.

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

40D.28C Bilge alarm

(1) A ship that has inboard propulsion machinery and through hull fittings, not including an open or partially decked ship, must be fitted with a bilge level device that is connected to an audible alarm located near the steering position.

(2) The power supply for the audible alarm must be available at all times persons are on board the ship.

(3) A ship fitted with an automatic submersible bilge pump in accordance with rule 40D.28A(1) must have a visual alarm at the steering position to indicate the pump is running.

40D.29 Refrigeration systems for the preservation of the catch

(1) Refrigeration systems on a ship of 24 metres or more in length must be designed, constructed, tested and installed—

(a) so as to take account of the safety of the system; and

(b) so as to take account of the emission of substances from the refrigerant that are hazardous to human health and the environment; and

(c) to the satisfaction of the surveyor.

(2) In refrigerating machinery spaces and refrigerating rooms, at least one exit must be capable of being opened from the inside. Where practicable, exits from spaces containing refrigerating machinery using toxic or flammable gas must not lead directly into any accommodation spaces.

(3) Where any refrigerant harmful to persons is used in a refrigeration system, at least two sets of breathing apparatus must be provided and maintained by the owner, one of which must be located in a position not likely to become inaccessible in the event of contamination by leaking refrigerant.[12] Where self-contained breathing apparatus is used, spare cylinders must be provided by the owner.

(4) Adequate guidance for the safe operation and emergency procedures for the refrigeration system must be provided on board the ship, which shall include the display of a suitable warning at the point of access to refrigerating machinery which uses toxic or flammable gas.

(5) Where any refrigerant harmful to persons is used in a refrigerant system on a ship of less than 24 metres in length, the operator must ensure that—

(a) a breathing apparatus; or

[12] Breathing apparatus provided in accordance with rule 40D.64 may be considered as meeting all or part of this requirement provided its location meets both purposes.

(b) an emergency escape breathing device,

of a type approved by the Director is located in a position not likely to become inaccessible in the event of contamination by leaking refrigerant, if there is a risk that a person may become trapped in a space containing refrigeration equipment.

Electrical

40D.30 General

A ship must be fitted with a permanently installed electrical system that—

(a) is not hazardous to crew; and

(b) is convenient to operate; and

(c) provides a high degree of reliability; and

(d) minimises the risk of fire.

40D.30A Design

(1) The owner of a ship to which rule 40D.7(1) applies which is a post-27 May 2004 ship or a ship which undergoes major alteration of its electrical systems must ensure that the information set out in subrule (2) is provided in a clear and legible form to and approved by a surveyor recognised by the Director for that purpose before the ship is built, or the electrical systems are altered or modified, as the case may be.

(2) The diagrams and information required by subrule (1) are—

(a) schematic diagrams of the main and any emergency power and lighting systems which include—

(i) a description of the type of electrical systems of supply installed; and

(ii) ratings of generators, transformers, batteries, charging sources, inverters, semi-conductor converters; and

(iii) all feeders connected to each switchboard; and

(iv) insulation type, size, and current loadings of feeder and final sub-circuit cables; and

(v) make, protection characteristic curve, prospective short circuit, and over current ratings of all circuit breakers and fuses; and

(b) simplified diagrams of generation circuits, battery charging, interconnector circuits, and feeder circuits; and

(c) arrangement and location plans of main and emergency switchboards plus any distribution boards; and

(d) plans showing the location of the main and emergency sources of power, radio battery, inverters, and battery chargers; and

(e) electrical load calculations used to determine the capacities of main and emergency generators and battery banks; and

(f) circuit diagram(s) of electrically powered bilge pumps plus bilge level alarms and pump monitoring systems; and

(g) circuit diagrams of electrically powered navigation lights, controls, and monitoring; and

(h) volt drop calculations of each of the following:

(i) main power feeder circuit; and

(ii) navigation light circuit; and

(iii) bilge pump circuit; and

(iv) vhf radio power supply circuit.

40D.30B Installation and materials

(1) The builder of a ship must ensure that the installation of electrical wiring and equipment is carried out by suitably qualified persons experiences in marine electrical work.

(2) The owner must ensure that all electrical equipment is marked or identified in accordance with the relevant electrical systems standard referred to in rule 40D.30C.

(3) The owner must ensure that any markings on electrical equipment are consistent with the terminology used in the owner's manual supplied in accordance with rule 40D.30E.

(4) A surveyor must be satisfied that the location of the electrical equipment, switchboards, and conductors will not expose them to water, oil, heat, or other environmental conditions.

40D.30C Electrical systems

(1) For ships of 24 metres or less in length overall, the electrical systems must comply with either—

(a) the relevant rules of a classification society named in rule 40D.9(2)(a); or

(b) the applicable parts of the AS/NZS 3004.2 *Electrical installations – Marinas and Boats*.

(2) For ships of more than 24 metres in length overall, the electrical systems must comply with either—

(a) the relevant rules of a classification society named in rule 40D.9(2)(a); or

(b) the applicable parts of the IEC 60092 series of standards – *Electrical installations in ships*.

40D.30D Marking and documentation

Revoked 2 August 2012 by Part 40D: Amendment 2012.

40D.30E Documentation

(1) The owner and master of a ship of more than 12 metres in length must ensure a manual containing the information set out in subrules (2) and (3) is kept on board the ship and readily accessible at all times."

(2) The manual must include the following information:

(a) diagrams identifying the electrical circuits of the ship with the locations of electrical devices in the ship and identification of conductors by colour or other means:

(b) the location and a description of the functions of electrical controls, dials, switches, fuses, and circuit-breakers installed on the panel-board:

(c) instructions for operating and maintaining the electrical system.

(3) The manual must include the following warning instructions:

(a) never work on the electrical installation while the electrical system is energised; and

(b) never modify the craft's electrical systems or relevant drawings; and

(c) never use the electrical system if the shore power reverse polarity indicator is activated; and

(d) never alter or modify the rated current amperage of overcurrent protective devices; and

(e) never install or replace electrical appliances or devices with components exceeding the rated current amperage of the circuit; and

(f) never leave the craft unattended with the electrical system energised except battery chargers, automatic bilge-pumps, fire protection and alarm circuits.

40D.31 Batteries

(1) When the sole means of starting the propulsion engine is by battery, there must be an alternative battery available of equal voltage and capacity that can be directly connected on its own to the starter motor via a change-over switch.

(2) Each battery bank must have a means of charging.

(3) Every ship battery must be—

(a) stowed in an acid proof box; and

(b) adequately covered to prevent damage; and

(c) adequately ventilated to prevent the accumulation of gas.

40D.32 Emergency source of electrical power

(1) Any post-27 May 2004 ship of 45 metres or more in length must be provided with a self-contained emergency source of electrical power located, to the satisfaction of the surveyor, outside the machinery spaces and above the freeboard deck. The emergency source of electrical power must be so arranged as to ensure its functioning in the event of fire or other causes of failure of the main electrical installations.

(2) Having regard to starting current and the transitory nature of certain loads, the emergency source of electrical power must be capable of serving simultaneously for a period of at least three hours—

(a) the VHF radio installation required by rule 40D.68, and if applicable:

(i) the MF/HF radio installation required by rule 40D.68; and

(ii) the ship earth station required by rule 40D.68; and

(b) Internal communication equipment, fire detecting systems and signals that may be required in an emergency; and

(c) the navigation lights if solely electrical, and the emergency lights:

(i) of launching stations and overside of the ship; and

(ii) in all alleyways, stairways and exits; and

(iii) in spaces containing machinery or the emergency source of power; and

(iv) in control stations; and

(v) in fish handling and fish processing spaces; and

(d) the operation of the emergency fire pump, if any.

(3) The emergency source of electrical power must be either a generator or an accumulator battery. Automatic starting arrangements must be fitted to the surveyor's satisfaction.

(4) The emergency switchboard must be installed as near as practicable to the emergency source of power.

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

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

40D.32A Navigation lights

(1) Each navigation light must be controlled and protected in each non-earthed pole by a switch, and either a fuse or circuit breaker mounted on a distribution board reserved for this purpose. On ships of more than 12 metres length overall, the distributions board must be accessible to the person on watch.

(2) On post-27 May 2004 ships of 24 metres ore more in length overall which proceed beyond restricted limits, each navigation light must be provided with an automatic indicator giving audible or visual indication of failure of the light.

(3) Cables supplying navigation lights must be sized to ensure that total circuit volt drop does not exceed 3 percent of the supply system voltage.

40D.32B Lightning protection[13]

(1) If fitted, lightning conductors must comply with the requirements of rules 40D.32B(2) to 30D.32B(6).

(2) In wood and composite ships fitted with wooden masts, the lightning conductors must comply with the following:

(a) they must be of continuous copper tape or rope, or a combination of copper tape and rope, having a cross sectional area not less than 100 mm^2 which must be riveted with copper rivets or fastened with copper clamps to a suitable copper spike not less than 13 mm in diameter, projecting at least 150 mm above the top of the mast; and

(b) where tape is used, the lower end of the tape must terminate at the point at which the shrouds leave the mast, and must be securely clamped to a copper rope of not less than 13 mm diameter. This copper rope must be led down the shrouds and must be securely clamped to a copper plate not less than 0.2 m^2 in area, fixed well below the light waterline and attached to the ship's hull in such a manner that is immersed under all normal conditions of heel.

(3) In wood and composite ships fitted with steel masts, each mast must be connected to a copper plate in accordance with the requirements of rule 40D.41(2) The copper rope must be securely attached to, and in good electrical contact with, the mast at or above the point oat which the shrouds leave the mast.

(4) In steel ships fitted with wooden masts, the lightning conductors must be of copper tape or rope terminating in a spike, as required by rule 40D.41(2). At the lower end this copper tape or rope must be securely clamped to the nearest metal forming part of the hull of the ship.

(5) Lightning conductors must be run as straight as possible, and sharp bends in the conductors must be avoided. All clamps used must be of brass or copper and efficiently locked. No connection must be dependent on a soldered joint.

(6) The resistance of the lightning conductor, measured between the mast head and the position on the earth plate or hull to which the lightning conductor is earthed, must no exceed 0.02 ohms.

40D.32C Tests and trials

(1) A ship's electrical system must be inspected and tested to the satisfaction of the surveyor in accordance with the requirements of the relevant standard referred to in rule 40D.30C.

Stability and associated seaworthiness

40D.33 Ships of 24 metres or more in length

(1) A ship of 24 metres or more in length must comply with the intact stability requirements prescribed in subrules (2) to (7).

[13] For hulls and masts of other materials than those referred to in these rules the arrangements need individual and specialist consideration. The use of copper with an aluminium alloy hull will present corrosion problems.

(2) Except as provided in subrule (3), the actual displacement and position of the centre of gravity for the lightship condition must be determined from the results of an inclining experiment conducted or witnessed by a surveyor.

(3) A sister ship is not required to conduct an inclining test provided the ship has a displacement check carried out that produces a result that is within a limit of the lead sister ship's displacement that is satisfactory to a surveyor.

(4) The surveyor referred to in subrule (2) must—

(a) produce curves of statical stability (GZ curves) for—

(i) departure for the fishing grounds with full fuel, stores, ice, and fishing gear; and

(ii) departure from the fishing grounds with full catch; and

(iii) arrival at home port with full catch and 10% fuel and stores; and

(iv) arrival at home port with 10% fuel, stores, and a minimum catch, that is normally to be 20% of a full catch but may be up to 40%, provided the surveyor is satisfied that operating patterns justify such a value; and

(v) any other actual operating conditions the surveyor considers would produce the lowest values of the parameters contained in the criteria required by subrule (4)(c); and

(b) in determining the righting lever curves (GZ curves), take the following into account—

(i) allowance for the weight of wet fishing nets and other fishing gear on the deck; and

(ii) homogeneous distribution of the catch, unless this is inconsistent with practice; and

(iii) catch on deck, if anticipated, in operating conditions referred to in subrules (4)(a)(ii)(iii) and (v); and

(iv) water ballast if carried; and

(v) allowance for the free surface effect of liquids and, if applicable, catch carried; and

(vi) where a ship operates in areas where ice accretion is likely to occur, make the following icing allowance—

(aa) 30 kg/m^2 on exposed weather decks and gangways; and

(bb) 7.5 kg/m^2 for projected lateral area of each side of the ship above the water plane; and

(cc) the projected lateral area of discontinuous surfaces of rail, spars (except masts) and rigging of ships having no sails and the projected lateral area of other small objects must be computed by increasing the total projected area of continuous surfaces by 5% and the static moments of this area by 10%; and

(c) confirm that the curves of statical stability for the loaded conditions required by subrule (4)(a) meet the following criteria—

(i) the area under the righting lever curve (GZ curve) must not be less than—

(aa) 0.055 metre-radians up to 30° angle of heel; and

(bb) 0.090 metre-radians up to 40°; and

(ii) the area under the GZ curve between the angles of heel of 30° and 40° or between 30° and θf if this angle[14] is less than 40° must not be less than 0.03 metre-radians; and

[14] θ_f is the angle of heel at which openings in the hull, superstructure or deckhouses that cannot rapidly be closed weathertight begin to immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.

(iii) the righting lever (GZ) must be at least 200 millimetres at an angle of heel equal to, or greater than, 30°; and

(iv) the maximum righting lever (GZmax) must occur at an angle of heel preferably exceeding 30°, but not less than 25°; and

(v) the initial metacentric height (GM)—

(aa) for single deck ships of less than 70 metres in length, must not be less than 0.35 metres; or

(bb) for ships of 70 metres in length and over with complete superstructure, may be reduced from 0.35 metres, to the satisfaction of the surveyor, but not be less than 0.15 metres; and

(vi) the range of positive stability must not be less than 60°[15] and

(d) confirm that the angle of heel at which progressive flooding of fish holds could occur through hatches that remain open during fishing operations and that cannot rapidly be closed, is at least 20°, unless the stability criteria of subrule (4)(c) can be satisfied with the respective fish holds partially or completely flooded; and

(e) where arrangements other than bilge keels are provided to limit the angles of roll, be satisfied that the stability criteria given in subrule (4)(c) are maintained in all operating conditions.

(f) taking account of the seasonal weather conditions, the sea states in which the ship will operate, the type of ship, and its mode of operation, be satisfied that a ship is able to withstand—

(i) the effect of severe wind and rolling in associated sea conditions; and

(ii) the effect of water on deck.

(5) The stability information must be prepared in a form acceptable to the Director and must—

(a) be approved and supplied to the owner, by the surveyor referred to in subrule (2); and

(b) enable the master to assess with ease and certainty the stability of the ship under various operating conditions; and

(c) include specific instructions to the master regarding those operating conditions that could adversely affect either the stability or trim of the ship.

(6) The owner and master of a ship must ensure that the stability information prepared in accordance with subrule (5) is kept on board the ship, and readily accessible at all times.

(7) If a ship that was previously subject to an inclining test has undergone a major, repair, alteration or modification the owner must ensure the stability information, prepared in accordance with subrule (5), is revised to the satisfaction of the surveyor.

40D.34 Ships of less than 24 metres in length

(1) A post-27 May 2004 ship of 12 metres or more in length, but less than 24 metres in length must comply with the intact stability requirements prescribed in subrules (2) to (5).

(2) Except as provided in subrule (3), the actual displacement and position of the centre of gravity for the lightship condition must be determined from the results of an inclining experiment conducted or witnessed by a surveyor.

(3) A sister ship is not required to conduct an inclining test provided the ship has a displacement check carried out that produces a result that is within a limit of the lead sister ship's displacement that is satisfactory to a surveyor.

[15] The effects of enclosed deck erections with openings closed by approved weathertight fittings may be taken into account in determining the range of positive stability.

(4) The surveyor referred to in subrule (2) must—

(a) produce righting lever curves (GZ curves)—

(i) for ships that are engaged in trawling, dredging or similar forms of fishing where heavy gear is towed or purse seining taking into account the factors listed in rule 40D.33(4)(b)—

(aa) departure for the fishing grounds with full fuel, stores, ice, and fishing gear; and

(bb) departure from the fishing grounds with full catch; and

(cc) arrival at home port with full catch and 10% fuel and stores; and

(dd) arrival at home port with 10% fuel, stores, and a minimum catch, that is normally to be 20% of a full catch but may be up to 40%, provided the surveyor is satisfied that operating patterns justify such a value; and

(ee) any other actual operating conditions the surveyor considers would produce the lowest values of the parameters contained in the criteria required by rule 40D.33(4)(c); or

(ii) for ships that are not engaged in purse seining or forms of fishing using heavy towed gear—

(aa) departure for the fishing grounds with full fuel, stores, ice, and fishing gear; and

(bb) arrival at home port with full catch and 10% fuel and stores; and

(b) confirm that the righting lever curves meet the criteria provided in rule 40D.33(4)(c).

(5) The stability information must be prepared in a form prescribed by the Director and must be—

(a) approved and supplied to the owner, by the surveyor referred to in subrule (2); and

(b) kept by the owner on board the ship and be readily available at all times; and

(c) made available on request to a surveyor or the Director.

(6) Except as provided in subrule (3), a pre-27 May 2004 ship of 12 metres or more in length, but less than 24 metres in length that is engaged in trawling, dredging, or other forms of fishing where the heavy gear is towed, or engaged in purse seining, must comply with the intact stability requirements prescribed in subrules (2), (4)(a)(i), (4)(b) and (5).

(7) Except as provided in subrule (3), the owner of any ship of less than 12 metres in length that is engaged in fishing operations using towed gear must ensure that the ship, either—

(a) complies with the requirements of subrules (2), (4)(a)(ii), (4)(b) and (5); or

(b) is subject, on completion, to an inclining test where it must be confirmed that the metacentric height of the ship for the departure for the fishing grounds condition with full fuel, stores, ice, and fishing gear is not less than 0.75 metres.

(8) If a ship that was previously subject to an inclining test has undergone a major alteration, modification or repair the owner must ensure that—

(a) stability information, prepared in accordance with subrule (5), is revised to the satisfaction of a surveyor; and

(b) a ship to which subrule (7)(b) was applied on completion is re-inclined, to ensure compliance to subrule (7)(b).

(9) A post-27 May 2004 non-decked ship, or a post-27 May 2004 partially decked ship, must be fitted with buoyancy compartments distributed so that the ship will stay afloat and in good trim, without listing if flooded.

(10) The buoyancy referred to in subrule (9) must be demonstrated by, either—

(a) calculation, using the formula[16]—

Buoyancy (litres) = Hull (kg) + Equipment (kg) + Motor (kg) + 250M kgs

where—

M 0.1 x L x B

L length overall

B maximum beam; or

(b) completing a practical test where the ship must—

(i) be loaded with a simulation of the equipment and motor weights plus 250M kg without capsizing; and

(ii) be flooded to the point of submergence without capsizing; and

(iii) then bear a weight of 15 kg on the gunwhale amidships on one side of the ship without capsizing.

(11) The cockpit of any post-27 May 2004 ship to which this rule applies must meet the following criteria—

(a) the cockpit must be watertight and self-draining; and

(b) the ship must have a reserve of buoyancy and its static stability must remain intact when the cockpit is full of water; and

(c) with the boat upright and at its deepest load draught, the cockpit must be capable of self draining in 3 minutes.

40D.35 Freeboard

(1) The surveyor must be satisfied that the bow height of any ship to which rules 40D.33 and 40D.34 apply is sufficient to prevent the excessive shipping of water, taking into account—

(a) the seasonal weather conditions; and

(b) the sea states in which the ship will operate; and

(c) the type of ship; and

(d) the mode of operation.

(2) For any ship to which rules 40D.33 and 40D.34 apply, the following must be approved by the surveyor in accordance with subrule (3):

(a) a minimum permissible operating freeboard; and

(b) a maximum permissible trim, if applicable.

(3) A minimum permissible operating freeboard and, if used, a maximum permissible trim, must be—

(a) such that in the associated operating condition, the stability criteria of rule 40D.33(4) are satisfied in the case of any ship to which rule 40D.33 applies and the stability criteria of rule 40D.34(4) are satisfied in the case of any ship to which rule 40D.34 applies, and the scantling draught is not exceeded; and

(b) clearly noted in the stability information required by rules 40D.33(5) and 40D.34(5); and

(c) posted up in the wheelhouse, in a prominent position, clearly visible to the master and crew of the ship.

(4) Every ship—

(a) for which a minimum permissible operating freeboard is approved by a surveyor, must be marked with a freeboard line amidships, port, and starboard; and

[16] For a wooden ship, the calculations may take into account half the volume of buoyancy of wood.

(b) where a maximum permissible trim by the stern is also approved by the surveyor, must be marked with a freeboard line on the transom or stern of the ship to indicate the maximum permissible submergence of the transom or stern at that position.

(5) Every freeboard line required under subrule (4)(a) and (b)—

(a) must be 300 mm long by 30 mm deep permanently marked and painted light on dark backgrounds or dark on light backgrounds; and

(b) at its upper edge, must coincide with the maximum permissible operating draught.

(6) For any non-decked ship or partially decked ship to which rule 40D.34(9) applies, the freeboard, when loaded with 250M kg[17] (where M = 0.1 x L x B, L = length overall, and B = maximum beam), in metres, respectively, must be—

(a) at least 0.5 metres for a ship permitted to operate in the inshore limit; and

(b) 0.35 metres for a ship permitted to operate in enclosed waters.

(7) For any ship fitted with a cockpit and to which rule 40D.34(11) applies, the freeboard measured from the designed waterline for the maximum load to the lowest point of the cockpit sole must be at least 0.2 metres.

40D.36 Subdivision and damage stability

The owner of any ship—

(a) of 100 metres or more in length; and

(b) that carries 100 or more persons on board during normal fishing operations;

must ensure that the ship is capable of remaining afloat with positive stability after the flooding of any one compartment.

Life saving appliances

40D.37 General

(1) The owner and the master of any ship must ensure that life saving appliances are provided in accordance with the requirements of Appendix 1.

(2) The owner and the master of any ship must ensure that the ship's life saving appliances comply with the performance standards specified in Part 42A.

(3) The owner and the master of any ship must ensure that the ship's life saving appliances are—

(a) well maintained; and

(b) inspected; and

(c) serviced;

in accordance with the requirements of Part 42A.

(4) The master of any ship must ensure that all life saving appliances are—

(a) in good working order; and

(b) ready for immediate use;

before the ship commences a voyage and at all times during the voyage.

Fire protection

40D.38 Definitions relating to fire protection

In rules 40D.39 to 40D.63 inclusive—

[17] Where "M" is defined in rule 40D.34(10)(a).

"A" class divisions means those divisions formed by bulkheads and decks that comply with the following—

(a) they must be constructed of steel or other equivalent material; and

(b) they are suitably stiffened; and

(c) they must 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; and

(d) they must be insulated with approved non-combustible materials, such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature, at any one point, including any joint, rise more than 180° C above the original temperature, within the time listed below:

Class "A-60"	60 min
Class "A-30"	30 min
Class "A-15"	15 min
Class "A-0"	0 min:

accommodation spaces means those spaces used for lounges, mess rooms, recreational rooms, corridors, lavatories, cabins, offices, hospitals, pantries containing no cooking appliances, and similar spaces:

"B" class division means those divisions formed by bulkheads, decks, ceilings or linings that comply with the following—

(a) they must 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; and

(b) they must have an insulation value such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature at any one point, including any joint, rise more than 225°C above the original temperature, within the time listed below:

Class "B-15"	15 min
Class "B-0"	0 min

(c) they must be constructed of approved non-combustible materials and all materials entering into the construction and erection of "B" class divisions must be non - combustible with the exception that combustible veneers may be permitted by a surveyor, provided the surveyor is satisfied that the use of a combustible veneer does not compromise the requirements of subsections 1 and 2 of the Fire Protection provisions of Part 40D:

"C" class divisions means those divisions formed by bulkheads, decks, ceilings or linings constructed of non-combustible materials approved by the Director. They need meet no requirements relative to the passage of smoke and flame nor the limiting of temperature rise. Combustible veneers may be permitted by the surveyor, provided the surveyor is satisfied that their use does not compromise the requirements of subsections 1 and 2 of the Fire Protection provisions of Part 40D:

continuous "B" class ceilings or linings are those "B" class ceilings or linings that terminate only at an "A" or "B" class division:

control stations are those spaces in which the ship's radio or main navigation equipment or the emergency source of power is located, or where the fire recording or fire control equipment is centralised:

"F" class divisions means those divisions formed by bulkheads, decks, ceilings, or linings that comply with the following—

(a) they are 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; and

(b) they must have an insulation value such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature at any one point, including any joint, rise more than 229°C above the original temperature, up to the end of the first one -half hour of the standard fire test:

low flame spread means that the surface thus described will adequately restrict the spread of flame. An established test procedure to determine the material's adequacy is that laid down in Australian Standard 1530 Part 3 "Test for Early Fire Hazard Properties of Materials", where the material must meet the following criteria—

(a) spread of flame index, not to exceed 3; and

(b) ignitability index plus heat involved index not to exceed 7 (in total); and

(c) smoke developed index, not to exceed 4.

The Director may accept a smoke developed index of up to 5 where the spread of flame index does not exceed 1, and the ignitability index plus the heat evolved index does not exceed 3.

Evidence of approval as a low flame spread material by the Administration of another state or a classification society, where tests have been carried out in accordance with other relevant national or international standards, may be accepted by the Director:

machinery spaces means those machinery spaces of category A and all other spaces containing propulsion machinery, boilers, fuel oil 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:

non-combustible material means a material that neither burns nor gives off flammable vapours in sufficient quantity for self-ignition when heated to approximately 750° C, this being determined by the test procedure laid down in the *Improved Recommendation on Test Method for Qualifying Marine Construction Materials as Non-Combustible* adopted by the International Maritime Organization by resolution A.472(XII), as amended by that organisation from time to time:

service spaces are those spaces used for galleys, pantries containing cooking appliances, lockers and store-rooms, workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces:

standard fire test is one 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 must have an exposed surface of not less than 4.65 m^2 and a height (or length of deck) of 2.44 m, 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 above the initial furnace temperature:

at the end of the first 5 min 556° C

at the end of the first 10 min 659° C

at the end of the first 15 min 718° C

at the end of the first 30 min 821° C

at the end of the first 60 min 925° C.

40D.39 Application of fire protection requirements

(1) The structural fire protection of any post-27 May 2004 ship of 60 metres or more in length must comply with rules 40D.40 to 40D.51 inclusive.

(2) The structural fire protection of any post-27 May 2004 ship of 45 metres or more in length but less than 60 metres must comply with rule 40D.40 and rules 40D.52 to 40D.57 inclusive.

(3) The structural fire protection of any post-27 May 2004 ship of 24 metres or more in length but less than 45 metres, that proceeds beyond the coastal limit, must comply with rules 40D.52 to 40D.57 inclusive.

(4) The structural fire protection of any post-27 May 2004 ship that is—

(a) a ship of less than 24 metres in length; or

(b) a ship that is 24 metres or more in length but less than 45 metres, that does not proceed beyond the coastal limit;

must comply with rules 40D.58 to 40D.63 inclusive.

40D.40 Method of protection

(1) One of the following methods of protection must be adopted in accommodation and service spaces of any post-27 May 2004 ship of 45 metres or more in length:

(a) *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; or

(b) *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 restriction; or

(c) *Method IIIF* – 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.

(2) Unless otherwise specified, the requirements of the following subsections for the use of non-combustible materials in construction and insulation of the boundary bulkheads of machinery spaces and control stations, and the protection of stairway enclosures and corridors, are common to all three methods of protection.

Subsection 1 Post-27 May 2004 ships of 60 metres or more in length

40D.41 Structure

(1) The hull, superstructure, structural bulkheads, decks and deckhouses must be constructed of steel or other equivalent material except as otherwise specified in rule 40D.41(4).

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

(3) 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, must be such to ensure—

(a) that for such members supporting survival craft areas and "A" class divisions, the temperature rise limitation specified in rule 40D.41(2) is to apply at the end of one hour; and

(b) that for such members required to support "B" class divisions, the temperature rise limitation specified in rule 40D.41(2) is to apply at the end of one half-hour.

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

40D.42 Bulkheads within the accommodation and service spaces

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

(2) The following requirements apply, depending on the method of protection adopted under rule 40D.40:

(a) *Method IF.* All bulkheads not required by the rules of subsection 1 to be "A" or "B" class divisions must be at least "C" class divisions:

(b) *Method IIF.* There are no fire protection requirements for the construction of bulkheads not required by the rules of subsection 1 to be "A" or "B" class divisions except in individual cases where "C" class bulkheads are required in accordance with Table 6 in rule 40D.45:

(c) *Method IIIF.* There are no fire protection requirements for the construction of bulkheads not required by the rules of subsection 1 to be "A" or "B" class divisions. In no case is the area of any accommodation space or spaces bounded by a continuous "A" or "B" class division to exceed 50 m^2, except in individual cases where "C" class bulkheads are required in accordance with Table 6 in rule 40D.45. However, the Director may permit an increase in this area for public spaces.

40D.43 Protection of stairways and lift trunks in accommodation spaces, service spaces and control stations

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

(2) All stairways must be of steel frame construction except where the Director permits the use of other equivalent material.

40D.44 Doors in fire-resistant divisions

(1) (a) Except as provided in rules 40D.44(2) and (5) and 40D.45(5)(b), doors must have resistance to fire as far as practicable, equivalent to the division in which they are fitted.

(b) Doors and door frames in "A" class divisions must be constructed of steel.

(c) Except as provided in rules 40D.44(2) and rule 40D.45(5)(b), doors in "B" class divisions must be non-combustible.

(d) Doors fitted in boundary bulkheads of machinery spaces of category A must be self-closing and reasonably gastight.

(2) The surveyor may permit the use of combustible materials in doors separating cabins from the individual interior sanitary accommodation, such as showers, if those doors are constructed according to Method IF.

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

(4) The surveyor may permit ventilation openings in and under the doors in corridor bulkheads provided that—

(a) such openings are not permitted in and under stairway enclosure doors; and

(b) the openings provided may only be in the lower half of a door; and

(c) the total net area of any such opening or openings must not exceed 0.05 m^2; and

(d) when such openings are cut in a door, it must be fitted with a grille made of non-combustible material.

(5) Watertight doors need not be insulated.

40D.45 Fire integrity of bulkheads and decks

(1) In addition to the specific provisions for fire integrity of bulkheads and decks required elsewhere in subsection 1, the minimum fire integrity of bulkheads and decks must be as prescribed in Table 6 and Table 7 and the notes accompanying those tables.

(2) The following requirements govern application of Tables 6 and 7—

(a) Tables 6 and 7 apply respectively to bulkheads and decks separating adjacent spaces; and

(b) in 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:

(i) Control stations (1) including:

Spaces containing emergency sources of power and lighting:

Wheelhouse and chartroom:

Spaces containing the ship'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 centralised fire alarm equipment:

(ii) Corridors (2) including:

Corridors and lobbies:

(iii) Accommodation spaces (3) as defined in rule 40D.38, but excluding corridors:

(iv) Stairways (4) including:

Interior stairways, lifts and escalators other than those wholly combined within the machinery spaces and enclosures thereto. A stairway that is enclosed only at one level must be regarded as part of any space from which it is not separated by a fire door:

(v) Service spaces of low fire risk (5) including:

lockers and store rooms having areas of less than 2 m^2, and drying rooms and laundries:

(vi) Machinery spaces of category A (6) including:

Spaces as defined in rule 40D.38:

(vii) Other machinery spaces (7) including:

Spaces as defined in rule 40D.38 including fishmeal processing spaces, but excluding machinery spaces of category A:

(viii) Cargo spaces (8) including:

All spaces used for cargo, including cargo oil tanks, and trunkways and hatchways to such spaces:

(ix) Service spaces of high fire risk (9) including:

Galleys, pantries containing cooking appliances, paint rooms, lamp rooms, lockers and store rooms having areas of 2 m^2 or more, and workshops other than those forming part of the machinery spaces:

(x) Open decks (10) including:

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 air spaces outside superstructures and deckhouses.

The title of each category is inclusive but not restricted to the spaces described. The number in parenthesis following each category refers to the applicable column or row in the tables.

Table 6 – Fire integrity of bulkheads separating adjacent spaces

Spaces adjacent to each other		**(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)										–

Notes: (see table 7)

Table 7 - Fire integrity of decks separating adjacent spaces

Space below ↓ Space above →		**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Control stations	(1)	A-0c	A-0	A-60	A-0	A-15	A-60	A-15	A-60	A-60	*
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	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-0d	*

Open decks	(10)	*	*	*	*	*	*	*	*	*	-

Notes: To be applied to both Tables 6 and 7, 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 must be provided between spaces or groups of spaces of 50 m^2 and over in area.

c For clarification as to which applies see rules 40D.38 and 40D.39.

d Where spaces are of the same numerical category and subscript 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 "B-0" rating.

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

* Where an asterisk appears in the tables the division is required to be of steel or equivalent material but is not required to be of "A" class standard.

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

(4) Windows and skylights to machinery spaces must be as follows—

(a) where skylights can be opened they must be capable of being closed from outside the space. Skylights containing glass panels must be fitted with external shutters of steel or other equivalent material permanently attached; and

(b) glass or similar materials must 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; and

(c) the glass panels in skylights referred to in rule 40D.45(4)(a) must be wire reinforced glass.

(5) (a) External boundaries that are required by rule 40D.41(1) to be of steel or equivalent material may be pierced for the fitting of windows and sidescuttles, provided that there is no requirement elsewhere in this subsection for such boundaries to have "A" class integrity.

(b) In external boundaries that are not required to have "A" class integrity, doors may be of materials to the satisfaction of the surveyor.

40D.46 Details of construction

(1) The following requirements apply, depending on the method of protection adopted under rule 40D.40:

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

(b) *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 must be of non-combustible materials.

(c) *Methods IF, IIF and IIIF*

(i) Except in cargo spaces or refrigerated compartments of service spaces, insulating materials must 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 must

be kept to the minimum quantity practicable and their exposed surfaces must have qualities of resistance to the propagation of flame acceptable to the Director. In spaces where penetration of oil products is possible, the surface of insulation must be impervious to oil or oil vapour.

(ii) Non-combustible bulkheads, linings, or ceilings fitted in accommodation and service spaces may have a combustible veneer not exceeding 2.0mm in thickness, except in corridors, stairway enclosures, and control stations, where such veneers must not exceed 1.5mm in thickness.

(iii) Air spaces enclosed behind ceilings, panellings, or linings must be divided by close-fitting draught stops spaced not more than 14m apart. In the vertical direction, such spaces, including those behind linings of stairways, trunks, and other similar spaces must be closed at each deck.

40D.47 Ventilation systems

(1) (a) Except as provided in rule 40D.47(1)(b), ventilation ducts must be constructed of non-combustible material.

(b) Short ducts of less than 2m in length and with a cross section not exceeding 0.02 m^2 are not required to be non-combustible, if the ducts:

(i) are constructed of a material which the Director is satisfied has a low fire risk; and

(ii) are only used at the end of the ventilation device; and

(iii) are not less than 600mm, measured along the duct, from an opening in an "A" or "B" class division, including continuous "B" class ceilings.

(c) Except as provided in rule 40D.47(1)(d), where the ventilation ducts with a free cross-sectional area exceeding 0.02 m^2 pass through "A" class bulkheads or decks, the openings must be lined with a steel sheet sleeve.

(d) Ventilation ducts with a free cross-sectional area exceeding 0.02 m^2 that pass through "A" class bulkheads or decks are not required to be lined with a steel sheet sleeve if they are constructed of steel in the vicinity of passage through the deck or bulkhead and comply in that portion of the duct with the following:

(i) for ducts with a free cross-sectional area exceeding 0.02 m^2, the sleeves must have a thickness of at least 3mm and a length of at least 900mm. When passing through bulkheads this length is, where practicable, to be divided evenly on each side of the bulkhead. Ducts with a free cross-sectional area exceeding 0.02 m^2 must be provided with fire insulation. The insulation must have at least the same fire integrity as the bulkhead or deck through which the duct passes. Equivalent penetration protection may be provided if acceptable to the surveyor; and

(ii) ducts with a free cross-sectional area exceeding 0.085 m^2 must be fitted with fire dampers in addition to the requirements of rule 40D.47(1)(d)(i). The fire damper must operate automatically but is also to be capable of being closed manually from both sides of the bulkhead or deck. The damper must be provided with an indicator that 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 bulkheads which they penetrate.

(e) Ventilation ducts for machinery spaces of category A or galleys must not pass through accommodation spaces, service spaces or control stations unless the Director so permits. Where the Director permits this arrangement, the ducts must be constructed of steel or equivalent material and be so arranged as to preserve the integrity of the divisions.

(f) Ventilation ducts of accommodation spaces, service spaces, or control stations must not pass through machinery spaces of category A or through galleys unless the Director so permits. Where the Director permits this

arrangement the ducts must be constructed of steel or equivalent material and be so arranged as to preserve the integrity of the divisions.

(g) Where ventilation ducts with a free cross-sectional area exceeding 0.02 m^2 pass through "B" class bulkheads, the openings must be lined with steel sheet sleeves of at least 900 mm 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, where practicable, must be divided evenly on each side of the bulkhead.

(h) Such measures as are practicable must be taken in respect of control stations outside machinery spaces in order to ensure that ventilation, visibility, and freedom from smoke are maintained, so that in the event of fire the machinery and equipment contained in such systems may be supervised and continue to function effectively. Alternative and separate means of air supply must be provided; air inlets of the two sources of supply must be so located that the risk of both inlets drawing in smoke simultaneously is minimised. At the discretion of the Director, such requirements need not apply to control stations situated on, and openings on to, an open deck, or where local closing arrangements are equally effective.

(i) Where they pass through accommodation spaces or spaces containing combustible materials, the exhaust ducts from galley ranges must be constructed of "A" class divisions. Each exhaust duct must be fitted with:

(i) a grease trap readily removable for cleaning; and

(ii) a fire damper located in the lower end of the duct; and

(iii) arrangements, operable from within the galley, for shutting off the exhaust fan; and

(iv) fixed means for extinguishing a fire within the duct, except where the surveyor considers such fittings impractical in a ship of less than 75m in length.

(2) The main inlets and outlets of all ventilation systems must be capable of being closed from outside the spaces being ventilated. Power ventilation of accommodation spaces, service spaces, control stations, and machinery spaces must 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 must be entirely separate from the means provided for stopping ventilation of other spaces.

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

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

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

40D.48 Heating installations

(1) Electric radiators must be fixed in position and so constructed as to minimise fire risks[18].

(2) Heating by means of open fires is not permitted. Heating stoves and other similar devices must be firmly secured and adequate protection and insulation against fire must be provided beneath and around such appliances and in way of the uptakes. Uptakes of stoves that burn solid fuel must be arranged and designed so as to minimise the

[18] No such radiator may 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.

possibility of becoming blocked by combustion products and must have a ready means for cleaning. Dampers for limiting draughts in uptakes are, when in the closed position, still to leave an adequate area open. Spaces in which stoves are installed must be provided with ventilators of sufficient area to provide adequate combustion air for the stove. Such ventilators must have no means of closure and the position of any opening in such ventilators must be at the height above the deck given in Table 4 in rule 40D.17(2).

(3) Open gas flame appliances, except cooking stoves, domestic refrigerators and water heaters, are not permitted. Spaces containing any such stoves, refrigerators or water heaters must have adequate ventilation to remove fumes and possible gas leakage to a safe space. All pipes conveying gas from container to stove, refrigerator or water heater must be of steel or other material approved by the surveyor. Automatic safety gas shut-off devices must 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 must be—

(a) acceptable to the surveyor; and

(b) in accordance with rule 40D.50.

40D.49 Miscellaneous items

(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 must have low flame-spread characteristics. Exposed surfaces of ceilings in accommodation and service spaces and control stations must have low flame-spread characteristics.

(2) Paints, varnishes and other finishes used on exposed interior surfaces must not be capable of producing excessive quantities of smoke or toxic gases or vapours. The surveyor must be satisfied that the finishes are not a fire hazard.

(3) Primary deck coverings within accommodation and service spaces and control stations, must be of material approved by the surveyor, that will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures.

(4) Where "A" or "B" class divisions are penetrated for the passage of cables, pipes, trunks, ducts, or other similar services, or for the fitting of ventilation terminals, lighting fixtures and similar devices, arrangements must be made to ensure that the fire integrity of the divisions is not impaired.

(5) (a) In accommodation and service spaces and control stations, pipes penetrating "A" or "B" class divisions must be of approved material having regard to the temperature such divisions are required to withstand.

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

(6) Cellulose-nitrate-based film must not be used in cinematograph installations.

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

(8) Machinery driving fuel oil transfer pumps, fuel oil unit pumps and other similar fuel pumps must 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 must be fitted where necessary to prevent oil leaking into bilges.

Within compartments used for stowage of fish, combustible insulation must be protected by close fitting cladding.

40D.50 Storage of gas cylinders and dangerous materials

(1) Cylinders for compressed, liquefied or dissolved gases must—

(a) be clearly marked by means of identifying colours in accordance with NZS 5807:1980 *Code of Practice for Industrial Identification by Colour, Wording or other Coding;* and

(b) have a clearly legible identification of the name and chemical formula of their contents; and

(c) be properly secured.

(2) Cylinders containing flammable or other dangerous gases and expended cylinders must be—

(a) stored and properly secured on open decks, and all valves, pressure regulators, and pipes leading from such cylinders must be protected against damage; and

(b) protected against excessive variations in temperature, direct rays of the sun, and accumulation of snow. However, the surveyor may permit such cylinders to be stored in compartments that comply with the requirements of rule 40D.50(3) to (5).

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

(4) Except as necessary for service within the space, electrical wiring and fittings are not permitted within compartments used for the storage of highly flammable liquids or liquefied gases. Where such electrical fittings are installed, they must be acceptable to the surveyor for use in a flammable atmosphere. Sources of heat must be kept clear of such spaces and "No Smoking" and "No naked light" notices must be displayed in a prominent position.

(5) Separate storage must be provided for each type of compressed gas. Compartments used for the storage of such gases must not be used for storage of other combustible products nor for tools or objects not part of the gas distribution system. The surveyor may relax these requirements after taking into consideration the characteristics, volume and intended use of such compressed gases.

40D.51 Means of escape

(1) Except as provided in rule 40D.51(3), at least two widely separated means of escape, including the normal means of access, must be provided from all accommodation spaces and spaces in which the crew is normally employed, to the open deck, and from there to survival craft.

(2) Each means of escape referred to in rule 40D.51(1) must comply with the following:

(a) below the weather deck the main means of escape must be a stairway and the second means of escape must be a trunk or a stairway; and

(b) above the weather deck the means of escape must be stairways or doors to an open deck or a combination thereof; and

(c) a corridor or part of a corridor from which there is only one route of escape must not exceed 7m in length; and

(d) the width and continuity of each means of escape must be acceptable to the surveyor.

(3) Lifts must never be considered as one of the required means of escape.

(4) The surveyor may permit only one means of escape, 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) Two means of escape must be provided from every machinery space of category A by one of the following means—

(a) 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. One of these ladders must provide continuous fire shelter from the lower part of the space to a safe position outside the space. This shelter must be of steel, insulated, where necessary, to the satisfaction of the surveyor and be provided with a self-closing steel door at the lower end. A surveyor may not require such shelter if, due to special arrangements or dimensions of the machinery space, a safe escape route from the lower part of this space is provided; or

(b) 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 that provides access to a safe escape route from the lower part of the space to the open deck.

(6) From machinery spaces other than those of category A, escape routes must be provided that are acceptable to the surveyor having regard to—

(a) the nature and location of the space; and

(b) whether persons are normally employed in that space.

Subsection 2 Post-27 May 2004 ships of 45 metres or more in length but less than 60 metres and post-27 May 2004 ships of 24 metres or more in length but less than 45 metres that proceed beyond the coastal limit

40D.52 Structure

(1) The hull, superstructure, structural bulkheads, decks, and deckhouses must be constructed of non-combustible materials. The Director may permit combustible construction provided the requirements of rules 40D.52(2)(b), 40D.52(3)(b), and 40D.52(3)(c), and the additional fire-extinguishing requirements in the machinery spaces of such ships required by Appendix 2 are complied with.

(2) (a) In any ship the hull of which is constructed of non-combustible materials, the decks and bulkheads separating machinery spaces of category A from accommodation spaces or control stations must be constructed to "A-60" class division standard where the machinery space of category A is not provided with a fixed fire-extinguishing system and to "A-30" class division standard where such a system is fitted. Decks and bulkheads separating other machinery spaces from accommodation service spaces and control stations must be constructed to "A" class division standard and insulated to the satisfaction of the surveyor, except that the surveyor may permit the fitting of "B-15" class divisions for separating such spaces as the master's cabin from the wheelhouse.

(b) In any ship, the hull of which is constructed of combustible materials, the decks and bulkheads separating machinery spaces from accommodation spaces, service spaces or control stations must be constructed to "F" class or "B-15" class division standard. In addition, machinery space boundaries must prevent, as far as practicable, the passage of smoke. Decks and bulkheads separating control stations from accommodation and service spaces must be constructed to "F" class division standard.

(3) (a) In any ship, the hull of which is constructed of non-combustible materials, bulkheads of corridors serving accommodation spaces, service spaces and control stations must be of constructed of "B-15" class divisions.

(b) In any ship, the hull of which is constructed of combustible materials, bulkheads of corridors serving accommodation spaces, service spaces and control stations must be constructed of "F" class divisions.

(c) Any bulkhead required by rule 40D.52(3)(a) or rule 40D.52(3)(b) must extend from deck to deck unless a continuous ceiling of the same class division as the bulkhead is fitted on both sides of the bulkhead, in which case the bulkhead may terminate at the continuous ceiling.

(4) Interior stairways serving accommodation spaces, service spaces or control stations must be of steel or other equivalent material. Such stairways must be within enclosures constructed of "F" class divisions in any ship the hull of which is constructed of combustible materials, or "B-15" class divisions in any ship 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 rules 40D.52(2) and 40D.52(3), doors fitted to stairway enclosures referred to in rule 40D.52(4), and doors fitted in engine and boiler casings, must be, as far as practicable, equivalent in resisting fire to the divisions in which they are fitted. Doors to machinery spaces of category A must be self closing.

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

(7) (a) In any ship, 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 that contain appreciable quantities of highly flammable materials, and accommodation spaces, service spaces or control stations, must be constructed of "F" class or "B-15" class divisions.

(b) In any ship, the hull of which is constructed of non-combustible materials, the decks and bulkheads referred to in rule 40D.52(7)(a) must be constructed of "A" class divisions insulated to minimise the risk of fire to the satisfaction of the surveyor. The surveyor may accept "B-15" class divisions between a galley and accommodation spaces, service spaces, and control stations, provided the galley contains only electrically heated furnaces, electrically heated hot water appliances, or other electrically heated appliances.

(c) Highly flammable products must be carried in sealed containers approved by the surveyor.

(8) Where bulkheads or decks required by rules 40D.52(2), 40D.52(3), 40D.52(5) or 40D.52(7) to be "A" class, "B" class or "F" class divisions, are penetrated for the passage of cables, pipes, trunks, ducts, or other similar services, arrangements must be made to the satisfaction of the surveyor 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, must be divided by close-fitting draught stops spaced not more than 7m apart.

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

(a) where skylights can be opened, they must be capable of being closed from outside the space. Skylights containing glass panels must be fitted with external shutters of steel or other equivalent material permanently attached. The glass panels must be of wire reinforced glass; and

(b) glass or similar materials must 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.

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

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

Notwithstanding the requirements of rule 40D.52, the surveyor may accept "A-0" class divisions in lieu of "B-15" or "F" class divisions, after having regard to the amount of combustible materials used in adjacent spaces.

40D.53 Ventilation systems

(1) Except as provided in rule 40D.53(2), means must be provided to stop fans and close main openings to ventilation systems from outside the spaces served.

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

(3) Ventilation openings may be permitted in and under the doors in corridor bulkheads except that such openings are not permitted in and under stairway enclosures doors. The openings must 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 must not exceed 0.05 m^2. When such opening is cut in a door it must be fitted with a grille made of non-combustible material.

(4) Ventilation ducts for machinery spaces of category A or galleys are not, except where the surveyor permits otherwise, to pass through accommodation spaces, service spaces or control stations. Where the surveyor permits this arrangement, the ducts must 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 are not, except where the surveyor permits otherwise, to pass through machinery spaces of category A or through galleys. Where the surveyor permits this arrangement the ducts must 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 must be provided with ventilation arrangements that are separate from other ventilation systems. Ventilation must be arranged at high and low levels and the inlets and outlets of ventilators must be positioned in safe areas. Suitable wire mesh guards to arrest sparks must be fitted over inlet and outlet ventilation openings.

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

(8) Where trunks or ducts serve spaces on both sides of "A" class bulkheads or decks, dampers must be fitted so as to prevent the spread of fire and smoke between compartments. Manual dampers must 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 m^2 pass through "A" class bulkheads or decks, automatic self-closing dampers must be fitted. Trunks serving compartments situated only on one side of such bulkheads must comply with rule 40D.47(1)(c).

40D.54 Heating installations

(1) Electric radiators must be fixed in position and so constructed as to minimise fire risks.[19]

(2) Heating by means of open fires is not permitted. Heating stoves and other similar devices must be firmly secured and adequate protection and insulation against fire must be provided beneath and around such appliances and in way of the uptakes. Uptakes of stoves that burn solid fuel must be arranged and designed so as to minimise the possibility of becoming blocked by combustion products and must have a ready means for cleaning. Dampers for limiting draughts in uptakes are, when in the closed position, still to leave an adequate area open. Spaces in which stoves are installed must be provided with ventilators of sufficient area to provide adequate combustion air for the stove. Such ventilators must have no means of closure and their position must be such that closing appliances in accordance with rule 40D.17 are not required.

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

40D.55 Miscellaneous items

(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 must have low flame-spread characteristics.

(2) All exposed surfaces of fibre reinforced plastic construction within accommodation and service spaces, control stations, machinery spaces of category A and other machinery spaces of similar fire risk must have a final lay-up layer of resin—

(a) with inherent fire-retardant properties; or

(b) coated with a fire-retardant paint; or

(c) protected by non-combustible materials.

(3) Paints, varnishes and other finishes used on exposed interior surfaces must not be capable of producing excessive quantities of smoke or toxic gases or vapours. The surveyor must be satisfied that they are not of a nature to offer an undue fire hazard.

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

(5) (a) In accommodation and service spaces and control stations, pipes penetrating "A' or "B" class divisions must be of a material acceptable to the surveyor, having regard to the temperature such divisions are required to withstand.

(b) Materials readily rendered ineffective by heat must not be used for overboard scuppers, sanitary discharges, and other outlets where—

(i) the outlets are close to the waterline; and

(ii) failure of the material in the event of a fire would give rise to danger of flooding.

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

[19] No such radiator may 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.

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

(8) Drip trays must be fitted where necessary to prevent oil leaking into bilges.

40D.56 Storage of gas cylinders and dangerous materials

(1) Cylinders for compressed, liquefied or dissolved gases must—

(a) be clearly marked by means of identifying colours in accordance with NZS 5807:1980 *Code of Practice for Industrial Identification by Colour, Wording or other Coding;* and

(b) have a clearly legible identification of the name and chemical formula of their contents; and

(c) be properly secured.

(2) Cylinders containing flammable or other dangerous gases and expended cylinders must be—

(a) stored and properly secured on open decks, and all valves, pressure regulators and pipes leading from such cylinders must be protected against damage; and

(b) protected against excessive variations in temperature, direct rays of the sun, and accumulation of snow. However, the surveyor may permit such cylinders to be stored in compartments that comply with the requirements of rules 40D.56(3) to 40D.56(5) inclusive.

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

(4) Except as necessary for service within the space, electrical wiring and fittings are not permitted within compartments used for the storage of highly flammable liquids or liquefied gases. Where such electrical fittings are installed, they must be to the satisfaction of the surveyor for use in a flammable atmosphere. Sources of heat must be kept clear of such spaces and "No Smoking" and "No naked light" notices must be displayed in a prominent position.

(5) Separate storage must be provided for each type of compressed gas. Compartments used for the storage of such gases must not be used for storage of other combustible products nor for tools or objects not part of the gas distribution system. The surveyor may relax these requirements after taking into consideration the characteristics, volume and intended use of such compressed gases.

40D.57 Means of escape

(1) Except as provided in rule 40D.57(3), at least two widely separated means of escape, including the normal means of access, must be provided from all accommodation spaces and spaces in which the crew is normally employed, to the open deck, and from there, to survival craft.

(2) Each means of escape referred to in rule 40D.57(1) must comply with the following:

(a) below the weather deck the main means of escape must be a stairway and the second means of escape must be a trunk or a stairway; and

(b) above the weather deck the means of escape must be stairways or doors to an open deck or a combination thereof; and

(c) a corridor or part of a corridor from which there is only one route of escape must not exceed 7m in length; and

(d) the width and continuity of each means of escape must be acceptable to the surveyor.

(2A) The surveyor may permit only one means of escape, 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.

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

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

Subsection 3 Post-27 May 2004 ships of less than 24 metres in length and post-27 May 2004 ships of 24 metres or more in length but less than 45 metres that do not proceed beyond the coastal limit

40D.58 Structure

(1) In any ship that is constructed of non-combustible materials, the bulkheads separating machinery spaces from accommodation and other spaces must be constructed of non-combustible materials.

(2) In any ship that is constructed of fibre reinforced plastic with fuel tanks moulded integral with the hull and located in the machinery spaces, the external surfaces of the fuel tanks within the machinery spaces must—

(a) be laminated with a resin that the surveyor is satisfied has inherent fire-retardant properties; or

(b) have a laminate reinforcement made of closely woven glass fabric; or

(c) be coated with a fire retardant paint approved by the surveyor.

40D.59 Ventilation systems

(1) Ventilation ducts for machinery spaces must not pass through accommodation spaces, service spaces or wheelhouse unless the ducts are constructed of steel or equivalent material and arranged to preserve the integrity of divisions.

(2) Ventilation systems serving machinery spaces must be independent of systems serving other spaces.

(3) Where practicable, means must be provided to stop fans and close main openings to ventilation systems from outside the machinery space served.

(4) Store rooms which, in the opinion of the surveyor, contain appreciable quantities of highly flammable products must be provided with ventilation arrangements that are separate from other ventilation systems. Ventilation must be arranged at high and low levels and the inlets and outlets of ventilators must be positioned in safe areas and fitted with spark arresters.

(5) Electric supply or exhaust fans for machinery spaces and store rooms referred to in rule 40D.59(4) must be of flameproof type.

40D.60 Heating and cooking installations

(1) Electric radiators must be fixed in position and so constructed as to reduce fire risks to a minimum.[20]

[20] No such radiator may 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 is not permitted. Heating stoves and other similar devices must be firmly secured and adequate protection and insulation against fire must be provided beneath and around such appliances and in way of the uptakes. Uptakes of stoves that burn solid fuel must be arranged and designed so as to minimise the possibility of becoming blocked by combustion products and must have a ready means for cleaning. Dampers for limiting draughts in uptakes are, when in the closed position, still to leave an adequate area open. Spaces in which stoves are installed must be provided with ventilators of sufficient area to provide adequate combustion air for the stove. Such ventilators must have no means of closure and be exempt from having a closing device in accordance with rule 40D.17(2).

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

(4) Cylinders for compressed, liquefied or dissolved gases must—

(a) be clearly marked by means of identifying colours in accordance with NZS 5807:1980 *Code of Practice for Industrial Identification by Colour, Wording or other Coding;* and

(b) have a clearly legible identification of the name and chemical formula of their contents; and

(c) be properly secured.

(5) Cylinders containing flammable or other dangerous gases and expended cylinders must be—

(a) stored and properly secured on open decks, and all valves, pressure regulators and pipes leading from such cylinders must be protected against damage; and

(b) protected against excessive variations in temperature, direct rays of the sun, and accumulation of snow. The surveyor may permit such cylinders to be stored in compartments that comply with the requirements of rules 40D.50(3) to 40D.50(5) inclusive.

(6) All cooking stoves must be well secured and installed clear from all woodwork and other combustible materials and all such adjacent woodwork must be protected by heat resistant material, so arranged as to provide an air space between the material and the woodwork it protects. Such insulating material must be impervious to fat or faced with a material impervious to fat.

(7) Petrol, white spirit, or liquids having a flash point below 23°C must not be used for cooking.

40D.61 Miscellaneous items

(1) All main and auxiliary machinery exhaust pipes must be—

(a) kept well clear of any woodwork or other combustible materials; or

(b) insulated to prevent heat transfer to any woodwork or other combustible materials; or

(c) fitted with a radiation guard to prevent heat transfer in way of any woodwork or other combustible materials.

(2) Drip trays must be fitted where necessary to prevent oil leaking into bilges.

40D.62 Means of escape

(1) Where reasonable and practicable, and having regard to the number of crew utilising the space and size of space, at least two means of escape, one of which may be the normal means of access, as widely separated as possible, must be provided from each section of accommodation and service spaces.

(2) Normal means of access to accommodation and service spaces below the open deck must be arranged so that it is possible to reach the open deck without passing through intervening spaces containing a potential source of fire.

(3) The second means of escape may be through portholes, windows or hatches of adequate size and preferably leading to the open deck.

(4) Where the means of escape from a machinery space is by ladder, a steel ladder must be fitted.

(5) Where the surveyor considers a machinery space to be sufficiently large, the space must have two means of escape as widely spaced as possible.

40D.63 Engines using a fuel with a flash point below 60°C

(1) If any engine using fuel with a flash point below 60°C is housed in a machinery space, precautions must be taken to minimise the risk of fire hazard when installing and operating the engine.

(2) In any boat where the engine is 'boxed in', the casing must be either of non-combustible material, or where combustible material is used, must be lined internally with fire-resistant material that is impervious to oil or protected by a non-combustible sheathing. If the casing is made of fibre reinforced plastic, the inner surface must be laminated with a resin of reduced fire hazard or the laminate reinforcement must be a closely woven glass fabric. Such engine boxes must be adequately ventilated and the means of starting and stopping the engine must be capable of operation without opening the box.

(3) Ventilation and exhaust systems for compartments containing engines and fuel tanks using fuel with a flash point below 60°C must be non-sparking and flame proof with duct openings located away from sources of vapour ignition. Exhaust blowers must be interlocked with the engine ignition switch so that the blowers are in operation for sufficient time to ensure at least one complete change of air in the engine compartment before the ignition is switched on.

(4) Electrical continuity must be maintained from the fuel filling plate on deck to the engine. Where sections of fuel tank filling pipes are non conductors of electricity, the metallic sections of filling pipes separated thereby must be joined by a conductor for protection against static spark when filling.

Fire appliances

40D.64 General

(1) The owner and the master of any ship must ensure that fire appliances are provided in accordance with the requirements of Appendix 2.

(2) The owner and the master of any ship must ensure that the ship's fire appliances comply with the performance standards prescribed in Part 42B.

(3) The owner and the master of any ship must ensure that the ship's fire appliances are maintained, inspected, and serviced in accordance with the requirements of Part 42B.

(4) The master of any ship must ensure that all fire appliances on board the ship are—

(a) in good working order; and

(b) ready for immediate use;

before the ship commences a voyage and at all times during any voyage.

Protection of the crew

40D.65 General

(1) The surfaces of decks and of flooring in working spaces on board must be so designed or treated as to minimise the possibility of personnel slipping.

(2) Decks of machinery spaces, galleys, fish handling and deck equipment operating areas, and the deck areas at the foot and head of ladders and in front of doors, must be provided with anti-skid surfaces.

(3) Where necessary, stairways and ladders must be provided for safe working at sea and in port. They must be of adequate size and strength. Means of access to holds and similar parts of the ship must consist of fixed ladders or stairs. Fixed vertical ladders must be so situated as to be protected from damage. Treads of stairways must be flat and prepared to minimise slipping. Stairways of more than 1 metre in height must have handrails.

40D.66 Deck openings

Revoked 2 August 2012 by Part 40D: Amendment 2012

40D.67 Winches and other lifting equipment

(1) Moving parts of winches and of warp and chain leads that may present a hazard must be, as far as practicable, adequately guarded and fenced.

(2) The controls of winches must be placed so that the winch driver has ample room for their unimpeded operation and an unobstructed view of the winch and working area.

(3) Where a winch is provided with local and remote controls, these must be arranged so as to prevent simultaneous operation.

(4) Winches must be provided with means to prevent—

(a) overloading; and

(b) the accidental release of a load that might endanger the crew or ship if the power supply fails.

(5) Winches must be equipped with means of effectively arresting and holding the safe working load. The brakes of winches on post-27 May 2004 ships must be proof tested before installation with a static load 25 percent in excess of the maximum safe working load. Brakes must be provided with simple and easily accessible means of adjustment. Every winch drum that could be uncoupled from the drive must be furnished with a separate brake.

(6) Where manually operated guiding on gear is installed, the operating wheels must—

(a) not have open spokes or protrusions that could cause injury to the operator; and

(b) be capable of being disengaged when the warps are paying out.

On any post-27 May 2004 ship the guiding on gear must be capable of being disengaged when the warps are paying out.

(7) Winch barrels must be provided with means for fastening wire ends that are so designed as to prevent kinking of the wires.

(8) Where practicable, warps between lead rollers and sheaves and rollers must be guarded.

(9) Chains and other suitable devices must be provided for stoppering off trawl boards.

(10) Wires and warps provided must be of adequate strength for the anticipated loads.

(11) All elements of a fishing gear system must be designed, arranged and installed to provide safe and convenient operation.

(12) The owner of a ship must ensure that no lifting appliance or its associated working gear is used in loading or unloading the ship unless—

(a) it is tested by a competent person before it is brought into service or after it has undergone any substantial repairs; and

(b) the proof load for such a test is 25% in excess of the safe working load of the lifting appliance; and

(c) the lifting appliance is clearly and permanently marked with its safe working load for each operating condition; and

(d) the safe working load is marked on each lifting appliance, to the satisfaction of a competent person, having regard to the design, strength, material of construction, and the proposed use of the lifting appliance.

(13) Lifting appliances and their associated working gear must be maintained in good order. Adequate restraint must be provided to prevent movement of lifted or hoisted fishing gear that could present a hazard to the ship or crew.

Radiocommunications

40D.68 General

(1) Subject to rules 40D.68(2) and 40D.68(6) the owner and the master of any ship must ensure that radiocommunications equipment is provided in accordance with the requirements of Appendix 3.

(2) Any ship that proceeds beyond offshore limits is required to be provided with a radar transponder or AIS-SART specified in Appendix 3.

(3) The owner and the master of any ship must ensure that the radiocommunications equipment complies with the performance standards prescribed in Part 43.

(4) The owner and the master of any ship must ensure that the radiocommunications equipment is—

(a) maintained; and

(b) inspected; and

(c) serviced;

in accordance with the requirements of Part 43.

(5) The master of any ship must ensure that all radiocommunications equipment is—

(a) in working order; and

(b) ready for immediate use;

before the ship commences a voyage and at all times during any voyage.

(6) A surveyor may exempt any boat operating in rivers and other similar restricted waterways within enclosed waters from any of the requirements in Appendix 3 where the surveyor considers such requirement to be unnecessary.

Navigational equipment and arrangements

40D.69 Navigating bridge visibility

(1) Any post-27 May 2004 ship of 45 metres or more in length must meet the following requirements—

(a) the view of the sea surface from the conning position must not be obscured by more than two ship lengths, or 500 metres, whichever is less, forward of the bow to 10° on either side, irrespective of the ship's draught and trim; and

(b) no blind sector caused by fishing gear or other obstructions outside the wheelhouse forward of the beam that obstructs the view of the sea surface as seen from the conning position, is to exceed 10°. The total arc of blind sectors must not exceed 20°. The clear sectors between blind sectors must be at least 5°. However, in the view described in rule 40D.69(1)(a), each individual blind sector is not to exceed 5°; and

(c) the height of the lower edge of the navigating bridge front windows above the bridge deck must be kept as low as possible. In no case is the lower edge to present an obstruction to the forward view as described in this rule; and

(d) the upper edge of the navigating bridge front windows must allow a forward view of the horizon for a person with a height of eye of 1800 mm above the bridge deck at the conning position when the ship is pitching in heavy seas. If the surveyor is satisfied that a 1800 mm height of eye is unreasonable and impractical, the surveyor may reduce the height of eye to a minimum of 1600 mm; and

(e) the horizontal field of vision from the conning position must 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 ship; and

(f) from each bridge wing, the horizontal field of vision must 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 ship; and

(g) from the main steering position the horizontal field of vision must extend over an arc from right ahead to at least 60° on each side of the ship; and

(h) the ship's side must be visible from the bridge wing; and

(i) windows must meet the following requirements:

(i) framing between navigating bridge windows must be kept to a minimum and must not be installed immediately forward of any workstation; and

(ii) the bridge front windows must be inclined from the vertical plane top out, at an angle of not less than 10° and not more than 25°; and

(iii) polarised or tinted windows must not be fitted; and

(iv) a clear view through at least two of the navigating bridge front windows and depending on the bridge configuration, an additional number of clear view windows must be provided at all times, regardless of weather conditions.

(2) Any ship of less than 45 metres in length and any pre-27 May 2004 ship of 45 metres or more in length must meet the following requirements:

(a) the wheelhouse must be designed to afford the helmsman as wide an arc of visibility as possible, both ahead and abaft the beam, and where practicable, all round visibility; and

(b) wheelhouse windows forward of the helm position and those essential for the safe navigation of the ship must not be polarised or tinted[21].

Anchors and cables

40D.70 Post-27 May 2004 ships of 60 metres or more in length

The owner of any post-27 May 2004 ship of 60 metres or more in length must ensure that the ship is provided with anchors and cables in accordance with the requirements of a classification society listed in rule 40D.9(2).

[21] Windows other than those that are essential for the safe navigation of the ship may be polarised or tinted.

40D.71 Post-27 May 2004 ships of 24 metres or more in length but less than 60 metres

(1) The owner of any post-27 May 2004 ship of 24 metres or more in length but less than 60 metres in length must ensure that the ship is provided with anchors and cables in accordance with the requirements of—

(a) a classification society listed in rule 40D.9(2); or

(b) Table 1 in Appendix 4.

(2) The equipment numeral to be used with Table 1 in Appendix 4[22] is:

for single hull ship $EN = \Delta^{2/3} + 2(Ba + \sum b.h) + 0.1A$

for twin hull ship $EN = \Delta^{2/3} + 2[Ba + \sum b.h - G(B - 2B_1)] + 0.1A$

where
- EN = equipment numeral
- Δ = moulded displacement, in tonnes, to the maximum design waterline
- B = maximum moulded breadth, in metres.
- a = distance in metres from the maximum design waterline to the upper edge of the uppermost complete deck, at side amidships.
- b = breadth of the widest superstructure or deckhouse on each tier, in metres.
- h = height in metres of the centreline of each tier of superstructure or deckhouse having a breadth greater than B/4. Sheer, camber and trim may be ignored in measuring h.
- A = profile area in m2 of the hull above the maximum design waterline, and superstructures and deckhouses that have a breadth greater than B/4 within the overall length. Screens and bulwarks more than 1.5 metres in height must be regarded as parts of deckhouses when determining h and A.
- B_1 = the greatest breadth of the hulls, in metres.
- G = the minimum air gap between the maximum design waterline and the underside of the bridging structure between the hulls.

40D.72 Post-27 May 2004 ships of less than 24 metres in length

The owner of any post-27 May 2004 ship of less than 24 metres in length must ensure that the ship is provided with—

(a) anchors and cables in accordance with the requirements of a classification society listed in rule 40D.9(2); or

(b) anchors in accordance with the requirements of Table 2(A) or 2(B) or 2(C), as applicable, of Appendix 4[23]; and

(c) cables in accordance with Tables 3(A) or 3(B), as applicable, and Table 4, of Appendix 4.

40D.73 Testing and marking

For anchors of more than 75 kgs weight, and chain cables of 12.5 mm diameter or more, the testing and marking requirements contained in Part 41 must be met.

40D.74 Windlass

The owner of any post-27 May 2004 ship must ensure that—

(a) a windlass or other mechanical lifting device is provided, unless the anchor is less than 30 kgs and rope is used in lieu of anchor chain, in accordance with Tables 3(A) or 3(B), as applicable, of Appendix 4. For an anchor of less than 50 kgs the windlass or mechanical lifting device may be hand operated; and

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22 See also Figure 4.1 in Appendix 4 for illustration of dimensions to be used in formula.

23 Anchors in Tables 2(A), 2(B) and 2(C) of Appendix 4 are for single hull ships.

(b) the windlass is of sufficient power[24] and suitable for the size of chain; and

(c) where no windlass or other mechanical lifting device is fitted, the inboard end of the rope is permanently made fast to the ship; and

(d) windlasses or other mechanical lifting devices are securely fitted to the deck of the ship.

40D.75 Pre-27 May 2004 ships

(1) Any pre-27 May 2004 ship that was issued with a certificate of survey may maintain its existing anchors and cables provided these remain in a condition satisfactory to a surveyor.

(2) Any pre-27 May 2004 ship that was not subject to survey under section 133 of the Maritime Transport Act 1994 may retain its present anchor and cable arrangements provided that a surveyor is satisfied that those anchor and cable arrangements will not compromise the safety of the ship and its crew, and remain in a condition satisfactory to the surveyor.

(3) The owner of a pre-27 May 2004 ship must ensure that any new anchor or cable that is provided to the ship complies with rules 40D.70 to 40D.72.

Crew accommodation

40D.76 General

(1) The owner of any post-27 May 2004 ship that will be away from port for more than 24 hours, must ensure that adequate sleeping, eating, cooking, and sanitary facilities are provided in accordance with rules 40D.76 to 40D.81 inclusive.

(2) The location, structure, and arrangement of the crew accommodation must be such as to ensure security, protection against the weather and the sea, and insulation from heat, cold, and noise. No crew accommodation spaces are to be located forward of the collision bulkhead.

(3) Bulkheads and decks between accommodation spaces and fish holds, machinery spaces, fuel tanks, galleys, engine, deck and other store rooms, drying rooms, communal wash places or water closets must be constructed so as to prevent the infiltration of fumes and odours. Direct openings into sleeping rooms from such places must be avoided wherever reasonable or practicable. That part of the bulkhead separating such places from sleeping rooms, and also external bulkheads, must be gastight and, where necessary, must prevent the passage of water.

(4) All internal surfaces must be of a material that is easily kept clean, and is impervious to damp.

(5) Unless otherwise approved by the surveyor, the clear headroom in areas of free movement throughout the crew accommodation must be not less than 1.9 metres.

(6) Crew accommodation spaces must be provided with adequate ventilation to ensure sufficient air changes for a comfortable living environment and must have lighting such as to permit a person with normal vision to read in that space.

40D.77 Sleeping rooms

(1) Wherever practicable, access to sleeping rooms must be through a doorway. If access is from the main deck to below, it must be by way of an inclined ladder or stairway.

[24] During trials a windlass should be capable of raising the anchor from a depth of 82.5 metres to a depth of 27.5 metres at a mean speed of 9 metres/minute. Where the depth of water is inadequate or the anchor cable is less than 82.5 metres, suitable equivalent simulating conditions may be accepted as an alternative.

(2) Where a hazard (such as a galley area) is located between a sleeping room and the open deck, an emergency escape must be provided, which permits access to the open deck without passing through the area of hazard.

(3) Each crew member must be provided with an individual bunk, the minimum inside dimensions of which must be 1.9 metres by 0.68 metres.

(4) The clearance above any bunk must not be less than 600 mm. The lowest bunk must not be less than 300 mm above the deck.

(5) Bunks must not be placed side by side in such a way that access to one bunk can only be obtained over another bunk. The minimum clear deck space between bunks must be at least 600 mm.

(6) When one bunk is placed over another, a dustproof base of wood or other suitable material must be fitted to the upper bunk.

(7) Each bunk must be fitted with a mattress of a type that will not attract pests or insects. The mattress and cover must be of non-inflammable material.

(8) Each crew member must be provided with adequate storage space in the sleeping room in the form of a locker for the storage of personal items and clothes.

40D.78 Toilet facilities

(1) Wherever practicable, toilets, wash basins and shower or bath facilities must be provided as follows—

(a) one flush toilet or suitable alternative for every 8 persons or less; and

(b) one shower or bath with hot and cold fresh water for every 8 persons or less; and

(c) one wash basin with hot and cold fresh water for every 8 persons or less.

(2) The location and construction of the toilet facilities must provide privacy to the users.

(3) The toilet space must be vented to atmosphere.

40D.79 Mess rooms

(1) Each ship must be provided with adequate table and seating arrangements for the number of crew likely to use them at any one time.

(2) Wherever reasonable and practical, mess room accommodation separate from sleeping rooms must be provided.

(3) The mess room accommodation must be as close to the galley as practicable.

(4) Adequate facilities must be provided for the hygienic storage and preparation of food and drinks and the proper disposal of waste.

40D.80 Cooking and beverage facilities

(1) Each ship must be provided with satisfactory cooking appliances and equipment that is, wherever practicable, to be fitted in a separate galley.

(2) Galleys must be—

(a) of sufficient dimensions for their purpose; and

(b) fitted with storage space; and

(c) provided with drainage.

(3) Refrigeration storage of sufficient capacity for the crew numbers must be provided[25].

[25] Fish holds must not be used for this purpose.

(4) Facilities must be readily available for the provision to the crew of hot beverages and cool water.

40D.81 Washing facilities

Facilities must be provided for washing and drying clothes, appropriate to the time the ship is to remain at sea.

Fish processing equipment

40D.82 General

The owner of any ship that is fitted with fish processing equipment must ensure that the equipment complies with the following—

(a) the arrangement of fish processing equipment must ensure free access for inspection, operation, and sanitary treatment of the equipment. Working areas in way of processing equipment must not be less than 750 mm wide; and

(b) the materials used to insulate fish processing equipment, including piping, must be non-combustible, durable and stable under conditions of vibration and are not to have an external surface temperature harmful to personnel on contact. The insulation must be securely fastened. Asbestos or asbestos based materials must not be used as insulation; and

(c) machinery and installations operating under pressure must be manufactured in compliance with national or international standards acceptable to the Director; and

(d) machinery and other installations from which vapour, gas, dust, or other harmful substance may readily escape or be emitted during operation must be fitted with exhaust devices. Suction ends of these devices must be located as near as possible to the sources of vapour, gas, dust, or other harmful substance and the piping must be arranged so that discharged products do not constitute a hazard to personnel; and

(e) where several conveyors are working in one line, emergency switches must be provided at intervals of not more than 10 metres for stopping all conveyors working in the line. Where the length of the conveyors is 15 metres or more, sound or light signals must be provided for giving warning when the conveyor starts; and

(f) dampers, cocks, valves and other stopping devices must be positioned so that they are readily accessible and safe for operation; and

(g) machinery and equipment in working spaces must be fitted on strong and rigid foundations securely connected to the ship's structure; and

(h) moving parts of machinery and other installations, as well as gears that may present a hazard, must be adequately guarded; and

(i) machinery and installations that require routine servicing at a height of more than 2 metres must be equipped with platforms at least 600 mm in width and guarded with rails not less than 1 metre in height; and

(j) fish processing equipment operating with water must be provided with effective drainage systems, having regard to their susceptibility to clogging; and

(k) loading and unloading devices for the machinery and other installations must be arranged at a safe and convenient height for operation; and

(l) steam or vapour outlets of equipment must be arranged as high as possible. Outlet pipes must be at least 50 mm in diameter and lead into open air. Vapour from outlets is not to obscure visibility; and

(m) filling openings of machinery and other installations must be within easy reach of personnel. Lids of filling openings must have suitable means of closing so as to prevent steam, hot water or vapour emerging into the space, and must be counter-balanced or provided with other safe means of securing in the open position when required; and

(n) suitable precautions must be taken to protect personnel against the harmful effects of excessive noise.

Ships of 6 metres or less in length

40D.83 Ships of 6 metres or less in length that do not proceed beyond enclosed water limits or more than 2 miles from the New Zealand coast

(1) Except as provided in subrule (4), this rule applies to every ship that—

(a) is a commercial ship required to be registered under section 103 of the Fisheries Act 1996, or is a ship recognised by the Director as being engaged in fisheries research; and

(b) is 6 metres or less in length; and

(c) does not proceed beyond enclosed water limits or more than 2 miles from the low water mark of the coast of New Zealand.

(2) Subject to rules 40D.83(3) and 40D.83(4), the owner of any ship must not allow that ship to be operated unless—

(a) the ship is operated under a Maritime Transport Operator Plan; or

(b) (i) the ship and its equipment comply with the requirements of Appendix 5; and

(ii) a safe operational plan is prepared and approved by the authorised person in accordance with Appendix 5; and

(iii) the ship and its equipment undergo the inspections by the authorised person required by Appendix 5; and

(iv) the owner's operation of the ship undergoes the audits by the authorised person required by Appendix 5; and

(v) the owner is in possession of a current certificate of compliance in respect of that ship issued by the Director in accordance with Appendix 5.

(3) The owner of any ship who elects to comply with the requirements of rule 40D.83(2)(b) is not required to hold a valid certificate of compliance for that ship until the date which is 6 months after the date on which this Part enters into force.

(4) Rule 40D.83 does not apply to any ship that is carried aboard a larger fishing ship and used in fishing operations associated with the larger ship. Such a ship must be considered as part of the larger ship's equipment and its safe operation covered by any documented operating procedures required by the Maritime Transport Operator Plan.

40D.84 Authorised persons

(1) Every person, other than an employee of the Maritime Safety Authority, who inspects or audits an operation for the purposes of rule 40D.83, must hold a valid certificate of recognition authorising the person to conduct those inspections or audits.

(2) A person is entitled to a certificate of recognition as an authorised person if—

(a) that person makes an application in accordance with section 35 of the Act; and

(b) the Director is satisfied that—

(i) the person has appropriate technical qualifications and practical experience in the operation of fishing boats, to which this rule applies, necessary to undertake the inspections and audits to be authorised by the certificate; and

(ii) the requirements of section 41 of the Act have been met.

(3) Every certificate of recognition issued must prescribe—

(a) the extent and nature of any inspection or audit that may be undertaken by the authorised person; and

(b) the type of ship and operation that the authorised person may inspect or audit; and

(c) the period of validity of the certificate, which in any case must not be more than five years from the date of issue; and

(d) any other conditions or requirements that the Director determines are appropriate to the recognition.

Rule 40D.37

Appendix 1 Life saving appliances

1.1 Unlimited ships

The requirements in Appendix 1.1 apply to ships that proceed in the unlimited area.

Item	Requirements
Survival craft (comprising lifeboats, rescue boats and liferafts)	Every ship must be provided with survival craft that have sufficient aggregate capacity to accommodate on each side of the ship the total number of persons on board. Survival craft must be— (a) lifeboats complying with rules 42A.6 and 42A.7; or (b) liferafts complying with rules 42A.8 and 42A.9; or (c) a combination of such lifeboats and liferafts. Every liferaft must be provided with float free arrangements which provide for the liferaft to be released automatically in the event of the ship sinking. Any hydrostatic release unit used in float-free arrangements must comply with the requirements of rule 42A.8. Every ship of 24 metres or more in length must be provided with a rescue boat complying with rule 42A.14, unless the ship is provided with a lifeboat that fulfils the requirements for a rescue boat and is capable of being recovered after a rescue operation. The number of lifeboats or rescue boats that are carried on a ship of 24 metres or more in length must be sufficient to ensure that when the total number of persons on board abandon ship not more than 9 liferafts need be marshalled by each lifeboat or rescue boat. Each lifeboat or rescue boat must be provided with a launching appliance that complies with rule 42A.28(2).
Lifebuoys	Sufficient lifebuoys complying with rule 42A.16 must be strategically placed around the ship on each side so that the distance between lifebuoys is minimised. The lifebuoys must be accessible for immediate use at all times. Every ship of 75 metres or more in length must be provided with at least 8 lifebuoys. Every ship of 45 metres or more in length but less than 75 metres must be provided with at least 6 lifebuoys. Every ship of less than 45 metres in length must be provided with at least 4 lifebuoys, except that when carrying less than 8 persons, only one such lifebuoy per 2 persons need be carried, provided there is a minimum of 2 such lifebuoys on board. At least half of the number of lifebuoys referred to above must be provided with self-igniting lights. Except where only 2 lifebuoys are required to be carried, at least 2 of the lifebuoys provided with self-igniting lights must be provided with self-activating smoke signals. Where practicable, these must be capable of quick release from the navigating

	bridge. At least one lifebuoy on each side of the ship must be fitted with a buoyant lifeline. Such lifebuoys are not to have a self-igniting light.
Lifejackets[26]	Every ship must be provided with one lifejacket that complies with rule 42A.18 and that has a buoyancy of at least 150 Newtons, for each person on board.
Flares	Every ship of 45 metres or more in length must be provided with 12 rocket parachute flares, and 2 buoyant smoke signals. Every ship of less than 45 metres in length must be provided with 6 rocket parachute flares, and 2 buoyant smoke signals. Rocket parachute flares and buoyant smoke signals must comply with rule 42A.22 and rule 42A.24 respectively.
Line throwing appliance	Every ship of 30 metres or more in length must be provided with one line throwing appliance complying with rule 42A.30.
Survival craft – two-way VHF radiotelephone	Every ship of 45 metres or more in length must be provided with at least 3 two-way VHF radiotelephones for survival craft. The two-way VHF radio telephones must comply with the Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus adopted by the International Maritime Organization by— (a) resolution A.762(18), if installed before 23 November 1996; or (b) resolution A.809(19), if installed on or after 23 November 1996.
Immersion suits and anti-exposure suits	Every ship that proceeds south of latitude 48° South must be provided with— (a) one immersion suit complying with rule 42A.25 for each person assigned to crew the rescue boat; and (b) one anti-exposure suit complying with rule 42A.26 for every person that does not have an immersion suit. Every ship that proceeds south of latitude 60° South must be provided with an immersion suit for every person onboard who may be required to enter the water to board any of the survival craft provided.

[26] It is recommended that ships carry buoyancy vests or other buoyancy aids with a buoyancy of at least 53 Newtons for personnel who are required to work on exposed parts of the working deck in adverse weather.

1.2 Offshore limit ships

The requirements in Appendix 1.2 apply to ships that do not proceed beyond offshore limits.

Item	Requirements
Survival craft (comprising lifeboats, rescue boats and liferafts)	Every ship of 24 metres or more in length must be provided with survival craft that have sufficient aggregate capacity to accommodate on each side of the ship the total number of persons on board. Survival craft must be— (a) lifeboats complying with rules 42A.6 and 42A.7; or (b) liferafts complying with rules 42A.11 and 42A.12; or (c) a combination of such lifeboats and liferafts. Every ship of less than 24 metres in length must be provided with one or more liferafts complying with rules 42A.11 and 42A.12 of sufficient aggregate capacity to accommodate the total number of persons the ship is carrying. If 16 or more persons are carried, the number of liferafts provided must not be less than 2. Every liferaft must be provided with float free arrangements which provide for the liferaft to be released automatically in the event of the ship sinking. Any hydrostatic release unit used in float-free arrangements must comply with rule 42A.8. Every ship of 45 metres or more in length must be provided with a rescue boat, complying with rule 42A.15 unless the ship is provided with a lifeboat that fulfils the requirements for a rescue boat and is capable of being recovered after a rescue operation. The number of lifeboats or rescue boats that are carried on a ship of 45 metres or more in length must be sufficient to ensure that when the total number of persons on board abandon ship not more than 9 liferafts need to be marshalled by each lifeboat or rescue boat. Each lifeboat or rescue boat must be provided with a launching appliance that complies with rule 42A.28(2).
Lifebuoys	Sufficient lifebuoys complying with rule 42A.17 must be strategically placed around the ship on each side so that the distance between lifebuoys is minimised. The lifebuoys must be accessible for immediate use at all times. Every ship of 75 metres or more in length must be provided with at least 8 lifebuoys. Every ship of 45 metres or more in length but less than 75 metres must be provided with at least 6 lifebuoys. Every ship of 24 metres or more in length but less than 45 metres must be provided with at least 4 lifebuoys, except that when carrying less than 8 persons only one such lifebuoy per 2 persons need be carried provided there is a minimum of 2 such lifebuoys on board. Every ship of less than 24 metres in length must be provided with at least 2 lifebuoys. On every ship of 45 metres or more in length, at least half the number of lifebuoys referred to above must be provided with self-

	igniting lights. On every ship of 45 metres or more in length, at least 2 of the lifebuoys provided with self-igniting lights must, where practicable, be provided with self-activating smoke signals. Such lifebuoys must be capable of quick release from the navigating bridge. On every ship of 24 metres or more in length, at least one lifebuoy on each side of the ship must be fitted with a buoyant lifeline and at least one lifebuoy on each side of the ship must be fitted with a self-igniting light. On every ship of less than 24 metres in length at least one lifebuoy must be fitted with a buoyant line and one lifebuoy must be fitted with a self-igniting light. Lifebuoys fitted with a buoyant line must not have self-igniting lights.
Lifejackets[27]	Every ship must be provided with one lifejacket that complies with rule 42A.19 and that has a buoyancy of at least 100 Newtons, for each person on board.
Flares	Every ship must be provided with 6 rocket parachute flares, and 2 buoyant smoke signals. Rocket parachute flares and buoyant smoke signals must comply with rule 42A.22 and rule 42A.24 respectively.
Line throwing appliance	Every ship of 30 metres or more in length must be provided with one line throwing appliance complying with rule 42A.30.
Immersion suits and anti-exposure suits	Every ship that proceeds south of latitude 48° South must be provided with— (a) one immersion suit complying with rule 42A.25 for each person assigned to crew the rescue boat; and (b) one anti-exposure suit complying with rule 42A.26 for every person that does not have an immersion suit.

[27] It is recommended that ships carry buoyancy vests or other buoyancy aids with a buoyancy of at least 53 Newtons for personnel who are required to work on exposed parts of the working deck in adverse weather.

1.3 Coastal limit ships

The requirements in Appendix 1.3 apply to ships that do not proceed beyond coastal limits, including restricted coastal limit ships that proceed beyond the limit of the territorial sea.

Item	Requirements
Survival craft (comprising lifeboats, rescue boats and liferafts)	Every ship of 24 metres or more in length must be provided with survival craft that have sufficient aggregate capacity to accommodate on each side of the ship the total number of persons on board. Survival craft must be— (a) lifeboats complying with rules 42A.6 and 42A.7; or (b) liferafts complying with rules 42A.11 and 42A.12; or (c) a combination of such lifeboats and liferafts. Every ship of less than 24 metres in length must be provided with one or more liferafts complying with rules 42A.11 and 42A.12 of sufficient aggregate capacity to accommodate the total number of persons the ship is carrying. If 16 or more persons are carried, the number of liferafts provided must not be less than 2. Every liferaft must be provided with float free arrangements which provide for the liferaft to be released automatically in the event of the ship sinking. Any hydrostatic release unit used in float-free arrangements must comply with rule 42A.8. Every ship of 45 metres or more in length must be provided with a rescue boat, complying with rule 42A.15 unless the ship is provided with a lifeboat that fulfils the requirements for a rescue boat and is capable of being recovered after a rescue operation. The number of lifeboats or rescue boats that are carried on a ship of 45 metres or more in length must be sufficient to ensure that when the total number of persons on board abandon ship not more than 9 liferafts need to be marshalled by each lifeboat or rescue boat. Each lifeboat or rescue boat must be provided with a launching appliance that complies with rule 42A.28(2).
Lifebuoys	Sufficient lifebuoys, complying with rule 42A.17, must be strategically placed around the ship on each side so that the distance between lifebuoys is minimised. The lifebuoys must be accessible for immediate use at all times. Every ship of 75 metres or more in length must be provided with at least 8 lifebuoys. Every ship of 45 metres or more in length but less than 75 metres must be provided with at least 6 lifebuoys. Every ship of 24 metres or more in length but less than 45 metres must be provided with at least 4 lifebuoys, except that when carrying less than 8 persons only one such lifebuoy per 2 persons need be carried provided there is a minimum of 2 such lifebuoys on board. Every ship of less than 24 metres in length must be provided with at least 2 lifebuoys. On every ship of 24 metres or more in length at least one lifebuoy on each side of the ship must be fitted with a buoyant lifeline and

	at least one lifebuoy on each side of the ship must be fitted with a self-igniting light. On every ship of less than 24 metres in length at least one lifebuoy must be fitted with a buoyant line and one lifebuoy must be fitted with a self-igniting light.
Lifejackets	Every ship must be provided with one lifejacket that complies with rule 42A.19, and that has a buoyancy of at least 100 Newtons, for each person on board.
Flares	Every ship must be provided with 4 rocket parachute flares, and 2 buoyant smoke signals. Rocket parachute flares and buoyant smoke signals must comply with rule 42A.22 and rule 42A.24 respectively.
Line throwing appliance	Every ship of 30 metres or more in length must be provided with one line throwing appliance, complying with rule 42A.30.

1.4 Inshore limit ships and inshore fishing limit ships

The requirements in Appendix 1.4 apply to ships to which this Part applies that do not proceed beyond inshore fishing limits.

Item	Requirements
Survival craft – (comprising liferafts, buoyant apparatus or lifebuoys)	Every ship of 12 metres or more in length must be provided with one or more liferafts, complying with rules 42A.11 and 42A.12, that have sufficient aggregate capacity to accommodate the total number of persons the ship is carrying. Provided that, if 16 persons or more are carried, the total number of liferafts provided must be at least 2. Every ship of 6 metres or more in length but less than 12 metres must be provided with either: (a) liferafts, complying with rules 42A.11 and 42A.12; or (b) buoyant apparatus, complying with rule 42A.31; or (c) lifebuoys, complying with rule 42A.17 which have sufficient aggregate capacity to accommodate the total number of persons the ship is carrying. Every liferaft must be provided with float free arrangements which provide for the liferaft to be released automatically in the event of the ship sinking. Any hydrostatic release unit used in float-free arrangements must comply with rule 42A.8.
Lifebuoys	Every ship of 12 metres or more in length must be provided with one lifebuoy, complying with rule 42A.17 for every 2 persons the ship is carrying, except that the minimum number of lifebuoys required to be carried is 2, and the maximum number is 8. Every ship of 6 metres or more in length but less than 12 metres must be provided with at least one lifebuoy, complying with rule 42A.17. Every ship of less than 6 metres in length that carries more than one person must be provided with at least: (a) one rescue quoit with line; or (b) a throw line; or (c) a device equivalent to (a) or (b). At least one lifebuoy on a ship must be fitted with a buoyant lifeline and at least one lifebuoy with a self igniting light.
Lifejackets	Every ship must be provided with any one or a combination of the following: (a) a lifejacket that complies with rule 42A.19, and that has a buoyancy of at least 100 Newtons; or (b) a buoyancy vest that complies with rule 42A.20 and that has a buoyancy of at least 53 Newtons, provided it is worn throughout the voyage; or (c) a full body wet suit, provided it is worn throughout the voyage— for each person on board.

Flares	Every ship of 6 metres or more in length must be provided with 4 rocket parachute flares and 2 buoyant smoke signals. Every ship of less than 6 metres in length must be provided with one mini red star flare holder and flare packet, and 2 buoyant smoke signals. Rocket parachute flares and buoyant smoke signals must comply with rule 42A.22 and rule 42A.24 respectively.

1.5 Enclosed water ships

The requirements in Appendix 1.5 apply to ships to which this Part applies that do not proceed beyond enclosed water limits.

Item	Requirements
Survival craft – (Liferafts)	Every ship of 12 metres or more in length must be provided with one or more liferafts, complying with rules 42A.11 and 42A.12, that are of sufficient aggregate capacity to accommodate the total number of persons the ship is carrying. This requirement does not apply to such a ship that operates only on a river or similar constricted waterway. Every liferaft must be provided with float free arrangements which provide for the liferaft to be released automatically in the event of the ship sinking. Any hydrostatic release unit used in float-free arrangements must comply with rule 42A.8.
Lifebuoys	Every ship of 12 metres or more in length must be provided with one lifebuoy, complying with rule 42A.17 for every 2 persons the ship is carrying, except that the minimum number of lifebuoys required to be carried is 2, and the maximum number is 8. Every ship of less than 12 metres in length that is carrying more than one person must be provided with one lifebuoy complying with rule 42A.17.
Lifejackets	Every ship must be provided with any one or a combination of the following: (a) a lifejacket that complies with rule 42A.19, and that has a buoyancy of at least 71 Newtons; or (b) a buoyancy vest that complies with rule 42A.20, and that has a buoyancy of at least 53 Newtons, provided it is worn throughout the voyage; or (c) a full body wetsuit, provided that it is worn throughout the voyage— for each person on board.
Flares	Every ship must be provided with 2 rocket parachute flares and 2 buoyant smoke signals. Rocket parachute flares and buoyant smoke signals must comply with rule 42A.22 and rule 42A.24 respectively.

Appendix 2 Fire fighting appliances

2.1 Ships 60 m or more in length that proceed beyond restricted limits

The requirements in Appendix 2.1 apply to ships of 60 metres or more in length to which this Part applies that proceed beyond restricted limits.

Item	Requirement
Ships in which Method IIF is adopted – Automatic sprinkler and fire alarm and fire detection system	An automatic sprinkler and fire alarm and fire detection system complying with rules 42B.9 to 42B.16 inclusive, must be installed and so arranged as to protect accommodation spaces and service spaces, except spaces that afford no substantial fire risk such as void spaces and sanitary spaces.
Ships in which Method IIIF is adopted – Automatic fire alarm and fire detection system	An automatic fire alarm and fire detection system complying with rules 42B.4 to 42B.7 inclusive, must be installed and so arranged as to detect the presence of fire in all accommodation spaces and service spaces, except spaces that afford no substantial fire risk such as void spaces and sanitary spaces.
Cargo spaces – Fixed fire- extinguishing system	Cargo spaces of high fire risk must be protected by a fixed gaseous fire extinguishing system complying with rules 42B.20 to 42B.22 inclusive or other fire-extinguishing system that gives equivalent protection, to the satisfaction of the surveyor.
Fire pumps	At least two power operated fire pumps complying with rule 42B.61, must be fitted. If a fire in any one compartment could put all the fire pumps out of action, there must be an alternative means of providing water for fire fighting. In ships of 75 metres or more in length this alternative means must be a fixed emergency power operated fire pump complying with rule 42B.61(9) that is independently driven.
Fire main	Where more than 1 fire hydrant is required, a fire main complying with rule 42B.63, must be provided.
Fire hydrants, fire hoses and nozzles	The number and position of the fire hydrants must be such that at least 2 jets of water not emanating from the same hydrant, one of which must be from a single length of fire hose, must reach any part of the ship normally accessible to the crew while the ship is being navigated. All required hydrants must be fitted with a fire hose complying with rule 42B.64 and a jet/spray nozzle complying with rule 42B.65. One hydrant must be located near the entrance of the space to be protected. All hose connections must be of the same type i.e. inter-connectable. All fire hydrants must comply with rule 42B.63.
Portable fire extinguishers in control stations, accommodation and service spaces	A sufficient number of portable fire extinguishers complying with rule 42B.57, must be provided in control stations and accommodation and service spaces to ensure that at least one extinguisher of a type appropriate to the class of fire anticipated in a space, is readily available for use in any part of such space. The total number of portable fire extinguishers in these spaces must be at least 5. For every two portable fire extinguishers of the same type there must be provided one spare charge or a replacement extinguisher of the same type.
Machinery spaces containing oil-fired boilers	Each space containing oil-fired boilers or fuel oil units must be provided with one of the following fixed fire-extinguishing

– Fixed fire-extinguishing systems, portable air-foam equipment, portable fire extinguishers, foam-type extinguisher and sand receptacle	systems— a) a pressure water-spraying system complying with rules 42B.23 to 42B.26 inclusive; or b) a gaseous fire-extinguishing system complying with rules 42B.20 to 42B.22 inclusive; or c) a fire-extinguishing system using high expansion foam complying with rule 42B.31; or d) other fire-extinguishing system approved by the Director. Where the engine and boiler rooms are not entirely separate, or if fuel oil can drain from the boiler room into the engine room, the combined engine and boiler rooms must be considered as one space. Every boiler room must be provided with at least 1 portable foam applicator unit complying with rule 42B.56. At least 2 portable foam fire extinguishers complying with rule 42B.57, must be provided in each firing space in each boiler room and in each space in which a part of the fuel oil installation is situated. At least 1 non-portable foam extinguisher complying with rule 42B.53 and of at least 135 litres capacity must be provided with hoses on reels suitable for reaching any part of the boiler room. The surveyor may relax the requirements of this paragraph having regard to the size and nature of the space to be protected and may accept other than foam extinquishers provided they are of the same classification and rating as that specified. In each firing space there must be a receptacle containing sand, sawdust impregnated with soda or other approved dry material, in such quantity as may be required by the surveyor. Alternatively a portable fire extinguisher complying with rule 42B.57, and suitable for extinguishing an oil fire, may be provided.
Spaces containing internal combustion machinery – Fixed fire-extinguishing systems, portable air-foam equipment, foam-type fire extinguishers, portable fire extinguishers	Each space 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 kW, must be provided with— (a) one of the following fixed fire-extinguishing systems— a) a pressure water-spraying system complying with rules 42B.23 to 42B.26 inclusive; or b) a gaseous fire-extinguishing system complying with rules 42B.20 to 42B.22 inclusive; or c) a fire-extinguishing system using high expansion foam complying with rule 42B.31; and (b) at least 1 portable foam applicator unit complying with rule 42B.56; and (c) non-portable foam fire extinguishers complying with rule 42B.53 sufficient in number to enable foam to be directed on to any part of the fuel and lubricating oil pressure systems, gearing and other fire hazards. In addition, there must be provided a sufficient number of portable foam extinguishers complying with rule 42B.57, that are so located that any portable fire extinguisher is not more than 10 metres walking distance from any point in the space; provided that there must be at least 2 such extinguishers in

	each such space. The surveyor may relax these requirements for smaller spaces and may accept other than foam extinguishers provided they are of the same classification and rating as that specified.
Spaces containing steam engines – Foam fire extinguishers, portable fire extinguishers	Spaces containing steam turbines or enclosed steam engines used for main propulsion, or for other purposes, when such machinery has a total power output of not less than 750 kW must be provided with the following arrangements— (a) non-portable foam fire extinguishers complying with rule 42B.53, each of at least 45 litres capacity and sufficient in number to enable foam to be directed on to any part of the pressure lubrication system, on to any part of the casings enclosing pressure lubricated parts of the turbines, engines or associated gearing, and any other fire hazards. Such extinguishers are not required to be provided if protection at least equivalent to that of this paragraph is provided in such spaces by a fixed fire-extinguishing system for machinery spaces complying with Part 42B of the maritime rules; and (b) a sufficient number of portable fire extinguishers complying with rule 42B.57 and suitable for extinguishing an oil fire, that are so located that a portable fire extinguisher is not more than 10 metres walking distance from any point in the space. Provided that there are at least 2 such extinguishers in each such space, and those extinguishers will not be required in addition to any provided in compliance with the requirement for portable fire extinguishers in an internal combustion machinery space.
Other machinery spaces – Portable fire extinguishers	Where in the opinion of a surveyor, a fire hazard exists in any machinery space for which no specific provisions for fire extinguishing appliances are prescribed, there must be provided in, or adjacent to, that space a number of portable fire extinguishers or other means of fire extinction that are acceptable to the surveyor.
Fixed fire extinguishing systems not required by this Part	Where fixed fire extinguishing systems that are not required by this Part are installed, such systems must be acceptable to the surveyor.
Shaft tunnel door	Where access is provided at a low level from an adjacent shaft tunnel to any machinery space of category A, a light steel fire-screen door must be provided in addition to any watertight door. This fire-screen door must be located on the side remote from the machinery space and must be capable of being operated from each side of the door.
International shore connection	At least one international shore connection complying with rule 42B.60 must be provided. Facilities must be available enabling an international shore connection to be used on either side of the ship.
Firefighter's outfits	At least 2 fire crew outfits complying with rule 42B.66 must be carried. The fire crew outfits must be stored so as to be easily accessible and ready for use. A breathing apparatus for each firefighter’s outfits, complying with rule 42B.58 or rule 42B.59 must be carried.

Fire control plan	A permanently exhibited fire control plan complying with rule 42B.68 and approved by a surveyor must be permanently exhibited.
Signage	Signs complying with rule 42B.69 must be provided to identify all fire fighting appliances and their location.

2.2 Ships of 45 metres or more in length but less than 60 metres in length that operate in any operating limits; Ships of 24 metres or more in length but less than 45 metres in length that proceed beyond the coastal limit

The requirements in Appendix 2.2 apply to the following ships to which this Part applies—

(a) of 45 metres or more in length but less than 60 metres in length; and

(b) of 24 metres or more in length but less than 45 metres in length that proceed beyond the coastal limit.

Item	Requirements
Automatic fire alarm and fire detection systems	Every ship to which rule 40D.52(1) applies that— (a) is constructed of combustible materials; or (b) a surveyor considers a fire risk due to— a) the appreciable amounts of combustible materials used in the construction of accommodation spaces, service spaces and control stations; and b) the size of those spaces; and c) their arrangement; and d) their location relative to control stations; and e) where applicable, the flame-spread characteristics of the installed furniture must have an automatic fixed fire alarm and fire detection system, complying with rules 42B.4 to 42B.8 inclusive, installed.
Fire pumps	The minimum number and type of fire pumps, complying with rule 42B.61, to be fitted must be as follows— (a) one power pump, that is not dependent upon the main machinery for its motive power; or (b) one power pump, that is driven by main propelling machinery, provided that the propeller shafting can be readily disconnected, or provided that a controllable pitch propeller is fitted. Where the pump required by paragraphs (a) or (b) is situated in a space containing oil-fired boilers or internal combustion type propelling machinery, an emergency fire pump must be fitted outside such spaces. If the emergency fire pump is power driven it must comply with rule 42B.61(6) and the power source must also be outside such spaces.
Fire main, fire hydrants, fire hoses and nozzles	Fire hydrants must be positioned so as to allow easy and quick connection of fire hoses and so that at least one jet of water can be directed into any part of the ship that is normally accessible during navigation. Where more than 1 hydrant is required to provide the number of water jets to meet this requirement a fire main, complying with rule 42B.63 must be provided. The jet of water required must be from a single length of fire hose. In addition to the hydrants required above, a machinery

	space of category A must be provided with at least one hydrant complete with fire hose and dual purpose nozzle. This fire hydrant must be located outside the space and near the entrance. A fire hose complying with rule 42B.64 must be provided for every required fire hydrant. At least one spare fire hose complying with rule 42B.64 must also be provided. Each fire hose must be provided with couplings and a jet/spray nozzle complying with rule 42B.65. All hose connections must be of the same type i.e. inter-connectable.
Portable fire extinguishers in control stations and accommodation and service spaces	A sufficient number of portable fire extinguishers complying with rule 42B.57 must be provided in control stations and accommodation and service spaces to ensure that at least one extinguisher of a type appropriate to the class of fire anticipated in a space is readily available for use in any part of such spaces. The total number of portable fire extinguishers in these spaces, however, must not be less than 3. For every two portable fire extinguishers of the same type there must be provided one spare charge or a replacement extinguisher of the same type.
Fire extinguishing appliances in machinery spaces – fixed fire extinguishing systems, foam extinguisher, portable fire extinguishers	Spaces containing oil fired boilers, fuel oil units or, in ships of 45 metres or more in length, internal combustion machinery having a total power output of not less than 750 kW must be provided with one of the following fixed fire extinguishing systems— (a) a pressure water spraying system complying with rules 42B.23 to 42B.26 inclusive; or (b) a gaseous fire-extinguishing system complying with rules 42B.20 to 42B.22 inclusive; or (c) a fire extinguishing system using high expansion foam complying with rule 42B.31; or (d) other fire-extinguishing system approved by the Director. Where the engine and boiler rooms are not entirely separated from each other, or if fuel oil can drain from the boiler room into the engine room, the combined engine and boiler rooms must be considered as one compartment. Where a fixed fire extinguishing system is fitted it must be controlled from a readily accessible position outside the machinery space that is not likely to be cut off by a fire in the protected space. Ships that— a) are constructed mainly or wholly of wood or fibre reinforced plastics; and b) are fitted with oil-fired boilers or internal combustion machinery; and c) have a deck of wood or fibre reinforced plastic in way of the machinery space— must be provided with one of the above fixed fire extinguishing systems. Ships having machinery spaces not protected by a fixed fire

	extinguishing system must be provided with a non-portable foam fire extinguisher complying with rule 42B.53 with at least 45 litres capacity, or other non-portable fire extinguisher with equivalent classification and rating acceptable to a surveyor. Where the size of the machinery spaces makes this provision impracticable, the surveyor may accept an additional number of portable fire extinguishers complying with rule 42B.57 which are suitable for extinguishing oil fires. In all machinery spaces of category A, at least 2 portable fire extinguishers complying with rule 42B.57 of a type suitable for extinguishing oil fires, must be provided. Where such spaces contain machinery that has a total power output of not less than 250 kW, at least 3 such extinguishers must be provided. One of the portable fire extinguishers must be located near the entrance to the space.
Firefighter's outfit	At least two fire crew outfits complying with rule 42B.66 must be carried. Their stowage and location must be to the satisfaction of a surveyor. A breathing apparatus for each firefighter's outfits, complying with rule 42B.58 or rule 42B.59 must be carried.
Signage	Signs complying with rule 42B.69 must be provided to identify all fire fighting appliances and their location.

2.3 Ships of less than 24 metres in length that operate in any operating limits; Ships of 24 metres or more in length but less than 45 metres in length that do not proceed beyond coastal limits

The requirements in Appendix 2.3 apply to the following ships—

(a) of less than 24 metres in length; and

(b) of 24 metres or more in length but less than 45 metres that do not proceed beyond coastal limits.

Item	Requirements
Manual fire detection and fire alarm system	Every ship of 24 metres or more in length that proceeds beyond restricted limits must be provided with a fixed manual fire detection and fire alarm system complying with rules 42B.4 to 42B.8 inclusive.
Fire pumps	A ship that is 15 metres or more in length must be provided with at least one power operated fire pump, that may be operated by the main engine. The pump must be capable of delivering a jet of water having a throw of at least 6 metres from any fire hydrant, hose, or nozzle provided on the ship. A ship that is 9 metres or more in length but less than 15 metres must be provided with either— (a) a power operated fire pump; or (b) a manually operated fire pump. A ship that is 6 metres or more in length but less than 9 metres must be provided with either— (a) a power operated fire pump; or (b) a manually operated fire pump; or (c) 2 fire buckets complying with rule 42B.62.

	A ship that is less than 6 metres in length must be provided with either— (a) a power operated fire pump; or (b) a manually operated fire pump; or (c) one fire bucket complying with rule 42B.62[28]. Any power operated pump or manually operated pump referred to above must be capable of delivering a jet of water having a throw of at least 6 metres from any fire hydrant, hose, or nozzle provided in the ship.
Fire main, fire hydrants, fire hoses and nozzles	Fire hydrants must be positioned so as to allow easy and quick connection of fire hoses and so that at least one jet of water having a throw of at least 6 metres can be directed into any part of the ship that is normally accessible during navigation. Where more than 1 hydrant is required to provide the number of water jets to meet this requirement a fire main must be provided. Any space containing oil-fired boilers or internal combustion propelling machinery in a ship provided with a fire pump must be provided with one fire hydrant located outside that space and adjacent to its entrance. Every ship fitted with a fire pump must be provided with at least one fire hose complying with rule 42B.64 and one jet/spray nozzle complying with rule 42B.65. All hose connections must be of the same type i.e. inter-changeable.
Portable fire extinguishers in control stations and accommodation and service spaces	Every ship that is 12 metres or more in length must be provided with at least 3 portable fire extinguishers complying with rule 42B.57. Every ship that is 6 metres or more but less than 12 metres in length must be provided with at least 2 portable fire extinguishers complying with rule 42B.57. Every ship of less than 6 metres in length must be provided with at least one portable fire extinguisher complying with rule 42B.57. At least one of the required portable fire extinguishers must be of a type suitable for extinguishing oil fires. Portable fire extinguishers must be distributed so as to be readily available in the event of a fire in any of the accommodation or machinery spaces. In ships of 24 metres or more in length, for every two portable fire extinguishers of the same type there must be provided one spare charge or replacement extinguisher of the same type.
Machinery spaces containing oil-fired boilers, oil fuel settling tank or oil-fuel unit – foam fire extinguisher, portable fire extinguisher, sand	Spaces containing any oil-fired boiler, oil-fuel settling tank, or oil-fuel unit must be provided with at least— (a) one non-portable foam fire extinguisher complying with rule 42B.53 of at least 45 litres capacity or one portable CO_2 fire extinguisher complying with rule 42B.54 of at least 15 kgs capacity; and (b) in each firing space and in each space that contains any part

[28] In small boats or open boats the surveyor may accept a suitable bailer for this purpose.

receptacle	of any oil-fuel installation, one portable fire extinguisher complying with rule 42B.57 suitable for extinguishing oil fires; and (c) in each firing space there must be a receptacle containing sand, sawdust impregnated with soda or other approved dry material, in such quantity as may be required by the surveyor. As an alternative to (c) an additional portable fire extinguisher complying with rule 42B.57 and suitable for extinguishing an oil fire may be provided. If an auxiliary oil-fired boiler, oil-fuel settling tank, or oil-fuel unit is fitted in a space occupied by propelling or auxiliary machinery of internal combustion type, the fire appliances listed must be additional to the portable fire extinguishers required for a machinery space.
Machinery spaces containing internal combustion type machinery that uses fuel with a flash point of 60°C or more – fixed fire extinguishing systems, foam extinguisher, portable fire extinguishers	Spaces containing internal combustion type machinery that uses a fuel with a flash point of 60° or more must be provided with— (a) in ships of 24 metres or more in length where such spaces contain machinery which has a total power output of not less than 250 kW— a) one non-portable foam fire extinguisher complying with rule 42B.53, of at least 45 litres capacity, or one non-portable CO_2 fire extinguisher complying with rule 42B.54, of at least 15 kgs capacity; and b) at least 2 portable fire extinguishers complying with rule 42B.57, of a type suitable for extinguishing oil fires; and (b) in ships of less than 24 metres in length where such spaces contain machinery which has a total output of not less than 750 kW, 2 portable fire extinguishers complying with rule 42B.57, suitable for extinguishing oil fires; and in ships of less than 24 metres in length where such spaces contain machinery which has a total output of not less than 250 kW, one portable fire extinguisher complying with rule 42B.57, suitable for extinguishing oil fires.
Machinery spaces containing internal combustion type propelling machinery that uses fuel with a flash point below 60°C – fixed fire smothering installation, portable fire extinguishers, automatic gas detection and warning	Every ship fitted with inboard propelling machinery that uses fuel with a flash point below 60° C must be provided with— (a) a fixed installation for the discharge of a fire smothering gas into the space containing such propelling machinery and into any space containing the storage tanks of such fuel. The fixed fire smothering gas system must comply with rule 42B.21(7) or other installation acceptable to a surveyor; and (b) a system for the automatic detection of fuel-gas vapour in the spaces containing the propelling machinery and the fuel storage tanks. The automatic gas detector must be capable of giving a visible and audible warning of the presence of fuel-gas vapour. If in the opinion of the surveyor the space containing either the propelling machinery or fuel storage tanks is so open to atmosphere as to make the fitting of a fixed fire smothering gas installation or automatic gas detector ineffective, or the fuel storage tanks are in a separate compartment in which there is no source of ignition, the surveyor may allow such installation to be

	dispensed with. Except for ships required to carry only one portable fire extinguisher, where a fixed fire smothering gas installation is fitted to the space containing propelling machinery using fuel with a flash point of less than 60° C, the required number of portable fire extinguishers complying with rule 42B.57 and suitable for use on oil fires, may be reduced by one.
Firefighter's outfit	Every ship of 9 metres or more in length must carry— (a) one fire axe; and (b) one safety lamp.
Signage	Signs complying with rule 42B.69 must be provided to identify all fire fighting appliances and their location.

Rule 40D.68

Appendix 3 Radiocommunication equipment

3.1 Ships that do not proceed beyond a VHF Coverage Area

Subject to clauses 3.1.1 and 3.1.2 to this Appendix, the requirements in Appendix 3.1 apply to ships that do not proceed beyond a VHF coverage area.

Item	Requirements
VHF Radio	The ship must be provided with a VHF radio that complies with rule 43.12. The VHF radio must be positioned so that it is possible to operate the distress alert from the normal navigation position.
Satellite EPIRB	(1) The ship must be— (a) fitted with a 406 MHz EPIRB that complies with the requirements of rule 43.19; or (b) if it operates within enclosed waters, or if it is 7.5 metres or less in length or 24 metres or more in length and does not proceed beyond a VHF Coverage Area, fitted with a 406 MHz EPIRB that complies with the requirements of rule 43.18A or 43.19. (2) The EPIRB must be kept in a readily accessible position on board the ship.
Source of electrical energy	The ship must have available at all times while it is at sea, a re-chargeable battery situated above the ship's designed load waterline that is capable of operating the VHF radio installation. The battery must be of sufficient capacity to supply continuously for a period of at least 6 hours a total current equal to— (a) the current required to operate the VHF radio receiver; and (b) one-third of the current that may be drawn by the VHF radio transmitter for transmission of speech, with the transmitter operating at its full rated frequency output power; and (c) the current consumption of the emergency electric light, if applicable; and (d) one-third of the current that may be drawn by each additional load capable of operation from this battery. For ships that spend less than 24 hours at sea at one time, provision for recharging the radio battery system within 10 hours must be made. For ships that spend more than 24 hours at sea at one time provision for recharging the radio battery system within 10 hours while the ship is at sea must be made.
Clock	There must be a permanently mounted means on board to accurately tell the time.
Card of instructions	The ship must be provided with a legible and easily accessible card that explains in simple terms the use of the VHF radio and distress procedure.
Emergency electric light	A ship of 24 metres or more in length must be provided with an emergency electric light that— (a) is independent of the system that supplies the normal lighting of the VHF radio installation; and (b) is permanently arranged so as to be capable of providing sufficient illumination of—

	a) the operating controls of the VHF radio installation; and b) the card of instructions; and (c) is controlled by a switch, clearly labelled to indicate its purpose, placed at the operating position of the VHF. Ships of less than 24 metres in length must be fitted with the emergency electric light prescribed above or carry a torch for this purpose.
Documents	The ship must be provided with the following documents: (a) Radio handbook for coastal vessels: a guide to maritime communications in New Zealand; and (b) Ship Station Radio Licence; and (c) Call sign and MMSI number (if provided) that are both to be displayed in a prominent position.

3.1.1. Boats operating in rivers and other similar restricted waterways within enclosed waters may be exempted from any of the above requirements by the surveyor, where the surveyor considers such requirement is unnecessary.

3.1.2. VHF coverage area means an area within the defined coverage of a New Zealand VHF coast station on channel 16 (radio telephony).

3.2 Ships that proceed beyond a VHF coverage area but not beyond offshore limits

The requirements in Appendix 3.2 apply to ships that proceed beyond a VHF coverage area but not beyond offshore limits.

Item	Requirements
MF/HF Radiotelephone	The ship must be provided with a MF/HF Radiotelephone that complies with rule 43.14.
VHF Radio	The ship must be provided with a VHF radio that complies with rule 43.12. The VHF radio must be positioned so that it is possible to operate the distress alert from the normal navigation position.
Satellite EPIRB	Ships of more than 7.5 metres in length and less than 24 metres in length must be provided with a 406 MHz EPIRB that complies with the requirements of rule 43.19. Ships of 7.5 metres or less in length or 24 metres or more in length must be fitted with a 406 MHz EPIRB that complies with the requirements of rule 43.18A or 43.19. The EPIRB must be kept in a readily accessible position on board the ship.
Source of electrical power	The ship must have a main source of electrical power capable of operating all of the radio installations in the ship. While at sea, the ship must have available at all times a reserve source of electrical power located above the design waterline. This must consist of re-chargeable batteries of such capacity as to supply continuously for a period of 6 hours a total current equal to the sum of— (a) the current required to operate the VHF radio receiver; and (b) one half of the current required to operate the VHF radio transmitter for the transmission of speech, with the

	transmitter operating at its full rated frequency output power; and (c) the current required to operate the MF/HF radio receiver; and (d) one-half of the current required to operate the MF/HF radio transmitter for the transmission of speech, with the transmitter operating at its full rated radio frequency output power; and (e) the emergency light; and (f) one-third of the current that may be drawn by each additional load capable of operation from this battery. Provision for recharging the radio battery system within 10 hours while the ship is at sea must be provided.
Clock	The ship must be provided with a reliable clock fully visible to the radio operator, mounted in the immediate vicinity of the radio installation, and marked with the radiotelephone silence periods.
Card of instructions	The ship must be provided with a legible and easily accessible card that explains in simple terms the use of the radio equipment and distress procedures to an unskilled person for use in an emergency.
Emergency electric light	A ship of 24 metres or more in length must be provided with an emergency electric light that— (a) is independent of the system that supplies the normal lighting of the radio installations; and (b) is permanently arranged so as to be capable of providing sufficient illumination of— a) the operating controls of the radio installations; and b) the clock; and c) the card of instructions; and (c) is controlled by a switch, clearly labelled to indicate its purpose, placed at the operating position of the MF/HF. Ships of less than 24 metres in length may be fitted with the emergency electric light prescribed above or carry a torch for this purpose.
Documents	The ship must be provided with the following documents: (a) Radio handbook for coastal vessels a guide to maritime communications in New Zealand; and (b) Ship Station Radio Licence; and (c) Call sign and MMSI number (if provided) that are both to be displayed.

3.2.1 *Revoked by Maritime (EPIRBS) Amendment Rules 2006, on 23 November 2006.*

3.3 Ships that proceed beyond offshore limits

The requirements in Appendix 3.3 apply to ships that proceed beyond offshore limits.

Item	Requirements
MF/HF Radiotelephone	The ship must be provided with an MF/HF Radiotelephone that complies with either— (1) rule 43.15; or (2) rule 43.15, excluding the requirement for, and associated with, Narrow-band Direct Printing equipment contained in rule 43.15, provided the ship— (a) operates between latitudes 76 degrees south and 76 degrees north; and (b) does not proceed into Sea Area A4; and (c) does not proceed into a NAVAREA where an operational High Frequency Narrow Band Direct Printing Maritime Safety Information broadcast service is provided by a country as indicated in the IMO GMDSS Master Plan.
VHF Radio	The ship must be provided with a VHF radio that complies with rule 43.13. The VHF radio must be positioned so that it is possible to operate the distress alert from the normal navigation position.
Radar Transponder or AIS-SART	The ship must be provided with either— (1) a radar transponder capable of operating in the 9 Ghz band and that complies with rule 43.22, which must be stowed so that it can be easily used.; or (2) an AIS-SART that complies with rule 43.22A in Part 43.
EPIRB	The ship must be provided with a satellite EPIRB capable of transmitting a distress alert either: a) through the polar orbiting satellite service operating in the 406 Mhz band and complying with rule 43.19; or b) if the ship is engaged only on voyages within INMARSAT coverage, through the INMARSAT geostationary satellite service operating in the 1.6 Ghz band and complying with rule 43.20. The EPIRB must be stowed in an easily accessible position, ready to be manually released, and capable of floating free if the ship sinks.
INMARSAT Ship Earth Station	The ship must be provided with an INMARSAT C ship earth station capable of receiving Marine Safety Information (MSI), that complies with rule 43.16
Source of energy	The ship must have available at all times, while it 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 sources of energy for the radio installations. A reserve source or sources of energy must be provided on the ship, to supply radio installations, for the purpose of conducting

	distress and safety radiocommunications, in the event of failure of the ship's main and emergency sources of electrical power. The reserve source or sources of energy must be capable of simultaneously operating the VHF radio installation and, as appropriate, either the MF/HF radio installation or the INMARSAT ship earth station and any additional loads, for a period of at least: (a) On post-27 May 2004 ships: a) 3 hours; or b) 1 hour, if the emergency source of electrical power complies fully with all relevant requirements of rule 40D.32 including the requirements to supply the radio installations and is capable of serving for a period of at least 6 hours; and (b) On pre-27 May 2004 ships: a) 6 hours, if the emergency source of electrical power is not provided or does not comply fully with all relevant requirements of rule 40D.32 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 rule 40D.32 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 rule 40D.32 including the requirements to supply the radio installations and is capable of serving for a period of 6 hours. The reserve source or sources of energy need not supply independent HF and MF radio installations at the same time. The reserve source or sources of energy must be independent of the propelling power of the ship and the ship's electrical system. Where in addition to the VHF radio installation, two or more other radio installations can be connected to the reserve sources of energy, they must be capable of simultaneously supplying, for the period specified, the VHF radio installation and: (a) all other radio installations that can be connected to the reserve source or sources of energy at the same time; or (b) 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.[29] Where a reserve source of energy consists of a rechargeable accumulator battery or batteries: (a) a means of automatically charging such batteries must be provided that must be capable of recharging them to minimum capacity requirements within 10 hours; and (b) the capacity of the battery or batteries must be checked,

[29] The reserve source or sources of energy may be used to supply the emergency electrical lighting.

	at intervals not exceeding 12 months, when the ship is not at sea. The siting and installation of accumulator batteries that provide a reserve source of energy must be such as to ensure: (a) the highest degree of service; and (b) a reasonable lifetime; and (c) reasonable safety; and (d) that the battery temperatures remain within the manufacturer's specifications whether under charge or idle; and (e) that, when fully charged, the batteries will provide at least the minimum required hours of operation under all weather conditions.
Clock	The ship must be provided with a reliable clock fully visible to the radio operator, mounted in the immediate vicinity of the radio installation, and marked with the radiotelephone silence periods.
Card of instructions	The ship must be provided with a legible and easily accessible card that explains in simple terms the use of the radio equipment and distress procedures to an unskilled person for use in an emergency.
Emergency electric light	The ship must be provided with an emergency electric light that— (a) is independent of the system that supplies the normal lighting of the radio installations; and (b) is permanently arranged so as to be capable of providing sufficient illumination of— a) the operating controls of the radio installations; and b) the clock; and c) the card of instructions; and (c) is controlled by a switch, clearly labelled to indicate its purpose, placed at the operating position of the MF/HF and INMARSAT.
Documentation	The ship must be provided with the following documents: (a) Radio handbook for coastal vessels; a guide to maritime communications in New Zealand; and (b) Ship Station Radio Licence; and (c) Call sign and MMSI number which are both to be displayed; and (d) if visiting foreign ports— a) a list of radio stations of countries that are to be visited; and b) an International Telecommunications Union manual for use in the Maritime Mobile and the Maritime Mobile Satellite Services.

Rule 40D.71

Appendix 4 Anchors and cables

Table 1

Anchors and chain cables for ships of 24 metres but less than 60 metres in length

Equipment numeral		Stockless anchors		Stud link chain cable		
Exceeding	**Not exceeding**	**Number**	**Weight per anchor (Kgs)**	**Total length (m)**	**Mild steel dia (mm)**	**Special steel dia (mm)**
50	60	2	120	192.5	12.5	–
60	70	2	140	192.5	12.5	–
70	80	2	160	220	14	12.5
80	90	2	180	220	14	12.5
90	100	2	210	220	16	14
100	110	2	240	220	16	14
110	120	2	270	247.5	17.5	16
120	130	2	300	247.5	17.5	16
130	140	2	340	275	19	17.5
140	150	2	390	275	19	17.5
150	175	2	480	275	22	19
175	205	2	570	302.5	24	20.5
205	240	2	660	302.5	26	22
240	280	2	780	330	28	24
280	320	2	900	357.5	30	26
320	360	2	1020	357.5	32	28
360	400	2	1140	385	34	30
400	450	2	1290	385	36	32
450	500	2	1440	412.5	38	34
500	550	2	1590	412.5	40	34
550	600	2	1740	440	42	36
600	660	2	1920	440	44	38
660	720	2	2100	440	46	40

Table 2(A)
Anchor weights (Kgs) for ships operating in unlimited and offshore waters

	H													
L	**0.5**	**1.0**	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**
8	12	15	18.5	21	24.5	27	31	35						
9	14	17	21	24	28	32	36	41	46					
10	16	19	23.5	27	32	37	42	47	52	59				
11	18	22	26	31	37	42	48	54	61	67.5	75			
12	20	24.5	29	35	41	48	54	62	69.5	77	87	96		
13	22	27	33	40	46.5	53.5	62	70	80.5	90	99.5	110	121	
14	24	30.5	37.5	45	52	61	70	81	91	102	113	124.5	138	148
15	27	35	42	50	59	69	79	91	102	115	128	141	154	167.5
16	31	39	47	56	66	77	90	102	115	129	142	156	171	186
17	35	43	52	63	74	87	100	114	129	143	158	174	190	206
18	39	48	58	70	83	97	111	127	142	158	175	191	210	226
19	43	53	65	78	93	108	124	140	156	175	192	211	227.5	246
20	48	59	72	87.5	103	120	137	154	172.5	191	211	229	248	268
21	53	66	80	97	114	132	149	169	189	208	228	248	269.5	291
22	59	73	90	107	126	144.5	164	185	206	226	247	269.5	292	318
23	65	82	100	118	138	158	180	201	223	244	268	291	318	347
24	72	90	109	130	150	172	195	218	240	264	289	318	343.5	388

Table 2(B)
Anchor weights (Kgs) for ships operating in coastal and inshore waters

	H													
L	**0.5**	**1.0**	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**
4			7	10										
5		7	10	12	14									
6	7	10	12	13	15	18								
7	9	11	14	16	18	20	22.5							
8	10	12.5	15	17.5	20	22.5	25	30						
9	12	15	17.5	20	22.5	27.5	30	35	40					
10	14	17	20	22.5	27.5	30	35	40	45	50				
11	15	20	22.5	25	30	35	40	45	50	55	60			
12	17	20	25	30	35	40	45	50	57.5	65	72.5	80		
13	20	25	30	35	40	45	50	60	67.5	75	82.5	90	100	
14	20	25	32.5	37.5	45	50	57.5	67.5	75	85	95	105	115	125
15	22.5	30	35	42.5	50	57.5	65	75	85	95	110	120	130	140
16	25	32.5	40	47.5	55	65	75	85	97.5	110	120	130	140	155
17	30	37.5	45	52.5	62.5	72.5	85	95	110	120	130	145	160	175
18	32.5	40	50	60	70	80	92.5	105	120	130	145	160	175	190
19	35	45	55	65	77.5	90	105	120	130	145	160	175	190	205
20	40	50	60	72.5	85	100	115	130	145	160	175	190	205	225
21	45	55	67.5	80	95	110	125	140	160	175	190	210	225	245
22	50	60	75	90	105	120	135	155	175	190	205	225	245	265
23	55	70	85	100	115	130	150	170	190	205	225	245	265	290
24	60	75	90	110	125	145	165	180	200	220	240	260	285	320

Table 2(C)
Anchor weights (Kgs) for ships operating in enclosed waters only

	H													
L	**0.5**	**1.0**	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**
4			6	8										
5		6	8	9.5	11									
6	6	8	9.5	11	12.5	14								
7	7	9	11	12.5	14.5	16	18							
8	8	10.5	12.5	14.5	16.5	18.5	21	23.5						
9	9.5	12	14	16.5	18.5	21.5	24.5	28	31					
10	11	13	16	18.5	21.5	25	28.5	32	35	40				
11	12.5	15	18	21	24.5	28.5	32.5	36	41	45.5	50			
12	13	16.5	20	23.5	28	32.5	36.5	42	46	52	58	64		
13	15	18.5	22.5	27	31.5	36	42	47	53	60	66	73	81.5	
14	17	20.5	25	30.5	35	41.5	47	53	60.5	68	74.5	84.5	92	99
15	19	23	29	33.5	40	46	53	60.5	68	77	86	94	103	112
16	21	26	32	37.5	44.5	51.5	59.5	68	77	87	95.5	104.5	114.5	125

Application of Table 2

1. L is the ship's length in metres and H is the height in metres shown in Figure 4.1.
2. Above the underlined figure in Table 2 one anchor is required, be low the underlined figure two anchors are required.
3. The weight of anchor is for a ship having a displacement hull. For ships having a planing hull the weight of anchor in Table 2 may be reduced by 25 percent.
4. The weights given are for stockless anchors with an assumed holding power of 3 times their weight. Where recognised high holding power anchors are carried, a reduction of 30 percent of the specified anchor weight may be permitted. Recognised high holding power anchors are those anchors having a holding power at least double that of stockless anchors.
5. Where a ship is required to carry two anchors of a specified weight any one anchor may differ by not more than 10 percent from such specified weight but such that the total weight of both anchors carried is not less than twice the specified weight.
6. The weight of the head of a stockless anchor must be at least 60 percent of the total weight of the anchor.

Table 3(A)

Anchor cables – ships operating in unlimited, offshore and coastal waters

	Anchor weight (kgs)	Short link chain dia (mm)	Manila rope dia (mm)	Terylene rope dia (mm)	Nylon rope dia (mm)	Plus chain pendant length
Rope may be used in lieu of chain	Under 8	8	14	12	10	3m chain
	8-13	8	16	12	10	
	13-18	8	18	14	11	
	18-25	8	20	16	12	
One chain must be carried. Rope may be substituted for chain on second anchor	25-32	10	24	16	14	6m chain
	32-38	10	24	18	14	
	38-44	10	24	22	16	
	44-51	13	30	24	18	
	51-76	14	34	28	20	
	76-89	14	38	32	22	
	89-100	15	40	34	24	
	100-130	15				
	130-178	16				
	178-226	17				
	226-274	19				
	274-322	20				
	322-370	21				
	370-432	21				

Table 3(B)
Anchor cables - ships operating in restricted limits

	Anchor weight (kgs)	Short link chain dia (mm)	Manila rope dia (mm)	Terylene rope dia (mm)	Nylon rope dia (mm)	Chain pendant length
Rope may be used in lieu of chain	Under 8	8	14	12	10	3m chain
	8-13	8	16	12	10	
	13-18	8	18	14	11	
	18-25	8	20	16	12	
	25-38	10	24	18	14	6m chain
	38-44	12	24	22	16	
	44-51	13	28	24	18	
	51-89	14	36	30	22	
	89-100	15	40	34	24	
One chain must be carried. Rope may be substituted for chain on second anchor	100-130	15	48	40	30	9m chain
	130-178	16	52	46	34	
	178-226	17	56	48	36	
	226-274	19	60	52	38	

Application of Table 3

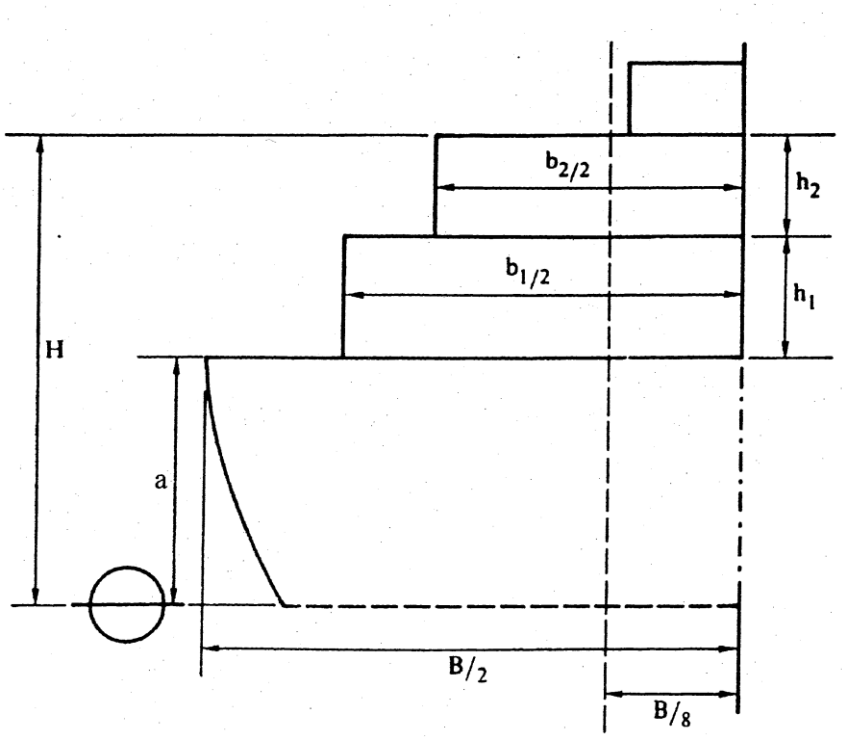
1. The chain pendant must be of the table size for short link chain and shackled between rope and anchor.
2. Where a higher holding power anchor is permitted (see Application of Table 2), the chain or rope used must be that nominated for the weight of the stockless anchor for which the high holding power is specified.
3. For small high holding power anchors, the use of nylon is recommended because of its greater elasticity and breaking strain compared to manila.
4. Where anchor ropes are permitted in lieu of chain, the use of a chain pendant of tabulated size and length is mandatory. This chain facilitates the anchor shank assuming a horizontal position, hence maximising the holding power of the anchor.

Table 4
Length of anchor cable to be carried

Length of ship (metres)	Length of cable per anchor (metres)
4-6	See Notes
7-9	45
10-11	55
12-14	70
15-17	82
18-20	96
21-24	110

Application of Table 4.
For ships of less than 7 metres length the surveyor should have regard to the ship arrangements, and area and nature of operation of the ship in determining the appropriate length of cable to be provided.

Figure 4.1



Appendix 5 Code of Practice for boats of 6 metres or less in length that do not proceed beyond enclosed water limits or more than 2 miles from the shore

5.1 Definitions

In Appendix 5—

authorised person means a person recognised by the Director, pursuant to rule 40D.84, for the purpose of inspecting boats and auditing the operational procedures of boats to establish their compliance with the requirements of this Code:

boat has the same meaning as 'ship' under the Maritime Transport Act 1994:

pre-27 May 2004 boat means any boat that is not a new boat:

new boat means any boat, the construction of which was started on or after the date of entry into force of Part 40D:

5.2 Design and construction

The design and construction of the hull and any deckhouse must provide strength and service life for the safe operation of the boat, at its maximum service speed, to withstand the sea and weather conditions likely to be encountered in its intended service. Overall and local stresses normally incurred in removing the boat from the water and when carried on a road trailer must be allowed for.

A post-27 May 2004 boat must comply with the following requirements—

1. (a) A rigid hulled boat constructed of aluminium alloy or fibre reinforced plastic must be constructed to a standard acceptable to the authorised person.
   (b) For aluminium boats, only aluminium alloys suitable for marine use are to be used in the hull and any welding must be of a specification appropriate to the marine grade alloys used. Any rivets used must be of an aluminium alloy which will not harden so the rivet cracks and not be prone to stress corrosion.
   (c) For fibre reinforced plastic boats, fibre reinforced plastic materials, laminating and curing must be in accordance with acceptable commercial boatbuilding standards.

2. Timber used in a rigid hulled boat must be suitable and appropriately treated for use in a marine environment. Exposed plywood must be of a marine grade that complies with AS/NZS 2272:1996 or equivalent standard. The boat must be constructed to a standard acceptable to the authorised person.

3. On completion, a rigid hulled boat must be tested in the presence of an authorised person in the fully loaded condition to ascertain the angle of heel and the position of the waterline that results when a weight equivalent to 25 x LOA x B (kgs) is distributed along one side of the boat. For the purposes of determining that weight, LOA is the length overall in metres and B the maximum beam in metres. The angle of heel is not to exceed 15 degrees, and in the case of a boat with a watertight weather deck, when so heeled, the freeboard to the deck or uppermost surface of the topsides in way of any cockpit, must not be less than 75 mm at any point.

4. If pot lifting gear is used, the authorised person must be satisfied that the stability of the boat when hauling pots aboard is within safe limits.

5. It must be demonstrated by test or by calculation that an open boat, when fully swamped, has sufficient buoyancy distributed so that the boat will stay afloat and in good trim, without listing if flooded. The test or the calculation must include the full outfit of equipment, the total number of persons that is permitted to carry and a mass equivalent to its engine and full tank

or tanks of fuel. This buoyancy must have a volume not less than that given by the following formula:

Buoyancy (litres) = Hull (kgs) + Equipment (kgs) + Motor (kgs) + 250Mkgs

where M = 0.1 x LOA x B, and LOA and B are the length overall and maximum beam in metres, respectively.

When so loaded the boat must bear a weight of 15 kgs on the gunwhale amidships, on one side of the boat, without capsizing.

6. For series production boats, the authorised person may accept the results of any of the above tests carried out by a manufacturer and witnessed by an authorised person for a prototype boat, provided the equipment, engine and fuel tank installation are similar.

7. Inflatable and rigid/inflatable boats must comply with the requirements of Appendix 6 of Part 40A.

8. A pre-27 May 2004 boat that is in a good state of repair, will be considered acceptable if—
   (a) it is built to an appropriate standard acceptable to the authorised person for the type and material of the boat; or
   (b) it is, or is constructed in general accord with the standard of, a boat that has a record of at least 5 years history of safe operation in an area where the sea and weather conditions are no less severe than those likely to be encountered in the intended area of operation.

5.3 Watertight integrity

1. Where a cockpit is provided, it must be watertight and self draining. Openings from the cockpit to below, that are normally opened at sea, must have a coaming the top of which is not less than 150 mm above the sole.

2. Openings in the hull that are used as inlets or discharges below the waterline must be fitted with a seacock, valve, or other effective means of closure that is readily accessible in an emergency. When the opening is for a log or other sensor it must be fitted in an efficient and watertight manner.

5.4 Weathertight integrity

1. Hatchways that give access to spaces below the weather deck must be of efficient construction and be provided with effective means of weathertight closing.

2. Doorways giving access to spaces below must be provided with a weathertight door. The door must be of efficient construction, permanently attached, open outwards, and have effective means of closing from both sides.

3. Doorways and access hatch openings should have sufficient width to permit the escape of a person in an emergency.

4. Any windscreen or windows must be of heat treated or laminated safety glass, polycarbonate or acrylic sheet, or material having similar safety characteristics. Plate glass must not be used. Windscreens and windows must be adequately installed to the satisfaction of the authorised person.

5. Ventilators must be of efficient construction and their openings arranged to prevent the ready admission of water.

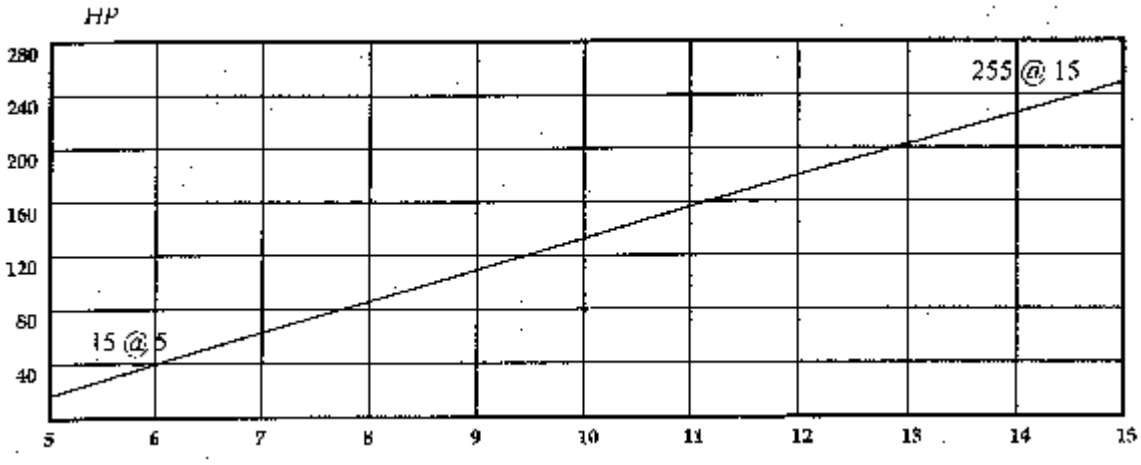
6. Engine exhaust outlets that penetrate the hull below the deck must be provided with means to prevent backflooding into the hull through the exhaust system.

5.5 Machinery

Outboard motors

1. Outboard motors used on the boat must be made by a reputable and experienced manufacturer and the owner must ensure they are appropriately used and installed to the authorised person's satisfaction.

2 The total maximum horsepower of outboards installed in the boat is not to exceed the value derived from the attached graph or any maximum horsepower of outboards recommended by the hull manufacturer.



Length Overall(m) x Maximum Transom Beam(m)

Inboard engines

1. Inboard engines used for propulsion must be of a type designed or manufactured for marine use or marinised for that purpose having regard to its intended use. The propulsion system should be capable of delivering adequate astern power for manoeuvring.

2. The record of maintenance and condition of an pre-27 May 2004 boat's engines must be acceptable to the authorised person.

3. Associated drive units such as stern drives and jet units must be compatible with the engine torque and revolution limits.

4. An inboard petrol engine must be located in an enclosed space fitted with a suitable hydrocarbon gas detection device. A fixed fire gas installation capable of discharging into the engine space must also be fitted. Provision must be made to ventilate the space thoroughly before the engine is started.

5. The engine space must be arranged so as to permit reasonable access to all items of machinery. Thermal or acoustic insulation fitted in a engine space must be of non-combustible material and protected against impregnation by flammable substances.

6. In a boat constructed of wood measures must be taken to prevent absorption of oil into the structure within the engine space.

5.6 Fuel tanks

1. If fuel for outboard engines is stowed in portable tanks, the tanks must be—
   (a) of a type supplied for that purpose in compliance with AS/NZS 2906:2001 Fuel containers– Portable-plastic and metal; and

(b) adequately secured in place in an open or well ventilated space where they can be readily jettisoned and any spillage will drain overboard.

2. Where a separate fixed-in place petrol tank and associated fuel pipes and fittings are installed—
   (a) they must be constructed, tested, and installed to the satisfaction of the authorised person and in accordance with the requirements of subrules 40D.27(4) to (9); and
   (b) if the accumulation of hydrocarbon vapours is possible and a source of ignition may be present,—
      (i) a safe detector of hydrocarbon gas must be fitted under or adjacent to the tank; and
      (ii) there must be adequately ventilated space around the tank; and
   (c) the authorised person must be satisfied upon inspection that there are no leaks.

3. The hoses and fittings on fuel tanks must be constructed, tested, and installed to the satisfaction of an authorised person.

5.7 Electrical arrangements

1. Electrical arrangements must be such as to minimise the risk of fire and shock.

2. Overload and short circuit protection must be provided for all circuits, except engine starting circuits supplied from the batteries.

3. Batteries must be of adequate capacity to carry all expected electrical loads. The batteries must be located—
   (a) above the bilge; and
   (b) as close to the starter motor as practicable; and
   (c) in a well ventilated position.

4. Batteries must be provided with an isolation switch.

5.8 Safety equipment

1. A boat that does not proceed beyond enclosed waters must be provided with at least the following safety equipment, unless the boat is operating in restricted waterways or other areas where the authorised person considers any listed item of equipment is unnecessary—
   (a) if the boat is decked, a bilge pump, where the authorised person considers this is necessary to remove water from enclosed spaces below the deck that are not sealed buoyancy spaces or tanks; and
   (b) a bailer; and
   (c) personal buoyancy that complies with rule 42A.19 or 42A.20 for each person carried; and
   (d) two means of communicating with persons on shore which may include, but are not limited to, a distress sheet, mobile phone, parachute flares, or buoyant smoke flares, as approved by an authorised person, unless there is carried—
      (i) a VHF radio that complies with the requirements of rule 43.12; or
      (ii) a 406 MHz EPIRB that complies with the requirements of rule 43.18A or 43.19; and
   (e) for boats with accommodation, or an inboard engine that is not a petrol engine, a portable fire extinguisher acceptable to the authorised person; and
   (f) a paddle or oars with rowlocks, unless an auxiliary means of propulsion is available; and
   (g) a first aid kit; and
   (h) an appropriate anchor, and warp.

2. A boat that proceeds beyond enclosed waters must be provided with at least the safety equipment required by (1)(a), (b), (f), (g) and (h) plus the following safety equipment—
   (a) for each person carried either—

(i) a lifejacket that complies with rule 42A.19; or

(ii) a buoyancy vest that complies with rule 42A.20, if it is worn throughout the voyage; or

(iii) a full body wetsuit, provided it is worn throughout the voyage; and

(b) if more than one person is carried either—

(i) one rescue quoit with line; or

(ii) throw line; or

(iii) a device equivalent to (i) or (ii); and

(c) portable fire extinguishers as follows—

(i) two if boat fitted with accommodation and inboard engine; or

(ii) one if boat fitted with accommodation and outboard engines—

provided at least one portable fire extinguisher is suitable for extinguishing oil fires; and

(d) one mini red star flare holder and flare packet that complies with rule 42A.15 and 2 buoyant smoke floats that comply with rule 42A.15; and

(e) a 406 MHz EPIRB that complies with the requirements of rule 43.18A or 43.19.

5.9 Safe operational plan

1. The owner of any boat to which rule 40D.83(1) applies must provide a safe operational plan that is related to the specific operations of that owner's boat.

2. The safe operational plan must include at least the following—

(a) record of initial inspection of the boat and report of the authorised person of initial inspection and any subsequent inspection; and

(b) planned maintenance schedule for the boat and motor with record of work undertaken; and

(c) record of safety equipment required, its maintenance, testing and inspection, as appropriate; and

(d) record of certification of each master required by Part 31; and

(e) operational management procedures, including pre-voyage and post-voyage checks, procedures for the safe operation of any fishing equipment, and contact arrangements ashore; and

(f) accident or emergency procedures, including reporting.[30]

5.9A Magnetic compasses – fishing ships of 6 metres or less in length that do not proceed beyond restricted limits

The master of a fishing ship of 6 metres or less in length that does not proceed beyond restricted limits must ensure that the ship is provided with a magnetic compass in accordance with rule 45.23.

5.10 Inspection and audit

1. The owner of any boat to which rule 40D.83(1) applies must arrange for an authorised person to inspect the boat and carry out an initial audit of the owner's operation.

2. An authorised person performing an inspection of a boat required by Appendix 5 must inspect the boat, its machinery, fittings and equipment for compliance with the requirements of Appendix 5.

3. An authorised person performing an initial audit of a boat owner's operation required by Appendix 5 must audit the operation to establish that a safe operational plan, meeting the requirements of Appendix 5, is in place, and that the operation complies with that plan.

[30] These procedures should demonstrate how the reporting requirements of sections 30 and 31 of the Maritime Transport Act are to be complied with.

4. The owner of any boat to which rule 40D.83(1) applies must ensure that periodic audits of the owner's operation are carried out by the authorised person to determine maintenance of the safe operational plan and continuing compliance with that plan and the requirements of 40D.83(1). At least one such audit must occur in every 2 year period.

5. On conclusion of any audit, the authorised person must immediately advise the owner, in writing, of any non-compliance likely to compromise the safety of the operation. The owner must take immediate steps to rectify the non-compliance to the satisfaction of the authorised person.

5.11 Certificate of compliance

1. On completion of a satisfactory initial boat inspection and a satisfactory initial audit of the owner's operation, and where the safe operational plan complies with the requirements of clause 5.9 of this Appendix, the authorised person must approve the safe operational plan and notify the Director accordingly.

2. On receipt of notification of approval of the safe operational plan by the authorised person and upon application in accordance with section 35 of the Maritime Transport Act by the owner, the Director may issue to the owner of the boat to which rule 40D.83(1) applies, a certificate of compliance in accordance with section 41 of the Maritime Transport Act 1994.