Maritime Rules

Part 40E: Design, Construction and Equipment —Sailing Ships

Effective 1st April 2010

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Disclaimer

This document is the current consolidated version of Maritime Rules Part 40E 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 40E

This part first came into force on 1 April 2010 and has no amendments.

Contents

Part Objective

The objective of Part 40E is to prescribe requirements for the design, construction and equipment of sailing ships.

Authority for Part 40E is found in sections 34 and 36 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 the Regulations (Disallowance) Act 1989.

Extent of Consultation

On 4 August 2007, Maritime New Zealand published in each of the daily newspapers in the four main centres of New Zealand a notice inviting comments on the proposed Part 40E. A notice was also published in the *New Zealand Gazette* on 2 August 2007. The Authority then made its Invitation to Comment and draft Part 40E available to the public with copies being sent automatically to interested parties. Comments on the draft Part were requested by 22 October 2007.

Thirty-three submissions were received on the proposed rule. All submissions and any oral comments were considered, and where appropriate, the proposed rules were amended to take account of the comments made.

Sub-part 1 -- Preliminary

40E.1 Entry into force

(1) This Part, except rule 40E.72, comes into force 1st April 2010.

(2) Rule 40E.72 shall not take effect until the day 6 months after the day this Part entered into force.

40E.2 Definitions

In this Part, unless the context otherwise requires –

Act means the Maritime Transport Act 1994:

bareboat charterer means any person who hires or operates, a bareboat charter yacht:

bareboat charter yacht –
(a) means a commercial sailing ship that is let, without a skipper, for hire or reward or any other consideration whatsoever; and
(b) includes a vessel that is provided by or on behalf of any institution, hotel, motel, place of entertainment or other establishment or business (and used solely for pleasure):

cargo means any goods carried for reward other than –
(a) the personal luggage of passengers; and
(b) perishable goods not exceeding 100 kilograms in total weight; and
(c) fish carried on fishing ships:

certificate of fitness means a certificate of fitness issued under section 2 of Part 21:

classification society means –
(a) American Bureau of Shipping; or
(b) Bureau Veritas; or
(c) Det Norske Veritas; or
(d) Germanischer Lloyd; or
(e) Lloyds Register of Shipping; or
(f) Nippon Kaiji Kyokai:

commercial sailing ship means a sailing ship that is not –
(a) a pleasure craft; or

(b) solely powered by sail:

design waterline means the deepest load line at which the ship is designed to operate;

enclosed water limits means–
(a) the enclosed water limits set out in Appendix 1 of Part 20; and
(b) all New Zealand inland waters:

engine space means a space that contains machinery and is not fitted with a full forward and aft transverse bulkhead:

existing ship means a ship that was–
(a) in a safe ship management system; and
(b) in possession of a current safe ship management certificate;
on the day immediately before the day this Part came into force:

fire-resisting divisions means those divisions that–
(a) are formed by bulkheads and decks and constructed of non-combustible or fire-restricting materials; and
(b) satisfy the requirements and criteria of fire-resisting divisions prescribed in the *Test Procedures for Fire-Resisting Divisions of High Speed Craft* adopted by the Maritime Safety Committee of the IMO in resolution MSC.45(65):

fire-restricting material means material having properties satisfying the criteria of 'fire-restricting materials' prescribed in the *Standard for Qualifying Marine Materials for High Speed Craft as Fire-Restricting Materials* adopted by the Maritime Safety Committee of the IMO in resolution MSC.40(64):

FTP Code means the *International Code for Application of Fire Test Procedures* adopted by the Maritime Safety Committee of the IMO in resolution MSC.61(67):

IEC means the International Electrotechnical Commission:

IMO means the International Maritime Organisation:

inshore limits means–
(a) the inshore limits set out in Appendix 1 of Part 20; and
(b) in relation to a ship, any defined section of the coastal limits not beyond the limit of the territorial sea of New Zealand that has been assigned to that ship by a surveyor in accordance with rule 20.5(1):

inshore limits ship means a ship that has been assigned inshore limits pursuant to rule 20.5:

international voyage means—

(a) a voyage from anywhere in New Zealand to a foreign port; or

(b) a voyage from a foreign port to anywhere in New Zealand:

length or **L** means the length of a ship in metres as determined by the following equation –

$$L = \frac{L_{OA} + L_{WL}}{2}$$

where L_{OA} is the length overall and L_{WL} is the length on the design waterline:

length overall or **L_{OA}** means the length 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; and

(a) includes structures such as deckhouses that project beyond those terminal points; but

(b) does not include fittings such as beltings, bowsprits, platforms, pulpits and booms that project beyond those terminal points:

low flame spread means capable of adequately restricting the spread of flame as determined in accordance with the test procedures prescribed in the –

(a) *FTP Code*; or

(b) *Recommendation on Improved Fire Test Procedures for Surface Flammability of*

Bulkhead, Ceiling and Deck Finish Materials adopted by the IMO Assembly in resolution A.653(16) as evidenced by the approval of the surface –

(i) as a low flame spread material; and

(ii) by a classification society or the Administration of another state; or

(c) in the Joint Australian New Zealand standard AS/NZS 1530.3:1999 Methods for fire tests on building materials, components and structures Part 3; Simultaneous determination of ignitability, flame propagation, heat release and smoke release, if the material meets the following criteria –

(i) the spread of flame index does not exceed 3; and

(ii) the sum of the ignitability index and the heat evolved index does not to exceed 7; and

(iii) the smoke developed index does not exceed 4,

except that if the spread of flame index does not exceed 1 and the sum of the ignitability index and the heat evolved index does not exceed 3, the Director may allow a smoke developed index of more than 4 but less than 5:

major alteration or modification means an alteration or modification of a ship, including the replacement, removal or addition of any part of a 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:

machinery space means a space that only contains machinery and is fitted with a full forward and aft transverse bulkhead:

National Standard for Commercial Vessels means the National Standard for Commercial Vessels published by the Australian Transport Council:

new ship means a ship –
(a) that is not an existing ship; or
(b) that is converted into a commercial sailing ship,
on or after the day this Part came into force:

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 to be registered under that Act:

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, as determined by the test procedure laid down in the *Recommendation on Test Method for Qualifying Marine Construction Materials as Non-Combustible* adopted by the IMO Assembly in resolution A.799(19):

offshore limits means –
(a) the area extending 200 miles from the coast of the North Island, the South Island, Stewart Island or any of the islands in the Chatham Islands group; and
(b) the area enclosed by the 12 mile New Zealand territorial limit around the Auckland Island group; and
(c) the area within the following two lines –
  (i) a line from the position 27˚ 49'S, 177˚ 34'W bearing 204˚ to the outer limit of the area described in paragraph (a); and
  (ii) a line from the position 27˚ 49'S, 177˚ 34'W bearing 180˚ for 100 miles then bearing 201˚ to the outer limit of the area described in paragraph (a):

open sailing ship –
(a) means a sailing ship that is not fitted with a deck or other weathertight enclosure over the full length of the ship;

(b) does not include a ship fitted with a watertight cockpit or other watertight recess in the deck:

Part means a group of rules made under the Act:

restricted coastal limits, in relation to a ship, means any defined section of the coastal limits that has been assigned to that ship by a surveyor under rule 20.5(1):

restricted limits means –
(a) enclosed water limits; and
(b) inshore limits:

restricted limits ship means a ship that has been assigned either enclosed water limits or inshore limits under rule 20.5:

safe ship management system means a safe ship management system approved by the Director under section 2 of Part 21 of the maritime rules:

sailboard means any type of board that is –
(a) propelled by a detachable sail apparatus; and
(b) operated by a person standing on the board:

sailing ship means a commercial ship that –
(a) is designed to be navigated under wind power and for which any motor provided is an auxiliary means of propulsion only; or
(b) is a ship that possesses a non-dimensional ratio of [sail area/(volume of displacement)$^{2/3}$] of more than 9:

ship's design includes the ship's –
(a) structural integrity, watertightness and weathertightness; and
(b) means of egress and access; and
(c) intact stability and reserve of buoyancy; and
(d) compliance with any damage stability and buoyancy requirements; and
(e) provision of appropriate machinery; and
(f) other installed systems and equipment, necessary for the safe working of the ship:

SSM certificate means a New Zealand Safe Ship Management certificate issued under section 2 of Part 21:

standard fire test means a test in which specimens of the relevant bulkheads or decks, are exposed –
(a) in a test furnace; and
(b) to temperatures corresponding approximately to the standard time temperature curve,

where the test procedure and standard time temperature curve comply with the *FTP Code*:

structural aspects of the ship's design means the scantlings and constructional detail of –

(a) the ship's hull, decks, bulkheads, deck houses, superstructures and closing arrangements; and

(b) any seatings for machinery or other support for loads installed or carried by the ship:

surveyor means any person who –

(a) has been recognised by the Director under rule 46.29 as a surveyor entitled to undertake the particular functions referred to in this Part; and

(b) holds a maritime document as a surveyor issued in accordance with section 41 of the Act:

Uniform Shipping Laws Code means the Uniform Shipping Laws Code published by the Australian Transport Advisory Council:

unit standard means a unit standard approved by the New Zealand Qualifications Authority:

VHF coverage area means the coverage area of a 24-hour VHF coast station being an area defined in Appendix 3 of Part 43:

VHF coverage means coverage by a 24 hour VHF coast station on channel 16 (radio telephony) of a VHF coverage area:

watertight means capable of preventing the passage of water in any direction under a head of water which the structure is designed to withstand:

weather deck means a deck exposed to the weather and sea:

weathertight means impenetrable by water in any sea condition.

40E.3 Application

(1) Subject to rule 40E.72, this Part applies to every sailing ship that -

(a) is a New Zealand ship other than –

(i) sailing ships of 45 metres or more in length that proceed beyond restricted limits; and

(ii) sailing ships that carry more than 12 passengers and undertake an international voyage; and

(iii) fishing ships to which Part 40D applies; and

(iv) open sailing ships.

Sub-part 2 — Design, Construction and Equipment

Owner's obligations

40E.4 Operator Obligations

No person may operate, or permit to be operated, a ship to which this Part applies unless the ship complies with the provisions of this Part.

General

40E.5 Design approval

(1) The owner must ensure that before a ship is put into service for the first time the ship's design is approved by a surveyor as –
   (a) fit for its intended service and operating limits; and
   (b) complying with the applicable maritime and marine protection rules.

(2) The owner must ensure that before a ship of more than 10 metres in length is put into service following any –
   (a) major alteration or modification; or
   (b) major repair; or
   (c) permanent change in its operating limits;
   the ship's design is approved by a surveyor as –
      (i) fit for its intended service and operating limits; and
      (ii) complying with the applicable maritime and marine protection rules.

40E.6 Construction standards

(1) Subject to rule 40E.7, every ship must be constructed to a standard which ensures the ship is strong enough to operate safely and withstand the sea and weather conditions likely to be encountered in the intended area of operation while the ship is operated –
   (a) in accordance with the requirements listed in rule 21.13(2); and
   (b) within its service draught; and
   (c) within its design parameters.

(2) Every ship must have machinery, tanks and other heavy items installed, to the satisfaction of a surveyor, so as to limit movement in the event of capsize.

40E.7 Certification of construction standards

(1) A new ship complies with rule 40E.6(1) if –

(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 –

(i) American Bureau of Shipping; or

(ii) Bureau Veritas; or

(iii) Det Norske Veritas; or

(iv) Germanischer Lloyd; or

(v) Lloyd's Register of Shipping; or

(vi) Nippon Kaiji Kyokai; or

(b) the ship was constructed under survey and –

(i) has been certified by a marine safety authority of one of the States or the Territories of Australia as complying with the design and construction requirements, as applicable at the vessel's date of build, of-

(aa) the *Uniform Shipping Laws Code*; or

(bb) the *National Standard for Commercial Vessels*; and

(ii) the Director considers that the operating limits stated in the certificate are equivalent to the ship's intended operating limits in New Zealand; or

(c) the ship was constructed under survey by a surveyor; or

(d) the ship has undergone –

(i) design approval in accordance with rule 40E.5; and

(ii) a structural survey by a surveyor; and

(iii) the surveyor is satisfied that the ship is fit for its intended purpose.

(2) An existing ship complies with rule 40E.6(1) if it is in good repair and –

(a) the ship was built to one of the standards referred to in subrule (1)(a) or (b) for new ships and –

(i) the ship has a current certificate by a classification society or authority referred to in subrule (1)(a) or (b) as continuing to comply with the standard to which it was constructed; and

(ii) in the case of a ship built to a standard in subrule (1)(b), the Director considers that the operating limits on the certificate are equivalent to the ship's intended operating limits in New Zealand; or

(b) the ship was built to one of the standards referred to in subrule (1)(a) or (b) for new ships and –

(i) a surveyor is satisfied following a survey of the ship that the ship's structure continues to meet the standard to which it was built; and

(ii) in the case of a ship built to a standard in subrule (1)(b), the Director considers that the operating limits on the certificate are equivalent to the ship's intended operating limits in New Zealand; or

(c) the ship has undergone –

(i) design approval in accordance with rule 40E.5; and

(ii) a survey by a surveyor and the surveyor is satisfied that the ship is fit for its intended purpose.

Subdivision and Stability

40E.8 Subdivision and damage stability – Monohull Ships

(1) This rule applies to monohull ships that carry, or are intended to carry, 15 or more persons beyond coastal limits.

(2) A monohull ship must have transverse watertight bulkheads arranged such that the ship will float, at a waterline of not less than 75mm below the weather deck at any point, if hull damage, in the worst loading condition results in the free flooding of any one compartment, where –

(a) hull damage is assumed to occur anywhere in the length of the ship except on a transverse watertight bulkhead; and

(b) the permeabilities given in Table 1.0 are assumed –

Table 1.0

Space	**Percentage Permeability**
Stores	60
Stores (small quantity)	95
Accommodation	95
Machinery	85
Liquids	95 or 0 whichever results in the most onerous requirements.

(c) the residual stability is such that –

(i) any angle of equilibrium does not exceed 7 degrees from the upright; and

(ii) the resulting righting lever curve has a range to the downflooding angle of at least 15 degrees beyond any angle of equilibrium; and

(iii) the maximum righting lever within that range is not less than 100 mm; and

(iv) the area under the righting lever curve is not less than 0.015 metre radians.

(3) If an existing monohull ship of 24 metres or more in length cannot meet the requirements of subrule (2) –

(a) the owner may apply to the Director for approval of the ship's subdivision and damage stability, and the application must include full details of –

(i) the assessment of damage stability; and

(ii) the consequences of any deficiencies; and

(iii) any existing or proposed compensatory measures; and

(b) the Director may, on receipt of an application made in accordance with paragraph (a) –

(i) accept the subdivision and damage stability of the existing ship; and

(ii) impose operational limitations as compensation for any deficiencies that, in the Director's opinion, cannot be reasonably overcome.

40E.9 Subdivision and damage stability – Multihull ships

(1) This rule applies to multihull ships that carry, or are intended to carry, 15 or more persons beyond coastal limits.

(2) A multihull ship must be designed so that, after capsizing, the ship will float for more than 12 hours when –

(a) any two hatches are open; or

(b) any hull is holed between watertight bulkheads.

(3) Compliance with subrule (2) –

(a) can be met by subdivision or built in flotation but may not include the effect of air trapped in any compartment that is open to the sea; and

(b) must be demonstrated by calculation in the maximum displacement condition and must show a minimum reserve of buoyancy in the condition of 25 per cent of the displacement.

40E.10 Intact stability

A ship's intact stability must be determined and documented in accordance with Appendix 1.

40E.11 Freeboard

(1) Every ship that is –

(a) 24 metres or more in length; or

(b) less than 24 metres in length and carries cargo,

must comply with the requirements of Part 47 in accordance with subrule (2).

(2) The assigned freeboards must be compatible with –

(a) the requirements of Part 47 for the assignment of greater than minimum freeboard mark, which must correspond to the deepest loading condition included in the intact stability information booklet provided in accordance with clause 6 of Appendix 1; and

(b) the damage stability requirements of rule 40E.8 or rule 40E.9; and

(c) the strength of the hull structure and fittings.

Accommodation

40E.12 Number of passengers

(1) A surveyor must, in accordance with Appendix 2, determine the maximum number of passengers that a ship may carry for each of the ship's operating limits and record that number on the certificate required by rule 21.13(2).

(2) Any person who operates a sailing ship must not allow the number of passengers on board the ship to exceed the maximum number of passengers recorded on the ship's SSM Certificate for the operating limits in which the ship is operating or intended to operate.

40E.13 Accommodation

(1) A ship that proceeds beyond enclosed water limits must have spaces that provide shelter from the weather for the total number of passengers that the ship is certified to carry and such sheltered spaces –

(a) must, in the case of a ship that proceeds beyond inshore limits, be totally enclosed; and

(b) may, in the case of a ship that does not proceed beyond inshore limits, be open at the after end of the ship.

(2) Notwithstanding subrule (1), if a ship proceeds to sea for more than 24 hours, the owner must ensure that –

(a) fully enclosed passenger accommodation spaces are provided; and

(b) a bed or bunk is –

(i) provided for every person on board; and

(ii) equipped with a means of preventing the occupant from falling out; and

(c) the ship is fitted with a galley that is provided with –

(i) a cooking stove fitted with fiddle bars; and

(ii) a sink; and

(iii) adequate working surface for the preparation of food; and

(iv) secure and hygienic storage for food; and

(v) non-slip flooring; and

(vi) a crash bar or other means to protect any gimballed cooking appliance from tilting when the appliance is free to swing; and

(vii) means to isolate the gimballing mechanism of any gimballed cooking appliance; and

(d) an electric lighting system is installed, in all accommodation and service spaces, that is sufficient to allow a person with normal vision to read in that space; and

(e) (i) ventilation is provided, to the satisfaction of the surveyor, in all enclosed spaces to which people have access; and

(ii) in the accommodation spaces of ships of 24 metres or more in length that proceed beyond the coastal limit, a mechanical ventilation system capable of providing 6 changes of air per hour, must be provided; and

(f) stowage facilities are provided for the clothing and personal effects of every passenger on board; and

(g) a ship of 12 metres or more in length must be provided with heat source facilities for drying wet clothing; and

(h) a ship of 24 metres or more in length that proceeds below the latitude of 50° south must be provided with heating in the accommodation spaces to the satisfaction of the surveyor; and

(i) an adequate water supply must be provided, to the satisfaction of the surveyor, and piped to convenient positions throughout the accommodation spaces.

40E.14 Seating

If a ship undertakes voyages of 30 minutes or more –

(a) seating must be provided for every passenger that the ship is certified to carry; and

(b) a minimum of 450mm of seating must be allowed for every passenger; and

(c) a bed, bunk or cot may count as one seat only.

40E.15 Egress

(1) Ready egress must be provided, from decks or compartments that accommodate 12 or less persons, by stairways or by ladderways that must –

(a) have a tread depth of not less than 100 mm; and

(b) have steps with non-slip surfaces; and

(c) have an adequate angle to the vertical; and

(d) be aligned, as far as practicable, fore and aft and not athwartships; and

(e) be well illuminated by day and night.

(2) Ready egress must be provided, from decks or compartments that accommodate more than 12 persons, by stairways that –

(a) have handrails fitted –

(i) at an adequate height above the nosing of the treads; and

(ii) so that there is no obstruction on or above the handrails that would tend to break a handhold,

except that, in the case of a stairway serving a step or break of no more than 1 metre in height, handrails may be omitted if suitable handholds are provided; and

(b) have a centre line dividing rail, if the width is 1500 mm or more; and

(c) have a clear vertical height above the treads of not less than 1.9 metres; and

(d) have an angle to the vertical of not less than –

(i) 45˚, if the ship carries more than 200 passengers; and
(ii) 37˚, if the ship carries 200 passengers or less; and

(e) if a ship proceeds beyond enclosed waters, are aligned forward and aft and not athwartships, if practicable; and

(f) have stair treads with non-slip surfaces that are not –
(i) less than 150 mm wide; and
(ii) less than 200 mm or more than 225 mm apart vertically; and

(g) are well illuminated at all times.

(3) The minimum width of any single opening giving normal egress from any accommodation to open deck space must be –
(a) in the case of a ship of less than 12 metres length –
(i) 450mm, in compartments that carry 12 or less persons; or
(ii) 600mm, in compartments that carry more than 12 persons but less than 30 persons; or
(iii) 750mm, in any compartments that accommodates more than 30 persons;
(b) in the case of a ship of 12 to 24 metres in length –
(i) 600 mm, in compartments that carry less than 30 persons; or
(ii) 750mm, in compartments that accommodates more than 30 persons;
(c) in the case of a ship of more than 24 metres in length, 750mm.

(4) In every ship of 24 metres or more in length –
(a) stairways, ladders, and handholds must be arranged so as to provide ready means of escape to the liferaft embarkation deck from all underdeck compartments; and
(b) every accommodation space must be provided with two means of escape in accordance with subrule (6).

(5) Subject to subrule (6), in the case of ships of less than 24 metres in length, every accommodation space must be provided with –
(a) two means of escape; or
(b) if the space is not used for sleeping or rest and, in the opinion of a surveyor, no one occupying the space would be at risk from fire on board—
(i) one means of escape; and
(ii) as many efficient smoke detectors, as is necessary, to give early warning of a fire emergency that could cut off that means of escape.

(6) The means of emergency escape referred to in subrule (4)(b) and subrule (5) must be any of the following–
(a) a ladderway complying with subrule (1); or
(b) a stairway complying with subrule (2); or
(c) a hatch of a size acceptable to the surveyor and that complies with 40E.20(4); or
(d) a skylight of a size acceptable to the surveyor and that complies with 40E.20(11).

(7) Any corridor, or a part of a corridor, from which there is only one route of escape, must not be more than 7 metres in length.

(8) Every new multihull ship that proceeds beyond inshore limits must have a means of emergency escape from the hull while the ship is in a capsized position, to the satisfaction of the surveyor.[1]

40E.16 Headroom

(1) Except as provided in subrule (2), passenger compartments must have minimum clear headroom of 1.9 metres at every point where a person may normally stand or where full and free movement is necessary.

(2) Subject to subrule (3), the headroom may be reduced –

(a) at the sides of the compartment to allow for camber, ducting or piping; or

(b) in way of fixed seating, if a surveyor is satisfied that passengers are able to comfortably access the adjacent passageway; or

(c) in ships that carry 12 passengers or less, if a surveyor is satisfied that the proposed headroom allows adequate access to every passenger compartment provided that the headroom is not less than 1.37 metres in way of clear area of cabin sole.

(3) In passenger compartments, passageways that lead to exits must have minimum clear headroom of 1.9 metres.

40E.17 Toilet facilities

(1) Every ship except ships undertaking voyages of less than 30 minutes within inshore limits must be provided with at least one marine type flush toilet and one wash basin–

(a) for every 50 passengers or part thereof, if the ship proceeds to sea for 24 hours or less; or

(b) for every 12 persons or part thereof, if the ship is proceeds to sea for more than 24 hours.

(2) Every compartment that houses a toilet must be –

(a) private; and

(b) large enough to allow comfortable egress; and

(c) clean, well-lit, well-ventilated and well-drained; and

(d) effectively protected from the weather and sea.

(3) All toilet facilities must be separated from the rest of the accommodation.

[1] Advice on the means of emergency escape from a multihull ship is provided in the Advisory Circular.

(4) If there is more than one toilet in any compartment, each toilet must be screened to ensure privacy.

(5) Every toilet must –
  (a) be provided with an adequate flush of water that is –
    (i) available at all times; and
    (ii) independently controlled; and
  (b) have waste pipes –
    (i) of adequate dimensions; and
    (ii) that do not pass through fresh water or drinking water tanks.

(6) If a sanitary system is fitted that includes a holding tank, the system must be fitted such that if the water seal of any toilet is broken, fumes from the tank will not find their way back to the toilet.

(7) In restricted limit ships that carry not more than 12 passengers, chemical or other self-contained toilets may be fitted instead of a flush toilet.

(8) Cold water must be provided in all wash spaces.

(9) Hot fresh water, or a means of providing hot water, must be provided in all wash spaces for berthed passengers.

(10) A void space must be provided between black water holding tanks and fresh water tanks.

Watertight and Weathertight Integrity

40E.18 General

Any ship that proceeds beyond enclosed waters or that carries more than 6 persons must have a weathertight weather deck that –
(a) extends from stem to stern; and
(b) may be stepped, recessed or raised if the stepped, recessed or raised portion is of watertight construction.

40E.19 Recesses

(1) The volume of every watertight recess, in the weather deck of a ship of less than 24 metres in length, must be approved by a surveyor.[2]

[2] See Advisory Circular for guidance on volume of watertight recesses.

(2) The drainage of any recess in the weather deck of a ship of more than 24 metres in length may be approved if it is demonstrated, to the surveyors satisfaction that, with the ship upright and at its deepest draught, the recess drains within 3 minutes from a swamped condition.

(3) If a recess is fitted with a locker or lockers that gives direct access to the interior of the hull –
  (a) each locker must be fitted with a weathertight cover; and
  (b) the cover to each locker must be –
    (i) permanently attached to the ship's structure; and
    (ii) fitted with effective locking devices to secure the cover in the closed position.

40E.20 Openings on the deck

(1) If there is any conflict between this rule and the conditions of assignment required under Part 47 for ships less than 24 metres –
  (a) Part 47 shall prevail in respect of any ship that carries cargo; and
  (b) this rule shall prevail in respect of any other ship.

(2) Every opening that –
  (a) leads to a space below the weather deck; and
  (b) is not capable of being closed weathertight,
must be enclosed in a weathertight superstructure or deckhouse.

(3) Every exposed hatchway that gives access to a space below the weather deck must–
  (a) be of weathertight construction; and
  (b) have efficient means of weathertight closure approved by a surveyor; and
  (c) if the hatchway is forward of the maximum beam, have a weathertight cover that –
    (i) opens outwards; and
    (ii) is permanently attached to the ship.

(4) Every escape hatch must –
  (a) be clearly marked; and
  (b) be provided with covers that are capable of being opened from both sides; and
  (c) have sufficient clearance to allow a crewmember to pass through fully clothed.

(5) Every access hatch that might be kept open for lengthy periods at sea must be –
  (a) kept as small as practicable; and
  (b) not be more than 1 m^2; and
  (c) on ships of 24 metres or more in length –
    (i) located as close as practicable to the ship's centre line; and
    (ii) fitted with coamings at least 150 mm high.

(6) If a companionway hatch opening gives access to a space below the weather deck–

(a) the opening must be fitted with a coaming height, as required by subrule (6) for an exposed door, above -

(i) the deck; or

(ii) the sole of a cockpit or recess,

as the case may be; and

(b) the maximum breadth of the opening must not exceed 1 metre; and

(c) the lower edge of the opening, from a cockpit that is open aft to the sea, must not be below deck level; and

(d) if washboards are used to close the vertical opening –

(i) the washboards must be so arranged and fitted that they will not be readily dislodged; and

(ii) the washboards, when in place, must be capable of being secured to the ship by a lanyard, or other means acceptable to a surveyor, to prevent their being washed away; and

(iii) secure stowage must be available, in a readily accessible location, for the washboards when they are not in use.

(7) Every exposed door, in a superstructure or deckhouse, that give access to any space below the weather deck must be weathertight and the door opening must have a coaming height of –

(a) in the case of a ship of 24 metres or more length, at least –

(i) 600 mm, if the door is in the forward quarter length and used when the ship is at sea; or

(ii) 380 mm, if the door is in an exposed aft-facing location aft of the forward quarter length and leads directly to the machinery space from the weather deck; or

(iii) 300 mm, if the door is in an exposed forward or side facing location and aft of the forward quarter length; or

(iv) 150 mm, if the door is in an exposed aft-facing location aft of the forward quarter length;

(b) in the case of a ship of less than 24 metres in length, at least –

(i) 300 mm, if the door is in a forward or side-facing location; or

(ii) 150 mm, if the door is in an aft-facing location.

(8) Skylights must be of weathertight construction and located on, or as near as practicable to, the centreline of the ship.

(9) In new ships the skylight glazing and its method of securing should comply with British standard BS MA 25:1973 *Specification for Ships Windows* or an equivalent standard.

(10) A skylight that is capable of being opened must have efficient means of weathertight closure approved by a surveyor.

(11) A skylight that serves as a means of escape must be capable of being opened from both sides.

(12) Ventilators must be constructed to a standard that a surveyor considers to be efficient.

(13) In the case of a ship of 24 metres or more in length, ventilators serving enclosed superstructures and spaces below the weather deck must –
  (a) be provided with permanently attached means of weathertight closure; and
  (b) have coamings heights of not less than –
    (i) 900 mm, in the forward quarter length of the ship; and
    (ii) 750 mm, elsewhere.

(14) In the case of a ship of less than 24 metres in length, ventilators must –
  (a) be kept as far inboard as possible; and
  (b) have a sufficient height above the weather deck, or other means acceptable to the surveyor, to prevent the ready admission of water when the ship is heeled.

(15) The location and height of any ventilator that must be kept open must be approved by a surveyor taking into account the ship's downflooding angle.[3]

(16) In the case of a ship of more than 24 metres or more in length, air pipes that serve fuel and other tanks must –
  (a) have permanently attached means of closure; and
  (b) if situated on the weather deck, be kept as far inboard as practicable; and
  (c) have a minimum coaming height of –
    (i) 750 mm, if it is located on the weather deck; and
    (ii) 450 mm, elsewhere.

40E.21 Openings in the hull

(1) If there is any conflict between this rule and the conditions of assignment required under Part 47 for ships less than 24 metres –
  (a) Part 47 shall prevail in respect of any ship that carries cargo; and
  (b) this rule shall prevail in respect of any other ship.

(2) The number of openings below the weather deck in the ship's side must be kept to a minimum.

(3) Inlets and discharges, led through the hull of a ship to which Part 47 does not apply, must meet the requirements of rule 40E.32.

[3] Examples of ventilators which must be kept open are those for the supply of air to the machinery space or the discharge of noxious or flammable gases.

(4) If engine exhausts penetrate the hull below the weather deck, a means to prevent backflooding into the hull through the exhaust system must be –
  (a) provided; and
  (b) approved by a surveyor. [4]

(5) Portlights fitted below the weather deck of any new ship must be either non-opening or of a type that has at least two screw up dogs, have a glazed diameter of not more than 250mm, or equivalent area and, along with their glasses and deadlights, be constructed to the satisfaction of the surveyor and comply with the requirements of standard ISO 12216 *Small craft – Windows, portlights, hatches, deadlights, and doors – Strength and tightness requirements.*

(6) Portlights of a type that have at least two screw up dogs must be secured closed when the ship is in navigation.

(7) If a fixed portlight is fitted below the weather deck of a new ship, the glazing material and the method of fixing the portlight in its frame must be equivalent to that of the structure to which the portlight is fitted.

(8) If a fixed portlight is fitted below the weather deck of an existing ship –
  (a) the glazing material and the method of fixing the portlight in its frame must be equivalent to that of the structure to which the portlight is fitted; and
  (b) the portlight must be provided with a permanently attached deadlight capable of being closed weathertight in the event of breakage; or
  (c) a blank must be readily available that can be effectively secured in place in the event of a breakage, except that one blank need only be carried for every two portlights.

(9) Every window fitted in a weathertight superstructure or deckhouse –
  (a) must be framed and secured to the structure, to the satisfaction of the surveyor; and
  (b) if made of glass –
    (i) must be made of toughened safety glass; and
    (ii) the glass thickness, and the thickness of other glazing material, must be approved by a surveyor.

(10) In new ships the window glazing and its method of securing should comply with British standard BS MA 25:1973 *Specification for Ships Windows* or an equivalent standard[5].

[4] The means to prevent backflooding may be provided by systems design and/or arrangement, built in valve or a portable fitting which can be readily applied in an emergency.

[5] See also rule 40E.58(2) for navigation windows

Bulwarks and Guard Rails

40E.22 Bulwarks, guardrails and toerails

(1) A ship less than 24 metres in length that does not carry cargo must be provided with bulwarks, guardrails and toerails as required by this rule.

(2) The perimeter of an exposed deck must be fitted with bulwarks, guard rails or guard wires for the safety of persons on deck except if a ship is fitted with a headstay, then a pulpit, of no less than the height of the adjacent guardrails, must be provided forward and around the headstay.

(3) Except as provided in subrule (4), a ship of less than 24 metres in length must be fitted with –

(a) bulwarks, or 3 courses of evenly spaced rails or taut wire, evenly spaced around the working deck at a height of 1000 mm above the deck supported at intervals of not more than 2.2 metres; or

(b) if a surveyor is satisfied that compliance with paragraph (a) would impede the proper working of the ship, bulwarks, or 2 courses of rails or taut wires, evenly spaced around the working deck at a height of 600mm above the deck supported at intervals of not more than 2.2 metres with the bottom wire no more than 300 mm above the deck; or

(c) if the ship is less than 10 metres in length and a surveyor is satisfied that compliance with both paragraph (a) or (b) would impede the proper working of the ship; bulwarks, or a single rail or taut wire, evenly spaced around the working deck at a height of not less than 450 mm above the deck supported at intervals of not more than 2.2 metres.

(4) If a surveyor is satisfied that it would be impractical for a ship to comply with subrule (3), fixed or portable jackstays, secured to strong points, may be provided on each side of the ship, to enable any person, wearing a safety harness, to traverse the length of the exposed deck without unclipping the harness.

(5) If a ship has a cockpit that opens aft to the sea, additional guardrails must be fitted so that no vertical opening exceeds 380 mm.

(6) If a ship is not fitted with a bulwark(s) it must be fitted with –

(a) a toe rail of not less than 25 mm in height; or

(b) a continuous wire 25mm above the working deck,

around the working deck forward of the mast, except in the way of fittings.

(7) Every working deck must have a non-slip surface.

40E.23 Water-freeing arrangements

(1) If a deck is fitted with bulwarks behind which water might be trapped, the bulwarks must be provided with freeing ports.

(2) A ship of 24 metres or more in length must have freeing ports in bulwarks that comply with the requirements of Section 1 of Part 47.

(3) The freeing ports in bulwarks of ships of less than 24 metres in length must be –
   (a) at least 10 per cent of that part of the bulwark area which extends for 2/3 of the ship's length amidships; and
   (b) located in the lower 1/3 of the bulwark height as close to the deck as possible; and
   (c) fitted each with bars or a grid having a spacing of not more than 50 mm in each direction.

(4) If a non-return shutter or flap is fitted to a freeing port in a ship of less than 24 metres in length, the shutter or flap must have sufficient clearance to prevent jamming and any hinges must have pins or bearings of non-corrodible material.

(5) If a surveyor is satisfied that a ship has only small side deck areas between houses and a bulwark behind which water can be trapped, a surveyor may allow the freeing port area to be reduced, as appropriate, taking into account –
   (a) the volume of water that is likely to become trapped; and
   (b) the extent to which trapped water is likely to affect the ship's stability.

Bilge Drainage

40E.24 Bilge pumping arrangements

(1) Except as provided in subrules (2) and (4), a ship must be fitted with a pumping system capable of pumping from, and draining, every watertight compartment in the ship that is neither a permanent oil nor water tank.

(2) A watertight compartment does not require bilge pumping arrangements if it is filled with buoyancy material approved by a surveyor.

(3) The bilge system, in a new ship of 24 metres or more in length that is not a multihull ship, must include –
   (a) a bilge main; and
   (b) a bilge distribution box –
      (i) located in an accessible position; and
      (ii) with non-return valves only.

(4) If the volume of a watertight compartment is less than 7 per cent of the total under deck volume, the compartment may be drained into an adjacent compartment by means of a self-closing valve or cock –
   (a) fitted outside the compartment to be drained; and
   (b) operable from a readily accessible position.

40E.25 Bilge pumps

(1) Every ship must be provided with the number, capacity, and type of bilge pumps specified in Table 2.0.

Table 2.0

		Manual		*Power*	
Limits	*Length*	*No.*	*Capacity*	*No.*	*Capacity*
Enclosed and inshore	≤ 6m	1	0.6 kl/hr	1	0.6 kl/hr
	6m – 12m	1	0.9 kl/hr	1	0.9 kl/hr
	12 – 24m	1	1.8 kl/hr	1	1.8 kl/hr
	More than 45m	-	-	2	Combined 11 kl/hr
Coastal and offshore	≤ 12m	1	0.9 kl/hr	1	0.9 kl/hr
	12 - 24m	1	1.8 kl/hr	1	1.8 kl/hr
Unlimited	≤ 24m	1	1.8 kl/hr	1	1.8 kl/hr
More than 16 persons	≤ 24m	1	1.8 kl/hr	1	1.8 kl/hr
Any limit	24 - 45m	-	-	2	Combined 11 kl/hr

(2) If the ship does not proceed beyond enclosed limits, the pumps must be in the cockpit or on the weatherdeck.

(3) If the ship proceeds beyond enclosed limits, the pumps must be below the weatherdeck or in the accommodation.

(4) A bilge pump must be of a self priming type or be provided with a suitable priming device.

(5) Manual pumps must be operable from above the weather deck.

(6) If independent bilge mains are fitted in the hulls of a multihull ship, each independent bilge main must have 2 powered pumps if the ship is required by Table 2.0 to have 2 powered pumps.

(7) Instead of a bilge suction main, ships of less than 24 metres in length and multi-hulled ships of 24 metres or more may be fitted with fixed electrically driven submersible bilge pumps in every watertight compartment if –
   (a) the total capacity of the submersible bilge pumps (Q_t) is not less than –

$Q_t = 0.0138 (d_m)^2$ metres^3/hour

where d_m = internal diameter of branch bilge suction pipes in mm; and

(b) the capacity of each separate submersible bilge pump (Q_n) is not less than –

$$Q_n = \frac{Q_t}{(N-1)} \text{ (metres}^3\text{/hour)}$$

where N = number of fixed submersible bilge pumps; and

(c) the capacity of every fitted submersible bilge pump is 8 metres^3/hour or more; and

(d) every submersible bilge pump is fitted with a float switch that –

(i) automatically operates that pump or an audible alarm at the steering position; and

(ii) is protected from jamming by debris in the bilge; and

(e) each submersible bilge pump –

(i) has a visual alarm at the steering position to indicate when it is running; and

(ii) is capable of being reached for inspection, removal or maintenance without removal of permanent structure; and

(f) every electrically driven submersible bilge pumps rated for 12V, 24V or 32V DC complies with the International Standard *ISO 8849:2003 Small Craft – Electrically operated bilge pumps* or an equivalent standard;[6] and

(g) there is, on the ship, a source of electrical supply capable of running the pumps in any one compartment.

40E.26 Bilge piping

(1) Bilge piping arrangements must prevent water passing –

(a) from the sea into the ship; and

(b) from one watertight compartment to another.

(2) In ships of 12 metres or more in length, bilge piping must be arranged such that any compartment can be drained when the ship is heeled at an angle of up to 10 degrees.

(3) The bilge connection to any pump that also draws from the sea must be either –

(a) a screw down non-return valve; or

(b) a cock that cannot be opened at the same time both to the bilges and to the sea.

(4) Non-metallic bilge piping may be used in ships of less than 12 metres in length.

[6] Equivalent standards include European Standard EN 8849:2003, British Standard BS 8849:2003 and International Standard ISO 8849:2003.

(5) Metal piping, acceptable to a surveyor, must be used in bilge systems of ships of 12 metres or more in length except –

(a) in association with submersible bilge pumps that meet the requirements of rule 40E.25(7); or

(b) in non-metallic hulled ships, if the pipe material and arrangements are acceptable to a surveyor.

(6) All non-metallic bilge piping used in a ship must –

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

(b) be capable of operating under suction without collapse or shrinkage.

(7) In ships of 10 metres or more in length,

(a) the diameter of bilge suction pipes may be not less than –

(i) $d_m = 25 + 1.68 \sqrt{L(B+D)}$; and

(ii) $d_b = 25 + 2.16 \sqrt{C(B+D)}$.

where:

d_m = internal diameter of the main bilge suction in mm;

d_b = internal diameter of branch bilge suction pipes in mm;

L = ship length in metres;

B, in single hull ships = greatest moulded breadth of the ship in metres;

and in multi-hull ships = greatest moulded breadth of the hull measured at the deepest load waterline;

D = moulded depth of ship in metres, measured amidships from baseline to underside of deck at side;

C = length of compartment in metres; and

(b) the internal diameter of bilge suction pumps may not be less than 32mm.

(8) In ships of less than 10 metres length, the internal diameter of bilge piping may not be less than 25 mm.

(9) In ships of 24 metres in length or more, each bilge suction in a machinery space must be fitted with a strumbox and a metallic tail pipe.

(10) Every bilge suction in a space other than a machinery space must be fitted with –

(a) a strum box or a strainer (as appropriate) with holes –

(i) no greater than 10 mm diameter; and

(ii) with an aggregate area at least twice the area of the suction pipe; or

(b) a direct bilge suction pump that is –

(i) capable of pumping solids and waste; and

(ii) acceptable to a surveyor.

(11) If a ship is fitted with submersible bilge pumps in accordance with rule 40E.25(7), discharge piping arrangements must include at least two automatic non-return devices, which must –

(a) be fitted between the overboard discharge and the compartment being served by the pump; and

(b) include –

(i) one automatic non-return valve situated at or near the shell; and

(ii) a pipework loop taken up to the highest practicable point below the weathertight deck fitted with an anti-siphon device, or a second automatic non-return valve.

40E.27 Bilge alarm

(1) This rule applies to ships of more than 6 metres in length.

(2) If the machinery space contains through hull fittings, that space must be fitted with–

(a) a bilge level device that –

(i) is connected to an audible alarm located near the steering position; and

(ii) has power supply for the audible alarm available at all times when any person is on board; or

(b) an automatic submersible bilge pump that –

(i) meets the requirements of rule 40E.25(7); and

(ii) has a means of indicating that the pump is running located at the steering position.

Machinery

40E.28 General

(1) Every sailing ship must be fitted with an engine that provides sufficient power for the vessel's use as an auxiliary means of propulsion.

(2) If an engine has only one starter and that starter is an electric starter, a (separate) battery must be carried on the ship for the primary purpose of starting the engine.

(3) Propulsion machinery, essential for the propulsion and safety of the ship, must be designed to operate when the ship is upright and –

(a) inclined at any angle of heel up to and including –

(i) 15° to both port and starboard under static conditions; and

(ii) 22.5° to both port and starboard under dynamic rolling conditions;

(b) simultaneously inclined 7.5° by bow or stern under dynamic pitching conditions.

40E.29 Inboard engines

Where an inboard engine is installed on any ship to which this Part applies, that engine must be an inboard marine diesel engine.

40E.30 Petrol engines

(1) Except as provided in subrule (2), any petrol engine must be kept in a separate compartment that is –
  (a) situated above the weatherdeck[7]; and
  (b) vented; and
  (c) fitted with a fixed fire extinguishing system.

(2) Where a petrol engine is fitted as an outboard with an integral tank then it may not be required to be kept in a separate compartment, as required in subrule (1), subject to the satisfaction of the surveyor.

40E.31 Fuel tanks

(1) All fuel tanks fitted in a ship must be –
  (a) tested and installed to the satisfaction of a surveyor; and
  (b) provided with means of safely ascertaining the amount of fuel in the tank; and
  (c) provided with vents and filling connections located in a safe open-air position; and
  (d) designed and constructed in accordance with the requirements of –
    (i) the standards referred to in rule 40E.7; or
    (ii) in the case of portable fuel tanks, AS/NZS 2906:2001 *Fuel containers - Portable - Plastics and metal*.

(2) A ship must be provided with means to isolate any fuel source that might feed a fire in any machinery space or engine space.

(3) Every ship, where practicable, must be fitted with a valve or cock –
  (a) in the fuel feed pipe as close as possible to the fuel tank; and
  (b) capable of being closed from a position outside the machinery space or engine space.

(4) If a ship has a portable fuel tank, the tank or its complete contents must be capable of being jettisoned safely and rapidly.

[7] An engine is considered to not be above the weatherdeck if fuel or fumes emanating from the engine installation could result in the accumulation of fuel or explosive mixtures within any space on the vessel. Fuel or fumes from the engine must be able to drain rapidly and directly overboard without the assistance of forced ventilation or wind-induced air movement.

(5) Any outboard fuel tank must be fitted such that any spillage during fuel handling will drain directly overboard.

(6) If a ship has an inboard fuel tank –
   (a) the tank must be fixed rigidly in a safe place; and
   (b) the opening of the vent pipe from the tank must be protected by a flash proof fitting; and
   (c) if it is possible for hydrocarbon vapours to accumulate and for a source of ignition to be present, a safe detector of hydrocarbon gas must be fitted under or adjacent to the tank.

(7) A ship that carries petrol must store the petrol above the weatherdeck in a container[8] approved for the purpose.

40E.32 Inlets and discharges

(1) In ships of less than 24 metres in length, every opening below the weather deck must –
   (a) if a surveyor considers it appropriate, be provided with an efficient means of closure, fitted as close as possible to the side shell; and
   (b) if the opening is for a water inlet or discharge that could be below the waterline when the ship is heeled up to 15 degrees, be fitted with a seacock or valve that is readily accessible in an emergency[9].

(2) Every opening in the machinery space and every fitting attached to the shell of the ship must be constructed of steel, bronze, copper, or other ductile fire-resistant material acceptable to the surveyor.

(3) In ships of 24 metres or more in length, openings below the weather deck must comply with the requirements of Part 47.

(4) Every inlet or discharge pipe that supplies water to, or drains water from, a water closet must be –
   (a) looped up within the hull to the highest practicable point below the weathertight deck; and
   (b) provided with anti-siphon measures, if the rim of a toilet is less than 300 mm above the deepest waterline of the ship.

(5) Every opening for a log or other sensor that is capable of being withdrawn must be–
   (a) fitted watertight to a surveyor's satisfaction; and
   (b) provided with an effective means of closure when the log or sensor is removed.

[8] For guidance it is recommended that reference be made to ISO 13591-Small Craft- Portable Fuel Systems for outboard motors
[9] Advice to surveyors on suitable material is provided in the Advisory Circular.

(6) Engine exhaust outlets that penetrate the hull below the deck must be provided with an effective means of preventing backflooding into the hull through the exhaust system.

(7) All pipes that carry seawater must be constructed of metal acceptable to the surveyor, except –
  (a) bilge pipes to which rule 40E.26(4) or (5) relates; or
  (b) where a ship of less than 24 metres in length is constructed of non-metallic materials; or
  (c) where suitable reinforced synthetic rubber piping have been used in short lengths for vibration damping.

(8) Where non-metallic piping or reinforced rubber synthetic piping is used to carry seawater, the piping must –
  (a) have a high resistance to salt water, fuel oil, heat and vibration; and
  (b) be capable of operating under suction without collapse or shrinkage; and
  (c) in the case of non-metallic piping, be resistant to impact damage; and
  (d) in the case of reinforced synthetic rubber piping, be –
    (i) readily visible; and
    (ii) protected against mechanical damage and contact with hot surfaces.

40E.33 Steering gear

(1) A ship must be provided with an efficient steering system acceptable to a surveyor.

(2) In the case of steering gear that is remote controlled, arrangements must be made for emergency steering if the remote control fails.

Electrical

40E.34 General

A ship must be fitted with a permanently installed electrical system that –
(a) is not hazardous to passengers or crew; and
(b) is convenient to operate; and
(c) provides a high degree of reliability; and
(d) is constructed in such a manner so as to minimise the risk of causing a fire.[10]

40E.35 Design

Before a ship is built, or undergoes major alteration or modification of its electrical system, the owner must provide a surveyor with –

[10] Advise on how to minimise the risk of fire is provided in the Advisory Circular.

(a) single line diagrams of the mains and any emergency power and lighting systems, which must include –
  (i) the rating of every generator, transformer, battery and semi-conductor converter; and
  (ii) every feeder connected to a switchboard; and
  (iii) every switchboard; and
  (iv) the insulation type, size and current loadings of every cable; and
  (v) the make, type and rating of every circuit breaker and fuse; and
(b) simplified diagrams of generation circuits, interconnector circuits and feeder circuits; and
(c) arrangement plans of the main switchboard, any emergency switchboard, and any section board.

40E.36 Installation and materials

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

(2) The electrical equipment, switchboards and conductors must be selected and located in a ship, to the satisfaction of a surveyor, so as not to be exposed to water, oil, heat or other environmental conditions.

(3) Except as provided in subrule (4), all ship's batteries must be–
  (a) suitably stowed in acid proof boxes; and
  (b) adequately ventilated to prevent the accumulation of gas.

(4) A ship's battery does not need to meet the requirements of subrule (3) if the battery–
  (a) is a sealed unit; and
  (b) is unable to spill acid or release gas when the casing is ruptured.

40E.37 Electrical systems

(1) The electrical systems in a ship of 24 metres or less in length must comply with –
  (a) the relevant rules of a classification society; or
  (b) AS/NZS 3004.2:2008 Electrical installations – Marinas and Recreational Boats; or
  (c) if the electrical system operates on three phase alternating current the relevant IEC 60092 standard – *Electrical installations in ships*.

(2) The electrical systems in a ship of more than 24 metres in length, must comply with–
  (a) the relevant rules of a classification society; or
  (b) the relevant IEC 60092 standard – *Electrical installations in ships*.

40E.38 Marking

(1) All electrical equipment must be marked or identified in accordance with the relevant electrical systems standard referred to in rule 40E.37.

(2) Markings on electrical equipment must also be consistent with the terminology used in the owner's manual supplied in accordance with rule 40E.39.

40E.39 Documentation

(1) The builder of a New Zealand ship of more than 6 metres in length must supply the owner with a manual containing the information set out in subrules (2) and (3).

(2) The following information must be included in the manual referred to in subrule (1)–

(a) diagram(s) 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; and

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

(c) instructions for the operation and maintenance of the system.

(3) The following warning instructions must be included in the manual referred to in subrule (1) –

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

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

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

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

(4) The owner must ensure that a copy of the diagrams and manuals supplied in accordance with subrules (1), (2) and (3) are kept on board the ship at all times.

40E.40 Emergency lighting

(1) If the general lighting in a ship of 12 metres or more in length is provided by a centralised electrical system, an alternative source of power for emergency lighting must be installed that is sufficient to illuminate the passenger spaces below the

weather deck for a minimum of 3 hours to enable persons to make their way from those passenger spaces to the weather deck.

(2) Every ship that proceeds beyond inshore/coastal limits, must be provided with an alternative source of power for emergency lighting that is sufficient to –
  (a) enable persons to make their way to the open deck and evacuate the ship if necessary; and
  (b) illuminate, for a period of at least 3 hours –
    (i) every un-launched liferaft; and
    (ii) every liferaft launching appliance; and
    (iii) the area of water into which any liferaft is launched; and
    (iv) the stowage position of any liferaft that is not provided with any launching appliances.

40E.41 Emergency/alternative source of power

Every ship of 12 metres or more in length must be provided with an alternative source of power being a self-contained generator or accumulator battery located in a compartment separate from the main source of power.

40E.42 Navigation lights

(1) Conductors supplying navigation lights must be of sufficient size to ensure that total circuit volt drop does not adversely effect operation of the light(s), in the case of incandescent lights this must not exceed 3 per cent of the supply system nominal voltage measured at the terminals of the light when it is operating.

(2) Every ship more than 24 metres in length must have the electrical supply to each navigation light provided –
  (a) in its insulated phase or pole with a switch and fuse; or
  (b) by a circuit-breaker fitted on the navigation light distribution board.

(3) All navigation lights must be provided with main and emergency power supply as required by rule 40E.41.

(4) Navigation lights required to be shown when underway must be duplicated unless a spare lamp is carried and it can be fitted within three minutes.

40E.43 Lightning protection

If a lightning protection system[11] is fitted in a ship, the system must comply with the requirements of one of the standards referred to in rule 40E.37.

[11] Advice is provided in the Advisory Circular on a reference to be used for the installation of a lighting protection system.

40E.44 Inspections and tests of electrical systems

A ship's electrical system must be inspected and tested in accordance with the requirements of one of the standards referred to in rule 40E.37 –

(a) before the system is put into service for the first time; and

(b) before it is put into service following any major alteration, modification or repair.

Structural Fire Protection

40E.45 Ships of 24 metres or more

(1) In every ship of 24 metres or more in length, the boundaries of any space containing internal combustion machinery must be –

(a) gas tight; and

(b) capable of preventing the passage of smoke and flame for a period of at least 60 minutes, in accordance with the standard fire test prescribed in the FTP Code; and

(c) insulated, if necessary, with a non-combustible material that the surveyor considers suitable, such that if the boundary division is exposed to a standard fire test, the temperature on the unexposed side of the division will not increase by more than 139˚C above the initial temperature within 30 minutes.

(2) If the boundary divisions of a space containing internal combustion machinery are constructed of materials other than steel or aluminium alloy, compliance with subrules (1)(b) and (c) must be determined using calculations methods approved by the Director.

40E.46 Ships of less than 24 metres length

In every ship of less than 24 metres in length –

(a) the machinery space or engine space must be separated from any accommodation space by divisions that prevent fumes from the machinery space or engine space entering the accommodation spaces; and

(b) the surveyor must be satisfied that, in the event of fire, any fire extinguishing medium that is injected into the machinery space or engine space can be retained in that space for sufficient time to extinguish the fire.

40E.47 General requirements

(1) Doors and other closures in bulkheads that form fire-resisting divisions, must, as far as practicable, be as resistant to fire as the divisions in which they are fitted, except that watertight doors constructed of steel are not required to be insulated.

(2) Doors to machinery spaces on ships more than 24 metres in length must be self-closing.

(3) If bulkheads or decks that form fire-resisting divisions are pierced for the passage of electrical cables, pipes, ducts and similar products, arrangements must be made to ensure that the fire integrity of the divisions is not impaired.

(4) Combustible veneers that are low flame spread surfaces are permitted on non-combustible divisions and fire-resisting divisions.

(5) Glass or similar materials must not be fitted in machinery space boundaries.

(6) Thermal or acoustic insulation fitted in accommodation spaces, machinery spaces and engine spaces –
   (a) must be incapable of producing harmful quantities of smoke and toxic gases; and
   (b) must be non-combustible if the insulation is not a fire-resisting division or a fire-restricting material.

(7) The surface of any insulation fitted on the internal boundaries of any machinery space or engine space must be impervious to oil.

(8) Primary deck coverings in accommodation spaces must be made of material –
   (a) approved by a surveyor; and
   (b) that will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures.

(9) All exposed surfaces of fibre reinforced plastic construction within machinery spaces and engine spaces and galleys 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.

(10) Ships of 24 metres or more in length, with machinery driving fuel oil unit pumps or other similar fuel pumps, must be fitted with remote controls positioned outside the space in which the fire pumps are located so that the pumps can be stopped in the event of fire in the space.

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

(12) All main and auxiliary machinery hot exhaust pipes must be kept clear of, or well insulated in way of, any timber or other combustible material.

(13) Materials readily rendered ineffective by heat must not be used for discharge pipes and equipment –

(a) within any machinery space or engine space; and
(b) below or close to the waterline,
if failure of the material could give rise to flooding.

(14) Pipes penetrating fire resisting divisions in accommodation spaces, service spaces or control stations must be constructed of a material, that is acceptable to the surveyor, having regard to the temperature such divisions are required to withstand.

(15) Survival craft must be constructed and stowed in such a way that they are protected from major fire hazards.

(16) If any survival craft is stowed directly above an area of major fire hazard, the deck separating them must have a structural fire protection time of at least 15 minutes as determined in accordance with the FTP Code.

40E.48 Heating and cooking installations

(1) Electric radiators in a ship must be –
(a) fixed in position; and
(b) constructed so as to minimise the risk of fire.

(2) Except as provided in subrule (3), a ship may not have open gas flame appliances.

(3) A ship may have cooking stoves, domestic refrigerators and water heaters that are open gas flame appliances if –
(a) the space in which the appliance is contained has adequate ventilation to remove any fumes or gas leakage to a safe space; and
(b) any pipes conveying gas to the appliance is constructed of –
(i) steel; or
(ii) if the piping does not lead through an engine space, other material approved by a surveyor; and
(c) gas to supply the appliance is installed in accordance with New Zealand Standard NZS 5428:2005– *Installation and use of LPG for non-propulsive purposes in caravans and boats;* and
(d) automatic safety gas shut-off devices are fitted to shut-off the flow of gas to the appliance if there is –
(i) a loss of pressure in the gas main pipe; or
(ii) flame failure; and
(e) a gas detector is fitted where gas may accumulate[12].

(4) Cooking appliances must be installed so as to reduce the risk of fire from –
(a) heat radiated from the cooking element or flame; or
(b) cooking fats and oils catching alight.

[12] Advice on gas safety is provided in the Advisory Circular

(5) Bulkheads and linings in way of cooking appliances, including decks and ceilings above, must be constructed of non-combustible or fire-restricting materials.

(6) Cylinders for compressed, liquefied or dissolved gases, whether charged, partially charged, or empty must be –
  (a) properly secured; and
  (b) clearly coloured in accordance with New Zealand Standard NZS 5807:1980 *Code of Practice for Industrial Identification by Colour, Wording or Other Coding*; and
  (c) clearly and legibly marked with the name and chemical formula of their contents; and
  (d) stored and secured on an open deck or in a gastight locker draining outside the hull.

(7) Expended cylinders and cylinders containing flammable or other dangerous gases must –
  (a) be properly stored and secured on open decks[13]; and
  (b) be protected against excessive variations in temperature, direct rays of the sun, and accumulation of snow; and
  (c) have all valves, pressure regulators and pipes leading from such cylinders protected against damage.

40E.49 Ventilation systems

(1) Ventilation trunking emanating from a machinery space or a galley must not pass through any accommodation spaces, unless it is unavoidable.

(2) If ventilation trunking emanates from a machinery space or a galley and passes through any accommodation spaces –
  (a) the trunking within the accommodation space must be –
    (i) made of steel or equivalent material; and
    (ii) installed so as to protect the integrity of any fire-resisting divisions; and
  (b) in ships of 24 metres or more in length, automatic fire dampers must be fitted in the deck or the bulkhead in the accommodation space into which the trunking passes from the machinery space or galley.

(3) Any ventilation fan that supplies a machinery space must be capable of being stopped from outside that space.

[13] A surveyor may on sailing ships 24 metres or more in length, permit cylinders to be stored in a compartment or compartments that comply with the requirements of rules 40D.56(3) to 40D.56(5) inclusive. 40D.56(3) to 40D.56(5) are quoted in the Advisory Circular.

(4) Fire flaps must be fitted to ships that are required by Appendix 3 to have a fixed fire extinguishing system fitted in the machinery space and are fitted with a ducted air system.

Fire Fighting Appliances

40E.50 Fire fighting appliances

(1) The owner and the master of every ship must ensure that fire appliances –
  (a) are provided in accordance with the requirements of Appendix 3; and
  (b) comply with the requirements of Part 42B; and
  (c) are maintained, inspected and tested in accordance with the requirements of Part 42B.

(2) Before any ship commences a voyage, and at all times during the voyage, the master must ensure that all fire appliances are –
  (a) in good working order; and
  (b) ready for immediate use.

Life Saving Appliances

40E.51 Life saving appliances

(1) Subject to subrule (2), the owner and the master of every ship must ensure that life saving appliances –
  (a) are provided in accordance with the requirements of Appendix 4; and
  (b) comply with the requirements of Part 42A; and
  (c) are maintained, inspected and serviced in accordance with the requirements of Part 42A.

(2) Before any ship commences a voyage and at all times during the voyage, the master must ensure that all life saving appliances are –
  (a) readily available; and
  (b) in good working order; and
  (c) ready for immediate use.

Radiocommunications

40E.52 Radiocommunication equipment

(1) The owner and the master of a ship must ensure that radiocommunication equipment is provided in accordance with the requirements of Appendix 5.

(2) The owner and master must ensure that the radiocommunications equipment –
  (a) meets the performance standards prescribed in Part 43; and

(b) is maintained, inspected and serviced in accordance with the requirements of Part 43.

(3) The master of every 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.

Miscellaneous Equipment

40E.53 Miscellaneous equipment

(1) The owner must ensure that if the ship operates beyond restricted limits –
(a) a barometer is carried on board; and
(b) an efficient fixed or portable searchlight is carried that is suitable for use in man-overboard search and recovery operations; and
(c) adequate wire cutting equipment is carried for use in event of dismasting; and

(2) The owner must ensure that if the ship operates beyond restricted limits and is less than 24 metres -
(a) a radar reflector is fitted if the ship is constructed of wood or fibreglass; and
(b) a radar reflector is carried if the ship is constructed of steel or aluminium.

(3) The owner of a monohull ship of more that 12 metres in length must ensure that an anemometer and an inclinometer are carried that provide wind direction and wind speed with displays that are clearly visible at each control position; and

(4) The owner must ensure that if the ship –
(a) operates beyond enclosed limits a GPS is carried; and
(b) is a multihull ship, a permanently fitted anemometer is fitted that provides a wind direction and wind speed reading with a display that is clearly visible at each control position; and
(c) is less than 10 metres in length a signalling lamp or device is carried; and
(d) is less than 24 metres length and proceeds beyond the inshore limit, a sea anchor, drogue or similar device is carried that is readily available for deployment.

(5) The owner of every ship must ensure that the ship carries –
(a) an adequate tool kit and boat hook; and.
(b) a means, acceptable to a surveyor, of recovering an unconscious person from the water.

Anchors and Cables and Towing Arrangements

40E.54 Ships of less than 24 metres

The owner of every ship of less than 24 metres length must ensure that the ship is provided with –

(a) anchors and cables in accordance with the requirements of –
  (i) a classification society; or
  (ii) Appendix 6 of this Part; and

(b) a towline of a length and a diameter not less than that required for the kedge anchor;[14] and

(c) (i) adequate securing points for the attachment of a towline; and
  (ii) adequate securing point supporting arrangements for towing,

acceptable to a surveyor.

40E.55 Ships of 24 metres or more

The owner of every ship of 24 metres or more length must ensure that the ship is fitted with –

(a) anchors and cables, in accordance with a classification society's requirements, that are of a appropriate size for commercial sailing ships, taking into account the additional windage effect of the masts and rigging;[15] and

(b) (i) adequate securing points for the attachment of a towline; and
  (ii) adequate securing point supporting arrangements for towing, acceptable to a surveyor.

40E.56 Testing and marking

Ships that -

(a) carry anchors of more than 75 kilograms weight; or

(b) have chain cables of 12.5 mm or more in diameter,

must comply with the testing and marking requirements prescribed in Part 41.

40E.57 Windlass

(1) The owner and master of any new ship must ensure that –
  (a) a windlass or other mechanical lifting device –
    (i) is provided for anchors of more than 30 kilograms; and
    (ii) is in the case of an anchor of more than 50 kilograms, power operated; and
  (b) every windlass or other mechanical lifting device –
    (i) has sufficient power to raise the anchor; and

[14] The towline may be the warp of the kedge anchor

[15] Typically, for square rigged commercial sailing ships up to 50 metres in length an approximate increase in anchor weight and cable strength of 50 per cent is required on that for a typical motor ship of the same size.

(ii) is suitable for the size of chain attached to the anchor; and

(iii) is securely fitted to the deck of the ship; and

(c) the inboard end of the anchor's rope or chain is permanently made fast to the ship and able to be released under load.

(2) In order to comply with subrule (1)(b)(i) –

(a) 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 per minute; and

(b) where the depth of water is inadequate or the anchor cable is less than 82.5m, suitable equivalent simulating conditions may be accepted by the surveyor as an alternative.

Navigating Position

40E.58 Navigating position

(1) The navigating positions on a ship must –

(a) afford the person at the helm as wide an arc of visibility as possible both ahead and abaft the beam; and

(b) if practicable, provide all round visibility.

(2) Wheelhouse windows that are –

(a) forward of the helm position; or

(b) essential for the safe navigation of the ship,

must be clear and not be polarised or tinted.

(3) If a ship carries passengers, the owner must ensure that adequate space is provided for the person at the helm to be unobstructed by passenger arrangements.

Rigging and Sails

40E.59 General

(1) The ship's masts, bowsprit, spars, standing rigging, their support structure and the ship's structure in way of them, must be constructed to the satisfaction of a surveyor so as to withstand the forces likely to be experienced in service.

40E.60 Masts and spars

(1) The scantlings and material of a ship's masts and spars and the ship's structure supporting the masts and spars must, to the satisfaction of a surveyor, be adequate to absorb the forces likely to be experienced in normal service.

(2) The associated structure for masts and spars (including fittings, decks and floors) should be constructed to effectively carry and transmit the forces involved.

(3) The ship's mast steps must adequately spread the mast's loading through the load bearing structure of the ship to the satisfaction of a surveyor.

40E.61 Standing and running rigging

(1) Standing and running rigging must be to the satisfaction of the surveyor so that they can withstand the forces likely to be experienced during service.

(2) The strength of blocks, shackles, rigging screws, cleats and associated fittings and attachment points must exceed the breaking strain of the associated running or standing rigging.

(3) Wire rope used for standing rigging (stays or shrouds) must not be flexible wire rope (fibre rope core).

(4) Chainplates and other securing arrangements for standing rigging for masts and bowsprits, must be –

(a) designed to support and absorb the forces likely to be involved in service; and

(b) integrated with the hull and/or deck supporting structure; and

(c) of sufficient strength such that, in the event of failure of the standing rigging, the watertight integrity of the hull will not be impaired; and

(d) constructed so that only one shroud or stay is loaded to an individual attachment point, unless the design of chainplate specifically allows for more; and

(e) constructed to the satisfaction of the surveyor.

40E.62 Sails

(1) All mainsails must be capable of being depowered by either reefing or by other appropriate means.[16]

(2) Every ship that proceeds beyond enclosed waters and is not engaged in short, day sailing must have sufficient storm sails, or have specific sails designated and constructed to act as storm canvas, to work off a leeshore in severe weather.

(3) All fore and aft rigged ships that proceed beyond coastal limits must carry –

(a) a storm trysail; and

(b) a storm jib; and

(c) a heavy weather jib.[17]

[16] It is recommended that on fore and aft rigged ships the mainsail should have a set of reef points capable of reducing the effective luff by 40 per cent.

[17] See Advisory Circular for recommendations on sails.

(4) Every cleat for sheets, halyards or guys must –
  (a) be positioned so that the sheet, halyard or guy can, in case of a knockdown, be immediately released under full working load; and
  (b) in the case of a multi-hull ship, have a method of quick release immediately available.

40E.63 Working aloft

If access to the rig is an operational necessity, arrangements must be made, to the satisfaction of a surveyor, for persons to work safely aloft and out on any bowsprit; such arrangements may include any of the following–
  (a) safety nets below the bowsprit:
  (b) wooden safety grabrails or metal jackstays fixed along the bowsprit to act as handholds and safety points for harnesses:
  (c) foot-ropes and horses in wire or rope permanently rigged to enable persons to stand on them while working out on the yards or on the bowsprit:
  (d) metal jackstays fixed along the top of the yards, to provide handholds and act as strong points for safety harnesses:
  (e) means of climbing aloft safely, such as –
    (i) fixed metal steps or ladders attached to the mast; or
    (ii) traditional ratlines of rope, or rattling bars of wood or steel, fixed across the shrouds to form a permanent ladder:
  (f) a bosun's chair.

40E.64 Keels, centreboards, and internal ballast

(1) If a ship has an external ballast keel –
  (a) the keel must be fully supported by floors or other substantial internal structures so as to distribute the keel loads to the bottom structure; and
  (b) the number, size, material and position of the keel bolts must be –
    (i) sufficient for the keel mass; and
    (ii) compatible with the supporting structure.

(2) If the ship is fitted with a centreboard, the centreboard must be capable of being locked in both the up and down positions.

(3) Any internal ballast must be supported and secured against movement, to the satisfaction of the surveyor.

(4) In the case of a ship with a canting keel, the following must be demonstrated to the satisfaction of the surveyor –
  (a) an efficient and safe method of moving the keel from maximum to port to maximum to starboard; and

(b) that all moving parts are enclosed and provide access for inspection, regular maintenance and repair of the canting control mechanism; and
(c) that when the keel is moved from maximum to port to maximum to starboard, the change in angle of heel is symmetrical each side; and
(d) a failsafe system is in place to arrest the keel, from going past its maximum angle of cant, should the canting system fail.

Sub-part 3 - Bareboat Charter Yachts

40E.65 Application

This sub-part applies only to bareboat charter yachts.

40E.66 Operating Limits

A bareboat charter yacht must not be assigned operating limits that permit operation beyond restricted limits.

40E.67 Responsibilities of bareboat charter yacht owners

(1) The owner of a bareboat charter yacht must –
  (a) in respect of every bareboat charter, maintain a record of –
    (i) the full name, address and signature of hirer; and
    (ii) the date and time when the yacht is hired; and
    (iii) the date and time when the yacht is returned; and
    (iv) the number of persons to be carried, as declared by the hirer; and
  (b) make that record available on demand to the Director.

(2) The owner of a bareboat charter yacht must not hire out the yacht if the number of persons to be carried (as declared by the hirer) exceeds the number of persons–
  (a) the ship is certificated to carry; or
  (b) that can safely be seated in the cockpit and cabin; or
  (c) if the ship is let overnight, the number of berths available.

(3) The owner of a bareboat charter yacht must not hire out the yacht unless he or she is satisfied that the bareboat charterer –
  (a) is, in the case of an individual, not less than 16 years of age and competent to take charge of the ship within the operating limits assigned to it; or
  (b) will, in the case of a company, organisation, trust or other body, nominate, before the ship sets sail, a person who is not less than 16 years of age and competent to take charge of the ship within the operating limits assigned to it, who will be the master of the yacht.

(4) The owner of a bareboat charter yacht must issue the bareboat charterer with clear and concise instructions on –
  (a) the correct and safe handling and navigation of the yacht under sail and motor power; and
  (b) the correct and safe operation of –
    (i) auxiliary propulsion machinery; and
    (ii) fuel, gas and pumping systems; and
    (iii) valves or openings in the hull; and
  (c) the stowage and use of lifesaving appliances; and
  (d) the location and use of fire appliances; and
  (e) the ship's operating limits, any dangers to navigation in those limits, and any other conditions on the use of the ship; and
  (f) the Part 22 collision rules and Part 91 safety rules; and
  (g) the use of the anchor.

(5) The owner must, for the use of every bareboat charterer, –
  (a) exhibit, on the ship, a plan showing the operating limits within which the ship may be operated; and
  (b) provide up to date charts and publications relating to those limits.

(6) The owner must obtain, from the hirer, a signed statement indicating that the hirer fully understands –
  (a) the permissible operating limits; and
  (b) any conditions that have been placed on the use of the ship.

40E.68 Responsibilities of the bareboat charterer(s) and the master of a bareboat charter yacht

(1) No individual, who is less than 16 years of age, may be a bareboat charterer or the master of a bareboat charter yacht.

(2) Every bareboat charterer and master (if different) must ensure that the yacht does not carry –
  (a) more than the maximum number of persons it is certificated to carry;
  (b) more persons than –
    (i) can safely be seated in the cockpit and cabin; and
    (ii) in the case of a ship that is at sea overnight, the number of berths available; and
    (iii) than he or she is satisfied with.

(3) If the bareboat charterer is a company, trust, organisation or other body, the bareboat charterer must, before the ship sets sail,–
  (a) nominate a person on board as the master who is –
    (i) not less than 16 years of age; and

(ii) competent to take charge of the ship within the ship's assigned operating limits; and

(b) ensure that person is recorded as the master in the ship's logbook.

(4) The bareboat charterer and the master (if different) must ensure that any equipment on the ship is not misused.

(5) The bareboat charterer and the master (if different) must not allow the ship to proceed beyond the operating limits specified on the ship's SSM certificate.

Sub-part 4 -- Final and Miscellaneous Provisions

40E.69 Maritime New Zealand number

The owner and the master must ensure that the ship is clearly and permanently marked with its Maritime New Zealand number, being the letters "MNZ" followed by a distinctive number issued to the ship by the Director –

(a) dark on a light background or light on a dark background; and

(b) in characters at least –

(i) 75 mm high, in the case of a ship of more than 7.5 metres length; or

(ii) 50 mm high, in the case of a ship of 7.5 metres length or less; and

(c) located on both sides of the wheelhouse or, if no wheelhouse is fitted, on the transom or stern.

40E.70 Additional safety equipment

The owner and the master of any ship that is provided with life saving appliances, fire fighting appliances or radiocommunications equipment, in addition to those required by this Part, must ensure that such additional appliances and equipment –

(a) meet the standards prescribed in this Part; and

(b) are well maintained and in good working order.

40E.71 Conditions under which restricted limit ships are permitted to make voyages in the coastal limit

(1) This rule applies to any ship that –

(a) has been assigned restricted limits under rule 20.5; and

(b) is making a single voyage into coastal limits, as permitted under rule 20.7(1).

(2) The owner and the master must ensure that the ship is provided with –

(a) up-to-date charts and nautical publications relevant to the areas covered by the proposed voyage;

(b) the following minimum safety equipment –
  (i) a liferaft that meets the requirements of Part 42A and has sufficient capacity for the number of persons carried on the ship; and
  (ii) lifejackets for every person carried on the ship meeting the requirements of Part 42A; and
  (iii) 4 rocket parachute flares that meet the requirements of Part 42A; and
  (iv) 2 buoyant smoke floats that meet the requirements of Part 42A; and
  (v) an EPIRB operating on 406 MHz that meets the requirements of rule 43.18A or 43.19; and
  (vi) a VHF radio that meets the requirements of Part 43.

(3) The owner and the master must ensure that –
  (a) the crew of the ship meet the minimum crewing and qualification requirements of the maritime rules for a coastal limit ship; and
  (b) the voyage is made only under anticipated favourable weather conditions with a favourable weather forecast; and
  (c) no passengers are carried on the voyage.

40E.72 Transitional Provisions

(1) Except as provided in subrule (2), this Part shall not apply to a sailing ship in 40E.3 that is an existing ship until:
  (a) the ship undergoes –
    (i) major alteration or modification; or
    (ii) major repair; or
  (b) a permanent change is made to the ship's operating limits.

(2) The rules set out in subrule (3), as applicable, shall apply to an existing ship immediately on the occurrence that any of the equipment, covered by those rules, is replaced.

(3) The rules referred to in subrule (2) are –
  (a) rule 40E.50 Fire-fighting appliances; or
  (b) rule 40E.51 Life-saving appliances; or
  (c) rule 40E.52 Radiocommunication equipment; or
  (d) rule 40E.53 Miscellaneous equipment; or
  (e) rule 40E.54 Anchors and cables: Ships of less than 24 metres; or
  (f) rule 40E.55 Anchors and cables: Ships 24 metres or more.

40E.73 Consequential Amendments

(1) For rule 40D.3(3) is substituted the following–

"(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."

(2) For paragraph (a) of rule 42A.19(2) is substituted the following–

"(a) ships to which Parts 40A or 40C or 40E of the maritime rules apply that -"

(3) Rule 42B.20(13) is amended by substituting the words "40D and Part 40E" for the words "and Part 40D".

(4) Rule 42B.61 is amended -

(a) by adding new subrule (3A) as follows:

"(3A) In any sailing ship that is required by Part 40E to be provided with power operated fire pumps, such fire pumps (other than any emergency fire pump) must be capable of delivering for fire-fighting purposes a quantity of water –

(a) under the conditions and at the pressure specified in rule 42B.63; and

(b) of at least two thirds of the quantity required to be dealt with by the bilge pumps provided in that ship to meet the requirements of Part 40E; and"

(b) in subrule (9) by substituting the words ", 40D or Part 40E" for the words "or 40D".

(5) Rule 42B.62 is amended by substituting the words "40D or Part 40E" for the words "or 40D".

(6) Rule 42B.63(1) is amended by substituting the words "and 40D or Part 40E" for the words "or 40D".

Rule 40E.10

Appendix 1
Intact Stability

1 Definitions

In this Appendix –

GZ curve means curve of statical stability;

θ_h is the angle of steady heel;

dwhl means derived wind heeling lever; and

θ_f is the downflooding angle.

2 Single hull ships that are 24 metres or more in length or that carry 15 or more persons or that proceed beyond offshore limits

(1) This clause applies to all single hull ships –
  (a) of 24 metres or more in length; or
  (b) that carry 15 or more persons; or
  (c) that proceed beyond offshore limits

(2) The centre of gravity of the ship must be established by means of an inclining experiment.

(3) Curves of statical stability must, as a minimum, be calculated for–
  (a) the 'loaded departure' condition with 100 per cent consumables; and
  (b) the 'loaded arrival' condition with 10 per cent consumables.

(4) The curves of statical stability must have a positive range of stability of not less than–
  (a) in the case of a ship of 24 metres or more in length, 90 degrees.
  (b) in the case of a ship of less than 24 metres in length that does not proceed beyond offshore limits, not less than 110 degrees; or
  (c) in the case of a ship of less than 24 metres in length that proceeds beyond offshore limits, not less than 115 degrees.

(5) The angle of steady heel (θ_h) obtained from the intersection of the derived wind heeling lever ("dwhl") and the curve of statical stability, as demonstrated in figure X, must be greater than 15 degrees, where –

  (a) **dwhl** at any angle θ degrees is equal to: $0.5 \times WLO \times Cos^{1.3}\theta$; and

(b) θ_f is the downflooding angle; and

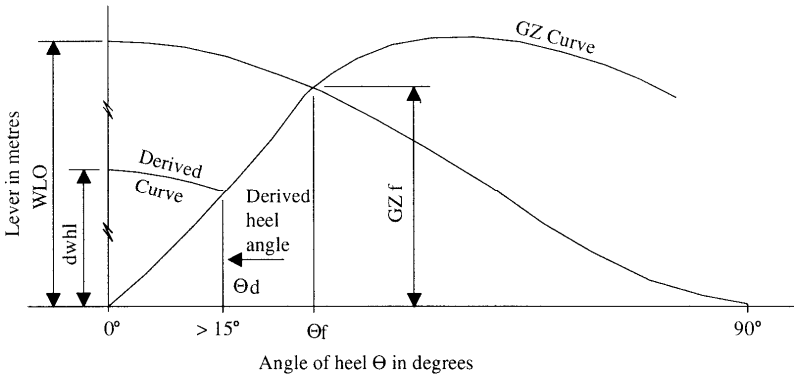
(c) GZ_f is the GZ value at the down flooding angle θ_f or 60 degrees whichever is the lesser; and

(d) **WLO**–

(i) is the magnitude of the actual wind heeling lever at 0 degrees that would cause the ship to heel to the down flooding angle (θ_f) or 60 degrees, whichever is the lesser; and

(ii) is equal to = $\frac{GZ_f}{COS^{1.3}\theta_f}$.

Figure X



(6) The downflooding angle (θ_f) must be determined as follows –

(a) the downflooding angle shall be taken to occur when openings, having an aggregate area greater than (Δ/1500) m^2, are immersed where Δ is the ship's displacement in tonnes; and

(b) the point at which downflooding occurs is the angle at which the lower edge of the actual opening that results in critical flooding, becomes immersed; and

(c) all regularly used openings for access and ventilation must be taken into account; and

(d) except as provided in paragraph (e), if an opening, regardless of size, may lead to progressive flooding, it may not be immersed at an angle of heel less than 40 degrees; and

(e) air pipes to tanks may be disregarded.

(7) Subject to subclause (8), the curve of statical stability must be derived without the benefit of the buoyancy of the deckhouse if, as the result of the immersion of openings in a deckhouse, a ship cannot meet the standard required in this clause.

(8) If subclause (7) is satisfied, the openings in the weather deck must be used instead of those of the deckhouse to determine the downflooding angle θ_f.

3 Single hull ships that are less than 24 metres length and that carry less than 15 persons and that do not proceed beyond offshore limits

(1) This clause applies to all single hull ships -
  (a) of less than 24 metres in length; and
  (b) that carry less than 15 persons; and
  (c) that do not proceed beyond offshore limits.

(2) Ships referred to in subclause (1) must comply with either –
  (a) the stability requirements set out in subclauses (3)-(6); or
  (b) for ships 12 metres or less in length, a physical Pull-Down[18] test in which –
    (i) the masthead must be pulled down until it touches the surface of the water; and
    (ii) the ship maintains a positive righting moment at all times during the test; or
  (c) for ships 6 metres or more in length but less than 24 metres in length, the full application of ISO 12217.2 *Small craft – Stability and buoyancy assessment and categorisation – Part 2: Sailing boats of hull length greater than or equal to 6m*[19]
  (d) for ships less than 6 metres in length, ISO 12217.3 *Small craft – Stability and buoyancy assessment and categorisation – Part 3: Boats of hull length less than 6m*[20].

(3) The centre of gravity of the ship must be established by means of an inclining experiment.

(4) A curve of statical stability must be determined for the loaded departure condition[21] with 100 per cent consumables.

(5) The curve of statical stability must have a positive range of stability of not less than 110 degrees.

(6) Buoyant structures, intended to increase the range of positive stability, must not be provided by fixtures to masts or rigging.

4 Multihull ships of less than 24 metres in length

(1) This clause applies to multihull ships of less than 24 metres in length.

[18] Information on conducting the Pull-Down test is provided in the Advisory Circular.

[19] ISO 12217-2 results in a design category number. The equivalent of the ISO design category and New Zealand operational limits for monohull ships are in the Advisory Circular.

[20] ISO 12217-2 results in a design category number. The equivalent of the ISO design category and New Zealand operational limits for multihull ships are in the Advisory Circular.

[21] The loaded departure condition may include a margin for growth not exceeding 5 per cent of the lightweight with its centre of gravity positioned at the upper deck amidships.

(2) Ships referred to in subrule (1) must comply with either –
  (a) the stability requirements set out in subrules (3)-(11); or
  (b) for habitable multihulls less than 24 metres and uninhabitable multihulls 6 metres or more but less than 24 metres in length, the full application of ISO 12217.2 *Small craft – Stability and buoyancy assessment and categorisation – Part 2: Sailing boats of hull length greater than or equal to 6m*[22]
  (c) for uninhabitable multihulls less than 6 metres in length, the full application of ISO 12217.3 *Small craft – Stability and buoyancy assessment and categorisation – Part 2: Boats of hull length less than 6m*[23].

(3) Hulls and floats of multihulls must have sufficient intact buoyancy to remain afloat in the inverted position after capsize.

(4) Details of the maximum advised mean apparent wind speeds, for every expected combination of sails must be produced[24] for the following displacement conditions–
  (a) the maximum displacement condition with full stores, fluids and spares; and
  (b) a minimum displacement condition with 10 per cent fluids and no stores or spares.

(5) For every combination of sail plan and displacement condition, the windspeed (in knots) must be calculated at the point at which the maximum wind heeling moment equals the maximum hull righting moment.

(6) Except as provided in subclause (7), the maximum hull righting moment for each combination of sail plan and displacement condition must be calculated using one of the following methods –
  (a) first principles of naval architecture; or
  (b) $\nabla \times [\, b - (KG \times \sin\theta_m)]$ (kg.m)

  where:
  ∇ = displacement (kg);
  b = the spacing of the centreline of the hull/float to the centreline of the ship;
  KG = estimated vertical centre of gravity of the ship, with spars and sails (hoisted), above the bottom of the hull (main hull in the case of a trimaran), conservatively taken as 75 per cent of the depth from the bottom of the hull (main hull in the case of a trimaran) to the top of the main coach roof; and
  θ_m = estimated angle of heel of maximum righting moment.

(7) If the ship is –

[22] ISO 12217-3 results in a design category number. The equivalent of the ISO design category and New Zealand operational limits for multihull ships are in the Advisory Circular.

[23] ISO 12217-2 results in a design category number. The equivalent of the ISO design category and New Zealand operational limits for multihull ships are in the Advisory Circular.

[24] The hull and outfit weight used for calculating these conditions must be based on a weighing of the actual completed ship. Spars and standing and running rigging may be weighed separately.

(a) a multihull ship of unusual form; or
(b) a trimaran with floats none of which is capable of easily supporting the displacement of the ship,

a full righting moment analyses must be undertaken using first principles of naval architecture.

(8) To calculate the windspeed given the maximum wind heeling moment, the wind heeling force developed on the sails and hull must be taken as $0.20 \times A \times W^2$ (Newtons), where–

A = lateral profile area of sails, masts and above-water hull (m^2); and
W = windspeed (knots).

(9) The maximum advised mean apparent windspeed for –
(a) every combination of sails that may be set; and
(b) every displacement condition,

must be taken as two-thirds ($\frac{2}{3}$) of the windspeed determined in accordance with subclause (4).

(10) The maximum advised mean apparent windspeed, (MAMAW) calculated for the largest working sail plan of the ship in the minimum displacement condition, must not be less than that shown in Table 1.2 for the ship's operating limits –

Table 1.2

Permitted Area of Operation	**Minimum acceptable value for MAMAW (knots) for minimum displacement condition**
Offshore and Coastal	18
Restricted Coastal	16
Inshore	14
Enclosed Waters	12

(11) The working sail plan must –
(a) be comprised of sails that may be set when proceeding with the true wind less than 60 degrees off the bow;
(b) include any sail of a weight that is capable of withstanding winds of more than 10 knots; and
(c) be detailed in any stability information booklet required under subclause (2).

5 Multihull ships of 24 metres or more in length

(1) This clause applies to multihull ships of 24 metres or more in length.

(2) Curves of statical stability, in both roll and pitch, must, as a minimum, be prepared for the 'loaded arrival' condition with 10 per cent consumables.

(3) The centre of gravity of the ship must be established by either –

(a) an inclining of the complete ship, in air on load cells, the VCG being calculated from the moments generated by the measured forces; or

(b) separate determination of weights of hull and rig[25], and subsequent calculations assuming that –

(i) the hull VCG is 75% of the hull depth above the bottom of the canoe body; and

(ii) the VCG of the rig is at half the length of the mast (or a weighted mean of the lengths of more than one mast); or

(c) a detailed calculation of the weight and CG position of all components of the vessel, plus a 15% margin of the resulting VCG height above the underside of canoe body.

(4) If software is used to obtain a curve of pitch restoring moments, then –

(a) the trim angle must be found for a series of longitudinal centre of gravity (LCG) positions forward of that necessary for the design waterline; and

(b) the curve then derived as follows:

GZ in pitch = CG' x cos (trim angle)

where:

CG'= shift of LCG forward of that required for design trim, measured parallel to baseline;

L_{BP} = length between perpendiculars;

T_{AP} = draught at aft perpendicular;

T_{FP} = draught at forward perpendicular;

trim angle = $\tan^{-1}\left(\frac{T_{FP} - T_{AP}}{L_{BP}}\right)$; and

(c) approximations to maximum roll or pitch moments are not allowed.

(5) Details of the maximum advised mean apparent wind speed appropriate to each combination of sails must be included in the ship's stability information booklet –

(a) accompanied by the following guidance note –

"In following winds, the tabulated safe wind speed for each sail combination should be reduced by the boats speed";

(b) for wind speeds calculated as the lesser of the following:

(i) $V_{w=1.5}\sqrt{\frac{LM_R}{A'_S h\cos\phi_R + A_D b}}$; or

[25] Comprising masts and all running and standing rigging.

(ii) $$V_w = 1.5\sqrt{\frac{LM_P}{A'_S h\cos\phi_P + A_D b}}$$

where:

v_w = maximum advised apparent wind speed (knots);

LM_R = maximum restoring moment in roll (Nm);

LM_P = limiting restoring moment in pitch (Nm), defined as the pitch restoring moment at the least angle of the following –

(i) angle of maximum pitch restoring moment; or

(ii) angle at which foredeck is immersed; or

(iii) 10 degrees from design trim;

A'_S = area of sails set including mast and boom in square metres;

h = height of combined centre of effort of sails and spars above the waterline;

ϕ_R = heel angle at maximum roll righting moment (in conjunction with LM_R);

ϕ_P = limiting pitch angle used when calculating LM_P (in conjunction with LM_P);

A_D = plan area of the hulls and deck in square metres; and

b = distance from centroid of A_D to the centreline of the leeward hull.

(6) Subject to allowances not being made for trapped bubbles of air (other than dedicated air tanks and watertight compartments), if the maximum safe wind speed under full fore-and-aft sail is less than 27 knots, it must be demonstrated, in accordance with Annex D of International Standard ISO 12217-2:2002 *Small craft—Stability and buoyancy assessment and categorization—Part 2: Sailing boats of hull length greater than or equal to 6 m* that, when the ship is –

(a) inverted;

(b) fully flooded,

the volume of buoyancy in the hull, fittings and equipment is greater than –

1.2 x (fully loaded mass in tonnes) (in cubic metres (m^3))

so as to ensure that the buoyancy is sufficient to support the mass of the fully loaded vessel.

(7) The maximum safe wind speed with no sails set, calculated in accordance with subclause (5), must exceed –

(a) 36 knots, in the case of ships that proceed beyond inshore limits; and

(b) 32 knots, in the case of ships that do not proceed beyond inshore limits.

(8) Trimarans that proceed beyond coastal limits must have sidehulls that each have a total buoyant volume of at least 150% of the displacement volume in the fully loaded condition.

6 Intact stability information

(1) This clause applies to new ships that –
  (a) are 12 metres or more in length; or
  (b) are permitted to carry 15 or more persons.

(2) The owner and the master must ensure that there is carried on board the ship a stability information booklet that –
  (a) complies with subclause (3); and
  (b) has been approved by a surveyor.

(3) The stability information booklet must include –
  (a) the maximum steady angle of heel, calculated in accordance with clause 2(4) of this Appendix, to prevent downflooding in gusts;
  (b) curves of maximum recommended steady angle of heel for the prevention of down flooding in the event of squall conditions;[26] and
  (c) in the case of a multihull ship –
    (i) the stability hazards to which the ships in vulnerable, including the risk of capsize in roll and/or pitch;
    (ii) the importance of complying with the maximum advised apparent wind speed information supplied;
    (iii) the need to reduce the tabulated safe wind speeds by the ship speed in following winds;
    (iv) the choice of sails to be set with respect to the prevailing wind strength, relative wind direction and sea state; and
    (v) the precautions to be taken when altering course from a following to a beam wind.

(4) The owner and the master must ensure that there is available on the ship, in a place approved by a surveyor, for ready reference by the crew, a copy of the information required by subclause 3(b).

(5) If the ship undergoes a refit or alteration that results in a change in that ship's lightship –
  (a) weight, of 2 per cent or more; or
  (b) longitudinal centre of gravity, of 1 per cent or more; or
  (c) vertical centre of gravity above the keel, of 0.25 per cent or more,

  the owner must ensure that the ship is subjected to a complete reassessment of its intact stability and issued with a new stability information booklet approved by a surveyor.

[26] Details of the development of such curves are given in the Advisory Circular.

Rule 40E.12

Appendix 2
Number of Passengers

1 Before a ship is put into service for the first time, the owner must ensure that the ship is measured by a surveyor in accordance with this Appendix to determine the maximum number of passengers the ship may carry in each operating limit that the ship is assigned.

2 The number of passengers permitted to be carried must be determined by calculating the sum of persons allowed in any cockpit and all enclosed spaces.

3 Except as provided in clause 5, the number of passengers allowed in enclosed spaces must be determined as follows -

(a) in cabins and other compartments fitted with fixed berths, or settees convertible to sleeping berths, by the number of berths, where at least 2 cubic metres of space is provided for each passenger in the cabin or compartment and the berths are not more than 2 tiers;

(b) in spaces used exclusively for dining, the number must be restricted to the seating provided;

(c) in public spaces on a ship assigned coastal or offshore limits and in public spaces below the main deck of every ship assigned restricted or coastal limits by dividing the clear deck area in square metres by 0.836;

(d) in public spaces situated on or above the main deck of a ship assigned inshore or coastal limits, by dividing the clear deck area in square metres by 0.56;

(e) in public spaces situated on or above the main deck of a ship assigned enclosed water limits, by dividing the clear deck area in square metres by 0.28;

(f) in sheltered spaces on a ship assigned inshore limit[s], by dividing the clear deck area in square metres by 0.28 and “sheltered spaces” shall have the meaning given to it in rule 40E.13(1).

4 Except as provided in clause (5), the number of passengers allowed in open cockpits[27] must be determined as follows -

(a) for every ship assigned inshore and coastal limits, the clear deck area in square metres of the open cockpit must be divided by 0.56;

(b) for every ship assigned enclosed water limits, the clear deck area in square metres of the open cockpit must be divided by 0.28,

provided that the area is measured from the inside of the back of any side benches, gunwale or side deck, whichever is the lesser.

5 The following spaces must not be measured for the purposes of clauses 3 and 4 –

[27] This number of passengers is only permitted when the ship is operating in enclosed waters.

(a) interior passageways of less than 750 mm width and passageways on the open deck of less than 450 mm width;
(b) space occupied by tables and permanent fittings in public rooms;
(c) toilets and washrooms;
(d) spaces where the presence of passengers would interfere with the navigation and working of the ship; and
(e) public rooms with a headroom of less than 1.9 metres.

6 A ship must not be assigned a passenger carrying capacity that exceeds any limit, or breaches any condition, placed on the ship under the following rules–
(a) the stability requirements of rules 40E.8 and 40E.9;
(b) compliance with the freeboard requirements of Part 47;
(c) the seating required by rule 40E.14; or
(d) the egress required by rule 40E.15;

Rule 40E.47

Appendix 3
Fire Fighting Appliances

1 Interpretation

If a ship is required, under this Appendix, to comply with a requirement of Part 42B , the ship must comply with that requirement as if it were a passenger ship.

2 Ships of 24 metres or more in length

This clause applies to ships of 24 metres or more but less than 45 metres in length.

ITEM	REQUIREMENT
Fire detection and fire alarm system	(1) Subject to the provisions of this clause, every ship must be fitted with fire detection and fire alarm system to the satisfaction of a surveyor. (2) The ship must, in respect of the fire detection and fire alarm system, be fitted with – (a) a control panel located at a steering position; and (b) audible alarms in locations where they are most likely to be heard. (3) The fire detection and fire alarm system must comprise smoke, heat or other detectors acceptable to the surveyor fitted in the machinery space and galley as a minimum. (4) In ships of 30 metres or more in length, detectors acceptable to the surveyor must be fitted in all enclosed spaces except those spaces which, in the opinion of the surveyor, do not contain a substantial fire risk.
Fire pumps	(1) Every ship must be provided with at least 2 engine or independently driven fire pumps of which – (a) the first pump must be a power driven fire pump that meets the applicable requirements of rule 42B.61; and (b) the second pump may be a hand pump or a power driven pump. (2) The first pump may be engine driven or independently driven.

	(3) The first pump must be capable of maintaining a water pressure of 0.2N/mm^2 at any hydrant, when discharging at full capacity through 2 adjacent fire hydrants,. (4) The second fire pump must be located outside – (a) the space in which the first pump is located; and (b) outside any space containing internal combustion type machinery. (5) The second fire pump must have a capacity – (a) in the case of a hand pump, sufficient to produce a throw – (i) of at least 6 metres through a fire hose with a 10 mm diameter nozzle; and (ii) which can be directed on any part of the ship; or (b) in the case of a power driven pump, at least 80 per cent of that required for the main power driven fire pump.
Fire main, water service pipes, hydrants, hoses and nozzles	(1) Every ship must be provided with – (a) a fire main, water service pipes and hydrants that meet the applicable requirements of rule 42B.63; and (b) hoses and nozzles that meet the requirements of rules 42B.64 and 42B.65 respectively. (2) The arrangement of fire main and water service pipes and the number and position of fire hydrants must be such that at least one jet of water must be able to reach any part of the ship normally accessible to passengers or crew while the ship is being navigated and any store room and any empty part of a storage compartment. (3) Provision must be made for isolation of the fire main within the machinery space and for the second pump to supply the fire main and hydrants external to the machinery space; and the isolation valve(s) must be fitted outside the machinery space in a readily accessible position in the event of fire. (4) Every ship must be provided with at least 3 fire hoses and 3 jet/spray nozzles complying with rules 42B.64

	and 42B.65 respectively.
Fixed fire extinguishing installation– Machinery Space.	A ship with a machinery space containing internal combustion type machinery must be provided with a fixed fire extinguishing system being either – (a) a gaseous fire extinguishing system that meets the requirements of rules 42B.20 to 42B.22 inclusive, as applicable; or (b) a pressure water spraying system, that meets the requirements of rules 42B.27 to 42B.30 inclusive; or (c) a foam system that meets the requirements of rule 42B.31 to 42B.32 inclusive, as applicable.
Non-portable and portable fire extinguishers	(1) A ship with a machinery space containing internal combustion type machinery must be provided with either– (a) (i) a minimum of 2 portable fire extinguishers, suitable for extinguishing an oil fire and meeting the requirements of rule 42B.57; and (ii) a non-portable foam fire extinguisher of 45 litres capacity meeting the requirements of rule 42B.53, or a carbon-dioxide fire extinguisher of 15 kg capacity meeting the requirements of rule 42B.54; or (b) one portable fire extinguisher, suitable for extinguishing an oil fire and meeting the requirements of rule 42B.57, for each 75 kW of machinery power fitted in the space provided that not more than 7 portable fire extinguishers need be provided in the space. (2) Every ship must be provided with portable fire extinguishers in the accommodation and service spaces that meet the requirements of rule 42B.57. The number, location and fire extinguishing medium type must be approved by a surveyor having regard to the perceived fire risk but, at least – (a) 4 portable fire extinguishers on a monohull ship; and (b) 5 portable fire extinguishers on a multihull ship, must be provided. (3) Except in the case of portable fire extinguishers located in the galley, portable fire extinguishers must be located external, but adjacent, to an entrance to

	the space in which they will be used. (4) 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 smothering blankets	Each ship galley must be provided with one fire smothering blanket complying with the requirements of rule 42B.67.
Fire crew outfits	Every ship must carry – (a) 2 fire crew outfits that meet the requirements of rule 42B.66; (b) one self-contained breathing apparatus that meets the requirements of rule 42B.59.
Signage	Every ship must be provided with signs, meeting the requirements of rule 42B.69, to identify all fire fighting appliances and their location.

3 Ships of 12 metres or more but less than 24 metres

This clause applies to ships of 12 metres or more but less than 24 metres length.

ITEM	REQUIREMENT
Fire detection	(1) Every ship must be fitted with smoke detectors, acceptable to the surveyor, in – (a) the machinery space(s); and (b) in any space containing open flame cooking or heating devices. (2) In any accommodation space that is allowed, under rule 40E.15(2), to have only one means of escape, smoke detectors acceptable to the surveyor must be fitted to give early warning of a fire that might cut off the single means of escape.
Fire pumps	(1) Every ship must be provided with at least one power driven pump – (a) located outside the propulsion machinery space; and (b) that comply with the requirements of rule 42B.61. (2) The pumps must be –

	(a) provided with sea and hose connections; and (b) capable of delivering one jet of water to any part of the ship through hose and nozzle, to the satisfaction of a surveyor.
Hoses and nozzles	Every ship must be provided with – (a) at least one hose complying with the requirements of rule 42B.64; and (b) one jet or spray nozzle complying with the requirements of rule 42B.65.
Fixed fire extinguishing installation – Machinery space	Every ship must be provided with a fixed fire extinguishing system in the propulsion machinery space that may be either – (a) a fixed gaseous fire extinguishing system, fixed water-based fire-extinction system or fixed foam fire extinguishing system complying with Part 42B; or (b) portable fire extinguisher(s) suitable for extinguishing an oil fire that – (i) comply with the requirements of rule 42B.57; and (ii) discharge into the space is to the satisfaction of the surveyor.
Portable fire extinguishers	(1) Every ship must be provided with at least – (a) 3 portable fire extinguishers on a monohull ship; and (b) 4 portable fire extinguishers on a multihull ship, that comply with the requirements of rule 42B.57. (2) Except in the case of portable fire extinguishers located in the galley, portable fire extinguishers must be located external, but adjacent, to an entrance to the space in which they are intended to be used.
Fire buckets	Every ship must be provided with at least 2 fire buckets complying with the requirements of rule 42B.62.
Fire smothering blanket	Every ship's galley must be provided with one fire blanket complying with the requirements of rule 42B.67.
Signage	Every ship must be provided with signs, meeting the requirements of rule 42B.69, to identify all fire fighting appliances and their location.

4 Ships of less than 12 metres in length

This clause applies to ships of less than 12 metres length.

ITEM	REQUIREMENTS
Fire detection	Every ship must be fitted with smoke detectors acceptable to the surveyor in the machinery space(s) and in any space containing open flame cooking or heating devices.
Fixed fire extinguishing installation – Machinery space	(1) Every ship must be provided with a fixed fire extinguishing system in the propulsion machinery space which may be either – (a) a fixed gaseous fire-extinction system, fixed water-based fire-extinction system or fixed foam fire-extinction system complying with Part 42B; or (b) portable fire extinguisher(s) suitable for extinguishing an oil fire that – (i) comply with the requirements of rule 42B.57; and (ii) discharge into the space is to the satisfaction of the surveyor. (2) The fixed fire extinguishing system required under rule 40E.28(2)(a) must comply with rule 42B.21(7).
Portable fire extinguishers	(1) Every ship 6 metres or more but less than 12 metres in length must be provided with at least – (a) 2 portable fire extinguishers on a monohull ship; and (b) 3 portable fire extinguishers on a multihull ship, that comply with the requirements of rule 42B.57. (2) Every ship less than 6m must be provided with at least– (a) 1 portable fire extinguishers on a monohull ship; and (b) 2 portable fire extinguishers on a multihull ship, that complies with the requirements of rule 42B.57. (c) Except in the case of portable fire extinguishers located in the galley, portable fire extinguishers must be located external, but adjacent, to an entrance to the space in which they will be used.
Fire buckets	Every ship must be provided with at least 2 fire buckets complying with the requirements of rule 42B.62.
Fire smothering blanket	Every ship's galley must be provided with one fire blanket complying with the requirements of rule 42B.67.

Signage	Every ship must be provided with signs, meeting the requirements of rule 42B.69, to identify all fire fighting appliances and their location.

Rule 40E.48

Appendix 4
Life Saving Appliances

1 Ships that proceed beyond the offshore limit

This clause applies to ships that proceed beyond the offshore limit.

ITEM	REQUIREMENT
General alarm	Every ship must be provided with a general alarm, which may be the ships' whistle or siren.
Survival craft (comprising rescue boats and liferafts)	(1) Every ship must be provided with one or more liferafts on each side of the ship of sufficient aggregate capacity to accommodate the total number of persons onboard. (2) Either – (a) liferafts must be readily transferable for launching on either side of the ship; or (b) additional liferafts must be fitted so that liferafts of sufficient capacity, to accommodate the total number of persons onboard, are provided on each side of the ship. (3) If it is impracticable to stow liferafts at the ships side, alternative arrangements may be accepted by the surveyor to stow liferafts, having sufficient aggregate capacity to accommodate 150 per cent, of the total number of persons onboard, on the ship's centreline provided that the liferafts are readily transferable to either side of the ship. (4) Liferafts must be of equal capacity or as near to equal capacity as possible. (5) Liferafts must comply with the requirements of rules 42A.8 and 42A.9. (6) Liferafts must be provided with at least one launching appliance, complying with the requirements of rule 42A.28, on each side of the ship. (7) Every ship must be provided with a rescue boat

	that – (a) has a capacity for not less than 4 persons; and (b) either – (i) complies with rule 42A.14 and is carried on board or towed; or (ii) complies with rule 42A.15 and is carried on board.
Lifebuoys	(1) Every ship must be provided with at least 4 lifebuoys complying with rule 42A.16. (2) If practicable, two lifebuoys must – (a) be fitted one port and one starboard and (b) be capable of being released from the navigating position. (3) If a surveyor considers it impracticable to comply with subclause (2), two lifebuoys – (a) may be stowed at the side of the ship and must be provided with conventional release arrangements; and (b) must be provided with a self-igniting light and self-activating smoke signal. (4) Two lifebuoys must be provided with a buoyant line.
Lifejackets	(1) Lifejackets must be provided for at least 105 per cent of the total number of persons on board. (2) Each lifejacket must be fitted with a light and whistle and must meet the requirements of rule 42A.18. (3) At least 2 of the lifejackets referred to in subclause (1) must be inflatable lifejackets, meeting the requirements of rule 42A.18, for the use of the crew of the rescue boat. (4) A life jacket of appropriate size must be provided for every child carried on board.
Line throwing appliance	Every ship of 30 metres or more in length must carry a line throwing appliance that meets the requirements of rule 42A.30.
Distress flares	Every ship must be provided with at least 6 rocket parachute flares that meet the requirements of rule 42A.22.
Immersion suits	(1) Except as provided in subclause (2), every ship must be provided with at least 2 immersion suits, meeting

	the requirements of rule 42A.25, for use by the crew of the rescue boat. (2) Any ship proceeding below 48° South or above 58° North must be provided with an immersion suit, meeting the requirements of rule 42A.25, for every person on board.
Safety harness	Every ship must be provided with a safety harness and safety line, that meets the requirements of rule 42A.21, for – (a) each person on board when the ship proceeds beyond restricted limits; (b) those persons that are permitted access to the open deck within the inshore limit; (c) those persons that are required to work and handle sails from above or on the deck when the ship is in enclosed waters.
Jackstay	(1) Jackstays must be – (a) fitted on deck, port and starboard of the yacht's centreline to provide secure attachments for safety harnesses; and (b) attached to through-bolted or welded deck plates, or other suitable and strong anchorages (eyebolts are not acceptable); and (c) stainless steel 1x19 wire of minimum diameter 5mm, or webbing of equivalent strength (2000kg or 4400lbs); and (d) sited in such a way that the safety harness lanyard can be kept as short as possible. (2) Through-bolted or welded anchorage points or other suitable and strong anchorages for safety harnesses must be provided adjacent to stations such as the helm, sheet winches and masts, where crew work for long periods. (3) Crewmembers must – (a) when clipped on, be able to move from the cockpit to the forward end and to the after end of the main deck without unclipping the harness. If the deck layout renders this impossible, additional lines, harnesses, tethers, or clips must be fitted so that a crewmember can move as described with a minimum of clipping operations; and (b) be able to clip on before coming on deck, unclip

	after going below and remain clipped on while moving laterally across the ship on the foredeck, the afterdeck and amidships. If necessary, additional jackstays and/or through-bolted or welded anchorage points must be provided for this purpose.
Orange rescue sheet	Ships of 24 metres or less in length must carry an orange rescue sheet.

2 Ships that proceed beyond the coastal limit but not beyond the offshore limit

This clause applies to ships that proceed beyond the coastal limit but not beyond the offshore limit.

ITEM	REQUIREMENT
General alarm	Every ship that carries more than 15 persons must be provided with a general alarm, which may be the ships' whistle or siren.
Survival craft (Liferafts)	(1) Every ship that carries more than 15 persons must be provided with liferafts of such number and capacity that, in the event of one liferaft being lost or rendered unserviceable, there is sufficient capacity remaining for all on board. (2) Every ship that carries less than 15 persons must be provided with liferaft of such number and capacity to accommodate at least the total number of persons on board. (3) Liferafts must – (a) meet the requirements of rules 42A.10 and 42A.11; (b) be stowed on the weather deck or in an open space; and (c) be fitted with float free arrangements, satisfactory to a surveyor, so that the liferafts float free and inflate automatically[28].

[28] Regard should be given to the possible loss of the liferaft during a knock-down or roll and at least the painter should be secured to a substantial through-bolted fitting.

	(4) Liferafts, on a multihull ship, must be located so that they are accessible when the ship is either upright or capsized.
Lifebuoys	(1) Every ship that carries 15 or more persons on board must be provided with 4 or more lifebuoys. (2) Every ship that carries less than 15 persons on board must be provided with 2 or more lifebuoys. (3) Lifebuoys must meet the requirements of rule 42A.17. (4) Two lifebuoys must be fitted with a self-igniting light and drogue. (5) A danbuoy must be attached to one of the lifebuoys fitted with a self-igniting light and drogue. (6) If a ship carries 15 or more persons, 2 of the lifebuoys that are not fitted with a light and drogue must have a buoyant line attached.
Lifejackets	(1) Lifejackets must be provided for at least 105 per cent of the total number of persons on board. (2) Each lifejacket must – (a) be fitted with a light and whistle; and (b) meet the requirements of rule 42A.18. (3) At least 2 of the lifejackets referred to in subclause (1) must be inflatable lifejackets – (a) for use by the crew of the rescue boat; and (b) meet the requirements of rule 42A.18. (4) A lifejacket of appropriate size must be provided for every child carried on board.
Distress flares	Every ship must be provided with at least – (a) six rocket parachute flares that meet the requirements of rule 42A.22; (b) six red hand flares that meet the requirements of rule 42A.23; and (c) two buoyant smoke signals the meet the requirements of rule 42A.24.
Thermal protective aids	Any ship that proceeds below 48º South must be provided with thermal protective aids –

	(a) for every person on board; and (b) that meet the requirements of rule 42A.27.
Safety harness	Every ship must be provided with a safety harness and safety line – (a) for every person on board; and (b) that meets the requirements of rule 42A.21.
Jackstay	(1) Jackstays must be – (a) fitted on deck, port and starboard of the yacht's centreline to provide secure attachments for safety harnesses; and (b) attached to through-bolted or welded deck plates, or other suitable and strong anchorages (eyebolts are not acceptable); and (c) stainless steel 1x19 wire of minimum diameter 5mm, or webbing of equivalent strength (2000kg or 4400lbs); and (d) sited in such a way that the safety harness lanyard can be kept as short as possible. (2) Through-bolted or welded anchorage points or other suitable and strong anchorages for safety harnesses must be provided adjacent to stations such as the helm, sheet winches and masts, where crew work for long periods. (3) Crewmembers must – (a) when clipped on, be able to move from the cockpit to the forward end and to the after end of the main deck without unclipping the harness. If the deck layout renders this impracticable, additional lines, harnesses, tethers, or clips must be fitted so that a crewmember can move as described with a minimum of clipping operations; and (b) be able to clip on before coming on deck, unclip after going below and remain clipped on while moving laterally across the ship on the foredeck, the afterdeck and amidships. If necessary, additional jackstays and/or through-bolted or welded anchorage points must be provided for this purpose.
Orange rescue sheet	Ships of 24 metres or less in length must carry an orange rescue sheet.

3 Ships that proceed beyond the inshore limit but not beyond the coastal limit

This clause applies to ships of less than 24 metres length that proceed beyond the inshore limit but not beyond the coastal limit.

ITEM	REQUIREMENT
General alarm	Every ship that carries more than 15 persons must be provided with a general alarm, which may be the ship's whistle or siren.
Survival craft (Liferafts)	(1) Every ship must be provided with liferafts of sufficient number and capacity to accommodate the total number of persons on board. (2) Liferafts must meet the requirements of rules 42A.10 and 42A.11. (3) The liferafts must be – (a) stowed on the weather deck or in an open space and fitted with float free arrangements so that the liferafts float free and inflate automatically; or (b) stowed in readily accessible and dedicated weathertight lockers opening directly to the weathertight deck. (4) The stowage of liferafts and any float free arrangement must be satisfactory to a surveyor. (5) Liferafts on a multihull ship must be located such that they are accessible when the ship is either upright or capsized.
Lifebuoys	(1) Every ship that carries 15 or more persons on board must be provided with 4 or more lifebuoys. (2) Every ship which carries less than 15 persons on board must be provided with 2 or more lifebuoys. (3) Lifebuoys must meet the requirements of rule 42A.17. (4) 2 lifebuoys must be fitted with a self-igniting light and drogue. (5) A danbuoy must be attached to one of the lifebuoys fitted with a self-igniting light and drogue.

	(6) If a ship carries 15 or more persons, 2 of the lifebuoys, which are not fitted with a light and drogue, must have an attached buoyant line.
Lifejackets	(1) Lifejackets must be provided for at least 105 per cent of the total number of persons on board. (2) The lifejackets must meet the requirements of rule 42A.19 and have a buoyancy of at least 100 Newtons. (3) Each lifejacket must be provided with a whistle firmly attached by a lanyard. (4) Every lifejacket must be provided with a lifejacket light on ships that proceed on overnight voyages. (5) A lifejacket of appropriate size must be provided for every child carried on board.
Distress flares	Every ship must be provided with at least – (a) four rocket parachute flares that meet the requirements of rule 42A.22; (b) six red hand flares that meet the requirements of rule 42A.23; and (c) two buoyant smoke signals that meet the requirements of rule 42A.24.
Safety harness	Every ship must be provided with a safety harness and safety line that meets the requirements of rule 42A.21, for every person carried on board.
Jackstay	(1) Jackstays must be – (a) fitted on deck, port and starboard of the yacht's centreline to provide secure attachments for safety harnesses; and (b) attached to through-bolted or welded deck plates, or other suitable and strong anchorages (eyebolts are not acceptable); and (c) stainless steel 1x19 wire of minimum diameter 5mm, or webbing of equivalent strength (2000kg or 4400lbs); and (d) sited in such a way that the safety harness lanyard can be kept as short as possible. (2) Through-bolted or welded anchorage points or other suitable and strong anchorages for safety harnesses must be provided adjacent to stations such as the

	helm, sheet winches and masts, where crew work for long periods. (3) Crewmembers must – (a) when clipped on, be able to move from the cockpit to the forward end and to the after end of the main deck without unclipping the harness. If the deck layout renders this impracticable, additional lines, harnesses, tethers, or clips must be fitted so that a crewmember can move as described with a minimum of clipping operations; and (b) be able to clip on before coming on deck, unclip after going below and remain clipped on while moving laterally across the ship on the foredeck, the afterdeck and amidships. If necessary, additional jackstays and/or through-bolted or welded anchorage points must be provided for this purpose.
Orange rescue sheet	Ships of 24 metres or less in length must carry an orange rescue sheet.

4 Ships that do not proceed beyond inshore limits

This clause applies to ships that do not proceed beyond restricted limits.

ITEM	REQUIREMENTS
Survival craft (liferafts)	(1) Every ship that proceeds beyond enclosed limits on an overnight voyage must be provided with dinghies or tenders, to the satisfaction of the surveyor, of sufficient number and capacity to accommodating the total number of persons on board if the ship sinks. (2) The dinghies or tenders must be stowed on the weather deck or in an open space and be able to be released in an emergency. (3) The stowage and any float free arrangement must be satisfactory to a surveyor. (4) Dinghies or tenders on a multihull ship must be located such so that they are accessible when the ship is either upright or capsized.

Lifebuoys	(1) Every ship that carries 15 or more persons must be provided with 4 or more lifebuoys. (2) Every ship that is 6 metres or more in length and carries less than 15 persons on board must be provided with 2 or more lifebuoys. (3) Lifebuoys must meet the requirements of rule 42A.17. (4) 50 per cent of the lifebuoys must be fitted with – (a) a self-igniting light, unless the ship only operates in daylight; and (b) a drogue. (5) One of the lifebuoys referred to in subclause (4) on every ship that operates within inshore limits must have an attached danbuoy. (6) 1 of the lifebuoys that is not fitted with a light and drogue must have an attached buoyant line. (7) A ship of less than 6 metres in length that carries less than 15 persons must be provided with - (a) a rescue buoy; or (b) a throw bag that is satisfactory to the surveyor.
Lifejackets	(1) A lifejacket must be provided for every person on board. (2) Lifejackets must meet the requirements of rule 42A.19 and have a buoyancy of at least 71 Newtons. (3) Every lifejacket must be provided with a whistle firmly attached by a lanyard. (4) Every lifejacket must be provided with a lifejacket light on ships that proceed on overnight voyages. (5) A lifejacket of appropriate size must be provided for every child carried on board.
Distress flares	(1) Every inshore limits ship of 12 metres or more in length overall must be provided with at least – (a) 4 rocket parachute flares that comply with rule 42A.22; and (b) 2 buoyant smoke flares that comply with rule

	42A.24. (2) Every inshore limits ship of less than 12 metres in length overall must be provided with – (a) 2 hand flares that comply with rule 42A.23; and (b) 2 buoyant smoke floats that comply with rule 42A.24. (3) Subject to subclauses (4) and (5), a ship that proceeds into the enclosed water limit must be provided with at least – (a) 2 buoyant smoke floats that comply with rule 42A.24; and (b) 2 hand flares that comply with rule 42A.23. (4) For a ship of 6 metres or less in length overall that proceeds into the enclosed water limit, the 2 hand flares are not required if the ship operates in daylight (between sunrise and sunset) only. (5) A ship in enclosed waters is not required to carry distress flares if a surveyor is satisfied that - (a) an EPIRB required by Appendix 5.1 is carried; or (b) the ship operates only in a river or in a restricted waterway where the use of distress flares is unnecessary.
Safety harness	Every ship must be provided with a safety harness and safety line, that meets the requirements of rule 42A.21, for every person – (a) permitted access to the open deck within the inshore limit; or (b) required to work and handle sails from above, or on the deck.
Jackstay	(1) Jackstays must be – (a) fitted on deck, port and starboard of the yacht's centreline to provide secure attachments for safety harnesses; and (b) attached to through-bolted or welded deck plates, or other suitable and strong anchorages (eyebolts are not acceptable); and (c) stainless steel 1x19 wire of minimum diameter 5mm, or webbing of equivalent strength (2000kg or 4400lbs); and (d) sited in such a way that the safety harness lanyard can be kept as short as possible.

	(2) Through-bolted or welded anchorage points or other suitable and strong anchorages for safety harnesses must be provided adjacent to stations such as the helm, sheet winches and masts, where crew work for long periods. (3) Crewmembers must – (a) when clipped on, be able to move from the cockpit to the forward end and to the after end of the main deck without unclipping the harness. If the deck layout renders this impossible, additional lines, harnesses, tethers, or clips must be fitted so that a crewmember can move as described with a minimum of clipping operations; and (b) be able to clip on before coming on deck, unclip after going below and remain clipped on while moving laterally across the ship on the foredeck, the afterdeck and amidships. If necessary, additional jackstays and/or through-bolted or welded anchorage points must be provided for this purpose.

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Appendix 5
Radiocommunications Equipment

1 Ships that do not proceed beyond the enclosed limit

This clause applies to every ship that does not proceed beyond the enclosed limit.

ITEM	*REQUIREMENTS*
VHF Radio or cellphone	(1) Every ship must be provided with a VHF radio that complies with rule 43.12. (2) If there is no VHF coverage for the ship's operating area but there is cellphone coverage for the ship's entire operating area, every ship must be provided with – (a) a cellphone; and (b) a permanent notice, to the effect that 111 is the number for emergency distress calls, that is displayed in a prominent position on the ship.
Satellite EPIRB	(1) Except as provided in subclause (3), every ship must be provided with a 406 MHz EPIRB that meets the requirements of rule 43.18A or 43.19. (2) The EPIRB must be kept in a readily accessible position onboard the ship. (3) A ship is not required to carry an EPIRB if a surveyor is satisfied that - (a) the distress flares required by Appendix 4.4 are carried; or (b) the ship operates only in a river or in a restricted waterway where the use of an EPIRB is unnecessary.

2 Ships that proceed beyond enclosed waters but does not proceed beyond a VHF coverage area

This clause applies to every ship that proceeds beyond enclosed waters but does not proceed beyond a VHF coverage area.

ITEM	*REQUIREMENTS*
VHF Radio	Every ship must be provided with a VHF radio that complies with rule 43.12.
Satellite EPIRB	(1) Every ship must be provided with a 406 MHz EPIRB that meets the requirements of rule 43.18A or 43.19. (2) The EPIRB must be kept in a readily accessible position onboard the ship.
Source of electrical energy	(1) At all times while a ship is at sea a re-chargeable battery must be – (a) situated above the ship's design waterline; (b) capable of operating the fixed VHF radio installation; (c) of sufficient capacity to supply continuously, for a period of at least 6 hours, a total current equal to the sum of – (i) the current consumption of the VHF radio receiver; and (ii) one-third of the current required to operate the VHF radio transmitter for the transmission of speech, with the transmitter operating at its full rated radio frequency output power; and (iii) the current consumption of the emergency electric light, if applicable; and (iv) one-third of the current that may be drawn by each additional load capable of operation from this battery. (2) For ships that spend – (a) less than 24 hours at sea at any one time, provision must be made for recharging the radio battery system within 10 hours; or (b) more than 24 hours at sea at one time, provision must be made for recharging the radio battery system within 10 hours while the ship is at sea. (3) If a portable VHF radio is carried, duplicate batteries must be carried which each have sufficient capacity for the voyage.

Clock	A means of accurately telling the time must be permanently mounted on board.
Card of Instructions	Every ship must be provided with a suitable card that explains, in simple terms – (a) the use of the VHF radio; and (b) the distress procedure prescribed in Part 23.
Emergency electric light	(1) Every ship of 24 metres or more in length must be provided with an emergency electric light that is – (a) independent of the system that supplies the normal lighting of a fixed VHF radio installation; and (b) permanently arranged so as to be capable of providing sufficient illumination of – (i) the operating controls of a fixed VHF radio installation; and (ii) the card of instructions; and (c) controlled by a switch – (i) clearly labelled to indicate its purpose, (ii) placed at the operating position of a fixed VHF radio installation. (2) Every ship of less than 24 metres in length must – (a) be fitted with an the emergency electric light of the type prescribed in subclause (1); or (b) carry a waterproof torch for this purpose.
Documents	(1) Every ship must carry – (a) a radio licence issued pursuant to the Radiocommunications Regulations 2001; and (b) any associated call sign; and (c) any associated Maritime Mobile Service Identity (MMSI) number. (2) The radio licence, any call sign, and any MMSI number (if any) must be displayed in the vicinity of a fixed radio installation.

3 Ships that proceed beyond a VHF coverage area

This clause applies to every ship that proceeds beyond a VHF coverage area but not beyond the offshore limit.

ITEM	*REQUIREMENTS*
MF/HF Radiotelephone	Every ship must be provided with a MF/HF radiotelephone that meets the requirements of rule 43.14.
VHF Radio	Every ship must be provided with a VHF radio that meets the requirements of rule 43.12.
Satellite EPIRB	(1) Every ship must be provided with – (a) a 406 MHz EPIRB that meets the requirements of rule 43.18A or 43.19; or (b) an INMARSAT EPIRB that meets the requirements of rule 43.20. (2) The EPIRB must be kept in a readily accessible position onboard the ship.
Source of electrical energy	(1) Every ship must have a main source of electrical power capable of operating the radio installations in the ship. (2) Every ship must have available, at all times while at sea, a reserve source of electrical power that – (a) is located above the design waterline; (b) consists of rechargeable batteries of sufficient capacity to supply, continuously for a period of at least 6 hours, a total current equal to the sum of – (i) the current required to operate the VHF radio receiver; and (ii) 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 (iii) the current required to operate the MF/HF radio receiver; and (iv) 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 (v) the emergency light; and (vi) one-third of the current that may be drawn by each additional load capable of operation from this battery.

	(3) Provision must be made for recharging the radio battery system, within 10 hours, while the ship is at sea.
Clock	Every ship must be provided with a reliable accurate clock that is – (a) fully visible to the radio operator; and (b) mounted in the immediate vicinity of the radio installation; and (c) marked with the radiotelephone silence periods.
Card of Instructions	Every ship must be provided with a suitable card that explains in simple terms the use of the radio equipment; and the distress procedures.
Emergency electric light	(1) Every ship of 24 metres or more in length must be provided with an emergency electric light that is – (a) independent of the system that supplies the normal lighting of the radio installations; and (b) permanently arranged so as to be capable of illuminating – (i) the operating controls of the radio installations; and (ii) the clock; and (iii) the card of instructions; and (c) controlled by a switch – (i) clearly labelled to indicate its purpose; and (ii) placed at the operating position of the MF/HF radiotelephone. (2) Every ship of less than 24 metres in length must be fitted with the emergency electric light prescribed above or carry a waterproof torch for this purpose.
Documents	(1) Every ship must carry – (a) a radio licence issued pursuant to the Radiocommunications Regulations 2001; and (b) any associated call sign; and (c) any associated MMSI (Maritime Mobile Service Identity) number (if provided). *(2)* The radio licence, any call sign and, any MMSI number must be displayed in the vicinity of the radio installation.

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Appendix 6
Anchors and Cables

1 Ships of 24 metres or less in length

This appendix applies to ships of less than 24 metres length.

$\frac{L_{OA}+L_{WL}}{2}$	**Anchor Weight**		**Anchor Cable Diameter**			
	Main	**Kedge**	**Main**		**Kedge**	
			Chain	**Rope**	**Chain**	**Rope**
(metres)	(kg)	(kg)	(mm)	(mm)	(mm)	(mm)
6	8	4	6	12	6	10
7	9	4	8	12	6	10
8	10	5	8	12	6	10
9	11	5	8	12	6	10
10	13	6	8	12	6	10
11	15	7	8	12	6	10
12	18	9	8	14	8	12
13	21	10	10	14	8	12
14	24	12	10	14	8	12
15	27	13	10	14	8	12
16	30	15	10	14	8	12
17	34	17	10	16	8	14
18	38	19	10	16	8	14
19	42	21	12	16	10	14
20	47	23	12	16	10	14
21	52	26	12	16	10	14
22	57	28	12	19	10	16
23	62	31	12	19	10	16
24	68	34	12	19	10	16

Notes –

1. The anchor sizes given in the table are for high holding power anchor types.
2. Where a standard stockless anchor type (fisherman type) is carried the weight given in the table must be increased by 42.8 per cent but the diameter of the anchor cable need not be increased.
3. Where the sailing ship has an unusually high windage due to heavy rigging (e.g. square rigger) or large superstructures are fitted, the weight given in the table is to be increased to take account of the increase in wind loading. The diameter of the anchor cable must be increased as may be appropriate for the increased weight of anchor.
4. The chain cable diameter is for short link galvanised mild steel chain.

5. The rope diameter given is for nylon construction. When rope of another construction is used, the breaking load must not be less than that of the nylon rope specified in the table.
6. For the main anchor the minimum length of cable must be 6 metres of chain plus 60 metres of rope or chain. For the kedge anchor the minimum length of cable must be 6 metres of chain plus 40 metres of rope or chain. The length of chain must in no case be less than the length of the vessel.
7. L_{OA} is length overall and L_{WL} is the length on the design waterline.