



CODE OF SAFETY FOR CARIBBEAN CARGO SHIPS

(Cargo Ships less than 500 Gross Tonnage)

CCSS CODE

(Revision 3 - June 2015)

**CARIBBEAN MEMORANDUM OF UNDERSTANDING
ON PORT STATE CONTROL**

FOREWORD

The Code of Safety for Caribbean Cargo Ships (CCSS Code) was adopted by the Final Preparatory and Signatory Meeting on Port State Control for the Caribbean Region on February 5 – 9, 1996.

On 29 January, 1997 the Caribbean Port State Control Committee adopted amendments to the CCSS Code.

The Caribbean MOU adopted amendments to the CCSS Code at its Sixth Meeting in Antigua, 5-7 March 2002.

The Caribbean MOU adopted amendments to the CCSS Code at Twentieth Meeting in Barbados, 17-18 June 2015.

This publication contains a consolidated text of the CCSS Code incorporating the above amendments.

June 2015

CODE OF SAFETY FOR CARGO SHIPS OPERATING IN THE CARIBBEAN

CONTENTS

	Page
PREAMBLE	1
CHAPTER 1	2
GENERAL PROVISIONS	2
PART A - DEFINITIONS, APPLICATION, ETC.....	2
1.1 Definitions	2
1.2 Application.....	4
1.3 Exemptions	4
1.4 Equivalents.....	5
1.5 Standard	5
1.6 Alterations and modifications of a major character	5
1.7 Manning	6
1.8 Ships' plans, signs, instruction manuals, name plates, and language used	6
PART B - SURVEYS AND CERTIFICATION.	6
1.9 Inspection and survey	6
1.10 Surveys for the issue and endorsement of a Caribbean Cargo Ship Safety Certificate.....	7
1.11 Maintenance of conditions after survey	8
1.12 Issue or endorsement of certificates	9
1.13 Duration and validity of certificates	9
1.14 Form of certificates	11
1.15 Availability of certificates.....	11
CHAPTER 2	12
CONSTRUCTION - SUBDIVISION AND STABILITY MACHINERY AND ELECTRICAL INSTALLATIONS	12
PART A - GENERAL.	12
2.1 Application.....	12
2.2 Definitions	12
2.3 General requirements for mechanical and electrical machinery, equipment and installations	13
PART B - CONSTRUCTION AND EQUIPMENT	13
2.4 Construction.....	13
2.5 Collision bulkhead	14
2.6 Chain locker	14
2.7 Watertight bulkheads, decks, doors, trunks, etc.	15
2.8 Means for sounding	15
2.9 Anchoring and mooring equipment for ships propelled by mechanical means	16
2.10 Special requirements of towing and pushing arrangement for tugs	16
2.11 Anchoring, mooring and towing arrangements for barges.....	16
2.12 Accident prevention and crew accommodation - General measures for all ships.....	17
2.13 Means of reducing fire risk in wooden ships	18
PART C - SUBDIVISION, STABILITY AND BILGE PUMPING ARRANGEMENTS	18
2.14 Intact stability and subdivision requirements for cargo ships other than offshore supply vessels.	18
2.15 Intact stability, subdivision and damaged stability requirements for offshore supply vessels	18
2.16 Inclining test.....	19
2.17 Stability information	19

2.18	Bilge pumping arrangements	19
2.19	General machinery requirements	20
2.20	Controls.....	21
2.21	Steam boilers and boilers feed systems	21
2.22	Steam pipe systems	21
2.23	Air pressure systems	21
2.24	Ventilating systems in machinery spaces.....	22
2.25	Protection against noise	23
PART E - ELECTRICAL INSTALLATIONS		23
2.26	General electrical requirements	23
2.27	Precaution against shock, fire and other hazards of electrical origin.....	23
2.28	Main source of electrical power.....	26
2.29	Emergency sources of electrical power.....	26
PART F - MACHINERY AND ELECTRICAL INSTALLATIONS FOR SHIPS PROPELLED BY MECHANICAL MEANS		28
2.30	General.....	28
2.31	Means of going astern.....	28
2.32	Remote control of propulsion machinery.....	29
2.33	Steering gear	30
2.34	Communication between navigation bridge and machinery space	31
2.35	Engineer's alarm.....	31
PART G - ADDITIONAL REQUIREMENTS FOR SHIPS WITH PERIODICALLY UNATTENDED MACHINERY SPACES.....		31
2.36	General.....	31
2.37	Applicable Requirements.....	31
CHAPTER 3		32
CONSTRUCTION - FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION.....		32
PART A - GENERAL		32
3.1	Application.....	32
3.2	Definitions	32
3.3	Fire pumps	33
3.4	Fire main, water service pipes and fire hydrants.....	34
3.5	Fire hoses and nozzles.....	35
3.6	Fire extinguishers.....	36
3.7	Fire monitors.....	37
3.8	Fixed fire-extinguishing systems and fixed fire detection and fire alarm systems	37
3.9	Portable fire extinguishers in accommodation spaces, service spaces and control stations....	37
3.10	Fire-extinguishing appliances and systems in machinery spaces.....	38
3.11	Fireman's outfit	39
3.12	Fireman's axe	40
3.13	Fire control plan and Maintenance File	40
3.14	Acceptance of substitutes.....	40
3.15	EEBDs.....	40
PART B - FIRE SAFETY MEASURES		40
3.16	Structure.....	40
3.17	Constructional fire safety measures	41
3.18	Ventilation of tanks, cofferdams, etc.	41
3.19	Miscellaneous items	43
3.20	Arrangement for oil fuel, lubricating oil and other flammable oils	43
3.21	Carriage of oxygen and acetylene cylinders	46
3.22	Carriage of dangerous stores for ship's use.....	47

3.23	Cooking areas.....	48
3.24	Fire protection arrangements in cargo spaces	48
3.25	Special requirements for ships carrying dangerous goods	48
PART C - FIRE SAFETY MEASURES FOR SHIPS CARRYING CRUDE OIL OR PETROLEUM PRODUCTS OF LOW FLASHPOINT AND DANGEROUS GOODS IN BULK		48
3.25	Safety of ships carrying crude oil and petroleum products of low flashpoint.....	48
3.26	Carriage of dangerous goods in barges	48
CHAPTER 4		49
LIFE-SAVING APPLIANCES, ETC		49
4.1	Application.....	49
4.2	Definitions.....	49
4.3	General requirements for life-saving appliances	49
4.4	Numbers and capacity of survival craft	50
4.5	Marking of survival Craft and rescue boats	50
4.6	Security of lifeboat and rescue boat equipment	51
4.7	Servicing of inflatable liferaft, inflatable lifejackets and inflatable rescue boats	51
4.8	Servicing of hydrostatic release units	51
4.9	Survival craft launching stations and stowage of survival craft and rescue boats	51
4.10	Embarkation and launching arrangements	53
4.11	Lifejackets.....	53
4.12	Lifebuoys	54
4.13	Line Throwing Apparatus	55
4.14	Distress signals	55
4.15	General emergency alarm system	55
4.16	Emergency instructions.....	55
4.17	Emergency training and drills	55
CHAPTER 5		57
RADIOCOMMUNICATIONS		57
5.1	Application.....	57
5.2	Definitions.....	58
5.3	EPIRB	58
5.4	Periodic inspection and testing of emergency position-indicating radio beacons.....	59
5.5	Maintenance	59
5.6	Source of Energy	59
5.7	Performance Standards	59
CHAPTER 6		60
SAFETY OF NAVIGATION		60
6.1	Application.....	60
6.2	Navigation Lights, Shapes and Sound Signals.....	60
6.3	Charts and Nautical Publications	60
6.4	Navigation Equipment	60
6.5	Safety of Navigation	62
6.6	Code Flags	62
CHAPTER 7		63
OPERATIONAL REQUIREMENTS.....		63
7.1	General Provision.....	63
7.2	Marine Casualties.....	63
7.3	Logbook	63
7.4	Miscellaneous Operational Requirements.....	64
7.4	Pollution prevention equipment and procedures.....	65
CHAPTER 8		67

HUMAN ELEMENT.....	67
8.1 General.....	67
8.2 Seafarer Spaces	67
8.3 Water Services	67
8.4 Galley.....	68
8.5 Toilet Facilities	68
8.6 Stowage Facilities for Personal Effects.....	68
8.7 Surface of Working Decks	68
8.8 First Aid	68
8.9 Noise & Vibrations	69
8.10 Working Hours.....	69
ANNEX I.....	70
Form of Caribbean Cargo Ship Safety Certificate	70
ANNEX II.....	77
Form of Exemption Certificate	77
ANNEX III.....	78
Form of Record of Equipment and Ship Information	78

CODE OF SAFETY FOR CARGO SHIPS OPERATING IN THE CARIBBEAN TRADING AREA

PREAMBLE

1. The Code has been developed to provide a regional safety standard for cargo ships of more than 24 metres length (L) and oil tankers and tankers irrespective of length which are less than 500GT engaged on voyages in the Caribbean Trading Area. The Code applies to new and existing ships and maritime administrations within the Caribbean Trading Area that participate in the CMOU, shall, as far as is practicable and reasonable, apply the standards specified in this Code to registered vessels.
2. The provisions specified in this Code recognises, as far as it is reasonable and practicable, the provisions specified in the relevant and applicable Conventions, Protocols and Codes including amendments thereto.
3. The Code will be reviewed bi-annually by the CMOU Technical Standing Working Group (TSWG) taking into account both experiences of the CMOU and the developments in international maritime safety standards as promulgated by the IMO.
4. Administrations are also encouraged to use this Code as a basis for any bilateral or multilateral agreements with respect to vessels on International Voyages with the Caribbean Trading Area.

CHAPTER 1

GENERAL PROVISIONS

PART A - DEFINITIONS, APPLICATION, ETC.

1.1 Definitions

For the purposes of this Code, unless expressly provided otherwise, the terms used therein have the meanings defined in the following paragraphs. Additional definitions are given in the various chapters.

1.1.1 *Administration* means the Government of the State whose flag the ship is entitled to fly.

1.1.2 *All ships* means cargo ships of any description to which this Code applies.

1.1.3 *Anniversary date* means the day and the month of each year which corresponds to the date of expiry of the relevant certificate.

1.1.4 *Approved* means approved by the Administration.

1.1.5 *Barge* means a cargo ship not propelled by mechanical means.

1.1.6 *Cargo ship* means any ship which carries not more than twelve passengers.

1.1.7 *Caribbean Trading Area* means an area bounded by a line from a point on the east coast of the United States of America in latitude 35° 00' north, to a point 5° 00' south, 33° 00' west; thence to a point 10° 00' south, 33° 00' west; thence to a point on the coast of Brazil in latitude 10° 00' south; thence northward along the coast of Continental America to a point in latitude 35° 00' north, on the east coast of the United States of America.

1.1.8 *Existing ship* means a ship which is not a new ship.

1.1.9 *Fishing vessel* means a vessel used for catching fish, or other living resources of the sea.

1.1.10 *Freeboard deck* is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing. In all other cases it shall be considered as that defined in the International Load Line Convention 1966 and the Protocol 1988, as amended Regulation 3 (9).

1.1.11 *Gross tonnage* means the measure of the overall size of a ship determined in accordance with the provisions of the International Convention on Tonnage Measurement of Ships, 1969.

1.1.12 *International voyage* means a voyage from a port in a State to another port outside such State.

1.1.13 *Length (L)* in relation to a ship means 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be the greater. In a ship designed with a rake of keel, the waterline on which this length is measured shall be parallel to the designed waterline.

1.1.14 *Machinery space* is to be taken as extending from the watertight bulkheads which bound the spaces containing the main and auxiliary propulsion machinery between the keel and the freeboard deck. In the case of unusual arrangements, the Administration shall define the limits of the machinery spaces.

1.1.15 *Machinery space of category A* is those spaces and trunks to such spaces which contain:

- .1 internal combustion machinery used for main propulsion; or
- .2 internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total output of not less than 375 kW; or
- .3 any oil-fired boiler or oil fuel unit.

1.1.16 *Moulded depth (D)*:

- .1 is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.
- .2 in ships having rounded gunwales, shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwale were of angular design; and
- .3 where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

1.1.17 *New ship* means a ship the keel of which is laid or which is at a similar stage of construction on 1 July 2016. In this definition “*similar stage of construction*” means the stage of construction of the ship at which:

- .1 construction identifiable with a specific ship begins; and
- .2 assembly of that ship has commenced comprising at least 50 tonnes or one per cent of the estimated mass of all structural material, whichever is less.

1.1.18 *Oil* means petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products as defined by the MARPOL Convention Annex I.

1.1.19 *Oil Tankers* means a cargo ship constructed or adapted for the carriage of oil in bulk in its cargo spaces as defined by the MARPOL Convention Annex I.

1.1.20 *Recognised organisation* means any organisation recognised to perform statutory work on behalf of a flag State Administration in terms of certification and survey functions connected with the issuance of international certificates.

1.1.20.1 *Restricted area I* means an area within the Caribbean Trading Area in which the ship in the course of navigation is not more than 3 nautical miles from a safe refuge. .

1.1.20.2 *Restricted area II* means an area within the Caribbean Trading Area in which the ship in the course of navigation is not more than 50 nautical miles from a safe refuge, the permissible distance between places of safe refuge not exceeding 100 miles.

1.1.20.3 *Restricted area III* means an area within the Caribbean Trading Area in which the ship in the course of navigation is not more than 200 nautical miles from a safe refuge, the permissible distance between places of safe refuge not exceeding 400 nautical miles.

1.1.21 *Safe refuge* means a port, inlet or other body of water normally sheltered from heavy seas by land presenting no special hazards and into which a vessel can safely navigate and where the persons on board can disembark into safety. The suitability of a location as a safe refuge is as determined by the Administration.

1.1.22 *Tankers* means any ship that is constructed or adapted for the carriage in bulk of liquid cargoes of a flammable or toxic nature.

1.1.23 *Unrestricted Area* means an area within the Caribbean Trading Area in which a ship in the course of navigation is more than 200 miles from a safe refuge.

1.2 Application

1.2.1 Unless otherwise expressly provided, this Code shall apply to cargo ships of less than 500 gross tonnage including oil tankers and tankers, irrespective of length, engaged on international voyages trading in the Caribbean Trading Area.

1.2.2 This Code shall not apply to:

- .1 military and government ships not used for commercial purposes;
- .2 cargo ships, other than oil tankers and tankers, of less than 24m in length;
- .3 pleasure craft not engaged in trade or commercial charter;
- .4 unmanned, non-propelled barges, other than tanker barges and barges carrying dangerous goods; and
- .5 fishing vessels.

1.3 Exemptions

1.3.1 A ship which is not normally engaged on international voyages but which, in exceptional circumstances, is required to undertake a single international voyage may be exempted by the Administration from any of the requirements of this Code other than the provisions of this Chapter, provided that it complies with such other requirements which are, in the opinion of the Administration, adequate for the voyage which is to be undertaken by the ship.

1.3.2 The Administration may exempt any vessel or description of vessels from all or any of the provisions of the Code, as shall be specified in the applicable Exemption Certificate, provided that the Administration is satisfied that compliance with such provision is either impracticable or unreasonable in the case of that vessel or description of vessels. The Exemption Certificate may be issued on such terms, if any, as the Administration may specify and subject to giving reasonable notice, the Administration may

alter or cancel any such issued Exemption Certificate. Where the ship operates primarily in the waters of another State, the exemption shall be acceptable to that State.

1.3.3 The Administration may exempt any ship which embodies features of a novel kind from any of the provisions of chapters 2, 3 and 4, of this Code the application of which might seriously impede research into the development of such features and their incorporation in ships engaged on international voyages. Any such ship shall, however, comply with such safety requirements which, in the opinion of the Administration, are adequate for the service for which it is intended and are such as to ensure the overall safety of the ship.

1.4 Equivalents

1.4.1 Where the Code requires that a particular fitting, material, appliance or apparatus, or type thereof, piece of equipment or machinery shall be fitted or carried in a vessel, or that any particular provision shall be made, the Administration may permit any other fitting, material, appliance or apparatus or type thereof, piece of equipment or machinery to be fitted or carried or any other provision to be made in that vessel where it is satisfied by trials or otherwise that the alternative is at least as effective as that required by the Code. In this instance such equivalence shall be endorsed on the Record of Equipment and Ship Information form attached to the Caribbean Cargo Ship Safety Certificate.

1.5 Standards

1.5.1 The construction, installation, structural strength, fittings, material, appliances and apparatus, unless expressly provided by this Code, shall be of a standard acceptable to the Administration.

1.5.2 In addition to the Codes and standards referred to in this Code, the other codes and standards recommended by the International Maritime Organization and accepted by the Administration may be applied whenever such codes and standards are considered to be appropriate.

1.5.3 Equipment and material that is required by the Code to be approved or of an approved type shall have been manufactured and approved in accordance with the design and testing requirements of the Administration. In determining design and testing requirements the Administration shall follow accepted international requirements and may delegate the testing and certification to an authorized Notified Body or Recognized Organization.

1.6 Alterations and modifications of a major character

1.6.1 Alterations and modifications of a major character and outfitting related thereto shall meet the requirements prescribed for a new ship to such an extent as the Administration deems reasonable and practicable.

1.6.2 For the purpose of these requirements, the following alterations and modifications shall be recognized as being of a *major conversion*:

- .1 any change that substantially alters the dimensions of a ship; or
- .2 any change that substantially increases a ship's service life.
- .3 any change to enable the ship to engage on another service than that for which it was originally designed and constructed.

1.7 Manning

1.7.1 Every ship to which this Code applies shall be sufficiently and efficiently manned in order that the number and qualification of the crew shall be sufficient for the safe operation and security of the ship and for the protection of the marine environment. When considering matters of manning, no member of the crew shall be less than 18 years of age.

1.7.2 The Administration shall provide every such ship with an appropriate safe manning document as evidence of the minimum safe manning considered necessary to satisfy the provisions of 1.7.1.

1.7.3 The minimum safe manning for a ship shall be defined by the Administration at time of registration of the ship with due consideration paid to the navigation area and operating conditions and characteristics of the ship, after receipt of a written proposal by the ship owner, in accordance with the IMO Resolution A.1047 (27) - Principles of Safe Manning Resolution.

1.7.4 The minimum authorized number of crew may be revised by the Administration upon receipt of written request by the ship owner or master.

1.8 Ships' plans, signs, instruction manuals, name plates, and language used

1.8.1 On board all ships, name plates, signs, notices, plans and documents relating to the safety and operation of the ship and its machinery and equipment shall be drawn up in the official language of the flag State and in a language understood by the crew.

1.8.2 Ships propelled by mechanical means shall carry adequate information including drawings, plans and instruction manuals necessary for their safe operation and safety of life at sea.

PART B - SURVEYS AND CERTIFICATION

1.9 Inspection and survey

1.9.1 The inspection and survey of ships, so far as regards the enforcement of the provisions of this Code and the granting of exemptions there from, shall be carried out by officers of the Administration. The Administration may, however, entrust the inspections and survey either to surveyors nominated for the purpose or to organizations recognised by it¹.

1.9.2 Where a nominated surveyor or recognized organization determines that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificate or is such that the ship is not fit to proceed to sea without danger to the ship, or persons on board, such surveyor or organization shall immediately ensure that corrective action is taken and shall in due course notify the Administration. Where such corrective action is not taken the certificate shall be withdrawn and the Administration shall be notified immediately.

¹ Refer to Guidelines for the Authorization of Organizations acting on behalf of Administrations, adopted by the International Maritime Organization by resolution A.739 (18).

1.10 Surveys for the issue and endorsement of a Caribbean Cargo Ship Safety Certificate

1.10.1 The structure, machinery, life-saving appliances, radio installations and other equipment referred to in 1.10.2 shall be subject to the surveys specified below:

- .1 an initial survey before the ship is put in service;
- .2 a renewal survey at intervals specified by the Administration not exceeding five years, except where regulation 1.13.2 or 1.13.5 is applicable;
- .3 a periodical survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the Caribbean Cargo Ship Safety Certificate which shall take the place of one of the annual surveys specified in .4;
- .4 an annual survey within three months before or after each anniversary date of the Caribbean Cargo Ship Safety Certificate;
- .5 a minimum of two inspections of the outside of the ship's bottom shall be carried out during any five year period, except where 1.13.5 is applicable. Where 1.13.5 is applicable, this five year period may be extended to coincide with the extended period of validity of the certificate. In all cases the interval between any two such inspections shall not exceed thirty-six months;
- .6 an additional survey, as occasion arises; and
- .7 all ships to which the Code applies, except the oil tankers and tankers of less than 24 m, shall be issued with an International Load Line Certificate in accordance with the requirements of the 1966 Load Line Convention.

1.10.2 The surveys referred to in 1.10.1 shall include the following items:

- .1 the structure, machinery and equipment, other than those items surveyed with the life-saving appliances and installations;
- .2 the fire safety systems and appliances, life-saving appliances and arrangements except radio installations, the shipborne navigational equipment, means of embarkation for pilots and other equipment to which chapters 2, 3, 4, 5 and 6 apply;
- .3 the fire control plans, nautical publications, lights, shapes, means of making sound signals and distress signals; and
- .4 the radio installations of cargo ships, including those used in life-saving appliances.

1.10.3 The initial or a renewal survey shall include the following:

- .1 a complete inspection of the items referred to in paragraph 1.10.2.1 to ensure that the arrangements, materials, scantlings and workmanship of the structure, boilers and other pressure vessels, their appurtenances, main and auxiliary machinery including steering

gear and associated control systems electrical installation and other equipment comply with the requirements of this Code, are in satisfactory condition and are fit for the service for which the ship is intended and that the required stability information is provided. In the case of oil tankers, tankers or barges carrying liquid cargoes of flammable nature in bulk the survey shall also include an inspection of the pump-rooms, cargo, bunker and ventilation piping systems and associated safety devices;

- .2 an inspection of the outside of the ship's bottom and related items in dry-dock, to ensure that they are fit for the service for which the ship is intended;
- .3 a complete inspection of the items referred to in 1.10.2.2 to ensure that they comply with the requirements of this Code, are in satisfactory condition and are fit for the service for which the ship is intended;
- .4 a complete inspection of the items referred to in 1.10.2.3 for the purpose of ensuring that they comply with the requirements of this Code and the 1972 Collision Regulations; and
- .5 a complete inspection of the items referred to in 1.10.2.4 to ensure that they comply with the requirements of this Code.

1.10.4 A periodical survey shall include an inspection of the equipment referred to in 1.10.2 in the manner prescribed in 1.10.3 to ensure that they remain in satisfactory condition and fit for the service for which the ship is intended.

1.10.5 An annual survey shall include a general inspection of the equipment referred to in 1.10.3 to ensure that they have been maintained in accordance with 1.11.1 and that they remain satisfactory for the service for which the ship is intended.

1.10.6 An additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in 1.11.3 whenever any important repairs or renewal are made. The survey shall be such as to ensure that the necessary repairs or renewal have been effectively made, that the material and workmanship of such repairs or renewal are in all respects satisfactory and that the ship complies in all respects with the provisions of this Code and of the 1972 Collision Regulations and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration.

1.10.7 The periodical and annual surveys referred to in 1.10.1.3 and 1.10.1.4 and the inspections of the ship's bottom in 1.10.1.5 shall be endorsed on the Caribbean Cargo Ship Safety Certificate.

1.10.8 Any alterations, modifications or renewals of ship board equipment as a result of the survey referred to in 1.10.1.2 shall be recorded in the ship's Record of Equipment and Ship Information, which shall be kept on board the ship. A copy of the results of the latest surveys referred to in 1.10.1.2 to 1.10.1.6 shall be kept on board ship.

1.11 Maintenance of conditions after survey

The owner or Master of every ship to which this Code applies shall ensure that:

- .1 the condition of the ship and its equipment is maintained to conform with the provisions of this Code to ensure that the ship in all respects will remain fit to proceed to sea without danger to the ship, persons on board or the environment;

- .2 after any survey of the ship under 1.10 has been completed, no significant change shall be made in the structural arrangement, machinery, equipment and other items covered by the survey, without the permission of the Administration; and
- .3 whenever an accident occurs to a ship or a defect is discovered, either of which affects the safety of the ship or the efficiency or completeness of its life-saving appliances or other equipment, a request shall be made immediately to the Administration responsible for issuing the relevant certificate for a survey as may be required by 1.10, be carried out as soon as practicable.

1.12 Issue or endorsement of certificates

1.12.1 A certificate called a Caribbean Cargo Ship Safety Certificate shall be issued after an initial or renewal survey of a ship which complies with the relevant requirements of chapters 2, 3, 4, 5 and 6 and any other relevant requirements of this Code.

1.12.2 The certificate referred to in 1.12.1 shall be supplemented by a Record of Equipment and Ship Information which shall be permanently attached thereto.

1.12.3 When an exemption is granted by the Administration to a ship under the provisions of this Code, a certificate called an Exemption Certificate shall be issued in addition to the certificates prescribed in this section. The Exemption Certificate shall be attached to the certificate to which it refers.

1.12.4 The certificates referred to in this section shall be issued or endorsed either by the Administration, an Administration applying the provisions of this Code at the request of another Administration similarly applying the provisions of this Code, or a recognised organisation acting on its behalf. In every case, the Administration assumes full responsibility for the certificates.

1.12.5 Any other condition of issue of a safety certificate, or an exemption certificate, if any, imposed by the Administration or recognised organisation shall be indicated on the relevant certificate.

1.12.6 The certificate referred to in this section shall also be endorsed with the operational limitations assigned to the vessel by the Administration.

1.13 Duration and validity of certificates

1.13.1 A Caribbean Cargo Ship Safety Certificate shall be issued for a period specified by the Administration which shall not exceed five years. An Exemption Certificate shall not be valid for longer than the period of the Certificate to which it refers.

1.13.2 .1 Notwithstanding the requirements of 1.13.1, when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of renewal survey to a date not exceeding five years from the date of expiry of the existing certificate.

.2 When the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date expiry of the existing certificate.

.3 When the renewal survey is completed more than three months before or after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.

1.13.3 Where a certificate is issued for a period of less than five years, the Administration may extend the validity of the certificate beyond the expiry date to the maximum period specified in 1.13.1, provided that the surveys referred to in 1.10, which are applicable when a certificate is issued for a period of five years are carried out as appropriate.

1.13.4 Where a renewal survey has been completed and new certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the Administration may endorse the existing certificate and such a certificate shall be accepted as valid for a further period which shall not exceed one month from the expiry date.

1.13.5 Where a ship at the time when a certificate expires is not in the country in which it is registered or a port in which it is to be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the country in which it is registered or the port in which it is to be surveyed and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than one month, and a ship to which such an extension is granted shall not on its arrival in the country in which it is registered or the port in which it is to be surveyed, be entitled by virtue of such extension to leave the country, in which it is registered or that port without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding five years from the date of expiry of the existing certificate before the extension was granted.

1.13.6 In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as required by 1.13.2.2 or 1.13.5. In these special circumstances, the new certificate shall be valid to a date not exceeding five years from the date of completion of the relevant renewal survey.

1.13.7 Where an annual or periodical survey is completed before the period specified in the relevant regulations, then:

- .1 the anniversary date shown on the relevant certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;
- .2 the subsequent annual, intermediate or periodical survey required by the relevant regulations shall be completed at the intervals prescribed by this Code using the new anniversary date; and
- .3 the expiry date may remain unchanged provided one or more annual, or periodical surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by the relevant regulations are not exceeded.

1.13.8 A certificate issued under 1.12 shall cease to be valid in any of the following cases:

- .1 where the relevant surveys and inspections are not completed within the periods specified under 1.10;

- .2 where the certificate is not endorsed in accordance with the requirements of this Code;
and
- .3 where the ship is withdrawn from the Registry of the respective country.

1.14 Form of certificates

The certificates and the record of equipment and ship information shall be drawn up in the form corresponding to the models given in the annexes. Where the language of the certificates and records is not English, the text thereof shall include a translation into this language.

1.15 Availability of certificates

1.15.1 The certificates issued under 1.12 shall be readily available on board for examination at all times.

CHAPTER 2

CONSTRUCTION - SUBDIVISION AND STABILITY MACHINERY AND ELECTRICAL INSTALLATIONS

PART A - GENERAL

2.1 Application

2.1.1 In addition to the requirements contained elsewhere in this Code, ships shall be designed, constructed and maintained in compliance with the structural, mechanical and electrical requirements of a classification society which complies with the standards adopted by the International Maritime Organization² and which is recognized by the Administration, or with the applicable national standards of the Administration and which provide an equivalent level of safety.

2.1.2 Existing ships shall, as far as is reasonable and practicable in the opinion of the Administration, comply with the provisions of this chapter and an existing ship that cannot maintain compliance with the provisions of this Chapter shall not be assigned Restricted area III and Unrestricted by the Administration.

2.2 Definitions

For the purposes of this chapter, unless expressly provided otherwise:

2.2.1 *Auxiliary means of steering* means the arrangement capable of steering the ship either manually or by power in the event of failure of the main steering gear but not including its tiller, quadrant or components serving the same purpose.

2.2.2 *Emergency source of electrical power* means a source of electrical power intended to supply the services in the event of failure of the supply from the main source of electrical power.

2.2.3 *Main source of electrical power* means a source intended to supply electrical power to the main switchboard for distribution to all services necessary for maintaining the ship in normal operational habitable conditions.

2.2.4 *Main steering gear* means the machinery, rudder actuators, the steering gear power units, if any, and ancillary equipment and the means of applying torque to the rudder stock (e.g. tiller or quadrant) necessary for effecting movement of the rudder for the purpose of steering the ship under normal service conditions.

2.2.5 *Maximum ahead service speed* means the greatest speed which the ship is designed to maintain service at sea at its deepest seagoing draught.

2.2.6 *Maximum astern speed* means the speed which it is estimated the ship can attain at the design maximum astern power at its deepest seagoing draught.

²Refer to the Minimum Standards for recognized organizations acting on behalf of the Administration set out in Appendix 1 to the Guidelines for the authorization of organizations acting on behalf of the Administration, adopted by the International Maritime Organization by Resolution A.739 (18) as amended.

- 2.2.7 *Offshore supply vessel* means a cargo ship propelled by mechanical means:
- .1 whose primary use is the transport of stores, materials and equipment to offshore installations and which may also be used for the laying of anchors, towage of offshore installations; and
 - .2 which is designed with accommodation and bridge erections in the forward part of the vessel and an exposed cargo deck in the after part for the handling of cargo at sea.

2.2.8 *Superstructure* means the decked structure on the freeboard deck extending from side to side of the ship or with the side plating not being inboard of the shell plating more than 0.04B, where B is the maximum breadth of the ship measured amidships to the moulded line of the frame in a ship with a metal shell and the outer surface of the hull in a ship with a shell of any other material.

2.2.9 *Watertight* means capable of preventing the passage of water through the structure in any direction under a head of water for which the surrounding structure is designed.

2.2.10 *Weathertight* means that in any sea condition water will not penetrate into the ship.

2.3 General requirements for mechanical and electrical machinery, equipment and installations

All machinery and electrical installations, mechanical and electrical equipment and appliances, boilers and other pressure vessels, associated piping systems, fittings and electrical cables and wiring shall be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board, due regard being paid to moving parts, hot surfaces and other hazards. The design shall have regard to materials used in construction, and to purposes for which the equipment is intended, the working conditions and the environmental conditions to which it will be subjected.

PART B - CONSTRUCTION AND EQUIPMENT

2.4 Construction

2.4.1 The strength and construction of hull, superstructures, deckhouses, machinery casings, companion ways and any other structure and equipment shall be sufficient to withstand all foreseeable conditions of the intended service.

2.4.2 Ships shall be fitted with a collision bulkhead in accordance with 2.5 and with watertight bulkheads bounding the machinery spaces. Such bulkheads shall be extended up to the freeboard deck. In ships constructed of wood such bulkheads shall also be fitted extending to the freeboard deck and shall be watertight as far as practicable.

2.4.3 Propeller shafts and shaft logs or stern tubes shall not be situated in any space other than machinery spaces containing main propulsion unless they are enclosed in watertight spaces or enclosures inside such spaces acceptable to the Administration. The Administration may exempt from the requirements of this paragraph, ships having constraint of space or engaged on sheltered voyages provided it is demonstrated that any progressive flooding of such space can be easily controlled and that the safety of the ship is not impaired.

2.4.4 Stern glands shall be located in spaces which can be easily accessible at all times for inspection and maintenance to the satisfaction of the Administration.

2.5 Collision bulkhead

2.5.1 For the purpose of this section *freeboard deck*, *length of ship* and *forward perpendicular* have the meanings as defined in the 1966 Load Line Convention.

2.5.2 A collision bulkhead shall be watertight up to the freeboard deck. This bulkhead shall, as far as practicable, be located at a distance from the forward perpendicular of not less than 5% and not more than 7% of the length of the ship. Where it can be shown to the satisfaction of the Administration that it is impractical for the collision bulkhead to be located at a distance from the forward perpendicular of not more than 7% of the length of the ship, the Administration may allow relaxation therefrom, subject to the condition that shall the space forward of the bulkhead be flooded, the ship at full load condition will not be submerged to the margin line.

2.5.3 The collision bulkhead may have steps or recesses in it provided that they are within the limits prescribed in 2.5.2. Pipes piercing the collision bulkhead shall be kept to the minimum. Such pipes shall be fitted with suitable valves operable from above the freeboard deck and the valve chest shall be secured at the collision bulkhead inside the forepeak. The Administration may permit the location of such valves on the after side of the collision bulkhead provided that they are readily accessible under all service conditions and the space in which they are located is not a cargo space. All such valves shall be of material acceptable to the Administration.

2.5.4 Where a long forward superstructure is fitted, the collision bulkhead shall be extended watertight to the deck above the freeboard deck. The extension shall, subject to the requirements of 2.5.5, be located within the limits prescribed in 2.5.2. The part of the deck, if any, between the collision bulkhead and its extension shall be weathertight.

2.5.5 In every ship provided with a bow door and a sloping loading ramp that forms part of the extension of the collision bulkhead above the freeboard deck, the part of the ramp which is more than 2.3m above the freeboard deck may extend forward of the limits specified in 2.5.2. The ramp shall be weathertight over its entire length.

2.5.6 The number of openings in the collision bulkhead above the freeboard deck shall be reduced to the minimum compatible with the design and normal operation of the ship. All such openings shall be capable of being closed weathertight.

2.5.7 No doors, manholes, ventilation ducts or access openings shall be fitted in the collision bulkhead below the freeboard deck.

2.6 Chain locker

2.6.1 In every ship propelled by mechanical means where the chain locker is located abaft the collision bulkhead or extends into the forepeak tank, it shall be watertight and provided with efficient means of drainage.

2.6.2 A chain locker shall not be used for any purpose other than stowage of anchor chain cables.

2.6.3 Chain lockers as far as is practical and reasonable shall be fitted with means of securing the bitter end of anchor chains to the satisfaction of the Administration.

2.7 Watertight bulkheads, decks, doors, trunks, etc.

2.7.1 This section does not apply to such ships the hull of which is constructed of wood.

2.7.2 Each watertight subdivision bulkhead, whether transverse or longitudinal, shall be constructed in such a manner that it shall be capable of supporting, with a proper margin of resistance, the pressure due to the maximum head of water which it might have to sustain in the event of damage to the ship but at least the pressure due to a head of water up to the margin line. The construction of these bulkheads shall be to the satisfaction of the Administration or recognised organisation.

2.7.3.1 Steps and recesses in bulkheads shall be watertight and as strong as the bulkhead at the place where each occurs.

2.7.3.2 Where frames or beams pass through a watertight deck or bulkhead, such deck or bulkhead shall be made structurally watertight to the satisfaction of the Administration.

2.7.4 The number of openings in watertight bulkheads shall be reduced to the minimum compatible with the general arrangements and operational needs of the ship. Openings shall be fitted with watertight closing appliances to the satisfaction of the Administration. Watertight doors shall be of equivalent strength to the adjacent unpierced structure.

2.7.5 Watertight decks, trunks, tunnels, duct keels and ventilators shall be of the same strength as watertight bulkheads at corresponding levels. The means used for making them watertight, and the arrangements adopted for closing openings in them, shall be to the satisfaction of the Administration. Watertight ventilators and trunks shall be carried at least up to the freeboard deck.

2.7.6 Testing main compartments by filling them with water is not compulsory. When testing by filling with water is not carried out, a hose test is compulsory. In any case, a thorough inspection of watertight bulkheads shall be carried out.

2.7.7 The forepeak, double bottoms, including duct keels, and inner skins shall be tested with water to a head corresponding to the requirements of 2.7.2.

2.7.8 Tanks which are intended to hold liquids, and which form part of the subdivision of the ship, shall be tested for tightness with water to a head corresponding to two-third of the depth from the top of keel to the margin line in way of the tanks provided that in no case shall the test head be less than 0.9m above the top of the tank.

2.7.9 The tests referred to in 2.7.7 and 2.7.8 are for the purpose of ensuring that the subdivision structural arrangements are watertight and are not to be regarded as a test of the fitness of any compartment for the storage of oil fuel or for other special purposes for which a test of a superior character may be required depending on the height to which the liquid has access in the tank or its connections.

2.8 Means for sounding

2.8.1 In all ships other than barges with no under deck cargo spaces, means for sounding, to the satisfaction of the Administration, shall be provided:

- .1 for the bilges of those compartments which are not readily accessible at all times during the voyage; and

.2 for all tanks and cofferdams.

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

2.9 Anchoring and mooring equipment for ships propelled by mechanical means

2.9.1 Every ship shall be provided with at least two anchors of sufficient weight one of which is provided with a chain cable of adequate strength and size and windlass, capstan or winch of suitable size for the cable and other anchor handling equipment to the satisfaction of the Administration.

2.9.2 Windlass, capstan, winches, fairleads, bollards, mooring bits and other anchoring, mooring, towing and hauling equipment shall be:

- .1 properly designed to meet all foreseeable operational loads and conditions;
- .2 correctly seated; and
- .3 effectively secured to a part of the ship's structure which is suitably strengthened.

2.10 Special requirements of towing and pushing arrangement for tugs

2.10.1 The design of the towing gear, including winches, shall be such as to minimize the overturning moment due to the lead of the towline. It shall have a positive means of quick release which can be relied upon to function correctly under all operating conditions.

2.10.2 Where a towing hook is provided, the release mechanism shall be controlled where practicable from the after control position (where fitted) and at the hook itself.

2.10.3 When a pushing tug and a barge pushed ahead are rigidly connected in a composite unit, the tug-barge coupling system shall be capable of being controlled and powered from the tug. Disassembly shall be capable of being made without causing damage to the tug or the barge.

2.10.4 Every tug shall be provided with at least one axe of sufficient size on each side which shall be readily available for cutting the towline free in an event of an emergency.

2.11 Anchoring, mooring and towing arrangements for barges

2.11.1 Every barge shall be equipped with at least a suitable anchor for holding the barge in an emergency to the satisfaction of the Administration. It shall be securely attached to a cable or wire rope and arranged for release in emergency conditions either by persons on the barge or boarding the barge for such purpose. At least a windlass or winch shall be provided as appropriate to assist persons carrying out such operation. Suitable boarding facilities shall be provided for personnel from the towing tug to board the barge in an emergency.

2.11.2 The towing and mooring arrangements and procedures shall be such as to reduce to a minimum any danger to personnel during towing or mooring operation. Such arrangements shall be of adequate strength and suitable for the particular type of barge.

2.11.3 The design and arrangement of towing and mooring fittings or equipment of barges shall take into account both normal and emergency conditions.

2.11.4 Sufficient spare equipment to completely remake the towing and mooring arrangements of barges shall be available.

2.11.5 Secondary or emergency towing arrangements shall be fitted on board the barge so as to be easily recoverable by the towing tug in the event of parting of the main towing wire or failure of ancillary equipment.

2.11.6 In addition to the provisions of this section, barges shall comply with the applicable requirements of the safety of towed ships and other floating objects recommended by the International Maritime Organization³.

2.12 Accident prevention and crew accommodation - General measures for all ships

2.12.1 Hinged covers of hatchways, manholes and other similar openings shall be protected against accidental closing. In particular, heavy covers on escape hatches shall be equipped with counterweights or hold back mechanisms. Escape doors and covers of escape and access hatches shall be so constructed as to be capable of being opened from either side of the door or cover.

2.12.2 The dimensions of access hatches shall be such that it will allow a person to have a quick and easy escape to a safe place in the event of an emergency. Where practicable, the dimensions of access hatches of cargo and machinery spaces shall be such that they will facilitate expeditious rescue operation.

2.12.3 Handrails, grabrails and handholds of sufficient size and strength shall be provided where necessary in the opinion of the Administration for persons to hold on when the ship is severely rolling or pitching.

2.12.4 Skylights of machinery spaces or other similar openings which are normally kept open at sea shall be provided with adequately spaced protective bars or other arrangements to the satisfaction of the Administration to prevent a person from falling into the space accidentally. Where the size of such an opening is small, the Administration may waive this requirement where satisfied that due to the small size of the opening no protective arrangement is necessary.

2.12.5 Surfaces of all decks shall be so prepared or treated as to minimize the possibility of persons slipping. In particular, decks and platforms in machinery spaces, floors of galleys, decks at winches and areas at the foot and head of ladders and in front of door and steps of ladders shall be provided with anti-slip surfaces.

2.12.6 Moving parts of machinery which are so exposed as to cause accidents shall be properly guarded.

2.12.7 All crew accommodation shall be kept in a habitable and sanitary condition.

2.12.8 In addition to complying with the provisions of this section, every ship shall comply with any other requirements which, in the opinion of the Administration, are deemed necessary to prevent accidents at sea and to maintain appropriate living and working conditions. In addition to complying with

³Reference is made to the Guidelines on the safety of towed ships and other floating objects, including installations, structures and platforms at sea, adopted by the International Maritime Organization by resolution A.765 (18).

the provisions of this section, every ship shall comply with any other requirements which, in the opinion of the Administration, are deemed necessary to prevent accidents at sea and to maintain appropriate living and working conditions. Such requirements as determined by the Administration shall be consistent with the ILO standards and guidance to the extent that it is reasonable and practicable.

2.13 Means of reducing fire risk in wooden ships

2.13.1 In every ship the hull of which is constructed of wood, metal trays shall be fitted under the main engines, auxiliary engines and fuel tanks to contain any oil spillage, and suitable means provided to safely dispose of any spillage.

PART C - SUBDIVISION, STABILITY AND BILGE PUMPING ARRANGEMENTS

2.14 Intact stability and subdivision requirements for cargo ships other than offshore supply vessels

2.14.1 Ships which keel is laid before 1 July 2010 shall comply with the intact stability requirements for cargo ships specified in the Code on Intact Stability for All Types of Ships Covered by IMO Instruments, adopted by the International Maritime Organization by resolution A.749 (18) and amendments.

2.14.2 Ships which keel is laid after 1 July 2010 shall comply with Code on Intact Stability 2008 IS Code (Resolution MSC.267 (85)), as far as practical and reasonable in the opinion of the Administration.

2.14.3 Intact stability for barges carrying only deck cargoes and having no hatchways in the deck except small manholes closed with gasketed covers, no machinery installations and no accommodation and service spaces shall comply with the stability requirements recommended by the Administration⁴. The Administration shall determine the intact stability or subdivision and damaged stability requirements as appropriate for barges carrying underdeck cargoes or having machinery installations or service spaces, having regard to the design and arrangements of cargo spaces, machinery, equipment, deck houses or superstructure.

2.15 Intact stability, subdivision and damaged stability requirements for offshore supply vessels

2.15.1 The intact stability, subdivision and damaged stability of offshore supply vessels shall comply with the applicable requirements of the Guidelines for the Design and Construction of Offshore Supply Vessels, adopted by the International Maritime Organization by resolution A. 469 (12) and accepted by the Administration. In addition, the Administration may require such ships to comply with the weather criterion specified in the Code on Intact Stability referred to in 2.14.1 or 2.14.2.

2.15.2 Offshore supply vessels of which the keel was laid before 19 November 1981 shall comply with the requirements of 2.15.1 as far as reasonably practicable in the opinion of the Administration.

2.15.3 Intact stability, subdivision and damage stability requirements for offshore supply vessels to which the provisions of this section does not apply shall be to the satisfaction of the Administration.

⁴Refer to the Guidelines for intact stability requirements for pontoons, adopted by the IMO Maritime Safety Committee and published as MSC/Circ. 503.

2.16 Inclining test

2.16.1 Every ship shall undergo an inclining test upon its completion and the actual displacement and position of the centre of gravity shall be determined for the lightship condition⁵.

2.16.2 Where alterations are made to a ship affecting its lightship condition and the position of the centre of gravity, the ship shall, where the Administration considers this necessary, be re-inclined and the stability information amended.

2.16.3 The Administration may allow the inclining test of a ship to be dispensed with provided basic stability data is available from the inclining test of a sister ship and it is shown to the satisfaction of the Administration that reliable stability information for that ship can be obtained from such basic data.

2.17 Stability information

2.17.1 Stability information approved by the Administration shall be supplied to ships of 24 m in length and over to enable the master to assess with ease and certainty the stability of the ship under various operating conditions. Such information shall include specific advice to the master warning him of those operating conditions which could adversely affect either stability or the trim of the ship⁶. In particular, the information recommended in the relevant IMO Instruments referred to in 2.14 and 2.15 shall be included as appropriate. A copy of the stability information shall be submitted to the Administration or recognized organisation.

2.17.2 The approved stability information shall be kept on board, readily accessible at all times and inspected at the periodical surveys of the ship to ensure that it has been approved.

2.17.3 Where alternations are made to a ship affecting its stability, revised stability calculations shall be prepared and submitted to the recognised organisation or to the Administration for approval. Where the Administration or recognised organisation decides that the stability information must be revised, the new information shall be supplied to the master and the superseded information removed from the ship.

2.18 Bilge pumping arrangements

2.18.1 In every ship an efficient bilge pumping arrangement shall be provided which under all practical conditions shall be capable of pumping from and draining any watertight compartment which is neither a permanent oil tank nor a permanent water tank. In the spaces not serviced by installed piping ready access for portable pumps shall be demonstrated. Where the Administration is satisfied that the safety of the ship is not impaired the bilge pumping arrangements may be dispensed with in any particular compartment.

2.18.2 The arrangement of the bilge and ballast pumping system shall be such as to prevent the possibility of water passing from the sea and from water ballast spaces into the cargo and machinery spaces, or from one compartment to another.

⁵Refer to Chapter 7 and Annex I of the Code on Intact Stability for All Types of Ships Covered by IMO Instruments, adopted by the International Maritime Organization by resolution A.749 (18) or IS Code 2008.

⁶Refer to the Guidance note on precautions to be taken by the Master of Ships of below 100 m in length engaged in the carriage of logs, adopted by the IMO Maritime Safety Committee at its fifty-eighth session in June 1990 and Guidance to the master on avoidance of dangerous situations in following and quartering seas, adopted by the IMO Maritime Safety Committee and published as MSC/Circ. 1228.

2.18.3 All distribution boxes and manually operated valves in connection with the bilge pumping arrangements shall be in positions which are accessible under ordinary circumstances.

2.18.4.1 Every ship shall be provided with at least two power bilge pumps.

2.18.4.2 In a ship propelled by mechanical means fitted with single main propulsion machinery, one of the two required bilge pumps may be driven by that machinery. In every ship fitted with twin independently operated main propulsion machinery, each such set of machinery may drive one of the required bilge pumps. In every case the propeller shaft shall be able to be readily disconnected or a controllable pitch propeller fitted.

2.18.5 The total capacity of the required bilge pumps shall be not less than 125 % of the total capacity of the required main fire pumps referred to in 3.3.

2.18.6 Sanitary, ballast, fire and general service pumps provided with suitable connections for bilge suction may be accepted as independent power bilge pumps.

2.18.7 The Administration may permit a bilge ejector in combination with an independently driven high pressure seawater pump to be installed or a portable mechanical pump to be used as substitute for one of the bilge pumps required by 2.18.4.1.

2.18.8 Bilge pipes shall not be led through fuel oil, ballast or double tanks, unless pipes are of heavy gauge steel construction.

PART D – MACHINERY INSTALLATIONS

2.19 General machinery requirements

2.19.1 All boilers and other pressure vessels, all parts of machinery, all systems, hydraulic, pneumatic and other systems and their associated fittings which are under internal pressure shall be subjected to an approved pressure test before being put into service for the first time.

2.19.2 Adequate provisions shall be made to facilitate cleaning, inspection and maintenance of machinery installations including boilers and other pressure vessels.

2.19.3 Where risk from over-speeding of machinery exists, means shall be provided to ensure that the safe speed is not exceeded.

2.19.4 Where main or auxiliary machinery including pressure vessels or any parts of such machinery are subject to internal pressure and may be subject to dangerous overpressure, means shall be provided where practicable to protect against such excessive pressure.

2.19.5 All gearing and every shaft and coupling used for transmission of power to machinery essential for the propulsion and safety of the ship or for the safety of persons on board shall be so designed and constructed that they will withstand the maximum working stresses to which they may be subject in all service conditions, and due consideration shall be given to the type of engines by which they are driven or of which they form part.

2.20 Controls

2.20.1 Main internal combustion propulsion machinery and applicable auxiliary machinery shall be provided with automatic shut off arrangement in the case of failures such as lubricating oil supply failure which could lead rapidly to complete breakdown, serious damage or explosion, as deemed necessary by the Administration. The Administration may permit provisions for overriding automatic shut off devices.

2.21 Steam boilers and boilers feed systems

2.21.1 Every steam boiler and every oil-fired steam generator shall be provided with not less than two safety valves of adequate capacity. However, having regard to the output or any other features of any boiler or oil-fired steam generator, the Administration may permit only one safety valve to be fitted if it is satisfied that adequate protection against overpressure is thereby provided.

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

2.21.3 Every steam generating system which provides services essential for the safety of the ship, or which could be rendered dangerous by the failure of its feed water supply, shall be provided with not less than two separate feed water systems from and including the feed pumps, noting that a single penetration of the steam drum is acceptable. Unless the pump is designed to prevent overpressure, means shall be provided which will prevent overpressure in any part of the systems.

2.21.4 Boilers shall be provided with means to supervise and control the quality of the feed water. Suitable arrangements shall be provided to preclude, as far as practicable, the entry of oil or other contaminants which may adversely affect the boiler.

2.21.5 Every boiler essential for the safety of the ship and designed to contain water at a specified level shall be provided with at least two means for indicating its water level, at least one of which shall be direct reading gauge glass.

2.22 Steam pipe systems

2.22.1 Every steam pipe and every fitting connected thereto through which steam may pass shall be so designed, constructed and installed as to withstand the maximum working stresses to which it may be subjected.

2.22.2 Means shall be provided for draining every steam pipe where otherwise dangerous water hammer action might occur.

2.22.3 Where a steam pipe or fitting may receive steam from any source at a higher pressure than that for which it is designed a suitable pressure reducing valve, pressure relief valve and pressure gauge shall be fitted.

2.23 Air pressure systems

2.23.1 In every ship means shall be provided to prevent overpressure in any part of compressed air systems and wherever water jackets or casings of air compressors and coolers might be subjected to dangerous overpressure due to leakage into them from air pressure parts. Suitable pressure relief arrangements shall be provided for all systems.

2.23.2 The main starting air arrangement for main propulsion internal combustion engines shall be adequately protected against the effects of backfiring and internal explosion in the starting air pipes.

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

2.23.4 Provision shall be made to reduce, to the minimum, the entry of oil into the air pressure systems and to drain these systems.

2.24 Ventilating systems in machinery spaces

2.24.1 Machinery spaces of category A shall be adequately ventilated so as to ensure that when machinery or boiler therein are operating at full power in all weather conditions including heavy weather, an adequate supply of air is maintained to the spaces for the safety and comfort of personnel and the operation of the machinery.

2.24.2 In addition to complying with the requirements of 2.24.1, the ventilation of machinery spaces shall be sufficient under all normal conditions to prevent accumulation of oil vapour.

2.25 Protection against noise⁷

Measures shall be taken to reduce machinery noise in machinery spaces to acceptable levels as determined by the Administration. Where the noise cannot be sufficiently reduced, the source of excessive noise shall be suitably insulated or isolated or a refuge from noise shall be provided if the space is required to be manned. Where necessary, ear protectors shall be provided for personnel required to enter such spaces.

PART E - ELECTRICAL INSTALLATIONS

2.26 General electrical requirements

2.26.1 Electrical installations shall be such that:

- .1 all electrical services necessary for maintaining the ship in normal operational and habitable conditions will be assured without recourse to the emergency source of electrical power;
- .2 electrical services essential for safety will be assured under emergency conditions; and
- .3 the safety of personnel and ship from electrical hazards will be assured.

2.26.2 Electrical installations shall be such that uniformity in the implementation and application of the provisions of this part will be ensured.⁸

⁷ Refer to IMO Resolution A.468 (XII) – Code of Noise Levels on Ships

⁸ Refer to the recommendation published by the International Electrotechnical Commission (IEC) and in particular, publication 92 - Electrical Installations in Ships.

2.27 Precaution against shock, fire and other hazards of electrical origin

2.27.1.1 Exposed metal parts of electrical machines or equipment which are not intended to be live but which are liable under fault conditions to become live shall be earthed unless the machines or equipment are:

- .1 supplied at a voltage not exceeding 50V direct current or 50V, root means square between conductors; auto-transformers shall not be used for the purpose of achieving this voltage; or
- .2 supplied at a voltage not exceeding 250V by safety isolating transforms supplying only one consuming device; or
- .3 constructed in accordance with the principle of double insulation.

2.27.1.2 The Administration may require additional precautions for portable electrical equipment for use in confined or exceptionally damp spaces where particular risks due to conductivity may exist.

2.27.1.3 All electrical apparatus shall be so constructed and so installed as not to cause injury when handled or touched in the normal manner.

2.27.2 Main and emergency switchboards shall be so arranged as to give easy access as may be needed to apparatus and equipment without danger to personnel. The switchboards shall be suitably guarded as deemed necessary by the Administration. Exposed live parts having voltages to earth exceeding a voltage to be specified by the Administration shall not be installed on the front of such switchboards. Where necessary, non-conducting mats or gratings shall be provided at the front and rear of the switchboard.

2.27.3.1 The hull return system of distribution shall not be used for any purpose in a tanker or a barge carrying liquid cargoes of flammable nature in bulk.

2.27.3.2 The requirement of 2.27.3.1 does not preclude under conditions approved by the Administration the use of:

- .1 impressed current cathodic protective systems;
- .2 limited and locally earthed system (e.g. engine starting system);
- .3 limited and locally earthed welding systems. Where the Administration is satisfied that the equipotential of the structure is assured in a satisfactory manner, welding systems with hull return may be installed without the restriction imposed by 2.27.3.1; and
- .4 insulation level monitoring devices provided the circulation current does not exceed 30 mA under the most unfavourable conditions.

2.27.3.3 Where the hull return system is used, all final sub-circuits, i.e. all circuits fitted after the last protective device, shall be two-wire and special precaution shall be taken to the satisfaction of the Administration.

2.27.4.1 Earthed distribution system shall not be used in a tanker or barge carrying liquid cargoes of flammable nature in bulk.

2.27.4.2 When a distribution system, whether primary or secondary, for power, heating or lighting, with no connexion to earth is used, a device capable of continuously monitoring the insulation level to earth and of giving an audible or visual indication of abnormally low insulation values shall be provided.

2.27.5.1 Except as permitted by the Administration in exceptional circumstances, all metal sheaths and armour of cables shall be electrically continuous and shall be earthed.

2.27.5.2 In every ship for which the keel was laid or was in a similar stage of construction before 9 February 1997, cables and wiring external to equipment shall be at least of a flame retardant type and shall be so installed as not to impair their original flame retarding properties. Where necessary for particular applications, the Administration may permit the use of special types of cables such as radio frequency cables, which do not comply with the foregoing.

2.27.5.3 Cables and wiring serving essential or emergency power, lighting, internal communications or signals shall so far as practicable be routed clear of galleys, laundries, machinery spaces of category A and their casings and other high fire risk areas. Cables connecting fire pumps to the emergency switchboard shall be of fire resistant type where they pass through the high fire risk areas. Where practicable all such cables shall be run in such a manner as to preclude their being rendered unserviceable by heating of the bulkhead that may be caused by a fire in an adjacent space.

2.27.5.4 Where cables which are installed in hazardous areas introduce the risk of fire or explosion in the event of an electrical fault in such areas, special precaution against such risks shall be taken to the satisfaction of the Administration.

2.27.5.5 Cables and wiring shall be installed and supported in such a manner as to avoid chafing or other damage.

2.27.5.6 Terminations and joints in all conductors shall be so made as to retain the original electrical, mechanical, flame retarding and, where necessary, fire resisting properties of the cables.

2.27.6.1 Each separate circuit shall be protected against short circuit and against overload, except where the Administration may exceptionally otherwise permit.

2.27.6.2 The rating or appropriate setting of the overload protective device for each circuit shall be permanently indicated at the location of the protective device.

2.27.7 Lighting fittings shall be so arranged as to prevent temperature rises which could damage the cables and wiring, and to prevent surrounding material from becoming excessively hot.

2.27.8 All lighting and power circuits terminating in a bunker or cargo space shall be provided with a multiple pole switch outside the space for disconnecting such circuits.

2.27.9.1 Accumulator batteries shall be suitably housed, and compartments used primarily for their accommodation shall be properly constructed and efficiently ventilated.

2.27.9.2 Electrical or other equipment which may constitute a source of ignition of flammable material shall not be permitted in those compartments except as permitted in 2.27.10.

2.27.9.3 Accumulator batteries except for batteries used in self-contained battery operated lights shall not be located in sleeping quarters. The Administration may permit relaxation from this requirement where hermetically sealed batteries are installed.

2.27.10 No electrical equipment shall be installed in any space where flammable mixtures are liable to collect including those on board oil tankers, tankers or barges carrying liquid cargoes of flammable nature in bulk or in compartments assigned principally to accumulator batteries, in paint lockers, acetylene stores or similar spaces, unless the Administration is satisfied that such equipment is -

- .1 essential for operational purposes;
- .2 of a type which will not ignite the mixture concerned;
- .3 appropriate to the space concerned; and
- .4 appropriately certified for safe usage in the dusts, vapours of gases likely to be encountered.

2.27.11 Lightning conductors shall be fitted to all masts or topmasts constructed of non-conducting materials. In ships constructed of non-conductive materials, the lightning conductors shall be connected by suitable conductors to copper plate fixed to the ship's hull well below the waterline.

2.28 Main source of electrical power

2.28.1 A main source of electrical power of sufficient capacity to supply all those services referred to in 2.26.1.1 shall be provided. This main source of electrical power shall consist of a generator driven by an internal combustion engine, which may be the main propulsion machinery of the ship in the case of the ship propelled by mechanical means.

2.28.2 A main electrical lighting system which shall provide illumination throughout those parts of the ship normally accessible to, and used by, crew or persons on board shall be supplied from the main source of electrical power.

2.28.3 The arrangement of the main electric lighting system shall be such that a fire or other casualty in spaces containing the main source of electrical power, associated transforming equipment and main switchboard will not render the emergency electric lighting system required by 2.29.5.1, .2 and .3 inoperative.

2.28.4 The arrangement of the emergency electric lighting system shall be such that a fire or other casualty in spaces containing the emergency source of electrical power, associated transforming equipment and emergency switchboard will not render the main electrical lighting system required by this section inoperative.

2.29 Emergency sources of electrical power

2.29.1 A self-contained emergency source of electrical power shall be provided.

2.29.2 The emergency source of electric power, associated transforming equipment, if any, and emergency switchboard shall be located above the uppermost continuous deck and shall be readily accessible from the open deck. They shall not be located forward of the collision bulkhead, except where permitted by the Administration in exceptional circumstances.

2.29.3 The location of the emergency source of electrical power, associated transforming equipment, if any, and emergency switchboard in relation to the main source of power, associated transforming equipment, if any and main switchboard shall be such as to ensure to the satisfaction of the

Administration that a fire or other casualty in the space containing the main source of electrical power, associated transforming equipment, if any and main switchboard, or in any machinery space of category A will not interfere with the supply, control and distribution of the emergency source of electrical power.

2.29.4 Provided that suitable measures are taken for safeguarding independent emergency operation under all circumstances, the emergency generator may be used, exceptionally, and for short periods, to supply non-emergency circuits.

2.29.5 The electrical power available shall be sufficient to supply all those services that are essential for safety in an emergency, due regard being paid to such services as may have to be operated simultaneously. The emergency source of electrical power shall be capable, having regard to starting currents and the transitory nature of certain loads, of supplying simultaneously at least the following services for a period specified hereinafter, if they depend upon an electrical source for their operation:

- .1 for a period of three hours, means for illumination required by 4.10.1.2.2;
- .2 for a period of six hours the VHF Dsc, MF Dsc and MF/HF Dsc radio installations required by chapter 5 of the Code or chapter IV of the 1974 SOLAS Convention
- .3 for a period of eighteen hours, emergency lighting:
 - .1 in all service and accommodation alleys, stairways and exists;
 - .2 in spaces containing propulsion machinery used for navigation, if any, and main source of electrical power and their control positions;
 - .3 in all control stations, machinery control rooms, and at each main and emergency switchboard;
 - .4 at all stowage positions for fireman's outfits;
 - .5 at the steering gear, if any; and
 - .6 at the emergency fire pump and its control position;
- .4 for a period of eighteen hours:
 - .1 the emergency lighting on the navigation bridge;
 - .2 the navigation lights and other lights required by the 1972 Collision Regulations; and
- .5 for a period of eighteen hours:
 - .1 all internal communication equipment as required in an emergency;
 - .2 the fire detection and fire alarm systems; and
 - .3 operation of emergency fire pumps, if electrically operated.

In a ship propelled by mechanical means regularly engaged on voyages of short duration, the Administration where satisfied that an adequate standard of safety would be attained, may accept a lesser period than the eighteen hour period specified in 2.29.5.3 and 2.29.5.4, but in no case less than three hours.

2.29.6 The emergency source of electrical power may be either:

- .1 an accumulator battery capable of carrying the emergency electrical load line without recharging or excessive voltage drop; or
- .2 a generator driven by a suitable prime mover with an independent fuel supply and starting to the satisfaction of the Administration.

2.29.7 Where the emergency source of power is an accumulator battery, it shall be automatically connected to the emergency switchboard upon failure of the main source of electrical power. Where automatic connection to the emergency switchboard is not practical, manual connection may be acceptable to the satisfaction of the Administration.

2.29.8 Where the emergency source of power is a generator, it shall be automatically started and connected to the emergency switchboard within 45 s of the loss of the main source of electrical power. It shall be driven by a prime mover with an independent fuel supply having a flashpoint not less than 43°C. Automatic starting of the emergency generator will not be required where a transitional source of power to the satisfaction of the Administration is provided.

PART F - MACHINERY AND ELECTRICAL INSTALLATIONS FOR SHIPS PROPELLED BY MECHANICAL MEANS

2.30 General

2.30.1 The requirements of this part are additional to the requirements of parts D and E.

2.30.2.1 Means shall be provided whereby normal operations of propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative. Special consideration shall be given to the malfunctioning of:

- .1 an electrical power generator which serves as a main source of electrical power;
- .2 the sources of lubricating oil pressure;
- .3 the sources of water pressure;
- .4 an air compressor and receiver for starting or control purposes; and
- .5 the hydraulic, pneumatic or electrical means for controlling main propulsion machinery including controllable pitch propellers.

However, the Administration, having regard to overall safety considerations, may accept a partial reduction in propulsion capability during normal operations.

2.30.2.2 Special consideration shall be given to the design, construction and installation of propulsion machinery systems so that any mode of their vibrations shall not cause undue stresses in this machinery in the normal operating ranges.

2.31 Means of going astern

2.31.1 Sufficient power for going astern shall be provided to secure proper control of the ship in all normal circumstances.

2.31.2 The ability of the machinery to reverse the direction of thrust of the propeller in sufficient time and so to bring the ship to rest within a reasonable distance from maximum ahead service speed shall be demonstrated by and recorded⁹ for every new ship which keel is laid after 9 February 1997.

2.31.3 For every ship which keel is laid after 9 February 1997, the stopping times, ship headings and distances recorded on trails, together with the results of trials to determine the ability of ships having multiple propellers to navigate and manoeuvre with one or more propellers inoperative shall be available on board for the use of the master or designated personnel.¹⁰

2.31.4 Where the ship is provided with supplementary means of manoeuvring or stopping, these shall be demonstrated and recorded as referred to in 2.31.2 and 2.31.3.

2.32 Remote control of propulsion machinery

2.32.1 Where remote control of propulsion machinery from the navigation bridge is provided and the machinery spaces are intended to be manned they shall comply with the following:

- .1 the speed, direction of thrust and, if applicable, the pitch of the propeller shall be fully controllable from the navigation bridge under all sailing conditions, including manoeuvring;
- .2 the remote control shall be performed, for each independent propeller, by a control device so designed and constructed that its operation does not require particular attention to the operational details of the machinery. Where multiple propellers are designed to operate simultaneously, they may be controlled by one control device;
- .3 the main propulsion machinery shall be provided with an emergency stopping device on the navigation bridge and shall be independent of the navigation bridge control system or alternate means to the satisfaction of the Administration external from the main machinery space;
- .4 propulsion machinery orders from the navigation bridge shall be indicated in the main machinery control room at the manoeuvring platform as appropriate;
- .5 remote control of the propulsion machinery shall be possible only from one location at a time, at such locations interconnected control positions are permitted. At each location there shall be an indicator showing which location is in control of the propulsion

⁹ Refer to the Recommendation on information to be included in the manoeuvring booklets, adopted by the International Maritime Organization by resolution A.601 (15).

¹⁰ Refer to the Recommendation on information to be included in the manoeuvring booklets, adopted by the International Maritime Organization by resolution A.601 (15).

machinery. The transfer of control between the navigation bridge and machinery spaces shall be possible only in the main machinery space or the main machinery control room. This system shall include means to prevent the propelling thrust from altering significantly when transferring control from one location to another;

- .6 it shall be possible to control the propulsion machinery locally, even in the case of failure in any part of the remote control system;
- .7 the design of the remote control system shall be such that in case of its failure an alarm will be given. Unless the Administration considers it impracticable the present speed and direction of the thrust of the propeller shall be maintained until local control is in operation;
- .8 indicators shall be fitted on the navigation bridge for:
 - .1 main engine speed or propeller speed and direction of rotation, as deemed necessary by the Administration, in the case of fixed pitch propellers; or
 - .2 propeller speed and pitch position in the case of controllable pitch propellers;
 - .3 an alarm shall be provided on the navigation bridge and in the machinery space to indicate low starting air pressure which shall be set at a level to permit further main engine starting operation. Where the remote control systems of propulsion machinery is designed for automatic starting, the number of automatic consecutive attempts which fail to produce a start shall be limited in order to safeguard sufficient starting air pressure for starting locally.

2.32.2 In lieu of complying fully with the requirements of 2.32.1, ships for which the keel was laid or was at a similar stage of construction before 9 February 1997 may comply with at least 2.32.1.1, .3, .6, and .8.

2.32.3 In all ships where the main propulsion and associated machinery, including main electrical supply, are provided with the various degrees of automatic or remote control and under continuous manual supervision from a control room, the arrangements and controls shall be so designed, equipped and installed that the machinery operation will be as safe and effective as if it were under direct supervision. Particular consideration shall be given to protect such spaces against fire and flooding.

2.33 Steering gear

2.33.1 Every ship shall be provided with a main steering gear.

2.33.2 Subject to the provisions of 2.33.5, every ship shall be provided with an auxiliary means of steering the ship in the event of failure of the main steering gear.

2.33.3 The main steering gear shall be of adequate strength and sufficient to steer the ship at maximum ahead service speed. The main steering gear and rudder stock shall be so designed that they are not damaged at maximum astern speed.

2.33.4 The auxiliary means of steering shall be of adequate strength and sufficient to steer the ship at navigable speed and capable of being brought speedily into action in an emergency.

2.33.5 Where power-operated main steering gear units and connections are fitted in duplicate, and each unit complies with the provisions of 2.33.4, no auxiliary steering gear need to be required, provided that the duplicate units and connections operating together comply with the requirements of 2.33.3.

2.33.6 The main steering power unit shall be arranged to re-start either by manual or automatic means when electrical power supply is restored after a failure.

2.33.7 In the event of failure of electrical power supply to main steering gear control or power unit, an alarm shall be given in the navigation bridge.

2.33.8 The position of the rudder, if power-operated, shall be indicated at the navigation bridge. The rudder angle indicator shall be independent of the steering gear control system.

2.33.9 Where a non-conventional rudder is installed, the Administration shall give special consideration to the steering system, so as to ensure that an acceptable degree of reliability and effectiveness which is based on the provisions of this section is provided.

2.34 Communication between navigation bridge and machinery space

2.34.1.1 Ships shall be provided with at least two independent means for communicating orders from the navigation bridge to the position in the machinery space or control room from which the main propulsion engines are normally controlled. One of the means shall be an engine room telegraph. The arrangement of these means shall be to the satisfaction of the Administration.

2.34.1.2 The engine room telegraph referred to in 2.34.1.1 may be dispensed with if the main propulsion engine is directly controlled from the navigation bridge under normal operating conditions.

2.34.2 Appropriate means of communication shall be provided to any position, other than the navigation bridge, from which the engine may be controlled.

2.35 Engineer's alarm

In every ship, which keel was laid after 9 February 1997, an engineers' alarm shall be provided to be operated from the engine control room or at the manoeuvring platform as appropriate and clearly audible in the engineers' accommodation. The Administration may dispense with this requirement if satisfied that, due to close proximity of the engine control room or the manoeuvring platform and the engineer's accommodation, no engineers' alarm is necessary.

PART G - ADDITIONAL REQUIREMENTS FOR SHIPS WITH PERIODICALLY UNATTENDED MACHINERY SPACES

2.36 General

2.36.1 The requirements of this part are additional to the applicable requirements of this chapter and apply to periodically unattended machinery spaces specified herein.

2.36.2 The arrangements provided shall be such as to ensure that the safety of the ship in all sailing conditions, including manoeuvring, is equivalent to that of a ship having manned machinery spaces.

2.36.3 Measures shall be taken to the satisfaction of the Administration to ensure that the equipment is functioning in a reliable manner and that satisfactory arrangements are made for regular inspections and routine tests to ensure continuous reliable operation.

2.36.4 Such ships shall be provided with documentary evidence to the satisfaction of the Administration of their fitness to operate with periodically unattended machinery spaces.

2.37 Applicable requirements

2.37.1 Ships having periodically unattended machinery spaces shall, as far as practicable and reasonable in the opinion of the Administration, comply with the applicable requirements of chapter II-1, part E of the 1974 SOLAS Convention, as amended for such machinery spaces.

CHAPTER 3

CONSTRUCTION - FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION

PART A - GENERAL

3.1 Application

3.1.1 Unless provided otherwise, this chapter shall apply to ship which keel is laid after 9 February 1997 and propelled by mechanical means except special purpose ships.

3.1.2 Existing ships shall, as far as is reasonable and practicable in the opinion of the Administration, comply with the provisions of this chapter and an existing ship that cannot maintain compliance with the provisions of this Chapter shall not be assigned Restricted area III and Unrestricted by the Administration.

3.1.3 The Administration may exempt a ship from the provisions of 3.1.2 where such exemption is acceptable to the States primarily to be visited by the ship.

3.2 Definitions

For the purposes of this chapter:

3.2.1 *Accommodation spaces* means those spaces used for public spaces, corridors, lavatories, cabins, offices, hospitals, cinemas, games and hobbies rooms, pantries containing no cooking appliances and similar spaces.

3.2.2 *Bulkhead deck* is the uppermost deck to which the transverse watertight bulkheads are carried.

3.2.3 *Control stations* are those spaces in which the ship's radio or main navigating equipment or the emergency source of power is located or where the fire detection or fire control equipment is centralized.

3.2.4 *Emergency Escape Breathing Device or EEBD* means a supplied air or oxygen device only used for escape from a compartment that has a hazardous atmosphere and shall be of an approved type.

3.2.5 *Low flame spread* means that the surface thus described will adequately restrict the spread of flame, this being determined to the satisfaction of the Administration or recognized organization by an established test procedure.

3.2.6 *Non-combustible material* means a material which neither burns nor gives off flammable vapours in sufficient quantity for self-ignition when heated to approximately 750⁰ C this being determined to the satisfaction of the Administration or recognized organisation by an established test procedure¹¹. Any other material is a combustible material.

3.2.7 *Oil fuel unit* is the equipment used for the preparation of oil fuel for delivery to an oil-fired boiler, or equipment used for the preparation for delivery of heated oil to an internal combustion engine, and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure of more than 0.18

¹¹ Refer to the Improved Recommendation on test method for qualifying marine construction materials as non-combustible, adopted by the International Maritime Organization by resolution A. 472 (XII).

N/mm².

3.2.8 *Public spaces* means those portions of the accommodation spaces which are used for halls, dining rooms, lounges and similar permanently enclosed spaces.

3.2.9 *Service spaces* means those spaces used for galleys, pantries containing cooking appliances, lockers and store-rooms, workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces.

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

3.3 Fire pumps

3.3.1.1 Every ship shall be provided with at least one independent power-operated fire pump capable of delivering a jet of water as required by regulation 3.3.2.

3.3.1.2 In ships propelled by mechanical means such pump shall be operated by means other than the main propulsion machinery of the ship.

3.3.2 The main fire pump (or pumps operating together) shall be capable of delivering for internal fire-fighting purposes on-board a minimum of 15 m³/h.

3.3.3 Where two main fire pumps are fitted the capacity of one of the two such pumps shall not be less than 40% of their total capacity.

3.3.4 Sanitary, bilge, ballast or general service pumps may be accepted as the required fire pumps, provided that they are not normally used for pumping oil and that, if they are subject to occasional duty for transfer or pumping of oil fuel, suitable changeover arrangements are fitted.

3.3.5 Every fire pump shall be arranged to draw water directly from sea and discharge into a fixed fire main, if any. However, in ships with high suction lifts, booster pumps and storage tanks may be installed, provided such arrangement satisfies all the requirements of this section.

3.3.6 Centrifugal pumps or other pumps connected to the fire main through which back flow could occur shall be fitted with non-return valves.

3.3.7.1 In ships propelled by mechanical means, if a fire in any one compartment could put all the fire pumps out of action, there shall be provided in a position outside such spaces an independently driven emergency fire pump which shall comply with the requirements of 3.3.7.2.

3.3.7.2 The emergency fire pump shall be capable of producing at least a jet of water of not less than 6 m in any condition and state of trim of the vessel, from one hydrant and hose through a nozzle complying with the requirements of 3.5.11.1.

3.3.8 Where the fire pumps are capable of developing a pressure exceeding the design pressure of the fire mains, water service pipes, hydrants and hoses, relief valves shall be fitted. Such valves shall be so placed and adjusted as to prevent excessive pressure in the fire main system.

3.3.9 The pumps required for the provision of water for other fire extinguishing systems required by

this Chapter, their sources of power and their controls shall be installed outside the space or spaces protected by such systems and shall be so arranged that a fire in the space or spaces protected will not put any such system out of action.

3.3.10.1 An emergency fire pump shall be an independently driven self-contained pump either with its own prime mover and fuel supply fitted in an accessible position outside the compartment which may be an emergency generator of sufficient capacity and which is positioned in a safe place outside the engine room and permanently connected to the fire mains. The use of portable fire pumps shall be avoided.

3.3.10.2 The emergency fire pump, sea suction and other valves shall be operable from outside the compartment containing the main fire pump and in a position not likely to be cut off by fire in that compartment.

3.4 Fire main, water service pipes and fire hydrants

Fire mains

3.4.1 In every ship where more than one hydrant is required to provide a jet of water required by section 3.3, a fire main shall be provided.

Diameter of, and pressure in, the fire mains and the water service pipes

3.4.2.1 In a ship where one or more main fire pumps are provided, the diameter of the fire main and of the water service pipes connecting the hydrants thereto shall be sufficient for the effective distribution of the maximum discharge required by section 3.3 from:

- .1 one main fire pump where only one such pump is required; or
- .2 two main fire pumps simultaneously where two such pumps are fitted

3.4.2.2 In any case, the minimum pressure at any hydrant shall be 0.21 N/mm² and the maximum pressure at any hydrant shall not exceed that at which the effective control of a fire hose can be demonstrated.

Number and position of hydrants

3.4.3 In every ship, the number and position of hydrants shall be such that at least one jet of water from a single length of hose can reach any part of the ship normally accessible to the crew while the ship is being navigated and any part of any cargo space when empty, any ro-ro cargo space or any special category space in which later case, at least two jets of water not emanating from the same hydrant shall reach any part of such space, each from single length of hose. Furthermore, such hydrants shall be positioned near the accesses to the protected spaces.

Pipes and hydrants

3.4.4.1 Material readily rendered ineffective by heat shall not be used for fire main and hydrants unless adequately protected. The pipes and hydrants shall be so placed that the fire hoses may be easily coupled to them.

3.4.4.2 In ships where deck cargo may be carried, the position of the hydrants shall be such that they are always accessible and the pipes shall be arranged as far as practicable to avoid risk of damage by such

cargo.

3.4.4.3 A valve shall be fitted to serve each fire hose so that any fire hose may be removed while the fire pumps are at work.

3.4.4.4 The fire mains shall be provided with isolating valves located so as to permit optimum utilization in the event of physical damage to any part of the main.

3.4.4.5 Fire mains shall have no connections other than those required for fire-fighting, except for the purposes of washing the deck and anchor chains or operating the chain locker bilge ejector.

3.5 Fire hoses and nozzles

3.5.1 Every ship shall be provided with a minimum of 2 fire hoses.

3.5.2 Where hydrants are required in any machinery spaces, each hydrant shall be provided with a fire hose. Where practicable, fire hoses shall be connected to the hydrants in such machinery spaces.

3.5.3 Notwithstanding the requirements of 3.5.1 and 3.5.2, the Administration may increase the required number of fire hoses so as to ensure that hoses in sufficient number are available and accessible at all times, having regard to the type of ship and the nature of trade in which the ship is engaged.

3.5.4 A single length of fire hose shall not exceed 18 m.

3.5.5 Fire hoses shall be oil-resistant and of approved material.

3.5.6 Fire hoses of unlined canvas shall have a diameter of not less than 64 mm. Hoses of at least 45 mm internal diameter having a throughput comparable to that of 64 mm internal diameter unlined canvas at corresponding pressure may be used. Fire hoses of an internal diameter not less than 32 mm may be accepted in the accommodation spaces of all ships.

3.5.7 Unless one fire hose and nozzle is provided for each hydrant, there shall be complete interchangeability of fire hose couplings.

3.5.8 Fire hoses provided in compliance with these requirements shall not be used for any purpose other than fire-fighting or testing of the fire appliances.

3.5.9 Every fire hose shall be provided with an approved nozzle and the necessary couplings.

3.5.10 In oil tankers and tankers and in machinery spaces of category A of all ships to which this chapter applies, the nozzles provided for fire hoses shall be of dual purpose (combined jet and spray) types.

3.5.11 Nozzles shall comply with the following requirements:

- .1 For the purposes of this chapter, standard nozzle sizes shall be 12 mm, 16 mm, 19 mm or as near thereto as possible. Larger diameter nozzles may be permitted at the discretion of the Administration.
- .2 For accommodation and services spaces, a nozzle size greater than 12 mm need not be used.

- .3 For machinery spaces and exterior locations, the nozzle size shall be such as to obtain the maximum discharge possible from the required jets at the pressure specified in 3.4.2.2 from the smallest pump, provided that a nozzle size greater than 19 mm need not be used.

3.6 Fire extinguishers

3.6.1 Fire extinguishers shall be of types and designs approved by the Administration.

3.6.2 The capacity of required portable fluid fire extinguishers shall be not more than 13.5 litres and not less than 9 litres. Other extinguishers shall have a fire extinguishing capability at least equivalent to that of a 9 litre fluid fire extinguisher.

3.6.3 The capacity of required portable carbon dioxide fire extinguishers shall not be less than 3 kg.

3.6.4 The capacity of required portable dry powder fire extinguishers shall not be less than 4.5 kg.

3.6.5 All required portable fire extinguishers shall not exceed 23 kg. in weight in a fully charged condition and shall be at least as portable as 13.5 litre fluid fire extinguisher.

3.6.6 A spare charge shall be provided for every portable fire extinguisher provided in compliance with this Code, except that for each such fire extinguisher which is of a type that cannot readily be recharged while the ship is at sea an additional 30% of each fire extinguisher of the same type, or its equivalent, shall be provided in lieu of a spare charge.

3.6.7 Fire extinguishers containing an extinguishing medium which, in the opinion of the Administration, either by itself or under expected conditions of use gives off toxic gases in such quantities as to endanger persons shall not be used.

3.6.8 Fire extinguishers shall be periodically examined and subjected to such tests as follows:

- .1 The condition of the charges of extinguishers other than carbon dioxide extinguishers, shall be checked annually. If on checking there is any indication of deterioration, the charges shall be renewed and, in any case, at least every four years. A record of the annual check shall be fixed to each fire extinguisher.
- .2 Carbon dioxide extinguishers and gas propellant cartridges of other extinguishers shall be examined externally for corrosion and for loss of content annually. They shall be recharged or renewed if the loss of gas by weight exceeds 10% of the original charge as stamped on the bottles or cartridge, or have corroded excessively externally.
- .3 All portable fire extinguishers, other than carbon dioxide extinguishers, shall be tested by hydraulic pressure once every four years and the date of such test legibly marked on the extinguisher.
- .4 Carbon dioxide extinguishers which do not require to be recharged, shall be tested by hydraulic pressure 10 and 20 years after manufacture and thereafter every five years.
- .5 Carbon dioxide extinguishers which require recharging shall be pressure tested before being recharged if four years have elapsed since the last hydraulic test was carried out.

3.6.9 One of the portable fire extinguishers intended for use in any space shall be stowed near an entrance to that space.

3.6.10 Portable Halon fire extinguishers must not be used.

3.6.11 Each fire extinguisher shall as far as is practicable be clearly marked on the front with a label of durable material with at least the following information in English or in the official language of the flag State and/or in a language understood by the crew:

- .1 name of manufacturer;
- .2 type of fire for which the extinguisher is suitable;
- .3 type and quantity of extinguishing medium;
- .4 approval details;
- .5 operating instruction supplemented by diagrams;
- .6 intervals for recharging;
- .7 temperature range over which the extinguisher will operate satisfactorily; and
- .8 test pressure.

In addition, the year of manufacture, test pressure and any serial number shall be stamped on the outside of the container.

3.6.12 All fire protection systems and appliances shall at all times be in good order and available for immediate use while the ship is in service and serviced in line with Flag State requirements. If a fire protection system is under repair then suitable alternate arrangements shall be provided to ensure safety is not diminished.

3.7 Fire Monitors

3.7.1 Approval of fire monitor arrangements shall be at the discretion of the Administration.

3.8 Fixed fire-extinguishing systems and fixed fire detection and fire alarm systems

3.8.1 Subject to the provisions of 3.8.2, fixed fire-extinguishing systems and fixed fire detection and fire alarm systems required by this chapter shall be approved by the Administration.

3.8.2 Fixed halogenated hydrocarbon fire-extinguishing systems shall not be used in ships.

3.9 Portable fire extinguishers in accommodation spaces, service spaces and control stations

3.9.1 In every ship there shall be provided a sufficient number of approved portable fire extinguishers to ensure that at least one extinguisher will be readily available for use in any part of accommodation spaces, service space and control stations. The minimum number and type of fire extinguishers to be provided in such ships shall be to the satisfaction of the Administration. The arrangement of such fire extinguishers shall be to the satisfaction of the Administration.

3.9.2 In every ship, where in the opinion of the Administration electrical installations fitted in accommodation, service and control stations constitute hazard of fire or explosion, at least one of the required fire extinguishers shall be suitable for extinguishing electrical fires.

3.10 Fire-extinguishing appliances and systems in machinery spaces

3.10.1 In every ship, spaces containing main or auxiliary oil-fired boilers or fuel oil units, shall be provided with one of the following fixed fire-extinguishing systems approved by the Administration.

- .1 a gas system complying with the provisions of the FSS Code Chapter 5, or
- .2 a high expansion foam system complying with the provisions FSS Code Ch.6 , or
- .3 a pressure water-spraying system complying with the provisions of FSS Code Ch.7.

In each case, where the engine and boiler rooms are not entirely separate, or where fuel oil can drain from the boiler room into the engine room, the combined boiler and engine rooms shall be considered as one compartment.

3.10.2 In addition to the requirements of 3.10.1, every ship with spaces referred to in 3.10.1 shall be provided with the following numbers of portable fire extinguishers.

3.10.2.1 There shall be at least one portable extinguisher suitable for extinguishing oil fires for each burner. However, the total capacity of such extinguishers shall not be less than 18 litres or equivalent and need not exceed 45 litres or equivalent in each boiler room.

3.10.2.2 There shall be at least two portable extinguishers suitable for extinguishing oil fires in each space in which part of oil fuel units is situated.

3.10.3 In every ship, there shall be provided for the protection of any space containing internal combustion type machinery having a total power output of 750 kW and above:

- .1 one of the fixed fire-extinguishing systems referred to in 3.10.1; and
- .2 at least one portable extinguisher suitable for extinguishing oil fires for each 750 kW of engine power output or part thereof, but the total number of such fire extinguishers so supplied shall be not less than two and not exceed six.

3.10.4 In every ship there shall be provided for the protection of any space containing internal combustion type machinery having a total power output of less than 750 kW either:

- .1 at least one portable fire extinguisher suitable for extinguishing oil fires for each 75kW or part thereof of such machinery, but the total number of such extinguishers so supplied shall not be less than two and need not exceed seven; or
- .2 at least two portable fire extinguishers suitable for extinguishing oil fires together with one non-portable foam fire extinguisher of at least 45 litres capacity.

3.10.5 In every ship, there shall be provided in machinery spaces containing electrical installations, one or more fire extinguishers suitable for extinguishing electrical fire as deemed necessary by the

Administration having regard to the fire hazards of electrical origin. One or more of the fire extinguishers required by this section may be used as the fire extinguishers required by this paragraph.

3.10.6 Where, in the opinion of the Administration a fire hazard exists in any machinery space for which no specific provision for fire-extinguishing appliances are prescribed in 3.10.1 to 3.10.4, there shall be provided in, or adjacent to, that space a number of approved portable fire extinguishers or other means of fire extinction to the satisfaction of the Administration.

3.10.7 In each firing space of every ship, fitted with auxiliary oil-fired boilers, a receptacle shall be provided which shall contain at least 0.28 m³ of sand or other dry material suitable for quenching oil fires. Scoops shall be provided for distributing the contents of the receptacle.

3.11 Fireman's outfit

3.11.1 All ships propelled by mechanical means shall be provided with at least two fireman's outfit.

3.11.2 A fireman's outfit shall consist of:

- .1 personnel equipment comprising:
 - .1 protective clothing of material to protect the skin from the heat radiating from the fire and from burns and scalding by steam. The outer surface of protective clothing shall be water-resistant;
 - .2 boots and gloves of rubber or other electrically non-conducting material;
 - .3 a rigid helmet providing effective protection against impact;
 - .4 an electric safety lamp (hand lantern) of an approved type with a minimum burning period of three hours; and
 - .5 an axe to the satisfaction of the Administration; and
- .2 breathing apparatus of an approved type which may be either:
 - .1 a smoke helmet or smoke mask which shall be provided with a suitable air pump and a length of air hose sufficient to reach from the open deck, well clear of hatch or doorway, to any part of the holds or machinery spaces. Where in order to comply with this paragraph, an air hose exceeding 36 m in length would be necessary, a self-contained breathing apparatus shall be substituted or provided, in addition, as determined by the Administration; or
 - .2 a self-contained compressed-air operated breathing apparatus, the volume of air contained in the cylinders of which shall be at least 1,200 litres, or other self-contained breathing apparatus which shall be capable of functioning for at least 30 minutes. A number of spare charges, suitable for use with the apparatus provided and for the use during the required fire-fighting drills, shall be available on board to the satisfaction of the Administration.

3.11.3 For each breathing apparatus a fireproof lifeline of sufficient length and strength shall be provided capable of being attached by means of a snaphook to the harness of the breathing apparatus or to

a separate belt in order to prevent the breathing apparatus becoming detached when the lifeline is operated.

3.11.4 The Administration may require additional sets of personal equipment and breathing apparatus, for oil tankers, tankers and ship carrying dangerous goods.

3.11.5 The fireman's outfits shall be so stored as to be easily accessible and ready for use and where more than one fireman's outfit is carried, they shall be stored in widely separated positions.

3.12 Fireman's axe

Every ship shall be provided with at least one fireman's axe in an easily accessible location outside the machinery, accommodation and service spaces.

3.13 Fire control plan and Maintenance File

3.13.1 All ships shall be provided with a permanently exhibited fire control plan or equivalent to the satisfaction of the Administration. The plan is in English or in the official language of the flag State and/or in a language understood by the crew.

3.13.2 In all such ships, fire control plans shall be kept up to date.

3.13.3 In addition, instructions concerning the maintenance and operation of all the equipment and installations on board for fighting and containment of fire shall be readily available in an accessible position.

3.14 Acceptance of substitutes

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

3.15 EEBDs

3.15.1 All ships shall be provided with a minimum of two EEBDs.

3.15.2 EEBDs are not to be used for fighting fires, entering oxygen deficient voids or tanks, or worn by fire fighters. In these events, a self-contained breathing apparatus, which is specifically suited for such situations, shall be used.

PART B - FIRE SAFETY MEASURES

3.16 Structure

3.16.1 The hull, superstructure, structural bulkheads, decks and deckhouses of ships propelled by mechanical means shall be constructed of steel or other equivalent material. Material other than steel shall be insulated to the same fire retardant properties as steel.

3.16.2 In lieu of complying with the requirements of 3.16.1, the hull, superstructure, structural bulkheads, deck and deckhouses of ships propelled by mechanical means (other than oil tankers and tankers) or as specified by the Administration may be constructed of materials other than steel with an

equivalent strength.

3.17 Constructional fire safety measures

Bulkheads, decks, doors and stairways

3.17.1.1 Subject to the provisions of 3.17.1.2 and 3.17.1.3, the fire safety requirements of bulkheads, decks, doors and stairways shall, as far as practicable and reasonable in the opinion of the Administration, comply with the applicable requirements of the Code of Fire and Safety Systems or National Regulations.

3.17.1.2 The bulkheads and decks separating the machinery spaces of category A from control stations, corridors, accommodation spaces, stairways, service spaces and cargo spaces shall be so constructed as to be capable of preventing the spread of fire to the unexposed side.

3.17.1.3 Interior stairways below the weather deck shall be of steel or other material having acceptable fire resisting properties.

Insulation materials

3.17.2 Insulation materials in accommodation spaces, service spaces (except domestic refrigeration compartments), control stations and machinery spaces shall be non-combustible. Vapour barriers and adhesive used in conjunction with insulation, as well as insulation of pipes fittings, for cold service systems, need not be non-combustible materials, but they shall be kept to the minimum quantity practicable and their exposed surfaces shall have qualities of resistance to the propagation of flame to the satisfaction of Administration.

Restricted use of combustible material

3.17.3.1 All exposed surfaces in corridors and stairway enclosures and surfaces including decks in concealed or inaccessible spaces in accommodation spaces, service spaces and control stations shall have low flame-spread characteristics. Exposed surfaces of ceilings in accommodation spaces, service spaces and control stations shall have low flame-spread characteristics.

3.17.3.2 Paints, varnishes and other finishes used on exposed interior surfaces shall not offer an undue fire hazard in the judgement of the Administration and shall not be capable of producing excessive quantities of smoke.

3.17.3.3 Primary deck coverings, where applied within accommodation spaces, service spaces and control stations, shall be of approved materials which will not readily ignite or give rise to toxic or explosive hazards at elevated temperature. In which keel date was laid before 9 February 1997, the Administration may, in lieu of applying the requirements fully, apply such requirements only to deck coverings within accommodation spaces on decks forming the crown of machinery spaces and cargo spaces.

Means of escape

3.17.4.1 Stairways and ladders shall be so arranged as to provide, from accommodation spaces, service spaces, control stations, machinery spaces and other spaces in which the crew is normally employed, ready means of escape to the open deck and thence to the survival craft.

3.17.4.2 Two means of escape shall be provided from every machinery space of category A which shall

be as widely separated as possible. Vertical escapes shall be by means of steel ladders or other means acceptable to the Administration as suitable alternatives. Where the size of such machinery space makes it impracticable, one of these means of escape may be dispensed with provided that the means provided is to the satisfaction of the Administration.

3.17.4.3 From machinery spaces other than those of category A, escape routes shall be provided to the satisfaction of the Administration having regard to the nature and location of the space and whether persons are normally employed in the space.

3.17.4.4 No dead-end corridors having a length of more than 7 m shall be accepted. A dead-end corridor is a corridor or part of a corridor from which there is only one escape route.

3.17.4.5 The width and continuity of the means of escape shall be to the satisfaction of the Administration.

Special arrangements in machinery spaces

3.17.5 The following provisions shall apply to machinery spaces of category A and, where the Administration considers it desirable, to the other machinery spaces:

- .1 Means shall be provided for opening and closure of skylights, opening and closure of windows in machinery space boundaries, closure of openings in funnels which normally allow exhaust ventilation, and closure of ventilator dampers.
- .2 Means shall be provided for permitting the release of smoke.
- .3 Means shall be provided for stopping forced and induced draught fans, fuel oil transfer pumps, fuel oil unit pumps and similar fuel pumps.
- .4 The means required in .1, .2, and .3 shall be located outside the space concerned where they will not be cut off in the event of fire in the space they serve.
- .5 The number of skylights, doors, ventilators for natural ventilation, opening in funnels to permit exhaust ventilation and other openings to machinery spaces shall be reduced to a minimum consistent with the needs of ventilation and the proper and safe working of the ship.
- .6 Skylights shall not contain glass panels. However, skylights containing wire-reinforced glass or toughened safety glass panels may be permitted provided that they are fitted with external shutters of steel or other equivalent material permanently attached. Suitable control arrangements shall be made to permit the release of smoke from the space to be protected in the event of fire.
- .7 Windows shall not be fitted in machinery space boundaries. This does not preclude the use of glass in control rooms within the machinery space.
- .8 Doors fitted in machinery space boundaries shall as far as practicable be equivalent in resisting fire to the divisions forming such boundaries. Where such doors are not weathertight or watertight doors, they shall be self-closing.

Ventilation systems

3.17.6.1 Ventilation systems of each of the following groups of spaces shall be entirely separated from each other:

- .1 machinery spaces;
- .2 galleys;
- .3 cargo spaces; and
- .4 accommodation spaces and control station.

The arrangement of each ventilation system shall be such that fire in one space shall not readily spread to the other spaces.

3.17.6.2 Power ventilation of accommodation spaces, service spaces, cargo spaces, control stations and machinery spaces shall be capable of being stopped from an easily accessible position located outside the space being served. This position shall not be readily cut off in the event of a fire in the space served. The means provided for stopping the power ventilation of machinery spaces shall be entirely separated from the means provided for stopping ventilation of other spaces.

3.17.6.3 The main inlets and outlets of all ventilation systems shall be capable of being closed from outside the spaces being ventilated.

Fixed fire detection and fire alarm systems for periodically unattended machinery spaces

3.17.7 Fixed fire detection and Fire Alarm Systems of an approved type shall be installed in periodically unattended machinery spaces on existing ships.

3.17.8 Fixed Fire Detection and Fire Alarm Systems of an approved type shall be installed in all machinery space, in all stairways, corridors and escape routes on new ships.

3.18 Ventilation of tanks, cofferdams, etc.

3.18.1 Subject to the provisions of 3.25 and 3.26, all tanks carrying cargo, cofferdams and other enclosed spaces in all ships shall be provided with effective means for ventilation and access to the satisfaction of the Administration, having regard to the intended services.

3.18.2 In oil tankers, tankers and barges carrying flammable liquid cargo in bulk, other than crude oil or petroleum products of low flashpoint, there shall be provided for ventilation of cargo tanks a venting system consisting of one or more pressure vacuum valves at the outlets to the atmosphere or air pipes the open ends of which are fitted with removable wire mesh diaphragms of un-corrodible material. Such venting systems shall be to the satisfaction of the Administration.

3.19 Miscellaneous items

3.19.1 Where bulkheads, decks, ceiling or linings are penetrated for the passage of electric cables, pipes, trunk, etc., or for the fitting of ventilation terminals, lighting fixtures and similar devices, or for girders, beams or other structural members, arrangements shall be made to ensure that the fire integrity is not impaired.

3.19.2 Where the Administration may permit the conveying of oil and combustible liquid through accommodation and service spaces, the pipes conveying oil or combustible liquids shall -

- .1 be of a material approved by the Administration, having regard to the fire risk;
- .2 not be concealed; and
- .3 carry only low-pressure liquids and not normally be used at sea.

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

3.19.4 In spaces where penetration of oil products is possible, the surface of insulation shall be impervious to oil or oil vapour.

3.20 Arrangement for oil fuel, lubricating oil and other flammable oils

Limitations in the use of oil as fuel

3.20.1 The following limitations shall apply to the use of oil as fuel:

- .1 Except as otherwise permitted by this paragraph, no oil fuel with a flashpoint of less than 60°C shall be used.
- .2 In emergency generators oil fuel with a flashpoint of not less than 43°C shall be used.
- .3 Subject to such additional precautions as it may consider necessary and on condition that the ambient temperature of the space in which such oil fuel is stored or used shall not be allowed to rise to within 10°C below the flashpoint of the oil fuel, the Administration may permit the general use of oil fuel having a flashpoint of less than 60°C but not less than 43°C.
- .4 In cargo ships, the use of fuel having a lower flashpoint than otherwise specified in this paragraph, for example, crude oil, may be permitted provided that such fuel is not stored in any machinery space and subject to the approval of the complete installation by the Administration.

The flashpoint of oils shall be determined by an approved closed cup method.

Oil fuel arrangements

3.20.2 In a ship in which oil fuel is used, the arrangements for the storage distribution and utilization of the oil fuel shall be such as to ensure the safety of the ship and persons on board and shall at least comply with the following provisions:

- .1 As far as practicable, parts of the oil fuel systems containing heated oil under pressure exceeding 0.18 N/mm² shall not be placed in a concealed position such that defects and leakage cannot readily be observed. The machinery spaces in way of such parts of the oil fuel systems shall be adequately illuminated.

- .2 As far as practicable, oil fuel tanks shall be part of the ship's structure and shall be located outside machinery spaces of category A. Where oil fuel tanks, other than double bottom tanks, are necessarily located adjacent to, or with in, machinery spaces of category A, at least one of their vertical sides shall be contiguous to the machinery space boundaries, and shall preferably have a common boundary with the double bottom tanks, where fitted, and the area of the tank boundary common with the machinery spaces shall be kept to the minimum.

Where such tanks are situated within the boundaries of machinery spaces of category A, they shall not contain oil fuel having a flashpoint of less than 60°C. In general, the use of free-standing oil fuel tanks shall be avoided. Where permitted, they shall be provided with an oil-tight spill tray of suitable size having a drain pipe leading to a safe place to the satisfaction of the Administration.

- .3 Every oil fuel pipe, which, if damaged, would allow oil to escape from the storage, settling or daily service tank situated above the double bottom shall be fitted with a cock or valve constructed of similar material to that of the tank, directly on the tank capable of being closed from a safe position outside the space concerned in the event of a fire occurring in the space in which such tanks are situated. Such tanks of not more than 250 litres capacity need not comply with this paragraph.
- .4 Safe and efficient means of ascertaining the amount of oil fuel contained in any oil fuel tank shall be provided. Sounding pipes shall not terminate in any space where the risk of ignition of spillage from the sounding pipe might arise. In particular, they shall not terminate in accommodation spaces. Other means of ascertaining the amount of oil contained in any oil fuel tank shall be provided. Sounding pipes shall not terminate in any space where the risk of ignition of spillage from the sounding pipe might arise. In particular, they shall not terminate in accommodation spaces. Other means of ascertaining the amount of oil fuel contained in any fuel tank may be permitted, provided that the failure of such means or overfilling of the tanks will not permit release of fuel. The Administration may permit the use of oil level gauges with flat glasses and self-closing valves between the gauge glasses and the oil tanks. Cylindrical gauge glasses may also be permitted in free standing oil fuel tanks provided that they are suitably protected and fitted with self-closing valves to the satisfaction of the Administration.
- .5 Provision shall be made to prevent overpressure in any oil tank or in any part of the oil fuel system including the filling pipes. Relief valves and air or over-flow pipes shall discharge to a position which in the opinion of the Administration is safe. The open ends of air pipes shall be fitted with wire mesh.
- .6 The ventilation of machinery spaces shall be sufficient under all normal conditions to prevent accumulation of oil vapour.

Lubricating oil arrangements

3.20.3 The arrangements for storage, distribution and utilization of oil used in pressure lubricating systems shall be such as to ensure the safety of the ship and persons on board, and such arrangements in machinery spaces of category A and whenever practicable in other machinery spaces shall at least comply with the provisions of 3.19.2.1, .3, .4 and .5 except that this does not preclude the use of sight flow glasses in lubricating systems provided that they are shown by test to have a suitable degree of fire resistance.

Arrangements for other flammable oils

3.20.4 The arrangements for storage, distribution and utilization of other flammable oils employed under pressure in power transmission systems, control and activation systems and heating systems shall be such as to ensure the safety of the ship and persons on board. In locations where means of ignition are present, such arrangements shall at least comply with the provisions of 3.19.2.

3.20.5 No oil fuel tank or lubricating oil tank or any other flammable oil tank shall be situated where spillage or leakage therefrom can constitute a hazard by falling on heating surfaces. Precautions shall be taken to prevent any oil that may escape under pressure or oil leakage from any pump, filter, piping system or heat exchanger from coming into contact with heated surfaces or enter into machinery air intakes. Where necessary, a suitable spill tray or gutter screen or other suitable arrangement shall be provided to allow oil to drain to a safe place in the event of spillage or leakage of oil from such an oil tank, machinery, equipment or system. The number of joints in piping systems shall be kept to a minimum practicable.

3.20.6 Pipes, fittings and valves handling fuel oil, lubricating oil and other flammable oils shall be of the steel or other approved material, except that restricted use of flexible pipes shall be permissible in positions where the Administration is satisfied that they are necessary. Such flexible pipes and end attachments shall be of approved fire-resisting materials of adequate strength and shall be constructed to the satisfaction of the Administration.

3.20.7 Oil fuel, lubricating oil or other liquid substances flammable or harmful to the marine environment shall not be carried in forepeak tanks.

3.20.8 Any oil or other substances flammable or harmful to the marine environment shall not be carried in other tanks or spaces which are not specially approved by the Administration for such purposes.

3.21 Carriage of oxygen and acetylene cylinders

3.21.1 Where more than one cylinder of oxygen and more than one cylinder of acetylene are carried simultaneously, such cylinders shall be arranged in accordance with the following:

- .1 Permanent piping systems for oxygen and acetylene are acceptable provided that they are designed having due regard to standards and codes of practice to the satisfaction of the Administration.
- .2 Where two or more cylinders of each gas are intended to be carried in enclosed spaces, separate dedicated storage rooms shall be provided for each gas.
- .3 Storage rooms shall be constructed of steel, and be well ventilated and accessible from the open deck.
- .4 Provision shall be made for the expeditious removal of cylinders from the storage rooms in the event of fire.
- .5 'NO SMOKING' signs shall be displayed at the gas cylinder storage rooms.
- .6 Where cylinders are stowed in open locations, means shall be provided to:
 - .1 protect cylinders and associated piping from physical damage;

- .2 minimize exposure to hydrocarbon; and
- .3 ensure suitable drainage.
- .7 In all cases, cylinders and associated pipings shall be located at a safe distance away from the ship's sides to avoid leakage of gases due to damage to the cylinders in the case of an accident to the ship's side.

3.21.2 Fire-extinguishing arrangements for the protection of areas or spaces where such cylinders are stored shall be to the satisfaction of the Administration.

3.22 Carriage of dangerous stores for ship's use

3.22.1 Stowage of explosives associated with every ship shall be in accordance with the requirements for explosives storage specified in chapter 7 of the Code of Safety for Special Purpose Ships, adopted by the International Maritime Organization by resolution A.534 (13) as amended.

3.22.2 Subject to the provisions of 3.23, liquids which give off dangerous vapours and flammable gases and cylinders containing flammable or other dangerous gases shall be stored in a well ventilated space or on deck and protected against sources of dangerous heat. All pipes and fittings associated with the gas cylinder shall be adequately protected against damage. Where storage rooms are necessary, separate storage room meeting the requirements of 3.21.1.3, .4, .5 and .7 shall be provided for each type of gas cylinder.

3.22.3 Propane gas systems shall meet the standards required by the Administration shall be initially installed, then subsequently inspected and serviced annually, by a person that is properly qualified in accordance with the requirements of the Administration. The amount of propane gas that is carried shall be kept to the minimum compatible with the operational requirements of the ship.

3.22.4 Substances which are liable to spontaneous heating or combustion shall not be carried unless adequate precautions have been taken to prevent the outbreak of fire.

3.23 Cooking areas

3.23.1 In the case of a small cooking area that is common with the accommodation, the structural fire protection required will be dependent on the fire hazard of the appliances fitted and shall be to the satisfaction of the Administration.

3.23.2 Cooking appliances such as deep-fat fryers or other types of appliances that could provide a high fire hazard in a seagoing environment shall not be fitted.

3.23.3 There shall be suitable fire retardant barriers built around the cooking and heating appliances where they are adjacent to combustible materials and structures.

3.23.4 Where a cooking range requires an exhaust hood and duct, this shall be fitted with a grease trap.

3.23.5 Combustible materials that are not needed in the cooking area shall not be stored in the area.

3.23.6 All ships which have a galley or cooking area shall be provided with a fire blanket which is positioned such that it is available for immediate use in the event of a fire in the galley or cooking area.

3.24 Fire protection arrangements in cargo spaces

Any ship engaged in the carriage of dangerous goods shall be provided in any cargo space with a fixed gas fire-extinguishing system complying with the relevant regulations of the 1974 SOLAS Convention, as amended or with a fire-extinguishing system which in the opinion of the Administration gives equivalent protection for the cargoes carried.

3.25 Special requirements for ships carrying dangerous goods

3.25.1 Ships intended for the carriage of dangerous goods shall comply with the special requirements as specified in chapter II-2 of the 1974 SOLAS Convention, as amended except when carrying dangerous goods in limited and excepted quantities.

3.25.2 The Administration shall provide the ship with an appropriate document as evidence of compliance of construction and equipment with the requirements of this section.

PART C - FIRE SAFETY MEASURES FOR SHIPS CARRYING CRUDE OIL OR PETROLEUM PRODUCTS OF LOW FLASHPOINT AND DANGEROUS GOODS IN BULK

3.26 Safety of ships carrying crude oil and petroleum products of low flashpoint

3.26.1 The Administration shall specify which requirements of chapter II-2 of the 1974 SOLAS Convention, as amended shall apply to oil tankers, tankers and barges which keel was laid after 9 February 1997 of any tonnage carrying crude oil or petroleum products of low flashpoint in bulk as appropriate.

3.26.2 Oil tankers, tankers and barge tankers which keel was laid before 9 February 1997 shall, as far as practicable and reasonable in the opinion of Administration, comply with the requirements of 3.26.1.

3.27 Carriage of dangerous goods in barges

Carriage of dangerous goods in packaged form or in solid form in bulk in barges

The requirements of the International Maritime Dangerous Goods Code, International Maritime Solid Bulk Cargoes Code or equivalent National Regulations shall apply to the dangerous goods which are carried in packaged form or in solid form in bulk on or in barges as appropriate.

CHAPTER 4

LIFE-SAVING APPLIANCES, ETC

4.1 Application

4.1.1 Unless expressly provided otherwise, this chapter shall apply to all ships.

4.1.2 Existing ships shall, as far as is reasonable and practicable in the opinion of the Administration, comply with the provisions of this chapter and an existing ship that cannot maintain compliance with the provisions of this Chapter shall not be assigned Restricted area III and Unrestricted by the Administration.

4.1.3 The Administration may exempt a ship from any of the provisions of this Chapter only when such exemption is given for a limited period and the conditions under which the exemption is granted is explicitly documented in the applicable exemption certificate for the Caribbean Trading Area.

4.2 Definitions

For the purposes of this chapter, unless expressly provided otherwise:

4.2.1 *Embarkation ladder* is the ladder provided at survival craft embarkation stations to permit safe access to survival craft after launching.

4.2.2 *Free-fall launching* is that method of launching a survival craft whereby the craft with its complement of persons and equipment on board is released and allowed to fall into the sea without any restraining apparatus.

4.2.3 *Launching appliance or arrangement* is a means of transferring a survival craft or rescue boat from its position safely to the water.

4.2.4 *Survival craft* is a craft capable of sustaining the lives of persons in distress from the time of abandoning the ship.

4.2.5 *Rescue boat* is a boat designed to rescue persons in distress and to marshal survival craft;

4.2.6 *International Life-Saving Appliance (LSA) Code* means the International Code for Requirements of Life-Saving Appliances adopted by the Maritime Safety Committee of the International Maritime Organization at its sixty-sixth session by resolution MSC.48 (66), as may be amended by the Organization.

4.3 General requirements for life-saving appliances

4.3.1 Life-saving appliances required by this chapter shall comply with the technical specifications of the LSA Code and National Regulations as appropriate.

4.3.2 In the case of ships engaged on voyages of such a nature and durations that in the opinion of the Administration, the application of the technical specifications referred to in 4.3.1 are unreasonable or impractical, the Administration may approve alternative specifications that are considered equivalent under the circumstances.

4.4 Numbers and capacity of survival craft

4.4.1 Every ship to which this chapter applies shall carry:

- .1 a lifeboat on each side or one capable of being launched on either side or freefall launched over the stern of the ship of such aggregate capacity as will accommodate the total number of persons the ship is certified to carry; and
- .2 a liferaft or liferafts capable of being launched on either side of the ship and of such aggregate capacity as will accommodate the total number of persons on board. Where the liferaft or liferafts cannot be readily transferred for launching on either side of the ship, the total capacity available on each side shall be sufficient to accommodate the total number of persons on board.

*“Capable of being launched on either side of the ship”
and “can be readily transferred” shall be interpreted as
“stowed in a position providing for easy side-to-side
transfer at a single open deck level”.*

4.4.2 Where the Administration is satisfied that, owing to the size or configuration of the ship, compliance with the requirements of 4.4.1 is unreasonable or impracticable, cargo ships other than oil tankers and tankers may, in lieu of complying with the requirements of 4.4.1, carry on each side of the ship liferafts capable of being launched on either side of the ship and of such aggregate capacity as will accommodate the total number of persons the ship is certified to carry. However, one or more of such liferafts of such aggregate capacity as will accommodate at least the total number of persons the ship is certified to carry shall be capable of being readily transferred from their stowage positions to both sides or from one side to the other side of the ship at open deck level for launching.

4.4.3 Every ship to which this chapter applies shall, in addition to complying with the requirements of 4.4.1 or 4.4.2 as appropriate, carry at least one rescue boat unless at least one of the required survival craft is a lifeboat complying with the requirements for a rescue boat.

4.4.4 Each lifeboat and rescue boat shall be served by its own launching appliance.

4.4.5 Ships operating in Restricted area I may replace the liferafts required by 4.4.1 or 4.4.2 with buoyant apparatus sufficient for 100% of the total number of persons the ship is allowed to carry appropriately stowed on each side of the ship (200% in total). However at the discretion of the Administration sufficient for 50% the total number of persons the ship is allowed to carry on each side and 50% stowed in a central location and readily transferable (150% in total).

4.4.6 In the event of any one survival craft being lost or rendered unserviceable, there shall be sufficient survival craft available for use to accommodate the total number of persons on board.

4.4.6.1 In the event of the loss of buoyant apparatus to accommodate 50% of the total number of persons on board stowed on one side there shall still be sufficient buoyant apparatus to accommodate the total number of persons on board.

4.5 Marking of survival craft and rescue boats

Each Survival Craft and rescue boat shall be marked in accordance with the requirements of the LSA Code as applicable.

4.6 Security of lifeboat and rescue boat equipment

All items of lifeboat or rescue boat equipment, with the exception of boat-hooks which shall be kept free for fending off purposes, shall be secured within the lifeboat or rescue boat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements or other suitable means. The equipment shall be secured in such a manner as not to interfere with any abandonment procedures or with any launching or recovery procedures (in the case of rescue boat). All items of lifeboat or rescue boat equipment shall be as small and of as little mass as possible and shall be packed in a suitable and compact form.

4.7 Servicing of inflatable liferaft, inflatable lifejackets and inflatable rescue boats

4.7.1 Every inflatable liferaft and inflatable lifejacket shall be serviced:

- .1 at intervals not exceeding twelve months; however, in cases where it appears proper and reasonable, the Administration may extend this period up to a maximum of seventeen months except manufacturer's recommendation state otherwise;
- .2 at an approved service station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel.

4.7.2 All repairs and maintenance of inflated rescue boats shall be carried out in accordance with the manufacturer's instructions. Emergency repairs may be carried out on board the ship by a competent person; however, permanent repairs shall be effected at an approved servicing station.

4.7.3 The use of Service Pack B Inflatable Liferafts, for vessels operating in Restricted area III and Unrestricted, in lieu of Service Pack A type liferafts shall be determined and approved by the Administration inclusive of servicing intervals.

4.8 Servicing of hydrostatic release units

Hydrostatic release units, other than disposable units shall be serviced:

- .1 at intervals not exceeding twelve months; however, in cases where it appears proper and reasonable, the Administration may extend this period up to a maximum of seventeen months;
- .2 at an approved service station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel;

4.9 Survival craft launching stations and stowage of survival craft and rescue boats

Launching stations

4.9.1 Launching stations shall be in such positions as to ensure safe launching having particular regard to clearance from the propeller and steeply overhanging portion of the hull so that, as far as possible, survival craft can be launched down the straight side of the ship. Where positioned forward, they shall be located abaft the collision bulkhead in a sheltered position and, in this respect, the Administration shall give special consideration to the strength of the launching appliance.

Stowage of survival craft

4.9.2 Each survival craft shall be stowed:

- .1 so that neither the survival craft nor its stowage arrangements will interfere with the operation of any other survival craft or rescue boat at any other launching station;
- .2 as near the water surface as is safe and practicable and, in the case of a survival craft other than a liferaft intended for throw overboard launching, in such a position that the survival craft in the embarkation position is not less than 2 m above the waterline with the ship in fully loaded condition under unfavourable conditions of trim and listed up to 20° either way, or to the angle at which the ship's weatherdeck edge becomes submerged, whichever is less;
- .3 in a state of continuous readiness so that two persons can carry out preparations for embarkation and launching in less than five minutes;
- .4 fully equipped as required by this chapter; and
- .5 as far as practicable, in secure and sheltered positions close to accommodation and service spaces and protected from damage by fire or explosion.

4.9.3 Lifeboats for lowering down the ship's side shall be stowed as far forward of the propeller as practicable.

4.9.4 Lifeboats shall be stowed attached to launching appliances.

4.9.5 Every liferaft shall be stowed with its painter permanently attached to the ship and with a float-free arrangement so that the liferaft floats free and, if inflatable, inflates automatically when the ship sinks.

4.9.6 In addition to meeting the requirements of 4.9.5, liferafts shall be so stowed as to permit manual release from their securing arrangements.

4.9.7 Davit-launched liferafts shall be stowed within reach of the lifting hooks, unless some means of transfer is provided which is not rendered inoperable within the limits of trim and list prescribed in 4.9.2.2.

Stowage of rescue boats

4.9.8 Rescue boats shall be stowed:

- .1 in a state of continuous readiness for launching in not more than 5 min.
- .2 in a position suitable for launching and recovery;
- .3 so that neither the rescue boat nor its stowage arrangements will interfere with the operation of any survival craft at any other launching station; and
- .4 if it is also a lifeboat, in compliance with the requirements of 4.9.2, 4.9.3 and 4.9.4.

4.10 Embarkation and launching arrangements

Survival craft

4.10.1.1 Survival craft embarkation arrangements shall be so designed that lifeboats can be boarded and launched directly from the stowed position and davit-launched liferafts can be boarded and launched from a position immediately adjacent to the stowed position or from a position to which the liferaft is transferred prior to launching in compliance with the requirements of 4.9.7.

4.10.1.2 Suitable arrangements shall be made to the satisfaction of the Administration for embarkation into survival craft which shall include:

- .1 one or more embarkation ladders or other approved means to afford access to the survival craft when it is waterborne;
- .2 means for illuminating the stowage position of survival craft and their launching appliances during preparation for and the process of launching, and also for illuminating the water into which the survival craft are launched until the process of launching is completed, the power for which is to be supplied from the emergency source required by 2.29;
- .3 arrangements for warning all persons on board that the ship is about to be abandoned; and
- .4 means for preventing the discharge of water into the survival craft.

Rescue boats

4.10.2.1 Rescue boat embarkation and launching arrangements shall be such that the rescue boat can be boarded and launched in the shortest possible time.

4.10.2.2 Where the rescue boat is one of the ship's survival craft, the embarkation arrangements and launching station shall comply with the relevant requirements for survival craft of this section and 4.9.

4.10.2.3 Rescue boats shall be of sufficient strength and rigidity to enable it to be lowered and recovered with its full complement of persons and equipment inclusive of a stretcher.

4.11 Lifejackets

4.11.1 In every ship to which this chapter applies lifejackets shall be provided for every person on board the ship and, in addition, lifejackets shall be carried for persons on watch or duty and for use at remotely located survival craft stations in unlocked and clearly marked dry stowage positions in accordance with the following table:

The number of persons that the ship is certified to carry	Minimum number of additional Lifejackets
More than 16 persons	Not less than 25% of the total number of persons the ship is certified to carry
4 persons and above but not more than 16 persons	Not less than 4
Less than 4 persons	2

4.11.2 Lifejackets shall be so placed as to be readily accessible and their position shall be plainly indicated. Where, due to the particular arrangements of the ship, the lifejackets provided in compliance with the requirements of 4.11.1 may become inaccessible alternative provisions shall be made to the satisfaction of the Administration which may include an increase in the number of lifejackets to be carried.

4.11.3 Each lifejacket shall be fitted with a whistle firmly secured by a cord and a light and fitted with retro-reflective material.

4.12 Lifebuoys

4.12.1 Ships to which this chapter applies shall carry not less than the number of lifebuoys determined according to the following table:

Length of ship in metres	Minimum number of lifebuoys
under 50	6
50 and over	8

4.12.2 At least half of the number of lifebuoys referred to in 4.12.1 shall be fitted with self-igniting lights with technical specifications as outlined in the LSA Code.

4.12.3 In ships of 50 m in length and over at least two of the lifebuoys provided with self-igniting lights in accordance with 4.12.2 shall also be provided with self-activating smoke signals. Each of these lifebuoys shall be capable of quick release from the place at which the ship is normally navigated where practicable or be of the throw over type.

4.12.4 At least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline of at least 30 m in length.

4.12.5 Lifebuoys shall be:

- .1 so distributed as to be readily available on both side of the ship and as far as practicable on all open decks extending to the ship's sides; at least one lifebuoy shall be placed in the vicinity of the stern;
- .2 so stowed as to be capable of being rapidly cast loose, and not permanently secured in any way; and
- .3 marked in block capitals of the Roman alphabet with the name and port of registry of the ship on which it is carried and fitted with retro-reflective material.

4.13 Line Throwing Apparatus

All vessels operating in Restricted Areas II, III and Unrestricted are to be provided with two Line Throwing Apparatus which shall be stored in the navigation bridge.

4.14 Distress signals

Every ship to which this chapter applies shall be provided, with not less than six rocket parachute flares, six hand held red flare signals and two buoyant orange smoke signals. They shall be stowed on or near the place in which the ship is normally navigated and readily accessible. Their position shall be indicated on the approved Fire and Safety Plan.

4.15 General emergency alarm system

Every ship shall be provided with a general emergency alarm system capable of sounding the general emergency alarm signal consisting of seven or more short blasts followed by one long blast on the ship's whistle or siren. The system shall be capable of operation from the navigation bridge or control station as appropriate and shall be audible throughout all accommodation and normal working spaces. The general alarm in machinery spaces shall be audible and visible (revolving red light).

4.16 Emergency instructions

4.16.1 Clear instructions to be followed in the event of an emergency shall be provided and exhibited in conspicuous places throughout the ship including the navigation bridge, machinery spaces and accommodation spaces. The instructions are to be in the English language or in the official language of the flag State and/or in a language understood by the crew.

4.16.2 The emergency instructions shall specify details of the general emergency alarm prescribed in 4.15 and action to be taken by crew or other persons on board when the alarm is sounded. Instructions on the signal for fire on board and the order to abandon ship shall be specified.

4.16.3 The attention of the passengers or industrial personnel shall be drawn to the emergency instructions required in 4.16.1 before the ship departs on a voyage.

4.16.4 The emergency instructions as referred to in this chapter shall be documented and posted either in the form of a Muster List or Station Bill.

4.17 Emergency training and drills, including fire drills

4.17.1 In all ships training in the procedures specified in accordance with 4.16 shall be carried out at least once per month. The Administration may accept other equivalent procedures or training arrangements for specific ships.

4.17.2 Training drills shall as far as practicable be conducted as if there were an actual emergency.

4.17.3 Each lifeboat shall be launched with its assigned operating crew aboard and manoeuvred in the water at least once every three months during an abandon ship drill.

4.17.3.1 In the case of free fall lifeboats, drill shall be performed in accordance with SOLAS chapter 3, Reg. 19.

4.17.4 As far as reasonable and practicable, rescue boats other than lifeboats which are also rescue boats, shall be launched each month with their assigned crew aboard and manoeuvred in the water. In all cases this requirement shall be complied with at least once every three months.

4.17.5 Every crew member shall be familiar with the use of the ship's lifesaving appliances, including survival craft equipment, fire-fighting equipment and emergencies procedures before a voyage begins. -

4.17.6 The dates when training in the procedures specified in 4.16 is held shall be recorded in the Official Log Book.

4.17.7 Each lifeboat shall be inspected weekly which shall at least consist of:

- .1 visual inspections to ensure that they are ready for use
- .2 moving from their stowed position, except for free fall life boats
- .3 engine to be run for a minimum of three (3) minutes

CHAPTER 5

RADIOCOMMUNICATIONS

5.1 Application

5.1.1 This chapter applies to all ships of less than 300 gross tonnage. All ships of 300 gross tonnage and over and all ships under 300 gross tonnage and assigned to the Unrestricted Area to which this code applies shall comply with the provisions of Chapter IV of the SOLAS Convention as amended.

5.1.2 Ships of less than 300 gross tonnage certified for operation in Restricted area III shall as a minimum requirement carry two GMDSS compliant VHF DSC main radio apparatus, two GMDSS compliant MF DSC or MF/HF DSC radio apparatus, one Navtex/Weather Fax or equivalent means and two portable waterproof two-way VHF GMDSS radio telephone apparatus to be used in survival craft.

5.1.2.1 In lieu of meeting the requirement for the carriage of the two GMDSS compliant MF DSC or MF/HF DSC radio apparatus, the vessels can be outfitted with one IMMARSAT SES.

5.1.3 Ships of less than 300 gross tonnage certified for operation in Restricted area II or Restricted area I shall as a minimum requirement carry two GMDSS compliant VHF DSC main radio apparatus and two portable waterproof two-way VHF apparatus.

5.1.4 In determining the extent to which ships will comply as required by 5.1.2 and 5.1.3, the Administration shall take into account the following functional requirements of which the ship, while at sea, shall be capable of:

- .1 transmitting distress alerts by at least two separate and independent means, each using a different radio communication service;
- .2 receiving shore to ship distress alerts;
- .3 transmitting and receiving ship to ship distress alerts;
- .4 transmitting and receiving search and rescue coordinating communications;
- .5 transmitting and receiving on scene communications;
- .6 transmitting and receiving maritime safety information;
- .7 transmitting and receiving general radio communications to and from shore-based radio systems;
- .8 transmitting and receiving signals for locating¹²; and
- .9 transmitting and receiving bridge to bridge communications.

5.1.5 The requirements for radio equipment as outlined in this chapter shall be established at the initial survey for compliance and be approved by the administration for all new and existing ships and as per

¹² Refer to Resolution A.614(15)

5.1.4 above.

5.1.6 All ships to which this chapter applies shall be issued with and carry on board for presentation to the authorities, a valid ship radio station licence which states the vessel's call sign, MMSI and installed radio equipment.

5.1.7 All ships to which this chapter applies shall always be manned by sufficient personnel trained and qualified to operate the installed shipboard radio equipment as determined by the Administration.

5.2 Definitions

For the purpose of this chapter the following term shall have the meanings as defined below:

5.2.1 *Bridge to bridge communications* means safety communications between ships from the position at which the ship is safely navigated;

5.2.2 *Continuous watch* means that the radio watch concerned shall not be interrupted other than for brief intervals other than where the ships receiving capability is impaired or blocked by its own communications or when facilities are under periodical maintenance or checks;

5.2.3 *Digital selective calling DSC* means a technique with digital codes which enables a radio station to establish contact with another station or group of stations and complying with the relevant recommendation of the International Radio Consultative Committee (CCIR);

5.2.4 *Direct printing telegraphy* means automated telegraphy techniques which comply with the relevant recommendations of the CCIR;

5.2.5 *General radio communications* means operational and public correspondence traffic other than distress, urgency and safety measures conducted by radio;

5.2.6 *GMDSS* means Global Maritime Distress and Safety System.

5.2.7 *International NAVTEX Service* means the co-ordinated broadcast and automatic reception on 518 KHz of maritime safety information by means of narrow band direct printing telegraphy using the English language;

5.2.8 *Locating* means the finding of ships, aircraft, units or persons in distress.

5.3 EPIRB

5.3.1 In addition to the requirements of 5.1.2, every ship assigned Restricted area II, III and Unrestricted shall carry at least one satellite emergency position indicating radio beacon (satellite EPIRB) which shall be capable of transmitting a distress alert through the polar orbiting satellite service operating on the 406 MHz band.

5.3.2 In lieu of meeting the requirements of 5.3.1, ships engaged on voyages within Restricted area II may carry at least one VHF emergency position indicating radio beacon (VHF EPIRB) which shall be capable of transmitting a distress alert using digital selective calling (DSC) on VHF channel 70 and providing for locating by means of a radar transponder operating in the 9 GHz band.

5.3.3 The satellite EPIRB and VHF EPIRB referred to in 5.3.1 and 5.3.2 shall be:

- .1 installed in an easily accessible position;
- .2 ready to be manually released and capable of being carried by one person into a survival craft;
- .3 capable of floating free if the ship sinks and of being automatically activated when afloat; and
- .4 capable of being activated manually.

5.4 Periodic inspection and testing of radio equipment and emergency position-indicating radio beacons

5.4.1 Emergency position-indicating radio beacons (EPIRBs), GMDSS VHF DSC Radios, GMDSS MF DSC or MF/HF DSC Radios provided in accordance with the applicable requirements of this Chapter shall at intervals not exceeding 12 months be inspected, and tested, inclusive of their source of energy.

5.5 Maintenance and Duplication

5.5.1 All ships to which this chapter applies shall duplicate radio equipment by installing 2 sets of VHF DSC, MF DSC, or MF/HF DSC radios in an appropriate location on the navigation bridge as applicable to the assigned area of operation.

5.5.2 Ship owners shall effect a shore-based radio equipment maintenance contract with a service supplier authorised by the administration or recognised organisation for the performance of this function.

5.5.3 All MF DSC or MF/HF DSC radios installed on ships to which this chapter applies shall be checked and tested for performance characteristics on an annual basis by a radio technician approved by the administration.

5.6 Sources of Energy

5.6.1 A supply of electrical energy sufficient to operate the radio installations and to charge any batteries used as part of a reserve source or sources of energy for the radio installations shall be available at all times while the ship is at sea.

5.6.2 A reserve source or sources of energy shall be provided on every ship to supply the radio installations for the purpose of conducting distress and safety radio communications in the event of the failure of the ships main and emergency sources of electrical power, The reserve source or sources of energy shall be capable of operating all radio installations required by the Code and as appropriate for the sea area or sea areas for which the ship is equipped or certified for a period of no less than six hours.

5.7 Performance Standards

5.7.1 All equipment to which this chapter applies shall be of a type approved by the Administration. Such equipment shall conform to appropriate performance standard not inferior to those defined in SOLAS Chapter 4.

CHAPTER 6

SAFETY OF NAVIGATION

6.1 Application

6.1.1 During the initial survey for compliance with the code the administration shall establish the requirements for navigation equipment to be installed and maintained on board the vessel. These requirements shall be recorded in Form of Record of Ship Equipment and Information attached to the Safety Certificate.

6.2 Navigation lights, shapes and sound signals

6.2.1 All vessels shall comply with the requirements of the International Regulations for Preventing Collisions at Sea, 1972 (Collision Regulations).

6.3 Charts and nautical publications

6.3.1 All vessels shall carry up-to-date charts, appropriate for the intended voyage, of a large enough scale to enable safe navigation.

6.3.2 Nautical publications such as sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications to be carried, appropriate to the area of operation, include: as required and approved by the Administration, shall be carried on board and shall be adequate and up to date.

6.3.3 Extracts from the publications listed in 6.3.2 for the areas to be transited may be provided instead of the complete publication.

6.3.4 The carriage of these publications required in 6.3.2 may be in electronic format where appropriate arrangements are made for their access at all times.

6.3.5 An Electronic Chart Display may supplement the charts required in 6.3.1 provided it is fully compliant with the requirements of the Administration and up to date.

6.3.5.1 An Electronic Chart Display and Information System, (ECDIS) may be carried in lieu of the charts required in 6.3.1 provided it is fully compliant with the requirements of the Administration and up to date, and all persons involved in its use are appropriately trained.

6.3.6 All vessels assigned Restricted area III and Unrestricted shall carry an up-to-date version of the International Code of Signals and IAMSAR Manual.

6.3.7 All vessels assigned to Restricted area III and Unrestricted shall post on the bridge the vessel's manoeuvring characteristics and the changeover procedure from main to emergency steering.

6.4 Navigation equipment

6.4.1 Compass

6.4.1.1 Except as otherwise provided in 6.4.1.2 every vessel shall be fitted with a suitable magnetic compass designed for marine use, to be mounted at the primary operating station. The compass shall be illuminated. For vessels operating in Restricted area III and Unrestricted an additional compass shall be

fitted. Such additional compass may be either an electronic compass or gyro compass at the discretion of the Administration.

6.4.1.2 A non-self propelled vessel need not be fitted with a compass.

6.4.1.3 On vessels certified for operation in Restricted area II or Restricted area III or Unrestricted the compass shall have a deviation card provided near to the compass as well as a maintained record of deviation.

6.4.1.4 Vessels operating only in Restricted area I shall not be subjected to the requirements of 6.4.1.3 at the discretion of the Administration.

6.4.2 Radar

6.4.2.1 A vessel certified to operate in Restricted area II, III and Unrestricted shall be fitted with at least one 9 GHZ Marine Radar System for surface navigation approved by the Administration, with a radar screen mounted at the operating navigation station. The radar and its installation shall be suitable for the intended speed and operating area of the vessel and in operational condition at all times.

6.4.2.2 A vessel certified to operate in Restricted area I shall be fitted with a radar where the Administration determines it is necessary due to the vessel's operating area and local weather conditions.

6.4.3 Position Fixing Device

6.4.3.1 A vessel certified for Restricted area II and Restricted area III and Unrestricted shall be equipped with at least one electronic position fixing device (GPS unit) to the satisfaction of the Administration, capable of providing accurate fixes for the area in which the vessel operates.

6.4.4 Other Navigation Equipment

6.4.4.1 All new and existing vessels operating in Restricted area III and Unrestricted shall be provided with:

- .1 an echo sounder;
- .2 a bridge navigation watch alarm system (BNWAS) (new ships and existing ships after 1 July 2018, over 150 GT)
- .3 A Pelorus or compass bearing device to take bearings over an arch of the horizon of 360°
- .4 A telephone or other means to communicate heading information to the emergency steering position if applicable
- .5 A radar plotting aid
- .6 ALDIS Lamp

6.4.4.2 All vessels over 150 GT shall be provided with an AIS approved by the Administration.

6.4.4.3 All vessels over 300 GT except those assigned to Restricted Area I shall be fitted with a LRIT approved by the Administration.

6.4.4.4 One SART is to be provided for vessels operating in Restricted Areas II, III and Unrestricted.

6.5 Safety of Navigation

Ships shall comply with the following requirements of SOLAS Chapter V as they apply in relation to a ship of its description:

1. paragraph 7 of regulation 10 – Mandatory Routing;
2. paragraph 7 of regulation 11 – Mandatory Routing and Reporting;
3. paragraphs 2 and 3 of regulation 17 – Electromagnetic Compatibility;
4. paragraphs 1 to 3 and 7 and 8 of regulation 18 – Type Approval of Equipment;
5. regulation 22 – Bridge Visibility
6. regulation 23 – Pilot Transfer
7. regulation 24 – Steering Possibility,
8. regulation 25 – Operation Steering Gear
9. regulation 26 – Steering Gear Testing and Drills
10. regulation 30 – Operational Limitations;
11. paragraphs 1 and 4 of regulation 31 – Danger Messages;
12. paragraphs 1, 2, 3 and 5 of regulation 32 – Information Required in the Danger Messages;
13. paragraphs 1 and 2 of regulation 33 – Distress Situations, Obligations and Procedures;
14. regulation 34 – Safe Navigation and Avoidance of Dangerous Situations, and
15. regulation 35 – Misuse of Distress Signals

6.6 Code Flags

All ships to which this Code applies shall carry code flags A, B, C, G, H, N, O and Q.

CHAPTER 7

OPERATIONAL REQUIREMENTS

7.1 General Provisions

7.1.1 A vessel shall be operated in accordance with applicable legislation and in such a manner as to afford adequate precaution against hazards, which might endanger the vessel, its passengers and cargo.

7.2 Marine casualties

7.2.1 The owner, agent, master or person in charge of a vessel involved in a marine casualty shall give notice as soon as possible to the Administration and the local authorities whenever the casualty involves any of the following:

- .1 any grounding or collision which creates a hazard to navigation, the environment or the safety of the vessel;
- .2 loss of main propulsion, primary steering or any associated component or control system, the loss of which causes a reduction of the manoeuvring capabilities of the vessel;
- .3 an occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including but not limited to fire, flooding, failure of or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment or bilge pumping systems;
- .4 loss of life;
- .5 any occupational disease associated with work on board the vessel which any seafarer contracts as a consequence of working on board;
- .6 injury which requires professional medical treatment beyond first aid and, in the case of a person engaged or employed on board a vessel in commercial service, which renders the individual unfit to perform routine vessel duties; or

7.2.2 The notice required by 7.2.1 shall include the name and identity number of the vessel involved, the name of the vessel's owner or agent, the nature and circumstances of the casualty, the locality in which it occurred, the nature and extent of injury to persons and the damage to property.

7.2.3 In addition to the notice required by 7.2.1, the owner, master, agent or person in charge of the vessel shall, within 3 days, provide a report in writing to the Administration. The report shall contain the information required by 7.2.2 and where submitted without delay after the occurrence of the casualty, suffices as the notice required by 7.2.1.

7.3 Logbook

7.3.1 Every vessel shall have a Logbook on board. The master shall make or have made in the Logbook the following entries:

- .1 when a marine casualty occurs, a statement about the casualty and the circumstances under which it occurred, made immediately after the casualty when practicable to do so;
- .2 details of the voyage, including course and weather conditions at least every 4 hours, and drills tests required by Chapter 4 of this Code
- .3 each death on board and the cause of death;
- .4 the name of each seaman who ceases to be a seafarer, except by death, with the time, place, manner and the cause why the seaman ceased to be a seafarer;
- .5 details of drills and training; and
- .6 the names of all seafarers employed on board for each voyage.

7.3.2 The log entry required by 7.3.1.5 in respect of abandon ship, man overboard, entry into enclosed spaces, steering gear and fire drills and training shall include the following information.

- .1 date of the drill and training; and
- .2 general description of the drill scenario and training topics.

7.4 Miscellaneous operating requirements

7.4.1 The master shall ensure that applicable stability requirements are adhered to at all times.

7.4.2 The master shall ensure that steering gear, controls and communication systems are tested before every voyage commences and prior to entering harbour.

7.4.3 The master shall ensure that the frequency of drills performed shall not exceed the following frequencies if weather and circumstances permit:

- | | | | |
|----|-----------------|---|-----------|
| .1 | Fire Drills | - | monthly |
| .2 | Enclosed Spaces | - | quarterly |
| .3 | Steering Gear | - | quarterly |
| .4 | Man Over Board | - | monthly |
| .5 | Abandon Ship | - | monthly |

7.4.4 All hatches and openings in the hull of a vessel shall be kept tightly closed except when being used. All watertight doors in subdivision bulkheads shall be kept tightly closed during the navigation of the vessel except when being used for transit between compartments.

7.4.5 Whenever an automatic pilot is used the master shall ensure that:

- .1 it is possible at all times to immediately establish manual control of the vessel's steering;
- .2 a competent person is ready at all times to take over steering control; and

- .3 the changeover from automatic to manual steering and vice versa is made by, or under the supervision of, the master or the officer on watch.

7.5 Pollution prevention equipment and procedures

Oil and Oily Mixtures

7.5.1 Oil and all oily mixtures, from machinery spaces, shall either be retained on board for subsequent discharge to reception facilities, incinerated onboard using type approved equipment or only to be discharged into the sea in accordance with the following provisions:

- .1 the ship is proceeding en-route;
- .2 the ship has in operation equipment of a design approved by the Administration that ensures that the oil content of the effluent without dilution does not exceed 15 parts per million;
- .3 the oily mixture does not originate from cargo pump room bilges on oil tankers; and
- .4 the oily mixture, in case of oil tankers, is not mixed with oil cargo residues.

Garbage

7.5.2 Garbage shall be disposed of in accordance with the following:

- .1 disposal into the sea of the following is prohibited:
 - .1 all plastics, including but not limited to synthetic ropes, synthetic fishing nets and plastic garbage bags; and
 - .2 all other garbage, including paper products, rags, glass, metal, bottles, crockery, dunnage, lining and packing materials;
- .2 disposal of food wastes is only permitted when;
 - .1 the ship is en-route; and
 - .2 as far as practicable from land, but in any case not less than 12 nautical miles from the nearest land; and
 - .3 the food waste is comminuted or ground and shall be capable of passing through a screen with openings no greater than 25 mm.
- .3 Any garbage mixed with other discharges having more stringent disposal or discharge requirements.

7.5.3 Garbage shall be disposed of in accordance with the Revised MARPOL Annex V MEPC.201 (62). A simplified overview of the discharge provisions of the revised MARPOL Annex V which came into force on 1 January 2013 has been developed by the IMO.

7.5.4 Every ship over 100 GT and any ship certified to carry 15 persons or more shall carry a Garbage Management Plan, which includes written procedures for collecting, storing, processing and disposing of garbage, including the use of equipment on board.

7.5.5 Garbage record books are to be maintained by vessels over 400 GT or carrying more than 15 persons when engaged in voyages of more than one hour in duration.

7.5.6 Every ship of 12 meters or more in length shall display placards notifying passengers and seafarers of the disposal requirements of the regulation, 7.5.2.

7.5.7 Regulations 7.5.1 and 7.5.2 shall not apply to:

- .1 discharges or disposals into the sea necessary for the purpose of securing the safety of the vessel and those on board or saving life at sea; or
- .2 the discharge or escape of oil, waste or garbage into the sea resulting from damage to the vessel or its equipment provided all reasonable precautions have been taken before or after the occurrence of the damage for the purpose of preventing or minimising the discharge or escape.

Sewage

7.5.8 All vessels with toilet facilities capable of discharging waste to the sea shall be fitted with a holding tank of suitable size to accommodate waste from the total number of persons on board for the duration of the voyage.

7.5.9 When sewage is discharged vessels must be at more than 12 nautical miles from the nearest land and at a moderate rate of discharge when the ship is en-route and proceeding at a speed not less than 4 knots¹³.

7.5.10 A sewage treatment plant which meets the operational requirements given in the Recommendation on International Effluent Standards and Guidelines for Performance Tests for Sewage Treatment Plants adopted by the Marine Environment Protection Committee of the International Maritime Organization by Resolution MEPC.2(VI) may be fitted in lieu of the holding tank required by 7.5.8.

¹³ More details can be found in Regulation 11.1.1 of the revised Annex IV of MARPOL 73/78 and Resolution MEPC.157 (55).

CHAPTER 8

HUMAN ELEMENT

Part A - Accommodation

8.1 General

8.1.1 There shall be sufficient hand holds and grab-rails within the accommodation to allow safe movement around the accommodation when the vessel is in a seaway.

8.1.2 Heavy items of equipment such as batteries, cooking appliances, etc., shall be securely fastened in place to prevent movement due to severe motions of the vessel. Stowage lockers containing heavy items shall have lids or doors with secure fastening.

8.1.3 On new vessels every space within the accommodation area and which is accessible by either passengers or seafarers shall have a ventilation system which may be natural ventilation provided that the system is designed to enable no less than six air changes per hour.

8.1.4 An adequate standard of accommodation for all on board shall be provided particularly in vessels intended to be at sea for more than 24 hours. In providing such accommodation, primary concern shall be directed towards ensuring the health and safety aspects of persons e.g. the ventilation, lighting, water services, galley services, access and escape arrangements.

8.1.5 On vessels which carry berthed persons below deck, mechanical ventilation shall be provided to accommodation spaces, which are situated completely below the level of the weather deck, excluding any coach roof. As far as practicable, such ventilation arrangements shall be designed to provide at least 6 changes of air per hour when the access openings to the spaces are closed and the ventilation system shall have a clearly marked emergency means of stopping from a position located outside of the space for use in case of fire.

8.2 Seafarer spaces

8.2.1 Seafarer accommodation spaces and work spaces shall be of sufficient size, adequate construction, and with suitable equipment to provide for the safe operation of the vessel and the protection and accommodation of the seafarer in a manner practicable for the size, facilities, service, route, speed and modes of operation of the vessel. The deck above a seafarer accommodation space shall be located above the deepest load waterline.

8.2.2 Sleeping accommodation shall be provided for all seafarers on board the vessel where it is operated for more than 12 hours in a 24-hour period, unless the seafarers are put ashore and the vessel is provided with relief seafarers.

8.2.3 Sleeping accommodation shall consist of a bunk or cot for each seafarer and at least 50% of these shall be provided with lee boards or lee cloths.

8.3 Water services

8.3.1 An adequate supply of drinking water shall be provided and piped to convenient positions throughout the accommodation spaces if appropriate.

8.3.2 The total quantity of drinking water carried shall equate to a minimum of 4 litres per person per day (24 hours) on board.

8.3.3 In addition, an emergency (dedicated reserve) supply of drinking water shall be carried at the rate of 10% of the total in 8.3.2

8.4 Galley

8.4.1 A galley shall be fitted with a means for cooking and means for washing food and utensils, and have adequate working surfaces for the preparation of food. The floor shall have a non-slip surface.

8.4.2 When a cooking appliance is gimballed it shall be protected by a crash bar or other means to prevent it being tilted inadvertently when it is free to swing and a strap, portable bar or other means shall be provided to allow the cook to be secured in position, with both hands free for working, when the vessel is rolling. Means shall be provided to isolate the gimbaling mechanism.

8.4.3 Wherever a galley is provided in any vessel that is proceeding on a voyage of 24 hours or more the galley shall be equipped with a refrigerator for the safe storage of perishable food and adequate cupboard space for the secure storage of non-perishable food.

8.4.4 Gaseous fuel systems used for domestic purposes shall be approved by the Administration. Storage of gas bottles shall be located on the open deck or in a well ventilated space which opens only to the open deck.

8.5 Toilet facilities

8.5.1 Adequate toilet facilities, separated from the rest of the accommodation, shall be provided for persons on board, the floor of which shall have a non-slip surface.

8.5.2 In determining the requirements for water closets and wash basins the number of persons carried, the anticipated length of voyages and the area of operation shall be considered.

8.5.3 In vessels with overnight accommodation separate seafarer and passenger facilities shall be provided where possible.

8.6 Stowage facilities for personal effects

8.6.1 Adequate stowage facilities for clothing and personal effects shall be provided for each person on board.

8.7 Surface of working decks

8.7.1 The surface of a working deck shall be non-slip. Acceptable surfaces are: chequered plate; unpainted wood; a non-skid pattern moulded into fibre-reinforced plastic (FRP); non-slip deck paint; or an efficient non-slip covering.

8.7.2 A hatch cover fitted on a working deck shall have a non-slip finish.

8.8 First aid kit

8.8.1 A vessel shall carry a first aid kit approved by the Administration.

8.8.2 Vessels assigned Restricted Area III and Unrestricted shall be provided with a medicine chest/locker with inventory equivalent to WHO Category B standards and an International Medical Guide for Ships, latest edition.

8.9 Noise and vibration

8.9.1 Noise and vibration levels on board shall be to the satisfaction of the Administration with appropriate measures taken to minimise both.

8.10 Working hours

8.10.1 References to a person being on duty are references in the case of:

- .1 a master who has command of a vessel in the course of his or her employment, to being on duty, whether for the purpose of having the command of a vessel to which this Chapter applies or for other purposes, in the employment of the person who employs him or her in that employment or in any other employment under that person; and
- .2 a master who has command of a vessel for the purposes of a trade or business carried on by him or her, to having command of a vessel to which this Chapter applies for the purposes of that trade or business or being otherwise engaged in work for the purposes of that trade or business, being work in connection with such a vessel or the passengers carried by it.
- .3 any seafarer including a Master is “working” when they are actively engaged in any task in connection with the operation of the vessel. Working does not include periods when a seafarer is “on call” and is free to rest but if the period “on call” is disturbed by requirements to attend to the vessel, then the period is defined as work.

8.10.2 A master and other seafarers shall so far as is reasonably practicable ensure that he or she is properly rested when first going on duty on any working day.

8.10.3 The working day of a master or other seafarer shall not exceed 14 hours, and the remaining 10 hours shall be rest and divided into not more than two periods. One of which shall be at least 6 hours in length.

8.10.4 The master shall not on any working day con a vessel or vessels to which the Code applies for periods amounting in the aggregate to more than 10 hours.

8.10.5 On all vessels, excluding those assigned Restricted area I, the master shall ensure the hours of work and rest for all crewmembers are recorded and maintained under a single cover that will allow ready examinations by the relevant authorities.

ANNEX I

Form of Caribbean Cargo Ship Safety Certificate

CARIBBEAN CARGO SHIP SAFETY CERTIFICATE

This Certificate shall be supplemented by a Record of ship equipment and Information

(Official seal)

(State)

Issued under the provisions of the
CODE OF SAFETY FOR CARIBBEAN CARGO SHIPS
under the authority of the Government of

(Name of State)

by (person or organisation authorised)

Name of ship	Official No. and call sign	Port of registry	Gross tonnage	Keel Laid Date	IMO No.

- *Valid for:
- Restricted trade - area I
 - Restricted trade - area II
 - Restricted trade - area III
 - Unrestricted

Operational Limitations

* Delete as appropriate

THIS IS TO CERTIFY:

1. That the ship has been surveyed in accordance with the applicable provisions of the Code of Safety for Caribbean Cargo Ships.
2. That the survey showed that:
 - .1 the ship complied with the requirements of the Code as regards:
 - .1 the relevant requirements of chapters 2 and 3 of the Code and the condition of the structure, machinery and equipment as defined in 1.10 of the Code was satisfactory.
 - .2 a freeboard of _____mm was assigned and marked on the ship's side at amidships.
 - 2.2 the last two inspections on the outside of the ship's bottom took place on the and (dates).
 - 2.3 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Code for a total number of persons.
 - 2.4 the ship was provided with radio installations used in life-saving appliances in accordance with the requirements of the Code.
 - 2.5 the ship complied with the requirements of the Code as regards radio installations.
 - 2.6 the ship complied with the requirements of the Code as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications.
 - 2.7 the ship was provided with lights, shapes, means of making sound signals and distress signals, in accordance with the requirements of the Code and the International Regulations for Preventing Collisions at Sea in force.
 - 2.8 in all other respects the ship complied with the relevant requirements of the Code.
3. That an Exemption Certificate has/* has not been issued.

This certificate is valid until^φ subject to the annual and periodical surveys and inspections of the outside of the ship's bottom in accordance with section 1.10 of the Code.

Issued at
(Place of issue of certificate)

.....
(Date of Issue)

.....
(Signature of authorized official issuing the certificate)

* Delete as appropriate.

^φ Insert the date of expiry as specified by the Administration in accordance with section 1.13 of the Code. The day and the month of this date correspond to the anniversary date as defined in 1.1.3 of the Code, unless amended in accordance with 1.13.7.

(Seal or stamp of the issuing authority, as appropriate)

Endorsement for inspections of the outside of the ship's bottom

THIS IS TO CERTIFY that, at an inspection required by 1.10.1.5 of the Code, the ship was found to comply with the relevant requirements of the Code.

First inspection: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Second inspection: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement for annual and periodical surveys relating to life-saving appliances and other equipment referred to in paragraph 2.1.1, 2.4, 2.5 2.8 and 2.9 of this certificate

THIS IS TO CERTIFY that, at a survey required by 1.10 of the Code, the ship was found to comply with the relevant requirements of the Code.

Annual survey Signed:
(Signed of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Periodical* survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Periodical* survey: Signed:
(Signature of authorized official)
Place:

Annual survey: Signed
(Signature of authorized official)
Place:
Date:

Endorsement for periodical surveys relating to radio installations referred to in paragraphs 2.5 and 2.6 of this certificate

THIS IS TO CERTIFY that, at a survey required by 1.10 of the Code, the ship was found to comply with the relevant requirements of the Code.

Periodical survey: Signed:
(Signature of authorized official)
Place:

* Delete as appropriate.

Date:
(Seal or stamp, of the authority, as appropriate)
Periodical survey: Signed:
Place:
Date:
(Seal or stamp of the authority, as appropriate)
Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)
Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement to extend the certificate if valid for less than 5 years where section 1.13.3 of the Code applies

The ship complies with the relevant requirements of the Code, and this certificate shall, in accordance with 1.13.3 of the Code, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and 1.13.4 of the Code applies

The ship complies with the relevant requirements of the Code, and this certificate shall, in accordance with 1.13.4 of the Code, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where 1.13.5 of the Code applies

This certificate shall, in accordance with 1.13.5* of the Code, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement for advancement of anniversary date where 1.13.7 of the Code applies

In accordance with 1.13.7 of the Code, the new anniversary date is

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

In accordance with 1.13.7 of the Code, the new anniversary date is

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

* Delete as appropriate.

ANNEX II

Form of Exemption Certificate

EXEMPTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
CODE OF SAFETY FOR CARIBBEAN CARGO SHIPS

under the authority of the Government of

(Name of State)

by *(person or organisation authorised)*

Name of ship	Official No. and call sign	Port of registry	Keel Laid Date	Gross tonnage	IMO No.

THIS IS TO CERTIFY:

That the ship is, under the authority conferred by section of the Code
exempted from the requirements of

..... of the Code.

Conditions, if any, on which the Exemption Certificate is granted:

.....
.....
.....

This certificate is valid until subject to the Caribbean Cargo Ship
Safety Certificate to which this certificate is attached, remaining valid.

Issued at

(Place of issue of certificate)

.....
(Date of issue)

.....
Signature of authorized official issuing the certificate

(Seal or stamp of the issuing authority as appropriate)

ANNEX III

Form of Record of Equipment and Ship Information

This record shall be permanently attached to the applicable Caribbean Cargo Ship Safety Certificate

**RECORD OF EQUIPMENT AND SHIP INFORMATION
FOR COMPLIANCE WITH THE CODE OF SAFETY FOR
CARGO SHIPS OPERATING IN THE CARIBBEAN**

Name of Ship	Official No./ IMO No.	Port of Registry	Gross Tonnage

1. GENERAL

1.1 SHIP PARTICULARS

Call sign	IMO No.	Keel Laid Date	Type of Cargo Ship
Where built			
Construction material			
Type & No. of engines			
No. of propellers		Service speed	

1.2	CLASSIFICATION SOCIETY	
1.3	NUMBER OF PERSONS FOR WHICH LIFE-SAVING APPLIANCES ARE PROVIDED	
1.4	NUMBER OF CREW FOR WHICH ACCOMMODATION IS PROVIDED	
1.5	ENGINE ROOM CLASSIFICATION (UNMANNED (UMS)/PARTIALLY UNMANNED)	

Total Bunker capacity _____

Total F.W. capacity _____

Total Sewage Tank capacity _____

2. CONSTRUCTION

2.1 STABILITY AND LOAD LINES

2.1.1 STABILITY DETAILS

INCLINING TEST	Date of test	Place of test	Authority
STABILITY CRITERIA MET*	IMO resolution A.749(18)* (Cargo ships)	MSC 235 (82) as amended by MSC 335 (90)/ new ship after IMO Res. A.469 (XII) (Offshore supply vessels)	
	IS Code*		

* Indicate as appropriate

APPROVED STABILITY INFORMATION	Date approved	Approving authority	Information on board
			Yes / No

2.1.2 LOAD LINES

SUMMARY OF FREEBOARDS

Summer		Tropical	
Fresh		Tropical Fresh	
Fresh Water Allowance		Summer draught	
The ship has been assigned Timber Load Lines		Yes / No	
Assigning Authority:			

2.2 MACHINERY

2.2.1 MAIN ENGINE DETAILS

Make (No.)		Type	
Power (kW)		Starting system	
Unmanned machinery space(U.M.S) arrangements (If any)			

2.2.2 BILGE PUMPING ARRANGEMENTS

NO	TYPE	CAPACITY	WHERE PLACED
1			
2			
3			
4			

2.2.3 AUXILIARY MACHINERY

	No.	Make	Output (kW)
MAIN GENERATORS			
EMERGENCY GENERATOR			
OTHER (SPECIFY) <input type="checkbox"/>			

2.2.4 BOILERS AND PRESSURE VESSELS

ITEM	Description	Working pressure	Date of last test

2.3 MAIN AND EMERGENCY STEERING GEAR

2.3.1 RUDDERS

Type	No fitted	Remarks

2.3.2 DESCRIPTION OF STEERING GEAR OF ARRANGEMENTS

BRIDGE TO STEERING COMPARTMENT/RUDDER Bridge to steering compartment/rudder arrangements include mechanical (e.g. rod and chain), hand hydraulic, and electric systems. The description shall contain sufficient detail to give a clear picture of the system.)
Manufacturer:
Type:
Description:
MAIN STEERING GEAR (Main steering gear arrangements include mechanical (e.g. rod and chain), hydraulic, and electric hydraulic. Again, sufficient detail shall be provided in the description to give a clear picture of the system.)
Manufacturer:
Type:
Description:

2.3.3 EMERGENCY STEERING

Complete description of emergency/alternative steering arrangements:-
Details of communication between bridge and emergency/alternative steering position
Details of provision of compass at emergency/alternative steering position

2.4 ANCHORING ARRANGEMENTS

2.4.1 ANCHORS

NO.	TYPE	SIZE	LOCATION
1			
2			
3			
4			

2.4.2 ANCHOR CABLES

NO.	TYPE	SIZE	LENGTH
1			
2			
3			
4			

2.4.3 MEANS OF HOISTING

NO.	TYPE	POWER	LOCATION
1			
2			
3			
4			

3.0 FIRE PROTECTION FIRE DETECTION AND FIRE EXTINCTION

3.1 STRUCTURAL FIRE PROTECTION

SUMMARY OF ADMINISTRATION REQUIREMENTS

3.2 FIRE APPLIANCES

3.2.1 MAIN FIRE PUMP(S)

NO	TYPE	CAPACITY	LOCATION
1			
2			
3			
4			

3.2.2 EMERGENCY FIRE PUMP(S)

NO	TYPE	CAPACITY	LOCATION
1			

3.2.3 FIRE MAIN AND HYDRANTS

		DIAMETER	NO.	LOCATION
	FIRE MAIN			
	FIRE HYDRANT			

3.2.4 HOSES AND NOZZLES

HOSES AND NOZZLES		DESCRIPTION
HOSE LENGTH WITH COUPLINGS	MACHINERY SPACES	
	OTHER SPACES	
PLAIN NOZZLES	OUTSIDE MACHINERY SPACE	DIAMETER OF NOZZLE OUTLET
DUAL PURPOSE NOZZLES	MACHINERY SPACES	EQUIVALENT DIAMETER OF NOZZLE
	OTHER SPACES	EQUIPMENT DIAMETER OF NOZZLE

3.2.5 FIRE EXTINGUISHERS

LOCATION	TYPE	NO.	SIZE	SPARE CHARGES/EXTINGUISHERS
MACHINERY SPACES				
CREW SPACES				
OTHER SPACES				

3.2.6 FIRE MONITORS

LOCATION	NO	DESCRIPTION

3.2.7 FIREMAN'S OUTFIT

	NO.	TYPE	MAKE	LOCATION
BREATHING APPARATUS				
SAFETY LAMP				
AXES				
PROTECTIVE CLOTHING				
BOOTS				
GLOVES				
HELMET				
LIFE LINE				

3.2.8 FIRE AXES

NO.	LOCATION

3.2.9 FIRE CONTROL PLANS

LOCATION	REMARKS

3.3 FIXED EXTNGUISHING SYSTEMS

3.3.1 MACHINERY SPACES

LOCATION	TYPE	NAME

3.3.2 OTHER

LOCATION	TYPE	NAME

3.4 DETECTION AND ALARM SYSTEMS

	LOCATION	NO	DESCRIPTION
DETECTORS	MACHINERY SPACE		
	CARGO SPACE		
	ACCOMMODATION AND SERVICE SPACE		
MANUAL CALL POINTS	MACHINERY SPACE		
	CARGO SPACE		
	ACCOMMODATION		

CONTROL AND INDICATING LIGHTS			
-------------------------------	--	--	--

4. LIFE-SAVING APPLIANCES AND EQUIPMENT

4.1 LIFEBOATS

NO. OF BOAT	MAKER'S NAME	TYPE			TYPE OF ENGINE	NO. OF PERSONS	MATERIAL	WEIGHT FULLY LADEN

4.2 RESCUE BOAT

MAKER'S NAME	LENGTH	NO. OF PERSONS	WEIGHT COMPLETE	STOWAGE
TYPE OF ENGINE				

4.3 LIFERAFTS

	MANUFACTURER AND TYPE	PERSONS	NUMBER	STOWAGE
INFLATABLE LIFERAFT				
BOUYANT APPARATUS				
RIGID LIFERAFT				
HYDROSTATIC RELEASE UNIT				

4.4 LIFEBOAT AND RESCUE BOAT DAVITS

DAVITS OR LAUNCH/RECOVER Y DEVICE	DESCRIPTION	S.W.L./SFT
	ARE THEY OF SUFFICIENT STRENGTH TO LOWER FULLY LADEN BOATS	

4.5 LIFEBOAT WINCHES

WINCHES	DESCRIPTION	S.W.L
	DATES OF OVERHAUL	
FALLS	TYPE OF PURCHASE	
	ROPE OR WIRE CONSTRUCTION	SIZE
	BREAKING STRAIN:	
	DATES OF REVERSAL OR RENEWALS	

4.6 LIFE JACKETS

MANUFACTURER	TYPE	NUMBER		STOWAGE
		32 kg or more (adult)		
		under 32 kg (child)		

4.7 LIFEBOUOYS

	TYPE	NUMBER WITH SMOKE	NUMBER WITH LINES	NUMBER WITH LIGHTS
LIFEBOUY				
	STOWAGE			

4.8 PYROTECHNICS

		NUMBER
SHIP'S DISTRESS SIGNALS	PARACHUTE	
	HAND FLARES	
	BOUYANT SMOKE	
LIFEBOAT	PARACHUTE	

DISTRESS SIGNALS	HAND FLARES	
	BUOYANT SMOKE	

4.9 EMERGENCY POWER

SOURCE OF POWER INCLUDING RATING CAPACITY	
IF GENERATOR MEANS OF STARTING	
SERVICES SUPPLIED	

4.10 RADIO EQUIPMENT

TWO SURVIVAL CRAFT PORTABLE V.H.F. RADIOS	TYPE:	SERIAL NO:
---	-------	------------

PORTABLE TWO WAY RADIOS	QUANTITY:
-------------------------	-----------

5. RADIOCOMMUNICATIONS

5.0 GENERAL INFORMATION

CALL SIGN	
MMSI-NUMBER	

5.1 V.H.F. RADIO INSTALLATION

	MAKE	TYPE	NO	DESCRIPTION
RADIOTELEPHONE				
D.S.C. ENCODER				
D.S.C. WATCH RECEIVER				

5.2 MF RADIO INSTALLATION

	MAKE	TYPE	NO	DESCRIPTION
RADIO TELEPHONE				
D.S.C. ENCODER				
D.S.C.WATCH RECEIVER				

5.3 MF/HF RADIO INSTALLATION

	MAKE	TYPE	NO	DESCRIPTION
RADIO TELEPHONE				
D.S.C. ENCODER				
DIRECT PRINTING TELEGRAPHY				

5.4	INMARSAT EQUIPMENT TYPE:	SERIAL NO:
-----	--------------------------	------------

5.5	SECONDARY MEANS OF ALERTING
-----	-----------------------------

5.6 FACILITIES FOR RECEPTION OF MARITIME SAFETY INFORMATION

	MAKE	TYPE	NO	DESCRIPTION
NAVTEX RECEIVER				
E.G.C. RECEIVER				
HF DIRECT PRINTING RADIOTELEGRAPH RECEIVER				

5.7	EPIRBS	TYPE	SERIAL NO
-----	--------	------	-----------

5.8	SARTS	MAKE	SERIAL NO
-----	-------	------	-----------

5.9 METHODS USED TO ENSURE AVAILABILITY OF RADIO FACILITIES

	YES	NO
DUPLICATION OF EQUIPMENT		
SHORE-BASED MAINTENANCE		
AT SEA MAINTENANCE CAPABILITY		

5.10 INSTRUCTIONS ON HOW TO OPERATE EQUIPMENT	
5.11 CALL SIGN AND MMSI DISPLAYED	
5.12 RADIO LOG	

6. NAVIGATION LIGHTS AND SOUND SIGNALLING EQUIPMENT

6.1 NAVIGATION LIGHTS DETAILS

	PRIMARY		ALTERNATIVE	
	TYPE	RANGE	TYPE	RANGE
LANTERN				
MAST HEAD				
MAST FORE				
PORT				
S/BOARD				
STERN				
ANCHOR				
NOT UNDER COMMAND				

6.2 POWER SUPPLY NAVIGATION LIGHT ALARM PANEL

MAIN POWER SUPPLY	
ALTERNATIVE POWER SUPPLY	

6.3 SOUND SIGNALS, SHAPES AND ADDITIONAL LANTERNS

TYPE OF WHISTLE(S)	NO. OF NUC SHAPES	BLACK DIAMOND	ADDITIONAL LANTERNS/ SHAPES

--	--	--	--

6.4 SIGNAL FLAGS

SIGNAL FLAGS	
---------------------	--

7. SAFETY OF NAVIGATION - CHAPTER 6

7.1 COMPASSES

	MAKE	TYPE	REMARKS

7.2 ELECTRONIC NAVIGATION EQUIPMENT

	MANUFACTURER AND TYPE	SERIAL NO.	REMARKS
RADAR			
ECDIS			
ELECTRONIC CHARTS			
BNWAS			
ECHO SOUNDER			
LRIT			
AIS			
G.P.S.			

7.3 WHEELHOUSE ARRANGEMENTS

	YES	NO
SOUND RECEPTION SYSTEM		
WIND SCREEN WIPERS		

7.4 BRIDGE CONTROLS AND INSTRUMENTS

GENERAL DESCRIPTION	

7.5 AUTO PILOT

Type/Manufacturer:			
Type of Compass:			
Item	If fitted	If operational	Remarks
Off course alarm			
Power failure alarm			

7.6 PUBLICATIONS

	REMARKS/DESCRIPTION
CHARTS	
SAILING DIRECTIONS	
TIDE TABLES	
INTERNATIONAL CODE OF SIGNALS	
INTERNATIONAL MEDICAL GUIDE FOR SHIPS	

IAMSAR VOL. III	
CCSS CODE	
COLREG	
SOLAS	
MARPOL	
STCW	
ITU PUBLICATIONS	
OTHER PUBLICATIONS	

7.7 PILOT LADDER

PILOT LADDER DETAILS	
-----------------------------	--

ALTERATIONS

ITEM NO	NATURE OF ALTERATION	DATE/SIGNED

ITEM NO.	NATURE OF ALTERATION	DATE/SIGNED

.....
 (Date of issue)

.....
 (Signature of authorized official)
 (Seal or stamp of issuing authority, as appropriate)