



PALAU INTERNATIONAL SHIP REGISTRY
(PISR)

**CODE OF SAFETY FOR CARGO SHIPS
OF LESS THAN 500 GROSS TONNAGE**

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PREAMBLE

Cargo vessels of less than 500 GRT (except vessels down to 300 GRT with respect to radio communication) are not covered by the SOLAS Convention and no uniform regulations or guidance exist which provide an internationally accepted level of safety for such vessels.

As in the SOLAS Convention, a cargo vessel may be taken to mean any vessel which is not a passenger ship, gas carrier or chemical tanker and includes tugs, dredgers, pilot crafts, etc. in addition to cargo vessels. Smaller vessels due to a combination of their size and constant exposure to coastal hazards are particularly vulnerable, and therefore careful consideration should be given to all aspects of their safety.

The purpose of The Code is to provide generally applicable guidelines of safe practice, in particular for fire protection, detection and extinction, safety equipment, radio installations and navigational equipment.

The Code is intended to be applied by the Recognized Organization duly authorized by the Administration. Statutory Certification issued by this Administration to vessels less than 500 GRT will be based on the Code.

It is recognized that the Code is used as a basis for contract specifications by builders and owners, but care should be taken to ensure an appropriate level of safety having regard to both the type and service area of the vessels involved. Vessels engaged on coastal voyages may encounter vastly different weather and sea conditions depending upon the geography of the area involved, and the advice of the classification society should be sought in all cases when applying the Code.

Materials and equipment specified in the Code should be of an approved type by national or international requirements.

This Code has been developed to provide a safety standard for vessels less than 500 GRT engaged on voyages outside the jurisdictional waters of the Republic of Palau, considering that the Republic of Palau, as signatory of the International Conventions concerning safe navigation and the prevention of environment pollution, must take the necessary steps to ensure that every vessel registered under the Merchant Marine Act, 2003 keeps the highest level of safety of life and property at sea.

The Code applies to new ships. However, the Palau International Ship Register should, as far as practicable and reasonable, apply the same standards to existing ships.

The provisions specified in this Code take into account the requirements stipulated in the following Conventions, including amendments to it:

- International Convention for Safety of Life at Sea, 1974 and its Protocol of 1978;
- International Convention on Load Lines, 1966;
- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating to it;
- International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers 1978;
- International Regulations for Preventing Collisions at Sea, 1972
- Merchant Shipping Act.

CODE OF SAFETY FOR CARGO SHIPS OF LESS THAN 500 GROSS TONNAGE

This Code will be reviewed periodically, based on any amendments made in the international maritime standards or upon experience during its application.

CHAPTER 1

I. GENERAL PROVISIONS

1.1. Definitions

The terms used in these recommendations are as defined in SOLAS 1974 (amended) and the classification rules as applicable at the date of shipbuilding or major conversion contract.

The term GRT is as defined in IMO Resolution A.493 (XII) calculated in accordance with the International Convention of Tonnage Measurements of Ships of 1969.

This regulation may be cited as the Republic of Palau Code for vessels less than 500 GRT.

These rules shall apply to all Palauan flag cargo vessels less than 500 GRT in the international service with the exception listed in Chapter 3.

“Administration” means the Palau International Ship Registry Administration as appointed by the Government of Palau.

“Amidships” is the middle of the Length (L).

“Anniversary date” means the day and the month of each year that corresponds to the expiration of the relevant certificate.

“Approved” means approved by the Administration (PISR).

“Barge” means a cargo ship not propelled by mechanical means and includes manned and unmanned barges and pontoons but excludes accommodation barges

“Breadth” is the maximum breadth in meters of the ship, measured amidships of the moulded line of the frame in a ship with a metal shell and with the outer surface of the hull in a ship with a shell of any other material.

“Bulkhead deck” is the uppermost deck up to which the transverse watertight bulkheads are carried.

“Cargo ship” is any ship which is not a passenger ship.

“Cargo spaces” are all spaces used for cargo (including cargo oil tanks).

“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 recording or the fire control equipment is centralized.

“Existing ship” is a ship which is not a new ship.

“Emergency source of electric power” is a source of electrical power, intended to supply the emergency switchboard in the event of failure of the supply from the main source of electrical power.

“Fishing vessel” is a vessel used for the purpose of catching fish or any other living resources of the sea

“Freeboard assigned” is the distance measured vertically downwards amidships from the upper edge of the deck line to the upper edge of the related load line.

“Gross tonnage” means the tonnage as measured in accordance with the International Tonnage Convention 1969 and for ships of less than 24 m in accordance with the relevant national rule.

“International voyage” means a voyage from the port in a State to another port outside such State

“Length” measured in meters is 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 on which this is measured shall be parallel to the designated waterline.

“Load Line Convention” means the International Load Line Convention 1966.

“Machinery Spaces” is to be taken as extending from the moulded baseline to the margin line and between the extreme main transverse watertight bulkheads, bounding the spaces containing the main and auxiliary propulsion machinery, boilers serving the need of propulsion, and all permanent coal bunkers.

“MARPOL 73/78” means the International Convention for the Prevention of Pollution from Ships 1973, as modified by the 1978 protocol relating thereto as amended.

“New Ship” means a ship the keel of which is laid or which is at a similar stage of construction on or after the date of adoption of this Regulation.

“Passenger ship” is a ship which carries more than twelve passengers.

“PISR” means Palau International Ship Registry,

“Radio Regulations” means the Radio Regulations annexed to or regarded as being appended to, the most recent International Telecommunication Convention which is in force at any time.

“Recognized Organization” means an organization officially authorized by the Administration for issuing certain statutory certificates.

“Rules” or **“Regulations”** means the present rules.

“SOLAS 1974” means the International Convention for the Safety of Life at Sea 1974, as amended.

“STCW Convention” means the International Convention on Standards of Training, Certification, and Watchkeeping of Seafarers, 1978/1975.

“Tanker” is a cargo ship constructed or adapted for the carriage, in bulk, or liquid cargoes of an inflammable nature.

“Watertight” means capable of preventing the passage of water through the structure on any direction under the head of water for which the surrounding structure is design.

“Weathertight” means that in any sea condition, water will not penetrate the ship.

“Wooden ship of primitive build” means a wooden ship of the traditional build not primarily propelled by mechanical means.

Note: In these rules, the word **“ship”** and **“vessel”** are to be taken as equivalent.

1.2. Service Area Definitions

Unrestricted service means a vessel engaged on international voyages and not bounded by any limitations on operating environment.

Service restrictions are broken down into two broad categories as follows:

- Coastal: Vessels operating in coastal
- Restricted: Vessels operating coastal or specified operating areas, or up to 200 nautical miles from the nearest land.
- International: Vessels operating in international waters.

1.3. Application

1.3.1. Unless expressly provided otherwise, these rules shall be applied to all cargo vessels less than 500 gross tonnage registered under the Palau flag trading international voyages outside the jurisdiction of the Palau waters.

1.3.2. Vessels carrying dangerous goods, chemicals and/or liquefied gasses in bulk should comply with IMDG (refer to MSC.Circ.858 Document of Compliance with SOLAS Regulation 11-2/54), IGC and IBC codes as applicable.

1.4. Exemptions

1.4.1. The provisions of the regulations should not apply to:

- a. Ships of war
- b. Ships under 150 GRT or 79 feet (24 m) in length as defined by the 1966 Load Line Convention
- c. Pleasure craft not engaged in trade
- d. Ship not propelled by mechanical means
- e. Wooden ships of primitive build
- f. Accommodation barges

1.4.2. Where the provisions of the 1974 SOLAS Convention, the 1978 STCW Convention, the 1966 Load Line Convention, the 1972 Collision Regulations and MARPOL 73/78 apply to a cargo ship of less than 500 GRT, these provisions should be applied as if they were part of this Code.

1.4.3. The Administration may exempt any vessel from one or many of the provisions of these Regulations, as shall be specified in the exemption, provided that the Administration is satisfied that compliance with such provisions is either impractical or unreasonable in the case of that vessel.

1.4.4. A ship which is not normally engaged on international voyages but which, in exceptional circumstances, it is required to undertake a single international voyage may be exempted by the Administration from any of the requirements of this Code, 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.

1.5. Equivalents

1.5.1. Where these regulations require that a particular material, appliance or apparatus, or type thereof, shall be fitted or carried in a ship, or that a particular provision shall be made to the vessel, the Administration may allow other material, appliances or apparatus to be fitted or carried, or other provisions can be made in the ship, if the Administration is satisfied that the alternatives are as effective as those required by these rules.

1.6. Standard

1.6.1. The construction, installation, structural strength, fittings, material, appliances, and apparatus, unless expressly provided by this Code, should be of acceptance to the Administration.

1.6.2 In addition to the Codes and Standards referred to in this Code, the other codes, and standards recommended by the International Maritime Organization (such as IMO safety regulations for non-convention sized ships), may be applied whenever such codes and standards are considered to be appropriate by the Administration.

1.7. Major modifications, alterations, and repairs

1.7.1. Major modifications, alterations and repairs and outfitting related thereto on existing ships should meet the requirements prescribed for a new ship to such extent as the Administration deems reasonable and practicable. Such modification, alteration and repairs and outfitting related to it, shall be approved by a Recognized Organization approved by this Administration and carried out in the presence of such Recognized Organization.

1.7.2. For the purpose of the Regulations, the following repairs, alterations and modifications should be recognized as being of “major character.”

- Any changes that substantially alters the dimensions of the ship;
- Any changes that significantly increase a ship’s service life; or
- Any conversion that alters the functional aspects of the vessel.

1.8. Carriage of Cargoes

1.8.1. Ships and barges carrying cargoes specified below should comply with the applicable requirements of Chapters VI and VII of SOLAS.

- Grain and other cargoes in bulk;
- Dangerous cargoes in packaged form or bulk
- Liquid chemicals in bulk
- Liquefied gases in bulk

1.9. Ship’s plans, signs, instructions manuals, name plates and language used

1.9.1. Ship’s nameplates, signs, instructions, notices, plans, and documents on board the ship relating to the safety and operation of the ship and its machinery should be drawn up in English and in a language understood by the crew.

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

1.9.3. The owner, managing company, master or chief engineer of the ship should be responsible for the compliance of this requirement

1.10. Manning

1.10.1. Every ship to which this Code applies should be sufficiently and efficiently for preventing situations posing a threat to the safety of human life at sea)

1.10.2. The Administration should provide every such ship with an appropriate safe manning document as evidence of the minimum safe manning considered necessary to satisfy the provisions of 9.1.

1.11. Casualty

1.11.1. In the event of an accident involving the ship resulting in loss of life or the ship being materially damaged, stranded, abandoned or lost, the master or the owner should inform the Administration immediately.

CHAPTER 2

2.1. SURVEYS and CERTIFICATIONS

2.1.1. General Aspects

2.1.1.1. The inspection, survey, and marking of non-convention size ships, when enforcing the Regulations or granting Exemptions should be carried out by Recognized Organizations duly authorized by the Administration or by the Administration through an authorized Flag Inspector.

2.1.1.2. When a Recognized Organization determines that the condition of the ship or its equipment do 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, its crew and the environment, the Recognized Organization should ensure that corrective actions are taken immediately. Where such corrective actions are not taken the certificate should be withdrawn and the Administration should be notified immediately.

2.1.2 Surveys for the issuance and endorsement of the Cargo Ship Safety Certificate

2.1.2.1. The issuance of the Cargo Ship Safety Certificate shall be subject to the successful completion of a survey carried out by the Recognized Organization and covering all the provisions of the present Regulation. The general nature and periodicity of such surveys shall be as specified below.

2.1.2.2. A renewal survey at intervals determined by the Administration should be carried out not exceeding five years from the previous initial or renewal survey.

2.1.2.3. An annual survey within three months before or after each anniversary date of the certificate.

2.1.2.4. A periodical/ intermediate survey within three months before or after the second anniversary or within three months before or after the third anniversary of the date of the Certificate shall be carried out in lieu of the annual survey.

2.1.2.5. Dry dock survey shall be taken place twice during the five years period, but not exceeding three years from the last dry dock survey. First dry dock shall be carried out during initial or renewal survey and second dry dock shall be conducted during the periodical/ intermediate survey. Extensions to dry dock survey shall be requested by the Recognized Organization to the Administration for approval and conditions.

2.1.2.6 The scope of the surveys referred in paragraph 2.1.2.1 should be carried out as follows:

2.1.2.7. The initial survey should be conducted before the ship is put into service and should ensure that arrangements, equipment, and systems specified in this Code are in compliance including:

- The arrangements, materials, and scantlings of the structure;
- Boilers and other pressure vessels;
- Main and auxiliary machinery including steering gear and associated control systems;
- Fire safety systems and appliances, life-saving appliances and arrangements, navigational equipment, nautical publications, means of embarkation for pilots;
- Radio installations including those used in life-saving appliances;

- Provisions for the control of discharge of oil and the retention of oil on board;
- Provisions of the lights, shapes, means of making sound signals and distress signals as required by the provisions of COLREG;
- The arrangements, materials, and scantlings fully complying with the conditions of assignments of load lines and freeboard;

2.1.2.8 The renewal survey should include an inspection of the equipment referred to in paragraph 2.2.1.

2.1.2.9 The periodical survey should include an inspection with a test where necessary of the equipment to ensure that the requirements relating to the life-saving appliances, fire appliances and the light and sound signals are in compliance with and are in satisfactory conditions. All certificates, record books, operating manuals and other instructions and documents specified should be checked for their adequacy.

2.1.2.10 The intermediate survey should include an inspection of items relating to the construction, stability requirements, machinery, electrical installations, fire protection and radio telecommunications to ensure that they are in a satisfactory condition.

2.1.2.11. The annual survey should include an inspection to ensure that:

- The equipment referred in paragraph 2.1.3.1 remains in good conditions;
- Alterations have not been made to the hull or superstructures which would affect the Load Line calculations;
- The fittings and appliances for the protection of openings, guard rails, freeing ports and means of access to crew's quarters are maintained in an efficient condition;

2.1.2.12. An additional/ occasional survey should be carried out after repairs resulting from an investigation whenever an accident occurs to a ship, a defect is discovered, or severe deficiencies have been pointed out by the PSC. The survey should be such as to ensure that the repairs and corrections are effectively made and the ship is fit for the intended voyage.

2.1.2.13. After each annual, and after the periodical/intermediate survey, the Certificate should be endorsed accordingly by the attending surveyor on behalf the Recognized Organizations.

2.1.2.14. If after each annual and after the periodical/ intermediate survey, deficiencies are found that do not represent a primary reason for suspension of the Certificate, but that needs to be rectified within a set period of time, such deficiencies should be listed in the survey report, and the Administration should be advised accordingly.

2.1.3. Maintenance of conditions after survey

2.1.3.1. The owner or master of every ship to which this Code applies should ensure that:

2.1.3.2. The condition of the ship and its equipment is maintained to conform with the provisions of this Code ensuring that the ship remains fit to proceed to its intended voyage without danger to the ship, persons on board or the environment.

2.1.4. Issuance and endorsement of Certificates

2.1.4.1. A certificate called the Cargo Ship Safety Certificate should be issued after initial or renewal survey to a ship that complies with the Regulations.

2.1.4.2. The certificate referred in 2.1.4.1 should be supplemented with a Record of Equipment which should be permanently attached thereto.

2.1.4.3. When an exemption is granted by the Administration to a ship under the provisions of the Code, a certificate called Exemption Certificate shall be issued and should be attached to the document.

2.1.4.4. The certificate referred in this section should be issued or endorsed by the Recognized Organization attending the vessel and carrying the surveys on behalf of the Administration.

2.1.5. Duration and validity of the Certificates

2.1.5.1. The Cargo Ship Safety Certificate should be issued for a period specified by the Administration which should not exceed five years.

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

2.1.5.3. Where a ship at the time when a certificate expires is not in the country in which is to be surveyed, the Administration may extend the period of the validity for up to one month, allowing the ship to reach the port in which it will be surveyed. When the renewal survey is completed, the new certificate should be valid to a date not exceeding five years from the time of expiration of the existing certificate before the extension was granted.

2.1.5.4. A certificate issued under paragraph 2.1.4 shall cease to be valid in any of the following cases:

- Where the relevant surveys and inspections are not completed within the periods specified in paragraph 2.1.2;
- Where the certificate is not endorsed in accordance with the requirements of the Regulation;
- When the administration removes the vessel from the registry.

2.1.6. Form of Certificates

2.1.6.1. The Cargo Ship Safety Certificate and the Record of Equipment form should follow the models given in Annex I.

2.1.7. Availability of the Certificates

2.1.7.1. The certificate issued under paragraph 2.1.4 should be readily available on board the vessel at all times.

CHAPTER 3

I. CONSTRUCTION and EQUIPMENT

3.1. General Provisions

3.1.1. All existing ships should, as a rule comply with the requirements of this Code to the extent to which the Administration deems reasonable and practicable. Current ships that undergo replacement of equipment or outfitting related thereto should comply with the requirements specified in this chapter as far as it is considered reasonable and practicable by the Administration.

3.1.2. 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 should be of a design and construction adequate for the service for which they are intended and should be installed and protected as to reduce to a minimum any danger to persons on boards.

3.2. Construction

3.2.1. The strength and construction of hull, superstructures, deckhouses, machinery casings, and companionways and any other structure and equipment should be sufficient to withstand all foreseeable conditions of the intended service. A ship built and maintained in conformity with the applicable rules of a Recognized Organization may be considered as in accordance with this paragraph.

3.2.2. Ships propelled by mechanical means should be fitted with a collision bulkhead and with watertight bulkheads bounding the machinery spaces. Such bulkheads should be extended up to the freeboard deck.

3.2.3. Propeller shafts and shaft logs or stern tubes should be situated only in machinery spaces containing main propulsion machinery. The Administration may exempt, from these requirements, ships having constraint of space or engaged on restricted voyages.

3.2.4. Stern glands should be located in areas which are readily available at all times for inspection and maintenance to the satisfaction of the Administration.

3.3. Collision Bulkhead

3.3.1. A collision bulkhead should be fitted and should be watertight up to the freeboard deck. This bulkhead should, as far as practicable, be located at a distance from the forward perpendicular of not less than 5% and not more than 8% of the length of the ship. If this cannot be attainable, the Administration may allow relaxation to this requirement, subject to the ship at full load condition will not be submerged to a line drawn at least 76mm below the upper surface of the bulkhead deck at side.

3.3.2. The collision bulkhead may have recesses if it's provided that they are within the limits prescribed in paragraph 3.1. Pipes piercing the collision bulkhead should be kept to a minimum and such pipe should be fitted with suitable valves operable from above the freeboard deck. 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 services conditions and the space in which they are located is not a cargo space.

3.3.3. Where a long forward superstructure is fitted, the collision bulkhead should be extended weathertight to the deck immediately above the freeboard deck.

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

3.3.5. No doors, manholes, ventilation ducts or access openings are permitted in the collision bulkhead below the freeboard deck.

3.3.6. Where a chain locker is located aft the collision bulkhead or extended into the forepeak tank, it should be watertight and provided with efficient means of drainage. A chain locker should only be used for the stowage of anchor chain cables.

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

3.4.1. This regulation should apply to new ships propelled by mechanical means and should not apply to ships the hull of which is constructed by wood.

3.4.2. Each watertight subdivision bulkhead, whether transverse or longitudinal, should be constructed in such a manner that it should be capable of supporting, with a proper margin of resistance, the pressure due to the maximum head of water which it have to sustain in the event of damage or at least the pressure due to a head of water up to the margin line.

3.4.3. Steps and recesses in bulkheads should be watertight and of the same strength as the bulkhead at the place where each occurs.

3.4.4. Where frames or beams pass through a watertight deck or bulkhead, such deck or bulkhead should be made structurally watertight.

3.4.5. The number of openings in watertight bulkheads should be kept to a minimum compatible with the general arrangements and operation needs of the ship. Openings should be fitted with watertight closing appliances. Watertight doors should be of equivalent strength to the adjacent unpierced structure.

3.4.6. Watertight decks, trunks, tunnels, duct keels and ventilators should be of the same strength as watertight bulkheads at corresponding levels. Watertight ventilators and trunks should be carried at least up to the freeboard deck.

3.4.7. A thorough inspection of watertight bulkheads should be performed. Such inspection can be done by filling them with water or by a hose test, and the test should be conducted in the most advanced state of the fitting out of the ship.

3.4.8. Tanks which are designated to hold liquids, and which form part of the subdivision of the ship, should be tested for tightness with water to a head corresponding two-thirds of the depth from the top of the keel to the margin line in way of the tanks.

3.5. Means of sounding

3.5.1. For all ships, other than barges with no under deck cargoes, means of sounding, should be provide as follows:

- For the bilges of those compartments which are not readily accessible at all times during the voyage;
- For all tanks and cofferdams;
- Where sounding pipes are fitted, their upper ends should be extended to a readily accessible position and, where practicable, above the freeboard deck. The openings should be provided with permanently attached means of closing. Sounding pipes which are not extended above the freeboard deck should be fitted with automatic self-closing devices.

3.6. Anchoring and mooring equipment

3.6.1. All ships should 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 the other anchor handling equipment should be to the satisfaction of the Recognized Organization.

3.6.2. Windlass, capstan, winches, fairleads, bollards, mooring bits and other anchoring, mooring, towing and hauling equipment should be:

- Properly designed to meet all foreseeable operational loads and conditions;
- Correctly seated;
- Adequately secured to a part of the ship's structure which is suitably strengthened.

3.7. Towing and pushing arrangements for tugs

3.7.1. The design of the towing gear should be such as to minimize the overturning moment due to the lead of the towline. It should have a positive means of quick release and should function correctly under all operating conditions.

3.7.2. Where a towing hook is provided, the release mechanism should be controlled as far as practicable from the navigation bridge, the after control position (where fitted) and at the hook itself.

3.7.3. When a pushing tug and a barge pushed ahead are rigidly connected in a composite unit, the tug-barge coupling system should be capable of being controlled and powered from the tug.

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

3.8. Anchoring, mooring and towing arrangements for barges

3.8.1. Each barge should be equipped with at least a suitable anchor for holding the barge in an emergency situation and should 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 should be provided as appropriate to assist persons carrying out such operation.

3.8.2. Adequate towing and mooring arrangements and procedures should be such as to reduce to a minimum any danger to personnel during towing or mooring operation.

3.8.3. Both normal and emergency conditions should be taken into account during the design and arrangement of towing and mooring fittings or equipment.

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

3.8.5. In addition to the provisions given in this section, barges should comply with the applicable requirements of the safety of towed ships and other floating objects recommended by the International Maritime Organization.

3.9. General protection measures against accidents

3.9.1. Heavy covers on escape hatches should be equipped with counterweights to avoid accidental closing. Escape doors and covers of escape and access hatches should be constructed to be capable of being opened from either side of the door or cover.

3.9.2. The dimension of access hatches should 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 and when practicable the dimensions of access hatches of cargo and machinery spaces should be such that they will facilitate emergency rescue operations.

3.9.3. Handrails, Grab rails and handholds of sufficient size and strength should be provided for persons to hold on when the ship is severely rolling or pitching.

3.9.4. Skylights of machinery spaces or other similar openings, which are not small and are not normally kept open at sea, should be provided with adequately spaced protective bars or other arrangements to prevent a person from falling into the space accidentally.

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

3.9.6. Moving parts of machinery which are exposed as to cause accidents should be properly guarded.

3.9.7. All crew accommodations should be kept in habitable and sanitary conditions.

CHAPTER 4

I. Stability Requirements

4.1. Intact stability, subdivision and damage stability requirements for cargo ships other than offshore supply vessel.

4.1.1. Subject to the provisions of paragraph 4.1.2, ships of 24m and above in length should comply with the applicable intact stability requirements for cargo ships specified in the Code of Intact Stability for All Types of Ships Covered by IMO Instruments, adopted by the Organization, hereinafter called the Stability Code.

4.1.2. Ships of 24m and above in length whose characteristics, in the opinion of the Administration, render compliance with paragraph 4.1.1 impracticable, should comply with the stability criteria recommended in paragraph 2.5.2 of Resolution A.469 (XII) Guidelines for the Design and Construction of Offshore Supply Vessels.

4.1.3. Intact stability of barges carrying only deck cargoes, having no hatchways in the deck except small manholes closed with gasket covers, no machinery installations and no accommodations and service spaces should be in accordance with the stability requirements specified in paragraph 4.7 of the Stability Code.

4.1.4. Intact stability or subdivision and damage stability requirements, as appropriate, for barges carrying under deck cargoes or having machinery installations or service spaces should be determined by the Administration, having regard to the design and arrangements of cargo spaces, machinery, equipment, deck houses or superstructures.

4.1.5. For ships between 15m and 24m the Administration may apply the provisions of the Stability Code if reasonable. Intact stability of ships which are not covered by the provisions of the Stability Code should be to a standard satisfactory to the Administration.

4.2. Intact stability, subdivision and damage stability requirements for offshore supply vessels

4.2.1. The intact stability and subdivision of offshore supply vessels should comply with the applicable requirements of the Stability Code or comply with the recognized standards.

4.3. Inclining test and stability information

4.3.1. Every ship should undergo an inclining test upon its completion, and the actual displacement and position of the center of gravity should be determined for the light ship condition of the ship.

4.3.2. Unless otherwise specified by the Administration, where alterations are made to a ship affecting its light condition and the position of the center of gravity, the ship should be re-inclined and the stability information amended.

4.3.3. The Administration may allow the inclining test of a ship to be dispensed if reliable stability information for the ship can be obtained from data available from the inclining test of a sister ship.

4.3.4. The Administration may dispense the inclining test of a cargo ship especially designed for the carriage of liquids or ore in bulk when reference to existing data for similar ships clearly indicates that due to the ship proportions and arrangements more than sufficient transverse metacentric height will be available in all probable loading conditions.

4.3.5. Stability information approved by the Administration or by the Recognized Organization approved by the Administration should be supplied to ships propelled by mechanical means to enable the master to assess with ease and certainty the stability of the ship under various operating conditions.

4.3.6. The approved stability information should be kept on board, readily accessible at all times and inspected at the periodical surveys of the ship to ensure that the conditions of the ship have remained unchanged.

4.3.7. Where alterations are made to a ship affecting its stability, revised stability calculations should be prepared and submitted to the Administration for approval. Such revised information should be supplied to the master and the superseded information removed from the ship.

4.4. Bilge pumping arrangements

4.4.1. An efficient bilge pumping arrangement should be provided which under working conditions should be capable of pumping from the draining any watertight compartment other than space permanently appropriated for the carriage of fresh water, water ballast, oil fuel or liquid cargoes for which other efficient means for pumping are provided.

4.4.2. The arrangements of the bilge and ballast pumping system should be such as to prevent the possibility of water passing from the sea and the water ballast spaces into the cargo and machinery spaces or from one compartment to another.

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

4.4.4. At least two bilge pumps connected to the main bilge system should be provided, one of which may be driven by the propulsion machinery.

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

4.4.6. Bilge pipes should not be led by fuel oil, ballast or double bottom tanks, unless pipes are of heavy gauge steel construction.

CHAPTER 5

I. Machinery Installation (not applicable for unmanned barge).

5.1. General Requirements

5.1.1. All boilers and other pressure vessels, all parts of machinery, all steam, hydraulic, pneumatic and other system and their associated fittings which are under internal pressure should be subjected to a pressure test and other appropriate tests before being put into service.

5.1.2. Means should be provided to ensure that the machinery can be brought into operation from the dead ship condition without external aid.

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

5.1.4. All gearing, 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 should be so designed and constructed that they will withstand the maximum working stress which may be subjected in all service conditions.

5.1.5. Internal combustion engines of a cylinder diameter of 200mm or a crankcase volume of 0.6m³ and above should be provided with crankcase explosion relief valves of a suitable type with sufficient relief area.

5.1.6. Main turbine propulsion machinery, main internal combustion propulsion machinery and auxiliary machinery should be provided, as far as possible, with automatic shutoff arrangements in the case of failures such as lubricating oil supply failure which could lead rapidly to complete breakdown, severe damage or explosion.

5.2. Machinery Controls

5.2.1. Main and auxiliary machinery essential for the propulsion and safety of the ship should be provided with effective means for its operation and monitoring.

5.3. Remote control of propulsion machinery

5.3.1. Where remote control of propulsion machinery from the navigating bridge is provided and the machinery spaces are intended to be manned, the following should apply:

5.3.1.1. The speed, direction of thrust and the pitch of the propeller (if applicable) should be fully controllable from the navigating bridge under all sailing conditions.

5.3.1.2. The remote control should be performed for each independent propeller by a control device. Where multiple propellers are designed to operate simultaneously, they may be controlled by one control device.

5.3.1.3. The main propulsion machinery should be provided with an emergency stopping device on the navigating bridge which should be independent of the navigating bridge monitoring system.

5.3.1.4. Propulsion machinery orders from the navigating bridge should indicate in the main machinery control room or at the maneuvering platform as appropriate.

5.3.1.5. Remote control of the propulsion machinery should be possible only from one location at a time. For such locations interconnected control positions are permitted. At each location, there should be an indicator showing which location is in control of the propulsion machinery.

5.3.1.6. The design of the remote monitoring system should be such that in case of its failures an alarm will be given.

5.3.1.7. Indicators should be fitted on the navigating bridge for:

- Propeller speed and direction of rotation in the case of fixed pitch propeller;
- Propeller speed and pitch position in the event of controllable pitch propellers

5.3.1.8. In all ships where the main propulsion and associated machinery, including main electrical supply, are provided with various degrees of automatic or remote control and are under continuous manual supervision from a control room, the arrangements and controls should be so designed, equipped and installed that the machinery operation will be as safe and effective as if it were under direct supervision.

5.4. Periodically unattended machinery spaces (when applicable)

5.4.1. Ships having periodically unattended machinery spaces should, as far as practicable and reasonable in the opinion of the Administration, comply with the applicable requirements of SOLAS 74 for such machinery spaces.

5.4.2. Where alternative arrangements are provided, the Recognized Organization on behalf of the Administration should ensure that the safety of the ship in all sailing conditions, including maneuvering is equivalent to that of a ship having manned machinery spaces.

5.5. Steam boilers and boilers feed system

5.5.1. Every steam boiler and every unfired steam generator should be provided with not less than two safety valves of adequate capacity. The Administration may permit only one safety valve to be fitted if it is satisfied that adequate protection against overpressure is thereby provided.

5.5.2. Each oil-fired boiler which is intended to operate without manual supervision should 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.

5.5.3. 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, should be provided with not less than two separate feed water system from and including the feed pumps.

5.5.4. Boilers should be provided with means to supervise and control the quality of the feed water.

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

5.5.6. Water tube boilers serving turbine machinery should be fitted with a high-water level alarm.

5.6. Steam pipe system (when applicable)

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

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

5.7. Air pressure systems (when applicable)

5.7.1. Every ship should have suitable pressure relief arrangements provided for all systems.

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

5.8. Ventilating system in machinery spaces

5.8.1. Machinery spaces should be adequately ventilated so as to ensure that when machinery or boiler therein are operating at full power in all weather conditions, an adequate supply of air is maintained to the spaces for the safety and comfort of personnel and the operation of the machinery, and to prevent accumulation of oil vapor.

5.9. Protection against noise

5.9.1. Measures should be taken to reduce motor noise in machinery spaces to acceptable levels. Insulation or isolation or refuge from noise can be provided as a sound reducer. Ear protectors should be provided for personnel required to enter such spaces.

5.10. Means of going astern

5.10.1. Sufficient power for going astern should be given to secure proper control of the ship in all normal circumstances.

5.10.2. The stopping times, ship heading and distances recorded on trials, together with the results of trials to determine the ability of ships having multiple propellers to navigate and maneuver with one or more propeller inoperative, should be available on board for the use of the Master or designated personnel.

5.11. Steering gear

5.11.1. Unless provided otherwise, every ship should be provided with a main steering gear of adequate strength and capable of steering the ship at maximum ahead service speed. The main steering gear and rudder stock should be so designed that they will not be damaged at maximum astern speed.

5.11.2. The auxiliary means of steering should be of adequate strength and capable of steering the ship at navigable speed and of being brought speedily into action in an emergency.

5.11.3. The main steering power unit should be arranged to restart either by manual or automatic means when power is restored after a power failure.

5.11.4. A way of communication should be provided, where necessary, between the navigating bridge and the steering gear compartment.

5.12. Communication between navigating bridge and machinery spaces

5.12.1. Ships should be provided with at least two independent means for communicating orders between navigating bridge and the machinery space or control room from which the main propulsion engine are usually controlled.

5.12.2. In lieu of meeting the requirements of paragraph 5.12.1, ships of less than 24m in length may be provided with only one mean of communication, if the Administration is satisfied that, due to close proximity of the navigating bridge and position of local controls of the main propulsion machinery, two means of communication are not necessary.

5.12.3. Appropriate means of communication should be provided to any area (other than the navigating bridge) from which the engines may be controlled.

CHAPTER 6

I. Electrical Installations

6.1. General Requirements

6.1.1. Electrical installations should be such that:

- All electrical services necessary for maintaining the ship in normal operation and habitable conditions will be assured without recourse to the emergency source of electrical power;
- Electrical services essential for safety will be secured under emergency conditions ;
- The safety of personnel and ship from electrical hazards will be assured.

6.2. Safety Precautions

6.2.1. Exposed metal parts of electrical machines or equipment which are not intended to be alive but which are liable under fault conditions to become alive should be earthed unless the machines or equipment are:

6.2.1.1. Supplied with a voltage not exceeding 50V direct current or 50V, root means square between conductors; auto-transformers should not be used for the purpose of achieving this voltage;

6.2.1.2. Supplied with a voltage not exceeding 250V by safety isolating transformers supplying only one consuming device;

6.2.1.3. Constructed in accordance with the principle of double insulation

6.2.2. Additional precaution may be required for portable electrical equipment for use in confined or damp spaces.

6.2.3. Main and emergency switchboard should be so arranged as to give easy access as may be needed to apparatus and equipment without danger to personnel. No conducting mats or gratings should be provided at the front and rear of the switchboard, when required.

6.2.4. The hull return system of distribution should not be used for any purpose in a tanker or a barge carrying liquid cargoes of flammable nature in bulk. This requirement does not preclude the use of:

- Impressed current cathodic protective system;
- Limited and locally earthed system (e.g. engine starting system);
- Limited and locally earthed welding system;
- Insulation level monitoring devices provided the circulation current does not exceed 30mA under the most unfavorable conditions.

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

6.2.6. When a distribution system, whether primary or secondary, for power, heating or lighting, with no connection 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 should be provided.

6.2.7. All metal sheaths and armour of cables should be electrically continuous and should be earthed.

6.2.8. All new ships should have cables and wiring external to equipment at least of a flame retardant type and should be so installed as not to impair their original flame retarding properties. Radio frequency cables may be permitted under especial circumstances.

6.2.9. Cables and wiring serving essential or emergency power, lighting, internal communications or signals should be routed clear of galleys, laundries, machinery spaces of category A and their casings and other high fire risk area. Cables connecting fire pumps to the emergency switchboard should be of fire resistant type where they pass through the high fire risk zones.

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

6.2.11. Each separate circuit should be protected against short circuit and against overload. The rating or appropriate setting of the overload protective device for each circuit should be permanently indicated at the location of the protective device.

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

6.2.13. Accumulator batteries should be suitably housed, and compartments used primarily for their accommodation and be properly ventilated. Accumulator batteries, except for batteries used in self-contained battery operated lights, should not be located in sleeping quarters.

6.2.14. No electrical equipment should be installed in any space where flammable mixtures are liable to collect including those on board 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 such equipment is:

- Essential for operations purposes;
- Of a type, which will not ignite the mixture concerned;
- Appropriate to the area concerned;
- Appropriately certificate for the safety usage in the dusts, vapors of gases likely to be encountered.

6.3. Main source of electrical power

6.3.1. The main source of electrical energy should consist of a generator driven by an internal combustion engine, which may be the main propulsion machinery of the ship.

6.3.2. A main electrical lighting system which should provide illumination throughout those parts of the ship typically used by crew or persons on board should be supplied from the main source of electrical power.

6.4. Emergency sources of electrical power

6.4.1. A self-contained emergency source of electrical power should be provided and should be located above the uppermost continuous deck and should be readily accessible from the open deck. The location of the emergency source of electrical power should not interfere in the case of a fire or other casualty occurring in the space containing the main source of electrical power.

6.4.2. 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.

6.4.3. The electrical power available should be sufficient to provide 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, including:

6.4.3.1. Means of illumination as required, for a period of three hours;

6.4.3.2. For a period of eighteen hours, emergency lighting:

- In all service and accommodation alleys, stairways and exits;
- In spaces containing propulsion machinery used for navigation;
- In all control stations, machinery control rooms, each main and emergency switchboard;
- At all stowage positions for fireman's outfit;
- At all steering gear (when applicable);
- At the emergency fire pump and its control position;

6.4.3.3. For period of eighteen hours:

- The navigation lights and other lights required by the COLREG 1972;
- The VHF, MF and MF/HF radio installation required by SOLAS 74

6.4.3.4 for a period of eighteen hours:

- All internal communication equipment as required in an emergency;
- The fire detection and fire alarm systems;
- Operation of emergency fire pumps, if electrically operated.

6.4.4. The Administration may lessen the eighteen hours' period mentioned above on vessels that are engaged in short voyages, however, it should not be in any case, less than three hours.

6.4.5. The electrical source of electrical power may be:

6.4.5.1. An accumulator battery capable of carrying the emergency electrical load line without recharging or excessive voltage drop; or

6.4.5.2. A generator driven by a suitable prime mover with an independent fuel supply.

CHAPTER 7

I. Fire protection and fire extinction

7.1. Application

7.1.1. This chapter should apply to all ships propelled by mechanical means and manned barges.

7.2. Fixed Fire Pumps

7.2.1. Every ship should be provided with at least one independent power-operated fire pump. In ships of 150 GRT and above propelled by mechanical means, such pump shall be operated by means other than the propulsion machinery of the ship. The total capacity of the main fire pump(s) is not to be less than

$$Q = (0.145(L(B + D))^{1/2} + 2.170)^2 \text{ But need not exceed } 25\text{m}^3/\text{hour}$$

Where;

B = greatest moulded breadth of vessel, in meters,

D = moulded depth to bulkhead deck, in meters,

L = freeboard length, in meters,

Q = total capacity, in m³/hour

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

7.2.3. A power pump is a fixed pump driven by a power source other than by hand.

7.2.4. In cargo vessels classed for navigation in ice, the fire pump sea inlet valves should be provided with ice clearing arrangements.

7.2.5. Relief valves should be provided in conjunction with any fire pump if the pump is capable of developing a pressure exceeding the design pressure of the water service pipes, hydrants, and hoses. These valves should be so placed and adjusted as to prevent excessive pressure in any part of the main fire system.

7.2.6. Where two main fire pumps are provided, the capacity of one of the two should not be less than 60% of their total capacity.

7.2.7. Every fire pump should be arranged to draw water directly from the sea and discharge into a fixed fire main, if any. Booster pumps and storage tanks may be installed on ships with high suction lifts.

7.2.8. Non-return valves should be fitted with centrifugal pumps or other pump connected to the fire main.

7.2.9. Location and arrangements of pumps should take into account:

7.2.9.1. If a fire in any compartment can put all the fire pumps out of action, there should be an alternate means to extinguish the fire;

7.2.9.2. An emergency fire pump should be an independently driven self-contained pump;

7.2.9.3. The emergency fire pump, sea suction and other valves should 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;

7.2.9.4. The capacity of the emergency pump should not be less than 60% of the total capacity of fire pumps required by this regulation.

7.2.10. Portable Fire Pumps

7.2.10.1. Portable fire pumps should comply with the followings:

- The pump shall be self-priming;
- The total suction head and the net positive suction head of the pump should be determined taking account of actual operation i.e. pump location when used;
- The portable fire pump when fitted with its length of discharge hose and nozzle should be capable of maintaining a pressure sufficient to produce a jet throw of at least 40 feet (12 m) or that required to enable a jet of water to be directed to any part of the engine room or the exterior boundary of the engine room and casing whichever is the greater;
- Except for electric pumps, the pump set should have its ~~own~~ fuel tank of sufficient capacity to operate the pump for three hours. For electric pumps, their batteries should have sufficient capacity for three hours;
- Except for electric pumps, details of the fuel type and storage location should be carefully considered. If the fuel type has a flashpoint below 60°C, further consideration to the fire safety aspects should be given;
- The pump set should be stored in a secure, safe and enclosed space accessible from open deck and clear of the Category 'A' machinery spaces;
- The pump set should be easily moved and operated by two persons and be readily available for immediate use;
- Arrangements should be provided to secure the pump at its anticipated operating position(s);
- The overboard suction hose should be non-collapsible and of sufficient length to ensure suction under all operating conditions. A suitable strainer should be fitted at the inlet end of the hose;
- Any diesel-driven power source for the pump should be capable of being readily started in its cold condition by hand (manual) cranking. If this is impracticable, consideration should be given to the provision and maintenance of heating arrangements, so that readily starting can be ensured.

7.2.10.2. Alternatively, to the recommendations of 7.2.10.1, a fixed fire pump may be fitted which should comply with the following:

- The pump, its source of power and sea connection should be located in accessible positions outside the compartment housing the main fire pump;
- The sea valve should be capable of being operated from a position near the pump;
- The room where the fire pump prime mover is located should be illuminated from the emergency source of electrical power and should be well ventilated;

- Pump is required to supply water for a fixed fire extinguishing system in the space where the main fire pump is situated, it should be capable of simultaneously providing water to this system and the fire main at the required rates;
- The pump may also be used for other suitable purposes subject to the approval in each case;
- Pressure and quality of water delivered by the pump sufficient to produce a jet of water at any nozzle of not less than 40 feet (12m) in length. For a vessel of less than 150 GRT, the jet of water may be specially considered.

7.2.11. For vessels less than 150 GRT fitted with an approved fixed firefighting system in the engine room, portable pumps may be omitted.

7.2.12 Means to illuminate the stowage area of the portable pump and its crucial areas of operation should be provided from the emergency source of electrical power.

7.3. Fire mains, water service pipes, and fire hydrants

7.3.1. The diameter of the fire main and water service pipes should be sufficient for the effective distribution of the maximum required discharge from the fire pump or where more than one pump is provided the discharge from at least two pumps operated simultaneously.

7.3.2. When the main fire pump is delivering the quantity of water required by 1.1.1 or the fire pump described in 7.2.1 through the fire main, fire hoses and nozzles, the pressure maintained at any hydrant should be sufficient to produce a jet throw at any nozzle of not less than 40 feet (12 m) in length (for vessel less than 150 GRT, the jet of water may be specially considered).

7.3.3. In a ship where one or more main fire pumps are provided, the diameter of the fire main and the water service pipes connecting the hydrants thereto should be sufficient for the effective distribution of the maximum required discharge.

7.3.4. In every ship, the number and positions of hydrants should 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.

7.3.5. Pipes and hydrants should be arranged as follows:

7.3.5.1. For vessels less than 150 GRT, the number and position of the hydrants should be such that at least one jet of water may reach any part normally accessible to the crew while the cargo vessel is being navigated and any part of any cargo space when empty. Furthermore, such hydrants should be positioned near the accesses to the protected spaces (at least one hydrant should be provided in each category 'A' machinery space).

7.3.5.2. For vessel equal or greater than 150 GRT, the number and position of hydrants should be such that at least two jets of water not emanating from the same hydrant one of which should be from a single length of hose may reach any part of the vessel normally accessible to the crew while the vessel is being navigated and any part of any cargo spaces when empty. Furthermore, such hydrants should be positioned near the accesses to the protected areas.

7.3.5.3. Materials readily rendered ineffective by heat should not be used for fire mains. Where steel pipes are used, they should be galvanized internally and externally. Cast iron pipes are not acceptable. The pipes and hydrants should be so placed that the fire hoses may be easily coupled to them. The arrangement of pipes and hydrants should be such as to avoid the possibility of freezing. In vessels where deck cargo may be carried, the positions of the hydrants should be such that they are always readily accessible and the pipes should be arranged as far as practicable to avoid risk of damage by such cargo. There should be complete interchangeability of hose couplings and nozzles.

7.3.5.4. In ships where deck cargo may be carried, the position of the hydrants should be such that they are always readily accessible and the pipes should be in such a way to avoid risk of damage by such cargo.

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

7.3.5.6. Fire mains should have no connection other than those required for firefighting, except for the purpose of washing the deck and anchor chains or operating the chain locker bilge ejector.

7.3.5.7. Where a fixed fire pump is fitted outside the engine room in accordance with 7.2.10.2:

- An isolating valve should be fitted in the fire main so that all the hydrants in the vessel except for those in the Category 'A' machinery space can be supplied with water. The isolating valve should be located in an easily accessible and tenable position outside the Category 'A' machinery space;
- The fire main should not re-enter the machinery space downstream of the isolating valve.

7.4. Fire hoses and nozzles

7.4.1. Every ship should be provided with a minimum of two fire hoses. The Administration may increase the required number of fire hoses if it is deemed necessary.

7.4.2. Where hydrants are required in any machinery spaces, each hydrant should be provided with a fire hose.

7.4.3. A single length of fire hose should not exceed 20m and should be constructed of oil resistance and of approved material.

7.4.4. Fire hoses provided in compliance with this regulation should not be used for any purpose other than firefighting or testing of the fire appliances

7.4.5. Every fire hose should be provided with approved nozzles and the necessary couplings.

7.4.6. For accommodation and services spaces, a nozzle size greater than 12 mm should not be used.

7.5. Fire Extinguishers

7.5.1. Fire extinguishers should be of approved type and design.

7.5.2. The capacity of required portable fluid fire extinguishers should not be more than 13.5 L and not less than 9 L.

7.5.3. The capacity of required portable carbon dioxide fire extinguishers should not be less than 3 kg. The capacity of required portable dry power fire extinguishers should not be less than 4.5 kg.

7.5.4. A spare charge should be provided for every portable fire extinguisher provided. When such fire extinguisher cannot be readily recharged while the ship is at sea, an additional fire extinguisher of the same type or equivalent should be provided.

7.5.5. Fire extinguishers should be periodically examined and tested as follows:

7.5.5.1. The condition of the charges of extinguishers other than carbon dioxide extinguishers should be checked annually. If there is any indication of deterioration, the charges should be renewed, in any case, at least every four years. A record of the annual check should be fixed to each fire extinguisher.

7.5.5.2. Carbon dioxide extinguishers and gas propellant cartridges of other extinguishers should be examined externally for corrosion and loss of content. Where the loss of content exceeds 10%, charges should be renewed.

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

7.5.7. Halon fire extinguishers should not be used.

7.5.8. Each fire extinguisher should be clearly marked on the front with a label of durable material with at least the following information in English:

- Name of manufacturer;
- Type of fire for which the extinguishers are suitable;
- Type and quantity of extinguishing medium;
- Approval details;
- Operating instructions supplemented by diagrams;
- Intervals for recharging;
- Temperature range over which the extinguisher will work satisfactorily; and
- Test pressure

7.6. Fixed fire-extinguishing systems and fixed fire detection and fire alarm systems

7.6.1. Fixed halogenated hydrocarbon fire-extinguishing system should not be used in ships.

7.6.2. Subject to the provisions of 7.6.1, fixed fire-extinguishing system and fixed fire detection and fire alarm required by this chapter should comply, as far as practicable and reasonable, with the relevant requirements of these systems specified in SOLAS 74.

7.7. Portable fire extinguishers in accommodation spaces, service spaces and control stations

7.7.1. In every ship, there should 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.

7.8. Fire-extinguishing appliances and systems in machinery spaces

7.8.1. In every ship, areas containing main or auxiliary oil fire boilers or fuel oil units, should be provided with the following fixed fire-extinguishing systems in accordance with chapter II-2 of SOLAS 74 in force

7.8.1.1. A gas system complying with the provisions of section 3.5; or

7.8.1.2. A high expansion foam system complying with the provisions of section 3.9, or

7.8.1.3. A pressure water-spraying system complying with the provisions of section 3.10.

7.8.2. In addition to the above requirements, a ship with spaces referred in 7.8.1 should be provided with the following:

7.8.2.1. At least one portable extinguisher suitable for extinguishing oil fires for each burner.

7.8.2.2. At least two portable extinguishers suitable for extinguishing oil fires in each space in which part of oil fuel units is situated.

7.8.2.3. In each fire space there should be a receptacle containing not less than 0.15m² of sand, sawdust impregnated with soda or other approved dry material.

7.8.3. Every ship having any space containing internal combustion type machinery having a total power output of 750kW and above should have to the

7.8.3.1. One fixed fire-extinguishing systems as referred in 7.8.1 and;

7.8.3.2. At least one portable extinguisher suitable for extinguishing oil fires for each 750kW of engine power output or part thereof, with a minimum of at least two fire extinguishers.

7.8.4. Every ship having any space containing internal combustion type machinery having a total power output of less 750kW and not complying with 7.8.3, should have:

7.8.4.1. At least one portable extinguisher suitable for extinguishing oil fires for each 750kW of engine power output or part thereof, with a minimum of at least two fire extinguishers.

7.8.4.2. At least two portable fire extinguishers suitable for extinguishing oil fires together with one non-portable foam fire extinguisher of at least 45L capacity or at least 15kg capacity or equivalent.

7.8.5. In every ship, there should be provided in machinery spaces containing electrical installations one or more fire extinguishers suitable for extinguishing an electrical fire.

7.8.6. In each firing space of every such ship, fitted with auxiliary oil-fired boilers, a receptacle should be provided with contain at least 0.28m³ of sand or other dry material suitable for quenching oil fires.

7.9. Fireman's outfit

7.9.1. Every ship having machinery spaces of category A should be provided with a fireman's outfit.

7.9.2. Fireman's outfit should consist of

7.9.2.1. Protective clothing to protect the skin from heat, burns, and scalding.

7.9.2.2. Boots and gloves of rubber or other electrically non-conducting material

7.9.2.3. Rigid helmet

7.9.2.4. Electric safety lamp with a minimum burning period of three hours

7.9.2.5. An axe

7.9.2.6. A fireman's axe should be provided in an easily accessible location outside the machinery, accommodation and service spaces

7.9.2.7. Breathing apparatus of an approved type

7.9.3. For each breathing apparatus, a fireproof lifeline of sufficient length and strength should be provided capable of being attached by means of a snap hook to the harness of the device, or a separate belt to prevent the breathing apparatus becoming detached when the lifeline is operated.

7.9.4. The fireman's outfits should be so stored as to be easily accessible and ready for use.

7.10. Fire control plan

7.10.1. In ships having machinery spaces of category A, there should be provided a permanently exhibited fire control plan or equivalent.

7.10.2. The fire control plan should be kept up-to-date and should be written in English.

7.10.3. In addition to paragraph 7.10.1, instructions concerning the maintenance and operation of all the equipment and installation on board for the fighting and containing fire should be kept under one cover, readily available in an accessible position.

7.11. Fire protection requirements for ships of less than 24m

7.11.1. For ships, less than 24m, the provisions specified in this chapter may be relaxed. However, no relaxation should be granted to ships carrying hazardous cargoes. The relaxations are as follows:

7.11.1.1. Instead of the provisions specified in regulation 7.2.1, in ships propelled by mechanical means, fire pumps may be driven by the main propulsion machinery provided that the propeller can be readily disconnected or that a controllable pitch propeller is fitted;

7.11.1.2. In lieu of the provisions specified in regulation 7.4.6, fire hoses of an internal diameter of not less than 32mm may be accepted;

7.11.1.3. Every ship of less than 24m should be provided with fire buckets as follows:

7.11.1.3.1. At least three fire buckets of material which are not readily flammable and should be painted red and marked with the word FIRE and provided with lanyards of sufficient length having regard to the size of the ship should be provided.

7.11.1.3.2. The capacity of each fire bucket should be of at least 9L;

7.11.1.4. Where the provision of fixed fire extinguishing system is considered to be impracticable, the Administration may accept alternate arrangements.

CHAPTER 8

I. Fire Safety Measures

8.1. Structure

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

8.2. Constructional fire safety measures

8.2.1. Bulkheads, decks, doors and stairways

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

8.2.1.2. Interior stairways below the weather deck should be of steel or other fire resistant material.

8.2.1.3. Subject to 8.2.1.1 and 8.2.1.2, the fire safety requirements of bulkheads, decks, doors and stairways should comply, as far as practicable with the requirements of SOLAS 74.

8.2.2. Insulation material in accommodation spaces, service spaces (except domestic refrigeration compartments), control stations and machinery spaces should be non-combustible, or when accepted by the Administration, should have qualities of resistance to the propagation of flame.

8.2.3. Restricted use of combustible material should be as follows:

8.2.3.1. Exposed surfaces in corridors and stairway enclosures and surfaces including decks in concealed or inaccessible spaces in accommodation spaces, service spaces and control station and exposed surfaces of ceilings in accommodation spaces, service spaces and control station should have low flame-spread characteristics.

8.2.3.2. Primary deck coverings, where applied within accommodation spaces, service spaces and control stations, should be of material which will not readily ignite or give rise to toxic or explosive

8.2.4. Means of escape

8.2.4.1. Stairways and ladders, should 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.

8.2.4.2. Two means of escape should be provided from every machinery space of category A which should be as widely separated as possible. Vertical escapes should be by means of steel ladders.

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

8.2.5. The following special arrangements should be provided for machinery spaces of category A:

8.2.5.1. Means should be provided for opening and closure of skylights and windows in machinery space boundaries, closure of openings in funnels which normally allow exhaust ventilation and closure of ventilator dampers and should be located outside the space concerned.

8.2.5.2. Means should be provided for permitting the release of smoke and should be located outside the area concerned.

8.2.5.3. Skylights should 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 should be made to enable the release of smoke from the space to be protected in the event of fire.

8.2.5.4. Windows should not be fitted in machinery space boundaries.

8.2.5.5. Doors fitted in machinery space boundaries should as far as practicable be equivalent in resisting fire to the divisions forming such boundaries. Doors should be weathertight, watertight or self-closing.

8.2.6. The ventilation system located in machinery spaces, galleys, cargo spaces and accommodation spaces and control station should be entirely separated from each other.

8.2.6.1. Power ventilation in accommodation spaces, service spaces, cargo spaces, control stations and machinery spaces should be capable of being stopped from an accessible position outside the space being served. This position should not be readily cut off in the event of a fire in the space served.

8.2.6.2. The main inlets and outlets and fire alarm systems of an approved type should be installed in periodically unattended machinery spaces.

8.2.7. A fixed fire detection and fire alarm system of an approved type should be fitted in periodically unattended machinery spaces.

8.3. Ventilation of tanks, cofferdams, etc.

8.3.1. All tanks carrying cargo, cofferdams and other enclosed spaces in all ships should be provided with efficient means for ventilation and access, having regards to the intended services.

8.3.2. In tankers and barges carrying flammable liquid cargo in bulk, other than crude oil or petroleum products of low flashpoint, there should 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 end of which are fitted with removable wire mesh diaphragms of non-corrosive material.

8.4. Miscellaneous items

8.4.1. 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 should be made to ensure that the fire integrity is not impaired.

8.4.2. Materials readily rendered ineffective by heat should 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.

8.5. Arrangements for oil fuel, lubricating oil and other flammable oils

8.5.1. The following limitations should apply to the use of oil as fuel:

8.5.1.1. No oil fuel with a flashpoint of less than 60°C should be used, unless otherwise specified.

8.5.1.2. Oil fuel for emergency generator should be not less than 43°C.

8.5.1.3. In cargo ships, the use of fuel having a lower flashpoint than the otherwise specified in this section, for example, crude oil, may be permitted provided that such fuel is not stored in any machinery space.

8.5.2. Oil fuel arrangements for storage distribution and utilization of the oil fuel should comply with the following provisions:

8.5.2.1. As far as practicable parts of the oil fuel system containing heated oil under pressure exceeding 0.18N/nm² should not be placed in a concealed position such that defects and leakage cannot be observed.

8.5.2.2. As far as practicable, oil fuel tanks should be part of the ship's structure and located outside machinery spaces of category A. Where such tanks are situated

within the boundaries of such spaces, they should not contain oil fuel having a flashpoint of less than 60°C and should not be free-standing oil fuel tanks.

8.5.2.3. Oil fuel pipes that would allow oil to escape from the storage, settling or daily service tank situated above the double bottom if damaged, should be fitted with a cock or valve constructed of similar material to that of the tank, directly to 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.

8.5.2.4. Safe and efficient means of ascertaining the amount of oil fuel contained in any oil fuel tank should be provided, among the permitted means, the Administration accepts sounding pipes, oil level gauges with flag glasses and cylindrical gauge glasses. Sounding pipes should not terminate in any space where the risk of ignition of spillage from the sounding pipe might arise, including accommodation spaces.

8.5.2.5. Provisions should be made to prevent overpressure in any oil tank or in any part of the oil fuel system including the filling pipes. Provisions include the use of relief valves or overflow pipes. The open end of air pipes should be fitted with wire mesh.

8.5.3. Lubricating oil arrangements for storage, distribution and utilization should be such as to ensure the safety of the ship and persons on board. Such arrangements in machinery spaces should comply with the provisions of 8.5.2.1, 8.5.2.2, 8.5.2.3, 8.5.2.4 and 8.5.2.5 as far as practicable.

8.5.4. Arrangements for storage, distribution and utilization of other flammable oil employed under pressure in power transmission systems, control and activation system and heating systems should be such as to ensure the safety of the ship and persons on board.

8.5.4.1. No oil fuel, lubricating oil and other flammable tanks should be situated where spillage or leakage can constitute a hazard by falling on heating surfaces. Precautions should 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.

8.5.4.2. Pipes, fittings and valves handling fuel oil, lubricating oil or other flammable oil should be of made of steel or equivalent approved material. Flexible pipes should be permissible in positions where is necessary and should be of fire-resisting material of adequate strength.

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

8.6. Carriage of oxygen and acetylene cylinders

8.6.1. Where more than one cylinder of oxygen and more than one cylinder of acetylene are carried simultaneously, such cylinders should be arranged as the following:

8.6.1.1. Permanent piping systems for oxygen and acetylene are acceptable provided that they are designed as per stands and codes of practice.

8.6.1.2. Where two or more cylinders of each gas are intended to be carried in enclosed spaces, separate dedicated storage rooms should be provided for each gas. Storage rooms should be constructed of steel, with proper ventilation and accessible from the open deck.

8.6.1.3. Signs of NO SMOKING should be displayed at the gas cylinder storage rooms

8.6.1.4. Where cylinders are stowed in open location, it should be provided that the cylinders and piping are protected from physical damage, and that there is minimum exposure to hydrocarbon and suitable drainage.

8.6.2. Spaces where such cylinders are stored should have fire-extinguishers arrangements.

8.7. Carriage of dangerous stores for ship's use

8.7.1. Stowage of explosive associated with every ship should be in accordance with the requirements for explosives storage specified in Chapter 7 of the Code of Safety for Special Purpose Ships, adopted by IMO by Resolution A.534(13) as amended.

8.7.2. Liquids which give off dangerous vapors and flammable gases and cylinders containing flammable or dangerous gases should be stored in well-ventilated spaces or on deck and protected against sources of dangerous heat.

8.7.3. Propane gas systems should be inspected at installation and be serviced annually by a person that is properly qualified. The amount of propane gas carried should be kept to a minimum.

8.7.4. Substances which are liable to spontaneous heating or combustion should not be carried, unless precautions have been taken to prevent the outbreak of fire.

8.8. Cooking areas

8.8.1. Kitchen appliances like deep-fat fryers or other types that could provide a high fire hazard should not be fitted.

8.8.2. There should be a fire retardant barrier built around the cooking and heating appliances.

8.8.3. Where a kitchen range required an exhaust hood, this should also have a grease trap.

8.8.4. Combustible materials that are not need in the kitchen area should be stored in the area.

8.9. Fire protection arrangements in cargo spaces

8.9.1. Where ships are engaged in the carriage of dangerous good, a fixed gas fire extinguisher system comply with the relevant regulations of SOLAS 74 should be carried out.

8.9.2. In addition to complying with the applicable requirements in 8.9.1, ships intended for the carriage of dangerous good should follow the special requirements specified in Regulation 54 of Chapter II-2 of SOLAS74, except with the dangerous good is in limited quantities.

8.10. Fire safety measures for tankers

8.10.1. All tankers and barges carrying crude oil and petroleum products having a flashpoint not exceeding 60°C should comply with the requirements of Regulations 55 to 63 of Chapter II-2 of SOLAS 74.

8.10.2. If an existing vessel does not meet the requirements of 8.10.1, a notice to the Administration with the requirements for fire safety measures taken onboard the vessel, for the Administration approval.

CHAPTER 9

I. Lifesaving appliances

9.1. General requirements

9.1.1. Life-saving requirements required by this chapter should comply with the technical specifications of Part C, Chapter III of SOLAS 74.

9.1.2. If it is considered by the Administration that the sheltered nature and conditions of the voyage are such as to render the application of any particular requirement of this chapter unreasonable or unnecessary, approve alternative specifications that are considered equally effective under the circumstances.

9.2. Communication

9.2.1. Every ship and manned barge should carry:

9.2.1.1. A two-way VHF radio-telephone apparatus;

9.2.1.2. At least one radar transponder and rescue operation. Such radar should be easy to place in any survival craft.

9.2.1.3. One EPIRB

9.2.1.4. At least 6 rockets parachute flares on the bridge of the ship. Or hand flares if the condition of the voyage allows it.

9.2.1.5. Fixed or portable equipment for emergency means for two-way communications between emergency control stations, muster and embarkation stations and strategic positions onboard.

9.2.1.6. A general emergency alarm system for summoning the crew to muster stations. The system should be operated from the ship's bridge and be audible throughout all the accommodation and standard crew spaces.

9.2.2. The EPIRB satellite mentioned in 9.2.1.3 should be:

9.2.2.1. Capable of transmitting a distress alert through the polar orbiting satellite service operating in the 406 MHz or through the Inmarsat-E geostationary satellite service operating in the 1.6GHz frequencies;

9.2.2.2. Installed in an accessible position;

9.2.2.3. Ready to be manually released and capable of being carried by one person into survival craft;

9.2.2.4. Capable of floating free and if the ship sinks of being automatically activated when afloat;

9.2.2.5. Capable of being activated manually

9.3. Personal life-saving appliances

9.3.1. Every ship and manned barge should carry at least four lifebuoys of which at least:

9.3.1.1. One buoy should be provided with a self-igniting light;

9.3.1.2. One buoy should be fitted with a buoyant lifeline;

9.3.1.3. Two buoys should be fitted with self-activating smoke signals and be capable of quick release from the navigating bridge;

9.3.1.4. Lifebuoys with light and with light and smoke signal should be equally distributed on both sides of the ship.

9.3.2. Every ship and manned barge should carry life jackets for every person onboard and persons on watch. Every lifejacket should be provided with a light complying with the requirements of Regulation III/28.2 of SOLAS74.

9.3.3. Every ship and manned barge should carry immersion suits for every person onboard and persons on watch, which may include those provided for the rescue boat crew.

9.3.4. Every ship and manned barge provided with survival craft without enclosure should carry at least two thermal protective aids in every such craft.

9.3.5 Immersion suits and thermal protective aids may be omitted on vessels operating permanently between the latitudes 20° N and 20°S or within other defined areas where water temperatures and climatic conditions are satisfactory to the administration

9.4. Manning and survival procedures

9.4.1. All persons manning ships and barges should be trained in launching and operating survival crafts.

9.4.2. Illustrations, poster, signs and instructions relating to the use of life-saving appliances in appropriate languages should be posted at muster stations and other crew spaces.

9.4.3. Muster stations should be provided close to the embarkation stations and should be adequately illuminated by lighting supplied from the emergency source of electric power.

9.4.4. Each member of the crew should participate in at least one abandon and one fire drill every month. Onboard training in the use of life-saving appliances, including survival craft equipment, should be provided at such drills. Records of fire drills, abandon ship drills should be kept in logbooks.

9.5. Survival craft

9.5.1. Every ship to which this chapter applies should carry:

9.5.1.1. 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;

9.5.1.2. A liferaft or life rafts capable of being launched on either side of the ship and of such aggregate capacity that will accommodate the total number of persons on board.

9.5.2. Cargo ships other than tankers, may in lieu of complying with the requirements of 9.5.1, carry on each side of the ship survival craft capable of being launched on either side of the ship and that will accommodate the total number of persons the ship is certified to carry.

9.5.3. Every ship should 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.

9.5.4. Each lifeboat and rescue boat should be served by its own launching appliances.

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

9.5.6. All items of lifeboat and/or rescue boat equipment, should be secured within the lifeboat or rescue boat by lashing, storage in lockers or compartments, storage in brackets or similar mounting arrangements or other suitable means in such a manner that will not interfere with any abandonment procedures or with any launching or recovery procedures.

9.6. Marking of survival craft and rescue boat

9.6.1. Each survival craft and rescue boat should be characterized in accordance with the requirements of paragraphs 4.2.6.3, 4.2.7, 4.3.6 and 4.4.9 of the LSA Code as applicable.

9.7. Servicing of inflatable liferafts, inflatable lifejackets and inflatable rescue boats and hydrostatic release units.

9.7.1. Every inflatable life raft and inflatable lifejacket should be serviced at intervals not exceeding twelve months and by an approved service station which is competent in carrying out the service by using properly trained personnel.

9.7.2. All repairs and maintenance should be done in accordance with the manufacturer's instructions. Emergency repairs may be carried on board, but permanent repairs should be affected by approved personnel.

9.8. Survival craft launching stations and stowage of survival craft and rescue boats

9.8.1. Launching stations should be in such positions as to ensure safe launching having particular regard to clearance 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 should be located abaft the collision bulkhead in a sheltered position.

9.8.2. Each survival craft should be stowed:

9.8.2.1. In such a way 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.

9.8.2.2. In a state of continuous readiness so that two persons can carry out preparation for embarkation and launching in less than five minutes;

9.8.2.3. Fully equipped at all times;

9.8.2.4. Insecure and sheltered positions close to accommodation and service spaces and protected from damage by fire or explosion

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

9.8.4. Lifeboats should be stowed attached to launching appliances.

9.8.5. Every liferaft should be stowed with its painter permanently attached to the ship and with a float-free arrangement. Liferafts should also be stowed as to permit manual release from their securing arrangements

9.8.6. Davit-launching liferafts should be stowed within reach of the lifting hooks, unless some means of transfer is provided which is not rendered inoperative.

9.8.7. Rescue boats should be stowed as follows:

9.8.7.1. In a position suitable for launching and recovery and always in a state of continuous readiness for launching in not more than 5 minutes.

9.8.7.2. In such position that neither the rescue boat nor its stowage arrangements will interfere with the operation of any survival craft at any other launching station; and

9.8.7.3. If it is also a lifeboat, should be in compliance with the requirements 9.8.2 through 9.8.4 above.

9.9. Embarkation and launching arrangements

9.9.1. Survival craft embarkation arrangements should be so designed that lifeboats can be boarded and launched 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 9.8.6.

9.9.2. Suitable arrangements should be made which include:

9.9.2.1. At least one embarkation ladder or other approved means to access the survival craft when it is waterborne.

9.9.2.2. Means for illuminating the stowage position of survival craft and their launching application during preparation and launching. Also for illuminating the water into which the survival craft are launched until the process of launching is complete.

9.9.3. Rescue boats embarkation and launching arrangements should be such that the rescue boat can be boarded and launched in the shortest possible time.

9.9.4. Where the rescue boat is one of the ship's survival craft, the embarkation arrangements and launching stations should comply with the requirements of 9.8.

9.9.5. Rescue boats should be of sufficient strength and rigidity to enable it to be lowered and recovered with its full complement of persons and equipment.

CHAPTER 10

I. Radio communications

10.1. General requirements

10.1.1. Unless provided otherwise the radio communication equipment specified under the provisions of Chapter IV of SOLAS 74, should be carried by ships of less than 300 GRT and by manned barges in the same manner that for ships of more than 300 GRT.

10.1.2. Manned barges when in attendance by a tug or an offshore supply vessel should comply with the requirements relating to EPIRB, radar transponder, beacons and the VHF communication system as specified in this chapter.

10.1.3. No provisions in this chapter should prevent the use by any ship, survival craft or person in distress, or any means at their disposal to attract attention in order to make known their positions and obtain help.

10.2. Functional requirements

10.2.1. Every ship and manned barge while at sea should be provided with radio installations capable of complying the technical requirements identified in this regulation.

10.2.2. Every ship navigating at sea shall be capable of:

10.2.2.1. Transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radio communication service;

10.2.2.2. Receiving shore-to-ship distress alert;

10.2.2.3. Transmitting and receiving ship-to-ship distress signals;

10.2.2.4. Transmitting and received search and rescue coordinating communications;

10.2.2.5. Transmitting and receiving on-scene communications;

10.2.2.6. Transmitting and where applicable receiving signals for locating;

10.2.2.7. Transmitting and receiving maritime safety information;

10.2.2.8. Transmitting and receiving general radio communications to and from shore-based radio systems or networks;

10.2.2.9. Transmitting and receiving bridge-to-bridge communications.

10.3. Ship radio's requirements

10.3.1. Every radio installation should be:

10.3.1.1. Located to ensure the greatest possible degree of safety and operational availability and protected from environment conditions;

10.3.1.2. Provided with reliable permanently arranged electrical lighting for adequate illumination;

10.3.1.3. Clearly marked with the call sign, the ship station identity and other qualified codes.

10.3.2. Control of the VHF radiotelephone channels is required for navigational safety should be available on the navigation bridge.

10.3.3. The radio equipment should be maintained to provide the availability of the functional requirements and to meet the recommended performance for such equipment.

10.4. Watches

10.4.1. Every ship, while at sea, should maintain continuous distress and safety watch on the appropriate distress frequencies identified for the relevant sea area.

10.4.2. Every ship, while at sea, should maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency (s) on which such information is broadcast for the area in which the ship is navigating.

10.5. EPIRB

10.5.1. Every ship of less than 300 GRT should carry at least one satellite emergency position indicating radio beacon (satellite EPIRB) which should be capable of transmitting a distress alert through the polar orbiting satellite service on the 406 MHz band or, through the geostationary satellite service operating in the 1.6 GHz band.

10.5.2. For ships navigating solely within sea area A1 as defined in Chapter IV of the SOLAS 74, ships may carry at least one VHF emergency position indicating radio beacon (VHF EPIRB), which should 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 transporter operating in the 9 GHz band.

10.6. Sources of Energy

10.6.1. There should be available at all times, 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 facilities for 18 hrs.

CHAPTER 11

I. Safety of navigation

11.1. General requirements

11.1.1. This chapter applies to ships propelled by mechanical means including those towed or pushed by a tug or other such ship.

11.2. Danger messages and misuse of distress signals

11.2.1. The master of every ship which meets with dangerous derelict, or any other direct danger to navigation, or a tropical storm or winds of force 10 or above on the Beaufort scale should communicate such information by all the means at his disposal to ships in the vicinity and to the competent authorities at the first point on the coast with which he can communicate.

11.2.2. The use of an international distress signal, except for the purpose of indicating that a ship, aircraft or person is in distress, and the use of any signal which may be confused with any international distress signal are prohibited.

11.3. Distress messages: obligations and procedures

11.3.1. The master of a ship at sea, on receiving a signal from any source that a ship or aircraft or survival craft thereof is in distress, is bound to proceed with all speed to the assistance of the persons in distress informing them if possible of doing so. If the ship is unable or in special circumstances, it is considered it unreasonable or unnecessary to proceed to their assistance, he must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress.

11.4. Signaling lamps

11.4.1. Ships over 150 GRT shall comply with the requirements of Regulation V/11 of SOLAS 74, relating to the provision of an efficient daylight signaling lamp not solely dependent upon the ship's main source of electrical power.

11.5. Shipborne navigational equipment

11.5.1. Ships should be fitted with:

11.5.1.1. A standard magnetic compass should be properly adjusted, and its table or curve of residual deviations should be available at all times.

11.5.1.2. Steering magnetic compass should be properly adjusted and its table or curve of residual deviations should be accessible at all times.

11.5.1.3. Adequate means of communication between the standard compass position and the normal navigation control position.

11.5.1.4. Means for taking bearings as nearly as practicable over an arc of the horizon of 360°.

11.5.2. The Administration, if it considers it unreasonable or unnecessary to require a standard magnetic compass, may exempt ships from these requirements. A suitable steering compass should in all cases be carried with means for taking bearings according to the recognized standards.

11.6. Nautical Publications

11.6.1. All ships should carry adequate and up-to-date charts, sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage.

11.7. Manning

11.7.1. Ships, from the point of view of safety of life at sea, should be sufficiently and efficiently manned.

11.7.2. Every ship to which the Regulations apply should be provided with an appropriate safe manning document issued by the Administration, as evidence of the minimum safe manning considered necessary to comply.

CHAPTER 12

Assignment of load lines

12.1. General Requirements

12.1.1. Ships and barges of less than 24 m in length, to which the Regulation apply should not proceed to sea unless surveyed, marked and certified in accordance with this Regulation.

12.1.2. Except as provided in the appropriate certificate, the load lines on the sides of the ship corresponding to the season of the year and the zone or area in which the ship may be should not be submerged at any time when the ship is at sea, during the voyage or on arrival.

12.1.3. The Regulation assume that the nature and stowage of the cargo, ballast, etc., are such as to secure sufficient stability of the ship and the avoidance of excessive structural stress. The regulation also assumes that applicable international requirements relating to the stability or subdivision, are complied with.

12.2. Strength of the ship

12.2.1. Ships built and maintained in conformity with the requirements of a Recognized Organization approved by the Administration are considered to have adequate strength sufficient for the draught corresponding to the freeboard assigned.

12.3. Verification of marks

12.3.1. The Cargo Ship Safety Certificate should not be delivered to the ship until the surveyor representing the Recognized Organization approved by the Administration has certified that the marks are correctly and permanently indicated on the ship's side.

12.4. Stability information on board the ship

12.4.1. The master of every new ship which is not already provided with stability information should be supplied with sufficient information, to enable him to arrange for the loading and ballasting of the ship in such a way to avoid the creation of any unacceptable stresses in the ship's structure. Such stability information should be duly approved by the Recognized Organization on behalf of the Administration.

12.4.2. Stability information approved should be supplied to ships propelled by mechanical means to enable the master to assess with ease the stability of the ship under various operating conditions. Such information should include specific instructions to the master warning him of those working conditions which could adversely affect either stability or the trim of the ship.

12.4.3. The approved stability information should be kept on board, readily accessible at all times.

12.5. Doors

12.5.1. All access opening in the bulkhead at ends of enclosed superstructures should be fitted with doors of steel or other equivalent material and strongly attached to bulkhead and frame, stiffened and fitted so that the whole structure is of equivalent strength to the unpierced bulkhead and weathertight when closed. Except provided otherwise, the height of the sill of access opening in bulkheads at ends of enclosed superstructure should be at least 300mm above the deck.

12.6. Machinery space openings

12.6.1. Machinery space openings should be properly framed and efficiently surrounded by steel casings of ample strength. Other openings in such casings should be fitted with equivalent covers, permanently attached in their proper positions.

12.6.2. Coamings of any fiddley, funnel or machinery space ventilator in an exposed position on the freeboard or superstructure deck should be as high above the deck as is reasonable and practicable. Fiddley openings should be fitted with durable covers of steel or other equivalent material permanently attached in their proper positions and capable of being secured weathertight.

12.7. Openings in freeboard and superstructure decks

12.7.1. Manholes and flush scuttles within superstructures other than enclosed superstructures should be closed by substantial covers capable of being made watertight. Unless secured by carefully spaced bolts, the covers should be permanently attached.

12.7.2. Openings in freeboard decks other than hatchways, machinery space openings, Manholes and flush scuttles and exposed superstructure should be protected by an enclosed superstructure, or by a deckhouse or companionway of equivalent strength and weather tightness.

12.8. Ventilators

12.8.1. Ventilators in spaces below freeboard deck or decks of enclosed superstructures should have coamings of steel or other equivalent material. Where the coating of any ventilator exceeds 760 mm in height it should be specially supported.

12.9. Air pipes

12.9.1. Where air pipes to ballast and other tanks extend above the freeboard or superstructure decks, the exposed parts of the pipes should be of substantial construction, the height from the deck to the point where water may have access below should be at least 600 mm on the freeboard deck and 300 mm on the superstructure deck. Modification to the height requirements may be allowed by the Administration when such height interferes with the working of the ship.

12.9.2. Means to close the openings of the air pipes should be provided and be permanently attached.

12.10. Cargo port and other similar openings

12.10.1. Cargo ports and other similar openings in the sides of ships below the freeboard deck should be fitted with doors designed as to ensure water tightness and structural integrity.

12.11. Scuppers, inlets and discharges

12.11.1. Discharges led through the shell either from spaces below the freeboard deck or from within superstructures and deckhouses on the freeboard deck fitted with doors should be fitted with efficient and accessible means for preventing water from passing inboard. Normally each separate discharge should have one automatic nonreturn valve with a positive means of closing it from a position above the freeboard deck.

12.11.2. Unmanned machinery spaces main and auxiliary sea inlets and discharges in connection with the operation of the machinery may be controlled locally. The controls should be readily accessible and should be provided with indicators showing whether the valves are open or closed.

12.11.3.All valves and shell fittings required by this regulation should be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable.

12.12. Side scuttles, windows and other openings

12.12.1.No side scuttle should be fitted in a position so that its sill is below a line drawn parallel to the freeboard deck at side and having its lowest point 500 mm above the load waterline.

12.12.2.The number of openings in the side of the ship below the freeboard deck should be the minimum compatible with the design and proper working of the ship and such opening should be provided with closing arrangement of adequate strength to ensure water tightness and the structural integrity of the surrounding structure.

12.13. Protection of the crew

12.13.1. Efficient guard rails or bulwarks should be fitted on all exposed parts of the freeboard and superstructure decks. The height of the bulwarks or guard rails should be at least 1 m from the deck, provided that where this height would interfere with the normal operation of the ship, a lesser height may be approved, but in no case a height of less than 600 mm should be permitted

12.13.2.Satisfactory means (in the form of guardrails, lifelines, gangways or underdeck passages etc.) should be provided for the protection of the crew in getting to and from their quarters, the machinery space and all other parts used in the necessary work of the ship.

12.13.3.Deck cargo carried on any ship should be so stowed that any opening which is in way of the cargo and which gives access to and from the crew's quarters, the machinery space and all other parts used in the necessary work of the ship, can be properly closed and secured against the admission of water. Effective protection for the crew in the form of guardrails or lifelines should be provided above the deck cargo if there is no convenient passage on or below the deck of the ship.

12.14. Special condition of assignment for tankers

12.14.1.Tankers of less than 24m in length should comply with the provisions of this regulation.

12.14.2.Machinery casings should be protected by an enclosed poop or bridge of at least standard height, or by a deckhouse of equal height and equivalent strength, provided that machinery casings may be exposed if there are no openings giving direct access from the freeboard deck to the machinery space.

12.14.3.Safe and satisfactory access from the gangway level should be available between separate crew accommodations and also between crew accommodations and the machinery space.

12.14.4.Tanks with bulwarks should have open rail fitted for at least half the length of the exposed parts of the weather deck or other effective freeing arrangements. The upper edge of the sheer strake should be kept as low as practicable.

12.14.5.Where superstructures are connected by trunks, open rails should be fitted for the whole length of the exposed parts of the freeboard deck.

CHAPTER 13

I. Penalties

13.1. General Requirements

13.1.1 In the event of failure to comply with any of the Regulations under this Code, the Ship Registry Administrator may suspend or revoke a vessel's Certificate of Registry and/or impose a monetary penalty up to US\$ 50,000.00 on the Owner, and/or set such other conditions as may be necessary to bring compliance with these Regulations.

Contact Palau International Ship Registry

For any further information needed, please contact:

PALAU INTERNATIONAL SHIP REGISTRY

Europe Head Office

Piraeus, Greece, 18536
5, Sachtouri Street,
6th floor
T: +30 210 4293500
F: +30 210 4293505

USA Head Office

The Woodlands, TX, 77380,
9595 Six Pines Drive,
Suite 8210, Office 277
T: +1 832 631 6061
F: +1 832 631 6001

info@palaureg.com / technical@palaureg.com
www.palaureg.com

ANNEX I

Form of the Cargo Ship Safety Certificate



CARGO SHIP SAFETY CERTIFICATE
Issued under the provisions of
CODE OF SAFETY FOR CARGO SHIPS OF LESS THAN 500 GROSS TONNAGE
Under the authority of the Government of The Republic of Palau

Name of Ship	Call Sign	Port of Registry	IMO #	Gross Tonnage	Date of Build

Authorized for voyages proceeding not further than _____ miles from shore.

This is to certify that the above mentioned vessel has been surveyed in accordance with the applicable provisions of the Code of Safety for Cargo Ships of Less than 500 Gross Tonnage.

The survey has shown that:

1. 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. A freeboard of _____ mm was assigned and marked on the ship's side at midships.
3. The last two inspections on the outside of the ship's bottom took place on the _____ (dd.mm.yyyy) and _____ (dd.mm.yyyy)
4. The ship complied with the provisions of the Code as regards to the arrangements and conditions of the hull, machinery and equipment, including the fire extinguishing and fire control plans.
5. The ship complied with the requirements of the Code as regards to the radio installations.
6. The ship was provided with lights, shapes, means of making sound and distress signals, pilot ladder in accordance with the provisions of the Code and the International Collision Regulations.
7. In all other respect the ship complied with the requirements of the regulations so far as the requirements apply thereto.
8. That an Exemption Certificate has / has not been issued.

This certificate is valid until _____ (dd.mm.yyyy) subject to the annual and periodical surveys and inspections of the outside of the ship's bottom in accordance with the requirements of the Code.

Issued at _____

Date of issuance _____

Signature and Name of authorized
official issuing the certificate

Endorsement for annual and periodical surveys

This is to certify that at survey required by Chapter II of the Code, the ship was found to comply with the relevant requirements of the Code.

Annual Survey: Signed _____
Signature and name of the authorized official
Place _____ Date: _____

Annual/Periodical Survey: Signed _____
Signature and name of the authorized official
Place _____ Date: _____

Annual/Periodical Survey: Signed _____
Signature and name of the authorized official
Place _____ Date: _____

Annual Survey: Signed _____
Signature and name of the authorized official
Place _____ Date: _____

Endorsement for inspection of the outside of the ship's bottom This is to certify that, at an inspection required by 2.1.4 of the Code, the ship was found to comply with the relevant requirements of the Code

First Inspection: Signed _____
Signature and name of the authorized official
Place _____ Date: _____

Second Inspection: Signed _____
Signature and name of the authorized official
Place _____ Date: _____

Cont.

RECORD OF EQUIPMENT AND SHIP INFORMATION FOR COMPLIANCE WITH THE CODE OF SAFETY OF
CARGO SHIPS OF LESS THAN 500 GRT

Name of Ship	Call Sign	Port of Registry	IMO #	Gross Tonnage	Date of Build

Notes:**

1. This record forms part of the applicable Cargo Ship Safety Certificate and is to be kept with the Certificate at all times.
2. Surveys are to be carried out in accordance with the provisions of the Code of Safety of Cargo Ships of less than 500 GRT as applicable to the following:
 - a. Ships over 24m in length are to be measured for tonnage in accordance with the provisions of the International Convention on Tonnage Measurement of Ships, 1969
 - b. Ships over 24m in length are to be surveyed to ensure compliance with the International Convention on Load Lines 1966 with respect to load line requirements.
 - c. Ships of 300 gross tonnage and over are to be surveyed to ensure compliance with the International Convention for the Safety of Life at Sea 1974 with respect to radio requirements.
 - d. Oil tankers of 150 gross tonnage or more and all other ships of 400 gross tonnage or more are to be comply with the requirements regarding oil pollution prevention equipment

1. General

1.1 Ship Particulars

Call Sign	IMO No.	Date of Build	Type of Cargo Ship
Where built			
Construction Material			
Type & No. of engines			
No. of propellers		Service Speed	

1.1.1 Certification – International Certificates

Certificate	Required	Date of Issue	Date of Expiry	Issuing Authority
Tonnage				
Load Line				
IOPP				
Other (specify)				
ISPS				

1.1.2 Certificate – Other

Certificate	Date of Issue	Date of Expiry
Safe Manning Certificate		
Certificate of Registry		

1.2 Other Information

Classification Society	
Number of persons for which life-saving appliances are provided	
Number of Crew for which accommodation is provided	
Engine room classification (unmanned (UMS) / Partially unmanned)	

2. CONSTRUCTION

2.1 Stability and Load Lines

Inclining Test	Date of Test	Place of Test	Authority
Approved Stability Information	Date Approved	Approving Authority	Information on board Yes _____ No _____

2.2 Summary of Freeboards

Summer		Tropical	
Fresh		Tropical Fresh	
Fresh Water Allowance		Summer Draught	
The ship has been assigned Timber Load Lines			

3. Machinery

Make (No.)		Type	
No. of Cylinders		R.P.M.	
Power (kW)		Starting System	
Unmanned machinery Spaces (UMS)	Yes _____ No _____		

3.1 Auxiliary Machinery

Main Generators	No.	Make	Output (kW)
Emergency Generator			
Other (specify)			

3.2 Boilers and Pressure Vessels

Item	Description	Working Pressure	Date of the last Test

4. Fire Protection, fire detection and fire extinction

4.1 Fire Appliances

Main Fire Pump(s)

Type	Capacity	Pressure Height	Where Placed

Emergency Fire Pump(s)

Type	Capacity	Pressure Height	Where Placed

Fire Main and Hydrants

	No.	Diameter	Pressure	Where Placed
Fire Main				
Fire Hydrant				

Hoses and Nozzles

No.			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	Equivalent diameter of nozzle

Fire Extinguishers

Location	Type	No.	Size	Spare Charges
Machinery Spaces				
Crew Spaces				
Other Spaces				

Fire Buckets

Location	No.	Description

Fireman's Outfit

	No.	Type	Make	Location

Breathing Apparatus				
Safety Lamp				
Axes				
Protective Clothing				
Boots				
Gloves				
Helmet				
Lifeline				
Fire Axes		Location:		

Fixed Fire Extinguishing System	Type	Location	Date of survey

		No.	Type	Location
Detectors	Machinery Space			
	Cargo Space			
	Accommodation and Service Space			
Manual Call Point	Machinery Space			
	Cargo Space			
	Accommodation and Service Space			
Control and Indicating Lights	Location	No.	Description	

5. Life-saving appliances

Life Jackets

Manufacturer	Type	Number	Stowage

Lifebuoys

Manufacturer	Type	Number	Stowage
	With Smoke		
	With Lines		
	With Lights		

Details of life-saving appliances

Total number of persons for which life-saving appliances are provided _____		
5. Lifeboats	Port Side	Starboard Side
5.1 Total number of lifeboats		
5.2 Total number of persons accommodated by them		
5.3 Number of totally enclosed lifeboats		
5.4 Number of lifeboats with a self-contained air support system		

5.5 Number of fire-protected lifeboats		
5.6 Other lifeboats		
5.6.1 Number		
5.6.2 Type		
6. Number of motor lifeboats (included in the total lifeboats shown above)		
6.1 Number of lifeboats fitted with searchlights		
7. Number of rescue boats		
7.1 Number of boats which are included in the total lifeboats shown above		
8. Liferrafts		
8.1 Those for which approved launching appliances are required		
8.1.1 Number of liferafts		
8.1.2 Number of persons accommodated by them		
8.2 Those for which approved launching appliances are not required		
8.2.1 Number of liferafts		
8.2.2 Number of persons accommodated by them		
8.3 Number of liferafts required by the Code		
9. Number of lifebuoys		
10. Number of lifejackets		
11. Immersion Suits		
11.1 Total Number		
11.2 Number of suits complying with the requirements of lifejackets		
12. Radio Installations used in life-saving appliances		
12.1 Number of radar transponders		
12.2 Number of two-way VHF radiotelephone apparatus		

13. Radio Communications

Required Number of persons qualified to operate radio Installation: _____

	Make	Type	No.	Description
VHF Radio				
MF Radio				
MF/ HF Radio				
INMARSAT				
EPIRB				
NAVTEX				
SART				

14. Safety of Navigation

Equipment	Make	Type	Remarks
Compass			

Radar			
Satellite Navigation			
Radio Direction Finder			
Echo Sounder			
Speed Log			
G.P.S.			

This is to certify the above information is correct in all respect

Issued Place and Date:

Authorized Surveyor: