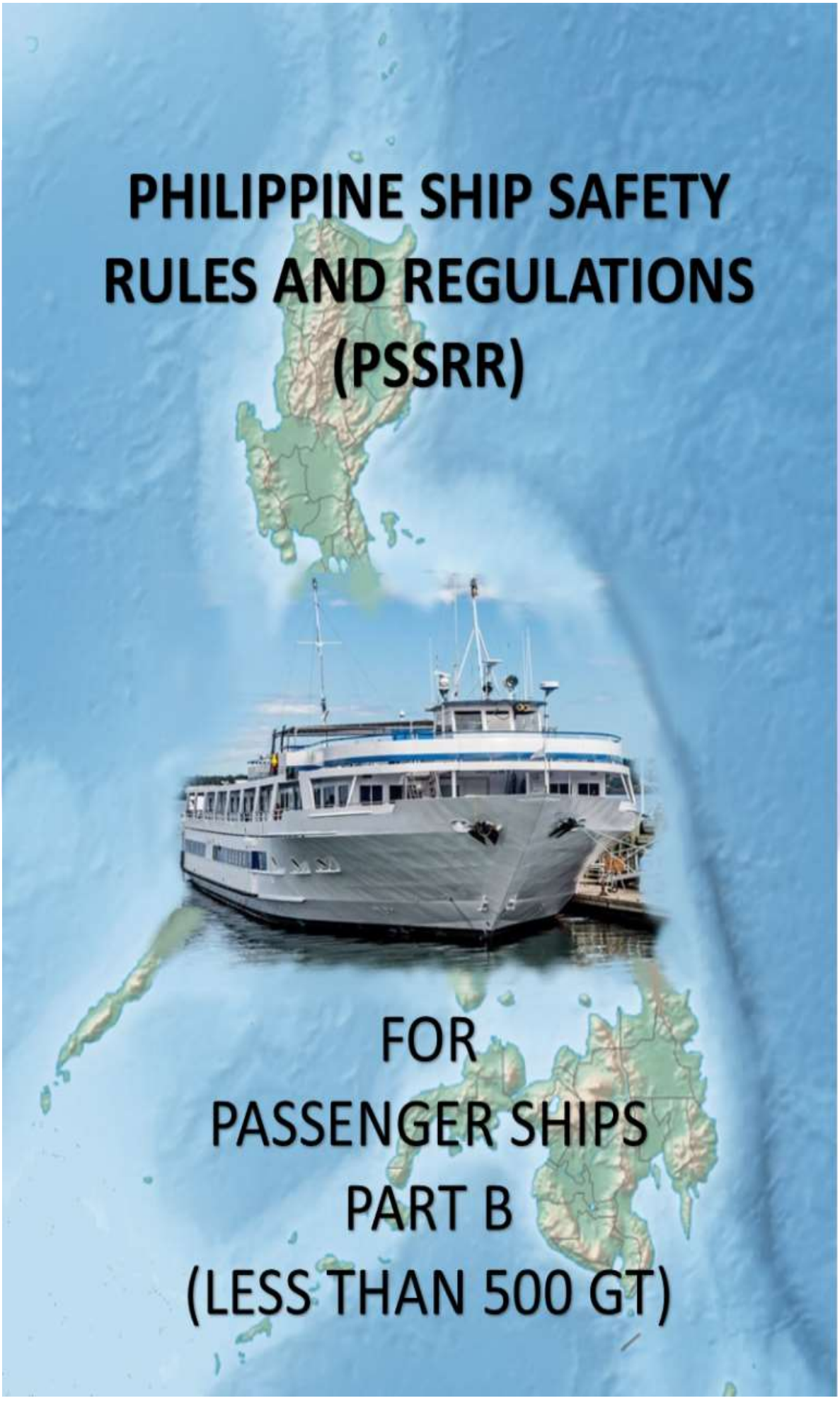
PHILIPPINE SHIP SAFETY RULES AND REGULATIONS (PSSRR)



FOR PASSENGER SHIPS PART B (LESS THAN 500 GT)

PHILIPPINE SHIP SAFETY

RULES AND REGULATIONS

(PSSRR)

PART B

(LESS THAN 500GT)

PASSENGER SHIPS, ROLL ON-ROLL OFF (RO-RO) SHIPS AND FAST CRAFT

2020

SUBJECT FOR FINAL REVIEW

CONTENTS

PART B

BELOW 500GT

FOREWORD –

TO BE PROVIDED

Chapter I

Scope and Coverage

1 These regulations shall apply to new ships for which the provisions of the International Maritime Conventions do not apply.

2 Passenger ships engaged in international trade, regardless of type and size, shall comply with the provisions of the International Maritime Conventions.

3 Existing passenger ships which is covered under the PMMRR, 97 shall continue to comply with the requirement thereof unless expressly provided elsewhere or the ship undergoes alteration/conversion which affect the affect the dimension of the ship or its passenger or cargo capacity, significantly increase the ship's life, the load line, change the ship's functionality, in which case such ship shall comply with the present regulation.

4 Existing ships registered in foreign country shall be regarded as a new ship when it registers in the Philippines.

Regulation 1
General

These Rules and Regulations are geared to ensure that all passenger ships, roll on-roll off ships (ro-ro), fast craft, of Philippine ownership and/or registry, are so designed, constructed, maintained, operated and inspected in accordance with the standards on maritime security, safety of life and property at sea, and the protection of the marine environment.

Regulation 2
Application

1 Unless expressly provided otherwise, this regulation shall apply to passenger ships, ro-ro and fast craft with below 500GT or passenger ships less than 24 meters in length or carrying less than 200 passengers intended for or operating within the territorial waters of the Philippines, within the near coastal voyage of the Philippines, the keels of which are laid or which are at a similar stage of construction on or after 01 January 2021.

2 For these Regulations, the term a "similar stage of construction" means the stage at which:

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

3 For the purpose of these Regulations:

.1 the expression "ships constructed" means ships the keels of which are laid or which are at a similar stage of construction;

.2 the expression “all ships” means passenger ships constructed before, on or after 01 January 2021;

.3 Unless expressly provided otherwise, for ships constructed before 01 January 2021 the Administration shall ensure that the requirements which are applicable under the Philippine Merchant Marine Rules & Regulations 1997 are complied with.

4 Repairs, alteration, modifications and outfitting.

.1 All existing ships which undergo repairs and outfitting related thereto shall continue to comply with at least the requirements previously applicable to these ships.

.2 Repairs, alterations and modifications which substantially alter the dimensions of ship or substantially increase a ship service life and outfitting related thereto shall comply with this rules and regulations. In so far as the Administration deems reasonable and practicable.

Regulation 3
Definitions

“Steel Or Other Equivalent Material” Occur, “Equivalent Material” - refers to any non-combustible material which, by itself or due to insulation provided has structural and integrity properties equivalent to steel at the end of the applicable exposure to the standard fire test (e.g. aluminum alloy with appropriate insulation).

Accommodation Spaces - refers those used for public spaces, corridors, lavatories, cabins, offices, hospitals, cinemas, games and hobbies rooms, pantries containing no cooking appliances and similar spaces. Public spaces are those portions of the accommodation which are used for halls, dining rooms, lounges and similar permanently enclosed spaces.

Administration - refers to the Maritime Industry Authority (MARINA)

Alteration - refers to the process of changing the configuration of ships or ships dimensions which affect the original approved plans; lengthening; and other similar process.

Amidships - refers in the vicinity of the middle portion of a ship as distinguished from her ends or midway between bow and stern or in the middle of the length L.

Anniversary Date - refers to the day and month of each year which will correspond to the date of expiry of the certificate.

Approved - refers approved by the Administration or refers to approved by the Administration in accordance with these rules and Regulations.

Assigning Authority - refers to the Maritime Industry Authority (MARINA) as the Administration.

Automatic Identification System (AIS) - refers to an automatic tracking system used on ships and by vessel traffic services (VTS) for identifying and locating vessels by electronically exchanging data with other nearby ships, AIS base stations, and satellites.

Auxiliary - refers of steering is the equipment other than any part of the main

steering gear necessary to steer the ship in the event of failure of the main steering gear but not including the tiller, quadrant or components serving the same purpose.

Auxiliary Steering Gear - refers to the equipment which is provided for effecting movement of the rudder for the purpose of steering the unit in the event of failure of the main steering gear.

Breadth (B) - refers to the maximum breadth of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material. The breadth (B) should be measured in meters; or refers to the extreme breadth, in meters, measured between the outer sides of the hull, excluding rubbing strakes or other projections.

Bridge-to-Bridge Communications - refers to safety communications between ships from the position from which the ships are normally navigated.

Bulkhead - refers to transverse watertight subdivision.

Bulkhead Deck - refers to the upper most deck to which watertight bulkheads and the watertight shell extends.

Cargo - refers to merchandise/goods conveyed on a ship.

Carriage - refers to the transportation of passenger and or goods/cargoes, which include the handling, and stowage of same.

Classification Society **-** refers to a non-stock, non-profit organization composed of committees represented by engine builders, shipowners, shipbuilders and underwriters.

Collision Bulkhead - refers to a watertight bulkhead fitted up to the freeboard deck. This is located at a distance from the forward perpendicular of not less than 5% and not more than 8% of the length of the ship.

COLREG - refers to the International Regulations for Preventing Collisions at Sea, 1972, as amended.

Company - refers to any shipowner/operator/manager, bareboat charterer and any other entity who has assumed the responsibility for the operation of a Philippine registered ship(s) and who on assuming such responsibility has agreed to take over all duties and responsibilities imposed by the ISM Code; or by this Authority.

Control Stations - refers to those spaces in which the craft radio or navigating equipment or the emergency source of power and emergency switchboard are located, or where the fire recording or fire control equipment is centralized, or where other functions essential to the safe operations of the craft, such as propulsion control, public access, stabilization systems, etc., are located.

Corrosive - refers to any dangerous article which when in contact with living tissues will cause severe damage of such tissue by chemical action, or in case of leakage will materially damage or destroy other freight by chemical action with organic matter or with certain chemicals.

Crew - refers to all persons carried on board the units to provide navigation and maintenance of the unit, its machinery, systems, and arrangements essential for propulsion and safe navigation or to provide services for other persons on board.

Damage Stability - refers to a ship in the assessed "Worst Intact Condition", analytically damaged by opening various combinations of watertight compartments

to the sea. The number of compartments and their location are prescribed by IMO regulations, SOLAS conventions, or other applicable rules. Typically these conditions are identified by the compartment(s) damaged.

Dangerous Cargo - refers to goods or merchandise in the form of solids, gases or liquids, which exhibit dangerous properties and are taken on-board a ship.

Dead Ship Condition - refers to the condition under which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power.

Deletion - refers to the cancellation of a ship's registry from the Register of Philippine Ships and termination of its trading status in the domestic shipping trade.

Depth - refers to the molded depth, in meters (feet), measured at amidships from the molded baseline to the molded line of the strength deck plating at the side of the ship.

Detection - refers to the determination of the location of survivors or survival craft.

Document of Compliance (DOC) - refers to the document issued to a company complying with the requirements of the ISM Code.

Double Bottom - refers to general term for all watertight spaces contained between the outside bottom plating, the tank top, and the margin plates. The double bottom is subdivided into number of compartments called "tanks" which may contain water ballast, oil fuel, boiler feed water or drinking water according to requirements; or refers to the space between the bottom of cargo tanks and the moulded line of the bottom shell plating.

Emergency Source of Electrical Power - refers to 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.

Emergency Switchboard - refers to a switchboard which, in the event of failure of the main system of electrical power supply, is directly supplied by the emergency source of electrical power and/or the transitional source of emergency power and is intended to distribute electrical energy to the emergency services.

Enclosed Spaces - refers to a spaces delineated by floors, bulkheads and/or decks which may have doors or windows.

Existing ship - refers to a ship which is not a new ship.

Fast Craft - refers to a craft other than Category HSC that is:

- capable of a maximum service speed below 25 knots;
- in the event of damage, disabling any essential machinery and safety systems in one compartment, the craft retains the capability to navigate safely;

Flashpoint - refers to the temperature in degrees Celsius (closed cup test) at which a product will give off enough flammable vapor to be ignited, as determined by an approved flashpoint apparatus.

Freeboard - refers to the distance measured vertically, downwards amidships from the upper edge of the deck line to the upper edge of the assigned maximum load marking.

Freeboard Deck - refers to the uppermost deck having permanent means for closing all openings in the weather part thereof and below, which all openings in the sides of the ship are fitted with permanent means of watertight closing.

Function - refers to a group of task, duties and responsibilities as specified in the STCW Code, necessary for ships operation, safety of life at sea or protection of the marine environment.

Gross Tonnage - refers to the tonnage as measured in accordance with the International Tonnage Convention, 1969, and for ships of less than 24 m in length in accordance with these Rules and Regulations.

Hazardous Areas - refers to all those areas where, due to the possible presence of a flammable atmosphere arising from the drilling operations, the use without proper consideration of machinery or electrical equipment may lead to fire hazard or explosion.

Hazardous Cargo - refers to any harmful, noxious or other substance, goods or merchandize in the form of solids, gases or liquids which exhibit dangerous properties which, if introduced to the sea, may cause pollution; or can be used in lieu of Dangerous Cargo.

Homeport - refers to the port where the ship is registered.

High Speed Crafts (HSC) – is a craft capable of maximum speed in meters per second (m/s) equal to exceeding.

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where ▼ = Displacement corresponding to the design water line in M3 The above definition notwithstanding the minimum service speed of the craft shall at least be 25 knots. Existing craft constructed under the DSC Code may qualify as a HSC upon satisfaction of the foregoing definition.

IMDG Code - refers to the International Maritime Dangerous Goods Code, adopted by the Maritime Safety Committee by resolutions MSC.122 (75), as amended.

IMO - refers to the International Maritime Organization;

Inflammable/Flammable - refers to capable of being set on fire, easily kindled, combustible.

Inflatable Liferaft - refers to a life-saving appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is normally kept uninflated until ready for use.

International Safety Management (ISM) Code - refers to the International Safety Management Code for the Safe Operation of Ships and for Pollution Prevention as adopted by the IMO in Resolution A.741 (18);

International Trade - refers to any operation of a ship outside Philippine waters.

Length (L) - refers to a measured in meter is 96% of the total length on a waterline at 85% of the least moulded depth measure from the top of the keel, or the length from the fore-side of the stern to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel the waterline on which this is

measure shall be parallel to the designated waterline; or refers to the same meaning as defined in regulation 3 of the 1988 LL Protocol.

Load Line Certificate - refers to the Certificate issued by the Administration pursuant to these rules and regulations which indicate the assigned freeboards and load line marks.

Load line Assignor - refers to the Administration or its Recognized Organization to assign freeboard.

Locating - refers to the finding of ships, aircraft, units or persons in distress.

Machinery Space - refers to be taken as extending from the moulded base line 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 needs of propulsion, and all permanent bunker spaces; or refers to are all machinery spaces of category A and all other spaces containing propelling machinery, boilers and other fired processes, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air-conditioning machinery and similar spaces; and trunks to such spaces.

Machinery Spaces of Category A - refers to those spaces and trunks to such spaces which contain:

- internal combustion machinery used for main propulsion;
- internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 KW; or any oil-fired boiler or oil fuel unit.
- and trunks to such spaces.

Main Source of Electrical Power - refers to a source intended to supply electrical power to main switchboard for distribution to all services necessary for maintaining the ship in normal operational and habitable condition.

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

Maritime Safety Information - refers to navigational and meteorological warnings, meteorological forecasts and other urgent safety related messages broadcast to ships.

Master - refers to the person having command of a ship.

Maximum Ahead Service Speed - refers to the greatest speed which the ship is designed to maintain in service at sea at the deepest seagoing draught.

Modification - refers to the process of replacing major propulsion machinery to include major auxiliaries; modifying the superstructure such as construction of additional deck above main deck; and other similar process.

Moulded Depth - refers to the vertical distance measure from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of hollow character, or where thick garboards are

fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel;

Near Coastal Voyage - refers to a short international voyage which covers a maximum distance of 200 nautical miles from the Philippine baseline on voyage which by reciprocal agreement of the Philippines and another state is considered or treated as coastwise voyage.

New Ship - refers to:

- a ship the keel of which is laid down on or after the effectivity of these Rules and Regulations.
- a ship changing to Philippine registry.
- an existing ship which undergoes major conversion as to:
  - substantially alter the dimensions or carrying capacity of the ship; or
  - change the type of the ship; or
  - which in the opinion of the Administration is substantially to prolong its life; or
  - otherwise so alters the ship that, if it were a new ship, it would become subject to relevant provisions of these Rules and Regulations not applicable to it as an existing ship.

Non-Combustible Material - refers to a material which neither burns nor gives off flammable vapors in sufficient quantity for self-ignition when heated to approximately 750°C, this being determined to the satisfaction of the Administration by an established test procedure. Any other material is a combustible material, Fire Test Procedures Code.

Normal Operational and Habitable Conditions - refers to conditions under which the unit as a whole, its machinery, services, means and aids ensuring safe navigation when underway, safety when in the industrial mode, fire and flooding safety, internal and external communications and signals, means of escape and winches for rescue boats, as well as the means of ensuring the minimum comfortable conditions of habitability, are in working order and functioning normally; and drilling operations.

Officer - refers to a member of the crew, other than the master, who has been designated as such national law or section or, in the absence of such designation, by collective agreement or custom.

Oil Fuel Unit - refers to the equipment used for the preparation of oil fuel for delivery to an oil-fired boiler, or equipment used for the preparation for delivery of heated oil to an internal combustion engine, and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure more than 0.18 N/m^2. Oil transfer pumps are not considered oil fuel units.

Operating Conditions - refers to conditions wherein a unit is on location for the purpose of conducting drilling operations, and combined environmental and operational loadings are within the appropriate design limits established for such operations. The unit may be either afloat or supported on the seabed, as applicable.

Operational Speed - refers to 90% of the maximum speed;

Organization - refers to the International Maritime Organization (IMO).

Package Form - refers to the forms of containment specified for harmful substances in the IMDG Code.

Passenger - refers to any person carried on board a ship except:

- the master and the members of the crew or other persons employed or engaged in any capacity on board a ship on the business of that ship;
- a person on board and carried either because of the obligation laid upon the master to carry shipwrecked, distressed or other person by reason of force majeure;
- a child under one year of age.

Passenger Ship - refers to any ship authorized by the Administration to carry passengers.

Place of Refuge - refers to any naturally or artificially sheltered area which may be used as a shelter; by a craft under conditions likely to endanger its safety.

Plans and Specifications - refers to plans showing the detailed drawings of each specific plan of the ship.

Public Spaces - refers to those spaces allocated for the passengers and include bars, kiosks, smoke rooms, main seating areas, lounges, dining rooms, recreation rooms, lobbies, lavatories and similar permanently enclosed spaces allocated for passengers.

Radio Regulations - refers to the Radio Regulations annexed to, or regarded as being annexed to, the most recent National Regulations and International Telecommunication Convention which is in force at any time.

Rating - refers to a member of the ship's crew other than the master or an officer performing deck or engine watchkeeping duties.

Re-building - refers to an existing ship subjected to changes specifically there-plating of its hull/superstructure and replacement of its main engine in order to substantially prolong its operating life to such an extent of at least 85% of its total hull has been replaced including its main engine.

Recognized Organization- refers to the organization recognized by the Administration.

Rescue Boat - refers to a boat designed to rescue persons in distress and to marshal survival craft; or refers to the same meaning as defined in SOLAS regulation III/3.

Ro-Ro Cargo Spaces - refers to spaces not normally subdivided in any way and normally extending to either a substantial length or the entire length of the ship in which motor vehicles with fuel in their tanks for their own propulsion and/or goods can be loaded and unloaded normally in a horizontal direction.

Safe Manning - refers to the number of qualified, competent, and certificated officers and ratings on-board a ship who can safely operate her at all times.

Safety Certificate - refers to a certificate issued after inspection and survey by the Administration to ships engaged in voyages in Philippines waters complying with these Rules and Regulations.

***Safety Management Certificate (SMC*)** - refers to the document issued to a ship after verification that the company and its shipboard management operate in accordance with the approved SMS.

Safety Management System (SMS) - refers to a structured and documented system enabling company personnel to effectively implement the company's safety and environmental protection policy.

Satisfaction of the Administration - refers to clarification or explanation concerning technical or other matters elaborated by an independent committee created by the Administration.

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

Ship or Vessel - may be used interchangeably and shall mean any kind, class or type of craft or artificial contrivance capable of floating in water, designed to be used, or capable of being used, as a means of floating in water transport in the domestic trade for the carriage of passengers or cargo, or both, utilizing its own motive power or that of another.

Special Category Spaces - refers to those enclosed vehicle spaces above and below the bulkhead deck, into and from which vehicles can be driven and to which passengers have access. Special category spaces may be accommodated on more than one deck provided that the total overall clear height for vehicles does not exceed 10 m.

Stability Booklet - refers to the booklet of stability information for intact and damage conditions provided onboard to enable the master obtain accurate data as to the stability of the ship under varying conditions of service.

Standard Fire Test - refers to the same meaning as defined in SOLAS regulation II-2/3.

STCW Convention - refers to the International Convention on Standards of Training, Certification and Watch keeping of Seafarers, 1978/95.

Steel or Equivalent Material - refers to the same meaning as defined in SOLAS regulation II-2/3.

Steering Gear Power Unit - refers to the case of:

- electric steering gear, an electric motor and its associated electrical equipment;
- electro hydraulic steering gear, an electric motor and its associated electrical equipment and connected pump;
- other hydraulic gear, a driving engine and connected pump.

Superstructure - refers to a decked structure on the freeboard deck, extending from side to side of the ship or with the side plating not being inboard of the shell plating more than four percent of the breadth (B). A raised quarter deck is regarded as a superstructure.

Survival Craft - refers to a craft provided for accommodating the persons on board in the event of abandonment of the ship and includes lifeboats, liferafts and any other craft approved as suitable for the protection and preservation of persons in such circumstances; or refers to the same meaning as defined in SOLAS regulation III/3.

Ton - refers to the term Ton (Lt), as contained within these Rules, refers to a long ton of 2240 lbs.

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

Weathertight **-** refers to that in any sea condition water will not penetrate into the ship.

Working spaces - refers to those open or enclosed spaces containing equipment and processes, associated with drilling operations, which are not included in hazardous areas and machinery spaces.

Chapter II

Ship Surveys and Certifications

Regulation 1

General Aspects of Surveys/Inspections

1 The inspection and survey of ships, so far as regards the enforcement of the provisions of the present regulations and the granting of exemptions therefrom, shall be carried out by the Administration. The Administration may, however, entrust the inspections and surveys either to a surveyor nominated for the purpose or to a recognized organization.

2 The inspection, surveys and issuance of certificates for Philippine registered ships engage in international trade shall be in accordance with the inspection, survey and certification regime with applicable international Convention.

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

4 In any case, the Administration shall fully guarantee the completeness and efficiency of the inspections and surveys and shall undertake to ensure that necessary arrangements to satisfy this obligation are established.

Regulation 2

Surveys/Inspections

1 Ships to which these Rules and Regulations apply shall be subject to surveys. The general nature and the frequency of such surveys shall be as specified below.

.1 an initial survey, including an inspection of the outside of the ship's bottom, before the ship is put in service;

.2 an annual survey within three months before or after each anniversary date of the Certificate;

.3 an occasional survey as the occasion arises;

.4 two inspections of the ship's hull, including an inspection of the outside of the ship's bottom, within a five-year period.

.5 periodical survey;

.6 intermediate survey.

2 The surveys referred to in paragraph 1 shall be carried out as follows:

.1 the initial survey before the ship is put into service shall be such as to ensure that arrangements, equipment and systems specified below comply fully with the requirements of these Rules and Regulations and the workmanship of all such parts and equipment is in all respects satisfactory:

.1 the arrangements, materials and scantlings of the structure;

.2 boilers and other pressure vessels;

.3 main and auxiliary machinery;

.4 fire safety systems and appliances and arrangements, navigational equipment, nautical publications, means of embarkation for pilots;

.5 radio installations including those used in life-saving appliances;

.6 arrangements for the control of discharge of oil and for the retention of oil on board;

.7 provision of the lights, shapes, means of making sound signals and distress signals as required by the provisions of COLREG;

.8 the arrangements, materials and scantlings fully comply with the requirements of Chapters III relating to the conditions for assignments of load lines;

.2 the renewal survey shall include an inspection of the equipment referred to in paragraph 2.1 to ensure that it complies with the relevant requirements of these Rules and Regulations and COLREG;

.3 the periodical survey shall include an inspection with tests 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 complied with and that they are in satisfactory condition and are fit for the service for which the ship is intended. All certificates, record books, operating manuals and other instructions and documents specified shall be checked for their adequacy.

.4 the intermediate survey shall include an inspection of items relating to the following:

.1 Construction and Equipment
.2 Stability Requirements
.3 Machinery Installation
.4 Electrical Installation
.5 Fire Protection and Fire Extinction
.6 Fire Safety Measures
.7 Life Saving Appliances
.8 Prevention of Marine Pollution

of these Rules and Regulations to ensure that they are in satisfactory condition and fit for the service for which the ship is intended. When inspecting items of hull and machinery for detailed examination, due account shall be taken of any continuous survey schemes adopted;

.5 the annual survey shall include an inspection to ensure that:

.1 the equipment referred to in paragraph 2.1 remains satisfactory for the service for which the ship is intended;

.2 alterations have not been made to the hull or superstructures which would affect the calculations determining the position of the load lines;

.3 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 effective condition;

.6 an occasional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations whenever an accident occurs to a ship or a defect is discovered, either of which affects the safety of the ship or whenever any important repair or renewals are effectively made;

.7 Drydocking

All classed ships shall be drydocked twice within a period of five (5) years. The next scheduled drydocking of a ship shall be undertaken on the 24th month after the last drydocking. The scheduled drydocking period (24th month) may be extended to a period not exceeding six (6) months (30th month) provided that the result of the UWI justifies such extension. No extension of the drydocking schedule beyond the 5 year drydocking cycle reckoned from the Class Survey Status Report shall be permitted.

All non-classed ships shall be drydocked annually; The scheduled drydocking may be extended on a monthly basis but not to exceed 3 months, provided that afloat inspection shall be conducted prior to any such extension; provided, further that UWI shall be undertaken prior to the grant of the first extension

3 The annual surveys referred to in this Regulation shall warrant issuance of the certificate.

Regulation 3

Maintenance of Condition after Survey

1 The condition of the ship and its equipment shall be maintained by the master and company to conform with the provisions of these Rules and Regulations to ensure that the ship in all respects will remain fit to proceed to sea without danger to the ship, persons on and board or the marine environment.

2 After any survey of the ship under this Chapter is completed, no change shall be made in the structural arrangements, machinery, equipment and other items covered by the survey, without the sanction of the Administration.

3 Whenever an accident occurs to the ship or a defect is discovered, either of which affects the safety of the ship or the efficiency or completeness of its life-saving appliances or other equipment, the owner or the master shall immediately request Administration or the nominated surveyor or recognized organization for additional survey.

Regulation 4

Conversion, Alteration, Modification and Re-Building

1 Ships plans and specifications shall be submitted for approval by the Administration prior construction, conversion, alteration, modifications and re-building. Said Ship Plans shall be signed and sealed by Philippine Registered Naval

Architect and Marine Engineer (RENAMARE) and Professional Electrical Engineer (PEE) for electrical plans and must be submitted in three (3) copies (blue or white print copy including electronic copy).

2 As-built Plans shall be submitted to the Administration after completion of construction, conversion, alteration or modification of ships for approval. Any conversion, alteration, modification or re-building of ship shall be subjected to re-admeasurement, re-inclining Experiment Test, re-calculation of freeboard and other re-issuances as required by the Administration.

3 The Administration shall witness the sea trial of the ship after construction, conversion, alteration, modification or re-building that will be supervised and certified by the shipyard.

4 The ships plan and or proposed conversion, alteration, modification or re-building plans of ships intended to be acquired for importation shall be subjected to pre-evaluation by the Administration prior to the issuance of the Authority to Import. Pre-evaluation shall be governed by a checklist to be formulated by MARINA.

Regulation 5
Issuance or Endorsements of Certificates

1 Subject to the provisions of Regulation 2.4, a Passenger Ship Safety Certificate, hereinafter called the Certificate, shall be issued after an initial or renewal survey, specified in Regulation 2.2, to a ship which complies with relevant requirements of these Rules and Regulations. In any case the Administration shall ensure the completeness of the inspections prior to the issue of any certificates.

2 The Certificate issued under the provisions of paragraph 1 shall be supplemented by a Record of Equipment.

3 When an exemption is granted by the Administration to a ship under and in accordance with the provisions of these Rules and Regulations, an Exemption Certificate shall be issued in addition to the Certificate prescribed in this Regulation. The Exemption Certificate shall be attached to the certificate to which it refers.

Regulation 6
Duration and Validity of Certificates

1 A passenger ship safety certificate shall be issued for a period not exceeding 12 months. An exemption certificate shall not be valid for longer than the period of the certificate to which it refers.

2 Notwithstanding the requirements of paragraph 1, when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 12 months from the date of expiry of the existing certificate.

3 When the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 12 months from the date of expiry of the existing certificate;

4 When the renewal survey is completed more than three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a renewal survey, a date not exceeding 12 months from the date of completion of the renewal survey;

5 If a certificate is issued for a period of less than 12 months, the administration may extend the validity of the certificate beyond the expiry date to the maximum period specified in paragraph 1, provided that the surveys referred to in regulation 2 applicable when a certificate is issued for a period of 12 months are carried out, as appropriate.

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

7 If an annual survey is completed before the period specified in the relevant regulations then:

.1 the anniversary date shown on the relevant certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed.

.2 the subsequent annual or periodical survey required by the relevant regulations shall be completed at the intervals prescribed by these Rules and Regulations using the new anniversary date;

.3 the expiry date may remain unchanged provided one or more annual or periodical surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by the relevant regulations are not exceeded.

8 A certificate issued under this Chapter shall cease to be valid in any of the following cases:

.1 if the relevant surveys and inspection are not completed within the periods specified in this Chapter;

.2 if the certificate is not endorsed in accordance with this Chapter;

.3 upon transfer of the ship to the flag of another State.

9 Upon transfer of a ship to Philippine flag, a new certificate shall only be issued when the Administration is fully satisfied that the ship is in compliance with the requirements of these Rules and Regulations.

10 In case of transfer of ownership to new owner domiciled in the Philippines a new certificate shall be issued under the name of the new owner valid up to the unexpired portion of the existing certificate subject to the required surveys and endorsement.

Regulation 7

Availability of Certificates

The certified true copy of the certificates issued under this Chapter shall be readily available on board for examination at all times.

CHAPTER III

Construction and Equipment

Regulation 1
General

1 All existing passenger ships shall, as a rule, comply with the requirements existing prior to coming into force of these Rules and Regulations. Where no such requirements are applicable, ships shall comply with these Rules and Regulations to the extent the Administration considers to be reasonable or practicable. Existing ships which undergo replacement of equipment or outfitting related thereto shall comply with the requirements specified in this Regulation.

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 shall be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board, due regard being paid to moving parts, hot surfaces and other hazards. The design shall have regard to materials used in construction, and to purposes for which the equipment is intended, the working conditions and the environmental conditions to which it will be subjected.

Regulation 2
Construction

1 The strength and construction of hull, superstructures, deckhouses, machinery casings, companion ways and any other structure and equipment shall be sufficient to withstand all foreseeable conditions of the intended service. A ship built and maintained in conformity with the applicable rules of a classification society or any other body recognized by the Administration may be considered as adequate in this respect.

2 Ships propelled by mechanical means shall be fitted with a collision bulkhead in accordance with this regulation and with watertight bulkheads bounding the machinery spaces. Such bulkheads shall be extended up to the freeboard deck. In ships constructed of such bulkheads shall be watertight as far as practicable.

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

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

Regulation 3
Collision Bulkhead

1 A collision bulkhead shall be fitted which shall be watertight up to the freeboard deck. This bulkhead shall, as far as practicable, be located at a distance from the forward perpendicular of not less than five (5) percent and not more than eight (8) percent of the length of the ship. Where it can be shown to the satisfaction of the Administration that it is impractical for the collision bulkhead to be located at distance from the forward perpendicular of not more than eight (8) percent of the length of the ship, the Administration may allow relaxation therefrom, subject to the condition that, should the space forward of the bulkhead be flooded, the ship at full load condition will not be submerged to a line drawn at least 76 mm below the upper surface of the bulkhead deck at side.

2 The collision bulkhead may have steps or recesses in it provided that they are within the limits prescribed in paragraph 1. Pipes piercing the collision bulkhead shall be kept to the minimum. Such pipes shall be fitted with suitable valves operable from above the freeboard deck and the valves chest shall be secured at the collision bulkhead inside the forepeak. The Administration may permit the location of such valves on the after side of the collision bulkhead, provided that they are readily accessible under all service conditions and the space in which they are located is not a cargo space. All such valves shall be of material acceptable to the Administration.

3 Where a long forward superstructure is fitted, the collision bulkhead shall be extended weathertight to the deck immediately above the freeboard deck. The extension shall subject to the requirements of paragraph 2, be located within the limits prescribed in paragraph 1. The part of the deck, if any, between the collision bulkhead and its extension shall be weathertight.

4 Where a bow door and a sloping loading ramp that forms part of the extension of the collision bulkhead above the freeboard deck is fitted, the part of the extension, which is more than 2.3 m, or as specified by the Administration, above the freeboard deck may extend no more than 1 m forward limits specified in paragraph 1 . The ramp door shall be weathertight over its complete length.

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

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

7 Where a chain locker is located abaft the collision bulkhead or extends into the forepeak tank, it shall be watertight and provided with efficient means of drainage.

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

Regulation 4
Watertight Bulkheads, Decks, Doors, Trunks, etc.

1 These Rules and Regulations shall apply to new ships propelled by mechanical means.

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

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

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

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

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

7 Testing main compartments by filling them with water is no compulsory. When testing by filling with water is not carried out, a hose test shall be carried out in the most advanced stage of the fitting out of the ship. In any case, a thorough inspection of watertight bulkheads shall be carried out.

8 The forepeak, after peak, double bottom tanks (including duct keels), and inner skins shall be tested with water to a head corresponding to the requirements of paragraph 2.

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

10 The tests referred to in paragraphs 8 and 9 are for the purpose of ensuring that the subdivision structural arrangements are watertight and are not to be regarded as a test of the fitness of any compartment for the storage of oil fuel or for other special purposes for which a test of a superior character may be required depending on the height to which the liquid has access in the tank or its connections.

Regulation 5
Subdivision

1 A passenger ship of 20 m or more in length, or of less than 20 m that carries 50 or more passengers, shall be provided with watertight bulkheads, fitted so that the ship, when damaged in way of any one compartment in its length from the keel to the deck but not extending to damage to a transverse bulkhead bounding the longitudinal limits of the damage, may be demonstrated to float in a stable condition having the margin line above the still water level and to float in a stable condition in intermediate stages of flooding.

2 Compliance with paragraph 1 will be considered as demonstrated if the watertight bulkheads are located in accordance with annex 2.

3 In case of a ship not having a continuous bulkhead deck, the floodable length at any point may be determined to an assumed continuous margin line which at no point is less than 76 mm below the top of the deck at side to which the bulkheads concerned and the shell are carried watertight.

Regulation 6
Location of Watertight Bulkheads for Subdivision

1 The maximum distance between adjacent main transverse watertight bulkheads shall not be more than the lesser of the following:

.1 one third of the length of the bulkhead deck; or

.2 the distance d given by the following equation:

$$d = \frac{F \cdot f \cdot L}{D}$$

where:

F = the floodable length factor from Table 1;

f = the effective freeboard in metres calculated for each pair of adjacent bulkheads; L = the length over deck in metres measured over the bulkhead deck; and

D = the depth in metres, measured amidships at a point one-quarter of the maximum beam out from the centreline, from the inside of the bottom planking or plating to the level of the top of the bulkhead deck (see Figure 5.4.1).

Table 1 - Floodable length factors

(d/L)x100	F
0-15	0.33
20	0.34
25	0.36
30	0.38

35	0.43
40	0.48
45	0.54
50	0.61
55	0.63
60	0.58
65	0.53
70	0.48
75	0.44
80	0.40
85	0.37
90-100	0.34

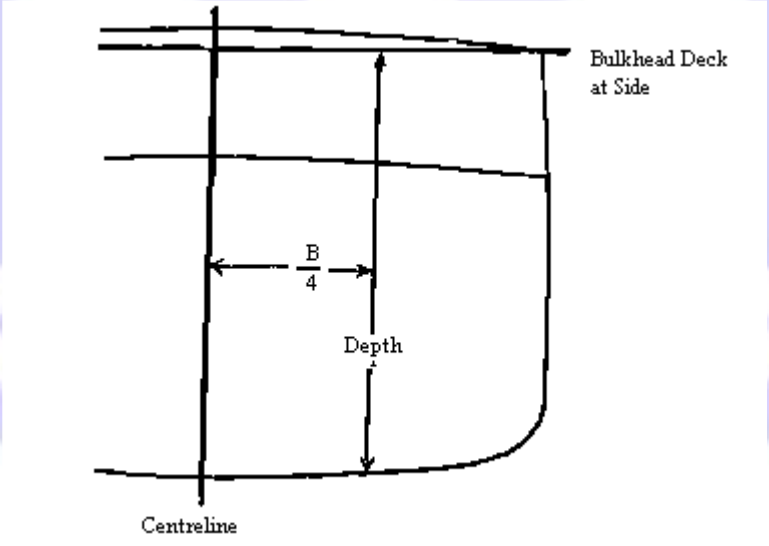
NOTE 1: Where:

D = distance in metres from the midpoint of the compartment to the forward-most point on the bulkhead deck excluding sheer

NOTE 2: Intermediate values of floodable length factor may be obtained by interpolation.

Figure 1

Transverse Location for Measuring Depth (D)



2 The effective freeboard for each compartment is calculated from:

$$f = 0.5\ (a+b)$$

where:

f = the effective freeboard;

a = the freeboard at the forward most main transverse watertight bulkhead of the compartment; and

b = the freeboard at the aftermost main transverse bulkhead of the compartment, the freeboards a and b being calculated from the deepest waterline:

.1 to the top of the bulkhead deck where a vessel has a flush deck; or

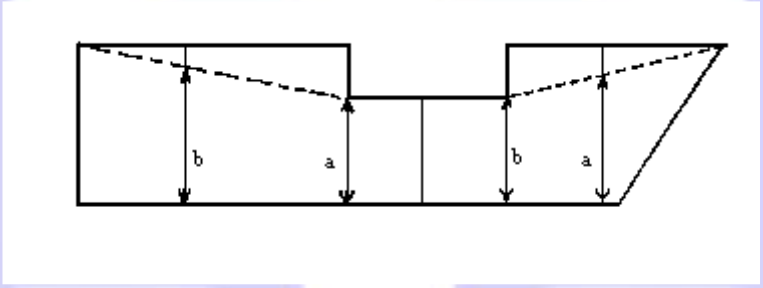
.2 to the line shown in Figure 2 where a vessel has a stepped bulkhead deck; or

.3 to the line shown in Figure 3 where a vessel has an opening scuttle (porthole) below the bulkhead deck; or

.4 as determined by the Administration where the vessel has a deck of a configuration not identified above.

Figure 2

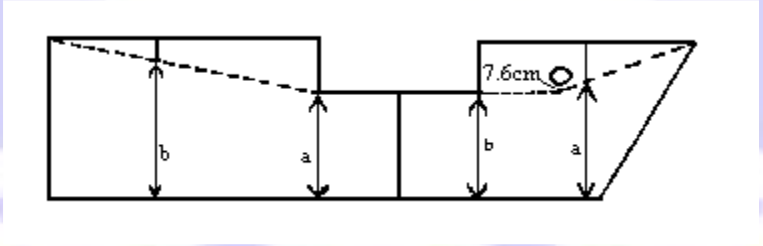
Freeboard measurement - Ship with stepped bulkhead deck



(a and b shown for two sample compartments)

Figure 3

Freeboard measurement - Ship with stepped bulkhead deck and a porthole below the bulkhead deck



Regulation 7
Means for Sounding

1 Means for sounding to the satisfaction of the Administration, shall be provided for:

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

.2 All tanks and cofferdams.

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

Regulation 8
Anchoring and Mooring Equipment

1 At least two anchors of sufficient weight shall be provided. One (1) of these shall be provided with a chain cable or wire rope of adequate strength and size and windlass, capstan or winch of suitable size for the cable and other anchor handing equipment and arrangements shall be to the satisfaction of the Administration. The Administration may permit carriage of only one (1) anchor with adequate chain or wire and other arrangements taking into account the size of the ship and its area of operation.

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

.1 Properly designed to meet all foreseeable operational loads and conditions;

.2 Correctly seated; and

.3 Effectively secured by stoppers to a part of the ship's structure which is strengthened suitably.

Regulation 9
General Protection Measures against Accidents

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

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

3 Handrails, grabrails and handholds of sufficient size and strength shall be provided to the satisfaction of the Administration as support for persons when the ship is severely rolling or pitching.

Chapter IV

Stability Requirements

Regulation 1
General

1 The damage stability requirements in Chapter II-1 parts B-1 through B-4 of SOLAS 2014 as amended shall apply to all passenger ships regardless of length except those ships with outrigger.

2 The Administration may, for a particular ship or group of ships, accept alternative methodologies if it is satisfied that at least the same degree of safety as represented by these regulations is achieved.

3 Ships shall be as efficiently subdivided as is possible having regard to the nature of the service for which they are intended. The degree of subdivision shall vary with the subdivision length of the ship and with the service, in such manner that the highest degree of subdivision corresponds with the ships of greatest subdivision length (L), primarily engaged in the carriage of passengers.

4 Where it is proposed to fit decks, inner skins or longitudinal bulkheads of sufficient tightness to seriously restrict the flow of water, the Administration shall be satisfied that proper consideration is given to beneficial or adverse effects of such structures in the calculations.

Regulation 2
Intact Stability

1 The Code on Intact Stability and its amendments, as well as definition of the terms used herein and subsequent MARINA Circulars, are hereby adopted.

2 Every Philippine-registered ship covered shall undergo an inclining test and must have in possession on board a valid Certificate of Stability issued by the MARINA for those engaged in domestic operations, or an Intact Stability Booklet issued by a MARINA recognized organization for those engaged in international operations.

3 All domestic passenger ships regardless of size, except those ships that rely on outriggers for their stability, and passenger ships carrying 12 passengers and below and other domestic ships 24 meters and above in length, shall be subjected to, and be in compliance with standards, requirements and criteria provided under the Code on Intact Stability as amended, in order to be issued the Certificate of Stability. The Certificates to be issued, or those previously issued, are subject to endorsement every five (5) years from the last inclining test conducted on the ship.

4 Domestic ships other than passenger ships below 24 meters, except those ships that rely on outriggers for their stability, and passenger ships carrying 12 passengers and below, shall still be subjected to evaluation using the applicable provisions of the Code on Intact Stability as amended, with the results thereof to serve as basis whether to issue the Certificate of Stability without restrictions in area of operation, if in compliance with the Code's standards, requirements and criteria, or, issue a Certificate of Stability with restrictions in the area of operation, due to limitations in stability based on the Code's standards.

Regulation 3
Inclining Tests and Stability Information

1 Domestic ships shall be subjected to an inclining test to be conducted by a duly licensed Naval Architect (RENA) or other qualified/trained technical personnel from the MARINA, with the needed notification and preparations to be made by the company/shipyard Naval Architect. If the inclining test for domestic ships is to be conducted by a recognized organization or accredited marine surveying company, it shall be undertaken under the supervision of a MARINA (RENA) or other qualified/ trained technical personnel, pursuant to Chapter 7, Sec. 7.3.1 of the Code on Intact Stability, to ensure compliance with the Code, with the concerned organization/company assuming the responsibility to ensure strict observance of this requirement.

2 Domestic ships covered and found to be in compliance with these rules and regulations, based on the result of the inclining test, together with the supporting plans, calculations, etc. shall be issued the required Certificate of Stability by the MARINA, with effectivity reckoned from the date the test/survey was conducted. If the test, calculations and evaluation of a domestic ship is undertaken by an accredited/recognized organization, the results thereof shall be submitted to the MARINA for validation, approval and subsequent issuance by the MARINA of the required Certificate of Stability valid for five (5) years reckoned from the date the test/ survey was conducted.

3 Ships not covered shall be issued by the MARINA an Exemption Certificate.

4 In the case of a ship already issued with a Certificate of Stability, where alterations are made affecting its light condition or the position of the center of gravity, or both, such ship shall be subjected to re-inclining test and its stability information amended.

5 The MARINA may allow the inclining test of a ship to be dispensed with, provided that reliable stability information for such ship can be obtained from a basic data available, or there are available reference to existing data for similar class of ships/sister ships and it is shown to the satisfaction of the Administration that reliable stability information for the exempted ship can be obtained from such basic data. In the case of ships especially designed for the carriage of liquids or ore in bulk, the required inclining test may be dispensed with by the MARINA when reference to existing data for similar ships clearly indicates that, due to the ship's proportions and arrangements, more than sufficient transverse metacentric height will be available in all probable loading conditions.

6 Intact Stability Booklets approved by the MARINA shall be supplied to the concerned ship to enable its Master to assess with ease and certainty the stability of the ship under various operating conditions, warning him of those operating conditions that could adversely affect either stability or the trim of the ship.

Regulation 4
Subdivision and Damage Stability

1 The requirements under MARINA Memorandum Circular 2015-08 and subsequent amendments on subdivision and damage stability are hereby adopted.

2 In the case of a ship with approved Damage Stability Booklet, where conversion, modifications and alterations are made affecting its righting moment of the ship, such ship shall be subjected to recalculation of damage stability.

3 All ships shall keep a copy of the approved Damage Stability Booklet on board at all times.

Regulation 5
Bilge Pumping Arrangements

1 An efficient bilge pumping arrangement shall be provided which under all practical conditions shall be capable of pumping from and draining any watertight compartment other than a space permanently appropriated for the carriage of fresh water, water ballast, oil fuel or other liquid for which other efficient means for pumping are provided. Where the Administration is satisfied that the safety of the ship is not impaired, the bilge pumping arrangements may be dispensed with in any particular compartment. Bilge pumping arrangement shall be of a type approved by the administration.

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

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

4 At least two bilge pumps connected to the main bilge system shall be provided, one of which may be driven by the propulsion machinery. The total capacity of the required bilge pumps shall not be less than 125 percent of the total capacity of the required main fire pump referred to these Rules and Regulations.

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

6 A bilge ejector in combination with an independently driven high-pressure sea-water pump may be installed, provided this arrangement is to the satisfaction of the Administration. Bilge pipes shall not be led through fuel oil, ballast or double bottom tanks, unless pipes are of heavy gauge steel construction.

Chapter V

Assignment of Load Line

Regulation 1
General

1 The International Convention on Load Lines (ICLL) 1966, Protocol of 1988, as amended, are hereby adopted to apply to Philippine-registered international or domestic ships 15 meters and above in length. The value of 200 mm in the Convention's tabular freeboard for 24 meters in length shall also be adopted down to 15 meters in length.

2 Ships between 15 m and 24 m in length, to which this Chapter applies, shall not proceed to sea unless surveyed, marked and certified in accordance with the provisions of these Rules and Regulations

3 No domestic ship shall proceed to sea on domestic trading unless it has been surveyed and marked, and issued a Load Line Certificate by the MARINA.

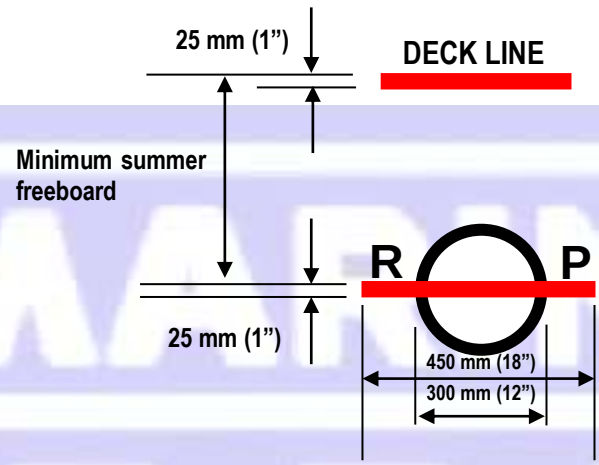
4 Details of Load Line Markings

.1 Deck Line – it is a horizontal line 300mm (12 inches) in length and 25mm (1 inch) in breadth. It shall be marked amidships on each side of the ship, and each upper edge shall normally pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell, provided that the deck line may be placed with reference to another fixed point on the ship on condition that the freeboard is correspondingly corrected. The location of the reference point and the identification of the freeboard deck shall in all cases be indicated on the Load Line Certificate. The ring, lines and letters shall be painted in white or yellow on a dark ground or in black on a light ground. They shall also be permanently marked on the sides of the ships to the satisfaction of the Administration. The marks shall be plainly visible and, if necessary, special arrangements shall be made for this purpose.

.2 Load Line Mark – The load line mark shall consist of a ring 300mm (12 inches) in outside diameter and 25mm (1 inch) wide which is intersected by a horizontal line 450mm (18 inches) in length and 25mm (1 inch) in breadth, the upper edge of which passes through the center of the ring. The center of the ring shall be placed amidships and at a distance equal to the assigned summer freeboard measured vertically below the upper edge of the deck line.

.3 The Ring – The ring, lines and letters shall be painted in white or yellow on a dark background or in black on a light background. They shall also be permanently marked on the sides of the ships to the satisfaction of the Administration. The marks shall be plainly visible and, if necessary, special arrangements shall be made for this purpose.

.4 Load Line Mark Illustration :



5 In cases where a MARINA authorized Load Line Assignor or Recognized Organization undertake the survey, assignment and marking of load line, it shall guarantee the completeness and efficiency of the survey, inspection and marking, subject to the verification and approval by the Administration. A MARINA Surveyor shall be present during the conduct of the survey by the authorized load line assignor/recognized organization to ensure compliance with the ILCC and this Circular, with the concerned load line assignor/recognized organization assuming the responsibility to ensure strict observance of this requirement.

6 A new Load Line Certificate shall be issued if there are changes in the ship's name, distinctive numbers or letters, homeport and length.

7 A Load Line Certificate shall be valid for a period not exceeding five (5) years from the date of issue. It shall be endorsed annually by the MARINA, and ceases to be valid if no endorsement has been made. A Load Line Certificate issued upon recommendation of a recognized organization shall likewise be endorsed by the Administration.

8 A Certificate not endorsed after three (3) months of its anniversary date of issuance shall cease to be valid, in which case, a new Certificate will need to be issued upon application and completion of an afloat survey, and the new Certificate to be issued shall have the same expiry as the previous Certificate.

9 Other Safety Certificate(s) shall not be issued/ renewed if the ship has no Load Line Certificate or if the Load Line Certificate ceases to be valid.

10 If the Load Line Certificate ceases to be valid or cancelled by virtue of Article 19, Sec. 3 of the ILLC, as officially ordered by the Administration, the other Safety Certificate(s) issued to the ship is/are deemed automatically suspended and the ship is under a "no sail condition". The cessation of validity of the Load Line Certificate and suspension of other Safety Certificate(s) is effected by the issuance of an Order by the MARINA, based on the report and recommendation of the MARINA Central Service Units and MARINA Regional Offices or the Enforcement Service, as endorsed by the former.

11 The Master of the ship under a "no sail condition" is under obligation to warrant that such ship shall not proceed to voyage.

Regulation 2
Submersion

1 Except as provided in Regulation 1.4, the appropriate 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, shall not be submerged at any time when the ship is put to sea, during the voyage or on arrival.

2 When a ship is in fresh water of unit density, the appropriate load line may be submerged by the amount of fresh water allowance shown on the appropriate certificate issued under the provision of these Rules and Regulations. Where the density is other than unity, an allowance shall be made proportional to the difference between 1.025 and the actual density.

3 When a ship departs from a port situated on a river or inland waters, deeper loading shall be permitted corresponding to the weight of fuel and all other materials required for consumption between the point of departure and the sea.

Regulation 3
Survey and Certification

1 The Administration shall henceforth principally undertake the conduct of survey/inspection, assignment and marking of load lines and issuance of Load Line Certificates, through its Registered Naval Architect (RENA).

2 The MARINA and its duly- authorized entities shall ensure that ships holding a valid Load Line Certificate is not loaded beyond the limit allowed in the Certificate, and the position of the Load Line of the ship also corresponds with the specification in the Certificate.

3 MARINA or the accredited Load Line Assignor shall survey the ship to ascertain the following:

.1 Whether the ship complies with the requirements as applicable to the ship, as well as such other data as may be necessary for assignment of freeboard to the ship in accordance with freeboard requirement per International Convention on Load Line, 1966 as modified by the Protocol of 1988.

.2 In the course of the survey to be carried out, the ship and any of its fittings or equipment shall be subjected to such tests if necessary, in the opinion of the MARINA RENA or Load Line Assignor.

.3 Test carried out as to stability shall be subject to the requirements of Regulation 10 of ICLL 1966 as modified by the Protocol of 1988.

.4 A ship shall be subjected to survey/inspection as specified below;

.1 A survey before the ship is put to service to ensure that the arrangements, materials and scantlings fully comply with the requirements of the ICLL 1966 as amended;

.2 A periodical inspection within three (3) months before and after the annual anniversary date of the Load Line Certificate to verify marking and ensure that alterations have not been made

to the hull or superstructure of the ship which would affect the calculations determining the position of the Load Line marking.

.1 The annual survey shall be such as to ensure:

.1 that the condition of the ship and the conditions under which it is operated have not been altered in such as way as to affect the calculations determining the position of the load line;

.2 that the maintenance in an effective condition of watertight compartments, fittings and appliances for the protection of openings, guardrails, freeing ports and means of access to crew's quarters.

.3 Survey also includes the effective maintenance conditions of fittings and appliance for;

.1 Protection of openings

.2 Freeing ports

.3 Other openings

.4 Guard rails

.5 Means of access going to deck below main deck.

.4 After completion of the survey, the load line certificate shall either be endorsed by the authority responsible for its renewal or withdrawn where alterations have been made that affect the calculations determining the position of the load line or when fittings and appliances have not been maintained in an effective condition to provide the safety that they gave when the load line certificate was issued.

.5 During the inspection of the outside of the ship's bottom, the inlets, rudder, propulsion shaft openings and anchor chains shall be subject to particular examination.

Regulation 4

Draught Marks and Scales

All ships shall show on the bow and the stern, on each side, engraved or welded for steel ships, shown in an equivalent manner for structures of materials other than steel, painted in black on a light background, or in white or yellow on a dark background a draught scale, with ten-centimetre intervals, with figures of a height such that their complete submersion means an increase in draught of 10 cm.

Regulation 5

Strength of the Ship

The general structural strength of the ship shall be sufficient for the draught corresponding to the freeboard assigned to the satisfaction of the Administration. Ships built and maintained in conformity with the requirements of a classification

society accredited by the Administration, may be considered to possess adequate strength.

Regulation 6
Assumptions

This regulation assumes 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 and that applicable international requirements relating to stability or subdivision, are complied with.

Regulation 7
Marks of Assigning Authority

The mark of the authority by whom the load lines are assigned may be indicated alongside the load line ring above the horizontal line which passes through the center of the ring, or above and below it. This mark shall consist of two initials consist of letters R and P to identify the authority's name, each measuring approximately 115 mm in height and 75 mm in width.

Regulation 8
Verification of Marks

The Load Line Certificate shall not be issued to the ship until the MARINA Surveyor has certified that the marks are correctly and permanently indicated on the ship's sides.

Regulation 9
Information to be Supplied to the Master

1 The master of each new ship which is not already provided with stability information, shall be supplied with sufficient information, in an approved form, to enable him to arrange for the loading and ballasting of his ship in such a way as to avoid the creation of any unacceptable stresses in the ship's structure, provided that this requirement need not apply to any particular length, design or class of ship where the Administration considers it to be unnecessary.

2 Stability information approved by the Administration shall be supplied to ships to enable the master to assess with ease and certainty the stability of the ship under various operating conditions. Such information shall include specific instructions to the master warning him of those operating conditions which could adversely affect either stability or the trim of the ship. In particular, the information recommended in the Code shall be included as appropriate.

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

Regulation 10
Superstructure End Bulkheads

Bulkheads at exposed ends of the enclosed superstructures shall be of substantial construction and shall be to the satisfaction of the Administration.

Regulation 11
Doors

1 All access openings in bulkheads at ends of enclosed superstructures shall be fitted with doors of steel or other equivalent material, permanently and strongly attached to bulkhead, and framed, stiffened and fitted so that the whole structure is of equivalent strength to the unpierced bulkhead and weathertight when closed. The means for securing these doors weathertight shall consist of gaskets and clamping devices or equivalent means and shall be permanently attached to the bulkheads or to the doors themselves. The doors shall be so arranged that they can be operated from both sides of the bulkhead.

2 Except as otherwise provided, the height of the sill of access openings in bulkheads at ends of enclosed superstructures shall be at least 300 mm above the deck.

Regulation 12
Position of Hatchways, Doorways and Ventilators

For the purpose of this regulation, two positions of hatchways, doorways and ventilators are defined as follows:

1 Position 1 - Upon exposed freeboard and raised quarter decks, and upon exposed superstructure decks situated forward of a point located a quarter of the ship's length from the forward perpendicular.

2 Position 2 - Upon exposed superstructure decks situated abaft a quarter of the ship's length from the forward perpendicular.

Regulation 13
Cargo and Other Hatchways

1 The construction and the means for securing the weather-tightness of cargo and other hatchways in positions 1 and 2 shall be at least equivalent to the requirements of these Regulations.

2 Coamings and hatchway covers to exposed hatchways on decks above the superstructure deck shall comply with the requirements of the Administration.

Regulation 14
Hatchways Closed by Portable Covers and Secured Weathertight by Tarpaulins and Battening Devices

1 The coamings of hatchways closed by portable covers secured weathertight by tarpaulins and battening devices shall be of substantial construction, and their height above the deck shall be at least as follows:

.1 450 mm if in position 1;

.2 300 mm if in position 2.

2 The width of each bearing surface for hatchway covers shall be at least 65 mm.

3 Where covers are made of wood, the finished thickness shall be at least 60 mm in association with a span of not more than 1.5 m.

4 Where covers are made of mild steel the strength shall be calculated with assumed loads of not less than 1 metric tons per square meter on hatchways in position 1, and not less than 0.75 metric tons per square meter on hatchways in position 2, and the product of the maximum stress thus calculated and the factor 4.25 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0028 times the span under these loads.

5 Cleats shall be set to fit the taper of the wedges. They shall be at least 65 mm wide and spaced not more than 600 mm center to center, the cleats along each side or end shall be not more than 150 mm from the hatch comers.

6 Battens and wedges shall be efficient and in good condition. Wedges shall be of tough wood or other equivalent material. They shall have a taper of not more than 1 in 6 and shall be not less map 13 mm thick at the toes.

7 At least two layers of tarpaulin in good condition shall be provided for each hatchway in position 1 or 2. The tarpaulins shall be of waterproof and of ample strength. They shall be of a material of at least an approved standard weight and quality.

8 For all hatchways in position 1 or 2, steel bars or other equivalent means shall be provided in order to secure efficiently and independently each section of hatchway covers after the tarpaulins are battened down. Hatchway covers of more than 1.5 m in length shall be secured by at least two such securing appliances.

Regulation 15

Hatchways Closed by Weathertight Covers of Steel or Other Equivalent Material Fitted with Gaskets and Clamping Devices

1 At positions 1 and 2, the height above the deck of hatchway coamings fitted with weathertight hatch covers of steel or other equivalent material fitted with gaskets and clamping devices shall be as specified. The height of these coamings may be reduced, or the coamings omitted entirely, on condition that the safety of the ship is not thereby impaired in any sea conditions to the satisfaction of the Administration. Where coamings are provided they shall be of substantial construction.

2 Where weathertight covers are of mild steel, the strength shall be calculated as provided.

3 The strength and stiffness of covers made of materials other than mild steel shall be equivalent to those of mild steel to the satisfaction of the Administration.

The means for securing and maintaining weather-tightness shall be to the satisfaction of the Administration. The arrangements shall ensure that the tightness can be maintained in any sea condition, and for this purpose, tests for tightness shall

be required at the initial survey, and may be required at periodical surveys and at annual inspections or at more frequent intervals.

Regulation 16
Machinery Space Openings

1 Machinery space openings in positions 1 and 2 shall be properly framed and efficiently enclosed by steel casings of any ample strength. Access openings in such casings shall be fitted with doors complying with the requirements, the sills of which shall be at least 450 mm above the deck if in position 1, and at least 300 mm above the deck if in position 2. Other openings in such casings shall be fitted with equivalent covers, permanently attached in their proper positions.

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

Regulation 17
Openings in Freeboard and Superstructure Decks

1 Manholes and flush scuttles in position 1 or 2 or within superstructures other than enclosed superstructures shall be closed by substantial covers capable of being made watertight. Unless secured by closely spaced bolts, the covers shall be permanently attached.

2 Openings in freeboard decks other than hatchways, machinery space openings, manholes and flush scuttles shall be protected by an enclosed superstructure, or by a deckhouse or companionway of equivalent strength and weather-tightness. Any such opening in an exposed superstructure deck or in the top of a deckhouse on the freeboard deck which gives access to a space below the freeboard deck or a space within an enclosed superstructure shall be protected by an efficient deckhouse or companionway. Doorways in such deckhouses or companionways shall be fitted with doors complying with the requirements.

3 In position 1, the height above the deck of sills to the doorways in companionways shall be at least 450 mm. In position 2, it shall be at least 300 mm.

Regulation 18
Ventilators

1 Ventilators in position 1 or 2 to spaces below freeboard decks or decks of enclosed superstructures shall have coamings of steel or other equivalent material, substantially constructed and efficiently connected to the deck. Where the coaming of any ventilator exceeds 760 mm in height it shall be specially supported.

2 Ventilators passing through superstructures other than enclosed superstructures shall have substantially constructed coamings of steel or other equivalent material at the freeboard deck.

3 Ventilators in position 1 of the coamings of which extend to more than 2.5 m above the deck; and in position 2 the coamings of which extend to more than 1.0 m above the deck, need not be fitted with closing arrangements unless specifically required by the Administration.

4 Ventilators in position 1 shall have coamings of a height of at least 600 mm above the deck; in position 2 of the coaming shall be of a height at least 300 mm above the deck. They shall be provided with efficient weathertight closing appliances which shall be conveniently stowed near the ventilators to which they are to be fitted.

5 In exposed position, the height of coamings may be required to be increased to the satisfaction of the Administration.

Regulation 19
Air Pipes

Where air pipes to ballast and other tanks extend above the freeboard or superstructure decks, the exposed parts of the pipes shall be of substantial construction; the height from the deck to the point where water may have access below shall be at least 600 mm on the freeboard deck and 300 mm on the superstructure deck. Where these heights may interfere with the working of the ship, a lower height may be approved, provided the Administration is satisfied that the closing arrangements and other circumstances justify a lower height. Satisfactory means permanently attached shall be provided for closing the openings of the air pipes.

Regulation 20
Cargo Ports and Other Similar Openings

1 Cargo ports and other similar openings in the sides of ships below the freeboard deck shall be fitted with doors so designed as to ensure watertightness and structural integrity commensurate with the surrounding shell plating. The number of such openings shall be the minimum compatible with the design and proper working of the ship.

2 Unless permitted by the Administration, the lower edge of such openings shall not be below a line drawn parallel to the freeboard deck at side, which has at its lowest point the upper edge of the uppermost load line.

Regulation 21
Scuppers, Inlets and Discharges

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 complying with the requirements shall be fitted with efficient and accessible means for preventing water from passing inboard. Normally each separate discharge shall have one automatic non-return valve with a positive means of closing it from a position above the freeboard deck. The means for operating the positive action valve shall be readily accessible and be provided with an indicator showing whether the valve is open or closed. The open inboard end of any discharge system shall be

above the deepest operating waterline at an angle of heel satisfactory to the Administration.

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

3 Scuppers and discharge pipes originating at any level and penetrating the shell either more than 450 mm below the freeboard deck or less than 600 mm above the summer load waterlines shall be provided with a non-return valve at the shell. This valve, unless required in paragraph 1, may be omitted if the piping is of substantial thickness.

4 Scuppers leading from superstructures or deckhouses not fitted with doors complying with the requirements shall be led overboard.

5 All valves and shell fittings required by this Regulation shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable. All pipes to which this Regulation refers shall be of steel or other equivalent material to the satisfaction of the Administration.

Regulation 22
Side Scuttles, Windows and Other Openings

1 Side scuttles to spaces below the freeboard deck or to spaces within enclosed superstructures shall be fitted with efficient hinged inboard deadlights arranged so that they can be effectively closed and secured watertight.

2 No side scuttle shall 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.

3 The side scuttles, together with their glasses, if fitted, and deadlights shall be of substantial and approved construction.

4 The Administration may accept side scuttles and windows without deadlights in side or aft bulkheads of superstructures located on or above the freeboard deck if satisfied that the safety of the ship will not be impaired.

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

Regulation 23
Freeing Ports

1 Where bulwarks on the weather portions of freeboard or superstructure decks form wells, ample provision shall be made for rapidly freeing the decks of water and for draining them. Except as provided in this Regulation, the minimum freeing port area (A) on each side of the ship for each well on the freeboard deck shall be that given by the following formula in cases where the sheer in way of the well is

standard or greater than standard. The minimum area of each well on superstructure decks shall be one-half of the area given by the formula:

Where the length of bulwark (1) in the well is 20 m or less:

A = 0.75 + (0.7 + 0.035l) square meters

where exceeds 20 m:

A = 0.07 (1) square meters.

(1) need in no case be taken as greater than 0.7 L.

If the bulwark is more than 1.2 m in average height, the required area shall be increased by 0.004 square meters per meter of length of well for each 0.1 m difference in height. If the bulwark is less than 0.9 m in average height, the required area may be decreased by 0.004 square meters per meter of length of well for each 0.1 difference in height.

2 In ships with no sheer, the area calculated according to paragraph 1 shall be increased by fifty percent (50%). Where the sheer is less than the standard, the percentage shall be obtained by interpolation.

3 Where a ship is fitted with a trunk and open rails are not fitted on the weather part of the freeboard deck in way of the trunk for at least half their length or where continuous or substantially continuous hatchway side coamings are fitted between detached superstructures, the minimum area of the freeing port openings shall be calculated from the following table:

BREADTH OF HATCHWAY OR TRUNK IN RELATION TO THE BREADTH OF SHIP	AREA OF FREEING PORTS IN RELATION TO THE TOTAL AREA OF THE BULWARKS
40 percent or less	20 percent
75 percent or more	10 percent

The area of freeing ports at intermediate breadths shall be obtained by linear interpolation.

4 In ships having superstructures which are open at either or both ends, adequate provision for freeing the space within such superstructures shall be provided to the satisfaction of the Administration.

5 The lower edges of the freeing ports shall be as near the deck as practicable. Two-thirds of the freeing port area required shall be provided in the half of the well nearest the lowest point of the sheer curve.

6 All such openings in bulwarks shall be protected by rails or bars spaced approximately 230 mm apart. If shutters are fitted to freeing ports, ample clearance shall be provided to prevent jamming. Hinges shall have pins or bearings of non-

corrosive material. If shutters are fitted with securing appliances, these appliances shall be of approved construction.

Regulation 24
Protection of the Crew and Passengers

1 The strength of the deckhouses used for the accommodations shall be to the satisfaction of the Administration.

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

3 The opening below the lowest course of the guard rails shall not exceed 230 mm. The other courses shall be not more than 380 mm apart. In the case of ships with rounded gunwales the guard rail supports shall be placed on the flat of the deck.

4 Satisfactory means (in the form of guard rails, life lines, gangways or underdeck passages etc.) shall 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.

5 Deck cargo carried on any passenger ship shall 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 guard rails or life lines shall be provided above the deck cargo if there is no convenient passage on or below the deck of the ship.

Regulation 25
Cancellations

An International Load Line Certificate shall cease to be valid if any of the following circumstances exist:

1 material alterations have taken place in the hull or superstructures of the ship such as would necessitate the assignment of an increased freeboard;
2 the fittings and appliances mentioned in paragraph (1)(c) of article 14 are not maintained in an effective condition;
3 the certificate is not endorsed to show that the ship has been surveyed as provided in paragraph (1)(c) of article 14;
4 the structural strength of the ship is lowered to such an extent that the ship is unsafe;
5 tampering of load line marks.

Regulation 26
Load Markings

These regulation shall apply to all passenger motor boats without outrigger below 15 m:

1 All motor boat owners/operators must, at all times and under any conditions, maintain clear and visible load line markings on their boats operating under this regulation.
2 A Maximum Load Line Marking Certificate shall be valid for a period of not exceeding five (5) years from the date of initial/ renewal survey subject to annual survey and endorsement of the Certificate.
3 Load line marking of a motor boat shall be visible at all times.

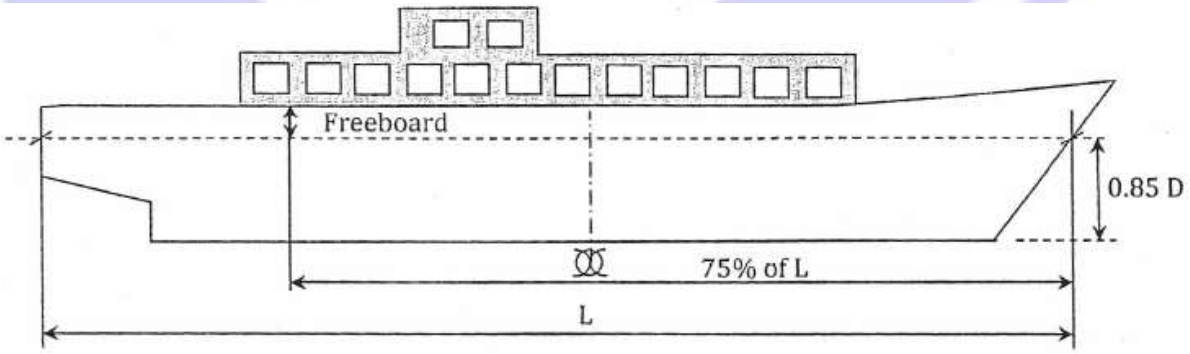
Regulation 27
Minimum Freeboard

1 The minimum freeboard shall be that freeboard at which boats in their maximum condition of loading meet the requirements of construction and other requirements that the Administration considers appropriate in relation to the type of boat, its service and area of its operation. The minimum freeboard shall be greater of:

.1 250 mm; and

.2 300 + 44 x (L-4.5) mm
where L = the length of the vessel in M

2 Where the minimum freeboard of a loaded boat occurs at the aft to a point 75% of the length of the boat from the foreside of the foremost part of the boat, excluding guardrails, the minimum freeboard shall be taken to be the freeboard measured at the 75% of the length point. (see Figure 1)



(Figure 1)

The Administration may accept a lesser value of freeboard where the construction or the type of vessel makes it impracticable to achieve the freeboard value as calculated above, provided that,

.1 the minimum freeboard as assigned shall take into consideration that

the floaters of the motor boat with outriggers are not in a submerged position; and,

.2 the safety of the motor boat and the passengers are not compromised.

3 The freeboard shall be taken as the vertical distance between the waterline at which the ship is floating with maximum load on board and shall be measured as follows:

.1 for a flush deck or well decked boat, from the waterline to the top of the weather deck at the side of the boat;

.2 for a partially-decked boat, from the waterline to the top of the deck or to the top of the gunwale, whichever is less; or

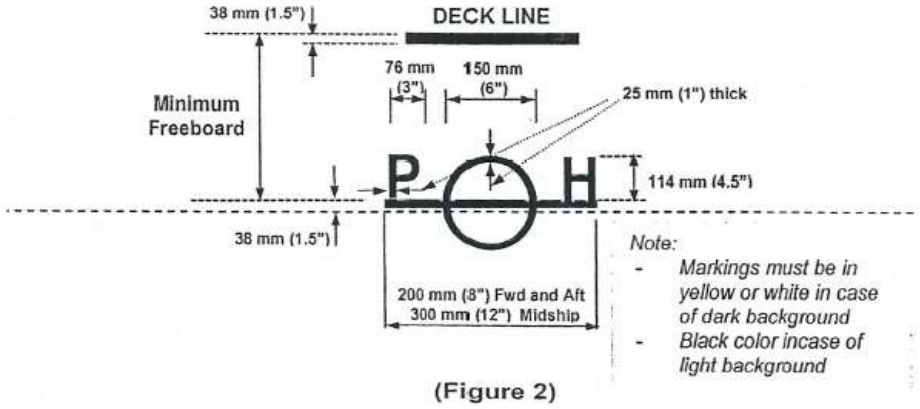
.3 for an open vessel, from the waterline to the top of the gunwale.

4 Details of Maximum Load Line Markings

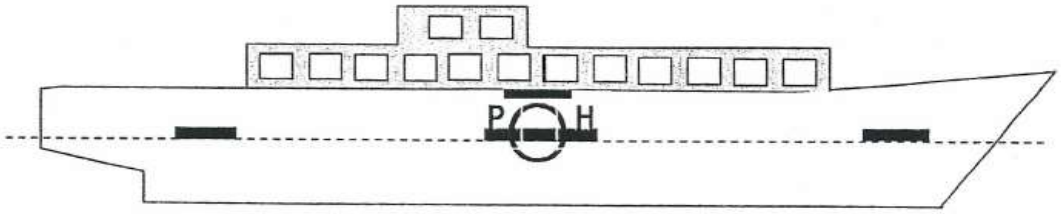
.1 Boats shall have permanent load line markings placed on each side forward, amidships and aft to indicate the maximum freeboard as determined in accordance with regulation 24.1. Such a load line mark shall be a horizontal line of at least 200 mm in Length forward and aft, 300 mm amidships with markings as illustrated in Figure 2 and 3, this section. The load line mark should be 38 mm in height, with its upper edge passing through the point of maximum draft. The maximum load mark shall be painted using high grade marine paint in a contrasting color with that of the side shell paint. (Figure 3)

The letters P and H which indicate the Authority by whom the load lines are assigned shall be indicated alongside the load line ring. The ring shall be 25 mm thick with a diameterof150 mm while the letter marks shall each measure at approximately 114 mm in height, 76 mm in width and thickness of 25 mm.

.2 Illustration of Maximum Load Marking:



(Figure 2)



Profile (Figure 3)

CHAPTER VI

Machinery Installations and Equipment

Regulation 1
General Requirements

1 All boilers and other pressure vessels, all parts of machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings, which are under internal pressure, shall be subjected to appropriate tests including a pressure test before being put into service. Corresponding certification from the manufacturer, classification society or other recognized body has to be provided to the Administration.

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

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

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

5 Where main or auxiliary machinery, including pressure vessels or any parts of such machinery are subjected to dangerous overpressure, means shall be provided to protect against such excessive pressure.

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

7 Main turbine propulsions machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery, shall be provided with automatic shutoff arrangements in the case of failures such, as lubricating oil supply failure, which could lead rapidly to complete breakdown, serious damage or explosion. The Administration may permit provisions for overriding automatic shutoff devices.

8 Internal combustion engines of a cylinder diameter of 200 mm or crankcase volume of 0.6m^3 and above shall be provided with crankcase explosion relief area. The relief valves shall be arranged or provided with means to ensure that discharge from them is so directed as to minimize the possibility of injury to personnel.

Regulation 2
Machinery Controls

1 Main and auxiliary machinery essential for the propulsion and safety of the ship shall be provided with effective means for its operation and control.

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

.1 an electrical power generator which serves as a main source of electrical power;

.2 the sources of lubricating systems oil pressure;

.3 the fuel oil supply systems for engines;

.4 the sources of water pressure;

.5 an air compressor and receiver for standing or for control purposes;

.6 the hydraulic, pneumatic or electrical means for control in main propulsion machinery including controllable pitch propellers;

.7 steam boilers and boiler feed systems, if provided. However, the Administration, having regard to overall safety considerations may accept a partial reduction in propulsion capability from normal operation.

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

Regulation 3
Remote Control of Propulsion Machinery

1 Where remote control propulsion machinery from the navigating bridge is provided and the machinery spaces are intended to be manned, the following shall apply:

.1 the speed, direction of thrust and, if applicable, the pitch of the propeller shall be fully controllable from the navigating bridge under all sailing conditions, including maneuvering;

.2 the remote control shall be performed, for each independent propeller, by a control device so designed and constructed that its operation does not require particular attention to the operational details of the machinery. Where multiple propellers are designed to operate simultaneously, they may be controlled by one control device;

.3 the main propulsion machinery shall be provided with an emergency stopping device on the navigating bridge which shall be independent of the navigating bridge control system;

.4 propulsion machinery orders from the navigating bridge shall be indicated in the main machinery control room or at the maneuvering platform as appropriate;

.5 remote control of the propulsion machinery shall be possible only from one location at a time; at such locations interconnected control positions are permitted. At each location there shall be an indicator showing which location is in control of the propulsion machinery. The transfer of control between the navigating bridge and machinery spaces shall be possible only in the main machinery space or the main machinery control room. This system shall include means to prevent the propelling thrust from altering significantly when transferring control from one location to another;

.6 it shall be possible to control the propulsion machinery locally, even in the case of failure in any part of the remote-control system;

.7 the design of the remote-control system shall be such that in case of its failure an alarm will be given. Unless the Administration considers it impracticable the preset speed and direction of thrust of the propellers shall be maintained until local control is in operation;

.8 indicators shall be fitted on the navigating bridge for:

.1 propeller speed and direction of rotation in the case of fixed pitch propellers;

.2 propeller speed and pitch position in the case of controllable pitch propellers;

.9 an alarm shall be provided and in the machinery space to indicate low starting air pressure or low electrical power which shall be set at a level to permit further main engine starting operation. If the remote control systems of the propulsion machinery is designed for automatic consecutive attempts which fail to produce a start shall be limited in order in order to safeguard sufficient starting air pressure of adequate electrical power for starting locally. In this context, the recommendations or instructions of the manufacturers for remote controlled starting have to be observed. In case these are not available, an organization, recognized by the Administration, has to conduct tests and shall issue a certification stipulating the capacity (number of starts) of the available air pressure or electrical supply.

2 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 shall be so designed, equipped and installed that the machinery operation will be as safe and effective as if it were under direct supervision. Particular consideration shall be given to protect such spaces against fire and flooding.

Regulation 4

Periodically Unattended Machinery Spaces

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

2 Where alternative arrangements are provided the Administration shall ensure that:

.1 The safety of the ship in all conditions, including maneuvering, is equivalent to that of a ship having manned machinery spaces;

.2 Documentary evidence indicating that such arrangements are satisfactory is provided.

Regulation 5
Steam Boilers and Boiler Feed System

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

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

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

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

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

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

Regulation 6
Steam Pipe Systems

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

2 Means shall be provided for draining every steam pipe in which dangerous water hammer action might otherwise occur.

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

Regulation 7
Air Pressure Systems

1 In every ship means shall be provided to detect and prevent overpressure in any part of compressed air systems and wherever water jackets or casings of air compressors and coolers might be subjected to dangerous overpressure due to

leakage into them from air pressure parts. Suitable pressure relief arrangements shall be provided for all systems.

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

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

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

Regulation 8
Ventilation Systems in Machinery Spaces

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

2 In addition to complying with the requirements of paragraph 1, the ventilation of machinery spaces shall also be sufficient under all normal conditions to prevent accumulation of oil vapor.

Regulation 9
Protection against Noise

Measures shall be taken to reduce machinery noise in machinery spaces to acceptable levels at 85 decibel or less and as may be determined by the Administration. If this noise cannot be sufficiently reduced, the source of excessive noise shall be suitably insulated or isolated or a refuge from noise shall be provided if the space is required to be manned. Ear protectors shall be provided for personnel required to enter such spaces, if necessary. In case of ear protectors being applied, it must be made sure by appropriate optical means that an alarm will be attended to by the person in charge.

Regulation 10
Means of Going Astern

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

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

3 The stopping times, ship headings and distances recorded on trials, together with the results of trial to determine the ability of ships having multiple propellers to navigate and maneuver with one or more propellers inoperative, shall be available on board for the use of the master or designated personnel.

4 Where the ship is provided with supplementary means for maneuvering or stopping, the effectiveness of such means shall be demonstrated and recorded as referred to in paragraphs 2 and 3.

Regulation 11
Steering Gear

1 Unless expressly provided otherwise, every ship shall be provided with a main steering gear and subject to the provisions of paragraph 4, with an auxiliary means of steering the ship in the event of failure of the steering gear.

2 The main steering gear shall be of adequate strength and capable of steering the ship at maximum ahead service speed. The main steering gear and rudder stock shall be so designed that they will not be damaged at maximum astern speed.

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

4 Where the power-operated main and auxiliary steering gear units are provided:

.1 the main steering gear shall be capable of putting the rudder over from 35º on one side to 35º on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35º on either side to 30º on the other side is not more than 28 seconds;

.2 the auxiliary steering gear shall be capable of putting the rudder over from 15º on one side to 15º on the other side in not more than 60 seconds with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater;

.3 where power operated main steering gear units and the connections are fitted in duplicate and each unit complies with the provisions of paragraph 3 no auxiliary steering unit need be required.

5 The main steering power failure unit shall be arranged to restart either by manual or automatic means of power.

6 In the event of a power failure to any one of the steering gear power units, an audible and a visual alarm shall be given on the navigating bridge.

7 The angular position of the rudder, if the main steering gear is power-operated, shall be indicated on the navigating bridge. The rudder angle indication shall be independent of the steering gear control system.

8 Where a non-conventional rudder is installed, the Administration shall give special consideration to the steering system, so as to ensure that an acceptable

degree of reliability and effectiveness which is based on the provisions of these Rules and Regulations is provided.

9 A means of communication shall be provided, where necessary, between the navigating bridge and the steering gear compartment.

Regulation 12
Communication between Navigating Bridge and Machinery Spaces

1 Ships shall 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 engines are normally controlled. One of the means shall be an engine-room telegraph. The arrangement of these means shall to the satisfaction of the Administration.

2 The engine-room telegraph referred to in paragraph 1 may be dispensed with if the main propulsion engine is directly controlled from the navigating bridge under normal operating conditions.

3 In lieu of meeting the requirements of paragraph 1, ships of less than 24 m in length may be provided with only one means of communications referred to in paragraph 1, if the Administration is satisfied that, due to close proximity of the navigating bridge and the position of local control of the main propulsion machinery, two means of communication are not necessary.

4 Appropriate means of communication shall be provided to any position (other than navigating bridge) from which the engines may be controlled.

Regulation 13
Engineer's Alarm

An engineer's alarm shall be provided to be operated from the engine control room or at the maneuvering platform, as appropriate, and shall be clearly audible in the engineer's accommodation. The Administration may dispense with this requirement, if satisfied that, due to particular manning patterns adopted in the engine room or close proximity of the engine control room or the maneuvering platform and the engineer's accommodation, no engineer's alarm is necessary.

CHAPTER VII

Electrical Installations

Regulation 1
General Electrical Requirements

1 Electrical installations on ships shall comply with the requirements of this Chapter, except as provided otherwise in Regulation IV/5.

2 Electrical installations shall be such that:

.1 all electrical auxiliary services necessary for maintaining the ship in normal operational and habitable conditions will be ensured without recourse to the emergency source of electrical power;

.2 electrical services essential for safety will be ensured under various emergency conditions; and

.3 the safety of passengers, crew and ship from electrical hazards will be ensured.

Regulation 2
Safety Precautions

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

.1 supplied at a voltage not exceeding 55 V direct current or 55 V, root mean square between conductors. Auto-transformers shall not be used for the purpose of achieving this voltage; or

.2 supplied at a voltage not exceeding 250 V by safely isolating transformers supplying only one consuming device; or

.3 constructed in accordance with the principle of double insulation.

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

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

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

5 The hull return system of distribution shall not be used.

6 The requirement of paragraph 5 does not preclude under conditions approved by the Administration the use of:

.1 impressed current cathodic protective systems;

.2 limited and locally earthed systems (e.g. engine starting system);

.3 limited and locally earthed welding systems; where the Administration is satisfied that the equipotential of the structure is assured in a satisfactory manner, welding systems with hull return may be installed without restriction imposed by paragraph 5; or

.4 insulation level monitoring devices, provided the circulation current does not exceed 30mA under the most unfavorable conditions.

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

8 Earthed distribution system shall not be used. The Administration may permit the use of the following earthed system:

.1 power supplied, control circuits and instrumentation circuits where technical or safety reasons preclude the use of a system with no connection to earth, provided the current in the hull is limited to not more than 5 A in both the normal fault conditions;

.2 limited and locally earthed systems, provided that any possible resulting current does not flow directly through any of the dangerous spaces; or

.3 alternating current power network of 1000 V root mean square (line to line) and over, provided that any possible resulting current does not flow directly through any of the dangerous spaces.

9 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 shall be provided.

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

11 All electric cables and wiring external to equipment shall be at least of a flame-retardant type and shall be so installed as not to impair their original flame-retarding properties. Where necessary for particular applications the Administrations may permit the use of special types of cables such as radio frequency cables, which do not comply with the foregoing.

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

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

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

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

16 Each separate circuit shall be protected against short circuit and against overload, except the circuit for the steering gear and where the Administration may exceptionally otherwise permit. The rating or appropriate setting of the overload protective device for each circuit shall be permanently indicated at the location of the protective device.

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

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

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

20 Electrical or other equipment which may constitute a source of ignition of flammable vapors shall not be permitted in those compartments except as permitted in paragraph 22.

21 Accumulator batteries except for batteries used in self-contained battery-operated lights shall not be located in sleeping quarters except where hermetically sealed to the satisfaction of the Administration.

22 No electrical equipment shall be installed in any space where flammable mixtures are liable to collect in compartments assigned principally to accumulator batteries, in paint lockers, acetylene stores or similar spaces, unless the Administration is satisfied that such equipment is:

.1 essentials for operational purposes;

.2 of a type which will not ignite the mixture concerned;

.3 appropriate to the space concerned; and

.4 appropriately certified for safe usage in the dusts, vapors or gases likely to be encountered.

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

Regulation 3
Main Source of Electrical Power

1 A main source of electrical power of sufficient capacity to supply those services mentioned in Regulation IV/1 paragraph 2.1 shall be provided. This main source of electrical power shall consist of at least two generating sets (one could be accepted if driven by the main propulsion engine) and shall comply with the following:

.1 the capacity of these generating sets shall be such that in the event of any one generating set being stopped it will be possible to supply those services necessary to provide normal operational conditions of propulsion and safety;

.2 the arrangements of the ship's main source of electrical power shall be such that the services referred to in Regulation IV/1 paragraph 2.1 can be maintained regardless of the speed and direction of rotation of the propulsion machinery or shafting;

.3 in addition, the generating sets can be such as to ensure that with any one generator or its primary source of power out of operation, the remaining generating sets shall be capable of providing the electrical services necessary to start the main propulsion plant from a dead ship condition. The emergency source of electrical power may be used for such electrical service if its capability is sufficient to provide at the same time those services required to be supplied by Regulation IV/4 paragraph 5.

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

3 The arrangement of the main electric lighting system shall be such that a fire or other casualty in spaces containing the main source of electrical power, associated transforming equipment, if any, and the main switchboard will not render the emergency electric lighting system required by Regulation IV/4 paragraph 5 inoperative.

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

5 Ships due to its size and operation may use one (1) main source of power such as battery coupled with charging mechanism or its equivalent.

Regulation 4
Emergency Source of Electrical Power

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

2 The emergency source of electrical power, associated transforming equipment, if any, and the emergency switchboard shall be located above the uppermost continuous deck and shall be readily accessible from the open deck.

They shall not be located forward of the collision bulkhead, except where permitted by the Administration in exceptional circumstances.

3 The location of the emergency source of electrical power, associated transforming equipment, if any, the emergency switchboard in relation to the main source of electrical power, associated transforming equipment, if any, and the main switchboard shall be such as to ensure, to the satisfaction of the Administration, that a fire or other casualty in the space containing the main source of equipment, if any, and the main switchboard, or in any machinery space category A will not interfere with the supply, control and distribution of emergency electrical power.

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

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

.1 For a period of three hours, emergency lighting at every muster and embarkation station and over the sides in the way of such stations;

.2 For a period of 12 hours, emergency lighting;

.1 in all service and accommodation alleys, stairways and exits;

.2 in spaces containing propulsion machinery used for navigation, if any and main source of electrical power and their control positions;

.3 in all control stations, machinery control rooms and at each main and emergency switchboard;

.4 at all stowage positions for firemen’s outfits;

.5 at the steering gear, if any; and

.6 at the emergency fire pump and its control position;

.3 For a period of 12 hours, the navigation lights and other lights required by COLREG;

.4 For a period of 12 hours:

.1 all communication equipment required for transmission of distress and safety messages, including ship’s whistle and all internal communication equipment as required in an emergency;

.2 the fire detection and fire alarm systems; and

.3 operation of emergency of emergency fire pumps, if electrically operated.

6 In a ship regularly engaged in voyages of short duration, the Administration, if satisfied that an adequate standard of safety would be attained, may accept a lesser

period than the 12-hour period specified in sub-paragraphs 5.2 to 5.4 of this Regulation but not less than three hours.

7 The emergency source of electrical power may be either:

.1 an accumulator battery capable of carrying the emergency electrical load without recharging or excessive voltage drop; or

.2 a generator driven by a suitable prime mover with an independent fuel supply and starting to the satisfaction of the Administration.

8 Where the emergency source of electrical power is an accumulator battery, it shall be capable of automatically connecting to the emergency switchboard in the event of failure of the main source of electrical power. Where an automatic connection to the emergency switchboard is not practical, manual connection may be acceptable to the satisfaction of the Administration.

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

Regulation 5
Special Considerations

The Administration may waive any of the requirements specified in this chapter taking into account the requirements of electrical power for operating the propulsion machinery and the size of the ship.

CHAPTER VIII

Fire Protection, Detection and Extinction

Regulation 1
Application to Existing Ships

The provisions of the present chapter shall apply to existing ships, within a period not exceeding three (3) years from the date of entry into force of the present Regulations, where they are regarded by the Administration as necessary and reasonable.

Regulation 2
General

1 Unless provided otherwise under the present chapter, the provisions on fire protection shall comply with the Fire Safety System Code, as amended, adopted by the IMO Maritime Safety Committee in Resolution MSC. 98 (73) and its subsequent amendments.

2 When the nature and conditions of the voyage are such that the application of the present Regulations is neither necessary nor reasonable, the Administration may adopt alternative arrangements if it is satisfied that they are as effective as the measures set out in the present chapter.

Regulation 3
Types of bulkhead

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

2 "A 30" class divisions are those divisions formed by bulkheads and decks which comply with the following:

.1 They shall be constructed of steel or other equivalent material;

.2 They shall be suitably stiffened;

.3 They shall be so constructed as to be capable of preventing the passage of smoke and flame to the end of the one-hour standard fire test;

.4 They shall be insulated with approved non-combustible materials such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature, at any one point, including any joint, rise more than 180°C above the original temperature, within a period of 30 minutes.

3 "F" class divisions are those divisions formed by bulkheads, decks, ceilings and linings which comply with the following

.1 They shall be so constructed as to be capable of preventing the

passage of flame to the end of the first half-hour of the standard fire test;

.2 They shall have an insulation value such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature, at any one point, including any joint, rise more than 225°C above the original temperature, to the end of the first half-hour of the standard fire test;

4 Divisions (decks and bulkheads) which separate machinery spaces in category A from cargo spaces, accommodation, service area, control stations shall be as far as possible:

.1 of A.30 class for ships constructed of steel or equivalent material including aluminum alloys;

.2 of F class for ships constructed of combustible materials.

A subdivision may be accepted as equivalent to an A class division if it consists of:

.1 a steel panel coated with 50 mm of mineral wool; or

.2 an aluminum panel coated with 80 mm or two separate layers of 40 mm of mineral wool.

A subdivision may be accepted as equivalent to an F class division if it consists of a combustible wall coated with a layer of 100 mm or two separate layers of 50 mm of mineral wool.

The mineral wool shall have a voluminal mass of at least 96 kg/m^3.

The external surface of the mineral wool shall be suitably protected against splashes of oil and other flammable liquids.

5 The insulation shall extend downwards from the deck, over the hull, to a depth of 500 mm for a ship of steel and to the lightship water line for a ship constructed of another material.

6 Stairways which serve several decks shall be encased in bulkheads of steel or equivalent materials or F class materials.

7 In the case of F class bulkheading, the bulkheading around machinery spaces in category A shall prevent the passage of smoke.

8 Bulk heading shall only possess the characteristics of A.30 or F class bulk heading, as appropriate in respect of a fire arising in the machinery space.

9 Doors and hatches of other openings in bulkheads shall be constructed such as to maintain the integrity of the bulkheads in which they are located.

10 Bulkheads around galleys shall be of steel or equivalent material or F class bulkheading.

11 Stairways, escape companionways, etc., shall have a steel frame and, if they serve several decks, they shall be protected by a casing of steel or equivalent material or F class material. They shall have at least one closure as required by paragraph 5 to prevent fire spreading from one deck to another.

12 Pipes, ducts and controls which pass through a fire-resistant bulkhead

shall not reduce its resistance to fire.

13 The Administration may exempt ships from some requirement of the present Regulation, if it considers that such requirement is neither reasonable nor necessary taking into account the navigation in which such ships engage.

Regulation 4
Fire Prevention

1 Paints, varnishes or other substances with a nitro-cellulose or toxic base, or highly flammable products shall not be used.

2 Precautions shall be taken to avoid combustible substances or vapors coming into contact with parts reaching elevated temperatures. In particular:

.1 Arrangements shall be made to ensure that sparks or flames from smoke ducts such as those of cooking or heating appliances cannot penetrate ventilation ducts;

.2 Thermal insulation shall be provided in cargo spaces, fuel bunkers, control stations, accommodation and service areas for walls reaching high temperature such as boilers, smoke ducts, extraction ducts or galley chimneys;

.3 Appliances with naked flames or unprotected resistors for lighting and heating of accommodation shall be prohibited;

.4 Electric Cable shall comply with the requirements of Chapter IV.

3 Insulation materials shall be approved by the appropriate authority.

4 The fixing of combustible parts less than 60 cm from appliances such as ovens and furnaces shall be prohibited unless special precautions are taken to insulate them.

5 Materials readily rendered ineffective by heat shall not be used for overboard scuppers, discharges which are close to the water line or for accessories whose destruction in the event of fire would give rise to a risk of flooding.

6 Oil or oil fuel pipes shall be of steel or other authorized materials taking into account the risk of fire.

7 Air extraction ducts from bunkers and tanks containing combustible liquids shall be fitted with an effective fire-screen capable of being easily cleaned and which shall not significantly reduce the effective diameter of the air duct and shall comply with the provisions of paragraph 6.

8 Mechanical ventilation of closed ro-ro cargo spaces carrying motor vehicles with fuel in their tanks for their own propulsion and machinery spaces, if any, shall be capable of being stopped from a point easily accessible and identifiable located outside such spaces.

9 Ventilation ducts serving cargo spaces, closed ro-ro cargo spaces and machinery spaces shall be provided on their upper parts with non-combustible means of closing.

10 Other openings in machinery spaces shall be capable of being closed from outside those spaces.

Regulation 5

Arrangements for Combustible Fuel, Lubricating Oil and Other Flammable Oils

1 No combustible liquid shall be used as fuel whose flashpoint, determined by an approved test, is less than 60°C (closed crucible test), except in emergency generators, in which case the flashpoint shall be not less than 43°C.

2 Safe and efficient means of ascertaining the amount of fuel contained in any tank shall be provided. If such means consist of sounding pipes, their upper ends shall be located in safe positions and fitted with appropriate shutoff devices.

3 If an oil-level gauge is used, it shall be fitted with a self-closing control cock at each end. All cocks shall be fixed directly to the walls of the tank.

4 The use of plastics for oil-level gauges is prohibited.

5 The use of refracting glass oil-level gauges is permitted provided that a protection against shocks is installed. Tighteners shall be fitted to prevent disconnection of oil-level gauges.

6 Precautions shall be taken to prevent any overpressure on tanks or in any part of the fuel supply system, including filling pipes. Outlet valves and air or overflow pipes shall discharge the fuel into a safe place in such a way that it gives rise to no danger.

7 Subject to approval by the Administration, fuel pipes which, if damaged, would allow oil to escape from storage, settling or daily service tank situated above the double bottom, shall be fitted with a cock or valve directly on the tank capable of being closed from a safe position outside the space concerned in the event of fire occurring in the space in which such tanks are situated. In the special case of deep tanks situated in any shaft or pipe tunnel or similar spaced, valves shall be fitted on the deep tanks but control in the event of fire shall be capable of being effected by means of an additional valve on the pipe or pipes outside the tunnel or similar space. If such additional valve is fitted in the machinery space it shall be operated from a position outside this space.

8 Pumps which form part of the oil fuel lines shall be separate from any other lines and the inversion of the flow of such pumps shall be fitted with an effective, closed circuit, outlet valve.

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

10 Oil fuel pipes and their valves and fittings shall be of steel or other approved material, except that the restricted use of flexible pipes may be permitted by the appropriate authority. Such flexible pipes and end attachments shall be of approved fire-resisting materials or coated with fire-resisting coatings, to the satisfaction of the appropriate authority.

11 When necessary, oil fuel lines shall be screened or otherwise suitably protected to avoid, as far as practicable, oil spray or oil leakages on to hot surfaces or into machinery air intakes. The number of joints in such piping systems shall be kept to a minimum.

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

13 The arrangements for the storage, distribution and utilization of oil used in the pressure lubrication systems shall be considered satisfactory by the appropriate authority. The arrangements made in machinery spaces of category A, and whenever practicable in other machinery spaces, shall at least comply with the provisions of paragraphs 1, 3, 6 and 7 and, in so far as the appropriate authority considers it to be necessary, with the provisions of paragraph 2 and 4. The use of sight-flow glasses in lubricating systems shall be permitted provided that they are shown by tests to have a suitable degree of fire resistance.

14 The arrangements for the storage, distribution and utilization of flammable oils other than those specified in paragraph 10 employed under pressure in power transmission systems, control and drive systems and heating systems shall be considered satisfactory of the appropriate authority. In locations where means of ignition are present, such arrangements shall at least comply with the provisions of paragraphs 2 and 6, and with the provisions of paragraphs 3 and 7 in respect of strength and construction.

15 Oil fuels, lubricating oils and other flammable oils shall not be carried in forepeak tanks. Furthermore, oil fuels shall not be stored forward of the collision bulkhead or its extension.

Regulation 6

Storage and Use of Oil Fuels

1 Air outlet pipes in oil fuel compartments and tanks shall terminate with an S-bend with a close-mesh metal cowl and a detachable closing device. A hole of 5 to 6 mm in diameter shall be pierced in the closing device.

The closing device may be replaced by a system such as an automatic ball-valve if it provides equivalent safety.

2 Compartments intended to contain oil fuels with a flashpoint less than 60°C but not less than 43°C shall be insulated from continuous compartments intended for liquids or oil fuels with different flashpoints by cofferdams with air pipes and sounding pipes.

3 Oil fuels with a flashpoint less than 60°C but not less than 43°C may be used subject to the agreement of the Administration to supply emergency fire-pump motors and auxiliary motors which are not situated in machinery spaces.

Regulation 7

Pressurized Water Fire-Extinguishing Systems

1 Any pressurized water fire-extinguishing system, required to be installed by the present chapter, shall consist of pipes fed by one or more pumps and serving nozzles through hydrants and hoses.

2 Fire pumps

.1 Except as otherwise provided in the present chapter, fire pumps shall be mechanically driven by motors independent of the propulsion machinery.

.2 Sanitary, ballast and bilge pumps, as well as general service pumps may be regarded as fire pumps, provided that they are not normally used for extraction of oil fuel.

.3 Fire pumps shall be fitted with safety valves if they are capable of operating at a pressure exceeding that for which the pipes and their attachments have been calculated and tested.

.4 Each mechanically powered pump, where required to be fitted by the present chapter, shall be capable of delivering for fire-fighting purposes a quantity of water, at the pressure specified in paragraph 3.2, not less than two-thirds of the quantity required to be dealt with by a bilge pump under the provisions of Regulation 4 of Chapter IV of BOOK I General Provision.

3 Fire mains

.1 The diameter of the fire main shall be sufficient for the effective distribution of the maximum discharge of one fire pump.

.2 Where a fire pump delivers the quantity of water specified in subparagraph 3.1 above through any adjacent fire hydrants, a pressure of at least 0.21 N/mm^2 (2.1 kg/cm^2) shall be maintained at all hydrants affected.

.3 The arrangement of the fire main shall be such that it is capable of delivering water very rapidly. The controls shall be easy to operate and readily accessible.

4 Pipes and hydrants

.1 The number and position of hydrants shall be such that at least one jet of water may 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.

.2 Pipes and hydrants shall be so placed that the fire hoses may be easily coupled to them. In ships where deck cargo may be carried, the positions of the hydrants shall be such that they are readily accessible and the pipes shall be arranged as far as practicable to avoid risk of damage by such cargo.

.3 Cocks or valves shall be fitted to pipes such that any of the hydrants may be shut off while the pumps are in operation and continue to

supply other hoses connected to other hydrants.

.4 Fire hoses of materials readily affected by heat shall not be used unless suitably protected.

5 Hoses and nozzles

.1 Fire hoses shall be of approved materials. They shall not exceed fifteen (15) meters in length. Hoses shall be fitted with the necessary couplings and attachments.

.2 On open decks, a hose shall not be required for each hydrant, but the number of hoses installed shall be sufficient, in the area concerned, such that the jet required by the present Regulation can be delivered in all circumstances.

.3 Fire hoses and their attachments shall be maintained in a permanently serviceable condition.

.4 The diameter of nozzles (full jet) shall be not less than 10 mm.

.5 All nozzles shall be fitted with a shutoff device, as well as a sprinkler jet.

Regulation 8
Fixed Fire Extinguishing System

1 A fixed fire-extinguishing system required in this Regulation may be any of the following systems:

.1 A fixed gas fire-extinguishing system complying with the provisions of the Fire Safety Systems Code.

.2 A fixed high-expansion foam fire-extinguishing system complying with the provisions of the Fire Safety Systems Code.

.3 A fixed pressure water-spraying fire-extinguishing system complying with the provisions of the Fire Safety Systems Code.

2 Where a fixed fire-extinguishing system not required by this Regulation is installed, it shall meet the requirements of the relevant regulations of this Regulations and the Fire Safety Systems Code.

3 Fixed halogenated hydrocarbon fire-extinguishing systems shall not be used.

Regulation 9
Gas Fire-Extinguishing Systems

1 The use of a fire-extinguishing medium which under expected conditions of use, gives off toxic gases in such quantities as to endanger persons on board shall not be permitted.

The fire extinguishing systems shall be started by a deliberate manual operation.

2 The pipes for conveying the fire-extinguishing medium into protected spaces shall be provided with control valves:

.1 For which the spaces to which the pipes are led are clearly indicated;

.2 Where the open or closed position may be readily checked; and

.3 Which can only be operated locally (no remote control).

3 Means of manually activating chambers by percussion. In such case, the control shall be exercised from the spaces where the extinguishing medium is placed, except when it is placed in a protected space.

4 The piping shall be so positioned as to ensure efficient distribution of the gas. It shall be tested according to the regulations of an approved classification society.

5 Means shall be provided to close all openings which may admit air or allow gas to escape from a protected space. The ventilation of the protected space shall be shut off automatically or manually before the discharge of the extinguishing medium.

6 Verification

.1 The operation of percussion devices and valves shall be periodically checked, as well as the quantity of gas available and the general state of the system.

.2 Means shall be provided for safe blowing of the pipes leading from the control valves, one by one.

.3 Means shall be provided for the crew to safely check the quantity of gas in the chambers.

7 Quantity of gas

To determine the quantity of gas, in cases where the safety valves or other safety devices on the air chambers to start the motors discharge within machinery spaces, the gross volume taken into account in calculating the minimum concentration of gas shall be increased by the volume of free air relating to such chambers.

8 Alarm

.1 A sound signal shall announce the release of the extinguishing medium in any space in which personnel normally work or to which they have access.

.2 The signal shall be supplied by the emergency source of power and shall be distinct from any other alarm.

.3 The time between the giving of the alarm and the arrival of the gas in the protected space shall be such as to allow people to escape from the protected space. The system should be checked periodically to ensure that it is in good working order.

9 The means of control of any fixed gas fire-extinguishing system shall be readily accessible, simple to operate and shall be grouped together at positions where they are not likely to be cut off by a fire in the protected space and shall have clear instructions relating to the operation of the system having regard to the safety of personnel.

10 Where several locations are protected by the same system, the quantity of gas shall be sufficient for the largest of those locations. Several locations which are

not completely separate from each other shall be regarded as forming a single location.

11 Pressurized gas fire-extinguisher chambers shall be approved by the appropriate authority and tested every ten years.

12 Pressurized gas fire-extinguisher chambers shall not be positioned forward of the collision bulkhead.

They shall be kept in locations reserved exclusively for that purpose, situated in a safe readily accessible and well ventilated position. Any entrance to such locations shall preferably be from the open deck and in any case shall be separate from the entrance to the protected space. Access doors shall open outwards. Bulkheads, decks and doors which form the boundaries between such places and adjoining closed spaces shall be of steel or equivalent material or F class except when such chambers are installed above the freeboard deck.

All access doors to the locations of chambers shall carry a sign clearly showing the type of extinguishing medium and the notice "Danger".

13 The air in the protected place shall be changed, after extinction of the fire, within a period compatible with the safety of the ship.

14 Carbon dioxide systems

For machinery spaces the quantity of carbon dioxide delivered by the piping shall be sufficient to give a minimum volume of free gas equal to 30% of the gross volume of the largest machinery space so protected, including the housing.

The volume of free carbon dioxide shall be calculated as 0.56 m^3/kg.

The fixed piping shall be such that 85% of the gas can be discharged into the space within 2 minutes.

Regulation 10

Fixed High-Expansion Foam Fire-Extinguishing Systems in Machinery Spaces

1 Any required fixed high-expansion fire extinguishing systems in machinery spaces shall be capable of rapidly discharging through fixed discharge outlets a quantity of foam sufficient to fill the greatest space to be protected at a rate of at least 1 m in depth per minute, after deducting the volumes of the plant or equipment, or 1.5 m in depth if such volumes are not deducted.

The quantity of foam-forming liquid available shall be sufficient to produce a volume of foam equal to five times the volume of the largest space to be protected. The expansion ratio of the foam shall not exceed 1,000 to 1.

The Administration may permit alternative arrangements and discharge rates provided that it is satisfied that equivalent protection is achieved.

2 Supply ducts for delivering foam, intakes to the foam generator and the number of foam-producing units shall in the opinion of the Administration be such as will provide effective foam production and distribution.

3 Foam-producing units shall be of an approved type.

4 The arrangement of the foam generator delivery ducting shall be such that a fire in the protected space will not affect the foam generating equipment.

5 The foam generator, its sources of power supply, foam-forming liquid and means of controlling the system shall be readily accessible and simple to operate and shall be grouped in as few locations as possible at positions not likely to be cut off by a fire in the protected spaced.

Regulation 11

Fixed Pressure Water-Spraying Fire-Extinguishing Systems in Machinery Spaces

1 Any required fixed pressure water-spraying fire-extinguishing system in machinery spaces shall be provided with sprinkler jets of an approved type.

2 The number and arrangement of the sprinkler jets shall be to the satisfaction of the Administration and shall be such as to ensure an effective average distribution of water of at least 5 liters per square meter per minute in the spaces to be protected. This distribution may be reduced to 3.5 liters per square meter per minute when the ceiling height of the space to be protected is less than 2.5 meters.

3 The system may be divided into sections, the distribution valves of which shall be operated from easily accessible positions outside the spaces to be protected and not likely to be rapidly cut off by a fire in the protected space.

4 The pump shall be capable of simultaneously supplying at the necessary pressure all sections of the system in any one space to be protected. The pump and its controls shall be installed outside the space or spaces to be protected. It shall not be possible for a fire in the space or spaces protected by the water-spraying system to put the system out of action.

5 The pump may be driven by an independent internal combustion engine. If, however, it is dependent upon power being supplied from the emergency generator fitted in compliance with the provisions of Chapter IV, that source shall be readily accessible and simple to operate in the event of failure of the main source of electrical power. When the pump is driven by an independent internal combustion engine it shall be so situated that a fire in the protected space will not affect the air supply to the engine.

6 Precautions shall be taken to prevent the sprinkler jets from becoming clogged by impurities in the water or corrosion of piping, jets, valves and pump.

Regulation 12

Fire Protection

1 Pressurized water extinguishing systems

.1 A fire main shall be provided in compliance with the requirements of Regulation 7.

.2 The fire system shall be supplied by a main pump situated in the propulsion machinery space and an independent emergency pump. Such pumps shall comply with the requirements of Regulation 7.

.3 The main pump may be coupled to the propulsion machinery, in which case it shall have a clutch mechanism.

.4 In the case of multi-hulled ships with two independent propulsion

spaces, the main pump and emergency pump referred to in paragraph 1.2 may be replaced by two fire pumps with a clutch mechanism coupled to each propulsion engine and supplying the same fire main.

.5 In addition to the hose and nozzle referred to in paragraph 6, at least two hoses with nozzles shall be provided.

.6 The following shall be installed in the propulsion space:

.1 a fire hydrant permanently coupled to a hose with a nozzle; and

.2 a receptacle containing a powdery material such as sand or sawdust impregnated with caustic soda and a shovel. A portable extinguisher of an approved type may be accepted as an equivalent.

2 Machinery spaces

In addition to the provisions of paragraph 1, machinery spaces containing oil-fired fuel, oil fuel units or internal combustion machinery for the purposes of propulsion of ships shall be provided, to the satisfaction of the Administration, with any one of the following fixed fire- extinguishing systems:

.1 a gas system complying with the provisions of Regulation 9.

.2 a high-expansion foam system complying with the provisions of Regulation 10.

.3 a pressure water-spraying system complying with the provisions of Regulation 11.

Regulation 13
Fixed Fire Detection and Alarm Systems in Propulsion Machinery Spaces

1 A fixed fire detection system of an approved type shall be installed in spaces containing internal combustion machinery used for the main propulsion of ships.

2 The detectors shall be operated by smoke or other products of combustion and initiate an audible and visual alarm, distinct from any other device that does not indicate a fire, to the wheelhouse.

3 The system shall be tested to the satisfaction of the Administration.

Regulation 14
Fire Extinguishers

1 All fire extinguishers shall be of an approved type.

2 A portable foam applicator unit shall consist of an air-foam nozzle of an inductor-type capable of being connected to the main by a fire hose, together with a portable tank containing at least 20 liters of foam-making liquid and one spare tank. The nozzle shall be capable of producing effective foam suitable for extinguishing an oil fire, at the rate of 1.5 m^3/min.

3 One of the portable fire extinguishers intended for use in any space shall be stowed near the entrance to that space, preferably outside.

4 The number of spare charges shall be determined by the Administration to the extent that recharging of used extinguishers may be effected.

5 Ships shall be provided with at least three portable extinguishers, at least one of which being appropriate to extinguish an oil fire.

Regulation 15
Fire Drills

Fire drills shall be conducted under the same conditions as those required by Regulation 3 of Chapter VI, in order to check the condition of fire-fighting equipment and train the crew in its use.

Regulation 16
Ready Availability of Fire-Extinguishing Appliances

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

2 Equipment and systems shall be subject to periodic tests to ensure that they are in good working order or special checks depending on their nature, at least once a year. The date and purpose of such inspections shall be recorded in a maintenance and test log, and noted in the ship's log.

Regulation 17
Substitutes

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

Regulation 18
Carriage of Dangerous Goods

The provisions of Chapter VII of the SOLAS Convention shall apply to the carriage of dangerous goods in containers.

Regulation 19
Detection and Alarm

1 Fire Detection System

.1 Areas of major and moderate fire hazard and other enclosed spaces not regularly occupied within public spaces such as toilets, stairway enclosures, corridors and escape routes shall be provided with an approved automatic smoke detection system and manually operated call points to indicate at the control station the location of outbreak of a fire in all normal operating conditions of the installations. Detectors operated by heat instead of smoke may be installed in galleys.

.2 Main propulsion machinery room(s) shall in addition have detectors sensing other than smoke and be supervised by CCTV cameras monitored from the operating compartment. Manually operated call points shall be installed throughout the public spaces, corridors and stairway enclosures, service spaces and where necessary control stations. One manually operated call point shall be located at each exit from these spaces and from areas of major fire hazard.

2 General requirements

.1 Any required fixed fire-detection and fire alarm system with manually operated call points shall be capable of immediate operation at all times.

.2 Power supplies and electric circuits necessary for the operation of the system shall be monitored for loss of power or fault conditions as appropriate. Occurrence of a fault condition shall initiate a visual and audible fault signal at the control panel which shall be distinct from a fire signal.

.3 There shall be not less than two sources of power supply for the electrical equipment used in the operation of the fixed fire-detection and fire alarm system, one of which shall be an emergency source. The supply shall be provided by separate feeders reserved solely for that purpose. Such feeders shall run to an automatic change-over switch situated in or adjacent to the control panel for the fire-detection system.

.4 Detectors and manually operated call points shall be grouped into sections. The activation of any detector or manually operated call point shall initiate a visual and audible fire signal at the control panel and indicating units. If the signals have not received attention within two minutes an audible alarm shall be automatically sounded throughout the crew accommodation and service spaces, control stations and machinery spaces. There shall be no time delay for the audible alarms areas when all the control stations are unattended. The alarm sounder system need not be an integral part of the detection system.

.5 The control panel shall be located in the operating compartment or in the main fire control station.

.6 Indicating units shall, as a minimum, denote the section in which a detector or manually operated call point has operated. At least one unit shall be so located that it is easily accessible to responsible members of the crew at all times, when at sea or in port, except when the ships is out of service. One indicating unit shall be located in the operating compartment if the control panel is located in the space other than the operating compartment.

.7 Clear information shall be displayed on or adjacent to each indicating unit about the spaces covered and the location of the sections.

.8 Where the fire-detection system does not include means of remotely identifying each detector individually, no section covering more than one deck within public spaces, corridors, service spaces and control

stations shall normally be permitted except a section which covers an enclosed stairway. In order to avoid delay in identifying the source of fire, the number of enclosed spaces included in each section shall be limited as determined by the Administration.

.9 A section of fire detectors which covers a control station, a service space, a public space, and corridor or stairway enclosure shall not include a machinery space of major fire hazard.

.10 Detectors shall be operated by heat, smoke or other products of combustion, flame, or any combination of these factors. Detectors operated by other factors indicative of incipient fires may be considered by the Administration provided that they are no less sensitive than such detectors. Flame detectors shall only be used in addition to smoke or heat detectors.

.11 Suitable instructions and component spares for testing and maintenance shall be provided.

.12 The function of the detection system shall be periodically tested by means of equipment producing hot air at the appropriate temperature, or smoke or aerosol particles having the appropriate range of density or particle size, or other phenomena associated with incipient fires to which the detector is designed to respond. All detectors shall be of a type such that they can be tested for correct operation and restored to normal surveillance without the renewal of any component.

.13 The fire-detection system shall not be used for any other purpose, except that closing of fire doors and similar functions may be permitted at the control panel.

3 Installation requirements

.1 Manually operated call points shall be readily accessible in the corridors of each deck such that no part of the corridor is more than 20 m from a manually operated call point.

.2 Where a fixed fire-detection and fire alarm system is required for the protection of spaces other than stairways, corridors and escape routes, at least one detector shall be installed in each such space.

.3 The maximum spacing of detectors shall be in accordance with the table below:

Type of detector	Maximum floor area per detector	Maximum distance apart between centers	Maximum distance away from bulkheads
Heat	37 m^2	9 m	4.5 m
Smoke	74^2	m	1.1 m

.4 The Administration may require or permit other spacing based upon test data which demonstrate the characteristics of the detectors.

.5 Electrical wiring which forms parts of the system shall be so arranged as to avoid machinery spaces of major fire hazard, and other enclosed

spaces of major fire hazard except, where it is necessary, to provide for fire detection or fire alarm in such spaces or to connect to the appropriate power supply.

4 Design Requirements

.1 The system and equipment shall be suitably designed to withstand supply voltage variation and transients, ambient temperature changes, vibration, humidity, shock, impact and corrosion normally encountered in ships.

.2 Smoke detectors shall be installed in spaces within the sensitivity limits to the satisfaction of the Administration having regard to the avoidance of detector insensitivity or over-sensitivity.

.3 At higher temperature rates of temperature rise, the heat detector shall operate within temperature limits having regard to the avoidance of detector insensitivity or over sensitivity.

.4 At the discretion of the Administration, the permissible temperature of operation of heat detectors may be increased to 30 degrees Celsius above the maximum deckhead temperature in drying rooms and similar spaces of a normal high ambient temperature.

.5 Flame detectors shall have a sensitivity sufficient to determine flame against an illuminated space background and a false signal identification system.

5 Fire detection for periodically unattended/unmanned machinery spaces

.1 A fixed fire-detection and fire alarm system for periodically unattended machinery spaces shall comply with the following requirements:

.1 The fire-detection system shall be so designed and the detectors so positioned as to detect rapidly the onset of fire in any part of those spaces and under any normal conditions of operation of the machinery and variations of ventilation as required by the possible range of ambient temperatures. Except in spaces of restricted height and where their use is specially appropriate, detection systems using only thermal detectors shall not be permitted. The detection system shall initiate audible and visual alarms distinct in both respects from the alarms of any other system not indicating fire, in sufficient places to ensure that the alarms are heard and observed on the navigating bridge and by a responsible engineer officer. When the operating compartment is unmanned the alarm shall sound in a place where a responsible member of the crew is on duty.

.2 After installation, the system shall be tested under varying conditions of engine operation and ventilation.

.2 A fixed fire detection system of an approved type shall be installed in spaces containing internal combustion machinery used for the main propulsion of ships.

.3 The detectors shall be operated by smoke or other products of combustion and initiate an audible and visual alarm, distinct from any other device that does not indicate a fire, to the wheelhouse.

6 The system shall be tested to the satisfaction of the Administration.

Regulation 20
Portable Fire Extinguishers

1 Control stations, public spaces, corridors and service spaces shall be provided with portable fire extinguishers of approved type and design. At least five (5) portable extinguishers shall be provided, and so positioned, as to be readily available for immediate use.

2 In addition, at least one extinguisher suitable for machinery space fires shall be positioned outside each machinery space entrance.

Regulation 21
Fire-fighters Fireman's Outfit

1 All ships shall carry at least one firefighter's outfits complying with the requirements of paragraph 4.

2 The Administration may require additional sets of personal equipment and breathing apparatus, having due regard to the size and type of the ships.

3 The firefighter's outfits or sets of personal equipment shall be so stored as to be easily accessible and ready for use and, where more than one firefighter's outfit or more than one set of personal equipment is carried, they shall be stored in widely separated positions.

4 A firefighter's outfit shall consist of:

.1 Personal equipment comprising:

.1 Protective clothing of material to protect the skin from the heat radiating from the fire and from burns and scalding by steam or gases. The outer surface shall be water-resistant;

.2 Boots and gloves of rubber or other electrically non-conductive material;

.3 A rigid helmet providing effective protection against impact;

.4 An electric safety lamp (hand lantern) of an approved type with a minimum burning period of 3 hrs; and

.5 An axe.

.2 A breathing apparatus of an approved type which may be either:

.1 A smoke helmet or smoke mast, which shall be provided with a suitable air pump and a length of air hose sufficient to reach from the open deck, well clear of hatch or doorway, to any part of the holds or machinery spaces. If, in order to comply with this subparagraph, an air hose exceeding 36 m in length would be necessary, a self-contained breathing apparatus shall be

substituted or provided in addition, as determined by the Administration; or

.2 A self-contained compressed-air-operated breathing apparatus the volume of air contained in the cylinders of which shall be at least 1,200 l, or other self-contained breathing apparatus, which shall be capable of functioning for at least 30 min. A number of spare charges, suitable for use with the apparatus provided, shall be available on board.

.3 For each breathing apparatus a fireproof lifeline of sufficient length and strength shall be provided capable of being attached by means of a snap hook to the harness of the apparatus or to a separate belt

Regulation 22
Control of Smoke Spread

1 Release of smoke from machinery spaces:

.1 The provisions of this paragraph shall apply to machinery spaces of category A and, where the Administration considers it desirable, to other machinery spaces.

.2 Suitable arrangements shall be made to permit the release of smoke, in the event of fire, from the space to be protected, subject to the number of skylights, doors, ventilators, openings in funnels to permit exhaust ventilation and other openings to machinery spaces shall be reduced to a minimum consistent with the needs of ventilation and the proper and safe working of the ship. The normal ventilation systems may be acceptable for this purpose.

.3 Means of control shall be provided for permitting the release of smoke and such controls shall be located outside the space concerned so that they will not be cut off in the event of fire in the space they serve.

Regulation 23
Fire Control Plan

1 All passenger ship shall be provided a permanently exhibited fire control plan duly approved by the Administration.

2 Fire control plan shall be kept up-to-date. Description in such plan shall be in the English language.

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

Regulation 24
Notification of Crew and Passengers

1 General emergency alarm system

All ship shall be provided with a general emergency alarm system approved by the Administration which will be used for notifying crew and passengers of a fire.

2 Public address system

A public address system or other effective means of communication shall be available throughout the accommodation and service spaces and control stations and open decks.

3 Provision shall be made on board for embarkation station to be properly equipped for evacuation of passengers into life-saving appliances. Such provision shall include handholds, anti-skid treatment of the embarkation deck, and adequate space which is clear of cleats, bollards and similar fittings.

Regulation 25
Means of Escape

1 In order to ensure immediate assistance from the crew in an emergency situations, the crew accommodation, including any cabins, shall be located with due regard to easy, safe and quick access to the public spaces from inside the ships. For the same reason, easy, safe and quick access from the operating compartment to the public spaces shall be provided.

2 The design of the ships shall be such that all occupants may safety evacuated the ships into survival crafts under all emergency conditions, by the day or by night. The positions of all exists which may be used in an emergency and of all life saving appliances, the practicability of the evacuation procedure, and evacuation time to evacuate all passengers and crew shall be demonstrated.

3 Public spaces, evacuation routes, exits, lifejacket stowage (under passenger seats), survival crafts stowage, and the embarkation stations shall be clearly and permanently marked and illuminated.

4 Each enclosed public space and similar permanently enclosed space allocated to passengers or crew shall be provided with at least two exits, as widely separated as practical. All exits shall clearly indicate the directions to the evacuation station and safe areas.

.1 Exit doors shall be capable of being readily operated from inside and outside the ships in daylight and in darkness. The means of operation shall be obvious, rapid and of adequate strength. Doors along escape route should where appropriate, open in the direction of escape flow from the space served.

.2 The ships shall have sufficient number of exits which are suitable to facilitate the quick and unimpeded escape of persons wearing approved lifejackets in emergency conditions, such as collision damage or fire.

.3 Sufficient space for a crew member shall be provided adjacent to exits for ensuring the rapid evacuation of passengers.

.4 All exits, together with their means opening, shall be adequately marked for the guidance of passengers, Adequate marking shall be provided for the guidance of rescue personnel outside the ships.

.5 The width of corridor, doorways and stairways which form part of the evacuation path shall be not less than 900 800 mm for passenger ships. This width may be reduced to 600mm for corridors, doorways, and stairways, serving spaces where persons are not normally employed. There shall be no protrusions in evacuation paths which could cause injury, ensnare clothing, damage lifejackets or restrict evacuation.

Regulation 26
Evacuation Time

1 The provisions for evacuation shall be designed such that the ship can be evacuated under controlled conditions in a time of one third of the structural fire protection time for areas of major fire hazard after subtracting a period of 7 min for initial detection and extinguishing action.

$$\text{Evacuation time} = \frac{(SFP - 7)}{3} \text{ (min)}$$

2 The evacuation time shall be verified by an evacuation demonstration which shall be performed using the survival crafts and exits on one side, for which the evacuation analysis indicates the greatest evacuation time, with the passengers and crews allocated to them.

Regulation 27
Fire Protection Requirements for Ships of Less Than 24 Meters

1 The minimum number of portable fire extinguishers on board shall be as follows:

Length of Vessel	**Number of Extinguishers**
Not over 10 m	2
Over 10 m but not over 15 m	3
Over 15 m but not over 24 m	5
Over 24 m	*

*The ship's approved fire control plan shall be the basis in determining the minimum number of portable fire extinguishers required.

2 All ship shall be provided with fire buckets as follows:

.1 At least three fire buckets shall be provided which shall be of a material which is not readily flammable. They shall be painted red, clearly marked with the word "FIRE" and provided with lanyards of sufficient length, having regard to the size of the ship;

.2 The capacity of each of the fire buckets referred to in this part shall be at least nine liters;

.3 Fire buckets provided in compliance with this Regulation shall not be used for any other purpose than extinguishing fire;

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

CHAPTER IX

Life-Saving Appliance

Regulation 1
General Requirements

1 Life-saving appliances and equipment shall be of the approved type and shall be acquired from an accredited manufacturer/supplier or serviced by an accredited servicing entity. Life-saving appliances and equipment on board ships acquired from abroad must also be type-approved and proof thereof to be checked and certified by the Administration.

2 In areas where the approval of the Administration is impracticable, a surveyor from the Administration shall conduct actual testing of the rigid life raft, buoyant apparatus and life jacket. The surveyor shall provide a description of the appliances and equipment and the testing made indicating there in the observations and findings resulting from the testing conducted and should be recorded in the log book provided by the company

3 The Administration may, if it considers that the sheltered nature and conditions of the voyage are such as to render the application of any specific requirements of this Regulation unreasonable or unnecessary. Approved alternative specifications that are considered equally effective under circumstances may be allowed.

4 Where novel life-saving appliances or arrangements are to be approved, the Administration shall ensure that they provide the same safety standards as specified herein and such appliances and arrangements are evaluated and tested in accordance with the recommendations of the Organization.

Regulation 2
Rationalized Safety Requirements

1 Lifeboats, liferafts, lifefloats, lifebuoy, buoyant apparatus and life preservers shall be readily available in case of emergency and shall be kept in good working order and ready for immediate use at all times when the ship is being navigated, or in so far as reasonable and practicable when the ship is, not being navigated.

2 Type-approved lifejackets shall be provided in each and every passenger accommodation, which shall be stored or located within reach of the passengers and can be used immediately at the time of emergency.

3 The decks on which lifeboats, liferafts, lifefloats, buoyant apparatus and life preservers are carried shall be kept clear of cargo or any other obstructions which may interfere with the immediate launching of the life-saving appliances.

4 Sufficient ladders, as applicable, shall be provided to facilitate embarkation into the lifeboats and liferafts when waterborne;

5 Lifeboats, liferafts, lifefloats buoyant apparatus, life preservers and lifebuoys shall be clearly marked with the name of the ship as well as the approved maximum number of persons for each applicable life-saving appliances.

6 Lifeboats, liferafts, lifefloats, buoyant apparatus and preservers shall be stored in such a manner that:

.1 They are capable of being launched in the shortest possible time;

.2 They shall not impede the launching or handling of other lifesaving appliances;

.3 They shall not impede the marshalling of persons at the embarkation stations or their embarkation; and

.4 They shall be capable of being put in the water safely and rapidly even under unfavorable condition of list and trim.

7 Lifejackets shall be provided in every passenger accommodation:

.1 Passenger accommodation with lying/bunker arrangements - lifejackets shall be stowed immediately overhead or under the bed, in each accommodation. Lifejackets in first class accommodations may be stowed in properly marked cabinets.

.2 Passenger accommodation with seating arrangements - lifejackets shall be stowed immediately overhead or under the seat.

.3 Every common area shall be provided with additional lifejackets the number of which should be equivalent to at least twenty five percent (25%) of the total passenger capacity such area can accommodate, stored in a properly marked cabinet easily seen by and accessible to the passengers at all times.

.4 No lifejacket locker/cabinet shall be permanently locked during voyage.

.5 The number of lifejackets in every locker/cabinet shall be clearly indicated.

.6 Lifejacket for children and infants shall be distributed during embarkation and collected upon arrival.

.7 Proper safety information and signage (regarding stowage location, donning procedures, etc.) Shall be provided in all conspicuous places and should be clear and easily understood. Actual demonstration of the donning of lifejacket or showing of safety film/video on passenger ships shall be conducted prior departure.

.8 Number of type-approved lifejackets on board ships:

.1 Every ship shall carry type-approved lifejackets equivalent to the total number of authorized persons on board.

.2 Additional 10% and 5% of the actual number of persons allowed on-board shall be provided for children and infants, respectively or such greater number as maybe required to provide a lifejacket for each child.

.3 Additional lifejackets shall be required at each of the common areas.

.4 Additional lifejackets shall also be provided for every officer/crew at each watch/work stations.

Table 2.1 – Lifejacket Sizing Criteria Lifejacket Marking Infant, Child and Adult

Lifejacket marking		Infant	Child	Adult
User's size:				
	Weight (kg)	less than 15	15 or more but less than 43	43 or more
	Height (cm)	less than 100	100 or more but less than 155	155 or more

Regulation 3
Training and Abandon Ship Drills

1 Every crew member shall be trained in launching and maneuvering life-saving appliances

2 The method and instructions for use of life-saving appliances and arrangements shall be exhibited at muster stations and common crew areas.

3 Muster stations and embarkation stations for lifeboats shall be provided with lighting supplied by the emergency source of power.

4 Every crew member shall participate in at least one abandon ship drill and one fire drill every month. Each drill shall be the occasion of a training session on the use of the corresponding equipment.

5 The conduct of the above drills and corresponding training shall be recorded in an official logbook.

Regulation 4
Stowage, Launching and Recovery of Survival Craft

1 Survival craft shall be stowed such that:

.1 neither the survival craft nor its launching gear will interfere with the operation of any other survival crafts at any other launching station,

.2 they are as near the water surface as is safe and practicable

.3 they are kept in a state of continuous readiness and that two members of the crew can carry out preparations for embarkation and launching in less than five minutes.

2 The arrangements for the recovery of survival craft shall be to the satisfaction of the Administration.

3 Survival craft which are not stowed under davits or equivalent systems shall be stowed such that they are secured to the ship by hydrostatic release units.

Regulation 5
Marking of Survival craft

All survival craft shall be marked in capital letters in the Roman alphabet with:

1 the name of the ship and its homeport.

2 the maximum number of persons for which it is approved to carry.

Regulation 6
Operational Readiness, Maintenance and Inspections

1 Operational readiness

Before the ship leaves port and at all times during the voyage, all life-saving appliances shall be in good working order and ready for immediate use.

2 Maintenance

Instructions for maintenance on board of survival craft and rescue boats shall be posted and easily understood.

3 Weekly inspection

The following tests and inspections shall be carried out weekly:

.1 All survival crafts, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use; and

.2 the general emergency alarm system shall be tested.

4 Monthly inspections

Inspection of the life-saving appliances, including lifeboat equipment, shall be carried out monthly using a checklist to ensure that they are complete and in good order. A report of the inspection shall be entered in the logbook.

5 Servicing of inflatable liferafts, and inflated rescue boats and hydrostatic release units.

Every inflatable liferaft, inflated rescue boat and hydrostatic release units shall be serviced at intervals not exceeding twelve months in a servicing station approved by the Administration. In case of difficulty, the Administration may authorize a seventeen months interval.

Regulation 7
Public Address Systems

1 Except as noted in paragraph 5, ships shall be equipped with a public address system.

2 On a ship of 20 m or more in length, the public address system shall be a fixed installation and be audible during normal operating conditions throughout the accommodation spaces and all other spaces normally manned by crew members.

3 A ship with more than one passenger deck or with overnight accommodation shall have the public address system operable from the operating station.

4 On a ship of less than 20 m in length, a battery powered bullhorn may serve as the public address system where it can be demonstrated to be audible throughout

the accommodation spaces of the ship during normal operating conditions. The bullhorn's batteries shall be continually maintained at a fully charged level by use of a battery charger or other means acceptable to the Administration.

5 On a ship of less than 20 m in length carrying less than 50 passengers, a public address system is not required where the Administration is satisfied that a public announcement made from the operating station without amplification can be heard throughout the accommodation spaces of the vessel during normal operating conditions.

Regulation 8
Record of Passengers

The master of a ship shall keep an accurate list of all passengers, which shall be recorded in the passenger manifest.

Regulation 9
Passenger safety

1 Before getting underway on a voyage where passengers are carried, the master of a ship shall ensure that suitable public announcements are made informing all passengers of the following, as applicable to the vessel's operations and arrangement:

.1 a general explanation of emergency procedures;

.2 the location of emergency exits and survival crafts embarkation areas;

.3 the stowage location of lifejackets;

.4 the proper method of putting on and adjusting lifejackets of the type carried on the vessel including a demonstration of the proper donning of a lifejacket;

.5 the location of the instruction placards for lifejackets and other lifesaving devices; and

.6 that all passengers will be required to wear lifejackets when possible hazardous conditions exist, as directed by the master.

2 As an alternative to an announcement that complies with 1, the master or other designated person may:

.1 prior to getting underway, deliver to each passenger or, on a ship that does not carry vehicles and that has seats for each passenger, place near each seat, a card or pamphlet that has the information listed in .1.1 to .1.6; and

.2 make an abbreviated announcement consisting of:

.1 a statement that passengers should follow the instructions of the crew in an emergency;

.2 the location of lifejackets; and

.3 that further information concerning emergency procedures including the donning of lifejackets, location of other emergency

equipment, and emergency evacuation procedures are located on the card or pamphlet that was given to each passenger or is located near each seat.

3 Ferries operating on short runs of less than 15 minutes may substitute bulkhead placards or signs for the announcement required in .1 and .2 where the Administration determines that the announcements are not practical due to the ship's unique operation.

Regulation 10
Communications

1 Each ship covered by this regulation shall carry:

.1 at least two two-way VHF radio-telephone apparatus;

.2 at least one radar transponder. Such radar transponder shall be so stowed that it can be rapidly placed in any survival crafts;

.3 an emergency means comprising either fixed or portable equipment or both for two-way communications between emergency control stations, muster and embarkation stations and strategic positions on board;

.4 a general emergency alarm system for summoning the crew to muster stations capable of sounding a signal consisting of seven or more short blasts followed by a long blast on the ship's whistle or siren which shall be powered from the ship's main or the emergency power. The system shall be operated from the ship's bridge and be audible throughout all the accommodation and normal crew spaces.

Regulation 11
Minimum Requirements of Life-Saving Appliances and Equipment

1 Ships Engaged In Coastal Waters

.1 Survival crafts: (To cover the total number of persons the ship is authorized to carry)

.1 Lifeboat or combination of liferaft and lifeboat, or

.2 Liferaft (Inflatable/Rigid Type)

- 100% inflatable/rigid type or combination of equivalent approved-type liferaft which shall cover up to 50% of the total number of persons the ship is authorized to carry;

.2 Rescue Boats**:**

.1 One (1) rescue boat or equivalent approved-type rescue boat of ships of 500 GT and above.

.3 Lifebuoys**:**

.1 Four (4) Lifebuoys for ships less than 20 meters in length;

.2 Six (6) lifebuoys for ships 20 meters but less than 40 in length;

.3 Eight (8) lifebuoys for ships 40 meters but less than 60 meters in length;

.4 Ten (10) lifebuoys for ships 60 meters but less than 120 meters in length; and

.5 50% of the required lifebuoys, and in no case less than two (2), shall be fitted with self igniting lights with at least one (1) of which shall be fitted with self activated smoke signal as well as a buoyant line of at least 25 meters in length.

.4 Lifejackets**:**

.1 Every ship shall carry at least one (1) approved-type lifejacket for each and every person authorized on board with an additional 10% and 5% of the total number of persons allowed on-board, suitable for children and infants respectively.

.2 In addition to the requirement above, sufficient number of lifejackets for persons on watch at work station shall be provided. In addition, a sufficient number of lifejackets shall be carried for persons on watch and which should be stowed on navigating bridge, in the engine room or control stations and in any other manned watch station.

.5 Distress Flares:

.1 Every ship shall carry at least four (4) rocket parachute flares.

2 Ships Engaged In Protected Waters

.1 Survival crafts: (To cover the total number of persons the ship is authorized to carry)

.1 Lifeboat or combination of liferaft, or

.2 Liferaft (Inflatable/Rigid Type)

- 100% inflatable/rigid type or combination of equivalent approved-type liferaft which shall cover up to 50% of the total number of persons the ship is authorized to carry;

.2 Lifebuoys:

.1 Two (2) Lifebuoys for ships less than 20 meters in length;

.2 Four (4) lifebuoys for ships 20 meters but less than 40 meters in length;

.3 Six (6) lifebuoys for ships 40 meters but less than 60 meters in length;

.4 Eight (8) lifebuoys for ships 60 meters but less than 120 meters in length;

.5 Ten (10) lifebuoys for ships 120 meters and over in length; and

.6 50% of the required lifebuoys, shall be fitted with self igniting lights with at least one (1) of which shall be fitted with self activated smoke signal as well as a buoyant line of at least 25 meters in length.

.3 Lifejackets:

.1 Every ship shall carry at least one (1) approved-type lifejacket for each and every person authorized on board with an additional 10% and 5% of the total number of persons allowed on-board, suitable for children and infants respectively.

.2 In addition to the requirement above, sufficient number of lifejackets for persons on watch at work station shall be provided. In addition, a sufficient number of lifejackets shall be carried for persons on watch and which should be stowed on navigating bridge, in the engine room or control stations and in any other manned watch station.

.4 Distress Flares:

.1 Every ship shall carry at least two (2) rocket parachute flares if and when allowed for night time navigation.

Regulation 12

Manning and Survival Procedures

1 All persons manning such ships shall be trained in launching and operating the survival crafts.

2 Illustrations and instructions relating to the use of life-saving appliances in appropriate languages shall be posted at muster stations and other crew spaces.

3 Posters or signs shall be provided on or in a vicinity of survival crafts and their launching controls.

4 Muster stations shall be provided close to the embarkation stations. Both shall be adequately illuminated by lighting supplied from the emergency source of electric power.

5 Each member of the crew shall participate in at least one abandon ship drill and one fire drill every month. On board training in the use of life-saving appliances, including survival crafts equipment shall be provided at such drills.

6 Records shall be maintained relating to abandon ship drills, fire drills and on board training, in such-log-books as may be prescribed by the Administration.

Regulation 13

Muster List and Emergency Instructions

1 Clear instructions to be followed in the event of an emergency shall be provided of each person on board.

2 Muster lists shall specify the tails of the general emergency alarm, public address system and action to be taken by the crew and passenger when this alarm is sounded. It shall be exhibited in conspicuous places throughout the ship, including the control compartment, engine room and crew accommodation spaces.

3 Illustrations and instructions in appropriate languages shall be posted in public spaces and be conspicuously displayed at assembly stations at other passenger spaces and near each seat to inform passengers of:

.1 their assembly station;

.2 the essential actions they must take in an emergency; and

.3 the method of donning lifejackets.

4 Posters or signs shall be provided on or in a vicinity of survival crafts and their launching controls.

5 Muster stations shall be provided close to the embarkation stations. Both shall be adequately illuminated by lighting supplied from the emergency source of electric power.

6 Each member of the crew shall participate in at least one abandon ship drill and one fire drill every month. On board training in the use of life-saving appliances, including survival crafts equipment shall be provided at such drills.

7 Records shall be maintained relating to abandon ship drills, fire drills and on board training in such deck/engine logbook as may be prescribed by the Administration.

CHAPTER X

Radio Communications

Regulation 1
General Requirements

1 The national regulations on radio Communications issued by the National Telecommunications Commission (NTC) apply to all ships covered by this book.

2 No provision in this Regulation shall prevent the use by any ship or person in distress, of any means at their disposal to attract attention, make known their position and obtain help.

Regulation 2
Functional Requirements

1 Ships while at sea shall be provided with radio installations capable of complying with the functional requirements identified in this Regulation throughout its intended voyage.

2 Ships, while at sea, shall be capable of:

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

.2 receiving shore-to-ship distress alerts;

.3 transmitting and receiving ship-to-ship distress alerts;

.4 transmitting and receiving search and rescue coordinating communications;

.5 transmitting and receiving on-scene communications;

.6 transmitting and where applicable receiving signals for locating;

.7 transmitting and receiving maritime safety information;

.8 transmitting and receiving general radio communications to and from shore-based radio systems or networks; and

.9 transmitting and receiving bridge-to-bridge communications.

Regulation 3
Ship Requirements

1 Every radio installation shall:

.1 be so located that no harmful interference of mechanical, electrical or other origin affects its proper use or that of other equipment;

.2 be so located as to ensure the greatest possible degree of safety and operational availability;

.3 be protected against the harmful effects of water, extremes of temperature and other adverse environmental conditions;

.4 be provided with reliable, efficient and permanently installed electric lighting;

.5 be clearly marked with the call sign, the ship station identity and other codes as applicable.

2 Control of the VHF radiotelephone channels, required for navigational safety, shall be immediately available on the navigation bridge.

Regulation 4
Watches

1 Every ship, while at sea, shall maintain a continuous watch on the distress frequencies corresponding to the sea area in which the ship is navigating.

2 Every ship, while at sea, shall maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the sea area in which the ship is navigating.

3 Each ship, while at sea, shall maintain a continuous listening watch on:

.1 VHF Channel 16;

.2 radiotelephone distress frequency 2,182KHz.

Regulation 5
Maintenance Requirements

1 The Administration shall ensure that radio equipment required by this chapter is maintained to provide the availability of the functional requirements and to meet the recommended performance standards of such equipment.

2 Adequate information shall be provided to enable the equipment to be properly operated and maintained.

3 The availability of the radio equipment shall be ensured by using one of the following method:

.1 duplication of equipment

.2 shore-based maintenance, or

.3 at-sea electronic maintenance capability.

Regulation 6
Radio Equipment – General

1 All ships shall be provided with the following radio communication equipment:

.1 Ships operating in the protected areas:

.1 VHF radio Installation;

.2 Ships operating in coastwise voyage;

.1 VHF, MF/HF SSB Radio Installation (20 – 100 watts power output);

.2 GPS (150 GT and above);

.3 AIS (300 GT and above).

Regulation 7

Sources of Energy

There shall be available at all times, while the ship is at sea, a supply of electrical energy sufficient to operate the radio installations and to charge any batteries used as part of *a* reserve source or sources of energy for the radio installations for a period of 18 hours as specified in these Rules and Regulations.

Regulation 8

Radio Logs

1 A radio log shall be maintained in accordance with the Radio Regulations in a ship which is fitted with a GMDSS radio communication station. Every qualified operator, master, officer or crew member maintaining a listening watch in accordance with Regulation 4 shall enter in the log his name and the details of all incidents connected with the radio service which occur during his watch which may appear to be of importance to safety of life at sea. In addition, there shall be entered in the log:

.1 details required by the Radio Regulations;

.2 the time listening watch begins when the ship leaves port, and the time at which it ends when the ship reaches port;

.3 the time at which listening watch was discontinued for any reason together with the reason thereof, and the time at which listening watch was resumed thereafter; and

.4 details of the maintenance of the batteries (if provided), including a record of the charging required.

2 Radio logs shall be available for inspection by the officers authorized by the Administration to make such inspection.

Regulation 9

Minimum Radio Requirements

Type of Vessel	Trading	Gross Tonnage	Radio's
Passenger	Bay and River	Regardless of size	VHF
Passenger	Coastwise	Below 150 GT	VHF,SSB
Passenger	Coastwise	150 GT and above	VHF, SSB, GPS, NAVTEX, EPIRB
Passenger	Coastwise	300 GT and above	VHF, SSB, GPS, NAVTEX, EPIRB, AIS
Passenger	Coastwise	500 GT and above	VHF, SSB, GPS, NAVTEX, EPIRB, AIS and 2 SART

CHAPTER XI

Safety of Navigation

Regulation 1

Danger Messages

1 The master of each ship which meets with dangerous derelict, or any other direct danger to navigation, or a tropical storm (signal no. 2 and above) or winds of force 10 or above on the Beaufort scale shall 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.

2 All radio messages issued under this Regulation shall be preceded by the safety signal, using the procedure as prescribed by the Radio Regulations.

3 The information to be transmitted shall be as complete as practicable and may be sent in plain language preferably in English.

4 The following information is required in danger messages:

.1 Derelicts and other direct dangers to navigation:

.1 The kind of derelict or danger observed.

.2 The position of the derelict or danger when last observed.

.3 The time and date when the danger was last observed.

.2 Tropical cyclones (storms):

.1 A statement that a tropical cyclone has been encountered. This obligation should be interpreted in a broad spirit, and information transmitted whenever the master has good reason to believe that a tropical cyclone is developing or exists in the neighborhood.

.2 Time, date and position of ship when the observation was taken.

.3 As much of the following information as is practicable should be included in the message:

.1 barometric pressure, preferably corrected (stating millibars, millimeters, or inches, and whether corrected or uncorrected);

.2 barometric tendency (the change in barometric pressure during the past three hours);

.3 true wind direction;

.4 wind force (Beaufort scale);

.5 state of the sea (smooth, moderate, rough, high);

.6 swell (slight, moderate, heavy) and the true direction from which it comes. Period or length of swell (short, average, long) would also be of value;

.7 true course and speed of ship.

.3 When a Master has reported a tropical cyclone or other dangerous storm, it is desirable, but not obligatory, that further observations be made and transmitted hourly, if practicable, but in any case, at intervals of not more than 3 hours, so long as the ship remains under the influence of the storm.

.4 Winds of force 10 or above on the Beaufort scale for which no storm warning has been received. This is intended to deal with storms other than the tropical cyclones referred to in paragraph 2; when such a storm is encountered, the message should contain similar information to that listed under the paragraph but excluding the details concerning sea and swell.

Regulation 2
Misuse of Distress Signals

The use of any 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, is prohibited.

Regulation 3
Distress Messages: Obligations and Procedures

1 The master at sea, on receiving a signal from any source that another 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 that he is doing so. If he is unable or, in the special circumstances of the case, considers 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.

2 The master shall be released from the obligation imposed by paragraph 1 if he is informed by the persons in distress or by the master of another ship which has reached such persons that assistance is no longer necessary. If the Master of a ship receives such release, this has to be documented by him from the duty to render assistance.

3 A ship which receives any kind of distress message, shall simultaneously report this immediately to the nearest Coast Guard, Ports Authority or Coastal Radio Station under providing all relevant data to introduce immediate life-saving actions.

Regulation 4
Safe Navigation and Avoidance of Dangerous Situations

1 Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned using the appropriate nautical charts and nautical publications for the area concerned.

2 The voyage plan shall identify a route which:

.1 takes into account any relevant ships routing systems;

.2 ensures sufficient sea room for the safe passage of the ship throughout the voyage;

.3 anticipates all known navigational hazards and adverse weather conditions; and takes into account the marine environmental protection measures that apply, and avoids, as far as possible, actions and activities which could cause damage to the environment.

Regulation 5
Navigational Equipment

The information provided by navigational systems and equipment shall be ~~so~~ displayed that the probability of misreading is reduced to a minimum. Navigational system and equipment shall be capable of giving readings to optimum accuracy.

Regulation 6
Marine Magnetic Compass with Light

1 ships shall be fitted with:

.1 a standard magnetic compass, except as provided in paragraph .4

.2 a steering magnetic compass, unless heading information provided by the standard compass required under paragraph 1 is made available and is clearly readable by the helmsman at the main steering position;

.3 adequate means of communication between the standard compass position and the normal navigation control position to the satisfaction of the Administration; and

.4 means for taking bearings as nearly as practicable over an arc of the horizon of 360°.

2 Each compass referred to in subparagraph 1 shall be properly adjusted and its table or curve of residual deviations shall be available at all times.

3 A spare magnetic compass, interchangeable with the standard compass, shall be carried, unless the steering compass mentioned in paragraph 1.2 or a gyro-compass is fitted.

4 The Administration, if it considers it unreasonable or unnecessary to require a standard magnetic compass, may exempt individual ships or classes of ships from these requirements if the nature of the voyage, the ship's proximity to land or the type of ship does not warrant a standard compass, provided that a suitable steering compass is in all cases carried.

5 All ships shall be fitted with a steering compass and have means for taking bearings.

Regulation 7
Navigation Lights/Signal Lights

1 Designs and installations of navigational lights/signal lights shall be in conformity with the color, height and angle of visibility prescribed under COLREG.

2 Requirements of Regulation V/19 of SOLAS 74, as amended, relating to the provision of an efficient daylight signaling lamp not solely dependent upon the ship's main source of electrical power are applicable to ships of over 150 GT. The Administration may extend this requirement to all ships to which these Rules and Regulations apply.

Regulation 8
Radars

1 All ships shall, as far as practicable, be fitted with a Radar installation capable of operating in the 9 GHz frequency band. A ship may be exempted from compliance with the requirements of paragraph 5.2 at the discretion of the Administration, provided that the equipment is fully compatible, with the radar transponder for search and rescue.

2 All equipment fitted in compliance with this Regulation shall be of type-approved by the Administration. Equipment installed on board passenger ships conform to appropriate performance standards not inferior to those adopted by the Organization. Equipment fitted prior to the adoption of related performance standards may be exempted from full compliance with those standards at the discretion of the Administration having due regard to the recommended criteria which the Organization might adopt in connection with the standards concerned.

Regulation 9
Speed and Distance Indicator

All ships shall be fitted with a device to indicate speed and distance.

Regulation 10
Rudder Angle Indicator

All ships constructed shall be fitted with indicators showing the rudder angle, the rate of revolution of each propeller and in addition, if fitted with variable pitch propellers or lateral thrust propellers, the pitch and operational mode of such propellers. All these indicators shall be readable from the conning position.

Regulation 11
Life-Saving Signals

Life-saving signals shall be used by ships when communicating with ships or persons in distress or when communicating with life-saving stations, maritime rescue units and airships engaged in search and rescue operations. An illustrated table describing the life-saving signals shall be readily available to the officer of the watch of every ship. Life-saving signals maybe in the form of sounds, lights and/or any device approved in maritime practice.

Regulation 12
Global Positioning Systems (GPS)

All ships shall be fitted with a global positioning device (GPS).

Regulation 13
Automatic Identification System (AIS)

All passenger ships of 300 GT and above shall be fitted with a Class “A” Automatic Identification System (AIS).

Regulation 14
Regulations on Deck and Engine Logs

All ships shall maintain a deck log where the condition of the atmosphere, the prevailing winds, the course sailed, the rigging carried and or the number of boilers in use and steam pressure carried and or the number of engines used and the engine speeds the distance covered, the maneuvers executed and other incidents of navigation. Entries related to any damage to the hull, engines, riggings and tackles, that may occur and the cause, as well as such injuries and damages as may occur to the cargo, and the amount and value of jettisoned cargo, if any, shall be entered in the deck or engine logbook.

Regulation 15
Nautical Publications

1 All ships shall carry adequate and up-to-date nautical charts and nautical publications to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage.

2 An electronic chart display and information system (ECDIS) is also accepted as meeting the chart carriage requirements.

Regulation 16
International Code of Signals

Ships required to carry radio installations shall carry the International Code of Signals. This publication may also be carried by any other ship, which, in the opinion of the Administration, has a need to use it.

Regulation 17
Routeing

Ships shall comply with the traffic separation schemes or routeing requirements applicable to the area including avoidance of passage through areas designated as areas to be avoided by Ships or certain classes of ships.

Navigational Equipment	Below 500 GT
Voyage Data Recorder (VDR)	X
Magnetic Compass	O
Spare Magnetic Compass	O
Pelorus Compass	X
Nautical Chart and Publications or Electronic Chart Display and Information System (ECDIS)	O
Global Navigation Satellite System or Terrestrial Radio Navigation System (GPS)	O
Telephone (Bridge-Emergency Steering Position)	X
Daylight Signaling Lamp	O
Echo-Sounding Device	X
9 GHz Radar	O
Radar Reflector	O*
Electronic Plotting Aid	X
Speed and Distance Measuring Device/Indicator	O
Properly Adjusted Transmitting Heading Device	X
Automatic Identification System (AIS)	O
Gyro-Compass	X
Gyro-Compass Repeater	X
Rudder Angle, Propeller Revolutions, The Force And Direction Of Thrust Indicator	O
Automatic Tracking Aid	X
Second Automatic Tracking Aid	X
3 GHz and 9 GHz Radar	X
Automatic Radar Plotting Aid	X
Heading or Track Control System	X
Rate-of-Turn Indicator	X

Chapter XII

Collision Regulations

1 All Philippine-registered ships shall at all times adhere to the rules and regulations of the International Regulations for Preventing Collision at Sea (COLREG), 1972 as amended.

2 All vessels shall observe and comply with the traffic separations scheme implemented by concerned agencies in their area of operation.

Chapter XIII

Carriage of Dangerous Goods

Regulation 1
General

1 Ships engaged in the carriage of dangerous goods in package form shall comply with MARPOL III and the International Maritime Dangerous Goods (IMDG Code).

2 Ships engaged in the carriage of dangerous goods in solid form in bulk shall comply with MARPOL III and the International Maritime Solid Bulk Cargoes (IMSBC Code).

3 The Company and the Master shall ensure that all dangerous and/or hazardous cargoes or goods on board the ship are carried in compliance with the existing MARINA rules and regulations and its future amendments and shall be jointly responsible for the safe carriage of such.

4 The Master shall ensure that all dangerous cargo/es carried on board are protected from any unauthorized access and that such spaces where these cargoes are carried are properly marked (i.e. black and yellow stripes, no smoking, others, as applicable).

5 Dangerous goods liable to spontaneous combustion shall not be carried on board unless added precautions are taken for the carriage of such items.

6 Only personnel with training in handling, carriage and stowage of dangerous goods shall be allowed to handle dangerous goods.

.1 All personnel shall be adequately trained in the use of protective equipment and have basic training in the procedures appropriate to their duties necessary under emergency conditions.

.2 Personnel involved in cargo operations shall be adequately trained in handling procedures.

.3 Officers shall be trained in emergency procedures to deal with conditions of leakage, spillage or fire involving the cargo and sufficient number of them shall be instructed and trained in essential first aid for cargoes carried, based on the guidelines developed by the Organization.

7 The Company shall ensure that designated crew properly trained in handling accidents involving dangerous goods is readily available.

8 The Company shall ensure that materials/equipment, to include medical first aid, to address accidents involving dangerous goods are readily available.

Chapter XIV

Safety Management System

Regulation 1
General

1 Every company operating any of the ships covered by these rules and regulations shall develop, adopt and implement a Safety Management System (SMS) compliant with the International Safety Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code), as amended.

2 The company in implementing the ISM Code shall take into consideration the guidelines set by the International Maritime Organization (IMO) and existing MARINA Regulations and its future amendments.

3 No company/ship shall operate without a valid DOC/SMC.

4 Where another company/entity other than the registered owner/disponent owner has assumed operational control' and responsibility over a ship covered under this Regulation, the registered/disponent owner shall communicate to the Administration the company/entity which shall assume responsibility for compliance with this Circular.

5 Ships of foreign registry temporarily used in the Philippine waters on Special Permits issued by the Administration are required to have a SMS compliant with the ISM Code.

6 All companies and ships commencing operations and which are covered herein, are given twelve (12) months from date of accreditation or registration under Philippine flag, to have the required DOC and SMC.

7 The companies and ships as provided in the preceding paragraph 6 shall submit for approval a safety management system and shall be issued interim DOC and interim SMC with validity as follows

.1 Interim DOC - not more than 12 months; and

.2 Interim SMC – valid for 6 months and can be extended another 6 months

Regulation 2
Application

This Chapter shall apply to new and existing ships, enumerated below:

1 passenger high speed crafts;

2 fast crafts;

3 passenger ships above 100 GT; and passenger ships below 100 GT carrying 50 passengers and above;

4 submersible crafts;

Regulation 3
Exemption

This Chapter shall not apply to the following ships:

1 ships of primitive built;

2 warships and naval ships;

3 government-owned ships not engaged in commerce;

4 ships below 100 GT and carrying not more than fifty (50) passengers;

5 sailing ships; and

6 pleasure crafts not engaged in commercial trading

Regulation 4
Implementation

The implementation of this Chapter shall conform to the existing MARINA Memorandum Circular and its future amendments.

Chapter XV

Trainings

Regulation 1
Application

All seafarers onboard Philippine registered ships shall be required to undertake relevant/appropriate training/seminars in relation to the types of ships they are employed.

Regulation 2
Training Manuals

1 All ships must have onboard Training Manuals and Training Aids as approved by the Administration.

2 A training manual complying with the requirements of paragraph 3 shall be provided in each crew mess room and recreation room or in each crew cabin.

3 The training manual, which may comprise several volumes, shall contain instructions and information, in easily understood terms illustrated wherever possible, on the life-saving appliances provided in the ship and on the best methods of survival. Any part of such information may be provided in the form of audio-visual aids in lieu of the manual. The following shall be explained in detail:

.1 donning of lifejackets;
.2 muster at the assigned stations;
.3 boarding, launching, and clearing the survival craft and rescue boats, including, where applicable, use of marine evacuation systems;
.4 method of launching from within the survival craft;
.5 release from launching appliances;
.6 methods and use of devices for protection in launching areas, where appropriate;
.7 illumination in launching areas;
.8 use of all survival equipment;
.9 use of all detection equipment;
.10 with the assistance of illustrations, the use of radio life-saving appliances;
.11 use of engine and accessories;
.12 recovery of survival craft and rescue boats including stowage and securing
.13 best use of the survival craft facilities in order to survive;
.14 methods of retrieval, breeches-buoy and shore life-saving apparatus and ship's line-throwing apparatus; whenever applicable
.15 all other functions contained in the muster list and emergency instructions; and
.16 instructions for emergency repair of the life-saving appliances.

4 The training manual shall be written in the working language of the ship.

Chapter XVI

PART 1

Health, Safety and Crew Accommodation

Regulation 1

General

1 Before the construction of a ship, and before the crew accommodation of an existing ship is substantially altered or reconstructed, detailed plans of, and information concerning, the accommodation shall be submitted to the Administration for approval.

2 Location, structure and arrangement of crew accommodation spaces and means of access thereto shall be such as to ensure adequate security, protection against weather and sea and insulate from heat and cold, condensation, undue noise, vibration or effluvia from other spaces. In particular, the insulation material to be applied to bulkheads and deckheads of machinery spaces adjacent to crew accommodation shall be of a type approved by the Administration. Sleeping rooms shall be placed aft the collision bulkhead.

3 Where practical, noise measurements may be taken by the Administration on completion of construction of a new vessel. Similar measurements may also be taken following a refit or major alterations to an existing ship if it is considered that noise levels might have been influenced. (see MSC.337(91) – Noise Level Code)[1]

4 Where practical, taking into account the size and type of the vessel, resolution A.468(XII) may be used as a point of reference

5 Bulkheads and decks between accommodation spaces and machinery spaces, fuel tanks, galleys, engine, deck and other store rooms, drying rooms, communal wash-places or water closets shall be so constructed as to prevent the infiltration of fumes and odours. Direct openings into sleeping rooms from such places shall be avoided whenever reasonable or practicable.

6 Where passageways are provided in crew accommodation these shall be as wide as possible, but the clear width shall not be less than 700 mm. Where doors open outwards into a passageway, there shall be sufficient space to pass the door when it is open at a right angle to the passageway.

7 Accommodation spaces shall be adequately insulated to prevent loss of heat, condensation or overheating.

8 In the choice of materials used for construction of accommodation spaces, account shall be taken of properties potentially harmful to the health of personnel or likely to harbour vermin and mould. Surfaces, including decks, of accommodation and furnishings shall be of a kind easily kept clean and hygienic, as well impervious to damp. Bulkhead and deckhead surfaces, if painted, shall be light in colour and the paint specification shall be to the approval of the Administration. Other surface coverings, such as lime wash, shall not be used.

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[1] [1] Where practical, taking into account the size and type of the vessel, resolution A.468(XII) may be used as a point of reference

9 Where appropriate, access to ordinary exits and emergency exits shall be marked with direction indicators. Exits shall be marked in a conspicuous manner above or beside the door.

10 Where the deck covering is of composition material, the connection to the side of the ship, bulkheads and partitions shall be rounded to avoid crevices.

11 All practical measures shall be taken to protect crew accommodation and furnishings against the admission of insects and other pests.

12 Overhead exposed decks over crew accommodation shall be sheathed with wood or equivalent insulation.

13 The electrical switchboard shall be so arranged that when the shore power connection is made, power would be available for crew accommodation lighting, ventilation systems and, where applicable, heating and cooking facilities.

Regulation 2
Lighting, Heating and Ventilation

1 All crew accommodation spaces shall be adequately lighted, as far as possible, by natural lighting. Such spaces shall also be equipped with adequate artificial light. Artificial light shall be in accordance with accepted standards of visual comfort in living spaces. The minimum standards for natural lighting in crew accommodation shall be such as to permit a person with normal vision to read an ordinary newspaper on a clear day.

2 If there are no two independent sources of electricity for lighting, additional lighting shall be provided by properly constructed lamps or lighting apparatus for emergency use.

3 Methods of lighting shall not endanger the health or safety of the crew or the safety of the ship.

4 Adequate heating facilities in crew accommodation spaces shall be provided as required by climatic conditions. Heating facilities shall be capable of maintaining a satisfactory air temperature in crew accommodation under normal conditions of service. The accommodation shall be capable of being heated sufficiently to maintain a minimum temperature of +22°C in all day rooms at an outside temperature of -15°C.

5 Facilities for heating shall be designed so as not to endanger health or safety of the crew or safety of the ship.

6 Heating by means of open fires shall be prohibited.

7 Accommodation spaces shall be adequately ventilated at all times when the crew is expected to remain on board. Ventilation systems shall be capable of control so as to maintain the air in a satisfactory condition and to ensure a sufficiency of air movement in all conditions of weather and climate. The ventilation of galleys and sanitary spaces shall be to the open air and, unless fitted with a mechanical ventilation system, be independent from that for other crew accommodation.

8 Accommodation spaces of ships regularly engaged on voyages in the tropics and under similar conditions, except in deckhouses with satisfactory natural ventilation, shall be equipped with mechanical ventilation and, if necessary, with

additional electric fans or air conditioning, in particular, mess rooms and sleeping quarters.

9 Drying rooms or lockers for working clothes and oilskin lockers shall have adequate ventilation that is separate from other spaces. The exhaust from such spaces shall be well clear of the air intakes of the ventilation systems for other spaces.

Regulation 3
Sleeping Rooms

1 Sleeping rooms shall be so planned and equipped as to ensure reasonable comfort for the occupants and to facilitate tidiness. The clear headroom shall, whenever possible, be not less than 2 m.

2 Wherever reasonable and practical, the floor area of sleeping rooms per person accommodated therein, excluding space occupied by berths and lockers, shall not be less than 1 m^2.

3 Each member of the crew shall be provided with an individual berth, the inside dimensions of which shall be not less than 1.9 m by 700 mm.

4 Berths shall not be placed side by side in such a way that access to one berth can he obtained only over another. Berths shall not normally be arranged in tiers of more than two. The lower berth in a double tier shall be not less than 300 mm above the deck; the upper berth shall he paced approximately midway between the bottom of the lower berth and the lower side of the deck head beams.

5 Where the upper berth in a tier overlaps a lower berth, the underside of the upper berth shall be fitted with a dust proof bottom of wood, canvas or other material.

6 If tubular frames are used for the construction of berths, they shall be completely sealed and without perforations that would give access to vermin.

7 Suitable bedding shall be provided for the crew. Mattresses shall not be of a type that is liable to develop toxic fumes in cases of fire nor of a type that will attract pests or insects. Mattresses shall be provided with a cover of fire-retardant material.

8 Whenever reasonable and practicable, having regard to the size, type or intended service of the ship, the furnishings of sleeping rooms shall include both a fitted cupboard preferably with an integral lock and a drawer for each occupant. A table or desk, adequate seating, a mirror, cabinet for toilet requisites, a book rack and coat hooks shall also be provided. Where fitted, tables or desks of the pull-out type shall be to the approval by the Administration.

9 The maximum number of persons to be accommodated in any sleeping room shall be clearly and indelibly marked in the room where it can be conveniently seen.

Regulation 4
Mess Rooms

1 Wherever reasonable and practicable, mess room accommodation separate from sleeping quarters shall be provided.

2 The mess room shall be as close as practicable to the galley.

3 The dimensions and equipment of each mess room shall be sufficient for the number of persons likely to use it at any one time.

4 The furnishings of mess rooms shall include tables and approved seats sufficient for the number of persons likely to use them at any one time. The tops of tables and seats shall be free of sharp edges and shall be of damp resisting material without cracks and easily kept clean.

5 Where pantries are not accessible from mess rooms, adequate lockers for mess utensils and proper facilities for washing shall be provided.

6 Mess rooms shall be planned, furnished and equipped to provide appropriate facilities for recreation.

Regulation 5
Sanitary Facilities

1 Sufficient sanitary facilities, including wash-basins, shower-baths and water-closets, shall be provided to the satisfaction of the Administration, having due regard to the intended service of the ship

2 Soil and waste discharge pipes shall not pass through fresh water or drinking water tanks or, where practicable, provision stores. Neither shall they, where practicable, pass overhead in mess rooms or sleeping accommodation. Such pipes shall be fitted with anti-syphon closures.

3 In general, water-closets shall be situated convenient to, but separate from, sleeping rooms, mess rooms and wash-rooms.

4 The deck area of wash places shall have a covering of durable material, easily cleaned, impervious to damp and properly drained. The deck covering shall be carried up the sides of the compartment to a height of not less than 0.2 m and be adequately sealed at all joints to prevent the ingress of water and damp.

5 The bulkheads shall be of steel or other approved material and shall be watertight to a height of at least 0.25 m above the deck to allow for effective sealing of the deck covering where it meets the bulkheads.

6 Facilities for washing and drying clothes shall be provided on a scale appropriate to the number of the crew and the duration of intended voyages.

Regulation 6
Potable Water Facilities

Filling, storage and distribution arrangements for potable water shall be designed to preclude any possibility of water contamination or overheating. Tanks shall be designed to allow internal cleaning.

Regulation 7
Provision Stores

Having regard to the intended service of the ship, store rooms of adequate capacity shall be provided which can be kept cool, dry and well ventilated in order to avoid

deterioration of the stores. Where possible, refrigerators or other low-temperature storage shall be provided, to the satisfaction of the Administration. Where refrigerating or freezing rooms are fitted, the access doors shall be capable of being opened from either side. An alarm system shall be arranged from the refrigerating and freezing room to the galley or other appropriate location if such rooms are large enough for personnel to enter them.

Regulation 8
Cooking Facilities

1 Having regard to the intended service of the ship, satisfactory cooking appliances and equipment shall be provided and shall, wherever practicable, be fitted in a separate galley.

2 Galleys shall be of adequate dimensions for the purpose and have sufficient storage space and satisfactory drainage.

3 The galley shall be provided with cooking utensils, the necessary number of cupboards, shelves, sinks and dish racks of rustproof material and with satisfactory drainage. Drinking water shall be supplied to the galley by means of pipes. Where it is supplied under pressure, the system shall be protected against backflow. Where hot water is not supplied to the galley, a water heater shall be fitted.

4 The galley shall be fitted with suitable facilities for the preparation of hot drinks for the crew at all times.

5 Cooking appliances shall be fitted with fail-safe devices in the event of failure of the power source or fuel. Supplies of fuel in the form of gas or oil shall not be stored in the galley.

6 Galleys shall be provided with guard rails and hand rails.

7 Cooking stoves shall be fitted with guards to retain cooking utensils.

8 Where food processing equipment is installed, dangerous parts shall be fitted with permanent safety guards.

Regulation 9
Medicine Chest, Radio-Medical Services and Hospital Accommodation

1 First aid equipment and instructions as required by the competent authorities shall be provided in ships.

2 Ships shall carry an appropriate medical guide or instructions. The medical guide or instructions, shall be illustrated, shall explain how the medical supplies are to be used and shall be designed to enable persons other than a doctor to care for the sick or injured on board both with and, if necessary, without medical advice by radio or satellite communication.

3 The medicine chest shall contain equipment and medical supplies suitable for the expected service of the ship (e.g., unlimited trips; trips of less than a certain distance from the nearest port with adequate medical equipment; service in harbours and very close to shore).

4 The Administration shall establish requirements for the periodic replacement of medicines to ensure they are not outdated and appropriate to any changes in the operational requirements of the vessel (e.g., change in geographic location).

5 Appropriate instructions and equipment shall be provided to enable appropriate personnel to consult effectively with radio-medical services ashore.

6 Appropriate hospital accommodation shall be provided in accordance with international instruments.

7 Instructions and equipment necessary for safe medical evacuation by vessel, helicopter or other means shall be carried on board.

8 Generally, all instructions shall be in a language understood by the crew. Where possible, illustrations shall be used to facilitate ease of understanding and communication.

PART 2

OCCUPATIONAL SAFETY

Regulation 10
Accident Prevention

1 Appropriate provisions shall be taken in view of the prevention of occupational accidents or diseases, covering in particular the following matters:

.1 machinery;

.2 special safety measures on and below deck;

.3 loading and unloading equipment;

.4 fire prevention and fire-fighting;

.5 anchors, chains and lines;

.6 dangerous cargo and ballast;

.7 personal protective equipment for seafarers.

2 Any obligation on the shipowner to provide protective equipment or other accident prevention safeguards shall be accompanied by written instructions posted in the appropriate locations, to the effect that such equipment and safeguards are actually used by seafarers when exposed at specific risk.

Regulation 11
Safety of Movement on Board

1 Ships shall be so fitted out that the crew can move about and work easily. Where necessary, moving parts and openings in the deck shall be protected by safety devices, plating, guard rails and handrails. Winches and towing hooks shall be designed to ensure safety at work. All installations required for work on board shall be so designed, sited and protected as to make on-board manoeuvres, maintenance and repairs safe and easy.

2 Decks in the vicinity of winches and bollards, as well as side-decks, engine-room floors, landings, companionways and the top of the side-deck bollards shall be non-slip.

3 The tops of side-deck bollards and any obstacles in areas where crew move about (e.g., the treads of companionways), shall be marked by light-coloured paint.

4 Appropriate devices shall be provided for anchoring stacked hatch covers.

5 The size and arrangement of passageways, accesses and corridors for the movement of persons and cargo shall be such that they may be negotiated without risk of accident.

6 The design and layout of doors shall be such as not to endanger the persons opening or closing them.

7 Structures for passage from one level to another, particularly companionways, ladders and rungs shall be such that their use is free of hazard.

Regulation 12
Safety of Working Stations

1 Working stations shall be readily and safely accessible.

2 Companionways, ladders, rungs or similar devices shall be provided where there is a difference of over 500 mm in the levels of accesses, exits and passageways.

3 Companionways shall be provided where the level of permanently manned working stations differs by more than 1m from the levels from which access is to be gained.

4 Emergency exits shall be clearly marked as such.

5 Closed spaces in which work is carried out, with the exception of storerooms, shall be ventilated. The ventilation devices shall be arranged so as not to cause draughts and shall provide an adequate and regularly renewed supply of air to the working stations for the persons in them. Where the natural rate of air renewed is inadequate, mechanical ventilation shall be provided. The rate of renewal may be considered adequate if it is carried out at least five times per hour.

6 Working stations close to the water or in positions involving differences in level of more than 1m shall be equipped so as to prevent crew slipping or falling.

Regulation 13
Dimensions of Working Stations

1 Working stations shall be of dimensions such that each crew member working in them has adequate freedom of movement.

2 Permanently manned working stations shall be of sufficient dimensions to ensure:

.1 a net volume of air not less than 7 m3, except for the wheelhouse of vessels of 40 m in length and less;

.2 a free floor area and headroom for each working station that gives adequate freedom of movement for operation and inspection and for ordinary maintenance and repair work.

3 The clear width of side-decks shall be not less than 600 mm; except that this width may be reduced around mooring bollards.

Regulation 14
Lighting in Working Spaces and Areas

1 All companion-ways, doors or other means of access shall be illuminated on both sides of the opening to facilitate safe passage.

2 All passageways and working spaces and areas shall be provided with artificial lighting. Particular attention shall be paid to Rule 20 (b) of the International Regulations for Preventing Collisions at Sea, 1972.

3 Glare, dazzle or sudden contrasts of illumination shall be eliminated to the extent possible taking into consideration the need for effective lighting for the safety of the crew on the working deck.

4 Provision shall be made for some form of emergency lighting, which is independent of the normal supply.

5 Portable watertight lights shall be provided as necessary and fitted with heavy-duty cables, bulb guards and lanyards. Such lights for use in spaces, which may contain explosive gases, shall be either explosive proof or otherwise intrinsically safe.

6 Where necessary to prevent danger, electric lamps shall be protected by guards.

7 In order to avoid the stroboscopic effect of fluorescent lighting, double tube lamps shall be used to illuminate working spaces with revolving machinery.

Chapter XVII

Prevention of Marine Pollution

Regulation 1
Coverage

1 The provisions of the International Convention for the Prevention of Pollution from Ships 1973 and its 1978 Protocol including its future amendments, and national legislations and issuances to implement thereto, shall apply to ships covered by these Rules and Regulations. Where the Administration considers the provisions relating to construction and equipment unreasonable or impracticable, it may exempt such ships from such provisions, provided that the construction and equipment of that ship provides equivalent protection against pollution of the marine environment, having regard to the service for which the ship is intended.

The following MARPOL Annexes shall be applied to ships as covered by the Convention;

.1 Annex I of MARPOL73/78 – Regulation for the Prevention of Pollution by Oil

.2 Annex II of MARPOL73/78 – Regulation for the Pollution by Noxious Liquid

.3 Annex III of MARPOL73/78 – Regulation for the Prevention of Pollution by Harmful substances carried by sea in Packaged Form

.4 Annex IV of MARPOL73/78 – Regulation for the Prevention of Pollution by Sewage

.5 Annex V of MARPOL73/78 – Regulation for the Prevention of Pollution by Garbage from Ships

.6 Annex VI of MARPOL73/78 – Regulation for the Prevention of Air Pollution from Ships

Hence, ships which are not covered by the Annexes must have an appropriate measure to prevent marine pollution and environmental protection.

Chapter XVIII

Ship Security Regulations

Regulation 1
Application

1 These Rules and Regulations shall apply to ships covered by the provisions of the International Ship and Port Facility Security Code (ISPS Code). Where the Administration considers this Regulation unreasonable or impracticable, it may exempt such ships from such provisions, provided that the ship has equivalent protection against threaten security in the maritime transport sector.

2 All Philippine-registered domestic ships regardless of size, that have ship-to-ship interface with international ships or with an ISPS port facility, must comply with the minimum requirement of the ISPS Code and the National Transport and Maritime Security (NTMS) as implemented by the designated Authority.

3 All Philippine-registered domestic ships that will engage in the overseas trade shall comply with the requirements of the ISPS Code.

Chapter XIX

Minimum Safe Manning

Regulation 1
General Provisions

1 All Philippine-registered ships shall be manned by a sufficient number of qualified, competent and certificated officers and ratings who can safely operate the ships at all times in accordance with International Convention on Standards of Training Certification and Watchkeeping for Seafarers (STCW) 1978, as amended and the International Maritime Organization Resolution A 1047(27) on the Principles of Safe Manning

2 Philippine-registered ships shall have onboard and displayed in conspicuous place a MARINA Certified True Copy of the Minimum Safe Manning Certificate indicating therein the BASIC safe manning complement and their corresponding licenses and qualification requirements. In addition, a Crew List, indicating the Officer's and/or Crew's positions and licenses/qualifications, must be attached to the Minimum Safe Manning Certificate.

3 Issuance of Minimum Safe Manning Certificate shall conform to the requirements of the existing MARINA Memorandum Circular and its future amendments.

4 Masters, officers and ratings performing watchkeeping shall meet the certification requirements of MARINA Memorandum Circular 2012 - 04 and, where applicable, by the certification requirements of the 1978 STCW Convention, as amended.

CHAPTER XX

FAST CRAFT

Regulation 1
General

These Chapter hereby adopts the International Code of Safety for High Speed Craft (HSC Code) adopted by the Maritime Safety Committee of the Organization by resolution MSC .36 (63) and MSC.97 (73) as may be amended by the Organization.

Regulation 2
Application

1 This chapter applies to high speed craft constructed on or after 1 January 1996, Passenger craft which do not proceed in the course of their voyage more than 4 h at operational speed from a place of refuge when fully laden.

Regulation 3
General Provision

1 Compliance with structural standards of a classification society recognized by the Administration may be accepted as satisfactory proof of the structural adequacy of a craft.

2 The management of the company operating the craft shall exercise strict control over' its operation and maintenance through a safety management system.

3 The management shall ensure that only persons duly qualified and certificated to operate the specific type of craft used on the intended route are employed:

4 The distances covered and the worst intended conditions in which operations are permitted will be restricted by the imposition of the following operational limits:

.1 The craft will at all time be in reasonable proximity to a place of refuge, depending on the condition that passenger craft should do not proceed in the course of its voyage more than four hours at operational speed from a place of refuge when fully laden.

.2 Adequate communications facilities, weather forecasts and maintenance facilities are available within area of operation;

.3 In the intended area of operation, there will be suitable rescue facilities readily available;

.4 Efficient facilities are provided for the rapid and safe evacuation of all persons into survival craft:

5 The areas of high fire risk, such as machinery spaces and special category spaces, shall be protected with fire resistant materials and fire extinguishing systems to ensure, as far as practicable, containment and rapid extinguishment of fire.

6 All passengers and crew must be provided with fixed seats with belts as necessary.

7 There shall be no enclosed sleeping berths for passenger.

8 Existing crafts engaged in the domestic trade shall comply with this Chapter to a degree determined by the Administration.

Regulation 4

Equivalent

1 Where the HSC Code requires that a particular fitting, material, appliance or apparatus, or type thereof should be fitted or carried in a craft, or that any particular provision should be made, the Administration may allow any other fitting, material, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made in the craft, if it is satisfied by trial thereof or otherwise that such fitting, materials, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by the Code.

2 Where compliance with any of the requirements of the HSC Code would be impractical for the particular design of the craft, the Administration may substitute those with alternative requirements provided that equivalent safety is achieved.