

GCC SAFETY REGULATIONS FOR NON-CONVENTIONAL SHIPS

**GCC SAFETY REGULATIONS FOR CARGO SHIPS NOT
COVERED BY THE PROVISIONS OF IMO CONVENTIONS
AND FOR SMALL PASSENGER SHIPS CARRYING LESS
THAN 200 PASSENGERS**

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PREAMBLE

- 1 The Safety Regulations for Cargo Ships not covered by the provisions of the Conventions of the International Maritime Organization (IMO) and for Small Passenger Ships carrying less than 200 passengers, hereinafter called the Regulations, are intended to establish regional minimum safety standards for new and existing ships navigating in the GCC Countries Region.

- 2 The present Regulations have been prepared taking into account the applicable provisions of the following International Conventions and their Protocols:
 - 2.1. The International Convention for the Safety of Life at Sea (SOLAS), 1974, as modified by its Protocol of 1988;
 - 2.2. The International Convention on Load Lines (LL), 1966, as modified by its Protocol of 1988;
 - 2.3. The International Convention on Standards of Training, Certification and Watchkeeping (STCW), 1978, as amended;
 - 2.4. The International Convention for the Prevention of Pollution from Ships (MARPOL), 1973/78; and
 - 2.5. International Regulations for Preventing Collisions at Sea (COLREG), 1972

- 3 The present Regulations shall be regularly updated in accordance with experience and developments in the international maritime safety standards.

CHAPTER 1

GENERAL PROVISIONS

Application

Regulation 1

- 1 The present Regulations apply to new cargo ships, including barges, engaged in maritime navigation, whose length overall is 12 metres or over and for which the provisions of the Conventions listed in the regulations. They also apply to passenger ship whose length overall is 12 metres or over but less than 24 metres and carrying less than 200 passengers operating on domestic voyages or voyages between GCC Countries. Also apply to, local ,existing and new, sailing ships that are used or modified as passenger ships Unless otherwise mentioned, the provisions of the Regulations to cargo ships also apply to those passenger ships.
- 2 The port authority may request compliance with any additional measures or requirements to the Regulations.
- 3 It is a duty for the shipowner or its master or agent and also the owner of goods or vehicles or shipping broker, in addition to the port operator to have known on the measures or requirements that the port authority may be requested to adhere to in addition to the measures or requirements in the Regulations for vessels, cargo and vehicles.
- 4 Every ship coming into the Gulf Cooperation Council ports , which are subject to the Regulations, shall carry on board a copy of the Regulations and any subsequent amendments to it.
- 5 Any Member State of the Gulf Cooperation Council may apply for amendment of these Regulations under the provisions of Regulation (133) of the chapter 18.

Regulation 2

The Administration may continue to authorize the operation of an existing ship designed on the basis of lower standards than those set out in the present Regulations. However, such ships should at least satisfy those provisions which, in the opinion of the Administration, are considered necessary to ensure the safety of the ship and its crew during the voyage or voyages that it is expected to make.

Regulation 3

The Administration could with regard to passenger ship whose length overall is less than 24 meters and carrying less than 200 passengers on international voyages between the ports of the Gulf Cooperation Council for the Arab Gulf States and neighbouring countries which apply the regulations, be issued to these vessel safety certificate for passenger ship in accordance with the provisions of the Convention for the Safety of Life at Sea and shall provide a copy of the **notice of parity** to the International Maritime Organization.

Definitions

Regulation 2

For the purpose of the present Regulations, unless expressly provided otherwise:

1. **Gulf Cooperation Council (GCC) Countries:** means the member States of the Cooperation Council for the Arab Gulf States.
2. **Supreme Council:** Supreme Council for the Cooperation Council for the Arab Gulf States
3. **Accommodation spaces:** are those spaces used for public spaces, corridors, lavatories, cabins, offices, pantries containing no cooking appliances and similar spaces. Accommodation spaces also include stairways, chutes and exits serving such spaces.
4. **Administration:** means the Government of the State whose flag the ship is entitled to fly or the appropriate authority duly authorized by that Government.
5. **Amidships:** is at the middle of the distance between the perpendiculars.
6. **Anniversary date:** means the day and the month of each year which will correspond to the date of expiry of the relevant certificate
7. **Barge:** means a cargo ship without its own means of propulsion.
8. **Breadth (B):** is the greatest moulded breadth of the ship at or below the deepest draught.
9. **Bulkhead deck:** is the uppermost deck up to which the transverse watertight bulkheads are carried.
10. **A cargo ship:** is any ship which is not a passenger ship.
11. **Cargo spaces:** are all spaces used for cargo (including cargo oil tanks) and trunks to such spaces.
12. **Closed ro-ro cargo spaces:** are ro-ro cargo spaces which are neither open ro-ro cargo spaces nor weather decks.
13. **Coastal Station:** The vessel traffic service, or equipment or facilities built on the coast and is responsible for compulsory reporting system approved by the International Maritime Organization, or responsible authority for coordinating search and rescue operations or processes that control and treatment of pollution in the seas, which determines its Member State in accordance with the provisions of these Regulations.
14. **Continuous watch:** means that the radio watch concerned shall not be interrupted other than for brief intervals when the ship's receiving capacity is impaired or blocked by its own communications or when the facilities are under periodical maintenance or checks. However, with regard to the reception of EGC messages, the reception watch shall be at least 98 per cent as defined in the IMO "International SafetyNet " manual.

15. **A control station:** is a space in which the ship's radio or main navigating equipment, or the emergency source of power is located or where fire recording or control equipment is centralized.
16. **COSPAS-SARSAT:** means the organization established by intergovernmental agreement (Russia and United States of America) on 1 July 1988, operating a distress satellite system.
17. **Crew:** any person employed effectively to carry out the functions or services of the ship during the voyage of the ship, and is included on the crew list.
18. **Dangerous Goods:** any goods which are liable individually or collectively, owing to the nature of the goods, quantity or method of stowage, to cause danger to passengers or crew, or threaten the ship, and include all items specified by the International Maritime Organization as a dangerous goods within IMDG Code.
19. **Deadweight:** is the difference in tonnes between the displacement of a ship in the water of a specific gravity of 1.025 at the load waterline corresponding to the assigned summer freeboard and the lightweight of the ship.
20. **Deck radio beacon:** means an emergency position indicating radio beacon (EPIRB) operating on 406 MHz in the COSPAS-SARSAT system or by other satellite. It can float free. It is provided with a hydrostatic pressure launching system, and transmission may be activated manually or automatically when the radio beacon is released.
21. **Depth for Freeboard (D):** is the moulded depth amidships, plus the thickness of the freeboard deck stringer plate, where fitted, plus $T(L-S) : L$ if the exposed freeboard deck is sheathed, where
T is the mean thickness of the exposed sheathing clear of deck openings, and
S is the total length of the superstructures.
22. **Digital Selective Calling (DSC):** means a technique using digital codes which enables a radio station to establish contact with, and transfer information to, another station or group of stations, and complying with the relevant recommendations of the International Radio Consultative Committee (CCIR).
23. **Direct-printing telegraphy:** means automated telegraphy techniques which comply with the relevant Recommendations of the International Radio Consultative Committee (CCIR).
24. **Draught:** is the vertical distance from the moulded base line amidships to the water line in question.
25. **EPIRBs:** is a float-free Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) operating on 406 MHz in the COSPAS-SARSAT system or other polar orbiting satellite, it's located in the ship or into a survival craft.

26. **Emergency source of electrical power:** is a source of electrical power, intended to supply the emergency switchboard in the event of failure of the supply from the mains source of electrical power.
27. **An existing ship:** means a ship which is not a new ship.
28. **A fishing vessel:** is a vessel used for catching, harvesting or farming the living resources of the sea.
29. **Float-free launching:** is that method of launching a survival craft whereby the craft is automatically released from a sinking ship and is ready for use.
30. **Freeboard:** The freeboard assigned is the distance measured vertically downwards amidships from the upper edge of the deck line to the upper edge of the related load line.
31. **Freeboard deck:** The freeboard deck is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing. In a ship having a discontinuous freeboard deck, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.
32. **General radio communications:** means operational and public correspondence traffic, other than distress, urgency and safety messages, conducted by radio.
33. **Goods causing pollution:** means oils as defined in Annex I of MARPOL Convention 73/78, and noxious liquid substances as defined in Annex II of the MARPOL Convention 73/78.
34. **Gross tonnage:** means the measure of the overall size of a ship determined in accordance with the provisions of the International Convention on Tonnage Measurement of Ships, 1969
35. **Inflatable appliance:** is an appliance which depends on non-rigid, gas-filled chambers for buoyancy and is kept inflated and ready for use at all times.
36. **INMARSAT:** means the Organization established by the Convention on the International Maritime Satellite Organization (INMARSAT) adopted on 3 September 1976.
37. **International NAVTEX service:** means the co-ordinated broadcast and automatic reception on 518 kHz of maritime safety information by means of narrow-band direct-printing telegraphy using English Language. (Reference should be made to the NAVTEX manual approved by the IMO).
38. **International Safety Management (ISM) Code:** means the International Management Code for the Safe Operation of Ships and for Pollution Prevention adopted by the International Maritime Organization by Assembly Resolution A.741(18) of 4th November 1993.

39. **International SafetyNet Service:** means the co-ordinated broadcast and automatic reception of maritime safety information by means of the INMARSAT enhanced group calling system (EGC).
40. **International Ship and Port Facility Security (ISPS) Code:** means the International Code for the Security of Ships and of Port Facilities, adopted by the International Maritime Organization, including all the amendments thereto.
41. **International voyage:** means a voyage between ports in two different countries.
42. **Length:** The length (L) shall be taken as 96 per cent of the total length on a waterline at 85 per cent of the least moulded depth measured from the top of the keel, or as the length from the fore side of the stem 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 length is measured shall be parallel to the designed waterline;
- a. **The overall length (L_o)** means the overall length of the ship's hull.
43. **Light weight:** is the displacement of a ship in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feedwater in tanks, consumable stores, and passengers, crew and their effects.
44. **Load line:** means line is used to measure the amount of gross tonnage which can be carried by a ship and sail safely, and this load is usually measured in tonnes.
45. **Locating:** means the finding of ships, aircraft, units or persons in distress.
46. **Low flame spread:** means that the surface thus described will adequately restrict the spread of flame, this being determined in accordance with a method based on a suitable test considered satisfactory by the Administration.
47. **Machinery spaces:** are all machinery spaces of category A and all other spaces containing propelling machinery, boilers, 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.
48. **Machinery spaces of category A:** are those spaces and trunks to such spaces which contain:
- .1 internal combustion machinery used for main propulsion; or
 - .2 internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375kW; or
 - .3 any oil-fired boiler or oil fuel unit.
49. **Main source of electrical power:** is a source intended to supply electrical power to the main switchboard for distribution to all services necessary for maintaining the ship in normal operational and habitable condition.
50. **Main steering gear:** is the machinery, rudder actuators, steering power units, if applicable, 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.

51. **The main switchboard:** is a switchboard which is directly supplied by the main source of electrical power and is intended to distribute electrical energy to the ship's services.
52. **Margin line:** is a line drawn at least 76 mm below the upper surface of the bulkhead deck at side.
53. **Maritime Safety Information (MSI):** means navigational and meteorological warnings, meteorological forecasts and other urgent safety related messages broadcast to ships.
54. **MARPOL Convention 73/78:** means the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978.
55. **Maximum ahead service speed:** is the greatest speed which the ship is designed to maintain in service at sea at the deepest seagoing draught.
56. **Maximum astern speed:** is the speed at which it is estimated that the ship can attain at the designed maximum power astern at the deepest seagoing draught.
57. **A new ship:** means a ship the keel of which is laid or which is at a similar stage of construction on or after the date of entry into force of the present Regulations.
58. **Non-combustible material:** is a material which neither burns nor gives off flammable vapours in sufficient quantity for self-ignition when heated to approximately 750°C, this being determined to the satisfaction of the Administration by an approved test procedure. Any other material is a combustible material.
59. **Open ro-ro cargo spaces:** are ro-ro cargo spaces either open at both ends, or open at one end and provided with adequate natural ventilation effective over their entire length through permanent openings in the side plating or deckhead to the satisfaction of the appropriate authority.
60. **A passenger:** is every person other than:
 - .1 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; and
 - .2 a child under one year of age.
61. **A passenger vessel:** is a ship which carries more than twelve passengers.
62. **Perpendiculars:** The forward and after perpendiculars shall be taken at the forward and after ends of the length (L). The forward perpendicular shall coincide with the foreside of the stem on the waterline on which the length (L) is measured.
63. **A pleasure craft:** means a craft not engaged in trade used for tourism or sport.
64. **Polar orbiting satellite service:** means a service which is based on polar-orbiting COSPAS-SARSAT satellites which received and relay distress alerts from emergency

- position indicating radio beacon (EPIRB) by satellite and which provides their position.
65. **Public spaces:** are those portions of the accommodation which are used for halls, dining rooms, lounges and similar permanently enclosed spaces.
66. **Radiocommunications service:** means each of the following satellite and terrestrial radio services:
- .1 A radiocommunication service utilizing geostationary satellites in the INMARSAT mobile satellite service.
 - .2 A radiocommunication service utilizing polar orbiting satellites in the COSPAS-SARSAT mobile satellite service.
 - .3 The mobile maritime service on VHF in the bands between 156 MHz to 174 MHz
 - .4 The mobile maritime service on HF in the bands between 4,000 kHz and 27,500 kHz , and
 - .5 The mobile maritime service on MF in the bands between 1,605 kHz and 4,000 kHz and between 415 kHz and 526,5 kHz.
67. **Radio Regulations:** means the Radio Regulations annexed to, or regarded as being annexed to, the most recent International telecommunication Convention which is in force at any time.
68. **Rescue boat:** is a boat designed to rescue persons in distress and to marshal rescue survival craft.
69. **Retro-reflective material:** is a material which reflects a beam of light directed towards it in the opposite direction.
70. **Ro-ro cargo spaces:** are spaces not normally divided in any way and extending to either a substantial length or the entire length of the ship in which goods (packaged or in bulk, in or on rail or road cars, vehicles (including road or rail tankers), trailers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles) can be loaded and unloaded normally in a horizontal direction.
71. **Sea Area A1:** means an area within the radiotelephone coverage of at least one VHF coast station in which the continuous DSC alerting is available, as may be defined by a contracting Government.
72. **Sea Area A2:** means an area, excluding sea area A1, within the radiotelephone coverage of at least one MF coast station in which the continuous DSC alerting is available, as may be defined by a contracting Government.
73. **Sea Area A3:** means an area, excluding sea areas A1 and A2, within the coverage of an INMARSAT geostationary satellite in which continuous alerting is available.
74. **Sea Area 4:** means an area outside sea areas A1, A2 and A3.

75. **Service spaces:** are those spaces used for galleys, pantries containing cooking appliances, lockers, mail and specie rooms, store-rooms, workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces.
76. **Ships' cargo waste:** means any cargo residual waste found inside cargo spaces/tanks, resulting from the carriage of those cargoes.
77. **A small passenger vessel:** is a ship which length overall is 12 metres or over but less than 24 metres and carries less than 200 passengers
78. **SOLAS Convention:** means the International Convention for the Safety of Life at Sea, 1974, signed in London on November 1, 1974, and its Protocol of the Convention of 1978 signed in London on February 17, 1978, and any amendments thereto.
79. **Special personnel:** means all persons who are not passengers or members of the crew or children of under one year of age and who are carried on board in connection with the special purpose of that ship or because of special work being carried out aboard that ship.
80. **Special purpose ship:** means a mechanically self-propelled ship which by reason of its function carries on board more than 12 special personnel including passengers. Special purpose ships to which this code applies include the following types:
- .1 ships engaged in research, expeditions and survey;
 - .2 ships for training of marine personnel;
 - .3 whale and fish factory ships not engaged in catching;
 - .4 ships processing other living resources of the sea, not engaged in catching;
 - .5 other ships with design features and modes of operation similar to ships referred to in .1 to .4 above which in the opinion of the Administration may be referred to in this group.
81. **A superstructure:** is 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 4 per cent of the breadth (B). A raised quarter deck is regarded as a superstructure.
82. **Survival beacon:** means an emergency position indicating radio beacon operating on 406 MHz in the COSPAS-SARSAT system or the INMARSAT satellite system. It is located inside ships or survival craft.
83. **A tanker:** is a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable nature.
84. **Waste from the vessel:** means all wastes, including sewage and garbage, except waste of goods, which are produced during the ship's service and fall within the scope of Annexes I, IV and V of the MARPOL 73/78 and cargo associated waste in

accordance with the defined in the guidance on the implementation of Annex V of MARPOL 73/78.

Exceptions

Regulation 6

The present Regulations do not apply to:

1. existing cargo ships and barges whose length overall is less than 12 metres, unless expressly provided otherwise as contained in Annex 1 of this regulation.
2. ships belonging to the State and used for non-commercial purposes, ships of war and troopships;
3. passenger ships; which exceeds 24 meter in length and carries more than 200 passenger and
4. pleasure craft not engaged in trade;
5. Local sailing ships, newly built, that used or be used in fishing or carriage of cargo, without major modification on it.

Exemptions

Regulation 6

1. If it is considered by the Administration that the nature and conditions of a particular voyage are such that the application of one or more provisions of the present Regulations would be neither reasonable nor necessary, a ship undertaking that voyage may be exempted from these provisions, provided that it complies with the safety requirements which are adequate in the opinion of the Administration for the voyage which is to be undertaken by the ship.
2. The Administration may exempt any ship which embodies features of a novel kind from any of the provisions of the present Regulations the application of which might seriously impede research into the development of such features and their incorporation in ships. Any such ship shall, however, comply with safety requirements which, in the opinion of that Administration are adequate for the service for which it is intended and are such as to ensure the overall safety of the ship.
3. Any Administration which allows any such exemption shall communicate the particulars of same and the reasons therefore to the other Administrations that have agreed to implement these Regulations on a regional basis.

Equivalents

Regulation 7

1. Where the present Regulations require that a particular fitting, material, appliance or apparatus, or type thereof, shall be fitted or carried in a ship, or that any particular provision shall 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 that ship, it is satisfied by trial thereof or otherwise that such fitting, material, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by the present Regulations.

2. Any Administration which allows any such exemption shall communicate the particulars of same and the reasons therefore to the other Administrations that have agreed to implement these Regulations on a regional basis.

Standards

Regulation 8

1. The construction, design, structural strength, fittings, materials, equipment and special appliances shall comply with accepted standards, except as expressly described or indicated in the present Regulations.
2. In addition to the regulations and standards to which the present Regulations refer, the regulations and standards recommended by the International Maritime Organization may also be applied where appropriate.
3. Passenger vessels shall comply with the structural design requirements of the standards of one of the recognised organisation for the material and construction of the vessel.

Repairs, alterations or modifications of a major character

Regulation 9

1. Repairs, alterations or modifications of a major character and the installation of any associated equipment in an existing ship shall meet the requirements applicable to new ships in so far as the Administration deems reasonable and practicable. The shipowner shall inform the Administration of the intended alterations or modifications before they are implemented.
2. For the purposes of the present Regulations, repairs, alterations or modifications are deemed to be of a "major character":
 - 2.1 when the changes significantly alter the ship's dimensions or its cargo capacity;
 - 2.2 when the changes are such as to significantly increase the ship's service life; or
 - 2.3 when conversions change the ship's functionality.

Carriage of goods

Regulation 10

1. Ships and barges which carry goods listed below shall comply with the provisions of Chapters VI and VII of the SOLAS Convention, Annexes I, II and III of MARPOL and the related Codes:
 - 1.1 bulk grain;
 - 1.2 dangerous goods in packaged form or in bulk;
 - 1.3 liquid chemicals in bulk;
 - 1.4 liquefied gases in bulk; and

- 1.5 other goods in bulk.
2. In so far as they do not conflict with the provisions of the present Regulations, the requirements for ships of 150 tonnes gross tonnage or over intended to carry liquid hydrocarbons, at ambient temperature and atmospheric pressure, shall apply to the ships covered by the present Regulations and intended to carry the same goods.
3. Exemptions may be allowed by an Administration to the extent that the requirements are neither reasonable nor necessary taking into account the ship and the voyage undertaken. Any Administration which allows any such exemption shall communicate the particulars of same and the reasons therefore to the other Administrations that have agreed to implement these Regulations on a regional basis.

Ship's plans and documents

Regulation 11

Any ship shall have the plans and documents on board necessary to its proper operation and to the safety of life at sea in the working language of the crew.

Force majeure

Regulation 12

A ship which is not subject to the provisions of the present Regulations at the time of its departure on any voyage shall not become subject to such provisions on account of any deviation from its intended voyage due to stress of weather or any other cause of *force majeure*.

Accidents

Regulation 13

1. In the event of an accident involving a ship which results in loss of life, damage to the environment or material damage to the ship, its sinking, abandonment or loss, the master or the shipowner shall immediately inform the Administration and, if applicable, the nearest coastal State.
2. The Administration shall investigate¹ any accident to any of its ships subject to the provisions of the present Regulations, when it considers that such investigation may help to determine any alterations that might usefully be made. It shall communicate the results of the inquiry to all the other Administrations which have agreed to implement the present Regulations on a regional basis. If several countries are concerned, the Administration shall take all relevant measures to allow a joint investigation to be conducted with the other Administrations which have agreed to implement the present Regulations on a regional basis.

¹ Refer to IMO Resolution A.849(20), Code for the investigation of marine casualties and incidents, as amended.

CHAPTER 2

SHIP SURVEYS AND SAFETY CERTIFICATES

Inspection and survey

Regulation 14

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 therefore, shall be carried out by officers of the Administration. The Administration may, however, entrust the inspections and surveys either to surveyors nominated for the purpose or to organizations recognized by it*.
2. An Administration nominating surveyors or recognized organizations to conduct inspections and surveys as set forth in paragraph 1 of this Regulation shall as a minimum empower any nominated surveyor or recognized organization to:
 - 2.1 require repairs to a ship, and
 - 2.2 carry out inspections and surveys if requested by the appropriate authorities of a port State.
3. When a nominated surveyor or recognized organization determines that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificate or is such that the ship is not fit to proceed to sea without danger to the ship, the environment or persons on board, such surveyor or organization shall:
 - 3.1 immediately ensure that corrective action is taken.
 - 3.2 promptly notify the Administration.
4. If such corrective action is not taken, the Administration shall:
 - 4.1 suspended or withdraw the relevant certificate.
 - 4.2 detained the ship and notify the concerned bodies.
 - 4.3 If the ship is in the port of a GCC State, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or a recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this Regulations. When applicable, the Government of the port State concerned shall ensure that the ship shall not sail until it can proceed to sea or leave port for the purpose of proceeding to the appropriate repair yard, without danger to the ship or persons on board.
5. The Administration when delegating their duties to a recognized organization shall ensure, that such organizations are audited regularly by the Administration. The Administration shall at all times guarantee the completeness and efficiency of the inspection and survey, and shall undertake to ensure the necessary arrangements to satisfy this obligation.

Types of surveys

* Refer to IMO Resolution A.739(18) Guidelines for the authorization of organizations acting on behalf of the Administration.

Regulation 15

All ships to which the present Regulations apply shall be subject to surveys as follows:

1. an initial survey, including of the outside of the ship's bottom, before the ship is put into service;
2. a renewal survey for certificates at intervals specified by the Administration but not exceeding 5 years;
3. a periodical/intermediate survey within 3 months before or after the second or third anniversary date of the Certificate. This survey shall take the place of the annual survey specified in paragraph 4 of this regulation;
4. an annual survey within 3 months before or after the anniversary date of the Certificate
5. additional surveys, as occasion arises; and
6. two inspections of the ship's hull, including of the outside of the ship's bottom, during any five-year period.

Initial survey

Regulation 16

The initial survey shall be such as to ensure that the installations, equipment and systems described below fully comply with the provisions of the present Regulations and that they are in all respects in good working order:

1. the arrangements, materials and scantlings of the structure;
2. boilers and other pressure vessels;
3. main and auxiliary machinery including steering gear and associated control systems;
4. fire protection and fire safety systems, life-saving appliances and arrangements, navigational equipment, nautical publications, means of embarkation for pilots;
5. radio installations including those used in life-saving appliances;
6. oil discharge control systems and arrangements for retention on board;
7. Sewage control system and arrangements for retention on board;
8. positioning of lights, shapes and sound signals and distress signals in conformity with the COLREG Convention: and
9. the arrangements, materials and scantlings of the structure as specified in Chapter 3 on conditions of assignment of freeboard and load lines.

Certificate renewal survey

Regulation 17

The certificate renewal survey shall include an inspection of the equipment referred to in regulation (16) to ensure that it has been maintained in accordance with the present Regulations and the COLREG Convention.

Intermediate survey

Regulation 18

The intermediate survey shall include an inspection of the points specified in Chapters 4 to 8 and Chapter 13 of the present Regulations to ensure that they are in good condition and satisfactory for the service for which the ship is intended. During the inspection of the hull and the machinery, reference shall be made to the detailed inspections carried out under the continuous monitoring system, where such a system has been put in place.

Periodical survey

Regulation 19

The periodical survey shall include an inspection of the equipment, if necessary with tests, to ensure that it complies with the provisions relating to life-saving appliances, fire protection and fire safety, and signal lights and sound signals, is in satisfactory condition and fit for the service for which the ship is intended. All certificates, registers, operating manuals and other instructions, and mandatory documents, shall be checked;

Annual survey

Regulation 20

The annual survey shall include any inspection required to ensure that:

1. the equipment specified in paragraph 2.1 has been maintained in a satisfactory condition and remains fit for the service for which the ship is intended;
2. alterations have not been made to the hull or the superstructures which would affect the calculations determining the position of the load line;
3. appliances and systems of protection of openings, stanchions, scuppers and means of access are maintained in good condition.

Additional survey

Regulation 21

An additional general or partial survey, as occasion arises, shall be carried out after any repair resulting from an accident or damage which affects the safety of the ship. The survey shall be such as to ensure that the repairs and replacements have been carried out in an appropriate manner.

Ship's hull and bottom survey

Regulation 22

A minimum of two inspections of the outside of the ship's bottom* shall be carried out during any five year period except as otherwise authorized by the Administration. As far as possible,

* Refer to IMO Resolution A.948(23) on Survey guidelines under the harmonized system of survey and certification.

the interval between any two such inspections shall not exceed 36 months. The purpose of the inspection of the outside of the ship's bottom and surveys of associated parts carried out at the same time is to ensure that they have been maintained in a satisfactory condition and are fit for the service for which the ship is intended. One of the two inspections should preferably coincide with the certificate renewal survey.

Endorsement of surveys

Regulation 23

The periodical, intermediate and annual surveys referred to in the present Regulation shall be endorsed on the Certificate.

Maintenance of conditions after survey

Regulation 24

1. The condition of the ship and its equipment shall be maintained to conform with the provisions of the present Regulations to ensure that the ship in all respects will remain fit to proceed to sea without danger to the ship, persons on board and the marine environment.
2. After any survey of the ship under the present chapter has been completed, no change shall be made in the structural arrangements, machinery, equipment and other parts covered by the survey, without the approval of the Administration.
3. Whenever an accident occurs to a ship or a defect is discovered, either of which affects the safety of the ship or the efficiency or completeness of its life-saving appliances or other equipment, a request shall immediately be addressed to the Administration which issued the Certificate so that a survey as specified in Regulation 15 may be carried out as soon as possible.

Issue or endorsement of the Certificate

Regulation 25

1. A certificate called a "Safety Certificate for Cargo Ships not subject to the provisions of the IMO Conventions", or a "Safety Certificate for small passenger vessels", hereinafter called the Certificate, shall be issued to a ship that complies with the provisions of the present Regulations after an initial or a certificate renewal survey as specified in Regulation 15. The Administration shall ensure that the survey carried out is efficient and complete before issuing the Certificate.
2. The Certificate issued under the provisions of paragraph 1 shall be accompanied by a Record of Equipment.
3. A certificate called a "Special Purpose Ship Safety Certificate" shall be issued after an initial or a certificate renewal survey to any ship that complies with the provisions of Chapter 12 of the present Regulations concerning safety of special purpose ships.
4. A certificate called a "Compliance Certificate for Offshore Support Vessels " shall be issued to ships of that type in accordance with IMO Resolution A.673 (16) on

Guidelines for the transport and handling of limited amounts of hazardous and noxious substances in bulk in offshore support vessels

5. When an exemption is granted to a ship under and in accordance with the present Regulations, a certificate called an Exemption Certificate shall be issued in addition to the certificate prescribed in the present Regulations. The Exemption Certificate shall be attached to the Certificate.
6. The Certificate shall be issued and or endorsed either by the Administration or by any person or organization authorized by it. In every case, that Administration shall assume full responsibility for the Certificate.

Issue or endorsement of the Certificate by another Government

Regulation 26

An Administration which applies the present Regulations may, at the request of another Administration which also applies these Regulations, cause a ship flying the flag of the State to which it belongs to be surveyed. If the latter is satisfied that the requirements of the present Regulations are complied with, it shall issue or authorize the issue of the Certificate or, where appropriate, endorse or authorize the endorsement of the Certificate in accordance with the provisions of the present Regulations. Any Certificate so issued shall contain a statement to the effect that it has been issued at the request of the Government of the flag State.

Duration of validity of the Certificate

Regulation 27

1. A "Safety Certificate for Cargo Ships not subject to the provisions of the IMO Conventions", or a Safety Certificate for Small Passenger Vessel", or a "Special Purpose Ship Safety Certificate" shall be issued for a period not exceeding five years.
2. An Exemption Certificate shall in no case be valid for a period longer than that of the "Safety Certificate for Cargo Ships not subject to the provisions of the IMO Conventions", or a Safety Certificate for Small Passenger Vessel", or of the "Special Purpose Ship Safety Certificate".
3. 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 for a period not exceeding five years from the date of expiry of the existing Certificate.
4. 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 for a period not exceeding five years from the date of expiry of the existing Certificate.
5. When the renewal survey is completed more than three months after the expiry date of the existing Certificate, the new Certificate shall be valid from the date of completion of the renewal survey for a period not exceeding five years from the date of completion of the renewal survey.

When a Certificate is issued for a period of less than five years, the Administration may extend the validity of that Certificate beyond the expiry date up to five years provided that the annual surveys specified in Regulation 20 have been carried out.

If a renewal survey has been completed and a new Certificate cannot be issued before the expiry date of the existing Certificate, the officer or organization authorized by the Administration who carries out the survey may extend the validity of that Certificate for a period not exceeding five months. This extension shall be endorsed on the Certificate.

6. If a ship at the time when a Certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the Certificate, but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than three months, and a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate. When the renewal survey is completed, the new Certificate shall be valid for a period not exceeding five years from the expiry date of the existing Certificate before the extension was granted.
7. In special circumstances, as determined by the Administration, a new Certificate need not be dated from the date of expiry of the existing Certificate as required by paragraphs 3 and 5. In such special circumstances, the new Certificate shall be valid for a period not exceeding five years from the date of completion of the renewal survey.
8. If an annual or intermediate survey is carried out before the period specified in the present chapter:
 - 8.1 the anniversary date shown on the Certificate shall be amended by endorsement to a date which shall not be more than three months after the date on which the survey was completed;
 - 8.2 the subsequent annual surveys shall be carried out at the intervals calculated using the new anniversary date; and
 - 8.3 the expiry date may remain unchanged provided one or more annual or intermediate surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed in the present chapter are not exceeded.
9. The Certificate shall cease to be valid in any of the following cases:
 - 9.1 if the relevant surveys and inspections have not been carried out within the periods specified in the present chapter;
 - 9.2 if the Certificate is not endorsed to show that the relevant surveys of the ship have been carried out;
 - 9.3 upon change of flag; or
 - 9.4 upon major alterations to the structure, machinery, equipment and other parts of the ship as specified in the present Regulations.
10. In the case of a change of flag between two States which have agreed to apply the present Regulations on a regional basis, the Administration of the State whose flag the

ship was flying before the change shall, as soon as possible, transmit to the Administration of the new flag State copies of the Certificates issued to the ship before the change and, if available, copies of the relevant survey reports.

Forms of Certificates

Regulation 28

1. The Safety Certificate for Cargo Ships not subject to the provisions of the IMO Conventions, or the Safety Certificate for Small Passenger Vessel”, and the accompanying Equipment Report, as well as the Exemption Certificate, if any, shall be drawn up in the form corresponding to the models given in the annex to the present Regulations.
2. Additional certificates issued in application of the provisions of the present Regulations and the IMO provisions to which they refer shall be drawn up in the form specified in the relevant IMO Codes and Guidelines. The text shall be drawn up in the Arabic language and, for cargo ships undertaking voyages outside the area of application of the present Regulations, it shall include a translation into English, Spanish or French.

Availability of Certificates

Regulation 29

All Certificates issued under the present Regulations shall be readily available on board for examination at all times.

Control

Regulation 30

1. All foreign flagged ships shall be subject to control by officers duly authorised by the Administration. Every ship to which these Regulations apply when in a port of one of the States, that have agreed to implement these Regulations on a regional basis, shall be subject to control by officers duly authorized by the Administration in so far as this control is directed towards verifying that the Certificate issued under the present Regulations is valid.
2. Such Certificate, if valid, shall be accepted unless there are clear grounds for believing that the condition of the ship or of its equipment does not correspond substantially to the particulars of the Certificate.
3. In the circumstances given in paragraph 2 or where the Certificate has expired or ceased to be valid, the officer carrying out the control shall take steps to ensure that the ship shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the appropriate repair yard without danger to the ship, the environment or persons on board.
4. In the event of this control giving rise to an intervention of any kind, the diplomatic representative of the State whose flag the ship is entitled to fly, and nominated

surveyors and authorized organizations responsible for the issue of the Certificate shall be notified.

5. When exercising control under the provisions of this Regulation all possible efforts shall be made to avoid a ship being unduly detained or delayed. Any ship which is unduly detained or delayed shall be entitled to compensation for any loss or damage suffered.
6. States which have agreed to implement the present Regulations on a regional basis shall participate in a system for the exchange of information on the exercise of controls by the port State in respect of ships subject to the present Regulations, corresponding to the arrangements under the Riyadh Memorandum of Understanding on Port State Control.

CHAPTER 3

LOAD LINES

General

Regulation 31

1. In this chapter, Annex I of the International Convention on Load Lines, 1996, as amended, is called the "**Convention**".
2. The load line mark is defined in Regulation 5 of the Convention.
3. A load line shall be assigned to all ships, including barges, covered by the present Regulations.
4. Except as provided otherwise, ships covered by the present Regulations are subject to the provisions of the Convention

Load line certificate

Regulation 32

1. all ships subject to the present Regulations shall have a load line certificate;
2. the load line certificate shall be issued in accordance with the regulations under the Convention and the relevant requirements of this chapter;
3. at each renewal, a new load line certificate shall be issued after a survey to ensure that the structure, condition of the hull and superstructures, the watertight bulkheads, equipment, arrangements, materials and scantlings remain satisfactory in respect of load lines.
4. the load line certificate and copy of the load line survey report shall be available for inspection during annual or renewal surveys.
5. the authority responsible for the issue of the load line certificate shall provide the shipowner with a load line survey report showing clearly:
 - 5.1 all the points that were taken into consideration in assigning the load line;
 - 5.2 all the conditions accepted for the assignment of the load line.
6. For ships to which these Regulations apply, the model load line certificate is given in the annex to the present Regulations.

Issue of load line certificates

Regulation 33

The load line certificate shall be issued by the Administration or a duly authorized organization. For a passenger vessel the load line certificate shall be issued by a recognised organisation on behalf of the Administration.

Load line mark

Regulation 34

1. Ships subject to the present Regulations shall show on their hull, amidships on each side, a load line mark clearly showing the upper limit of submersion resulting from the applications of the requirements of the present chapter on scantlings, subdivisions and stability.
2. The load line mark shall be affixed under the control of the authority responsible for the issue of the load line certificate.

Surveys and inspections

Regulation 35

1. An annual survey shall be carried out within three months before or after the anniversary date of the issue of the load line certificate. If the inspection does not take place, the load line certificate ceases to be valid.
2. During survey and inspection , the authority shall ensure the following:
 - 2.1 that the condition of the ships and the conditions under which it is operated have not been altered in such a way as to affect the calculations determining the position of the load line;
 - 2.2 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. 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.
4. Survey of the outside of the ship's bottom: During that inspection, in accordance with Chapter 2, Regulation 22 of these Regulations, the inlets, rudder, propulsion shaft openings and anchor chains shall be subject to particular examination.

Draught marks and scales

Regulation 36

All ships shall show on the bow and the stern, on each side, engraved or welded for steel ships, carved in the planking to a depth of at least 3 mm for wooden ships, shown in an equivalent manner for structures of materials other than steel and wood, 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.

Structure and scantlings

Regulation 37

1. The strength of the structure, defined on the basis of the standards set out in Regulation 6 of Chapter 1 of the present Regulations, one of the conditions for the assignment of a freeboard, shall be verified by the Administration or an organization duly authorized by the Administration to issue load line certificates. Such verification shall concern the construction plans, conformity between such plans and shipyard construction and the quality of the welding, where appropriate.
2. The general structure, scantlings and construction of the main structural elements of the hull (bottoms, sides, decks, bulkheads, fore and aft frames, stem, stern,) shall be constructed taking into account:
 - 2.1 the nature and characteristics of the materials used, their application and method of assembly;
 - 2.2 the type of ship, its dimensions, its internal arrangements, and the permitted maximum operational draught;
 - 2.3 the conditions under which it is operated and any particular distribution of weight on board and the category of navigation.
3. The maximum permitted draught shall remain compatible with the freeboard.
4. The materials used shall be of good quality and used according to appropriate methods of application and assembly, such that the overall structure ensures sufficient strength for the intended service.
5. The provisions of paragraphs 2 shall apply, in particular, to the scantlings of the main structure of the ship, closed superstructures and means of closure of openings therein, and the arrangement and construction of openings in the freeboard decks and superstructures, their means of closing, especially enclosures for machinery spaces, hatch covers, doorways, ventilators, and openings in the side of the ship.
6. When certain watertight components of the internal structure, such as bulkheads or decks, form part of the division of the ship, their construction shall comply with the requirements of the present part, also taking into account their resistance to local stress and their role in the ship's overall strength.

Conditions of assignment of load lines

Regulation 38

1. Doors

- 1.1 Access doors within closed superstructures, and those protecting, directly or otherwise, access to spaces below the freeboard deck, shall be permanently fixed to the bulkhead. They shall be made of steel or equivalent material, with a weathertight system for securing them, opening outwards and so arranged that they can be operated from both sides of the bulkhead.
- 1.2 Their structure, reinforcement and installation shall be so designed that the whole structure is of equivalent strength to the un-pierced bulkhead.
- 1.3 The door sills required under the prescriptions of paragraph 1 above shall be at least 600 mm above the freeboard deck. This height may be limited to 380 mm when the doors are in a space protected from the full force of the sea, subject to approval by the appropriate authority.
- 1.4 The height of the above-mentioned sills, for ships sailing less than 12 miles from shelter, shall be at least 380 mm above the freeboard deck.

2. Covers

- 2.1 Hatchway covers made of wood are not permitted.
- 2.2 Covers used to close hatchways on the freeboard deck and superstructure decks shall have a strength, rigidity and weathertightness considered satisfactory by the appropriate authority.
These criteria shall be deemed to be satisfied when the covers are constructed in compliance with the regulations of a recognized classification society.

3. Coamings

- 3.1 The coamings of hatchways shall be of substantial construction, and their height above the deck shall be at least 450 mm.
- 3.2 This height shall be reduced to at least 300 mm for coamings of hatchways in decks which form the ceiling of superstructures.
- 3.3 Nevertheless, the heights of coamings may be reduced or eliminated altogether if the Administration is satisfied that the safety of the ship is not thereby compromised in all sea conditions.

4. Ventilators and air pipes

- 4.1 ventilators serving spaces below the freeboard deck or decks of enclosed superstructures shall have coamings of steel or other equivalent material, substantially constructed and efficiently secured to the deck.

- 4.2 Parts of pipes passing through ballast and other tanks, casings or spaces extending above the freeboard or superstructure decks shall be of substantial construction. Means shall be provided for closing such pipes.
- 4.3 Ventilator coamings shall be provided with efficient, weathertight closing appliances, permanently attached thereto.
- 4.4 the height of the aforementioned coamings of ventilators and air pipes shall be at least:
 - 760 mm above the freeboard deck;
 - 450 mm above enclosed superstructure decks.
- 4.5 In exposed positions, the Administration may require the height of coamings of ventilators to be increased.

5. Skylights

Skylights shall be of substantial construction. They may comprise openings which may be closed by weathertight covers, permanently attached, when the lowest part of such openings is at least 450 mm above the deck. Alternatively, skylights may be in the form of opening side scuttles with deadlights.

6. Freeing ports

- 6.1 For ships of less than 24 metres in length (L), the minimum freeing port area on each side of the freeboard deck shall be given by the formula:

$$A = 0.75 (0.7 + 0.035 \times l) \text{ square metres}$$

Where l is the length of the bulwark in the well or the length of the superstructure.

- 6.2 The Administration may consider it necessary to increase the freeing port area for any ship where the sheer is insufficient.
- 6.3 The lower edges of the freeing ports shall be at deck level or as near the deck as possible.
- 6.4 Freeing ports over 300 mm in height shall be fitted with bars spaced not more than 230 mm apart or other appropriate protective appliances.
- 6.5 If freeing ports are fitted with hinged shutters, ample clearance shall be provided to prevent jamming. Hinge pins or bearings shall be of non-corrodible material and such shutters shall not have locking appliances.

Computation of freeboard

Regulation 39

1. The freeboard of decked ships shall be calculated using the Convention method, the freeboard tables of which shall be supplemented by the assignment of a freeboard of 200 mm for ships of less than 24 metres in length (L).
2. It shall not be required that the bow shall be situated at a minimum height above the waterline corresponding to the freeboard assigned to ships of less than 24 metres in length (L).
3. Regulation 29 of the Convention which corrects the freeboard shall apply to ships of less than 24 metres in length (L).
4. Where the shipowner is unable to provide the Administration or a duly authorized organization with the information required to determine the summer freeboard, the latter shall be calculated as one tenth of the maximum breadth of the ship

Passenger capacity

Regulation 40

1. The maximum number of passengers permitted in any passenger vessel shall be the greatest number permitted by any of the following criteria or combination of these criteria:
 - 1.1 Length of Rail - one passenger may be permitted for each 760mm of rail space available to the passengers at the periphery of the deck, not including rail space in congested areas, on stairways and where persons standing in the space would block the vision of the vessel's operators.
 - 1.2 Deck Area - one passenger may be permitted for each square metre of free deck area available for the passengers' use. Free deck area does not include:
 - 1.2.1 Concession stands, fixed tables, fixed gambling equipment and similar furnishings;
 - 1.2.2 Toilets and washrooms;
 - 1.2.3 Companionways and stairways;
 - 1.2.4 Spaces occupied and necessary for handling lifesaving equipment or line handling gear or in way of sail booms or running riggings;
 - 1.2.5 Spaces below deck which are unsuitable for passengers or which would not normally be used by passengers;
 - 1.2.6 Interior passageways less than 760 mm wide and passageways on open deck less than 460 mm wide;
 - 1.2.7 Bow pulpits, swimming platforms and areas which do not have a solid deck, such as netting on multi-hull vessels;
 - 1.2.8 Deck areas in way of paddle wheels; and
 - 1.2.9 Aisle area.
 - 1.3 Fixed Seating - one passenger may be permitted for each 460mm of width of fixed seating provided.

2. Different passenger capacity criteria may be used on each deck of a vessel and added together to determine the maximum number of passengers to be carried on that vessel. Where seats are provided on part of a deck and not on another, the number of passengers permitted on a vessel may be the sum of the number permitted by the seating criterion for the space having seats and the number permitted by the deck area criterion for the space having no seats. The length of rail criterion may not be combined with either the deck area criterion or the fixed seating criterion when determining the maximum number of passengers permitted on an individual deck.
3. The Administration may give special consideration to increasing the passenger allowances for a vessel operating on short runs on protected waters, such as a ferry.

Passenger Accommodation

Regulation 41

1. All passenger accommodation shall be arranged and equipped to provide for the safety of the passengers in consideration of the route, modes of operation and speed of the vessel.
2. The height of deckheads in a passenger accommodation space shall be at least 1.9 m but may be reduced at the sides of a space to allow for camber, wiring, ventilation ducts and piping. The space shall be maintained to minimise fire and safety hazards and to preserve sanitary conditions. Aisles shall be kept clear of obstructions.
3. A berth to the satisfaction of the Administration shall be provided for each passenger to be carried in overnight accommodation spaces.
4. A seat shall be provided for each passenger permitted in a space for which the fixed seating criterion in paragraph (1.3) of regulation 40 has been used to determine the number of passengers permitted. A seat shall be constructed to minimise the possibility of injury and avoid trapping occupants. Installation of seats shall provide for ready escape. Seats, including fixed, temporary or portable seats, shall be arranged as follows:
 - 4.1 An aisle of not more than 3.8 m in overall length shall be not less than 610mm in width;
 - 4.2 An aisle of more than 3.8m in overall length shall not be less than 760mm in width;
 - 4.3 Where seats are in rows, the distance from seat front to seat front shall not be less than 760mm and the seats shall be secured to a deck or bulkhead;
 - 4.4 Seats identified in the determination of the maximum number of passengers permitted shall be secured to the deck, bulkhead or bulwark by effective permanent or temporary means.

Watertightness

Regulation 42

1. The watertightness of the structure and bulkheads shall be verified in connection with the issue of the load line certificate for ships subject to the present Regulations.
2. **Openings in the shell plating**
 - 2.1 The arrangements and efficiency of the means of closing any opening in the ship's shell shall be consistent with its intended purpose and the position in which it is fitted.
 - 2.2 The number of scuppers, sanitary discharges and other similar openings in the sides of ships shall be kept to the minimum, either by using each discharge opening for the maximum possible number of sewage and other pipes, or by any other means approved by the Administration or duly authorized organization.
 - 2.3 Gangway doors, loading doors and fuel inlet doors whose lowest point would be below the load waterline are prohibited.
 - 2.4 Side scuttles to spaces below the freeboard deck or to spaces within enclosed superstructures as defined in the Convention shall be fitted with efficient hinged internal deadlights, permanently attached, arranged so that they can be effectively closed and secured watertight. Side scuttles and their closures which are not accessible while under way shall be closed and sealed before sailing.
 - 2.5 Side scuttles fitted below the freeboard shall be fixed and their lower edge shall be at least 500 mm above the load freeboard.
 - 2.6 No side scuttle may be fitted in spaces used exclusively for the carriage of cargo.
 - 2.7 All sea inlets, outlets, sanitary discharges shall be installed so that they cannot cause the accidental admission of water into the ship.
 - 2.8 Each machinery inlet shall be fitted with a cut-off appliance and a detachable filter, fitted to the side in order, as far as possible, to prevent the entry of any foreign body which might interfere with the operation of the cut-off device. A detachable filter shall be fitted in front of the cut-off device.
 - 2.9 Machinery space discharge outlets shall be fitted with a door or an automatic non-return valve which can be closed manually. These appliances shall be attached directly to the side or to water inlet or outlet casings or boxes.
 - 2.10 All the controls shall be provided with an indicator showing whether the valve is open or closed. The controls and sea inlets and discharges shall be readily accessible.

- 2.11 On decked ships, cut-off appliances for sea inlets and discharges below the load freeboard in machinery spaces shall be controlled from a point above the freeboard deck except when the ship's wheelhouse has a device showing the presence of water in those spaces. In that case, the cut-off appliances shall be readily accessible above the deck boards.
- 2.12 Each separate sanitary discharge which passes through the side, either leading from spaces below the freeboard deck, or spaces in superstructures or deckhouses on the freeboard deck and closed by watertight steel doors, shall be provided with efficient and accessible means for preventing water passing inboard. Such means shall comply with the requirements of the Convention on board ships to which that conventions applies.
- 2.13 For ships of less than 24 metres in length (L), each sanitary discharge shall be fitted with an automatic non-return valve which can be operated directly from an accessible place. Nevertheless, such a valve may not be required if the Administration or a duly authorized organization which examines the ship considers that the inboard passage of water through the discharge opening in the side of the ship is unlikely to result in dangerous flooding or if a flooding alarm is fitted.
- 2.14 The scuppers in superstructures which are not enclosed superstructures shall be led overboard. Scuppers originating at any level and leading to the shell either more than 450 mm below the freeboard deck or less than 600 mm above the load waterline shall be provided with a non-return valve at the shell. This valve may be omitted if the appropriate authority considers that the thickness of the piping so justifies. This paragraph shall not apply to ships without decks.
- 2.15 Scuppers penetrating the shell which lead from enclosed superstructures used for the transport of cargoes are only permitted when the edge of the freeboard deck is not submersed at an angle of heel of 5° from one side to the other. In other cases, the closed cargo spaces on the freeboard deck shall be drained internally to one or more appropriate spaces with sufficient capacity, with an alarm that sounds when the water reaches a high level and provided with appropriate appliances for discharge into the sea.
- 2.16 All valves and shell fittings required in compliance with the foregoing shall be of steel, bronze or other equivalent shock-resistant material.
- 2.17 All pipes used for the purposes specified in paragraph 2 shall be of steel or any other appropriate material and shall not comprise more than two short flexible joints. Such flexible joints may only be fitted below the load waterline in spaces provided with a flooding alarm.
- 2.18 Parts of sea inlet, outlet or discharge pipes penetrating the shell below the freeboard deck shall include an elbow section or equivalent device of substantial construction but sufficiently flexible to withstand docking or grounding. Such elbow section should be placed between the fixing of the pipe to the shell or the sea inlet or outlet port and the first fixing point, deck or bulkhead, appliance or collector to which the pipe is to be connected. These

pipe sections, and any divisions in them, shall be suitably protected against shocks.

3. Tests of watertightness of ships

- 3.1 Decks, watertight bulkhead, trunks, tunnels and watertight doors shall be checked for watertightness by means of a hose test at a pressure of at least 0.2 N/mm².
- 3.2 The fore and after peaks and double bottom compartments shall be subject to a test in which they are filled to a water level corresponding to the load line mark or the height indicated below if greater.
- 3.3 When such compartments are intended to contain liquids, they shall be tested at a water pressure up to the highest level that the liquid may reach in operation in the overflow pipe with at least 900 mm below the ceiling. However, in the case of an inflammable liquid, such minimum height of the head of water shall be increased to 2.40 metres for combustible liquids with a flashpoint equal to or greater than 60°C and 3.60 metres for combustible liquids with a flashpoint less than 60°C but equal to or greater than 43°C.
- 3.4 The test in paragraph (3.3) is not compulsory for the other main compartments.
- 3.5 All compartments intended to be filled by communication with the sea shall be subject to a flooding test to a depth of water limited to the maximum load waterline.

Means of escape and arrangements outside the ship

Regulation 43

1. Stairways and ladders shall be provided from all crew accommodation and other spaces other than machinery spaces and shafts where the crew is normally employed to allow rapid means of escape from each such space to the open deck.
2. Each space of more than 3.7 m (12 feet) in length accessible to passengers or used by the crew on a regular basis shall have at least two means of escape, one of which shall not be a watertight door.
3. The two required means of escape shall be widely separated and, where possible, at opposite ends or sides of the space to minimise the possibility of one incident blocking both escapes. Means of escape may include normal exits and emergency exits, passageways, stairways, ladders, deck scuttles, and windows. The number and dimensions of the means of escape from each space shall be sufficient for rapid evacuation in an emergency of the maximum number of persons likely to occupy the space under any operational conditions. The size of the escapes shall be to the satisfaction of the Administration.
4. In a passenger vessel, the sum of the width of all doors and passageways used as means of escape from a space shall not be less than 8.4 mm (0.333 inches) multiplied by the number of passengers for which the space is designed with a minimum clear

opening of not less than 810mm (32 inches). In all vessels, doors or passageways used solely by crew members shall have a clear opening not less than 710 mm (28 inches).

5. When a deck scuttle serves as a means of escape, it must not be less than 455 mm (18 inches) in diameter and must be fitted with a quick acting release and a holdback device to hold the scuttle in an open position.
6. The compartment containing the propulsion machinery shall be provided with a main means of escape and an emergency exit. These two means of escape shall be placed as far apart as possible, to the satisfaction of the Administration or a duly authorized organization which examines the ship. However, if the length of the compartment is less than 6 metres, an emergency exit shall not be required.
7. Stairways and ladders from the propulsion machinery compartment shall be of steel or equivalent material.
8. The ship shall be equipped with bulkheads, guard-rails, lifelines, gangways, ladders, etc., arranged so as to facilitate the working of the ship while ensuring the safety of its personnel and complying with the applicable regulations under the Convention and regulation (38) of the present regulations

Sounding and ventilation pipes

Regulation 44

1. Arrangements shall be made to allow soundings of spaces intended to hold liquids, and any spaces not easily accessible at all times
2. As a general rule, sounding pipes shall lead above the freeboard deck to easily accessible places and shall have efficient means of closure. Sounding pipes which do not lead above the freeboard deck shall be provided with automatic closing appliances. In any case, in machinery spaces and tunnels, when it is not possible to implement this requirement, the sounding pipes may lead above the decking into easily accessible places. When such sounding pipes serve tanks containing fuel or lubricating oil, they shall not lead near boilers, generators, electric motors or switchboards and shall be provided with automatic closing appliances. In addition, an automatic closing narrow gauge control tap shall be provided below the pipe closing appliance for double-bottomed fuel tanks.
3. For spaces intended to contain liquids, the sounding pipes may be replaced by a system of indicator gauges allowing the level to be measured at all times.
4. For double-bottomed spaces, ventilators shall also be provided to act as overflows leading above the freeboard deck, provided that they do not derogate from the regulations under the Convention.

The division, number and position of air pipes shall be arranged so as to avoid, as far as possible, air locks and super pressure during filling operations. Release of air shall, moreover, be arranged to avoid any accidental admission of water to the fuel. The same shall apply to compartments situated outside the double bottom, if they can be filled by a pumping system

5. Sounding pipes, whose circuit shall be as direct as possible, shall be suitably protected throughout their length against damage and accidental shocks. Those passing through refrigerated spaces shall also be appropriately lagged. Precautions shall be taken to ensure that repeated soundings do not give rise to excessive local deterioration of the shell plating.

CHAPTER 4

CONSTRUCTION / STRUCTURE, DIVISIONS AND EQUIPMENT

General

Regulation 45

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

Structure

Regulation 46

1. The strength and method of construction of the shell, superstructures, deckhouses, machinery trunks, doors and other structures as well as the equipment shall allow the ship to withstand any of the conditions foreseeable in the service for which it is intended and shall be considered satisfactory by the Administration. A ship constructed and maintained in conformity with the standards recognized by the Administration may be considered to comply with the requirements of the present Regulation.
2. Power-driven ships shall have a collision bulkhead which complies with the requirements of Regulation (47) and the machinery space shall be surrounded by watertight bulkheads. Such bulkheads shall extend to the freeboard deck. Wooden ships shall also be provided with such bulkheads, which shall, as far as possible, be watertight. On passenger vessel the maximum distance between adjacent main transverse watertight bulkheads shall not be more than one third of the length of the freeboard deck. If needed, additional bulkheads shall be added to the collision bulkhead and the bulkheads surrounding the machinery space.
3. Propulsion shafts, bearings and stern tubes shall not be placed elsewhere than the machinery spaces containing the means of propulsion, unless they are enclosed in watertight positions or spaces to the satisfaction of the Administration. The Administration may exempt from the requirements of the present paragraph ships which are subject to space constraints or whose voyages are in sheltered waters, provided that it is shown that initial flooding of the spaces concerned can easily be controlled and that the ship's safety is not endangered.
4. The packing boxes shall be positioned in places which are easily accessible at any time for checks and maintenance.

Collision bulkheads

Regulation 47

1. For the purposes of this Regulation, the expressions freeboard deck, length of ship and perpendiculars (forward and after) have the meanings as defined in Regulation (4) of Chapter 1.
2. Cargo ships shall be fitted with a collision bulkhead which shall be watertight up to the freeboard deck. This bulkhead shall be located, as far as possible, at a distance from the forward perpendicular of not less than 5% of the length (L) of the ship but not more than 8% of the length (L) of the ship. If it is shown to the satisfaction of the Administration that it is not possible to locate the collision bulkhead at a distance from the forward perpendicular at 8% of the length (L) of the ship, the Administration may authorize a greater distance, provided that, if the volume of the spaces forward of the bulkhead is penetrated when the ship is fully loaded the waterline does not exceed a line drawn on the shell 76 mm below the upper edge of the watertight deck.
3. The collision bulkhead may have steps or recesses provided they are within the limits prescribed in paragraph 2. The number of pipes piercing the collision bulkhead shall be as small as possible. Such pipes shall be fitted with suitable valves operable from above the freeboard deck and the valve chest shall be secured at the bulkhead inside the forepeak. The Administration may authorize the fitting of such valves on the rear of the collision bulkhead provided that the valves are readily accessible at any time under all service conditions and the space in which they are located is not cargo space. All valves shall be of a material approved by the Administration.
4. Where a long forward superstructure is fitted the collision bulkhead shall be extended weathertight to the deck next above the freeboard deck. The extension, subject to the provisions of paragraph 3, shall be located within the limits specified in paragraph 2.
5. Where bow doors are fitted and a sloping loading ramp forms part of the extension of the collision bulkhead above the freeboard deck, the part of the ramp which is more than 2.3 m, or any other length specified by the Administration, above the freeboard deck may not extend more than 1 m forward of the limit specified in paragraph 2. The ramp shall be weathertight over its complete length.
6. The number of openings in the extension of the collision bulkhead above the freeboard deck shall be restricted to the minimum compatible with the design and normal operation of the ship. All such openings shall be capable of being closed weathertight.
7. No manhole, door, hatchway, ventilation duct or any other opening shall be authorized in the collision bulkhead below the freeboard deck. When a chain locker is located aft of the collision bulkhead or extends into the forepeak, it shall be watertight and provided with efficient means of pumping dry.
8. The chain locker shall not be used for any purpose other than storing anchor chains.

Watertight bulkheads, decks, doors, cofferdams, etc...

Regulation 48

1. The present Regulations shall apply to new power-driven ships. They shall not apply to wooden-hulled ships.
2. Each watertight subdivision bulkhead, whether transverse or longitudinal, shall be constructed in such a manner that it shall be capable of supporting, with a proper margin of resistance, the pressure due to the maximum head of water which it might have to sustain in the event of damage to the ship but at least the pressure due to a head of water up to the margin line. Such bulkheads shall be constructed of materials approved by the Administration.
3. Steps and recesses in bulkheads shall be watertight and as strong 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.
5. The number of openings in watertight bulkheads shall be reduced to the minimum compatible with the design and proper working of the ship. Means shall be provided for closing these openings to the satisfaction of the Administration. Watertight doors shall be as strong as the adjacent unpierced bulkhead.
6. Watertight decks, trunks, tunnels, duct keels and ventilation trunks shall be of a type equivalent to the watertight bulkheads located at the same level. The method of construction used to ensure that such elements are watertight, and the arrangements adopted to allow closing of the openings, shall be to the satisfaction of the Administration. Watertight ventilation ducts and trunks shall extend at least to the level of the freeboard deck.
7. The flooding test of main compartments is not compulsory. When a flooding test is not carried out, a hose test is compulsory. Such test shall be carried out as late as possible in the fitting out of the ship. A detailed inspection of the watertight bulkhead shall, in any case, be carried out.
8. The forepeak, double bottoms (including duct keels) and double hulls shall be tested to a pressure corresponding to the requirements of paragraph 2.
9. Tanks intended to contain liquids and which form part of the subdivision of the ship, shall be tested to verify that they are watertight under a load of water corresponding to 2/3 of the space measured from the top of the keel to the margin line, through the tank. In any case, the height of load above the top of the tank shall in no case be less than 0.9 m.
10. The tests referred to in paragraphs 8 and 9 are intended to verify that the bulkheads are structurally watertight and shall not be regarded in any way as approving the suitability of any compartment to accept combustible liquids or to be used for other specific purposes for which a more rigorous test may be required, bearing in mind the height that the liquid may reach in the tank concerned or in the pipes that serve it.

**Mooring gear
Regulation 49**

1. Every ship shall be fitted with two mooring cables, unless otherwise authorized, depending on the intended voyage, by the Administration.
2. On ships of 35 m or more in length (L), the two mooring cables shall be installed in position with their anchors ready to drop, with an appropriate means of weighing and braking.
3. On ships of less than 35 m in length (L), one of the mooring cables shall have an anchor in position, ready to drop, and an appropriate means of braking. This cable shall be a chain for ships of 24 m or more in length(L). On ships of less than 24 m in length(L), it may consist of a chain of at least 20 m and a hawser of at least 100 m. The second mooring cable shall consist of a chain of at least 20 m and a hawser.
4. The weight of anchors, diameter and strength of chains and hawsers and controls on such appliances, depending on the type and size of the ship concerned, shall be to the satisfaction of the Administration.
5. windlasses, capstans, winches, bollards, mooring posts and other means necessary for anchoring, mooring, towing or lifting the ship shall be:
 - 5.1 designed to meet operating requirements and conditions that it may encounter
 - 5.2 properly fitted, and
 - 5.3 fixed to a part of its structure with adequate strength.

**Special provisions applicable to towing and pushing
Regulation 50**

1. The towing hook intended for towing vessels shall consist of an efficient appliance to allow at any time, if the towline is taut, to release it immediately, locally and from the wheelhouse, regardless of the heel.
2. The towing hook on ships intended to turn ships in manoeuvres at sea or in port shall be of an approved type and shall fulfil the following three conditions:
 - 2.1 they shall be mounted in an efficient manner on a rotating guide system so as to considerably reduce the propensity to capsize when the tug is towing at an angle and such that the traction force, in a longitudinal direction, is at all times at the smallest possible distance above the tug's centre of gravity.
 - 2.2 Easy release of the hook, without excessive force, when the tug heels more than 30° from the horizontal.
 - 2.3 Remote control of the release system from the bridge and also, if possible, from the deckhouse, in order to avoid exposing crew to serious risk.

3. All tugs shall have a second towing hook, ready for use if the first is damaged, or an equivalent appliance similar to the hook capable of fixing the tow.
4. Pushing vessels shall be equipped with an efficient remote system for releasing the system of mooring to the ship being pushed allowing them, in the event of danger, to free themselves immediately
5. Tugs and pushing vessels shall be provided on each side with an axe of sufficient size to be able to cut the tow and moorings in an emergency.

Towing and mooring gear on barges

Regulation 51

1. Towing and mooring gear on barges shall be such as to reduce as much as possible any danger to personnel during towing or mooring operations. Such gear shall be appropriate to each barge and have sufficient strength. Its design and fitting shall be to the satisfaction of the Administration and shall take account of emergency situations that may arise.
2. Spare parts allowing, if necessary, a complete replacement of the towing and mooring gear shall be available aboard the tug or barge.
3. Emergency towing gear shall also be provided aboard the barge so that it can rapidly be recovered by the tug if the towline breaks or the associated equipment breaks down.
4. In addition to the present Regulations, tugs and barges shall comply with the applicable provisions recommended by the IMO for the safety of ships and other towed floating vessels*.

Protective gear and equipment

Regulation 52

1. Hinged covers on hatchways, manholes and other openings shall be provided with appliances to prevent their accidental closure. In particular, heavy covers placed over hatchways which are escape exits shall be fitted with a counterweight and so constructed that they can be opened from both sides of the panel.
2. The dimensions of hatchways shall be such that a person can escape rapidly and easily to a safe place in an emergency. Where possible, the dimension of hatchways in cargo spaces and machinery spaces shall be such as to facilitate escape operations.
3. The bulwarks, hand rails and lifelines shall be of sufficient size and strength, to the satisfaction of the Administration, to provide protection of persons when the ship is rolling and pitching violently.

*Refer to IMO resolution A.765(18) on Guidelines on the safety of towed ships and other floating objects including installations, structures and platforms at sea.

4. Skylights and other similar openings shall be provided with protective bars not more than 350 mm apart. The Administration may exempt small openings from this requirement.

CHAPTER 5

STABILITY AND BILGE PUMPING ARRANGEMENTS

Intact stability for cargo ships other than offshore support vessels

Regulation 53

1. The intact stability booklet shall be endorsed by the Administration or a duly authorized organization which issues the load line.
2. Subject to the provisions of paragraph 3, when applicable, the intact stability of ships shall comply with the provisions for ships contained in the Code on Intact Stability adopted by the IMO in Resolution A.749(18) and amended by Resolution MSC 75(69).
3. When in the opinion of the Administration, the characteristics of the ship are such that they do not permit, for practical reasons, the application of the provisions of paragraph 2, the stability criteria specified in paragraph 2.5.2 of IMO Resolution A.469(12) on Guidelines for the design and construction of offshore supply vessels may be applied.
4. The intact stability of barges only carrying cargo on deck, without openings or holds opening on to the deck except for small manholes closed by covers, without machinery, accommodation or services, shall comply with the provisions of paragraph 4.7 of the Code referred to in paragraph 2 above. Intact stability criteria for barges carrying cargoes below deck or having machinery, accommodation or services shall be determined by the Administration or a duly authorized organization taking into account the design and arrangement of cargo spaces, machinery, equipment, accommodation and superstructures.

Stability test and stability booklet

Regulation 54

1. A plan showing draughts or position of load lines as required by Regulations 31 to 36 of Chapter 3 of these Regulations shall be notified to the Administration, then filed in the ship's booklet.
2. The calculations shall be endorsed by the Administration or a duly authorized organization that issues the load line certificate for ships, giving the position of the base line, hydrostatic details and intact stability. These documents shall be included in the ship's booklet.
3. Following their completion, and as far as possible, the finished ship, life-saving appliances in position, shall undergo a stability test to determine the actual displacement of the lightweight ship and the coordinates of its centre of gravity.
4. The stability test shall be carried out and its results shall be evaluated by a qualified person, specifically designated by the shipyard or the shipowner

It shall be carried out in the presence of a representative of the Administration or the organization duly authorized to assign the load line, who shall verify that the stability test is carried out properly.

5. The stability test shall be carried out taking all normal precautions so as to obtain the most accurate results possible. Such precautions shall relate in particular to the weather conditions at the time of the test, the ship's position, its mooring, the location and distribution of weights to be removed or added, the installation of life-saving appliances.

In particular, the presence of liquid ballast should be avoided, or, if that is not possible, the results shall be corrected accordingly.

Movable weights shall be weighed carefully and fuel or water tanks shall be isolated to prevent the movement of liquid from one side to the other during inclining.

Particular care shall be given to the placing of the measuring apparatus. In the case of a pendulum, the length shall be not less than 3 m and shall not as far as possible be installed inside the ship. Excessively rigid suspension wires shall not be used.

Measures, weight displacement, reading of the measuring apparatus or extension of the pendulum, length of pendulum, position on board of weights to be removed or added, etc. are taken together with the representative of the Administration or a duly authorized organization. The same shall apply to measurements of the submersion of the ship for weighing.

6. Four inclining tests should be carried out, inclining the ship to an angle of at least 2 degrees and not more than 3 degrees. The ship shall not be inclined by transferring liquids. However, the Administration may accept a stability test where the ship is only inclined twice when weather conditions and the measurements specified in paragraph 5 above do not give rise to any observations.

7. The test shall allow the ship's displacement and centre of gravity to be determined in its state at the time of the test.

The displacement, lightship centre of gravity and the range shall be determined from the results obtained from the test by correcting for foreign weights to be removed and missing weights to be added. The value and position of such weights shall be calculated as precisely as possible at the time of the test.

8. The expert shall evaluate the results of the stability test and prepare a report of the test giving the results and the related calculations. This report shall be sent to the Administration.

9. The results obtained shall conform to an acceptable degree to the information, displacement and position of the centre of gravity, as evaluated in the provisional stability booklet such that it may be considered as the final booklet. Failing this, in particular when the GM observed from the test is lower than the provisional GM by 10% or when the increase in displacement is greater than 10%, the stability booklet shall be revised based on the details, displacement and centre of gravity observed from the test.

The Administration shall approve, if appropriate, the provisional booklet or the new booklet calculated after the test. This document shall become the ship's final stability booklet.

10. If a ship undergoes alterations which have the effect of altering aspects of its stability such that the new KG is reduced by 10% or the new displacement has increased by 10%, a new stability test shall be required and, if appropriate, a new booklet shall be submitted to the Administration.
11. For passenger vessels, booklet and tests mentioned in this regulation shall be approved by a recognised organisation.

Bilge pumping arrangements

Regulation 55

1. General

- 1.1 All ships shall be provided with appliances or means of draining water from all compartments and bilges.
- 1.2 Arrangements shall be made such that the water in the compartment concerned can flow freely to the suction outlet or outlets.

2. Bilge pumps

- 2.1 Ships shall be fitted with at least two bilge pumps, each powered by a different mechanical power source, one of which may be driven by the propulsion machinery.

All necessary steps shall be taken to ensure that the water from at least one of the bilge pumps can be used normally if the compartment is flooded in any way.

- 2.2 Pumps shall be connected to a bilge tank.
- 2.3 When the bilge pumps do not pump from the peak, chain locker or other small compartments, pumping shall be by hand pumps, operated from a point located above the freeboard deck.
- 2.4 Each bilge pump shall be placed aft of the collision bulkhead and placed so as to pump water from any compartment except as specified in paragraph 2.3. Special appliances shall be installed, where necessary, to start the pumps.
- 2.5 Each bilge pump shall be driven by an engine capable of pumping water to the installed bilge main at a speed of at least 2 m/s.

However, in ships of less than 35 m in length (L), this speed may be reduced to 1.2 m/s.

- 2.6 Sanitary, general service pumps and fire pumps may be accepted as bilge pumps if connected to the bilge pumping system and if their outflow complies with paragraph 2.5.

3. Bilge pipes

- 3.1 The arrangement of the bilge and ballast pumping system shall be such as to prevent the possibility of water passing from the sea into the various ship's compartments or from one compartment to another.
- 3.2 In machinery spaces, bilge pipes and accessories shall be of steel, copper or any other material the characteristics of which are accepted as equivalent for the intended application. Flexible couplings may only be used subject to the conditions specified in regulation 40 of this Regulations.
- 3.3 The various parts of the pumping system shall be suitably fixed to the structure of the ship and efficiently protected against accidental shocks where they pass through exposed areas while remaining sufficiently accessible for maintenance purposes. Expansion bellows or other appliances shall be provided, if appropriate, taking account of the dimensions of the ship and the system of pipes concerned.
- 3.4 The pipes servicing pumping systems in machinery spaces or cargo holds shall be completely separate up to the pump suction inlets of the pipes normally used for filling or emptying compartments intended to hold water or liquid fuel.
- 3.5 The diameter of the bilge main shall be that of the nearest normally used pipe closest to the diameter calculated by the following formula:

$$d = 1,68 \times \sqrt{L \times (B + C)} + 25$$

where d is the internal diameter of the bilge main in millimetres and L, B, C, expressed in metres, mean the length, breadth and moulded depth respectively of the ship.

4. Direct suction by pumps

- 4.1 In the machinery compartment, at least one suction duct shall be directly connected to a bilge pump.
- 4.2 The diameter of this duct shall be at least equal to that of the bilge main.
- 4.3 Such direct suction may be via a fixed pipe or flexible hose. When the suction is through a fixed pipe, it shall be placed as low as possible. It shall be accessible for cleaning and fitted with a non-return valve.

5. Bilge circuit accessories

- 5.1 suction ducts shall, as far as possible, be placed at the lowest points in the corresponding compartments. They shall be fitted with grills of substantial construction, placed so as to be readily visible and cleaned, without it being necessary to first dismantle the connections in the suction ducting.
- 5.2 the diameter of the grill holes shall not exceed 10 mm and the total net diameter shall not be less than twice that of the corresponding suction duct

6. Plan of the bilge-pump and water drainage system

- 6.1 On board each ship, a detailed plan of the bilge pump system shall be clearly exhibited in a place where qualified personnel can consult it easily. The graphic symbols used shall conform to standards in force unless the meaning of the symbols used is clearly indicated.
- 6.2 Scuppers or appropriate arrangements shall be provided in areas of the ship where water is likely to accumulate dangerously during fire-fighting operations.

CHAPTER 6

MACHINERY INSTALLATIONS

General Regulation २१

1. The provisions of this chapter is not applicable to unmanned barges
2. All boilers, all parts of machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings which are under pressure shall be subjected to appropriate tests including a pressure test before being put into service for the first time. Such tests shall be conducted under the control of the Administration.
3. Means shall be provided to ensure that the machinery can be brought into operation from the dead ship condition without external aid.
4. Provision shall be made to facilitate cleaning, inspection and maintenance of main propulsion and auxiliary machinery including boilers and pressure vessels.
5. Where risk from overspeeding of machinery exists, means shall be provided to ensure that the safe speed is not exceeded.
6. Where main or auxiliary machinery, including pressure vessels or any parts of such machinery are subject to internal pressure and may be subject to dangerous overpressure, means shall be provided where practicable to protect against such excessive pressure.
7. All gearing and every shaft and coupling used for transmission of power to machinery essential for the propulsion and safety of the ship or for the safety of persons on board shall be so designed and constructed that they will withstand the maximum working stresses to which they may be subjected in all service conditions. Due consideration shall be given to the type of engines by which they are driven or of which they form part.
8. Main 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 rapidly lead to complete breakdown, serious damage or explosion. The Administration may permit provisions for overriding automatic shutoff devices.
9. Internal combustion engines of a cylinder diameter of 200 mm or a crankcase volume of at least 0.6 m³ shall be provided with crankcase explosion relief valves of a suitable type with a sufficient relief area. The relief valves shall be arranged or provided with means to ensure that the discharge from them is so directed as to minimize the possibility of injury to personnel.

Machinery controls

Regulation 57

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 operation 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:
 - 2.1 a generating set which serves as a main source of electrical power
 - 2.2 the sources of lubricating oil pressure
 - 2.3 the fuel supply systems for engines
 - 2.4 the sources of water pressure
 - 2.5 an air compressor and receiver for starting purposes
 - 2.6 the hydraulic, pneumatic or electrical means for control in main propulsion machinery including controllable pitch propellers, and
 - 2.7 boilers and feed systems, if any.

However, the Administration, having regard to overall safety considerations, may accept partial reduction in propulsion capability from normal operation.

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

Remote control of propulsion machinery

Regulation 58

1. Where remote control of propulsion machinery from the navigation bridge is provided and the machinery spaces are intended to be manned, the following shall apply:
 - 1.1 the speed, direction of thrust and, if applicable, the pitch of the propeller shall be fully controllable from the navigation bridge under all sailing conditions, including manoeuvring.
 - 1.2 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.

- 1.3 the main propulsion machinery shall be provided with an emergency stopping device on the navigation bridge which shall be independent of the navigation bridge control system.
- 1.4 propulsion machinery orders from the navigation bridge shall be indicated in the main machinery control room or at the manoeuvring platform as appropriate.
- 1.5 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 navigation bridge and machinery spaces shall be possible only in the main machinery space or the main machinery control room. This system shall include means to prevent the propelling thrust from altering significantly when transferring control from one location to another.
- 1.6 it shall be possible to control the propulsion machinery locally, even in the case of failure in any part of the remote control system.
- 1.7 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.
- 1.8 Indicators shall be fitted on the navigation bridge for:
 - 1.8.1 propeller speed and direction of rotation in the case of fixed pitch propellers
 - 1.8.2 propeller speed and pitch position in the case of controllable pitch propellers
- 1.9 an alarm shall be provided on the navigation bridge and in the machinery space to indicate low starting air pressure which shall be set at a level to permit further main engine starting operations. If the remote control system of the propulsion machinery is designed for automatic starting, the number of automatic consecutive attempts which fail to produce a start shall be limited in order to safeguard sufficient starting air pressure for starting locally.
- 1.10 where the main propulsion and associated machinery, including sources of 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 the protection of such spaces against fire and flooding.
- 1.11 in general, automatic starting, operational and control systems shall include provisions for manually overriding the automatic controls. Failure of any part of such systems shall not prevent the use of the manual override.

Periodically unattended machinery spaces

Regulation 59

1. Ships in which machinery spaces are operated while periodically unattended shall, in so far as the Administration considers it reasonably practicable, comply with the applicable provisions of the SOLAS Convention for such spaces.
2. When different solutions are adopted, the Administration shall ensure that:
 - 2.1 the safety of ships in all sailing conditions, including manoeuvring, is equivalent to that of a ship having the machinery spaces manned.
 - 2.2 appropriate documents indicating that the solution satisfies these safety requirements shall be provided.

Air pressure systems

Regulation 60

1. In every ship means shall be provided to prevent overpressure in any part of compressed air systems and wherever water jackets or casings of air compressors or 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 air 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.

Ventilating systems in machinery spaces

Regulation 61

1. Machinery spaces of category A shall be adequately ventilated so as to ensure that when the 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, the ventilation of machinery spaces shall be adequate, under normal conditions, to prevent the accumulation of hydrocarbon vapour.

Protection against noise

Regulation 62

Measures shall be taken to reduce machinery noise in machinery spaces to acceptable levels as determined by the Administration*. If this noise cannot be sufficiently reduced the source of the excessive noise shall be suitably insulated or isolated or a refuge from noise shall be provided if the spaces are required to be manned. Ear protectors shall be provided for personnel required to enter such spaces.

Means of going astern

Regulation 63

1. Sufficient power 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 trials to determine the ability of ships having multiple propellers to navigate and manoeuvre with one or more propellers inoperative, shall be available on board for the use of the master or designated personnel.
4. Where the ship is provided with supplementary means for manoeuvring or stopping, the effectiveness of such means shall be demonstrated and recorded as referred to in paragraphs 2 and 3.

Steering gear

Regulation 64

1. Ships shall be provided with a main steering gear and an auxiliary steering gear considered satisfactory by the Administration. The main steering gear and the auxiliary steering gear shall be so arranged, in so far as is reasonably practicable, that the failure of one of them will not render the other one inoperative.
2. Where the main steering gear comprises two or more identical power units, an auxiliary steering gear need not be fitted, provided that the main steering gear is capable of operating the rudder as required by paragraph 10 when one of the power units is inoperative. Each power unit shall be controlled by a separate system.
3. If the rudder is power-operated, its position shall be indicated in the wheelhouse. The rudder angle indication shall be independent of the steering control system. A rudder angle indicator shall be visible in the tiller compartment.

* Refer to Code on Noise Levels on Board Ships adopted by the IMO by resolution A.468(12).

4. In the case of failure of the power supply to any of the power units, an alarm shall be given to the wheelhouse.
5. Means for indicating that the motors of all electric and electrohydraulic steering gear shall be installed in the wheelhouse. Short circuit protection and an overload alarm shall be provided for such circuits and motors, as well as a power failure alarm. Protection against excess current, if provided, shall be for not less than twice the full load current of the motor circuit to be protected, and shall be arranged to permit the passage of the appropriate starting loads.
6. The main steering gear shall be of adequate strength capable of steering the ship at maximum service speed. The main steering gear and the rudder stock shall be so designed that they will not be damaged at maximum astern speed or during manoeuvring.
7. The main steering gear and rudder stock shall be capable of putting the rudder over from 35 degrees on one side to 35 degrees on the other side with the ship at its deepest seagoing draught and running at maximum service speed. The time taken by the movement from 35 degrees on one side to 35 degrees on the other side shall not exceed 28 seconds under the same conditions. The main steering gear shall be operated by a source of power where necessary to meet these conditions.
8. The main steering gear power unit shall be arranged to restart either automatically or manually from a position on the navigation bridge after a power failure.
9. The auxiliary steering gear shall be of adequate strength capable of steering the ship at navigable speed and be capable of being brought speedily into action in an emergency.
10. The auxiliary steering gear and rudder stock shall be capable of putting the rudder over from 15 degrees on one side to 15 degrees on the other side with the ship at its deepest seagoing draught and running at the lower of maximum service speed or 7 knots. The auxiliary steering gear shall be operated by a source of power where necessary to meet these conditions.
11. If the means of operation is other than a rudder, the movement from full helm on one side to full helm on the other shall be capable of being effected in a maximum of 30 seconds.
12. Steering gear shall be provided with an effective device enabling the tiller to be immobilized rapidly in an emergency, in particular when the auxiliary gear is activated.

If the steering gear is operated by electrohydraulic power, it may be immobilized by closure of valves in the pressure cylinders where fitted.

13. A notice stating simply the manoeuvres to be carried out to start the auxiliary steering gear and immobilize the rudder shall be placed in a clearly visible position in the steering gear compartment or near the tiller.

Controls shall be clearly marked on the steering gear.

Communication between navigation bridge and machinery space

Regulation 65

1. At least two independent means shall be provided for communicating orders from the navigation bridge to the position in the machinery space or in the control room from which the engines are normally controlled. One of these shall be an engine-room telegraph. The installation of such means shall be to the satisfaction of the administration.
2. A ship may be exempt from the installation of an engine-room telegraph as specified in paragraph 1 if the main means of propulsion is directly controlled from the navigation bridge under normal service conditions.
3. Any ship of length (L) less than 24 m may, instead of the provisions of paragraph 1, be provided with only one of the means specified in paragraph 1 if, to the satisfaction of the Administration, two means of communications are considered unnecessary bearing in mind the proximity of the navigation bridge to the position of the control room of the main propulsion machinery.

Appropriate means of communication shall be provided to any other positions, part from the navigating bridge, from which the engines may be controlled. Similarly, appropriate means of communication shall be provided between the bridge and the tiller position.

Engineers' alarm

Regulation 66

An engineers' alarm shall be provided to be operated from the engine control room or at the manoeuvring platform as appropriate, and shall be clearly audible in the engineers' accommodation. The Administration may exempt the ship from this requirement if it considers that such an alarm is not necessary taking account of the form of manning of the engine department or the close proximity of the engine control room to the engineers' accommodation.

CHAPTER 7

ELECTRICAL INSTALLATIONS

General

Regulation 67

1. Subject to the provisions of Regulation (71), electrical installations of ships and manned barges shall comply with the provisions of the present Chapter.
2. Electrical installations shall be such that:
 - 2.1 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 power;
 - 2.2 electrical services essential for safety will be ensured under various emergency conditions; and
 - 2.3 the crew and ship will be protected from electrical hazards.

Safety precautions

Regulation 68

1. All 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:
 - 1.1 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
 - 1.2 supplied at a voltage not exceeding 250 V by safety isolating transformers supplying only consuming device, or
 - 1.3 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 so constructed and 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 as 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 of 55 V 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 for any purpose in a tanker or a barge carrying flammable liquids in bulk.
6. The requirement of paragraph 5 does not preclude under conditions approved by the Administration the use of:
 - 6.1 impressed current cathodic protective systems;
 - 6.2 limited and locally earthed systems; or
 - 6.3 limited and locally earthed circuit board systems. If the Administration considers that the equipotentiality of the system is adequately protected, circuit board hull return systems may be used without the restriction imposed in paragraph 5
 - 6.4 insulation level monitoring devices provided the circulation current does not exceed 30 mA under the most unfavourable conditions.
7. Where the hull return system is used, all final subcircuits, i.e. all circuits fitted after the last protective device, shall be two-wire and special precautions shall be taken such as considered satisfactory by the Administration.
8. Earthed distribution systems shall not be used in a tanker or a barge carrying flammable liquids in bulk. The Administration may authorize the use of the following earthed systems;
 - 8.1 power-supplied control circuits and instrumentation circuits where technical or safety reasons preclude the use of a system with no connection to earth, provided that the current in the hull is limited to not more than 5 A in both normal and fault conditions;
 - 8.2 limited and locally earthed systems, provided that any possible resulting current does not flow directly through any of the dangerous spaces; or
 - 8.3 alternating current power networks of 1000 V (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 armour of cables shall be electrically continuous and shall be earthed.
11. All electric cables and wiring external to equipment shall be at least of flame-retardant type and shall be so installed as not to impair their original flame-retarding properties. Where necessary for particular applications the Administration may permit the use of

special types of cable 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 housings and other high fire risk areas. Cables connecting fire pumps to the emergency switchboard shall be of the fire-resistant type where they pass through high fire risk areas. Where practicable all such cables should 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 risks shall be taken such as are considered satisfactory by 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 cable.
16. Each separate circuit shall be protected against short circuit and against overload except the electrical 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 temperature 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 vapours shall not be permitted in these compartments except as permitted in paragraph 22.
21. Accumulator batteries shall not be located in sleeping quarters, except batteries used in a specially adapted lighting unit.
22. No electrical equipment shall be installed in any space where flammable mixtures are liable to collect including those on board tankers or barges carrying flammable liquids in bulks or in compartments assigned primarily to accumulator batteries, in paint lockers, acetylene stores or similar spaces, unless the Administration is satisfied that such equipment is:

- 22.1 essential for operational purposes,
 - 22.2 of a type which will not ignite the mixture concerned,
 - 22.3 appropriate to the space concerned, and
 - 22.4 appropriately certified for safe usage in the dusts, vapours or gases likely to be encountered.
23. Lightning conductors shall be installed on masts and mastheads constructed of non-conducting materials. If the ship is constructed of non-conducting materials, the lightning conductors shall be connected to copper plates fitted to the ship's hull and running well below the water line.

Main source of electrical power

Regulation 69

1. A main source of electrical power of sufficient capacity to supply all the services mentioned in Regulation 1.2.1 shall be provided. This main source of electrical power shall consist of at least two generating sets (at least one of which shall be capable of being connected to the main engine) and shall satisfy the following requirements:
 - 1.1 the capacity of these generating sets shall be such that in the event of any one generating set being stopped it will still be possible to supply those services necessary to provide normal operational conditions of propulsion and safety;
 - 1.2 the arrangements of the ship's main source of electrical power shall be such that the services mentioned in paragraph (2.1) of Regulation (67) can be maintained regardless of the speed and direction of rotation of the propulsion machinery or shafting;
 - 1.3 in addition, the generating sets shall be such as to ensure that with any one generator or its primary source of power out of operation, the remaining generator 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 the purpose of starting from a dead ship condition if its capability is sufficient to provide at the same time the services required to be supplied under paragraph (5) of Regulation (70).
2. A main electric lighting system which shall provide illumination throughout those parts of the ship normally accessible to the 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 accident 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 paragraph (5) of Regulation (70) inoperative.

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

Emergency source of electrical power
Regulation 70

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 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 as authorized by the Administration in exceptional circumstances.
3. The location of the emergency source of electrical power, associated transforming equipment, if any, and emergency switchboard in relation to the main source of electrical power, associated transforming equipment, if any, and the main switchboard shall be such that the Administration is satisfied that a fire or other accident in spaces containing the main source of electrical power, associated transforming equipment, if any, and the main switchboard or in any machinery space of 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 situation, 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:
 - 5.1 For a period of 3 h, emergency lighting at every muster and embarkation station and over the sides as required by the provisions of Chapter 10;
 - 5.2 For a period of 12 h, emergency lighting
 - 5.2.1 in all service and accommodation stairways, companionways and exits
 - 5.2.2 in the machinery spaces and main generating stations including their control positions
 - 5.2.3 in all control stations, machinery control rooms and at each main and emergency switchboard
 - 5.2.4 at all stowage positions for firemen's outfits

- 5.2.5 at the steering gear, and
- 5.2.6 at the fire pump and the starting positions of their motors.
- 5.3 For a period of 12 h, the navigation lights and other lights required by the COLREG Convention;
- 5.4 For a period of 12 h,
 - 5.4.1 all means of communication for transmitting distress and safety messages, including the ship's whistle and internal communication as required in an emergency situation,
 - 5.4.2 the fire detection and alarm system , and
 - 5.4.3 the fire pumps if electrically powered.
- 5.5 In a ship engaged only in voyages of short duration, the Administration may accept periods less than 12 h if it is satisfied that the safety of the ship is not put at risk. However, this period shall not be less than 3 h.
- 5.6 The emergency source of electrical power may be:
 - 5.6.1 an accumulator battery capable of carrying the emergency electrical load without recharging, or
 - 5.6.2 a generator driven by a motor with an independent supply of fuel and method of starting to the satisfaction of the Administration.
- 5.7 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 automatic connection with the emergency switchboard is not possible, a manual connection to the satisfaction of the Administration may be accepted.
- 5.8 Where the emergency source of electrical power is a generator, it shall start automatically and be connected to the emergency switchboard within 45 seconds following the failure of the main source of electrical power. It shall be driven by a motor with an independent supply of fuel with a flashpoint not less than 43°C. Automatic starting of the emergency generator shall not be required if there is a transitional source of power to the satisfaction of the Administration.

Special provisions
Regulation 71

The Administration may exempt from any requirement in the present Chapter that it regards as neither necessary nor applicable any ship of less than 24 m in length (L) which does not navigate more than 12 miles from the coast.

CHAPTER 8

FIRE PROTECTION

Application to existing ships

Regulation 72

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

General

Regulation 73

1. Unless it is 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).
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.

Types of bulkhead

Regulation 74

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. aluminium alloy with appropriate insulation).
2. "A 30" class divisions are those divisions formed by bulkheads and decks which comply with the following:
 - 2.1 they shall be constructed of steel or other equivalent material;
 - 2.2 they shall be suitably stiffened;
 - 2.3 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;
 - 2.4 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

- 3.1 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;
- 3.2 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;

Fire prevention

Regulation 75

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 vapours coming into contact with parts reaching elevated temperatures. In particular:
 - 2.1 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;
 - 2.2 thermal insulation shall be provided in cargo spaces, fuel bunkers, control stations, accommodation and service areas for walls reaching high temperatures such as boilers, smoke ducts, extraction ducts or galley chimneys;
 - 2.3 appliances with naked flames or unprotected resistors for lighting and heating of accommodation shall be prohibited;
 - 2.4 electric radiators shall comply with the requirements of Chapter 7.
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.
11. Divisions
 - 11.1 Divisions (decks and bulkheads) which separate machinery spaces in category A from cargo spaces, accommodation, service area, control stations on ships of 24 metres in length (L) or more, shall be:
 - 11.1.1 of A.30 class for ships constructed of steel or equivalent material including aluminium alloys;
 - 11.1.2 of F class for ships constructed of combustible materials.
 - 11.2 A subdivision may be accepted as equivalent to an A class division if it consists of:
 - 11.2.1 a steel panel coated with 50 mm of mineral wool; or
 - 11.2.2 an aluminium panel coated with 80 mm or two separate layers of 40 mm of mineral wool.
 - 11.3 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/m³. The external surface of the mineral wool shall be suitably protected against splashes of oil and other flammable liquids.
 - 11.4 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.
Stairways which serve several decks shall be encased in bulkheads of steel or equivalent materials or F class materials.
 - 11.5 In the case of F class bulkheading, the bulkheading around machinery spaces in category A shall prevent the passage of smoke.
 - 11.6 Bulkheading shall only possess the characteristics of A.30 or F class bulkheading, as appropriate in respect of a fire arising in the machinery space.
 - 11.7 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.
 - 11.8 Bulkheads around galleys shall be of steel or equivalent material or F class bulkheading.

- 11.9 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 (11.7) to prevent fire spreading from one deck to another.
- 11.10 Pipes, ducts and controls which pass through a fire-resistant bulkhead shall not reduce its resistance to fire.
- 11.11 Ships less than 24 metres in length (L): the appropriate authority may exempt ships less than 24 metres in length (L) which do not sail more than 12 miles from the nearest land from any 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.

Arrangements for combustible fuel, lubricating oil and other flammable oils

Regulation 76

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. 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.
The use of plastics for oil-level gauges is prohibited.
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.
3. 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.
4. Subject to approval by the appropriate authority, 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.
5. 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.

6. No oil fuel tank shall be situated where spillage or leakage therefrom 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.
7. 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.
8. 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.
9. 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 are 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.
10. 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.
11. 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.
12. 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.

Storage and use of oil fuels

Regulation 77

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 of category A.

Pressurized water fire-extinguishing systems

Regulation 78

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**
 - 2.1 Except as otherwise provided in the present chapter, fire pumps shall be mechanically driven by motors independent of the propulsion machinery.
 - 2.2 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.
 - 2.3 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.
 - 2.4 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 (55).
3. **Fire mains**
 - 3.1 The diameter of the fire main shall be sufficient for the effective distribution of the maximum discharge of one fire pump.
 - 3.2 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 0.2 N/mm² shall be maintained at all hydrants affected.

- 3.3 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

- 4.1 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, ro-ro cargo space when empty.
- 4.2 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.
- 4.3 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.
- 4.4 Fire hoses of materials readily affected by heat shall not be used unless suitably protected.

5. Hoses and nozzles

- 5.1 Fire hoses shall be of approved materials. They shall not exceed 20 metres in length. In addition, they shall not exceed half the length (L) of the ship, except that they shall not be required to be less than 10 metres in length. Hoses shall be fitted with the necessary couplings and attachments.
- 5.2 In accommodation, service and machinery spaces in ships of 24 metres or more in length (L), a fire hose shall be provided for each fire hydrant installed in compliance with the present chapter and shall be permanently coupled. 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.
- 5.3 Fire hoses and their attachments shall be maintained in a permanently serviceable condition.
- 5.4 The diameter of nozzles (full jet) shall be not less than 12 mm for ships of 24 metres or more in length (L) and not less than 10 mm for other ships.
- 5.5 All nozzles shall be fitted with a shutoff device, as well as a sprinkler jet on passenger vessel.
- 5.6 Fire cocks, hoses, nozzles and couplings, and sprinkler jets shall be of a type approved by the Administration.

Gas fire-extinguishing systems

Regulation 79

1. The use of a fire-extinguishing medium which, in the opinion of the Administration, 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 started by a deliberate manual operation.
2. The pipes for conveying the fire-extinguishing medium into protected spaces shall be provided with control valves:
 - 2.1 for which the spaces to which the pipes are led are clearly indicated;
 - 2.2 where the open or closed position may be readily checked; and
 - 2.3 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 before the discharge of the extinguishing medium. For ships of less than 24 metres in length (L), such ventilation may be shut off manually.

6. Verification

- 6.1 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.
- 6.2 Means shall be provided for safe blowing of the pipes leading from the control valves, one by one.
- 6.3 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

- 8.1 Audible sound and visual (luminous) signal shall announce the release of the extinguishing medium in any space in which personnel normally work or to which they have access.

- 8.2 They shall be supplied by the emergency source of power and shall be distinct from any other alarm.
- 8.3 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. For ships of a length (L) less than 24 metres, the visual signal shall not be required.
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 on ships of a length (L) less than 35 metres 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 shall in the protected place shall be change, after extinction of the fire, within a period compatible with the safety of the ship.

14. Carbon dioxide systems

- 14.1 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 $0.56 \text{ m}^3/\text{kg}$.
The fixed piping shall be such that 85% of the gas can be discharged into the space within 2 minutes.
- 14.2 For closed ro-ro cargo spaces for motor transport with fuel in their tanks for their own propulsion, the quantity of carbon dioxide delivered by the piping shall be sufficient to give a minimum volume of free gas equal to 45% of the gross volume of the largest cargo space of that type capable of being made gastight.

The arrangements shall be such that they ensure the delivery of at least two thirds of the required gas into the location concerned within 10 minutes.

Regulation 80

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.

Foam-producing units shall be of an approved type.

3. 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.
4. 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 space.

Fixed pressure water-spraying fire-extinguishing systems in machinery spaces

Regulation 81

1. Machinery spaces:

- 1.1 Any required fixed pressure water-spraying fire-extinguishing system in machinery spaces shall be provided with sprinkler jets of an approved type.
- 1.2 The number and arrangement of the sprinkler jets shall be to the satisfaction of the appropriate authority and shall be such as to ensure an effective average distribution of water of at least 5 litres per square metre per minute in the spaces to be protected. This distribution may be reduced to 3.5 litres per square metre per minute when the ceiling height of the space to be protected is less than 2.5 metres.

- 1.3 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.
- 1.4 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.
- 1.5 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 7, 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.
- 1.6 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.

2. Closed ro-ro cargo spaces carrying motor vehicles with fuel in their tanks for their own propulsion:

Such spaces shall comply with the following provisions :

- 2.1 The sprinkler jets shall be of an approved single aperture type. They shall be arranged such as to ensure an effective distribution of water in the spaces to be protected. For this purpose, the system shall be capable of delivering at least 3.5 litres of water per square metre per minute in the spaces with a height of 2.5 metres or less, and 5 litres per square metre per minute in spaces of a greater height;
- 2.2 The sections of the system shall be situated in an easily accessible position adjacent to but outside the space to be protected, which is not likely to be rapidly cut off by a fire in the protected space;
- 2.3 The water supply to the system shall be from the fire main.
- 2.4 The output from each approved fire pump shall be sufficient to supply all the sprinklers in the system and a fire hose with nozzle at the required pressure; and

Where the main fire pumps may be started by remote control (which may be hand-operated) other than in the location of the section valves.

Fire protection Regulation 82

1. Pressurized water extinguishing systems

- 1.1 A fire main shall be provided in compliance with the requirements of Regulation 78.
- 1.2 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 78.
- 1.3 In ships of less than 35 metres in length (L), the main pump may be coupled to the propulsion machinery, in which case it shall have a clutch mechanism.
- 1.4 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.
- 1.5 In addition to the hose and nozzle referred to in paragraph 1.6, the following shall be provided:
 - 1.5.1 in ships of 24 metres or more in length (L), and on passenger vessels, at least three hoses with nozzles;
 - 1.5.2 in ships of least than 24 metres in length (L), at least two hoses with nozzles.
- 1.6 The following shall be installed in the propulsion space:
 - 1.6.1 a fire hydrant permanently coupled to a hose with a nozzle; and
 - 1.6.2 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 of over 24 metres in length (L), and of passenger vessels, shall be provided, to the satisfaction of the Administration, with any one of the following fixed fire-extinguishing systems:

- 2.1 a gas system complying with the provisions of Regulation 79.
- 2.2 a high-expansion foam system complying with the provisions of Regulation 80.
- 2.3 a pressure water-spraying system complying with the provisions of Regulation 81.1

3. Closed ro-ro cargo spaces carrying motor vehicles with fuel in their tanks for their own propulsion:

In addition to the provisions in paragraph 1, such spaces shall be provided, to the satisfaction of the appropriate authority, with any one of the following fixed fire-extinguishing systems:

- 3.1 a gas system complying with the provisions of Regulation 79.14.2; or
- 3.2 a pressure water-spraying system complying with the provisions of Regulation 81.1.

Protection measures applicable to tankers

Regulation 83

In the case of tankers, the special provisions relating to fire protection on board tankers of 500 gross tonnes or more shall apply.

Fixed fire detection and alarm systems in propulsion machinery spaces

Regulation 84

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 of over 24 metres in length (L).
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

Fire extinguishers

Regulation 85

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 litres 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 m³/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. The number and distribution of portable extinguishers shall comply with the following requirements:
 - 5.1 Ships sailing more than 12 miles from the nearest land:
 - 5.1.1 In all machinery spaces of category A, at least two portable extinguishers capable of extinguishing an oil fire shall be provided. When such spaces contain machinery whose total power is at least 250kW or oil-fired boilers, at least one additional extinguisher shall be provided or the portable foam extinguisher specified in paragraph 2 above;
 - 5.1.2 All control stations, accommodation and service spaces shall be provided with a sufficient number of portable fire extinguishers such that at least one extinguisher of an appropriate type is ready for use in any part of such spaces. At least three such extinguishers shall be provided.
 - 5.2 Ships sailing not more than 12 miles from the nearest land shall be provided with an appropriate number of portable extinguishers, at least one of which shall be appropriate to extinguish an oil fire. At least three portable extinguishers shall be provided.

Fireman's outfit
Regulation 86

1. On board ships of 35 metres in length (L) or over, two fireman's outfits shall be provided in compliance with the requirements of paragraph 2.
2. A fireman's outfit shall consist of:
 - 2.1. Personal equipment of an approved type comprising:
 - 2.1.1 Protective clothing of material to protect the skin from the heat radiating from the fire and from burns and scalding by steam. The outfit shall be water-resistant,
 - 2.1.2 Boots and gloves of rubber or other electrically non-conducting material,
 - 2.1.3 A rigid helmet providing effective protection against impact,
 - 2.1.4 An electric safety lamp (hand lantern) of an approved type with a minimum burning period of 3 hours, and
 - 2.1.5 An axe considered satisfactory by the Administration; and
 - 2.2. A breathing apparatus of an approved type which may be a self-contained compressed-air-operated apparatus, the volume of air contained in the cylinders of which shall be at least 1,200 litres, or other self-contained

breathing apparatus which shall be capable of functioning for at least 30 minutes. A number of spare cylinders, suitable for use with the apparatus provided, shall be available on board as considered sufficient by the Administration.

The spare cylinders shall be such as to allow a period of working of three hours. If there is a plant for recharging compressed air bottles on board, this period may be reduced to two hours.

3. For each breathing apparatus a fireproof lifeline of sufficient length and strength shall be provided capable of being attached by means of a snaphook to the harness of the apparatus or to a separate belt in order to prevent the breathing apparatus becoming detached when the lifeline is operated.
4. The fireman's outfits or sets of personal equipment shall be so stored as to be easily accessible and ready for use and, where the ship carries more than one fireman's outfit or more than one set of personal equipment, they shall be stored in widely separated positions.
5. On ships of between 24 and 35 metres in length (L), the following equipment shall be provided:
 - 5.1 A hose-type breathing apparatus with an external air intake on the deck, fitted with a fire-resisting tube and of sufficient length;
 - 5.2 a torch;
 - 5.3 a pair of rubber gloves in fire-resisting material;
 - 5.4 a fireman's line;
 - 5.5 a pick; and
 - 5.6 a safety helmet.

Regulation 87

Fire muster lists. Fire patrols. Fire drills

1. Ships of 24 metres or more in length (L) and passenger vessels shall have a fire roster, drawn up and updated before sailing. The muster lists shall contain all specific tasks. In particular, it shall show call signals and the station to which each man shall report and the tasks he shall perform in the event of fire. It shall be permanently displayed in several parts of the ships, especially in places used by the crew.
2. An efficient system of fire patrols, including ro-ro cargo spaces, shall be organized at sea and in port such as to ensure rapid detection of any fire hazard.
3. Fire drills shall be conducted under the same conditions as those required by Regulation 99, in order to check the condition of fire-fighting equipment and train the crew in its use.

Fire control plans
Regulation 88

Ships of 24 metres or more in length (L) and passenger vessels shall have a fire control plan permanently exhibited to the satisfaction of the Administration.

Ready availability of fire-extinguishing appliances
Regulation 89

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.

Substitutes
Regulation 90

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

Carriage of dangerous goods
Regulation 91

The provisions of Chapter VII of the SOLAS Convention shall apply to the carriage of dangerous goods in containers, or in bulk in the case of solid cargoes.

CHAPTER 9

LIFE-SAVING APPLIANCES AND ARRANGEMENTS

Application Regulation 92

1. Unless otherwise provided, the present chapter shall apply to new ships and barges
2. Life-saving appliances and arrangements aboard existing ships shall be in conformity with recognized standards. Existing appliances and the launching arrangements should, as far as practicable, have sufficient capacity to allow all persons on board to evacuate the ship from one side or the other.
3. Existing ships and barges shall comply with the provisions of the present chapter within two years from the entry into force of the present Regulations, with respect to the following appliances:
 - 3.1 life jackets,
 - 3.2 lifebuoys,
 - 3.3 life rafts and hydrostatic release units,
 - 3.4 abandon ship drills,
 - 3.5 positioning devices conforming to the Global Maritime Distress Satellite System (GMDSS).

General Regulation 93

1. The provisions on life-saving and appliances and arrangements under the present chapter shall comply with the International Life-Saving Appliance (LSA) Code adopted by the IMO Maritime Safety Committee in Resolution MSC 48(66)
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.
3. The Administration may exempt from any requirement in the present Chapter that it regards as neither necessary nor applicable any ship which does not navigate more than 12 miles from the coast.

Approval of life-saving appliances and arrangements and their equipment

Regulation 94

1. The life-saving appliances and arrangements and their equipment required by this chapter shall be approved by the Administration. Before giving approval to life-saving appliances and arrangements and their equipment, the Administration shall ensure that such life-saving appliances and arrangements and their equipment comply with the requirements of the Recommendations of the IMO*
2. Before giving approval to novel life-saving appliances and arrangements and their equipment, the Administration shall ensure that they provide the same degree of safety as existing standards. For that purpose, life-saving appliances and arrangements and their equipment shall have undergone tests in accordance with Recommendations of the IMO**.

Communications

Regulation 95

Apart from the means of alarm and communications set out in Chapters 10 and 11 of the present Regulations, any ship or manned barge shall have on board:

1. An emergency means comprising either fixed or portable equipment or both shall be provided for two-way communication between emergency control stations, muster and embarkation stations and strategic positions on board.
2. A general emergency alarm system capable of giving the signal to go to muster stations consisting of seven or more short blasts followed by a long blast on the ship's siren or whistle supplied by the main or emergency source of power. The system shall be capable of being controlled from the ship's bridge and shall be audible in all accommodation and spaces used by the crew.

Line-throwing appliances

Regulation 96

1. Ships engaged in navigation more than 12 miles from the coast shall have a line-throwing appliance of an approved type.
2. The rocket, in the case of a rocket fired from a pistol, or the whole appliance, in the case of a combined rocket and line, shall be stowed in a water-resisting package. In addition, in the case of a rocket fired from a pistol, the line and rockets and the ignition device shall be stowed in a weathertight box.

* Refer to IMO resolution MSC 48(66) on the International Life-Saving Appliance (LSA) Code.

** Refer to IMO resolutions A.689 (17) and MSC 54(66) on Testing of life-saving appliances.

Retro-reflective tapes for life-saving appliances

Regulation 97

All rescue boats, lifeboats or liferafts, immersion suits, life jackets and lifebuoys shall be fitted with retro-reflective tapes in a manner considered satisfactory by the appropriate authority.

IMO Resolution A.658(16) on Use and fitting of retro-reflective materials on life-saving appliances shall apply.

Personal life-saving appliances

Regulation 98

1. Lifebuoys

- 1.1 Lifebuoys shall be installed on board at readily accessible positions for all persons on board. They shall be capable of being rapidly cast loose and not permanently secured in any way.
- 1.2 Ships of 24 metres or more in length(L) shall have at least 4 lifebuoys, two of which shall be fitted with an automatic light, and one of the buoys also fitted with an automatic smoke signal.
Two buoys, one on each side, shall be provided with a floating lifeline 20 metres in length.
- 1.3 While the ship is in port or in the roads, one of the lifebuoys provided with a lifeline shall be placed permanently at the gangway.
- 1.4 Ships of less than 24 metres in length (L) shall have at least two lifebuoys, one of which shall be fitted with an automatic light.
- 1.5 Each lifebuoy shall be marked in Arabic and capital Roman letters with the name and port of registration of the ship on which it is placed.

2. Life jackets

Any ship or manned barge shall have on board a sufficient number of life jackets for every person on board the ship. In addition, they shall have a sufficient number of lifejackets for persons on watch. Each lifejacket shall be provided with a whistle and a light complying with the requirements of the above-mentioned LSA Code. On passenger vessels, in addition, a number of child size life jackets shall be carried equal to at least 10% of the total number of persons carried or such a greater number as may be required to provide a life jacket for each child.

Training and abandon ship drills

Regulation 99

1. Every crew member shall be trained in launching and manoeuvring 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 a log specified by the Administration.

Survival craft

Regulation 100

1. Cargo ships other than oil tankers, chemical tankers and gas carriers, and manned barges, shall comply with the following requirements:
 - 1.1 they shall carry, on each side, one or more survival craft conforming to the above-mentioned LSA Code, and have a total capacity sufficient to carry all the persons on board;
 - 1.2 except where the survival craft required by paragraph 1.1 can be rapidly transferred from one side of the ship to the other to be launched, additional survival craft shall be provided such that the total capacity on each side is sufficient to accommodate 125% of the total number of persons on board.
2. Passenger vessels shall carry one or more survival craft conforming to the above-mentioned LSA Code, and have a total capacity sufficient to carry all the persons on board. Where the survival crafts and their launching appliances, where applicable, are not accessible from both sides of the vessel, additional life-saving appliances shall be fitted as required by the Administration.
3. Any tanker carrying oil or petroleum products with a flashpoint less than 60°C, any tanker carrying chemical products and any gas carrier shall, in addition to complying with the requirements of paragraph 1, carry at least one rigid power-driven rescue boat unless:
 - 3.1 all the required survival craft consist of lifeboats, or
 - 3.2 at least one of the required lifeboats is a rescue boat as defined in the above-mentioned LSA Code.

4. The equipment of the survival craft shall be to the satisfaction of the Administration, taking into account:
 - 4.1 the area of navigation
 - 4.2 the distance from the nearest safe haven, and
 - 4.3 the search and rescue services available in the area

Stowage, launching and recovery of survival craft
Regulation 101

1. Survival craft shall be stowed such that:
 - 1.1 neither the survival craft nor its launching gear will interfere with the operation of any other survival craft at any other launching station,
 - 1.2 they are as near the water surface as is safe and practicable
 - 1.3 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.
 - 1.4 The arrangements for the recovery of survival craft shall be to the satisfaction of the Administration.
2. 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.

Marking of survival craft
Regulation 102

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

1. the name of the ship and its port of registration,
2. the name of the authority which approved the craft
3. the maximum number of persons for which it is approved.

Operational readiness, maintenance and inspections
Regulation 103

1. Operational readiness:

Before the ship leaves port and at all times during the voyage, and in the case of barges, at any time when they are manned, all life-saving appliances shall be in working order and ready for immediate use.

2. Maintenance:

Instructions for maintenance on board of rigid survival craft shall be exhibited and such maintenance shall be effected in accordance with such instructions

3. Weekly inspection:

The following tests and inspections shall be carried out weekly:

3.1 All survival craft and launching appliances shall be visually inspected to ensure that they are ready for use; and

3.2 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, hydrostatic release units and inflated rescue boats:

Every inflatable liferaft, hydrostatic release units and inflated rescue boat 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.

Public address systems

Regulation 104

1. Except as noted in paragraph 5, each passenger vessel shall be equipped with a public address system.
2. On a vessel of 20 m (65 feet) 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 vessel with more than one passenger deck and a vessel with overnight accommodation shall have the public address system operable from the operating station.
4. On a vessel of less than 20 m (65 feet) 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 vessel 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 vessel of less than 20 m (65 feet) 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.

Record of passengers

Regulation 105

The master of a vessel making a voyage in exposed or coastal waters shall keep an accurate list of all persons, which embark on and disembark from the vessel. However, for short and repetitive voyages the Administration may request to only record the number of passengers on board. The passenger list or the passenger count shall be deposited ashore in a well marked location.

Passenger Safety

Regulation 106

1. Before getting underway on a voyage where passengers are carried, the master of a vessel shall ensure that suitable public announcements are made informing all passengers of the following, as applicable to the vessel's operations and arrangement:
 - 1.1 a general explanation of emergency procedures;
 - 1.2 the location of emergency exits and survival craft embarkation areas;
 - 1.3 the stowage location of lifejackets;
 - 1.4 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;
 - 1.5 the location of the instruction placards for lifejackets and other lifesaving devices; and
 - 1.6 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 paragraph 1, the master or other designated person may:
 - 2.1 prior to getting underway, deliver to each passenger or, on a vessel 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
 - 2.2 make an abbreviated announcement consisting of:
 - 2.2.1. a statement that passengers should follow the instructions of the crew in an emergency;
 - 2.2.2. the location of lifejackets; and

- 2.2.3. 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 vessel's unique operation.

CHAPTER 10

RADIOCOMMUNICATIONS

Application

Regulation 107

1. The general principle of the Global Maritime Distress and safetySystem (GMDSS), as provided in Chapter IV of the SOLAS Convention, shall apply to ships subject to the present Regulations and any manned barge, which shall have aboard the radio installations indicated in the present chapter.
2. Existing ships shall comply with the provisions of the present chapter not later than two years from the entry into force of the present Regulations.
3. No provision in this chapter shall prevent the use by any ship, survival craft of person in distress, of any means at their disposal to attract attention, make known their position and obtain help.
4. Manned barges, when under tow by a tug or an offshore support vessel, shall be subject to the special regulations established by the Administration taking into account the available means of communication between the two ships. However, they shall comply with the provisions on VHF communications, radar transponder and EPIRB.

Exemptions

Regulation 108

1. Considering that, in the GMDSS context, it is highly desirable not to deviate from the requirements of the present chapter, the Administration may grant partial or conditional exemptions to individual ships from the requirements of Regulations 113 to 115 provided:
 - 1.1 such ships comply with the functional requirements of Regulation 3; and
 - 1.2 the Administration has taken into account the effect which such exemptions may have upon the general efficiency of the service for the safety of all ships.
2. An exemption may be granted under paragraph 1 only:
 - 2.1 if the conditions affecting safety are such as to render the full application of Regulations 113 to 115 unreasonable or unnecessary; or
 - 2.2 in exceptional circumstances, for a single voyage outside the sea area or sea areas for which the ship is equipped.

Functional requirements

Regulation 109

1. Every ship or manned barge, while at sea, shall be equipped with radio installations capable of the functions specified in the present Regulation throughout the duration of the intended voyage regardless of the sea area or sea areas crossed.
2. Every ship, while at sea, shall be capable:
 - 2.1 of transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service,
 - 2.2 of receiving shore-to-ship distress alerts,
 - 2.3 of transmitting and receiving ship-to-ship distress alerts,
 - 2.4 of transmitting and receiving search and rescue co-ordinating communications,
 - 2.5 of transmitting and receiving on-scene communications,
 - 2.6 of transmitting and, where applicable, receiving signals for locating,
 - 2.7 of transmitting and receiving maritime safety information,
 - 2.8 of transmitting and receiving general radiocommunications to and from shore-based radio systems or networks, and
 - 2.9 of transmitting and receiving bridge-to-bridge communications.

Ship requirements

Regulation 110

1. Every radio installation shall:
 - 1.1 be so located that no harmful interference of mechanical, electrical or other origin affects its proper use or that of other equipment,
 - 1.2 be so located as to ensure the greatest possible degree of safety and operational availability,
 - 1.3 be protected against the harmful effects of water, extremes of temperature and other adverse environmental conditions,
 - 1.4 be provided with reliable, efficient and permanently installed electric lighting,
 - 1.5 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.

Watches

Regulation 111

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.

Maintenance requirements

Regulation 112

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:
 - 3.1 duplication of equipment
 - 3.2 shore-based maintenance, or
 - 3.3 at-sea electronic maintenance capability.

Radio equipment: General

Regulation 113

1. Every ship shall be provided with:
 - 1.1 a VHF radio installation capable of transmitting and receiving:
 - 1.1.1 DSC on the frequency 156.525 MHz (channel 70) and maintaining a continuous DSC watch on this channel. It shall be possible to initiate the transmission of distress alerts on channel 70 from the navigation bridge. Ships navigating exclusively in Sea Area A2 may be exempted from this requirement if they maintain a continuous VHF radio watch on channel 16 from the navigation bridge;
 - 1.1.2 radiotelephony on the frequencies 156.300 MHz (channel 6), 156.560 MHz (channel 13) and 156.800 MHz (channel 16);

- 1.2 a radar transponder capable of operating in the 9 GHz band, which shall be located in the immediate vicinity of the navigation bridge so that it can be easily utilized and ready for transfer to any survival craft.
- 1.3 subject to the provisions of paragraph 3 of Regulation 114, a satellite emergency position-indicating radio beacon (satellite EPIRB) which shall be:
 - 1.3.1 capable of transmitting a distress alert either through the polar orbiting satellite service operating in the 406 MHz band or the INMARSAT-E geostationary satellite coverage operating in the 1.6 GHz band,
 - 1.3.2 installed in an easily accessible position,
 - 1.3.3 ready to be manually released and capable of being carried by one person into a survival craft,
 - 1.3.4 capable of floating free if the ship sinks and of being automatically activated when afloat, and
 - 1.3.5 capable of being activated manually.
- 1.4 a receiver capable of receiving international NAVTEX service broadcasts if the ship is engaged on voyages in which an international NAVTEX service is provided; and
- 1.5 if a NAVTEX service is not provided, a radio facility for reception of:
 - 1.5.1 maritime safety information broadcast by the INMARSAT enhanced group calling system, or
 - 1.5.2 maritime safety information broadcast by HF direct-printing telegraphy.
2. Ships whose voyages do not normally exceed 12 hours may be exempted by the Administration from the obligation to keep watch on the international NAVTEX service provided that they are capable of receiving maritime safety information including meteorological forecasts before sailing.

**Radio equipment: Sea area A1
Regulation 114**

1. In addition to meeting the requirements of Regulation 113, every ship engaged on voyages exclusively in sea area A1 shall be provided with a radio installation capable of initiating the transmission of ship-to-shore distress alerts from the position from which the ship is normally navigated, operating either:
 - 1.1 on VHF using DSC; this requirement may be fulfilled by the EPIRB prescribed by paragraph 3, either by installing the EPIRB close to, or by remote activation from, the position from which the ship is normally navigated;

- 1.2 through the polar orbiting satellite service on 406 MHz; this requirement may be fulfilled by the satellite EPIRB, required by Regulation 113.1.3, either by installing the EPIRB close to, or by remote activation from, the position from which the ship is normally navigated;
- 1.3 if the ship is engaged on voyages within coverage of MF coast stations equipped with DSC, on MF using DSC;
- 1.4 on HF using DSC;
- 1.5 through the INMARSAT geostationary satellite service; this requirement may be fulfilled by:
 - 1.5.1 an INMARSAT ship earth station; or
 - 1.5.2 the satellite EPIRB, required by Regulation 113.1.3, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the ship is normally navigated.
2. The VHF radio installation, required by Regulation 113.1.1 shall also be capable of transmitting and receiving general radio communications using radiotelephony.
3. Ships engaged on voyages exclusively in sea area A1 may carry, in lieu of the satellite EPIRB required by Regulation 113.1.3, and EPIRB which shall be :
 - 3.1 capable of transmitting a distress alert using DSC on VHF channel 70 and providing locating by means of a radar transponder operating in the 9 GHz band;
 - 3.2 installed in an easily accessible position,
 - 3.3 ready to be manually released and capable of being carried by one person into a survival craft,
 - 3.4 capable of floating free if the ship sinks and of being automatically activated when afloat, and
 - 3.5 capable of being activated manually.

Radio equipment: Sea area A2
Regulation 115

1. In addition to meeting the requirements of Regulation 113, every ship engaged on voyages beyond sea area A1, but remaining within sea area A2, shall be provided with:
 - 1.1 an MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:

- 1.1.1 2,187.5 kHz using DSC; and
- 1.1.2 2,182 kHz using radiotelephony;
- 1.2 a radio installation capable of maintaining a continuous DSC watch, on the frequency 2,187.5 kHz which may be separate from, or combined with, that required by subparagraph 1.1; and
- 1.3 means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either:
 - 1.3.1 through the polar orbiting satellite service on 406 MHz; this requirement may be fulfilled by the satellite EPIRB, required by Regulation 113.1.3, either by installing the EPIRB close to, or by remote activation from, from the position from which the ship is normally navigated; or
 - 1.3.2 on HF using DSC; or
 - 1.3.3 through the INMARSAT geostationary satellite service; this requirement may be fulfilled by:
 - 1.3.3.1 the equipment specified in paragraph 3.2; or
 - 1.3.3.2 the satellite EPIRB, required by Regulation 113.1.3, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the ship is normally navigated.
- 2. It shall be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs 1.1 and 1.3 from the position from which the ship is normally navigated.
- 3. The ship shall in addition, be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy either by:
 - .1 a radio installation operating on working frequencies in the bands between 1,605 kHz and 4,000 kHz or between 4,000 kHz and 27,500 kHz. This requirement may be fulfilled by the addition of this capability in the equipment required by paragraph 1.1; or
 - .2 an INMARSAT ship earth station.
- 4. The Administration may exempt ships constructed before 1 February 1997, and engaged exclusively on voyages within sea area 2, from the requirements of Regulations 113.1.1.1 and 113.1.2 provided such ships maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the ship is normally navigated.

Sources of energy

Regulation 116

1. 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, as required by paragraph 5.4 of Regulation 70 of the present Regulations.
2. A reserve source or sources of energy shall be provided on every ship, to supply radio installations, for the purpose of conducting distress and safety radiocommunications, in the event of failure of the ship's main and emergency sources of electrical power.

Radio personnel

Regulation 117

1. Every ship shall carry personnel whose qualifications for distress and safety radiocommunication purposes shall be considered satisfactory by the Administration. The personnel shall be holders of certificates specified in the Radio Regulations as appropriate, any one of whom shall be designated to have primary responsibility for radiocommunications, especially during distress incidents.
2. Every ship navigating in sea area A1 shall carry on board at least one person holding a restricted operator's certificate.
3. Every ship navigating in sea area A2 shall carry on board at least one person holding a general operator's certificate.

Radio records

Regulation 118

A record shall be kept, to the satisfaction of the Administration and as required by the Radio Regulations, of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea and prevention of pollution.

CHAPTER 11

SAFETY OF NAVIGATION

General

Regulation 119

The provisions of Chapter V of the SOLAS Convention on safety of navigation and the following provisions shall apply to ships covered by the present Regulations.

Shipborne navigational equipment

Regulation 120

1. Ships subject to the present Regulations shall carry the equipment, instruments and nautical documents shown in tables 1, 2, 3, 4 and 5 below.
2. The Administration may exempt ships from carrying the equipment, instruments and nautical documents marked with an asterisk if it is satisfied that they are neither reasonable nor necessary for the safety of the ship.
3. Equipment for ships navigating exclusively in ports, roads and sheltered bays shall be determined by the Administration during the inspection prior to entry into service.

1. Nautical instruments

Item	Remarks
2 protractors*	Or equivalent instruments
2 dividers	
2 binnacle clocks or 1 centralized clock system	1 on the bridge, with indication of periods of silence; and 1 in the engine room
1 barometer	A second barometer shall be required on board ships navigating more than 200 miles from a port, one of them shall be a recording barometer No barometer is required for ships engaged in voyages in sheltered waters.
2 thermometers*	One mounted in the engine room
1 pair of binoculars	7 x 50. An additional pair of binoculars shall be required on board ships navigating more than 200 miles from a port.
A spare binnacle for the navigating compass with pivots and magnetic gear*	
1 pelorus*	
1 set of spares and maintenance for gyro-compass	Equipment specified by the maker of the compass when the ship is fitted with a gyro-compass.
1 log*	Or equivalent device
1 hand sounding lead	Of at least 50 metres
1 echo sounder*	This instrument shall have a scale of at least 0 to 300 metres. It shall not be compulsory for ships of less than 24 metres in length (L).

2. Miscellaneous equipment

Item	Remarks
6 distress signals of an approved type	These signals shall be of the parachute type. They shall be stowed in damp-proof containers placed close to the bridge or within it
2 floating smoke signals of an approved type*	Emitting smoke for a period of not less than 3 minutes.
1 complete set of flags and pennons of international Code of signals*	Ships not navigating more than 12 miles from the shore which are exempted from carrying the complete set of floating signals shall carry flags N and C of the international Code of signals.
1 table of flags and pennons*	This table shall be exhibited.
1 distinctive signal (flags)	
1 national flag	
2 halyards for flags and pennons*	
1 daytime signalling lamp*	<p>For ships not carrying the lamp required by Regulation 19.2.2.2 of Chapter V of the SOLAS Convention.</p> <p>Ships not navigating more than 12 miles from the closest shore shall carry such a lamp or an electric lamp allowing the sending of Morse signals.</p>

3. Nautical publications and documents

(The publications and documents shall be made available to the officer concerned)

Item	Remarks
1 set of charts, nautical instructions, books of lights and charts of traffic separation schemes for the intended voyage	These documents shall be included in the list of marine charts and nautical books and shall be updated by means of information provided by a recognized hydrographic service. The list shall be established at the inspection prior to entry into service.
1 International Code of signals	
1 list of coastal stations or 1 list of coastal stations with which the ship is likely to have communications.	
1 chart of zones for the application of load lines	Compulsory on board ships that change zones
1 copy of Regulations for the Prevention of Collisions at Sea in force	An illustrated table summarizing the lights and signals to be carried by ships to prevent collisions at sea shall be exhibited.
1 copy of rescue signals*	An illustrated table shall be exhibited
1 copy of current laws and regulations in force on safety of maritime navigation*	
1 International Convention on Safety of Life at Sea in force	Compulsory on board ships engaged in international navigation, in order to inform the master of his obligations abroad.
1 International Maritime Dangerous Goods Code (IMDG Code)	For ships or voyages concerned.
1 IMO "IAMSAR" manual, volume 3	For ships navigating more than 12 miles from the nearest land.
1 international maritime Arabic/English vocabulary	
1 copy of azimuth tables	

4. Ship's stores

Item	Remarks
Lines, cables and mooring ropes	The number, sizes, breaking strain and tests of such materials shall be decided by the Administration, in accordance with the type and size of ship,.
Beams and planks	In sufficient quantity for the ship concerned.
Carpenter's tools and caulk	With tow, pitch and mastic
Quick-setting glue	
Wooden plugs and canvas cowls or other devices for closing air vents exposed to the sea.	A complete set. These plugs and cowls shall be marked and stored in a place well known and readily accessible to the personnel
Gangway ladder or access gangway*	<p>During a stay in a port or roads, a means of access to the ship shall be installed.</p> <p>Where there is a risk of falling, the means of access shall be protected by a net, where such an arrangement is effective.</p> <p>Efficient lighting shall be provided at night.</p> <p>Where it is possible for a man to fall between the ship and the quay, guard-rails of sufficient thickness shall be installed. In addition, a lifebuoy and a throwing line shall be immediately available near at hand.</p>
A block and tackle to operate the rudder*	One set.

5. Spare parts. Deck

Item	Remarks
Anchor chain assembly shackles	One per chain
Anchor coupling shackle	One per anchor
Spare tarpaulins	One for each cover, where applicable (in addition to two regulation tarpaulins).
Mobile wooden covers	One of each sort of cover per hold.
Spare parts for metal covers	Hemp braids, rubber joints, bearings, pins, etc.
Hold wedges	15% more than the number needed to close the holds.
Assorted ropes and cables for normal manoeuvres and mooring	A steel cable for mooring the ship. Boat falls for a quarter of boats, and for at least one boat. Assortment of small diameter ropes and wires, with pulleys, shackles, cable-clamps, bolts, etc.
Mast pulleys*	2 per mast if necessary

Magnetic compass

Regulation 121

1. Every magnetic compass required by Regulation 19 of Chapter V of the SOLAS Convention shall be properly compensated and its table or curve of residual deviations shall be available at all times.
2. The Administration may, when it considers it necessary, require the adjustment of the magnetic compasses referred to in paragraph 1 above to be checked by a qualified specialist

Means of signalling to prevent collisions at sea

Regulation 122

1. Ships shall be provided with the signalling lamps and other visual and audible means of signalling required by the regulations in force to prevent collisions at sea, applicable to their type and size.

All signalling lamps, and audible means of signalling shall be of an approved type. Their positioning on board shall comply with the requirements of the regulations on preventing collisions at sea.

2. When the above-mentioned electric signalling lamps are not provided with two light sources, emergency electrical lamps shall be provided. Such emergency means are only required for masthead, side and stern lights.
3. The electric lamps shall be supplied in compliance with the provisions of Chapter 7.
4. The lamps shall be controlled from a lighting switchboard in the wheelhouse or other control post, equipped with a switch and indicator light.

5. The whistle required by the regulations in force to prevent collisions at sea shall be capable of being supplied by 2 sources of power. No obstacle shall interfere with the projection of the sound forward.

If there is an automatic device to activate the whistle, it shall be possible to override the automatic whistle control.

Plans and documents to be carried on board

Regulation 123

1. Ships shall carry the following plans and documents in the working language of the crew.
 - 1.1 an overall plan of the ship
 - 1.2 a plan or diagram of capacities
 - 1.3 a load schedule
 - 1.4 a trim and stability specification
 - 1.5 an engine room plan
 - 1.6 a plan or diagram of the bilge-pumping systems
 - 1.7 a plan or diagram of the steam and fuel lines
 - 1.8 a plan or diagram of the electrical installations
 - 1.9 a plan or diagram of the fire safety systems
2. The graphic symbols used shall conform to standards in force unless the meaning of the symbols used is clearly indicated.

The information required for two or more of the above headings may be combined in a single document, provided that clarity and readability are not affected. Plans and documents shall include a note of their source and the date of production.

3. The list of plans and documents required on board ships not navigating more than 12 miles from the nearest land shall be determined by the Administration.

Ship's log

Regulation 124

1. Every ship shall maintain a ship's log, with numbered pages and initialled with all entries being made in ink and signed each day by the master. The navigation log, the engine-room log and the radio log shall constitute the ship's log.
2. Matters relating to the safety of the ship, in all circumstances, shall be entered in chronological order in the navigation log, as well as meteorological conditions and any incidents relating to safety of life at sea.
 - 2.1. information about the navigation of the ship and continuous dead reckoning shall be entered in precise detail.
 - 2.2. the master shall enter his orders for the use of navigation officers of the watch.

3. The chief engineer shall be responsible for keeping the engine room log. It shall record in chronological order all matters concerning the operation and maintenance of the propulsion and auxiliary machinery. Ships which have machinery which allows automatic recording of information to be included in the engine-room log shall not be required to reproduce such information in the engine-room log. When the effective power of the engine, in continuous operation, is less than 300 kW, a log is not required for that engine, but in such case the master shall record in the navigation log any significant matters concerning the operation of the engine which the chief engineer shall report to him.
4. The logs shall also contain entries of information and other matters required by regulations on safety, work, discipline on board, etc.
5. On ships of less than 24 metres in length (L) which do not navigate more than 12 miles from the nearest land, the bridge, engine-room and radio logs may be replaced by a single ship's log in which shall be recorded the main events relating to the voyage and safety of life at sea

Ship's stores and spare parts

Regulation 125

1. Every ship shall be provided with parts, such as bollards and cleats and be equipped with ropes, hawsers, towlines, etc., allowing it to receive assistance, if necessary.
2. Ships carrying wood or various crates on deck, wheeled vehicles on the deck or steerage deck, and other such loads, shall have a sufficient number of securing devices and mobile equipment necessary to secure them effectively, and documentation on securing cargo, to the satisfaction of the Administration.
3. Spare parts for the main and auxiliary engines, steering gear and manoeuvring gear shall be determined by the Administration or the duly authorized organization during the inspection prior to entry into service.

CHAPTER 12

SAFETY OF SPECIAL SHIPS

Application of the Code of Safety for Special Purpose Ship Regulation 126

The special ships subject to the present Regulations shall comply with the provisions of the Code of Safety for Special Purpose Ships, 2008 (IMO Resolution MSC.266 (84)), amending Resolution A.534 (13).

Exemptions Regulation 127

The Administration may exempt a ship from the application of the above requirements if it considers that their application is neither necessary nor reasonable.

CHAPTER 13

PREVENTION OF POLLUTION

Application of the MARPOL 73/78 Convention

Regulation 128

Ships subject to the present Regulations shall be subject to the relevant provisions of the International Convention for the Prevention of Pollution from Ships, 1973, as amended by the Protocol of 1978.

CHAPTER 14

SAFETY AT WORK, HEALTH, ACCOMODATION AND PREVENTION OF ACCIDENTS

Regulation 129

The Administration shall ensure the implementation of the applicable regulations on safety at work, health, accommodation and prevention of accidents. It may also decide to apply international standards and recommendations pertinent to the application of the Maritime Labour Convention, 2006.

CHAPTER 15

INTERNATIONAL SAFETY MANAGEMENT CODE (ISM CODE)

Regulation 130

The provisions of the International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management - ISM Code), adopted by the IMO in resolution A.741 (18), as amended, shall be applied on passenger vessels. It may be applied voluntarily to cargo ships and tankers covered by the present Regulations.

CHAPTER 16

INTERNATIONAL SHIP AND PORT FACILITIES SECURITY CODE (ISPS CODE)

Regulation 131

The provisions of the International Code for the Security of Ships and of Port Facilities (ISPS Code), adopted by the IMO in resolution A.924(22), as amended, shall be applied on passenger vessels, and may be applied voluntarily to other ships covered by the present Regulations in accordance with Part (A) Section 19 of the Code mentioned above.

CHAPTER 17

RULES AND SPECIAL INSTRUCTIONS FOR PASSENGER SHIPS

Documents to be carried on board passenger ships

Regulation 132

Each passenger ship entering a port subject to the provisions of this Regulation shall carry the following valid documents on board:

1. **Certificate of Registry**
2. **Tonnage Certificate**, determine the gross and net tonnage of the ship.
3. **Load Line Certificate**, issued to every ship which has been surveyed and marked in accordance with the provisions of the Regulations.
4. **Damage Control Plans and Booklets**, there shall be permanently exhibited plans showing clearly for each deck and hold the boundaries of the watertight compartments, the openings therein with the means of closure and position of any controls thereof, and the arrangements for the correction of any list due to flooding.
5. **Safety Certificate for Small Passenger Ship**, shall be issued after survey in accordance with the provisions of the Regulations to passenger ship whose length overall is 12 metres or over but less than 24 metres and carrying less than 200 passengers on domestic voyages or voyages between GCC Countries.
6. **Certificates of Endorsements for masters, officers or ratings**, shall be issued to those candidates who, to the satisfaction of the Administration, meet the requirements for service, age, medical fitness, training, qualifications and examinations in accordance with the provisions of the STCW Code annexed to the Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978. Formats of certificates are given in section A-I/2 of the STCW Code. Certificates must be kept available in their original form on board the ships on which the holder is serving.
7. **International Oil Pollution Prevention Certificate**, shall be issued after survey in accordance with regulation 4 of Annex I of MARPOL 73/78, to passenger ship whose length overall is 12 metres or over but less than 24 metres and carrying less than 200 passengers on domestic voyages or voyages between GCC Countries. The certificate is supplemented by a Record of Construction and Equipment for Ships Other Than Oil Tankers (Form A).
8. **De-rating Certificate**
9. **Classification Certificate.**
10. **License of vessel wireless station.**

CHAPTER 18 FINAL PROVISIONS

The right of amendment Regulation 133

1. Any Member State has the right to request amendment to this regulation.
2. Proposed amendment shall be submitted to the GCC Secretariat which shall disseminate the same to its Member States prior to the submission to the relevant committee.
3. Amendment becomes effective after approval by the Supreme Council.

Regulation 134

The present Regulations Entering into force from the date of approval by the Supreme Council.

APPENDI X (1)

MODEL CERTIFICATES

(Name of Country)

MARITIME ADMINISTRATION (Issuing Authority)

**SAFETY CERTIFICATE
FOR CARGO SHIP
NOT COVERED BY THE PROVISIONS OF
THE INTERNATIONAL MARITIME ORGANIZATION (IMO) CONVENTIONS**

This Certificate shall be supplemented by a Record of Equipment

Issued under the provisions of the Safety Regulations for Cargo Ships and for Small Passenger Vessels not covered by the IMO Conventions and issued by the GCC States.

By

Name of ship	Distinctive number or letters	Port of registry	Length	Type

Registration number

IMO number (if applicable):

Gross tonnage:

Nationalor

International Convention on Tonnage Measurement of Ships, 1969

Power of main propulsion engine (kW)

Deadweight of ship (metric tonnes)

Areas in which the ship is certified to operate (under GMDSS rules)

Name and address of company /owner / operator:

.....

.....

Date on which keel was laid or ship was at a similar stage of construction or, where applicable, date on which work for an alteration or modification of a major character was commenced

Name of ship Registration number

THIS IS TO CERTIFY:

1. That the said the ship (in accordance with her size) has been surveyed in line with the requirements of Chapter 2 of the Regulations
2. That the survey showed that :
 - 2.1 the condition of the structure, machinery and equipment was satisfactory and the ship complied with the relevant requirements of the Regulations (other than those relating to fire safety systems and appliances and fire control plans) ;
 - 2.2 the last two inspections of the ship's hull bottom took place on and (dates) ;
 - 2.3 the ship complied with the requirements of the Regulations as regards fire safety systems and appliances and fire control plans ;
 - 2.4 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Regulations ;
 - 2.5 the ship complied with the requirements of the Regulations as regards radio installations;
 - 2.6 the ship complied with the requirements of the Regulations as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications ;
 - 2.7 the ship was provided with lights, shapes, means of making sound signals and distress signals in accordance with the requirements of the Regulations and the International Regulations for Preventing Collisions at Sea in force ; and
 - 2.8 in all other respects the ships complied with the relevant requirements of the Regulations.

Name of ship Registration number

3. That the ship described in the present document shall be considered as being provided with adequate personnel for the purposes of safety in accordance with the requirements of Regulation V/14 of the International Convention for the Safety of Life at Sea (SOLAS 1974) if, when it puts to sea, it has on board at least the number of persons with the ranks/capacities specified in the table(s) below.

Rank/capacity	Certificate (STCW Regulation)	Number of personnel

4. That the ship is operated within the limits of the operating area ...
5. That an Exemption Certificate has/has not been issued. Number of exemptions indicated in Appendix 1.
6. That the additional certificates indicated below have been issued and are annexed to the present Certificate :
- 6.1 Certificate of compliance with the special provisions for ships carrying dangerous goods
- 6.2 Certificate of Fitness/International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk
- 6.3 Certificate of Fitness/International Certificate of Fitness for the Carriage of Liquefied Gases in bulk
- 6.4 Certificate of Fitness for the Carriage of INF Cargo
7. That the ship has been subject to a **voluntary audit** on (date) and that it satisfies the requirements of the International Code for the Safe Management of Ships and Prevention of Pollution (ISM Code), after verification that the certificate of conformity of the company applies to this type of ship, or, on a provisional basis

Name of ship Registration number

8. That the ship has been subject to a **voluntary survey** on (date) and that it satisfies the requirements of the International Code for the Security of Ships and Port Facilities (ISPS Code)

This certificate is valid until

.....
subject to the annual, intermediate and periodical surveys and inspections of the outside of the ship's bottom in accordance with the Regulations .

Issued at

(Place of issue of certificate)

*(Date of issue) (Signature of authorized official
issuing the certificate)*

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

Endorsed to extend the validity of the certificate until where Chapter 2 of the Regulations applies.

Issued at

(Place of issue of certificate)

*(Date of issue) (Signature of authorized official
issuing the certificate)*

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

Name of ship Registration number

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
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Endorsed in confirmation of the validity of this Certificate after satisfactory
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..... Survey*.

At, on20
Signature and official seal

Name of ship Registration number

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

* Annual, periodical, intermediate, additional or of the outside of the ship's bottom, according to Chapter 2 of the Regulations.

Name of ship Registration number

Record of equipment for the Cargo Ship Safety Certificate

(This Record shall be permanently attached to the Cargo Ship Safety Certificate issued
at..... on.....)

1 Particulars of ship

Name of ship
 IMO number (if applicable)
 Registration Number or distinctive letters

2 Details of life-saving appliances

1 Total number of persons for which life-saving appliances are provided		
	<u>Port side</u>	<u>Starboard side</u>
2 Total number of lifeboats
2.1 Total number of persons accommodated by them	
2.2 Number of partially enclosed self-righting lifeboats	
2.3 Number of totally enclosed lifeboats
2.4 Number of lifeboats with a self-contained air support system	
2.5 Number of fire-protected lifeboats
2.6 Other lifeboats		
2.6.1 Number	
2.6.2 Type
2.7 Number of freefall lifeboats		
2.7.1 Totally enclosed	
2.7.2 self-contained
2.7.3 fire-protected

- 3 Number of motor lifeboats included in the total lifeboats shown above
.....
- 3.1 Number of lifeboats fitted with searchlights
- 4 Number of rescue boats
- 4.1 Number of rescue boats which are included in the total lifeboats shown above
.....
- 5 Liferrafts
 - 5.1 Liferrafts for which approved launching appliances are required :
 - 5.1.1 Number of liferafts
 - 5.1.2 Number of persons accommodated by them
 - 5.2 Liferrafts for which approved launching appliances are not required:
 - 5.2.1 Number of liferafts
 - 5.2.2 Number of persons accommodated by them
- 6 Number of lifebuoys
- 7 Number of lifejackets
- 8 Immersion suits :
 - 8.1 Total number
 - 8.2 Number of suits complying with the requirements for lifejackets
.....
- 9 Number of thermal protective aids
- 10 Radio installations used in life-saving appliances :
 - 10.1 Number of radar transponders
 - 10.2 Number of two-way VHF radiotelephone apparatus

Name of ship Registration number

3 Details of radio facilities

Item	Actual provision
1 Primary systems	
1.1 VHF radio installation:
1.1.1 DSC encoder
1.1.2 DSC watch receiver
1.1.3 Radiotelephony
1.2 MF radio installation:
1.2.1 DSC encoder
1.2.2 DSC encoder
1.2.3 Radiotelephony
1.3 MF/HF radio installation:
1.3.1 DSC encoder
1.3.2 DSC watch receiver
1.3.3 Radiotelephony
1.3.4 Direct-printing radiotelegraphy
1.4 INMARSAT earth ship station
2 Secondary means of alerting
3 Facilities for reception of maritime safety information :
3.1 NAVTEX receiver
3.2 EGC receiver
3.3 HF direct-printing radiotelegraph receiver
4 EPIRB satellite
4.1 COSPAS-SARSAT
4.2 INMARSAT
5 VHF EPIRB
6 Ship's radar transponder

Name of ship Registration number

4 Methods used to ensure availability of radio facilities

4.1 Duplication of equipment

4.2 Shore-based maintenance

4.3 At-sea maintenance capability

5 Other relevant documents:

Stability booklet

Dangerous goods manifest

Cargo securing manual

Bulk carrier booklet

Document of authorization for the carriage of grain

THIS IS TO CERTIFY that this Record is correct in all respects .

Issued at

(Place of issue of the Record)

.....
(Date of issue) (Signature of duly authorized

official issuing the Record)

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

(Name of Country)

MARITIME ADMINISTRATION (Issuing Authority)

**EXEMPTION CERTIFICATE
FOR CARGO SHIP NOT COVERED BY THE PROVISIONS OF
THE INTERNATIONAL MARITIME ORGANIZATION (IMO) CONVENTIONS**

Issued under the provisions of the Safety Regulations for Cargo Ships and for Small Passenger Vessels not covered by the IMO Conventions and issued by the GCC States.

By

Name of ship	Distinctive number or letters	Port of registry	Length (L)	Type

Registration number

IMO number (if applicable):

This is to certify:

That the ship is, under the authority conferred by Regulation 6 of the Regulations, exempted from the requirements of

.....
.....
..... of the Regulations.

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

.....

This Certificate is valid until, subject to the Safety Certificate for Cargo Ships not covered by the provisions of the IMO Conventions, to which this Certificate is attached, remaining valid.

Issued at

(Place of issue of certificate)

.....

.....

(Date of issue)

(signature of authorized official

issuing the certificate)

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

(Name of Country)

MARITIME ADMINISTRATION (Issuing Authority)

**SAFETY CERTIFICATE
FOR SMALL PASSENGER VESSEL
NOT COVERED BY THE PROVISIONS OF
THE INTERNATIONAL MARITIME ORGANIZATION (IMO) CONVENTIONS**

This Certificate shall be supplemented by a Record of Equipment

Issued under the provisions of the Safety Regulations for Cargo Ships and for Small Passenger Vessels not covered by the IMO Conventions and issued by the GCC States

By

Name of ship	Distinctive number or letters	Port of registry	Length	Type

Registration number

IMO number (if applicable):

Number of Passengers authorized:

Gross tonnage:

Nationalor

International Convention on Tonnage Measurement of Ships, 1969

Power of main propulsion engine (kW)

Deadweight of ship (metric tonnes)

Areas in which the ship is certified to operate (under GMDSS rules)

Name and address of company /owner / operator:

.....

.....

Date on which keel was laid or ship was at a similar stage of construction or, where applicable, date on which work for an alteration or modification of a major character was commenced

Name of ship Registration number

THIS IS TO CERTIFY:

1. That the said the ship, in accordance with her size/ passengers carrying capacity, has been surveyed in line with the requirements of Chapter 2 of the Regulations
2. That the survey showed that :
 - 2.1 the condition of the structure, machinery and equipment was satisfactory and the ship complied with the relevant requirements of the Regulations (other than those relating to fire safety systems and appliances and fire control plans) ;
 - 2.2 the last two inspections of the outside of the ship's bottom took place on and (dates) ;
 - 2.3 the ship complied with the requirements of the Regulations as regards fire safety systems and appliances and fire control plans ;
 - 2.4 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Regulations ;
 - 2.5 the ship complied with the requirements of the Regulations as regards radio installations;
 - 2.6 the ship complied with the requirements of the Regulations as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications ;
 - 2.7 the ship was provided with lights, shapes, means of making sound signals and distress signals in accordance with the requirements of the Regulations and the International Regulations for Preventing Collisions at Sea in force ; and
 - 2.8 in all other respects the ships complied with the relevant requirements of the Regulations.

Name of ship Registration number

3. That the ship described in the present document shall be considered as being provided with adequate personnel for the purposes of safety in accordance with the requirements of Regulation V/14 of the International Convention for the Safety of Life at Sea (SOLAS 1974) if, when it puts to sea, it has on board at least the number of persons with the ranks/capacities specified in the table(s) below.

Rank/capacity	Certificate (STCW Regulation)	Number of personnel

4. That the ship is operated within the limits of the operating area ...
5. That an Exemption Certificate has/has not been issued. Number of exemptions indicated in Appendix 1.
6. That the additional certificates indicated below have been issued and are annexed to the present Certificate :
- 6.1 Certificate of compliance with the special provisions for ships carrying dangerous goods
 - 6.2 Certificate of Fitness/International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk
 - 6.3 Certificate of Fitness/International Certificate of Fitness for the Carriage of Liquefied Gases in bulk
 - 6.4 Certificate of Fitness for the Carriage of INF Cargo
7. That the ship has been subject to a **mandatory audit** on (date) and that it satisfies the requirements of the International Code for the Safe Management of Ships and Prevention of Pollution (ISM Code), after verification that the certificate of conformity of the company applies to this type of ship, or, on a provisional basis

Name of ship Registration number

8. That the ship has been subject to a **mandatory survey** on (date) and that it satisfies the requirements of the International Code for the Security of Ships and Port Facilities (ISPS Code)

This certificate is valid until

.....
subject to the annual, intermediate and periodical surveys and inspections of the outside of the ship's bottom in accordance with the Regulations .

Issued at
(Place of issue of certificate)

(Date of issue) (Signature of authorized official
issuing the certificate)
(Seal or stamp of the issuing authority, as appropriate)

Endorsed to extend the validity of the certificate until where Chapter 2 of the Regulations applies.

Issued at
(Place of issue of certificate)

(Date of issue) (Signature of authorized official
issuing the certificate)
(Seal or stamp of the issuing authority, as appropriate)

Name of ship Registration number

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Name of ship Registration number

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory
..... Survey*.

At, on20
Signature and official seal

* Annual, periodical, intermediate, additional or of the outside of the ship's bottom, according to Chapter 2 of the Regulations.

Name of ship Registration number

Record of equipment

for Small Passenger Vessel Safety Certificate

(This Record shall be permanently attached to the Small Passenger Vessel Safety Certificate issued at..... on.....)

1 Particulars of ship

Name of ship

IMO number (if applicable)

Registration Number or distinctive letters

2 Details of life-saving appliances

1 Total number of persons for which life-saving appliances are provided		
<u>Port side</u> <u>Starboard side</u>		
2 Total number of lifeboats	.....	.....
2.1 Total number of persons accommodated by them		.....
2.2 Number of partially enclosed self-righting lifeboats		.....
2.3 Number of totally enclosed lifeboats	.....	.....
2.4 Number of lifeboats with a self-contained air support system		.....
2.5 Number of fire-protected lifeboats	.....	.....
2.6 Other lifeboats		
2.6.1 Number		.....
2.6.2 Type	.....	.....
2.7 Number of freefall lifeboats		
2.7.1 Totally enclosed		.....
2.7.2 self-contained	.....	.....
2.7.3 fire-protected	.....	.....

3	Number of motor lifeboats included in the total lifeboats shown above	.....
3.1	Number of lifeboats fitted with searchlights	.....
4	Number of rescue boats	.....
4.1	Number of rescue boats which are included in the total lifeboats shown above	.....
5	Liferafts	
5.1	Liferafts for which approved launching appliances are required :	
5.1.1	Number of liferafts	.....
5.1.2	Number of persons accommodated by them	.....
5.2	Liferafts for which approved launching appliances are not required:	
5.2.1	Number of liferafts	.....
5.2.2	Number of persons accommodated by them	.....
6	Number of lifebuoys	.....
7	Number of lifejackets	.....
8	Immersion suits :	
8.1	Total number	.....
8.2	Number of suits complying with the requirements for lifejackets	.....
9	Number of thermal protective aids	.....
10	Radio installations used in life-saving appliances :	
10.1	Number of radar transponders	.....
10.2	Number of two-way VHF radiotelephone apparatus	.....

Name of ship Registration number

3 Details of radio facilities

Item	Actual provision
1 Primary systems	
1.1 VHF radio installation:
1.1.1 DSC encoder
1.1.2 DSC watch receiver
1.1.3 Radiotelephony
1.2 MF radio installation:
1.2.1 DSC encoder
1.2.2 DSC encoder
1.2.3 Radiotelephony
1.3 MF/HF radio installation:
1.3.1 DSC encoder
1.3.2 DSC watch receiver
1.3.3 Radiotelephony
1.3.4 Direct-printing radiotelegraphy
1.4 INMARSAT earth ship station
2 Secondary means of alerting
3 Facilities for reception of maritime safety information :
3.1 NAVTEX receiver
3.2 EGC receiver
3.3 HF direct-printing radiotelegraph receiver
4 EPIRB satellite
4.1 COSPAS-SARSAT
4.2 INMARSAT
5 VHF EPIRB
6 Ship's radar transponder

Name of ship Registration number

4 Methods used to ensure availability of radio facilities

4.1 Duplication of equipment

4.2 Shore-based maintenance

4.3 At-sea maintenance capability

5 Other relevant documents:

Stability booklet

Dangerous goods manifest

Cargo securing manual

Bulk carrier booklet

Document of authorization for the carriage of grain

THIS IS TO CERTIFY that this Record is correct in all respects .

Issued at

(Place of issue of the Record)

.....
(Date of issue) (Signature of duly authorized

official issuing the Record)

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

(Name of Country)

MINISTRY OF THE MERCHANT MARINE

**EXEMPTION CERTIFICATE
FOR SMALL PASSENGER VESSEL**

Issued under the provisions of the Safety Regulations for Cargo Ships and for Small Passenger Vessels not covered by the IMO Conventions and issued by the GCC States

By

Name of ship	Distinctive number or letters	Port of registry	Length	Type

Registration number

IMO number (if applicable):

This is to certify:

That the ship is, under the authority conferred by Regulation 6 of the Regulations, exempted from the requirements of

.....
.....
..... of the Regulations.

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

This Certificate is valid until, subject to the Safety Certificate for Cargo Ships not covered by the provisions of the IMO Conventions, to which this Certificate is attached, remaining valid.

Issued at
(Place of issue of certificate)

.....
.....
(Date of issue)

(signature of authorized official

issuing the certificate)

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

(Name of Country)

MINISTRY OF THE MERCHANT MARINE

LOAD LINE CERTIFICATE

Issued under the provisions of the Safety Regulations for Cargo Ships and for Small Passenger Vessels not covered by the IMO Conventions and issued by the GCC States

By

Name of ship	Distinctive number or letters	Port of registry	Length	Type

Registration number

IMO number (if applicable):

Freeboard from deck line

Load line

Tropical..... mm (T) mm above (S).

Summer mm Upper edge of line through centre of ring. (S)

Winter mm (W) mm below (S).

Winter North Atlantic mmmm below (S). (WNA)

Note. - Freeboards and load lines which are not applicable need not be entered on the certificate.

Allowance for fresh water for all freeboards mm.

The upper edge of the deck line mark from which the freeboards are measured at mm from deck at port side

Date of survey.....

This certificate is valid until.....

Issued at, on 19....

Name, signature and official seal.

Name of ship Registration number

Notes :

1. Where a ship departs from a port situated on a river or in 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.
2. When a ship is in fresh water of a unit density, the appropriate load line may be submerged by the amount of the fresh water allowance shown above. Where the density is other than unity, an allowance shall be made proportional to the difference between 1.025 and the actual density.

Endorsed to extend the validity of the certificate until where the provisions of chapter 3 of the Regulations apply.

Issued at
(Place of issue of certificate)

(Date of issue)
(Signature of authorized official issuing the certificate)

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

Endorsed in confirmation of the validity of this Certificate after satisfactory annual survey.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory annual survey.

At, on20
Signature and official seal

Endorsed in confirmation of the validity of this Certificate after satisfactory annual survey.

At, on20
Signature and official seal

APPENDIX (2)

**GCC SAFETY REGULATIONS FOR CARGO SHIPS NOT COVERED
BY THE PROVISIONS OF IMO CONVENTIONS
AND
FOR SMALL PASSENGER SHIPS
CARRYING LESS THAN 200 PASSENGERS**

**RELATING TO
SMALL FISHING VESSELS, TRADITIONAL WOODEN CARGO SHIPS
AND PLEASURE CRAFT**

CONTENTS

Section one

Definitions and terminologies:

1. Small fishing vessel.
2. Traditional wooden cargo ship
3. Non-commercial pleasure craft (yacht)
4. The Competent Authority
5. Ship's navigation license (work permit)
6. Certificate of registry
7. Ship's builder certificate
8. Ship's crew

Section two

Safety and Environment:

1. Application
2. Safety equipment
3. Ship's working geographical area
4. Qualifications of ship's master
5. Documents and certificates of ship

Section three

Procedures of amendment.

SECTION ONE

DEFINITIONS AND TERMINOLOGIES

- 1. Small fishing vessel:**
Floating marine unit, used to catch permitted marine species, provided that, her length is less than 12 meters otherwise is subjected to the regulations.
- 2. Traditional wooden cargo ship (Dhow):**
Wooden ship traditionally constructed from wood, may be used for fishing, national or international transport of goods only (Saffar).
- 3. Non-commercial pleasure craft (yacht) :**
Floating unit used for the purpose of pleasure only.
- 4. The Competent Authority:**
The State's responsible Agency for the registry of ships after the completion of inspections, licensing, numbering and naming of the ship.
- 5. Ship's navigation license (work permit):**
A document issued by the Competent Authority in the State accordingly, which certify the unit suitability for sailing in terms of safety, environmental protection and the area of sailing.
- 6. Certificate of registry:**
A document issued by the Competent Authority as a proof for ; the owner's name, nationality, address, and gives descriptions of the ship, date of built and other matters relating to the legality of its work.
- 7. Ship's builder certificate:**
A certificate issued by the builder of the vessel and is accepted by the Competent Authority.
- 8. Ship's crew:**
Include the ship's master and seafarers as qualified in accordance with this appendix.

SECTION TWO

SAFETY AND ENVIRONMENT

1. The condition of the ship' hull, engines, machineries, equipment and apparatus should be maintained and suitable for sailing, navigating and protecting the marine environment.
2. The owner or master of a ship shall not make any alterations or additions to the ship's hull or engines of a ship or its equipment, without the formal written approval from the competent authority and shall prove that the ship is capable of sailing.
3. There shall be an annual inspection and survey of the ship for the renewal of all certificates. This is to be carried out by an authorized qualified surveyors/inspectors as declared by the competent authority.
4. **Application:**
Appendix (2) shall apply to ships flying the flags of the GCC countries and on the similar foreign ships operating in the territorial waters of the GCC countries under the license issued by the competent authority.
5. **Safety equipment:**
 - 5.1 **Life jackets;** shall be provided to the total number(s) the ship is authorized to carry on board, plus 10% of the prescribed number of life jackets, while taking into account the size of life jackets to also fit children size. Each lifejacket shall be fitted with a whistle, the name and number of the vessel to be printed on it,
 - 5.2 **Lifebuoys:**
 - 4.2.1 Units of less than 12 meters in length:
There shall be one lifebuoy for every four persons on board, fitted with a lifeline of at least 10 meters in length without been permanently secured to the ship structures.
 - 4.2.2 Units more than 12 meters in length:
In addition to (4.2.1) above, at least two of which have to be equipped with self-igniting light.
 - 5.3 **Lifeboats and liferafts:**
All units must be supplied with a lifeboat or liferaft enough to accommodate all persons authorized to be on board.
 - 5.4 Appropriate spare means of navigating (spare engine, oar or sail).
 - 5.5 Manual or mechanical bilge water pump.
 - 5.6 Bucket with a rope of suitable length.
 - 5.7 At least, two (2) hand held waterproof flashlights,.

- 5.8 Maintenance tool box.
- 5.9 First aid outfit (box).
- 5.10 Fresh water sufficient for all people.
- 5.11 Whistle and reflecting mirror.
- 5.12 Magnetic compass.
- 5.13 Sea-anchor of adequate size appropriate to the length and volume of the ship.
- 5.14 Container for waste collection.

5.15 Fire-fighting equipment:

- 4.16.1 carbon dioxide (CO₂) fire extinguisher
- 4.16.2 powder fire extinguisher
- 4.16.3 foam fire extinguisher
- 5.15.1 Fire-bucket with a rope
- 4.16.4 fixed and mobile fire fighting pumps
- 4.16.5 In the case of closed spaces in some vessels, such as machinery spaces and other, external control fire extinguishing system must be provided.

The competent administration shall during the survey ensure that appropriate firefighting equipment are provided according to the size and type of the ship.

5.16 Navigational lights:

- 4.17.1 Navigational lights, green light to be fitted on the starboard side and a red light on the port side
- 4.17.2 White light placed over the highest mast.
- 4.17.1 White light placed at the stern of the ship

Navigational lights mentioned above shall conform with the Convention on the International Regulations for Preventing Collisions at Sea (COLREGS), 1972.

5.17 Additional shipboard requirements :

- 4.18.1 All units, over 12 meters in length must be equipped with a suitable wireless communication means, while less than 12 meters is subjected to the desire of the owner.
- 4.18.2 Suitable side barriers to protect personnel from falling.
- 4.18.3 Safe means of embarkation and disembarkation.
- 4.18.4 Good insulation for all electrical wires.
- 4.18.5 Global Positioning System (GPS).

6. Ship's geographical working range:

The ship working geographical ranges confined in inland waters, territorial waters and economical exclusive zone (EEZ) of the Gulf Cooperation Council, otherwise must be equipped with everything that voyage need it and to inform the authorities in writing about the date of travel, the destination port, cargo and expected date of arrival.

7. Qualifications of ship's master:

Ship's master must hold an appropriate certificate from a recognized marine college. In case the master does not hold the required appropriate certificate, the competent authority should examine him to ensure that he has the minimum required knowledge listed below:

- 6.1 General knowledge of COLREGS 1972.
- 6.2 Knowledge of the use of compass, nautical charts and measurements.
- 6.3 Knowledge of navigational lights.
- 6.4 Knowledge of the signs and colors of navigational buoys on the channels, coast and entrances to ports.
- 6.5 Knowledge of places banned as the Navy bases, shooting training places, oil rigs, oil and gas loading terminals and private jetties.
- 6.6 Evidence of medical fitness: eyesight test and general health.
- 6.7 Knowledge of the fire-fighting and first aid.
- 6.8 Knowledge of the general principles of stability.
- 6.9 Knowledge of communication means.
- 6.10 The ship's captain or ship's operator should be at least eighteen years old.
- 6.11 The ship's captain is the legal representative of the ship owner in the absence of the owner as also be the first responsible for the safety of the ship and life for the duration of his leadership.

8. Documents and certificates of ship

Each vessel should carry the following documents:

- 7.1 Certificate of registry from the competent authority.
- 7.2 Navigation license.
- 7.3 Ship's building certificate.
- 7.4 Ship's captain License issued by the competent maritime authority.
- 7.5 Personal identification cards or passports for the crew.
- 7.6 Certificate of validity of life-saving appliances and fire-fighting system.

SECTION THREE

PROCEDURE FOR AMENDMENT

Each country has its own requirements in terms of the nationality of the owner, the violation of regulations, penalties and sanctions and the like. Any proposals to amend these regulations will have to be raised to their Highnesses and Excellences the Ministers of Transport and Communications in the GCC States.