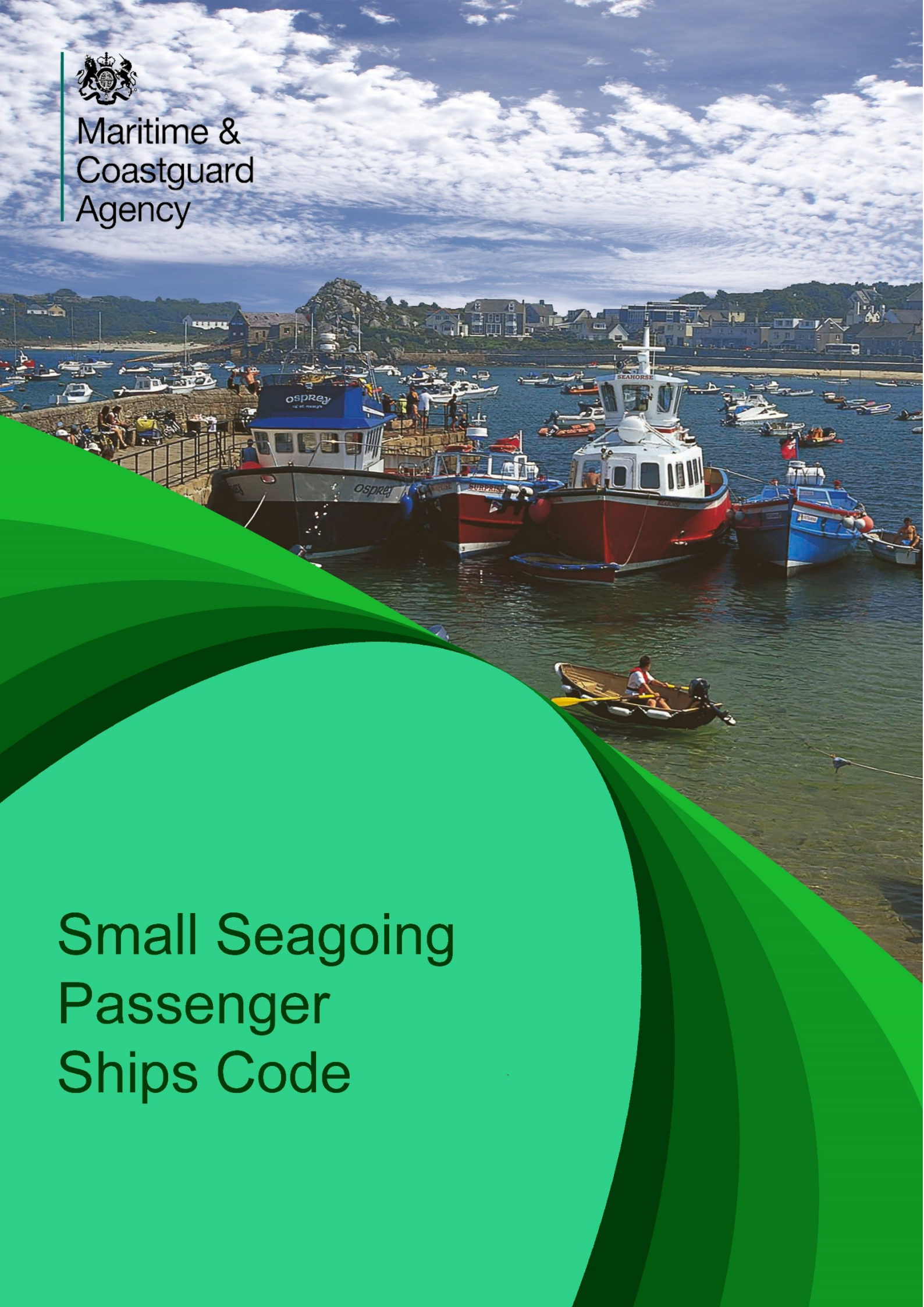




Maritime &
Coastguard
Agency

Small Seagoing Passenger Ships Code





Maritime &
Coastguard
Agency

The Small Seagoing Passenger Ship Code



Introduction

This Code may be applied on a voluntary basis to passenger ships carrying not more than 250 passengers that are of under 24 m in length (or less than 150grt if the ship's keel was laid or was a similar stage of construction before the 21st July 1968) operating to sea within 15 miles of a place of refuge and no more than five miles from the coast, except those ships to which the Domestic Passenger Ships Directive 2009/45/EC or the High Speed Craft Code applies. The Code provides opportunity for operators of ships to ply beyond the current Class VI limits and outwith restricted operating periods by fully meeting the standards contained within this Code.

More Information

Vessel Standards Branch
Maritime and Coastguard Agency
Bay 2/30 Spring Place
105 Commercial Road1

Southampton
SO15 1EG

Telephone: 023 8032 9100
Fax: 023 8032 9104
E-Mail: Shipping.Safety@mcga.gov.uk

General Enquiries: infoline@mcga.gov.uk

MCA Website Address: Internet: <http://www.mcga.gov.uk>

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Safer Lives, Safer Ships, Cleaner Seas



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Foreword

- 1.1 This Code has been developed for voluntary application to United Kingdom (UK) passenger ships of less than 24 metres load line length (or less than 150grt if the ship's keel was laid or was at a similar stage of construction before 21 July 1968, according to the tonnage measurement regulations in force on 20 July 1968), carrying not more than 250 passengers, operating within 15 miles of a place of refuge and no more than five miles from the coast. The Code provides opportunity for operators of ships to ply beyond the current Class VI plying limits by fully meeting the standards contained within this Code. Ships certified under this Code may also operate in inland waters of Category A, B, C and D subject to any seasonal or daylight restrictions of the seagoing certificate.
- 1.2 This Code can be applied with effect from 1 June 2015 subject to the provisions of Marine Guidance Note MGN535. The Code cannot be applied to vessels that are subject to the European Domestic Passenger Ships Directive 2009/45/EC as amended nor to those subject to the Merchant Shipping (High Speed Craft) Regulations 2004 and capable of a speed greater than 20 knots.
- 1.3 The primary aim of the Code is to set standards of safety and protection for all persons onboard and to minimise the potential risk to third parties. The standards in this Code have been developed by the Maritime and Coastguard Agency (MCA) in consultation with its surveyors and the wider marine industry. This Code provides the requirements in a consolidated document. Where this Code does not provide specific requirements to be complied with, it highlights where those requirements may be found.
- 1.4 The builder, owner/operator and master of the ship, as appropriate, shall take all reasonable measures to ensure that the ship is constructed, maintained and operated in accordance with the requirements of this Code and is suitable for the purpose intended, having regard to the area the ship will be operating in.
- 1.5 It is important to stress that, whilst all reasonable measures may have been taken to ensure a safe ship, total safety can never be guaranteed. As a consequence, it is strongly recommended that the owner/operator of a ship shall take out a policy of insurance for all persons onboard. It is recommended that a copy of the certificate of insurance shall be kept on-board the ship.
- 1.6 Compliance with the Code in no way obviates the need for vessels and Masters to comply with competent harbour authority rules, regulations and Byelaws. For instance the above authorities may require that insurance cover, including passenger liability is carried.

Definitions

In this Code:

"A' Class Division" has the same meaning as provided in the FTP Code and means a bulkhead or part of a deck which is:

- (a) constructed of steel or other equivalent material;
- (b) suitably stiffened;
- (c) so constructed as to be capable of preventing the passage of smoke and flame to the end of the 60 minute standard fire test; and
- (d) so insulated where necessary with suitable non-combustible materials that if the division is exposed to a standard fire test the average temperature on the unexposed side of the division shall not increase more than 140°C above the initial temperature nor shall the temperature at any one point, including any joint, rise more than 180°C above the initial temperature within the time listed below:

"A-60" standard 60 minutes;

"A-30" standard 30 minutes;

"A-15" standard 15 minutes;

"A-0" standard 0 minutes.

And in the case of a non-steel or equivalent ship, "A' class division" means:

- (a) an equivalent level of fire resistance to A-60, A30, A-15 or A-0 as defined for steel is achieved by applying fire protection media to the construction material;
- (b) the fire protection media utilised has been subject to the procedure for testing and approval of fire protection media for use with composite and wooden materials. Reference to further information is detailed in Annex 6; and
- (c) the fire protection media has been fitted in accordance with procedures applied in the fire testing and has received MCA acceptance.

"Accident" has the same meaning as in the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 which is:

- (a) a marine casualty, which is an event or sequence of events that has resulted in any of the following and has occurred directly by or in connection with the operation of a ship involving—
 - (i) the death of, or serious injury to, a person;

- (ii) the loss of a person from a ship;
 - (iii) the loss, presumed loss or abandonment of a ship;
 - (iv) material damage to a ship;
 - (v) the stranding or disabling of a ship, or the involvement of a ship in a collision;
 - (vi) material damage to marine infrastructure external of a ship, which could seriously endanger the safety of the ship, another ship or any individual;
 - (vii) pollution, or the potential for such pollution to the environment caused by damage to a ship or ships, or
- (b) a very serious marine casualty, which is an event or sequence of events that has resulted in any of the following and has occurred directly by or in connection with the operation of a ship involving—
- (i) the total loss of a ship;
 - (ii) loss of life;
 - (iii) severe pollution, or
- (c) a serious marine casualty, which is an event or sequence of events that has occurred directly by or in connection with the operation of a ship but which does not qualify as a very serious marine casualty, that involves—
- (i) fire;
 - (ii) explosion;
 - (iii) collision;
 - (iv) grounding;
 - (v) contact;
 - (vi) heavy weather damage;
 - (vii) ice damage, or a suspected hull defect;
- resulting in any of the following—
- (aa) the immobilization of the main engines;
 - (bb) extensive accommodation damage;
 - (cc) severe structural damage including penetration of the hull under water rendering the ship unfit to proceed;
 - (dd) pollution;
 - (ee) a breakdown that necessitates towage or shore assistance, or
- (d) a marine incident, which is an event or sequences of events other than those listed in sub-paragraphs (a) to (c) which has occurred directly in connection with the operation of a ship that endangered, or if not corrected would endanger the safety of a ship, its occupants or any other person or the environment.

“Accommodation space” means any internal space provided for the use of persons onboard;

“Administration” for the purposes of this Code means the Maritime and Coastguard Agency;

“Approved” means approved by, or on behalf of, or otherwise acceptable to the MCA under Merchant Shipping legislation, unless otherwise specified in this Code;

“Auxiliary machinery space” means any space containing refrigerating, stabilising, ventilation, air conditioning machinery or similar;

“Breadth of the ship” means the greatest moulded breadth at or below the ship’s deepest subdivision load waterline for subdivided ships, and at the gunwale for other ships;

“Bulkhead deck” means the uppermost deck up to which watertight bulkheads, as required by this Code, are carried;

“Certifying Authority” means either the Secretary of State or one of the organisations authorised by the Secretary of State to:

a) appoint persons for the purpose of examining vessels and issuing and signing Declarations of Survey; and

b) issue Passenger Certificates.

At the date of issue of this Code the MCA is the only Certifying Authority authorized for the purposes of this Code.

“Classes of passenger ship”

The following classes of passenger ship are considered in this code:

‘Class B Restricted’ means a passenger ship engaged on domestic voyages in sea areas where the vessel is limited to voyages in favourable weather and with a significant wave height less than 2.5 metres in the course of which it is at no time more than 15 miles from a place of refuge nor more than 5 miles from land, where ship-wrecked persons can land, corresponding to the medium tide height, with seasonal, daylight and/or geographical limitations applying;

‘Class C’ means a passenger ship engaged on domestic voyages in sea areas where the probability of exceeding 2.5 m significant wave height is smaller than 10 % over a one-year period for all-year-round operation, or over a specific restricted period of the year for operation exclusively in such period (e.g. summer period operation), in the course of which it is at no time more than 15 miles from a place of refuge, nor more than five miles from the line of coast, where shipwrecked persons can land, corresponding to the medium tide height;

‘Class D’ means a passenger ship engaged on domestic voyages in sea areas where the probability of exceeding 1.5 m significant wave height is smaller than 10 % over a one-year period for all-year-round operation, or over a specific restricted period of the year for operation exclusively in such period (e.g. summer period operation), in the course of which it is at no time more than six miles from a place of refuge, nor more than three miles from the line of coast, where shipwrecked persons can land, corresponding to the medium tide height;

“Code” means this Code unless another Code is specified;

“Control position” means a conning position which is continuously manned whilst the ship is under way;

“Crew” means a person employed or engaged in any capacity onboard a ship in the business of the ship

“Daylight” in the UK means between one hour before sunrise and one hour after sunset in the case of ships fitted with navigation lights conforming to regulations for the prevention of collisions at sea made under section 85 of the Merchant Shipping Act 1995 and between sunrise and sunset in the case of any other ship.

“Decked ship” means a ship with a continuous watertight weather deck which extends from stem to stern and has positive freeboard throughout, in any condition of loading of the ship;

“Directive” unless stated otherwise, means the EU Passenger Ships Directive 2009/45/EC as amended by Directive 2010/36/EC;

“Draught” unless stated otherwise, means the vertical distance from the underside of keel amidships to the deepest subdivision load waterline or freeboard mark, as appropriate;

“Disabled person” or “person with reduced mobility” means any person whose mobility when using transport is reduced as a result of any physical disability (sensory or locomotive, permanent or temporary), intellectual disability or impairment, or any other cause of disability, or as a result of age, and whose situation needs appropriate attention and adaption to their particular needs of the service made available to all passengers;

“Freeboard” means the distance measured vertically downwards from the lowest point of the upper edge of the weather deck to the waterline in still water or, for an open boat, the distance measured vertically downwards from the lowest point of the gunwale to the waterline;

“FTP Code” means the International Code for Application of Fire Test Procedures, 2010, as amended, published by the International Maritime Organization.

“Galley” means a space containing electrical cooking equipment or similar food heating appliances where the maximum power of any single appliance exceeds 5 kW, or a space containing a deep-fat cooking facility or liquefied petroleum gas (LPG) installation for use with cooking equipment;

“High speed craft” (HSC) is a craft capable of maximum speed in metres per second (m/s), equal to or exceeding

$$3.7 \nabla^{0.1667}$$

Where: ∇ = volume of displacement corresponding to the design waterline (m³)

“ISM Code” means International Management Code for the Safe Operation of

Ships and for Pollution Prevention as adopted by the International Maritime Organisation, implemented in the UK by the Merchant Shipping (International Safety Management (ISM) Code) Regulations 1998;

“Length” means the length of ship measured between perpendiculars taken at extremities of the deepest subdivision load waterline or freeboard mark, as appropriate.

“LOA” means the distance between the foreside of the stem and the aft side of the stern.

“Master” includes every person (except a pilot) having command or charge of a ship.

“Machinery space” means any space which contains propelling machinery, boilers, oil fuel units, steam, internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air conditioning machinery, and similar spaces, and trunks to such spaces.

“Machinery space of Category A” means a machinery space which contains either:

- (a) internal combustion machinery used for main propulsion; or
- (b) internal combustion machinery used for other purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 kilowatts; or
- (b) any oil fired boiler or oil fuel unit;

“Margin line” means a line drawn at least 76mm below the upper surface of the bulkhead deck at side.

“Marine Guidance Note” (MGN) means a Note described as such and issued by the MCA;

“MCA” means the Maritime and Coastguard Agency, an executive agency of the UK Department for Transport.

“MED” means the EU Directive on Marine Equipment 96/98/EC and “MED approved” means approved in accordance with the requirements of that Directive;

“Merchant Shipping Notice” (MSN) means a Notice described as such and issued by the MCA;

“Mobile phone” means a portable telephone which must be maintained charged and operational;

“New ship” for the purpose of this Code means a ship in respect of which there does not exist, on the date that this Code comes into force, a valid passenger certificate issued under the Merchant Shipping (Survey and Certification) Regulations 1995 or 2015 or the Merchant Shipping (Passenger Ships)(Safety Code for UK Categorised Waters) Regulations 2010;

Any ship may be treated as an “existing ship” if it has previously been certificated as a Passenger Ship under the above regulations and –

- (i) it was laid up on a day that falls within the period of five years prior to the

date this Code enters into force;

(ii) in respect of which the Secretary of State has issued a determination in writing to the effect that the ship cannot reasonably be expected to comply with the mandatory safety requirements; and

(iii) it is made subject to an initial Passenger Ship survey under the above Regulations (including under this Code) and in respect of which, in consequence of the completion of that survey, a Passenger Certificate was issued not more than five years after the day it was laid up or two years after the date this Code enters into force, whichever is the earlier.

“Open ship” for the purpose of this Code means a ship which is:

- (a) not fitted with a watertight deck; or
- (b) is fitted with a watertight deck over part of its length; or
- (c) is fitted with a watertight deck over the whole of its length but the freeboard to the deck does not meet the minimum requirement for freeboard;

“Passenger” means any person carried on a ship except:

- (a) a member of the ship’s crew,
- (b) a person on board the ship either in pursuance of the obligation laid upon the master to carry shipwrecked, distressed or other persons, or by reason of any circumstance that neither the master nor the owner nor the charterer (if any) could have prevented or forestalled,
- (c) a child of under one year of age;

“Passenger ship” means a ship which carries more than 12 passengers;

“Passenger deck” means any deck space to which passengers have access;

“Person with reduced mobility” – see “Disabled person”;

“Ro-ro passenger ship” means a passenger ship with ro-ro spaces or special category spaces;

“Ro-ro spaces” are spaces not normally subdivided in any way and normally extending to either a substantial length or the entire length of the ship in which motor vehicles with fuel in their tanks for their own propulsion and/or goods (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;

“To sea” means beyond UK category D waters, or category C waters if there are no contiguous category D waters. UK categorised waters are defined in MSN 1837 (M).

“Ship” includes every description of a vessel used in navigation;

“Similar stage of construction” means the stage at which:

- (a) construction identifiable with a specific ship begins; and

(b) assembly of that ship has commenced comprising at least 50 tonnes or one percent of the estimated mass of all structural material, whichever is less;

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

“Steel or other equivalent material” – in the context of ‘steel or other equivalent material’, ‘equivalent material’ means any non-combustible material which, by itself, or due to insulation provided, has structural integrity properties equivalent to steel at the end of the applicable exposure to the standard fire test. Aluminium is the only common constructional material that may be considered equivalent to steel.

“Summer” in UK waters means from the 1st April to 31st October, both dates inclusive; The 1st April date shall be substituted by the date 14 days before Good Friday in any year in which this is earlier but no earlier than the 17th March.

“Surveyor” means an exclusive surveyor of the MCA, or a surveyor from a UK Classification Society when they are surveying the ship in order to issue a Partial Declaration of Survey of a Passenger Ship

"Watertight" in relation to structure means capable of preventing the passage of water in either direction under the head of water likely to occur in the intact or damaged condition;

"Weather deck" means the main deck which is exposed to the elements;

"Weathertight" means capable of preventing the admission of a significant quantity of water into the ship when subjected to a hose test;

"Workers" include every person employed or engaged in any capacity onboard any ship;

3 Application and Interpretation

3.1 Application

- 3.1.1 This Code is authorised by a General Exemption issued in MGN 535 and may be voluntarily used by owners and operators of United Kingdom (UK) sea-going passenger ships of less than 24m in load line length (or less than 150grt if the ship's keel was laid or was at a similar stage of construction before 21 July 1968, according to the tonnage measurement regulations in force on 20 July 1968), operating in EC sea areas B (restricted), C or D with not more than 250 passengers. Ships which are surveyed and found to be in compliance with this Code will be considered by the UK to meet an equivalent standard to that required of a UK passenger ship operating on domestic voyages, in the same areas.
- 3.1.2 This Code can be applied to ships which satisfy the formula defined in the HSC Code but which are only capable of operating at speeds of up to 20 knots. Ships satisfying the HSC Code formula, and capable of operating at 20 knots or more, should comply with the HSC Code.
- 3.1.3 The Code cannot be applied to ships to which the EC Directive 2009/45 on the safety rules and standards for passenger ships applies. In brief, these are ships built of steel or equivalent on or after 1 July 1998 (1 January 2003 if MSN1855 is applicable). Ships built of steel before that date may demonstrate compliance with the National Standards required by the Directive Annex 1 Reg I/4 by complying with this Code in its entirety together with the Life Saving Appliances requirements of the Directive Annex 1 Chapter III rather than Chapter 13 of this Code.
- 3.1.4 The Code contains safety requirements with which the ship must comply in order to secure a Passenger Certificate. Many of the safety requirements are related to the physical design of the ship or equipment the ship must carry, however, there are also a number of safety requirements which are of an operational or procedural nature. In these cases, the surveyor shall be satisfied that there is objective evidence that sufficient procedures are in place to ensure the ship will be operated in accordance with these requirements.
- 3.1.5 If a vessels does not continue to comply with the Code, after being certificated, its certification under this Code may be withdrawn or cancelled.
- 3.1.6 The Code consolidates all applicable requirements into a single document. Other requirements are given legal effect by other legislation. The safety requirements which are made mandatory by the general exemption authorising this code are those contained in the following sections:
- 4 - Approvals and Assessments
 - 5 - Survey of Hull, Machinery ,Electrical and Bilge Pumping Systems
 - 7 - Watertight Integrity, including loadline rules and equivalences.
 - 8 - Machinery

- 9 - Electrical Arrangement
- 10 - Bilge Pumping
- 11 - Intact and Damage Stability Criteria
- 12 - Freeboard and Freeboard Marking
- 13 - Life-Saving Appliances
- 14 - Communications
- 15 - Emergency Information for Passengers
- 16 - Means of Escape
- 17 - Search and Rescue (SAR) Requirements
- 19 - Fire Safety
- 20 - Safety Management System
- 21 - Access and Mooring
- 23 - Navigation
- 25.1 - Minimum Manning Levels
- 27 - Passenger and Crew Accommodation
- 29 - Additional Requirements for Ro-Ro Passenger Ships.
- 30 - Additional requirements for planing and semi-displacement passenger ships which are not High Speed Craft

3.1.6 The requirements made mandatory by other Statutory Instruments (SIs) are those contained in the following sections. The requirements can be found in more detail in individual SIs and their related guidance as detailed in Annex 6:

- 22 – Pollution Prevention
- 24.1 – Safe Movement of Passengers and Crew
- 24.2 – First Aid Kits
- 24.3 – Carriage of Code of Safe Working Practice
- 24.4 – Alcohol Licensing
- 24.5 – Health and Safety
- 24.6 – Noise
- 24.7 – Vibration
- 25.2 – Minimum Qualifications
- 25.3 - Training
- 25.4 – Hours of Work Provisions

- 25.5 – Alcohol and Drugs
- 26 – Passenger Counting and Registration
- 27.7 – Crew Accommodation
- 28 - Survey and Certification Requirements
- 29.19 – Safety Equipment Lockers
- 29.20 – Stockholm Compliance

3.1.7 The Code also includes items of best practice guidance which should be observed where practicable, but is not a mandatory requirement.

3.1.8 The non-mandatory guidance contained in the Code is section-6 – Access for Persons with Reduced Mobility.

3.1.9 Planing and semi-displacement passenger ships which are not high speed craft in accordance with section 3.1.2 must additionally comply with the requirements of Part C of this Code - Additional requirements for planing and semi-displacement passenger ships.

3.1.10 Ro-ro passenger ships shall comply with the additional requirements given in Part B of this Code.

3.1.11 A ship that changes to operate in a more onerous mode or area of operation, shall comply with the section of this Code applicable to that mode or area of operation, and be resurveyed and recertificated accordingly. Designers and builders may wish to take account of the requirements for operations in other categories of water to maximise flexibility of use of the ship in the future. Owners and designers should be aware that if they only consider its use in a restricted category it may not be possible or economic to modify the ship to allow it to be used in a higher category in the future.

3.2 Restricted Operation

3.2.1 Restricted certificates will be issued where the ship is only permitted to proceed on a voyage with daylight, summer and/or geographical restrictions.

3.2.2 In EC sea area B waters additional restrictions will define plying limits and operational significant wave heights.

3.3 Interpretation

Any clarification or interpretation of this Code should be sought through the local Marine Office of the MCA.

3.4 Updating of this Code

- 3.4.1 This Code may be subject to review.
- 3.4.2 Any document amending this Code which is considered relevant, to be specified by the Secretary of State in a Merchant Shipping Notice.

3.5 Equipment Standards and Guidance

- 3.5.1 When this Code requires that a particular piece of equipment or machinery shall be provided or carried onboard, or that any particular provision shall be made, the required EC equivalent standard is detailed in Annex 5 of this Code.
- 3.5.2 Further guidance related to the requirements of this Code is given in Annex 6.
- 3.5.3 Equipment on board which is expected to be relied on in situations affecting safety or pollution prevention must be in operating condition. If such equipment is inoperative and is in excess of the equipment required by this code it shall either be repaired, removed or if removal is not practicable, clearly marked as inoperative and secured. Further guidance can be found in MGN 79 (M+F) "Safety Equipment and Pollution Prevention Equipment Carried in Excess of Statutory Requirements".

3.6 Risk Assessment of Operations

- 3.6.1 While every effort has been made to ensure this Code is suitable for generic passenger ship operations, there may be local conditions or circumstances which require additional measures to be put in place to mitigate known risks. Prior to plan approval taking place, a risk assessment shall be carried out by the owner/operator to ensure that any local conditions or circumstances are adequately considered and all known risks are mitigated. This should be presented to the Certifying Authority(s) conducting the surveys prior to plan approval so that they too may take account of the risks identified.
- 3.6.2 If a ship is moved from one area of operation to another area of operation, a new risk assessment required by 3.7.1 should be conducted. Such a risk assessment should include the assessment of any previously accepted equivalent arrangements to ensure that they will continue to provide an equivalent level of safety in the new area of operation.

3.7 Equivalence

The MCA may permit any other piece of equipment or machinery to be provided or carried, or any other provision to be made other than those required in Annexes 5 and 6, provided that the MCA is satisfied by trials, or otherwise, that the alternative is at least as effective as that required by this Code and any such equivalence is documented and agreed using the MCA's Assessment of Equivalence to Statutory Requirements Form, MSF1261.

Part A – General Requirements

4 Approvals and Assessments

4.1 Pre – construction approvals

The following approvals should to be in place prior to the commencement of the construction of the ship to minimise the risk of non-compliance with the regulations.

- 4.1.1 For the purposes of this Code, references to Classification Society Rules, plan approvals and surveys for Small Seagoing Passenger Ships shall be taken to include those of Seafish.
- 4.1.2 Relevant Classification Society, or MCA approval using LR SCC Rules, for hull construction and watertight integrity, machinery, control systems, electrical systems and bilge pumping arrangement standards. (see 4.4 - 4.10). MGN 322, Annex 3 provides a list of the plans that are required to demonstrate compliance.
- 4.1.3 It is also most strongly recommended that consideration is given to, and where possible approval is sought, for the following items prior to the commencement of construction as they may impact on the final design:
- The life-saving appliances to be provided, including their stowage and deployment arrangements (see section 13)
 - The fire protection arrangements (see section 19.7, 19.8)
 - Firefighting equipment (see section 19)
 - Navigation equipment (see 23.1)
 - Bridge visibility assessment (see 23.2)
 - Anchor and anchor handling arrangements (see 21.3)
 - Crew and passenger accommodation, and means of escape (16.2 and section 27).
 - Any equivalent arrangements are formally approved (see 3.7)
 - Safe manning taking into account the above considerations.

4.2 Pre – construction appraisals

- 4.2.1 Review and appraisal of the risk assessment for the intended area of operation of the ship, including, as applicable, any proposal for the use of low flash point fuels (see 3.7 and 8.6.1) or novel propulsion (see 8.1.3).
- 4.2.2 Assessment of the stability and freeboard (see sections 11 and 12).
- 4.2.3 Life-saving Appliances. Appraisal of the risk assessment required by 13.6.1, if applicable to the intended operation of the ship, to determine the LSA provision (see section 13).
- 4.2.4 Assessment of the required bollards and cleats and other mooring equipment having regard to the size and intended service of the ship (see 21.4).

4.3 Approvals required prior to commencement of operations

- 4.3.1 Partial Declaration for hull and watertight integrity, machinery, electrical systems, bilge systems and control systems (see Chapter 5);
- 4.3.2 Stability following a stability test (see 11.3)
- 4.3.3 Freeboard assignment (see section 12)
- 4.3.4 Passenger counting and registration (see section 26)
- 4.3.5 SAR Plan (see section 17)
- 4.3.6 Minimum manning (see 25.1)
- 4.3.7 GAS SAFE (see Annex 1, 2.1)
- 4.3.8 EIAPP and Technical File (see 22.4.2)
- 4.3.9 Ships of 400GT and over require a UKOPP and UKAPP Certificate, and an International Anti-Fouling System Certificate (see 22.4.1, 22.5.2 and 22.6.2)
- 4.3.10 Ships carrying packaged dangerous goods require a Document of Compliance for the Carriage of Dangerous Goods (see 22.8).
- 4.3.11 Safety Management System (see section 20)
- 4.3.12 Garbage Management Plan (see 22.2)

5 Requirement for a Partial Declaration of Survey

- 5.1 The MCA do not generally produce technical standards for hulls and watertight integrity, machinery, control systems, electrical systems or bilge pumping arrangements. Therefore hull, machinery, control systems, electrical systems and bilge pumping arrangements shall be in accordance with with recognised standards. as outlined below.
- 5.2 The recognised standards are the appropriate Rules and Regulations of any of the UK authorised Classification Societies listed below.
- 5.3 The UK Authorised Classification Societies are:
- American Bureau of Shipping
 - Bureau Veritas
 - DNVGL
 - Lloyds Register of Shipping
 - Nippon Kaiji Kyokai
 - Registro Italiano Navale.
- 5.4 The plan approval and survey work during design and build shall be normally be undertaken by the Classification Society that the ship owner has chosen to engage. The Classification Society representative will issue a Partial Declaration of Survey of a Passenger Ship to verify that the hull construction and watertight integrity, machinery, control systems, electrical systems and bilge pumping arrangements are in accordance with the recognised standards.
- 5.5 The plan approval and survey may be undertaken by the MCA, subject to prior agreement by the MCA. In this case the vessel will be assessed against the recognised standards of Lloyds Register Rules for Special Service Craft. Where MCA carries out the surveys, the verification of compliance with the recognised standards forms part of the Declaration of Survey completed by the MCA Surveyor and there is no separate Partial Declaration.
- 5.6 Construction plans and relevant calculations for new ships shall be produced in accordance with the requirements specified by the Classification Society's Rules, or Lloyd's Register Rules for Special Service Craft when under survey by MCA, as appropriate. Plans shall be submitted allowing adequate time for plan appraisal to be completed before construction begins. It is essential that the surveyor appointed by the Classification Society to validate the standard of construction is involved at the outset of the new build project.
- 5.7 Where a Classification Society are engaged to conduct a partial survey of the ship, they shall mutually agree clear lines of survey authority with the MCA to ensure that no survey requirements are missed.
- 5.8 Ships of under 24 metres in length, with a single passenger accommodation deck

and carrying not more than 60 passengers may be constructed in accordance with the Sea Fish standards, as an alternative to the provisions of 5.2. Ships constructed in accordance with Sea Fish standards must have plan approval, be surveyed during the build and be issued a Partial Declaration of Survey of a Passenger Ship, by a Sea Fish approved representative. Depending upon the length of the passenger ship, the applicable Sea Fish standards are: Construction Standards for New Fishing Vessels less than 15 metres Length Overall or Construction Standards for Steel and Aluminium Fishing Vessels of 15 to 24 metres Length Overall as appropriate to the ship's length and hull materials.5.9 References in this Code to a Classification Society or to a Classification Society Surveyor or representative shall be taken to include Sea Fish and a Sea Fish surveyor or representative as appropriate.

6

Access for Persons with Reduced Mobility

Ships should be designed and operated to accommodate the needs of persons of reduced mobility (PRM) as far as is practicable. The guidance in this section is not mandatory for non-steel ships but should be observed and implemented unless there are specific aspects of the ship which prevent doing so.

Persons of reduced mobility could include, and should not be limited to: wheelchair users, the elderly, passengers travelling with young children, passengers with impaired hearing or vision or physical or mental disability.

6.1 General

- 6.1.1 Ships should be constructed and equipped in such a way that a person with reduced mobility can embark, disembark and move around the ship easily and safely. Guidance can be found in MGN 306 – Designing and Operating Smaller Passenger Vessels: Guidance on meeting the needs of passengers with reduced mobility.
- 6.1.2 Passenger areas should meet the needs of persons with reduced mobility as far as practicable.
- 6.1.3 In order to help set passenger expectations and to reduce boarding problems, operators of Passenger Ships operating on UK categorised waters are strongly recommended to:
 - .1 Include limitations, procedures, processes and training requirements within their Domestic Safety Management (DSM) Systems for the assessment, boarding, welfare and safety of PRMs travelling on their ships.
 - .2 Include limitations and conditions of travel for PRMs in the Company Terms and Conditions of travel and reflect these, with sensitivity, in publicity and marketing material. In particular PRMs should be encouraged to contact operators in the first instance to discuss their requirements to see if they can be practically and safely achieved.

6.2 Ramps

- 6.2.1 Ramps should be fitted where door sills are of such a height as to reduce the access capabilities for persons of reduced mobility.
- 6.2.2 Where ramps are fitted in order to give access over a door sill then care should be taken not to allow this to become a tripping hazard to other passengers.

- 6.2.3 It is recommended to paint or 'hatch' a ramp in order that it is easily recognizable as a change in floor level height.
- 6.2.4 Longitudinal slopes and ramps should be kept as shallow as possible, and of consistent gradient, with a slope of 1:20 or less. Where this cannot be achieved, the maximum gradient should never exceed 1:12.
- 6.2.5 The ramp surface should be slip resistant (especially when wet).
- 6.2.6 There should be a colour contrast between a landing and a ramp.
- 6.2.7 Staff assistance should also be available, when required.

6.3 Handrails

- 6.3.1 Handrails should continue beyond the end of the ramp slope or end of stairs and should either return to the wall or down to the floor. The change in slope of the handrail and its return into a wall will signal the start or finish of the ramp.
- 6.3.2 Handrails should:
- be round, with a diameter of 40-45 mm and no sharp bends;
 - have a minimum clearance of 60 to 75 mm between handrails and any adjacent surface;
 - have an easy to grip non-slip surface, in a colour which provides a clearly visible contrast (in both colour and tone) with the background against which it is seen;
 - return to the wall, floor or post in a smooth curve at the end. The method used should be consistent throughout the ship; and
 - be provided on each side of steps and ramps. A central double handrail is desirable on wide staircases (over 2000mm).

6.4 Doors on ships

- 6.4.1 It should be possible for crew to unlock toilet doors from the outside in the event of an emergency. An alarm should be installed in the disabled toilet facilities for a passenger to alert the crew if they require assistance.
- 6.4.2 Door openings to public spaces should be wide enough for wheelchairs to pass unimpeded with a free opening of at least 800 mm.
- 6.4.3 Special consideration should be made to the size and operable force of opening/closing doors, especially for the use of persons with reduced mobility.

6.5 Recommended Space Allowances

- 6.5.2 The table below outlines the basic minimum requirements against comparable best practice guidance.

	Minimum Legal Requirement	Best Practice Recommendations
Corridor	-The minimum clear width of corridors shall, as a minimum, be 750mm and should be increased by 50mm for every 5 persons where passenger numbers exceed 75.	<ul style="list-style-type: none"> - Minimum width of 1200mm. - A clear width 1800mm to allow wheelchairs to pass each other. - Minimum clear head room of 1980mm from the deck.
Stairway	-The minimum clear width of stairways should, as a minimum, be 750mm and should be increased by 50mm for every 5 persons where passenger numbers exceed 75.	<ul style="list-style-type: none"> - Minimum width between handrails should be 1200mm. - Resting areas should be a minimum of 1200mm by 1200mm, although 1800mm by 1800mm is preferred. - Maximum rise of stairway flights be no more than that of height between decks.
Seating	- No specific requirement for seating for persons with reduced mobility, however seating requirements can be found in section 23.	- At least 4% of the seating in each lounge should have a design and an adjacent clear floor space that permit easy transfer of a person to and from a wheelchair. The floor space should be large enough for an Assistance Dog to lie down.
Space for wheelchair	- No minimum requirements	<ul style="list-style-type: none"> - Any permanent wheelchair spaces should be designed in the ratio of at least one per hundred passengers so that the wheelchair user may travel sitting in the wheelchair together with other passengers. - At least one of these spaces should be provided. It should be possible to place the wheelchair safely in position.
Toilets	- No dimensional	- Toilet doorways should be

	requirements.	a minimum width of 925mm - The toilet should have a floor space that permits manoeuvring of a wheelchair and have a height and location that allows easy transfer for a person in a wheelchair
Doorways	-The minimum clear width of doorways should, as a minimum, be 750mm and should be increased by 50mm for every 5 persons where passenger numbers exceed 75.	- Doorways should have a clear minimum opening width of 800mm.

6.6 EC Passenger Rights Regulation

- 6.6.1 Operators are reminded that Regulation (EU) 1177/2010 on maritime passenger rights may apply to their operation. This may require, as applicable, information regarding passenger rights must be displayed onboard and appropriate arrangements for the access and assistance of disabled persons and persons of reduced mobility (PRM) should be in place.
- 6.6.2 Under that Regulation (EU) 1177/2010 on passenger rights, passengers have certain rights when travelling by air, land or sea. 'Sea' includes UK Category A to D Inland Waterways and limited distances to sea.

The Regulation is aimed primarily at cruise liners and larger ferries where passengers are accommodated both prior to and during their voyage and embark and disembark at transfer terminals. In many cases where passage is delayed or cancelled and accommodation and additional travel are involved then under the Regulation the carrier has a comprehensive responsibility of care to their customers.

The Regulation does not apply to:

- (a) ships certified to carry up to 12 passengers;
- (b) ships which have a crew responsible for the operation of the ship composed of not more than three persons or where the distance of the overall passenger service is less than 500 metres, one way;
- (c) On excursion and sightseeing tours other than cruises; or
- (d) On ships not propelled by mechanical means as well as original, and individual replicas of, historical passenger ships designed before 1965, built predominantly with the original materials, certified to carry up to 36 passengers

Operators should ensure that they are familiar with the requirements and application of the Regulation. It will be useful for them to be aware that the fare paying public will be generally unaware of the details of the application of the Regulation and will have expectations regarding their ticket purchase and subsequent rights.

7 Watertight Integrity

The standards contained in this code include an equivalent standard to Merchant Shipping (Load Line) Regulations.

The ship must comply with the relevant hull construction standards of the Classification Society that has been engaged to issue the Partial Declaration. The standards included in this section specify minimum requirements the Classification Society standards must satisfy, they are not an alternative to full compliance with Classification Society requirements.

7.1 Watertight subdivision

- 7.1.1 Every subdivided ship shall be subdivided by bulkheads, which shall be watertight up to the bulkhead deck, into compartments the maximum length of which shall be calculated in accordance with the requirements for stability and survivability given in Section 11 of this Code.
- 7.1.2 Every other portion of the internal structure which affects the efficiency of the subdivision or buoyancy of the ship shall be watertight, and shall be of a design which will maintain the integrity of the subdivision.
- 7.1.3 The stern gland of every subdivided ship shall be situated in a watertight shaft tunnel or other watertight space.
- 7.1.4 Regardless of whether a ship is subdivided or not, every ship that has through hull penetrations that the surveyor considers to provide an increased risk of failure or water ingress, the through hull fitting should be situated in a watertight space. In particular, special attention should be made to drive shafts or other rotating machinery.

7.2 Weatherdeck

- 7.2.1 On a subdivided ship the bulkhead deck or a deck above the bulkhead deck shall be weathertight. All openings in an exposed weathertight deck shall have coamings of a height specified in the table below and shall be provided with efficient and rapid means of closing so as to make them weathertight. Freeing ports and scuppers shall be fitted as necessary for rapidly clearing the weather deck of water under all weather conditions.

Spaces below weather deck or gunwale level in vessels or spaces not provided with a weathertight deck shall be considered to be liable to swamping in survivability calculations.

Access	Coaming height (mm)
Direct to machinery space	380
To accommodation on a lower deck	230
To accommodation on the same deck* <ul style="list-style-type: none"> • may be dispensed with where there are no stability or downflooding risks 	100

- 7.2.2 Doors giving access to enclosed superstructure, or to spaces below decks shall be weathertight, permanently fixed, of equivalent strength to the bulkhead in which it is fitted. The door shall be operable from both sides and be outward opening
- 7.2.3 Hatch covers shall be of equivalent strength to the deck and weathertight.
- 7.2.4 Coamings may be omitted when hatchways are secured and not used on voyage. In that case there shall be a visual indication or an indication on the bridge of a closed and secured hatchway.
- 7.2.5 Ventilators serving spaces within the ship shall be provided with coamings of adequate strength with weather tight closing devices and shall have a height of at least 760mm above the freeboard deck and 450mm above superstructure decks. For Class C and D vessels this height may be reduced to the satisfaction of the surveyor, but shall not be less than respectively 380mm and 230mm
- 7.2.6 Air pipes, which shall be fitted to prevent air locks or high pressure in tanks, extending above the deck shall be of adequate strength and be provided with weather tight closing devices and shall have a height of at least 760mm above the freeboard deck and 450mm above superstructure decks. For Class C and D vessels this height may be reduced to the satisfaction of the surveyor, but shall not be less than respectively 380mm and 230mm.
- 7.2.7 Skylights shall be of adequate strength and if they comprise openings they shall be located at least 450mm above the deck. Such openings shall be capable of being closed by permanently attached weather tight covers. Skylights may be in the form of opening side scuttles with deadlights.
- 7.2.8 Scuppers, sea inlets and discharges shall meet the classification society standards appropriate to the size and service of the vessel.
- 7.2.9 The ship shall have sufficient and effective freeing ports of appropriate dimensions, with the lower edge as near as the deck as possible, to the satisfaction of the classification society. Openings of large freeing port areas shall be adequately protected with bars, to the satisfaction of the Certifying Authority. The minimum freeing port area (A) on each side of the ship shall be 4% of the bulwark area.

7.3 Partial subdivision above the bulkhead deck

On subdivided ships all reasonable and practicable measures shall be taken to

limit, where necessary, the entry and spread of water above the bulkhead deck. Such measures may include partial bulkheads or webs. Where such partial watertight bulkheads and webs are fitted on the bulkhead deck, above or in the immediate vicinity of main subdivision bulkheads, they shall have a watertight shell and bulkhead deck connections so as to restrict the flow of water along the deck when the ship is heeled in a damaged condition. Where such partial watertight bulkheads do not coincide with the bulkheads below, the bulkhead deck between shall be made effectively watertight.

7.4 Marking of valves, doors and mechanisms

Suitable notices and signs shall be provided on, or in the vicinity of, all doors, valves and closing appliances relating to the damage control and watertight integrity for protection of the ship to indicate, as necessary, the procedures for operating them, the purpose of the controls and any precautions to be observed.

7.5 Windows

7.5.1 Windows that form part of the weathertight integrity of a ship shall be in accordance with Classification Society Rules, and shall be toughened safety glass.

7.5.2 Windows that do not form part of the weathertight integrity of a ship, but provide protection and comfort to persons onboard shall be of the toughened safety glass type, such that it is unlikely to cause injury if it shatters.

7.6 Routine inspections for watertight integrity

7.6.1 All deadlights, watertight doors, valves and closing mechanisms of scuppers shall be opened and closed at intervals of not more than seven days.

7.6.2 All closing appliances and devices relating to the damage control or watertight integrity for protection of the ship shall be inspected by a person appointed by the master for that purpose before the ship at intervals of not more than seven days, or if the ship has been out of service for more than seven days, before it proceeds on any voyage.

7.6.3 A record of any inspection shall be kept as part of the Safety Management System.

8 Machinery

The ship should comply with the relevant machinery standards of the Classification Society that has been engaged to issue the Partial Declaration. The standards included in this section specify minimum requirements the Classification Society must satisfy, they are not an alternative to full compliance with Classification Society requirements.

8.1 Machinery Requirements

- 8.1.1 Passenger ships operating under this code shall have Twin Screw propulsion, or provide an acceptable alternative measure of propulsion in the event of any single point of failure. The alternative method may be dispensed with for Class D ships on a risk based assessment endorsed by the Certifying Authority.
- 8.1.2 The machinery, boilers and other pressure vessels, associated piping systems and fittings shall comply with the rules of a Classification Society, be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board, with due regard being paid to moving parts, hot surfaces and other hazards. The design shall have regard to the materials used in construction, the purpose for which the equipment is intended, the working conditions to which it will be subjected and the environmental conditions on board.
- 8.1.3 Any propulsion systems not adequately covered by the Classification Society rules such as electronic, solar or sail-powered ships shall be considered by the MCA on a case by case basis.

8.2 Control of propulsion machinery

- 8.2.1 Under all sailing conditions, including manoeuvring, the speed, direction of thrust and, if applicable, the pitch of the propeller, shall be fully controllable from the navigating bridge. Such remote control shall be performed by a separate control device for each independent propeller, with automatic performance of all associated services, including, where necessary, means of preventing overload of the propulsion machinery.
- 8.2.2 The main propulsion machinery shall be provided with an emergency stopping device on the navigating bridge which shall be independent of the navigating bridge control system.
- 8.2.3 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 system shall include means to prevent the propelling thrust from altering significantly when transferring control from one location to another.

- 8.2.4 It shall be possible for all machinery essential for the safe operation of the ship to be controlled from a local position, even in the event of failure in any part of the automatic or remote control systems.
- 8.2.5 If fitted with Air Starting of propulsion an alarm shall be provided to indicate low starting air pressure set at a level which still permits starting operations of the propulsion machinery.
- 8.2.6 At least essential parameters such as propeller speed, oil and water pressure, cooling water temperature, fuel supply, electrical power and air pressure, as necessary, shall be displayed on the navigating bridge to the satisfaction of the Surveyor.

8.3 Means of manoeuvring and going astern

- 8.3.1 Every ship shall have sufficient power for manoeuvring and going astern to secure proper control of the ship in all normal circumstances.
- 8.3.2 The ability of the machinery to reverse the direction of thrust in sufficient time so as to bring the ship to rest from maximum ahead service speed shall be demonstrated and recorded. The ship shall be capable of stopping within a safe distance, to be determined by the Surveyor, with due regard to the operating environment.
- 8.3.3 The stopping distance and manoeuvrability is not quantified as this will be dependent on the type of ship, speed and operating environment. The ship must be capable of stopping and also capable of returning to recover a person from the water within an acceptable period of time and within a safe distance.
- 8.3.4 The effective operation of any supplementary means of stopping or manoeuvring the ship shall be demonstrated and recorded.

8.4 Steering Gear

- 8.4.1 Every ship shall be provided with an efficient main and auxiliary steering gear. The main steering gear and the auxiliary steering gear shall be arranged so that the failure of one of them will not render the other one inoperative.
- 8.4.2 The main steering system and if power operated, the auxiliary steering system, shall be operable from the navigating bridge.
- 8.4.3 A suitable means of alarm, such as an audible or visual alarm shall be provided on the navigating bridge in case of failure of electrical supply to the control system.
- 8.4.4 A suitable means of alarm for hydraulic operated steering gear, such as an audible or visual low-level alarm of hydraulic fluid, shall be provided on the navigating bridge.

- 8.4.5 A suitable short circuit protection and an overload alarm for steering gear electric and electro-hydraulic circuits and motors shall be provided on the navigating bridge.
- 8.4.6 A means of communication shall be provided between the navigating bridge and the steering gear compartment or alternative steering position.
- 8.4.7 The indication of the angular position of the rudder(s) or direction of thrust shall be provide on the navigating bridge.
- 8.4.8 The steering gear compartment shall be readily accessible and, as far as practicable, separated from machinery spaces.
- 8.4.9 The auxiliary steering gear shall be capable of being rapidly brought into action and shall be of adequate strength and of sufficient power to enable the ship to be steered at navigable speed.
- 8.4.10 The majority of vessels operating under this code will have simple steering gear arrangements. The Alarms noted above in 8.4.3 and 8.4.5 may be dispensed with, when in the case of electrically powered systems or pumps the steering will continue to function manually, and, in the case of a hydraulic system the manual backup/ emergency steering is capable of being quickly bought into action and the hydraulic oil reservoir can be rapidly recharged.

8.5 Means for stopping machinery, shutting off flammable oil supply pipes, pumps and closing of openings

- 8.5.1 Means shall be provided -
 - (1) for stopping ventilating fans serving machinery and accommodation spaces;
 - (2) for closing all doorways, ventilators, and other openings to such spaces; and
 - (3) to permit the release of smoke from machinery spaces.
- 8.5.2 Such means shall be capable of being operated from positions outside the said spaces and which would not be made inaccessible by a fire within such spaces.
- 8.5.3 Means shall be provided for shutting off fuel, lubricating oil and hydraulic oil supplies and associated pumps. This shall be readily accessible, situated outside the machinery space and shall be clearly labelled.
- 8.5.4 The means of stopping machinery, shutting off power pipes, pumps, electrical supplies and closing of openings, for other types of propulsion shall be considered, on a case by case basis, to the satisfaction of the MCA.

8.6 Fuel and associated pipework

8.6.1 Flash point of fuel

Any oil fuel used in boilers or machinery shall normally have a flash point of not less than 60°C (closed test). Other fuels, including gas, and hydrogen shall be

in accordance with class rules and to the satisfaction of the MCA

8.6.2 Oil fuel pipes

Fuel lines should be run in rigid, metal pipework unless permitted otherwise. Oil fuel pipes which, if damaged, would allow oil to escape from a storage, settling or daily service tank situated above the double bottom, should be fitted with a cock or valve directly on the tank capable of being closed from a safe position outside the space concerned, easily accessible from a permanently manned control position, in the event of a fire occurring in the space in which such tanks are situated. Such a cock or valve is also required if there is a risk of tank contents syphoning out of the tank through pipes connected at the top of the tank.

Oil fuel pipes shall have their valves and fittings (including filters) constructed of steel or other approved material. This is to provide at least a 30 minutes fire protection.

Oil fuel pipes shall not be located immediately above or near units of high temperature, including boilers, steam pipelines, exhaust manifolds, silencers. As far as practicable, oil fuel lines shall be arranged far apart from hot surfaces, electrical installations or other sources of ignition and shall be screened or otherwise suitably protected to avoid oil spray or oil leakage onto the sources of ignition. The number of joints in such piping systems shall be kept to a minimum. Heated surfaces, particularly the exhaust systems and exposed indicator cocks of main and auxiliary diesel engines, must be effectively insulated, so that the surface temperature is below 220°C.

8.6.3 Flexible fuel pipes

- (1) Fuel lines shall be run in rigid, metal pipework unless permitted otherwise. Minimum lengths of flexible hoses may be used where necessary to allow for relative movements and vibration between machinery and fixed piping systems. The hoses and any couplings shall be suitable for the intended purpose.
- (2) Flexible pipes and end attachments shall be of approved fire resisting materials of adequate strength which provide at least A30 fire protection. Where oil cannot escape from a tank through a damaged fuel pipe, the tank can be easily shut off from the control position, the machinery space concerned is protected by the fixed fire fighting, detection and protection requirements in full compliance with Section 19 then this requirement can be relaxed but flexible pipework shall at least comply with ISO 7840.
- (3) Documentary evidence shall be provided to show the pipework complies with the relevant standards.
- (4) Flexible fuel pipework shall be installed in accordance with the manufacturer's instructions and correctly supported. The pipework shall be provided with sufficient free movement to accommodate vibration and to avoid contact with any structure. Where protective sleeves are fitted, the

sleeve shall extend beyond the flexible section of the pipe, with appropriate leak proof end connections.

- (5) Flexible fuel pipework shall be renewed according to the pipe manufacturer's instructions. Records of the most recent pipe renewal shall be kept onboard and ashore, where practicable.

8.6.4 **High pressure fuel pipes**

Flexible pipes are not acceptable for use in high pressure fuel injection systems.

All external high pressure fuel delivery lines between the high pressure fuel pumps and fuel injectors of engines with a power equal to or more than 130 kW shall be protected with a jacketed piping system capable of containing fuel from a high pressure line failure. A jacketed pipe incorporates an outer pipe into which the high-pressure fuel pipe is placed forming a permanent assembly. The jacketed piping system shall include a means for collection of leakages and arrangements shall be provided for an alarm to be given of a fuel line failure.

In multi-engine installations which are supplied from the same fuel source, means of isolating the fuel supply and spill piping to individual engines, shall be provided. The means of isolation shall not affect the operation of the other engines and shall be operable from a position not rendered inaccessible by a fire on any of the engines.

If an engine under 130 kW is designed and installed so that there are no surfaces having a temperature exceeding 220°C, and this can be verified by acceptable evidence/inspection, then an enclosure to prevent spray from a damaged high-pressure fuel line is not necessarily required. When approving such an installation, care should also be taken to ensure that there is no other equipment in the machinery space that may be a source of ignition if impinged by a fuel spray, e.g. electric motors, switches, etc.

Components of a diesel engine fuel system shall be designed considering the maximum peak pressure which will be experienced in service, including any high-pressure pulses which are generated and transmitted back into the fuel supply and spill lines by the action of fuel line injection pumps. Connections within the fuel supply and spill lines shall be constructed having regard to their ability to prevent pressurised oil fuel leaks while in service and after maintenance.

9 Electrical Arrangement

The ship must comply with the relevant electrical standards of the Classification Society that has been engaged to issue the Partial Declaration. The standards included in this section specify minimum requirements the Classification Society standards must satisfy, they are not an alternative to full compliance with Classification Society requirements.

9.1 Electrical requirements

- 9.1.1 The electrical equipment and installations (including any electrical means of propulsion) shall be such that the ship and all persons onboard are protected against electrical hazards.
- 9.1.2 The electrical equipment and installations shall be maintained to ensure the ship is in an operational and habitable condition.
- 9.1.3 The main source of electrical power may be driven by auxiliary or the main propulsion engine. It shall be capable of illuminating any part of the ship normally accessible to and used by the passengers or crew, and provide power to main electrical systems, which shall operate without recourse to the emergency source of power

9.2 Emergency power

- 9.2.1 Additionally, emergency power shall be provided to supply the following where required by this Code:
 - (a) navigation lights;
 - (b) audible warning devices;
 - (c) emergency lighting;
 - (d) fixed VHF installations;
 - (e) alarm and public address systems;
 - (f) searchlights;
 - (g) fire alarm system;
 - (h) other safety equipment such as automatic pressurised sprinkler systems or fire pumps (unless supplied by mechanical power);
 - (i) bilge pumping systems (unless supplied by mechanical power);
 - (j) electronically powered signage where fitted;
 - (k) survival craft launching system, where appropriate;
 - (l) alternative means of starting propulsion engine(s);
 - (m) steering; and
 - (n) Transmitting Magnetic Heading Device (“fluxgate compass”), where fitted.

- 9.2.2 The following are admissible for use as an emergency power source:
- (1) auxiliary generator sets with their own independent fuel supply and independent cooling system which, in the event of a power failure, start and take over the supply of power within 45 seconds automatically or, if they are located in the immediate vicinity of the wheelhouse or any other location permanently manned by crew members, can be brought into operation within 45 seconds; or
 - (2) accumulator batteries, which, in the event of a power failure, connect automatically or, if they are located in the immediate vicinity of the wheelhouse or any other location permanently manned by crew members, can be connected manually. Accumulator battery banks shall be capable of being isolated.
 - (3) to enable the crew to be able to undertake (1) or (2) above, emergency battery lighting shall be provided in way of the emergency means of power supply described. The Emergency lighting may be powered by alternative and/or self-contained sources of energy (e.g. supplementary lighting).
 - (4) Emergency means of power provided in accordance with (1) or (2) above shall be capable of powering emergency lighting for at least 180 minutes and all other items listed in 9.2.1 for a projected operating period of at least 60 minutes, without refuelling or recharging. Where accumulator batteries are employed there shall not be an unacceptable voltage reduction throughout the projected operating period.
- 9.2.3 The emergency power source and any associated switchboard plant shall be in a separate space to the main power supply. Cables feeding the electrical installations in the event of an emergency shall be installed and routed in such a way as to maintain the continuity of supply of these installations in the event of fire or flooding affecting the main power supply. Unless emergency power cables are suitably protected against fire and flame to a 60 minute standard, they shall not be routed through the main engine room, galleys or space where the main power source and connected equipment is installed, except where necessary to provide power to emergency equipment in such areas. The emergency power source shall be installed above the line of the bulkhead deck of subdivided ships and as high as possible in open ships.
- 9.2.4 For the following rooms and locations, emergency lighting shall be provided:
- (a) locations where life-saving equipment is stored and where such equipment is normally prepared for use;
 - (b) escape routes, access for passengers, including gangways, entrances and exits, connecting corridors, lifts and
accommodation areas companionways, cabin areas and accommodation areas;
 - (c) markings on the escape routes and emergency exits;
 - (d) in other areas intended for use by persons with reduced mobility;

- (e) operation rooms, engine rooms, steering equipment rooms and their exits;
- (f) wheelhouse;
- (g) spaces containing the emergency power supply source other than battery lockers;
- (h) points at which extinguishers and fire extinguishing equipment controls are located; and
- (i) areas in which passengers, shipboard personnel and crew muster in the event of danger.

Emergency lighting may be in the form of supplementary lighting having a self-contained source of power

9.2.5 Catamaran Emergency Source of Electrical Power

9.2.5.1 Rationale: The requirements of section 9.2.3, that the emergency source of electrical power is located above the bulkhead deck, is intended to ensure that it is not immediately put out of action by a flooding incident, and that there is a safe access to it should it need attention, even during an emergency.

9.2.5.2 This requirement can be considered to be fulfilled on a catamaran ship with twin electrical generators, one in each hull, provided that –

- (1) The ship is decked and subdivided;
- (2) The machinery spaces containing each generator have a longitudinal bulkhead between so that the hulls are separate spaces;
- (3) They are to be enclosed by A class divisions insulated to A30 standard or equivalent;
- (4) Divisions and bulkheads surrounding these machinery spaces are to be watertight;
- (5) The freeboard to the machinery space access, on the intact side, shall not be less after damage than the minimum intact freeboard required, and the machinery space shall have a coaming as required by section 6.2, to ensure safe access to the generator after damage on the opposite side; and
- (6) The emergency switchboard shall be located in a position not susceptible to flooding when the ship is damaged.

10 Bilge Pumping

The ship must comply with the relevant bilge pumping standards of the Classification Society that has been engaged to issue the Partial Declaration. The standards included in this section specify minimum requirements the Classification Society standards must satisfy, they are not an alternative to full compliance with Classification Society requirements.

The purpose of this section is to provide a means to pump out any water leaking into the ship as result of minor damage or as a result of failure of the watertight integrity of through hull fittings. It is not intended to protect against catastrophic flooding of a main compartment but to be able to control progressive flooding for example resulting from leaking watertight bulkheads and bulkhead fittings.

10.1 General

- 10.1.1 An efficient bilge pumping system shall be provided, capable of pumping from and draining any watertight compartment other than a space permanently appropriated for the carriage of fresh water, water ballast, oil fuel or liquid cargo and for which other efficient means of pumping are provided, under all practical conditions. Efficient means shall be provided for draining water from sealed tanks/spaces(which may be vented to deck), used only for stability purposes and where lowest point of tank is above bulge wells/highest level bilge level may be drained by weighted lever cocks, fitted with non-return devices, and which are normally closed.
- 10.1.2 Sanitary, ballast and general service pumps may be accepted as independent power bilge pumps if fitted with the necessary connections to the bilge pumping system.
- 10.1.3 All bilge pipes used in or under fuel storage tanks or in boiler or machinery spaces, including spaces in which oil-settling tanks or oil fuel pumping units are situated, shall be of steel or other suitable material.
- 10.1.4 The arrangement of the bilge and ballast pumping system shall be such as to prevent the possibility of water passing from the sea and from water ballast spaces into the cargo and machinery spaces, or from one compartment to another. Provision shall be made to prevent any deep tank having bilge and ballast connections being inadvertently flooded from the sea when containing cargo, or being discharged through a bilge pump when containing water ballast.

10.2 Fixed Bilge Pumping Requirements

- 10.2.1 All ships shall be provided with at least two fixed and independently powered pumps, one capable of being supplied by the emergency source of power. They shall not be installed within the same space. Suction pipes shall be arranged so that any compartment can be effectively drained, other than a space permanently appropriated for the carriage of fresh water, water ballast, oil fuel or liquid cargo and for which other efficient means of pumping are provided, under all practical conditions. Efficient means shall be provided for draining water from buoyancy spaces.
- 10.2.2 One bilge pump may be the fire pump as required by Section 19.1.2.

10.3 Bilge Valves

- 10.3.1 All manifolds and valves fitted in connection with the bilge pumping arrangements shall be located in positions which are readily accessible at all times under normal circumstances. If in any such ship there is only one system of bilge pipes common to all such pumps, the necessary valves for controlling the bilge suction shall be capable of being operated from above the ship's bulkhead deck.
- 10.3.2 Every valve which is required by this Code to be operated from above the bulkhead deck shall have its means of control, at its place of operation, clearly marked to show the purpose it serves and how it may be opened and closed. It shall be provided with a means to indicate whether it is open or closed.

10.4 Requirements for bilge pumps and bilge suction

- 10.4.1 Every bilge pump provided shall be self-priming.
- 10.4.2 Each bilge pump shall be of a capacity of not less than the fire pump to ensure the ship is capable of discharging firefighting water of at least the rate of input in a fire scenario.
- 10.4.3 Each independent power bilge pump shall have a direct suction from the space in which it is situated, provided that not more than two direct suction shall be required in one space. Where two or more such suction are provided in a single space, they shall be positioned on either side of the ship or space. Direct suction in a machinery space shall be of a diameter not less than that required for the bilge main.
- 10.4.4 All fixed bilge suction shall be fitted with readily accessible strainers so that they may be regularly checked and cleaned.

10.5 Arrangement of bilge pipes

- 10.5.1 All bilge suction piping up to the connection to the pumps shall be independent of other piping, except in the case where the pump is used for both firefighting and bilge pumping and a section of the piping is required to serve both functions. All bilge pipes shall be of steel or equivalent material.
- 10.5.2 Bilge suction pipes shall not be led through oil tanks except in the case of double bottom tanks. Where bilge suction pipes pass through water tanks, such pipes shall be of heavy gauge and pipe joints shall be of the fully welded type, however, the number of pipe joints shall be kept to a minimum.

10.6 Precautions against flooding through bilge pipes

- 10.6.1 The bilge pumping systems shall be so arranged as to prevent external water passing into any part of the ship. The bilge connection from any pump which also has an external suction or suction from the ballast system shall be fitted with a

non-return valve.

- 10.6.2 Provision shall be made to prevent the flooding of any watertight compartment served by a bilge suction pipe by means of non-return valves in the event of the pipe being severed or otherwise damaged in any compartment through collision or grounding. Where any part of such pipe is situated nearer to the side of the ship than one-fifth of the breadth of the ship (such a distance being measured at right angles to the centre line of the ship at the level of the deepest subdivision load waterline), or in any duct keel, a non-return valve shall be fitted to the pipe in the watertight compartment containing the open end of the pipe.

10.7 Bilge Alarms

- 10.7.1 A bilge alarm shall be fitted;
- (1) in any compartment containing propulsion machinery; and
 - (2) in any other compartment likely to accumulate bilge water.
 - (3) The alarm shall provide an audible warning, and a separate visual warning, for each protected space at the control position. Once activated the audible alarm shall continue to sound until acknowledged.

10.8 Alternative means of compliance for small ships

- 10.8.1 Where the surveyor considers the fitting of a bilge main is not practical, the requirements of 10.1 to 10.6 may be satisfied by the use of individual submersible pumps. Such submersible pumps shall be capable of both automatic (except in machinery spaces) and manual operation and clear indication shall be provided on the navigating bridge when pumps operate
- 10.8.2 This does not relieve such ships of the requirement for at least two means of draining every compartment. The alternative means may be by provision of two fixed pumps or portable engine driven or, one or more submersible type electric pumps with flexible discharge lines, capable of being operated from both main and emergency power via a wandering lead.

11 Intact and Damage Stability Criteria

11.1 Intact Stability (Directive requirements PART B-1)

- 11.1.1 Ships shall comply with the relevant provisions for passenger ships of the International Code on Intact Stability, 2008 (2008 IS Code; IMO Resolution MSC.267 (85)), part A, as well as part B, chapter 3 and 8. If the vessel is sailing in conditions where ice accretion may occur, part B of the IS Code 2008, chapter 6 shall apply.
- 11.1.2 All new ships, and any existing ships that have not previously been inclined, should be inclined as detailed in 11.4.1.
- 11.1.3 Where any alterations are made to a ship so as to affect materially the stability information supplied to the master, amended stability information shall be provided. If necessary the ship shall be re- inclined. Where substantial activity related equipment is carried, for example diving equipment, it should be included in the deadweight or cargo. In addition to the above the requirements of 11.5.1 or 11.5.2 (as appropriate) should be complied with.
- 11.1.4 In cases where a ship's characteristics render compliance with certain provisions of the 2008 IS Code impracticable, alternative requirements shall be in place to the satisfaction of the Administration. The alternative requirements shall be indicated on the certificate and have to be agreed by the MCA before entering service.
- 11.1.5 Notwithstanding the provisions of paragraph 11.1.1,
- Where, for certain ships, the requirement contained in paragraph 2.2.3 of part A of the Code is impracticable, the Administration may accept the alternative criteria of Section 4.1 of MSC/Circ.1281 Explanatory Notes to the Intact Stability Code 2008.
 - For the calculation of the weather criterion, the wind pressure may be taken according to the following table

h (m)	1	2	3	4	5	6 and 6+
P(Pa)	316	386	429	460	485	504

Where:

P = pressure to wind to be determined by linear interpolation between the values given; and

h = the vertical distance from the centre of the projected lateral area of the vessel located above the waterline to that waterline (m).

The alternative "Japanese Coastal Water I" standard for Severe Wind and Rolling may be applied, see IMO Paper SLF51/4/1 for details.

11.2 Subdivision and Damage Stability (Directive requirement PART B-2)

11.2.1 Subdivision

Every ship shall be subdivided by bulkheads, which shall be watertight up to the bulkhead deck, into watertight compartments the maximum length of which shall be calculated according to the specific requirements below.

Ships shall be fitted with a collision bulkhead complying with the following:

- a. The distance from the forward perpendicular shall be equal to or more than 5% and equal to or less than $3 \text{ m} + 5\%$ of the length (L) of the ship;
- b. The collision bulkhead shall be watertight up to the bulkhead deck and on ships having a long forward superstructure (i.e. extending beyond the collision bulkhead) it shall be extended at least weather tight up to the next deck above the bulkhead deck;
- c. Steps or recesses are only permitted within the length limits prescribed in 2.a.;
- d. The number of penetrations by pipes through the collision bulkhead shall be kept to a minimum. Such pipes shall be fitted with valves installed on the front side of the bulkhead that shall be operable from above the bulkhead deck;
- e. Other penetrations in the part below the bulkhead deck are not allowed.

Ships shall be further fitted with watertight bulkheads such that when any one compartment – that is limited by such bulkheads – is flooded, the margin line of the ship will not be immersed.

11.2.2 Stability

The stability of the ship:

- a. in the final condition when any single compartment is flooded – and after equalisation where provided – shall comply with paragraph II-1/B/8.2.3 – 8.2.5 of the Directive; and
- b. If it is considered that the stability in intermediate stages may be insufficient, further investigation shall be required. In that case the intermediate stages of flooding of any single compartment shall comply with paragraph II-1/B/8.2.6 of the Directive

Ships where asymmetrical flooding will occur shall comply with paragraph II-1/B/8.5 of the Directive

The final condition of the ship after damage and, in the case of unsymmetrical flooding, after equalisation measures have been taken, shall comply with paragraph II-1/B/8.6 of the Directive.

For the purpose of making damage stability calculations:

- a. The ship shall be assumed to be in the worst service condition as regards stability which is likely to be experienced having regard to the intended service of the ship.

- b. The volume and surface permeability's shall comply with article II-1/B-3/10.3 of the directive
- c. The assumed extent of damage shall be as follows:
 - .1 longitudinal extent: 10% of the length of the ship;
 - .2 transverse extent: From the ship's side to the centreline without limit, including any centreline bulkhead; and
 - .3 vertical extent: from the base line upwards without limit;
 - .4 if any damage of lesser extent than that indicated in .1,.2,.3 would result in a more severe condition regarding heel or loss of metacentric height, such damage shall be assumed in the calculations.

11.2.3 Ro-Ro ships shall also meet the requirements of Articles 6, 8 and 9 of Directive 2003/25/EC implementing the Stockholm Agreement.

11.2.4 Damage Stability of Multi-hulled Vessels

- (i) forward damage on catamaran shall be considered to extend to the collision bulkhead of both hulls. On trimarans forward damage shall be considered to extend to the forward compartment of centre hull alone, and also of the centre hull and of one side hull together;
- (ii) grounding damage on catamarans shall be considered to flood any one pair of compartments in each hull simultaneously. On trimarans it shall be considered to include any one compartment of the centre hull, and also of the adjacent compartment in one side hull;
- (iii) When considering transverse damage, catamarans need only be considered to have damaged one hull, provided the two hulls are totally independent, and that there are not cross connections that, if damaged would flood the other hull and wet deck compartment. Trimarans should be considered to have damaged wing and centre compartments.

11.3 Stability of Simple Ships

Undecked vessels and those with a single deck, operating with up to 60 passengers and up to 63 persons on board in total, in daylight and summer only, need not be subdivided in accordance with Section 11.2 if they are provided with sufficient buoyancy to remain afloat and stable after flooding of any one space. The sufficiency of stability will be demonstrated by compliance with the following requirements:

- (1) The ship shall be capable of remaining afloat at equilibrium with a minimum freeboard anywhere in the length of 76 mm on a decked ship (or 76 mm below the gunwale on ships without a deck or with an incomplete deck) following flooding of any internal compartment, and any compartments which may be penetrated from the shell to reach that internal compartment.
- (2) During intermediate stages of flooding, and at final equilibrium, the maximum righting lever shall be at least 0.05 metres within a range of 0 – 25 degrees and the range of positive righting levers shall be at least 7 degrees.

- (3) The determination of this requirement shall be by calculation where:
- (a) calculations shall be made with all non-floodable tanks in either 95% full or empty conditions (whichever is more onerous);
 - (b) calculations shall be made with all floodable tanks assumed to be flooded to their full capacity with their intended content or to be empty should this condition be possible with the ship in its flooded state (whichever is more onerous);
 - (c) In such cases it shall be assumed that any 'open' or undecked compartment is filled with water to the level of the outside waterline;
 - (d) the mass of the ship shall be that equating to its mark of least allowable freeboard and movable components of this shall be positioned so as to produce the most severe heeling moment. Passengers are assumed not to move.
 - (e) the volume of the ship contributing to buoyancy shall include all structure and fixed equipment which is non-permeable in nature and the solid portions of permeable items.
- (4) Buoyancy fitted which is not integral to the hull shall be so contained as not to be able to become displaced in the event of damage, excepting that portion which may be within the limits of the assumed extent of damage.

11.3.1 In addition to the requirements above a ship which is assessed as an open ship but which has a deck or sole above the level of the outside waterline will require additional assessment. This additional assessment will consider the potential for water on deck, distribution of buoyancy and any required measures to ensure stability is not adversely affected by the arrangement and the vessel is not vulnerable to swamping.

11.4 Stability Information

- 11.4.1 In order to establish where the centre of gravity is for every ship, an inclining test or hull form analysis will be required and the elements of the ship's stability determined to demonstrate compliance with the requirements of 11.1 and 11.2. The inclining test shall be in accordance with the inclining test procedure given in MCA Instructions for the Guidance of Surveyors, MSIS 09 – Approval of Stability, Chapter 1, Annex 3 – Inclining Test Process.
- 11.4.2 Notwithstanding this requirement, if the inclining test is considered to be impractical, such a test may be replaced by a lightweight survey to the satisfaction of the Administration. This should be for reasons defined in the IMO HSC Code, Section 2.7.2, and subject to the checks therein.
- 11.4.3 The stability information shall be submitted to the MCA for approval. The master shall be supplied by the owner with approved information relating to the stability of the ship. All ships shall keep a written record of stability information onboard.

11.5 Subsequent Stability Verifications

11.5.1 Lightship Survey Verification

- (i) In each period of five years every ship shall have a lightship survey, to verify any changes in lightship displacement and longitudinal centre of gravity.
- (ii) Such periods shall commence on the date of issue of either a Passenger Certificate or from a previous inclining or lightship survey, whichever date is earliest.
- (iii) The ship shall be re-inclined whenever, in comparison with the ship's approved stability information derived from the previous inclining experiment, a deviation from the lightship displacement exceeding 2 per cent or a deviation of the longitudinal centre of gravity exceeding 1 per cent of the ship's length is found or anticipated.
- (iv) The owner or their representative is responsible for arranging and conducting the tests.
- (v) The interval between the lightship surveys or tests of any such ship may be extended for a period of not more than one year if, on the production of relevant information about the ship, it can be shown that the lightship survey or test is not necessary at the required interval.

11.5.2 An approved report of each inclining or lightship survey or test carried out in accordance with this Code and of the calculation therefrom of the lightship condition, shall be placed on board for the use of the master.

11.5.3 Where elements of a ship's stability have been found to have changed following any inclining or lightship survey or test carried out in accordance with the requirements of paragraph (2), the master shall be supplied with amended approved stability information.

11.5.4 Where any alterations are made to a ship so as materially to affect the stability information supplied to the master amended stability information shall be provided and the ship shall be re-inclined

11.5.5 The stability information provided pursuant to paragraphs 11.5.3- 11.5.4 shall be furnished in the form of a book (the stability information book) which shall be kept on board the ship at all times in the custody of the master. The information shall include particulars appropriate to the ship and shall be in a form acceptable to the certifying authority.

11.5.6 Every inclining or lightship survey or tests made for this purpose or for the purpose of this section of the Code shall be carried out in the presence of an MCA surveyor.

12 Freeboard and Freeboard Marking

The ship shall have and maintain sufficient freeboard in relation to its size and intended operation.

12.1 Draught marks

Every ship shall have a scale of draughts marked clearly at the bow and stern in accordance with SI 1993 No. 3138 Schedule 3.6. The accuracy of the draught marks shall be witnessed and confirmed by the MCA, Classification Society or Certifying Authority.

12.2 Freeboard Marking

Every ship shall be marked on each side of the ship at amidships with its assigned freeboard in accordance with the requirements of SI 1998 No.2241 Part III.

12.3 Assigning of freeboard

- 12.3.1 For subdivided ships the assigned freeboard shall be the freeboard of the deepest approved loading condition recorded in the stability information booklet and at least 380mm for ships of 12m length or less to 760mm for ships of 24m length and the value obtained by interpolation for lengths between 12 and 24 m.
- 12.3.2 For ships complying with the damage stability requirements of section 11.3.1 the assigned freeboard shall be the freeboard in the undamaged condition for the ship as evaluated in the analysis, and at least 380mm for ships of 6m length or less to 760mm for ships of 18m length and the value obtained by interpolation for lengths between 6 and 18 m.
- 12.3.3 Notwithstanding the above in no case shall the assigned freeboard be less than the load line freeboard required by SI 1998 No.2241.

12.4 General compliance

- 12.4.1 A ship shall not proceed, or attempt to proceed, on any voyage unless it is marked with the appropriate marks;
- 12.4.2 A ship shall not be so loaded that -
 - (a) if the ship is in salt water and has no list the appropriate load line on each side of the ship is submerged; or
 - (b) in any other case, the appropriate load line on each side of the ship would be submerged if the ship were in salt water and had no list.
- 12.4.3 A ship shall not proceed to sea when it is in contravention of paragraph 12.4.2.

12.5**Sounding Arrangements**

All tanks shall be provided with an efficient arrangement to ascertain fluid levels in them and all watertight compartments, not being part of the machinery space, shall be provided with efficient sounding arrangements to ascertain the water level therein, which shall be protected where necessary against damage.

13

Life Saving Appliances and Equipment

The following lifesaving appliances shall be carried in accordance with the requirements listed below:

- Liferafts - The ship shall carry liferafts sufficient in number, logically distributed over the ship, such that, in the event of any one raft being lost or rendered unserviceable, the remaining life rafts can be launched for persons to embark and accommodate the number of persons the ship is certified to carry.
- Lifejackets – Sufficient in number for 105% of the passengers and suitable for the passengers carried in accordance with 13.3 below
- Lifebuoys – at least four, except Class D ships when two are required.
- Pyrotechnics - including distress flares, hand flares, smoke signals and line throwing appliances.
- Radio Lifesaving Equipment including Search and Rescue Location Devices (eg Radar-SART (Search and Rescue Transponder), AIS-SART (Search and Rescue Transmitter) see section 14.2.4, or EPIRB see section 14.2(e)) and VHF handsets – at least two –see section 14.8

13.1 Liferafts

- 13.1.1 Except as allowed for in sections 13.1.3 and 13.1.4 prescribed liferafts shall be SOLAS standard and MED approved canopied liferafts. SOLAS canopied liferafts may be permitted an uplift in capacity of 20% in accordance with Instructions to Surveyors for Life Saving Appliances, MSIS14, Section 7.7.20.
- 13.1.2 The MCA accepts that Open Reversible Inflatable Liferafts (ORILs) may provide a safe evacuation platform that will facilitate evacuation to onward rescue facilities and allow for a lower total evacuation time than with a canopied liferaft.
- 13.1.3 Noting 13.1.2 and the limited exposure to risk, ORILs may be accepted in lieu of the liferaft requirements of 13.1.1 where vessel operations are limited to a distance of not more than three miles from a safe haven in favourable weather conditions.
- 13.1.4 For vessels operating outside the limits of 13.1.3 the use of ORILs may be permitted following acceptance of a risk assessment detailing the factors which limit the exposure to risk. These factors may include:
- shelter from open sea effects
 - water temperatures for the operational area during the season of operation
 - wave height operational limits
 - limiting wind speed and associated wind chill
 - summer period of operation
 - daylight only operation
 - weather limited operations
 - restricted trip duration

- proximity of rescue services (including rescue resource capacity, call time and any co-operation agreements that may be in place to support evacuation)

ORIL acceptance following the risk assessment will, necessarily, be decided on a case by case basis.

- 13.1.5 Where ORILs are accepted under the provisions of 13.1.3 and 13.1.4 sufficient Thermal Protective Aids (TPAs) shall be provided for all persons on board except where vessels under the limits of 13.1.3 are further restricted to daytime only, summer operations.
- 13.1.6 As well as the TPA provision in 13.1.5 vessels permitted ORILs following a risk assessment as set out in 13.1.4 may be required to provide additional risk mitigation measures. An example of such measures would be a mixed provision of rafts such that, in the event of a two stage rescue, those in the second stage would have the additional protection afforded by canopied rafts.
- 13.1.7 Vessels permitted to operate with ORILs under the provisions of 13.1.3 or 13.1.4 and carrying up to 60 passengers, and up to 63 persons on board in total, may be permitted to satisfy the redundancy requirements by providing two liferafts of equal capacity with an aggregate capacity for 120% (or three for 100%) of the persons onboard plus buoyant apparatus (in accordance with MSN 1676(M) Schedule 12) for an additional 25% of the persons on board. Such vessels will be considered on a case by case basis. The buoyant apparatus acts to provide persons in the water with something to hold onto whilst awaiting imminent rescue and transfer to a raft in the extremely unlikely event that sinking or capsize has occurred without time to launch and evacuate to liferafts in a dry-shod fashion.
- 13.1.8 ORILs provided in compliance with this section shall be either SOLAS MED rafts complying with the requirements of the Annex 11 of the IMO High Speed Craft Code, 2000, or Non-SOLAS Reversible rafts approved for and complying with UK requirements in MSN1676 Schedule 4 Part 4, which permits a higher number of persons within a given size of raft than the SOLAS requirement.
- 13.1.9 Vessels carrying any canopied liferafts shall be provided with at least one immersion suit to allow the crew to right and bail out a potentially upturned raft.

13.2 Assembly, Evacuation, Stowage and Embarkation arrangements

The practicalities of safe evacuation of the vessel should be considered from the earliest design stage, with particular attention given to the optimum position of liferafts and the ease of both launching and entering the rafts from the launch area. It is appreciated that within the confines of small vessel design the optimum placement from a safety point of view is not always possible, however it should be taken into consideration when finalising the layout with the aim of facilitating timely and efficient evacuation insofar as is possible. Sections 13.2.1 to 13.2.8 outline the minimum criteria that shall be applied:

- 13.2.1 Liferafts shall be stowed so that they are float free and that one person may launch the liferaft into the water in an emergency
- 13.2.2 Suitable embarkation arrangements shall be provided to ensure safe and

efficient dry shod evacuation of passengers.

13.2.3 Liferaft embarkation arrangements shall comply with the following:

- (i) Where the distance between the embarkation deck and the top of the liferaft buoyancy tube exceeds 1 metre with the ship in its lightest condition, either an evacuation slide or SOLAS type embarkation ladder are to be provided.
- (ii) Where the distance between the embarkation deck and the top of the liferaft buoyancy tube exceeds 4.5 metres with the ship in its lightest condition, davit launched liferafts and at least one launching appliance shall be provided on each side of the ship.
- (iii) Embarkation and assembly stations shall not be located in way of the machinery spaces or other spaces with a high fire risk unless the boundaries between the high risk areas and the embarkation and assembly station is insulated to the A-30 standard of fire protection.

13.2.4 Assembly points shall be readily identifiable by signage. All routes to the assembly station for liferafts (including open reversible liferafts) shall be clearly marked.

13.2.5 The Liferrafts to be in a secure position as to ensure safe launching. Care shall also be given to avoid overboard discharges and the ship's side in way of a machinery space or other space with a high fire risk unless the side of the ship is insulated to the A-30 fire protection standard. Lifesaving appliances shall be stowed abaft the collision bulkhead.

13.2.6 Handling of liferafts at any one launching station shall not interfere with the handling of liferafts at another launching station.

13.2.7 Liferrafts and buoyant apparatus shall be so stowed that they can be released safely even under unfavourable conditions of trim and of up to 15 degrees of list either way.

13.2.8 Liferrafts shall be stowed so that they can all be released from one control position on the ship or on each side of the ship. Each liferaft shall automatically inflate on reaching the water with its painter permanently attached to the ship, with a suitable weak link able to break under the force of the buoyancy of the liferaft. The painter should be arranged to allow the safe operation of the liferaft and facilitate quick launching.

13.3 Lifejackets

13.3.1 Lifejackets for 105% of the number of persons the ship is certified to carry shall be carried. There shall be sufficient suitable lifejackets for all persons on board and the minimum provision for infants, children and oversized passengers shall be as follows:

- (i) Children's lifejackets for a minimum of 10% of the number of passengers on board.
- (ii) Infant Lifejackets for a minimum for 2.5% of the number of

- passengers.
- (iii) A sufficient number shall be suitable for securing to oversize passengers.

- 13.3.2 Lifejackets shall be stored where they are readily accessible and their location clearly marked. They shall be stowed with straps in their most relaxed positions for easy donning and clear guidance on donning fastening and tightening shall be provided nearby.
- 13.3.3 Lifejackets shall be stowed throughout the passenger accommodation. The distribution of lifejackets around the ship shall follow approximately the distribution of passengers.
- 13.3.4 Lifejackets shall be provided with a MED approved light

13.4 Lifebuoys

At least two of the lifebuoys shall be provided with lifelines and two with self-activating lights. On Class D vessels at least one of each type shall be provided. At least 50% of any additional lifebuoys carried shall be fitted with lights.

13.5 Distress Flares and Pyrotechnics

- 6 parachute distress flares (Class D Vessels)
- 12 parachute distress flares (Class B or C vessels)
- 2 hand flares
- 2 buoyant smoke signals of 3 minute duration
- 1 line throwing appliance

13.4 Radio Lifesaving Equipment

EPIRB, Search and Rescue Locating Device and Hand Held VHF sets in accordance with Chapter 14.

13.5 Means of Recovery of Persons from the Water and Rescue Boats

- 13.5.1 All ships shall be fitted with a rescue boat, unless (a) the ship is arranged to allow a helpless person to be recovered from the water; (b) recovery of the helpless person can be observed from the navigating bridge; and (c) the ship is sufficiently manoeuvrable to close and recover persons in the worst intended conditions
- 13.5.2 Where rescue boats are fitted they shall be served by their own launching appliances.
- 13.5.3 Sufficient inflatable lifejackets for the crew of the rescue boat shall be provided. Such lifejackets shall be stored in a location accessible to the rescue boat launching station.

- 13.5.4 Posters and signs shall be provided in the vicinity of the rescue boat illustrating the purpose of the controls and the procedures for launching and manoeuvring the rescue boat.
- 13.5.5 Operators must carry out a risk assessment to determine the means necessary to effect rescue of persons incapable of self recovery from the water, including, whether or not the requirement for the carriage of a rescue boat may be relaxed.
- 13.5.6 Ships shall be so designed to enable the safe recovery of persons from the water. Arrangements will be dependent on the individual ships, but ships with good manoeuvrability, together with adequate onboard equipment (such as a boom with a lifting device or a recovery cradle and boathooks) will provide the best platform from which to recover a person from the water.
- 13.5.7 The means of recovery of persons from the water must be satisfactorily demonstrated to the surveyor.

13.6 Emergency Alarms and Public Address

These requirements are included in Section 15 –Emergency Information for passengers.

13.7 Operational Requirements

- 13.7.1 Posters and signs shall be provided in the vicinity of rescue boats and liferafts illustrating the purpose of the controls and the procedures for launching and manoeuvring the liferaft/rescue boat.
- 13.7.2 Liferafts shall be serviced in accordance with the manufacturer's instructions and at least twice in every 5 year period for the first 10 years of service life. Thereafter, such liferafts shall be serviced annually, in accordance with the manufacturer's instructions.
- 13.7.3 Inflatable lifejackets shall be serviced in accordance with the manufacturer's instructions and at least every 2 years. Where any inflatable lifejackets are used as PPE on a regular basis, they shall be serviced annually. Lifejackets on a two yearly servicing regime shall be inspected annually to the manufacturer's recommendations.
- 13.7.4 Life-saving appliances shall be fitted with retro-reflective material. The dimensions and location of the material shall be as specified in Annex 6.
- 13.7.5 All Lifesaving appliances shall be maintained and be ready for immediate use. All periodic tests and inspections by ship's and company staff shall be recorded in a maintenance log or schedule.
- 13.7.6 All crew shall be familiar with the equipment. Drills and training shall be conducted recorded in accordance with company and statutory requirements.

14

Communications

Every ship shall be provided with radiocommunications equipment complying with the following functional requirements such that while at sea the ship shall be capable:

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

14.1

Radio Installation:

Every radio installation shall:

- (a) be so located that no harmful interference of mechanical, electrical or other origin affects its proper use, and so as to ensure electromagnetic compatibility and avoidance of harmful interaction with other equipment and systems;
- (b) be so located as to ensure the greatest possible degree of safety and operational availability;
- (c) be protected against harmful effects of water, extremes of temperature and other adverse environmental conditions;
- (d) be provided with reliable, permanently arranged electrical lighting, independent of the main and emergency sources of electrical power, for the adequate illumination of the radio controls for operating the radio installation; and
- (e) be clearly marked with the call sign, the ship station identity and other codes as applicable for the use of the radio installation.

14.2

Radio equipment:

- 14.2.1 All ships shall be capable of initiating a distress call/alert by at least two separate and independent means, one of which must be VHF, the second means should not be VHF. The second means may be met by the parachute rocket flares,

subject to vessel being in visible range of land. There should be at least two VHF radio sets provided, i.e. one fixed and one portable.

14.2.2 All ships shall carry as a minimum the radio and emergency communication equipment detailed in sections 14.2.3 to 14.2.5.

14.2.3 Distress alerting:

- 1 x Fixed GMDSS VHF radio installation – minimum Class D
- 1 x VHF Channel 70 DSC watch installation which may be incorporated with above. An open vessel may have the “fixed” VHF DSC fitted into a waterproof case on the bridge. Any such kit, however, must have a spare battery and a means of charging it, as well as a means of charging the spare battery.
- 2 x Hand held VHF radios which may also be used in survival craft. VHF must operate on channel 16 and one other and be of a type specifically designed for operation in survival craft. In particular, the equipment should be fully waterproof. For radios already provided in waterproof cases, these may continue to be accepted until replaced. A spare, fully charged battery should be available in case of emergency. This may be combined in the total number of hand held radios if all compatible type (i.e. all VHF).
- 12 x Rocket parachute flares (Class B and C vessels)
- 6 x Rocket parachute flares (Class D vessels)
- 1 x Float-free 406 MHz EPIRB with a 121.5 MHz homing device. The EPIRB should be installed in an easily accessible position where it can be manually released and placed in a liferaft.

14.2.4 “Last mile” Pin-point homing:

- 2 x Hand flares
- 1 x SART (Radar or AIS) or GPS facility incorporated in 406MHz EPIRB

14.2.5 Other items:

- 1 x Reserve power supply capable of supplying the fixed VHF installation continuously for a period of at least six hours. This may be via the battery charger where a “fixed” VHF DSC is battery powered.
- 1 x Battery charger capable of fully charging the battery within a period of not more than 16 hours.
- 3 x Hand held waterproofed two-way radiotelephone apparatus for use in survival craft. These radios are required in addition to the hand held VHF unless the VHF and survival craft radios can communicate with each other on at least 2 channels. The total number of radios for use in survival craft need not be more than the total number of survival craft (1 raft = 1 radio, 2 rafts = 2 radios etc.).

14.3 Maintenance requirements

Equipment shall be readily accessible for inspection and on-board maintenance purposes.

Adequate information shall be provided to enable the equipment to be properly

operated and maintained

EPIRBs shall be: annually tested for all aspects of operational efficiency, with special emphasis on checking the emission on operational frequencies, coding and registration.

The test may be conducted on board the ship or at an approved testing station; and subject to maintenance at intervals not exceeding five years, to be performed at an approved shore-based maintenance facility.

14.4 Radio personnel

Every ship shall carry personnel qualified for distress and safety radiocommunication purposes to the satisfaction of 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 during distress incidents.

14.5 Radio Records

A record shall be kept 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.

14.6 Position Updating

The Primary VHF equipment carried on board a ship to which this chapter applies which is capable of automatically including the ship's position in the distress alert shall be automatically provided with this information from an internal or external Electronic Position Fixing System receiver, if either is installed. If such a receiver is not installed, the ship's position and the time at which the position was determined shall be manually updated at intervals not exceeding 4 h, while the ship is under way, so that it is always ready for transmission by the equipment.

14.7 Watches

Every ship, while at sea, shall maintain a continuous watch on VHF DSC channel 70.

14.8 Portable Communication

A portable VHF shall be provided for each liferaft, subject to adequate coverage as outlined in sub-paragraph (1) above. These are to be portable, waterproof and shall be stowed in a protected and easily accessible position.

15 Emergency Information for Passengers

A member of the crew must be able to broadcast a safety or emergency message that can be heard by all persons onboard the ship.

15.1 Public Address Systems

- 15.1.1 Ships are to be provided with a public address system, operable from at least one point that can be heard by all persons onboard. All ships carrying more than 100 passengers shall have a public address system operable from at least two well separated points.
- 15.1.2 In ships carrying not more than 60 passengers in which the passengers have access to only one passenger compartment or space, a portable loud hailer may be carried in lieu of the a public address system required by 14.1.1.
- 15.1.3 Arrangements and procedures must be in place to silence entertainment systems (such as amplifiers, musical equipment etc.) and entertainers when the public address system is to be used. The ability to turn off electronic entertainment systems must be available at the point of operation of the public address system. Manual shut off shall be available on ships with loud hailers.

15.2 System Requirements

- 15.2.1 The system shall be used to inform the passengers of the action they shall take in the event of an emergency which could lead to the ship being abandoned. This information, detailed in 14.4 shall be given either prior to or immediately on leaving the berth. An example of such an announcement is given at 14.5. In the case of ships which operate a waterbus or regular ferry service of short duration where compliance would result in very frequent broadcasting of the safety message, other arrangements will be considered by the surveyor. Arrangements such as, drawing attention to the relevant safety notices may suffice.
- 15.2.2 The speakers in the public address system must be so located that broadcasts will be audible in all public spaces, including open decks, to which passengers have access.
- 15.2.3 A public address system shall be powered from the main source of electrical power and from an alternative source of electrical power situated in a location remote from the main source. Battery back-up or spare batteries shall be carried for loudhailers.

15.3 Passenger Emergency Instructions Notices

Passenger Emergency Instructions notices shall be displayed in each passenger compartment. The number to be displayed will depend on the layout of the compartments and the service the ship is engaged in. Notices shall also be provided in waiting rooms and terminals, where practicable. The information provided in a notice shall include:

- The method to be used to inform passengers that an emergency has occurred;
- The action they will be required to take;
- How to use the life-saving equipment;

- How to don a lifejacket; and
- Where lifejackets are carried.

15.4 Passenger Emergency Instructions Announcement

15.4.1 The announcement required to be made at the commencement of each voyage shall contain as a minimum:

- The method to be used to inform passengers that an emergency has occurred;
- The type of life-saving appliances on board;
- Action to take in event of an emergency; and
- How to use the life-saving appliances.

15.4.2 Announcements shall be made in a clear and simple manner bearing in mind that in some services a significant number of foreign tourists may be carried. Announcements shall be brief in order to convey sufficient information to assist all concerned in the event of an emergency.

15.4.3 Announcements shall be prefaced by a special signal followed by a request for everyone's attention. An example of such an announcement is given in section 15.5.

15.5 Example of Emergency Instruction Broadcast

- (a) Special signal sounded.
- (b) Ladies and gentlemen, please listen very carefully to the following safety announcement.
- (c) In the unlikely event of an emergency you will be informed by means of an announcement*/a signal consisting of seven or more short blasts followed by one prolonged blast on the ship's whistle and/or the alarm bells*/by a crew member*. Please follow the instructions given in the event of an emergency.
- (d) The ship is equipped with lifejackets* with donning instructions. Crew members will assist where necessary.
- (e) The ship is equipped with liferafts*, buoyant apparatus* and lifebuoys* which can be manually launched or will float free in the event of the ship sinking.
- (f) In the unlikely event of an emergency requiring evacuation you will be instructed by the Master to proceed to the nearest assembly area or embarkation point** to board a liferaft or embark safely to shore or an attending ship. All exits are clearly marked. Please do not attempt to abandon the ship unless specifically instructed to do so by the crew.
- (g) Lifebuoys and buoyant apparatus are fitted with grablines. Each lifebuoy will support two persons.
- (h) In the unlikely event of an emergency, it is of great importance that all passengers remain calm and listen for instructions.

* As appropriate, **Include locations

16 Means of escape

All persons onboard should be able to escape from any space which may be occupied under normal operational circumstances readily in an emergency.

- 16.1 Every ship shall provide means of escape from all crew and passenger spaces. These escapes may be in the form of doorways, stairways, ladder ways and, in fully enclosed ships, emergency windows. They shall lead to embarkation points close to the stowage position of life saving appliances or assembly areas. There shall be at least two widely separated escapes from each space although in small spaces normally occupied by crew only this may be reduced to one.
- 16.1.1 In fully enclosed spaces, there shall be at least two escapes on each side of the ship on each deck.
- 16.1.2 The means of escape shall be so designed and constructed as to be capable of being easily used by the persons for whom they are intended.
- 16.1.3 Where escapes are in the form of doors or windows they shall be capable of being opened from either side.
- 16.1.4 All escapes shall be clearly marked.
- 16.1.5 Main and emergency lighting shall be provided at each escape point.
- 16.2 The minimum clear width of doorways, corridors and stairways shall be 750 mm. This shall be increased by 10 mm for every person where the maximum number of passengers the compartment is designed to accommodate exceeds 75 (e.g. for 75 -150 passengers there shall be two escapes, each with a clear width of no less than 750mm, but for 200 passengers there shall be a minimum of two escapes providing an aggregate of 2000 mm of clear width for escape from the space).
- 16.3 Stairways shall, where practicable, be arranged in the fore and aft direction and at an inclination of not less than 45 degrees to the vertical.
- 16.4 Where any of the means of escape are windows, they shall be easy to open and arranged to be readily accessible. The minimum dimension of windows used for escape shall be 600 mm by 600 mm.
- 16.5 All doors provided for passenger use and leading from passenger compartments to open decks shall be clearly indicated with one or more signs marked "EXIT". Any doors, windows, or other openings provided for emergency escape purposes but normally used for passengers shall be clearly indicated with one or more signs marked "EMERGENCY ESCAPE DOOR" or "EMERGENCY ESCAPE WINDOW" as appropriate. Signs shall be:
- (1) Inherently luminous or electrically powered by an internal power source which is maintained and charged in normal service.

- (2) Located over the door, window or escape where possible. Where a door is not readily visible from within the space it serves, a further sign shall be provided to indicate the direction in which the door lies. Signs shall not be on doors except in cases where a door is never in the open position when the ship is in service. Signs shall be composed of white or light coloured letters on a green background, examples of signage are given in Annex 4.

16.6 The means of escape from any public room which may be used for entertainment shall be adequate. The seating shall be arranged to ensure free access to the exits. All doors shall be constructed to open in the direction of escape.

16.7 All decked machinery spaces, shaft tunnels, boiler rooms or similar shall be provided with two means of escape as widely separated as practicable. The means of escape shall consist of steel ladders leading directly or indirectly to the stowage position of the LSA or assembly areas. In any such ship the surveyor may permit one of the means of escape required by this paragraph to be dispensed with having regard to the size, nature and location of the space and whether persons are normally employed in that space. Where only one means of escape is permitted it should lead as directly as possible to an open deck or assembly point.

17 Search and Rescue (SAR) Requirements

17.1 SAR Plan

The aim of the SAR co-operation plan is to ensure that, in the event of an emergency, ships' staff, the company response team ashore and SAR services are able to work efficiently together to respond to an emergency.

- 17.1.1 All ships must carry an approved up to date plan for co-operation with relevant SAR services for the ship's area of operation. Brief details of the passenger ship, the company and the SAR services must be exchanged and maintained ready for use and shall include direct contact details.
- 17.1.2 The SAR plan shall be of the format detailed in MSN1823
- 17.1.3 Copies of the approved SAR co-operation plan shall be held onboard, in the company office and at the relevant SAR service. This would normally be the nearest Coastguard Operations Centre (CGOC) but if a vessel also operates in inland areas this may be a relevant Police Authority, in these cases, advice shall be sought from the nearest CGOC.

17.2 SAR Exercises

Exercising the SAR Plan regularly tests the plan's effectiveness.

- 17.2.1 Exercises shall be undertaken to test the plan's effectiveness periodically. These shall be combined with any other exercise programs, to test SAR services and co-operation arrangements without imposing an additional burden on ships' staff.
- 17.2.2 For companies which operate six or more ships, an overall program of exercises shall be developed by the company and the relevant SAR services, to ensure all staff participate. Where possible, it is recommended that joint exercises with the relevant SAR services shall be undertaken annually. In most cases this can take the form of a simple tabletop exercise.
- 17.2.3 The fundamental principles of the SAR plan will be discussed at the annual survey to demonstrate procedures are clearly understood, are readily accessible and contain up-to-date information.
- 17.2.4 Records of such exercises and names of participants shall be recorded in the Safety Management System.

18 Accident Reporting

18.1 It is a requirement that certain notifiable accidents involving or occurring onboard a ship must be reported in accordance with The Merchant Shipping (Accident Reporting and Investigation) Regulations 2012. Guidance is provided in MGN 458.

18.2 When a notifiable accident occurs, the following persons associated with the ship shall send a report as soon as possible to the Chief Inspector of the Marine Accident Investigation Branch (MAIB);

(1) the master or, if they have not survived, the senior surviving officer, and

(2) the ship's owner, unless they have ascertained to their satisfaction that the master or senior surviving officer has reported the accident in accordance with paragraph (a).

18.1.3 Any incident or defect which affects the safety of the ship is to be reported to the MCA at the earliest opportunity. This includes any loss, failure or defects occurring to the ship's structure and machinery or to the safety equipment specified in the Supplementary Record of Equipment.

Fire Safety

There must be sufficient fire protection of high risk fire areas to prevent the rapid spread of heat, flame and smoke into passenger spaces in order to extinguish a fire or, if firefighting fails, to allow sufficient time to evacuate the ship.

High risk boundaries 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;

They shall have an insulation value such that the average temperature of the unexposed side to the fire will not rise more than 140°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, to the end of the first half-hour of the standard fire test provided the material concerned is capable of withstanding that temperature without affecting the structural integrity of the vessel.

Machinery spaces shall be able to be rapidly closed down to contain a fire, before extinguishing agent is applied. In lower risk areas, such as voids, public toilets and similar spaces, fire should not be able to rapidly take hold. Crew are not expected to carry out sustained firefighting onboard ships to which this Code applies.

19.1 Fixed firefighting arrangements

19.1.1 Fire Pumps

- (1) The ship must be provided with at least two fixed and independently powered fire pumps, one being supplied from an independent or emergency source of power which shall not be located in the same space as the other pump.
- (2) One of these pumps may be driven from the main engine and be used for other purposes except the pumping of machinery space bilges

19.1.2 The fire pumps shall have a capacity of at least 2/3 that of the bilge pump and produce a minimum pressure of 0.2N/mm²

19.1.3 The pumps shall have a volume flow rate not less than the quantity obtained from the following formula:

Quantity of water in cubic metres per hour = $2.5d^2$ where:

$$d = 1 + 0.066\sqrt{L(B + D)}$$

d is taken to the nearest 0.25

where:

L = the length of ship measured in metres

B = the greatest moulded breadth measured in metres

D = the moulded depth measured to the bulkhead deck at amidships measured in metres

19.1.4 Every centrifugal pump which is connected to the fire main shall be fitted with a non-return discharge valve.

19.1.5 At least one pump shall be operable by remote starting from the navigating bridge or position

19.1.6 Fire Main and Hydrants

- (1) The fire main and hydrants shall be so positioned to ensure at least one jet of water can be delivered to any part of the ship accessible to the crew using hoses of maximum length 10m. Vessels of over 12m length shall have at least two hydrants
- (2) The fire main shall have no connections other than those necessary for fire-fighting and washing down.
- (3) The fire hydrants shall be so placed that the fire hoses may be easily coupled to them.
- (4) At least one hose must be provided for every hydrant fitted.
- (5) Hydrant valves of the screw lift type shall be fitted in such position that any of the fire hoses may be isolated and removed while the fire pumps are at work.
- (6) The arrangements of pipes and hydrants shall be such as to avoid the possibility of freezing.
- (7) Materials readily rendered ineffective by heat shall not be used for fire mains and hydrants unless adequately protected.

19.1.7 Fire hoses and nozzles

- (1) Fire hoses shall be of suitable length and diameter to satisfy the requirements of 18.1.6.
- (2) Fire hoses and associated tools and fittings shall be kept in readily accessible and known locations, close to the hydrants or connections on which they will be used.
- (3) Each hose shall be provided with jet/spray nozzles incorporating a shut-off facility of size 12, 16 or 19mm.
- (4) Each hose shall be made of non-perishable material.

19.1.8 Drainage of fire extinguishing water from enclosed spaces or wells in open boats

- (1) Passenger and crew spaces shall be fitted with drainage arrangements

such that firefighting water is cleared from the space no less quickly than the rate at which it may be input by the firefighting system in order to avoid the accumulation of water and associated free surfaces.

- (2) Such drainage mechanisms shall be so arranged as to ensure effective drainage, taking account of possible heel or trim of the ship which might cause an accumulation of water in one part of a compartment. The drainage system shall allow free-flow of water, any valves or closures must be so designed as to reliably open automatically when the fire extinguishing system is in operation.
- (3) Regardless of the route of discharge of water from the ship, which may involve free-flow overboard or drainage to the bilge and pumping from there, it must be able to be discharged at no less than the rate at which it is capable of accumulating. In the design of systems the dimensions of orifices and piping, their shapes and friction factors shall be taken into account where necessary.
- (4) Freeing ports, drains and pump suctions shall be kept free of obstructions and be suitably protected to avoid their blockage during operation. Regular inspection shall be carried out to ensure that they are not blocked.

19.2 Portable Fire Extinguishers

- 19.2.1 Every ship shall be provided with at least four portable extinguishers of suitable capacity including:
 - (1) At least one portable fire extinguisher in each of the crew and passenger spaces above the bulkhead deck.
 - (2) At least two portable fire extinguishers in each of the crew and passenger spaces below the bulkhead deck.
 - (3) The portable extinguishers required by (1) and (2) shall be so arranged such that a portable extinguisher is available for use within a distance of 10 metres from any location and as close to the entrances to spaces as practicable.
- 19.2.2 Extinguishers provided in crew and passenger spaces shall be either foam, water, dry powder or a combination thereof, depending on the type of fire risks in specific areas.
- 19.2.3 In spaces where significant amounts of electronic or electrical equipment or appliances are present, such as the bridge or machinery spaces, carbon dioxide, dry powder extinguishers or other types of extinguishers designed to extinguish electrical fires shall be provided and where possible, inlet ports on equipment shall be provided to aid the extinguishing of fires. Consideration should be given to the quantity of carbon dioxide to be released in confined unventilated spaces because it can cause suffocation in sufficiently high concentrations.
- 19.2.4 An additional extinguisher of a suitable type shall be fitted in any galley space and a fire blanket shall be provided in every galley or pantry provided with hot plates for cooking. It is most important that only extinguishers classified as suitable for use on class F fires are used on fat or cooking oil fires.

19.2.5 Portable fire extinguishers shall be of the capacities shown in the following table.

Portable Fire Extinguisher Type	Rating
Water	21A
Carbon dioxide	55B
Dry powder	34A/113B
Class F Wet Chemical	13A/113B
Foam	21A/183B

19.2.6 Portable fire extinguishers shall be suitably sized to enable ease of handling.

19.2.7 Additionally an approved portable fire extinguisher (See Annex 5) suitable for fighting liquid fires (Class B) shall be provided within any manned machinery space.

19.2.8 All portable fire extinguishers are to be serviced by a competent person in accordance with the servicing intervals in Table 1 of MGN 276 (M+F) – “Maintenance of portable fire extinguishers”.

19.3 Fire Fighting Systems for Machinery Spaces, other than those of Category A, containing Internal Combustion Machinery

19.3.1 All machinery spaces containing Internal Combustion Machinery shall be provided with a fixed fire extinguishing system, which may be a water, gas or dry aerosol system approved by the MCA. Any ventilation machinery supplying a machinery space shall be capable of being shut off from a safe location outside the space and ventilation trunks shall be capable of being closed by damper, efficient flaps or other effective means.

(1) Ships of 12m and under

Where such machinery spaces consist of machinery covered by a boxed housing this may comprise of an extinguisher (of a suitable size and type for the space being protected with a total amount of gas at least equal to 40% of the volume of the space) permanently connected and arranged to discharge into that space. The arrangements shall be to the satisfaction of the surveyor. All other arrangements shall comply with (2)

(2) Ships Over 12m

A fixed firefighting system complying with the MED shall be provided.

- 19.3.2 Where a gas system is fitted to meet the requirement of 19.3.1 or 19.4.1, bottles shall be stowed in well ventilated spaces away from heat/ignition sources and direct sunlight. Stowage shall also not be in the vicinity of accommodation escape routes or the space the system is protecting. Suitable signage shall be prominently displayed outside the space containing the bottles.

19.4 Fire Fighting Systems for Machinery Spaces of Category A

- 19.4.1 Category A machinery spaces shall be provided with at least one of the following type approved fixed fire-extinguishing systems which complies with Fire Safety Systems Code:
- (1) a fixed pressure water-spraying system;
 - (2) a fixed gas fire-extinguishing system;
 - (3) a high expansion foam system;
 - (4) a dry aerosol system.
- 19.4.2 In addition to the requirements of paragraph 18.4.1, any Category A machinery space containing internal combustion type machinery ships shall carry not less than two portable fire extinguishers suitable for extinguishing oil fires.

19.5 Fire Detection in Machinery Spaces

- 19.5.1 All machinery spaces located underdeck or remote from the control position shall be fitted with a fire detection system comprising of smoke/heat detectors which will give an audible and visual alarm at the control position.
- 19.5.2 Accommodation spaces including corridors, stairways and escape routes, which cannot be overviewed from the bridge, shall be fitted with a fixed fire detection and alarm system installed and arranged to detect the presence of fire in such spaces.
- 19.5.3 On ships made of combustible materials all spaces containing sources of ignition shall be fitted with a fixed fire detection and alarm system installed and arranged to detect the presence of fire in such spaces.
- 19.5.4 The alarms shall sound in the space or spaces concerned and shall at the control position be capable of distinguishing between machinery spaces, the galley and other accommodation spaces.

19.6 Fire Protection of Machinery spaces

- 19.6.1 Machinery spaces containing internal combustion machinery, oil fired boilers or oil fuel units shall be enclosed by "A" Class divisions insulated to A-30 standard

or equivalent. Such spaces shall be gas tight. The boundary may be relaxed to A-0 standard steel boundary or equivalent if the other side of the boundary is a void space, open deck space not measured for passengers or used for cargo, or the side of the ship (except in way of LSA launching or embarkation positions)

- 19.6.2 Machinery spaces other than those in 19.6.1 shall be enclosed by an A-0 standard steel boundary or equivalent.

19.7 Fire protection of passenger and crew accommodation

19.7.1 In all enclosed accommodation the bulkheads, linings, ceilings and their associated grounds shall be constructed of non-combustible materials and their exposed surfaces shall have low flame spread.

19.7.2 Passenger sleeping accommodation shall be fitted with an automatic pressurised water sprinkler fixed firefighting system.

19.8 Fire Safety for Galleys and Cooking Facilities

19.8.1 General

- (1) Ships may be provided with pantries equipped with facilities to prepare and serve hot food and drinks such as –
 - (a) Kettles, microwaves, toasters and hotplates each with a maximum power which does not exceed 5 kW;
 - (b) electrically heated cooking appliances and hot plates for keeping food warm each with a maximum power of 2 kW and a surface temperature not above 150°C;
 - (c) coffee machines, dish washers and water boilers with no exposed hot surfaces regardless of their power.
- (2) Any electrical cooking or heating appliances with a power exceeding 5 kW, deep-fat cooking facilities or liquefied petroleum gas (LPG) installations must be enclosed within a galley and the requirements of section 19.8.3 will apply.
- (3) Any deep-fat cooking facilities shall also comply with the requirements of section 19.8.2.
- (4) Any LPG installations shall also comply with the requirements of Annex 1.
- (5) Ships with cooking facilities on an open deck such as pig roast or barbeque facilities should follow the additional guidance in MGN 406.

19.8.2 Deep-fat cooking equipment

Deep fat cooking facilities shall be fitted with:

- (a) an automatic or manual extinguishing system which complies with the requirements of the MED,
- (b) a primary and back-up thermostat with an alarm to alert the operator in the event of failure of either thermostat,
- (c) arrangements for automatically shutting off the electrical power upon activation of the extinguishing system,
- (d) an alarm for indicating operation of the extinguishing system in the galley where the equipment is installed, and
- (e) controls for manual operation of the extinguishing system which are clearly labelled for ready use by the crew.

19.8.3 Fire protection of galleys

- (1) Galleys containing only LPG and/or low powered electrical appliances shall be enclosed by an A-0 standard steel boundary or equivalent, with self-closing steel doors. Galleys fitted with deep fat fryers or equipment of more than 5 kW shall be fitted with an A-30 standard boundary. Any serving hatches must be fitted with steel shutters.
- (2) Galleys shall not be sited adjacent to the main escape route as required by Section 13.2 of this Code.
- (3) In addition to fire extinguishers specified, A readily accessible fire blanket is to be provided in the galley.

19.9 Availability of fire-fighting appliances

All moveable fire appliances shall be stowed where they will be readily accessible from the spaces in which they are intended to be used. Fire appliances shall have inherently luminous signs identifying locations.

20 Safety Management System

20.1 General

20.1.1 The Merchant Shipping (Domestic Passenger Ships) (Safety Management Code) Regulations came into force on 1st November 2001. This section applies to ships operating under this code except those ships required to, or electing to, comply with the International Safety Management (ISM) Code.

The purpose of a safety management code is to establish a common standard for the safe operation of passenger ships employed in the domestic trade.

It is recognised that there are a wide variety of passenger ships in the domestic trade, The Code is kept brief and simple, so that it can be applied to a wide variety of ships, and developed by each company to meet the needs of that company.

To comply with the Code, each operator should create a safe working environment.

“Operator” means the company, which is defined as the owner or other person assuming responsibility for operating the ship.

This section describes the objectives of developing a safety management system and how to implement it effectively.

20.2 Objectives

The objectives of safety management are to ensure a simple and cost effective means of:

- ensuring safety on board;
- preventing human injury and loss of life;
- preventing pollution and
- complying with applicable regulations and rules.

Each operator shall develop and implement safe practices which include the following:

- procedures to ensure safe operation of ships in compliance with relevant rules;
- lines of communication between personnel, ashore and afloat, with regard to additional requirements and local bye-laws;
- procedures to prevent pollution;
- procedures for reporting accidents; and
- procedures for responding to emergency situations

To comply with the Code, each operator should create a safe working

environment, which should include the following:

20.3 Health and Safety Protection Policy

This must address the issues of health, safety and the environment as they affect the company and its staff, both ashore and afloat. Such a policy might read along the following lines:

“The policy of (name of Company) is to conduct its activities taking full account of the health and safety of its employees and of all persons using or connected with the Company. In implementing this policy, (name of Company) will ensure that the [ship] is, at all times, properly maintained and operated by qualified personnel in full compliance with relevant legislation. In particular the [Co,] will carry out an assessment of the risks to the health and safety of workers and others affected by [the undertaking], and will take the necessary measures to minimise the risks identified.”

Each operator of a ship certified to carry 15 persons or more is also required by the Merchant Shipping (Prevention of Pollution by Garbage) Regulations 1998 (S.I. 1998/1337) to carry a Garbage Management Plan.

Every ship of 12 metres or more in overall length shall display placards to notify the crew and passengers of the ship’s disposal requirements. MSN 1720(M+F) is relevant and should be consulted.

It is an offence under section 131 of the Merchant Shipping Act 1995 for a ship in U.K. national waters, navigable by sea-going ships, to discharge any oil or oily mixture into those waters. The operator of such a ship is recommended to develop and implement an oil management plan to the same standard as the garbage management plan and to integrate it with the Health and Safety Protection Policy.

The Merchant Shipping and Fishing Vessel (Health and Safety at Work) Regulations 1997, specifically require the appointment of one or more competent persons to take responsibility for health and safety. That person/persons should be identified. It is the responsibility of the owner/operator to ensure that the policy is complied with, and that the responsibilities are understood.

The company should develop a policy on prevention of alcohol and drug abuse, in the light of the very strong comments made in the THAMES SAFETY INQUIRY Report by Lord Justice Clarke. Where alcohol is served on board, the policy should also stipulate that no alcohol will be served to persons under 18 years of age.

Under the Health, Safety and Environmental Policy, all personnel both ashore and afloat have a duty to take care of themselves and other persons who may be affected by their acts or omissions.

20.4 Responsibilities

The Master's responsibility shall be laid down so that there is no misunderstanding. They have the authority to make decisions regarding the safety of the ship and persons on board. To ensure that there is no ambiguity regarding the authority of the Master, there shall be a simple written statement to this effect. Assistance shall be available ashore from the company at all times.

The responsibility and authority of each employee shall be clear. This may be best illustrated in a simple diagram, showing who reports to whom.

20.5 Designated Person

A company shall in relation to each ship owned by it or for which it has operational responsibility designate a person who shall be responsible for monitoring the safe operation of the ship and, so far as it may affect safety, the efficient operation of the ship and may fulfil the requirements of para 5.4.

In particular, the Designated Person shall: a) take such steps as are necessary to ensure compliance with the Safety Management System b) Ensure that proper provision is made for the ship to be adequately manned, equipped and maintained, relating to safety applicable to the ship.

The Company shall ensure that a Designated Person: a) is provided with sufficient authority and resources and b) has appropriate knowledge and sufficient experience of the operation of ships, and c) shall have access to the highest level of management of that company.

The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations specifically require the appointment of one or more competent persons to take responsibility for health and safety. The person(s) shall be identified.

20.6 Personnel and Training

All personnel should receive training appropriate to the tasks they undertake. It is the responsibility of the company to ensure that this training is given, and that the personnel have an understanding of the relevant regulations and rules. The company is required to provide a Training Manual, the requirements of which are detailed in this section.

As a minimum, this means:

- for the Master, the relevant qualifications;
- for the crew, training appropriate to their designated duties.

Prior to the first occasion of working on the ship, each employee must receive appropriate familiarisation training and proper instruction in on-board procedures. This could include but not necessarily be limited to:

- mooring and unmooring;
- launching and recovery of survival craft;
- evacuation from all areas of the ship;
- donning of lifejackets; and
- use and handling of fire-fighting equipment.

Where the ship uses locks or sluice gates, on the job training in this process is essential.

Relevant training should also be provided to casual staff – i.e. not regular “crew” – who may be needed to assist in controlling/guiding passengers in the event of evacuation.

20.7 Procedures to Ensure Safe Operation of Ships

The regulations and rules which apply to the domestic passenger ships operating under this code are listed in Chapter 3 of this code.

The company should draw up simple procedures to ensure that safe working practices are carried out in the operation of the ship, and relevant regulations and rules complied with. These may be in the form of checklists which can be followed by all personnel.

All ships shall be provided with a Training and Instruction Manual, available for all crew members. It may take the form of instructions from manufacturers of the equipment, where appropriate, but must explain in detail at least the following:

- (i) donning of lifejackets
- (ii) boarding, launching, and clearing life-saving appliances from the ship
- (iii) illumination of life-saving appliance launching areas
- (iv) use of all life-saving appliances and equipment This shall explain the escape philosophy and define the contingency procedures. This shall include as a minimum how the survival craft are launched and inflated, how the passengers are controlled, lifejackets/buoyancy aids are issued, and how the survival craft is to be boarded. If the passengers evacuate the ship directly overboard the design concept needs to clearly explain how the how the passengers are brought together to the survival craft.
- (v) recovery of persons from the water
- (vi) general fire safety practice and precautions related to the dangers of smoking, electrical hazards, flammable liquids and similar common shipboard hazards
- (vii) general instructions on fire-fighting activities and fire-fighting procedures including procedures for notification of a fire and use of manually operated call points;
- (viii) meanings of ship's alarms;

- (ix) operation and use of fire-fighting systems and appliances;
- (x) operation and use of fire doors;
- (xi) operation and use of fire and smoke dampers; and
- (xii) escape systems and appliances.

Training Records shall be maintained by the operator which shall record Master and Crew training.

20.8 On-board Procedures

Simple procedures should be developed for the operation of the ship. These should include, but not be limited to:

- testing of equipment, including steering gear, prior to commencing a passage;
- navigation and handling of the ship;
- maintenance routines;
- bunkering operations;
- watertight integrity;
- stability of the ship; and
- conduct of passengers and crew while on board.

For some ships, it might be appropriate to have permanently exhibited checklists, e.g. in the wheelhouse for navigational items. Alternatively, in a smaller ship, the record could take any suitable form such as a diary as distinct from a specially printed logbook. Whatever form the record takes, such entries should be accepted as evidence of compliance with the **ON-BOARD PROCEDURES** requirements.

20.9 Procedures for reporting accidents

It is a legal requirement under the Merchant Shipping Act to report all accidents. The Merchant Shipping Accident Reporting and Investigation Regulations 1994 refer.

All accidents and near accidents shall be recorded and reported to the operator, who shall implement corrective action, with the aim of improving safety. In addition, the Master shall inform the Marine Accident Investigation Branch (MAIB) of all reportable accidents in accordance with The Merchant Shipping (Accident Reporting and Investigation) Regulations 2005. Any incident or defect which affects the safety of the ship is to be reported to the MCA at the earliest opportunity.

The requirement for reporting accidents should be well understood by all personnel and in so doing improve the safety culture practised on board. The company must therefore have a procedure in place to report any reportable accident to the MAIB, the MCA and the Certifying Authority.

It is essential that, in the event of an emergency, there is the ability to communicate with the emergency services either directly or via a shore base. The shore base may be the company office, the local Coastguard, Police or Fire Station, or another office as may be agreed between the ship and the shore base.

20.10 Procedures for responding to emergency situations

There should be clearly stated procedures for responding to emergency situations. These may include but not be limited to: fire; collision; grounding; violent act; main propulsion or steering failure; and man overboard.

Checklists may be useful in this regard.

20.11 Preparation for Emergencies

The potential emergencies likely to be countered by the ship should be considered. Exercises should then be carried out in the handling of these emergencies and evacuation from the ship.

Where possible, all personnel should be involved in these exercises, both ashore and afloat. (Refer to MSN 1761, paragraph 6).

The roles and responsibilities of all personnel in an emergency situation should be developed in accordance with the principles of the Code.

The exercises should be recorded. The names of those who participated should also be recorded.

20.12 Equipment

Maintenance of the ship and equipment is an essential ingredient of safety management. The equipment should be checked and tested daily when in use; in addition to the tests referred to in the ON-BOARD PROCEDURES section of the Code (paragraph 8).

There should be procedures for a more detailed inspection and maintenance programme of the ship and equipment.

The frequency of the inspections should be determined by the owner/operator, but every event should be recorded.

A checklist could be employed as an aide memoire for the inspection of equipment.

20.13 Review

Every company should undertake a review of the safety management system of all ships at least once in every three years.

20.14 Certification

An "initial audit", to assess compliance with the Code, shall be carried out by MCA for each ship at the same time as the PC survey. The period of validity of this certificate will normally be for 5 years and is subject to a mid-term audit which will be carried out by the MCA on each ship at the same time as either the 2nd or 3rd PC survey.

The validity of the certificate is also subject to annual self-assessments of the company/ office and each ship, carried out by the operator to the satisfaction of the MCA. The reports of these self-assessments shall be submitted by the operator for review by the MCA.

An initial audit of the company/office is also to be undertaken prior to the issuance of any certification of the vessel. The scope of the initial company/office audit will include but not be limited to:

- maintenance of hull and machinery, including agreed protocols for checks and testing;
- system for ensuring crew and skippers are adequately certified and trained;
- evidence of a robust system of checks and inspections;
- evidence of a closed loop for defect and fault management.

The owner/operator should ensure, therefore, that all necessary documentation is available.

The self-assessments may be conducted either by the owner/operator or an accredited person from outside the company. This audit will be conducted to an agreed format which shall be incorporated in to the safety management system.

The on board audits will be carried out when the ship is in service and will be according to an agreed schedule depending upon the number of ships operated by the company.

The on board audit will be conducted when the vessel is operational in all aspects and will be carried out at a mutually convenient time. It will be necessary for the vessel to be taken out of service for the duration of the audit including the drill. Some elements such as passenger boarding arrangement, mooring and navigation may be carried out in service.

Where any MCA audit is unsuccessful, normal enforcement procedures shall be followed to ensure that deficiencies are rectified. When MCA has grounds to indicate that the annual self-assessments are not in accordance with the SMS, the company will be subject to an additional verification audit. Guidance on

carrying out the self-assessments would be made available by the MCA.

20.15 Exemptions

Exemptions to these arrangements shall be considered on a case by case basis. In accordance with Recommendation 27.40 of Lord Justice Clarke's Thames Safety Inquiry, exemptions from the provisions of the Safety Management Requirements will be granted only on condition that an equivalent level of safety is achieved.

21 Access and Mooring

21.1 Means of Access

21.1.1 General duties concerning access arrangements

(1) It is the responsibility of the owner/operator and master to ensure a safe means of access between the ship and any quay, pontoon or similar structure or another ship, alongside to which the ship is secured, and in particular;

- (a) that any equipment is placed in position promptly after the ships has been secured and remains in position while the ship is so secured.
- (b) that access equipment is;
 - (i) properly rigged, secured, deployed, and is safe to use; and
 - (ii) adjusted from time to time as to maintain safety of access.
- (c) that access equipment and immediate approaches are adequately illuminated.
- (d) that any equipment used for means of access and any safety net is of good construction, of sound material, of adequate strength for the purposes for which it is used, free from patent defect and properly maintained.

(2) It is the responsibility of the owner/operator and master to provide safe access to and from the shore if the ship is not secured alongside a fixed berth but access between shore and ship is necessary.

21.1.2 Guidance is provided in The Code of Safe Working Practices for Merchant Seamen. If there is any risk of falling between the quayside and the ship, safety nets should be rigged where appropriate.

21.1.3 Where accommodation ladders are fitted they should comply with the specifications in The Code of Safe Working Practices for Merchant Seamen.

21.2 Guardrails and stanchions

In every ship bulwarks or guard rails shall be provided on every exposed deck to which any passenger may have access. Such bulwarks or guard rails, together with stanchions supporting the guard rails shall be so placed, designed and constructed as to prevent any passenger from climbing or accidentally falling overboard. Guard rails and bulwarks shall have a minimum height of 1100mm above the deck.

21.3 Anchor handling arrangements

21.3.1 Every ship shall be provided with anchor handling arrangements, incorporating anchors and chain cables that are sufficient in number, weight and strength, and where necessary windlass(es), having regard to size and intended service of the ship, and the ground it will be used on.

- 21.3.2 Where anchoring is not permitted by the local Navigation Authority, Competent Harbour Authority or other such body, alternative means of securing the ship may be considered appropriate by MCA. Owners/operators shall consult with such bodies and the MCA to agree a suitable alternative means of securing the ship.

21.4 Mooring lines, Bollards/cleats and Mooring Equipment

Every ship shall be provided with mooring lines, bollards/cleats and mooring equipment sufficient in number and strength, having regard to the size and intended service of the ship. Mooring equipment and arrangements shall be risk assessed for strength and use the intended service for which the ship will operate and shall be sufficient to maintain the vessel safety alongside without recourse to operation of propulsion.

Mooring arrangements shall be such that the process of “steaming on a spring” is not the normal means of securing the vessel alongside and that moorings remain secure without recourse to open hooks in the system.

22 Pollution Prevention and Dangerous Cargoes

22.1 General

- 22.1.1 This chapter deals with elements relating to both the prevention of operational and accidental pollution, and the carriage of dangerous cargoes.
- 22.1.2 In general terms it is the responsibility of the owner/operator to ensure the ship is properly equipped and maintained to dispose of all ship generated waste to shore facilities. Such arrangements shall be documented in the Safety Management System.

22.2 Garbage

- 22.2.1 Garbage shall be discharged to shore facilities. Suitable arrangements for the retention of garbage on board shall be provided. Arrangements shall be varied as necessary to comply with special requirements which may be applied by local authorities for the area of operation as appropriate.
- 22.2.2 Every ship of 12 metres or more in length shall display placards informing the crew and passengers of the disposal requirements of garbage.
- 22.2.3 Every ship certified to carry 15 persons or more shall carry a garbage management plan and maintain a garbage record book. The requirement to complete a garbage record book may be waived for a ship engaged on a voyage of one hour or less. The garbage management plan must:
 - (1) Provide procedures for the collection, storage, processing and disposal of garbage, including procedures for the use of equipment onboard.
 - (2) Designate the person in charge of carrying out the plan.

22.3 Sewage

The vessel shall comply with National and local requirements

22.4 Sulphur content of Fuel

Ships using marine fuel oil, marine diesel, marine gas oil or gas oil must ensure that the fuel complies with the prevailing rules on the sulphur content of marine fuels.

22.5 Engine Emissions

- 22.5.1 Ships of 400GT or more are required to have a United Kingdom Air Pollution Prevention (UKAPP) certificate.

- 22.5.2 All engines with a power output of greater than 130kW (approximately 176.8 horse power), installed on a ship constructed after 1st January 2000 shall be issued with an Engine International Pollution Prevention (EIAPP) Certificate and a Technical File.

22.6 Oil/Oily Waste

- 22.6.1 Except in an emergency affecting the safety of the ship and its passengers and crew, no oil or oily waste/bilge mixture water shall be discharged overboard. Means shall be provided to retain all such material onboard to be subsequently discharged to a suitable reception facility ashore. A record of all such discharges shall be kept onboard.
- 22.6.2 Ships of 400GT or more are required to hold a United Kingdom Oil Pollution Prevention (UKOPP) certificate.

22.7 Use of Antifouling Paints

- 22.7.1 The use of environmentally harmful organotin compounds in antifouling paints (such as Tributyl Tin) is prohibited. Details of prohibited compounds can be found in the European Union Regulation EC 782/2003.
- 22.7.2 Ships of 400GT and over must be surveyed to verify compliance with the requirements and shall be provided with an International Anti Fouling System Certificate that has been endorsed by the Surveyor. Ships of over 24 metres in length but under 400GT shall hold a declaration of compliance endorsed by the ship owner.

22.8 Carriage of dangerous goods

Any ships carrying dangerous goods should be in compliance with The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 and should have a Document of Compliance for the Carriage of Dangerous Goods issued to it by the MCA. These requirements apply to all carriage of dangerous goods, including as activity related equipment, materials for commercial use, etc as well as to transport of cargoes.

23 Navigation

To provide suitable equipment and shipboard facilities and arrangements and to have in place navigational operational procedures in accordance with International (implemented by national regulation) and any local requirements to navigate the ship safely in the intended area of operation.

23.1 Navigational Equipment

- 23.1.1 Some of the navigational equipment specified in section 23.1.3 need not be carried in circumstances where it can be demonstrated by risk assessment to the satisfaction of the Administration that the ship can be safely operated and navigating without that equipment. The risk assessment shall be appraised by the Surveyor in such a case and, if agreed, an exemption from the specific requirement may be issued. This concession has been included to recognise that the risks of specific ship operations may vary significantly and it may not be appropriate to fit all specified equipment on certain ships operating a limited or restricted operation. The exemption is to be specific to the intended area of operation and will be withdrawn if the ship is relocated.
- 23.1.2 For ships of less than 300GT, the equipment need not be of an MED approved type. In this case the equipment should comply with standards acceptable to the Navigation Safety Branch of the MCA.
- 23.1.3 A ship shall be provided with the following:
- (1) Searchlight - Every ship shall carry an efficient searchlight suitable for man-overboard and other search and rescue operations.
 - (2) Navigation Lights and Shapes - When operating at night or in periods of restricted visibility by day navigation lights and shapes complying with the Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996.
 - (3) Signalling Lamp - Every ship shall carry a daylight signalling lamp, or other means to communicate by light during day and night using an emergency source of electrical power not solely dependent upon the ship's power supply. The signalling lamp may be the searchlight required by (1).
 - (4) Whistle – Every ship shall carry a whistle capable of conducting sound signals at the frequency and range of audibility to the satisfaction of the surveyor and in order to comply with the Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996.
 - (5) Appropriate navigational charts and publications for the area of operation.
 - (6) A properly adjusted magnetic compass or other means, independent of any power supply, to determine the ship's heading.
 - (a) In a steel ship, it shall be possible to correct the compass for coefficients B, C and D, and heeling error.
 - (b) The magnetic compass or repeater shall be so positioned as to be clearly readable by the helmsman at the main steering position. It

shall also be provided with an electric light, the electric power supply of which shall be of the twin wire type.

- (c) For ships under 300GT the requirements of (6) may be met by the use of a Transmitting Electronic Heading Device ("fluxgate compass"), provided that a suitable back up power supply is available to power the compass in the event of failure of the main electrical supply. Where such a compass incorporates a capability to measure magnetic deviation by undertaking a calibration routine, and where the deviation figures are recorded within the device, a deviation card is not required.
 - (d) For ships of 150gt or over, a gyro compass or spare magnetic compass bowl, unless (6)(c) applies.
- (7) For ships of 500gt or over, a gyro compass.
 - (8) An echo-sounding device, or other electronic means, to measure and display the available depth of water.
 - (9) A receiver for a global navigation satellite system or a terrestrial radio navigation system, or other means suitable for use at all times throughout the intended voyage, to establish and update the ship's position by automatic means.
 - (10) A speed measuring log.
 - (11) A rudder angle indicator.
 - (12) A 9 GHz (3cm) radar, or other means to determine and display the range and bearing of radar transponders and other surface craft, obstructions, buoys, shorelines and navigational marks to assist in navigation and collision avoidance.
 - (13) A radar reflector - if less than 150 GT and if practicable, a radar reflector, or other means, to enable detection by ships navigating by radar at both 9 and 3 GHz.
 - (14) Means for taking bearings as near as practicable over an arc of the horizon of 360°. This requirement may be met by the fitting of a pelorus, or, on a ship other than a steel ship, with a hand bearing compass.
 - (15) Ships shall be fitted with an approved automatic identification system (AIS). The AIS shall:
 - (a) provide automatically to appropriately equipped shore stations, other ships and aircraft, information including the ships identity, type, position, course, speed, navigational status and other safety related information;
 - (b) receive automatically such information from similarly fitted ships
 - (c) monitor and track ships; and
 - (d) exchange data with shore-based facilities.
 - (16) Navigation Lights, Shapes and Sound Signals

- (a) Ships shall comply with the requirements of the International Regulations for Preventing Collisions At Sea, 1972, as amended, (the COLREGS) implemented in the UK by the Merchant Shipping (Distress Signals and Prevention of Collision) Regulations 1996.
- (b) All navigation lights shall be provided with main and emergency power supply.
- (c) With due regard to accessibility, the requirement for duplication for navigation lights required to be shown whilst underway may be satisfied by having a spare lamp that can be easily fitted within three minutes.

23.1.4 Navigational Operational Requirements

SOLAS chapter V has been transposed into UK law through the Merchant Shipping (Safety of Navigation) Regulations 2002 and applies to all ships on all voyages in the United Kingdom. The MCA produce specific guidance on application of these requirements.

In Addition to item prescribed above ships shall comply with all other aspects appertaining to Safety of Navigation and with the COLREGS. Vessels on fixed routes are not exempt from the requirements of voyage or passage planning requirements and the need at all time to maintain a safe navigational watch.

These regulations also emphasise the Masters discretion for safe navigation in SOLAS Regulation V/34/1: in summary, the Master's discretion in decision-making is not to be compromised.

23.2 Bridge Visibility

23.2.1 Definitions

(1) In this Section:

"Enclosed passenger space" means any passenger space that is, or may be, enclosed by bulkheads and deck or enclosed by fixed or moveable screens, but does not include a passenger space which:

- (a) is fitted with a canopy, and
- (b) has no means, either temporary or permanent, for side or end screens to be fitted around the space;

"visibility" means visibility and line of sight over a horizontal arc, and "all-round visibility" means visibility and line of sight over an arc of 360 degrees,

"the permitted limits" are –

- (a) for a ship with a single steering position, up to 1 metre either side of the steering position, or
- (b) for a ship with two steering positions within the wheelhouse (or

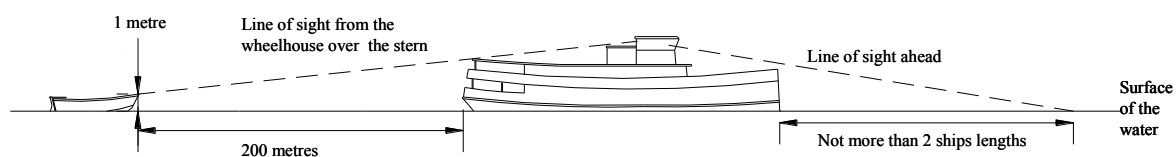
wings), between these two positions, or

- (c) for a ship with a mobile controller from which an operator is able to steer the ship from any part of the wheelhouse and bridge wings as appropriate ("wandering lead control"), from side to side of the ship, or the maximum reach of the wandering lead if this is a lesser distance.
- (d) The "permitted limits" shall not apply to arrangements where the helmsman is permanently seated and/or is not able to move freely within these limits.

23.2.2 Visibility from the Bridge

- (1) The steering position of the ship shall be situated above all enclosed spaces other than the wheelhouse (if any) in which it is situated.
- (2) The steering position of a ship shall be so sited and any wheelhouse shall be so constructed, without taking any visual aids into account –
 - (a) as to provide the helmsman at the steering position with all round visibility, and
 - (b) that the helmsman at the steering position can, if necessary and when applicable, by moving across a level and unobstructed deck within the permitted limits:
 - (i) see the surface of the water at a distance of not more than 2 ship's lengths from the ship, over the arc from abeam on either side through right ahead, and
 - (ii) for ships less than 24 metres in length, see an object situated 1 metre above the surface of the water at a distance of 200 metres from the stern of the ship, over the arc from abeam on either side through right astern as shown in the Figure below; or
 - (iii) for a ship over 24 meters in length, see an object situated 4 meters above the surface of the water at a distance of 200 metres from the stern of the ship, over the arc from abeam on either side through right astern.

Figure



- (3) For the purposes of paragraph (2):

the presence of a blind arc of visibility abaft the beam from the steering position shall not prevent visibility from being all round visibility if the helmsman can, by moving horizontally within the permitted limits, obtain visibility over the whole of that blind arc.

Where a vessel is designed to be operated by a seated helmsman then there are no permitted limits and the all-round visibility must apply at the helm position.

- (4) If the requirements of 23.2.2.(2)(a) and 23.2.2.(2)(b) cannot be met, a dedicated lookout must be provided.

23.2.3 Dedicated lookout

- (1) Any dedicated lookout shall –
- (a) have the sole duty, while the ship is underway, of maintaining a lookout,
 - (b) be positioned outside the passenger spaces, and
 - (c) be instructed by the master to keep a continuous lookout, and in particular over any or all additional areas where the helmsman cannot see.
- (2) The dedicated lookout may be in the wheelhouse, but if positioned outside the wheelhouse and remote from the helmsman, the lookout shall be provided with a suitable and effective means of communication with the helmsman.

23.2.4 Sight lines

- (1) In determining whether the requirements of 22.2.2 are met, the helmsman shall be assumed to have a height of eye of 1650 mm above the deck at the steering position when either standing or when seated. When there is an separate officer in charge of the navigational watch directing the helmsman, they shall be assumed to have a height of eye of 1650 mm above the deck at their position.
- (2) Where a sight line, passes through an after facing window, that window shall be of not less than 450 mm depth (height) centered at 1675 mm above the deck at the steering position.

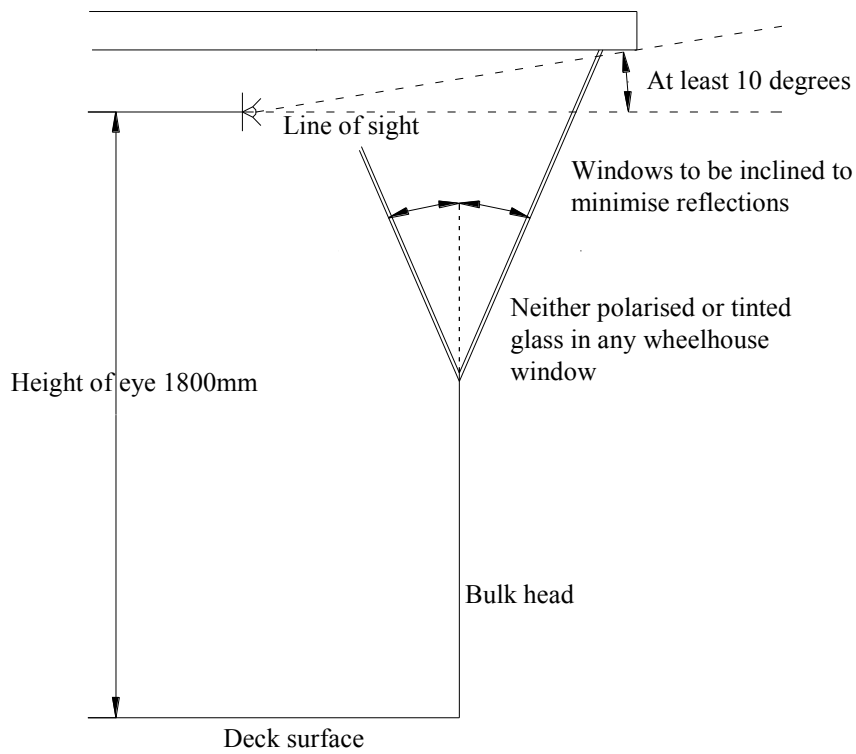
Where the vessel is helmed from a seated position the height of eye shall be adjusted accordingly to the satisfaction of the surveyor.

- (3) No sight line shall pass through any enclosed passenger space.
- (4) Any sight line which passes over an open passenger deck shall be such that it would pass over the heads of any passengers occupying seats in that space.
- (5) Should the activities of standing passengers on an open passenger deck cause a serious obstruction to visibility from the steering position, a dedicated lookout must be provided.

23.2.5 Windows

- (1) Vertical framing between all windows in the wheelhouse of a ship shall be kept to a minimum and shall not be installed immediately forward of the steering position or positions.
- (2) The height of the lower edge of the forward facing windows of the wheelhouse shall be as low as practicable.
- (3) The upper edge of the forward facing windows of the wheelhouse shall be high enough to allow a person at the steering position with height of eye of 1800 mm a clear forward view to at least 10 degrees above the horizontal at height of eye level.
- (4) The wheelhouse windows shall be inclined from the vertical plane to minimise reflections. Where necessary, and with particular reference to windows inclined inwards at the top, appropriate measures shall be taken to avoid adverse reflection from within from any instruments. All instruments shall be suitably screened to avoid any reflections onto the inside of the window.
- (5) Neither polarised nor tinted glass shall be used in any wheelhouse window.
- (6) There must in all weathers be a suitable means of providing a clear view through an adequate portion of the forward facing windows serving the helmsman.
- (7) Adequate ventilation to prevent the build up of condensation must be provided.

Figure



23.2.6 Cameras, mirrors and other aids

Aids such as cameras and mirrors may be provided to assist the helmsman in close-quarters manoeuvring, such as berthing, and to fill blind zones e.g. within the permitted two ship's lengths/200m of the vessel, but they must not be relied upon to assist in the situational awareness or replace all-round visibility of the helmsman.

24 General Safety

24.1 Safe Movement of Passengers and Crew

24.1.1 To aid the safe movement of passengers and crew, ships shall;

- (1) Be fitted with slip resistant external decks and stairways.
- (2) Be fitted with an adequate number of handrails and handholds.
- (3) Minimise potential tripping hazards.

24.1.2 Access areas, walkways and working areas shall be adequately lit.

24.2 First Aid Kits

Vessels must comply with the Merchant Shipping and Fishing Vessels (Medical Stores) Regulations 1995 (SI 1995/1802), as amended. MSN 1768 (M+F) provides further guidance.

24.3 Carriage of the Code of Safe Working Practices for Merchant Seamen (COSWP)

Workers on every ship shall have access to a copy of the COSWP and it shall be clearly stated in the ships Safety Management System where each copy of the COSWP is kept.

24.4 Alcohol Licensing

24.4.1 The Licensing Act 2003 requires passenger ships selling alcohol or providing regulated entertainment in England or Wales to be licensed. Applications for a license shall be made to the Local Authority.

24.4.2 The Licensing (Scotland) Bill 2005 applies in Scotland and applications for a licence shall be made to the local licensing board.

24.4.3 The Licensing (Northern Ireland) Order 1996 applies in Northern Ireland and applications for a licence shall be made to the local court.

24.5 Health and Safety Regulations

24.5.1 There are a number of Regulations which apply health and safety legislation. A list of the current Regulations at the time of publication is provided in Annex 6.

24.5.2 Principal among the health and safety Regulations are The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 apply wherever “workers” are employed on ships. Under these regulations all employers have a duty to ensure the health and safety of workers and others,

so far as is reasonably practicable. To fulfil this duty, employers are required to carry out “a suitable and sufficient assessment of the risks of the health and safety of workers arising in the normal course of their activities or duties“. The concept of risk assessments is relatively simple, and follows these basic steps:-

- (1) identify the hazards and personnel at risk;
- (2) assess the chances of a hazardous event occurring;
- (3) assess the severity or consequences; and
- (4) if the combined risk and severity is too great, appropriate action must be taken to reduce the risk to as low a level as reasonably practical.

24.5.3 Noise

The Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulations 2007 provide health and safety requirements regarding the exposure of workers to the risks arising from occupational noise. The Regulations include provisions for:

- action values and limit values for daily and weekly exposure to noise,
- risk assessment,
- elimination of or, where this is not reasonably practicable, reduction of exposure to noise,
- actions to be taken at action values and limit values,
- prohibition on exceeding limit values,
- provision of individual hearing protection,
- information, instruction and training for noise-exposed workers,
- health surveillance, and
- consultation with workers.

For details of further information and guidance see Annex 6.

24.5.4 Vibration

The Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007 provide minimum health and safety requirements regarding the exposure of workers to the risks arising from vibration. The Regulations impose duties on employers to protect workers who may be exposed to risk from exposure to vibration at work. They make provision for:

- exposure limit values and exposure action values,
- assessment of risks,
- elimination or control of exposure to vibration in the workplace,

- worker information and training,
- health surveillance,
- consultation with workers, and
- persons on whom duties are imposed.

Further guidance is provided in The Code of Practice for Controlling Risks due to whole-body Vibration on Ships and MGN 436 – Whole-body Vibration: Guidance on Mitigating Against the Effects of Shocks and Impacts on Small Ships.

24.5.5 Personal Protective Equipment

The Merchant Shipping and Fishing Ships (Personal Protective Equipment) Regulations require all workers to be provided with suitable personal protective equipment where risks cannot be reduced to an acceptable level. Personal protective equipment should be fit for purpose and regularly maintained. MGN 331 and MGN 332 provide further guidance on this.

25 Manning

25.1 Minimum Manning Levels

- 25.1.1 A ship shall be safely manned.
- 25.1.2 The manning matrix at Annex 2 should be used to determine minimum manning levels in all cases. However, the operator shall consider the specific operation of the ship and provide additional manning as appropriate.
- 25.1.3 Factors which may merit the need for additional crew might include, but are not limited to, ships carrying a rescue boat or ro-ro operations. In considering the need for additional crew, attention shall be made to the ability to safely navigate the ship and deal with emergency situations effectively.
- 25.1.4 The owner/operator shall submit the proposed crew numbers to the MCA. If acceptable to the MCA an approval will be given in writing, which will specify the date which it takes effect and will include any conditions on which it is given.
- 25.1.5 The number of crew may vary according to the number of passengers carried at any one time.
- 25.1.6 Where persons are engaged onboard, in addition to the operational crews, e.g. waiters, bar staff, entertainers etc., they should be treated as passengers unless they are fully trained as a member of crew who can assist passengers in an emergency.

25.2 Minimum Qualifications.

The relevant regulations are the Merchant Shipping (The Merchant Shipping (Boatmasters' Qualifications, Crew and Hours of Work) Regulations 2015 ("The Boatmasters' Qualifications Regulations"), and Merchant Shipping Notice MSN1853, which should be referred to for full details. The information below is only intended as a summary for guidance.

25.2.1 Minimum Qualifications of the Master

- (1) a boatmaster's licence which authorises that person to serve as master of the vessel being navigated in the category of waters in which it is being navigated;
- (2) the endorsements which are required to authorise that person to serve as master on that vessel or engage in operations which the vessel is undertaking, specifically passenger and ro-ro endorsements;
- (3) the relevant local knowledge endorsements which are required to authorise the master to navigate the waters being navigated;
- (4) A GMDSS Short Range Certificate (SRC); and
- (5) Medical Fitness - a valid medical ENG1 certificate is required by the Master.

- (6) A Ro-Ro Endorsement is needed by the Master of any vessel in which vehicles or cargo can be loaded or unloaded in a horizontal direction, in addition to the Ro-Ro passenger ships as defined by Chapter 29.

25.2.2 Minimum Qualifications of the Crew

- (1) The owner of a ship must give notice in writing to the Administration proposing either that it is appropriate or that it is not appropriate that, when the ship is engaged on a voyage, a member of the crew should be the holder of –
 - (a) a boatmaster's licence of any class,
 - (b) a boatmaster's certificate of any class, or
 - (c) any other qualification which it would be appropriate for a master of the vessel to hold and which is prescribed for that purpose by the Boatmasters' Qualifications Regulations.
- (2) The MCA may approve the ship owner's proposal that –
 - (a) a member of the crew should be the holder of a qualification specified in the notice given under paragraph 25.2.2 (1), or
 - (b) that no crew member need be the holder of any such qualification.

25.3 Training

25.3.1 Crew Training

- (1) The operator is to ensure that every person employed or engaged in any capacity on board the ship has received on-board training in the procedures to be observed in the event of an emergency.
- (2) Training is structured in two levels –
 - (a) Familiarisation training, and
 - (b) Competent crew training.
- (3) Minimum training requirements are provided in Annex 3.

25.3.2 Familiarisation Training

Familiarisation training shall ensure that all crew members know what their duties and responsibilities are in the event of an emergency, and that they are familiar with the location and use of safety equipment at their workstation. Familiarisation training can be carried out by a member of the permanent crew provided the onboard training is documented within the Safety Management System.

25.3.3 Competent Crew Training

- (1) Competent crew training shall ensure that personnel have achieved a level of knowledge and practical ability such that they may be considered as competent crew for the purpose of the Passenger Certificate.
- (2) Competent crew training may be carried out onboard or in conjunction with a training provider and recorded.

25.3.4 Disability Awareness and Assistance Training

Written guidance on disability awareness and assistance training shall be provided for staff directly assisting persons with reduced mobility. This shall include the following, as appropriate:

(1) Disability-awareness training

- (a) Awareness of and appropriate responses to passengers with physical, sensory (hearing and visual), hidden or learning disabilities, including how to distinguish between the different abilities of individuals whose mobility, orientation, or communication may be reduced.
- (b) Barriers faced by persons with reduced mobility, including attitudinal, environmental/physical and organisational barriers.
- (c) Recognised assistance animals, including the role and the needs of an assistance animal.
- (d) Dealing with unexpected occurrences.
- (e) Interpersonal skills and methods of communication with deaf and hearing impaired people, visually impaired people, speech impaired people and people with a learning disability.

(2) Disability-assistance training

- (a) How to help wheelchair users make transfers into and out of a wheelchair.
- (b) Skills for providing assistance to persons with reduced mobility travelling with a recognised assistance animal, including the role and the needs of those animals.
- (c) Techniques for escorting blind and partially-sighted passengers and for the handling and carriage of recognised assistance animals.
- (d) An understanding of the types of equipment which can assist persons with reduced mobility and a knowledge of how to handle such equipment.
- (e) Sufficient understanding of the need for reliable and professional assistance. Also awareness of the potential of certain disabled passengers to experience feelings of vulnerability during travel because of their dependence on the assistance provides.

- (f) When to recognise that assistance and/or passage cannot be granted for Health and Safety reasons and to handle the matter with sensitivity.

25.4 Hours of Work Provisions

25.4.1 Employed Workers

- (1) The applicable provisions are in the Merchant Shipping (Hours of Work) Regulations 2002.
- (2) The Regulations provide for a maximum of 48 hours working time in any 7 day period, averaged over a reference period that is normally 17 weeks but can be extended under certain conditions (see Sections 14 and 15 of the Regulations).
- (3) They also entitle a worker to:
 - (a) adequate rest;
 - (b) at least 4 weeks paid annual leave;
 - (c) require the employer/company to provide an employee with a health assessment when he/she normally works at night; and
 - (d) maintain adequate records of hours worked and rest time taken.

25.4.2 Records of Hours of Work

The employer is required to keep records of hours worked by employees but these records do not have to be specially created or dedicated to this purpose – they may be included in personnel records, or records kept for the purposes of determining pay. Nor is there any mandatory format for the records. They must however provide sufficient information to allow the surveyor, or an employment tribunal, to investigate any claim of a breach of the regulations.

25.5 Alcohol and Drugs

- 24.5.1 The Railways and Transport Safety Act 2003 states that any professional master or crew member commits an offence if his ability to carry out his duties is impaired because of drink or drugs.
- 25.5.2 The prescribed limits and enforcement details can be found in Sections 81-86 of the Act.
- 25.5.3 Operators are encouraged to implement an appropriate drink/drugs policy through the Safety Management System.

Passenger Counting and Registration

All ships must comply with the The Merchant Shipping (Counting and Registration of Persons on Board Passenger Ships) Regulations 1999 (SI1999/1869) and MSN1794, which enact the Directive 98/41/EC on the registration of persons sailing on board passenger ships operating to or from ports of the member States of the Community. The purpose is to record how many people are onboard the ship when it departs any landing point. Such information shall be readily available to emergency services when required.

- 26.1 The operator shall ensure that, whenever a ship departs any landing point there is a system capable of counting all persons on board which shall include -
- (1) All persons boarding such a ship at a landing point at the beginning of a voyage, or just prior to, as the case may be;
 - (2) All persons disembarking at subsequent landing points, during the course of a voyage;
 - (3) All persons boarding at subsequent landing points, during the course of a voyage, or just prior to, as the case maybe;
 - (4) The number of persons remaining on board at each landing point is to be determined and submitted to the Skipper prior to the ships departure. This number is also to be deposited ashore in such a manner to be immediately available to the Emergency Services as stated in the Search and Rescue (SAR) Plan.
- 26.2 The system maybe manual, electronic or by any other suitable means and must be in accordance with MSN 1794 and approved by the MCA.

27 Passenger and Crew Accommodation

Passenger and crew accommodation must provide for rapid and safe evacuation in an emergency, and should provide for their comfort and shelter from weather, as appropriate, at other times.

27.1 Maximum Passenger Numbers

The number of passengers allowed onboard shall be the minimum passenger number as determined to satisfy the:

- (a) Stability requirements given in section 11;
- (b) Clear deck area requirements given in section 27.3;
- (c) Seating requirements given in section 27.4; and
- (d) The number of persons lifesaving appliances are provided for in section 13.

27.2 Allowable Passenger Spaces

27.2.1 Passenger spaces shall be provided on not more than three decks including the top of deckhouses.

27.2.2 Only one passenger deck is permitted below the waterline/bulkhead deck. This would normally be a single space but the surveyor may permit two spaces of moderate size to be included.

27.2.3 Passenger spaces do not include:

- (1) Crew accommodation
- (2) Toilets
- (3) Companionways/stairways/means of escape
- (4) Any passageway between bulkheads less than 750mm wide.
- (5) Areas permanently occupied by safety equipment and other ship related operational equipment.
- (6) Areas designed for the safe operation of the ship i.e.
 - (a) Machinery/navigation/mooring.
 - (b) Vehicle carrying spaces.
 - (c) Open deck vehicle carrying spaces.
 - (d) Access routes to such spaces

27.2.4 For open deck spaces the clear deck area shall be measured between points within which the surveyor considers the area fit for the safe and proper accommodation of passengers. It should also be considered whether the bow or stern area is a suitable place for passengers to be permitted to occupy.

27.2.5 Clear deck area for both open and enclosed spaces means the area which

remains after that occupied by all encumbrances, such as hatchways, skylights, companionways, casings, ventilators, navigating space, luggage lockers and lifesaving appliances carried on the open deck or in lockers has been deducted. Tables and seating are included within the clear deck area.

27.3 Clear Deck Areas

- 26.3.1 The number of passengers allowed for a passenger space located below the main deck shall be determined by dividing the clear area in square metres by 0.85.
- 27.3.2 The number of passengers allowed for a main deck or enclosed passenger deck above shall be determined by dividing the clear area in square metres divided by 0.60.
- 27.3.3 Where passengers are allowed access to the tops of deckhouses, the number of passengers allowed shall be determined by dividing the clear deck area in square metres by 0.85.

27.4 Passenger Seating

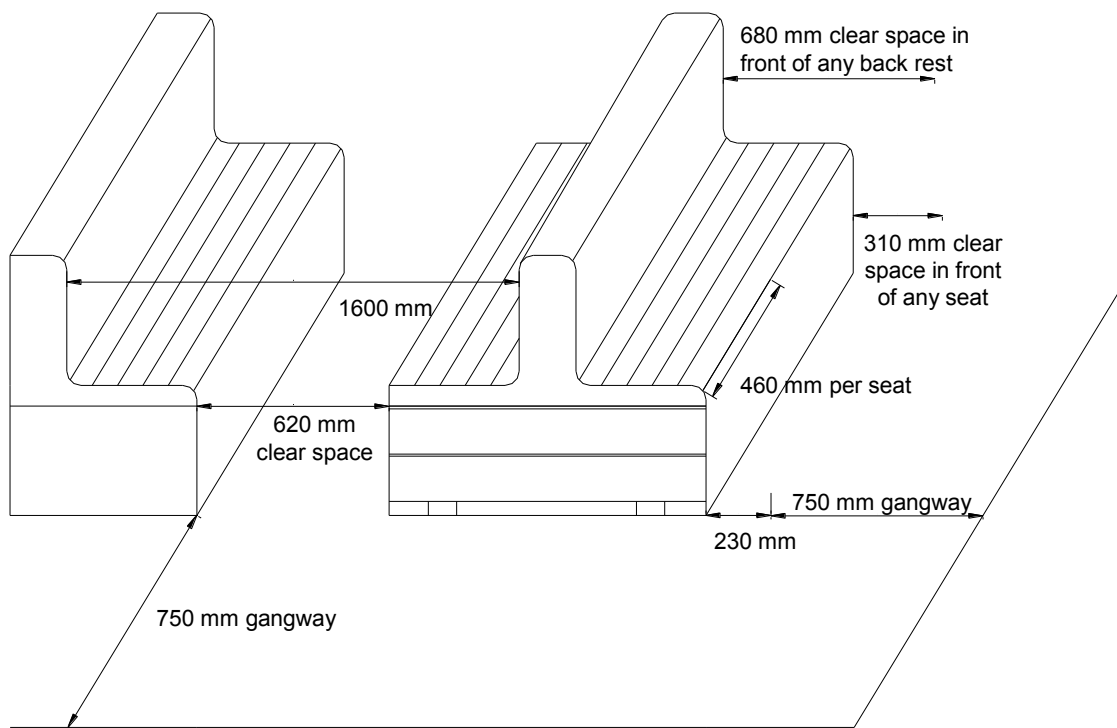
- 27.4.1 Every passenger shall be provided with a seat, subject to the concessions given in 27.4.2 and 27.4.3.
- 27.4.2 Ships operating on short voyages of 10 minutes or less need only provide seating for 25% of passengers, provided the motions and accelerations in all normal operations would not make standing difficult.
- 27.4.3 Ships with vehicle decks operating on voyages of 30 minutes or less may permit passengers to remain in their vehicles provided there is sufficient clearance between each vehicle lane and between the outboard lane of vehicles and the ship side to allow passengers to escape in an emergency. Seating does not need to be provided for passengers remaining in their vehicles but seating shall be provided for all foot passengers on such voyages. In accordance with 27.4.2, seating need only be provided for 25% of such foot passengers on voyages of 10 minutes or less provided the motions and accelerations in all normal operation would not make standing difficult.
- 27.4.4 Where passengers are permitted to remain in their vehicles, notices shall be displayed to the effect:

THIS AREA MUST NOT BE OVERSTOWED BY VEHICLES AS TO RESTRICT PASSENGER MOVEMENT BETWEEN ASSEMBLY AREAS IN THE EVENT OF AN EMERGENCY.

THERE MUST BE SUFFICIENT CLEARANCE BETWEEN VEHICLES OR OTHER OBSTRUCTIONS TO ENSURE THAT OCCUPANTS CAN READILY VACATE THEIR VEHICLES IN AN EMERGENCY.
- 27.4.5 All seating and furniture shall normally be fixed. Any moveable furniture may only be permitted provided this would not be a hazard or impede escape in the event of an emergency. Seating may be individual seats or bench type seating.

- 27.4.6 If seating is removed to accommodate a specific operation or function, the number of passengers shall be reduced accordingly.

27.5 Minimum seat dimensions



NOTE: All dimensions stated are minimum requirements

- 27.5.1 Suitable clear space shall be allowed for access, assembly and escape, with a minimum width of 750mm being provided.
- 27.5.2 A length of 460mm measured horizontally along the front of each seat shall be allowed for the accommodation of seated passengers.
- 27.5.3 When any space in front of a seat is required for access, the space within 230mm of the front of the seat shall not be taken into account when measuring the width of the access.
- 27.5.4 The distance between any part of the back rest of any seat and the back rest of the seat facing it, shall not be less than 1600mm.
- 27.5.5 There shall be a clear space of at least 680mm in front of the backrest of any seat measured from the centre of each seat and a clear space of at least 310mm in front of any part of that seat.
- 27.5.6 There shall be a clear space of at least 620mm between any part of the front of a transverse seat, and any part of any other seat which faces it.
- 27.5.7 The number of passengers accommodated by bench seating is found by dividing the length in metres of each continuous fixed seat by 0.46, the measurements

being taken along the inner edge of the seats. Buoyant apparatus may be used for seating provided the seating dimensions specified above are satisfied.

27.6 Toilet facilities

27.6.1 Toilet facilities must be provided free of charge for the use of passengers. The number of toilets shall be as follows;

Up to 60 passengers	1 WC
Up to 100 passengers	2 WC
For each additional 100 passengers or part thereof	2 WCs or 1 WC and 1 urinal

27.6.2 These requirements may be relaxed for ships engaged on voyages of less than 30 minutes duration provided WCs are provided in the vicinity of embarkation/disembarkation places.

27.7 Crew accommodation

Where the crew accommodation is provided the Merchant Shipping (Maritime Labour Convention) (Minimum Requirements for Seafarers, etc) Regulations 2014 will apply and details are contained in MSN1844 and MGN481.

28 Survey and Certification Requirements

The relevant regulations are the Merchant Shipping (Survey and Certification) Regulations 2015, and related Instructions to Surveyors which should be referred to for full details. The information below is only intended as a summary for guidance. For the purposes of UK regulations, and the General Exemptions granted under MGN535, vessels surveyed under this code are treated as UK passenger vessels of Class II(A), with operating restrictions.

28.1 Initial Survey

28.1.1 The ship shall be subject to an initial survey before entry into service. This survey will be undertaken by a Certifying Authority surveyor who will survey the ship against the requirements of this Code.

28.1.2 Specifically, the surveyor is to be satisfied that:

- (1) The ship holds a valid Partial Declaration of Survey of a Passenger Ship as required by Section 5 of this Code if the ship is surveyed by a classification society, or that the ship complies with the requirements of Sections 4-10 of this Code.
- (2) The ship complies with the mandatory safety requirements identified in Sections 3.1.5 and 3.1.6 of this Code.
- (3) The ship's Safety Management System fully meets the requirements of Section 20.
- (4) There is evidence that an initial survey of the radio installation has been undertaken by an MCA authorised person in accordance with MGN392.
- (5) There is evidence that any LPG installation has been inspected by a GAS SAFE approved technician.

28.1.3 Provided the surveyor is content that the ship complies with all relevant requirements the surveyor will issue a Declaration of Survey to inform the Secretary of State that the ship may be issued a Passenger Certificate.

28.1.4 Any ship holding an ISM certificate will not be surveyed against the Safety Management System requirements of Section 20 of this Code nor subject to the In-service Verification as required by Section 28.2. Such ships will be subject to a mid-term inspection as required by the ISM Code.

28.2 Verification of the Safety Management System

The validity of the Passenger Certificate is subject to satisfactory verification of the Safety Management System.

28.3 Renewal Surveys

28.3.1 A renewal survey must be undertaken annually.

28.3.2 The renewal survey must be undertaken within the 3 months preceding the

anniversary date (the day and month) of each year corresponding to the date of expiry of the ships full term Passenger Certificate.

28.3.3 At the Survey the surveyor is to satisfy himself that:

- (1) The ship has been issued with a Partial Declaration of Survey of a Passenger Ship, to verify that the condition of the hull, machinery, control systems, electrical arrangements and bilge pumping systems continue to be fit for the purpose intended and continue to comply with the appropriate standards of the classification society, within the 3 months preceding the anniversary date.
- (2) The ship complies with the mandatory safety requirements identified in Section 3.1.5 and 3.1.6 of this Code.
- (3) The ship's Safety Management System fully meets the requirements of Section 20.
- (4) The means of communication has been demonstrated during the annual survey.
- (5) There is evidence that any LPG installation has been inspected by a GAS SAFE approved technician within the 3 months preceding the anniversary date.

28.3.4 Ships holding a valid ISM Certificate would not be subject to survey against the Safety Management System requirements of Section 20, but would be subject to the requirements of the ISM Code.

28.3.5 Provided the Certifying Authority surveyor is content that the ship complies with all relevant requirements they may issue Declaration of Survey to inform the Secretary of State that the Passenger Certificate may be renewed.

28.4 Extension of Certificates

28.4.1 If a renewal survey has been completed and a new certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the Certifying Authority surveyor may endorse the existing certificate as valid for a period not exceeding 5 months from the expiry date.

28.5 Inspection of the Outside of the Ship's Underwater Area

28.5.1 An inspection of the outside of the ship's underwater area is required at every Renewal Survey. This should be undertaken with the ship out of the water unless alternative arrangements have been agreed by the Administration in accordance with the MGN217 or any Marine Guidance Note amending or updating it.

28.5.2

28.6 Survey of Propeller Shafts

28.6.1 The surveyor shall be satisfied that the stern gear, including the propeller shaft,

is in good working order and will continue to be in a serviceable condition for the period covered by the annual survey. If there is any reasonable doubt, the propeller shaft shall be removed and inspected. In any case the propeller shafts shall be removed and inspected at least once in any five year period.

28.6.2 In order to assess whether the propeller shafts shall be removed, the Surveyor shall consider:

- (1) The date the propeller shaft was last withdrawn;
- (2) The date the propeller shaft was last replaced or reconditioned;
- (3) Any records of excessive noise/vibration;
- (4) Any indication that the propeller shaft is bent;
- (5) Any evidence of the intermediate bearings (if any) between the engine (or gearbox) and the stern tube running hot;
- (6) Any evidence of oil consumption in oil lubricated stern gear systems;
- (7) Any evidence of water in the oil reservoir;
- (8) Any evidence of oil leakage past an internal seal;
- (9) Evidence, documented or otherwise, of maintenance work carried out on the stern gear;
- (10) Any comments by the owner/skipper regarding the running condition of the stern gear.
- (11) Wherever possible, prior to slipping, the surveyor shall see the engine run with the stern gear engaged to assist in assessing its running condition.

28.6.3 In the case of other propulsion types, the surveyor shall assess whether maintenance or servicing is required, in any case the advice of the manufacturer shall be followed.

28.7 Additional Surveys

28.7.1 The Administration may require an additional survey of the ship to be undertaken following the report of any incident or defect which affects the safety of the ship or following an accident that has been reported.

28.7.2 An additional survey, either general or partial, according to the circumstances, shall be made following an important repair or renewal. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively carried out, that the material and workmanship are in all respects satisfactory, and that the ship complies with the provisions of the relevant regulations.

28.7.3 The Administration will provide guidance to determine what constitutes an important repair or renewal on request.

28.7.4 On completion of a satisfactory additional survey the Administration will issue a survey report to confirm the condition of the ship is satisfactory.

28.8 Maintenance of Conditions after Survey

28.8.1 The owner and master are responsible for ensuring –

- (a) that the ship and its equipment is maintained so as to ensure that the ship in all respects remains fit to proceed to sea without danger to the ship or persons on board; and
- (b) that no change is made in the structural arrangements, machinery, equipment and other items covered by the Code, without the approval of the Certifying Authority, except by direct replacement.

28.8.2 If a vessel does not continue to comply with the Code, after being certificated, its certification under this Code may be withdrawn or cancelled by the Certifying Authority.

PART B

29 Additional Requirements for Ro-Ro Passenger Ships

It is unlikely that Ro-Ro ships as defined will come under this Code as vessels under 24 metres carrying motor vehicles will probably do so on an open weather deck. For ships carrying motor vehicles on deck many of the requirements below remain best practice.

A Ro-Ro Endorsement is needed by the Master of any vessel in which vehicles or cargo can be loaded or unloaded in a horizontal direction, in addition to the Ro-Ro passenger ships as defined.

29.1 Definitions

29.1.1 In this Part the following expressions have the following meanings:

“doors” includes bow visors and appliances described in section 29.4.1(3);

“length” means the ship’s overall length; and

“loading doors” means the doors described in section 29.4.1(1) to 29.4.1(4) inclusive.

29.1.2 A door shall be deemed to be above the bulkhead deck if the sill of the opening with which it is associated is above that deck.

29.2 Loading and stability assessment

29.2.1 The intact and damage stability of every ro-ro passenger ship shall be re-examined to ensure the requirements of section 11 continue to be met, whenever considered necessary.

29.2.2 The owner shall ensure that the master is provided with information relating to the ship’s stability during the process of loading and unloading. This information shall be included in the ship’s stability information.

29.2.3 Where any alterations are made or changes occur to the ship so as materially to affect information supplied to the master in accordance with sections 29.2.2, amended information shall be provided.

29.2.4 The information provided pursuant to sections 29.2.2 and 29.2.3 shall be kept on board the ship at all times in the custody of the master.

29.2.5 The master shall use the information provided in accordance with paragraph 29.2.2 to 29.2.5 and, when necessary, make calculations or cause calculations to be made in order to ensure that during loading and unloading the ship has adequate stability and the freeboard at any door giving access to the hull or to an enclosed superstructure is sufficient to prevent the entry of water.

- 29.2.6 (1) On completion of the loading and before it proceeds on a voyage the master or an officer appointed for the purpose shall ascertain –
- (a) the ship's draught at the bow and at the stern;
 - (b) the trim of the ship by the bow or the stern; and
 - (c) the vertical distance from the waterline to the appropriate subdivision load line mark on each side of the ship.
- (2) The draughts, trim and the vertical distances ascertained in accordance with section 29.2.6(1) shall be recorded in a book retained on board.
- (3) Where relevant, these readings shall be taken when the vessel is floating free of any linkspan or other shore infrastructure.
- 29.2.7 Subject to section 29.2.8, before proceeding on a voyage the master shall –
- (1) cause the maximum permissible vertical position of the ship's centre of gravity relative to its keel (KG) or the minimum permissible transverse metacentric height (GM) whichever is appropriate to the ship, to be determined, recorded and retained on board; and
 - (2) ensure that the condition of loading of the ship as recorded in accordance with sub-paragraph 29.2.7(1) is within the permissible standard of stability determined in accordance with sub-paragraph 29.2.6(2) and satisfies all the relevant requirements prescribed in the stability information book.
- 29.2.8 (1) Where a ship regularly plies to and from the same place in conditions of loading which correspond closely to conditions of loading which are clearly specified in the stability information book and such specified conditions of loading allow a sufficient margin of stability beyond the minimum required for safety purposes to allow for small variations which might occur between a specified condition of loading and the actual loading of the ship, the MCA may approve the conditions of loading so specified.
- (2) When conditions of loading have been approved in accordance with section 29.2.8(1) before the ship proceeds on a voyage the master shall –
- (a) ensure that the actual condition of loading of the ship corresponds closely to one of the approved specified conditions of loading; and
 - (b) record which approved condition of loading the actual condition corresponds to. This record shall be retained on board.
- 29.2.9 A copy of the information required by section 29.2.8(2)(b) shall be forwarded, as soon as is practicable, to a person nominated by the owner as being responsible and retained in his custody for a period of at least one calendar month.

29.3 Watertight integrity from the ro-ro deck (bulkhead deck) to spaces below

29.3.1 Where vehicle ramps are installed to give access to spaces below the bulkhead

deck, their openings shall be able to be closed weathertight to prevent ingress of water below. Such openings shall be alarmed with audible and visual indication to the navigation bridge.

- 29.3.2 Accesses to spaces below the bulkhead deck are permitted provided they are necessary for the essential working of the ship. Such accesses shall be watertight and alarmed with audible and visual indication to the navigation bridge;
- 29.3.3 The accesses referred to in paragraphs 29.3.1 and 29.3.2 shall be closed before the ship leaves the berth on any voyage and shall remain closed until the ship is at its next berth.
- 29.3.4 The master shall ensure that an effective system of supervision and reporting of the closing and opening of such accesses is implemented.
- 29.3.5 The master shall ensure that the time of the last closing of the accesses is recorded in the logbook before the ship leaves the berth on any voyage.
- 29.3.6 The accesses referred to in 29.3.2 be opened during the voyage but only for a period sufficient to permit through passage and, if required, for the essential working of the ship, provided that the height of the coaming is at least 600mm on open ro-ro decks and 380 mm on closed ro-ro decks.

29.4 Closure of main loading doors

- 29.4.1 Except in the cases specified in paragraphs 29.4.2 and 29.4.4 the following loading doors:
- (1) gangway and cargo loading doors fitted in the shell or boundaries or enclosed superstructures;
 - (2) bow visors so fitted;
 - (3) weathertight ramps so fitted and used instead of doors for closing openings for cargo or vehicle loading; and
 - (4) cargo loading doors in the collision bulkhead;
- shall be closed and locked before the ship leaves its berth and shall be kept closed and locked until the ship has been secured at its next berth.
- 29.4.2 Where a bow visor or a weathertight ramp cannot be opened or closed while the ship is secured at its berth, it may so far as necessary and subject to paragraph 29.4.3 be opened or kept open while the ship approaches or draws away from its berth, as the case may be.
- 29.4.3 In no case shall a loading door be open when the ship is more than one ship's length from the cargo loading or discharging position of its berth.
- 29.4.4 Section 29.4.1 shall not apply to small doors intended to be used for pilot access,

fuelling or other matters necessary for the operation of the ship and not intended to be used by passengers or for loading cargo.

29.5 Supervision and reporting of closure

29.5.1 Before the ship proceeds on a voyage an officer appointed for the purpose by the master shall:

- (1) verify that every loading door has been closed and locked; and
- (2) report the fact that they have been closed and locked to the master or other officer in charge of the bridge.

29.5.2 Save as permitted by regulation 29.4.2 the ship shall not proceed on a voyage until the report referred to in sub-paragraph 29.5.1(2) has been received by the master or other officer in charge of the bridge.

29.6 Closure of weathertight doors in bulkheads

29.6.1 Weathertight doors above the bulkhead deck (except doors fitted in collision bulkheads to which regulation 29.4 applies) which are fitted in bulkheads which are required to be watertight or weathertight as the case may be and which separate or form the boundary of cargo spaces shall be closed and locked before the ship leaves its berth and be kept closed and locked until the ship has been secured at its next berth.

29.6.2 Weathertight doors above the bulkhead deck fitted in the shell or in bulkheads which are required to be watertight or weathertight, other than those doors described in regulations 29.4.1 and 29.6.1, shall be kept closed whilst the ship is on any voyage except when opened on the express authority of the master.

29.6.3 Any weathertight door which may be opened in accordance with the exception to paragraph 29.6.2 shall be kept clear of obstructions which might prevent its rapid closure.

29.7 Closure of bulkheads on the ro-ro deck

29.7.1 All transverse and longitudinal bulkheads which are taken into account as effective to confine the seawater accumulated on the ro-ro deck shall be in place and secured before the ship leaves the berth and remain in place and secured until the ship is at its next berth.

29.7.2 Notwithstanding the requirements of paragraph 29.7.1, the MCA may permit some accesses within such bulkheads to be opened during the voyage but only for sufficient time to permit through passage and, if required, for the essential working of the ship.

29.8 Opening of doors in an emergency

Notwithstanding the provisions of regulations 29.4.1 and 29.6.1, gangway and cargo loading doors may be opened in an emergency but only when the master considers such opening will not put the safety of the ship at risk.

29.9 Entries in a record book

29.9.1 Entries shall be made in a book retained on board for recording the following –

- (1) the times of the last closing, in accordance with regulations 29.4.1 and 29.6.1, of the weathertight doors referred to in those regulations and of the next opening of such doors; and
- (2) the times of the opening and closing of any weathertight door pursuant to regulations 29.6.2 and 29.8.

29.11 Written instructions regarding the opening of weathertight doors

29.11.1 The owner of a ship shall ensure that the ship is provided with written instructions for operating weathertight doors.

29.11.2 Such written instructions shall be approved by the MCA.

29.12 Compliance with written instructions

No door shall be opened or closed except in compliance with the written instructions provided in accordance with regulation 29.11.

29.13 Access opening indicator lights

29.13.1 Indicators shall be provided for all shell doors, loading doors and other closing appliances fitted to openings which if left open or not properly secured could lead to major flooding of a special category space or ro-ro cargo space.

29.13.2 The indicator system shall be a panel at the navigating bridge consisting of a green indicator light and a red indicator light for each access opening connected to suitable switches at the opening so that the green light will be illuminated on the panel for a particular opening only when the door or other closing appliance is both closed and secured.

29.13.3 All switches or relays shall be connected so that if the door or appliance is not fully closed or properly secured the red light on the panel will illuminate.

29.13.4 The power supply for the indicator system shall be independent of the power supply for operating and securing the doors or closing appliances.

29.14 Access to ro-ro deck

29.14.1 The master or the designated officer shall ensure that, without the expressed consent of the master or the designated officer, no passengers are allowed

access to an enclosed ro-ro deck or special category spaces when the ship is underway.

- 29.14.2 At least one of the means of escape from the machinery spaces where the crew is normally employed shall avoid access to any ro-ro cargo spaces.

29.15 Supplementary emergency lighting

- 29.15.1 All passenger public spaces and alleyways shall be provided with supplementary electric lighting that can operate independently of the main and emergency sources of electric power for at least three hours when the ship is listed up to 90 degrees.
- 29.15.2 The illumination provided shall be such that the approach to the means of escape from the space can be seen.
- 29.15.3 The source of electric power for the lighting shall be accumulator batteries located within the lighting unit that are continuously charged,
- 29.15.4 The lighting shall be of the maintained type so that any failure of the lamp will be immediately apparent.
- 29.15.5 The accumulator batteries shall be replaced in accordance with the service life established by the manufacturer having regard to the ambient temperature to which they are subject in service.
- 29.15.6 A portable rechargeable battery-operated hand lamp shall be provided in every crew space alleyway, recreational space and every working space which is normally occupied unless supplementary emergency lighting as required above is provided.

29.16 Structural fire protection

The boundary bulkheads and decks surrounding vehicle deck spaces shall be insulated to 'A60' class standard. However, where an open deck space, a sanitary or similar space or tank, void or auxiliary machinery space having little or no fire risk, is on one side of the division this standard may be reduced to A-0.

29.17 Fixed Fire-extinguishing system and drainage

- 29.17.1 Enclosed ro-ro deck spaces shall be fitted with an approved fixed pressure water-spraying system for manual operation which shall protect all parts of any deck and vehicle platform in such spaces.
- 29.17.2 In view of serious loss of stability which could arise due to large quantities of water accumulating on the deck or decks consequent on the operation of the fixed pressure water-spraying system, scuppers shall be fitted so as to ensure that such water is rapidly discharged directly overboard.
- 29.17.3 The drainage from ro-ro and car decks shall be of sufficient capacity on both the starboard and the port side shall be able to cope with a quantity of water originating from the water spraying system and fire pumps, taking into account the ship's

conditions of heel and trim.

29.17.4 A water leakage detection system shall be arranged to provide an indication to the navigation bridge of any leakage through inner and outer bow doors, stern doors, or any other shell doors which could lead to the flooding of special category spaces or enclosed ro-ro cargo spaces.

29.18 Television surveillance of enclosed spaces

A television system shall be installed which shall be capable of transmitting reliable information to the navigating bridge on the condition (including position) of bow doors, stern doors or any other cargo or vehicle loading doors which if left open or not properly secured could lead to major flooding of a ro-ro cargo space. Ro-ro cargo spaces shall be continuously patrolled or shall be monitored by a television surveillance system during any voyage so that movement of vehicles in adverse weather or unauthorised entry by passengers can be observed. The system monitors shall be placed at a location that is continuously manned whilst the ship is underway.

29.19 Emergency Lockers

29.19.1 Every ro-ro passenger ship shall be provided with at least one weathertight emergency locker constructed of steel, or glass reinforced plastic (GRP) or other suitable material, on each side of the ship. Such lockers shall contain the equipment specified below. Such equipment shall be of good quality and shall be regularly maintained.

29.19.2 The lockers shall be clearly marked and so located on an open deck and as high up in the ship and as near the ship's side as possible that in all foreseeable circumstances the locker, or lockers, on at least one side will be accessible.

Equipment

- 1 Fireman's axe (long handled)
- 1 Fireman's axe (short handled)
- 1 Pin maul (7 lb.)
- 1 Crowbar
- 4 Hand lamp/torches
- 6 Padded lifting strops (adult), see note (1)
- 2 Padded lifting strops (child), see note (2)
- 3 Hand-powered lifting arrangement, see note (3)
- 1 Lightweight rigid collapsible ladder at least 3 metres long, see note (4)
- 1 Lightweight rope ladder (equal in length to beam of ship or 10 metres whichever is less), see note (4)
- 1 First aid kit
- 6 Blankets (sealed in plastic bags) or thermal protective aids
- 4 Sets waterproof jackets and trousers

(1) In ships under 100 metres in length the number of adult lifting

strops and lifting arrangements may be reduced to 4 and 2 respectively.

- (2) Not required if the adult lifting strop is also suitable for children.
- (3) Lifting arrangements to be capable of being used at angles of up to 20° from the horizontal and to have a SWL of at least 150 kg.

Rope if used to be of a type which features good grip. One end of rope to be fitted with a snap link suitable for securing to lifting strops. Tensile strength of rope and snap link to be at least 1 tonne. Length to be suitable for lowering harness a distance equal to at least 2/3 beam of the ship taking into consideration the type of purchase (if any). If wire used in the lifting arrangement tensile strength and length to be of equivalent standard.

- (4) Ladder to be capable of supporting one person weighing up to 150 kg and to be provided with means of support at top end when suspended from side escape when ship is on its beam ends.

29.19.3 The equipment shall be so stowed and secured in the locker that it will not drop out when the door or lid is opened when the ship is heeled at an angle of 90°.

29.20 Stockholm Compliance

Ro-Ro vessels of Class C and Class B are required to comply with Directive 2003/25/EC (the Stockholm Agreement) implemented in the UK by the Merchant Shipping (Ro-Ro Passenger Ships)(Stability) Regulations 2004.

PART C

30 Additional requirements for planing and semi-displacement passenger ships which are not High Speed Craft.

30.1 Design Acceleration Levels

30.1.1 The collision design acceleration g_{coll} shall be calculated, as detailed below. If the calculated value of g_{coll} is 3 or above, then Chapter 4 of the High Speed Craft Code, as amended, shall be applied in addition to the requirements of this Code. For lesser values of g_{coll} the requirements of 30.2 – 30.3 shall be applied in addition to the requirements of this Code.

30.1.2 Collision design acceleration g_{coll} shall be calculated as follows:

$$g_{\text{coll}} = 1.2 \left(\frac{P}{g \cdot \Delta} \right), \text{ but not to be taken greater than } 12,$$

where the load P shall be taken as the lesser of P_1 and P_2 , where:

$$P_1 = 460(M \cdot C_L)^{\frac{2}{3}}(E \cdot C_H)^{\frac{1}{2}}$$

$$P_2 = 9000M \cdot C_L(C_H \cdot D)^{\frac{1}{2}}$$

where the hull material factor M shall be taken as:

$M = 1.3$ for high tensile steel

$M = 1$ for aluminium alloy

$M = 0.95$ for mild steel

$M = 0.8$ for fibre-reinforced plastics,

$$C_L = \frac{(165 + L)}{245} \left(\frac{L}{80} \right)^{0.4}$$

where the height factor $C_H = (80 - L)/45$ but not greater than 0.75 or less than 0.3,

where the kinetic energy of the craft at speed V_{imp} is:

$$E = 0.5\Delta \cdot V_{\text{imp}}^2$$

where the main particulars of the craft are:

L = Length means the overall length of the underwater watertight envelop of the rigid hull, excluding appendages, at or below the design waterline in displacement mode with no lift or propulsion machinery active.

D = Depth of the craft from the underside of the keel to the top of the effective hull girder (m)

Δ = Craft displacement, being the mean of the lightship and the maximum operational weight (t)

V_{imp} = Estimated impact speed (m/s) = two-thirds operational speed, where operational speed is 90% of maximum speed.

30.2 Passenger Accommodation

30.2.1 Seating shall be fixed and forward or aft facing.

30.2.2 Passengers shall be requested to remain seated throughout the voyage in the passenger announcement and suitable signs shall be displayed in the passenger accommodation.

30.3 Navigational Equipment

Operators must ensure that the navigational equipment provided is suitable for the intended craft, speed and operating environment. A maritime radar with automatic target tracking (eg Electronic Plotting Aid (EPA), Automatic Tracking Aid (ATA) or Automatic Radar Plotting Aid (ARPA), AIS and ECDIS overlay capability shall be installed if appropriate. The Master shall undertake appropriate training for the specific equipment installed.

ANNEX 1 Liquid Petroleum Gas Installation for Domestic Use

1 Definition

In this section:

“Room-sealed” means an appliance whose combustion system is sealed from the room in which the appliance is located and which obtains air for combustion from a ventilated uninhabited space within the ship or directly from the open air outside the ship and which vents the products of combustion directly to open air outside the ship.

2 General Information

- 2.1 All LPG installations must be inspected and approved initially and annually by a GAS SAFE approved technician and a Certificate provided.
- 2.2 This guidance is based on ISO 10239 and a system constructed to the requirements of this standard or equivalent will be acceptable as long as additionally there is suitable gas detection equipment fitted.
- 2.3 Possible dangers arising from the use of liquid petroleum gas (LPG) open flame appliances in the marine environment include fire, explosion and asphyxiation due to leakage of gas from the installation.
- 2.4 Consequently, the siting of gas consuming appliances and storage containers and the provision of adequate ventilation to spaces containing them is most important.
- 2.5 It is dangerous to sleep in spaces where gas-consuming open-flame appliances are left burning, because of the risk of carbon monoxide poisoning.
- 2.6 LPG is of a greater density than air and, if released, may travel some distance whilst seeking the lowest part of a space. Therefore it is possible for gas to accumulate in relatively inaccessible areas, such as bilges, and diffuse to form an explosive mixture with air, this is also the case with petrol vapours.
- 2.7 A frequent cause of accidents involving LPG installations is the use of unsuitable fittings and improvised “temporary” repairs.

3. Stowage of Gas Cylinders

- 3.1 LPG cylinders, regulators and safety devices shall be stowed on the open deck (where leakage will not accumulate) or in a compartment that is vapour-tight to the ship’s interior and fitted with a vent and drain, so that gas which may leak can disperse overboard.
- 3.2 The vent and drain shall not be less than 19 mm in diameter, shall run to the

outside of the craft and shall terminate 75 mm or more above the 'at rest' waterline. The drain and locker ventilation shall be 500 mm or more from any opening to the ship's interior.

- 3.3 The cylinders and associated fittings shall be positively secured against movement and protected from damage in any foreseeable event.
- 3.4 Any electrical equipment located in cylinder lockers shall be certified safe for use in the potential explosive atmosphere.

4. Cylinders and Attachments

- 4.1 Each system shall be fitted with a readily accessible, manually operated isolating valve in the supply pressure part of the system.
- 4.2 In multiple cylinder installations, in addition to each cylinder shutoff valve there shall be non-return valves near the stop valves. Where there is a changeover device (automatic or manual) it shall be provided with non-return valves to isolate any depleted container.
- 4.3 When more than one container can supply a system, the system shall not be used with a container removed unless the unattached pipe is fitted with a suitable gas tight plug arrangement.
- 4.4 Containers not in use or not being fitted into an installation shall have the protecting cap in place over the container valve.

5. Fittings and Pipework

- 5.1 For rigid pipework systems, the pipes shall be made from solid drawn copper alloy or stainless steel tube. Steel tubing or aluminium or any materials having a low melting point shall not be used.
- 5.2 Connections between rigid pipe sections shall be made with hard solder (minimum melting point 450°C). Where a rigid pipe joins a flexible pipe, appropriate compression joints are recommended.
- 5.3 Where a flexible hose is used, its length shall be kept to a minimum, it shall be protected from inadvertent damage where appropriate, it shall meet the requirement of EN 1763 or equivalent and be installed in a manner that gives access for inspection along its whole length.
- 5.4 There shall be no joints in the pipework in the engine spaces.

6. Appliances

- 6.1 All unattended appliances shall be of the room sealed type.
- 6.2 Cookers and hobs are not considered to be unattended appliances.
- 6.3 All gas burners and pilot flames shall be fitted with a flame supervision device which will shut off the gas supply to the burner or pilot flame in the event of flame failure.
- 6.4 A device shall be fitted in the supply pipe from the gas container to the appliance that will automatically shut off the gas in the event of a loss in pressure in the supply line. Manual resetting of this device must be the only means of restoring the supply.

7. Ventilation

- 7.1 The ventilation requirements of a space containing a LPG appliance shall be assessed against an appropriate standard (e.g. Annex B of ISO 10239) and shall take into account gas burning equipment and persons occupying that space.
- 7.2 Where ventilators required for LPG appliances in intermittent use can be closed, there shall be appropriate signs at the appliance warning of the need to have those ventilators open before the appliance is used.

8 Gas Detection

- 8.1 Suitable means for detecting the leakage of gas shall be provided in a compartment containing a gas-consuming appliance or in any adjoining space or compartment into which the gas, of greater density than air, may seep.
- 8.2 Gas detectors heads shall be securely fixed in the lower part of the compartment in the vicinity of the gas-consuming appliance and other space(s) into which gas may seep. In areas where the detector head is susceptible to damage in the lowest part of the compartment (e.g. engine space bilge) the detector head shall at least be fitted below the lowest point of ignition.
- 8.3 A gas detector system of a suitable type shall, preferably, be actuated promptly and automatically by the presence of a gas concentration in air of not greater than 0.5 per cent (representing approximately 25 per cent of the lower explosive limit). The detection system shall incorporate a visible and audible alarm, which can be heard in the space concerned and the control position with the ship in operation.
- 8.4 Gas detection system components (i.e. gas detector head) likely to be in an explosive air/gas atmosphere shall not be capable of igniting that atmosphere.
- 8.5 In all cases, the arrangements shall be such that the detection system can be tested frequently whilst the ship is in service and shall include a test of the detector head operation as well as the alarm circuit, in accordance with the

manufacturer's instructions.

- 8.6 The detection equipment shall be maintained in accordance with the manufacturer's requirements.

9. Emergency Action

- 9.1 A suitable notice, detailing the action to be taken when an alarm is given by the gas detection system, shall be displayed prominently in the ship.

The information given shall include the following:

- (1) The need to be ever alert for gas leakage; and
- (2) When leakage is detected or suspected, all gas-consuming appliances shall be shut off at the main supply from the container(s). NO SMOKING shall be permitted until it is safe to do so (i.e. the gas leakage has been eliminated and the spaces fully ventilated)
- (3) NAKED LIGHTS SHALL NEVER BE USED AS A MEANS OF LOCATING GAS LEAKS.

10 Owner/Operator Testing

It is strongly recommended that LPG systems are tested for leakage regularly. All connections shall be checked by;

- (1) routine observation of the bubble leak detector (if fitted),
- (2) observation of the pressure gauge for pressure drop with the appliance valves closed and cylinder valve opened then closed (if fitted with gauge on supply pressure side),
- (3) visual inspection,
- (4) manual leak testing, (without breaking into the system),
- (5) testing with soapy water or detergent solution (with appliance-burner valves closed, and cylinder and system valves open). CAUTION – Do not use solutions containing ammonia

If leakage is present, close the cylinder valve and have the system repaired before further use. WARNING – NEVER USE A NAKED FLAME TO CHECK FOR LEAKS.

ANNEX 2 Manning Matrix

1 Introduction

- 1.1 This matrix is designed to calculate the minimum number of crew required to handle a passenger ship effectively and deal with any emergency situation on that ship
- 1.2 Additional staff will be required to ensure the safety of passengers in certain circumstances, including ships holding functions onboard or carrying passengers with special needs. Any event at which passengers are not seated in an orderly fashion may be considered to be a function.
- 1.3 Special consideration shall be given to ships carrying rescue boats or ships passing through lock gates. Additional crew will be required to man rescue boats and operate the lock gates; the additional number of crew shall be ascertained by risk assessment.

2 Contributing Factors

The matrix considers the following factors when determining the appropriate number of crew for a passenger ship. This is driven primarily by the need to ensure that all passengers can be kept informed and remain under supervision in the event of an emergency.

Passenger numbers It must be possible to inform, instruct and control all passengers with the crew available.

Survivability standard In the event of a collision or other failure of the hull structure this will determine the likelihood of having to evacuate the ship.

Nocturnal operation Communication with passengers over distance will be more difficult at night with greater scope for confusion. The availability of, and response time from, other ships will differ from that during the day.

Number of passenger

Decks This affects the ability of passengers to hear or see instructions and reassurance from crew and rescue services, as well as the ability to ensure the ship is cleared of crew and passengers.

LSA	In the event of an evacuation there must be sufficient crew to direct and assist passengers and operate the LSA fitted to the ship in the correct manner. Only the liferafts needed to carry the total persons on board need be counted for establishing the weighting for LSA: the additional raft required in the event of “any one raft being lost or rendered unserviceable” need not be counted.
Fire fighting	In the event of a fire the number of crew required to operate equipment, availability of fixed systems and handling of pumps and hoses etc.
Function	This takes into account the distribution of passengers, and the effects as appropriate of noise and alcohol, which will reduce the ability of crew to attract and keep the attention of passengers.
Area of operation	This will affect the availability of rescue services, and the availability of assistance from other ships.

3 Use of the matrix

In order to achieve a minimum manning level for a particular ship, the table below needs to be consulted using the following procedure -

- (1) Work down the table, matching each variable to applicable weightings.
- (2) Total up the weightings for each of the variables.
- (3) Use the sum of all the weightings in the index table to achieve the proposed minimum crew numbers required.

Ships which have varying manning modes of operation due to additional risks involved e.g. Day/night or passenger numbers shall be calculated separately for each mode.

4

Matrix Table

Variable	Weighting	
Number of Passengers	<u>Passenger Numbers</u>	<u>Weighting</u>
	<60	8
	61-100	12
	101-150	16
	151-200	24
	201-300	32
	301-400	40
	>401	Refer to MCA
Survivability	<u>Type</u>	<u>Weighting</u>
	2 compartment	8
	1 compartment	16
	Buoyancy test	20
Day/night operation	<u>Time</u>	<u>Weighting</u>
	Day	8
	Night	16
Functions		<u>Weighting</u>
	No	0
	Yes	10
LSA	<u>Liferafts</u>	<u>Weighting</u>
	1	4
	2	8
	3	12
	4	16
	5	20

	6	24
	>7	Refer to MCA
Number of passenger decks	<u>Decks</u>	<u>Weighting</u>
	1	4
	2	8
	3	12
Area of operation	<u>Class of Ship</u>	<u>Weighting</u>
	D	16
	C	24
	B(restricted)	24

The resultant index for individual ships is translated into the number of crew as follows:-

<u>Index</u>	<u>Number of Crew</u>
77 and Under	2
78-98	3
99-110	4
111-130	5
131 and over	6

ANNEX 3 Staff Induction and Familiarisation Training

1 Familiarisation Training

Familiarisation training is a requirement for all personnel serving in any capacity onboard these ships. All new personnel shall undergo familiarisation training prior to operating as a crew member onboard the ship.

FAMILIARISATION TRAINING
Communicate in English with other persons on board on elementary safety matters
Understand safety information symbols, signs and alarms
Know how to operate emergency lighting systems and equipment
Know how to operate the ship's public address (P.A.) system
Know what to do if a person falls overboard
Know what to do if fire or smoke is detected
Know what to do if the fire or abandon ship alarm is sounded
Identify muster points, assembly and embarkation stations
Identify emergency exits and escape routes
Locate lifesaving appliances and demonstrate ability to don lifejackets
Raise the alarm and have a basic knowledge of the use and types of portable extinguishers
Take immediate action upon encountering an accident or other medical emergency, before seeking further medical assistance on board
Close and open the fire, weathertight and watertight doors fitted in the particular ship, other than those for hull openings
Additional requirements if designated to assist passengers in an emergency
Awareness of life saving appliances and control plans, including:
Knowledge of emergency procedures including chain of command
Knowledge of muster lists and emergency instructions

Knowledge of emergency exits
The ability to assist passengers enroute to muster and embarkation stations, including:
The ability to give clear reassuring orders in English
The control of passengers in corridors, staircases and passageways
Maintaining escape routes clear of obstructions
Methods available for evacuation of disabled persons or persons needing special assistance
Search of accommodation spaces
Mustering procedures, including:
The importance of keeping order
The ability to use procedures for reducing and avoiding panic
The ability to carry out, where appropriate, evacuation counts
The ability to ensure that passengers are suitably clothed
The ability to ensure that passengers have donned their lifejackets correctly
Crowd Management Training Certificate (STCW Section A-V/3 and V/2)

2 Competent Crew Training

Competent Crew training is the minimum level of training that a person shall receive before being recognised as part of the permanent crew for the purpose of the minimum manning recorded on the Passenger Certificate

COMPETENT CREW TRAINING
1. Familiarisation Training Completed
2. Location and use of Lifesaving Appliances*
Knowledge of abandon ship procedures
The difference between a lifejacket and buoyancy aid
The correct method of fitting a lifejacket and buoyancy aid
Man overboard procedures including deployment of lifebuoy and raising the alarm

Demonstrate knowledge of the location and use of lifesaving equipment carried on the ship
Identify markings on liferafts (or other survival equipment) with regards to number of occupants
Personal Survival Techniques Certificate (STCW Table A-VI/1-1)
3. Location and use of Fire Fighting Appliances*
Operation of alarm bells
Knowledge of ship fire procedures
Under supervision, operation of fire pump and hoses
Knowledge of the location and use of firefighting equipment carried on the ship
Identify differing types of fire extinguisher and what type of fire each would be used on
Use of ancillary equipment as carried (foam applicators etc.)
Fire Prevention & Fire Fighting Certificate (STCW Table A-VI/1-2)
4. Action in event of emergency*
Means of recovery of person(s) from the water
Action in event of collision at operational level
Prepare a liferaft or other survival craft for launching
Man overboard procedures including dropping of lifebuoy and raising the alarm
Method used to indicate the ship is in need of urgent assistance and to summon help
Personal Survival Techniques Certificate (STCW Table A-VI/1-1)
5. Personal Safety & Social Responsibility
Observe Safe Working practices
Comply with Emergency Procedures
Contribute to effective human relations on board
Take precautions to prevent pollution of the marine environment
Understand orders and be understood in relation to shipboard duties
Personal Safety & Social Responsibility Certificate (STCW Table A-

VI/1-4)
6. Seamanship
A working knowledge of nautical terms
Demonstrate knowledge of the general layout of the ship
Knowledge of bends and hitches commonly used on board
Correct use of ropes and rigging of fenders
Handling, care and use of fibre and steel ropes
Handling, care and stowage of chains and anchors
Handling, care and use of mooring lines
Assist in mooring and letting go a chip
Assist in opening, closing and securing of doors, ramps and other hatches and access ways
Use of Locks and Swing bridges
Be able to safely rig a gangway, over side ladder and/or accommodation ladder
Understand helm orders and be able to steer a course under direction
Understand the duties of lookout and the reporting of lights and objects
Basic understanding of the collision regulations (carriage of lights, shapes and sound signals)
Efficient Deck Hand (EDH) Certificate
7. Responsibilities and Regulations
Basic understanding of an employee's obligations
Reporting defects and mechanical/electrical faults
Understand onboard line of responsibility and communications
Requirements for reporting accidents and incidents to the master or responsible person on board
8. Code of Safe Working Practices
Understand the risks of falling into the water
Understand the importance of work place cleanliness
Demonstrate the use and care of personal protective equipment

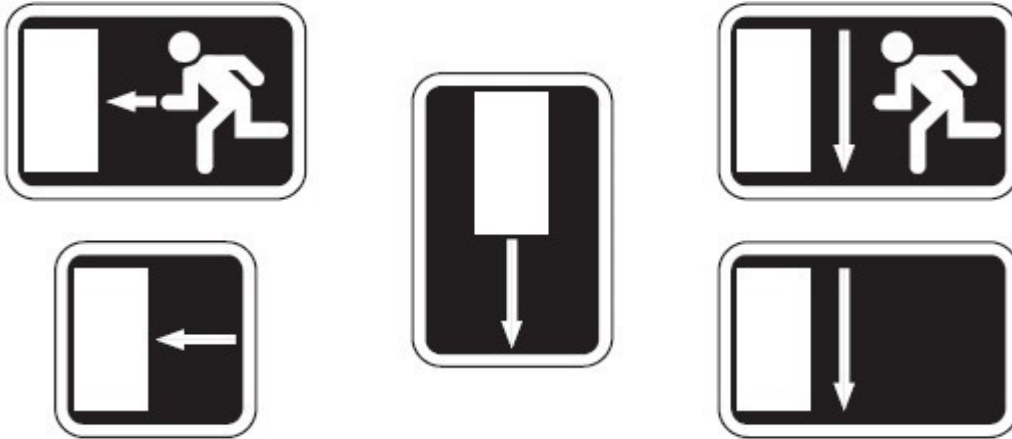
Understand the principles for protection of the environment from pollution
Understand the methods for the prevention of accumulation of rubbish and debris
Precautions to be taken when using calor gas installations and use of gas alarms and testing
Understand the principles of a confined space and the precautions to be taken prior to entry
9. Communications
Knowledge of external means of communication available on board the ship
Knowledge of internal means of communication available on board the ship
10. Passenger Care & Control
Passenger safety briefing
Passenger counting and number recording procedures
Duties with respect to passenger muster and evacuation at operational level
11. Company/Job Specific Training (To Develop at Company Level as required)

* Items in italics are required prior to operating as a crew member, remainder to be completed within six weeks of being on board.

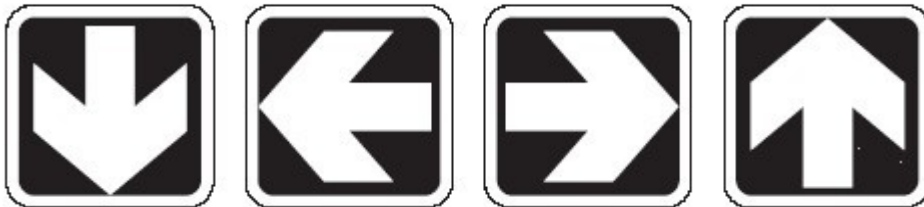
Where STCW certificates are identified these would provide appropriate training but are not mandatory, provided an equivalent level of training is undertaken.

ANNEX 4 Safety Signs Onboard

1.1 Exit signs



Emergency exit/escape route



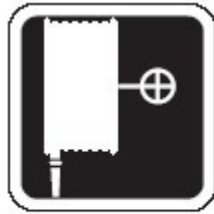
This way
(supplementary information sign)



First-aid post

1.2

Firefighting signs



Fire Hose



Ladder



Fire
extinguisher



Emergency fire
telephone

1.3

Symbols related to Life Saving Appliances



LIFEBOAT



RESCUE BOAT



LIFERAFT



DAVIT-LAUNCHED
LIFERAFT



EMBARKATION
LADDER



EVACUATION
SLIDE



EVACUATION
CHUTE



LIFEBUOY



1.4 Colour of Safety Signs

Colour	Meaning or purpose
Red	Prohibition sign Danger alarm Fire-fighting signs
Green	Emergency escape, first aid signs & signs related to Life Saving Appliances

1.5

Additional Signage

Any additional signage shall:

- Use clear fonts
- Be of an appropriate character size
- Where possible use pictograms rather than text signage. Pictograms shall be in accordance with ISO standards or common practice where an appropriate standard does not exist.
- Be in a colour which contrasts with the background against which it is seen, and the characters on the sign shall contrast with the sign board.

ANNEX 5 Equipment Standards

	Standard
<p>Construction & Structural Strength:</p> <p>Hull construction</p>	<p>Classification Society Rules and Regulations or relevant Certifying Authority requirements, as appropriate to the design and operation of the ship shall be applied.</p>
<p>Windows and side scuttles</p>	<p>Glass thickness shall be in accordance with classification society rules or in accordance with Lloyds Register special service craft rules.</p> <p>Glass must be toughened safety glass.</p>
<p>Machinery:</p> <p>Machinery installations</p>	<p>Classification Society Rules and Regulations or relevant Certifying Authority requirements, as appropriate to the design and operation of the ship shall be applied.</p>
<p>Flexible hoses conveying oil or fuel oil: Pipes & fittings, valves and flexible pipe assemblies.</p>	<p>MED approved</p> <p>BS EN ISO 15540:2001 Ships and marine technology. Fire resistance of hose assemblies. Test methods .</p>
<p>Electrical Arrangement:</p> <p>Electrical installations</p>	<p>Classification Society Rules and Regulations or relevant Certifying Authority requirements, as appropriate to the design and operation of the ship shall be applied; or individual requirements below.</p> <p>BS 8450:2006 - Code of practice for installation of electrical and electronic equipment in ships</p>
<p>Daylight signalling lamp</p>	<p>MED approved</p>
<p>Emergency lighting including low location lighting components</p>	<p>MED approved</p>
<p>Lifesaving Appliances:</p> <p>Liferafts: ORILs Other types</p>	<p>MCA approved</p> <p>MED approved</p>

Launching appliances using davits	MED approved
Rescue boat	MED approved
Buoyant apparatus	MCA Approved
Lifebuoys:	MED approved
Lifebuoys with self-activating smoke signals	MED approved
Position-indicating lights for life-saving appliances	MED approved
Lifejackets	MCA approved, MED approved or BS EN 394 and 396:1994
Buoyancy Aids	BS EN 395:1994 (CEN 100N Standard) or MCA approved
Child lifejackets	MED approved
Pyrotechnics/Line-throwing appliances	MED approved
MES systems	MED approved
Public address/General alarm system	No detailed testing standards
Means of Recovery of persons from the water	MCA approved
Retro-reflective material	MED approved
Fire Safety:	
Fire Safety Systems	Fire Safety Systems (FSS) Code
Portable fire extinguishers	MED approved or BS EN 3 Part 1 to 6;1996
Fixed fire extinguishing system - sprinkler systems	MED approved
CO2 firefighting systems	MED approved
Fixed fire detection and fire alarm system components	MED approved

Fire hoses & nozzles	MED approved
Deep fat cooking equipment fire extinguishing systems components (automatic or manual)	MED approved
Miscellaneous Equipment: Anchors & chain cables	Classification Society Rules and Regulations or relevant Certifying Authority requirements, as appropriate to the design and operation of the ship shall be applied or, where special consideration may be necessary due to the operation of the ship, approval should be sought from the MCA
Radio Equipment: Transceiver (Fixed) Facility	MED approved
DSC Facility	MED approved
Watchkeeping facility	MED approved
Survival Craft Two Way VHF Radio	MED approved, ETSI EN 300 225 V1.4.1 (2004-12) "European Standard (Telecommunications series) Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and methods of measurement for survival craft portable VHF radiotelephone apparatus."
Navigation: Navigation lights	MED Approved.
Compass	MED approved
GPS	MED approved
Radar	MED approved
Echo sounder	MED approved
Radar reflector	MED approved
Automatic Identification System (AIS)	MED Approved

Category A Machinery Spaces - Fire Extinguishing Systems Fixed pressure water spraying system	MED approved
Fixed gas fire extinguishing system	MED approved
High expansion foam system	MED approved
Additional requirements for planing and semi-displacement passenger ships:	Chapter 4 of the High Speed Craft Code

ANNEX 6 Applicable Legislation and Guidance

This Appendix provides an indicative list of the Merchant Shipping Regulations applicable at the time of publication of this Code. Other regulations may be in force, and may come into force which will also apply to Passenger Ships operating solely on categorised waters. Legal advice should be sought for clarification on whether a Statutory Instrument applies to a particular vessel. It is the responsibility of the owner/managing agent and skipper to ensure that they are complying with the relevant applicable legislation.

	Guidance
Life-saving Appliances:	
Hydrostatic release units	MGN 343 M+F (2007) - Hydrostatic Release Units (HRU) - Stowage and Float Free Arrangements for Inflatable Liferafts
Infant & oversized lifejackets	MGN 329 M (2006) - Lifejackets Infant and Oversized Passengers
Retro-reflective material	MGN 105 (M + F) - Use and Fitting of Retro-Reflective Material on Life-Saving Appliances
Fire Safety:	
Procedure for testing and approval of fire protection media for use with composite and wooden materials	MGN 407 Procedure for Testing and Approval of Fire Protection Media for Use with Composite and Wooden Materials MGN 276 Fire Protection – Maintenance of Portable Fire Extinguishers MGN 354 Fishing and Small Vessels - Safe Operation of Fixed CO2 Gas Fire Extinguishing Systems MGN 389 Operating Instructions and Signage for Fixed Gas Fire-Extinguishing Systems
Use of barbeques & pig roasts	MGN 406 M+F (2010) - Use of barbeques (bbqs) and pig roasts on ships and fishing vessels
Navigation:	
Radar reflectors	MGN 349 (2007) - Carriage and Use of Radar Reflectors on Small Vessels
Tracking Electronic Header Devices ("Fluxgate	IMO Res. MSC.86(70)

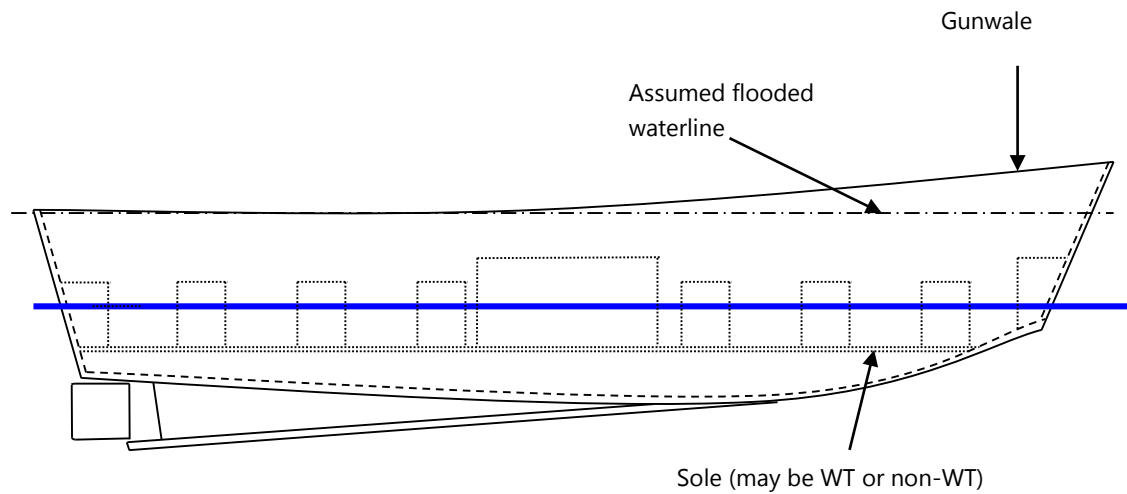
Compass")	
Boatmasters Licence and Hours of Work Crew Regulations	The Merchant Shipping (Boatmasters' Qualifications, Crew and Hours of Work) Regulations 2015, SI 2015/410 MSN 1853 (M) The Merchant Shipping (Boatmasters' Qualifications, Crew and Hours of Work) Regulations 2015 – Structure and Requirements
General Safety: Health & safety at work	MGN 20 M+F - Implementation of EC Directive 89/391 Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997. SI 1997 No 2962.
Safety Management System	Ships complying with the Safety Management System requirements of Section 20 of the Code may find additional guidance in MSN1869 (M) and MGN 158 (M) helpful. Ships complying with the ISM Code may refer to The Merchant Shipping (International Safety Management (ISM) Code) Regulations 2014, SI 2014/1512.
Risk Assessment	Code of Safe Working Practices for Merchant Seamen (COSWP), Chapter 1.
Accident Reporting	The Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, SI 2012/1743
Meeting the needs of disabled people	Disabled Persons Transport Advisory Committee: The design of large passenger ships and passenger infrastructure: Guidance on meeting the needs of disabled people (2000) - (http://www.dptac.gov.uk/pubs/guideship/index.htm) Marine Guidance Note MGN 306 – Designing and Operating Smaller Passenger Vessels: Guidance on Meeting the Needs of Person with Reduced Mobility
Posters and signage	The Merchant Shipping and Fishing Vessels (Safety Signs and Signals) Regulations 2001
Health and Safety at Work	The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, (SI 1997/2962).
General health and safety regulations	
	The Merchant Shipping (Means of Access) Regulations (SI 1988 No 1637), as amended The Merchant Shipping (Entry into Dangerous Spaces)

	<p>Regulations (SI 1988 No 1638), as amended</p> <p>The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Employment of Young Persons) Regulations (SI 1998 No 2411) , as amended</p> <p>The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations (SI 1998 No 2857), as amended</p> <p>The Merchant Shipping and Fishing Vessels (Personal Protective Equipment) Regulations (SI 1999 No 2205)</p> <p>The Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations SI 2006 No 2183)</p> <p>The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations, SI 2006 No 2184.</p> <p>The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Biological Agents) Regulations 2010, SI 2010 No 323.</p> <p>The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Chemical Agents) Regulations 2010, SI 2010 No 330.</p> <p>The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Work at Height) Regulations 2010, SI 2010 No 332, as amended.</p> <p>The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Asbestos) Regulations 2010, SI 2010 No 2984, as amended.</p> <p>The Merchant Shipping (Health and Safety at Work) (Artificial Optical Radiation) Regulations 2010, SI 2010 No 2987, as amended.</p>
Safe Movement of Passengers and Crew	The Merchant Shipping (Safe Movement on Board Ship) Regulations, as amended, SI 1988 No 1641.
Crew accommodation	The Merchant Shipping (Maritime Labour Convention) (Minimum Requirements for Seafarers, etc) Regulations 2014, SI 2014/1613, MSN1844 and MGN481
Noise	Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulations 2007, SI 2007 No. 3075
Vibration	Merchant Shipping and Fishing Vessels (Control of

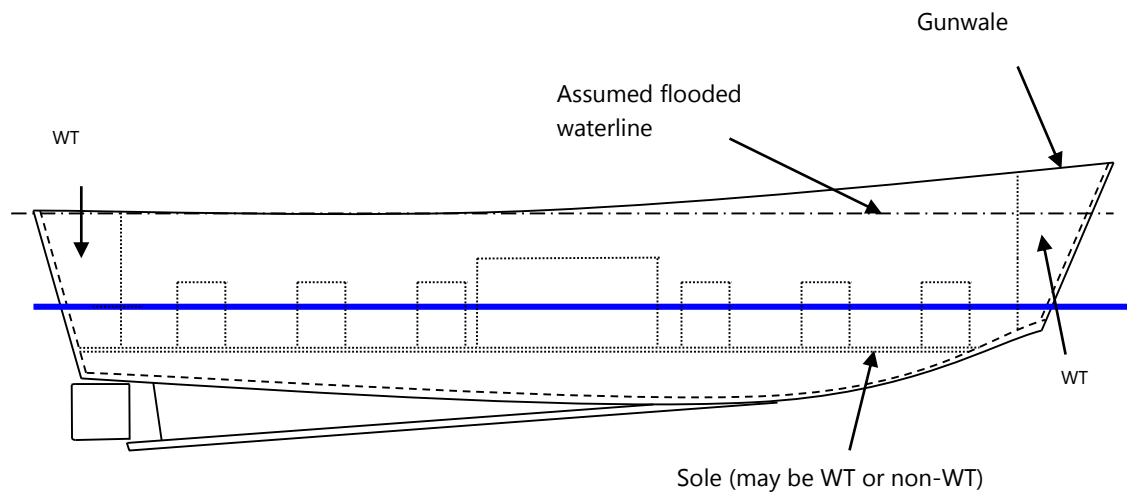
	Vibration at Work) Regulations 2007, SI 2007 No. 3077
Smoking	The Public Health Act 2006, Merchant Shipping Act 1995
First aid kits	Merchant Shipping Notice MSN 1768 - Ship's Medical Stores
Alcohol licensing	The Licensing Act 2003 The Licensing (Scotland) Bill 2005 The Licensing (Northern Ireland) Order 1996
Hours of work provisions	The Merchant Shipping (Hours of Work) Regulations 2002, SI 2002/2125 The Merchant Shipping (Working Time: Inland Waterways) Regulations 2003, SI 2003 No 3049. MSN 1778 (M) - Application of the Merchant Shipping (Working Time: Inland Waterways) Regulations 2003
Alcohol and drugs	The Railways and Transport Safety Act 2003, Sections 81 – 86
Pollution Prevention: Garbage management	MSN 1807 (M+F) - The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, SI 2008 No 3257.
Sewage waste	MSN 1807 (M+F) - The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, SI 2008 No 3257.
Sulphur content of fuel	Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008, SI 2008 No. 2924.
Engine emissions	Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008, SI 2008 No. 2924.
Oil/Oily waste	Merchant Shipping (Prevention of Oil Pollution) Regulations 1996, SI 1996 No. 2154.
Antifouling paints	Regulation EC 782/2003 of the European Parliament and of the Council of 14 April 2003. The prohibition of organotin compounds on ships.
Port Waste Reception Facilities	Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities Regulations) 2003, SI 2003 No 1809, as amended.

Dangerous Cargoes and Marine Pollutants	Merchant Shipping (Dangerous Goods and Marine Pollutant) Regulations 1997, SI 1997 No 2367)
Miscellaneous Mandatory Passenger counting and registration	MSN 1794 (M+F) - Counting and registration of persons on board passenger ships The Merchant Shipping (Counting and Registration of Persons on Board Passenger Ships) Regulations 1999, SI 1999 No. 1869
Ro-Ro Passenger Vessels Safety Equipment Lockers Stockholm Stability Compliance	SI 1988 No. 2272 - The Merchant Shipping (Emergency Equipment Lockers for Ro/Ro Passenger Ships) Regulations 1988 SI 2004 No. 2884 - The Merchant Shipping (Ro-Ro Passenger Ships) (Stability) Regulations 2004

ANNEX 7 - Open Boat Diagrams



Note: The inherent (built-in) buoyancy of the ship above comprising the buoyancy (below the assumed flooded waterline) of the shell, structure, engine, tanks, seats and their supporting structure, fittings etc., may be taken into account when assessing the required buoyancy.



Note: In the case above, provided the spaces at the forward and after end of the ship are watertight, the part of their volume below the assumed flooded waterline, can also be included in the buoyancy.



Vessel Standards Branch
Maritime and Coastguard Agency
Bay 2/30
105, Commercial Road
Southampton SO15 1EG

Tel: +44(0)23 8032 9100
Fax: +44(0)23 8032 9104
Email: Shipping.Safety@mca.gov.uk
www.Gov.uk/mca